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Semiannual Groundwater Monitoring Report Basewide Groundwater Sampling, Well Installation, and Well Abandonment (August 2014)

Former Mare Island Naval Shipyard Vallejo, California

December 2014

Prepared for:
Department of the Navy
Base Realignment and Closure
Program Management Office West
San Diego, California

Prepared by:
Construction Engineering Services, LLC
11325 Random Hills Road, Suite 210
Fairfax, Virginia 22030-6068

Prepared under:
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Fairfax, Virginia 22030-6068
(703) 912-2903

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Submitted by:
Construction Engineering Services, LLC

Signature	December 5, 2014 Date
Heather Wollenburg Name	Project Manager Title
Signature	December 5, 2014 Date
Doug Bielskis, PE Name	CES Program Manager Title

Executive Summary

Construction Engineering Services, LLC (CES), a limited liability corporation established as a joint venture between J.M. Waller Associates, Inc. (J.M. Waller), and Engineering/Remediation Resources Group, Inc. (ERRG), prepared this Semiannual Groundwater Monitoring Report on behalf of the Department of the Navy (Navy), under Contract No. N62473-11-D-2215, Contract Task Order No. 0004. This report summarizes the results of the August 2014 groundwater monitoring activities conducted as part of the Basewide Groundwater Monitoring Program (BGMP) located at the former Mare Island Naval Shipyard (Mare Island) in Vallejo, California.

Monitoring activities were performed at Building 742, Former Degreasing Plant (FDP); Defense Reutilization and Marketing Office (DRMO) South Site; and Installation Restoration Site 04 (IR04) during this event. Tasks included measuring groundwater elevations; collecting representative groundwater samples from selected wells; analyzing the samples for contaminants of concern; performing third-party data validation; and compiling, tabulating, analyzing, and presenting the results in this report. Monitoring activities were performed in accordance with the "Final Work Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California" (CES, 2014a) and "Addendum 1 to the Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment, Former Mare Island Naval Shipyard, Vallejo, California" (CES, 2014b).

In August 2014, CES conducted groundwater monitoring at Mare Island. Monitoring at Building 742, FDP included measuring groundwater elevations at four wells. Monitoring at DRMO South Site included measuring groundwater elevations and collecting groundwater samples at one well. Monitoring at IR04 included measuring groundwater elevations and collecting groundwater samples at 14 wells. Each groundwater sample was analyzed for one or more of the following analytes: volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons as diesel (TPH-d), dissolved metals, hexavalent chromium, and total dissolved solids (TDS). Analytical results were screened against project action limits (PALs) listed in the SAP (CES, 2014a) and Addendum 1 to the SAP (CES, 2014b). In addition, six wells at the Former UST 993-4 Site were sampled during this event and then abandoned. The work and resulting data at the Former UST 993-4 Site will be presented in a separate document (i.e., the Revised Draft Final Closure Report Former UST 993-4 Site [CES, 2014c]).

At the DRMO South Site, the concentration of TDS exceeded the PAL in the primary and duplicate samples collected from monitoring well 01W56. At IR04, detected concentrations of dissolved metals (arsenic, cobalt, nickel, manganese, selenium, and/or thallium) exceeded respective PALs in thirteen wells sampled; concentrations of the SVOC bis(2-ethylhexyl) phthalate exceeded the PAL in one well; and TPH-d concentrations exceeded the PAL in three wells.

The analytical results of this monitoring event were evaluated to determine if the BGMP required optimization. Based on this evaluation, no adjustments to the list of wells, analytes, or sampling frequency are recommended at this time.

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Abbreviations and Acronyms

amsl	above mean sea level
BGMP	basewide groundwater monitoring program
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CES	Construction Engineering Services, LLC
COCs	chemicals of concern
COPCs	chemicals of potential concern
CQC	Contractor Quality Control
Cr(VI)	hexavalent chromium
DOD	Department of Defense
DOT	U.S. Department of Transportation
DRMO	Defense Reutilization and Marketing Office
DQA	data quality assessment
EPA	U.S. Environmental Protection Agency
ERRG	Engineering/Remediation Resources Group, Inc.
FDP	Former Degreasing Plant
ft	feet
IA	Investigation Area
IDW	investigation-derived waste
IR	Installation Restoration
IR04	Installation Restoration Site 4
J.M. Waller	J.M. Waller Associates, Inc.
L	liter
LDC	Laboratory Data Consultants, Inc
LOQ	limit of quantitation
Mare Island	former Mare Island Naval Shipyard
mg/L	milligrams per liter
µg/L	micrograms per liter
MS/MSD	matrix spike/matrix spike duplicate

Abbreviations and Acronyms *(continued)*

NAD	North American Datum
NAVD	North American Vertical Datum
Navy	Department of the Navy
NTCRA	non-time-critical removal action
PAHs	polycyclic aromatic hydrocarbons
PAL	project action limit
PA/SI	Preliminary Assessment/Site Investigation
PCBs	polychlorinated biphenyls
PPE	personal protective equipment
PWA	Paint Waste Area
QA	quality assurance
QC	quality control
RI	Remedial Investigation
RPD	relative percent difference
RPM	Remedial Project Manager
SAP	Sampling and Analysis Plan
SBM	sandblast material
SIM	Selective Ion Monitoring
SOPs	standard operating procedures
SSA	South Shore Area
SVOCs	semi-volatile organic compounds
SWMU	Solid Waste Management Unit
TCRA	time-critical removal action
TOC	top of casing
TPH	total petroleum hydrocarbon
TPH-d	total petroleum hydrocarbon as diesel
USA North	Underground Service Alert Northern California
UST	Underground Storage Tank
UXO	Unexploded Ordnance
Water Board	San Francisco Regional Water Quality Control Board
WP	Work Plan
VOCs	volatile organic compounds

Section 1. Introduction

Construction Engineering Services, LLC (CES), a limited liability corporation established as a joint venture between J.M. Waller Associates, Inc. (J.M. Waller), and Engineering/Remediation Resources Group, Inc. (ERRG), has prepared this Semiannual Groundwater Monitoring Report on behalf of the Department of the Navy (Navy). This report summarizes the results of the groundwater monitoring activities conducted in August 2014 at the former Mare Island Naval Shipyard (Mare Island) in Vallejo, California (Figure 1).

The Basewide Groundwater Monitoring Program (BGMP) at Mare Island was established to collect and report groundwater monitoring data in support of ongoing environmental restoration efforts at multiple sites. Building 742, Former Degreasing Plant (FDP); Defense Reutilization and Marketing Office (DRMO) South Site; Former UST 993-4; Installation Restoration Site 04 (IR04); Paint Waste Area (PWA); Former Underground Storage Tank (UST) 993-4 Site; Unexploded Ordnance (UXO) 3 – Dredge Pond 3E, Northern Marine Corps Firing Range; and UXO 7 – South Shore Area (SSA) are all included in the BGMP, which is being addressed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) framework. While the BGMP includes all sites mentioned above, only sites monitored during this event (Building 742 FDP, DRMO South Site, and IR04) are included in this report. Six wells at the Former UST 993-4 Site were sampled during this event and then abandoned. The work and resulting data at the Former UST 993-4 Site will be presented in a separate document (i.e., the Revised Draft Final Closure Report Former UST 993-4 Site [CES, 2014c]).

This semiannual groundwater monitoring report has been composed as part of the BGMP and will provide data to monitor and document changes to the program. Laboratory analytical results will be evaluated to optimize the BGMP to determine which wells should be included or excluded in subsequent monitoring events based on detections or lack thereof.

1.1. SCOPE OF WORK

The BGMP was designed to collect samples to assess concentrations of chemicals of concern (COCs) in groundwater at the sites. Monitoring activities included: measuring groundwater elevations; collecting representative groundwater samples from selected wells; analyzing the samples for COCs; performing third-party data validation; and compiling, tabulating, analyzing, and presenting the results in a report. Monitoring activities were performed in accordance with the "Final Work Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California" (CES, 2014a), which included the sampling and analysis plan (SAP) for groundwater sampling, Addendum 1 to the SAP (CES, 2014b).

1.2. REVISIONS TO BGMP

The "Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment, Former Mare Island Naval Shipyard, Vallejo, California" (CES, 2014a) was designed to utilize a dynamic work strategy, with input from the Navy and regulators, through which the well lists and sampling/measurement frequencies are revised as needed to be consistent with CERCLA documents, or professional judgment when activities are not specified in CERCLA documents. A summary of the revisions for this reporting period are described in the following sections.

1.2.1. Well Sampling List Revisions

Table 2, BGMP Initial Groundwater Monitoring Well List, of the Work Plan (CES, 2014a) included a total of 30 existing wells and 11 proposed wells. The existing wells were scheduled to be sampled during the first event. The proposed wells were not installed at the time of this event, therefore they were not sampled. Four of the existing wells from this list (04W13, 04W20, 04W21, and 04W22) were not sampled as the Navy indicated they would be sampled by others during the first event. These four wells may be included in future BGMP semiannual monitoring events.

Five wells at Building 742, FDP were not sampled during this event. While conducting groundwater elevation measurements, one of these wells (D1C85W02R) could not be located. The Navy Remedial Project Manager (RPM) was notified of the situation on August 12, 2014. Upon communicating this issue to the Navy RPM, the Navy project team indicated that these five wells should not be sampled during this event based on the potential for sample collection to interfere with recent injection and passive diffusion sampling performed under another contract. As a result, groundwater elevations were measured at four wells at Building 742, FDP, and none of the five wells were sampled during this semiannual monitoring event. These wells may be included in future BGMP semiannual monitoring events. A total of 21 wells were monitored this event of the planned 30.

1.2.2. Target Analyte Revisions

CES prepared the "Final Addendum to the Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment, Former Mare Island Naval Shipyard, Vallejo, California" (CES, 2014b) to revise the applicable worksheets to include information on sample collection and laboratory analysis of hexavalent chromium (Cr[VI]) in select groundwater monitoring wells from IR04. Worksheet #18 of the original SAP identified that groundwater samples from select IR04 wells would be analyzed for Cr(VI); however, Cr(VI) was omitted from all other worksheets pertaining to analytical requirements. The addendum corrected that deficiency. All groundwater samples for analysis of Cr(VI) were collected as described in Worksheet #14 in the original SAP (CES, 2014a).

1.2.3. Depth to Water Measurement Revisions

As previously stated in Section 1.2.1, IR04 wells 04W13, 04W20, 04W21, and 04W22 were sampled by others during the first event and, as a result, groundwater elevation measurements were not collected during this event. At Building 742, FDP, well D1C85W02R could not be located; therefore, a depth to water measurement was not collected at this well.

1.2.4. Sampling Frequency Revisions

No revisions to sampling frequencies were made in the current reporting period.

1.2.5. Future Revisions to BGMP

The Navy will conduct optimization of the monitoring program at appropriate milestones in the BGMP process (e.g., in response to new or revised CERCLA documents, and at periodic intervals following groundwater monitoring events). This includes evaluating the well field configuration, target analytes, and sampling frequency. Laboratory analytical results will be evaluated to optimize the BGMP to determine which wells should be included or excluded in subsequent monitoring events based on detections or lack thereof. Additional well list revisions may include monitoring required for specific data objectives. No changes to the BGMP are recommended at this time since this was the first event and adequate data has not been gathered to enable BGMP optimization.

1.3. DOCUMENT ORGANIZATION

This semiannual groundwater monitoring report is organized into the following sections:

- Section 1 – Introduction
- Section 2 – Site Background
- Section 3 – Groundwater Monitoring Field Activities
- Section 4 – Laboratory Data Analysis and Validation
- Section 5 – Groundwater Monitoring Results
- Section 6 – Summary and Recommendations
- Section 7 – References

Additionally, the following documents and information are appendices to this report:

- Appendix A presents a photographic log of field activities
- Appendix B contains field forms including sampling logs and health and safety forms
- Appendix C contains waste management documentation
- Appendix D presents analytical data reports

- Appendix E presents data validation reports.

Section 2. Site Background

This section describes the location of Mare Island and briefly describes each site currently requiring groundwater monitoring under the BGMP, including physical characteristics, operational history, and environmental condition.

2.1. MARE ISLAND NAVAL SHIPYARD LOCATION

Mare Island is located on a peninsula that is approximately 3.5 square miles in Solano County, approximately 30 miles northeast of San Francisco, California (Figure 1). Mare Island is bordered by San Pablo Bay to the west, the Napa River to the east, and the Carquinez Strait to the south. Mare Island is separated from the city of Vallejo by the Mare Island Strait, a portion of the Napa River. The primary entrance to Mare Island is through a causeway located at Tennessee Street and Wilson Avenue, and the secondary entrance is from Highway 37 at the north end of the island (Battelle, 2010).

2.2. PHYSICAL SETTING

The following subsections describe the general geology, hydrology, topography and biological conditions, weather, potential exposure pathways, and future land use for Mare Island.

2.2.1. Geology

Mare Island has been reformed from an island into a peninsula through dredge and fill operations. The original island was approximately 1,000 acres of area and 300 acres of surrounding wetlands (Trevet, 2014). Historical Navy maps indicate that the original island was composed of bedrock outcrop surrounded by tule marshes. The placement of dredging spoils increased the footprint of the island to the north and west to form the current contours (CE2 Kleinfelder, 2014). In general, three geologic units (listed from top to bottom) are present at Mare Island:

- Artificial fill material (heterogeneous layer consisting of dredged material – clay, silt, sand, and debris in varied proportions).
- Unconsolidated natural deposits (silty clays [commonly referred to as Young Bay Mud] and fine-grained material from weathering of bedrock).
- Bedrock (weathered sandstone, siltstone, and shale).

The artificial fill layer ranges in depth from 3 to 14 feet below ground surface (bgs), averaging a thickness of 6 feet. Younger Bay Mud has been observed from 7 to 9 feet bgs up to 50 feet bgs (CE2 Kleinfelder, 2014; Trevet, 2014).

Mare Island has three primary water-bearing zones: shallow, intermediate, and deep. The shallow water-bearing zone includes both the artificial fill and naturally deposited material that is intersected by the water table. Both the intermediate and deep zones correspond to the intermediate and lower sands located in the natural sediments below the artificial fill layer. The shallow unconfined water-bearing zone was identified as extending from the water table to 28 feet bgs (Battelle, 2010).

Groundwater ranges from 2 to 8 feet bgs and groundwater flow direction, based on water levels measured in monitoring wells in surrounding areas, indicates flow direction varies seasonally across the site. Groundwater depth fluctuates approximately 3 feet with seasonal variations. The shallow water aquifer has low groundwater yields and naturally high salinity (CE2 Kleinfelder, 2014; Trevet, 2014).

2.2.2. Topography and Biological Conditions

Mare Island includes an area of approximately 5,400 acres, where 1,400 acres are dry land and 3,000 acres are a combination of tidal and nontidal wetlands and dredge sediment ponds. Several habitats are present at Mare Island: disturbed uplands, tidal mudflats, seasonal and tidally influenced wetlands, exposed shoreline, and open tidal waters. In the wetland habitats, tidal and nontidal areas support the growth of coastal salt marsh vegetation and pickleweed (*Salicornia pacifica*) marsh habitat seasonally. Species of concern in the wetland areas of Mare Island include the salt harvest mouse (*Reithrodontomys raviventris*). Other species of concern that may be present in habitat at Mare Island (but are less likely to be encountered based on limited habitat present) include the California clapper rail (*Rallus longirostris obsoletus*) and California black rail (*Laterallus jamaicensis coturniculus*). The California clapper rail is a federal- and state-listed endangered species, and state fully protected. The California black rail is listed as a state threatened species, and state fully protected (CE2 Kleinfelder, 2014).

2.2.3. Climate

The climate at Mare Island is characterized by warm, dry summers and cool, wet winters, with an average annual temperature of 58°F, a mean summer temperature of 72°F, and a mean winter temperature of 47°F. Prevailing winds are from the west at 5 to 10 knots. The average annual rainfall of 17 inches occurs primarily between October and April.

2.2.4. Future Land Use Considerations

Much of Mare Island is planned for nontidal wetland open space or industrial use (CE2 Kleinfelder, 2014; Trevet, 2014).

2.3. DESCRIPTIONS OF SITES

The following sections briefly describe the physical characteristics and operational history of each site in which groundwater monitoring was performed during this semiannual event. While the BGMP includes many sites (i.e., Building 742 [FDP], DRMO South Site, Former UST 993-4, IR04, PWA, UXO 3 – Dredge

Pond 3E, Northern Marine Corps Firing Range, and UXO 7 – SSA), only sites monitored during this event are included in this report. The sections below also briefly describe environmental conditions at each site relevant to the chemicals detected in groundwater that may require further monitoring. Figure 2 shows the site boundary and groundwater monitoring wells sampled at each site during this semiannual monitoring event.

Groundwater monitoring activity conducted (including well abandonment) at the Former UST 993-4 Site during this semiannual event will be presented in the Revised Draft Final Closure Report for the Former UST 993-4 Site (CES, 2014c), and is thus not presented in this report.

2.3.1. Building 742 (Former Degreasing Plant)

Building 742 is located in the central-eastern area of Mare Island and formerly was an ordnance machine shop. The FDP was located next to Building 742, and wastewater generated during degreasing operations was discharged to sumps that led to the storm water drainage system (SulTech, 2007). Previous investigations identified elevated concentrations of chlorinated volatile organic compounds (VOCs) in water and residue samples collected from Manhole D1-C85, which previously received storm water from the FDP. In June 2010, a non-time-critical removal action (NTCRA) was performed to remove the contaminant source at the FDP, within the stormwater drainage system, and around Manhole D1-C85 (Tetra Tech EC, Inc., 2011). Building 742, FDP was transferred to the City of Vallejo as part of the Eastern Early Transfer Parcel and is no longer being investigated under CERCLA. However, the Navy is responsible for investigating and cleaning up any remaining contamination to obtain regulatory agency concurrence that the Navy has adequately addressed site contamination. After regulatory agency concurrence is obtained, the site will be included in the Investigation Area C2 Remedial Action Plan being prepared by the City of Vallejo and its developer Lennar Mare Island.

Groundwater and soil gas samples were collected after the NTCRA in November 2011. Analytical results indicated that VOC concentrations near former Manhole D1-C85 had decreased; however, the results of additional soil samples near Manhole D1-C85 identified VOCs at concentrations in soil that could impact groundwater and soil gas. Therefore, additional remediation was recommended in this area to achieve site closure through the removal of remaining impacted source materials (Tetra Tech EC, Inc., 2012). Additional excavation was performed in June and July 2013, and an initial round of groundwater and soil gas samples was collected in August 2013 to confirm the effectiveness of this removal action (NOREAS, Inc., 2013). Additional groundwater monitoring may be included under this BGMP following the collection of step-out groundwater and soil gas samples planned as part of the above-referenced removal action to delineate the extent of contamination. Data collected will be used to supplement data collected as part of the CERCLA process.

2.3.2. DRMO South Site

The DRMO South Site covers approximately 16.5 acres in the north-central portion of Mare Island west of Azuar Drive (formerly Cedar Avenue) and south of the DRMO fenced scrapyard area. The eastern portion of the site includes several buildings formerly used for light industrial activities, including a maintenance facility (Building 275) and vehicle and miscellaneous storage buildings (Buildings 831, 961, and 965) (Trevet, 2014).

A Preliminary Assessment/Site Investigation (PA/SI) was performed in October and November 2012 to evaluate the nature and extent of potential soil and groundwater contamination across the site. Arsenic, nickel, and naphthalene were detected in groundwater at concentrations exceeding screening levels (background level, ecological screening level, and human health screening level, respectively). The highest concentrations of arsenic (i.e., exceeding screening levels) were located in areas of elevated total petroleum hydrocarbon (TPH) (Trevet, 2014). As a result, the PA/SI Report recommended further investigation of the arsenic exceedances, which were collocated with elevated concentrations of petroleum hydrocarbons in soil that could create reducing conditions in soil and release naturally occurring arsenic to groundwater (Trevet, 2014). Nickel concentrations across the site exceeded the ecological screening level (based on the ambient water quality criterion that applies to discharges to surface water bodies); however, no nickel concentrations exceeded the human health screening level. As a result, the PA/SI Report concluded no further evaluation of nickel was warranted. Because naphthalene was only detected once in nine samples and no source of naphthalene was identified near the sample location with the detection, no further evaluation was warranted (Trevet, 2014). The PA/SI report recommended a Remedial Investigation (RI) be performed to further evaluate arsenic, TPH-diesel, and TPH-motor oil in groundwater.

Groundwater samples were collected as part of the RI in December 2013. These results have not yet been published. Groundwater monitoring data collected on this site will be used to supplement data collected as part of the CERCLA process.

2.3.3. IR04 (Investigation Area F2)

IR04 (also known as Investigation Area [IA] F2) is approximately 12 acres and is located in the southeastern portion of Mare Island. Site features at IR04 include Buildings 778, 782, 900, 918, and 1300; a former sandblast recycling area; one electrical transmission tower; and a former sandblasting yard. Historical activities from the 1950s through the 1980s in the area that is now IR04 included sandblasting old and corroding paint from ship and submarine components and then repainting the components before reinstallation. The sandblast material (SBM) was composed of sand and metals (such as copper, chromium, nickel, and zinc) and stored in piles on paved and unpaved areas. After use, SBM was disposed of by spreading it on the ground surface throughout IR04, including the shoreline of Mare Island Strait and directly into the strait (a tidal wetland). In addition, Buildings 900 and 1300 were used for industrial-scale

painting from 1949 to 1992, and paint waste was discharged to the Mare Island industrial wastewater collection and treatment system (ChaduxTt, 2010).

Data collected during investigations performed from 1983 to 1999 were evaluated and used to identify four subareas as the focus of an RI. The conclusions from the RI report (ChaduxTt, 2010) are summarized below.

- Subarea 1 – Building 1300 Subarea: Chemicals of potential concern (COPCs) include TPH and chromium in soil. No human health or ecological risks are identified. No further evaluation is recommended.
- Subarea 2 –VOC Subarea: Elevated concentrations of VOCs and lead are present in soil and groundwater. VOCs and lead pose potential risk to human health, and a Feasibility Study (FS) is recommended to address this risk as well as risk to ecological receptors.
- Subarea 3 –SBM Subarea, including upland Subarea 3A and tidal wetland Subarea 3B: COPCs include chromium and TPH in soil and sediment and polychlorinated biphenyls (PCBs) near Building 782 and one tidal wetland location. No human health risk is identified. A potential risk to ecological receptors is identified, and an FS is recommended to address risk to the environment.
- Subarea 4 – Other Upland Subarea: COPCs include TPH and chromium in soil. No human health or ecological risks are identified. No further evaluation is recommended.

A data gaps investigation was proposed to supplement the RI data and finalize the human health and ecological risk assessments. The data gaps investigation is currently being performed under a separate contract (Trevet, 2013). The planned data gaps investigation includes collection of additional soil, soil gas, and groundwater data from each of the four subareas within IR04 and includes the installation of 18 new groundwater monitoring wells (Trevet, 2013). The 18 new groundwater monitoring wells were installed in July and August 2013. These 18 groundwater monitoring wells are included in the BGMP and the data will be used to supplement data collected as part of the CERCLA process.

Section 3. Groundwater Monitoring Field Activities

This section summarizes the field methodology and activities including mobilization and site preparation, groundwater sampling, well installation, well abandonment, and the analytical methods used for the groundwater monitoring. The August 2014 field activities were conducted under the approved SAP (CES, 2014a) and Addendum 1 to the SAP (CES, 2014b). A log containing photographs of field activities conducted throughout the sampling period is provided in Appendix A of this report.

3.1. MOBILIZATION AND SITE PREPARATION

Equipment and materials were mobilized to the site as needed to perform the work on a daily basis (August 12-15, 2014). CES set up a work zone and a support zone (for first-aid kits, sanitation facilities, and a break area). The work zone was set up around each individual well for the duration of monitoring activity at that well. When monitoring was complete, the work zone was moved to the next well for monitoring activity. The support zone was established on the tailgate of a work truck during sampling. A first-aid kit, eyewash station, air horn, and project documents were also placed in the truck within close proximity to each work area. A break area with shade and bottled water was provided in the cab of the truck. Portable sanitation was set up at Building 993.

3.2. GROUNDWATER SAMPLING

This section describes the procedures for sampling groundwater at the monitoring wells at Mare Island. The SAP (CES, 2014a) provides details on sample management procedures, field procedures, sample analyses, and provides the sampling SOPs, which were followed during field activities.

Table 1 provides a list of existing groundwater monitoring wells included in this semiannual groundwater sampling event. Field forms including sampling logs and health and safety forms are presented in Appendix B.

3.2.1. Groundwater Elevation Measurements

Prior to sample collection, CES personnel measured groundwater elevations at each well included in Table 1. Table 2 provides measured groundwater elevations, available groundwater monitoring well construction data (i.e., top of casing [TOC] elevation, ground surface elevation, and screened interval). Groundwater level measurements were taken in a coordinated groundwater sounding event prior to purging and sampling any of the wells at that site. Data was used to prepare groundwater potentiometric contour maps. The water level field log is presented in Appendix B. Groundwater levels were measured in accordance with ERRG SOP FS-020, Water Level Measurements (CES, 2014a). Measurements were made from the top of the

casing to the groundwater surface using a water level indicator. The water level indicator was decontaminated in accordance with the procedures described in ERRG SOP FS-010, Decontamination of Contact Sampling Equipment (CES, 2014a), after each measurement was taken and before proceeding to the next well location.

3.2.2. Purging and Environmental Parameter Data Collection

A low-flow (or micro-purge) purging and sampling method designed to collect high-quality formation water samples was used for the groundwater monitoring wells in accordance with ERRG SOP FS-023, Low Flow/Micro-Purge Well Sampling (CES, 2014a) and U.S. Environmental Protection Agency (EPA) guidance for low-flow well sampling (EPA, 1996a). Personnel used a peristaltic pump to draw water from the well at a rate of approximately 100 to 500 milliliters per minute. The pump was started at the lowest speed and slowly increased until discharge began. The water level was monitored and the pump speed adjusted until there was little or no drawdown (less than 0.3 foot). The temperature, pH, dissolved oxygen, oxidation-reduction potential, and conductivity of the groundwater were recorded at regular intervals (approximately every three to five minutes) using a flow-through cell to determine when the groundwater sample was representative of formation water. The parameters were measured using a YSI 556 MPS multi-meter from a sealed flow-through cell during the low-flow sampling process. Turbidity was measured using a separate Hach 2100Q turbidimeter. The parameters were considered stable when three consecutive readings differed by less than the criteria discussed in the SAP (CES, 2014a). Purged groundwater was transferred to U.S. Department of Transportation (DOT)-approved 55-gallon drums and stored at the Waste Storage Area at Building 993 pending waste characterization and disposal.

All groundwater environmental parameters were documented on the Groundwater Purge Form and general field observations and site activities were documented on field forms (or in logbooks). Completed field forms and data sheets are included in Appendix B of this report.

3.2.3. Groundwater Sample Collection

Groundwater samples were collected from monitoring wells (listed in Table 1) using a peristaltic pump with dedicated polyethylene tubing (following the low-flow sampling technique described above) immediately after the environmental parameters measured by the flow-through cell stabilized.

Volatile organic analysis vials were filled first (including aliquots for quality control [QC] and quality assurance [QA] analysis) for VOC analysis, followed by containers for analysis of semi-volatile organic compound (SVOC), polycyclic aromatic hydrocarbons (PAHs), PCBs, pesticides, total dissolved solids (TDS), and TPH, in accordance with site-specific requirements. Next, aliquots of water were field filtered for dissolved metals using an in-line filter cartridge sized according to the flow characteristic of the sampling pump and in accordance with SOP FS-041, Collection of Water Samples for Dissolved Parameters (CES, 2014a). A new filter was used for each sample requiring dissolved analysis and the membrane was

properly wetted before sample collection. Following primary sample collection, additional sample volumes were collected from selected wells for QA and QC purposes, as described in detail in Section 3.5. Samples collected for QA/QC were collected in the same manner as primary samples. Appendix B contains field logs and data tables pertaining to groundwater sample collection during this event.

3.2.4. Equipment Decontamination

New, clean tubing was used at each monitoring well and discarded after each use. All nondedicated sampling equipment and field measurement devices (i.e., water level meter) were decontaminated before and after collecting each groundwater sample to prevent cross-contamination of samples. Complete decontamination procedures for sampling equipment and field measuring devices are further described in the SAP (CES, 2014a).

3.3. WELL INSTALLATION

No new monitoring wells were installed during this semiannual groundwater sampling event.

3.4. WELL ABANDONMENT

Six existing monitoring wells at Former UST 993-4 Site were abandoned during this semiannual groundwater monitoring event. Further discussion and documentation on the well abandonment at this location will be presented in a separate report (i.e., the Revised Draft Final Closure Report for the Former UST 993-4 Site [CES, 2014c]).

3.5. QUALITY CONTROL SAMPLES

QC sample data were generated to assess the precision and accuracy of the analytical results. The types, numbers, and frequencies of field QC samples are specified in the SAP (CES, 2014a). Field QC samples collected during this groundwater sampling event included four equipment blanks, three source-water blanks, and three trip blanks. In addition, two field duplicate samples were collected. Field duplicate samples for groundwater were collected at a rate of 1 per every 10 field samples. Matrix spike/matrix spike duplicate (MS/MSD) samples for groundwater were collected at a frequency of 1 per every 20 field samples. Equipment blanks were collected at a frequency of one per day per dedicated piece of equipment, and source blanks were collected at a frequency of one per source. Trip blanks (provided by the laboratory) were included at a rate of one per cooler when VOCs were being sampled.

3.6. INVESTIGATION-DERIVED WASTE MANAGEMENT

CES managed all waste generated during the course of the project. Purged groundwater and decontamination water generated during groundwater monitoring activities was collected in 55-gallon drums and stored in a covered and locked Waste Storage Area at Building 993. Personal protective equipment waste generated during field activities consisted mainly of nitrile sampling gloves and used tubing, which were collected in a

plastic trash bag and disposed of in municipal trash bins. Investigation-derived waste (IDW) was characterized and disposed of in accordance with applicable local, state, and federal requirements. IDW documentation is provided in Appendix C. The waste management procedures for this project are defined in the Waste Management Plan (Appendix C of the Work Plan [CES, 2014a]).

3.7. FIELD DOCUMENTATION COLLECTED

Field documentation protocols included the use of field logbooks, a water elevation form, groundwater purge and sample collection forms, air monitoring logs, health and safety forms, waste inventory log, and chain-of-custody forms. Contractor daily production reports and CQC reports were also developed daily.

3.8. DEVIATIONS TO THE BGMP

As previously discussed in Section 1.2.1, the only deviation to the BGMP during this semiannual groundwater monitoring event was the reduction in number of wells sampled, from 30 to 21, as requested and approved by the Navy project team.

As mentioned in Section 3.4, groundwater data from the Former UST 993-4 Site will be presented in a separate report (i.e., the Revised Draft Final Closure Report for the Former UST 993-4 Site [CES, 2014c]).

Section 4. Laboratory Data Analysis and Validation

The following sections summarize the laboratory analysis (and associated data validation) of the groundwater samples collected during the August 2014 monitoring event.

4.1. GROUNDWATER SAMPLE LABORATORY ANALYSIS

Upon receipt at the analytical laboratory, groundwater and QA/QC samples were logged and analyzed in accordance with the SAP (CES, 2014a). Laboratory data analysis reports are available in Appendix D. Samples were analyzed for the following chemicals (dependent on site contaminants):

- Cr(VI) by EPA Method 7199 (EPA, 1996b)
- Dissolved metals by EPA Method 3010A/7470 (EPA, 1992 and 2008)
- PAHs by EPA Method 8270 Selective Ion Monitoring (SIM) (EPA, 2008)
- SVOCs by EPA Method 8270 (EPA, 2008)
- TPH-d by EPA Method 8015 (EPA, 2008)
- TDS by EPA Method 160.1 (EPA, 1999)
- VOCs by EPA Method 8260 (EPA, 2008)

4.2. THIRD PARTY DATA VALIDATION

Groundwater monitoring data were subject to a data quality assessment (review, verification, validation, and usability assessment). Sample chains of custody were reviewed by the Project Chemist, Project Manager, and Quality Control Manager upon submittal to the analytical laboratory from the field crew for accuracy in sample identification, analytical methods, QC samples, etc. In accordance with the project-specific SAP Worksheets 34 – 36, (CES, 2014a), the analytical data packages delivered by C&T were initially examined by the Project Chemist against project requirements and chain-of-custody records (i.e., holding times, sample handling, analytical methods, sample identification, laboratory data qualifiers, QC samples, etc.). If project requirements were met, the packages were released to the data validator, Laboratory Data Consultants, Inc. (LDC) for validation. The data validator performed the requested level of data validation and prepared validation reports, adding or changing laboratory qualifiers as needed. The data quality assessment was performed in accordance with Worksheet #37 of the SAP (CES, 2014a). In accordance with the SAP (CES, 2014a) and Addendum 1 to the SAP (CES, 2014b), 80 percent of the data underwent Level III validation and 20 percent of the data underwent Level IV validation. Appendix E

contains the data validation reports from this semiannual groundwater monitoring event. Data validation results are discussed in Section 5.4.

4.3. DEVIATIONS TO SAP

Minor deviations to the SAP occurred during groundwater monitoring as identified below. These deviations did not impact the results of the groundwater monitoring data collection or analysis.

- As previously discussed in Section 1.2.1, deviations to the well list occurred during this monitoring event resulting in the reduction in number of wells sampled, from 30 to 21, as requested and approved by the Navy project team.
- During sampling on August 14, 2014, the crew ran out of polyethylene containers in the field in which to collect dissolved metals samples. As directed by the analytical laboratory project manager over the phone, samples were collected in 1-liter (L) amber bottles instead of polyethylene containers (one groundwater sample [04W15-081414] and one equipment rinsate sample [RB-081414]). The deviation was documented on the chain-of-custody form.

Section 5. Groundwater Monitoring Results

The following sections summarize the groundwater monitoring results during the August 2014 monitoring event.

5.1. GROUNDWATER LEVEL MONITORING

Groundwater level monitoring data, as measured on August 12, 2014, for Building 742, FDP; DRMO South Site; and IR04 are summarized below. Groundwater elevation data are presented in Table 2.

5.1.1. Building 742, FDP

Groundwater levels at four wells (D1C85W01R, D1C85W03, D1C85W04, and D1C85W05) were measured at Building 742, FDP. The minimum and maximum groundwater elevations observed for this site during the August 2014 monitoring event were 5.26 and 5.62 feet (ft) above mean sea level (amsl), respectively. The TOC elevation for well D1C85W03 could not be verified at the time of this report; therefore groundwater elevation contours and flow direction in the vicinity of Building 742, FDP, shown on Figure 3, were estimated using only data gathered from wells D1C85W01R, D1C85W04, and D1C85W05.

5.1.2. DRMO South Site

Groundwater level at one well (01W56) was measured at DRMO South Site. Depth to groundwater was measured at 10.9 feet below TOC. Historical well construction data (i.e., TOC elevation) was not available for monitoring well 01W56. As such, groundwater elevation and contours/flow directions could not be determined.

5.1.3. IR04 (Investigation Area F2)

Groundwater levels at fourteen wells (04W06, 04W07, 04W08, 04W09, 04W10, 04W11, 04W12, 04W14, 04W15, 04W16, 04W17, 04W18, 04W19, 04W23) were measured at IR04. The minimum and maximum groundwater elevations observed for this site during the August 2014 monitoring event were 4.04 and 8.78 ft amsl, respectively. Groundwater elevation contours and flow directions are presented on Figure 4.

5.2. GROUNDWATER ANALYTICAL RESULTS

The following sections summarize groundwater analytical results for the August 2014 monitoring event for DRMO South Site and IR04 wells. Groundwater analytical data are summarized in Tables 3 through 8. Laboratory analytical data and data validation reports are included as Appendix D and E, respectively.

The detected analytical data presented in the following sections were compared against project action limits (PALs), as defined in the SAP (CES, 2014a) and Addendum 1 to the SAP (CES, 2014b).

5.2.1. DRMO South Site

Groundwater samples were collected at one well (01W56) and analyzed for TDS. TDS results are summarized in Table 3. TDS was detected at concentrations of 11,300 mg/L in the primary sample and 10,900 mg/L in the duplicate sample, more than three times the PAL of 3,000 mg/L. Figure 5 presents TDS concentrations in 01W56 that exceed the PAL.

5.2.2. IR04 (Investigation Area F2)

Groundwater samples were collected at 14 wells at the IR04 and analyzed for metals, PAHs, SVOCs, TPH-d, and VOCs. Analyses varied by well as per the SAP (CES, 2014a) and Addendum 1 to the SAP (CES, 2014b). Analytes detected at concentrations exceeding their PALs are shown on Figure 6.

Metals

Thirteen wells (04W06, 04W07, 04W08, 04W09, 04W10, 04W11, 04W12, 04W15, 04W16, 04W17, 04W18, 04W19, 04W23) were sampled for dissolved metals, the results of which are summarized in Table 4. Cr(VI) was detected at three wells (04W07, 04W08, and 04W09) at concentrations ranging from 1.2 - 9.2 µg/L, all of which are below the PAL of 11 µg/L. The following metals were detected at concentrations exceeding PALs in several samples: arsenic, cobalt, nickel, manganese, selenium, and thallium. Arsenic concentrations ranged from 25 – 130 µg/L, exceeding the PAL (78 µg/L) at one well (04W11). Cobalt concentrations ranged from 2.5 – 160 µg/L, exceeding the PAL (100 µg/L) at one well (04W06). Manganese concentrations ranged from 3.1 – 9,300 µg/L, exceeding the PAL (5,400 µg/L) at one well (04W17). Nickel was detected at concentrations ranging from 5 – 33 µg/L, exceeding the PAL (8.2 µg/L) at three wells (04W06, 04W11, and 04W15). Selenium was detected at concentrations ranging from 13 - 180 µg/L, exceeding the PAL (12 µg/L) at all thirteen wells sampled. Thallium was detected at concentrations ranging from 7.6 – 8.5 µg/L, exceeding the PAL (2 µg/L) at two wells (04W16 and 04W17). Figure 6 presents concentrations of metals exceeding PALs.

Concentrations of aluminum, antimony, barium, beryllium, total chromium, magnesium, mercury, molybdenum, silver, vanadium, and zinc were detected at the thirteen wells sampled but none exceeded PALs.

PAHs

Five wells (04W06, 04W10, 04W17, 04W18, and 04W19) were analyzed for PAHs, the results of which are summarized in Table 5. PAHs were detected at all five wells but none at concentrations exceeding PALs. Detected concentrations of PAHs include: 2-methylnaphthalene (estimated 0.02 – 0.05 µg/L),

acenaphthene (estimated 0.03 µg/L), acenaphthylene (estimated 0.03 µg/L), anthracene (estimated 0.04 µg/L), benzo(a)anthracene (estimated 0.02 µg/L), benzo(b)fluoranthene (estimated 0.03 µg/L), fluoranthene (0.2 µg/L), fluorene (estimated 0.06 µg/L), naphthalene (estimated (0.03 – 0.04 µg/L), phenanthrene (0.4 µg/L) , and pyrene (0.2 µg/L).

SVOCs

Five wells (04W06, 04W10, 04W17, 04W18, and 04W19) were analyzed for SVOCs, the results of which are summarized in Table 6. Bis(2-ethylhexyl) phthalate was detected in one sample (04W17) at a concentration of 9.9 µg/L, exceeding the PAL of 4 µg/L. Figure 6 presents the concentration of bis(2-ethylhexyl) phthalate exceeding the PAL.

TPH-d

Three wells (04W17, 04W18, and 04W19) were analyzed for TPH-d, the results of which are summarized in Table 7. TPH-d was detected in all three wells at concentrations ranging from 1,000 - 1,500 µg/L, exceeding the PAL of 100 µg/L. Figure 6 presents concentrations of TPH-d exceeding the PAL.

VOCs

Four wells (04W14, 04W17, 04W18, and 04W19) were analyzed for VOCs, the results of which are summarized in Table 8. 4-Isopropyltoluene was detected in one well (04W18) at a concentration of 0.2 µg/L, but qualified as an estimated value. No PAL was established for this analyte.

5.3. FIELD QUALITY CONTROL SAMPLES RESULTS

A total of ten field QC samples were collected and submitted for analysis. These samples included four equipment blanks, three source blanks, and three trip blanks. Detected concentrations of analytes in these samples are discussed below (broken out by analyte group).

Metals

Concentrations of aluminum (estimated 29 µg/L), arsenic (estimated 1.4 µg/L), magnesium (estimated 38 µg/L), manganese (estimated 0.49 µg/L), selenium (estimated 4.1 µg/L), and zinc (estimated 6.3 µg/L) were detected in three equipment blanks and one source blank. All detections were below PALs and qualified as estimated values.

PAHs

Concentrations of benzo(a)anthracene (estimated 0.02 µg/L), benzo(b)fluoranthene (estimated 0.02 µg/L), fluoranthene (estimated 0.02 – 0.04 µg/L), phenanthrene (estimated 0.03 µg/L), and pyrene (estimated 0.02

– 0.03 µg/L) were detected in two equipment blanks and one source blank. All detections were below PALs and qualified as estimated values.

SVOCs

Bis(2-ethylhexyl) phthalate was detected in one equipment blank at a concentration of 4 µg/L, equal to the PAL and the result was qualified as an estimated value.

TPH-d

A concentration of TPH-d was detected in one source blank (estimated 45 µg/L). The detection was below the PAL of 100 µg/L and qualified as an estimated value.

VOCs

Concentrations of acetone (estimated 2.3 – 3.7 µg/L) and methylene chloride (estimated 0.3 – 1 µg/L) were detected in two equipment rinsate blanks, two trip blanks, and one source blank. Neither analyte exceeded its respective PAL and all detections were qualified as estimated values.

5.4. DATA VALIDATION RESULTS

In accordance with the SAP (CES, 2014a) and Addendum 1 to the SAP (CES, 2014b), a data quality assessment was performed on the analytical data generated. The process consisted of a systematic review, verification, validation, and usability assessment of the data generated. LDC, a third-party data validation company, performed data validation. A total of 2,040 analytical results were evaluated by LDC. While some analytical results were qualified as estimated (i.e., "J" flagged) by C&T, LDC either verified this or further qualified the data with "UJ" during the validation process. A "UJ" qualifier means that the data result reported is a nondetect for the analyte. Estimated results were considered usable.

Data quality indicators (precision, accuracy, representativeness, comparability, completeness, and sensitivity) were evaluated on the data.

Precision

For precision of groundwater field duplicate samples, the Relative Percent Difference (RPD) goal established in SAP Worksheet #12 (CES, 2014a) was less than 25 percent. One groundwater duplicate was collected during the IR04 sampling (for dissolved metals and Cr[VI]) and one groundwater duplicate was collected of the TDS sample from DRMO South Site. RPDs for this event were within the 25 percent precision goal.

Accuracy

The data validation summaries reported with the analytical data reports provided information concerning the quality and acceptance of the laboratory generated results. For this event, minimal qualifiers were attached to individual data points. Field accuracy was accomplished through field instrumentation calibration, keeping sample bottles segregated and protected from fuels, chemicals, or other potential contaminant sources, performing proper decontamination and sample handling to prevent cross contamination.

Representativeness

Representativeness was accomplished as much as practical by following the SAP (CES, 2014a) and designated sample locations. In addition, field tasks and fixed laboratory analyses were conducted by experienced personnel and in accordance with standard operating procedures and established quality assurance procedures. No procedural changes, comments or other items of note were recorded by field or lab personnel that would impact representativeness of this data set.

Comparability

The primary objective of this sampling event was to collect analytical data sets for DRMO South Site and IR04 to assess concentrations of COCs in groundwater at the sites. This was the first event of this contract and therefore the data were not compared to previous data. Comparability of the data collected for future sampling events will be accomplished by evaluating the previous groundwater sampling data with current semiannual monitoring data.

Completeness

Five data points, of the 2,040 analytical results evaluated by LDC, were rejected on IR04 data. The SVOC hexachlorocyclopentadiene was qualified by LDC as rejected in two samples, and 3, 3'-dichlorobenzidine was rejected in three samples. Hexachlorocyclopentadiene was reported as not detected by C&T in 04W06-081414 and 04W10-081414; LDC rejected these results due to Laboratory Control Sample percent recoveries being out of QC limits. The matrix spike and matrix spike duplicate recoveries for 3,3'-dichlorobenzidine were outside QC limits on 04W19-081314, therefore LDC rejected the samples in this sample data group for this compound which included samples 04W17-081314 and 04W18-081314. Since no other data points were rejected and all samples were analyzed as planned, the completeness for this sampling event was well above 99 percent which exceeds the completeness goal of 95 percent established in the SAP (CES, 2014a).

Sensitivity

Sensitivity was assessed by the evaluation of the analytical laboratory's ability to meet the PALs and limit of quantitation (LOQ). LOQs were established in the SAP (CES, 2014a) and were based upon PALs, instrument sensitivity and information provided by the laboratory. Actual LOQs were affected by numerous factors, including turbidity of groundwater samples, matrix interferences, and sample dilutions. For this sampling event, no laboratory or sample problems were noted that affected sensitivity levels.

Section 6. Summary and Recommendations

The following sections present a summary of the August 2014 monitoring event. Recommendations for optimizing the BGMP, based on the findings, are also presented.

6.1. SUMMARY

Groundwater monitoring was performed at three sites in accordance with the SAP (CES, 2014a) and Addendum 1 to the SAP (CES, 2014b): Building 742, FDP, DRMO South Site, and IR04. Monitoring at Building 742, FDP included measuring groundwater in four wells. Monitoring at DRMO South Site included measuring groundwater and sampling one well. Monitoring at IR04 included measuring and sampling 14 wells. Minor variances to the BGMP (see Section 3.8) occurred due to unanticipated conditions but did not reduce the effectiveness of the groundwater monitoring program.

6.1.1. Summary of Monitoring Results for Building 742, FDP

The following summarizes the groundwater monitoring results at Building 742, FDP:

- A total of four of five wells were located and water levels measured (D1C85W01R, D1C85W03, D1C85W04, and D1C85W05). Monitoring well D1C85W02R could not be located.
- The average groundwater elevation was measured at 5.44 ft amsl.
- Groundwater sampling was not conducted at this site during this monitoring period at the Navy's request based on the potential for sample collection to interfere with recent injection and passive diffusion sampling performed under another contract.

6.1.2. Summary of Monitoring Results for DRMO South Site

The following summarizes the groundwater monitoring results at DRMO South Site:

- One well (01W56) was measured and sampled.
- Depth to groundwater was measured as 10.9 feet below TOC (TOC elevation data was not available to determine groundwater elevation).
- Concentrations of TDS exceeding the PAL were detected at 11,300 mg/L in the primary sample and 10,900 mg/L in the duplicate sample.

6.1.3. Summary of Monitoring Results for IR04

The following summarizes the groundwater monitoring results at IR04:

- Fourteen wells (04W06, 04W07, 04W08, 04W09, 04W10, 04W11, 04W12, 04W14, 04W15, 04W16, 04W17, 04W18, 04W19, 04W23) were measured and sampled.
- The average groundwater elevation was measured to be 5.36 ft amsl.
- Groundwater samples were collected at four wells and analyzed for VOCs. No VOCs were detected at concentrations exceeding PALs.
- Groundwater samples were collected at five wells and analyzed for SVOCs. One sample contained a concentration of bis(2-ethylhexyl) phthalate which exceeded the PAL .
- Groundwater samples were collected at five wells and analyzed for PAHs. No PAHs were detected at concentrations exceeding PALs.
- Groundwater samples were collected at three wells and analyzed for TPH-d. TPH-d was detected at the three wells sampled at concentrations exceeding the PAL.
- Groundwater samples were collected at 14 wells and analyzed for dissolved metals. A total of 17 metals were detected across 14 wells sampled. Arsenic, cobalt, nickel, manganese, selenium, and thallium were detected at concentrations exceeding PALs.

6.2. RECOMMENDATIONS FOR BGMP OPTIMIZATION

The Navy will conduct optimization of the monitoring program at appropriate milestones in the BGMP by providing, as appropriate, an updated list of wells to be sampled at each site, an updated list of analytes for each well, and adjusting the sampling frequency. No changes to the BGMP are recommended at this time since this was the first event and adequate data has not been gathered to enable BGMP optimization.

Section 7. References

Battelle, 2010. "Draft Final Remedial Investigation and Feasibility Study (RI/FS) Report for the Defense Reutilization and Marketing Office, Former Mare Island Naval Shipyard, Vallejo, California." January 15.

California Department of Water Resources, 1991. "California Well Standards, Bulletin 74-90 (Supplement to Bulletin 74-81)." June.

CE2 Kleinfelder Joint Venture, 2014. "Final Remedial Investigation and Radiological Scoping Survey Work Plan, Paint Waste Area and Vicinity, Former Naval Shipyard Mare Island, Vallejo, California." May.

Construction Engineering Services, LLC (CES), 2014a. "Final Work Plan Basewide Groundwater Sampling, Well Installation, and Well Abandonment, Former Mare Island Naval Shipyard, Vallejo, California." July.

CES, 2014b. "Final Addendum 1 to the Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment, Former Mare Island Naval Shipyard, Vallejo, California." August.

CES, 2014c. "Revised Draft Final Former UST 993-4 Site Closure Report, Former Mare Island Naval Shipyard, Vallejo, California." In progress.

ChaduxTt, 2010. "Revised Draft Final Installation Restoration Site 04 Remedial Investigation, Former Mare Island Naval Shipyard, Vallejo, California," January 8.

NOREAS, Inc. 2013. "Final Addendum 1 to the Sampling and Analysis Plan, Soil Excavation and Groundwater Treatment Plan at Building 742, Investigation Area C2, Former Mare Island Naval Shipyard, Vallejo, CA." April.

San Diego Regional Water Quality Control Board, 1996. Memorandum subject "Regional Board Supplemental Instructions to State Water Board December 8, 1995, Interim Guidance on Required Cleanup at Low-Risk Fuel Contaminated Sites (Replaces February 29, 1996 version)." April 1.

SulTech, 2007. "Draft Final Expanded Site Inspection Report Building 742, Former Degreasing Plant Investigation Area C2, Mare Island, California." May 14.

Tetra Tech EC, Inc., 2011. "Final Removal Action Summary Report, Soil Excavation and Groundwater Treatment, Building 742 Former Degreasing Plant, Investigation Area C2 at the Former Mare Island Naval Shipyard, Vallejo, California." August 15.

Tetra Tech EC, Inc., 2012. "Final Post-Excavation Soil, Soil Gas, and Groundwater Sampling Report, Building 742 Former Degreasing Plant, Investigation Area C2, Former Mare Island Naval Shipyard, Vallejo, California." March.

Trevet, 2013. "Final Data Gap Investigation Work Plan Installation Restoration Site 4, Former Mare Island Naval Shipyard, Vallejo, California." April.

Trevet, 2014. "Final Preliminary Assessment / Site Inspection for Defense Reutilization and Marketing Office – South, Former Mare Island Naval Shipyard, Vallejo, California." February.

U.S. Environmental Protection Agency (EPA), 1980. "Prescribed Procedures for Measurement of Radioactivity in Drinking Water." EPA-600/4-80-032. August.

EPA, 1992. "Method 3010A, Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by FLAA or ICP Spectroscopy." Revision 1. July. Available Online at: <http://www.epa.gov/osw/hazard/testmethods/sw846/pdfs/3010a.pdf>.

EPA, 1996a. "Region I Low Stress (low flow) Purging and Sampling, Procedure for the Collection of Ground Water Samples from Monitoring Wells." Revision 2. July 30. Available Online at: <http://www.epa.gov/NE/measure/well/wellmon.html>.

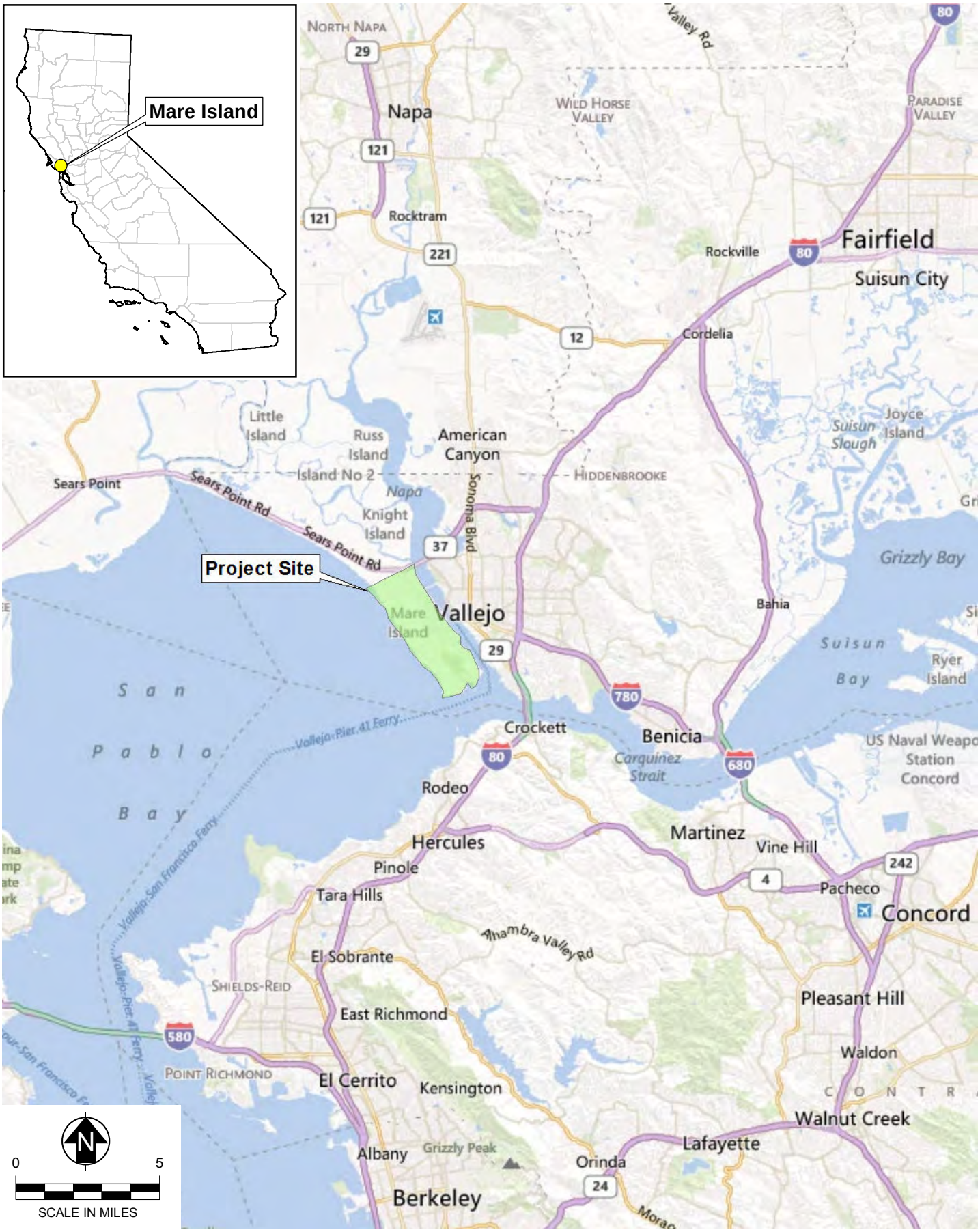
EPA, 1996b. "Determination of Hexavalent Chromium in Drinking Water, Groundwater and Industrial Wastewater Effluents by Ion Chromatography." December 1996. Available online at: <http://www.epa.gov/epawaste/hazard/testmethods/sw846/pdfs/7199.pdf>.

EPA, 1999. "Total Dissolved Solids (TDS), EPA Method 160.1 (Gravimetric, Dried at 180º C)." Revision November 16, 1999. Available Online at: <http://www.epa.gov/region9/qa/pdfs/160_1dqi.pdf>.

EPA, 2006. "Method 8330B, Nitroaromatics, Nitramines, and Nitrate Esters by High Performance Liquid Chromatography (HPLC)." Revision 2. October. Available Online at: <http://www.epa.gov/wastes/hazard/testmethods/pdfs/8330b.pdf>.

EPA, 2008. "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods." Third Edition, as updated by Updates I, II, IIA, IIB, III, IIIA, IIIB, IVA and IVB. Available Online at: <http://www.epa.gov/epawaste/hazard/testmethods/sw846/online/index.htm>.

Figures



CES CONSTRUCTION ENGINEERING SERVICES, LLC.
11325 Random Hills Rd, Suite 201
Fairfax, Virginia 22030-6068
(703) 912-2903

CLIENT: DEPARTMENT OF THE NAVY BRAC PMO WEST

LOCATION: FORMER MARE ISLAND NAVAL SHIPYARD VALLEJO, CALIFORNIA

SITE LOCATION AND VICINITY

DRAWN BY:	CHECKED BY:	PROJECT NO.	FIG NO.
JJC 7/22/2013	HAW 7/22/2013	2013-042	1

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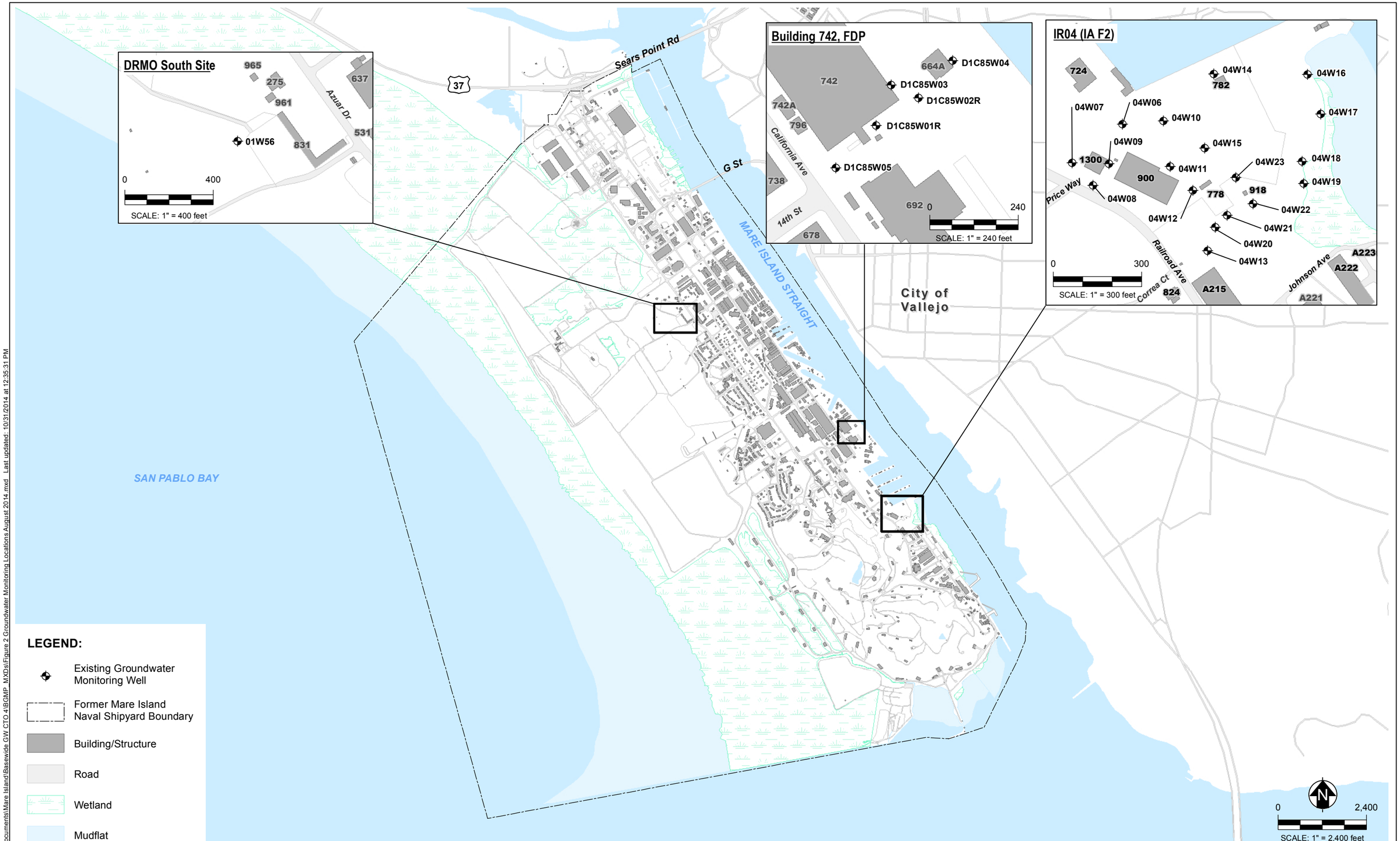


LEGEND:

- Existing Groundwater Monitoring Well
- Former Mare Island Naval Shipyard Boundary
- Building/Structure
- Road
- Wetland
- Mudflat
- Water

Acronyms:
FDP = Former Degreasing Plant
DRMO = Defense Reutilization Marketing Office
IR04 = Installation Restoration Site 4

Note:
IR04 wells 04W13, 04W20, 04W21, 04W22 were not sampled by CES during this event

SOURCES: TETRA TECH EM INC.; ESRI

C:\Users\hcoats\Documents\Mare Island\Basewide GW CTO 41\BGMP_MXDs\Figure 2 Groundwater Monitoring Locations August 2014.mxd Last updated: 10/31/2014 at 12:35:31 PM

CES CONSTRUCTION ENGINEERING SERVICES, LLC.
11325 Random Hills Rd, Suite 201
Fairfax, Virginia 22030-6068
(703) 912-2903

CLIENT:	GROUNDWATER MONITORING LOCATIONS AUGUST 2014			
DEPARTMENT OF THE NAVY BRAC PMO WEST				
LOCATION:	DRAWN BY:	CHECKED BY:	PROJECT NO.	FIG NO.
FORMER MARE ISLAND NAVAL SHIPYARD VALLEJO, CALIFORNIA	HGC 9/30/2014	MM 9/30/2014	2013-042	2

Legend:

- Groundwater Monitoring Well
- Groundwater Elevation Contour
- Groundwater Flow Direction
- Building/Structure
- Road
- Wetland
- Mudflat
- Water
- (5.26) Groundwater elevations collected August 12, 2014, in feet above mean sea level
- * Groundwater elevation data not available

N

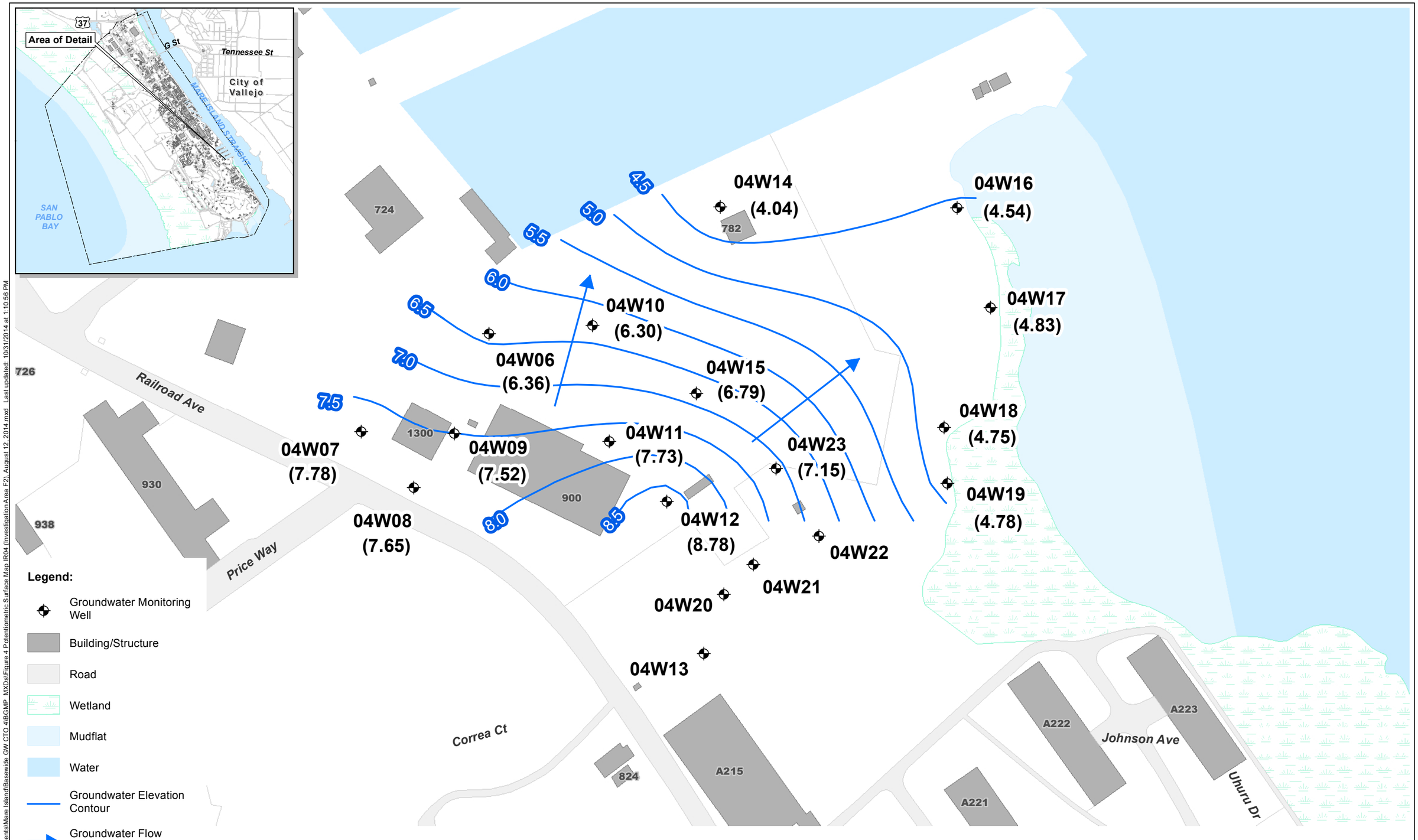
0 60 120 240 Feet

SOURCES: TETRA TECH EM INC.; ESRI

C:\Users\hcoats\Documents\Mare Island\Basewide GW CTO 4\BGMP_MXDs\Figure 3 Potentiometric Surface Map Building 742_FDP August 12, 2014.mxd Last updated: 11/2/2014 at 3:37:31 PM

CES CONSTRUCTION ENGINEERING SERVICES, LLC.
11325 Random Hills Rd, Suite 201
Fairfax, Virginia 22030-6068
(703) 912-2903

CLIENT:	POTENTIOMETRIC SURFACE MAP BUILDING 742, FDP			
DEPARTMENT OF THE NAVY BRAC PMO WEST				
LOCATION:	DRAWN BY:	CHECKED BY:	PROJECT NO.	FIG NO.
FORMER MARE ISLAND NAVAL SHIPYARD VALLEJO, CALIFORNIA	HGC 9/30/2014	MM 9/30/2014	2013-042	3



C:\Users\tcoats\Documents\Mare Island\Basewide GW CTO 41\BGMP_MXDs\Figure 4 Potentiometric Surface Map IR04 (Investigation Area F2), August 12, 2014.mxd Last updated: 10/31/2014 at 1:10:56 PM

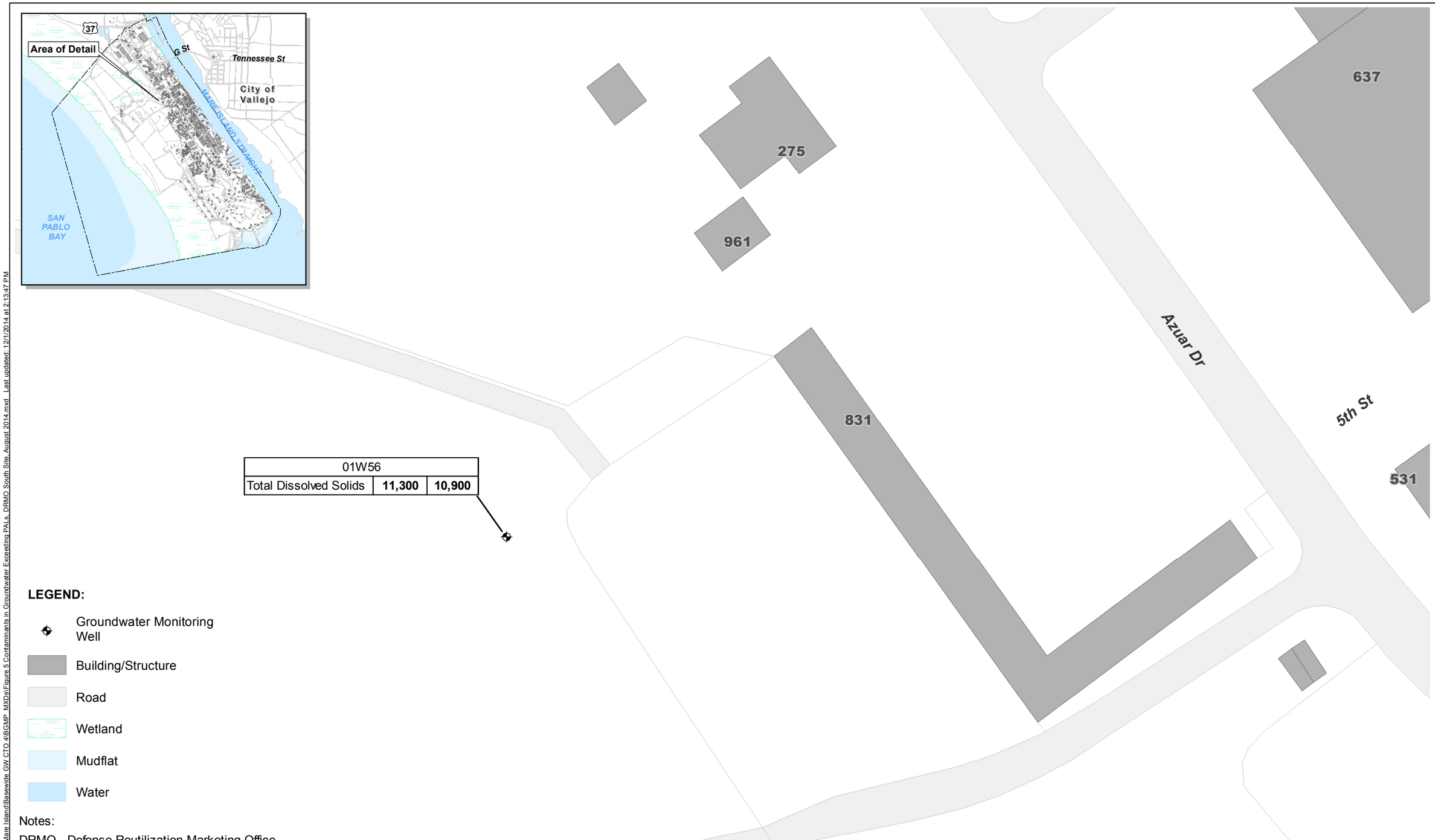
CES CONSTRUCTION ENGINEERING SERVICES, LLC.
11325 Random Hills Rd, Suite 201
Fairfax, Virginia 22030-6068
(703) 912-2903

CLIENT: DEPARTMENT OF THE NAVY BRAC PMO WEST

LOCATION: FORMER MARE ISLAND NAVAL SHIPYARD VALLEJO, CALIFORNIA

POTENTIOMETRIC SURFACE MAP IR04 (INVESTIGATION AREA F2)

DRAWN BY:	CHECKED BY:	PROJECT NO.	FIG NO.
HGC 9/30/2014	MM 9/30/2014	2013-042	4



LEGEND:

- Groundwater Monitoring Well
- Building/Structure
- Road
- Wetland
- Mudflat
- Water

Notes:

DRMO - Defense Reutilization Marketing Office

mg/L - milligrams per liter

PAL - Project Action Limit

Detected results not exceeding PALs are not shown.

Total Dissolved Solids PAL = 3,000 mg/L

SOURCES: TETRA TECH EM INC.; ESRI

01W56		
Analyte	1	2

Well ID

Primary Sample Result (mg/L)

Duplicate Sample Result (mg/L)

N

60 30 0 60 Feet

CES CONSTRUCTION ENGINEERING SERVICES, LLC.
11325 Random Hills Rd, Suite 201
Fairfax, Virginia 22030-6068
(703) 912-2903

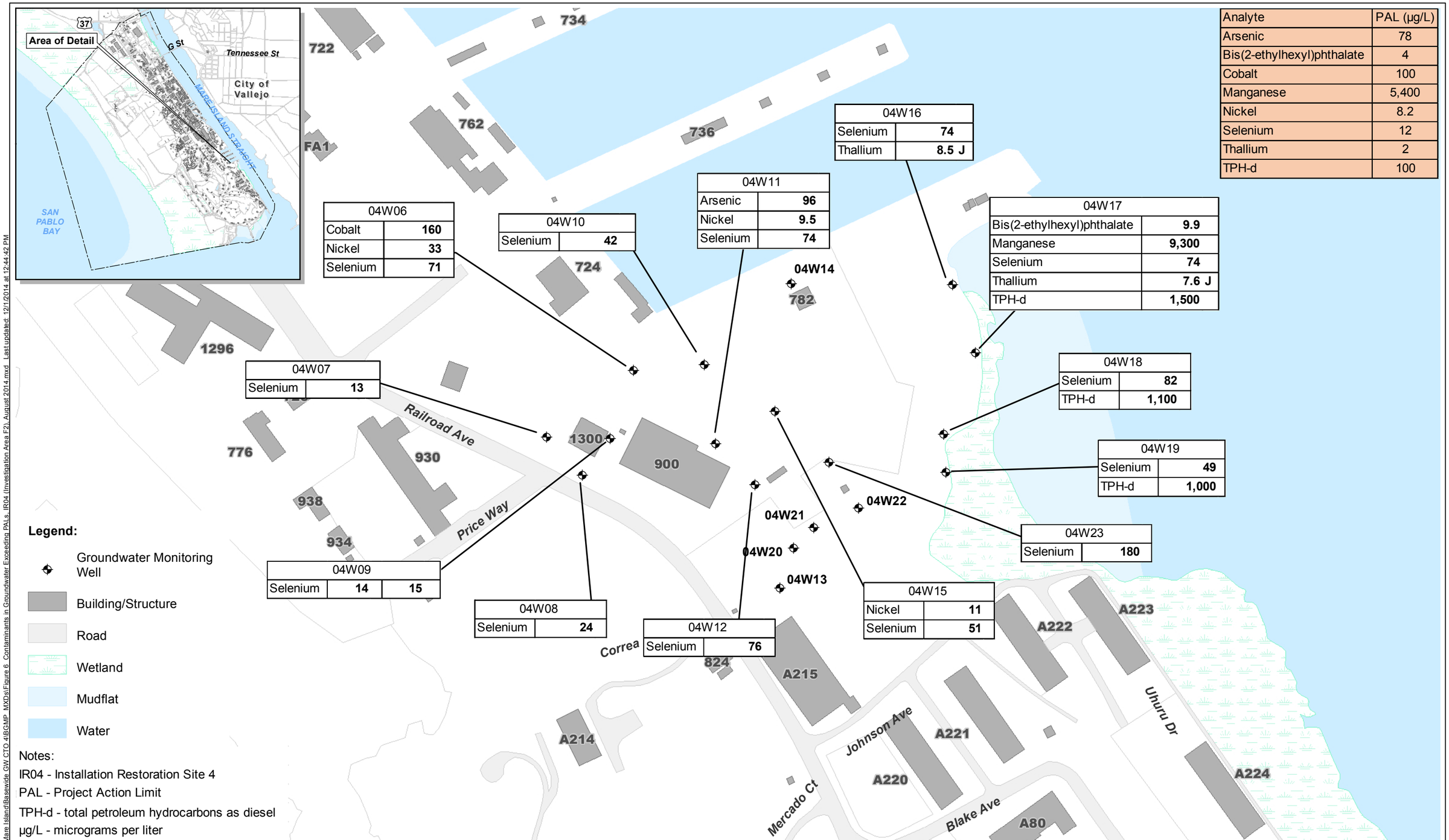
CLIENT: DEPARTMENT OF THE NAVY BRAC PMO WEST

LOCATION: FORMER MARE ISLAND NAVAL SHIPYARD VALLEJO, CALIFORNIA

CONTAMINANTS IN GROUNDWATER EXCEEDING PALS, DRMO SOUTH SITE, AUGUST 2014

DRAWN BY:	CHECKED BY:	PROJECT NO.	FIG NO.
HGC 9/30/2014	MM 12/01/2014	2013-042	5

C:\Users\tcoats\Documents\Mare Island\Basewide GW CTO 4\BGMP_MXDs\Figure 5 Contaminants in Groundwater Exceeding PALs, DRMO South Site, August 2014.mxd Last updated: 12/1/2014 at 2:13:47 PM



Analyte	PAL (µg/L)
Arsenic	78
Bis(2-ethylhexyl)phthalate	4
Cobalt	100
Manganese	5,400
Nickel	8.2
Selenium	12
Thallium	2
TPH-d	100

Notes:

IR04 - Installation Restoration Site 4

PAL - Project Action Limit

TPH-d - total petroleum hydrocarbons as diesel

µg/L - micrograms per liter

Detected results not exceeding PALs are not shown.

J - Indicates an estimated value

IR04 wells 04W13, 04W20, 04W21, 04W22 were not sampled by CES during this event

SOURCES: TETRA TECH EM INC.; ESRI

C:\Users\hcoats\Documents\Mare Island\Basewide GW CTO 41\BGMP_MXDs\Figure 6_Contaminants in Groundwater Exceeding PALs_IR04 (Investigation Area F2) August 2014.mxd Lastupdated: 12/1/2014 at 12:44:42 PM

CES CONSTRUCTION ENGINEERING SERVICES, LLC.
11325 Random Hills Rd, Suite 201
Fairfax, Virginia 22030-6068
(703) 912-2903

CLIENT: DEPARTMENT OF THE NAVY BRAC PMO WEST

LOCATION: FORMER MARE ISLAND NAVAL SHIPYARD VALLEJO, CALIFORNIA

CONTAMINANTS IN GROUNDWATER EXCEEDING PALS, IR04 (INVESTIGATION AREA F2), AUGUST 2014

DRAWN BY:	CHECKED BY:	PROJECT NO.	FIG NO.
HGC 9/30/2014	MM 12/01/2014	2013-042	6

Tables

Table 1. August 2014 Groundwater Monitoring Event

Site Name	Monitoring Well ID	Groundwater Elevation Measured on (Date)	Sample Date
Building 742, FDP	D1C85W01R	8/12/2014	--
	D1C85W03	8/12/2014	--
	D1C85W04	8/12/2014	--
	D1C85W05	8/12/2014	--
DRMO South Site	01W56	8/12/2014	8/12/2014
IR04 (IA F2)	04W06	8/12/2014	8/14/2014
	04W07	8/12/2014	8/14/2014
	04W08	8/12/2014	8/14/2014
	04W09	8/12/2014	8/14/2014
	04W10	8/12/2014	8/14/2014
	04W11	8/12/2014	8/15/2014
	04W12	8/12/2014	8/15/2014
	04W14	8/12/2014	8/14/2014
	04W15	8/12/2014	8/14/2014
	04W16	8/12/2014	8/13/2014
	04W17	8/12/2014	8/13/2014
	04W18	8/12/2014	8/13/2014
	04W19	8/12/2014	8/13/2014
	04W23	8/12/2014	8/15/2014

Notes:
DRMO - Defense Reutilization and Marketing Office
FDP - Former Degreasing Plant
IA - Investigation Area
IR04 - Installation Restoration Site 04
-- - Not sampled this event

Table 2. Groundwater Elevation Data

Site Name	Monitoring Well ID	TOC Elevation (ft)	Ground Surface Elevation (ft amsl)	Screened Interval Depth (ft bgs)	Water Elevation (ft)	Gauge Date
Building 742, FDP	D1C85W01R	9.43	10.17	5-15	5.45	8/12/2014
	D1C85W03	[1]	[1]	[1]	[1]	8/12/2014
	D1C85W04	9.74	10.34	5-15	5.26	8/12/2014
	D1C85W05	10.86	11.24	5-15	5.62	8/12/2014
DRMO South Site	01W56	[1]	[1]	[1]	[1]	8/12/2014
IR04 (IA F2)	04W06	11.78	12.45	5-20	6.36	8/12/2014
	04W07	19.2	12.45	5-20	7.78	8/12/2014
	04W08	18.89	19.77	10-25	7.65	8/12/2014
	04W09	16.73	19.2	5-20	7.52	8/12/2014
	04W10	10.97	17.13	5-20	6.3	8/12/2014
	04W11	12.2	11.41	5-20	7.73	8/12/2014
	04W12	12.75	12.45	5-20	8.78	8/12/2014
	04W14	10.72	11.06	5-20	4.04	8/12/2014
	04W15	10.05	10.66	5-20	6.79	8/12/2014
	04W16	11.59	9.01	5-20	4.54	8/12/2014
	04W17	10.71	8.24	5-20	4.83	8/12/2014
	04W18	11.56	9	5-20	4.75	8/12/2014
	04W19	11.05	8.49	5-20	4.78	8/12/2014
	04W23	12.25	10.02	5-20	7.15	8/12/2014

Notes:
[1] – data unavailable
amsl – above mean sea level
bgs – below ground surface
DRMO - Defense Reutilization and Marketing Office
FDP - Former Degreasing Plant
ft – feet
IA - Investigation Area
IR04 – Installation Restoration Site 04
TOC – top of casing

Table 3. Groundwater Analytical Results for TDS – DRMO South Site

		Sample ID	01W56081214	901W56081214 (01W56081214 duplicate)
		Sample Date	8/12/2014	8/12/2014
Analyte	**PAL[1]**	**Units**		
Total Dissolved Solids	3,000	mg/L	11,300	10,900

Notes:

[1] State Water Resources Control Board, 1988. "State Water Resources Control Board Resolution No. 88-63, Adoption of Policy Entitled Sources of Drinking Water." Available Online at: <http://www.waterboards.ca.gov/board decisions/adopted orders/resolutions/1988/rs1988 0063.pdf

DRMO - Defense Reutilization Marketing Office

mg/L - milligrams per liter

PAL - project action limit

TDS - total dissolved solids

Value exceeds PAL

Table 4. Detected Groundwater Analytical Results for Metals – IR04

		Sample ID	04W06-081414	04W07-081414	04W08-081414	04W09-081414	04W909-081414 (04W09-081414 duplicate)	04W10-081414	04W11-081514	04W12-081514	04W15-081414	04W16-081314	04W17-081314	04W18-081314	04W19-081314	04W23-081514
		Sample Date	8/14/2014	8/14/2014	8/14/2014	8/14/2014	8/14/2014	8/14/2014	8/15/2014	8/15/2014	8/14/2014	8/13/2014	8/13/2014	8/13/2014	8/13/2014	8/15/2014
Analyte	**PAL[1, 2]**	**Units**														
Aluminum	480	µg/L	50 U	50 U	50 U	50 U	50 U	50 U	50 U	37 J	50 U	50 U	50 U	50 U	28 J	50 U
Antimony	6	µg/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.85 J	2.5 U	2.5 U	2.5 U	3.7 J	5.1 J	3.5 J	2.5 U	2.5 U
Arsenic	78	µg/L	25	2.5 U	1.6 J	2.5 U	2.5 U	130	96	30	100	19	23	36	41	4 J
Barium	1,200	µg/L	400	39	17	16	16	350	130	170	230	210	650	230	930	200
Beryllium	1.6	µg/L	0.61 J	1 U	0.15 J	1 U	1 U	0.49 J	0.61 J	0.69 J	0.59 J	0.8 J	0.83 J	0.69 J	0.69 J	0.59 J
Chromium, Total	50	µg/L	7.3	1.3 U	14	1.9 J	2.1 J	6.8	8.4	6.6	8.9	6.1	5.7	8.5	4.9 J	3.8 J
Chromium VI	11	µg/L	--	0.2 U	9.2	1.2	1.3	--	--	--	--	--	--	--	--	--
Cobalt	100	µg/L	160	1.3 U	1.3 U	1.3 U	1.3 U	3.1 J	2.5 J	2.6 J	4.5 J	1.6 U	1.3 U	1.3 U	6	1.3 U
Magnesium	1,500,000	µg/L	620,000	25,000	62,000	30,000	30,000	570,000	530,000	650,000	630,000	990,000	780,000	920,000	720,000	250,000
Manganese	5,400	µg/L	3,700	6.8	3.1 J	150	120	2,200	4,700	1500	3,200	5,100	9,300	2,000	4,300	590
Mercury	0.22	µg/L	0.032 J	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.032 J	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U
Molybdenum	78	µg/L	11	7.5	5.6	4.9 J	4.9 J	4.8 J	20	11	21	6.5	9.1	13	5.1	9.5
Nickel	8.2	µg/L	33	0.93 U	1.6 U	1.2 U	0.77 U	5	9.5	7.6	11	2.1 U	1.2 U	2.7 U	7.2	2.5 U
Selenium	12	µg/L	71	13	24	14	15	42	74	76	51	74	74	82	49	180
Silver	15	µg/L	2.3 J	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2 J	2 J	2.5 U	3 J	3.2 J	2.1 J	1.4 J	2 J
Thallium	2	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	8.5 J	7.6 J	5 UJ	5 UJ	5 U
Vanadium	140	µg/L	6.1	2.4 J	2.5 J	2.3 J	2.2 J	11	8.4	5 J	13	2.5 U	1.4 J	8.4	5.9	5.4
Zinc	260	µg/L	15 J	6.6 J	6.9 J	10 U	10 U	4.6 J	9.6 J	6.4 J	13 J	10 U	10 U	9.7 J	9.2 J	6.2 J

Notes:

[1] Water Board, 2013. "Summary Table A, Environmental Screening Levels, Shallow Soils (<3m bgs), Groundwater is Current or Potential Source of Drinking Water)." December.

[2] Technical Memorandum Estimation of Ambient Metal Concentrations in Shallow Groundwater, Mare Island, Vallejo, California (PRC, 1996).

IR04 – Installation Restoration Site 04

µg/L - micrograms per liter

PAL - project action limit

U - Indicates the compound or analyte was analyzed but not detected above sample quantitation limit

J - Indicates an estimated value

Value exceeds PAL

Table 5. Detected Groundwater Analytical Results for PAHs – IR04

		Sample ID	04W06-081414	04W10-081414	04W17-081314	04W18-081314	04W19-081314
		Sample Date	8/14/2014	8/14/2014	8/13/2014	8/13/2014	8/13/2014
Analyte	**PAL[1]**	**Units**					
2-Methylnaphthalene	2.1	µg/L	0.04 U	0.05 J	0.04 U	0.04 U	0.02 J
Acenaphthene	20	µg/L	0.04 U	0.04 U	0.04 U	0.04 U	0.03 J
Acenaphthylene	30	µg/L	0.04 U	0.04 U	0.04 U	0.04 U	0.03 J
Anthracene	0.73	µg/L	0.04 U	0.04 U	0.04 U	0.04 U	0.04 J
Benzo(a)anthracene	0.027	µg/L	0.04 U	0.04 U	0.04 U	0.04 U	0.02 J
Benzo(b)fluoranthene	0.056	µg/L	0.04 U	0.04 U	0.04 U	0.04 U	0.03 J
Fluoranthene	8	µg/L	0.04 U	0.04 U	0.04 U	0.04 U	0.2
Fluorene	3.9	µg/L	0.04 U	0.04 U	0.04 U	0.04 U	0.06 J
Naphthalene	6.1	µg/L	0.04 U	0.03 J	0.04 U	0.04 U	0.04 J
Phenanthrene	4.6	µg/L	0.03 U	0.04 U	0.04 U	0.04 U	0.4
Pyrene	2	µg/L	0.04 U	0.04 U	0.2	0.04 U	0.2

Notes:

[1] Water Board, 2013. "Summary Table A, Environmental Screening Levels, Shallow Soils (<3m bgs), Groundwater is Current or Potential Source of Drinking Water)." December.

IR04 – Installation Restoration Site 0

PAH - polycyclic aromatic hydrocarbons

PAL - project action limit

µg/L - micrograms per liter

U - Indicates the compound or analyte was analyzed but not detected above sample quantitation limit

J - Indicates an estimated value

Table 6. Detected Groundwater Analytical Results for SVOCs – IR04

		Sample ID	04W06-081414	04W10-081414	04W17-081314	04W18-081314	04W19-081314
		Sample Date	8/14/2014	8/14/2014	8/13/2014	8/13/2014	8/13/2014
Analyte	**PAL[1]**	**Units**					
Bis(2-ethylhexyl)phthalate	4	µg/L	2.4 U	2.4 U	9.9	2.4 J	2.4 U

Notes:

[1] Water Board, 2013. "Summary Table A, Environmental Screening Levels, Shallow Soils (<3m bgs), Groundwater is Current or Potential Source of Drinking Water)." December.

IR04 – Installation Restoration Site 04

PAL - project action limit

µg/L - micrograms per liter

SVOCs - semi-volatile organic compounds

U - Indicates the compound or analyte was analyzed but not detected above sample quantitation limit

J - Indicates an estimated value

Value exceeds PAL

Table 7. Detected Groundwater Analytical Results for TPH-d – IR04

		Sample ID	04W17-081314	04W18-081314	04W19-081314
		Sample Date	8/13/2014	8/13/2014	8/13/2014
Analyte	**PAL[1]**	**Units**			
TPH-d	100	µg/L	1,500	1,100	1,000

Notes:

[1] Water Board, 2013. "Summary Table A, Environmental Screening Levels, Shallow Soils (<3m bgs), Groundwater is Current or Potential Source of Drinking Water)." December.

IR04 – Installation Restoration Site 04

PAL - project action limit

µg/L - micrograms per liter

TPH-d – total petroleum hydrocarbon as diesel

Value exceeds PAL

Table 8. Detected Groundwater Analytical Results for VOCs – IR04

		Sample ID	04W14-081414	04W17-081314	04W18-081314	04W19-081314
		Sample Date	8/14/2014	8/13/2014	8/13/2014	8/13/2014
Analyte	**PAL[1]**	**Units**				
4-Isopropyltoluene	NA	µg/L	0.2 U	0.2 U	0.2 J	0.2 U

Notes:

[1] There is no PAL established for 4-Isopropyltoluene; however, a detection was made above the laboratory method detection limit.

IR04 – Installation Restoration Site 04

PAL - project action limit

µg/L - micrograms per liter

NA - not applicable

VOCs - volatile organic compounds

U - Indicates the compound or analyte was analyzed but not detected above sample quantitation limit

J - Indicates an estimated value

Appendix A. Photographic Log

Photograph A-1: Monitoring well 04W12 located at IR04 site. CES personnel conducting groundwater level measurement.

Former Mare Island Naval Shipyard Vallejo, California, California
Photographed by: CES Date: August 12, 2014

Photograph A-2: IDW stored in DOT-approved 55-gallon drums in a covered, fenced, and locked area at Building 993. Two of the drums in this photo contained purge and decontamination water from semiannual groundwater monitoring activity.

Former Mare Island Naval Shipyard Vallejo, California, California
Photographed by: CES Date: August 14, 2014

Appendix B. Field Forms

TAILGATE SAFETY MEETING

SITE LOCATION: Former Mare Island Naval Shipyard **CONTRACT #** N62473-11-D-2215, CTO-0004

DATE 8/12/14 **TIME** 0715 **PROJECT NUMBER** 2013-042

CLIENT Navy

SPECIFIC LOCATION Mare Island Naval Shipyard

TYPE OF WORK Groundwater sampling

SAFETY TOPICS PRESENTED

SAFETY TOPICS LESSONS LEARNED Insects, vehicular traffic, lifting, COCs, PPE

PROTECTIVE CLOTHING/EQUIPMENT Level D PPE (Steel Toed Boots, hardhat, safety glasses, refelective vest, and nitrile gloves,

DISCUSSED LPO CARDS: _____ Yes _____ No

CHEMICAL HAZARDS Metals, VOCs, SVOCs, PAHs, PCBs, TPH, explosives, radionuclides and TDS

PHYSICAL HAZARDS Vehicles and traffic

BIOLOGICAL HAZARDS Insects and snakes.

EMERGENCY PROCEDURES Call 911 (emergencies). Contact PM from contact list

CLINIC ADDRESS Cocentra Medical Center, 2970 Hilltop Mall Road, Suite 203, San Pablo, CA 94806 **PHONE** 510-222-8000

HOSPITAL ADDRESS Sutter Solano Medical Center, 300 Hospital Drive, Vallejo, CA 94589

SPECIAL EQUIPMENT Groundwater Sampling equipment

NOTE :

ATTENDEES

NAME PRINTED	COMPANY	SIGNATURE
Sullivan Lee	ERRG	[signature]
Maggie Mandell	CEG	[signature]

SSHO: Sullivan Lee **SUPERINTENDENT:** —

SIGNATURE: [signature] **SIGNATURE:** —

AMIBIENT AIR TEMPERATURE MONITORING

FORECASTED HIGH/LOW TEMP 70°F/50°F

IF TEMPS EXCEED 95°F, LOG TEMPS FOR THESE TIMES: **7AM** _____ **11AM** _____ **2PM** _____

Note: Times are approximate. If temperatures exceed 95°F, begin visual monitoring of personnel for heat stress.

TAILGATE SAFETY MEETING

SITE LOCATION: Former Mare Island Naval Shipyard **CONTRACT #**

DATE 8/13/14 **TIME** 0720 **PROJECT NUMBER** 2013-042

CLIENT Navy

SPECIFIC LOCATION IRC4 Mare Island

TYPE OF WORK Groundwater sampling

SAFETY TOPICS PRESENTED

SAFETY TOPICS LESSONS LEARNED Ticks, Slips/trips & falls, Work Care

PROTECTIVE CLOTHING/EQUIPMENT Level D PPE (Steel Toed Boots, hardhat, safety glasses, refelective vest, and nitrile gloves,

DISCUSSED LPO CARDS: ____ Yes X No

CHEMICAL HAZARDS Metals, VOCs, SVOCs, PAHs, PCBs, TPH, ~~explosives, radionuclides~~ haw and TDS

PHYSICAL HAZARDS Vehicles and traffic

BIOLOGICAL HAZARDS Insects and snakes.

EMERGENCY PROCEDURES Call 911 (emergencies)

CLINIC ADDRESS Cocentra Medical Center, 2970 Hilltop Mall Road, Suite 203, San Pablo, CA 94806 **PHONE** 510-222-8000

HOSPITAL ADDRESS Sutter Solano Medical Center, 300 Hospital Drive, Vallejo, CA 94589

SPECIAL EQUIPMENT Groundwater Sampling equipment

NOTE :

ATTENDEES

NAME PRINTED	COMPANY	SIGNATURE
Maggie Mandell	CES	[signature]
Heather Wollenburg	CES	[signature]

SSHO: Sullivan Lee

SIGNATURE: [signature]

SUPERINTENDENT:

SIGNATURE:

AMIBIENT AIR TEMPERATURE MONITORING

FORECASTED HIGH/LOW TEMP ____

IF TEMPS EXCEED 95°F, LOG TEMPS FOR THESE TIMES: 7AM ____ 11AM ____ 2PM ____

Note: Times are approximate. If temperatures exceed 95°F, begin visual monitoring of personnel for heat stress.

TAILGATE SAFETY MEETING

SITE LOCATION: Former Mare Island Naval Shipyard **CONTRACT #**

DATE 8/14/14 **TIME** 0800 **PROJECT NUMBER** 2013-042

CLIENT Navy

SPECIFIC LOCATION IR04 Mare Island

TYPE OF WORK Groundwater sampling

SAFETY TOPICS PRESENTED

SAFETY TOPICS LESSONS LEARNED Ticks, Gate lock, Slips, trips & falls, Lifting

PROTECTIVE CLOTHING/EQUIPMENT Level D PPE (Steel Toed Boots, hardhat, safety glasses, refelective vest, and nitrile gloves,

DISCUSSED LPO CARDS: ____ Yes X No

CHEMICAL HAZARDS Metals, VOCs, SVOCs, PAHs, PCBs, TPH, explosives, radionuclides and TDS

PHYSICAL HAZARDS Vehicles and traffic

BIOLOGICAL HAZARDS Insects and snakes.

EMERGENCY PROCEDURES Call 9-11

CLINIC ADDRESS Cocentra Medical Center, 2970 Hilltop Mall Road, Suite 203, San Pablo, CA 94806 **PHONE** 510-222-8000

HOSPITAL ADDRESS Sutter Solano Medical Center, 300 Hospital Drive, Vallejo, CA 94589

SPECIAL EQUIPMENT Groundwater Sampling equipment

NOTE :

ATTENDEES

NAME PRINTED	COMPANY	SIGNATURE
Maggie Mandell	CES	[illegible]

SSHO: Sullivan Lee

SIGNATURE: [illegible]

SUPERINTENDENT:

SIGNATURE:

AMIBIENT AIR TEMPERATURE MONITORING

FORECASTED HIGH/LOW TEMP 75°/ 59° F

IF TEMPS EXCEED 95°F, LOG TEMPS FOR THESE TIMES: **7AM** ____ **11AM** ____ **2PM** ____

Note: Times are approximate. If temperatures exceed 95°F, begin visual monitoring of personnel for heat stress.

TAILGATE SAFETY MEETING

SITE LOCATION: Former Mare Island Naval Shipyard **CONTRACT #**

DATE 8/15/14 **TIME** 0715 **PROJECT NUMBER** 2013-042

CLIENT Navy

SPECIFIC LOCATION IR04, Mare Island.

TYPE OF WORK Groundwater sampling & Survey

SAFETY TOPICS PRESENTED

SAFETY TOPICS LESSONS LEARNED Ticks, Slip trips/fall, Vehicular traffic, biological (ticks & snakes), lifting

PROTECTIVE CLOTHING/EQUIPMENT Level D PPE (Steel Toed Boots, hardhat, safety glasses, refelective vest, and nitrile gloves,

DISCUSSED LPO CARDS: ____ Yes X No SL

CHEMICAL HAZARDS Metals, VOCs, SVOCs, PAHs, PCBs, TPH, ~~explosives, radionuclides~~ and TDS

PHYSICAL HAZARDS Vehicles and traffic

BIOLOGICAL HAZARDS Insects and snakes.

EMERGENCY PROCEDURES Call 911

CLINIC ADDRESS Cocentra Medical Center, 2970 Hilltop Mall Road, Suite 203, San Pablo, CA 94806 **PHONE** 510-222-8000

HOSPITAL ADDRESS Sutter Solano Medical Center, 300 Hospital Drive, Vallejo, CA 94589

SPECIAL EQUIPMENT Groundwater Sampling equipment

NOTE :

ATTENDEES

NAME PRINTED	COMPANY	SIGNATURE
Maggie Mandell	CES	[illegible]
Virgil Flower	VCLS	[illegible]
Izzat Amundea	Navy Police	[illegible]

SSHO: Sullivan Lee **SUPERINTENDENT:**

SIGNATURE: [illegible] **SIGNATURE:**

AMIBIENT AIR TEMPERATURE MONITORING

FORECASTED HIGH/LOW TEMP 75°/59° F

IF TEMPS EXCEED 95°F, LOG TEMPS FOR THESE TIMES: 7AM ____ 11AM ____ 2PM ____

Note: Times are approximate. If temperatures exceed 95°F, begin visual monitoring of personnel for heat stress.

* Also to cover:
- Debris Pile Investigation @ Solid WMU 78/ Bldg. 505 site
- Additional Soil and Soil gas sampling at former UST 993-4 site

SITE SAFETY AND HEALTH PLAN
SAFETY COMPLIANCE AGREEMENT FORM

Project: Basewide Groundwater Sampling, Well install, well abandonment at former Mare Island Naval Shipyard.

Project No.: 2013-042

Project Location: Former Mare Island Shipyard, Vallejo, CA

Project Manager: Heather Wollenburg

Project Director: Doug Bielskis, PE

The undersigned acknowledge that they have read and understood and agree to abide by the health and safety plan.

Name (Printed)	Name (Signature)	Date
C. BRIANNE FOSTER		21 July 2014
Kevin Woodhouse		7/29/2014
MATT MILLER		29 JUL 14
Fred Niehoff		29 July 14
IZZAT Amaden		—
BRANDON MOSES		07.29.14
Ron Stayman II		7.29.14
Devon Hurley		7-29-14
Rob Osborne		7-29-14
ROLANDO MEDINA		7.29.14
		NOTE: WITNESSED
	MAM	R. MEDINA SIGN 7/30/14
		NOI 7/29/14 MAM
Jay Ressler		31 Jul 2014
Jorge Yuugri		31 Jul 2014
		MAM
Jeiram Nor		8/2/14
Heather Wollenburg		8/3/14
Aaron Smith		8/4/14
Tammy Lim		8/6/14
Mandi McElroy		8/7/14
Jacob Thomas		8/7/14
JAMES Nores		8/7/14
Virgil Chavez		8/8/14
Sullivan Lee		8/12/14
Maggie Mandell		8/12/14

AIR MONITORING LOG SHEET

ERRG

Prepared by: Sullivan Lee
Project Name: Mare Island GW Sampling
Site Location: Mare Island
Calibration (Date and Time): 8/12/14 0730

Client: Navy
Project No.: 2013-042
Page: 1 of 1
Standard Used:

Location	Date	Time	PID ~~mg/m3~~	MiniRAM TWA mg/m3	Comments
Bldg 742	8/12/14	0800	0.2		Breathing Zone (BZ)
IR-04	"	0900	1.1		BZ
"	"	1000	2.1		BZ
"	"	1100	1.4		BZ
DRMO South	"	1300	0.0		BZ
"	"	1400	0.0		BZ
"	"	1430	0.0		BZ

Date: 8/13/14

AIR MONITORING LOG

ERRG

SAMPLING LOCATION	CASING ELEVATION (FT.)	DEPTH TO WATER	WATER SURFACE ELEVATION	ADDITIONAL INFORMATION	
	Time	ppm (VOC)	LEL	H_2S	Notes
~~0740~~ IR04	~~0740~~ 1030	0.0	0		Breathing Zone (BZ)
IR04	1100	0	0	0	BZ 04W19
IR04	1130	0	0	0	BZ 04W18
IR04	1200	0	0	0	BZ 04W17
IR04	1230	0	0	0	BZ 04W16
IR04	1400	0	0	0	BZ 04W16
IR04	1500	0	0	0	BZ 04W16

AIR MONITORING LOG SHEET

ERRG

Prepared by: Sulliivan Lee
Project Name: GW Sampling Event
Site Location: Mare Island
Calibration (Date and Time): 0730 8/14/14

Client: Navy
Project No.: 2013-042
Page: 1 of 1
Standard Used: Mutiple Gas/Isobutylene

Location	Date	Time	PID (ppm)	~~DataRAM~~ SL (~~mg/m^3~~) LEL (%)	H_2S	
IR04 (04W07)	8/14/14	0800	6.0	0	0	
" 04W08	"	0815	2.2	0	0	
IR04 Breathing Zone (BZ)	"	0830	0	0	0	
IR04 BZ	"	0845	0	0	0	
" "	"	0900	0	0	0	
04W09	"	0930	0	0	0	
04W06	"	0932	0	0	0	
BZ IR04	"	1000	0	0	0	
BZ IR04	"	1050	0	0	0	
04W10	"	1105	0	0	0	

AIR MONITORING LOG SHEET

ERRG

Prepared by: Sulliivan Lee
Project Name: SL ~~Mare~~ GW Monitoring
Site Location: Mare Island
Calibration (Date and Time): 0800 8/15/15

Client: Navy
Project No.: 2013-042
Page: 1 of 1
Standard Used: ~~0800~~ SL

Location	Date	Time	PID (ppm)	~~DataRAM (mg/m³)~~ SL LEL%	H_2S	
IR04 (Breathing Zone-BZ)	8/15/14	0800	0	0	0	
IR04 BZ	"	0830	0	0	0	
IR04 W11	"	0900	0	0	0	
IR04 BZ	"	0945	0	0	0	
IR04 BZ	"	1030	0	0	0	
IR04 BZ	"	1100	0	0	0	
"	"	1200	0	0	0	
IDW Area	"	SL ~~1X~~ 1400	0	0	0	

Activity Hazard Analysis (AHA) 2

Activity/Work Task: **Collect Groundwater Samples**	Overall Risk Assessment Code (RAC) (Use highest code) **M**
Project Location: Former Mare Island Naval Shipyard, Vallejo, CA	
Contract Number: N62473-11-D-2215, CTO 0004	
Date Prepared: 6/6/13	
Prepared by (Name/Title): Michael Goymerac/Staff Engineer	
Reviewed by (Name/Title): Randy Randall/Corporate Health and Safety Manager	
Notes: (Field Notes, Review Comments, etc.)	

Risk Assessment Code (RAC) Matrix

Severity	Probability: Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

Step 1: Review each "**Hazard**" with identified safety "**Controls**" and determine RAC (See above)

"**Probability**" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.

"**Severity**" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.

RAC Chart

- E = Extremely High Risk
- H = High Risk
- M = Moderate Risk
- L = Low Risk

Job Steps	Hazards	Controls	Field Modifications	Initials	RAC
1. Establish exclusion zone around well 2. Purge groundwater from well 3. Collect sample 4. Properly label samples and ship to laboratory 5. Transfer IDW into 55-gallon drums and relocate to Waste Storage Area	▪ Heat and cold stress	▪ Keep hydrated (at least 1 quart of water per hour) ▪ Take rest breaks in shaded areas on hot days and in warm areas on cold days ▪ Wear appropriate clothing for hot and cold weather by layering ▪ Wear waterproof clothing to keep dry while working in wet weather to prevent cold stress ▪ Do not work alone in cold-stress prone environments ▪ Apply sun block (minimum SPF 30) ▪ SSHO to monitor for heat stress symptoms when temperatures exceed 70°F when wearing Level A, B, or C PPE and 85°F when wearing Level D PPE ▪ SSHO to review for cold stress symptoms and preventive measures during daily tailgate meetings			L
	▪ Biological	▪ Remain alert to presence of snakes, insects, animals, and poisonous plants ▪ If bitten by an insect or animal, immediately seek medical assistance ▪ Persons susceptible to anaphylactic shock resulting from allergic reactions should carry an epinephrine pen with them at all times and should notify coworkers and SSHO of the location of the pen			L

Activity Hazard Analysis (AHA) 2

Activity/Work Task: **Collect Groundwater Samples**	Overall Risk Assessment Code (RAC) (Use highest code)	M

Job Steps	Hazards	Controls	Field Modifications	Initials	RAC
1. Establish exclusion zone around well 2. Purge groundwater from well 3. Collect sample 4. Properly label samples and ship to laboratory 5. Transfer IDW into 55-gallon drums and relocate to Waste Storage Area *(continued)*	▪ Contact with or ingestion of groundwater containing COCs (VOCs, SVOCs, PCBs, alpha and gamma emitters, pesticides, TPH, metals, and munitions constituents) during sample collection (*applies to steps 2 and 3 only*) –	*All controls apply to steps 2 and 3 only:* ▪ Wear nitrile gloves during sampling ▪ Avoid contact with groundwater where possible ▪ Begin VOC monitoring with PID when well head is opened; record background readings every 15 minutes for 1 hour prior to beginning work activities; once activities have begun and after background readings are taken continue to record PID readings on an hourly basis ▪ Wash hands and exit exclusion zone before eating, drinking, smoking, or applying cosmetics ▪ Remove all contaminated PPE within the contaminant reduction zone and place in a designated used PPE receptacle ▪ Do not ingest groundwater.			L
	▪ Explosives	▪ If work is performed in UXO Site 03 (Dredge Pond 3E, Northern Marine Corps Firing Range) or UXO Site 07 (South Shore Area), the SSHO will coordinate with the Navy contractor in charge of that site to provide MEC awareness training for the three "R's" (recognize, retreat, report) to all site personnel ▪ Work will be performed in accordance with all procedures and requirements of the UXO contractor's work plan			M

Equipment to be Used	Training Requirements/Competent or Qualified Personnel Name(s)	Inspection/Calibration Records/Checklists Used
▪ Steel-toed boots (ANSI Z41.1) ▪ Hardhat (ANSI Z89.1) ▪ Safety glasses with side shields (ANSI Z87.1) ▪ Goggles (If needed) ▪ Shirts with sleeves ▪ Long pants ▪ Reflective class II safety vest ▪ Cut-resistant gloves, as needed ▪ Nitrile gloves, as needed ▪ Hearing protection devices (earplugs or earmuffs with a minimum NRR of 29 decibels), as needed ▪ Plastic sheeting ▪ Spill kit ▪ First-aid kit ▪ Portable eyewash station (ANSI Z358.1) ▪ PID meter ▪ Fire extinguisher	▪ All site crew must have completed 40-hour HAZWOPER training and 8-hour refresher ▪ All site crew must review APP and sign a SSHP Safety Compliance Agreement Form ▪ All site crew must attend onsite safety briefing and daily tailgate safety meetings ▪ At least two crewmembers must have current first-aid/CPR training (Brianne Foster and Kevin Woodhouse) ▪ All crewmembers will receive MEC Awareness training in the three "R's" prior to performing work at a UXO site	▪ Inspect PPE for damage and deterioration prior to each work shift ▪ Inspect (weekly) first-aid kit ▪ Inspect (daily) eyewash station ▪ Inspect (monthly) fire extinguisher/certification ▪ Inspect (daily) hand tools and equipment before use ▪ Calibrate dust monitor per manufacturer's instructions ▪ Calibrate PID per manufacturer's instructions

Sullivan Lee 8/12/14 Sullivan Lee

M. Mandell 8/12/14 Margaret Mandell

CES

WATER ELEVATION LOG

ERRG

Total Depth (ft) Depth to Product (ft)

SAMPLING LOCATION	~~CASING ELEVATION (FT.)~~	DEPTH TO WATER (ft)	~~WATER SURFACE ELEVATION~~	ADDITIONAL INFORMATION
DIC85W05	14.95	5.24	–	
DIC85MW01R	14.95	3.98	–	
DIC85W03	14.95	5.02	–	
DIC85W04	14.95	4.48	–	
04W11	19.75	4.47	–	
04W12	20.10	3.97	–	
04W15	20.30	3.26	–	
04W14	20.15	6.68	–	
04W10	20.30	4.67	–	
04W06	19.95	5.42	–	
04W09	19.95	9.21	–	
04W07	20.20	11.42	–	
04W08	24.70	11.24	–	
04W23	23.10	5.10	–	Cut lock on well
04W19	23.80	6.27	–	Cut lock on well
04W18	23.78	6.81	–	Cut lock on well
04W17	23.72	5.88	–	Cut lock on well
04W16	23.30	7.05	–	Cut lock on well
"DIC85W06"	24.30	3.67	–	mislabeled well? DIC85W02R ??
01W56	24.10	10.09	–	
DIC85W02R could not be located. DIC85W06 is in location where DIC85W02R was expected to be. Groundwater level measurement taken in DIC85W06. Situation communicated to Navy RPM from field. 08/12/14. MM				

Groundwater Purge Form
Low Flow Sampling

PROJECT NO: 2013-042
DATE: 8/12/14
CLIENT NAME: NAVY
LOCATION: MINS
ARRIVAL TIME: 1305

WELL ID: 01W56
SAMPLE ID: 01W56-081214
PURGED BY: MM/BL
DEPARTURE TIME: 1415

ERRG
4585 Pacheco Blvd, Suite 200
Martinez, CA 94553
Phone: (925) 969-0750

Casing Diameter (inches):	2":	3":	4": ✓	5":	6":	8":	Other:
Casing Volume (gal/ft):	(0.16)	(0.37)	(0.65)	(1.02)	(1.47)	(2.61)	( )

Total Depth (feet) = 24.10 — Depth to Water (feet): 10.09 — Depth to Product (feet): —

~~24.10~~ MM (TD) - ~~10.09~~ MM (DTW) = ~~14.01~~ MM x ~~0.65~~ MM (Casing volume) = ~~9.107~~ MM x — (No. of casing volumes) = — (Calculated Purge)

Time Started: 1320 — Time ended: 1357

Time (2400hr)	Depth to Water (ft)	Refill Time (sec)	Discharge Time (sec)	Pressure (psi)	Flowrate (L/min)	Volume (L)	Temp. (°C)	Sp. Cond. (mS/cm)	pH (units)	D.O. (mg/L)	Salinity (%)	Turbidity (NTU)	ORP (mV)	Odor (Y/N)	Pumped Dry (Y/N)
Criteria	±0.33ft				0.1 to 1.0		±3%	±5%	±0.2 units	±0.2 mg/L		±10%	+10 mV		
1320	10.09				.3	0	—	—	—	—		—	—	N	N
1324	10.36					1.2	20.11	19776	6.32	0.37		174	-126.0		
1328	10.39					2.4	20.10	19731	6.29	0.55		51.7	-122.7		
1332	10.39					3.6	20.13	19645	6.28	0.53		41.7	-120.5		
1336	10.42					4.8	20.27	18934	6.28	0.45		25.1	-101.3		
1340	10.43					6.0	20.20	18050	6.30	0.26		24.0	-85.7		
1344	10.47					7.2	19.99	16950	6.36	0.19		30.7	-81.0		
1346	10.48					7.8	20.08	16511	6.37	0.19		29.6	-81.1		
1348	10.49					8.4	19.92	16240	6.39	0.18		29.8	-80.2		

Actual gallons purged: 2.22 — Sample Time: 1352

PURGING EQUIPMENT

Active Extraction Well Pump ____ — Bailer (Teflon) ____
Portable Submersible Pump ____ — Bailer (PVC) ____
Other: ~~Peristaltic~~ YSI — Bailer (Stain. Steel) ____
Pump Depth: ____ — Dedicated ____

SAMPLING EQUIPMENT

Sampling Port ____ — Bailer (Teflon) ____
Portable Submersible Pump ____ — Bailer (PVC) ____
Peristaltic Pump ✓ — Bailer (Stainless Steel) ____
Other: ____

Well Integrity: Good: ✓ Fair: ____ Poor: ____ — Lock No. ____

Remarks: ____

Signature: [signature] — Reviewed by ____ — Page 1 of 1

Groundwater Purge Form
Low Flow Sampling

PROJECT NO: N62473-11-D-2215
DATE: 8/13/14
CLIENT NAME: NAVY
LOCATION: 1204 Site
ARRIVAL TIME: 0812

WELL ID: 64W19
SAMPLE ID: 04W19-081314
PURGED BY: M. Mandell + S. Lee
DEPARTURE TIME: 1030

ERRG
4585 Pacheco Blvd, Suite 200
Martinez, CA 94553
Phone: (925) 969-0750

Casing Diameter (inches): 2": ___ 3": ___ 4": ✓ 5": ___ 6": ___ 8": ___ Other: ___
Casing Volume (gal/ft): (0.16) (0.37) (0.65) (1.02) (1.47) (2.61) ( )
Total Depth (feet) = 23.02 Depth to Water (feet): 6.25 Depth to Product (feet): —

— (TD) - — (DTW) = — x — (Casing volume) = — x — (No. of casing volumes) = — (Calculated Purge)

Time Started: 0810 Time ended: 0830

Time (2400hr)	Depth to Water (ft)	Refill Time (sec)	Discharge Time (sec)	Pressure (psi)	Flowrate (L/min)	Volume (L)	Temp. (°C)	Sp. Cond. (mS/cm)	pH (units)	D.O. (mg/L)	Salinity (%)	Turbidity (NTU)	ORP (mV)	Odor (Y/N)	Pumped Dry (Y/N)
Criteria	±0.33ft				0.1 to 1.0		±3%	±5%	±0.2 units	±0.2 mg/L		±10%	+10 mV		
0810	6.25	—	—	—	.4	0	—	—	—	—	—	—	—	—	—
0815	6.55				.4	2.0	17.13	33712	6.32	1.20		41.8	-97.6	N	N
~~0820~~ 0818	6.88				.4	3.2	17.12	33743	6.43	0.77		42.4	-101.7		
0821	7.11				.4	4.4	17.09	33716	6.35	0.64		40.1	-99.1		
0824	7.34				.4	5.6	17.04	33093	6.32	0.26		38.6	-97.7		
0827	7.45				.26	6.38	17.08	33559	6.27	0.17		38.1	-95.4		
0830	7.58				.26	7.16	17.20	33488	6.27	0.15		41.6	-89.5	↓	↓

Actual gallons purged: 1.89 Sample Time: 0835

PURGING EQUIPMENT

Active Extraction Well Pump ___ ___ Bailer (Teflon)
Portable Submersible Pump ___ ___ Bailer (PVC)
Other: YSI ___ Bailer (Stain. Steel)
Pump Depth: ___ ___ Dedicated

SAMPLING EQUIPMENT

Sampling Port ___ ___ Bailer (Teflon)
Portable Submersible Pump ___ ___ Bailer (PVC)
Peristaltic Pump ✓ ___ Bailer (Stainless Steel)
___ Other: ___

Well Integrity: Good: ✓ Fair: ☐ Poor: ☐ Lock No. Cut lock
Remarks:

Signature: M. Mandell Reviewed by ___ Page 1 of 1

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Groundwater Purge Form
Low Flow Sampling

PROJECT NO: N62473-11-D-2215
DATE: 8/13/14
CLIENT NAME: NAVY
LOCATION: IR04
ARRIVAL TIME: 1030

WELL ID: 04W18
SAMPLE ID: 04W18-081314
PURGED BY: MM + SL
DEPARTURE TIME: 1210

ERRG
4585 Pacheco Blvd, Suite 200
Martinez, CA 94553
Phone: (925) 969-0750

Casing Diameter (inches): 2": ___ 3": ___ 4": ✓ 5": ___ 6": ___ 8": ___ Other: ___
Casing Volume (gal/ft): (0.16) (0.37) (0.65) (1.02) (1.47) (2.61) ( )
Total Depth (feet) = 23.78 Depth to Water (feet): 6.76 Depth to Product (feet): —

— (TD) - — (DTW) = — x — (Casing volume) = — x — (No. of casing volumes) = — (Calculated Purge)

Time Started: 1108 Time ended: 1206

Time (2400hr)	Depth to Water (ft)	Refill Time (sec)	Discharge Time (sec)	Pressure (psi)	Flowrate (L/min)	Volume (L)	Temp. (°C)	Sp. Cond. (mS/cm)	pH (units)	D.O. (mg/L)	Salinity (%)	Turbidity (NTU)	ORP (mV)	Odor (Y/N)	Pumped Dry (Y/N)
Criteria	±0.33ft				0.1 to 1.0		±3%	±5%	±0.2 units	±0.2 mg/L		±10%	+10 mV		
—	—	—	—	—	.26	0 mM	—	—	—	—	—	—	—	—	—
1114	6.76					0	19.09	26.94	7.37	1.14		36.2	251.3	N	N
1118	7.05					1.04	18.85	26.76	7.38	0.81		34.8	236.5		
1122	7.21					2.08	18.63	26.71	7.36	0.64		32.2	231.2		
1126	7.39					4.12	18.49	26.72	7.34	0.54		32.5	230.7		
1132	7.51					4.16	18.55	26.107	7.31	0.4		32.8	230.6		

Actual gallons purged: 1.1 Sample Time: 1132

PURGING EQUIPMENT

Active Extraction Well Pump ___ ___ Bailer (Teflon)
Portable Submersible Pump ___ ___ Bailer (PVC)
Other: YSI #17496 ___ Bailer (Stain. Steel)
Pump Depth: ___ ___ Dedicated

SAMPLING EQUIPMENT

Sampling Port ___ ___ Bailer (Teflon)
Portable Submersible Pump ___ ___ Bailer (PVC)
Peristaltic Pump ✓ ___ Bailer (Stainless Steel)
___ Other: ___

Well Integrity: Good: ✓ Fair: ___ Poor: ___ Lock No. Cut lock
Remarks:

Signature: [signature] Reviewed by ___ Page 1 of 1

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Groundwater Purge Form
Low Flow Sampling

PROJECT NO: 2013-042
DATE: 8/13/14
CLIENT NAME: ~~ERRG~~ NAVY
LOCATION: IR04
ARRIVAL TIME: 1135

WELL ID: IR04 W17
SAMPLE ID: IR04 W17 - 081314
PURGED BY: SCL
DEPARTURE TIME: 1245

ERRG
4585 Pacheco Blvd, Suite 200
Martinez, CA 94553
Phone: (925) 969-0750

Casing Diameter (inches): 2": ___ 3": ___ 4": ✓ 5": ___ 6": ___ 8": ___ Other: ___
Casing Volume (gal/ft): (0.16) (0.37) (0.65) (1.02) (1.47) (2.61) ( )
Total Depth (feet) = 23.72 Depth to Water (feet): 6.11 Depth to Product (feet): —

— (TD) - 6.11 (DTW) = — x — (Casing volume) = — x — (No. of casing volumes) = — (Calculated Purge)

Time Started: 1130 Time ended: 1240

Time (2400hr)	Depth to Water (ft)	Refill Time (sec)	Discharge Time (sec)	Pressure (psi)	Flowrate (L/min)	Volume (L)	Temp. (°C)	Sp. Cond. (mS/cm)	pH (units)	D.O. (mg/L)	Salinity (%)	Turbidity (NTU)	ORP (mV)	Odor (Y/N)	Pumped Dry (Y/N)
Criteria	±0.33ft				0.1 to 1.0	-	±3%	±5%	±0.2 units	±0.2 mg/L		±10%	±10 mV		
1140	6.15			—	0.260	—	20.35	21723	6.70	0.55	—	-94.0	143	N	N
1145	6.17			—	0.260	1.3	19.39	21685	6.60	0.30	—	33.4	-87.6	N	N
1150	6.15			—	0.260	2.6	19.02	21706	6.55	0.23	—	15.0	-84.6	N	N
1155	6.15			—	0.260	3.9	19.31	21634	6.50	0.15	—	7.32	-80.4	N	N
1200	6.15			—	0.260	5.2	19.18	21618	6.47	0.12	—	5.16	-80.4	N	N
1205	6.15			—	0.260	6.5	19.22	21683	6.45	0.10	—	4.89	-79.4	N	N
1210	6.15			—	0.260	7.8	19.40	21609	6.42	0.09	—	3.73	-71.8	N	N
1215	6.15			—	0.260	9.1	19.31	21621	6.41	0.09	—	3.31	-65.5	N	N
1220	6.15			—	0.260	10.4	19.22	21605	6.40	0.09	—	3.20	-64.5	N	N

Actual gallons purged: 2.75 Sample Time: 1220

PURGING EQUIPMENT
Active Extraction Well Pump ___ ___ Bailer (Teflon)
Portable Submersible Pump ___ ___ Bailer (PVC)
(YSI) Other: X ___ Bailer (Stain. Steel)
Pump Depth: ___ ___ Dedicated

SAMPLING EQUIPMENT
Sampling Port ___ ___ Bailer (Teflon)
Portable Submersible Pump ___ ___ Bailer (PVC)
Peristaltic Pump X ___ Bailer (Stainless Steel)
___ Other: ___

Well Integrity: Good: X Fair: ___ Poor: ___ Lock No. ___
Remarks: ___

Signature: [signature] Reviewed by ___ Page 1 of 1

Groundwater Purge Form
Low Flow Sampling

PROJECT NO: 2013-042
DATE: 8/13/14
CLIENT NAME: ~~ERRG~~ NAVY
LOCATION: Mare Island
ARRIVAL TIME: 1420

WELL ID: IR04W16
SAMPLE ID: [redacted]04W16-081314
PURGED BY: SCL
DEPARTURE TIME: 1525

ERRG
4585 Pacheco Blvd, Suite 200
Martinez, CA 94553
Phone: (925) 969-0750

Casing Diameter (inches): 2": ___ 3": ___ 4": ✓ 5": ___ 6": ___ 8": ___ Other: ___
Casing Volume (gal/ft): (0.16) (0.37) (0.65) (1.02) (1.47) (2.61) ( )
Total Depth (feet) = 23.30 Depth to Water (feet): 6.85 Depth to Product (feet): —

TD	-	DTW	=		x	Casing volume	=		x	No. of casing volumes	=	Calculated Purge
—		—		—		—		—		—		—

Time Started: 1425 Time ended: 1530

Read off % instead of mg/L.

Time (2400hr)	Depth to Water (ft)	Refill Time (sec)	Discharge Time (sec)	Pressure (psi)	Flowrate (L/min)	Volume (L)	Temp. °C (°F) SL	Sp. Cond. (mS/cm)	pH (units)	D.O. % (~~mg/L~~) SL	Salinity (%)	Turbidity (NTU)	ORP (mV)	Odor (Y/N)	Pumped Dry (Y/N)
Criteria	±0.33ft				0.1 to 1.0		±3%	±5%	±0.2 units	SL ~~±0.2 mg/L~~ ±5%		±10%	+10 mV		
1428	6.85			—	0.250	—	20.27	31.78	8.25	7.0	—	34.7	-70.7	N	N
1433	6.88			—	0.250	1.25	19.73	31.97	8.14	4.0	—	24.6	-72.1	N	N
1438	6.88			—	0.250	2.5	19.80	31.87	8.08	2.5	—	9.23	-74.9	N	N
1443	6.88			—	0.250	3.75	19.81	31.85	8.04	2.1	—	8.93	-80.7	N	N
1448	6.86			—	0.250	5.0	19.81	31.88	8.00	2.0	—	9.18	-84.5	N	N
1453	6.84			—	0.250	6.25	19.77	31.94	7.99	1.9	—	6.31	-85.8	N	N
1458	6.82			—	0.250	7.5	19.80	31.88	7.94	1.5	—	6.43	-86.6	N	N
1503	7.83			—	0.250	8.75	19.81	31.79	7.92	1.5	—	6.56	-87.8	N	N
~~15~~															

Actual gallons purged: 2.31 Sample Time: 1505

PURGING EQUIPMENT

Active Extraction Well Pump ___ ___ Bailer (Teflon)
Portable Submersible Pump ___ ___ Bailer (PVC)
Other: YSI 556 MPS ___ Bailer (Stain. Steel)
Pump Depth: ___ ___ Dedicated

SAMPLING EQUIPMENT

Sampling Port ___ ___ Bailer (Teflon)
Portable Submersible Pump ___ ___ Bailer (PVC)
Peristaltic Pump X ___ Bailer (Stainless Steel)
___ Other: ___

Well Integrity: Good: X Fair: ___ Poor: ___ Lock No. —
Remarks:

Signature: [signature] Reviewed by ___ Page 1 of ___

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Groundwater Purge Form
Low Flow Sampling

PROJECT NO: 2013-042
DATE: 8/14/14
CLIENT NAME: NAVY
LOCATION: IR04
ARRIVAL TIME: 0815

WELL ID: ~~IR~~ 04W07
SAMPLE ID: ~~Sullivan Lee~~ 04W07-0814
PURGED BY: Sullivan Lee
DEPARTURE TIME: 0855

ERRG
4585 Pacheco Blvd, Suite 200
Martinez, CA 94553
Phone: (925) 969-0750

Casing Diameter (inches): 2": ___ 3": ___ 4": ✓ 5": ___ 6": ___ 8": ___ Other: ___
Casing Volume (gal/ft): (0.16) (0.37) (0.65) (1.02) (1.47) (2.61) ( )
Total Depth (feet) = 20.20 Depth to Water (feet): 11.42 Depth to Product (feet): —

TD	-	DTW	=		x	Casing volume	=		x	No. of casing volumes	=	Calculated Purge
—	-	—	=	—	x	—	=	—	x	—	=	—

Time Started: ~~0815~~ SL 0825 Time ended: 0855

Time (2400hr)	Depth to Water (ft)	Refill Time (sec)	Discharge Time (sec)	Pressure (psi)	Flowrate (L/min)	Volume (L)	Temp. °C (°F)	Sp. Cond. µ(mS/cm)	pH (units)	D.O. (mg/L)	Salinity (%)	Turbidity (NTU)	ORP (mV)	Odor (Y/N)	Pumped Dry (Y/N)
Criteria	±0.33ft				0.1 to 1.0		±3%	±5%	±0.2 units	±0.2 mg/L		±10%	+10 mV		
0830	11.59	—	—	—	0.260	—	20.69	671	6.51	0.82	—	9.24	214.5	N	N
0833	11.65	—	—	—	0.260	0.78	20.69	673	6.53	0.55	—	6.10	209.5	N	N
0836	11.72	—	—	—	0.260	1.56	20.72	666	6.53	0.41	—	4.31	204.2	N	N
0839	11.80	—	—	—	0.260	2.34	20.75	659	6.55	0.30	—	4.79	198.5	N	N
0842	11.92	—	—	—	0.260	3.12	20.83	656	6.57	0.36	—	4.35	194.7	N	N

Actual gallons purged: 0.82 Sample Time: 0845

PURGING EQUIPMENT

Active Extraction Well Pump ___ ___ Bailer (Teflon)
Portable Submersible Pump ___ ___ Bailer (PVC)
Other: YSI ___ Bailer (Stain. Steel)
Pump Depth: ___ ___ Dedicated

SAMPLING EQUIPMENT

Sampling Port ___ ___ Bailer (Teflon)
Portable Submersible Pump ___ ___ Bailer (PVC)
Peristaltic Pump X ___ Bailer (Stainless Steel)
___ Other: ___

Well Integrity: Good: X Fair: ___ Poor: ___ Lock No. —
Remarks:

Signature: [signature] Reviewed by ___ Page 1 of 1

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Groundwater Purge Form
Low Flow Sampling

~~0925~~

PROJECT NO: N62473-11-D-2215
DATE: ~~8/15/14~~ 8/14/14
CLIENT NAME: Navy
LOCATION: IRD4
ARRIVAL TIME: 0815

WELL ID: 04W08
SAMPLE ID: 04W08-081414
PURGED BY: MM + SL
DEPARTURE TIME: 0920

ERRG
4585 Pacheco Blvd, Suite 200
Martinez, CA 94553
Phone: (925) 969-0750

Casing Diameter (inches): 2": ___ 3": ___ 4": ✓ 5": ___ 6": ___ 8": ___ Other: ___
Casing Volume (gal/ft): (0.16) (0.37) (0.65) (1.02) (1.47) (2.61) ( )
Total Depth (feet) = 24.70 Depth to Water (feet): 11.23 Depth to Product (feet): —

— (TD) - — (DTW) = — x — (Casing volume) = — x — (No. of casing volumes) = — (Calculated Purge)

Time Started: 0830 Time ended: 0920

Time (2400hr)	Depth to Water (ft)	Refill Time (sec)	Discharge Time (sec)	Pressure (psi)	Flowrate (L/min)	Volume (L)	Temp. (°C)	Sp. Cond. (mS/cm)	pH (units)	D.O. (mg/L)	Salinity (%)	Turbidity (NTU)	ORP (mV)	Odor (Y/N)	Pumped Dry (Y/N)
Criteria	±0.33ft				0.1 to 1.0		±3%	±5%	±0.2 units	±0.2 mg/L		±10%	+10 mV		
0830	11.23	—	—	—	.32	—	—	—	—	—	—	—	—	—	—
0832	11.49	—	—	—		0.64	19.79	1.825	6.38	0.91	—	19.6	202.0	N	N
0836	11.81	—	—	—		1.92	19.74	1.792	6.41	0.64	—	6.29	201.3		
0840	11.72	—	—	—		3.2	19.76	1.756	6.46	0.49	—	3.44	188.8		
0844	11.86	—	—	—		4.48	19.81	1.734	6.49	0.42	—	4.85	185.6		
0848	11.99	—	—	—		5.76	19.87	1.717	6.53	0.40	—	3.92	175.3		
0852	12.08	—	—	—		7.04	19.94	1.683	6.57	0.35	—	3.49	165.5		
0856	12.27	—	—	—		8.32	19.96	1.673	6.59	0.32	—	3.06	156.1		
0900	12.40	—	—	—	✓	9.6	19.93	1.653	6.61	0.31	—	3.15	149.8	↓	↓

Actual gallons purged: 2.54 Sample Time: 0902

PURGING EQUIPMENT
Active Extraction Well Pump ___ ___ Bailer (Teflon)
Portable Submersible Pump ___ ___ Bailer (PVC)
Other: YSI #17494 ___ Bailer (Stain. Steel)
Pump Depth: ___ ___ Dedicated

SAMPLING EQUIPMENT
Sampling Port ___ ___ Bailer (Teflon)
Portable Submersible Pump ___ ___ Bailer (PVC)
Peristaltic Pump ✓ ___ Bailer (Stainless Steel)
___ Other: ___

Well Integrity: Good: ✓ Fair: ___ Poor: ___ Lock No. lock on well cap
Remarks:

Signature: [signature] Reviewed by ___ Page 1 of 1

Groundwater Purge Form
Low Flow Sampling

PROJECT NO: 2013-042
DATE: 8/14/14
CLIENT NAME: NAVY
LOCATION: IR04
ARRIVAL TIME: 0955

WELL ID: 04W09
SAMPLE ID: 04W09-081414
PURGED BY: SCL
DEPARTURE TIME: 1040

ERRG
4585 Pacheco Blvd, Suite 200
Martinez, CA 94553
Phone: (925) 969-0750

Casing Diameter (inches): 2": ___ 3": ___ 4": ✓ 5": ___ 6": ___ 8": ___ Other: ___
Casing Volume (gal/ft): (0.16) (0.37) (0.65) (1.02) (1.47) (2.61) ( )
Total Depth (feet) = 19.95 Depth to Water (feet): 9.25 Depth to Product (feet): —

— (TD) - — (DTW) = — x — (Casing volume) = — x — (No. of casing volumes) = — (Calculated Purge)

Time Started: 1003 Time ended: 1040

Time (2400hr)	Depth to Water (ft)	Refill Time (sec)	Discharge Time (sec)	Pressure (psi)	Flowrate (L/min)	Volume (L)	SL Temp. °C (°F)	SL Sp. Cond. mS/cm	pH (units)	D.O. (mg/L)	Salinity (%)	Turbidity (NTU)	ORP (mV)	Odor (Y/N)	Pumped Dry (Y/N)
Criteria	±0.33ft				0.1 to 1.0		±3%	±5%	±0.2 units	±0.2 mg/L		±10%	+10 mV		
1008	9.34	—	—	—	0.260	—	18.93	634	7.26	0.97	—	1.87	93.7	N	N
1011	9.38	—	—	—	0.260	0.78	18.85	632	7.10	0.37	—	1.36	86.6	N	N
1014	9.41	—	—	—	0.260	1.56	18.89	626	7.04	0.31	—	0.97	82.5	N	N
1017	0.942	—	—	—	0.260	2.34	18.90	624	7.03	0.32	—	1.04	76.6	N	N
1020	0.945	—	—	—	0.260	3.12	18.89	616	7.00	0.31	—	1.05	76.8	N	N
1023	0.947	—	—	—	0.260	3.9	18.90	607	6.97	0.29	—	1.06	75.2	N	N

Actual gallons purged: 1.03 Sample Time: 1030

PURGING EQUIPMENT
Active Extraction Well Pump ___ ___ Bailer (Teflon)
Portable Submersible Pump ___ ___ Bailer (PVC)
Other: YSI ___ Bailer (Stain. Steel)
Pump Depth: ___ ___ Dedicated

SAMPLING EQUIPMENT
Sampling Port ___ ___ Bailer (Teflon)
Portable Submersible Pump ___ ___ Bailer (PVC)
Peristaltic Pump X ___ Bailer (Stainless Steel)
___ Other: ___

Well Integrity: Good: X Fair: ___ Poor: ___ Lock No. ___
Remarks: ___

Signature: [signature] Reviewed by ___ Page 1 of 1

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Groundwater Purge Form
Low Flow Sampling

PROJECT NO: 2013-042
DATE: 8/14/14
CLIENT NAME US Navy
LOCATION: Mare Island 1204
ARRIVAL TIME: 1005

WELL ID: 04W06
SAMPLE ID: 04W06-081414
PURGED BY: M. Mandell
DEPARTURE TIME: 1100

ERRG
4585 Pacheco Blvd, Suite 200
Martinez, CA 94553
Phone: (925) 969-0750

Casing Diameter (inches): 2": ___ 4": ✓ 5": ___ 6": 8": ___ Other: ___
Casing Volume (gal/ft): (0.16) (0.37) (0.65) (1.02) (2.61) ( ) :
Total Depth (feet) = 19.95 Depth to Water (feet): 4.10 Depth to Product (feet): —

—	-	—	=	—	x	~~4.10~~ mm	x	—	=	—
TD		DTW				Casing volume		No. of casing volumes		Calculated Purge

Time Started: 1010 Time ended: 1105

Time (2400hr)	Depth to Water (ft)	Refill Time (sec)	Discharge Time (sec)	Flowrate (L/min)	Volume (L)	Temp. (°F)	Sp. Cond. (mS/cm)	pH (units)	D.O. (mg/L)	Turbidity (NTU)	ORP (mV)	Odor (Y/N)	Pumped Dry (Y/N)
Criteria	±0.33ft MM		MM	0.1 to 1.0		±3%	±5%	±0.2 units	±0.2 mg/L	±10%	+10 mV		
—	~~4.10~~	/	~~0.2~~ /	0.24	—	—	—	—	—	—	—	N	N
1018	4.10	/	/	↓	—	21.67	26.34	6.28	0.66	6.46	5.0	↓	↓
1022	4.58	/	/	↓	0.96	21.60	26.30	6.22	0.51	16.48	9.8	↓	↓
1026	4.75	/	/	↓	1.92	21.73	26.30	6.18	0.40	5.56	9.8	↓	↓
1030	4.88	/	/	↓	2.88	21.82	26.30	6.16	0.36	4.06	11.9	↓	↓
1034	5.06	/	/	↓	3.84	21.76	26.35	6.10	0.26	4.86	16.3	↓	↓

Actual gallons purged: 1.01 Sample Time: 1040

PURGING EQUIPMENT

Active Extraction Well Pump ___ Bailer (Teflon): ___
Portable Submersible Pump ___ Bailer (PVC): ___
Other: YSI # 17494 Bailer (Stain. Steel): ___
Pump Depth: ___ Dedicated: ___

SAMPLING EQUIPMENT

Sampling Port ___ ___ Bailer (Teflon)
Portable Submersible Pump ___ ___ Bailer (PVC)
Peristaltic Pump ✓ ___ Bailer (Stainless Steel)
___ Other: ___

Well Integrity: Good: ✓ Fair: ___ Poor: ___ Lock No. Lock on well cap
Remarks: ___

Signature: M. Mandell Reviewed by ___ Page 1 of 1

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Groundwater Purge Form
Low Flow Sampling

PROJECT NO: 2013-042
DATE: 8·14·14
CLIENT NAME US Navy - 1804
LOCATION: Mare Island
ARRIVAL TIME: 1130

WELL ID: 04W14
SAMPLE ID: 04W14-081414
PURGED BY: M. Mandell
DEPARTURE TIME: 1245

ERRG
4585 Pacheco Blvd, Suite 200
Martinez, CA 94553
Phone: (925) 969-0750

Casing Diameter (inches): 2": ___ 4": ✓ 5": ___ 6": ___ 8": ___ Other: ___
Casing Volume (gal/ft): (0.16) (0.37) (0.65) (1.02) (2.61) ( )
Total Depth (feet) = 20.15 Depth to Water (feet): 10.75 Depth to Product (feet): —

— (TD) - — (DTW) = — x — (Casing volume) x — (No. of casing volumes) = — (Calculated Purge)

Time Started: 1110 Time ended: 1245

Time (2400hr)	Depth to Water (ft)	Refill Time (sec)	Discharge Time (sec)	Flowrate (L/min)	Volume (L)	Temp. (°C)	Sp. Cond. (mS/cm)	pH (units)	D.O. (mg/L)	Turbidity (NTU)	ORP (mV)	Odor (Y/N)	Pumped Dry (Y/N)
Criteria	±0.33ft			0.1 to 1.0		±3%	±5%	±0.2 units	±0.2 mg/L	±10%	+10 mV		
1140	6.75	—	—	0.44	—	—	—	—	—	—	—	N	N
1144	7.10	—	—	~~1.76~~	1.76	19.71	20.72	6.89	0.44	3.26	4.3	↓	↓
1148	7.20	—	—	↓	3.52	19.77	20.71	6.81	0.35	2.56	5.6		
1152	7.29	—	—		5.28	19.84	20.70	6.74	0.25	3.06	63 NM		
1156	7.31	—	—		7.04	19.92	20.64	6.71	0.26	3.27	6.8		

Actual gallons purged: 1.86 Sample Time: 1200

PURGING EQUIPMENT
Active Extraction Well Pump ___ Bailer (Teflon): ___
Portable Submersible Pump ___ Bailer (PVC): ___
Other: YSI Bailer (Stain. Steel): ___
Pump Depth: ___ Dedicated: ___

SAMPLING EQUIPMENT
Sampling Port ___ Bailer (Teflon) ___
Portable Submersible Pump ___ Bailer (PVC) ___
Peristaltic Pump ✓ Bailer (Stainless Steel) ___
Other: ___

Well Integrity: Good: ✓ Fair: ___ Poor: ___ Lock No. Lock on well cap
Remarks: ___

Signature: M. Mandell Reviewed by ___ Page 1 of 1

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Groundwater Purge Form
Low Flow Sampling

PROJECT NO: 2013-042
DATE: 8/14/14
CLIENT NAME US Navy
LOCATION: Mare Island
ARRIVAL TIME: 1130

WELL ID: 04W10
SAMPLE ID: 04W10-081414
PURGED BY: SCL
DEPARTURE TIME: 1230

ERRG
4585 Pacheco Blvd, Suite 200
Martinez, CA 94553
Phone: (925) 969-0750

Casing Diameter (inches): 2": ___ 4": ✓ 5": ___ 6": ___ 8": ___ Other: ___
Casing Volume (gal/ft): (0.16) (0.37) (0.65) (1.02) (2.61) ( )
Total Depth (feet) = 20.30 Depth to Water (feet): 4.70 Depth to Product (feet): —

TD	-	DTW	=		x	Casing volume	x	No. of casing volumes	=	Calculated Purge
—		—		—		—		—		—

Time Started: 1135 Time ended: 1230

Time (2400hr)	Depth to Water (ft)	Refill Time (sec)	Discharge Time (sec)	Flowrate (L/min)	Volume (L)	SL Temp. °C °F	SL Sp. Cond. µ(mS/cm)	pH (units)	D.O. (mg/L)	Turbidity (NTU)	ORP (mV)	Odor (Y/N)	Pumped Dry (Y/N)
Criteria	±0.33ft			0.1 to 1.0		±3%	±5%	±0.2 units	±0.2 mg/L	±10%	+10 mV		
1138	4.95	—	—	0.300	—	23.72	20449	5.98	0.92	11.3	-142.5	N	N
1141	5.20	—	—	0.300	1.9	23.52	20961	5.93	0.51	10.4	-141.1	N	N
1144	5.32	—	—	0.300	1.8	23.82	20385	5.93	0.23	13.3	-140.2	N	N
1147	5.32	—	—	0.300	2.7	23.98	20644	5.93	0.11	20.4	-134.2	N	N
1150	5.40	—	—	0.300	3.6	24.15	19513	5.92	0.08	31.6	-131.3	N	N
1153	5.56	—	—	0.300	4.5	24.27	19257	5.91	0.06	48.6	-127.0	N	N
1156	5.80	—	—	0.300	5.4	24.35	19024	5.91	0.05	71.4	-125.6	N	N
1159	5.94	—	—	0.300	6.3	24.36	18916	5.90	0.04	89.2	-120.4	N	N
1202	6.15	—	—	0.260	7.08	24.32	19088	5.90	0.04	93.9	-119.9	N	N
1205	6.25	—		0.260	7.86	24.53	18759	5.91	0.04	95.9	-114.5	N	N

Actual gallons purged: 8.08 Sample Time: 1210

PURGING EQUIPMENT

Active Extraction Well Pump ___ Bailer (Teflon): ___
Portable Submersible Pump ___ Bailer (PVC): ___
Other: YSI Bailer (Stain. Steel): ___
Pump Depth: ___ Dedicated: ___

SAMPLING EQUIPMENT

Sampling Port ___ ___ Bailer (Teflon)
Portable Submersible Pump ___ ___ Bailer (PVC)
Peristaltic Pump X ___ Bailer (Stainless Steel)
___ Other: ___

Well Integrity: Good: X Fair: ___ Poor: ___ Lock No. ___
Remarks: ___

Signature: [signature] Reviewed by ___ Page 1 of 1

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Groundwater Purge Form
Low Flow Sampling

PROJECT NO: 2013-042
DATE: 8-14-14
CLIENT NAME: US Navy - IR04
LOCATION: Mare Island
ARRIVAL TIME: 1310

WELL ID: 04W15
SAMPLE ID: 04W15-081414
PURGED BY: M. Mandell
DEPARTURE TIME: 1350

ERRG
4585 Pacheco Blvd, Suite 200
Martinez, CA 94553
Phone: (925) 969-0750

Casing Diameter (inches): 2": ___ 4": ✓ 5": ___ 6": ___ 8": ___ Other: ___
Casing Volume (gal/ft): (0.16) (0.37) (0.65) (1.02) (2.61) ( )
Total Depth (feet) = 20.30 Depth to Water (feet): 3.42 Depth to Product (feet): —

—	-	—	=	—	x	—	x	—	=	—
TD		DTW				Casing volume		No. of casing volumes		Calculated Purge

Time Started: 1310 Time ended: 1350

Time (2400hr)	Depth to Water (ft)	Refill Time (sec)	Discharge Time (sec)	Flowrate (L/min)	Volume (L)	Temp. (°C)	Sp. Cond. (mS/cm)	pH (units)	D.O. (mg/L)	Turbidity (NTU)	ORP (mV)	Odor (Y/N)	Pumped Dry (Y/N)
Criteria	±0.33ft			0.1 to 1.0		±3%	±5%	±0.2 units	±0.2 mg/L	±10%	+10 mV		
—	—	—	—	~~.48~~	—	—	—	—	—	—	—	N	N
1318	3.42	—	—	.48	—	21.57	25.46	6.50	0.34	18.3	-139.0	↓	↓
1318	4.18	—	—	.48	1.92	21.88	24.55	6.37	0.25	29.6	-137.1	↓	↓
1322	4.41	—	—	.48	3.84	22.22	24.00	6.30	0.20	38.2	-135.0	↓	↓
1326	4.70	—	—	.42	5.76	22.56	23.70	6.26	0.11	41.4	-132.8	↓	↓
1330	4.96	—	—	.42	7.68	22.73	23.62	6.24	0.05	50.2	-129.8	↓	↓
1334	5.25	—	—	.42	9.6	22.91	23.51	6.23	0.16	58.7	-129.1	↓	↓
1338	5.50	—	—	.42	11.52	23.17	23.27	6.20	0.12	69.8	-126.0	↓	↓
1340	5.70	—	—	.42	13.44	23.25	23.19	6.20	0.11	71.4	-125.0	↓	↓
1342	5.80	—	—	.42	15.36	23.15	23.28	6.20	0.11	74.9	-125.3	↓	↓

Actual gallons purged: 4.06 Sample Time: 1345

PURGING EQUIPMENT

Active Extraction Well Pump ___ Bailer (Teflon): ___
Portable Submersible Pump ___ Bailer (PVC): ___
Other: YSI Bailer (Stain. Steel): ___
Pump Depth: ___ Dedicated: ___

SAMPLING EQUIPMENT

Sampling Port ___ ___ Bailer (Teflon)
Portable Submersible Pump ___ ___ Bailer (PVC)
Peristaltic Pump ✓ ___ Bailer (Stainless Steel)
___ Other: ___

Well Integrity: Good: ✓ Fair: ___ Poor: ___ Lock No. Lock on well cap

Remarks: No more 1L poly w/ HNO_3, Tracy at lab instructed to use 1L amber instead, field filtered. Note on COC: Fix with nitric acid upon receipt

Signature: M. Mandell Reviewed by ___ Page 1 of 1

C:\Users\slee\Desktop\Field GW LowFlow Sampling Data Sheet.xls

Groundwater Purge Form
Low Flow Sampling

PROJECT NO: 2013-042
DATE: 8/15/14
CLIENT NAME US Navy
LOCATION: Mare Island
ARRIVAL TIME: 0845

WELL ID: 04W11
SAMPLE ID: 04W11-081511
PURGED BY: SCL
DEPARTURE TIME: 0940

ERRG
4585 Pacheco Blvd, Suite 200
Martinez, CA 94553
Phone: (925) 969-0750

Casing Diameter (inches): 2": ___ 4": X 5": ___ 6": ___ 8": ___ Other: ___
Casing Volume (gal/ft): (0.16) (0.37) (0.65) (1.02) (2.61) ( )
Total Depth (feet) = 19.75 Depth to Water (feet): 4.65 Depth to Product (feet): —

TD	-	DTW	=		x	Casing volume	x	No. of casing volumes	=	Calculated Purge
—		—		—		—		—		—

Time Started: 0900 Time ended: 0940

Time (2400hr)	Depth to Water (ft)	Refill Time (sec)	Discharge Time (sec)	Flowrate (L/min)	Volume (L)	Temp. (°F)	Sp. Cond. (mS/cm)	pH (units)	D.O. (mg/L)	Turbidity (NTU)	ORP (mV)	Odor (Y/N)	Pumped Dry (Y/N)
Criteria	±0.33ft			0.1 to 1.0	SL	±3%	±5%	±0.2 units	±0.2 mg/L	±10%	+10 mV		
0900	4.71	—	—	0.300	~~0.0~~	20.03	25.84	~~19.9~~ SL	0.18	19.9	-25.5	N	N
0903	4.82	—	—	0.300	0.9	20.10	25.23	5.78	0.30	10.7 SL	-30.6	N	N
0906	4.93	—	—	0.300	1.8	20.13	24.82	5.75	0.25	9.42	-32.4	N	N
0909	5.04	—	—	0.300	2.7	20.16	24.37	5.72	0.21	8.83	-35.0	N	N
0912	5.12	—	—	0.300	3.6	20.21	24.05	5.70	0.20	8.36	-37.1	N	N
0915	5.25	—	—	0.300	4.5	20.35	23.57	5.69	0.15	8.37	-41.7	N	N
0917	5.43	—	—	0.300	5.1	20.44	23.34	5.68	0.15	8.11	-46.0	N	N
0920	5.50	—	—	0.300	6.0	20.52	23.03	5.67	0.14	8.45	-50.0	N	N

Actual gallons purged: 1.59 Sample Time: 0925

PURGING EQUIPMENT

Active Extraction Well Pump ___ Bailer (Teflon): ___
Portable Submersible Pump ___ Bailer (PVC): ___
Other: YSI Bailer (Stain. Steel): ___
Pump Depth: ___ Dedicated: ___

SAMPLING EQUIPMENT

Sampling Port ___ ___ Bailer (Teflon)
Portable Submersible Pump ___ ___ Bailer (PVC)
Peristaltic Pump X ___ Bailer (Stainless Steel)
___ Other: ___

Well Integrity: Good: X Fair: ___ Poor: ___ Lock No. ___
Remarks: ___

Signature: [signature] Reviewed by ___ Page 1 of 1

Groundwater Purge Form
Low Flow Sampling

PROJECT NO: 2013-042
DATE: 8/15/14
CLIENT NAME: US Navy
LOCATION: Mare Island
ARRIVAL TIME: 0950

WELL ID: 04W12
SAMPLE ID: 04W12-081514
PURGED BY: SCL
DEPARTURE TIME: 1047

ERRG
4585 Pacheco Blvd, Suite 200
Martinez, CA 94553
Phone: (925) 969-0750

Casing Diameter (inches): 2": ___ 4": X 5": ___ 6": ___ 8": ___ Other: ___
Casing Volume (gal/ft): (0.16) (0.37) (0.65) (1.02) (2.61) ( )
Total Depth (feet) = 20.10 Depth to Water (feet): 3.95 Depth to Product (feet): —

—	-	—	=		—	x	—	x	—	=	—
TD		DTW					Casing volume		No. of casing volumes		Calculated Purge

Time Started: 1000 Time ended: ~~1000~~ SL 1047

Time (2400hr)	Depth to Water (ft)	Refill Time (sec)	Discharge Time (sec)	Flowrate (L/min)	Volume (L)	Temp. (°F)	Sp. Cond. (mS/cm)	pH (units)	D.O. (mg/L)	Turbidity (NTU)	ORP (mV)	Odor (Y/N)	Pumped Dry (Y/N)
Criteria	±0.33ft			0.1 to 1.0		±3%	±5%	±0.2 units	±0.2 mg/L	±10%	+10 mV		
1003	4.30	—	—	0.300	—	21.45	29.75	6.43	1.19	5.94	-55.8	N	N
1006	4.62	—	—	0.300	0.9	21.49	29.38	6.32	0.63	4.84	-63.2	N	N
1009	4.85	—	—	0.300	1.8	21.29	29.00	6.26	0.45	3.22	-64.1	N	N
1012	5.20	—	—	0.300	2.7	21.33	28.37	6.23	0.32	2.56	-64.8	N	N
1015	5.45	SL —	—	0.300	3.6	21.52	27.64	6.21	0.25	2.96	-65.2	N	N
1018	5.58	SL —	—	0.300	4.5	21.57	27.22	6.20	0.22	1.70	-65.3	N	N
1021	5.70	—	—	0.300	5.4	21.51	26.90	6.18	0.20	1.78	-65.4	N	N
1024	5.80	—	—	0.300	6.3	21.78	25.94	6.17	0.19	1.85	-64.5	N	N
1027	5.90	—	—	0.300	7.2	21.85	25.56	6.16	0.18	1.79	-69.3	N	N

Actual gallons purged: 1.90 Sample Time: 1035

PURGING EQUIPMENT

Active Extraction Well Pump ___ Bailer (Teflon): ___
Portable Submersible Pump ___ Bailer (PVC): ___
Other: YSI Bailer (Stain. Steel): ___
Pump Depth: ___ Dedicated: ___

SAMPLING EQUIPMENT

Sampling Port ___ ___ Bailer (Teflon)
Portable Submersible Pump ___ ___ Bailer (PVC)
Peristaltic Pump X ___ Bailer (Stainless Steel)
___ Other: ___

Well Integrity: Good: X Fair: ___ Poor: ___ Lock No. ___
Remarks: ___

Signature: [signature] Reviewed by ___ Page 1 of 1

C:\Users\slee\Desktop\Field GW LowFlow Sampling Data Sheet.xls

Groundwater Purge Form
Low Flow Sampling

PROJECT NO: 2013-042
DATE: 8/15/19
CLIENT NAME US Navy
LOCATION: Mare Island
ARRIVAL TIME: 1110

WELL ID: 04W23
SAMPLE ID: 04W23-081519
PURGED BY: SCL
DEPARTURE TIME: 1210

ERRG
4585 Pacheco Blvd, Suite 200
Martinez, CA 94553
Phone: (925) 969-0750

Casing Diameter (inches): 2": ___ 4": X 5": ___ 6": ___ 8": ___ Other: ___
Casing Volume (gal/ft): (0.16) (0.37) (0.65) (1.02) (2.61) ( )
Total Depth (feet) = 23.10 Depth to Water (feet): 5.05 Depth to Product (feet): —

—	-	—	=	—	x	—	x	—	=	—
TD		DTW				Casing volume		No. of casing volumes		Calculated Purge

SL

Time Started: 1038 Time ended: 1210

Time (2400hr)	Depth to Water (ft)	Refill Time (sec)	Discharge Time (sec)	Flowrate (L/min)	Volume (L)	Temp. (°F)	Sp. Cond. (mS/cm)	pH (units)	D.O. (mg/L)	Turbidity (NTU)	ORP (mV)	Odor (Y/N)	Pumped Dry (Y/N)
Criteria	±0.33ft			0.1 to 1.0		±3%	±5%	±0.2 units	±0.2 mg/L	±10%	+10 mV		
SL 1140	5.35	—	—	0.30	—	20.21	12.71	6.19	0.76	15.5	-44.1	Y	N
1143	5.38	—	—	0.30	0.9	20.09	12.09	6.09	0.70	12.4	-45.5	Y	N
1146	5.45	—	—	0.30	1.8	19.79	12.61	5.99	0.62	8.58	-70.3	N	N
1149	5.49	—	—	0.30	2.7	19.89	13.01	5.96	0.53	8.25	-65.6	Y	N
SL 1152	5.51	—	—	0.30	3.6	19.94	11.52	5.91	0.49	8.21	-61.1	Y	N
1155	5.52	—	—	0.30	4.5	19.85	11.21	5.88	0.43	8.42	-60.3	Y	N
1158	5.54	—	—	0.30	5.4	19.86	10.97	5.85	0.41	7.98	-59.5	Y	N

Actual gallons purged: 1.43 Sample Time: 1205

PURGING EQUIPMENT

Active Extraction Well Pump ___ Bailer (Teflon): ___
Portable Submersible Pump ___ Bailer (PVC): ___
Other: YSI Bailer (Stain. Steel): ___
Pump Depth: ___ Dedicated: ___

SAMPLING EQUIPMENT

Sampling Port ___ ___ Bailer (Teflon)
Portable Submersible Pump ___ ___ Bailer (PVC)
Peristaltic Pump X ___ Bailer (Stainless Steel)
___ Other: ___

Well Integrity: Good: X Fair: ___ Poor: ___ Lock No. ___
Remarks: ___

Signature: [signature] Reviewed by ___ Page 1 of 1

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Appendix C. Waste Management Documentation

BILL OF LADING/MANIFEST

1. Shipper's US EPA ID No. (If Applicable): CESOS

Document No. 89123

2. Page 1 of 1

MI-9260

3. Shipper's Name and Mailing Address
Navy Waste Storage Area
1 Avenue Of The Palms
US Navy Brac Pmo-West (Mins)
San Francisco CA 94130

4. Shipper's Phone (925)969-0750

5. Transporter 1 Company Name: SAFETY-KLEEN SYSTEMS, INC.
6. US EPA ID Number: TXR000081805
A. Transporter's Phone: 972-265-2000

7. Transporter 2 Company Name
8. US EPA ID Number
B. Transporter's Phone

9. Designated Facility Name and Site Address
CLEAN HARBORS GRASSY MOUNTAIN, LLC.
3 MILES EAST, 7 MILES NORTH
KNOLLS EXIT 41, OFF I-80
GRASSMONTE UT 84029
10. US EPA ID Number: UTD991301748
C. Facility's Phone: 435-884-8916

11. Shipping Name and Description

	HM		12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a.		NON HAZARDOUS, NON D.O.T. REGULATED LIQUID, (WATER)	001	DM	00300	P
b.						
c.						
d.						

15. Special Handling Instruction and Additional Information

SK SHIP# 214743353 US29079
Navy Waste Storage Area
Corner Of K Street And Walnut Ave
Vallejo CA 94592
24 HR EMERGENCY #1-800-468-1760 (SAFETY-KLEEN)
SEE ATTACHMENT

DOT/PRFL A. 7541171/885564 B. C. D.
A) NONE B) C) D)
GW Monitoring Contract, ERRG

16a. US DOT HAZARDOUS MATERIALS SHIPPER'S CERTIFICATION: "This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Printed/Typed Name | Signature required here if US DOT regulated | Month Day Year

16b. NON-REGULATED SHIPPER'S CERTIFICATION: I certify the materials described above on this form are not subject to federal regulations for Transportation or Disposal.

Printed/Typed Name: Izzat Amaka | Sign here if material is not DOT regulated | Month Day Year: 11 21 14

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: BRUCE BURSLEY | Signature | Month Day Year: 11 21 14

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of materials covered by this form except as noted in Item 19.
Printed/Typed Name | Signature | Month Day Year

24 HR EMERGENCY # 800-468-1760 (SAFETY-KLEEN-CONTRACT #94138)

ORIGINAL-RETURN TO GENERATOR

FORM NO. 01-90291 (04/11)

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 259882
ANALYTICAL REPORT

JM Waller Associates 11325 Random Hills Road Fairfax, VA 22030-6608	Project : N62473-11-D-2215 Location : BGMP-IDW Level : III Contract # : N62473-11-D-2215

Sample ID	Lab ID
UST993-L-WC-081514	259882-001
IR04-L-WC-081514	259882-002
TB-081514	259882-003

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Tracy Babjar Date: 09/03/2014

Tracy Babjar
Project Manager
tracy.babjar@ctberk.com
(510) 204-2226

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**259882**
Client:	**JM Waller Associates**
Project:	**N62473-11-D-2215**
Location:	**BGMP-IDW**
Request Date:	**08/15/14**
Samples Received:	**08/15/14**

This data package contains sample and QC results for three water samples, requested for the above referenced project on 08/15/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

All qualified data are compliant with appropriate corrective actions specified in Standard Operating Procedures. The Standard Operating Procedures are available upon request.

Manual integration documentation may be found in the "Case Narrative Addendum: Manual Integrations" sections.

TPH-Purgeables and/or BTXE by GC (EPA 8015D):
High surrogate recovery was observed for bromofluorobenzene (FID) in the MSD of UST993-L-WC-081514 (lab # 259882-001).

Gasoline C7-C12 was detected between the MDL and half the RL in the method blank for batch 214463.

No other analytical problems were encountered.

TPH-Extractables by GC (EPA 8015D):
Diesel C10-C24 was detected between the MDL and half the RL in the method blank for batch 214511; this analyte was detected in samples at a level at least 10 times that of the blank.

No other analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260C):
Low response was observed for acetone in the ICV analyzed 03/04/14 14:47; affected data was qualified with "b". High responses were observed for many analytes; these analytes were not detected at or above the RL in the associated samples, and affected data was qualified with "b".

Low response was observed for vinyl acetate in the ICV analyzed 06/25/14 20:28; affected data was qualified with "b".

High responses were observed for many analytes in the CCV analyzed 08/21/14 13:04; these analytes were not detected at or above the RL in the associated samples, and affected data was qualified with "b".

High responses were observed for acetone, bromochloromethane, and carbon

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**259882**
Client:	**JM Waller Associates**
Project:	**N62473-11-D-2215**
Location:	**BGMP-IDW**
Request Date:	**08/15/14**
Samples Received:	**08/15/14**

Volatile Organics by GC/MS (EPA 8260C):
disulfide in the CCV analyzed 08/28/14 10:40; affected data was qualified with "b".

High recovery was observed for sec-butylbenzene in the BS for batch 214624; the associated RPD was within limits, and this analyte was not detected at or above the RL in the associated samples.

Carbon disulfide was detected above half the RL in the method blank for batch 214885; this analyte was not detected in the sample at or above the LOD. Propylbenzene was detected between the MDL and half the RL in the method blank for batch 214885; this analyte was not detected in the sample at or above the LOD.

Methylene chloride was detected between the MDL and the RL in TB-081514 (lab # 259882-003); this analyte is a common laboratory contaminant.

UST993-L-WC-081514 (lab # 259882-001) was diluted due to foaming.

TB-081514 (lab # 259882-003) was analyzed with more than 1 mL of headspace in the VOA vial.

No other analytical problems were encountered.

Semivolatile Organics by GC/MS (EPA 8270D):
Low recoveries were observed for hexachlorocyclopentadiene in the BS/BSD for batch 214595; the associated RPD was within limits. High RPD was observed for 4-chloroaniline; this analyte was not detected at or above the RL in the associated samples.

Low surrogate recovery was observed for terphenyl-d14 in IR04-L-WC-081514 (lab # 259882-002).

UST993-L-WC-081514 (lab # 259882-001) was diluted due to high non-target analytes.

No other analytical problems were encountered.

Semivolatile Organics by GC/MS SIM (EPA 8270D-SIM):
No analytical problems were encountered.

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**259882**
Client:	**JM Waller Associates**
Project:	**N62473-11-D-2215**
Location:	**BGMP-IDW**
Request Date:	**08/15/14**
Samples Received:	**08/15/14**

Metals (EPA 6010C and EPA 7470A):
Low recovery was observed for silver in the post digest spike of UST993-L-WC-081514 (lab # 259882-001); the BS/BSD were within limits.

No other analytical problems were encountered.

Hexavalent Chromium by Ion Chromatograph (EPA 7199):
IR04-L-WC-081514 (lab # 259882-002) was diluted due to problematic matrix.

No other analytical problems were encountered.

Total Dissolved Solids (TDS) (SM2540C):
No analytical problems were encountered.

Chain of Custody

CHAIN OF CUSTODY

Chain of Custody # _____

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

C&T LOGIN # 259882

Project No: N62473-11-D-2215
Sampler: M. Mandell
Project Name: BGMP-IDW
Report To: T. Chunhay + H. Wolkenbaum
Project P. O. No: ATL14-001-01-004-CT
Company: JLW Walker + EPPG
EDD Format: Report Level ☐ II ☑ III ☐ IV
Telephone: 404-443-2777
Turnaround Time: ☐ RUSH _____ ☑ Standard
Email:

ANALYTICAL REQUEST

Lab No.	Sample ID.	Sampling Date Collected	Sampling Time Collected	Matrix Water	Matrix Solid	# of Containers	Chemical Preservative HCl	H2SO4	HNO3	NaOH	None	Metals - Not Field Filtered	VOC	SVOC	PAH	TDS	TPH-d/mo	TPH-g	Cr(VI)
1	UST993-L-WC-081514	8/15/14	1330	X		13	X					X	X	X	X	X	X	X	
2	IR04-L-WC-081514	8/15/14	1330	X		13	X					X	X	X	X	X	X	X	X
3	TP-081514	8/15/14	1300	X		1	X						X						

Notes:
Metals collected in 1L Amber bottles and are NOT field filtered.
~~Fax w/ [illegible]~~
MM
upon receipt: LAB FILTER

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:	DATE:	TIME:
M. Mandell	8/15/14	1510
Ron #309	8/15	1600

RECEIVED BY:	DATE:	TIME:
Ron #309	8/15	1510
	8/15/14	1600

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 259882 Date Received 8/15/14 Number of coolers 2
Client JM Waller + ERRG Project BGMP IDW

Date Opened _____ By (print) _____ (sign) _____
Date Logged in 8/15/14 By (print) FJ (sign) FJ

1. Did cooler come with a shipping slip (airbill, etc) _____ YES ~~NO~~
   Shipping info _____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
   How many _____ Name _____ Date _____
2B. Were custody seals intact upon arrival? _____ YES NO ~~N/A~~
3. Were custody papers dry and intact when received? _____ ~~YES~~ NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ ~~YES~~ NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ___ ~~YES~~ NO
6. Indicate the packing in cooler: (if other, describe) _____

☒ Bubble Wrap ☒ Foam blocks ☒ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) _____

☐ Samples received on ice & cold without a temperature blank; temp taken with IR gun

☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES ~~NO~~
   If YES, what time were they transferred to freezer? _____
9. Did all bottles arrive unbroken/unopened? _____ ~~YES~~ NO
10. Are there any missing / extra samples? _____ ~~YES~~ NO FJ 8/15/14
11. Are samples in the appropriate containers for indicated tests? _____ ~~YES~~ NO
12. Are sample labels present, in good condition and complete? _____ ~~YES~~ NO
13. Do the sample labels agree with custody papers? _____ ~~YES~~ NO
14. Was sufficient amount of sample sent for tests requested? _____ ~~YES~~ NO
15. Are the samples appropriately preserved? _____ ~~YES~~ NO N/A
16. Did you check preservatives for all bottles for each sample? _____ YES NO ~~N/A~~
17. Did you document your preservative check? _____ YES NO ~~N/A~~
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO ~~N/A~~
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO ~~N/A~~
20. Are bubbles > 6mm absent in VOA samples? _____ ~~YES~~ NO N/A
21. Was the client contacted concerning this sample delivery? _____ YES ~~NO~~
   If YES, Who was called? _____ By _____ Date: _____

COMMENTS

[redacted]
5) Transferred & preserved -001, -002 w/ HNO_3 to pH<2 on 8/15/14 @1830

Rev 10, 10/11

Curtis & Tompkins Sample Preservation for 259882

Sample	pH: <2	>9	>12	Other
-001a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
f	[ ]	[ ]	[ ]	_____
g	[ ]	[ ]	[ ]	_____
h	[ ]	[ ]	[ ]	_____
i	[ ]	[ ]	[ ]	_____
j	[X]	[ ]	[ ]	_____
k	[ ]	[ ]	[ ]	_____
l	[ ]	[ ]	[ ]	_____
m	[ ]	[ ]	[ ]	_____
-002a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
f	[ ]	[ ]	[ ]	_____
g	[ ]	[ ]	[ ]	_____
h	[ ]	[ ]	[ ]	_____
i	[ ]	[ ]	[ ]	_____
j	[X]	[ ]	[ ]	_____
k	[ ]	[ ]	[ ]	_____
l	[ ]	[ ]	[ ]	_____
m	[ ]	[ ]	[ ]	_____

Analyst: HV
Date: 8/15/14

Page 1 of 1

Curtis & Tompkins, Ltd.

Detections Summary for 259882

Results for any subcontracted analyses are not included in this summary.

Client : JM Waller Associates
Project : N62473-11-D-2215
Location : BGMP-IDW

Client Sample ID : UST993-L-WC-081514 Laboratory Sample ID : 259882-001

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	42	J	50	13	ug/L	As Recd	1.000	EPA 8015D	EPA 5030C
Diesel C10-C24	17,000	Y	49	16	ug/L	As Recd	1.000	EPA 8015D	EPA 3520C
Motor Oil C24-C36	960		290	94	ug/L	As Recd	1.000	EPA 8015D	EPA 3520C
Acetone	24	J,b	100	16	ug/L	As Recd	10.00	EPA 8260C	EPA 5030C
Naphthalene	0.1	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Phenanthrene	0.02	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Aluminum	48	J	100	28	ug/L	DISS.	1.000	EPA 6010C	METHOD
Magnesium	470	J	500	20	ug/L	DISS.	1.000	EPA 6010C	METHOD
Manganese	80		5.0	0.48	ug/L	DISS.	1.000	EPA 6010C	METHOD
Barium	34		5.0	1.0	ug/L	DISS.	1.000	EPA 6010C	METHOD
Beryllium	0.12	J	2.0	0.083	ug/L	DISS.	1.000	EPA 6010C	METHOD
Chromium	1.3	J	5.0	0.57	ug/L	DISS.	1.000	EPA 6010C	METHOD
Cobalt	0.56	J	5.0	0.32	ug/L	DISS.	1.000	EPA 6010C	METHOD
Copper	5.4		5.0	0.99	ug/L	DISS.	1.000	EPA 6010C	METHOD
Molybdenum	14		5.0	0.40	ug/L	DISS.	1.000	EPA 6010C	METHOD
Nickel	4.9	J	5.0	0.71	ug/L	DISS.	1.000	EPA 6010C	METHOD
Selenium	6.5	J	10	2.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Vanadium	34		5.0	0.67	ug/L	DISS.	1.000	EPA 6010C	METHOD
Zinc	13	J	20	3.0	ug/L	DISS.	1.000	EPA 6010C	METHOD
Total Dissolved Solids	1,250		11		mg/L	TOTAL	1.111	SM2540C	METHOD

Curtis & Tompkins, Ltd.

Client Sample ID : IR04-L-WC-081514 Laboratory Sample ID : 259882-002

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	46	J	50	11	ug/L	As Recd	1.000	EPA 8015D	EPA 5030C
Diesel C10-C24	1,500	Y	51	17	ug/L	As Recd	1.000	EPA 8015D	EPA 3520C
Motor Oil C24-C36	510		300	97	ug/L	As Recd	1.000	EPA 8015D	EPA 3520C
Acetone	7.9	J,b	10	1.6	ug/L	As Recd	1.000	EPA 8260C	EPA 5030C
Carbon Disulfide	0.1	J	0.5	0.1	ug/L	As Recd	1.000	EPA 8260C	EPA 5030C
2-Butanone	1.2	J,b	10	0.4	ug/L	As Recd	1.000	EPA 8260C	EPA 5030C
Toluene	0.2	J	0.5	0.1	ug/L	As Recd	1.000	EPA 8260C	EPA 5030C
Styrene	3.1		0.5	0.1	ug/L	As Recd	1.000	EPA 8260C	EPA 5030C
Phenanthrene	0.04	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Pyrene	0.02	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Aluminum	58	J	100	28	ug/L	DISS.	1.000	EPA 6010C	METHOD
Magnesium	620,000		20,000	2,000	ug/L	DISS.	100.0	EPA 6010C	METHOD
Manganese	2,500		5.0	0.48	ug/L	DISS.	1.000	EPA 6010C	METHOD
Arsenic	30		5.0	1.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Barium	340		5.0	1.0	ug/L	DISS.	1.000	EPA 6010C	METHOD
Beryllium	0.61	J	2.0	0.083	ug/L	DISS.	1.000	EPA 6010C	METHOD
Chromium	8.5		5.0	0.57	ug/L	DISS.	1.000	EPA 6010C	METHOD
Cobalt	2.6	J	5.0	0.32	ug/L	DISS.	1.000	EPA 6010C	METHOD
Molybdenum	9.5		5.0	0.40	ug/L	DISS.	1.000	EPA 6010C	METHOD
Nickel	5.8		5.0	0.71	ug/L	DISS.	1.000	EPA 6010C	METHOD
Selenium	58		10	2.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Silver	1.8	J	5.0	0.66	ug/L	DISS.	1.000	EPA 6010C	METHOD
Vanadium	5.3		5.0	0.67	ug/L	DISS.	1.000	EPA 6010C	METHOD
Zinc	19	J	20	3.0	ug/L	DISS.	1.000	EPA 6010C	METHOD
Total Dissolved Solids	15,600		100		mg/L	TOTAL	10.00	SM2540C	METHOD

Client Sample ID : TB-081514 Laboratory Sample ID : 259882-003

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Acetone	4.1	J,b	10	1.6	ug/L	As Recd	1.000	EPA 8260C	EPA 5030C
Methylene Chloride	1.1	J	10	0.2	ug/L	As Recd	1.000	EPA 8260C	EPA 5030C
2-Butanone	0.5	J,b	10	0.4	ug/L	As Recd	1.000	EPA 8260C	EPA 5030C
Tetrachloroethene	0.2	J	0.5	0.1	ug/L	As Recd	1.000	EPA 8260C	EPA 5030C

J = Estimated value

Y = Sample exhibits chromatographic pattern which does not resemble standard

b = See narrative

Laboratory Job Number 259882

ANALYTICAL REPORT

TPH-Purgeables and/or BTXE by GC

Matrix: Water

Curtis & Tompkins, Ltd.

Total Volatile Hydrocarbons

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8015D
Matrix:	Water	Sampled:	08/15/14
Units:	ug/L	Received:	08/15/14
Diln Fac:	1.000		

Field ID:	UST993-L-WC-081514	Batch#:	214463
Type:	SAMPLE	Analyzed:	08/17/14
Lab ID:	259882-001		

Analyte	Result	LOQ	DL
Gasoline C7-C12	42 J	50	13

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	119	77-128

Field ID:	IR04-L-WC-081514	Batch#:	214464
Type:	SAMPLE	Analyzed:	08/17/14
Lab ID:	259882-002		

Analyte	Result	LOQ	DL
Gasoline C7-C12	46 J	50	11

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	102	77-128

Type:	BLANK	Batch#:	214463
Lab ID:	QC753816	Analyzed:	08/16/14

Analyte	Result	LOQ	DL
Gasoline C7-C12	23 J	50	13

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	98	77-128

Type:	BLANK	Batch#:	214464
Lab ID:	QC753820	Analyzed:	08/16/14

Analyte	Result	LOQ	DL
Gasoline C7-C12	20 U	50	11

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	103	77-128

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8015D
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC753815	Batch#:	214463
Matrix:	Water	Analyzed:	08/16/14
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,086	109	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	98	77-128

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8015D
Field ID:	UST993-L-WC-081514	Batch#:	214463
MSS Lab ID:	259882-001	Sampled:	08/15/14
Matrix:	Water	Received:	08/15/14
Units:	ug/L	Analyzed:	08/17/14
Diln Fac:	1.000		

Type: MS Lab ID: QC753817

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	42.18	2,000	1,838	90	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	112	77-128

Type: MSD Lab ID: QC753818

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,128	104	80-120	15	30

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	130 *	77-128

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8015D
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC753819	Batch#:	214464
Matrix:	Water	Analyzed:	08/16/14
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,120	112	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	104	77-128

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8015D
Field ID:	ZZZZZZZZZZ	Batch#:	214464
MSS Lab ID:	259865-003	Sampled:	08/14/14
Matrix:	Water	Received:	08/15/14
Units:	ug/L	Analyzed:	08/16/14
Diln Fac:	1.000		

Type: MS Lab ID: QC753821

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	14.13	2,000	2,188	109	80-120

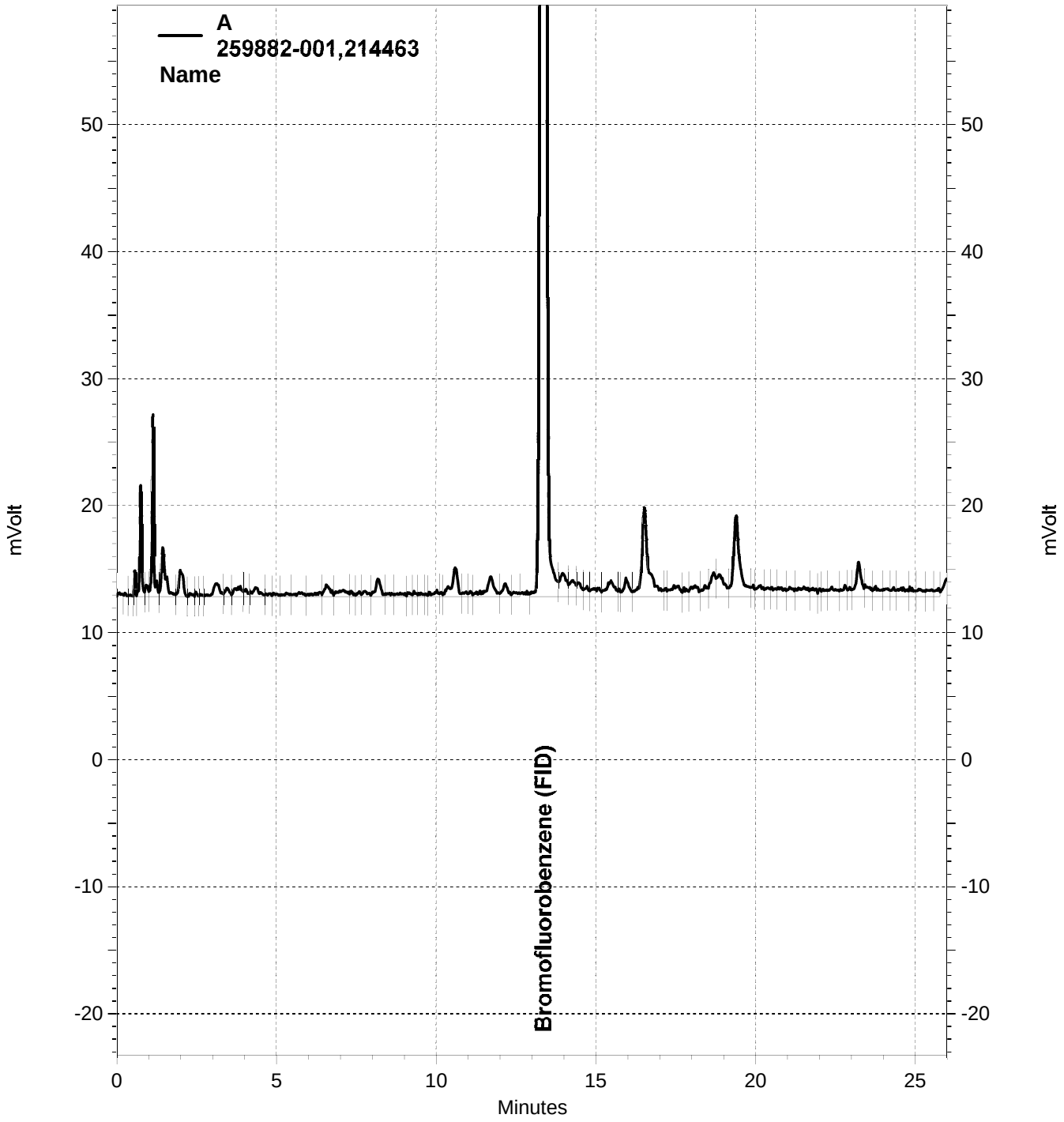
Surrogate	%REC	Limits
Bromofluorobenzene (FID)	109	77-128

Type: MSD Lab ID: QC753822

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,153	107	80-120	2	30

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	110	77-128

RPD= Relative Percent Difference



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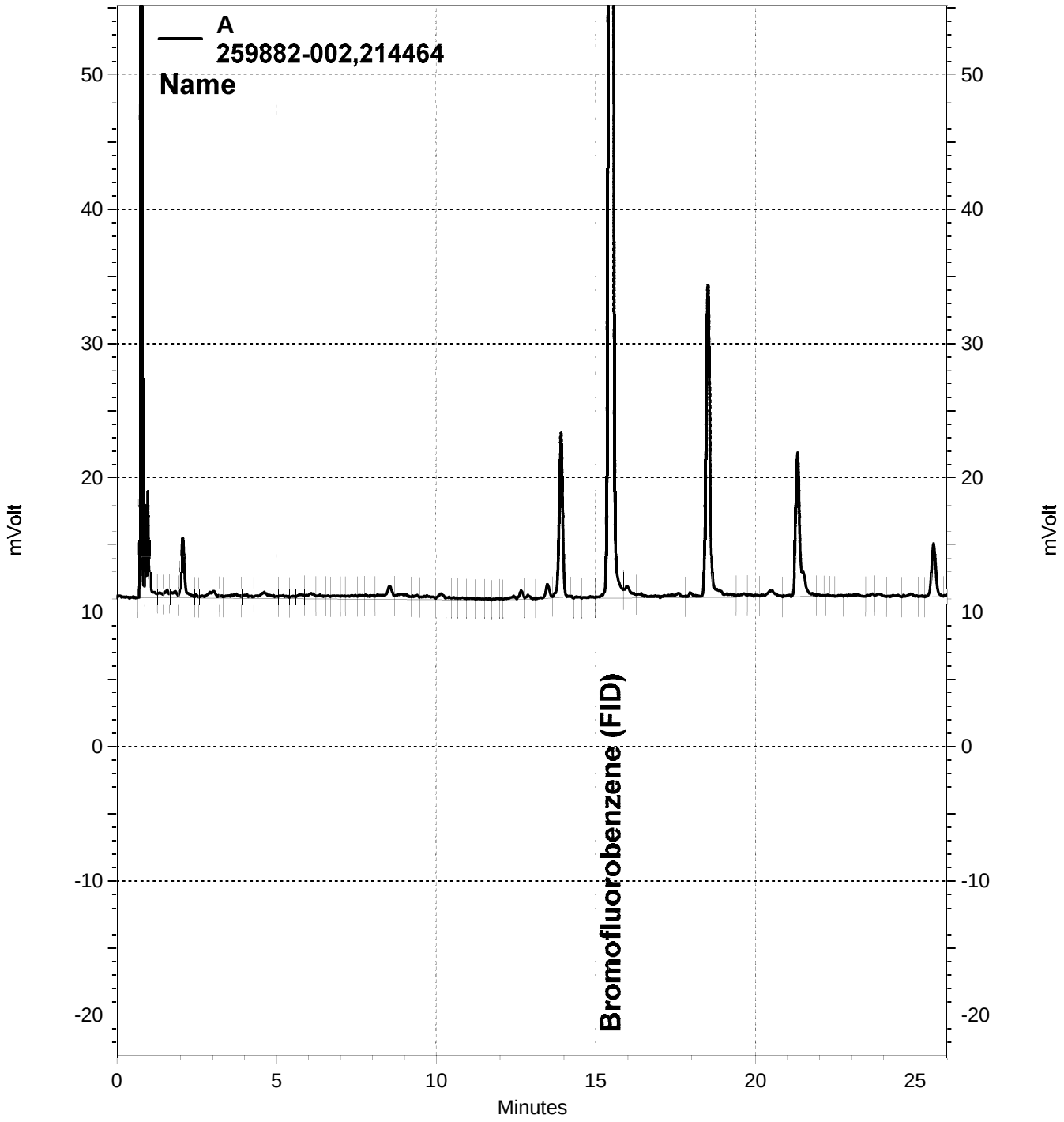

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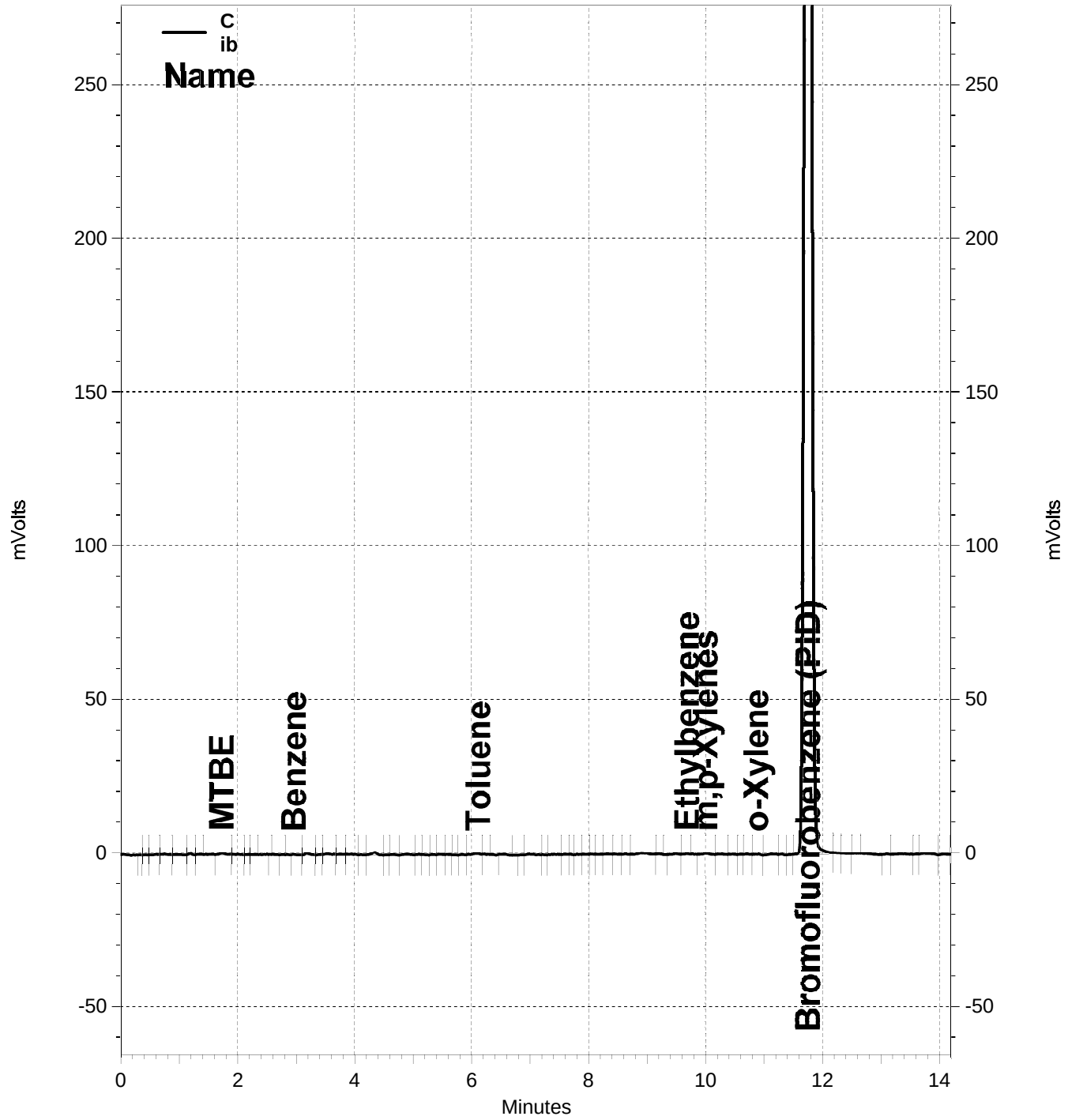

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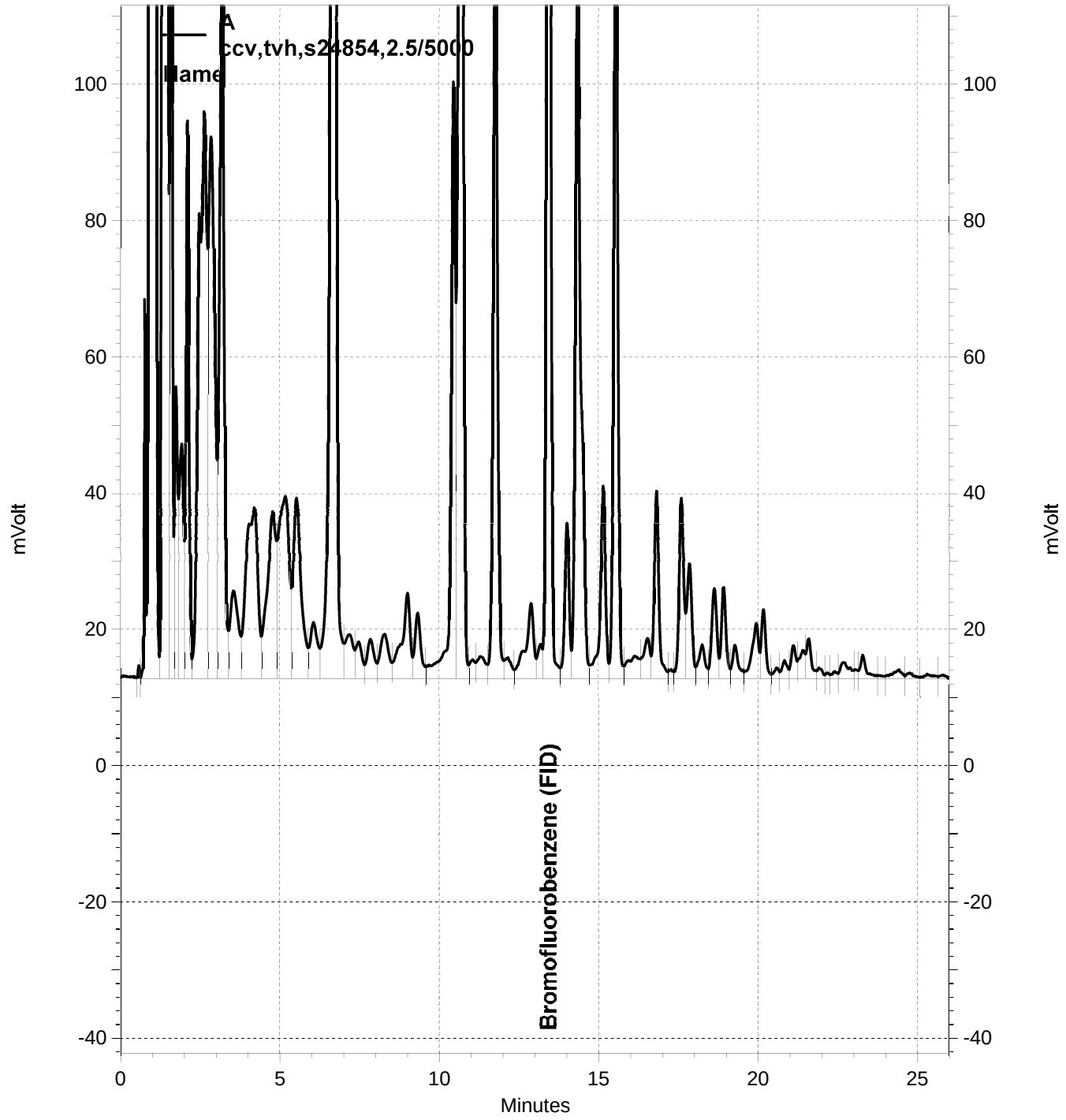

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Initial & Continuing Calibration Data

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259882 GCVOA Water: EPA 8015D

Inst : GC05
Calnum : 314225377001
Units : ng

Name : tvh/bfb_156
Date : 05-JUN-2014 16:51
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	156_007	314225377007	TVH_14	05-JUN-2014 16:51	S24210 (1000X), S24821 (5000X)
L2	156_008	314225377008	TVH_15	05-JUN-2014 17:29	S24209 (1000X), S24821 (5000X)
L3	156_009	314225377009	TVH_16	05-JUN-2014 18:06	S24208 (1000X), S24821 (5000X)
L4	156_010	314225377010	TVH_17	05-JUN-2014 18:44	S24207 (2000X), S24821 (5000X)
L5	156_011	314225377011	TVH_18	05-JUN-2014 19:22	S24207 (1000X), S24821 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Gasoline C7-C12	A	3679.8	2902.0	3421.7	3244.8	3061.7	AVRG		3.07E-4		3262.0	9	0.995	20	
Bromofluorobenzene (FID)	A	2336.4	2222.1	2707.4	2632.2	2481.4	AVRG		4.04E-4		2475.9	8	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Gasoline C7-C12	A	250.00	13	2500.0	-11	10000	5	25000	-1	50000	-6
Bromofluorobenzene (FID)	A	900.00	-6	900.00	-10	900.00	9	900.00	6	900.00	0

DAR 06/06/14 : Corrected automatically drawn baseline in TVH_14 (156_007).

DAR 06/06/14 [Bromofluorobenzene (FID) A]: Separated from coeluting peak in multiple levels.

Analyst: DAR Date: 06/06/14 Reviewer: EAH Date: 06/06/14

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259882 GCVOA Water
EPA 8015D

Inst : GC05 Name : tvh/bfb_156
Calnum : 314225377001 Cal Date : 05-JUN-2014

ICV 314225377013 (156_013 05-JUN-2014) stds: S24654 (1000X), S24821 (5000X)

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Gasoline C7-C12	A	10000	10010	ng	0	20	

Analyst: DAR Date: 06/06/14 Reviewer: EAH Date: 06/06/14

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259882 GCVOA Water: EPA 8015D

Inst : GC07
Calnum : 324091754001
Units : ng

Name : tvh/bfb_063
Date : 04-MAR-2014 17:50
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	063_002	324091754002	TVH_14	04-MAR-2014 17:50	S24210 (1000X), S24314 (5000X)
L2	063_003	324091754003	TVH_15	04-MAR-2014 18:26	S24209 (1000X), S24314 (5000X)
L3	063_004	324091754004	TVH_16	04-MAR-2014 19:02	S24208 (1000X), S24314 (5000X)
L4	063_005	324091754005	TVH_17	04-MAR-2014 19:38	S24207 (2000X), S24314 (5000X)
L5	063_006	324091754006	TVH_18	04-MAR-2014 20:14	S24207 (1000X), S24314 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Gasoline C7-C12	A	3251.1	2408.8	2458.5	2380.7	2334.7	AVRG		3.90E-4		2566.7	15	0.995	20	
Bromofluorobenzene (FID)	A	2130.5	2017.7	2097.4	2082.8	2095.6	AVRG		4.80E-4		2084.8	2	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Gasoline C7-C12	A	250.00	**27**	2500.0	-6	10000	-4	25000	-7	50000	-9
Bromofluorobenzene (FID)	A	900.00	2	900.00	-3	900.00	1	900.00	0	900.00	1

Analyst: MAC Date: 03/05/14 Reviewer: EAH Date: 03/05/14

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259882 GCVOA Water
EPA 8015D

Inst : GC07 Name : tvh/bfb_063
Calnum : 324091754001 Cal Date : 04-MAR-2014

ICV 324091754008 (063_008 04-MAR-2014) stds: S23904 (1000X), S24314 (5000X)

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Gasoline C7-C12	A	10000	9133	ng	-9	20	

Analyst: MAC Date: 03/05/14 Reviewer: EAH Date: 03/05/14

CURTIS & TOMPKINS SPIKE USER REPORT FOR 259882 GCVOA Water
EPA 8015D

Inst : GC05 Run Name : QC753815 IDF : 1.0
Seqnum : 314328985003.4 File : 228_003 Time : 16-AUG-2014 12:20
Cal : 314225377001 Caldate : 05-JUN-2014
Standards: S24854 (2000X), S24821 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C7-C12	A	3262.0	3542.8	5000	5430	ng	9	20	u
Bromofluorobenzene (FID)	A	2475.9	2415.3	900.0	878.0	ng	-2	20	u

DAR 08/18/14 [Bromofluorobenzene (FID) A]: Separated from coeluting peak. [general version]

MAC 08/27/14 : ccv/lcs,qc753815,214463 [general version]

Analyst: MAC Date: 08/27/14 Reviewer: EAH Date: 08/27/14

u=use

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 GCVOA Water
EPA 8015D

Inst : GC05 Run Name : TVH IDF : 1.0
Seqnum : 314328985017.1 File : 228_017 Time : 16-AUG-2014 22:33
Cal : 314225377001 Caldate : 05-JUN-2014
Standards: S24854 (1000X), S24821 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C7-C12	A	3262.0	3466.5	10000	10630	ng	6	20	
Bromofluorobenzene (FID)	A	2475.9	2617.3	900.0	951.4	ng	6	20	

DAR 08/18/14 [Bromofluorobenzene (FID) A]: Separated from coeluting peak. [general version]

Analyst: MAC Date: 08/27/14 Reviewer: EAH Date: 08/27/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 GCVOA Water
EPA 8015D

Inst : GC05 Run Name : TVH IDF : 1.0
Seqnum : 314328985020.1 File : 228_020 Time : 17-AUG-2014 00:26
Cal : 314225377001 Caldate : 05-JUN-2014
Standards: S24854 (1000X), S24821 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C7-C12	A	3262.0	3146.8	10000	9647	ng	-4	20	
Bromofluorobenzene (FID)	A	2475.9	2401.7	900.0	873.0	ng	-3	20	

EAH 08/19/14 : Separated from coeluting peak for Ch. A. [general version]

Analyst: MAC Date: 08/27/14 Reviewer: EAH Date: 08/27/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 GCVOA Water
EPA 8015D

Inst : GC05 Run Name : TVH IDF : 1.0
Seqnum : 314328985031.1 File : 228_031 Time : 17-AUG-2014 07:20
Cal : 314225377001 Caldate : 05-JUN-2014
Standards: S24854 (666.7X), S24821 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C7-C12	A	3262.0	3423.4	15000	15740	ng	5	20	
Bromofluorobenzene (FID)	A	2475.9	2865.5	900.0	1042	ng	16	20	

DAR 08/19/14 [Bromofluorobenzene (FID) A]: Passes control limits. [general version]

Analyst: MAC Date: 08/27/14 Reviewer: EAH Date: 08/27/14

CURTIS & TOMPKINS SPIKE USER REPORT FOR 259882 GCVOA Water
EPA 8015D

Inst : GC07 Run Name : QC753819 IDF : 1.0
Seqnum : 324328985003.4 File : 228_003 Time : 16-AUG-2014 12:17
Cal : 324091754001 Caldate : 04-MAR-2014
Standards: S24854 (2000X), S24821 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C7-C12	A	2566.7	2875.5	5000	5601	ng	12	20	u
Bromofluorobenzene (FID)	A	2084.8	2160.8	900.0	932.8	ng	4	20	u

DAR 08/18/14 : ccv/lcs,qc753819,214464 [general version]

Analyst: MAC Date: 08/27/14 Reviewer: EAH Date: 08/27/14

u=use

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 GCVOA Water
EPA 8015D

Inst : GC07 Run Name : TVH IDF : 1.0
Seqnum : 324328985018.1 File : 228_018 Time : 16-AUG-2014 22:55
Cal : 324091754001 Caldate : 04-MAR-2014
Standards: S24854 (1000X), S24821 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C7-C12	A	2566.7	2635.1	10000	10270	ng	3	20	
Bromofluorobenzene (FID)	A	2084.8	2213.8	900.0	955.7	ng	6	20	

Analyst: MAC Date: 08/27/14 Reviewer: EAH Date: 08/27/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 GCVOA Water
EPA 8015D

Inst : GC07 Run Name : TVH IDF : 1.0
Seqnum : 324328985029.1 File : 228_029 Time : 17-AUG-2014 05:33
Cal : 324091754001 Caldate : 04-MAR-2014
Standards: S24854 (666.7X), S24821 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C7-C12	A	2566.7	2550.2	15000	14900	ng	-1	20	
Bromofluorobenzene (FID)	A	2084.8	2213.4	900.0	955.5	ng	6	20	

Analyst: MAC Date: 08/27/14 Reviewer: EAH Date: 08/27/14

Logbooks & Sequences

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 314225377

Instrument : GC05 Begun : 06/05/14 12:17
Method : EPA 8015D, EPA 8021B SOP Version : TVH_BTXE_rv22

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	156_001	CCV	BTEX			06/05/14 12:17	1.0	1 2	
002	156_002	X	CMARKER			06/05/14 13:43	1.0	3 2	
003	156_003	CCV	BTEX			06/05/14 14:21	1.0	1 2	
004	156_004	CCV	TVH			06/05/14 14:58	1.0	4 2	
005	156_005	CCV	BTEX			06/05/14 15:36	1.0	1 2	
006	156_006	IB	CALIB			06/05/14 16:14	1.0	2	
007	156_007	ICAL	TVH_14			06/05/14 16:51	1.0	5 2	
008	156_008	ICAL	TVH_15			06/05/14 17:29	1.0	6 2	
009	156_009	ICAL	TVH_16			06/05/14 18:06	1.0	7 2	
010	156_010	ICAL	TVH_17			06/05/14 18:44	1.0	8 2	
011	156_011	ICAL	TVH_18			06/05/14 19:22	1.0	8 2	
012	156_012	X	IB			06/05/14 19:59	1.0	2	
013	156_013	ICV	TVH			06/05/14 20:37	1.0	9 2	
014	156_014	X	ICV			06/05/14 21:15	1.0	9 2	
015	156_015	CMARKER	CMARK			06/05/14 21:52	1.0	3 2	

DAR 06/06/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 15.

Reviewed by: DAR Date: 06/06/14

Standards used: 1=S24815 2=S24821 3=S23668 4=S24380 5=S24210 6=S24209 7=S24208 8=S24207 9=S24654

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 314328985

Instrument : GC05 Begun : 08/16/14 11:05
Method : EPA 8015D, EPA 8021B SOP Version : TVH_BTXE_rv22

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	228_001	X	CMARKER			08/16/14 11:05	1.0	1 2	
002	228_002	X		Water	214463	08/16/14 11:43	1.0	3 2	
003	228_003	CCV/LCS	QC753815	Water	214463	08/16/14 12:20	1.0	4 2	
004	228_004	CCV/BS	QC753813	Water	214463	08/16/14 12:58	1.0	3 2	
005	228_005	BLANK	QC753816	Water	214463	08/16/14 14:29	1.0	2	
006	228_006	SAMPLE	259897-002	Water	214463	08/16/14 15:40	1.0	2	
007	228_007	SAMPLE	259897-003	Water	214463	08/16/14 16:17	1.0	2	
008	228_008	SAMPLE	259788-022	Water	214463	08/16/14 16:55	50.0	2	6:GAS:7-12=360000
009	228_009	SAMPLE	259839-001	Water	214463	08/16/14 17:32	1.0	2	
010	228_010	X	IB			08/16/14 18:10	1.0	2	
011	228_011	SAMPLE	259839-003	Water	214463	08/16/14 18:48	1.0	2	6:GAS:7-12=53000
012	228_012	X	IB			08/16/14 19:25	1.0	2	
013	228_013	SAMPLE	259839-002	Water	214463	08/16/14 20:03	50.0	2	1:BZ=2000
014	228_014	X	IB			08/16/14 20:41	1.0	2	
015	228_015	SAMPLE	259839-004	Water	214463	08/16/14 21:18	50.0	2	
016	228_016	BSD	QC753814	Water	214463	08/16/14 21:56	1.0	3 2	
017	228_017	CCV	TVH			08/16/14 22:33	1.0	4 2	
018	228_018	X	CMARKER			08/16/14 23:11	1.0	1 2	
019	228_019	CCV	BTXE			08/16/14 23:49	1.0	3 2	
020	228_020	CCV	TVH			08/17/14 00:26	1.0	4 2	
021	228_021	SAMPLE	259897-018	Water	214463	08/17/14 01:04	1.0	2	1:GAS:7-12=59000
022	228_022	SAMPLE	259897-017	Water	214463	08/17/14 01:42	1.0	2	
023	228_023	SAMPLE	259897-016	Water	214463	08/17/14 02:19	1.0	2	
024	228_024	SAMPLE	259897-015	Water	214463	08/17/14 02:57	1.0	2	
025	228_025	SAMPLE	259897-014	Water	214463	08/17/14 03:34	1.0	2	
026	228_026	SAMPLE	259897-013	Water	214463	08/17/14 04:12	1.0	2	
027	228_027	SAMPLE	259897-012	Water	214463	08/17/14 04:50	1.0	2	pH > 2
028	228_028	MSS	259882-001	Water	214463	08/17/14 05:27	1.0	2	
029	228_029	MS	QC753817	Water	214463	08/17/14 06:05	1.0	4 2	
030	228_030	MSD	QC753818	Water	214463	08/17/14 06:42	1.0	4 2	
031	228_031	CCV	TVH			08/17/14 07:20	1.0	4 2	
032	228_032	CCV	TVH			08/17/14 07:58	1.0	4 2	
033	228_033	X	CMARKER			08/17/14 08:35	1.0	1 2	

DAR 08/18/14 : xed out file 2 ccv out low

DAR 08/18/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 33.

Reviewed by: DAR Date: 08/18/14

Standards used: 1=S24575 2=S24821 3=S24815 4=S24854

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 324091754

Instrument : GC07 Begun : 03/04/14 17:14
Method : EPA 8015D, EPA 8021B SOP Version : TVH_BTXE_rv22

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	063_001	IB	CALIB			03/04/14 17:14	1.0	1	
002	063_002	ICAL	TVH_14			03/04/14 17:50	1.0	2 1	
003	063_003	ICAL	TVH_15			03/04/14 18:26	1.0	3 1	
004	063_004	ICAL	TVH_16			03/04/14 19:02	1.0	4 1	
005	063_005	ICAL	TVH_17			03/04/14 19:38	1.0	5 1	
006	063_006	ICAL	TVH_18			03/04/14 20:14	1.0	5 1	
007	063_007	X	IB			03/04/14 20:50	1.0	1	
008	063_008	ICV	TVH			03/04/14 21:26	1.0	6 1	
009	063_009	X	ICV			03/04/14 22:02	1.0	6 1	
010	063_010	CMARKER	CMARK			03/04/14 22:39	1.0	7 1	
011	063_011	IB	ICALIB			03/04/14 23:15	1.0	1	
012	063_012	ICAL	BTXE_1			03/04/14 23:51	1.0	8 1	
013	063_013	ICAL	MBTXE_2			03/05/14 00:28	1.0	9 1	
014	063_014	ICAL	MBTXE_3			03/05/14 01:04	1.0	9 1	
015	063_015	ICAL	MBTXE_4			03/05/14 01:40	1.0	9 1	
016	063_016	ICAL	MBTXE_5			03/05/14 02:16	1.0	10 1	
017	063_017	ICAL	MBTXE_6			03/05/14 02:53	1.0	10 1	
018	063_018	ICAL	MBTXE_7			03/05/14 03:29	1.0	10 1	
019	063_019	ICAL	MTBE_7			03/05/14 04:05	1.0	11 1	
020	063_020	X	IB			03/05/14 04:41	1.0	1	
021	063_021	ICV	MBTXE			03/05/14 05:17	1.0	12 1	
022	063_022	X	ICV			03/05/14 05:53	1.0	12 1	

MAC 03/05/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 22.

Reviewed by: MAC Date: 03/05/14

Standards used: 1=S24314 2=S24210 3=S24209 4=S24208 5=S24207 6=S23904 7=S23668 8=S23709 9=S23708 10=S23707 11=S24099 12=S23834

Page 1 of 1

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 324328985

Instrument : GC07 Begun : 08/16/14 11:05
Method : EPA 8015D, EPA 8021B SOP Version : TVH_BTXE_rv22

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	228_001	X	CMARKER				08/16/14 11:05	1.0	1 2	
002	228_002	CCV	BTXE				08/16/14 11:41	1.0	3 2	
003	228_003	CCV/LCS	QC753819		Water	214464	08/16/14 12:17	1.0	4 2	
004	228_004	CCV	BTXE				08/16/14 12:54	1.0	3 2	
005	228_005	BLANK	QC753820		Water	214464	08/16/14 14:29	1.0	2	
006	228_006	MSS	259865-003		Water	214464	08/16/14 15:41	1.0	2	
007	228_007	MS	QC753821		Water	214464	08/16/14 16:17	1.0	4 2	
008	228_008	MSD	QC753822		Water	214464	08/16/14 16:54	1.0	4 2	
009	228_009	SAMPLE	259897-005		Water	214464	08/16/14 17:30	1.0	2	
010	228_010	SAMPLE	259897-006		Water	214464	08/16/14 18:06	1.0	2	
011	228_011	SAMPLE	259897-007		Water	214464	08/16/14 18:42	1.0	2	
012	228_012	SAMPLE	259897-008		Water	214464	08/16/14 19:18	1.0	2	
013	228_013	SAMPLE	259897-009		Water	214464	08/16/14 19:54	1.0	2	pH > 2
014	228_014	SAMPLE	259897-010		Water	214464	08/16/14 20:30	1.0	2	
015	228_015	SAMPLE	259897-019		Water	214464	08/16/14 21:07	1.0	2	
016	228_016	X	TVH				08/16/14 21:43	1.0	4 2	
017	228_017	X	CMARKER				08/16/14 22:19	1.0	1 2	
018	228_018	CCV	TVH				08/16/14 22:55	1.0	4 2	
019	228_019	SAMPLE	259865-002		Water	214464	08/16/14 23:31	1.0	2	
020	228_020	SAMPLE	259897-022		Water	214464	08/17/14 00:07	1.0	2	
021	228_021	SAMPLE	259897-023		Water	214464	08/17/14 00:43	1.0	2	
022	228_022	SAMPLE	259897-024		Water	214464	08/17/14 01:20	1.0	2	
023	228_023	SAMPLE	259897-025		Water	214464	08/17/14 01:56	1.0	2	pH > 2
024	228_024	SAMPLE	259897-027		Water	214464	08/17/14 02:32	1.0	2	
025	228_025	SAMPLE	259897-028		Water	214464	08/17/14 03:08	1.0	2	
026	228_026	SAMPLE	259882-002		Water	214464	08/17/14 03:44	1.0	2	
027	228_027	SAMPLE	259865-001		Water	214464	08/17/14 04:20	1.0	2	
028	228_028	SAMPLE	259844-005		Water	214464	08/17/14 04:57	1.0	2	
029	228_029	CCV	TVH				08/17/14 05:33	1.0	4 2	
030	228_030	CCV	TVH				08/17/14 06:09	1.0	4 2	
031	228_031	X	CMARKER				08/17/14 06:45	1.0	1 2	
032	228_032	CCV/BS	QC753834		Soil	214469	08/17/14 07:21	1.0	3 2	
033	228_033	CCV/LCS	QC753836		Soil	214469	08/17/14 07:57	1.0	4 2	
034	228_034	BSD	QC753835		Soil	214469	08/17/14 08:33	1.0	3 2	
035	228_035	X	IB				08/17/14 09:09	1.0	2	
036	228_036	BLANK	QC753837		Soil	214469	08/17/14 09:45	1.0	2	
037	228_037	PREPBLK	QC753840	M	Soil	214469	08/17/14 10:21	25.0	2	
038	228_038	MSS	259788-021		Soil	214469	08/17/14 10:57	1.0	2	
039	228_039	MS	QC753838		Soil	214469	08/17/14 11:33	1.0	4 2	
040	228_040	MSD	QC753839		Soil	214469	08/17/14 12:10	1.0	4 2	
041	228_041	SAMPLE	259788-004	M	Soil	214469	08/17/14 12:46	5000	2	
042	228_042	SAMPLE	259788-006		Soil	214469	08/17/14 13:22	1.0	2	5:GAS:7-12=3300000
043	228_043	X	IB				08/17/14 13:58	1.0	2	
044	228_044	SAMPLE	259788-008		Soil	214469	08/17/14 14:34	1.0	2	3:GAS:7-12=620000
045	228_045	X	IB				08/17/14 15:10	1.0	2	
046	228_046	SAMPLE	259788-011		Soil	214469	08/17/14 15:46	1.0	2	5:GAS:7-12=280000
047	228_047	X	BTXE				08/17/14 16:22	1.0	3 2	
048	228_048	CCV	TVH				08/17/14 16:58	1.0	4 2	
049	228_049	CCV	BTXE				08/17/14 17:34	1.0	3 2	
050	228_050	CCV	TVH				08/17/14 18:10	1.0	4 2	
051	228_051	X	CMARKER				08/17/14 18:46	1.0	1 2	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 324328985

Instrument : GC07 Begun : 08/16/14 11:05
Method : EPA 8015D, EPA 8021B SOP Version : TVH_BTXE_rv22

DAR 08/18/14 : cmarker is 1 minute out of clock in last bracket, only lvl 2 reported

DAR 08/18/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 51.

DAR 08/18/14 : xed out file 47, ccv out high

DAR 08/18/14 : xed out file 16 ccv out high

Reviewed by: DAR Date: 08/18/14

Standards used: 1=S24575 2=S24821 3=S24815 4=S24854

Case Narrative Addendum: Manual Integrations for 259882 GCVOA (Water)

For CCV/LCS QC753815 (GC05_228_003):
Bromofluorobenzene (FID) (Ch. A): Separated from coeluting peak.

For MSD QC753818 (GC05_228_030):
Bromofluorobenzene (FID) (Ch. A): Separated from coeluting peak for spike & dup.

For CCV TVH (GC05_228_020):
Separated from coeluting peak for Ch. A.

For CCV TVH (GC05_228_017):
Bromofluorobenzene (FID) (Ch. A): Separated from coeluting peak.

For Calibration GC05 (314225377001):
Corrected automatically drawn baseline in TVH_14 (156_007).
Bromofluorobenzene (FID) (Ch. A): Separated from coeluting peak in multiple levels.

Laboratory Job Number 259882

ANALYTICAL REPORT

TPH-Extractables by GC

Matrix: Water

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8015D
Matrix:	Water	Sampled:	08/15/14
Units:	ug/L	Received:	08/15/14
Diln Fac:	1.000	Prepared:	08/18/14
Batch#:	214511	Analyzed:	08/19/14

Field ID: UST993-L-WC-081514 Lab ID: 259882-001
Type: SAMPLE

Analyte	Result	LOQ	DL
Diesel C10-C24	17,000 Y	49	16
Motor Oil C24-C36	960	290	94

Surrogate	%REC	Limits
o-Terphenyl	120	66-129

Field ID: IR04-L-WC-081514 Lab ID: 259882-002
Type: SAMPLE

Analyte	Result	LOQ	DL
Diesel C10-C24	1,500 Y	51	17
Motor Oil C24-C36	510	300	97

Surrogate	%REC	Limits
o-Terphenyl	110	66-129

Type: BLANK Lab ID: QC753998

Analyte	Result	LOQ	DL
Diesel C10-C24	24 J	50	16
Motor Oil C24-C36	200 U	300	96

Surrogate	%REC	Limits
o-Terphenyl	97	66-129

J= Estimated value
U= Not Detected at or above DL
Y= Sample exhibits chromatographic pattern which does not resemble standard
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8015D
Matrix:	Water	Batch#:	214511
Units:	ug/L	Prepared:	08/18/14
Diln Fac:	1.000	Analyzed:	08/19/14

Type: BS Lab ID: QC753999

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,420	97	61-120

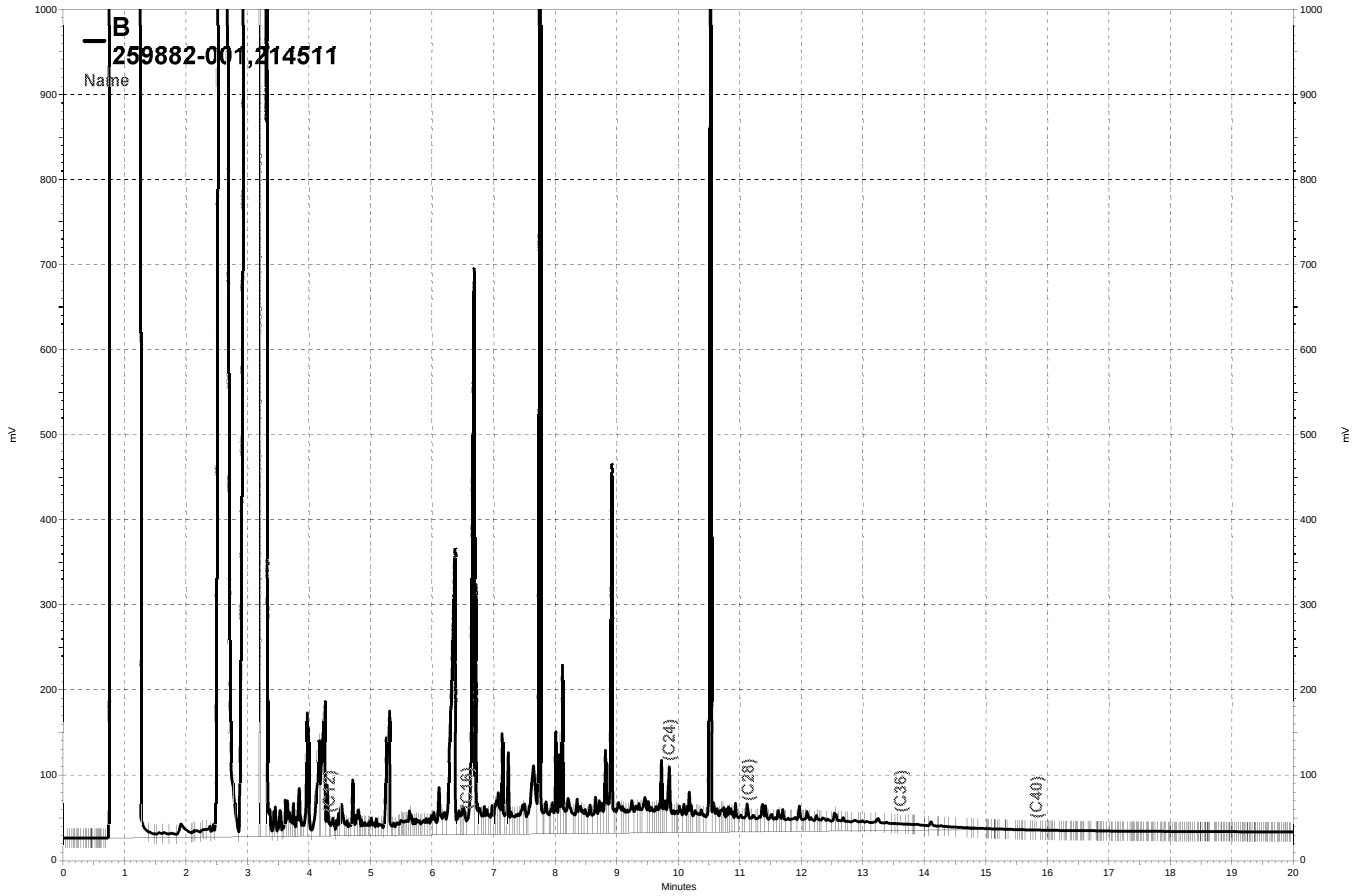
Surrogate	%REC	Limits
o-Terphenyl	109	66-129

Type: BSD Lab ID: QC754000

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,658	106	61-120	9	30

Surrogate	%REC	Limits
o-Terphenyl	117	66-129

RPD= Relative Percent Difference



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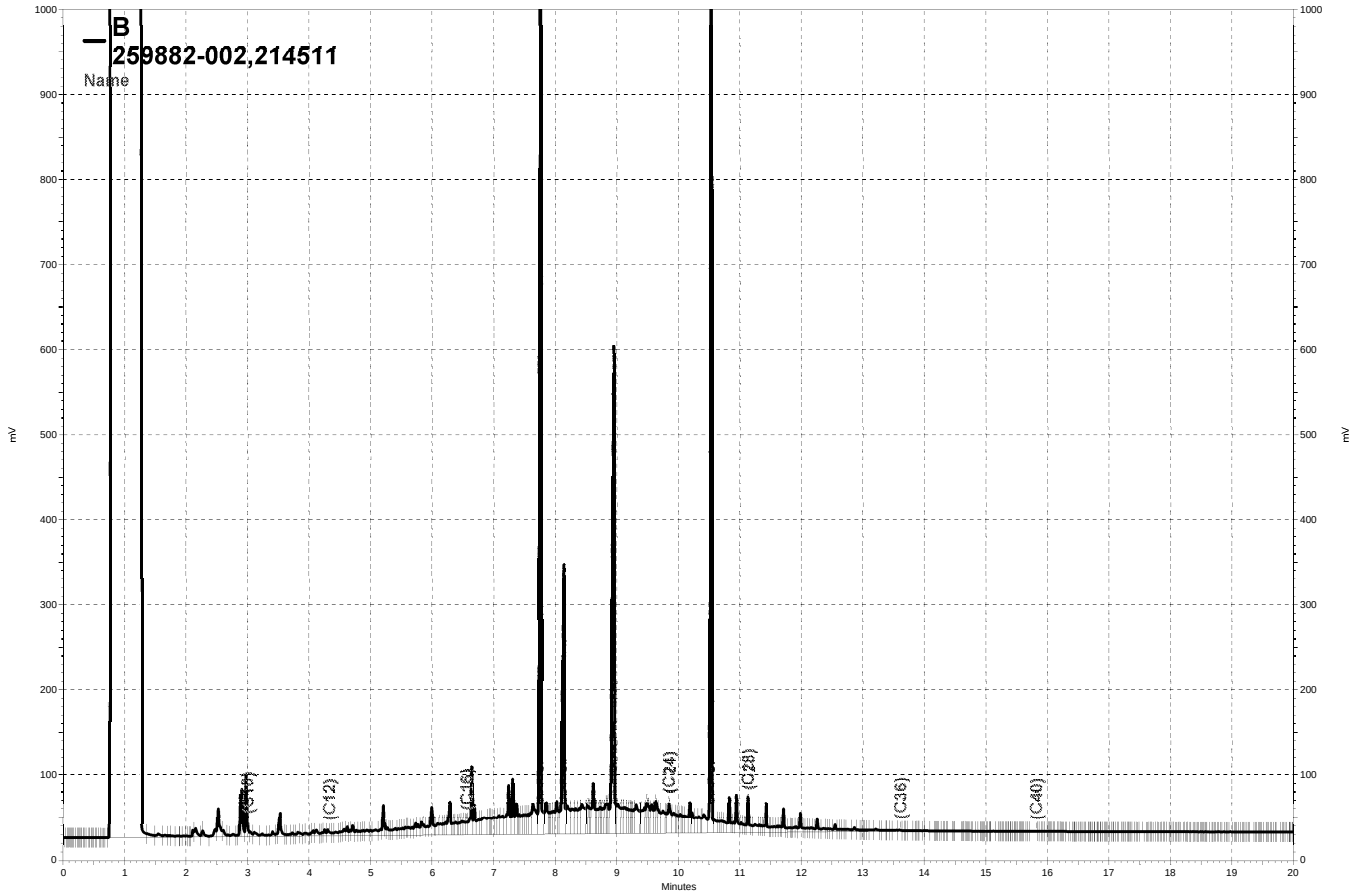

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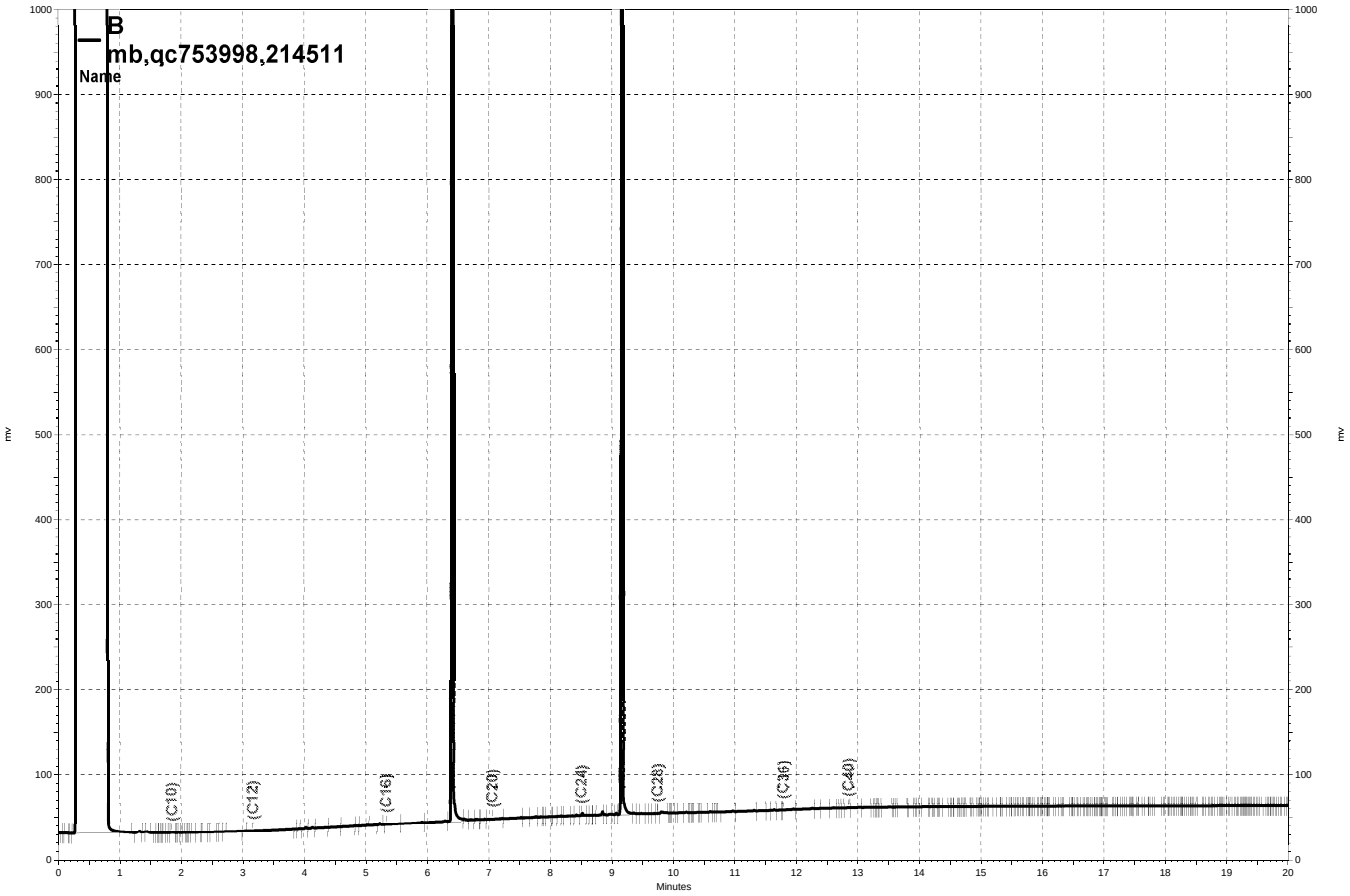

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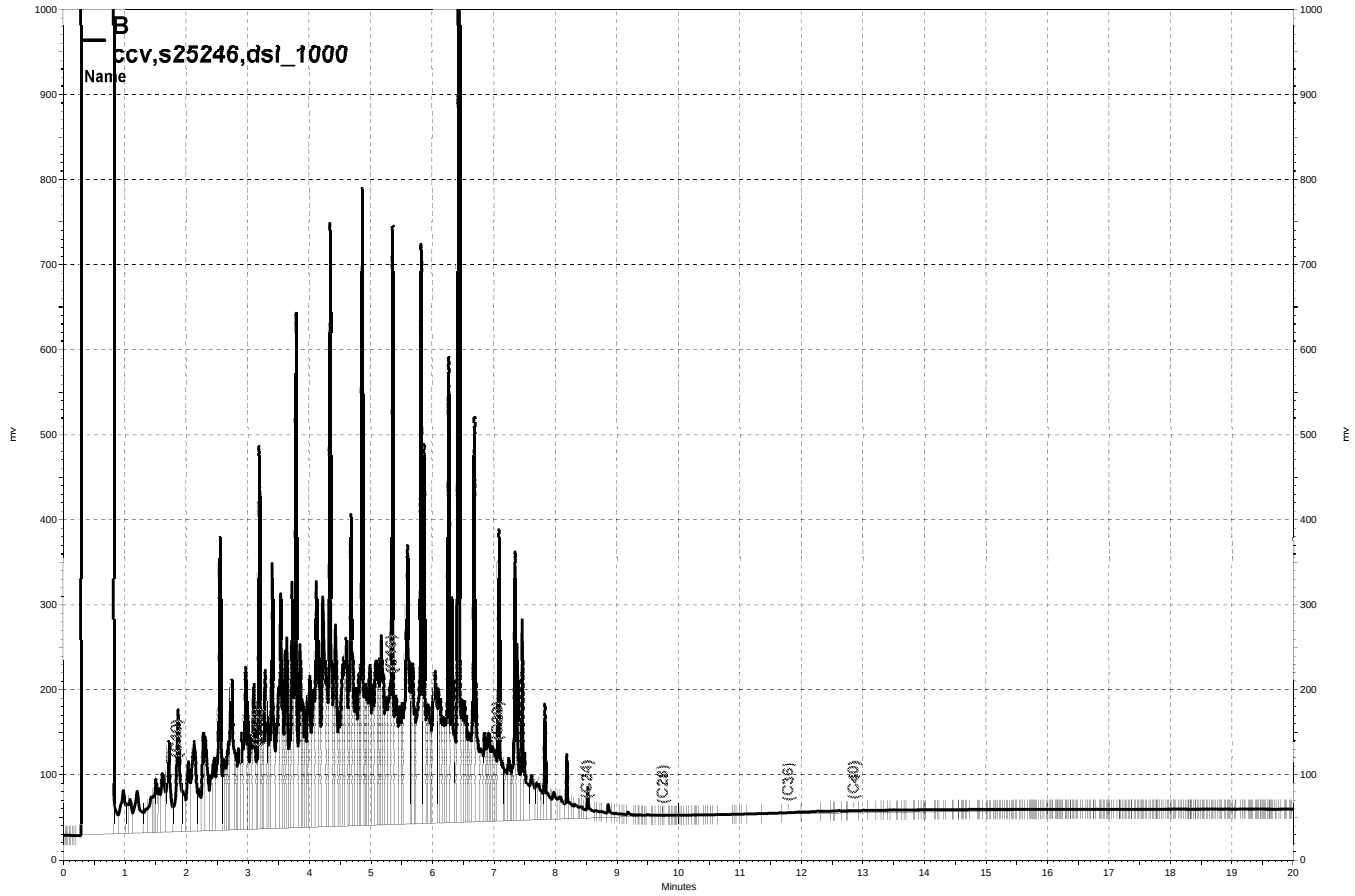

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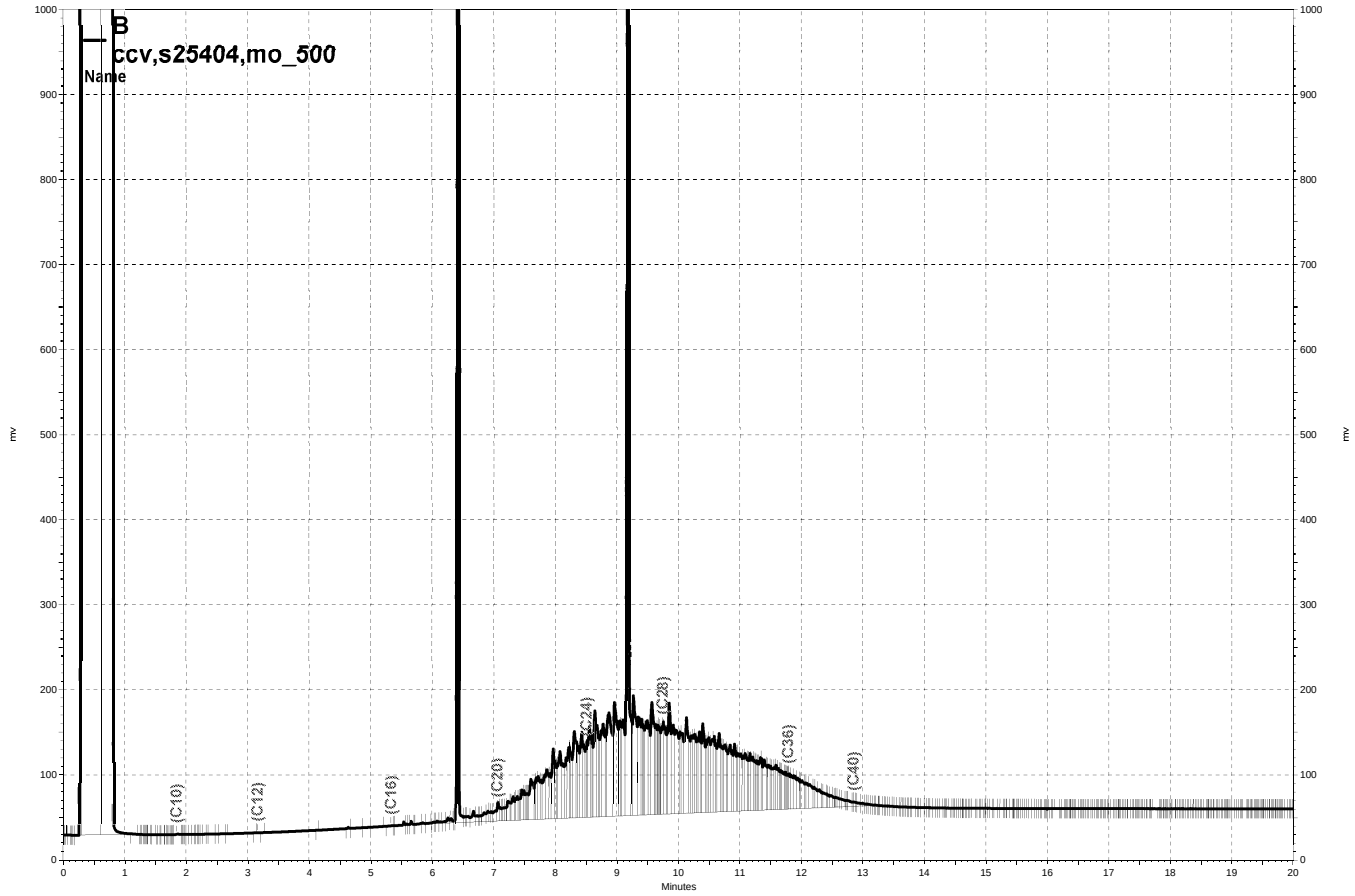

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Initial & Continuing Calibration Data

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259882 GCSV Water: EPA 8015D

Inst : GC14B
Calnum : 224317392001
Units : mg/L

Name : OTPHEX_220
Date : 08-AUG-2014 20:04
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	220_009	224317392009	HEX OTP_5	08-AUG-2014 20:04	S25390
L2	220_010	224317392010	HEX OTP_10	08-AUG-2014 20:32	S25391
L3	220_011	224317392011	HEX OTP_25	08-AUG-2014 21:00	S25392
L4	220_012	224317392012	HEX OTP_50	08-AUG-2014 21:28	S25393
L5	220_013	224317392013	HEX OTP_100	08-AUG-2014 21:56	S25394
L6	220_014	224317392014	HEX OTP_200	08-AUG-2014 22:25	S25395

Analyte	Ch	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	B	33576	34339	34327	34209	36598	39855	AVRG		2.82E-5		35484	7	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	B	5.0000	-5	10.000	-3	25.000	-3	50.000	-4	100.00	3	200.00	12

JDG 08/11/14 : Corrected automatically drawn baseline in all levels.

Analyst: JDG Date: 08/11/14 Reviewer: EAH Date: 08/12/14

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259882 GCSV Water: EPA 8015D

Inst : GC14B
Calnum : 224317392002
Units : mg/L

Name : DSL_220
Date : 08-AUG-2014 23:22
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	220_016	224317392016	DSL_10	08-AUG-2014 23:22	S25266
L2	220_017	224317392017	DSL_100	08-AUG-2014 23:50	S25267
L3	220_018	224317392018	DSL_500	09-AUG-2014 00:19	S25268
L4	220_019	224317392019	DSL_1000	09-AUG-2014 00:47	S25269
L5	220_020	224317392020	DSL_5000	09-AUG-2014 01:15	S24515

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C10-C24	B	30628	28120	28618	30917	32592	AVRG		3.31E-5		30175	6	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Diesel C10-C24	B	10.000	2	100.00	-7	500.00	-5	1000.0	2	5000.0	8

JDG 08/11/14 : Corrected automatically drawn baseline in DSL_10 (220_016).

Analyst: JDG Date: 08/11/14 Reviewer: EAH Date: 08/12/14

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259882 GCSV Water
EPA 8015D

Inst : GC14B
Calnum : 224317392002

Name : DSL_220
Cal Date : 08-AUG-2014

ICV 224317392022 (220_022 09-AUG-2014) stds: S25245

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Diesel C10-C24	B	500.0	521.9	mg/L	4	20	

Analyst: JDG Date: 08/11/14 Reviewer: EAH Date: 08/12/14

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259882 GCSV Water: EPA 8015D

Inst : GC14B
Calnum : 224317392003
Units : mg/L

Name : MO_500
Date : 09-AUG-2014 03:37
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	220_025	224317392025	MO_25	09-AUG-2014 03:37	S25144 (2X)
L2	220_026	224317392026	MO_50	09-AUG-2014 04:05	S25144
L3	220_027	224317392027	MO_250	09-AUG-2014 04:33	S25145
L4	220_028	224317392028	MO_500	09-AUG-2014 05:01	S25146
L5	220_029	224317392029	MO_1000	09-AUG-2014 05:30	S25147
L6	220_030	224317392030	MO_2500	09-AUG-2014 05:58	S25143 (2X)
L7	220_031	224317392031	MO_5000	09-AUG-2014 06:27	S25143

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Motor Oil C24-C36	B	24989	23562	23083	22666	20742	16943	14755	AVRG		4.77E-5		20963	18	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Motor Oil C24-C36	B	25.000	19	50.000	12	250.00	10	500.00	8	1000.0	-1	2500.0	-19	5000.0	**-30**

JDG 08/11/14 : Manually corrected automatically drawn baseline for all levels, except for L4 (MO_500).

JDG: 08/11/14 SFL: 08/12/14 EAH: 08/12/14

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259882 GCSV Water: EPA 8015D

Inst : GC15B
Calnum : 164206385001
Units : mg/L

Name : OTPHEX_143
Date : 23-MAY-2014 15:23
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	143b009	164206385009	HEXOTP_5	23-MAY-2014 15:23	S24342
L2	143b010	164206385010	HEXOTP_10	23-MAY-2014 15:50	S24343
L3	143b011	164206385011	HEXOTP_25	23-MAY-2014 16:18	S24344
L4	143b012	164206385012	HEXOTP_50	23-MAY-2014 16:45	S24345
L5	143b013	164206385013	HEXOTP_100	23-MAY-2014 17:13	S24346
L6	143b014	164206385014	HEXOTP_200	23-MAY-2014 17:41	S24347

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	54783	55332	54309	55166	56027	66457	AVRG		1.75E-5		57013	8	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	5.0000	-4	10.000	-3	25.000	-5	50.000	-3	100.00	-2	200.00	17

JDG 05/27/14 : Corrected automatically drawn baseline in multiple levels.

JDG 05/27/14 : Samples that require hexacosane will not be analyzed on this instrument.

Analyst: JDG Date: 05/27/14 Reviewer: EAH Date: 05/27/14

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259882 GCSV Water: EPA 8015D

Inst : GC15B
Calnum : 164206385002
Units : mg/L

Name : DSL_143
Date : 23-MAY-2014 18:36
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	143b016	164206385016	DSL_10	23-MAY-2014 18:36	S24516
L2	143b017	164206385017	DSL_100	23-MAY-2014 19:03	S24517
L3	143b018	164206385018	DSL_500	23-MAY-2014 19:30	S24518
L4	143b019	164206385019	DSL_1000	23-MAY-2014 19:58	S24519
L5	143b020	164206385020	DSL_5000	23-MAY-2014 20:26	S24515

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C10-C24	46289	63325	46837	50168	51135	AVRG		1.94E-5		51551	13	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Diesel C10-C24	10.000	-10	100.00	**23**	500.00	-9	1000.0	-3	5000.0	-1

JDG 05/27/14 : Corrected automatically drawn baseline in DSL_100 (143b017).

Analyst: JDG Date: 05/27/14 Reviewer: EAH Date: 05/27/14

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259882 GCSV Water
EPA 8015D

Inst : GC15B
Calnum : 164206385002

Name : DSL_143
Cal Date : 23-MAY-2014

ICV 164206385022 (143b022 23-MAY-2014) stds: S24580

Analyte	Spiked	Quant	Units	%D	Max	Flags
Diesel C10-C24	500.0	473.3	mg/L	-5	20	

Analyst: JDG Date: 05/27/14 Reviewer: EAH Date: 05/27/14

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259882 GCSV Water: EPA 8015D

Inst : GC15B
Calnum : 164220775001
Units : mg/L

Name : MO_153
Date : 02-JUN-2014 16:08
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	153b012	164220775012	MO_50	02-JUN-2014 16:08	S23963
L2	153b013	164220775013	MO_250	02-JUN-2014 16:36	S23964
L3	153b014	164220775014	MO_500	02-JUN-2014 17:03	S23965
L4	153b015	164220775015	MO_1000	02-JUN-2014 17:31	S23966
L5	153b016	164220775016	MO_2500	02-JUN-2014 17:58	S23962 (2X)
L6	153b017	164220775017	MO_5000	02-JUN-2014 18:25	S23962

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Motor Oil C24-C36	35118	33059	43444	32175	28110	27904	AVRG		3.00E-5		33302	17	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Motor Oil C24-C36	50.000	5	250.00	-1	500.00	**30**	1000.0	-3	2500.0	-16	5000.0	-16

JDG 06/03/14 : Corrected automatically drawn baseline in multiple levels.

Analyst: JDG Date: 06/03/14 Reviewer: EAH Date: 06/03/14

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 GCSV Water
EPA 8015D

Inst : GC14B Run Name : MO_500 IDF : 1.0
Seqnum : 224333102015.1 File : 231_015 Time : 19-AUG-2014 14:51
Standards: S25404

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	B	224317392003	09-AUG-2014	20963	21724	500.0	518.2	mg/L	4	20	
o-Terphenyl	B	224317392001	08-AUG-2014	35484	38066	50.00	53.64	mg/L	7	20	

Analyst: JDG Date: 08/27/14 Reviewer: EAH Date: 08/27/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 GCSV Water
EPA 8015D

Inst : GC14B Run Name : DSL_500 IDF : 1.0
Seqnum : 224333102016.1 File : 231_016 Time : 19-AUG-2014 15:20
Standards: S25245

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	B	224317392002	08-AUG-2014	30175	32734	500.0	542.4	mg/L	8	20	
o-Terphenyl	B	224317392001	08-AUG-2014	35484	38863	50.00	54.76	mg/L	10	20	

SFL 08/19/14 : Corrected automatically drawn baseline. [general version]

Analyst: JDG Date: 08/27/14 Reviewer: EAH Date: 08/27/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 GCSV Water
EPA 8015D

Inst : GC14B Run Name : MO_500 IDF : 1.0
Seqnum : 224333102030.1 File : 231_030 Time : 19-AUG-2014 21:54
Standards: S25404

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	B	224317392003	09-AUG-2014	20963	21159	500.0	504.7	mg/L	1	20	
o-Terphenyl	B	224317392001	08-AUG-2014	35484	37664	50.00	53.07	mg/L	6	20	

Analyst: JDG Date: 08/27/14 Reviewer: EAH Date: 08/27/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 GCSV Water
EPA 8015D

Inst : GC14B Run Name : DSL_250 IDF : 1.0
Seqnum : 224333102031.1 File : 231_031 Time : 19-AUG-2014 22:23
Standards: S25244

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	B	224317392002	08-AUG-2014	30175	32202	250.0	266.8	mg/L	7	20	
o-Terphenyl	B	224317392001	08-AUG-2014	35484	37394	50.00	52.69	mg/L	5	20	

Analyst: JDG Date: 08/27/14 Reviewer: EAH Date: 08/27/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 GCSV Water
EPA 8015D

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 164333094003.1 File : 231b003 Time : 19-AUG-2014 08:29
Standards: S25404

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	164220775001	02-JUN-2014	33302	34631	500.0	520.0	mg/L	4	20	
o-Terphenyl	164206385001	23-MAY-2014	57013	60117	50.00	52.72	mg/L	5	20	

JDG 08/19/14 : Corrected automatically drawn baseline. [general version]

Analyst: JDG Date: 08/27/14 Reviewer: EAH Date: 08/27/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 GCSV Water
EPA 8015D

Inst : GC15B Run Name : DSL_1000 IDF : 1.0
Seqnum : 164333094004.1 File : 231b004 Time : 19-AUG-2014 08:57
Standards: S25246

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	164206385002	23-MAY-2014	51551	50271	1000	975.2	mg/L	-2	20	
o-Terphenyl	164206385001	23-MAY-2014	57013	61622	50.00	54.04	mg/L	8	20	

JDG 08/19/14 : Corrected automatically drawn baseline. [general version]

Analyst: JDG Date: 08/27/14 Reviewer: EAH Date: 08/27/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 GCSV Water
EPA 8015D

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 164333094016.1 File : 231b016 Time : 19-AUG-2014 14:57
Standards: S25404

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	164220775001	02-JUN-2014	33302	33660	500.0	505.4	mg/L	1	20	
o-Terphenyl	164206385001	23-MAY-2014	57013	58446	50.00	51.26	mg/L	3	20	

JDG 08/19/14 : Corrected automatically drawn baseline. [general version]

Analyst: JDG Date: 08/27/14 Reviewer: EAH Date: 08/27/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 GCSV Water
EPA 8015D

Inst : GC15B Run Name : DSL_500 IDF : 1.0
Seqnum : 164333094017.1 File : 231b017 Time : 19-AUG-2014 15:24
Standards: S25245

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	164206385002	23-MAY-2014	51551	44578	500.0	432.4	mg/L	-14	20	
o-Terphenyl	164206385001	23-MAY-2014	57013	59165	50.00	51.89	mg/L	4	20	

JDG 08/19/14 : Corrected automatically drawn baseline. [general version]

Analyst: JDG Date: 08/27/14 Reviewer: EAH Date: 08/27/14

Logbooks & Sequences

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 164206385

Instrument : GC15B Begun : 05/23/14 07:45
Method : EPA 8015D SOP Version : TEH_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	143b001	X	IB			05/23/14 07:45	1.0		
002	143b002	X	IB			05/23/14 08:44	1.0		
003	143b003	X	IB			05/23/14 10:48	1.0		
005	143b005	X	IB			05/23/14 12:58	1.0		
006	143b006	X	CMARKER			05/23/14 13:26	1.0	1	
007	143b007	X	IB			05/23/14 13:53	1.0		
008	143b008	IB	CALIB			05/23/14 14:55	1.0		
009	143b009	ICAL	HEXOTP_5			05/23/14 15:23	1.0	2	
010	143b010	ICAL	HEXOTP_10			05/23/14 15:50	1.0	3	
011	143b011	ICAL	HEXOTP_25			05/23/14 16:18	1.0	4	
012	143b012	ICAL	HEXOTP_50			05/23/14 16:45	1.0	5	
013	143b013	ICAL	HEXOTP_100			05/23/14 17:13	1.0	6	
014	143b014	ICAL	HEXOTP_200			05/23/14 17:41	1.0	7	
015	143b015	IB	CALIB			05/23/14 18:08	1.0		
016	143b016	ICAL	DSL_10			05/23/14 18:36	1.0	8	
017	143b017	ICAL	DSL_100			05/23/14 19:03	1.0	9	
018	143b018	ICAL	DSL_500			05/23/14 19:30	1.0	10	
019	143b019	ICAL	DSL_1000			05/23/14 19:58	1.0	11	
020	143b020	ICAL	DSL_5000			05/23/14 20:26	1.0	12	
021	143b021	IB	CALIB			05/23/14 20:53	1.0		
022	143b022	ICV	DSL_500			05/23/14 21:21	1.0	13	
023	143b023	X	ICV			05/23/14 21:49	1.0	13	
024	143b024	IB	CALIB			05/23/14 22:16	1.0		
025	143b025	X	MO_25			05/23/14 22:44	1.0	14	
026	143b026	ICAL	MO_50			05/23/14 23:12	1.0	14	
027	143b027	ICAL	MO_250			05/23/14 23:40	1.0	15	
028	143b028	ICAL	MO_500			05/24/14 00:08	1.0	16	
029	143b029	ICAL	MO_1000			05/24/14 00:35	1.0	17	
030	143b030	ICAL	MO_2500			05/24/14 01:03	1.0	18	
031	143b031	ICAL	MO_5000			05/24/14 01:31	1.0	18	
032	143b032	IB	CALIB			05/24/14 01:58	1.0		
033	143b033	CMARKER	C8-C50			05/24/14 02:26	1.0	1	

JDG 05/27/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 33.

Standards used: 1=S24669 2=S24342 3=S24343 4=S24344 5=S24345 6=S24346 7=S24347 8=S24516 9=S24517 10=S24518 11=S24519 12=S24515 13=S24580 14=S23963 15=S23964 16=S23965 17=S23966 18=S23962

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 164220775

Instrument : GC15B
Method : EPA 8015D

Begun : 06/02/14 07:35
SOP Version : TEH_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	153b001	X	IB			06/02/14 07:35	1.0		
002	153b002	X	CMARKER			06/02/14 08:19	1.0	1	
003	153b003	CCV	DSL_1000			06/02/14 08:47	1.0	2	
004	153b004	CCV	MO_500			06/02/14 09:15	1.0	3	
005	153b005	X	IB			06/02/14 11:55	1.0		
006	153b006	X	C8-C50			06/02/14 12:23	1.0	1	
007	153b007	CCV	MO_500			06/02/14 12:50	1.0	3	
008	153b008	CCV	DSL_1000			06/02/14 13:18	1.0	2	
009	153b009	X	IB			06/02/14 14:45	1.0		
010	153b010	IB	CALIB			06/02/14 15:12	1.0		
011	153b011	X	MO_25			06/02/14 15:40	1.0	4	
012	153b012	ICAL	MO_50			06/02/14 16:08	1.0	4	
013	153b013	ICAL	MO_250			06/02/14 16:36	1.0	5	
014	153b014	ICAL	MO_500			06/02/14 17:03	1.0	6	
015	153b015	ICAL	MO_1000			06/02/14 17:31	1.0	7	
016	153b016	ICAL	MO_2500			06/02/14 17:58	1.0	8	
017	153b017	ICAL	MO_5000			06/02/14 18:25	1.0	8	
018	153b018	IB	CALIB			06/02/14 18:53	1.0		
019	153b019	CMARKER	C8-C50			06/02/14 19:20	1.0	1	
020	153b020	IB	CALIB			06/02/14 19:48	1.0		

JDG 06/03/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 20.

Standards used: 1=S24669 2=S24581 3=S24716 4=S23963 5=S23964 6=S23965 7=S23966 8=S23962

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 164333094

Instrument : GC15B Begun : 08/19/14 07:34
Method : EPA 8015D SOP Version : TEH_rv18

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	231b001	X	IB				08/19/14 07:34	1.0		
002	231b002	X	CMARKER				08/19/14 08:01	1.0	1	
003	231b003	CCV	MO_500				08/19/14 08:29	1.0	2	
004	231b004	CCV	DSL_1000				08/19/14 08:57	1.0	3	
005	231b005	CCV	JET_250				08/19/14 09:30	1.0	4	
006	231b006	BLANK	QC753974		Soil	214505	08/19/14 09:58	1.0		
007	231b007	SAMPLE	259897-024	S	Water	214470	08/19/14 10:35	1.0		
008	231b008	SAMPLE	259897-025	S	Water	214470	08/19/14 11:03	1.0		
009	231b009	SAMPLE	259897-027	S	Water	214470	08/19/14 11:31	1.0		
010	231b010	SAMPLE	259897-028	S	Water	214470	08/19/14 11:59	1.0		
011	231b011	BLANK	QC753998		Water	214511	08/19/14 12:27	1.0		
012	231b012	BLANK	QC753998	S	Water	214511	08/19/14 12:55	1.0		
013	231b013	BS	QC753999	S	Water	214511	08/19/14 13:23	1.0		
014	231b014	BSD	QC754000	S	Water	214511	08/19/14 13:50	1.0		
015	231b015	SAMPLE	259897-006	S	Water	214511	08/19/14 14:26	1.0		
016	231b016	CCV	MO_500				08/19/14 14:57	1.0	2	
017	231b017	CCV	DSL_500				08/19/14 15:24	1.0	5	
018	231b018	CCV	JET_250				08/19/14 15:52	1.0	4	
019	231b019	SAMPLE	259842-001		Water	214511	08/19/14 16:54	1.0		
020	231b020	SAMPLE	259842-002		Water	214511	08/19/14 17:22	1.0		
021	231b021	SAMPLE	259842-003		Water	214511	08/19/14 17:50	1.0		
022	231b022	SAMPLE	259842-004		Water	214511	08/19/14 18:18	1.0		
023	231b023	SAMPLE	259842-001	S	Water	214511	08/19/14 18:45	1.0		
024	231b024	SAMPLE	259842-002	S	Water	214511	08/19/14 19:13	1.0		
025	231b025	SAMPLE	259842-003	S	Water	214511	08/19/14 19:41	1.0		
026	231b026	SAMPLE	259842-004	S	Water	214511	08/19/14 20:08	1.0		
027	231b027	X	CMARKER				08/19/14 20:36	1.0	1	
028	231b028	CCV	MO_500				08/19/14 21:03	1.0	2	
029	231b029	CCV	DSL_1000				08/19/14 21:31	1.0	3	
030	231b030	CCV	JET_250				08/19/14 21:58	1.0	4	
031	231b031	CCV	MO_500				08/19/14 22:26	1.0	2	
032	231b032	CCV	DSL_1000				08/19/14 22:54	1.0	3	
033	231b033	CCV	JET_250				08/19/14 23:22	1.0	4	

SFL 08/19/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 18.

JDG 08/20/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 19 through 33.

Standards used: 1=S24669 2=S25404 3=S25246 4=S25386 5=S25245

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 224317392

Instrument : GC14B Begun : 08/08/14 09:52
Method : EPA 8015D SOP Version : TEH_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
003	220_003	X	IB			08/08/14 09:52	1.0		
004	220_004	X	IB			08/08/14 10:20	1.0		
005	220_005	X	CMARKER			08/08/14 10:49	1.0	1	
006	220_006	X	CMARKER			08/08/14 17:07	1.0	1	
007	220_007	X	IB			08/08/14 17:35	1.0		
008	220_008	IB	CALIB			08/08/14 19:35	1.0		
009	220_009	ICAL	HEX OTP_5			08/08/14 20:04	1.0	2	
010	220_010	ICAL	HEX OTP_10			08/08/14 20:32	1.0	3	
011	220_011	ICAL	HEX OTP_25			08/08/14 21:00	1.0	4	
012	220_012	ICAL	HEX OTP_50			08/08/14 21:28	1.0	5	
013	220_013	ICAL	HEX OTP_100			08/08/14 21:56	1.0	6	
014	220_014	ICAL	HEX OTP_200			08/08/14 22:25	1.0	7	
015	220_015	IB	CALIB			08/08/14 22:53	1.0		
016	220_016	ICAL	DSL_10			08/08/14 23:22	1.0	8	
017	220_017	ICAL	DSL_100			08/08/14 23:50	1.0	9	
018	220_018	ICAL	DSL_500			08/09/14 00:19	1.0	10	
019	220_019	ICAL	DSL_1000			08/09/14 00:47	1.0	11	
020	220_020	ICAL	DSL_5000			08/09/14 01:15	1.0	12	
021	220_021	IB	CALIB			08/09/14 01:44	1.0		
022	220_022	ICV	DSL_500			08/09/14 02:12	1.0	13	
023	220_023	X	ICV			08/09/14 02:40	1.0	13	
024	220_024	IB	CALIB			08/09/14 03:08	1.0		
025	220_025	ICAL	MO_25			08/09/14 03:37	1.0	14	
026	220_026	ICAL	MO_50			08/09/14 04:05	1.0	14	
027	220_027	ICAL	MO_250			08/09/14 04:33	1.0	15	
028	220_028	ICAL	MO_500			08/09/14 05:01	1.0	16	
029	220_029	ICAL	MO_1000			08/09/14 05:30	1.0	17	
030	220_030	ICAL	MO_2500			08/09/14 05:58	1.0	18	
031	220_031	ICAL	MO_5000			08/09/14 06:27	1.0	18	
032	220_032	IB	CALIB			08/09/14 06:55	1.0		
033	220_033	CMARKER	C10-C50			08/09/14 07:23	1.0	1	
034	220_034	IB	CALIB			08/09/14 07:52	1.0		

JDG 08/11/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 34.

Standards used: 1=S24669 2=S25390 3=S25391 4=S25392 5=S25393 6=S25394 7=S25395 8=S25266 9=S25267 10=S25268 11=S25269 12=S24515 13=S25245 14=S25144 15=S25145 16=S25146 17=S25147 18=S25143

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 224333102

Instrument : GC14B Begun : 08/19/14 07:42
Method : EPA 8015D SOP Version : TEH_rv18

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	231_001	X	IB				08/19/14 07:42	1.0		
002	231_002	X	CMARKER				08/19/14 08:11	1.0	1	
003	231_003	CCV	MO_500				08/19/14 08:40	1.0	2	
004	231_004	CCV	DSL_1000				08/19/14 09:08	1.0	3	
005	231_005	MSS	259845-003		Soil	214505	08/19/14 09:37	1.0		
006	231_006	SAMPLE	259897-019	S	Water	214470	08/19/14 10:35	1.0		
007	231_007	SAMPLE	259897-018	S	Water	214470	08/19/14 11:04	1.0		7:DSL:12-28=15000
008	231_008	SAMPLE	259897-017	S	Water	214470	08/19/14 11:32	1.0		
009	231_009	SAMPLE	259897-016	S	Water	214470	08/19/14 12:01	1.0		
010	231_010	SAMPLE	259897-015	S	Water	214470	08/19/14 12:30	1.0		
011	231_011	SAMPLE	259897-018	S	Water	214470	08/19/14 12:58	5.0		
012	231_012	SAMPLE	259897-001	S	Water	214511	08/19/14 13:27	1.0		
013	231_013	SAMPLE	259897-002	S	Water	214511	08/19/14 13:55	1.0		
014	231_014	SAMPLE	259897-003	S	Water	214511	08/19/14 14:23	1.0		
015	231_015	CCV	MO_500				08/19/14 14:51	1.0	2	
016	231_016	CCV	DSL_500				08/19/14 15:20	1.0	4	
017	231_017	BS	QC753999		Water	214511	08/19/14 15:48	1.0		
018	231_018	BSD	QC754000		Water	214511	08/19/14 16:16	1.0		
019	231_019	SAMPLE	259924-001	S	Soil	214505	08/19/14 16:44	1.0		
020	231_020	SAMPLE	259924-002	S	Soil	214505	08/19/14 17:13	1.0		
021	231_021	SAMPLE	259924-003	S	Soil	214505	08/19/14 17:41	1.0		
022	231_022	SAMPLE	259865-001		Water	214511	08/19/14 18:09	1.0		
023	231_023	SAMPLE	259865-003		Water	214511	08/19/14 18:37	1.0		
024	231_024	SAMPLE	259823-001		Water	214511	08/19/14 19:06	1.0		
025	231_025	SAMPLE	259823-003		Water	214511	08/19/14 19:34	1.0		
026	231_026	SAMPLE	259882-001		Water	214511	08/19/14 20:02	1.0		
027	231_027	SAMPLE	259882-002		Water	214511	08/19/14 20:30	1.0		
028	231_028	SAMPLE	259844-005		Water	214511	08/19/14 20:58	1.0		
029	231_029	X	CMARKER				08/19/14 21:26	1.0	1	
030	231_030	CCV	MO_500				08/19/14 21:54	1.0	2	
031	231_031	CCV	DSL_250				08/19/14 22:23	1.0	5	
032	231_032	CCV	MO_500				08/19/14 22:51	1.0	2	
033	231_033	CCV	DSL_250				08/19/14 23:20	1.0	5	
034	231_034	X	IB				08/19/14 23:49	1.0		
035	231_035	X	TANKCHECK				08/20/14 00:17	1.0		
036	231_036	X	TANKCHECK				08/20/14 00:45	1.0		

SFL 08/19/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 16.

JDG 08/20/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 17 through 36.

Standards used: 1=S24669 2=S25404 3=S25246 4=S25245 5=S25244

SAMPLE PREPARATION SUMMARY

Batch # : 214511
Started By : ARG
Method : 3520C
Spike #1 ID : S25397

Prep Date : 18-AUG-2014 15:10
SOP Version : TEH_3520_rv15
Spike #2 ID : S25337

Analysis : TEH
Finished By : CPK
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259823-001		Water	510	2.5	1	0.004902	7	.5			3630C	TEH	
259823-003		Water	510	2.5	1	0.004902	7	.5			3630C	TEH	
259842-001		Water	510	2.5	1	0.004902	7	.5			3630C	TEHM	
259842-002		Water	510	2.5	1	0.004902	7	.5			3630C	TEHM	
259842-003		Water	510	2.5	1	0.004902	7	.5			3630C	TEHM	
259842-004		Water	510	2.5	1	0.004902	7	.5			3630C	TEHM	
259844-005		Water	510	2.5	1	0.004902	5	.5				TEHM	sediment
259865-001		Water	480	2.5	1	0.005208	7	.5			3630C	TEH	
259865-003		Water	490	2.5	1	0.005102	7	.5			3630C	TEH	
259882-001		Water	510	2.5	1	0.004902	10	.5				TEHM	
259882-002		Water	495	2.5	1	0.005051	7	.5				TEHM	
259897-001		Water	510	2.5	1	0.004902	7	.5			3630C	TEHM	
259897-002		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
259897-003		Water	510	2.5	1	0.004902	7	.5			3630C	TEHM	
259897-004		Water	510	2.5	1	0.004902	7	.5			3630C	TEHM	
259897-005		Water	510	2.5	1	0.004902	7	.5			3630C	TEHM	
259897-006		Water	490	2.5	1	0.005102	7	.5			3630C	TEHM	
259897-007		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
259897-008		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
259897-009		Water	500	2.5	1	0.005	7	.5			3630C	(rebatched)	
QC753998	BLANK	Water	500	2.5	1	0.005		.5			3630C		
QC753999	BS	Water	500	2.5	1	0.005		.5	.5		3630C		
QC754000	BSD	Water	500	2.5	1	0.005		.5	.5		3630C		

JDG 08/19/14 : Matrix spikes were not performed for this analysis in batch 214511 due to insufficient sample amount.

EAH 08/19/14 : Checked batch documents.

EAH 08/19/14 : Reviewed for SG jobs.

Analyst: JDG Date: 08/20/14 Reviewer: EAH Date: 08/20/14

TEH (8015) Water Prep Log Curtis & Tompkins, Ltd.

Page 28 BK 3588

LIMS Batch No: 214511
LIMS Analysis: TEH
Date Extracted: 08/18/2014

Extraction Method:
☒ EPA 3520c cont. L/L
☐ _____

Cleanup Method (if needed):
☒ EPA 3630c Silica Gel

Sample #	Container ID	Volume of Sample (mL)	Sample pH	Final Volume (mL)	Cleanup (x if needed)		Comments
259823-001	X	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
003	Z	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
259842-001	B	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
-002	A	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
-003	A	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
-004	B	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
259844-005	I	☐ 500 ☒ 510	☐7 ☒ 5	☒ 2.5 ☐		☒ ≤2pH	sediment
299869-001	Z	☐ 500 ~~[illegible]~~ EP 8/18	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	→ 480 mL
-003	Y	☐ 500 ☒ 490	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
299882-001	I	☐ 500 ☒ 510	☐7 ☒ 10	☒ 2.5 ☐		☒ ≤2pH	
-002	I	☐ 500 ~~[illegible]~~ EP 8/18	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	→ 495 mL
259897-001	E	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
-002	E	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-003	D	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-004	D	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-005	E	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-006	J	☐ 500 ☒ 490	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-007	E	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-008	D	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
-009	H	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
MB QC753998	NA	☒ 500 ☐	☐7 ☒ NA	☒ 2.5 ☐	X	☒ ≤2pH	
BS 9		☒ 500 ☐	☐7 ☒	☒ 2.5 ☐	X	☒ ≤2pH	
BSD 4000		☒ 500 ☐	☐7 ☒	☒ 2.5 ☐	X	☒ ≤2pH	
		☐ 500 ☐	☐7 ☐	☐ 2.5 ☐		☐ ≤2pH	

8/19/14

	Mfg & Lot# / LIMS # / Time	Date/ Initials
0.5 mL of TEH_SURR was added to all samples	025397 B	EP / 8/18/14
0.5 mL of TEH_SP was added to all spikes	S253370	
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	F5140660	
☒ 3520c: Samples were continually extracted about 450 mL of CH_2Cl_2	EMB4153	
Extraction Start Time:	1510	
Extraction End Time:	0910	CRJ 8/19/14
☐ 3510c: Samples were extracted 3 times with 60 mL of CH_2Cl_2	NA	CRJ 8/19/14
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EMWL231	
Concentrated to final volume at temperature (degrees C)	100°	
Relinquished to TEH Department	✓	

8/18/14
Extraction Chemist **Date**

Contined from Page 1
Continued on Page _____

8/19/14
Reviewed by **Date**

Curtis & Tompkins, Ltd. **Silica Gel Cleanup** **EPA 3630c**

Prep Chemist: CPK
Cleanup Date: 8/19/14

Benchbook # **BK 3572**
Page 58

Sample #	Extraction Batch#	Initial Volume (mL)	Final Volume (mL)	Comments
259823-001	214511	☑ 1.0 ☐	☑ 1.0 ☐	
-003		☑ 1.0 ☐	☑ 1.0 ☐	
259842-001		☑ 1.0 ☐	☑ 1.0 ☐	
-002		☑ 1.0 ☐	☑ 1.0 ☐	
-003		☑ 1.0 ☐	☑ 1.0 ☐	
-004		☑ 1.0 ☐	☑ 1.0 ☐	
259865-001		☑ 1.0 ☐	☑ 1.0 ☐	
-003		☑ 1.0 ☐	☑ 1.0 ☐	
259897-001		☑ 1.0 ☐	☑ 1.0 ☐	
-002		☑ 1.0 ☐	☑ 1.0 ☐	
-003		☑ 1.0 ☐	☑ 1.0 ☐	
-004		☑ 1.0 ☐	☑ 1.0 ☐	
-005		☑ 1.0 ☐	☑ 1.0 ☐	
-006		☑ 1.0 ☐	☑ 1.0 ☐	
-007		☑ 1.0 ☐	☑ 1.0 ☐	
-008		☑ 1.0 ☐	☑ 1.0 ☐	
-009		☑ 1.0 ☐	☑ 1.0 ☐	
MB QC753998		☑ 1.0 ☐	☑ 1.0 ☐	
BS 3999		☑ 1.0 ☐	☑ 1.0 ☐	
BSD 4000		☑ 1.0 ☐	☑ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	

8/19/14

	Mfg & Lot # / Time / Program	Initials / Date
☐ Extracts were cleaned up using C&T assembled ___ g columns	—	CPK 8/12/14
☒ Extracts were cleaned up using 10 g cartridges	SP4640701	↓
Extracts were eluted with 400 mL CH_2Cl_2	EM54153	
Concentrated to volumes as noted above	✓	↓

8/19/14
Extraction Chemist / Date

Continued from page ___
Continued on page ___

8/19/14
Reviewed by / Date

Case Narrative Addendum: Manual Integrations for 259882 GCSV (Water)

For SAMPLE 259882-001 (GC14B 231_026):
Corrected automatically drawn baseline.

For SAMPLE 259882-002 (GC14B 231_027):
Corrected automatically drawn baseline.

For CCV DSL_1000 (GC15B 231b004):
Corrected automatically drawn baseline.

For CCV DSL_500 (GC15B 231b017):
Corrected automatically drawn baseline.

For CCV DSL_500 (GC14B 231_016):
Corrected automatically drawn baseline.

For CCV MO_500 (GC15B 231b016):
Corrected automatically drawn baseline.

For CCV MO_500 (GC15B 231b003):
Corrected automatically drawn baseline.

For BLANK QC753998 (GC15B 231b011):
Corrected automatically drawn baseline.

For Calibration GC15B (164206385001):
Corrected automatically drawn baseline in multiple levels.

For Calibration GC15B (164206385002):
Corrected automatically drawn baseline in DSL_100 (143b017).

For ICV DSL_500 (GC15B 143b022):
Corrected automatically drawn baseline.

For Calibration GC15B (164220775001):
Corrected automatically drawn baseline in multiple levels.

For Calibration GC14B (224317392001):
Corrected automatically drawn baseline in all levels.

For Calibration GC14B (224317392002):
Corrected automatically drawn baseline in DSL_10 (220_016).

For ICV DSL_500 (GC14B 220_022):
Corrected automatically drawn baseline.

Laboratory Job Number 259882

ANALYTICAL REPORT

Volatile Organics by GC/MS

Matrix: Water

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	UST993-L-WC-081514	Units:	ug/L
Lab ID:	259882-001	Sampled:	08/15/14
Matrix:	Water	Received:	08/15/14

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Analyzed
Freon 12	2.0 U	10	1.0	10.00	214624	08/21/14
Chloromethane	4.0 U	10	2.7	10.00	214624	08/21/14
Vinyl Chloride	2.0 U	5.0	1.0	10.00	214624	08/21/14
Bromomethane	4.0 U	10	1.8	10.00	214624	08/21/14
Chloroethane	4.0 U	10	2.7	10.00	214624	08/21/14
Trichlorofluoromethane	4.0 U	10	2.3	10.00	214624	08/21/14
Acetone	24 J b	100	16	10.00	214624	08/21/14
Freon 113	2.0 U	20	1.3	10.00	214624	08/21/14
1,1-Dichloroethene	2.0 U	5.0	1.5	10.00	214624	08/21/14
Methylene Chloride	2.0 U	100	1.8	10.00	214624	08/21/14
Carbon Disulfide	2.0 U	5.0	1.0	10.00	214624	08/21/14
MTBE	2.0 U	5.0	1.1	10.00	214624	08/21/14
trans-1,2-Dichloroethene	2.0 U	5.0	1.5	10.00	214624	08/21/14
Vinyl Acetate	29 U	140	14	14.29	214885	08/28/14
1,1-Dichloroethane	2.0 U	5.0	1.6	10.00	214624	08/21/14
2-Butanone	20 U	100	3.8	10.00	214624	08/21/14
cis-1,2-Dichloroethene	2.0 U	5.0	1.3	10.00	214624	08/21/14
2,2-Dichloropropane	2.0 U	5.0	1.4	10.00	214624	08/21/14
Chloroform	2.0 U	5.0	1.0	10.00	214624	08/21/14
Bromochloromethane	2.0 U	5.0	1.4	10.00	214624	08/21/14
1,1,1-Trichloroethane	2.0 U	5.0	1.3	10.00	214624	08/21/14
1,1-Dichloropropene	2.0 U	5.0	1.3	10.00	214624	08/21/14
Carbon Tetrachloride	2.0 U	5.0	1.2	10.00	214624	08/21/14
1,2-Dichloroethane	2.0 U	5.0	1.1	10.00	214624	08/21/14
Benzene	2.0 U	5.0	1.0	10.00	214624	08/21/14
Trichloroethene	2.0 U	5.0	1.0	10.00	214624	08/21/14
1,2-Dichloropropane	2.0 U	5.0	1.4	10.00	214624	08/21/14
Bromodichloromethane	2.0 U	5.0	1.2	10.00	214624	08/21/14
Dibromomethane	2.0 U	5.0	1.5	10.00	214624	08/21/14
4-Methyl-2-Pentanone	20 U	100	6.5	10.00	214624	08/21/14
cis-1,3-Dichloropropene	2.0 U	5.0	1.1	10.00	214624	08/21/14
Toluene	2.0 U	5.0	1.0	10.00	214624	08/21/14
trans-1,3-Dichloropropene	2.0 U	5.0	1.4	10.00	214624	08/21/14
1,1,2-Trichloroethane	2.0 U	5.0	1.5	10.00	214624	08/21/14
2-Hexanone	4.0 U	100	2.3	10.00	214624	08/21/14
1,3-Dichloropropane	2.0 U	5.0	1.5	10.00	214624	08/21/14
Tetrachloroethene	2.0 U	5.0	1.0	10.00	214624	08/21/14
Dibromochloromethane	2.0 U	5.0	1.5	10.00	214624	08/21/14
1,2-Dibromoethane	2.0 U	5.0	1.3	10.00	214624	08/21/14
Chlorobenzene	2.0 U	5.0	1.3	10.00	214624	08/21/14
1,1,1,2-Tetrachloroethane	2.0 U	5.0	1.0	10.00	214624	08/21/14
Ethylbenzene	2.0 U	5.0	1.0	10.00	214624	08/21/14
m,p-Xylenes	2.0 U	5.0	1.5	10.00	214624	08/21/14
o-Xylene	2.0 U	5.0	1.0	10.00	214624	08/21/14
Styrene	2.0 U	5.0	1.0	10.00	214624	08/21/14
Bromoform	4.0 U	10	1.4	10.00	214624	08/21/14
Isopropylbenzene	2.0 U	5.0	1.0	10.00	214624	08/21/14
1,1,2,2-Tetrachloroethane	2.0 U	5.0	1.2	10.00	214624	08/21/14
1,2,3-Trichloropropane	2.0 U	5.0	1.5	10.00	214624	08/21/14
Propylbenzene	2.0 U	5.0	1.0	10.00	214624	08/21/14
Bromobenzene	2.0 U	5.0	1.1	10.00	214624	08/21/14
1,3,5-Trimethylbenzene	2.0 U	5.0	1.0	10.00	214624	08/21/14

*= Value outside of QC limits; see narrative
J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	UST993-L-WC-081514	Units:	ug/L
Lab ID:	259882-001	Sampled:	08/15/14
Matrix:	Water	Received:	08/15/14

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Analyzed
2-Chlorotoluene	2.0 U	5.0	1.0	10.00	214624	08/21/14
4-Chlorotoluene	2.0 U	5.0	1.0	10.00	214624	08/21/14
tert-Butylbenzene	2.0 U	5.0	1.0	10.00	214624	08/21/14
1,2,4-Trimethylbenzene	2.0 U	5.0	1.0	10.00	214624	08/21/14
sec-Butylbenzene	2.0 U	5.0	1.0	10.00	214624	08/21/14
para-Isopropyl Toluene	2.0 U	5.0	1.0	10.00	214624	08/21/14
1,3-Dichlorobenzene	2.0 U	5.0	1.1	10.00	214624	08/21/14
1,4-Dichlorobenzene	2.0 U	5.0	1.0	10.00	214624	08/21/14
n-Butylbenzene	2.0 U	5.0	1.0	10.00	214624	08/21/14
1,2-Dichlorobenzene	2.0 U	5.0	1.0	10.00	214624	08/21/14
1,2-Dibromo-3-Chloropropane	4.0 U	20	1.7	10.00	214624	08/21/14
1,2,4-Trichlorobenzene	4.0 U	5.0	1.3	10.00	214624	08/21/14
Hexachlorobutadiene	4.0 U	20	1.4	10.00	214624	08/21/14
Naphthalene	4.0 U	20	1.1	10.00	214624	08/21/14
1,2,3-Trichlorobenzene	4.0 U	5.0	1.4	10.00	214624	08/21/14

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed
Dibromofluoromethane	111	85-115	10.00	214624	08/21/14
Dibromofluoromethane	116 *	85-115	14.29	214885	08/28/14
1,2-Dichloroethane-d4	112	70-120	10.00	214624	08/21/14
1,2-Dichloroethane-d4	108	70-120	14.29	214885	08/28/14
Toluene-d8	105	85-120	10.00	214624	08/21/14
Toluene-d8	98	85-120	14.29	214885	08/28/14
Bromofluorobenzene	109	75-120	10.00	214624	08/21/14
Bromofluorobenzene	93	75-120	14.29	214885	08/28/14

*= Value outside of QC limits; see narrative
J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	IR04-L-WC-081514	Diln Fac:	1.000
Lab ID:	259882-002	Sampled:	08/15/14
Matrix:	Water	Received:	08/15/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
Freon 12	0.2 U	1.0	0.1	214624	08/21/14
Chloromethane	0.4 U	1.0	0.3	214624	08/21/14
Vinyl Chloride	0.2 U	0.5	0.1	214624	08/21/14
Bromomethane	0.4 U	1.0	0.2	214624	08/21/14
Chloroethane	0.4 U	1.0	0.3	214624	08/21/14
Trichlorofluoromethane	0.4 U	1.0	0.2	214624	08/21/14
Acetone	7.9 J b	10	1.6	214624	08/21/14
Freon 113	0.2 U	2.0	0.1	214624	08/21/14
1,1-Dichloroethene	0.2 U	0.5	0.2	214624	08/21/14
Methylene Chloride	0.2 U	10	0.2	214624	08/21/14
Carbon Disulfide	0.1 J	0.5	0.1	214624	08/21/14
MTBE	0.2 U	0.5	0.1	214624	08/21/14
trans-1,2-Dichloroethene	0.2 U	0.5	0.2	214624	08/21/14
Vinyl Acetate	2.0 U	10	1.0	214885	08/28/14
1,1-Dichloroethane	0.2 U	0.5	0.2	214624	08/21/14
2-Butanone	1.2 J b	10	0.4	214624	08/21/14
cis-1,2-Dichloroethene	0.2 U	0.5	0.1	214624	08/21/14
2,2-Dichloropropane	0.2 U	0.5	0.1	214624	08/21/14
Chloroform	0.2 U	0.5	0.1	214624	08/21/14
Bromochloromethane	0.2 U	0.5	0.1	214624	08/21/14
1,1,1-Trichloroethane	0.2 U	0.5	0.1	214624	08/21/14
1,1-Dichloropropene	0.2 U	0.5	0.1	214624	08/21/14
Carbon Tetrachloride	0.2 U	0.5	0.1	214624	08/21/14
1,2-Dichloroethane	0.2 U	0.5	0.1	214624	08/21/14
Benzene	0.2 U	0.5	0.1	214624	08/21/14
Trichloroethene	0.2 U	0.5	0.1	214624	08/21/14
1,2-Dichloropropane	0.2 U	0.5	0.1	214624	08/21/14
Bromodichloromethane	0.2 U	0.5	0.1	214624	08/21/14
Dibromomethane	0.2 U	0.5	0.1	214624	08/21/14
4-Methyl-2-Pentanone	2.0 U	10	0.7	214624	08/21/14
cis-1,3-Dichloropropene	0.2 U	0.5	0.1	214624	08/21/14
Toluene	0.2 J	0.5	0.1	214624	08/21/14
trans-1,3-Dichloropropene	0.2 U	0.5	0.1	214624	08/21/14
1,1,2-Trichloroethane	0.2 U	0.5	0.2	214624	08/21/14
2-Hexanone	0.4 U	10	0.2	214624	08/21/14
1,3-Dichloropropane	0.2 U	0.5	0.1	214624	08/21/14
Tetrachloroethene	0.2 U	0.5	0.1	214885	08/28/14
Dibromochloromethane	0.2 U	0.5	0.1	214624	08/21/14
1,2-Dibromoethane	0.2 U	0.5	0.1	214624	08/21/14
Chlorobenzene	0.2 U	0.5	0.1	214624	08/21/14
1,1,1,2-Tetrachloroethane	0.2 U	0.5	0.1	214624	08/21/14
Ethylbenzene	0.2 U	0.5	0.1	214624	08/21/14
m,p-Xylenes	0.2 U	0.5	0.1	214624	08/21/14
o-Xylene	0.2 U	0.5	0.1	214624	08/21/14
Styrene	3.1	0.5	0.1	214624	08/21/14
Bromoform	0.4 U	1.0	0.1	214624	08/21/14
Isopropylbenzene	0.2 U	0.5	0.1	214624	08/21/14
1,1,2,2-Tetrachloroethane	0.2 U	0.5	0.1	214624	08/21/14
1,2,3-Trichloropropane	0.2 U	0.5	0.2	214624	08/21/14
Propylbenzene	0.2 U	0.5	0.1	214624	08/21/14
Bromobenzene	0.2 U	0.5	0.1	214624	08/21/14

*= Value outside of QC limits; see narrative
J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	IR04-L-WC-081514	Diln Fac:	1.000
Lab ID:	259882-002	Sampled:	08/15/14
Matrix:	Water	Received:	08/15/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
1,3,5-Trimethylbenzene	0.2 U	0.5	0.1	214624	08/21/14
2-Chlorotoluene	0.2 U	0.5	0.1	214624	08/21/14
4-Chlorotoluene	0.2 U	0.5	0.1	214624	08/21/14
tert-Butylbenzene	0.2 U	0.5	0.1	214624	08/21/14
1,2,4-Trimethylbenzene	0.2 U	0.5	0.1	214624	08/21/14
sec-Butylbenzene	0.2 U	0.5	0.1	214624	08/21/14
para-Isopropyl Toluene	0.2 U	0.5	0.1	214624	08/21/14
1,3-Dichlorobenzene	0.2 U	0.5	0.1	214624	08/21/14
1,4-Dichlorobenzene	0.2 U	0.5	0.1	214624	08/21/14
n-Butylbenzene	0.2 U	0.5	0.1	214624	08/21/14
1,2-Dichlorobenzene	0.2 U	0.5	0.1	214624	08/21/14
1,2-Dibromo-3-Chloropropane	0.4 U	2.0	0.2	214624	08/21/14
1,2,4-Trichlorobenzene	0.4 U	0.5	0.1	214624	08/21/14
Hexachlorobutadiene	0.4 U	2.0	0.1	214624	08/21/14
Naphthalene	0.4 U	2.0	0.1	214624	08/21/14
1,2,3-Trichlorobenzene	0.4 U	0.5	0.1	214624	08/21/14

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	112	85-115	214624	08/21/14
Dibromofluoromethane	117 *	85-115	214885	08/28/14
1,2-Dichloroethane-d4	117	70-120	214624	08/21/14
1,2-Dichloroethane-d4	107	70-120	214885	08/28/14
Toluene-d8	103	85-120	214624	08/21/14
Toluene-d8	98	85-120	214885	08/28/14
Bromofluorobenzene	110	75-120	214624	08/21/14
Bromofluorobenzene	93	75-120	214885	08/28/14

*= Value outside of QC limits; see narrative
J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	TB-081514	Diln Fac:	1.000
Lab ID:	259882-003	Sampled:	08/15/14
Matrix:	Water	Received:	08/15/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
Freon 12	0.2 U	1.0	0.1	214624	08/21/14
Chloromethane	0.4 U	1.0	0.3	214624	08/21/14
Vinyl Chloride	0.2 U	0.5	0.1	214624	08/21/14
Bromomethane	0.4 U	1.0	0.2	214624	08/21/14
Chloroethane	0.4 U	1.0	0.3	214624	08/21/14
Trichlorofluoromethane	0.4 U	1.0	0.2	214624	08/21/14
Acetone	4.1 J b	10	1.6	214624	08/21/14
Freon 113	0.2 U	2.0	0.1	214624	08/21/14
1,1-Dichloroethene	0.2 U	0.5	0.2	214624	08/21/14
Methylene Chloride	1.1 J	10	0.2	214624	08/21/14
Carbon Disulfide	0.2 U	0.5	0.1	214624	08/21/14
MTBE	0.2 U	0.5	0.1	214624	08/21/14
trans-1,2-Dichloroethene	0.2 U	0.5	0.2	214624	08/21/14
Vinyl Acetate	2.0 U	10	1.0	214885	08/28/14
1,1-Dichloroethane	0.2 U	0.5	0.2	214624	08/21/14
2-Butanone	0.5 J b	10	0.4	214624	08/21/14
cis-1,2-Dichloroethene	0.2 U	0.5	0.1	214624	08/21/14
2,2-Dichloropropane	0.2 U	0.5	0.1	214624	08/21/14
Chloroform	0.2 U	0.5	0.1	214624	08/21/14
Bromochloromethane	0.2 U	0.5	0.1	214624	08/21/14
1,1,1-Trichloroethane	0.2 U	0.5	0.1	214624	08/21/14
1,1-Dichloropropene	0.2 U	0.5	0.1	214624	08/21/14
Carbon Tetrachloride	0.2 U	0.5	0.1	214624	08/21/14
1,2-Dichloroethane	0.2 U	0.5	0.1	214624	08/21/14
Benzene	0.2 U	0.5	0.1	214624	08/21/14
Trichloroethene	0.2 U	0.5	0.1	214624	08/21/14
1,2-Dichloropropane	0.2 U	0.5	0.1	214624	08/21/14
Bromodichloromethane	0.2 U	0.5	0.1	214624	08/21/14
Dibromomethane	0.2 U	0.5	0.1	214624	08/21/14
4-Methyl-2-Pentanone	2.0 U	10	0.7	214624	08/21/14
cis-1,3-Dichloropropene	0.2 U	0.5	0.1	214624	08/21/14
Toluene	0.2 U	0.5	0.1	214624	08/21/14
trans-1,3-Dichloropropene	0.2 U	0.5	0.1	214624	08/21/14
1,1,2-Trichloroethane	0.2 U	0.5	0.2	214624	08/21/14
2-Hexanone	0.4 U	10	0.2	214624	08/21/14
1,3-Dichloropropane	0.2 U	0.5	0.1	214624	08/21/14
Tetrachloroethene	0.2 J	0.5	0.1	214624	08/21/14
Dibromochloromethane	0.2 U	0.5	0.1	214624	08/21/14
1,2-Dibromoethane	0.2 U	0.5	0.1	214624	08/21/14
Chlorobenzene	0.2 U	0.5	0.1	214624	08/21/14
1,1,1,2-Tetrachloroethane	0.2 U	0.5	0.1	214624	08/21/14
Ethylbenzene	0.2 U	0.5	0.1	214624	08/21/14
m,p-Xylenes	0.2 U	0.5	0.1	214624	08/21/14
o-Xylene	0.2 U	0.5	0.1	214624	08/21/14
Styrene	0.2 U	0.5	0.1	214624	08/21/14
Bromoform	0.4 U	1.0	0.1	214624	08/21/14
Isopropylbenzene	0.2 U	0.5	0.1	214624	08/21/14
1,1,2,2-Tetrachloroethane	0.2 U	0.5	0.1	214624	08/21/14
1,2,3-Trichloropropane	0.2 U	0.5	0.2	214624	08/21/14
Propylbenzene	0.2 U	0.5	0.1	214624	08/21/14
Bromobenzene	0.2 U	0.5	0.1	214624	08/21/14
1,3,5-Trimethylbenzene	0.2 U	0.5	0.1	214624	08/21/14

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	TB-081514	Diln Fac:	1.000
Lab ID:	259882-003	Sampled:	08/15/14
Matrix:	Water	Received:	08/15/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
2-Chlorotoluene	0.2 U	0.5	0.1	214624	08/21/14
4-Chlorotoluene	0.2 U	0.5	0.1	214624	08/21/14
tert-Butylbenzene	0.2 U	0.5	0.1	214624	08/21/14
1,2,4-Trimethylbenzene	0.2 U	0.5	0.1	214624	08/21/14
sec-Butylbenzene	0.2 U	0.5	0.1	214624	08/21/14
para-Isopropyl Toluene	0.2 U	0.5	0.1	214624	08/21/14
1,3-Dichlorobenzene	0.2 U	0.5	0.1	214624	08/21/14
1,4-Dichlorobenzene	0.2 U	0.5	0.1	214624	08/21/14
n-Butylbenzene	0.2 U	0.5	0.1	214624	08/21/14
1,2-Dichlorobenzene	0.2 U	0.5	0.1	214624	08/21/14
1,2-Dibromo-3-Chloropropane	0.4 U	2.0	0.2	214624	08/21/14
1,2,4-Trichlorobenzene	0.4 U	0.5	0.1	214624	08/21/14
Hexachlorobutadiene	0.4 U	2.0	0.1	214624	08/21/14
Naphthalene	0.4 U	2.0	0.1	214624	08/21/14
1,2,3-Trichlorobenzene	0.4 U	0.5	0.1	214624	08/21/14

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	108	85-115	214624	08/21/14
Dibromofluoromethane	114	85-115	214885	08/28/14
1,2-Dichloroethane-d4	113	70-120	214624	08/21/14
1,2-Dichloroethane-d4	106	70-120	214885	08/28/14
Toluene-d8	104	85-120	214624	08/21/14
Toluene-d8	98	85-120	214885	08/28/14
Bromofluorobenzene	107	75-120	214624	08/21/14
Bromofluorobenzene	94	75-120	214885	08/28/14

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214624
Units:	ug/L	Analyzed:	08/21/14
Diln Fac:	1.000		

Type: BS Lab ID: QC754439

Analyte	Spiked	Result	%REC	Limits
Freon 12	8.000	8.302	104	30-155
Chloromethane	8.000	9.310	116	40-125
Vinyl Chloride	8.000	8.729	109	50-145
Bromomethane	8.000	8.667	108	30-145
Chloroethane	8.000	8.114	101	60-135
Trichlorofluoromethane	8.000	8.165	102	60-145
Acetone	10.00	12.67 b	127	40-140
Freon 113	10.00	9.947	99	68-147
1,1-Dichloroethene	10.00	9.953	100	70-130
Methylene Chloride	10.00	11.14	111	55-140
Carbon Disulfide	10.00	9.406	94	35-160
MTBE	10.00	10.48	105	65-125
trans-1,2-Dichloroethene	10.00	10.69	107	60-140
Vinyl Acetate	10.00	15.68 b	157	67-209
1,1-Dichloroethane	10.00	10.81	108	70-135
2-Butanone	10.00	14.35 b	143	30-150
cis-1,2-Dichloroethene	10.00	11.34	113	70-125
2,2-Dichloropropane	10.00	12.35 b	123	70-135
Chloroform	10.00	11.66	117	65-135
Bromochloromethane	10.00	10.57	106	65-130
1,1,1-Trichloroethane	10.00	11.48	115	65-130
1,1-Dichloropropene	10.00	10.72	107	75-130
Carbon Tetrachloride	10.00	10.01	100	65-140
1,2-Dichloroethane	10.00	10.81	108	70-130
Benzene	10.00	10.55	105	80-120
Trichloroethene	10.00	10.61	106	70-125
1,2-Dichloropropane	10.00	10.23	102	75-125
Bromodichloromethane	10.00	10.43	104	75-120
Dibromomethane	10.00	11.20	112	75-125
4-Methyl-2-Pentanone	10.00	11.75	117	60-135
cis-1,3-Dichloropropene	10.00	11.10	111	70-130
Toluene	10.00	10.32	103	75-120
trans-1,3-Dichloropropene	10.00	10.25	103	55-140
1,1,2-Trichloroethane	10.00	11.03	110	75-125
2-Hexanone	10.00	11.65	116	55-130
1,3-Dichloropropane	10.00	10.83	108	75-125
Tetrachloroethene	10.00	9.779	98	45-150
Dibromochloromethane	10.00	9.505	95	60-135
1,2-Dibromoethane	10.00	10.90	109	80-120
Chlorobenzene	10.00	11.54	115	80-120
1,1,1,2-Tetrachloroethane	10.00	10.08	101	80-130
Ethylbenzene	10.00	10.87	109	75-125
m,p-Xylenes	20.00	21.60	108	75-130
o-Xylene	10.00	11.17	112	80-120
Styrene	10.00	10.94	109	65-135
Bromoform	10.00	9.354	94	70-130
Isopropylbenzene	10.00	11.75	118	75-125
1,1,2,2-Tetrachloroethane	10.00	12.55 b	126	65-130
1,2,3-Trichloropropane	10.00	11.77	118	75-125
Propylbenzene	10.00	11.63	116	70-130

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214624
Units:	ug/L	Analyzed:	08/21/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits
Bromobenzene	10.00	10.57	106	75-125
1,3,5-Trimethylbenzene	10.00	12.07 b	121	75-130
2-Chlorotoluene	10.00	12.29 b	123	75-125
4-Chlorotoluene	10.00	11.99	120	75-130
tert-Butylbenzene	10.00	11.50	115	70-130
1,2,4-Trimethylbenzene	10.00	11.60	116	75-130
sec-Butylbenzene	10.00	12.65 b	127 *	70-125
para-Isopropyl Toluene	10.00	11.85	119	75-130
1,3-Dichlorobenzene	10.00	11.44	114	75-125
1,4-Dichlorobenzene	10.00	11.20	112	75-125
n-Butylbenzene	10.00	12.29 b	123	70-135
1,2-Dichlorobenzene	10.00	11.33	113	70-120
1,2-Dibromo-3-Chloropropane	10.00	9.430	94	50-130
1,2,4-Trichlorobenzene	10.00	10.81	108	65-135
Hexachlorobutadiene	10.00	11.18	112	50-140
Naphthalene	10.00	10.35	104	55-140
1,2,3-Trichlorobenzene	10.00	11.02	110	55-140

Surrogate	%REC	Limits
Dibromofluoromethane	108	85-115
1,2-Dichloroethane-d4	109	70-120
Toluene-d8	104	85-120
Bromofluorobenzene	103	75-120

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214624
Units:	ug/L	Analyzed:	08/21/14
Diln Fac:	1.000		

Type: BSD Lab ID: QC754440

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	8.000	7.864	98	30-155	5	30
Chloromethane	8.000	8.751	109	40-125	6	30
Vinyl Chloride	8.000	8.336	104	50-145	5	30
Bromomethane	8.000	8.146	102	30-145	6	30
Chloroethane	8.000	7.477	93	60-135	8	30
Trichlorofluoromethane	8.000	7.697	96	60-145	6	30
Acetone	10.00	12.08 b	121	40-140	5	30
Freon 113	10.00	9.865	99	68-147	1	30
1,1-Dichloroethene	10.00	9.548	95	70-130	4	30
Methylene Chloride	10.00	10.68	107	55-140	4	30
Carbon Disulfide	10.00	9.123	91	35-160	3	30
MTBE	10.00	10.10	101	65-125	4	30
trans-1,2-Dichloroethene	10.00	10.57	106	60-140	1	30
Vinyl Acetate	10.00	14.51 b	145	67-209	8	30
1,1-Dichloroethane	10.00	10.51	105	70-135	3	30
2-Butanone	10.00	13.26 b	133	30-150	8	30
cis-1,2-Dichloroethene	10.00	10.85	108	70-125	4	30
2,2-Dichloropropane	10.00	11.91 b	119	70-135	4	30
Chloroform	10.00	11.05	110	65-135	5	30
Bromochloromethane	10.00	10.47	105	65-130	1	30
1,1,1-Trichloroethane	10.00	11.29	113	65-130	2	30
1,1-Dichloropropene	10.00	10.54	105	75-130	2	30
Carbon Tetrachloride	10.00	10.03	100	65-140	0	30
1,2-Dichloroethane	10.00	10.66	107	70-130	1	30
Benzene	10.00	10.54	105	80-120	0	30
Trichloroethene	10.00	10.70	107	70-125	1	30
1,2-Dichloropropane	10.00	10.16	102	75-125	1	30
Bromodichloromethane	10.00	10.27	103	75-120	2	30
Dibromomethane	10.00	11.18	112	75-125	0	30
4-Methyl-2-Pentanone	10.00	11.75	118	60-135	0	30
cis-1,3-Dichloropropene	10.00	10.94	109	70-130	1	30
Toluene	10.00	10.36	104	75-120	0	30
trans-1,3-Dichloropropene	10.00	9.959	100	55-140	3	30
1,1,2-Trichloroethane	10.00	10.77	108	75-125	2	30
2-Hexanone	10.00	12.39	124	55-130	6	30
1,3-Dichloropropane	10.00	10.70	107	75-125	1	30
Tetrachloroethene	10.00	9.826	98	45-150	0	30
Dibromochloromethane	10.00	9.556	96	60-135	1	30
1,2-Dibromoethane	10.00	10.72	107	80-120	2	30
Chlorobenzene	10.00	11.07	111	80-120	4	30
1,1,1,2-Tetrachloroethane	10.00	9.734	97	80-130	3	30
Ethylbenzene	10.00	10.88	109	75-125	0	30
m,p-Xylenes	20.00	21.28	106	75-130	1	30
o-Xylene	10.00	10.86	109	80-120	3	30
Styrene	10.00	10.64	106	65-135	3	30
Bromoform	10.00	9.760	98	70-130	4	30
Isopropylbenzene	10.00	11.64	116	75-125	1	30
1,1,2,2-Tetrachloroethane	10.00	11.91 b	119	65-130	5	30
1,2,3-Trichloropropane	10.00	11.01	110	75-125	7	30
Propylbenzene	10.00	11.00	110	70-130	6	30

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214624
Units:	ug/L	Analyzed:	08/21/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Bromobenzene	10.00	10.28	103	75-125	3	30
1,3,5-Trimethylbenzene	10.00	11.84 b	118	75-130	2	30
2-Chlorotoluene	10.00	11.89 b	119	75-125	3	30
4-Chlorotoluene	10.00	11.35	114	75-130	5	30
tert-Butylbenzene	10.00	11.20	112	70-130	3	30
1,2,4-Trimethylbenzene	10.00	11.31	113	75-130	3	30
sec-Butylbenzene	10.00	12.28 b	123	70-125	3	30
para-Isopropyl Toluene	10.00	11.23	112	75-130	5	30
1,3-Dichlorobenzene	10.00	11.17	112	75-125	2	30
1,4-Dichlorobenzene	10.00	10.96	110	75-125	2	30
n-Butylbenzene	10.00	11.92 b	119	70-135	3	30
1,2-Dichlorobenzene	10.00	11.07	111	70-120	2	30
1,2-Dibromo-3-Chloropropane	10.00	9.290	93	50-130	1	30
1,2,4-Trichlorobenzene	10.00	10.53	105	65-135	3	30
Hexachlorobutadiene	10.00	10.86	109	50-140	3	30
Naphthalene	10.00	10.20	102	55-140	1	30
1,2,3-Trichlorobenzene	10.00	10.86	109	55-140	1	30

Surrogate	%REC	Limits
Dibromofluoromethane	107	85-115
1,2-Dichloroethane-d4	111	70-120
Toluene-d8	105	85-120
Bromofluorobenzene	102	75-120

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC754441	Batch#:	214624
Matrix:	Water	Analyzed:	08/21/14
Units:	ug/L		

Analyte	Result	LOQ	DL
Freon 12	0.2 U	1.0	0.1
Chloromethane	0.4 U	1.0	0.3
Vinyl Chloride	0.2 U	0.5	0.1
Bromomethane	0.4 U	1.0	0.2
Chloroethane	0.4 U	1.0	0.3
Trichlorofluoromethane	0.4 U	1.0	0.2
Acetone	2.0 U	10	1.6
Freon 113	0.2 U	2.0	0.1
1,1-Dichloroethene	0.2 U	0.5	0.2
Methylene Chloride	0.2 U	10	0.2
Carbon Disulfide	0.2 U	0.5	0.1
MTBE	0.2 U	0.5	0.1
trans-1,2-Dichloroethene	0.2 U	0.5	0.2
Vinyl Acetate	2.0 U b	10	1.1
1,1-Dichloroethane	0.2 U	0.5	0.2
2-Butanone	2.0 U	10	0.4
cis-1,2-Dichloroethene	0.2 U	0.5	0.1
2,2-Dichloropropane	0.2 U	0.5	0.1
Chloroform	0.2 U	0.5	0.1
Bromochloromethane	0.2 U	0.5	0.1
1,1,1-Trichloroethane	0.2 U	0.5	0.1
1,1-Dichloropropene	0.2 U	0.5	0.1
Carbon Tetrachloride	0.2 U	0.5	0.1
1,2-Dichloroethane	0.2 U	0.5	0.1
Benzene	0.2 U	0.5	0.1
Trichloroethene	0.2 U	0.5	0.1
1,2-Dichloropropane	0.2 U	0.5	0.1
Bromodichloromethane	0.2 U	0.5	0.1
Dibromomethane	0.2 U	0.5	0.1
4-Methyl-2-Pentanone	2.0 U	10	0.7
cis-1,3-Dichloropropene	0.2 U	0.5	0.1
Toluene	0.2 U	0.5	0.1
trans-1,3-Dichloropropene	0.2 U	0.5	0.1
1,1,2-Trichloroethane	0.2 U	0.5	0.2
2-Hexanone	0.4 U	10	0.2
1,3-Dichloropropane	0.2 U	0.5	0.1
Tetrachloroethene	0.2 U	0.5	0.1
Dibromochloromethane	0.2 U	0.5	0.1
1,2-Dibromoethane	0.2 U	0.5	0.1
Chlorobenzene	0.2 U	0.5	0.1
1,1,1,2-Tetrachloroethane	0.2 U	0.5	0.1
Ethylbenzene	0.2 U	0.5	0.1
m,p-Xylenes	0.2 U	0.5	0.1
o-Xylene	0.2 U	0.5	0.1
Styrene	0.2 U	0.5	0.1
Bromoform	0.4 U	1.0	0.1
Isopropylbenzene	0.2 U	0.5	0.1
1,1,2,2-Tetrachloroethane	0.2 U	0.5	0.1
1,2,3-Trichloropropane	0.2 U	0.5	0.2
Propylbenzene	0.2 U	0.5	0.1
Bromobenzene	0.2 U	0.5	0.1
1,3,5-Trimethylbenzene	0.2 U	0.5	0.1

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC754441	Batch#:	214624
Matrix:	Water	Analyzed:	08/21/14
Units:	ug/L		

Analyte	Result	LOQ	DL
2-Chlorotoluene	0.2 U	0.5	0.1
4-Chlorotoluene	0.2 U	0.5	0.1
tert-Butylbenzene	0.2 U	0.5	0.1
1,2,4-Trimethylbenzene	0.2 U	0.5	0.1
sec-Butylbenzene	0.2 U	0.5	0.1
para-Isopropyl Toluene	0.2 U	0.5	0.1
1,3-Dichlorobenzene	0.2 U	0.5	0.1
1,4-Dichlorobenzene	0.2 U	0.5	0.1
n-Butylbenzene	0.2 U	0.5	0.1
1,2-Dichlorobenzene	0.2 U	0.5	0.1
1,2-Dibromo-3-Chloropropane	0.4 U	2.0	0.2
1,2,4-Trichlorobenzene	0.4 U	0.5	0.1
Hexachlorobutadiene	0.4 U	2.0	0.1
Naphthalene	0.4 U	2.0	0.1
1,2,3-Trichlorobenzene	0.4 U	0.5	0.1

Surrogate	%REC	Limits
Dibromofluoromethane	110	85-115
1,2-Dichloroethane-d4	116	70-120
Toluene-d8	104	85-120
Bromofluorobenzene	109	75-120

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

50.0

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214885
Units:	ug/L	Analyzed:	08/28/14
Diln Fac:	1.000		

Type: BS Lab ID: QC755483

Analyte	Spiked	Result	%REC	Limits
Freon 12	10.00	9.795	98	30-155
Chloromethane	10.00	8.788	88	40-125
Vinyl Chloride	10.00	9.933	99	50-145
Bromomethane	10.00	9.633 b	96	30-145
Chloroethane	10.00	9.753	98	60-135
Trichlorofluoromethane	10.00	10.93	109	60-145
Acetone	12.50	15.11 b	121	40-140
Freon 113	12.50	14.40	115	68-147
1,1-Dichloroethene	12.50	13.32	107	70-130
Methylene Chloride	12.50	14.20	114	55-140
Carbon Disulfide	12.50	16.45 b	132	35-160
MTBE	12.50	10.68	85	65-125
trans-1,2-Dichloroethene	12.50	13.66	109	60-140
Vinyl Acetate	12.50	14.94 b	120	67-209
1,1-Dichloroethane	12.50	14.10	113	70-135
2-Butanone	12.50	13.84	111	30-150
cis-1,2-Dichloroethene	12.50	13.84	111	70-125
2,2-Dichloropropane	12.50	14.98	120	70-135
Chloroform	12.50	13.68	109	65-135
Bromochloromethane	12.50	15.12 b	121	65-130
1,1,1-Trichloroethane	12.50	13.30	106	65-130
1,1-Dichloropropene	12.50	13.32	107	75-130
Carbon Tetrachloride	12.50	13.31	106	65-140
1,2-Dichloroethane	12.50	12.74	102	70-130
Benzene	12.50	13.05	104	80-120
Trichloroethene	12.50	12.53	100	70-125
1,2-Dichloropropane	12.50	12.90	103	75-125
Bromodichloromethane	12.50	12.78	102	75-120
Dibromomethane	12.50	13.85	111	75-125
4-Methyl-2-Pentanone	12.50	12.01	96	60-135
cis-1,3-Dichloropropene	12.50	13.88 b	111	70-130
Toluene	12.50	12.97	104	75-120
trans-1,3-Dichloropropene	12.50	12.37	99	55-140
1,1,2-Trichloroethane	12.50	13.19	106	75-125
2-Hexanone	12.50	12.33	99	55-130
1,3-Dichloropropane	12.50	13.33	107	75-125
Tetrachloroethene	12.50	13.45	108	45-150
Dibromochloromethane	12.50	13.22	106	60-135
1,2-Dibromoethane	12.50	12.95	104	80-120
Chlorobenzene	12.50	13.63	109	80-120
1,1,1,2-Tetrachloroethane	12.50	13.11	105	80-130
Ethylbenzene	12.50	13.02	104	75-125
m,p-Xylenes	25.00	26.29	105	75-130
o-Xylene	12.50	13.24	106	80-120
Styrene	12.50	11.91	95	65-135
Bromoform	12.50	11.70	94	70-130
Isopropylbenzene	12.50	12.57	101	75-125
1,1,2,2-Tetrachloroethane	12.50	13.66	109	65-130
1,2,3-Trichloropropane	12.50	13.21	106	75-125
Propylbenzene	12.50	13.43	107	70-130
Bromobenzene	12.50	13.13	105	75-125

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214885
Units:	ug/L	Analyzed:	08/28/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits
1,3,5-Trimethylbenzene	12.50	12.76	102	75-130
2-Chlorotoluene	12.50	13.39	107	75-125
4-Chlorotoluene	12.50	12.65	101	75-130
tert-Butylbenzene	12.50	13.52	108	70-130
1,2,4-Trimethylbenzene	12.50	12.73	102	75-130
sec-Butylbenzene	12.50	13.40	107	70-125
para-Isopropyl Toluene	12.50	13.35	107	75-130
1,3-Dichlorobenzene	12.50	13.57	109	75-125
1,4-Dichlorobenzene	12.50	13.03	104	75-125
n-Butylbenzene	12.50	13.83 b	111	70-135
1,2-Dichlorobenzene	12.50	13.25	106	70-120
1,2-Dibromo-3-Chloropropane	12.50	13.18	105	50-130
1,2,4-Trichlorobenzene	12.50	12.98 b	104	65-135
Hexachlorobutadiene	12.50	14.69 b	117	50-140
Naphthalene	12.50	14.07	113	55-140
1,2,3-Trichlorobenzene	12.50	13.70 b	110	55-140

Surrogate	%REC	Limits
Dibromofluoromethane	110	85-115
1,2-Dichloroethane-d4	101	70-120
Toluene-d8	98	85-120
Bromofluorobenzene	92	75-120

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214885
Units:	ug/L	Analyzed:	08/28/14
Diln Fac:	1.000		

Type: BSD Lab ID: QC755484

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	10.00	9.583	96	30-155	2	30
Chloromethane	10.00	8.424	84	40-125	4	30
Vinyl Chloride	10.00	9.423	94	50-145	5	30
Bromomethane	10.00	9.221 b	92	30-145	4	30
Chloroethane	10.00	10.27	103	60-135	5	30
Trichlorofluoromethane	10.00	10.38	104	60-145	5	30
Acetone	12.50	15.56 b	124	40-140	3	30
Freon 113	12.50	14.17	113	68-147	2	30
1,1-Dichloroethene	12.50	12.99	104	70-130	3	30
Methylene Chloride	12.50	13.82	111	55-140	3	30
Carbon Disulfide	12.50	15.23 b	122	35-160	8	30
MTBE	12.50	10.63	85	65-125	0	30
trans-1,2-Dichloroethene	12.50	13.37	107	60-140	2	30
Vinyl Acetate	12.50	14.77 b	118	67-209	1	30
1,1-Dichloroethane	12.50	13.40	107	70-135	5	30
2-Butanone	12.50	14.55	116	30-150	5	30
cis-1,2-Dichloroethene	12.50	13.68	109	70-125	1	30
2,2-Dichloropropane	12.50	14.13	113	70-135	6	30
Chloroform	12.50	13.17	105	65-135	4	30
Bromochloromethane	12.50	14.66 b	117	65-130	3	30
1,1,1-Trichloroethane	12.50	12.82	103	65-130	4	30
1,1-Dichloropropene	12.50	13.00	104	75-130	2	30
Carbon Tetrachloride	12.50	13.05	104	65-140	2	30
1,2-Dichloroethane	12.50	12.59	101	70-130	1	30
Benzene	12.50	12.92	103	80-120	1	30
Trichloroethene	12.50	12.09	97	70-125	4	30
1,2-Dichloropropane	12.50	12.49	100	75-125	3	30
Bromodichloromethane	12.50	12.49	100	75-120	2	30
Dibromomethane	12.50	13.46	108	75-125	3	30
4-Methyl-2-Pentanone	12.50	12.57	101	60-135	5	30
cis-1,3-Dichloropropene	12.50	13.57 b	109	70-130	2	30
Toluene	12.50	12.42	99	75-120	4	30
trans-1,3-Dichloropropene	12.50	11.72	94	55-140	5	30
1,1,2-Trichloroethane	12.50	13.02	104	75-125	1	30
2-Hexanone	12.50	12.82	103	55-130	4	30
1,3-Dichloropropane	12.50	12.98	104	75-125	3	30
Tetrachloroethene	12.50	12.82	103	45-150	5	30
Dibromochloromethane	12.50	12.96	104	60-135	2	30
1,2-Dibromoethane	12.50	12.40	99	80-120	4	30
Chlorobenzene	12.50	13.37	107	80-120	2	30
1,1,1,2-Tetrachloroethane	12.50	12.64	101	80-130	4	30
Ethylbenzene	12.50	12.70	102	75-125	3	30
m,p-Xylenes	25.00	25.37	101	75-130	4	30
o-Xylene	12.50	13.09	105	80-120	1	30
Styrene	12.50	11.42	91	65-135	4	30
Bromoform	12.50	11.72	94	70-130	0	30
Isopropylbenzene	12.50	11.94	96	75-125	5	30
1,1,2,2-Tetrachloroethane	12.50	13.87	111	65-130	2	30
1,2,3-Trichloropropane	12.50	12.68	101	75-125	4	30
Propylbenzene	12.50	12.67	101	70-130	6	30
Bromobenzene	12.50	12.80	102	75-125	3	30

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214885
Units:	ug/L	Analyzed:	08/28/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,3,5-Trimethylbenzene	12.50	12.09	97	75-130	5	30
2-Chlorotoluene	12.50	12.73	102	75-125	5	30
4-Chlorotoluene	12.50	12.02	96	75-130	5	30
tert-Butylbenzene	12.50	12.60	101	70-130	7	30
1,2,4-Trimethylbenzene	12.50	12.19	97	75-130	4	30
sec-Butylbenzene	12.50	12.48	100	70-125	7	30
para-Isopropyl Toluene	12.50	12.19	97	75-130	9	30
1,3-Dichlorobenzene	12.50	13.26	106	75-125	2	30
1,4-Dichlorobenzene	12.50	12.60	101	75-125	3	30
n-Butylbenzene	12.50	12.51 b	100	70-135	10	30
1,2-Dichlorobenzene	12.50	12.95	104	70-120	2	30
1,2-Dibromo-3-Chloropropane	12.50	13.36	107	50-130	1	30
1,2,4-Trichlorobenzene	12.50	12.22 b	98	65-135	6	30
Hexachlorobutadiene	12.50	12.91 b	103	50-140	13	30
Naphthalene	12.50	13.98	112	55-140	1	30
1,2,3-Trichlorobenzene	12.50	13.00 b	104	55-140	5	30

Surrogate	%REC	Limits
Dibromofluoromethane	109	85-115
1,2-Dichloroethane-d4	102	70-120
Toluene-d8	97	85-120
Bromofluorobenzene	91	75-120

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC755485	Batch#:	214885
Matrix:	Water	Analyzed:	08/28/14
Units:	ug/L		

Analyte	Result	LOQ	DL
Freon 12	0.2 U	1.0	0.1
Chloromethane	0.4 U	1.0	0.1
Vinyl Chloride	0.2 U	0.5	0.1
Bromomethane	0.8 U b	1.0	0.2
Chloroethane	0.4 U	1.0	0.3
Trichlorofluoromethane	0.2 U	1.0	0.2
Acetone	1.0 U b	10	0.5
Freon 113	0.2 U	2.0	0.1
1,1-Dichloroethene	0.2 U	0.5	0.1
Methylene Chloride	1.0 U	10	0.4
Carbon Disulfide	0.3 J b	0.5	0.1
MTBE	0.2 U	0.5	0.1
trans-1,2-Dichloroethene	0.2 U	0.5	0.2
Vinyl Acetate	2.0 U b	10	1.0
1,1-Dichloroethane	0.2 U	0.5	0.1
2-Butanone	2.0 U	10	0.5
cis-1,2-Dichloroethene	0.2 U	0.5	0.1
2,2-Dichloropropane	0.2 U	0.5	0.1
Chloroform	0.2 U	0.5	0.1
Bromochloromethane	0.2 U	0.5	0.2
1,1,1-Trichloroethane	0.2 U	0.5	0.1
1,1-Dichloropropene	0.2 U	0.5	0.1
Carbon Tetrachloride	0.2 U	0.5	0.1
1,2-Dichloroethane	0.2 U	0.5	0.1
Benzene	0.2 U	0.5	0.1
Trichloroethene	0.2 U	0.5	0.1
1,2-Dichloropropane	0.2 U	0.5	0.1
Bromodichloromethane	0.2 U	0.5	0.1
Dibromomethane	0.2 U	0.5	0.1
4-Methyl-2-Pentanone	1.0 U	10	0.5
cis-1,3-Dichloropropene	0.2 U b	0.5	0.1
Toluene	0.2 U	0.5	0.1
trans-1,3-Dichloropropene	0.2 U	0.5	0.1
1,1,2-Trichloroethane	0.4 U	0.5	0.1
2-Hexanone	1.0 U	10	0.5
1,3-Dichloropropane	0.2 U	0.5	0.1
Tetrachloroethene	0.2 U	0.5	0.1
Dibromochloromethane	0.2 U	0.5	0.1
1,2-Dibromoethane	0.2 U	0.5	0.1
Chlorobenzene	0.2 U	0.5	0.1
1,1,1,2-Tetrachloroethane	0.2 U	0.5	0.1
Ethylbenzene	0.2 U	0.5	0.1
m,p-Xylenes	0.2 U	0.5	0.1
o-Xylene	0.2 U	0.5	0.1
Styrene	0.2 U	0.5	0.1
Bromoform	0.4 U	1.0	0.1
Isopropylbenzene	0.2 U	0.5	0.1
1,1,2,2-Tetrachloroethane	0.2 U	0.5	0.1
1,2,3-Trichloropropane	0.4 U	0.5	0.1
Propylbenzene	0.1 J	0.5	0.1
Bromobenzene	0.2 U	0.5	0.1

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC755485	Batch#:	214885
Matrix:	Water	Analyzed:	08/28/14
Units:	ug/L		

Analyte	Result	LOQ	DL
1,3,5-Trimethylbenzene	0.2 U	0.5	0.1
2-Chlorotoluene	0.2 U	0.5	0.1
4-Chlorotoluene	0.2 U	0.5	0.1
tert-Butylbenzene	0.4 U	0.5	0.1
1,2,4-Trimethylbenzene	0.2 U	0.5	0.1
sec-Butylbenzene	0.4 U	0.5	0.1
para-Isopropyl Toluene	0.4 U	0.5	0.1
1,3-Dichlorobenzene	0.2 U	0.5	0.1
1,4-Dichlorobenzene	0.2 U	0.5	0.1
n-Butylbenzene	0.2 U b	0.5	0.1
1,2-Dichlorobenzene	0.2 U	0.5	0.1
1,2-Dibromo-3-Chloropropane	1.0 U	2.0	0.5
1,2,4-Trichlorobenzene	0.4 U b	0.5	0.1
Hexachlorobutadiene	1.0 U b	2.0	0.4
Naphthalene	1.0 U	2.0	0.1
1,2,3-Trichlorobenzene	0.4 U b	0.5	0.1

Surrogate	%REC	Limits
Dibromofluoromethane	115	85-115
1,2-Dichloroethane-d4	103	70-120
Toluene-d8	98	85-120
Bromofluorobenzene	94	75-120

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Initial & Continuing Calibration Data

CURTIS & TOMPKINS BFB TUNE FOR 259882 MSVOA Water
EPA 8260C

Inst : MSVOA02 Run Name : BFB IDF : 1.0
Seqnum : 414085629005 File : bbs05 Time : 28-FEB-2014 19:42

Standards: S23610

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	79402	23.91	
75	30% - 60% of mass 95	165429	49.81	
95		332117	100.00	
96	5% - 9% of mass 95	22009	6.63	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	240576	72.44	
175	5% - 9% of mass 174	17253	7.17	
176	> 95% and < 101% of mass 174	229482	95.39	
177	5% - 9% of mass 176	14782	6.44	

Analyst: BO Date: 03/04/14 Reviewer: LW Date: 03/04/14

CURTIS & TOMPKINS BFB TUNE FOR 259882 MSVOA Water
EPA 8260C

Inst : MSVOA02 Run Name : BFB IDF : 1.0
Seqnum : 414091422004 File : bc404 Time : 04-MAR-2014 13:30

Standards: S23610

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	71133	23.44	
75	30% - 60% of mass 95	146915	48.41	
95		303466	100.00	
96	5% - 9% of mass 95	19971	6.58	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	228586	75.33	
175	5% - 9% of mass 174	16833	7.36	
176	> 95% and < 101% of mass 174	219072	95.84	
177	5% - 9% of mass 176	14211	6.49	

Analyst: BO Date: 03/04/14 Reviewer: LW Date: 03/05/14

CURTIS & TOMPKINS BFB TUNE FOR 259882 MSVOA Water
EPA 8260C

Inst : MSVOA02 Run Name : BFB IDF : 1.0
Seqnum : 414346143002 File : bhs02 Time : 28-AUG-2014 09:34

Standards: S24715

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	52461	23.56	
75	30% - 60% of mass 95	113941	51.17	
95		222677	100.00	
96	5% - 9% of mass 95	14784	6.64	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	161258	72.42	
175	5% - 9% of mass 174	11944	7.41	
176	> 95% and < 101% of mass 174	158677	98.40	
177	5% - 9% of mass 176	10341	6.52	

Analyst: BO Date: 08/29/14 Reviewer: LW Date: 08/29/14

CURTIS & TOMPKINS BFB TUNE FOR 259882 MSVOA Water
EPA 8260C

Inst : MSVOA08 Run Name : BFB IDF : 1.0
Seqnum : 474253910008 File : hfp08 Time : 25-JUN-2014 12:59

Standards: S24715

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	12264	24.56	
75	30% - 60% of mass 95	22536	45.13	
95		49936	100.00	
96	5% - 9% of mass 95	3172	6.35	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	33074	66.23	
175	5% - 9% of mass 174	2630	7.95	
176	> 95% and < 101% of mass 174	32085	97.01	
177	5% - 9% of mass 176	2187	6.82	

Analyst: DJA Date: 06/26/14 Reviewer: LW Date: 06/27/14

CURTIS & TOMPKINS BFB TUNE FOR 259882 MSVOA Water
EPA 8260C

Inst : MSVOA08 Run Name : BFB IDF : 1.0
Seqnum : 474336023006 File : hhl06 Time : 21-AUG-2014 12:25

Standards: S24715

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	6401	23.32	
75	30% - 60% of mass 95	12747	46.44	
95		27448	100.00	
96	5% - 9% of mass 95	1904	6.94	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	16599	60.47	
175	5% - 9% of mass 174	1230	7.41	
176	> 95% and < 101% of mass 174	15841	95.43	
177	5% - 9% of mass 176	1008	6.36	

Analyst: DJA Date: 08/22/14 Reviewer: LW Date: 08/22/14

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259882 MSVOA Water: EPA 8260C

Inst : MSVOA02
Calnum : 414085629001 Date : 28-FEB-2014 21:58 Type : WATER
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	bbs09	414085629009	.25/.5PPB	28-FEB-2014 21:58	S24066 (2000000X), S24252 (2000000X), S23639 (1000000X), S24074 (1000X)
L2	bbs10	414085629010	0.5/1PPB	28-FEB-2014 22:33	S23714 (1000000X), S24286 (1000000X), S24252 (1000000X), S23639 (500000X), S24074 (1000X)
L3	bbs11	414085629011	2PPB	28-FEB-2014 23:08	S23714 (500000X), S24286 (250000X), S24252 (250000X), S23639 (250000X), S24074 (1000X)
L4	bbs12	414085629012	5PPB	28-FEB-2014 23:44	S23714 (200000X), S24286 (100000X), S24252 (100000X), S23639 (100000X), S24074 (1000X)
L5	bbs13	414085629013	10PPB	01-MAR-2014 00:19	S23714 (100000X), S24286 (50000X), S24252 (50000X), S23639 (50000X), S24074 (1000X)
L6	bbs14	414085629014	20PPB	01-MAR-2014 00:55	S23714 (50000X), S24286 (25000X), S24252 (25000X), S23639 (25000X), S24074 (1000X)
L7	bbs15	414085629015	50PPB	01-MAR-2014 01:30	S24286 (10000X), S24252 (10000X), S23639 (10000X), S24074 (1000X), S23714 (20000X)
L8	bbs17	414085629017	100PPB	01-MAR-2014 02:42	S23714 (10000X), S24286 (5000X), S24252 (5000X), S23639 (5000X), S24074 (1000X)

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Freon 12		0.9720	1.1394	1.2315	1.0961	1.2691	1.2067	1.2062	AVRG		0.86196		1.1602	9	15	0.100	0.99	
Chloromethane	1.5026	1.3214	1.3041	1.2531	1.2157	1.2168	1.1366	1.1327	AVRG		0.79341		1.2604	9	15	0.100	0.99	
Vinyl Chloride	1.0979	0.9858	1.0141	1.0336	0.9938	1.0394	1.0225	0.9936	AVRG		0.97792		1.0226	4	15	0.100	0.99	
Bromomethane		0.2243m	0.2661m	0.3061	0.3152	0.3451	0.4446		QUAD	0.33928	3.14149	-0.04083	0.3169	1.000	15	0.100	0.99	
Chloroethane		0.6563	0.6260	0.5585	0.5649	0.5451	0.5429	0.5331	AVRG		1.73835		0.5753	8	15	0.100	0.99	
Trichlorofluoromethane		1.2104	1.2559	1.3423	1.2608	1.3390	1.3295	1.3145	AVRG		0.77327		1.2932	4	15	0.100	0.99	
Acetone				0.6065	0.5036	0.4770	0.4019	0.4858	AVRG		2.02036		0.4950	15	15	0.100	0.99	
Freon 113		0.6497	0.6123	0.6347	0.6484	0.5999	0.6654	0.6556	AVRG		1.56741		0.6380	4	15	0.100	0.99	
1,1-Dichloroethene		0.8118m	0.7147	0.7270	0.6866	0.6929	0.7004	0.6895	AVRG		1.39363		0.7176	6	15	0.100	0.99	
Methylene Chloride		1.0232	1.0044	0.9792	0.9477	0.9058	0.8961	0.8778	AVRG		1.05515		0.9477	6	15	0.100	0.99	
Carbon Disulfide		3.0201	2.5742	2.6400	2.5604	2.4718	2.5450	2.5129	AVRG		0.38200		2.6178	7	15	0.100	0.99	
MTBE		2.6253	2.6510	2.6348	2.6664	2.4661	2.5083	2.5296	AVRG		0.38714		2.5831	3	15	0.100	0.99	
trans-1,2-Dichloroethene		0.9542	0.8408	0.8022	0.8030	0.7790	0.7852	0.7758	AVRG		1.21946		0.8200	8	15	0.100	0.99	
Vinyl Acetate			2.2257	2.1748	2.3086	2.1762	2.2533	2.0777	AVRG		0.45398		2.2027	4	15	0.05	0.99	
1,1-Dichloroethane		1.8953	1.7796	1.7783	1.7383	1.6749	1.6956	1.6657	AVRG		0.57247		1.7468	5	15	0.200	0.99	
2-Butanone			0.7389	0.6172	0.5993	0.5480	0.4869	0.5434	AVRG		1.69801		0.5889	15	15	0.100	0.99	
2,2-Dichloropropane		1.3760	1.2362	1.1935	1.1951	1.1305	1.1556	1.1300	AVRG		0.83166		1.2024	7	15	0.05	0.99	
cis-1,2-Dichloroethene		0.9853m	0.9371	0.9332	0.9113	0.8695	0.8999	0.8822	AVRG		1.09058		0.9169	4	15	0.100	0.99	
Chloroform		2.1730	1.8143	1.7609	1.7174	1.6489	1.6532	1.6478	AVRG		0.56381		1.7736	11	15	0.200	0.99	
Bromochloromethane		0.4763	0.4515	0.4656	0.4695	0.4438	0.4408	0.4346	AVRG		2.19974		0.4546	4	15	0.05	0.99	
1,1,1-Trichloroethane		1.6498	1.3566	1.3411	1.3323	1.2552	1.3264	1.3512	AVRG		0.72821		1.3732	9	15	0.100	0.99	
1,1-Dichloropropene		0.7036	0.5743	0.5839	0.5649	0.5301	0.5709	0.5812	AVRG		1.70365		0.5870	9	15	0.05	0.99	
Carbon Tetrachloride		0.5783	0.5618	0.5491	0.5707	0.5406	0.5935	0.6077	AVRG		1.74923		0.5717	4	15	0.100	0.99	
1,2-Dichloroethane		0.8651	0.8379	0.8324	0.8427	0.8086	0.8060	0.8079	AVRG		1.20677		0.8287	3	15	0.100	0.99	
Benzene		1.9352	1.7609	1.7094	1.6985	1.6542	1.6412	1.6461	AVRG		0.58113		1.7208	6	15	0.500	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Trichloroethene		0.5409	0.4647	0.4645	0.4505	0.4419	0.4558	0.4709	AVRG		2.12822		0.4699	7	15	0.200	0.99	
1,2-Dichloropropane		0.5736	0.5504	0.5207	0.5273m	0.5188	0.5135m	0.5216m	AVRG		1.87878		0.5323	4	15	0.100	0.99	
Bromodichloromethane		0.7693	0.7363	0.7320	0.7293	0.7153	0.7267	0.7423	AVRG		1.35894		0.7359	2	15	0.200	0.99	
Dibromomethane		0.3822	0.3862	0.3790	0.3709	0.3685	0.3629	0.3658	AVRG		2.67627		0.3737	2	15	0.05	0.99	
4-Methyl-2-Pentanone			0.6638	0.5998	0.6345	0.6199	0.5906	0.6012	AVRG		1.61734		0.6183	4	15	0.100	0.99	
cis-1,3-Dichloropropene		0.7377	0.7506	0.7606	0.7703	0.7565	0.7615	0.7775	AVRG		1.31711		0.7592	2	15	0.200	0.99	
Toluene		1.1146	1.0626	1.0173	1.0218	0.9896	1.0504	1.0213	AVRG		0.96187		1.0396	4	15	0.400	0.99	
trans-1,3-Dichloropropene		0.7615	0.7853	0.7564	0.7819	0.7497	0.7831	0.7737	AVRG		1.29834		0.7702	2	15	0.100	0.99	
1,1,2-Trichloroethane		0.2753	0.2814	0.2658	0.2717	0.2629	0.2587	0.2650	AVRG		3.72181		0.2687	3	15	0.100	0.99	
2-Hexanone			0.4914	0.4700	0.4851	0.4707	0.4488	0.4706	AVRG		2.11531		0.4727	3	15	0.100	0.99	
1,3-Dichloropropane		0.8774	0.8528	0.8206	0.8238	0.8124	0.8312	0.8262	AVRG		1.19771		0.8349	3	15	0.05	0.99	
Tetrachloroethene		0.4691	0.3954	0.3769	0.3862	0.3627	0.4056	0.4040	AVRG		2.50017		0.4000	9	15	0.200	0.99	
Dibromochloromethane		0.5196	0.5444	0.5368	0.5517	0.5370	0.5682	0.5707	AVRG		1.82844		0.5469	3	15	0.100	0.99	
1,2-Dibromoethane		0.5297	0.5231	0.5155	0.5258	0.5075	0.5167	0.5172	AVRG		1.92542		0.5194	1	15	0.100	0.99	
Chlorobenzene		1.2242	1.1803	1.1240	1.1331	1.0950	1.1499	1.1185	AVRG		0.87228		1.1464	4	15	0.500	0.99	
1,1,1,2-Tetrachloroethane		0.4713	0.4402	0.4463	0.4461	0.4366	0.4642	0.4593	AVRG		2.21240		0.4520	3	15	0.05	0.99	
Ethylbenzene		2.1852	1.9698	1.8902	1.9023	1.7912	1.9743	1.9382	AVRG		0.51278		1.9502	6	15	0.100	0.99	
m,p-Xylenes	0.7638	0.6946	0.6582	0.6524	0.6367	0.6130	0.6751	0.6465	AVRG		1.49802		0.6675	7	15	0.100	0.99	
o-Xylene		0.6417	0.6717	0.6500	0.6535	0.6207	0.6861	0.6644	AVRG		1.52568		0.6554	3	15	0.300	0.99	
Styrene		1.2179	1.1475	1.1196	1.1421	1.1384	1.2366	1.2047	AVRG		0.85295		1.1724	4	15	0.300	0.99	
Bromoform		0.3475	0.4081	0.3861	0.4145	0.4057	0.4248	0.4339	AVRG		2.48171		0.4029	7	15	0.100	0.99	
Isopropylbenzene		3.8491	3.6119	3.4266	3.5722	3.2549	3.6556	3.6555	AVRG		0.27971		3.5751	5	15	0.100	0.99	
1,1,2,2-Tetrachloroethane		1.3805	1.4787	1.3528	1.4434	1.3486	1.3215	1.2980	AVRG		0.72738		1.3748	5	15	0.300	0.99	
1,2,3-Trichloropropane		1.3895	1.2882	1.1151	1.2139	1.1573	1.1178	1.0890	AVRG		0.83623		1.1958	9	15	0.05	0.99	
Propylbenzene		4.8602	4.2677	4.0354	4.1421	3.7523	4.2712	4.1508	AVRG		0.23745		4.2114	8	15	0.05	0.99	
Bromobenzene		1.2022	1.1430	1.0488	1.0811	1.0084	1.0625	1.0457	AVRG		0.92205		1.0845	6	15	0.05	0.99	
1,3,5-Trimethylbenzene		3.1945	2.8935	2.7165	2.8238	2.5771	2.9157	2.8344	AVRG		0.35078		2.8508	7	15	0.05	0.99	
2-Chlorotoluene		3.7376	3.3685	3.1117	3.1048	2.8702	3.0977	3.0166	AVRG		0.31380		3.1867	9	15	0.05	0.99	
4-Chlorotoluene		3.5742	3.0381	2.8026	2.8147	2.6382	2.9019	2.8631	AVRG		0.33927		2.9475	10	15	0.05	0.99	
tert-Butylbenzene		2.5831	2.2010	2.1815	2.2356	1.9978	2.3138	2.2714	AVRG		0.44349		2.2549	8	15	0.05	0.99	
1,2,4-Trimethylbenzene		2.9628	2.7309	2.6181	2.6683	2.4941	2.8650	2.8638	AVRG		0.36453		2.7433	6	15	0.05	0.99	
sec-Butylbenzene		3.7927	3.2380	3.2101	3.3365	3.0142	3.4865	3.4407	AVRG		0.29763		3.3598	7	15	0.05	0.99	
para-Isopropyl Toluene		2.9034	2.3716	2.1889	2.3215	2.1079	2.4695	2.4816	AVRG		0.41557		2.4063	11	15	0.05	0.99	
1,3-Dichlorobenzene		1.9819	1.7370	1.6521	1.6557	1.5375	1.6927	1.6621	AVRG		0.58729		1.7027	8	15	0.600	0.99	
1,4-Dichlorobenzene		2.1151	1.8034	1.6753	1.6863	1.5643	1.7267	1.6581	AVRG		0.57240		1.7470	10	15	0.500	0.99	
n-Butylbenzene		2.5605	1.8494	1.7848	2.0003	1.7903	2.1952	2.2094	AVRG		0.48645		2.0557	14	15	0.05	0.99	
1,2-Dichlorobenzene		1.8988	1.8648	1.7187	1.7316	1.6285	1.7773	1.7175	AVRG		0.56739		1.7625	5	15	0.400	0.99	
1,2-Dibromo-3-Chloropropane			0.2781m	0.2358m	0.2760	0.2631	0.2550	0.2614	AVRG		3.82285		0.2616	6	15	0.050	0.99	
1,2,4-Trichlorobenzene		0.9009	0.7543	0.6662	0.7130	0.6740	0.7888	0.7906	AVRG		1.32383		0.7554	11	15	0.200	0.99	
Hexachlorobutadiene		0.4609	0.4142	0.3966	0.4370	0.3595	0.4322	0.4233	AVRG		2.39420		0.4177	8	15	0.05	0.99	
Naphthalene		1.9910	1.9775	1.7882	2.0379	1.8399	2.0911	2.1099	AVRG		0.50595		1.9765	6	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
1,2,3-Trichlorobenzene		0.8445	0.7727	0.7060	0.7371	0.7044	0.8346	0.8241	AVRG		1.29070		0.7748	8	15	0.05	0.99	
Dibromofluoromethane	0.7730	0.7827	0.7941	0.7970	0.7860	0.7687	0.7855	0.7700	AVRG		1.27855		0.7821	1	15	0.05	0.99	
1,2-Dichloroethane-d4	0.5624	0.5634	0.5608	0.5689	0.5698	0.5437	0.5432	0.5467	AVRG		1.79408		0.5574	2	15	0.05	0.99	
Toluene-d8	1.3310	1.3314	1.3290	1.3223	1.3168	1.3224	1.3354	1.3249	AVRG		0.75378		1.3266	0	15	0.05	0.99	
Bromofluorobenzene	1.2374	1.2119	1.2150	1.2061	1.2180	1.1944	1.1978	1.1993	AVRG		0.82646		1.2100	1	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D
Freon 12			1.0000	-16	2.0000	-2	5.0000	6	10.000	-6	20.000	9	50.000	4	100.00	4
Chloromethane	0.5000	19	1.0000	5	2.0000	3	5.0000	-1	10.000	-4	20.000	-3	50.000	-10	100.00	-10
Vinyl Chloride	0.5000	7	1.0000	-4	2.0000	-1	5.0000	1	10.000	-3	20.000	2	50.000	0	100.00	-3
Bromomethane			1.0000	4	2.0000	0	5.0000	1	10.000	-2	20.000	0	50.000	0		
Chloroethane			1.0000	14	2.0000	9	5.0000	-3	10.000	-2	20.000	-5	50.000	-6	100.00	-7
Trichlorofluoromethane			1.0000	-6	2.0000	-3	5.0000	4	10.000	-3	20.000	4	50.000	3	100.00	2
Acetone							5.0000	**23**	10.000	2	20.000	-4	50.000	-19	100.00	-2
Freon 113			0.5000	2	2.0000	-4	5.0000	-1	10.000	2	20.000	-6	50.000	4	100.00	3
1,1-Dichloroethene			0.5000	13	2.0000	0	5.0000	1	10.000	-4	20.000	-3	50.000	-2	100.00	-4
Methylene Chloride			0.5000	8	2.0000	6	5.0000	3	10.000	0	20.000	-4	50.000	-5	100.00	-7
Carbon Disulfide			0.5000	15	2.0000	-2	5.0000	1	10.000	-2	20.000	-6	50.000	-3	100.00	-4
MTBE			0.5000	2	2.0000	3	5.0000	2	10.000	3	20.000	-5	50.000	-3	100.00	-2
trans-1,2-Dichloroethene			0.5000	16	2.0000	3	5.0000	-2	10.000	-2	20.000	-5	50.000	-4	100.00	-5
Vinyl Acetate					2.0000	1	5.0000	-1	10.000	5	20.000	-1	50.000	2	100.00	-6
1,1-Dichloroethane			0.5000	9	2.0000	2	5.0000	2	10.000	0	20.000	-4	50.000	-3	100.00	-5
2-Butanone					2.0000	**25**	5.0000	5	10.000	2	20.000	-7	50.000	-17	100.00	-8
2,2-Dichloropropane			0.5000	14	2.0000	3	5.0000	-1	10.000	-1	20.000	-6	50.000	-4	100.00	-6
cis-1,2-Dichloroethene			0.5000	7	2.0000	2	5.0000	2	10.000	-1	20.000	-5	50.000	-2	100.00	-4
Chloroform			0.5000	**23**	2.0000	2	5.0000	-1	10.000	-3	20.000	-7	50.000	-7	100.00	-7
Bromochloromethane			0.5000	5	2.0000	-1	5.0000	2	10.000	3	20.000	-2	50.000	-3	100.00	-4
1,1,1-Trichloroethane			0.5000	20	2.0000	-1	5.0000	-2	10.000	-3	20.000	-9	50.000	-3	100.00	-2
1,1-Dichloropropene			0.5000	20	2.0000	-2	5.0000	-1	10.000	-4	20.000	-10	50.000	-3	100.00	-1
Carbon Tetrachloride			0.5000	1	2.0000	-2	5.0000	-4	10.000	0	20.000	-5	50.000	4	100.00	6
1,2-Dichloroethane			0.5000	4	2.0000	1	5.0000	0	10.000	2	20.000	-2	50.000	-3	100.00	-3
Benzene			0.5000	12	2.0000	2	5.0000	-1	10.000	-1	20.000	-4	50.000	-5	100.00	-4
Trichloroethene			0.5000	15	2.0000	-1	5.0000	-1	10.000	-4	20.000	-6	50.000	-3	100.00	0
1,2-Dichloropropane			0.5000	8	2.0000	3	5.0000	-2	10.000	-1	20.000	-3	50.000	-4	100.00	-2
Bromodichloromethane			0.5000	5	2.0000	0	5.0000	-1	10.000	-1	20.000	-3	50.000	-1	100.00	1
Dibromomethane			0.5000	2	2.0000	3	5.0000	1	10.000	-1	20.000	-1	50.000	-3	100.00	-2
4-Methyl-2-Pentanone					2.0000	7	5.0000	-3	10.000	3	20.000	0	50.000	-4	100.00	-3
cis-1,3-Dichloropropene			0.5000	-3	2.0000	-1	5.0000	0	10.000	1	20.000	0	50.000	0	100.00	2
Toluene			0.5000	7	2.0000	2	5.0000	-2	10.000	-2	20.000	-5	50.000	1	100.00	-2
trans-1,3-Dichloropropene			0.5000	-1	2.0000	2	5.0000	-2	10.000	2	20.000	-3	50.000	2	100.00	0
1,1,2-Trichloroethane			0.5000	2	2.0000	5	5.0000	-1	10.000	1	20.000	-2	50.000	-4	100.00	-1
2-Hexanone					2.0000	4	5.0000	-1	10.000	3	20.000	0	50.000	-5	100.00	0
1,3-Dichloropropane			0.5000	5	2.0000	2	5.0000	-2	10.000	-1	20.000	-3	50.000	0	100.00	-1
Tetrachloroethene			0.5000	17	2.0000	-1	5.0000	-6	10.000	-3	20.000	-9	50.000	1	100.00	1
Dibromochloromethane			0.5000	-5	2.0000	0	5.0000	-2	10.000	1	20.000	-2	50.000	4	100.00	4
1,2-Dibromoethane			0.5000	2	2.0000	1	5.0000	-1	10.000	1	20.000	-2	50.000	-1	100.00	0
Chlorobenzene			0.5000	7	2.0000	3	5.0000	-2	10.000	-1	20.000	-4	50.000	0	100.00	-2
1,1,1,2-Tetrachloroethane			0.5000	4	2.0000	-3	5.0000	-1	10.000	-1	20.000	-3	50.000	3	100.00	2
Ethylbenzene			0.5000	12	2.0000	1	5.0000	-3	10.000	-2	20.000	-8	50.000	1	100.00	-1

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D
m,p-Xylenes	0.5000	14	1.0000	4	4.0000	-1	10.000	-2	20.000	-5	40.000	-8	100.00	1	200.00	-3
o-Xylene			0.5000	-2	2.0000	2	5.0000	-1	10.000	0	20.000	-5	50.000	5	100.00	1
Styrene			0.5000	4	2.0000	-2	5.0000	-5	10.000	-3	20.000	-3	50.000	5	100.00	3
Bromoform			0.5000	-14	2.0000	1	5.0000	-4	10.000	3	20.000	1	50.000	5	100.00	8
Isopropylbenzene			0.5000	8	2.0000	1	5.0000	-4	10.000	0	20.000	-9	50.000	2	100.00	2
1,1,2,2-Tetrachloroethane			0.5000	0	2.0000	8	5.0000	-2	10.000	5	20.000	-2	50.000	-4	100.00	-6
1,2,3-Trichloropropane			0.5000	16	2.0000	8	5.0000	-7	10.000	2	20.000	-3	50.000	-7	100.00	-9
Propylbenzene			0.5000	15	2.0000	1	5.0000	-4	10.000	-2	20.000	-11	50.000	1	100.00	-1
Bromobenzene			0.5000	11	2.0000	5	5.0000	-3	10.000	0	20.000	-7	50.000	-2	100.00	-4
1,3,5-Trimethylbenzene			0.5000	12	2.0000	1	5.0000	-5	10.000	-1	20.000	-10	50.000	2	100.00	-1
2-Chlorotoluene			0.5000	17	2.0000	6	5.0000	-2	10.000	-3	20.000	-10	50.000	-3	100.00	-5
4-Chlorotoluene			0.5000	**21**	2.0000	3	5.0000	-5	10.000	-5	20.000	-10	50.000	-2	100.00	-3
tert-Butylbenzene			0.5000	15	2.0000	-2	5.0000	-3	10.000	-1	20.000	-11	50.000	3	100.00	1
1,2,4-Trimethylbenzene			0.5000	8	2.0000	0	5.0000	-5	10.000	-3	20.000	-9	50.000	4	100.00	4
sec-Butylbenzene			0.5000	13	2.0000	-4	5.0000	-4	10.000	-1	20.000	-10	50.000	4	100.00	2
para-Isopropyl Toluene			0.5000	**21**	2.0000	-1	5.0000	-9	10.000	-4	20.000	-12	50.000	3	100.00	3
1,3-Dichlorobenzene			0.5000	16	2.0000	2	5.0000	-3	10.000	-3	20.000	-10	50.000	-1	100.00	-2
1,4-Dichlorobenzene			0.5000	**21**	2.0000	3	5.0000	-4	10.000	-3	20.000	-10	50.000	-1	100.00	-5
n-Butylbenzene			0.5000	**25**	2.0000	-10	5.0000	-13	10.000	-3	20.000	-13	50.000	7	100.00	7
1,2-Dichlorobenzene			0.5000	8	2.0000	6	5.0000	-2	10.000	-2	20.000	-8	50.000	1	100.00	-3
1,2-Dibromo-3-Chloropropane					2.0000	6	5.0000	-10	10.000	6	20.000	1	50.000	-2	100.00	0
1,2,4-Trichlorobenzene			0.5000	19	2.0000	0	5.0000	-12	10.000	-6	20.000	-11	50.000	4	100.00	5
Hexachlorobutadiene			0.5000	10	2.0000	-1	5.0000	-5	10.000	5	20.000	-14	50.000	3	100.00	1
Naphthalene			0.5000	1	2.0000	0	5.0000	-10	10.000	3	20.000	-7	50.000	6	100.00	7
1,2,3-Trichlorobenzene			0.5000	9	2.0000	0	5.0000	-9	10.000	-5	20.000	-9	50.000	8	100.00	6
Dibromofluoromethane	50.000	-1	50.000	0	50.000	2	50.000	2	50.000	0	50.000	-2	50.000	0	50.000	-2
1,2-Dichloroethane-d4	50.000	1	50.000	1	50.000	1	50.000	2	50.000	2	50.000	-2	50.000	-3	50.000	-2
Toluene-d8	50.000	0	50.000	0	50.000	0	50.000	0	50.000	-1	50.000	0	50.000	1	50.000	0
Bromofluorobenzene	50.000	2	50.000	0	50.000	0	50.000	0	50.000	1	50.000	-1	50.000	-1	50.000	-1

BO 03/04/14 [Bromomethane]: Corrected automatically drawn baseline in multiple levels.

BO 03/04/14 [1,2-Dichloropropane]: Separated from coeluting peak in multiple levels.

BO 03/04/14 [1,1-Dichloroethane]: Corrected baseline noise or negative peak1PPB (bbs10).

BO 03/04/14 [cis-1,2-Dichloroethene]: Corrected baseline noise or negative peak1PPB (bbs10).

BO 03/04/14 [1,2-Dibromo-3-Chloropropane]: Corrected baseline noise or negative peak in multiple levels.

BO 03/04/14 [2-Chloroethylvinylether]: Cannot report

BO 03/04/14 [Iodomethane]: high bias at low point after requant

BO 03/04/14 : 75ppb level was dropped. No sample was taken from the vial

Analyst: BO Date: 03/04/14 Reviewer: LW Date: 03/05/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; QUAD=Quadratic regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259882 MSVOA Water
EPA 8260C

Inst : MSVOA02
Calnum : 414085629001 Cal Date : 28-FEB-2014 Type : WATER

ICV 414091422006 (bc406 04-MAR-2014) stds: S24093 (20000X), S24098 (20000X), S24284 (20000X), S23717 (20000X), S24320 (1000X)

Analyte	Spiked	Quant	Units	%D	Max	Flags
Freon 12	10.00	10.98	ug/L	10	20	
Chloromethane	10.00	10.21	ug/L	2	20	
Vinyl Chloride	10.00	10.39	ug/L	4	20	
Bromomethane	10.00	12.43	ug/L	**24**	20	v+ ***
Chloroethane	10.00	9.842	ug/L	-2	20	
Trichlorofluoromethane	10.00	10.06	ug/L	1	20	
Acetone	12.50	9.321	ug/L	**-25**	20	v- ***
Freon 113	12.50	10.20	ug/L	-18	20	
1,1-Dichloroethene	12.50	11.05	ug/L	-12	20	
Methylene Chloride	12.50	13.47	ug/L	8	20	
Carbon Disulfide	12.50	13.05	ug/L	4	20	
MTBE	12.50	12.52	ug/L	0	20	
trans-1,2-Dichloroethene	12.50	12.94	ug/L	4	20	
Vinyl Acetate	12.50	16.77	ug/L	**34**	20	v+ ***
1,1-Dichloroethane	12.50	12.82	ug/L	3	20	
2-Butanone	12.50	11.67	ug/L	-7	20	
2,2-Dichloropropane	12.50	14.00	ug/L	12	20	
cis-1,2-Dichloroethene	12.50	13.62	ug/L	9	20	
Chloroform	12.50	12.43	ug/L	-1	20	
Bromochloromethane	12.50	13.72	ug/L	10	20	
1,1,1-Trichloroethane	12.50	11.82	ug/L	-5	20	
1,1-Dichloropropene	12.50	12.43	ug/L	-1	20	
Carbon Tetrachloride	12.50	11.98	ug/L	-4	20	
1,2-Dichloroethane	12.50	13.41	ug/L	7	20	
Benzene	12.50	13.43	ug/L	7	20	
Trichloroethene	12.50	12.53	ug/L	0	20	
1,2-Dichloropropane	12.50	13.40	ug/L	7	20	
Bromodichloromethane	12.50	13.05	ug/L	4	20	
Dibromomethane	12.50	13.38	ug/L	7	20	
4-Methyl-2-Pentanone	12.50	13.24	ug/L	6	20	
cis-1,3-Dichloropropene	12.50	15.28	ug/L	**22**	20	v+ ***
Toluene	12.50	13.59	ug/L	9	20	
trans-1,3-Dichloropropene	12.50	14.21	ug/L	14	20	
1,1,2-Trichloroethane	12.50	13.12	ug/L	5	20	
2-Hexanone	12.50	12.72	ug/L	2	20	
1,3-Dichloropropane	12.50	13.42	ug/L	7	20	
Tetrachloroethene	12.50	13.19	ug/L	6	20	
Dibromochloromethane	12.50	13.67	ug/L	9	20	
1,2-Dibromoethane	12.50	13.50	ug/L	8	20	
Chlorobenzene	12.50	13.25	ug/L	6	20	
1,1,1,2-Tetrachloroethane	12.50	14.11	ug/L	13	20	
Ethylbenzene	12.50	13.74	ug/L	10	20	
m,p-Xylenes	25.00	27.20	ug/L	9	20	
o-Xylene	12.50	13.73	ug/L	10	20	
Styrene	12.50	14.40	ug/L	15	20	
Bromoform	12.50	14.24	ug/L	14	20	
Isopropylbenzene	12.50	13.15	ug/L	5	20	
1,1,2,2-Tetrachloroethane	12.50	13.78	ug/L	10	20	

Analyte	Spiked	Quant	Units	%D	Max	Flags
1,2,3-Trichloropropane	12.50	13.08	ug/L	5	20	
Propylbenzene	12.50	12.81	ug/L	2	20	
Bromobenzene	12.50	14.51	ug/L	16	20	
1,3,5-Trimethylbenzene	12.50	14.97	ug/L	20	20	
2-Chlorotoluene	12.50	13.56	ug/L	8	20	
4-Chlorotoluene	12.50	12.93	ug/L	3	20	
tert-Butylbenzene	12.50	13.60	ug/L	9	20	
1,2,4-Trimethylbenzene	12.50	15.04	ug/L	20	20	
sec-Butylbenzene	12.50	13.66	ug/L	9	20	
para-Isopropyl Toluene	12.50	13.89	ug/L	11	20	
1,3-Dichlorobenzene	12.50	13.44	ug/L	8	20	
1,4-Dichlorobenzene	12.50	14.43	ug/L	15	20	
n-Butylbenzene	12.50	15.29	ug/L	**22**	20	v+ ***
1,2-Dichlorobenzene	12.50	13.40	ug/L	7	20	
1,2-Dibromo-3-Chloropropane	12.50	14.04	ug/L	12	20	
1,2,4-Trichlorobenzene	12.50	15.70	ug/L	**26**	20	v+ ***
Hexachlorobutadiene	12.50	16.58	ug/L	**33**	20	v+ ***
Naphthalene	12.50	14.57	ug/L	17	20	
1,2,3-Trichlorobenzene	12.50	15.86	ug/L	**27**	20	v+ ***

Analyst: BO Date: 03/04/14 Reviewer: LW Date: 03/05/14

+=high bias -=low bias v=ICV

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259882 MSVOA Water: EPA 8260C

Inst : MSVOA08 Name : 826GOX8
Calnum : 474253910001 Date : 25-JUN-2014 14:41 Type : WATER
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	hfp11	474253910011		25-JUN-2014 14:41	S23923 (2000000X), S24633 (2000000X), S24634 (2000000X), S23961 (1000000X), S24802 (5000X)
L2	hfp12	474253910012		25-JUN-2014 15:16	S23923 (1000000X), S24633 (1000000X), S24634 (1000000X), S23961 (500000X), S24802 (5000X)
L3	hfp13	474253910013		25-JUN-2014 15:51	S23923 (500000X), S24633 (250000X), S24634 (250000X), S23961 (250000X), S24802 (5000X)
L4	hfp14	474253910014		25-JUN-2014 16:25	S23923 (200000X), S24633 (100000X), S24634 (100000X), S23961 (100000X), S24802 (5000X)
L5	hfp15	474253910015		25-JUN-2014 17:00	S23923 (100000X), S24633 (50000X), S24634 (50000X), S23961 (50000X), S24802 (5000X)
L6	hfp16	474253910016		25-JUN-2014 17:35	S23923 (50000X), S24633 (25000X), S24634 (25000X), S23961 (25000X), S24802 (5000X)
L7	hfp17	474253910017		25-JUN-2014 18:09	S23923 (20000X), S24633 (10000X), S24634 (10000X), S23961 (10000X), S24802 (5000X)
L8	hfp18	474253910018		25-JUN-2014 18:44	S23923 (13330X), S24633 (6667X), S24634 (6667X), S23961 (6667X), S24802 (5000X)
L9	hfp19	474253910019		25-JUN-2014 19:19	S23923 (10000X), S24633 (5000X), S24634 (5000X), S23961 (5000X), S24802 (5000X)

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Freon 12		0.6474m	0.6457m	0.6131m	0.6202m	0.5440m	0.5896	0.5948	0.5887	AVRG		1.65166		0.6055	6	15	0.100	0.99	
Chloromethane	1.3194	1.2468	1.2408	1.2211	1.1748	1.1479	0.9956	0.9959	0.9170	AVRG		0.87726		1.1399	12	15	0.100	0.99	
Vinyl Chloride	0.8946	0.8785	0.8676m	0.8221	0.8016	0.8210	0.7456	0.7314	0.6815	AVRG		1.24244		0.8049	9	15	0.100	0.99	
Bromomethane		0.2877	0.3131	0.3186m	0.3482	0.3928	0.3950	0.4162	0.3970	AVRG		2.78887		0.3586	13	15	0.100	0.99	
Chloroethane		0.4689m	0.4528m	0.4470m	0.4341	0.4431	0.4011	0.4034	0.3785	AVRG		2.33301		0.4286	7	15	0.100	0.99	
Trichlorofluoromethane		0.6820	0.6652m	0.6268	0.6446	0.6012	0.5995	0.6069	0.5662	AVRG		1.60245		0.6240	6	15	0.100	0.99	
Acetone			0.1842m	0.1425	0.1529	0.1398	0.1598	0.1328	0.1617	AVRG		6.51866		0.1534	11	15	0.100	0.99	
Freon 113		0.4071	0.4642m	0.3250m	0.4674	0.3199m	0.4332m	0.4710	0.4514	AVRG		2.39589		0.4174	15	15	0.100	0.99	
1,1-Dichloroethene		0.6197	0.5891	0.5071	0.5686	0.5427	0.5307	0.5145	0.4947	AVRG		1.83186		0.5459	8	15	0.100	0.99	
Methylene Chloride		0.8157	0.7221	0.7256	0.7187	0.7204	0.6856	0.6480	0.6183	AVRG		1.41480		0.7068	8	15	0.100	0.99	
Carbon Disulfide		2.6969	2.3873	2.2269	2.3980	2.2822	2.0851	1.9477	1.8391	AVRG		0.44785		2.2329	12	15	0.100	0.99	
MTBE		1.4658	1.3953	1.3734	1.4375	1.3680	1.2935	1.2320	1.1769	AVRG		0.74471		1.3428	7	15	0.100	0.99	
trans-1,2-Dichloroethene		0.7317	0.6485	0.6544	0.6608	0.6474	0.6139	0.5863	0.5560	AVRG		1.56893		0.6374	8	15	0.100	0.99	
Vinyl Acetate	1.1460	1.0143	1.0905	1.0654	1.1096m	1.0606m				AVRG		0.92501		1.0811	4	15	0.05	0.99	
1,1-Dichloroethane		1.5024	1.4216	1.4307	1.4340	1.3596	1.2726	1.1682	1.0958	AVRG		0.74872		1.3356	11	15	0.200	0.99	
2-Butanone			0.2406	0.2195	0.2285	0.2212	0.2126	0.1899	0.1919	AVRG		4.65365		0.2149	9	15	0.100	0.99	
2,2-Dichloropropane		0.9247	0.7873	0.7361	0.7808	0.7502	0.7161	0.6851	0.6427	AVRG		1.32827		0.7529	11	15	0.05	0.99	
cis-1,2-Dichloroethene		0.7776	0.7503	0.7337	0.7342	0.7177	0.6786	0.6428	0.6155	AVRG		1.41582		0.7063	8	15	0.100	0.99	
Chloroform		1.2992	1.1407	1.1613	1.1555	1.1136	1.0445	0.9701	0.9136	AVRG		0.90925		1.0998	11	15	0.200	0.99	
Bromochloromethane		0.3244	0.3126	0.2985	0.3117	0.3116	0.3032	0.2901	0.2817	AVRG		3.28708		0.3042	5	15	0.05	0.99	
1,1,1-Trichloroethane		0.8080	0.7645	0.6998	0.7413	0.7242	0.6957	0.6854	0.6468	AVRG		1.38753		0.7207	7	15	0.100	0.99	
1,1-Dichloropropene		0.5173	0.5088	0.4463	0.4827	0.4673	0.4407	0.4295	0.4061	AVRG		2.16294		0.4623	8	15	0.05	0.99	
Carbon Tetrachloride		0.3814	0.3614	0.3181	0.3608	0.3472	0.3361	0.3439	0.3287	AVRG		2.88012		0.3472	6	15	0.100	0.99	
1,2-Dichloroethane		0.4736	0.4544	0.4463	0.4625	0.4411	0.4195	0.3999	0.3806	AVRG		2.30033		0.4347	7	15	0.100	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Benzene		1.6417	1.5712	1.5486	1.5263	1.4596	1.3051	1.2085	1.1259	AVRG		0.70256		1.4234	13	15	0.500	0.99	
Trichloroethene		0.3669	0.3694	0.3541	0.3658	0.3559	0.3505	0.3275	0.3360	AVRG		2.83077		0.3533	4	15	0.200	0.99	
1,2-Dichloropropane		0.4962	0.4949	0.4898	0.4899	0.4673	0.4334	0.4035	0.3786	AVRG		2.18958		0.4567	10	15	0.100	0.99	
Bromodichloromethane		0.5160	0.4911	0.4959	0.5006	0.4828	0.4621	0.4427	0.4233	AVRG		2.09725		0.4768	7	15	0.200	0.99	
Dibromomethane		0.2081	0.2097	0.2057	0.2119	0.2050	0.2015	0.1967	0.1918	AVRG		4.90693		0.2038	3	15	0.05	0.99	
4-Methyl-2-Pentanone			0.3004	0.3238	0.3195	0.3156	0.2974	0.2859	0.2813	AVRG		3.29589		0.3034	5	15	0.100	0.99	
cis-1,3-Dichloropropene		0.6280	0.6117	0.6205	0.6188	0.6026	0.5668	0.5317	0.5065	AVRG		1.70697		0.5858	8	15	0.200	0.99	
Toluene		1.1039	1.1013	1.0484	1.0637	1.0079	0.9443	0.9023	0.8520	AVRG		0.99703		1.0030	9	15	0.400	0.99	
trans-1,3-Dichloropropene		0.6190	0.5835	0.5883	0.6055	0.5848	0.5578	0.5258	0.5122	AVRG		1.74794		0.5721	7	15	0.100	0.99	
1,1,2-Trichloroethane		0.1980	0.1857	0.1802	0.1926	0.1837	0.1791	0.1764	0.1706	AVRG		5.45562		0.1833	5	15	0.100	0.99	
2-Hexanone			0.2523	0.2550	0.2610	0.2497	0.2493	0.2206	0.2233	AVRG		4.09083		0.2444	6	15	0.100	0.99	
1,3-Dichloropropane		0.6262	0.6098	0.6116	0.6320	0.6059	0.5733	0.5460	0.5206	AVRG		1.69295		0.5907	7	15	0.05	0.99	
Tetrachloroethene		0.3550	0.3429	0.2960	0.3250	0.3141	0.3168	0.3311	0.3246	AVRG		3.07020		0.3257	6	15	0.200	0.99	
Dibromochloromethane		0.3711	0.3359	0.3487	0.3710	0.3642	0.3622	0.3594	0.3535	AVRG		2.79158		0.3582	3	15	0.100	0.99	
1,2-Dibromoethane		0.3030	0.3192	0.3119	0.3318	0.3194	0.3114	0.3068	0.2957	AVRG		3.20108		0.3124	4	15	0.100	0.99	
Chlorobenzene		1.1321	1.1527	1.1178	1.1207	1.0651	0.9838	0.9287	0.8645	AVRG		0.95633		1.0457	10	15	0.500	0.99	
1,1,1,2-Tetrachloroethane		0.3590	0.3557	0.3612	0.3761	0.3593	0.3490	0.3378	0.3256	AVRG		2.83315		0.3530	4	15	0.05	0.99	
Ethylbenzene		2.0984	2.0048	1.9305	1.9340	1.7601	1.5414	1.4497		AVRG		0.55036		1.8170	13	15	0.100	0.99	
m,p-Xylenes	0.8761	0.7506	0.7201	0.7065m	0.7171m	0.6671m	0.6018m	0.5561m		AVRG		1.42974		0.6994	14	15	0.100	0.99	
o-Xylene		0.7322	0.7293	0.7282	0.7242	0.6960	0.6710	0.6454	0.6035	AVRG		1.44671		0.6912	7	15	0.300	0.99	
Styrene		1.2717	1.2462	1.2583	1.2498	1.1718	1.0752	0.9985	0.9216	AVRG		0.87022		1.1491	12	15	0.300	0.99	
Bromoform		0.1736	0.1756	0.1723	0.1825	0.1834	0.1854	0.1893	0.1906	AVRG		5.50697		0.1816	4	15	0.100	0.99	
Isopropylbenzene		3.9724	3.6415	3.5445	3.5397	3.2876	2.9503	2.8352	2.6354	AVRG		0.30295		3.3008	14	15	0.100	0.99	
1,1,2,2-Tetrachloroethane		0.8305	0.7578	0.7491	0.8108	0.7626	0.6866	0.7029	0.6196	AVRG		1.35138		0.7400	9	15	0.300	0.99	
1,2,3-Trichloropropane		0.1628	0.1768	0.1704	0.1785	0.1726	0.1675	0.1724	0.1729	AVRG		5.82290		0.1717	3	15	0.05	0.99	
Propylbenzene		4.8789	4.6047	4.3755	4.3775	3.9341	3.3880	3.1664	2.8620	QUAD	0.12772	0.20919	4.774E-4	3.9484	1.000	15	0.05	0.99	
Bromobenzene		0.8217	0.8242	0.8488	0.8508	0.8275	0.7974	0.7754	0.7441	AVRG		1.23268		0.8112	5	15	0.05	0.99	
1,3,5-Trimethylbenzene		3.0214	2.9611	2.8737	2.8774	2.6150	2.3163	2.2085	2.0063	AVRG		0.38315		2.6100	15	15	0.05	0.99	
2-Chlorotoluene		3.0886	3.1123	3.0882	3.0556	2.7853	2.4291	2.2711	2.0823	AVRG		0.36509		2.7391	15	15	0.05	0.99	
4-Chlorotoluene		2.9612	2.8636	2.7821	2.8035	2.6131	2.3460	2.2266	2.0954	AVRG		0.38663		2.5864	13	15	0.05	0.99	
tert-Butylbenzene		2.7837	2.5341	2.3986	2.4671	2.2869	2.1312	2.1279	1.9819	AVRG		0.42755		2.3389	11	15	0.05	0.99	
1,2,4-Trimethylbenzene		3.1366	2.9753	2.9295	2.9516	2.7062	2.4288	2.3084	2.1354	AVRG		0.37085		2.6965	14	15	0.05	0.99	
sec-Butylbenzene		3.9866	3.8745	3.4329	3.7000	3.2941	2.9994	3.0050	2.7604	AVRG		0.29572		3.3816	13	15	0.05	0.99	
para-Isopropyl Toluene		3.0288	2.8519	2.7189	2.8018	2.5829	2.3899	2.3761	2.1911	AVRG		0.38202		2.6177	11	15	0.05	0.99	
1,3-Dichlorobenzene		1.5268	1.5041	1.5082	1.5129	1.4382	1.3629	1.3405	1.2699	AVRG		0.69787		1.4329	7	15	0.600	0.99	
1,4-Dichlorobenzene		1.5565	1.4586	1.4654	1.4376	1.3920	1.3275	1.2894	1.2527	AVRG		0.71558		1.3975	7	15	0.500	0.99	
n-Butylbenzene		2.9724	2.6991	2.4476	2.5918	2.3197	2.0830	2.0897	1.9031	AVRG		0.41871		2.3883	15	15	0.05	0.99	
1,2-Dichlorobenzene		1.5091	1.4392	1.3999	1.4128	1.3656	1.2911	1.2675	1.2209	AVRG		0.73354		1.3633	7	15	0.400	0.99	
1,2-Dibromo-3-Chloropropane		0.1443	0.1114	0.1123	0.1160	0.1148	0.1091	0.1131	0.1110	AVRG		8.58337		0.1165	10	15	0.050	0.99	
1,2,4-Trichlorobenzene		0.7017	0.6379	0.6689	0.6762	0.6518	0.6426	0.6644	0.6597	AVRG		1.50851		0.6629	3	15	0.200	0.99	
Hexachlorobutadiene		0.2754	0.2626	0.2204	0.2455	0.2277	0.2373	0.2794	0.2795	AVRG		3.94527		0.2535	9	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene		1.6598	1.5074	1.5555	1.6165	1.6218	1.5232	1.5504	1.5295	AVRG		0.63674		1.5705	4	15	0.05	0.99	
1,2,3-Trichlorobenzene		0.6707	0.6108	0.6053	0.6064	0.6007	0.5938	0.6184	0.6179	AVRG		1.62472		0.6155	4	15	0.05	0.99	
Dibromofluoromethane	0.6044	0.6054	0.6067	0.6128	0.6044	0.6128	0.5990	0.5922	0.5763	AVRG		1.66235		0.6016	2	15	0.05	0.99	
1,2-Dichloroethane-d4	0.3281	0.3273	0.3323	0.3281	0.3209	0.3153	0.2870	0.2775	0.2631	AVRG		3.23785		0.3088	8	15	0.05	0.99	
Toluene-d8	1.2369	1.2517	1.2523	1.2441	1.2404	1.2418	1.2404	1.2551	1.2353	AVRG		0.80371		1.2442	1	15	0.05	0.99	
Bromofluorobenzene	1.1168	1.1206	1.1163	1.1291	1.1305	1.1246	1.1167	1.1241	1.1289	AVRG		0.89042		1.1231	1	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
Freon 12			1.0000	7	2.0000	7	5.0000	1	10.000	2	20.000	-10	50.000	-3	75.000	-2	100.00	-3
Chloromethane	0.5000	16	1.0000	9	2.0000	9	5.0000	7	10.000	3	20.000	1	50.000	-13	75.000	-13	100.00	-20
Vinyl Chloride	0.5000	11	1.0000	9	2.0000	8	5.0000	2	10.000	0	20.000	2	50.000	-7	75.000	-9	100.00	-15
Bromomethane			1.0000	-20	2.0000	-13	5.0000	-11	10.000	-3	20.000	10	50.000	10	75.000	16	100.00	11
Chloroethane			1.0000	9	2.0000	6	5.0000	4	10.000	1	20.000	3	50.000	-6	75.000	-6	100.00	-12
Trichlorofluoromethane			1.0000	9	2.0000	7	5.0000	0	10.000	3	20.000	-4	50.000	-4	75.000	-3	100.00	-9
Acetone					2.0000	20	5.0000	-7	10.000	0	20.000	-9	50.000	4	75.000	-13	100.00	5
Freon 113			0.5000	-2	2.0000	11	5.0000	**-22**	10.000	12	20.000	**-23**	50.000	4	75.000	13	100.00	8
1,1-Dichloroethene			0.5000	14	2.0000	8	5.0000	-7	10.000	4	20.000	-1	50.000	-3	75.000	-6	100.00	-9
Methylene Chloride			0.5000	15	2.0000	2	5.0000	3	10.000	2	20.000	2	50.000	-3	75.000	-8	100.00	-13
Carbon Disulfide			0.5000	**21**	2.0000	7	5.0000	0	10.000	7	20.000	2	50.000	-7	75.000	-13	100.00	-18
MTBE			0.5000	9	2.0000	4	5.0000	2	10.000	7	20.000	2	50.000	-4	75.000	-8	100.00	-12
trans-1,2-Dichloroethene			0.5000	15	2.0000	2	5.0000	3	10.000	4	20.000	2	50.000	-4	75.000	-8	100.00	-13
Vinyl Acetate	0.2500	6	0.5000	-6	2.0000	1	5.0000	-1	10.000	3	20.000	-2						
1,1-Dichloroethane			0.5000	12	2.0000	6	5.0000	7	10.000	7	20.000	2	50.000	-5	75.000	-13	100.00	-18
2-Butanone					2.0000	12	5.0000	2	10.000	6	20.000	3	50.000	-1	75.000	-12	100.00	-11
2,2-Dichloropropane			0.5000	**23**	2.0000	5	5.0000	-2	10.000	4	20.000	0	50.000	-5	75.000	-9	100.00	-15
cis-1,2-Dichloroethene			0.5000	10	2.0000	6	5.0000	4	10.000	4	20.000	2	50.000	-4	75.000	-9	100.00	-13
Chloroform			0.5000	18	2.0000	4	5.0000	6	10.000	5	20.000	1	50.000	-5	75.000	-12	100.00	-17
Bromochloromethane			0.5000	7	2.0000	3	5.0000	-2	10.000	2	20.000	2	50.000	0	75.000	-5	100.00	-7
1,1,1-Trichloroethane			0.5000	12	2.0000	6	5.0000	-3	10.000	3	20.000	0	50.000	-3	75.000	-5	100.00	-10
1,1-Dichloropropene			0.5000	12	2.0000	10	5.0000	-3	10.000	4	20.000	1	50.000	-5	75.000	-7	100.00	-12
Carbon Tetrachloride			0.5000	10	2.0000	4	5.0000	-8	10.000	4	20.000	0	50.000	-3	75.000	-1	100.00	-5
1,2-Dichloroethane			0.5000	9	2.0000	5	5.0000	3	10.000	6	20.000	1	50.000	-4	75.000	-8	100.00	-12
Benzene			0.5000	15	2.0000	10	5.0000	9	10.000	7	20.000	3	50.000	-8	75.000	-15	100.00	**-21**
Trichloroethene			0.5000	4	2.0000	5	5.0000	0	10.000	4	20.000	1	50.000	-1	75.000	-7	100.00	-5
1,2-Dichloropropane			0.5000	9	2.0000	8	5.0000	7	10.000	7	20.000	2	50.000	-5	75.000	-12	100.00	-17
Bromodichloromethane			0.5000	8	2.0000	3	5.0000	4	10.000	5	20.000	1	50.000	-3	75.000	-7	100.00	-11
Dibromomethane			0.5000	2	2.0000	3	5.0000	1	10.000	4	20.000	1	50.000	-1	75.000	-3	100.00	-6
4-Methyl-2-Pentanone					2.0000	-1	5.0000	7	10.000	5	20.000	4	50.000	-2	75.000	-6	100.00	-7
cis-1,3-Dichloropropene			0.5000	7	2.0000	4	5.0000	6	10.000	6	20.000	3	50.000	-3	75.000	-9	100.00	-14
Toluene			0.5000	10	2.0000	10	5.0000	5	10.000	6	20.000	0	50.000	-6	75.000	-10	100.00	-15
trans-1,3-Dichloropropene			0.5000	8	2.0000	2	5.0000	3	10.000	6	20.000	2	50.000	-3	75.000	-8	100.00	-10
1,1,2-Trichloroethane			0.5000	8	2.0000	1	5.0000	-2	10.000	5	20.000	0	50.000	-2	75.000	-4	100.00	-7
2-Hexanone					2.0000	3	5.0000	4	10.000	7	20.000	2	50.000	2	75.000	-10	100.00	-9
1,3-Dichloropropane			0.5000	6	2.0000	3	5.0000	4	10.000	7	20.000	3	50.000	-3	75.000	-8	100.00	-12
Tetrachloroethene			0.5000	9	2.0000	5	5.0000	-9	10.000	0	20.000	-4	50.000	-3	75.000	2	100.00	0
Dibromochloromethane			0.5000	4	2.0000	-6	5.0000	-3	10.000	4	20.000	2	50.000	1	75.000	0	100.00	-1
1,2-Dibromoethane			0.5000	-3	2.0000	2	5.0000	0	10.000	6	20.000	2	50.000	0	75.000	-2	100.00	-5
Chlorobenzene			0.5000	8	2.0000	10	5.0000	7	10.000	7	20.000	2	50.000	-6	75.000	-11	100.00	-17
1,1,1,2-Tetrachloroethane			0.5000	2	2.0000	1	5.0000	2	10.000	7	20.000	2	50.000	-1	75.000	-4	100.00	-8
Ethylbenzene			0.5000	15	2.0000	10	5.0000	6	10.000	6	20.000	-3	50.000	-15	75.000	-20		

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
m,p-Xylenes	0.5000	**25**	1.0000	7	4.0000	3	10.000	1	20.000	3	40.000	-5	100.00	-14	150.00	-20		
o-Xylene			0.5000	6	2.0000	6	5.0000	5	10.000	5	20.000	1	50.000	-3	75.000	-7	100.00	-13
Styrene			0.5000	11	2.0000	8	5.0000	9	10.000	9	20.000	2	50.000	-6	75.000	-13	100.00	-20
Bromoform			0.5000	-4	2.0000	-3	5.0000	-5	10.000	1	20.000	1	50.000	2	75.000	4	100.00	5
Isopropylbenzene			0.5000	20	2.0000	10	5.0000	7	10.000	7	20.000	0	50.000	-11	75.000	-14	100.00	-20
1,1,2,2-Tetrachloroethane			0.5000	12	2.0000	2	5.0000	1	10.000	10	20.000	3	50.000	-7	75.000	-5	100.00	-16
1,2,3-Trichloropropane			0.5000	-5	2.0000	3	5.0000	-1	10.000	4	20.000	1	50.000	-2	75.000	0	100.00	1
Propylbenzene			0.5000	**28**	2.0000	5	5.0000	-1	10.000	2	20.000	-2	50.000	-1	75.000	2	100.00	-1
Bromobenzene			0.5000	1	2.0000	2	5.0000	5	10.000	5	20.000	2	50.000	-2	75.000	-4	100.00	-8
1,3,5-Trimethylbenzene			0.5000	16	2.0000	13	5.0000	10	10.000	10	20.000	0	50.000	-11	75.000	-15	100.00	**-23**
2-Chlorotoluene			0.5000	13	2.0000	14	5.0000	13	10.000	12	20.000	2	50.000	-11	75.000	-17	100.00	**-24**
4-Chlorotoluene			0.5000	14	2.0000	11	5.0000	8	10.000	8	20.000	1	50.000	-9	75.000	-14	100.00	-19
tert-Butylbenzene			0.5000	19	2.0000	8	5.0000	3	10.000	5	20.000	-2	50.000	-9	75.000	-9	100.00	-15
1,2,4-Trimethylbenzene			0.5000	16	2.0000	10	5.0000	9	10.000	9	20.000	0	50.000	-10	75.000	-14	100.00	**-21**
sec-Butylbenzene			0.5000	18	2.0000	15	5.0000	2	10.000	9	20.000	-3	50.000	-11	75.000	-11	100.00	-18
para-Isopropyl Toluene			0.5000	16	2.0000	9	5.0000	4	10.000	7	20.000	-1	50.000	-9	75.000	-9	100.00	-16
1,3-Dichlorobenzene			0.5000	7	2.0000	5	5.0000	5	10.000	6	20.000	0	50.000	-5	75.000	-6	100.00	-11
1,4-Dichlorobenzene			0.5000	11	2.0000	4	5.0000	5	10.000	3	20.000	0	50.000	-5	75.000	-8	100.00	-10
n-Butylbenzene			0.5000	**24**	2.0000	13	5.0000	2	10.000	9	20.000	-3	50.000	-13	75.000	-13	100.00	-20
1,2-Dichlorobenzene			0.5000	11	2.0000	6	5.0000	3	10.000	4	20.000	0	50.000	-5	75.000	-7	100.00	-10
1,2-Dibromo-3-Chloropropane			0.5000	**24**	2.0000	-4	5.0000	-4	10.000	0	20.000	-1	50.000	-6	75.000	-3	100.00	-5
1,2,4-Trichlorobenzene			0.5000	6	2.0000	-4	5.0000	1	10.000	2	20.000	-2	50.000	-3	75.000	0	100.00	0
Hexachlorobutadiene			0.5000	9	2.0000	4	5.0000	-13	10.000	-3	20.000	-10	50.000	-6	75.000	10	100.00	10
Naphthalene			0.5000	6	2.0000	-4	5.0000	-1	10.000	3	20.000	3	50.000	-3	75.000	-1	100.00	-3
1,2,3-Trichlorobenzene			0.5000	9	2.0000	-1	5.0000	-2	10.000	-1	20.000	-2	50.000	-4	75.000	0	100.00	0
Dibromofluoromethane	50.000	0	50.000	1	50.000	1	50.000	2	50.000	0	50.000	2	50.000	0	50.000	-2	50.000	-4
1,2-Dichloroethane-d4	50.000	6	50.000	6	50.000	8	50.000	6	50.000	4	50.000	2	50.000	-7	50.000	-10	50.000	-15
Toluene-d8	50.000	-1	50.000	1	50.000	1	50.000	0	50.000	0	50.000	0	50.000	0	50.000	1	50.000	-1
Bromofluorobenzene	50.000	-1	50.000	0	50.000	-1	50.000	1	50.000	1	50.000	0	50.000	-1	50.000	0	50.000	1

DJA 06/26/14 [Freon 12]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [Chloroethane]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [Freon 113]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [Isopropanol]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [Vinyl Acetate]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [m,p-Xylenes]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [Vinyl Chloride]: Corrected fronting or tailing peak integration in (hfp13).

DJA 06/26/14 [Trichlorofluoromethane]: Corrected fronting or tailing peak integration in (hfp13).

DJA 06/26/14 [Acetone]: Corrected fronting or tailing peak integration in (hfp13).

DJA 06/26/14 [tert-Butyl Alcohol (TBA)]: Corrected fronting or tailing peak integration in (hfp13).

DJA 06/26/14 [Bromomethane]: Corrected fronting or tailing peak integration in (hfp14).

Analyst: DJA Date: 06/26/14 Reviewer: LW Date: 06/27/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; QUAD=Quadratic regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259882 MSVOA Water
EPA 8260C

Inst : MSVOA08 Name : 826GOX8
Calnum : 474253910001 Cal Date : 25-JUN-2014 Type : WATER

ICV 474253910020 (hfp20 25-JUN-2014) stds: S24242 (10000X), S24802 (5000X)
ICV 474253910021 (hfp21 25-JUN-2014) stds: S24731 (10000X), S24892 (10000X), S24848 (10000X), S24802 (5000X)

Analyte	ICV Seqnum	Spiked	Quant	Units	%D	Max	Flags
Freon 12	474253910020	20.00	20.50	ug/L	2	20	m
Chloromethane	474253910020	20.00	18.24	ug/L	-9	20	m
Vinyl Chloride	474253910020	20.00	18.52	ug/L	-7	20	m
Bromomethane	474253910020	20.00	19.38	ug/L	-3	20	m
Chloroethane	474253910020	20.00	18.12	ug/L	-9	20	m
Trichlorofluoromethane	474253910020	20.00	20.25	ug/L	1	20	m
Acetone	474253910021	25.00	29.16	ug/L	17	20	
Freon 113	474253910021	25.00	24.60	ug/L	-2	20	m
1,1-Dichloroethene	474253910021	25.00	26.71	ug/L	7	20	
Methylene Chloride	474253910021	25.00	26.62	ug/L	6	20	
Carbon Disulfide	474253910021	25.00	25.50	ug/L	2	20	
MTBE	474253910021	25.00	25.13	ug/L	1	20	
trans-1,2-Dichloroethene	474253910021	25.00	26.40	ug/L	6	20	
Vinyl Acetate	474253910021	25.00	16.07	ug/L	**-36**	20	v- ***
1,1-Dichloroethane	474253910021	25.00	26.40	ug/L	6	20	
2-Butanone	474253910021	25.00	27.51	ug/L	10	20	
2,2-Dichloropropane	474253910021	25.00	25.73	ug/L	3	20	
cis-1,2-Dichloroethene	474253910021	25.00	26.69	ug/L	7	20	
Chloroform	474253910021	25.00	26.23	ug/L	5	20	
Bromochloromethane	474253910021	25.00	27.25	ug/L	9	20	
1,1,1-Trichloroethane	474253910021	25.00	27.45	ug/L	10	20	
1,1-Dichloropropene	474253910021	25.00	28.57	ug/L	14	20	
Carbon Tetrachloride	474253910021	25.00	28.23	ug/L	13	20	
1,2-Dichloroethane	474253910021	25.00	26.07	ug/L	4	20	
Benzene	474253910021	25.00	26.61	ug/L	6	20	
Trichloroethene	474253910021	25.00	28.87	ug/L	15	20	
1,2-Dichloropropane	474253910021	25.00	26.23	ug/L	5	20	
Bromodichloromethane	474253910021	25.00	26.37	ug/L	5	20	
Dibromomethane	474253910021	25.00	26.88	ug/L	8	20	
4-Methyl-2-Pentanone	474253910021	25.00	26.06	ug/L	4	20	
cis-1,3-Dichloropropene	474253910021	25.00	27.93	ug/L	12	20	
Toluene	474253910021	25.00	26.83	ug/L	7	20	
trans-1,3-Dichloropropene	474253910021	25.00	26.09	ug/L	4	20	
1,1,2-Trichloroethane	474253910021	25.00	26.29	ug/L	5	20	
2-Hexanone	474253910021	25.00	29.34	ug/L	17	20	
1,3-Dichloropropane	474253910021	25.00	26.48	ug/L	6	20	
Tetrachloroethene	474253910021	25.00	27.80	ug/L	11	20	
Dibromochloromethane	474253910021	25.00	27.07	ug/L	8	20	
1,2-Dibromoethane	474253910021	25.00	27.04	ug/L	8	20	
Chlorobenzene	474253910021	25.00	27.76	ug/L	11	20	
1,1,1,2-Tetrachloroethane	474253910021	25.00	27.12	ug/L	8	20	
Ethylbenzene	474253910021	25.00	25.71	ug/L	3	20	
m,p-Xylenes	474253910021	50.00	51.28	ug/L	3	20	
o-Xylene	474253910021	25.00	28.38	ug/L	14	20	
Styrene	474253910021	25.00	27.13	ug/L	9	20	
Bromoform	474253910021	25.00	27.40	ug/L	10	20	
Isopropylbenzene	474253910021	25.00	27.90	ug/L	12	20	

Analyte	ICV Seqnum	Spiked	Quant	Units	%D	Max	Flags
1,1,2,2-Tetrachloroethane	474253910021	25.00	24.73	ug/L	-1	20	
1,2,3-Trichloropropane	474253910021	25.00	26.43	ug/L	6	20	
Propylbenzene	474253910021	25.00	28.09	ug/L	12	20	
Bromobenzene	474253910021	25.00	27.41	ug/L	10	20	
1,3,5-Trimethylbenzene	474253910021	25.00	27.79	ug/L	11	20	
2-Chlorotoluene	474253910021	25.00	28.39	ug/L	14	20	
4-Chlorotoluene	474253910021	25.00	27.37	ug/L	9	20	
tert-Butylbenzene	474253910021	25.00	28.54	ug/L	14	20	
1,2,4-Trimethylbenzene	474253910021	25.00	26.78	ug/L	7	20	
sec-Butylbenzene	474253910021	25.00	28.54	ug/L	14	20	
para-Isopropyl Toluene	474253910021	25.00	27.47	ug/L	10	20	
1,3-Dichlorobenzene	474253910021	25.00	27.90	ug/L	12	20	
1,4-Dichlorobenzene	474253910021	25.00	26.78	ug/L	7	20	
n-Butylbenzene	474253910021	25.00	26.29	ug/L	5	20	
1,2-Dichlorobenzene	474253910021	25.00	27.65	ug/L	11	20	
1,2-Dibromo-3-Chloropropane	474253910021	25.00	24.97	ug/L	0	20	
1,2,4-Trichlorobenzene	474253910021	25.00	26.55	ug/L	6	20	
Hexachlorobutadiene	474253910021	25.00	26.33	ug/L	5	20	
Naphthalene	474253910021	25.00	27.23	ug/L	9	20	
1,2,3-Trichlorobenzene	474253910021	25.00	26.21	ug/L	5	20	

474253910020: Analyst: DJA Date: 06/26/14 Reviewer: LW Date: 06/27/14
474253910021: Analyst: DJA Date: 06/26/14 Reviewer: LW Date: 06/27/14

-=low bias m=manual integration v=ICV

CURTIS & TOMPKINS SPIKE USER REPORT FOR 259882 MSVOA Water
EPA 8260C

Inst : MSVOA02 Run Name : QC755483 IDF : 1.0
Seqnum : 414346143004.1 File : bhs04 Time : 28-AUG-2014 10:40
Cal : 414085629001 Caldate : 28-FEB-2014 Caltype : WATER
Standards: S25233 (20000X), S25398 (20000X), S25287 (20000X), S24467 (20000X), S25458 (1000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Freon 12	1.1602	1.1364	10.00	9.795	ug/L	-2	20	0.1000	u
Chloromethane	1.2604	1.1076	10.00	8.788	ug/L	-12	20	0.1000	u
Vinyl Chloride	1.0226	1.0157	10.00	9.933	ug/L	-1	20	0.1000	u
Bromomethane	0.3169	0.3082	10.00	9.633	ug/L	-4	20	0.1000	u v+ ***
Chloroethane	0.5753	0.5610	10.00	9.753	ug/L	-2	20	0.1000	u
Trichlorofluoromethane	1.2932	1.4128	10.00	10.93	ug/L	9	20	0.1000	u
Acetone	0.4950	0.5982	12.50	15.11	ug/L	**21**	20	0.1000	c+ u v- ***
Freon 113	0.6380	0.7352	12.50	14.40	ug/L	15	20	0.1000	u
1,1-Dichloroethene	0.7176	0.7647	12.50	13.32	ug/L	7	20	0.1000	u
Methylene Chloride	0.9477	1.0764	12.50	14.20	ug/L	14	20	0.1000	u
Carbon Disulfide	2.6178	3.4455	12.50	16.45	ug/L	**32**	20	0.1000	c+ u ***
MTBE	2.5831	2.2070	12.50	10.68	ug/L	-15	20	0.1000	u
trans-1,2-Dichloroethene	0.8200	0.8962	12.50	13.66	ug/L	9	20	0.1000	u
Vinyl Acetate	2.2027	2.6329	12.50	14.94	ug/L	20	20	0.0500	u v+ ***
1,1-Dichloroethane	1.7468	1.9709	12.50	14.10	ug/L	13	20	0.2000	u
2-Butanone	0.5889	0.6521	12.50	13.84	ug/L	11	20	0.1000	u
cis-1,2-Dichloroethene	0.9169	1.0151	12.50	13.84	ug/L	11	20	0.1000	u
2,2-Dichloropropane	1.2024	1.4411	12.50	14.98	ug/L	20	20	0.0500	u
Chloroform	1.7736	1.9409	12.50	13.68	ug/L	9	20	0.2000	u
Bromochloromethane	0.4546	0.5499	12.50	15.12	ug/L	**21**	20	0.0500	c+ u ***
1,1,1-Trichloroethane	1.3732	1.4609	12.50	13.30	ug/L	6	20	0.1000	u
1,1-Dichloropropene	0.5870	0.6255	12.50	13.32	ug/L	7	20	0.0500	u
Carbon Tetrachloride	0.5717	0.6088	12.50	13.31	ug/L	6	20	0.1000	u
1,2-Dichloroethane	0.8287	0.8447	12.50	12.74	ug/L	2	20	0.1000	u
Benzene	1.7208	1.7969	12.50	13.05	ug/L	4	20	0.5000	u
Trichloroethene	0.4699	0.4710	12.50	12.53	ug/L	0	20	0.2000	u
1,2-Dichloropropane	0.5323	0.5493	12.50	12.90	ug/L	3	20	0.1000	u
Bromodichloromethane	0.7359	0.7525	12.50	12.78	ug/L	2	20	0.2000	u
Dibromomethane	0.3737	0.4139	12.50	13.85	ug/L	11	20	0.0500	u
4-Methyl-2-Pentanone	0.6183	0.5941	12.50	12.01	ug/L	-4	20	0.1000	u
cis-1,3-Dichloropropene	0.7592	0.8432	12.50	13.88	ug/L	11	20	0.2000	u v+ ***
Toluene	1.0396	1.0784	12.50	12.97	ug/L	4	20	0.4000	u
trans-1,3-Dichloropropene	0.7702	0.7623	12.50	12.37	ug/L	-1	20	0.1000	u
1,1,2-Trichloroethane	0.2687	0.2836	12.50	13.19	ug/L	6	20	0.1000	u
2-Hexanone	0.4727	0.4665	12.50	12.33	ug/L	-1	20	0.1000	u
1,3-Dichloropropane	0.8349	0.8901	12.50	13.33	ug/L	7	20	0.0500	u
Tetrachloroethene	0.4000	0.4303	12.50	13.45	ug/L	8	20	0.2000	u
Dibromochloromethane	0.5469	0.5783	12.50	13.22	ug/L	6	20	0.1000	u
1,2-Dibromoethane	0.5194	0.5381	12.50	12.95	ug/L	4	20	0.1000	u
Chlorobenzene	1.1464	1.2503	12.50	13.63	ug/L	9	20	0.5000	u
1,1,1,2-Tetrachloroethane	0.4520	0.4740	12.50	13.11	ug/L	5	20	0.0500	u
Ethylbenzene	1.9502	2.0318	12.50	13.02	ug/L	4	20	0.1000	u
m,p-Xylenes	0.6675	0.7020	25.00	26.29	ug/L	5	20	0.1000	u
o-Xylene	0.6554	0.6945	12.50	13.24	ug/L	6	20	0.3000	u
Styrene	1.1724	1.1169	12.50	11.91	ug/L	-5	20	0.3000	u
Bromoform	0.4029	0.3771	12.50	11.70	ug/L	-6	20	0.1000	u
Isopropylbenzene	3.5751	3.5940	12.50	12.57	ug/L	1	20	0.1000	u

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
1,1,2,2-Tetrachloroethane	1.3748	1.5028	12.50	13.66	ug/L	9	20	0.3000	u
1,2,3-Trichloropropane	1.1958	1.2642	12.50	13.21	ug/L	6	20	0.0500	u
Propylbenzene	4.2114	4.5244	12.50	13.43	ug/L	7	20	0.0500	u
Bromobenzene	1.0845	1.1393	12.50	13.13	ug/L	5	20	0.0500	u
1,3,5-Trimethylbenzene	2.8508	2.9090	12.50	12.76	ug/L	2	20	0.0500	u
2-Chlorotoluene	3.1867	3.4141	12.50	13.39	ug/L	7	20	0.0500	u
4-Chlorotoluene	2.9475	2.9837	12.50	12.65	ug/L	1	20	0.0500	u
tert-Butylbenzene	2.2549	2.4395	12.50	13.52	ug/L	8	20	0.0500	u
1,2,4-Trimethylbenzene	2.7433	2.7937	12.50	12.73	ug/L	2	20	0.0500	u
sec-Butylbenzene	3.3598	3.6022	12.50	13.40	ug/L	7	20	0.0500	u
para-Isopropyl Toluene	2.4063	2.5694	12.50	13.35	ug/L	7	20	0.0500	u
1,3-Dichlorobenzene	1.7027	1.8481	12.50	13.57	ug/L	9	20	0.6000	u
1,4-Dichlorobenzene	1.7470	1.8214	12.50	13.03	ug/L	4	20	0.5000	u
n-Butylbenzene	2.0557	2.2743	12.50	13.83	ug/L	11	20	0.0500	u v+ ***
1,2-Dichlorobenzene	1.7625	1.8688	12.50	13.25	ug/L	6	20	0.4000	u
1,2-Dibromo-3-Chloropropane	0.2616	0.2758	12.50	13.18	ug/L	5	20	0.0500	u
1,2,4-Trichlorobenzene	0.7554	0.7845	12.50	12.98	ug/L	4	20	0.2000	u v+ ***
Hexachlorobutadiene	0.4177	0.4908	12.50	14.69	ug/L	17	20	0.0500	u v+ ***
Naphthalene	1.9765	2.2247	12.50	14.07	ug/L	13	20	0.0500	u
1,2,3-Trichlorobenzene	0.7748	0.8492	12.50	13.70	ug/L	10	20	0.0500	u v+ ***
Dibromofluoromethane	0.7821	0.8613	50.00	55.06	ug/L	10	20	0.0500	u
1,2-Dichloroethane-d4	0.5574	0.5616	50.00	50.38	ug/L	1	20	0.0500	u
Toluene-d8	1.3266	1.2967	50.00	48.87	ug/L	-2	20	0.0500	u
Bromofluorobenzene	1.2100	1.1149	50.00	46.07	ug/L	-8	20	0.0500	u

ISTD (ICAL bbs15)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	420427	508369	20.92	11.52	11.44	-0.08
1,4-Difluorobenzene	763271	983372	28.84	12.74	12.67	-0.07
Chlorobenzene-d5	695444	901053	29.57	17.32	17.25	-0.07
1,4-Dichlorobenzene-d4	332795	438797	31.85	20.70	20.64	-0.06

Analyst: BO Date: 08/29/14 Reviewer: LW Date: 09/02/14

+=high bias -=low bias c=CCV u=use v=ICV

CURTIS & TOMPKINS SPIKE USER REPORT FOR 259882 MSVOA Water
EPA 8260C

Inst : MSVOA08 Run Name : QC754439 IDF : 1.0
Seqnum : 474336023007.3 File : hhl07 Time : 21-AUG-2014 13:04
Cal : 474253910001 Caldate : 25-JUN-2014 Caltype : WATER
Standards: S25233 (25000X), S25398 (25000X), S25287 (25000X), S24241 (25000X), S25202 (5000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Freon 12	0.6055	0.6283	8.000	8.302	ug/L	4	20	0.1000	u
Chloromethane	1.1399	1.3266	8.000	9.310	ug/L	16	20	0.1000	u
Vinyl Chloride	0.8049	0.8782	8.000	8.729	ug/L	9	20	0.1000	u
Bromomethane	0.3586	0.3885	8.000	8.667	ug/L	8	20	0.1000	u
Chloroethane	0.4286	0.4347	8.000	8.114	ug/L	1	20	0.1000	u
Trichlorofluoromethane	0.6240	0.6369	8.000	8.165	ug/L	2	20	0.1000	u
Acetone	0.1534	0.1944	10.00	12.67	ug/L	**27**	20	0.1000	c+ u ***
Freon 113	0.4174	0.4152	10.00	9.947	ug/L	-1	20	0.1000	u
1,1-Dichloroethene	0.5459	0.5433	10.00	9.953	ug/L	0	20	0.1000	u
Methylene Chloride	0.7068	0.7871	10.00	11.14	ug/L	11	20	0.1000	u
Carbon Disulfide	2.2329	2.1003	10.00	9.406	ug/L	-6	20	0.1000	u
MTBE	1.3428	1.4069	10.00	10.48	ug/L	5	20	0.1000	u
trans-1,2-Dichloroethene	0.6374	0.6813	10.00	10.69	ug/L	7	20	0.1000	u
Vinyl Acetate	1.0811	1.6952	10.00	15.68	ug/L	**57**	20	0.0500	c+ u v- ***
1,1-Dichloroethane	1.3356	1.4437	10.00	10.81	ug/L	8	20	0.2000	u
2-Butanone	0.2149	0.3083	10.00	14.35	ug/L	**43**	20	0.1000	c+ u ***
cis-1,2-Dichloroethene	0.7063	0.8009	10.00	11.34	ug/L	13	20	0.1000	u
2,2-Dichloropropane	0.7529	0.9294	10.00	12.35	ug/L	**23**	20	0.0500	c+ u ***
Chloroform	1.0998	1.2820	10.00	11.66	ug/L	17	20	0.2000	u
Bromochloromethane	0.3042	0.3217	10.00	10.57	ug/L	6	20	0.0500	u
1,1,1-Trichloroethane	0.7207	0.8275	10.00	11.48	ug/L	15	20	0.1000	u
1,1-Dichloropropene	0.4623	0.4955	10.00	10.72	ug/L	7	20	0.0500	u
Carbon Tetrachloride	0.3472	0.3475	10.00	10.01	ug/L	0	20	0.1000	u
1,2-Dichloroethane	0.4347	0.4700	10.00	10.81	ug/L	8	20	0.1000	u
Benzene	1.4234	1.5014	10.00	10.55	ug/L	5	20	0.5000	u
Trichloroethene	0.3533	0.3747	10.00	10.61	ug/L	6	20	0.2000	u
1,2-Dichloropropane	0.4567	0.4671	10.00	10.23	ug/L	2	20	0.1000	u
Bromodichloromethane	0.4768	0.4974	10.00	10.43	ug/L	4	20	0.2000	u
Dibromomethane	0.2038	0.2282	10.00	11.20	ug/L	12	20	0.0500	u
4-Methyl-2-Pentanone	0.3034	0.3564	10.00	11.75	ug/L	17	20	0.1000	u
cis-1,3-Dichloropropene	0.5858	0.6502	10.00	11.10	ug/L	11	20	0.2000	u
Toluene	1.0030	1.0355	10.00	10.32	ug/L	3	20	0.4000	u
trans-1,3-Dichloropropene	0.5721	0.5865	10.00	10.25	ug/L	3	20	0.1000	u
1,1,2-Trichloroethane	0.1833	0.2021	10.00	11.03	ug/L	10	20	0.1000	u
2-Hexanone	0.2444	0.2847	10.00	11.65	ug/L	16	20	0.1000	u
1,3-Dichloropropane	0.5907	0.6400	10.00	10.83	ug/L	8	20	0.0500	u
Tetrachloroethene	0.3257	0.3185	10.00	9.779	ug/L	-2	20	0.2000	u
Dibromochloromethane	0.3582	0.3405	10.00	9.505	ug/L	-5	20	0.1000	u
1,2-Dibromoethane	0.3124	0.3404	10.00	10.90	ug/L	9	20	0.1000	u
Chlorobenzene	1.0457	1.2064	10.00	11.54	ug/L	15	20	0.5000	u
1,1,1,2-Tetrachloroethane	0.3530	0.3557	10.00	10.08	ug/L	1	20	0.0500	u
Ethylbenzene	1.8170	1.9750	10.00	10.87	ug/L	9	20	0.1000	u
m,p-Xylenes	0.6994	0.7552	20.00	21.60	ug/L	8	20	0.1000	u
o-Xylene	0.6912	0.7722	10.00	11.17	ug/L	12	20	0.3000	u
Styrene	1.1491	1.2569	10.00	10.94	ug/L	9	20	0.3000	u
Bromoform	0.1816	0.1699	10.00	9.354	ug/L	-6	20	0.1000	u
Isopropylbenzene	3.3008	3.8794	10.00	11.75	ug/L	18	20	0.1000	u

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
1,1,2,2-Tetrachloroethane	0.7400	0.9290	10.00	12.55	ug/L	**26**	20	0.3000	c+ u ***
1,2,3-Trichloropropane	0.1717	0.2021	10.00	11.77	ug/L	18	20	0.0500	u
Propylbenzene	3.9484	4.9412	10.00	11.63	ug/L	16	20	0.0500	u
Bromobenzene	0.8112	0.8575	10.00	10.57	ug/L	6	20	0.0500	u
1,3,5-Trimethylbenzene	2.6100	3.1490	10.00	12.07	ug/L	**21**	20	0.0500	c+ u ***
2-Chlorotoluene	2.7391	3.3676	10.00	12.29	ug/L	**23**	20	0.0500	c+ u ***
4-Chlorotoluene	2.5864	3.1023	10.00	11.99	ug/L	20	20	0.0500	u
tert-Butylbenzene	2.3389	2.6888	10.00	11.50	ug/L	15	20	0.0500	u
1,2,4-Trimethylbenzene	2.6965	3.1279	10.00	11.60	ug/L	16	20	0.0500	u
sec-Butylbenzene	3.3816	4.2786	10.00	12.65	ug/L	**27**	20	0.0500	c+ u ***
para-Isopropyl Toluene	2.6177	3.1020	10.00	11.85	ug/L	19	20	0.0500	u
1,3-Dichlorobenzene	1.4329	1.6396	10.00	11.44	ug/L	14	20	0.6000	u
1,4-Dichlorobenzene	1.3975	1.5651	10.00	11.20	ug/L	12	20	0.5000	u
n-Butylbenzene	2.3883	2.9352	10.00	12.29	ug/L	**23**	20	0.0500	c+ u ***
1,2-Dichlorobenzene	1.3633	1.5447	10.00	11.33	ug/L	13	20	0.4000	u
1,2-Dibromo-3-Chloropropane	0.1165	0.1099	10.00	9.430	ug/L	-6	20	0.0500	u
1,2,4-Trichlorobenzene	0.6629	0.7165	10.00	10.81	ug/L	8	20	0.2000	u
Hexachlorobutadiene	0.2535	0.2833	10.00	11.18	ug/L	12	20	0.0500	u
Naphthalene	1.5705	1.6260	10.00	10.35	ug/L	4	20	0.0500	u
1,2,3-Trichlorobenzene	0.6155	0.6784	10.00	11.02	ug/L	10	20	0.0500	u
Dibromofluoromethane	0.6016	0.6521	50.00	54.20	ug/L	8	20	0.0500	u
1,2-Dichloroethane-d4	0.3088	0.3372	50.00	54.60	ug/L	9	20	0.0500	u
Toluene-d8	1.2442	1.2939	50.00	52.00	ug/L	4	20	0.0500	u
Bromofluorobenzene	1.1231	1.1579	50.00	51.55	ug/L	3	20	0.0500	u

ISTD (ICAL hfp17)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	1827854	1435963	-21.44	10.25	10.25	0.00
1,4-Difluorobenzene	3226896	2695258	-16.48	11.45	11.45	0.00
Chlorobenzene-d5	2647236	2275624	-14.04	15.93	15.93	0.00
1,4-Dichlorobenzene-d4	1290871	1093696	-15.27	18.77	18.77	0.00

Analyst: BO Date: 08/29/14 Reviewer: LW Date: 09/02/14

+=high bias -=low bias c=CCV u=use v=ICV

Logbooks & Sequences

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 414346143

Date : 08/28/14 Reference : bbs15
Sequence : MSVOA02 bhs Analyzed : 03/01/14 01:30

#	Type	Sample ID	PFLBZ	RT	14DFB	RT	CLBZD5	RT	DCBZ14D4	RT
		ICAL STD	420427	11.52	763271	12.74	695444	17.32	332795	20.70
		LOWER LIMIT	210214	11.02	381636	12.24	347722	16.82	166398	20.20
		UPPER LIMIT	840854	12.02	1526542	13.24	1390888	17.82	665590	21.20
003	CCV	20PPB	488601	11.44	958462	12.67	892562	17.25	435705	20.65
004	CCV/BS	QC755483	508369	11.44	983372	12.67	901053	17.25	438797	20.64
005	BSD	QC755484	497800	11.44	959594	12.67	896344	17.25	440676	20.64
008	BLANK	QC755485	474183	11.45	925068	12.67	822312	17.26	377786	20.65
009	SAMPLE	260261-004	430744	11.44	904178	12.68	794483	17.26	357287	20.65
010	SAMPLE	259882-002	433896	11.45	862664	12.67	780421	17.27	367832	20.66
011	SAMPLE	259882-003	449119	11.45	881161	12.68	788975	17.26	362415	20.65
012	SAMPLE	259882-001	432059	11.45	848173	12.68	767268	17.26	357145	20.65
013	SAMPLE	260257-013	414311	11.45	813243	12.68	746661	17.26	345898	20.65
014	SAMPLE	260304-006	422417	11.45	829857	12.68	747792	17.27	343953	20.66
015	SAMPLE	260257-012	413475	11.45	843678	12.68	741251	17.27	341061	20.66
016	SAMPLE	260200-004	412163	11.45	832008	12.68	735546	17.27	337060	20.66
017	SAMPLE	260200-005	414217	11.45	828071	12.68	739392	17.27	334788	20.66
018	SAMPLE	260200-006	406148	11.45	803855	12.69	718504	17.27	332325	20.66
019	SAMPLE	260257-010	392429	11.45	789725	12.69	709259	17.27	323393	20.66
020	SAMPLE	260257-011	386768	11.46	788490	12.68	709568	17.26	323232	20.65
021	SAMPLE	260304-004	380903	11.45	780947	12.68	712324	17.26	340483	20.65

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 474336023

Date : 08/21/14 Reference : hfp17
Sequence : MSVOA08 hhl Analyzed : 06/25/14 18:09

#	Type	Sample ID	PFLBZ	RT	14DFB	RT	CLBZD5	RT	DCBZ14D4	RT
		ICAL STD	1827854	10.25	3226896	11.45	2647236	15.93	1290871	18.77
		LOWER LIMIT	913927	9.75	1613448	10.95	1323618	15.43	645436	18.27
		UPPER LIMIT	3655708	10.75	6453792	11.95	5294472	16.43	2581742	19.27
007	CCV/BS	QC754439	1435963	10.25	2695258	11.45	2275624	15.93	1093696	18.77
008	BSD	QC754440	1557311	10.25	2847210	11.45	2403568	15.93	1179141	18.77
011	BLANK	QC754441	1500385	10.25	2772486	11.45	2337011	15.93	1087288	18.77
012	SAMPLE	259882-003	1621321	10.25	3002246	11.46	2495898	15.93	1163129	18.77
013	SAMPLE	259938-007	1621050	10.25	2981632	11.46	2508293	15.93	1178699	18.77
014	SAMPLE	259980-002	1558944	10.25	2903745	11.46	2458708	15.93	1134141	18.77
015	SAMPLE	259980-010	1521315	10.25	2870084	11.46	2397035	15.93	1114856	18.77
016	SAMPLE	259980-013	1528600	10.26	2894900	11.46	2411890	15.93	1128709	18.77
017	SAMPLE	259980-015	1509285	10.25	2824236	11.46	2362079	15.93	1090267	18.77
018	SAMPLE	259977-004	1468327	10.25	2786113	11.46	2365875	15.93	1073874	18.77
019	SAMPLE	259882-002	1463784	10.25	2780041	11.46	2358564	15.93	1079974	18.77
020	SAMPLE	259980-014	1476630	10.25	2770889	11.45	2328703	15.93	1075238	18.77
021	SAMPLE	259980-012	1440621	10.25	2714158	11.45	2278340	15.93	1051807	18.77
022	SAMPLE	259980-003	1483608	10.25	2806793	11.45	2367614	15.93	1082508	18.77
023	SAMPLE	260018-001	1458306	10.25	2762322	11.46	2304363	15.92	1060844	18.77
024	SAMPLE	259882-001	1424545	10.25	2742618	11.46	2300575	15.93	1043140	18.77
025	SAMPLE	259980-004	1439858	10.25	2741401	11.46	2291308	15.92	1035298	18.76

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 414085629

Instrument : MSVOA02 Begun : 02/28/14 11:09
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	bbs01	X	IB			02/28/14 11:09	1.0	1	
002	bbs02	X	IB			02/28/14 11:44	1.0	1	
003	bbs03	X	IB			02/28/14 12:19	1.0	1	
004	bbs04	X	IB			02/28/14 12:54	1.0	1	
005	bbs05	TUN	BFB			02/28/14 19:42	1.0	2	
006	bbs06	X	IB			02/28/14 20:11	1.0	1	
007	bbs07	X	IB			02/28/14 20:47	1.0	1	
008	bbs08	IB	CALIB IB			02/28/14 21:22	1.0	1	
009	bbs09	ICAL	.25/.5PPB			02/28/14 21:58	1.0	3 4 5 1	
010	bbs10	ICAL	0.5/1PPB			02/28/14 22:33	1.0	6 7 4 5 1	
011	bbs11	ICAL	2PPB			02/28/14 23:08	1.0	6 7 4 5 1	
012	bbs12	ICAL	5PPB			02/28/14 23:44	1.0	6 7 4 5 1	
013	bbs13	ICAL	10PPB			03/01/14 00:19	1.0	6 7 4 5 1	
014	bbs14	ICAL	20PPB			03/01/14 00:55	1.0	6 7 4 5 1	
015	bbs15	ICAL	50PPB			03/01/14 01:30	1.0	7 4 5 1 6	
016	bbs16	X	75PPB			03/01/14 02:06	1.0	6 7 4 5 1	
017	bbs17	ICAL	100PPB			03/01/14 02:42	1.0	6 7 4 5 1	
018	bbs18	ICV	20PPB			03/01/14 03:17	1.0	8 1	
019	bbs19	ICV	25PPB			03/01/14 03:52	1.0	9 10 11 1	
020	bbs20	X	IB			03/01/14 04:27	1.0	1	
021	bbs21	X	IB			03/01/14 05:02	1.0	1	

BO 03/04/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 21.

BO 03/04/14 : file bbs16(75ppb) did not sample from vial

Analyst: BO Date: 03/04/14 Reviewer: LW Date: 03/04/14

Standards used: 1=S24074 2=S23610 3=S24066 4=S24252 5=S23639 6=S23714 7=S24286 8=S23924 9=S24284 10=S24093 11=S24098

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 414091422

Instrument : MSVOA02 Begun : 03/04/14 11:42
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	bc401	X	IB			03/04/14 11:42	1.0	1	
002	bc402	TUN	BFB			03/04/14 12:13	1.0	2	
003	bc403	CCV	15PPB			03/04/14 12:30	1.0	3 4 5 6 1	cc-
004	bc404	TUN	BFB			03/04/14 13:30	1.0	2	
005	bc405	CCV	15PPB			03/04/14 13:54	1.0	3 4 5 6 7	
006	bc406	ICV/BS	QC730011	Water	208558	03/04/14 14:47	1.0	8 9 10 11 7	
007	bc407	BSD	QC730012	Water	208558	03/04/14 15:22	1.0	8 9 10 11 7	
008	bc408	CCV	A/A			03/04/14 15:57	1.0	12 7	
009	bc409	X	IB			03/04/14 16:32	1.0	7	
010	bc410	BLANK	QC730013	Water	208558	03/04/14 17:08	1.0	7	

BO 03/05/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 10.

BO 03/05/14 : Sequence stopped due to operator error

Analyst: BO Date: 03/05/14 Reviewer: LW Date: 03/05/14

Standards used: 1=S24074 2=S23610 3=S23714 4=S24286 5=S24252 6=S23639 7=S24320 8=S24093 9=S24098 10=S24284 11=S23717 12=S24254

Flags used: -=low bias cc=CCV CCC failure

Page 1 of 1

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 414346143

Instrument : MSVOA02 Begun : 08/28/14 09:03
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	bhs01	X	IB			08/28/14 09:03	1.0	1	
002	bhs02	TUN	BFB			08/28/14 09:34	1.0	2	
003	bhs03	CCV	20PPB			08/28/14 09:51	1.0	3 4 5 6 1	
004	bhs04	CCV/BS	QC755483	Water	214885	08/28/14 10:40	1.0	7 8 9 10 1	
005	bhs05	BSD	QC755484	Water	214885	08/28/14 11:16	1.0	7 8 9 10 1	
006	bhs06	X	CCV			08/28/14 11:52	1.0	11 1	
007	bhs07	X	IB			08/28/14 12:28	1.0	1	
008	bhs08	BLANK	QC755485	Water	214885	08/28/14 13:05	1.0	1	
009	bhs09	SAMPLE	260261-004	Water	214885	08/28/14 13:45	1.0	1	combined (sediment), pH > 2
010	bhs10	SAMPLE	259882-002	Water	214885	08/28/14 14:21	1.0	1	
011	bhs11	SAMPLE	259882-003	Water	214885	08/28/14 14:58	1.0	1	headspace > 1 mL
012	bhs12	SAMPLE	259882-001	Water	214885	08/28/14 15:35	14.29	1	foamer
013	bhs13	SAMPLE	260257-013	Water	214885	08/28/14 16:11	1.0	1	
014	bhs14	SAMPLE	260304-006	Water	214885	08/28/14 16:48	1.0	1	
015	bhs15	SAMPLE	260257-012	Water	214885	08/28/14 17:25	1.0	1	
016	bhs16	SAMPLE	260200-004	Water	214885	08/28/14 18:02	1.0	1	
017	bhs17	SAMPLE	260200-005	Water	214885	08/28/14 18:38	1.0	1	
018	bhs18	SAMPLE	260200-006	Water	214885	08/28/14 19:15	1.0	1	
019	bhs19	SAMPLE	260257-010	Water	214885	08/28/14 19:51	1.0	1	
020	bhs20	SAMPLE	260257-011	Water	214885	08/28/14 20:27	1.0	1	
021	bhs21	SAMPLE	260304-004	Water	214885	08/28/14 21:03	20.0	1	foamer, pH > 2
022	bhs22	X	IB			08/28/14 21:39	1.0	1	
023	bhs23	X	IB			08/28/14 22:15	1.0	1	
024	bhs24	X	IB			08/28/14 22:51	1.0	1	

BO 08/29/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 24.

BO 08/29/14 : Matrix spikes were not performed for this analysis in batch 214885 due to insufficient sample amount.

Analyst: BO Date: 08/29/14 Reviewer: LW Date: 08/29/14

Standards used: 1=S25458 2=S24715 3=S23923 4=S25335 5=S25373 6=S24979 7=S25233 8=S25398 9=S25287 10=S24467 11=S25399

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 474253910

Instrument : MSVOA08 Begun : 06/25/14 07:50
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	hfp01	X	LOW POINT			06/25/14 07:50	1.0	1	
002	hfp02	TUN	BFB			06/25/14 08:37	1.0	2	
003	hfp03	TUN	BFB			06/25/14 09:25	1.0	2	t
004	hfp04	TUN	BFB			06/25/14 09:58	1.0	2	t
005	hfp05	TUN	BFB			06/25/14 10:52	1.0	2	t
006	hfp06	TUN	BFB			06/25/14 11:49	1.0	2	
007	hfp07	TUN	BFB			06/25/14 12:28	1.0	2	
008	hfp08	TUN	BFB			06/25/14 12:59	1.0	2	
009	hfp09	X	IB			06/25/14 13:32	1.0	1	
010	hfp10	IB	CALIB			06/25/14 14:07	1.0	1	
011	hfp11	ICAL				06/25/14 14:41	1.0	3 4 5 6 1	
012	hfp12	ICAL				06/25/14 15:16	1.0	3 4 5 6 1	
013	hfp13	ICAL				06/25/14 15:51	1.0	3 4 5 6 1	
014	hfp14	ICAL				06/25/14 16:25	1.0	3 4 5 6 1	
015	hfp15	ICAL				06/25/14 17:00	1.0	3 4 5 6 1	
016	hfp16	ICAL				06/25/14 17:35	1.0	3 4 5 6 1	
017	hfp17	ICAL				06/25/14 18:09	1.0	3 4 5 6 1	
018	hfp18	ICAL				06/25/14 18:44	1.0	3 4 5 6 1	
019	hfp19	ICAL				06/25/14 19:19	1.0	3 4 5 6 1	
020	hfp20	ICV				06/25/14 19:53	1.0	7 1	
021	hfp21	ICV				06/25/14 20:28	1.0	8 9 10 1	
022	hfp22	X	IB			06/25/14 21:03	1.0	1	
023	hfp23	X	IB			06/25/14 21:38	1.0	1	
024	hfp24	X	IB			06/25/14 22:12	1.0	1	

DJA 06/26/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 24.

Analyst: DJA Date: 06/26/14 Reviewer: LW Date: 06/27/14

Standards used: 1=S24802 2=S24715 3=S23923 4=S24633 5=S24634 6=S23961 7=S24242 8=S24731 9=S24892 10=S24848

Flags used: t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 474336023

Instrument : MSVOA08 Begun : 08/21/14 08:23
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	hhl01	X	IB			08/21/14 08:23	1.0	1	
002	hhl02	TUN	BFB			08/21/14 09:12	1.0	2	t
003	hhl03	TUN	BFB			08/21/14 09:54	1.0	2	t
004	hhl04	TUN	BFB			08/21/14 10:22	1.0	2	
005	hhl05	X	QC754439	Water	214624	08/21/14 10:48	1.0	3 4 5 6 1	spk cc+
006	hhl06	TUN	BFB			08/21/14 12:25	1.0	2	
007	hhl07	CCV/BS	QC754439	Water	214624	08/21/14 13:04	1.0	3 4 5 6 1	
008	hhl08	BSD	QC754440	Water	214624	08/21/14 13:47	1.0	3 4 5 6 1	
009	hhl09	X	CCV			08/21/14 14:22	1.0	1	
010	hhl10	X	IB			08/21/14 14:57	1.0	1	
011	hhl11	BLANK	QC754441	Water	214624	08/21/14 15:32	1.0	1	
012	hhl12	SAMPLE	259882-003	Water	214624	08/21/14 16:08	1.0	1	
013	hhl13	SAMPLE	259938-007	Water	214624	08/21/14 16:43	1.0	1	
014	hhl14	SAMPLE	259980-002	Water	214624	08/21/14 17:18	1.0	1	
015	hhl15	SAMPLE	259980-010	Water	214624	08/21/14 17:53	1.0	1	
016	hhl16	SAMPLE	259980-013	Water	214624	08/21/14 18:28	1.0	1	
017	hhl17	SAMPLE	259980-015	Water	214624	08/21/14 19:03	1.0	1	
018	hhl18	SAMPLE	259977-004	Water	214624	08/21/14 19:38	1.0	1	
019	hhl19	SAMPLE	259882-002	Water	214624	08/21/14 20:13	1.0	1	
020	hhl20	SAMPLE	259980-014	Water	214624	08/21/14 20:48	1.0	1	1:TCE=230
021	hhl21	SAMPLE	259980-012	Water	214624	08/21/14 21:23	2.0	1	
022	hhl22	SAMPLE	259980-003	Water	214624	08/21/14 21:58	3.333	1	
023	hhl23	SAMPLE	260018-001	Water	214624	08/21/14 22:33	5.0	1	spk
024	hhl24	SAMPLE	259882-001	Water	214624	08/21/14 23:08	10.0	1	foamer
025	hhl25	SAMPLE	259980-004	Water	214624	08/21/14 23:42	71.43	1	
026	hhl26	X	IB			08/22/14 00:17	1.0	1	
027	hhl27	X	HIGH GAS			08/22/14 00:52	1.0	1	
028	hhl28	X	IB			08/22/14 01:27	1.0	1	

DJA 08/22/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 28.

DJA 08/22/14 : retuned after file 3 and 5

Analyst: DJA Date: 08/22/14 Reviewer: LW Date: 08/22/14

Standards used: 1=S25202 2=S24715 3=S25233 4=S25398 5=S25287 6=S24241

Flags used: +=high bias cc=CCV CCC failure spk=5% spike rule t=tune failure

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MSVOA WATER Prepsheet Curtis & Tompkins, Ltd.

Date: 8/21/14 **Batch #:** 214624

	Sample ID	Vial	pH <2	pH (if >2)	HS?	Dil'n flask	MS#	RR	DF	Comments	20% ccv ?	hold	due	init date
1	259938-7	B	✓					1	1x	Priority			8/22	DJA
2	260018-1	B	✓			3			5x	$ Due 8/22				
3	259882-1	C	✓		4	~~4~~ 4 DJA			10x	foamer				
4	-2	C	✓						1x					
5	-3	A	✓						1x					
6	259980-15	B	✓					1	1x	TCBc - cannot report				
7	-10	↓	✓					1	↓	↓				
8	-13		✓					1						
9	-3		✓			5		1	3.33x					
10	-4	↓	✓			6		1	71.4x					
11	-12	C	✓			7		1	2x	↓				
12	~~259918-2~~							1	1x	~~Ethanol +IPA Reused RL~~ put off list DJA 8/21				
13	~~-4~~							1	↓	↓				
14	259980-14	B	✓						1x	in roa fridge				
15	259977-4	A	✓						1x					
16	259980-2	E	✓					1	1x	cis12DCE COV ✓ MS/MSD ok				
17														
18														
19														
20														
21														
22														

MSVOA WATER Prepsheet Curtis & Tompkins, Ltd.

Date: 8/28/14 **Batch #:** 214885

	Sample ID	Vial	pH <2	pH (if >2)	HS?	Dil'n flask	MS#	RR	DF	Comments	20 % ccv	hold	due	init date
1	~~260219-1~~	D	✓		~~1ml~~	1	2	2	2	~~not matching ISB run~~ doesn't need RR				8/28/14
2	~~260189-1~~							1	~~20~~	~~→ OK~~				
3	260261-4	EF		7	→	High SO2		1	1	RR silty, 5ml not sampled; continued due to sediment				
4	259 ~~260~~882-1 (pg 8 stall'y)	D	✓			10		1	~~10~~	VA rcv'd FOAMED 14.2X FOAM				
5	-2	↓	✓					1	1					
6	-3	A	✓		15ml ✓			1	1					
7	260304-4	B		7		1			~~10~~ 20X	✓ Foam; oily				
8	-6	A	✓						1	EB				
9	260200-4		✓						1					
10	-5		✓											
11	-6		✓											
12	260257-10		✓											
13	-11		✓											
14	-12		✓							EB				
15	-13	↓	✓							TB				
16														
17														
18														
19														
20														
21														
22														

Dilutions for 259882 MSVOA Water
Curtis & Tompkins Laboratories

Type	Sample ID	IDFs
SAMPLE	259882-001	10X, 14.29X

Case Narrative Addendum: Manual Integrations for 259882 GC/MS VOA (Water)

For SAMPLE 259882-001 (MSVOA08 hhl24):
Acetone: Corrected automatically drawn baseline.
2-Butanone: Corrected automatically drawn baseline.

For SAMPLE 259882-002 (MSVOA08 hhl19):
Acetone: Corrected automatically drawn baseline.
2-Butanone: Corrected automatically drawn baseline.

For SAMPLE 259882-003 (MSVOA08 hhl12):
2-Butanone: Corrected automatically drawn baseline.

For Calibration MSVOA02 (414085629001):
Bromomethane: Corrected automatically drawn baseline in multiple levels.
1,2-Dibromo-3-Chloropropane: Corrected baseline noise or negative peak in multiple levels.
1,1-Dichloroethane: Corrected baseline noise or negative peak1PPB (bbs10).
cis-1,2-Dichloroethene: Corrected baseline noise or negative peak1PPB (bbs10).
1,2-Dichloropropane: Separated from coeluting peak in multiple levels.

For Calibration MSVOA08 (474253910001):
Acetone: Corrected fronting or tailing peak integration in (hfp13).
Bromomethane: Corrected fronting or tailing peak integration in (hfp14).
Chloroethane: Corrected fronting or tailing peak integration in multiple levels.
Trichlorofluoromethane: Corrected fronting or tailing peak integration in (hfp13).
Freon 113: Corrected fronting or tailing peak integration in multiple levels.
Freon 12: Corrected fronting or tailing peak integration in multiple levels.
Isopropanol: Corrected fronting or tailing peak integration in multiple levels.
tert-Butyl Alcohol (TBA): Corrected fronting or tailing peak integration in (hfp13).
Vinyl Acetate: Corrected fronting or tailing peak integration in multiple levels.
Vinyl Chloride: Corrected fronting or tailing peak integration in (hfp13).
m,p-Xylenes: Corrected fronting or tailing peak integration in multiple levels.

For ICV (MSVOA08 hfp20):
Bromomethane: Corrected fronting or tailing peak integration.
Chloroethane: Corrected fronting or tailing peak integration.
Chloromethane: Corrected fronting or tailing peak integration.
Trichlorofluoromethane: Corrected fronting or tailing peak integration.
Freon 12: Corrected fronting or tailing peak integration.
Vinyl Chloride: Corrected fronting or tailing peak integration.

For ICV (MSVOA08 hfp21):
Freon 113: Corrected fronting or tailing peak integration.
Iodomethane: Corrected fronting or tailing peak integration.
Isopropanol: Corrected fronting or tailing peak integration.

Laboratory Job Number 259882

ANALYTICAL REPORT

Semivolatile Organics by GC/MS

Matrix: Water

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	UST993-L-WC-081514	Batch#:	214595
Lab ID:	259882-001	Sampled:	08/15/14
Matrix:	Water	Received:	08/15/14
Units:	ug/L	Prepared:	08/20/14
Diln Fac:	25.00	Analyzed:	08/22/14

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	63 U	250	57
Phenol	63 U	250	42
bis(2-Chloroethyl)ether	63 U	250	40
2-Chlorophenol	63 U	250	40
1,3-Dichlorobenzene	63 U	250	41
1,4-Dichlorobenzene	63 U	250	41
Benzyl alcohol	63 U	250	37
1,2-Dichlorobenzene	63 U	250	42
2-Methylphenol	63 U	250	36
bis(2-Chloroisopropyl) ether	130 U	250	69
4-Methylphenol	63 U	250	38
N-Nitroso-di-n-propylamine	63 U	250	50
Hexachloroethane	63 U	250	44
Nitrobenzene	63 U	250	40
Isophorone	63 U	250	47
2-Nitrophenol	130 U	500	65
2,4-Dimethylphenol	63 U	250	32
Benzoic acid	630 U	1,300	250
bis(2-Chloroethoxy)methane	63 U	250	31
2,4-Dichlorophenol	63 U	250	33
1,2,4-Trichlorobenzene	63 U	250	35
Naphthalene	63 U	250	36
4-Chloroaniline	63 U	250	32
Hexachlorobutadiene	63 U	250	33
4-Chloro-3-methylphenol	63 U	250	34
2-Methylnaphthalene	63 U	250	37
Hexachlorocyclopentadiene	130 U	500	44
2,4,6-Trichlorophenol	63 U	250	25
2,4,5-Trichlorophenol	63 U	250	24
2-Chloronaphthalene	63 U	250	38
2-Nitroaniline	63 U	500	45
Dimethylphthalate	63 U	250	39
Acenaphthylene	63 U	250	38
2,6-Dinitrotoluene	63 U	250	35
3-Nitroaniline	63 U	500	26
Acenaphthene	63 U	250	34
2,4-Dinitrophenol	130 U	500	52
4-Nitrophenol	63 U	500	29
Dibenzofuran	63 U	250	37
2,4-Dinitrotoluene	63 U	250	36
Diethylphthalate	63 U	250	40
Fluorene	63 U	250	38
4-Chlorophenyl-phenylether	63 U	250	34
4-Nitroaniline	63 U	500	30
4,6-Dinitro-2-methylphenol	130 U	500	42
N-Nitrosodiphenylamine	63 U	250	31
Azobenzene	63 U	250	40
4-Bromophenyl-phenylether	63 U	250	30
Hexachlorobenzene	63 U	250	31
Pentachlorophenol	63 U	500	32
Phenanthrene	63 U	250	33
Anthracene	63 U	250	34

U= Not Detected at or above DL
DL= Detection Limit
DO= Diluted Out
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	UST993-L-WC-081514	Batch#:	214595
Lab ID:	259882-001	Sampled:	08/15/14
Matrix:	Water	Received:	08/15/14
Units:	ug/L	Prepared:	08/20/14
Diln Fac:	25.00	Analyzed:	08/22/14

Analyte	Result	LOQ	DL
Carbazole	63 U	250	51
Di-n-butylphthalate	63 U	250	29
Fluoranthene	63 U	250	39
Pyrene	63 U	250	31
Butylbenzylphthalate	63 U	250	34
3,3'-Dichlorobenzidine	63 U	500	16
Benzo(a)anthracene	63 U	250	34
Chrysene	63 U	250	36
bis(2-Ethylhexyl)phthalate	63 U	250	43
Di-n-octylphthalate	63 U	250	32
Benzo(b)fluoranthene	63 U	250	35
Benzo(k)fluoranthene	63 U	250	37
Benzo(a)pyrene	63 U	250	28
Indeno(1,2,3-cd)pyrene	63 U	250	36
Dibenz(a,h)anthracene	63 U	250	34
Benzo(g,h,i)perylene	63 U	250	38

Surrogate	%REC	Limits
2-Fluorophenol	DO	20-110
Phenol-d5	DO	10-115
2,4,6-Tribromophenol	DO	40-125
Nitrobenzene-d5	DO	40-110
2-Fluorobiphenyl	DO	50-110
Terphenyl-d14	DO	50-135

U= Not Detected at or above DL
DL= Detection Limit
DO= Diluted Out
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	IR04-L-WC-081514	Batch#:	214595
Lab ID:	259882-002	Sampled:	08/15/14
Matrix:	Water	Received:	08/15/14
Units:	ug/L	Prepared:	08/20/14
Diln Fac:	1.000	Analyzed:	08/22/14

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	2.5 U	10	2.3
Phenol	2.5 U	10	1.7
bis(2-Chloroethyl)ether	2.5 U	10	1.6
2-Chlorophenol	2.5 U	10	1.6
1,3-Dichlorobenzene	2.5 U	10	1.6
1,4-Dichlorobenzene	2.5 U	10	1.6
Benzyl alcohol	2.5 U	10	1.5
1,2-Dichlorobenzene	2.5 U	10	1.7
2-Methylphenol	2.5 U	10	1.5
bis(2-Chloroisopropyl) ether	5.0 U	10	2.7
4-Methylphenol	2.5 U	10	1.5
N-Nitroso-di-n-propylamine	2.5 U	10	2.0
Hexachloroethane	2.5 U	10	1.7
Nitrobenzene	2.5 U	10	1.6
Isophorone	2.5 U	10	1.9
2-Nitrophenol	5.0 U	20	2.6
2,4-Dimethylphenol	2.5 U	10	1.3
Benzoic acid	25 U	50	10
bis(2-Chloroethoxy)methane	2.5 U	10	1.2
2,4-Dichlorophenol	2.5 U	10	1.3
1,2,4-Trichlorobenzene	2.5 U	10	1.4
Naphthalene	2.5 U	10	1.4
4-Chloroaniline	2.5 U	10	1.3
Hexachlorobutadiene	2.5 U	10	1.3
4-Chloro-3-methylphenol	2.5 U	10	1.4
2-Methylnaphthalene	2.5 U	10	1.5
Hexachlorocyclopentadiene	5.0 U	20	1.7
2,4,6-Trichlorophenol	2.5 U	10	0.98
2,4,5-Trichlorophenol	2.5 U	10	0.94
2-Chloronaphthalene	2.5 U	10	1.5
2-Nitroaniline	2.5 U	20	1.8
Dimethylphthalate	2.5 U	10	1.5
Acenaphthylene	2.5 U	10	1.5
2,6-Dinitrotoluene	2.5 U	10	1.4
3-Nitroaniline	2.5 U	20	1.0
Acenaphthene	2.5 U	10	1.4
2,4-Dinitrophenol	5.0 U	20	2.1
4-Nitrophenol	2.5 U	20	1.2
Dibenzofuran	2.5 U	10	1.5
2,4-Dinitrotoluene	2.5 U	10	1.5
Diethylphthalate	2.5 U	10	1.6
Fluorene	2.5 U	10	1.5
4-Chlorophenyl-phenylether	2.5 U	10	1.4
4-Nitroaniline	2.5 U	20	1.2
4,6-Dinitro-2-methylphenol	5.0 U	20	1.7
N-Nitrosodiphenylamine	2.5 U	10	1.2
Azobenzene	2.5 U	10	1.6
4-Bromophenyl-phenylether	2.5 U	10	1.2
Hexachlorobenzene	2.5 U	10	1.2
Pentachlorophenol	2.5 U	20	1.3
Phenanthrene	2.5 U	10	1.3
Anthracene	2.5 U	10	1.3

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	IR04-L-WC-081514	Batch#:	214595
Lab ID:	259882-002	Sampled:	08/15/14
Matrix:	Water	Received:	08/15/14
Units:	ug/L	Prepared:	08/20/14
Diln Fac:	1.000	Analyzed:	08/22/14

Analyte	Result	LOQ	DL
Carbazole	2.5 U	10	2.1
Di-n-butylphthalate	2.5 U	10	1.2
Fluoranthene	2.5 U	10	1.6
Pyrene	2.5 U	10	1.3
Butylbenzylphthalate	2.5 U	10	1.4
3,3'-Dichlorobenzidine	2.5 U	20	0.63
Benzo(a)anthracene	2.5 U	10	1.3
Chrysene	2.5 U	10	1.4
bis(2-Ethylhexyl)phthalate	2.5 U	10	1.7
Di-n-octylphthalate	2.5 U	10	1.3
Benzo(b)fluoranthene	2.5 U	10	1.4
Benzo(k)fluoranthene	2.5 U	10	1.5
Benzo(a)pyrene	2.5 U	10	1.1
Indeno(1,2,3-cd)pyrene	2.5 U	10	1.4
Dibenz(a,h)anthracene	2.5 U	10	1.4
Benzo(g,h,i)perylene	2.5 U	10	1.5

Surrogate	%REC	Limits
2-Fluorophenol	71	20-110
Phenol-d5	74	10-115
2,4,6-Tribromophenol	97	40-125
Nitrobenzene-d5	69	40-110
2-Fluorobiphenyl	72	50-110
Terphenyl-d14	39 *	50-135

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC754310	Batch#:	214595
Matrix:	Water	Prepared:	08/20/14
Units:	ug/L	Analyzed:	08/21/14

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	5.0 U	10	1.5
Phenol	2.5 U	10	1.0
bis(2-Chloroethyl)ether	2.5 U	10	1.2
2-Chlorophenol	2.5 U	10	0.82
1,3-Dichlorobenzene	2.5 U	10	1.0
1,4-Dichlorobenzene	2.5 U	10	1.1
Benzyl alcohol	2.5 U	10	1.1
1,2-Dichlorobenzene	2.5 U	10	2.1
2-Methylphenol	2.5 U	10	2.2
bis(2-Chloroisopropyl) ether	2.5 U	10	1.4
4-Methylphenol	2.5 U	10	1.7
N-Nitroso-di-n-propylamine	2.5 U	10	1.2
Hexachloroethane	2.5 U	10	1.1
Nitrobenzene	2.5 U	10	1.2
Isophorone	2.5 U	10	1.3
2-Nitrophenol	5.0 U	20	2.6
2,4-Dimethylphenol	2.5 U	10	2.5
Benzoic acid	40 U	50	16
bis(2-Chloroethoxy)methane	2.5 U	10	1.1
2,4-Dichlorophenol	2.5 U	10	2.1
1,2,4-Trichlorobenzene	2.5 U	10	2.2
Naphthalene	2.5 U	10	1.9
4-Chloroaniline	5.0 U	10	2.1
Hexachlorobutadiene	2.5 U	10	2.4
4-Chloro-3-methylphenol	2.5 U	10	1.0
2-Methylnaphthalene	2.5 U	10	1.8
Hexachlorocyclopentadiene	2.5 U	20	0.68
2,4,6-Trichlorophenol	2.5 U	10	0.92
2,4,5-Trichlorophenol	2.5 U	10	0.85
2-Chloronaphthalene	2.5 U	10	1.8
2-Nitroaniline	2.5 U	20	1.2
Dimethylphthalate	2.5 U	10	2.0
Acenaphthylene	2.5 U	10	1.7
2,6-Dinitrotoluene	2.5 U	10	1.8
3-Nitroaniline	5.0 U	20	1.9
Acenaphthene	2.5 U	10	1.8
2,4-Dinitrophenol	18 U	20	2.6
4-Nitrophenol	5.0 U	20	1.8
Dibenzofuran	2.5 U	10	1.9
2,4-Dinitrotoluene	2.5 U	10	2.1
Diethylphthalate	2.5 U	10	1.0
Fluorene	2.5 U	10	1.8
4-Chlorophenyl-phenylether	2.5 U	10	1.6
4-Nitroaniline	5.0 U	20	2.4
4,6-Dinitro-2-methylphenol	5.0 U	20	1.2
N-Nitrosodiphenylamine	2.5 U	10	1.7
Azobenzene	2.5 U	10	1.2
4-Bromophenyl-phenylether	2.5 U	10	2.0
Hexachlorobenzene	2.5 U	10	2.0
Pentachlorophenol	5.0 U	20	1.9
Phenanthrene	2.5 U	10	1.9
Anthracene	2.5 U	10	1.8
Carbazole	2.5 U	10	2.3

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC754310	Batch#:	214595
Matrix:	Water	Prepared:	08/20/14
Units:	ug/L	Analyzed:	08/21/14

Analyte	Result	LOQ	DL
Di-n-butylphthalate	2.5 U	10	1.2
Fluoranthene	2.5 U	10	1.9
Pyrene	2.5 U	10	1.7
Butylbenzylphthalate	2.5 U	10	1.0
3,3'-Dichlorobenzidine	2.5 U	20	1.0
Benzo(a)anthracene	2.5 U	10	1.6
Chrysene	2.5 U	10	1.7
bis(2-Ethylhexyl)phthalate	2.5 U	10	1.8
Di-n-octylphthalate	2.5 U	10	1.8
Benzo(b)fluoranthene	2.5 U	10	1.7
Benzo(k)fluoranthene	2.5 U	10	2.0
Benzo(a)pyrene	2.5 U	10	1.6
Indeno(1,2,3-cd)pyrene	2.5 U	10	1.8
Dibenz(a,h)anthracene	2.5 U	10	1.8
Benzo(g,h,i)perylene	2.5 U	10	1.9

Surrogate	%REC	Limits
2-Fluorophenol	86	20-110
Phenol-d5	89	10-115
2,4,6-Tribromophenol	73	40-125
Nitrobenzene-d5	90	40-110
2-Fluorobiphenyl	89	50-110
Terphenyl-d14	88	50-135

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Matrix:	Water	Batch#:	214595
Units:	ug/L	Prepared:	08/20/14
Diln Fac:	1.000	Analyzed:	08/21/14

Type: BS Lab ID: QC754311

Analyte	Spiked	Result	%REC	Limits
N-Nitrosodimethylamine	80.00	61.39	77	25-110
Phenol	80.00	62.93	79	0-115
bis(2-Chloroethyl)ether	80.00	60.61	76	35-110
2-Chlorophenol	80.00	63.91	80	35-105
1,3-Dichlorobenzene	80.00	52.58	66	30-100
1,4-Dichlorobenzene	80.00	53.33	67	30-100
Benzyl alcohol	80.00	66.57	83	30-110
1,2-Dichlorobenzene	80.00	55.21	69	35-100
2-Methylphenol	80.00	61.53	77	40-110
bis(2-Chloroisopropyl) ether	80.00	61.66	77	25-130
4-Methylphenol	80.00	59.47	74	30-110
N-Nitroso-di-n-propylamine	80.00	59.72	75	35-130
Hexachloroethane	80.00	46.90	59	30-100
Nitrobenzene	80.00	65.13	81	45-110
Isophorone	80.00	69.61	87	50-110
2-Nitrophenol	80.00	69.64	87	40-115
2,4-Dimethylphenol	80.00	47.42	59	30-110
Benzoic acid	120.0	55.15	46	0-125
bis(2-Chloroethoxy)methane	30.00	24.79	83	45-105
2,4-Dichlorophenol	80.00	65.28	82	50-105
1,2,4-Trichlorobenzene	80.00	55.41	69	35-105
Naphthalene	30.00	24.43	81	40-100
4-Chloroaniline	80.00	45.19	56	15-110
Hexachlorobutadiene	80.00	49.20	62	25-105
4-Chloro-3-methylphenol	80.00	66.04	83	45-110
2-Methylnaphthalene	30.00	25.15	84	45-105
Hexachlorocyclopentadiene	80.00	4.610	6 *	8-120
2,4,6-Trichlorophenol	80.00	66.95	84	50-115
2,4,5-Trichlorophenol	80.00	66.47	83	50-110
2-Chloronaphthalene	30.00	24.43	81	50-105
2-Nitroaniline	80.00	69.16	86	50-115
Dimethylphthalate	80.00	67.52	84	25-125
Acenaphthylene	30.00	29.84	99	50-105
2,6-Dinitrotoluene	80.00	69.63	87	50-115
3-Nitroaniline	80.00	64.91	81	20-125
Acenaphthene	30.00	26.61	89	45-110
2,4-Dinitrophenol	80.00	61.33	77	15-140
4-Nitrophenol	80.00	62.51	78	0-125
Dibenzofuran	30.00	25.97	87	55-105
2,4-Dinitrotoluene	80.00	68.60	86	50-120
Diethylphthalate	30.00	27.13	90	40-120
Fluorene	30.00	26.66	89	50-110
4-Chlorophenyl-phenylether	30.00	26.02	87	50-110
4-Nitroaniline	80.00	63.13	79	35-120
4,6-Dinitro-2-methylphenol	80.00	71.62	90	40-130
N-Nitrosodiphenylamine	30.00	24.15	81	50-110
Azobenzene	30.00	24.09	80	55-115
4-Bromophenyl-phenylether	30.00	25.22	84	50-115
Hexachlorobenzene	80.00	56.88	71	50-110
Pentachlorophenol	80.00	65.89	82	40-115
Phenanthrene	30.00	26.36	88	50-115

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Matrix:	Water	Batch#:	214595
Units:	ug/L	Prepared:	08/20/14
Diln Fac:	1.000	Analyzed:	08/21/14

Analyte	Spiked	Result	%REC	Limits
Anthracene	30.00	26.25	87	55-110
Carbazole	80.00	61.39	77	50-115
Di-n-butylphthalate	30.00	25.65	86	55-115
Fluoranthene	30.00	26.05	87	55-115
Pyrene	30.00	27.29	91	50-130
Butylbenzylphthalate	30.00	26.10	87	45-115
3,3'-Dichlorobenzidine	80.00	45.41	57	20-110
Benzo(a)anthracene	30.00	25.99	87	55-110
Chrysene	30.00	26.37	88	55-110
bis(2-Ethylhexyl)phthalate	30.00	29.67	99	40-125
Di-n-octylphthalate	30.00	25.66	86	35-135
Benzo(b)fluoranthene	30.00	26.81	89	45-120
Benzo(k)fluoranthene	30.00	24.62	82	45-125
Benzo(a)pyrene	30.00	27.64	92	55-110
Indeno(1,2,3-cd)pyrene	30.00	26.83	89	45-125
Dibenz(a,h)anthracene	30.00	26.04	87	40-125
Benzo(g,h,i)perylene	30.00	28.00	93	40-125

Surrogate	%REC	Limits
2-Fluorophenol	79	20-110
Phenol-d5	81	10-115
2,4,6-Tribromophenol	83	40-125
Nitrobenzene-d5	81	40-110
2-Fluorobiphenyl	82	50-110
Terphenyl-d14	84	50-135

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Matrix:	Water	Batch#:	214595
Units:	ug/L	Prepared:	08/20/14
Diln Fac:	1.000	Analyzed:	08/21/14

Type: BSD Lab ID: QC754312

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
N-Nitrosodimethylamine	80.00	60.49	76	25-110	1	30
Phenol	80.00	61.74	77	0-115	2	30
bis(2-Chloroethyl)ether	80.00	59.67	75	35-110	2	30
2-Chlorophenol	80.00	62.73	78	35-105	2	30
1,3-Dichlorobenzene	80.00	50.18	63	30-100	5	30
1,4-Dichlorobenzene	80.00	51.20	64	30-100	4	30
Benzyl alcohol	80.00	64.78	81	30-110	3	30
1,2-Dichlorobenzene	80.00	52.97	66	35-100	4	30
2-Methylphenol	80.00	59.94	75	40-110	3	30
bis(2-Chloroisopropyl) ether	80.00	61.03	76	25-130	1	30
4-Methylphenol	80.00	58.33	73	30-110	2	30
N-Nitroso-di-n-propylamine	80.00	58.71	73	35-130	2	30
Hexachloroethane	80.00	43.39	54	30-100	8	30
Nitrobenzene	80.00	65.07	81	45-110	0	30
Isophorone	80.00	68.97	86	50-110	1	30
2-Nitrophenol	80.00	69.49	87	40-115	0	30
2,4-Dimethylphenol	80.00	45.75	57	30-110	4	30
Benzoic acid	120.0	54.30	45	0-125	2	30
bis(2-Chloroethoxy)methane	30.00	24.51	82	45-105	1	30
2,4-Dichlorophenol	80.00	65.85	82	50-105	1	30
1,2,4-Trichlorobenzene	80.00	53.85	67	35-105	3	30
Naphthalene	30.00	24.24	81	40-100	1	30
4-Chloroaniline	80.00	62.32	78	15-110	32 *	30
Hexachlorobutadiene	80.00	46.23	58	25-105	6	30
4-Chloro-3-methylphenol	80.00	64.49	81	45-110	2	30
2-Methylnaphthalene	30.00	24.73	82	45-105	2	30
Hexachlorocyclopentadiene	80.00	3.652	5 *	8-120	23	30
2,4,6-Trichlorophenol	80.00	66.29	83	50-115	1	30
2,4,5-Trichlorophenol	80.00	65.57	82	50-110	1	30
2-Chloronaphthalene	30.00	23.92	80	50-105	2	30
2-Nitroaniline	80.00	68.21	85	50-115	1	30
Dimethylphthalate	80.00	66.36	83	25-125	2	30
Acenaphthylene	30.00	28.95	97	50-105	3	30
2,6-Dinitrotoluene	80.00	67.79	85	50-115	3	30
3-Nitroaniline	80.00	64.34	80	20-125	1	30
Acenaphthene	30.00	26.53	88	45-110	0	30
2,4-Dinitrophenol	80.00	63.57	79	15-140	4	30
4-Nitrophenol	80.00	60.98	76	0-125	2	30
Dibenzofuran	30.00	25.35	85	55-105	2	30
2,4-Dinitrotoluene	80.00	68.68	86	50-120	0	30
Diethylphthalate	30.00	26.96	90	40-120	1	30
Fluorene	30.00	26.04	87	50-110	2	30
4-Chlorophenyl-phenylether	30.00	26.02	87	50-110	0	30
4-Nitroaniline	80.00	62.67	78	35-120	1	30
4,6-Dinitro-2-methylphenol	80.00	72.24	90	40-130	1	30
N-Nitrosodiphenylamine	30.00	24.00	80	50-110	1	30
Azobenzene	30.00	23.87	80	55-115	1	30
4-Bromophenyl-phenylether	30.00	24.47	82	50-115	3	30
Hexachlorobenzene	80.00	57.19	71	50-110	1	30
Pentachlorophenol	80.00	66.01	83	40-115	0	30
Phenanthrene	30.00	25.99	87	50-115	1	30

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Matrix:	Water	Batch#:	214595
Units:	ug/L	Prepared:	08/20/14
Diln Fac:	1.000	Analyzed:	08/21/14

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Anthracene	30.00	26.01	87	55-110	1	30
Carbazole	80.00	64.78	81	50-115	5	30
Di-n-butylphthalate	30.00	25.34	84	55-115	1	30
Fluoranthene	30.00	26.01	87	55-115	0	30
Pyrene	30.00	27.06	90	50-130	1	30
Butylbenzylphthalate	30.00	25.34	84	45-115	3	30
3,3'-Dichlorobenzidine	80.00	44.80	56	20-110	1	30
Benzo(a)anthracene	30.00	25.66	86	55-110	1	30
Chrysene	30.00	26.10	87	55-110	1	30
bis(2-Ethylhexyl)phthalate	30.00	26.27	88	40-125	12	30
Di-n-octylphthalate	30.00	25.54	85	35-135	0	30
Benzo(b)fluoranthene	30.00	25.70	86	45-120	4	30
Benzo(k)fluoranthene	30.00	24.86	83	45-125	1	30
Benzo(a)pyrene	30.00	27.05	90	55-110	2	30
Indeno(1,2,3-cd)pyrene	30.00	25.89	86	45-125	4	30
Dibenz(a,h)anthracene	30.00	25.22	84	40-125	3	30
Benzo(g,h,i)perylene	30.00	26.68	89	40-125	5	30

Surrogate	%REC	Limits
2-Fluorophenol	77	20-110
Phenol-d5	79	10-115
2,4,6-Tribromophenol	79	40-125
Nitrobenzene-d5	80	40-110
2-Fluorobiphenyl	80	50-110
Terphenyl-d14	82	50-135

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Initial & Continuing Calibration Data

CURTIS & TOMPKINS DFTPP TUNE FOR 259882 MSBNA Water
EPA 8270D

Inst : MSBNA05 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 544327680005 File : xhf05 Time : 15-AUG-2014 16:14

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	179726	48.09	
68	< 2% of mass 69	0	0.00	
69		205592	100.00	
70	< 2% of mass 69	1070	0.52	
127	40% - 60% of mass 198	209002	55.92	
197	< 1% of mass 198	0	0.00	
198		373760	100.00	
199	5% - 9% of mass 198	25200	6.74	
275	10% - 30% of mass 198	92424	24.73	
365	> 1% of mass 198	9809	2.62	
441	Present, < mass 443	47026	82.11	
442	> 40% and < 100% of mass 198	295850	79.16	
443	17% - 23% of mass 442	57269	19.36	

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/19/14

PEM Report

File Name : G:\msbna05\081514\XHF05.D
Date Acquired : 15 Aug 2014 4:14 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA05 BNA DFTPP/PEM
Inst. Name : MSBNA05
AcquisitionMeth: DFTPP05.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	0.741	5.49	488314
Benzidine	0.497	7.37	2960445
4,4'-DDT		8.41	1496561
4,4'-DDE		7.60	3131
4,4'-DDD		8.02	50514

% Breakdown: 4,4'-DDT	LIMIT <=20%	3%	PASS
Tailing: Pentachlorophenol	8270C <5.0	0.7	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.5	PASS
	8270D <=2	0	PASS

Fri Aug 15 16:25:44 2014

CURTIS & TOMPKINS DFTPP TUNE FOR 259882 MSBNA Water
EPA 8270D

Inst : MSBNA05 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 544337710002 File : xhm02 Time : 22-AUG-2014 12:58

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	154284	44.54	
68	< 2% of mass 69	0	0.00	
69		178773	100.00	
70	< 2% of mass 69	970	0.54	
127	40% - 60% of mass 198	187989	54.27	
197	< 1% of mass 198	0	0.00	
198		346368	100.00	
199	5% - 9% of mass 198	23234	6.71	
275	10% - 30% of mass 198	86856	25.08	
365	> 1% of mass 198	9146	2.64	
441	Present, < mass 443	44384	81.91	
442	> 40% and < 100% of mass 198	275114	79.43	
443	17% - 23% of mass 442	54189	19.70	

Analyst: KMH Date: 08/26/14 Reviewer: LW Date: 08/27/14

PEM Report

File Name : G:\msbna05\082214\XHM02.D
Date Acquired : 22 Aug 2014 12:58 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA05 BNA DFTPP/PEM
Inst. Name : MSBNA05
AcquisitionMeth: DFTPP05.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	0.898	5.49	309688
Benzidine	0.548	7.37	2679767
4,4'-DDT		8.40	1298764
4,4'-DDE		7.60	5425
4,4'-DDD		8.03	30386

% Breakdown: 4,4'-DDT	LIMIT <=20%	3%	PASS
Tailing: Pentachlorophenol	8270C <5.0	0.9	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.5	PASS
	8270D <=2	1	PASS

Fri Aug 22 13:08:25 2014

CURTIS & TOMPKINS DFTPP TUNE FOR 259882 MSBNA Water
EPA 8270D

Inst : MSBNA09 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 584305789015 File : rgv15 Time : 31-JUL-2014 18:29

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	345531	38.25	
68	< 2% of mass 69	6827	1.83	
69		373297	100.00	
70	< 2% of mass 69	1830	0.49	
127	40% - 60% of mass 198	470485	52.08	
197	< 1% of mass 198	0	0.00	
198		903338	100.00	
199	5% - 9% of mass 198	61034	6.76	
275	10% - 30% of mass 198	259093	28.68	
365	> 1% of mass 198	32093	3.55	
441	Present, < mass 443	124642	74.41	
442	> 40% and < 100% of mass 198	878869	97.29	
443	17% - 23% of mass 442	167509	19.06	

Analyst: KMH Date: 08/01/14 Reviewer: LW Date: 08/06/14

PEM Report

File Name : G:\msbna09\073114\RGV15.D
Date Acquired : 31 Jul 2014 6:29 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA09 BNA DFTPP/PEM
Inst. Name : MSBNA09
AcquisitionMeth: DFTPP09.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	1.171	5.52	1361316
Benzidine	0.799	7.39	7972851
4,4'-DDT		8.43	4312502
4,4'-DDE		7.63	22871
4,4'-DDD		8.05	107140

% Breakdown: 4,4'-DDT	LIMIT <=20%	3%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.2	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.8	PASS
	8270D <=2	1	PASS

Thu Jul 31 18:46:48 2014

CURTIS & TOMPKINS DFTPP TUNE FOR 259882 MSBNA Water
EPA 8270D

Inst : MSBNA09 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 584336313002 File : rhl02 Time : 21-AUG-2014 13:40

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	354721	42.89	
68	< 2% of mass 69	0	0.00	
69		346927	100.00	
70	< 2% of mass 69	1628	0.47	
127	40% - 60% of mass 198	397205	48.03	
197	< 1% of mass 198	0	0.00	
198		826986	100.00	
199	5% - 9% of mass 198	55477	6.71	
275	10% - 30% of mass 198	225344	27.25	
365	> 1% of mass 198	22336	2.70	
441	Present, < mass 443	104616	79.88	
442	> 40% and < 100% of mass 198	692565	83.75	
443	17% - 23% of mass 442	130973	18.91	

Analyst: KMH Date: 08/21/14 Reviewer: LW Date: 08/22/14

PEM Report

File Name : G:\msbna09\082114\RHL02.D
Date Acquired : 21 Aug 2014 1:40 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA09 BNA DFTPP/PEM
Inst. Name : MSBNA09
AcquisitionMeth: DFTPP09.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	1.032	5.50	1060329
Benzidine	0.948	7.36	7264690
4,4'-DDT		8.39	3658830
4,4'-DDE		7.60	10599
4,4'-DDD		8.02	246695

% Breakdown: 4,4'-DDT	LIMIT <=20%	7%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.0	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.9	PASS
	8270D <=2	1	PASS

Thu Aug 21 14:14:22 2014

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259882 MSBNA Water: EPA 8270D

Inst : MSBNA05
Calnum : 544327680001
Units : ug/mL

Name : 6PTBNA5
Date : 15-AUG-2014 16:36
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	xhf06	544327680006	ICAL	15-AUG-2014 16:36	S25407
L2	xhf07	544327680007	ICAL	15-AUG-2014 17:13	S25408
L3	xhf08	544327680008	ICAL	15-AUG-2014 17:48	S25409
L4	xhf09	544327680009	ICAL	15-AUG-2014 18:27	S25410
L5	xhf10	544327680010	ICAL	15-AUG-2014 19:04	S25411
L6	xhf11	544327680011	ICAL	15-AUG-2014 19:42	S25412
L7	xhf12	544327680012	ICAL	15-AUG-2014 20:18	S25413
L8	xhf13	544327680013	ICAL	15-AUG-2014 20:53	S25414
L9	xhf14	544327680014	ICAL	15-AUG-2014 21:30	S25415

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
N-Nitrosodimethylamine		0.6584	0.6527	0.6697	0.6691	0.6674	0.6778	0.6768	0.6869	AVRG		1.49291		0.6698	2	15	0.05	0.99	
Phenol		1.6930	1.7068	1.6823	1.6949	1.6792	1.7013	1.6690	1.6900	AVRG		0.59187		1.6896	1	15	0.800	0.99	
bis(2-Chloroethyl)ether		1.2353	1.2616	1.2630	1.2613	1.2275	1.2307	1.2069m	1.1601	AVRG		0.81248		1.2308	3	15	0.700	0.99	
2-Chlorophenol		1.4242	1.4375	1.4412	1.4216	1.4009	1.4092	1.3792	1.3626	AVRG		0.70944		1.4096	2	15	0.800	0.99	
1,3-Dichlorobenzene		1.6369	1.6278	1.5962	1.5701	1.5284	1.4579	1.3705	1.3138	AVRG		0.66107		1.5127	8	15	0.05	0.99	
1,4-Dichlorobenzene		1.6795	1.6559	1.6455	1.5847	1.5172	1.4352	1.3066	1.2470	AVRG		0.66271		1.5089	11	15	0.05	0.99	
Benzyl alcohol		0.9166	0.9356	0.9403	0.9479	0.9278	0.9535	0.9417	0.9631	AVRG		1.06293		0.9408	2	15	0.05	0.99	
1,2-Dichlorobenzene		1.6105	1.5953	1.5956	1.5493	1.4798	1.4148	1.3108	1.2591	AVRG		0.67709		1.4769	9	15	0.05	0.99	
2-Methylphenol		1.1459	1.1695	1.1624	1.1603	1.1422	1.1371	1.0999	1.0949	AVRG		0.87795		1.1390	2	15	0.700	0.99	
bis(2-Chloroisopropyl) ether		1.7687	1.8134	1.8240	1.8521	1.8305	1.9045	1.9136	1.9333	AVRG		0.53908		1.8550	3	15	0.010	0.99	
4-Methylphenol		1.6678	1.6865	1.6765	1.6779	1.6483	1.7285			AVRG		0.59491		1.6809	2	15	0.600	0.99	
N-Nitroso-di-n-propylamine		0.7818	0.8217	0.8336	0.8449	0.8413	0.8673	0.8550	0.8794	AVRG		1.18959		0.8406	4	15	0.500	0.99	
Hexachloroethane		0.6649	0.6780	0.6714	0.6686	0.6544	0.6390	0.5963	0.5732	AVRG		1.55467		0.6432	6	15	0.300	0.99	
Nitrobenzene		0.4043	0.4149	0.4096	0.4117	0.4078	0.4082	0.4061	0.4034	AVRG		2.44946		0.4083	1	15	0.200	0.99	
Isophorone		0.7250	0.7364	0.7213	0.7306	0.7295				AVRG		1.37256		0.7286	1	15	0.400	0.99	
2-Nitrophenol			0.2059	0.2054	0.2075	0.2070	0.2076	0.2022	0.2023m	AVRG		4.86811		0.2054	1	15	0.100	0.99	
2,4-Dimethylphenol		0.3752	0.3758	0.3671	0.3602	0.3530	0.3511	0.3490	0.3440	AVRG		2.78216		0.3594	3	15	0.200	0.99	
bis(2-Chloroethoxy)methane			0.4322	0.4265	0.4290	0.4319	0.4322	0.4309	0.4269	AVRG		2.32588		0.4299	1	15	0.300	0.99	
Benzoic acid		0.2204	0.2380	0.2569	0.2735	0.2798	0.2869	0.2932	0.2930	AVRG		3.73541		0.2677	10	15	0.05	0.99	
2,4-Dichlorophenol		0.3243	0.3289	0.3205	0.3204	0.3096	0.2924	0.2749	0.2609	AVRG		3.28958		0.3040	8	15	0.200	0.99	
1,2,4-Trichlorobenzene		0.3475	0.3507	0.3439	0.3376	0.3202	0.3040	0.2788	0.2625	AVRG		3.14316		0.3182	10	15	0.05	0.99	
Naphthalene	1.1701	1.1563	1.1652	1.1483	1.1243	1.0947	1.0491	0.9953	0.9561	AVRG		0.91283		1.0955	7	15	0.700	0.99	
4-Chloroaniline		0.2791	0.4744	0.4878m	0.4761m	0.4668m				LINR	2.73506	1.96829		0.4369	0.991	15	0.010	0.99	
Hexachlorobutadiene		0.1861	0.1851	0.1802	0.1764	0.1677	0.1541	0.1412	0.1293	AVRG		6.06045		0.1650	13	15	0.010	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
4-Chloro-3-methylphenol		0.3350	0.3342	0.3263	0.3257	0.3200	0.3144	0.3095	0.3002	AVRG		3.11857		0.3207	4	15	0.200	0.99	
2-Methylnaphthalene	0.7681	0.7746	0.7882	0.7653	0.7631	0.7358	0.7148	0.6816	0.6650	AVRG		1.35207		0.7396	6	15	0.400	0.99	
Hexachlorocyclopentadiene			0.3501	0.3584	0.3459	0.3391	0.3299	0.3023	0.2845	AVRG		3.02990		0.3300	8	15	0.050	0.99	
2,4,6-Trichlorophenol		0.3820	0.3841	0.3863	0.3780	0.3701	0.3601	0.3419	0.3253	AVRG		2.73240		0.3660	6	15	0.200	0.99	
2,4,5-Trichlorophenol		0.4104	0.4227	0.4268	0.4112	0.3937m	0.3772m	0.3479m	0.3304m	AVRG		2.56386		0.3900	9	15	0.200	0.99	
2-Chloronaphthalene			1.2316	1.2419	1.2013	1.1712	1.1512	1.0917	1.0704	AVRG		0.85792		1.1656	6	15	0.800	0.99	
2-Nitroaniline			0.3819	0.3959	0.3958	0.4002	0.4130	0.4079	0.4108	AVRG		2.49517		0.4008	3	15	0.010	0.99	
Dimethylphthalate		1.3494	1.3492	1.3528	1.3146	1.2783	1.2414	1.1631	1.1181	AVRG		0.78687		1.2709	7	15	0.010	0.99	
2,6-Dinitrotoluene		0.3011	0.3141	0.3200	0.3141	0.3161	0.3177	0.3093	0.3060	AVRG		3.20205		0.3123	2	15	0.200	0.99	
Acenaphthylene	1.9997	2.0460	2.0201	2.0350	1.9794	1.9588	1.9089	1.8163	1.7568	AVRG		0.51366		1.9468	5	15	0.900	0.99	
3-Nitroaniline			0.2531	0.3247	0.3456m	0.3571	0.3818	0.3786	0.3862	AVRG		2.88434		0.3467	14	15	0.010	0.99	
Acenaphthene	1.2227	1.2776	1.2754	1.3155	1.2906	1.2110m	1.1695	1.1068	1.0571	AVRG		0.82370		1.2140	7	15	0.900	0.99	
2,4-Dinitrophenol			0.1153	0.1400	0.1524	0.1648	0.1817	0.1927	0.1965	LINR	10.9335	4.65510		0.1633	0.999	15	0.010	0.99	
4-Nitrophenol			0.1768	0.1869	0.1867	0.1883	0.1917	0.1898	0.1922m	AVRG		5.33366		0.1875	3	15	0.010	0.99	
Dibenzofuran			1.7194	1.7329	1.6765	1.6444	1.6305	1.4943	1.3652	AVRG		0.62150		1.6090	8	15	0.800	0.99	
2,4-Dinitrotoluene		0.3997	0.4159	0.4286	0.4217	0.4198	0.4231	0.4008	0.3744	AVRG		2.43602		0.4105	4	15	0.200	0.99	
Diethylphthalate			1.4916	1.4896	1.4486	1.4389	1.4175	1.3484	1.3114	AVRG		0.70379		1.4209	5	15	0.010	0.99	
Fluorene	1.4365	1.4825	1.4736	1.4756	1.4263	1.3823	1.3411	1.2448	1.2030	AVRG		0.72199		1.3851	7	15	0.900	0.99	
4-Chlorophenyl-phenylether			0.6580	0.6672	0.6415	0.6281	0.6104	0.5713	0.5382	AVRG		1.62238		0.6164	8	15	0.400	0.99	
4-Nitroaniline			0.3328	0.3303	0.3512	0.3610	0.3828	0.3794	0.3781	AVRG		2.78252		0.3594	6	15	0.010	0.99	
4,6-Dinitro-2-methylphenol			0.1154	0.1274	0.1340	0.1386	0.1453	0.1460	0.1462	AVRG		7.34603		0.1361	8	15	0.010	0.99	
N-Nitrosodiphenylamine			0.6116	0.6218	0.6245	0.6194	0.6055	0.5936	0.5746	AVRG		1.64669		0.6073	3	15	0.010	0.99	
Azobenzene			0.9106	0.9296	0.9396	0.9332	0.9496	0.9252	0.9014	AVRG		1.07873		0.9270	2	15	0.05	0.99	
4-Bromophenyl-phenylether			0.2249	0.2273	0.2259	0.2241	0.2215	0.2144	0.2069	AVRG		4.53072		0.2207	3	15	0.100	0.99	
Hexachlorobenzene		0.2342	0.2377	0.2363	0.2354	0.2243	0.2116	0.1967	0.1832	AVRG		4.54731		0.2199	9	15	0.100	0.99	
Pentachlorophenol			0.1437	0.1536	0.1590	0.1584	0.1552	0.1480	0.1402	AVRG		6.61644		0.1511	5	15	0.050	0.99	
Phenanthrene	1.2081	1.2072	1.2011	1.1922	1.1811	1.1468	1.1067	1.0515	1.0035	AVRG		0.87394		1.1442	7	15	0.700	0.99	
Anthracene	1.2360	1.2164	1.2275	1.2149	1.1999	1.1783	1.1248	1.0598	1.0165m	AVRG		0.85926		1.1638	7	15	0.700	0.99	
Carbazole		0.9208	0.9914	1.0388	1.0497	0.9756	0.9587	0.9127	0.8774	AVRG		1.03559		0.9656	6	15	0.010	0.99	
Di-n-butylphthalate			1.5200	1.5230	1.5144	1.4877	1.4501	1.3438	1.2806	AVRG		0.69173		1.4456	7	15	0.010	0.99	
Fluoranthene	1.2951	1.3110	1.3020	1.3065	1.3047	1.2837	1.2525	1.1844	1.1337	AVRG		0.79132		1.2637	5	15	0.600	0.99	
Pyrene	1.2384	1.2648	1.2864	1.3174	1.3293	1.3088	1.3095	1.2698	1.2409	AVRG		0.77820		1.2850	3	15	0.600	0.99	
Butylbenzylphthalate			0.6033	0.6242	0.6478	0.6457	0.6743	0.6719	0.6592	AVRG		1.54649		0.6466	4	15	0.010	0.99	
3,3'-Dichlorobenzidine			0.3028	0.3631	0.3918	0.4052	0.4131	0.3681	0.3432	AVRG		2.70560		0.3696	10	15	0.010	0.99	
Benzo(a)anthracene	1.1530	1.1224	1.1428	1.1526	1.1440	1.1366	1.1611	1.1502	1.1340	AVRG		0.87408		1.1441	1	15	0.800	0.99	
bis(2-Ethylhexyl)phthalate			0.8808	0.9182	0.9283	0.9190	0.8788	0.7271	0.6237	AVRG		1.19130		0.8394	14	15	0.010	0.99	
Chrysene	1.0372	1.0454	1.0616	1.0607	1.0723	1.0494	1.0767	1.0420	1.0378	AVRG		0.94905		1.0537	1	15	0.700	0.99	
Di-n-octylphthalate			1.6002	1.7003	1.7383	1.7461	1.8451	1.8267	1.8210	AVRG		0.57014		1.7540	5	15	0.010	0.99	
Benzo(b)fluoranthene	1.0125	1.0824	1.1371	1.1905	1.1980	1.2078	1.3259	1.3554	1.3549	AVRG		0.82838		1.2072	10	15	0.700	0.99	
Benzo(k)fluoranthene	0.9880	1.0469	1.0839	1.1359	1.1431	1.1316	1.1322	1.1041	1.1065m	AVRG		0.91164		1.0969	5	15	0.700	0.99	
Benzo(a)pyrene	0.9770	1.0509	1.1075	1.1661	1.1639	1.1750	1.2477	1.2348	1.2452	AVRG		0.86805		1.1520	8	15	0.700	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Indeno(1,2,3-cd)pyrene	1.0501	1.1365	1.1978	1.2791	1.3128	1.3283	1.4156	1.4204		AVRG		0.78890		1.2676	10	15	0.500	0.99	
Dibenz(a,h)anthracene	0.8725	0.9478	0.9976	1.0747	1.0978	1.1140	1.1952	1.2027	1.2223	AVRG		0.92549		1.0805	11	15	0.400	0.99	
Benzo(g,h,i)perylene	0.9248	0.9245	0.9495	1.0256	1.0783	1.0922	1.1690	1.1811	1.1840	AVRG		0.94449		1.0588	10	15	0.500	0.99	
2-Fluorophenol	1.3378	1.3172	1.3419	1.3515	1.3569	1.3341	1.3673	1.3609	1.3712	AVRG		0.74142		1.3488	1	15	0.05	0.99	
Phenol-d5	1.6604	1.6374	1.6656	1.6621	1.6766	1.6617	1.7113	1.7060	1.7100	AVRG		0.59638		1.6768	2	15	0.05	0.99	
Nitrobenzene-d5	0.4335	0.4299	0.4442	0.4444	0.4527	0.4490	0.4521	0.4606	0.4580	AVRG		2.23631		0.4472	2	15	0.05	0.99	
2-Fluorobiphenyl	1.5118	1.5322	1.5224	1.5224	1.4688	1.4054	1.3489	1.2626	1.2275	AVRG		0.70301		1.4224	8	15	0.05	0.99	
2,4,6-Tribromophenol	0.1555	0.1723	0.1872	0.1930	0.1900	0.1910	0.1940	0.1846	0.1811	AVRG		5.45930		0.1832	7	15	0.05	0.99	
Terphenyl-d14	0.8361	0.8491	0.8869	0.8989	0.9115	0.9025	0.9030	0.8692	0.8323	AVRG		1.14076		0.8766	4	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
N-Nitrosodimethylamine			10.000	-2	20.000	-3	32.000	0	40.000	0	50.000	0	80.000	1	100.00	1	120.00	3
Phenol			10.000	0	20.000	1	32.000	0	40.000	0	50.000	-1	80.000	1	100.00	-1	120.00	0
bis(2-Chloroethyl)ether			10.000	0	20.000	3	32.000	3	40.000	2	50.000	0	80.000	0	100.00	-2	120.00	-6
2-Chlorophenol			10.000	1	20.000	2	32.000	2	40.000	1	50.000	-1	80.000	0	100.00	-2	120.00	-3
1,3-Dichlorobenzene			10.000	8	20.000	8	32.000	6	40.000	4	50.000	1	80.000	-4	100.00	-9	120.00	-13
1,4-Dichlorobenzene			10.000	11	20.000	10	32.000	9	40.000	5	50.000	1	80.000	-5	100.00	-13	120.00	-17
Benzyl alcohol			10.000	-3	20.000	-1	32.000	0	40.000	1	50.000	-1	80.000	1	100.00	0	120.00	2
1,2-Dichlorobenzene			10.000	9	20.000	8	32.000	8	40.000	5	50.000	0	80.000	-4	100.00	-11	120.00	-15
2-Methylphenol			10.000	1	20.000	3	32.000	2	40.000	2	50.000	0	80.000	0	100.00	-3	120.00	-4
bis(2-Chloroisopropyl) ether			10.000	-5	20.000	-2	32.000	-2	40.000	0	50.000	-1	80.000	3	100.00	3	120.00	4
4-Methylphenol			10.000	-1	20.000	0	32.000	0	40.000	0	50.000	-2	80.000	3				
N-Nitroso-di-n-propylamine			10.000	-7	20.000	-2	32.000	-1	40.000	1	50.000	0	80.000	3	100.00	2	120.00	5
Hexachloroethane			10.000	3	20.000	5	32.000	4	40.000	4	50.000	2	80.000	-1	100.00	-7	120.00	-11
Nitrobenzene			10.000	-1	20.000	2	32.000	0	40.000	1	50.000	0	80.000	0	100.00	-1	120.00	-1
Isophorone			10.000	0	20.000	1	32.000	-1	40.000	0	50.000	0						
2-Nitrophenol					20.000	0	32.000	0	40.000	1	50.000	1	80.000	1	100.00	-2	120.00	-2
2,4-Dimethylphenol			10.000	4	20.000	5	32.000	2	40.000	0	50.000	-2	80.000	-2	100.00	-3	120.00	-4
bis(2-Chloroethoxy)methane					10.000	1	16.000	-1	20.000	0	25.000	0	40.000	1	50.000	0	60.000	-1
Benzoic acid			50.000	-18	60.000	-11	80.000	-4	90.000	2	100.00	5	120.00	7	130.00	10	140.00	9
2,4-Dichlorophenol			10.000	7	20.000	8	32.000	5	40.000	5	50.000	2	80.000	-4	100.00	-10	120.00	-14
1,2,4-Trichlorobenzene			10.000	9	20.000	10	32.000	8	40.000	6	50.000	1	80.000	-4	100.00	-12	120.00	-17
Naphthalene	2.0000	7	5.0000	6	10.000	6	16.000	5	20.000	3	25.000	0	40.000	-4	50.000	-9	60.000	-13
4-Chloroaniline			10.000	-18	20.000	7	32.000	5	40.000	1	50.000	-3						
Hexachlorobutadiene			10.000	13	20.000	12	32.000	9	40.000	7	50.000	2	80.000	-7	100.00	-14	120.00	**-22**
4-Chloro-3-methylphenol			10.000	4	20.000	4	32.000	2	40.000	2	50.000	0	80.000	-2	100.00	-3	120.00	-6
2-Methylnaphthalene	2.0000	4	5.0000	5	10.000	7	16.000	3	20.000	3	25.000	-1	40.000	-3	50.000	-8	60.000	-10
Hexachlorocyclopentadiene					20.000	6	32.000	9	40.000	5	50.000	3	80.000	0	100.00	-8	120.00	-14
2,4,6-Trichlorophenol			10.000	4	20.000	5	32.000	6	40.000	3	50.000	1	80.000	-2	100.00	-7	120.00	-11
2,4,5-Trichlorophenol			10.000	5	20.000	8	32.000	9	40.000	5	50.000	1	80.000	-3	100.00	-11	120.00	-15
2-Chloronaphthalene					10.000	6	16.000	7	20.000	3	25.000	0	40.000	-1	50.000	-6	60.000	-8
2-Nitroaniline					20.000	-5	32.000	-1	40.000	-1	50.000	0	80.000	3	100.00	2	120.00	2
Dimethylphthalate			10.000	6	20.000	6	32.000	6	40.000	3	50.000	1	80.000	-2	100.00	-8	120.00	-12
2,6-Dinitrotoluene			10.000	-4	20.000	1	32.000	2	40.000	1	50.000	1	80.000	2	100.00	-1	120.00	-2
Acenaphthylene	2.0000	3	5.0000	5	10.000	4	16.000	5	20.000	2	25.000	1	40.000	-2	50.000	-7	60.000	-10
3-Nitroaniline					20.000	**-27**	32.000	-6	40.000	0	50.000	3	80.000	10	100.00	9	120.00	11
Acenaphthene	2.0000	1	5.0000	5	10.000	5	16.000	8	20.000	6	25.000	0	40.000	-4	50.000	-9	60.000	-13
2,4-Dinitrophenol					20.000	8	32.000	-1	40.000	-2	50.000	-1	80.000	-2	100.00	1	120.00	1
4-Nitrophenol					20.000	-6	32.000	0	40.000	0	50.000	0	80.000	2	100.00	1	120.00	3
Dibenzofuran					10.000	7	16.000	8	20.000	4	25.000	2	40.000	1	50.000	-7	60.000	-15
2,4-Dinitrotoluene			10.000	-3	20.000	1	32.000	4	40.000	3	50.000	2	80.000	3	100.00	-2	120.00	-9
Diethylphthalate					10.000	5	16.000	5	20.000	2	25.000	1	40.000	0	50.000	-5	60.000	-8
Fluorene	2.0000	4	5.0000	7	10.000	6	16.000	7	20.000	3	25.000	0	40.000	-3	50.000	-10	60.000	-13

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
4-Chlorophenyl-phenylether					10.000	7	16.000	8	20.000	4	25.000	2	40.000	-1	50.000	-7	60.000	-13
4-Nitroaniline					20.000	-7	32.000	-8	40.000	-2	50.000	0	80.000	7	100.00	6	120.00	5
4,6-Dinitro-2-methylphenol					20.000	-15	32.000	-6	40.000	-2	50.000	2	80.000	7	100.00	7	120.00	7
N-Nitrosodiphenylamine					10.000	1	16.000	2	20.000	3	25.000	2	40.000	0	50.000	-2	60.000	-5
Azobenzene					10.000	-2	16.000	0	20.000	1	25.000	1	40.000	2	50.000	0	60.000	-3
4-Bromophenyl-phenylether					10.000	2	16.000	3	20.000	2	25.000	2	40.000	0	50.000	-3	60.000	-6
Hexachlorobenzene			10.000	6	20.000	8	32.000	7	40.000	7	50.000	2	80.000	-4	100.00	-11	120.00	-17
Pentachlorophenol					20.000	-5	32.000	2	40.000	5	50.000	5	80.000	3	100.00	-2	120.00	-7
Phenanthrene	2.0000	6	5.0000	5	10.000	5	16.000	4	20.000	3	25.000	0	40.000	-3	50.000	-8	60.000	-12
Anthracene	2.0000	6	5.0000	5	10.000	5	16.000	4	20.000	3	25.000	1	40.000	-3	50.000	-9	60.000	-13
Carbazole			10.000	-5	20.000	3	32.000	8	40.000	9	50.000	1	80.000	-1	100.00	-5	120.00	-9
Di-n-butylphthalate					10.000	5	16.000	5	20.000	5	25.000	3	40.000	0	50.000	-7	60.000	-11
Fluoranthene	2.0000	2	5.0000	4	10.000	3	16.000	3	20.000	3	25.000	2	40.000	-1	50.000	-6	60.000	-10
Pyrene	2.0000	-4	5.0000	-2	10.000	0	16.000	3	20.000	3	25.000	2	40.000	2	50.000	-1	60.000	-3
Butylbenzylphthalate					10.000	-7	16.000	-3	20.000	0	25.000	0	40.000	4	50.000	4	60.000	2
3,3'-Dichlorobenzidine					20.000	-18	32.000	-2	40.000	6	50.000	10	80.000	12	100.00	0	120.00	-7
Benzo(a)anthracene	2.0000	1	5.0000	-2	10.000	0	16.000	1	20.000	0	25.000	-1	40.000	1	50.000	1	60.000	-1
bis(2-Ethylhexyl)phthalate					10.000	5	16.000	9	20.000	11	25.000	9	40.000	5	50.000	-13	60.000	**-26**
Chrysene	2.0000	-2	5.0000	-1	10.000	1	16.000	1	20.000	2	25.000	0	40.000	2	50.000	-1	60.000	-2
Di-n-octylphthalate					10.000	-9	16.000	-3	20.000	-1	25.000	0	40.000	5	50.000	4	60.000	4
Benzo(b)fluoranthene	2.0000	-16	5.0000	-10	10.000	-6	16.000	-1	20.000	-1	25.000	0	40.000	10	50.000	12	60.000	12
Benzo(k)fluoranthene	2.0000	-10	5.0000	-5	10.000	-1	16.000	4	20.000	4	25.000	3	40.000	3	50.000	1	60.000	1
Benzo(a)pyrene	2.0000	-15	5.0000	-9	10.000	-4	16.000	1	20.000	1	25.000	2	40.000	8	50.000	7	60.000	8
Indeno(1,2,3-cd)pyrene	2.0000	-17	5.0000	-10	10.000	-6	16.000	1	20.000	4	25.000	5	40.000	12	50.000	12		
Dibenz(a,h)anthracene	2.0000	-19	5.0000	-12	10.000	-8	16.000	-1	20.000	2	25.000	3	40.000	11	50.000	11	60.000	13
Benzo(g,h,i)perylene	2.0000	-13	5.0000	-13	10.000	-10	16.000	-3	20.000	2	25.000	3	40.000	10	50.000	12	60.000	12
2-Fluorophenol	2.0000	-1	5.0000	-2	10.000	-1	16.000	0	20.000	1	25.000	-1	40.000	1	50.000	1	60.000	2
Phenol-d5	2.0000	-1	5.0000	-2	10.000	-1	16.000	-1	20.000	0	25.000	-1	40.000	2	50.000	2	60.000	2
Nitrobenzene-d5	2.0000	-3	5.0000	-4	10.000	-1	16.000	-1	20.000	1	25.000	0	40.000	1	50.000	3	60.000	2
2-Fluorobiphenyl	2.0000	6	5.0000	8	10.000	7	16.000	7	20.000	3	25.000	-1	40.000	-5	50.000	-11	60.000	-14
2,4,6-Tribromophenol	2.0000	-15	5.0000	-6	10.000	2	16.000	5	20.000	4	25.000	4	40.000	6	50.000	1	60.000	-1
Terphenyl-d14	2.0000	-5	5.0000	-3	10.000	1	16.000	3	20.000	4	25.000	3	40.000	3	50.000	-1	60.000	-5

KMH 08/16/14 [Aniline]: Picked or reassigned peak in all levels.

KMH 08/16/14 [2-Nitrophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [3-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [4-Chloroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [2,4,5-Trichlorophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [Acenaphthene]: Corrected automatically drawn baseline in ICAL (xhf11).

KMH 08/16/14 [Pyridine]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [bis(2-Chloroethyl)ether]: Corrected automatically drawn baseline in ICAL (xhf13).

KMH 08/16/14 [4-Methylphenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [4-Nitrophenol]: Picked or reassigned peak in ICAL (xhf14).

KMH 08/16/14 [Anthracene]: Corrected automatically drawn baseline in ICAL (xhf14).

KMH 08/16/14 [Benzo(k)fluoranthene]: Picked or reassigned peak in ICAL (xhf14).

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/19/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; LINR=Linear regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259882 MSBNA Water
EPA 8270D

Inst : MSBNA05 Name : 6PTBNA5
Calnum : 544327680001 Cal Date : 15-AUG-2014

ICV 544327680015 (xhf15 15-AUG-2014) stds: S25418

Analyte	Spiked	Quant	Units	%D	Max	Flags
N-Nitrosodimethylamine	40.00	37.81	ug/mL	-5	20	
Phenol	40.00	37.82	ug/mL	-5	20	
bis(2-Chloroethyl)ether	40.00	38.43	ug/mL	-4	20	
2-Chlorophenol	40.00	38.18	ug/mL	-5	20	
1,3-Dichlorobenzene	40.00	38.79	ug/mL	-3	20	
1,4-Dichlorobenzene	40.00	39.02	ug/mL	-2	20	
Benzyl alcohol	40.00	37.97	ug/mL	-5	20	
1,2-Dichlorobenzene	40.00	38.80	ug/mL	-3	20	
2-Methylphenol	40.00	37.90	ug/mL	-5	20	
bis(2-Chloroisopropyl) ether	40.00	37.90	ug/mL	-5	20	
4-Methylphenol	40.00	33.62	ug/mL	-16	20	
N-Nitroso-di-n-propylamine	40.00	37.21	ug/mL	-7	20	
Hexachloroethane	40.00	38.46	ug/mL	-4	20	
Nitrobenzene	40.00	37.77	ug/mL	-6	20	
Isophorone	40.00	35.89	ug/mL	-10	20	
2-Nitrophenol	40.00	38.35	ug/mL	-4	20	
2,4-Dimethylphenol	40.00	38.51	ug/mL	-4	20	
bis(2-Chloroethoxy)methane	40.00	36.69	ug/mL	-8	20	
Benzoic acid	100.0	96.04	ug/mL	-4	20	
2,4-Dichlorophenol	40.00	39.07	ug/mL	-2	20	
1,2,4-Trichlorobenzene	40.00	38.91	ug/mL	-3	20	
Naphthalene	40.00	35.26	ug/mL	-12	20	
4-Chloroaniline	40.00	38.30	ug/mL	-4	20	
Hexachlorobutadiene	40.00	39.41	ug/mL	-1	20	
4-Chloro-3-methylphenol	40.00	37.64	ug/mL	-6	20	
2-Methylnaphthalene	40.00	36.56	ug/mL	-9	20	
Hexachlorocyclopentadiene	40.00	35.81	ug/mL	-10	20	
2,4,6-Trichlorophenol	40.00	37.22	ug/mL	-7	20	
2,4,5-Trichlorophenol	40.00	38.16	ug/mL	-5	20	m
2-Chloronaphthalene	40.00	35.99	ug/mL	-10	20	
2-Nitroaniline	40.00	37.48	ug/mL	-6	20	
Dimethylphthalate	40.00	38.49	ug/mL	-4	20	
2,6-Dinitrotoluene	40.00	38.38	ug/mL	-4	20	
Acenaphthylene	40.00	35.58	ug/mL	-11	20	
3-Nitroaniline	40.00	38.96	ug/mL	-3	20	
Acenaphthene	40.00	35.96	ug/mL	-10	20	
2,4-Dinitrophenol	40.00	38.44	ug/mL	-4	20	
4-Nitrophenol	40.00	37.46	ug/mL	-6	20	
Dibenzofuran	40.00	37.11	ug/mL	-7	20	
2,4-Dinitrotoluene	40.00	39.17	ug/mL	-2	20	
Diethylphthalate	40.00	35.10	ug/mL	-12	20	
Fluorene	40.00	35.26	ug/mL	-12	20	
4-Chlorophenyl-phenylether	40.00	35.97	ug/mL	-10	20	
4-Nitroaniline	40.00	37.23	ug/mL	-7	20	
4,6-Dinitro-2-methylphenol	40.00	37.16	ug/mL	-7	20	
N-Nitrosodiphenylamine	40.00	41.11	ug/mL	3	20	
Azobenzene	40.00	36.62	ug/mL	-8	20	
4-Bromophenyl-phenylether	40.00	35.88	ug/mL	-10	20	
Hexachlorobenzene	40.00	38.01	ug/mL	-5	20	

Analyte	Spiked	Quant	Units	%D	Max	Flags
Pentachlorophenol	40.00	36.42	ug/mL	-9	20	
Phenanthrene	40.00	34.71	ug/mL	-13	20	
Anthracene	40.00	35.37	ug/mL	-12	20	
Carbazole	40.00	41.57	ug/mL	4	20	
Di-n-butylphthalate	40.00	35.81	ug/mL	-10	20	
Fluoranthene	40.00	35.75	ug/mL	-11	20	
Pyrene	40.00	34.63	ug/mL	-13	20	
Butylbenzylphthalate	40.00	37.63	ug/mL	-6	20	
3,3'-Dichlorobenzidine	60.00	59.22	ug/mL	-1	20	
Benzo(a)anthracene	40.00	37.24	ug/mL	-7	20	
bis(2-Ethylhexyl)phthalate	40.00	39.51	ug/mL	-1	20	
Chrysene	40.00	35.31	ug/mL	-12	20	
Di-n-octylphthalate	40.00	37.37	ug/mL	-7	20	
Benzo(b)fluoranthene	40.00	39.18	ug/mL	-2	20	
Benzo(k)fluoranthene	40.00	40.20	ug/mL	0	20	
Benzo(a)pyrene	40.00	38.58	ug/mL	-4	20	
Indeno(1,2,3-cd)pyrene	40.00	39.56	ug/mL	-1	20	
Dibenz(a,h)anthracene	40.00	39.11	ug/mL	-2	20	
Benzo(g,h,i)perylene	40.00	38.86	ug/mL	-3	20	

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/19/14

m=manual integration

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259882 MSBNA Water: EPA 8270D

Inst : MSBNA09
Calnum : 584305789001
Units : ug/mL

Name : 6PTBNA9
Date : 31-JUL-2014 19:18
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	rgv16	584305789016	ICAL	31-JUL-2014 19:18	S24422
L2	rgv17	584305789017	ICAL	31-JUL-2014 19:47	S24424
L3	rgv18	584305789018	ICAL	31-JUL-2014 20:17	S24425
L4	rgv19	584305789019	ICAL	31-JUL-2014 20:47	S24427
L5	rgv20	584305789020	ICAL	31-JUL-2014 21:17	S24428
L6	rgv21	584305789021	ICAL	31-JUL-2014 21:47	S24429
L7	rgv22	584305789022	ICAL	31-JUL-2014 22:18	S24430
L8	rgv23	584305789023	ICAL	31-JUL-2014 22:48	S24431
L9	rgv24	584305789024	ICAL	31-JUL-2014 23:18	S24432

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
N-Nitrosodimethylamine		0.6914	0.7062	0.7007	0.6940	0.6725	0.6850	0.6819	0.6799	AVRG		1.45149		0.6889	2	15	0.05	0.99	
Phenol		1.7949	1.8023	1.7821	1.7353	1.6895	1.7229	1.7252	1.7515	AVRG		0.57127		1.7505	2	15	0.800	0.99	
bis(2-Chloroethyl)ether		1.4075	1.4036	1.3635	1.3501	1.2833	1.2794	1.2322	1.2695	AVRG		0.75549		1.3236	5	15	0.700	0.99	
2-Chlorophenol		1.5252	1.5553	1.5565	1.5171	1.4712	1.4674	1.4423	1.4243	AVRG		0.66894		1.4949	3	15	0.800	0.99	
1,3-Dichlorobenzene		1.6836	1.6923	1.6751	1.6451	1.5724	1.5313	1.4635	1.4190	AVRG		0.63080		1.5853	7	15	0.05	0.99	
1,4-Dichlorobenzene		1.7175	1.7260	1.7055	1.6600	1.5832	1.5430	1.4690	1.4208	AVRG		0.62379		1.6031	7	15	0.05	0.99	
Benzyl alcohol		0.8783	0.8970	0.9342	0.9213	0.9608	1.0349	1.0315	1.0526	AVRG		1.03753		0.9638	7	15	0.05	0.99	
1,2-Dichlorobenzene		1.5993	1.6039	1.5815	1.5474	1.4906	1.4410	1.3824	1.3423	AVRG		0.66731		1.4985	7	15	0.05	0.99	
2-Methylphenol		1.1171	1.1274	1.1118	1.0737	1.0832	1.1323	1.1342	1.1453	AVRG		0.89636		1.1156	2	15	0.700	0.99	
bis(2-Chloroisopropyl) ether		1.9727	1.9558	1.9040	1.8300	1.7737	1.7740	1.7754	1.7881	AVRG		0.54151		1.8467	5	15	0.010	0.99	
4-Methylphenol		1.6373	1.6384	1.6641	1.6442	1.6827	1.8013	1.8160	1.8706	AVRG		0.58162		1.7193	5	15	0.600	0.99	
N-Nitroso-di-n-propylamine		0.8428	0.9435	1.0001	0.9938	1.0010	1.0425	1.0284	1.0465	AVRG		1.01284		0.9873	7	15	0.500	0.99	
Hexachloroethane		0.6305	0.6461	0.6504	0.6384	0.6206	0.6148	0.5905	0.5843	AVRG		1.60785		0.6219	4	15	0.300	0.99	
Nitrobenzene		0.3688	0.3698	0.3745	0.3680	0.3528	0.3579	0.3478	0.3422	AVRG		2.77615		0.3602	3	15	0.200	0.99	
Isophorone		0.7212	0.7714	0.7920	0.7720	0.7313	0.7235	0.6973	0.6882	AVRG		1.35661		0.7371	5	15	0.400	0.99	
2-Nitrophenol			0.1920	0.2024	0.2063	0.2044	0.2117	0.2060	0.2004	AVRG		4.91861		0.2033	3	15	0.100	0.99	
2,4-Dimethylphenol		0.3502	0.3614	0.3938	0.3954	0.3748	0.3687	0.3520	0.3452	AVRG		2.71965		0.3677	5	15	0.200	0.99	
bis(2-Chloroethoxy)methane			0.4534	0.4786	0.4795	0.4612	0.4581	0.4414	0.4305	AVRG		2.18575		0.4575	4	15	0.300	0.99	
Benzoic acid		0.1993	0.2289	0.2591	0.2745	0.2684	0.2764	0.2780	0.2806	AVRG		3.87363		0.2582	11	15	0.05	0.99	
2,4-Dichlorophenol		0.3099	0.3220	0.3327	0.3328	0.3199	0.3147	0.2938	0.2838	AVRG		3.18777		0.3137	6	15	0.200	0.99	
1,2,4-Trichlorobenzene		0.3460	0.3520	0.3471	0.3375	0.3157	0.2983	0.2829	0.2702	AVRG		3.13757		0.3187	10	15	0.05	0.99	
Naphthalene	1.0603	1.1240	1.1396	1.1497	1.1258	1.0861	1.0761	1.0263	1.0125	AVRG		0.91832		1.0889	5	15	0.700	0.99	
4-Chloroaniline		0.4291	0.5232	0.5370	0.5333	0.5021m	0.4816m	0.4547m	0.4326	AVRG		2.05460		0.4867	9	15	0.010	0.99	
Hexachlorobutadiene		0.1897	0.1983	0.1954	0.1888	0.1744	0.1622	0.1554	0.1479	AVRG		5.66479		0.1765	11	15	0.010	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
4-Chloro-3-methylphenol		0.3495	0.3759	0.3870	0.3758	0.3585	0.3410	0.3230	0.3157	AVRG		2.83049		0.3533	7	15	0.200	0.99	
2-Methylnaphthalene	0.6790	0.7354	0.8185	0.8487	0.8356	0.7940	0.7702	0.7240	0.6978	AVRG		1.30374		0.7670	8	15	0.400	0.99	
Hexachlorocyclopentadiene			0.3628	0.3820	0.3910	0.3891	0.3910	0.3696	0.3516	AVRG		2.65445		0.3767	4	15	0.050	0.99	
2,4,6-Trichlorophenol		0.3702	0.3900	0.3946	0.3928	0.3896	0.3850	0.3751	0.3594	AVRG		2.61723		0.3821	3	15	0.200	0.99	
2,4,5-Trichlorophenol		0.3938	0.4222	0.4377	0.4348	0.4090	0.4100	0.3767m	0.3728	AVRG		2.45620		0.4071	6	15	0.200	0.99	
2-Chloronaphthalene			1.2135	1.2415	1.2276	1.1820	1.1969	1.1410	1.1148	AVRG		0.84162		1.1882	4	15	0.800	0.99	
2-Nitroaniline			0.3459	0.3605	0.3570	0.3516	0.3582	0.3490	0.3489	AVRG		2.83269		0.3530	2	15	0.010	0.99	
Dimethylphthalate		1.4357	1.4875	1.5029	1.4683	1.4179	1.4093	1.3182	1.2575	AVRG		0.70815		1.4121	6	15	0.010	0.99	
2,6-Dinitrotoluene		0.3140	0.3365	0.3492	0.3448	0.3440	0.3582	0.3461	0.3424	AVRG		2.92482		0.3419	4	15	0.200	0.99	
Acenaphthylene	1.6084	1.6989	1.7562	1.7792	1.7399	1.6886	1.6918	1.6354	1.5900	AVRG		0.59255		1.6876	4	15	0.900	0.99	
3-Nitroaniline			0.3513m	0.3755m	0.3801m	0.3815m	0.4011	0.3917	0.3896	AVRG		2.62094		0.3815	4	15	0.010	0.99	
Acenaphthene	1.1614	1.2447	1.2989	1.3096	1.3124	1.2524	1.2702	1.2282	1.2026	AVRG		0.79784		1.2534	4	15	0.900	0.99	
2,4-Dinitrophenol			0.1075	0.1355	0.1533m	0.1627m	0.1950m	0.1990m	0.2090m	LINR	12.9032	4.32381		0.1660	0.999	15	0.010	0.99	
4-Nitrophenol			0.1789m	0.1910m	0.1934m	0.1902m	0.1983	0.1938	0.1924	AVRG		5.23151		0.1911	3	15	0.010	0.99	
Dibenzofuran			1.7761	1.7981	1.7778	1.7325	1.7480	1.6956	1.6331	AVRG		0.57560		1.7373	3	15	0.800	0.99	
2,4-Dinitrotoluene		0.4297	0.4669	0.4928	0.4875	0.4806	0.4957	0.4746	0.4658	AVRG		2.10883		0.4742	4	15	0.200	0.99	
Diethylphthalate			1.5346	1.5774	1.5789	1.5402	1.5676	1.4907	1.4408	AVRG		0.65238		1.5329	3	15	0.010	0.99	
Fluorene	1.4029	1.4698	1.4874	1.5121	1.4829	1.4351	1.4335	1.3620	1.3259	AVRG		0.69704		1.4346	4	15	0.900	0.99	
4-Chlorophenyl-phenylether			0.7266	0.7476	0.7377	0.7257	0.7402	0.7091	0.6878	AVRG		1.37941		0.7249	3	15	0.400	0.99	
4-Nitroaniline			0.3768m	0.3971	0.3940	0.3921	0.4115	0.3986	0.3960	AVRG		2.53072		0.3951	3	15	0.010	0.99	
4,6-Dinitro-2-methylphenol			0.1203	0.1324	0.1431	0.1452	0.1565	0.1571	0.1610	AVRG		6.89283		0.1451	10	15	0.010	0.99	
N-Nitrosodiphenylamine			0.6099	0.6075	0.6153	0.5906	0.5980	0.5785	0.5820	AVRG		1.67390		0.5974	2	15	0.010	0.99	
Azobenzene			0.8263	0.8156	0.8188	0.7952	0.7896	0.7705	0.7757	AVRG		1.25187		0.7988	3	15	0.05	0.99	
4-Bromophenyl-phenylether			0.2467	0.2484	0.2529	0.2465	0.2497	0.2443	0.2463	AVRG		4.03511		0.2478	1	15	0.100	0.99	
Hexachlorobenzene		0.2744	0.2794	0.2797	0.2807	0.2686	0.2608	0.2507	0.2449	AVRG		3.73973		0.2674	5	15	0.100	0.99	
Pentachlorophenol			0.1520	0.1643	0.1742	0.1713	0.1779	0.1722	0.1747	AVRG		5.89909		0.1695	5	15	0.050	0.99	
Phenanthrene	1.1257	1.2289	1.2328	1.2329	1.2147	1.1617	1.1309	1.0744	1.0484	AVRG		0.86122		1.1611	6	15	0.700	0.99	
Anthracene	1.1163	1.1881	1.2121	1.2194	1.1959	1.1590	1.1147	1.0798m	1.0504	AVRG		0.87077		1.1484	5	15	0.700	0.99	
Carbazole		1.0130	1.1290	1.1193	1.1012	1.0359	0.9603	0.8887	0.8698	AVRG		0.98558		1.0146	10	15	0.010	0.99	
Di-n-butylphthalate			1.5949	1.5837	1.5815	1.4914	1.4069	1.3314	1.2868	AVRG		0.68116		1.4681	9	15	0.010	0.99	
Fluoranthene	1.2466	1.3764	1.3744	1.3861	1.3541	1.2644	1.2134	1.1548	1.1279	AVRG		0.78273		1.2776	8	15	0.600	0.99	
Pyrene	1.0705	1.2403	1.2712	1.2861	1.2697	1.2021	1.1804	1.1218	1.1187	AVRG		0.83638		1.1956	7	15	0.600	0.99	
Butylbenzylphthalate			0.5714	0.5901	0.5822	0.5623	0.5714	0.5514	0.5557	AVRG		1.75680		0.5692	2	15	0.010	0.99	
3,3'-Dichlorobenzidine			0.4289	0.4527	0.4639	0.4474	0.4333	0.4073	0.3928	AVRG		2.31307		0.4323	6	15	0.010	0.99	
Benzo(a)anthracene	1.0660	1.1287	1.1392	1.1627	1.1455	1.1191	1.1385	1.1132	1.1220	AVRG		0.88802		1.1261	2	15	0.800	0.99	
bis(2-Ethylhexyl)phthalate			0.8437	0.8679	0.8584	0.8240	0.7595	0.6940	0.6271	AVRG		1.27865		0.7821	12	15	0.010	0.99	
Chrysene	1.0039	1.0504	1.0893	1.1084	1.1131	1.0643	1.0814	1.0382	1.0530	AVRG		0.93731		1.0669	3	15	0.700	0.99	
Di-n-octylphthalate			1.4940	1.5597	1.5598	1.5231	1.5706	1.5559	1.5500	AVRG		0.64735		1.5448	2	15	0.010	0.99	
Benzo(b)fluoranthene	0.9916	1.0871	1.1600	1.1756	1.1816	1.1559	1.2252	1.1862	1.2768	AVRG		0.86207		1.1600	7	15	0.700	0.99	
Benzo(k)fluoranthene	0.9900	1.1041	1.1553	1.2287	1.2044	1.1555	1.1895	1.2014	1.1722	AVRG		0.86527		1.1557	6	15	0.700	0.99	
Benzo(a)pyrene	0.8192	0.9250	0.9765	1.0217	1.0207	0.9857	1.0411	1.0318	1.0461	AVRG		1.01490		0.9853	7	15	0.700	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Indeno(1,2,3-cd)pyrene	0.9412	1.0577	1.1284	1.1957	1.2067	1.1738	1.2069	1.2109	1.2328	AVRG		0.86923		1.1504	8	15	0.500	0.99	
Dibenz(a,h)anthracene	0.8363	0.9398	1.0131	1.0689	1.0750	1.0538	1.0925	1.0937	1.1175	AVRG		0.96871		1.0323	9	15	0.400	0.99	
Benzo(g,h,i)perylene	0.7966	0.8451	0.8928	0.9376	0.9559	0.9266	0.9628	0.9593	0.9672	AVRG		1.09171		0.9160	7	15	0.500	0.99	
2-Fluorophenol	1.3347	1.4475	1.4868	1.5063	1.4861	1.4485	1.5020	1.4901	1.4930	AVRG		0.68208		1.4661	4	15	0.05	0.99	
Phenol-d5	1.6070	1.7128	1.7315	1.7386	1.6936	1.6677	1.7342	1.7411	1.7664	AVRG		0.58468		1.7103	3	15	0.05	0.99	
Nitrobenzene-d5	0.3599	0.3882	0.3777	0.3952	0.3923	0.3846	0.3909	0.3870	0.3882	AVRG		2.59816		0.3849	3	15	0.05	0.99	
2-Fluorobiphenyl	1.3655	1.4485	1.5077	1.5205	1.4869	1.4289	1.4091	1.3532	1.2921	AVRG		0.70244		1.4236	5	15	0.05	0.99	
2,4,6-Tribromophenol	0.1537	0.1835	0.2001	0.2123	0.2198	0.2204	0.2463	0.2406	0.2452	AVRG		4.68243		0.2136	14	15	0.05	0.99	
Terphenyl-d14	0.8305	0.9362	0.9721	0.9975	0.9822	0.9426	0.9279	0.8872	0.8817	AVRG		1.07682		0.9287	6	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
N-Nitrosodimethylamine			10.000	0	20.000	3	32.000	2	40.000	1	50.000	-2	80.000	-1	100.00	-1	120.00	-1
Phenol			10.000	3	20.000	3	32.000	2	40.000	-1	50.000	-3	80.000	-2	100.00	-1	120.00	0
bis(2-Chloroethyl)ether			10.000	6	20.000	6	32.000	3	40.000	2	50.000	-3	80.000	-3	100.00	-7	120.00	-4
2-Chlorophenol			10.000	2	20.000	4	32.000	4	40.000	1	50.000	-2	80.000	-2	100.00	-4	120.00	-5
1,3-Dichlorobenzene			10.000	6	20.000	7	32.000	6	40.000	4	50.000	-1	80.000	-3	100.00	-8	120.00	-10
1,4-Dichlorobenzene			10.000	7	20.000	8	32.000	6	40.000	4	50.000	-1	80.000	-4	100.00	-8	120.00	-11
Benzyl alcohol			10.000	-9	20.000	-7	32.000	-3	40.000	-4	50.000	0	80.000	7	100.00	7	120.00	9
1,2-Dichlorobenzene			10.000	7	20.000	7	32.000	6	40.000	3	50.000	-1	80.000	-4	100.00	-8	120.00	-10
2-Methylphenol			10.000	0	20.000	1	32.000	0	40.000	-4	50.000	-3	80.000	1	100.00	2	120.00	3
bis(2-Chloroisopropyl) ether			10.000	7	20.000	6	32.000	3	40.000	-1	50.000	-4	80.000	-4	100.00	-4	120.00	-3
4-Methylphenol			10.000	-5	20.000	-5	32.000	-3	40.000	-4	50.000	-2	80.000	5	100.00	6	120.00	9
N-Nitroso-di-n-propylamine			10.000	-15	20.000	-4	32.000	1	40.000	1	50.000	1	80.000	6	100.00	4	120.00	6
Hexachloroethane			10.000	1	20.000	4	32.000	5	40.000	3	50.000	0	80.000	-1	100.00	-5	120.00	-6
Nitrobenzene			10.000	2	20.000	3	32.000	4	40.000	2	50.000	-2	80.000	-1	100.00	-3	120.00	-5
Isophorone			10.000	-2	20.000	5	32.000	7	40.000	5	50.000	-1	80.000	-2	100.00	-5	120.00	-7
2-Nitrophenol					20.000	-6	32.000	0	40.000	1	50.000	1	80.000	4	100.00	1	120.00	-1
2,4-Dimethylphenol			10.000	-5	20.000	-2	32.000	7	40.000	8	50.000	2	80.000	0	100.00	-4	120.00	-6
bis(2-Chloroethoxy)methane					10.000	-1	16.000	5	20.000	5	25.000	1	40.000	0	50.000	-4	60.000	-6
Benzoic acid			50.000	**-23**	60.000	-11	80.000	0	90.000	6	100.00	4	120.00	7	130.00	8	140.00	9
2,4-Dichlorophenol			10.000	-1	20.000	3	32.000	6	40.000	6	50.000	2	80.000	0	100.00	-6	120.00	-10
1,2,4-Trichlorobenzene			10.000	9	20.000	10	32.000	9	40.000	6	50.000	-1	80.000	-6	100.00	-11	120.00	-15
Naphthalene	2.0000	-3	5.0000	3	10.000	5	16.000	6	20.000	3	25.000	0	40.000	-1	50.000	-6	60.000	-7
4-Chloroaniline			10.000	-12	20.000	8	32.000	10	40.000	10	50.000	3	80.000	-1	100.00	-7	120.00	-11
Hexachlorobutadiene			10.000	7	20.000	12	32.000	11	40.000	7	50.000	-1	80.000	-8	100.00	-12	120.00	-16
4-Chloro-3-methylphenol			10.000	-1	20.000	6	32.000	10	40.000	6	50.000	1	80.000	-3	100.00	-9	120.00	-11
2-Methylnaphthalene	2.0000	-11	5.0000	-4	10.000	7	16.000	11	20.000	9	25.000	4	40.000	0	50.000	-6	60.000	-9
Hexachlorocyclopentadiene					20.000	-4	32.000	1	40.000	4	50.000	3	80.000	4	100.00	-2	120.00	-7
2,4,6-Trichlorophenol			10.000	-3	20.000	2	32.000	3	40.000	3	50.000	2	80.000	1	100.00	-2	120.00	-6
2,4,5-Trichlorophenol			10.000	-3	20.000	4	32.000	8	40.000	7	50.000	0	80.000	1	100.00	-7	120.00	-8
2-Chloronaphthalene					10.000	2	16.000	4	20.000	3	25.000	-1	40.000	1	50.000	-4	60.000	-6
2-Nitroaniline					20.000	-2	32.000	2	40.000	1	50.000	0	80.000	1	100.00	-1	120.00	-1
Dimethylphthalate			10.000	2	20.000	5	32.000	6	40.000	4	50.000	0	80.000	0	100.00	-7	120.00	-11
2,6-Dinitrotoluene			10.000	-8	20.000	-2	32.000	2	40.000	1	50.000	1	80.000	5	100.00	1	120.00	0
Acenaphthylene	2.0000	-5	5.0000	1	10.000	4	16.000	5	20.000	3	25.000	0	40.000	0	50.000	-3	60.000	-6
3-Nitroaniline					20.000	-8	32.000	-2	40.000	0	50.000	0	80.000	5	100.00	3	120.00	2
Acenaphthene	2.0000	-7	5.0000	-1	10.000	4	16.000	4	20.000	5	25.000	0	40.000	1	50.000	-2	60.000	-4
2,4-Dinitrophenol					20.000	11	32.000	-1	40.000	-1	50.000	-4	80.000	0	100.00	-1	120.00	1
4-Nitrophenol					20.000	-6	32.000	0	40.000	1	50.000	0	80.000	4	100.00	1	120.00	1
Dibenzofuran					10.000	2	16.000	3	20.000	2	25.000	0	40.000	1	50.000	-2	60.000	-6
2,4-Dinitrotoluene			10.000	-9	20.000	-2	32.000	4	40.000	3	50.000	1	80.000	5	100.00	0	120.00	-2
Diethylphthalate					10.000	0	16.000	3	20.000	3	25.000	0	40.000	2	50.000	-3	60.000	-6
Fluorene	2.0000	-2	5.0000	2	10.000	4	16.000	5	20.000	3	25.000	0	40.000	0	50.000	-5	60.000	-8

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
4-Chlorophenyl-phenylether					10.000	0	16.000	3	20.000	2	25.000	0	40.000	2	50.000	-2	60.000	-5
4-Nitroaniline					20.000	-5	32.000	0	40.000	0	50.000	-1	80.000	4	100.00	1	120.00	0
4,6-Dinitro-2-methylphenol					20.000	-17	32.000	-9	40.000	-1	50.000	0	80.000	8	100.00	8	120.00	11
N-Nitrosodiphenylamine					10.000	2	16.000	2	20.000	3	25.000	-1	40.000	0	50.000	-3	60.000	-3
Azobenzene					10.000	3	16.000	2	20.000	3	25.000	0	40.000	-1	50.000	-4	60.000	-3
4-Bromophenyl-phenylether					10.000	0	16.000	0	20.000	2	25.000	-1	40.000	1	50.000	-1	60.000	-1
Hexachlorobenzene			10.000	3	20.000	4	32.000	5	40.000	5	50.000	0	80.000	-2	100.00	-6	120.00	-8
Pentachlorophenol					20.000	-10	32.000	-3	40.000	3	50.000	1	80.000	5	100.00	2	120.00	3
Phenanthrene	2.0000	-3	5.0000	6	10.000	6	16.000	6	20.000	5	25.000	0	40.000	-3	50.000	-7	60.000	-10
Anthracene	2.0000	-3	5.0000	3	10.000	6	16.000	6	20.000	4	25.000	1	40.000	-3	50.000	-6	60.000	-9
Carbazole			10.000	0	20.000	11	32.000	10	40.000	9	50.000	2	80.000	-5	100.00	-12	120.00	-14
Di-n-butylphthalate					10.000	9	16.000	8	20.000	8	25.000	2	40.000	-4	50.000	-9	60.000	-12
Fluoranthene	2.0000	-2	5.0000	8	10.000	8	16.000	8	20.000	6	25.000	-1	40.000	-5	50.000	-10	60.000	-12
Pyrene	2.0000	-10	5.0000	4	10.000	6	16.000	8	20.000	6	25.000	1	40.000	-1	50.000	-6	60.000	-6
Butylbenzylphthalate					10.000	0	16.000	4	20.000	2	25.000	-1	40.000	0	50.000	-3	60.000	-2
3,3'-Dichlorobenzidine					20.000	-1	32.000	5	40.000	7	50.000	3	80.000	0	100.00	-6	120.00	-9
Benzo(a)anthracene	2.0000	-5	5.0000	0	10.000	1	16.000	3	20.000	2	25.000	-1	40.000	1	50.000	-1	60.000	0
bis(2-Ethylhexyl)phthalate					10.000	8	16.000	11	20.000	10	25.000	5	40.000	-3	50.000	-11	60.000	-20
Chrysene	2.0000	-6	5.0000	-2	10.000	2	16.000	4	20.000	4	25.000	0	40.000	1	50.000	-3	60.000	-1
Di-n-octylphthalate					10.000	-3	16.000	1	20.000	1	25.000	-1	40.000	2	50.000	1	60.000	0
Benzo(b)fluoranthene	2.0000	-15	5.0000	-6	10.000	0	16.000	1	20.000	2	25.000	0	40.000	6	50.000	2	60.000	10
Benzo(k)fluoranthene	2.0000	-14	5.0000	-4	10.000	0	16.000	6	20.000	4	25.000	0	40.000	3	50.000	4	60.000	1
Benzo(a)pyrene	2.0000	-17	5.0000	-6	10.000	-1	16.000	4	20.000	4	25.000	0	40.000	6	50.000	5	60.000	6
Indeno(1,2,3-cd)pyrene	2.0000	-18	5.0000	-8	10.000	-2	16.000	4	20.000	5	25.000	2	40.000	5	50.000	5	60.000	7
Dibenz(a,h)anthracene	2.0000	-19	5.0000	-9	10.000	-2	16.000	4	20.000	4	25.000	2	40.000	6	50.000	6	60.000	8
Benzo(g,h,i)perylene	2.0000	-13	5.0000	-8	10.000	-3	16.000	2	20.000	4	25.000	1	40.000	5	50.000	5	60.000	6
2-Fluorophenol	2.0000	-9	5.0000	-1	10.000	1	16.000	3	20.000	1	25.000	-1	40.000	2	50.000	2	60.000	2
Phenol-d5	2.0000	-6	5.0000	0	10.000	1	16.000	2	20.000	-1	25.000	-2	40.000	1	50.000	2	60.000	3
Nitrobenzene-d5	2.0000	-6	5.0000	1	10.000	-2	16.000	3	20.000	2	25.000	0	40.000	2	50.000	1	60.000	1
2-Fluorobiphenyl	2.0000	-4	5.0000	2	10.000	6	16.000	7	20.000	4	25.000	0	40.000	-1	50.000	-5	60.000	-9
2,4,6-Tribromophenol	2.0000	**-28**	5.0000	-14	10.000	-6	16.000	-1	20.000	3	25.000	3	40.000	15	50.000	13	60.000	15
Terphenyl-d14	2.0000	-11	5.0000	1	10.000	5	16.000	7	20.000	6	25.000	1	40.000	0	50.000	-4	60.000	-5

KMH 08/01/14 [Aniline]: Picked or reassigned peak in all levels.

KMH 08/01/14 [3-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [4-Nitrophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [4-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [3,3'-Dichlorobenzidine]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [2,4-Dinitrophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [4-Chloroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [2,4,5-Trichlorophenol]: Corrected automatically drawn baseline in ICAL (rgv23).

KMH 08/01/14 [Anthracene]: Corrected automatically drawn baseline in ICAL (rgv23).

Analyst: KMH Date: 08/01/14 Reviewer: LW Date: 08/06/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; LINR=Linear regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259882 MSBNA Water
EPA 8270D

Inst : MSBNA09 Name : 6PTBNA9
Calnum : 584305789001 Cal Date : 31-JUL-2014

ICV 584305789025 (rgv25 31-JUL-2014) stds: S24471

Analyte	Spiked	Quant	Units	%D	Max	Flags
N-Nitrosodimethylamine	40.00	38.45	ug/mL	-4	20	
Phenol	40.00	38.19	ug/mL	-5	20	
bis(2-Chloroethyl)ether	40.00	39.29	ug/mL	-2	20	
2-Chlorophenol	40.00	38.81	ug/mL	-3	20	
1,3-Dichlorobenzene	40.00	39.49	ug/mL	-1	20	
1,4-Dichlorobenzene	40.00	39.00	ug/mL	-3	20	
Benzyl alcohol	40.00	40.12	ug/mL	0	20	
1,2-Dichlorobenzene	40.00	39.12	ug/mL	-2	20	
2-Methylphenol	40.00	39.22	ug/mL	-2	20	
bis(2-Chloroisopropyl) ether	40.00	39.13	ug/mL	-2	20	
4-Methylphenol	40.00	34.09	ug/mL	-15	20	
N-Nitroso-di-n-propylamine	40.00	39.44	ug/mL	-1	20	
Hexachloroethane	40.00	39.10	ug/mL	-2	20	
Nitrobenzene	40.00	39.53	ug/mL	-1	20	
Isophorone	40.00	40.94	ug/mL	2	20	
2-Nitrophenol	40.00	39.56	ug/mL	-1	20	
2,4-Dimethylphenol	40.00	41.81	ug/mL	5	20	
bis(2-Chloroethoxy)methane	40.00	39.42	ug/mL	-1	20	
Benzoic acid	100.0	105.4	ug/mL	5	20	
2,4-Dichlorophenol	40.00	39.98	ug/mL	0	20	
1,2,4-Trichlorobenzene	40.00	39.54	ug/mL	-1	20	
Naphthalene	40.00	38.13	ug/mL	-5	20	
4-Chloroaniline	40.00	42.00	ug/mL	5	20	
Hexachlorobutadiene	40.00	40.75	ug/mL	2	20	
4-Chloro-3-methylphenol	40.00	39.84	ug/mL	0	20	
2-Methylnaphthalene	40.00	40.39	ug/mL	1	20	
Hexachlorocyclopentadiene	40.00	36.71	ug/mL	-8	20	
2,4,6-Trichlorophenol	40.00	38.79	ug/mL	-3	20	
2,4,5-Trichlorophenol	40.00	40.19	ug/mL	0	20	
2-Chloronaphthalene	40.00	38.31	ug/mL	-4	20	
2-Nitroaniline	40.00	38.87	ug/mL	-3	20	
Dimethylphthalate	40.00	39.93	ug/mL	0	20	
2,6-Dinitrotoluene	40.00	40.44	ug/mL	1	20	
Acenaphthylene	40.00	43.26	ug/mL	8	20	
3-Nitroaniline	40.00	40.11	ug/mL	0	20	
Acenaphthene	40.00	35.94	ug/mL	-10	20	
2,4-Dinitrophenol	40.00	40.36	ug/mL	1	20	m
4-Nitrophenol	40.00	38.52	ug/mL	-4	20	m
Dibenzofuran	40.00	38.29	ug/mL	-4	20	
2,4-Dinitrotoluene	40.00	39.63	ug/mL	-1	20	
Diethylphthalate	40.00	37.90	ug/mL	-5	20	
Fluorene	40.00	37.80	ug/mL	-6	20	
4-Chlorophenyl-phenylether	40.00	38.25	ug/mL	-4	20	
4-Nitroaniline	40.00	38.21	ug/mL	-4	20	
4,6-Dinitro-2-methylphenol	40.00	38.45	ug/mL	-4	20	
N-Nitrosodiphenylamine	40.00	44.66	ug/mL	12	20	
Azobenzene	40.00	37.93	ug/mL	-5	20	
4-Bromophenyl-phenylether	40.00	38.36	ug/mL	-4	20	
Hexachlorobenzene	40.00	39.17	ug/mL	-2	20	

Analyte	Spiked	Quant	Units	%D	Max	Flags
Pentachlorophenol	40.00	37.41	ug/mL	-6	20	
Phenanthrene	40.00	37.26	ug/mL	-7	20	
Anthracene	40.00	38.70	ug/mL	-3	20	
Carbazole	40.00	40.93	ug/mL	2	20	
Di-n-butylphthalate	40.00	37.30	ug/mL	-7	20	
Fluoranthene	40.00	36.70	ug/mL	-8	20	
Pyrene	40.00	36.20	ug/mL	-9	20	
Butylbenzylphthalate	40.00	38.51	ug/mL	-4	20	
3,3'-Dichlorobenzidine	60.00	59.84	ug/mL	0	20	
Benzo(a)anthracene	40.00	39.04	ug/mL	-2	20	
bis(2-Ethylhexyl)phthalate	40.00	39.42	ug/mL	-1	20	
Chrysene	40.00	37.36	ug/mL	-7	20	
Di-n-octylphthalate	40.00	38.60	ug/mL	-3	20	
Benzo(b)fluoranthene	40.00	42.43	ug/mL	6	20	
Benzo(k)fluoranthene	40.00	38.95	ug/mL	-3	20	
Benzo(a)pyrene	40.00	44.62	ug/mL	12	20	
Indeno(1,2,3-cd)pyrene	40.00	39.27	ug/mL	-2	20	
Dibenz(a,h)anthracene	40.00	38.70	ug/mL	-3	20	
Benzo(g,h,i)perylene	40.00	38.80	ug/mL	-3	20	

Analyst: KMH Date: 08/01/14 Reviewer: LW Date: 08/06/14

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 MSBNA Water
EPA 8270D

Inst : MSBNA05 IDF : 1.0
Seqnum : 544337710003.1 File : xhm03 Time : 22-AUG-2014 13:21
Cal : 544327680001 Caldate : 15-AUG-2014
Standards: S25410

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
N-Nitrosodimethylamine	0.6698	0.6237	32.00	29.80	ug/mL	-7	20	0.0500	
Phenol	1.6896	1.6734	32.00	31.69	ug/mL	-1	20	0.8000	
bis(2-Chloroethyl)ether	1.2308	1.2209	32.00	31.74	ug/mL	-1	20	0.7000	
2-Chlorophenol	1.4096	1.4448	32.00	32.80	ug/mL	2	20	0.8000	
1,3-Dichlorobenzene	1.5127	1.5961	32.00	33.76	ug/mL	6	20	0.0500	
1,4-Dichlorobenzene	1.5089	1.6387	32.00	34.75	ug/mL	9	20	0.0500	
Benzyl alcohol	0.9408	0.9272	32.00	31.54	ug/mL	-1	20	0.0500	
1,2-Dichlorobenzene	1.4769	1.5861	32.00	34.37	ug/mL	7	20	0.0500	
2-Methylphenol	1.1390	1.1543	32.00	32.43	ug/mL	1	20	0.7000	
bis(2-Chloroisopropyl) ether	1.8550	1.7147	32.00	29.58	ug/mL	-8	20	0.0100	
4-Methylphenol	1.6809	1.6529	32.00	31.47	ug/mL	-2	20	0.6000	
N-Nitroso-di-n-propylamine	0.8406	0.8372	32.00	31.87	ug/mL	0	20	0.5000	
Hexachloroethane	0.6432	0.6638	32.00	33.03	ug/mL	3	20	0.3000	
Nitrobenzene	0.4083	0.3898	32.00	30.55	ug/mL	-5	20	0.2000	
Isophorone	0.7286	0.6823	32.00	29.97	ug/mL	-6	20	0.4000	
2-Nitrophenol	0.2054	0.2075	32.00	32.32	ug/mL	1	20	0.1000	
2,4-Dimethylphenol	0.3594	0.3552	32.00	31.62	ug/mL	-1	20	0.2000	
bis(2-Chloroethoxy)methane	0.4299	0.4127	16.00	15.36	ug/mL	-4	20	0.3000	
Benzoic acid	0.2677	0.2252	80.00	67.30	ug/mL	-16	20	0.0500	
2,4-Dichlorophenol	0.3040	0.3226	32.00	33.96	ug/mL	6	20	0.2000	
1,2,4-Trichlorobenzene	0.3182	0.3506	32.00	35.26	ug/mL	10	20	0.0500	
Naphthalene	1.0955	1.1515	16.00	16.82	ug/mL	5	20	0.7000	
4-Chloroaniline	0.4369	0.4679	32.00	32.21	ug/mL	1	20	0.0100	
Hexachlorobutadiene	0.1650	0.1865	32.00	36.18	ug/mL	13	20	0.0100	
4-Chloro-3-methylphenol	0.3207	0.3176	32.00	31.70	ug/mL	-1	20	0.2000	
2-Methylnaphthalene	0.7396	0.7702	16.00	16.66	ug/mL	4	20	0.4000	
Hexachlorocyclopentadiene	0.3300	0.3548	32.00	34.40	ug/mL	7	20	0.0500	
2,4,6-Trichlorophenol	0.3660	0.3983	32.00	34.82	ug/mL	9	20	0.2000	
2,4,5-Trichlorophenol	0.3900	0.4295	32.00	35.24	ug/mL	10	20	0.2000	
2-Chloronaphthalene	1.1656	1.2477	16.00	17.13	ug/mL	7	20	0.8000	
2-Nitroaniline	0.4008	0.3894	32.00	31.09	ug/mL	-3	20	0.0100	
Dimethylphthalate	1.2709	1.3786	32.00	34.71	ug/mL	8	20	0.0100	
2,6-Dinitrotoluene	0.3123	0.3278	32.00	33.59	ug/mL	5	20	0.2000	
Acenaphthylene	1.9468	2.0174	16.00	16.58	ug/mL	4	20	0.9000	
3-Nitroaniline	0.3467	0.3376	32.00	31.16	ug/mL	-3	20	0.0100	
Acenaphthene	1.2140	1.2997	16.00	17.13	ug/mL	7	20	0.9000	
2,4-Dinitrophenol	0.1633	0.1332	32.00	30.77	ug/mL	-4	20	0.0100	
4-Nitrophenol	0.1875	0.1889	32.00	32.24	ug/mL	1	20	0.0100	
Dibenzofuran	1.6090	1.7668	16.00	17.57	ug/mL	10	20	0.8000	
2,4-Dinitrotoluene	0.4105	0.4432	32.00	34.55	ug/mL	8	20	0.2000	
Diethylphthalate	1.4209	1.4989	16.00	16.88	ug/mL	5	20	0.0100	
Fluorene	1.3851	1.5029	16.00	17.36	ug/mL	9	20	0.9000	
4-Chlorophenyl-phenylether	0.6164	0.6805	16.00	17.66	ug/mL	10	20	0.4000	
4-Nitroaniline	0.3594	0.3461	32.00	30.82	ug/mL	-4	20	0.0100	
4,6-Dinitro-2-methylphenol	0.1361	0.1337	32.00	31.43	ug/mL	-2	20	0.0100	
N-Nitrosodiphenylamine	0.6073	0.6155	16.00	16.22	ug/mL	1	20	0.0100	
Azobenzene	0.9270	0.8623	16.00	14.88	ug/mL	-7	20	0.0500	
4-Bromophenyl-phenylether	0.2207	0.2292	16.00	16.61	ug/mL	4	20	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Hexachlorobenzene	0.2199	0.2488	32.00	36.21	ug/mL	13	20	0.1000	
Pentachlorophenol	0.1511	0.1598	32.00	33.83	ug/mL	6	20	0.0500	
Phenanthrene	1.1442	1.1958	16.00	16.72	ug/mL	5	20	0.7000	
Anthracene	1.1638	1.2162	16.00	16.72	ug/mL	5	20	0.7000	
Carbazole	0.9656	1.0615	32.00	35.18	ug/mL	10	20	0.0100	
Di-n-butylphthalate	1.4456	1.4827	16.00	16.41	ug/mL	3	20	0.0100	
Fluoranthene	1.2637	1.3255	16.00	16.78	ug/mL	5	20	0.6000	
Pyrene	1.2850	1.2987	16.00	16.17	ug/mL	1	20	0.6000	
Butylbenzylphthalate	0.6466	0.5988	16.00	14.82	ug/mL	-7	20	0.0100	
3,3'-Dichlorobenzidine	0.3696	0.3720	32.00	32.21	ug/mL	1	20	0.0100	
Benzo(a)anthracene	1.1441	1.1317	16.00	15.83	ug/mL	-1	20	0.8000	
bis(2-Ethylhexyl)phthalate	0.8394	0.8588	16.00	16.37	ug/mL	2	20	0.0100	
Chrysene	1.0537	1.0607	16.00	16.11	ug/mL	1	20	0.7000	
Di-n-octylphthalate	1.7540	1.5766	16.00	14.38	ug/mL	-10	20	0.0100	
Benzo(b)fluoranthene	1.2072	1.1684	16.00	15.49	ug/mL	-3	20	0.7000	
Benzo(k)fluoranthene	1.0969	1.1143	16.00	16.25	ug/mL	2	20	0.7000	
Benzo(a)pyrene	1.1520	1.1383	16.00	15.81	ug/mL	-1	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.2676	1.2661	16.00	15.98	ug/mL	0	20	0.5000	
Dibenz(a,h)anthracene	1.0805	1.0496	16.00	15.54	ug/mL	-3	20	0.4000	
Benzo(g,h,i)perylene	1.0588	0.9985	16.00	15.09	ug/mL	-6	20	0.5000	
2-Fluorophenol	1.3488	1.3117	16.00	15.56	ug/mL	-3	20	0.0500	
Phenol-d5	1.6768	1.6384	16.00	15.63	ug/mL	-2	20	0.0500	
Nitrobenzene-d5	0.4472	0.4317	16.00	15.45	ug/mL	-3	20	0.0500	
2-Fluorobiphenyl	1.4224	1.5512	16.00	17.45	ug/mL	9	20	0.0500	
2,4,6-Tribromophenol	0.1832	0.2197	16.00	19.19	ug/mL	20	20	0.0500	
Terphenyl-d14	0.8766	0.9028	16.00	16.48	ug/mL	3	20	0.0500	

ISTD (ICAL xhf11)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	1031318	819662	-20.52
Naphthalene-d8	3900538	3193615	-18.12
Acenaphthene-d10	2287286	1835047	-19.77
Phenanthrene-d10	3792150	3280267	-13.50
Chrysene-d12	4068719	3737425	-8.14
Perylene-d12	3663483	3429326	-6.39

ISTD (ICAL xhf11)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.04	6.04	0.00
Naphthalene-d8	7.55	7.55	0.00
Acenaphthene-d10	9.73	9.73	0.00
Phenanthrene-d10	11.60	11.60	0.00
Chrysene-d12	15.04	15.04	0.00
Perylene-d12	18.01	18.01	0.00

KMH 08/27/14 [Aniline]: Picked or reassigned peak. [general version]

Analyst: KMH Date: 08/26/14 Reviewer: LW Date: 08/27/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 MSBNA Water
EPA 8270D

Inst : MSBNA09 IDF : 1.0
Seqnum : 584336313003.1 File : rhl03 Time : 21-AUG-2014 13:55
Cal : 584305789001 Caldate : 31-JUL-2014
Standards: S24428

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
N-Nitrosodimethylamine	0.6889	0.7185	40.00	41.72	ug/mL	4	20	0.0500	
Phenol	1.7505	1.7320	40.00	39.58	ug/mL	-1	20	0.8000	
bis(2-Chloroethyl)ether	1.3236	1.3003	40.00	39.30	ug/mL	-2	20	0.7000	
2-Chlorophenol	1.4949	1.5253	40.00	40.81	ug/mL	2	20	0.8000	
1,3-Dichlorobenzene	1.5853	1.6408	40.00	41.40	ug/mL	4	20	0.0500	
1,4-Dichlorobenzene	1.6031	1.6415	40.00	40.96	ug/mL	2	20	0.0500	
Benzyl alcohol	0.9638	0.9435	40.00	39.16	ug/mL	-2	20	0.0500	
1,2-Dichlorobenzene	1.4985	1.5398	40.00	41.10	ug/mL	3	20	0.0500	
2-Methylphenol	1.1156	1.1119	40.00	39.87	ug/mL	0	20	0.7000	
bis(2-Chloroisopropyl) ether	1.8467	1.8376	40.00	39.80	ug/mL	0	20	0.0100	
4-Methylphenol	1.7193	1.6807	40.00	39.10	ug/mL	-2	20	0.6000	
N-Nitroso-di-n-propylamine	0.9873	0.9595	40.00	38.87	ug/mL	-3	20	0.5000	
Hexachloroethane	0.6219	0.6059	40.00	38.97	ug/mL	-3	20	0.3000	
Nitrobenzene	0.3602	0.3709	40.00	41.19	ug/mL	3	20	0.2000	
Isophorone	0.7371	0.7420	40.00	40.27	ug/mL	1	20	0.4000	
2-Nitrophenol	0.2033	0.2246	40.00	44.19	ug/mL	10	20	0.1000	
2,4-Dimethylphenol	0.3677	0.3751	40.00	40.80	ug/mL	2	20	0.2000	
bis(2-Chloroethoxy)methane	0.4575	0.4562	20.00	19.94	ug/mL	0	20	0.3000	
Benzoic acid	0.2582	0.2216	90.00	77.24	ug/mL	-14	20	0.0500	
2,4-Dichlorophenol	0.3137	0.3374	40.00	43.02	ug/mL	8	20	0.2000	
1,2,4-Trichlorobenzene	0.3187	0.3377	40.00	42.38	ug/mL	6	20	0.0500	
Naphthalene	1.0889	1.1771	20.00	21.62	ug/mL	8	20	0.7000	
4-Chloroaniline	0.4867	0.5185	40.00	42.61	ug/mL	7	20	0.0100	
Hexachlorobutadiene	0.1765	0.1856	40.00	42.07	ug/mL	5	20	0.0100	
4-Chloro-3-methylphenol	0.3533	0.3715	40.00	42.07	ug/mL	5	20	0.2000	
2-Methylnaphthalene	0.7670	0.8551	20.00	22.30	ug/mL	11	20	0.4000	
Hexachlorocyclopentadiene	0.3767	0.3474	40.00	36.88	ug/mL	-8	20	0.0500	
2,4,6-Trichlorophenol	0.3821	0.4081	40.00	42.73	ug/mL	7	20	0.2000	
2,4,5-Trichlorophenol	0.4071	0.4466	40.00	43.88	ug/mL	10	20	0.2000	
2-Chloronaphthalene	1.1882	1.2636	20.00	21.27	ug/mL	6	20	0.8000	
2-Nitroaniline	0.3530	0.3755	40.00	42.55	ug/mL	6	20	0.0100	
Dimethylphthalate	1.4121	1.4962	40.00	42.38	ug/mL	6	20	0.0100	
2,6-Dinitrotoluene	0.3419	0.3627	40.00	42.43	ug/mL	6	20	0.2000	
Acenaphthylene	1.6876	1.8230	20.00	21.61	ug/mL	8	20	0.9000	
3-Nitroaniline	0.3815	0.3941	40.00	41.32	ug/mL	3	20	0.0100	
Acenaphthene	1.2534	1.3468	20.00	21.49	ug/mL	7	20	0.9000	
2,4-Dinitrophenol	0.1660	0.1331	40.00	35.93	ug/mL	-10	20	0.0100	
4-Nitrophenol	0.1911	0.1780	40.00	37.24	ug/mL	-7	20	0.0100	
Dibenzofuran	1.7373	1.8729	20.00	21.56	ug/mL	8	20	0.8000	
2,4-Dinitrotoluene	0.4742	0.5132	40.00	43.29	ug/mL	8	20	0.2000	
Diethylphthalate	1.5329	1.6040	20.00	20.93	ug/mL	5	20	0.0100	
Fluorene	1.4346	1.5696	20.00	21.88	ug/mL	9	20	0.9000	
4-Chlorophenyl-phenylether	0.7249	0.7815	20.00	21.56	ug/mL	8	20	0.4000	
4-Nitroaniline	0.3951	0.4009	40.00	40.58	ug/mL	1	20	0.0100	
4,6-Dinitro-2-methylphenol	0.1451	0.1378	40.00	38.00	ug/mL	-5	20	0.0100	
N-Nitrosodiphenylamine	0.5974	0.6363	20.00	21.30	ug/mL	7	20	0.0100	
Azobenzene	0.7988	0.7726	20.00	19.34	ug/mL	-3	20	0.0500	
4-Bromophenyl-phenylether	0.2478	0.2502	20.00	20.19	ug/mL	1	20	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Hexachlorobenzene	0.2674	0.2491	40.00	37.26	ug/mL	-7	20	0.1000	
Pentachlorophenol	0.1695	0.1642	40.00	38.74	ug/mL	-3	20	0.0500	
Phenanthrene	1.1611	1.2487	20.00	21.51	ug/mL	8	20	0.7000	
Anthracene	1.1484	1.2514	20.00	21.79	ug/mL	9	20	0.7000	
Carbazole	1.0146	1.1123	40.00	43.85	ug/mL	10	20	0.0100	
Di-n-butylphthalate	1.4681	1.5288	20.00	20.83	ug/mL	4	20	0.0100	
Fluoranthene	1.2776	1.3962	20.00	21.86	ug/mL	9	20	0.6000	
Pyrene	1.1956	1.3431	20.00	22.47	ug/mL	12	20	0.6000	
Butylbenzylphthalate	0.5692	0.5932	20.00	20.84	ug/mL	4	20	0.0100	
3,3'-Dichlorobenzidine	0.4323	0.4266	40.00	39.47	ug/mL	-1	20	0.0100	
Benzo(a)anthracene	1.1261	1.1796	20.00	20.95	ug/mL	5	20	0.8000	
bis(2-Ethylhexyl)phthalate	0.7821	0.8416	20.00	21.52	ug/mL	8	20	0.0100	
Chrysene	1.0669	1.1550	20.00	21.65	ug/mL	8	20	0.7000	
Di-n-octylphthalate	1.5448	1.6378	20.00	21.20	ug/mL	6	20	0.0100	
Benzo(b)fluoranthene	1.1600	1.2297	20.00	21.20	ug/mL	6	20	0.7000	
Benzo(k)fluoranthene	1.1557	1.2797	20.00	22.15	ug/mL	11	20	0.7000	
Benzo(a)pyrene	0.9853	1.0681	20.00	21.68	ug/mL	8	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.1504	1.2524	20.00	21.77	ug/mL	9	20	0.5000	
Dibenz(a,h)anthracene	1.0323	1.1196	20.00	21.69	ug/mL	8	20	0.4000	
Benzo(g,h,i)perylene	0.9160	0.9817	20.00	21.43	ug/mL	7	20	0.5000	
2-Fluorophenol	1.4661	1.4490	20.00	19.77	ug/mL	-1	20	0.0500	
Phenol-d5	1.7103	1.7276	20.00	20.20	ug/mL	1	20	0.0500	
Nitrobenzene-d5	0.3849	0.3887	20.00	20.20	ug/mL	1	20	0.0500	
2-Fluorobiphenyl	1.4236	1.5625	20.00	21.95	ug/mL	10	20	0.0500	
2,4,6-Tribromophenol	0.2136	0.2036	20.00	19.07	ug/mL	-5	20	0.0500	
Terphenyl-d14	0.9287	0.9933	20.00	21.39	ug/mL	7	20	0.0500	

ISTD (ICAL rgv21)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	1195108	1032764	-13.58
Naphthalene-d8	4635194	3857267	-16.78
Acenaphthene-d10	2989178	2470642	-17.35
Phenanthrene-d10	5453704	4608315	-15.50
Chrysene-d12	6186500	5098984	-17.58
Perylene-d12	5646577	4454688	-21.11

ISTD (ICAL rgv21)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.23	6.21	-0.02
Naphthalene-d8	7.72	7.70	-0.02
Acenaphthene-d10	9.88	9.86	-0.02
Phenanthrene-d10	11.73	11.72	-0.01
Chrysene-d12	15.19	15.17	-0.02
Perylene-d12	18.23	18.20	-0.03

KMH 08/21/14 [Aniline]: Picked or reassigned peak. [general version]

Analyst: KMH Date: 08/26/14 Reviewer: LW Date: 08/27/14

Logbooks & Sequences

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 544337710

Date : 08/22/14 Reference : xhf11
Sequence : MSBNA05 xhm Analyzed : 08/15/14 19:42

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	1031318	3900538	2287286	3792150	4068719	3663483
		LOWER LIMIT	515659	1950269	1143643	1896075	2034360	1831742
		UPPER LIMIT	2062636	7801076	4574572	7584300	8137438	7326966
003	CCV		819662	3193615	1835047	3280267	3737425	3429326
004	BS	QC754311	844316	3157071	1812139	3184675	3609410	3278694
005	BSD	QC754312	861765	3239690	1860620	3229106	3692194	3365258
007	SAMPLE	259835-002	953069	3557197	2076440	3651762	4176422	4019485
008	SAMPLE	259841-005	928643	3444660	2012460	3490847	4009714	3767470
012	SAMPLE	259882-002	967884	3521875	2089201	3669232	4246965	4048844
013	SAMPLE	259882-001	927629	3457800	1979679	3441248	3925823	3601964
014	SAMPLE	259882-001	948647	3346840	1908253	3347120	3844751	3599252

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 544337710

Date : 08/22/14 Reference : xhf11
Sequence : MSBNA05 xhm Analyzed : 08/15/14 19:42

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	6.04	7.55	9.73	11.60	15.04	18.01
		LOWER LIMIT	5.54	7.05	9.23	11.10	14.54	17.51
		UPPER LIMIT	6.54	8.05	10.23	12.10	15.54	18.51
003	CCV		6.04	7.55	9.73	11.60	15.04	18.01

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 544337710

Date : 08/22/14
Sequence : MSBNA05 xhm

Reference : xhm03
Analyzed : 08/22/14 13:21

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	6.04	7.55	9.73	11.60	15.04	18.01
		LOWER LIMIT	5.54	7.05	9.23	11.10	14.54	17.51
		UPPER LIMIT	6.54	8.05	10.23	12.10	15.54	18.51
004	BS	QC754311	6.04	7.55	9.73	11.60	15.04	18.01
005	BSD	QC754312	6.04	7.55	9.73	11.60	15.04	18.01
007	SAMPLE	259835-002	6.04	7.55	9.73	11.60	15.05	18.04
008	SAMPLE	259841-005	6.04	7.55	9.73	11.60	15.06	18.04
012	SAMPLE	259882-002	6.04	7.55	9.73	11.60	15.05	18.03
013	SAMPLE	259882-001	6.05	7.55	9.73	11.60	15.04	18.02
014	SAMPLE	259882-001	6.04	7.55	9.73	11.60	15.04	18.02

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584336313

Date : 08/21/14 Reference : rgv21
Sequence : MSBNA09 rhl Analyzed : 07/31/14 21:47

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	1195108	4635194	2989178	5453704	6186500	5646577
		LOWER LIMIT	597554	2317597	1494589	2726852	3093250	2823289
		UPPER LIMIT	2390216	9270388	5978356	10907408	12373000	11293154
003	CCV		1032764	3857267	2470642	4608315	5098984	4454688
004	BLANK	QC754310	970897	3544000	2172084	3941018	5010181	4430666
005	BS	QC754311	970620	3749257	2432394	4557286	5020842	4556462
006	BSD	QC754312	986455	3730873	2432536	4563310	5042243	4529695
014	SAMPLE	259882-001	78844 *	5253260	2776947	5078585	4862783	1904607 *
015	SAMPLE	259882-002	960265	3517445	2280727	4257526	4250915	2447520 *

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584336313

Date : 08/21/14 Reference : rgv21
Sequence : MSBNA09 rhl Analyzed : 07/31/14 21:47

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	6.23	7.72	9.88	11.73	15.19	18.23
		LOWER LIMIT	5.73	7.22	9.38	11.23	14.69	17.73
		UPPER LIMIT	6.73	8.22	10.38	12.23	15.69	18.73
003	CCV		6.21	7.70	9.86	11.72	15.17	18.20

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584336313

Date : 08/21/14
Sequence : MSBNA09 rhl

Reference : rhl03
Analyzed : 08/21/14 13:55

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	6.21	7.70	9.86	11.72	15.17	18.20
		LOWER LIMIT	5.71	7.20	9.36	11.22	14.67	17.70
		UPPER LIMIT	6.71	8.20	10.36	12.22	15.67	18.70
004	BLANK	QC754310	6.21	7.70	9.86	11.72	15.17	18.20
005	BS	QC754311	6.21	7.70	9.87	11.72	15.17	18.20
006	BSD	QC754312	6.21	7.70	9.87	11.72	15.17	18.20
014	SAMPLE	259882-001	6.23	7.73	9.87	11.72	15.16	18.18
015	SAMPLE	259882-002	6.21	7.70	9.86	11.72	15.16	18.18

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 544327680

Instrument : MSBNA05 Begun : 08/15/14 13:20
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	xhf01	IB	IB			08/15/14 13:20	1.0		?t
002	xhf02	TUN	DFTPP/PEM			08/15/14 13:47	1.0	1	
003	xhf03	CCV	RTCHECK			08/15/14 14:10	1.0	2	cc+
004	xhf04	CCV	RFCHECK			08/15/14 15:37	1.0	3	cc-
005	xhf05	TUN	DFTPP/PEM			08/15/14 16:14	1.0	1	
006	xhf06	ICAL	ICAL			08/15/14 16:36	1.0	4	
007	xhf07	ICAL	ICAL			08/15/14 17:13	1.0	5	
008	xhf08	ICAL	ICAL			08/15/14 17:48	1.0	3	
009	xhf09	ICAL	ICAL			08/15/14 18:27	1.0	6	
010	xhf10	ICAL	ICAL			08/15/14 19:04	1.0	7	
011	xhf11	ICAL	ICAL			08/15/14 19:42	1.0	8	
012	xhf12	ICAL	ICAL			08/15/14 20:18	1.0	9	
013	xhf13	ICAL	ICAL			08/15/14 20:53	1.0	10	
014	xhf14	ICAL	ICAL			08/15/14 21:30	1.0	11	
015	xhf15	ICV	ICV			08/15/14 22:08	1.0	12	

KMH 08/16/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 15.

Standards used: 1=S24893 2=S24428 3=S25409 4=S25407 5=S25408 6=S25410 7=S25411 8=S25412 9=S25413 10=S25414 11=S25415 12=S25418

Flags used: +=high bias -=low bias ?t=missing tune cc=CCV CCC failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 544337710

Instrument : MSBNA05 Begun : 08/22/14 12:30
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	xhm01	IB	IB			08/22/14 12:30	1.0		?t
002	xhm02	TUN	DFTPP/PEM			08/22/14 12:58	1.0	1	
003	xhm03	CCV				08/22/14 13:21	1.0	2	
004	xhm04	BS	QC754311	Water	214595	08/22/14 14:00	2.0	3	
005	xhm05	BSD	QC754312	Water	214595	08/22/14 14:39	2.0	3	
006	xhm06	SAMPLE	259968-001	Water	214556	08/22/14 15:21	1.0	3	
007	xhm07	SAMPLE	259835-002	Water	214595	08/22/14 16:00	1.0	3	
008	xhm08	SAMPLE	259841-005	Water	214595	08/22/14 16:37	1.0	3	
009	xhm09	SAMPLE	259968-003	Water	214556	08/22/14 17:17	1.0	3	
010	xhm10	SAMPLE	260003-001	Water	214556	08/22/14 17:56	1.0	3	
011	xhm11	SAMPLE	260003-003	Water	214556	08/22/14 18:37	1.0	3	
012	xhm12	SAMPLE	259882-002	Water	214595	08/22/14 19:17	1.0	3	
013	xhm13	SAMPLE	259882-001	Water	214595	08/22/14 19:55	10.0	3	high NT
014	xhm14	SAMPLE	259882-001	Water	214595	08/22/14 20:37	25.0	3	high NT
015	xhm15	SAMPLE	260011-002	Water	214595	08/22/14 21:18	3.0	3	high NT
016	xhm16	SAMPLE	260011-003	Water	214595	08/22/14 21:59	3.0	3	high NT
017	xhm17	SAMPLE	260011-004	Water	214595	08/22/14 22:41	3.0	3	high NT
018	xhm18	SAMPLE	260011-006	Water	214595	08/22/14 23:25	3.0	3	high NT
019	xhm19	SAMPLE	260011-007	Water	214595	08/23/14 00:05	3.0	3	high NT

KMH 08/25/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 19.

Standards used: 1=S24893 2=S25410 3=S25005

Flags used: ?t=missing tune

Page 1 of 1

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 584305789

Instrument : MSBNA09 Begun : 07/31/14 08:29
Method : EPA 8270C, EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	rgv01	X	IB			07/31/14 08:29	1.0		
002	rgv02	TUN	DFTPP/PEM			07/31/14 08:56	1.0	1	
003	rgv03	CCV	RTRFCHECK			07/31/14 09:12	1.0	2	cc+ cc-
004	rgv04	TUN	DFTPP/PEM			07/31/14 10:05	1.0	1	
005	rgv05	ICAL	ICAL			07/31/14 10:21	1.0	3	
006	rgv06	ICAL	ICAL			07/31/14 10:52	1.0	4	
007	rgv07	ICAL	ICAL			07/31/14 11:22	1.0	5	
008	rgv08	ICAL	ICAL			07/31/14 11:52	1.0	2	
009	rgv09	ICAL	ICAL			07/31/14 12:22	1.0	6	
010	rgv10	ICAL	ICAL			07/31/14 12:52	1.0	7	
012	rgv12	ICAL	ICAL			07/31/14 13:52	1.0	8	
013	rgv13	ICAL	ICAL			07/31/14 14:21	1.0	9	
014	rgv14	ICV	ICV			07/31/14 14:51	1.0	10	
015	rgv15	TUN	DFTPP/PEM			07/31/14 18:29	1.0	1	
016	rgv16	ICAL	ICAL			07/31/14 19:18	1.0	3	
017	rgv17	ICAL	ICAL			07/31/14 19:47	1.0	4	
018	rgv18	ICAL	ICAL			07/31/14 20:17	1.0	5	
019	rgv19	ICAL	ICAL			07/31/14 20:47	1.0	2	
020	rgv20	ICAL	ICAL			07/31/14 21:17	1.0	6	
021	rgv21	ICAL	ICAL			07/31/14 21:47	1.0	7	
022	rgv22	ICAL	ICAL			07/31/14 22:18	1.0	11	
023	rgv23	ICAL	ICAL			07/31/14 22:48	1.0	8	
024	rgv24	ICAL	ICAL			07/31/14 23:18	1.0	9	
025	rgv25	ICV	ICV			07/31/14 23:48	1.0	10	
026	rgv26	TUN	DFTPP/PEM			08/01/14 00:14	1.0	1	t
027	rgv27	ICAL	ICAL			08/01/14 00:26	1.0	12	t
028	rgv28	ICAL	ICAL			08/01/14 00:40	1.0	13	t
029	rgv29	ICAL	ICAL			08/01/14 00:54	1.0	14	t
030	rgv30	ICAL	ICAL			08/01/14 01:07	1.0	15	t
031	rgv31	ICAL	ICAL			08/01/14 01:21	1.0	16	t
032	rgv32	ICAL	ICAL			08/01/14 01:35	1.0	17	t
033	rgv33	ICAL	ICAL			08/01/14 01:48	1.0	18	t
034	rgv34	ICAL	ICAL			08/01/14 02:02	1.0	19	t
035	rgv35	ICV	ICV			08/01/14 02:16	1.0	20	t , 5:DNOP=120000

KMH 08/01/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 35.

LW 08/06/14 : Files 26-35 are a CPSC ICAL that ran blind and the tune failed.

Standards used: 1=S24893 2=S24427 3=S24422 4=S24424 5=S24425 6=S24428 7=S24429 8=S24431 9=S24432 10=S24471 11=S24430 12=S24549 13=S24550 14=S24551 15=S24552 16=S24553 17=S24554 18=S24555 19=S24556 20=S24557

Flags used: +=high bias -=low bias cc=CCV CCC failure t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 584336313

Instrument : MSBNA09 Begun : 08/21/14 13:13
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	rhl01	X	IB			08/21/14 13:13	1.0		
002	rhl02	TUN	DFTPP/PEM			08/21/14 13:40	1.0	1	
003	rhl03	CCV				08/21/14 13:55	1.0	2	
004	rhl04	BLANK	QC754310	Water	214595	08/21/14 14:45	1.0	3	
005	rhl05	BS	QC754311	Water	214595	08/21/14 15:14	1.0	3	
006	rhl06	BSD	QC754312	Water	214595	08/21/14 15:44	1.0	3	
007	rhl07	BLANK	QC754161	Water	214556	08/21/14 16:14	1.0	3	
008	rhl08	BS	QC754162	Water	214556	08/21/14 16:43	1.0	3	
009	rhl09	BSD	QC754163	Water	214556	08/21/14 17:13	1.0	3	
010	rhl10	SAMPLE	259865-001	Water	214556	08/21/14 17:43	1.0	3	
011	rhl11	SAMPLE	259865-003	Water	214556	08/21/14 18:12	1.0	3	
012	rhl12	SAMPLE	259918-001	Water	214556	08/21/14 18:42	1.0	3	
013	rhl13	SAMPLE	259918-003	Water	214556	08/21/14 19:12	1.0	3	
014	rhl14	SAMPLE	259882-001	Water	214595	08/21/14 19:42	1.0	3	1:BIS2CIE=230
015	rhl15	SAMPLE	259882-002	Water	214595	08/21/14 20:11	1.0	3	

KMH 08/22/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 15.

Standards used: 1=S24893 2=S24428 3=S25005

SAMPLE PREPARATION SUMMARY

Batch # : 214595
Started By : CPK
Method : 3520C
Spike #1 ID : S24866

Prep Date : 20-AUG-2014 12:20
SOP Version : 8270_3520_rv20
Spike #2 ID : S25396

Analysis : 8270-1
Finished By : AVW
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259835-002		Water	1060	1	1	0.0009434	7	.4				8270-1	Prepped 21-AUG-2014 12:06
259841-005		Water	1060	1	1	0.0009434	7	.4				8270-1	
259882-001		Water	1000	1	1	0.001	11	.4				8270-1	
259882-002		Water	1000	1	1	0.001	7	.4				8270-1	
260011-002		Water	1060	1	1	0.0009434	7	.4				8270-1	Prepped 21-AUG-2014 12:06
260011-003		Water	1060	1	1	0.0009434	7	.4				8270-1	Prepped 21-AUG-2014 12:06
260011-004		Water	1070	1	1	0.0009346	7	.4				8270-1	Prepped 21-AUG-2014 12:06
260011-006		Water	1060	1	1	0.0009434	7	.4				8270-1	Prepped 21-AUG-2014 12:06
260011-007		Water	1060	1	1	0.0009434	7	.4				8270-1	Prepped 21-AUG-2014 12:06
QC754310	BLANK	Water	1000	1	1	0.001		.4				8270-1	
QC754311	BS	Water	1000	1	1	0.001		.4	1			8270-1	
QC754312	BSD	Water	1000	1	1	0.001		.4	1			8270-1	

KMH 08/25/14 : Matrix spikes were not performed for this analysis in batch 214595 due to insufficient sample amount.

Analyst: KMH Date: 08/25/14 Reviewer: LW Date: 08/25/14

BNA (8270 & 625) Water Prep Log **Curtis & Tompkins, Ltd.**

LIMS Batch No: 214595
LIMS Analysis: 8270
Date Extracted: 8/20/14

Extraction Method:
☒ EPA 3520c cont. L/L
☐ _____

Sample #	Container ID	Volume of Sample (mL)	Sample pH	Final Volume (mL)	Confirmed pH ≤2	Comments
259882-001	M	1000	☐7 ☑11	☑1.0 ☐	☑≤2	
2	K	1000	☑7 ☐	☑1.0 ☐	☐≤2	
MB QC754310	MA	1000	☐7 ☐NA	☑1.0 ☐	☑≤2	
BS		1000	☐7 ☑	☑1.0 ☐	☑≤2	
BSD 2		1000	☐7 ☑	☑1.0 ☐	☐≤2	
259835-002	B	1060	☑7 ☐	☑1.0 ☐	☑≤2	a/o @ 1206 8/21/14 CPK
259841-005	D	1060	☑7 ☐	☑1.0 ☐	☑≤2	
260011-002	J	1060	☑7 ☐	☑1.0 ☐	☑≤2	
-003	D	1060	☑7 ☐	☑1.0 ☐	☑≤2	
-004	L	1070	☑7 ☐	☑1.0 ☐	☑≤2	
-006		1060	☑7 ☐	☑1.0 ☐	☑≤2	
-007		1060	☑7 ☐	☑1.0 ☐	☑≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	NDM 8/22/14

	Lot# / LIMS # / Time	Date/ Initials
0.4 mL of surrogate solution was added to all samples	S24866A	ARL 82014
1.0 mL of matrix spiking solution was added to all spikes	S25396B	
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	PS14D656	
Cont. L/L extracted with 450mL of CH_2Cl_2	EM54153	
Extraction Start Time:	1220/1206	
Extraction End Time:	0642/0625	AUW 8/21/14
pH of all samples adjusted to pH ≥ 11 with 10 N NaOH	NA	AUW 8/21/14
Extraction Start Time:		
Extraction End Time:		
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EMWL231	
Concentrated to final volume at temperature (degrees C)	70	
Relinquished to BNA department	✓	

82014
Extraction Chemist **Date**

Contined from Page _____
Continued on Page _____

8/22/14
Reviewed by **Date**

Dilutions for 259882 MSBNA Water
Curtis & Tompkins Laboratories

Type	Sample ID	IDFs
SAMPLE	259882-001	25X

Case Narrative Addendum: Manual Integrations for 259882 MSBNA (Water)

For CCV (MSBNA09 rhl03):
Aniline: Picked or reassigned peak.

For CCV (MSBNA05 xhm03):
Aniline: Picked or reassigned peak.

For SAMPLE 259882-002 (MSBNA05 xhm12):
2-Fluorophenol: Picked or reassigned peak.

For BSD QC754312 (MSBNA09 rhl06):
Aniline: Picked or reassigned peak for spike & dup.
3-Nitroaniline: Picked or reassigned peak for dup.

For Calibration MSBNA09 (584305789001):
Aniline: Picked or reassigned peak in all levels.
Anthracene: Corrected automatically drawn baseline in ICAL (rgv23).
4-Chloroaniline: Corrected automatically drawn baseline in multiple levels.
3,3'-Dichlorobenzidine: Corrected automatically drawn baseline in multiple levels.
2,4-Dinitrophenol: Corrected automatically drawn baseline in multiple levels.
3-Nitroaniline: Corrected automatically drawn baseline in multiple levels.
4-Nitroaniline: Corrected automatically drawn baseline in multiple levels.
4-Nitrophenol: Corrected automatically drawn baseline in multiple levels.
2,4,5-Trichlorophenol: Corrected automatically drawn baseline in ICAL (rgv23).

For ICV (MSBNA09 rgv25):
Aniline: Picked or reassigned peak.
2,4-Dinitrophenol: Corrected automatically drawn baseline.
4-Nitrophenol: Corrected automatically drawn baseline.

For Calibration MSBNA05 (544327680001):
Acenaphthene: Corrected automatically drawn baseline in ICAL (xhf11).
Aniline: Picked or reassigned peak in all levels.
Anthracene: Corrected automatically drawn baseline in ICAL (xhf14).
bis(2-Chloroethyl)ether: Corrected automatically drawn baseline in ICAL (xhf13).
Benzo(k)fluoranthene: Picked or reassigned peak in ICAL (xhf14).
4-Chloroaniline: Corrected automatically drawn baseline in multiple levels.
4-Methylphenol: Corrected automatically drawn baseline in multiple levels.
3-Nitroaniline: Corrected automatically drawn baseline in multiple levels.
2-Nitrophenol: Corrected automatically drawn baseline in multiple levels.
4-Nitrophenol: Picked or reassigned peak in ICAL (xhf14).
Pyridine: Corrected automatically drawn baseline in multiple levels.
2,4,5-Trichlorophenol: Corrected automatically drawn baseline in multiple levels.

For ICV (MSBNA05 xhf15):
Aniline: Picked or reassigned peak.
Nitrobenzene-d5: Corrected automatically drawn baseline.
2,4,5-Trichlorophenol: Corrected automatically drawn baseline.

Laboratory Job Number 259882

ANALYTICAL REPORT

Semivolatile Organics by GC/MS SIM

Matrix: Water

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Field ID:	UST993-L-WC-081514	Batch#:	214554
Lab ID:	259882-001	Sampled:	08/15/14
Matrix:	Water	Received:	08/15/14
Units:	ug/L	Prepared:	08/19/14
Diln Fac:	1.000	Analyzed:	08/21/14

Analyte	Result	LOQ	DL
Naphthalene	0.1 J	0.1	0.02
2-Methylnaphthalene	0.04 U	0.1	0.02
Acenaphthylene	0.04 U	0.1	0.02
Acenaphthene	0.04 U	0.1	0.02
Fluorene	0.04 U	0.1	0.02
Phenanthrene	0.02 J	0.1	0.02
Anthracene	0.04 U	0.1	0.02
Fluoranthene	0.04 U	0.1	0.02
Pyrene	0.04 U	0.1	0.02
Benzo(a)anthracene	0.04 U	0.1	0.02
Chrysene	0.04 U	0.1	0.02
Benzo(b)fluoranthene	0.04 U	0.1	0.02
Benzo(k)fluoranthene	0.04 U	0.1	0.02
Benzo(a)pyrene	0.04 U	0.1	0.02
Indeno(1,2,3-cd)pyrene	0.04 U	0.1	0.02
Dibenz(a,h)anthracene	0.04 U	0.1	0.02
Benzo(g,h,i)perylene	0.04 U	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	55	40-110
2-Fluorobiphenyl	80	50-110
Terphenyl-d14	76	50-135

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Field ID:	IR04-L-WC-081514	Batch#:	214554
Lab ID:	259882-002	Sampled:	08/15/14
Matrix:	Water	Received:	08/15/14
Units:	ug/L	Prepared:	08/19/14
Diln Fac:	1.000	Analyzed:	08/21/14

Analyte	Result	LOQ	DL
Naphthalene	0.04 U	0.1	0.02
2-Methylnaphthalene	0.04 U	0.1	0.02
Acenaphthylene	0.04 U	0.1	0.02
Acenaphthene	0.04 U	0.1	0.02
Fluorene	0.04 U	0.1	0.02
Phenanthrene	0.04 J	0.1	0.02
Anthracene	0.04 U	0.1	0.02
Fluoranthene	0.04 U	0.1	0.02
Pyrene	0.02 J	0.1	0.02
Benzo(a)anthracene	0.04 U	0.1	0.02
Chrysene	0.04 U	0.1	0.02
Benzo(b)fluoranthene	0.04 U	0.1	0.02
Benzo(k)fluoranthene	0.04 U	0.1	0.02
Benzo(a)pyrene	0.04 U	0.1	0.02
Indeno(1,2,3-cd)pyrene	0.04 U	0.1	0.02
Dibenz(a,h)anthracene	0.04 U	0.1	0.02
Benzo(g,h,i)perylene	0.04 U	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	70	40-110
2-Fluorobiphenyl	83	50-110
Terphenyl-d14	75	50-135

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC754152	Batch#:	214554
Matrix:	Water	Prepared:	08/19/14
Units:	ug/L	Analyzed:	08/20/14

Analyte	Result	LOQ	DL
Naphthalene	0.04 U	0.1	0.02
2-Methylnaphthalene	0.04 U	0.1	0.02
Acenaphthylene	0.04 U	0.1	0.02
Acenaphthene	0.04 U	0.1	0.02
Fluorene	0.04 U	0.1	0.02
Phenanthrene	0.04 U	0.1	0.02
Anthracene	0.04 U	0.1	0.02
Fluoranthene	0.04 U	0.1	0.02
Pyrene	0.04 U	0.1	0.02
Benzo(a)anthracene	0.04 U	0.1	0.02
Chrysene	0.04 U	0.1	0.02
Benzo(b)fluoranthene	0.04 U	0.1	0.02
Benzo(k)fluoranthene	0.04 U	0.1	0.02
Benzo(a)pyrene	0.04 U	0.1	0.02
Indeno(1,2,3-cd)pyrene	0.04 U	0.1	0.02
Dibenz(a,h)anthracene	0.04 U	0.1	0.02
Benzo(g,h,i)perylene	0.04 U	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	79	40-110
2-Fluorobiphenyl	84	50-110
Terphenyl-d14	93	50-135

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC754153	Batch#:	214554
Matrix:	Water	Prepared:	08/19/14
Units:	ug/L	Analyzed:	08/20/14

Analyte	Spiked	Result	%REC	Limits
Naphthalene	1.000	0.7952	80	40-100
2-Methylnaphthalene	1.000	0.7797	78	45-105
Acenaphthylene	1.000	0.8075	81	50-105
Acenaphthene	1.000	0.8164	82	45-110
Fluorene	1.000	0.8879	89	50-110
Phenanthrene	1.000	0.8270	83	50-115
Anthracene	1.000	0.7890	79	55-110
Fluoranthene	1.000	0.8629	86	55-115
Pyrene	1.000	0.8313	83	50-130
Benzo(a)anthracene	1.000	0.7752	78	55-110
Chrysene	1.000	0.7475	75	55-110
Benzo(b)fluoranthene	1.000	0.7937	79	45-120
Benzo(k)fluoranthene	1.000	0.8476	85	45-125
Benzo(a)pyrene	1.000	0.7250	73	55-110
Indeno(1,2,3-cd)pyrene	1.000	0.7197	72	45-125
Dibenz(a,h)anthracene	1.000	0.6440	64	40-125
Benzo(g,h,i)perylene	1.000	0.7680	77	40-125

Surrogate	%REC	Limits
Nitrobenzene-d5	74	40-110
2-Fluorobiphenyl	75	50-110
Terphenyl-d14	77	50-135

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Field ID:	04W19-081314	Batch#:	214554
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/19/14
Diln Fac:	1.000	Analyzed:	08/21/14

Type: MS Lab ID: QC754154

Analyte	MSS Result	Spiked	Result	%REC	Limits
Naphthalene	0.04452	0.9804	0.7061	67	40-100
2-Methylnaphthalene	0.01971	0.9804	0.7444	74	45-105
Acenaphthylene	0.03000	0.9804	0.6895	67	50-105
Acenaphthene	0.02875	0.9804	0.7104	70	45-110
Fluorene	0.06202	0.9804	0.7785	73	50-110
Phenanthrene	0.3788	0.9804	0.9321	56	50-115
Anthracene	0.03625	0.9804	0.6713	65	55-110
Fluoranthene	0.2172	0.9804	0.9452	74	55-115
Pyrene	0.2482	0.9804	0.8555	62	50-130
Benzo(a)anthracene	0.02058	0.9804	0.7438	74	55-110
Chrysene	<0.01923	0.9804	0.6598	67	55-110
Benzo(b)fluoranthene	0.02913	0.9804	0.7215	71	45-120
Benzo(k)fluoranthene	<0.01923	0.9804	0.6952	71	45-125
Benzo(a)pyrene	<0.01923	0.9804	0.6713	68	55-110
Indeno(1,2,3-cd)pyrene	<0.01923	0.9804	0.6884	70	45-125
Dibenz(a,h)anthracene	<0.01923	0.9804	0.6256	64	40-125
Benzo(g,h,i)perylene	<0.01923	0.9804	0.6921	71	40-125

Surrogate	%REC	Limits
Nitrobenzene-d5	64	40-110
2-Fluorobiphenyl	67	50-110
Terphenyl-d14	67	50-135

Type: MSD Lab ID: QC754155

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Naphthalene	0.9615	0.7287	71	40-100	5	30
2-Methylnaphthalene	0.9615	0.7515	76	45-105	3	30
Acenaphthylene	0.9615	0.7292	73	50-105	7	30
Acenaphthene	0.9615	0.7146	71	45-110	2	30
Fluorene	0.9615	0.7910	76	50-110	3	30
Phenanthrene	0.9615	0.9637	61	50-115	5	30
Anthracene	0.9615	0.6571	65	55-110	0	30
Fluoranthene	0.9615	0.9528	77	55-115	2	30
Pyrene	0.9615	0.9069	69	50-130	7	30
Benzo(a)anthracene	0.9615	0.7621	77	55-110	4	30
Chrysene	0.9615	0.6889	72	55-110	6	30
Benzo(b)fluoranthene	0.9615	0.7534	75	45-120	6	30
Benzo(k)fluoranthene	0.9615	0.6856	71	45-125	1	30
Benzo(a)pyrene	0.9615	0.6942	72	55-110	5	30
Indeno(1,2,3-cd)pyrene	0.9615	0.6869	71	45-125	2	30
Dibenz(a,h)anthracene	0.9615	0.6377	66	40-125	4	30
Benzo(g,h,i)perylene	0.9615	0.6857	71	40-125	1	30

Surrogate	%REC	Limits
Nitrobenzene-d5	71	40-110
2-Fluorobiphenyl	71	50-110
Terphenyl-d14	67	50-135

RPD= Relative Percent Difference

Initial & Continuing Calibration Data

CURTIS & TOMPKINS DFTPP TUNE FOR 259882 MSSIM Water
EPA 8270D

Inst : MSBNA03 Run Name : DFTPP IDF : 1.0
Seqnum : 524271263019 File : vg719 Time : 07-JUL-2014 20:11

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	167466	40.80	
68	< 2% of mass 69	0	0.00	
69		229696	100.00	
70	< 2% of mass 69	0	0.00	
127	40% - 60% of mass 198	211157	51.45	
197	< 1% of mass 198	0	0.00	
198		410410	100.00	
199	5% - 9% of mass 198	28728	7.00	
275	10% - 30% of mass 198	111824	27.25	
365	> 1% of mass 198	12139	2.96	
441	Present, < mass 443	47200	79.54	
442	> 40% and < 100% of mass 198	301248	73.40	
443	17% - 23% of mass 442	59344	19.70	

Analyst: KMH Date: 07/08/14 Reviewer: LW Date: 07/08/14

CURTIS & TOMPKINS DFTPP TUNE FOR 259882 MSSIM Water
EPA 8270D

Inst : MSBNA03 Run Name : DFTPP IDF : 1.0
Seqnum : 524334764002 File : vhk02 Time : 20-AUG-2014 11:50

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	217216	45.86	
68	< 2% of mass 69	0	0.00	
69		280405	100.00	
70	< 2% of mass 69	1313	0.47	
127	40% - 60% of mass 198	255616	53.96	
197	< 1% of mass 198	0	0.00	
198		473685	100.00	
199	5% - 9% of mass 198	34349	7.25	
275	10% - 30% of mass 198	136781	28.88	
365	> 1% of mass 198	16091	3.40	
441	Present, < mass 443	69117	82.62	
442	> 40% and < 100% of mass 198	411584	86.89	
443	17% - 23% of mass 442	83656	20.33	

NPM: 08/20/14 KMH: 08/20/14 LW: 08/27/14

CURTIS & TOMPKINS DFTPP TUNE FOR 259882 MSSIM Water
EPA 8270D

Inst : MSBNA04 Run Name : DFTPP IDF : 1.0
Seqnum : 534275763005 File : wga05 Time : 10-JUL-2014 15:44

Standards: S24369

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	97047	55.72	
68	< 2% of mass 69	0	0.00	
69		109917	100.00	
70	< 2% of mass 69	587	0.53	
127	40% - 60% of mass 198	94581	54.30	
197	< 1% of mass 198	0	0.00	
198		174173	100.00	
199	5% - 9% of mass 198	11550	6.63	
275	10% - 30% of mass 198	31925	18.33	
365	> 1% of mass 198	3062	1.76	
441	Present, < mass 443	12761	75.92	
442	> 40% and < 100% of mass 198	86725	49.79	
443	17% - 23% of mass 442	16808	19.38	

Analyst: KMH Date: 07/11/14 Reviewer: LW Date: 07/11/14

CURTIS & TOMPKINS DFTPP TUNE FOR 259882 MSSIM Water
EPA 8270D

Inst : MSBNA04 Run Name : DFTPP IDF : 1.0
Seqnum : 534336091008 File : whl08 Time : 21-AUG-2014 11:54

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	94709	52.13	
68	< 2% of mass 69	0	0.00	
69		97984	100.00	
70	< 2% of mass 69	449	0.46	
127	40% - 60% of mass 198	102296	56.31	
197	< 1% of mass 198	0	0.00	
198		181674	100.00	
199	5% - 9% of mass 198	11869	6.53	
275	10% - 30% of mass 198	36189	19.92	
365	> 1% of mass 198	4461	2.46	
441	Present, < mass 443	11663	76.32	
442	> 40% and < 100% of mass 198	79681	43.86	
443	17% - 23% of mass 442	15282	19.18	

Analyst: KMH Date: 08/21/14 Reviewer: LW Date: 08/21/14

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259882 MSSIM Water: EPA 8270D-SIM

Inst : MSBNA03
Calnum : 524271263002
Units : ug/mL

Name : 3PAHSIM
Date : 07-JUL-2014 20:28
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	vg720	524271263020	ICAL	07-JUL-2014 20:28	S25125
L2	vg721	524271263021	ICAL	07-JUL-2014 21:02	S25126
L3	vg722	524271263022	ICAL	07-JUL-2014 21:35	S25128
L4	vg723	524271263023	ICAL	07-JUL-2014 22:10	S25129
L5	vg724	524271263024	ICAL	07-JUL-2014 22:42	S25130
L6	vg725	524271263025	ICAL	07-JUL-2014 23:17	S25132
L7	vg726	524271263026	ICAL	07-JUL-2014 23:50	S25133

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene	0.9269	0.9450	0.9456	0.9215	0.8641	0.7909	0.7353	AVRG		1.14205		0.8756	9	15	0.700	0.99	
2-Methylnaphthalene	0.6999	0.7117	0.7127	0.6848	0.6403	0.5856	0.5454	AVRG		1.52820		0.6544	10	15	0.400	0.99	
Acenaphthylene	1.4572	1.5302	1.6252	1.6440	1.5910	1.4308	1.3569	AVRG		0.65819		1.5193	7	15	0.900	0.99	
Acenaphthene	0.9776	1.0118	1.0260	1.0039	0.9750	0.8954	0.8673	AVRG		1.03596		0.9653	6	15	0.900	0.99	
Fluorene	1.1867	1.1884	1.2006	1.1526	1.1030	0.9696	0.9466	AVRG		0.90352		1.1068	10	15	0.900	0.99	
Phenanthrene	1.0278	1.0639	1.0687	1.0432	1.0003	0.8879	0.8064	AVRG		1.01475		0.9855	10	15	0.700	0.99	
Anthracene	0.8909	0.9428	0.9867	0.9817	0.9713	0.8559	0.7747	AVRG		1.09308		0.9148	9	15	0.700	0.99	
Fluoranthene	1.0752	1.1145	1.1427	1.1685	1.1174	0.9990	0.9038	AVRG		0.93071		1.0745	9	15	0.600	0.99	
Pyrene	1.1224	1.1145	1.1827	1.1919	1.1719	1.0950	1.0428	AVRG		0.88370		1.1316	5	15	0.600	0.99	
Benzo(a)anthracene	0.9824	0.9124	1.0147	1.0467	1.0332	0.9519	0.9022	AVRG		1.02286		0.9777	6	15	0.800	0.99	
Chrysene	0.9844	1.0148	1.0467	1.0458	1.0200	0.9309	0.8647	AVRG		1.01342		0.9868	7	15	0.700	0.99	
Benzo(b)fluoranthene	1.1501	1.1770	1.2366	1.2309	1.1924	1.0493	0.9891	AVRG		0.87223		1.1465	8	15	0.700	0.99	
Benzo(k)fluoranthene	1.1396m	1.1541	1.1739	1.1550	1.2286	1.1068	0.9578	AVRG		0.88431		1.1308	7	15	0.700	0.99	
Benzo(a)pyrene	0.9810	0.9929	1.0925	1.1248	1.1050	1.0470	0.9981	AVRG		0.95351		1.0488	6	15	0.700	0.99	
Indeno(1,2,3-cd)pyrene	1.0215	1.0659	1.1123	1.1362	1.1396	1.0726	1.0529	AVRG		0.92094		1.0858	4	15	0.500	0.99	
Dibenz(a,h)anthracene	0.8632m	0.8991m	0.9347	0.9443	0.9590	0.9178	0.9098	AVRG		1.08901		0.9183	3	15	0.400	0.99	
Benzo(g,h,i)perylene	0.9184	0.9425	0.9674	0.9716	0.9658	0.8998	0.8777	AVRG		1.06982		0.9347	4	15	0.500	0.99	
Nitrobenzene-d5	0.2863	0.2921	0.3064m	0.3210m	0.3233	0.3184	0.3189	AVRG		3.23110		0.3095	5	15	0.05	0.99	
2-Fluorobiphenyl	1.5822	1.6124	1.5918	1.5204	1.4105	1.2350	1.1419	AVRG		0.69347		1.4420	13	15	0.05	0.99	
Terphenyl-d14	0.8319	0.8606	0.8639	0.8767	0.8685	0.8153	0.7927	AVRG		1.18450		0.8442	4	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	6	0.2000	8	0.5000	8	1.0000	5	2.0000	-1	5.0000	-10	10.000	-16
2-Methylnaphthalene	0.1000	7	0.2000	9	0.5000	9	1.0000	5	2.0000	-2	5.0000	-11	10.000	-17
Acenaphthylene	0.1000	-4	0.2000	1	0.5000	7	1.0000	8	2.0000	5	5.0000	-6	10.000	-11
Acenaphthene	0.1000	1	0.2000	5	0.5000	6	1.0000	4	2.0000	1	5.0000	-7	10.000	-10
Fluorene	0.1000	7	0.2000	7	0.5000	8	1.0000	4	2.0000	0	5.0000	-12	10.000	-14
Phenanthrene	0.1000	4	0.2000	8	0.5000	8	1.0000	6	2.0000	2	5.0000	-10	10.000	-18
Anthracene	0.1000	-3	0.2000	3	0.5000	8	1.0000	7	2.0000	6	5.0000	-6	10.000	-15
Fluoranthene	0.1000	0	0.2000	4	0.5000	6	1.0000	9	2.0000	4	5.0000	-7	10.000	-16
Pyrene	0.1000	-1	0.2000	-2	0.5000	5	1.0000	5	2.0000	4	5.0000	-3	10.000	-8
Benzo(a)anthracene	0.1000	0	0.2000	-7	0.5000	4	1.0000	7	2.0000	6	5.0000	-3	10.000	-8
Chrysene	0.1000	0	0.2000	3	0.5000	6	1.0000	6	2.0000	3	5.0000	-6	10.000	-12
Benzo(b)fluoranthene	0.1000	0	0.2000	3	0.5000	8	1.0000	7	2.0000	4	5.0000	-8	10.000	-14
Benzo(k)fluoranthene	0.1000	1	0.2000	2	0.5000	4	1.0000	2	2.0000	9	5.0000	-2	10.000	-15
Benzo(a)pyrene	0.1000	-6	0.2000	-5	0.5000	4	1.0000	7	2.0000	5	5.0000	0	10.000	-5
Indeno(1,2,3-cd)pyrene	0.1000	-6	0.2000	-2	0.5000	2	1.0000	5	2.0000	5	5.0000	-1	10.000	-3
Dibenz(a,h)anthracene	0.1000	-6	0.2000	-2	0.5000	2	1.0000	3	2.0000	4	5.0000	0	10.000	-1
Benzo(g,h,i)perylene	0.1000	-2	0.2000	1	0.5000	3	1.0000	4	2.0000	3	5.0000	-4	10.000	-6
Nitrobenzene-d5	0.1000	-8	0.2000	-6	0.5000	-1	1.0000	4	2.0000	4	5.0000	3	10.000	3
2-Fluorobiphenyl	0.1000	10	0.2000	12	0.5000	10	1.0000	5	2.0000	-2	5.0000	-14	10.000	**-21**
Terphenyl-d14	0.1000	-1	0.2000	2	0.5000	2	1.0000	4	2.0000	3	5.0000	-3	10.000	-6

KMH 07/08/14 [1,4-Dioxane]: Corrected automatically drawn baseline in multiple levels.

KMH 07/08/14 [Dibenz(a,h)anthracene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/08/14 [Nitrobenzene-d5]: Corrected automatically drawn baseline in multiple levels.

KMH 07/08/14 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline in ICAL (vg720).

Analyst: KMH Date: 07/08/14 Reviewer: LW Date: 07/08/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259882 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA03 Name : 3PAHSIM
Calnum : 524271263002 Cal Date : 07-JUL-2014

ICV 524271263027 (vg727 08-JUL-2014) stds: S25107

Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	1.023	ug/mL	2	20	
2-Methylnaphthalene	1.000	1.037	ug/mL	4	20	
Acenaphthylene	1.000	1.092	ug/mL	9	20	
Acenaphthene	1.000	1.035	ug/mL	3	20	
Fluorene	1.000	1.086	ug/mL	9	20	
Phenanthrene	1.000	1.029	ug/mL	3	20	
Anthracene	1.000	0.9769	ug/mL	-2	20	
Fluoranthene	1.000	1.063	ug/mL	6	20	
Pyrene	1.000	0.9847	ug/mL	-2	20	
Benzo(a)anthracene	1.000	1.013	ug/mL	1	20	
Chrysene	1.000	0.9865	ug/mL	-1	20	
Benzo(b)fluoranthene	1.000	1.061	ug/mL	6	20	
Benzo(k)fluoranthene	1.000	1.029	ug/mL	3	20	
Benzo(a)pyrene	1.000	1.062	ug/mL	6	20	
Indeno(1,2,3-cd)pyrene	1.000	1.023	ug/mL	2	20	
Dibenz(a,h)anthracene	1.000	1.029	ug/mL	3	20	
Benzo(g,h,i)perylene	1.000	1.041	ug/mL	4	20	

Analyst: KMH Date: 07/08/14 Reviewer: LW Date: 07/08/14

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259882 MSSIM Water: EPA 8270D-SIM

Inst : MSBNA04
Calnum : 534275763001
Units : ug/mL

Name : 4PAHSIM
Date : 10-JUL-2014 16:29
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	wga06	534275763006	ICAL	10-JUL-2014 16:29	S25125
L2	wga07	534275763007	ICAL	10-JUL-2014 17:02	S25126
L3	wga08	534275763008	ICAL	10-JUL-2014 17:35	S25128
L4	wga09	534275763009	ICAL	10-JUL-2014 18:08	S25129
L5	wga10	534275763010	ICAL	10-JUL-2014 18:41	S25130
L6	wga11	534275763011	ICAL	10-JUL-2014 19:14	S25132
L7	wga12	534275763012	ICAL	10-JUL-2014 19:47	S25133

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene	1.0858	1.1077	1.1314	1.1333	1.1322	1.1136	1.1238	AVRG		0.89425		1.1183	2	15	0.700	0.99	
2-Methylnaphthalene	0.6104	0.6255	0.6457	0.6585	0.6617	0.6591	0.6601	AVRG		1.54832		0.6459	3	15	0.400	0.99	
Acenaphthylene	1.5803	1.6305	1.7018	1.7244	1.7816	1.7638	1.7810	AVRG		0.58512		1.7091	5	15	0.900	0.99	
Acenaphthene	0.9777	0.9929	1.0324	1.0493	1.0595	1.0544	1.0656	AVRG		0.96795		1.0331	3	15	0.900	0.99	
Fluorene	1.1010	1.1343	1.1773	1.2089	1.2062	1.1900	1.2084	AVRG		0.85096		1.1751	4	15	0.900	0.99	
Phenanthrene	1.0262	1.0403	1.0846	1.0810	1.0813	1.0732	1.0737	AVRG		0.93829		1.0658	2	15	0.700	0.99	
Anthracene	0.9565	0.9849	1.0468	1.0492m	1.0655m	1.0778m	1.1026m	AVRG		0.96110		1.0405	5	15	0.700	0.99	
Fluoranthene	0.9537	0.9695	1.0213	1.0184	1.0387	1.0600	1.0570	AVRG		0.98335		1.0169	4	15	0.600	0.99	
Pyrene	1.2804	1.3046	1.3510	1.3759	1.3592	1.3510	1.3081	AVRG		0.75024		1.3329	3	15	0.600	0.99	
Benzo(a)anthracene	0.9224	0.9077	0.9333	0.9538	0.9553	0.9547	0.9569	AVRG		1.06317		0.9406	2	15	0.800	0.99	
Chrysene	0.9309	0.9496	0.9674	0.9859m	0.9752m	0.9600m	0.9614m	AVRG		1.04007		0.9615	2	15	0.700	0.99	
Benzo(b)fluoranthene	0.9949	1.0334	1.1103	1.1347	1.1887	1.1759	1.2003	AVRG		0.89306		1.1197	7	15	0.700	0.99	
Benzo(k)fluoranthene	1.0985m	1.1154m	1.1419m	1.1741m	1.1946m	1.2007m	1.2147m	AVRG		0.85995		1.1629	4	15	0.700	0.99	
Benzo(a)pyrene	0.9139	0.9149	0.9689	0.9986	1.0295	1.0580	1.0833	AVRG		1.00473		0.9953	7	15	0.700	0.99	
Indeno(1,2,3-cd)pyrene	1.0481m	1.0698	1.1392	1.1999	1.2482	1.2886	1.3454	AVRG		0.83940		1.1913	9	15	0.500	0.99	
Dibenz(a,h)anthracene	0.7856m	0.8212m	0.8734	0.9272	0.9710	1.0025	1.0450	AVRG		1.08936		0.9180	10	15	0.400	0.99	
Benzo(g,h,i)perylene	0.9629m	0.9796m	1.0212	1.0639	1.0858	1.0884	1.1328	AVRG		0.95438		1.0478	6	15	0.500	0.99	
Nitrobenzene-d5	0.3832m	0.4042m	0.4071m	0.4141	0.4132	0.4214	0.4168	AVRG		2.44752		0.4086	3	15	0.05	0.99	
2-Fluorobiphenyl	1.3147	1.3456	1.3745	1.4001	1.3855	1.3547	1.3669	AVRG		0.73360		1.3631	2	15	0.05	0.99	
Terphenyl-d14	1.0057	1.0202	1.0457	1.0586	1.0608	1.0468	1.0729	AVRG		0.95750		1.0444	2	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	-3	0.2000	-1	0.5000	1	1.0000	1	2.0000	1	5.0000	0	10.000	0
2-Methylnaphthalene	0.1000	-5	0.2000	-3	0.5000	0	1.0000	2	2.0000	2	5.0000	2	10.000	2
Acenaphthylene	0.1000	-8	0.2000	-5	0.5000	0	1.0000	1	2.0000	4	5.0000	3	10.000	4
Acenaphthene	0.1000	-5	0.2000	-4	0.5000	0	1.0000	2	2.0000	3	5.0000	2	10.000	3
Fluorene	0.1000	-6	0.2000	-3	0.5000	0	1.0000	3	2.0000	3	5.0000	1	10.000	3
Phenanthrene	0.1000	-4	0.2000	-2	0.5000	2	1.0000	1	2.0000	1	5.0000	1	10.000	1
Anthracene	0.1000	-8	0.2000	-5	0.5000	1	1.0000	1	2.0000	2	5.0000	4	10.000	6
Fluoranthene	0.1000	-6	0.2000	-5	0.5000	0	1.0000	0	2.0000	2	5.0000	4	10.000	4
Pyrene	0.1000	-4	0.2000	-2	0.5000	1	1.0000	3	2.0000	2	5.0000	1	10.000	-2
Benzo(a)anthracene	0.1000	-2	0.2000	-3	0.5000	-1	1.0000	1	2.0000	2	5.0000	1	10.000	2
Chrysene	0.1000	-3	0.2000	-1	0.5000	1	1.0000	3	2.0000	1	5.0000	0	10.000	0
Benzo(b)fluoranthene	0.1000	-11	0.2000	-8	0.5000	-1	1.0000	1	2.0000	6	5.0000	5	10.000	7
Benzo(k)fluoranthene	0.1000	-6	0.2000	-4	0.5000	-2	1.0000	1	2.0000	3	5.0000	3	10.000	4
Benzo(a)pyrene	0.1000	-8	0.2000	-8	0.5000	-3	1.0000	0	2.0000	3	5.0000	6	10.000	9
Indeno(1,2,3-cd)pyrene	0.1000	-12	0.2000	-10	0.5000	-4	1.0000	1	2.0000	5	5.0000	8	10.000	13
Dibenz(a,h)anthracene	0.1000	-14	0.2000	-11	0.5000	-5	1.0000	1	2.0000	6	5.0000	9	10.000	14
Benzo(g,h,i)perylene	0.1000	-8	0.2000	-7	0.5000	-3	1.0000	2	2.0000	4	5.0000	4	10.000	8
Nitrobenzene-d5	0.1000	-6	0.2000	-1	0.5000	0	1.0000	1	2.0000	1	5.0000	3	10.000	2
2-Fluorobiphenyl	0.1000	-4	0.2000	-1	0.5000	1	1.0000	3	2.0000	2	5.0000	-1	10.000	0
Terphenyl-d14	0.1000	-4	0.2000	-2	0.5000	0	1.0000	1	2.0000	2	5.0000	0	10.000	3

KMH 07/11/14 [1,4-Dioxane]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Anthracene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Chrysene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline in all levels.

KMH 07/11/14 [Nitrobenzene-d5]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Indeno(1,2,3-cd)pyrene]: Corrected automatically drawn baseline in ICAL (wga06).

KMH 07/11/14 [Dibenz(a,h)anthracene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Benzo(g,h,i)perylene]: Corrected automatically drawn baseline in multiple levels.

Analyst: KMH Date: 07/11/14 Reviewer: LW Date: 07/11/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259882 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA04 Name : 4PAHSIM
Calnum : 534275763001 Cal Date : 10-JUL-2014

ICV 534275763013 (wga13 10-JUL-2014) stds: S24935

Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	0.9816	ug/mL	-2	20	
2-Methylnaphthalene	1.000	0.9849	ug/mL	-2	20	
Acenaphthylene	1.000	1.055	ug/mL	5	20	
Acenaphthene	1.000	1.006	ug/mL	1	20	
Fluorene	1.000	0.9943	ug/mL	-1	20	
Phenanthrene	1.000	1.016	ug/mL	2	20	
Anthracene	1.000	1.005	ug/mL	1	20	
Fluoranthene	1.000	1.007	ug/mL	1	20	
Pyrene	1.000	0.9940	ug/mL	-1	20	
Benzo(a)anthracene	1.000	1.025	ug/mL	2	20	
Chrysene	1.000	1.010	ug/mL	1	20	
Benzo(b)fluoranthene	1.000	0.9970	ug/mL	0	20	
Benzo(k)fluoranthene	1.000	0.9587	ug/mL	-4	20	
Benzo(a)pyrene	1.000	0.9585	ug/mL	-4	20	
Indeno(1,2,3-cd)pyrene	1.000	0.9407	ug/mL	-6	20	
Dibenz(a,h)anthracene	1.000	0.9949	ug/mL	-1	20	
Benzo(g,h,i)perylene	1.000	0.9591	ug/mL	-4	20	

Analyst: KMH Date: 07/11/14 Reviewer: LW Date: 07/11/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA03 IDF : 1.0
Seqnum : 524334764003.1 File : vhk03 Time : 20-AUG-2014 12:08
Cal : 524271263002 Caldate : 07-JUL-2014
Standards: S25129

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.8756	0.8996	1.000	1.027	ug/mL	3	20	0.7000	
2-Methylnaphthalene	0.6544	0.6667	1.000	1.019	ug/mL	2	20	0.4000	
Acenaphthylene	1.5193	1.6168	1.000	1.064	ug/mL	6	20	0.9000	
Acenaphthene	0.9653	1.0104	1.000	1.047	ug/mL	5	20	0.9000	
Fluorene	1.1068	1.2189	1.000	1.101	ug/mL	10	20	0.9000	
Phenanthrene	0.9855	1.0332	1.000	1.048	ug/mL	5	20	0.7000	
Anthracene	0.9148	0.9824	1.000	1.074	ug/mL	7	20	0.7000	m
Fluoranthene	1.0745	1.1650	1.000	1.084	ug/mL	8	20	0.6000	
Pyrene	1.1316	1.2095	1.000	1.069	ug/mL	7	20	0.6000	
Benzo(a)anthracene	0.9777	1.0158	1.000	1.039	ug/mL	4	20	0.8000	
Chrysene	0.9868	1.0355	1.000	1.049	ug/mL	5	20	0.7000	
Benzo(b)fluoranthene	1.1465	1.1846	1.000	1.033	ug/mL	3	20	0.7000	
Benzo(k)fluoranthene	1.1308	1.1675	1.000	1.032	ug/mL	3	20	0.7000	m
Benzo(a)pyrene	1.0488	1.0789	1.000	1.029	ug/mL	3	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.0858	1.0904	1.000	1.004	ug/mL	0	20	0.5000	
Dibenz(a,h)anthracene	0.9183	0.9092	1.000	0.9902	ug/mL	-1	20	0.4000	
Benzo(g,h,i)perylene	0.9347	0.9537	1.000	1.020	ug/mL	2	20	0.5000	
Nitrobenzene-d5	0.3095	0.3271	1.000	1.057	ug/mL	6	20	0.0500	
2-Fluorobiphenyl	1.4420	1.4769	1.000	1.024	ug/mL	2	20	0.0500	
Terphenyl-d14	0.8442	0.8938	1.000	1.059	ug/mL	6	20	0.0500	

ISTD (ICAL vg723)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	32023	45383	41.72
Naphthalene-d8	113951	161602	41.82
Acenaphthene-d10	66733	93243	39.73
Phenanthrene-d10	117708	175224	48.86
Chrysene-d12	117775	177686	50.87
Perylene-d12	94243	144349	53.17

ISTD (ICAL vg723)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	7.34	7.31	-0.03
Naphthalene-d8	8.96	8.93	-0.03
Acenaphthene-d10	11.26	11.23	-0.03
Phenanthrene-d10	13.20	13.17	-0.03
Chrysene-d12	16.65	16.62	-0.03
Perylene-d12	18.37	18.35	-0.02

NPM 08/20/14 [1-Methylnaphthalene]: Corrected automatically drawn baseline. [general version]

NPM 08/20/14 [Anthracene]: Corrected automatically drawn baseline. [general version]

NPM 08/20/14 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline. [general version]

Analyst: KMH Date: 08/22/14 Reviewer: LW Date: 08/27/14

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA04 Run Name : PAHDIOX IDF : 1.0
Seqnum : 534336091009.1 File : whl09 Time : 21-AUG-2014 12:14
Cal : 534275763001 Caldate : 10-JUL-2014
Standards: S25130

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	1.1183	1.0861	2.000	1.942	ug/mL	-3	20	0.7000	
2-Methylnaphthalene	0.6459	0.6642	2.000	2.057	ug/mL	3	20	0.4000	
Acenaphthylene	1.7091	1.6839	2.000	1.971	ug/mL	-1	20	0.9000	
Acenaphthene	1.0331	1.0498	2.000	2.032	ug/mL	2	20	0.9000	
Fluorene	1.1751	1.1919	2.000	2.029	ug/mL	1	20	0.9000	
Phenanthrene	1.0658	1.0954	2.000	2.056	ug/mL	3	20	0.7000	
Anthracene	1.0405	1.0680	2.000	2.053	ug/mL	3	20	0.7000	
Fluoranthene	1.0169	1.0637	2.000	2.092	ug/mL	5	20	0.6000	
Pyrene	1.3329	1.2978	2.000	1.947	ug/mL	-3	20	0.6000	
Benzo(a)anthracene	0.9406	0.9324	2.000	1.983	ug/mL	-1	20	0.8000	
Chrysene	0.9615	0.9884	2.000	2.056	ug/mL	3	20	0.7000	
Benzo(b)fluoranthene	1.1197	1.1395	2.000	2.035	ug/mL	2	20	0.7000	
Benzo(k)fluoranthene	1.1629	1.2810	2.000	2.203	ug/mL	10	20	0.7000	
Benzo(a)pyrene	0.9953	1.0342	2.000	2.078	ug/mL	4	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.1913	1.3256	2.000	2.225	ug/mL	11	20	0.5000	
Dibenz(a,h)anthracene	0.9180	1.0479	2.000	2.283	ug/mL	14	20	0.4000	
Benzo(g,h,i)perylene	1.0478	1.1724	2.000	2.238	ug/mL	12	20	0.5000	
Nitrobenzene-d5	0.4086	0.3603	2.000	1.764	ug/mL	-12	20	0.0500	
2-Fluorobiphenyl	1.3631	1.4462	2.000	2.122	ug/mL	6	20	0.0500	
Terphenyl-d14	1.0444	1.0094	2.000	1.933	ug/mL	-3	20	0.0500	

ISTD (ICAL wga09)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	61411	35015	-42.98
Naphthalene-d8	237683	130606	-45.05
Acenaphthene-d10	124978	72340	-42.12
Phenanthrene-d10	182537	110793	-39.30
Chrysene-d12	142444	98468	-30.87
Perylene-d12	111189	76969	-30.78

ISTD (ICAL wga09)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	7.86	7.84	-0.02
Naphthalene-d8	9.43	9.41	-0.02
Acenaphthene-d10	11.71	11.69	-0.02
Phenanthrene-d10	13.66	13.65	-0.01
Chrysene-d12	17.23	17.20	-0.03
Perylene-d12	19.16	19.14	-0.02

Analyst: KMH Date: 08/22/14 Reviewer: LW Date: 08/27/14

Logbooks & Sequences

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 524334764

Date : 08/20/14 Reference : vg723
Sequence : MSBNA03 vhk Analyzed : 07/07/14 22:10

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	32023	113951	66733	117708	117775	94243
		LOWER LIMIT	16012	56976	33367	58854	58888	47122
		UPPER LIMIT	64046	227902	133466	235416	235550	188486
003	CCV		45383	161602	93243	175224	177686	144349
004	BLANK	QC754152	40074	144978	90135	169104	169862	131364
005	LCS	QC754153	40800	147837	87175	166901	171626	137851
006	SAMPLE	259841-005	38262	134783	80787	121279	106048	100216
007	SAMPLE	259835-002	33709	118975	70908	111991	99911	85941
008	MSS	259786-001	32484	116704	71225	124686	112256	102731
009	MS	QC754154	33637	119459	71821	129585	113679	106422
010	MSD	QC754155	31453	113275	67791	121054	107085	99825
011	SAMPLE	259786-003	33291	119260	73578	125808	116559	105831
012	SAMPLE	259786-004	33357	118616	71977	119452	108650	102469
013	SAMPLE	259790-001	31962	118955	73275	136976	131601	112052

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 524334764

Date : 08/20/14 Reference : vg723
Sequence : MSBNA03 vhk Analyzed : 07/07/14 22:10

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	7.34	8.96	11.26	13.20	16.65	18.37
		LOWER LIMIT	6.84	8.46	10.76	12.70	16.15	17.87
		UPPER LIMIT	7.84	9.46	11.76	13.70	17.15	18.87
003	CCV		7.31	8.93	11.23	13.17	16.62	18.35

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 524334764

Date : 08/20/14
Sequence : MSBNA03 vhk

Reference : vhk03
Analyzed : 08/20/14 12:08

#	Type	Sample ID	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT	DCBZ14D4 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	8.93	11.23	13.17	16.62	18.35	7.31
		LOWER LIMIT	8.43	10.73	12.67	16.12	17.85	6.81
		UPPER LIMIT	9.43	11.73	13.67	17.12	18.85	7.81
004	BLANK	QC754152	8.93	11.23	13.17	16.62	18.35	7.31
005	LCS	QC754153	8.93	11.23	13.18	16.62	18.35	7.31
006	SAMPLE	259841-005	8.93	11.23	13.18	16.63	18.36	7.31
007	SAMPLE	259835-002	8.93	11.23	13.18	16.63	18.36	7.31
008	MSS	259786-001	8.93	11.24	13.18	16.63	18.36	7.31
009	MS	QC754154	8.94	11.23	13.18	16.63	18.35	7.31
010	MSD	QC754155	8.94	11.23	13.18	16.63	18.35	7.31
011	SAMPLE	259786-003	8.93	11.23	13.18	16.63	18.35	7.31
012	SAMPLE	259786-004	8.93	11.23	13.18	16.63	18.36	7.31
013	SAMPLE	259790-001	8.93	11.23	13.18	16.62	18.35	7.31

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 534336091

Date : 08/21/14 Reference : wga09
Sequence : MSBNA04 whl Analyzed : 07/10/14 18:08

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	61411	237683	124978	182537	142444	111189
		LOWER LIMIT	30706	118842	62489	91269	71222	55595
		UPPER LIMIT	122822	475366	249956	365074	284888	222378
009	CCV	PAHDIOX	35015	130606	72340	110793	98468	76969
011	MS	QC754154	40133	158623	96950	170711	153825	127803
012	MSD	QC754155	46019	179158	103599	183574	161608	133091
013	SAMPLE	259835-002	47345	179122	107103	191047	173301	130136
014	SAMPLE	259841-007	28041 *	110847 *	69801	117081	93223	78792
015	SAMPLE	259882-001	9148 *	195725	111255	183963	162293	69481
016	SAMPLE	259882-002	48643	180183	104930	174666	153308	115706
026	SAMPLE	259841-007	47986	183106	110529	187043	155984	110179

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 534336091

Date : 08/21/14 Reference : wga09
Sequence : MSBNA04 whl Analyzed : 07/10/14 18:08

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	7.86	9.43	11.71	13.66	17.23	19.16
		LOWER LIMIT	7.36	8.93	11.21	13.16	16.73	18.66
		UPPER LIMIT	8.36	9.93	12.21	14.16	17.73	19.66
009	CCV	PAHDIOX	7.84	9.41	11.69	13.65	17.20	19.14

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 534336091

Date : 08/21/14 Reference : whl09
Sequence : MSBNA04 whl Analyzed : 08/21/14 12:14

#	Type	Sample ID	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	9.41	11.69	13.65	17.20	19.14
		LOWER LIMIT	8.91	11.19	13.15	16.70	18.64
		UPPER LIMIT	9.91	12.19	14.15	17.70	19.64
011	MS	QC754154	9.42	11.69	13.65	17.21	19.15
012	MSD	QC754155	9.42	11.69	13.65	17.21	19.15
013	SAMPLE	259835-002	9.41	11.69	13.65	17.22	19.16
014	SAMPLE	259841-007	9.42	11.69	13.64	17.20	19.14
015	SAMPLE	259882-001	9.47	11.69	13.66	17.22	19.15
016	SAMPLE	259882-002	9.42	11.69	13.65	17.22	19.15
026	SAMPLE	259841-007	9.41	11.68	13.65	17.21	19.14

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 524271263

Instrument : MSBNA03 Begun : 07/07/14 09:03
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vg701	IB	IB			07/07/14 09:03	1.0		?t
002	vg702	TUN	DFTPP			07/07/14 09:28	1.0	1	
003	vg703	CCV	PAHDIOX			07/07/14 09:47	1.0	2	
004	vg704	SAMPLE	258690-001	Soil	212952	07/07/14 10:20	2.0	3	
005	vg705	SAMPLE	258434-007	Soil	212801	07/07/14 10:54	5.0	3	
006	vg706	SAMPLE	258434-008	Soil	212801	07/07/14 11:27	5.0	3	
007	vg707	IB	IB			07/07/14 12:53	1.0		
008	vg708	TUN	DFTPP			07/07/14 13:19	1.0	1	
009	vg709	ICAL	ICAL			07/07/14 13:38	1.0	4	
010	vg710	ICAL	ICAL			07/07/14 14:10	1.0	5	
011	vg711	ICAL	ICAL			07/07/14 14:43	1.0	6	
012	vg712	ICAL	ICAL			07/07/14 15:15	1.0	7	
013	vg713	ICAL	ICAL			07/07/14 15:47	1.0	8	
014	vg714	ICAL	ICAL			07/07/14 16:19	1.0	9	
015	vg715	ICAL	ICAL			07/07/14 16:51	1.0	10	
016	vg716	ICV	ICV			07/07/14 17:23	1.0	2	
017	vg717	TUN	DFTPP			07/07/14 17:48	1.0	1	t
018	vg718	CCV	PAHDIOX			07/07/14 18:06	1.0	6	t
019	vg719	TUN	DFTPP			07/07/14 20:11	1.0	1	
020	vg720	ICAL	ICAL			07/07/14 20:28	1.0	11	
021	vg721	ICAL	ICAL			07/07/14 21:02	1.0	12	
022	vg722	ICAL	ICAL			07/07/14 21:35	1.0	13	
023	vg723	ICAL	ICAL			07/07/14 22:10	1.0	14	
024	vg724	ICAL	ICAL			07/07/14 22:42	1.0	15	
025	vg725	ICAL	ICAL			07/07/14 23:17	1.0	16	
026	vg726	ICAL	ICAL			07/07/14 23:50	1.0	17	
027	vg727	ICV	ICV			07/08/14 00:22	1.0	2	
028	vg728	CHECK	ICV			07/08/14 00:56	1.0	18	
029	vg729	CHECK	ICV			07/08/14 01:28	1.0	19	

KMH 07/08/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 29.

KMH 07/07/14 : maintenance done after run 6

Standards used: 1=S24893 2=S25107 3=S24600 4=S24925 5=S24927 6=S24928 7=S24929 8=S24931 9=S24933 10=S24934 11=S25125 12=S25126 13=S25128 14=S25129 15=S25130 16=S25132 17=S25133 18=S24935 19=S25080

Flags used: ?t=missing tune t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 524334764

Instrument : MSBNA03 Begun : 08/20/14 11:24
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vhk01	IB	IB			08/20/14 11:24	1.0		?t
002	vhk02	TUN	DFTPP			08/20/14 11:50	1.0	1	
003	vhk03	CCV				08/20/14 12:08	1.0	2	
004	vhk04	BLANK	QC754152	Water	214554	08/20/14 12:43	1.0	3	
005	vhk05	LCS	QC754153	Water	214554	08/20/14 13:15	1.0	3	
006	vhk06	SAMPLE	259841-005	Water	214554	08/20/14 13:48	1.0	3	
007	vhk07	SAMPLE	259835-002	Water	214554	08/20/14 14:23	1.0	3	
008	vhk08	MSS	259786-001	Water	214554	08/20/14 14:56	1.0	3	
009	vhk09	MS	QC754154	Water	214554	08/20/14 15:29	1.0	3	
010	vhk10	MSD	QC754155	Water	214554	08/20/14 16:02	1.0	3	
011	vhk11	SAMPLE	259786-003	Water	214554	08/20/14 16:34	1.0	3	
012	vhk12	SAMPLE	259786-004	Water	214554	08/20/14 17:06	1.0	3	
013	vhk13	SAMPLE	259790-001	Water	214554	08/20/14 17:38	1.0	3	

KMH 08/21/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 13.

Standards used: 1=S24893 2=S25129 3=S24915

Flags used: ?t=missing tune

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 534275763

Instrument : MSBNA04 Begun : 07/10/14 12:03
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	wga01	TUN	DFTPP			07/10/14 12:03	1.0	1	
002	wga02	CCV	RTCHECK			07/10/14 12:32	1.0	2	2:ANTH=2.4
003	wga03	CCV	RTCHECK			07/10/14 13:14	1.0	2	2:ANTH=2.5
004	wga04	TUN	DFTPP			07/10/14 14:05	1.0	1	
005	wga05	TUN	DFTPP			07/10/14 15:44	1.0	1	
006	wga06	ICAL	ICAL			07/10/14 16:29	1.0	3	
007	wga07	ICAL	ICAL			07/10/14 17:02	1.0	4	
008	wga08	ICAL	ICAL			07/10/14 17:35	1.0	5	
009	wga09	ICAL	ICAL			07/10/14 18:08	1.0	6	
010	wga10	ICAL	ICAL			07/10/14 18:41	1.0	2	
011	wga11	ICAL	ICAL			07/10/14 19:14	1.0	7	
012	wga12	ICAL	ICAL			07/10/14 19:47	1.0	8	
013	wga13	ICV	ICV			07/10/14 20:21	1.0	9	

KMH 07/11/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 13.

Standards used: 1=S24369 2=S25130 3=S25125 4=S25126 5=S25128 6=S25129 7=S25132 8=S25133 9=S24935

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 534336091

Instrument : MSBNA04 Begun : 08/21/14 09:31
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	whl01	IB	IB			08/21/14 09:31	1.0		?t
002	whl02	TUN	DFTPP			08/21/14 09:57	1.0	1	t
003	whl03	TUN	DFTPP			08/21/14 10:14	1.0	1	t
004	whl04	TUN	DFTPP			08/21/14 10:30	1.0	1	t
005	whl05	TUN	DFTPP			08/21/14 10:48	1.0	1	t
006	whl06	TUN	DFTPP			08/21/14 11:04	1.0	1	
007	whl07	CCV	PAHDIOX			08/21/14 11:24	1.0	2	
008	whl08	TUN	DFTPP			08/21/14 11:54	1.0	1	
009	whl09	CCV	PAHDIOX			08/21/14 12:14	1.0	2	
010	whl10	BLANK	QC754284	Soil	214589	08/21/14 12:46	1.0	3	
011	whl11	MS	QC754154	Water	214554	08/21/14 13:18	1.0	3	
012	whl12	MSD	QC754155	Water	214554	08/21/14 13:49	1.0	3	
013	whl13	SAMPLE	259835-002	Water	214554	08/21/14 14:21	1.0	3	
014	whl14	SAMPLE	259841-007	Water	214554	08/21/14 14:53	1.0	3	
015	whl15	SAMPLE	259882-001	Water	214554	08/21/14 15:25	1.0	3	
016	whl16	SAMPLE	259882-002	Water	214554	08/21/14 15:57	1.0	3	
017	whl17	SAMPLE	259781-001	Soil	214589	08/21/14 16:29	2.0	3	
018	whl18	SAMPLE	259781-002	Soil	214589	08/21/14 17:01	1.0	3	
019	whl19	SAMPLE	259818-002	Soil	214589	08/21/14 17:33	1.0	3	
020	whl20	SAMPLE	259924-003	Soil	214589	08/21/14 18:05	1.0	3	
021	whl21	SAMPLE	259826-001	Soil	214589	08/21/14 18:37	1.0	3	
022	whl22	SAMPLE	259924-001	Soil	214589	08/21/14 19:09	1.0	3	
023	whl23	SAMPLE	259924-002	Soil	214589	08/21/14 19:43	1.0	3	
024	whl24	SAMPLE	259868-001	Soil	214589	08/21/14 20:17	1.0	3	
025	whl25	SAMPLE	259866-001	Soil	214589	08/21/14 20:50	1.0	3	
026	whl26	SAMPLE	259841-007	Water	214554	08/21/14 21:22	1.0	3	
027	whl27	SAMPLE	259983-020	Soil	214589	08/21/14 21:54	1.0	3	

KMH 08/21/14 : adjusted tune after runs 3, 4, 5 & 7

KMH 08/22/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 27.

Standards used: 1=S24893 2=S25130 3=S24915

Flags used: ?t=missing tune t=tune failure

Page 1 of 1

SAMPLE PREPARATION SUMMARY

Batch # : 214554
Started By : ARG
Method : 3520C
Spike #1 ID : S24814
Prep Date : 19-AUG-2014 14:25
SOP Version : 8270-SIM_3520_rv5
Spike #2 ID : S24884
Analysis : 8270-SIM
Finished By : CPK
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259786-001		Water	1040	1	1	0.0009615	7	1				8270-SIM	
259786-003		Water	1020	1	1	0.0009804	7	1				8270-SIM	
259786-004		Water	1040	1	1	0.0009615	7	1				8270-SIM	
259790-001		Water	1000	1	1	0.001	7	1				8270-SIM	
259790-002		Water	1060	1	1	0.0009434	7	1				8270-SIM	
259835-002		Water	1020	1	1	0.0009804	7	1				8270-SIM	
259841-005		Water	1020	1	1	0.0009804	7	1				8270-SIM	
259841-007		Water	1040	1	1	0.0009615	7	1				8270-SIM	
259882-001		Water	1020	1	1	0.0009804	11	1				8270-SIM	
259882-002		Water	1020	1	1	0.0009804	7	1				8270-SIM	
QC754152	BLANK	Water	1000	1	1	0.001		1				8270-SIM	
QC754153	LCS	Water	1000	1	1	0.001		1	1			8270-SIM	
QC754154	MS	Water	1020	1	1	0.0009804		1	1			8270-SIM	
QC754155	MSD	Water	1040	1	1	0.0009615		1	1			8270-SIM	

Analyst: KMH Date: 08/21/14 Reviewer: LW Date: 08/21/14

BNA (8270 & 625) Water Prep Log **Curtis & Tompkins, Ltd.**

Page 6 **BK 3598**

LIMS Batch No: 214554 Extraction Method:
LIMS Analysis: SIM ☒ EPA 3520c cont. L/L
Date Extracted: 8/9/14 ☐

Sample #	Container ID	Volume of Sample (mL)	Sample pH	Final Volume (mL)	Confirmed pH <2	Comments
259786-001	Z	1040	☒7 ☐	☒1.0 ☐	☒≤2	MSS
259786-003	I	1020	☒7 ☐	☒1.0 ☐	☒≤2	
4	G	1040	☒7 ☐	☒1.0 ☐	☒≤2	
259790-001	H	1000	☒7 ☐	☒1.0 ☐	☒≤2	
2	H	1060	☒7 ☐	☒1.0 ☐	☒≤2	
259835-002	C	1020	☒7 ☐	☒1.0 ☐	☒≤2	
259841-005	C	1020	☒7 ☐	☒1.0 ☐	☒≤2	
7	G	1040	☒7 ☐	☒1.0 ☐	☒≤2	
259882-001	K	1020	☐7 ☒11	☒1.0 ☐	☒≤2	
2	M	1020	☒7 ☐	☒1.0 ☐	☒≤2	
MB 254152	MA	1000	☐7 ☒NA	☒1.0 ☐	☒≤2	
LCS 3		1000	☐7 ☒	☒1.0 ☐	☒≤2	
MS 4	Y	1020	☒7 ☐	☒1.0 ☐	☒≤2	
MSD 5	AB	1040	☒7 ☐	☒1.0 ☐	☒≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	

	Lot# / LIMS # / Time	Date/ Initials
1.0 mL of surrogate solution was added to all samples	524814A	AR 8/9/14
1.0 mL of matrix spiking solution was added to all spikes	524884B	
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	FS140656	
Cont. L/L extracted with 450mL of CH_2Cl_2	EM54153	
Extraction Start Time:	1425	
Extraction End Time:	830	CPK 8/20/14
pH of all samples adjusted to pH ≥ 11 with 10 N NaOH	NA	CPK 8/20/14
Extraction Start Time:		
Extraction End Time:		
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EMWL23I	
Concentrated to final volume at temperature (degrees C)	70	
Relinquished to BNA department		

8/9/14
Extraction Chemist **Date**

Contined from Page
Continued on Page

8/20/14
Reviewed by **Date**

Case Narrative Addendum: Manual Integrations for 259882 MSSIM (Water)

For CCV (MSBNA03 vhk03):
Anthracene: Corrected automatically drawn baseline.
Benzo(k)fluoranthene: Corrected automatically drawn baseline.
1-Methylnaphthalene: Corrected automatically drawn baseline.

For SAMPLE 259882-001 (MSBNA04 whl15):
Fluorene: Corrected automatically drawn baseline.
2-Methylnaphthalene: Picked or reassigned peak.

For SAMPLE 259882-002 (MSBNA04 whl16):
Pyrene: Corrected automatically drawn baseline.

For MSD QC754155 (MSBNA04 whl12):
1,4-Dioxane: Corrected automatically drawn baseline for spike & dup.
Fluorene: Corrected automatically drawn baseline for spike.
Nitrobenzene-d5: Corrected automatically drawn baseline for dup.

For Calibration MSBNA03 (524271263002):
Benzo(k)fluoranthene: Corrected automatically drawn baseline in ICAL (vg720).
Dibenz(a,h)anthracene: Corrected automatically drawn baseline in multiple levels.
1,4-Dioxane: Corrected automatically drawn baseline in multiple levels.
Nitrobenzene-d5: Corrected automatically drawn baseline in multiple levels.

For Calibration MSBNA04 (534275763001):
Anthracene: Corrected automatically drawn baseline in multiple levels.
Benzo(g,h,i)perylene: Corrected automatically drawn baseline in multiple levels.
Benzo(k)fluoranthene: Corrected automatically drawn baseline in all levels.
Chrysene: Corrected automatically drawn baseline in multiple levels.
Dibenz(a,h)anthracene: Corrected automatically drawn baseline in multiple levels.
1,4-Dioxane: Corrected automatically drawn baseline in multiple levels.
Indeno(1,2,3-cd)pyrene: Corrected automatically drawn baseline in ICAL (wga06).
Nitrobenzene-d5: Corrected automatically drawn baseline in multiple levels.

For ICV (MSBNA04 wga13):
1,4-Dioxane: Corrected automatically drawn baseline.

Laboratory Job Number 259882

ANALYTICAL REPORT

Metals

Matrix: Filtrate

Curtis & Tompkins, Ltd.

Dissolved Metals Analytical Report

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Matrix:	Filtrate	Received:	08/15/14
Units:	ug/L	Prepared:	08/26/14
Batch#:	214811	Analyzed:	08/28/14
Sampled:	08/15/14		

Field ID: UST993-L-WC-081514 Lab ID: 259882-001
Type: SAMPLE Diln Fac: 1.000

Analyte	Result	LOQ	DL
Aluminum	48 J	100	28
Magnesium	470 J	500	20
Manganese	80	5.0	0.48

Field ID: IR04-L-WC-081514 Lab ID: 259882-002
Type: SAMPLE

Analyte	Result	LOQ	DL	Diln Fac
Aluminum	58 J	100	28	1.000
Magnesium	620,000	20,000	2,000	100.0
Manganese	2,500	5.0	0.48	1.000

Type: BLANK Diln Fac: 1.000
Lab ID: QC755195

Analyte	Result	LOQ	DL
Aluminum	50 U	100	28
Magnesium	160 U	500	20
Manganese	1.3 U	5.0	0.48

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215		
Field ID:	UST993-L-WC-081514	Diln Fac:	1.000
Lab ID:	259882-001	Sampled:	08/15/14
Matrix:	Filtrate	Received:	08/15/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Analysis
Antimony	2.5 U	10	0.65	214811	08/26/14	08/28/14	EPA 6010C
Arsenic	2.5 U	5.0	1.3	214811	08/26/14	08/28/14	EPA 6010C
Barium	34	5.0	1.0	214811	08/26/14	08/28/14	EPA 6010C
Beryllium	0.12 J	2.0	0.083	214811	08/26/14	08/28/14	EPA 6010C
Cadmium	1.3 U	5.0	0.58	214811	08/26/14	08/28/14	EPA 6010C
Chromium	1.3 J	5.0	0.57	214811	08/26/14	08/28/14	EPA 6010C
Cobalt	0.56 J	5.0	0.32	214811	08/26/14	08/28/14	EPA 6010C
Copper	5.4	5.0	0.99	214811	08/26/14	08/28/14	EPA 6010C
Lead	2.5 U	5.0	0.91	214811	08/26/14	08/28/14	EPA 6010C
Mercury	0.10 U	0.20	0.040	214672	08/22/14	08/22/14	EPA 7470A
Molybdenum	14	5.0	0.40	214811	08/26/14	08/28/14	EPA 6010C
Nickel	4.9 J	5.0	0.71	214811	08/26/14	08/28/14	EPA 6010C
Selenium	6.5 J	10	2.3	214811	08/26/14	08/28/14	EPA 6010C
Silver	2.5 U	5.0	0.66	214811	08/26/14	08/28/14	EPA 6010C
Thallium	5.0 U	10	2.0	214811	08/26/14	08/28/14	EPA 6010C
Vanadium	34	5.0	0.67	214811	08/26/14	08/28/14	EPA 6010C
Zinc	13 J	20	3.0	214811	08/26/14	08/28/14	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215		
Field ID:	IR04-L-WC-081514	Diln Fac:	1.000
Lab ID:	259882-002	Sampled:	08/15/14
Matrix:	Filtrate	Received:	08/15/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Analysis
Antimony	2.5 U	10	0.65	214811	08/26/14	08/28/14	EPA 6010C
Arsenic	30	5.0	1.3	214811	08/26/14	08/28/14	EPA 6010C
Barium	340	5.0	1.0	214811	08/26/14	08/28/14	EPA 6010C
Beryllium	0.61 J	2.0	0.083	214811	08/26/14	08/28/14	EPA 6010C
Cadmium	1.3 U	5.0	0.58	214811	08/26/14	08/28/14	EPA 6010C
Chromium	8.5	5.0	0.57	214811	08/26/14	08/28/14	EPA 6010C
Cobalt	2.6 J	5.0	0.32	214811	08/26/14	08/28/14	EPA 6010C
Copper	2.5 U	5.0	0.99	214811	08/26/14	08/28/14	EPA 6010C
Lead	2.5 U	5.0	0.91	214811	08/26/14	08/28/14	EPA 6010C
Mercury	0.10 U	0.20	0.040	214672	08/22/14	08/22/14	EPA 7470A
Molybdenum	9.5	5.0	0.40	214811	08/26/14	08/28/14	EPA 6010C
Nickel	5.8	5.0	0.71	214811	08/26/14	08/28/14	EPA 6010C
Selenium	58	10	2.3	214811	08/26/14	08/28/14	EPA 6010C
Silver	1.8 J	5.0	0.66	214811	08/26/14	08/28/14	EPA 6010C
Thallium	5.0 U	10	2.0	214811	08/26/14	08/28/14	EPA 6010C
Vanadium	5.3	5.0	0.67	214811	08/26/14	08/28/14	EPA 6010C
Zinc	19 J	20	3.0	214811	08/26/14	08/28/14	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	214672
Lab ID:	QC754624	Prepared:	08/22/14
Matrix:	Water	Analyzed:	08/22/14
Units:	ug/L		

Result	LOQ	DL
0.10 U	0.20	0.040

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	214672
Matrix:	Water	Prepared:	08/22/14
Units:	ug/L	Analyzed:	08/22/14
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC754625	2.500	2.634	105	80-120		
BSD	QC754626	2.500	2.612	104	80-120	1	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	214672
Field ID:	UST993-L-WC-081514	Sampled:	08/15/14
MSS Lab ID:	259882-001	Received:	08/15/14
Matrix:	Filtrate	Prepared:	08/22/14
Units:	ug/L	Analyzed:	08/22/14
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC754627	<0.04000	2.500	2.387	95	80-120		
MSD	QC754628		2.500	2.402	96	80-120	1	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Units:	ug/L
Field ID:	UST993-L-WC-081514	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214672
MSS Lab ID:	259882-001	Sampled:	08/15/14
Lab ID:	QC754629	Received:	08/15/14
Matrix:	Filtrate	Analyzed:	08/22/14

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
0.5000 ND	0.2000	0.5000 U	1.000	NC	10

U= Not Detected at or above DL
NC= Not Calculated
ND= Not Detected at or above DL
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC755195	Batch#:	214811
Matrix:	Filtrate	Prepared:	08/26/14
Units:	ug/L	Analyzed:	08/28/14

Analyte	Result	LOQ	DL
Antimony	2.5 U	10	0.65
Arsenic	2.5 U	5.0	1.3
Barium	2.5 U	5.0	1.0
Beryllium	1.0 U	2.0	0.083
Cadmium	1.3 U	5.0	0.58
Chromium	1.3 U	5.0	0.57
Cobalt	1.3 U	5.0	0.32
Copper	2.5 U	5.0	0.99
Lead	2.5 U	5.0	0.91
Molybdenum	1.3 U	5.0	0.40
Nickel	2.5 U	5.0	0.71
Selenium	5.0 U	10	2.3
Silver	2.5 U	5.0	0.66
Thallium	5.0 U	10	2.0
Vanadium	2.5 U	5.0	0.67
Zinc	10 U	20	3.0

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Metals Analytical Report

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Matrix:	Filtrate	Batch#:	214811
Units:	ug/L	Prepared:	08/26/14
Diln Fac:	1.000	Analyzed:	08/28/14

Type: BS Lab ID: QC755196

Analyte	Spiked	Result	%REC	Limits
Aluminum	10,000	9,339	93	80-120
Magnesium	10,000	9,743	97	80-120
Manganese	100.0	101.2	101	80-120

Type: BSD Lab ID: QC755197

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aluminum	10,000	9,027	90	80-120	3	20
Magnesium	10,000	9,431	94	80-120	3	20
Manganese	100.0	100.5	100	80-120	1	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Matrix:	Filtrate	Batch#:	214811
Units:	ug/L	Prepared:	08/26/14
Diln Fac:	1.000	Analyzed:	08/28/14

Type: BS Lab ID: QC755196

Analyte	Spiked	Result	%REC	Limits
Antimony	100.0	81.00	81	80-120
Arsenic	100.0	100.9	101	80-120
Barium	100.0	101.2	101	80-120
Beryllium	100.0	97.70	98	80-120
Cadmium	100.0	104.8	105	80-120
Chromium	100.0	99.30	99	80-120
Cobalt	100.0	100.9	101	80-120
Copper	100.0	93.22	93	80-120
Lead	100.0	98.40	98	80-120
Molybdenum	100.0	94.79	95	80-120
Nickel	100.0	99.90	100	80-120
Selenium	100.0	107.4	107	80-120
Silver	100.0	88.62	89	80-120
Thallium	50.00	53.67	107	80-120
Vanadium	100.0	102.0	102	80-120
Zinc	100.0	108.0	108	80-120

Type: BSD Lab ID: QC755197

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	81.20	81	80-120	0	20
Arsenic	100.0	100.8	101	80-120	0	20
Barium	100.0	99.97	100	80-120	1	20
Beryllium	100.0	96.62	97	80-120	1	20
Cadmium	100.0	104.9	105	80-120	0	20
Chromium	100.0	99.05	99	80-120	0	20
Cobalt	100.0	101.0	101	80-120	0	20
Copper	100.0	91.88	92	80-120	1	20
Lead	100.0	98.54	99	80-120	0	20
Molybdenum	100.0	95.79	96	80-120	1	20
Nickel	100.0	99.77	100	80-120	0	20
Selenium	100.0	107.9	108	80-120	0	20
Silver	100.0	89.05	89	80-120	0	20
Thallium	50.00	53.31	107	80-120	1	20
Vanadium	100.0	100.4	100	80-120	2	20
Zinc	100.0	108.3	108	80-120	0	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Metals Analytical Report

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	UST993-L-WC-081514	Batch#:	214811
MSS Lab ID:	259882-001	Sampled:	08/15/14
Matrix:	Filtrate	Received:	08/15/14
Units:	ug/L	Prepared:	08/26/14
Diln Fac:	1.000	Analyzed:	08/28/14

Type: MS Lab ID: QC755198

Analyte	MSS Result	Spiked	Result	%REC	Limits
Aluminum	47.76	10,000	9,021	90	80-120
Magnesium	469.0	10,000	9,483	90	80-120
Manganese	80.43	100.0	170.0	90	80-120

Type: MSD Lab ID: QC755199

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aluminum	10,000	8,865	88	80-120	2	20
Magnesium	10,000	9,387	89	80-120	1	20
Manganese	100.0	169.2	89	80-120	0	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	UST993-L-WC-081514	Batch#:	214811
MSS Lab ID:	259882-001	Sampled:	08/15/14
Matrix:	Filtrate	Received:	08/15/14
Units:	ug/L	Prepared:	08/26/14
Diln Fac:	1.000	Analyzed:	08/28/14

Type: MS Lab ID: QC755198

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<0.6500	100.0	86.52	87	80-120
Arsenic	<1.293	100.0	101.6	102	80-120
Barium	34.21	100.0	126.5	92	80-120
Beryllium	0.1177	100.0	93.07	93	80-120
Cadmium	<0.5791	100.0	87.25	87	80-120
Chromium	1.280	100.0	96.42	95	80-120
Cobalt	0.5557	100.0	95.72	95	80-120
Copper	5.355	100.0	97.32	92	80-120
Lead	<0.9081	100.0	88.87	89	80-120
Molybdenum	14.05	100.0	109.3	95	80-120
Nickel	4.908	100.0	98.99	94	80-120
Selenium	6.487	100.0	105.4	99	80-120
Silver	<0.6601	100.0	85.31	85	80-120
Thallium	<2.020	50.00	47.39	95	80-120
Vanadium	34.49	100.0	133.6	99	80-120
Zinc	12.83	100.0	116.8	104	80-120

Type: MSD Lab ID: QC755199

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	87.79	88	80-120	1	20
Arsenic	100.0	102.0	102	80-120	0	20
Barium	100.0	127.7	93	80-120	1	20
Beryllium	100.0	95.29	95	80-120	2	20
Cadmium	100.0	88.30	88	80-120	1	20
Chromium	100.0	97.12	96	80-120	1	20
Cobalt	100.0	96.55	96	80-120	1	20
Copper	100.0	99.10	94	80-120	2	20
Lead	100.0	89.61	90	80-120	1	20
Molybdenum	100.0	109.0	95	80-120	0	20
Nickel	100.0	99.97	95	80-120	1	20
Selenium	100.0	110.0	104	80-120	4	20
Silver	100.0	86.35	86	80-120	1	20
Thallium	50.00	48.23	96	80-120	2	20
Vanadium	100.0	134.9	100	80-120	1	20
Zinc	100.0	117.5	105	80-120	1	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Metals Analytical Report

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	UST993-L-WC-081514	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214811
MSS Lab ID:	259882-001	Sampled:	08/15/14
Lab ID:	QC755200	Received:	08/15/14
Matrix:	Filtrate	Analyzed:	08/28/14
Units:	ug/L		

Analyte	MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
Aluminum	47.76	100.0	250.0 U	500.0	NC	10
Magnesium	469.0	500.0	439.7 J	1,000	NC	10
Manganese	80.43	5.000	79.61	25.00	1	10

J= Estimated value
U= Not Detected at or above DL
NC= Not Calculated
LOQ= Limit of Quantitation

43.0

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	UST993-L-WC-081514	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214811
MSS Lab ID:	259882-001	Sampled:	08/15/14
Lab ID:	QC755200	Received:	08/15/14
Matrix:	Filtrate	Analyzed:	08/28/14
Units:	ug/L		

Analyte	MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
Antimony	12.50 ND	10.00	12.50 U	50.00	NC	10
Arsenic	12.50 ND	5.000	12.50 U	25.00	NC	10
Barium	34.21	5.000	34.25	25.00	NC	10
Beryllium	0.1177	2.000	5.000 U	10.00	NC	10
Cadmium	6.250 ND	5.000	6.250 U	25.00	NC	10
Chromium	1.280	5.000	6.250 U	25.00	NC	10
Cobalt	0.5557	5.000	6.250 U	25.00	NC	10
Copper	5.355	5.000	6.346 J	25.00	NC	10
Lead	12.50 ND	5.000	12.50 U	25.00	NC	10
Molybdenum	14.05	5.000	16.92 J	25.00	NC	10
Nickel	4.908	5.000	12.50 U	25.00	NC	10
Selenium	6.487	10.00	11.95 J	50.00	NC	10
Silver	12.50 ND	5.000	12.50 U	25.00	NC	10
Thallium	25.00 ND	10.00	25.00 U	50.00	NC	10
Vanadium	34.49	5.000	33.62	25.00	3	10
Zinc	12.83	20.00	50.00 U	100.0	NC	10

J= Estimated value
U= Not Detected at or above DL
NC= Not Calculated
ND= Not Detected at or above DL
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Metals Analytical Report

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	UST993-L-WC-081514	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	214811
MSS Lab ID:	259882-001	Sampled:	08/15/14
Lab ID:	QC755201	Received:	08/15/14
Matrix:	Filtrate	Analyzed:	08/28/14
Units:	ug/L		

Analyte	MSS Result	Spiked	Result	%REC	Limits
Aluminum	47.76	2,000	1,978	97	75-125
Magnesium	469.0	20,000	19,770	97	75-125
Manganese	80.43	50.00	129.6	98	75-125

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	UST993-L-WC-081514	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	214811
MSS Lab ID:	259882-001	Sampled:	08/15/14
Lab ID:	QC755201	Received:	08/15/14
Matrix:	Filtrate	Analyzed:	08/28/14
Units:	ug/L		

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<0.6500	500.0	514.6	103	75-125
Arsenic	<1.293	100.0	115.5	115	75-125
Barium	34.21	2,000	2,099	103	75-125
Beryllium	0.1177	50.00	53.52	107	75-125
Cadmium	<0.5791	50.00	45.31	91	75-125
Chromium	1.280	200.0	214.2	106	75-125
Cobalt	0.5557	500.0	534.2	107	75-125
Copper	5.355	250.0	271.3	106	75-125
Lead	<0.9081	100.0	98.93	99	75-125
Molybdenum	14.05	400.0	435.1	105	75-125
Nickel	4.908	500.0	532.1	105	75-125
Selenium	6.487	100.0	128.1	122	75-125
Silver	<0.6601	50.00	37.10	74 *	75-125
Thallium	<2.020	100.0	106.1	106	75-125
Vanadium	34.49	500.0	569.2	107	75-125
Zinc	12.83	500.0	589.4	115	75-125

*= Value outside of QC limits; see narrative

REPORTING SUMMARY FOR 259882 METALS Filtrate
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	ALK	SBS	ASA	BAE	BED	CRD	CRO	COU	PBG	MGN	MGO	HGI	MOE	NGG	SOL	ATN	VZN
259882-001	MET44	08/22/14 14:40	1.0												+					
259882-001	MET08	08/28/14 21:13	100.0																	
259882-001	MET08	08/28/14 22:47	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
259882-002	MET44	08/22/14 14:45	1.0												+					
259882-002	MET08	08/28/14 21:28	100.0										+							
259882-002	MET08	08/28/14 23:21	1.0	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+
QC754624	MET44	08/22/14 14:37	1.0																	
QC754624	MET44	08/22/14 14:58	1.0												+					
QC754625	MET44	08/22/14 14:38	1.0												+					
QC754626	MET44	08/22/14 14:39	1.0												+					
QC754627	MET44	08/22/14 14:41	1.0												+					
QC754628	MET44	08/22/14 14:43	1.0												+					
QC754629	MET44	08/22/14 14:44	5.0												+					
QC755195	MET08	08/28/14 21:00	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
QC755196	MET08	08/28/14 21:05	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
QC755197	MET08	08/28/14 21:09	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
QC755198	MET08	08/28/14 23:04	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
QC755199	MET08	08/28/14 23:08	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
QC755200	MET08	08/28/14 21:18	500.0																	
QC755200	MET08	08/28/14 23:12	5.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
QC755201	MET08	08/28/14 21:23	100.0																	
QC755201	MET08	08/28/14 23:17	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+

ICP Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84346056

Instrument : MET08 Begun : 08/28/14 07:36
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				08/28/14 07:36	1.0		
002	met08_sn_6010	ICAL	L1			08/28/14 07:41	1.0	1	
003	met08_sn_6010	ICAL	L2			08/28/14 07:46	1.0	2	
004	met08_sn_6010	ICAL	L3			08/28/14 07:51	1.0	3	
005	met08_sn_6010	ICAL	L4			08/28/14 07:56	1.0	4	
006	met08_sn_6010	ICAL	L5			08/28/14 08:03	1.0	5	
007	met08_sn_6010	XICV				08/28/14 08:09	1.0	6	
008	met08_sn_6010	ICV				08/28/14 08:15	1.0	6	
009	met08_sn_6010	CRI				08/28/14 08:21	1.0	7	
010	met08_sn_6010	ICB				08/28/14 08:33	1.0		
011	met08_sn_6010	ICSA				08/28/14 08:38	1.0	8	10:AL=550000
012	met08_sn_6010	ICSAB				08/28/14 09:37	1.0	9	5:MG=510000
013	met08_sn_6010	BLANK	QC755439	Water	214873	08/28/14 09:44	1.0		
014	met08_sn_6010	BS	QC755440	Water	214873	08/28/14 09:49	1.0		
015	met08_sn_6010	BSD	QC755441	Water	214873	08/28/14 09:53	1.0		
016	met08_sn_6010	MSS	260281-001	Water	214873	08/28/14 09:57	1.0		
017	met08_sn_6010	MS	QC755442	Water	214873	08/28/14 10:02	1.0		
018	met08_sn_6010	MSD	QC755443	Water	214873	08/28/14 10:06	1.0		
019	met08_sn_6010	X	RINSE			08/28/14 10:10	1.0		
020	met08_sn_6010	BLANK	QC755455	Water	214877	08/28/14 10:15	1.0		
021	met08_sn_6010	BLANK	QC755456	Water	214877	08/28/14 10:20	1.0		
022	met08_sn_6010	BS	QC755457	Water	214877	08/28/14 10:25	1.0		
023	met08_sn_6010	CCV				08/28/14 10:29	1.0	10	
024	met08_sn_6010	CCB				08/28/14 10:36	1.0		
025	met08_sn_6010	BSD	QC755458	Water	214877	08/28/14 10:41	1.0		
026	met08_sn_6010	SAMPLE	259887-001	Water	214877	08/28/14 10:45	1.0		
027	met08_sn_6010	SAMPLE	260094-001	Water	214877	08/28/14 10:50	1.0		4:PB=230000
028	met08_sn_6010	X	RINSE			08/28/14 10:59	1.0		
029	met08_sn_6010	SAMPLE	260094-001	Water	214877	08/28/14 11:10	100.0		
030	met08_sn_6010	X	RINSE			08/28/14 11:15	1.0		
031	met08_sn_6010	CCV				08/28/14 11:20	1.0	10	
032	met08_sn_6010	XCCB				08/28/14 11:26	1.0		
033	met08_sn_6010	CCB				08/28/14 11:30	1.0		
034	met08_sn_6010	BLANK	QC755439	Water	214873	08/28/14 11:38	1.0		
035	met08_sn_6010	BS	QC755440	Water	214873	08/28/14 11:43	1.0		
036	met08_sn_6010	BSD	QC755441	Water	214873	08/28/14 11:47	1.0		
037	met08_sn_6010	MSS	260281-001	Water	214873	08/28/14 12:02	1.0		
038	met08_sn_6010	MS	QC755442	Water	214873	08/28/14 12:07	1.0		
039	met08_sn_6010	MSD	QC755443	Water	214873	08/28/14 12:12	1.0		
040	met08_sn_6010	X	RINSE			08/28/14 12:16	1.0		
041	met08_sn_6010	CCV				08/28/14 12:21	1.0	10	
042	met08_sn_6010	CCB				08/28/14 12:27	1.0		
043	met08_sn_6010	BLANK	QC755449	Wipe	214875	08/28/14 12:32	1.0		
044	met08_sn_6010	BS	QC755450	Wipe	214875	08/28/14 12:38	1.0		4:K=100000
045	met08_sn_6010	BSD	QC755451	Wipe	214875	08/28/14 12:45	1.0		5:NA=110000
046	met08_sn_6010	SAMPLE	260078-001	Wipe	214875	08/28/14 12:53	1.0		
047	met08_sn_6010	SAMPLE	260080-001	Wipe	214875	08/28/14 12:58	1.0		
048	met08_sn_6010	SAMPLE	260082-001	Wipe	214875	08/28/14 13:03	1.0		
049	met08_sn_6010	SAMPLE	260084-001	Wipe	214875	08/28/14 13:08	1.0		
050	met08_sn_6010	SAMPLE	260087-001	Wipe	214875	08/28/14 13:13	1.0		
051	met08_sn_6010	SAMPLE	260094-001	Wipe	214875	08/28/14 13:18	1.0		
052	met08_sn_6010	SAMPLE	260095-001	Wipe	214875	08/28/14 13:23	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84346056

Instrument : MET08 Begun : 08/28/14 07:36
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	CCV				08/28/14 13:28	1.0	10	
054	met08_sn_6010	CCB				08/28/14 13:35	1.0		
055	met08_sn_6010	SAMPLE	260096-001	Wipe	214875	08/28/14 13:40	1.0		
056	met08_sn_6010	SAMPLE	260097-001	Wipe	214875	08/28/14 13:45	1.0		
057	met08_sn_6010	X	RINSE			08/28/14 13:50	1.0		
058	met08_sn_6010	BLANK	QC755432	TCLP Leachate	214872	08/28/14 13:55	10.0		1:NA=150000
059	met08_sn_6010	BS	QC755433	TCLP Leachate	214872	08/28/14 14:00	5.0		
060	met08_sn_6010	BSD	QC755434	TCLP Leachate	214872	08/28/14 14:04	5.0		
061	met08_sn_6010	MSS	260237-001	TCLP Leachate	214872	08/28/14 14:08	10.0		1:NA=170000
062	met08_sn_6010	MS	QC755435	TCLP Leachate	214872	08/28/14 14:13	10.0		
063	met08_sn_6010	MSD	QC755436	TCLP Leachate	214872	08/28/14 14:18	10.0		
064	met08_sn_6010	SER	QC755437	TCLP Leachate	214872	08/28/14 14:22	50.0		
065	met08_sn_6010	CCV				08/28/14 14:27	1.0	10	
066	met08_sn_6010	CCB				08/28/14 14:34	1.0		
067	met08_sn_6010	PDS	QC755438	TCLP Leachate	214872	08/28/14 14:39	10.0	11 12	
068	met08_sn_6010	CCV				08/28/14 14:43	1.0	10	
069	met08_sn_6010	CCB				08/28/14 14:50	1.0		
070	met08_sn_6010	SER	QC755130	Water	214786	08/28/14 16:02	500.0		
071	met08_sn_6010	PDS	QC755131	Water	214786	08/28/14 16:07	100.0	13 14	
072	met08_sn_6010	X	RINSE			08/28/14 16:11	1.0		
073	met08_sn_6010	SER	QC755576	Soil	214823	08/28/14 16:16	5.0		
074	met08_sn_6010	PDS	QC755577	Soil	214823	08/28/14 16:20	1.0	11 12	2:FE=310000
075	met08_sn_6010	SAMPLE	260062-001	Soil	214823	08/28/14 16:23	1.0		6:FE=1100000
076	met08_sn_6010	X	RINSE			08/28/14 16:30	1.0		
077	met08_sn_6010	SAMPLE	260030-001	Miscell.	214753	08/28/14 16:35	1.0		
078	met08_sn_6010	SAMPLE	260030-002	Miscell.	214753	08/28/14 16:40	1.0		1:MG=4000000
079	met08_sn_6010	X	RINSE			08/28/14 16:44	1.0		
080	met08_sn_6010	CCV				08/28/14 16:49	1.0	10	
081	met08_sn_6010	CCB				08/28/14 16:56	1.0		
082	met08_sn_6010	SAMPLE	260030-002	Miscell.	214753	08/28/14 17:07	1.0		1:MG=3900000
083	met08_sn_6010	SER	QC755130	Water	214786	08/28/14 17:12	5.0		
084	met08_sn_6010	X	RINSE			08/28/14 17:17	1.0		
085	met08_sn_6010	PDS	QC755131	Water	214786	08/28/14 17:22	1.0	13 14	
086	met08_sn_6010	X	RINSE			08/28/14 17:30	1.0		
087	met08_sn_6010	BS	QC755224	Water	214820	08/28/14 17:34	1.0		
088	met08_sn_6010	BSD	QC755225	Water	214820	08/28/14 17:39	1.0		
089	met08_sn_6010	MSS	259774-001	Water	214820	08/28/14 17:43	100.0		
090	met08_sn_6010	MS	QC755226	Water	214820	08/28/14 17:48	100.0		
091	met08_sn_6010	MSD	QC755227	Water	214820	08/28/14 17:53	100.0		
092	met08_sn_6010	CCV				08/28/14 17:58	1.0	10	
093	met08_sn_6010	CCB				08/28/14 18:05	1.0		
094	met08_sn_6010	SER	QC755228	Water	214820	08/28/14 18:10	500.0		
095	met08_sn_6010	PDS	QC755229	Water	214820	08/28/14 18:15	100.0	13 14	
096	met08_sn_6010	MS	QC755226	Water	214820	08/28/14 18:19	1.0		1:NA=220000
097	met08_sn_6010	MSD	QC755227	Water	214820	08/28/14 18:23	1.0		1:NA=210000
098	met08_sn_6010	SER	QC755228	Water	214820	08/28/14 18:27	5.0		
099	met08_sn_6010	MSS	259786-001	Filtrate	214656	08/28/14 18:32	1.0		3:MG=640000
100	met08_sn_6010	X	RINSE			08/28/14 18:40	1.0		
101	met08_sn_6010	PDS	QC755229	Water	214820	08/28/14 18:45	1.0	13 14	1:NA=230000
102	met08_sn_6010	X	RINSE			08/28/14 18:49	1.0		
103	met08_sn_6010	?SAMPLE	260193-022		214872	08/28/14 18:54	10.0		
104	met08_sn_6010	CCV				08/28/14 18:59	1.0	10	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84346056

Instrument : MET08 Begun : 08/28/14 07:36
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met08_sn_6010	CCB				08/28/14 19:06	1.0		
106	met08_sn_6010	?SAMPLE	260193-023		214872	08/28/14 19:11	10.0		
107	met08_sn_6010	?SAMPLE	260193-024		214872	08/28/14 19:16	10.0		
108	met08_sn_6010	?SAMPLE	260193-025		214872	08/28/14 19:21	10.0		
109	met08_sn_6010	SAMPLE	260406-003	TCLP Leachate	214872	08/28/14 19:26	10.0		1:NA=170000
110	met08_sn_6010	X	RINSE			08/28/14 19:33	1.0		
111	met08_sn_6010	X	RINSE			08/28/14 19:38	1.0		
112	met08_sn_6010	CCV				08/28/14 19:43	1.0	10	
113	met08_sn_6010	CCB				08/28/14 19:50	1.0		
114	met08_sn_6010	BLANK	QC755177	Filtrate	214807	08/28/14 19:55	1.0		
115	met08_sn_6010	BS	QC755178	Filtrate	214807	08/28/14 20:00	1.0		
116	met08_sn_6010	BSD	QC755179	Filtrate	214807	08/28/14 20:04	1.0		
117	met08_sn_6010	MSS	259774-001	Filtrate	214807	08/28/14 20:08	100.0		
118	met08_sn_6010	SER	QC755182	Filtrate	214807	08/28/14 20:13	500.0		
119	met08_sn_6010	PDS	QC755183	Filtrate	214807	08/28/14 20:19	100.0	13 14 15	
120	met08_sn_6010	SAMPLE	259885-001	Filtrate	214807	08/28/14 20:23	100.0		
121	met08_sn_6010	SAMPLE	259885-002	Filtrate	214807	08/28/14 20:28	100.0		
122	met08_sn_6010	SAMPLE	259885-003	Filtrate	214807	08/28/14 20:33	100.0		
123	met08_sn_6010	SAMPLE	259885-004	Filtrate	214807	08/28/14 20:38	100.0		
124	met08_sn_6010	CCV				08/28/14 20:43	1.0	10	
125	met08_sn_6010	CCB				08/28/14 20:50	1.0		
126	met08_sn_6010	X	RINSE			08/28/14 20:55	1.0		
127	met08_sn_6010	BLANK	QC755195	Filtrate	214811	08/28/14 21:00	1.0		
128	met08_sn_6010	BS	QC755196	Filtrate	214811	08/28/14 21:05	1.0		
129	met08_sn_6010	BSD	QC755197	Filtrate	214811	08/28/14 21:09	1.0		
130	met08_sn_6010	MSS	259882-001	Filtrate	214811	08/28/14 21:13	100.0		
131	met08_sn_6010	SER	QC755200	Filtrate	214811	08/28/14 21:18	500.0		
132	met08_sn_6010	PDS	QC755201	Filtrate	214811	08/28/14 21:23	100.0	13 14	
133	met08_sn_6010	SAMPLE	259882-002	Filtrate	214811	08/28/14 21:28	100.0		
134	met08_sn_6010	X	RINSE			08/28/14 21:33	1.0		
135	met08_sn_6010	X	RINSE			08/28/14 21:38	1.0		
136	met08_sn_6010	CCV				08/28/14 21:42	1.0	10	
137	met08_sn_6010	CCB				08/28/14 21:49	1.0		
138	met08_sn_6010	MSS	259774-001	Filtrate	214807	08/28/14 21:54	1.0		1:NA=210000
139	met08_sn_6010	MS	QC755180	Filtrate	214807	08/28/14 21:59	1.0		1:NA=220000
140	met08_sn_6010	MSD	QC755181	Filtrate	214807	08/28/14 22:04	1.0		1:NA=200000
141	met08_sn_6010	SER	QC755182	Filtrate	214807	08/28/14 22:08	5.0		
142	met08_sn_6010	PDS	QC755183	Filtrate	214807	08/28/14 22:13	1.0	13 14 15	
143	met08_sn_6010	SAMPLE	259885-001	Filtrate	214807	08/28/14 22:17	1.0		3:MG=480000
144	met08_sn_6010	SAMPLE	259885-002	Filtrate	214807	08/28/14 22:25	1.0		3:MG=560000
145	met08_sn_6010	SAMPLE	259885-003	Filtrate	214807	08/28/14 22:33	1.0		2:MG=220000
146	met08_sn_6010	SAMPLE	259885-004	Filtrate	214807	08/28/14 22:42	1.0		
147	met08_sn_6010	MSS	259882-001	Filtrate	214811	08/28/14 22:47	1.0		1:NA=370000
148	met08_sn_6010	CCV				08/28/14 22:52	1.0	10	
149	met08_sn_6010	CCB				08/28/14 22:59	1.0		
150	met08_sn_6010	MS	QC755198	Filtrate	214811	08/28/14 23:04	1.0		1:NA=340000
151	met08_sn_6010	MSD	QC755199	Filtrate	214811	08/28/14 23:08	1.0		1:NA=330000
152	met08_sn_6010	SER	QC755200	Filtrate	214811	08/28/14 23:12	5.0		
153	met08_sn_6010	PDS	QC755201	Filtrate	214811	08/28/14 23:17	1.0	13 14	1:NA=340000
154	met08_sn_6010	SAMPLE	259882-002	Filtrate	214811	08/28/14 23:21	1.0		3:MG=520000
155	met08_sn_6010	X	RINSE			08/28/14 23:30	1.0		
156	met08_sn_6010	SAMPLE	259823-001	Filtrate	214807	08/28/14 23:35	1.0		2:NA=190000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84346056

Instrument : MET08 Begun : 08/28/14 07:36
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
157	met08_sn_6010	SAMPLE	259823-003	Filtrate	214807	08/28/14 23:40	1.0		1:NA=200000
158	met08_sn_6010	SAMPLE	259865-001	Filtrate	214807	08/28/14 23:45	1.0		1:CA=150000
159	met08_sn_6010	SAMPLE	259865-003	Filtrate	214807	08/28/14 23:54	1.0		1:CA=260000
160	met08_sn_6010	CCV				08/29/14 00:02	1.0	10	
161	met08_sn_6010	CCB				08/29/14 00:09	1.0		
162	met08_sn_6010	SAMPLE	259918-001	Filtrate	214807	08/29/14 00:14	1.0		1:NA=250000
163	met08_sn_6010	SAMPLE	259918-003	Filtrate	214807	08/29/14 00:19	1.0		1:NA=210000
164	met08_sn_6010	SAMPLE	259968-001	Filtrate	214807	08/29/14 00:24	1.0		1:NA=200000
165	met08_sn_6010	SAMPLE	259968-003	Filtrate	214807	08/29/14 00:30	1.0		1:CA=130000
166	met08_sn_6010	SAMPLE	260003-001	Filtrate	214807	08/29/14 00:35	1.0		2:CA=400000
167	met08_sn_6010	SAMPLE	260003-003	Filtrate	214807	08/29/14 00:44	1.0		2:CA=410000
168	met08_sn_6010	SAMPLE	260053-001	Filtrate	214807	08/29/14 00:52	1.0		1:CA=270000
169	met08_sn_6010	SAMPLE	260053-003	Filtrate	214807	08/29/14 01:01	1.0		1:CA=570000
170	met08_sn_6010	SAMPLE	260131-001	Filtrate	214807	08/29/14 01:10	1.0		1:NA=570000
171	met08_sn_6010	SAMPLE	260131-002	Filtrate	214807	08/29/14 01:18	1.0		2:NA=680000
172	met08_sn_6010	CCV				08/29/14 01:27	1.0	10	
173	met08_sn_6010	CCB				08/29/14 01:34	1.0		

VQ 08/29/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 173.

Standards used: 1=S25067 2=S25224 3=S25223 4=S25225 5=S25226 6=S25072 7=S25074 8=S25075 9=S25227 10=S25073 11=S24153 12=S24154 13=S24151 14=S24152 15=S25208

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 84346056

Date : 08/28/14 Reference : met08_sn_6010
Sequence : MET08 08/28/14 Analyzed : 08/28/14 07:41

#	Type	Sample ID	Y A
		ICAL STD	2660482
		LOWER LIMIT	798145
		UPPER LIMIT	3192579
010	ICB		2647435
011	ICSA		2315037
012	ICSAB		2277833
092	CCV		2496198
093	CCB		2530112
099	MSS	259786-001	1938127
104	CCV		2518656
105	CCB		2558283
112	CCV		2432691
113	CCB		2494403
120	SAMPLE	259885-001	2389652
121	SAMPLE	259885-002	2442875
122	SAMPLE	259885-003	2565924
123	SAMPLE	259885-004	2553814
124	CCV		2549816
125	CCB		2585942
127	BLANK	QC755195	2687016
128	BS	QC755196	2631287
129	BSD	QC755197	2556866
130	MSS	259882-001	2600443
131	SER	QC755200	2459983
132	PDS	QC755201	2493660
133	SAMPLE	259882-002	2484202
136	CCV		2595346
137	CCB		2602344
143	SAMPLE	259885-001	2000641
144	SAMPLE	259885-002	1984122
145	SAMPLE	259885-003	2097593
146	SAMPLE	259885-004	2638719
147	MSS	259882-001	2417395
148	CCV		2636290
149	CCB		2489781
150	MS	QC755198	2579798
151	MSD	QC755199	2588516
152	SER	QC755200	2484360
153	PDS	QC755201	2464957
154	SAMPLE	259882-002	1996031
160	CCV		2660754
161	CCB		2535236

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259882 METALS Filtrate: EPA 6010C

Inst : MET08
Calnum : 84346056001
Units : ug/L

Date : 28-AUG-2014 07:36
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	84346056002	L1	28-AUG-2014 07:41	S25067
L2	met08_sn_6010	84346056003	L2	28-AUG-2014 07:46	S25224
L3	met08_sn_6010	84346056004	L3	28-AUG-2014 07:51	S25223
L4	met08_sn_6010	84346056005	L4	28-AUG-2014 07:56	S25225
L5	met08_sn_6010	84346056006	L5	28-AUG-2014 08:03	S25226

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	31.260	30.268	32.425	31.590		LOR0	0.00000	0.03165		31.386	1.000	0.995	
Arsenic	A	21.560	17.716	19.243	18.603		LOR0	0.00000	0.05374		19.281	1.000	0.995	
Barium	A	421.46	400.15	427.95	398.65		LOR0	0.00000	0.00251		412.05	1.000	0.995	
Beryllium	A	4943.4	4739.2	5202.7			LOR0	0.00000	1.92E-4		4961.8	1.000	0.995	
Cadmium	A	221.80	215.81	231.27	216.47		LOR0	0.00000	0.00462		221.34	1.000	0.995	
Chromium	A	95.320	91.923	97.395	92.984		LOR0	0.00000	0.01075		94.405	1.000	0.995	
Cobalt	A	130.74	122.79	136.19	129.16		LOR0	0.00000	0.00774		129.72	1.000	0.995	
Copper	A	105.22	111.48	115.51	117.52		LOR0	0.00000	0.00851		112.43	1.000	0.995	
Lead	A	56.120	53.948	58.274	55.233		LOR0	0.00000	0.01810		55.894	1.000	0.995	
Manganese	A	1162.3	1123.6	1236.0	1083.5		LOR0	0.00000	9.22E-4		1151.4	1.000	0.995	
Molybdenum	A	35.740	35.550	37.671	35.977		LOR0	0.00000	0.02778		36.235	1.000	0.995	
Nickel	A	50.020	49.222	53.947	51.485		LOR0	0.00000	0.01941		51.168	1.000	0.995	
Selenium	A	25.640	26.111	28.282	27.360		LOR0	0.00000	0.03654		26.848	1.000	0.995	
Silver	A	720.64	703.91	757.95	724.81		LOR0	0.00000	0.00137		726.83	0.999	0.995	
Thallium	A	17.350	17.755	19.423	17.556		LOR0	0.00000	0.05690		18.021	1.000	0.995	
Vanadium	A	152.98	155.92	164.81	160.18		LOR0	0.00000	0.00624		158.47	1.000	0.995	
Zinc	A	74.740	70.291	75.315	72.108		LOR0	0.00000	0.01386		73.113	1.000	0.995	
Aluminum	R	0.5620		0.6195	0.6034	0.5735	LOR0	0.00000	1.74263		0.5896	1.000	0.995	
Magnesium	R	0.7675		0.8002	0.7578	0.7148	LOR0	0.00000	1.39822		0.7601	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-1	100.00	-4	1000.0	3	10000	0		
Arsenic	A	5.0000	16	100.00	-5	1000.0	3	10000	0		
Barium	A	5.0000	6	100.00	0	1000.0	7	10000	0		
Beryllium	A	2.0000	-5	100.00	-9	1000.0	0				
Cadmium	A	5.0000	2	100.00	0	1000.0	7	10000	0		
Chromium	A	5.0000	2	100.00	-1	1000.0	5	10000	0		
Cobalt	A	5.0000	1	100.00	-5	1000.0	5	10000	0		
Copper	A	5.0000	-10	100.00	-5	1000.0	-2	10000	0		
Lead	A	5.0000	2	100.00	-2	1000.0	5	10000	0		
Manganese	A	5.0000	7	100.00	4	1000.0	14	10000	0		
Molybdenum	A	5.0000	-1	100.00	-1	1000.0	5	10000	0		
Nickel	A	5.0000	-3	100.00	-4	1000.0	5	10000	0		
Selenium	A	10.000	-6	100.00	-5	1000.0	3	10000	0		
Silver	A	5.0000	-1	100.00	-4	1000.0	4	2000.0	-1		
Thallium	A	10.000	-1	100.00	1	1000.0	11	10000	0		
Vanadium	A	5.0000	-5	100.00	-3	1000.0	3	10000	0		
Zinc	A	20.000	4	100.00	-3	1000.0	4	10000	0		
Aluminum	R	100.00	-2			1000.0	8	10000	5	100000	0
Magnesium	R	200.00	7			1000.0	12	10000	6	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259882 METALS Filtrate
EPA 6010C

Inst : MET08
Calnum : 84346056001 Cal Date : 28-AUG-2014

ICV 84346056008 (28-AUG-2014) stds: S25072

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	5049	ug/L	1	10	
Arsenic	A	5000	5007	ug/L	0	10	
Barium	A	5000	4918	ug/L	-2	10	
Beryllium	A	500.0	500.4	ug/L	0	10	
Cadmium	A	5000	5017	ug/L	0	10	
Chromium	A	5000	4969	ug/L	-1	10	
Cobalt	A	5000	4953	ug/L	-1	10	
Copper	A	5000	5001	ug/L	0	10	
Lead	A	5000	4893	ug/L	-2	10	
Manganese	A	5000	4944	ug/L	-1	10	
Molybdenum	A	5000	5057	ug/L	1	10	
Nickel	A	5000	4917	ug/L	-2	10	
Selenium	A	5000	4975	ug/L	-1	10	
Silver	A	1000	972.8	ug/L	-3	10	
Thallium	A	5000	4938	ug/L	-1	10	
Vanadium	A	5000	4889	ug/L	-2	10	
Zinc	A	5000	4948	ug/L	-1	10	
Aluminum	R	20000	20030	ug/L	0	10	
Magnesium	R	20000	20200	ug/L	1	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 259882 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056009.1 File : met08_sn_6010 Time : 28-AUG-2014 08:21
Cal : 84346056001 Caldate : 28-AUG-2014
Standards: S25074

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	11.82	ug/L	18	30	
Arsenic	A	5.000	6.343	ug/L	**27**	30	!cri+
Barium	A	5.000	5.664	ug/L	13	30	
Beryllium	A	2.000	1.938	ug/L	-3	30	
Cadmium	A	5.000	5.568	ug/L	11	30	
Chromium	A	5.000	5.435	ug/L	9	30	
Cobalt	A	5.000	5.311	ug/L	6	30	
Copper	A	5.000	5.098	ug/L	2	30	
Lead	A	5.000	5.984	ug/L	20	30	
Manganese	A	5.000	5.955	ug/L	19	30	
Molybdenum	A	5.000	5.938	ug/L	19	30	
Nickel	A	5.000	5.356	ug/L	7	30	
Selenium	A	10.00	12.95	ug/L	**30**	30	!cri+
Silver	A	5.000	4.883	ug/L	-2	30	
Thallium	A	10.00	10.86	ug/L	9	30	
Vanadium	A	5.000	5.333	ug/L	7	30	
Zinc	A	20.00	21.18	ug/L	6	30	
Aluminum	R	100.0	110.5	ug/L	10	30	
Magnesium	R	200.0	224.6	ug/L	12	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2708093	1.79

!=warning +=high bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259882 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056010.3 File : met08_sn_6010 Time : 28-AUG-2014 08:33
Cal : 84346056001 Caldate : 28-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2647435	-0.49

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 259882 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056011.3 File : met08_sn_6010 Time : 28-AUG-2014 08:38
Cal : 84346056001 Caldate : 28-AUG-2014
Standards: S25075

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[1.704]	10.00	ug/L	
Arsenic	A	[2.591]	5.000	ug/L	!a+
Barium	A	[0.4457]	5.000	ug/L	
Beryllium	A	[0.6101]	2.000	ug/L	
Cadmium	A	[2.122]	5.000	ug/L	!a+
Cobalt	A	[-2.145]	5.000	ug/L	!a-
Lead	A	[-3.840]	5.000	ug/L	!a-
Molybdenum	A	[-3.364]	5.000	ug/L	!a-
Selenium	A	[0.6504]	10.00	ug/L	
Silver	A	[2.046]	5.000	ug/L	
Thallium	A	[2.871]	10.00	ug/L	
Zinc	A	[-8.130]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec
Chromium	A	20000	19060	ug/L	95
Copper	A	20000	21390	ug/L	107
Manganese	A	20000	18090	ug/L	90
Nickel	A	20000	17740	ug/L	89
Vanadium	A	20000	18150	ug/L	91
Aluminum	R	500000	553500	ug/L	111
Calcium	R	500000	526200	ug/L	105
Iron	R	200000	206300	ug/L	103
Magnesium	R	500000	524300	ug/L	105
Titanium	R	20000	21750	ug/L	109

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2315037	-12.98

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 259882 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056012.3 File : met08_sn_6010 Time : 28-AUG-2014 09:37
Cal : 84346056001 Caldate : 28-AUG-2014
Standards: S25227

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	478.7	ug/L	-4	20	
Arsenic	A	500.0	496.7	ug/L	-1	20	
Barium	A	500.0	544.3	ug/L	9	20	
Beryllium	A	500.0	515.2	ug/L	3	20	
Cadmium	A	1000	1033	ug/L	3	20	
Chromium	A	500.0	520.8	ug/L	4	20	
Cobalt	A	500.0	483.3	ug/L	-3	20	
Copper	A	500.0	576.2	ug/L	15	20	
Lead	A	1000	971.0	ug/L	-3	20	
Manganese	A	500.0	445.0	ug/L	-11	20	
Molybdenum	A	500.0	521.9	ug/L	4	20	
Nickel	A	1000	971.9	ug/L	-3	20	
Selenium	A	500.0	490.4	ug/L	-2	20	
Silver	A	1000	1148	ug/L	15	20	
Thallium	A	500.0	485.5	ug/L	-3	20	
Vanadium	A	500.0	552.7	ug/L	11	20	
Zinc	A	1000	1030	ug/L	3	20	
Aluminum	R	500000	507500	ug/L	2		
Magnesium	R	500000	508000	ug/L	2		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2277833	-14.38

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056124.1 File : met08_sn_6010 Time : 28-AUG-2014 20:43
Cal : 84346056001 Caldate : 28-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.386	33.273	5000	5265	ug/L	5	10	
Arsenic	A	19.281	19.780	5000	5314	ug/L	6	10	
Barium	A	412.05	421.68	5000	5285	ug/L	6	10	
Beryllium	A	4961.8	5563.0	500.0	535.1	ug/L	7	10	
Cadmium	A	221.34	233.27	5000	5384	ug/L	8	10	
Chromium	A	94.405	99.160	5000	5330	ug/L	7	10	
Cobalt	A	129.72	137.97	5000	5329	ug/L	7	10	
Copper	A	112.43	118.07	5000	5024	ug/L	0	10	
Lead	A	55.894	57.840	5000	5233	ug/L	5	10	
Manganese	A	1151.4	1172.5	5000	5403	ug/L	8	10	
Molybdenum	A	36.235	38.753	5000	5383	ug/L	8	10	
Nickel	A	51.168	54.189	5000	5260	ug/L	5	10	
Selenium	A	26.848	29.068	5000	5310	ug/L	6	10	
Silver	A	726.83	752.19	1000	1028	ug/L	3	10	
Thallium	A	18.021	18.786	5000	5345	ug/L	7	10	
Vanadium	A	158.47	166.35	5000	5191	ug/L	4	10	
Zinc	A	73.113	77.092	5000	5343	ug/L	7	10	
Aluminum	R	0.5896	0.5515	20000	19220	ug/L	-4	10	
Magnesium	R	0.7601	0.7286	20000	20370	ug/L	2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2549816	-4.16

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259882 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056125.1 File : met08_sn_6010 Time : 28-AUG-2014 20:50
Cal : 84346056001 Caldate : 28-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2585942	-2.80

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056136.1 File : met08_sn_6010 Time : 28-AUG-2014 21:42
Cal : 84346056001 Caldate : 28-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.386	32.490	5000	5141	ug/L	3	10	
Arsenic	A	19.281	19.045	5000	5117	ug/L	2	10	
Barium	A	412.05	410.05	5000	5139	ug/L	3	10	
Beryllium	A	4961.8	5355.4	500.0	515.1	ug/L	3	10	
Cadmium	A	221.34	225.34	5000	5201	ug/L	4	10	
Chromium	A	94.405	96.064	5000	5163	ug/L	3	10	
Cobalt	A	129.72	133.10	5000	5140	ug/L	3	10	
Copper	A	112.43	119.03	5000	5065	ug/L	1	10	
Lead	A	55.894	56.016	5000	5068	ug/L	1	10	
Manganese	A	1151.4	1131.2	5000	5213	ug/L	4	10	
Molybdenum	A	36.235	37.819	5000	5253	ug/L	5	10	
Nickel	A	51.168	52.349	5000	5082	ug/L	2	10	
Selenium	A	26.848	27.894	5000	5096	ug/L	2	10	
Silver	A	726.83	732.15	1000	1001	ug/L	0	10	
Thallium	A	18.021	18.159	5000	5166	ug/L	3	10	
Vanadium	A	158.47	162.79	5000	5080	ug/L	2	10	
Zinc	A	73.113	73.951	5000	5126	ug/L	3	10	
Aluminum	R	0.5896	0.5706	20000	19890	ug/L	-1	10	
Magnesium	R	0.7601	0.7336	20000	20520	ug/L	3	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2595346	-2.45

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259882 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056137.1 File : met08_sn_6010 Time : 28-AUG-2014 21:49
Cal : 84346056001 Caldate : 28-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2602344	-2.19

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056148.1 File : met08_sn_6010 Time : 28-AUG-2014 22:52
Cal : 84346056001 Caldate : 28-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.386	31.875	5000	5044	ug/L	1	10	
Arsenic	A	19.281	18.812	5000	5055	ug/L	1	10	
Barium	A	412.05	410.56	5000	5146	ug/L	3	10	
Beryllium	A	4961.8	5381.1	500.0	517.6	ug/L	4	10	
Cadmium	A	221.34	228.29	5000	5269	ug/L	5	10	
Chromium	A	94.405	96.597	5000	5192	ug/L	4	10	
Cobalt	A	129.72	134.66	5000	5201	ug/L	4	10	
Copper	A	112.43	119.16	5000	5070	ug/L	1	10	
Lead	A	55.894	56.711	5000	5131	ug/L	3	10	
Manganese	A	1151.4	1131.5	5000	5214	ug/L	4	10	
Molybdenum	A	36.235	38.060	5000	5287	ug/L	6	10	
Nickel	A	51.168	52.855	5000	5131	ug/L	3	10	
Selenium	A	26.848	27.853	5000	5088	ug/L	2	10	
Silver	A	726.83	734.36	1000	1004	ug/L	0	10	
Thallium	A	18.021	17.921	5000	5099	ug/L	2	10	
Vanadium	A	158.47	162.28	5000	5064	ug/L	1	10	
Zinc	A	73.113	75.461	5000	5230	ug/L	5	10	
Aluminum	R	0.5896	0.5516	20000	19230	ug/L	-4	10	
Magnesium	R	0.7601	0.7062	20000	19750	ug/L	-1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2636290	-0.91

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259882 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056149.1 File : met08_sn_6010 Time : 28-AUG-2014 22:59
Cal : 84346056001 Caldate : 28-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2489781	-6.42

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056160.1 File : met08_sn_6010 Time : 29-AUG-2014 00:02
Cal : 84346056001 Caldate : 28-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.386	32.588	5000	5157	ug/L	3	10	
Arsenic	A	19.281	19.172	5000	5151	ug/L	3	10	
Barium	A	412.05	406.25	5000	5092	ug/L	2	10	
Beryllium	A	4961.8	5304.8	500.0	510.3	ug/L	2	10	
Cadmium	A	221.34	224.34	5000	5178	ug/L	4	10	
Chromium	A	94.405	95.662	5000	5142	ug/L	3	10	
Cobalt	A	129.72	131.80	5000	5090	ug/L	2	10	
Copper	A	112.43	118.16	5000	5028	ug/L	1	10	
Lead	A	55.894	55.905	5000	5058	ug/L	1	10	
Manganese	A	1151.4	1114.4	5000	5135	ug/L	3	10	
Molybdenum	A	36.235	37.607	5000	5224	ug/L	4	10	
Nickel	A	51.168	52.209	5000	5068	ug/L	1	10	
Selenium	A	26.848	28.065	5000	5127	ug/L	3	10	
Silver	A	726.83	726.05	1000	992.7	ug/L	-1	10	
Thallium	A	18.021	18.065	5000	5140	ug/L	3	10	
Vanadium	A	158.47	162.27	5000	5064	ug/L	1	10	
Zinc	A	73.113	73.669	5000	5106	ug/L	2	10	
Aluminum	R	0.5896	0.6245	20000	21770	ug/L	9	10	
Magnesium	R	0.7601	0.7693	20000	21510	ug/L	8	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2660754	0.01

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259882 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056161.1 File : met08_sn_6010 Time : 29-AUG-2014 00:09
Cal : 84346056001 Caldate : 28-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2535236	-4.71

SAMPLE PREPARATION SUMMARY

Batch # : 214811
Started By : ARD
Method : METHOD
Spike #1 ID : S24678

Prep Date : 26-AUG-2014 17:15
Spike #2 ID : S24679

Analysis : ICAP
Finished By : ARD
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259882-001		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	LAB FILTER 8.15.14
259882-002		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	LAB FILTER 8.15.14
QC755195	BLANK	Filtrate	50	50	1	1.0							LAB BLANK 8.15.14
QC755196	BS	Filtrate	50	50	1	1.0		.5	.5				
QC755197	BSD	Filtrate	50	50	1	1.0		.5	.5				
QC755198	MS	Filtrate	50	50	1	1.0		.5	.5				
QC755199	MSD	Filtrate	50	50	1	1.0		.5	.5				
QC755200	SER	Filtrate	50	50	1	1.0							
QC755201	PDS	Filtrate	50	50	1	1.0							

Analyst: VQ Date: 08/29/14 Reviewer: PRW Date: 09/02/14

Water Digestion for ICP Curtis & Tompkins, Ltd.

LIMS Batch #: 214811
Digested by: ARD
Date Digested: 8.26.2014

Digestion Method
☐ EPA 3010a for ICP
☐ EPA 200.7
☒ Filtrate

BK3577
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Lvl.	Sample #	Container ID	Volume Sample(mL)	Final Volume (mL)	Filtered? (y/n)	ID ✓	Comments
	Lab Blank 8.		☑ 50 ☐	☑ 50 ☐	No	✓	QC755195
	BS *		☑ 50 ☐	☑ 50 ☐	↓	✓	↓ 196
	BSD *		☑ 50 ☐	☑ 50 ☐		✓	↓ 197
	MS: 259882-001 *	J	☑ 50 ☐	☑ 50 ☐		✓	
5	MSD ↓ -001 *	↓	☑ 50 ☐	☑ 50 ☐		✓	
III	259882-001		☑ 50 ☐	☑ 50 ☐		✓	Lab Filter ADD 8.26.14 ~~8.26~~ 8.15.14
↓	-002	↓	☑ 50 ☐	☑ 50 ☐	↓	✓	↓
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
10			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
15			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
20			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			

	Reagent ID or LIMS #	Initials / Date
Digestion tubes, lot #	~~SCP-ARD 8.26.14~~ Accuflow	ARD 8.26.14
0.5 mL of spike solution (Std1) was added to all spikes	S24678 *	↓
0.5 mL of spike solution (Std2) was added to all spikes	S24679 *	
Digestion Temperature (°C), Block and Probe Location	— —	
Digestion begun at (time)	17:15	
o Conc. HNO3 or ☒ 1:1 HNO3	JTB-66236	
1:1 HCl	JTB-75649	
digestion ended at (time)	—	
o filtered thru' Whatman # 541	—	
Relinquished to ICP group	ICAP	↓

8.26.2014
Prep Chemist / Date

Continued from page Ø
Continued on page

Reviewed Online / See LIMS

PROJECT

Notebook No.

Continued From Page

Sample ID		Time/Date	B#	Filter Lot #	pH Final	Vol	Initials
Blank: QC752665		15:00/8.7.14	214168	PALL-T30848	pH<2	250mL	APD
259619-001	E					200mL	
-002							
-003						160mL	
-004						200mL	
-005							
-006							
-007							
-008							
-009							
-010							
259620-001							
-002							
-003							
-006							
-007							
-008							
-009							
-010							
-012							
-013							
259639-001	A	17:48					
BLK QC# 753784		11PM/8-15-14	B# 214454	WMPPore	≤2	250mL	
259878-001	D			R4CA42021	JTB 6236		
-002				R4CA42021			
-003							
-005							
-006							
-007							
259882-001	J						
-002							

Continued on Page

Read and Understood By

Signed | Date | Signed | Date

Mercury Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1064337826

Instrument : MET44 Begun : 08/22/14 14:26
Method : EPA 7470A SOP Version : hg_water_rv16

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met44	X				08/22/14 14:26	1.0		
002	met44	ICALBLK				08/22/14 14:27	1.0		
003	met44	ICAL	ICAL1			08/22/14 14:28	1.0	1	
004	met44	ICAL	ICAL2			08/22/14 14:29	1.0	1	
005	met44	ICAL	ICAL3			08/22/14 14:31	1.0	1	
006	met44	ICAL	ICAL4			08/22/14 14:32	1.0	1	
007	met44	ICAL	ICAL5			08/22/14 14:33	1.0	1	
008	met44	ICV				08/22/14 14:34	1.0	2	
009	met44	ICB				08/22/14 14:35	1.0		
010	met44	BLANK	QC754624	Water	214672	08/22/14 14:37	1.0		
011	met44	BS	QC754625	Water	214672	08/22/14 14:38	1.0		
012	met44	BSD	QC754626	Water	214672	08/22/14 14:39	1.0		
013	met44	MSS	259882-001	Filtrate	214672	08/22/14 14:40	1.0		
014	met44	MS	QC754627	Filtrate	214672	08/22/14 14:41	1.0		
015	met44	MSD	QC754628	Filtrate	214672	08/22/14 14:43	1.0		
016	met44	SER	QC754629	Filtrate	214672	08/22/14 14:44	5.0		
017	met44	SAMPLE	259882-002	Filtrate	214672	08/22/14 14:45	1.0		
018	met44	SAMPLE	259885-001	Filtrate	214672	08/22/14 14:46	1.0		
019	met44	SAMPLE	259885-002	Filtrate	214672	08/22/14 14:48	1.0		
020	met44	CCV				08/22/14 14:49	1.0	3	
021	met44	CCB				08/22/14 14:50	1.0		
022	met44	SAMPLE	259885-003	Filtrate	214672	08/22/14 14:51	1.0		
023	met44	SAMPLE	259885-004	Filtrate	214672	08/22/14 14:52	1.0		
024	met44	SAMPLE	260032-001	Water	214672	08/22/14 14:54	1.0		
025	met44	SAMPLE	260032-002	Water	214672	08/22/14 14:55	1.0		
026	met44	SAMPLE	260074-001	Water	214672	08/22/14 14:56	1.0		1:HG=100
027	met44	BLANK	QC754624	Water	214672	08/22/14 14:58	1.0		
028	met44	CCV				08/22/14 14:59	1.0	3	
029	met44	CCB				08/22/14 15:00	1.0		
030	met44	SAMPLE	260074-001	Water	214672	08/22/14 15:03	100.0		
031	met44	CCV				08/22/14 15:05	1.0	3	
032	met44	CCB				08/22/14 15:06	1.0		

NCD 08/22/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 32.

Standards used: 1=S25465 2=S25467 3=S25468

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259882 METALS Filtrate: EPA 7470A

Inst : MET44
Calnum : 1064337826001
Units : ug/L

Date : 22-AUG-2014 14:27
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met44	1064337826003	ICAL1	22-AUG-2014 14:28	S25465 (500X)
L2	met44	1064337826004	ICAL2	22-AUG-2014 14:29	S25465 (200X)
L3	met44	1064337826005	ICAL3	22-AUG-2014 14:31	S25465 (50X)
L4	met44	1064337826006	ICAL4	22-AUG-2014 14:32	S25465 (20X)
L5	met44	1064337826007	ICAL5	22-AUG-2014 14:33	S25465 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0145	0.0144	0.0130	0.0132	0.0134	LIN0	0.00385	74.9338		0.0137	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	11	0.5000	9	2.0000	-3	5.0000	-1	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259882 METALS Filtrate
EPA 7470A

Inst : MET44
Calnum : 1064337826001 Cal Date : 22-AUG-2014

ICV 1064337826008 (22-AUG-2014) stds: S25467

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	4.860	ug/L	-3	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259882 METALS Filtrate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1064337826009.1 File : met44 Time : 22-AUG-2014 14:35
Cal : 1064337826001 Caldate : 22-AUG-2014

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 METALS Filtrate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1064337826020.1 File : met44 Time : 22-AUG-2014 14:49
Cal : 1064337826001 Caldate : 22-AUG-2014
Standards: S25468

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0137	0.0138	5.000	5.167	ug/L	3	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259882 METALS Filtrate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1064337826021.1 File : met44 Time : 22-AUG-2014 14:50
Cal : 1064337826001 Caldate : 22-AUG-2014

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 METALS Filtrate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1064337826028.1 File : met44 Time : 22-AUG-2014 14:59
Cal : 1064337826001 Caldate : 22-AUG-2014
Standards: S25468

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0137	0.0141	5.000	5.287	ug/L	6	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259882 METALS Filtrate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1064337826029.1 File : met44 Time : 22-AUG-2014 15:00
Cal : 1064337826001 Caldate : 22-AUG-2014

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 214672
Started By : NCD
Method : METHOD
Spike #1 ID : S25465

Prep Date : 22-AUG-2014 09:46

Analysis : HG
Finished By : NCD
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259882-001		Filtrate	50	50	1	1.0						T22/HG	
259882-002		Filtrate	50	50	1	1.0						T22/HG	
259885-001		Filtrate	50	50	1	1.0						T22/HG	
259885-002		Filtrate	50	50	1	1.0						T22/HG	
259885-003		Filtrate	50	50	1	1.0						T22/HG	
259885-004		Filtrate	50	50	1	1.0						T22/HG	
260032-001		Water	50	50	1	1.0						HG-200	
260032-002		Water	50	50	1	1.0						HG-200	
260074-001		Water	50	50	1	1.0						T22/HG-200	
QC754624	BLANK	Water	50	50	1	1.0							
QC754625	BS	Water	50	50	1	1.0		1.25					
QC754626	BSD	Water	50	50	1	1.0		1.25					
QC754627	MS	Filtrate	50	50	1	1.0		1.25					
QC754628	MSD	Filtrate	50	50	1	1.0		1.25					
QC754629	SER	Filtrate	50	50	1	1.0							

Analyst: NCD Date: 08/22/14 Reviewer: EAH Date: 08/26/14

Water Digestion for Mercury Curtis & Tompkins, Ltd.

LIMS Batch #: 214672

Date Digested: 8/22/14

Digestion Method ☒ EPA 7470A/ EPA 245.1 ☐ _____

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Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
BLK		☑ 50 ☐	☑ 50 ☐	NO	QC754624
BS		☑ 50 ☐	☑ 50 ☐		25
BSD		☑ 50 ☐	☑ 50 ☐		26
259882-001	J	☑ 50 ☐	☑ 50 ☐		MS verified pH<2
-001		☑ 50 ☐	☑ 50 ☐		MSD
-001		☑ 50 ☐	☑ 50 ☐		
-002		☑ 50 ☐	☑ 50 ☐		
259885-001	A	☑ 50 ☐	☑ 50 ☐		
-002		☑ 50 ☐	☑ 50 ☐		
-003		☑ 50 ☐	☑ 50 ☐		
-004		☑ 50 ☐	☑ 50 ☐		
260074-001	D	☑ 50 ☐	☑ 50 ☐		
260032-001	A	☑ 50 ☐	☑ 50 ☐		
-002		☑ 50 ☐	☑ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		

	Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tube Lot #	EU3130	WM 8/22/14
1.25 mL of spike solution was added to all spikes	S23165	
☑ CAL digested with this batch — ICAL Source LIMS S#	66	
ICV / CCV LIMS S#	67/68	
Digestion Temperature (°C), Block and Probe Location	90 | A11	
Digestion Started at (time)	9:46	
concentrated H_2SO_4	2014020596	
concentrated HNO_3	66236	
5% $KMnO_4$	8/22/14	
5% $K_2S_2O_8$	8/22/14	
NaCl.hydroxylamine hydrochloride	8/22/14	
Stannous Chloride	8/22/14	
Digestion Completed at (time)	11:48	
☐ filtered thru' 0.45 um syringe filter (lot #)	—	

8/22/14

Prep Chemist / Date

Continued from page ____

Continued on page ____

Reviewed Online / See LIMS

Dilutions for 259882 METALS Filtrate
Curtis & Tompkins Laboratories

Type	Sample ID	IDFs
SAMPLE	259882-002	1X, 100X
SER	QC754629	5X
SER	QC755200	5X

Laboratory Job Number 259882

ANALYTICAL REPORT

Hexavalent Chromium by Ion Chromatograph

Matrix: Water

Curtis & Tompkins, Ltd.

Hexavalent Chromium

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7199
Field ID:	IR04-L-WC-081514	Batch#:	214455
Matrix:	Water	Sampled:	08/15/14 13:30
Units:	ug/L	Received:	08/15/14

Type:	SAMPLE	Diln Fac:	5.000
Lab ID:	259882-002	Analyzed:	08/15/14 18:51

Analyte	Result	LOQ	DL
Hexavalent Chromium	1.0 U	2.5	0.40

Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753785	Analyzed:	08/15/14 09:56

Analyte	Result	LOQ	DL
Hexavalent Chromium	0.20 U	0.50	0.080

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Hexavalent Chromium

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7199
Field ID:	IR04-L-WC-081514	Batch#:	214455
MSS Lab ID:	259882-002	Sampled:	08/15/14 13:30
Matrix:	Water	Received:	08/15/14
Units:	ug/L		

Type: LCS Diln Fac: 1.000
Lab ID: QC753786 Analyzed: 08/15/14 10:08

Analyte	Spiked	Result	%REC	Limits
Hexavalent Chromium	10.00	10.49	105	90-110

Type: MS Diln Fac: 100.0
Lab ID: QC753787 Analyzed: 08/15/14 19:43

Analyte	MSS Result	Spiked	Result	%REC	Limits
Hexavalent Chromium	<0.4011	1,000	945.9	95	90-110

Type: MSD Diln Fac: 100.0
Lab ID: QC753788 Analyzed: 08/15/14 19:55

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Hexavalent Chromium	1,000	963.6	96	90-110	2	20

Type: SDUP Diln Fac: 100.0
Lab ID: QC753789 Analyzed: 08/15/14 20:07

Analyte	MSS Result	Result	LOQ	RPD	Lim
Hexavalent Chromium	<2.500	20.00 U	50.00	NC	20

U= Not Detected at or above DL
NC= Not Calculated
LOQ= Limit of Quantitation
RPD= Relative Percent Difference

Initial & Continuing Calibration Data

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259882 7199 Water: EPA 7199

Inst : IC05 Name : IC05 CAL CR6 043
Calnum : 644062428001 Date : 12-FEB-2014 12:27
Units : ug/L X Axis : A Inj Vol : 1000 uL

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	043_15	644062428015	L2	12-FEB-2014 12:27	S23294 (20000X)
L2	043_16	644062428016	L3	12-FEB-2014 12:39	S23294 (10000X)
L3	043_17	644062428017	L4	12-FEB-2014 12:51	S23294 (2000X)
L4	043_18	644062428018	L5	12-FEB-2014 13:03	S23294 (1000X)
L5	043_19	644062428019	L6	12-FEB-2014 13:15	S23294 (200X)
L6	043_20	644062428020	L7	12-FEB-2014 13:27	S23294 (100X)

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Hexavalent Chromium	0.7358	0.8739	1.0956	1.0698	1.0803	1.0729	QUAD	-0.1470	1.09233	-0.00018	0.9880	1.000	0.998	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Hexavalent Chromium	0.5000	-6	1.0000	-7	5.0000	3	10.000	-1	50.000	0	100.00	0

VQ 02/12/14 : Integrated to match previous ICAL in multiple levels.

Analyst: VQ Date: 02/12/14 Reviewer: LW Date: 02/12/14

Instrument response = a0 + amount * a1 + amount^2 * a2 (invert equation before quantitating); QUAD=Quadratic regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259882 7199 Water
EPA 7199

Inst : IC05 Name : IC05 CAL CR6 043
Calnum : 644062428001 Cal Date : 12-FEB-2014

ICV 644062428022 (043_22 12-FEB-2014) stds: S23666 (50X)

Analyte	Spiked	Quant	Units	%D	Max	Flags
Hexavalent Chromium	20.00	19.04	ug/L	-5	10	

Analyst: VQ Date: 02/12/14 Reviewer: LW Date: 02/12/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 7199 Water
EPA 7199

Inst : IC05 Run Name : L IDF : 1.0
Seqnum : 644327399005 File : 227_5 Time : 15-AUG-2014 09:27
Cal : 644062428001 Caldate : 12-FEB-2014
Standards: S24414 (10000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Hexavalent Chromium	0.9880	0.9091	1.000	0.9670	ug/L	-3	10	

NJT 08/16/14 : Integrated to match integration of ICAL and CCV.

Analyst: NJT Date: 08/16/14 Reviewer: LW Date: 08/18/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259882 7199 Water
EPA 7199

Inst : IC05 Run Name : M IDF : 1.0
Seqnum : 644327399020 File : 227_20 Time : 15-AUG-2014 20:19
Cal : 644062428001 Caldate : 12-FEB-2014
Standards: S24414 (1000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Hexavalent Chromium	0.9880	1.0484	10.00	9.748	ug/L	-3	10	

NJT 08/16/14 : Integrated to match integration of ICAL and CCV.

Analyst: NJT Date: 08/16/14 Reviewer: LW Date: 08/18/14

CURTIS & TOMPKINS BLANK USER REPORT FOR 259882 7199 Water
EPA 7199

Inst : IC05 Run Name : QC753785 IDF : 1.0
Seqnum : 644327399006.1 File : 227_6 Time : 15-AUG-2014 09:56
Cal : 644062428001 Caldate : 12-FEB-2014

Analyte	Quant	IQL	MDL	Units	Flags
Hexavalent Chromium	ND	0.5000	0.08023	ug/L	u

NJT 08/16/14 : Integrated to match integration of ICAL and CCV. [general version]

Analyst: RDG Date: 08/18/14 Reviewer: LW Date: 08/28/14

u=use

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259882 7199 Water
EPA 7199

Inst : IC05 IDF : 1.0
Seqnum : 644327399021 File : 227_21 Time : 15-AUG-2014 20:31
Cal : 644062428001 Caldate : 12-FEB-2014

Analyte	Quant	IQL	MDL	Units	Flags
Hexavalent Chromium	[0.1621]	0.5000	0.08023	ug/L	

NJT 08/16/14 : Integrated to match integration of ICAL and CCV.

Analyst: NJT Date: 08/16/14 Reviewer: LW Date: 08/18/14

Logbooks & Sequences

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 644062428

Instrument : IC05 Begun : 02/12/14 08:28
Method : EPA 7199 SOP Version : cr6-ic_rv2

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	043_1	X	BLK			02/12/14 08:28	1.0		
002	043_2	X	BLK			02/12/14 08:39	1.0		
003	043_3	X	BLK			02/12/14 08:51	1.0		
004	043_4	X	BLK			02/12/14 09:03	1.0		
005	043_5	X	BLK			02/12/14 09:15	1.0		
006	043_6	X	BLK			02/12/14 09:27	1.0		
007	043_7	X	CCV			02/12/14 09:39	1.0	1	
008	043_8	X	BLK			02/12/14 10:06	1.0		
009	043_9	X	BLK			02/12/14 10:18	1.0		
010	043_10	X	BLK			02/12/14 10:30	1.0		
011	043_11	X	BLK			02/12/14 11:39	1.0		
012	043_12	X	BLK			02/12/14 11:51	1.0		
013	043_13	IB	ICALIB			02/12/14 12:03	1.0		
014	043_14	ICAL	L1			02/12/14 12:15	1.0	1	
015	043_15	ICAL	L2			02/12/14 12:27	1.0	1	
016	043_16	ICAL	L3			02/12/14 12:39	1.0	1	
017	043_17	ICAL	L4			02/12/14 12:51	1.0	1	
018	043_18	ICAL	L5			02/12/14 13:03	1.0	1	
019	043_19	ICAL	L6			02/12/14 13:15	1.0	1	
020	043_20	ICAL	L7			02/12/14 13:27	1.0	1	
021	043_21	ICB				02/12/14 13:51	1.0		
022	043_22	ICV				02/12/14 14:04	1.0	2	
023	043_23	CCB/MB	QC727837	Water	208005	02/12/14 14:19	1.0		
024	043_24	LCS	QC727838	Water	208005	02/12/14 14:31	1.0	2	
025	043_25	MSS	253315-001	Water	208005	02/12/14 17:20	1.0		
026	043_26	SAMPLE	253315-003	Water	208005	02/12/14 17:32	1.0		
027	043_27	MS	QC727839	Water	208005	02/12/14 17:44	1.01	2	
028	043_28	MSD	QC727840	Water	208005	02/12/14 17:56	1.01	2	
029	043_29	CCV	M		208005	02/12/14 18:08	1.0	1	
030	043_30	CCB			208005	02/12/14 18:20	1.0		

VQ 02/13/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 30.

LW 02/12/14 : Sequence reviewed through file 22

Analyst: VQ Date: 02/12/14 Reviewer: LW Date: 02/13/14

Standards used: 1=S23294 2=S23666

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 644327399

Instrument : IC05 Begun : 08/15/14 08:39
Method : EPA 7199 SOP Version : cr6-ic_rv2

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	227_1	X	BLK			08/15/14 08:39	1.0		
002	227_2	X	BLK			08/15/14 08:51	1.0		
003	227_3	X	BLK			08/15/14 09:03	1.0		
004	227_4	X	BLK			08/15/14 09:15	1.0		
005	227_5	CCV	L			08/15/14 09:27	1.0	1	
006	227_6	CCB/MB	QC753785	Water	214455	08/15/14 09:56	1.0		
007	227_7	LCS	QC753786	Water	214455	08/15/14 10:08	1.0	2	
008	227_8	MSS	259882-002	Water	214455	08/15/14 16:50	1.0		
009	227_9	X	BLK		214455	08/15/14 17:04	1.0		
010	227_10	X	BLK		214455	08/15/14 18:13	1.0		
011	227_11	MSS	259882-002	Water	214455	08/15/14 18:26	10.0		
012	227_12	X	BLK		214455	08/15/14 18:38	1.0		
013	227_13	MSS	259882-002	Water	214455	08/15/14 18:51	5.0		
014	227_14	MS	QC753787	Water	214455	08/15/14 19:07	5.0	2	
015	227_15	MSD	QC753788	Water	214455	08/15/14 19:19	5.0	2	
016	227_16	MSS	259882-002	Water	214455	08/15/14 19:31	100.0		
017	227_17	MS	QC753787	Water	214455	08/15/14 19:43	100.0	2	
018	227_18	MSD	QC753788	Water	214455	08/15/14 19:55	100.0	2	
019	227_19	SDUP	QC753789	Water	214455	08/15/14 20:07	100.0		
020	227_20	CCV	M		214455	08/15/14 20:19	1.0	1	
021	227_21	CCB			214455	08/15/14 20:31	1.0		
022	227_22	CCV	M		214455	08/15/14 20:43	1.0	1	
023	227_23	CCB			214455	08/15/14 20:55	1.0		

NJT 08/16/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 23.

Analyst: NJT Date: 08/16/14 Reviewer: LW Date: 08/18/14

Standards used: 1=S24414 2=S23666

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Curtis & Tompkins, Ltd. **Water Prep Log** Ion Chromatography

Analysis: ☐ Anions EPA 300 / EPA 9056
☐ Perchlorate (ClO_4) EPA 314
☒ Cr6+ EPA 7199

Batch#: 214455
Date Started: 8/15/14
Prep Chemist: RDG

BK 3586
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	Sample #	Container	☐ Conductivity ☒ pH	Estimated Dilution Factor	Filters Used	Comments
1	259882-002	RDG	9.5	1X/5X/10X/100X	S	MSS
2	Blank QC753785			1X		
3	LCS	786				
4	MS	787		100X		
5	MSD	788				
6	SDUP	789				
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
						NJT 8/16/14

	Mfg & Lot # / Time / Program	Initials / Date
Eluent Reagent ID	LCS Check 8/18/14 NJT	NJT 8/16/14
LCS/BS/BSD Spiked with 0.05 mL of :	523666	
MS/MSD Spiked with 0.25 mL of :	523666	
Filters Used: Ag: OnGuard II Ag	NA	
Na: OnGuard II Na		
P: OnGuard II P		
RP: OnGuard II RP		
S: 0.20um/0.45um	Sartorius # 4808210 3	

8/16/14
Extraction Chemist / Date

Continued from page ___
Continued on page ___

8/16/14
Reviewed by / Date

Dilutions for 259882 7199 Water
Curtis & Tompkins Laboratories

Type	Sample ID	IDFs
SAMPLE	259882-002	5X
MS	QC753787	100X
MSD	QC753788	100X
SDUP	QC753789	100X

For CCB (IC05_227_21):
Integrated to match integration of ICAL and CCV.

For CCV L (IC05_227_5):
Integrated to match integration of ICAL and CCV.

For CCV M (IC05_227_20):
Integrated to match integration of ICAL and CCV.

For CCB/MB QC753785 (IC05_227_6):
Integrated to match integration of ICAL and CCV.

For LCS QC753786 (IC05_227_7):
Integrated to match integration of ICAL and CCV.

For MSD QC753788 (IC05_227_18):
Integrated to match integration of ICAL and CCV for spike & dup.

For SDUP QC753789 (IC05_227_19):
Integrated to match integration of ICAL and CCV.

For Calibration IC05 (644062428001):
Integrated to match previous ICAL in multiple levels.

For ICV (IC05_043_22):
Integrated to match integration of ICAL and CCV.

Laboratory Job Number 259882

ANALYTICAL REPORT

Wet Chemistry

Matrix: Water

Curtis & Tompkins, Ltd.

Total Dissolved Solids (TDS)

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	SM2540C
Analyte:	Total Dissolved Solids	Sampled:	08/15/14
Matrix:	Water	Received:	08/15/14
Units:	mg/L	Prepared:	08/18/14
Batch#:	214481	Analyzed:	08/19/14

Field ID	Type	Lab ID	Result	LOQ	Diln Fac
UST993-L-WC-081514	SAMPLE	259882-001	1,250	11	1.111
IR04-L-WC-081514	SAMPLE	259882-002	15,600	100	10.00
	BLANK	QC753879	ND	10	1.000

ND= Not Detected
LOQ= Limit of Quantitation

Batch QC Report

Total Dissolved Solids (TDS)

Lab #:	259882	Location:	BGMP-IDW
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	SM2540C
Analyte:	Total Dissolved Solids	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	214481
Matrix:	Water	Prepared:	08/18/14
Units:	mg/L	Analyzed:	08/19/14

Type	MSS Lab ID	Lab ID	MSS Result	Spiked	Result	LOQ	%REC	Limits	RPD	Lim	Sampled	Received
LCS		QC753880		104.0	84.00		81	74-120				
SDUP	259774-001	QC753881	640.0		646.0	10.00			1	5	08/12/14	08/13/14
SDUP	259873-007	QC753882	1,038		1,078	10.00			4	5	08/14/14	08/15/14

LOQ= Limit of Quantitation
RPD= Relative Percent Difference

6.0

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Sample Batch Report

Batch Number: 214481
Date Started: 18-AUG-2014
Batched by : Kevin Riley

Analysis : TDS
Bgroup : N/A
Department : Wet Chemistry

Sample	Type		Client	Matrix	Analyses	Due Date
259751-002			JM Waller Associat	Water	TDS	22-AUG-2014
259751-003			JM Waller Associat	Water	TDS	22-AUG-2014
259751-004			JM Waller Associat	Water	TDS	22-AUG-2014
259774-001			Acton Mickelson En	Water	TDS	27-AUG-2014
259779-003			ICES	Water	TDS	19-AUG-2014
259785-001			Erler & Kalinowski	Water	TDS	20-AUG-2014
259785-002			Erler & Kalinowski	Water	TDS	20-AUG-2014
259785-003			Erler & Kalinowski	Water	TDS	20-AUG-2014
259785-004			Erler & Kalinowski	Water	TDS	20-AUG-2014
259785-005			Erler & Kalinowski	Water	TDS	20-AUG-2014
259785-006			Erler & Kalinowski	Water	TDS	20-AUG-2014
259823-001			Acton Mickelson En	Water	TDS	28-AUG-2014
259823-003			Acton Mickelson En	Water	TDS	28-AUG-2014
259825-001			JM Waller Associat	Water	TDS	22-AUG-2014
259865-001			Acton Mickelson En	Water	TDS	29-AUG-2014
259865-003			Acton Mickelson En	Water	TDS	29-AUG-2014
259873-007			U.S. Army Corps of	Water	TDS	27-AUG-2014
259882-001			JM Waller Associat	Water	TDS	27-AUG-2014
259882-002			JM Waller Associat	Water	TDS	27-AUG-2014
QC753879	BLANK			Water	TDS	
QC753880	LCS			Water	TDS	
QC753881	SDUP	of 259774-001		Water	TDS	
QC753882	SDUP	of 259873-007		Water	TDS	

Analysis:	**Total Dissolved Solids**	Analyst:	kr	QC Limits	RPD	Recovery	
Method:	SMWW 2540C	Filtration Date:	**8/18/14**	LCS/ BS/ BSD	5	80 - 120	
Matrix:	Water	Analysis Date:	**8/19/14**	MS/ MSD/SDUP	5	65 - 130	
SOP#:	tds_rv 12.doc	Batch #:	214481				

Sample	Sample Vol (mL)	DF (50/vol)	Initial Mass (g)	Constant Mass (g)	Residue Mass (g)	Report (mg/L)	Reporting Limit (mg/L)	Spike Std Conc (mg/L)	Spike Vol. Used (mL)	Spike (mg/L)	**Recovery,%**	**RPD,%**
MB	50	1	59.1284	59.1276	-0.0008	**ND**	10					
LCS	50	1	54.8430	54.8472	0.0042	**84.0**	10	104	50	104	**81**	
259774-001	50	1	59.9248	59.9568	0.0320	**640.0**	10					
SDUP 1	50	1	69.0401	69.0724	0.0323	**646.0**	10					**1**
259873-007	50	1	69.1004	69.1523	0.0519	**1,038.0**	10					
SDUP 2	50	1	68.0693	68.1232	0.0539	**1,078.0**	10					**4**
259751-002	5	10	59.6614	59.7158	0.0544	**10,880.0**	100					
259751-003	50	1	59.9024	59.9023	-0.0001	**ND**	10					
259751-004	50	1	68.7222	68.7220	-0.0002	**ND**	10					
259779-003	5	10	67.5327	67.5979	0.0652	**13,040.0**	100					
259785-001	30	1.667	58.6446	58.7275	0.0829	**2,763.3**	17					
259785-002	50	1	60.3894	60.4098	0.0204	**408.0**	10					
259785-003	50	1	67.5477	67.6011	0.0534	**1,068.0**	10					
259785-004	5	10	66.7249	66.7980	0.0731	**14,620.0**	100					
259785-005	5	10	58.4153	58.4565	0.0412	**8,240.0**	100					
259785-006	5	10	64.9679	65.0299	0.0620	**12,400.0**	100					
259823-001	50	1	68.5600	68.6188	0.0588	**1,176.0**	10					
259823-003	50	1	65.1436	65.1758	0.0322	**644.0**	10					
259825-001	5	10	66.5665	66.6229	0.0564	**11,280.0**	100					
259865-001	35	1.429	59.2431	59.3451	0.1020	**2,914.3**	14					
259865-003	25	2	68.2164	68.3274	0.1110	**4,440.0**	20					
259882-001	45	1.111	69.5821	69.6382	0.0561	**1,246.7**	11					
259882-002	5	10	68.1625	68.2405	0.0780	**15,600.0**	100					

TDS (Total Dissolved Solids)
SMWW 2540C

Curtis & Tompkins, Ltd.

LIMS Batch #: 214981 Prep Date: 18-Aug-14 Benchbook#: **BK 3594**
Filtered by: HR Prep Time: 1105 Page: **4**
EE

Filter Mfg/ Lot#: 60007-4090 T Spike Std Conc (mg/L): 164
Spike Std LIMS#: 524620 Spike Std Vol Added (mL): 50 Balance ID WETC1

	In	Out	In-2	Out-2	In-3	Out-3
Date:	8.18.14	8.19.14	8.19.14	8.19.14		
Time:	1300	1022	1228	1333		
Temp (C):	90	180	180	180		
Weighed by:		HR		HR	HR	8.19.14

Sample #	Container ID	EC Value (µS/cm)	Sample Vol. Filtered (mL)	Dish ID	Dish Wt (g)	1st Dry Wt.(g)	2nd Dry Wt (g)*	3rd Dry Wt (g)*
MB			50	100K	59.1284	59.1276	59.1279	
LCS			50	LAA	54.8930	54.8972	54.8967	
259774-001	CT	1005	50	TGM	59.9248	59.9568	59.9570	
SNP 774-001	CT	1000	50	STOP	69.0401	69.0724	69.0725	
259873-007	A	1681	50	MOW	69.1004	69.1523	69.1523	
SNP 873-007	A	1698	50	BIKE	68.0693	68.1232	68.1229	
259751-002	A	17240	5	GRL	59.6614	59.7158	59.7159	
— -003	A	4.12	50	CAV	59.9024	59.9023	59.9022	
— -004	A	2.06	50	RUN	68.7222	68.7220	68.7221	
259774-003	H	20280	5	SS	67.5327	67.5979	67.5980	
259785-001	A-D	4900	50	JET	58.6946	58.7275	58.7279	HR 8/18
— -002	D	657	50	YOU	60.3894	60.4098	60.4095	
— -003	D	1769	50	BIB	67.5977	67.6011	67.6013	
— -004	D	22140	5	HKO	66.7249	66.7980	66.7977	
— -005	D	12070	5	SIT	58.4153	58.4565	58.4562	
— -006	D	18240	5	BSZ	64.9679	65.0299	65.0299	
259823-001	AE	1552	50	HOK	68.5600	68.6188	68.6192	
— -003	AE	1002	50	KKSF	65.1436	65.1758	65.1754	
259885-001	A	17420	5	FIRE	66.5665	66.6229	66.6224	
259805-001	AE	3770	35	NOW	59.2431	59.3451	59.3459	
— -003	AE	5340	25	PIPE	68.2164	68.3279	68.3271	
259882-001	G	2197	45	BILL	69.5821	69.6382	69.6380	
— -002	G	32400	5	COMB	68.1625	68.2405	68.2400	

* Constant weight must be within 0.0005 from previous reading.

18-Aug-14
Analyst / Date

8/19/14
Reviewed by / Date

PROJECT WET01 BALANCE CALIBRATION Notebook No. BK2557

Continued From Page

DATE	ANALYST	0.0020 / 0.0200	100.0000	SET #	LEVEL
01-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
02-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
06-JUL-14	KR	0.0200	100.0001	HNS597 / 28659	✓
07-JUL-14	KR	0.0200	100.0002	HNS597 / 28659	✓
09-JUL-14	KR	0.0200	100.0001	HNS597 / 28659	✓
10-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
11-JUL-14	KR	0.0200	100.0002	HNS597 / 28659	✓
14-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
15-Jul-14	MB3	0.0018	100.0003	HEM-2 / HN 28659	✓
16-Jul-14	MB3	0.0201	100.0009	HN5 599 / 58657	✓
17-JUL-14	KR	0.0200	99.9999	HSS597 / 28659	✓
18-JUL-14	KR	0.0200	100.0000	HSS597 / 28659	✓
21-JUL-14	KR	0.0200	100.0001	HSS597 / 28659	✓
22-Jul-14	NJT	0.0201	100.0005	HNS597 / 28659	✓
23-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
24-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
25-JUL-14	KR	0.0200	99.9998	HSS597 / 28659	✓
28-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
29-JUL-14	KR	0.0200	99.9999	HNS597 / 28659	✓
30-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
31-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
01-AUG-14	KR	0.0200	100.0000	HNS597 / 28659	✓
2-Aug-14	NJT	0.0200	100.0001	HNS597 / 28659	✓
4-AUG-14	KR	0.0200	100.0001	HNS597 / 28659	✓
5-AUG-14	KR	0.0200	100.0001	HNS597 / 28659	✓
6-AUG-14	KR	0.0200	99.9999	HNS597 / 28659	✓
7-Aug-14	NJT	0.0200	100.0001	HNS597 / 28659	✓
8-AUG-14	KR	0.0200	100.0001	HNS597 / 28659	✓
11-AUG-14	KR	0.0200	100.0000	HNS597 / 28659	✓
12-AUG-14	KR	0.0200	100.0000	HNS597 / 28659	✓
13-AUG-14	KR	0.0200	100.0000	HNS597 / 28659	✓
14-AUG-14	KR	0.0200	100.0002	HNS597 / 28659	✓
15-Aug-14	JW	0.0200	100.0001	HNS597 / 28659	✓
18-AUG-14	KR	0.0200	100.0000	HNS597 / 28659	✓
19-AUG-14	KR	0.0200	100.0000	HNS597 / 28659	✓

Continued On Page

Read and Understood By

Signed Date Signed Date

Appendix D. Laboratory Analytical Reports

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 259751
ANALYTICAL REPORT

JM Waller Associates 11325 Random Hills Road Fairfax, VA 22030-6608	Project : N62473-11-D-2215 Location : BGMP-DRMO SOUTH Level : III Contract # : N62473-11-D-2215

Sample ID	Lab ID
901W56081214	259751-002
RB081214	259751-003
SB081214	259751-004

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Tracy Babjar Date: 08/21/2014

Tracy Babjar
Project Manager
tracy.babjar@ctberk.com
(510) 204-2226

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**259751**
Client:	**JM Waller Associates**
Project:	**N62473-11-D-2215**
Location:	**BGMP-DRMO SOUTH**
Request Date:	**08/12/14**
Samples Received:	**08/12/14**

This data package contains sample and QC results for three water samples, requested for the above referenced project on 08/12/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

All qualified data are compliant with appropriate corrective actions specified in Standard Operating Procedures. The Standard Operating Procedures are available upon request.

Manual integration documentation may be found in the "Case Narrative Addendum: Manual Integrations" sections.

Total Dissolved Solids (TDS) (SM2540C):
No analytical problems were encountered.

Chain of Custody

Curtis & Tompkins, Ltd.
Analytical Laboratory Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510)486-0900 Phone
(510)486-0532 Fax

CHAIN OF CUSTODY

Chain of Custody # : 2 7

C&T LOGIN # 259757

Project No: N62473-11-D-2215
Project Name: BGMP- DRMO SOUTH
EDD Format: _____ **Rpt Level:** ☐ II ☑ III ☐ IV
Turnaround Time: ☐ RUSH _____ ☑ Standard
PO#: ALT14-001-01-004-CTL

Sampler: M. Mandell
Report To: T. Chuhay, H. Wollenburg
Company : JM Waller and ERRG
Telephone 404-443-2777
Email:

Lab No.	Sample ID.	Sampling Date	Sampling Time	Matrix: Water	Matrix: Soil	Matrix:	Matrix:	# of Containers	Chemical Preservative: HCl	H_2SO_4	HNO_3	NaOH	None	Analytical Request: TDS
2	901W56081214	8/12/2014	1354	X				1					X	x
3	RB081214	8/12/2014	1406	X				1					X	x
4	SB081214	8/12/2014	1408	X				1					X	x

Notes:

SAMPLE RECEIPT
☑ Intact ☑ Cold
☑ On Ice ☐ Ambient

RELINQUISHED BY:	RECEIVED BY:
8/12/14 1610 DATE/TIME	8/12/14 1610 DATE/TIME
8/12/14 1715 DATE/TIME	8/12 1715 DATE/TIME
DATE/TIME	DATE/TIME

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 259757 Date Received 8/12/14 Number of coolers 1
Client JMWALLER Project N62473-11-D-2215

Date Opened 8/12/14 By (print) F (sign) FS
Date Logged in " " By (print) " " (sign) " FS "

1. Did cooler come with a shipping slip (airbill, etc)_____ YES ~~NO~~
   Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☐ ~~NO~~
   How many _____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO ~~N/A~~
3. Were custody papers dry and intact when received? _____ ~~YES~~ NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ ~~YES~~ NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ___ YES NO
6. Indicate the packing in cooler: (if other, describe)_____

   ☐ Bubble Wrap ☐ Foam blocks ☑ Bags ☐ None
   ☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels
7. Temperature documentation: * Notify PM if temperature exceeds 6°C

   Type of ice used: ☑ Wet ☐ Blue/Gel ☐ None Temp(°C) 6.6

   ☐ Samples received on ice & cold without a temperature blank; temp taken with IR gun

   ☑ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES ~~NO~~
   If YES, what time were they transferred to freezer?_____
9. Did all bottles arrive unbroken/unopened? _____ ~~YES~~ NO
10. Are there any missing / extra samples? _____ YES ~~NO~~
11. Are samples in the appropriate containers for indicated tests? _____ ~~YES~~ NO
12. Are sample labels present, in good condition and complete? _____ ~~YES~~ NO
13. Do the sample labels agree with custody papers? _____ ~~YES~~ NO
14. Was sufficient amount of sample sent for tests requested? _____ ~~YES~~ NO
15. Are the samples appropriately preserved? _____ YES NO ~~N/A~~
16. Did you check preservatives for all bottles for each sample? _____ YES NO ~~N/A~~
17. Did you document your preservative check? _____ YES NO ~~N/A~~
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO ~~N/A~~
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO ~~N/A~~
20. Are bubbles > 6mm absent in VOA samples? _____ YES NO ~~N/A~~
21. Was the client contacted concerning this sample delivery? _____ YES ~~NO~~
   If YES, Who was called?_____ By_____ Date:_____

COMMENTS

_____

Rev 10, 10/11

Curtis & Tompkins, Ltd.

Detections Summary for 259751

Results for any subcontracted analyses are not included in this summary.

Client : JM Waller Associates
Project : N62473-11-D-2215
Location : BGMP-DRMO SOUTH

Client Sample ID : 901W56081214 Laboratory Sample ID : 259751-002

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Total Dissolved Solids	10,900		100		mg/L	TOTAL	10.00	SM2540C	METHOD

Client Sample ID : RB081214 Laboratory Sample ID : 259751-003

No Detections

Client Sample ID : SB081214 Laboratory Sample ID : 259751-004

No Detections

Laboratory Job Number 259751

ANALYTICAL REPORT

Wet Chemistry

Matrix: Water

Curtis & Tompkins, Ltd.

Total Dissolved Solids (TDS)

Lab #:	259751	Location:	BGMP-DRMO SOUTH
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	SM2540C
Analyte:	Total Dissolved Solids	Sampled:	08/12/14
Matrix:	Water	Received:	08/12/14
Units:	mg/L	Prepared:	08/18/14
Batch#:	214481	Analyzed:	08/19/14

Field ID	Type	Lab ID	Result	LOQ	Diln Fac
901W56081214	SAMPLE	259751-002	10,900	100	10.00
RB081214	SAMPLE	259751-003	ND	10	1.000
SB081214	SAMPLE	259751-004	ND	10	1.000
	BLANK	QC753879	ND	10	1.000

ND= Not Detected
LOQ= Limit of Quantitation

Batch QC Report

Total Dissolved Solids (TDS)

Lab #:	259751	Location:	BGMP-DRMO SOUTH
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	SM2540C
Analyte:	Total Dissolved Solids	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	214481
Matrix:	Water	Prepared:	08/18/14
Units:	mg/L	Analyzed:	08/19/14

Type	MSS Lab ID	Lab ID	MSS Result	Spiked	Result	LOQ	%REC	Limits	RPD	Lim	Sampled	Received
LCS		QC753880		104.0	84.00		81	74-120				
SDUP	259774-001	QC753881	640.0		646.0	10.00			1	5	08/12/14	08/13/14
SDUP	259873-007	QC753882	1,038		1,078	10.00			4	5	08/14/14	08/15/14

LOQ= Limit of Quantitation
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Sample Batch Report

Batch Number: 214481
Date Started: 18-AUG-2014
Batched by : Kevin Riley

Analysis : TDS
Bgroup : N/A
Department : Wet Chemistry

Sample	Type		Client	Matrix	Analyses	Due Date
259751-002			JM Waller Associat	Water	TDS	22-AUG-2014
259751-003			JM Waller Associat	Water	TDS	22-AUG-2014
259751-004			JM Waller Associat	Water	TDS	22-AUG-2014
259774-001			Acton Mickelson En	Water	TDS	27-AUG-2014
259779-003			ICES	Water	TDS	19-AUG-2014
259785-001			Erler & Kalinowski	Water	TDS	20-AUG-2014
259785-002			Erler & Kalinowski	Water	TDS	20-AUG-2014
259785-003			Erler & Kalinowski	Water	TDS	20-AUG-2014
259785-004			Erler & Kalinowski	Water	TDS	20-AUG-2014
259785-005			Erler & Kalinowski	Water	TDS	20-AUG-2014
259785-006			Erler & Kalinowski	Water	TDS	20-AUG-2014
259823-001			Acton Mickelson En	Water	TDS	28-AUG-2014
259823-003			Acton Mickelson En	Water	TDS	28-AUG-2014
259825-001			JM Waller Associat	Water	TDS	22-AUG-2014
259865-001			Acton Mickelson En	Water	TDS	29-AUG-2014
259865-003			Acton Mickelson En	Water	TDS	29-AUG-2014
259873-007			U.S. Army Corps of	Water	TDS	27-AUG-2014
259882-001			JM Waller Associat	Water	TDS	27-AUG-2014
259882-002			JM Waller Associat	Water	TDS	27-AUG-2014
QC753879	BLANK			Water	TDS	
QC753880	LCS			Water	TDS	
QC753881	SDUP	of 259774-001		Water	TDS	
QC753882	SDUP	of 259873-007		Water	TDS	

Analysis:	**Total Dissolved Solids**	Analyst:	kr	QC Limits	RPD	Recovery	
Method:	SMWW 2540C	Filtration Date:	**8/18/14**	LCS/ BS/ BSD	5	80 -	120
Matrix:	Water	Analysis Date:	**8/19/14**	MS/ MSD/SDUP	5	65 -	130
SOP#:	tds_rv 12.doc	Batch #:	214481				

Sample	Sample Vol (mL)	DF (50/vol)	Initial Mass (g)	Constant Mass (g)	Residue Mass (g)	Report (mg/L)	Reporting Limit (mg/L)	Spike Std Conc (mg/L)	Spike Vol. Used (mL)	Spike (mg/L)	**Recovery,%**	**RPD,%**
MB	50	1	59.1284	59.1276	-0.0008	**ND**	10					
LCS	50	1	54.8430	54.8472	0.0042	**84.0**	10	104	50	104	**81**	
259774-001	50	1	59.9248	59.9568	0.0320	**640.0**	10					
SDUP 1	50	1	69.0401	69.0724	0.0323	**646.0**	10					**1**
259873-007	50	1	69.1004	69.1523	0.0519	**1,038.0**	10					
SDUP 2	50	1	68.0693	68.1232	0.0539	**1,078.0**	10					**4**
259751-002	5	10	59.6614	59.7158	0.0544	**10,880.0**	100					
259751-003	50	1	59.9024	59.9023	-0.0001	**ND**	10					
259751-004	50	1	68.7222	68.7220	-0.0002	**ND**	10					
259779-003	5	10	67.5327	67.5979	0.0652	**13,040.0**	100					
259785-001	30	1.667	58.6446	58.7275	0.0829	**2,763.3**	17					
259785-002	50	1	60.3894	60.4098	0.0204	**408.0**	10					
259785-003	50	1	67.5477	67.6011	0.0534	**1,068.0**	10					
259785-004	5	10	66.7249	66.7980	0.0731	**14,620.0**	100					
259785-005	5	10	58.4153	58.4565	0.0412	**8,240.0**	100					
259785-006	5	10	64.9679	65.0299	0.0620	**12,400.0**	100					
259823-001	50	1	68.5600	68.6188	0.0588	**1,176.0**	10					
259823-003	50	1	65.1436	65.1758	0.0322	**644.0**	10					
259825-001	5	10	66.5665	66.6229	0.0564	**11,280.0**	100					
259865-001	35	1.429	59.2431	59.3451	0.1020	**2,914.3**	14					
259865-003	25	2	68.2164	68.3274	0.1110	**4,440.0**	20					
259882-001	45	1.111	69.5821	69.6382	0.0561	**1,246.7**	11					
259882-002	5	10	68.1625	68.2405	0.0780	**15,600.0**	100					

TDS (Total Dissolved Solids)
SMWW 2540C

Curtis & Tompkins, Ltd.

LIMS Batch #: 214981 Prep Date: 18-Aug-14 Benchbook#: **BK 3594**
Filtered by: HR Prep Time: 1105 Page: **4**
EE

Filter Mfg/ Lot#: 60007-4090-T Spike Std Conc (mg/L): 104
Spike Std LIMS#: 524620 Spike Std Vol Added (mL): 50 Balance ID WETC1

	In	Out	In-2	Out-2	In-3	Out-3
Date:	8.18.14	8.19.14	8.19.14	8.19.14		
Time:	1300	1022	1228	1333		
Temp (C):	90	180	180	180		
Weighed by:		HR		HR	HR	8.19.14

Sample #	Container ID	EC Value (µS/cm)	Sample Vol. Filtered (mL)	Dish ID	Dish Wt (g)	1st Dry Wt.(g)	2nd Dry Wt (g)*	3rd Dry Wt (g)*
MB			50	100K	59.1284	59.1276	59.1279	
LCS			50	LAA	54.8930	54.8972	54.8967	
259774-001	CT	1005	50	TGM	59.9248	59.9568	59.9570	
SNP 774-001	CT	1000	50	STOP	69.0401	69.0724	69.0725	
259873-007	A	1681	50	MOW	69.1004	69.1523	69.1523	
SNP 873-007	A	1698	50	BIKE	68.0693	68.1232	68.1229	
259751-002	A	17240	5	GRL	59.6614	59.7158	59.7159	
— -003	A	4.12	50	CAV	59.9024	59.9023	59.9022	
— -004	A	2.06	50	RUN	68.7222	68.7220	68.7221	
259779-003	H	20280	5	SS	67.5327	67.5979	67.5980	
259785-001	AD	4900	50	JET	58.6946	58.7275	58.7279	HR 8/18
— -002	D	657	50	YOU	60.3894	60.4098	60.4095	
— -003	D	1769	50	BIB	67.5977	67.6011	67.6013	
— -004	D	22140	5	HKO	66.7249	66.7980	66.7977	
— -005	D	12070	5	SIT	58.4153	58.4565	58.4562	
— -006	D	18240	5	BSZ	64.9679	65.0299	65.0299	
259823-001	AE	1552	50	HOK	68.5600	68.6188	68.6192	
— -003	AE	1002	50	KKSF	65.1436	65.1758	65.1754	
259885-001	A	17420	5	FIRE	66.5665	66.6229	66.6224	
259805-001	AE	3770	35	NOW	59.2431	59.3451	59.3459	
— -003	AE	5340	25	PIPE	68.2164	68.3279	68.3271	
259882-001	G	2197	45	BILL	69.5821	69.6382	69.6380	
— -002	G	32400	5	COMB	68.1625	68.2405	68.2400	

* Constant weight must be within 0.0005 from previous reading.

18-Aug-14
Analyst / Date

8/19/14
Reviewed by / Date

PROJECT WETCI BALANCE CALIBRATION Notebook No. BK2557

Continued From Page

DATE	ANALYST	0.0020 / 0.0200	100.0000	SET #	LEVEL
01-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
02-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
06-JUL-14	KR	0.0200	100.0001	HNS597 / 28659	✓
07-JUL-14	KR	0.0200	100.0002	HNS597 / 28659	✓
09-JUL-14	KR	0.0200	100.0001	HNS597 / 28659	✓
10-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
11-JUL-14	KR	0.0200	100.0002	HNS597 / 28659	✓
14-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
15-Jul-14	MB3	0.0018	100.0003	HEM-2 / HN 28659	✓
16-Jul-14	MB3	0.0201	100.0009	HN5 599 / 58657	✓
17-JUL-14	KR	0.0200	99.9999	HSS597 / 28659	✓
18-JUL-14	KR	0.0200	100.0000	HSS597 / 28659	✓
21-JUL-14	KR	0.0200	100.0001	HSS597 / 28659	✓
22-Jul-14	NJT	0.0201	100.0005	HNS597 / 28659	✓
23-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
24-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
25-JUL-14	KR	0.0200	99.9998	HSS597 / 28659	✓
28-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
29-JUL-14	KR	0.0200	99.9999	HNS597 / 28659	✓
30-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
31-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
01-AUG-14	KR	0.0200	100.0000	HNS597 / 28659	✓
2-Aug-14	NJT	0.0200	100.0001	HNS597 / 28659	✓
4-AUG-14	KR	0.0200	100.0001	HNS597 / 28659	✓
5-AUG-14	KR	0.0200	100.0001	HNS597 / 28659	✓
6-AUG-14	KR	0.0200	99.9999	HNS597 / 28659	✓
7-Aug-14	NJT	0.0200	100.0001	HNS597 / 28659	✓
8-AUG-14	KR	0.0200	100.0001	HNS597 / 28659	✓
11-AUG-14	KR	0.0200	100.0000	HNS597 / 28659	✓
12-AUG-14	KR	0.0200	100.0000	HNS597 / 28659	✓
13-AUG-14	KR	0.0200	100.0000	HNS597 / 28659	✓
14-AUG-14	KR	0.0200	100.0002	HNS597 / 28659	✓
15-Aug-14	JW	0.0200	100.0001	HNS597 / 28659	✓
18-AUG-14	KR	0.0200	100.0000	HNS597 / 28659	✓
19-AUG-14	KR	0.0200	100.0000	HNS597 / 28659	✓

Continued On Page

Read and Understood By

Signed Date Signed Date

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 259786
ANALYTICAL REPORT

JM Waller Associates 11325 Random Hills Road Fairfax, VA 22030-6608	Project : N62473-11-D-2215 Location : BGMP-IR04 Level : III Contract # : N62473-11-D-2215

Sample ID	Lab ID
04W19-081314	259786-001
TB-081314	259786-002
04W18-081314	259786-003
04W17-081314	259786-004
04W16-081314	259786-005

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Tracy Babjar Date: 09/02/2014

Tracy Babjar
Project Manager
tracy.babjar@ctberk.com
(510) 204-2226

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**259786**
Client:	**JM Waller Associates**
Project:	**N62473-11-D-2215**
Location:	**BGMP-IR04**
Request Date:	**08/13/14**
Samples Received:	**08/13/14**

This data package contains sample and QC results for five water samples, requested for the above referenced project on 08/13/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

All qualified data are compliant with appropriate corrective actions specified in Standard Operating Procedures. The Standard Operating Procedures are available upon request.

Manual integration documentation may be found in the "Case Narrative Addendum: Manual Integrations" sections.

TPH-Extractables by GC (EPA 8015D):
No analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260C):
Low response was observed for vinyl acetate in the ICV analyzed 06/25/14 20:28; affected data was qualified with "b".

High responses were observed for a number of analytes in the CCV analyzed 08/15/14 12:28; these analytes were not detected at or above the RL in the associated samples, and affected data was qualified with "b".

Low responses were observed for many analytes in the CCV analyzed 08/18/14 10:51; these analytes met minimum response criteria, and affected data was qualified with "b".

High recoveries were observed for many analytes in the MS/MSD of 04W19-081314 (lab # 259786-001); the BS/BSD were within limits, the associated RPDs were within limits, and these high recoveries were not associated with any reported results.

High recoveries were observed for a number of analytes in the MS/MSD of 04W19-081314 (lab # 259786-001); the BS/BSD were within limits, the associated RPDs were within limits, and these analytes were not detected at or above the RL in the associated samples.

High surrogate recoveries were observed for 1,2-dichloroethane-d4 in 04W19-081314 (lab # 259786-001) and the MS/MSD of 04W19-081314 (lab # 259786-001).

High surrogate recovery was observed for dibromofluoromethane in the MS of

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**259786**
Client:	**JM Waller Associates**
Project:	**N62473-11-D-2215**
Location:	**BGMP-IR04**
Request Date:	**08/13/14**
Samples Received:	**08/13/14**

Volatile Organics by GC/MS (EPA 8260C):
04W19-081314 (lab # 259786-001).

TB-081314 (lab # 259786-002) was analyzed with more than 1 mL of headspace in the VOA vial.

04W19-081314 (lab # 259786-001), 04W18-081314 (lab # 259786-003), and 04W17-081314 (lab # 259786-004) had pH greater than 2.

No other analytical problems were encountered.

Semivolatile Organics by GC/MS (EPA 8270D):
Low recoveries were observed for 3,3'-dichlorobenzidine in the MS/MSD of 04W19-081314 (lab # 259786-001); the LCS was within limits. High RPD was observed for hexachlorocyclopentadiene; this analyte was not detected at or above the RL in the associated samples.

No other analytical problems were encountered.

Semivolatile Organics by GC/MS SIM (EPA 8270D-SIM):
No analytical problems were encountered.

Metals (EPA 6010C and EPA 7470A):
High recoveries were observed for mercury in the BS/BSD for batch 214531; the associated RPD was within limits, and this analyte was not detected at or above the RL in the associated samples.

Low recoveries were observed for mercury in the MS/MSD of 04W19-081314 (lab # 259786-001).

Low recoveries were observed for lead and thallium in the MS/MSD of 04W19-081314 (lab # 259786-001); the BS/BSD were within limits, and the associated RPDs were within limits.

Low recovery was observed for silver in the post digest spike of 04W19-081314 (lab # 259786-001); the BS/BSD were within limits. High recovery was observed for selenium; the BS/BSD were within limits.

Responses exceeding the instrument's linear range were observed for magnesium in the MS/MSD of 04W19-081314 (lab # 259786-001).

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**259786**
Client:	**JM Waller Associates**
Project:	**N62473-11-D-2215**
Location:	**BGMP-IR04**
Request Date:	**08/13/14**
Samples Received:	**08/13/14**

Metals (EPA 6010C and EPA 7470A):

Mercury was detected above half the RL in the method blank for batch 214531; this analyte was not detected in samples at or above the LOD.

Cobalt, molybdenum, and nickel were detected between the MDL and half the RL in the method blank for batch 214656.

No other analytical problems were encountered.

Chain of Custody

CHAIN OF CUSTODY

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

Page 1 of 1

Chain of Custody # _____

C&T LOGIN # 1597786

Project No: N62473-11-D-2215
Sampler: M. Mandell
Project Name: FGMP-1R04
Report To: T. Chuhay, H. Wellenburg
Project P. O. No: ALT14-001-01-004-CTL
Company: JM Waller + ERRG
EDD Format: Report Level ☐ II ☑ III ☐ IV
Telephone: 404-443 2777
Turnaround Time: ☐ RUSH _____ ☑ Standard
Email:

Lab No.	Sample ID.	Sampling Date Collected	Sampling Time Collected	Matrix Water	Matrix Solid	# of Containers	Chemical Preservative HCl	H2SO4	HNO3	NaOH	None	VOC	SVOC	Metals - Filtered	PAH	TPH-d
1	04W19-081314	8/13/14	0835	X		9					X	X				
2	04W19-081314	8/13/14	0835	X		6					X		X			
3	04W19-081314	8/13/14	0835	X		6					X				X	
4	04W19-081314	8/13/14	0835	X		6					X					X
5	04W19-081314	8/13/14	0835	X		3			X					X		
6	TB-081314	8/13/14	0835	X		1	X					X				
7	04W18-081314	8/13/14	1132	X		9			X			X	X	X	X	X
8	04W17-081314	8/13/14	1220	X		9			X			X	X	X	X	X
9	04W16-081314	8/13/14	1505	X		1			X					X		

Notes:
VOAs do NOT have preservative
Run MS/MSD on sample 04W19-081314 (VOC, SVOC, Metals, PAH, TPH-d)

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:
M. Mandell DATE: 8/13/14 TIME: 1540
[signature] DATE: 8/13/14 TIME: 1630
DATE: TIME:

RECEIVED BY:
[signature] DATE: 8/13/14 TIME: 1540
FOR JUAREZ DATE: 8/13/14 TIME: 1630
DATE: TIME:

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 759786 Date Received 8/13/14 Number of coolers 3
Client JM Waller + ERRG Project BGMP - IR04

Date Opened 8/13 By (print) GV (sign) [signature]
Date Logged in 8/13/14 By (print) [illegible] (sign) [signature]

1. Did cooler come with a shipping slip (airbill, etc) _____ YES ~~NO~~
   Shipping info _____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
   How many _____ Name _____ Date _____
2B. Were custody seals intact upon arrival? _____ YES NO ~~N/A~~
3. Were custody papers dry and intact when received? _____ ~~YES~~ NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ ~~YES~~ NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ___ ~~YES~~ NO
6. Indicate the packing in cooler: (if other, describe) _____

☐ Bubble Wrap ☒ Foam blocks ☒ Bags ☐ None
☐ Cloth material ☒ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) _____

☐ Samples received on ice & cold without a temperature blank; temp taken with IR gun

☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES ~~NO~~
   If YES, what time were they transferred to freezer? _____
9. Did all bottles arrive unbroken/unopened? _____ ~~YES~~ NO
10. Are there any missing / extra samples? _____ YES ~~NO~~
11. Are samples in the appropriate containers for indicated tests? _____ ~~YES~~ NO
12. Are sample labels present, in good condition and complete? _____ ~~YES~~ NO
13. Do the sample labels agree with custody papers? _____ ~~YES~~ NO
14. Was sufficient amount of sample sent for tests requested? _____ ~~YES~~ NO
15. Are the samples appropriately preserved? _____ YES ~~NO~~ N/A
16. Did you check preservatives for all bottles for each sample? _____ ~~YES~~ NO N/A
17. Did you document your preservative check? _____ ~~YES~~ NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ 8/13 YES NO ~~N/A~~
19. Did you change the hold time in LIMS for preserved terracores? _____ ~~YES~~ NO ~~N/A~~
20. Are bubbles > 6mm absent in VOA samples? _____ ~~YES~~ NO N/A
21. Was the client contacted concerning this sample delivery? _____ YES ~~NO~~
   If YES, Who was called? _____ By _____ Date: _____

COMMENTS

_____
_____
_____
_____
_____
_____

Rev 10, 10/11

Curtis & Tompkins Sample Preservation for 259786

Sample	pH: <2	>9	>12	Other
-001a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
f	[ ]	[ ]	[ ]	_____
g	[ ]	[ ]	[ ]	_____
h	[ ]	[ ]	[ ]	_____
i	[ ]	[ ]	[ ]	_____
j	[ ]	[ ]	[ ]	_____
k	[ ]	[ ]	[ ]	_____
l	[ ]	[ ]	[ ]	_____
m	[ ]	[ ]	[ ]	_____
n	[ ]	[ ]	[ ]	_____
o	[ ]	[ ]	[ ]	_____
p	[X]	[ ]	[ ]	_____
q	[X]	[ ]	[ ]	_____
r	[X]	[ ]	[ ]	_____
s	[ ]	[ ]	[ ]	_____
t	[ ]	[ ]	[ ]	_____
u	[ ]	[ ]	[ ]	_____
v	[ ]	[ ]	[ ]	_____
w	[ ]	[ ]	[ ]	_____
x	[ ]	[ ]	[ ]	_____
y	[ ]	[ ]	[ ]	_____
z	[ ]	[ ]	[ ]	_____

Sample	pH: <2	>9	>12	Other
aa	[ ]	[ ]	[ ]	_____
ab	[ ]	[ ]	[ ]	_____
ac	[ ]	[ ]	[ ]	_____
ad	[ ]	[ ]	[ ]	_____
-003a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
f	[X]	[ ]	[ ]	_____
g	[ ]	[ ]	[ ]	_____
h	[ ]	[ ]	[ ]	_____
i	[ ]	[ ]	[ ]	_____
-004a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
f	[X]	[ ]	[ ]	_____
g	[ ]	[ ]	[ ]	_____
h	[ ]	[ ]	[ ]	_____
i	[ ]	[ ]	[ ]	_____
-005a	[X]	[ ]	[ ]	_____

Analyst: HL
Date: 8/13/14

Page 1 of 1

Curtis & Tompkins, Ltd.

Detections Summary for 259786

Results for any subcontracted analyses are not included in this summary.

Client : JM Waller Associates
Project : N62473-11-D-2215
Location : BGMP-IR04

Client Sample ID : 04W19-081314 Laboratory Sample ID : 259786-001

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	1,000	Y	49	16	ug/L	As Recd	1.000	EPA 8015D	EPA 3520C
Naphthalene	0.04	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
2-Methylnaphthalene	0.02	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Acenaphthylene	0.03	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Acenaphthene	0.03	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Fluorene	0.06	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Phenanthrene	0.4		0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Anthracene	0.04	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Fluoranthene	0.2		0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Pyrene	0.2		0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Benzo(a)anthracene	0.02	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Benzo(b)fluoranthene	0.03	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Aluminum	28	J	100	28	ug/L	DISS.	1.000	EPA 6010C	METHOD
Magnesium	720,000		20,000	2,000	ug/L	DISS.	100.0	EPA 6010C	METHOD
Manganese	4,300		5.0	0.48	ug/L	DISS.	1.000	EPA 6010C	METHOD
Arsenic	41		5.0	1.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Barium	930		5.0	1.0	ug/L	DISS.	1.000	EPA 6010C	METHOD
Beryllium	0.69	J	2.0	0.083	ug/L	DISS.	1.000	EPA 6010C	METHOD
Chromium	4.9	J	5.0	0.57	ug/L	DISS.	1.000	EPA 6010C	METHOD
Cobalt	6.0		5.0	0.32	ug/L	DISS.	1.000	EPA 6010C	METHOD
Molybdenum	5.1		5.0	0.40	ug/L	DISS.	1.000	EPA 6010C	METHOD
Nickel	7.2		5.0	0.71	ug/L	DISS.	1.000	EPA 6010C	METHOD
Selenium	49		10	2.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Silver	1.4	J	5.0	0.66	ug/L	DISS.	1.000	EPA 6010C	METHOD
Vanadium	5.9		5.0	0.67	ug/L	DISS.	1.000	EPA 6010C	METHOD
Zinc	9.2	J	20	3.0	ug/L	DISS.	1.000	EPA 6010C	METHOD

Client Sample ID : TB-081314 Laboratory Sample ID : 259786-002

No Detections

Curtis & Tompkins, Ltd.

Client Sample ID : 04W18-081314 Laboratory Sample ID : 259786-003

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	1,100	Y	50	16	ug/L	As Recd	1.000	EPA 8015D	EPA 3520C
para-Isopropyl Toluene	0.2	J	0.5	0.1	ug/L	As Recd	1.000	EPA 8260C	EPA 5030C
bis(2-Ethylhexyl)phthalate	2.4	J	9.6	1.6	ug/L	As Recd	1.000	EPA 8270D	EPA 3520C
Magnesium	920,000		20,000	2,000	ug/L	DISS.	100.0	EPA 6010C	METHOD
Manganese	2,000		5.0	0.48	ug/L	DISS.	1.000	EPA 6010C	METHOD
Antimony	3.5	J	10	0.65	ug/L	DISS.	1.000	EPA 6010C	METHOD
Arsenic	36		5.0	1.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Barium	230		5.0	1.0	ug/L	DISS.	1.000	EPA 6010C	METHOD
Beryllium	0.69	J	2.0	0.083	ug/L	DISS.	1.000	EPA 6010C	METHOD
Chromium	8.5		5.0	0.57	ug/L	DISS.	1.000	EPA 6010C	METHOD
Cobalt	1.3	J	5.0	0.32	ug/L	DISS.	1.000	EPA 6010C	METHOD
Molybdenum	13		5.0	0.40	ug/L	DISS.	1.000	EPA 6010C	METHOD
Nickel	2.7	J	5.0	0.71	ug/L	DISS.	1.000	EPA 6010C	METHOD
Selenium	82		10	2.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Silver	2.1	J	5.0	0.66	ug/L	DISS.	1.000	EPA 6010C	METHOD
Vanadium	8.4		5.0	0.67	ug/L	DISS.	1.000	EPA 6010C	METHOD
Zinc	9.7	J	20	3.0	ug/L	DISS.	1.000	EPA 6010C	METHOD

Client Sample ID : 04W17-081314 Laboratory Sample ID : 259786-004

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	1,500	Y	50	16	ug/L	As Recd	1.000	EPA 8015D	EPA 3520C
bis(2-Ethylhexyl)phthalate	9.9		9.4	1.6	ug/L	As Recd	1.000	EPA 8270D	EPA 3520C
Pyrene	0.2		0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Magnesium	780,000		20,000	2,000	ug/L	DISS.	100.0	EPA 6010C	METHOD
Manganese	9,300		5.0	0.48	ug/L	DISS.	1.000	EPA 6010C	METHOD
Antimony	5.1	J	10	0.65	ug/L	DISS.	1.000	EPA 6010C	METHOD
Arsenic	23		5.0	1.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Barium	650		5.0	1.0	ug/L	DISS.	1.000	EPA 6010C	METHOD
Beryllium	0.83	J	2.0	0.083	ug/L	DISS.	1.000	EPA 6010C	METHOD
Chromium	5.7		5.0	0.57	ug/L	DISS.	1.000	EPA 6010C	METHOD
Cobalt	1.3	J	5.0	0.32	ug/L	DISS.	1.000	EPA 6010C	METHOD
Molybdenum	9.1		5.0	0.40	ug/L	DISS.	1.000	EPA 6010C	METHOD
Nickel	1.2	J	5.0	0.71	ug/L	DISS.	1.000	EPA 6010C	METHOD
Selenium	74		10	2.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Silver	3.2	J	5.0	0.66	ug/L	DISS.	1.000	EPA 6010C	METHOD
Thallium	7.6	J	10	2.0	ug/L	DISS.	1.000	EPA 6010C	METHOD
Vanadium	1.4	J	5.0	0.67	ug/L	DISS.	1.000	EPA 6010C	METHOD

Curtis & Tompkins, Ltd.

Client Sample ID : 04W16-081314 Laboratory Sample ID : 259786-005

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Magnesium	990,000		20,000	2,000	ug/L	DISS.	100.0	EPA 6010C	METHOD
Manganese	5,100		5.0	0.48	ug/L	DISS.	1.000	EPA 6010C	METHOD
Antimony	3.7	J	10	0.65	ug/L	DISS.	1.000	EPA 6010C	METHOD
Arsenic	19		5.0	1.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Barium	210		5.0	1.0	ug/L	DISS.	1.000	EPA 6010C	METHOD
Beryllium	0.80	J	2.0	0.083	ug/L	DISS.	1.000	EPA 6010C	METHOD
Chromium	6.1		5.0	0.57	ug/L	DISS.	1.000	EPA 6010C	METHOD
Cobalt	1.6	J	5.0	0.32	ug/L	DISS.	1.000	EPA 6010C	METHOD
Molybdenum	6.5		5.0	0.40	ug/L	DISS.	1.000	EPA 6010C	METHOD
Nickel	2.1	J	5.0	0.71	ug/L	DISS.	1.000	EPA 6010C	METHOD
Selenium	74		10	2.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Silver	3.0	J	5.0	0.66	ug/L	DISS.	1.000	EPA 6010C	METHOD
Thallium	8.5	J	10	2.0	ug/L	DISS.	1.000	EPA 6010C	METHOD

J = Estimated value
Y = Sample exhibits chromatographic pattern which does not resemble standard

Laboratory Job Number 259786

ANALYTICAL REPORT

TPH-Extractables by GC

Matrix: Water

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8015D
Matrix:	Water	Sampled:	08/13/14
Units:	ug/L	Received:	08/13/14
Diln Fac:	1.000	Prepared:	08/14/14
Batch#:	214402		

Field ID:	04W19-081314	Lab ID:	259786-001
Type:	SAMPLE	Analyzed:	08/15/14

Analyte	Result	LOQ	DL
Diesel C10-C24	1,000 Y	49	16

Surrogate	%REC	Limits
o-Terphenyl	110	66-129

Field ID:	04W18-081314	Lab ID:	259786-003
Type:	SAMPLE	Analyzed:	08/16/14

Analyte	Result	LOQ	DL
Diesel C10-C24	1,100 Y	50	16

Surrogate	%REC	Limits
o-Terphenyl	101	66-129

Field ID:	04W17-081314	Lab ID:	259786-004
Type:	SAMPLE	Analyzed:	08/16/14

Analyte	Result	LOQ	DL
Diesel C10-C24	1,500 Y	50	16

Surrogate	%REC	Limits
o-Terphenyl	101	66-129

Type:	BLANK	Analyzed:	08/15/14
Lab ID:	QC753563		

Analyte	Result	LOQ	DL
Diesel C10-C24	40 U	50	16

Surrogate	%REC	Limits
o-Terphenyl	104	66-129

U= Not Detected at or above DL
Y= Sample exhibits chromatographic pattern which does not resemble standard
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8015D
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC753564	Batch#:	214402
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/15/14

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,371	95	61-120

Surrogate	%REC	Limits
o-Terphenyl	102	66-129

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8015D
Field ID:	ZZZZZZZZZZ	Batch#:	214402
MSS Lab ID:	259774-001	Sampled:	08/12/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/14/14
Diln Fac:	1.000	Analyzed:	08/15/14

Type: MS Lab ID: QC753565

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	73.55	2,451	2,591	103	61-120

Surrogate	%REC	Limits
o-Terphenyl	110	66-129

Type: MSD Lab ID: QC753566

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,451	2,805	111	61-120	8	30

Surrogate	%REC	Limits
o-Terphenyl	117	66-129

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8015D
Field ID:	04W19-081314	Batch#:	214402
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/14/14
Diln Fac:	1.000	Analyzed:	08/15/14

Type: MS Lab ID: QC753567

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	1,039	2,451	3,435	98	61-120

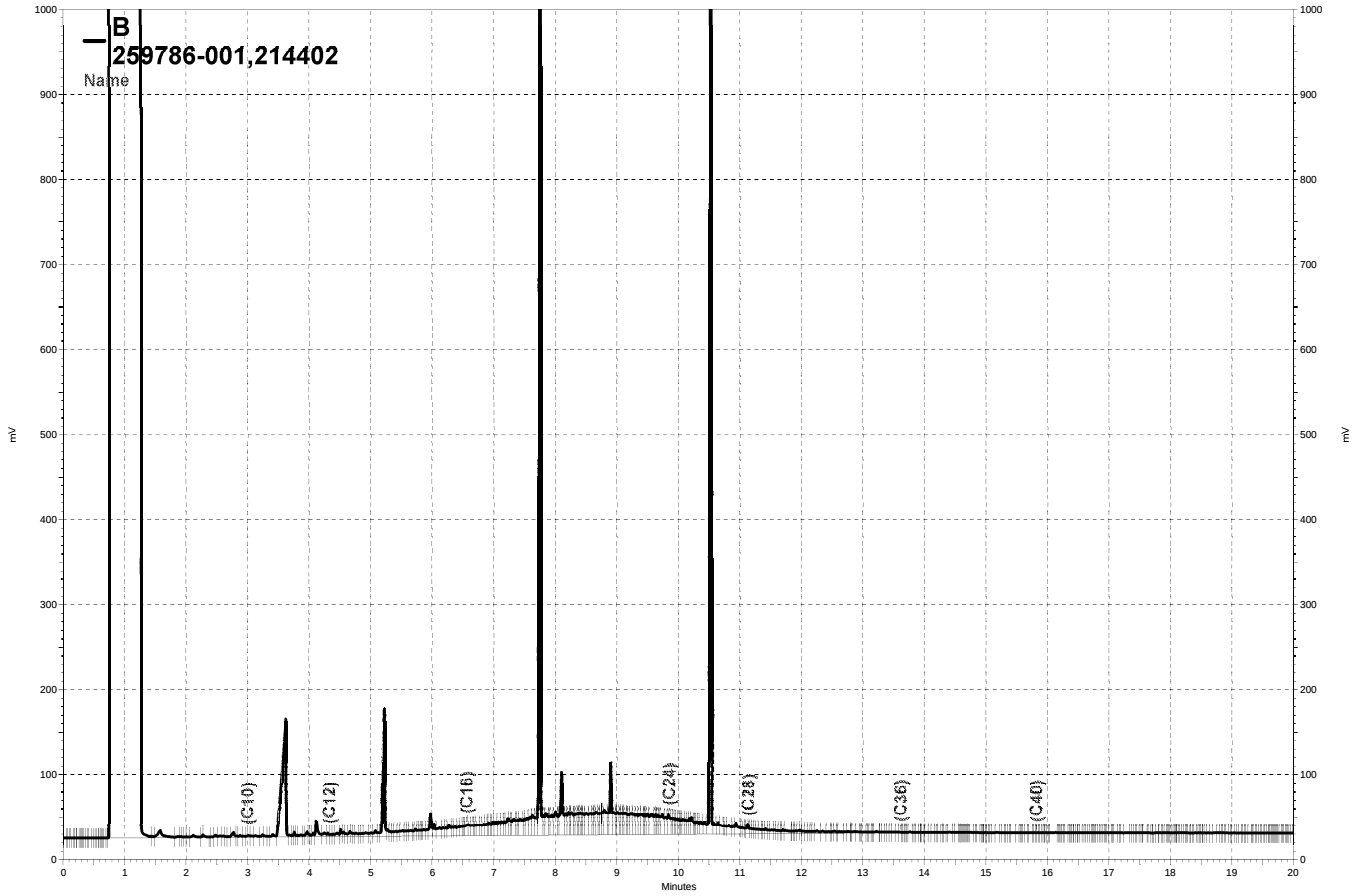
Surrogate	%REC	Limits
o-Terphenyl	107	66-129

Type: MSD Lab ID: QC753568

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,451	3,300	92	61-120	4	30

Surrogate	%REC	Limits
o-Terphenyl	105	66-129

RPD= Relative Percent Difference



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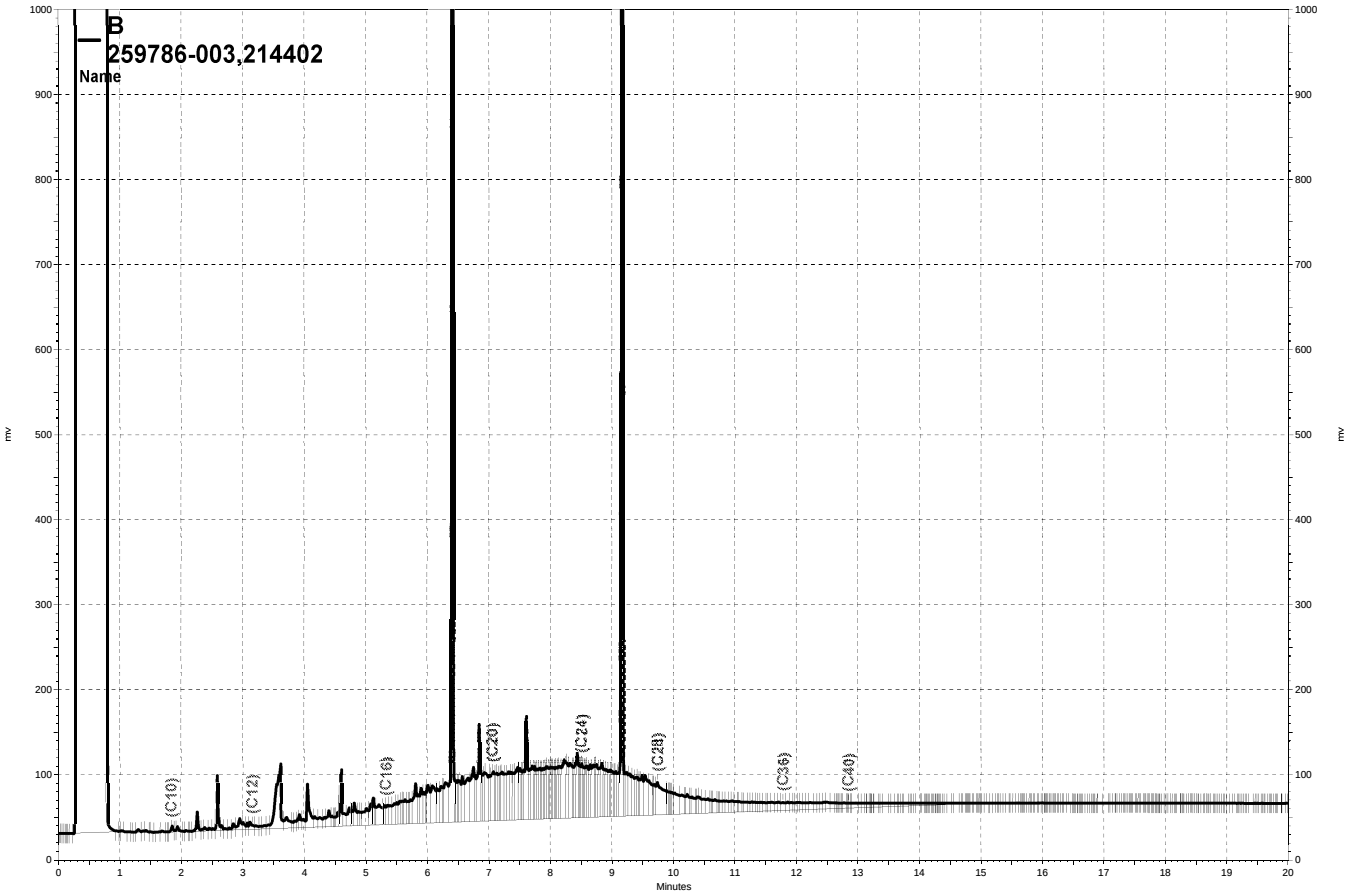

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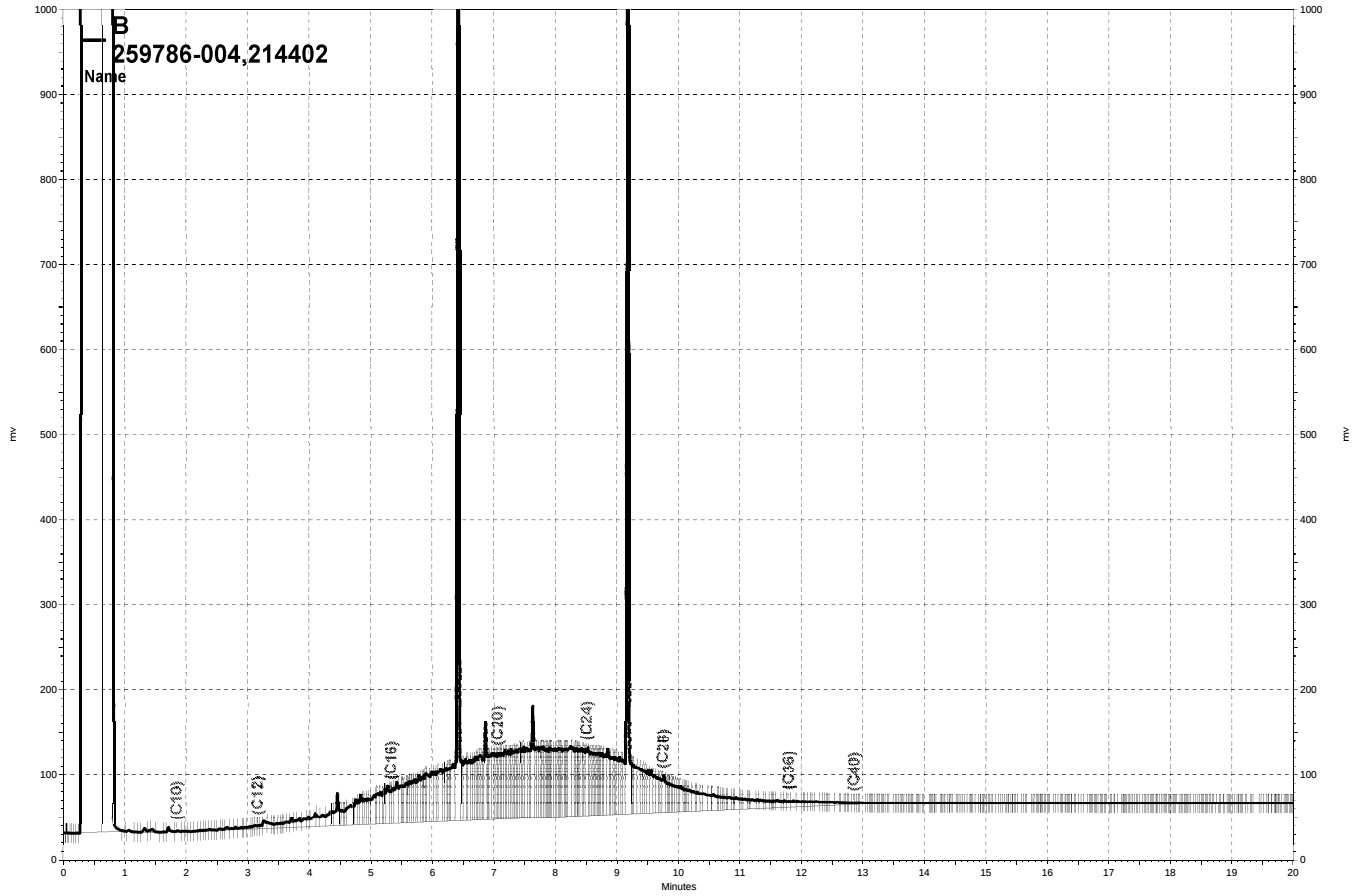

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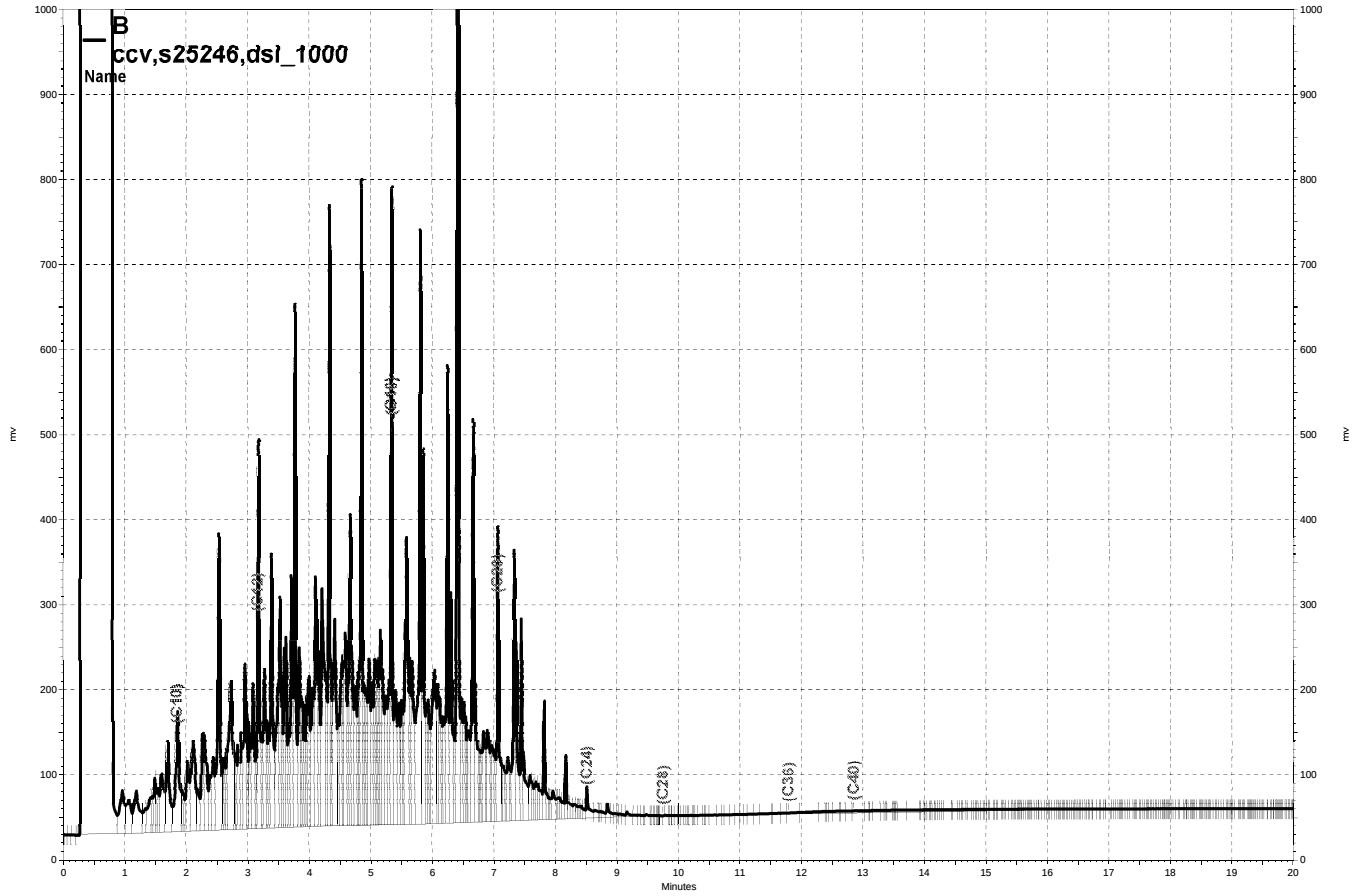

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Initial & Continuing Calibration Data

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259786 GCSV Water: EPA 8015D

Inst : GC14B
Calnum : 224317392001
Units : mg/L

Name : OTPHEX_220
Date : 08-AUG-2014 20:04
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	220_009	224317392009	HEX OTP_5	08-AUG-2014 20:04	S25390
L2	220_010	224317392010	HEX OTP_10	08-AUG-2014 20:32	S25391
L3	220_011	224317392011	HEX OTP_25	08-AUG-2014 21:00	S25392
L4	220_012	224317392012	HEX OTP_50	08-AUG-2014 21:28	S25393
L5	220_013	224317392013	HEX OTP_100	08-AUG-2014 21:56	S25394
L6	220_014	224317392014	HEX OTP_200	08-AUG-2014 22:25	S25395

Analyte	Ch	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	B	33576	34339	34327	34209	36598	39855	AVRG		2.82E-5		35484	7	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	B	5.0000	-5	10.000	-3	25.000	-3	50.000	-4	100.00	3	200.00	12

JDG 08/11/14 : Corrected automatically drawn baseline in all levels.

Analyst: JDG Date: 08/11/14 Reviewer: EAH Date: 08/12/14

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259786 GCSV Water: EPA 8015D

Inst : GC14B
Calnum : 224317392002
Units : mg/L

Name : DSL_220
Date : 08-AUG-2014 23:22
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	220_016	224317392016	DSL_10	08-AUG-2014 23:22	S25266
L2	220_017	224317392017	DSL_100	08-AUG-2014 23:50	S25267
L3	220_018	224317392018	DSL_500	09-AUG-2014 00:19	S25268
L4	220_019	224317392019	DSL_1000	09-AUG-2014 00:47	S25269
L5	220_020	224317392020	DSL_5000	09-AUG-2014 01:15	S24515

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C10-C24	B	30628	28120	28618	30917	32592	AVRG		3.31E-5		30175	6	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Diesel C10-C24	B	10.000	2	100.00	-7	500.00	-5	1000.0	2	5000.0	8

JDG 08/11/14 : Corrected automatically drawn baseline in DSL_10 (220_016).

Analyst: JDG Date: 08/11/14 Reviewer: EAH Date: 08/12/14

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259786 GCSV Water
EPA 8015D

Inst : GC14B
Calnum : 224317392002

Name : DSL_220
Cal Date : 08-AUG-2014

ICV 224317392022 (220_022 09-AUG-2014) stds: S25245

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Diesel C10-C24	B	500.0	521.9	mg/L	4	20	

Analyst: JDG Date: 08/11/14 Reviewer: EAH Date: 08/12/14

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259786 GCSV Water: EPA 8015D

Inst : GC15B
Calnum : 164206385001
Units : mg/L

Name : OTPHEX_143
Date : 23-MAY-2014 15:23
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	143b009	164206385009	HEXOTP_5	23-MAY-2014 15:23	S24342
L2	143b010	164206385010	HEXOTP_10	23-MAY-2014 15:50	S24343
L3	143b011	164206385011	HEXOTP_25	23-MAY-2014 16:18	S24344
L4	143b012	164206385012	HEXOTP_50	23-MAY-2014 16:45	S24345
L5	143b013	164206385013	HEXOTP_100	23-MAY-2014 17:13	S24346
L6	143b014	164206385014	HEXOTP_200	23-MAY-2014 17:41	S24347

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	54783	55332	54309	55166	56027	66457	AVRG		1.75E-5		57013	8	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	5.0000	-4	10.000	-3	25.000	-5	50.000	-3	100.00	-2	200.00	17

JDG 05/27/14 : Corrected automatically drawn baseline in multiple levels.

JDG 05/27/14 : Samples that require hexacosane will not be analyzed on this instrument.

Analyst: JDG Date: 05/27/14 Reviewer: EAH Date: 05/27/14

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259786 GCSV Water: EPA 8015D

Inst : GC15B
Calnum : 164206385002
Units : mg/L

Name : DSL_143
Date : 23-MAY-2014 18:36
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	143b016	164206385016	DSL_10	23-MAY-2014 18:36	S24516
L2	143b017	164206385017	DSL_100	23-MAY-2014 19:03	S24517
L3	143b018	164206385018	DSL_500	23-MAY-2014 19:30	S24518
L4	143b019	164206385019	DSL_1000	23-MAY-2014 19:58	S24519
L5	143b020	164206385020	DSL_5000	23-MAY-2014 20:26	S24515

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C10-C24	46289	63325	46837	50168	51135	AVRG		1.94E-5		51551	13	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Diesel C10-C24	10.000	-10	100.00	**23**	500.00	-9	1000.0	-3	5000.0	-1

JDG 05/27/14 : Corrected automatically drawn baseline in DSL_100 (143b017).

Analyst: JDG Date: 05/27/14 Reviewer: EAH Date: 05/27/14

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259786 GCSV Water
EPA 8015D

Inst : GC15B
Calnum : 164206385002

Name : DSL_143
Cal Date : 23-MAY-2014

ICV 164206385022 (143b022 23-MAY-2014) stds: S24580

Analyte	Spiked	Quant	Units	%D	Max	Flags
Diesel C10-C24	500.0	473.3	mg/L	-5	20	

Analyst: JDG Date: 05/27/14 Reviewer: EAH Date: 05/27/14

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259786 GCSV Water: EPA 8015D

Inst : GC17A
Calnum : 174304309001
Units : mg/L

Name : OTPHEX_211
Date : 30-JUL-2014 16:27
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	211a008	174304309008	HEXOTP_5	30-JUL-2014 16:27	S24342
L2	211a009	174304309009	HEXOTP_10	30-JUL-2014 16:55	S24343
L3	211a010	174304309010	HEXOTP_25	30-JUL-2014 17:23	S24344
L4	211a011	174304309011	HEXOTP_50	30-JUL-2014 17:50	S24345
L5	211a012	174304309012	HEXOTP_100	30-JUL-2014 18:18	S24346
L6	211a013	174304309013	HEXOTP_200	30-JUL-2014 18:46	S24347

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	62817	64579	62080	62608	61641	70331	AVRG		1.56E-5		64009	5	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	5.0000	-2	10.000	1	25.000	-3	50.000	-2	100.00	-4	200.00	10

JDG 07/31/14 : Corrected automatically drawn baseline in multiple levels.

Analyst: JDG Date: 07/31/14 Reviewer: EAH Date: 08/01/14

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259786 GCSV Water: EPA 8015D

Inst : GC17A
Calnum : 174304309003
Units : mg/L

Name : DSL_211
Date : 30-JUL-2014 20:08
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	211a016	174304309016	DSL_100	30-JUL-2014 20:08	S25267
L2	211a017	174304309017	DSL_500	30-JUL-2014 20:37	S25268
L3	211a018	174304309018	DSL_1000	30-JUL-2014 21:04	S25269
L4	211a019	174304309019	DSL_5000	30-JUL-2014 21:32	S24515
L5	211a034	174304309034	DSL_10	31-JUL-2014 11:45	S25266

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C10-C24	48923	51021	52440	53506	34091	AVRG		2.08E-5		47996	17	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Diesel C10-C24	100.00	2	500.00	6	1000.0	9	5000.0	11	10.000	**-29**

JDG 07/31/14 : Corrected automatically drawn baseline in multiple levels.

JDG 07/31/14 : DSL_10 re-ran in order to obtain a better %RSD.

Analyst: JDG Date: 07/31/14 Reviewer: EAH Date: 07/31/14

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259786 GCSV Water
EPA 8015D

Inst : GC17A
Calnum : 174304309003

Name : DSL_211
Cal Date : 30-JUL-2014

ICV 174304309022 (211a022 30-JUL-2014) stds: S25245

Analyte	Spiked	Quant	Units	%D	Max	Flags
Diesel C10-C24	500.0	565.3	mg/L	13	20	

Analyst: JDG Date: 07/31/14 Reviewer: EAH Date: 07/31/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 GCSV Water
EPA 8015D

Inst : GC14B Run Name : MO_500 IDF : 1.0
Seqnum : 224327309003.1 File : 227_003 Time : 15-AUG-2014 08:06
Cal : 224317392001 Caldate : 08-AUG-2014
Standards: S25404

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
o-Terphenyl	B	35484	36923	50.00	52.03	mg/L	4	20	

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 GCSV Water
EPA 8015D

Inst : GC14B Run Name : DSL_1000 IDF : 1.0
Seqnum : 224327309004.1 File : 227_004 Time : 15-AUG-2014 08:35
Standards: S25246

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	B	224317392002	08-AUG-2014	30175	31375	1000	1040	mg/L	4	20	
o-Terphenyl	B	224317392001	08-AUG-2014	35484	37854	50.00	53.34	mg/L	7	20	

JDG 08/15/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 GCSV Water
EPA 8015D

Inst : GC14B Run Name : MO_500 IDF : 1.0
Seqnum : 224327309012.1 File : 227_012 Time : 15-AUG-2014 12:58
Cal : 224317392001 Caldate : 08-AUG-2014
Standards: S25404

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
o-Terphenyl	B	35484	38021	50.00	53.57	mg/L	7	20	

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 GCSV Water
EPA 8015D

Inst : GC14B Run Name : DSL_500 IDF : 1.0
Seqnum : 224327309013.1 File : 227_013 Time : 15-AUG-2014 13:27
Standards: S25245

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	B	224317392002	08-AUG-2014	30175	32038	500.0	530.9	mg/L	6	20	
o-Terphenyl	B	224317392001	08-AUG-2014	35484	38325	50.00	54.00	mg/L	8	20	

JDG 08/15/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 GCSV Water
EPA 8015D

Inst : GC14B Run Name : MO_500 IDF : 1.0
Seqnum : 224327309024.1 File : 227_024 Time : 15-AUG-2014 20:33
Cal : 224317392001 Caldate : 08-AUG-2014
Standards: S25404

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
o-Terphenyl	B	35484	37667	50.00	53.08	mg/L	6	20	

SFL 08/16/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 GCSV Water
EPA 8015D

Inst : GC14B Run Name : DSL_250 IDF : 1.0
Seqnum : 224327309025.1 File : 227_025 Time : 15-AUG-2014 21:01
Standards: S25244

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	B	224317392002	08-AUG-2014	30175	31792	250.0	263.4	mg/L	5	20	
o-Terphenyl	B	224317392001	08-AUG-2014	35484	36573	50.00	51.53	mg/L	3	20	

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 GCSV Water
EPA 8015D

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 164328835003.1 File : 228b003 Time : 16-AUG-2014 09:30
Cal : 164206385001 Caldate : 23-MAY-2014
Standards: S25404

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
o-Terphenyl	57013	58677	50.00	51.46	mg/L	3	20	

SFL 08/16/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 GCSV Water
EPA 8015D

Inst : GC15B Run Name : DSL_1000 IDF : 1.0
Seqnum : 164328835004.1 File : 228b004 Time : 16-AUG-2014 09:58
Standards: S25246

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	164206385002	23-MAY-2014	51551	50838	1000	986.2	mg/L	-1	20	
o-Terphenyl	164206385001	23-MAY-2014	57013	62486	50.00	54.80	mg/L	10	20	

SFL 08/16/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 GCSV Water
EPA 8015D

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 164328835017.1 File : 228b017 Time : 16-AUG-2014 16:52
Cal : 164206385001 Caldate : 23-MAY-2014
Standards: S25404

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
o-Terphenyl	57013	60816	50.00	53.34	mg/L	7	20	

JDG 08/18/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 GCSV Water
EPA 8015D

Inst : GC15B Run Name : DSL_500 IDF : 1.0
Seqnum : 164328835018.1 File : 228b018 Time : 16-AUG-2014 17:19
Standards: S25245

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	164206385002	23-MAY-2014	51551	51805	500.0	502.5	mg/L	0	20	
o-Terphenyl	164206385001	23-MAY-2014	57013	59655	50.00	52.32	mg/L	5	20	

JDG 08/18/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 GCSV Water
EPA 8015D

Inst : GC17A Run Name : MO_500 IDF : 1.0
Seqnum : 174327308003.1 File : 227a003 Time : 15-AUG-2014 08:04
Cal : 174304309001 Caldate : 30-JUL-2014
Standards: S25404

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
o-Terphenyl	64009	65495	50.00	51.16	mg/L	2	20	

JDG 08/15/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 GCSV Water
EPA 8015D

Inst : GC17A Run Name : DSL_1000 IDF : 1.0
Seqnum : 174327308004.1 File : 227a004 Time : 15-AUG-2014 08:32
Standards: S25246

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	174304309003	30-JUL-2014	47996	50684	1000	1056	mg/L	6	20	
o-Terphenyl	174304309001	30-JUL-2014	64009	63402	50.00	49.53	mg/L	-1	20	

JDG 08/15/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 GCSV Water
EPA 8015D

Inst : GC17A Run Name : MO_500 IDF : 1.0
Seqnum : 174327308010.1 File : 227a010 Time : 15-AUG-2014 13:03
Cal : 174304309001 Caldate : 30-JUL-2014
Standards: S25404

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
o-Terphenyl	64009	64291	50.00	50.22	mg/L	0	20	

JDG 08/15/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 GCSV Water
EPA 8015D

Inst : GC17A Run Name : DSL_250 IDF : 1.0
Seqnum : 174327308011.1 File : 227a011 Time : 15-AUG-2014 13:31
Standards: S25244

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	174304309003	30-JUL-2014	47996	50236	250.0	261.7	mg/L	5	20	
o-Terphenyl	174304309001	30-JUL-2014	64009	63183	50.00	49.35	mg/L	-1	20	

JDG 08/15/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

Logbooks & Sequences

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 164206385

Instrument : GC15B Begun : 05/23/14 07:45
Method : EPA 8015D SOP Version : TEH_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	143b001	X	IB			05/23/14 07:45	1.0		
002	143b002	X	IB			05/23/14 08:44	1.0		
003	143b003	X	IB			05/23/14 10:48	1.0		
005	143b005	X	IB			05/23/14 12:58	1.0		
006	143b006	X	CMARKER			05/23/14 13:26	1.0	1	
007	143b007	X	IB			05/23/14 13:53	1.0		
008	143b008	IB	CALIB			05/23/14 14:55	1.0		
009	143b009	ICAL	HEXOTP_5			05/23/14 15:23	1.0	2	
010	143b010	ICAL	HEXOTP_10			05/23/14 15:50	1.0	3	
011	143b011	ICAL	HEXOTP_25			05/23/14 16:18	1.0	4	
012	143b012	ICAL	HEXOTP_50			05/23/14 16:45	1.0	5	
013	143b013	ICAL	HEXOTP_100			05/23/14 17:13	1.0	6	
014	143b014	ICAL	HEXOTP_200			05/23/14 17:41	1.0	7	
015	143b015	IB	CALIB			05/23/14 18:08	1.0		
016	143b016	ICAL	DSL_10			05/23/14 18:36	1.0	8	
017	143b017	ICAL	DSL_100			05/23/14 19:03	1.0	9	
018	143b018	ICAL	DSL_500			05/23/14 19:30	1.0	10	
019	143b019	ICAL	DSL_1000			05/23/14 19:58	1.0	11	
020	143b020	ICAL	DSL_5000			05/23/14 20:26	1.0	12	
021	143b021	IB	CALIB			05/23/14 20:53	1.0		
022	143b022	ICV	DSL_500			05/23/14 21:21	1.0	13	
023	143b023	X	ICV			05/23/14 21:49	1.0	13	
024	143b024	IB	CALIB			05/23/14 22:16	1.0		
025	143b025	X	MO_25			05/23/14 22:44	1.0	14	
026	143b026	ICAL	MO_50			05/23/14 23:12	1.0	14	
027	143b027	ICAL	MO_250			05/23/14 23:40	1.0	15	
028	143b028	ICAL	MO_500			05/24/14 00:08	1.0	16	
029	143b029	ICAL	MO_1000			05/24/14 00:35	1.0	17	
030	143b030	ICAL	MO_2500			05/24/14 01:03	1.0	18	
031	143b031	ICAL	MO_5000			05/24/14 01:31	1.0	18	
032	143b032	IB	CALIB			05/24/14 01:58	1.0		
033	143b033	CMARKER	C8-C50			05/24/14 02:26	1.0	1	

JDG 05/27/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 33.

Standards used: 1=S24669 2=S24342 3=S24343 4=S24344 5=S24345 6=S24346 7=S24347 8=S24516 9=S24517 10=S24518 11=S24519 12=S24515 13=S24580 14=S23963 15=S23964 16=S23965 17=S23966 18=S23962

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 164328835

Instrument : GC15B
Method : EPA 8015D

Begun : 08/16/14 08:35
SOP Version : TEH_rv18

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	228b001	X	IB				08/16/14 08:35	1.0		
002	228b002	X	CMARKER				08/16/14 09:03	1.0	1	
003	228b003	CCV	MO_500				08/16/14 09:30	1.0	2	
004	228b004	CCV	DSL_1000				08/16/14 09:58	1.0	3	
005	228b005	BLANK	QC753563	S	Water	214402	08/16/14 11:21	1.0		
006	228b006	LCS	QC753564	S	Water	214402	08/16/14 11:49	1.0		
007	228b007	SAMPLE	259779-001	S	Water	214402	08/16/14 12:16	1.0		
008	228b008	SAMPLE	259784-001		Water	214402	08/16/14 12:44	1.0		
009	228b009	SAMPLE	259788-022		Water	214402	08/16/14 13:11	1.0		
010	228b010	SAMPLE	259788-023		Water	214402	08/16/14 13:39	1.0		8:BUNKC:10-40=69000
011	228b011	SAMPLE	259779-002	S	Water	214402	08/16/14 14:07	1.0		
012	228b012	SAMPLE	259779-003	S	Water	214402	08/16/14 14:34	1.0		
013	228b013	SAMPLE	259790-002		Water	214402	08/16/14 15:02	1.0		
014	228b014	SAMPLE	259786-003		Water	214402	08/16/14 15:29	1.0		
015	228b015	SAMPLE	259786-004		Water	214402	08/16/14 15:57	1.0		
016	228b016	SAMPLE	259822-006	S	Soil	214448	08/16/14 16:24	1.0		
017	228b017	CCV	MO_500				08/16/14 16:52	1.0	2	
018	228b018	CCV	DSL_500				08/16/14 17:19	1.0	4	
019	228b019	CCV	MO_500				08/16/14 17:47	1.0	2	
020	228b020	CCV	DSL_500				08/16/14 18:14	1.0	4	
021	228b021	SAMPLE	259826-001	S	Soil	214448	08/16/14 18:42	1.0		
022	228b022	SAMPLE	259663-002		Soil	214411	08/16/14 19:09	1.0		
023	228b023	SAMPLE	259663-004		Soil	214411	08/16/14 19:37	1.0		
024	228b024	SAMPLE	259794-001		Soil	214411	08/16/14 20:04	1.0		
025	228b025	SAMPLE	259796-001		Miscell.	214411	08/16/14 20:32	1.0		8:BUNKC:12-40=25000
026	228b026	SAMPLE	259813-001		Soil	214411	08/16/14 20:59	1.0		
027	228b027	SAMPLE	259816-001		Soil	214411	08/16/14 21:27	1.0		6:BUNKC:10-40=13000
028	228b028	SAMPLE	259819-001		Soil	214411	08/16/14 21:55	1.0		
029	228b029	X	CMARKER				08/16/14 22:23	1.0	1	
030	228b030	CCV	MO_500				08/16/14 22:50	1.0	2	
031	228b031	CCV	DSL_250				08/16/14 23:18	1.0	5	
032	228b032	CCV	MO_500				08/16/14 23:46	1.0	2	
033	228b033	CCV	DSL_250				08/17/14 00:14	1.0	5	

JDG 08/18/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 33.

Standards used: 1=S24669 2=S25404 3=S25246 4=S25245 5=S25244

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 174304309

Instrument : GC17A Begun : 07/30/14 07:49
Method : EPA 8015D SOP Version : TEH_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	211a001	X	IB			07/30/14 07:49	1.0		
002	211a002	X	IB			07/30/14 08:17	1.0		
003	211a003	X	IB			07/30/14 11:54	1.0		
004	211a004	X	IB			07/30/14 12:22	1.0		
005	211a005	X	CMARKER			07/30/14 15:03	1.0	1	
006	211a006	X	IB			07/30/14 15:31	1.0		
007	211a007	IB	CALIB			07/30/14 15:59	1.0		
008	211a008	ICAL	HEXOTP_5			07/30/14 16:27	1.0	2	
009	211a009	ICAL	HEXOTP_10			07/30/14 16:55	1.0	3	
010	211a010	ICAL	HEXOTP_25			07/30/14 17:23	1.0	4	
011	211a011	ICAL	HEXOTP_50			07/30/14 17:50	1.0	5	
012	211a012	ICAL	HEXOTP_100			07/30/14 18:18	1.0	6	
013	211a013	ICAL	HEXOTP_200			07/30/14 18:46	1.0	7	
014	211a014	IB	CALIB			07/30/14 19:13	1.0		
015	211a015	X	DSL_10			07/30/14 19:41	1.0	8	
016	211a016	ICAL	DSL_100			07/30/14 20:08	1.0	9	
017	211a017	ICAL	DSL_500			07/30/14 20:37	1.0	10	
018	211a018	ICAL	DSL_1000			07/30/14 21:04	1.0	11	
019	211a019	ICAL	DSL_5000			07/30/14 21:32	1.0	12	
020	211a020	IB	CALIB			07/30/14 22:00	1.0		
021	211a021	X	DSL_500			07/30/14 22:28	1.0	13	
022	211a022	ICV	DSL_500			07/30/14 22:56	1.0	13	
023	211a023	IB	CALIB			07/30/14 23:24	1.0		
024	211a024	ICAL	MO_25			07/30/14 23:51	1.0	14	
025	211a025	ICAL	MO_50			07/31/14 00:19	1.0	14	
026	211a026	ICAL	MO_250			07/31/14 00:47	1.0	15	
027	211a027	ICAL	MO_500			07/31/14 01:14	1.0	16	
028	211a028	ICAL	MO_1000			07/31/14 01:42	1.0	17	
029	211a029	ICAL	MO_2500			07/31/14 02:10	1.0	18	
030	211a030	ICAL	MO_5000			07/31/14 02:37	1.0	18	
031	211a031	IB	CALIB			07/31/14 03:05	1.0		
032	211a032	CMARKER	C8-C50			07/31/14 03:33	1.0	1	
033	211a033	IB	CALIB			07/31/14 04:00	1.0		
034	211a034	ICAL	DSL_10			07/31/14 11:45	1.0	8	

JDG 07/31/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 34.

Standards used: 1=S24669 2=S24342 3=S24343 4=S24344 5=S24345 6=S24346 7=S24347 8=S25266 9=S25267 10=S25268 11=S25269 12=S24515 13=S25245 14=S25144 15=S25145 16=S25146 17=S25147 18=S25143

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 174327308

Instrument : GC17A Begun : 08/15/14 07:08
Method : EPA 8015D SOP Version : TEH_rv18

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	227a001	X	IB				08/15/14 07:08	1.0		
002	227a002	X	CMARKER				08/15/14 07:36	1.0	1	
003	227a003	CCV	MO_500				08/15/14 08:04	1.0	2	
004	227a004	CCV	DSL_1000				08/15/14 08:32	1.0	3	
005	227a005	MSS	259781-002	S	Soil	214411	08/15/14 09:34	1.0		2:BUNKC:12-40=6900
006	227a006	MS	QC753607	S	Soil	214411	08/15/14 10:11	1.0		2:BUNKC:12-40=7100
007	227a007	MSD	QC753608	S	Soil	214411	08/15/14 10:39	1.0		2:BUNKC:12-40=7100
008	227a008	LCS	QC753564		Water	214402	08/15/14 12:06	1.0		
009	227a009	SAMPLE	259807-001		Water	214402	08/15/14 12:33	1.0		
010	227a010	CCV	MO_500				08/15/14 13:03	1.0	2	
011	227a011	CCV	DSL_250				08/15/14 13:31	1.0	4	
012	227a012	X	CMARKER				08/15/14 14:47	1.0	1	

JDG 08/15/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 11.

Standards used: 1=S24669 2=S25404 3=S25246 4=S25244

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 224317392

Instrument : GC14B Begun : 08/08/14 09:52
Method : EPA 8015D SOP Version : TEH_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
003	220_003	X	IB			08/08/14 09:52	1.0		
004	220_004	X	IB			08/08/14 10:20	1.0		
005	220_005	X	CMARKER			08/08/14 10:49	1.0	1	
006	220_006	X	CMARKER			08/08/14 17:07	1.0	1	
007	220_007	X	IB			08/08/14 17:35	1.0		
008	220_008	IB	CALIB			08/08/14 19:35	1.0		
009	220_009	ICAL	HEX OTP_5			08/08/14 20:04	1.0	2	
010	220_010	ICAL	HEX OTP_10			08/08/14 20:32	1.0	3	
011	220_011	ICAL	HEX OTP_25			08/08/14 21:00	1.0	4	
012	220_012	ICAL	HEX OTP_50			08/08/14 21:28	1.0	5	
013	220_013	ICAL	HEX OTP_100			08/08/14 21:56	1.0	6	
014	220_014	ICAL	HEX OTP_200			08/08/14 22:25	1.0	7	
015	220_015	IB	CALIB			08/08/14 22:53	1.0		
016	220_016	ICAL	DSL_10			08/08/14 23:22	1.0	8	
017	220_017	ICAL	DSL_100			08/08/14 23:50	1.0	9	
018	220_018	ICAL	DSL_500			08/09/14 00:19	1.0	10	
019	220_019	ICAL	DSL_1000			08/09/14 00:47	1.0	11	
020	220_020	ICAL	DSL_5000			08/09/14 01:15	1.0	12	
021	220_021	IB	CALIB			08/09/14 01:44	1.0		
022	220_022	ICV	DSL_500			08/09/14 02:12	1.0	13	
023	220_023	X	ICV			08/09/14 02:40	1.0	13	
024	220_024	IB	CALIB			08/09/14 03:08	1.0		
025	220_025	ICAL	MO_25			08/09/14 03:37	1.0	14	
026	220_026	ICAL	MO_50			08/09/14 04:05	1.0	14	
027	220_027	ICAL	MO_250			08/09/14 04:33	1.0	15	
028	220_028	ICAL	MO_500			08/09/14 05:01	1.0	16	
029	220_029	ICAL	MO_1000			08/09/14 05:30	1.0	17	
030	220_030	ICAL	MO_2500			08/09/14 05:58	1.0	18	
031	220_031	ICAL	MO_5000			08/09/14 06:27	1.0	18	
032	220_032	IB	CALIB			08/09/14 06:55	1.0		
033	220_033	CMARKER	C10-C50			08/09/14 07:23	1.0	1	
034	220_034	IB	CALIB			08/09/14 07:52	1.0		

JDG 08/11/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 34.

Standards used: 1=S24669 2=S25390 3=S25391 4=S25392 5=S25393 6=S25394 7=S25395 8=S25266 9=S25267 10=S25268 11=S25269 12=S24515 13=S25245 14=S25144 15=S25145 16=S25146 17=S25147 18=S25143

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 224327309

Instrument : GC14B Begun : 08/15/14 07:09
Method : EPA 8015D SOP Version : TEH_rv18

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	227_001	X	IB				08/15/14 07:09	1.0		
002	227_002	X	CMARKER				08/15/14 07:38	1.0	1	
003	227_003	CCV	MO_500				08/15/14 08:06	1.0	2	
004	227_004	CCV	DSL_1000				08/15/14 08:35	1.0	3	
005	227_005	BLANK	QC753605		Soil	214411	08/15/14 09:31	1.0		
006	227_006	BLANK	QC753605	S	Soil	214411	08/15/14 09:59	1.0		
007	227_007	LCS	QC753606	S	Soil	214411	08/15/14 10:28	1.0		
008	227_008	SAMPLE	259821-001	S	Soil	214411	08/15/14 10:56	1.0		
009	227_009	SAMPLE	259821-002	S	Soil	214411	08/15/14 11:25	1.0		
010	227_010	X	IB				08/15/14 12:02	1.0		
011	227_011	BLANK	QC753563		Water	214402	08/15/14 12:30	1.0		
012	227_012	CCV	MO_500				08/15/14 12:58	1.0	2	
013	227_013	CCV	DSL_500				08/15/14 13:27	1.0	4	
014	227_014	MSS	259774-001		Water	214402	08/15/14 15:52	1.0		
015	227_015	MS	QC753565		Water	214402	08/15/14 16:20	1.0		
016	227_016	MSD	QC753566		Water	214402	08/15/14 16:48	1.0		
017	227_017	MSS	259774-001	S	Water	214402	08/15/14 17:16	1.0		
018	227_018	MS	QC753565	S	Water	214402	08/15/14 17:44	1.0		
019	227_019	MSD	QC753566	S	Water	214402	08/15/14 18:13	1.0		
020	227_020	MSS	259786-001		Water	214402	08/15/14 18:41	1.0		
021	227_021	MS	QC753567		Water	214402	08/15/14 19:09	1.0		
022	227_022	MSD	QC753568		Water	214402	08/15/14 19:37	1.0		
023	227_023	SAMPLE	259790-001		Water	214402	08/15/14 20:05	1.0		
024	227_024	CCV	MO_500				08/15/14 20:33	1.0	2	
025	227_025	CCV	DSL_250				08/15/14 21:01	1.0	5	
026	227_026	CCV	MO_500				08/15/14 21:29	1.0	2	
027	227_027	CCV	DSL_250				08/15/14 21:58	1.0	5	
028	227_028	SAMPLE	259779-001	S	Water	214402	08/15/14 22:26	1.0		

JDG 08/15/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 13.

SFL 08/16/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 14 through 28.

EAH 08/26/14 : SFL08/26/14 11:31GC skipped over night before CM was able to run.

Standards used: 1=S24669 2=S25404 3=S25246 4=S25245 5=S25244

SAMPLE PREPARATION SUMMARY

Batch # : 214402
Started By : ARG
Method : 3520C
Spike #1 ID : S25397

Prep Date : 14-AUG-2014 13:30
SOP Version : TEH_3520_rv15
Spike #2 ID : S25337

Analysis : TEH
Finished By : CPK
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259745-001		TCLP Leachate	500	2.5	1	0.005	7	.5				TEH	
259774-001		Water	500	2.5	1	0.005	7	.5			3630C	TEH	MSS
259779-001		Water	510	2.5	1	0.004902	7	.5			3630C	TEHM	
259779-002		Water	510	2.5	1	0.004902	7	.5			3630C	TEHM	
259779-003		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
259784-001		Water	510	2.5	1	0.004902	7	.5				TEHM	
259786-001		Water	510	2.5	1	0.004902	7	.5				TEH	mss2
259786-003		Water	500	2.5	1	0.005	7	.5				TEH	
259786-004		Water	500	2.5	1	0.005	7	.5				TEH	
259788-022		Water	500	2.5	1	0.005	7	.5				TEHM	
259788-023		Water	500	2.5	1	0.005	7	.5				TEHM	
259790-001		Water	500	2.5	1	0.005	7	.5				TEH	
259790-002		Water	500	2.5	1	0.005	7	.5				TEH	
259797-001		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	Prepped 15-AUG-2014 13:20
259797-002		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	Prepped 15-AUG-2014 13:20
259797-003		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	Prepped 15-AUG-2014 13:20
259807-001		Water	500	2.5	1	0.005	7	.5				TEHM	Prepped 14-AUG-2014 14:03
259859-002		Water	340	2.5	1	0.007353	7	.5				TEHM	See comment 1 below
QC753563	BLANK	Water	500	2.5	1	0.005		.5			3630C		
QC753564	LCS	Water	500	2.5	1	0.005		.5	.5		3630C		
QC753565	MS	Water	510	2.5	1	0.004902	7	.5	.5		3630C		
QC753566	MSD	Water	510	2.5	1	0.004902	7	.5	.5		3630C		
QC753567	MS	Water	510	2.5	1	0.004902	7	.5	.5				
QC753568	MSD	Water	510	2.5	1	0.004902	7	.5	.5				
QC753569	PREPBLK	Water	500	2.5	1	0.005		.5					

Comment 1: Prepped 15-AUG-2014 13:20; sediment layer; decanted

Analyst: JDG Date: 08/18/14 Reviewer: EAH Date: 08/18/14

Curtis & Tompkins, Ltd. **Silica Gel Cleanup** **EPA 3630c**

Prep Chemist: CAK
Cleanup Date: 8/15/14

Benchbook # **BK 3572**
Page 53

Sample #	Extraction Batch#	Initial Volume (mL)	Final Volume (mL)	Comments
259774-001	214402	☒ 1.0 ☐ ____	☒ 1.0 ☐ ____	
259779-001		☒ 1.0 ☐ ____	☒ 1.0 ☐ ____	
-003		☒ 1.0 ☐ ____	☒ 1.0 ☐ ____	
-004		☒ 1.0 ☐ ____	☒ 1.0 ☐ ____	
MB QC753563		☒ 1.0 ☐ ____	☒ 1.0 ☐ ____	
LCS 4		☒ 1.0 ☐ ____	☒ 1.0 ☐ ____	
MS 5		☒ 1.0 ☐ ____	☒ 1.0 ☐ ____	
MSD 6		☒ 1.0 ☐ ____	☒ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	
		☐ 1.0 ☐ ____	☐ 1.0 ☐ ____	

	Mfg & Lot # / Time / Program	Initials / Date
☒ Extracts were cleaned up using C&T assembled 1.0 g columns	6027026	CAK 8/15/14
☐ Extracts were cleaned up using ___ g cartridges		
Extracts were eluted with 4.0 mL CH_2Cl_2	EM54184	
Concentrated to volumes as noted above		

8/15/14
Extraction Chemist / Date

Continued from page ____
Continued on page ____

8/18/14
Reviewed by / Date

TEH (8015) Water Prep Log Curtis & Tompkins, Ltd.

Page 26 BK 3588

LIMS Batch No: 214402
LIMS Analysis: TEH
Date Extracted: 8/14/14

Extraction Method:
☒ EPA 3520c cont. L/L
☐ _____

Cleanup Method (if needed):
☒ EPA 3630c Silica Gel

Sample #	Container ID	Volume of Sample (mL)	Sample pH	Final Volume (mL)	Cleanup (x if needed)		Comments
259745-001	NA	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
259774-001	BD	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	MSS1
259779-001	J	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
2		☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
3		☒ 500 ☐	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
259784-001	G	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
259786-001	K	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	MSS2
3	D	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
4	D	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
259788-022	H	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	Sediment
23	G	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
259790-001	E	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
[illegible]	[illegible]	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
MBQC7535	[illegible]	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
LCS	[illegible]	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
MS 8/14/14 75	BP	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	259774-001
MSD 76	BM	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
MS 77	J	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	259786-001
MSD 8	L	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
PREPBLK 9	NA	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
259807-001	A	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	added 8/14/14 @ 1403
259797-001	J	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	A/O @ 1320 on 8/15/14 by TPP
2		☒ 500 ☐	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
3	K	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
259859-002	N	☐ 500 ☒ 340	☒7	☒ 2.5		☒ ≤2pH	

	Mfg & Lot# / LIMS # / Time	Date/ Initials
0.5 mL of TEH_SURR was added to all samples	S 25397	AD 8/14/14
0.5 mL of TEH_SP was added to all spikes	S25337D	
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	FS140656	
☒ 3520c: Samples were continually extracted about 450 mL of CH_2Cl_2	EM	
Extraction Start Time:	1330 / 1403 / 1320	ER 8-15-14
Extraction End Time:	0730 / 0803 / 750	ER 8-15-14
☐ 3510c: Samples were extracted 3 times with 60 mL of CH_2Cl_2	NA	CPK 8/15/14
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EMWL234	
Concentrated to final volume at temperature (degrees C)	100°	
Relinquished to TEH Department	✓	

8/14/14
Extraction Chemist **Date**

Contined from Page 1
Continued on Page _____

8/18/14
Reviewed by **Date**

Curtis & Tompkins, Ltd. **Silica Gel Cleanup** **EPA 3630c**

Prep Chemist: CPK
Cleanup Date: 8/18/14

Benchbook # **BK 3572**
Page 55

Sample #	Extraction Batch#	Initial Volume (mL)	Final Volume (mL)	Comments
259797-001	214402	☒ 1.0 ☐ ___	☒ 1.0 ☐ ___	
-002	↓	☒ 1.0 ☐ ___	☒ 1.0 ☐ ___	
↓ -003	↓	☒ 1.0 ☐ ___	☒ 1.0 ☐ ___	
259794-013	214470	☒ 1.0 ☐ ___	☒ 1.0 ☐ ___	
↓ -014	↓	☒ 1.0 ☐ ___	☒ 1.0 ☐ ___	
PrepBlnk QC753841	↓	☒ 1.0 ☐ ___	☒ 1.0 ☐ ___	
MB 2	↓	☒ 1.0 ☐ ___	☒ 1.0 ☐ ___	
BS 3	↓	☒ 1.0 ☐ ___	☒ 1.0 ☐ ___	
BSD ↓ 4	↓	☒ 1.0 ☐ ___	☒ 1.0 ☐ ___	
259797-001	214402	☐ 1.0 ☒ 0.5	☐ 1.0 ☒ 0.5	
-002	↓	☐ 1.0 ☒ 0.5	☐ 1.0 ☒ 0.5	
↓ -003	↓	☐ 1.0 ☒ 0.5	☐ 1.0 ☒ 0.5	
		☐ 1.0 ☐ ___	☐ 1.0 ☐ ___	
		☐ 1.0 ☐ ___	☐ 1.0 ☐ ___	
		☐ 1.0 ☐ ___	☐ 1.0 ☐ ___	
		☐ 1.0 ☐ ___	☐ 1.0 ☐ ___	
		☐ 1.0 ☐ ___	☐ 1.0 ☐ ___	
		☐ 1.0 ☐ ___	☐ 1.0 ☐ ___	
		☐ 1.0 ☐ ___	☐ 1.0 ☐ ___	
		☐ 1.0 ☐ ___	☐ 1.0 ☐ ___	
		☐ 1.0 ☐ ___	☐ 1.0 ☐ ___	
		☐ 1.0 ☐ ___	☐ 1.0 ☐ ___	
		☐ 1.0 ☐ ___	☐ 1.0 ☐ ___	
		☐ 1.0 ☐ ___	☐ 1.0 ☐ ___	
		☐ 1.0 ☐ ___	☐ 1.0 ☐ ___	
		☐ 1.0 ☐ ___	☐ 1.0 ☐ ___	
		☐ 1.0 ☐ ___	☐ 1.0 ☐ ___	
		☐ 1.0 ☐ ___	☐ 1.0 ☐ ___	
		☐ 1.0 ☐ ___	☐ 1.0 ☐ ___	
		☐ 1.0 ☐ ___	☐ 1.0 ☐ ___	8/18/14

	Mfg & Lot # / Time / Program	Initials / Date
☐ Extracts were cleaned up using C&T assembled — g columns	—	CPK 8/18/14
☒ Extracts were cleaned up using 1.0 g cartridges	SP4640701	↓
Extracts were eluted with 4.0 mL CH_2Cl_2	EM54153	↓
Concentrated to volumes as noted above	✓	↓

8/18/14
Extraction Chemist / Date

Continued from page /
Continued on page /

8/18/14
Reviewed by / Date

Case Narrative Addendum: Manual Integrations for 259786 GCSV (Water)

For SAMPLE 259786-003 (GC15B 228b014):
Corrected automatically drawn baseline.

For SAMPLE 259786-004 (GC15B 228b015):
Corrected automatically drawn baseline.

For CCV DSL_1000 (GC14B 227_004):
Corrected automatically drawn baseline.

For CCV DSL_1000 (GC17A 227a004):
Corrected automatically drawn baseline.

For CCV DSL_1000 (GC15B 228b004):
Corrected automatically drawn baseline.

For CCV DSL_250 (GC17A 227a011):
Corrected automatically drawn baseline.

For CCV DSL_500 (GC15B 228b018):
Corrected automatically drawn baseline.

For CCV DSL_500 (GC14B 227_013):
Corrected automatically drawn baseline.

For CCV MO_500 (GC15B 228b003):
Corrected automatically drawn baseline.

For CCV MO_500 (GC17A 227a003):
Corrected automatically drawn baseline.

For CCV MO_500 (GC15B 228b017):
Corrected automatically drawn baseline.

For CCV MO_500 (GC14B 227_024):
Corrected automatically drawn baseline.

For CCV MO_500 (GC17A 227a010):
Corrected automatically drawn baseline.

For BLANK QC753563 (GC14B 227_011):
Corrected automatically drawn baseline.

For LCS QC753564 (GC17A 227a008):
Corrected automatically drawn baseline.

For Calibration GC15B (164206385001):
Corrected automatically drawn baseline in multiple levels.

For Calibration GC15B (164206385002):
Corrected automatically drawn baseline in DSL_100 (143b017).

For ICV DSL_500 (GC15B 143b022):
Corrected automatically drawn baseline.

For Calibration GC17A (174304309001):
Corrected automatically drawn baseline in multiple levels.

For Calibration GC17A (174304309003):
Corrected automatically drawn baseline in multiple levels.

For ICV DSL_500 (GC17A 211a022):
Corrected automatically drawn baseline.

For Calibration GC14B (224317392001):
Corrected automatically drawn baseline in all levels.

For Calibration GC14B (224317392002):
Corrected automatically drawn baseline in DSL_10 (220_016).

For ICV DSL_500 (GC14B 220_022):
Corrected automatically drawn baseline.

Laboratory Job Number 259786

ANALYTICAL REPORT

Volatile Organics by GC/MS

Matrix: Water

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W19-081314	Diln Fac:	1.000
Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
Freon 12	0.2 U	1.0	0.1	214432	08/15/14
Chloromethane	0.4 U	1.0	0.3	214432	08/15/14
Vinyl Chloride	0.2 U	0.5	0.1	214432	08/15/14
Bromomethane	0.4 U	1.0	0.2	214432	08/15/14
Chloroethane	0.4 U	1.0	0.3	214432	08/15/14
Trichlorofluoromethane	0.4 U	1.0	0.2	214432	08/15/14
Acetone	2.0 U	10	1.6	214432	08/15/14
Freon 113	0.2 U	2.0	0.1	214432	08/15/14
1,1-Dichloroethene	0.2 U	0.5	0.2	214432	08/15/14
Methylene Chloride	0.2 U	10	0.2	214432	08/15/14
Carbon Disulfide	0.2 U	0.5	0.1	214432	08/15/14
MTBE	0.2 U	0.5	0.1	214432	08/15/14
trans-1,2-Dichloroethene	0.2 U	0.5	0.2	214432	08/15/14
Vinyl Acetate	1.0 U	10	0.5	214489	08/18/14
1,1-Dichloroethane	0.2 U	0.5	0.2	214432	08/15/14
2-Butanone	2.0 U	10	0.4	214432	08/15/14
cis-1,2-Dichloroethene	0.2 U	0.5	0.1	214432	08/15/14
2,2-Dichloropropane	0.2 U	0.5	0.1	214432	08/15/14
Chloroform	0.2 U	0.5	0.1	214432	08/15/14
Bromochloromethane	0.2 U	0.5	0.1	214432	08/15/14
1,1,1-Trichloroethane	0.2 U	0.5	0.1	214432	08/15/14
1,1-Dichloropropene	0.2 U	0.5	0.1	214432	08/15/14
Carbon Tetrachloride	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dichloroethane	0.2 U	0.5	0.1	214432	08/15/14
Benzene	0.2 U	0.5	0.1	214432	08/15/14
Trichloroethene	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dichloropropane	0.2 U	0.5	0.1	214432	08/15/14
Bromodichloromethane	0.2 U	0.5	0.1	214432	08/15/14
Dibromomethane	0.2 U	0.5	0.1	214432	08/15/14
4-Methyl-2-Pentanone	2.0 U	10	0.7	214432	08/15/14
cis-1,3-Dichloropropene	0.2 U	0.5	0.1	214432	08/15/14
Toluene	0.2 U	0.5	0.1	214432	08/15/14
trans-1,3-Dichloropropene	0.2 U	0.5	0.1	214432	08/15/14
1,1,2-Trichloroethane	0.2 U	0.5	0.2	214432	08/15/14
2-Hexanone	0.4 U	10	0.2	214432	08/15/14
1,3-Dichloropropane	0.2 U	0.5	0.1	214432	08/15/14
Tetrachloroethene	0.2 U	0.5	0.1	214432	08/15/14
Dibromochloromethane	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dibromoethane	0.2 U	0.5	0.1	214432	08/15/14
Chlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,1,1,2-Tetrachloroethane	0.2 U	0.5	0.1	214432	08/15/14
Ethylbenzene	0.2 U	0.5	0.1	214432	08/15/14
m,p-Xylenes	0.2 U	0.5	0.1	214432	08/15/14
o-Xylene	0.2 U	0.5	0.1	214432	08/15/14
Styrene	0.2 U	0.5	0.1	214432	08/15/14
Bromoform	0.4 U	1.0	0.1	214432	08/15/14
Isopropylbenzene	0.2 U	0.5	0.1	214432	08/15/14
1,1,2,2-Tetrachloroethane	0.2 U	0.5	0.1	214432	08/15/14
1,2,3-Trichloropropane	0.2 U	0.5	0.2	214432	08/15/14
Propylbenzene	0.2 U	0.5	0.1	214432	08/15/14
Bromobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,3,5-Trimethylbenzene	0.2 U	0.5	0.1	214432	08/15/14
2-Chlorotoluene	0.2 U	0.5	0.1	214432	08/15/14

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W19-081314	Diln Fac:	1.000
Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
4-Chlorotoluene	0.2 U	0.5	0.1	214432	08/15/14
tert-Butylbenzene	0.2 U	0.5	0.1	214432	08/15/14
1,2,4-Trimethylbenzene	0.2 U	0.5	0.1	214432	08/15/14
sec-Butylbenzene	0.2 U	0.5	0.1	214432	08/15/14
para-Isopropyl Toluene	0.2 U	0.5	0.1	214432	08/15/14
1,3-Dichlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,4-Dichlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
n-Butylbenzene	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dichlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dibromo-3-Chloropropane	0.4 U	2.0	0.2	214432	08/15/14
1,2,4-Trichlorobenzene	0.4 U	0.5	0.1	214432	08/15/14
Hexachlorobutadiene	0.4 U	2.0	0.1	214432	08/15/14
Naphthalene	0.4 U	2.0	0.1	214432	08/15/14
1,2,3-Trichlorobenzene	0.4 U	0.5	0.1	214432	08/15/14

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	110	85-115	214432	08/15/14
Dibromofluoromethane	104	85-115	214489	08/18/14
1,2-Dichloroethane-d4	122 *	70-120	214432	08/15/14
1,2-Dichloroethane-d4	131 *	70-120	214489	08/18/14
Toluene-d8	101	85-120	214432	08/15/14
Toluene-d8	107	85-120	214489	08/18/14
Bromofluorobenzene	104	75-120	214432	08/15/14
Bromofluorobenzene	97	75-120	214489	08/18/14

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	TB-081314	Diln Fac:	1.000
Lab ID:	259786-002	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
Freon 12	0.2 U	1.0	0.1	214432	08/15/14
Chloromethane	0.4 U	1.0	0.3	214432	08/15/14
Vinyl Chloride	0.2 U	0.5	0.1	214432	08/15/14
Bromomethane	0.4 U	1.0	0.2	214432	08/15/14
Chloroethane	0.4 U	1.0	0.3	214432	08/15/14
Trichlorofluoromethane	0.4 U	1.0	0.2	214432	08/15/14
Acetone	2.0 U	10	1.6	214432	08/15/14
Freon 113	0.2 U	2.0	0.1	214432	08/15/14
1,1-Dichloroethene	0.2 U	0.5	0.2	214432	08/15/14
Methylene Chloride	0.2 U	10	0.2	214432	08/15/14
Carbon Disulfide	0.2 U	0.5	0.1	214432	08/15/14
MTBE	0.2 U	0.5	0.1	214432	08/15/14
trans-1,2-Dichloroethene	0.2 U	0.5	0.2	214432	08/15/14
Vinyl Acetate	1.0 U	10	0.5	214489	08/18/14
1,1-Dichloroethane	0.2 U	0.5	0.2	214432	08/15/14
2-Butanone	2.0 U	10	0.4	214432	08/15/14
cis-1,2-Dichloroethene	0.2 U	0.5	0.1	214432	08/15/14
2,2-Dichloropropane	0.2 U	0.5	0.1	214432	08/15/14
Chloroform	0.2 U	0.5	0.1	214432	08/15/14
Bromochloromethane	0.2 U	0.5	0.1	214432	08/15/14
1,1,1-Trichloroethane	0.2 U	0.5	0.1	214432	08/15/14
1,1-Dichloropropene	0.2 U	0.5	0.1	214432	08/15/14
Carbon Tetrachloride	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dichloroethane	0.2 U	0.5	0.1	214432	08/15/14
Benzene	0.2 U	0.5	0.1	214432	08/15/14
Trichloroethene	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dichloropropane	0.2 U	0.5	0.1	214432	08/15/14
Bromodichloromethane	0.2 U	0.5	0.1	214432	08/15/14
Dibromomethane	0.2 U	0.5	0.1	214432	08/15/14
4-Methyl-2-Pentanone	2.0 U	10	0.7	214432	08/15/14
cis-1,3-Dichloropropene	0.2 U	0.5	0.1	214432	08/15/14
Toluene	0.2 U	0.5	0.1	214432	08/15/14
trans-1,3-Dichloropropene	0.2 U	0.5	0.1	214432	08/15/14
1,1,2-Trichloroethane	0.2 U	0.5	0.2	214432	08/15/14
2-Hexanone	0.4 U	10	0.2	214432	08/15/14
1,3-Dichloropropane	0.2 U	0.5	0.1	214432	08/15/14
Tetrachloroethene	0.2 U	0.5	0.1	214432	08/15/14
Dibromochloromethane	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dibromoethane	0.2 U	0.5	0.1	214432	08/15/14
Chlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,1,1,2-Tetrachloroethane	0.2 U	0.5	0.1	214432	08/15/14
Ethylbenzene	0.2 U	0.5	0.1	214432	08/15/14
m,p-Xylenes	0.2 U	0.5	0.1	214432	08/15/14
o-Xylene	0.2 U	0.5	0.1	214432	08/15/14
Styrene	0.2 U	0.5	0.1	214432	08/15/14
Bromoform	0.4 U	1.0	0.1	214432	08/15/14
Isopropylbenzene	0.2 U	0.5	0.1	214432	08/15/14
1,1,2,2-Tetrachloroethane	0.2 U	0.5	0.1	214432	08/15/14
1,2,3-Trichloropropane	0.2 U	0.5	0.2	214432	08/15/14
Propylbenzene	0.2 U	0.5	0.1	214432	08/15/14
Bromobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,3,5-Trimethylbenzene	0.2 U	0.5	0.1	214432	08/15/14
2-Chlorotoluene	0.2 U	0.5	0.1	214432	08/15/14

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	TB-081314	Diln Fac:	1.000
Lab ID:	259786-002	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
4-Chlorotoluene	0.2 U	0.5	0.1	214432	08/15/14
tert-Butylbenzene	0.2 U	0.5	0.1	214432	08/15/14
1,2,4-Trimethylbenzene	0.2 U	0.5	0.1	214432	08/15/14
sec-Butylbenzene	0.2 U	0.5	0.1	214432	08/15/14
para-Isopropyl Toluene	0.2 U	0.5	0.1	214432	08/15/14
1,3-Dichlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,4-Dichlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
n-Butylbenzene	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dichlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dibromo-3-Chloropropane	0.4 U	2.0	0.2	214432	08/15/14
1,2,4-Trichlorobenzene	0.4 U	0.5	0.1	214432	08/15/14
Hexachlorobutadiene	0.4 U	2.0	0.1	214432	08/15/14
Naphthalene	0.4 U	2.0	0.1	214432	08/15/14
1,2,3-Trichlorobenzene	0.4 U	0.5	0.1	214432	08/15/14

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	108	85-115	214432	08/15/14
Dibromofluoromethane	100	85-115	214489	08/18/14
1,2-Dichloroethane-d4	113	70-120	214432	08/15/14
1,2-Dichloroethane-d4	132 *	70-120	214489	08/18/14
Toluene-d8	100	85-120	214432	08/15/14
Toluene-d8	108	85-120	214489	08/18/14
Bromofluorobenzene	105	75-120	214432	08/15/14
Bromofluorobenzene	97	75-120	214489	08/18/14

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W18-081314	Diln Fac:	1.000
Lab ID:	259786-003	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
Freon 12	0.2 U	1.0	0.1	214432	08/15/14
Chloromethane	0.4 U	1.0	0.3	214432	08/15/14
Vinyl Chloride	0.2 U	0.5	0.1	214432	08/15/14
Bromomethane	0.4 U	1.0	0.2	214432	08/15/14
Chloroethane	0.4 U	1.0	0.3	214432	08/15/14
Trichlorofluoromethane	0.4 U	1.0	0.2	214432	08/15/14
Acetone	2.0 U	10	1.6	214432	08/15/14
Freon 113	0.2 U	2.0	0.1	214432	08/15/14
1,1-Dichloroethene	0.2 U	0.5	0.2	214432	08/15/14
Methylene Chloride	0.2 U	10	0.2	214432	08/15/14
Carbon Disulfide	0.2 U	0.5	0.1	214432	08/15/14
MTBE	0.2 U	0.5	0.1	214432	08/15/14
trans-1,2-Dichloroethene	0.2 U	0.5	0.2	214432	08/15/14
Vinyl Acetate	1.0 U	10	0.5	214489	08/18/14
1,1-Dichloroethane	0.2 U	0.5	0.2	214432	08/15/14
2-Butanone	2.0 U	10	0.4	214432	08/15/14
cis-1,2-Dichloroethene	0.2 U	0.5	0.1	214432	08/15/14
2,2-Dichloropropane	0.2 U	0.5	0.1	214432	08/15/14
Chloroform	0.2 U	0.5	0.1	214432	08/15/14
Bromochloromethane	0.2 U	0.5	0.1	214432	08/15/14
1,1,1-Trichloroethane	0.2 U	0.5	0.1	214432	08/15/14
1,1-Dichloropropene	0.2 U	0.5	0.1	214432	08/15/14
Carbon Tetrachloride	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dichloroethane	0.2 U	0.5	0.1	214432	08/15/14
Benzene	0.2 U	0.5	0.1	214432	08/15/14
Trichloroethene	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dichloropropane	0.2 U	0.5	0.1	214432	08/15/14
Bromodichloromethane	0.2 U	0.5	0.1	214432	08/15/14
Dibromomethane	0.2 U	0.5	0.1	214432	08/15/14
4-Methyl-2-Pentanone	2.0 U	10	0.7	214432	08/15/14
cis-1,3-Dichloropropene	0.2 U	0.5	0.1	214432	08/15/14
Toluene	0.2 U	0.5	0.1	214432	08/15/14
trans-1,3-Dichloropropene	0.2 U	0.5	0.1	214432	08/15/14
1,1,2-Trichloroethane	0.2 U	0.5	0.2	214432	08/15/14
2-Hexanone	0.4 U	10	0.2	214432	08/15/14
1,3-Dichloropropane	0.2 U	0.5	0.1	214432	08/15/14
Tetrachloroethene	0.2 U	0.5	0.1	214432	08/15/14
Dibromochloromethane	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dibromoethane	0.2 U	0.5	0.1	214432	08/15/14
Chlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,1,1,2-Tetrachloroethane	0.2 U	0.5	0.1	214432	08/15/14
Ethylbenzene	0.2 U	0.5	0.1	214432	08/15/14
m,p-Xylenes	0.2 U	0.5	0.1	214432	08/15/14
o-Xylene	0.2 U	0.5	0.1	214432	08/15/14
Styrene	0.2 U	0.5	0.1	214432	08/15/14
Bromoform	0.4 U	1.0	0.1	214432	08/15/14
Isopropylbenzene	0.2 U	0.5	0.1	214432	08/15/14
1,1,2,2-Tetrachloroethane	0.2 U	0.5	0.1	214432	08/15/14
1,2,3-Trichloropropane	0.2 U	0.5	0.2	214432	08/15/14
Propylbenzene	0.2 U	0.5	0.1	214432	08/15/14
Bromobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,3,5-Trimethylbenzene	0.2 U	0.5	0.1	214432	08/15/14

*= Value outside of QC limits; see narrative
J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W18-081314	Diln Fac:	1.000
Lab ID:	259786-003	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
2-Chlorotoluene	0.2 U	0.5	0.1	214432	08/15/14
4-Chlorotoluene	0.2 U	0.5	0.1	214432	08/15/14
tert-Butylbenzene	0.2 U	0.5	0.1	214432	08/15/14
1,2,4-Trimethylbenzene	0.2 U	0.5	0.1	214432	08/15/14
sec-Butylbenzene	0.2 U	0.5	0.1	214432	08/15/14
para-Isopropyl Toluene	0.2 J	0.5	0.1	214432	08/15/14
1,3-Dichlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,4-Dichlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
n-Butylbenzene	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dichlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dibromo-3-Chloropropane	0.4 U	2.0	0.2	214432	08/15/14
1,2,4-Trichlorobenzene	0.4 U	0.5	0.1	214432	08/15/14
Hexachlorobutadiene	0.4 U	2.0	0.1	214432	08/15/14
Naphthalene	0.4 U	2.0	0.1	214432	08/15/14
1,2,3-Trichlorobenzene	0.4 U	0.5	0.1	214432	08/15/14

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	109	85-115	214432	08/15/14
Dibromofluoromethane	102	85-115	214489	08/18/14
1,2-Dichloroethane-d4	118	70-120	214432	08/15/14
1,2-Dichloroethane-d4	125 *	70-120	214489	08/18/14
Toluene-d8	101	85-120	214432	08/15/14
Toluene-d8	106	85-120	214489	08/18/14
Bromofluorobenzene	104	75-120	214432	08/15/14
Bromofluorobenzene	96	75-120	214489	08/18/14

*= Value outside of QC limits; see narrative
J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W17-081314	Diln Fac:	1.000
Lab ID:	259786-004	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
Freon 12	0.2 U	1.0	0.1	214432	08/15/14
Chloromethane	0.4 U	1.0	0.3	214432	08/15/14
Vinyl Chloride	0.2 U	0.5	0.1	214432	08/15/14
Bromomethane	0.4 U	1.0	0.2	214432	08/15/14
Chloroethane	0.4 U	1.0	0.3	214432	08/15/14
Trichlorofluoromethane	0.4 U	1.0	0.2	214432	08/15/14
Acetone	2.0 U	10	1.6	214432	08/15/14
Freon 113	0.2 U	2.0	0.1	214432	08/15/14
1,1-Dichloroethene	0.2 U	0.5	0.2	214432	08/15/14
Methylene Chloride	0.2 U	10	0.2	214432	08/15/14
Carbon Disulfide	0.2 U	0.5	0.1	214432	08/15/14
MTBE	0.2 U	0.5	0.1	214432	08/15/14
trans-1,2-Dichloroethene	0.2 U	0.5	0.2	214432	08/15/14
Vinyl Acetate	1.0 U	10	0.5	214489	08/18/14
1,1-Dichloroethane	0.2 U	0.5	0.2	214432	08/15/14
2-Butanone	2.0 U	10	0.4	214432	08/15/14
cis-1,2-Dichloroethene	0.2 U	0.5	0.1	214432	08/15/14
2,2-Dichloropropane	0.2 U	0.5	0.1	214432	08/15/14
Chloroform	0.2 U	0.5	0.1	214432	08/15/14
Bromochloromethane	0.2 U	0.5	0.1	214432	08/15/14
1,1,1-Trichloroethane	0.2 U	0.5	0.1	214432	08/15/14
1,1-Dichloropropene	0.2 U	0.5	0.1	214432	08/15/14
Carbon Tetrachloride	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dichloroethane	0.2 U	0.5	0.1	214432	08/15/14
Benzene	0.2 U	0.5	0.1	214432	08/15/14
Trichloroethene	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dichloropropane	0.2 U	0.5	0.1	214432	08/15/14
Bromodichloromethane	0.2 U	0.5	0.1	214432	08/15/14
Dibromomethane	0.2 U	0.5	0.1	214432	08/15/14
4-Methyl-2-Pentanone	2.0 U	10	0.7	214432	08/15/14
cis-1,3-Dichloropropene	0.2 U	0.5	0.1	214432	08/15/14
Toluene	0.2 U	0.5	0.1	214432	08/15/14
trans-1,3-Dichloropropene	0.2 U	0.5	0.1	214432	08/15/14
1,1,2-Trichloroethane	0.2 U	0.5	0.2	214432	08/15/14
2-Hexanone	0.4 U	10	0.2	214432	08/15/14
1,3-Dichloropropane	0.2 U	0.5	0.1	214432	08/15/14
Tetrachloroethene	0.2 U	0.5	0.1	214432	08/15/14
Dibromochloromethane	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dibromoethane	0.2 U	0.5	0.1	214432	08/15/14
Chlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,1,1,2-Tetrachloroethane	0.2 U	0.5	0.1	214432	08/15/14
Ethylbenzene	0.2 U	0.5	0.1	214432	08/15/14
m,p-Xylenes	0.2 U	0.5	0.1	214432	08/15/14
o-Xylene	0.2 U	0.5	0.1	214432	08/15/14
Styrene	0.2 U	0.5	0.1	214432	08/15/14
Bromoform	0.4 U	1.0	0.1	214432	08/15/14
Isopropylbenzene	0.2 U	0.5	0.1	214432	08/15/14
1,1,2,2-Tetrachloroethane	0.2 U	0.5	0.1	214432	08/15/14
1,2,3-Trichloropropane	0.2 U	0.5	0.2	214432	08/15/14
Propylbenzene	0.2 U	0.5	0.1	214432	08/15/14
Bromobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,3,5-Trimethylbenzene	0.2 U	0.5	0.1	214432	08/15/14
2-Chlorotoluene	0.2 U	0.5	0.1	214432	08/15/14

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W17-081314	Diln Fac:	1.000
Lab ID:	259786-004	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
4-Chlorotoluene	0.2 U	0.5	0.1	214432	08/15/14
tert-Butylbenzene	0.2 U	0.5	0.1	214432	08/15/14
1,2,4-Trimethylbenzene	0.2 U	0.5	0.1	214432	08/15/14
sec-Butylbenzene	0.2 U	0.5	0.1	214432	08/15/14
para-Isopropyl Toluene	0.2 U	0.5	0.1	214432	08/15/14
1,3-Dichlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,4-Dichlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
n-Butylbenzene	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dichlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dibromo-3-Chloropropane	0.4 U	2.0	0.2	214432	08/15/14
1,2,4-Trichlorobenzene	0.4 U	0.5	0.1	214432	08/15/14
Hexachlorobutadiene	0.4 U	2.0	0.1	214432	08/15/14
Naphthalene	0.4 U	2.0	0.1	214432	08/15/14
1,2,3-Trichlorobenzene	0.4 U	0.5	0.1	214432	08/15/14

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	110	85-115	214432	08/15/14
Dibromofluoromethane	102	85-115	214489	08/18/14
1,2-Dichloroethane-d4	114	70-120	214432	08/15/14
1,2-Dichloroethane-d4	122 *	70-120	214489	08/18/14
Toluene-d8	101	85-120	214432	08/15/14
Toluene-d8	105	85-120	214489	08/18/14
Bromofluorobenzene	104	75-120	214432	08/15/14
Bromofluorobenzene	93	75-120	214489	08/18/14

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214432
Units:	ug/L	Analyzed:	08/15/14
Diln Fac:	1.000		

Type: BS Lab ID: QC753684

Analyte	Spiked	Result	%REC	Limits
Freon 12	8.000	7.876	98	30-155
Chloromethane	8.000	8.455	106	40-125
Vinyl Chloride	8.000	7.827	98	50-145
Bromomethane	8.000	10.26 b	128	30-145
Chloroethane	8.000	7.369	92	60-135
Trichlorofluoromethane	8.000	8.557	107	60-145
Acetone	10.00	11.44	114	40-140
Freon 113	10.00	10.19	102	68-147
1,1-Dichloroethene	10.00	9.863	99	70-130
Methylene Chloride	10.00	10.80	108	55-140
Carbon Disulfide	10.00	9.914	99	35-160
MTBE	10.00	9.699	97	65-125
trans-1,2-Dichloroethene	10.00	10.64	106	60-140
Vinyl Acetate	10.00	12.93 b	129	67-209
1,1-Dichloroethane	10.00	10.62	106	70-135
2-Butanone	10.00	12.06 b	121	30-150
cis-1,2-Dichloroethene	10.00	11.12	111	70-125
2,2-Dichloropropane	10.00	12.03	120	70-135
Chloroform	10.00	11.39	114	65-135
Bromochloromethane	10.00	10.71	107	65-130
1,1,1-Trichloroethane	10.00	11.34	113	65-130
1,1-Dichloropropene	10.00	10.75	108	75-130
Carbon Tetrachloride	10.00	10.16	102	65-140
1,2-Dichloroethane	10.00	10.53	105	70-130
Benzene	10.00	10.71	107	80-120
Trichloroethene	10.00	10.53	105	70-125
1,2-Dichloropropane	10.00	10.13	101	75-125
Bromodichloromethane	10.00	10.26	103	75-120
Dibromomethane	10.00	10.78	108	75-125
4-Methyl-2-Pentanone	10.00	10.38	104	60-135
cis-1,3-Dichloropropene	10.00	11.08	111	70-130
Toluene	10.00	10.56	106	75-120
trans-1,3-Dichloropropene	10.00	9.881	99	55-140
1,1,2-Trichloroethane	10.00	10.42	104	75-125
2-Hexanone	10.00	10.98	110	55-130
1,3-Dichloropropane	10.00	10.39	104	75-125
Tetrachloroethene	10.00	10.20	102	45-150
Dibromochloromethane	10.00	9.482	95	60-135
1,2-Dibromoethane	10.00	10.37	104	80-120
Chlorobenzene	10.00	11.37	114	80-120
1,1,1,2-Tetrachloroethane	10.00	10.05	101	80-130
Ethylbenzene	10.00	10.95	110	75-125
m,p-Xylenes	20.00	21.16	106	75-130
o-Xylene	10.00	11.24	112	80-120
Styrene	10.00	11.11	111	65-135
Bromoform	10.00	9.499	95	70-130
Isopropylbenzene	10.00	11.52	115	75-125
1,1,2,2-Tetrachloroethane	10.00	11.52	115	65-130
1,2,3-Trichloropropane	10.00	11.00	110	75-125
Propylbenzene	10.00	10.98	110	70-130
Bromobenzene	10.00	10.48	105	75-125

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214432
Units:	ug/L	Analyzed:	08/15/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits
1,3,5-Trimethylbenzene	10.00	11.75	117	75-130
2-Chlorotoluene	10.00	12.04	120	75-125
4-Chlorotoluene	10.00	11.44	114	75-130
tert-Butylbenzene	10.00	11.37	114	70-130
1,2,4-Trimethylbenzene	10.00	11.16	112	75-130
sec-Butylbenzene	10.00	12.25 b	123	70-125
para-Isopropyl Toluene	10.00	11.47	115	75-130
1,3-Dichlorobenzene	10.00	11.13	111	75-125
1,4-Dichlorobenzene	10.00	11.00	110	75-125
n-Butylbenzene	10.00	11.79	118	70-135
1,2-Dichlorobenzene	10.00	10.95	110	70-120
1,2-Dibromo-3-Chloropropane	10.00	8.570	86	50-130
1,2,4-Trichlorobenzene	10.00	10.29	103	65-135
Hexachlorobutadiene	10.00	11.22	112	50-140
Naphthalene	10.00	10.09	101	55-140
1,2,3-Trichlorobenzene	10.00	10.55	106	55-140

Surrogate	%REC	Limits
Dibromofluoromethane	106	85-115
1,2-Dichloroethane-d4	106	70-120
Toluene-d8	101	85-120
Bromofluorobenzene	100	75-120

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214432
Units:	ug/L	Analyzed:	08/15/14
Diln Fac:	1.000		

Type: BSD Lab ID: QC753685

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	8.000	7.489	94	30-155	5	30
Chloromethane	8.000	8.276	103	40-125	2	30
Vinyl Chloride	8.000	7.717	96	50-145	1	30
Bromomethane	8.000	9.522 b	119	30-145	7	30
Chloroethane	8.000	6.995	87	60-135	5	30
Trichlorofluoromethane	8.000	8.104	101	60-145	5	30
Acetone	10.00	11.82	118	40-140	3	30
Freon 113	10.00	9.991	100	68-147	2	30
1,1-Dichloroethene	10.00	9.822	98	70-130	0	30
Methylene Chloride	10.00	10.64	106	55-140	2	30
Carbon Disulfide	10.00	9.572	96	35-160	4	30
MTBE	10.00	9.887	99	65-125	2	30
trans-1,2-Dichloroethene	10.00	10.52	105	60-140	1	30
Vinyl Acetate	10.00	14.83 b	148	67-209	14	30
1,1-Dichloroethane	10.00	10.56	106	70-135	1	30
2-Butanone	10.00	12.62 b	126	30-150	5	30
cis-1,2-Dichloroethene	10.00	10.77	108	70-125	3	30
2,2-Dichloropropane	10.00	11.27	113	70-135	7	30
Chloroform	10.00	11.06	111	65-135	3	30
Bromochloromethane	10.00	10.54	105	65-130	2	30
1,1,1-Trichloroethane	10.00	10.89	109	65-130	4	30
1,1-Dichloropropene	10.00	10.57	106	75-130	2	30
Carbon Tetrachloride	10.00	10.10	101	65-140	1	30
1,2-Dichloroethane	10.00	10.42	104	70-130	1	30
Benzene	10.00	10.50	105	80-120	2	30
Trichloroethene	10.00	10.41	104	70-125	1	30
1,2-Dichloropropane	10.00	10.06	101	75-125	1	30
Bromodichloromethane	10.00	10.29	103	75-120	0	30
Dibromomethane	10.00	10.94	109	75-125	2	30
4-Methyl-2-Pentanone	10.00	10.88	109	60-135	5	30
cis-1,3-Dichloropropene	10.00	10.96	110	70-130	1	30
Toluene	10.00	10.45	104	75-120	1	30
trans-1,3-Dichloropropene	10.00	9.834	98	55-140	0	30
1,1,2-Trichloroethane	10.00	10.62	106	75-125	2	30
2-Hexanone	10.00	11.08	111	55-130	1	30
1,3-Dichloropropane	10.00	10.43	104	75-125	0	30
Tetrachloroethene	10.00	10.12	101	45-150	1	30
Dibromochloromethane	10.00	9.657	97	60-135	2	30
1,2-Dibromoethane	10.00	10.64	106	80-120	2	30
Chlorobenzene	10.00	11.07	111	80-120	3	30
1,1,1,2-Tetrachloroethane	10.00	10.11	101	80-130	1	30
Ethylbenzene	10.00	10.71	107	75-125	2	30
m,p-Xylenes	20.00	20.72	104	75-130	2	30
o-Xylene	10.00	10.95	109	80-120	3	30
Styrene	10.00	10.99	110	65-135	1	30
Bromoform	10.00	9.704	97	70-130	2	30
Isopropylbenzene	10.00	11.30	113	75-125	2	30
1,1,2,2-Tetrachloroethane	10.00	11.84	118	65-130	3	30
1,2,3-Trichloropropane	10.00	11.22	112	75-125	2	30
Propylbenzene	10.00	10.78	108	70-130	2	30
Bromobenzene	10.00	10.50	105	75-125	0	30

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214432
Units:	ug/L	Analyzed:	08/15/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,3,5-Trimethylbenzene	10.00	11.45	115	75-130	3	30
2-Chlorotoluene	10.00	11.74	117	75-125	3	30
4-Chlorotoluene	10.00	11.33	113	75-130	1	30
tert-Butylbenzene	10.00	11.11	111	70-130	2	30
1,2,4-Trimethylbenzene	10.00	11.11	111	75-130	0	30
sec-Butylbenzene	10.00	12.01 b	120	70-125	2	30
para-Isopropyl Toluene	10.00	11.15	111	75-130	3	30
1,3-Dichlorobenzene	10.00	11.25	113	75-125	1	30
1,4-Dichlorobenzene	10.00	10.83	108	75-125	2	30
n-Butylbenzene	10.00	11.63	116	70-135	1	30
1,2-Dichlorobenzene	10.00	11.23	112	70-120	3	30
1,2-Dibromo-3-Chloropropane	10.00	9.214	92	50-130	7	30
1,2,4-Trichlorobenzene	10.00	10.86	109	65-135	5	30
Hexachlorobutadiene	10.00	10.89	109	50-140	3	30
Naphthalene	10.00	10.62	106	55-140	5	30
1,2,3-Trichlorobenzene	10.00	10.91	109	55-140	3	30

Surrogate	%REC	Limits
Dibromofluoromethane	107	85-115
1,2-Dichloroethane-d4	107	70-120
Toluene-d8	101	85-120
Bromofluorobenzene	101	75-120

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753686	Batch#:	214432
Matrix:	Water	Analyzed:	08/15/14
Units:	ug/L		

Analyte	Result	LOQ	DL
Freon 12	0.2 U	1.0	0.1
Chloromethane	0.4 U	1.0	0.3
Vinyl Chloride	0.2 U	0.5	0.1
Bromomethane	0.4 U	1.0	0.2
Chloroethane	0.4 U	1.0	0.3
Trichlorofluoromethane	0.4 U	1.0	0.2
Acetone	2.0 U	10	1.6
Freon 113	0.2 U	2.0	0.1
1,1-Dichloroethene	0.2 U	0.5	0.2
Methylene Chloride	0.2 U	10	0.2
Carbon Disulfide	0.2 U	0.5	0.1
MTBE	0.2 U	0.5	0.1
trans-1,2-Dichloroethene	0.2 U	0.5	0.2
Vinyl Acetate	2.0 U b	10	1.1
1,1-Dichloroethane	0.2 U	0.5	0.2
2-Butanone	2.0 U	10	0.4
cis-1,2-Dichloroethene	0.2 U	0.5	0.1
2,2-Dichloropropane	0.2 U	0.5	0.1
Chloroform	0.2 U	0.5	0.1
Bromochloromethane	0.2 U	0.5	0.1
1,1,1-Trichloroethane	0.2 U	0.5	0.1
1,1-Dichloropropene	0.2 U	0.5	0.1
Carbon Tetrachloride	0.2 U	0.5	0.1
1,2-Dichloroethane	0.2 U	0.5	0.1
Benzene	0.2 U	0.5	0.1
Trichloroethene	0.2 U	0.5	0.1
1,2-Dichloropropane	0.2 U	0.5	0.1
Bromodichloromethane	0.2 U	0.5	0.1
Dibromomethane	0.2 U	0.5	0.1
4-Methyl-2-Pentanone	2.0 U	10	0.7
cis-1,3-Dichloropropene	0.2 U	0.5	0.1
Toluene	0.2 U	0.5	0.1
trans-1,3-Dichloropropene	0.2 U	0.5	0.1
1,1,2-Trichloroethane	0.2 U	0.5	0.2
2-Hexanone	0.4 U	10	0.2
1,3-Dichloropropane	0.2 U	0.5	0.1
Tetrachloroethene	0.2 U	0.5	0.1
Dibromochloromethane	0.2 U	0.5	0.1
1,2-Dibromoethane	0.2 U	0.5	0.1
Chlorobenzene	0.2 U	0.5	0.1
1,1,1,2-Tetrachloroethane	0.2 U	0.5	0.1
Ethylbenzene	0.2 U	0.5	0.1
m,p-Xylenes	0.2 U	0.5	0.1
o-Xylene	0.2 U	0.5	0.1
Styrene	0.2 U	0.5	0.1
Bromoform	0.4 U	1.0	0.1
Isopropylbenzene	0.2 U	0.5	0.1
1,1,2,2-Tetrachloroethane	0.2 U	0.5	0.1
1,2,3-Trichloropropane	0.2 U	0.5	0.2
Propylbenzene	0.2 U	0.5	0.1
Bromobenzene	0.2 U	0.5	0.1
1,3,5-Trimethylbenzene	0.2 U	0.5	0.1

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753686	Batch#:	214432
Matrix:	Water	Analyzed:	08/15/14
Units:	ug/L		

Analyte	Result	LOQ	DL
2-Chlorotoluene	0.2 U	0.5	0.1
4-Chlorotoluene	0.2 U	0.5	0.1
tert-Butylbenzene	0.2 U	0.5	0.1
1,2,4-Trimethylbenzene	0.2 U	0.5	0.1
sec-Butylbenzene	0.2 U	0.5	0.1
para-Isopropyl Toluene	0.2 U	0.5	0.1
1,3-Dichlorobenzene	0.2 U	0.5	0.1
1,4-Dichlorobenzene	0.2 U	0.5	0.1
n-Butylbenzene	0.2 U	0.5	0.1
1,2-Dichlorobenzene	0.2 U	0.5	0.1
1,2-Dibromo-3-Chloropropane	0.4 U	2.0	0.2
1,2,4-Trichlorobenzene	0.4 U	0.5	0.1
Hexachlorobutadiene	0.4 U	2.0	0.1
Naphthalene	0.4 U	2.0	0.1
1,2,3-Trichlorobenzene	0.4 U	0.5	0.1

Surrogate	%REC	Limits
Dibromofluoromethane	106	85-115
1,2-Dichloroethane-d4	112	70-120
Toluene-d8	102	85-120
Bromofluorobenzene	103	75-120

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W19-081314	Batch#:	214432
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Analyzed:	08/15/14
Diln Fac:	1.000		

Type: MS Lab ID: QC753763

Analyte	MSS Result	Spiked	Result	%REC	Limits
Freon 12	<0.1000	8.000	7.997	100	30-155
Chloromethane	<0.2724	8.000	9.158	114	40-125
Vinyl Chloride	<0.1000	8.000	8.043	101	50-145
Bromomethane	<0.1830	8.000	8.179 b	102	30-145
Chloroethane	<0.2673	8.000	8.057	101	60-135
Trichlorofluoromethane	<0.2280	8.000	8.820	110	60-145
Acetone	<1.589	10.00	12.31	123	40-140
Freon 113	<0.1310	10.00	9.417	94	68-147
1,1-Dichloroethene	<0.1519	10.00	9.475	95	70-130
Methylene Chloride	<0.1757	10.00	11.36	114	55-140
Carbon Disulfide	<0.1000	10.00	9.941	99	35-160
MTBE	<0.1119	10.00	12.47	125	65-125
trans-1,2-Dichloroethene	<0.1510	10.00	10.97	110	60-140
Vinyl Acetate	<1.145	10.00	17.18 b	172	67-209
1,1-Dichloroethane	<0.1587	10.00	10.96	110	70-135
2-Butanone	<0.3846	10.00	14.81 b	148	30-150
cis-1,2-Dichloroethene	<0.1255	10.00	11.35	114	70-125
2,2-Dichloropropane	<0.1440	10.00	10.88	109	70-135
Chloroform	<0.1000	10.00	11.76	118	65-135
Bromochloromethane	<0.1372	10.00	11.51	115	65-130
1,1,1-Trichloroethane	<0.1261	10.00	11.44	114	65-130
1,1-Dichloropropene	<0.1299	10.00	10.21	102	75-130
Carbon Tetrachloride	<0.1231	10.00	9.739	97	65-140
1,2-Dichloroethane	<0.1071	10.00	11.12	111	70-130
Benzene	<0.1000	10.00	10.57	106	80-120
Trichloroethene	<0.1000	10.00	10.43	104	70-125
1,2-Dichloropropane	<0.1371	10.00	10.41	104	75-125
Bromodichloromethane	<0.1212	10.00	10.29	103	75-120
Dibromomethane	<0.1464	10.00	11.66	117	75-125
4-Methyl-2-Pentanone	<0.6539	10.00	15.93	159 *	60-135
cis-1,3-Dichloropropene	<0.1055	10.00	11.06	111	70-130
Toluene	<0.1000	10.00	10.19	102	75-120
trans-1,3-Dichloropropene	<0.1392	10.00	10.26	103	55-140
1,1,2-Trichloroethane	<0.1539	10.00	11.84	118	75-125
2-Hexanone	<0.2303	10.00	16.12	161 *	55-130
1,3-Dichloropropane	<0.1488	10.00	11.25	112	75-125
Tetrachloroethene	<0.1000	10.00	8.876	89	45-150
Dibromochloromethane	<0.1461	10.00	9.892	99	60-135
1,2-Dibromoethane	<0.1341	10.00	11.59	116	80-120
Chlorobenzene	<0.1296	10.00	11.00	110	80-120
1,1,1,2-Tetrachloroethane	<0.1045	10.00	10.04	100	80-130
Ethylbenzene	<0.1000	10.00	10.35	104	75-125
m,p-Xylenes	<0.1454	20.00	20.14	101	75-130
o-Xylene	<0.1000	10.00	10.56	106	80-120
Styrene	<0.1000	10.00	9.539	95	65-135
Bromoform	<0.1445	10.00	10.26	103	70-130
Isopropylbenzene	<0.1000	10.00	10.82	108	75-125
1,1,2,2-Tetrachloroethane	<0.1197	10.00	13.41	134 *	65-130

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W19-081314	Batch#:	214432
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Analyzed:	08/15/14
Diln Fac:	1.000		

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,2,3-Trichloropropane	<0.1540	10.00	12.65	127 *	75-125
Propylbenzene	<0.1000	10.00	9.995	100	70-130
Bromobenzene	<0.1080	10.00	10.58	106	75-125
1,3,5-Trimethylbenzene	<0.1000	10.00	10.79	108	75-130
2-Chlorotoluene	<0.1000	10.00	11.46	115	75-125
4-Chlorotoluene	<0.1000	10.00	11.06	111	75-130
tert-Butylbenzene	<0.1000	10.00	10.20	102	70-130
1,2,4-Trimethylbenzene	<0.1000	10.00	10.45	105	75-130
sec-Butylbenzene	<0.1000	10.00	10.49 b	105	70-125
para-Isopropyl Toluene	<0.1000	10.00	9.832	98	75-130
1,3-Dichlorobenzene	<0.1122	10.00	10.70	107	75-125
1,4-Dichlorobenzene	<0.1000	10.00	10.56	106	75-125
n-Butylbenzene	<0.1000	10.00	9.822	98	70-135
1,2-Dichlorobenzene	<0.1000	10.00	11.14	111	70-120
1,2-Dibromo-3-Chloropropane	<0.1706	10.00	10.62	106	50-130
1,2,4-Trichlorobenzene	<0.1325	10.00	9.861	99	65-135
Hexachlorobutadiene	<0.1394	10.00	8.905	89	50-140
Naphthalene	<0.1064	10.00	11.87	119	55-140
1,2,3-Trichlorobenzene	<0.1396	10.00	10.38	104	55-140

Surrogate	%REC	Limits
Dibromofluoromethane	116 *	85-115
1,2-Dichloroethane-d4	118	70-120
Toluene-d8	103	85-120
Bromofluorobenzene	103	75-120

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W19-081314	Batch#:	214432
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Analyzed:	08/15/14
Diln Fac:	1.000		

Type: MSD Lab ID: QC753764

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	8.000	7.550	94	30-155	6	30
Chloromethane	8.000	8.833	110	40-125	4	30
Vinyl Chloride	8.000	7.928	99	50-145	1	30
Bromomethane	8.000	8.552 b	107	30-145	4	30
Chloroethane	8.000	8.067	101	60-135	0	30
Trichlorofluoromethane	8.000	8.302	104	60-145	6	30
Acetone	10.00	11.55	116	40-140	6	30
Freon 113	10.00	8.959	90	68-147	5	30
1,1-Dichloroethene	10.00	9.267	93	70-130	2	30
Methylene Chloride	10.00	10.99	110	55-140	3	30
Carbon Disulfide	10.00	9.564	96	35-160	4	30
MTBE	10.00	12.02	120	65-125	4	30
trans-1,2-Dichloroethene	10.00	10.56	106	60-140	4	30
Vinyl Acetate	10.00	16.22 b	162	67-209	6	30
1,1-Dichloroethane	10.00	10.62	106	70-135	3	30
2-Butanone	10.00	13.60 b	136	30-150	9	30
cis-1,2-Dichloroethene	10.00	11.02	110	70-125	3	30
2,2-Dichloropropane	10.00	10.53	105	70-135	3	30
Chloroform	10.00	11.19	112	65-135	5	30
Bromochloromethane	10.00	11.24	112	65-130	2	30
1,1,1-Trichloroethane	10.00	11.08	111	65-130	3	30
1,1-Dichloropropene	10.00	10.09	101	75-130	1	30
Carbon Tetrachloride	10.00	9.600	96	65-140	1	30
1,2-Dichloroethane	10.00	10.88	109	70-130	2	30
Benzene	10.00	10.38	104	80-120	2	30
Trichloroethene	10.00	10.11	101	70-125	3	30
1,2-Dichloropropane	10.00	10.24	102	75-125	2	30
Bromodichloromethane	10.00	10.25	103	75-120	0	30
Dibromomethane	10.00	11.38	114	75-125	2	30
4-Methyl-2-Pentanone	10.00	15.36	154 *	60-135	4	30
cis-1,3-Dichloropropene	10.00	10.80	108	70-130	2	30
Toluene	10.00	10.11	101	75-120	1	30
trans-1,3-Dichloropropene	10.00	9.939	99	55-140	3	30
1,1,2-Trichloroethane	10.00	11.37	114	75-125	4	30
2-Hexanone	10.00	15.56	156 *	55-130	4	30
1,3-Dichloropropane	10.00	11.05	111	75-125	2	30
Tetrachloroethene	10.00	9.074	91	45-150	2	30
Dibromochloromethane	10.00	9.806	98	60-135	1	30
1,2-Dibromoethane	10.00	11.25	112	80-120	3	30
Chlorobenzene	10.00	10.90	109	80-120	1	30
1,1,1,2-Tetrachloroethane	10.00	9.899	99	80-130	1	30
Ethylbenzene	10.00	10.34	103	75-125	0	30
m,p-Xylenes	20.00	19.66	98	75-130	2	30
o-Xylene	10.00	10.45	104	80-120	1	30
Styrene	10.00	9.637	96	65-135	1	30
Bromoform	10.00	9.781	98	70-130	5	30
Isopropylbenzene	10.00	10.51	105	75-125	3	30
1,1,2,2-Tetrachloroethane	10.00	12.94	129	65-130	4	30

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W19-081314	Batch#:	214432
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Analyzed:	08/15/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,2,3-Trichloropropane	10.00	12.20	122	75-125	4	30
Propylbenzene	10.00	9.780	98	70-130	2	30
Bromobenzene	10.00	10.29	103	75-125	3	30
1,3,5-Trimethylbenzene	10.00	10.54	105	75-130	2	30
2-Chlorotoluene	10.00	11.26	113	75-125	2	30
4-Chlorotoluene	10.00	10.63	106	75-130	4	30
tert-Butylbenzene	10.00	9.888	99	70-130	3	30
1,2,4-Trimethylbenzene	10.00	10.09	101	75-130	4	30
sec-Butylbenzene	10.00	10.12 b	101	70-125	4	30
para-Isopropyl Toluene	10.00	9.424	94	75-130	4	30
1,3-Dichlorobenzene	10.00	10.26	103	75-125	4	30
1,4-Dichlorobenzene	10.00	10.16	102	75-125	4	30
n-Butylbenzene	10.00	9.564	96	70-135	3	30
1,2-Dichlorobenzene	10.00	10.87	109	70-120	2	30
1,2-Dibromo-3-Chloropropane	10.00	10.32	103	50-130	3	30
1,2,4-Trichlorobenzene	10.00	9.379	94	65-135	5	30
Hexachlorobutadiene	10.00	8.482	85	50-140	5	30
Naphthalene	10.00	11.47	115	55-140	3	30
1,2,3-Trichlorobenzene	10.00	10.02	100	55-140	3	30

Surrogate	%REC	Limits
Dibromofluoromethane	110	85-115
1,2-Dichloroethane-d4	115	70-120
Toluene-d8	102	85-120
Bromofluorobenzene	102	75-120

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214489
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Type: BS Lab ID: QC753910

Analyte	Spiked	Result	%REC	Limits
Freon 12	20.00	15.01 b	75	30-155
Chloromethane	20.00	20.14	101	40-125
Vinyl Chloride	20.00	20.99	105	50-145
Bromomethane		NA		
Chloroethane	20.00	20.15	101	60-135
Trichlorofluoromethane	20.00	18.61	93	60-145
Acetone		NA		
Freon 113	25.00	20.98	84	68-147
1,1-Dichloroethene	25.00	20.73	83	70-130
Methylene Chloride	25.00	21.47	86	55-140
Carbon Disulfide	25.00	21.27	85	35-160
MTBE	25.00	18.65 b	75	65-125
trans-1,2-Dichloroethene	25.00	22.00	88	60-140
Vinyl Acetate	25.00	27.35	109	67-209
1,1-Dichloroethane	25.00	22.39	90	70-135
2-Butanone	25.00	22.40	90	30-150
cis-1,2-Dichloroethene	25.00	21.69	87	70-125
2,2-Dichloropropane	25.00	26.91	108	70-135
Chloroform	25.00	22.37	89	65-135
Bromochloromethane	25.00	22.50	90	65-130
1,1,1-Trichloroethane	25.00	24.81	99	65-130
1,1-Dichloropropene	25.00	24.84	99	75-130
Carbon Tetrachloride	25.00	26.17	105	65-140
1,2-Dichloroethane	25.00	26.63	107	70-130
Benzene	25.00	24.71	99	80-120
Trichloroethene	25.00	23.44	94	70-125
1,2-Dichloropropane	25.00	22.51	90	75-125
Bromodichloromethane	25.00	23.18	93	75-120
Dibromomethane	25.00	22.65	91	75-125
4-Methyl-2-Pentanone	25.00	20.25	81	60-135
cis-1,3-Dichloropropene	25.00	24.65	99	70-130
Toluene	25.00	23.66	95	75-120
trans-1,3-Dichloropropene	25.00	22.16	89	55-140
1,1,2-Trichloroethane	25.00	20.85	83	75-125
2-Hexanone	25.00	21.71	87	55-130
1,3-Dichloropropane	25.00	21.63	87	75-125
Tetrachloroethene	25.00	24.67	99	45-150
Dibromochloromethane	25.00	22.04	88	60-135
1,2-Dibromoethane	25.00	20.65	83	80-120
Chlorobenzene	25.00	24.11	96	80-120
1,1,1,2-Tetrachloroethane	25.00	23.10	92	80-130
Ethylbenzene	25.00	23.43	94	75-125
m,p-Xylenes	50.00	53.23	106	75-130
o-Xylene	25.00	24.56	98	80-120
Styrene	25.00	22.80	91	65-135
Bromoform	25.00	19.45 b	78	70-130
Isopropylbenzene	25.00	23.07	92	75-125
1,1,2,2-Tetrachloroethane	25.00	18.82 b	75	65-130
1,2,3-Trichloropropane	25.00	18.96 b	76	75-125
Propylbenzene	25.00	24.08	96	70-130

b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214489
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits
Bromobenzene	25.00	23.09	92	75-125
1,3,5-Trimethylbenzene	25.00	24.35	97	75-130
2-Chlorotoluene	25.00	25.01	100	75-125
4-Chlorotoluene	25.00	22.14	89	75-130
tert-Butylbenzene	25.00	23.06	92	70-130
1,2,4-Trimethylbenzene	25.00	21.54	86	75-130
sec-Butylbenzene	25.00	22.57	90	70-125
para-Isopropyl Toluene	25.00	22.52	90	75-130
1,3-Dichlorobenzene	25.00	22.98	92	75-125
1,4-Dichlorobenzene	25.00	22.76	91	75-125
n-Butylbenzene	25.00	22.62	90	70-135
1,2-Dichlorobenzene	25.00	22.37	89	70-120
1,2-Dibromo-3-Chloropropane	25.00	15.82 b	63	50-130
1,2,4-Trichlorobenzene		NA		
Hexachlorobutadiene	25.00	22.89	92	50-140
Naphthalene	25.00	16.87 b	67	55-140
1,2,3-Trichlorobenzene		NA		

Surrogate	%REC	Limits
Dibromofluoromethane	97	85-115
1,2-Dichloroethane-d4	117	70-120
Toluene-d8	104	85-120
Bromofluorobenzene	93	75-120

b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214489
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Type: BSD Lab ID: QC753911

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	20.00	15.49 b	77	30-155	3	30
Chloromethane	20.00	20.01	100	40-125	1	30
Vinyl Chloride	20.00	21.56	108	50-145	3	30
Bromomethane		NA				
Chloroethane	20.00	20.42	102	60-135	1	30
Trichlorofluoromethane	20.00	19.68	98	60-145	6	30
Acetone		NA				
Freon 113	25.00	21.80	87	68-147	4	30
1,1-Dichloroethene	25.00	21.79	87	70-130	5	30
Methylene Chloride	25.00	22.00	88	55-140	2	30
Carbon Disulfide	25.00	22.12	88	35-160	4	30
MTBE	25.00	19.82 b	79	65-125	6	30
trans-1,2-Dichloroethene	25.00	23.13	93	60-140	5	30
Vinyl Acetate	25.00	27.35	109	67-209	0	30
1,1-Dichloroethane	25.00	23.78	95	70-135	6	30
2-Butanone	25.00	23.16	93	30-150	3	30
cis-1,2-Dichloroethene	25.00	22.60	90	70-125	4	30
2,2-Dichloropropane	25.00	28.77	115	70-135	7	30
Chloroform	25.00	23.43	94	65-135	5	30
Bromochloromethane	25.00	23.90	96	65-130	6	30
1,1,1-Trichloroethane	25.00	26.29	105	65-130	6	30
1,1-Dichloropropene	25.00	27.09	108	75-130	9	30
Carbon Tetrachloride	25.00	28.02	112	65-140	7	30
1,2-Dichloroethane	25.00	27.74	111	70-130	4	30
Benzene	25.00	25.85	103	80-120	5	30
Trichloroethene	25.00	25.00	100	70-125	6	30
1,2-Dichloropropane	25.00	23.42	94	75-125	4	30
Bromodichloromethane	25.00	24.13	97	75-120	4	30
Dibromomethane	25.00	23.34	93	75-125	3	30
4-Methyl-2-Pentanone	25.00	21.17	85	60-135	4	30
cis-1,3-Dichloropropene	25.00	25.66	103	70-130	4	30
Toluene	25.00	24.22	97	75-120	2	30
trans-1,3-Dichloropropene	25.00	23.59	94	55-140	6	30
1,1,2-Trichloroethane	25.00	21.19	85	75-125	2	30
2-Hexanone	25.00	22.93	92	55-130	5	30
1,3-Dichloropropane	25.00	21.93	88	75-125	1	30
Tetrachloroethene	25.00	25.96	104	45-150	5	30
Dibromochloromethane	25.00	23.21	93	60-135	5	30
1,2-Dibromoethane	25.00	21.40	86	80-120	4	30
Chlorobenzene	25.00	25.60	102	80-120	6	30
1,1,1,2-Tetrachloroethane	25.00	24.51	98	80-130	6	30
Ethylbenzene	25.00	24.43	98	75-125	4	30
m,p-Xylenes	50.00	56.25	113	75-130	6	30
o-Xylene	25.00	26.56	106	80-120	8	30
Styrene	25.00	24.22	97	65-135	6	30
Bromoform	25.00	21.48 b	86	70-130	10	30
Isopropylbenzene	25.00	24.52	98	75-125	6	30
1,1,2,2-Tetrachloroethane	25.00	19.18 b	77	65-130	2	30
1,2,3-Trichloropropane	25.00	19.81 b	79	75-125	4	30
Propylbenzene	25.00	24.65	99	70-130	2	30

b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214489
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Bromobenzene	25.00	24.37	97	75-125	5	30
1,3,5-Trimethylbenzene	25.00	25.61	102	75-130	5	30
2-Chlorotoluene	25.00	25.95	104	75-125	4	30
4-Chlorotoluene	25.00	23.50	94	75-130	6	30
tert-Butylbenzene	25.00	24.61	98	70-130	6	30
1,2,4-Trimethylbenzene	25.00	23.11	92	75-130	7	30
sec-Butylbenzene	25.00	24.48	98	70-125	8	30
para-Isopropyl Toluene	25.00	24.13	97	75-130	7	30
1,3-Dichlorobenzene	25.00	24.37	97	75-125	6	30
1,4-Dichlorobenzene	25.00	23.82	95	75-125	5	30
n-Butylbenzene	25.00	24.42	98	70-135	8	30
1,2-Dichlorobenzene	25.00	23.74	95	70-120	6	30
1,2-Dibromo-3-Chloropropane	25.00	16.58 b	66	50-130	5	30
1,2,4-Trichlorobenzene		NA				
Hexachlorobutadiene	25.00	25.78	103	50-140	12	30
Naphthalene	25.00	19.39 b	78	55-140	14	30
1,2,3-Trichlorobenzene		NA				

Surrogate	%REC	Limits
Dibromofluoromethane	97	85-115
1,2-Dichloroethane-d4	115	70-120
Toluene-d8	102	85-120
Bromofluorobenzene	92	75-120

b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753912	Batch#:	214489
Matrix:	Water	Analyzed:	08/18/14
Units:	ug/L		

Analyte	Result	LOQ	DL
Freon 12	0.4 U b	1.0	0.2
Chloromethane	0.4 U	1.0	0.2
Vinyl Chloride	0.2 U	0.5	0.1
Bromomethane	NA		
Chloroethane	0.7 U	1.0	0.2
Trichlorofluoromethane	0.4 U	1.0	0.2
Acetone	NA		
Freon 113	0.2 U	2.0	0.2
1,1-Dichloroethene	0.2 U	0.5	0.1
Methylene Chloride	0.2 U	10	0.1
Carbon Disulfide	0.2 U	0.5	0.1
MTBE	0.2 U b	0.5	0.1
trans-1,2-Dichloroethene	0.2 U	0.5	0.1
Vinyl Acetate	1.0 U	10	0.5
1,1-Dichloroethane	0.2 U	0.5	0.1
2-Butanone	1.0 U	10	0.3
cis-1,2-Dichloroethene	0.2 U	0.5	0.1
2,2-Dichloropropane	0.2 U	0.5	0.1
Chloroform	0.2 U	0.5	0.1
Bromochloromethane	0.2 U	0.5	0.2
1,1,1-Trichloroethane	0.2 U	0.5	0.1
1,1-Dichloropropene	0.2 U	0.5	0.1
Carbon Tetrachloride	0.2 U	0.5	0.1
1,2-Dichloroethane	0.2 U	0.5	0.1
Benzene	0.2 U	0.5	0.1
Trichloroethene	0.2 U	0.5	0.1
1,2-Dichloropropane	0.2 U	0.5	0.2
Bromodichloromethane	0.2 U	0.5	0.1
Dibromomethane	0.2 U	0.5	0.1
4-Methyl-2-Pentanone	1.0 U	10	0.2
cis-1,3-Dichloropropene	0.2 U	0.5	0.1
Toluene	0.2 U	0.5	0.1
trans-1,3-Dichloropropene	0.2 U	0.5	0.1
1,1,2-Trichloroethane	0.2 U	0.5	0.2
2-Hexanone	1.0 U	10	0.2
1,3-Dichloropropane	0.2 U	0.5	0.1
Tetrachloroethene	0.2 U	0.5	0.1
Dibromochloromethane	0.2 U	0.5	0.1
1,2-Dibromoethane	0.2 U	0.5	0.1
Chlorobenzene	0.2 U	0.5	0.1
1,1,1,2-Tetrachloroethane	0.2 U	0.5	0.1
Ethylbenzene	0.2 U	0.5	0.2
m,p-Xylenes	0.2 U	0.5	0.1
o-Xylene	0.2 U	0.5	0.1
Styrene	0.2 U	0.5	0.1
Bromoform	0.4 U b	1.0	0.1
Isopropylbenzene	0.2 U	0.5	0.1
1,1,2,2-Tetrachloroethane	0.2 U b	0.5	0.1
1,2,3-Trichloropropane	0.4 U b	0.5	0.1
Propylbenzene	0.2 U	0.5	0.1
Bromobenzene	0.2 U	0.5	0.1

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
NA= Not Analyzed
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753912	Batch#:	214489
Matrix:	Water	Analyzed:	08/18/14
Units:	ug/L		

Analyte	Result	LOQ	DL
1,3,5-Trimethylbenzene	0.2 U	0.5	0.1
2-Chlorotoluene	0.2 U	0.5	0.1
4-Chlorotoluene	0.2 U	0.5	0.2
tert-Butylbenzene	0.2 U	0.5	0.1
1,2,4-Trimethylbenzene	0.2 U	0.5	0.2
sec-Butylbenzene	0.2 U	0.5	0.1
para-Isopropyl Toluene	0.2 U	0.5	0.1
1,3-Dichlorobenzene	0.2 U	0.5	0.1
1,4-Dichlorobenzene	0.2 U	0.5	0.1
n-Butylbenzene	0.2 U	0.5	0.1
1,2-Dichlorobenzene	0.2 U	0.5	0.1
1,2-Dibromo-3-Chloropropane	1.2 U b	2.0	0.2
1,2,4-Trichlorobenzene	NA		
Hexachlorobutadiene	0.2 U	2.0	0.1
Naphthalene	1.0 U b	2.0	0.1
1,2,3-Trichlorobenzene	NA		

Surrogate	%REC	Limits
Dibromofluoromethane	98	85-115
1,2-Dichloroethane-d4	118	70-120
Toluene-d8	106	85-120
Bromofluorobenzene	95	75-120

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
NA= Not Analyzed
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W19-081314	Batch#:	214489
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Type: MS Lab ID: QC753972

Analyte	MSS Result	Spiked	Result	%REC	Limits
Freon 12	<0.1733	20.00	15.10 b	75	30-155
Chloromethane	<0.2133	20.00	22.44	112	40-125
Vinyl Chloride	<0.1202	20.00	23.32	117	50-145
Bromomethane			NA		
Chloroethane	<0.1670	20.00	22.66	113	60-135
Trichlorofluoromethane	<0.1840	20.00	17.41	87	60-145
Acetone			NA		
Freon 113	<0.1554	25.00	22.60	90	68-147
1,1-Dichloroethene	<0.1000	25.00	21.04	84	70-130
Methylene Chloride	<0.1458	25.00	23.36	93	55-140
Carbon Disulfide	<0.1000	25.00	22.38	90	35-160
MTBE	<0.1000	25.00	24.46 b	98	65-125
trans-1,2-Dichloroethene	<0.1000	25.00	22.66	91	60-140
Vinyl Acetate	<0.5118	25.00	35.69	143	67-209
1,1-Dichloroethane	<0.1000	25.00	24.92	100	70-135
2-Butanone	<0.2956	25.00	30.81	123	30-150
cis-1,2-Dichloroethene	<0.1000	25.00	22.96	92	70-125
2,2-Dichloropropane	<0.1000	25.00	26.36	105	70-135
Chloroform	<0.1000	25.00	24.11	96	65-135
Bromochloromethane	<0.1508	25.00	26.73	107	65-130
1,1,1-Trichloroethane	<0.1000	25.00	27.32	109	65-130
1,1-Dichloropropene	<0.1000	25.00	27.41	110	75-130
Carbon Tetrachloride	<0.1000	25.00	27.86	111	65-140
1,2-Dichloroethane	<0.1000	25.00	32.79	131 *	70-130
Benzene	<0.1000	25.00	26.87	107	80-120
Trichloroethene	<0.1000	25.00	24.82	99	70-125
1,2-Dichloropropane	<0.1501	25.00	26.38	106	75-125
Bromodichloromethane	<0.1000	25.00	26.28	105	75-120
Dibromomethane	<0.1000	25.00	28.84	115	75-125
4-Methyl-2-Pentanone	<0.1884	25.00	36.96	148 *	60-135
cis-1,3-Dichloropropene	<0.1000	25.00	29.51	118	70-130
Toluene	<0.1000	25.00	25.40	102	75-120
trans-1,3-Dichloropropene	<0.1000	25.00	27.56	110	55-140
1,1,2-Trichloroethane	<0.1596	25.00	26.81	107	75-125
2-Hexanone	<0.1592	25.00	37.49	150 *	55-130
1,3-Dichloropropane	<0.1000	25.00	27.81	111	75-125
Tetrachloroethene	<0.1000	25.00	25.39	102	45-150
Dibromochloromethane	<0.1000	25.00	27.31	109	60-135
1,2-Dibromoethane	<0.1000	25.00	26.19	105	80-120
Chlorobenzene	<0.1136	25.00	27.40	110	80-120
1,1,1,2-Tetrachloroethane	<0.1000	25.00	27.07	108	80-130
Ethylbenzene	<0.1561	25.00	25.38	102	75-125
m,p-Xylenes	<0.1000	50.00	58.03	116	75-130
o-Xylene	<0.09974	25.00	27.68	111	80-120
Styrene	<0.1000	25.00	24.78	99	65-135
Bromoform	<0.1000	25.00	25.81 b	103	70-130
Isopropylbenzene	<0.1000	25.00	23.80	95	75-125

*= Value outside of QC limits; see narrative
b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W19-081314	Batch#:	214489
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1,2,2-Tetrachloroethane	<0.1000	25.00	25.28 b	101	65-130
1,2,3-Trichloropropane	<0.1388	25.00	25.18 b	101	75-125
Propylbenzene	<0.1074	25.00	24.38	98	70-130
Bromobenzene	<0.1000	25.00	26.09	104	75-125
1,3,5-Trimethylbenzene	<0.1017	25.00	25.05	100	75-130
2-Chlorotoluene	<0.1027	25.00	25.69	103	75-125
4-Chlorotoluene	<0.1554	25.00	23.27	93	75-130
tert-Butylbenzene	<0.1000	25.00	23.43	94	70-130
1,2,4-Trimethylbenzene	<0.1598	25.00	23.20	93	75-130
sec-Butylbenzene	<0.1102	25.00	23.32	93	70-125
para-Isopropyl Toluene	<0.1014	25.00	23.32	93	75-130
1,3-Dichlorobenzene	<0.1000	25.00	24.99	100	75-125
1,4-Dichlorobenzene	<0.1000	25.00	25.82	103	75-125
n-Butylbenzene	<0.1011	25.00	22.69	91	70-135
1,2-Dichlorobenzene	<0.1000	25.00	25.48	102	70-120
1,2-Dibromo-3-Chloropropane	<0.1880	25.00	22.51 b	90	50-130
1,2,4-Trichlorobenzene		NA			
Hexachlorobutadiene	<0.1492	25.00	21.54	86	50-140
Naphthalene	<0.1000	25.00	22.48 b	90	55-140
1,2,3-Trichlorobenzene		NA			

Surrogate	%REC	Limits
Dibromofluoromethane	101	85-115
1,2-Dichloroethane-d4	132 *	70-120
Toluene-d8	104	85-120
Bromofluorobenzene	89	75-120

*= Value outside of QC limits; see narrative
b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W19-081314	Batch#:	214489
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Type: MSD Lab ID: QC753973

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	20.00	16.52 b	83	30-155	9	30
Chloromethane	20.00	24.16	121	40-125	7	30
Vinyl Chloride	20.00	25.51	128	50-145	9	30
Bromomethane		NA				
Chloroethane	20.00	24.98	125	60-135	10	30
Trichlorofluoromethane	20.00	20.33	102	60-145	15	30
Acetone		NA				
Freon 113	25.00	23.97	96	68-147	6	30
1,1-Dichloroethene	25.00	24.82	99	70-130	16	30
Methylene Chloride	25.00	27.49	110	55-140	16	30
Carbon Disulfide	25.00	25.58	102	35-160	13	30
MTBE	25.00	29.03 b	116	65-125	17	30
trans-1,2-Dichloroethene	25.00	27.04	108	60-140	18	30
Vinyl Acetate	25.00	40.08	160	67-209	12	30
1,1-Dichloroethane	25.00	29.74	119	70-135	18	30
2-Butanone	25.00	33.34	133	30-150	8	30
cis-1,2-Dichloroethene	25.00	26.83	107	70-125	16	30
2,2-Dichloropropane	25.00	30.16	121	70-135	13	30
Chloroform	25.00	28.47	114	65-135	17	30
Bromochloromethane	25.00	31.57	126	65-130	17	30
1,1,1-Trichloroethane	25.00	31.40	126	65-130	14	30
1,1-Dichloropropene	25.00	31.73	127	75-130	15	30
Carbon Tetrachloride	25.00	32.91	132	65-140	17	30
1,2-Dichloroethane	25.00	39.47	158 *	70-130	18	30
Benzene	25.00	31.73	127 *	80-120	17	30
Trichloroethene	25.00	29.61	118	70-125	18	30
1,2-Dichloropropane	25.00	30.95	124	75-125	16	30
Bromodichloromethane	25.00	30.22	121 *	75-120	14	30
Dibromomethane	25.00	33.28	133 *	75-125	14	30
4-Methyl-2-Pentanone	25.00	42.12	168 *	60-135	13	30
cis-1,3-Dichloropropene	25.00	33.63	135 *	70-130	13	30
Toluene	25.00	29.77	119	75-120	16	30
trans-1,3-Dichloropropene	25.00	32.45	130	55-140	16	30
1,1,2-Trichloroethane	25.00	30.89	124	75-125	14	30
2-Hexanone	25.00	44.39	178 *	55-130	17	30
1,3-Dichloropropane	25.00	32.28	129 *	75-125	15	30
Tetrachloroethene	25.00	30.25	121	45-150	17	30
Dibromochloromethane	25.00	31.62	126	60-135	15	30
1,2-Dibromoethane	25.00	29.98	120	80-120	13	30
Chlorobenzene	25.00	32.59	130 *	80-120	17	30
1,1,1,2-Tetrachloroethane	25.00	31.78	127	80-130	16	30
Ethylbenzene	25.00	29.67	119	75-125	16	30
m,p-Xylenes	50.00	67.93	136 *	75-130	16	30
o-Xylene	25.00	32.08	128 *	80-120	15	30
Styrene	25.00	28.91	116	65-135	15	30
Bromoform	25.00	30.39 b	122	70-130	16	30
Isopropylbenzene	25.00	28.16	113	75-125	17	30

*= Value outside of QC limits; see narrative
b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W19-081314	Batch#:	214489
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1,2,2-Tetrachloroethane	25.00	29.20 b	117	65-130	14	30
1,2,3-Trichloropropane	25.00	30.84 b	123	75-125	20	30
Propylbenzene	25.00	28.51	114	70-130	16	30
Bromobenzene	25.00	31.21	125	75-125	18	30
1,3,5-Trimethylbenzene	25.00	30.07	120	75-130	18	30
2-Chlorotoluene	25.00	31.11	124	75-125	19	30
4-Chlorotoluene	25.00	27.41	110	75-130	16	30
tert-Butylbenzene	25.00	28.03	112	70-130	18	30
1,2,4-Trimethylbenzene	25.00	27.43	110	75-130	17	30
sec-Butylbenzene	25.00	27.47	110	70-125	16	30
para-Isopropyl Toluene	25.00	27.06	108	75-130	15	30
1,3-Dichlorobenzene	25.00	30.19	121	75-125	19	30
1,4-Dichlorobenzene	25.00	30.33	121	75-125	16	30
n-Butylbenzene	25.00	26.68	107	70-135	16	30
1,2-Dichlorobenzene	25.00	30.51	122 *	70-120	18	30
1,2-Dibromo-3-Chloropropane	25.00	25.76 b	103	50-130	13	30
1,2,4-Trichlorobenzene		NA				
Hexachlorobutadiene	25.00	27.08	108	50-140	23	30
Naphthalene	25.00	28.10 b	112	55-140	22	30
1,2,3-Trichlorobenzene		NA				

Surrogate	%REC	Limits
Dibromofluoromethane	101	85-115
1,2-Dichloroethane-d4	132 *	70-120
Toluene-d8	104	85-120
Bromofluorobenzene	90	75-120

*= Value outside of QC limits; see narrative
b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Initial & Continuing Calibration Data

CURTIS & TOMPKINS BFB TUNE FOR 259786 MSVOA Water
EPA 8260C

Inst : MSVOA08 Run Name : BFB IDF : 1.0
Seqnum : 474253910008 File : hfp08 Time : 25-JUN-2014 12:59

Standards: S24715

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	12264	24.56	
75	30% - 60% of mass 95	22536	45.13	
95		49936	100.00	
96	5% - 9% of mass 95	3172	6.35	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	33074	66.23	
175	5% - 9% of mass 174	2630	7.95	
176	> 95% and < 101% of mass 174	32085	97.01	
177	5% - 9% of mass 176	2187	6.82	

Analyst: DJA Date: 06/26/14 Reviewer: LW Date: 06/27/14

CURTIS & TOMPKINS BFB TUNE FOR 259786 MSVOA Water
EPA 8260C

Inst : MSVOA08 Run Name : BFB IDF : 1.0
Seqnum : 474327481003 File : hhf03 Time : 15-AUG-2014 12:01

Standards: S24715

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	5132	23.64	
75	30% - 60% of mass 95	9678	44.57	
95		21712	100.00	
96	5% - 9% of mass 95	1436	6.61	
173	< 2% of mass 174	83	0.65	
174	> 50% and < 100% of mass 95	12794	58.93	
175	5% - 9% of mass 174	667	5.21	
176	> 95% and < 101% of mass 174	12260	95.83	
177	5% - 9% of mass 176	813	6.63	

Analyst: DJA Date: 08/18/14 Reviewer: LW Date: 08/18/14

CURTIS & TOMPKINS BFB TUNE FOR 259786 MSVOA Water
EPA 8260C

Inst : MSVOA09 Run Name : BFB IDF : 1.0
Seqnum : 484219504002 File : if102 Time : 01-JUN-2014 10:56

Standards: S24715

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	33405	17.61	
75	30% - 60% of mass 95	75090	39.58	
95		189738	100.00	
96	5% - 9% of mass 95	12482	6.58	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	124576	65.66	
175	5% - 9% of mass 174	9197	7.38	
176	> 95% and < 101% of mass 174	122314	98.18	
177	5% - 9% of mass 176	8150	6.66	

Analyst: TEW Date: 06/02/14 Reviewer: LW Date: 06/03/14

CURTIS & TOMPKINS BFB TUNE FOR 259786 MSVOA Water
EPA 8260C

Inst : MSVOA09 Run Name : BFB IDF : 1.0
Seqnum : 484221233003 File : if203 Time : 02-JUN-2014 16:07

Standards: S24715

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	49216	19.27	
75	30% - 60% of mass 95	107514	42.10	
95		255402	100.00	
96	5% - 9% of mass 95	17584	6.88	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	158248	61.96	
175	5% - 9% of mass 174	11490	7.26	
176	> 95% and < 101% of mass 174	154986	97.94	
177	5% - 9% of mass 176	9951	6.42	

Analyst: TEW Date: 06/02/14 Reviewer: LW Date: 06/03/14

CURTIS & TOMPKINS BFB TUNE FOR 259786 MSVOA Water
EPA 8260C

Inst : MSVOA09 Run Name : BFB IDF : 1.0
Seqnum : 484331713002 File : ihi02 Time : 18-AUG-2014 10:18

Standards: S24715

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	32453	25.84	
75	30% - 60% of mass 95	62077	49.43	
95		125573	100.00	
96	5% - 9% of mass 95	8877	7.07	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	77002	61.32	
175	5% - 9% of mass 174	5487	7.13	
176	> 95% and < 101% of mass 174	75168	97.62	
177	5% - 9% of mass 176	4654	6.19	

Analyst: DJA Date: 08/18/14 Reviewer: LW Date: 08/19/14

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259786 MSVOA Water: EPA 8260C

Inst : MSVOA08 Name : 826GOX8
Calnum : 474253910001 Date : 25-JUN-2014 14:41 Type : WATER
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	hfp11	474253910011		25-JUN-2014 14:41	S23923 (2000000X), S24633 (2000000X), S24634 (2000000X), S23961 (1000000X), S24802 (5000X)
L2	hfp12	474253910012		25-JUN-2014 15:16	S23923 (1000000X), S24633 (1000000X), S24634 (1000000X), S23961 (500000X), S24802 (5000X)
L3	hfp13	474253910013		25-JUN-2014 15:51	S23923 (500000X), S24633 (250000X), S24634 (250000X), S23961 (250000X), S24802 (5000X)
L4	hfp14	474253910014		25-JUN-2014 16:25	S23923 (200000X), S24633 (100000X), S24634 (100000X), S23961 (100000X), S24802 (5000X)
L5	hfp15	474253910015		25-JUN-2014 17:00	S23923 (100000X), S24633 (50000X), S24634 (50000X), S23961 (50000X), S24802 (5000X)
L6	hfp16	474253910016		25-JUN-2014 17:35	S23923 (50000X), S24633 (25000X), S24634 (25000X), S23961 (25000X), S24802 (5000X)
L7	hfp17	474253910017		25-JUN-2014 18:09	S23923 (20000X), S24633 (10000X), S24634 (10000X), S23961 (10000X), S24802 (5000X)
L8	hfp18	474253910018		25-JUN-2014 18:44	S23923 (13330X), S24633 (6667X), S24634 (6667X), S23961 (6667X), S24802 (5000X)
L9	hfp19	474253910019		25-JUN-2014 19:19	S23923 (10000X), S24633 (5000X), S24634 (5000X), S23961 (5000X), S24802 (5000X)

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Freon 12		0.6474m	0.6457m	0.6131m	0.6202m	0.5440m	0.5896	0.5948	0.5887	AVRG		1.65166		0.6055	6	15	0.100	0.99	
Chloromethane	1.3194	1.2468	1.2408	1.2211	1.1748	1.1479	0.9956	0.9959	0.9170	AVRG		0.87726		1.1399	12	15	0.100	0.99	
Vinyl Chloride	0.8946	0.8785	0.8676m	0.8221	0.8016	0.8210	0.7456	0.7314	0.6815	AVRG		1.24244		0.8049	9	15	0.100	0.99	
Bromomethane		0.2877	0.3131	0.3186m	0.3482	0.3928	0.3950	0.4162	0.3970	AVRG		2.78887		0.3586	13	15	0.100	0.99	
Chloroethane		0.4689m	0.4528m	0.4470m	0.4341	0.4431	0.4011	0.4034	0.3785	AVRG		2.33301		0.4286	7	15	0.100	0.99	
Trichlorofluoromethane		0.6820	0.6652m	0.6268	0.6446	0.6012	0.5995	0.6069	0.5662	AVRG		1.60245		0.6240	6	15	0.100	0.99	
Acetone			0.1842m	0.1425	0.1529	0.1398	0.1598	0.1328	0.1617	AVRG		6.51866		0.1534	11	15	0.100	0.99	
Freon 113		0.4071	0.4642m	0.3250m	0.4674	0.3199m	0.4332m	0.4710	0.4514	AVRG		2.39589		0.4174	15	15	0.100	0.99	
1,1-Dichloroethene		0.6197	0.5891	0.5071	0.5686	0.5427	0.5307	0.5145	0.4947	AVRG		1.83186		0.5459	8	15	0.100	0.99	
Methylene Chloride		0.8157	0.7221	0.7256	0.7187	0.7204	0.6856	0.6480	0.6183	AVRG		1.41480		0.7068	8	15	0.100	0.99	
Carbon Disulfide		2.6969	2.3873	2.2269	2.3980	2.2822	2.0851	1.9477	1.8391	AVRG		0.44785		2.2329	12	15	0.100	0.99	
MTBE		1.4658	1.3953	1.3734	1.4375	1.3680	1.2935	1.2320	1.1769	AVRG		0.74471		1.3428	7	15	0.100	0.99	
trans-1,2-Dichloroethene		0.7317	0.6485	0.6544	0.6608	0.6474	0.6139	0.5863	0.5560	AVRG		1.56893		0.6374	8	15	0.100	0.99	
Vinyl Acetate	1.1460	1.0143	1.0905	1.0654	1.1096m	1.0606m				AVRG		0.92501		1.0811	4	15	0.05	0.99	
1,1-Dichloroethane		1.5024	1.4216	1.4307	1.4340	1.3596	1.2726	1.1682	1.0958	AVRG		0.74872		1.3356	11	15	0.200	0.99	
2-Butanone			0.2406	0.2195	0.2285	0.2212	0.2126	0.1899	0.1919	AVRG		4.65365		0.2149	9	15	0.100	0.99	
2,2-Dichloropropane		0.9247	0.7873	0.7361	0.7808	0.7502	0.7161	0.6851	0.6427	AVRG		1.32827		0.7529	11	15	0.05	0.99	
cis-1,2-Dichloroethene		0.7776	0.7503	0.7337	0.7342	0.7177	0.6786	0.6428	0.6155	AVRG		1.41582		0.7063	8	15	0.100	0.99	
Chloroform		1.2992	1.1407	1.1613	1.1555	1.1136	1.0445	0.9701	0.9136	AVRG		0.90925		1.0998	11	15	0.200	0.99	
Bromochloromethane		0.3244	0.3126	0.2985	0.3117	0.3116	0.3032	0.2901	0.2817	AVRG		3.28708		0.3042	5	15	0.05	0.99	
1,1,1-Trichloroethane		0.8080	0.7645	0.6998	0.7413	0.7242	0.6957	0.6854	0.6468	AVRG		1.38753		0.7207	7	15	0.100	0.99	
1,1-Dichloropropene		0.5173	0.5088	0.4463	0.4827	0.4673	0.4407	0.4295	0.4061	AVRG		2.16294		0.4623	8	15	0.05	0.99	
Carbon Tetrachloride		0.3814	0.3614	0.3181	0.3608	0.3472	0.3361	0.3439	0.3287	AVRG		2.88012		0.3472	6	15	0.100	0.99	
1,2-Dichloroethane		0.4736	0.4544	0.4463	0.4625	0.4411	0.4195	0.3999	0.3806	AVRG		2.30033		0.4347	7	15	0.100	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Benzene		1.6417	1.5712	1.5486	1.5263	1.4596	1.3051	1.2085	1.1259	AVRG		0.70256		1.4234	13	15	0.500	0.99	
Trichloroethene		0.3669	0.3694	0.3541	0.3658	0.3559	0.3505	0.3275	0.3360	AVRG		2.83077		0.3533	4	15	0.200	0.99	
1,2-Dichloropropane		0.4962	0.4949	0.4898	0.4899	0.4673	0.4334	0.4035	0.3786	AVRG		2.18958		0.4567	10	15	0.100	0.99	
Bromodichloromethane		0.5160	0.4911	0.4959	0.5006	0.4828	0.4621	0.4427	0.4233	AVRG		2.09725		0.4768	7	15	0.200	0.99	
Dibromomethane		0.2081	0.2097	0.2057	0.2119	0.2050	0.2015	0.1967	0.1918	AVRG		4.90693		0.2038	3	15	0.05	0.99	
4-Methyl-2-Pentanone			0.3004	0.3238	0.3195	0.3156	0.2974	0.2859	0.2813	AVRG		3.29589		0.3034	5	15	0.100	0.99	
cis-1,3-Dichloropropene		0.6280	0.6117	0.6205	0.6188	0.6026	0.5668	0.5317	0.5065	AVRG		1.70697		0.5858	8	15	0.200	0.99	
Toluene		1.1039	1.1013	1.0484	1.0637	1.0079	0.9443	0.9023	0.8520	AVRG		0.99703		1.0030	9	15	0.400	0.99	
trans-1,3-Dichloropropene		0.6190	0.5835	0.5883	0.6055	0.5848	0.5578	0.5258	0.5122	AVRG		1.74794		0.5721	7	15	0.100	0.99	
1,1,2-Trichloroethane		0.1980	0.1857	0.1802	0.1926	0.1837	0.1791	0.1764	0.1706	AVRG		5.45562		0.1833	5	15	0.100	0.99	
2-Hexanone			0.2523	0.2550	0.2610	0.2497	0.2493	0.2206	0.2233	AVRG		4.09083		0.2444	6	15	0.100	0.99	
1,3-Dichloropropane		0.6262	0.6098	0.6116	0.6320	0.6059	0.5733	0.5460	0.5206	AVRG		1.69295		0.5907	7	15	0.05	0.99	
Tetrachloroethene		0.3550	0.3429	0.2960	0.3250	0.3141	0.3168	0.3311	0.3246	AVRG		3.07020		0.3257	6	15	0.200	0.99	
Dibromochloromethane		0.3711	0.3359	0.3487	0.3710	0.3642	0.3622	0.3594	0.3535	AVRG		2.79158		0.3582	3	15	0.100	0.99	
1,2-Dibromoethane		0.3030	0.3192	0.3119	0.3318	0.3194	0.3114	0.3068	0.2957	AVRG		3.20108		0.3124	4	15	0.100	0.99	
Chlorobenzene		1.1321	1.1527	1.1178	1.1207	1.0651	0.9838	0.9287	0.8645	AVRG		0.95633		1.0457	10	15	0.500	0.99	
1,1,1,2-Tetrachloroethane		0.3590	0.3557	0.3612	0.3761	0.3593	0.3490	0.3378	0.3256	AVRG		2.83315		0.3530	4	15	0.05	0.99	
Ethylbenzene		2.0984	2.0048	1.9305	1.9340	1.7601	1.5414	1.4497		AVRG		0.55036		1.8170	13	15	0.100	0.99	
m,p-Xylenes	0.8761	0.7506	0.7201	0.7065m	0.7171m	0.6671m	0.6018m	0.5561m		AVRG		1.42974		0.6994	14	15	0.100	0.99	
o-Xylene		0.7322	0.7293	0.7282	0.7242	0.6960	0.6710	0.6454	0.6035	AVRG		1.44671		0.6912	7	15	0.300	0.99	
Styrene		1.2717	1.2462	1.2583	1.2498	1.1718	1.0752	0.9985	0.9216	AVRG		0.87022		1.1491	12	15	0.300	0.99	
Bromoform		0.1736	0.1756	0.1723	0.1825	0.1834	0.1854	0.1893	0.1906	AVRG		5.50697		0.1816	4	15	0.100	0.99	
Isopropylbenzene		3.9724	3.6415	3.5445	3.5397	3.2876	2.9503	2.8352	2.6354	AVRG		0.30295		3.3008	14	15	0.100	0.99	
1,1,2,2-Tetrachloroethane		0.8305	0.7578	0.7491	0.8108	0.7626	0.6866	0.7029	0.6196	AVRG		1.35138		0.7400	9	15	0.300	0.99	
1,2,3-Trichloropropane		0.1628	0.1768	0.1704	0.1785	0.1726	0.1675	0.1724	0.1729	AVRG		5.82290		0.1717	3	15	0.05	0.99	
Propylbenzene		4.8789	4.6047	4.3755	4.3775	3.9341	3.3880	3.1664	2.8620	QUAD	0.12772	0.20919	4.774E-4	3.9484	1.000	15	0.05	0.99	
Bromobenzene		0.8217	0.8242	0.8488	0.8508	0.8275	0.7974	0.7754	0.7441	AVRG		1.23268		0.8112	5	15	0.05	0.99	
1,3,5-Trimethylbenzene		3.0214	2.9611	2.8737	2.8774	2.6150	2.3163	2.2085	2.0063	AVRG		0.38315		2.6100	15	15	0.05	0.99	
2-Chlorotoluene		3.0886	3.1123	3.0882	3.0556	2.7853	2.4291	2.2711	2.0823	AVRG		0.36509		2.7391	15	15	0.05	0.99	
4-Chlorotoluene		2.9612	2.8636	2.7821	2.8035	2.6131	2.3460	2.2266	2.0954	AVRG		0.38663		2.5864	13	15	0.05	0.99	
tert-Butylbenzene		2.7837	2.5341	2.3986	2.4671	2.2869	2.1312	2.1279	1.9819	AVRG		0.42755		2.3389	11	15	0.05	0.99	
1,2,4-Trimethylbenzene		3.1366	2.9753	2.9295	2.9516	2.7062	2.4288	2.3084	2.1354	AVRG		0.37085		2.6965	14	15	0.05	0.99	
sec-Butylbenzene		3.9866	3.8745	3.4329	3.7000	3.2941	2.9994	3.0050	2.7604	AVRG		0.29572		3.3816	13	15	0.05	0.99	
para-Isopropyl Toluene		3.0288	2.8519	2.7189	2.8018	2.5829	2.3899	2.3761	2.1911	AVRG		0.38202		2.6177	11	15	0.05	0.99	
1,3-Dichlorobenzene		1.5268	1.5041	1.5082	1.5129	1.4382	1.3629	1.3405	1.2699	AVRG		0.69787		1.4329	7	15	0.600	0.99	
1,4-Dichlorobenzene		1.5565	1.4586	1.4654	1.4376	1.3920	1.3275	1.2894	1.2527	AVRG		0.71558		1.3975	7	15	0.500	0.99	
n-Butylbenzene		2.9724	2.6991	2.4476	2.5918	2.3197	2.0830	2.0897	1.9031	AVRG		0.41871		2.3883	15	15	0.05	0.99	
1,2-Dichlorobenzene		1.5091	1.4392	1.3999	1.4128	1.3656	1.2911	1.2675	1.2209	AVRG		0.73354		1.3633	7	15	0.400	0.99	
1,2-Dibromo-3-Chloropropane		0.1443	0.1114	0.1123	0.1160	0.1148	0.1091	0.1131	0.1110	AVRG		8.58337		0.1165	10	15	0.050	0.99	
1,2,4-Trichlorobenzene		0.7017	0.6379	0.6689	0.6762	0.6518	0.6426	0.6644	0.6597	AVRG		1.50851		0.6629	3	15	0.200	0.99	
Hexachlorobutadiene		0.2754	0.2626	0.2204	0.2455	0.2277	0.2373	0.2794	0.2795	AVRG		3.94527		0.2535	9	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene		1.6598	1.5074	1.5555	1.6165	1.6218	1.5232	1.5504	1.5295	AVRG		0.63674		1.5705	4	15	0.05	0.99	
1,2,3-Trichlorobenzene		0.6707	0.6108	0.6053	0.6064	0.6007	0.5938	0.6184	0.6179	AVRG		1.62472		0.6155	4	15	0.05	0.99	
Dibromofluoromethane	0.6044	0.6054	0.6067	0.6128	0.6044	0.6128	0.5990	0.5922	0.5763	AVRG		1.66235		0.6016	2	15	0.05	0.99	
1,2-Dichloroethane-d4	0.3281	0.3273	0.3323	0.3281	0.3209	0.3153	0.2870	0.2775	0.2631	AVRG		3.23785		0.3088	8	15	0.05	0.99	
Toluene-d8	1.2369	1.2517	1.2523	1.2441	1.2404	1.2418	1.2404	1.2551	1.2353	AVRG		0.80371		1.2442	1	15	0.05	0.99	
Bromofluorobenzene	1.1168	1.1206	1.1163	1.1291	1.1305	1.1246	1.1167	1.1241	1.1289	AVRG		0.89042		1.1231	1	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
Freon 12			1.0000	7	2.0000	7	5.0000	1	10.000	2	20.000	-10	50.000	-3	75.000	-2	100.00	-3
Chloromethane	0.5000	16	1.0000	9	2.0000	9	5.0000	7	10.000	3	20.000	1	50.000	-13	75.000	-13	100.00	-20
Vinyl Chloride	0.5000	11	1.0000	9	2.0000	8	5.0000	2	10.000	0	20.000	2	50.000	-7	75.000	-9	100.00	-15
Bromomethane			1.0000	-20	2.0000	-13	5.0000	-11	10.000	-3	20.000	10	50.000	10	75.000	16	100.00	11
Chloroethane			1.0000	9	2.0000	6	5.0000	4	10.000	1	20.000	3	50.000	-6	75.000	-6	100.00	-12
Trichlorofluoromethane			1.0000	9	2.0000	7	5.0000	0	10.000	3	20.000	-4	50.000	-4	75.000	-3	100.00	-9
Acetone					2.0000	20	5.0000	-7	10.000	0	20.000	-9	50.000	4	75.000	-13	100.00	5
Freon 113			0.5000	-2	2.0000	11	5.0000	**-22**	10.000	12	20.000	**-23**	50.000	4	75.000	13	100.00	8
1,1-Dichloroethene			0.5000	14	2.0000	8	5.0000	-7	10.000	4	20.000	-1	50.000	-3	75.000	-6	100.00	-9
Methylene Chloride			0.5000	15	2.0000	2	5.0000	3	10.000	2	20.000	2	50.000	-3	75.000	-8	100.00	-13
Carbon Disulfide			0.5000	**21**	2.0000	7	5.0000	0	10.000	7	20.000	2	50.000	-7	75.000	-13	100.00	-18
MTBE			0.5000	9	2.0000	4	5.0000	2	10.000	7	20.000	2	50.000	-4	75.000	-8	100.00	-12
trans-1,2-Dichloroethene			0.5000	15	2.0000	2	5.0000	3	10.000	4	20.000	2	50.000	-4	75.000	-8	100.00	-13
Vinyl Acetate	0.2500	6	0.5000	-6	2.0000	1	5.0000	-1	10.000	3	20.000	-2						
1,1-Dichloroethane			0.5000	12	2.0000	6	5.0000	7	10.000	7	20.000	2	50.000	-5	75.000	-13	100.00	-18
2-Butanone					2.0000	12	5.0000	2	10.000	6	20.000	3	50.000	-1	75.000	-12	100.00	-11
2,2-Dichloropropane			0.5000	**23**	2.0000	5	5.0000	-2	10.000	4	20.000	0	50.000	-5	75.000	-9	100.00	-15
cis-1,2-Dichloroethene			0.5000	10	2.0000	6	5.0000	4	10.000	4	20.000	2	50.000	-4	75.000	-9	100.00	-13
Chloroform			0.5000	18	2.0000	4	5.0000	6	10.000	5	20.000	1	50.000	-5	75.000	-12	100.00	-17
Bromochloromethane			0.5000	7	2.0000	3	5.0000	-2	10.000	2	20.000	2	50.000	0	75.000	-5	100.00	-7
1,1,1-Trichloroethane			0.5000	12	2.0000	6	5.0000	-3	10.000	3	20.000	0	50.000	-3	75.000	-5	100.00	-10
1,1-Dichloropropene			0.5000	12	2.0000	10	5.0000	-3	10.000	4	20.000	1	50.000	-5	75.000	-7	100.00	-12
Carbon Tetrachloride			0.5000	10	2.0000	4	5.0000	-8	10.000	4	20.000	0	50.000	-3	75.000	-1	100.00	-5
1,2-Dichloroethane			0.5000	9	2.0000	5	5.0000	3	10.000	6	20.000	1	50.000	-4	75.000	-8	100.00	-12
Benzene			0.5000	15	2.0000	10	5.0000	9	10.000	7	20.000	3	50.000	-8	75.000	-15	100.00	**-21**
Trichloroethene			0.5000	4	2.0000	5	5.0000	0	10.000	4	20.000	1	50.000	-1	75.000	-7	100.00	-5
1,2-Dichloropropane			0.5000	9	2.0000	8	5.0000	7	10.000	7	20.000	2	50.000	-5	75.000	-12	100.00	-17
Bromodichloromethane			0.5000	8	2.0000	3	5.0000	4	10.000	5	20.000	1	50.000	-3	75.000	-7	100.00	-11
Dibromomethane			0.5000	2	2.0000	3	5.0000	1	10.000	4	20.000	1	50.000	-1	75.000	-3	100.00	-6
4-Methyl-2-Pentanone					2.0000	-1	5.0000	7	10.000	5	20.000	4	50.000	-2	75.000	-6	100.00	-7
cis-1,3-Dichloropropene			0.5000	7	2.0000	4	5.0000	6	10.000	6	20.000	3	50.000	-3	75.000	-9	100.00	-14
Toluene			0.5000	10	2.0000	10	5.0000	5	10.000	6	20.000	0	50.000	-6	75.000	-10	100.00	-15
trans-1,3-Dichloropropene			0.5000	8	2.0000	2	5.0000	3	10.000	6	20.000	2	50.000	-3	75.000	-8	100.00	-10
1,1,2-Trichloroethane			0.5000	8	2.0000	1	5.0000	-2	10.000	5	20.000	0	50.000	-2	75.000	-4	100.00	-7
2-Hexanone					2.0000	3	5.0000	4	10.000	7	20.000	2	50.000	2	75.000	-10	100.00	-9
1,3-Dichloropropane			0.5000	6	2.0000	3	5.0000	4	10.000	7	20.000	3	50.000	-3	75.000	-8	100.00	-12
Tetrachloroethene			0.5000	9	2.0000	5	5.0000	-9	10.000	0	20.000	-4	50.000	-3	75.000	2	100.00	0
Dibromochloromethane			0.5000	4	2.0000	-6	5.0000	-3	10.000	4	20.000	2	50.000	1	75.000	0	100.00	-1
1,2-Dibromoethane			0.5000	-3	2.0000	2	5.0000	0	10.000	6	20.000	2	50.000	0	75.000	-2	100.00	-5
Chlorobenzene			0.5000	8	2.0000	10	5.0000	7	10.000	7	20.000	2	50.000	-6	75.000	-11	100.00	-17
1,1,1,2-Tetrachloroethane			0.5000	2	2.0000	1	5.0000	2	10.000	7	20.000	2	50.000	-1	75.000	-4	100.00	-8
Ethylbenzene			0.5000	15	2.0000	10	5.0000	6	10.000	6	20.000	-3	50.000	-15	75.000	-20		

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
m,p-Xylenes	0.5000	**25**	1.0000	7	4.0000	3	10.000	1	20.000	3	40.000	-5	100.00	-14	150.00	-20		
o-Xylene			0.5000	6	2.0000	6	5.0000	5	10.000	5	20.000	1	50.000	-3	75.000	-7	100.00	-13
Styrene			0.5000	11	2.0000	8	5.0000	9	10.000	9	20.000	2	50.000	-6	75.000	-13	100.00	-20
Bromoform			0.5000	-4	2.0000	-3	5.0000	-5	10.000	1	20.000	1	50.000	2	75.000	4	100.00	5
Isopropylbenzene			0.5000	20	2.0000	10	5.0000	7	10.000	7	20.000	0	50.000	-11	75.000	-14	100.00	-20
1,1,2,2-Tetrachloroethane			0.5000	12	2.0000	2	5.0000	1	10.000	10	20.000	3	50.000	-7	75.000	-5	100.00	-16
1,2,3-Trichloropropane			0.5000	-5	2.0000	3	5.0000	-1	10.000	4	20.000	1	50.000	-2	75.000	0	100.00	1
Propylbenzene			0.5000	**28**	2.0000	5	5.0000	-1	10.000	2	20.000	-2	50.000	-1	75.000	2	100.00	-1
Bromobenzene			0.5000	1	2.0000	2	5.0000	5	10.000	5	20.000	2	50.000	-2	75.000	-4	100.00	-8
1,3,5-Trimethylbenzene			0.5000	16	2.0000	13	5.0000	10	10.000	10	20.000	0	50.000	-11	75.000	-15	100.00	**-23**
2-Chlorotoluene			0.5000	13	2.0000	14	5.0000	13	10.000	12	20.000	2	50.000	-11	75.000	-17	100.00	**-24**
4-Chlorotoluene			0.5000	14	2.0000	11	5.0000	8	10.000	8	20.000	1	50.000	-9	75.000	-14	100.00	-19
tert-Butylbenzene			0.5000	19	2.0000	8	5.0000	3	10.000	5	20.000	-2	50.000	-9	75.000	-9	100.00	-15
1,2,4-Trimethylbenzene			0.5000	16	2.0000	10	5.0000	9	10.000	9	20.000	0	50.000	-10	75.000	-14	100.00	**-21**
sec-Butylbenzene			0.5000	18	2.0000	15	5.0000	2	10.000	9	20.000	-3	50.000	-11	75.000	-11	100.00	-18
para-Isopropyl Toluene			0.5000	16	2.0000	9	5.0000	4	10.000	7	20.000	-1	50.000	-9	75.000	-9	100.00	-16
1,3-Dichlorobenzene			0.5000	7	2.0000	5	5.0000	5	10.000	6	20.000	0	50.000	-5	75.000	-6	100.00	-11
1,4-Dichlorobenzene			0.5000	11	2.0000	4	5.0000	5	10.000	3	20.000	0	50.000	-5	75.000	-8	100.00	-10
n-Butylbenzene			0.5000	**24**	2.0000	13	5.0000	2	10.000	9	20.000	-3	50.000	-13	75.000	-13	100.00	-20
1,2-Dichlorobenzene			0.5000	11	2.0000	6	5.0000	3	10.000	4	20.000	0	50.000	-5	75.000	-7	100.00	-10
1,2-Dibromo-3-Chloropropane			0.5000	**24**	2.0000	-4	5.0000	-4	10.000	0	20.000	-1	50.000	-6	75.000	-3	100.00	-5
1,2,4-Trichlorobenzene			0.5000	6	2.0000	-4	5.0000	1	10.000	2	20.000	-2	50.000	-3	75.000	0	100.00	0
Hexachlorobutadiene			0.5000	9	2.0000	4	5.0000	-13	10.000	-3	20.000	-10	50.000	-6	75.000	10	100.00	10
Naphthalene			0.5000	6	2.0000	-4	5.0000	-1	10.000	3	20.000	3	50.000	-3	75.000	-1	100.00	-3
1,2,3-Trichlorobenzene			0.5000	9	2.0000	-1	5.0000	-2	10.000	-1	20.000	-2	50.000	-4	75.000	0	100.00	0
Dibromofluoromethane	50.000	0	50.000	1	50.000	1	50.000	2	50.000	0	50.000	2	50.000	0	50.000	-2	50.000	-4
1,2-Dichloroethane-d4	50.000	6	50.000	6	50.000	8	50.000	6	50.000	4	50.000	2	50.000	-7	50.000	-10	50.000	-15
Toluene-d8	50.000	-1	50.000	1	50.000	1	50.000	0	50.000	0	50.000	0	50.000	0	50.000	1	50.000	-1
Bromofluorobenzene	50.000	-1	50.000	0	50.000	-1	50.000	1	50.000	1	50.000	0	50.000	-1	50.000	0	50.000	1

DJA 06/26/14 [Freon 12]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [Chloroethane]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [Freon 113]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [Isopropanol]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [Vinyl Acetate]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [m,p-Xylenes]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [Vinyl Chloride]: Corrected fronting or tailing peak integration in (hfp13).

DJA 06/26/14 [Trichlorofluoromethane]: Corrected fronting or tailing peak integration in (hfp13).

DJA 06/26/14 [Acetone]: Corrected fronting or tailing peak integration in (hfp13).

DJA 06/26/14 [tert-Butyl Alcohol (TBA)]: Corrected fronting or tailing peak integration in (hfp13).

DJA 06/26/14 [Bromomethane]: Corrected fronting or tailing peak integration in (hfp14).

Analyst: DJA Date: 06/26/14 Reviewer: LW Date: 06/27/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; QUAD=Quadratic regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259786 MSVOA Water
EPA 8260C

Inst : MSVOA08 Name : 826GOX8
Calnum : 474253910001 Cal Date : 25-JUN-2014 Type : WATER

ICV 474253910020 (hfp20 25-JUN-2014) stds: S24242 (10000X), S24802 (5000X)
ICV 474253910021 (hfp21 25-JUN-2014) stds: S24731 (10000X), S24892 (10000X), S24848 (10000X), S24802 (5000X)

Analyte	ICV Seqnum	Spiked	Quant	Units	%D	Max	Flags
Freon 12	474253910020	20.00	20.50	ug/L	2	20	m
Chloromethane	474253910020	20.00	18.24	ug/L	-9	20	m
Vinyl Chloride	474253910020	20.00	18.52	ug/L	-7	20	m
Bromomethane	474253910020	20.00	19.38	ug/L	-3	20	m
Chloroethane	474253910020	20.00	18.12	ug/L	-9	20	m
Trichlorofluoromethane	474253910020	20.00	20.25	ug/L	1	20	m
Acetone	474253910021	25.00	29.16	ug/L	17	20	
Freon 113	474253910021	25.00	24.60	ug/L	-2	20	m
1,1-Dichloroethene	474253910021	25.00	26.71	ug/L	7	20	
Methylene Chloride	474253910021	25.00	26.62	ug/L	6	20	
Carbon Disulfide	474253910021	25.00	25.50	ug/L	2	20	
MTBE	474253910021	25.00	25.13	ug/L	1	20	
trans-1,2-Dichloroethene	474253910021	25.00	26.40	ug/L	6	20	
Vinyl Acetate	474253910021	25.00	16.07	ug/L	**-36**	20	v- ***
1,1-Dichloroethane	474253910021	25.00	26.40	ug/L	6	20	
2-Butanone	474253910021	25.00	27.51	ug/L	10	20	
2,2-Dichloropropane	474253910021	25.00	25.73	ug/L	3	20	
cis-1,2-Dichloroethene	474253910021	25.00	26.69	ug/L	7	20	
Chloroform	474253910021	25.00	26.23	ug/L	5	20	
Bromochloromethane	474253910021	25.00	27.25	ug/L	9	20	
1,1,1-Trichloroethane	474253910021	25.00	27.45	ug/L	10	20	
1,1-Dichloropropene	474253910021	25.00	28.57	ug/L	14	20	
Carbon Tetrachloride	474253910021	25.00	28.23	ug/L	13	20	
1,2-Dichloroethane	474253910021	25.00	26.07	ug/L	4	20	
Benzene	474253910021	25.00	26.61	ug/L	6	20	
Trichloroethene	474253910021	25.00	28.87	ug/L	15	20	
1,2-Dichloropropane	474253910021	25.00	26.23	ug/L	5	20	
Bromodichloromethane	474253910021	25.00	26.37	ug/L	5	20	
Dibromomethane	474253910021	25.00	26.88	ug/L	8	20	
4-Methyl-2-Pentanone	474253910021	25.00	26.06	ug/L	4	20	
cis-1,3-Dichloropropene	474253910021	25.00	27.93	ug/L	12	20	
Toluene	474253910021	25.00	26.83	ug/L	7	20	
trans-1,3-Dichloropropene	474253910021	25.00	26.09	ug/L	4	20	
1,1,2-Trichloroethane	474253910021	25.00	26.29	ug/L	5	20	
2-Hexanone	474253910021	25.00	29.34	ug/L	17	20	
1,3-Dichloropropane	474253910021	25.00	26.48	ug/L	6	20	
Tetrachloroethene	474253910021	25.00	27.80	ug/L	11	20	
Dibromochloromethane	474253910021	25.00	27.07	ug/L	8	20	
1,2-Dibromoethane	474253910021	25.00	27.04	ug/L	8	20	
Chlorobenzene	474253910021	25.00	27.76	ug/L	11	20	
1,1,1,2-Tetrachloroethane	474253910021	25.00	27.12	ug/L	8	20	
Ethylbenzene	474253910021	25.00	25.71	ug/L	3	20	
m,p-Xylenes	474253910021	50.00	51.28	ug/L	3	20	
o-Xylene	474253910021	25.00	28.38	ug/L	14	20	
Styrene	474253910021	25.00	27.13	ug/L	9	20	
Bromoform	474253910021	25.00	27.40	ug/L	10	20	
Isopropylbenzene	474253910021	25.00	27.90	ug/L	12	20	

Analyte	ICV Seqnum	Spiked	Quant	Units	%D	Max	Flags
1,1,2,2-Tetrachloroethane	474253910021	25.00	24.73	ug/L	-1	20	
1,2,3-Trichloropropane	474253910021	25.00	26.43	ug/L	6	20	
Propylbenzene	474253910021	25.00	28.09	ug/L	12	20	
Bromobenzene	474253910021	25.00	27.41	ug/L	10	20	
1,3,5-Trimethylbenzene	474253910021	25.00	27.79	ug/L	11	20	
2-Chlorotoluene	474253910021	25.00	28.39	ug/L	14	20	
4-Chlorotoluene	474253910021	25.00	27.37	ug/L	9	20	
tert-Butylbenzene	474253910021	25.00	28.54	ug/L	14	20	
1,2,4-Trimethylbenzene	474253910021	25.00	26.78	ug/L	7	20	
sec-Butylbenzene	474253910021	25.00	28.54	ug/L	14	20	
para-Isopropyl Toluene	474253910021	25.00	27.47	ug/L	10	20	
1,3-Dichlorobenzene	474253910021	25.00	27.90	ug/L	12	20	
1,4-Dichlorobenzene	474253910021	25.00	26.78	ug/L	7	20	
n-Butylbenzene	474253910021	25.00	26.29	ug/L	5	20	
1,2-Dichlorobenzene	474253910021	25.00	27.65	ug/L	11	20	
1,2-Dibromo-3-Chloropropane	474253910021	25.00	24.97	ug/L	0	20	
1,2,4-Trichlorobenzene	474253910021	25.00	26.55	ug/L	6	20	
Hexachlorobutadiene	474253910021	25.00	26.33	ug/L	5	20	
Naphthalene	474253910021	25.00	27.23	ug/L	9	20	
1,2,3-Trichlorobenzene	474253910021	25.00	26.21	ug/L	5	20	

474253910020: Analyst: DJA Date: 06/26/14 Reviewer: LW Date: 06/27/14
474253910021: Analyst: DJA Date: 06/26/14 Reviewer: LW Date: 06/27/14

-=low bias m=manual integration v=ICV

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259786 MSVOA Water: EPA 8260C

Inst : MSVOA09 Name : 826GOX9W
Calnum : 484219504001 Date : 01-JUN-2014 12:39 Type : WATER
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	if105	484219504005	.25/.5PPB	01-JUN-2014 12:39	S24634 (2000000X), S24633 (2000000X), S23961 (1000000X), S24793 (5000X)
L2	if106	484219504006	0.5/1PPB	01-JUN-2014 13:11	S24634 (1000000X), S23491 (1000000X), S24633 (1000000X), S23961 (500000X), S24793 (5000X)
L3	if107	484219504007	2PPB	01-JUN-2014 13:44	S23491 (500000X), S24634 (250000X), S23961 (250000X), S24633 (250000X), S24793 (5000X)
L4	if108	484219504008	5PPB	01-JUN-2014 14:17	S23491 (200000X), S24634 (100000X), S23961 (100000X), S24633 (100000X), S24793 (5000X)
L5	if109	484219504009	10PPB	01-JUN-2014 14:50	S23491 (100000X), S24634 (50000X), S23961 (50000X), S24633 (50000X), S24793 (5000X)
L6	if110	484219504010	20PPB	01-JUN-2014 15:23	S23491 (50000X), S24634 (25000X), S23961 (25000X), S24633 (25000X), S24793 (5000X)
L7	if111	484219504011	50PPB	01-JUN-2014 15:56	S23491 (20000X), S24634 (10000X), S23961 (10000X), S24633 (10000X), S24793 (5000X)
L8	if112	484219504012	75PPB	01-JUN-2014 16:29	S23491 (13330X), S24634 (6667X), S23961 (6667X), S24633 (6667X), S24793 (5000X)
L9	if113	484219504013	100PPB	01-JUN-2014 17:02	S23491 (10000X), S24634 (5000X), S23961 (5000X), S24633 (5000X), S24793 (5000X)

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Freon 12		0.6323m	0.6058m	0.6189m	0.6757m	0.6244m	0.5997m	0.5861m	0.4995m	AVRG		1.65207		0.6053	8	15	0.100	0.99	
Chloromethane	0.7054	0.7158m	0.6612m	0.7054m	0.8254m	0.7413m	0.6768m	0.7114m	0.6536m	AVRG		1.40708		0.7107	7	15	0.100	0.99	
Vinyl Chloride	0.4272	0.4859m	0.4785	0.4722m	0.5838m	0.5094m	0.4852m	0.4757m	0.4096m	AVRG		2.07971		0.4808	10	15	0.100	0.99	
Bromomethane		0.0938	0.0934	0.0996	0.1296m	0.1625m	0.1792m	0.1949m	0.1787m	QUAD	2.12702	5.02235	0.017745	0.1415	0.997	15	0.100	0.99	
Chloroethane		0.2951m	0.2478m	0.2883	0.3447	0.2964m	0.2685m	0.2682m	0.2380m	AVRG		3.56016		0.2809	12	15	0.100	0.99	
Trichlorofluoromethane		0.6608	0.6728	0.6958	0.7955m	0.7397m	0.6991m	0.7039m	0.5933m	AVRG		1.43866		0.6951	8	15	0.100	0.99	
Acetone				0.1812	0.1529	0.1231	0.1142	0.1075	0.1066	QUAD	-3.7958	9.34871	0.039348	0.1309	1.000	15	0.100	0.99	
Freon 113		0.3898	0.3252	0.3623	0.4136	0.4062	0.4075	0.3968	0.3381	AVRG		2.63200		0.3799	9	15	0.100	0.99	
1,1-Dichloroethene		0.4994	0.4351	0.4260	0.4948	0.4470	0.4488	0.4290	0.3724	AVRG		2.25188		0.4441	9	15	0.100	0.99	
Methylene Chloride		0.6540	0.6105	0.6056	0.6628	0.6228	0.6301	0.6176	0.5489	AVRG		1.61547		0.6190	6	15	0.100	0.99	
Carbon Disulfide		1.8289	1.6980	1.7283	2.0348	1.8120	1.7849	1.7342	1.4724	AVRG		0.56764		1.7617	9	15	0.100	0.99	
MTBE		1.1046	1.1118	1.1679	1.2610	1.2510	1.2445	1.1925	1.1398	AVRG		0.84451		1.1841	5	15	0.100	0.99	
trans-1,2-Dichloroethene		0.5005	0.4861	0.5030	0.5825	0.5302	0.5093	0.5034	0.4389	AVRG		1.97342		0.5067	8	15	0.100	0.99	
Vinyl Acetate			0.9045	0.8226	1.0173	0.9371	0.9937	0.9424	0.9259	AVRG		1.06976		0.9348	7	15	0.05	0.99	
1,1-Dichloroethane		1.1193	1.0720	1.0922	1.2373	1.1476	1.1405	1.0858	0.9495	AVRG		0.90455		1.1055	7	15	0.200	0.99	
2-Butanone			0.1564	0.1594	0.1873	0.1796	0.1867	0.1830	0.1822	AVRG		5.66947		0.1764	7	15	0.100	0.99	
2,2-Dichloropropane		0.6370	0.6409	0.6408	0.7448	0.6931	0.6885	0.6611	0.5679	AVRG		1.51684		0.6593	8	15	0.05	0.99	
cis-1,2-Dichloroethene		0.6231	0.5616	0.5830	0.6527	0.6144	0.6124	0.5861	0.5233	AVRG		1.68188		0.5946	7	15	0.100	0.99	
Chloroform		1.1774	0.9745	0.9891	1.0809	1.0263	1.0083	0.9530	0.8473	AVRG		0.99295		1.0071	10	15	0.200	0.99	
Bromochloromethane		0.1950	0.2265	0.2346	0.2633	0.2635	0.2652	0.2549	0.2300	AVRG		4.13840		0.2416	10	15	0.05	0.99	
1,1,1-Trichloroethane		0.7016	0.6782	0.6641	0.7599	0.7119	0.6834	0.6574	0.5475	AVRG		1.48039		0.6755	9	15	0.100	0.99	
1,1-Dichloropropene		0.3975	0.3307	0.3386	0.3812	0.3572	0.3385	0.3354	0.2721	AVRG		2.90788		0.3439	11	15	0.05	0.99	
Carbon Tetrachloride		0.2890	0.2718	0.2740	0.3242	0.3025	0.3006	0.2988	0.2435	AVRG		3.47157		0.2881	9	15	0.100	0.99	
1,2-Dichloroethane		0.2649	0.2927	0.2828	0.3181	0.3176	0.3057	0.2910	0.2502	AVRG		3.44378		0.2904	8	15	0.100	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Benzene		1.1778	1.0763	1.0995	1.2381	1.2043	1.1356	1.0786	0.8789	AVRG		0.89998		1.1111	10	15	0.500	0.99	
Trichloroethene		0.3081	0.2580	0.2715	0.3019	0.2933	0.2811	0.2758	0.2303	AVRG		3.60324		0.2775	9	15	0.200	0.99	
1,2-Dichloropropane		0.3784	0.3358	0.3515	0.3897	0.3733	0.3631	0.3376	0.2939	AVRG		2.83386		0.3529	9	15	0.100	0.99	
Bromodichloromethane		0.3914	0.3773	0.3872	0.4255	0.4172	0.4042	0.3988	0.3455	AVRG		2.54196		0.3934	6	15	0.200	0.99	
Dibromomethane		0.1467	0.1569	0.1642	0.1868	0.1804	0.1779	0.1681	0.1509	AVRG		6.00607		0.1665	9	15	0.05	0.99	
4-Methyl-2-Pentanone			0.2258	0.2278	0.2386	0.2449	0.2385	0.2367	0.2177	AVRG		4.29405		0.2329	4	15	0.100	0.99	
cis-1,3-Dichloropropene		0.4474	0.4236	0.4532	0.4831	0.4824	0.4702	0.4466	0.3825	AVRG		2.22896		0.4486	7	15	0.200	0.99	
Toluene		0.7263	0.6797	0.6939	0.8024	0.7668	0.7189	0.7444	0.5749	AVRG		1.40172		0.7134	10	15	0.400	0.99	
trans-1,3-Dichloropropene		0.3993	0.3867	0.4012	0.4413	0.4328	0.4274	0.4413	0.3753	AVRG		2.42029		0.4132	6	15	0.100	0.99	
1,1,2-Trichloroethane		0.1426	0.1404	0.1429	0.1579	0.1566	0.1464	0.1540	0.1329	AVRG		6.81573		0.1467	6	15	0.100	0.99	
2-Hexanone			0.1429	0.1562	0.1852	0.1910	0.1829	0.1909	0.1657	AVRG		5.76244		0.1735	11	15	0.100	0.99	
1,3-Dichloropropane		0.4371	0.4444	0.4344	0.4800	0.4705	0.4403	0.4628	0.3859	AVRG		2.25008		0.4444	7	15	0.05	0.99	
Tetrachloroethene		0.2265	0.2033	0.2121	0.2544	0.2344	0.2238	0.2307	0.1903	AVRG		4.50596		0.2219	9	15	0.200	0.99	
Dibromochloromethane		0.2622	0.2458	0.2616	0.2919	0.3000	0.2942	0.3028	0.2592	AVRG		3.60744		0.2772	8	15	0.100	0.99	
1,2-Dibromoethane		0.2176	0.2422	0.2354	0.2556	0.2490	0.2521	0.2614	0.2292	AVRG		4.11824		0.2428	6	15	0.100	0.99	
Chlorobenzene		0.7333	0.6847	0.6958	0.7772	0.7717	0.7399	0.7321	0.5984	AVRG		1.39539		0.7166	8	15	0.500	0.99	
1,1,1,2-Tetrachloroethane		0.2558	0.2450	0.2476	0.2780	0.2772	0.2592	0.2561	0.2121	AVRG		3.93883		0.2539	8	15	0.05	0.99	
Ethylbenzene		1.3197	1.2404	1.2498	1.4399	1.3513	1.2179	1.1855	0.9551	AVRG		0.80324		1.2450	11	15	0.100	0.99	
m,p-Xylenes	0.3553	0.4203	0.4200	0.4341	0.4949	0.4559	0.4067	0.3638	0.2849	AVRG		2.47519		0.4040	15	15	0.100	0.99	
o-Xylene		0.4526	0.4422	0.4526	0.4835	0.4732	0.4766	0.4580	0.3670	AVRG		2.21866		0.4507	8	15	0.300	0.99	
Styrene		0.7639	0.7469	0.7682	0.8685	0.8405	0.8058	0.7597	0.6085	AVRG		1.29828		0.7703	10	15	0.300	0.99	
Bromoform		0.1411	0.1352	0.1341	0.1549	0.1596	0.1556	0.1638	0.1422	AVRG		6.74218		0.1483	8	15	0.100	0.99	
Isopropylbenzene		2.5188	2.4020	2.4437	2.8242	2.6021	2.4939	2.3936	1.9860	AVRG		0.40683		2.4580	10	15	0.100	0.99	
1,1,2,2-Tetrachloroethane		0.6160	0.6176	0.6380	0.6835	0.6871	0.6804	0.6794	0.6208	AVRG		1.53176		0.6528	5	15	0.300	0.99	
1,2,3-Trichloropropane		0.1239	0.1271	0.1341	0.1425	0.1407	0.1349	0.1294	0.1165	AVRG		7.62546		0.1311	7	15	0.05	0.99	
Propylbenzene		3.2443	2.8182	2.9542	3.3293	3.0242	2.9234	2.6221	2.1077	AVRG		0.34747		2.8779	13	15	0.05	0.99	
Bromobenzene		0.6415	0.6181	0.5908	0.6542	0.6358	0.6387	0.6132	0.5060	AVRG		1.63323		0.6123	8	15	0.05	0.99	
1,3,5-Trimethylbenzene		1.8585	1.7719	1.8543	2.0030	1.9273	1.8264	1.6085	1.3025	AVRG		0.56527		1.7691	12	15	0.05	0.99	
2-Chlorotoluene		2.2414	2.0030	2.0755	2.2360	2.1273	1.9583	1.7169	1.3664	AVRG		0.50875		1.9656	15	15	0.05	0.99	
4-Chlorotoluene		2.0173	1.8584	1.8182	2.0200	1.8763	1.8017	1.7382	1.4071	AVRG		0.55031		1.8171	11	15	0.05	0.99	
tert-Butylbenzene		1.6031	1.4630	1.5328	1.7644	1.5854	1.5969	1.5815	1.3152	AVRG		0.64297		1.5553	8	15	0.05	0.99	
1,2,4-Trimethylbenzene		1.7820	1.6856	1.7087	1.9203	1.8246	1.7722	1.7250	1.4462	AVRG		0.57701		1.7331	8	15	0.05	0.99	
sec-Butylbenzene		2.3272	2.1469	2.3154	2.6951	2.3734	2.4012	2.3075	1.8908	AVRG		0.43343		2.3072	10	15	0.05	0.99	
para-Isopropyl Toluene		1.5461	1.5468	1.5218	1.8117	1.6774	1.6952	1.6669	1.4186	AVRG		0.62091		1.6105	8	15	0.05	0.99	
1,3-Dichlorobenzene		1.0331	0.9538	0.9913	1.0478	1.0204	1.0190	1.0058	0.8457	AVRG		1.01050		0.9896	7	15	0.600	0.99	
1,4-Dichlorobenzene		0.9746	0.9220	0.9150	1.0161	0.9837	0.9641	0.9534	0.8180	AVRG		1.06005		0.9434	6	15	0.500	0.99	
n-Butylbenzene		1.2231	1.2233	1.3038	1.5370	1.4691	1.4989	1.4600	1.2690	AVRG		0.72832		1.3730	10	15	0.05	0.99	
1,2-Dichlorobenzene		0.9613	0.8956	0.9171	1.0128	1.0058	1.0057	1.0041	0.8708	AVRG		1.04261		0.9591	6	15	0.400	0.99	
1,2-Dibromo-3-Chloropropane		0.1057	0.0854	0.0804	0.0853	0.0837	0.0909	0.0949	0.0896	AVRG		11.1718		0.0895	9	15	0.050	0.99	
1,2,4-Trichlorobenzene		0.3012	0.2900	0.3449	0.3962	0.4127	0.4443	0.4541	0.4336	QUAD	1.16595	2.10373	0.003515	0.3846	0.999	15	0.200	0.99	
Hexachlorobutadiene		0.1554	0.1595	0.1745	0.2086	0.1814	0.1955	0.1988	0.1760	AVRG		5.51847		0.1812	10	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene			0.7032	0.7787	0.8891	0.9363	0.9621	0.9937	0.9173	AVRG		1.13260		0.8829	12	15	0.05	0.99	
1,2,3-Trichlorobenzene		0.2344	0.2815	0.3235	0.3585	0.3849	0.4229	0.4309	0.3924	QUAD	1.62687	2.04166	0.010458	0.3536	0.998	15	0.05	0.99	
Dibromofluoromethane	0.6715	0.6711	0.6713	0.6727	0.6713	0.6749	0.6610	0.6379	0.6429	AVRG		1.50640		0.6638	2	15	0.05	0.99	
1,2-Dichloroethane-d4	0.3119	0.3058	0.3010	0.2990	0.3020	0.3113	0.2896	0.2731	0.2676	AVRG		3.38164		0.2957	5	15	0.05	0.99	
Toluene-d8	1.3144	1.2743	1.2989	1.2859	1.3209	1.3100	1.2917	1.3129	1.2703	AVRG		0.77060		1.2977	1	15	0.05	0.99	
Bromofluorobenzene	1.1953	1.2077	1.2281	1.2149	1.1774	1.2017	1.2140	1.2285	1.2272	AVRG		0.82608		1.2105	1	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
Freon 12			1.0000	4	2.0000	0	5.0000	2	10.000	12	20.000	3	50.000	-1	75.000	-3	100.00	-17
Chloromethane	0.5000	-1	1.0000	1	2.0000	-7	5.0000	-1	10.000	16	20.000	4	50.000	-5	75.000	0	100.00	-8
Vinyl Chloride	0.5000	-11	1.0000	1	2.0000	0	5.0000	-2	10.000	**21**	20.000	6	50.000	1	75.000	-1	100.00	-15
Bromomethane			1.0000	**160**	2.0000	**53**	5.0000	-7	10.000	-13	20.000	-7	50.000	-3	75.000	6	100.00	-2
Chloroethane			1.0000	5	2.0000	-12	5.0000	3	10.000	**23**	20.000	6	50.000	-4	75.000	-5	100.00	-15
Trichlorofluoromethane			1.0000	-5	2.0000	-3	5.0000	0	10.000	14	20.000	6	50.000	1	75.000	1	100.00	-15
Acetone							5.0000	-6	10.000	6	20.000	-3	50.000	2	75.000	-1	100.00	0
Freon 113			0.5000	3	2.0000	-14	5.0000	-5	10.000	9	20.000	7	50.000	7	75.000	4	100.00	-11
1,1-Dichloroethene			0.5000	12	2.0000	-2	5.0000	-4	10.000	11	20.000	1	50.000	1	75.000	-3	100.00	-16
Methylene Chloride			0.5000	6	2.0000	-1	5.0000	-2	10.000	7	20.000	1	50.000	2	75.000	0	100.00	-11
Carbon Disulfide			0.5000	4	2.0000	-4	5.0000	-2	10.000	16	20.000	3	50.000	1	75.000	-2	100.00	-16
MTBE			0.5000	-7	2.0000	-6	5.0000	-1	10.000	6	20.000	6	50.000	5	75.000	1	100.00	-4
trans-1,2-Dichloroethene			0.5000	-1	2.0000	-4	5.0000	-1	10.000	15	20.000	5	50.000	0	75.000	-1	100.00	-13
Vinyl Acetate					2.0000	-3	5.0000	-12	10.000	9	20.000	0	50.000	6	75.000	1	100.00	-1
1,1-Dichloroethane			0.5000	1	2.0000	-3	5.0000	-1	10.000	12	20.000	4	50.000	3	75.000	-2	100.00	-14
2-Butanone					2.0000	-11	5.0000	-10	10.000	6	20.000	2	50.000	6	75.000	4	100.00	3
2,2-Dichloropropane			0.5000	-3	2.0000	-3	5.0000	-3	10.000	13	20.000	5	50.000	4	75.000	0	100.00	-14
cis-1,2-Dichloroethene			0.5000	5	2.0000	-6	5.0000	-2	10.000	10	20.000	3	50.000	3	75.000	-1	100.00	-12
Chloroform			0.5000	17	2.0000	-3	5.0000	-2	10.000	7	20.000	2	50.000	0	75.000	-5	100.00	-16
Bromochloromethane			0.5000	-19	2.0000	-6	5.0000	-3	10.000	9	20.000	9	50.000	10	75.000	5	100.00	-5
1,1,1-Trichloroethane			0.5000	4	2.0000	0	5.0000	-2	10.000	12	20.000	5	50.000	1	75.000	-3	100.00	-19
1,1-Dichloropropene			0.5000	16	2.0000	-4	5.0000	-2	10.000	11	20.000	4	50.000	-2	75.000	-2	100.00	**-21**
Carbon Tetrachloride			0.5000	0	2.0000	-6	5.0000	-5	10.000	13	20.000	5	50.000	4	75.000	4	100.00	-15
1,2-Dichloroethane			0.5000	-9	2.0000	1	5.0000	-3	10.000	10	20.000	9	50.000	5	75.000	0	100.00	-14
Benzene			0.5000	6	2.0000	-3	5.0000	-1	10.000	11	20.000	8	50.000	2	75.000	-3	100.00	**-21**
Trichloroethene			0.5000	11	2.0000	-7	5.0000	-2	10.000	9	20.000	6	50.000	1	75.000	-1	100.00	-17
1,2-Dichloropropane			0.5000	7	2.0000	-5	5.0000	0	10.000	10	20.000	6	50.000	3	75.000	-4	100.00	-17
Bromodichloromethane			0.5000	-1	2.0000	-4	5.0000	-2	10.000	8	20.000	6	50.000	3	75.000	1	100.00	-12
Dibromomethane			0.5000	-12	2.0000	-6	5.0000	-1	10.000	12	20.000	8	50.000	7	75.000	1	100.00	-9
4-Methyl-2-Pentanone					2.0000	-3	5.0000	-2	10.000	2	20.000	5	50.000	2	75.000	2	100.00	-7
cis-1,3-Dichloropropene			0.5000	0	2.0000	-6	5.0000	1	10.000	8	20.000	8	50.000	5	75.000	0	100.00	-15
Toluene			0.5000	2	2.0000	-5	5.0000	-3	10.000	12	20.000	7	50.000	1	75.000	4	100.00	-19
trans-1,3-Dichloropropene			0.5000	-3	2.0000	-6	5.0000	-3	10.000	7	20.000	5	50.000	3	75.000	7	100.00	-9
1,1,2-Trichloroethane			0.5000	-3	2.0000	-4	5.0000	-3	10.000	8	20.000	7	50.000	0	75.000	5	100.00	-9
2-Hexanone					2.0000	-18	5.0000	-10	10.000	7	20.000	10	50.000	5	75.000	10	100.00	-5
1,3-Dichloropropane			0.5000	-2	2.0000	0	5.0000	-2	10.000	8	20.000	6	50.000	-1	75.000	4	100.00	-13
Tetrachloroethene			0.5000	2	2.0000	-8	5.0000	-4	10.000	15	20.000	6	50.000	1	75.000	4	100.00	-14
Dibromochloromethane			0.5000	-5	2.0000	-11	5.0000	-6	10.000	5	20.000	8	50.000	6	75.000	9	100.00	-7
1,2-Dibromoethane			0.5000	-10	2.0000	0	5.0000	-3	10.000	5	20.000	3	50.000	4	75.000	8	100.00	-6
Chlorobenzene			0.5000	2	2.0000	-4	5.0000	-3	10.000	8	20.000	8	50.000	3	75.000	2	100.00	-17
1,1,1,2-Tetrachloroethane			0.5000	1	2.0000	-3	5.0000	-2	10.000	9	20.000	9	50.000	2	75.000	1	100.00	-16
Ethylbenzene			0.5000	6	2.0000	0	5.0000	0	10.000	16	20.000	9	50.000	-2	75.000	-5	100.00	**-23**

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
m,p-Xylenes	0.5000	-12	1.0000	4	4.0000	4	10.000	7	20.000	**23**	40.000	13	100.00	1	150.00	-10	200.00	**-29**
o-Xylene			0.5000	0	2.0000	-2	5.0000	0	10.000	7	20.000	5	50.000	6	75.000	2	100.00	-19
Styrene			0.5000	-1	2.0000	-3	5.0000	0	10.000	13	20.000	9	50.000	5	75.000	-1	100.00	**-21**
Bromoform			0.5000	-5	2.0000	-9	5.0000	-10	10.000	4	20.000	8	50.000	5	75.000	10	100.00	-4
Isopropylbenzene			0.5000	2	2.0000	-2	5.0000	-1	10.000	15	20.000	6	50.000	1	75.000	-3	100.00	-19
1,1,2,2-Tetrachloroethane			0.5000	-6	2.0000	-5	5.0000	-2	10.000	5	20.000	5	50.000	4	75.000	4	100.00	-5
1,2,3-Trichloropropane			0.5000	-6	2.0000	-3	5.0000	2	10.000	9	20.000	7	50.000	3	75.000	-1	100.00	-11
Propylbenzene			0.5000	13	2.0000	-2	5.0000	3	10.000	16	20.000	5	50.000	2	75.000	-9	100.00	**-27**
Bromobenzene			0.5000	5	2.0000	1	5.0000	-4	10.000	7	20.000	4	50.000	4	75.000	0	100.00	-17
1,3,5-Trimethylbenzene			0.5000	5	2.0000	0	5.0000	5	10.000	13	20.000	9	50.000	3	75.000	-9	100.00	**-26**
2-Chlorotoluene			0.5000	14	2.0000	2	5.0000	6	10.000	14	20.000	8	50.000	0	75.000	-13	100.00	**-30**
4-Chlorotoluene			0.5000	11	2.0000	2	5.0000	0	10.000	11	20.000	3	50.000	-1	75.000	-4	100.00	**-23**
tert-Butylbenzene			0.5000	3	2.0000	-6	5.0000	-1	10.000	13	20.000	2	50.000	3	75.000	2	100.00	-15
1,2,4-Trimethylbenzene			0.5000	3	2.0000	-3	5.0000	-1	10.000	11	20.000	5	50.000	2	75.000	0	100.00	-17
sec-Butylbenzene			0.5000	1	2.0000	-7	5.0000	0	10.000	17	20.000	3	50.000	4	75.000	0	100.00	-18
para-Isopropyl Toluene			0.5000	-4	2.0000	-4	5.0000	-6	10.000	12	20.000	4	50.000	5	75.000	3	100.00	-12
1,3-Dichlorobenzene			0.5000	4	2.0000	-4	5.0000	0	10.000	6	20.000	3	50.000	3	75.000	2	100.00	-15
1,4-Dichlorobenzene			0.5000	3	2.0000	-2	5.0000	-3	10.000	8	20.000	4	50.000	2	75.000	1	100.00	-13
n-Butylbenzene			0.5000	-11	2.0000	-11	5.0000	-5	10.000	12	20.000	7	50.000	9	75.000	6	100.00	-8
1,2-Dichlorobenzene			0.5000	0	2.0000	-7	5.0000	-4	10.000	6	20.000	5	50.000	5	75.000	5	100.00	-9
1,2-Dibromo-3-Chloropropane			0.5000	18	2.0000	-5	5.0000	-10	10.000	-5	20.000	-6	50.000	2	75.000	6	100.00	0
1,2,4-Trichlorobenzene			0.5000	**197**	2.0000	19	5.0000	-4	10.000	-4	20.000	-6	50.000	-1	75.000	3	100.00	-1
Hexachlorobutadiene			0.5000	-14	2.0000	-12	5.0000	-4	10.000	15	20.000	0	50.000	8	75.000	10	100.00	-3
Naphthalene					2.0000	-20	5.0000	-12	10.000	1	20.000	6	50.000	9	75.000	13	100.00	4
1,2,3-Trichlorobenzene			0.5000	**273**	2.0000	**39**	5.0000	-1	10.000	-9	20.000	-10	50.000	-1	75.000	5	100.00	-2
Dibromofluoromethane	50.000	1	50.000	1	50.000	1	50.000	1	50.000	1	50.000	2	50.000	0	50.000	-4	50.000	-3
1,2-Dichloroethane-d4	50.000	5	50.000	3	50.000	2	50.000	1	50.000	2	50.000	5	50.000	-2	50.000	-8	50.000	-10
Toluene-d8	50.000	1	50.000	-2	50.000	0	50.000	-1	50.000	2	50.000	1	50.000	0	50.000	1	50.000	-2
Bromofluorobenzene	50.000	-1	50.000	0	50.000	1	50.000	0	50.000	-3	50.000	-1	50.000	0	50.000	1	50.000	1

TEW 06/02/14 [Freon 12]: Corrected fronting or tailing peak integration in all levels.

TEW 06/02/14 [Chloromethane]: Corrected fronting or tailing peak integration in multiple levels.

TEW 06/02/14 [Vinyl Chloride]: Corrected fronting or tailing peak integration in multiple levels.

TEW 06/02/14 [Bromomethane]: Corrected fronting or tailing peak integration in all levels.

TEW 06/02/14 [Chloroethane]: Corrected fronting or tailing peak integration in all levels.

TEW 06/02/14 [Trichlorofluoromethane]: Corrected fronting or tailing peak integration in all levels.

TEW 06/02/14 [Tetramethyl THF]: Picked or reassigned peak1PPB (if106).

TEW 06/02/14 [Bromomethane]: Fails 8260C low point requant criteria due to high bias. OK to report ND samples, or hits >5. Will rerun hits <5PPB.

TEW 06/02/14 [1,2,4-Trichlorobenzene]: Fails 8260C low point requant criteria due to high bias. OK to report ND samples, or hits >2. Will rerun hits <2PPB.

TEW 06/02/14 [1,2,3-Trichlorobenzene]: Fails 8260C low point requant criteria due to high bias. OK to report ND samples, or hits >5. Will rerun hits <5PPB.

Analyst: TEW Date: 06/02/14 Reviewer: LW Date: 06/03/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; QUAD=Quadratic regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259786 MSVOA Water
EPA 8260C

Inst : MSVOA09 Name : 826GOX9W
Calnum : 484219504001 Cal Date : 01-JUN-2014 Type : WATER

ICV 484219504015 (if115 01-JUN-2014) stds: S24643 (10000X), S24731 (10000X), S24689 (10000X), S24793 (5000X)
ICV 484221233005 (if205 02-JUN-2014) stds: S19788 (50000X), S24793 (5000X)

Analyte	ICV Seqnum	Date	Spiked	Quant	Units	%D	Max	Flags
Freon 12	484221233005	02-JUN-2014	40.00	38.41	ug/L	-4	20	m
Chloromethane	484221233005	02-JUN-2014	40.00	38.84	ug/L	-3	20	m
Vinyl Chloride	484221233005	02-JUN-2014	40.00	46.48	ug/L	16	20	m
Bromomethane	484221233005	02-JUN-2014	40.00	33.81	ug/L	-15	20	m
Chloroethane	484221233005	02-JUN-2014	40.00	40.98	ug/L	2	20	m
Trichlorofluoromethane	484221233005	02-JUN-2014	40.00	41.13	ug/L	3	20	m
Acetone	484219504015	01-JUN-2014	25.00	22.87	ug/L	-9	20	
Freon 113	484219504015	01-JUN-2014	25.00	20.69	ug/L	-17	20	
1,1-Dichloroethene	484219504015	01-JUN-2014	25.00	22.75	ug/L	-9	20	
Methylene Chloride	484219504015	01-JUN-2014	25.00	23.51	ug/L	-6	20	
Carbon Disulfide	484219504015	01-JUN-2014	25.00	23.10	ug/L	-8	20	
MTBE	484219504015	01-JUN-2014	25.00	22.77	ug/L	-9	20	
trans-1,2-Dichloroethene	484219504015	01-JUN-2014	25.00	23.70	ug/L	-5	20	
Vinyl Acetate	484219504015	01-JUN-2014	25.00	28.95	ug/L	16	20	
1,1-Dichloroethane	484219504015	01-JUN-2014	25.00	21.55	ug/L	-14	20	
2-Butanone	484219504015	01-JUN-2014	25.00	25.56	ug/L	2	20	
2,2-Dichloropropane	484219504015	01-JUN-2014	25.00	20.30	ug/L	-19	20	
cis-1,2-Dichloroethene	484219504015	01-JUN-2014	25.00	23.84	ug/L	-5	20	
Chloroform	484219504015	01-JUN-2014	25.00	21.88	ug/L	-12	20	
Bromochloromethane	484219504015	01-JUN-2014	25.00	23.09	ug/L	-8	20	
1,1,1-Trichloroethane	484219504015	01-JUN-2014	25.00	21.94	ug/L	-12	20	
1,1-Dichloropropene	484219504015	01-JUN-2014	25.00	25.22	ug/L	1	20	
Carbon Tetrachloride	484219504015	01-JUN-2014	25.00	22.17	ug/L	-11	20	
1,2-Dichloroethane	484219504015	01-JUN-2014	25.00	25.12	ug/L	0	20	
Benzene	484219504015	01-JUN-2014	25.00	24.46	ug/L	-2	20	
Trichloroethene	484219504015	01-JUN-2014	25.00	23.76	ug/L	-5	20	
1,2-Dichloropropane	484219504015	01-JUN-2014	25.00	23.83	ug/L	-5	20	
Bromodichloromethane	484219504015	01-JUN-2014	25.00	23.37	ug/L	-7	20	
Dibromomethane	484219504015	01-JUN-2014	25.00	22.92	ug/L	-8	20	
4-Methyl-2-Pentanone	484219504015	01-JUN-2014	25.00	23.95	ug/L	-4	20	
cis-1,3-Dichloropropene	484219504015	01-JUN-2014	25.00	25.15	ug/L	1	20	
Toluene	484219504015	01-JUN-2014	25.00	23.45	ug/L	-6	20	
trans-1,3-Dichloropropene	484219504015	01-JUN-2014	25.00	23.68	ug/L	-5	20	
1,1,2-Trichloroethane	484219504015	01-JUN-2014	25.00	24.35	ug/L	-3	20	
2-Hexanone	484219504015	01-JUN-2014	25.00	25.43	ug/L	2	20	
1,3-Dichloropropane	484219504015	01-JUN-2014	25.00	24.33	ug/L	-3	20	
Tetrachloroethene	484219504015	01-JUN-2014	25.00	21.19	ug/L	-15	20	
Dibromochloromethane	484219504015	01-JUN-2014	25.00	24.03	ug/L	-4	20	
1,2-Dibromoethane	484219504015	01-JUN-2014	25.00	24.44	ug/L	-2	20	
Chlorobenzene	484219504015	01-JUN-2014	25.00	25.10	ug/L	0	20	
1,1,1,2-Tetrachloroethane	484219504015	01-JUN-2014	25.00	24.10	ug/L	-4	20	
Ethylbenzene	484219504015	01-JUN-2014	25.00	24.44	ug/L	-2	20	
m,p-Xylenes	484219504015	01-JUN-2014	50.00	51.55	ug/L	3	20	
o-Xylene	484219504015	01-JUN-2014	25.00	25.30	ug/L	1	20	
Styrene	484219504015	01-JUN-2014	25.00	24.83	ug/L	-1	20	
Bromoform	484219504015	01-JUN-2014	25.00	22.57	ug/L	-10	20	
Isopropylbenzene	484219504015	01-JUN-2014	25.00	25.52	ug/L	2	20	

Analyte	ICV Seqnum	Date	Spiked	Quant	Units	%D	Max	Flags
1,1,2,2-Tetrachloroethane	484219504015	01-JUN-2014	25.00	25.18	ug/L	1	20	
1,2,3-Trichloropropane	484219504015	01-JUN-2014	25.00	24.52	ug/L	-2	20	
Propylbenzene	484219504015	01-JUN-2014	25.00	25.60	ug/L	2	20	
Bromobenzene	484219504015	01-JUN-2014	25.00	24.20	ug/L	-3	20	
1,3,5-Trimethylbenzene	484219504015	01-JUN-2014	25.00	26.17	ug/L	5	20	
2-Chlorotoluene	484219504015	01-JUN-2014	25.00	26.35	ug/L	5	20	
4-Chlorotoluene	484219504015	01-JUN-2014	25.00	24.80	ug/L	-1	20	
tert-Butylbenzene	484219504015	01-JUN-2014	25.00	25.24	ug/L	1	20	
1,2,4-Trimethylbenzene	484219504015	01-JUN-2014	25.00	24.18	ug/L	-3	20	
sec-Butylbenzene	484219504015	01-JUN-2014	25.00	25.39	ug/L	2	20	
para-Isopropyl Toluene	484219504015	01-JUN-2014	25.00	22.99	ug/L	-8	20	
1,3-Dichlorobenzene	484219504015	01-JUN-2014	25.00	24.70	ug/L	-1	20	
1,4-Dichlorobenzene	484219504015	01-JUN-2014	25.00	23.60	ug/L	-6	20	
n-Butylbenzene	484219504015	01-JUN-2014	25.00	24.45	ug/L	-2	20	
1,2-Dichlorobenzene	484219504015	01-JUN-2014	25.00	25.01	ug/L	0	20	
1,2-Dibromo-3-Chloropropane	484219504015	01-JUN-2014	25.00	23.03	ug/L	-8	20	
1,2,4-Trichlorobenzene	484219504015	01-JUN-2014	25.00	22.50	ug/L	-10	20	
Hexachlorobutadiene	484219504015	01-JUN-2014	25.00	24.78	ug/L	-1	20	
Naphthalene	484219504015	01-JUN-2014	25.00	24.65	ug/L	-1	20	
1,2,3-Trichlorobenzene	484219504015	01-JUN-2014	25.00	21.10	ug/L	-16	20	

484219504015: Analyst: TEW Date: 06/02/14 Reviewer: LW Date: 06/03/14
484221233005: Analyst: TEW Date: 06/02/14 Reviewer: LW Date: 06/03/14

m=manual integration

CURTIS & TOMPKINS SPIKE USER REPORT FOR 259786 MSVOA Water
EPA 8260C

Inst : MSVOA08 Run Name : QC753684 IDF : 1.0
Seqnum : 474327481004.8 File : hhf04 Time : 15-AUG-2014 12:28
Cal : 474253910001 Caldate : 25-JUN-2014 Caltype : WATER
Standards: S25233 (25000X), S25398 (25000X), S25287 (25000X), S24467 (25000X), S25202 (5000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Freon 12	0.6055	0.5961	8.000	7.876	ug/L	-2	20	0.1000	u
Chloromethane	1.1399	1.2048	8.000	8.455	ug/L	6	20	0.1000	u
Vinyl Chloride	0.8049	0.7874	8.000	7.827	ug/L	-2	20	0.1000	u
Bromomethane	0.3586	0.4597	8.000	10.26	ug/L	**28**	20	0.1000	c+ u ***
Chloroethane	0.4286	0.3948	8.000	7.369	ug/L	-8	20	0.1000	u
Trichlorofluoromethane	0.6240	0.6675	8.000	8.557	ug/L	7	20	0.1000	u
Acetone	0.1534	0.1754	10.00	11.44	ug/L	14	20	0.1000	u
Freon 113	0.4174	0.4255	10.00	10.19	ug/L	2	20	0.1000	u
1,1-Dichloroethene	0.5459	0.5384	10.00	9.863	ug/L	-1	20	0.1000	u
Methylene Chloride	0.7068	0.7635	10.00	10.80	ug/L	8	20	0.1000	u
Carbon Disulfide	2.2329	2.2137	10.00	9.914	ug/L	-1	20	0.1000	u
MTBE	1.3428	1.3024	10.00	9.699	ug/L	-3	20	0.1000	u
trans-1,2-Dichloroethene	0.6374	0.6781	10.00	10.64	ug/L	6	20	0.1000	u
Vinyl Acetate	1.0811	1.3979	10.00	12.93	ug/L	**29**	20	0.0500	c+ u v- ***
1,1-Dichloroethane	1.3356	1.4190	10.00	10.62	ug/L	6	20	0.2000	u
2-Butanone	0.2149	0.2591	10.00	12.06	ug/L	**21**	20	0.1000	c+ u ***
cis-1,2-Dichloroethene	0.7063	0.7853	10.00	11.12	ug/L	11	20	0.1000	u
2,2-Dichloropropane	0.7529	0.9054	10.00	12.03	ug/L	20	20	0.0500	u
Chloroform	1.0998	1.2528	10.00	11.39	ug/L	14	20	0.2000	u
Bromochloromethane	0.3042	0.3258	10.00	10.71	ug/L	7	20	0.0500	u
1,1,1-Trichloroethane	0.7207	0.8170	10.00	11.34	ug/L	13	20	0.1000	u
1,1-Dichloropropene	0.4623	0.4972	10.00	10.75	ug/L	8	20	0.0500	u
Carbon Tetrachloride	0.3472	0.3528	10.00	10.16	ug/L	2	20	0.1000	u
1,2-Dichloroethane	0.4347	0.4579	10.00	10.53	ug/L	5	20	0.1000	u
Benzene	1.4234	1.5250	10.00	10.71	ug/L	7	20	0.5000	u
Trichloroethene	0.3533	0.3721	10.00	10.53	ug/L	5	20	0.2000	u
1,2-Dichloropropane	0.4567	0.4625	10.00	10.13	ug/L	1	20	0.1000	u
Bromodichloromethane	0.4768	0.4893	10.00	10.26	ug/L	3	20	0.2000	u
Dibromomethane	0.2038	0.2196	10.00	10.78	ug/L	8	20	0.0500	u
4-Methyl-2-Pentanone	0.3034	0.3148	10.00	10.38	ug/L	4	20	0.1000	u
cis-1,3-Dichloropropene	0.5858	0.6492	10.00	11.08	ug/L	11	20	0.2000	u
Toluene	1.0030	1.0589	10.00	10.56	ug/L	6	20	0.4000	u
trans-1,3-Dichloropropene	0.5721	0.5653	10.00	9.881	ug/L	-1	20	0.1000	u
1,1,2-Trichloroethane	0.1833	0.1909	10.00	10.42	ug/L	4	20	0.1000	u
2-Hexanone	0.2444	0.2685	10.00	10.98	ug/L	10	20	0.1000	u
1,3-Dichloropropane	0.5907	0.6139	10.00	10.39	ug/L	4	20	0.0500	u
Tetrachloroethene	0.3257	0.3323	10.00	10.20	ug/L	2	20	0.2000	u
Dibromochloromethane	0.3582	0.3397	10.00	9.482	ug/L	-5	20	0.1000	u
1,2-Dibromoethane	0.3124	0.3240	10.00	10.37	ug/L	4	20	0.1000	u
Chlorobenzene	1.0457	1.1889	10.00	11.37	ug/L	14	20	0.5000	u
1,1,1,2-Tetrachloroethane	0.3530	0.3547	10.00	10.05	ug/L	1	20	0.0500	u
Ethylbenzene	1.8170	1.9899	10.00	10.95	ug/L	10	20	0.1000	u
m,p-Xylenes	0.6994	0.7400	20.00	21.16	ug/L	6	20	0.1000	u
o-Xylene	0.6912	0.7772	10.00	11.24	ug/L	12	20	0.3000	u
Styrene	1.1491	1.2768	10.00	11.11	ug/L	11	20	0.3000	u
Bromoform	0.1816	0.1725	10.00	9.499	ug/L	-5	20	0.1000	u
Isopropylbenzene	3.3008	3.8022	10.00	11.52	ug/L	15	20	0.1000	u

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
1,1,2,2-Tetrachloroethane	0.7400	0.8522	10.00	11.52	ug/L	15	20	0.3000	u
1,2,3-Trichloropropane	0.1717	0.1889	10.00	11.00	ug/L	10	20	0.0500	u
Propylbenzene	3.9484	4.6849	10.00	10.98	ug/L	10	20	0.0500	u
Bromobenzene	0.8112	0.8502	10.00	10.48	ug/L	5	20	0.0500	u
1,3,5-Trimethylbenzene	2.6100	3.0666	10.00	11.75	ug/L	17	20	0.0500	u
2-Chlorotoluene	2.7391	3.2988	10.00	12.04	ug/L	20	20	0.0500	u
4-Chlorotoluene	2.5864	2.9582	10.00	11.44	ug/L	14	20	0.0500	u
tert-Butylbenzene	2.3389	2.6591	10.00	11.37	ug/L	14	20	0.0500	u
1,2,4-Trimethylbenzene	2.6965	3.0080	10.00	11.16	ug/L	12	20	0.0500	u
sec-Butylbenzene	3.3816	4.1440	10.00	12.25	ug/L	**23**	20	0.0500	c+ u ***
para-Isopropyl Toluene	2.6177	3.0020	10.00	11.47	ug/L	15	20	0.0500	u
1,3-Dichlorobenzene	1.4329	1.5945	10.00	11.13	ug/L	11	20	0.6000	u
1,4-Dichlorobenzene	1.3975	1.5374	10.00	11.00	ug/L	10	20	0.5000	u
n-Butylbenzene	2.3883	2.8159	10.00	11.79	ug/L	18	20	0.0500	u
1,2-Dichlorobenzene	1.3633	1.4933	10.00	10.95	ug/L	10	20	0.4000	u
1,2-Dibromo-3-Chloropropane	0.1165	0.0998	10.00	8.570	ug/L	-14	20	0.0500	u
1,2,4-Trichlorobenzene	0.6629	0.6823	10.00	10.29	ug/L	3	20	0.2000	u
Hexachlorobutadiene	0.2535	0.2844	10.00	11.22	ug/L	12	20	0.0500	u
Naphthalene	1.5705	1.5853	10.00	10.09	ug/L	1	20	0.0500	u
1,2,3-Trichlorobenzene	0.6155	0.6496	10.00	10.55	ug/L	6	20	0.0500	u
Dibromofluoromethane	0.6016	0.6388	50.00	53.10	ug/L	6	20	0.0500	u
1,2-Dichloroethane-d4	0.3088	0.3284	50.00	53.16	ug/L	6	20	0.0500	u
Toluene-d8	1.2442	1.2544	50.00	50.41	ug/L	1	20	0.0500	u
Bromofluorobenzene	1.1231	1.1192	50.00	49.83	ug/L	0	20	0.0500	u

ISTD (ICAL hfp17)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	1827854	1828042	0.01	10.25	10.24	-0.01
1,4-Difluorobenzene	3226896	3328457	3.15	11.45	11.44	-0.01
Chlorobenzene-d5	2647236	2823724	6.67	15.93	15.92	-0.01
1,4-Dichlorobenzene-d4	1290871	1402397	8.64	18.77	18.76	-0.01

Analyst: DJA Date: 08/19/14 Reviewer: LW Date: 08/28/14

+=high bias -=low bias c=CCV u=use v=ICV

CURTIS & TOMPKINS SPIKE USER REPORT FOR 259786 MSVOA Water
EPA 8260C

Inst : MSVOA09 Run Name : QC753910 IDF : 1.0
Seqnum : 484331713003.1 File : ihi03 Time : 18-AUG-2014 10:51
Cal : 484219504001 Caldate : 01-JUN-2014 Caltype : WATER
Standards: S25287 (10000X), S24467 (10000X), S25398 (10000X), S25233 (10000X), S25243 (5000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Freon 12	0.6053	0.4542	20.00	15.01	ug/L	**-25**	20	0.1000	c- u ***
Chloromethane	0.7107	0.7156	20.00	20.14	ug/L	1	20	0.1000	u
Vinyl Chloride	0.4808	0.5047	20.00	20.99	ug/L	5	20	0.1000	u
Bromomethane	0.1415	0.1979	20.00	22.29	ug/L	11	20	0.1000	?LOD ***
Chloroethane	0.2809	0.2830	20.00	20.15	ug/L	1	20	0.1000	u
Trichlorofluoromethane	0.6951	0.6466	20.00	18.61	ug/L	-7	20	0.1000	u
Acetone	0.1309	0.1039	25.00	20.76	ug/L	-17	20	0.1000	?LOD ***
Freon 113	0.3799	0.3188	25.00	20.98	ug/L	-16	20	0.1000	u
1,1-Dichloroethene	0.4441	0.3682	25.00	20.73	ug/L	-17	20	0.1000	u
Methylene Chloride	0.6190	0.5317	25.00	21.47	ug/L	-14	20	0.1000	u
Carbon Disulfide	1.7617	1.4989	25.00	21.27	ug/L	-15	20	0.1000	u
MTBE	1.1841	0.8831	25.00	18.65	ug/L	**-25**	20	0.1000	c- u ***
trans-1,2-Dichloroethene	0.5067	0.4459	25.00	22.00	ug/L	-12	20	0.1000	u
Vinyl Acetate	0.9348	1.0226	25.00	27.35	ug/L	9	20	0.0500	u
1,1-Dichloroethane	1.1055	0.9903	25.00	22.39	ug/L	-10	20	0.2000	u
2-Butanone	0.1764	0.1580	25.00	22.40	ug/L	-10	20	0.1000	u
cis-1,2-Dichloroethene	0.5946	0.5158	25.00	21.69	ug/L	-13	20	0.1000	u
2,2-Dichloropropane	0.6593	0.7097	25.00	26.91	ug/L	8	20	0.0500	u
Chloroform	1.0071	0.9011	25.00	22.37	ug/L	-11	20	0.2000	u
Bromochloromethane	0.2416	0.2174	25.00	22.50	ug/L	-10	20	0.0500	u
1,1,1-Trichloroethane	0.6755	0.6704	25.00	24.81	ug/L	-1	20	0.1000	u
1,1-Dichloropropene	0.3439	0.3417	25.00	24.84	ug/L	-1	20	0.0500	u
Carbon Tetrachloride	0.2881	0.3016	25.00	26.17	ug/L	5	20	0.1000	u
1,2-Dichloroethane	0.2904	0.3094	25.00	26.63	ug/L	7	20	0.1000	u
Benzene	1.1111	1.0981	25.00	24.71	ug/L	-1	20	0.5000	u
Trichloroethene	0.2775	0.2602	25.00	23.44	ug/L	-6	20	0.2000	u
1,2-Dichloropropane	0.3529	0.3178	25.00	22.51	ug/L	-10	20	0.1000	u
Bromodichloromethane	0.3934	0.3647	25.00	23.18	ug/L	-7	20	0.2000	u
Dibromomethane	0.1665	0.1508	25.00	22.65	ug/L	-9	20	0.0500	u
4-Methyl-2-Pentanone	0.2329	0.1886	25.00	20.25	ug/L	-19	20	0.1000	u
cis-1,3-Dichloropropene	0.4486	0.4423	25.00	24.65	ug/L	-1	20	0.2000	u
Toluene	0.7134	0.6751	25.00	23.66	ug/L	-5	20	0.4000	u
trans-1,3-Dichloropropene	0.4132	0.3662	25.00	22.16	ug/L	-11	20	0.1000	u
1,1,2-Trichloroethane	0.1467	0.1224	25.00	20.85	ug/L	-17	20	0.1000	u
2-Hexanone	0.1735	0.1507	25.00	21.71	ug/L	-13	20	0.1000	u
1,3-Dichloropropane	0.4444	0.3844	25.00	21.63	ug/L	-13	20	0.0500	u
Tetrachloroethene	0.2219	0.2190	25.00	24.67	ug/L	-1	20	0.2000	u
Dibromochloromethane	0.2772	0.2444	25.00	22.04	ug/L	-12	20	0.1000	u
1,2-Dibromoethane	0.2428	0.2005	25.00	20.65	ug/L	-17	20	0.1000	u
Chlorobenzene	0.7166	0.6911	25.00	24.11	ug/L	-4	20	0.5000	u
1,1,1,2-Tetrachloroethane	0.2539	0.2346	25.00	23.10	ug/L	-8	20	0.0500	u
Ethylbenzene	1.2450	1.1669	25.00	23.43	ug/L	-6	20	0.1000	u
m,p-Xylenes	0.4040	0.4301	50.00	53.23	ug/L	6	20	0.1000	u
o-Xylene	0.4507	0.4427	25.00	24.56	ug/L	-2	20	0.3000	u
Styrene	0.7703	0.7026	25.00	22.80	ug/L	-9	20	0.3000	u
Bromoform	0.1483	0.1154	25.00	19.45	ug/L	**-22**	20	0.1000	c- u ***
Isopropylbenzene	2.4580	2.2679	25.00	23.07	ug/L	-8	20	0.1000	u

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
1,1,2,2-Tetrachloroethane	0.6528	0.4914	25.00	18.82	ug/L	**-25**	20	0.3000	c- u ***
1,2,3-Trichloropropane	0.1311	0.0995	25.00	18.96	ug/L	**-24**	20	0.0500	c- u ***
Propylbenzene	2.8779	2.7721	25.00	24.08	ug/L	-4	20	0.0500	u
Bromobenzene	0.6123	0.5656	25.00	23.09	ug/L	-8	20	0.0500	u
1,3,5-Trimethylbenzene	1.7691	1.7229	25.00	24.35	ug/L	-3	20	0.0500	u
2-Chlorotoluene	1.9656	1.9660	25.00	25.01	ug/L	0	20	0.0500	u
4-Chlorotoluene	1.8171	1.6096	25.00	22.14	ug/L	-11	20	0.0500	u
tert-Butylbenzene	1.5553	1.4348	25.00	23.06	ug/L	-8	20	0.0500	u
1,2,4-Trimethylbenzene	1.7331	1.4933	25.00	21.54	ug/L	-14	20	0.0500	u
sec-Butylbenzene	2.3072	2.0830	25.00	22.57	ug/L	-10	20	0.0500	u
para-Isopropyl Toluene	1.6105	1.4505	25.00	22.52	ug/L	-10	20	0.0500	u
1,3-Dichlorobenzene	0.9896	0.9096	25.00	22.98	ug/L	-8	20	0.6000	u
1,4-Dichlorobenzene	0.9434	0.8590	25.00	22.76	ug/L	-9	20	0.5000	u
n-Butylbenzene	1.3730	1.2421	25.00	22.62	ug/L	-10	20	0.0500	u
1,2-Dichlorobenzene	0.9591	0.8584	25.00	22.37	ug/L	-11	20	0.4000	u
1,2-Dibromo-3-Chloropropane	0.0895	0.0567	25.00	15.82	ug/L	**-37**	20	0.0500	c- u ***
1,2,4-Trichlorobenzene	0.3846	0.3241	25.00	18.44	ug/L	**-26**	20	0.2000	?LOD c- ***
Hexachlorobutadiene	0.1812	0.1659	25.00	22.89	ug/L	-8	20	0.0500	u
Naphthalene	0.8829	0.5957	25.00	16.87	ug/L	**-33**	20	0.0500	c- u ***
1,2,3-Trichlorobenzene	0.3536	0.2851	25.00	16.71	ug/L	**-33**	20	0.0500	?LOD c- ***
Dibromofluoromethane	0.6638	0.6410	50.00	48.28	ug/L	-3	20	0.0500	u
1,2-Dichloroethane-d4	0.2957	0.3456	50.00	58.44	ug/L	17	20	0.0500	u
Toluene-d8	1.2977	1.3503	50.00	52.03	ug/L	4	20	0.0500	u
Bromofluorobenzene	1.2105	1.1234	50.00	46.40	ug/L	-7	20	0.0500	u

ISTD (ICAL if111)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	1556208	2041413	31.18	11.33	11.30	-0.03
1,4-Difluorobenzene	2890532	3514102	21.57	12.60	12.56	-0.04
Chlorobenzene-d5	2489780	2988264	20.02	16.88	16.86	-0.02
1,4-Dichlorobenzene-d4	1089495	1387557	27.36	19.33	19.30	-0.03

Analyst: DJA Date: 08/19/14 Reviewer: LW Date: 08/28/14

-=low bias ?LOD=no LOD c=CCV u=use

Logbooks & Sequences

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 474327481

Date : 08/15/14 Reference : hfp17
Sequence : MSVOA08 hhf Analyzed : 06/25/14 18:09

#	Type	Sample ID	PFLBZ	RT	14DFB	RT	CLBZD5	RT	DCBZ14D4	RT
		ICAL STD	1827854	10.25	3226896	11.45	2647236	15.93	1290871	18.77
		LOWER LIMIT	913927	9.75	1613448	10.95	1323618	15.43	645436	18.27
		UPPER LIMIT	3655708	10.75	6453792	11.95	5294472	16.43	2581742	19.27
004	CCV/BS	QC753684	1828042	10.24	3328457	11.44	2823724	15.92	1402397	18.76
005	BSD	QC753685	1821558	10.24	3295513	11.44	2791936	15.92	1366444	18.76
008	BLANK	QC753686	1776898	10.25	3220440	11.45	2711345	15.93	1287055	18.77
009	SAMPLE	259774-002	1789764	10.25	3294591	11.45	2760368	15.92	1302405	18.76
010	SAMPLE	259786-002	1834213	10.25	3364959	11.45	2812954	15.92	1332719	18.77
011	SAMPLE	259790-003	1810666	10.25	3321645	11.45	2808975	15.93	1326727	18.77
012	SAMPLE	259786-003	1743947	10.25	3169687	11.46	2707479	15.93	1295018	18.77
013	SAMPLE	259786-004	1729778	10.25	3204633	11.45	2702118	15.93	1301651	18.77
014	SAMPLE	259734-001	1804530	10.25	3296140	11.46	2766479	15.92	1305643	18.77
015	MSS	259786-001	1730944	10.25	3144071	11.45	2706618	15.93	1318932	18.77
016	SAMPLE	259790-001	1746618	10.24	3158145	11.46	2323988	15.93	1248624	18.76
017	SAMPLE	259790-002	1729709	10.25	3155797	11.45	2663104	15.93	1254666	18.77
018	SAMPLE	259662-004	1578962	10.24	2948282	11.46	2496914	15.92	1148106	18.76
019	SAMPLE	259797-001	1681388	10.25	3121461	11.45	2636452	15.92	1211656	18.77
020	SAMPLE	259797-002	1747477	10.24	3215363	11.45	2705461	15.92	1264490	18.76
021	MS	QC753763	1607097	10.24	3068723	11.45	2625409	15.92	1270538	18.76
022	MSD	QC753764	1725460	10.24	3206930	11.44	2728744	15.92	1343961	18.76

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 484331713

Date : 08/18/14 Reference : if111
Sequence : MSVOA09 ihi Analyzed : 06/01/14 15:56

#	Type	Sample ID	PFLBZ	RT	14DFB	RT	CLBZD5	RT	DCBZ14D4	RT
		ICAL STD	1556208	11.33	2890532	12.60	2489780	16.88	1089495	19.33
		LOWER LIMIT	778104	10.83	1445266	12.10	1244890	16.38	544748	18.83
		UPPER LIMIT	3112416	11.83	5781064	13.10	4979560	17.38	2178990	19.83
003	CCV/BS	QC753910	2041413	11.30	3514102	12.56	2988264	16.86	1387557	19.30
004	BSD	QC753911	2062799	11.30	3586347	12.57	3067249	16.86	1439155	19.31
007	BLANK	QC753912	1808863	11.32	3081606	12.59	2604539	16.87	1137500	19.33
008	SAMPLE	259786-002	1317484	11.32	2244611	12.59	1837590	16.87	766957	19.33
009	SAMPLE	259841-004	1752689	11.33	2971932	12.59	2471210	16.88	1071720	19.32
010	MSS	259786-001	1445927	11.33	2505680	12.59	2120860	16.88	922071	19.32
011	SAMPLE	259786-003	1629462	11.33	2807436	12.60	2372982	16.88	1050825	19.33
012	SAMPLE	259786-004	1599551	11.33	2774248	12.59	2378342	16.88	1029370	19.32
013	SAMPLE	259790-001	1562598	11.33	2714172	12.59	2267672	16.88	966986	19.33
014	SAMPLE	259790-002	1573029	11.33	2675142	12.59	2235790	16.88	975823	19.32
015	SAMPLE	259841-006	1570702	11.33	2709612	12.60	2313671	16.88	1000655	19.33
016	SAMPLE	259841-007	1510644	11.34	2629669	12.60	2222512	16.88	937062	19.33
017	MS	QC753972	1424090	11.33	2409722	12.59	2108192	16.88	1038456	19.32
018	MSD	QC753973	1328801	11.34	2236438	12.60	1953365	16.88	941655	19.33

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 474253910

Instrument : MSVOA08 Begun : 06/25/14 07:50
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	hfp01	X	LOW POINT			06/25/14 07:50	1.0	1	
002	hfp02	TUN	BFB			06/25/14 08:37	1.0	2	
003	hfp03	TUN	BFB			06/25/14 09:25	1.0	2	t
004	hfp04	TUN	BFB			06/25/14 09:58	1.0	2	t
005	hfp05	TUN	BFB			06/25/14 10:52	1.0	2	t
006	hfp06	TUN	BFB			06/25/14 11:49	1.0	2	
007	hfp07	TUN	BFB			06/25/14 12:28	1.0	2	
008	hfp08	TUN	BFB			06/25/14 12:59	1.0	2	
009	hfp09	X	IB			06/25/14 13:32	1.0	1	
010	hfp10	IB	CALIB			06/25/14 14:07	1.0	1	
011	hfp11	ICAL				06/25/14 14:41	1.0	3 4 5 6 1	
012	hfp12	ICAL				06/25/14 15:16	1.0	3 4 5 6 1	
013	hfp13	ICAL				06/25/14 15:51	1.0	3 4 5 6 1	
014	hfp14	ICAL				06/25/14 16:25	1.0	3 4 5 6 1	
015	hfp15	ICAL				06/25/14 17:00	1.0	3 4 5 6 1	
016	hfp16	ICAL				06/25/14 17:35	1.0	3 4 5 6 1	
017	hfp17	ICAL				06/25/14 18:09	1.0	3 4 5 6 1	
018	hfp18	ICAL				06/25/14 18:44	1.0	3 4 5 6 1	
019	hfp19	ICAL				06/25/14 19:19	1.0	3 4 5 6 1	
020	hfp20	ICV				06/25/14 19:53	1.0	7 1	
021	hfp21	ICV				06/25/14 20:28	1.0	8 9 10 1	
022	hfp22	X	IB			06/25/14 21:03	1.0	1	
023	hfp23	X	IB			06/25/14 21:38	1.0	1	
024	hfp24	X	IB			06/25/14 22:12	1.0	1	

DJA 06/26/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 24.

Analyst: DJA Date: 06/26/14 Reviewer: LW Date: 06/27/14

Standards used: 1=S24802 2=S24715 3=S23923 4=S24633 5=S24634 6=S23961 7=S24242 8=S24731 9=S24892 10=S24848

Flags used: t=tune failure

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 474327481

Instrument : MSVOA08 Begun : 08/15/14 10:01
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	hhf01	X	IB			08/15/14 10:01	1.0	1	
002	hhf02	TUN	BFB			08/15/14 10:50	1.0	2	t
003	hhf03	TUN	BFB			08/15/14 12:01	1.0	2	
004	hhf04	CCV/BS	QC753684	Water	214432	08/15/14 12:28	1.0	3 4 5 6 1	
005	hhf05	BSD	QC753685	Water	214432	08/15/14 13:18	1.0	3 4 5 6 1	
006	hhf06	X	CCV			08/15/14 13:53	1.0	1	
007	hhf07	X	IB			08/15/14 14:28	1.0	1	
008	hhf08	BLANK	QC753686	Water	214432	08/15/14 15:03	1.0	1	
009	hhf09	SAMPLE	259774-002	Water	214432	08/15/14 15:38	1.0	1	
010	hhf10	SAMPLE	259786-002	Water	214432	08/15/14 16:14	1.0	1	
011	hhf11	SAMPLE	259790-003	Water	214432	08/15/14 16:49	1.0	1	
012	hhf12	SAMPLE	259786-003	Water	214432	08/15/14 17:24	1.0	1	pH > 2
013	hhf13	SAMPLE	259786-004	Water	214432	08/15/14 17:59	1.0	1	pH > 2
014	hhf14	SAMPLE	259734-001	Water	214432	08/15/14 18:34	1.0	1	
015	hhf15	MSS	259786-001	Water	214432	08/15/14 19:09	1.0	1	pH > 2
016	hhf16	SAMPLE	259790-001	Water	214432	08/15/14 19:44	1.0	1	
017	hhf17	SAMPLE	259790-002	Water	214432	08/15/14 20:19	1.0	1	
018	hhf18	SAMPLE	259662-004	Water	214432	08/15/14 20:54	2.500	1	
019	hhf19	SAMPLE	259797-001	Water	214432	08/15/14 21:29	3.333	1	
020	hhf20	SAMPLE	259797-002	Water	214432	08/15/14 22:03	3.333	1	1:MEK=130
021	hhf21	MS	QC753763	Water	214432	08/15/14 22:38	1.0	3 4 5 6 1	
022	hhf22	MSD	QC753764	Water	214432	08/15/14 23:13	1.0	3 4 5 6 1	pH > 2
023	hhf23	X	IB			08/15/14 23:48	1.0	1	
024	hhf24	X	IB			08/16/14 00:23	1.0	1	

DJA 08/18/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 24.

DJA 08/18/14 : Matrix spikes QC753763,QC753764 (batch 214432) were not reported because the parent sample was reanalyzed in another batch.

Analyst: DJA Date: 08/18/14 Reviewer: LW Date: 08/18/14

Standards used: 1=S25202 2=S24715 3=S25233 4=S25398 5=S25287 6=S24467

Flags used: t=tune failure

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 484219504

Instrument : MSVOA09 Begun : 06/01/14 10:24
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	if101	X	IB			06/01/14 10:24	1.0	1	
002	if102	TUN	BFB			06/01/14 10:56	1.0	2	
003	if103	X	IB			06/01/14 11:20	1.0	1	
004	if104	IB	CALIB IB			06/01/14 11:52	1.0	1	
005	if105	ICAL	.25/.5PPB			06/01/14 12:39	1.0	3 4 5 1	
006	if106	ICAL	0.5/1PPB			06/01/14 13:11	1.0	3 6 4 5 1	
007	if107	ICAL	2PPB			06/01/14 13:44	1.0	6 3 5 4 1	
008	if108	ICAL	5PPB			06/01/14 14:17	1.0	6 3 5 4 1	
009	if109	ICAL	10PPB			06/01/14 14:50	1.0	6 3 5 4 1	
010	if110	ICAL	20PPB			06/01/14 15:23	1.0	6 3 5 4 1	
011	if111	ICAL	50PPB			06/01/14 15:56	1.0	6 3 5 4 1	
012	if112	ICAL	75PPB			06/01/14 16:29	1.0	6 3 5 4 1	
013	if113	ICAL	100PPB			06/01/14 17:02	1.0	6 3 5 4 1	
014	if114	ICV	GASES			06/01/14 17:35	1.0	7 1	
015	if115	ICV				06/01/14 18:08	1.0	8 9 10 1	
016	if116	X	IB			06/01/14 18:41	1.0	1	

TEW 06/02/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 16.

Analyst: TEW Date: 06/02/14 Reviewer: LW Date: 06/03/14

Standards used: 1=S24793 2=S24715 3=S24634 4=S24633 5=S23961 6=S23491 7=S24242 8=S24643 9=S24731 10=S24689

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 484221233

Instrument : MSVOA09 Begun : 06/02/14 15:13
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	if201	X	IB			06/02/14 15:13	1.0	1	
002	if202	TUN	BFB			06/02/14 15:52	1.0	2	t
003	if203	TUN	BFB			06/02/14 16:07	1.0	2	
004	if204	ICV	GASES			06/02/14 16:31	1.0	3 1	
005	if205	ICV	GASES			06/02/14 17:35	1.0	4 1	

TEW 06/02/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 5.

Analyst: TEW Date: 06/02/14 Reviewer: LW Date: 06/03/14

Standards used: 1=S24793 2=S24715 3=S24242 4=S19788

Flags used: t=tune failure

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 484331713

Instrument : MSVOA09 Begun : 08/18/14 08:33
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	ihi01	X	IB			08/18/14 08:33	1.0	1	
002	ihi02	TUN	BFB			08/18/14 10:18	1.0	2	
003	ihi03	CCV/BS	QC753910	Water	214489	08/18/14 10:51	1.0	3 4 5 6 1	
004	ihi04	BSD	QC753911	Water	214489	08/18/14 11:37	1.0	3 4 5 6 1	
005	ihi05	X	CCV			08/18/14 12:10	1.0	7 1	
006	ihi06	X	IB			08/18/14 12:42	1.0	1	
007	ihi07	BLANK	QC753912	Water	214489	08/18/14 13:15	1.0	1	
008	ihi08	SAMPLE	259786-002	Water	214489	08/18/14 13:48	1.0	1	headspace > 1 mL
009	ihi09	SAMPLE	259841-004	Water	214489	08/18/14 14:21	1.0	1	headspace > 1 mL
010	ihi10	MSS	259786-001	Water	214489	08/18/14 14:54	1.0	1	pH > 2
011	ihi11	SAMPLE	259786-003	Water	214489	08/18/14 15:27	1.0	1	pH > 2
012	ihi12	SAMPLE	259786-004	Water	214489	08/18/14 16:00	1.0	1	pH > 2
013	ihi13	SAMPLE	259790-001	Water	214489	08/18/14 16:33	1.0	1	
014	ihi14	SAMPLE	259790-002	Water	214489	08/18/14 17:06	1.0	1	
015	ihi15	SAMPLE	259841-006	Water	214489	08/18/14 17:39	1.0	1	
016	ihi16	SAMPLE	259841-007	Water	214489	08/18/14 18:11	1.0	1	
017	ihi17	MS	QC753972	Water	214489	08/18/14 18:44	1.0	3 4 5 6 1	
018	ihi18	MSD	QC753973	Water	214489	08/18/14 19:17	1.0	3 4 5 6 1	pH > 2
019	ihi19	X	IB			08/18/14 19:50	1.0	1	
020	ihi20	X	IB			08/18/14 20:22	1.0	1	

DJA 08/19/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 20.

Analyst: DJA Date: 08/19/14 Reviewer: LW Date: 08/19/14

Standards used: 1=S25243 2=S24715 3=S25287 4=S24467 5=S25398 6=S25233 7=S25399

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MSVOA WATER Prepsheet Curtis & Tompkins, Ltd.

Date: 8/15/14 **Batch #:** ~~214328~~ DJA 8/15 214432

	Sample ID	Vial	pH <2	pH (if >2)	HS?	Dil'n flask	MS#	RR	DF	Comments	20% ccv ?	hold	due	init date
1	259662-4	C	✓			3	8	2	2.5x	12DB3CB c- 20% rule				DJA
2	259774-2	D	✓					1	1x	hex + 123TCB c- III				
3	~~259838-1~~								1x					
4	-2								1x	putoff list				
5	-3								5x					
6	259786-1	B		7					1x					
7	-1MS	COE	7	7		12			↓	spike at 20 ppb				
8	-1MSD	COE		7		12			↓	↓				
9	-2	A	✓						↓					
10	-3	B		6					↓					
11	-4	B		7					↓					
12	259734-1	D	✓						1x					
13	259797-1	E	✓			4			3.3x					
14	-2	↓	✓			5			3.3x					
15	259790-1	B	✓						1x					
16	-2	↓	✓						1x					
17	-3	A	✓						1x	TB				
18														
19														
20														
21														
22														

MSVOA WATER Prepsheet Curtis & Tompkins, Ltd.

Date: 8/18/14 **Batch #:** 214489

	Sample ID	Vial	pH <2	pH (if >2)	HS?	Dil'n flask	MS#	RR	DF	Comments	20% ccv ?	hold	due	init date
1	259786-1	F		7			9	1	1X		X			6/24
2	-1MS	GHI		7		A2								
3	-1MSD	GHI		7		A2								
4	-2	A	✓		SNL					TB, only one vial given by client				
5	-3	C		7										
6	-4	C		7										
7	259790-1	C	✓											
8	-2	C	✓											
9	-3	—	—							only 1 vial given, no more sample left				
10	~~-4~~													
11	259841-4	A	✓		SNL					TB, only one vial given by client				
12	-6	C	✓											
13	-7	↓	✓					↓	↓		↓			
14														
15														
16														
17														
18														
19														
20														
21														
22														

Case Narrative Addendum: Manual Integrations for 259786 GC/MS VOA (Water)

For Calibration MSVOA09 (484219504001):
Bromomethane: Corrected fronting or tailing peak integration in all levels.
Chloroethane: Corrected fronting or tailing peak integration in all levels.
Chloromethane: Corrected fronting or tailing peak integration in multiple levels.
Trichlorofluoromethane: Corrected fronting or tailing peak integration in all levels.
Freon 12: Corrected fronting or tailing peak integration in all levels.
Tetramethyl THF: Picked or reassigned peak1PPB (if106).
Vinyl Chloride: Corrected fronting or tailing peak integration in multiple levels.

For ICV (MSVOA09 if115):
Ethanol: Corrected fronting or tailing peak integration.

For ICV GASES (MSVOA09 if205):
Bromomethane: Corrected fronting or tailing peak integration.
Chloroethane: Corrected fronting or tailing peak integration.
Chloromethane: Corrected fronting or tailing peak integration.
Trichlorofluoromethane: Corrected fronting or tailing peak integration.
Freon 12: Corrected fronting or tailing peak integration.
Vinyl Chloride: Corrected fronting or tailing peak integration.

For Calibration MSVOA08 (474253910001):
Acetone: Corrected fronting or tailing peak integration in (hfp13).
Bromomethane: Corrected fronting or tailing peak integration in (hfp14).
Chloroethane: Corrected fronting or tailing peak integration in multiple levels.
Trichlorofluoromethane: Corrected fronting or tailing peak integration in (hfp13).
Freon 113: Corrected fronting or tailing peak integration in multiple levels.
Freon 12: Corrected fronting or tailing peak integration in multiple levels.
Isopropanol: Corrected fronting or tailing peak integration in multiple levels.
tert-Butyl Alcohol (TBA): Corrected fronting or tailing peak integration in (hfp13).
Vinyl Acetate: Corrected fronting or tailing peak integration in multiple levels.
Vinyl Chloride: Corrected fronting or tailing peak integration in (hfp13).
m,p-Xylenes: Corrected fronting or tailing peak integration in multiple levels.

For ICV (MSVOA08 hfp20):
Bromomethane: Corrected fronting or tailing peak integration.
Chloroethane: Corrected fronting or tailing peak integration.
Chloromethane: Corrected fronting or tailing peak integration.
Trichlorofluoromethane: Corrected fronting or tailing peak integration.
Freon 12: Corrected fronting or tailing peak integration.
Vinyl Chloride: Corrected fronting or tailing peak integration.

For ICV (MSVOA08 hfp21):
Freon 113: Corrected fronting or tailing peak integration.
Iodomethane: Corrected fronting or tailing peak integration.
Isopropanol: Corrected fronting or tailing peak integration.

Laboratory Job Number 259786

ANALYTICAL REPORT

Semivolatile Organics by GC/MS

Matrix: Water

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W19-081314	Batch#:	214400
Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/14/14
Diln Fac:	1.000	Analyzed:	08/18/14

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	2.4 U	9.4	2.2
Phenol	2.4 U	9.4	1.6
bis(2-Chloroethyl)ether	2.4 U	9.4	1.5
2-Chlorophenol	2.4 U	9.4	1.5
1,3-Dichlorobenzene	2.4 U	9.4	1.5
1,4-Dichlorobenzene	2.4 U	9.4	1.6
Benzyl alcohol	2.4 U	9.4	1.4
1,2-Dichlorobenzene	2.4 U	9.4	1.6
2-Methylphenol	2.4 U	9.4	1.4
bis(2-Chloroisopropyl) ether	4.7 U	9.4	2.6
4-Methylphenol	2.4 U	9.4	1.4
N-Nitroso-di-n-propylamine	2.4 U	9.4	1.9
Hexachloroethane	2.4 U	9.4	1.6
Nitrobenzene	2.4 U	9.4	1.5
Isophorone	2.4 U	9.4	1.8
2-Nitrophenol	4.7 U	19	2.4
2,4-Dimethylphenol	2.4 U	9.4	1.2
Benzoic acid	24 U	47	9.6
bis(2-Chloroethoxy)methane	2.4 U	9.4	1.2
2,4-Dichlorophenol	2.4 U	9.4	1.3
1,2,4-Trichlorobenzene	2.4 U	9.4	1.3
Naphthalene	2.4 U	9.4	1.4
4-Chloroaniline	2.4 U	9.4	1.2
Hexachlorobutadiene	2.4 U	9.4	1.3
4-Chloro-3-methylphenol	2.4 U	9.4	1.3
2-Methylnaphthalene	2.4 U	9.4	1.4
Hexachlorocyclopentadiene	4.7 U	19	1.6
2,4,6-Trichlorophenol	2.4 U	9.4	0.93
2,4,5-Trichlorophenol	2.4 U	9.4	0.89
2-Chloronaphthalene	2.4 U	9.4	1.5
2-Nitroaniline	2.4 U	19	1.7
Dimethylphthalate	2.4 U	9.4	1.5
Acenaphthylene	2.4 U	9.4	1.4
2,6-Dinitrotoluene	2.4 U	9.4	1.3
3-Nitroaniline	2.4 U	19	0.98
Acenaphthene	2.4 U	9.4	1.3
2,4-Dinitrophenol	4.7 U	19	2.0
4-Nitrophenol	2.4 U	19	1.1
Dibenzofuran	2.4 U	9.4	1.4
2,4-Dinitrotoluene	2.4 U	9.4	1.4
Diethylphthalate	2.4 U	9.4	1.5
Fluorene	2.4 U	9.4	1.5
4-Chlorophenyl-phenylether	2.4 U	9.4	1.3
4-Nitroaniline	2.4 U	19	1.1
4,6-Dinitro-2-methylphenol	4.7 U	19	1.6
N-Nitrosodiphenylamine	2.4 U	9.4	1.2
Azobenzene	2.4 U	9.4	1.5
4-Bromophenyl-phenylether	2.4 U	9.4	1.1
Hexachlorobenzene	2.4 U	9.4	1.2
Pentachlorophenol	2.4 U	19	1.2
Phenanthrene	2.4 U	9.4	1.2
Anthracene	2.4 U	9.4	1.3
Carbazole	2.4 U	9.4	1.9

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W19-081314	Batch#:	214400
Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/14/14
Diln Fac:	1.000	Analyzed:	08/18/14

Analyte	Result	LOQ	DL
Di-n-butylphthalate	2.4 U	9.4	1.1
Fluoranthene	2.4 U	9.4	1.5
Pyrene	2.4 U	9.4	1.2
Butylbenzylphthalate	2.4 U	9.4	1.3
3,3'-Dichlorobenzidine	2.4 U	19	0.59
Benzo(a)anthracene	2.4 U	9.4	1.3
Chrysene	2.4 U	9.4	1.3
bis(2-Ethylhexyl)phthalate	2.4 U	9.4	1.6
Di-n-octylphthalate	2.4 U	9.4	1.2
Benzo(b)fluoranthene	2.4 U	9.4	1.3
Benzo(k)fluoranthene	2.4 U	9.4	1.4
Benzo(a)pyrene	2.4 U	9.4	1.1
Indeno(1,2,3-cd)pyrene	2.4 U	9.4	1.4
Dibenz(a,h)anthracene	2.4 U	9.4	1.3
Benzo(g,h,i)perylene	2.4 U	9.4	1.4

Surrogate	%REC	Limits
2-Fluorophenol	84	20-110
Phenol-d5	87	10-115
2,4,6-Tribromophenol	120	40-125
Nitrobenzene-d5	78	40-110
2-Fluorobiphenyl	81	50-110
Terphenyl-d14	53	50-135

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W18-081314	Batch#:	214400
Lab ID:	259786-003	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/14/14
Diln Fac:	1.000	Analyzed:	08/18/14

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	2.4 U	9.6	2.2
Phenol	2.4 U	9.6	1.6
bis(2-Chloroethyl)ether	2.4 U	9.6	1.5
2-Chlorophenol	2.4 U	9.6	1.5
1,3-Dichlorobenzene	2.4 U	9.6	1.6
1,4-Dichlorobenzene	2.4 U	9.6	1.6
Benzyl alcohol	2.4 U	9.6	1.4
1,2-Dichlorobenzene	2.4 U	9.6	1.6
2-Methylphenol	2.4 U	9.6	1.4
bis(2-Chloroisopropyl) ether	4.8 U	9.6	2.6
4-Methylphenol	2.4 U	9.6	1.5
N-Nitroso-di-n-propylamine	2.4 U	9.6	1.9
Hexachloroethane	2.4 U	9.6	1.7
Nitrobenzene	2.4 U	9.6	1.6
Isophorone	2.4 U	9.6	1.8
2-Nitrophenol	4.8 U	19	2.5
2,4-Dimethylphenol	2.4 U	9.6	1.2
Benzoic acid	24 U	48	9.8
bis(2-Chloroethoxy)methane	2.4 U	9.6	1.2
2,4-Dichlorophenol	2.4 U	9.6	1.3
1,2,4-Trichlorobenzene	2.4 U	9.6	1.4
Naphthalene	2.4 U	9.6	1.4
4-Chloroaniline	2.4 U	9.6	1.2
Hexachlorobutadiene	2.4 U	9.6	1.3
4-Chloro-3-methylphenol	2.4 U	9.6	1.3
2-Methylnaphthalene	2.4 U	9.6	1.4
Hexachlorocyclopentadiene	4.8 U	19	1.7
2,4,6-Trichlorophenol	2.4 U	9.6	0.95
2,4,5-Trichlorophenol	2.4 U	9.6	0.91
2-Chloronaphthalene	2.4 U	9.6	1.5
2-Nitroaniline	2.4 U	19	1.7
Dimethylphthalate	2.4 U	9.6	1.5
Acenaphthylene	2.4 U	9.6	1.5
2,6-Dinitrotoluene	2.4 U	9.6	1.3
3-Nitroaniline	2.4 U	19	1.0
Acenaphthene	2.4 U	9.6	1.3
2,4-Dinitrophenol	4.8 U	19	2.0
4-Nitrophenol	2.4 U	19	1.1
Dibenzofuran	2.4 U	9.6	1.4
2,4-Dinitrotoluene	2.4 U	9.6	1.4
Diethylphthalate	2.4 U	9.6	1.6
Fluorene	2.4 U	9.6	1.5
4-Chlorophenyl-phenylether	2.4 U	9.6	1.3
4-Nitroaniline	2.4 U	19	1.1
4,6-Dinitro-2-methylphenol	4.8 U	19	1.6
N-Nitrosodiphenylamine	2.4 U	9.6	1.2
Azobenzene	2.4 U	9.6	1.5
4-Bromophenyl-phenylether	2.4 U	9.6	1.2
Hexachlorobenzene	2.4 U	9.6	1.2
Pentachlorophenol	2.4 U	19	1.2
Phenanthrene	2.4 U	9.6	1.3
Anthracene	2.4 U	9.6	1.3

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W18-081314	Batch#:	214400
Lab ID:	259786-003	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/14/14
Diln Fac:	1.000	Analyzed:	08/18/14

Analyte	Result	LOQ	DL
Carbazole	2.4 U	9.6	2.0
Di-n-butylphthalate	2.4 U	9.6	1.1
Fluoranthene	2.4 U	9.6	1.5
Pyrene	2.4 U	9.6	1.2
Butylbenzylphthalate	2.4 U	9.6	1.3
3,3'-Dichlorobenzidine	2.4 U	19	0.60
Benzo(a)anthracene	2.4 U	9.6	1.3
Chrysene	2.4 U	9.6	1.4
bis(2-Ethylhexyl)phthalate	2.4 J	9.6	1.6
Di-n-octylphthalate	2.4 U	9.6	1.2
Benzo(b)fluoranthene	2.4 U	9.6	1.3
Benzo(k)fluoranthene	2.4 U	9.6	1.4
Benzo(a)pyrene	2.4 U	9.6	1.1
Indeno(1,2,3-cd)pyrene	2.4 U	9.6	1.4
Dibenz(a,h)anthracene	2.4 U	9.6	1.3
Benzo(g,h,i)perylene	2.4 U	9.6	1.4

Surrogate	%REC	Limits
2-Fluorophenol	80	20-110
Phenol-d5	83	10-115
2,4,6-Tribromophenol	107	40-125
Nitrobenzene-d5	79	40-110
2-Fluorobiphenyl	80	50-110
Terphenyl-d14	54	50-135

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W17-081314	Batch#:	214400
Lab ID:	259786-004	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/14/14
Diln Fac:	1.000	Analyzed:	08/18/14

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	2.4 U	9.4	2.2
Phenol	2.4 U	9.4	1.6
bis(2-Chloroethyl)ether	2.4 U	9.4	1.5
2-Chlorophenol	2.4 U	9.4	1.5
1,3-Dichlorobenzene	2.4 U	9.4	1.5
1,4-Dichlorobenzene	2.4 U	9.4	1.6
Benzyl alcohol	2.4 U	9.4	1.4
1,2-Dichlorobenzene	2.4 U	9.4	1.6
2-Methylphenol	2.4 U	9.4	1.4
bis(2-Chloroisopropyl) ether	4.7 U	9.4	2.6
4-Methylphenol	2.4 U	9.4	1.4
N-Nitroso-di-n-propylamine	2.4 U	9.4	1.9
Hexachloroethane	2.4 U	9.4	1.6
Nitrobenzene	2.4 U	9.4	1.5
Isophorone	2.4 U	9.4	1.8
2-Nitrophenol	4.7 U	19	2.4
2,4-Dimethylphenol	2.4 U	9.4	1.2
Benzoic acid	24 U	47	9.6
bis(2-Chloroethoxy)methane	2.4 U	9.4	1.2
2,4-Dichlorophenol	2.4 U	9.4	1.3
1,2,4-Trichlorobenzene	2.4 U	9.4	1.3
Naphthalene	2.4 U	9.4	1.4
4-Chloroaniline	2.4 U	9.4	1.2
Hexachlorobutadiene	2.4 U	9.4	1.3
4-Chloro-3-methylphenol	2.4 U	9.4	1.3
2-Methylnaphthalene	2.4 U	9.4	1.4
Hexachlorocyclopentadiene	4.7 U	19	1.6
2,4,6-Trichlorophenol	2.4 U	9.4	0.93
2,4,5-Trichlorophenol	2.4 U	9.4	0.89
2-Chloronaphthalene	2.4 U	9.4	1.5
2-Nitroaniline	2.4 U	19	1.7
Dimethylphthalate	2.4 U	9.4	1.5
Acenaphthylene	2.4 U	9.4	1.4
2,6-Dinitrotoluene	2.4 U	9.4	1.3
3-Nitroaniline	2.4 U	19	0.98
Acenaphthene	2.4 U	9.4	1.3
2,4-Dinitrophenol	4.7 U	19	2.0
4-Nitrophenol	2.4 U	19	1.1
Dibenzofuran	2.4 U	9.4	1.4
2,4-Dinitrotoluene	2.4 U	9.4	1.4
Diethylphthalate	2.4 U	9.4	1.5
Fluorene	2.4 U	9.4	1.5
4-Chlorophenyl-phenylether	2.4 U	9.4	1.3
4-Nitroaniline	2.4 U	19	1.1
4,6-Dinitro-2-methylphenol	4.7 U	19	1.6
N-Nitrosodiphenylamine	2.4 U	9.4	1.2
Azobenzene	2.4 U	9.4	1.5
4-Bromophenyl-phenylether	2.4 U	9.4	1.1
Hexachlorobenzene	2.4 U	9.4	1.2
Pentachlorophenol	2.4 U	19	1.2
Phenanthrene	2.4 U	9.4	1.2
Anthracene	2.4 U	9.4	1.3
Carbazole	2.4 U	9.4	1.9

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W17-081314	Batch#:	214400
Lab ID:	259786-004	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/14/14
Diln Fac:	1.000	Analyzed:	08/18/14

Analyte	Result	LOQ	DL
Di-n-butylphthalate	2.4 U	9.4	1.1
Fluoranthene	2.4 U	9.4	1.5
Pyrene	2.4 U	9.4	1.2
Butylbenzylphthalate	2.4 U	9.4	1.3
3,3'-Dichlorobenzidine	2.4 U	19	0.59
Benzo(a)anthracene	2.4 U	9.4	1.3
Chrysene	2.4 U	9.4	1.3
bis(2-Ethylhexyl)phthalate	9.9	9.4	1.6
Di-n-octylphthalate	2.4 U	9.4	1.2
Benzo(b)fluoranthene	2.4 U	9.4	1.3
Benzo(k)fluoranthene	2.4 U	9.4	1.4
Benzo(a)pyrene	2.4 U	9.4	1.1
Indeno(1,2,3-cd)pyrene	2.4 U	9.4	1.4
Dibenz(a,h)anthracene	2.4 U	9.4	1.3
Benzo(g,h,i)perylene	2.4 U	9.4	1.4

Surrogate	%REC	Limits
2-Fluorophenol	75	20-110
Phenol-d5	77	10-115
2,4,6-Tribromophenol	104	40-125
Nitrobenzene-d5	72	40-110
2-Fluorobiphenyl	75	50-110
Terphenyl-d14	62	50-135

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753557	Batch#:	214400
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/15/14

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	5.0 U	10	1.5
Phenol	2.5 U	10	1.0
bis(2-Chloroethyl)ether	2.5 U	10	1.2
2-Chlorophenol	2.5 U	10	0.82
1,3-Dichlorobenzene	2.5 U	10	1.0
1,4-Dichlorobenzene	2.5 U	10	1.1
Benzyl alcohol	2.5 U	10	1.1
1,2-Dichlorobenzene	2.5 U	10	2.1
2-Methylphenol	2.5 U	10	2.2
bis(2-Chloroisopropyl) ether	2.5 U	10	1.4
4-Methylphenol	2.5 U	10	1.7
N-Nitroso-di-n-propylamine	2.5 U	10	1.2
Hexachloroethane	2.5 U	10	1.1
Nitrobenzene	2.5 U	10	1.2
Isophorone	2.5 U	10	1.3
2-Nitrophenol	5.0 U	20	2.6
2,4-Dimethylphenol	2.5 U	10	2.5
Benzoic acid	40 U	50	16
bis(2-Chloroethoxy)methane	2.5 U	10	1.1
2,4-Dichlorophenol	2.5 U	10	2.1
1,2,4-Trichlorobenzene	2.5 U	10	2.2
Naphthalene	2.5 U	10	1.9
4-Chloroaniline	5.0 U	10	2.1
Hexachlorobutadiene	2.5 U	10	2.4
4-Chloro-3-methylphenol	2.5 U	10	1.0
2-Methylnaphthalene	2.5 U	10	1.8
Hexachlorocyclopentadiene	2.5 U	20	0.68
2,4,6-Trichlorophenol	2.5 U	10	0.92
2,4,5-Trichlorophenol	2.5 U	10	0.85
2-Chloronaphthalene	2.5 U	10	1.8
2-Nitroaniline	2.5 U	20	1.2
Dimethylphthalate	2.5 U	10	2.0
Acenaphthylene	2.5 U	10	1.7
2,6-Dinitrotoluene	2.5 U	10	1.8
3-Nitroaniline	5.0 U	20	1.9
Acenaphthene	2.5 U	10	1.8
2,4-Dinitrophenol	18 U	20	2.6
4-Nitrophenol	5.0 U	20	1.8
Dibenzofuran	2.5 U	10	1.9
2,4-Dinitrotoluene	2.5 U	10	2.1
Diethylphthalate	2.5 U	10	1.0
Fluorene	2.5 U	10	1.8
4-Chlorophenyl-phenylether	2.5 U	10	1.6
4-Nitroaniline	5.0 U	20	2.4
4,6-Dinitro-2-methylphenol	5.0 U	20	1.2
N-Nitrosodiphenylamine	2.5 U	10	1.7
Azobenzene	2.5 U	10	1.2
4-Bromophenyl-phenylether	2.5 U	10	2.0
Hexachlorobenzene	2.5 U	10	2.0
Pentachlorophenol	5.0 U	20	1.9
Phenanthrene	2.5 U	10	1.9
Anthracene	2.5 U	10	1.8
Carbazole	2.5 U	10	2.3

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753557	Batch#:	214400
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/15/14

Analyte	Result	LOQ	DL
Di-n-butylphthalate	2.5 U	10	1.2
Fluoranthene	2.5 U	10	1.9
Pyrene	2.5 U	10	1.7
Butylbenzylphthalate	2.5 U	10	1.0
3,3'-Dichlorobenzidine	2.5 U	20	1.0
Benzo(a)anthracene	2.5 U	10	1.6
Chrysene	2.5 U	10	1.7
bis(2-Ethylhexyl)phthalate	2.5 U	10	1.8
Di-n-octylphthalate	2.5 U	10	1.8
Benzo(b)fluoranthene	2.5 U	10	1.7
Benzo(k)fluoranthene	2.5 U	10	2.0
Benzo(a)pyrene	2.5 U	10	1.6
Indeno(1,2,3-cd)pyrene	2.5 U	10	1.8
Dibenz(a,h)anthracene	2.5 U	10	1.8
Benzo(g,h,i)perylene	2.5 U	10	1.9

Surrogate	%REC	Limits
2-Fluorophenol	70	20-110
Phenol-d5	72	10-115
2,4,6-Tribromophenol	67	40-125
Nitrobenzene-d5	72	40-110
2-Fluorobiphenyl	73	50-110
Terphenyl-d14	80	50-135

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC753558	Batch#:	214400
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/16/14

Analyte	Spiked	Result	%REC	Limits
N-Nitrosodimethylamine	80.00	74.57	93	25-110
Phenol	80.00	70.79	88	0-115
bis(2-Chloroethyl)ether	80.00	70.53	88	35-110
2-Chlorophenol	80.00	71.45	89	35-105
1,3-Dichlorobenzene	80.00	58.32	73	30-100
1,4-Dichlorobenzene	80.00	58.90	74	30-100
Benzyl alcohol	80.00	74.06	93	30-110
1,2-Dichlorobenzene	80.00	61.61	77	35-100
2-Methylphenol	80.00	70.55	88	40-110
bis(2-Chloroisopropyl) ether	80.00	73.37	92	25-130
4-Methylphenol	80.00	67.33	84	30-110
N-Nitroso-di-n-propylamine	80.00	68.39	85	35-130
Hexachloroethane	80.00	51.19	64	30-100
Nitrobenzene	80.00	73.92	92	45-110
Isophorone	80.00	75.20	94	50-110
2-Nitrophenol	80.00	76.58	96	40-115
2,4-Dimethylphenol	80.00	56.05	70	30-110
Benzoic acid	120.0	40.38	34	0-125
bis(2-Chloroethoxy)methane	30.00	26.89	90	45-105
2,4-Dichlorophenol	80.00	71.93	90	50-105
1,2,4-Trichlorobenzene	80.00	62.94	79	35-105
Naphthalene	30.00	27.69	92	40-100
4-Chloroaniline	80.00	48.62	61	15-110
Hexachlorobutadiene	80.00	53.81	67	25-105
4-Chloro-3-methylphenol	80.00	69.11	86	45-110
2-Methylnaphthalene	30.00	27.21	91	45-105
Hexachlorocyclopentadiene	80.00	16.11	20	8-120
2,4,6-Trichlorophenol	80.00	76.63	96	50-115
2,4,5-Trichlorophenol	80.00	75.20	94	50-110
2-Chloronaphthalene	30.00	28.34	94	50-105
2-Nitroaniline	80.00	78.34	98	50-115
Dimethylphthalate	80.00	75.58	94	25-125
Acenaphthylene	30.00	30.75	103	50-105
2,6-Dinitrotoluene	80.00	78.27	98	50-115
3-Nitroaniline	80.00	75.56	94	20-125
Acenaphthene	30.00	30.59	102	45-110
2,4-Dinitrophenol	80.00	71.48	89	15-140
4-Nitrophenol	80.00	71.81	90	0-125

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC753558	Batch#:	214400
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/16/14

Analyte	Spiked	Result	%REC	Limits
Dibenzofuran	30.00	29.04	97	55-105
2,4-Dinitrotoluene	80.00	78.09	98	50-120
Diethylphthalate	30.00	29.86	100	40-120
Fluorene	30.00	29.70	99	50-110
4-Chlorophenyl-phenylether	30.00	29.23	97	50-110
4-Nitroaniline	80.00	75.57	94	35-120
4,6-Dinitro-2-methylphenol	80.00	86.81	109	40-130
N-Nitrosodiphenylamine	30.00	27.53	92	50-110
Azobenzene	30.00	27.69	92	55-115
4-Bromophenyl-phenylether	30.00	27.90	93	50-115
Hexachlorobenzene	80.00	63.36	79	50-110
Pentachlorophenol	80.00	74.05	93	40-115
Phenanthrene	30.00	30.09	100	50-115
Anthracene	30.00	29.82	99	55-110
Carbazole	80.00	69.60	87	50-115
Di-n-butylphthalate	30.00	29.05	97	55-115
Fluoranthene	30.00	30.11	100	55-115
Pyrene	30.00	31.69	106	50-130
Butylbenzylphthalate	30.00	29.21	97	45-115
3,3'-Dichlorobenzidine	80.00	56.69	71	20-110
Benzo(a)anthracene	30.00	29.86	100	55-110
Chrysene	30.00	30.63	102	55-110
bis(2-Ethylhexyl)phthalate	30.00	29.53	98	40-125
Di-n-octylphthalate	30.00	29.04	97	35-135
Benzo(b)fluoranthene	30.00	29.94	100	45-120
Benzo(k)fluoranthene	30.00	29.74	99	45-125
Benzo(a)pyrene	30.00	30.04	100	55-110
Indeno(1,2,3-cd)pyrene	30.00	29.96	100	45-125
Dibenz(a,h)anthracene	30.00	29.60	99	40-125
Benzo(g,h,i)perylene	30.00	31.02	103	40-125

Surrogate	%REC	Limits
2-Fluorophenol	87	20-110
Phenol-d5	91	10-115
2,4,6-Tribromophenol	85	40-125
Nitrobenzene-d5	92	40-110
2-Fluorobiphenyl	93	50-110
Terphenyl-d14	96	50-135

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W19-081314	Sampled:	08/13/14
MSS Lab ID:	259786-001	Received:	08/13/14
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/18/14
Batch#:	214400		

Type: MS Lab ID: QC753559

Analyte	MSS Result	Spiked	Result	%REC	Limits	Diln Fac
N-Nitrosodimethylamine	<2.167	75.47	63.53	84	25-110	1.000
Phenol	<1.569	75.47	72.37	96	0-115	1.000
bis(2-Chloroethyl)ether	<1.518	75.47	70.75	94	35-110	1.000
2-Chlorophenol	<1.507	75.47	70.97	94	35-105	1.000
1,3-Dichlorobenzene	<1.532	75.47	64.13	85	30-100	1.000
1,4-Dichlorobenzene	<1.555	75.47	64.12	85	30-100	1.000
Benzyl alcohol	<1.415	75.47	71.16	94	30-110	1.000
1,2-Dichlorobenzene	<1.588	75.47	64.64	86	35-100	1.000
2-Methylphenol	<1.370	75.47	71.04	94	40-110	1.000
bis(2-Chloroisopropyl) ether	<2.587	75.47	69.35	92	25-130	1.000
4-Methylphenol	<1.446	75.47	70.49	93	30-110	1.000
N-Nitroso-di-n-propylamine	<1.883	75.47	70.78	94	35-130	1.000
Hexachloroethane	<1.643	75.47	61.66	82	30-100	1.000
Nitrobenzene	<1.521	75.47	68.10	90	45-110	1.000
Isophorone	<1.772	75.47	71.67	95	50-110	2.000
2-Nitrophenol	<2.446	75.47	72.76	96	40-115	1.000
2,4-Dimethylphenol	<1.191	75.47	73.13	97	30-110	1.000
Benzoic acid	<9.577	113.2	124.8	110	0-125	2.000
bis(2-Chloroethoxy)methane	<1.176	28.30	27.06	96	45-105	1.000
2,4-Dichlorophenol	<1.264	75.47	68.81	91	50-105	1.000
1,2,4-Trichlorobenzene	<1.339	75.47	66.40	88	35-105	1.000
Naphthalene	<1.363	28.30	26.58	94	40-100	1.000
4-Chloroaniline	<1.189	75.47	48.30	64	15-110	2.000
Hexachlorobutadiene	<1.252	75.47	64.94	86	25-105	1.000
4-Chloro-3-methylphenol	<1.289	75.47	73.50	97	45-110	1.000
2-Methylnaphthalene	<1.385	28.30	26.94	95	45-105	1.000
Hexachlorocyclopentadiene	<1.642	75.47	23.79	32	8-120	1.000
2,4,6-Trichlorophenol	<0.9283	75.47	67.61	90	50-115	1.000
2,4,5-Trichlorophenol	<0.8912	75.47	71.64	95	50-110	1.000
2-Chloronaphthalene	<1.452	28.30	26.88	95	50-105	1.000
2-Nitroaniline	<1.688	75.47	73.80	98	50-115	1.000
Dimethylphthalate	<1.454	75.47	72.33	96	25-125	1.000
Acenaphthylene	<1.440	28.30	24.40	86	50-105	1.000
2,6-Dinitrotoluene	<1.310	75.47	74.02	98	50-115	1.000
3-Nitroaniline	<0.9824	75.47	58.12	77	20-125	1.000
Acenaphthene	<1.299	28.30	27.59	97	45-110	1.000
2,4-Dinitrophenol	<1.971	75.47	56.18	74	15-140	1.000
4-Nitrophenol	<1.111	75.47	77.50	103	0-125	1.000
Dibenzofuran	<1.387	28.30	28.29	100	55-105	1.000
2,4-Dinitrotoluene	<1.373	75.47	73.81	98	50-120	1.000
Diethylphthalate	<1.524	28.30	27.51	97	40-120	1.000
Fluorene	<1.452	28.30	27.64	98	50-110	1.000
4-Chlorophenyl-phenylether	<1.290	28.30	28.26	100	50-110	1.000
4-Nitroaniline	<1.115	75.47	63.57	84	35-120	1.000
4,6-Dinitro-2-methylphenol	<1.566	75.47	57.49	76	40-130	1.000
N-Nitrosodiphenylamine	<1.154	28.30	25.98	92	50-110	1.000
Azobenzene	<1.506	28.30	25.58	90	55-115	1.000
4-Bromophenyl-phenylether	<1.138	28.30	28.12	99	50-115	1.000

*= Value outside of QC limits; see narrative
NC= Not Calculated
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W19-081314	Sampled:	08/13/14
MSS Lab ID:	259786-001	Received:	08/13/14
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/18/14
Batch#:	214400		

Analyte	MSS Result	Spiked	Result	%REC	Limits	Diln Fac
Hexachlorobenzene	<1.160	75.47	72.35	96	50-110	1.000
Pentachlorophenol	<1.215	75.47	82.79	110	40-115	1.000
Phenanthrene	<1.231	28.30	28.24	100	50-115	1.000
Anthracene	<1.270	28.30	26.75	94	55-110	1.000
Carbazole	<1.938	75.47	73.17	97	50-115	1.000
Di-n-butylphthalate	<1.105	28.30	28.17	100	55-115	1.000
Fluoranthene	<1.481	28.30	28.21	100	55-115	1.000
Pyrene	<1.183	28.30	27.67	98	50-130	1.000
Butylbenzylphthalate	<1.293	28.30	27.99	99	45-115	1.000
3,3'-Dichlorobenzidine	<0.5913	75.47	0	0 *	20-110	1.000
Benzo(a)anthracene	<1.266	28.30	27.23	96	55-110	1.000
Chrysene	<1.341	28.30	27.23	96	55-110	1.000
bis(2-Ethylhexyl)phthalate	<1.610	28.30	30.89	109	40-125	1.000
Di-n-octylphthalate	<1.215	28.30	30.74	109	35-135	1.000
Benzo(b)fluoranthene	<1.302	28.30	29.70	105	45-120	1.000
Benzo(k)fluoranthene	<1.411	28.30	30.74	109	45-125	1.000
Benzo(a)pyrene	<1.064	28.30	27.03	96	55-110	1.000
Indeno(1,2,3-cd)pyrene	<1.354	28.30	30.74	109	45-125	1.000
Dibenz(a,h)anthracene	<1.282	28.30	30.77	109	40-125	1.000
Benzo(g,h,i)perylene	<1.418	28.30	30.88	109	40-125	1.000

Surrogate	%REC	Limits	Diln Fac
2-Fluorophenol	89	20-110	1.000
2-Fluorophenol	86	20-110	2.000
Phenol-d5	92	10-115	1.000
Phenol-d5	90	10-115	2.000
2,4,6-Tribromophenol	106	40-125	1.000
2,4,6-Tribromophenol	104	40-125	2.000
Nitrobenzene-d5	87	40-110	1.000
Nitrobenzene-d5	86	40-110	2.000
2-Fluorobiphenyl	84	50-110	1.000
2-Fluorobiphenyl	90	50-110	2.000
Terphenyl-d14	74	50-135	1.000
Terphenyl-d14	76	50-135	2.000

*= Value outside of QC limits; see narrative
NC= Not Calculated
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W19-081314	Sampled:	08/13/14
MSS Lab ID:	259786-001	Received:	08/13/14
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/18/14
Batch#:	214400		

Type: MSD Lab ID: QC753560

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Diln Fac
N-Nitrosodimethylamine	74.77	59.00	79	25-110	6	30	1.000
Phenol	74.77	68.56	92	0-115	4	30	1.000
bis(2-Chloroethyl)ether	74.77	65.77	88	35-110	6	30	1.000
2-Chlorophenol	74.77	65.47	88	35-105	7	30	1.000
1,3-Dichlorobenzene	74.77	57.44	77	30-100	10	30	1.000
1,4-Dichlorobenzene	74.77	57.58	77	30-100	10	30	1.000
Benzyl alcohol	74.77	64.87	87	30-110	8	30	1.000
1,2-Dichlorobenzene	74.77	58.11	78	35-100	10	30	1.000
2-Methylphenol	74.77	65.90	88	40-110	7	30	1.000
bis(2-Chloroisopropyl) ether	74.77	63.54	85	25-130	8	30	1.000
4-Methylphenol	74.77	63.85	85	30-110	9	30	1.000
N-Nitroso-di-n-propylamine	74.77	62.77	84	35-130	11	30	1.000
Hexachloroethane	74.77	54.52	73	30-100	11	30	1.000
Nitrobenzene	74.77	62.68	84	45-110	7	30	1.000
Isophorone	74.77	68.57	92	50-110	3	30	2.000
2-Nitrophenol	74.77	66.65	89	40-115	8	30	1.000
2,4-Dimethylphenol	74.77	67.77	91	30-110	7	30	1.000
Benzoic acid	112.1	117.5	105	0-125	5	30	2.000
bis(2-Chloroethoxy)methane	28.04	24.50	87	45-105	9	30	1.000
2,4-Dichlorophenol	74.77	63.63	85	50-105	7	30	1.000
1,2,4-Trichlorobenzene	74.77	59.48	80	35-105	10	30	1.000
Naphthalene	28.04	24.40	87	40-100	8	30	1.000
4-Chloroaniline	74.77	37.91	51	15-110	23	30	2.000
Hexachlorobutadiene	74.77	55.90	75	25-105	14	30	1.000
4-Chloro-3-methylphenol	74.77	67.38	90	45-110	8	30	1.000
2-Methylnaphthalene	28.04	24.33	87	45-105	9	30	1.000
Hexachlorocyclopentadiene	74.77	15.46	21	8-120	42 *	30	1.000
2,4,6-Trichlorophenol	74.77	62.15	83	50-115	7	30	1.000
2,4,5-Trichlorophenol	74.77	66.08	88	50-110	7	30	1.000
2-Chloronaphthalene	28.04	24.66	88	50-105	8	30	1.000
2-Nitroaniline	74.77	66.61	89	50-115	9	30	1.000
Dimethylphthalate	74.77	65.98	88	25-125	8	30	1.000
Acenaphthylene	28.04	23.79	85	50-105	2	30	1.000
2,6-Dinitrotoluene	74.77	67.44	90	50-115	8	30	1.000
3-Nitroaniline	74.77	55.20	74	20-125	4	30	1.000
Acenaphthene	28.04	24.81	88	45-110	10	30	1.000
2,4-Dinitrophenol	74.77	50.29	67	15-140	10	30	1.000
4-Nitrophenol	74.77	69.73	93	0-125	10	30	1.000
Dibenzofuran	28.04	25.78	92	55-105	8	30	1.000
2,4-Dinitrotoluene	74.77	67.02	90	50-120	9	30	1.000
Diethylphthalate	28.04	25.49	91	40-120	7	30	1.000
Fluorene	28.04	25.19	90	50-110	8	30	1.000
4-Chlorophenyl-phenylether	28.04	25.56	91	50-110	9	30	1.000
4-Nitroaniline	74.77	58.04	78	35-120	8	30	1.000
4,6-Dinitro-2-methylphenol	74.77	50.76	68	40-130	11	30	1.000
N-Nitrosodiphenylamine	28.04	23.60	84	50-110	9	30	1.000
Azobenzene	28.04	23.79	85	55-115	6	30	1.000
4-Bromophenyl-phenylether	28.04	25.32	90	50-115	10	30	1.000

*= Value outside of QC limits; see narrative
NC= Not Calculated
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W19-081314	Sampled:	08/13/14
MSS Lab ID:	259786-001	Received:	08/13/14
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/18/14
Batch#:	214400		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Diln Fac
Hexachlorobenzene	74.77	64.98	87	50-110	10	30	1.000
Pentachlorophenol	74.77	74.16	99	40-115	10	30	1.000
Phenanthrene	28.04	25.32	90	50-115	10	30	1.000
Anthracene	28.04	24.20	86	55-110	9	30	1.000
Carbazole	74.77	66.76	89	50-115	8	30	1.000
Di-n-butylphthalate	28.04	25.13	90	55-115	10	30	1.000
Fluoranthene	28.04	25.10	90	55-115	11	30	1.000
Pyrene	28.04	25.53	91	50-130	7	30	1.000
Butylbenzylphthalate	28.04	24.98	89	45-115	10	30	1.000
3,3'-Dichlorobenzidine	74.77	0	0 *	20-110	NC	30	1.000
Benzo(a)anthracene	28.04	24.29	87	55-110	10	30	1.000
Chrysene	28.04	24.30	87	55-110	10	30	1.000
bis(2-Ethylhexyl)phthalate	28.04	27.29	97	40-125	11	30	1.000
Di-n-octylphthalate	28.04	26.16	93	35-135	15	30	1.000
Benzo(b)fluoranthene	28.04	25.75	92	45-120	13	30	1.000
Benzo(k)fluoranthene	28.04	26.24	94	45-125	15	30	1.000
Benzo(a)pyrene	28.04	24.42	87	55-110	9	30	1.000
Indeno(1,2,3-cd)pyrene	28.04	26.48	94	45-125	14	30	1.000
Dibenz(a,h)anthracene	28.04	26.51	95	40-125	14	30	1.000
Benzo(g,h,i)perylene	28.04	26.82	96	40-125	13	30	1.000

Surrogate	%REC	Limits	Diln Fac
2-Fluorophenol	83	20-110	1.000
2-Fluorophenol	84	20-110	2.000
Phenol-d5	87	10-115	1.000
Phenol-d5	89	10-115	2.000
2,4,6-Tribromophenol	97	40-125	1.000
2,4,6-Tribromophenol	102	40-125	2.000
Nitrobenzene-d5	82	40-110	1.000
Nitrobenzene-d5	85	40-110	2.000
2-Fluorobiphenyl	80	50-110	1.000
2-Fluorobiphenyl	88	50-110	2.000
Terphenyl-d14	61	50-135	1.000
Terphenyl-d14	63	50-135	2.000

*= Value outside of QC limits; see narrative
NC= Not Calculated
RPD= Relative Percent Difference

Initial & Continuing Calibration Data

CURTIS & TOMPKINS DFTPP TUNE FOR 259786 MSBNA Water
EPA 8270D

Inst : MSBNA05 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 544327680005 File : xhf05 Time : 15-AUG-2014 16:14

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	179726	48.09	
68	< 2% of mass 69	0	0.00	
69		205592	100.00	
70	< 2% of mass 69	1070	0.52	
127	40% - 60% of mass 198	209002	55.92	
197	< 1% of mass 198	0	0.00	
198		373760	100.00	
199	5% - 9% of mass 198	25200	6.74	
275	10% - 30% of mass 198	92424	24.73	
365	> 1% of mass 198	9809	2.62	
441	Present, < mass 443	47026	82.11	
442	> 40% and < 100% of mass 198	295850	79.16	
443	17% - 23% of mass 442	57269	19.36	

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/19/14

PEM Report

File Name : G:\msbna05\081514\XHF05.D
Date Acquired : 15 Aug 2014 4:14 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA05 BNA DFTPP/PEM
Inst. Name : MSBNA05
AcquisitionMeth: DFTPP05.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	0.741	5.49	488314
Benzidine	0.497	7.37	2960445
4,4'-DDT		8.41	1496561
4,4'-DDE		7.60	3131
4,4'-DDD		8.02	50514

% Breakdown: 4,4'-DDT	LIMIT <=20%	3%	PASS
Tailing: Pentachlorophenol	8270C <5.0	0.7	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.5	PASS
	8270D <=2	0	PASS

Fri Aug 15 16:25:44 2014

CURTIS & TOMPKINS DFTPP TUNE FOR 259786 MSBNA Water
EPA 8270D

Inst : MSBNA05 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 544331768002 File : xhi02 Time : 18-AUG-2014 09:56

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	135175	44.05	
68	< 2% of mass 69	0	0.00	
69		155021	100.00	
70	< 2% of mass 69	789	0.51	
127	40% - 60% of mass 198	165013	53.78	
197	< 1% of mass 198	0	0.00	
198		306837	100.00	
199	5% - 9% of mass 198	20584	6.71	
275	10% - 30% of mass 198	75917	24.74	
365	> 1% of mass 198	8342	2.72	
441	Present, < mass 443	37109	81.94	
442	> 40% and < 100% of mass 198	235178	76.65	
443	17% - 23% of mass 442	45288	19.26	

Analyst: KMH Date: 08/18/14 Reviewer: LW Date: 08/19/14

PEM Report

File Name : G:\msbna05\081814\XHI02.D
Date Acquired : 18 Aug 2014 9:56 am
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA05 BNA DFTPP/PEM
Inst. Name : MSBNA05
AcquisitionMeth: DFTPP05.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	0.781	5.49	341285
Benzidine	0.837	7.36	2100944
4,4'-DDT		8.40	1123150
4,4'-DDE		7.60	5264
4,4'-DDD		8.02	22005

% Breakdown: 4,4'-DDT	LIMIT <=20%	2%	PASS
Tailing: Pentachlorophenol	8270C <5.0	0.8	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.8	PASS
	8270D <=2	1	PASS

Mon Aug 18 10:06:37 2014

CURTIS & TOMPKINS DFTPP TUNE FOR 259786 MSBNA Water
EPA 8270D

Inst : MSBNA09 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 584305789015 File : rgv15 Time : 31-JUL-2014 18:29

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	345531	38.25	
68	< 2% of mass 69	6827	1.83	
69		373297	100.00	
70	< 2% of mass 69	1830	0.49	
127	40% - 60% of mass 198	470485	52.08	
197	< 1% of mass 198	0	0.00	
198		903338	100.00	
199	5% - 9% of mass 198	61034	6.76	
275	10% - 30% of mass 198	259093	28.68	
365	> 1% of mass 198	32093	3.55	
441	Present, < mass 443	124642	74.41	
442	> 40% and < 100% of mass 198	878869	97.29	
443	17% - 23% of mass 442	167509	19.06	

Analyst: KMH Date: 08/01/14 Reviewer: LW Date: 08/06/14

PEM Report

File Name : G:\msbna09\073114\RGV15.D
Date Acquired : 31 Jul 2014 6:29 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA09 BNA DFTPP/PEM
Inst. Name : MSBNA09
AcquisitionMeth: DFTPP09.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	1.171	5.52	1361316
Benzidine	0.799	7.39	7972851
4,4'-DDT		8.43	4312502
4,4'-DDE		7.63	22871
4,4'-DDD		8.05	107140

% Breakdown: 4,4'-DDT	LIMIT <=20%	3%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.2	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.8	PASS
	8270D <=2	1	PASS

Thu Jul 31 18:46:48 2014

CURTIS & TOMPKINS DFTPP TUNE FOR 259786 MSBNA Water
EPA 8270D

Inst : MSBNA09 IDF : 1.0
Seqnum : 584327568016 File : rhf16 Time : 15-AUG-2014 17:08

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	252998	38.78	
68	< 2% of mass 69	0	0.00	
69		253312	100.00	
70	< 2% of mass 69	1324	0.52	
127	40% - 60% of mass 198	311018	47.67	
197	< 1% of mass 198	0	0.00	
198		652437	100.00	
199	5% - 9% of mass 198	44181	6.77	
275	10% - 30% of mass 198	183189	28.08	
365	> 1% of mass 198	19013	2.91	
441	Present, < mass 443	96514	80.88	
442	> 40% and < 100% of mass 198	632874	97.00	
443	17% - 23% of mass 442	119333	18.86	

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/18/14

PEM Report

File Name : G:\msbna09\081514\RHF16.D
Date Acquired : 15 Aug 2014 5:08 pm
Sample Name : TUN,S24893
Misc. Info :
Calib. Title : MSBNA09 BNA DFTPP/PEM
Inst. Name : MSBNA09
AcquisitionMeth: DFTPP09.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	1.174	5.51	818154
Benzidine	0.768	7.37	6075841
4,4'-DDT		8.40	2811794
4,4'-DDE		7.61	8007
4,4'-DDD		8.03	114715

% Breakdown: 4,4'-DDT	LIMIT <=20%	4%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.2	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.8	PASS
	8270D <=2	1	PASS

Fri Aug 15 17:19:15 2014

CURTIS & TOMPKINS DFTPP TUNE FOR 259786 MSBNA Water
EPA 8270D

Inst : MSBNA09 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 584329197003 File : rhg03 Time : 16-AUG-2014 15:34

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	246245	46.08	
68	< 2% of mass 69	0	0.00	
69		239253	100.00	
70	< 2% of mass 69	1182	0.49	
127	40% - 60% of mass 198	277354	51.90	
197	< 1% of mass 198	0	0.00	
198		534421	100.00	
199	5% - 9% of mass 198	35362	6.62	
275	10% - 30% of mass 198	140298	26.25	
365	> 1% of mass 198	13707	2.56	
441	Present, < mass 443	63037	79.20	
442	> 40% and < 100% of mass 198	412501	77.19	
443	17% - 23% of mass 442	79589	19.29	

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/18/14

PEM Report

File Name : G:\msbna09\081614\RHG03.D
Date Acquired : 16 Aug 2014 3:34 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA09 BNA DFTPP/PEM
Inst. Name : MSBNA09
AcquisitionMeth: DFTPP09.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	0.968	5.51	606175
Benzidine	1.032	7.37	4444278
4,4'-DDT		8.40	2351827
4,4'-DDE		7.60	6654
4,4'-DDD		8.02	51855

% Breakdown: 4,4'-DDT	LIMIT <=20%	2%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.0	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	1.0	PASS
	8270D <=2	1	PASS

Sat Aug 16 15:42:19 2014

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259786 MSBNA Water: EPA 8270D

Inst : MSBNA05
Calnum : 544327680001
Units : ug/mL

Name : 6PTBNA5
Date : 15-AUG-2014 16:36
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	xhf06	544327680006	ICAL	15-AUG-2014 16:36	S25407
L2	xhf07	544327680007	ICAL	15-AUG-2014 17:13	S25408
L3	xhf08	544327680008	ICAL	15-AUG-2014 17:48	S25409
L4	xhf09	544327680009	ICAL	15-AUG-2014 18:27	S25410
L5	xhf10	544327680010	ICAL	15-AUG-2014 19:04	S25411
L6	xhf11	544327680011	ICAL	15-AUG-2014 19:42	S25412
L7	xhf12	544327680012	ICAL	15-AUG-2014 20:18	S25413
L8	xhf13	544327680013	ICAL	15-AUG-2014 20:53	S25414
L9	xhf14	544327680014	ICAL	15-AUG-2014 21:30	S25415

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
N-Nitrosodimethylamine		0.6584	0.6527	0.6697	0.6691	0.6674	0.6778	0.6768	0.6869	AVRG		1.49291		0.6698	2	15	0.05	0.99	
Phenol		1.6930	1.7068	1.6823	1.6949	1.6792	1.7013	1.6690	1.6900	AVRG		0.59187		1.6896	1	15	0.800	0.99	
bis(2-Chloroethyl)ether		1.2353	1.2616	1.2630	1.2613	1.2275	1.2307	1.2069m	1.1601	AVRG		0.81248		1.2308	3	15	0.700	0.99	
2-Chlorophenol		1.4242	1.4375	1.4412	1.4216	1.4009	1.4092	1.3792	1.3626	AVRG		0.70944		1.4096	2	15	0.800	0.99	
1,3-Dichlorobenzene		1.6369	1.6278	1.5962	1.5701	1.5284	1.4579	1.3705	1.3138	AVRG		0.66107		1.5127	8	15	0.05	0.99	
1,4-Dichlorobenzene		1.6795	1.6559	1.6455	1.5847	1.5172	1.4352	1.3066	1.2470	AVRG		0.66271		1.5089	11	15	0.05	0.99	
Benzyl alcohol		0.9166	0.9356	0.9403	0.9479	0.9278	0.9535	0.9417	0.9631	AVRG		1.06293		0.9408	2	15	0.05	0.99	
1,2-Dichlorobenzene		1.6105	1.5953	1.5956	1.5493	1.4798	1.4148	1.3108	1.2591	AVRG		0.67709		1.4769	9	15	0.05	0.99	
2-Methylphenol		1.1459	1.1695	1.1624	1.1603	1.1422	1.1371	1.0999	1.0949	AVRG		0.87795		1.1390	2	15	0.700	0.99	
bis(2-Chloroisopropyl) ether		1.7687	1.8134	1.8240	1.8521	1.8305	1.9045	1.9136	1.9333	AVRG		0.53908		1.8550	3	15	0.010	0.99	
4-Methylphenol		1.6678	1.6865	1.6765	1.6779	1.6483	1.7285			AVRG		0.59491		1.6809	2	15	0.600	0.99	
N-Nitroso-di-n-propylamine		0.7818	0.8217	0.8336	0.8449	0.8413	0.8673	0.8550	0.8794	AVRG		1.18959		0.8406	4	15	0.500	0.99	
Hexachloroethane		0.6649	0.6780	0.6714	0.6686	0.6544	0.6390	0.5963	0.5732	AVRG		1.55467		0.6432	6	15	0.300	0.99	
Nitrobenzene		0.4043	0.4149	0.4096	0.4117	0.4078	0.4082	0.4061	0.4034	AVRG		2.44946		0.4083	1	15	0.200	0.99	
Isophorone		0.7250	0.7364	0.7213	0.7306	0.7295				AVRG		1.37256		0.7286	1	15	0.400	0.99	
2-Nitrophenol			0.2059	0.2054	0.2075	0.2070	0.2076	0.2022	0.2023m	AVRG		4.86811		0.2054	1	15	0.100	0.99	
2,4-Dimethylphenol		0.3752	0.3758	0.3671	0.3602	0.3530	0.3511	0.3490	0.3440	AVRG		2.78216		0.3594	3	15	0.200	0.99	
bis(2-Chloroethoxy)methane			0.4322	0.4265	0.4290	0.4319	0.4322	0.4309	0.4269	AVRG		2.32588		0.4299	1	15	0.300	0.99	
Benzoic acid		0.2204	0.2380	0.2569	0.2735	0.2798	0.2869	0.2932	0.2930	AVRG		3.73541		0.2677	10	15	0.05	0.99	
2,4-Dichlorophenol		0.3243	0.3289	0.3205	0.3204	0.3096	0.2924	0.2749	0.2609	AVRG		3.28958		0.3040	8	15	0.200	0.99	
1,2,4-Trichlorobenzene		0.3475	0.3507	0.3439	0.3376	0.3202	0.3040	0.2788	0.2625	AVRG		3.14316		0.3182	10	15	0.05	0.99	
Naphthalene	1.1701	1.1563	1.1652	1.1483	1.1243	1.0947	1.0491	0.9953	0.9561	AVRG		0.91283		1.0955	7	15	0.700	0.99	
4-Chloroaniline		0.2791	0.4744	0.4878m	0.4761m	0.4668m				LINR	2.73506	1.96829		0.4369	0.991	15	0.010	0.99	
Hexachlorobutadiene		0.1861	0.1851	0.1802	0.1764	0.1677	0.1541	0.1412	0.1293	AVRG		6.06045		0.1650	13	15	0.010	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
4-Chloro-3-methylphenol		0.3350	0.3342	0.3263	0.3257	0.3200	0.3144	0.3095	0.3002	AVRG		3.11857		0.3207	4	15	0.200	0.99	
2-Methylnaphthalene	0.7681	0.7746	0.7882	0.7653	0.7631	0.7358	0.7148	0.6816	0.6650	AVRG		1.35207		0.7396	6	15	0.400	0.99	
Hexachlorocyclopentadiene			0.3501	0.3584	0.3459	0.3391	0.3299	0.3023	0.2845	AVRG		3.02990		0.3300	8	15	0.050	0.99	
2,4,6-Trichlorophenol		0.3820	0.3841	0.3863	0.3780	0.3701	0.3601	0.3419	0.3253	AVRG		2.73240		0.3660	6	15	0.200	0.99	
2,4,5-Trichlorophenol		0.4104	0.4227	0.4268	0.4112	0.3937m	0.3772m	0.3479m	0.3304m	AVRG		2.56386		0.3900	9	15	0.200	0.99	
2-Chloronaphthalene			1.2316	1.2419	1.2013	1.1712	1.1512	1.0917	1.0704	AVRG		0.85792		1.1656	6	15	0.800	0.99	
2-Nitroaniline			0.3819	0.3959	0.3958	0.4002	0.4130	0.4079	0.4108	AVRG		2.49517		0.4008	3	15	0.010	0.99	
Dimethylphthalate		1.3494	1.3492	1.3528	1.3146	1.2783	1.2414	1.1631	1.1181	AVRG		0.78687		1.2709	7	15	0.010	0.99	
2,6-Dinitrotoluene		0.3011	0.3141	0.3200	0.3141	0.3161	0.3177	0.3093	0.3060	AVRG		3.20205		0.3123	2	15	0.200	0.99	
Acenaphthylene	1.9997	2.0460	2.0201	2.0350	1.9794	1.9588	1.9089	1.8163	1.7568	AVRG		0.51366		1.9468	5	15	0.900	0.99	
3-Nitroaniline			0.2531	0.3247	0.3456m	0.3571	0.3818	0.3786	0.3862	AVRG		2.88434		0.3467	14	15	0.010	0.99	
Acenaphthene	1.2227	1.2776	1.2754	1.3155	1.2906	1.2110m	1.1695	1.1068	1.0571	AVRG		0.82370		1.2140	7	15	0.900	0.99	
2,4-Dinitrophenol			0.1153	0.1400	0.1524	0.1648	0.1817	0.1927	0.1965	LINR	10.9335	4.65510		0.1633	0.999	15	0.010	0.99	
4-Nitrophenol			0.1768	0.1869	0.1867	0.1883	0.1917	0.1898	0.1922m	AVRG		5.33366		0.1875	3	15	0.010	0.99	
Dibenzofuran			1.7194	1.7329	1.6765	1.6444	1.6305	1.4943	1.3652	AVRG		0.62150		1.6090	8	15	0.800	0.99	
2,4-Dinitrotoluene		0.3997	0.4159	0.4286	0.4217	0.4198	0.4231	0.4008	0.3744	AVRG		2.43602		0.4105	4	15	0.200	0.99	
Diethylphthalate			1.4916	1.4896	1.4486	1.4389	1.4175	1.3484	1.3114	AVRG		0.70379		1.4209	5	15	0.010	0.99	
Fluorene	1.4365	1.4825	1.4736	1.4756	1.4263	1.3823	1.3411	1.2448	1.2030	AVRG		0.72199		1.3851	7	15	0.900	0.99	
4-Chlorophenyl-phenylether			0.6580	0.6672	0.6415	0.6281	0.6104	0.5713	0.5382	AVRG		1.62238		0.6164	8	15	0.400	0.99	
4-Nitroaniline			0.3328	0.3303	0.3512	0.3610	0.3828	0.3794	0.3781	AVRG		2.78252		0.3594	6	15	0.010	0.99	
4,6-Dinitro-2-methylphenol			0.1154	0.1274	0.1340	0.1386	0.1453	0.1460	0.1462	AVRG		7.34603		0.1361	8	15	0.010	0.99	
N-Nitrosodiphenylamine			0.6116	0.6218	0.6245	0.6194	0.6055	0.5936	0.5746	AVRG		1.64669		0.6073	3	15	0.010	0.99	
Azobenzene			0.9106	0.9296	0.9396	0.9332	0.9496	0.9252	0.9014	AVRG		1.07873		0.9270	2	15	0.05	0.99	
4-Bromophenyl-phenylether			0.2249	0.2273	0.2259	0.2241	0.2215	0.2144	0.2069	AVRG		4.53072		0.2207	3	15	0.100	0.99	
Hexachlorobenzene		0.2342	0.2377	0.2363	0.2354	0.2243	0.2116	0.1967	0.1832	AVRG		4.54731		0.2199	9	15	0.100	0.99	
Pentachlorophenol			0.1437	0.1536	0.1590	0.1584	0.1552	0.1480	0.1402	AVRG		6.61644		0.1511	5	15	0.050	0.99	
Phenanthrene	1.2081	1.2072	1.2011	1.1922	1.1811	1.1468	1.1067	1.0515	1.0035	AVRG		0.87394		1.1442	7	15	0.700	0.99	
Anthracene	1.2360	1.2164	1.2275	1.2149	1.1999	1.1783	1.1248	1.0598	1.0165m	AVRG		0.85926		1.1638	7	15	0.700	0.99	
Carbazole		0.9208	0.9914	1.0388	1.0497	0.9756	0.9587	0.9127	0.8774	AVRG		1.03559		0.9656	6	15	0.010	0.99	
Di-n-butylphthalate			1.5200	1.5230	1.5144	1.4877	1.4501	1.3438	1.2806	AVRG		0.69173		1.4456	7	15	0.010	0.99	
Fluoranthene	1.2951	1.3110	1.3020	1.3065	1.3047	1.2837	1.2525	1.1844	1.1337	AVRG		0.79132		1.2637	5	15	0.600	0.99	
Pyrene	1.2384	1.2648	1.2864	1.3174	1.3293	1.3088	1.3095	1.2698	1.2409	AVRG		0.77820		1.2850	3	15	0.600	0.99	
Butylbenzylphthalate			0.6033	0.6242	0.6478	0.6457	0.6743	0.6719	0.6592	AVRG		1.54649		0.6466	4	15	0.010	0.99	
3,3'-Dichlorobenzidine			0.3028	0.3631	0.3918	0.4052	0.4131	0.3681	0.3432	AVRG		2.70560		0.3696	10	15	0.010	0.99	
Benzo(a)anthracene	1.1530	1.1224	1.1428	1.1526	1.1440	1.1366	1.1611	1.1502	1.1340	AVRG		0.87408		1.1441	1	15	0.800	0.99	
bis(2-Ethylhexyl)phthalate			0.8808	0.9182	0.9283	0.9190	0.8788	0.7271	0.6237	AVRG		1.19130		0.8394	14	15	0.010	0.99	
Chrysene	1.0372	1.0454	1.0616	1.0607	1.0723	1.0494	1.0767	1.0420	1.0378	AVRG		0.94905		1.0537	1	15	0.700	0.99	
Di-n-octylphthalate			1.6002	1.7003	1.7383	1.7461	1.8451	1.8267	1.8210	AVRG		0.57014		1.7540	5	15	0.010	0.99	
Benzo(b)fluoranthene	1.0125	1.0824	1.1371	1.1905	1.1980	1.2078	1.3259	1.3554	1.3549	AVRG		0.82838		1.2072	10	15	0.700	0.99	
Benzo(k)fluoranthene	0.9880	1.0469	1.0839	1.1359	1.1431	1.1316	1.1322	1.1041	1.1065m	AVRG		0.91164		1.0969	5	15	0.700	0.99	
Benzo(a)pyrene	0.9770	1.0509	1.1075	1.1661	1.1639	1.1750	1.2477	1.2348	1.2452	AVRG		0.86805		1.1520	8	15	0.700	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Indeno(1,2,3-cd)pyrene	1.0501	1.1365	1.1978	1.2791	1.3128	1.3283	1.4156	1.4204		AVRG		0.78890		1.2676	10	15	0.500	0.99	
Dibenz(a,h)anthracene	0.8725	0.9478	0.9976	1.0747	1.0978	1.1140	1.1952	1.2027	1.2223	AVRG		0.92549		1.0805	11	15	0.400	0.99	
Benzo(g,h,i)perylene	0.9248	0.9245	0.9495	1.0256	1.0783	1.0922	1.1690	1.1811	1.1840	AVRG		0.94449		1.0588	10	15	0.500	0.99	
2-Fluorophenol	1.3378	1.3172	1.3419	1.3515	1.3569	1.3341	1.3673	1.3609	1.3712	AVRG		0.74142		1.3488	1	15	0.05	0.99	
Phenol-d5	1.6604	1.6374	1.6656	1.6621	1.6766	1.6617	1.7113	1.7060	1.7100	AVRG		0.59638		1.6768	2	15	0.05	0.99	
Nitrobenzene-d5	0.4335	0.4299	0.4442	0.4444	0.4527	0.4490	0.4521	0.4606	0.4580	AVRG		2.23631		0.4472	2	15	0.05	0.99	
2-Fluorobiphenyl	1.5118	1.5322	1.5224	1.5224	1.4688	1.4054	1.3489	1.2626	1.2275	AVRG		0.70301		1.4224	8	15	0.05	0.99	
2,4,6-Tribromophenol	0.1555	0.1723	0.1872	0.1930	0.1900	0.1910	0.1940	0.1846	0.1811	AVRG		5.45930		0.1832	7	15	0.05	0.99	
Terphenyl-d14	0.8361	0.8491	0.8869	0.8989	0.9115	0.9025	0.9030	0.8692	0.8323	AVRG		1.14076		0.8766	4	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
N-Nitrosodimethylamine			10.000	-2	20.000	-3	32.000	0	40.000	0	50.000	0	80.000	1	100.00	1	120.00	3
Phenol			10.000	0	20.000	1	32.000	0	40.000	0	50.000	-1	80.000	1	100.00	-1	120.00	0
bis(2-Chloroethyl)ether			10.000	0	20.000	3	32.000	3	40.000	2	50.000	0	80.000	0	100.00	-2	120.00	-6
2-Chlorophenol			10.000	1	20.000	2	32.000	2	40.000	1	50.000	-1	80.000	0	100.00	-2	120.00	-3
1,3-Dichlorobenzene			10.000	8	20.000	8	32.000	6	40.000	4	50.000	1	80.000	-4	100.00	-9	120.00	-13
1,4-Dichlorobenzene			10.000	11	20.000	10	32.000	9	40.000	5	50.000	1	80.000	-5	100.00	-13	120.00	-17
Benzyl alcohol			10.000	-3	20.000	-1	32.000	0	40.000	1	50.000	-1	80.000	1	100.00	0	120.00	2
1,2-Dichlorobenzene			10.000	9	20.000	8	32.000	8	40.000	5	50.000	0	80.000	-4	100.00	-11	120.00	-15
2-Methylphenol			10.000	1	20.000	3	32.000	2	40.000	2	50.000	0	80.000	0	100.00	-3	120.00	-4
bis(2-Chloroisopropyl) ether			10.000	-5	20.000	-2	32.000	-2	40.000	0	50.000	-1	80.000	3	100.00	3	120.00	4
4-Methylphenol			10.000	-1	20.000	0	32.000	0	40.000	0	50.000	-2	80.000	3				
N-Nitroso-di-n-propylamine			10.000	-7	20.000	-2	32.000	-1	40.000	1	50.000	0	80.000	3	100.00	2	120.00	5
Hexachloroethane			10.000	3	20.000	5	32.000	4	40.000	4	50.000	2	80.000	-1	100.00	-7	120.00	-11
Nitrobenzene			10.000	-1	20.000	2	32.000	0	40.000	1	50.000	0	80.000	0	100.00	-1	120.00	-1
Isophorone			10.000	0	20.000	1	32.000	-1	40.000	0	50.000	0						
2-Nitrophenol					20.000	0	32.000	0	40.000	1	50.000	1	80.000	1	100.00	-2	120.00	-2
2,4-Dimethylphenol			10.000	4	20.000	5	32.000	2	40.000	0	50.000	-2	80.000	-2	100.00	-3	120.00	-4
bis(2-Chloroethoxy)methane					10.000	1	16.000	-1	20.000	0	25.000	0	40.000	1	50.000	0	60.000	-1
Benzoic acid			50.000	-18	60.000	-11	80.000	-4	90.000	2	100.00	5	120.00	7	130.00	10	140.00	9
2,4-Dichlorophenol			10.000	7	20.000	8	32.000	5	40.000	5	50.000	2	80.000	-4	100.00	-10	120.00	-14
1,2,4-Trichlorobenzene			10.000	9	20.000	10	32.000	8	40.000	6	50.000	1	80.000	-4	100.00	-12	120.00	-17
Naphthalene	2.0000	7	5.0000	6	10.000	6	16.000	5	20.000	3	25.000	0	40.000	-4	50.000	-9	60.000	-13
4-Chloroaniline			10.000	-18	20.000	7	32.000	5	40.000	1	50.000	-3						
Hexachlorobutadiene			10.000	13	20.000	12	32.000	9	40.000	7	50.000	2	80.000	-7	100.00	-14	120.00	**-22**
4-Chloro-3-methylphenol			10.000	4	20.000	4	32.000	2	40.000	2	50.000	0	80.000	-2	100.00	-3	120.00	-6
2-Methylnaphthalene	2.0000	4	5.0000	5	10.000	7	16.000	3	20.000	3	25.000	-1	40.000	-3	50.000	-8	60.000	-10
Hexachlorocyclopentadiene					20.000	6	32.000	9	40.000	5	50.000	3	80.000	0	100.00	-8	120.00	-14
2,4,6-Trichlorophenol			10.000	4	20.000	5	32.000	6	40.000	3	50.000	1	80.000	-2	100.00	-7	120.00	-11
2,4,5-Trichlorophenol			10.000	5	20.000	8	32.000	9	40.000	5	50.000	1	80.000	-3	100.00	-11	120.00	-15
2-Chloronaphthalene					10.000	6	16.000	7	20.000	3	25.000	0	40.000	-1	50.000	-6	60.000	-8
2-Nitroaniline					20.000	-5	32.000	-1	40.000	-1	50.000	0	80.000	3	100.00	2	120.00	2
Dimethylphthalate			10.000	6	20.000	6	32.000	6	40.000	3	50.000	1	80.000	-2	100.00	-8	120.00	-12
2,6-Dinitrotoluene			10.000	-4	20.000	1	32.000	2	40.000	1	50.000	1	80.000	2	100.00	-1	120.00	-2
Acenaphthylene	2.0000	3	5.0000	5	10.000	4	16.000	5	20.000	2	25.000	1	40.000	-2	50.000	-7	60.000	-10
3-Nitroaniline					20.000	**-27**	32.000	-6	40.000	0	50.000	3	80.000	10	100.00	9	120.00	11
Acenaphthene	2.0000	1	5.0000	5	10.000	5	16.000	8	20.000	6	25.000	0	40.000	-4	50.000	-9	60.000	-13
2,4-Dinitrophenol					20.000	8	32.000	-1	40.000	-2	50.000	-1	80.000	-2	100.00	1	120.00	1
4-Nitrophenol					20.000	-6	32.000	0	40.000	0	50.000	0	80.000	2	100.00	1	120.00	3
Dibenzofuran					10.000	7	16.000	8	20.000	4	25.000	2	40.000	1	50.000	-7	60.000	-15
2,4-Dinitrotoluene			10.000	-3	20.000	1	32.000	4	40.000	3	50.000	2	80.000	3	100.00	-2	120.00	-9
Diethylphthalate					10.000	5	16.000	5	20.000	2	25.000	1	40.000	0	50.000	-5	60.000	-8
Fluorene	2.0000	4	5.0000	7	10.000	6	16.000	7	20.000	3	25.000	0	40.000	-3	50.000	-10	60.000	-13

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
4-Chlorophenyl-phenylether					10.000	7	16.000	8	20.000	4	25.000	2	40.000	-1	50.000	-7	60.000	-13
4-Nitroaniline					20.000	-7	32.000	-8	40.000	-2	50.000	0	80.000	7	100.00	6	120.00	5
4,6-Dinitro-2-methylphenol					20.000	-15	32.000	-6	40.000	-2	50.000	2	80.000	7	100.00	7	120.00	7
N-Nitrosodiphenylamine					10.000	1	16.000	2	20.000	3	25.000	2	40.000	0	50.000	-2	60.000	-5
Azobenzene					10.000	-2	16.000	0	20.000	1	25.000	1	40.000	2	50.000	0	60.000	-3
4-Bromophenyl-phenylether					10.000	2	16.000	3	20.000	2	25.000	2	40.000	0	50.000	-3	60.000	-6
Hexachlorobenzene			10.000	6	20.000	8	32.000	7	40.000	7	50.000	2	80.000	-4	100.00	-11	120.00	-17
Pentachlorophenol					20.000	-5	32.000	2	40.000	5	50.000	5	80.000	3	100.00	-2	120.00	-7
Phenanthrene	2.0000	6	5.0000	5	10.000	5	16.000	4	20.000	3	25.000	0	40.000	-3	50.000	-8	60.000	-12
Anthracene	2.0000	6	5.0000	5	10.000	5	16.000	4	20.000	3	25.000	1	40.000	-3	50.000	-9	60.000	-13
Carbazole			10.000	-5	20.000	3	32.000	8	40.000	9	50.000	1	80.000	-1	100.00	-5	120.00	-9
Di-n-butylphthalate					10.000	5	16.000	5	20.000	5	25.000	3	40.000	0	50.000	-7	60.000	-11
Fluoranthene	2.0000	2	5.0000	4	10.000	3	16.000	3	20.000	3	25.000	2	40.000	-1	50.000	-6	60.000	-10
Pyrene	2.0000	-4	5.0000	-2	10.000	0	16.000	3	20.000	3	25.000	2	40.000	2	50.000	-1	60.000	-3
Butylbenzylphthalate					10.000	-7	16.000	-3	20.000	0	25.000	0	40.000	4	50.000	4	60.000	2
3,3'-Dichlorobenzidine					20.000	-18	32.000	-2	40.000	6	50.000	10	80.000	12	100.00	0	120.00	-7
Benzo(a)anthracene	2.0000	1	5.0000	-2	10.000	0	16.000	1	20.000	0	25.000	-1	40.000	1	50.000	1	60.000	-1
bis(2-Ethylhexyl)phthalate					10.000	5	16.000	9	20.000	11	25.000	9	40.000	5	50.000	-13	60.000	**-26**
Chrysene	2.0000	-2	5.0000	-1	10.000	1	16.000	1	20.000	2	25.000	0	40.000	2	50.000	-1	60.000	-2
Di-n-octylphthalate					10.000	-9	16.000	-3	20.000	-1	25.000	0	40.000	5	50.000	4	60.000	4
Benzo(b)fluoranthene	2.0000	-16	5.0000	-10	10.000	-6	16.000	-1	20.000	-1	25.000	0	40.000	10	50.000	12	60.000	12
Benzo(k)fluoranthene	2.0000	-10	5.0000	-5	10.000	-1	16.000	4	20.000	4	25.000	3	40.000	3	50.000	1	60.000	1
Benzo(a)pyrene	2.0000	-15	5.0000	-9	10.000	-4	16.000	1	20.000	1	25.000	2	40.000	8	50.000	7	60.000	8
Indeno(1,2,3-cd)pyrene	2.0000	-17	5.0000	-10	10.000	-6	16.000	1	20.000	4	25.000	5	40.000	12	50.000	12		
Dibenz(a,h)anthracene	2.0000	-19	5.0000	-12	10.000	-8	16.000	-1	20.000	2	25.000	3	40.000	11	50.000	11	60.000	13
Benzo(g,h,i)perylene	2.0000	-13	5.0000	-13	10.000	-10	16.000	-3	20.000	2	25.000	3	40.000	10	50.000	12	60.000	12
2-Fluorophenol	2.0000	-1	5.0000	-2	10.000	-1	16.000	0	20.000	1	25.000	-1	40.000	1	50.000	1	60.000	2
Phenol-d5	2.0000	-1	5.0000	-2	10.000	-1	16.000	-1	20.000	0	25.000	-1	40.000	2	50.000	2	60.000	2
Nitrobenzene-d5	2.0000	-3	5.0000	-4	10.000	-1	16.000	-1	20.000	1	25.000	0	40.000	1	50.000	3	60.000	2
2-Fluorobiphenyl	2.0000	6	5.0000	8	10.000	7	16.000	7	20.000	3	25.000	-1	40.000	-5	50.000	-11	60.000	-14
2,4,6-Tribromophenol	2.0000	-15	5.0000	-6	10.000	2	16.000	5	20.000	4	25.000	4	40.000	6	50.000	1	60.000	-1
Terphenyl-d14	2.0000	-5	5.0000	-3	10.000	1	16.000	3	20.000	4	25.000	3	40.000	3	50.000	-1	60.000	-5

KMH 08/16/14 [Aniline]: Picked or reassigned peak in all levels.

KMH 08/16/14 [2-Nitrophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [3-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [4-Chloroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [2,4,5-Trichlorophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [Acenaphthene]: Corrected automatically drawn baseline in ICAL (xhf11).

KMH 08/16/14 [Pyridine]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [bis(2-Chloroethyl)ether]: Corrected automatically drawn baseline in ICAL (xhf13).

KMH 08/16/14 [4-Methylphenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [4-Nitrophenol]: Picked or reassigned peak in ICAL (xhf14).

KMH 08/16/14 [Anthracene]: Corrected automatically drawn baseline in ICAL (xhf14).

KMH 08/16/14 [Benzo(k)fluoranthene]: Picked or reassigned peak in ICAL (xhf14).

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/19/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; LINR=Linear regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259786 MSBNA Water
EPA 8270D

Inst : MSBNA05 Name : 6PTBNA5
Calnum : 544327680001 Cal Date : 15-AUG-2014

ICV 544327680015 (xhf15 15-AUG-2014) stds: S25418

Analyte	Spiked	Quant	Units	%D	Max	Flags
N-Nitrosodimethylamine	40.00	37.81	ug/mL	-5	20	
Phenol	40.00	37.82	ug/mL	-5	20	
bis(2-Chloroethyl)ether	40.00	38.43	ug/mL	-4	20	
2-Chlorophenol	40.00	38.18	ug/mL	-5	20	
1,3-Dichlorobenzene	40.00	38.79	ug/mL	-3	20	
1,4-Dichlorobenzene	40.00	39.02	ug/mL	-2	20	
Benzyl alcohol	40.00	37.97	ug/mL	-5	20	
1,2-Dichlorobenzene	40.00	38.80	ug/mL	-3	20	
2-Methylphenol	40.00	37.90	ug/mL	-5	20	
bis(2-Chloroisopropyl) ether	40.00	37.90	ug/mL	-5	20	
4-Methylphenol	40.00	33.62	ug/mL	-16	20	
N-Nitroso-di-n-propylamine	40.00	37.21	ug/mL	-7	20	
Hexachloroethane	40.00	38.46	ug/mL	-4	20	
Nitrobenzene	40.00	37.77	ug/mL	-6	20	
Isophorone	40.00	35.89	ug/mL	-10	20	
2-Nitrophenol	40.00	38.35	ug/mL	-4	20	
2,4-Dimethylphenol	40.00	38.51	ug/mL	-4	20	
bis(2-Chloroethoxy)methane	40.00	36.69	ug/mL	-8	20	
Benzoic acid	100.0	96.04	ug/mL	-4	20	
2,4-Dichlorophenol	40.00	39.07	ug/mL	-2	20	
1,2,4-Trichlorobenzene	40.00	38.91	ug/mL	-3	20	
Naphthalene	40.00	35.26	ug/mL	-12	20	
4-Chloroaniline	40.00	38.30	ug/mL	-4	20	
Hexachlorobutadiene	40.00	39.41	ug/mL	-1	20	
4-Chloro-3-methylphenol	40.00	37.64	ug/mL	-6	20	
2-Methylnaphthalene	40.00	36.56	ug/mL	-9	20	
Hexachlorocyclopentadiene	40.00	35.81	ug/mL	-10	20	
2,4,6-Trichlorophenol	40.00	37.22	ug/mL	-7	20	
2,4,5-Trichlorophenol	40.00	38.16	ug/mL	-5	20	m
2-Chloronaphthalene	40.00	35.99	ug/mL	-10	20	
2-Nitroaniline	40.00	37.48	ug/mL	-6	20	
Dimethylphthalate	40.00	38.49	ug/mL	-4	20	
2,6-Dinitrotoluene	40.00	38.38	ug/mL	-4	20	
Acenaphthylene	40.00	35.58	ug/mL	-11	20	
3-Nitroaniline	40.00	38.96	ug/mL	-3	20	
Acenaphthene	40.00	35.96	ug/mL	-10	20	
2,4-Dinitrophenol	40.00	38.44	ug/mL	-4	20	
4-Nitrophenol	40.00	37.46	ug/mL	-6	20	
Dibenzofuran	40.00	37.11	ug/mL	-7	20	
2,4-Dinitrotoluene	40.00	39.17	ug/mL	-2	20	
Diethylphthalate	40.00	35.10	ug/mL	-12	20	
Fluorene	40.00	35.26	ug/mL	-12	20	
4-Chlorophenyl-phenylether	40.00	35.97	ug/mL	-10	20	
4-Nitroaniline	40.00	37.23	ug/mL	-7	20	
4,6-Dinitro-2-methylphenol	40.00	37.16	ug/mL	-7	20	
N-Nitrosodiphenylamine	40.00	41.11	ug/mL	3	20	
Azobenzene	40.00	36.62	ug/mL	-8	20	
4-Bromophenyl-phenylether	40.00	35.88	ug/mL	-10	20	
Hexachlorobenzene	40.00	38.01	ug/mL	-5	20	

Analyte	Spiked	Quant	Units	%D	Max	Flags
Pentachlorophenol	40.00	36.42	ug/mL	-9	20	
Phenanthrene	40.00	34.71	ug/mL	-13	20	
Anthracene	40.00	35.37	ug/mL	-12	20	
Carbazole	40.00	41.57	ug/mL	4	20	
Di-n-butylphthalate	40.00	35.81	ug/mL	-10	20	
Fluoranthene	40.00	35.75	ug/mL	-11	20	
Pyrene	40.00	34.63	ug/mL	-13	20	
Butylbenzylphthalate	40.00	37.63	ug/mL	-6	20	
3,3'-Dichlorobenzidine	60.00	59.22	ug/mL	-1	20	
Benzo(a)anthracene	40.00	37.24	ug/mL	-7	20	
bis(2-Ethylhexyl)phthalate	40.00	39.51	ug/mL	-1	20	
Chrysene	40.00	35.31	ug/mL	-12	20	
Di-n-octylphthalate	40.00	37.37	ug/mL	-7	20	
Benzo(b)fluoranthene	40.00	39.18	ug/mL	-2	20	
Benzo(k)fluoranthene	40.00	40.20	ug/mL	0	20	
Benzo(a)pyrene	40.00	38.58	ug/mL	-4	20	
Indeno(1,2,3-cd)pyrene	40.00	39.56	ug/mL	-1	20	
Dibenz(a,h)anthracene	40.00	39.11	ug/mL	-2	20	
Benzo(g,h,i)perylene	40.00	38.86	ug/mL	-3	20	

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/19/14

m=manual integration

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259786 MSBNA Water: EPA 8270D

Inst : MSBNA09
Calnum : 584305789001
Units : ug/mL

Name : 6PTBNA9
Date : 31-JUL-2014 19:18
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	rgv16	584305789016	ICAL	31-JUL-2014 19:18	S24422
L2	rgv17	584305789017	ICAL	31-JUL-2014 19:47	S24424
L3	rgv18	584305789018	ICAL	31-JUL-2014 20:17	S24425
L4	rgv19	584305789019	ICAL	31-JUL-2014 20:47	S24427
L5	rgv20	584305789020	ICAL	31-JUL-2014 21:17	S24428
L6	rgv21	584305789021	ICAL	31-JUL-2014 21:47	S24429
L7	rgv22	584305789022	ICAL	31-JUL-2014 22:18	S24430
L8	rgv23	584305789023	ICAL	31-JUL-2014 22:48	S24431
L9	rgv24	584305789024	ICAL	31-JUL-2014 23:18	S24432

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
N-Nitrosodimethylamine		0.6914	0.7062	0.7007	0.6940	0.6725	0.6850	0.6819	0.6799	AVRG		1.45149		0.6889	2	15	0.05	0.99	
Phenol		1.7949	1.8023	1.7821	1.7353	1.6895	1.7229	1.7252	1.7515	AVRG		0.57127		1.7505	2	15	0.800	0.99	
bis(2-Chloroethyl)ether		1.4075	1.4036	1.3635	1.3501	1.2833	1.2794	1.2322	1.2695	AVRG		0.75549		1.3236	5	15	0.700	0.99	
2-Chlorophenol		1.5252	1.5553	1.5565	1.5171	1.4712	1.4674	1.4423	1.4243	AVRG		0.66894		1.4949	3	15	0.800	0.99	
1,3-Dichlorobenzene		1.6836	1.6923	1.6751	1.6451	1.5724	1.5313	1.4635	1.4190	AVRG		0.63080		1.5853	7	15	0.05	0.99	
1,4-Dichlorobenzene		1.7175	1.7260	1.7055	1.6600	1.5832	1.5430	1.4690	1.4208	AVRG		0.62379		1.6031	7	15	0.05	0.99	
Benzyl alcohol		0.8783	0.8970	0.9342	0.9213	0.9608	1.0349	1.0315	1.0526	AVRG		1.03753		0.9638	7	15	0.05	0.99	
1,2-Dichlorobenzene		1.5993	1.6039	1.5815	1.5474	1.4906	1.4410	1.3824	1.3423	AVRG		0.66731		1.4985	7	15	0.05	0.99	
2-Methylphenol		1.1171	1.1274	1.1118	1.0737	1.0832	1.1323	1.1342	1.1453	AVRG		0.89636		1.1156	2	15	0.700	0.99	
bis(2-Chloroisopropyl) ether		1.9727	1.9558	1.9040	1.8300	1.7737	1.7740	1.7754	1.7881	AVRG		0.54151		1.8467	5	15	0.010	0.99	
4-Methylphenol		1.6373	1.6384	1.6641	1.6442	1.6827	1.8013	1.8160	1.8706	AVRG		0.58162		1.7193	5	15	0.600	0.99	
N-Nitroso-di-n-propylamine		0.8428	0.9435	1.0001	0.9938	1.0010	1.0425	1.0284	1.0465	AVRG		1.01284		0.9873	7	15	0.500	0.99	
Hexachloroethane		0.6305	0.6461	0.6504	0.6384	0.6206	0.6148	0.5905	0.5843	AVRG		1.60785		0.6219	4	15	0.300	0.99	
Nitrobenzene		0.3688	0.3698	0.3745	0.3680	0.3528	0.3579	0.3478	0.3422	AVRG		2.77615		0.3602	3	15	0.200	0.99	
Isophorone		0.7212	0.7714	0.7920	0.7720	0.7313	0.7235	0.6973	0.6882	AVRG		1.35661		0.7371	5	15	0.400	0.99	
2-Nitrophenol			0.1920	0.2024	0.2063	0.2044	0.2117	0.2060	0.2004	AVRG		4.91861		0.2033	3	15	0.100	0.99	
2,4-Dimethylphenol		0.3502	0.3614	0.3938	0.3954	0.3748	0.3687	0.3520	0.3452	AVRG		2.71965		0.3677	5	15	0.200	0.99	
bis(2-Chloroethoxy)methane			0.4534	0.4786	0.4795	0.4612	0.4581	0.4414	0.4305	AVRG		2.18575		0.4575	4	15	0.300	0.99	
Benzoic acid		0.1993	0.2289	0.2591	0.2745	0.2684	0.2764	0.2780	0.2806	AVRG		3.87363		0.2582	11	15	0.05	0.99	
2,4-Dichlorophenol		0.3099	0.3220	0.3327	0.3328	0.3199	0.3147	0.2938	0.2838	AVRG		3.18777		0.3137	6	15	0.200	0.99	
1,2,4-Trichlorobenzene		0.3460	0.3520	0.3471	0.3375	0.3157	0.2983	0.2829	0.2702	AVRG		3.13757		0.3187	10	15	0.05	0.99	
Naphthalene	1.0603	1.1240	1.1396	1.1497	1.1258	1.0861	1.0761	1.0263	1.0125	AVRG		0.91832		1.0889	5	15	0.700	0.99	
4-Chloroaniline		0.4291	0.5232	0.5370	0.5333	0.5021m	0.4816m	0.4547m	0.4326	AVRG		2.05460		0.4867	9	15	0.010	0.99	
Hexachlorobutadiene		0.1897	0.1983	0.1954	0.1888	0.1744	0.1622	0.1554	0.1479	AVRG		5.66479		0.1765	11	15	0.010	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
4-Chloro-3-methylphenol		0.3495	0.3759	0.3870	0.3758	0.3585	0.3410	0.3230	0.3157	AVRG		2.83049		0.3533	7	15	0.200	0.99	
2-Methylnaphthalene	0.6790	0.7354	0.8185	0.8487	0.8356	0.7940	0.7702	0.7240	0.6978	AVRG		1.30374		0.7670	8	15	0.400	0.99	
Hexachlorocyclopentadiene			0.3628	0.3820	0.3910	0.3891	0.3910	0.3696	0.3516	AVRG		2.65445		0.3767	4	15	0.050	0.99	
2,4,6-Trichlorophenol		0.3702	0.3900	0.3946	0.3928	0.3896	0.3850	0.3751	0.3594	AVRG		2.61723		0.3821	3	15	0.200	0.99	
2,4,5-Trichlorophenol		0.3938	0.4222	0.4377	0.4348	0.4090	0.4100	0.3767m	0.3728	AVRG		2.45620		0.4071	6	15	0.200	0.99	
2-Chloronaphthalene			1.2135	1.2415	1.2276	1.1820	1.1969	1.1410	1.1148	AVRG		0.84162		1.1882	4	15	0.800	0.99	
2-Nitroaniline			0.3459	0.3605	0.3570	0.3516	0.3582	0.3490	0.3489	AVRG		2.83269		0.3530	2	15	0.010	0.99	
Dimethylphthalate		1.4357	1.4875	1.5029	1.4683	1.4179	1.4093	1.3182	1.2575	AVRG		0.70815		1.4121	6	15	0.010	0.99	
2,6-Dinitrotoluene		0.3140	0.3365	0.3492	0.3448	0.3440	0.3582	0.3461	0.3424	AVRG		2.92482		0.3419	4	15	0.200	0.99	
Acenaphthylene	1.6084	1.6989	1.7562	1.7792	1.7399	1.6886	1.6918	1.6354	1.5900	AVRG		0.59255		1.6876	4	15	0.900	0.99	
3-Nitroaniline			0.3513m	0.3755m	0.3801m	0.3815m	0.4011	0.3917	0.3896	AVRG		2.62094		0.3815	4	15	0.010	0.99	
Acenaphthene	1.1614	1.2447	1.2989	1.3096	1.3124	1.2524	1.2702	1.2282	1.2026	AVRG		0.79784		1.2534	4	15	0.900	0.99	
2,4-Dinitrophenol			0.1075	0.1355	0.1533m	0.1627m	0.1950m	0.1990m	0.2090m	LINR	12.9032	4.32381		0.1660	0.999	15	0.010	0.99	
4-Nitrophenol			0.1789m	0.1910m	0.1934m	0.1902m	0.1983	0.1938	0.1924	AVRG		5.23151		0.1911	3	15	0.010	0.99	
Dibenzofuran			1.7761	1.7981	1.7778	1.7325	1.7480	1.6956	1.6331	AVRG		0.57560		1.7373	3	15	0.800	0.99	
2,4-Dinitrotoluene		0.4297	0.4669	0.4928	0.4875	0.4806	0.4957	0.4746	0.4658	AVRG		2.10883		0.4742	4	15	0.200	0.99	
Diethylphthalate			1.5346	1.5774	1.5789	1.5402	1.5676	1.4907	1.4408	AVRG		0.65238		1.5329	3	15	0.010	0.99	
Fluorene	1.4029	1.4698	1.4874	1.5121	1.4829	1.4351	1.4335	1.3620	1.3259	AVRG		0.69704		1.4346	4	15	0.900	0.99	
4-Chlorophenyl-phenylether			0.7266	0.7476	0.7377	0.7257	0.7402	0.7091	0.6878	AVRG		1.37941		0.7249	3	15	0.400	0.99	
4-Nitroaniline			0.3768m	0.3971	0.3940	0.3921	0.4115	0.3986	0.3960	AVRG		2.53072		0.3951	3	15	0.010	0.99	
4,6-Dinitro-2-methylphenol			0.1203	0.1324	0.1431	0.1452	0.1565	0.1571	0.1610	AVRG		6.89283		0.1451	10	15	0.010	0.99	
N-Nitrosodiphenylamine			0.6099	0.6075	0.6153	0.5906	0.5980	0.5785	0.5820	AVRG		1.67390		0.5974	2	15	0.010	0.99	
Azobenzene			0.8263	0.8156	0.8188	0.7952	0.7896	0.7705	0.7757	AVRG		1.25187		0.7988	3	15	0.05	0.99	
4-Bromophenyl-phenylether			0.2467	0.2484	0.2529	0.2465	0.2497	0.2443	0.2463	AVRG		4.03511		0.2478	1	15	0.100	0.99	
Hexachlorobenzene		0.2744	0.2794	0.2797	0.2807	0.2686	0.2608	0.2507	0.2449	AVRG		3.73973		0.2674	5	15	0.100	0.99	
Pentachlorophenol			0.1520	0.1643	0.1742	0.1713	0.1779	0.1722	0.1747	AVRG		5.89909		0.1695	5	15	0.050	0.99	
Phenanthrene	1.1257	1.2289	1.2328	1.2329	1.2147	1.1617	1.1309	1.0744	1.0484	AVRG		0.86122		1.1611	6	15	0.700	0.99	
Anthracene	1.1163	1.1881	1.2121	1.2194	1.1959	1.1590	1.1147	1.0798m	1.0504	AVRG		0.87077		1.1484	5	15	0.700	0.99	
Carbazole		1.0130	1.1290	1.1193	1.1012	1.0359	0.9603	0.8887	0.8698	AVRG		0.98558		1.0146	10	15	0.010	0.99	
Di-n-butylphthalate			1.5949	1.5837	1.5815	1.4914	1.4069	1.3314	1.2868	AVRG		0.68116		1.4681	9	15	0.010	0.99	
Fluoranthene	1.2466	1.3764	1.3744	1.3861	1.3541	1.2644	1.2134	1.1548	1.1279	AVRG		0.78273		1.2776	8	15	0.600	0.99	
Pyrene	1.0705	1.2403	1.2712	1.2861	1.2697	1.2021	1.1804	1.1218	1.1187	AVRG		0.83638		1.1956	7	15	0.600	0.99	
Butylbenzylphthalate			0.5714	0.5901	0.5822	0.5623	0.5714	0.5514	0.5557	AVRG		1.75680		0.5692	2	15	0.010	0.99	
3,3'-Dichlorobenzidine			0.4289	0.4527	0.4639	0.4474	0.4333	0.4073	0.3928	AVRG		2.31307		0.4323	6	15	0.010	0.99	
Benzo(a)anthracene	1.0660	1.1287	1.1392	1.1627	1.1455	1.1191	1.1385	1.1132	1.1220	AVRG		0.88802		1.1261	2	15	0.800	0.99	
bis(2-Ethylhexyl)phthalate			0.8437	0.8679	0.8584	0.8240	0.7595	0.6940	0.6271	AVRG		1.27865		0.7821	12	15	0.010	0.99	
Chrysene	1.0039	1.0504	1.0893	1.1084	1.1131	1.0643	1.0814	1.0382	1.0530	AVRG		0.93731		1.0669	3	15	0.700	0.99	
Di-n-octylphthalate			1.4940	1.5597	1.5598	1.5231	1.5706	1.5559	1.5500	AVRG		0.64735		1.5448	2	15	0.010	0.99	
Benzo(b)fluoranthene	0.9916	1.0871	1.1600	1.1756	1.1816	1.1559	1.2252	1.1862	1.2768	AVRG		0.86207		1.1600	7	15	0.700	0.99	
Benzo(k)fluoranthene	0.9900	1.1041	1.1553	1.2287	1.2044	1.1555	1.1895	1.2014	1.1722	AVRG		0.86527		1.1557	6	15	0.700	0.99	
Benzo(a)pyrene	0.8192	0.9250	0.9765	1.0217	1.0207	0.9857	1.0411	1.0318	1.0461	AVRG		1.01490		0.9853	7	15	0.700	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Indeno(1,2,3-cd)pyrene	0.9412	1.0577	1.1284	1.1957	1.2067	1.1738	1.2069	1.2109	1.2328	AVRG		0.86923		1.1504	8	15	0.500	0.99	
Dibenz(a,h)anthracene	0.8363	0.9398	1.0131	1.0689	1.0750	1.0538	1.0925	1.0937	1.1175	AVRG		0.96871		1.0323	9	15	0.400	0.99	
Benzo(g,h,i)perylene	0.7966	0.8451	0.8928	0.9376	0.9559	0.9266	0.9628	0.9593	0.9672	AVRG		1.09171		0.9160	7	15	0.500	0.99	
2-Fluorophenol	1.3347	1.4475	1.4868	1.5063	1.4861	1.4485	1.5020	1.4901	1.4930	AVRG		0.68208		1.4661	4	15	0.05	0.99	
Phenol-d5	1.6070	1.7128	1.7315	1.7386	1.6936	1.6677	1.7342	1.7411	1.7664	AVRG		0.58468		1.7103	3	15	0.05	0.99	
Nitrobenzene-d5	0.3599	0.3882	0.3777	0.3952	0.3923	0.3846	0.3909	0.3870	0.3882	AVRG		2.59816		0.3849	3	15	0.05	0.99	
2-Fluorobiphenyl	1.3655	1.4485	1.5077	1.5205	1.4869	1.4289	1.4091	1.3532	1.2921	AVRG		0.70244		1.4236	5	15	0.05	0.99	
2,4,6-Tribromophenol	0.1537	0.1835	0.2001	0.2123	0.2198	0.2204	0.2463	0.2406	0.2452	AVRG		4.68243		0.2136	14	15	0.05	0.99	
Terphenyl-d14	0.8305	0.9362	0.9721	0.9975	0.9822	0.9426	0.9279	0.8872	0.8817	AVRG		1.07682		0.9287	6	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
N-Nitrosodimethylamine			10.000	0	20.000	3	32.000	2	40.000	1	50.000	-2	80.000	-1	100.00	-1	120.00	-1
Phenol			10.000	3	20.000	3	32.000	2	40.000	-1	50.000	-3	80.000	-2	100.00	-1	120.00	0
bis(2-Chloroethyl)ether			10.000	6	20.000	6	32.000	3	40.000	2	50.000	-3	80.000	-3	100.00	-7	120.00	-4
2-Chlorophenol			10.000	2	20.000	4	32.000	4	40.000	1	50.000	-2	80.000	-2	100.00	-4	120.00	-5
1,3-Dichlorobenzene			10.000	6	20.000	7	32.000	6	40.000	4	50.000	-1	80.000	-3	100.00	-8	120.00	-10
1,4-Dichlorobenzene			10.000	7	20.000	8	32.000	6	40.000	4	50.000	-1	80.000	-4	100.00	-8	120.00	-11
Benzyl alcohol			10.000	-9	20.000	-7	32.000	-3	40.000	-4	50.000	0	80.000	7	100.00	7	120.00	9
1,2-Dichlorobenzene			10.000	7	20.000	7	32.000	6	40.000	3	50.000	-1	80.000	-4	100.00	-8	120.00	-10
2-Methylphenol			10.000	0	20.000	1	32.000	0	40.000	-4	50.000	-3	80.000	1	100.00	2	120.00	3
bis(2-Chloroisopropyl) ether			10.000	7	20.000	6	32.000	3	40.000	-1	50.000	-4	80.000	-4	100.00	-4	120.00	-3
4-Methylphenol			10.000	-5	20.000	-5	32.000	-3	40.000	-4	50.000	-2	80.000	5	100.00	6	120.00	9
N-Nitroso-di-n-propylamine			10.000	-15	20.000	-4	32.000	1	40.000	1	50.000	1	80.000	6	100.00	4	120.00	6
Hexachloroethane			10.000	1	20.000	4	32.000	5	40.000	3	50.000	0	80.000	-1	100.00	-5	120.00	-6
Nitrobenzene			10.000	2	20.000	3	32.000	4	40.000	2	50.000	-2	80.000	-1	100.00	-3	120.00	-5
Isophorone			10.000	-2	20.000	5	32.000	7	40.000	5	50.000	-1	80.000	-2	100.00	-5	120.00	-7
2-Nitrophenol					20.000	-6	32.000	0	40.000	1	50.000	1	80.000	4	100.00	1	120.00	-1
2,4-Dimethylphenol			10.000	-5	20.000	-2	32.000	7	40.000	8	50.000	2	80.000	0	100.00	-4	120.00	-6
bis(2-Chloroethoxy)methane					10.000	-1	16.000	5	20.000	5	25.000	1	40.000	0	50.000	-4	60.000	-6
Benzoic acid			50.000	**-23**	60.000	-11	80.000	0	90.000	6	100.00	4	120.00	7	130.00	8	140.00	9
2,4-Dichlorophenol			10.000	-1	20.000	3	32.000	6	40.000	6	50.000	2	80.000	0	100.00	-6	120.00	-10
1,2,4-Trichlorobenzene			10.000	9	20.000	10	32.000	9	40.000	6	50.000	-1	80.000	-6	100.00	-11	120.00	-15
Naphthalene	2.0000	-3	5.0000	3	10.000	5	16.000	6	20.000	3	25.000	0	40.000	-1	50.000	-6	60.000	-7
4-Chloroaniline			10.000	-12	20.000	8	32.000	10	40.000	10	50.000	3	80.000	-1	100.00	-7	120.00	-11
Hexachlorobutadiene			10.000	7	20.000	12	32.000	11	40.000	7	50.000	-1	80.000	-8	100.00	-12	120.00	-16
4-Chloro-3-methylphenol			10.000	-1	20.000	6	32.000	10	40.000	6	50.000	1	80.000	-3	100.00	-9	120.00	-11
2-Methylnaphthalene	2.0000	-11	5.0000	-4	10.000	7	16.000	11	20.000	9	25.000	4	40.000	0	50.000	-6	60.000	-9
Hexachlorocyclopentadiene					20.000	-4	32.000	1	40.000	4	50.000	3	80.000	4	100.00	-2	120.00	-7
2,4,6-Trichlorophenol			10.000	-3	20.000	2	32.000	3	40.000	3	50.000	2	80.000	1	100.00	-2	120.00	-6
2,4,5-Trichlorophenol			10.000	-3	20.000	4	32.000	8	40.000	7	50.000	0	80.000	1	100.00	-7	120.00	-8
2-Chloronaphthalene					10.000	2	16.000	4	20.000	3	25.000	-1	40.000	1	50.000	-4	60.000	-6
2-Nitroaniline					20.000	-2	32.000	2	40.000	1	50.000	0	80.000	1	100.00	-1	120.00	-1
Dimethylphthalate			10.000	2	20.000	5	32.000	6	40.000	4	50.000	0	80.000	0	100.00	-7	120.00	-11
2,6-Dinitrotoluene			10.000	-8	20.000	-2	32.000	2	40.000	1	50.000	1	80.000	5	100.00	1	120.00	0
Acenaphthylene	2.0000	-5	5.0000	1	10.000	4	16.000	5	20.000	3	25.000	0	40.000	0	50.000	-3	60.000	-6
3-Nitroaniline					20.000	-8	32.000	-2	40.000	0	50.000	0	80.000	5	100.00	3	120.00	2
Acenaphthene	2.0000	-7	5.0000	-1	10.000	4	16.000	4	20.000	5	25.000	0	40.000	1	50.000	-2	60.000	-4
2,4-Dinitrophenol					20.000	11	32.000	-1	40.000	-1	50.000	-4	80.000	0	100.00	-1	120.00	1
4-Nitrophenol					20.000	-6	32.000	0	40.000	1	50.000	0	80.000	4	100.00	1	120.00	1
Dibenzofuran					10.000	2	16.000	3	20.000	2	25.000	0	40.000	1	50.000	-2	60.000	-6
2,4-Dinitrotoluene			10.000	-9	20.000	-2	32.000	4	40.000	3	50.000	1	80.000	5	100.00	0	120.00	-2
Diethylphthalate					10.000	0	16.000	3	20.000	3	25.000	0	40.000	2	50.000	-3	60.000	-6
Fluorene	2.0000	-2	5.0000	2	10.000	4	16.000	5	20.000	3	25.000	0	40.000	0	50.000	-5	60.000	-8

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
4-Chlorophenyl-phenylether					10.000	0	16.000	3	20.000	2	25.000	0	40.000	2	50.000	-2	60.000	-5
4-Nitroaniline					20.000	-5	32.000	0	40.000	0	50.000	-1	80.000	4	100.00	1	120.00	0
4,6-Dinitro-2-methylphenol					20.000	-17	32.000	-9	40.000	-1	50.000	0	80.000	8	100.00	8	120.00	11
N-Nitrosodiphenylamine					10.000	2	16.000	2	20.000	3	25.000	-1	40.000	0	50.000	-3	60.000	-3
Azobenzene					10.000	3	16.000	2	20.000	3	25.000	0	40.000	-1	50.000	-4	60.000	-3
4-Bromophenyl-phenylether					10.000	0	16.000	0	20.000	2	25.000	-1	40.000	1	50.000	-1	60.000	-1
Hexachlorobenzene			10.000	3	20.000	4	32.000	5	40.000	5	50.000	0	80.000	-2	100.00	-6	120.00	-8
Pentachlorophenol					20.000	-10	32.000	-3	40.000	3	50.000	1	80.000	5	100.00	2	120.00	3
Phenanthrene	2.0000	-3	5.0000	6	10.000	6	16.000	6	20.000	5	25.000	0	40.000	-3	50.000	-7	60.000	-10
Anthracene	2.0000	-3	5.0000	3	10.000	6	16.000	6	20.000	4	25.000	1	40.000	-3	50.000	-6	60.000	-9
Carbazole			10.000	0	20.000	11	32.000	10	40.000	9	50.000	2	80.000	-5	100.00	-12	120.00	-14
Di-n-butylphthalate					10.000	9	16.000	8	20.000	8	25.000	2	40.000	-4	50.000	-9	60.000	-12
Fluoranthene	2.0000	-2	5.0000	8	10.000	8	16.000	8	20.000	6	25.000	-1	40.000	-5	50.000	-10	60.000	-12
Pyrene	2.0000	-10	5.0000	4	10.000	6	16.000	8	20.000	6	25.000	1	40.000	-1	50.000	-6	60.000	-6
Butylbenzylphthalate					10.000	0	16.000	4	20.000	2	25.000	-1	40.000	0	50.000	-3	60.000	-2
3,3'-Dichlorobenzidine					20.000	-1	32.000	5	40.000	7	50.000	3	80.000	0	100.00	-6	120.00	-9
Benzo(a)anthracene	2.0000	-5	5.0000	0	10.000	1	16.000	3	20.000	2	25.000	-1	40.000	1	50.000	-1	60.000	0
bis(2-Ethylhexyl)phthalate					10.000	8	16.000	11	20.000	10	25.000	5	40.000	-3	50.000	-11	60.000	-20
Chrysene	2.0000	-6	5.0000	-2	10.000	2	16.000	4	20.000	4	25.000	0	40.000	1	50.000	-3	60.000	-1
Di-n-octylphthalate					10.000	-3	16.000	1	20.000	1	25.000	-1	40.000	2	50.000	1	60.000	0
Benzo(b)fluoranthene	2.0000	-15	5.0000	-6	10.000	0	16.000	1	20.000	2	25.000	0	40.000	6	50.000	2	60.000	10
Benzo(k)fluoranthene	2.0000	-14	5.0000	-4	10.000	0	16.000	6	20.000	4	25.000	0	40.000	3	50.000	4	60.000	1
Benzo(a)pyrene	2.0000	-17	5.0000	-6	10.000	-1	16.000	4	20.000	4	25.000	0	40.000	6	50.000	5	60.000	6
Indeno(1,2,3-cd)pyrene	2.0000	-18	5.0000	-8	10.000	-2	16.000	4	20.000	5	25.000	2	40.000	5	50.000	5	60.000	7
Dibenz(a,h)anthracene	2.0000	-19	5.0000	-9	10.000	-2	16.000	4	20.000	4	25.000	2	40.000	6	50.000	6	60.000	8
Benzo(g,h,i)perylene	2.0000	-13	5.0000	-8	10.000	-3	16.000	2	20.000	4	25.000	1	40.000	5	50.000	5	60.000	6
2-Fluorophenol	2.0000	-9	5.0000	-1	10.000	1	16.000	3	20.000	1	25.000	-1	40.000	2	50.000	2	60.000	2
Phenol-d5	2.0000	-6	5.0000	0	10.000	1	16.000	2	20.000	-1	25.000	-2	40.000	1	50.000	2	60.000	3
Nitrobenzene-d5	2.0000	-6	5.0000	1	10.000	-2	16.000	3	20.000	2	25.000	0	40.000	2	50.000	1	60.000	1
2-Fluorobiphenyl	2.0000	-4	5.0000	2	10.000	6	16.000	7	20.000	4	25.000	0	40.000	-1	50.000	-5	60.000	-9
2,4,6-Tribromophenol	2.0000	**-28**	5.0000	-14	10.000	-6	16.000	-1	20.000	3	25.000	3	40.000	15	50.000	13	60.000	15
Terphenyl-d14	2.0000	-11	5.0000	1	10.000	5	16.000	7	20.000	6	25.000	1	40.000	0	50.000	-4	60.000	-5

KMH 08/01/14 [Aniline]: Picked or reassigned peak in all levels.

KMH 08/01/14 [3-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [4-Nitrophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [4-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [3,3'-Dichlorobenzidine]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [2,4-Dinitrophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [4-Chloroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [2,4,5-Trichlorophenol]: Corrected automatically drawn baseline in ICAL (rgv23).

KMH 08/01/14 [Anthracene]: Corrected automatically drawn baseline in ICAL (rgv23).

Analyst: KMH Date: 08/01/14 Reviewer: LW Date: 08/06/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; LINR=Linear regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259786 MSBNA Water
EPA 8270D

Inst : MSBNA09 Name : 6PTBNA9
Calnum : 584305789001 Cal Date : 31-JUL-2014

ICV 584305789025 (rgv25 31-JUL-2014) stds: S24471

Analyte	Spiked	Quant	Units	%D	Max	Flags
N-Nitrosodimethylamine	40.00	38.45	ug/mL	-4	20	
Phenol	40.00	38.19	ug/mL	-5	20	
bis(2-Chloroethyl)ether	40.00	39.29	ug/mL	-2	20	
2-Chlorophenol	40.00	38.81	ug/mL	-3	20	
1,3-Dichlorobenzene	40.00	39.49	ug/mL	-1	20	
1,4-Dichlorobenzene	40.00	39.00	ug/mL	-3	20	
Benzyl alcohol	40.00	40.12	ug/mL	0	20	
1,2-Dichlorobenzene	40.00	39.12	ug/mL	-2	20	
2-Methylphenol	40.00	39.22	ug/mL	-2	20	
bis(2-Chloroisopropyl) ether	40.00	39.13	ug/mL	-2	20	
4-Methylphenol	40.00	34.09	ug/mL	-15	20	
N-Nitroso-di-n-propylamine	40.00	39.44	ug/mL	-1	20	
Hexachloroethane	40.00	39.10	ug/mL	-2	20	
Nitrobenzene	40.00	39.53	ug/mL	-1	20	
Isophorone	40.00	40.94	ug/mL	2	20	
2-Nitrophenol	40.00	39.56	ug/mL	-1	20	
2,4-Dimethylphenol	40.00	41.81	ug/mL	5	20	
bis(2-Chloroethoxy)methane	40.00	39.42	ug/mL	-1	20	
Benzoic acid	100.0	105.4	ug/mL	5	20	
2,4-Dichlorophenol	40.00	39.98	ug/mL	0	20	
1,2,4-Trichlorobenzene	40.00	39.54	ug/mL	-1	20	
Naphthalene	40.00	38.13	ug/mL	-5	20	
4-Chloroaniline	40.00	42.00	ug/mL	5	20	
Hexachlorobutadiene	40.00	40.75	ug/mL	2	20	
4-Chloro-3-methylphenol	40.00	39.84	ug/mL	0	20	
2-Methylnaphthalene	40.00	40.39	ug/mL	1	20	
Hexachlorocyclopentadiene	40.00	36.71	ug/mL	-8	20	
2,4,6-Trichlorophenol	40.00	38.79	ug/mL	-3	20	
2,4,5-Trichlorophenol	40.00	40.19	ug/mL	0	20	
2-Chloronaphthalene	40.00	38.31	ug/mL	-4	20	
2-Nitroaniline	40.00	38.87	ug/mL	-3	20	
Dimethylphthalate	40.00	39.93	ug/mL	0	20	
2,6-Dinitrotoluene	40.00	40.44	ug/mL	1	20	
Acenaphthylene	40.00	43.26	ug/mL	8	20	
3-Nitroaniline	40.00	40.11	ug/mL	0	20	
Acenaphthene	40.00	35.94	ug/mL	-10	20	
2,4-Dinitrophenol	40.00	40.36	ug/mL	1	20	m
4-Nitrophenol	40.00	38.52	ug/mL	-4	20	m
Dibenzofuran	40.00	38.29	ug/mL	-4	20	
2,4-Dinitrotoluene	40.00	39.63	ug/mL	-1	20	
Diethylphthalate	40.00	37.90	ug/mL	-5	20	
Fluorene	40.00	37.80	ug/mL	-6	20	
4-Chlorophenyl-phenylether	40.00	38.25	ug/mL	-4	20	
4-Nitroaniline	40.00	38.21	ug/mL	-4	20	
4,6-Dinitro-2-methylphenol	40.00	38.45	ug/mL	-4	20	
N-Nitrosodiphenylamine	40.00	44.66	ug/mL	12	20	
Azobenzene	40.00	37.93	ug/mL	-5	20	
4-Bromophenyl-phenylether	40.00	38.36	ug/mL	-4	20	
Hexachlorobenzene	40.00	39.17	ug/mL	-2	20	

Analyte	Spiked	Quant	Units	%D	Max	Flags
Pentachlorophenol	40.00	37.41	ug/mL	-6	20	
Phenanthrene	40.00	37.26	ug/mL	-7	20	
Anthracene	40.00	38.70	ug/mL	-3	20	
Carbazole	40.00	40.93	ug/mL	2	20	
Di-n-butylphthalate	40.00	37.30	ug/mL	-7	20	
Fluoranthene	40.00	36.70	ug/mL	-8	20	
Pyrene	40.00	36.20	ug/mL	-9	20	
Butylbenzylphthalate	40.00	38.51	ug/mL	-4	20	
3,3'-Dichlorobenzidine	60.00	59.84	ug/mL	0	20	
Benzo(a)anthracene	40.00	39.04	ug/mL	-2	20	
bis(2-Ethylhexyl)phthalate	40.00	39.42	ug/mL	-1	20	
Chrysene	40.00	37.36	ug/mL	-7	20	
Di-n-octylphthalate	40.00	38.60	ug/mL	-3	20	
Benzo(b)fluoranthene	40.00	42.43	ug/mL	6	20	
Benzo(k)fluoranthene	40.00	38.95	ug/mL	-3	20	
Benzo(a)pyrene	40.00	44.62	ug/mL	12	20	
Indeno(1,2,3-cd)pyrene	40.00	39.27	ug/mL	-2	20	
Dibenz(a,h)anthracene	40.00	38.70	ug/mL	-3	20	
Benzo(g,h,i)perylene	40.00	38.80	ug/mL	-3	20	

Analyst: KMH Date: 08/01/14 Reviewer: LW Date: 08/06/14

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 MSBNA Water
EPA 8270D

Inst : MSBNA05 IDF : 1.0
Seqnum : 544331768003.1 File : xhi03 Time : 18-AUG-2014 10:19
Cal : 544327680001 Caldate : 15-AUG-2014
Standards: S25410

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
N-Nitrosodimethylamine	0.6698	0.6429	32.00	30.71	ug/mL	-4	20	0.0500	
Phenol	1.6896	1.6577	32.00	31.40	ug/mL	-2	20	0.8000	
bis(2-Chloroethyl)ether	1.2308	1.2426	32.00	32.31	ug/mL	1	20	0.7000	
2-Chlorophenol	1.4096	1.4377	32.00	32.64	ug/mL	2	20	0.8000	
1,3-Dichlorobenzene	1.5127	1.6011	32.00	33.87	ug/mL	6	20	0.0500	
1,4-Dichlorobenzene	1.5089	1.6570	32.00	35.14	ug/mL	10	20	0.0500	
Benzyl alcohol	0.9408	0.9453	32.00	32.15	ug/mL	0	20	0.0500	
1,2-Dichlorobenzene	1.4769	1.5915	32.00	34.48	ug/mL	8	20	0.0500	
2-Methylphenol	1.1390	1.1591	32.00	32.56	ug/mL	2	20	0.7000	
bis(2-Chloroisopropyl) ether	1.8550	1.7986	32.00	31.03	ug/mL	-3	20	0.0100	
4-Methylphenol	1.6809	1.6895	32.00	32.16	ug/mL	1	20	0.6000	
N-Nitroso-di-n-propylamine	0.8406	0.8526	32.00	32.45	ug/mL	1	20	0.5000	
Hexachloroethane	0.6432	0.6747	32.00	33.57	ug/mL	5	20	0.3000	
Nitrobenzene	0.4083	0.4008	32.00	31.42	ug/mL	-2	20	0.2000	
Isophorone	0.7286	0.7065	32.00	31.03	ug/mL	-3	20	0.4000	
2-Nitrophenol	0.2054	0.2050	32.00	31.94	ug/mL	0	20	0.1000	
2,4-Dimethylphenol	0.3594	0.3655	32.00	32.54	ug/mL	2	20	0.2000	
bis(2-Chloroethoxy)methane	0.4299	0.4298	16.00	15.99	ug/mL	0	20	0.3000	
Benzoic acid	0.2677	0.2659	80.00	79.45	ug/mL	-1	20	0.0500	
2,4-Dichlorophenol	0.3040	0.3254	32.00	34.25	ug/mL	7	20	0.2000	
1,2,4-Trichlorobenzene	0.3182	0.3456	32.00	34.76	ug/mL	9	20	0.0500	
Naphthalene	1.0955	1.1576	16.00	16.91	ug/mL	6	20	0.7000	
4-Chloroaniline	0.4369	0.4806	32.00	33.00	ug/mL	3	20	0.0100	
Hexachlorobutadiene	0.1650	0.1907	32.00	36.98	ug/mL	16	20	0.0100	
4-Chloro-3-methylphenol	0.3207	0.3325	32.00	33.18	ug/mL	4	20	0.2000	
2-Methylnaphthalene	0.7396	0.7811	16.00	16.90	ug/mL	6	20	0.4000	
Hexachlorocyclopentadiene	0.3300	0.3672	32.00	35.60	ug/mL	11	20	0.0500	
2,4,6-Trichlorophenol	0.3660	0.3936	32.00	34.42	ug/mL	8	20	0.2000	
2,4,5-Trichlorophenol	0.3900	0.4309	32.00	35.36	ug/mL	10	20	0.2000	
2-Chloronaphthalene	1.1656	1.2341	16.00	16.94	ug/mL	6	20	0.8000	
2-Nitroaniline	0.4008	0.3929	32.00	31.37	ug/mL	-2	20	0.0100	
Dimethylphthalate	1.2709	1.3734	32.00	34.58	ug/mL	8	20	0.0100	
2,6-Dinitrotoluene	0.3123	0.3207	32.00	32.86	ug/mL	3	20	0.2000	
Acenaphthylene	1.9468	2.0533	16.00	16.88	ug/mL	5	20	0.9000	
3-Nitroaniline	0.3467	0.3223	32.00	29.75	ug/mL	-7	20	0.0100	m
Acenaphthene	1.2140	1.3270	16.00	17.49	ug/mL	9	20	0.9000	
2,4-Dinitrophenol	0.1633	0.1533	32.00	33.77	ug/mL	6	20	0.0100	
4-Nitrophenol	0.1875	0.1810	32.00	30.90	ug/mL	-3	20	0.0100	
Dibenzofuran	1.6090	1.7735	16.00	17.64	ug/mL	10	20	0.8000	
2,4-Dinitrotoluene	0.4105	0.4325	32.00	33.71	ug/mL	5	20	0.2000	
Diethylphthalate	1.4209	1.5034	16.00	16.93	ug/mL	6	20	0.0100	
Fluorene	1.3851	1.4790	16.00	17.09	ug/mL	7	20	0.9000	
4-Chlorophenyl-phenylether	0.6164	0.6778	16.00	17.59	ug/mL	10	20	0.4000	
4-Nitroaniline	0.3594	0.3172	32.00	28.24	ug/mL	-12	20	0.0100	
4,6-Dinitro-2-methylphenol	0.1361	0.1391	32.00	32.69	ug/mL	2	20	0.0100	
N-Nitrosodiphenylamine	0.6073	0.6216	16.00	16.38	ug/mL	2	20	0.0100	
Azobenzene	0.9270	0.9137	16.00	15.77	ug/mL	-1	20	0.0500	
4-Bromophenyl-phenylether	0.2207	0.2322	16.00	16.83	ug/mL	5	20	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Hexachlorobenzene	0.2199	0.2493	32.00	36.28	ug/mL	13	20	0.1000	
Pentachlorophenol	0.1511	0.1684	32.00	35.65	ug/mL	11	20	0.0500	
Phenanthrene	1.1442	1.1982	16.00	16.76	ug/mL	5	20	0.7000	
Anthracene	1.1638	1.2315	16.00	16.93	ug/mL	6	20	0.7000	
Carbazole	0.9656	1.0501	32.00	34.80	ug/mL	9	20	0.0100	
Di-n-butylphthalate	1.4456	1.5063	16.00	16.67	ug/mL	4	20	0.0100	
Fluoranthene	1.2637	1.3359	16.00	16.91	ug/mL	6	20	0.6000	
Pyrene	1.2850	1.3166	16.00	16.39	ug/mL	2	20	0.6000	
Butylbenzylphthalate	0.6466	0.6125	16.00	15.16	ug/mL	-5	20	0.0100	
3,3'-Dichlorobenzidine	0.3696	0.3609	32.00	31.24	ug/mL	-2	20	0.0100	
Benzo(a)anthracene	1.1441	1.1545	16.00	16.15	ug/mL	1	20	0.8000	
bis(2-Ethylhexyl)phthalate	0.8394	0.8870	16.00	16.91	ug/mL	6	20	0.0100	
Chrysene	1.0537	1.0835	16.00	16.45	ug/mL	3	20	0.7000	
Di-n-octylphthalate	1.7540	1.6053	16.00	14.64	ug/mL	-8	20	0.0100	
Benzo(b)fluoranthene	1.2072	1.1893	16.00	15.76	ug/mL	-1	20	0.7000	
Benzo(k)fluoranthene	1.0969	1.1130	16.00	16.23	ug/mL	1	20	0.7000	
Benzo(a)pyrene	1.1520	1.1437	16.00	15.89	ug/mL	-1	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.2676	1.2613	16.00	15.92	ug/mL	0	20	0.5000	
Dibenz(a,h)anthracene	1.0805	1.0513	16.00	15.57	ug/mL	-3	20	0.4000	
Benzo(g,h,i)perylene	1.0588	1.0186	16.00	15.39	ug/mL	-4	20	0.5000	
2-Fluorophenol	1.3488	1.3309	16.00	15.79	ug/mL	-1	20	0.0500	
Phenol-d5	1.6768	1.6245	16.00	15.50	ug/mL	-3	20	0.0500	
Nitrobenzene-d5	0.4472	0.4417	16.00	15.80	ug/mL	-1	20	0.0500	
2-Fluorobiphenyl	1.4224	1.5442	16.00	17.37	ug/mL	9	20	0.0500	
2,4,6-Tribromophenol	0.1832	0.2102	16.00	18.36	ug/mL	15	20	0.0500	
Terphenyl-d14	0.8766	0.9159	16.00	16.72	ug/mL	4	20	0.0500	

ISTD (ICAL xhf11)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	1031318	785831	-23.80
Naphthalene-d8	3900538	3089728	-20.79
Acenaphthene-d10	2287286	1847064	-19.25
Phenanthrene-d10	3792150	3217279	-15.16
Chrysene-d12	4068719	3608754	-11.30
Perylene-d12	3663483	3274933	-10.61

ISTD (ICAL xhf11)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.04	6.04	0.00
Naphthalene-d8	7.55	7.55	0.00
Acenaphthene-d10	9.73	9.73	0.00
Phenanthrene-d10	11.60	11.60	0.00
Chrysene-d12	15.04	15.04	0.00
Perylene-d12	18.01	18.00	-0.01

KMH 08/18/14 [Aniline]: Picked or reassigned peak. [general version]

KMH 08/18/14 [3-Nitroaniline]: Corrected automatically drawn baseline. [general version]

Analyst: KMH Date: 08/19/14 Reviewer: LW Date: 08/21/14

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 MSBNA Water
EPA 8270D

Inst : MSBNA09 IDF : 1.0
Seqnum : 584327568017.1 File : rhf17 Time : 15-AUG-2014 17:54
Cal : 584305789001 Caldate : 31-JUL-2014
Standards: S24428

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
N-Nitrosodimethylamine	0.6889	0.6951	40.00	40.36	ug/mL	1	20	0.0500	
Phenol	1.7505	1.7467	40.00	39.91	ug/mL	0	20	0.8000	
bis(2-Chloroethyl)ether	1.3236	1.3344	40.00	40.32	ug/mL	1	20	0.7000	
2-Chlorophenol	1.4949	1.5367	40.00	41.12	ug/mL	3	20	0.8000	
1,3-Dichlorobenzene	1.5853	1.6224	40.00	40.94	ug/mL	2	20	0.0500	
1,4-Dichlorobenzene	1.6031	1.6516	40.00	41.21	ug/mL	3	20	0.0500	
Benzyl alcohol	0.9638	0.9576	40.00	39.74	ug/mL	-1	20	0.0500	
1,2-Dichlorobenzene	1.4985	1.5489	40.00	41.34	ug/mL	3	20	0.0500	
2-Methylphenol	1.1156	1.1518	40.00	41.30	ug/mL	3	20	0.7000	
bis(2-Chloroisopropyl) ether	1.8467	1.7483	40.00	37.87	ug/mL	-5	20	0.0100	
4-Methylphenol	1.7193	1.6906	40.00	39.33	ug/mL	-2	20	0.6000	
N-Nitroso-di-n-propylamine	0.9873	0.8967	40.00	36.33	ug/mL	-9	20	0.5000	
Hexachloroethane	0.6219	0.6028	40.00	38.77	ug/mL	-3	20	0.3000	
Nitrobenzene	0.3602	0.3652	40.00	40.56	ug/mL	1	20	0.2000	
Isophorone	0.7371	0.6807	40.00	36.94	ug/mL	-8	20	0.4000	
2-Nitrophenol	0.2033	0.2195	40.00	43.19	ug/mL	8	20	0.1000	
2,4-Dimethylphenol	0.3677	0.3712	40.00	40.38	ug/mL	1	20	0.2000	
bis(2-Chloroethoxy)methane	0.4575	0.4332	20.00	18.94	ug/mL	-5	20	0.3000	
Benzoic acid	0.2582	0.2257	90.00	78.68	ug/mL	-13	20	0.0500	
2,4-Dichlorophenol	0.3137	0.3342	40.00	42.61	ug/mL	7	20	0.2000	
1,2,4-Trichlorobenzene	0.3187	0.3473	40.00	43.58	ug/mL	9	20	0.0500	
Naphthalene	1.0889	1.1652	20.00	21.40	ug/mL	7	20	0.7000	
4-Chloroaniline	0.4867	0.4909	40.00	40.34	ug/mL	1	20	0.0100	
Hexachlorobutadiene	0.1765	0.1904	40.00	43.15	ug/mL	8	20	0.0100	
4-Chloro-3-methylphenol	0.3533	0.3475	40.00	39.35	ug/mL	-2	20	0.2000	
2-Methylnaphthalene	0.7670	0.8141	20.00	21.23	ug/mL	6	20	0.4000	
Hexachlorocyclopentadiene	0.3767	0.4150	40.00	44.06	ug/mL	10	20	0.0500	
2,4,6-Trichlorophenol	0.3821	0.4193	40.00	43.89	ug/mL	10	20	0.2000	
2,4,5-Trichlorophenol	0.4071	0.4470	40.00	43.92	ug/mL	10	20	0.2000	
2-Chloronaphthalene	1.1882	1.2739	20.00	21.44	ug/mL	7	20	0.8000	
2-Nitroaniline	0.3530	0.3455	40.00	39.15	ug/mL	-2	20	0.0100	
Dimethylphthalate	1.4121	1.4631	40.00	41.44	ug/mL	4	20	0.0100	
2,6-Dinitrotoluene	0.3419	0.3547	40.00	41.49	ug/mL	4	20	0.2000	
Acenaphthylene	1.6876	1.8053	20.00	21.39	ug/mL	7	20	0.9000	
3-Nitroaniline	0.3815	0.3770	40.00	39.52	ug/mL	-1	20	0.0100	m
Acenaphthene	1.2534	1.3489	20.00	21.52	ug/mL	8	20	0.9000	
2,4-Dinitrophenol	0.1660	0.1479	40.00	38.49	ug/mL	-4	20	0.0100	
4-Nitrophenol	0.1911	0.1769	40.00	37.01	ug/mL	-7	20	0.0100	
Dibenzofuran	1.7373	1.8507	20.00	21.31	ug/mL	7	20	0.8000	
2,4-Dinitrotoluene	0.4742	0.5003	40.00	42.20	ug/mL	6	20	0.2000	
Diethylphthalate	1.5329	1.5608	20.00	20.36	ug/mL	2	20	0.0100	
Fluorene	1.4346	1.5360	20.00	21.41	ug/mL	7	20	0.9000	
4-Chlorophenyl-phenylether	0.7249	0.7736	20.00	21.34	ug/mL	7	20	0.4000	
4-Nitroaniline	0.3951	0.3868	40.00	39.16	ug/mL	-2	20	0.0100	
4,6-Dinitro-2-methylphenol	0.1451	0.1430	40.00	39.43	ug/mL	-1	20	0.0100	
N-Nitrosodiphenylamine	0.5974	0.6325	20.00	21.17	ug/mL	6	20	0.0100	
Azobenzene	0.7988	0.7462	20.00	18.68	ug/mL	-7	20	0.0500	
4-Bromophenyl-phenylether	0.2478	0.2541	20.00	20.51	ug/mL	3	20	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Hexachlorobenzene	0.2674	0.2556	40.00	38.23	ug/mL	-4	20	0.1000	
Pentachlorophenol	0.1695	0.1648	40.00	38.89	ug/mL	-3	20	0.0500	
Phenanthrene	1.1611	1.2240	20.00	21.08	ug/mL	5	20	0.7000	
Anthracene	1.1484	1.2155	20.00	21.17	ug/mL	6	20	0.7000	
Carbazole	1.0146	1.0897	40.00	42.96	ug/mL	7	20	0.0100	
Di-n-butylphthalate	1.4681	1.5151	20.00	20.64	ug/mL	3	20	0.0100	
Fluoranthene	1.2776	1.4052	20.00	22.00	ug/mL	10	20	0.6000	
Pyrene	1.1956	1.3862	20.00	23.19	ug/mL	16	20	0.6000	
Butylbenzylphthalate	0.5692	0.5757	20.00	20.23	ug/mL	1	20	0.0100	
3,3'-Dichlorobenzidine	0.4323	0.4351	40.00	40.26	ug/mL	1	20	0.0100	
Benzo(a)anthracene	1.1261	1.1902	20.00	21.14	ug/mL	6	20	0.8000	
bis(2-Ethylhexyl)phthalate	0.7821	0.8309	20.00	21.25	ug/mL	6	20	0.0100	
Chrysene	1.0669	1.1374	20.00	21.32	ug/mL	7	20	0.7000	
Di-n-octylphthalate	1.5448	1.5520	20.00	20.09	ug/mL	0	20	0.0100	
Benzo(b)fluoranthene	1.1600	1.2215	20.00	21.06	ug/mL	5	20	0.7000	
Benzo(k)fluoranthene	1.1557	1.2643	20.00	21.88	ug/mL	9	20	0.7000	
Benzo(a)pyrene	0.9853	1.0544	20.00	21.40	ug/mL	7	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.1504	1.2442	20.00	21.63	ug/mL	8	20	0.5000	
Dibenz(a,h)anthracene	1.0323	1.1095	20.00	21.50	ug/mL	7	20	0.4000	
Benzo(g,h,i)perylene	0.9160	0.9959	20.00	21.74	ug/mL	9	20	0.5000	
2-Fluorophenol	1.4661	1.4414	20.00	19.66	ug/mL	-2	20	0.0500	
Phenol-d5	1.7103	1.7479	20.00	20.44	ug/mL	2	20	0.0500	
Nitrobenzene-d5	0.3849	0.3909	20.00	20.31	ug/mL	2	20	0.0500	
2-Fluorobiphenyl	1.4236	1.6082	20.00	22.59	ug/mL	13	20	0.0500	
2,4,6-Tribromophenol	0.2136	0.2075	20.00	19.43	ug/mL	-3	20	0.0500	
Terphenyl-d14	0.9287	1.0294	20.00	22.17	ug/mL	11	20	0.0500	

ISTD (ICAL rgv21)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	1195108	855247	-28.44
Naphthalene-d8	4635194	3260194	-29.66
Acenaphthene-d10	2989178	1945755	-34.91
Phenanthrene-d10	5453704	3599449	-34.00
Chrysene-d12	6186500	3912722	-36.75
Perylene-d12	5646577	3451428	-38.88

ISTD (ICAL rgv21)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.23	6.22	-0.01
Naphthalene-d8	7.72	7.72	0.00
Acenaphthene-d10	9.88	9.88	0.00
Phenanthrene-d10	11.73	11.73	0.00
Chrysene-d12	15.19	15.19	0.00
Perylene-d12	18.23	18.23	0.00

KMH 08/16/14 [Aniline]: Separated from coeluting peak. [general version]

KMH 08/16/14 [3-Nitroaniline]: Picked or reassigned peak. [general version]

Analyst: KMH Date: 08/19/14 Reviewer: LW Date: 08/27/14

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 MSBNA Water
EPA 8270D

Inst : MSBNA09 IDF : 1.0
Seqnum : 584329197004.1 File : rhg04 Time : 16-AUG-2014 15:50
Cal : 584305789001 Caldate : 31-JUL-2014
Standards: S24428

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
N-Nitrosodimethylamine	0.6889	0.7531	40.00	43.72	ug/mL	9	20	0.0500	
Phenol	1.7505	1.6900	40.00	38.62	ug/mL	-3	20	0.8000	
bis(2-Chloroethyl)ether	1.3236	1.2930	40.00	39.07	ug/mL	-2	20	0.7000	
2-Chlorophenol	1.4949	1.5186	40.00	40.64	ug/mL	2	20	0.8000	
1,3-Dichlorobenzene	1.5853	1.6216	40.00	40.92	ug/mL	2	20	0.0500	
1,4-Dichlorobenzene	1.6031	1.6359	40.00	40.82	ug/mL	2	20	0.0500	
Benzyl alcohol	0.9638	0.9003	40.00	37.36	ug/mL	-7	20	0.0500	
1,2-Dichlorobenzene	1.4985	1.5523	40.00	41.44	ug/mL	4	20	0.0500	
2-Methylphenol	1.1156	1.1070	40.00	39.69	ug/mL	-1	20	0.7000	
bis(2-Chloroisopropyl) ether	1.8467	1.8832	40.00	40.79	ug/mL	2	20	0.0100	
4-Methylphenol	1.7193	1.6379	40.00	38.11	ug/mL	-5	20	0.6000	
N-Nitroso-di-n-propylamine	0.9873	0.9095	40.00	36.85	ug/mL	-8	20	0.5000	
Hexachloroethane	0.6219	0.6099	40.00	39.22	ug/mL	-2	20	0.3000	
Nitrobenzene	0.3602	0.3576	40.00	39.71	ug/mL	-1	20	0.2000	
Isophorone	0.7371	0.6721	40.00	36.47	ug/mL	-9	20	0.4000	
2-Nitrophenol	0.2033	0.2046	40.00	40.26	ug/mL	1	20	0.1000	
2,4-Dimethylphenol	0.3677	0.3552	40.00	38.65	ug/mL	-3	20	0.2000	
bis(2-Chloroethoxy)methane	0.4575	0.4208	20.00	18.39	ug/mL	-8	20	0.3000	
Benzoic acid	0.2582	0.2205	90.00	76.86	ug/mL	-15	20	0.0500	
2,4-Dichlorophenol	0.3137	0.3170	40.00	40.42	ug/mL	1	20	0.2000	
1,2,4-Trichlorobenzene	0.3187	0.3321	40.00	41.68	ug/mL	4	20	0.0500	
Naphthalene	1.0889	1.1524	20.00	21.17	ug/mL	6	20	0.7000	
4-Chloroaniline	0.4867	0.4882	40.00	40.13	ug/mL	0	20	0.0100	
Hexachlorobutadiene	0.1765	0.1786	40.00	40.48	ug/mL	1	20	0.0100	
4-Chloro-3-methylphenol	0.3533	0.3399	40.00	38.48	ug/mL	-4	20	0.2000	
2-Methylnaphthalene	0.7670	0.7970	20.00	20.78	ug/mL	4	20	0.4000	
Hexachlorocyclopentadiene	0.3767	0.3844	40.00	40.82	ug/mL	2	20	0.0500	
2,4,6-Trichlorophenol	0.3821	0.4025	40.00	42.13	ug/mL	5	20	0.2000	
2,4,5-Trichlorophenol	0.4071	0.4345	40.00	42.69	ug/mL	7	20	0.2000	
2-Chloronaphthalene	1.1882	1.2733	20.00	21.43	ug/mL	7	20	0.8000	
2-Nitroaniline	0.3530	0.3565	40.00	40.40	ug/mL	1	20	0.0100	
Dimethylphthalate	1.4121	1.4436	40.00	40.89	ug/mL	2	20	0.0100	
2,6-Dinitrotoluene	0.3419	0.3467	40.00	40.56	ug/mL	1	20	0.2000	
Acenaphthylene	1.6876	1.8003	20.00	21.34	ug/mL	7	20	0.9000	
3-Nitroaniline	0.3815	0.3781	40.00	39.64	ug/mL	-1	20	0.0100	
Acenaphthene	1.2534	1.3542	20.00	21.61	ug/mL	8	20	0.9000	
2,4-Dinitrophenol	0.1660	0.1581	40.00	40.24	ug/mL	1	20	0.0100	
4-Nitrophenol	0.1911	0.1744	40.00	36.50	ug/mL	-9	20	0.0100	
Dibenzofuran	1.7373	1.8271	20.00	21.03	ug/mL	5	20	0.8000	
2,4-Dinitrotoluene	0.4742	0.4869	40.00	41.07	ug/mL	3	20	0.2000	
Diethylphthalate	1.5329	1.5352	20.00	20.03	ug/mL	0	20	0.0100	
Fluorene	1.4346	1.5229	20.00	21.23	ug/mL	6	20	0.9000	
4-Chlorophenyl-phenylether	0.7249	0.7500	20.00	20.69	ug/mL	3	20	0.4000	
4-Nitroaniline	0.3951	0.3931	40.00	39.79	ug/mL	-1	20	0.0100	m
4,6-Dinitro-2-methylphenol	0.1451	0.1502	40.00	41.42	ug/mL	4	20	0.0100	
N-Nitrosodiphenylamine	0.5974	0.6452	20.00	21.60	ug/mL	8	20	0.0100	
Azobenzene	0.7988	0.8011	20.00	20.06	ug/mL	0	20	0.0500	
4-Bromophenyl-phenylether	0.2478	0.2434	20.00	19.64	ug/mL	-2	20	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Hexachlorobenzene	0.2674	0.2421	40.00	36.21	ug/mL	-9	20	0.1000	
Pentachlorophenol	0.1695	0.1582	40.00	37.34	ug/mL	-7	20	0.0500	
Phenanthrene	1.1611	1.2666	20.00	21.82	ug/mL	9	20	0.7000	
Anthracene	1.1484	1.2580	20.00	21.91	ug/mL	10	20	0.7000	
Carbazole	1.0146	1.1480	40.00	45.26	ug/mL	13	20	0.0100	
Di-n-butylphthalate	1.4681	1.5496	20.00	21.11	ug/mL	6	20	0.0100	
Fluoranthene	1.2776	1.4034	20.00	21.97	ug/mL	10	20	0.6000	
Pyrene	1.1956	1.3890	20.00	23.23	ug/mL	16	20	0.6000	
Butylbenzylphthalate	0.5692	0.5798	20.00	20.37	ug/mL	2	20	0.0100	
3,3'-Dichlorobenzidine	0.4323	0.4155	40.00	38.44	ug/mL	-4	20	0.0100	
Benzo(a)anthracene	1.1261	1.1870	20.00	21.08	ug/mL	5	20	0.8000	
bis(2-Ethylhexyl)phthalate	0.7821	0.8236	20.00	21.06	ug/mL	5	20	0.0100	
Chrysene	1.0669	1.1457	20.00	21.48	ug/mL	7	20	0.7000	
Di-n-octylphthalate	1.5448	1.5529	20.00	20.11	ug/mL	1	20	0.0100	
Benzo(b)fluoranthene	1.1600	1.2279	20.00	21.17	ug/mL	6	20	0.7000	
Benzo(k)fluoranthene	1.1557	1.2433	20.00	21.52	ug/mL	8	20	0.7000	
Benzo(a)pyrene	0.9853	1.0428	20.00	21.17	ug/mL	6	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.1504	1.2151	20.00	21.12	ug/mL	6	20	0.5000	
Dibenz(a,h)anthracene	1.0323	1.0771	20.00	20.87	ug/mL	4	20	0.4000	
Benzo(g,h,i)perylene	0.9160	0.9777	20.00	21.35	ug/mL	7	20	0.5000	
2-Fluorophenol	1.4661	1.4076	20.00	19.20	ug/mL	-4	20	0.0500	
Phenol-d5	1.7103	1.6696	20.00	19.52	ug/mL	-2	20	0.0500	
Nitrobenzene-d5	0.3849	0.3842	20.00	19.96	ug/mL	0	20	0.0500	
2-Fluorobiphenyl	1.4236	1.5556	20.00	21.85	ug/mL	9	20	0.0500	
2,4,6-Tribromophenol	0.2136	0.1739	20.00	16.28	ug/mL	-19	20	0.0500	
Terphenyl-d14	0.9287	0.9926	20.00	21.38	ug/mL	7	20	0.0500	

ISTD (ICAL rgv21)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	1195108	751173	-37.15
Naphthalene-d8	4635194	2856508	-38.37
Acenaphthene-d10	2989178	1684963	-43.63
Phenanthrene-d10	5453704	2984285	-45.28
Chrysene-d12	6186500	3293422	-46.76
Perylene-d12	5646577	2841596	-49.68

ISTD (ICAL rgv21)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.23	6.22	-0.01
Naphthalene-d8	7.72	7.71	-0.01
Acenaphthene-d10	9.88	9.87	-0.01
Phenanthrene-d10	11.73	11.72	-0.01
Chrysene-d12	15.19	15.17	-0.02
Perylene-d12	18.23	18.21	-0.02

KMH 08/16/14 [Aniline]: Picked or reassigned peak. [general version]

KMH 08/16/14 [4-Nitroaniline]: Corrected automatically drawn baseline. [general version]

Analyst: KMH Date: 08/19/14 Reviewer: LW Date: 08/27/14

m=manual integration

Logbooks & Sequences

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 544331768

Date : 08/18/14 Reference : xhf11
Sequence : MSBNA05 xhi Analyzed : 08/15/14 19:42

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	1031318	3900538	2287286	3792150	4068719	3663483
		LOWER LIMIT	515659	1950269	1143643	1896075	2034360	1831742
		UPPER LIMIT	2062636	7801076	4574572	7584300	8137438	7326966
003	CCV		785831	3089728	1847064	3217279	3608754	3274933
004	MSS	259786-001	825332	3051733	1822693	3215701	3693894	3086497
005	MS	QC753559	931325	3612362	2126360	3553080	3824626	3195644
006	MSD	QC753560	1044378	3990839	2312124	3825357	4050719	3454191
007	SAMPLE	259790-001	1021608	3705019	2176053	3575732	4108484	3487945
008	SAMPLE	259790-002	968752	3536635	2098336	3520029	4013900	3431927
009	SAMPLE	259786-004	1008726	3716251	2154652	3724240	4190056	3701051
010	SAMPLE	259786-003	975415	3538080	2079372	3536104	3927552	3448912
013	MS	QC753559	977805	3656375	2118926	3552235	3858328	3535451
014	MSD	QC753560	985425	3724467	2169541	3626741	3981865	3625418
015	SAMPLE	259652-008	952735	3477453	2033951	3451206	3968528	3373941
016	SAMPLE	259652-009	960643	3506252	2075413	3460927	3979882	3451597
017	SAMPLE	259652-005	943108	3438999	2004768	3450448	3920247	3380897
018	SAMPLE	259841-005	990369	3646639	2117918	3620048	4066790	3636547
019	SAMPLE	259841-007	1069952	3869011	2270393	3786496	4378356	3912380
020	SAMPLE	259835-002	1072837	3870233	2264630	3855453	4323156	3892616

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 544331768

Date : 08/18/14 Reference : xhf11
Sequence : MSBNA05 xhi Analyzed : 08/15/14 19:42

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	6.04	7.55	9.73	11.60	15.04	18.01
		LOWER LIMIT	5.54	7.05	9.23	11.10	14.54	17.51
		UPPER LIMIT	6.54	8.05	10.23	12.10	15.54	18.51
003	CCV		6.04	7.55	9.73	11.60	15.04	18.00

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 544331768

Date : 08/18/14
Sequence : MSBNA05 xhi

Reference : xhi03
Analyzed : 08/18/14 10:19

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	6.04	7.55	9.73	11.60	15.04	18.00
		LOWER LIMIT	5.54	7.05	9.23	11.10	14.54	17.50
		UPPER LIMIT	6.54	8.05	10.23	12.10	15.54	18.50
004	MSS	259786-001	6.04	7.54	9.73	11.59	15.04	18.00
005	MS	QC753559	6.04	7.55	9.73	11.60	15.05	18.02
006	MSD	QC753560	6.04	7.55	9.73	11.60	15.05	18.02
007	SAMPLE	259790-001	6.04	7.55	9.73	11.60	15.04	18.01
008	SAMPLE	259790-002	6.04	7.55	9.73	11.59	15.04	18.00
009	SAMPLE	259786-004	6.04	7.55	9.73	11.60	15.05	18.02
010	SAMPLE	259786-003	6.04	7.55	9.73	11.60	15.04	18.02
013	MS	QC753559	6.04	7.55	9.73	11.60	15.05	18.02
014	MSD	QC753560	6.04	7.55	9.73	11.60	15.05	18.02
015	SAMPLE	259652-008	6.04	7.55	9.73	11.60	15.04	18.02
016	SAMPLE	259652-009	6.04	7.55	9.73	11.60	15.04	18.02
017	SAMPLE	259652-005	6.04	7.55	9.73	11.60	15.04	18.03
018	SAMPLE	259841-005	6.04	7.55	9.73	11.60	15.05	18.04
019	SAMPLE	259841-007	6.04	7.55	9.73	11.60	15.04	18.02
020	SAMPLE	259835-002	6.04	7.55	9.73	11.60	15.05	18.04

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584327568

Date : 08/15/14 Reference : rgv21
Sequence : MSBNA09 rhf Analyzed : 07/31/14 21:47

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	1195108	4635194	2989178	5453704	6186500	5646577
		LOWER LIMIT	597554	2317597	1494589	2726852	3093250	2823289
		UPPER LIMIT	2390216	9270388	5978356	10907408	12373000	11293154
017	CCV		855247	3260194	1945755	3599449	3912722	3451428
018	BLANK	QC753557	843977	3082205	1835995	3278404	4240906	3602404
019	LCS	QC753558	0 *	0 *	376164 *	0 *	0 *	0 *

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584327568

Date : 08/15/14 Reference : rgv21
Sequence : MSBNA09 rhf Analyzed : 07/31/14 21:47

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	6.23	7.72	9.88	11.73	15.19	18.23
		LOWER LIMIT	5.73	7.22	9.38	11.23	14.69	17.73
		UPPER LIMIT	6.73	8.22	10.38	12.23	15.69	18.73
017	CCV		6.22	7.72	9.88	11.73	15.19	18.23

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584327568

Date : 08/15/14
Sequence : MSBNA09 rhf

Reference : rhf17
Analyzed : 08/15/14 17:54

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	6.22	7.72	9.88	11.73	15.19	18.23
		LOWER LIMIT	5.72	7.22	9.38	11.23	14.69	17.73
		UPPER LIMIT	6.72	8.22	10.38	12.23	15.69	18.73
018	BLANK	QC753557	6.22	7.71	9.87	11.72	15.18	18.22
019	LCS	QC753558	0.00 *	0.00 *	9.56	0.00 *	0.00 *	0.00 *

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584329197

Date : 08/16/14 Reference : rgv21
Sequence : MSBNA09 rhg Analyzed : 07/31/14 21:47

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	1195108	4635194	2989178	5453704	6186500	5646577
		LOWER LIMIT	597554	2317597	1494589	2726852	3093250	2823289
		UPPER LIMIT	2390216	9270388	5978356	10907408	12373000	11293154
004	CCV		751173	2856508	1684963	2984285	3293422	2841596
005	LCS	QC753558	744245	2898829	1735950	3187454	3425564	3072752

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584329197

Date : 08/16/14 Reference : rgv21
Sequence : MSBNA09 rhg Analyzed : 07/31/14 21:47

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	6.23	7.72	9.88	11.73	15.19	18.23
		LOWER LIMIT	5.73	7.22	9.38	11.23	14.69	17.73
		UPPER LIMIT	6.73	8.22	10.38	12.23	15.69	18.73
004	CCV		6.22	7.71	9.87	11.72	15.17	18.21

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584329197

Date : 08/16/14
Sequence : MSBNA09 rhg

Reference : rhg04
Analyzed : 08/16/14 15:50

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	6.22	7.71	9.87	11.72	15.17	18.21
		LOWER LIMIT	5.72	7.21	9.37	11.22	14.67	17.71
		UPPER LIMIT	6.72	8.21	10.37	12.22	15.67	18.71
005	LCS	QC753558	6.22	7.71	9.88	11.73	15.18	18.22

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 544327680

Instrument : MSBNA05 Begun : 08/15/14 13:20
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	xhf01	IB	IB			08/15/14 13:20	1.0		?t
002	xhf02	TUN	DFTPP/PEM			08/15/14 13:47	1.0	1	
003	xhf03	CCV	RTCHECK			08/15/14 14:10	1.0	2	cc+
004	xhf04	CCV	RFCHECK			08/15/14 15:37	1.0	3	cc-
005	xhf05	TUN	DFTPP/PEM			08/15/14 16:14	1.0	1	
006	xhf06	ICAL	ICAL			08/15/14 16:36	1.0	4	
007	xhf07	ICAL	ICAL			08/15/14 17:13	1.0	5	
008	xhf08	ICAL	ICAL			08/15/14 17:48	1.0	3	
009	xhf09	ICAL	ICAL			08/15/14 18:27	1.0	6	
010	xhf10	ICAL	ICAL			08/15/14 19:04	1.0	7	
011	xhf11	ICAL	ICAL			08/15/14 19:42	1.0	8	
012	xhf12	ICAL	ICAL			08/15/14 20:18	1.0	9	
013	xhf13	ICAL	ICAL			08/15/14 20:53	1.0	10	
014	xhf14	ICAL	ICAL			08/15/14 21:30	1.0	11	
015	xhf15	ICV	ICV			08/15/14 22:08	1.0	12	

KMH 08/16/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 15.

Standards used: 1=S24893 2=S24428 3=S25409 4=S25407 5=S25408 6=S25410 7=S25411 8=S25412 9=S25413 10=S25414 11=S25415 12=S25418

Flags used: +=high bias -=low bias ?t=missing tune cc=CCV CCC failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 544331768

Instrument : MSBNA05 Begun : 08/18/14 09:28
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	xhi01	IB	IB			08/18/14 09:28	1.0		?t
002	xhi02	TUN	DFTPP/PEM			08/18/14 09:56	1.0	1	
003	xhi03	CCV				08/18/14 10:19	1.0	2	
004	xhi04	MSS	259786-001	Water	214400	08/18/14 11:57	1.0	3	
005	xhi05	MS	QC753559	Water	214400	08/18/14 12:35	1.0	3	3:BZACID=140
006	xhi06	MSD	QC753560	Water	214400	08/18/14 13:11	1.0	3	1:ISOP=70
007	xhi07	SAMPLE	259790-001	Water	214400	08/18/14 13:46	1.0	3	
008	xhi08	SAMPLE	259790-002	Water	214400	08/18/14 14:23	1.0	3	
009	xhi09	SAMPLE	259786-004	Water	214400	08/18/14 15:00	1.0	3	
010	xhi10	SAMPLE	259786-003	Water	214400	08/18/14 15:39	1.0	3	
011	xhi11	MS	QC753224	Soil	214312	08/18/14 16:19	1.0	3	1:ISOP=62
012	xhi12	MSD	QC753225	Soil	214312	08/18/14 16:58	1.0	3	1:ISOP=58
013	xhi13	MS	QC753559	Water	214400	08/18/14 17:37	2.0	3	
014	xhi14	MSD	QC753560	Water	214400	08/18/14 18:14	2.0	3	
015	xhi15	SAMPLE	259652-008	Soil	214312	08/18/14 18:52	10.0	3	
016	xhi16	SAMPLE	259652-009	Soil	214312	08/18/14 19:27	50.0	3	
017	xhi17	SAMPLE	259652-005	Soil	214312	08/18/14 20:04	7.0	3	
018	xhi18	SAMPLE	259841-005	Water	214400	08/18/14 20:41	1.0	3	
019	xhi19	SAMPLE	259841-007	Water	214400	08/18/14 21:18	1.0	3	
020	xhi20	SAMPLE	259835-002	Water	214400	08/18/14 21:54	1.0	3	

KMH 08/19/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 20.

Standards used: 1=S24893 2=S25410 3=S25005

Flags used: ?t=missing tune

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 584305789

Instrument : MSBNA09 Begun : 07/31/14 08:29
Method : EPA 8270C, EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	rgv01	X	IB			07/31/14 08:29	1.0		
002	rgv02	TUN	DFTPP/PEM			07/31/14 08:56	1.0	1	
003	rgv03	CCV	RTRFCHECK			07/31/14 09:12	1.0	2	cc+ cc-
004	rgv04	TUN	DFTPP/PEM			07/31/14 10:05	1.0	1	
005	rgv05	ICAL	ICAL			07/31/14 10:21	1.0	3	
006	rgv06	ICAL	ICAL			07/31/14 10:52	1.0	4	
007	rgv07	ICAL	ICAL			07/31/14 11:22	1.0	5	
008	rgv08	ICAL	ICAL			07/31/14 11:52	1.0	2	
009	rgv09	ICAL	ICAL			07/31/14 12:22	1.0	6	
010	rgv10	ICAL	ICAL			07/31/14 12:52	1.0	7	
012	rgv12	ICAL	ICAL			07/31/14 13:52	1.0	8	
013	rgv13	ICAL	ICAL			07/31/14 14:21	1.0	9	
014	rgv14	ICV	ICV			07/31/14 14:51	1.0	10	
015	rgv15	TUN	DFTPP/PEM			07/31/14 18:29	1.0	1	
016	rgv16	ICAL	ICAL			07/31/14 19:18	1.0	3	
017	rgv17	ICAL	ICAL			07/31/14 19:47	1.0	4	
018	rgv18	ICAL	ICAL			07/31/14 20:17	1.0	5	
019	rgv19	ICAL	ICAL			07/31/14 20:47	1.0	2	
020	rgv20	ICAL	ICAL			07/31/14 21:17	1.0	6	
021	rgv21	ICAL	ICAL			07/31/14 21:47	1.0	7	
022	rgv22	ICAL	ICAL			07/31/14 22:18	1.0	11	
023	rgv23	ICAL	ICAL			07/31/14 22:48	1.0	8	
024	rgv24	ICAL	ICAL			07/31/14 23:18	1.0	9	
025	rgv25	ICV	ICV			07/31/14 23:48	1.0	10	
026	rgv26	TUN	DFTPP/PEM			08/01/14 00:14	1.0	1	t
027	rgv27	ICAL	ICAL			08/01/14 00:26	1.0	12	t
028	rgv28	ICAL	ICAL			08/01/14 00:40	1.0	13	t
029	rgv29	ICAL	ICAL			08/01/14 00:54	1.0	14	t
030	rgv30	ICAL	ICAL			08/01/14 01:07	1.0	15	t
031	rgv31	ICAL	ICAL			08/01/14 01:21	1.0	16	t
032	rgv32	ICAL	ICAL			08/01/14 01:35	1.0	17	t
033	rgv33	ICAL	ICAL			08/01/14 01:48	1.0	18	t
034	rgv34	ICAL	ICAL			08/01/14 02:02	1.0	19	t
035	rgv35	ICV	ICV			08/01/14 02:16	1.0	20	t , 5:DNOP=120000

KMH 08/01/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 35.

LW 08/06/14 : Files 26-35 are a CPSC ICAL that ran blind and the tune failed.

Standards used: 1=S24893 2=S24427 3=S24422 4=S24424 5=S24425 6=S24428 7=S24429 8=S24431 9=S24432 10=S24471 11=S24430 12=S24549 13=S24550 14=S24551 15=S24552 16=S24553 17=S24554 18=S24555 19=S24556 20=S24557

Flags used: +=high bias -=low bias cc=CCV CCC failure t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 584327568

Instrument : MSBNA09 Begun : 08/15/14 11:28
Method : EPA 8270C, EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	rhf01	X	IB			08/15/14 11:28	1.0		
002	rhf02	TUN	DFTPP/PEM			08/15/14 11:42	1.0	1	
003	rhf03	CCV				08/15/14 11:54	1.0	2	
004	rhf04	SAMPLE	259333-001	Miscell.	214282	08/15/14 12:08	8.33	3	
005	rhf05	SAMPLE	259369-001	Miscell.	214282	08/15/14 12:22	33.30	3	
006	rhf06	SAMPLE	259378-001	Miscell.	214282	08/15/14 12:35	33.30	3	
007	rhf07	SAMPLE	259094-001	Miscell.	214282	08/15/14 12:49	1.0	3	1:DIDP=610
008	rhf08	SAMPLE	259099-001	Miscell.	214282	08/15/14 13:03	1.0	3	
009	rhf09	SAMPLE	259336-001	Miscell.	214282	08/15/14 13:17	1.0	3	
010	rhf10	SAMPLE	259365-001	Miscell.	214282	08/15/14 13:30	1.0	3	
011	rhf11	IB	IB			08/15/14 14:04	1.0		
012	rhf12	TUN	DFTPP/PEM			08/15/14 14:31	1.0	1	t
013	rhf13	TUN	DFTPP/PEM			08/15/14 15:10	1.0	1	
014	rhf14	CCV				08/15/14 15:25	1.0	4	cc+ cc-
015	rhf15	IB	IB			08/15/14 16:42	1.0		
016	rhf16	TUN				08/15/14 17:08	1.0	1	
017	rhf17	CCV				08/15/14 17:54	1.0	4	
018	rhf18	BLANK	QC753557	Water	214400	08/15/14 18:29	1.0	3	
019	rhf19	LCS	QC753558	Water	214400	08/15/14 18:59	1.0	3	1:NO2ANIL4=370

KMH 08/16/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 19.

Standards used: 1=S24893 2=S24552 3=S25005 4=S24428

Flags used: +=high bias -=low bias cc=CCV CCC failure t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 584329197

Instrument : MSBNA09 Begun : 08/16/14 14:37
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	rhg01	X	IB			08/16/14 14:37	1.0		
002	rhg02	X	IB			08/16/14 15:07	1.0		
003	rhg03	TUN	DFTPP/PEM			08/16/14 15:34	1.0	1	
004	rhg04	CCV				08/16/14 15:50	1.0	2	
005	rhg05	LCS	QC753558	Water	214400	08/16/14 16:20	1.0	3	
006	rhg06	MSS	259786-001	Water	214400	08/16/14 16:50	1.0	3	

KMH 08/18/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 6.

Standards used: 1=S24893 2=S24428 3=S25005

SAMPLE PREPARATION SUMMARY

Batch # : 214400
Started By : AVW
Method : 3520C
Spike #1 ID : S24866

Prep Date : 14-AUG-2014 14:20
SOP Version : 8270_3520_rv20
Spike #2 ID : S25396

Analysis : 8270-1
Finished By : AVW
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259779-001		Water	1060	1	1	0.0009434	7	.4				8270-1	
259779-002		Water	1060	1	1	0.0009434	7	.4				8270-1	
259779-003		Water	1040	1	1	0.0009615	7	.4				8270-1	See comment 1 below
259786-001		Water	1060	1	1	0.0009434	7	.4				8270-1	mss
259786-003		Water	1040	1	1	0.0009615	7	.4				8270-1	
259786-004		Water	1060	1	1	0.0009434	7	.4				8270-1	
259790-001		Water	1000	1	1	0.001	5	.4				8270-1	
259790-002		Water	1060	1	1	0.0009434	5	.4				8270-1	
259798-001		Water	1020	1	1	0.0009804	7	.4				625	
259798-002		Water	900	1	1	0.001111	7	.4				625	
259798-003		Water	1010	1	1	0.0009901	7	.4				625	
259824-001		Water	1040	1	1	0.0009615	5	.4				625	Prepped 15-AUG-2014 13:20
259835-002		Water	1000	1	1	0.001	7	.4				(rebatched)	Prepped 15-AUG-2014 13:20
259841-005		Water	1040	1	1	0.0009615	7	.4				(rebatched)	Prepped 15-AUG-2014 13:20
259841-007		Water	1040	1	1	0.0009615	5	.4				8270-1	Prepped 15-AUG-2014 13:20
259859-002		Water	550	1	1	0.001818	7	.4				625	See comment 2 below
QC753557	BLANK	Water	1000	1	1	0.001		.4				8270-1	
QC753558	LCS	Water	1000	1	1	0.001		.4	1			8270-1	
QC753559	MS	Water	1060	1	1	0.0009434		.4	1			8270-1	259786-001
QC753560	MSD	Water	1070	1	1	0.0009346		.4	1			8270-1	259786-001

Comment 1: transferred to new L/L extractor
Comment 2: Prepped 15-AUG-2014 13:20; sediment layer; decanted

LW 08/18/14 : Reviewed for 259859

Analyst: KMH Date: 08/18/14 Reviewer: LW Date: 08/19/14

BNA (8270 & 625) Water Prep Log **Curtis & Tompkins, Ltd.**

Page 1 **BK 3598**

LIMS Batch No: 214400
LIMS Analysis: 8270
Date Extracted: 8/14/14

Extraction Method:
☒ EPA 3520c cont. L/L
☐ _____

	Sample #	Container ID	Volume of Sample (mL)	Sample pH	Final Volume (mL)	Confirmed pH ≤2	Comments
	259786-001	S	1060	☑7 ☐	☑ 1.0 ☐	☑ ≤2	MSS
	259779-001	K	1060	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	2	L	1060	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	3	N	1040	☑7 ☐	☑ 1.0 ☐	☑ ≤2	transferred to new 4L
5	259786-003	H	1040	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	4	L	1060	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	259798-001	D	1020	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	2	G	900	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	MB 2C753557	NA	1000	☐7 ☐ NA	☑ 1.0 ☐	☑ ≤2	
10	BS 8	L	1000	☐7 ☐	☑ 1.0 ☐	☑ ≤2	
	MS 9	V	1060	☑7 ☐	☑ 1.0 ☐	☑ ≤2	259786-001
	MSD 60	W	1070	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	259790-001	G	1000	☐7 ☑ 5	☑ 1.0 ☐	☑ ≤2	
	2	I	1060	☐7 ☑ 5	☑ 1.0 ☐	☑ ≤2	
15	259798-003	D	1010	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	259824-001	I	1040	☐7 ☑ 5	☑ 1.0 ☐	☑ ≤2	*A/O @1320 on 8/15/14 by TPR
	259841-005	B	1040	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	7	F	1040	☑7 ☑ 5 TPR 8/15/14	☑ 1.0 ☐	☑ ≤2	
	259835-002	D	1000	☑7 ☑ 4 TPR 8/15/14	☑ 1.0 ☐	☑ ≤2	
20	259859-~~003~~ 002 TPR 8/15/14	H	550	☑7 ☐	☑ 1.0 ☐	☑ ≤2	Aliased 259859-002 *sediment layer; decanted
				☐7 ☐	☐ 1.0 ☐	☐ ≤2	
				☐7 ☐	☐ 1.0 ☐	☐ ≤2	
				☐7 ☐	☐ 1.0 ☐	☐ ≤2	
				☐7 ☐	☐ 1.0 ☐	☐ <2	

	Lot# / LIMS # / Time	Date/ Initials
1.0 mL of surrogate solution was added to all samples	524866 B	AVW 8/14/14
0.4 mL of matrix spiking solution was added to all spikes	525396 C	
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	FS 140656	
Cont. L/L extracted with 450mL of CH_2Cl_2	EM 54153	
Extraction Start Time:	1420 / 1320*	
Extraction End Time:	0820 / 750	ER 8-15-14
pH of all samples adjusted to pH ≥ 11 with 10 N NaOH	NA	AVW 8/15/14
Extraction Start Time:		
Extraction End Time:		
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EM WL-23I	
Concentrated to final volume at temperature (degrees C)	70	
Relinquished to BNA department	✓	

8/14/14
Extraction Chemist **Date**

Contined from Page ____
Continued on Page ____

8/18/14
Reviewed by **Date**

Dilutions for 259786 MSBNA Water
Curtis & Tompkins Laboratories

Type	Sample ID	IDFs
MS	QC753559	1X, 2X
MSD	QC753560	1X, 2X

Case Narrative Addendum: Manual Integrations for 259786 MSBNA (Water)

For CCV (MSBNA05 xhi03):
Aniline: Picked or reassigned peak.
3-Nitroaniline: Corrected automatically drawn baseline.

For CCV (MSBNA09 rhf17):
Aniline: Separated from coeluting peak.
3-Nitroaniline: Picked or reassigned peak.

For CCV (MSBNA09 rhg04):
Aniline: Picked or reassigned peak.
4-Nitroaniline: Corrected automatically drawn baseline.

For MSS 259786-001 (MSBNA05 xhi04):
2-Fluorophenol: Picked or reassigned peak.

For SAMPLE 259786-003 (MSBNA05 xhi10):
2-Fluorophenol: Picked or reassigned peak.

For SAMPLE 259786-004 (MSBNA05 xhi09):
2-Fluorophenol: Picked or reassigned peak.

For LCS QC753558 (MSBNA09 rhg05):
Aniline: Picked or reassigned peak.

For MSD QC753560 (MSBNA05 xhi06):
Resorcinol: Picked or reassigned peak for spike & dup.
Acenaphthene: Corrected automatically drawn baseline for dup.
Aniline: Picked or reassigned peak for spike & dup.
2-Fluorophenol: Picked or reassigned peak for spike.

For MSD QC753560 (MSBNA05 xhi14):
Aniline: Picked or reassigned peak for spike & dup.

For Calibration MSBNA09 (584305789001):
Aniline: Picked or reassigned peak in all levels.
Anthracene: Corrected automatically drawn baseline in ICAL (rgv23).
4-Chloroaniline: Corrected automatically drawn baseline in multiple levels.
3,3'-Dichlorobenzidine: Corrected automatically drawn baseline in multiple levels.
2,4-Dinitrophenol: Corrected automatically drawn baseline in multiple levels.
3-Nitroaniline: Corrected automatically drawn baseline in multiple levels.
4-Nitroaniline: Corrected automatically drawn baseline in multiple levels.
4-Nitrophenol: Corrected automatically drawn baseline in multiple levels.
2,4,5-Trichlorophenol: Corrected automatically drawn baseline in ICAL (rgv23).

For ICV (MSBNA09 rgv25):
Aniline: Picked or reassigned peak.
2,4-Dinitrophenol: Corrected automatically drawn baseline.
4-Nitrophenol: Corrected automatically drawn baseline.

For Calibration MSBNA05 (544327680001):
Acenaphthene: Corrected automatically drawn baseline in ICAL (xhf11).
Aniline: Picked or reassigned peak in all levels.
Anthracene: Corrected automatically drawn baseline in ICAL (xhf14).

bis(2-Chloroethyl)ether: Corrected automatically drawn baseline in ICAL (xhf13).
Benzo(k)fluoranthene: Picked or reassigned peak in ICAL (xhf14).
4-Chloroaniline: Corrected automatically drawn baseline in multiple levels.
4-Methylphenol: Corrected automatically drawn baseline in multiple levels.
3-Nitroaniline: Corrected automatically drawn baseline in multiple levels.
2-Nitrophenol: Corrected automatically drawn baseline in multiple levels.
4-Nitrophenol: Picked or reassigned peak in ICAL (xhf14).
Pyridine: Corrected automatically drawn baseline in multiple levels.
2,4,5-Trichlorophenol: Corrected automatically drawn baseline in multiple levels.

For ICV (MSBNA05 xhf15):
Aniline: Picked or reassigned peak.
Nitrobenzene-d5: Corrected automatically drawn baseline.
2,4,5-Trichlorophenol: Corrected automatically drawn baseline.

Laboratory Job Number 259786

ANALYTICAL REPORT

Semivolatile Organics by GC/MS SIM

Matrix: Water

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Field ID:	04W19-081314	Batch#:	214554
Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/19/14
Diln Fac:	1.000	Analyzed:	08/20/14

Analyte	Result	LOQ	DL
Naphthalene	0.04 J	0.1	0.02
2-Methylnaphthalene	0.02 J	0.1	0.02
Acenaphthylene	0.03 J	0.1	0.02
Acenaphthene	0.03 J	0.1	0.02
Fluorene	0.06 J	0.1	0.02
Phenanthrene	0.4	0.1	0.02
Anthracene	0.04 J	0.1	0.02
Fluoranthene	0.2	0.1	0.02
Pyrene	0.2	0.1	0.02
Benzo(a)anthracene	0.02 J	0.1	0.02
Chrysene	0.04 U	0.1	0.02
Benzo(b)fluoranthene	0.03 J	0.1	0.02
Benzo(k)fluoranthene	0.04 U	0.1	0.02
Benzo(a)pyrene	0.04 U	0.1	0.02
Indeno(1,2,3-cd)pyrene	0.04 U	0.1	0.02
Dibenz(a,h)anthracene	0.04 U	0.1	0.02
Benzo(g,h,i)perylene	0.04 U	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	102	40-110
2-Fluorobiphenyl	85	50-110
Terphenyl-d14	95	50-135

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Field ID:	04W18-081314	Batch#:	214554
Lab ID:	259786-003	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/19/14
Diln Fac:	1.000	Analyzed:	08/20/14

Analyte	Result	LOQ	DL
Naphthalene	0.04 U	0.1	0.02
2-Methylnaphthalene	0.04 U	0.1	0.02
Acenaphthylene	0.04 U	0.1	0.02
Acenaphthene	0.04 U	0.1	0.02
Fluorene	0.04 U	0.1	0.02
Phenanthrene	0.04 U	0.1	0.02
Anthracene	0.04 U	0.1	0.02
Fluoranthene	0.04 U	0.1	0.02
Pyrene	0.04 U	0.1	0.02
Benzo(a)anthracene	0.04 U	0.1	0.02
Chrysene	0.04 U	0.1	0.02
Benzo(b)fluoranthene	0.04 U	0.1	0.02
Benzo(k)fluoranthene	0.04 U	0.1	0.02
Benzo(a)pyrene	0.04 U	0.1	0.02
Indeno(1,2,3-cd)pyrene	0.04 U	0.1	0.02
Dibenz(a,h)anthracene	0.04 U	0.1	0.02
Benzo(g,h,i)perylene	0.04 U	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	103	40-110
2-Fluorobiphenyl	87	50-110
Terphenyl-d14	92	50-135

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Field ID:	04W17-081314	Batch#:	214554
Lab ID:	259786-004	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/19/14
Diln Fac:	1.000	Analyzed:	08/20/14

Analyte	Result	LOQ	DL
Naphthalene	0.04 U	0.1	0.02
2-Methylnaphthalene	0.04 U	0.1	0.02
Acenaphthylene	0.04 U	0.1	0.02
Acenaphthene	0.04 U	0.1	0.02
Fluorene	0.04 U	0.1	0.02
Phenanthrene	0.04 U	0.1	0.02
Anthracene	0.04 U	0.1	0.02
Fluoranthene	0.04 U	0.1	0.02
Pyrene	0.2	0.1	0.02
Benzo(a)anthracene	0.04 U	0.1	0.02
Chrysene	0.04 U	0.1	0.02
Benzo(b)fluoranthene	0.04 U	0.1	0.02
Benzo(k)fluoranthene	0.04 U	0.1	0.02
Benzo(a)pyrene	0.04 U	0.1	0.02
Indeno(1,2,3-cd)pyrene	0.04 U	0.1	0.02
Dibenz(a,h)anthracene	0.04 U	0.1	0.02
Benzo(g,h,i)perylene	0.04 U	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	102	40-110
2-Fluorobiphenyl	85	50-110
Terphenyl-d14	88	50-135

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC754152	Batch#:	214554
Matrix:	Water	Prepared:	08/19/14
Units:	ug/L	Analyzed:	08/20/14

Analyte	Result	LOQ	DL
Naphthalene	0.04 U	0.1	0.02
2-Methylnaphthalene	0.04 U	0.1	0.02
Acenaphthylene	0.04 U	0.1	0.02
Acenaphthene	0.04 U	0.1	0.02
Fluorene	0.04 U	0.1	0.02
Phenanthrene	0.04 U	0.1	0.02
Anthracene	0.04 U	0.1	0.02
Fluoranthene	0.04 U	0.1	0.02
Pyrene	0.04 U	0.1	0.02
Benzo(a)anthracene	0.04 U	0.1	0.02
Chrysene	0.04 U	0.1	0.02
Benzo(b)fluoranthene	0.04 U	0.1	0.02
Benzo(k)fluoranthene	0.04 U	0.1	0.02
Benzo(a)pyrene	0.04 U	0.1	0.02
Indeno(1,2,3-cd)pyrene	0.04 U	0.1	0.02
Dibenz(a,h)anthracene	0.04 U	0.1	0.02
Benzo(g,h,i)perylene	0.04 U	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	79	40-110
2-Fluorobiphenyl	84	50-110
Terphenyl-d14	93	50-135

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC754153	Batch#:	214554
Matrix:	Water	Prepared:	08/19/14
Units:	ug/L	Analyzed:	08/20/14

Analyte	Spiked	Result	%REC	Limits
Naphthalene	1.000	0.7952	80	40-100
2-Methylnaphthalene	1.000	0.7797	78	45-105
Acenaphthylene	1.000	0.8075	81	50-105
Acenaphthene	1.000	0.8164	82	45-110
Fluorene	1.000	0.8879	89	50-110
Phenanthrene	1.000	0.8270	83	50-115
Anthracene	1.000	0.7890	79	55-110
Fluoranthene	1.000	0.8629	86	55-115
Pyrene	1.000	0.8313	83	50-130
Benzo(a)anthracene	1.000	0.7752	78	55-110
Chrysene	1.000	0.7475	75	55-110
Benzo(b)fluoranthene	1.000	0.7937	79	45-120
Benzo(k)fluoranthene	1.000	0.8476	85	45-125
Benzo(a)pyrene	1.000	0.7250	73	55-110
Indeno(1,2,3-cd)pyrene	1.000	0.7197	72	45-125
Dibenz(a,h)anthracene	1.000	0.6440	64	40-125
Benzo(g,h,i)perylene	1.000	0.7680	77	40-125

Surrogate	%REC	Limits
Nitrobenzene-d5	74	40-110
2-Fluorobiphenyl	75	50-110
Terphenyl-d14	77	50-135

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Field ID:	04W19-081314	Batch#:	214554
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/19/14
Diln Fac:	1.000	Analyzed:	08/21/14

Type: MS Lab ID: QC754154

Analyte	MSS Result	Spiked	Result	%REC	Limits
Naphthalene	0.04452	0.9804	0.7061	67	40-100
2-Methylnaphthalene	0.01971	0.9804	0.7444	74	45-105
Acenaphthylene	0.03000	0.9804	0.6895	67	50-105
Acenaphthene	0.02875	0.9804	0.7104	70	45-110
Fluorene	0.06202	0.9804	0.7785	73	50-110
Phenanthrene	0.3788	0.9804	0.9321	56	50-115
Anthracene	0.03625	0.9804	0.6713	65	55-110
Fluoranthene	0.2172	0.9804	0.9452	74	55-115
Pyrene	0.2482	0.9804	0.8555	62	50-130
Benzo(a)anthracene	0.02058	0.9804	0.7438	74	55-110
Chrysene	<0.01923	0.9804	0.6598	67	55-110
Benzo(b)fluoranthene	0.02913	0.9804	0.7215	71	45-120
Benzo(k)fluoranthene	<0.01923	0.9804	0.6952	71	45-125
Benzo(a)pyrene	<0.01923	0.9804	0.6713	68	55-110
Indeno(1,2,3-cd)pyrene	<0.01923	0.9804	0.6884	70	45-125
Dibenz(a,h)anthracene	<0.01923	0.9804	0.6256	64	40-125
Benzo(g,h,i)perylene	<0.01923	0.9804	0.6921	71	40-125

Surrogate	%REC	Limits
Nitrobenzene-d5	64	40-110
2-Fluorobiphenyl	67	50-110
Terphenyl-d14	67	50-135

Type: MSD Lab ID: QC754155

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Naphthalene	0.9615	0.7287	71	40-100	5	30
2-Methylnaphthalene	0.9615	0.7515	76	45-105	3	30
Acenaphthylene	0.9615	0.7292	73	50-105	7	30
Acenaphthene	0.9615	0.7146	71	45-110	2	30
Fluorene	0.9615	0.7910	76	50-110	3	30
Phenanthrene	0.9615	0.9637	61	50-115	5	30
Anthracene	0.9615	0.6571	65	55-110	0	30
Fluoranthene	0.9615	0.9528	77	55-115	2	30
Pyrene	0.9615	0.9069	69	50-130	7	30
Benzo(a)anthracene	0.9615	0.7621	77	55-110	4	30
Chrysene	0.9615	0.6889	72	55-110	6	30
Benzo(b)fluoranthene	0.9615	0.7534	75	45-120	6	30
Benzo(k)fluoranthene	0.9615	0.6856	71	45-125	1	30
Benzo(a)pyrene	0.9615	0.6942	72	55-110	5	30
Indeno(1,2,3-cd)pyrene	0.9615	0.6869	71	45-125	2	30
Dibenz(a,h)anthracene	0.9615	0.6377	66	40-125	4	30
Benzo(g,h,i)perylene	0.9615	0.6857	71	40-125	1	30

Surrogate	%REC	Limits
Nitrobenzene-d5	71	40-110
2-Fluorobiphenyl	71	50-110
Terphenyl-d14	67	50-135

RPD= Relative Percent Difference

Initial & Continuing Calibration Data

CURTIS & TOMPKINS DFTPP TUNE FOR 259786 MSSIM Water
EPA 8270D

Inst : MSBNA03 Run Name : DFTPP IDF : 1.0
Seqnum : 524271263019 File : vg719 Time : 07-JUL-2014 20:11

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	167466	40.80	
68	< 2% of mass 69	0	0.00	
69		229696	100.00	
70	< 2% of mass 69	0	0.00	
127	40% - 60% of mass 198	211157	51.45	
197	< 1% of mass 198	0	0.00	
198		410410	100.00	
199	5% - 9% of mass 198	28728	7.00	
275	10% - 30% of mass 198	111824	27.25	
365	> 1% of mass 198	12139	2.96	
441	Present, < mass 443	47200	79.54	
442	> 40% and < 100% of mass 198	301248	73.40	
443	17% - 23% of mass 442	59344	19.70	

Analyst: KMH Date: 07/08/14 Reviewer: LW Date: 07/08/14

CURTIS & TOMPKINS DFTPP TUNE FOR 259786 MSSIM Water
EPA 8270D

Inst : MSBNA03 Run Name : DFTPP IDF : 1.0
Seqnum : 524334764002 File : vhk02 Time : 20-AUG-2014 11:50

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	217216	45.86	
68	< 2% of mass 69	0	0.00	
69		280405	100.00	
70	< 2% of mass 69	1313	0.47	
127	40% - 60% of mass 198	255616	53.96	
197	< 1% of mass 198	0	0.00	
198		473685	100.00	
199	5% - 9% of mass 198	34349	7.25	
275	10% - 30% of mass 198	136781	28.88	
365	> 1% of mass 198	16091	3.40	
441	Present, < mass 443	69117	82.62	
442	> 40% and < 100% of mass 198	411584	86.89	
443	17% - 23% of mass 442	83656	20.33	

NPM: 08/20/14 KMH: 08/20/14 LW: 08/27/14

CURTIS & TOMPKINS DFTPP TUNE FOR 259786 MSSIM Water
EPA 8270D

Inst : MSBNA04 Run Name : DFTPP IDF : 1.0
Seqnum : 534275763005 File : wga05 Time : 10-JUL-2014 15:44

Standards: S24369

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	97047	55.72	
68	< 2% of mass 69	0	0.00	
69		109917	100.00	
70	< 2% of mass 69	587	0.53	
127	40% - 60% of mass 198	94581	54.30	
197	< 1% of mass 198	0	0.00	
198		174173	100.00	
199	5% - 9% of mass 198	11550	6.63	
275	10% - 30% of mass 198	31925	18.33	
365	> 1% of mass 198	3062	1.76	
441	Present, < mass 443	12761	75.92	
442	> 40% and < 100% of mass 198	86725	49.79	
443	17% - 23% of mass 442	16808	19.38	

Analyst: KMH Date: 07/11/14 Reviewer: LW Date: 07/11/14

CURTIS & TOMPKINS DFTPP TUNE FOR 259786 MSSIM Water
EPA 8270D

Inst : MSBNA04 Run Name : DFTPP IDF : 1.0
Seqnum : 534336091008 File : whl08 Time : 21-AUG-2014 11:54

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	94709	52.13	
68	< 2% of mass 69	0	0.00	
69		97984	100.00	
70	< 2% of mass 69	449	0.46	
127	40% - 60% of mass 198	102296	56.31	
197	< 1% of mass 198	0	0.00	
198		181674	100.00	
199	5% - 9% of mass 198	11869	6.53	
275	10% - 30% of mass 198	36189	19.92	
365	> 1% of mass 198	4461	2.46	
441	Present, < mass 443	11663	76.32	
442	> 40% and < 100% of mass 198	79681	43.86	
443	17% - 23% of mass 442	15282	19.18	

Analyst: KMH Date: 08/21/14 Reviewer: LW Date: 08/21/14

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259786 MSSIM Water: EPA 8270D-SIM

Inst : MSBNA03
Calnum : 524271263002
Units : ug/mL

Name : 3PAHSIM
Date : 07-JUL-2014 20:28
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	vg720	524271263020	ICAL	07-JUL-2014 20:28	S25125
L2	vg721	524271263021	ICAL	07-JUL-2014 21:02	S25126
L3	vg722	524271263022	ICAL	07-JUL-2014 21:35	S25128
L4	vg723	524271263023	ICAL	07-JUL-2014 22:10	S25129
L5	vg724	524271263024	ICAL	07-JUL-2014 22:42	S25130
L6	vg725	524271263025	ICAL	07-JUL-2014 23:17	S25132
L7	vg726	524271263026	ICAL	07-JUL-2014 23:50	S25133

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene	0.9269	0.9450	0.9456	0.9215	0.8641	0.7909	0.7353	AVRG		1.14205		0.8756	9	15	0.700	0.99	
2-Methylnaphthalene	0.6999	0.7117	0.7127	0.6848	0.6403	0.5856	0.5454	AVRG		1.52820		0.6544	10	15	0.400	0.99	
Acenaphthylene	1.4572	1.5302	1.6252	1.6440	1.5910	1.4308	1.3569	AVRG		0.65819		1.5193	7	15	0.900	0.99	
Acenaphthene	0.9776	1.0118	1.0260	1.0039	0.9750	0.8954	0.8673	AVRG		1.03596		0.9653	6	15	0.900	0.99	
Fluorene	1.1867	1.1884	1.2006	1.1526	1.1030	0.9696	0.9466	AVRG		0.90352		1.1068	10	15	0.900	0.99	
Phenanthrene	1.0278	1.0639	1.0687	1.0432	1.0003	0.8879	0.8064	AVRG		1.01475		0.9855	10	15	0.700	0.99	
Anthracene	0.8909	0.9428	0.9867	0.9817	0.9713	0.8559	0.7747	AVRG		1.09308		0.9148	9	15	0.700	0.99	
Fluoranthene	1.0752	1.1145	1.1427	1.1685	1.1174	0.9990	0.9038	AVRG		0.93071		1.0745	9	15	0.600	0.99	
Pyrene	1.1224	1.1145	1.1827	1.1919	1.1719	1.0950	1.0428	AVRG		0.88370		1.1316	5	15	0.600	0.99	
Benzo(a)anthracene	0.9824	0.9124	1.0147	1.0467	1.0332	0.9519	0.9022	AVRG		1.02286		0.9777	6	15	0.800	0.99	
Chrysene	0.9844	1.0148	1.0467	1.0458	1.0200	0.9309	0.8647	AVRG		1.01342		0.9868	7	15	0.700	0.99	
Benzo(b)fluoranthene	1.1501	1.1770	1.2366	1.2309	1.1924	1.0493	0.9891	AVRG		0.87223		1.1465	8	15	0.700	0.99	
Benzo(k)fluoranthene	1.1396m	1.1541	1.1739	1.1550	1.2286	1.1068	0.9578	AVRG		0.88431		1.1308	7	15	0.700	0.99	
Benzo(a)pyrene	0.9810	0.9929	1.0925	1.1248	1.1050	1.0470	0.9981	AVRG		0.95351		1.0488	6	15	0.700	0.99	
Indeno(1,2,3-cd)pyrene	1.0215	1.0659	1.1123	1.1362	1.1396	1.0726	1.0529	AVRG		0.92094		1.0858	4	15	0.500	0.99	
Dibenz(a,h)anthracene	0.8632m	0.8991m	0.9347	0.9443	0.9590	0.9178	0.9098	AVRG		1.08901		0.9183	3	15	0.400	0.99	
Benzo(g,h,i)perylene	0.9184	0.9425	0.9674	0.9716	0.9658	0.8998	0.8777	AVRG		1.06982		0.9347	4	15	0.500	0.99	
Nitrobenzene-d5	0.2863	0.2921	0.3064m	0.3210m	0.3233	0.3184	0.3189	AVRG		3.23110		0.3095	5	15	0.05	0.99	
2-Fluorobiphenyl	1.5822	1.6124	1.5918	1.5204	1.4105	1.2350	1.1419	AVRG		0.69347		1.4420	13	15	0.05	0.99	
Terphenyl-d14	0.8319	0.8606	0.8639	0.8767	0.8685	0.8153	0.7927	AVRG		1.18450		0.8442	4	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	6	0.2000	8	0.5000	8	1.0000	5	2.0000	-1	5.0000	-10	10.000	-16
2-Methylnaphthalene	0.1000	7	0.2000	9	0.5000	9	1.0000	5	2.0000	-2	5.0000	-11	10.000	-17
Acenaphthylene	0.1000	-4	0.2000	1	0.5000	7	1.0000	8	2.0000	5	5.0000	-6	10.000	-11
Acenaphthene	0.1000	1	0.2000	5	0.5000	6	1.0000	4	2.0000	1	5.0000	-7	10.000	-10
Fluorene	0.1000	7	0.2000	7	0.5000	8	1.0000	4	2.0000	0	5.0000	-12	10.000	-14
Phenanthrene	0.1000	4	0.2000	8	0.5000	8	1.0000	6	2.0000	2	5.0000	-10	10.000	-18
Anthracene	0.1000	-3	0.2000	3	0.5000	8	1.0000	7	2.0000	6	5.0000	-6	10.000	-15
Fluoranthene	0.1000	0	0.2000	4	0.5000	6	1.0000	9	2.0000	4	5.0000	-7	10.000	-16
Pyrene	0.1000	-1	0.2000	-2	0.5000	5	1.0000	5	2.0000	4	5.0000	-3	10.000	-8
Benzo(a)anthracene	0.1000	0	0.2000	-7	0.5000	4	1.0000	7	2.0000	6	5.0000	-3	10.000	-8
Chrysene	0.1000	0	0.2000	3	0.5000	6	1.0000	6	2.0000	3	5.0000	-6	10.000	-12
Benzo(b)fluoranthene	0.1000	0	0.2000	3	0.5000	8	1.0000	7	2.0000	4	5.0000	-8	10.000	-14
Benzo(k)fluoranthene	0.1000	1	0.2000	2	0.5000	4	1.0000	2	2.0000	9	5.0000	-2	10.000	-15
Benzo(a)pyrene	0.1000	-6	0.2000	-5	0.5000	4	1.0000	7	2.0000	5	5.0000	0	10.000	-5
Indeno(1,2,3-cd)pyrene	0.1000	-6	0.2000	-2	0.5000	2	1.0000	5	2.0000	5	5.0000	-1	10.000	-3
Dibenz(a,h)anthracene	0.1000	-6	0.2000	-2	0.5000	2	1.0000	3	2.0000	4	5.0000	0	10.000	-1
Benzo(g,h,i)perylene	0.1000	-2	0.2000	1	0.5000	3	1.0000	4	2.0000	3	5.0000	-4	10.000	-6
Nitrobenzene-d5	0.1000	-8	0.2000	-6	0.5000	-1	1.0000	4	2.0000	4	5.0000	3	10.000	3
2-Fluorobiphenyl	0.1000	10	0.2000	12	0.5000	10	1.0000	5	2.0000	-2	5.0000	-14	10.000	**-21**
Terphenyl-d14	0.1000	-1	0.2000	2	0.5000	2	1.0000	4	2.0000	3	5.0000	-3	10.000	-6

KMH 07/08/14 [1,4-Dioxane]: Corrected automatically drawn baseline in multiple levels.

KMH 07/08/14 [Dibenz(a,h)anthracene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/08/14 [Nitrobenzene-d5]: Corrected automatically drawn baseline in multiple levels.

KMH 07/08/14 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline in ICAL (vg720).

Analyst: KMH Date: 07/08/14 Reviewer: LW Date: 07/08/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259786 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA03 Name : 3PAHSIM
Calnum : 524271263002 Cal Date : 07-JUL-2014

ICV 524271263027 (vg727 08-JUL-2014) stds: S25107

Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	1.023	ug/mL	2	20	
2-Methylnaphthalene	1.000	1.037	ug/mL	4	20	
Acenaphthylene	1.000	1.092	ug/mL	9	20	
Acenaphthene	1.000	1.035	ug/mL	3	20	
Fluorene	1.000	1.086	ug/mL	9	20	
Phenanthrene	1.000	1.029	ug/mL	3	20	
Anthracene	1.000	0.9769	ug/mL	-2	20	
Fluoranthene	1.000	1.063	ug/mL	6	20	
Pyrene	1.000	0.9847	ug/mL	-2	20	
Benzo(a)anthracene	1.000	1.013	ug/mL	1	20	
Chrysene	1.000	0.9865	ug/mL	-1	20	
Benzo(b)fluoranthene	1.000	1.061	ug/mL	6	20	
Benzo(k)fluoranthene	1.000	1.029	ug/mL	3	20	
Benzo(a)pyrene	1.000	1.062	ug/mL	6	20	
Indeno(1,2,3-cd)pyrene	1.000	1.023	ug/mL	2	20	
Dibenz(a,h)anthracene	1.000	1.029	ug/mL	3	20	
Benzo(g,h,i)perylene	1.000	1.041	ug/mL	4	20	

Analyst: KMH Date: 07/08/14 Reviewer: LW Date: 07/08/14

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259786 MSSIM Water: EPA 8270D-SIM

Inst : MSBNA04
Calnum : 534275763001
Units : ug/mL

Name : 4PAHSIM
Date : 10-JUL-2014 16:29
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	wga06	534275763006	ICAL	10-JUL-2014 16:29	S25125
L2	wga07	534275763007	ICAL	10-JUL-2014 17:02	S25126
L3	wga08	534275763008	ICAL	10-JUL-2014 17:35	S25128
L4	wga09	534275763009	ICAL	10-JUL-2014 18:08	S25129
L5	wga10	534275763010	ICAL	10-JUL-2014 18:41	S25130
L6	wga11	534275763011	ICAL	10-JUL-2014 19:14	S25132
L7	wga12	534275763012	ICAL	10-JUL-2014 19:47	S25133

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene	1.0858	1.1077	1.1314	1.1333	1.1322	1.1136	1.1238	AVRG		0.89425		1.1183	2	15	0.700	0.99	
2-Methylnaphthalene	0.6104	0.6255	0.6457	0.6585	0.6617	0.6591	0.6601	AVRG		1.54832		0.6459	3	15	0.400	0.99	
Acenaphthylene	1.5803	1.6305	1.7018	1.7244	1.7816	1.7638	1.7810	AVRG		0.58512		1.7091	5	15	0.900	0.99	
Acenaphthene	0.9777	0.9929	1.0324	1.0493	1.0595	1.0544	1.0656	AVRG		0.96795		1.0331	3	15	0.900	0.99	
Fluorene	1.1010	1.1343	1.1773	1.2089	1.2062	1.1900	1.2084	AVRG		0.85096		1.1751	4	15	0.900	0.99	
Phenanthrene	1.0262	1.0403	1.0846	1.0810	1.0813	1.0732	1.0737	AVRG		0.93829		1.0658	2	15	0.700	0.99	
Anthracene	0.9565	0.9849	1.0468	1.0492m	1.0655m	1.0778m	1.1026m	AVRG		0.96110		1.0405	5	15	0.700	0.99	
Fluoranthene	0.9537	0.9695	1.0213	1.0184	1.0387	1.0600	1.0570	AVRG		0.98335		1.0169	4	15	0.600	0.99	
Pyrene	1.2804	1.3046	1.3510	1.3759	1.3592	1.3510	1.3081	AVRG		0.75024		1.3329	3	15	0.600	0.99	
Benzo(a)anthracene	0.9224	0.9077	0.9333	0.9538	0.9553	0.9547	0.9569	AVRG		1.06317		0.9406	2	15	0.800	0.99	
Chrysene	0.9309	0.9496	0.9674	0.9859m	0.9752m	0.9600m	0.9614m	AVRG		1.04007		0.9615	2	15	0.700	0.99	
Benzo(b)fluoranthene	0.9949	1.0334	1.1103	1.1347	1.1887	1.1759	1.2003	AVRG		0.89306		1.1197	7	15	0.700	0.99	
Benzo(k)fluoranthene	1.0985m	1.1154m	1.1419m	1.1741m	1.1946m	1.2007m	1.2147m	AVRG		0.85995		1.1629	4	15	0.700	0.99	
Benzo(a)pyrene	0.9139	0.9149	0.9689	0.9986	1.0295	1.0580	1.0833	AVRG		1.00473		0.9953	7	15	0.700	0.99	
Indeno(1,2,3-cd)pyrene	1.0481m	1.0698	1.1392	1.1999	1.2482	1.2886	1.3454	AVRG		0.83940		1.1913	9	15	0.500	0.99	
Dibenz(a,h)anthracene	0.7856m	0.8212m	0.8734	0.9272	0.9710	1.0025	1.0450	AVRG		1.08936		0.9180	10	15	0.400	0.99	
Benzo(g,h,i)perylene	0.9629m	0.9796m	1.0212	1.0639	1.0858	1.0884	1.1328	AVRG		0.95438		1.0478	6	15	0.500	0.99	
Nitrobenzene-d5	0.3832m	0.4042m	0.4071m	0.4141	0.4132	0.4214	0.4168	AVRG		2.44752		0.4086	3	15	0.05	0.99	
2-Fluorobiphenyl	1.3147	1.3456	1.3745	1.4001	1.3855	1.3547	1.3669	AVRG		0.73360		1.3631	2	15	0.05	0.99	
Terphenyl-d14	1.0057	1.0202	1.0457	1.0586	1.0608	1.0468	1.0729	AVRG		0.95750		1.0444	2	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	-3	0.2000	-1	0.5000	1	1.0000	1	2.0000	1	5.0000	0	10.000	0
2-Methylnaphthalene	0.1000	-5	0.2000	-3	0.5000	0	1.0000	2	2.0000	2	5.0000	2	10.000	2
Acenaphthylene	0.1000	-8	0.2000	-5	0.5000	0	1.0000	1	2.0000	4	5.0000	3	10.000	4
Acenaphthene	0.1000	-5	0.2000	-4	0.5000	0	1.0000	2	2.0000	3	5.0000	2	10.000	3
Fluorene	0.1000	-6	0.2000	-3	0.5000	0	1.0000	3	2.0000	3	5.0000	1	10.000	3
Phenanthrene	0.1000	-4	0.2000	-2	0.5000	2	1.0000	1	2.0000	1	5.0000	1	10.000	1
Anthracene	0.1000	-8	0.2000	-5	0.5000	1	1.0000	1	2.0000	2	5.0000	4	10.000	6
Fluoranthene	0.1000	-6	0.2000	-5	0.5000	0	1.0000	0	2.0000	2	5.0000	4	10.000	4
Pyrene	0.1000	-4	0.2000	-2	0.5000	1	1.0000	3	2.0000	2	5.0000	1	10.000	-2
Benzo(a)anthracene	0.1000	-2	0.2000	-3	0.5000	-1	1.0000	1	2.0000	2	5.0000	1	10.000	2
Chrysene	0.1000	-3	0.2000	-1	0.5000	1	1.0000	3	2.0000	1	5.0000	0	10.000	0
Benzo(b)fluoranthene	0.1000	-11	0.2000	-8	0.5000	-1	1.0000	1	2.0000	6	5.0000	5	10.000	7
Benzo(k)fluoranthene	0.1000	-6	0.2000	-4	0.5000	-2	1.0000	1	2.0000	3	5.0000	3	10.000	4
Benzo(a)pyrene	0.1000	-8	0.2000	-8	0.5000	-3	1.0000	0	2.0000	3	5.0000	6	10.000	9
Indeno(1,2,3-cd)pyrene	0.1000	-12	0.2000	-10	0.5000	-4	1.0000	1	2.0000	5	5.0000	8	10.000	13
Dibenz(a,h)anthracene	0.1000	-14	0.2000	-11	0.5000	-5	1.0000	1	2.0000	6	5.0000	9	10.000	14
Benzo(g,h,i)perylene	0.1000	-8	0.2000	-7	0.5000	-3	1.0000	2	2.0000	4	5.0000	4	10.000	8
Nitrobenzene-d5	0.1000	-6	0.2000	-1	0.5000	0	1.0000	1	2.0000	1	5.0000	3	10.000	2
2-Fluorobiphenyl	0.1000	-4	0.2000	-1	0.5000	1	1.0000	3	2.0000	2	5.0000	-1	10.000	0
Terphenyl-d14	0.1000	-4	0.2000	-2	0.5000	0	1.0000	1	2.0000	2	5.0000	0	10.000	3

KMH 07/11/14 [1,4-Dioxane]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Anthracene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Chrysene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline in all levels.

KMH 07/11/14 [Nitrobenzene-d5]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Indeno(1,2,3-cd)pyrene]: Corrected automatically drawn baseline in ICAL (wga06).

KMH 07/11/14 [Dibenz(a,h)anthracene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Benzo(g,h,i)perylene]: Corrected automatically drawn baseline in multiple levels.

Analyst: KMH Date: 07/11/14 Reviewer: LW Date: 07/11/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259786 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA04 Name : 4PAHSIM
Calnum : 534275763001 Cal Date : 10-JUL-2014

ICV 534275763013 (wga13 10-JUL-2014) stds: S24935

Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	0.9816	ug/mL	-2	20	
2-Methylnaphthalene	1.000	0.9849	ug/mL	-2	20	
Acenaphthylene	1.000	1.055	ug/mL	5	20	
Acenaphthene	1.000	1.006	ug/mL	1	20	
Fluorene	1.000	0.9943	ug/mL	-1	20	
Phenanthrene	1.000	1.016	ug/mL	2	20	
Anthracene	1.000	1.005	ug/mL	1	20	
Fluoranthene	1.000	1.007	ug/mL	1	20	
Pyrene	1.000	0.9940	ug/mL	-1	20	
Benzo(a)anthracene	1.000	1.025	ug/mL	2	20	
Chrysene	1.000	1.010	ug/mL	1	20	
Benzo(b)fluoranthene	1.000	0.9970	ug/mL	0	20	
Benzo(k)fluoranthene	1.000	0.9587	ug/mL	-4	20	
Benzo(a)pyrene	1.000	0.9585	ug/mL	-4	20	
Indeno(1,2,3-cd)pyrene	1.000	0.9407	ug/mL	-6	20	
Dibenz(a,h)anthracene	1.000	0.9949	ug/mL	-1	20	
Benzo(g,h,i)perylene	1.000	0.9591	ug/mL	-4	20	

Analyst: KMH Date: 07/11/14 Reviewer: LW Date: 07/11/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA03 IDF : 1.0
Seqnum : 524334764003.1 File : vhk03 Time : 20-AUG-2014 12:08
Cal : 524271263002 Caldate : 07-JUL-2014
Standards: S25129

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.8756	0.8996	1.000	1.027	ug/mL	3	20	0.7000	
2-Methylnaphthalene	0.6544	0.6667	1.000	1.019	ug/mL	2	20	0.4000	
Acenaphthylene	1.5193	1.6168	1.000	1.064	ug/mL	6	20	0.9000	
Acenaphthene	0.9653	1.0104	1.000	1.047	ug/mL	5	20	0.9000	
Fluorene	1.1068	1.2189	1.000	1.101	ug/mL	10	20	0.9000	
Phenanthrene	0.9855	1.0332	1.000	1.048	ug/mL	5	20	0.7000	
Anthracene	0.9148	0.9824	1.000	1.074	ug/mL	7	20	0.7000	m
Fluoranthene	1.0745	1.1650	1.000	1.084	ug/mL	8	20	0.6000	
Pyrene	1.1316	1.2095	1.000	1.069	ug/mL	7	20	0.6000	
Benzo(a)anthracene	0.9777	1.0158	1.000	1.039	ug/mL	4	20	0.8000	
Chrysene	0.9868	1.0355	1.000	1.049	ug/mL	5	20	0.7000	
Benzo(b)fluoranthene	1.1465	1.1846	1.000	1.033	ug/mL	3	20	0.7000	
Benzo(k)fluoranthene	1.1308	1.1675	1.000	1.032	ug/mL	3	20	0.7000	m
Benzo(a)pyrene	1.0488	1.0789	1.000	1.029	ug/mL	3	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.0858	1.0904	1.000	1.004	ug/mL	0	20	0.5000	
Dibenz(a,h)anthracene	0.9183	0.9092	1.000	0.9902	ug/mL	-1	20	0.4000	
Benzo(g,h,i)perylene	0.9347	0.9537	1.000	1.020	ug/mL	2	20	0.5000	
Nitrobenzene-d5	0.3095	0.3271	1.000	1.057	ug/mL	6	20	0.0500	
2-Fluorobiphenyl	1.4420	1.4769	1.000	1.024	ug/mL	2	20	0.0500	
Terphenyl-d14	0.8442	0.8938	1.000	1.059	ug/mL	6	20	0.0500	

ISTD (ICAL vg723)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	32023	45383	41.72
Naphthalene-d8	113951	161602	41.82
Acenaphthene-d10	66733	93243	39.73
Phenanthrene-d10	117708	175224	48.86
Chrysene-d12	117775	177686	50.87
Perylene-d12	94243	144349	53.17

ISTD (ICAL vg723)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	7.34	7.31	-0.03
Naphthalene-d8	8.96	8.93	-0.03
Acenaphthene-d10	11.26	11.23	-0.03
Phenanthrene-d10	13.20	13.17	-0.03
Chrysene-d12	16.65	16.62	-0.03
Perylene-d12	18.37	18.35	-0.02

NPM 08/20/14 [1-Methylnaphthalene]: Corrected automatically drawn baseline. [general version]

NPM 08/20/14 [Anthracene]: Corrected automatically drawn baseline. [general version]

NPM 08/20/14 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline. [general version]

Analyst: KMH Date: 08/22/14 Reviewer: LW Date: 08/27/14

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA04 Run Name : PAHDIOX IDF : 1.0
Seqnum : 534336091009.1 File : whl09 Time : 21-AUG-2014 12:14
Cal : 534275763001 Caldate : 10-JUL-2014
Standards: S25130

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	1.1183	1.0861	2.000	1.942	ug/mL	-3	20	0.7000	
2-Methylnaphthalene	0.6459	0.6642	2.000	2.057	ug/mL	3	20	0.4000	
Acenaphthylene	1.7091	1.6839	2.000	1.971	ug/mL	-1	20	0.9000	
Acenaphthene	1.0331	1.0498	2.000	2.032	ug/mL	2	20	0.9000	
Fluorene	1.1751	1.1919	2.000	2.029	ug/mL	1	20	0.9000	
Phenanthrene	1.0658	1.0954	2.000	2.056	ug/mL	3	20	0.7000	
Anthracene	1.0405	1.0680	2.000	2.053	ug/mL	3	20	0.7000	
Fluoranthene	1.0169	1.0637	2.000	2.092	ug/mL	5	20	0.6000	
Pyrene	1.3329	1.2978	2.000	1.947	ug/mL	-3	20	0.6000	
Benzo(a)anthracene	0.9406	0.9324	2.000	1.983	ug/mL	-1	20	0.8000	
Chrysene	0.9615	0.9884	2.000	2.056	ug/mL	3	20	0.7000	
Benzo(b)fluoranthene	1.1197	1.1395	2.000	2.035	ug/mL	2	20	0.7000	
Benzo(k)fluoranthene	1.1629	1.2810	2.000	2.203	ug/mL	10	20	0.7000	
Benzo(a)pyrene	0.9953	1.0342	2.000	2.078	ug/mL	4	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.1913	1.3256	2.000	2.225	ug/mL	11	20	0.5000	
Dibenz(a,h)anthracene	0.9180	1.0479	2.000	2.283	ug/mL	14	20	0.4000	
Benzo(g,h,i)perylene	1.0478	1.1724	2.000	2.238	ug/mL	12	20	0.5000	
Nitrobenzene-d5	0.4086	0.3603	2.000	1.764	ug/mL	-12	20	0.0500	
2-Fluorobiphenyl	1.3631	1.4462	2.000	2.122	ug/mL	6	20	0.0500	
Terphenyl-d14	1.0444	1.0094	2.000	1.933	ug/mL	-3	20	0.0500	

ISTD (ICAL wga09)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	61411	35015	-42.98
Naphthalene-d8	237683	130606	-45.05
Acenaphthene-d10	124978	72340	-42.12
Phenanthrene-d10	182537	110793	-39.30
Chrysene-d12	142444	98468	-30.87
Perylene-d12	111189	76969	-30.78

ISTD (ICAL wga09)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	7.86	7.84	-0.02
Naphthalene-d8	9.43	9.41	-0.02
Acenaphthene-d10	11.71	11.69	-0.02
Phenanthrene-d10	13.66	13.65	-0.01
Chrysene-d12	17.23	17.20	-0.03
Perylene-d12	19.16	19.14	-0.02

Analyst: KMH Date: 08/22/14 Reviewer: LW Date: 08/27/14

Logbooks & Sequences

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 524334764

Date : 08/20/14 Reference : vg723
Sequence : MSBNA03 vhk Analyzed : 07/07/14 22:10

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	32023	113951	66733	117708	117775	94243
		LOWER LIMIT	16012	56976	33367	58854	58888	47122
		UPPER LIMIT	64046	227902	133466	235416	235550	188486
003	CCV		45383	161602	93243	175224	177686	144349
004	BLANK	QC754152	40074	144978	90135	169104	169862	131364
005	LCS	QC754153	40800	147837	87175	166901	171626	137851
006	SAMPLE	259841-005	38262	134783	80787	121279	106048	100216
007	SAMPLE	259835-002	33709	118975	70908	111991	99911	85941
008	MSS	259786-001	32484	116704	71225	124686	112256	102731
009	MS	QC754154	33637	119459	71821	129585	113679	106422
010	MSD	QC754155	31453	113275	67791	121054	107085	99825
011	SAMPLE	259786-003	33291	119260	73578	125808	116559	105831
012	SAMPLE	259786-004	33357	118616	71977	119452	108650	102469
013	SAMPLE	259790-001	31962	118955	73275	136976	131601	112052

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 524334764

Date : 08/20/14 Reference : vg723
Sequence : MSBNA03 vhk Analyzed : 07/07/14 22:10

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	7.34	8.96	11.26	13.20	16.65	18.37
		LOWER LIMIT	6.84	8.46	10.76	12.70	16.15	17.87
		UPPER LIMIT	7.84	9.46	11.76	13.70	17.15	18.87
003	CCV		7.31	8.93	11.23	13.17	16.62	18.35

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 524334764

Date : 08/20/14
Sequence : MSBNA03 vhk

Reference : vhk03
Analyzed : 08/20/14 12:08

#	Type	Sample ID	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT	DCBZ14D4 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	8.93	11.23	13.17	16.62	18.35	7.31
		LOWER LIMIT	8.43	10.73	12.67	16.12	17.85	6.81
		UPPER LIMIT	9.43	11.73	13.67	17.12	18.85	7.81
004	BLANK	QC754152	8.93	11.23	13.17	16.62	18.35	7.31
005	LCS	QC754153	8.93	11.23	13.18	16.62	18.35	7.31
006	SAMPLE	259841-005	8.93	11.23	13.18	16.63	18.36	7.31
007	SAMPLE	259835-002	8.93	11.23	13.18	16.63	18.36	7.31
008	MSS	259786-001	8.93	11.24	13.18	16.63	18.36	7.31
009	MS	QC754154	8.94	11.23	13.18	16.63	18.35	7.31
010	MSD	QC754155	8.94	11.23	13.18	16.63	18.35	7.31
011	SAMPLE	259786-003	8.93	11.23	13.18	16.63	18.35	7.31
012	SAMPLE	259786-004	8.93	11.23	13.18	16.63	18.36	7.31
013	SAMPLE	259790-001	8.93	11.23	13.18	16.62	18.35	7.31

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 534336091

Date : 08/21/14 Reference : wga09
Sequence : MSBNA04 whl Analyzed : 07/10/14 18:08

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	61411	237683	124978	182537	142444	111189
		LOWER LIMIT	30706	118842	62489	91269	71222	55595
		UPPER LIMIT	122822	475366	249956	365074	284888	222378
009	CCV	PAHDIOX	35015	130606	72340	110793	98468	76969
011	MS	QC754154	40133	158623	96950	170711	153825	127803
012	MSD	QC754155	46019	179158	103599	183574	161608	133091
013	SAMPLE	259835-002	47345	179122	107103	191047	173301	130136
014	SAMPLE	259841-007	28041 *	110847 *	69801	117081	93223	78792
015	SAMPLE	259882-001	9148 *	195725	111255	183963	162293	69481
016	SAMPLE	259882-002	48643	180183	104930	174666	153308	115706
026	SAMPLE	259841-007	47986	183106	110529	187043	155984	110179

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 534336091

Date : 08/21/14 Reference : wga09
Sequence : MSBNA04 whl Analyzed : 07/10/14 18:08

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	7.86	9.43	11.71	13.66	17.23	19.16
		LOWER LIMIT	7.36	8.93	11.21	13.16	16.73	18.66
		UPPER LIMIT	8.36	9.93	12.21	14.16	17.73	19.66
009	CCV	PAHDIOX	7.84	9.41	11.69	13.65	17.20	19.14

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 534336091

Date : 08/21/14 Reference : whl09
Sequence : MSBNA04 whl Analyzed : 08/21/14 12:14

#	Type	Sample ID	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	9.41	11.69	13.65	17.20	19.14
		LOWER LIMIT	8.91	11.19	13.15	16.70	18.64
		UPPER LIMIT	9.91	12.19	14.15	17.70	19.64
011	MS	QC754154	9.42	11.69	13.65	17.21	19.15
012	MSD	QC754155	9.42	11.69	13.65	17.21	19.15
013	SAMPLE	259835-002	9.41	11.69	13.65	17.22	19.16
014	SAMPLE	259841-007	9.42	11.69	13.64	17.20	19.14
015	SAMPLE	259882-001	9.47	11.69	13.66	17.22	19.15
016	SAMPLE	259882-002	9.42	11.69	13.65	17.22	19.15
026	SAMPLE	259841-007	9.41	11.68	13.65	17.21	19.14

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 524271263

Instrument : MSBNA03 Begun : 07/07/14 09:03
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vg701	IB	IB			07/07/14 09:03	1.0		?t
002	vg702	TUN	DFTPP			07/07/14 09:28	1.0	1	
003	vg703	CCV	PAHDIOX			07/07/14 09:47	1.0	2	
004	vg704	SAMPLE	258690-001	Soil	212952	07/07/14 10:20	2.0	3	
005	vg705	SAMPLE	258434-007	Soil	212801	07/07/14 10:54	5.0	3	
006	vg706	SAMPLE	258434-008	Soil	212801	07/07/14 11:27	5.0	3	
007	vg707	IB	IB			07/07/14 12:53	1.0		
008	vg708	TUN	DFTPP			07/07/14 13:19	1.0	1	
009	vg709	ICAL	ICAL			07/07/14 13:38	1.0	4	
010	vg710	ICAL	ICAL			07/07/14 14:10	1.0	5	
011	vg711	ICAL	ICAL			07/07/14 14:43	1.0	6	
012	vg712	ICAL	ICAL			07/07/14 15:15	1.0	7	
013	vg713	ICAL	ICAL			07/07/14 15:47	1.0	8	
014	vg714	ICAL	ICAL			07/07/14 16:19	1.0	9	
015	vg715	ICAL	ICAL			07/07/14 16:51	1.0	10	
016	vg716	ICV	ICV			07/07/14 17:23	1.0	2	
017	vg717	TUN	DFTPP			07/07/14 17:48	1.0	1	t
018	vg718	CCV	PAHDIOX			07/07/14 18:06	1.0	6	t
019	vg719	TUN	DFTPP			07/07/14 20:11	1.0	1	
020	vg720	ICAL	ICAL			07/07/14 20:28	1.0	11	
021	vg721	ICAL	ICAL			07/07/14 21:02	1.0	12	
022	vg722	ICAL	ICAL			07/07/14 21:35	1.0	13	
023	vg723	ICAL	ICAL			07/07/14 22:10	1.0	14	
024	vg724	ICAL	ICAL			07/07/14 22:42	1.0	15	
025	vg725	ICAL	ICAL			07/07/14 23:17	1.0	16	
026	vg726	ICAL	ICAL			07/07/14 23:50	1.0	17	
027	vg727	ICV	ICV			07/08/14 00:22	1.0	2	
028	vg728	CHECK	ICV			07/08/14 00:56	1.0	18	
029	vg729	CHECK	ICV			07/08/14 01:28	1.0	19	

KMH 07/08/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 29.

KMH 07/07/14 : maintenance done after run 6

Standards used: 1=S24893 2=S25107 3=S24600 4=S24925 5=S24927 6=S24928 7=S24929 8=S24931 9=S24933 10=S24934 11=S25125 12=S25126 13=S25128 14=S25129 15=S25130 16=S25132 17=S25133 18=S24935 19=S25080

Flags used: ?t=missing tune t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 524334764

Instrument : MSBNA03 Begun : 08/20/14 11:24
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vhk01	IB	IB			08/20/14 11:24	1.0		?t
002	vhk02	TUN	DFTPP			08/20/14 11:50	1.0	1	
003	vhk03	CCV				08/20/14 12:08	1.0	2	
004	vhk04	BLANK	QC754152	Water	214554	08/20/14 12:43	1.0	3	
005	vhk05	LCS	QC754153	Water	214554	08/20/14 13:15	1.0	3	
006	vhk06	SAMPLE	259841-005	Water	214554	08/20/14 13:48	1.0	3	
007	vhk07	SAMPLE	259835-002	Water	214554	08/20/14 14:23	1.0	3	
008	vhk08	MSS	259786-001	Water	214554	08/20/14 14:56	1.0	3	
009	vhk09	MS	QC754154	Water	214554	08/20/14 15:29	1.0	3	
010	vhk10	MSD	QC754155	Water	214554	08/20/14 16:02	1.0	3	
011	vhk11	SAMPLE	259786-003	Water	214554	08/20/14 16:34	1.0	3	
012	vhk12	SAMPLE	259786-004	Water	214554	08/20/14 17:06	1.0	3	
013	vhk13	SAMPLE	259790-001	Water	214554	08/20/14 17:38	1.0	3	

KMH 08/21/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 13.

Standards used: 1=S24893 2=S25129 3=S24915

Flags used: ?t=missing tune

Page 1 of 1

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 534275763

Instrument : MSBNA04 Begun : 07/10/14 12:03
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	wga01	TUN	DFTPP			07/10/14 12:03	1.0	1	
002	wga02	CCV	RTCHECK			07/10/14 12:32	1.0	2	2:ANTH=2.4
003	wga03	CCV	RTCHECK			07/10/14 13:14	1.0	2	2:ANTH=2.5
004	wga04	TUN	DFTPP			07/10/14 14:05	1.0	1	
005	wga05	TUN	DFTPP			07/10/14 15:44	1.0	1	
006	wga06	ICAL	ICAL			07/10/14 16:29	1.0	3	
007	wga07	ICAL	ICAL			07/10/14 17:02	1.0	4	
008	wga08	ICAL	ICAL			07/10/14 17:35	1.0	5	
009	wga09	ICAL	ICAL			07/10/14 18:08	1.0	6	
010	wga10	ICAL	ICAL			07/10/14 18:41	1.0	2	
011	wga11	ICAL	ICAL			07/10/14 19:14	1.0	7	
012	wga12	ICAL	ICAL			07/10/14 19:47	1.0	8	
013	wga13	ICV	ICV			07/10/14 20:21	1.0	9	

KMH 07/11/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 13.

Standards used: 1=S24369 2=S25130 3=S25125 4=S25126 5=S25128 6=S25129 7=S25132 8=S25133 9=S24935

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 534336091

Instrument : MSBNA04 Begun : 08/21/14 09:31
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	whl01	IB	IB			08/21/14 09:31	1.0		?t
002	whl02	TUN	DFTPP			08/21/14 09:57	1.0	1	t
003	whl03	TUN	DFTPP			08/21/14 10:14	1.0	1	t
004	whl04	TUN	DFTPP			08/21/14 10:30	1.0	1	t
005	whl05	TUN	DFTPP			08/21/14 10:48	1.0	1	t
006	whl06	TUN	DFTPP			08/21/14 11:04	1.0	1	
007	whl07	CCV	PAHDIOX			08/21/14 11:24	1.0	2	
008	whl08	TUN	DFTPP			08/21/14 11:54	1.0	1	
009	whl09	CCV	PAHDIOX			08/21/14 12:14	1.0	2	
010	whl10	BLANK	QC754284	Soil	214589	08/21/14 12:46	1.0	3	
011	whl11	MS	QC754154	Water	214554	08/21/14 13:18	1.0	3	
012	whl12	MSD	QC754155	Water	214554	08/21/14 13:49	1.0	3	
013	whl13	SAMPLE	259835-002	Water	214554	08/21/14 14:21	1.0	3	
014	whl14	SAMPLE	259841-007	Water	214554	08/21/14 14:53	1.0	3	
015	whl15	SAMPLE	259882-001	Water	214554	08/21/14 15:25	1.0	3	
016	whl16	SAMPLE	259882-002	Water	214554	08/21/14 15:57	1.0	3	
017	whl17	SAMPLE	259781-001	Soil	214589	08/21/14 16:29	2.0	3	
018	whl18	SAMPLE	259781-002	Soil	214589	08/21/14 17:01	1.0	3	
019	whl19	SAMPLE	259818-002	Soil	214589	08/21/14 17:33	1.0	3	
020	whl20	SAMPLE	259924-003	Soil	214589	08/21/14 18:05	1.0	3	
021	whl21	SAMPLE	259826-001	Soil	214589	08/21/14 18:37	1.0	3	
022	whl22	SAMPLE	259924-001	Soil	214589	08/21/14 19:09	1.0	3	
023	whl23	SAMPLE	259924-002	Soil	214589	08/21/14 19:43	1.0	3	
024	whl24	SAMPLE	259868-001	Soil	214589	08/21/14 20:17	1.0	3	
025	whl25	SAMPLE	259866-001	Soil	214589	08/21/14 20:50	1.0	3	
026	whl26	SAMPLE	259841-007	Water	214554	08/21/14 21:22	1.0	3	
027	whl27	SAMPLE	259983-020	Soil	214589	08/21/14 21:54	1.0	3	

KMH 08/21/14 : adjusted tune after runs 3, 4, 5 & 7

KMH 08/22/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 27.

Standards used: 1=S24893 2=S25130 3=S24915

Flags used: ?t=missing tune t=tune failure

Page 1 of 1

SAMPLE PREPARATION SUMMARY

Batch # : 214554
Started By : ARG
Method : 3520C
Spike #1 ID : S24814

Prep Date : 19-AUG-2014 14:25
SOP Version : 8270-SIM_3520_rv5
Spike #2 ID : S24884

Analysis : 8270-SIM
Finished By : CPK
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259786-001		Water	1040	1	1	0.0009615	7	1				8270-SIM	
259786-003		Water	1020	1	1	0.0009804	7	1				8270-SIM	
259786-004		Water	1040	1	1	0.0009615	7	1				8270-SIM	
259790-001		Water	1000	1	1	0.001	7	1				8270-SIM	
259790-002		Water	1060	1	1	0.0009434	7	1				8270-SIM	
259835-002		Water	1020	1	1	0.0009804	7	1				8270-SIM	
259841-005		Water	1020	1	1	0.0009804	7	1				8270-SIM	
259841-007		Water	1040	1	1	0.0009615	7	1				8270-SIM	
259882-001		Water	1020	1	1	0.0009804	11	1				8270-SIM	
259882-002		Water	1020	1	1	0.0009804	7	1				8270-SIM	
QC754152	BLANK	Water	1000	1	1	0.001		1				8270-SIM	
QC754153	LCS	Water	1000	1	1	0.001		1	1			8270-SIM	
QC754154	MS	Water	1020	1	1	0.0009804		1	1			8270-SIM	
QC754155	MSD	Water	1040	1	1	0.0009615		1	1			8270-SIM	

Analyst: KMH Date: 08/21/14 Reviewer: LW Date: 08/21/14

BNA (8270 & 625) Water Prep Log **Curtis & Tompkins, Ltd.**

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LIMS Batch No: 214554 Extraction Method:
LIMS Analysis: SIM ☒ EPA 3520c cont. L/L
Date Extracted: 8/9/14 ☐

Sample #	Container ID	Volume of Sample (mL)	Sample pH	Final Volume (mL)	Confirmed pH <2	Comments
259786-001	Z	1040	☒7 ☐	☒1.0 ☐	☒≤2	MSS
259786-003	I	1020	☒7 ☐	☒1.0 ☐	☒≤2	
4	G	1040	☒7 ☐	☒1.0 ☐	☒≤2	
259790-001	H	1000	☒7 ☐	☒1.0 ☐	☒≤2	
2	H	1060	☒7 ☐	☒1.0 ☐	☒≤2	
259835-002	C	1020	☒7 ☐	☒1.0 ☐	☒≤2	
259841-005	C	1020	☒7 ☐	☒1.0 ☐	☒≤2	
7	G	1040	☒7 ☐	☒1.0 ☐	☒≤2	
259882-001	K	1020	☐7 ☒11	☒1.0 ☐	☒≤2	
2	M	1020	☒7 ☐	☒1.0 ☐	☒≤2	
MB 254152	MA	1000	☐7 ☒NA	☒1.0 ☐	☒≤2	
LCS 3		1000	☐7 ☒	☒1.0 ☐	☒≤2	
MS 4	Y	1020	☒7 ☐	☒1.0 ☐	☒≤2	
MSD 5	AB	1040	☒7 ☐	☒1.0 ☐	☒≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	

	Lot# / LIMS # / Time	Date/ Initials
1.0 mL of surrogate solution was added to all samples	524814A	AR6 8/9/14
1.0 mL of matrix spiking solution was added to all spikes	524884B	
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	FS140656	
Cont. L/L extracted with 450mL of CH_2Cl_2	EM54153	
Extraction Start Time:	1425	
Extraction End Time:	830	CPK 8/20/14
pH of all samples adjusted to pH ≥ 11 with 10 N NaOH	NA	CPK 8/20/14
Extraction Start Time:		
Extraction End Time:		
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EMWL23I	
Concentrated to final volume at temperature (degrees C)	70	
Relinquished to BNA department		

8/9/14
Extraction Chemist **Date**

Contined from Page
Continued on Page

8/20/14
Reviewed by **Date**

Case Narrative Addendum: Manual Integrations for 259786 MSSIM (Water)

For CCV (MSBNA03 vhk03):
Anthracene: Corrected automatically drawn baseline.
Benzo(k)fluoranthene: Corrected automatically drawn baseline.
1-Methylnaphthalene: Corrected automatically drawn baseline.

For MSS 259786-001 (MSBNA03 vhk08):
Acenaphthylene: Corrected automatically drawn baseline.
Benzo(a)anthracene: Corrected automatically drawn baseline.
Benzo(b)fluoranthene: Corrected automatically drawn baseline.
Benzo(k)fluoranthene: Picked or reassigned peak.
Chrysene: Corrected automatically drawn baseline.
Naphthalene: Corrected automatically drawn baseline.

For MSD QC754155 (MSBNA04 whl12):
1,4-Dioxane: Corrected automatically drawn baseline for spike & dup.
Fluorene: Corrected automatically drawn baseline for spike.
Nitrobenzene-d5: Corrected automatically drawn baseline for dup.

For Calibration MSBNA03 (524271263002):
Benzo(k)fluoranthene: Corrected automatically drawn baseline in ICAL (vg720).
Dibenz(a,h)anthracene: Corrected automatically drawn baseline in multiple levels.
1,4-Dioxane: Corrected automatically drawn baseline in multiple levels.
Nitrobenzene-d5: Corrected automatically drawn baseline in multiple levels.

For Calibration MSBNA04 (534275763001):
Anthracene: Corrected automatically drawn baseline in multiple levels.
Benzo(g,h,i)perylene: Corrected automatically drawn baseline in multiple levels.
Benzo(k)fluoranthene: Corrected automatically drawn baseline in all levels.
Chrysene: Corrected automatically drawn baseline in multiple levels.
Dibenz(a,h)anthracene: Corrected automatically drawn baseline in multiple levels.
1,4-Dioxane: Corrected automatically drawn baseline in multiple levels.
Indeno(1,2,3-cd)pyrene: Corrected automatically drawn baseline in ICAL (wga06).
Nitrobenzene-d5: Corrected automatically drawn baseline in multiple levels.

For ICV (MSBNA04 wga13):
1,4-Dioxane: Corrected automatically drawn baseline.

Laboratory Job Number 259786

ANALYTICAL REPORT

Metals

Matrix: Filtrate

Curtis & Tompkins, Ltd.

Dissolved Aluminum

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Aluminum	Batch#:	214656
Matrix:	Filtrate	Sampled:	08/13/14
Units:	ug/L	Received:	08/13/14
Diln Fac:	1.000	Prepared:	08/21/14

Field ID	Type	Lab ID	Result	LOQ	DL	Analyzed
04W19-081314	SAMPLE	259786-001	28 J	100	28	08/28/14
04W18-081314	SAMPLE	259786-003	50 U	100	28	08/21/14
04W17-081314	SAMPLE	259786-004	50 U	100	28	08/21/14
04W16-081314	SAMPLE	259786-005	50 U	100	28	08/21/14
	BLANK	QC754558	50 U	100	28	08/21/14

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved Magnesium

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Magnesium	Sampled:	08/13/14
Matrix:	Filtrate	Received:	08/13/14
Units:	ug/L	Prepared:	08/21/14
Batch#:	214656	Analyzed:	08/21/14

Field ID	Type	Lab ID	Result	LOQ	DL	Diln Fac
04W19-081314	SAMPLE	259786-001	720,000	20,000	2,000	100.0
04W18-081314	SAMPLE	259786-003	920,000	20,000	2,000	100.0
04W17-081314	SAMPLE	259786-004	780,000	20,000	2,000	100.0
04W16-081314	SAMPLE	259786-005	990,000	20,000	2,000	100.0
	BLANK	QC754558	160 U	500	20	1.000

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

44.0

Curtis & Tompkins, Ltd.

Dissolved Manganese

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Manganese	Batch#:	214656
Matrix:	Filtrate	Sampled:	08/13/14
Units:	ug/L	Received:	08/13/14
Diln Fac:	1.000	Prepared:	08/21/14

Field ID	Type	Lab ID	Result	LOQ	DL	Analyzed
04W19-081314	SAMPLE	259786-001	4,300	5.0	0.48	08/28/14
04W18-081314	SAMPLE	259786-003	2,000	5.0	0.48	08/21/14
04W17-081314	SAMPLE	259786-004	9,300	5.0	0.48	08/21/14
04W16-081314	SAMPLE	259786-005	5,100	5.0	0.48	08/21/14
	BLANK	QC754558	1.3 U	5.0	0.48	08/21/14

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215		
Field ID:	04W19-081314	Diln Fac:	1.000
Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Filtrate	Received:	08/13/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Analysis
Antimony	2.5 U	10	0.65	214656	08/21/14	08/28/14	EPA 6010C
Arsenic	41	5.0	1.3	214656	08/21/14	08/28/14	EPA 6010C
Barium	930	5.0	1.0	214656	08/21/14	08/28/14	EPA 6010C
Beryllium	0.69 J	2.0	0.083	214656	08/21/14	08/28/14	EPA 6010C
Cadmium	1.3 U	5.0	0.58	214656	08/21/14	08/28/14	EPA 6010C
Chromium	4.9 J	5.0	0.57	214656	08/21/14	08/28/14	EPA 6010C
Cobalt	6.0	5.0	0.32	214656	08/21/14	08/28/14	EPA 6010C
Copper	2.5 U	5.0	0.99	214656	08/21/14	08/28/14	EPA 6010C
Lead	2.5 U	5.0	0.91	214656	08/21/14	08/28/14	EPA 6010C
Mercury	0.10 U	0.20	0.021	214531	08/19/14	08/19/14	EPA 7470A
Molybdenum	5.1	5.0	0.40	214656	08/21/14	08/28/14	EPA 6010C
Nickel	7.2	5.0	0.71	214656	08/21/14	08/28/14	EPA 6010C
Selenium	49	10	2.3	214656	08/21/14	08/28/14	EPA 6010C
Silver	1.4 J	5.0	0.66	214656	08/21/14	08/28/14	EPA 6010C
Thallium	5.0 U	10	2.0	214656	08/21/14	08/28/14	EPA 6010C
Vanadium	5.9	5.0	0.67	214656	08/21/14	08/28/14	EPA 6010C
Zinc	9.2 J	20	3.0	214656	08/21/14	08/28/14	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215		
Field ID:	04W18-081314	Diln Fac:	1.000
Lab ID:	259786-003	Sampled:	08/13/14
Matrix:	Filtrate	Received:	08/13/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Analysis
Antimony	3.5 J	10	0.65	214656	08/21/14	08/21/14	EPA 6010C
Arsenic	36	5.0	1.3	214656	08/21/14	08/21/14	EPA 6010C
Barium	230	5.0	1.0	214656	08/21/14	08/21/14	EPA 6010C
Beryllium	0.69 J	2.0	0.083	214656	08/21/14	08/21/14	EPA 6010C
Cadmium	1.3 U	5.0	0.58	214656	08/21/14	08/21/14	EPA 6010C
Chromium	8.5	5.0	0.57	214656	08/21/14	08/21/14	EPA 6010C
Cobalt	1.3 J	5.0	0.32	214656	08/21/14	08/21/14	EPA 6010C
Copper	2.5 U	5.0	0.99	214656	08/21/14	08/21/14	EPA 6010C
Lead	2.5 U	5.0	0.91	214656	08/21/14	08/21/14	EPA 6010C
Mercury	0.10 U	0.20	0.021	214531	08/19/14	08/19/14	EPA 7470A
Molybdenum	13	5.0	0.40	214656	08/21/14	08/21/14	EPA 6010C
Nickel	2.7 J	5.0	0.71	214656	08/21/14	08/21/14	EPA 6010C
Selenium	82	10	2.3	214656	08/21/14	08/21/14	EPA 6010C
Silver	2.1 J	5.0	0.66	214656	08/21/14	08/21/14	EPA 6010C
Thallium	5.0 U	10	2.0	214656	08/21/14	08/21/14	EPA 6010C
Vanadium	8.4	5.0	0.67	214656	08/21/14	08/21/14	EPA 6010C
Zinc	9.7 J	20	3.0	214656	08/21/14	08/21/14	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215		
Field ID:	04W17-081314	Diln Fac:	1.000
Lab ID:	259786-004	Sampled:	08/13/14
Matrix:	Filtrate	Received:	08/13/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Analysis
Antimony	5.1 J	10	0.65	214656	08/21/14	08/21/14	EPA 6010C
Arsenic	23	5.0	1.3	214656	08/21/14	08/21/14	EPA 6010C
Barium	650	5.0	1.0	214656	08/21/14	08/21/14	EPA 6010C
Beryllium	0.83 J	2.0	0.083	214656	08/21/14	08/21/14	EPA 6010C
Cadmium	1.3 U	5.0	0.58	214656	08/21/14	08/21/14	EPA 6010C
Chromium	5.7	5.0	0.57	214656	08/21/14	08/21/14	EPA 6010C
Cobalt	1.3 J	5.0	0.32	214656	08/21/14	08/21/14	EPA 6010C
Copper	2.5 U	5.0	0.99	214656	08/21/14	08/21/14	EPA 6010C
Lead	2.5 U	5.0	0.91	214656	08/21/14	08/21/14	EPA 6010C
Mercury	0.10 U	0.20	0.021	214531	08/19/14	08/19/14	EPA 7470A
Molybdenum	9.1	5.0	0.40	214656	08/21/14	08/21/14	EPA 6010C
Nickel	1.2 J	5.0	0.71	214656	08/21/14	08/21/14	EPA 6010C
Selenium	74	10	2.3	214656	08/21/14	08/21/14	EPA 6010C
Silver	3.2 J	5.0	0.66	214656	08/21/14	08/21/14	EPA 6010C
Thallium	7.6 J	10	2.0	214656	08/21/14	08/21/14	EPA 6010C
Vanadium	1.4 J	5.0	0.67	214656	08/21/14	08/21/14	EPA 6010C
Zinc	10 U	20	3.0	214656	08/21/14	08/21/14	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215		
Field ID:	04W16-081314	Diln Fac:	1.000
Lab ID:	259786-005	Sampled:	08/13/14
Matrix:	Filtrate	Received:	08/13/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Analysis
Antimony	3.7 J	10	0.65	214656	08/21/14	08/21/14	EPA 6010C
Arsenic	19	5.0	1.3	214656	08/21/14	08/21/14	EPA 6010C
Barium	210	5.0	1.0	214656	08/21/14	08/21/14	EPA 6010C
Beryllium	0.80 J	2.0	0.083	214656	08/21/14	08/21/14	EPA 6010C
Cadmium	1.3 U	5.0	0.58	214656	08/21/14	08/21/14	EPA 6010C
Chromium	6.1	5.0	0.57	214656	08/21/14	08/21/14	EPA 6010C
Cobalt	1.6 J	5.0	0.32	214656	08/21/14	08/21/14	EPA 6010C
Copper	2.5 U	5.0	0.99	214656	08/21/14	08/21/14	EPA 6010C
Lead	2.5 U	5.0	0.91	214656	08/21/14	08/21/14	EPA 6010C
Mercury	0.10 U	0.20	0.021	214531	08/19/14	08/19/14	EPA 7470A
Molybdenum	6.5	5.0	0.40	214656	08/21/14	08/21/14	EPA 6010C
Nickel	2.1 J	5.0	0.71	214656	08/21/14	08/21/14	EPA 6010C
Selenium	74	10	2.3	214656	08/21/14	08/21/14	EPA 6010C
Silver	3.0 J	5.0	0.66	214656	08/21/14	08/21/14	EPA 6010C
Thallium	8.5 J	10	2.0	214656	08/21/14	08/21/14	EPA 6010C
Vanadium	2.5 U	5.0	0.67	214656	08/21/14	08/21/14	EPA 6010C
Zinc	10 U	20	3.0	214656	08/21/14	08/21/14	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	214531
Lab ID:	QC754065	Prepared:	08/19/14
Matrix:	Water	Analyzed:	08/19/14
Units:	ug/L		

Result	LOQ	DL
0.14 J	0.20	0.021

J= Estimated value
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	214531
Matrix:	Water	Prepared:	08/19/14
Units:	ug/L	Analyzed:	08/19/14
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC754066	2.500	3.416	137 *	80-120		
BSD	QC754067	2.500	3.357	134 *	80-120	2	20

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	214531
Field ID:	04W19-081314	Sampled:	08/13/14
MSS Lab ID:	259786-001	Received:	08/13/14
Matrix:	Filtrate	Prepared:	08/19/14
Units:	ug/L	Analyzed:	08/19/14
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC754068	<0.02080	2.500	1.669	67 *	80-120		
MSD	QC754069		2.500	1.365	55 *	80-120	20	20

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Units:	ug/L
Field ID:	04W19-081314	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214531
MSS Lab ID:	259786-001	Sampled:	08/13/14
Lab ID:	QC754070	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/19/14

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
0.5000 ND	0.2000	0.5000 U	1.000	NC	10

U= Not Detected at or above DL
NC= Not Calculated
ND= Not Detected at or above DL
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC754558	Batch#:	214656
Matrix:	Filtrate	Prepared:	08/21/14
Units:	ug/L	Analyzed:	08/21/14

Analyte	Result	LOQ	DL
Antimony	2.5 U	10	0.65
Arsenic	2.5 U	5.0	1.3
Barium	2.5 U	5.0	1.0
Beryllium	1.0 U	2.0	0.083
Cadmium	1.3 U	5.0	0.58
Chromium	1.3 U	5.0	0.57
Cobalt	0.33 J	5.0	0.32
Copper	2.5 U	5.0	0.99
Lead	2.5 U	5.0	0.91
Molybdenum	0.43 J	5.0	0.40
Nickel	1.0 J	5.0	0.71
Selenium	5.0 U	10	2.3
Silver	2.5 U	5.0	0.66
Thallium	5.0 U	10	2.0
Vanadium	2.5 U	5.0	0.67
Zinc	10 U	20	3.0

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Aluminum

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Aluminum	Batch#:	214656
Field ID:	04W19-081314	Sampled:	08/13/14
MSS Lab ID:	259786-001	Received:	08/13/14
Matrix:	Filtrate	Prepared:	08/21/14
Units:	ug/L	Analyzed:	08/21/14
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC754559		10,000	9,231	92	80-120		
BSD	QC754560		10,000	8,944	89	80-120	3	20
MS	QC754561	28.17	10,000	8,786	88	80-120		
MSD	QC754562		10,000	8,455	84	80-120	4	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Magnesium

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Magnesium	Batch#:	214656
Field ID:	04W19-081314	Sampled:	08/13/14
MSS Lab ID:	259786-001	Received:	08/13/14
Matrix:	Filtrate	Prepared:	08/21/14
Units:	ug/L	Analyzed:	08/21/14
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC754559		10,000	9,630	96	80-120		
BSD	QC754560		10,000	9,405	94	80-120	2	20
MS	QC754561	717,600	10,000	640,600 >LR	-770 NM	80-120		
MSD	QC754562		10,000	650,400 >LR	-671 NM	80-120	NC	20

NC= Not Calculated
NM= Not Meaningful: Sample concentration > 4X spike concentration
>LR= Response exceeds instrument's linear range
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Manganese

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Manganese	Batch#:	214656
Field ID:	04W19-081314	Sampled:	08/13/14
MSS Lab ID:	259786-001	Received:	08/13/14
Matrix:	Filtrate	Prepared:	08/21/14
Units:	ug/L	Analyzed:	08/21/14
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC754559		100.0	95.22	95	80-120		
BSD	QC754560		100.0	93.20	93	80-120	2	20
MS	QC754561	4,337	100.0	3,863	-474 NM	80-120		
MSD	QC754562		100.0	3,880	-457 NM	80-120	0	20

NM= Not Meaningful: Sample concentration > 4X spike concentration
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Matrix:	Filtrate	Batch#:	214656
Units:	ug/L	Prepared:	08/21/14
Diln Fac:	1.000		

Type: BS Lab ID: QC754559

Analyte	Spiked	Result	%REC	Limits	Analyzed
Antimony	100.0	102.7	103	80-120	08/26/14
Arsenic	100.0	98.68	99	80-120	08/21/14
Barium	100.0	99.09	99	80-120	08/21/14
Beryllium	100.0	96.63	97	80-120	08/21/14
Cadmium	100.0	106.3	106	80-120	08/21/14
Chromium	100.0	98.70	99	80-120	08/21/14
Cobalt	100.0	99.60	100	80-120	08/21/14
Copper	100.0	101.2	101	80-120	08/21/14
Lead	100.0	98.35	98	80-120	08/21/14
Molybdenum	100.0	98.21	98	80-120	08/21/14
Nickel	100.0	99.94	100	80-120	08/21/14
Selenium	100.0	99.93	100	80-120	08/21/14
Silver	100.0	98.20	98	80-120	08/21/14
Thallium	50.00	50.43	101	80-120	08/21/14
Vanadium	100.0	103.5	103	80-120	08/21/14
Zinc	100.0	104.7	105	80-120	08/21/14

Type: BSD Lab ID: QC754560

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
Antimony	100.0	102.7	103	80-120	0	20	08/26/14
Arsenic	100.0	96.80	97	80-120	2	20	08/21/14
Barium	100.0	97.41	97	80-120	2	20	08/21/14
Beryllium	100.0	94.65	95	80-120	2	20	08/21/14
Cadmium	100.0	103.0	103	80-120	3	20	08/21/14
Chromium	100.0	96.43	96	80-120	2	20	08/21/14
Cobalt	100.0	97.47	97	80-120	2	20	08/21/14
Copper	100.0	97.66	98	80-120	4	20	08/21/14
Lead	100.0	96.39	96	80-120	2	20	08/21/14
Molybdenum	100.0	95.88	96	80-120	2	20	08/21/14
Nickel	100.0	97.95	98	80-120	2	20	08/21/14
Selenium	100.0	101.4	101	80-120	1	20	08/21/14
Silver	100.0	96.15	96	80-120	2	20	08/21/14
Thallium	50.00	48.99	98	80-120	3	20	08/21/14
Vanadium	100.0	101.6	102	80-120	2	20	08/21/14
Zinc	100.0	102.3	102	80-120	2	20	08/21/14

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	04W19-081314	Batch#:	214656
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Filtrate	Received:	08/13/14
Units:	ug/L	Prepared:	08/21/14
Diln Fac:	1.000	Analyzed:	08/21/14

Type: MS Lab ID: QC754561

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<0.6500	100.0	101.8	102	80-120
Arsenic	41.28	100.0	155.7	114	80-120
Barium	928.3	100.0	951.2	23 NM	80-120
Beryllium	0.6877	100.0	92.48	92	80-120
Cadmium	<0.5791	100.0	86.36	86	80-120
Chromium	4.903	100.0	96.59	92	80-120
Cobalt	5.995	100.0	92.42	86	80-120
Copper	<0.9890	100.0	108.9	109	80-120
Lead	<0.9081	100.0	80.25	80	80-120
Molybdenum	5.108	100.0	104.4	99	80-120
Nickel	7.227	100.0	93.41	86	80-120
Selenium	49.32	100.0	157.0	108	80-120
Silver	1.393	100.0	102.6	101	80-120
Thallium	<2.020	50.00	37.52	75 *	80-120
Vanadium	5.892	100.0	104.4	98	80-120
Zinc	9.221	100.0	107.4	98	80-120

Type: MSD Lab ID: QC754562

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	100.8	101	80-120	1	20
Arsenic	100.0	156.7	115	80-120	1	20
Barium	100.0	948.8	21 NM	80-120	0	20
Beryllium	100.0	88.44	88	80-120	4	20
Cadmium	100.0	81.44	81	80-120	6	20
Chromium	100.0	91.00	86	80-120	6	20
Cobalt	100.0	88.84	83	80-120	4	20
Copper	100.0	101.2	101	80-120	7	20
Lead	100.0	74.58	75 *	80-120	7	20
Molybdenum	100.0	102.2	97	80-120	2	20
Nickel	100.0	90.24	83	80-120	3	20
Selenium	100.0	160.8	112	80-120	2	20
Silver	100.0	97.56	96	80-120	5	20
Thallium	50.00	39.55	79 *	80-120	5	20
Vanadium	100.0	99.50	94	80-120	5	20
Zinc	100.0	97.17	88	80-120	10	20

*= Value outside of QC limits; see narrative
NM= Not Meaningful: Sample concentration > 4X spike concentration
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Aluminum

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Aluminum	Units:	ug/L
Field ID:	04W19-081314	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214656
MSS Lab ID:	259786-001	Sampled:	08/13/14
Lab ID:	QC754563	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/21/14

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
28.17	100.0	250.0 U	500.0	NC	10

U= Not Detected at or above DL
NC= Not Calculated
LOQ= Limit of Quantitation

50.1

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Magnesium

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Magnesium	Units:	ug/L
Field ID:	04W19-081314	Diln Fac:	500.0
Type:	Serial Dilution	Batch#:	214656
MSS Lab ID:	259786-001	Sampled:	08/13/14
Lab ID:	QC754563	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/21/14

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
717,600	20,000	742,300	100,000	3	10

LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Manganese

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Manganese	Units:	ug/L
Field ID:	04W19-081314	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214656
MSS Lab ID:	259786-001	Sampled:	08/13/14
Lab ID:	QC754563	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/21/14

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
4,337	5.000	4,239	25.00	2	10

LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	04W19-081314	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214656
MSS Lab ID:	259786-001	Sampled:	08/13/14
Lab ID:	QC754563	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/21/14
Units:	ug/L		

Analyte	MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
Antimony	12.50 ND	10.00	13.88 J	50.00	NC	10
Arsenic	41.28	5.000	48.13	25.00	NC	10
Barium	928.3	5.000	925.4	25.00	0	10
Beryllium	0.6877	2.000	1.985 J	10.00	NC	10
Cadmium	6.250 ND	5.000	6.250 U	25.00	NC	10
Chromium	4.903	5.000	8.590 J	25.00	NC	10
Cobalt	5.995	5.000	7.143 J	25.00	NC	10
Copper	12.50 ND	5.000	12.50 U	25.00	NC	10
Lead	12.50 ND	5.000	12.50 U	25.00	NC	10
Molybdenum	5.108	5.000	22.20 J	25.00	NC	10
Nickel	7.227	5.000	6.483 J	25.00	NC	10
Selenium	49.32	10.00	155.6	50.00	NC	10
Silver	1.393	5.000	12.50 U	25.00	NC	10
Thallium	25.00 ND	10.00	25.00 U	50.00	NC	10
Vanadium	5.892	5.000	7.351 J	25.00	NC	10
Zinc	9.221	20.00	50.00 U	100.0	NC	10

J= Estimated value
U= Not Detected at or above DL
NC= Not Calculated
ND= Not Detected at or above DL
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Aluminum

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Aluminum	Units:	ug/L
Field ID:	04W19-081314	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	214656
MSS Lab ID:	259786-001	Sampled:	08/13/14
Lab ID:	QC754564	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/21/14

MSS Result	Spiked	Result	%REC	Limits
28.17	2,000	1,812	89	75-125

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Magnesium

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Magnesium	Units:	ug/L
Field ID:	04W19-081314	Diln Fac:	100.0
Type:	Post Digest Spike	Batch#:	214656
MSS Lab ID:	259786-001	Sampled:	08/13/14
Lab ID:	QC754564	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/21/14

MSS Result	Spiked	Result	%REC	Limits
717,600	2,000,000	2,573,000	93	75-125

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Manganese

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Manganese	Units:	ug/L
Field ID:	04W19-081314	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	214656
MSS Lab ID:	259786-001	Sampled:	08/13/14
Lab ID:	QC754564	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/21/14

MSS Result	Spiked	Result	%REC	Limits
4,337	50.00	3,736	-1201 NM	75-125

NM= Not Meaningful: Sample concentration > 4X spike concentration

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259786	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	04W19-081314	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	214656
MSS Lab ID:	259786-001	Sampled:	08/13/14
Lab ID:	QC754564	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/21/14
Units:	ug/L		

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<0.6500	500.0	523.2	105	75-125
Arsenic	41.28	100.0	163.8	123	75-125
Barium	928.3	2,000	2,653	86	75-125
Beryllium	0.6877	50.00	48.92	96	75-125
Cadmium	<0.5791	50.00	42.67	85	75-125
Chromium	4.903	200.0	195.1	95	75-125
Cobalt	5.995	500.0	456.1	90	75-125
Copper	<0.9890	250.0	296.7	119	75-125
Lead	<0.9081	100.0	81.87	82	75-125
Molybdenum	5.108	400.0	397.3	98	75-125
Nickel	7.227	500.0	457.7	90	75-125
Selenium	49.32	100.0	196.9	148 *	75-125
Silver	1.393	50.00	34.63	66 *	75-125
Thallium	<2.020	100.0	81.24	81	75-125
Vanadium	5.892	500.0	510.8	101	75-125
Zinc	9.221	500.0	497.7	98	75-125

*= Value outside of QC limits; see narrative

REPORTING SUMMARY FOR 259786 METALS Filtrate
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	ALK	SB	ASA	BAE	BED	CDR	CRO	COU	PB	MG	MN	HG	MO	NI	SE	AG	TL	VL	ZN
259786-001	MET54	08/19/14 13:25	1.0												+							
259786-001	MET08	08/21/14 19:21	100.0										+									
259786-001	MET08	08/21/14 21:37	1.0																			
259786-001	MET09	08/25/14 16:31	1.0																			
259786-001	MET08	08/28/14 18:32	1.0	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+
259786-003	MET54	08/19/14 13:33	1.0												+							
259786-003	MET08	08/21/14 19:34	100.0										+									
259786-003	MET08	08/21/14 22:13	1.0	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+
259786-004	MET54	08/19/14 13:40	1.0												+							
259786-004	MET08	08/21/14 19:39	100.0										+									
259786-004	MET08	08/21/14 22:22	1.0	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+
259786-005	MET54	08/19/14 13:41	1.0												+							
259786-005	MET08	08/21/14 19:44	100.0										+									
259786-005	MET08	08/21/14 22:46	1.0	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+
QC754065	MET54	08/19/14 13:21	1.0												+							
QC754066	MET54	08/19/14 13:23	1.0												+							
QC754066	MET54	08/19/14 13:29	1.0																			
QC754067	MET54	08/19/14 13:24	1.0												+							
QC754067	MET54	08/19/14 13:30	1.0																			
QC754068	MET54	08/19/14 13:26	1.0												+							
QC754068	MET54	08/19/14 13:37	1.0																			
QC754069	MET54	08/19/14 13:28	1.0												+							
QC754069	MET54	08/19/14 13:38	1.0																			
QC754070	MET54	08/19/14 13:32	5.0												+							
QC754558	MET08	08/21/14 21:24	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC754559	MET08	08/21/14 21:29	1.0	+		+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC754559	MET08	08/26/14 16:17	1.0		+																	
QC754560	MET08	08/21/14 21:33	1.0	+		+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC754560	MET08	08/26/14 16:21	1.0		+																	
QC754561	MET08	08/21/14 21:44	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC754561	MET09	08/25/14 15:10	100.0																			
QC754562	MET08	08/21/14 21:51	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC754562	MET09	08/25/14 15:15	100.0																			
QC754563	MET08	08/21/14 19:25	500.0										+									
QC754563	MET08	08/21/14 21:58	5.0	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+
QC754564	MET08	08/21/14 19:30	100.0										+									
QC754564	MET08	08/21/14 22:06	1.0	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+

ICP Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84335888

Instrument : MET08 Begun : 08/21/14 06:08
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				08/21/14 06:08	1.0		
002	met08_sn_6010	ICAL	L1			08/21/14 06:13	1.0	1	
003	met08_sn_6010	ICAL	L2			08/21/14 06:18	1.0	2	
004	met08_sn_6010	ICAL	L3			08/21/14 06:22	1.0	3	
005	met08_sn_6010	ICAL	L4			08/21/14 06:27	1.0	4	
006	met08_sn_6010	ICAL	L5			08/21/14 06:34	1.0	5	
007	met08_sn_6010	XICV				08/21/14 06:41	1.0	6	
008	met08_sn_6010	ICV				08/21/14 07:15	1.0	6	
009	met08_sn_6010	CRI				08/21/14 07:52	1.0	7	
010	met08_sn_6010	ICB				08/21/14 08:00	1.0		
011	met08_sn_6010	ICSA				08/21/14 08:05	1.0	8	10:MG=480000
012	met08_sn_6010	ICSAB				08/21/14 10:31	1.0	9	5:MG=470000
013	met08_sn_6010	BLANK	QC754411	Water	214619	08/21/14 10:38	1.0		
014	met08_sn_6010	BS	QC754412	Water	214619	08/21/14 10:43	1.0		
015	met08_sn_6010	BSD	QC754413	Water	214619	08/21/14 10:47	1.0		
016	met08_sn_6010	MSS	260019-001	Water	214619	08/21/14 10:51	1.0		
017	met08_sn_6010	MS	QC754414	Water	214619	08/21/14 10:56	1.0		
018	met08_sn_6010	MSD	QC754415	Water	214619	08/21/14 11:01	1.0		
019	met08_sn_6010	SAMPLE	259844-005	Water	214619	08/21/14 11:05	10.0		
020	met08_sn_6010	X	RINSE			08/21/14 11:10	1.0		
021	met08_sn_6010	BLANK	QC754428	Filtrate	214622	08/21/14 11:15	1.0		
022	met08_sn_6010	BS	QC754429	Filtrate	214622	08/21/14 11:20	1.0		
023	met08_sn_6010	CCV				08/21/14 11:24	1.0	10	
024	met08_sn_6010	CCB				08/21/14 11:30	1.0		
025	met08_sn_6010	BSD	QC754430	Filtrate	214622	08/21/14 11:36	1.0		
026	met08_sn_6010	MSS	259932-001	Filtrate	214622	08/21/14 11:40	10.0		
027	met08_sn_6010	MS	QC754431	Filtrate	214622	08/21/14 11:45	10.0		
028	met08_sn_6010	MSD	QC754432	Filtrate	214622	08/21/14 11:50	10.0		
029	met08_sn_6010	CCV				08/21/14 11:54	1.0	10	
030	met08_sn_6010	CCB				08/21/14 12:00	1.0		
031	met08_sn_6010	SAMPLE	259957-001	TCLP Leachate	214616	08/21/14 12:08	10.0		1:NA=170000
032	met08_sn_6010	SAMPLE	259957-002	TCLP Leachate	214616	08/21/14 12:13	10.0		1:NA=150000
033	met08_sn_6010	SAMPLE	259961-001	TCLP Leachate	214616	08/21/14 12:18	10.0		1:NA=150000
034	met08_sn_6010	?SAMPLE	259965-001		214616	08/21/14 12:23	10.0		
035	met08_sn_6010	X	RINSE			08/21/14 12:29	1.0		
036	met08_sn_6010	MSS	260017-001	Soil	214610	08/21/14 12:33	1.0		2:FE=270000
037	met08_sn_6010	CCV				08/21/14 12:37	1.0	10	
038	met08_sn_6010	CCB				08/21/14 12:43	1.0		
039	met08_sn_6010	SAMPLE	259844-003	Water	214619	08/21/14 12:49	100.0		
040	met08_sn_6010	SAMPLE	259844-003	Water	214619	08/21/14 12:54	10.0		
041	met08_sn_6010	X	RINSE			08/21/14 12:59	1.0		
042	met08_sn_6010	CCV				08/21/14 13:04	1.0	10	
043	met08_sn_6010	CCB				08/21/14 13:11	1.0		
044	met08_sn_6010	SAMPLE	260018-001	Water	214619	08/21/14 13:19	1.0		
045	met08_sn_6010	SAMPLE	260021-001	Water	214619	08/21/14 13:24	10.0		
046	met08_sn_6010	SAMPLE	260021-002	Water	214619	08/21/14 13:29	10.0		
047	met08_sn_6010	SAMPLE	260021-003	Water	214619	08/21/14 13:34	10.0		
048	met08_sn_6010	X	RINSE			08/21/14 13:39	1.0		
049	met08_sn_6010	BLANK	QC754391	TCLP Leachate	214616	08/21/14 13:44	10.0		1:NA=150000
050	met08_sn_6010	MSS	259919-011	TCLP Leachate	214616	08/21/14 13:49	10.0		1:NA=150000
051	met08_sn_6010	CCV				08/21/14 13:54	1.0	10	
052	met08_sn_6010	CCB				08/21/14 14:01	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84335888

Instrument : MET08 Begun : 08/21/14 06:08
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	SAMPLE	259871-001	Soil	214544	08/21/14 14:09	1.0		6:FE=810000
054	met08_sn_6010	CCV				08/21/14 14:16	1.0	10	
055	met08_sn_6010	CCB				08/21/14 14:23	1.0		
056	met08_sn_6010	X	RINSE			08/21/14 17:23	1.0		
057	met08_sn_6010	CCV				08/21/14 17:28	1.0	10	
058	met08_sn_6010	CCB				08/21/14 17:35	1.0		
059	met08_sn_6010	SAMPLE	259779-001	Water	214725	08/21/14 17:42	1.0		3:MG=300000
060	met08_sn_6010	SAMPLE	259779-002	Water	214725	08/21/14 17:51	1.0		3:MG=350000
061	met08_sn_6010	SAMPLE	259779-003	Water	214725	08/21/14 17:59	1.0		3:MG=350000
062	met08_sn_6010	X	RINSE			08/21/14 18:08	1.0		
063	met08_sn_6010	CCV				08/21/14 18:13	1.0	10	
064	met08_sn_6010	CCB				08/21/14 18:20	1.0		
065	met08_sn_6010	MSS	259786-001	Filtrate	214656	08/21/14 19:21	100.0		
066	met08_sn_6010	SER	QC754563	Filtrate	214656	08/21/14 19:25	500.0		
067	met08_sn_6010	PDS	QC754564	Filtrate	214656	08/21/14 19:30	100.0	11 12	
068	met08_sn_6010	SAMPLE	259786-003	Filtrate	214656	08/21/14 19:34	100.0		
069	met08_sn_6010	SAMPLE	259786-004	Filtrate	214656	08/21/14 19:39	100.0		
070	met08_sn_6010	SAMPLE	259786-005	Filtrate	214656	08/21/14 19:44	100.0		
071	met08_sn_6010	X	RINSE			08/21/14 19:49	1.0		
072	met08_sn_6010	BLANK	QC754358	Miscell.	214610	08/21/14 19:54	1.0		
073	met08_sn_6010	BS	QC754359	Miscell.	214610	08/21/14 19:59	5.0		
074	met08_sn_6010	BSD	QC754360	Miscell.	214610	08/21/14 20:04	5.0		
075	met08_sn_6010	CCV				08/21/14 20:09	1.0	10	
076	met08_sn_6010	CCB				08/21/14 20:16	1.0		
077	met08_sn_6010	MSS	260017-001	Soil	214610	08/21/14 20:21	100.0		
078	met08_sn_6010	MS	QC754361	Soil	214610	08/21/14 20:26	100.0		
079	met08_sn_6010	MSD	QC754362	Soil	214610	08/21/14 20:31	100.0		
080	met08_sn_6010	SAMPLE	259990-001	Miscell.	214610	08/21/14 20:36	100.0		
081	met08_sn_6010	SAMPLE	259990-002	Miscell.	214610	08/21/14 20:41	100.0		
082	met08_sn_6010	SAMPLE	259990-003	Miscell.	214610	08/21/14 20:46	100.0		
083	met08_sn_6010	SAMPLE	259990-004	Miscell.	214610	08/21/14 20:51	100.0		
084	met08_sn_6010	SAMPLE	259990-005	Miscell.	214610	08/21/14 20:56	100.0		
085	met08_sn_6010	SAMPLE	259990-006	Miscell.	214610	08/21/14 21:02	100.0		
086	met08_sn_6010	X	RINSE			08/21/14 21:07	1.0		
087	met08_sn_6010	CCV				08/21/14 21:12	1.0	10	
088	met08_sn_6010	CCB				08/21/14 21:18	1.0		
089	met08_sn_6010	BLANK	QC754558	Filtrate	214656	08/21/14 21:24	1.0		
090	met08_sn_6010	BS	QC754559	Filtrate	214656	08/21/14 21:29	1.0		
091	met08_sn_6010	BSD	QC754560	Filtrate	214656	08/21/14 21:33	1.0		
092	met08_sn_6010	MSS	259786-001	Filtrate	214656	08/21/14 21:37	1.0		3:MG=660000
093	met08_sn_6010	MS	QC754561	Filtrate	214656	08/21/14 21:44	1.0		3:MG=640000
094	met08_sn_6010	MSD	QC754562	Filtrate	214656	08/21/14 21:51	1.0		3:MG=650000
095	met08_sn_6010	SER	QC754563	Filtrate	214656	08/21/14 21:58	5.0		
096	met08_sn_6010	PDS	QC754564	Filtrate	214656	08/21/14 22:06	1.0	11 12	2:MG=620000
097	met08_sn_6010	SAMPLE	259786-003	Filtrate	214656	08/21/14 22:13	1.0		3:MG=780000
098	met08_sn_6010	SAMPLE	259786-004	Filtrate	214656	08/21/14 22:22	1.0		2:MG=700000
099	met08_sn_6010	CCV				08/21/14 22:30	1.0	10	
100	met08_sn_6010	XCCB				08/21/14 22:37	1.0		
101	met08_sn_6010	CCB				08/21/14 22:41	1.0		
102	met08_sn_6010	SAMPLE	259786-005	Filtrate	214656	08/21/14 22:46	1.0		3:MG=910000
103	met08_sn_6010	SAMPLE	259790-001	Filtrate	214656	08/21/14 22:55	1.0		
104	met08_sn_6010	SAMPLE	259790-002	Filtrate	214656	08/21/14 23:00	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84335888

Instrument : MET08 Begun : 08/21/14 06:08
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met08_sn_6010	SAMPLE	259981-001	Filtrate	214656	08/21/14 23:05	1.0		1:NA=130000
106	met08_sn_6010	SAMPLE	259981-002	Filtrate	214656	08/21/14 23:10	1.0		1:NA=140000
107	met08_sn_6010	X	RINSE			08/21/14 23:15	1.0		
108	met08_sn_6010	SAMPLE	259990-001	Miscell.	214610	08/21/14 23:20	1.0		
109	met08_sn_6010	SAMPLE	259990-002	Miscell.	214610	08/21/14 23:25	1.0		
110	met08_sn_6010	SAMPLE	259990-003	Miscell.	214610	08/21/14 23:30	1.0		
111	met08_sn_6010	SAMPLE	259990-004	Miscell.	214610	08/21/14 23:35	1.0		
112	met08_sn_6010	CCV				08/21/14 23:40	1.0	10	
113	met08_sn_6010	CCB				08/21/14 23:47	1.0		
114	met08_sn_6010	SAMPLE	259990-005	Miscell.	214610	08/21/14 23:52	1.0		
115	met08_sn_6010	SAMPLE	259990-006	Miscell.	214610	08/21/14 23:57	1.0		
116	met08_sn_6010	CCV				08/22/14 00:02	1.0	10	
117	met08_sn_6010	CCB				08/22/14 00:09	1.0		

VQ 08/21/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 55.

CRT 08/22/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 56 through 117.

Standards used: 1=S25067 2=S25224 3=S25223 4=S25225 5=S25226 6=S25072 7=S25074 8=S25075 9=S25227 10=S25073 11=S24151 12=S24152

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 84335888

Date : 08/21/14 Reference : met08_sn_6010
Sequence : MET08 08/21/14 Analyzed : 08/21/14 06:13

#	Type	Sample ID	Y A
		ICAL STD	2534755
		LOWER LIMIT	760427
		UPPER LIMIT	3041706
010	ICB		2604932
011	ICSA		2281109
012	ICSAB		2301732
050	MSS	259919-011	2520929
063	CCV		2577299
064	CCB		2573214
065	MSS	259786-001	2545995
066	SER	QC754563	2573560
067	PDS	QC754564	2519848
068	SAMPLE	259786-003	2506081
069	SAMPLE	259786-004	2469391
070	SAMPLE	259786-005	2405214
075	CCV		2556039
076	CCB		2632234
087	CCV		2559300
088	CCB		2608240
089	BLANK	QC754558	2656059
090	BS	QC754559	2646689
091	BSD	QC754560	2631152
092	MSS	259786-001	1905313
093	MS	QC754561	2057231
094	MSD	QC754562	2019430
095	SER	QC754563	2256260
096	PDS	QC754564	2085133
097	SAMPLE	259786-003	1900487
098	SAMPLE	259786-004	1938637
099	CCV		2660320
101	CCB		2605417
102	SAMPLE	259786-005	1811229
103	SAMPLE	259790-001	2667907
104	SAMPLE	259790-002	2682583
112	CCV		2681907
113	CCB		2596287

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259786 METALS Filtrate: EPA 6010C

Inst : MET08
Calnum : 84335888001
Units : ug/L

Date : 21-AUG-2014 06:08
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	84335888002	L1	21-AUG-2014 06:13	S25067
L2	met08_sn_6010	84335888003	L2	21-AUG-2014 06:18	S25224
L3	met08_sn_6010	84335888004	L3	21-AUG-2014 06:22	S25223
L4	met08_sn_6010	84335888005	L4	21-AUG-2014 06:27	S25225
L5	met08_sn_6010	84335888006	L5	21-AUG-2014 06:34	S25226

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	33.870	29.307	31.241	31.404		LOR0	0.00000	0.03184		31.455	1.000	0.995	
Arsenic	A	19.160	17.794	18.903	18.901		LOR0	0.00000	0.05291		18.689	1.000	0.995	
Barium	A	445.66	408.73	435.82	408.57		LOR0	0.00000	0.00245		424.70	1.000	0.995	
Beryllium	A	5181.0	4808.1	5153.1			LOR0	0.00000	1.94E-4		5047.4	1.000	0.995	
Cadmium	A	231.34	216.39	231.92	214.34		LOR0	0.00000	0.00466		223.50	1.000	0.995	
Chromium	A	103.00	95.141	100.47	95.789		LOR0	0.00000	0.01043		98.599	1.000	0.995	
Cobalt	A	139.72	124.35	137.23	129.85		LOR0	0.00000	0.00770		132.78	1.000	0.995	
Copper	A	89.120	92.529	95.632	100.20		LOR0	0.00000	0.00998		94.370	1.000	0.995	
Lead	A	51.480	54.154	57.423	55.160		LOR0	0.00000	0.01812		54.554	1.000	0.995	
Manganese	A	1337.5	1211.4	1321.4	1187.4		LOR0	0.00000	8.41E-4		1264.4	1.000	0.995	
Molybdenum	A	39.320	35.753	37.493	36.232		LOR0	0.00000	0.02759		37.199	1.000	0.995	
Nickel	A	55.720	50.811	54.364	51.675		LOR0	0.00000	0.01934		53.142	1.000	0.995	
Selenium	A	26.180	26.492	28.581	28.441		LOR0	0.00000	0.03516		27.423	1.000	0.995	
Silver	A	683.46	707.07	755.28	720.23		LOR0	0.00000	0.00138		716.51	0.999	0.995	
Thallium	A	20.270	18.768	20.201	19.256		LOR0	0.00000	0.05191		19.624	1.000	0.995	
Vanadium	A	165.80	158.84	166.83	160.54		LOR0	0.00000	0.00623		163.00	1.000	0.995	
Zinc	A	70.290	69.450	75.823	72.390		LOR0	0.00000	0.01381		71.988	1.000	0.995	
Aluminum	R	0.4660		0.5266	0.5842	0.5274	LOR0	0.00000	1.89396		0.5261	1.000	0.995	
Magnesium	R	0.6990		0.7285	0.7140	0.6673	LOR0	0.00000	1.49762		0.7022	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	8	100.00	-7	1000.0	-1	10000	0		
Arsenic	A	5.0000	1	100.00	-6	1000.0	0	10000	0		
Barium	A	5.0000	9	100.00	0	1000.0	7	10000	0		
Beryllium	A	2.0000	1	100.00	-7	1000.0	0				
Cadmium	A	5.0000	8	100.00	1	1000.0	8	10000	0		
Chromium	A	5.0000	7	100.00	-1	1000.0	5	10000	0		
Cobalt	A	5.0000	8	100.00	-4	1000.0	6	10000	0		
Copper	A	5.0000	-11	100.00	-8	1000.0	-5	10000	0		
Lead	A	5.0000	-7	100.00	-2	1000.0	4	10000	0		
Manganese	A	5.0000	13	100.00	2	1000.0	11	10000	0		
Molybdenum	A	5.0000	8	100.00	-1	1000.0	3	10000	0		
Nickel	A	5.0000	8	100.00	-2	1000.0	5	10000	0		
Selenium	A	10.000	-8	100.00	-7	1000.0	0	10000	0		
Silver	A	5.0000	-6	100.00	-3	1000.0	4	2000.0	-1		
Thallium	A	10.000	5	100.00	-3	1000.0	5	10000	0		
Vanadium	A	5.0000	3	100.00	-1	1000.0	4	10000	0		
Zinc	A	20.000	-3	100.00	-4	1000.0	5	10000	0		
Aluminum	R	100.00	-12			1000.0	0	10000	11	100000	0
Magnesium	R	200.00	5			1000.0	9	10000	7	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08
Calnum : 84335888001 Cal Date : 21-AUG-2014

ICV 84335888008 (21-AUG-2014) stds: S25072

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4859	ug/L	-3	10	
Arsenic	A	5000	4802	ug/L	-4	10	
Barium	A	5000	4858	ug/L	-3	10	
Beryllium	A	500.0	500.0	ug/L	0	10	
Cadmium	A	5000	5000	ug/L	0	10	
Chromium	A	5000	4928	ug/L	-1	10	
Cobalt	A	5000	4888	ug/L	-2	10	
Copper	A	5000	5076	ug/L	2	10	
Lead	A	5000	4867	ug/L	-3	10	
Manganese	A	5000	4748	ug/L	-5	10	
Molybdenum	A	5000	5050	ug/L	1	10	
Nickel	A	5000	4884	ug/L	-2	10	
Selenium	A	5000	4723	ug/L	-6	10	
Silver	A	1000	965.9	ug/L	-3	10	
Thallium	A	5000	4761	ug/L	-5	10	
Vanadium	A	5000	4923	ug/L	-2	10	
Zinc	A	5000	4868	ug/L	-3	10	
Aluminum	R	20000	19970	ug/L	0	10	
Magnesium	R	20000	20180	ug/L	1	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888009.1 File : met08_sn_6010 Time : 21-AUG-2014 07:52
Cal : 84335888001 Caldate : 21-AUG-2014
Standards: S25074

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	8.704	ug/L	-13	30	
Arsenic	A	5.000	5.520	ug/L	10	30	
Barium	A	5.000	5.568	ug/L	11	30	
Beryllium	A	2.000	2.011	ug/L	1	30	
Cadmium	A	5.000	5.551	ug/L	11	30	
Chromium	A	5.000	5.427	ug/L	9	30	
Cobalt	A	5.000	5.357	ug/L	7	30	
Copper	A	5.000	3.743	ug/L	**-25**	30	!cri-
Lead	A	5.000	5.661	ug/L	13	30	
Manganese	A	5.000	5.621	ug/L	12	30	
Molybdenum	A	5.000	5.809	ug/L	16	30	
Nickel	A	5.000	5.562	ug/L	11	30	
Selenium	A	10.00	8.110	ug/L	-19	30	
Silver	A	5.000	5.016	ug/L	0	30	
Thallium	A	10.00	11.04	ug/L	10	30	
Vanadium	A	5.000	5.176	ug/L	4	30	
Zinc	A	20.00	18.93	ug/L	-5	30	
Aluminum	R	100.0	95.20	ug/L	-5	30	
Magnesium	R	200.0	210.1	ug/L	5	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2598355	2.51

!=warning -=low bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888010.1 File : met08_sn_6010 Time : 21-AUG-2014 08:00
Cal : 84335888001 Caldate : 21-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2604932	2.77

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888011.1 File : met08_sn_6010 Time : 21-AUG-2014 08:05
Cal : 84335888001 Caldate : 21-AUG-2014
Standards: S25075

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[9.598]	10.00	ug/L	!a+
Arsenic	A	[3.018]	5.000	ug/L	!a+
Barium	A	[-0.6564]	5.000	ug/L	
Beryllium	A	[1.241]	2.000	ug/L	!a+
Cadmium	A	[2.478]	5.000	ug/L	!a+
Cobalt	A	[-0.2380]	5.000	ug/L	
Lead	A	[-0.6427]	5.000	ug/L	
Molybdenum	A	[-2.169]	5.000	ug/L	!a-
Selenium	A	[-0.5953]	10.00	ug/L	
Silver	A	[2.678]	5.000	ug/L	!a+
Thallium	A	[-3.326]	10.00	ug/L	
Zinc	A	[-11.28]	20.00	ug/L	!a-

Interferent	Ch	Spiked	Quant	Units	%Rec
Chromium	A	20000	19320	ug/L	97
Copper	A	20000	22350	ug/L	112
Manganese	A	20000	17850	ug/L	89
Nickel	A	20000	18010	ug/L	90
Vanadium	A	20000	18550	ug/L	93
Aluminum	R	500000	482000	ug/L	96
Calcium	R	500000	475900	ug/L	95
Iron	R	200000	185600	ug/L	93
Magnesium	R	500000	484000	ug/L	97
Titanium	R	20000	20750	ug/L	104

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2281109	-10.01

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888012.1 File : met08_sn_6010 Time : 21-AUG-2014 10:31
Cal : 84335888001 Caldate : 21-AUG-2014
Standards: S25227

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	488.3	ug/L	-2	20	
Arsenic	A	500.0	501.7	ug/L	0	20	
Barium	A	500.0	518.8	ug/L	4	20	
Beryllium	A	500.0	501.9	ug/L	0	20	
Cadmium	A	1000	1018	ug/L	2	20	
Chromium	A	500.0	500.6	ug/L	0	20	
Cobalt	A	500.0	472.0	ug/L	-6	20	
Copper	A	500.0	580.5	ug/L	16	20	
Lead	A	1000	960.2	ug/L	-4	20	
Manganese	A	500.0	410.0	ug/L	-18	20	
Molybdenum	A	500.0	507.1	ug/L	1	20	
Nickel	A	1000	952.8	ug/L	-5	20	
Selenium	A	500.0	505.0	ug/L	1	20	
Silver	A	1000	1103	ug/L	10	20	
Thallium	A	500.0	467.0	ug/L	-7	20	
Vanadium	A	500.0	535.7	ug/L	7	20	
Zinc	A	1000	979.9	ug/L	-2	20	
Aluminum	R	500000	456900	ug/L	-9		
Magnesium	R	500000	470200	ug/L	-6		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2301732	-9.19

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888063.1 File : met08_sn_6010 Time : 21-AUG-2014 18:13
Cal : 84335888001 Caldate : 21-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.455	32.007	5000	5096	ug/L	2	10	
Arsenic	A	18.689	19.103	5000	5054	ug/L	1	10	
Barium	A	424.70	408.66	5000	4998	ug/L	0	10	
Beryllium	A	5047.4	5285.2	500.0	513.2	ug/L	3	10	
Cadmium	A	223.50	221.64	5000	5166	ug/L	3	10	
Chromium	A	98.599	97.884	5000	5107	ug/L	2	10	
Cobalt	A	132.78	131.82	5000	5064	ug/L	1	10	
Copper	A	94.370	102.69	5000	5127	ug/L	3	10	
Lead	A	54.554	55.424	5000	5022	ug/L	0	10	
Manganese	A	1264.4	1160.5	5000	4881	ug/L	-2	10	
Molybdenum	A	37.199	37.701	5000	5201	ug/L	4	10	
Nickel	A	53.142	52.075	5000	5036	ug/L	1	10	
Selenium	A	27.423	28.448	5000	5001	ug/L	0	10	
Silver	A	716.51	721.82	1000	992.6	ug/L	-1	10	
Thallium	A	19.624	19.264	5000	5000	ug/L	0	10	
Vanadium	A	163.00	162.26	5000	5052	ug/L	1	10	
Zinc	A	71.988	73.289	5000	5060	ug/L	1	10	
Aluminum	R	0.5261	0.5239	20000	19840	ug/L	-1	10	
Magnesium	R	0.7022	0.6743	20000	20200	ug/L	1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2577299	1.68

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888064.1 File : met08_sn_6010 Time : 21-AUG-2014 18:20
Cal : 84335888001 Caldate : 21-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2573214	1.52

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888075.1 File : met08_sn_6010 Time : 21-AUG-2014 20:09
Cal : 84335888001 Caldate : 21-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.455	31.490	5000	5014	ug/L	0	10	
Arsenic	A	18.689	18.749	5000	4960	ug/L	-1	10	
Barium	A	424.70	413.18	5000	5053	ug/L	1	10	
Beryllium	A	5047.4	5306.7	500.0	515.2	ug/L	3	10	
Cadmium	A	223.50	223.76	5000	5216	ug/L	4	10	
Chromium	A	98.599	98.095	5000	5118	ug/L	2	10	
Cobalt	A	132.78	133.42	5000	5125	ug/L	2	10	
Copper	A	94.370	105.10	5000	5247	ug/L	5	10	
Lead	A	54.554	55.823	5000	5058	ug/L	1	10	
Manganese	A	1264.4	1160.9	5000	4883	ug/L	-2	10	
Molybdenum	A	37.199	37.991	5000	5241	ug/L	5	10	
Nickel	A	53.142	52.573	5000	5084	ug/L	2	10	
Selenium	A	27.423	27.751	5000	4879	ug/L	-2	10	
Silver	A	716.51	727.95	1000	1001	ug/L	0	10	
Thallium	A	19.624	18.996	5000	4930	ug/L	-1	10	
Vanadium	A	163.00	162.99	5000	5074	ug/L	1	10	
Zinc	A	71.988	73.899	5000	5102	ug/L	2	10	
Aluminum	R	0.5261	0.5602	20000	21220	ug/L	6	10	
Magnesium	R	0.7022	0.7194	20000	21550	ug/L	8	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2556039	0.84

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888076.1 File : met08_sn_6010 Time : 21-AUG-2014 20:16
Cal : 84335888001 Caldate : 21-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2632234	3.85

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888087.1 File : met08_sn_6010 Time : 21-AUG-2014 21:12
Cal : 84335888001 Caldate : 21-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.455	32.294	5000	5142	ug/L	3	10	
Arsenic	A	18.689	19.254	5000	5094	ug/L	2	10	
Barium	A	424.70	410.74	5000	5023	ug/L	0	10	
Beryllium	A	5047.4	5380.3	500.0	522.4	ug/L	4	10	
Cadmium	A	223.50	224.37	5000	5230	ug/L	5	10	
Chromium	A	98.599	97.791	5000	5102	ug/L	2	10	
Cobalt	A	132.78	133.10	5000	5113	ug/L	2	10	
Copper	A	94.370	106.81	5000	5332	ug/L	7	10	
Lead	A	54.554	55.907	5000	5066	ug/L	1	10	
Manganese	A	1264.4	1168.5	5000	4915	ug/L	-2	10	
Molybdenum	A	37.199	37.958	5000	5236	ug/L	5	10	
Nickel	A	53.142	52.446	5000	5072	ug/L	1	10	
Selenium	A	27.423	28.480	5000	5007	ug/L	0	10	
Silver	A	716.51	726.59	1000	999.2	ug/L	0	10	
Thallium	A	19.624	19.416	5000	5039	ug/L	1	10	
Vanadium	A	163.00	162.78	5000	5068	ug/L	1	10	
Zinc	A	71.988	74.094	5000	5115	ug/L	2	10	
Aluminum	R	0.5261	0.5315	20000	20130	ug/L	1	10	
Magnesium	R	0.7022	0.6834	20000	20470	ug/L	2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2559300	0.97

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888088.1 File : met08_sn_6010 Time : 21-AUG-2014 21:18
Cal : 84335888001 Caldate : 21-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2608240	2.90

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888099.1 File : met08_sn_6010 Time : 21-AUG-2014 22:30
Cal : 84335888001 Caldate : 21-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.455	30.645	5000	4879	ug/L	-2	10	
Arsenic	A	18.689	18.210	5000	4817	ug/L	-4	10	
Barium	A	424.70	393.48	5000	4812	ug/L	-4	10	
Beryllium	A	5047.4	5103.8	500.0	495.6	ug/L	-1	10	
Cadmium	A	223.50	216.32	5000	5042	ug/L	1	10	
Chromium	A	98.599	93.828	5000	4895	ug/L	-2	10	
Cobalt	A	132.78	127.80	5000	4910	ug/L	-2	10	
Copper	A	94.370	106.53	5000	5318	ug/L	6	10	
Lead	A	54.554	54.029	5000	4896	ug/L	-2	10	
Manganese	A	1264.4	1104.6	5000	4646	ug/L	-7	10	
Molybdenum	A	37.199	36.612	5000	5051	ug/L	1	10	
Nickel	A	53.142	50.662	5000	4899	ug/L	-2	10	
Selenium	A	27.423	27.030	5000	4752	ug/L	-5	10	
Silver	A	716.51	698.54	1000	960.6	ug/L	-4	10	
Thallium	A	19.624	18.368	5000	4767	ug/L	-5	10	
Vanadium	A	163.00	157.41	5000	4901	ug/L	-2	10	
Zinc	A	71.988	71.381	5000	4928	ug/L	-1	10	
Aluminum	R	0.5261	0.5074	20000	19220	ug/L	-4	10	
Magnesium	R	0.7022	0.6655	20000	19930	ug/L	0	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2660320	4.95

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888101.1 File : met08_sn_6010 Time : 21-AUG-2014 22:41
Cal : 84335888001 Caldate : 21-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2605417	2.79

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888112.1 File : met08_sn_6010 Time : 21-AUG-2014 23:40
Cal : 84335888001 Caldate : 21-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.455	30.518	5000	4859	ug/L	-3	10	
Arsenic	A	18.689	18.146	5000	4800	ug/L	-4	10	
Barium	A	424.70	392.55	5000	4801	ug/L	-4	10	
Beryllium	A	5047.4	5132.8	500.0	498.4	ug/L	0	10	
Cadmium	A	223.50	215.62	5000	5026	ug/L	1	10	
Chromium	A	98.599	94.153	5000	4912	ug/L	-2	10	
Cobalt	A	132.78	127.57	5000	4901	ug/L	-2	10	
Copper	A	94.370	107.16	5000	5350	ug/L	7	10	
Lead	A	54.554	54.012	5000	4894	ug/L	-2	10	
Manganese	A	1264.4	1093.8	5000	4600	ug/L	-8	10	
Molybdenum	A	37.199	36.841	5000	5082	ug/L	2	10	
Nickel	A	53.142	50.643	5000	4898	ug/L	-2	10	
Selenium	A	27.423	26.880	5000	4725	ug/L	-5	10	
Silver	A	716.51	700.16	1000	962.8	ug/L	-4	10	
Thallium	A	19.624	18.254	5000	4737	ug/L	-5	10	
Vanadium	A	163.00	157.87	5000	4915	ug/L	-2	10	
Zinc	A	71.988	71.096	5000	4908	ug/L	-2	10	
Aluminum	R	0.5261	0.5202	20000	19700	ug/L	-1	10	
Magnesium	R	0.7022	0.6698	20000	20060	ug/L	0	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2681907	5.81

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888113.1 File : met08_sn_6010 Time : 21-AUG-2014 23:47
Cal : 84335888001 Caldate : 21-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2596287	2.43

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84343594

Instrument : MET08 Begun : 08/26/14 14:34
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				08/26/14 14:34	1.0		
002	met08_sn_6010	ICAL	L1			08/26/14 14:39	1.0	1	
003	met08_sn_6010	ICAL	L2			08/26/14 14:44	1.0	2	
004	met08_sn_6010	ICAL	L3			08/26/14 14:48	1.0	3	
005	met08_sn_6010	ICAL	L4			08/26/14 14:53	1.0	4	
006	met08_sn_6010	ICAL	L5			08/26/14 15:00	1.0	5	
007	met08_sn_6010	ICV				08/26/14 15:07	1.0	6	
008	met08_sn_6010	CRI				08/26/14 15:15	1.0	7	
009	met08_sn_6010	ICB				08/26/14 15:19	1.0		
010	met08_sn_6010	ICSA				08/26/14 15:25	1.0	8	10:AL=530000
011	met08_sn_6010	ICSAB				08/26/14 16:00	1.0	9	5:MG=520000
012	met08_sn_6010	MSS	259979-002	Water	214725	08/26/14 16:07	100.0		
013	met08_sn_6010	SAMPLE	260064-001	WET Leachate	214727	08/26/14 16:12	10.0		1:NA=200000
014	met08_sn_6010	BS	QC754559	Filtrate	214656	08/26/14 16:17	1.0		
015	met08_sn_6010	BSD	QC754560	Filtrate	214656	08/26/14 16:21	1.0		
016	met08_sn_6010	MSS	260064-001	TCLP Leachate	214698	08/26/14 16:25	10.0		1:NA=160000
017	met08_sn_6010	SAMPLE	259759-003	Miscell.	214669	08/26/14 16:30	100.0		
018	met08_sn_6010	SAMPLE	259759-004	Miscell.	214669	08/26/14 16:35	100.0		
019	met08_sn_6010	SAMPLE	260029-009	Filtrate	214743	08/26/14 16:40	100.0		
020	met08_sn_6010	SAMPLE	259837-002	Soil	214669	08/26/14 16:44	1.0		4:FE=380000
021	met08_sn_6010	X	RINSE			08/26/14 16:51	1.0		
022	met08_sn_6010	CCV				08/26/14 16:56	1.0	10	
023	met08_sn_6010	CCB				08/26/14 17:03	1.0		
024	met08_sn_6010	SAMPLE	260029-012	Filtrate	214743	08/26/14 17:08	1000		
025	met08_sn_6010	SAMPLE	259990-006	Miscell.	214610	08/26/14 17:13	1.0		
026	met08_sn_6010	SAMPLE	260029-013	Filtrate	214743	08/26/14 17:18	1000		
027	met08_sn_6010	SAMPLE	260029-014	Filtrate	214743	08/26/14 17:23	1000		
028	met08_sn_6010	MSS	260017-001	Soil	214610	08/26/14 17:28	100.0		
029	met08_sn_6010	CCV				08/26/14 17:33	1.0	10	
030	met08_sn_6010	CCB				08/26/14 17:40	1.0		
031	met08_sn_6010	SAMPLE	260029-008	Filtrate	214743	08/26/14 17:55	1000		
032	met08_sn_6010	SAMPLE	260029-011	Filtrate	214743	08/26/14 18:00	1000		
033	met08_sn_6010	SAMPLE	260029-015	Filtrate	214743	08/26/14 18:05	1000		
034	met08_sn_6010	CCV				08/26/14 18:10	1.0	10	
035	met08_sn_6010	CCB				08/26/14 18:17	1.0		
036	met08_sn_6010	BLANK	QC755137	Filtrate	214800	08/26/14 18:22	1.0		
037	met08_sn_6010	BS	QC755138	Filtrate	214800	08/26/14 18:27	1.0		
038	met08_sn_6010	BSD	QC755139	Filtrate	214800	08/26/14 18:31	1.0		
039	met08_sn_6010	MSS	260076-001	Filtrate	214800	08/26/14 18:35	100.0		
040	met08_sn_6010	MS	QC755140	Filtrate	214800	08/26/14 18:40	100.0		
041	met08_sn_6010	MSD	QC755141	Filtrate	214800	08/26/14 18:45	100.0		1:NA=100000
042	met08_sn_6010	SAMPLE	260076-002	Filtrate	214800	08/26/14 18:50	100.0		
043	met08_sn_6010	SAMPLE	260076-003	Filtrate	214800	08/26/14 18:55	100.0		
044	met08_sn_6010	SAMPLE	260076-004	Filtrate	214800	08/26/14 19:00	100.0		
045	met08_sn_6010	SAMPLE	260076-005	Filtrate	214800	08/26/14 19:06	100.0		
046	met08_sn_6010	CCV				08/26/14 19:11	1.0	10	
047	met08_sn_6010	CCB				08/26/14 19:17	1.0		
048	met08_sn_6010	SAMPLE	260076-006	Filtrate	214800	08/26/14 19:23	100.0		
049	met08_sn_6010	SAMPLE	260076-007	Filtrate	214800	08/26/14 19:28	100.0		
050	met08_sn_6010	SAMPLE	260076-008	Filtrate	214800	08/26/14 19:33	100.0		
051	met08_sn_6010	SAMPLE	260076-009	Filtrate	214800	08/26/14 19:38	100.0		1:NA=140000
052	met08_sn_6010	SAMPLE	260076-010	Filtrate	214800	08/26/14 19:43	100.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84343594

Instrument : MET08 Begun : 08/26/14 14:34
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	SAMPLE	260076-011	Filtrate	214800	08/26/14 19:48	100.0		
054	met08_sn_6010	SAMPLE	260076-012	Filtrate	214800	08/26/14 19:53	100.0		
055	met08_sn_6010	SAMPLE	260076-013	Filtrate	214800	08/26/14 19:58	100.0		1:NA=130000
056	met08_sn_6010	SAMPLE	260076-014	Filtrate	214800	08/26/14 20:03	100.0		
057	met08_sn_6010	SAMPLE	260029-009	Filtrate	214743	08/26/14 20:08	100.0		
058	met08_sn_6010	CCV				08/26/14 20:12	1.0	10	
059	met08_sn_6010	CCB				08/26/14 20:19	1.0		
060	met08_sn_6010	SAMPLE	259990-006	Miscell.	214610	08/26/14 20:24	1.0		
061	met08_sn_6010	MSS	260017-001	Soil	214610	08/26/14 20:29	100.0		
062	met08_sn_6010	SAMPLE	260029-013	Filtrate	214743	08/26/14 20:34	1000		
063	met08_sn_6010	BLANK	QC755125	Water	214786	08/26/14 20:39	1.0		
064	met08_sn_6010	BS	QC755126	Water	214786	08/26/14 20:44	1.0		
065	met08_sn_6010	BSD	QC755127	Water	214786	08/26/14 20:49	1.0		
066	met08_sn_6010	MSS	259873-006	Water	214786	08/26/14 20:53	1.0		2:NA=160000
067	met08_sn_6010	MS	QC755128	Water	214786	08/26/14 21:01	1.0		2:NA=160000
068	met08_sn_6010	MSD	QC755129	Water	214786	08/26/14 21:09	1.0		2:NA=170000
069	met08_sn_6010	SER	QC755130	Water	214786	08/26/14 21:17	5.0		
070	met08_sn_6010	CCV				08/26/14 21:22	1.0	10	
071	met08_sn_6010	CCB				08/26/14 21:29	1.0		
072	met08_sn_6010	PDS	QC755131	Water	214786	08/26/14 21:34	1.0	11 12	
073	met08_sn_6010	SAMPLE	260148-001	Water	214786	08/26/14 21:41	1.0		
074	met08_sn_6010	SAMPLE	260188-001	Water	214786	08/26/14 21:46	1.0		
075	met08_sn_6010	SAMPLE	260188-002	Water	214786	08/26/14 21:50	1.0		
076	met08_sn_6010	CCV				08/26/14 21:55	1.0	10	
077	met08_sn_6010	CCB				08/26/14 22:01	1.0		

CRT 08/26/14 : Winlab32 software was not reporting this sequence into a new sequence for LIMS. Had to re-process and reprint the CALs.

CRT 08/26/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 30.

JDB 08/26/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 31 through 35.

CRT 08/27/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 36 through 77.

Standards used: 1=S25067 2=S25224 3=S25223 4=S25225 5=S25226 6=S25072 7=S25074 8=S25075 9=S25227 10=S25073 11=S24151 12=S24152

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 84343594

Date : 08/26/14 Reference : met08_sn_6010
Sequence : MET08 08/26/14 Analyzed : 08/26/14 14:39

#	Type	Sample ID	Y A
		ICAL STD	2479195
		LOWER LIMIT	743758
		UPPER LIMIT	2975034
009	ICB		2562048
010	ICSA		2196145
011	ICSAB		2218671
014	BS	QC754559	2553728
015	BSD	QC754560	2455368
022	CCV		2551655
023	CCB		2512782

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259786 METALS Filtrate: EPA 6010C

Inst : MET08 Reviewer : ---
Calnum : 84343594001 Date : 26-AUG-2014 14:34
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	84343594002	L1	26-AUG-2014 14:39	S25067
L2	met08_sn_6010	84343594003	L2	26-AUG-2014 14:44	S25224
L3	met08_sn_6010	84343594004	L3	26-AUG-2014 14:48	S25223
L4	met08_sn_6010	84343594005	L4	26-AUG-2014 14:53	S25225
L5	met08_sn_6010	84343594006	L5	26-AUG-2014 15:00	S25226

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	36.710	31.108	31.792	32.954		LOR0	0.00000	0.03036		33.141	1.000	0.995	
Arsenic	A	16.320	19.011	19.947	20.664		LOR0	0.00000	0.04841		18.986	1.000	0.995	
Barium	A	430.38	401.53	418.68	407.43		LOR0	0.00000	0.00245		414.50	1.000	0.995	
Beryllium	A	5202.5	4738.2	4938.2			LOR0	0.00000	2.03E-4		4959.6	1.000	0.995	
Cadmium	A	249.88	232.38	241.93	238.87		LOR0	0.00000	0.00419		240.76	1.000	0.995	
Chromium	A	98.680	92.763	96.832	96.495		LOR0	0.00000	0.01036		96.193	1.000	0.995	
Cobalt	A	137.92	127.16	136.02	135.61		LOR0	0.00000	0.00737		134.18	1.000	0.995	
Copper	A	48.580	100.68	101.50	110.49		LOR0	0.00000	0.00906		90.311	1.000	0.995	
Lead	A	68.800	57.947	59.476	60.196		LOR0	0.00000	0.01661		61.605	1.000	0.995	
Manganese	A	1198.4	1133.0	1217.1	1128.9		LOR0	0.00000	8.85E-4		1169.4	1.000	0.995	
Molybdenum	A	36.920	35.083	36.248	36.685		LOR0	0.00000	0.02726		36.234	1.000	0.995	
Nickel	A	54.060	51.523	54.491	54.586		LOR0	0.00000	0.01832		53.665	1.000	0.995	
Selenium	A	25.440	28.148	29.917	31.221		LOR0	0.00000	0.03204		28.682	1.000	0.995	
Silver	A	690.30	700.63	732.08	726.38		LOR0	0.00000	0.00137		712.35	1.000	0.995	
Thallium	A	19.490	19.269	20.146	19.807		LOR0	0.00000	0.05048		19.678	1.000	0.995	
Vanadium	A	156.74	155.58	160.01	161.97		LOR0	0.00000	0.00617		158.57	1.000	0.995	
Zinc	A	81.410	77.386	80.103	81.036		LOR0	0.00000	0.01234		79.984	1.000	0.995	
Aluminum	R	0.4160		0.4856	0.5355	0.4665	LOR0	0.00000	2.14071		0.4759	1.000	0.995	
Magnesium	R	0.6810		0.6896	0.7193	0.6454	LOR0	0.00000	1.54757		0.6838	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	11	100.00	-6	1000.0	-3	10000	0		
Arsenic	A	5.0000	**-21**	100.00	-8	1000.0	-3	10000	0		
Barium	A	5.0000	6	100.00	-1	1000.0	3	10000	0		
Beryllium	A	2.0000	5	100.00	-4	1000.0	0				
Cadmium	A	5.0000	5	100.00	-3	1000.0	1	10000	0		
Chromium	A	5.0000	2	100.00	-4	1000.0	0	10000	0		
Cobalt	A	5.0000	2	100.00	-6	1000.0	0	10000	0		
Copper	A	5.0000	**-56**	100.00	-9	1000.0	-8	10000	0		
Lead	A	5.0000	14	100.00	-4	1000.0	-1	10000	0		
Manganese	A	5.0000	6	100.00	0	1000.0	8	10000	0		
Molybdenum	A	5.0000	1	100.00	-4	1000.0	-1	10000	0		
Nickel	A	5.0000	-1	100.00	-6	1000.0	0	10000	0		
Selenium	A	10.000	-18	100.00	-10	1000.0	-4	10000	0		
Silver	A	5.0000	-5	100.00	-4	1000.0	1	2000.0	0		
Thallium	A	10.000	-2	100.00	-3	1000.0	2	10000	0		
Vanadium	A	5.0000	-3	100.00	-4	1000.0	-1	10000	0		
Zinc	A	20.000	0	100.00	-4	1000.0	-1	10000	0		
Aluminum	R	100.00	-11			1000.0	4	10000	15	100000	0
Magnesium	R	200.00	5			1000.0	7	10000	11	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08
Calnum : 84343594001 Cal Date : 26-AUG-2014

ICV 84343594007 (26-AUG-2014) stds: S25072

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4849	ug/L	-3	10	
Arsenic	A	5000	4800	ug/L	-4	10	
Barium	A	5000	4796	ug/L	-4	10	
Beryllium	A	500.0	513.3	ug/L	3	10	
Cadmium	A	5000	4848	ug/L	-3	10	
Chromium	A	5000	4832	ug/L	-3	10	
Cobalt	A	5000	4837	ug/L	-3	10	
Copper	A	5000	4796	ug/L	-4	10	
Lead	A	5000	4713	ug/L	-6	10	
Manganese	A	5000	4777	ug/L	-4	10	
Molybdenum	A	5000	4879	ug/L	-2	10	
Nickel	A	5000	4773	ug/L	-5	10	
Selenium	A	5000	4738	ug/L	-5	10	
Silver	A	1000	962.9	ug/L	-4	10	
Thallium	A	5000	4780	ug/L	-4	10	
Vanadium	A	5000	4736	ug/L	-5	10	
Zinc	A	5000	4788	ug/L	-4	10	
Aluminum	R	20000	20420	ug/L	2	10	
Magnesium	R	20000	20340	ug/L	2	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84343594008.1 File : met08_sn_6010 Time : 26-AUG-2014 15:15
Cal : 84343594001 Caldate : 26-AUG-2014
Standards: S25074

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	12.46	ug/L	**25**	30	!cri+
Arsenic	A	5.000	5.841	ug/L	17	30	
Barium	A	5.000	5.430	ug/L	9	30	
Beryllium	A	2.000	1.982	ug/L	-1	30	
Cadmium	A	5.000	5.422	ug/L	8	30	
Chromium	A	5.000	5.283	ug/L	6	30	
Cobalt	A	5.000	5.196	ug/L	4	30	
Copper	A	5.000	1.896	ug/L	**-62**	30	cri- ***
Lead	A	5.000	6.242	ug/L	**25**	30	!cri+
Manganese	A	5.000	5.333	ug/L	7	30	
Molybdenum	A	5.000	5.339	ug/L	7	30	
Nickel	A	5.000	5.328	ug/L	7	30	
Selenium	A	10.00	8.470	ug/L	-15	30	
Silver	A	5.000	4.229	ug/L	-15	30	
Thallium	A	10.00	11.62	ug/L	16	30	
Vanadium	A	5.000	5.009	ug/L	0	30	
Zinc	A	20.00	22.22	ug/L	11	30	
Aluminum	R	100.0	115.0	ug/L	15	30	
Magnesium	R	200.0	224.8	ug/L	12	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2479195	2606159	5.12

!=warning +=high bias -=low bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84343594009.2 File : met08_sn_6010 Time : 26-AUG-2014 15:19
Cal : 84343594001 Caldate : 26-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2479195	2562048	3.34

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84343594010.2 File : met08_sn_6010 Time : 26-AUG-2014 15:25
Cal : 84343594001 Caldate : 26-AUG-2014
Standards: S25075

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[9.180]	10.00	ug/L	!a+
Arsenic	A	[-3.265]	5.000	ug/L	!a-
Barium	A	[-0.7818]	5.000	ug/L	
Beryllium	A	[0.9256]	2.000	ug/L	
Cadmium	A	[2.670]	5.000	ug/L	!a+
Cobalt	A	[0.7357]	5.000	ug/L	
Lead	A	[-2.083]	5.000	ug/L	
Molybdenum	A	[-2.734]	5.000	ug/L	!a-
Selenium	A	[-0.002424]	10.00	ug/L	
Silver	A	[2.998]	5.000	ug/L	!a+
Thallium	A	[0.01146]	10.00	ug/L	
Zinc	A	[-1.296]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec
Chromium	A	20000	19670	ug/L	98
Copper	A	20000	20780	ug/L	104
Manganese	A	20000	18710	ug/L	94
Nickel	A	20000	18290	ug/L	91
Vanadium	A	20000	18520	ug/L	93
Aluminum	R	500000	532800	ug/L	107
Calcium	R	500000	519700	ug/L	104
Iron	R	200000	202800	ug/L	101
Magnesium	R	500000	521400	ug/L	104
Titanium	R	20000	20740	ug/L	104

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2479195	2196145	-11.42

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84343594011.2 File : met08_sn_6010 Time : 26-AUG-2014 16:00
Cal : 84343594001 Caldate : 26-AUG-2014
Standards: S25227

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	500.9	ug/L	0	20	
Arsenic	A	500.0	501.5	ug/L	0	20	
Barium	A	500.0	542.6	ug/L	9	20	
Beryllium	A	500.0	542.3	ug/L	8	20	
Cadmium	A	1000	1031	ug/L	3	20	
Chromium	A	500.0	519.3	ug/L	4	20	
Cobalt	A	500.0	491.2	ug/L	-2	20	
Copper	A	500.0	540.5	ug/L	8	20	
Lead	A	1000	983.2	ug/L	-2	20	
Manganese	A	500.0	448.4	ug/L	-10	20	
Molybdenum	A	500.0	520.7	ug/L	4	20	
Nickel	A	1000	978.4	ug/L	-2	20	
Selenium	A	500.0	509.0	ug/L	2	20	
Silver	A	1000	1144	ug/L	14	20	
Thallium	A	500.0	483.3	ug/L	-3	20	
Vanadium	A	500.0	544.2	ug/L	9	20	
Zinc	A	1000	1020	ug/L	2	20	
Aluminum	R	500000	515700	ug/L	3		
Magnesium	R	500000	519100	ug/L	4		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2479195	2218671	-10.51

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84343594022.1 File : met08_sn_6010 Time : 26-AUG-2014 16:56
Cal : 84343594001 Caldate : 26-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	33.141	32.963	5000	5003	ug/L	0	10	
Arsenic	A	18.986	20.561	5000	4977	ug/L	0	10	
Barium	A	414.50	403.64	5000	4952	ug/L	-1	10	
Beryllium	A	4959.6	5287.1	500.0	535.5	ug/L	7	10	
Cadmium	A	240.76	238.92	5000	5001	ug/L	0	10	
Chromium	A	96.193	96.168	5000	4983	ug/L	0	10	
Cobalt	A	134.18	135.41	5000	4984	ug/L	0	10	
Copper	A	90.311	104.65	5000	4740	ug/L	-5	10	
Lead	A	61.605	58.593	5000	4867	ug/L	-3	10	
Manganese	A	1169.4	1143.3	5000	5060	ug/L	1	10	
Molybdenum	A	36.234	36.956	5000	5038	ug/L	1	10	
Nickel	A	53.665	53.683	5000	4917	ug/L	-2	10	
Selenium	A	28.682	30.788	5000	4933	ug/L	-1	10	
Silver	A	712.35	713.17	1000	980.4	ug/L	-2	10	
Thallium	A	19.678	19.657	5000	4961	ug/L	-1	10	
Vanadium	A	158.57	156.97	5000	4846	ug/L	-3	10	
Zinc	A	79.984	80.032	5000	4939	ug/L	-1	10	
Aluminum	R	0.4759	0.4942	20000	21160	ug/L	6	10	
Magnesium	R	0.6838	0.6873	20000	21270	ug/L	6	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2479195	2551655	2.92

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84343594023.1 File : met08_sn_6010 Time : 26-AUG-2014 17:03
Cal : 84343594001 Caldate : 26-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2479195	2512782	1.35

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84346056

Instrument : MET08 Begun : 08/28/14 07:36
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				08/28/14 07:36	1.0		
002	met08_sn_6010	ICAL	L1			08/28/14 07:41	1.0	1	
003	met08_sn_6010	ICAL	L2			08/28/14 07:46	1.0	2	
004	met08_sn_6010	ICAL	L3			08/28/14 07:51	1.0	3	
005	met08_sn_6010	ICAL	L4			08/28/14 07:56	1.0	4	
006	met08_sn_6010	ICAL	L5			08/28/14 08:03	1.0	5	
007	met08_sn_6010	XICV				08/28/14 08:09	1.0	6	
008	met08_sn_6010	ICV				08/28/14 08:15	1.0	6	
009	met08_sn_6010	CRI				08/28/14 08:21	1.0	7	
010	met08_sn_6010	ICB				08/28/14 08:33	1.0		
011	met08_sn_6010	ICSA				08/28/14 08:38	1.0	8	10:AL=550000
012	met08_sn_6010	ICSAB				08/28/14 09:37	1.0	9	5:MG=510000
013	met08_sn_6010	BLANK	QC755439	Water	214873	08/28/14 09:44	1.0		
014	met08_sn_6010	BS	QC755440	Water	214873	08/28/14 09:49	1.0		
015	met08_sn_6010	BSD	QC755441	Water	214873	08/28/14 09:53	1.0		
016	met08_sn_6010	MSS	260281-001	Water	214873	08/28/14 09:57	1.0		
017	met08_sn_6010	MS	QC755442	Water	214873	08/28/14 10:02	1.0		
018	met08_sn_6010	MSD	QC755443	Water	214873	08/28/14 10:06	1.0		
019	met08_sn_6010	X	RINSE			08/28/14 10:10	1.0		
020	met08_sn_6010	BLANK	QC755455	Water	214877	08/28/14 10:15	1.0		
021	met08_sn_6010	BLANK	QC755456	Water	214877	08/28/14 10:20	1.0		
022	met08_sn_6010	BS	QC755457	Water	214877	08/28/14 10:25	1.0		
023	met08_sn_6010	CCV				08/28/14 10:29	1.0	10	
024	met08_sn_6010	CCB				08/28/14 10:36	1.0		
025	met08_sn_6010	BSD	QC755458	Water	214877	08/28/14 10:41	1.0		
026	met08_sn_6010	SAMPLE	259887-001	Water	214877	08/28/14 10:45	1.0		
027	met08_sn_6010	SAMPLE	260094-001	Water	214877	08/28/14 10:50	1.0		4:PB=230000
028	met08_sn_6010	X	RINSE			08/28/14 10:59	1.0		
029	met08_sn_6010	SAMPLE	260094-001	Water	214877	08/28/14 11:10	100.0		
030	met08_sn_6010	X	RINSE			08/28/14 11:15	1.0		
031	met08_sn_6010	CCV				08/28/14 11:20	1.0	10	
032	met08_sn_6010	XCCB				08/28/14 11:26	1.0		
033	met08_sn_6010	CCB				08/28/14 11:30	1.0		
034	met08_sn_6010	BLANK	QC755439	Water	214873	08/28/14 11:38	1.0		
035	met08_sn_6010	BS	QC755440	Water	214873	08/28/14 11:43	1.0		
036	met08_sn_6010	BSD	QC755441	Water	214873	08/28/14 11:47	1.0		
037	met08_sn_6010	MSS	260281-001	Water	214873	08/28/14 12:02	1.0		
038	met08_sn_6010	MS	QC755442	Water	214873	08/28/14 12:07	1.0		
039	met08_sn_6010	MSD	QC755443	Water	214873	08/28/14 12:12	1.0		
040	met08_sn_6010	X	RINSE			08/28/14 12:16	1.0		
041	met08_sn_6010	CCV				08/28/14 12:21	1.0	10	
042	met08_sn_6010	CCB				08/28/14 12:27	1.0		
043	met08_sn_6010	BLANK	QC755449	Wipe	214875	08/28/14 12:32	1.0		
044	met08_sn_6010	BS	QC755450	Wipe	214875	08/28/14 12:38	1.0		4:K=100000
045	met08_sn_6010	BSD	QC755451	Wipe	214875	08/28/14 12:45	1.0		5:NA=110000
046	met08_sn_6010	SAMPLE	260078-001	Wipe	214875	08/28/14 12:53	1.0		
047	met08_sn_6010	SAMPLE	260080-001	Wipe	214875	08/28/14 12:58	1.0		
048	met08_sn_6010	SAMPLE	260082-001	Wipe	214875	08/28/14 13:03	1.0		
049	met08_sn_6010	SAMPLE	260084-001	Wipe	214875	08/28/14 13:08	1.0		
050	met08_sn_6010	SAMPLE	260087-001	Wipe	214875	08/28/14 13:13	1.0		
051	met08_sn_6010	SAMPLE	260094-001	Wipe	214875	08/28/14 13:18	1.0		
052	met08_sn_6010	SAMPLE	260095-001	Wipe	214875	08/28/14 13:23	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84346056

Instrument : MET08 Begun : 08/28/14 07:36
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	CCV				08/28/14 13:28	1.0	10	
054	met08_sn_6010	CCB				08/28/14 13:35	1.0		
055	met08_sn_6010	SAMPLE	260096-001	Wipe	214875	08/28/14 13:40	1.0		
056	met08_sn_6010	SAMPLE	260097-001	Wipe	214875	08/28/14 13:45	1.0		
057	met08_sn_6010	X	RINSE			08/28/14 13:50	1.0		
058	met08_sn_6010	BLANK	QC755432	TCLP Leachate	214872	08/28/14 13:55	10.0		1:NA=150000
059	met08_sn_6010	BS	QC755433	TCLP Leachate	214872	08/28/14 14:00	5.0		
060	met08_sn_6010	BSD	QC755434	TCLP Leachate	214872	08/28/14 14:04	5.0		
061	met08_sn_6010	MSS	260237-001	TCLP Leachate	214872	08/28/14 14:08	10.0		1:NA=170000
062	met08_sn_6010	MS	QC755435	TCLP Leachate	214872	08/28/14 14:13	10.0		
063	met08_sn_6010	MSD	QC755436	TCLP Leachate	214872	08/28/14 14:18	10.0		
064	met08_sn_6010	SER	QC755437	TCLP Leachate	214872	08/28/14 14:22	50.0		
065	met08_sn_6010	CCV				08/28/14 14:27	1.0	10	
066	met08_sn_6010	CCB				08/28/14 14:34	1.0		
067	met08_sn_6010	PDS	QC755438	TCLP Leachate	214872	08/28/14 14:39	10.0	11 12	
068	met08_sn_6010	CCV				08/28/14 14:43	1.0	10	
069	met08_sn_6010	CCB				08/28/14 14:50	1.0		
070	met08_sn_6010	SER	QC755130	Water	214786	08/28/14 16:02	500.0		
071	met08_sn_6010	PDS	QC755131	Water	214786	08/28/14 16:07	100.0	13 14	
072	met08_sn_6010	X	RINSE			08/28/14 16:11	1.0		
073	met08_sn_6010	SER	QC755576	Soil	214823	08/28/14 16:16	5.0		
074	met08_sn_6010	PDS	QC755577	Soil	214823	08/28/14 16:20	1.0	11 12	2:FE=310000
075	met08_sn_6010	SAMPLE	260062-001	Soil	214823	08/28/14 16:23	1.0		6:FE=1100000
076	met08_sn_6010	X	RINSE			08/28/14 16:30	1.0		
077	met08_sn_6010	SAMPLE	260030-001	Miscell.	214753	08/28/14 16:35	1.0		
078	met08_sn_6010	SAMPLE	260030-002	Miscell.	214753	08/28/14 16:40	1.0		1:MG=4000000
079	met08_sn_6010	X	RINSE			08/28/14 16:44	1.0		
080	met08_sn_6010	CCV				08/28/14 16:49	1.0	10	
081	met08_sn_6010	CCB				08/28/14 16:56	1.0		
082	met08_sn_6010	SAMPLE	260030-002	Miscell.	214753	08/28/14 17:07	1.0		1:MG=3900000
083	met08_sn_6010	SER	QC755130	Water	214786	08/28/14 17:12	5.0		
084	met08_sn_6010	X	RINSE			08/28/14 17:17	1.0		
085	met08_sn_6010	PDS	QC755131	Water	214786	08/28/14 17:22	1.0	13 14	
086	met08_sn_6010	X	RINSE			08/28/14 17:30	1.0		
087	met08_sn_6010	BS	QC755224	Water	214820	08/28/14 17:34	1.0		
088	met08_sn_6010	BSD	QC755225	Water	214820	08/28/14 17:39	1.0		
089	met08_sn_6010	MSS	259774-001	Water	214820	08/28/14 17:43	100.0		
090	met08_sn_6010	MS	QC755226	Water	214820	08/28/14 17:48	100.0		
091	met08_sn_6010	MSD	QC755227	Water	214820	08/28/14 17:53	100.0		
092	met08_sn_6010	CCV				08/28/14 17:58	1.0	10	
093	met08_sn_6010	CCB				08/28/14 18:05	1.0		
094	met08_sn_6010	SER	QC755228	Water	214820	08/28/14 18:10	500.0		
095	met08_sn_6010	PDS	QC755229	Water	214820	08/28/14 18:15	100.0	13 14	
096	met08_sn_6010	MS	QC755226	Water	214820	08/28/14 18:19	1.0		1:NA=220000
097	met08_sn_6010	MSD	QC755227	Water	214820	08/28/14 18:23	1.0		1:NA=210000
098	met08_sn_6010	SER	QC755228	Water	214820	08/28/14 18:27	5.0		
099	met08_sn_6010	MSS	259786-001	Filtrate	214656	08/28/14 18:32	1.0		3:MG=640000
100	met08_sn_6010	X	RINSE			08/28/14 18:40	1.0		
101	met08_sn_6010	PDS	QC755229	Water	214820	08/28/14 18:45	1.0	13 14	1:NA=230000
102	met08_sn_6010	X	RINSE			08/28/14 18:49	1.0		
103	met08_sn_6010	?SAMPLE	260193-022		214872	08/28/14 18:54	10.0		
104	met08_sn_6010	CCV				08/28/14 18:59	1.0	10	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84346056

Instrument : MET08 Begun : 08/28/14 07:36
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met08_sn_6010	CCB				08/28/14 19:06	1.0		
106	met08_sn_6010	?SAMPLE	260193-023		214872	08/28/14 19:11	10.0		
107	met08_sn_6010	?SAMPLE	260193-024		214872	08/28/14 19:16	10.0		
108	met08_sn_6010	?SAMPLE	260193-025		214872	08/28/14 19:21	10.0		
109	met08_sn_6010	?SAMPLE	260193-026		214872	08/28/14 19:26	10.0		
110	met08_sn_6010	X	RINSE			08/28/14 19:33	1.0		
111	met08_sn_6010	X	RINSE			08/28/14 19:38	1.0		
112	met08_sn_6010	CCV				08/28/14 19:43	1.0	10	
113	met08_sn_6010	CCB				08/28/14 19:50	1.0		
114	met08_sn_6010	BLANK	QC755177	Filtrate	214807	08/28/14 19:55	1.0		
115	met08_sn_6010	BS	QC755178	Filtrate	214807	08/28/14 20:00	1.0		
116	met08_sn_6010	BSD	QC755179	Filtrate	214807	08/28/14 20:04	1.0		
117	met08_sn_6010	MSS	259774-001	Filtrate	214807	08/28/14 20:08	100.0		
118	met08_sn_6010	SER	QC755182	Filtrate	214807	08/28/14 20:13	500.0		
119	met08_sn_6010	PDS	QC755183	Filtrate	214807	08/28/14 20:19	100.0	13 14 15	
120	met08_sn_6010	SAMPLE	259885-001	Filtrate	214807	08/28/14 20:23	100.0		
121	met08_sn_6010	SAMPLE	259885-002	Filtrate	214807	08/28/14 20:28	100.0		
122	met08_sn_6010	SAMPLE	259885-003	Filtrate	214807	08/28/14 20:33	100.0		
123	met08_sn_6010	SAMPLE	259885-004	Filtrate	214807	08/28/14 20:38	100.0		
124	met08_sn_6010	CCV				08/28/14 20:43	1.0	10	
125	met08_sn_6010	CCB				08/28/14 20:50	1.0		
126	met08_sn_6010	X	RINSE			08/28/14 20:55	1.0		
127	met08_sn_6010	BLANK	QC755195	Filtrate	214811	08/28/14 21:00	1.0		
128	met08_sn_6010	BS	QC755196	Filtrate	214811	08/28/14 21:05	1.0		
129	met08_sn_6010	BSD	QC755197	Filtrate	214811	08/28/14 21:09	1.0		
130	met08_sn_6010	MSS	259882-001	Filtrate	214811	08/28/14 21:13	100.0		
131	met08_sn_6010	SER	QC755200	Filtrate	214811	08/28/14 21:18	500.0		
132	met08_sn_6010	PDS	QC755201	Filtrate	214811	08/28/14 21:23	100.0	13 14	
133	met08_sn_6010	SAMPLE	259882-002	Filtrate	214811	08/28/14 21:28	100.0		
134	met08_sn_6010	X	RINSE			08/28/14 21:33	1.0		
135	met08_sn_6010	X	RINSE			08/28/14 21:38	1.0		
136	met08_sn_6010	CCV				08/28/14 21:42	1.0	10	
137	met08_sn_6010	CCB				08/28/14 21:49	1.0		
138	met08_sn_6010	MSS	259774-001	Filtrate	214807	08/28/14 21:54	1.0		1:NA=210000
139	met08_sn_6010	MS	QC755180	Filtrate	214807	08/28/14 21:59	1.0		1:NA=220000
140	met08_sn_6010	MSD	QC755181	Filtrate	214807	08/28/14 22:04	1.0		1:NA=200000
141	met08_sn_6010	SER	QC755182	Filtrate	214807	08/28/14 22:08	5.0		
142	met08_sn_6010	PDS	QC755183	Filtrate	214807	08/28/14 22:13	1.0	13 14 15	
143	met08_sn_6010	SAMPLE	259885-001	Filtrate	214807	08/28/14 22:17	1.0		3:MG=480000
144	met08_sn_6010	SAMPLE	259885-002	Filtrate	214807	08/28/14 22:25	1.0		3:MG=560000
145	met08_sn_6010	SAMPLE	259885-003	Filtrate	214807	08/28/14 22:33	1.0		2:MG=220000
146	met08_sn_6010	SAMPLE	259885-004	Filtrate	214807	08/28/14 22:42	1.0		
147	met08_sn_6010	MSS	259882-001	Filtrate	214811	08/28/14 22:47	1.0		1:NA=370000
148	met08_sn_6010	CCV				08/28/14 22:52	1.0	10	
149	met08_sn_6010	CCB				08/28/14 22:59	1.0		
150	met08_sn_6010	MS	QC755198	Filtrate	214811	08/28/14 23:04	1.0		1:NA=340000
151	met08_sn_6010	MSD	QC755199	Filtrate	214811	08/28/14 23:08	1.0		1:NA=330000
152	met08_sn_6010	SER	QC755200	Filtrate	214811	08/28/14 23:12	5.0		
153	met08_sn_6010	PDS	QC755201	Filtrate	214811	08/28/14 23:17	1.0	13 14	
154	met08_sn_6010	SAMPLE	259882-002	Filtrate	214811	08/28/14 23:21	1.0		3:MG=520000
155	met08_sn_6010	X	RINSE			08/28/14 23:30	1.0		
156	met08_sn_6010	SAMPLE	259823-001	Filtrate	214807	08/28/14 23:35	1.0		2:NA=190000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84346056

Instrument : MET08 Begun : 08/28/14 07:36
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
157	met08_sn_6010	SAMPLE	259823-003	Filtrate	214807	08/28/14 23:40	1.0		1:NA=200000
158	met08_sn_6010	SAMPLE	259865-001	Filtrate	214807	08/28/14 23:45	1.0		1:CA=150000
159	met08_sn_6010	SAMPLE	259865-003	Filtrate	214807	08/28/14 23:54	1.0		1:CA=260000
160	met08_sn_6010	CCV				08/29/14 00:02	1.0	10	
161	met08_sn_6010	CCB				08/29/14 00:09	1.0		
162	met08_sn_6010	SAMPLE	259918-001	Filtrate	214807	08/29/14 00:14	1.0		1:NA=250000
163	met08_sn_6010	SAMPLE	259918-003	Filtrate	214807	08/29/14 00:19	1.0		1:NA=210000
164	met08_sn_6010	SAMPLE	259968-001	Filtrate	214807	08/29/14 00:24	1.0		1:NA=200000
165	met08_sn_6010	SAMPLE	259968-003	Filtrate	214807	08/29/14 00:30	1.0		1:CA=130000
166	met08_sn_6010	SAMPLE	260003-001	Filtrate	214807	08/29/14 00:35	1.0		2:CA=400000
167	met08_sn_6010	SAMPLE	260003-003	Filtrate	214807	08/29/14 00:44	1.0		2:CA=410000
168	met08_sn_6010	SAMPLE	260053-001	Filtrate	214807	08/29/14 00:52	1.0		1:CA=270000
169	met08_sn_6010	SAMPLE	260053-003	Filtrate	214807	08/29/14 01:01	1.0		1:CA=570000
170	met08_sn_6010	SAMPLE	260131-001	Filtrate	214807	08/29/14 01:10	1.0		1:NA=570000
171	met08_sn_6010	SAMPLE	260131-002	Filtrate	214807	08/29/14 01:18	1.0		2:NA=680000
172	met08_sn_6010	CCV				08/29/14 01:27	1.0	10	
173	met08_sn_6010	CCB				08/29/14 01:34	1.0		

VQ 08/29/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 173.

Standards used: 1=S25067 2=S25224 3=S25223 4=S25225 5=S25226 6=S25072 7=S25074 8=S25075 9=S25227 10=S25073 11=S24153 12=S24154 13=S24151 14=S24152 15=S25208

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 84346056

Date : 08/28/14 Reference : met08_sn_6010
Sequence : MET08 08/28/14 Analyzed : 08/28/14 07:41

#	Type	Sample ID	Y A
		ICAL STD	2660482
		LOWER LIMIT	798145
		UPPER LIMIT	3192579
010	ICB		2647435
011	ICSA		2315037
012	ICSAB		2277833
092	CCV		2496198
093	CCB		2530112
099	MSS	259786-001	1938127
104	CCV		2518656
105	CCB		2558283
120	SAMPLE	259885-001	2389652
121	SAMPLE	259885-002	2442875
122	SAMPLE	259885-003	2565924
123	SAMPLE	259885-004	2553814
124	CCV		2549816
125	CCB		2585942
130	MSS	259882-001	2600443
133	SAMPLE	259882-002	2484202
136	CCV		2595346
137	CCB		2602344
143	SAMPLE	259885-001	2000641
144	SAMPLE	259885-002	1984122
145	SAMPLE	259885-003	2097593
146	SAMPLE	259885-004	2638719
147	MSS	259882-001	2417395
148	CCV		2636290
149	CCB		2489781
154	SAMPLE	259882-002	1996031
160	CCV		2660754
161	CCB		2535236

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259786 METALS Filtrate: EPA 6010C

Inst : MET08
Calnum : 84346056001
Units : ug/L

Date : 28-AUG-2014 07:36
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	84346056002	L1	28-AUG-2014 07:41	S25067
L2	met08_sn_6010	84346056003	L2	28-AUG-2014 07:46	S25224
L3	met08_sn_6010	84346056004	L3	28-AUG-2014 07:51	S25223
L4	met08_sn_6010	84346056005	L4	28-AUG-2014 07:56	S25225
L5	met08_sn_6010	84346056006	L5	28-AUG-2014 08:03	S25226

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	31.260	30.268	32.425	31.590		LOR0	0.00000	0.03165		31.386	1.000	0.995	
Arsenic	A	21.560	17.716	19.243	18.603		LOR0	0.00000	0.05374		19.281	1.000	0.995	
Barium	A	421.46	400.15	427.95	398.65		LOR0	0.00000	0.00251		412.05	1.000	0.995	
Beryllium	A	4943.4	4739.2	5202.7			LOR0	0.00000	1.92E-4		4961.8	1.000	0.995	
Cadmium	A	221.80	215.81	231.27	216.47		LOR0	0.00000	0.00462		221.34	1.000	0.995	
Chromium	A	95.320	91.923	97.395	92.984		LOR0	0.00000	0.01075		94.405	1.000	0.995	
Cobalt	A	130.74	122.79	136.19	129.16		LOR0	0.00000	0.00774		129.72	1.000	0.995	
Copper	A	105.22	111.48	115.51	117.52		LOR0	0.00000	0.00851		112.43	1.000	0.995	
Lead	A	56.120	53.948	58.274	55.233		LOR0	0.00000	0.01810		55.894	1.000	0.995	
Manganese	A	1162.3	1123.6	1236.0	1083.5		LOR0	0.00000	9.22E-4		1151.4	1.000	0.995	
Molybdenum	A	35.740	35.550	37.671	35.977		LOR0	0.00000	0.02778		36.235	1.000	0.995	
Nickel	A	50.020	49.222	53.947	51.485		LOR0	0.00000	0.01941		51.168	1.000	0.995	
Selenium	A	25.640	26.111	28.282	27.360		LOR0	0.00000	0.03654		26.848	1.000	0.995	
Silver	A	720.64	703.91	757.95	724.81		LOR0	0.00000	0.00137		726.83	0.999	0.995	
Thallium	A	17.350	17.755	19.423	17.556		LOR0	0.00000	0.05690		18.021	1.000	0.995	
Vanadium	A	152.98	155.92	164.81	160.18		LOR0	0.00000	0.00624		158.47	1.000	0.995	
Zinc	A	74.740	70.291	75.315	72.108		LOR0	0.00000	0.01386		73.113	1.000	0.995	
Aluminum	R	0.5620		0.6195	0.6034	0.5735	LOR0	0.00000	1.74263		0.5896	1.000	0.995	
Magnesium	R	0.7675		0.8002	0.7578	0.7148	LOR0	0.00000	1.39822		0.7601	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-1	100.00	-4	1000.0	3	10000	0		
Arsenic	A	5.0000	16	100.00	-5	1000.0	3	10000	0		
Barium	A	5.0000	6	100.00	0	1000.0	7	10000	0		
Beryllium	A	2.0000	-5	100.00	-9	1000.0	0				
Cadmium	A	5.0000	2	100.00	0	1000.0	7	10000	0		
Chromium	A	5.0000	2	100.00	-1	1000.0	5	10000	0		
Cobalt	A	5.0000	1	100.00	-5	1000.0	5	10000	0		
Copper	A	5.0000	-10	100.00	-5	1000.0	-2	10000	0		
Lead	A	5.0000	2	100.00	-2	1000.0	5	10000	0		
Manganese	A	5.0000	7	100.00	4	1000.0	14	10000	0		
Molybdenum	A	5.0000	-1	100.00	-1	1000.0	5	10000	0		
Nickel	A	5.0000	-3	100.00	-4	1000.0	5	10000	0		
Selenium	A	10.000	-6	100.00	-5	1000.0	3	10000	0		
Silver	A	5.0000	-1	100.00	-4	1000.0	4	2000.0	-1		
Thallium	A	10.000	-1	100.00	1	1000.0	11	10000	0		
Vanadium	A	5.0000	-5	100.00	-3	1000.0	3	10000	0		
Zinc	A	20.000	4	100.00	-3	1000.0	4	10000	0		
Aluminum	R	100.00	-2			1000.0	8	10000	5	100000	0
Magnesium	R	200.00	7			1000.0	12	10000	6	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08
Calnum : 84346056001 Cal Date : 28-AUG-2014

ICV 84346056008 (28-AUG-2014) stds: S25072

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	5049	ug/L	1	10	
Arsenic	A	5000	5007	ug/L	0	10	
Barium	A	5000	4918	ug/L	-2	10	
Beryllium	A	500.0	500.4	ug/L	0	10	
Cadmium	A	5000	5017	ug/L	0	10	
Chromium	A	5000	4969	ug/L	-1	10	
Cobalt	A	5000	4953	ug/L	-1	10	
Copper	A	5000	5001	ug/L	0	10	
Lead	A	5000	4893	ug/L	-2	10	
Manganese	A	5000	4944	ug/L	-1	10	
Molybdenum	A	5000	5057	ug/L	1	10	
Nickel	A	5000	4917	ug/L	-2	10	
Selenium	A	5000	4975	ug/L	-1	10	
Silver	A	1000	972.8	ug/L	-3	10	
Thallium	A	5000	4938	ug/L	-1	10	
Vanadium	A	5000	4889	ug/L	-2	10	
Zinc	A	5000	4948	ug/L	-1	10	
Aluminum	R	20000	20030	ug/L	0	10	
Magnesium	R	20000	20200	ug/L	1	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056009.1 File : met08_sn_6010 Time : 28-AUG-2014 08:21
Cal : 84346056001 Caldate : 28-AUG-2014
Standards: S25074

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	11.82	ug/L	18	30	
Arsenic	A	5.000	6.343	ug/L	**27**	30	!cri+
Barium	A	5.000	5.664	ug/L	13	30	
Beryllium	A	2.000	1.938	ug/L	-3	30	
Cadmium	A	5.000	5.568	ug/L	11	30	
Chromium	A	5.000	5.435	ug/L	9	30	
Cobalt	A	5.000	5.311	ug/L	6	30	
Copper	A	5.000	5.098	ug/L	2	30	
Lead	A	5.000	5.984	ug/L	20	30	
Manganese	A	5.000	5.955	ug/L	19	30	
Molybdenum	A	5.000	5.938	ug/L	19	30	
Nickel	A	5.000	5.356	ug/L	7	30	
Selenium	A	10.00	12.95	ug/L	**30**	30	!cri+
Silver	A	5.000	4.883	ug/L	-2	30	
Thallium	A	10.00	10.86	ug/L	9	30	
Vanadium	A	5.000	5.333	ug/L	7	30	
Zinc	A	20.00	21.18	ug/L	6	30	
Aluminum	R	100.0	110.5	ug/L	10	30	
Magnesium	R	200.0	224.6	ug/L	12	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2708093	1.79

!=warning +=high bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056010.3 File : met08_sn_6010 Time : 28-AUG-2014 08:33
Cal : 84346056001 Caldate : 28-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2647435	-0.49

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056011.3 File : met08_sn_6010 Time : 28-AUG-2014 08:38
Cal : 84346056001 Caldate : 28-AUG-2014
Standards: S25075

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[1.704]	10.00	ug/L	
Arsenic	A	[2.591]	5.000	ug/L	!a+
Barium	A	[0.4457]	5.000	ug/L	
Beryllium	A	[0.6101]	2.000	ug/L	
Cadmium	A	[2.122]	5.000	ug/L	!a+
Cobalt	A	[-2.145]	5.000	ug/L	!a-
Lead	A	[-3.840]	5.000	ug/L	!a-
Molybdenum	A	[-3.364]	5.000	ug/L	!a-
Selenium	A	[0.6504]	10.00	ug/L	
Silver	A	[2.046]	5.000	ug/L	
Thallium	A	[2.871]	10.00	ug/L	
Zinc	A	[-8.130]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec
Chromium	A	20000	19060	ug/L	95
Copper	A	20000	21390	ug/L	107
Manganese	A	20000	18090	ug/L	90
Nickel	A	20000	17740	ug/L	89
Vanadium	A	20000	18150	ug/L	91
Aluminum	R	500000	553500	ug/L	111
Calcium	R	500000	526200	ug/L	105
Iron	R	200000	206300	ug/L	103
Magnesium	R	500000	524300	ug/L	105
Titanium	R	20000	21750	ug/L	109

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2315037	-12.98

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056012.3 File : met08_sn_6010 Time : 28-AUG-2014 09:37
Cal : 84346056001 Caldate : 28-AUG-2014
Standards: S25227

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	478.7	ug/L	-4	20	
Arsenic	A	500.0	496.7	ug/L	-1	20	
Barium	A	500.0	544.3	ug/L	9	20	
Beryllium	A	500.0	515.2	ug/L	3	20	
Cadmium	A	1000	1033	ug/L	3	20	
Chromium	A	500.0	520.8	ug/L	4	20	
Cobalt	A	500.0	483.3	ug/L	-3	20	
Copper	A	500.0	576.2	ug/L	15	20	
Lead	A	1000	971.0	ug/L	-3	20	
Manganese	A	500.0	445.0	ug/L	-11	20	
Molybdenum	A	500.0	521.9	ug/L	4	20	
Nickel	A	1000	971.9	ug/L	-3	20	
Selenium	A	500.0	490.4	ug/L	-2	20	
Silver	A	1000	1148	ug/L	15	20	
Thallium	A	500.0	485.5	ug/L	-3	20	
Vanadium	A	500.0	552.7	ug/L	11	20	
Zinc	A	1000	1030	ug/L	3	20	
Aluminum	R	500000	507500	ug/L	2		
Magnesium	R	500000	508000	ug/L	2		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2277833	-14.38

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056092.2 File : met08_sn_6010 Time : 28-AUG-2014 17:58
Cal : 84346056001 Caldate : 28-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.386	33.634	5000	5322	ug/L	6	10	
Arsenic	A	19.281	19.856	5000	5335	ug/L	7	10	
Barium	A	412.05	421.25	5000	5280	ug/L	6	10	
Beryllium	A	4961.8	5506.5	500.0	529.7	ug/L	6	10	
Cadmium	A	221.34	231.17	5000	5336	ug/L	7	10	
Chromium	A	94.405	98.593	5000	5299	ug/L	6	10	
Cobalt	A	129.72	137.05	5000	5293	ug/L	6	10	
Copper	A	112.43	118.49	5000	5042	ug/L	1	10	
Lead	A	55.894	57.276	5000	5182	ug/L	4	10	
Manganese	A	1151.4	1173.1	5000	5406	ug/L	8	10	
Molybdenum	A	36.235	38.619	5000	5365	ug/L	7	10	
Nickel	A	51.168	53.949	5000	5237	ug/L	5	10	
Selenium	A	26.848	29.086	5000	5314	ug/L	6	10	
Silver	A	726.83	750.05	1000	1026	ug/L	3	10	
Thallium	A	18.021	18.939	5000	5388	ug/L	8	10	
Vanadium	A	158.47	165.54	5000	5166	ug/L	3	10	
Zinc	A	73.113	76.051	5000	5271	ug/L	5	10	
Aluminum	R	0.5896	0.5945	20000	20720	ug/L	4	10	
Magnesium	R	0.7601	0.7618	20000	21300	ug/L	7	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2496198	-6.17

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056093.2 File : met08_sn_6010 Time : 28-AUG-2014 18:05
Cal : 84346056001 Caldate : 28-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2530112	-4.90

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056104.1 File : met08_sn_6010 Time : 28-AUG-2014 18:59
Cal : 84346056001 Caldate : 28-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.386	33.122	5000	5241	ug/L	5	10	
Arsenic	A	19.281	19.550	5000	5253	ug/L	5	10	
Barium	A	412.05	417.40	5000	5231	ug/L	5	10	
Beryllium	A	4961.8	5429.7	500.0	522.3	ug/L	4	10	
Cadmium	A	221.34	228.93	5000	5284	ug/L	6	10	
Chromium	A	94.405	98.146	5000	5275	ug/L	6	10	
Cobalt	A	129.72	135.30	5000	5226	ug/L	5	10	
Copper	A	112.43	116.30	5000	4949	ug/L	-1	10	
Lead	A	55.894	56.880	5000	5146	ug/L	3	10	
Manganese	A	1151.4	1165.7	5000	5371	ug/L	7	10	
Molybdenum	A	36.235	38.301	5000	5321	ug/L	6	10	
Nickel	A	51.168	53.175	5000	5162	ug/L	3	10	
Selenium	A	26.848	28.629	5000	5230	ug/L	5	10	
Silver	A	726.83	741.67	1000	1014	ug/L	1	10	
Thallium	A	18.021	18.908	5000	5379	ug/L	8	10	
Vanadium	A	158.47	164.71	5000	5140	ug/L	3	10	
Zinc	A	73.113	75.197	5000	5212	ug/L	4	10	
Aluminum	R	0.5896	0.5817	20000	20270	ug/L	1	10	
Magnesium	R	0.7601	0.7599	20000	21250	ug/L	6	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2518656	-5.33

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259786 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056105.1 File : met08_sn_6010 Time : 28-AUG-2014 19:06
Cal : 84346056001 Caldate : 28-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2558283	-3.84

SAMPLE PREPARATION SUMMARY

Batch # : 214656
Started By : ARD
Method : METHOD
Spike #1 ID : S24678

Prep Date : 21-AUG-2014 16:30
Spike #2 ID : S24679

Analysis : ICAP
Finished By : ARD
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259786-001		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	MSS
259786-003		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259786-004		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259786-005		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259790-001		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259790-002		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259981-001		Filtrate	50	50	1	1.0						MN, NA	
259981-002		Filtrate	50	50	1	1.0						MN, NA	
QC754558	BLANK	Filtrate	50	50	1	1.0							
QC754559	BS	Filtrate	50	50	1	1.0		.5	.5				
QC754560	BSD	Filtrate	50	50	1	1.0		.5	.5				
QC754561	MS	Filtrate	50	50	1	1.0		.5	.5				
QC754562	MSD	Filtrate	50	50	1	1.0		.5	.5				
QC754563	SER	Filtrate	50	50	1	1.0							
QC754564	PDS	Filtrate	50	50	1	1.0							

Analyst: CRT Date: 08/25/14 Reviewer: EAH Date: 08/25/14

Water Digestion for ICP Curtis & Tompkins, Ltd.

LIMS Batch #: 214656
Digested by: ARD
Date Digested: 8.21.2014

Digestion Method
☐ EPA 3010a for ICP
☐ EPA 200.7
☒ Filtrate

BK3577
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Lvl.	Sample #	Container ID	Volume Sample(mL)	Final Volume (mL)	Filtered? (y/n)	ID ✓	Comments
	Blank		☑ 50 ☐	☑ 50 ☐	No	✓	QC754568
	BS *		☑ 50 ☐	☑ 50 ☐		✓	559
	BSD *		☑ 50 ☐	☑ 50 ☐		✓	560
	MS: 259786-001 *		☑ 50 ☐	☑ 50 ☐		✓	~~MSS~~ ARD 8.21.2014
5	MSD ↓ -003 *		☑ 50 ☐	☑ 50 ☐		✓	
II	259786-001 ~~-004~~ ARD	P	☑ 50 ☐	☑ 50 ☐		✓	MSS
	-003 ~~-005~~ 8.21.14	F	☑ 50 ☐	☑ 50 ☐		✓	
	-004	↓	☑ 50 ☐	☑ 50 ☐		✓	
	-005	A	☑ 50 ☐	☑ 50 ☐		✓	
III 10	259790-001	F	☑ 50 ☐	☑ 50 ☐		✓	
	-002	↓	☑ 50 ☐	☑ 50 ☐		✓	
II	259981-001	F	☑ 50 ☐	☑ 50 ☐		✓	
	-002	↓	☑ 50 ☐	☑ 50 ☐	↓	✓	
			☐ 50 ☐	☐ 50 ☐			
15			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
20			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			
			☐ 50 ☐	☐ 50 ☐			

	Reagent ID or LIMS #	Initials / Date
Digestion tubes, lot #	Accuflow	ARD 8.21.2014
0.5 mL of spike solution (Std1) was added to all spikes	S24678 *	
0.5 mL of spike solution (Std2) was added to all spikes	S24679 *	
Digestion Temperature (°C), Block and Probe Location	— —	
Digestion begun at (time)	16:30	
o Conc. HNO3 or ☒ 1:1 HNO3	JTB-66236	
1:1 HCl	JTB-75649	
digestion ended at (time)	—	
o filtered thru' Whatman # 541	—	
Relinquished to ICP group	ICAP	

Prep Chemist / Date 8.21.2014

Continued from page Ø
Continued on page

Reviewed Online / See LIMS

Mercury Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1074333431

Instrument : MET54 Begun : 08/19/14 13:11
Method : EPA 7470A SOP Version : hg_water_rv16

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met54	ICALBLK				08/19/14 13:11	1.0		
002	met54	ICAL	ICAL1			08/19/14 13:12	1.0	1	
003	met54	ICAL	ICAL2			08/19/14 13:13	1.0	1	
004	met54	ICAL	ICAL3			08/19/14 13:15	1.0	1	
005	met54	ICAL	ICAL4			08/19/14 13:16	1.0	1	
006	met54	ICAL	ICAL5			08/19/14 13:17	1.0	1	
007	met54	ICV				08/19/14 13:19	1.0	2	
008	met54	ICB				08/19/14 13:20	1.0		
009	met54	BLANK	QC754065	Water	214531	08/19/14 13:21	1.0		
010	met54	BS	QC754066	Water	214531	08/19/14 13:23	1.0		spk
011	met54	BSD	QC754067	Water	214531	08/19/14 13:24	1.0		spk
012	met54	MSS	259786-001	Filtrate	214531	08/19/14 13:25	1.0		spk
013	met54	MS	QC754068	Filtrate	214531	08/19/14 13:26	1.0		
014	met54	MSD	QC754069	Filtrate	214531	08/19/14 13:28	1.0		
015	met54	BS	QC754066	Water	214531	08/19/14 13:29	1.0		spk
016	met54	BSD	QC754067	Water	214531	08/19/14 13:30	1.0		spk
017	met54	SER	QC754070	Filtrate	214531	08/19/14 13:32	5.0		
018	met54	SAMPLE	259786-003	Filtrate	214531	08/19/14 13:33	1.0		spk
019	met54	CCV				08/19/14 13:34	1.0	3	
020	met54	CCB				08/19/14 13:36	1.0		
021	met54	MS	QC754068	Filtrate	214531	08/19/14 13:37	1.0		
022	met54	MSD	QC754069	Filtrate	214531	08/19/14 13:38	1.0		
023	met54	SAMPLE	259786-004	Filtrate	214531	08/19/14 13:40	1.0		spk
024	met54	SAMPLE	259786-005	Filtrate	214531	08/19/14 13:41	1.0		spk
025	met54	SAMPLE	259790-001	Filtrate	214531	08/19/14 13:42	1.0		spk
026	met54	SAMPLE	259790-002	Filtrate	214531	08/19/14 13:44	1.0		spk
027	met54	SAMPLE	259844-003	Water	214531	08/19/14 13:45	20.0		spk
028	met54	CCV				08/19/14 13:46	1.0	3	
029	met54	CCB				08/19/14 13:48	1.0		

NCD 08/19/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 29.

Standards used: 1=S25441 2=S25443 3=S25444

Flags used: spk=5% spike rule

Page 1 of 1

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259786 METALS Filtrate: EPA 7470A

Inst : MET54
Calnum : 1074333431001
Units : ug/L

Date : 19-AUG-2014 13:11
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met54	1074333431002	ICAL1	19-AUG-2014 13:12	S25441 (500X)
L2	met54	1074333431003	ICAL2	19-AUG-2014 13:13	S25441 (200X)
L3	met54	1074333431004	ICAL3	19-AUG-2014 13:15	S25441 (50X)
L4	met54	1074333431005	ICAL4	19-AUG-2014 13:16	S25441 (20X)
L5	met54	1074333431006	ICAL5	19-AUG-2014 13:17	S25441 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0585	0.0578	0.0546	0.0500	0.0438	LIN0	-0.2209	22.7168		0.0529	0.995	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	**-78**	0.5000	-13	2.0000	13	5.0000	9	10.000	-3

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259786 METALS Filtrate
EPA 7470A

Inst : MET54
Calnum : 1074333431001 Cal Date : 19-AUG-2014

ICV 1074333431007 (19-AUG-2014) stds: S25443

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	4.963	ug/L	-1	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259786 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1074333431008.1 File : met54 Time : 19-AUG-2014 13:20
Cal : 1074333431001 Caldate : 19-AUG-2014

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1074333431019.1 File : met54 Time : 19-AUG-2014 13:34
Cal : 1074333431001 Caldate : 19-AUG-2014
Standards: S25444

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0529	0.0420	5.000	4.550	ug/L	-9	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259786 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1074333431020.1 File : met54 Time : 19-AUG-2014 13:36
Cal : 1074333431001 Caldate : 19-AUG-2014

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259786 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1074333431028.1 File : met54 Time : 19-AUG-2014 13:46
Cal : 1074333431001 Caldate : 19-AUG-2014
Standards: S25444

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0529	0.0418	5.000	4.529	ug/L	-9	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259786 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1074333431029.1 File : met54 Time : 19-AUG-2014 13:48
Cal : 1074333431001 Caldate : 19-AUG-2014

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 214531
Started By : NCD
Method : METHOD
Spike #1 ID : S25441

Prep Date : 19-AUG-2014 08:49

Analysis : HG
Finished By : NCD
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259786-001		Filtrate	50	50	1	1.0						T22/HG	
259786-003		Filtrate	50	50	1	1.0						T22/HG	
259786-004		Filtrate	50	50	1	1.0						T22/HG	
259786-005		Filtrate	50	50	1	1.0						T22/HG	
259790-001		Filtrate	50	50	1	1.0						T22/HG	
259790-002		Filtrate	50	50	1	1.0						T22/HG	
259844-003		Water	50	50	1	1.0						T22/HG	
QC754065	BLANK	Water	50	50	1	1.0							
QC754066	BS	Water	50	50	1	1.0		1.25					
QC754067	BSD	Water	50	50	1	1.0		1.25					
QC754068	MS	Filtrate	50	50	1	1.0		1.25					
QC754069	MSD	Filtrate	50	50	1	1.0		1.25					
QC754070	SER	Filtrate	50	50	1	1.0							

NCD 08/19/14 : ms/msd failed low bias, but RPD still within range. Suggesting interference with matrix.

Analyst: NCD Date: 08/19/14 Reviewer: PRW Date: 08/21/14

Water Digestion for Mercury

Curtis & Tompkins, Ltd.

LIMS Batch #: 214531

Date Digested: 8/19/2014

Digestion Method

☒ EPA 7470A/ EPA 245.1

☐ _____

BK3567

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Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
BLK		☑ 50 ☐	☑ 50 ☐	no	QC754065
BS		☑ 50 ☐	☑ 50 ☐		66
BSD		☑ 50 ☐	☑ 50 ☐		67
259786-001	P	☑ 50 ☐	☑ 50 ☐		MS
-001		☑ 50 ☐	☑ 50 ☐		MSD
-001		☑ 50 ☐	☑ 50 ☐		
-003	E	☑ 50 ☐	☑ 50 ☐		
-004	F	☑ 50 ☐	☑ 50 ☐		
-005	A	☑ 50 ☐	☑ 50 ☐		
259790-001	F	☑ 50 ☐	☑ 50 ☐		
-002		☑ 50 ☐	☑ 50 ☐		
259844-003	H	☑ 50 ☐	☑ 50 ☐		Oily
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		

8/19/2014

	Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tube Lot #	EW1321J	WCR 8/19/14
1.25 mL of spike solution was added to all spikes	S25441	
☐ CAL digested with this batch — ICAL Source LIMS S#	42	
ICV / CCV LIMS S#	43/44	
Digestion Temperature (°C), Block and Probe Location	98° B8	
Digestion Started at (time)	8:49	
concentrated H_2SO_4	2014020596 BDH	
concentrated HNO_3	66256 JTB	
5% $KMnO_4$	8/11/14	
5% $K_2S_2O_8$	8/7/14	
NaCl.hydroxylamine hydrochloride	7/31/14	
Stannous Chloride	8/15/14	
Digestion Completed at (time)	~~310~~ 8/19/14 10:49	
☐ filtered thru' 0.45 um syringe filter (lot #)	~~310045~~ 13	

8/19/14

Prep Chemist / Date

Continued from page ____

Continued on page ____

Reviewed Online / See LIMS

Dilutions for 259786 METALS Filtrate
Curtis & Tompkins Laboratories

Type	Sample ID	IDFs
SAMPLE	259786-001	1X, 100X
SAMPLE	259786-003	1X, 100X
SAMPLE	259786-004	1X, 100X
SAMPLE	259786-005	1X, 100X
SER	QC754070	5X
SER	QC754563	5X, 500X
PDS	QC754564	1X, 100X

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 259790
ANALYTICAL REPORT

JM Waller Associates 11325 Random Hills Road Fairfax, VA 22030-6608	Project : N62473-11-D-2215 Location : BGMP-IR04 Level : III Contract # : N62473-11-D-2215

Sample ID	Lab ID
RB-081314	259790-001
SB-081314	259790-002
TB-2-081314	259790-003

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 09/09/2014

John Goyette
Senior Program Manager
goyette@ctberk.com
(510) 204-2233

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**259790**
Client:	**JM Waller Associates**
Project:	**N62473-11-D-2215**
Location:	**BGMP-IR04**
Request Date:	**08/13/14**
Samples Received:	**08/13/14**

This data package contains sample and QC results for three water samples, requested for the above referenced project on 08/13/14. See attached cooler receipt form for any sample receipt problems or discrepancies. This report was revised and reissued on 09/09/14 to correct the ICP QC linkages.

All qualified data are compliant with appropriate corrective actions specified in Standard Operating Procedures. The Standard Operating Procedures are available upon request.

Manual integration documentation may be found in the "Case Narrative Addendum: Manual Integrations" sections.

TPH-Extractables by GC (EPA 8015D):
No analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260C):
Low response was observed for vinyl acetate in the ICV analyzed 06/25/14 20:28; this analyte was not detected at or above the RL in the associated samples, and affected data was qualified with "b".

High responses were observed for a number of analytes in the CCV analyzed 08/15/14 12:28; these analytes were not detected at or above the RL in the associated samples, and affected data was qualified with "b".

Low responses were observed for many analytes in the CCV analyzed 08/18/14 10:51; these analytes met minimum response criteria, and affected data was qualified with "b".

High recoveries were observed for many analytes in the MS/MSD of 04W19-081314 (lab # 259786-001); the BS/BSD were within limits, the associated RPDs were within limits, and these high recoveries were not associated with any reported results.

High surrogate recoveries were observed for 1,2-dichloroethane-d4 in the MS/MSD of 04W19-081314 (lab # 259786-001).

Methylene chloride was detected between the MDL and the RL in RB-081314 (lab # 259790-001); this analyte is a common laboratory contaminant.

No other analytical problems were encountered.

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**259790**
Client:	**JM Waller Associates**
Project:	**N62473-11-D-2215**
Location:	**BGMP-IR04**
Request Date:	**08/13/14**
Samples Received:	**08/13/14**

Semivolatile Organics by GC/MS (EPA 8270D):
Low recoveries were observed for 3,3'-dichlorobenzidine in the MS/MSD of 04W19-081314 (lab # 259786-001); the LCS was within limits. High RPD was observed for hexachlorocyclopentadiene; this analyte was not detected at or above the RL in the associated samples.

No other analytical problems were encountered.

Semivolatile Organics by GC/MS SIM (EPA 8270D-SIM):
No analytical problems were encountered.

Metals (EPA 6010C and EPA 7470A):
High recoveries were observed for mercury in the BS/BSD for batch 214531; the associated RPD was within limits, and this analyte was not detected at or above the RL in the associated samples.

Low recoveries were observed for mercury in the MS/MSD of 04W19-081314 (lab # 259786-001).

Low recoveries were observed for lead and thallium in the MS/MSD of 04W19-081314 (lab # 259786-001); the BS/BSD were within limits, and the associated RPDs were within limits.

Low recovery was observed for silver in the post digest spike of 04W19-081314 (lab # 259786-001); the BS/BSD were within limits. High recovery was observed for selenium; the BS/BSD were within limits, and this analyte was not detected at or above the RL in the associated samples.

Responses exceeding the instrument's linear range were observed for magnesium in the MS/MSD of 04W19-081314 (lab # 259786-001).

Mercury was detected above half the RL in the method blank for batch 214531; this analyte was not detected in samples at or above the LOD.

Cobalt, molybdenum, and nickel were detected between the MDL and half the RL in the method blank for batch 214656; these analytes were not detected in samples at or above the LOD.

No other analytical problems were encountered.

Chain of Custody

CHAIN OF CUSTODY

Chain of Custody # _____

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

C&T LOGIN # 259790

Project No: N62473-11-D-2215
Sampler: M. Mandell
Project Name: BGMP - 1R04
Report To: T. Chubay, H. Wollenburg
Project P. O. No: ALT14-001-01-024-CTL
Company: J.M. Walter + ERRS
EDD Format: Report Level ☐ II ☑ III ☐ IV
Telephone: 404 443-2777
Turnaround Time: ☐ RUSH _____ ☑ Standard
Email:

Lab No.	Sample ID.	SAMPLING Date Collected	SAMPLING Time Collected	MATRIX Water	MATRIX Solid	# of Containers	CHEMICAL PRESERVATIVE HCl	H2SO4	HNO3	NaOH	None	VOCs	SVOCs	Metals - Filtered	PAH	TPH-d
	RB-081314	8/13/14	1600	X		9	X		X			X	X	X	X	X
	SB-081314	8/13/14	1500	X		9	X		X			X	X	X	X	X
	TP-2-081314	8/13/14	1600	X		1	X					X				

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
[signature]	8/13/14	1805	[signature]		18:0

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 759790 Date Received 5/13/14 Number of coolers 1
Client JMW Project N62473-11-D-2215

Date Opened 5/13/14 By (print) PJ (sign) PJ
Date Logged in " " By (print) " " (sign) " "

1. Did cooler come with a shipping slip (airbill, etc)_____ YES ~~NO~~
   Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☐ ~~NO~~
   How many _____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO ~~N/A~~
3. Were custody papers dry and intact when received? _____ ~~YES~~ NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ ~~YES~~ NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ___ ~~YES~~ NO
6. Indicate the packing in cooler: (if other, describe)_____

   ☑ Bubble Wrap ☑ Foam blocks ☑ Bags ☐ None
   ☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels
7. Temperature documentation: * Notify PM if temperature exceeds 6°C

   Type of ice used: ☑ Wet ☐ Blue/Gel ☐ None Temp(°C)_____

   ☐ Samples received on ice & cold without a temperature blank; temp taken with IR gun

   ☑ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES ~~NO~~
   If YES, what time were they transferred to freezer?_____
9. Did all bottles arrive unbroken/unopened? _____ ~~YES~~ NO
10. Are there any missing / extra samples? _____ YES ~~NO~~
11. Are samples in the appropriate containers for indicated tests? _____ ~~YES~~ NO
12. Are sample labels present, in good condition and complete? _____ ~~YES~~ NO
13. Do the sample labels agree with custody papers? _____ ~~YES~~ NO
14. Was sufficient amount of sample sent for tests requested? _____ ~~YES~~ NO
15. Are the samples appropriately preserved? _____ ~~YES~~ NO N/A
16. Did you check preservatives for all bottles for each sample? _____ ~~YES~~ NO N/A
17. Did you document your preservative check? _____ YES NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO ~~N/A~~
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO ~~N/A~~
20. Are bubbles > 6mm absent in VOA samples? _____ ~~YES~~ NO N/A
21. Was the client contacted concerning this sample delivery? _____ YES ~~NO~~
   If YES, Who was called?_____ By_____ Date:_____

COMMENTS

_____

Rev 10, 10/11

Curtis & Tompkins Sample Preservation for 259790

Sample	pH: <2	>9	>12	Other
-001a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
f	[X]	[ ]	[ ]	_____
g	[ ]	[ ]	[ ]	_____
h	[ ]	[ ]	[ ]	_____
i	[ ]	[ ]	[ ]	_____
-002a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
e	[ ]	[ ]	[ ]	_____
f	[X]	[ ]	[ ]	_____
g	[ ]	[ ]	[ ]	_____
h	[ ]	[ ]	[ ]	_____
i	[ ]	[ ]	[ ]	_____

Analyst: FI
Date: 8/13/14

Page 1 of 1

Curtis & Tompkins, Ltd.

Detections Summary for 259790

Results for any subcontracted analyses are not included in this summary.

Client : JM Waller Associates
Project : N62473-11-D-2215
Location : BGMP-IR04

Client Sample ID : RB-081314 Laboratory Sample ID : 259790-001

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	35	J	50	16	ug/L	As Recd	1.000	EPA 8015D	EPA 3520C
Methylene Chloride	0.3	J	10	0.2	ug/L	As Recd	1.000	EPA 8260C	EPA 5030C
Phenanthrene	0.03	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Fluoranthene	0.02	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Pyrene	0.02	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Magnesium	150	J	500	20	ug/L	DISS.	1.000	EPA 6010C	METHOD
Manganese	0.91	J	5.0	0.48	ug/L	DISS.	1.000	EPA 6010C	METHOD
Nickel	1.1	J	5.0	0.71	ug/L	DISS.	1.000	EPA 6010C	METHOD

Client Sample ID : SB-081314 Laboratory Sample ID : 259790-002

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	45	J	50	16	ug/L	As Recd	1.000	EPA 8015D	EPA 3520C
Magnesium	38	J	500	20	ug/L	DISS.	1.000	EPA 6010C	METHOD
Manganese	0.49	J	5.0	0.48	ug/L	DISS.	1.000	EPA 6010C	METHOD
Arsenic	1.4	J	5.0	1.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Nickel	0.98	J	5.0	0.71	ug/L	DISS.	1.000	EPA 6010C	METHOD
Zinc	6.3	J	20	3.0	ug/L	DISS.	1.000	EPA 6010C	METHOD

Client Sample ID : TB-2-081314 Laboratory Sample ID : 259790-003

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Acetone	2.3	J	10	1.6	ug/L	As Recd	1.000	EPA 8260C	EPA 5030C

J = Estimated value

Laboratory Job Number 259790

ANALYTICAL REPORT

TPH-Extractables by GC

Matrix: Water

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8015D
Matrix:	Water	Sampled:	08/13/14
Units:	ug/L	Received:	08/13/14
Diln Fac:	1.000	Prepared:	08/14/14
Batch#:	214402		

Field ID:	RB-081314	Lab ID:	259790-001
Type:	SAMPLE	Analyzed:	08/15/14

Analyte	Result	LOQ	DL
Diesel C10-C24	35 J	50	16

Surrogate	%REC	Limits
o-Terphenyl	110	66-129

Field ID:	SB-081314	Lab ID:	259790-002
Type:	SAMPLE	Analyzed:	08/16/14

Analyte	Result	LOQ	DL
Diesel C10-C24	45 J	50	16

Surrogate	%REC	Limits
o-Terphenyl	100	66-129

Type:	BLANK	Analyzed:	08/15/14
Lab ID:	QC753563		

Analyte	Result	LOQ	DL
Diesel C10-C24	40 U	50	16

Surrogate	%REC	Limits
o-Terphenyl	104	66-129

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8015D
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC753564	Batch#:	214402
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/15/14

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,371	95	61-120

Surrogate	%REC	Limits
o-Terphenyl	102	66-129

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8015D
Field ID:	ZZZZZZZZZZ	Batch#:	214402
MSS Lab ID:	259774-001	Sampled:	08/12/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/14/14
Diln Fac:	1.000	Analyzed:	08/15/14

Type: MS Lab ID: QC753565

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	73.55	2,451	2,591	103	61-120

Surrogate	%REC	Limits
o-Terphenyl	110	66-129

Type: MSD Lab ID: QC753566

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,451	2,805	111	61-120	8	30

Surrogate	%REC	Limits
o-Terphenyl	117	66-129

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8015D
Field ID:	04W19-081314	Batch#:	214402
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/14/14
Diln Fac:	1.000	Analyzed:	08/15/14

Type: MS Lab ID: QC753567

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	1,039	2,451	3,435	98	61-120

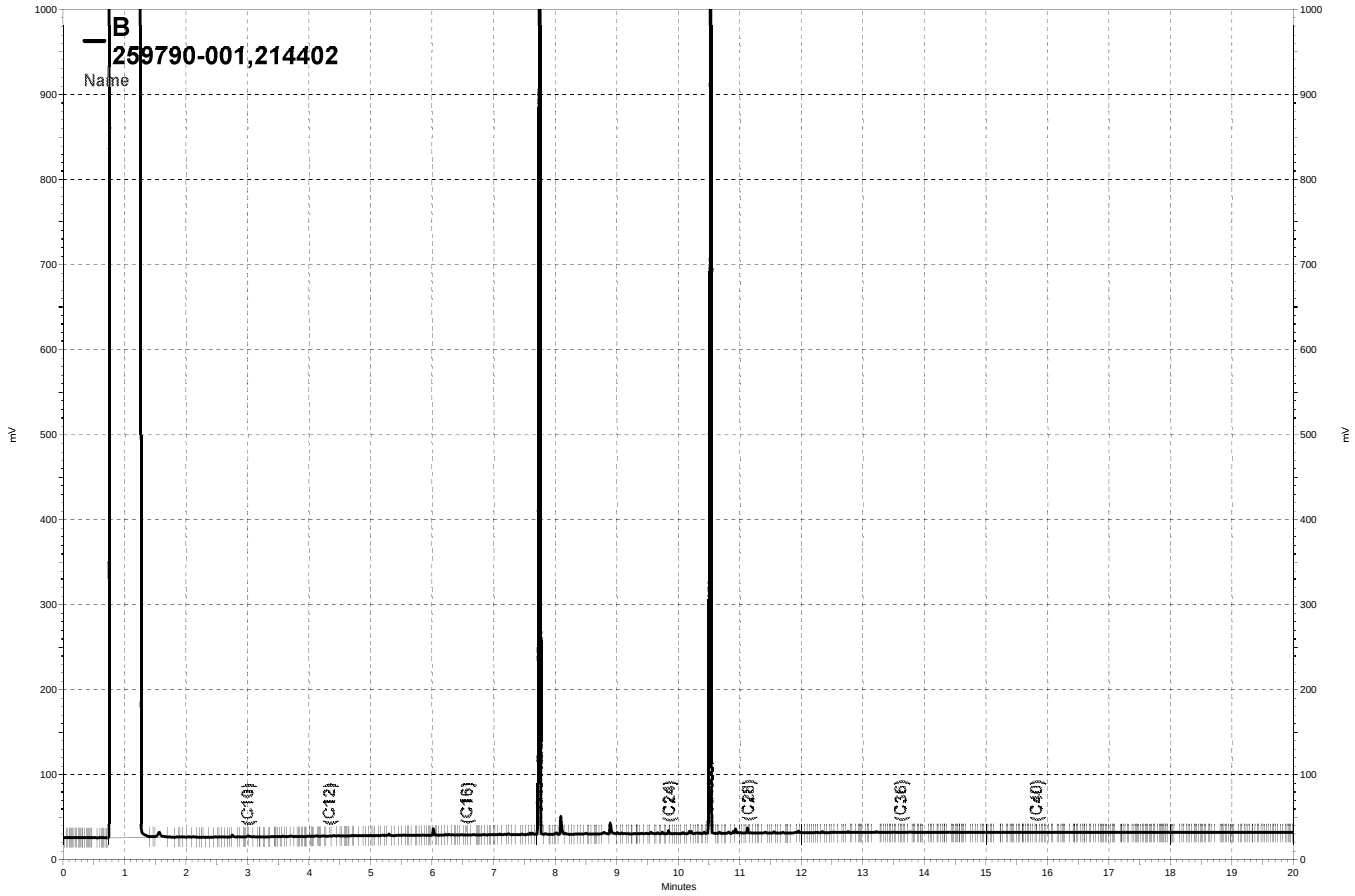
Surrogate	%REC	Limits
o-Terphenyl	107	66-129

Type: MSD Lab ID: QC753568

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,451	3,300	92	61-120	4	30

Surrogate	%REC	Limits
o-Terphenyl	105	66-129

RPD= Relative Percent Difference



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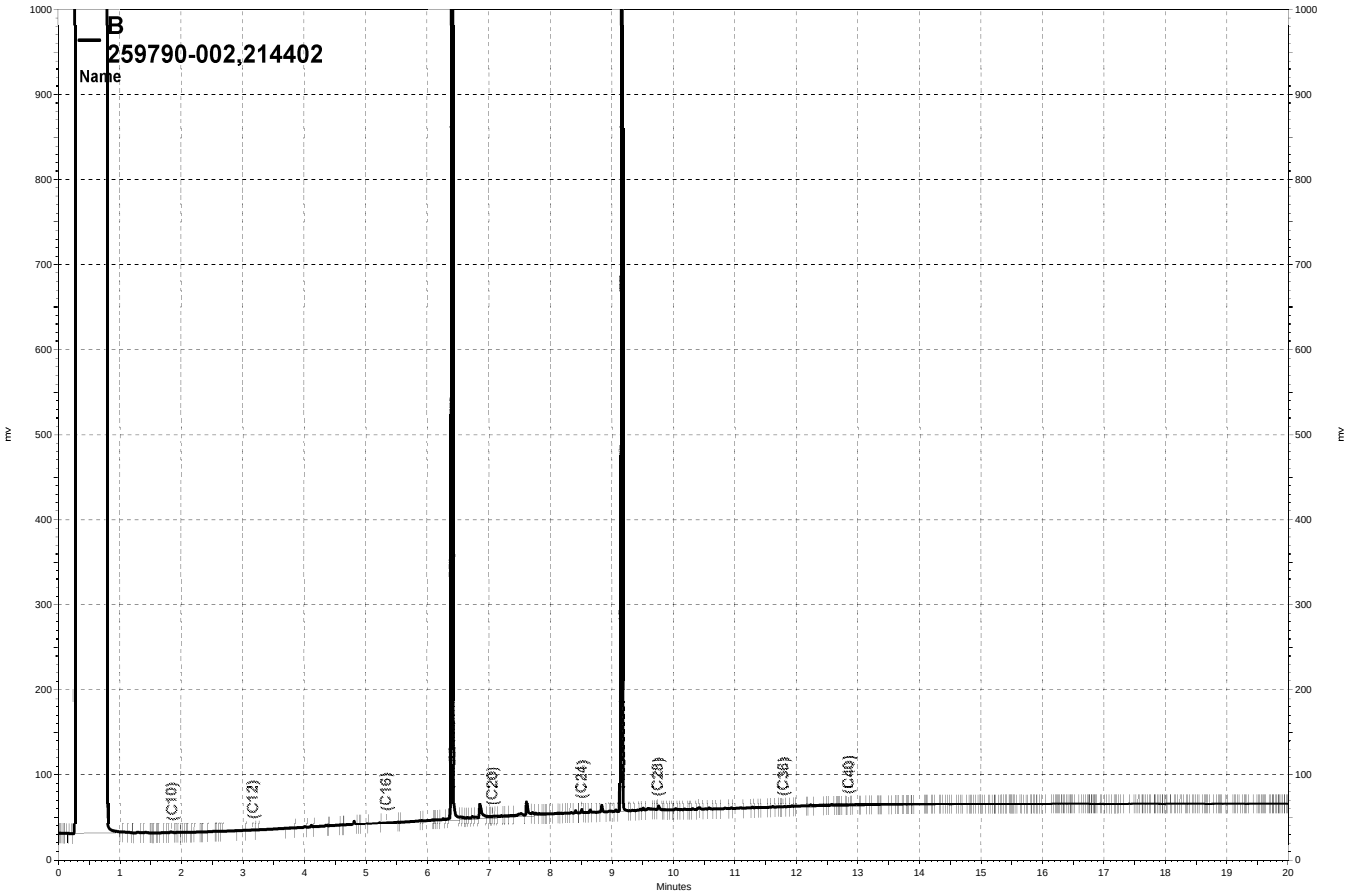

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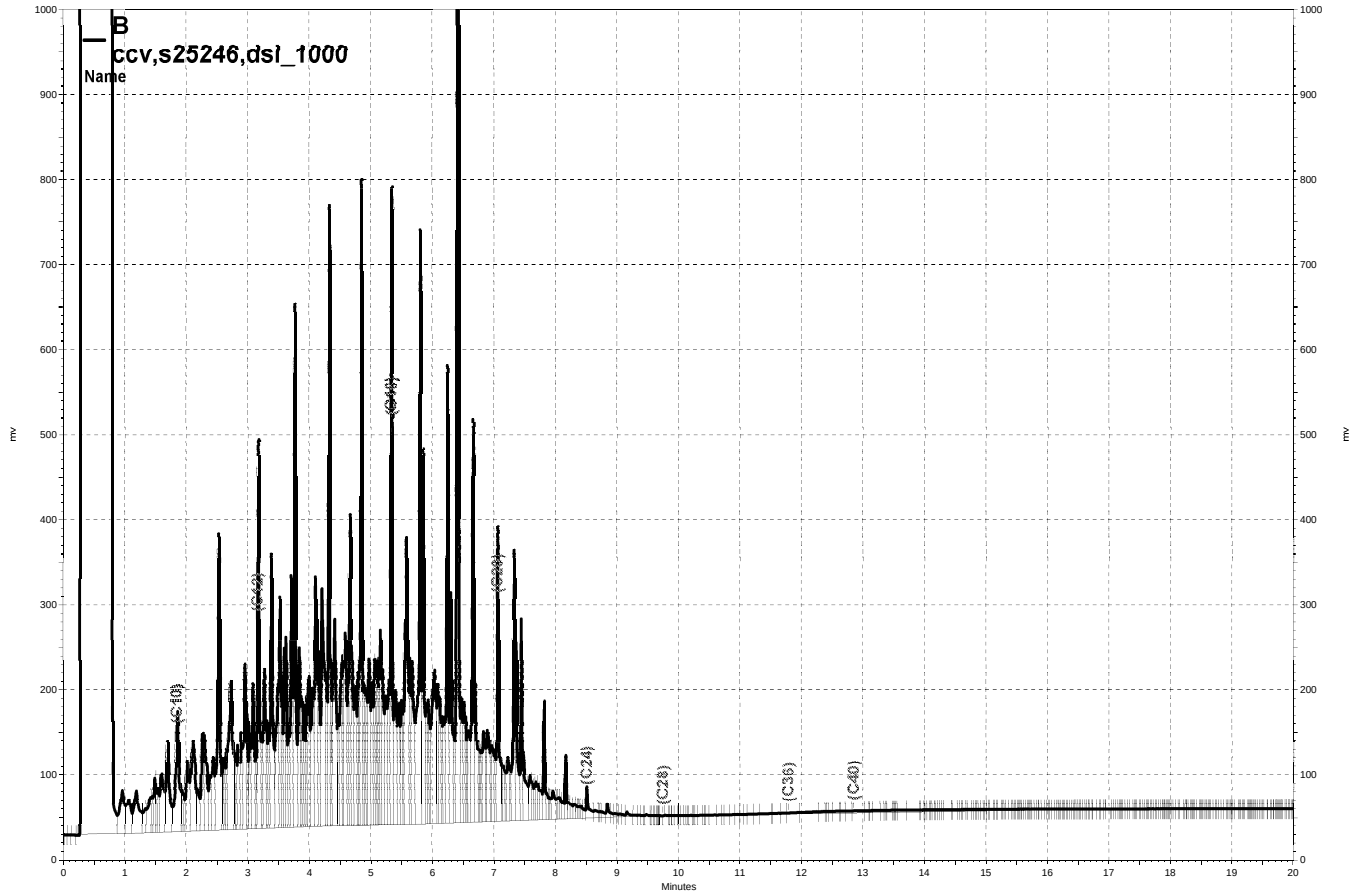

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Initial & Continuing Calibration Data

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259790 GCSV Water: EPA 8015D

Inst : GC14B
Calnum : 224317392001
Units : mg/L

Name : OTPHEX_220
Date : 08-AUG-2014 20:04
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	220_009	224317392009	HEX OTP_5	08-AUG-2014 20:04	S25390
L2	220_010	224317392010	HEX OTP_10	08-AUG-2014 20:32	S25391
L3	220_011	224317392011	HEX OTP_25	08-AUG-2014 21:00	S25392
L4	220_012	224317392012	HEX OTP_50	08-AUG-2014 21:28	S25393
L5	220_013	224317392013	HEX OTP_100	08-AUG-2014 21:56	S25394
L6	220_014	224317392014	HEX OTP_200	08-AUG-2014 22:25	S25395

Analyte	Ch	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	B	33576	34339	34327	34209	36598	39855	AVRG		2.82E-5		35484	7	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	B	5.0000	-5	10.000	-3	25.000	-3	50.000	-4	100.00	3	200.00	12

JDG 08/11/14 : Corrected automatically drawn baseline in all levels.

Analyst: JDG Date: 08/11/14 Reviewer: EAH Date: 08/12/14

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259790 GCSV Water: EPA 8015D

Inst : GC14B
Calnum : 224317392002
Units : mg/L

Name : DSL_220
Date : 08-AUG-2014 23:22
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	220_016	224317392016	DSL_10	08-AUG-2014 23:22	S25266
L2	220_017	224317392017	DSL_100	08-AUG-2014 23:50	S25267
L3	220_018	224317392018	DSL_500	09-AUG-2014 00:19	S25268
L4	220_019	224317392019	DSL_1000	09-AUG-2014 00:47	S25269
L5	220_020	224317392020	DSL_5000	09-AUG-2014 01:15	S24515

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C10-C24	B	30628	28120	28618	30917	32592	AVRG		3.31E-5		30175	6	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Diesel C10-C24	B	10.000	2	100.00	-7	500.00	-5	1000.0	2	5000.0	8

JDG 08/11/14 : Corrected automatically drawn baseline in DSL_10 (220_016).

Analyst: JDG Date: 08/11/14 Reviewer: EAH Date: 08/12/14

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259790 GCSV Water
EPA 8015D

Inst : GC14B
Calnum : 224317392002

Name : DSL_220
Cal Date : 08-AUG-2014

ICV 224317392022 (220_022 09-AUG-2014) stds: S25245

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Diesel C10-C24	B	500.0	521.9	mg/L	4	20	

Analyst: JDG Date: 08/11/14 Reviewer: EAH Date: 08/12/14

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259790 GCSV Water: EPA 8015D

Inst : GC15B
Calnum : 164206385001
Units : mg/L

Name : OTPHEX_143
Date : 23-MAY-2014 15:23
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	143b009	164206385009	HEXOTP_5	23-MAY-2014 15:23	S24342
L2	143b010	164206385010	HEXOTP_10	23-MAY-2014 15:50	S24343
L3	143b011	164206385011	HEXOTP_25	23-MAY-2014 16:18	S24344
L4	143b012	164206385012	HEXOTP_50	23-MAY-2014 16:45	S24345
L5	143b013	164206385013	HEXOTP_100	23-MAY-2014 17:13	S24346
L6	143b014	164206385014	HEXOTP_200	23-MAY-2014 17:41	S24347

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	54783	55332	54309	55166	56027	66457	AVRG		1.75E-5		57013	8	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	5.0000	-4	10.000	-3	25.000	-5	50.000	-3	100.00	-2	200.00	17

JDG 05/27/14 : Corrected automatically drawn baseline in multiple levels.

JDG 05/27/14 : Samples that require hexacosane will not be analyzed on this instrument.

Analyst: JDG Date: 05/27/14 Reviewer: EAH Date: 05/27/14

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259790 GCSV Water: EPA 8015D

Inst : GC15B
Calnum : 164206385002
Units : mg/L

Name : DSL_143
Date : 23-MAY-2014 18:36
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	143b016	164206385016	DSL_10	23-MAY-2014 18:36	S24516
L2	143b017	164206385017	DSL_100	23-MAY-2014 19:03	S24517
L3	143b018	164206385018	DSL_500	23-MAY-2014 19:30	S24518
L4	143b019	164206385019	DSL_1000	23-MAY-2014 19:58	S24519
L5	143b020	164206385020	DSL_5000	23-MAY-2014 20:26	S24515

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C10-C24	46289	63325	46837	50168	51135	AVRG		1.94E-5		51551	13	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Diesel C10-C24	10.000	-10	100.00	**23**	500.00	-9	1000.0	-3	5000.0	-1

JDG 05/27/14 : Corrected automatically drawn baseline in DSL_100 (143b017).

Analyst: JDG Date: 05/27/14 Reviewer: EAH Date: 05/27/14

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259790 GCSV Water
EPA 8015D

Inst : GC15B
Calnum : 164206385002

Name : DSL_143
Cal Date : 23-MAY-2014

ICV 164206385022 (143b022 23-MAY-2014) stds: S24580

Analyte	Spiked	Quant	Units	%D	Max	Flags
Diesel C10-C24	500.0	473.3	mg/L	-5	20	

Analyst: JDG Date: 05/27/14 Reviewer: EAH Date: 05/27/14

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259790 GCSV Water: EPA 8015D

Inst : GC17A
Calnum : 174304309001
Units : mg/L

Name : OTPHEX_211
Date : 30-JUL-2014 16:27
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	211a008	174304309008	HEXOTP_5	30-JUL-2014 16:27	S24342
L2	211a009	174304309009	HEXOTP_10	30-JUL-2014 16:55	S24343
L3	211a010	174304309010	HEXOTP_25	30-JUL-2014 17:23	S24344
L4	211a011	174304309011	HEXOTP_50	30-JUL-2014 17:50	S24345
L5	211a012	174304309012	HEXOTP_100	30-JUL-2014 18:18	S24346
L6	211a013	174304309013	HEXOTP_200	30-JUL-2014 18:46	S24347

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	62817	64579	62080	62608	61641	70331	AVRG		1.56E-5		64009	5	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	5.0000	-2	10.000	1	25.000	-3	50.000	-2	100.00	-4	200.00	10

JDG 07/31/14 : Corrected automatically drawn baseline in multiple levels.

Analyst: JDG Date: 07/31/14 Reviewer: EAH Date: 08/01/14

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259790 GCSV Water: EPA 8015D

Inst : GC17A
Calnum : 174304309003
Units : mg/L

Name : DSL_211
Date : 30-JUL-2014 20:08
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	211a016	174304309016	DSL_100	30-JUL-2014 20:08	S25267
L2	211a017	174304309017	DSL_500	30-JUL-2014 20:37	S25268
L3	211a018	174304309018	DSL_1000	30-JUL-2014 21:04	S25269
L4	211a019	174304309019	DSL_5000	30-JUL-2014 21:32	S24515
L5	211a034	174304309034	DSL_10	31-JUL-2014 11:45	S25266

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C10-C24	48923	51021	52440	53506	34091	AVRG		2.08E-5		47996	17	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Diesel C10-C24	100.00	2	500.00	6	1000.0	9	5000.0	11	10.000	**-29**

JDG 07/31/14 : Corrected automatically drawn baseline in multiple levels.

JDG 07/31/14 : DSL_10 re-ran in order to obtain a better %RSD.

Analyst: JDG Date: 07/31/14 Reviewer: EAH Date: 07/31/14

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259790 GCSV Water
EPA 8015D

Inst : GC17A
Calnum : 174304309003

Name : DSL_211
Cal Date : 30-JUL-2014

ICV 174304309022 (211a022 30-JUL-2014) stds: S25245

Analyte	Spiked	Quant	Units	%D	Max	Flags
Diesel C10-C24	500.0	565.3	mg/L	13	20	

Analyst: JDG Date: 07/31/14 Reviewer: EAH Date: 07/31/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 GCSV Water
EPA 8015D

Inst : GC14B Run Name : MO_500 IDF : 1.0
Seqnum : 224327309003.1 File : 227_003 Time : 15-AUG-2014 08:06
Cal : 224317392001 Caldate : 08-AUG-2014
Standards: S25404

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
o-Terphenyl	B	35484	36923	50.00	52.03	mg/L	4	20	

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 GCSV Water
EPA 8015D

Inst : GC14B Run Name : DSL_1000 IDF : 1.0
Seqnum : 224327309004.1 File : 227_004 Time : 15-AUG-2014 08:35
Standards: S25246

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	B	224317392002	08-AUG-2014	30175	31375	1000	1040	mg/L	4	20	
o-Terphenyl	B	224317392001	08-AUG-2014	35484	37854	50.00	53.34	mg/L	7	20	

JDG 08/15/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 GCSV Water
EPA 8015D

Inst : GC14B Run Name : MO_500 IDF : 1.0
Seqnum : 224327309012.1 File : 227_012 Time : 15-AUG-2014 12:58
Cal : 224317392001 Caldate : 08-AUG-2014
Standards: S25404

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
o-Terphenyl	B	35484	38021	50.00	53.57	mg/L	7	20	

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 GCSV Water
EPA 8015D

Inst : GC14B Run Name : DSL_500 IDF : 1.0
Seqnum : 224327309013.1 File : 227_013 Time : 15-AUG-2014 13:27
Standards: S25245

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	B	224317392002	08-AUG-2014	30175	32038	500.0	530.9	mg/L	6	20	
o-Terphenyl	B	224317392001	08-AUG-2014	35484	38325	50.00	54.00	mg/L	8	20	

JDG 08/15/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 GCSV Water
EPA 8015D

Inst : GC14B Run Name : MO_500 IDF : 1.0
Seqnum : 224327309024.1 File : 227_024 Time : 15-AUG-2014 20:33
Cal : 224317392001 Caldate : 08-AUG-2014
Standards: S25404

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
o-Terphenyl	B	35484	37667	50.00	53.08	mg/L	6	20	

SFL 08/16/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 GCSV Water
EPA 8015D

Inst : GC14B Run Name : DSL_250 IDF : 1.0
Seqnum : 224327309025.1 File : 227_025 Time : 15-AUG-2014 21:01
Standards: S25244

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	B	224317392002	08-AUG-2014	30175	31792	250.0	263.4	mg/L	5	20	
o-Terphenyl	B	224317392001	08-AUG-2014	35484	36573	50.00	51.53	mg/L	3	20	

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 GCSV Water
EPA 8015D

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 164328835003.1 File : 228b003 Time : 16-AUG-2014 09:30
Cal : 164206385001 Caldate : 23-MAY-2014
Standards: S25404

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
o-Terphenyl	57013	58677	50.00	51.46	mg/L	3	20	

SFL 08/16/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 GCSV Water
EPA 8015D

Inst : GC15B Run Name : DSL_1000 IDF : 1.0
Seqnum : 164328835004.1 File : 228b004 Time : 16-AUG-2014 09:58
Standards: S25246

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	164206385002	23-MAY-2014	51551	50838	1000	986.2	mg/L	-1	20	
o-Terphenyl	164206385001	23-MAY-2014	57013	62486	50.00	54.80	mg/L	10	20	

SFL 08/16/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 GCSV Water
EPA 8015D

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 164328835017.1 File : 228b017 Time : 16-AUG-2014 16:52
Cal : 164206385001 Caldate : 23-MAY-2014
Standards: S25404

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
o-Terphenyl	57013	60816	50.00	53.34	mg/L	7	20	

JDG 08/18/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 GCSV Water
EPA 8015D

Inst : GC15B Run Name : DSL_500 IDF : 1.0
Seqnum : 164328835018.1 File : 228b018 Time : 16-AUG-2014 17:19
Standards: S25245

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	164206385002	23-MAY-2014	51551	51805	500.0	502.5	mg/L	0	20	
o-Terphenyl	164206385001	23-MAY-2014	57013	59655	50.00	52.32	mg/L	5	20	

JDG 08/18/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 GCSV Water
EPA 8015D

Inst : GC17A Run Name : MO_500 IDF : 1.0
Seqnum : 174327308003.1 File : 227a003 Time : 15-AUG-2014 08:04
Cal : 174304309001 Caldate : 30-JUL-2014
Standards: S25404

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
o-Terphenyl	64009	65495	50.00	51.16	mg/L	2	20	

JDG 08/15/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 GCSV Water
EPA 8015D

Inst : GC17A Run Name : DSL_1000 IDF : 1.0
Seqnum : 174327308004.1 File : 227a004 Time : 15-AUG-2014 08:32
Standards: S25246

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	174304309003	30-JUL-2014	47996	50684	1000	1056	mg/L	6	20	
o-Terphenyl	174304309001	30-JUL-2014	64009	63402	50.00	49.53	mg/L	-1	20	

JDG 08/15/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 GCSV Water
EPA 8015D

Inst : GC17A Run Name : MO_500 IDF : 1.0
Seqnum : 174327308010.1 File : 227a010 Time : 15-AUG-2014 13:03
Cal : 174304309001 Caldate : 30-JUL-2014
Standards: S25404

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
o-Terphenyl	64009	64291	50.00	50.22	mg/L	0	20	

JDG 08/15/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 GCSV Water
EPA 8015D

Inst : GC17A Run Name : DSL_250 IDF : 1.0
Seqnum : 174327308011.1 File : 227a011 Time : 15-AUG-2014 13:31
Standards: S25244

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	174304309003	30-JUL-2014	47996	50236	250.0	261.7	mg/L	5	20	
o-Terphenyl	174304309001	30-JUL-2014	64009	63183	50.00	49.35	mg/L	-1	20	

JDG 08/15/14 : Corrected automatically drawn baseline. [general version]

Analyst: SFL Date: 08/24/14 Reviewer: EAH Date: 08/25/14

Logbooks & Sequences

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 164206385

Instrument : GC15B Begun : 05/23/14 07:45
Method : EPA 8015D SOP Version : TEH_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	143b001	X	IB			05/23/14 07:45	1.0		
002	143b002	X	IB			05/23/14 08:44	1.0		
003	143b003	X	IB			05/23/14 10:48	1.0		
005	143b005	X	IB			05/23/14 12:58	1.0		
006	143b006	X	CMARKER			05/23/14 13:26	1.0	1	
007	143b007	X	IB			05/23/14 13:53	1.0		
008	143b008	IB	CALIB			05/23/14 14:55	1.0		
009	143b009	ICAL	HEXOTP_5			05/23/14 15:23	1.0	2	
010	143b010	ICAL	HEXOTP_10			05/23/14 15:50	1.0	3	
011	143b011	ICAL	HEXOTP_25			05/23/14 16:18	1.0	4	
012	143b012	ICAL	HEXOTP_50			05/23/14 16:45	1.0	5	
013	143b013	ICAL	HEXOTP_100			05/23/14 17:13	1.0	6	
014	143b014	ICAL	HEXOTP_200			05/23/14 17:41	1.0	7	
015	143b015	IB	CALIB			05/23/14 18:08	1.0		
016	143b016	ICAL	DSL_10			05/23/14 18:36	1.0	8	
017	143b017	ICAL	DSL_100			05/23/14 19:03	1.0	9	
018	143b018	ICAL	DSL_500			05/23/14 19:30	1.0	10	
019	143b019	ICAL	DSL_1000			05/23/14 19:58	1.0	11	
020	143b020	ICAL	DSL_5000			05/23/14 20:26	1.0	12	
021	143b021	IB	CALIB			05/23/14 20:53	1.0		
022	143b022	ICV	DSL_500			05/23/14 21:21	1.0	13	
023	143b023	X	ICV			05/23/14 21:49	1.0	13	
024	143b024	IB	CALIB			05/23/14 22:16	1.0		
025	143b025	X	MO_25			05/23/14 22:44	1.0	14	
026	143b026	ICAL	MO_50			05/23/14 23:12	1.0	14	
027	143b027	ICAL	MO_250			05/23/14 23:40	1.0	15	
028	143b028	ICAL	MO_500			05/24/14 00:08	1.0	16	
029	143b029	ICAL	MO_1000			05/24/14 00:35	1.0	17	
030	143b030	ICAL	MO_2500			05/24/14 01:03	1.0	18	
031	143b031	ICAL	MO_5000			05/24/14 01:31	1.0	18	
032	143b032	IB	CALIB			05/24/14 01:58	1.0		
033	143b033	CMARKER	C8-C50			05/24/14 02:26	1.0	1	

JDG 05/27/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 33.

Standards used: 1=S24669 2=S24342 3=S24343 4=S24344 5=S24345 6=S24346 7=S24347 8=S24516 9=S24517 10=S24518 11=S24519 12=S24515 13=S24580 14=S23963 15=S23964 16=S23965 17=S23966 18=S23962

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 164328835

Instrument : GC15B
Method : EPA 8015D

Begun : 08/16/14 08:35
SOP Version : TEH_rv18

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	228b001	X	IB				08/16/14 08:35	1.0		
002	228b002	X	CMARKER				08/16/14 09:03	1.0	1	
003	228b003	CCV	MO_500				08/16/14 09:30	1.0	2	
004	228b004	CCV	DSL_1000				08/16/14 09:58	1.0	3	
005	228b005	BLANK	QC753563	S	Water	214402	08/16/14 11:21	1.0		
006	228b006	LCS	QC753564	S	Water	214402	08/16/14 11:49	1.0		
007	228b007	SAMPLE	259779-001	S	Water	214402	08/16/14 12:16	1.0		
008	228b008	SAMPLE	259784-001		Water	214402	08/16/14 12:44	1.0		
009	228b009	SAMPLE	259788-022		Water	214402	08/16/14 13:11	1.0		
010	228b010	SAMPLE	259788-023		Water	214402	08/16/14 13:39	1.0		8:BUNKC:10-40=69000
011	228b011	SAMPLE	259779-002	S	Water	214402	08/16/14 14:07	1.0		
012	228b012	SAMPLE	259779-003	S	Water	214402	08/16/14 14:34	1.0		
013	228b013	SAMPLE	259790-002		Water	214402	08/16/14 15:02	1.0		
014	228b014	SAMPLE	259786-003		Water	214402	08/16/14 15:29	1.0		
015	228b015	SAMPLE	259786-004		Water	214402	08/16/14 15:57	1.0		
016	228b016	SAMPLE	259822-006	S	Soil	214448	08/16/14 16:24	1.0		
017	228b017	CCV	MO_500				08/16/14 16:52	1.0	2	
018	228b018	CCV	DSL_500				08/16/14 17:19	1.0	4	
019	228b019	CCV	MO_500				08/16/14 17:47	1.0	2	
020	228b020	CCV	DSL_500				08/16/14 18:14	1.0	4	
021	228b021	SAMPLE	259826-001	S	Soil	214448	08/16/14 18:42	1.0		
022	228b022	SAMPLE	259663-002		Soil	214411	08/16/14 19:09	1.0		
023	228b023	SAMPLE	259663-004		Soil	214411	08/16/14 19:37	1.0		
024	228b024	SAMPLE	259794-001		Soil	214411	08/16/14 20:04	1.0		
025	228b025	SAMPLE	259796-001		Miscell.	214411	08/16/14 20:32	1.0		8:BUNKC:12-40=25000
026	228b026	SAMPLE	259813-001		Soil	214411	08/16/14 20:59	1.0		
027	228b027	SAMPLE	259816-001		Soil	214411	08/16/14 21:27	1.0		6:BUNKC:10-40=13000
028	228b028	SAMPLE	259819-001		Soil	214411	08/16/14 21:55	1.0		
029	228b029	X	CMARKER				08/16/14 22:23	1.0	1	
030	228b030	CCV	MO_500				08/16/14 22:50	1.0	2	
031	228b031	CCV	DSL_250				08/16/14 23:18	1.0	5	
032	228b032	CCV	MO_500				08/16/14 23:46	1.0	2	
033	228b033	CCV	DSL_250				08/17/14 00:14	1.0	5	

JDG 08/18/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 33.

Standards used: 1=S24669 2=S25404 3=S25246 4=S25245 5=S25244

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 174304309

Instrument : GC17A Begun : 07/30/14 07:49
Method : EPA 8015D SOP Version : TEH_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	211a001	X	IB			07/30/14 07:49	1.0		
002	211a002	X	IB			07/30/14 08:17	1.0		
003	211a003	X	IB			07/30/14 11:54	1.0		
004	211a004	X	IB			07/30/14 12:22	1.0		
005	211a005	X	CMARKER			07/30/14 15:03	1.0	1	
006	211a006	X	IB			07/30/14 15:31	1.0		
007	211a007	IB	CALIB			07/30/14 15:59	1.0		
008	211a008	ICAL	HEXOTP_5			07/30/14 16:27	1.0	2	
009	211a009	ICAL	HEXOTP_10			07/30/14 16:55	1.0	3	
010	211a010	ICAL	HEXOTP_25			07/30/14 17:23	1.0	4	
011	211a011	ICAL	HEXOTP_50			07/30/14 17:50	1.0	5	
012	211a012	ICAL	HEXOTP_100			07/30/14 18:18	1.0	6	
013	211a013	ICAL	HEXOTP_200			07/30/14 18:46	1.0	7	
014	211a014	IB	CALIB			07/30/14 19:13	1.0		
015	211a015	X	DSL_10			07/30/14 19:41	1.0	8	
016	211a016	ICAL	DSL_100			07/30/14 20:08	1.0	9	
017	211a017	ICAL	DSL_500			07/30/14 20:37	1.0	10	
018	211a018	ICAL	DSL_1000			07/30/14 21:04	1.0	11	
019	211a019	ICAL	DSL_5000			07/30/14 21:32	1.0	12	
020	211a020	IB	CALIB			07/30/14 22:00	1.0		
021	211a021	X	DSL_500			07/30/14 22:28	1.0	13	
022	211a022	ICV	DSL_500			07/30/14 22:56	1.0	13	
023	211a023	IB	CALIB			07/30/14 23:24	1.0		
024	211a024	ICAL	MO_25			07/30/14 23:51	1.0	14	
025	211a025	ICAL	MO_50			07/31/14 00:19	1.0	14	
026	211a026	ICAL	MO_250			07/31/14 00:47	1.0	15	
027	211a027	ICAL	MO_500			07/31/14 01:14	1.0	16	
028	211a028	ICAL	MO_1000			07/31/14 01:42	1.0	17	
029	211a029	ICAL	MO_2500			07/31/14 02:10	1.0	18	
030	211a030	ICAL	MO_5000			07/31/14 02:37	1.0	18	
031	211a031	IB	CALIB			07/31/14 03:05	1.0		
032	211a032	CMARKER	C8-C50			07/31/14 03:33	1.0	1	
033	211a033	IB	CALIB			07/31/14 04:00	1.0		
034	211a034	ICAL	DSL_10			07/31/14 11:45	1.0	8	

JDG 07/31/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 34.

Standards used: 1=S24669 2=S24342 3=S24343 4=S24344 5=S24345 6=S24346 7=S24347 8=S25266 9=S25267 10=S25268 11=S25269 12=S24515 13=S25245 14=S25144 15=S25145 16=S25146 17=S25147 18=S25143

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 174327308

Instrument : GC17A Begun : 08/15/14 07:08
Method : EPA 8015D SOP Version : TEH_rv18

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	227a001	X	IB				08/15/14 07:08	1.0		
002	227a002	X	CMARKER				08/15/14 07:36	1.0	1	
003	227a003	CCV	MO_500				08/15/14 08:04	1.0	2	
004	227a004	CCV	DSL_1000				08/15/14 08:32	1.0	3	
005	227a005	MSS	259781-002	S	Soil	214411	08/15/14 09:34	1.0		2:BUNKC:12-40=6900
006	227a006	MS	QC753607	S	Soil	214411	08/15/14 10:11	1.0		2:BUNKC:12-40=7100
007	227a007	MSD	QC753608	S	Soil	214411	08/15/14 10:39	1.0		2:BUNKC:12-40=7100
008	227a008	LCS	QC753564		Water	214402	08/15/14 12:06	1.0		
009	227a009	SAMPLE	259807-001		Water	214402	08/15/14 12:33	1.0		
010	227a010	CCV	MO_500				08/15/14 13:03	1.0	2	
011	227a011	CCV	DSL_250				08/15/14 13:31	1.0	4	
012	227a012	X	CMARKER				08/15/14 14:47	1.0	1	

JDG 08/15/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 11.

Standards used: 1=S24669 2=S25404 3=S25246 4=S25244

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 224317392

Instrument : GC14B
Method : EPA 8015D

Begun : 08/08/14 09:52
SOP Version : TEH_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
003	220_003	X	IB			08/08/14 09:52	1.0		
004	220_004	X	IB			08/08/14 10:20	1.0		
005	220_005	X	CMARKER			08/08/14 10:49	1.0	1	
006	220_006	X	CMARKER			08/08/14 17:07	1.0	1	
007	220_007	X	IB			08/08/14 17:35	1.0		
008	220_008	IB	CALIB			08/08/14 19:35	1.0		
009	220_009	ICAL	HEX OTP_5			08/08/14 20:04	1.0	2	
010	220_010	ICAL	HEX OTP_10			08/08/14 20:32	1.0	3	
011	220_011	ICAL	HEX OTP_25			08/08/14 21:00	1.0	4	
012	220_012	ICAL	HEX OTP_50			08/08/14 21:28	1.0	5	
013	220_013	ICAL	HEX OTP_100			08/08/14 21:56	1.0	6	
014	220_014	ICAL	HEX OTP_200			08/08/14 22:25	1.0	7	
015	220_015	IB	CALIB			08/08/14 22:53	1.0		
016	220_016	ICAL	DSL_10			08/08/14 23:22	1.0	8	
017	220_017	ICAL	DSL_100			08/08/14 23:50	1.0	9	
018	220_018	ICAL	DSL_500			08/09/14 00:19	1.0	10	
019	220_019	ICAL	DSL_1000			08/09/14 00:47	1.0	11	
020	220_020	ICAL	DSL_5000			08/09/14 01:15	1.0	12	
021	220_021	IB	CALIB			08/09/14 01:44	1.0		
022	220_022	ICV	DSL_500			08/09/14 02:12	1.0	13	
023	220_023	X	ICV			08/09/14 02:40	1.0	13	
024	220_024	IB	CALIB			08/09/14 03:08	1.0		
025	220_025	ICAL	MO_25			08/09/14 03:37	1.0	14	
026	220_026	ICAL	MO_50			08/09/14 04:05	1.0	14	
027	220_027	ICAL	MO_250			08/09/14 04:33	1.0	15	
028	220_028	ICAL	MO_500			08/09/14 05:01	1.0	16	
029	220_029	ICAL	MO_1000			08/09/14 05:30	1.0	17	
030	220_030	ICAL	MO_2500			08/09/14 05:58	1.0	18	
031	220_031	ICAL	MO_5000			08/09/14 06:27	1.0	18	
032	220_032	IB	CALIB			08/09/14 06:55	1.0		
033	220_033	CMARKER	C10-C50			08/09/14 07:23	1.0	1	
034	220_034	IB	CALIB			08/09/14 07:52	1.0		

JDG 08/11/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 34.

Standards used: 1=S24669 2=S25390 3=S25391 4=S25392 5=S25393 6=S25394 7=S25395 8=S25266 9=S25267 10=S25268 11=S25269 12=S24515 13=S25245 14=S25144 15=S25145 16=S25146 17=S25147 18=S25143

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 224327309

Instrument : GC14B Begun : 08/15/14 07:09
Method : EPA 8015D SOP Version : TEH_rv18

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	227_001	X	IB				08/15/14 07:09	1.0		
002	227_002	X	CMARKER				08/15/14 07:38	1.0	1	
003	227_003	CCV	MO_500				08/15/14 08:06	1.0	2	
004	227_004	CCV	DSL_1000				08/15/14 08:35	1.0	3	
005	227_005	BLANK	QC753605		Soil	214411	08/15/14 09:31	1.0		
006	227_006	BLANK	QC753605	S	Soil	214411	08/15/14 09:59	1.0		
007	227_007	LCS	QC753606	S	Soil	214411	08/15/14 10:28	1.0		
008	227_008	SAMPLE	259821-001	S	Soil	214411	08/15/14 10:56	1.0		
009	227_009	SAMPLE	259821-002	S	Soil	214411	08/15/14 11:25	1.0		
010	227_010	X	IB				08/15/14 12:02	1.0		
011	227_011	BLANK	QC753563		Water	214402	08/15/14 12:30	1.0		
012	227_012	CCV	MO_500				08/15/14 12:58	1.0	2	
013	227_013	CCV	DSL_500				08/15/14 13:27	1.0	4	
014	227_014	MSS	259774-001		Water	214402	08/15/14 15:52	1.0		
015	227_015	MS	QC753565		Water	214402	08/15/14 16:20	1.0		
016	227_016	MSD	QC753566		Water	214402	08/15/14 16:48	1.0		
017	227_017	MSS	259774-001	S	Water	214402	08/15/14 17:16	1.0		
018	227_018	MS	QC753565	S	Water	214402	08/15/14 17:44	1.0		
019	227_019	MSD	QC753566	S	Water	214402	08/15/14 18:13	1.0		
020	227_020	MSS	259786-001		Water	214402	08/15/14 18:41	1.0		
021	227_021	MS	QC753567		Water	214402	08/15/14 19:09	1.0		
022	227_022	MSD	QC753568		Water	214402	08/15/14 19:37	1.0		
023	227_023	SAMPLE	259790-001		Water	214402	08/15/14 20:05	1.0		
024	227_024	CCV	MO_500				08/15/14 20:33	1.0	2	
025	227_025	CCV	DSL_250				08/15/14 21:01	1.0	5	
026	227_026	CCV	MO_500				08/15/14 21:29	1.0	2	
027	227_027	CCV	DSL_250				08/15/14 21:58	1.0	5	
028	227_028	SAMPLE	259779-001	S	Water	214402	08/15/14 22:26	1.0		

JDG 08/15/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 13.

SFL 08/16/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 14 through 28.

EAH 08/26/14 : SFL08/26/14 11:31GC skipped over night before CM was able to run.

Standards used: 1=S24669 2=S25404 3=S25246 4=S25245 5=S25244

SAMPLE PREPARATION SUMMARY

Batch # : 214402
Started By : ARG
Method : 3520C
Spike #1 ID : S25397

Prep Date : 14-AUG-2014 13:30
SOP Version : TEH_3520_rv15
Spike #2 ID : S25337

Analysis : TEH
Finished By : CPK
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259745-001		TCLP Leachate	500	2.5	1	0.005	7	.5				TEH	
259774-001		Water	500	2.5	1	0.005	7	.5			3630C	TEH	MSS
259779-001		Water	510	2.5	1	0.004902	7	.5			3630C	TEHM	
259779-002		Water	510	2.5	1	0.004902	7	.5			3630C	TEHM	
259779-003		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	
259784-001		Water	510	2.5	1	0.004902	7	.5				TEHM	
259786-001		Water	510	2.5	1	0.004902	7	.5				TEH	mss2
259786-003		Water	500	2.5	1	0.005	7	.5				TEH	
259786-004		Water	500	2.5	1	0.005	7	.5				TEH	
259788-022		Water	500	2.5	1	0.005	7	.5				TEHM	
259788-023		Water	500	2.5	1	0.005	7	.5				TEHM	
259790-001		Water	500	2.5	1	0.005	7	.5				TEH	
259790-002		Water	500	2.5	1	0.005	7	.5				TEH	
259797-001		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	Prepped 15-AUG-2014 13:20
259797-002		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	Prepped 15-AUG-2014 13:20
259797-003		Water	500	2.5	1	0.005	7	.5			3630C	TEHM	Prepped 15-AUG-2014 13:20
259807-001		Water	500	2.5	1	0.005	7	.5				TEHM	Prepped 14-AUG-2014 14:03
259859-002		Water	340	2.5	1	0.007353	7	.5				TEHM	See comment 1 below
QC753563	BLANK	Water	500	2.5	1	0.005		.5			3630C		
QC753564	LCS	Water	500	2.5	1	0.005		.5	.5		3630C		
QC753565	MS	Water	510	2.5	1	0.004902	7	.5	.5		3630C		
QC753566	MSD	Water	510	2.5	1	0.004902	7	.5	.5		3630C		
QC753567	MS	Water	510	2.5	1	0.004902	7	.5	.5				
QC753568	MSD	Water	510	2.5	1	0.004902	7	.5	.5				
QC753569	PREPBLK	Water	500	2.5	1	0.005		.5					

Comment 1: Prepped 15-AUG-2014 13:20; sediment layer; decanted

Analyst: JDG Date: 08/18/14 Reviewer: EAH Date: 08/18/14

Curtis & Tompkins, Ltd. **Silica Gel Cleanup** **EPA 3630c**

Prep Chemist: CAK
Cleanup Date: 8/15/14

Benchbook # **BK 3572**
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Sample #	Extraction Batch#	Initial Volume (mL)	Final Volume (mL)	Comments
259774-001	214402	☒ 1.0 ☐	☒ 1.0 ☐	
259779-001		☒ 1.0 ☐	☒ 1.0 ☐	
-003		☒ 1.0 ☐	☒ 1.0 ☐	
-004		☒ 1.0 ☐	☒ 1.0 ☐	
MB QC753563		☒ 1.0 ☐	☒ 1.0 ☐	
LCS 4		☒ 1.0 ☐	☒ 1.0 ☐	
MS 5		☒ 1.0 ☐	☒ 1.0 ☐	
MSD 6		☒ 1.0 ☐	☒ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
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		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	

	Mfg & Lot # / Time / Program	Initials / Date
☒ Extracts were cleaned up using C&T assembled 1.0 g columns	6027026	CAK 8/15/14
☐ Extracts were cleaned up using — g cartridges	—	
Extracts were eluted with 4.0 mL CH_2Cl_2	EM54184	
Concentrated to volumes as noted above		

8/15/14
Extraction Chemist / Date

Continued from page ___
Continued on page ___

8/18/14
Reviewed by / Date

TEH (8015) Water Prep Log Curtis & Tompkins, Ltd.

Page 26 BK 3588

LIMS Batch No: 214402
LIMS Analysis: TEH
Date Extracted: 8/14/14

Extraction Method:
☒ EPA 3520c cont. L/L
☐ _____

Cleanup Method (if needed):
☒ EPA 3630c Silica Gel

Sample #	Container ID	Volume of Sample (mL)	Sample pH	Final Volume (mL)	Cleanup (x if needed)		Comments
259745-001	NA	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
259774-001	BD	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	MSS1
259779-001	J	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
2		☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
3		☒ 500 ☐	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
259784-001	G	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
259786-001	K	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	MSS2
3	D	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
4	D	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
259788-022	H	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	Sediment
23	G	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
259790-001	E	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
[illegible]	D	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
MBQC7535	[illegible]	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
LCS	[illegible]	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
MS 8/14/14 75	BP	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	259774-001
MSD 76	BM	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
MS 97	J	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	259786-001
MSD 8	L	☐ 500 ☒ 510	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
PREPBLK 9	NA	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	
259807-001	A	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐		☒ ≤2pH	added 8/14/14 @ 1403
259797-001	J	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	A/O @ 1320 on 8/15/14 by TPP
2		☒ 500 ☐	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
3	K	☒ 500 ☐	☒7 ☐	☒ 2.5 ☐	X	☒ ≤2pH	
259859-002	N	☐ 500 ☒ 340	☒7	☒ 2.5		☒ ≤2pH	

	Mfg & Lot# / LIMS # / Time	Date/ Initials
0.5 mL of TEH_SURR was added to all samples	S 25397	AD 8/14/14
0.5 mL of TEH_SP was added to all spikes	S25337D	
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	FS140656	
☒ 3520c: Samples were continually extracted about 450 mL of CH_2Cl_2	EM	
Extraction Start Time:	1330 / 1403 / 1320	ER 8-15-14
Extraction End Time:	0730 / 0803 / 750	ER 8-15-14
☐ 3510c: Samples were extracted 3 times with 60 mL of CH_2Cl_2	NA	CPK 8/15/14
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EMWL234	
Concentrated to final volume at temperature (degrees C)	100°	
Relinquished to TEH Department	✓	

8/14/14
Extraction Chemist **Date**

Contined from Page 1
Continued on Page _____

8/18/14
Reviewed by **Date**

Curtis & Tompkins, Ltd. **Silica Gel Cleanup** **EPA 3630c**

Prep Chemist: CPK
Cleanup Date: 8/18/14

Benchbook # **BK 3572**
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Sample #	Extraction Batch#	Initial Volume (mL)	Final Volume (mL)	Comments
259797-001	214402	☑ 1.0 ☐	☑ 1.0 ☐	
-002	↓	☑ 1.0 ☐	☑ 1.0 ☐	
↓ -003	↓	☑ 1.0 ☐	☑ 1.0 ☐	
259794-013	214470	☑ 1.0 ☐	☑ 1.0 ☐	
↓ -014		☑ 1.0 ☐	☑ 1.0 ☐	
PrepBlnk QC753841		☑ 1.0 ☐	☑ 1.0 ☐	
MB 2		☑ 1.0 ☐	☑ 1.0 ☐	
BS 3		☑ 1.0 ☐	☑ 1.0 ☐	
BSD ↓ 4	↓	☑ 1.0 ☐	☑ 1.0 ☐	
259797-001	214402	☐ 1.0 ☑ 0.5	☐ 1.0 ☑ 0.5	
-002	↓	☐ 1.0 ☑ 0.5	☐ 1.0 ☑ 0.5	
↓ -003	↓	☐ 1.0 ☑ 0.5	☐ 1.0 ☑ 0.5	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
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		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	8/18/14

	Mfg & Lot # / Time / Program	Initials / Date
☐ Extracts were cleaned up using C&T assembled — g columns	—	CPK 8/18/14
☑ Extracts were cleaned up using 1.0 g cartridges	SP464070I	↓
Extracts were eluted with 4.0 mL CH_2Cl_2	EM54153	↓
Concentrated to volumes as noted above	✓	↓

8/18/14
Extraction Chemist / Date

Continued from page /
Continued on page /

8/18/14
Reviewed by / Date

Case Narrative Addendum: Manual Integrations for 259790 GCSV (Water)

For SAMPLE 259790-002 (GC15B 228b013):
Corrected automatically drawn baseline.

For CCV DSL_1000 (GC14B 227_004):
Corrected automatically drawn baseline.

For CCV DSL_1000 (GC17A 227a004):
Corrected automatically drawn baseline.

For CCV DSL_1000 (GC15B 228b004):
Corrected automatically drawn baseline.

For CCV DSL_250 (GC17A 227a011):
Corrected automatically drawn baseline.

For CCV DSL_500 (GC15B 228b018):
Corrected automatically drawn baseline.

For CCV DSL_500 (GC14B 227_013):
Corrected automatically drawn baseline.

For CCV MO_500 (GC15B 228b003):
Corrected automatically drawn baseline.

For CCV MO_500 (GC17A 227a003):
Corrected automatically drawn baseline.

For CCV MO_500 (GC15B 228b017):
Corrected automatically drawn baseline.

For CCV MO_500 (GC14B 227_024):
Corrected automatically drawn baseline.

For CCV MO_500 (GC17A 227a010):
Corrected automatically drawn baseline.

For BLANK QC753563 (GC14B 227_011):
Corrected automatically drawn baseline.

For LCS QC753564 (GC17A 227a008):
Corrected automatically drawn baseline.

For Calibration GC15B (164206385001):
Corrected automatically drawn baseline in multiple levels.

For Calibration GC15B (164206385002):
Corrected automatically drawn baseline in DSL_100 (143b017).

For ICV DSL_500 (GC15B 143b022):
Corrected automatically drawn baseline.

For Calibration GC17A (174304309001):
Corrected automatically drawn baseline in multiple levels.

For Calibration GC17A (174304309003):
Corrected automatically drawn baseline in multiple levels.

For ICV DSL_500 (GC17A 211a022):
Corrected automatically drawn baseline.

For Calibration GC14B (224317392001):
Corrected automatically drawn baseline in all levels.

For Calibration GC14B (224317392002):
Corrected automatically drawn baseline in DSL_10 (220_016).

For ICV DSL_500 (GC14B 220_022):
Corrected automatically drawn baseline.

Laboratory Job Number 259790

ANALYTICAL REPORT

Volatile Organics by GC/MS

Matrix: Water

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	RB-081314	Diln Fac:	1.000
Lab ID:	259790-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
Freon 12	0.2 U	1.0	0.1	214432	08/15/14
Chloromethane	0.4 U	1.0	0.3	214432	08/15/14
Vinyl Chloride	0.2 U	0.5	0.1	214432	08/15/14
Bromomethane	0.4 U	1.0	0.2	214432	08/15/14
Chloroethane	0.4 U	1.0	0.3	214432	08/15/14
Trichlorofluoromethane	0.4 U	1.0	0.2	214432	08/15/14
Acetone	2.0 U	10	1.6	214432	08/15/14
Freon 113	0.2 U	2.0	0.1	214432	08/15/14
1,1-Dichloroethene	0.2 U	0.5	0.2	214432	08/15/14
Methylene Chloride	0.3 J	10	0.2	214432	08/15/14
Carbon Disulfide	0.2 U	0.5	0.1	214432	08/15/14
MTBE	0.2 U	0.5	0.1	214432	08/15/14
trans-1,2-Dichloroethene	0.2 U	0.5	0.2	214432	08/15/14
Vinyl Acetate	1.0 U	10	0.5	214489	08/18/14
1,1-Dichloroethane	0.2 U	0.5	0.2	214432	08/15/14
2-Butanone	2.0 U	10	0.4	214432	08/15/14
cis-1,2-Dichloroethene	0.2 U	0.5	0.1	214432	08/15/14
2,2-Dichloropropane	0.2 U	0.5	0.1	214432	08/15/14
Chloroform	0.2 U	0.5	0.1	214432	08/15/14
Bromochloromethane	0.2 U	0.5	0.1	214432	08/15/14
1,1,1-Trichloroethane	0.2 U	0.5	0.1	214432	08/15/14
1,1-Dichloropropene	0.2 U	0.5	0.1	214432	08/15/14
Carbon Tetrachloride	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dichloroethane	0.2 U	0.5	0.1	214432	08/15/14
Benzene	0.2 U	0.5	0.1	214432	08/15/14
Trichloroethene	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dichloropropane	0.2 U	0.5	0.1	214432	08/15/14
Bromodichloromethane	0.2 U	0.5	0.1	214432	08/15/14
Dibromomethane	0.2 U	0.5	0.1	214432	08/15/14
4-Methyl-2-Pentanone	2.0 U	10	0.7	214432	08/15/14
cis-1,3-Dichloropropene	0.2 U	0.5	0.1	214432	08/15/14
Toluene	0.2 U	0.5	0.1	214432	08/15/14
trans-1,3-Dichloropropene	0.2 U	0.5	0.1	214432	08/15/14
1,1,2-Trichloroethane	0.2 U	0.5	0.2	214432	08/15/14
2-Hexanone	0.4 U	10	0.2	214432	08/15/14
1,3-Dichloropropane	0.2 U	0.5	0.1	214432	08/15/14
Tetrachloroethene	0.2 U	0.5	0.1	214432	08/15/14
Dibromochloromethane	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dibromoethane	0.2 U	0.5	0.1	214432	08/15/14
Chlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,1,1,2-Tetrachloroethane	0.2 U	0.5	0.1	214432	08/15/14
Ethylbenzene	0.2 U	0.5	0.1	214432	08/15/14
m,p-Xylenes	0.2 U	0.5	0.1	214432	08/15/14
o-Xylene	0.2 U	0.5	0.1	214432	08/15/14
Styrene	0.2 U	0.5	0.1	214432	08/15/14
Bromoform	0.4 U	1.0	0.1	214432	08/15/14
Isopropylbenzene	0.2 U	0.5	0.1	214432	08/15/14
1,1,2,2-Tetrachloroethane	0.2 U	0.5	0.1	214432	08/15/14
1,2,3-Trichloropropane	0.2 U	0.5	0.2	214432	08/15/14
Propylbenzene	0.2 U	0.5	0.1	214432	08/15/14
Bromobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,3,5-Trimethylbenzene	0.2 U	0.5	0.1	214432	08/15/14
2-Chlorotoluene	0.2 U	0.5	0.1	214432	08/15/14

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	RB-081314	Diln Fac:	1.000
Lab ID:	259790-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
4-Chlorotoluene	0.2 U	0.5	0.1	214432	08/15/14
tert-Butylbenzene	0.2 U	0.5	0.1	214432	08/15/14
1,2,4-Trimethylbenzene	0.2 U	0.5	0.1	214432	08/15/14
sec-Butylbenzene	0.2 U	0.5	0.1	214432	08/15/14
para-Isopropyl Toluene	0.2 U	0.5	0.1	214432	08/15/14
1,3-Dichlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,4-Dichlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
n-Butylbenzene	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dichlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dibromo-3-Chloropropane	0.4 U	2.0	0.2	214432	08/15/14
1,2,4-Trichlorobenzene	0.4 U	0.5	0.1	214432	08/15/14
Hexachlorobutadiene	0.4 U	2.0	0.1	214432	08/15/14
Naphthalene	0.4 U	2.0	0.1	214432	08/15/14
1,2,3-Trichlorobenzene	0.4 U	0.5	0.1	214432	08/15/14

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	107	85-115	214432	08/15/14
Dibromofluoromethane	101	85-115	214489	08/18/14
1,2-Dichloroethane-d4	114	70-120	214432	08/15/14
1,2-Dichloroethane-d4	119	70-120	214489	08/18/14
Toluene-d8	118	85-120	214432	08/15/14
Toluene-d8	109	85-120	214489	08/18/14
Bromofluorobenzene	106	75-120	214432	08/15/14
Bromofluorobenzene	96	75-120	214489	08/18/14

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	SB-081314	Diln Fac:	1.000
Lab ID:	259790-002	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
Freon 12	0.2 U	1.0	0.1	214432	08/15/14
Chloromethane	0.4 U	1.0	0.3	214432	08/15/14
Vinyl Chloride	0.2 U	0.5	0.1	214432	08/15/14
Bromomethane	0.4 U	1.0	0.2	214432	08/15/14
Chloroethane	0.4 U	1.0	0.3	214432	08/15/14
Trichlorofluoromethane	0.4 U	1.0	0.2	214432	08/15/14
Acetone	2.0 U	10	1.6	214432	08/15/14
Freon 113	0.2 U	2.0	0.1	214432	08/15/14
1,1-Dichloroethene	0.2 U	0.5	0.2	214432	08/15/14
Methylene Chloride	0.2 U	10	0.2	214432	08/15/14
Carbon Disulfide	0.2 U	0.5	0.1	214432	08/15/14
MTBE	0.2 U	0.5	0.1	214432	08/15/14
trans-1,2-Dichloroethene	0.2 U	0.5	0.2	214432	08/15/14
Vinyl Acetate	1.0 U	10	0.5	214489	08/18/14
1,1-Dichloroethane	0.2 U	0.5	0.2	214432	08/15/14
2-Butanone	2.0 U	10	0.4	214432	08/15/14
cis-1,2-Dichloroethene	0.2 U	0.5	0.1	214432	08/15/14
2,2-Dichloropropane	0.2 U	0.5	0.1	214432	08/15/14
Chloroform	0.2 U	0.5	0.1	214432	08/15/14
Bromochloromethane	0.2 U	0.5	0.1	214432	08/15/14
1,1,1-Trichloroethane	0.2 U	0.5	0.1	214432	08/15/14
1,1-Dichloropropene	0.2 U	0.5	0.1	214432	08/15/14
Carbon Tetrachloride	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dichloroethane	0.2 U	0.5	0.1	214432	08/15/14
Benzene	0.2 U	0.5	0.1	214432	08/15/14
Trichloroethene	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dichloropropane	0.2 U	0.5	0.1	214432	08/15/14
Bromodichloromethane	0.2 U	0.5	0.1	214432	08/15/14
Dibromomethane	0.2 U	0.5	0.1	214432	08/15/14
4-Methyl-2-Pentanone	2.0 U	10	0.7	214432	08/15/14
cis-1,3-Dichloropropene	0.2 U	0.5	0.1	214432	08/15/14
Toluene	0.2 U	0.5	0.1	214432	08/15/14
trans-1,3-Dichloropropene	0.2 U	0.5	0.1	214432	08/15/14
1,1,2-Trichloroethane	0.2 U	0.5	0.2	214432	08/15/14
2-Hexanone	0.4 U	10	0.2	214432	08/15/14
1,3-Dichloropropane	0.2 U	0.5	0.1	214432	08/15/14
Tetrachloroethene	0.2 U	0.5	0.1	214432	08/15/14
Dibromochloromethane	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dibromoethane	0.2 U	0.5	0.1	214432	08/15/14
Chlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,1,1,2-Tetrachloroethane	0.2 U	0.5	0.1	214432	08/15/14
Ethylbenzene	0.2 U	0.5	0.1	214432	08/15/14
m,p-Xylenes	0.2 U	0.5	0.1	214432	08/15/14
o-Xylene	0.2 U	0.5	0.1	214432	08/15/14
Styrene	0.2 U	0.5	0.1	214432	08/15/14
Bromoform	0.4 U	1.0	0.1	214432	08/15/14
Isopropylbenzene	0.2 U	0.5	0.1	214432	08/15/14
1,1,2,2-Tetrachloroethane	0.2 U	0.5	0.1	214432	08/15/14
1,2,3-Trichloropropane	0.2 U	0.5	0.2	214432	08/15/14
Propylbenzene	0.2 U	0.5	0.1	214432	08/15/14
Bromobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,3,5-Trimethylbenzene	0.2 U	0.5	0.1	214432	08/15/14
2-Chlorotoluene	0.2 U	0.5	0.1	214432	08/15/14

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	SB-081314	Diln Fac:	1.000
Lab ID:	259790-002	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
4-Chlorotoluene	0.2 U	0.5	0.1	214432	08/15/14
tert-Butylbenzene	0.2 U	0.5	0.1	214432	08/15/14
1,2,4-Trimethylbenzene	0.2 U	0.5	0.1	214432	08/15/14
sec-Butylbenzene	0.2 U	0.5	0.1	214432	08/15/14
para-Isopropyl Toluene	0.2 U	0.5	0.1	214432	08/15/14
1,3-Dichlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,4-Dichlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
n-Butylbenzene	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dichlorobenzene	0.2 U	0.5	0.1	214432	08/15/14
1,2-Dibromo-3-Chloropropane	0.4 U	2.0	0.2	214432	08/15/14
1,2,4-Trichlorobenzene	0.4 U	0.5	0.1	214432	08/15/14
Hexachlorobutadiene	0.4 U	2.0	0.1	214432	08/15/14
Naphthalene	0.4 U	2.0	0.1	214432	08/15/14
1,2,3-Trichlorobenzene	0.4 U	0.5	0.1	214432	08/15/14

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	107	85-115	214432	08/15/14
Dibromofluoromethane	99	85-115	214489	08/18/14
1,2-Dichloroethane-d4	113	70-120	214432	08/15/14
1,2-Dichloroethane-d4	121 *	70-120	214489	08/18/14
Toluene-d8	103	85-120	214432	08/15/14
Toluene-d8	109	85-120	214489	08/18/14
Bromofluorobenzene	106	75-120	214432	08/15/14
Bromofluorobenzene	93	75-120	214489	08/18/14

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	TB-2-081314	Batch#:	214432
Lab ID:	259790-003	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Analyzed:	08/15/14
Diln Fac:	1.000		

Analyte	Result	LOQ	DL
Freon 12	0.2 U	1.0	0.1
Chloromethane	0.4 U	1.0	0.3
Vinyl Chloride	0.2 U	0.5	0.1
Bromomethane	0.4 U	1.0	0.2
Chloroethane	0.4 U	1.0	0.3
Trichlorofluoromethane	0.4 U	1.0	0.2
Acetone	2.3 J	10	1.6
Freon 113	0.2 U	2.0	0.1
1,1-Dichloroethene	0.2 U	0.5	0.2
Methylene Chloride	0.2 U	10	0.2
Carbon Disulfide	0.2 U	0.5	0.1
MTBE	0.2 U	0.5	0.1
trans-1,2-Dichloroethene	0.2 U	0.5	0.2
Vinyl Acetate	2.0 U	10	1.1
1,1-Dichloroethane	0.2 U	0.5	0.2
2-Butanone	2.0 U	10	0.4
cis-1,2-Dichloroethene	0.2 U	0.5	0.1
2,2-Dichloropropane	0.2 U	0.5	0.1
Chloroform	0.2 U	0.5	0.1
Bromochloromethane	0.2 U	0.5	0.1
1,1,1-Trichloroethane	0.2 U	0.5	0.1
1,1-Dichloropropene	0.2 U	0.5	0.1
Carbon Tetrachloride	0.2 U	0.5	0.1
1,2-Dichloroethane	0.2 U	0.5	0.1
Benzene	0.2 U	0.5	0.1
Trichloroethene	0.2 U	0.5	0.1
1,2-Dichloropropane	0.2 U	0.5	0.1
Bromodichloromethane	0.2 U	0.5	0.1
Dibromomethane	0.2 U	0.5	0.1
4-Methyl-2-Pentanone	2.0 U	10	0.7
cis-1,3-Dichloropropene	0.2 U	0.5	0.1
Toluene	0.2 U	0.5	0.1
trans-1,3-Dichloropropene	0.2 U	0.5	0.1
1,1,2-Trichloroethane	0.2 U	0.5	0.2
2-Hexanone	0.4 U	10	0.2
1,3-Dichloropropane	0.2 U	0.5	0.1
Tetrachloroethene	0.2 U	0.5	0.1
Dibromochloromethane	0.2 U	0.5	0.1
1,2-Dibromoethane	0.2 U	0.5	0.1
Chlorobenzene	0.2 U	0.5	0.1
1,1,1,2-Tetrachloroethane	0.2 U	0.5	0.1
Ethylbenzene	0.2 U	0.5	0.1
m,p-Xylenes	0.2 U	0.5	0.1
o-Xylene	0.2 U	0.5	0.1
Styrene	0.2 U	0.5	0.1
Bromoform	0.4 U	1.0	0.1
Isopropylbenzene	0.2 U	0.5	0.1
1,1,2,2-Tetrachloroethane	0.2 U	0.5	0.1
1,2,3-Trichloropropane	0.2 U	0.5	0.2
Propylbenzene	0.2 U	0.5	0.1
Bromobenzene	0.2 U	0.5	0.1
1,3,5-Trimethylbenzene	0.2 U	0.5	0.1

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	TB-2-081314	Batch#:	214432
Lab ID:	259790-003	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Analyzed:	08/15/14
Diln Fac:	1.000		

Analyte	Result	LOQ	DL
2-Chlorotoluene	0.2 U	0.5	0.1
4-Chlorotoluene	0.2 U	0.5	0.1
tert-Butylbenzene	0.2 U	0.5	0.1
1,2,4-Trimethylbenzene	0.2 U	0.5	0.1
sec-Butylbenzene	0.2 U	0.5	0.1
para-Isopropyl Toluene	0.2 U	0.5	0.1
1,3-Dichlorobenzene	0.2 U	0.5	0.1
1,4-Dichlorobenzene	0.2 U	0.5	0.1
n-Butylbenzene	0.2 U	0.5	0.1
1,2-Dichlorobenzene	0.2 U	0.5	0.1
1,2-Dibromo-3-Chloropropane	0.4 U	2.0	0.2
1,2,4-Trichlorobenzene	0.4 U	0.5	0.1
Hexachlorobutadiene	0.4 U	2.0	0.1
Naphthalene	0.4 U	2.0	0.1
1,2,3-Trichlorobenzene	0.4 U	0.5	0.1

Surrogate	%REC	Limits
Dibromofluoromethane	110	85-115
1,2-Dichloroethane-d4	113	70-120
Toluene-d8	101	85-120
Bromofluorobenzene	105	75-120

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214432
Units:	ug/L	Analyzed:	08/15/14
Diln Fac:	1.000		

Type: BS Lab ID: QC753684

Analyte	Spiked	Result	%REC	Limits
Freon 12	8.000	7.876	98	30-155
Chloromethane	8.000	8.455	106	40-125
Vinyl Chloride	8.000	7.827	98	50-145
Bromomethane	8.000	10.26 b	128	30-145
Chloroethane	8.000	7.369	92	60-135
Trichlorofluoromethane	8.000	8.557	107	60-145
Acetone	10.00	11.44	114	40-140
Freon 113	10.00	10.19	102	68-147
1,1-Dichloroethene	10.00	9.863	99	70-130
Methylene Chloride	10.00	10.80	108	55-140
Carbon Disulfide	10.00	9.914	99	35-160
MTBE	10.00	9.699	97	65-125
trans-1,2-Dichloroethene	10.00	10.64	106	60-140
Vinyl Acetate	10.00	12.93 b	129	67-209
1,1-Dichloroethane	10.00	10.62	106	70-135
2-Butanone	10.00	12.06 b	121	30-150
cis-1,2-Dichloroethene	10.00	11.12	111	70-125
2,2-Dichloropropane	10.00	12.03	120	70-135
Chloroform	10.00	11.39	114	65-135
Bromochloromethane	10.00	10.71	107	65-130
1,1,1-Trichloroethane	10.00	11.34	113	65-130
1,1-Dichloropropene	10.00	10.75	108	75-130
Carbon Tetrachloride	10.00	10.16	102	65-140
1,2-Dichloroethane	10.00	10.53	105	70-130
Benzene	10.00	10.71	107	80-120
Trichloroethene	10.00	10.53	105	70-125
1,2-Dichloropropane	10.00	10.13	101	75-125
Bromodichloromethane	10.00	10.26	103	75-120
Dibromomethane	10.00	10.78	108	75-125
4-Methyl-2-Pentanone	10.00	10.38	104	60-135
cis-1,3-Dichloropropene	10.00	11.08	111	70-130
Toluene	10.00	10.56	106	75-120
trans-1,3-Dichloropropene	10.00	9.881	99	55-140
1,1,2-Trichloroethane	10.00	10.42	104	75-125
2-Hexanone	10.00	10.98	110	55-130
1,3-Dichloropropane	10.00	10.39	104	75-125
Tetrachloroethene	10.00	10.20	102	45-150
Dibromochloromethane	10.00	9.482	95	60-135
1,2-Dibromoethane	10.00	10.37	104	80-120
Chlorobenzene	10.00	11.37	114	80-120
1,1,1,2-Tetrachloroethane	10.00	10.05	101	80-130
Ethylbenzene	10.00	10.95	110	75-125
m,p-Xylenes	20.00	21.16	106	75-130
o-Xylene	10.00	11.24	112	80-120
Styrene	10.00	11.11	111	65-135
Bromoform	10.00	9.499	95	70-130
Isopropylbenzene	10.00	11.52	115	75-125
1,1,2,2-Tetrachloroethane	10.00	11.52	115	65-130
1,2,3-Trichloropropane	10.00	11.00	110	75-125
Propylbenzene	10.00	10.98	110	70-130
Bromobenzene	10.00	10.48	105	75-125

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214432
Units:	ug/L	Analyzed:	08/15/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits
1,3,5-Trimethylbenzene	10.00	11.75	117	75-130
2-Chlorotoluene	10.00	12.04	120	75-125
4-Chlorotoluene	10.00	11.44	114	75-130
tert-Butylbenzene	10.00	11.37	114	70-130
1,2,4-Trimethylbenzene	10.00	11.16	112	75-130
sec-Butylbenzene	10.00	12.25 b	123	70-125
para-Isopropyl Toluene	10.00	11.47	115	75-130
1,3-Dichlorobenzene	10.00	11.13	111	75-125
1,4-Dichlorobenzene	10.00	11.00	110	75-125
n-Butylbenzene	10.00	11.79	118	70-135
1,2-Dichlorobenzene	10.00	10.95	110	70-120
1,2-Dibromo-3-Chloropropane	10.00	8.570	86	50-130
1,2,4-Trichlorobenzene	10.00	10.29	103	65-135
Hexachlorobutadiene	10.00	11.22	112	50-140
Naphthalene	10.00	10.09	101	55-140
1,2,3-Trichlorobenzene	10.00	10.55	106	55-140

Surrogate	%REC	Limits
Dibromofluoromethane	106	85-115
1,2-Dichloroethane-d4	106	70-120
Toluene-d8	101	85-120
Bromofluorobenzene	100	75-120

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214432
Units:	ug/L	Analyzed:	08/15/14
Diln Fac:	1.000		

Type: BSD Lab ID: QC753685

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	8.000	7.489	94	30-155	5	30
Chloromethane	8.000	8.276	103	40-125	2	30
Vinyl Chloride	8.000	7.717	96	50-145	1	30
Bromomethane	8.000	9.522 b	119	30-145	7	30
Chloroethane	8.000	6.995	87	60-135	5	30
Trichlorofluoromethane	8.000	8.104	101	60-145	5	30
Acetone	10.00	11.82	118	40-140	3	30
Freon 113	10.00	9.991	100	68-147	2	30
1,1-Dichloroethene	10.00	9.822	98	70-130	0	30
Methylene Chloride	10.00	10.64	106	55-140	2	30
Carbon Disulfide	10.00	9.572	96	35-160	4	30
MTBE	10.00	9.887	99	65-125	2	30
trans-1,2-Dichloroethene	10.00	10.52	105	60-140	1	30
Vinyl Acetate	10.00	14.83 b	148	67-209	14	30
1,1-Dichloroethane	10.00	10.56	106	70-135	1	30
2-Butanone	10.00	12.62 b	126	30-150	5	30
cis-1,2-Dichloroethene	10.00	10.77	108	70-125	3	30
2,2-Dichloropropane	10.00	11.27	113	70-135	7	30
Chloroform	10.00	11.06	111	65-135	3	30
Bromochloromethane	10.00	10.54	105	65-130	2	30
1,1,1-Trichloroethane	10.00	10.89	109	65-130	4	30
1,1-Dichloropropene	10.00	10.57	106	75-130	2	30
Carbon Tetrachloride	10.00	10.10	101	65-140	1	30
1,2-Dichloroethane	10.00	10.42	104	70-130	1	30
Benzene	10.00	10.50	105	80-120	2	30
Trichloroethene	10.00	10.41	104	70-125	1	30
1,2-Dichloropropane	10.00	10.06	101	75-125	1	30
Bromodichloromethane	10.00	10.29	103	75-120	0	30
Dibromomethane	10.00	10.94	109	75-125	2	30
4-Methyl-2-Pentanone	10.00	10.88	109	60-135	5	30
cis-1,3-Dichloropropene	10.00	10.96	110	70-130	1	30
Toluene	10.00	10.45	104	75-120	1	30
trans-1,3-Dichloropropene	10.00	9.834	98	55-140	0	30
1,1,2-Trichloroethane	10.00	10.62	106	75-125	2	30
2-Hexanone	10.00	11.08	111	55-130	1	30
1,3-Dichloropropane	10.00	10.43	104	75-125	0	30
Tetrachloroethene	10.00	10.12	101	45-150	1	30
Dibromochloromethane	10.00	9.657	97	60-135	2	30
1,2-Dibromoethane	10.00	10.64	106	80-120	2	30
Chlorobenzene	10.00	11.07	111	80-120	3	30
1,1,1,2-Tetrachloroethane	10.00	10.11	101	80-130	1	30
Ethylbenzene	10.00	10.71	107	75-125	2	30
m,p-Xylenes	20.00	20.72	104	75-130	2	30
o-Xylene	10.00	10.95	109	80-120	3	30
Styrene	10.00	10.99	110	65-135	1	30
Bromoform	10.00	9.704	97	70-130	2	30
Isopropylbenzene	10.00	11.30	113	75-125	2	30
1,1,2,2-Tetrachloroethane	10.00	11.84	118	65-130	3	30
1,2,3-Trichloropropane	10.00	11.22	112	75-125	2	30
Propylbenzene	10.00	10.78	108	70-130	2	30
Bromobenzene	10.00	10.50	105	75-125	0	30

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214432
Units:	ug/L	Analyzed:	08/15/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,3,5-Trimethylbenzene	10.00	11.45	115	75-130	3	30
2-Chlorotoluene	10.00	11.74	117	75-125	3	30
4-Chlorotoluene	10.00	11.33	113	75-130	1	30
tert-Butylbenzene	10.00	11.11	111	70-130	2	30
1,2,4-Trimethylbenzene	10.00	11.11	111	75-130	0	30
sec-Butylbenzene	10.00	12.01 b	120	70-125	2	30
para-Isopropyl Toluene	10.00	11.15	111	75-130	3	30
1,3-Dichlorobenzene	10.00	11.25	113	75-125	1	30
1,4-Dichlorobenzene	10.00	10.83	108	75-125	2	30
n-Butylbenzene	10.00	11.63	116	70-135	1	30
1,2-Dichlorobenzene	10.00	11.23	112	70-120	3	30
1,2-Dibromo-3-Chloropropane	10.00	9.214	92	50-130	7	30
1,2,4-Trichlorobenzene	10.00	10.86	109	65-135	5	30
Hexachlorobutadiene	10.00	10.89	109	50-140	3	30
Naphthalene	10.00	10.62	106	55-140	5	30
1,2,3-Trichlorobenzene	10.00	10.91	109	55-140	3	30

Surrogate	%REC	Limits
Dibromofluoromethane	107	85-115
1,2-Dichloroethane-d4	107	70-120
Toluene-d8	101	85-120
Bromofluorobenzene	101	75-120

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753686	Batch#:	214432
Matrix:	Water	Analyzed:	08/15/14
Units:	ug/L		

Analyte	Result	LOQ	DL
Freon 12	0.2 U	1.0	0.1
Chloromethane	0.4 U	1.0	0.3
Vinyl Chloride	0.2 U	0.5	0.1
Bromomethane	0.4 U	1.0	0.2
Chloroethane	0.4 U	1.0	0.3
Trichlorofluoromethane	0.4 U	1.0	0.2
Acetone	2.0 U	10	1.6
Freon 113	0.2 U	2.0	0.1
1,1-Dichloroethene	0.2 U	0.5	0.2
Methylene Chloride	0.2 U	10	0.2
Carbon Disulfide	0.2 U	0.5	0.1
MTBE	0.2 U	0.5	0.1
trans-1,2-Dichloroethene	0.2 U	0.5	0.2
Vinyl Acetate	2.0 U b	10	1.1
1,1-Dichloroethane	0.2 U	0.5	0.2
2-Butanone	2.0 U	10	0.4
cis-1,2-Dichloroethene	0.2 U	0.5	0.1
2,2-Dichloropropane	0.2 U	0.5	0.1
Chloroform	0.2 U	0.5	0.1
Bromochloromethane	0.2 U	0.5	0.1
1,1,1-Trichloroethane	0.2 U	0.5	0.1
1,1-Dichloropropene	0.2 U	0.5	0.1
Carbon Tetrachloride	0.2 U	0.5	0.1
1,2-Dichloroethane	0.2 U	0.5	0.1
Benzene	0.2 U	0.5	0.1
Trichloroethene	0.2 U	0.5	0.1
1,2-Dichloropropane	0.2 U	0.5	0.1
Bromodichloromethane	0.2 U	0.5	0.1
Dibromomethane	0.2 U	0.5	0.1
4-Methyl-2-Pentanone	2.0 U	10	0.7
cis-1,3-Dichloropropene	0.2 U	0.5	0.1
Toluene	0.2 U	0.5	0.1
trans-1,3-Dichloropropene	0.2 U	0.5	0.1
1,1,2-Trichloroethane	0.2 U	0.5	0.2
2-Hexanone	0.4 U	10	0.2
1,3-Dichloropropane	0.2 U	0.5	0.1
Tetrachloroethene	0.2 U	0.5	0.1
Dibromochloromethane	0.2 U	0.5	0.1
1,2-Dibromoethane	0.2 U	0.5	0.1
Chlorobenzene	0.2 U	0.5	0.1
1,1,1,2-Tetrachloroethane	0.2 U	0.5	0.1
Ethylbenzene	0.2 U	0.5	0.1
m,p-Xylenes	0.2 U	0.5	0.1
o-Xylene	0.2 U	0.5	0.1
Styrene	0.2 U	0.5	0.1
Bromoform	0.4 U	1.0	0.1
Isopropylbenzene	0.2 U	0.5	0.1
1,1,2,2-Tetrachloroethane	0.2 U	0.5	0.1
1,2,3-Trichloropropane	0.2 U	0.5	0.2
Propylbenzene	0.2 U	0.5	0.1
Bromobenzene	0.2 U	0.5	0.1
1,3,5-Trimethylbenzene	0.2 U	0.5	0.1

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753686	Batch#:	214432
Matrix:	Water	Analyzed:	08/15/14
Units:	ug/L		

Analyte	Result	LOQ	DL
2-Chlorotoluene	0.2 U	0.5	0.1
4-Chlorotoluene	0.2 U	0.5	0.1
tert-Butylbenzene	0.2 U	0.5	0.1
1,2,4-Trimethylbenzene	0.2 U	0.5	0.1
sec-Butylbenzene	0.2 U	0.5	0.1
para-Isopropyl Toluene	0.2 U	0.5	0.1
1,3-Dichlorobenzene	0.2 U	0.5	0.1
1,4-Dichlorobenzene	0.2 U	0.5	0.1
n-Butylbenzene	0.2 U	0.5	0.1
1,2-Dichlorobenzene	0.2 U	0.5	0.1
1,2-Dibromo-3-Chloropropane	0.4 U	2.0	0.2
1,2,4-Trichlorobenzene	0.4 U	0.5	0.1
Hexachlorobutadiene	0.4 U	2.0	0.1
Naphthalene	0.4 U	2.0	0.1
1,2,3-Trichlorobenzene	0.4 U	0.5	0.1

Surrogate	%REC	Limits
Dibromofluoromethane	106	85-115
1,2-Dichloroethane-d4	112	70-120
Toluene-d8	102	85-120
Bromofluorobenzene	103	75-120

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214489
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Type: BS Lab ID: QC753910

Analyte	Spiked	Result	%REC	Limits
Freon 12	20.00	15.01 b	75	30-155
Chloromethane	20.00	20.14	101	40-125
Vinyl Chloride	20.00	20.99	105	50-145
Bromomethane		NA		
Chloroethane	20.00	20.15	101	60-135
Trichlorofluoromethane	20.00	18.61	93	60-145
Acetone		NA		
Freon 113	25.00	20.98	84	68-147
1,1-Dichloroethene	25.00	20.73	83	70-130
Methylene Chloride	25.00	21.47	86	55-140
Carbon Disulfide	25.00	21.27	85	35-160
MTBE	25.00	18.65 b	75	65-125
trans-1,2-Dichloroethene	25.00	22.00	88	60-140
Vinyl Acetate	25.00	27.35	109	67-209
1,1-Dichloroethane	25.00	22.39	90	70-135
2-Butanone	25.00	22.40	90	30-150
cis-1,2-Dichloroethene	25.00	21.69	87	70-125
2,2-Dichloropropane	25.00	26.91	108	70-135
Chloroform	25.00	22.37	89	65-135
Bromochloromethane	25.00	22.50	90	65-130
1,1,1-Trichloroethane	25.00	24.81	99	65-130
1,1-Dichloropropene	25.00	24.84	99	75-130
Carbon Tetrachloride	25.00	26.17	105	65-140
1,2-Dichloroethane	25.00	26.63	107	70-130
Benzene	25.00	24.71	99	80-120
Trichloroethene	25.00	23.44	94	70-125
1,2-Dichloropropane	25.00	22.51	90	75-125
Bromodichloromethane	25.00	23.18	93	75-120
Dibromomethane	25.00	22.65	91	75-125
4-Methyl-2-Pentanone	25.00	20.25	81	60-135
cis-1,3-Dichloropropene	25.00	24.65	99	70-130
Toluene	25.00	23.66	95	75-120
trans-1,3-Dichloropropene	25.00	22.16	89	55-140
1,1,2-Trichloroethane	25.00	20.85	83	75-125
2-Hexanone	25.00	21.71	87	55-130
1,3-Dichloropropane	25.00	21.63	87	75-125
Tetrachloroethene	25.00	24.67	99	45-150
Dibromochloromethane	25.00	22.04	88	60-135
1,2-Dibromoethane	25.00	20.65	83	80-120
Chlorobenzene	25.00	24.11	96	80-120
1,1,1,2-Tetrachloroethane	25.00	23.10	92	80-130
Ethylbenzene	25.00	23.43	94	75-125
m,p-Xylenes	50.00	53.23	106	75-130
o-Xylene	25.00	24.56	98	80-120
Styrene	25.00	22.80	91	65-135
Bromoform	25.00	19.45 b	78	70-130
Isopropylbenzene	25.00	23.07	92	75-125
1,1,2,2-Tetrachloroethane	25.00	18.82 b	75	65-130
1,2,3-Trichloropropane	25.00	18.96 b	76	75-125
Propylbenzene	25.00	24.08	96	70-130

b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214489
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits
Bromobenzene	25.00	23.09	92	75-125
1,3,5-Trimethylbenzene	25.00	24.35	97	75-130
2-Chlorotoluene	25.00	25.01	100	75-125
4-Chlorotoluene	25.00	22.14	89	75-130
tert-Butylbenzene	25.00	23.06	92	70-130
1,2,4-Trimethylbenzene	25.00	21.54	86	75-130
sec-Butylbenzene	25.00	22.57	90	70-125
para-Isopropyl Toluene	25.00	22.52	90	75-130
1,3-Dichlorobenzene	25.00	22.98	92	75-125
1,4-Dichlorobenzene	25.00	22.76	91	75-125
n-Butylbenzene	25.00	22.62	90	70-135
1,2-Dichlorobenzene	25.00	22.37	89	70-120
1,2-Dibromo-3-Chloropropane	25.00	15.82 b	63	50-130
1,2,4-Trichlorobenzene		NA		
Hexachlorobutadiene	25.00	22.89	92	50-140
Naphthalene	25.00	16.87 b	67	55-140
1,2,3-Trichlorobenzene		NA		

Surrogate	%REC	Limits
Dibromofluoromethane	97	85-115
1,2-Dichloroethane-d4	117	70-120
Toluene-d8	104	85-120
Bromofluorobenzene	93	75-120

b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214489
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Type: BSD Lab ID: QC753911

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	20.00	15.49 b	77	30-155	3	30
Chloromethane	20.00	20.01	100	40-125	1	30
Vinyl Chloride	20.00	21.56	108	50-145	3	30
Bromomethane		NA				
Chloroethane	20.00	20.42	102	60-135	1	30
Trichlorofluoromethane	20.00	19.68	98	60-145	6	30
Acetone		NA				
Freon 113	25.00	21.80	87	68-147	4	30
1,1-Dichloroethene	25.00	21.79	87	70-130	5	30
Methylene Chloride	25.00	22.00	88	55-140	2	30
Carbon Disulfide	25.00	22.12	88	35-160	4	30
MTBE	25.00	19.82 b	79	65-125	6	30
trans-1,2-Dichloroethene	25.00	23.13	93	60-140	5	30
Vinyl Acetate	25.00	27.35	109	67-209	0	30
1,1-Dichloroethane	25.00	23.78	95	70-135	6	30
2-Butanone	25.00	23.16	93	30-150	3	30
cis-1,2-Dichloroethene	25.00	22.60	90	70-125	4	30
2,2-Dichloropropane	25.00	28.77	115	70-135	7	30
Chloroform	25.00	23.43	94	65-135	5	30
Bromochloromethane	25.00	23.90	96	65-130	6	30
1,1,1-Trichloroethane	25.00	26.29	105	65-130	6	30
1,1-Dichloropropene	25.00	27.09	108	75-130	9	30
Carbon Tetrachloride	25.00	28.02	112	65-140	7	30
1,2-Dichloroethane	25.00	27.74	111	70-130	4	30
Benzene	25.00	25.85	103	80-120	5	30
Trichloroethene	25.00	25.00	100	70-125	6	30
1,2-Dichloropropane	25.00	23.42	94	75-125	4	30
Bromodichloromethane	25.00	24.13	97	75-120	4	30
Dibromomethane	25.00	23.34	93	75-125	3	30
4-Methyl-2-Pentanone	25.00	21.17	85	60-135	4	30
cis-1,3-Dichloropropene	25.00	25.66	103	70-130	4	30
Toluene	25.00	24.22	97	75-120	2	30
trans-1,3-Dichloropropene	25.00	23.59	94	55-140	6	30
1,1,2-Trichloroethane	25.00	21.19	85	75-125	2	30
2-Hexanone	25.00	22.93	92	55-130	5	30
1,3-Dichloropropane	25.00	21.93	88	75-125	1	30
Tetrachloroethene	25.00	25.96	104	45-150	5	30
Dibromochloromethane	25.00	23.21	93	60-135	5	30
1,2-Dibromoethane	25.00	21.40	86	80-120	4	30
Chlorobenzene	25.00	25.60	102	80-120	6	30
1,1,1,2-Tetrachloroethane	25.00	24.51	98	80-130	6	30
Ethylbenzene	25.00	24.43	98	75-125	4	30
m,p-Xylenes	50.00	56.25	113	75-130	6	30
o-Xylene	25.00	26.56	106	80-120	8	30
Styrene	25.00	24.22	97	65-135	6	30
Bromoform	25.00	21.48 b	86	70-130	10	30
Isopropylbenzene	25.00	24.52	98	75-125	6	30
1,1,2,2-Tetrachloroethane	25.00	19.18 b	77	65-130	2	30
1,2,3-Trichloropropane	25.00	19.81 b	79	75-125	4	30
Propylbenzene	25.00	24.65	99	70-130	2	30

b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214489
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Bromobenzene	25.00	24.37	97	75-125	5	30
1,3,5-Trimethylbenzene	25.00	25.61	102	75-130	5	30
2-Chlorotoluene	25.00	25.95	104	75-125	4	30
4-Chlorotoluene	25.00	23.50	94	75-130	6	30
tert-Butylbenzene	25.00	24.61	98	70-130	6	30
1,2,4-Trimethylbenzene	25.00	23.11	92	75-130	7	30
sec-Butylbenzene	25.00	24.48	98	70-125	8	30
para-Isopropyl Toluene	25.00	24.13	97	75-130	7	30
1,3-Dichlorobenzene	25.00	24.37	97	75-125	6	30
1,4-Dichlorobenzene	25.00	23.82	95	75-125	5	30
n-Butylbenzene	25.00	24.42	98	70-135	8	30
1,2-Dichlorobenzene	25.00	23.74	95	70-120	6	30
1,2-Dibromo-3-Chloropropane	25.00	16.58 b	66	50-130	5	30
1,2,4-Trichlorobenzene		NA				
Hexachlorobutadiene	25.00	25.78	103	50-140	12	30
Naphthalene	25.00	19.39 b	78	55-140	14	30
1,2,3-Trichlorobenzene		NA				

Surrogate	%REC	Limits
Dibromofluoromethane	97	85-115
1,2-Dichloroethane-d4	115	70-120
Toluene-d8	102	85-120
Bromofluorobenzene	92	75-120

b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753912	Batch#:	214489
Matrix:	Water	Analyzed:	08/18/14
Units:	ug/L		

Analyte	Result	LOQ	DL
Freon 12	0.4 U b	1.0	0.2
Chloromethane	0.4 U	1.0	0.2
Vinyl Chloride	0.2 U	0.5	0.1
Bromomethane	NA		
Chloroethane	0.7 U	1.0	0.2
Trichlorofluoromethane	0.4 U	1.0	0.2
Acetone	NA		
Freon 113	0.2 U	2.0	0.2
1,1-Dichloroethene	0.2 U	0.5	0.1
Methylene Chloride	0.2 U	10	0.1
Carbon Disulfide	0.2 U	0.5	0.1
MTBE	0.2 U b	0.5	0.1
trans-1,2-Dichloroethene	0.2 U	0.5	0.1
Vinyl Acetate	1.0 U	10	0.5
1,1-Dichloroethane	0.2 U	0.5	0.1
2-Butanone	1.0 U	10	0.3
cis-1,2-Dichloroethene	0.2 U	0.5	0.1
2,2-Dichloropropane	0.2 U	0.5	0.1
Chloroform	0.2 U	0.5	0.1
Bromochloromethane	0.2 U	0.5	0.2
1,1,1-Trichloroethane	0.2 U	0.5	0.1
1,1-Dichloropropene	0.2 U	0.5	0.1
Carbon Tetrachloride	0.2 U	0.5	0.1
1,2-Dichloroethane	0.2 U	0.5	0.1
Benzene	0.2 U	0.5	0.1
Trichloroethene	0.2 U	0.5	0.1
1,2-Dichloropropane	0.2 U	0.5	0.2
Bromodichloromethane	0.2 U	0.5	0.1
Dibromomethane	0.2 U	0.5	0.1
4-Methyl-2-Pentanone	1.0 U	10	0.2
cis-1,3-Dichloropropene	0.2 U	0.5	0.1
Toluene	0.2 U	0.5	0.1
trans-1,3-Dichloropropene	0.2 U	0.5	0.1
1,1,2-Trichloroethane	0.2 U	0.5	0.2
2-Hexanone	1.0 U	10	0.2
1,3-Dichloropropane	0.2 U	0.5	0.1
Tetrachloroethene	0.2 U	0.5	0.1
Dibromochloromethane	0.2 U	0.5	0.1
1,2-Dibromoethane	0.2 U	0.5	0.1
Chlorobenzene	0.2 U	0.5	0.1
1,1,1,2-Tetrachloroethane	0.2 U	0.5	0.1
Ethylbenzene	0.2 U	0.5	0.2
m,p-Xylenes	0.2 U	0.5	0.1
o-Xylene	0.2 U	0.5	0.1
Styrene	0.2 U	0.5	0.1
Bromoform	0.4 U b	1.0	0.1
Isopropylbenzene	0.2 U	0.5	0.1
1,1,2,2-Tetrachloroethane	0.2 U b	0.5	0.1
1,2,3-Trichloropropane	0.4 U b	0.5	0.1
Propylbenzene	0.2 U	0.5	0.1
Bromobenzene	0.2 U	0.5	0.1

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
NA= Not Analyzed
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753912	Batch#:	214489
Matrix:	Water	Analyzed:	08/18/14
Units:	ug/L		

Analyte	Result	LOQ	DL
1,3,5-Trimethylbenzene	0.2 U	0.5	0.1
2-Chlorotoluene	0.2 U	0.5	0.1
4-Chlorotoluene	0.2 U	0.5	0.2
tert-Butylbenzene	0.2 U	0.5	0.1
1,2,4-Trimethylbenzene	0.2 U	0.5	0.2
sec-Butylbenzene	0.2 U	0.5	0.1
para-Isopropyl Toluene	0.2 U	0.5	0.1
1,3-Dichlorobenzene	0.2 U	0.5	0.1
1,4-Dichlorobenzene	0.2 U	0.5	0.1
n-Butylbenzene	0.2 U	0.5	0.1
1,2-Dichlorobenzene	0.2 U	0.5	0.1
1,2-Dibromo-3-Chloropropane	1.2 U b	2.0	0.2
1,2,4-Trichlorobenzene	NA		
Hexachlorobutadiene	0.2 U	2.0	0.1
Naphthalene	1.0 U b	2.0	0.1
1,2,3-Trichlorobenzene	NA		

Surrogate	%REC	Limits
Dibromofluoromethane	98	85-115
1,2-Dichloroethane-d4	118	70-120
Toluene-d8	106	85-120
Bromofluorobenzene	95	75-120

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
NA= Not Analyzed
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W19-081314	Batch#:	214489
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Type: MS Lab ID: QC753972

Analyte	MSS Result	Spiked	Result	%REC	Limits
Freon 12	<0.1733	20.00	15.10 b	75	30-155
Chloromethane	<0.2133	20.00	22.44	112	40-125
Vinyl Chloride	<0.1202	20.00	23.32	117	50-145
Bromomethane			NA		
Chloroethane	<0.1670	20.00	22.66	113	60-135
Trichlorofluoromethane	<0.1840	20.00	17.41	87	60-145
Acetone			NA		
Freon 113	<0.1554	25.00	22.60	90	68-147
1,1-Dichloroethene	<0.1000	25.00	21.04	84	70-130
Methylene Chloride	<0.1458	25.00	23.36	93	55-140
Carbon Disulfide	<0.1000	25.00	22.38	90	35-160
MTBE	<0.1000	25.00	24.46 b	98	65-125
trans-1,2-Dichloroethene	<0.1000	25.00	22.66	91	60-140
Vinyl Acetate	<0.5118	25.00	35.69	143	67-209
1,1-Dichloroethane	<0.1000	25.00	24.92	100	70-135
2-Butanone	<0.2956	25.00	30.81	123	30-150
cis-1,2-Dichloroethene	<0.1000	25.00	22.96	92	70-125
2,2-Dichloropropane	<0.1000	25.00	26.36	105	70-135
Chloroform	<0.1000	25.00	24.11	96	65-135
Bromochloromethane	<0.1508	25.00	26.73	107	65-130
1,1,1-Trichloroethane	<0.1000	25.00	27.32	109	65-130
1,1-Dichloropropene	<0.1000	25.00	27.41	110	75-130
Carbon Tetrachloride	<0.1000	25.00	27.86	111	65-140
1,2-Dichloroethane	<0.1000	25.00	32.79	131 *	70-130
Benzene	<0.1000	25.00	26.87	107	80-120
Trichloroethene	<0.1000	25.00	24.82	99	70-125
1,2-Dichloropropane	<0.1501	25.00	26.38	106	75-125
Bromodichloromethane	<0.1000	25.00	26.28	105	75-120
Dibromomethane	<0.1000	25.00	28.84	115	75-125
4-Methyl-2-Pentanone	<0.1884	25.00	36.96	148 *	60-135
cis-1,3-Dichloropropene	<0.1000	25.00	29.51	118	70-130
Toluene	<0.1000	25.00	25.40	102	75-120
trans-1,3-Dichloropropene	<0.1000	25.00	27.56	110	55-140
1,1,2-Trichloroethane	<0.1596	25.00	26.81	107	75-125
2-Hexanone	<0.1592	25.00	37.49	150 *	55-130
1,3-Dichloropropane	<0.1000	25.00	27.81	111	75-125
Tetrachloroethene	<0.1000	25.00	25.39	102	45-150
Dibromochloromethane	<0.1000	25.00	27.31	109	60-135
1,2-Dibromoethane	<0.1000	25.00	26.19	105	80-120
Chlorobenzene	<0.1136	25.00	27.40	110	80-120
1,1,1,2-Tetrachloroethane	<0.1000	25.00	27.07	108	80-130
Ethylbenzene	<0.1561	25.00	25.38	102	75-125
m,p-Xylenes	<0.1000	50.00	58.03	116	75-130
o-Xylene	<0.09974	25.00	27.68	111	80-120
Styrene	<0.1000	25.00	24.78	99	65-135
Bromoform	<0.1000	25.00	25.81 b	103	70-130
Isopropylbenzene	<0.1000	25.00	23.80	95	75-125

*= Value outside of QC limits; see narrative
b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W19-081314	Batch#:	214489
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1,2,2-Tetrachloroethane	<0.1000	25.00	25.28 b	101	65-130
1,2,3-Trichloropropane	<0.1388	25.00	25.18 b	101	75-125
Propylbenzene	<0.1074	25.00	24.38	98	70-130
Bromobenzene	<0.1000	25.00	26.09	104	75-125
1,3,5-Trimethylbenzene	<0.1017	25.00	25.05	100	75-130
2-Chlorotoluene	<0.1027	25.00	25.69	103	75-125
4-Chlorotoluene	<0.1554	25.00	23.27	93	75-130
tert-Butylbenzene	<0.1000	25.00	23.43	94	70-130
1,2,4-Trimethylbenzene	<0.1598	25.00	23.20	93	75-130
sec-Butylbenzene	<0.1102	25.00	23.32	93	70-125
para-Isopropyl Toluene	<0.1014	25.00	23.32	93	75-130
1,3-Dichlorobenzene	<0.1000	25.00	24.99	100	75-125
1,4-Dichlorobenzene	<0.1000	25.00	25.82	103	75-125
n-Butylbenzene	<0.1011	25.00	22.69	91	70-135
1,2-Dichlorobenzene	<0.1000	25.00	25.48	102	70-120
1,2-Dibromo-3-Chloropropane	<0.1880	25.00	22.51 b	90	50-130
1,2,4-Trichlorobenzene		NA			
Hexachlorobutadiene	<0.1492	25.00	21.54	86	50-140
Naphthalene	<0.1000	25.00	22.48 b	90	55-140
1,2,3-Trichlorobenzene		NA			

Surrogate	%REC	Limits
Dibromofluoromethane	101	85-115
1,2-Dichloroethane-d4	132 *	70-120
Toluene-d8	104	85-120
Bromofluorobenzene	89	75-120

*= Value outside of QC limits; see narrative
b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W19-081314	Batch#:	214489
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Type: MSD Lab ID: QC753973

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	20.00	16.52 b	83	30-155	9	30
Chloromethane	20.00	24.16	121	40-125	7	30
Vinyl Chloride	20.00	25.51	128	50-145	9	30
Bromomethane		NA				
Chloroethane	20.00	24.98	125	60-135	10	30
Trichlorofluoromethane	20.00	20.33	102	60-145	15	30
Acetone		NA				
Freon 113	25.00	23.97	96	68-147	6	30
1,1-Dichloroethene	25.00	24.82	99	70-130	16	30
Methylene Chloride	25.00	27.49	110	55-140	16	30
Carbon Disulfide	25.00	25.58	102	35-160	13	30
MTBE	25.00	29.03 b	116	65-125	17	30
trans-1,2-Dichloroethene	25.00	27.04	108	60-140	18	30
Vinyl Acetate	25.00	40.08	160	67-209	12	30
1,1-Dichloroethane	25.00	29.74	119	70-135	18	30
2-Butanone	25.00	33.34	133	30-150	8	30
cis-1,2-Dichloroethene	25.00	26.83	107	70-125	16	30
2,2-Dichloropropane	25.00	30.16	121	70-135	13	30
Chloroform	25.00	28.47	114	65-135	17	30
Bromochloromethane	25.00	31.57	126	65-130	17	30
1,1,1-Trichloroethane	25.00	31.40	126	65-130	14	30
1,1-Dichloropropene	25.00	31.73	127	75-130	15	30
Carbon Tetrachloride	25.00	32.91	132	65-140	17	30
1,2-Dichloroethane	25.00	39.47	158 *	70-130	18	30
Benzene	25.00	31.73	127 *	80-120	17	30
Trichloroethene	25.00	29.61	118	70-125	18	30
1,2-Dichloropropane	25.00	30.95	124	75-125	16	30
Bromodichloromethane	25.00	30.22	121 *	75-120	14	30
Dibromomethane	25.00	33.28	133 *	75-125	14	30
4-Methyl-2-Pentanone	25.00	42.12	168 *	60-135	13	30
cis-1,3-Dichloropropene	25.00	33.63	135 *	70-130	13	30
Toluene	25.00	29.77	119	75-120	16	30
trans-1,3-Dichloropropene	25.00	32.45	130	55-140	16	30
1,1,2-Trichloroethane	25.00	30.89	124	75-125	14	30
2-Hexanone	25.00	44.39	178 *	55-130	17	30
1,3-Dichloropropane	25.00	32.28	129 *	75-125	15	30
Tetrachloroethene	25.00	30.25	121	45-150	17	30
Dibromochloromethane	25.00	31.62	126	60-135	15	30
1,2-Dibromoethane	25.00	29.98	120	80-120	13	30
Chlorobenzene	25.00	32.59	130 *	80-120	17	30
1,1,1,2-Tetrachloroethane	25.00	31.78	127	80-130	16	30
Ethylbenzene	25.00	29.67	119	75-125	16	30
m,p-Xylenes	50.00	67.93	136 *	75-130	16	30
o-Xylene	25.00	32.08	128 *	80-120	15	30
Styrene	25.00	28.91	116	65-135	15	30
Bromoform	25.00	30.39 b	122	70-130	16	30
Isopropylbenzene	25.00	28.16	113	75-125	17	30

*= Value outside of QC limits; see narrative
b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W19-081314	Batch#:	214489
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1,2,2-Tetrachloroethane	25.00	29.20 b	117	65-130	14	30
1,2,3-Trichloropropane	25.00	30.84 b	123	75-125	20	30
Propylbenzene	25.00	28.51	114	70-130	16	30
Bromobenzene	25.00	31.21	125	75-125	18	30
1,3,5-Trimethylbenzene	25.00	30.07	120	75-130	18	30
2-Chlorotoluene	25.00	31.11	124	75-125	19	30
4-Chlorotoluene	25.00	27.41	110	75-130	16	30
tert-Butylbenzene	25.00	28.03	112	70-130	18	30
1,2,4-Trimethylbenzene	25.00	27.43	110	75-130	17	30
sec-Butylbenzene	25.00	27.47	110	70-125	16	30
para-Isopropyl Toluene	25.00	27.06	108	75-130	15	30
1,3-Dichlorobenzene	25.00	30.19	121	75-125	19	30
1,4-Dichlorobenzene	25.00	30.33	121	75-125	16	30
n-Butylbenzene	25.00	26.68	107	70-135	16	30
1,2-Dichlorobenzene	25.00	30.51	122 *	70-120	18	30
1,2-Dibromo-3-Chloropropane	25.00	25.76 b	103	50-130	13	30
1,2,4-Trichlorobenzene		NA				
Hexachlorobutadiene	25.00	27.08	108	50-140	23	30
Naphthalene	25.00	28.10 b	112	55-140	22	30
1,2,3-Trichlorobenzene		NA				

Surrogate	%REC	Limits
Dibromofluoromethane	101	85-115
1,2-Dichloroethane-d4	132 *	70-120
Toluene-d8	104	85-120
Bromofluorobenzene	90	75-120

*= Value outside of QC limits; see narrative
b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Initial & Continuing Calibration Data

CURTIS & TOMPKINS BFB TUNE FOR 259790 MSVOA Water
EPA 8260C

Inst : MSVOA08 Run Name : BFB IDF : 1.0
Seqnum : 474253910008 File : hfp08 Time : 25-JUN-2014 12:59

Standards: S24715

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	12264	24.56	
75	30% - 60% of mass 95	22536	45.13	
95		49936	100.00	
96	5% - 9% of mass 95	3172	6.35	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	33074	66.23	
175	5% - 9% of mass 174	2630	7.95	
176	> 95% and < 101% of mass 174	32085	97.01	
177	5% - 9% of mass 176	2187	6.82	

Analyst: DJA Date: 06/26/14 Reviewer: LW Date: 06/27/14

CURTIS & TOMPKINS BFB TUNE FOR 259790 MSVOA Water
EPA 8260C

Inst : MSVOA08 Run Name : BFB IDF : 1.0
Seqnum : 474327481003 File : hhf03 Time : 15-AUG-2014 12:01

Standards: S24715

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	5132	23.64	
75	30% - 60% of mass 95	9678	44.57	
95		21712	100.00	
96	5% - 9% of mass 95	1436	6.61	
173	< 2% of mass 174	83	0.65	
174	> 50% and < 100% of mass 95	12794	58.93	
175	5% - 9% of mass 174	667	5.21	
176	> 95% and < 101% of mass 174	12260	95.83	
177	5% - 9% of mass 176	813	6.63	

Analyst: DJA Date: 08/18/14 Reviewer: LW Date: 08/18/14

CURTIS & TOMPKINS BFB TUNE FOR 259790 MSVOA Water
EPA 8260C

Inst : MSVOA09 Run Name : BFB IDF : 1.0
Seqnum : 484219504002 File : if102 Time : 01-JUN-2014 10:56

Standards: S24715

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	33405	17.61	
75	30% - 60% of mass 95	75090	39.58	
95		189738	100.00	
96	5% - 9% of mass 95	12482	6.58	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	124576	65.66	
175	5% - 9% of mass 174	9197	7.38	
176	> 95% and < 101% of mass 174	122314	98.18	
177	5% - 9% of mass 176	8150	6.66	

Analyst: TEW Date: 06/02/14 Reviewer: LW Date: 06/03/14

CURTIS & TOMPKINS BFB TUNE FOR 259790 MSVOA Water
EPA 8260C

Inst : MSVOA09 Run Name : BFB IDF : 1.0
Seqnum : 484221233003 File : if203 Time : 02-JUN-2014 16:07

Standards: S24715

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	49216	19.27	
75	30% - 60% of mass 95	107514	42.10	
95		255402	100.00	
96	5% - 9% of mass 95	17584	6.88	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	158248	61.96	
175	5% - 9% of mass 174	11490	7.26	
176	> 95% and < 101% of mass 174	154986	97.94	
177	5% - 9% of mass 176	9951	6.42	

Analyst: TEW Date: 06/02/14 Reviewer: LW Date: 06/03/14

CURTIS & TOMPKINS BFB TUNE FOR 259790 MSVOA Water
EPA 8260C

Inst : MSVOA09 Run Name : BFB IDF : 1.0
Seqnum : 484331713002 File : ihi02 Time : 18-AUG-2014 10:18

Standards: S24715

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	32453	25.84	
75	30% - 60% of mass 95	62077	49.43	
95		125573	100.00	
96	5% - 9% of mass 95	8877	7.07	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	77002	61.32	
175	5% - 9% of mass 174	5487	7.13	
176	> 95% and < 101% of mass 174	75168	97.62	
177	5% - 9% of mass 176	4654	6.19	

Analyst: DJA Date: 08/18/14 Reviewer: LW Date: 08/19/14

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259790 MSVOA Water: EPA 8260C

Inst : MSVOA08 Name : 826GOX8
Calnum : 474253910001 Date : 25-JUN-2014 14:41 Type : WATER
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	hfp11	474253910011		25-JUN-2014 14:41	S23923 (2000000X), S24633 (2000000X), S24634 (2000000X), S23961 (1000000X), S24802 (5000X)
L2	hfp12	474253910012		25-JUN-2014 15:16	S23923 (1000000X), S24633 (1000000X), S24634 (1000000X), S23961 (500000X), S24802 (5000X)
L3	hfp13	474253910013		25-JUN-2014 15:51	S23923 (500000X), S24633 (250000X), S24634 (250000X), S23961 (250000X), S24802 (5000X)
L4	hfp14	474253910014		25-JUN-2014 16:25	S23923 (200000X), S24633 (100000X), S24634 (100000X), S23961 (100000X), S24802 (5000X)
L5	hfp15	474253910015		25-JUN-2014 17:00	S23923 (100000X), S24633 (50000X), S24634 (50000X), S23961 (50000X), S24802 (5000X)
L6	hfp16	474253910016		25-JUN-2014 17:35	S23923 (50000X), S24633 (25000X), S24634 (25000X), S23961 (25000X), S24802 (5000X)
L7	hfp17	474253910017		25-JUN-2014 18:09	S23923 (20000X), S24633 (10000X), S24634 (10000X), S23961 (10000X), S24802 (5000X)
L8	hfp18	474253910018		25-JUN-2014 18:44	S23923 (13330X), S24633 (6667X), S24634 (6667X), S23961 (6667X), S24802 (5000X)
L9	hfp19	474253910019		25-JUN-2014 19:19	S23923 (10000X), S24633 (5000X), S24634 (5000X), S23961 (5000X), S24802 (5000X)

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Freon 12		0.6474m	0.6457m	0.6131m	0.6202m	0.5440m	0.5896	0.5948	0.5887	AVRG		1.65166		0.6055	6	15	0.100	0.99	
Chloromethane	1.3194	1.2468	1.2408	1.2211	1.1748	1.1479	0.9956	0.9959	0.9170	AVRG		0.87726		1.1399	12	15	0.100	0.99	
Vinyl Chloride	0.8946	0.8785	0.8676m	0.8221	0.8016	0.8210	0.7456	0.7314	0.6815	AVRG		1.24244		0.8049	9	15	0.100	0.99	
Bromomethane		0.2877	0.3131	0.3186m	0.3482	0.3928	0.3950	0.4162	0.3970	AVRG		2.78887		0.3586	13	15	0.100	0.99	
Chloroethane		0.4689m	0.4528m	0.4470m	0.4341	0.4431	0.4011	0.4034	0.3785	AVRG		2.33301		0.4286	7	15	0.100	0.99	
Trichlorofluoromethane		0.6820	0.6652m	0.6268	0.6446	0.6012	0.5995	0.6069	0.5662	AVRG		1.60245		0.6240	6	15	0.100	0.99	
Acetone			0.1842m	0.1425	0.1529	0.1398	0.1598	0.1328	0.1617	AVRG		6.51866		0.1534	11	15	0.100	0.99	
Freon 113		0.4071	0.4642m	0.3250m	0.4674	0.3199m	0.4332m	0.4710	0.4514	AVRG		2.39589		0.4174	15	15	0.100	0.99	
1,1-Dichloroethene		0.6197	0.5891	0.5071	0.5686	0.5427	0.5307	0.5145	0.4947	AVRG		1.83186		0.5459	8	15	0.100	0.99	
Methylene Chloride		0.8157	0.7221	0.7256	0.7187	0.7204	0.6856	0.6480	0.6183	AVRG		1.41480		0.7068	8	15	0.100	0.99	
Carbon Disulfide		2.6969	2.3873	2.2269	2.3980	2.2822	2.0851	1.9477	1.8391	AVRG		0.44785		2.2329	12	15	0.100	0.99	
MTBE		1.4658	1.3953	1.3734	1.4375	1.3680	1.2935	1.2320	1.1769	AVRG		0.74471		1.3428	7	15	0.100	0.99	
trans-1,2-Dichloroethene		0.7317	0.6485	0.6544	0.6608	0.6474	0.6139	0.5863	0.5560	AVRG		1.56893		0.6374	8	15	0.100	0.99	
Vinyl Acetate	1.1460	1.0143	1.0905	1.0654	1.1096m	1.0606m				AVRG		0.92501		1.0811	4	15	0.05	0.99	
1,1-Dichloroethane		1.5024	1.4216	1.4307	1.4340	1.3596	1.2726	1.1682	1.0958	AVRG		0.74872		1.3356	11	15	0.200	0.99	
2-Butanone			0.2406	0.2195	0.2285	0.2212	0.2126	0.1899	0.1919	AVRG		4.65365		0.2149	9	15	0.100	0.99	
2,2-Dichloropropane		0.9247	0.7873	0.7361	0.7808	0.7502	0.7161	0.6851	0.6427	AVRG		1.32827		0.7529	11	15	0.05	0.99	
cis-1,2-Dichloroethene		0.7776	0.7503	0.7337	0.7342	0.7177	0.6786	0.6428	0.6155	AVRG		1.41582		0.7063	8	15	0.100	0.99	
Chloroform		1.2992	1.1407	1.1613	1.1555	1.1136	1.0445	0.9701	0.9136	AVRG		0.90925		1.0998	11	15	0.200	0.99	
Bromochloromethane		0.3244	0.3126	0.2985	0.3117	0.3116	0.3032	0.2901	0.2817	AVRG		3.28708		0.3042	5	15	0.05	0.99	
1,1,1-Trichloroethane		0.8080	0.7645	0.6998	0.7413	0.7242	0.6957	0.6854	0.6468	AVRG		1.38753		0.7207	7	15	0.100	0.99	
1,1-Dichloropropene		0.5173	0.5088	0.4463	0.4827	0.4673	0.4407	0.4295	0.4061	AVRG		2.16294		0.4623	8	15	0.05	0.99	
Carbon Tetrachloride		0.3814	0.3614	0.3181	0.3608	0.3472	0.3361	0.3439	0.3287	AVRG		2.88012		0.3472	6	15	0.100	0.99	
1,2-Dichloroethane		0.4736	0.4544	0.4463	0.4625	0.4411	0.4195	0.3999	0.3806	AVRG		2.30033		0.4347	7	15	0.100	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Benzene		1.6417	1.5712	1.5486	1.5263	1.4596	1.3051	1.2085	1.1259	AVRG		0.70256		1.4234	13	15	0.500	0.99	
Trichloroethene		0.3669	0.3694	0.3541	0.3658	0.3559	0.3505	0.3275	0.3360	AVRG		2.83077		0.3533	4	15	0.200	0.99	
1,2-Dichloropropane		0.4962	0.4949	0.4898	0.4899	0.4673	0.4334	0.4035	0.3786	AVRG		2.18958		0.4567	10	15	0.100	0.99	
Bromodichloromethane		0.5160	0.4911	0.4959	0.5006	0.4828	0.4621	0.4427	0.4233	AVRG		2.09725		0.4768	7	15	0.200	0.99	
Dibromomethane		0.2081	0.2097	0.2057	0.2119	0.2050	0.2015	0.1967	0.1918	AVRG		4.90693		0.2038	3	15	0.05	0.99	
4-Methyl-2-Pentanone			0.3004	0.3238	0.3195	0.3156	0.2974	0.2859	0.2813	AVRG		3.29589		0.3034	5	15	0.100	0.99	
cis-1,3-Dichloropropene		0.6280	0.6117	0.6205	0.6188	0.6026	0.5668	0.5317	0.5065	AVRG		1.70697		0.5858	8	15	0.200	0.99	
Toluene		1.1039	1.1013	1.0484	1.0637	1.0079	0.9443	0.9023	0.8520	AVRG		0.99703		1.0030	9	15	0.400	0.99	
trans-1,3-Dichloropropene		0.6190	0.5835	0.5883	0.6055	0.5848	0.5578	0.5258	0.5122	AVRG		1.74794		0.5721	7	15	0.100	0.99	
1,1,2-Trichloroethane		0.1980	0.1857	0.1802	0.1926	0.1837	0.1791	0.1764	0.1706	AVRG		5.45562		0.1833	5	15	0.100	0.99	
2-Hexanone			0.2523	0.2550	0.2610	0.2497	0.2493	0.2206	0.2233	AVRG		4.09083		0.2444	6	15	0.100	0.99	
1,3-Dichloropropane		0.6262	0.6098	0.6116	0.6320	0.6059	0.5733	0.5460	0.5206	AVRG		1.69295		0.5907	7	15	0.05	0.99	
Tetrachloroethene		0.3550	0.3429	0.2960	0.3250	0.3141	0.3168	0.3311	0.3246	AVRG		3.07020		0.3257	6	15	0.200	0.99	
Dibromochloromethane		0.3711	0.3359	0.3487	0.3710	0.3642	0.3622	0.3594	0.3535	AVRG		2.79158		0.3582	3	15	0.100	0.99	
1,2-Dibromoethane		0.3030	0.3192	0.3119	0.3318	0.3194	0.3114	0.3068	0.2957	AVRG		3.20108		0.3124	4	15	0.100	0.99	
Chlorobenzene		1.1321	1.1527	1.1178	1.1207	1.0651	0.9838	0.9287	0.8645	AVRG		0.95633		1.0457	10	15	0.500	0.99	
1,1,1,2-Tetrachloroethane		0.3590	0.3557	0.3612	0.3761	0.3593	0.3490	0.3378	0.3256	AVRG		2.83315		0.3530	4	15	0.05	0.99	
Ethylbenzene		2.0984	2.0048	1.9305	1.9340	1.7601	1.5414	1.4497		AVRG		0.55036		1.8170	13	15	0.100	0.99	
m,p-Xylenes	0.8761	0.7506	0.7201	0.7065m	0.7171m	0.6671m	0.6018m	0.5561m		AVRG		1.42974		0.6994	14	15	0.100	0.99	
o-Xylene		0.7322	0.7293	0.7282	0.7242	0.6960	0.6710	0.6454	0.6035	AVRG		1.44671		0.6912	7	15	0.300	0.99	
Styrene		1.2717	1.2462	1.2583	1.2498	1.1718	1.0752	0.9985	0.9216	AVRG		0.87022		1.1491	12	15	0.300	0.99	
Bromoform		0.1736	0.1756	0.1723	0.1825	0.1834	0.1854	0.1893	0.1906	AVRG		5.50697		0.1816	4	15	0.100	0.99	
Isopropylbenzene		3.9724	3.6415	3.5445	3.5397	3.2876	2.9503	2.8352	2.6354	AVRG		0.30295		3.3008	14	15	0.100	0.99	
1,1,2,2-Tetrachloroethane		0.8305	0.7578	0.7491	0.8108	0.7626	0.6866	0.7029	0.6196	AVRG		1.35138		0.7400	9	15	0.300	0.99	
1,2,3-Trichloropropane		0.1628	0.1768	0.1704	0.1785	0.1726	0.1675	0.1724	0.1729	AVRG		5.82290		0.1717	3	15	0.05	0.99	
Propylbenzene		4.8789	4.6047	4.3755	4.3775	3.9341	3.3880	3.1664	2.8620	QUAD	0.12772	0.20919	4.774E-4	3.9484	1.000	15	0.05	0.99	
Bromobenzene		0.8217	0.8242	0.8488	0.8508	0.8275	0.7974	0.7754	0.7441	AVRG		1.23268		0.8112	5	15	0.05	0.99	
1,3,5-Trimethylbenzene		3.0214	2.9611	2.8737	2.8774	2.6150	2.3163	2.2085	2.0063	AVRG		0.38315		2.6100	15	15	0.05	0.99	
2-Chlorotoluene		3.0886	3.1123	3.0882	3.0556	2.7853	2.4291	2.2711	2.0823	AVRG		0.36509		2.7391	15	15	0.05	0.99	
4-Chlorotoluene		2.9612	2.8636	2.7821	2.8035	2.6131	2.3460	2.2266	2.0954	AVRG		0.38663		2.5864	13	15	0.05	0.99	
tert-Butylbenzene		2.7837	2.5341	2.3986	2.4671	2.2869	2.1312	2.1279	1.9819	AVRG		0.42755		2.3389	11	15	0.05	0.99	
1,2,4-Trimethylbenzene		3.1366	2.9753	2.9295	2.9516	2.7062	2.4288	2.3084	2.1354	AVRG		0.37085		2.6965	14	15	0.05	0.99	
sec-Butylbenzene		3.9866	3.8745	3.4329	3.7000	3.2941	2.9994	3.0050	2.7604	AVRG		0.29572		3.3816	13	15	0.05	0.99	
para-Isopropyl Toluene		3.0288	2.8519	2.7189	2.8018	2.5829	2.3899	2.3761	2.1911	AVRG		0.38202		2.6177	11	15	0.05	0.99	
1,3-Dichlorobenzene		1.5268	1.5041	1.5082	1.5129	1.4382	1.3629	1.3405	1.2699	AVRG		0.69787		1.4329	7	15	0.600	0.99	
1,4-Dichlorobenzene		1.5565	1.4586	1.4654	1.4376	1.3920	1.3275	1.2894	1.2527	AVRG		0.71558		1.3975	7	15	0.500	0.99	
n-Butylbenzene		2.9724	2.6991	2.4476	2.5918	2.3197	2.0830	2.0897	1.9031	AVRG		0.41871		2.3883	15	15	0.05	0.99	
1,2-Dichlorobenzene		1.5091	1.4392	1.3999	1.4128	1.3656	1.2911	1.2675	1.2209	AVRG		0.73354		1.3633	7	15	0.400	0.99	
1,2-Dibromo-3-Chloropropane		0.1443	0.1114	0.1123	0.1160	0.1148	0.1091	0.1131	0.1110	AVRG		8.58337		0.1165	10	15	0.050	0.99	
1,2,4-Trichlorobenzene		0.7017	0.6379	0.6689	0.6762	0.6518	0.6426	0.6644	0.6597	AVRG		1.50851		0.6629	3	15	0.200	0.99	
Hexachlorobutadiene		0.2754	0.2626	0.2204	0.2455	0.2277	0.2373	0.2794	0.2795	AVRG		3.94527		0.2535	9	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene		1.6598	1.5074	1.5555	1.6165	1.6218	1.5232	1.5504	1.5295	AVRG		0.63674		1.5705	4	15	0.05	0.99	
1,2,3-Trichlorobenzene		0.6707	0.6108	0.6053	0.6064	0.6007	0.5938	0.6184	0.6179	AVRG		1.62472		0.6155	4	15	0.05	0.99	
Dibromofluoromethane	0.6044	0.6054	0.6067	0.6128	0.6044	0.6128	0.5990	0.5922	0.5763	AVRG		1.66235		0.6016	2	15	0.05	0.99	
1,2-Dichloroethane-d4	0.3281	0.3273	0.3323	0.3281	0.3209	0.3153	0.2870	0.2775	0.2631	AVRG		3.23785		0.3088	8	15	0.05	0.99	
Toluene-d8	1.2369	1.2517	1.2523	1.2441	1.2404	1.2418	1.2404	1.2551	1.2353	AVRG		0.80371		1.2442	1	15	0.05	0.99	
Bromofluorobenzene	1.1168	1.1206	1.1163	1.1291	1.1305	1.1246	1.1167	1.1241	1.1289	AVRG		0.89042		1.1231	1	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
Freon 12			1.0000	7	2.0000	7	5.0000	1	10.000	2	20.000	-10	50.000	-3	75.000	-2	100.00	-3
Chloromethane	0.5000	16	1.0000	9	2.0000	9	5.0000	7	10.000	3	20.000	1	50.000	-13	75.000	-13	100.00	-20
Vinyl Chloride	0.5000	11	1.0000	9	2.0000	8	5.0000	2	10.000	0	20.000	2	50.000	-7	75.000	-9	100.00	-15
Bromomethane			1.0000	-20	2.0000	-13	5.0000	-11	10.000	-3	20.000	10	50.000	10	75.000	16	100.00	11
Chloroethane			1.0000	9	2.0000	6	5.0000	4	10.000	1	20.000	3	50.000	-6	75.000	-6	100.00	-12
Trichlorofluoromethane			1.0000	9	2.0000	7	5.0000	0	10.000	3	20.000	-4	50.000	-4	75.000	-3	100.00	-9
Acetone					2.0000	20	5.0000	-7	10.000	0	20.000	-9	50.000	4	75.000	-13	100.00	5
Freon 113			0.5000	-2	2.0000	11	5.0000	**-22**	10.000	12	20.000	**-23**	50.000	4	75.000	13	100.00	8
1,1-Dichloroethene			0.5000	14	2.0000	8	5.0000	-7	10.000	4	20.000	-1	50.000	-3	75.000	-6	100.00	-9
Methylene Chloride			0.5000	15	2.0000	2	5.0000	3	10.000	2	20.000	2	50.000	-3	75.000	-8	100.00	-13
Carbon Disulfide			0.5000	**21**	2.0000	7	5.0000	0	10.000	7	20.000	2	50.000	-7	75.000	-13	100.00	-18
MTBE			0.5000	9	2.0000	4	5.0000	2	10.000	7	20.000	2	50.000	-4	75.000	-8	100.00	-12
trans-1,2-Dichloroethene			0.5000	15	2.0000	2	5.0000	3	10.000	4	20.000	2	50.000	-4	75.000	-8	100.00	-13
Vinyl Acetate	0.2500	6	0.5000	-6	2.0000	1	5.0000	-1	10.000	3	20.000	-2						
1,1-Dichloroethane			0.5000	12	2.0000	6	5.0000	7	10.000	7	20.000	2	50.000	-5	75.000	-13	100.00	-18
2-Butanone					2.0000	12	5.0000	2	10.000	6	20.000	3	50.000	-1	75.000	-12	100.00	-11
2,2-Dichloropropane			0.5000	**23**	2.0000	5	5.0000	-2	10.000	4	20.000	0	50.000	-5	75.000	-9	100.00	-15
cis-1,2-Dichloroethene			0.5000	10	2.0000	6	5.0000	4	10.000	4	20.000	2	50.000	-4	75.000	-9	100.00	-13
Chloroform			0.5000	18	2.0000	4	5.0000	6	10.000	5	20.000	1	50.000	-5	75.000	-12	100.00	-17
Bromochloromethane			0.5000	7	2.0000	3	5.0000	-2	10.000	2	20.000	2	50.000	0	75.000	-5	100.00	-7
1,1,1-Trichloroethane			0.5000	12	2.0000	6	5.0000	-3	10.000	3	20.000	0	50.000	-3	75.000	-5	100.00	-10
1,1-Dichloropropene			0.5000	12	2.0000	10	5.0000	-3	10.000	4	20.000	1	50.000	-5	75.000	-7	100.00	-12
Carbon Tetrachloride			0.5000	10	2.0000	4	5.0000	-8	10.000	4	20.000	0	50.000	-3	75.000	-1	100.00	-5
1,2-Dichloroethane			0.5000	9	2.0000	5	5.0000	3	10.000	6	20.000	1	50.000	-4	75.000	-8	100.00	-12
Benzene			0.5000	15	2.0000	10	5.0000	9	10.000	7	20.000	3	50.000	-8	75.000	-15	100.00	**-21**
Trichloroethene			0.5000	4	2.0000	5	5.0000	0	10.000	4	20.000	1	50.000	-1	75.000	-7	100.00	-5
1,2-Dichloropropane			0.5000	9	2.0000	8	5.0000	7	10.000	7	20.000	2	50.000	-5	75.000	-12	100.00	-17
Bromodichloromethane			0.5000	8	2.0000	3	5.0000	4	10.000	5	20.000	1	50.000	-3	75.000	-7	100.00	-11
Dibromomethane			0.5000	2	2.0000	3	5.0000	1	10.000	4	20.000	1	50.000	-1	75.000	-3	100.00	-6
4-Methyl-2-Pentanone					2.0000	-1	5.0000	7	10.000	5	20.000	4	50.000	-2	75.000	-6	100.00	-7
cis-1,3-Dichloropropene			0.5000	7	2.0000	4	5.0000	6	10.000	6	20.000	3	50.000	-3	75.000	-9	100.00	-14
Toluene			0.5000	10	2.0000	10	5.0000	5	10.000	6	20.000	0	50.000	-6	75.000	-10	100.00	-15
trans-1,3-Dichloropropene			0.5000	8	2.0000	2	5.0000	3	10.000	6	20.000	2	50.000	-3	75.000	-8	100.00	-10
1,1,2-Trichloroethane			0.5000	8	2.0000	1	5.0000	-2	10.000	5	20.000	0	50.000	-2	75.000	-4	100.00	-7
2-Hexanone					2.0000	3	5.0000	4	10.000	7	20.000	2	50.000	2	75.000	-10	100.00	-9
1,3-Dichloropropane			0.5000	6	2.0000	3	5.0000	4	10.000	7	20.000	3	50.000	-3	75.000	-8	100.00	-12
Tetrachloroethene			0.5000	9	2.0000	5	5.0000	-9	10.000	0	20.000	-4	50.000	-3	75.000	2	100.00	0
Dibromochloromethane			0.5000	4	2.0000	-6	5.0000	-3	10.000	4	20.000	2	50.000	1	75.000	0	100.00	-1
1,2-Dibromoethane			0.5000	-3	2.0000	2	5.0000	0	10.000	6	20.000	2	50.000	0	75.000	-2	100.00	-5
Chlorobenzene			0.5000	8	2.0000	10	5.0000	7	10.000	7	20.000	2	50.000	-6	75.000	-11	100.00	-17
1,1,1,2-Tetrachloroethane			0.5000	2	2.0000	1	5.0000	2	10.000	7	20.000	2	50.000	-1	75.000	-4	100.00	-8
Ethylbenzene			0.5000	15	2.0000	10	5.0000	6	10.000	6	20.000	-3	50.000	-15	75.000	-20		

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
m,p-Xylenes	0.5000	**25**	1.0000	7	4.0000	3	10.000	1	20.000	3	40.000	-5	100.00	-14	150.00	-20		
o-Xylene			0.5000	6	2.0000	6	5.0000	5	10.000	5	20.000	1	50.000	-3	75.000	-7	100.00	-13
Styrene			0.5000	11	2.0000	8	5.0000	9	10.000	9	20.000	2	50.000	-6	75.000	-13	100.00	-20
Bromoform			0.5000	-4	2.0000	-3	5.0000	-5	10.000	1	20.000	1	50.000	2	75.000	4	100.00	5
Isopropylbenzene			0.5000	20	2.0000	10	5.0000	7	10.000	7	20.000	0	50.000	-11	75.000	-14	100.00	-20
1,1,2,2-Tetrachloroethane			0.5000	12	2.0000	2	5.0000	1	10.000	10	20.000	3	50.000	-7	75.000	-5	100.00	-16
1,2,3-Trichloropropane			0.5000	-5	2.0000	3	5.0000	-1	10.000	4	20.000	1	50.000	-2	75.000	0	100.00	1
Propylbenzene			0.5000	**28**	2.0000	5	5.0000	-1	10.000	2	20.000	-2	50.000	-1	75.000	2	100.00	-1
Bromobenzene			0.5000	1	2.0000	2	5.0000	5	10.000	5	20.000	2	50.000	-2	75.000	-4	100.00	-8
1,3,5-Trimethylbenzene			0.5000	16	2.0000	13	5.0000	10	10.000	10	20.000	0	50.000	-11	75.000	-15	100.00	**-23**
2-Chlorotoluene			0.5000	13	2.0000	14	5.0000	13	10.000	12	20.000	2	50.000	-11	75.000	-17	100.00	**-24**
4-Chlorotoluene			0.5000	14	2.0000	11	5.0000	8	10.000	8	20.000	1	50.000	-9	75.000	-14	100.00	-19
tert-Butylbenzene			0.5000	19	2.0000	8	5.0000	3	10.000	5	20.000	-2	50.000	-9	75.000	-9	100.00	-15
1,2,4-Trimethylbenzene			0.5000	16	2.0000	10	5.0000	9	10.000	9	20.000	0	50.000	-10	75.000	-14	100.00	**-21**
sec-Butylbenzene			0.5000	18	2.0000	15	5.0000	2	10.000	9	20.000	-3	50.000	-11	75.000	-11	100.00	-18
para-Isopropyl Toluene			0.5000	16	2.0000	9	5.0000	4	10.000	7	20.000	-1	50.000	-9	75.000	-9	100.00	-16
1,3-Dichlorobenzene			0.5000	7	2.0000	5	5.0000	5	10.000	6	20.000	0	50.000	-5	75.000	-6	100.00	-11
1,4-Dichlorobenzene			0.5000	11	2.0000	4	5.0000	5	10.000	3	20.000	0	50.000	-5	75.000	-8	100.00	-10
n-Butylbenzene			0.5000	**24**	2.0000	13	5.0000	2	10.000	9	20.000	-3	50.000	-13	75.000	-13	100.00	-20
1,2-Dichlorobenzene			0.5000	11	2.0000	6	5.0000	3	10.000	4	20.000	0	50.000	-5	75.000	-7	100.00	-10
1,2-Dibromo-3-Chloropropane			0.5000	**24**	2.0000	-4	5.0000	-4	10.000	0	20.000	-1	50.000	-6	75.000	-3	100.00	-5
1,2,4-Trichlorobenzene			0.5000	6	2.0000	-4	5.0000	1	10.000	2	20.000	-2	50.000	-3	75.000	0	100.00	0
Hexachlorobutadiene			0.5000	9	2.0000	4	5.0000	-13	10.000	-3	20.000	-10	50.000	-6	75.000	10	100.00	10
Naphthalene			0.5000	6	2.0000	-4	5.0000	-1	10.000	3	20.000	3	50.000	-3	75.000	-1	100.00	-3
1,2,3-Trichlorobenzene			0.5000	9	2.0000	-1	5.0000	-2	10.000	-1	20.000	-2	50.000	-4	75.000	0	100.00	0
Dibromofluoromethane	50.000	0	50.000	1	50.000	1	50.000	2	50.000	0	50.000	2	50.000	0	50.000	-2	50.000	-4
1,2-Dichloroethane-d4	50.000	6	50.000	6	50.000	8	50.000	6	50.000	4	50.000	2	50.000	-7	50.000	-10	50.000	-15
Toluene-d8	50.000	-1	50.000	1	50.000	1	50.000	0	50.000	0	50.000	0	50.000	0	50.000	1	50.000	-1
Bromofluorobenzene	50.000	-1	50.000	0	50.000	-1	50.000	1	50.000	1	50.000	0	50.000	-1	50.000	0	50.000	1

DJA 06/26/14 [Freon 12]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [Chloroethane]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [Freon 113]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [Isopropanol]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [Vinyl Acetate]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [m,p-Xylenes]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [Vinyl Chloride]: Corrected fronting or tailing peak integration in (hfp13).

DJA 06/26/14 [Trichlorofluoromethane]: Corrected fronting or tailing peak integration in (hfp13).

DJA 06/26/14 [Acetone]: Corrected fronting or tailing peak integration in (hfp13).

DJA 06/26/14 [tert-Butyl Alcohol (TBA)]: Corrected fronting or tailing peak integration in (hfp13).

DJA 06/26/14 [Bromomethane]: Corrected fronting or tailing peak integration in (hfp14).

Analyst: DJA Date: 06/26/14 Reviewer: LW Date: 06/27/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; QUAD=Quadratic regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259790 MSVOA Water
EPA 8260C

Inst : MSVOA08 Name : 826GOX8
Calnum : 474253910001 Cal Date : 25-JUN-2014 Type : WATER

ICV 474253910020 (hfp20 25-JUN-2014) stds: S24242 (10000X), S24802 (5000X)
ICV 474253910021 (hfp21 25-JUN-2014) stds: S24731 (10000X), S24892 (10000X), S24848 (10000X), S24802 (5000X)

Analyte	ICV Seqnum	Spiked	Quant	Units	%D	Max	Flags
Freon 12	474253910020	20.00	20.50	ug/L	2	20	m
Chloromethane	474253910020	20.00	18.24	ug/L	-9	20	m
Vinyl Chloride	474253910020	20.00	18.52	ug/L	-7	20	m
Bromomethane	474253910020	20.00	19.38	ug/L	-3	20	m
Chloroethane	474253910020	20.00	18.12	ug/L	-9	20	m
Trichlorofluoromethane	474253910020	20.00	20.25	ug/L	1	20	m
Acetone	474253910021	25.00	29.16	ug/L	17	20	
Freon 113	474253910021	25.00	24.60	ug/L	-2	20	m
1,1-Dichloroethene	474253910021	25.00	26.71	ug/L	7	20	
Methylene Chloride	474253910021	25.00	26.62	ug/L	6	20	
Carbon Disulfide	474253910021	25.00	25.50	ug/L	2	20	
MTBE	474253910021	25.00	25.13	ug/L	1	20	
trans-1,2-Dichloroethene	474253910021	25.00	26.40	ug/L	6	20	
Vinyl Acetate	474253910021	25.00	16.07	ug/L	**-36**	20	v- ***
1,1-Dichloroethane	474253910021	25.00	26.40	ug/L	6	20	
2-Butanone	474253910021	25.00	27.51	ug/L	10	20	
2,2-Dichloropropane	474253910021	25.00	25.73	ug/L	3	20	
cis-1,2-Dichloroethene	474253910021	25.00	26.69	ug/L	7	20	
Chloroform	474253910021	25.00	26.23	ug/L	5	20	
Bromochloromethane	474253910021	25.00	27.25	ug/L	9	20	
1,1,1-Trichloroethane	474253910021	25.00	27.45	ug/L	10	20	
1,1-Dichloropropene	474253910021	25.00	28.57	ug/L	14	20	
Carbon Tetrachloride	474253910021	25.00	28.23	ug/L	13	20	
1,2-Dichloroethane	474253910021	25.00	26.07	ug/L	4	20	
Benzene	474253910021	25.00	26.61	ug/L	6	20	
Trichloroethene	474253910021	25.00	28.87	ug/L	15	20	
1,2-Dichloropropane	474253910021	25.00	26.23	ug/L	5	20	
Bromodichloromethane	474253910021	25.00	26.37	ug/L	5	20	
Dibromomethane	474253910021	25.00	26.88	ug/L	8	20	
4-Methyl-2-Pentanone	474253910021	25.00	26.06	ug/L	4	20	
cis-1,3-Dichloropropene	474253910021	25.00	27.93	ug/L	12	20	
Toluene	474253910021	25.00	26.83	ug/L	7	20	
trans-1,3-Dichloropropene	474253910021	25.00	26.09	ug/L	4	20	
1,1,2-Trichloroethane	474253910021	25.00	26.29	ug/L	5	20	
2-Hexanone	474253910021	25.00	29.34	ug/L	17	20	
1,3-Dichloropropane	474253910021	25.00	26.48	ug/L	6	20	
Tetrachloroethene	474253910021	25.00	27.80	ug/L	11	20	
Dibromochloromethane	474253910021	25.00	27.07	ug/L	8	20	
1,2-Dibromoethane	474253910021	25.00	27.04	ug/L	8	20	
Chlorobenzene	474253910021	25.00	27.76	ug/L	11	20	
1,1,1,2-Tetrachloroethane	474253910021	25.00	27.12	ug/L	8	20	
Ethylbenzene	474253910021	25.00	25.71	ug/L	3	20	
m,p-Xylenes	474253910021	50.00	51.28	ug/L	3	20	
o-Xylene	474253910021	25.00	28.38	ug/L	14	20	
Styrene	474253910021	25.00	27.13	ug/L	9	20	
Bromoform	474253910021	25.00	27.40	ug/L	10	20	
Isopropylbenzene	474253910021	25.00	27.90	ug/L	12	20	

Analyte	ICV Seqnum	Spiked	Quant	Units	%D	Max	Flags
1,1,2,2-Tetrachloroethane	474253910021	25.00	24.73	ug/L	-1	20	
1,2,3-Trichloropropane	474253910021	25.00	26.43	ug/L	6	20	
Propylbenzene	474253910021	25.00	28.09	ug/L	12	20	
Bromobenzene	474253910021	25.00	27.41	ug/L	10	20	
1,3,5-Trimethylbenzene	474253910021	25.00	27.79	ug/L	11	20	
2-Chlorotoluene	474253910021	25.00	28.39	ug/L	14	20	
4-Chlorotoluene	474253910021	25.00	27.37	ug/L	9	20	
tert-Butylbenzene	474253910021	25.00	28.54	ug/L	14	20	
1,2,4-Trimethylbenzene	474253910021	25.00	26.78	ug/L	7	20	
sec-Butylbenzene	474253910021	25.00	28.54	ug/L	14	20	
para-Isopropyl Toluene	474253910021	25.00	27.47	ug/L	10	20	
1,3-Dichlorobenzene	474253910021	25.00	27.90	ug/L	12	20	
1,4-Dichlorobenzene	474253910021	25.00	26.78	ug/L	7	20	
n-Butylbenzene	474253910021	25.00	26.29	ug/L	5	20	
1,2-Dichlorobenzene	474253910021	25.00	27.65	ug/L	11	20	
1,2-Dibromo-3-Chloropropane	474253910021	25.00	24.97	ug/L	0	20	
1,2,4-Trichlorobenzene	474253910021	25.00	26.55	ug/L	6	20	
Hexachlorobutadiene	474253910021	25.00	26.33	ug/L	5	20	
Naphthalene	474253910021	25.00	27.23	ug/L	9	20	
1,2,3-Trichlorobenzene	474253910021	25.00	26.21	ug/L	5	20	

474253910020: Analyst: DJA Date: 06/26/14 Reviewer: LW Date: 06/27/14
474253910021: Analyst: DJA Date: 06/26/14 Reviewer: LW Date: 06/27/14

-=low bias m=manual integration v=ICV

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259790 MSVOA Water: EPA 8260C

Inst : MSVOA09 Name : 826GOX9W
Calnum : 484219504001 Date : 01-JUN-2014 12:39 Type : WATER
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	if105	484219504005	.25/.5PPB	01-JUN-2014 12:39	S24634 (2000000X), S24633 (2000000X), S23961 (1000000X), S24793 (5000X)
L2	if106	484219504006	0.5/1PPB	01-JUN-2014 13:11	S24634 (1000000X), S23491 (1000000X), S24633 (1000000X), S23961 (500000X), S24793 (5000X)
L3	if107	484219504007	2PPB	01-JUN-2014 13:44	S23491 (500000X), S24634 (250000X), S23961 (250000X), S24633 (250000X), S24793 (5000X)
L4	if108	484219504008	5PPB	01-JUN-2014 14:17	S23491 (200000X), S24634 (100000X), S23961 (100000X), S24633 (100000X), S24793 (5000X)
L5	if109	484219504009	10PPB	01-JUN-2014 14:50	S23491 (100000X), S24634 (50000X), S23961 (50000X), S24633 (50000X), S24793 (5000X)
L6	if110	484219504010	20PPB	01-JUN-2014 15:23	S23491 (50000X), S24634 (25000X), S23961 (25000X), S24633 (25000X), S24793 (5000X)
L7	if111	484219504011	50PPB	01-JUN-2014 15:56	S23491 (20000X), S24634 (10000X), S23961 (10000X), S24633 (10000X), S24793 (5000X)
L8	if112	484219504012	75PPB	01-JUN-2014 16:29	S23491 (13330X), S24634 (6667X), S23961 (6667X), S24633 (6667X), S24793 (5000X)
L9	if113	484219504013	100PPB	01-JUN-2014 17:02	S23491 (10000X), S24634 (5000X), S23961 (5000X), S24633 (5000X), S24793 (5000X)

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Freon 12		0.6323m	0.6058m	0.6189m	0.6757m	0.6244m	0.5997m	0.5861m	0.4995m	AVRG		1.65207		0.6053	8	15	0.100	0.99	
Chloromethane	0.7054	0.7158m	0.6612m	0.7054m	0.8254m	0.7413m	0.6768m	0.7114m	0.6536m	AVRG		1.40708		0.7107	7	15	0.100	0.99	
Vinyl Chloride	0.4272	0.4859m	0.4785	0.4722m	0.5838m	0.5094m	0.4852m	0.4757m	0.4096m	AVRG		2.07971		0.4808	10	15	0.100	0.99	
Bromomethane		0.0938	0.0934	0.0996	0.1296m	0.1625m	0.1792m	0.1949m	0.1787m	QUAD	2.12702	5.02235	0.017745	0.1415	0.997	15	0.100	0.99	
Chloroethane		0.2951m	0.2478m	0.2883	0.3447	0.2964m	0.2685m	0.2682m	0.2380m	AVRG		3.56016		0.2809	12	15	0.100	0.99	
Trichlorofluoromethane		0.6608	0.6728	0.6958	0.7955m	0.7397m	0.6991m	0.7039m	0.5933m	AVRG		1.43866		0.6951	8	15	0.100	0.99	
Acetone				0.1812	0.1529	0.1231	0.1142	0.1075	0.1066	QUAD	-3.7958	9.34871	0.039348	0.1309	1.000	15	0.100	0.99	
Freon 113		0.3898	0.3252	0.3623	0.4136	0.4062	0.4075	0.3968	0.3381	AVRG		2.63200		0.3799	9	15	0.100	0.99	
1,1-Dichloroethene		0.4994	0.4351	0.4260	0.4948	0.4470	0.4488	0.4290	0.3724	AVRG		2.25188		0.4441	9	15	0.100	0.99	
Methylene Chloride		0.6540	0.6105	0.6056	0.6628	0.6228	0.6301	0.6176	0.5489	AVRG		1.61547		0.6190	6	15	0.100	0.99	
Carbon Disulfide		1.8289	1.6980	1.7283	2.0348	1.8120	1.7849	1.7342	1.4724	AVRG		0.56764		1.7617	9	15	0.100	0.99	
MTBE		1.1046	1.1118	1.1679	1.2610	1.2510	1.2445	1.1925	1.1398	AVRG		0.84451		1.1841	5	15	0.100	0.99	
trans-1,2-Dichloroethene		0.5005	0.4861	0.5030	0.5825	0.5302	0.5093	0.5034	0.4389	AVRG		1.97342		0.5067	8	15	0.100	0.99	
Vinyl Acetate			0.9045	0.8226	1.0173	0.9371	0.9937	0.9424	0.9259	AVRG		1.06976		0.9348	7	15	0.05	0.99	
1,1-Dichloroethane		1.1193	1.0720	1.0922	1.2373	1.1476	1.1405	1.0858	0.9495	AVRG		0.90455		1.1055	7	15	0.200	0.99	
2-Butanone			0.1564	0.1594	0.1873	0.1796	0.1867	0.1830	0.1822	AVRG		5.66947		0.1764	7	15	0.100	0.99	
2,2-Dichloropropane		0.6370	0.6409	0.6408	0.7448	0.6931	0.6885	0.6611	0.5679	AVRG		1.51684		0.6593	8	15	0.05	0.99	
cis-1,2-Dichloroethene		0.6231	0.5616	0.5830	0.6527	0.6144	0.6124	0.5861	0.5233	AVRG		1.68188		0.5946	7	15	0.100	0.99	
Chloroform		1.1774	0.9745	0.9891	1.0809	1.0263	1.0083	0.9530	0.8473	AVRG		0.99295		1.0071	10	15	0.200	0.99	
Bromochloromethane		0.1950	0.2265	0.2346	0.2633	0.2635	0.2652	0.2549	0.2300	AVRG		4.13840		0.2416	10	15	0.05	0.99	
1,1,1-Trichloroethane		0.7016	0.6782	0.6641	0.7599	0.7119	0.6834	0.6574	0.5475	AVRG		1.48039		0.6755	9	15	0.100	0.99	
1,1-Dichloropropene		0.3975	0.3307	0.3386	0.3812	0.3572	0.3385	0.3354	0.2721	AVRG		2.90788		0.3439	11	15	0.05	0.99	
Carbon Tetrachloride		0.2890	0.2718	0.2740	0.3242	0.3025	0.3006	0.2988	0.2435	AVRG		3.47157		0.2881	9	15	0.100	0.99	
1,2-Dichloroethane		0.2649	0.2927	0.2828	0.3181	0.3176	0.3057	0.2910	0.2502	AVRG		3.44378		0.2904	8	15	0.100	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Benzene		1.1778	1.0763	1.0995	1.2381	1.2043	1.1356	1.0786	0.8789	AVRG		0.89998		1.1111	10	15	0.500	0.99	
Trichloroethene		0.3081	0.2580	0.2715	0.3019	0.2933	0.2811	0.2758	0.2303	AVRG		3.60324		0.2775	9	15	0.200	0.99	
1,2-Dichloropropane		0.3784	0.3358	0.3515	0.3897	0.3733	0.3631	0.3376	0.2939	AVRG		2.83386		0.3529	9	15	0.100	0.99	
Bromodichloromethane		0.3914	0.3773	0.3872	0.4255	0.4172	0.4042	0.3988	0.3455	AVRG		2.54196		0.3934	6	15	0.200	0.99	
Dibromomethane		0.1467	0.1569	0.1642	0.1868	0.1804	0.1779	0.1681	0.1509	AVRG		6.00607		0.1665	9	15	0.05	0.99	
4-Methyl-2-Pentanone			0.2258	0.2278	0.2386	0.2449	0.2385	0.2367	0.2177	AVRG		4.29405		0.2329	4	15	0.100	0.99	
cis-1,3-Dichloropropene		0.4474	0.4236	0.4532	0.4831	0.4824	0.4702	0.4466	0.3825	AVRG		2.22896		0.4486	7	15	0.200	0.99	
Toluene		0.7263	0.6797	0.6939	0.8024	0.7668	0.7189	0.7444	0.5749	AVRG		1.40172		0.7134	10	15	0.400	0.99	
trans-1,3-Dichloropropene		0.3993	0.3867	0.4012	0.4413	0.4328	0.4274	0.4413	0.3753	AVRG		2.42029		0.4132	6	15	0.100	0.99	
1,1,2-Trichloroethane		0.1426	0.1404	0.1429	0.1579	0.1566	0.1464	0.1540	0.1329	AVRG		6.81573		0.1467	6	15	0.100	0.99	
2-Hexanone			0.1429	0.1562	0.1852	0.1910	0.1829	0.1909	0.1657	AVRG		5.76244		0.1735	11	15	0.100	0.99	
1,3-Dichloropropane		0.4371	0.4444	0.4344	0.4800	0.4705	0.4403	0.4628	0.3859	AVRG		2.25008		0.4444	7	15	0.05	0.99	
Tetrachloroethene		0.2265	0.2033	0.2121	0.2544	0.2344	0.2238	0.2307	0.1903	AVRG		4.50596		0.2219	9	15	0.200	0.99	
Dibromochloromethane		0.2622	0.2458	0.2616	0.2919	0.3000	0.2942	0.3028	0.2592	AVRG		3.60744		0.2772	8	15	0.100	0.99	
1,2-Dibromoethane		0.2176	0.2422	0.2354	0.2556	0.2490	0.2521	0.2614	0.2292	AVRG		4.11824		0.2428	6	15	0.100	0.99	
Chlorobenzene		0.7333	0.6847	0.6958	0.7772	0.7717	0.7399	0.7321	0.5984	AVRG		1.39539		0.7166	8	15	0.500	0.99	
1,1,1,2-Tetrachloroethane		0.2558	0.2450	0.2476	0.2780	0.2772	0.2592	0.2561	0.2121	AVRG		3.93883		0.2539	8	15	0.05	0.99	
Ethylbenzene		1.3197	1.2404	1.2498	1.4399	1.3513	1.2179	1.1855	0.9551	AVRG		0.80324		1.2450	11	15	0.100	0.99	
m,p-Xylenes	0.3553	0.4203	0.4200	0.4341	0.4949	0.4559	0.4067	0.3638	0.2849	AVRG		2.47519		0.4040	15	15	0.100	0.99	
o-Xylene		0.4526	0.4422	0.4526	0.4835	0.4732	0.4766	0.4580	0.3670	AVRG		2.21866		0.4507	8	15	0.300	0.99	
Styrene		0.7639	0.7469	0.7682	0.8685	0.8405	0.8058	0.7597	0.6085	AVRG		1.29828		0.7703	10	15	0.300	0.99	
Bromoform		0.1411	0.1352	0.1341	0.1549	0.1596	0.1556	0.1638	0.1422	AVRG		6.74218		0.1483	8	15	0.100	0.99	
Isopropylbenzene		2.5188	2.4020	2.4437	2.8242	2.6021	2.4939	2.3936	1.9860	AVRG		0.40683		2.4580	10	15	0.100	0.99	
1,1,2,2-Tetrachloroethane		0.6160	0.6176	0.6380	0.6835	0.6871	0.6804	0.6794	0.6208	AVRG		1.53176		0.6528	5	15	0.300	0.99	
1,2,3-Trichloropropane		0.1239	0.1271	0.1341	0.1425	0.1407	0.1349	0.1294	0.1165	AVRG		7.62546		0.1311	7	15	0.05	0.99	
Propylbenzene		3.2443	2.8182	2.9542	3.3293	3.0242	2.9234	2.6221	2.1077	AVRG		0.34747		2.8779	13	15	0.05	0.99	
Bromobenzene		0.6415	0.6181	0.5908	0.6542	0.6358	0.6387	0.6132	0.5060	AVRG		1.63323		0.6123	8	15	0.05	0.99	
1,3,5-Trimethylbenzene		1.8585	1.7719	1.8543	2.0030	1.9273	1.8264	1.6085	1.3025	AVRG		0.56527		1.7691	12	15	0.05	0.99	
2-Chlorotoluene		2.2414	2.0030	2.0755	2.2360	2.1273	1.9583	1.7169	1.3664	AVRG		0.50875		1.9656	15	15	0.05	0.99	
4-Chlorotoluene		2.0173	1.8584	1.8182	2.0200	1.8763	1.8017	1.7382	1.4071	AVRG		0.55031		1.8171	11	15	0.05	0.99	
tert-Butylbenzene		1.6031	1.4630	1.5328	1.7644	1.5854	1.5969	1.5815	1.3152	AVRG		0.64297		1.5553	8	15	0.05	0.99	
1,2,4-Trimethylbenzene		1.7820	1.6856	1.7087	1.9203	1.8246	1.7722	1.7250	1.4462	AVRG		0.57701		1.7331	8	15	0.05	0.99	
sec-Butylbenzene		2.3272	2.1469	2.3154	2.6951	2.3734	2.4012	2.3075	1.8908	AVRG		0.43343		2.3072	10	15	0.05	0.99	
para-Isopropyl Toluene		1.5461	1.5468	1.5218	1.8117	1.6774	1.6952	1.6669	1.4186	AVRG		0.62091		1.6105	8	15	0.05	0.99	
1,3-Dichlorobenzene		1.0331	0.9538	0.9913	1.0478	1.0204	1.0190	1.0058	0.8457	AVRG		1.01050		0.9896	7	15	0.600	0.99	
1,4-Dichlorobenzene		0.9746	0.9220	0.9150	1.0161	0.9837	0.9641	0.9534	0.8180	AVRG		1.06005		0.9434	6	15	0.500	0.99	
n-Butylbenzene		1.2231	1.2233	1.3038	1.5370	1.4691	1.4989	1.4600	1.2690	AVRG		0.72832		1.3730	10	15	0.05	0.99	
1,2-Dichlorobenzene		0.9613	0.8956	0.9171	1.0128	1.0058	1.0057	1.0041	0.8708	AVRG		1.04261		0.9591	6	15	0.400	0.99	
1,2-Dibromo-3-Chloropropane		0.1057	0.0854	0.0804	0.0853	0.0837	0.0909	0.0949	0.0896	AVRG		11.1718		0.0895	9	15	0.050	0.99	
1,2,4-Trichlorobenzene		0.3012	0.2900	0.3449	0.3962	0.4127	0.4443	0.4541	0.4336	QUAD	1.16595	2.10373	0.003515	0.3846	0.999	15	0.200	0.99	
Hexachlorobutadiene		0.1554	0.1595	0.1745	0.2086	0.1814	0.1955	0.1988	0.1760	AVRG		5.51847		0.1812	10	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene			0.7032	0.7787	0.8891	0.9363	0.9621	0.9937	0.9173	AVRG		1.13260		0.8829	12	15	0.05	0.99	
1,2,3-Trichlorobenzene		0.2344	0.2815	0.3235	0.3585	0.3849	0.4229	0.4309	0.3924	QUAD	1.62687	2.04166	0.010458	0.3536	0.998	15	0.05	0.99	
Dibromofluoromethane	0.6715	0.6711	0.6713	0.6727	0.6713	0.6749	0.6610	0.6379	0.6429	AVRG		1.50640		0.6638	2	15	0.05	0.99	
1,2-Dichloroethane-d4	0.3119	0.3058	0.3010	0.2990	0.3020	0.3113	0.2896	0.2731	0.2676	AVRG		3.38164		0.2957	5	15	0.05	0.99	
Toluene-d8	1.3144	1.2743	1.2989	1.2859	1.3209	1.3100	1.2917	1.3129	1.2703	AVRG		0.77060		1.2977	1	15	0.05	0.99	
Bromofluorobenzene	1.1953	1.2077	1.2281	1.2149	1.1774	1.2017	1.2140	1.2285	1.2272	AVRG		0.82608		1.2105	1	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
Freon 12			1.0000	4	2.0000	0	5.0000	2	10.000	12	20.000	3	50.000	-1	75.000	-3	100.00	-17
Chloromethane	0.5000	-1	1.0000	1	2.0000	-7	5.0000	-1	10.000	16	20.000	4	50.000	-5	75.000	0	100.00	-8
Vinyl Chloride	0.5000	-11	1.0000	1	2.0000	0	5.0000	-2	10.000	**21**	20.000	6	50.000	1	75.000	-1	100.00	-15
Bromomethane			1.0000	**160**	2.0000	**53**	5.0000	-7	10.000	-13	20.000	-7	50.000	-3	75.000	6	100.00	-2
Chloroethane			1.0000	5	2.0000	-12	5.0000	3	10.000	**23**	20.000	6	50.000	-4	75.000	-5	100.00	-15
Trichlorofluoromethane			1.0000	-5	2.0000	-3	5.0000	0	10.000	14	20.000	6	50.000	1	75.000	1	100.00	-15
Acetone							5.0000	-6	10.000	6	20.000	-3	50.000	2	75.000	-1	100.00	0
Freon 113			0.5000	3	2.0000	-14	5.0000	-5	10.000	9	20.000	7	50.000	7	75.000	4	100.00	-11
1,1-Dichloroethene			0.5000	12	2.0000	-2	5.0000	-4	10.000	11	20.000	1	50.000	1	75.000	-3	100.00	-16
Methylene Chloride			0.5000	6	2.0000	-1	5.0000	-2	10.000	7	20.000	1	50.000	2	75.000	0	100.00	-11
Carbon Disulfide			0.5000	4	2.0000	-4	5.0000	-2	10.000	16	20.000	3	50.000	1	75.000	-2	100.00	-16
MTBE			0.5000	-7	2.0000	-6	5.0000	-1	10.000	6	20.000	6	50.000	5	75.000	1	100.00	-4
trans-1,2-Dichloroethene			0.5000	-1	2.0000	-4	5.0000	-1	10.000	15	20.000	5	50.000	0	75.000	-1	100.00	-13
Vinyl Acetate					2.0000	-3	5.0000	-12	10.000	9	20.000	0	50.000	6	75.000	1	100.00	-1
1,1-Dichloroethane			0.5000	1	2.0000	-3	5.0000	-1	10.000	12	20.000	4	50.000	3	75.000	-2	100.00	-14
2-Butanone					2.0000	-11	5.0000	-10	10.000	6	20.000	2	50.000	6	75.000	4	100.00	3
2,2-Dichloropropane			0.5000	-3	2.0000	-3	5.0000	-3	10.000	13	20.000	5	50.000	4	75.000	0	100.00	-14
cis-1,2-Dichloroethene			0.5000	5	2.0000	-6	5.0000	-2	10.000	10	20.000	3	50.000	3	75.000	-1	100.00	-12
Chloroform			0.5000	17	2.0000	-3	5.0000	-2	10.000	7	20.000	2	50.000	0	75.000	-5	100.00	-16
Bromochloromethane			0.5000	-19	2.0000	-6	5.0000	-3	10.000	9	20.000	9	50.000	10	75.000	5	100.00	-5
1,1,1-Trichloroethane			0.5000	4	2.0000	0	5.0000	-2	10.000	12	20.000	5	50.000	1	75.000	-3	100.00	-19
1,1-Dichloropropene			0.5000	16	2.0000	-4	5.0000	-2	10.000	11	20.000	4	50.000	-2	75.000	-2	100.00	**-21**
Carbon Tetrachloride			0.5000	0	2.0000	-6	5.0000	-5	10.000	13	20.000	5	50.000	4	75.000	4	100.00	-15
1,2-Dichloroethane			0.5000	-9	2.0000	1	5.0000	-3	10.000	10	20.000	9	50.000	5	75.000	0	100.00	-14
Benzene			0.5000	6	2.0000	-3	5.0000	-1	10.000	11	20.000	8	50.000	2	75.000	-3	100.00	**-21**
Trichloroethene			0.5000	11	2.0000	-7	5.0000	-2	10.000	9	20.000	6	50.000	1	75.000	-1	100.00	-17
1,2-Dichloropropane			0.5000	7	2.0000	-5	5.0000	0	10.000	10	20.000	6	50.000	3	75.000	-4	100.00	-17
Bromodichloromethane			0.5000	-1	2.0000	-4	5.0000	-2	10.000	8	20.000	6	50.000	3	75.000	1	100.00	-12
Dibromomethane			0.5000	-12	2.0000	-6	5.0000	-1	10.000	12	20.000	8	50.000	7	75.000	1	100.00	-9
4-Methyl-2-Pentanone					2.0000	-3	5.0000	-2	10.000	2	20.000	5	50.000	2	75.000	2	100.00	-7
cis-1,3-Dichloropropene			0.5000	0	2.0000	-6	5.0000	1	10.000	8	20.000	8	50.000	5	75.000	0	100.00	-15
Toluene			0.5000	2	2.0000	-5	5.0000	-3	10.000	12	20.000	7	50.000	1	75.000	4	100.00	-19
trans-1,3-Dichloropropene			0.5000	-3	2.0000	-6	5.0000	-3	10.000	7	20.000	5	50.000	3	75.000	7	100.00	-9
1,1,2-Trichloroethane			0.5000	-3	2.0000	-4	5.0000	-3	10.000	8	20.000	7	50.000	0	75.000	5	100.00	-9
2-Hexanone					2.0000	-18	5.0000	-10	10.000	7	20.000	10	50.000	5	75.000	10	100.00	-5
1,3-Dichloropropane			0.5000	-2	2.0000	0	5.0000	-2	10.000	8	20.000	6	50.000	-1	75.000	4	100.00	-13
Tetrachloroethene			0.5000	2	2.0000	-8	5.0000	-4	10.000	15	20.000	6	50.000	1	75.000	4	100.00	-14
Dibromochloromethane			0.5000	-5	2.0000	-11	5.0000	-6	10.000	5	20.000	8	50.000	6	75.000	9	100.00	-7
1,2-Dibromoethane			0.5000	-10	2.0000	0	5.0000	-3	10.000	5	20.000	3	50.000	4	75.000	8	100.00	-6
Chlorobenzene			0.5000	2	2.0000	-4	5.0000	-3	10.000	8	20.000	8	50.000	3	75.000	2	100.00	-17
1,1,1,2-Tetrachloroethane			0.5000	1	2.0000	-3	5.0000	-2	10.000	9	20.000	9	50.000	2	75.000	1	100.00	-16
Ethylbenzene			0.5000	6	2.0000	0	5.0000	0	10.000	16	20.000	9	50.000	-2	75.000	-5	100.00	**-23**

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
m,p-Xylenes	0.5000	-12	1.0000	4	4.0000	4	10.000	7	20.000	**23**	40.000	13	100.00	1	150.00	-10	200.00	**-29**
o-Xylene			0.5000	0	2.0000	-2	5.0000	0	10.000	7	20.000	5	50.000	6	75.000	2	100.00	-19
Styrene			0.5000	-1	2.0000	-3	5.0000	0	10.000	13	20.000	9	50.000	5	75.000	-1	100.00	**-21**
Bromoform			0.5000	-5	2.0000	-9	5.0000	-10	10.000	4	20.000	8	50.000	5	75.000	10	100.00	-4
Isopropylbenzene			0.5000	2	2.0000	-2	5.0000	-1	10.000	15	20.000	6	50.000	1	75.000	-3	100.00	-19
1,1,2,2-Tetrachloroethane			0.5000	-6	2.0000	-5	5.0000	-2	10.000	5	20.000	5	50.000	4	75.000	4	100.00	-5
1,2,3-Trichloropropane			0.5000	-6	2.0000	-3	5.0000	2	10.000	9	20.000	7	50.000	3	75.000	-1	100.00	-11
Propylbenzene			0.5000	13	2.0000	-2	5.0000	3	10.000	16	20.000	5	50.000	2	75.000	-9	100.00	**-27**
Bromobenzene			0.5000	5	2.0000	1	5.0000	-4	10.000	7	20.000	4	50.000	4	75.000	0	100.00	-17
1,3,5-Trimethylbenzene			0.5000	5	2.0000	0	5.0000	5	10.000	13	20.000	9	50.000	3	75.000	-9	100.00	**-26**
2-Chlorotoluene			0.5000	14	2.0000	2	5.0000	6	10.000	14	20.000	8	50.000	0	75.000	-13	100.00	**-30**
4-Chlorotoluene			0.5000	11	2.0000	2	5.0000	0	10.000	11	20.000	3	50.000	-1	75.000	-4	100.00	**-23**
tert-Butylbenzene			0.5000	3	2.0000	-6	5.0000	-1	10.000	13	20.000	2	50.000	3	75.000	2	100.00	-15
1,2,4-Trimethylbenzene			0.5000	3	2.0000	-3	5.0000	-1	10.000	11	20.000	5	50.000	2	75.000	0	100.00	-17
sec-Butylbenzene			0.5000	1	2.0000	-7	5.0000	0	10.000	17	20.000	3	50.000	4	75.000	0	100.00	-18
para-Isopropyl Toluene			0.5000	-4	2.0000	-4	5.0000	-6	10.000	12	20.000	4	50.000	5	75.000	3	100.00	-12
1,3-Dichlorobenzene			0.5000	4	2.0000	-4	5.0000	0	10.000	6	20.000	3	50.000	3	75.000	2	100.00	-15
1,4-Dichlorobenzene			0.5000	3	2.0000	-2	5.0000	-3	10.000	8	20.000	4	50.000	2	75.000	1	100.00	-13
n-Butylbenzene			0.5000	-11	2.0000	-11	5.0000	-5	10.000	12	20.000	7	50.000	9	75.000	6	100.00	-8
1,2-Dichlorobenzene			0.5000	0	2.0000	-7	5.0000	-4	10.000	6	20.000	5	50.000	5	75.000	5	100.00	-9
1,2-Dibromo-3-Chloropropane			0.5000	18	2.0000	-5	5.0000	-10	10.000	-5	20.000	-6	50.000	2	75.000	6	100.00	0
1,2,4-Trichlorobenzene			0.5000	**197**	2.0000	19	5.0000	-4	10.000	-4	20.000	-6	50.000	-1	75.000	3	100.00	-1
Hexachlorobutadiene			0.5000	-14	2.0000	-12	5.0000	-4	10.000	15	20.000	0	50.000	8	75.000	10	100.00	-3
Naphthalene					2.0000	-20	5.0000	-12	10.000	1	20.000	6	50.000	9	75.000	13	100.00	4
1,2,3-Trichlorobenzene			0.5000	**273**	2.0000	**39**	5.0000	-1	10.000	-9	20.000	-10	50.000	-1	75.000	5	100.00	-2
Dibromofluoromethane	50.000	1	50.000	1	50.000	1	50.000	1	50.000	1	50.000	2	50.000	0	50.000	-4	50.000	-3
1,2-Dichloroethane-d4	50.000	5	50.000	3	50.000	2	50.000	1	50.000	2	50.000	5	50.000	-2	50.000	-8	50.000	-10
Toluene-d8	50.000	1	50.000	-2	50.000	0	50.000	-1	50.000	2	50.000	1	50.000	0	50.000	1	50.000	-2
Bromofluorobenzene	50.000	-1	50.000	0	50.000	1	50.000	0	50.000	-3	50.000	-1	50.000	0	50.000	1	50.000	1

TEW 06/02/14 [Freon 12]: Corrected fronting or tailing peak integration in all levels.

TEW 06/02/14 [Chloromethane]: Corrected fronting or tailing peak integration in multiple levels.

TEW 06/02/14 [Vinyl Chloride]: Corrected fronting or tailing peak integration in multiple levels.

TEW 06/02/14 [Bromomethane]: Corrected fronting or tailing peak integration in all levels.

TEW 06/02/14 [Chloroethane]: Corrected fronting or tailing peak integration in all levels.

TEW 06/02/14 [Trichlorofluoromethane]: Corrected fronting or tailing peak integration in all levels.

TEW 06/02/14 [Tetramethyl THF]: Picked or reassigned peak1PPB (if106).

TEW 06/02/14 [Bromomethane]: Fails 8260C low point requant criteria due to high bias. OK to report ND samples, or hits >5. Will rerun hits <5PPB.

TEW 06/02/14 [1,2,4-Trichlorobenzene]: Fails 8260C low point requant criteria due to high bias. OK to report ND samples, or hits >2. Will rerun hits <2PPB.

TEW 06/02/14 [1,2,3-Trichlorobenzene]: Fails 8260C low point requant criteria due to high bias. OK to report ND samples, or hits >5. Will rerun hits <5PPB.

Analyst: TEW Date: 06/02/14 Reviewer: LW Date: 06/03/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; QUAD=Quadratic regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259790 MSVOA Water
EPA 8260C

Inst : MSVOA09 Name : 826GOX9W
Calnum : 484219504001 Cal Date : 01-JUN-2014 Type : WATER

ICV 484219504015 (if115 01-JUN-2014) stds: S24643 (10000X), S24731 (10000X), S24689 (10000X), S24793 (5000X)
ICV 484221233005 (if205 02-JUN-2014) stds: S19788 (50000X), S24793 (5000X)

Analyte	ICV Seqnum	Date	Spiked	Quant	Units	%D	Max	Flags
Freon 12	484221233005	02-JUN-2014	40.00	38.41	ug/L	-4	20	m
Chloromethane	484221233005	02-JUN-2014	40.00	38.84	ug/L	-3	20	m
Vinyl Chloride	484221233005	02-JUN-2014	40.00	46.48	ug/L	16	20	m
Bromomethane	484221233005	02-JUN-2014	40.00	33.81	ug/L	-15	20	m
Chloroethane	484221233005	02-JUN-2014	40.00	40.98	ug/L	2	20	m
Trichlorofluoromethane	484221233005	02-JUN-2014	40.00	41.13	ug/L	3	20	m
Acetone	484219504015	01-JUN-2014	25.00	22.87	ug/L	-9	20	
Freon 113	484219504015	01-JUN-2014	25.00	20.69	ug/L	-17	20	
1,1-Dichloroethene	484219504015	01-JUN-2014	25.00	22.75	ug/L	-9	20	
Methylene Chloride	484219504015	01-JUN-2014	25.00	23.51	ug/L	-6	20	
Carbon Disulfide	484219504015	01-JUN-2014	25.00	23.10	ug/L	-8	20	
MTBE	484219504015	01-JUN-2014	25.00	22.77	ug/L	-9	20	
trans-1,2-Dichloroethene	484219504015	01-JUN-2014	25.00	23.70	ug/L	-5	20	
Vinyl Acetate	484219504015	01-JUN-2014	25.00	28.95	ug/L	16	20	
1,1-Dichloroethane	484219504015	01-JUN-2014	25.00	21.55	ug/L	-14	20	
2-Butanone	484219504015	01-JUN-2014	25.00	25.56	ug/L	2	20	
2,2-Dichloropropane	484219504015	01-JUN-2014	25.00	20.30	ug/L	-19	20	
cis-1,2-Dichloroethene	484219504015	01-JUN-2014	25.00	23.84	ug/L	-5	20	
Chloroform	484219504015	01-JUN-2014	25.00	21.88	ug/L	-12	20	
Bromochloromethane	484219504015	01-JUN-2014	25.00	23.09	ug/L	-8	20	
1,1,1-Trichloroethane	484219504015	01-JUN-2014	25.00	21.94	ug/L	-12	20	
1,1-Dichloropropene	484219504015	01-JUN-2014	25.00	25.22	ug/L	1	20	
Carbon Tetrachloride	484219504015	01-JUN-2014	25.00	22.17	ug/L	-11	20	
1,2-Dichloroethane	484219504015	01-JUN-2014	25.00	25.12	ug/L	0	20	
Benzene	484219504015	01-JUN-2014	25.00	24.46	ug/L	-2	20	
Trichloroethene	484219504015	01-JUN-2014	25.00	23.76	ug/L	-5	20	
1,2-Dichloropropane	484219504015	01-JUN-2014	25.00	23.83	ug/L	-5	20	
Bromodichloromethane	484219504015	01-JUN-2014	25.00	23.37	ug/L	-7	20	
Dibromomethane	484219504015	01-JUN-2014	25.00	22.92	ug/L	-8	20	
4-Methyl-2-Pentanone	484219504015	01-JUN-2014	25.00	23.95	ug/L	-4	20	
cis-1,3-Dichloropropene	484219504015	01-JUN-2014	25.00	25.15	ug/L	1	20	
Toluene	484219504015	01-JUN-2014	25.00	23.45	ug/L	-6	20	
trans-1,3-Dichloropropene	484219504015	01-JUN-2014	25.00	23.68	ug/L	-5	20	
1,1,2-Trichloroethane	484219504015	01-JUN-2014	25.00	24.35	ug/L	-3	20	
2-Hexanone	484219504015	01-JUN-2014	25.00	25.43	ug/L	2	20	
1,3-Dichloropropane	484219504015	01-JUN-2014	25.00	24.33	ug/L	-3	20	
Tetrachloroethene	484219504015	01-JUN-2014	25.00	21.19	ug/L	-15	20	
Dibromochloromethane	484219504015	01-JUN-2014	25.00	24.03	ug/L	-4	20	
1,2-Dibromoethane	484219504015	01-JUN-2014	25.00	24.44	ug/L	-2	20	
Chlorobenzene	484219504015	01-JUN-2014	25.00	25.10	ug/L	0	20	
1,1,1,2-Tetrachloroethane	484219504015	01-JUN-2014	25.00	24.10	ug/L	-4	20	
Ethylbenzene	484219504015	01-JUN-2014	25.00	24.44	ug/L	-2	20	
m,p-Xylenes	484219504015	01-JUN-2014	50.00	51.55	ug/L	3	20	
o-Xylene	484219504015	01-JUN-2014	25.00	25.30	ug/L	1	20	
Styrene	484219504015	01-JUN-2014	25.00	24.83	ug/L	-1	20	
Bromoform	484219504015	01-JUN-2014	25.00	22.57	ug/L	-10	20	
Isopropylbenzene	484219504015	01-JUN-2014	25.00	25.52	ug/L	2	20	

Analyte	ICV Seqnum	Date	Spiked	Quant	Units	%D	Max	Flags
1,1,2,2-Tetrachloroethane	484219504015	01-JUN-2014	25.00	25.18	ug/L	1	20	
1,2,3-Trichloropropane	484219504015	01-JUN-2014	25.00	24.52	ug/L	-2	20	
Propylbenzene	484219504015	01-JUN-2014	25.00	25.60	ug/L	2	20	
Bromobenzene	484219504015	01-JUN-2014	25.00	24.20	ug/L	-3	20	
1,3,5-Trimethylbenzene	484219504015	01-JUN-2014	25.00	26.17	ug/L	5	20	
2-Chlorotoluene	484219504015	01-JUN-2014	25.00	26.35	ug/L	5	20	
4-Chlorotoluene	484219504015	01-JUN-2014	25.00	24.80	ug/L	-1	20	
tert-Butylbenzene	484219504015	01-JUN-2014	25.00	25.24	ug/L	1	20	
1,2,4-Trimethylbenzene	484219504015	01-JUN-2014	25.00	24.18	ug/L	-3	20	
sec-Butylbenzene	484219504015	01-JUN-2014	25.00	25.39	ug/L	2	20	
para-Isopropyl Toluene	484219504015	01-JUN-2014	25.00	22.99	ug/L	-8	20	
1,3-Dichlorobenzene	484219504015	01-JUN-2014	25.00	24.70	ug/L	-1	20	
1,4-Dichlorobenzene	484219504015	01-JUN-2014	25.00	23.60	ug/L	-6	20	
n-Butylbenzene	484219504015	01-JUN-2014	25.00	24.45	ug/L	-2	20	
1,2-Dichlorobenzene	484219504015	01-JUN-2014	25.00	25.01	ug/L	0	20	
1,2-Dibromo-3-Chloropropane	484219504015	01-JUN-2014	25.00	23.03	ug/L	-8	20	
1,2,4-Trichlorobenzene	484219504015	01-JUN-2014	25.00	22.50	ug/L	-10	20	
Hexachlorobutadiene	484219504015	01-JUN-2014	25.00	24.78	ug/L	-1	20	
Naphthalene	484219504015	01-JUN-2014	25.00	24.65	ug/L	-1	20	
1,2,3-Trichlorobenzene	484219504015	01-JUN-2014	25.00	21.10	ug/L	-16	20	

484219504015: Analyst: TEW Date: 06/02/14 Reviewer: LW Date: 06/03/14
484221233005: Analyst: TEW Date: 06/02/14 Reviewer: LW Date: 06/03/14

m=manual integration

CURTIS & TOMPKINS SPIKE USER REPORT FOR 259790 MSVOA Water
EPA 8260C

Inst : MSVOA08 Run Name : QC753684 IDF : 1.0
Seqnum : 474327481004.11 File : hhf04 Time : 15-AUG-2014 12:28
Cal : 474253910001 Caldate : 25-JUN-2014 Caltype : WATER
Standards: S25233 (25000X), S25398 (25000X), S25287 (25000X), S24467 (25000X), S25202 (5000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Freon 12	0.6055	0.5961	8.000	7.876	ug/L	-2	20	0.1000	u
Chloromethane	1.1399	1.2048	8.000	8.455	ug/L	6	20	0.1000	u
Vinyl Chloride	0.8049	0.7874	8.000	7.827	ug/L	-2	20	0.1000	u
Bromomethane	0.3586	0.4597	8.000	10.26	ug/L	**28**	20	0.1000	c+ u ***
Chloroethane	0.4286	0.3948	8.000	7.369	ug/L	-8	20	0.1000	u
Trichlorofluoromethane	0.6240	0.6675	8.000	8.557	ug/L	7	20	0.1000	u
Acetone	0.1534	0.1754	10.00	11.44	ug/L	14	20	0.1000	u
Freon 113	0.4174	0.4255	10.00	10.19	ug/L	2	20	0.1000	u
1,1-Dichloroethene	0.5459	0.5384	10.00	9.863	ug/L	-1	20	0.1000	u
Methylene Chloride	0.7068	0.7635	10.00	10.80	ug/L	8	20	0.1000	u
Carbon Disulfide	2.2329	2.2137	10.00	9.914	ug/L	-1	20	0.1000	u
MTBE	1.3428	1.3024	10.00	9.699	ug/L	-3	20	0.1000	u
trans-1,2-Dichloroethene	0.6374	0.6781	10.00	10.64	ug/L	6	20	0.1000	u
Vinyl Acetate	1.0811	1.3979	10.00	12.93	ug/L	**29**	20	0.0500	c+ u v- ***
1,1-Dichloroethane	1.3356	1.4190	10.00	10.62	ug/L	6	20	0.2000	u
2-Butanone	0.2149	0.2591	10.00	12.06	ug/L	**21**	20	0.1000	c+ u ***
cis-1,2-Dichloroethene	0.7063	0.7853	10.00	11.12	ug/L	11	20	0.1000	u
2,2-Dichloropropane	0.7529	0.9054	10.00	12.03	ug/L	20	20	0.0500	u
Chloroform	1.0998	1.2528	10.00	11.39	ug/L	14	20	0.2000	u
Bromochloromethane	0.3042	0.3258	10.00	10.71	ug/L	7	20	0.0500	u
1,1,1-Trichloroethane	0.7207	0.8170	10.00	11.34	ug/L	13	20	0.1000	u
1,1-Dichloropropene	0.4623	0.4972	10.00	10.75	ug/L	8	20	0.0500	u
Carbon Tetrachloride	0.3472	0.3528	10.00	10.16	ug/L	2	20	0.1000	u
1,2-Dichloroethane	0.4347	0.4579	10.00	10.53	ug/L	5	20	0.1000	u
Benzene	1.4234	1.5250	10.00	10.71	ug/L	7	20	0.5000	u
Trichloroethene	0.3533	0.3721	10.00	10.53	ug/L	5	20	0.2000	u
1,2-Dichloropropane	0.4567	0.4625	10.00	10.13	ug/L	1	20	0.1000	u
Bromodichloromethane	0.4768	0.4893	10.00	10.26	ug/L	3	20	0.2000	u
Dibromomethane	0.2038	0.2196	10.00	10.78	ug/L	8	20	0.0500	u
4-Methyl-2-Pentanone	0.3034	0.3148	10.00	10.38	ug/L	4	20	0.1000	u
cis-1,3-Dichloropropene	0.5858	0.6492	10.00	11.08	ug/L	11	20	0.2000	u
Toluene	1.0030	1.0589	10.00	10.56	ug/L	6	20	0.4000	u
trans-1,3-Dichloropropene	0.5721	0.5653	10.00	9.881	ug/L	-1	20	0.1000	u
1,1,2-Trichloroethane	0.1833	0.1909	10.00	10.42	ug/L	4	20	0.1000	u
2-Hexanone	0.2444	0.2685	10.00	10.98	ug/L	10	20	0.1000	u
1,3-Dichloropropane	0.5907	0.6139	10.00	10.39	ug/L	4	20	0.0500	u
Tetrachloroethene	0.3257	0.3323	10.00	10.20	ug/L	2	20	0.2000	u
Dibromochloromethane	0.3582	0.3397	10.00	9.482	ug/L	-5	20	0.1000	u
1,2-Dibromoethane	0.3124	0.3240	10.00	10.37	ug/L	4	20	0.1000	u
Chlorobenzene	1.0457	1.1889	10.00	11.37	ug/L	14	20	0.5000	u
1,1,1,2-Tetrachloroethane	0.3530	0.3547	10.00	10.05	ug/L	1	20	0.0500	u
Ethylbenzene	1.8170	1.9899	10.00	10.95	ug/L	10	20	0.1000	u
m,p-Xylenes	0.6994	0.7400	20.00	21.16	ug/L	6	20	0.1000	u
o-Xylene	0.6912	0.7772	10.00	11.24	ug/L	12	20	0.3000	u
Styrene	1.1491	1.2768	10.00	11.11	ug/L	11	20	0.3000	u
Bromoform	0.1816	0.1725	10.00	9.499	ug/L	-5	20	0.1000	u
Isopropylbenzene	3.3008	3.8022	10.00	11.52	ug/L	15	20	0.1000	u

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
1,1,2,2-Tetrachloroethane	0.7400	0.8522	10.00	11.52	ug/L	15	20	0.3000	u
1,2,3-Trichloropropane	0.1717	0.1889	10.00	11.00	ug/L	10	20	0.0500	u
Propylbenzene	3.9484	4.6849	10.00	10.98	ug/L	10	20	0.0500	u
Bromobenzene	0.8112	0.8502	10.00	10.48	ug/L	5	20	0.0500	u
1,3,5-Trimethylbenzene	2.6100	3.0666	10.00	11.75	ug/L	17	20	0.0500	u
2-Chlorotoluene	2.7391	3.2988	10.00	12.04	ug/L	20	20	0.0500	u
4-Chlorotoluene	2.5864	2.9582	10.00	11.44	ug/L	14	20	0.0500	u
tert-Butylbenzene	2.3389	2.6591	10.00	11.37	ug/L	14	20	0.0500	u
1,2,4-Trimethylbenzene	2.6965	3.0080	10.00	11.16	ug/L	12	20	0.0500	u
sec-Butylbenzene	3.3816	4.1440	10.00	12.25	ug/L	**23**	20	0.0500	c+ u ***
para-Isopropyl Toluene	2.6177	3.0020	10.00	11.47	ug/L	15	20	0.0500	u
1,3-Dichlorobenzene	1.4329	1.5945	10.00	11.13	ug/L	11	20	0.6000	u
1,4-Dichlorobenzene	1.3975	1.5374	10.00	11.00	ug/L	10	20	0.5000	u
n-Butylbenzene	2.3883	2.8159	10.00	11.79	ug/L	18	20	0.0500	u
1,2-Dichlorobenzene	1.3633	1.4933	10.00	10.95	ug/L	10	20	0.4000	u
1,2-Dibromo-3-Chloropropane	0.1165	0.0998	10.00	8.570	ug/L	-14	20	0.0500	u
1,2,4-Trichlorobenzene	0.6629	0.6823	10.00	10.29	ug/L	3	20	0.2000	u
Hexachlorobutadiene	0.2535	0.2844	10.00	11.22	ug/L	12	20	0.0500	u
Naphthalene	1.5705	1.5853	10.00	10.09	ug/L	1	20	0.0500	u
1,2,3-Trichlorobenzene	0.6155	0.6496	10.00	10.55	ug/L	6	20	0.0500	u
Dibromofluoromethane	0.6016	0.6388	50.00	53.10	ug/L	6	20	0.0500	u
1,2-Dichloroethane-d4	0.3088	0.3284	50.00	53.16	ug/L	6	20	0.0500	u
Toluene-d8	1.2442	1.2544	50.00	50.41	ug/L	1	20	0.0500	u
Bromofluorobenzene	1.1231	1.1192	50.00	49.83	ug/L	0	20	0.0500	u

ISTD (ICAL hfp17)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	1827854	1828042	0.01	10.25	10.24	-0.01
1,4-Difluorobenzene	3226896	3328457	3.15	11.45	11.44	-0.01
Chlorobenzene-d5	2647236	2823724	6.67	15.93	15.92	-0.01
1,4-Dichlorobenzene-d4	1290871	1402397	8.64	18.77	18.76	-0.01

Analyst: DJA Date: 08/19/14 Reviewer: LW Date: 08/28/14

+=high bias -=low bias c=CCV u=use v=ICV

CURTIS & TOMPKINS SPIKE USER REPORT FOR 259790 MSVOA Water
EPA 8260C

Inst : MSVOA09 Run Name : QC753910 IDF : 1.0
Seqnum : 484331713003.2 File : ihi03 Time : 18-AUG-2014 10:51
Cal : 484219504001 Caldate : 01-JUN-2014 Caltype : WATER
Standards: S25287 (10000X), S24467 (10000X), S25398 (10000X), S25233 (10000X), S25243 (5000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Freon 12	0.6053	0.4542	20.00	15.01	ug/L	**-25**	20	0.1000	c- u ***
Chloromethane	0.7107	0.7156	20.00	20.14	ug/L	1	20	0.1000	u
Vinyl Chloride	0.4808	0.5047	20.00	20.99	ug/L	5	20	0.1000	u
Bromomethane	0.1415	0.1979	20.00	22.29	ug/L	11	20	0.1000	?LOD u ***
Chloroethane	0.2809	0.2830	20.00	20.15	ug/L	1	20	0.1000	u
Trichlorofluoromethane	0.6951	0.6466	20.00	18.61	ug/L	-7	20	0.1000	u
Acetone	0.1309	0.1039	25.00	20.76	ug/L	-17	20	0.1000	?LOD u ***
Freon 113	0.3799	0.3188	25.00	20.98	ug/L	-16	20	0.1000	u
1,1-Dichloroethene	0.4441	0.3682	25.00	20.73	ug/L	-17	20	0.1000	u
Methylene Chloride	0.6190	0.5317	25.00	21.47	ug/L	-14	20	0.1000	u
Carbon Disulfide	1.7617	1.4989	25.00	21.27	ug/L	-15	20	0.1000	u
MTBE	1.1841	0.8831	25.00	18.65	ug/L	**-25**	20	0.1000	c- u ***
trans-1,2-Dichloroethene	0.5067	0.4459	25.00	22.00	ug/L	-12	20	0.1000	u
Vinyl Acetate	0.9348	1.0226	25.00	27.35	ug/L	9	20	0.0500	u
1,1-Dichloroethane	1.1055	0.9903	25.00	22.39	ug/L	-10	20	0.2000	u
2-Butanone	0.1764	0.1580	25.00	22.40	ug/L	-10	20	0.1000	u
cis-1,2-Dichloroethene	0.5946	0.5158	25.00	21.69	ug/L	-13	20	0.1000	u
2,2-Dichloropropane	0.6593	0.7097	25.00	26.91	ug/L	8	20	0.0500	u
Chloroform	1.0071	0.9011	25.00	22.37	ug/L	-11	20	0.2000	u
Bromochloromethane	0.2416	0.2174	25.00	22.50	ug/L	-10	20	0.0500	u
1,1,1-Trichloroethane	0.6755	0.6704	25.00	24.81	ug/L	-1	20	0.1000	u
1,1-Dichloropropene	0.3439	0.3417	25.00	24.84	ug/L	-1	20	0.0500	u
Carbon Tetrachloride	0.2881	0.3016	25.00	26.17	ug/L	5	20	0.1000	u
1,2-Dichloroethane	0.2904	0.3094	25.00	26.63	ug/L	7	20	0.1000	u
Benzene	1.1111	1.0981	25.00	24.71	ug/L	-1	20	0.5000	u
Trichloroethene	0.2775	0.2602	25.00	23.44	ug/L	-6	20	0.2000	u
1,2-Dichloropropane	0.3529	0.3178	25.00	22.51	ug/L	-10	20	0.1000	u
Bromodichloromethane	0.3934	0.3647	25.00	23.18	ug/L	-7	20	0.2000	u
Dibromomethane	0.1665	0.1508	25.00	22.65	ug/L	-9	20	0.0500	u
4-Methyl-2-Pentanone	0.2329	0.1886	25.00	20.25	ug/L	-19	20	0.1000	u
cis-1,3-Dichloropropene	0.4486	0.4423	25.00	24.65	ug/L	-1	20	0.2000	u
Toluene	0.7134	0.6751	25.00	23.66	ug/L	-5	20	0.4000	u
trans-1,3-Dichloropropene	0.4132	0.3662	25.00	22.16	ug/L	-11	20	0.1000	u
1,1,2-Trichloroethane	0.1467	0.1224	25.00	20.85	ug/L	-17	20	0.1000	u
2-Hexanone	0.1735	0.1507	25.00	21.71	ug/L	-13	20	0.1000	u
1,3-Dichloropropane	0.4444	0.3844	25.00	21.63	ug/L	-13	20	0.0500	u
Tetrachloroethene	0.2219	0.2190	25.00	24.67	ug/L	-1	20	0.2000	u
Dibromochloromethane	0.2772	0.2444	25.00	22.04	ug/L	-12	20	0.1000	u
1,2-Dibromoethane	0.2428	0.2005	25.00	20.65	ug/L	-17	20	0.1000	u
Chlorobenzene	0.7166	0.6911	25.00	24.11	ug/L	-4	20	0.5000	u
1,1,1,2-Tetrachloroethane	0.2539	0.2346	25.00	23.10	ug/L	-8	20	0.0500	u
Ethylbenzene	1.2450	1.1669	25.00	23.43	ug/L	-6	20	0.1000	u
m,p-Xylenes	0.4040	0.4301	50.00	53.23	ug/L	6	20	0.1000	u
o-Xylene	0.4507	0.4427	25.00	24.56	ug/L	-2	20	0.3000	u
Styrene	0.7703	0.7026	25.00	22.80	ug/L	-9	20	0.3000	u
Bromoform	0.1483	0.1154	25.00	19.45	ug/L	**-22**	20	0.1000	c- u ***
Isopropylbenzene	2.4580	2.2679	25.00	23.07	ug/L	-8	20	0.1000	u

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
1,1,2,2-Tetrachloroethane	0.6528	0.4914	25.00	18.82	ug/L	**-25**	20	0.3000	c- u ***
1,2,3-Trichloropropane	0.1311	0.0995	25.00	18.96	ug/L	**-24**	20	0.0500	c- u ***
Propylbenzene	2.8779	2.7721	25.00	24.08	ug/L	-4	20	0.0500	u
Bromobenzene	0.6123	0.5656	25.00	23.09	ug/L	-8	20	0.0500	u
1,3,5-Trimethylbenzene	1.7691	1.7229	25.00	24.35	ug/L	-3	20	0.0500	u
2-Chlorotoluene	1.9656	1.9660	25.00	25.01	ug/L	0	20	0.0500	u
4-Chlorotoluene	1.8171	1.6096	25.00	22.14	ug/L	-11	20	0.0500	u
tert-Butylbenzene	1.5553	1.4348	25.00	23.06	ug/L	-8	20	0.0500	u
1,2,4-Trimethylbenzene	1.7331	1.4933	25.00	21.54	ug/L	-14	20	0.0500	u
sec-Butylbenzene	2.3072	2.0830	25.00	22.57	ug/L	-10	20	0.0500	u
para-Isopropyl Toluene	1.6105	1.4505	25.00	22.52	ug/L	-10	20	0.0500	u
1,3-Dichlorobenzene	0.9896	0.9096	25.00	22.98	ug/L	-8	20	0.6000	u
1,4-Dichlorobenzene	0.9434	0.8590	25.00	22.76	ug/L	-9	20	0.5000	u
n-Butylbenzene	1.3730	1.2421	25.00	22.62	ug/L	-10	20	0.0500	u
1,2-Dichlorobenzene	0.9591	0.8584	25.00	22.37	ug/L	-11	20	0.4000	u
1,2-Dibromo-3-Chloropropane	0.0895	0.0567	25.00	15.82	ug/L	**-37**	20	0.0500	c- u ***
1,2,4-Trichlorobenzene	0.3846	0.3241	25.00	18.44	ug/L	**-26**	20	0.2000	?LOD c- u ***
Hexachlorobutadiene	0.1812	0.1659	25.00	22.89	ug/L	-8	20	0.0500	u
Naphthalene	0.8829	0.5957	25.00	16.87	ug/L	**-33**	20	0.0500	c- u ***
1,2,3-Trichlorobenzene	0.3536	0.2851	25.00	16.71	ug/L	**-33**	20	0.0500	?LOD c- u ***
Dibromofluoromethane	0.6638	0.6410	50.00	48.28	ug/L	-3	20	0.0500	u
1,2-Dichloroethane-d4	0.2957	0.3456	50.00	58.44	ug/L	17	20	0.0500	u
Toluene-d8	1.2977	1.3503	50.00	52.03	ug/L	4	20	0.0500	u
Bromofluorobenzene	1.2105	1.1234	50.00	46.40	ug/L	-7	20	0.0500	u

ISTD (ICAL if111)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	1556208	2041413	31.18	11.33	11.30	-0.03
1,4-Difluorobenzene	2890532	3514102	21.57	12.60	12.56	-0.04
Chlorobenzene-d5	2489780	2988264	20.02	16.88	16.86	-0.02
1,4-Dichlorobenzene-d4	1089495	1387557	27.36	19.33	19.30	-0.03

Analyst: DJA Date: 08/19/14 Reviewer: LW Date: 08/28/14

-=low bias ?LOD=no LOD c=CCV u=use

Logbooks & Sequences

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 474327481

Date : 08/15/14 Reference : hfp17
Sequence : MSVOA08 hhf Analyzed : 06/25/14 18:09

#	Type	Sample ID	PFLBZ	RT	14DFB	RT	CLBZD5	RT	DCBZ14D4	RT
		ICAL STD	1827854	10.25	3226896	11.45	2647236	15.93	1290871	18.77
		LOWER LIMIT	913927	9.75	1613448	10.95	1323618	15.43	645436	18.27
		UPPER LIMIT	3655708	10.75	6453792	11.95	5294472	16.43	2581742	19.27
004	CCV/BS	QC753684	1828042	10.24	3328457	11.44	2823724	15.92	1402397	18.76
005	BSD	QC753685	1821558	10.24	3295513	11.44	2791936	15.92	1366444	18.76
008	BLANK	QC753686	1776898	10.25	3220440	11.45	2711345	15.93	1287055	18.77
009	SAMPLE	259774-002	1789764	10.25	3294591	11.45	2760368	15.92	1302405	18.76
010	SAMPLE	259786-002	1834213	10.25	3364959	11.45	2812954	15.92	1332719	18.77
011	SAMPLE	259790-003	1810666	10.25	3321645	11.45	2808975	15.93	1326727	18.77
012	SAMPLE	259786-003	1743947	10.25	3169687	11.46	2707479	15.93	1295018	18.77
013	SAMPLE	259786-004	1729778	10.25	3204633	11.45	2702118	15.93	1301651	18.77
014	SAMPLE	259734-001	1804530	10.25	3296140	11.46	2766479	15.92	1305643	18.77
015	MSS	259786-001	1730944	10.25	3144071	11.45	2706618	15.93	1318932	18.77
016	SAMPLE	259790-001	1746618	10.24	3158145	11.46	2323988	15.93	1248624	18.76
017	SAMPLE	259790-002	1729709	10.25	3155797	11.45	2663104	15.93	1254666	18.77
018	SAMPLE	259662-004	1578962	10.24	2948282	11.46	2496914	15.92	1148106	18.76
019	SAMPLE	259797-001	1681388	10.25	3121461	11.45	2636452	15.92	1211656	18.77
020	SAMPLE	259797-002	1747477	10.24	3215363	11.45	2705461	15.92	1264490	18.76
021	MS	QC753763	1607097	10.24	3068723	11.45	2625409	15.92	1270538	18.76
022	MSD	QC753764	1725460	10.24	3206930	11.44	2728744	15.92	1343961	18.76

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 484331713

Date : 08/18/14 Reference : if111
Sequence : MSVOA09 ihi Analyzed : 06/01/14 15:56

#	Type	Sample ID	PFLBZ	RT	14DFB	RT	CLBZD5	RT	DCBZ14D4	RT
		ICAL STD	1556208	11.33	2890532	12.60	2489780	16.88	1089495	19.33
		LOWER LIMIT	778104	10.83	1445266	12.10	1244890	16.38	544748	18.83
		UPPER LIMIT	3112416	11.83	5781064	13.10	4979560	17.38	2178990	19.83
003	CCV/BS	QC753910	2041413	11.30	3514102	12.56	2988264	16.86	1387557	19.30
004	BSD	QC753911	2062799	11.30	3586347	12.57	3067249	16.86	1439155	19.31
007	BLANK	QC753912	1808863	11.32	3081606	12.59	2604539	16.87	1137500	19.33
008	SAMPLE	259786-002	1317484	11.32	2244611	12.59	1837590	16.87	766957	19.33
009	SAMPLE	259841-004	1752689	11.33	2971932	12.59	2471210	16.88	1071720	19.32
010	MSS	259786-001	1445927	11.33	2505680	12.59	2120860	16.88	922071	19.32
011	SAMPLE	259786-003	1629462	11.33	2807436	12.60	2372982	16.88	1050825	19.33
012	SAMPLE	259786-004	1599551	11.33	2774248	12.59	2378342	16.88	1029370	19.32
013	SAMPLE	259790-001	1562598	11.33	2714172	12.59	2267672	16.88	966986	19.33
014	SAMPLE	259790-002	1573029	11.33	2675142	12.59	2235790	16.88	975823	19.32
015	SAMPLE	259841-006	1570702	11.33	2709612	12.60	2313671	16.88	1000655	19.33
016	SAMPLE	259841-007	1510644	11.34	2629669	12.60	2222512	16.88	937062	19.33
017	MS	QC753972	1424090	11.33	2409722	12.59	2108192	16.88	1038456	19.32
018	MSD	QC753973	1328801	11.34	2236438	12.60	1953365	16.88	941655	19.33

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 474253910

Instrument : MSVOA08 Begun : 06/25/14 07:50
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	hfp01	X	LOW POINT			06/25/14 07:50	1.0	1	
002	hfp02	TUN	BFB			06/25/14 08:37	1.0	2	
003	hfp03	TUN	BFB			06/25/14 09:25	1.0	2	t
004	hfp04	TUN	BFB			06/25/14 09:58	1.0	2	t
005	hfp05	TUN	BFB			06/25/14 10:52	1.0	2	t
006	hfp06	TUN	BFB			06/25/14 11:49	1.0	2	
007	hfp07	TUN	BFB			06/25/14 12:28	1.0	2	
008	hfp08	TUN	BFB			06/25/14 12:59	1.0	2	
009	hfp09	X	IB			06/25/14 13:32	1.0	1	
010	hfp10	IB	CALIB			06/25/14 14:07	1.0	1	
011	hfp11	ICAL				06/25/14 14:41	1.0	3 4 5 6 1	
012	hfp12	ICAL				06/25/14 15:16	1.0	3 4 5 6 1	
013	hfp13	ICAL				06/25/14 15:51	1.0	3 4 5 6 1	
014	hfp14	ICAL				06/25/14 16:25	1.0	3 4 5 6 1	
015	hfp15	ICAL				06/25/14 17:00	1.0	3 4 5 6 1	
016	hfp16	ICAL				06/25/14 17:35	1.0	3 4 5 6 1	
017	hfp17	ICAL				06/25/14 18:09	1.0	3 4 5 6 1	
018	hfp18	ICAL				06/25/14 18:44	1.0	3 4 5 6 1	
019	hfp19	ICAL				06/25/14 19:19	1.0	3 4 5 6 1	
020	hfp20	ICV				06/25/14 19:53	1.0	7 1	
021	hfp21	ICV				06/25/14 20:28	1.0	8 9 10 1	
022	hfp22	X	IB			06/25/14 21:03	1.0	1	
023	hfp23	X	IB			06/25/14 21:38	1.0	1	
024	hfp24	X	IB			06/25/14 22:12	1.0	1	

DJA 06/26/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 24.

Analyst: DJA Date: 06/26/14 Reviewer: LW Date: 06/27/14

Standards used: 1=S24802 2=S24715 3=S23923 4=S24633 5=S24634 6=S23961 7=S24242 8=S24731 9=S24892 10=S24848

Flags used: t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 474327481

Instrument : MSVOA08 Begun : 08/15/14 10:01
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	hhf01	X	IB			08/15/14 10:01	1.0	1	
002	hhf02	TUN	BFB			08/15/14 10:50	1.0	2	t
003	hhf03	TUN	BFB			08/15/14 12:01	1.0	2	
004	hhf04	CCV/BS	QC753684	Water	214432	08/15/14 12:28	1.0	3 4 5 6 1	
005	hhf05	BSD	QC753685	Water	214432	08/15/14 13:18	1.0	3 4 5 6 1	
006	hhf06	X	CCV			08/15/14 13:53	1.0	1	
007	hhf07	X	IB			08/15/14 14:28	1.0	1	
008	hhf08	BLANK	QC753686	Water	214432	08/15/14 15:03	1.0	1	
009	hhf09	SAMPLE	259774-002	Water	214432	08/15/14 15:38	1.0	1	
010	hhf10	SAMPLE	259786-002	Water	214432	08/15/14 16:14	1.0	1	
011	hhf11	SAMPLE	259790-003	Water	214432	08/15/14 16:49	1.0	1	
012	hhf12	SAMPLE	259786-003	Water	214432	08/15/14 17:24	1.0	1	pH > 2
013	hhf13	SAMPLE	259786-004	Water	214432	08/15/14 17:59	1.0	1	pH > 2
014	hhf14	SAMPLE	259734-001	Water	214432	08/15/14 18:34	1.0	1	
015	hhf15	MSS	259786-001	Water	214432	08/15/14 19:09	1.0	1	pH > 2
016	hhf16	SAMPLE	259790-001	Water	214432	08/15/14 19:44	1.0	1	
017	hhf17	SAMPLE	259790-002	Water	214432	08/15/14 20:19	1.0	1	
018	hhf18	SAMPLE	259662-004	Water	214432	08/15/14 20:54	2.500	1	
019	hhf19	SAMPLE	259797-001	Water	214432	08/15/14 21:29	3.333	1	
020	hhf20	SAMPLE	259797-002	Water	214432	08/15/14 22:03	3.333	1	1:MEK=130
021	hhf21	MS	QC753763	Water	214432	08/15/14 22:38	1.0	3 4 5 6 1	
022	hhf22	MSD	QC753764	Water	214432	08/15/14 23:13	1.0	3 4 5 6 1	pH > 2
023	hhf23	X	IB			08/15/14 23:48	1.0	1	
024	hhf24	X	IB			08/16/14 00:23	1.0	1	

DJA 08/18/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 24.

DJA 08/18/14 : Matrix spikes QC753763,QC753764 (batch 214432) were not reported because the parent sample was reanalyzed in another batch.

Analyst: DJA Date: 08/18/14 Reviewer: LW Date: 08/18/14

Standards used: 1=S25202 2=S24715 3=S25233 4=S25398 5=S25287 6=S24467

Flags used: t=tune failure

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 484219504

Instrument : MSVOA09 Begun : 06/01/14 10:24
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	if101	X	IB			06/01/14 10:24	1.0	1	
002	if102	TUN	BFB			06/01/14 10:56	1.0	2	
003	if103	X	IB			06/01/14 11:20	1.0	1	
004	if104	IB	CALIB IB			06/01/14 11:52	1.0	1	
005	if105	ICAL	.25/.5PPB			06/01/14 12:39	1.0	3 4 5 1	
006	if106	ICAL	0.5/1PPB			06/01/14 13:11	1.0	3 6 4 5 1	
007	if107	ICAL	2PPB			06/01/14 13:44	1.0	6 3 5 4 1	
008	if108	ICAL	5PPB			06/01/14 14:17	1.0	6 3 5 4 1	
009	if109	ICAL	10PPB			06/01/14 14:50	1.0	6 3 5 4 1	
010	if110	ICAL	20PPB			06/01/14 15:23	1.0	6 3 5 4 1	
011	if111	ICAL	50PPB			06/01/14 15:56	1.0	6 3 5 4 1	
012	if112	ICAL	75PPB			06/01/14 16:29	1.0	6 3 5 4 1	
013	if113	ICAL	100PPB			06/01/14 17:02	1.0	6 3 5 4 1	
014	if114	ICV	GASES			06/01/14 17:35	1.0	7 1	
015	if115	ICV				06/01/14 18:08	1.0	8 9 10 1	
016	if116	X	IB			06/01/14 18:41	1.0	1	

TEW 06/02/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 16.

Analyst: TEW Date: 06/02/14 Reviewer: LW Date: 06/03/14

Standards used: 1=S24793 2=S24715 3=S24634 4=S24633 5=S23961 6=S23491 7=S24242 8=S24643 9=S24731 10=S24689

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 484221233

Instrument : MSVOA09 Begun : 06/02/14 15:13
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	if201	X	IB			06/02/14 15:13	1.0	1	
002	if202	TUN	BFB			06/02/14 15:52	1.0	2	t
003	if203	TUN	BFB			06/02/14 16:07	1.0	2	
004	if204	ICV	GASES			06/02/14 16:31	1.0	3 1	
005	if205	ICV	GASES			06/02/14 17:35	1.0	4 1	

TEW 06/02/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 5.

Analyst: TEW Date: 06/02/14 Reviewer: LW Date: 06/03/14

Standards used: 1=S24793 2=S24715 3=S24242 4=S19788

Flags used: t=tune failure

Page 1 of 1

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 484331713

Instrument : MSVOA09 Begun : 08/18/14 08:33
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	ihi01	X	IB			08/18/14 08:33	1.0	1	
002	ihi02	TUN	BFB			08/18/14 10:18	1.0	2	
003	ihi03	CCV/BS	QC753910	Water	214489	08/18/14 10:51	1.0	3 4 5 6 1	
004	ihi04	BSD	QC753911	Water	214489	08/18/14 11:37	1.0	3 4 5 6 1	
005	ihi05	X	CCV			08/18/14 12:10	1.0	7 1	
006	ihi06	X	IB			08/18/14 12:42	1.0	1	
007	ihi07	BLANK	QC753912	Water	214489	08/18/14 13:15	1.0	1	
008	ihi08	SAMPLE	259786-002	Water	214489	08/18/14 13:48	1.0	1	headspace > 1 mL
009	ihi09	SAMPLE	259841-004	Water	214489	08/18/14 14:21	1.0	1	headspace > 1 mL
010	ihi10	MSS	259786-001	Water	214489	08/18/14 14:54	1.0	1	pH > 2
011	ihi11	SAMPLE	259786-003	Water	214489	08/18/14 15:27	1.0	1	pH > 2
012	ihi12	SAMPLE	259786-004	Water	214489	08/18/14 16:00	1.0	1	pH > 2
013	ihi13	SAMPLE	259790-001	Water	214489	08/18/14 16:33	1.0	1	
014	ihi14	SAMPLE	259790-002	Water	214489	08/18/14 17:06	1.0	1	
015	ihi15	SAMPLE	259841-006	Water	214489	08/18/14 17:39	1.0	1	
016	ihi16	SAMPLE	259841-007	Water	214489	08/18/14 18:11	1.0	1	
017	ihi17	MS	QC753972	Water	214489	08/18/14 18:44	1.0	3 4 5 6 1	
018	ihi18	MSD	QC753973	Water	214489	08/18/14 19:17	1.0	3 4 5 6 1	pH > 2
019	ihi19	X	IB			08/18/14 19:50	1.0	1	
020	ihi20	X	IB			08/18/14 20:22	1.0	1	

DJA 08/19/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 20.

Analyst: DJA Date: 08/19/14 Reviewer: LW Date: 08/19/14

Standards used: 1=S25243 2=S24715 3=S25287 4=S24467 5=S25398 6=S25233 7=S25399

MSVOA WATER Prepsheet Curtis & Tompkins, Ltd.

Date: 8/15/14 **Batch #:** ~~214328~~ DJA 8/15 214432

	Sample ID	Vial	pH <2	pH (if >2)	HS?	Dil'n flask	MS#	RR	DF	Comments	20% ccv ?	hold	due	init date
1	259662-4	C	✓			3	8	2	2.5x	12DB3CB c- 20% rule				DJA
2	259774-2	D	✓					1	1x	hex + 123TCB c- III				
3	~~259838-1~~								1x					
4	-2								1x	putoff list				
5	-3								5x					
6	259786-1	B	✓	7					1x					
7	-1MS	COE	7	7		12				spike at 20 ppb				
8	-1MSD	COE		7		12				↓				
9	-2	A	✓											
10	-3	B		6										
11	-4	B		7					↓					
12	259791-1	D	✓						1x					
13	259797-1	E	✓			4			3.3x					
14	-2	↓	✓			5			3.3x					
15	259790-1	B	✓						1x					
16	-2	↓	✓						1x					
17	-3	A	✓						1x	TB				
18														
19														
20														
21														
22														

MSVOA WATER Prepsheet Curtis & Tompkins, Ltd.

Date: 8/18/14 **Batch #:** 214489

	Sample ID	Vial	pH <2	pH (if >2)	HS?	Dil'n flask	MS#	RR	DF	Comments	20% ccv ?	hold	due	init date
1	259786-1	F		7			9	1	1X		X			6/24
2	-1MS	GHI		7		A2								
3	-1MSD	GHI		7		A2								
4	-2	A	✓		SNL					TB, only one vial given by client				
5	-3	C		7										
6	-4	C		7										
7	259790-1	C	✓											
8	-2	C	✓											
9	-3	—	—							only 1 vial given, no more sample left				
10	~~-4~~													
11	259841-4	A	✓		SNL					TB, only one vial given by client				
12	-6	C	✓											
13	-7	↓	✓					↓	↓		↓			
14														
15														
16														
17														
18														
19														
20														
21														
22														

Case Narrative Addendum: Manual Integrations for 259790 GC/MS VOA (Water)

For Calibration MSVOA09 (484219504001):
Bromomethane: Corrected fronting or tailing peak integration in all levels.
Chloroethane: Corrected fronting or tailing peak integration in all levels.
Chloromethane: Corrected fronting or tailing peak integration in multiple levels.
Trichlorofluoromethane: Corrected fronting or tailing peak integration in all levels.
Freon 12: Corrected fronting or tailing peak integration in all levels.
Tetramethyl THF: Picked or reassigned peak1PPB (if106).
Vinyl Chloride: Corrected fronting or tailing peak integration in multiple levels.

For ICV (MSVOA09 if115):
Ethanol: Corrected fronting or tailing peak integration.

For ICV GASES (MSVOA09 if205):
Bromomethane: Corrected fronting or tailing peak integration.
Chloroethane: Corrected fronting or tailing peak integration.
Chloromethane: Corrected fronting or tailing peak integration.
Trichlorofluoromethane: Corrected fronting or tailing peak integration.
Freon 12: Corrected fronting or tailing peak integration.
Vinyl Chloride: Corrected fronting or tailing peak integration.

For Calibration MSVOA08 (474253910001):
Acetone: Corrected fronting or tailing peak integration in (hfp13).
Bromomethane: Corrected fronting or tailing peak integration in (hfp14).
Chloroethane: Corrected fronting or tailing peak integration in multiple levels.
Trichlorofluoromethane: Corrected fronting or tailing peak integration in (hfp13).
Freon 113: Corrected fronting or tailing peak integration in multiple levels.
Freon 12: Corrected fronting or tailing peak integration in multiple levels.
Isopropanol: Corrected fronting or tailing peak integration in multiple levels.
tert-Butyl Alcohol (TBA): Corrected fronting or tailing peak integration in (hfp13).
Vinyl Acetate: Corrected fronting or tailing peak integration in multiple levels.
Vinyl Chloride: Corrected fronting or tailing peak integration in (hfp13).
m,p-Xylenes: Corrected fronting or tailing peak integration in multiple levels.

For ICV (MSVOA08 hfp20):
Bromomethane: Corrected fronting or tailing peak integration.
Chloroethane: Corrected fronting or tailing peak integration.
Chloromethane: Corrected fronting or tailing peak integration.
Trichlorofluoromethane: Corrected fronting or tailing peak integration.
Freon 12: Corrected fronting or tailing peak integration.
Vinyl Chloride: Corrected fronting or tailing peak integration.

For ICV (MSVOA08 hfp21):
Freon 113: Corrected fronting or tailing peak integration.
Iodomethane: Corrected fronting or tailing peak integration.
Isopropanol: Corrected fronting or tailing peak integration.

Laboratory Job Number 259790

ANALYTICAL REPORT

Semivolatile Organics by GC/MS

Matrix: Water

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	RB-081314	Batch#:	214400
Lab ID:	259790-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/14/14
Diln Fac:	1.000	Analyzed:	08/18/14

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	2.5 U	10	2.3
Phenol	2.5 U	10	1.7
bis(2-Chloroethyl)ether	2.5 U	10	1.6
2-Chlorophenol	2.5 U	10	1.6
1,3-Dichlorobenzene	2.5 U	10	1.6
1,4-Dichlorobenzene	2.5 U	10	1.6
Benzyl alcohol	2.5 U	10	1.5
1,2-Dichlorobenzene	2.5 U	10	1.7
2-Methylphenol	2.5 U	10	1.5
bis(2-Chloroisopropyl) ether	5.0 U	10	2.7
4-Methylphenol	2.5 U	10	1.5
N-Nitroso-di-n-propylamine	2.5 U	10	2.0
Hexachloroethane	2.5 U	10	1.7
Nitrobenzene	2.5 U	10	1.6
Isophorone	2.5 U	10	1.9
2-Nitrophenol	5.0 U	20	2.6
2,4-Dimethylphenol	2.5 U	10	1.3
Benzoic acid	25 U	50	10
bis(2-Chloroethoxy)methane	2.5 U	10	1.2
2,4-Dichlorophenol	2.5 U	10	1.3
1,2,4-Trichlorobenzene	2.5 U	10	1.4
Naphthalene	2.5 U	10	1.4
4-Chloroaniline	2.5 U	10	1.3
Hexachlorobutadiene	2.5 U	10	1.3
4-Chloro-3-methylphenol	2.5 U	10	1.4
2-Methylnaphthalene	2.5 U	10	1.5
Hexachlorocyclopentadiene	5.0 U	20	1.7
2,4,6-Trichlorophenol	2.5 U	10	0.98
2,4,5-Trichlorophenol	2.5 U	10	0.94
2-Chloronaphthalene	2.5 U	10	1.5
2-Nitroaniline	2.5 U	20	1.8
Dimethylphthalate	2.5 U	10	1.5
Acenaphthylene	2.5 U	10	1.5
2,6-Dinitrotoluene	2.5 U	10	1.4
3-Nitroaniline	2.5 U	20	1.0
Acenaphthene	2.5 U	10	1.4
2,4-Dinitrophenol	5.0 U	20	2.1
4-Nitrophenol	2.5 U	20	1.2
Dibenzofuran	2.5 U	10	1.5
2,4-Dinitrotoluene	2.5 U	10	1.5
Diethylphthalate	2.5 U	10	1.6
Fluorene	2.5 U	10	1.5
4-Chlorophenyl-phenylether	2.5 U	10	1.4
4-Nitroaniline	2.5 U	20	1.2
4,6-Dinitro-2-methylphenol	5.0 U	20	1.7
N-Nitrosodiphenylamine	2.5 U	10	1.2
Azobenzene	2.5 U	10	1.6
4-Bromophenyl-phenylether	2.5 U	10	1.2
Hexachlorobenzene	2.5 U	10	1.2
Pentachlorophenol	2.5 U	20	1.3
Phenanthrene	2.5 U	10	1.3
Anthracene	2.5 U	10	1.3
Carbazole	2.5 U	10	2.1

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	RB-081314	Batch#:	214400
Lab ID:	259790-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/14/14
Diln Fac:	1.000	Analyzed:	08/18/14

Analyte	Result	LOQ	DL
Di-n-butylphthalate	2.5 U	10	1.2
Fluoranthene	2.5 U	10	1.6
Pyrene	2.5 U	10	1.3
Butylbenzylphthalate	2.5 U	10	1.4
3,3'-Dichlorobenzidine	2.5 U	20	0.63
Benzo(a)anthracene	2.5 U	10	1.3
Chrysene	2.5 U	10	1.4
bis(2-Ethylhexyl)phthalate	2.5 U	10	1.7
Di-n-octylphthalate	2.5 U	10	1.3
Benzo(b)fluoranthene	2.5 U	10	1.4
Benzo(k)fluoranthene	2.5 U	10	1.5
Benzo(a)pyrene	2.5 U	10	1.1
Indeno(1,2,3-cd)pyrene	2.5 U	10	1.4
Dibenz(a,h)anthracene	2.5 U	10	1.4
Benzo(g,h,i)perylene	2.5 U	10	1.5

Surrogate	%REC	Limits
2-Fluorophenol	78	20-110
Phenol-d5	79	10-115
2,4,6-Tribromophenol	90	40-125
Nitrobenzene-d5	77	40-110
2-Fluorobiphenyl	76	50-110
Terphenyl-d14	79	50-135

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	SB-081314	Batch#:	214400
Lab ID:	259790-002	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/14/14
Diln Fac:	1.000	Analyzed:	08/18/14

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	2.4 U	9.4	2.2
Phenol	2.4 U	9.4	1.6
bis(2-Chloroethyl)ether	2.4 U	9.4	1.5
2-Chlorophenol	2.4 U	9.4	1.5
1,3-Dichlorobenzene	2.4 U	9.4	1.5
1,4-Dichlorobenzene	2.4 U	9.4	1.6
Benzyl alcohol	2.4 U	9.4	1.4
1,2-Dichlorobenzene	2.4 U	9.4	1.6
2-Methylphenol	2.4 U	9.4	1.4
bis(2-Chloroisopropyl) ether	4.7 U	9.4	2.6
4-Methylphenol	2.4 U	9.4	1.4
N-Nitroso-di-n-propylamine	2.4 U	9.4	1.9
Hexachloroethane	2.4 U	9.4	1.6
Nitrobenzene	2.4 U	9.4	1.5
Isophorone	2.4 U	9.4	1.8
2-Nitrophenol	4.7 U	19	2.4
2,4-Dimethylphenol	2.4 U	9.4	1.2
Benzoic acid	24 U	47	9.6
bis(2-Chloroethoxy)methane	2.4 U	9.4	1.2
2,4-Dichlorophenol	2.4 U	9.4	1.3
1,2,4-Trichlorobenzene	2.4 U	9.4	1.3
Naphthalene	2.4 U	9.4	1.4
4-Chloroaniline	2.4 U	9.4	1.2
Hexachlorobutadiene	2.4 U	9.4	1.3
4-Chloro-3-methylphenol	2.4 U	9.4	1.3
2-Methylnaphthalene	2.4 U	9.4	1.4
Hexachlorocyclopentadiene	4.7 U	19	1.6
2,4,6-Trichlorophenol	2.4 U	9.4	0.93
2,4,5-Trichlorophenol	2.4 U	9.4	0.89
2-Chloronaphthalene	2.4 U	9.4	1.5
2-Nitroaniline	2.4 U	19	1.7
Dimethylphthalate	2.4 U	9.4	1.5
Acenaphthylene	2.4 U	9.4	1.4
2,6-Dinitrotoluene	2.4 U	9.4	1.3
3-Nitroaniline	2.4 U	19	0.98
Acenaphthene	2.4 U	9.4	1.3
2,4-Dinitrophenol	4.7 U	19	2.0
4-Nitrophenol	2.4 U	19	1.1
Dibenzofuran	2.4 U	9.4	1.4
2,4-Dinitrotoluene	2.4 U	9.4	1.4
Diethylphthalate	2.4 U	9.4	1.5
Fluorene	2.4 U	9.4	1.5
4-Chlorophenyl-phenylether	2.4 U	9.4	1.3
4-Nitroaniline	2.4 U	19	1.1
4,6-Dinitro-2-methylphenol	4.7 U	19	1.6
N-Nitrosodiphenylamine	2.4 U	9.4	1.2
Azobenzene	2.4 U	9.4	1.5
4-Bromophenyl-phenylether	2.4 U	9.4	1.1
Hexachlorobenzene	2.4 U	9.4	1.2
Pentachlorophenol	2.4 U	19	1.2
Phenanthrene	2.4 U	9.4	1.2
Anthracene	2.4 U	9.4	1.3
Carbazole	2.4 U	9.4	1.9

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	SB-081314	Batch#:	214400
Lab ID:	259790-002	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/14/14
Diln Fac:	1.000	Analyzed:	08/18/14

Analyte	Result	LOQ	DL
Di-n-butylphthalate	2.4 U	9.4	1.1
Fluoranthene	2.4 U	9.4	1.5
Pyrene	2.4 U	9.4	1.2
Butylbenzylphthalate	2.4 U	9.4	1.3
3,3'-Dichlorobenzidine	2.4 U	19	0.59
Benzo(a)anthracene	2.4 U	9.4	1.3
Chrysene	2.4 U	9.4	1.3
bis(2-Ethylhexyl)phthalate	2.4 U	9.4	1.6
Di-n-octylphthalate	2.4 U	9.4	1.2
Benzo(b)fluoranthene	2.4 U	9.4	1.3
Benzo(k)fluoranthene	2.4 U	9.4	1.4
Benzo(a)pyrene	2.4 U	9.4	1.1
Indeno(1,2,3-cd)pyrene	2.4 U	9.4	1.4
Dibenz(a,h)anthracene	2.4 U	9.4	1.3
Benzo(g,h,i)perylene	2.4 U	9.4	1.4

Surrogate	%REC	Limits
2-Fluorophenol	80	20-110
Phenol-d5	83	10-115
2,4,6-Tribromophenol	98	40-125
Nitrobenzene-d5	80	40-110
2-Fluorobiphenyl	79	50-110
Terphenyl-d14	88	50-135

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753557	Batch#:	214400
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/15/14

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	5.0 U	10	1.5
Phenol	2.5 U	10	1.0
bis(2-Chloroethyl)ether	2.5 U	10	1.2
2-Chlorophenol	2.5 U	10	0.82
1,3-Dichlorobenzene	2.5 U	10	1.0
1,4-Dichlorobenzene	2.5 U	10	1.1
Benzyl alcohol	2.5 U	10	1.1
1,2-Dichlorobenzene	2.5 U	10	2.1
2-Methylphenol	2.5 U	10	2.2
bis(2-Chloroisopropyl) ether	2.5 U	10	1.4
4-Methylphenol	2.5 U	10	1.7
N-Nitroso-di-n-propylamine	2.5 U	10	1.2
Hexachloroethane	2.5 U	10	1.1
Nitrobenzene	2.5 U	10	1.2
Isophorone	2.5 U	10	1.3
2-Nitrophenol	5.0 U	20	2.6
2,4-Dimethylphenol	2.5 U	10	2.5
Benzoic acid	40 U	50	16
bis(2-Chloroethoxy)methane	2.5 U	10	1.1
2,4-Dichlorophenol	2.5 U	10	2.1
1,2,4-Trichlorobenzene	2.5 U	10	2.2
Naphthalene	2.5 U	10	1.9
4-Chloroaniline	5.0 U	10	2.1
Hexachlorobutadiene	2.5 U	10	2.4
4-Chloro-3-methylphenol	2.5 U	10	1.0
2-Methylnaphthalene	2.5 U	10	1.8
Hexachlorocyclopentadiene	2.5 U	20	0.68
2,4,6-Trichlorophenol	2.5 U	10	0.92
2,4,5-Trichlorophenol	2.5 U	10	0.85
2-Chloronaphthalene	2.5 U	10	1.8
2-Nitroaniline	2.5 U	20	1.2
Dimethylphthalate	2.5 U	10	2.0
Acenaphthylene	2.5 U	10	1.7
2,6-Dinitrotoluene	2.5 U	10	1.8
3-Nitroaniline	5.0 U	20	1.9
Acenaphthene	2.5 U	10	1.8
2,4-Dinitrophenol	18 U	20	2.6
4-Nitrophenol	5.0 U	20	1.8
Dibenzofuran	2.5 U	10	1.9
2,4-Dinitrotoluene	2.5 U	10	2.1
Diethylphthalate	2.5 U	10	1.0
Fluorene	2.5 U	10	1.8
4-Chlorophenyl-phenylether	2.5 U	10	1.6
4-Nitroaniline	5.0 U	20	2.4
4,6-Dinitro-2-methylphenol	5.0 U	20	1.2
N-Nitrosodiphenylamine	2.5 U	10	1.7
Azobenzene	2.5 U	10	1.2
4-Bromophenyl-phenylether	2.5 U	10	2.0
Hexachlorobenzene	2.5 U	10	2.0
Pentachlorophenol	5.0 U	20	1.9
Phenanthrene	2.5 U	10	1.9
Anthracene	2.5 U	10	1.8
Carbazole	2.5 U	10	2.3

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753557	Batch#:	214400
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/15/14

Analyte	Result	LOQ	DL
Di-n-butylphthalate	2.5 U	10	1.2
Fluoranthene	2.5 U	10	1.9
Pyrene	2.5 U	10	1.7
Butylbenzylphthalate	2.5 U	10	1.0
3,3'-Dichlorobenzidine	2.5 U	20	1.0
Benzo(a)anthracene	2.5 U	10	1.6
Chrysene	2.5 U	10	1.7
bis(2-Ethylhexyl)phthalate	2.5 U	10	1.8
Di-n-octylphthalate	2.5 U	10	1.8
Benzo(b)fluoranthene	2.5 U	10	1.7
Benzo(k)fluoranthene	2.5 U	10	2.0
Benzo(a)pyrene	2.5 U	10	1.6
Indeno(1,2,3-cd)pyrene	2.5 U	10	1.8
Dibenz(a,h)anthracene	2.5 U	10	1.8
Benzo(g,h,i)perylene	2.5 U	10	1.9

Surrogate	%REC	Limits
2-Fluorophenol	70	20-110
Phenol-d5	72	10-115
2,4,6-Tribromophenol	67	40-125
Nitrobenzene-d5	72	40-110
2-Fluorobiphenyl	73	50-110
Terphenyl-d14	80	50-135

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC753558	Batch#:	214400
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/16/14

Analyte	Spiked	Result	%REC	Limits
N-Nitrosodimethylamine	80.00	74.57	93	25-110
Phenol	80.00	70.79	88	0-115
bis(2-Chloroethyl)ether	80.00	70.53	88	35-110
2-Chlorophenol	80.00	71.45	89	35-105
1,3-Dichlorobenzene	80.00	58.32	73	30-100
1,4-Dichlorobenzene	80.00	58.90	74	30-100
Benzyl alcohol	80.00	74.06	93	30-110
1,2-Dichlorobenzene	80.00	61.61	77	35-100
2-Methylphenol	80.00	70.55	88	40-110
bis(2-Chloroisopropyl) ether	80.00	73.37	92	25-130
4-Methylphenol	80.00	67.33	84	30-110
N-Nitroso-di-n-propylamine	80.00	68.39	85	35-130
Hexachloroethane	80.00	51.19	64	30-100
Nitrobenzene	80.00	73.92	92	45-110
Isophorone	80.00	75.20	94	50-110
2-Nitrophenol	80.00	76.58	96	40-115
2,4-Dimethylphenol	80.00	56.05	70	30-110
Benzoic acid	120.0	40.38	34	0-125
bis(2-Chloroethoxy)methane	30.00	26.89	90	45-105
2,4-Dichlorophenol	80.00	71.93	90	50-105
1,2,4-Trichlorobenzene	80.00	62.94	79	35-105
Naphthalene	30.00	27.69	92	40-100
4-Chloroaniline	80.00	48.62	61	15-110
Hexachlorobutadiene	80.00	53.81	67	25-105
4-Chloro-3-methylphenol	80.00	69.11	86	45-110
2-Methylnaphthalene	30.00	27.21	91	45-105
Hexachlorocyclopentadiene	80.00	16.11	20	8-120
2,4,6-Trichlorophenol	80.00	76.63	96	50-115
2,4,5-Trichlorophenol	80.00	75.20	94	50-110
2-Chloronaphthalene	30.00	28.34	94	50-105
2-Nitroaniline	80.00	78.34	98	50-115
Dimethylphthalate	80.00	75.58	94	25-125
Acenaphthylene	30.00	30.75	103	50-105
2,6-Dinitrotoluene	80.00	78.27	98	50-115
3-Nitroaniline	80.00	75.56	94	20-125
Acenaphthene	30.00	30.59	102	45-110
2,4-Dinitrophenol	80.00	71.48	89	15-140
4-Nitrophenol	80.00	71.81	90	0-125

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC753558	Batch#:	214400
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/16/14

Analyte	Spiked	Result	%REC	Limits
Dibenzofuran	30.00	29.04	97	55-105
2,4-Dinitrotoluene	80.00	78.09	98	50-120
Diethylphthalate	30.00	29.86	100	40-120
Fluorene	30.00	29.70	99	50-110
4-Chlorophenyl-phenylether	30.00	29.23	97	50-110
4-Nitroaniline	80.00	75.57	94	35-120
4,6-Dinitro-2-methylphenol	80.00	86.81	109	40-130
N-Nitrosodiphenylamine	30.00	27.53	92	50-110
Azobenzene	30.00	27.69	92	55-115
4-Bromophenyl-phenylether	30.00	27.90	93	50-115
Hexachlorobenzene	80.00	63.36	79	50-110
Pentachlorophenol	80.00	74.05	93	40-115
Phenanthrene	30.00	30.09	100	50-115
Anthracene	30.00	29.82	99	55-110
Carbazole	80.00	69.60	87	50-115
Di-n-butylphthalate	30.00	29.05	97	55-115
Fluoranthene	30.00	30.11	100	55-115
Pyrene	30.00	31.69	106	50-130
Butylbenzylphthalate	30.00	29.21	97	45-115
3,3'-Dichlorobenzidine	80.00	56.69	71	20-110
Benzo(a)anthracene	30.00	29.86	100	55-110
Chrysene	30.00	30.63	102	55-110
bis(2-Ethylhexyl)phthalate	30.00	29.53	98	40-125
Di-n-octylphthalate	30.00	29.04	97	35-135
Benzo(b)fluoranthene	30.00	29.94	100	45-120
Benzo(k)fluoranthene	30.00	29.74	99	45-125
Benzo(a)pyrene	30.00	30.04	100	55-110
Indeno(1,2,3-cd)pyrene	30.00	29.96	100	45-125
Dibenz(a,h)anthracene	30.00	29.60	99	40-125
Benzo(g,h,i)perylene	30.00	31.02	103	40-125

Surrogate	%REC	Limits
2-Fluorophenol	87	20-110
Phenol-d5	91	10-115
2,4,6-Tribromophenol	85	40-125
Nitrobenzene-d5	92	40-110
2-Fluorobiphenyl	93	50-110
Terphenyl-d14	96	50-135

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W19-081314	Sampled:	08/13/14
MSS Lab ID:	259786-001	Received:	08/13/14
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/18/14
Batch#:	214400		

Type: MS Lab ID: QC753559

Analyte	MSS Result	Spiked	Result	%REC	Limits	Diln Fac
N-Nitrosodimethylamine	<2.167	75.47	63.53	84	25-110	1.000
Phenol	<1.569	75.47	72.37	96	0-115	1.000
bis(2-Chloroethyl)ether	<1.518	75.47	70.75	94	35-110	1.000
2-Chlorophenol	<1.507	75.47	70.97	94	35-105	1.000
1,3-Dichlorobenzene	<1.532	75.47	64.13	85	30-100	1.000
1,4-Dichlorobenzene	<1.555	75.47	64.12	85	30-100	1.000
Benzyl alcohol	<1.415	75.47	71.16	94	30-110	1.000
1,2-Dichlorobenzene	<1.588	75.47	64.64	86	35-100	1.000
2-Methylphenol	<1.370	75.47	71.04	94	40-110	1.000
bis(2-Chloroisopropyl) ether	<2.587	75.47	69.35	92	25-130	1.000
4-Methylphenol	<1.446	75.47	70.49	93	30-110	1.000
N-Nitroso-di-n-propylamine	<1.883	75.47	70.78	94	35-130	1.000
Hexachloroethane	<1.643	75.47	61.66	82	30-100	1.000
Nitrobenzene	<1.521	75.47	68.10	90	45-110	1.000
Isophorone	<1.772	75.47	71.67	95	50-110	2.000
2-Nitrophenol	<2.446	75.47	72.76	96	40-115	1.000
2,4-Dimethylphenol	<1.191	75.47	73.13	97	30-110	1.000
Benzoic acid	<9.577	113.2	124.8	110	0-125	2.000
bis(2-Chloroethoxy)methane	<1.176	28.30	27.06	96	45-105	1.000
2,4-Dichlorophenol	<1.264	75.47	68.81	91	50-105	1.000
1,2,4-Trichlorobenzene	<1.339	75.47	66.40	88	35-105	1.000
Naphthalene	<1.363	28.30	26.58	94	40-100	1.000
4-Chloroaniline	<1.189	75.47	48.30	64	15-110	2.000
Hexachlorobutadiene	<1.252	75.47	64.94	86	25-105	1.000
4-Chloro-3-methylphenol	<1.289	75.47	73.50	97	45-110	1.000
2-Methylnaphthalene	<1.385	28.30	26.94	95	45-105	1.000
Hexachlorocyclopentadiene	<1.642	75.47	23.79	32	8-120	1.000
2,4,6-Trichlorophenol	<0.9283	75.47	67.61	90	50-115	1.000
2,4,5-Trichlorophenol	<0.8912	75.47	71.64	95	50-110	1.000
2-Chloronaphthalene	<1.452	28.30	26.88	95	50-105	1.000
2-Nitroaniline	<1.688	75.47	73.80	98	50-115	1.000
Dimethylphthalate	<1.454	75.47	72.33	96	25-125	1.000
Acenaphthylene	<1.440	28.30	24.40	86	50-105	1.000
2,6-Dinitrotoluene	<1.310	75.47	74.02	98	50-115	1.000
3-Nitroaniline	<0.9824	75.47	58.12	77	20-125	1.000
Acenaphthene	<1.299	28.30	27.59	97	45-110	1.000
2,4-Dinitrophenol	<1.971	75.47	56.18	74	15-140	1.000
4-Nitrophenol	<1.111	75.47	77.50	103	0-125	1.000
Dibenzofuran	<1.387	28.30	28.29	100	55-105	1.000
2,4-Dinitrotoluene	<1.373	75.47	73.81	98	50-120	1.000
Diethylphthalate	<1.524	28.30	27.51	97	40-120	1.000
Fluorene	<1.452	28.30	27.64	98	50-110	1.000
4-Chlorophenyl-phenylether	<1.290	28.30	28.26	100	50-110	1.000
4-Nitroaniline	<1.115	75.47	63.57	84	35-120	1.000
4,6-Dinitro-2-methylphenol	<1.566	75.47	57.49	76	40-130	1.000
N-Nitrosodiphenylamine	<1.154	28.30	25.98	92	50-110	1.000
Azobenzene	<1.506	28.30	25.58	90	55-115	1.000
4-Bromophenyl-phenylether	<1.138	28.30	28.12	99	50-115	1.000

*= Value outside of QC limits; see narrative
NC= Not Calculated
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W19-081314	Sampled:	08/13/14
MSS Lab ID:	259786-001	Received:	08/13/14
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/18/14
Batch#:	214400		

Analyte	MSS Result	Spiked	Result	%REC	Limits	Diln Fac
Hexachlorobenzene	<1.160	75.47	72.35	96	50-110	1.000
Pentachlorophenol	<1.215	75.47	82.79	110	40-115	1.000
Phenanthrene	<1.231	28.30	28.24	100	50-115	1.000
Anthracene	<1.270	28.30	26.75	94	55-110	1.000
Carbazole	<1.938	75.47	73.17	97	50-115	1.000
Di-n-butylphthalate	<1.105	28.30	28.17	100	55-115	1.000
Fluoranthene	<1.481	28.30	28.21	100	55-115	1.000
Pyrene	<1.183	28.30	27.67	98	50-130	1.000
Butylbenzylphthalate	<1.293	28.30	27.99	99	45-115	1.000
3,3'-Dichlorobenzidine	<0.5913	75.47	0	0 *	20-110	1.000
Benzo(a)anthracene	<1.266	28.30	27.23	96	55-110	1.000
Chrysene	<1.341	28.30	27.23	96	55-110	1.000
bis(2-Ethylhexyl)phthalate	<1.610	28.30	30.89	109	40-125	1.000
Di-n-octylphthalate	<1.215	28.30	30.74	109	35-135	1.000
Benzo(b)fluoranthene	<1.302	28.30	29.70	105	45-120	1.000
Benzo(k)fluoranthene	<1.411	28.30	30.74	109	45-125	1.000
Benzo(a)pyrene	<1.064	28.30	27.03	96	55-110	1.000
Indeno(1,2,3-cd)pyrene	<1.354	28.30	30.74	109	45-125	1.000
Dibenz(a,h)anthracene	<1.282	28.30	30.77	109	40-125	1.000
Benzo(g,h,i)perylene	<1.418	28.30	30.88	109	40-125	1.000

Surrogate	%REC	Limits	Diln Fac
2-Fluorophenol	89	20-110	1.000
2-Fluorophenol	86	20-110	2.000
Phenol-d5	92	10-115	1.000
Phenol-d5	90	10-115	2.000
2,4,6-Tribromophenol	106	40-125	1.000
2,4,6-Tribromophenol	104	40-125	2.000
Nitrobenzene-d5	87	40-110	1.000
Nitrobenzene-d5	86	40-110	2.000
2-Fluorobiphenyl	84	50-110	1.000
2-Fluorobiphenyl	90	50-110	2.000
Terphenyl-d14	74	50-135	1.000
Terphenyl-d14	76	50-135	2.000

*= Value outside of QC limits; see narrative
NC= Not Calculated
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W19-081314	Sampled:	08/13/14
MSS Lab ID:	259786-001	Received:	08/13/14
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/18/14
Batch#:	214400		

Type: MSD Lab ID: QC753560

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Diln Fac
N-Nitrosodimethylamine	74.77	59.00	79	25-110	6	30	1.000
Phenol	74.77	68.56	92	0-115	4	30	1.000
bis(2-Chloroethyl)ether	74.77	65.77	88	35-110	6	30	1.000
2-Chlorophenol	74.77	65.47	88	35-105	7	30	1.000
1,3-Dichlorobenzene	74.77	57.44	77	30-100	10	30	1.000
1,4-Dichlorobenzene	74.77	57.58	77	30-100	10	30	1.000
Benzyl alcohol	74.77	64.87	87	30-110	8	30	1.000
1,2-Dichlorobenzene	74.77	58.11	78	35-100	10	30	1.000
2-Methylphenol	74.77	65.90	88	40-110	7	30	1.000
bis(2-Chloroisopropyl) ether	74.77	63.54	85	25-130	8	30	1.000
4-Methylphenol	74.77	63.85	85	30-110	9	30	1.000
N-Nitroso-di-n-propylamine	74.77	62.77	84	35-130	11	30	1.000
Hexachloroethane	74.77	54.52	73	30-100	11	30	1.000
Nitrobenzene	74.77	62.68	84	45-110	7	30	1.000
Isophorone	74.77	68.57	92	50-110	3	30	2.000
2-Nitrophenol	74.77	66.65	89	40-115	8	30	1.000
2,4-Dimethylphenol	74.77	67.77	91	30-110	7	30	1.000
Benzoic acid	112.1	117.5	105	0-125	5	30	2.000
bis(2-Chloroethoxy)methane	28.04	24.50	87	45-105	9	30	1.000
2,4-Dichlorophenol	74.77	63.63	85	50-105	7	30	1.000
1,2,4-Trichlorobenzene	74.77	59.48	80	35-105	10	30	1.000
Naphthalene	28.04	24.40	87	40-100	8	30	1.000
4-Chloroaniline	74.77	37.91	51	15-110	23	30	2.000
Hexachlorobutadiene	74.77	55.90	75	25-105	14	30	1.000
4-Chloro-3-methylphenol	74.77	67.38	90	45-110	8	30	1.000
2-Methylnaphthalene	28.04	24.33	87	45-105	9	30	1.000
Hexachlorocyclopentadiene	74.77	15.46	21	8-120	42 *	30	1.000
2,4,6-Trichlorophenol	74.77	62.15	83	50-115	7	30	1.000
2,4,5-Trichlorophenol	74.77	66.08	88	50-110	7	30	1.000
2-Chloronaphthalene	28.04	24.66	88	50-105	8	30	1.000
2-Nitroaniline	74.77	66.61	89	50-115	9	30	1.000
Dimethylphthalate	74.77	65.98	88	25-125	8	30	1.000
Acenaphthylene	28.04	23.79	85	50-105	2	30	1.000
2,6-Dinitrotoluene	74.77	67.44	90	50-115	8	30	1.000
3-Nitroaniline	74.77	55.20	74	20-125	4	30	1.000
Acenaphthene	28.04	24.81	88	45-110	10	30	1.000
2,4-Dinitrophenol	74.77	50.29	67	15-140	10	30	1.000
4-Nitrophenol	74.77	69.73	93	0-125	10	30	1.000
Dibenzofuran	28.04	25.78	92	55-105	8	30	1.000
2,4-Dinitrotoluene	74.77	67.02	90	50-120	9	30	1.000
Diethylphthalate	28.04	25.49	91	40-120	7	30	1.000
Fluorene	28.04	25.19	90	50-110	8	30	1.000
4-Chlorophenyl-phenylether	28.04	25.56	91	50-110	9	30	1.000
4-Nitroaniline	74.77	58.04	78	35-120	8	30	1.000
4,6-Dinitro-2-methylphenol	74.77	50.76	68	40-130	11	30	1.000
N-Nitrosodiphenylamine	28.04	23.60	84	50-110	9	30	1.000
Azobenzene	28.04	23.79	85	55-115	6	30	1.000
4-Bromophenyl-phenylether	28.04	25.32	90	50-115	10	30	1.000

*= Value outside of QC limits; see narrative
NC= Not Calculated
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W19-081314	Sampled:	08/13/14
MSS Lab ID:	259786-001	Received:	08/13/14
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/18/14
Batch#:	214400		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Diln Fac
Hexachlorobenzene	74.77	64.98	87	50-110	10	30	1.000
Pentachlorophenol	74.77	74.16	99	40-115	10	30	1.000
Phenanthrene	28.04	25.32	90	50-115	10	30	1.000
Anthracene	28.04	24.20	86	55-110	9	30	1.000
Carbazole	74.77	66.76	89	50-115	8	30	1.000
Di-n-butylphthalate	28.04	25.13	90	55-115	10	30	1.000
Fluoranthene	28.04	25.10	90	55-115	11	30	1.000
Pyrene	28.04	25.53	91	50-130	7	30	1.000
Butylbenzylphthalate	28.04	24.98	89	45-115	10	30	1.000
3,3'-Dichlorobenzidine	74.77	0	0 *	20-110	NC	30	1.000
Benzo(a)anthracene	28.04	24.29	87	55-110	10	30	1.000
Chrysene	28.04	24.30	87	55-110	10	30	1.000
bis(2-Ethylhexyl)phthalate	28.04	27.29	97	40-125	11	30	1.000
Di-n-octylphthalate	28.04	26.16	93	35-135	15	30	1.000
Benzo(b)fluoranthene	28.04	25.75	92	45-120	13	30	1.000
Benzo(k)fluoranthene	28.04	26.24	94	45-125	15	30	1.000
Benzo(a)pyrene	28.04	24.42	87	55-110	9	30	1.000
Indeno(1,2,3-cd)pyrene	28.04	26.48	94	45-125	14	30	1.000
Dibenz(a,h)anthracene	28.04	26.51	95	40-125	14	30	1.000
Benzo(g,h,i)perylene	28.04	26.82	96	40-125	13	30	1.000

Surrogate	%REC	Limits	Diln Fac
2-Fluorophenol	83	20-110	1.000
2-Fluorophenol	84	20-110	2.000
Phenol-d5	87	10-115	1.000
Phenol-d5	89	10-115	2.000
2,4,6-Tribromophenol	97	40-125	1.000
2,4,6-Tribromophenol	102	40-125	2.000
Nitrobenzene-d5	82	40-110	1.000
Nitrobenzene-d5	85	40-110	2.000
2-Fluorobiphenyl	80	50-110	1.000
2-Fluorobiphenyl	88	50-110	2.000
Terphenyl-d14	61	50-135	1.000
Terphenyl-d14	63	50-135	2.000

*= Value outside of QC limits; see narrative
NC= Not Calculated
RPD= Relative Percent Difference

Initial & Continuing Calibration Data

CURTIS & TOMPKINS DFTPP TUNE FOR 259790 MSBNA Water
EPA 8270D

Inst : MSBNA05 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 544327680005 File : xhf05 Time : 15-AUG-2014 16:14

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	179726	48.09	
68	< 2% of mass 69	0	0.00	
69		205592	100.00	
70	< 2% of mass 69	1070	0.52	
127	40% - 60% of mass 198	209002	55.92	
197	< 1% of mass 198	0	0.00	
198		373760	100.00	
199	5% - 9% of mass 198	25200	6.74	
275	10% - 30% of mass 198	92424	24.73	
365	> 1% of mass 198	9809	2.62	
441	Present, < mass 443	47026	82.11	
442	> 40% and < 100% of mass 198	295850	79.16	
443	17% - 23% of mass 442	57269	19.36	

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/19/14

PEM Report

File Name : G:\msbna05\081514\XHF05.D
Date Acquired : 15 Aug 2014 4:14 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA05 BNA DFTPP/PEM
Inst. Name : MSBNA05
AcquisitionMeth: DFTPP05.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	0.741	5.49	488314
Benzidine	0.497	7.37	2960445
4,4'-DDT		8.41	1496561
4,4'-DDE		7.60	3131
4,4'-DDD		8.02	50514

% Breakdown: 4,4'-DDT	LIMIT <=20%	3%	PASS
Tailing: Pentachlorophenol	8270C <5.0	0.7	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.5	PASS
	8270D <=2	0	PASS

Fri Aug 15 16:25:44 2014

CURTIS & TOMPKINS DFTPP TUNE FOR 259790 MSBNA Water
EPA 8270D

Inst : MSBNA05 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 544331768002 File : xhi02 Time : 18-AUG-2014 09:56

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	135175	44.05	
68	< 2% of mass 69	0	0.00	
69		155021	100.00	
70	< 2% of mass 69	789	0.51	
127	40% - 60% of mass 198	165013	53.78	
197	< 1% of mass 198	0	0.00	
198		306837	100.00	
199	5% - 9% of mass 198	20584	6.71	
275	10% - 30% of mass 198	75917	24.74	
365	> 1% of mass 198	8342	2.72	
441	Present, < mass 443	37109	81.94	
442	> 40% and < 100% of mass 198	235178	76.65	
443	17% - 23% of mass 442	45288	19.26	

Analyst: KMH Date: 08/18/14 Reviewer: LW Date: 08/19/14

PEM Report

File Name : G:\msbna05\081814\XHI02.D
Date Acquired : 18 Aug 2014 9:56 am
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA05 BNA DFTPP/PEM
Inst. Name : MSBNA05
AcquisitionMeth: DFTPP05.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	0.781	5.49	341285
Benzidine	0.837	7.36	2100944
4,4'-DDT		8.40	1123150
4,4'-DDE		7.60	5264
4,4'-DDD		8.02	22005

% Breakdown: 4,4'-DDT	LIMIT <=20%	2%	PASS
Tailing: Pentachlorophenol	8270C <5.0	0.8	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.8	PASS
	8270D <=2	1	PASS

Mon Aug 18 10:06:37 2014

CURTIS & TOMPKINS DFTPP TUNE FOR 259790 MSBNA Water
EPA 8270D

Inst : MSBNA09 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 584305789015 File : rgv15 Time : 31-JUL-2014 18:29

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	345531	38.25	
68	< 2% of mass 69	6827	1.83	
69		373297	100.00	
70	< 2% of mass 69	1830	0.49	
127	40% - 60% of mass 198	470485	52.08	
197	< 1% of mass 198	0	0.00	
198		903338	100.00	
199	5% - 9% of mass 198	61034	6.76	
275	10% - 30% of mass 198	259093	28.68	
365	> 1% of mass 198	32093	3.55	
441	Present, < mass 443	124642	74.41	
442	> 40% and < 100% of mass 198	878869	97.29	
443	17% - 23% of mass 442	167509	19.06	

Analyst: KMH Date: 08/01/14 Reviewer: LW Date: 08/06/14

PEM Report

File Name : G:\msbna09\073114\RGV15.D
Date Acquired : 31 Jul 2014 6:29 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA09 BNA DFTPP/PEM
Inst. Name : MSBNA09
AcquisitionMeth: DFTPP09.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	1.171	5.52	1361316
Benzidine	0.799	7.39	7972851
4,4'-DDT		8.43	4312502
4,4'-DDE		7.63	22871
4,4'-DDD		8.05	107140

% Breakdown: 4,4'-DDT	LIMIT <=20%	3%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.2	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.8	PASS
	8270D <=2	1	PASS

Thu Jul 31 18:46:48 2014

CURTIS & TOMPKINS DFTPP TUNE FOR 259790 MSBNA Water
EPA 8270D

Inst : MSBNA09 IDF : 1.0
Seqnum : 584327568016 File : rhf16 Time : 15-AUG-2014 17:08

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	252998	38.78	
68	< 2% of mass 69	0	0.00	
69		253312	100.00	
70	< 2% of mass 69	1324	0.52	
127	40% - 60% of mass 198	311018	47.67	
197	< 1% of mass 198	0	0.00	
198		652437	100.00	
199	5% - 9% of mass 198	44181	6.77	
275	10% - 30% of mass 198	183189	28.08	
365	> 1% of mass 198	19013	2.91	
441	Present, < mass 443	96514	80.88	
442	> 40% and < 100% of mass 198	632874	97.00	
443	17% - 23% of mass 442	119333	18.86	

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/18/14

PEM Report

File Name : G:\msbna09\081514\RHF16.D
Date Acquired : 15 Aug 2014 5:08 pm
Sample Name : TUN,S24893
Misc. Info :
Calib. Title : MSBNA09 BNA DFTPP/PEM
Inst. Name : MSBNA09
AcquisitionMeth: DFTPP09.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	1.174	5.51	818154
Benzidine	0.768	7.37	6075841
4,4'-DDT		8.40	2811794
4,4'-DDE		7.61	8007
4,4'-DDD		8.03	114715

% Breakdown: 4,4'-DDT	LIMIT <=20%	4%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.2	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.8	PASS
	8270D <=2	1	PASS

Fri Aug 15 17:19:15 2014

CURTIS & TOMPKINS DFTPP TUNE FOR 259790 MSBNA Water
EPA 8270D

Inst : MSBNA09 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 584329197003 File : rhg03 Time : 16-AUG-2014 15:34

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	246245	46.08	
68	< 2% of mass 69	0	0.00	
69		239253	100.00	
70	< 2% of mass 69	1182	0.49	
127	40% - 60% of mass 198	277354	51.90	
197	< 1% of mass 198	0	0.00	
198		534421	100.00	
199	5% - 9% of mass 198	35362	6.62	
275	10% - 30% of mass 198	140298	26.25	
365	> 1% of mass 198	13707	2.56	
441	Present, < mass 443	63037	79.20	
442	> 40% and < 100% of mass 198	412501	77.19	
443	17% - 23% of mass 442	79589	19.29	

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/18/14

PEM Report

File Name : G:\msbna09\081614\RHG03.D
Date Acquired : 16 Aug 2014 3:34 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA09 BNA DFTPP/PEM
Inst. Name : MSBNA09
AcquisitionMeth: DFTPP09.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	0.968	5.51	606175
Benzidine	1.032	7.37	4444278
4,4'-DDT		8.40	2351827
4,4'-DDE		7.60	6654
4,4'-DDD		8.02	51855

% Breakdown: 4,4'-DDT	LIMIT <=20%	2%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.0	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	1.0	PASS
	8270D <=2	1	PASS

Sat Aug 16 15:42:19 2014

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259790 MSBNA Water: EPA 8270D

Inst : MSBNA05
Calnum : 544327680001
Units : ug/mL

Name : 6PTBNA5
Date : 15-AUG-2014 16:36
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	xhf06	544327680006	ICAL	15-AUG-2014 16:36	S25407
L2	xhf07	544327680007	ICAL	15-AUG-2014 17:13	S25408
L3	xhf08	544327680008	ICAL	15-AUG-2014 17:48	S25409
L4	xhf09	544327680009	ICAL	15-AUG-2014 18:27	S25410
L5	xhf10	544327680010	ICAL	15-AUG-2014 19:04	S25411
L6	xhf11	544327680011	ICAL	15-AUG-2014 19:42	S25412
L7	xhf12	544327680012	ICAL	15-AUG-2014 20:18	S25413
L8	xhf13	544327680013	ICAL	15-AUG-2014 20:53	S25414
L9	xhf14	544327680014	ICAL	15-AUG-2014 21:30	S25415

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
N-Nitrosodimethylamine		0.6584	0.6527	0.6697	0.6691	0.6674	0.6778	0.6768	0.6869	AVRG		1.49291		0.6698	2	15	0.05	0.99	
Phenol		1.6930	1.7068	1.6823	1.6949	1.6792	1.7013	1.6690	1.6900	AVRG		0.59187		1.6896	1	15	0.800	0.99	
bis(2-Chloroethyl)ether		1.2353	1.2616	1.2630	1.2613	1.2275	1.2307	1.2069m	1.1601	AVRG		0.81248		1.2308	3	15	0.700	0.99	
2-Chlorophenol		1.4242	1.4375	1.4412	1.4216	1.4009	1.4092	1.3792	1.3626	AVRG		0.70944		1.4096	2	15	0.800	0.99	
1,3-Dichlorobenzene		1.6369	1.6278	1.5962	1.5701	1.5284	1.4579	1.3705	1.3138	AVRG		0.66107		1.5127	8	15	0.05	0.99	
1,4-Dichlorobenzene		1.6795	1.6559	1.6455	1.5847	1.5172	1.4352	1.3066	1.2470	AVRG		0.66271		1.5089	11	15	0.05	0.99	
Benzyl alcohol		0.9166	0.9356	0.9403	0.9479	0.9278	0.9535	0.9417	0.9631	AVRG		1.06293		0.9408	2	15	0.05	0.99	
1,2-Dichlorobenzene		1.6105	1.5953	1.5956	1.5493	1.4798	1.4148	1.3108	1.2591	AVRG		0.67709		1.4769	9	15	0.05	0.99	
2-Methylphenol		1.1459	1.1695	1.1624	1.1603	1.1422	1.1371	1.0999	1.0949	AVRG		0.87795		1.1390	2	15	0.700	0.99	
bis(2-Chloroisopropyl) ether		1.7687	1.8134	1.8240	1.8521	1.8305	1.9045	1.9136	1.9333	AVRG		0.53908		1.8550	3	15	0.010	0.99	
4-Methylphenol		1.6678	1.6865	1.6765	1.6779	1.6483	1.7285			AVRG		0.59491		1.6809	2	15	0.600	0.99	
N-Nitroso-di-n-propylamine		0.7818	0.8217	0.8336	0.8449	0.8413	0.8673	0.8550	0.8794	AVRG		1.18959		0.8406	4	15	0.500	0.99	
Hexachloroethane		0.6649	0.6780	0.6714	0.6686	0.6544	0.6390	0.5963	0.5732	AVRG		1.55467		0.6432	6	15	0.300	0.99	
Nitrobenzene		0.4043	0.4149	0.4096	0.4117	0.4078	0.4082	0.4061	0.4034	AVRG		2.44946		0.4083	1	15	0.200	0.99	
Isophorone		0.7250	0.7364	0.7213	0.7306	0.7295				AVRG		1.37256		0.7286	1	15	0.400	0.99	
2-Nitrophenol			0.2059	0.2054	0.2075	0.2070	0.2076	0.2022	0.2023m	AVRG		4.86811		0.2054	1	15	0.100	0.99	
2,4-Dimethylphenol		0.3752	0.3758	0.3671	0.3602	0.3530	0.3511	0.3490	0.3440	AVRG		2.78216		0.3594	3	15	0.200	0.99	
bis(2-Chloroethoxy)methane			0.4322	0.4265	0.4290	0.4319	0.4322	0.4309	0.4269	AVRG		2.32588		0.4299	1	15	0.300	0.99	
Benzoic acid		0.2204	0.2380	0.2569	0.2735	0.2798	0.2869	0.2932	0.2930	AVRG		3.73541		0.2677	10	15	0.05	0.99	
2,4-Dichlorophenol		0.3243	0.3289	0.3205	0.3204	0.3096	0.2924	0.2749	0.2609	AVRG		3.28958		0.3040	8	15	0.200	0.99	
1,2,4-Trichlorobenzene		0.3475	0.3507	0.3439	0.3376	0.3202	0.3040	0.2788	0.2625	AVRG		3.14316		0.3182	10	15	0.05	0.99	
Naphthalene	1.1701	1.1563	1.1652	1.1483	1.1243	1.0947	1.0491	0.9953	0.9561	AVRG		0.91283		1.0955	7	15	0.700	0.99	
4-Chloroaniline		0.2791	0.4744	0.4878m	0.4761m	0.4668m				LINR	2.73506	1.96829		0.4369	0.991	15	0.010	0.99	
Hexachlorobutadiene		0.1861	0.1851	0.1802	0.1764	0.1677	0.1541	0.1412	0.1293	AVRG		6.06045		0.1650	13	15	0.010	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
4-Chloro-3-methylphenol		0.3350	0.3342	0.3263	0.3257	0.3200	0.3144	0.3095	0.3002	AVRG		3.11857		0.3207	4	15	0.200	0.99	
2-Methylnaphthalene	0.7681	0.7746	0.7882	0.7653	0.7631	0.7358	0.7148	0.6816	0.6650	AVRG		1.35207		0.7396	6	15	0.400	0.99	
Hexachlorocyclopentadiene			0.3501	0.3584	0.3459	0.3391	0.3299	0.3023	0.2845	AVRG		3.02990		0.3300	8	15	0.050	0.99	
2,4,6-Trichlorophenol		0.3820	0.3841	0.3863	0.3780	0.3701	0.3601	0.3419	0.3253	AVRG		2.73240		0.3660	6	15	0.200	0.99	
2,4,5-Trichlorophenol		0.4104	0.4227	0.4268	0.4112	0.3937m	0.3772m	0.3479m	0.3304m	AVRG		2.56386		0.3900	9	15	0.200	0.99	
2-Chloronaphthalene			1.2316	1.2419	1.2013	1.1712	1.1512	1.0917	1.0704	AVRG		0.85792		1.1656	6	15	0.800	0.99	
2-Nitroaniline			0.3819	0.3959	0.3958	0.4002	0.4130	0.4079	0.4108	AVRG		2.49517		0.4008	3	15	0.010	0.99	
Dimethylphthalate		1.3494	1.3492	1.3528	1.3146	1.2783	1.2414	1.1631	1.1181	AVRG		0.78687		1.2709	7	15	0.010	0.99	
2,6-Dinitrotoluene		0.3011	0.3141	0.3200	0.3141	0.3161	0.3177	0.3093	0.3060	AVRG		3.20205		0.3123	2	15	0.200	0.99	
Acenaphthylene	1.9997	2.0460	2.0201	2.0350	1.9794	1.9588	1.9089	1.8163	1.7568	AVRG		0.51366		1.9468	5	15	0.900	0.99	
3-Nitroaniline			0.2531	0.3247	0.3456m	0.3571	0.3818	0.3786	0.3862	AVRG		2.88434		0.3467	14	15	0.010	0.99	
Acenaphthene	1.2227	1.2776	1.2754	1.3155	1.2906	1.2110m	1.1695	1.1068	1.0571	AVRG		0.82370		1.2140	7	15	0.900	0.99	
2,4-Dinitrophenol			0.1153	0.1400	0.1524	0.1648	0.1817	0.1927	0.1965	LINR	10.9335	4.65510		0.1633	0.999	15	0.010	0.99	
4-Nitrophenol			0.1768	0.1869	0.1867	0.1883	0.1917	0.1898	0.1922m	AVRG		5.33366		0.1875	3	15	0.010	0.99	
Dibenzofuran			1.7194	1.7329	1.6765	1.6444	1.6305	1.4943	1.3652	AVRG		0.62150		1.6090	8	15	0.800	0.99	
2,4-Dinitrotoluene		0.3997	0.4159	0.4286	0.4217	0.4198	0.4231	0.4008	0.3744	AVRG		2.43602		0.4105	4	15	0.200	0.99	
Diethylphthalate			1.4916	1.4896	1.4486	1.4389	1.4175	1.3484	1.3114	AVRG		0.70379		1.4209	5	15	0.010	0.99	
Fluorene	1.4365	1.4825	1.4736	1.4756	1.4263	1.3823	1.3411	1.2448	1.2030	AVRG		0.72199		1.3851	7	15	0.900	0.99	
4-Chlorophenyl-phenylether			0.6580	0.6672	0.6415	0.6281	0.6104	0.5713	0.5382	AVRG		1.62238		0.6164	8	15	0.400	0.99	
4-Nitroaniline			0.3328	0.3303	0.3512	0.3610	0.3828	0.3794	0.3781	AVRG		2.78252		0.3594	6	15	0.010	0.99	
4,6-Dinitro-2-methylphenol			0.1154	0.1274	0.1340	0.1386	0.1453	0.1460	0.1462	AVRG		7.34603		0.1361	8	15	0.010	0.99	
N-Nitrosodiphenylamine			0.6116	0.6218	0.6245	0.6194	0.6055	0.5936	0.5746	AVRG		1.64669		0.6073	3	15	0.010	0.99	
Azobenzene			0.9106	0.9296	0.9396	0.9332	0.9496	0.9252	0.9014	AVRG		1.07873		0.9270	2	15	0.05	0.99	
4-Bromophenyl-phenylether			0.2249	0.2273	0.2259	0.2241	0.2215	0.2144	0.2069	AVRG		4.53072		0.2207	3	15	0.100	0.99	
Hexachlorobenzene		0.2342	0.2377	0.2363	0.2354	0.2243	0.2116	0.1967	0.1832	AVRG		4.54731		0.2199	9	15	0.100	0.99	
Pentachlorophenol			0.1437	0.1536	0.1590	0.1584	0.1552	0.1480	0.1402	AVRG		6.61644		0.1511	5	15	0.050	0.99	
Phenanthrene	1.2081	1.2072	1.2011	1.1922	1.1811	1.1468	1.1067	1.0515	1.0035	AVRG		0.87394		1.1442	7	15	0.700	0.99	
Anthracene	1.2360	1.2164	1.2275	1.2149	1.1999	1.1783	1.1248	1.0598	1.0165m	AVRG		0.85926		1.1638	7	15	0.700	0.99	
Carbazole		0.9208	0.9914	1.0388	1.0497	0.9756	0.9587	0.9127	0.8774	AVRG		1.03559		0.9656	6	15	0.010	0.99	
Di-n-butylphthalate			1.5200	1.5230	1.5144	1.4877	1.4501	1.3438	1.2806	AVRG		0.69173		1.4456	7	15	0.010	0.99	
Fluoranthene	1.2951	1.3110	1.3020	1.3065	1.3047	1.2837	1.2525	1.1844	1.1337	AVRG		0.79132		1.2637	5	15	0.600	0.99	
Pyrene	1.2384	1.2648	1.2864	1.3174	1.3293	1.3088	1.3095	1.2698	1.2409	AVRG		0.77820		1.2850	3	15	0.600	0.99	
Butylbenzylphthalate			0.6033	0.6242	0.6478	0.6457	0.6743	0.6719	0.6592	AVRG		1.54649		0.6466	4	15	0.010	0.99	
3,3'-Dichlorobenzidine			0.3028	0.3631	0.3918	0.4052	0.4131	0.3681	0.3432	AVRG		2.70560		0.3696	10	15	0.010	0.99	
Benzo(a)anthracene	1.1530	1.1224	1.1428	1.1526	1.1440	1.1366	1.1611	1.1502	1.1340	AVRG		0.87408		1.1441	1	15	0.800	0.99	
bis(2-Ethylhexyl)phthalate			0.8808	0.9182	0.9283	0.9190	0.8788	0.7271	0.6237	AVRG		1.19130		0.8394	14	15	0.010	0.99	
Chrysene	1.0372	1.0454	1.0616	1.0607	1.0723	1.0494	1.0767	1.0420	1.0378	AVRG		0.94905		1.0537	1	15	0.700	0.99	
Di-n-octylphthalate			1.6002	1.7003	1.7383	1.7461	1.8451	1.8267	1.8210	AVRG		0.57014		1.7540	5	15	0.010	0.99	
Benzo(b)fluoranthene	1.0125	1.0824	1.1371	1.1905	1.1980	1.2078	1.3259	1.3554	1.3549	AVRG		0.82838		1.2072	10	15	0.700	0.99	
Benzo(k)fluoranthene	0.9880	1.0469	1.0839	1.1359	1.1431	1.1316	1.1322	1.1041	1.1065m	AVRG		0.91164		1.0969	5	15	0.700	0.99	
Benzo(a)pyrene	0.9770	1.0509	1.1075	1.1661	1.1639	1.1750	1.2477	1.2348	1.2452	AVRG		0.86805		1.1520	8	15	0.700	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Indeno(1,2,3-cd)pyrene	1.0501	1.1365	1.1978	1.2791	1.3128	1.3283	1.4156	1.4204		AVRG		0.78890		1.2676	10	15	0.500	0.99	
Dibenz(a,h)anthracene	0.8725	0.9478	0.9976	1.0747	1.0978	1.1140	1.1952	1.2027	1.2223	AVRG		0.92549		1.0805	11	15	0.400	0.99	
Benzo(g,h,i)perylene	0.9248	0.9245	0.9495	1.0256	1.0783	1.0922	1.1690	1.1811	1.1840	AVRG		0.94449		1.0588	10	15	0.500	0.99	
2-Fluorophenol	1.3378	1.3172	1.3419	1.3515	1.3569	1.3341	1.3673	1.3609	1.3712	AVRG		0.74142		1.3488	1	15	0.05	0.99	
Phenol-d5	1.6604	1.6374	1.6656	1.6621	1.6766	1.6617	1.7113	1.7060	1.7100	AVRG		0.59638		1.6768	2	15	0.05	0.99	
Nitrobenzene-d5	0.4335	0.4299	0.4442	0.4444	0.4527	0.4490	0.4521	0.4606	0.4580	AVRG		2.23631		0.4472	2	15	0.05	0.99	
2-Fluorobiphenyl	1.5118	1.5322	1.5224	1.5224	1.4688	1.4054	1.3489	1.2626	1.2275	AVRG		0.70301		1.4224	8	15	0.05	0.99	
2,4,6-Tribromophenol	0.1555	0.1723	0.1872	0.1930	0.1900	0.1910	0.1940	0.1846	0.1811	AVRG		5.45930		0.1832	7	15	0.05	0.99	
Terphenyl-d14	0.8361	0.8491	0.8869	0.8989	0.9115	0.9025	0.9030	0.8692	0.8323	AVRG		1.14076		0.8766	4	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
N-Nitrosodimethylamine			10.000	-2	20.000	-3	32.000	0	40.000	0	50.000	0	80.000	1	100.00	1	120.00	3
Phenol			10.000	0	20.000	1	32.000	0	40.000	0	50.000	-1	80.000	1	100.00	-1	120.00	0
bis(2-Chloroethyl)ether			10.000	0	20.000	3	32.000	3	40.000	2	50.000	0	80.000	0	100.00	-2	120.00	-6
2-Chlorophenol			10.000	1	20.000	2	32.000	2	40.000	1	50.000	-1	80.000	0	100.00	-2	120.00	-3
1,3-Dichlorobenzene			10.000	8	20.000	8	32.000	6	40.000	4	50.000	1	80.000	-4	100.00	-9	120.00	-13
1,4-Dichlorobenzene			10.000	11	20.000	10	32.000	9	40.000	5	50.000	1	80.000	-5	100.00	-13	120.00	-17
Benzyl alcohol			10.000	-3	20.000	-1	32.000	0	40.000	1	50.000	-1	80.000	1	100.00	0	120.00	2
1,2-Dichlorobenzene			10.000	9	20.000	8	32.000	8	40.000	5	50.000	0	80.000	-4	100.00	-11	120.00	-15
2-Methylphenol			10.000	1	20.000	3	32.000	2	40.000	2	50.000	0	80.000	0	100.00	-3	120.00	-4
bis(2-Chloroisopropyl) ether			10.000	-5	20.000	-2	32.000	-2	40.000	0	50.000	-1	80.000	3	100.00	3	120.00	4
4-Methylphenol			10.000	-1	20.000	0	32.000	0	40.000	0	50.000	-2	80.000	3				
N-Nitroso-di-n-propylamine			10.000	-7	20.000	-2	32.000	-1	40.000	1	50.000	0	80.000	3	100.00	2	120.00	5
Hexachloroethane			10.000	3	20.000	5	32.000	4	40.000	4	50.000	2	80.000	-1	100.00	-7	120.00	-11
Nitrobenzene			10.000	-1	20.000	2	32.000	0	40.000	1	50.000	0	80.000	0	100.00	-1	120.00	-1
Isophorone			10.000	0	20.000	1	32.000	-1	40.000	0	50.000	0						
2-Nitrophenol					20.000	0	32.000	0	40.000	1	50.000	1	80.000	1	100.00	-2	120.00	-2
2,4-Dimethylphenol			10.000	4	20.000	5	32.000	2	40.000	0	50.000	-2	80.000	-2	100.00	-3	120.00	-4
bis(2-Chloroethoxy)methane					10.000	1	16.000	-1	20.000	0	25.000	0	40.000	1	50.000	0	60.000	-1
Benzoic acid			50.000	-18	60.000	-11	80.000	-4	90.000	2	100.00	5	120.00	7	130.00	10	140.00	9
2,4-Dichlorophenol			10.000	7	20.000	8	32.000	5	40.000	5	50.000	2	80.000	-4	100.00	-10	120.00	-14
1,2,4-Trichlorobenzene			10.000	9	20.000	10	32.000	8	40.000	6	50.000	1	80.000	-4	100.00	-12	120.00	-17
Naphthalene	2.0000	7	5.0000	6	10.000	6	16.000	5	20.000	3	25.000	0	40.000	-4	50.000	-9	60.000	-13
4-Chloroaniline			10.000	-18	20.000	7	32.000	5	40.000	1	50.000	-3						
Hexachlorobutadiene			10.000	13	20.000	12	32.000	9	40.000	7	50.000	2	80.000	-7	100.00	-14	120.00	**-22**
4-Chloro-3-methylphenol			10.000	4	20.000	4	32.000	2	40.000	2	50.000	0	80.000	-2	100.00	-3	120.00	-6
2-Methylnaphthalene	2.0000	4	5.0000	5	10.000	7	16.000	3	20.000	3	25.000	-1	40.000	-3	50.000	-8	60.000	-10
Hexachlorocyclopentadiene					20.000	6	32.000	9	40.000	5	50.000	3	80.000	0	100.00	-8	120.00	-14
2,4,6-Trichlorophenol			10.000	4	20.000	5	32.000	6	40.000	3	50.000	1	80.000	-2	100.00	-7	120.00	-11
2,4,5-Trichlorophenol			10.000	5	20.000	8	32.000	9	40.000	5	50.000	1	80.000	-3	100.00	-11	120.00	-15
2-Chloronaphthalene					10.000	6	16.000	7	20.000	3	25.000	0	40.000	-1	50.000	-6	60.000	-8
2-Nitroaniline					20.000	-5	32.000	-1	40.000	-1	50.000	0	80.000	3	100.00	2	120.00	2
Dimethylphthalate			10.000	6	20.000	6	32.000	6	40.000	3	50.000	1	80.000	-2	100.00	-8	120.00	-12
2,6-Dinitrotoluene			10.000	-4	20.000	1	32.000	2	40.000	1	50.000	1	80.000	2	100.00	-1	120.00	-2
Acenaphthylene	2.0000	3	5.0000	5	10.000	4	16.000	5	20.000	2	25.000	1	40.000	-2	50.000	-7	60.000	-10
3-Nitroaniline					20.000	**-27**	32.000	-6	40.000	0	50.000	3	80.000	10	100.00	9	120.00	11
Acenaphthene	2.0000	1	5.0000	5	10.000	5	16.000	8	20.000	6	25.000	0	40.000	-4	50.000	-9	60.000	-13
2,4-Dinitrophenol					20.000	8	32.000	-1	40.000	-2	50.000	-1	80.000	-2	100.00	1	120.00	1
4-Nitrophenol					20.000	-6	32.000	0	40.000	0	50.000	0	80.000	2	100.00	1	120.00	3
Dibenzofuran					10.000	7	16.000	8	20.000	4	25.000	2	40.000	1	50.000	-7	60.000	-15
2,4-Dinitrotoluene			10.000	-3	20.000	1	32.000	4	40.000	3	50.000	2	80.000	3	100.00	-2	120.00	-9
Diethylphthalate					10.000	5	16.000	5	20.000	2	25.000	1	40.000	0	50.000	-5	60.000	-8
Fluorene	2.0000	4	5.0000	7	10.000	6	16.000	7	20.000	3	25.000	0	40.000	-3	50.000	-10	60.000	-13

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
4-Chlorophenyl-phenylether					10.000	7	16.000	8	20.000	4	25.000	2	40.000	-1	50.000	-7	60.000	-13
4-Nitroaniline					20.000	-7	32.000	-8	40.000	-2	50.000	0	80.000	7	100.00	6	120.00	5
4,6-Dinitro-2-methylphenol					20.000	-15	32.000	-6	40.000	-2	50.000	2	80.000	7	100.00	7	120.00	7
N-Nitrosodiphenylamine					10.000	1	16.000	2	20.000	3	25.000	2	40.000	0	50.000	-2	60.000	-5
Azobenzene					10.000	-2	16.000	0	20.000	1	25.000	1	40.000	2	50.000	0	60.000	-3
4-Bromophenyl-phenylether					10.000	2	16.000	3	20.000	2	25.000	2	40.000	0	50.000	-3	60.000	-6
Hexachlorobenzene			10.000	6	20.000	8	32.000	7	40.000	7	50.000	2	80.000	-4	100.00	-11	120.00	-17
Pentachlorophenol					20.000	-5	32.000	2	40.000	5	50.000	5	80.000	3	100.00	-2	120.00	-7
Phenanthrene	2.0000	6	5.0000	5	10.000	5	16.000	4	20.000	3	25.000	0	40.000	-3	50.000	-8	60.000	-12
Anthracene	2.0000	6	5.0000	5	10.000	5	16.000	4	20.000	3	25.000	1	40.000	-3	50.000	-9	60.000	-13
Carbazole			10.000	-5	20.000	3	32.000	8	40.000	9	50.000	1	80.000	-1	100.00	-5	120.00	-9
Di-n-butylphthalate					10.000	5	16.000	5	20.000	5	25.000	3	40.000	0	50.000	-7	60.000	-11
Fluoranthene	2.0000	2	5.0000	4	10.000	3	16.000	3	20.000	3	25.000	2	40.000	-1	50.000	-6	60.000	-10
Pyrene	2.0000	-4	5.0000	-2	10.000	0	16.000	3	20.000	3	25.000	2	40.000	2	50.000	-1	60.000	-3
Butylbenzylphthalate					10.000	-7	16.000	-3	20.000	0	25.000	0	40.000	4	50.000	4	60.000	2
3,3'-Dichlorobenzidine					20.000	-18	32.000	-2	40.000	6	50.000	10	80.000	12	100.00	0	120.00	-7
Benzo(a)anthracene	2.0000	1	5.0000	-2	10.000	0	16.000	1	20.000	0	25.000	-1	40.000	1	50.000	1	60.000	-1
bis(2-Ethylhexyl)phthalate					10.000	5	16.000	9	20.000	11	25.000	9	40.000	5	50.000	-13	60.000	**-26**
Chrysene	2.0000	-2	5.0000	-1	10.000	1	16.000	1	20.000	2	25.000	0	40.000	2	50.000	-1	60.000	-2
Di-n-octylphthalate					10.000	-9	16.000	-3	20.000	-1	25.000	0	40.000	5	50.000	4	60.000	4
Benzo(b)fluoranthene	2.0000	-16	5.0000	-10	10.000	-6	16.000	-1	20.000	-1	25.000	0	40.000	10	50.000	12	60.000	12
Benzo(k)fluoranthene	2.0000	-10	5.0000	-5	10.000	-1	16.000	4	20.000	4	25.000	3	40.000	3	50.000	1	60.000	1
Benzo(a)pyrene	2.0000	-15	5.0000	-9	10.000	-4	16.000	1	20.000	1	25.000	2	40.000	8	50.000	7	60.000	8
Indeno(1,2,3-cd)pyrene	2.0000	-17	5.0000	-10	10.000	-6	16.000	1	20.000	4	25.000	5	40.000	12	50.000	12		
Dibenz(a,h)anthracene	2.0000	-19	5.0000	-12	10.000	-8	16.000	-1	20.000	2	25.000	3	40.000	11	50.000	11	60.000	13
Benzo(g,h,i)perylene	2.0000	-13	5.0000	-13	10.000	-10	16.000	-3	20.000	2	25.000	3	40.000	10	50.000	12	60.000	12
2-Fluorophenol	2.0000	-1	5.0000	-2	10.000	-1	16.000	0	20.000	1	25.000	-1	40.000	1	50.000	1	60.000	2
Phenol-d5	2.0000	-1	5.0000	-2	10.000	-1	16.000	-1	20.000	0	25.000	-1	40.000	2	50.000	2	60.000	2
Nitrobenzene-d5	2.0000	-3	5.0000	-4	10.000	-1	16.000	-1	20.000	1	25.000	0	40.000	1	50.000	3	60.000	2
2-Fluorobiphenyl	2.0000	6	5.0000	8	10.000	7	16.000	7	20.000	3	25.000	-1	40.000	-5	50.000	-11	60.000	-14
2,4,6-Tribromophenol	2.0000	-15	5.0000	-6	10.000	2	16.000	5	20.000	4	25.000	4	40.000	6	50.000	1	60.000	-1
Terphenyl-d14	2.0000	-5	5.0000	-3	10.000	1	16.000	3	20.000	4	25.000	3	40.000	3	50.000	-1	60.000	-5

KMH 08/16/14 [Aniline]: Picked or reassigned peak in all levels.

KMH 08/16/14 [2-Nitrophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [3-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [4-Chloroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [2,4,5-Trichlorophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [Acenaphthene]: Corrected automatically drawn baseline in ICAL (xhf11).

KMH 08/16/14 [Pyridine]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [bis(2-Chloroethyl)ether]: Corrected automatically drawn baseline in ICAL (xhf13).

KMH 08/16/14 [4-Methylphenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [4-Nitrophenol]: Picked or reassigned peak in ICAL (xhf14).

KMH 08/16/14 [Anthracene]: Corrected automatically drawn baseline in ICAL (xhf14).

KMH 08/16/14 [Benzo(k)fluoranthene]: Picked or reassigned peak in ICAL (xhf14).

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/19/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; LINR=Linear regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259790 MSBNA Water
EPA 8270D

Inst : MSBNA05 Name : 6PTBNA5
Calnum : 544327680001 Cal Date : 15-AUG-2014

ICV 544327680015 (xhf15 15-AUG-2014) stds: S25418

Analyte	Spiked	Quant	Units	%D	Max	Flags
N-Nitrosodimethylamine	40.00	37.81	ug/mL	-5	20	
Phenol	40.00	37.82	ug/mL	-5	20	
bis(2-Chloroethyl)ether	40.00	38.43	ug/mL	-4	20	
2-Chlorophenol	40.00	38.18	ug/mL	-5	20	
1,3-Dichlorobenzene	40.00	38.79	ug/mL	-3	20	
1,4-Dichlorobenzene	40.00	39.02	ug/mL	-2	20	
Benzyl alcohol	40.00	37.97	ug/mL	-5	20	
1,2-Dichlorobenzene	40.00	38.80	ug/mL	-3	20	
2-Methylphenol	40.00	37.90	ug/mL	-5	20	
bis(2-Chloroisopropyl) ether	40.00	37.90	ug/mL	-5	20	
4-Methylphenol	40.00	33.62	ug/mL	-16	20	
N-Nitroso-di-n-propylamine	40.00	37.21	ug/mL	-7	20	
Hexachloroethane	40.00	38.46	ug/mL	-4	20	
Nitrobenzene	40.00	37.77	ug/mL	-6	20	
Isophorone	40.00	35.89	ug/mL	-10	20	
2-Nitrophenol	40.00	38.35	ug/mL	-4	20	
2,4-Dimethylphenol	40.00	38.51	ug/mL	-4	20	
bis(2-Chloroethoxy)methane	40.00	36.69	ug/mL	-8	20	
Benzoic acid	100.0	96.04	ug/mL	-4	20	
2,4-Dichlorophenol	40.00	39.07	ug/mL	-2	20	
1,2,4-Trichlorobenzene	40.00	38.91	ug/mL	-3	20	
Naphthalene	40.00	35.26	ug/mL	-12	20	
4-Chloroaniline	40.00	38.30	ug/mL	-4	20	
Hexachlorobutadiene	40.00	39.41	ug/mL	-1	20	
4-Chloro-3-methylphenol	40.00	37.64	ug/mL	-6	20	
2-Methylnaphthalene	40.00	36.56	ug/mL	-9	20	
Hexachlorocyclopentadiene	40.00	35.81	ug/mL	-10	20	
2,4,6-Trichlorophenol	40.00	37.22	ug/mL	-7	20	
2,4,5-Trichlorophenol	40.00	38.16	ug/mL	-5	20	m
2-Chloronaphthalene	40.00	35.99	ug/mL	-10	20	
2-Nitroaniline	40.00	37.48	ug/mL	-6	20	
Dimethylphthalate	40.00	38.49	ug/mL	-4	20	
2,6-Dinitrotoluene	40.00	38.38	ug/mL	-4	20	
Acenaphthylene	40.00	35.58	ug/mL	-11	20	
3-Nitroaniline	40.00	38.96	ug/mL	-3	20	
Acenaphthene	40.00	35.96	ug/mL	-10	20	
2,4-Dinitrophenol	40.00	38.44	ug/mL	-4	20	
4-Nitrophenol	40.00	37.46	ug/mL	-6	20	
Dibenzofuran	40.00	37.11	ug/mL	-7	20	
2,4-Dinitrotoluene	40.00	39.17	ug/mL	-2	20	
Diethylphthalate	40.00	35.10	ug/mL	-12	20	
Fluorene	40.00	35.26	ug/mL	-12	20	
4-Chlorophenyl-phenylether	40.00	35.97	ug/mL	-10	20	
4-Nitroaniline	40.00	37.23	ug/mL	-7	20	
4,6-Dinitro-2-methylphenol	40.00	37.16	ug/mL	-7	20	
N-Nitrosodiphenylamine	40.00	41.11	ug/mL	3	20	
Azobenzene	40.00	36.62	ug/mL	-8	20	
4-Bromophenyl-phenylether	40.00	35.88	ug/mL	-10	20	
Hexachlorobenzene	40.00	38.01	ug/mL	-5	20	

Analyte	Spiked	Quant	Units	%D	Max	Flags
Pentachlorophenol	40.00	36.42	ug/mL	-9	20	
Phenanthrene	40.00	34.71	ug/mL	-13	20	
Anthracene	40.00	35.37	ug/mL	-12	20	
Carbazole	40.00	41.57	ug/mL	4	20	
Di-n-butylphthalate	40.00	35.81	ug/mL	-10	20	
Fluoranthene	40.00	35.75	ug/mL	-11	20	
Pyrene	40.00	34.63	ug/mL	-13	20	
Butylbenzylphthalate	40.00	37.63	ug/mL	-6	20	
3,3'-Dichlorobenzidine	60.00	59.22	ug/mL	-1	20	
Benzo(a)anthracene	40.00	37.24	ug/mL	-7	20	
bis(2-Ethylhexyl)phthalate	40.00	39.51	ug/mL	-1	20	
Chrysene	40.00	35.31	ug/mL	-12	20	
Di-n-octylphthalate	40.00	37.37	ug/mL	-7	20	
Benzo(b)fluoranthene	40.00	39.18	ug/mL	-2	20	
Benzo(k)fluoranthene	40.00	40.20	ug/mL	0	20	
Benzo(a)pyrene	40.00	38.58	ug/mL	-4	20	
Indeno(1,2,3-cd)pyrene	40.00	39.56	ug/mL	-1	20	
Dibenz(a,h)anthracene	40.00	39.11	ug/mL	-2	20	
Benzo(g,h,i)perylene	40.00	38.86	ug/mL	-3	20	

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/19/14

m=manual integration

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259790 MSBNA Water: EPA 8270D

Inst : MSBNA09
Calnum : 584305789001
Units : ug/mL

Name : 6PTBNA9
Date : 31-JUL-2014 19:18
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	rgv16	584305789016	ICAL	31-JUL-2014 19:18	S24422
L2	rgv17	584305789017	ICAL	31-JUL-2014 19:47	S24424
L3	rgv18	584305789018	ICAL	31-JUL-2014 20:17	S24425
L4	rgv19	584305789019	ICAL	31-JUL-2014 20:47	S24427
L5	rgv20	584305789020	ICAL	31-JUL-2014 21:17	S24428
L6	rgv21	584305789021	ICAL	31-JUL-2014 21:47	S24429
L7	rgv22	584305789022	ICAL	31-JUL-2014 22:18	S24430
L8	rgv23	584305789023	ICAL	31-JUL-2014 22:48	S24431
L9	rgv24	584305789024	ICAL	31-JUL-2014 23:18	S24432

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
N-Nitrosodimethylamine		0.6914	0.7062	0.7007	0.6940	0.6725	0.6850	0.6819	0.6799	AVRG		1.45149		0.6889	2	15	0.05	0.99	
Phenol		1.7949	1.8023	1.7821	1.7353	1.6895	1.7229	1.7252	1.7515	AVRG		0.57127		1.7505	2	15	0.800	0.99	
bis(2-Chloroethyl)ether		1.4075	1.4036	1.3635	1.3501	1.2833	1.2794	1.2322	1.2695	AVRG		0.75549		1.3236	5	15	0.700	0.99	
2-Chlorophenol		1.5252	1.5553	1.5565	1.5171	1.4712	1.4674	1.4423	1.4243	AVRG		0.66894		1.4949	3	15	0.800	0.99	
1,3-Dichlorobenzene		1.6836	1.6923	1.6751	1.6451	1.5724	1.5313	1.4635	1.4190	AVRG		0.63080		1.5853	7	15	0.05	0.99	
1,4-Dichlorobenzene		1.7175	1.7260	1.7055	1.6600	1.5832	1.5430	1.4690	1.4208	AVRG		0.62379		1.6031	7	15	0.05	0.99	
Benzyl alcohol		0.8783	0.8970	0.9342	0.9213	0.9608	1.0349	1.0315	1.0526	AVRG		1.03753		0.9638	7	15	0.05	0.99	
1,2-Dichlorobenzene		1.5993	1.6039	1.5815	1.5474	1.4906	1.4410	1.3824	1.3423	AVRG		0.66731		1.4985	7	15	0.05	0.99	
2-Methylphenol		1.1171	1.1274	1.1118	1.0737	1.0832	1.1323	1.1342	1.1453	AVRG		0.89636		1.1156	2	15	0.700	0.99	
bis(2-Chloroisopropyl) ether		1.9727	1.9558	1.9040	1.8300	1.7737	1.7740	1.7754	1.7881	AVRG		0.54151		1.8467	5	15	0.010	0.99	
4-Methylphenol		1.6373	1.6384	1.6641	1.6442	1.6827	1.8013	1.8160	1.8706	AVRG		0.58162		1.7193	5	15	0.600	0.99	
N-Nitroso-di-n-propylamine		0.8428	0.9435	1.0001	0.9938	1.0010	1.0425	1.0284	1.0465	AVRG		1.01284		0.9873	7	15	0.500	0.99	
Hexachloroethane		0.6305	0.6461	0.6504	0.6384	0.6206	0.6148	0.5905	0.5843	AVRG		1.60785		0.6219	4	15	0.300	0.99	
Nitrobenzene		0.3688	0.3698	0.3745	0.3680	0.3528	0.3579	0.3478	0.3422	AVRG		2.77615		0.3602	3	15	0.200	0.99	
Isophorone		0.7212	0.7714	0.7920	0.7720	0.7313	0.7235	0.6973	0.6882	AVRG		1.35661		0.7371	5	15	0.400	0.99	
2-Nitrophenol			0.1920	0.2024	0.2063	0.2044	0.2117	0.2060	0.2004	AVRG		4.91861		0.2033	3	15	0.100	0.99	
2,4-Dimethylphenol		0.3502	0.3614	0.3938	0.3954	0.3748	0.3687	0.3520	0.3452	AVRG		2.71965		0.3677	5	15	0.200	0.99	
bis(2-Chloroethoxy)methane			0.4534	0.4786	0.4795	0.4612	0.4581	0.4414	0.4305	AVRG		2.18575		0.4575	4	15	0.300	0.99	
Benzoic acid		0.1993	0.2289	0.2591	0.2745	0.2684	0.2764	0.2780	0.2806	AVRG		3.87363		0.2582	11	15	0.05	0.99	
2,4-Dichlorophenol		0.3099	0.3220	0.3327	0.3328	0.3199	0.3147	0.2938	0.2838	AVRG		3.18777		0.3137	6	15	0.200	0.99	
1,2,4-Trichlorobenzene		0.3460	0.3520	0.3471	0.3375	0.3157	0.2983	0.2829	0.2702	AVRG		3.13757		0.3187	10	15	0.05	0.99	
Naphthalene	1.0603	1.1240	1.1396	1.1497	1.1258	1.0861	1.0761	1.0263	1.0125	AVRG		0.91832		1.0889	5	15	0.700	0.99	
4-Chloroaniline		0.4291	0.5232	0.5370	0.5333	0.5021m	0.4816m	0.4547m	0.4326	AVRG		2.05460		0.4867	9	15	0.010	0.99	
Hexachlorobutadiene		0.1897	0.1983	0.1954	0.1888	0.1744	0.1622	0.1554	0.1479	AVRG		5.66479		0.1765	11	15	0.010	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
4-Chloro-3-methylphenol		0.3495	0.3759	0.3870	0.3758	0.3585	0.3410	0.3230	0.3157	AVRG		2.83049		0.3533	7	15	0.200	0.99	
2-Methylnaphthalene	0.6790	0.7354	0.8185	0.8487	0.8356	0.7940	0.7702	0.7240	0.6978	AVRG		1.30374		0.7670	8	15	0.400	0.99	
Hexachlorocyclopentadiene			0.3628	0.3820	0.3910	0.3891	0.3910	0.3696	0.3516	AVRG		2.65445		0.3767	4	15	0.050	0.99	
2,4,6-Trichlorophenol		0.3702	0.3900	0.3946	0.3928	0.3896	0.3850	0.3751	0.3594	AVRG		2.61723		0.3821	3	15	0.200	0.99	
2,4,5-Trichlorophenol		0.3938	0.4222	0.4377	0.4348	0.4090	0.4100	0.3767m	0.3728	AVRG		2.45620		0.4071	6	15	0.200	0.99	
2-Chloronaphthalene			1.2135	1.2415	1.2276	1.1820	1.1969	1.1410	1.1148	AVRG		0.84162		1.1882	4	15	0.800	0.99	
2-Nitroaniline			0.3459	0.3605	0.3570	0.3516	0.3582	0.3490	0.3489	AVRG		2.83269		0.3530	2	15	0.010	0.99	
Dimethylphthalate		1.4357	1.4875	1.5029	1.4683	1.4179	1.4093	1.3182	1.2575	AVRG		0.70815		1.4121	6	15	0.010	0.99	
2,6-Dinitrotoluene		0.3140	0.3365	0.3492	0.3448	0.3440	0.3582	0.3461	0.3424	AVRG		2.92482		0.3419	4	15	0.200	0.99	
Acenaphthylene	1.6084	1.6989	1.7562	1.7792	1.7399	1.6886	1.6918	1.6354	1.5900	AVRG		0.59255		1.6876	4	15	0.900	0.99	
3-Nitroaniline			0.3513m	0.3755m	0.3801m	0.3815m	0.4011	0.3917	0.3896	AVRG		2.62094		0.3815	4	15	0.010	0.99	
Acenaphthene	1.1614	1.2447	1.2989	1.3096	1.3124	1.2524	1.2702	1.2282	1.2026	AVRG		0.79784		1.2534	4	15	0.900	0.99	
2,4-Dinitrophenol			0.1075	0.1355	0.1533m	0.1627m	0.1950m	0.1990m	0.2090m	LINR	12.9032	4.32381		0.1660	0.999	15	0.010	0.99	
4-Nitrophenol			0.1789m	0.1910m	0.1934m	0.1902m	0.1983	0.1938	0.1924	AVRG		5.23151		0.1911	3	15	0.010	0.99	
Dibenzofuran			1.7761	1.7981	1.7778	1.7325	1.7480	1.6956	1.6331	AVRG		0.57560		1.7373	3	15	0.800	0.99	
2,4-Dinitrotoluene		0.4297	0.4669	0.4928	0.4875	0.4806	0.4957	0.4746	0.4658	AVRG		2.10883		0.4742	4	15	0.200	0.99	
Diethylphthalate			1.5346	1.5774	1.5789	1.5402	1.5676	1.4907	1.4408	AVRG		0.65238		1.5329	3	15	0.010	0.99	
Fluorene	1.4029	1.4698	1.4874	1.5121	1.4829	1.4351	1.4335	1.3620	1.3259	AVRG		0.69704		1.4346	4	15	0.900	0.99	
4-Chlorophenyl-phenylether			0.7266	0.7476	0.7377	0.7257	0.7402	0.7091	0.6878	AVRG		1.37941		0.7249	3	15	0.400	0.99	
4-Nitroaniline			0.3768m	0.3971	0.3940	0.3921	0.4115	0.3986	0.3960	AVRG		2.53072		0.3951	3	15	0.010	0.99	
4,6-Dinitro-2-methylphenol			0.1203	0.1324	0.1431	0.1452	0.1565	0.1571	0.1610	AVRG		6.89283		0.1451	10	15	0.010	0.99	
N-Nitrosodiphenylamine			0.6099	0.6075	0.6153	0.5906	0.5980	0.5785	0.5820	AVRG		1.67390		0.5974	2	15	0.010	0.99	
Azobenzene			0.8263	0.8156	0.8188	0.7952	0.7896	0.7705	0.7757	AVRG		1.25187		0.7988	3	15	0.05	0.99	
4-Bromophenyl-phenylether			0.2467	0.2484	0.2529	0.2465	0.2497	0.2443	0.2463	AVRG		4.03511		0.2478	1	15	0.100	0.99	
Hexachlorobenzene		0.2744	0.2794	0.2797	0.2807	0.2686	0.2608	0.2507	0.2449	AVRG		3.73973		0.2674	5	15	0.100	0.99	
Pentachlorophenol			0.1520	0.1643	0.1742	0.1713	0.1779	0.1722	0.1747	AVRG		5.89909		0.1695	5	15	0.050	0.99	
Phenanthrene	1.1257	1.2289	1.2328	1.2329	1.2147	1.1617	1.1309	1.0744	1.0484	AVRG		0.86122		1.1611	6	15	0.700	0.99	
Anthracene	1.1163	1.1881	1.2121	1.2194	1.1959	1.1590	1.1147	1.0798m	1.0504	AVRG		0.87077		1.1484	5	15	0.700	0.99	
Carbazole		1.0130	1.1290	1.1193	1.1012	1.0359	0.9603	0.8887	0.8698	AVRG		0.98558		1.0146	10	15	0.010	0.99	
Di-n-butylphthalate			1.5949	1.5837	1.5815	1.4914	1.4069	1.3314	1.2868	AVRG		0.68116		1.4681	9	15	0.010	0.99	
Fluoranthene	1.2466	1.3764	1.3744	1.3861	1.3541	1.2644	1.2134	1.1548	1.1279	AVRG		0.78273		1.2776	8	15	0.600	0.99	
Pyrene	1.0705	1.2403	1.2712	1.2861	1.2697	1.2021	1.1804	1.1218	1.1187	AVRG		0.83638		1.1956	7	15	0.600	0.99	
Butylbenzylphthalate			0.5714	0.5901	0.5822	0.5623	0.5714	0.5514	0.5557	AVRG		1.75680		0.5692	2	15	0.010	0.99	
3,3'-Dichlorobenzidine			0.4289	0.4527	0.4639	0.4474	0.4333	0.4073	0.3928	AVRG		2.31307		0.4323	6	15	0.010	0.99	
Benzo(a)anthracene	1.0660	1.1287	1.1392	1.1627	1.1455	1.1191	1.1385	1.1132	1.1220	AVRG		0.88802		1.1261	2	15	0.800	0.99	
bis(2-Ethylhexyl)phthalate			0.8437	0.8679	0.8584	0.8240	0.7595	0.6940	0.6271	AVRG		1.27865		0.7821	12	15	0.010	0.99	
Chrysene	1.0039	1.0504	1.0893	1.1084	1.1131	1.0643	1.0814	1.0382	1.0530	AVRG		0.93731		1.0669	3	15	0.700	0.99	
Di-n-octylphthalate			1.4940	1.5597	1.5598	1.5231	1.5706	1.5559	1.5500	AVRG		0.64735		1.5448	2	15	0.010	0.99	
Benzo(b)fluoranthene	0.9916	1.0871	1.1600	1.1756	1.1816	1.1559	1.2252	1.1862	1.2768	AVRG		0.86207		1.1600	7	15	0.700	0.99	
Benzo(k)fluoranthene	0.9900	1.1041	1.1553	1.2287	1.2044	1.1555	1.1895	1.2014	1.1722	AVRG		0.86527		1.1557	6	15	0.700	0.99	
Benzo(a)pyrene	0.8192	0.9250	0.9765	1.0217	1.0207	0.9857	1.0411	1.0318	1.0461	AVRG		1.01490		0.9853	7	15	0.700	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Indeno(1,2,3-cd)pyrene	0.9412	1.0577	1.1284	1.1957	1.2067	1.1738	1.2069	1.2109	1.2328	AVRG		0.86923		1.1504	8	15	0.500	0.99	
Dibenz(a,h)anthracene	0.8363	0.9398	1.0131	1.0689	1.0750	1.0538	1.0925	1.0937	1.1175	AVRG		0.96871		1.0323	9	15	0.400	0.99	
Benzo(g,h,i)perylene	0.7966	0.8451	0.8928	0.9376	0.9559	0.9266	0.9628	0.9593	0.9672	AVRG		1.09171		0.9160	7	15	0.500	0.99	
2-Fluorophenol	1.3347	1.4475	1.4868	1.5063	1.4861	1.4485	1.5020	1.4901	1.4930	AVRG		0.68208		1.4661	4	15	0.05	0.99	
Phenol-d5	1.6070	1.7128	1.7315	1.7386	1.6936	1.6677	1.7342	1.7411	1.7664	AVRG		0.58468		1.7103	3	15	0.05	0.99	
Nitrobenzene-d5	0.3599	0.3882	0.3777	0.3952	0.3923	0.3846	0.3909	0.3870	0.3882	AVRG		2.59816		0.3849	3	15	0.05	0.99	
2-Fluorobiphenyl	1.3655	1.4485	1.5077	1.5205	1.4869	1.4289	1.4091	1.3532	1.2921	AVRG		0.70244		1.4236	5	15	0.05	0.99	
2,4,6-Tribromophenol	0.1537	0.1835	0.2001	0.2123	0.2198	0.2204	0.2463	0.2406	0.2452	AVRG		4.68243		0.2136	14	15	0.05	0.99	
Terphenyl-d14	0.8305	0.9362	0.9721	0.9975	0.9822	0.9426	0.9279	0.8872	0.8817	AVRG		1.07682		0.9287	6	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
N-Nitrosodimethylamine			10.000	0	20.000	3	32.000	2	40.000	1	50.000	-2	80.000	-1	100.00	-1	120.00	-1
Phenol			10.000	3	20.000	3	32.000	2	40.000	-1	50.000	-3	80.000	-2	100.00	-1	120.00	0
bis(2-Chloroethyl)ether			10.000	6	20.000	6	32.000	3	40.000	2	50.000	-3	80.000	-3	100.00	-7	120.00	-4
2-Chlorophenol			10.000	2	20.000	4	32.000	4	40.000	1	50.000	-2	80.000	-2	100.00	-4	120.00	-5
1,3-Dichlorobenzene			10.000	6	20.000	7	32.000	6	40.000	4	50.000	-1	80.000	-3	100.00	-8	120.00	-10
1,4-Dichlorobenzene			10.000	7	20.000	8	32.000	6	40.000	4	50.000	-1	80.000	-4	100.00	-8	120.00	-11
Benzyl alcohol			10.000	-9	20.000	-7	32.000	-3	40.000	-4	50.000	0	80.000	7	100.00	7	120.00	9
1,2-Dichlorobenzene			10.000	7	20.000	7	32.000	6	40.000	3	50.000	-1	80.000	-4	100.00	-8	120.00	-10
2-Methylphenol			10.000	0	20.000	1	32.000	0	40.000	-4	50.000	-3	80.000	1	100.00	2	120.00	3
bis(2-Chloroisopropyl) ether			10.000	7	20.000	6	32.000	3	40.000	-1	50.000	-4	80.000	-4	100.00	-4	120.00	-3
4-Methylphenol			10.000	-5	20.000	-5	32.000	-3	40.000	-4	50.000	-2	80.000	5	100.00	6	120.00	9
N-Nitroso-di-n-propylamine			10.000	-15	20.000	-4	32.000	1	40.000	1	50.000	1	80.000	6	100.00	4	120.00	6
Hexachloroethane			10.000	1	20.000	4	32.000	5	40.000	3	50.000	0	80.000	-1	100.00	-5	120.00	-6
Nitrobenzene			10.000	2	20.000	3	32.000	4	40.000	2	50.000	-2	80.000	-1	100.00	-3	120.00	-5
Isophorone			10.000	-2	20.000	5	32.000	7	40.000	5	50.000	-1	80.000	-2	100.00	-5	120.00	-7
2-Nitrophenol					20.000	-6	32.000	0	40.000	1	50.000	1	80.000	4	100.00	1	120.00	-1
2,4-Dimethylphenol			10.000	-5	20.000	-2	32.000	7	40.000	8	50.000	2	80.000	0	100.00	-4	120.00	-6
bis(2-Chloroethoxy)methane					10.000	-1	16.000	5	20.000	5	25.000	1	40.000	0	50.000	-4	60.000	-6
Benzoic acid			50.000	**-23**	60.000	-11	80.000	0	90.000	6	100.00	4	120.00	7	130.00	8	140.00	9
2,4-Dichlorophenol			10.000	-1	20.000	3	32.000	6	40.000	6	50.000	2	80.000	0	100.00	-6	120.00	-10
1,2,4-Trichlorobenzene			10.000	9	20.000	10	32.000	9	40.000	6	50.000	-1	80.000	-6	100.00	-11	120.00	-15
Naphthalene	2.0000	-3	5.0000	3	10.000	5	16.000	6	20.000	3	25.000	0	40.000	-1	50.000	-6	60.000	-7
4-Chloroaniline			10.000	-12	20.000	8	32.000	10	40.000	10	50.000	3	80.000	-1	100.00	-7	120.00	-11
Hexachlorobutadiene			10.000	7	20.000	12	32.000	11	40.000	7	50.000	-1	80.000	-8	100.00	-12	120.00	-16
4-Chloro-3-methylphenol			10.000	-1	20.000	6	32.000	10	40.000	6	50.000	1	80.000	-3	100.00	-9	120.00	-11
2-Methylnaphthalene	2.0000	-11	5.0000	-4	10.000	7	16.000	11	20.000	9	25.000	4	40.000	0	50.000	-6	60.000	-9
Hexachlorocyclopentadiene					20.000	-4	32.000	1	40.000	4	50.000	3	80.000	4	100.00	-2	120.00	-7
2,4,6-Trichlorophenol			10.000	-3	20.000	2	32.000	3	40.000	3	50.000	2	80.000	1	100.00	-2	120.00	-6
2,4,5-Trichlorophenol			10.000	-3	20.000	4	32.000	8	40.000	7	50.000	0	80.000	1	100.00	-7	120.00	-8
2-Chloronaphthalene					10.000	2	16.000	4	20.000	3	25.000	-1	40.000	1	50.000	-4	60.000	-6
2-Nitroaniline					20.000	-2	32.000	2	40.000	1	50.000	0	80.000	1	100.00	-1	120.00	-1
Dimethylphthalate			10.000	2	20.000	5	32.000	6	40.000	4	50.000	0	80.000	0	100.00	-7	120.00	-11
2,6-Dinitrotoluene			10.000	-8	20.000	-2	32.000	2	40.000	1	50.000	1	80.000	5	100.00	1	120.00	0
Acenaphthylene	2.0000	-5	5.0000	1	10.000	4	16.000	5	20.000	3	25.000	0	40.000	0	50.000	-3	60.000	-6
3-Nitroaniline					20.000	-8	32.000	-2	40.000	0	50.000	0	80.000	5	100.00	3	120.00	2
Acenaphthene	2.0000	-7	5.0000	-1	10.000	4	16.000	4	20.000	5	25.000	0	40.000	1	50.000	-2	60.000	-4
2,4-Dinitrophenol					20.000	11	32.000	-1	40.000	-1	50.000	-4	80.000	0	100.00	-1	120.00	1
4-Nitrophenol					20.000	-6	32.000	0	40.000	1	50.000	0	80.000	4	100.00	1	120.00	1
Dibenzofuran					10.000	2	16.000	3	20.000	2	25.000	0	40.000	1	50.000	-2	60.000	-6
2,4-Dinitrotoluene			10.000	-9	20.000	-2	32.000	4	40.000	3	50.000	1	80.000	5	100.00	0	120.00	-2
Diethylphthalate					10.000	0	16.000	3	20.000	3	25.000	0	40.000	2	50.000	-3	60.000	-6
Fluorene	2.0000	-2	5.0000	2	10.000	4	16.000	5	20.000	3	25.000	0	40.000	0	50.000	-5	60.000	-8

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
4-Chlorophenyl-phenylether					10.000	0	16.000	3	20.000	2	25.000	0	40.000	2	50.000	-2	60.000	-5
4-Nitroaniline					20.000	-5	32.000	0	40.000	0	50.000	-1	80.000	4	100.00	1	120.00	0
4,6-Dinitro-2-methylphenol					20.000	-17	32.000	-9	40.000	-1	50.000	0	80.000	8	100.00	8	120.00	11
N-Nitrosodiphenylamine					10.000	2	16.000	2	20.000	3	25.000	-1	40.000	0	50.000	-3	60.000	-3
Azobenzene					10.000	3	16.000	2	20.000	3	25.000	0	40.000	-1	50.000	-4	60.000	-3
4-Bromophenyl-phenylether					10.000	0	16.000	0	20.000	2	25.000	-1	40.000	1	50.000	-1	60.000	-1
Hexachlorobenzene			10.000	3	20.000	4	32.000	5	40.000	5	50.000	0	80.000	-2	100.00	-6	120.00	-8
Pentachlorophenol					20.000	-10	32.000	-3	40.000	3	50.000	1	80.000	5	100.00	2	120.00	3
Phenanthrene	2.0000	-3	5.0000	6	10.000	6	16.000	6	20.000	5	25.000	0	40.000	-3	50.000	-7	60.000	-10
Anthracene	2.0000	-3	5.0000	3	10.000	6	16.000	6	20.000	4	25.000	1	40.000	-3	50.000	-6	60.000	-9
Carbazole			10.000	0	20.000	11	32.000	10	40.000	9	50.000	2	80.000	-5	100.00	-12	120.00	-14
Di-n-butylphthalate					10.000	9	16.000	8	20.000	8	25.000	2	40.000	-4	50.000	-9	60.000	-12
Fluoranthene	2.0000	-2	5.0000	8	10.000	8	16.000	8	20.000	6	25.000	-1	40.000	-5	50.000	-10	60.000	-12
Pyrene	2.0000	-10	5.0000	4	10.000	6	16.000	8	20.000	6	25.000	1	40.000	-1	50.000	-6	60.000	-6
Butylbenzylphthalate					10.000	0	16.000	4	20.000	2	25.000	-1	40.000	0	50.000	-3	60.000	-2
3,3'-Dichlorobenzidine					20.000	-1	32.000	5	40.000	7	50.000	3	80.000	0	100.00	-6	120.00	-9
Benzo(a)anthracene	2.0000	-5	5.0000	0	10.000	1	16.000	3	20.000	2	25.000	-1	40.000	1	50.000	-1	60.000	0
bis(2-Ethylhexyl)phthalate					10.000	8	16.000	11	20.000	10	25.000	5	40.000	-3	50.000	-11	60.000	-20
Chrysene	2.0000	-6	5.0000	-2	10.000	2	16.000	4	20.000	4	25.000	0	40.000	1	50.000	-3	60.000	-1
Di-n-octylphthalate					10.000	-3	16.000	1	20.000	1	25.000	-1	40.000	2	50.000	1	60.000	0
Benzo(b)fluoranthene	2.0000	-15	5.0000	-6	10.000	0	16.000	1	20.000	2	25.000	0	40.000	6	50.000	2	60.000	10
Benzo(k)fluoranthene	2.0000	-14	5.0000	-4	10.000	0	16.000	6	20.000	4	25.000	0	40.000	3	50.000	4	60.000	1
Benzo(a)pyrene	2.0000	-17	5.0000	-6	10.000	-1	16.000	4	20.000	4	25.000	0	40.000	6	50.000	5	60.000	6
Indeno(1,2,3-cd)pyrene	2.0000	-18	5.0000	-8	10.000	-2	16.000	4	20.000	5	25.000	2	40.000	5	50.000	5	60.000	7
Dibenz(a,h)anthracene	2.0000	-19	5.0000	-9	10.000	-2	16.000	4	20.000	4	25.000	2	40.000	6	50.000	6	60.000	8
Benzo(g,h,i)perylene	2.0000	-13	5.0000	-8	10.000	-3	16.000	2	20.000	4	25.000	1	40.000	5	50.000	5	60.000	6
2-Fluorophenol	2.0000	-9	5.0000	-1	10.000	1	16.000	3	20.000	1	25.000	-1	40.000	2	50.000	2	60.000	2
Phenol-d5	2.0000	-6	5.0000	0	10.000	1	16.000	2	20.000	-1	25.000	-2	40.000	1	50.000	2	60.000	3
Nitrobenzene-d5	2.0000	-6	5.0000	1	10.000	-2	16.000	3	20.000	2	25.000	0	40.000	2	50.000	1	60.000	1
2-Fluorobiphenyl	2.0000	-4	5.0000	2	10.000	6	16.000	7	20.000	4	25.000	0	40.000	-1	50.000	-5	60.000	-9
2,4,6-Tribromophenol	2.0000	**-28**	5.0000	-14	10.000	-6	16.000	-1	20.000	3	25.000	3	40.000	15	50.000	13	60.000	15
Terphenyl-d14	2.0000	-11	5.0000	1	10.000	5	16.000	7	20.000	6	25.000	1	40.000	0	50.000	-4	60.000	-5

KMH 08/01/14 [Aniline]: Picked or reassigned peak in all levels.

KMH 08/01/14 [3-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [4-Nitrophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [4-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [3,3'-Dichlorobenzidine]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [2,4-Dinitrophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [4-Chloroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [2,4,5-Trichlorophenol]: Corrected automatically drawn baseline in ICAL (rgv23).

KMH 08/01/14 [Anthracene]: Corrected automatically drawn baseline in ICAL (rgv23).

Analyst: KMH Date: 08/01/14 Reviewer: LW Date: 08/06/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; LINR=Linear regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259790 MSBNA Water
EPA 8270D

Inst : MSBNA09 Name : 6PTBNA9
Calnum : 584305789001 Cal Date : 31-JUL-2014

ICV 584305789025 (rgv25 31-JUL-2014) stds: S24471

Analyte	Spiked	Quant	Units	%D	Max	Flags
N-Nitrosodimethylamine	40.00	38.45	ug/mL	-4	20	
Phenol	40.00	38.19	ug/mL	-5	20	
bis(2-Chloroethyl)ether	40.00	39.29	ug/mL	-2	20	
2-Chlorophenol	40.00	38.81	ug/mL	-3	20	
1,3-Dichlorobenzene	40.00	39.49	ug/mL	-1	20	
1,4-Dichlorobenzene	40.00	39.00	ug/mL	-3	20	
Benzyl alcohol	40.00	40.12	ug/mL	0	20	
1,2-Dichlorobenzene	40.00	39.12	ug/mL	-2	20	
2-Methylphenol	40.00	39.22	ug/mL	-2	20	
bis(2-Chloroisopropyl) ether	40.00	39.13	ug/mL	-2	20	
4-Methylphenol	40.00	34.09	ug/mL	-15	20	
N-Nitroso-di-n-propylamine	40.00	39.44	ug/mL	-1	20	
Hexachloroethane	40.00	39.10	ug/mL	-2	20	
Nitrobenzene	40.00	39.53	ug/mL	-1	20	
Isophorone	40.00	40.94	ug/mL	2	20	
2-Nitrophenol	40.00	39.56	ug/mL	-1	20	
2,4-Dimethylphenol	40.00	41.81	ug/mL	5	20	
bis(2-Chloroethoxy)methane	40.00	39.42	ug/mL	-1	20	
Benzoic acid	100.0	105.4	ug/mL	5	20	
2,4-Dichlorophenol	40.00	39.98	ug/mL	0	20	
1,2,4-Trichlorobenzene	40.00	39.54	ug/mL	-1	20	
Naphthalene	40.00	38.13	ug/mL	-5	20	
4-Chloroaniline	40.00	42.00	ug/mL	5	20	
Hexachlorobutadiene	40.00	40.75	ug/mL	2	20	
4-Chloro-3-methylphenol	40.00	39.84	ug/mL	0	20	
2-Methylnaphthalene	40.00	40.39	ug/mL	1	20	
Hexachlorocyclopentadiene	40.00	36.71	ug/mL	-8	20	
2,4,6-Trichlorophenol	40.00	38.79	ug/mL	-3	20	
2,4,5-Trichlorophenol	40.00	40.19	ug/mL	0	20	
2-Chloronaphthalene	40.00	38.31	ug/mL	-4	20	
2-Nitroaniline	40.00	38.87	ug/mL	-3	20	
Dimethylphthalate	40.00	39.93	ug/mL	0	20	
2,6-Dinitrotoluene	40.00	40.44	ug/mL	1	20	
Acenaphthylene	40.00	43.26	ug/mL	8	20	
3-Nitroaniline	40.00	40.11	ug/mL	0	20	
Acenaphthene	40.00	35.94	ug/mL	-10	20	
2,4-Dinitrophenol	40.00	40.36	ug/mL	1	20	m
4-Nitrophenol	40.00	38.52	ug/mL	-4	20	m
Dibenzofuran	40.00	38.29	ug/mL	-4	20	
2,4-Dinitrotoluene	40.00	39.63	ug/mL	-1	20	
Diethylphthalate	40.00	37.90	ug/mL	-5	20	
Fluorene	40.00	37.80	ug/mL	-6	20	
4-Chlorophenyl-phenylether	40.00	38.25	ug/mL	-4	20	
4-Nitroaniline	40.00	38.21	ug/mL	-4	20	
4,6-Dinitro-2-methylphenol	40.00	38.45	ug/mL	-4	20	
N-Nitrosodiphenylamine	40.00	44.66	ug/mL	12	20	
Azobenzene	40.00	37.93	ug/mL	-5	20	
4-Bromophenyl-phenylether	40.00	38.36	ug/mL	-4	20	
Hexachlorobenzene	40.00	39.17	ug/mL	-2	20	

Analyte	Spiked	Quant	Units	%D	Max	Flags
Pentachlorophenol	40.00	37.41	ug/mL	-6	20	
Phenanthrene	40.00	37.26	ug/mL	-7	20	
Anthracene	40.00	38.70	ug/mL	-3	20	
Carbazole	40.00	40.93	ug/mL	2	20	
Di-n-butylphthalate	40.00	37.30	ug/mL	-7	20	
Fluoranthene	40.00	36.70	ug/mL	-8	20	
Pyrene	40.00	36.20	ug/mL	-9	20	
Butylbenzylphthalate	40.00	38.51	ug/mL	-4	20	
3,3'-Dichlorobenzidine	60.00	59.84	ug/mL	0	20	
Benzo(a)anthracene	40.00	39.04	ug/mL	-2	20	
bis(2-Ethylhexyl)phthalate	40.00	39.42	ug/mL	-1	20	
Chrysene	40.00	37.36	ug/mL	-7	20	
Di-n-octylphthalate	40.00	38.60	ug/mL	-3	20	
Benzo(b)fluoranthene	40.00	42.43	ug/mL	6	20	
Benzo(k)fluoranthene	40.00	38.95	ug/mL	-3	20	
Benzo(a)pyrene	40.00	44.62	ug/mL	12	20	
Indeno(1,2,3-cd)pyrene	40.00	39.27	ug/mL	-2	20	
Dibenz(a,h)anthracene	40.00	38.70	ug/mL	-3	20	
Benzo(g,h,i)perylene	40.00	38.80	ug/mL	-3	20	

Analyst: KMH Date: 08/01/14 Reviewer: LW Date: 08/06/14

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 MSBNA Water
EPA 8270D

Inst : MSBNA05 IDF : 1.0
Seqnum : 544331768003.1 File : xhi03 Time : 18-AUG-2014 10:19
Cal : 544327680001 Caldate : 15-AUG-2014
Standards: S25410

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
N-Nitrosodimethylamine	0.6698	0.6429	32.00	30.71	ug/mL	-4	20	0.0500	
Phenol	1.6896	1.6577	32.00	31.40	ug/mL	-2	20	0.8000	
bis(2-Chloroethyl)ether	1.2308	1.2426	32.00	32.31	ug/mL	1	20	0.7000	
2-Chlorophenol	1.4096	1.4377	32.00	32.64	ug/mL	2	20	0.8000	
1,3-Dichlorobenzene	1.5127	1.6011	32.00	33.87	ug/mL	6	20	0.0500	
1,4-Dichlorobenzene	1.5089	1.6570	32.00	35.14	ug/mL	10	20	0.0500	
Benzyl alcohol	0.9408	0.9453	32.00	32.15	ug/mL	0	20	0.0500	
1,2-Dichlorobenzene	1.4769	1.5915	32.00	34.48	ug/mL	8	20	0.0500	
2-Methylphenol	1.1390	1.1591	32.00	32.56	ug/mL	2	20	0.7000	
bis(2-Chloroisopropyl) ether	1.8550	1.7986	32.00	31.03	ug/mL	-3	20	0.0100	
4-Methylphenol	1.6809	1.6895	32.00	32.16	ug/mL	1	20	0.6000	
N-Nitroso-di-n-propylamine	0.8406	0.8526	32.00	32.45	ug/mL	1	20	0.5000	
Hexachloroethane	0.6432	0.6747	32.00	33.57	ug/mL	5	20	0.3000	
Nitrobenzene	0.4083	0.4008	32.00	31.42	ug/mL	-2	20	0.2000	
Isophorone	0.7286	0.7065	32.00	31.03	ug/mL	-3	20	0.4000	
2-Nitrophenol	0.2054	0.2050	32.00	31.94	ug/mL	0	20	0.1000	
2,4-Dimethylphenol	0.3594	0.3655	32.00	32.54	ug/mL	2	20	0.2000	
bis(2-Chloroethoxy)methane	0.4299	0.4298	16.00	15.99	ug/mL	0	20	0.3000	
Benzoic acid	0.2677	0.2659	80.00	79.45	ug/mL	-1	20	0.0500	
2,4-Dichlorophenol	0.3040	0.3254	32.00	34.25	ug/mL	7	20	0.2000	
1,2,4-Trichlorobenzene	0.3182	0.3456	32.00	34.76	ug/mL	9	20	0.0500	
Naphthalene	1.0955	1.1576	16.00	16.91	ug/mL	6	20	0.7000	
4-Chloroaniline	0.4369	0.4806	32.00	33.00	ug/mL	3	20	0.0100	
Hexachlorobutadiene	0.1650	0.1907	32.00	36.98	ug/mL	16	20	0.0100	
4-Chloro-3-methylphenol	0.3207	0.3325	32.00	33.18	ug/mL	4	20	0.2000	
2-Methylnaphthalene	0.7396	0.7811	16.00	16.90	ug/mL	6	20	0.4000	
Hexachlorocyclopentadiene	0.3300	0.3672	32.00	35.60	ug/mL	11	20	0.0500	
2,4,6-Trichlorophenol	0.3660	0.3936	32.00	34.42	ug/mL	8	20	0.2000	
2,4,5-Trichlorophenol	0.3900	0.4309	32.00	35.36	ug/mL	10	20	0.2000	
2-Chloronaphthalene	1.1656	1.2341	16.00	16.94	ug/mL	6	20	0.8000	
2-Nitroaniline	0.4008	0.3929	32.00	31.37	ug/mL	-2	20	0.0100	
Dimethylphthalate	1.2709	1.3734	32.00	34.58	ug/mL	8	20	0.0100	
2,6-Dinitrotoluene	0.3123	0.3207	32.00	32.86	ug/mL	3	20	0.2000	
Acenaphthylene	1.9468	2.0533	16.00	16.88	ug/mL	5	20	0.9000	
3-Nitroaniline	0.3467	0.3223	32.00	29.75	ug/mL	-7	20	0.0100	m
Acenaphthene	1.2140	1.3270	16.00	17.49	ug/mL	9	20	0.9000	
2,4-Dinitrophenol	0.1633	0.1533	32.00	33.77	ug/mL	6	20	0.0100	
4-Nitrophenol	0.1875	0.1810	32.00	30.90	ug/mL	-3	20	0.0100	
Dibenzofuran	1.6090	1.7735	16.00	17.64	ug/mL	10	20	0.8000	
2,4-Dinitrotoluene	0.4105	0.4325	32.00	33.71	ug/mL	5	20	0.2000	
Diethylphthalate	1.4209	1.5034	16.00	16.93	ug/mL	6	20	0.0100	
Fluorene	1.3851	1.4790	16.00	17.09	ug/mL	7	20	0.9000	
4-Chlorophenyl-phenylether	0.6164	0.6778	16.00	17.59	ug/mL	10	20	0.4000	
4-Nitroaniline	0.3594	0.3172	32.00	28.24	ug/mL	-12	20	0.0100	
4,6-Dinitro-2-methylphenol	0.1361	0.1391	32.00	32.69	ug/mL	2	20	0.0100	
N-Nitrosodiphenylamine	0.6073	0.6216	16.00	16.38	ug/mL	2	20	0.0100	
Azobenzene	0.9270	0.9137	16.00	15.77	ug/mL	-1	20	0.0500	
4-Bromophenyl-phenylether	0.2207	0.2322	16.00	16.83	ug/mL	5	20	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Hexachlorobenzene	0.2199	0.2493	32.00	36.28	ug/mL	13	20	0.1000	
Pentachlorophenol	0.1511	0.1684	32.00	35.65	ug/mL	11	20	0.0500	
Phenanthrene	1.1442	1.1982	16.00	16.76	ug/mL	5	20	0.7000	
Anthracene	1.1638	1.2315	16.00	16.93	ug/mL	6	20	0.7000	
Carbazole	0.9656	1.0501	32.00	34.80	ug/mL	9	20	0.0100	
Di-n-butylphthalate	1.4456	1.5063	16.00	16.67	ug/mL	4	20	0.0100	
Fluoranthene	1.2637	1.3359	16.00	16.91	ug/mL	6	20	0.6000	
Pyrene	1.2850	1.3166	16.00	16.39	ug/mL	2	20	0.6000	
Butylbenzylphthalate	0.6466	0.6125	16.00	15.16	ug/mL	-5	20	0.0100	
3,3'-Dichlorobenzidine	0.3696	0.3609	32.00	31.24	ug/mL	-2	20	0.0100	
Benzo(a)anthracene	1.1441	1.1545	16.00	16.15	ug/mL	1	20	0.8000	
bis(2-Ethylhexyl)phthalate	0.8394	0.8870	16.00	16.91	ug/mL	6	20	0.0100	
Chrysene	1.0537	1.0835	16.00	16.45	ug/mL	3	20	0.7000	
Di-n-octylphthalate	1.7540	1.6053	16.00	14.64	ug/mL	-8	20	0.0100	
Benzo(b)fluoranthene	1.2072	1.1893	16.00	15.76	ug/mL	-1	20	0.7000	
Benzo(k)fluoranthene	1.0969	1.1130	16.00	16.23	ug/mL	1	20	0.7000	
Benzo(a)pyrene	1.1520	1.1437	16.00	15.89	ug/mL	-1	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.2676	1.2613	16.00	15.92	ug/mL	0	20	0.5000	
Dibenz(a,h)anthracene	1.0805	1.0513	16.00	15.57	ug/mL	-3	20	0.4000	
Benzo(g,h,i)perylene	1.0588	1.0186	16.00	15.39	ug/mL	-4	20	0.5000	
2-Fluorophenol	1.3488	1.3309	16.00	15.79	ug/mL	-1	20	0.0500	
Phenol-d5	1.6768	1.6245	16.00	15.50	ug/mL	-3	20	0.0500	
Nitrobenzene-d5	0.4472	0.4417	16.00	15.80	ug/mL	-1	20	0.0500	
2-Fluorobiphenyl	1.4224	1.5442	16.00	17.37	ug/mL	9	20	0.0500	
2,4,6-Tribromophenol	0.1832	0.2102	16.00	18.36	ug/mL	15	20	0.0500	
Terphenyl-d14	0.8766	0.9159	16.00	16.72	ug/mL	4	20	0.0500	

ISTD (ICAL xhf11)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	1031318	785831	-23.80
Naphthalene-d8	3900538	3089728	-20.79
Acenaphthene-d10	2287286	1847064	-19.25
Phenanthrene-d10	3792150	3217279	-15.16
Chrysene-d12	4068719	3608754	-11.30
Perylene-d12	3663483	3274933	-10.61

ISTD (ICAL xhf11)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.04	6.04	0.00
Naphthalene-d8	7.55	7.55	0.00
Acenaphthene-d10	9.73	9.73	0.00
Phenanthrene-d10	11.60	11.60	0.00
Chrysene-d12	15.04	15.04	0.00
Perylene-d12	18.01	18.00	-0.01

KMH 08/18/14 [Aniline]: Picked or reassigned peak. [general version]

KMH 08/18/14 [3-Nitroaniline]: Corrected automatically drawn baseline. [general version]

Analyst: KMH Date: 08/19/14 Reviewer: LW Date: 08/21/14

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 MSBNA Water
EPA 8270D

Inst : MSBNA09 IDF : 1.0
Seqnum : 584327568017.1 File : rhf17 Time : 15-AUG-2014 17:54
Cal : 584305789001 Caldate : 31-JUL-2014
Standards: S24428

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
N-Nitrosodimethylamine	0.6889	0.6951	40.00	40.36	ug/mL	1	20	0.0500	
Phenol	1.7505	1.7467	40.00	39.91	ug/mL	0	20	0.8000	
bis(2-Chloroethyl)ether	1.3236	1.3344	40.00	40.32	ug/mL	1	20	0.7000	
2-Chlorophenol	1.4949	1.5367	40.00	41.12	ug/mL	3	20	0.8000	
1,3-Dichlorobenzene	1.5853	1.6224	40.00	40.94	ug/mL	2	20	0.0500	
1,4-Dichlorobenzene	1.6031	1.6516	40.00	41.21	ug/mL	3	20	0.0500	
Benzyl alcohol	0.9638	0.9576	40.00	39.74	ug/mL	-1	20	0.0500	
1,2-Dichlorobenzene	1.4985	1.5489	40.00	41.34	ug/mL	3	20	0.0500	
2-Methylphenol	1.1156	1.1518	40.00	41.30	ug/mL	3	20	0.7000	
bis(2-Chloroisopropyl) ether	1.8467	1.7483	40.00	37.87	ug/mL	-5	20	0.0100	
4-Methylphenol	1.7193	1.6906	40.00	39.33	ug/mL	-2	20	0.6000	
N-Nitroso-di-n-propylamine	0.9873	0.8967	40.00	36.33	ug/mL	-9	20	0.5000	
Hexachloroethane	0.6219	0.6028	40.00	38.77	ug/mL	-3	20	0.3000	
Nitrobenzene	0.3602	0.3652	40.00	40.56	ug/mL	1	20	0.2000	
Isophorone	0.7371	0.6807	40.00	36.94	ug/mL	-8	20	0.4000	
2-Nitrophenol	0.2033	0.2195	40.00	43.19	ug/mL	8	20	0.1000	
2,4-Dimethylphenol	0.3677	0.3712	40.00	40.38	ug/mL	1	20	0.2000	
bis(2-Chloroethoxy)methane	0.4575	0.4332	20.00	18.94	ug/mL	-5	20	0.3000	
Benzoic acid	0.2582	0.2257	90.00	78.68	ug/mL	-13	20	0.0500	
2,4-Dichlorophenol	0.3137	0.3342	40.00	42.61	ug/mL	7	20	0.2000	
1,2,4-Trichlorobenzene	0.3187	0.3473	40.00	43.58	ug/mL	9	20	0.0500	
Naphthalene	1.0889	1.1652	20.00	21.40	ug/mL	7	20	0.7000	
4-Chloroaniline	0.4867	0.4909	40.00	40.34	ug/mL	1	20	0.0100	
Hexachlorobutadiene	0.1765	0.1904	40.00	43.15	ug/mL	8	20	0.0100	
4-Chloro-3-methylphenol	0.3533	0.3475	40.00	39.35	ug/mL	-2	20	0.2000	
2-Methylnaphthalene	0.7670	0.8141	20.00	21.23	ug/mL	6	20	0.4000	
Hexachlorocyclopentadiene	0.3767	0.4150	40.00	44.06	ug/mL	10	20	0.0500	
2,4,6-Trichlorophenol	0.3821	0.4193	40.00	43.89	ug/mL	10	20	0.2000	
2,4,5-Trichlorophenol	0.4071	0.4470	40.00	43.92	ug/mL	10	20	0.2000	
2-Chloronaphthalene	1.1882	1.2739	20.00	21.44	ug/mL	7	20	0.8000	
2-Nitroaniline	0.3530	0.3455	40.00	39.15	ug/mL	-2	20	0.0100	
Dimethylphthalate	1.4121	1.4631	40.00	41.44	ug/mL	4	20	0.0100	
2,6-Dinitrotoluene	0.3419	0.3547	40.00	41.49	ug/mL	4	20	0.2000	
Acenaphthylene	1.6876	1.8053	20.00	21.39	ug/mL	7	20	0.9000	
3-Nitroaniline	0.3815	0.3770	40.00	39.52	ug/mL	-1	20	0.0100	m
Acenaphthene	1.2534	1.3489	20.00	21.52	ug/mL	8	20	0.9000	
2,4-Dinitrophenol	0.1660	0.1479	40.00	38.49	ug/mL	-4	20	0.0100	
4-Nitrophenol	0.1911	0.1769	40.00	37.01	ug/mL	-7	20	0.0100	
Dibenzofuran	1.7373	1.8507	20.00	21.31	ug/mL	7	20	0.8000	
2,4-Dinitrotoluene	0.4742	0.5003	40.00	42.20	ug/mL	6	20	0.2000	
Diethylphthalate	1.5329	1.5608	20.00	20.36	ug/mL	2	20	0.0100	
Fluorene	1.4346	1.5360	20.00	21.41	ug/mL	7	20	0.9000	
4-Chlorophenyl-phenylether	0.7249	0.7736	20.00	21.34	ug/mL	7	20	0.4000	
4-Nitroaniline	0.3951	0.3868	40.00	39.16	ug/mL	-2	20	0.0100	
4,6-Dinitro-2-methylphenol	0.1451	0.1430	40.00	39.43	ug/mL	-1	20	0.0100	
N-Nitrosodiphenylamine	0.5974	0.6325	20.00	21.17	ug/mL	6	20	0.0100	
Azobenzene	0.7988	0.7462	20.00	18.68	ug/mL	-7	20	0.0500	
4-Bromophenyl-phenylether	0.2478	0.2541	20.00	20.51	ug/mL	3	20	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Hexachlorobenzene	0.2674	0.2556	40.00	38.23	ug/mL	-4	20	0.1000	
Pentachlorophenol	0.1695	0.1648	40.00	38.89	ug/mL	-3	20	0.0500	
Phenanthrene	1.1611	1.2240	20.00	21.08	ug/mL	5	20	0.7000	
Anthracene	1.1484	1.2155	20.00	21.17	ug/mL	6	20	0.7000	
Carbazole	1.0146	1.0897	40.00	42.96	ug/mL	7	20	0.0100	
Di-n-butylphthalate	1.4681	1.5151	20.00	20.64	ug/mL	3	20	0.0100	
Fluoranthene	1.2776	1.4052	20.00	22.00	ug/mL	10	20	0.6000	
Pyrene	1.1956	1.3862	20.00	23.19	ug/mL	16	20	0.6000	
Butylbenzylphthalate	0.5692	0.5757	20.00	20.23	ug/mL	1	20	0.0100	
3,3'-Dichlorobenzidine	0.4323	0.4351	40.00	40.26	ug/mL	1	20	0.0100	
Benzo(a)anthracene	1.1261	1.1902	20.00	21.14	ug/mL	6	20	0.8000	
bis(2-Ethylhexyl)phthalate	0.7821	0.8309	20.00	21.25	ug/mL	6	20	0.0100	
Chrysene	1.0669	1.1374	20.00	21.32	ug/mL	7	20	0.7000	
Di-n-octylphthalate	1.5448	1.5520	20.00	20.09	ug/mL	0	20	0.0100	
Benzo(b)fluoranthene	1.1600	1.2215	20.00	21.06	ug/mL	5	20	0.7000	
Benzo(k)fluoranthene	1.1557	1.2643	20.00	21.88	ug/mL	9	20	0.7000	
Benzo(a)pyrene	0.9853	1.0544	20.00	21.40	ug/mL	7	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.1504	1.2442	20.00	21.63	ug/mL	8	20	0.5000	
Dibenz(a,h)anthracene	1.0323	1.1095	20.00	21.50	ug/mL	7	20	0.4000	
Benzo(g,h,i)perylene	0.9160	0.9959	20.00	21.74	ug/mL	9	20	0.5000	
2-Fluorophenol	1.4661	1.4414	20.00	19.66	ug/mL	-2	20	0.0500	
Phenol-d5	1.7103	1.7479	20.00	20.44	ug/mL	2	20	0.0500	
Nitrobenzene-d5	0.3849	0.3909	20.00	20.31	ug/mL	2	20	0.0500	
2-Fluorobiphenyl	1.4236	1.6082	20.00	22.59	ug/mL	13	20	0.0500	
2,4,6-Tribromophenol	0.2136	0.2075	20.00	19.43	ug/mL	-3	20	0.0500	
Terphenyl-d14	0.9287	1.0294	20.00	22.17	ug/mL	11	20	0.0500	

ISTD (ICAL rgv21)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	1195108	855247	-28.44
Naphthalene-d8	4635194	3260194	-29.66
Acenaphthene-d10	2989178	1945755	-34.91
Phenanthrene-d10	5453704	3599449	-34.00
Chrysene-d12	6186500	3912722	-36.75
Perylene-d12	5646577	3451428	-38.88

ISTD (ICAL rgv21)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.23	6.22	-0.01
Naphthalene-d8	7.72	7.72	0.00
Acenaphthene-d10	9.88	9.88	0.00
Phenanthrene-d10	11.73	11.73	0.00
Chrysene-d12	15.19	15.19	0.00
Perylene-d12	18.23	18.23	0.00

KMH 08/16/14 [Aniline]: Separated from coeluting peak. [general version]

KMH 08/16/14 [3-Nitroaniline]: Picked or reassigned peak. [general version]

Analyst: KMH Date: 08/19/14 Reviewer: LW Date: 08/27/14

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 MSBNA Water
EPA 8270D

Inst : MSBNA09 IDF : 1.0
Seqnum : 584329197004.1 File : rhg04 Time : 16-AUG-2014 15:50
Cal : 584305789001 Caldate : 31-JUL-2014
Standards: S24428

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
N-Nitrosodimethylamine	0.6889	0.7531	40.00	43.72	ug/mL	9	20	0.0500	
Phenol	1.7505	1.6900	40.00	38.62	ug/mL	-3	20	0.8000	
bis(2-Chloroethyl)ether	1.3236	1.2930	40.00	39.07	ug/mL	-2	20	0.7000	
2-Chlorophenol	1.4949	1.5186	40.00	40.64	ug/mL	2	20	0.8000	
1,3-Dichlorobenzene	1.5853	1.6216	40.00	40.92	ug/mL	2	20	0.0500	
1,4-Dichlorobenzene	1.6031	1.6359	40.00	40.82	ug/mL	2	20	0.0500	
Benzyl alcohol	0.9638	0.9003	40.00	37.36	ug/mL	-7	20	0.0500	
1,2-Dichlorobenzene	1.4985	1.5523	40.00	41.44	ug/mL	4	20	0.0500	
2-Methylphenol	1.1156	1.1070	40.00	39.69	ug/mL	-1	20	0.7000	
bis(2-Chloroisopropyl) ether	1.8467	1.8832	40.00	40.79	ug/mL	2	20	0.0100	
4-Methylphenol	1.7193	1.6379	40.00	38.11	ug/mL	-5	20	0.6000	
N-Nitroso-di-n-propylamine	0.9873	0.9095	40.00	36.85	ug/mL	-8	20	0.5000	
Hexachloroethane	0.6219	0.6099	40.00	39.22	ug/mL	-2	20	0.3000	
Nitrobenzene	0.3602	0.3576	40.00	39.71	ug/mL	-1	20	0.2000	
Isophorone	0.7371	0.6721	40.00	36.47	ug/mL	-9	20	0.4000	
2-Nitrophenol	0.2033	0.2046	40.00	40.26	ug/mL	1	20	0.1000	
2,4-Dimethylphenol	0.3677	0.3552	40.00	38.65	ug/mL	-3	20	0.2000	
bis(2-Chloroethoxy)methane	0.4575	0.4208	20.00	18.39	ug/mL	-8	20	0.3000	
Benzoic acid	0.2582	0.2205	90.00	76.86	ug/mL	-15	20	0.0500	
2,4-Dichlorophenol	0.3137	0.3170	40.00	40.42	ug/mL	1	20	0.2000	
1,2,4-Trichlorobenzene	0.3187	0.3321	40.00	41.68	ug/mL	4	20	0.0500	
Naphthalene	1.0889	1.1524	20.00	21.17	ug/mL	6	20	0.7000	
4-Chloroaniline	0.4867	0.4882	40.00	40.13	ug/mL	0	20	0.0100	
Hexachlorobutadiene	0.1765	0.1786	40.00	40.48	ug/mL	1	20	0.0100	
4-Chloro-3-methylphenol	0.3533	0.3399	40.00	38.48	ug/mL	-4	20	0.2000	
2-Methylnaphthalene	0.7670	0.7970	20.00	20.78	ug/mL	4	20	0.4000	
Hexachlorocyclopentadiene	0.3767	0.3844	40.00	40.82	ug/mL	2	20	0.0500	
2,4,6-Trichlorophenol	0.3821	0.4025	40.00	42.13	ug/mL	5	20	0.2000	
2,4,5-Trichlorophenol	0.4071	0.4345	40.00	42.69	ug/mL	7	20	0.2000	
2-Chloronaphthalene	1.1882	1.2733	20.00	21.43	ug/mL	7	20	0.8000	
2-Nitroaniline	0.3530	0.3565	40.00	40.40	ug/mL	1	20	0.0100	
Dimethylphthalate	1.4121	1.4436	40.00	40.89	ug/mL	2	20	0.0100	
2,6-Dinitrotoluene	0.3419	0.3467	40.00	40.56	ug/mL	1	20	0.2000	
Acenaphthylene	1.6876	1.8003	20.00	21.34	ug/mL	7	20	0.9000	
3-Nitroaniline	0.3815	0.3781	40.00	39.64	ug/mL	-1	20	0.0100	
Acenaphthene	1.2534	1.3542	20.00	21.61	ug/mL	8	20	0.9000	
2,4-Dinitrophenol	0.1660	0.1581	40.00	40.24	ug/mL	1	20	0.0100	
4-Nitrophenol	0.1911	0.1744	40.00	36.50	ug/mL	-9	20	0.0100	
Dibenzofuran	1.7373	1.8271	20.00	21.03	ug/mL	5	20	0.8000	
2,4-Dinitrotoluene	0.4742	0.4869	40.00	41.07	ug/mL	3	20	0.2000	
Diethylphthalate	1.5329	1.5352	20.00	20.03	ug/mL	0	20	0.0100	
Fluorene	1.4346	1.5229	20.00	21.23	ug/mL	6	20	0.9000	
4-Chlorophenyl-phenylether	0.7249	0.7500	20.00	20.69	ug/mL	3	20	0.4000	
4-Nitroaniline	0.3951	0.3931	40.00	39.79	ug/mL	-1	20	0.0100	m
4,6-Dinitro-2-methylphenol	0.1451	0.1502	40.00	41.42	ug/mL	4	20	0.0100	
N-Nitrosodiphenylamine	0.5974	0.6452	20.00	21.60	ug/mL	8	20	0.0100	
Azobenzene	0.7988	0.8011	20.00	20.06	ug/mL	0	20	0.0500	
4-Bromophenyl-phenylether	0.2478	0.2434	20.00	19.64	ug/mL	-2	20	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Hexachlorobenzene	0.2674	0.2421	40.00	36.21	ug/mL	-9	20	0.1000	
Pentachlorophenol	0.1695	0.1582	40.00	37.34	ug/mL	-7	20	0.0500	
Phenanthrene	1.1611	1.2666	20.00	21.82	ug/mL	9	20	0.7000	
Anthracene	1.1484	1.2580	20.00	21.91	ug/mL	10	20	0.7000	
Carbazole	1.0146	1.1480	40.00	45.26	ug/mL	13	20	0.0100	
Di-n-butylphthalate	1.4681	1.5496	20.00	21.11	ug/mL	6	20	0.0100	
Fluoranthene	1.2776	1.4034	20.00	21.97	ug/mL	10	20	0.6000	
Pyrene	1.1956	1.3890	20.00	23.23	ug/mL	16	20	0.6000	
Butylbenzylphthalate	0.5692	0.5798	20.00	20.37	ug/mL	2	20	0.0100	
3,3'-Dichlorobenzidine	0.4323	0.4155	40.00	38.44	ug/mL	-4	20	0.0100	
Benzo(a)anthracene	1.1261	1.1870	20.00	21.08	ug/mL	5	20	0.8000	
bis(2-Ethylhexyl)phthalate	0.7821	0.8236	20.00	21.06	ug/mL	5	20	0.0100	
Chrysene	1.0669	1.1457	20.00	21.48	ug/mL	7	20	0.7000	
Di-n-octylphthalate	1.5448	1.5529	20.00	20.11	ug/mL	1	20	0.0100	
Benzo(b)fluoranthene	1.1600	1.2279	20.00	21.17	ug/mL	6	20	0.7000	
Benzo(k)fluoranthene	1.1557	1.2433	20.00	21.52	ug/mL	8	20	0.7000	
Benzo(a)pyrene	0.9853	1.0428	20.00	21.17	ug/mL	6	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.1504	1.2151	20.00	21.12	ug/mL	6	20	0.5000	
Dibenz(a,h)anthracene	1.0323	1.0771	20.00	20.87	ug/mL	4	20	0.4000	
Benzo(g,h,i)perylene	0.9160	0.9777	20.00	21.35	ug/mL	7	20	0.5000	
2-Fluorophenol	1.4661	1.4076	20.00	19.20	ug/mL	-4	20	0.0500	
Phenol-d5	1.7103	1.6696	20.00	19.52	ug/mL	-2	20	0.0500	
Nitrobenzene-d5	0.3849	0.3842	20.00	19.96	ug/mL	0	20	0.0500	
2-Fluorobiphenyl	1.4236	1.5556	20.00	21.85	ug/mL	9	20	0.0500	
2,4,6-Tribromophenol	0.2136	0.1739	20.00	16.28	ug/mL	-19	20	0.0500	
Terphenyl-d14	0.9287	0.9926	20.00	21.38	ug/mL	7	20	0.0500	

ISTD (ICAL rgv21)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	1195108	751173	-37.15
Naphthalene-d8	4635194	2856508	-38.37
Acenaphthene-d10	2989178	1684963	-43.63
Phenanthrene-d10	5453704	2984285	-45.28
Chrysene-d12	6186500	3293422	-46.76
Perylene-d12	5646577	2841596	-49.68

ISTD (ICAL rgv21)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.23	6.22	-0.01
Naphthalene-d8	7.72	7.71	-0.01
Acenaphthene-d10	9.88	9.87	-0.01
Phenanthrene-d10	11.73	11.72	-0.01
Chrysene-d12	15.19	15.17	-0.02
Perylene-d12	18.23	18.21	-0.02

KMH 08/16/14 [Aniline]: Picked or reassigned peak. [general version]

KMH 08/16/14 [4-Nitroaniline]: Corrected automatically drawn baseline. [general version]

Analyst: KMH Date: 08/19/14 Reviewer: LW Date: 08/27/14

m=manual integration

Logbooks & Sequences

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 544331768

Date : 08/18/14 Reference : xhf11
Sequence : MSBNA05 xhi Analyzed : 08/15/14 19:42

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	1031318	3900538	2287286	3792150	4068719	3663483
		LOWER LIMIT	515659	1950269	1143643	1896075	2034360	1831742
		UPPER LIMIT	2062636	7801076	4574572	7584300	8137438	7326966
003	CCV		785831	3089728	1847064	3217279	3608754	3274933
004	MSS	259786-001	825332	3051733	1822693	3215701	3693894	3086497
005	MS	QC753559	931325	3612362	2126360	3553080	3824626	3195644
006	MSD	QC753560	1044378	3990839	2312124	3825357	4050719	3454191
007	SAMPLE	259790-001	1021608	3705019	2176053	3575732	4108484	3487945
008	SAMPLE	259790-002	968752	3536635	2098336	3520029	4013900	3431927
009	SAMPLE	259786-004	1008726	3716251	2154652	3724240	4190056	3701051
010	SAMPLE	259786-003	975415	3538080	2079372	3536104	3927552	3448912
013	MS	QC753559	977805	3656375	2118926	3552235	3858328	3535451
014	MSD	QC753560	985425	3724467	2169541	3626741	3981865	3625418
015	SAMPLE	259652-008	952735	3477453	2033951	3451206	3968528	3373941
016	SAMPLE	259652-009	960643	3506252	2075413	3460927	3979882	3451597
017	SAMPLE	259652-005	943108	3438999	2004768	3450448	3920247	3380897
018	SAMPLE	259841-005	990369	3646639	2117918	3620048	4066790	3636547
019	SAMPLE	259841-007	1069952	3869011	2270393	3786496	4378356	3912380
020	SAMPLE	259835-002	1072837	3870233	2264630	3855453	4323156	3892616

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 544331768

Date : 08/18/14 Reference : xhf11
Sequence : MSBNA05 xhi Analyzed : 08/15/14 19:42

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	6.04	7.55	9.73	11.60	15.04	18.01
		LOWER LIMIT	5.54	7.05	9.23	11.10	14.54	17.51
		UPPER LIMIT	6.54	8.05	10.23	12.10	15.54	18.51
003	CCV		6.04	7.55	9.73	11.60	15.04	18.00

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 544331768

Date : 08/18/14
Sequence : MSBNA05 xhi

Reference : xhi03
Analyzed : 08/18/14 10:19

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	6.04	7.55	9.73	11.60	15.04	18.00
		LOWER LIMIT	5.54	7.05	9.23	11.10	14.54	17.50
		UPPER LIMIT	6.54	8.05	10.23	12.10	15.54	18.50
004	MSS	259786-001	6.04	7.54	9.73	11.59	15.04	18.00
005	MS	QC753559	6.04	7.55	9.73	11.60	15.05	18.02
006	MSD	QC753560	6.04	7.55	9.73	11.60	15.05	18.02
007	SAMPLE	259790-001	6.04	7.55	9.73	11.60	15.04	18.01
008	SAMPLE	259790-002	6.04	7.55	9.73	11.59	15.04	18.00
009	SAMPLE	259786-004	6.04	7.55	9.73	11.60	15.05	18.02
010	SAMPLE	259786-003	6.04	7.55	9.73	11.60	15.04	18.02
013	MS	QC753559	6.04	7.55	9.73	11.60	15.05	18.02
014	MSD	QC753560	6.04	7.55	9.73	11.60	15.05	18.02
015	SAMPLE	259652-008	6.04	7.55	9.73	11.60	15.04	18.02
016	SAMPLE	259652-009	6.04	7.55	9.73	11.60	15.04	18.02
017	SAMPLE	259652-005	6.04	7.55	9.73	11.60	15.04	18.03
018	SAMPLE	259841-005	6.04	7.55	9.73	11.60	15.05	18.04
019	SAMPLE	259841-007	6.04	7.55	9.73	11.60	15.04	18.02
020	SAMPLE	259835-002	6.04	7.55	9.73	11.60	15.05	18.04

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584327568

Date : 08/15/14 Reference : rgv21
Sequence : MSBNA09 rhf Analyzed : 07/31/14 21:47

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	1195108	4635194	2989178	5453704	6186500	5646577
		LOWER LIMIT	597554	2317597	1494589	2726852	3093250	2823289
		UPPER LIMIT	2390216	9270388	5978356	10907408	12373000	11293154
017	CCV		855247	3260194	1945755	3599449	3912722	3451428
018	BLANK	QC753557	843977	3082205	1835995	3278404	4240906	3602404
019	LCS	QC753558	0 *	0 *	376164 *	0 *	0 *	0 *

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584327568

Date : 08/15/14 Reference : rgv21
Sequence : MSBNA09 rhf Analyzed : 07/31/14 21:47

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	6.23	7.72	9.88	11.73	15.19	18.23
		LOWER LIMIT	5.73	7.22	9.38	11.23	14.69	17.73
		UPPER LIMIT	6.73	8.22	10.38	12.23	15.69	18.73
017	CCV		6.22	7.72	9.88	11.73	15.19	18.23

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584327568

Date : 08/15/14
Sequence : MSBNA09 rhf

Reference : rhf17
Analyzed : 08/15/14 17:54

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	6.22	7.72	9.88	11.73	15.19	18.23
		LOWER LIMIT	5.72	7.22	9.38	11.23	14.69	17.73
		UPPER LIMIT	6.72	8.22	10.38	12.23	15.69	18.73
018	BLANK	QC753557	6.22	7.71	9.87	11.72	15.18	18.22
019	LCS	QC753558	0.00 *	0.00 *	9.56	0.00 *	0.00 *	0.00 *

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584329197

Date : 08/16/14 Reference : rgv21
Sequence : MSBNA09 rhg Analyzed : 07/31/14 21:47

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	1195108	4635194	2989178	5453704	6186500	5646577
		LOWER LIMIT	597554	2317597	1494589	2726852	3093250	2823289
		UPPER LIMIT	2390216	9270388	5978356	10907408	12373000	11293154
004	CCV		751173	2856508	1684963	2984285	3293422	2841596
005	LCS	QC753558	744245	2898829	1735950	3187454	3425564	3072752

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584329197

Date : 08/16/14 Reference : rgv21
Sequence : MSBNA09 rhg Analyzed : 07/31/14 21:47

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	6.23	7.72	9.88	11.73	15.19	18.23
		LOWER LIMIT	5.73	7.22	9.38	11.23	14.69	17.73
		UPPER LIMIT	6.73	8.22	10.38	12.23	15.69	18.73
004	CCV		6.22	7.71	9.87	11.72	15.17	18.21

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584329197

Date : 08/16/14
Sequence : MSBNA09 rhg

Reference : rhg04
Analyzed : 08/16/14 15:50

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	6.22	7.71	9.87	11.72	15.17	18.21
		LOWER LIMIT	5.72	7.21	9.37	11.22	14.67	17.71
		UPPER LIMIT	6.72	8.21	10.37	12.22	15.67	18.71
005	LCS	QC753558	6.22	7.71	9.88	11.73	15.18	18.22

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 544327680

Instrument : MSBNA05 Begun : 08/15/14 13:20
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	xhf01	IB	IB			08/15/14 13:20	1.0		?t
002	xhf02	TUN	DFTPP/PEM			08/15/14 13:47	1.0	1	
003	xhf03	CCV	RTCHECK			08/15/14 14:10	1.0	2	cc+
004	xhf04	CCV	RFCHECK			08/15/14 15:37	1.0	3	cc-
005	xhf05	TUN	DFTPP/PEM			08/15/14 16:14	1.0	1	
006	xhf06	ICAL	ICAL			08/15/14 16:36	1.0	4	
007	xhf07	ICAL	ICAL			08/15/14 17:13	1.0	5	
008	xhf08	ICAL	ICAL			08/15/14 17:48	1.0	3	
009	xhf09	ICAL	ICAL			08/15/14 18:27	1.0	6	
010	xhf10	ICAL	ICAL			08/15/14 19:04	1.0	7	
011	xhf11	ICAL	ICAL			08/15/14 19:42	1.0	8	
012	xhf12	ICAL	ICAL			08/15/14 20:18	1.0	9	
013	xhf13	ICAL	ICAL			08/15/14 20:53	1.0	10	
014	xhf14	ICAL	ICAL			08/15/14 21:30	1.0	11	
015	xhf15	ICV	ICV			08/15/14 22:08	1.0	12	

KMH 08/16/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 15.

Standards used: 1=S24893 2=S24428 3=S25409 4=S25407 5=S25408 6=S25410 7=S25411 8=S25412 9=S25413 10=S25414 11=S25415 12=S25418

Flags used: +=high bias -=low bias ?t=missing tune cc=CCV CCC failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 544331768

Instrument : MSBNA05 Begun : 08/18/14 09:28
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	xhi01	IB	IB			08/18/14 09:28	1.0		?t
002	xhi02	TUN	DFTPP/PEM			08/18/14 09:56	1.0	1	
003	xhi03	CCV				08/18/14 10:19	1.0	2	
004	xhi04	MSS	259786-001	Water	214400	08/18/14 11:57	1.0	3	
005	xhi05	MS	QC753559	Water	214400	08/18/14 12:35	1.0	3	3:BZACID=140
006	xhi06	MSD	QC753560	Water	214400	08/18/14 13:11	1.0	3	1:ISOP=70
007	xhi07	SAMPLE	259790-001	Water	214400	08/18/14 13:46	1.0	3	
008	xhi08	SAMPLE	259790-002	Water	214400	08/18/14 14:23	1.0	3	
009	xhi09	SAMPLE	259786-004	Water	214400	08/18/14 15:00	1.0	3	
010	xhi10	SAMPLE	259786-003	Water	214400	08/18/14 15:39	1.0	3	
011	xhi11	MS	QC753224	Soil	214312	08/18/14 16:19	1.0	3	1:ISOP=62
012	xhi12	MSD	QC753225	Soil	214312	08/18/14 16:58	1.0	3	1:ISOP=58
013	xhi13	MS	QC753559	Water	214400	08/18/14 17:37	2.0	3	
014	xhi14	MSD	QC753560	Water	214400	08/18/14 18:14	2.0	3	
015	xhi15	SAMPLE	259652-008	Soil	214312	08/18/14 18:52	10.0	3	
016	xhi16	SAMPLE	259652-009	Soil	214312	08/18/14 19:27	50.0	3	
017	xhi17	SAMPLE	259652-005	Soil	214312	08/18/14 20:04	7.0	3	
018	xhi18	SAMPLE	259841-005	Water	214400	08/18/14 20:41	1.0	3	
019	xhi19	SAMPLE	259841-007	Water	214400	08/18/14 21:18	1.0	3	
020	xhi20	SAMPLE	259835-002	Water	214400	08/18/14 21:54	1.0	3	

KMH 08/19/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 20.

Standards used: 1=S24893 2=S25410 3=S25005

Flags used: ?t=missing tune

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 584305789

Instrument : MSBNA09 Begun : 07/31/14 08:29
Method : EPA 8270C, EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	rgv01	X	IB			07/31/14 08:29	1.0		
002	rgv02	TUN	DFTPP/PEM			07/31/14 08:56	1.0	1	
003	rgv03	CCV	RTRFCHECK			07/31/14 09:12	1.0	2	cc+ cc-
004	rgv04	TUN	DFTPP/PEM			07/31/14 10:05	1.0	1	
005	rgv05	ICAL	ICAL			07/31/14 10:21	1.0	3	
006	rgv06	ICAL	ICAL			07/31/14 10:52	1.0	4	
007	rgv07	ICAL	ICAL			07/31/14 11:22	1.0	5	
008	rgv08	ICAL	ICAL			07/31/14 11:52	1.0	2	
009	rgv09	ICAL	ICAL			07/31/14 12:22	1.0	6	
010	rgv10	ICAL	ICAL			07/31/14 12:52	1.0	7	
012	rgv12	ICAL	ICAL			07/31/14 13:52	1.0	8	
013	rgv13	ICAL	ICAL			07/31/14 14:21	1.0	9	
014	rgv14	ICV	ICV			07/31/14 14:51	1.0	10	
015	rgv15	TUN	DFTPP/PEM			07/31/14 18:29	1.0	1	
016	rgv16	ICAL	ICAL			07/31/14 19:18	1.0	3	
017	rgv17	ICAL	ICAL			07/31/14 19:47	1.0	4	
018	rgv18	ICAL	ICAL			07/31/14 20:17	1.0	5	
019	rgv19	ICAL	ICAL			07/31/14 20:47	1.0	2	
020	rgv20	ICAL	ICAL			07/31/14 21:17	1.0	6	
021	rgv21	ICAL	ICAL			07/31/14 21:47	1.0	7	
022	rgv22	ICAL	ICAL			07/31/14 22:18	1.0	11	
023	rgv23	ICAL	ICAL			07/31/14 22:48	1.0	8	
024	rgv24	ICAL	ICAL			07/31/14 23:18	1.0	9	
025	rgv25	ICV	ICV			07/31/14 23:48	1.0	10	
026	rgv26	TUN	DFTPP/PEM			08/01/14 00:14	1.0	1	t
027	rgv27	ICAL	ICAL			08/01/14 00:26	1.0	12	t
028	rgv28	ICAL	ICAL			08/01/14 00:40	1.0	13	t
029	rgv29	ICAL	ICAL			08/01/14 00:54	1.0	14	t
030	rgv30	ICAL	ICAL			08/01/14 01:07	1.0	15	t
031	rgv31	ICAL	ICAL			08/01/14 01:21	1.0	16	t
032	rgv32	ICAL	ICAL			08/01/14 01:35	1.0	17	t
033	rgv33	ICAL	ICAL			08/01/14 01:48	1.0	18	t
034	rgv34	ICAL	ICAL			08/01/14 02:02	1.0	19	t
035	rgv35	ICV	ICV			08/01/14 02:16	1.0	20	t , 5:DNOP=120000

KMH 08/01/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 35.

LW 08/06/14 : Files 26-35 are a CPSC ICAL that ran blind and the tune failed.

Standards used: 1=S24893 2=S24427 3=S24422 4=S24424 5=S24425 6=S24428 7=S24429 8=S24431 9=S24432 10=S24471 11=S24430 12=S24549 13=S24550 14=S24551 15=S24552 16=S24553 17=S24554 18=S24555 19=S24556 20=S24557

Flags used: +=high bias -=low bias cc=CCV CCC failure t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 584327568

Instrument : MSBNA09 Begun : 08/15/14 11:28
Method : EPA 8270C, EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	rhf01	X	IB			08/15/14 11:28	1.0		
002	rhf02	TUN	DFTPP/PEM			08/15/14 11:42	1.0	1	
003	rhf03	CCV				08/15/14 11:54	1.0	2	
004	rhf04	SAMPLE	259333-001	Miscell.	214282	08/15/14 12:08	8.33	3	
005	rhf05	SAMPLE	259369-001	Miscell.	214282	08/15/14 12:22	33.30	3	
006	rhf06	SAMPLE	259378-001	Miscell.	214282	08/15/14 12:35	33.30	3	
007	rhf07	SAMPLE	259094-001	Miscell.	214282	08/15/14 12:49	1.0	3	1:DIDP=610
008	rhf08	SAMPLE	259099-001	Miscell.	214282	08/15/14 13:03	1.0	3	
009	rhf09	SAMPLE	259336-001	Miscell.	214282	08/15/14 13:17	1.0	3	
010	rhf10	SAMPLE	259365-001	Miscell.	214282	08/15/14 13:30	1.0	3	
011	rhf11	IB	IB			08/15/14 14:04	1.0		
012	rhf12	TUN	DFTPP/PEM			08/15/14 14:31	1.0	1	t
013	rhf13	TUN	DFTPP/PEM			08/15/14 15:10	1.0	1	
014	rhf14	CCV				08/15/14 15:25	1.0	4	cc+ cc-
015	rhf15	IB	IB			08/15/14 16:42	1.0		
016	rhf16	TUN				08/15/14 17:08	1.0	1	
017	rhf17	CCV				08/15/14 17:54	1.0	4	
018	rhf18	BLANK	QC753557	Water	214400	08/15/14 18:29	1.0	3	
019	rhf19	LCS	QC753558	Water	214400	08/15/14 18:59	1.0	3	1:NO2ANIL4=370

KMH 08/16/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 19.

Standards used: 1=S24893 2=S24552 3=S25005 4=S24428

Flags used: +=high bias -=low bias cc=CCV CCC failure t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 584329197

Instrument : MSBNA09 Begun : 08/16/14 14:37
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	rhg01	X	IB			08/16/14 14:37	1.0		
002	rhg02	X	IB			08/16/14 15:07	1.0		
003	rhg03	TUN	DFTPP/PEM			08/16/14 15:34	1.0	1	
004	rhg04	CCV				08/16/14 15:50	1.0	2	
005	rhg05	LCS	QC753558	Water	214400	08/16/14 16:20	1.0	3	
006	rhg06	MSS	259786-001	Water	214400	08/16/14 16:50	1.0	3	

KMH 08/18/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 6.

Standards used: 1=S24893 2=S24428 3=S25005

SAMPLE PREPARATION SUMMARY

Batch # : 214400
Started By : AVW
Method : 3520C
Spike #1 ID : S24866

Prep Date : 14-AUG-2014 14:20
SOP Version : 8270_3520_rv20
Spike #2 ID : S25396

Analysis : 8270-1
Finished By : AVW
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259779-001		Water	1060	1	1	0.0009434	7	.4				8270-1	
259779-002		Water	1060	1	1	0.0009434	7	.4				8270-1	
259779-003		Water	1040	1	1	0.0009615	7	.4				8270-1	See comment 1 below
259786-001		Water	1060	1	1	0.0009434	7	.4				8270-1	mss
259786-003		Water	1040	1	1	0.0009615	7	.4				8270-1	
259786-004		Water	1060	1	1	0.0009434	7	.4				8270-1	
259790-001		Water	1000	1	1	0.001	5	.4				8270-1	
259790-002		Water	1060	1	1	0.0009434	5	.4				8270-1	
259798-001		Water	1020	1	1	0.0009804	7	.4				625	
259798-002		Water	900	1	1	0.001111	7	.4				625	
259798-003		Water	1010	1	1	0.0009901	7	.4				625	
259824-001		Water	1040	1	1	0.0009615	5	.4				625	Prepped 15-AUG-2014 13:20
259835-002		Water	1000	1	1	0.001	7	.4				(rebatched)	Prepped 15-AUG-2014 13:20
259841-005		Water	1040	1	1	0.0009615	7	.4				(rebatched)	Prepped 15-AUG-2014 13:20
259841-007		Water	1040	1	1	0.0009615	5	.4				8270-1	Prepped 15-AUG-2014 13:20
259859-002		Water	550	1	1	0.001818	7	.4				625	See comment 2 below
QC753557	BLANK	Water	1000	1	1	0.001		.4				8270-1	
QC753558	LCS	Water	1000	1	1	0.001		.4	1			8270-1	
QC753559	MS	Water	1060	1	1	0.0009434		.4	1			8270-1	259786-001
QC753560	MSD	Water	1070	1	1	0.0009346		.4	1			8270-1	259786-001

Comment 1: transferred to new L/L extractor
Comment 2: Prepped 15-AUG-2014 13:20; sediment layer; decanted

LW 08/18/14 : Reviewed for 259859

Analyst: KMH Date: 08/18/14 Reviewer: LW Date: 08/19/14

BNA (8270 & 625) Water Prep Log **Curtis & Tompkins, Ltd.**

Page 1 **BK 3598**

LIMS Batch No: 214400
LIMS Analysis: 8270
Date Extracted: 8/14/14

Extraction Method:
☒ EPA 3520c cont. L/L
☐ _____

	Sample #	Container ID	Volume of Sample (mL)	Sample pH	Final Volume (mL)	Confirmed pH ≤2	Comments
	259786-001	S	1060	☑7 ☐	☑ 1.0 ☐	☑ ≤2	MSS
	259779-001	K	1060	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	2	L	1060	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	3	N	1040	☑7 ☐	☑ 1.0 ☐	☑ ≤2	transferred to new 4L
5	259786-003	H	1040	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	4	L	1060	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	259798-001	D	1020	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	2	G	900	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	MB 2C753557	NA	1000	☐7 ☐ NA	☑ 1.0 ☐	☑ ≤2	
10	BS 8	L	1000	☐7 ☐	☑ 1.0 ☐	☑ ≤2	
	MS 9	V	1060	☑7 ☐	☑ 1.0 ☐	☑ ≤2	259786-001
	MSD 60	W	1070	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	259790-001	G	1000	☐7 ☑ 5	☑ 1.0 ☐	☑ ≤2	
	2	I	1060	☐7 ☑ 5	☑ 1.0 ☐	☑ ≤2	
15	259798-003	D	1010	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	259824-001	I	1040	☐7 ☑ 5	☑ 1.0 ☐	☑ ≤2	*A/O @1320 on 8/15/14 by TPR
	259841-005	B	1040	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	7	F	1040	☑7 ☑ 5 TPR 8/15/14	☑ 1.0 ☐	☑ ≤2	
	259835-002	D	1000	☑7 ☑ 4 TPR 8/15/14	☑ 1.0 ☐	☑ ≤2	
20	259859-~~003~~ 002 TPR 8/15/14	H	550	☑7 ☐	☑ 1.0 ☐	☑ ≤2	Aliased 259859-002 *sediment layer; decanted
				☐7 ☐	☐ 1.0 ☐	☐ ≤2	
				☐7 ☐	☐ 1.0 ☐	☐ ≤2	
				☐7 ☐	☐ 1.0 ☐	☐ ≤2	
				☐7 ☐	☐ 1.0 ☐	☐ ≤2	

	Lot# / LIMS # / Time	Date/ Initials
1.0 mL of surrogate solution was added to all samples	524866 B	AVW 8/14/14
0.4 mL of matrix spiking solution was added to all spikes	525396 C	
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	FS 140656	
Cont. L/L extracted with 450mL of CH_2Cl_2	EM 54153	
Extraction Start Time:	1420 / 1320*	
Extraction End Time:	0820 / 750	ER 8-15-14
pH of all samples adjusted to pH ≥ 11 with 10 N NaOH	NA	AVW 8/15/14
Extraction Start Time:		
Extraction End Time:		
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EM WL-23 I	
Concentrated to final volume at temperature (degrees C)	70	
Relinquished to BNA department	✓	

8/14/14
Extraction Chemist **Date**

Contined from Page ___
Continued on Page ___

8/18/14
Reviewed by **Date**

Dilutions for 259790 MSBNA Water
Curtis & Tompkins Laboratories

Type	Sample ID	IDFs
MS	QC753559	1X, 2X
MSD	QC753560	1X, 2X

Case Narrative Addendum: Manual Integrations for 259790 MSBNA (Water)

For CCV (MSBNA05 xhi03):
Aniline: Picked or reassigned peak.
3-Nitroaniline: Corrected automatically drawn baseline.

For CCV (MSBNA09 rhf17):
Aniline: Separated from coeluting peak.
3-Nitroaniline: Picked or reassigned peak.

For CCV (MSBNA09 rhg04):
Aniline: Picked or reassigned peak.
4-Nitroaniline: Corrected automatically drawn baseline.

For LCS QC753558 (MSBNA09 rhg05):
Aniline: Picked or reassigned peak.

For MSD QC753560 (MSBNA05 xhi14):
Aniline: Picked or reassigned peak for spike & dup.

For MSD QC753560 (MSBNA05 xhi06):
Resorcinol: Picked or reassigned peak for spike & dup.
Acenaphthene: Corrected automatically drawn baseline for dup.
Aniline: Picked or reassigned peak for spike & dup.
2-Fluorophenol: Picked or reassigned peak for spike.

For Calibration MSBNA09 (584305789001):
Aniline: Picked or reassigned peak in all levels.
Anthracene: Corrected automatically drawn baseline in ICAL (rgv23).
4-Chloroaniline: Corrected automatically drawn baseline in multiple levels.
3,3'-Dichlorobenzidine: Corrected automatically drawn baseline in multiple levels.
2,4-Dinitrophenol: Corrected automatically drawn baseline in multiple levels.
3-Nitroaniline: Corrected automatically drawn baseline in multiple levels.
4-Nitroaniline: Corrected automatically drawn baseline in multiple levels.
4-Nitrophenol: Corrected automatically drawn baseline in multiple levels.
2,4,5-Trichlorophenol: Corrected automatically drawn baseline in ICAL (rgv23).

For ICV (MSBNA09 rgv25):
Aniline: Picked or reassigned peak.
2,4-Dinitrophenol: Corrected automatically drawn baseline.
4-Nitrophenol: Corrected automatically drawn baseline.

For Calibration MSBNA05 (544327680001):
Acenaphthene: Corrected automatically drawn baseline in ICAL (xhf11).
Aniline: Picked or reassigned peak in all levels.
Anthracene: Corrected automatically drawn baseline in ICAL (xhf14).
bis(2-Chloroethyl)ether: Corrected automatically drawn baseline in ICAL (xhf13).
Benzo(k)fluoranthene: Picked or reassigned peak in ICAL (xhf14).
4-Chloroaniline: Corrected automatically drawn baseline in multiple levels.
4-Methylphenol: Corrected automatically drawn baseline in multiple levels.
3-Nitroaniline: Corrected automatically drawn baseline in multiple levels.
2-Nitrophenol: Corrected automatically drawn baseline in multiple levels.
4-Nitrophenol: Picked or reassigned peak in ICAL (xhf14).
Pyridine: Corrected automatically drawn baseline in multiple levels.
2,4,5-Trichlorophenol: Corrected automatically drawn baseline in multiple

levels.

For ICV (MSBNA05 xhf15):
Aniline: Picked or reassigned peak.
Nitrobenzene-d5: Corrected automatically drawn baseline.
2,4,5-Trichlorophenol: Corrected automatically drawn baseline.

Laboratory Job Number 259790

ANALYTICAL REPORT

Semivolatile Organics by GC/MS SIM

Matrix: Water

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Field ID:	RB-081314	Batch#:	214554
Lab ID:	259790-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/19/14
Diln Fac:	1.000	Analyzed:	08/20/14

Analyte	Result	LOQ	DL
Naphthalene	0.04 U	0.1	0.02
2-Methylnaphthalene	0.04 U	0.1	0.02
Acenaphthylene	0.04 U	0.1	0.02
Acenaphthene	0.04 U	0.1	0.02
Fluorene	0.04 U	0.1	0.02
Phenanthrene	0.03 J	0.1	0.02
Anthracene	0.04 U	0.1	0.02
Fluoranthene	0.02 J	0.1	0.02
Pyrene	0.02 J	0.1	0.02
Benzo(a)anthracene	0.04 U	0.1	0.02
Chrysene	0.04 U	0.1	0.02
Benzo(b)fluoranthene	0.04 U	0.1	0.02
Benzo(k)fluoranthene	0.04 U	0.1	0.02
Benzo(a)pyrene	0.04 U	0.1	0.02
Indeno(1,2,3-cd)pyrene	0.04 U	0.1	0.02
Dibenz(a,h)anthracene	0.04 U	0.1	0.02
Benzo(g,h,i)perylene	0.04 U	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	97	40-110
2-Fluorobiphenyl	90	50-110
Terphenyl-d14	103	50-135

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Field ID:	SB-081314	Batch#:	214554
Lab ID:	259790-002	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/19/14
Diln Fac:	1.000	Analyzed:	08/21/14

Analyte	Result	LOQ	DL
Naphthalene	0.04 U	0.09	0.02
2-Methylnaphthalene	0.04 U	0.09	0.03
Acenaphthylene	0.04 U	0.09	0.02
Acenaphthene	0.04 U	0.09	0.02
Fluorene	0.04 U	0.09	0.02
Phenanthrene	0.04 U	0.09	0.02
Anthracene	0.04 U	0.09	0.03
Fluoranthene	0.04 U	0.09	0.02
Pyrene	0.04 U	0.09	0.02
Benzo(a)anthracene	0.04 U	0.09	0.02
Chrysene	0.04 U	0.09	0.03
Benzo(b)fluoranthene	0.04 U	0.09	0.02
Benzo(k)fluoranthene	0.04 U	0.09	0.02
Benzo(a)pyrene	0.04 U	0.09	0.02
Indeno(1,2,3-cd)pyrene	0.04 U	0.09	0.02
Dibenz(a,h)anthracene	0.04 U	0.09	0.02
Benzo(g,h,i)perylene	0.04 U	0.09	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	82	40-110
2-Fluorobiphenyl	84	50-110
Terphenyl-d14	89	50-135

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC754152	Batch#:	214554
Matrix:	Water	Prepared:	08/19/14
Units:	ug/L	Analyzed:	08/20/14

Analyte	Result	LOQ	DL
Naphthalene	0.04 U	0.1	0.02
2-Methylnaphthalene	0.04 U	0.1	0.02
Acenaphthylene	0.04 U	0.1	0.02
Acenaphthene	0.04 U	0.1	0.02
Fluorene	0.04 U	0.1	0.02
Phenanthrene	0.04 U	0.1	0.02
Anthracene	0.04 U	0.1	0.02
Fluoranthene	0.04 U	0.1	0.02
Pyrene	0.04 U	0.1	0.02
Benzo(a)anthracene	0.04 U	0.1	0.02
Chrysene	0.04 U	0.1	0.02
Benzo(b)fluoranthene	0.04 U	0.1	0.02
Benzo(k)fluoranthene	0.04 U	0.1	0.02
Benzo(a)pyrene	0.04 U	0.1	0.02
Indeno(1,2,3-cd)pyrene	0.04 U	0.1	0.02
Dibenz(a,h)anthracene	0.04 U	0.1	0.02
Benzo(g,h,i)perylene	0.04 U	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	79	40-110
2-Fluorobiphenyl	84	50-110
Terphenyl-d14	93	50-135

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC754153	Batch#:	214554
Matrix:	Water	Prepared:	08/19/14
Units:	ug/L	Analyzed:	08/20/14

Analyte	Spiked	Result	%REC	Limits
Naphthalene	1.000	0.7952	80	40-100
2-Methylnaphthalene	1.000	0.7797	78	45-105
Acenaphthylene	1.000	0.8075	81	50-105
Acenaphthene	1.000	0.8164	82	45-110
Fluorene	1.000	0.8879	89	50-110
Phenanthrene	1.000	0.8270	83	50-115
Anthracene	1.000	0.7890	79	55-110
Fluoranthene	1.000	0.8629	86	55-115
Pyrene	1.000	0.8313	83	50-130
Benzo(a)anthracene	1.000	0.7752	78	55-110
Chrysene	1.000	0.7475	75	55-110
Benzo(b)fluoranthene	1.000	0.7937	79	45-120
Benzo(k)fluoranthene	1.000	0.8476	85	45-125
Benzo(a)pyrene	1.000	0.7250	73	55-110
Indeno(1,2,3-cd)pyrene	1.000	0.7197	72	45-125
Dibenz(a,h)anthracene	1.000	0.6440	64	40-125
Benzo(g,h,i)perylene	1.000	0.7680	77	40-125

Surrogate	%REC	Limits
Nitrobenzene-d5	74	40-110
2-Fluorobiphenyl	75	50-110
Terphenyl-d14	77	50-135

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Field ID:	04W19-081314	Batch#:	214554
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/19/14
Diln Fac:	1.000	Analyzed:	08/21/14

Type: MS Lab ID: QC754154

Analyte	MSS Result	Spiked	Result	%REC	Limits
Naphthalene	0.04452	0.9804	0.7061	67	40-100
2-Methylnaphthalene	0.01971	0.9804	0.7444	74	45-105
Acenaphthylene	0.03000	0.9804	0.6895	67	50-105
Acenaphthene	0.02875	0.9804	0.7104	70	45-110
Fluorene	0.06202	0.9804	0.7785	73	50-110
Phenanthrene	0.3788	0.9804	0.9321	56	50-115
Anthracene	0.03625	0.9804	0.6713	65	55-110
Fluoranthene	0.2172	0.9804	0.9452	74	55-115
Pyrene	0.2482	0.9804	0.8555	62	50-130
Benzo(a)anthracene	0.02058	0.9804	0.7438	74	55-110
Chrysene	<0.01923	0.9804	0.6598	67	55-110
Benzo(b)fluoranthene	0.02913	0.9804	0.7215	71	45-120
Benzo(k)fluoranthene	<0.01923	0.9804	0.6952	71	45-125
Benzo(a)pyrene	<0.01923	0.9804	0.6713	68	55-110
Indeno(1,2,3-cd)pyrene	<0.01923	0.9804	0.6884	70	45-125
Dibenz(a,h)anthracene	<0.01923	0.9804	0.6256	64	40-125
Benzo(g,h,i)perylene	<0.01923	0.9804	0.6921	71	40-125

Surrogate	%REC	Limits
Nitrobenzene-d5	64	40-110
2-Fluorobiphenyl	67	50-110
Terphenyl-d14	67	50-135

Type: MSD Lab ID: QC754155

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Naphthalene	0.9615	0.7287	71	40-100	5	30
2-Methylnaphthalene	0.9615	0.7515	76	45-105	3	30
Acenaphthylene	0.9615	0.7292	73	50-105	7	30
Acenaphthene	0.9615	0.7146	71	45-110	2	30
Fluorene	0.9615	0.7910	76	50-110	3	30
Phenanthrene	0.9615	0.9637	61	50-115	5	30
Anthracene	0.9615	0.6571	65	55-110	0	30
Fluoranthene	0.9615	0.9528	77	55-115	2	30
Pyrene	0.9615	0.9069	69	50-130	7	30
Benzo(a)anthracene	0.9615	0.7621	77	55-110	4	30
Chrysene	0.9615	0.6889	72	55-110	6	30
Benzo(b)fluoranthene	0.9615	0.7534	75	45-120	6	30
Benzo(k)fluoranthene	0.9615	0.6856	71	45-125	1	30
Benzo(a)pyrene	0.9615	0.6942	72	55-110	5	30
Indeno(1,2,3-cd)pyrene	0.9615	0.6869	71	45-125	2	30
Dibenz(a,h)anthracene	0.9615	0.6377	66	40-125	4	30
Benzo(g,h,i)perylene	0.9615	0.6857	71	40-125	1	30

Surrogate	%REC	Limits
Nitrobenzene-d5	71	40-110
2-Fluorobiphenyl	71	50-110
Terphenyl-d14	67	50-135

RPD= Relative Percent Difference

Initial & Continuing Calibration Data

CURTIS & TOMPKINS DFTPP TUNE FOR 259790 MSSIM Water
EPA 8270D

Inst : MSBNA02 Run Name : DFTPP IDF : 1.0
Seqnum : 514283082008 File : ugf08 Time : 15-JUL-2014 18:08

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	50724	45.98	
68	< 2% of mass 69	0	0.00	
69		55800	100.00	
70	< 2% of mass 69	294	0.53	
127	40% - 60% of mass 198	57082	51.74	
197	< 1% of mass 198	0	0.00	
198		110325	100.00	
199	5% - 9% of mass 198	7263	6.58	
275	10% - 30% of mass 198	19963	18.09	
365	> 1% of mass 198	2333	2.11	
441	Present, < mass 443	16306	79.76	
442	> 40% and < 100% of mass 198	106616	96.64	
443	17% - 23% of mass 442	20445	19.18	

Analyst: TFB Date: 07/16/14 Reviewer: LW Date: 07/16/14

CURTIS & TOMPKINS DFTPP TUNE FOR 259790 MSSIM Water
EPA 8270D

Inst : MSBNA02 Run Name : DFTPP IDF : 1.0
Seqnum : 514336108002 File : uhl02 Time : 21-AUG-2014 10:14

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	31041	49.49	
68	< 2% of mass 69	0	0.00	
69		33941	100.00	
70	< 2% of mass 69	192	0.57	
127	40% - 60% of mass 198	32546	51.88	
197	< 1% of mass 198	0	0.00	
198		62728	100.00	
199	5% - 9% of mass 198	4004	6.38	
275	10% - 30% of mass 198	10226	16.30	
365	> 1% of mass 198	1011	1.61	
441	Present, < mass 443	7149	72.96	
442	> 40% and < 100% of mass 198	48619	77.51	
443	17% - 23% of mass 442	9799	20.15	

Analyst: KMH Date: 08/21/14 Reviewer: LW Date: 08/21/14

CURTIS & TOMPKINS DFTPP TUNE FOR 259790 MSSIM Water
EPA 8270D

Inst : MSBNA03 Run Name : DFTPP IDF : 1.0
Seqnum : 524271263019 File : vg719 Time : 07-JUL-2014 20:11

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	167466	40.80	
68	< 2% of mass 69	0	0.00	
69		229696	100.00	
70	< 2% of mass 69	0	0.00	
127	40% - 60% of mass 198	211157	51.45	
197	< 1% of mass 198	0	0.00	
198		410410	100.00	
199	5% - 9% of mass 198	28728	7.00	
275	10% - 30% of mass 198	111824	27.25	
365	> 1% of mass 198	12139	2.96	
441	Present, < mass 443	47200	79.54	
442	> 40% and < 100% of mass 198	301248	73.40	
443	17% - 23% of mass 442	59344	19.70	

Analyst: KMH Date: 07/08/14 Reviewer: LW Date: 07/08/14

CURTIS & TOMPKINS DFTPP TUNE FOR 259790 MSSIM Water
EPA 8270D

Inst : MSBNA03 Run Name : DFTPP IDF : 1.0
Seqnum : 524334764002 File : vhk02 Time : 20-AUG-2014 11:50

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	217216	45.86	
68	< 2% of mass 69	0	0.00	
69		280405	100.00	
70	< 2% of mass 69	1313	0.47	
127	40% - 60% of mass 198	255616	53.96	
197	< 1% of mass 198	0	0.00	
198		473685	100.00	
199	5% - 9% of mass 198	34349	7.25	
275	10% - 30% of mass 198	136781	28.88	
365	> 1% of mass 198	16091	3.40	
441	Present, < mass 443	69117	82.62	
442	> 40% and < 100% of mass 198	411584	86.89	
443	17% - 23% of mass 442	83656	20.33	

NPM: 08/20/14 KMH: 08/20/14 LW: 08/27/14

CURTIS & TOMPKINS DFTPP TUNE FOR 259790 MSSIM Water
EPA 8270D

Inst : MSBNA04 Run Name : DFTPP IDF : 1.0
Seqnum : 534275763005 File : wga05 Time : 10-JUL-2014 15:44

Standards: S24369

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	97047	55.72	
68	< 2% of mass 69	0	0.00	
69		109917	100.00	
70	< 2% of mass 69	587	0.53	
127	40% - 60% of mass 198	94581	54.30	
197	< 1% of mass 198	0	0.00	
198		174173	100.00	
199	5% - 9% of mass 198	11550	6.63	
275	10% - 30% of mass 198	31925	18.33	
365	> 1% of mass 198	3062	1.76	
441	Present, < mass 443	12761	75.92	
442	> 40% and < 100% of mass 198	86725	49.79	
443	17% - 23% of mass 442	16808	19.38	

Analyst: KMH Date: 07/11/14 Reviewer: LW Date: 07/11/14

CURTIS & TOMPKINS DFTPP TUNE FOR 259790 MSSIM Water
EPA 8270D

Inst : MSBNA04 Run Name : DFTPP IDF : 1.0
Seqnum : 534336091008 File : whl08 Time : 21-AUG-2014 11:54

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	94709	52.13	
68	< 2% of mass 69	0	0.00	
69		97984	100.00	
70	< 2% of mass 69	449	0.46	
127	40% - 60% of mass 198	102296	56.31	
197	< 1% of mass 198	0	0.00	
198		181674	100.00	
199	5% - 9% of mass 198	11869	6.53	
275	10% - 30% of mass 198	36189	19.92	
365	> 1% of mass 198	4461	2.46	
441	Present, < mass 443	11663	76.32	
442	> 40% and < 100% of mass 198	79681	43.86	
443	17% - 23% of mass 442	15282	19.18	

Analyst: KMH Date: 08/21/14 Reviewer: LW Date: 08/21/14

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259790 MSSIM Water: EPA 8270D-SIM

Inst : MSBNA02
Calnum : 514283082001
Units : ug/mL

Name : 2PAHSIM
Date : 15-JUL-2014 18:30
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	ugf09	514283082009	ICAL	15-JUL-2014 18:30	S25125
L2	ugf10	514283082010	ICAL	15-JUL-2014 19:03	S25126
L3	ugf11	514283082011	ICAL	15-JUL-2014 19:38	S25128
L4	ugf12	514283082012	ICAL	15-JUL-2014 20:11	S25129
L5	ugf13	514283082013	ICAL	15-JUL-2014 20:45	S25130
L6	ugf14	514283082014	ICAL	15-JUL-2014 21:20	S25132
L7	ugf15	514283082015	ICAL	15-JUL-2014 21:56	S25133

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene	1.0214	1.0250	1.0630	1.0429	1.0205	0.9897	0.9264	AVRG		0.98746		1.0127	4	15	0.700	0.99	
2-Methylnaphthalene	0.6916	0.6625	0.7077	0.6969	0.6873	0.6391	0.6286	AVRG		1.48498		0.6734	5	15	0.400	0.99	
Acenaphthylene	1.7764	1.6688	1.7530	1.6506	1.6022	1.6270	1.5750	AVRG		0.60071		1.6647	5	15	0.900	0.99	
Acenaphthene	1.0230m	1.0412m	1.0821m	1.1153m	1.0839	1.0421	1.0001	AVRG		0.94752		1.0554	4	15	0.900	0.99	
Fluorene	1.1816	1.2247m	1.2512m	1.1990m	1.2002	1.1703	1.0969	AVRG		0.84095		1.1891	4	15	0.900	0.99	
Phenanthrene	1.0759	1.0656	1.1199	1.1178	1.0305	1.0236	1.0276	AVRG		0.93822		1.0658	4	15	0.700	0.99	
Anthracene	1.1211m	1.1014m	1.1108m	1.1533m	1.0413m	1.0224m	1.0183m	AVRG		0.92485		1.0813	5	15	0.700	0.99	
Fluoranthene	1.1289m	1.1754m	1.2589	1.1868	1.1074	0.9498	0.9881	AVRG		0.89798		1.1136	10	15	0.600	0.99	
Pyrene	1.4048	1.4971	1.4360	1.3703	1.3815	1.3114	1.2041	AVRG		0.72877		1.3722	7	15	0.600	0.99	
Benzo(a)anthracene	1.0645	1.1144	1.1273	1.1052	1.1025	1.0489	1.0048	AVRG		0.92500		1.0811	4	15	0.800	0.99	
Chrysene	1.0428m	1.0985m	1.0412m	1.0337m	1.0721m	1.0747m	0.9953m	AVRG		0.95132		1.0512	3	15	0.700	0.99	
Benzo(b)fluoranthene	1.4252	1.4788	1.5170	1.5350	1.4818	1.3774	1.3059	AVRG		0.69162		1.4459	6	15	0.700	0.99	
Benzo(k)fluoranthene	1.4104m	1.4787m	1.4993m	1.5947	1.4722	1.2398	1.2919	AVRG		0.70092		1.4267	9	15	0.700	0.99	
Benzo(a)pyrene	1.0999	1.1220	1.2102	1.3384m	1.2259m	1.2388m	1.1307m	AVRG		0.83673		1.1951	7	15	0.700	0.99	
Indeno(1,2,3-cd)pyrene	0.8763	0.9181	0.9637	1.1387	1.1199	1.1414	1.1307m	AVRG		0.96038		1.0413	11	15	0.500	0.99	
Dibenz(a,h)anthracene	0.6824	0.6982	0.7287	0.8587	0.8547	0.8890	0.9205	AVRG		1.24286		0.8046	12	15	0.400	0.99	
Benzo(g,h,i)perylene	0.8124	0.8760	0.9082	0.9979	0.9994	1.0419	1.0002m	AVRG		1.05484		0.9480	9	15	0.500	0.99	
Nitrobenzene-d5	0.2665m	0.2831m	0.2997m	0.2838	0.2818	0.2651	0.2703	AVRG		3.58946		0.2786	4	15	0.05	0.99	
2-Fluorobiphenyl	1.3035	1.2727	1.3832	1.2961	1.2649	1.2037	1.1479	AVRG		0.78900		1.2674	6	15	0.05	0.99	
Terphenyl-d14	0.9661	0.9693	0.8918	0.8732	0.8423	0.8374	0.8191	AVRG		1.12918		0.8856	7	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	1	0.2000	1	0.5000	5	1.0000	3	2.0000	1	5.0000	-2	10.000	-9
2-Methylnaphthalene	0.1000	3	0.2000	-2	0.5000	5	1.0000	3	2.0000	2	5.0000	-5	10.000	-7
Acenaphthylene	0.1000	7	0.2000	0	0.5000	5	1.0000	-1	2.0000	-4	5.0000	-2	10.000	-5
Acenaphthene	0.1000	-3	0.2000	-1	0.5000	3	1.0000	6	2.0000	3	5.0000	-1	10.000	-5
Fluorene	0.1000	-1	0.2000	3	0.5000	5	1.0000	1	2.0000	1	5.0000	-2	10.000	-8
Phenanthrene	0.1000	1	0.2000	0	0.5000	5	1.0000	5	2.0000	-3	5.0000	-4	10.000	-4
Anthracene	0.1000	4	0.2000	2	0.5000	3	1.0000	7	2.0000	-4	5.0000	-5	10.000	-6
Fluoranthene	0.1000	1	0.2000	6	0.5000	13	1.0000	7	2.0000	-1	5.0000	-15	10.000	-11
Pyrene	0.1000	2	0.2000	9	0.5000	5	1.0000	0	2.0000	1	5.0000	-4	10.000	-12
Benzo(a)anthracene	0.1000	-2	0.2000	3	0.5000	4	1.0000	2	2.0000	2	5.0000	-3	10.000	-7
Chrysene	0.1000	-1	0.2000	4	0.5000	-1	1.0000	-2	2.0000	2	5.0000	2	10.000	-5
Benzo(b)fluoranthene	0.1000	-1	0.2000	2	0.5000	5	1.0000	6	2.0000	2	5.0000	-5	10.000	-10
Benzo(k)fluoranthene	0.1000	-1	0.2000	4	0.5000	5	1.0000	12	2.0000	3	5.0000	-13	10.000	-9
Benzo(a)pyrene	0.1000	-8	0.2000	-6	0.5000	1	1.0000	12	2.0000	3	5.0000	4	10.000	-5
Indeno(1,2,3-cd)pyrene	0.1000	-16	0.2000	-12	0.5000	-7	1.0000	9	2.0000	8	5.0000	10	10.000	9
Dibenz(a,h)anthracene	0.1000	-15	0.2000	-13	0.5000	-9	1.0000	7	2.0000	6	5.0000	10	10.000	14
Benzo(g,h,i)perylene	0.1000	-14	0.2000	-8	0.5000	-4	1.0000	5	2.0000	5	5.0000	10	10.000	6
Nitrobenzene-d5	0.1000	-4	0.2000	2	0.5000	8	1.0000	2	2.0000	1	5.0000	-5	10.000	-3
2-Fluorobiphenyl	0.1000	3	0.2000	0	0.5000	9	1.0000	2	2.0000	0	5.0000	-5	10.000	-9
Terphenyl-d14	0.1000	9	0.2000	9	0.5000	1	1.0000	-1	2.0000	-5	5.0000	-5	10.000	-8

TFB 07/16/14 [1,4-Dioxane]: Corrected automatically drawn baseline in multiple levels.

TFB 07/16/14 [Nitrobenzene-d5]: Corrected automatically drawn baseline in multiple levels.

TFB 07/16/14 [Acenaphthene]: Corrected automatically drawn baseline in multiple levels.

TFB 07/16/14 [Anthracene]: Corrected automatically drawn baseline in multiple levels.

TFB 07/16/14 [Fluoranthene]: Corrected automatically drawn baseline in multiple levels.

TFB 07/16/14 [Chrysene]: Corrected automatically drawn baseline in multiple levels.

TFB 07/16/14 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline in multiple levels.

TFB 07/16/14 [Fluorene]: Corrected automatically drawn baseline in multiple levels.

TFB 07/16/14 [Benzo(a)pyrene]: Corrected automatically drawn baseline in multiple levels.

TFB 07/16/14 [Indeno(1,2,3-cd)pyrene]: Corrected automatically drawn baseline in ICAL (ugf15).

TFB 07/16/14 [Benzo(g,h,i)perylene]: Corrected automatically drawn baseline in ICAL (ugf15).

Analyst: TFB Date: 07/16/14 Reviewer: LW Date: 07/16/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

514283082001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259790 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA02 Name : 2PAHSIM
Calnum : 514283082001 Cal Date : 15-JUL-2014

ICV 514283082016 (ugf16 15-JUL-2014) stds: S24935

Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	1.013	ug/mL	1	20	
2-Methylnaphthalene	1.000	0.9875	ug/mL	-1	20	
Acenaphthylene	1.000	1.038	ug/mL	4	20	
Acenaphthene	1.000	1.000	ug/mL	0	20	
Fluorene	1.000	0.8722	ug/mL	-13	20	
Phenanthrene	1.000	1.073	ug/mL	7	20	
Anthracene	1.000	1.133	ug/mL	13	20	m
Fluoranthene	1.000	1.094	ug/mL	9	20	
Pyrene	1.000	0.9533	ug/mL	-5	20	
Benzo(a)anthracene	1.000	1.055	ug/mL	6	20	
Chrysene	1.000	1.002	ug/mL	0	20	
Benzo(b)fluoranthene	1.000	0.9534	ug/mL	-5	20	
Benzo(k)fluoranthene	1.000	0.8371	ug/mL	-16	20	
Benzo(a)pyrene	1.000	0.9113	ug/mL	-9	20	
Indeno(1,2,3-cd)pyrene	1.000	0.9587	ug/mL	-4	20	
Dibenz(a,h)anthracene	1.000	0.9662	ug/mL	-3	20	
Benzo(g,h,i)perylene	1.000	0.9560	ug/mL	-4	20	

Analyst: TFB Date: 07/16/14 Reviewer: LW Date: 07/16/14

m=manual integration

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259790 MSSIM Water: EPA 8270D-SIM

Inst : MSBNA03
Calnum : 524271263002
Units : ug/mL

Name : 3PAHSIM
Date : 07-JUL-2014 20:28
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	vg720	524271263020	ICAL	07-JUL-2014 20:28	S25125
L2	vg721	524271263021	ICAL	07-JUL-2014 21:02	S25126
L3	vg722	524271263022	ICAL	07-JUL-2014 21:35	S25128
L4	vg723	524271263023	ICAL	07-JUL-2014 22:10	S25129
L5	vg724	524271263024	ICAL	07-JUL-2014 22:42	S25130
L6	vg725	524271263025	ICAL	07-JUL-2014 23:17	S25132
L7	vg726	524271263026	ICAL	07-JUL-2014 23:50	S25133

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene	0.9269	0.9450	0.9456	0.9215	0.8641	0.7909	0.7353	AVRG		1.14205		0.8756	9	15	0.700	0.99	
2-Methylnaphthalene	0.6999	0.7117	0.7127	0.6848	0.6403	0.5856	0.5454	AVRG		1.52820		0.6544	10	15	0.400	0.99	
Acenaphthylene	1.4572	1.5302	1.6252	1.6440	1.5910	1.4308	1.3569	AVRG		0.65819		1.5193	7	15	0.900	0.99	
Acenaphthene	0.9776	1.0118	1.0260	1.0039	0.9750	0.8954	0.8673	AVRG		1.03596		0.9653	6	15	0.900	0.99	
Fluorene	1.1867	1.1884	1.2006	1.1526	1.1030	0.9696	0.9466	AVRG		0.90352		1.1068	10	15	0.900	0.99	
Phenanthrene	1.0278	1.0639	1.0687	1.0432	1.0003	0.8879	0.8064	AVRG		1.01475		0.9855	10	15	0.700	0.99	
Anthracene	0.8909	0.9428	0.9867	0.9817	0.9713	0.8559	0.7747	AVRG		1.09308		0.9148	9	15	0.700	0.99	
Fluoranthene	1.0752	1.1145	1.1427	1.1685	1.1174	0.9990	0.9038	AVRG		0.93071		1.0745	9	15	0.600	0.99	
Pyrene	1.1224	1.1145	1.1827	1.1919	1.1719	1.0950	1.0428	AVRG		0.88370		1.1316	5	15	0.600	0.99	
Benzo(a)anthracene	0.9824	0.9124	1.0147	1.0467	1.0332	0.9519	0.9022	AVRG		1.02286		0.9777	6	15	0.800	0.99	
Chrysene	0.9844	1.0148	1.0467	1.0458	1.0200	0.9309	0.8647	AVRG		1.01342		0.9868	7	15	0.700	0.99	
Benzo(b)fluoranthene	1.1501	1.1770	1.2366	1.2309	1.1924	1.0493	0.9891	AVRG		0.87223		1.1465	8	15	0.700	0.99	
Benzo(k)fluoranthene	1.1396m	1.1541	1.1739	1.1550	1.2286	1.1068	0.9578	AVRG		0.88431		1.1308	7	15	0.700	0.99	
Benzo(a)pyrene	0.9810	0.9929	1.0925	1.1248	1.1050	1.0470	0.9981	AVRG		0.95351		1.0488	6	15	0.700	0.99	
Indeno(1,2,3-cd)pyrene	1.0215	1.0659	1.1123	1.1362	1.1396	1.0726	1.0529	AVRG		0.92094		1.0858	4	15	0.500	0.99	
Dibenz(a,h)anthracene	0.8632m	0.8991m	0.9347	0.9443	0.9590	0.9178	0.9098	AVRG		1.08901		0.9183	3	15	0.400	0.99	
Benzo(g,h,i)perylene	0.9184	0.9425	0.9674	0.9716	0.9658	0.8998	0.8777	AVRG		1.06982		0.9347	4	15	0.500	0.99	
Nitrobenzene-d5	0.2863	0.2921	0.3064m	0.3210m	0.3233	0.3184	0.3189	AVRG		3.23110		0.3095	5	15	0.05	0.99	
2-Fluorobiphenyl	1.5822	1.6124	1.5918	1.5204	1.4105	1.2350	1.1419	AVRG		0.69347		1.4420	13	15	0.05	0.99	
Terphenyl-d14	0.8319	0.8606	0.8639	0.8767	0.8685	0.8153	0.7927	AVRG		1.18450		0.8442	4	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	6	0.2000	8	0.5000	8	1.0000	5	2.0000	-1	5.0000	-10	10.000	-16
2-Methylnaphthalene	0.1000	7	0.2000	9	0.5000	9	1.0000	5	2.0000	-2	5.0000	-11	10.000	-17
Acenaphthylene	0.1000	-4	0.2000	1	0.5000	7	1.0000	8	2.0000	5	5.0000	-6	10.000	-11
Acenaphthene	0.1000	1	0.2000	5	0.5000	6	1.0000	4	2.0000	1	5.0000	-7	10.000	-10
Fluorene	0.1000	7	0.2000	7	0.5000	8	1.0000	4	2.0000	0	5.0000	-12	10.000	-14
Phenanthrene	0.1000	4	0.2000	8	0.5000	8	1.0000	6	2.0000	2	5.0000	-10	10.000	-18
Anthracene	0.1000	-3	0.2000	3	0.5000	8	1.0000	7	2.0000	6	5.0000	-6	10.000	-15
Fluoranthene	0.1000	0	0.2000	4	0.5000	6	1.0000	9	2.0000	4	5.0000	-7	10.000	-16
Pyrene	0.1000	-1	0.2000	-2	0.5000	5	1.0000	5	2.0000	4	5.0000	-3	10.000	-8
Benzo(a)anthracene	0.1000	0	0.2000	-7	0.5000	4	1.0000	7	2.0000	6	5.0000	-3	10.000	-8
Chrysene	0.1000	0	0.2000	3	0.5000	6	1.0000	6	2.0000	3	5.0000	-6	10.000	-12
Benzo(b)fluoranthene	0.1000	0	0.2000	3	0.5000	8	1.0000	7	2.0000	4	5.0000	-8	10.000	-14
Benzo(k)fluoranthene	0.1000	1	0.2000	2	0.5000	4	1.0000	2	2.0000	9	5.0000	-2	10.000	-15
Benzo(a)pyrene	0.1000	-6	0.2000	-5	0.5000	4	1.0000	7	2.0000	5	5.0000	0	10.000	-5
Indeno(1,2,3-cd)pyrene	0.1000	-6	0.2000	-2	0.5000	2	1.0000	5	2.0000	5	5.0000	-1	10.000	-3
Dibenz(a,h)anthracene	0.1000	-6	0.2000	-2	0.5000	2	1.0000	3	2.0000	4	5.0000	0	10.000	-1
Benzo(g,h,i)perylene	0.1000	-2	0.2000	1	0.5000	3	1.0000	4	2.0000	3	5.0000	-4	10.000	-6
Nitrobenzene-d5	0.1000	-8	0.2000	-6	0.5000	-1	1.0000	4	2.0000	4	5.0000	3	10.000	3
2-Fluorobiphenyl	0.1000	10	0.2000	12	0.5000	10	1.0000	5	2.0000	-2	5.0000	-14	10.000	**-21**
Terphenyl-d14	0.1000	-1	0.2000	2	0.5000	2	1.0000	4	2.0000	3	5.0000	-3	10.000	-6

KMH 07/08/14 [1,4-Dioxane]: Corrected automatically drawn baseline in multiple levels.

KMH 07/08/14 [Dibenz(a,h)anthracene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/08/14 [Nitrobenzene-d5]: Corrected automatically drawn baseline in multiple levels.

KMH 07/08/14 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline in ICAL (vg720).

Analyst: KMH Date: 07/08/14 Reviewer: LW Date: 07/08/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259790 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA03 Name : 3PAHSIM
Calnum : 524271263002 Cal Date : 07-JUL-2014

ICV 524271263027 (vg727 08-JUL-2014) stds: S25107

Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	1.023	ug/mL	2	20	
2-Methylnaphthalene	1.000	1.037	ug/mL	4	20	
Acenaphthylene	1.000	1.092	ug/mL	9	20	
Acenaphthene	1.000	1.035	ug/mL	3	20	
Fluorene	1.000	1.086	ug/mL	9	20	
Phenanthrene	1.000	1.029	ug/mL	3	20	
Anthracene	1.000	0.9769	ug/mL	-2	20	
Fluoranthene	1.000	1.063	ug/mL	6	20	
Pyrene	1.000	0.9847	ug/mL	-2	20	
Benzo(a)anthracene	1.000	1.013	ug/mL	1	20	
Chrysene	1.000	0.9865	ug/mL	-1	20	
Benzo(b)fluoranthene	1.000	1.061	ug/mL	6	20	
Benzo(k)fluoranthene	1.000	1.029	ug/mL	3	20	
Benzo(a)pyrene	1.000	1.062	ug/mL	6	20	
Indeno(1,2,3-cd)pyrene	1.000	1.023	ug/mL	2	20	
Dibenz(a,h)anthracene	1.000	1.029	ug/mL	3	20	
Benzo(g,h,i)perylene	1.000	1.041	ug/mL	4	20	

Analyst: KMH Date: 07/08/14 Reviewer: LW Date: 07/08/14

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259790 MSSIM Water: EPA 8270D-SIM

Inst : MSBNA04
Calnum : 534275763001
Units : ug/mL

Name : 4PAHSIM
Date : 10-JUL-2014 16:29
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	wga06	534275763006	ICAL	10-JUL-2014 16:29	S25125
L2	wga07	534275763007	ICAL	10-JUL-2014 17:02	S25126
L3	wga08	534275763008	ICAL	10-JUL-2014 17:35	S25128
L4	wga09	534275763009	ICAL	10-JUL-2014 18:08	S25129
L5	wga10	534275763010	ICAL	10-JUL-2014 18:41	S25130
L6	wga11	534275763011	ICAL	10-JUL-2014 19:14	S25132
L7	wga12	534275763012	ICAL	10-JUL-2014 19:47	S25133

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene	1.0858	1.1077	1.1314	1.1333	1.1322	1.1136	1.1238	AVRG		0.89425		1.1183	2	15	0.700	0.99	
2-Methylnaphthalene	0.6104	0.6255	0.6457	0.6585	0.6617	0.6591	0.6601	AVRG		1.54832		0.6459	3	15	0.400	0.99	
Acenaphthylene	1.5803	1.6305	1.7018	1.7244	1.7816	1.7638	1.7810	AVRG		0.58512		1.7091	5	15	0.900	0.99	
Acenaphthene	0.9777	0.9929	1.0324	1.0493	1.0595	1.0544	1.0656	AVRG		0.96795		1.0331	3	15	0.900	0.99	
Fluorene	1.1010	1.1343	1.1773	1.2089	1.2062	1.1900	1.2084	AVRG		0.85096		1.1751	4	15	0.900	0.99	
Phenanthrene	1.0262	1.0403	1.0846	1.0810	1.0813	1.0732	1.0737	AVRG		0.93829		1.0658	2	15	0.700	0.99	
Anthracene	0.9565	0.9849	1.0468	1.0492m	1.0655m	1.0778m	1.1026m	AVRG		0.96110		1.0405	5	15	0.700	0.99	
Fluoranthene	0.9537	0.9695	1.0213	1.0184	1.0387	1.0600	1.0570	AVRG		0.98335		1.0169	4	15	0.600	0.99	
Pyrene	1.2804	1.3046	1.3510	1.3759	1.3592	1.3510	1.3081	AVRG		0.75024		1.3329	3	15	0.600	0.99	
Benzo(a)anthracene	0.9224	0.9077	0.9333	0.9538	0.9553	0.9547	0.9569	AVRG		1.06317		0.9406	2	15	0.800	0.99	
Chrysene	0.9309	0.9496	0.9674	0.9859m	0.9752m	0.9600m	0.9614m	AVRG		1.04007		0.9615	2	15	0.700	0.99	
Benzo(b)fluoranthene	0.9949	1.0334	1.1103	1.1347	1.1887	1.1759	1.2003	AVRG		0.89306		1.1197	7	15	0.700	0.99	
Benzo(k)fluoranthene	1.0985m	1.1154m	1.1419m	1.1741m	1.1946m	1.2007m	1.2147m	AVRG		0.85995		1.1629	4	15	0.700	0.99	
Benzo(a)pyrene	0.9139	0.9149	0.9689	0.9986	1.0295	1.0580	1.0833	AVRG		1.00473		0.9953	7	15	0.700	0.99	
Indeno(1,2,3-cd)pyrene	1.0481m	1.0698	1.1392	1.1999	1.2482	1.2886	1.3454	AVRG		0.83940		1.1913	9	15	0.500	0.99	
Dibenz(a,h)anthracene	0.7856m	0.8212m	0.8734	0.9272	0.9710	1.0025	1.0450	AVRG		1.08936		0.9180	10	15	0.400	0.99	
Benzo(g,h,i)perylene	0.9629m	0.9796m	1.0212	1.0639	1.0858	1.0884	1.1328	AVRG		0.95438		1.0478	6	15	0.500	0.99	
Nitrobenzene-d5	0.3832m	0.4042m	0.4071m	0.4141	0.4132	0.4214	0.4168	AVRG		2.44752		0.4086	3	15	0.05	0.99	
2-Fluorobiphenyl	1.3147	1.3456	1.3745	1.4001	1.3855	1.3547	1.3669	AVRG		0.73360		1.3631	2	15	0.05	0.99	
Terphenyl-d14	1.0057	1.0202	1.0457	1.0586	1.0608	1.0468	1.0729	AVRG		0.95750		1.0444	2	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	-3	0.2000	-1	0.5000	1	1.0000	1	2.0000	1	5.0000	0	10.000	0
2-Methylnaphthalene	0.1000	-5	0.2000	-3	0.5000	0	1.0000	2	2.0000	2	5.0000	2	10.000	2
Acenaphthylene	0.1000	-8	0.2000	-5	0.5000	0	1.0000	1	2.0000	4	5.0000	3	10.000	4
Acenaphthene	0.1000	-5	0.2000	-4	0.5000	0	1.0000	2	2.0000	3	5.0000	2	10.000	3
Fluorene	0.1000	-6	0.2000	-3	0.5000	0	1.0000	3	2.0000	3	5.0000	1	10.000	3
Phenanthrene	0.1000	-4	0.2000	-2	0.5000	2	1.0000	1	2.0000	1	5.0000	1	10.000	1
Anthracene	0.1000	-8	0.2000	-5	0.5000	1	1.0000	1	2.0000	2	5.0000	4	10.000	6
Fluoranthene	0.1000	-6	0.2000	-5	0.5000	0	1.0000	0	2.0000	2	5.0000	4	10.000	4
Pyrene	0.1000	-4	0.2000	-2	0.5000	1	1.0000	3	2.0000	2	5.0000	1	10.000	-2
Benzo(a)anthracene	0.1000	-2	0.2000	-3	0.5000	-1	1.0000	1	2.0000	2	5.0000	1	10.000	2
Chrysene	0.1000	-3	0.2000	-1	0.5000	1	1.0000	3	2.0000	1	5.0000	0	10.000	0
Benzo(b)fluoranthene	0.1000	-11	0.2000	-8	0.5000	-1	1.0000	1	2.0000	6	5.0000	5	10.000	7
Benzo(k)fluoranthene	0.1000	-6	0.2000	-4	0.5000	-2	1.0000	1	2.0000	3	5.0000	3	10.000	4
Benzo(a)pyrene	0.1000	-8	0.2000	-8	0.5000	-3	1.0000	0	2.0000	3	5.0000	6	10.000	9
Indeno(1,2,3-cd)pyrene	0.1000	-12	0.2000	-10	0.5000	-4	1.0000	1	2.0000	5	5.0000	8	10.000	13
Dibenz(a,h)anthracene	0.1000	-14	0.2000	-11	0.5000	-5	1.0000	1	2.0000	6	5.0000	9	10.000	14
Benzo(g,h,i)perylene	0.1000	-8	0.2000	-7	0.5000	-3	1.0000	2	2.0000	4	5.0000	4	10.000	8
Nitrobenzene-d5	0.1000	-6	0.2000	-1	0.5000	0	1.0000	1	2.0000	1	5.0000	3	10.000	2
2-Fluorobiphenyl	0.1000	-4	0.2000	-1	0.5000	1	1.0000	3	2.0000	2	5.0000	-1	10.000	0
Terphenyl-d14	0.1000	-4	0.2000	-2	0.5000	0	1.0000	1	2.0000	2	5.0000	0	10.000	3

KMH 07/11/14 [1,4-Dioxane]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Anthracene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Chrysene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline in all levels.

KMH 07/11/14 [Nitrobenzene-d5]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Indeno(1,2,3-cd)pyrene]: Corrected automatically drawn baseline in ICAL (wga06).

KMH 07/11/14 [Dibenz(a,h)anthracene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Benzo(g,h,i)perylene]: Corrected automatically drawn baseline in multiple levels.

Analyst: KMH Date: 07/11/14 Reviewer: LW Date: 07/11/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259790 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA04 Name : 4PAHSIM
Calnum : 534275763001 Cal Date : 10-JUL-2014

ICV 534275763013 (wga13 10-JUL-2014) stds: S24935

Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	0.9816	ug/mL	-2	20	
2-Methylnaphthalene	1.000	0.9849	ug/mL	-2	20	
Acenaphthylene	1.000	1.055	ug/mL	5	20	
Acenaphthene	1.000	1.006	ug/mL	1	20	
Fluorene	1.000	0.9943	ug/mL	-1	20	
Phenanthrene	1.000	1.016	ug/mL	2	20	
Anthracene	1.000	1.005	ug/mL	1	20	
Fluoranthene	1.000	1.007	ug/mL	1	20	
Pyrene	1.000	0.9940	ug/mL	-1	20	
Benzo(a)anthracene	1.000	1.025	ug/mL	2	20	
Chrysene	1.000	1.010	ug/mL	1	20	
Benzo(b)fluoranthene	1.000	0.9970	ug/mL	0	20	
Benzo(k)fluoranthene	1.000	0.9587	ug/mL	-4	20	
Benzo(a)pyrene	1.000	0.9585	ug/mL	-4	20	
Indeno(1,2,3-cd)pyrene	1.000	0.9407	ug/mL	-6	20	
Dibenz(a,h)anthracene	1.000	0.9949	ug/mL	-1	20	
Benzo(g,h,i)perylene	1.000	0.9591	ug/mL	-4	20	

Analyst: KMH Date: 07/11/14 Reviewer: LW Date: 07/11/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA02 Run Name : PAHDIOX IDF : 1.0
Seqnum : 514336108003.1 File : uhl03 Time : 21-AUG-2014 10:36
Cal : 514283082001 Caldate : 15-JUL-2014
Standards: S25130

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	1.0127	1.0460	2.000	2.066	ug/mL	3	20	0.7000	
2-Methylnaphthalene	0.6734	0.6557	2.000	1.947	ug/mL	-3	20	0.4000	
Acenaphthylene	1.6647	1.7091	2.000	2.053	ug/mL	3	20	0.9000	
Acenaphthene	1.0554	1.0100	2.000	1.914	ug/mL	-4	20	0.9000	
Fluorene	1.1891	1.1197	2.000	1.883	ug/mL	-6	20	0.9000	
Phenanthrene	1.0658	1.0850	2.000	2.036	ug/mL	2	20	0.7000	
Anthracene	1.0813	1.0672	2.000	1.974	ug/mL	-1	20	0.7000	m
Fluoranthene	1.1136	0.9577	2.000	1.720	ug/mL	-14	20	0.6000	
Pyrene	1.3722	1.3575	2.000	1.979	ug/mL	-1	20	0.6000	
Benzo(a)anthracene	1.0811	1.1197	2.000	2.071	ug/mL	4	20	0.8000	
Chrysene	1.0512	1.0895	2.000	2.073	ug/mL	4	20	0.7000	m
Benzo(b)fluoranthene	1.4459	1.2101	2.000	1.674	ug/mL	-16	20	0.7000	
Benzo(k)fluoranthene	1.4267	1.3582	2.000	1.904	ug/mL	-5	20	0.7000	
Benzo(a)pyrene	1.1951	1.1457	2.000	1.917	ug/mL	-4	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.0413	1.1005	2.000	2.114	ug/mL	6	20	0.5000	
Dibenz(a,h)anthracene	0.8046	0.8467	2.000	2.105	ug/mL	5	20	0.4000	
Benzo(g,h,i)perylene	0.9480	1.0154	2.000	2.142	ug/mL	7	20	0.5000	
Nitrobenzene-d5	0.2786	0.2890	2.000	2.075	ug/mL	4	20	0.0500	
2-Fluorobiphenyl	1.2674	1.2764	2.000	2.014	ug/mL	1	20	0.0500	
Terphenyl-d14	0.8856	0.9532	2.000	2.153	ug/mL	8	20	0.0500	

ISTD (ICAL ugf12)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	39748	34746	-12.58
Naphthalene-d8	151685	127183	-16.15
Acenaphthene-d10	80057	61246	-23.50
Phenanthrene-d10	114137	80227	-29.71
Chrysene-d12	97827	65741	-32.80
Perylene-d12	63094	52822	-16.28

ISTD (ICAL ugf12)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	8.15	8.14	-0.01
Naphthalene-d8	9.73	9.72	-0.01
Acenaphthene-d10	12.00	11.99	-0.01
Phenanthrene-d10	13.96	13.94	-0.02
Chrysene-d12	17.54	17.52	-0.02
Perylene-d12	19.52	19.50	-0.02

KMH 08/21/14 [1,4-Dioxane]: Corrected automatically drawn baseline. [general version]

KMH 08/21/14 [Anthracene]: Corrected automatically drawn baseline. [general version]

KMH 08/21/14 [Chrysene]: Corrected automatically drawn baseline. [general version]

Analyst: KMH Date: 08/22/14 Reviewer: LW Date: 08/28/14

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA03 IDF : 1.0
Seqnum : 524334764003.1 File : vhk03 Time : 20-AUG-2014 12:08
Cal : 524271263002 Caldate : 07-JUL-2014
Standards: S25129

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.8756	0.8996	1.000	1.027	ug/mL	3	20	0.7000	
2-Methylnaphthalene	0.6544	0.6667	1.000	1.019	ug/mL	2	20	0.4000	
Acenaphthylene	1.5193	1.6168	1.000	1.064	ug/mL	6	20	0.9000	
Acenaphthene	0.9653	1.0104	1.000	1.047	ug/mL	5	20	0.9000	
Fluorene	1.1068	1.2189	1.000	1.101	ug/mL	10	20	0.9000	
Phenanthrene	0.9855	1.0332	1.000	1.048	ug/mL	5	20	0.7000	
Anthracene	0.9148	0.9824	1.000	1.074	ug/mL	7	20	0.7000	m
Fluoranthene	1.0745	1.1650	1.000	1.084	ug/mL	8	20	0.6000	
Pyrene	1.1316	1.2095	1.000	1.069	ug/mL	7	20	0.6000	
Benzo(a)anthracene	0.9777	1.0158	1.000	1.039	ug/mL	4	20	0.8000	
Chrysene	0.9868	1.0355	1.000	1.049	ug/mL	5	20	0.7000	
Benzo(b)fluoranthene	1.1465	1.1846	1.000	1.033	ug/mL	3	20	0.7000	
Benzo(k)fluoranthene	1.1308	1.1675	1.000	1.032	ug/mL	3	20	0.7000	m
Benzo(a)pyrene	1.0488	1.0789	1.000	1.029	ug/mL	3	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.0858	1.0904	1.000	1.004	ug/mL	0	20	0.5000	
Dibenz(a,h)anthracene	0.9183	0.9092	1.000	0.9902	ug/mL	-1	20	0.4000	
Benzo(g,h,i)perylene	0.9347	0.9537	1.000	1.020	ug/mL	2	20	0.5000	
Nitrobenzene-d5	0.3095	0.3271	1.000	1.057	ug/mL	6	20	0.0500	
2-Fluorobiphenyl	1.4420	1.4769	1.000	1.024	ug/mL	2	20	0.0500	
Terphenyl-d14	0.8442	0.8938	1.000	1.059	ug/mL	6	20	0.0500	

ISTD (ICAL vg723)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	32023	45383	41.72
Naphthalene-d8	113951	161602	41.82
Acenaphthene-d10	66733	93243	39.73
Phenanthrene-d10	117708	175224	48.86
Chrysene-d12	117775	177686	50.87
Perylene-d12	94243	144349	53.17

ISTD (ICAL vg723)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	7.34	7.31	-0.03
Naphthalene-d8	8.96	8.93	-0.03
Acenaphthene-d10	11.26	11.23	-0.03
Phenanthrene-d10	13.20	13.17	-0.03
Chrysene-d12	16.65	16.62	-0.03
Perylene-d12	18.37	18.35	-0.02

NPM 08/20/14 [1-Methylnaphthalene]: Corrected automatically drawn baseline. [general version]

NPM 08/20/14 [Anthracene]: Corrected automatically drawn baseline. [general version]

NPM 08/20/14 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline. [general version]

Analyst: KMH Date: 08/22/14 Reviewer: LW Date: 08/27/14

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA04 Run Name : PAHDIOX IDF : 1.0
Seqnum : 534336091009.1 File : whl09 Time : 21-AUG-2014 12:14
Cal : 534275763001 Caldate : 10-JUL-2014
Standards: S25130

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	1.1183	1.0861	2.000	1.942	ug/mL	-3	20	0.7000	
2-Methylnaphthalene	0.6459	0.6642	2.000	2.057	ug/mL	3	20	0.4000	
Acenaphthylene	1.7091	1.6839	2.000	1.971	ug/mL	-1	20	0.9000	
Acenaphthene	1.0331	1.0498	2.000	2.032	ug/mL	2	20	0.9000	
Fluorene	1.1751	1.1919	2.000	2.029	ug/mL	1	20	0.9000	
Phenanthrene	1.0658	1.0954	2.000	2.056	ug/mL	3	20	0.7000	
Anthracene	1.0405	1.0680	2.000	2.053	ug/mL	3	20	0.7000	
Fluoranthene	1.0169	1.0637	2.000	2.092	ug/mL	5	20	0.6000	
Pyrene	1.3329	1.2978	2.000	1.947	ug/mL	-3	20	0.6000	
Benzo(a)anthracene	0.9406	0.9324	2.000	1.983	ug/mL	-1	20	0.8000	
Chrysene	0.9615	0.9884	2.000	2.056	ug/mL	3	20	0.7000	
Benzo(b)fluoranthene	1.1197	1.1395	2.000	2.035	ug/mL	2	20	0.7000	
Benzo(k)fluoranthene	1.1629	1.2810	2.000	2.203	ug/mL	10	20	0.7000	
Benzo(a)pyrene	0.9953	1.0342	2.000	2.078	ug/mL	4	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.1913	1.3256	2.000	2.225	ug/mL	11	20	0.5000	
Dibenz(a,h)anthracene	0.9180	1.0479	2.000	2.283	ug/mL	14	20	0.4000	
Benzo(g,h,i)perylene	1.0478	1.1724	2.000	2.238	ug/mL	12	20	0.5000	
Nitrobenzene-d5	0.4086	0.3603	2.000	1.764	ug/mL	-12	20	0.0500	
2-Fluorobiphenyl	1.3631	1.4462	2.000	2.122	ug/mL	6	20	0.0500	
Terphenyl-d14	1.0444	1.0094	2.000	1.933	ug/mL	-3	20	0.0500	

ISTD (ICAL wga09)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	61411	35015	-42.98
Naphthalene-d8	237683	130606	-45.05
Acenaphthene-d10	124978	72340	-42.12
Phenanthrene-d10	182537	110793	-39.30
Chrysene-d12	142444	98468	-30.87
Perylene-d12	111189	76969	-30.78

ISTD (ICAL wga09)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	7.86	7.84	-0.02
Naphthalene-d8	9.43	9.41	-0.02
Acenaphthene-d10	11.71	11.69	-0.02
Phenanthrene-d10	13.66	13.65	-0.01
Chrysene-d12	17.23	17.20	-0.03
Perylene-d12	19.16	19.14	-0.02

Analyst: KMH Date: 08/22/14 Reviewer: LW Date: 08/27/14

Logbooks & Sequences

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 514336108

Date : 08/21/14 Reference : ugf12
Sequence : MSBNA02 uhl Analyzed : 07/15/14 20:11

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	39748	151685	80057	114137	97827	63094
		LOWER LIMIT	19874	75843	40029	57069	48914	31547
		UPPER LIMIT	79496	303370	160114	228274	195654	126188
003	CCV	PAHDIOX	34746	127183	61246	80227	65741	52822
009	SAMPLE	259790-002	35965	135135	67874	93691	74400	59857

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 514336108

Date : 08/21/14 Reference : ugf12
Sequence : MSBNA02 uhl Analyzed : 07/15/14 20:11

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	8.15	9.73	12.00	13.96	17.54	19.52
		LOWER LIMIT	7.65	9.23	11.50	13.46	17.04	19.02
		UPPER LIMIT	8.65	10.23	12.50	14.46	18.04	20.02
003	CCV	PAHDIOX	8.14	9.72	11.99	13.94	17.52	19.50

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 514336108

Date : 08/21/14 Reference : uhl03
Sequence : MSBNA02 uhl Analyzed : 08/21/14 10:36

#	Type	Sample ID	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	9.72	11.99	13.94	17.52	19.50
		LOWER LIMIT	9.22	11.49	13.44	17.02	19.00
		UPPER LIMIT	10.22	12.49	14.44	18.02	20.00
009	SAMPLE	259790-002	9.72	11.99	13.94	17.52	19.50

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 524334764

Date : 08/20/14 Reference : vg723
Sequence : MSBNA03 vhk Analyzed : 07/07/14 22:10

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	32023	113951	66733	117708	117775	94243
		LOWER LIMIT	16012	56976	33367	58854	58888	47122
		UPPER LIMIT	64046	227902	133466	235416	235550	188486
003	CCV		45383	161602	93243	175224	177686	144349
004	BLANK	QC754152	40074	144978	90135	169104	169862	131364
005	LCS	QC754153	40800	147837	87175	166901	171626	137851
006	SAMPLE	259841-005	38262	134783	80787	121279	106048	100216
007	SAMPLE	259835-002	33709	118975	70908	111991	99911	85941
008	MSS	259786-001	32484	116704	71225	124686	112256	102731
009	MS	QC754154	33637	119459	71821	129585	113679	106422
010	MSD	QC754155	31453	113275	67791	121054	107085	99825
011	SAMPLE	259786-003	33291	119260	73578	125808	116559	105831
012	SAMPLE	259786-004	33357	118616	71977	119452	108650	102469
013	SAMPLE	259790-001	31962	118955	73275	136976	131601	112052

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 524334764

Date : 08/20/14 Reference : vg723
Sequence : MSBNA03 vhk Analyzed : 07/07/14 22:10

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	7.34	8.96	11.26	13.20	16.65	18.37
		LOWER LIMIT	6.84	8.46	10.76	12.70	16.15	17.87
		UPPER LIMIT	7.84	9.46	11.76	13.70	17.15	18.87
003	CCV		7.31	8.93	11.23	13.17	16.62	18.35

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 524334764

Date : 08/20/14
Sequence : MSBNA03 vhk

Reference : vhk03
Analyzed : 08/20/14 12:08

#	Type	Sample ID	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT	DCBZ14D4 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	8.93	11.23	13.17	16.62	18.35	7.31
		LOWER LIMIT	8.43	10.73	12.67	16.12	17.85	6.81
		UPPER LIMIT	9.43	11.73	13.67	17.12	18.85	7.81
004	BLANK	QC754152	8.93	11.23	13.17	16.62	18.35	7.31
005	LCS	QC754153	8.93	11.23	13.18	16.62	18.35	7.31
006	SAMPLE	259841-005	8.93	11.23	13.18	16.63	18.36	7.31
007	SAMPLE	259835-002	8.93	11.23	13.18	16.63	18.36	7.31
008	MSS	259786-001	8.93	11.24	13.18	16.63	18.36	7.31
009	MS	QC754154	8.94	11.23	13.18	16.63	18.35	7.31
010	MSD	QC754155	8.94	11.23	13.18	16.63	18.35	7.31
011	SAMPLE	259786-003	8.93	11.23	13.18	16.63	18.35	7.31
012	SAMPLE	259786-004	8.93	11.23	13.18	16.63	18.36	7.31
013	SAMPLE	259790-001	8.93	11.23	13.18	16.62	18.35	7.31

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 534336091

Date : 08/21/14 Reference : wga09
Sequence : MSBNA04 whl Analyzed : 07/10/14 18:08

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	61411	237683	124978	182537	142444	111189
		LOWER LIMIT	30706	118842	62489	91269	71222	55595
		UPPER LIMIT	122822	475366	249956	365074	284888	222378
009	CCV	PAHDIOX	35015	130606	72340	110793	98468	76969
011	MS	QC754154	40133	158623	96950	170711	153825	127803
012	MSD	QC754155	46019	179158	103599	183574	161608	133091
013	SAMPLE	259835-002	47345	179122	107103	191047	173301	130136
014	SAMPLE	259841-007	28041 *	110847 *	69801	117081	93223	78792
015	SAMPLE	259882-001	9148 *	195725	111255	183963	162293	69481
016	SAMPLE	259882-002	48643	180183	104930	174666	153308	115706
026	SAMPLE	259841-007	47986	183106	110529	187043	155984	110179

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 534336091

Date : 08/21/14 Reference : wga09
Sequence : MSBNA04 whl Analyzed : 07/10/14 18:08

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	7.86	9.43	11.71	13.66	17.23	19.16
		LOWER LIMIT	7.36	8.93	11.21	13.16	16.73	18.66
		UPPER LIMIT	8.36	9.93	12.21	14.16	17.73	19.66
009	CCV	PAHDIOX	7.84	9.41	11.69	13.65	17.20	19.14

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 534336091

Date : 08/21/14 Reference : whl09
Sequence : MSBNA04 whl Analyzed : 08/21/14 12:14

#	Type	Sample ID	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	9.41	11.69	13.65	17.20	19.14
		LOWER LIMIT	8.91	11.19	13.15	16.70	18.64
		UPPER LIMIT	9.91	12.19	14.15	17.70	19.64
011	MS	QC754154	9.42	11.69	13.65	17.21	19.15
012	MSD	QC754155	9.42	11.69	13.65	17.21	19.15
013	SAMPLE	259835-002	9.41	11.69	13.65	17.22	19.16
014	SAMPLE	259841-007	9.42	11.69	13.64	17.20	19.14
015	SAMPLE	259882-001	9.47	11.69	13.66	17.22	19.15
016	SAMPLE	259882-002	9.42	11.69	13.65	17.22	19.15
026	SAMPLE	259841-007	9.41	11.68	13.65	17.21	19.14

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 514283082

Instrument : MSBNA02 Begun : 07/15/14 14:02
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	ugf01	TUN	DFTPP			07/15/14 14:02	1.0	1	t
002	ugf02	TUN	DFTPP			07/15/14 14:22	1.0	1	t
003	ugf03	TUN	DFTPP			07/15/14 15:24	1.0	1	t
004	ugf04	TUN	DFTPP			07/15/14 15:49	1.0	1	
005	ugf05	CCV	RT CHECK			07/15/14 16:08	1.0	2	
006	ugf06	CCV	RT CHECK			07/15/14 17:08	1.0	2	cc+
007	ugf07	IB	IB			07/15/14 17:42	1.0		
008	ugf08	TUN	DFTPP			07/15/14 18:08	1.0	1	
009	ugf09	ICAL	ICAL			07/15/14 18:30	1.0	3	
010	ugf10	ICAL	ICAL			07/15/14 19:03	1.0	4	
011	ugf11	ICAL	ICAL			07/15/14 19:38	1.0	5	
012	ugf12	ICAL	ICAL			07/15/14 20:11	1.0	2	
013	ugf13	ICAL	ICAL			07/15/14 20:45	1.0	6	
014	ugf14	ICAL	ICAL			07/15/14 21:20	1.0	7	
015	ugf15	ICAL	ICAL			07/15/14 21:56	1.0	8	
016	ugf16	ICV	ICV			07/15/14 22:31	1.0	9	

TFB 07/16/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 16.

Standards used: 1=S24893 2=S25129 3=S25125 4=S25126 5=S25128 6=S25130 7=S25132 8=S25133 9=S24935

Flags used: +=high bias cc=CCV CCC failure t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 514336108

Instrument : MSBNA02 Begun : 08/21/14 09:48
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	uhl01	IB	IB			08/21/14 09:48	1.0		?t
002	uhl02	TUN	DFTPP			08/21/14 10:14	1.0	1	
003	uhl03	CCV	PAHDIOX			08/21/14 10:36	1.0	2	
004	uhl04	BLANK	QC754284	Soil	214589	08/21/14 11:10	1.0	3	
005	uhl05	LCS	QC754285	Soil	214589	08/21/14 11:43	1.0	3	
006	uhl06	MSS	259818-001	Soil	214589	08/21/14 12:16	1.0	3	
007	uhl07	MS	QC754286	Soil	214589	08/21/14 12:49	1.0	3	
008	uhl08	MSD	QC754287	Soil	214589	08/21/14 13:23	1.0	3	
009	uhl09	SAMPLE	259790-002	Water	214554	08/21/14 13:56	1.0	3	
010	uhl10	SAMPLE	259983-008	Soil	214589	08/21/14 14:29	1.0	3	
011	uhl11	MSD	QC754287	Soil	214589	08/21/14 15:02	1.0	3	
012	uhl12	SAMPLE	259983-020	Soil	214589	08/21/14 15:35	1.0	3	
013	uhl13	SAMPLE	259983-009	Soil	214589	08/21/14 16:08	1.0	3	
014	uhl14	SAMPLE	259983-013	Soil	214589	08/21/14 16:42	1.0	3	
015	uhl15	SAMPLE	259983-014	Soil	214589	08/21/14 17:15	1.0	3	
016	uhl16	SAMPLE	259983-019	Soil	214589	08/21/14 17:48	1.0	3	
017	uhl17	SAMPLE	259983-018	Soil	214589	08/21/14 18:22	1.0	3	
018	uhl18	SAMPLE	259983-012	Soil	214589	08/21/14 18:55	3.0	3	
019	uhl19	SAMPLE	259983-007	Soil	214589	08/21/14 19:29	1.0	3	
020	uhl20	SAMPLE	259983-025	Soil	214589	08/21/14 20:02	2.0	3	

KMH 08/22/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 20.

Standards used: 1=S24893 2=S25130 3=S24915

Flags used: ?t=missing tune

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 524271263

Instrument : MSBNA03 Begun : 07/07/14 09:03
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vg701	IB	IB			07/07/14 09:03	1.0		?t
002	vg702	TUN	DFTPP			07/07/14 09:28	1.0	1	
003	vg703	CCV	PAHDIOX			07/07/14 09:47	1.0	2	
004	vg704	SAMPLE	258690-001	Soil	212952	07/07/14 10:20	2.0	3	
005	vg705	SAMPLE	258434-007	Soil	212801	07/07/14 10:54	5.0	3	
006	vg706	SAMPLE	258434-008	Soil	212801	07/07/14 11:27	5.0	3	
007	vg707	IB	IB			07/07/14 12:53	1.0		
008	vg708	TUN	DFTPP			07/07/14 13:19	1.0	1	
009	vg709	ICAL	ICAL			07/07/14 13:38	1.0	4	
010	vg710	ICAL	ICAL			07/07/14 14:10	1.0	5	
011	vg711	ICAL	ICAL			07/07/14 14:43	1.0	6	
012	vg712	ICAL	ICAL			07/07/14 15:15	1.0	7	
013	vg713	ICAL	ICAL			07/07/14 15:47	1.0	8	
014	vg714	ICAL	ICAL			07/07/14 16:19	1.0	9	
015	vg715	ICAL	ICAL			07/07/14 16:51	1.0	10	
016	vg716	ICV	ICV			07/07/14 17:23	1.0	2	
017	vg717	TUN	DFTPP			07/07/14 17:48	1.0	1	t
018	vg718	CCV	PAHDIOX			07/07/14 18:06	1.0	6	t
019	vg719	TUN	DFTPP			07/07/14 20:11	1.0	1	
020	vg720	ICAL	ICAL			07/07/14 20:28	1.0	11	
021	vg721	ICAL	ICAL			07/07/14 21:02	1.0	12	
022	vg722	ICAL	ICAL			07/07/14 21:35	1.0	13	
023	vg723	ICAL	ICAL			07/07/14 22:10	1.0	14	
024	vg724	ICAL	ICAL			07/07/14 22:42	1.0	15	
025	vg725	ICAL	ICAL			07/07/14 23:17	1.0	16	
026	vg726	ICAL	ICAL			07/07/14 23:50	1.0	17	
027	vg727	ICV	ICV			07/08/14 00:22	1.0	2	
028	vg728	CHECK	ICV			07/08/14 00:56	1.0	18	
029	vg729	CHECK	ICV			07/08/14 01:28	1.0	19	

KMH 07/08/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 29.

KMH 07/07/14 : maintenance done after run 6

Standards used: 1=S24893 2=S25107 3=S24600 4=S24925 5=S24927 6=S24928 7=S24929 8=S24931 9=S24933 10=S24934 11=S25125 12=S25126 13=S25128 14=S25129 15=S25130 16=S25132 17=S25133 18=S24935 19=S25080

Flags used: ?t=missing tune t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 524334764

Instrument : MSBNA03 Begun : 08/20/14 11:24
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vhk01	IB	IB			08/20/14 11:24	1.0		?t
002	vhk02	TUN	DFTPP			08/20/14 11:50	1.0	1	
003	vhk03	CCV				08/20/14 12:08	1.0	2	
004	vhk04	BLANK	QC754152	Water	214554	08/20/14 12:43	1.0	3	
005	vhk05	LCS	QC754153	Water	214554	08/20/14 13:15	1.0	3	
006	vhk06	SAMPLE	259841-005	Water	214554	08/20/14 13:48	1.0	3	
007	vhk07	SAMPLE	259835-002	Water	214554	08/20/14 14:23	1.0	3	
008	vhk08	MSS	259786-001	Water	214554	08/20/14 14:56	1.0	3	
009	vhk09	MS	QC754154	Water	214554	08/20/14 15:29	1.0	3	
010	vhk10	MSD	QC754155	Water	214554	08/20/14 16:02	1.0	3	
011	vhk11	SAMPLE	259786-003	Water	214554	08/20/14 16:34	1.0	3	
012	vhk12	SAMPLE	259786-004	Water	214554	08/20/14 17:06	1.0	3	
013	vhk13	SAMPLE	259790-001	Water	214554	08/20/14 17:38	1.0	3	

KMH 08/21/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 13.

Standards used: 1=S24893 2=S25129 3=S24915

Flags used: ?t=missing tune

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 534275763

Instrument : MSBNA04 Begun : 07/10/14 12:03
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	wga01	TUN	DFTPP			07/10/14 12:03	1.0	1	
002	wga02	CCV	RTCHECK			07/10/14 12:32	1.0	2	2:ANTH=2.4
003	wga03	CCV	RTCHECK			07/10/14 13:14	1.0	2	2:ANTH=2.5
004	wga04	TUN	DFTPP			07/10/14 14:05	1.0	1	
005	wga05	TUN	DFTPP			07/10/14 15:44	1.0	1	
006	wga06	ICAL	ICAL			07/10/14 16:29	1.0	3	
007	wga07	ICAL	ICAL			07/10/14 17:02	1.0	4	
008	wga08	ICAL	ICAL			07/10/14 17:35	1.0	5	
009	wga09	ICAL	ICAL			07/10/14 18:08	1.0	6	
010	wga10	ICAL	ICAL			07/10/14 18:41	1.0	2	
011	wga11	ICAL	ICAL			07/10/14 19:14	1.0	7	
012	wga12	ICAL	ICAL			07/10/14 19:47	1.0	8	
013	wga13	ICV	ICV			07/10/14 20:21	1.0	9	

KMH 07/11/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 13.

Standards used: 1=S24369 2=S25130 3=S25125 4=S25126 5=S25128 6=S25129 7=S25132 8=S25133 9=S24935

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 534336091

Instrument : MSBNA04 Begun : 08/21/14 09:31
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	whl01	IB	IB			08/21/14 09:31	1.0		?t
002	whl02	TUN	DFTPP			08/21/14 09:57	1.0	1	t
003	whl03	TUN	DFTPP			08/21/14 10:14	1.0	1	t
004	whl04	TUN	DFTPP			08/21/14 10:30	1.0	1	t
005	whl05	TUN	DFTPP			08/21/14 10:48	1.0	1	t
006	whl06	TUN	DFTPP			08/21/14 11:04	1.0	1	
007	whl07	CCV	PAHDIOX			08/21/14 11:24	1.0	2	
008	whl08	TUN	DFTPP			08/21/14 11:54	1.0	1	
009	whl09	CCV	PAHDIOX			08/21/14 12:14	1.0	2	
010	whl10	BLANK	QC754284	Soil	214589	08/21/14 12:46	1.0	3	
011	whl11	MS	QC754154	Water	214554	08/21/14 13:18	1.0	3	
012	whl12	MSD	QC754155	Water	214554	08/21/14 13:49	1.0	3	
013	whl13	SAMPLE	259835-002	Water	214554	08/21/14 14:21	1.0	3	
014	whl14	SAMPLE	259841-007	Water	214554	08/21/14 14:53	1.0	3	
015	whl15	SAMPLE	259882-001	Water	214554	08/21/14 15:25	1.0	3	
016	whl16	SAMPLE	259882-002	Water	214554	08/21/14 15:57	1.0	3	
017	whl17	SAMPLE	259781-001	Soil	214589	08/21/14 16:29	2.0	3	
018	whl18	SAMPLE	259781-002	Soil	214589	08/21/14 17:01	1.0	3	
019	whl19	SAMPLE	259818-002	Soil	214589	08/21/14 17:33	1.0	3	
020	whl20	SAMPLE	259924-003	Soil	214589	08/21/14 18:05	1.0	3	
021	whl21	SAMPLE	259826-001	Soil	214589	08/21/14 18:37	1.0	3	
022	whl22	SAMPLE	259924-001	Soil	214589	08/21/14 19:09	1.0	3	
023	whl23	SAMPLE	259924-002	Soil	214589	08/21/14 19:43	1.0	3	
024	whl24	SAMPLE	259868-001	Soil	214589	08/21/14 20:17	1.0	3	
025	whl25	SAMPLE	259866-001	Soil	214589	08/21/14 20:50	1.0	3	
026	whl26	SAMPLE	259841-007	Water	214554	08/21/14 21:22	1.0	3	
027	whl27	SAMPLE	259983-020	Soil	214589	08/21/14 21:54	1.0	3	

KMH 08/21/14 : adjusted tune after runs 3, 4, 5 & 7

KMH 08/22/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 27.

Standards used: 1=S24893 2=S25130 3=S24915

Flags used: ?t=missing tune t=tune failure

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SAMPLE PREPARATION SUMMARY

Batch # : 214554
Started By : ARG
Method : 3520C
Spike #1 ID : S24814

Prep Date : 19-AUG-2014 14:25
SOP Version : 8270-SIM_3520_rv5
Spike #2 ID : S24884

Analysis : 8270-SIM
Finished By : CPK
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259786-001		Water	1040	1	1	0.0009615	7	1				8270-SIM	
259786-003		Water	1020	1	1	0.0009804	7	1				8270-SIM	
259786-004		Water	1040	1	1	0.0009615	7	1				8270-SIM	
259790-001		Water	1000	1	1	0.001	7	1				8270-SIM	
259790-002		Water	1060	1	1	0.0009434	7	1				8270-SIM	
259835-002		Water	1020	1	1	0.0009804	7	1				8270-SIM	
259841-005		Water	1020	1	1	0.0009804	7	1				8270-SIM	
259841-007		Water	1040	1	1	0.0009615	7	1				8270-SIM	
259882-001		Water	1020	1	1	0.0009804	11	1				8270-SIM	
259882-002		Water	1020	1	1	0.0009804	7	1				8270-SIM	
QC754152	BLANK	Water	1000	1	1	0.001		1				8270-SIM	
QC754153	LCS	Water	1000	1	1	0.001		1	1			8270-SIM	
QC754154	MS	Water	1020	1	1	0.0009804		1	1			8270-SIM	
QC754155	MSD	Water	1040	1	1	0.0009615		1	1			8270-SIM	

Analyst: KMH Date: 08/21/14 Reviewer: LW Date: 08/21/14

BNA (8270 & 625) Water Prep Log **Curtis & Tompkins, Ltd.**

Page 6 **BK 3598**

LIMS Batch No: 214554 Extraction Method:
LIMS Analysis: SIM ☒ EPA 3520c cont. L/L
Date Extracted: 8/9/14 ☐

Sample #	Container ID	Volume of Sample (mL)	Sample pH	Final Volume (mL)	Confirmed pH <2	Comments
259786-001	Z	1040	☒7 ☐	☒1.0 ☐	☒≤2	MSS
259786-003	I	1020	☒7 ☐	☒1.0 ☐	☒≤2	
4	G	1040	☒7 ☐	☒1.0 ☐	☒≤2	
259790-001	H	1000	☒7 ☐	☒1.0 ☐	☒≤2	
2	H	1060	☒7 ☐	☒1.0 ☐	☒≤2	
259835-002	C	1020	☒7 ☐	☒1.0 ☐	☒≤2	
259841-005	C	1020	☒7 ☐	☒1.0 ☐	☒≤2	
7	G	1040	☒7 ☐	☒1.0 ☐	☒≤2	
259882-001	K	1020	☐7 ☒11	☒1.0 ☐	☒≤2	
2	M	1020	☒7 ☐	☒1.0 ☐	☒≤2	
MB 254152	MA	1000	☐7 ☒NA	☒1.0 ☐	☒≤2	
LCS 3		1000	☐7 ☒	☒1.0 ☐	☒≤2	
MS 4	Y	1020	☒7 ☐	☒1.0 ☐	☒≤2	
MSD 5	AB	1040	☒7 ☐	☒1.0 ☐	☒≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	

	Lot# / LIMS # / Time	Date/ Initials
1.0 mL of surrogate solution was added to all samples	524814A	AR 8/9/14
1.0 mL of matrix spiking solution was added to all spikes	524884B	
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	FS140656	
Cont. L/L extracted with 450mL of CH_2Cl_2	EM54153	
Extraction Start Time:	1425	
Extraction End Time:	830	CPK 8/20/14
pH of all samples adjusted to pH ≥ 11 with 10 N NaOH	NA	CPK 8/20/14
Extraction Start Time:		
Extraction End Time:		
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EMWL23I	
Concentrated to final volume at temperature (degrees C)	70	
Relinquished to BNA department		

8/9/14
Extraction Chemist **Date**

Contined from Page
Continued on Page

8/20/14
Reviewed by **Date**

Case Narrative Addendum: Manual Integrations for 259790 MSSIM (Water)

For CCV (MSBNA03 vhk03):
Anthracene: Corrected automatically drawn baseline.
Benzo(k)fluoranthene: Corrected automatically drawn baseline.
1-Methylnaphthalene: Corrected automatically drawn baseline.

For SAMPLE 259790-001 (MSBNA03 vhk13):
Fluoranthene: Corrected automatically drawn baseline.

For CCV PAHDIOX (MSBNA02 uhl03):
Anthracene: Corrected automatically drawn baseline.
Chrysene: Corrected automatically drawn baseline.
1,4-Dioxane: Corrected automatically drawn baseline.

For MSD QC754155 (MSBNA04 whl12):
1,4-Dioxane: Corrected automatically drawn baseline for spike & dup.
Fluorene: Corrected automatically drawn baseline for spike.
Nitrobenzene-d5: Corrected automatically drawn baseline for dup.

For Calibration MSBNA03 (524271263002):
Benzo(k)fluoranthene: Corrected automatically drawn baseline in ICAL (vg720).
Dibenz(a,h)anthracene: Corrected automatically drawn baseline in multiple levels.
1,4-Dioxane: Corrected automatically drawn baseline in multiple levels.
Nitrobenzene-d5: Corrected automatically drawn baseline in multiple levels.

For Calibration MSBNA04 (534275763001):
Anthracene: Corrected automatically drawn baseline in multiple levels.
Benzo(g,h,i)perylene: Corrected automatically drawn baseline in multiple levels.
Benzo(k)fluoranthene: Corrected automatically drawn baseline in all levels.
Chrysene: Corrected automatically drawn baseline in multiple levels.
Dibenz(a,h)anthracene: Corrected automatically drawn baseline in multiple levels.
1,4-Dioxane: Corrected automatically drawn baseline in multiple levels.
Indeno(1,2,3-cd)pyrene: Corrected automatically drawn baseline in ICAL (wga06).
Nitrobenzene-d5: Corrected automatically drawn baseline in multiple levels.

For ICV (MSBNA04 wga13):
1,4-Dioxane: Corrected automatically drawn baseline.

For Calibration MSBNA02 (514283082001):
Acenaphthene: Corrected automatically drawn baseline in multiple levels.
Anthracene: Corrected automatically drawn baseline in multiple levels.
Benzo(a)pyrene: Corrected automatically drawn baseline in multiple levels.
Benzo(g,h,i)perylene: Corrected automatically drawn baseline in ICAL (ugf15).
Benzo(k)fluoranthene: Corrected automatically drawn baseline in multiple levels.
Chrysene: Corrected automatically drawn baseline in multiple levels.
1,4-Dioxane: Corrected automatically drawn baseline in multiple levels.
Fluorene: Corrected automatically drawn baseline in multiple levels.
Fluoranthene: Corrected automatically drawn baseline in multiple levels.
Indeno(1,2,3-cd)pyrene: Corrected automatically drawn baseline in ICAL (ugf15).
Nitrobenzene-d5: Corrected automatically drawn baseline in multiple levels.

For ICV (MSBNA02 ugf16):
Anthracene: Corrected automatically drawn baseline.

Laboratory Job Number 259790

ANALYTICAL REPORT

Metals

Matrix: Filtrate

Curtis & Tompkins, Ltd.

Dissolved Metals Analytical Report

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Matrix:	Filtrate	Sampled:	08/13/14
Units:	ug/L	Received:	08/13/14
Diln Fac:	1.000	Prepared:	08/21/14
Batch#:	214656	Analyzed:	08/21/14

Field ID: RB-081314 Lab ID: 259790-001
Type: SAMPLE

Analyte	Result	LOQ	DL
Aluminum	50 U	100	28
Magnesium	150 J	500	20
Manganese	0.91 J	5.0	0.48

Field ID: SB-081314 Lab ID: 259790-002
Type: SAMPLE

Analyte	Result	LOQ	DL
Aluminum	50 U	100	28
Magnesium	38 J	500	20
Manganese	0.49 J	5.0	0.48

Type: BLANK Lab ID: QC754558

Analyte	Result	LOQ	DL
Aluminum	50 U	100	28
Magnesium	160 U	500	20
Manganese	1.3 U	5.0	0.48

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215		
Field ID:	RB-081314	Diln Fac:	1.000
Lab ID:	259790-001	Sampled:	08/13/14
Matrix:	Filtrate	Received:	08/13/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Analysis
Antimony	2.5 U	10	0.65	214656	08/21/14	08/21/14	EPA 6010C
Arsenic	2.5 U	5.0	1.3	214656	08/21/14	08/21/14	EPA 6010C
Barium	2.5 U	5.0	1.0	214656	08/21/14	08/21/14	EPA 6010C
Beryllium	1.0 U	2.0	0.083	214656	08/21/14	08/21/14	EPA 6010C
Cadmium	1.3 U	5.0	0.58	214656	08/21/14	08/21/14	EPA 6010C
Chromium	1.3 U	5.0	0.57	214656	08/21/14	08/21/14	EPA 6010C
Cobalt	1.3 U	5.0	0.32	214656	08/21/14	08/21/14	EPA 6010C
Copper	2.5 U	5.0	0.99	214656	08/21/14	08/21/14	EPA 6010C
Lead	2.5 U	5.0	0.91	214656	08/21/14	08/21/14	EPA 6010C
Mercury	0.10 U	0.20	0.021	214531	08/19/14	08/19/14	EPA 7470A
Molybdenum	1.3 U	5.0	0.40	214656	08/21/14	08/21/14	EPA 6010C
Nickel	1.1 J	5.0	0.71	214656	08/21/14	08/21/14	EPA 6010C
Selenium	5.0 U	10	2.3	214656	08/21/14	08/21/14	EPA 6010C
Silver	2.5 U	5.0	0.66	214656	08/21/14	08/21/14	EPA 6010C
Thallium	5.0 U	10	2.0	214656	08/21/14	08/21/14	EPA 6010C
Vanadium	2.5 U	5.0	0.67	214656	08/21/14	08/21/14	EPA 6010C
Zinc	10 U	20	3.0	214656	08/21/14	08/21/14	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215		
Field ID:	SB-081314	Diln Fac:	1.000
Lab ID:	259790-002	Sampled:	08/13/14
Matrix:	Filtrate	Received:	08/13/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Analysis
Antimony	2.5 U	10	0.65	214656	08/21/14	08/21/14	EPA 6010C
Arsenic	1.4 J	5.0	1.3	214656	08/21/14	08/21/14	EPA 6010C
Barium	2.5 U	5.0	1.0	214656	08/21/14	08/21/14	EPA 6010C
Beryllium	1.0 U	2.0	0.083	214656	08/21/14	08/21/14	EPA 6010C
Cadmium	1.3 U	5.0	0.58	214656	08/21/14	08/21/14	EPA 6010C
Chromium	1.3 U	5.0	0.57	214656	08/21/14	08/21/14	EPA 6010C
Cobalt	1.3 U	5.0	0.32	214656	08/21/14	08/21/14	EPA 6010C
Copper	2.5 U	5.0	0.99	214656	08/21/14	08/21/14	EPA 6010C
Lead	2.5 U	5.0	0.91	214656	08/21/14	08/21/14	EPA 6010C
Mercury	0.10 U	0.20	0.021	214531	08/19/14	08/19/14	EPA 7470A
Molybdenum	1.3 U	5.0	0.40	214656	08/21/14	08/21/14	EPA 6010C
Nickel	0.98 J	5.0	0.71	214656	08/21/14	08/21/14	EPA 6010C
Selenium	5.0 U	10	2.3	214656	08/21/14	08/21/14	EPA 6010C
Silver	2.5 U	5.0	0.66	214656	08/21/14	08/21/14	EPA 6010C
Thallium	5.0 U	10	2.0	214656	08/21/14	08/21/14	EPA 6010C
Vanadium	2.5 U	5.0	0.67	214656	08/21/14	08/21/14	EPA 6010C
Zinc	6.3 J	20	3.0	214656	08/21/14	08/21/14	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	214531
Lab ID:	QC754065	Prepared:	08/19/14
Matrix:	Water	Analyzed:	08/19/14
Units:	ug/L		

Result	LOQ	DL
0.14 J	0.20	0.021

J= Estimated value
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	214531
Matrix:	Water	Prepared:	08/19/14
Units:	ug/L	Analyzed:	08/19/14
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC754066	2.500	3.416	137 *	80-120		
BSD	QC754067	2.500	3.357	134 *	80-120	2	20

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	214531
Field ID:	04W19-081314	Sampled:	08/13/14
MSS Lab ID:	259786-001	Received:	08/13/14
Matrix:	Filtrate	Prepared:	08/19/14
Units:	ug/L	Analyzed:	08/19/14
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC754068	<0.02080	2.500	1.669	67 *	80-120		
MSD	QC754069		2.500	1.365	55 *	80-120	20	20

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Units:	ug/L
Field ID:	04W19-081314	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214531
MSS Lab ID:	259786-001	Sampled:	08/13/14
Lab ID:	QC754070	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/19/14

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
0.5000 ND	0.2000	0.5000 U	1.000	NC	10

U= Not Detected at or above DL
NC= Not Calculated
ND= Not Detected at or above DL
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC754558	Batch#:	214656
Matrix:	Filtrate	Prepared:	08/21/14
Units:	ug/L	Analyzed:	08/21/14

Analyte	Result	LOQ	DL
Antimony	2.5 U	10	0.65
Arsenic	2.5 U	5.0	1.3
Barium	2.5 U	5.0	1.0
Beryllium	1.0 U	2.0	0.083
Cadmium	1.3 U	5.0	0.58
Chromium	1.3 U	5.0	0.57
Cobalt	0.33 J	5.0	0.32
Copper	2.5 U	5.0	0.99
Lead	2.5 U	5.0	0.91
Molybdenum	0.43 J	5.0	0.40
Nickel	1.0 J	5.0	0.71
Selenium	5.0 U	10	2.3
Silver	2.5 U	5.0	0.66
Thallium	5.0 U	10	2.0
Vanadium	2.5 U	5.0	0.67
Zinc	10 U	20	3.0

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Metals Analytical Report

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Matrix:	Filtrate	Batch#:	214656
Units:	ug/L	Prepared:	08/21/14
Diln Fac:	1.000	Analyzed:	08/21/14

Type: BS Lab ID: QC754559

Analyte	Spiked	Result	%REC	Limits
Aluminum	10,000	9,231	92	80-120
Magnesium	10,000	9,630	96	80-120
Manganese	100.0	95.22	95	80-120

Type: BSD Lab ID: QC754560

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aluminum	10,000	8,944	89	80-120	3	20
Magnesium	10,000	9,405	94	80-120	2	20
Manganese	100.0	93.20	93	80-120	2	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Matrix:	Filtrate	Batch#:	214656
Units:	ug/L	Prepared:	08/21/14
Diln Fac:	1.000		

Type: BS Lab ID: QC754559

Analyte	Spiked	Result	%REC	Limits	Analyzed
Antimony	100.0	102.7	103	80-120	08/26/14
Arsenic	100.0	98.68	99	80-120	08/21/14
Barium	100.0	99.09	99	80-120	08/21/14
Beryllium	100.0	96.63	97	80-120	08/21/14
Cadmium	100.0	106.3	106	80-120	08/21/14
Chromium	100.0	98.70	99	80-120	08/21/14
Cobalt	100.0	99.60	100	80-120	08/21/14
Copper	100.0	101.2	101	80-120	08/21/14
Lead	100.0	98.35	98	80-120	08/21/14
Molybdenum	100.0	98.21	98	80-120	08/21/14
Nickel	100.0	99.94	100	80-120	08/21/14
Selenium	100.0	99.93	100	80-120	08/21/14
Silver	100.0	98.20	98	80-120	08/21/14
Thallium	50.00	50.43	101	80-120	08/21/14
Vanadium	100.0	103.5	103	80-120	08/21/14
Zinc	100.0	104.7	105	80-120	08/21/14

Type: BSD Lab ID: QC754560

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
Antimony	100.0	102.7	103	80-120	0	20	08/26/14
Arsenic	100.0	96.80	97	80-120	2	20	08/21/14
Barium	100.0	97.41	97	80-120	2	20	08/21/14
Beryllium	100.0	94.65	95	80-120	2	20	08/21/14
Cadmium	100.0	103.0	103	80-120	3	20	08/21/14
Chromium	100.0	96.43	96	80-120	2	20	08/21/14
Cobalt	100.0	97.47	97	80-120	2	20	08/21/14
Copper	100.0	97.66	98	80-120	4	20	08/21/14
Lead	100.0	96.39	96	80-120	2	20	08/21/14
Molybdenum	100.0	95.88	96	80-120	2	20	08/21/14
Nickel	100.0	97.95	98	80-120	2	20	08/21/14
Selenium	100.0	101.4	101	80-120	1	20	08/21/14
Silver	100.0	96.15	96	80-120	2	20	08/21/14
Thallium	50.00	48.99	98	80-120	3	20	08/21/14
Vanadium	100.0	101.6	102	80-120	2	20	08/21/14
Zinc	100.0	102.3	102	80-120	2	20	08/21/14

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Metals Analytical Report

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	04W19-081314	Batch#:	214656
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Filtrate	Received:	08/13/14
Units:	ug/L	Prepared:	08/21/14
Diln Fac:	1.000	Analyzed:	08/21/14

Type: MS Lab ID: QC754561

Analyte	MSS Result	Spiked	Result	%REC	Limits
Aluminum	28.17	10,000	8,786	88	80-120
Magnesium	717,600	10,000	640,600 >LR	-770 NM	80-120
Manganese	4,337	100.0	3,863	-474 NM	80-120

Type: MSD Lab ID: QC754562

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aluminum	10,000	8,455	84	80-120	4	20
Magnesium	10,000	650,400 >LR	-671 NM	80-120	NC	20
Manganese	100.0	3,880	-457 NM	80-120	0	20

NC= Not Calculated
NM= Not Meaningful: Sample concentration > 4X spike concentration
>LR= Response exceeds instrument's linear range
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	04W19-081314	Batch#:	214656
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Filtrate	Received:	08/13/14
Units:	ug/L	Prepared:	08/21/14
Diln Fac:	1.000	Analyzed:	08/21/14

Type: MS Lab ID: QC754561

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<0.6500	100.0	101.8	102	80-120
Arsenic	41.28	100.0	155.7	114	80-120
Barium	928.3	100.0	951.2	23 NM	80-120
Beryllium	0.6877	100.0	92.48	92	80-120
Cadmium	<0.5791	100.0	86.36	86	80-120
Chromium	4.903	100.0	96.59	92	80-120
Cobalt	5.995	100.0	92.42	86	80-120
Copper	<0.9890	100.0	108.9	109	80-120
Lead	<0.9081	100.0	80.25	80	80-120
Molybdenum	5.108	100.0	104.4	99	80-120
Nickel	7.227	100.0	93.41	86	80-120
Selenium	49.32	100.0	157.0	108	80-120
Silver	1.393	100.0	102.6	101	80-120
Thallium	<2.020	50.00	37.52	75 *	80-120
Vanadium	5.892	100.0	104.4	98	80-120
Zinc	9.221	100.0	107.4	98	80-120

Type: MSD Lab ID: QC754562

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	100.8	101	80-120	1	20
Arsenic	100.0	156.7	115	80-120	1	20
Barium	100.0	948.8	21 NM	80-120	0	20
Beryllium	100.0	88.44	88	80-120	4	20
Cadmium	100.0	81.44	81	80-120	6	20
Chromium	100.0	91.00	86	80-120	6	20
Cobalt	100.0	88.84	83	80-120	4	20
Copper	100.0	101.2	101	80-120	7	20
Lead	100.0	74.58	75 *	80-120	7	20
Molybdenum	100.0	102.2	97	80-120	2	20
Nickel	100.0	90.24	83	80-120	3	20
Selenium	100.0	160.8	112	80-120	2	20
Silver	100.0	97.56	96	80-120	5	20
Thallium	50.00	39.55	79 *	80-120	5	20
Vanadium	100.0	99.50	94	80-120	5	20
Zinc	100.0	97.17	88	80-120	10	20

*= Value outside of QC limits; see narrative
NM= Not Meaningful: Sample concentration > 4X spike concentration
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Metals Analytical Report

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	04W19-081314	Units:	ug/L
Type:	Serial Dilution	Batch#:	214656
MSS Lab ID:	259786-001	Sampled:	08/13/14
Lab ID:	QC754563	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/21/14

Analyte	MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim	Diln Fac
Aluminum	28.17	100.0	250.0 U	500.0	NC	10	5.000
Magnesium	717,600	20,000	742,300	100,000	3	10	500.0
Manganese	4,337	5.000	4,239	25.00	2	10	5.000

U= Not Detected at or above DL
NC= Not Calculated
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	04W19-081314	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214656
MSS Lab ID:	259786-001	Sampled:	08/13/14
Lab ID:	QC754563	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/21/14
Units:	ug/L		

Analyte	MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
Antimony	12.50 ND	10.00	13.88 J	50.00	NC	10
Arsenic	41.28	5.000	48.13	25.00	NC	10
Barium	928.3	5.000	925.4	25.00	0	10
Beryllium	0.6877	2.000	1.985 J	10.00	NC	10
Cadmium	6.250 ND	5.000	6.250 U	25.00	NC	10
Chromium	4.903	5.000	8.590 J	25.00	NC	10
Cobalt	5.995	5.000	7.143 J	25.00	NC	10
Copper	12.50 ND	5.000	12.50 U	25.00	NC	10
Lead	12.50 ND	5.000	12.50 U	25.00	NC	10
Molybdenum	5.108	5.000	22.20 J	25.00	NC	10
Nickel	7.227	5.000	6.483 J	25.00	NC	10
Selenium	49.32	10.00	155.6	50.00	NC	10
Silver	1.393	5.000	12.50 U	25.00	NC	10
Thallium	25.00 ND	10.00	25.00 U	50.00	NC	10
Vanadium	5.892	5.000	7.351 J	25.00	NC	10
Zinc	9.221	20.00	50.00 U	100.0	NC	10

J= Estimated value
U= Not Detected at or above DL
NC= Not Calculated
ND= Not Detected at or above DL
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Metals Analytical Report

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	04W19-081314	Units:	ug/L
Type:	Post Digest Spike	Batch#:	214656
MSS Lab ID:	259786-001	Sampled:	08/13/14
Lab ID:	QC754564	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/21/14

Analyte	MSS Result	Spiked	Result	%REC	Limits	Diln Fac
Aluminum	28.17	2,000	1,812	89	75-125	1.000
Magnesium	717,600	2,000,000	2,573,000	93	75-125	100.0
Manganese	4,337	50.00	3,736	-1201 NM	75-125	1.000

NM= Not Meaningful: Sample concentration > 4X spike concentration

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259790	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	04W19-081314	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	214656
MSS Lab ID:	259786-001	Sampled:	08/13/14
Lab ID:	QC754564	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/21/14
Units:	ug/L		

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<0.6500	500.0	523.2	105	75-125
Arsenic	41.28	100.0	163.8	123	75-125
Barium	928.3	2,000	2,653	86	75-125
Beryllium	0.6877	50.00	48.92	96	75-125
Cadmium	<0.5791	50.00	42.67	85	75-125
Chromium	4.903	200.0	195.1	95	75-125
Cobalt	5.995	500.0	456.1	90	75-125
Copper	<0.9890	250.0	296.7	119	75-125
Lead	<0.9081	100.0	81.87	82	75-125
Molybdenum	5.108	400.0	397.3	98	75-125
Nickel	7.227	500.0	457.7	90	75-125
Selenium	49.32	100.0	196.9	148 *	75-125
Silver	1.393	50.00	34.63	66 *	75-125
Thallium	<2.020	100.0	81.24	81	75-125
Vanadium	5.892	500.0	510.8	101	75-125
Zinc	9.221	500.0	497.7	98	75-125

*= Value outside of QC limits; see narrative

REPORTING SUMMARY FOR 259790 METALS Filtrate
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	ALK	SBS	ABA	BEA	CDE	CRO	COU	PBG	MGN	MGO	HGI	NEG	SEL	AGL	TLN	VZN
259790-001	MET54	08/19/14 13:42	1.0											+					
259790-001	MET08	08/21/14 22:55	1.0	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
259790-002	MET54	08/19/14 13:44	1.0											+					
259790-002	MET08	08/21/14 23:00	1.0	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
QC754065	MET54	08/19/14 13:21	1.0											+					
QC754066	MET54	08/19/14 13:23	1.0											+					
QC754066	MET54	08/19/14 13:29	1.0																
QC754067	MET54	08/19/14 13:24	1.0											+					
QC754067	MET54	08/19/14 13:30	1.0																
QC754068	MET54	08/19/14 13:26	1.0											+					
QC754068	MET54	08/19/14 13:37	1.0																
QC754069	MET54	08/19/14 13:28	1.0											+					
QC754069	MET54	08/19/14 13:38	1.0																
QC754070	MET54	08/19/14 13:32	5.0											+					
QC754558	MET08	08/21/14 21:24	1.0	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
QC754559	MET08	08/21/14 21:29	1.0	+		+	+	+	+	+	+	+	+		+	+	+	+	+
QC754559	MET08	08/26/14 16:17	1.0		+														
QC754560	MET08	08/21/14 21:33	1.0	+		+	+	+	+	+	+	+	+		+	+	+	+	+
QC754560	MET08	08/26/14 16:21	1.0		+														
QC754561	MET08	08/21/14 21:44	1.0	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
QC754561	MET09	08/25/14 15:10	100.0																
QC754562	MET08	08/21/14 21:51	1.0	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
QC754562	MET09	08/25/14 15:15	100.0																
QC754563	MET08	08/21/14 19:25	500.0									+							
QC754563	MET08	08/21/14 21:58	5.0	+	+	+	+	+	+	+	+		+		+	+	+	+	+
QC754564	MET08	08/21/14 19:30	100.0									+							
QC754564	MET08	08/21/14 22:06	1.0	+	+	+	+	+	+	+	+		+		+	+	+	+	+

ICP Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84335888

Instrument : MET08 Begun : 08/21/14 06:08
Method : EPA 6010C SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				08/21/14 06:08	1.0		
002	met08_sn_6010	ICAL	L1			08/21/14 06:13	1.0	1	
003	met08_sn_6010	ICAL	L2			08/21/14 06:18	1.0	2	
004	met08_sn_6010	ICAL	L3			08/21/14 06:22	1.0	3	
005	met08_sn_6010	ICAL	L4			08/21/14 06:27	1.0	4	
006	met08_sn_6010	ICAL	L5			08/21/14 06:34	1.0	5	
007	met08_sn_6010	XICV				08/21/14 06:41	1.0	6	
008	met08_sn_6010	ICV				08/21/14 07:15	1.0	6	
009	met08_sn_6010	CRI				08/21/14 07:52	1.0	7	
010	met08_sn_6010	ICB				08/21/14 08:00	1.0		
011	met08_sn_6010	ICSA				08/21/14 08:05	1.0	8	10:MG=480000
012	met08_sn_6010	ICSAB				08/21/14 10:31	1.0	9	5:MG=470000
013	met08_sn_6010	BLANK	QC754411	Water	214619	08/21/14 10:38	1.0		
014	met08_sn_6010	BS	QC754412	Water	214619	08/21/14 10:43	1.0		
015	met08_sn_6010	BSD	QC754413	Water	214619	08/21/14 10:47	1.0		
016	met08_sn_6010	MSS	260019-001	Water	214619	08/21/14 10:51	1.0		
017	met08_sn_6010	MS	QC754414	Water	214619	08/21/14 10:56	1.0		
018	met08_sn_6010	MSD	QC754415	Water	214619	08/21/14 11:01	1.0		
019	met08_sn_6010	SAMPLE	259844-005	Water	214619	08/21/14 11:05	10.0		
020	met08_sn_6010	X	RINSE			08/21/14 11:10	1.0		
021	met08_sn_6010	BLANK	QC754428	Filtrate	214622	08/21/14 11:15	1.0		
022	met08_sn_6010	BS	QC754429	Filtrate	214622	08/21/14 11:20	1.0		
023	met08_sn_6010	CCV				08/21/14 11:24	1.0	10	
024	met08_sn_6010	CCB				08/21/14 11:30	1.0		
025	met08_sn_6010	BSD	QC754430	Filtrate	214622	08/21/14 11:36	1.0		
026	met08_sn_6010	MSS	259932-001	Filtrate	214622	08/21/14 11:40	10.0		
027	met08_sn_6010	MS	QC754431	Filtrate	214622	08/21/14 11:45	10.0		
028	met08_sn_6010	MSD	QC754432	Filtrate	214622	08/21/14 11:50	10.0		
029	met08_sn_6010	CCV				08/21/14 11:54	1.0	10	
030	met08_sn_6010	CCB				08/21/14 12:00	1.0		
031	met08_sn_6010	SAMPLE	259957-001	TCLP Leachate	214616	08/21/14 12:08	10.0		1:NA=170000
032	met08_sn_6010	SAMPLE	259957-002	TCLP Leachate	214616	08/21/14 12:13	10.0		1:NA=150000
033	met08_sn_6010	SAMPLE	259961-001	TCLP Leachate	214616	08/21/14 12:18	10.0		1:NA=150000
034	met08_sn_6010	?SAMPLE	259965-001		214616	08/21/14 12:23	10.0		
035	met08_sn_6010	X	RINSE			08/21/14 12:29	1.0		
036	met08_sn_6010	MSS	260017-001	Soil	214610	08/21/14 12:33	1.0		2:FE=270000
037	met08_sn_6010	CCV				08/21/14 12:37	1.0	10	
038	met08_sn_6010	CCB				08/21/14 12:43	1.0		
039	met08_sn_6010	SAMPLE	259844-003	Water	214619	08/21/14 12:49	100.0		
040	met08_sn_6010	SAMPLE	259844-003	Water	214619	08/21/14 12:54	10.0		
041	met08_sn_6010	X	RINSE			08/21/14 12:59	1.0		
042	met08_sn_6010	CCV				08/21/14 13:04	1.0	10	
043	met08_sn_6010	CCB				08/21/14 13:11	1.0		
044	met08_sn_6010	SAMPLE	260018-001	Water	214619	08/21/14 13:19	1.0		
045	met08_sn_6010	SAMPLE	260021-001	Water	214619	08/21/14 13:24	10.0		
046	met08_sn_6010	SAMPLE	260021-002	Water	214619	08/21/14 13:29	10.0		
047	met08_sn_6010	SAMPLE	260021-003	Water	214619	08/21/14 13:34	10.0		
048	met08_sn_6010	X	RINSE			08/21/14 13:39	1.0		
049	met08_sn_6010	BLANK	QC754391	TCLP Leachate	214616	08/21/14 13:44	10.0		1:NA=150000
050	met08_sn_6010	MSS	259919-011	TCLP Leachate	214616	08/21/14 13:49	10.0		1:NA=150000
051	met08_sn_6010	CCV				08/21/14 13:54	1.0	10	
052	met08_sn_6010	CCB				08/21/14 14:01	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84335888

Instrument : MET08 Begun : 08/21/14 06:08
Method : EPA 6010C SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	SAMPLE	259871-001	Soil	214544	08/21/14 14:09	1.0		6:FE=810000
054	met08_sn_6010	CCV				08/21/14 14:16	1.0	10	
055	met08_sn_6010	CCB				08/21/14 14:23	1.0		
056	met08_sn_6010	X	RINSE			08/21/14 17:23	1.0		
057	met08_sn_6010	CCV				08/21/14 17:28	1.0	10	
058	met08_sn_6010	CCB				08/21/14 17:35	1.0		
059	met08_sn_6010	SAMPLE	259779-001	Water	214725	08/21/14 17:42	1.0		3:MG=300000
060	met08_sn_6010	SAMPLE	259779-002	Water	214725	08/21/14 17:51	1.0		3:MG=350000
061	met08_sn_6010	SAMPLE	259779-003	Water	214725	08/21/14 17:59	1.0		3:MG=350000
062	met08_sn_6010	X	RINSE			08/21/14 18:08	1.0		
063	met08_sn_6010	CCV				08/21/14 18:13	1.0	10	
064	met08_sn_6010	CCB				08/21/14 18:20	1.0		
065	met08_sn_6010	MSS	259786-001	Filtrate	214656	08/21/14 19:21	100.0		
066	met08_sn_6010	SER	QC754563	Filtrate	214656	08/21/14 19:25	500.0		
067	met08_sn_6010	PDS	QC754564	Filtrate	214656	08/21/14 19:30	100.0	11 12	
068	met08_sn_6010	SAMPLE	259786-003	Filtrate	214656	08/21/14 19:34	100.0		
069	met08_sn_6010	SAMPLE	259786-004	Filtrate	214656	08/21/14 19:39	100.0		
070	met08_sn_6010	SAMPLE	259786-005	Filtrate	214656	08/21/14 19:44	100.0		
071	met08_sn_6010	X	RINSE			08/21/14 19:49	1.0		
072	met08_sn_6010	BLANK	QC754358	Miscell.	214610	08/21/14 19:54	1.0		
073	met08_sn_6010	BS	QC754359	Miscell.	214610	08/21/14 19:59	5.0		
074	met08_sn_6010	BSD	QC754360	Miscell.	214610	08/21/14 20:04	5.0		
075	met08_sn_6010	CCV				08/21/14 20:09	1.0	10	
076	met08_sn_6010	CCB				08/21/14 20:16	1.0		
077	met08_sn_6010	MSS	260017-001	Soil	214610	08/21/14 20:21	100.0		
078	met08_sn_6010	MS	QC754361	Soil	214610	08/21/14 20:26	100.0		
079	met08_sn_6010	MSD	QC754362	Soil	214610	08/21/14 20:31	100.0		
080	met08_sn_6010	SAMPLE	259990-001	Miscell.	214610	08/21/14 20:36	100.0		
081	met08_sn_6010	SAMPLE	259990-002	Miscell.	214610	08/21/14 20:41	100.0		
082	met08_sn_6010	SAMPLE	259990-003	Miscell.	214610	08/21/14 20:46	100.0		
083	met08_sn_6010	SAMPLE	259990-004	Miscell.	214610	08/21/14 20:51	100.0		
084	met08_sn_6010	SAMPLE	259990-005	Miscell.	214610	08/21/14 20:56	100.0		
085	met08_sn_6010	SAMPLE	259990-006	Miscell.	214610	08/21/14 21:02	100.0		
086	met08_sn_6010	X	RINSE			08/21/14 21:07	1.0		
087	met08_sn_6010	CCV				08/21/14 21:12	1.0	10	
088	met08_sn_6010	CCB				08/21/14 21:18	1.0		
089	met08_sn_6010	BLANK	QC754558	Filtrate	214656	08/21/14 21:24	1.0		
090	met08_sn_6010	BS	QC754559	Filtrate	214656	08/21/14 21:29	1.0		
091	met08_sn_6010	BSD	QC754560	Filtrate	214656	08/21/14 21:33	1.0		
092	met08_sn_6010	MSS	259786-001	Filtrate	214656	08/21/14 21:37	1.0		3:MG=660000
093	met08_sn_6010	MS	QC754561	Filtrate	214656	08/21/14 21:44	1.0		3:MG=640000
094	met08_sn_6010	MSD	QC754562	Filtrate	214656	08/21/14 21:51	1.0		3:MG=650000
095	met08_sn_6010	SER	QC754563	Filtrate	214656	08/21/14 21:58	5.0		
096	met08_sn_6010	PDS	QC754564	Filtrate	214656	08/21/14 22:06	1.0	11 12	2:MG=620000
097	met08_sn_6010	SAMPLE	259786-003	Filtrate	214656	08/21/14 22:13	1.0		3:MG=780000
098	met08_sn_6010	SAMPLE	259786-004	Filtrate	214656	08/21/14 22:22	1.0		2:MG=700000
099	met08_sn_6010	CCV				08/21/14 22:30	1.0	10	
100	met08_sn_6010	XCCB				08/21/14 22:37	1.0		
101	met08_sn_6010	CCB				08/21/14 22:41	1.0		
102	met08_sn_6010	SAMPLE	259786-005	Filtrate	214656	08/21/14 22:46	1.0		3:MG=910000
103	met08_sn_6010	SAMPLE	259790-001	Filtrate	214656	08/21/14 22:55	1.0		
104	met08_sn_6010	SAMPLE	259790-002	Filtrate	214656	08/21/14 23:00	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84335888

Instrument : MET08 Begun : 08/21/14 06:08
Method : EPA 6010C SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met08_sn_6010	SAMPLE	259981-001	Filtrate	214656	08/21/14 23:05	1.0		1:NA=130000
106	met08_sn_6010	SAMPLE	259981-002	Filtrate	214656	08/21/14 23:10	1.0		1:NA=140000
107	met08_sn_6010	X	RINSE			08/21/14 23:15	1.0		
108	met08_sn_6010	SAMPLE	259990-001	Miscell.	214610	08/21/14 23:20	1.0		
109	met08_sn_6010	SAMPLE	259990-002	Miscell.	214610	08/21/14 23:25	1.0		
110	met08_sn_6010	SAMPLE	259990-003	Miscell.	214610	08/21/14 23:30	1.0		
111	met08_sn_6010	SAMPLE	259990-004	Miscell.	214610	08/21/14 23:35	1.0		
112	met08_sn_6010	CCV				08/21/14 23:40	1.0	10	
113	met08_sn_6010	CCB				08/21/14 23:47	1.0		
114	met08_sn_6010	SAMPLE	259990-005	Miscell.	214610	08/21/14 23:52	1.0		
115	met08_sn_6010	SAMPLE	259990-006	Miscell.	214610	08/21/14 23:57	1.0		
116	met08_sn_6010	CCV				08/22/14 00:02	1.0	10	
117	met08_sn_6010	CCB				08/22/14 00:09	1.0		

VQ 08/21/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 55.

CRT 08/22/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 56 through 117.

Standards used: 1=S25067 2=S25224 3=S25223 4=S25225 5=S25226 6=S25072 7=S25074 8=S25075 9=S25227 10=S25073 11=S24151 12=S24152

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 84335888

Date : 08/21/14 Reference : met08_sn_6010
Sequence : MET08 08/21/14 Analyzed : 08/21/14 06:13

#	Type	Sample ID	Y A
		ICAL STD	2534755
		LOWER LIMIT	760427
		UPPER LIMIT	3041706
010	ICB		2604932
011	ICSA		2281109
012	ICSAB		2301732
050	MSS	259919-011	2520929
063	CCV		2577299
064	CCB		2573214
065	MSS	259786-001	2545995
066	SER	QC754563	2573560
067	PDS	QC754564	2519848
068	SAMPLE	259786-003	2506081
069	SAMPLE	259786-004	2469391
070	SAMPLE	259786-005	2405214
075	CCV		2556039
076	CCB		2632234
087	CCV		2559300
088	CCB		2608240
089	BLANK	QC754558	2656059
090	BS	QC754559	2646689
091	BSD	QC754560	2631152
092	MSS	259786-001	1905313
093	MS	QC754561	2057231
094	MSD	QC754562	2019430
095	SER	QC754563	2256260
096	PDS	QC754564	2085133
097	SAMPLE	259786-003	1900487
098	SAMPLE	259786-004	1938637
099	CCV		2660320
101	CCB		2605417
102	SAMPLE	259786-005	1811229
103	SAMPLE	259790-001	2667907
104	SAMPLE	259790-002	2682583
112	CCV		2681907
113	CCB		2596287

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259790 METALS Filtrate: EPA 6010C

Inst : MET08
Calnum : 84335888001
Units : ug/L

Date : 21-AUG-2014 06:08
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	84335888002	L1	21-AUG-2014 06:13	S25067
L2	met08_sn_6010	84335888003	L2	21-AUG-2014 06:18	S25224
L3	met08_sn_6010	84335888004	L3	21-AUG-2014 06:22	S25223
L4	met08_sn_6010	84335888005	L4	21-AUG-2014 06:27	S25225
L5	met08_sn_6010	84335888006	L5	21-AUG-2014 06:34	S25226

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	33.870	29.307	31.241	31.404		LOR0	0.00000	0.03184		31.455	1.000	0.995	
Arsenic	A	19.160	17.794	18.903	18.901		LOR0	0.00000	0.05291		18.689	1.000	0.995	
Barium	A	445.66	408.73	435.82	408.57		LOR0	0.00000	0.00245		424.70	1.000	0.995	
Beryllium	A	5181.0	4808.1	5153.1			LOR0	0.00000	1.94E-4		5047.4	1.000	0.995	
Cadmium	A	231.34	216.39	231.92	214.34		LOR0	0.00000	0.00466		223.50	1.000	0.995	
Chromium	A	103.00	95.141	100.47	95.789		LOR0	0.00000	0.01043		98.599	1.000	0.995	
Cobalt	A	139.72	124.35	137.23	129.85		LOR0	0.00000	0.00770		132.78	1.000	0.995	
Copper	A	89.120	92.529	95.632	100.20		LOR0	0.00000	0.00998		94.370	1.000	0.995	
Lead	A	51.480	54.154	57.423	55.160		LOR0	0.00000	0.01812		54.554	1.000	0.995	
Manganese	A	1337.5	1211.4	1321.4	1187.4		LOR0	0.00000	8.41E-4		1264.4	1.000	0.995	
Molybdenum	A	39.320	35.753	37.493	36.232		LOR0	0.00000	0.02759		37.199	1.000	0.995	
Nickel	A	55.720	50.811	54.364	51.675		LOR0	0.00000	0.01934		53.142	1.000	0.995	
Selenium	A	26.180	26.492	28.581	28.441		LOR0	0.00000	0.03516		27.423	1.000	0.995	
Silver	A	683.46	707.07	755.28	720.23		LOR0	0.00000	0.00138		716.51	0.999	0.995	
Thallium	A	20.270	18.768	20.201	19.256		LOR0	0.00000	0.05191		19.624	1.000	0.995	
Vanadium	A	165.80	158.84	166.83	160.54		LOR0	0.00000	0.00623		163.00	1.000	0.995	
Zinc	A	70.290	69.450	75.823	72.390		LOR0	0.00000	0.01381		71.988	1.000	0.995	
Aluminum	R	0.4660		0.5266	0.5842	0.5274	LOR0	0.00000	1.89396		0.5261	1.000	0.995	
Magnesium	R	0.6990		0.7285	0.7140	0.6673	LOR0	0.00000	1.49762		0.7022	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	8	100.00	-7	1000.0	-1	10000	0		
Arsenic	A	5.0000	1	100.00	-6	1000.0	0	10000	0		
Barium	A	5.0000	9	100.00	0	1000.0	7	10000	0		
Beryllium	A	2.0000	1	100.00	-7	1000.0	0				
Cadmium	A	5.0000	8	100.00	1	1000.0	8	10000	0		
Chromium	A	5.0000	7	100.00	-1	1000.0	5	10000	0		
Cobalt	A	5.0000	8	100.00	-4	1000.0	6	10000	0		
Copper	A	5.0000	-11	100.00	-8	1000.0	-5	10000	0		
Lead	A	5.0000	-7	100.00	-2	1000.0	4	10000	0		
Manganese	A	5.0000	13	100.00	2	1000.0	11	10000	0		
Molybdenum	A	5.0000	8	100.00	-1	1000.0	3	10000	0		
Nickel	A	5.0000	8	100.00	-2	1000.0	5	10000	0		
Selenium	A	10.000	-8	100.00	-7	1000.0	0	10000	0		
Silver	A	5.0000	-6	100.00	-3	1000.0	4	2000.0	-1		
Thallium	A	10.000	5	100.00	-3	1000.0	5	10000	0		
Vanadium	A	5.0000	3	100.00	-1	1000.0	4	10000	0		
Zinc	A	20.000	-3	100.00	-4	1000.0	5	10000	0		
Aluminum	R	100.00	-12			1000.0	0	10000	11	100000	0
Magnesium	R	200.00	5			1000.0	9	10000	7	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08
Calnum : 84335888001 Cal Date : 21-AUG-2014

ICV 84335888008 (21-AUG-2014) stds: S25072

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4859	ug/L	-3	10	
Arsenic	A	5000	4802	ug/L	-4	10	
Barium	A	5000	4858	ug/L	-3	10	
Beryllium	A	500.0	500.0	ug/L	0	10	
Cadmium	A	5000	5000	ug/L	0	10	
Chromium	A	5000	4928	ug/L	-1	10	
Cobalt	A	5000	4888	ug/L	-2	10	
Copper	A	5000	5076	ug/L	2	10	
Lead	A	5000	4867	ug/L	-3	10	
Manganese	A	5000	4748	ug/L	-5	10	
Molybdenum	A	5000	5050	ug/L	1	10	
Nickel	A	5000	4884	ug/L	-2	10	
Selenium	A	5000	4723	ug/L	-6	10	
Silver	A	1000	965.9	ug/L	-3	10	
Thallium	A	5000	4761	ug/L	-5	10	
Vanadium	A	5000	4923	ug/L	-2	10	
Zinc	A	5000	4868	ug/L	-3	10	
Aluminum	R	20000	19970	ug/L	0	10	
Magnesium	R	20000	20180	ug/L	1	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888009.1 File : met08_sn_6010 Time : 21-AUG-2014 07:52
Cal : 84335888001 Caldate : 21-AUG-2014
Standards: S25074

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	8.704	ug/L	-13	30	
Arsenic	A	5.000	5.520	ug/L	10	30	
Barium	A	5.000	5.568	ug/L	11	30	
Beryllium	A	2.000	2.011	ug/L	1	30	
Cadmium	A	5.000	5.551	ug/L	11	30	
Chromium	A	5.000	5.427	ug/L	9	30	
Cobalt	A	5.000	5.357	ug/L	7	30	
Copper	A	5.000	3.743	ug/L	**-25**	30	!cri-
Lead	A	5.000	5.661	ug/L	13	30	
Manganese	A	5.000	5.621	ug/L	12	30	
Molybdenum	A	5.000	5.809	ug/L	16	30	
Nickel	A	5.000	5.562	ug/L	11	30	
Selenium	A	10.00	8.110	ug/L	-19	30	
Silver	A	5.000	5.016	ug/L	0	30	
Thallium	A	10.00	11.04	ug/L	10	30	
Vanadium	A	5.000	5.176	ug/L	4	30	
Zinc	A	20.00	18.93	ug/L	-5	30	
Aluminum	R	100.0	95.20	ug/L	-5	30	
Magnesium	R	200.0	210.1	ug/L	5	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2598355	2.51

!=warning -=low bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888010.1 File : met08_sn_6010 Time : 21-AUG-2014 08:00
Cal : 84335888001 Caldate : 21-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2604932	2.77

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888011.1 File : met08_sn_6010 Time : 21-AUG-2014 08:05
Cal : 84335888001 Caldate : 21-AUG-2014
Standards: S25075

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[9.598]	10.00	ug/L	!a+
Arsenic	A	[3.018]	5.000	ug/L	!a+
Barium	A	[-0.6564]	5.000	ug/L	
Beryllium	A	[1.241]	2.000	ug/L	!a+
Cadmium	A	[2.478]	5.000	ug/L	!a+
Cobalt	A	[-0.2380]	5.000	ug/L	
Lead	A	[-0.6427]	5.000	ug/L	
Molybdenum	A	[-2.169]	5.000	ug/L	!a-
Selenium	A	[-0.5953]	10.00	ug/L	
Silver	A	[2.678]	5.000	ug/L	!a+
Thallium	A	[-3.326]	10.00	ug/L	
Zinc	A	[-11.28]	20.00	ug/L	!a-

Interferent	Ch	Spiked	Quant	Units	%Rec
Chromium	A	20000	19320	ug/L	97
Copper	A	20000	22350	ug/L	112
Manganese	A	20000	17850	ug/L	89
Nickel	A	20000	18010	ug/L	90
Vanadium	A	20000	18550	ug/L	93
Aluminum	R	500000	482000	ug/L	96
Calcium	R	500000	475900	ug/L	95
Iron	R	200000	185600	ug/L	93
Magnesium	R	500000	484000	ug/L	97
Titanium	R	20000	20750	ug/L	104

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2281109	-10.01

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888012.1 File : met08_sn_6010 Time : 21-AUG-2014 10:31
Cal : 84335888001 Caldate : 21-AUG-2014
Standards: S25227

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	488.3	ug/L	-2	20	
Arsenic	A	500.0	501.7	ug/L	0	20	
Barium	A	500.0	518.8	ug/L	4	20	
Beryllium	A	500.0	501.9	ug/L	0	20	
Cadmium	A	1000	1018	ug/L	2	20	
Chromium	A	500.0	500.6	ug/L	0	20	
Cobalt	A	500.0	472.0	ug/L	-6	20	
Copper	A	500.0	580.5	ug/L	16	20	
Lead	A	1000	960.2	ug/L	-4	20	
Manganese	A	500.0	410.0	ug/L	-18	20	
Molybdenum	A	500.0	507.1	ug/L	1	20	
Nickel	A	1000	952.8	ug/L	-5	20	
Selenium	A	500.0	505.0	ug/L	1	20	
Silver	A	1000	1103	ug/L	10	20	
Thallium	A	500.0	467.0	ug/L	-7	20	
Vanadium	A	500.0	535.7	ug/L	7	20	
Zinc	A	1000	979.9	ug/L	-2	20	
Aluminum	R	500000	456900	ug/L	-9		
Magnesium	R	500000	470200	ug/L	-6		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2301732	-9.19

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888063.1 File : met08_sn_6010 Time : 21-AUG-2014 18:13
Cal : 84335888001 Caldate : 21-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.455	32.007	5000	5096	ug/L	2	10	
Arsenic	A	18.689	19.103	5000	5054	ug/L	1	10	
Barium	A	424.70	408.66	5000	4998	ug/L	0	10	
Beryllium	A	5047.4	5285.2	500.0	513.2	ug/L	3	10	
Cadmium	A	223.50	221.64	5000	5166	ug/L	3	10	
Chromium	A	98.599	97.884	5000	5107	ug/L	2	10	
Cobalt	A	132.78	131.82	5000	5064	ug/L	1	10	
Copper	A	94.370	102.69	5000	5127	ug/L	3	10	
Lead	A	54.554	55.424	5000	5022	ug/L	0	10	
Manganese	A	1264.4	1160.5	5000	4881	ug/L	-2	10	
Molybdenum	A	37.199	37.701	5000	5201	ug/L	4	10	
Nickel	A	53.142	52.075	5000	5036	ug/L	1	10	
Selenium	A	27.423	28.448	5000	5001	ug/L	0	10	
Silver	A	716.51	721.82	1000	992.6	ug/L	-1	10	
Thallium	A	19.624	19.264	5000	5000	ug/L	0	10	
Vanadium	A	163.00	162.26	5000	5052	ug/L	1	10	
Zinc	A	71.988	73.289	5000	5060	ug/L	1	10	
Aluminum	R	0.5261	0.5239	20000	19840	ug/L	-1	10	
Magnesium	R	0.7022	0.6743	20000	20200	ug/L	1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2577299	1.68

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888064.1 File : met08_sn_6010 Time : 21-AUG-2014 18:20
Cal : 84335888001 Caldate : 21-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2573214	1.52

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888075.1 File : met08_sn_6010 Time : 21-AUG-2014 20:09
Cal : 84335888001 Caldate : 21-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.455	31.490	5000	5014	ug/L	0	10	
Arsenic	A	18.689	18.749	5000	4960	ug/L	-1	10	
Barium	A	424.70	413.18	5000	5053	ug/L	1	10	
Beryllium	A	5047.4	5306.7	500.0	515.2	ug/L	3	10	
Cadmium	A	223.50	223.76	5000	5216	ug/L	4	10	
Chromium	A	98.599	98.095	5000	5118	ug/L	2	10	
Cobalt	A	132.78	133.42	5000	5125	ug/L	2	10	
Copper	A	94.370	105.10	5000	5247	ug/L	5	10	
Lead	A	54.554	55.823	5000	5058	ug/L	1	10	
Manganese	A	1264.4	1160.9	5000	4883	ug/L	-2	10	
Molybdenum	A	37.199	37.991	5000	5241	ug/L	5	10	
Nickel	A	53.142	52.573	5000	5084	ug/L	2	10	
Selenium	A	27.423	27.751	5000	4879	ug/L	-2	10	
Silver	A	716.51	727.95	1000	1001	ug/L	0	10	
Thallium	A	19.624	18.996	5000	4930	ug/L	-1	10	
Vanadium	A	163.00	162.99	5000	5074	ug/L	1	10	
Zinc	A	71.988	73.899	5000	5102	ug/L	2	10	
Aluminum	R	0.5261	0.5602	20000	21220	ug/L	6	10	
Magnesium	R	0.7022	0.7194	20000	21550	ug/L	8	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2556039	0.84

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888076.1 File : met08_sn_6010 Time : 21-AUG-2014 20:16
Cal : 84335888001 Caldate : 21-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2632234	3.85

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888087.1 File : met08_sn_6010 Time : 21-AUG-2014 21:12
Cal : 84335888001 Caldate : 21-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.455	32.294	5000	5142	ug/L	3	10	
Arsenic	A	18.689	19.254	5000	5094	ug/L	2	10	
Barium	A	424.70	410.74	5000	5023	ug/L	0	10	
Beryllium	A	5047.4	5380.3	500.0	522.4	ug/L	4	10	
Cadmium	A	223.50	224.37	5000	5230	ug/L	5	10	
Chromium	A	98.599	97.791	5000	5102	ug/L	2	10	
Cobalt	A	132.78	133.10	5000	5113	ug/L	2	10	
Copper	A	94.370	106.81	5000	5332	ug/L	7	10	
Lead	A	54.554	55.907	5000	5066	ug/L	1	10	
Manganese	A	1264.4	1168.5	5000	4915	ug/L	-2	10	
Molybdenum	A	37.199	37.958	5000	5236	ug/L	5	10	
Nickel	A	53.142	52.446	5000	5072	ug/L	1	10	
Selenium	A	27.423	28.480	5000	5007	ug/L	0	10	
Silver	A	716.51	726.59	1000	999.2	ug/L	0	10	
Thallium	A	19.624	19.416	5000	5039	ug/L	1	10	
Vanadium	A	163.00	162.78	5000	5068	ug/L	1	10	
Zinc	A	71.988	74.094	5000	5115	ug/L	2	10	
Aluminum	R	0.5261	0.5315	20000	20130	ug/L	1	10	
Magnesium	R	0.7022	0.6834	20000	20470	ug/L	2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2559300	0.97

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888088.1 File : met08_sn_6010 Time : 21-AUG-2014 21:18
Cal : 84335888001 Caldate : 21-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2608240	2.90

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888099.1 File : met08_sn_6010 Time : 21-AUG-2014 22:30
Cal : 84335888001 Caldate : 21-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.455	30.645	5000	4879	ug/L	-2	10	
Arsenic	A	18.689	18.210	5000	4817	ug/L	-4	10	
Barium	A	424.70	393.48	5000	4812	ug/L	-4	10	
Beryllium	A	5047.4	5103.8	500.0	495.6	ug/L	-1	10	
Cadmium	A	223.50	216.32	5000	5042	ug/L	1	10	
Chromium	A	98.599	93.828	5000	4895	ug/L	-2	10	
Cobalt	A	132.78	127.80	5000	4910	ug/L	-2	10	
Copper	A	94.370	106.53	5000	5318	ug/L	6	10	
Lead	A	54.554	54.029	5000	4896	ug/L	-2	10	
Manganese	A	1264.4	1104.6	5000	4646	ug/L	-7	10	
Molybdenum	A	37.199	36.612	5000	5051	ug/L	1	10	
Nickel	A	53.142	50.662	5000	4899	ug/L	-2	10	
Selenium	A	27.423	27.030	5000	4752	ug/L	-5	10	
Silver	A	716.51	698.54	1000	960.6	ug/L	-4	10	
Thallium	A	19.624	18.368	5000	4767	ug/L	-5	10	
Vanadium	A	163.00	157.41	5000	4901	ug/L	-2	10	
Zinc	A	71.988	71.381	5000	4928	ug/L	-1	10	
Aluminum	R	0.5261	0.5074	20000	19220	ug/L	-4	10	
Magnesium	R	0.7022	0.6655	20000	19930	ug/L	0	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2660320	4.95

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888101.1 File : met08_sn_6010 Time : 21-AUG-2014 22:41
Cal : 84335888001 Caldate : 21-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2605417	2.79

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888112.1 File : met08_sn_6010 Time : 21-AUG-2014 23:40
Cal : 84335888001 Caldate : 21-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.455	30.518	5000	4859	ug/L	-3	10	
Arsenic	A	18.689	18.146	5000	4800	ug/L	-4	10	
Barium	A	424.70	392.55	5000	4801	ug/L	-4	10	
Beryllium	A	5047.4	5132.8	500.0	498.4	ug/L	0	10	
Cadmium	A	223.50	215.62	5000	5026	ug/L	1	10	
Chromium	A	98.599	94.153	5000	4912	ug/L	-2	10	
Cobalt	A	132.78	127.57	5000	4901	ug/L	-2	10	
Copper	A	94.370	107.16	5000	5350	ug/L	7	10	
Lead	A	54.554	54.012	5000	4894	ug/L	-2	10	
Manganese	A	1264.4	1093.8	5000	4600	ug/L	-8	10	
Molybdenum	A	37.199	36.841	5000	5082	ug/L	2	10	
Nickel	A	53.142	50.643	5000	4898	ug/L	-2	10	
Selenium	A	27.423	26.880	5000	4725	ug/L	-5	10	
Silver	A	716.51	700.16	1000	962.8	ug/L	-4	10	
Thallium	A	19.624	18.254	5000	4737	ug/L	-5	10	
Vanadium	A	163.00	157.87	5000	4915	ug/L	-2	10	
Zinc	A	71.988	71.096	5000	4908	ug/L	-2	10	
Aluminum	R	0.5261	0.5202	20000	19700	ug/L	-1	10	
Magnesium	R	0.7022	0.6698	20000	20060	ug/L	0	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2681907	5.81

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84335888113.1 File : met08_sn_6010 Time : 21-AUG-2014 23:47
Cal : 84335888001 Caldate : 21-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2534755	2596287	2.43

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84343594

Instrument : MET08 Begun : 08/26/14 14:34
Method : EPA 6010C SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				08/26/14 14:34	1.0		
002	met08_sn_6010	ICAL	L1			08/26/14 14:39	1.0	1	
003	met08_sn_6010	ICAL	L2			08/26/14 14:44	1.0	2	
004	met08_sn_6010	ICAL	L3			08/26/14 14:48	1.0	3	
005	met08_sn_6010	ICAL	L4			08/26/14 14:53	1.0	4	
006	met08_sn_6010	ICAL	L5			08/26/14 15:00	1.0	5	
007	met08_sn_6010	ICV				08/26/14 15:07	1.0	6	
008	met08_sn_6010	CRI				08/26/14 15:15	1.0	7	
009	met08_sn_6010	ICB				08/26/14 15:19	1.0		
010	met08_sn_6010	ICSA				08/26/14 15:25	1.0	8	10:AL=530000
011	met08_sn_6010	ICSAB				08/26/14 16:00	1.0	9	5:MG=520000
012	met08_sn_6010	MSS	259979-002	Water	214725	08/26/14 16:07	100.0		
013	met08_sn_6010	SAMPLE	260064-001	WET Leachate	214727	08/26/14 16:12	10.0		1:NA=200000
014	met08_sn_6010	BS	QC754559	Filtrate	214656	08/26/14 16:17	1.0		
015	met08_sn_6010	BSD	QC754560	Filtrate	214656	08/26/14 16:21	1.0		
016	met08_sn_6010	MSS	260064-001	TCLP Leachate	214698	08/26/14 16:25	10.0		1:NA=160000
017	met08_sn_6010	SAMPLE	259759-003	Miscell.	214669	08/26/14 16:30	100.0		
018	met08_sn_6010	SAMPLE	259759-004	Miscell.	214669	08/26/14 16:35	100.0		
019	met08_sn_6010	SAMPLE	260029-009	Filtrate	214743	08/26/14 16:40	100.0		
020	met08_sn_6010	SAMPLE	259837-002	Soil	214669	08/26/14 16:44	1.0		4:FE=380000
021	met08_sn_6010	X	RINSE			08/26/14 16:51	1.0		
022	met08_sn_6010	CCV				08/26/14 16:56	1.0	10	
023	met08_sn_6010	CCB				08/26/14 17:03	1.0		
024	met08_sn_6010	SAMPLE	260029-012	Filtrate	214743	08/26/14 17:08	1000		
025	met08_sn_6010	SAMPLE	259990-006	Miscell.	214610	08/26/14 17:13	1.0		
026	met08_sn_6010	SAMPLE	260029-013	Filtrate	214743	08/26/14 17:18	1000		
027	met08_sn_6010	SAMPLE	260029-014	Filtrate	214743	08/26/14 17:23	1000		
028	met08_sn_6010	MSS	260017-001	Soil	214610	08/26/14 17:28	100.0		
029	met08_sn_6010	CCV				08/26/14 17:33	1.0	10	
030	met08_sn_6010	CCB				08/26/14 17:40	1.0		
031	met08_sn_6010	SAMPLE	260029-008	Filtrate	214743	08/26/14 17:55	1000		
032	met08_sn_6010	SAMPLE	260029-011	Filtrate	214743	08/26/14 18:00	1000		
033	met08_sn_6010	SAMPLE	260029-015	Filtrate	214743	08/26/14 18:05	1000		
034	met08_sn_6010	CCV				08/26/14 18:10	1.0	10	
035	met08_sn_6010	CCB				08/26/14 18:17	1.0		
036	met08_sn_6010	BLANK	QC755137	Filtrate	214800	08/26/14 18:22	1.0		
037	met08_sn_6010	BS	QC755138	Filtrate	214800	08/26/14 18:27	1.0		
038	met08_sn_6010	BSD	QC755139	Filtrate	214800	08/26/14 18:31	1.0		
039	met08_sn_6010	MSS	260076-001	Filtrate	214800	08/26/14 18:35	100.0		
040	met08_sn_6010	MS	QC755140	Filtrate	214800	08/26/14 18:40	100.0		
041	met08_sn_6010	MSD	QC755141	Filtrate	214800	08/26/14 18:45	100.0		1:NA=100000
042	met08_sn_6010	SAMPLE	260076-002	Filtrate	214800	08/26/14 18:50	100.0		
043	met08_sn_6010	SAMPLE	260076-003	Filtrate	214800	08/26/14 18:55	100.0		
044	met08_sn_6010	SAMPLE	260076-004	Filtrate	214800	08/26/14 19:00	100.0		
045	met08_sn_6010	SAMPLE	260076-005	Filtrate	214800	08/26/14 19:06	100.0		
046	met08_sn_6010	CCV				08/26/14 19:11	1.0	10	
047	met08_sn_6010	CCB				08/26/14 19:17	1.0		
048	met08_sn_6010	SAMPLE	260076-006	Filtrate	214800	08/26/14 19:23	100.0		
049	met08_sn_6010	SAMPLE	260076-007	Filtrate	214800	08/26/14 19:28	100.0		
050	met08_sn_6010	SAMPLE	260076-008	Filtrate	214800	08/26/14 19:33	100.0		
051	met08_sn_6010	SAMPLE	260076-009	Filtrate	214800	08/26/14 19:38	100.0		1:NA=140000
052	met08_sn_6010	SAMPLE	260076-010	Filtrate	214800	08/26/14 19:43	100.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84343594

Instrument : MET08 Begun : 08/26/14 14:34
Method : EPA 6010C SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	SAMPLE	260076-011	Filtrate	214800	08/26/14 19:48	100.0		
054	met08_sn_6010	SAMPLE	260076-012	Filtrate	214800	08/26/14 19:53	100.0		
055	met08_sn_6010	SAMPLE	260076-013	Filtrate	214800	08/26/14 19:58	100.0		1:NA=130000
056	met08_sn_6010	SAMPLE	260076-014	Filtrate	214800	08/26/14 20:03	100.0		
057	met08_sn_6010	SAMPLE	260029-009	Filtrate	214743	08/26/14 20:08	100.0		
058	met08_sn_6010	CCV				08/26/14 20:12	1.0	10	
059	met08_sn_6010	CCB				08/26/14 20:19	1.0		
060	met08_sn_6010	SAMPLE	259990-006	Miscell.	214610	08/26/14 20:24	1.0		
061	met08_sn_6010	MSS	260017-001	Soil	214610	08/26/14 20:29	100.0		
062	met08_sn_6010	SAMPLE	260029-013	Filtrate	214743	08/26/14 20:34	1000		
063	met08_sn_6010	BLANK	QC755125	Water	214786	08/26/14 20:39	1.0		
064	met08_sn_6010	BS	QC755126	Water	214786	08/26/14 20:44	1.0		
065	met08_sn_6010	BSD	QC755127	Water	214786	08/26/14 20:49	1.0		
066	met08_sn_6010	MSS	259873-006	Water	214786	08/26/14 20:53	1.0		2:NA=160000
067	met08_sn_6010	MS	QC755128	Water	214786	08/26/14 21:01	1.0		2:NA=160000
068	met08_sn_6010	MSD	QC755129	Water	214786	08/26/14 21:09	1.0		2:NA=170000
069	met08_sn_6010	SER	QC755130	Water	214786	08/26/14 21:17	5.0		
070	met08_sn_6010	CCV				08/26/14 21:22	1.0	10	
071	met08_sn_6010	CCB				08/26/14 21:29	1.0		
072	met08_sn_6010	PDS	QC755131	Water	214786	08/26/14 21:34	1.0	11 12	
073	met08_sn_6010	SAMPLE	260148-001	Water	214786	08/26/14 21:41	1.0		
074	met08_sn_6010	SAMPLE	260188-001	Water	214786	08/26/14 21:46	1.0		
075	met08_sn_6010	SAMPLE	260188-002	Water	214786	08/26/14 21:50	1.0		
076	met08_sn_6010	CCV				08/26/14 21:55	1.0	10	
077	met08_sn_6010	CCB				08/26/14 22:01	1.0		

CRT 08/26/14 : Winlab32 software was not reporting this sequence into a new sequence for LIMS. Had to re-process and reprint the CALs.

CRT 08/26/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 30.

JDB 08/26/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 31 through 35.

CRT 08/27/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 36 through 77.

Standards used: 1=S25067 2=S25224 3=S25223 4=S25225 5=S25226 6=S25072 7=S25074 8=S25075 9=S25227 10=S25073 11=S24151 12=S24152

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 84343594

Date : 08/26/14 Reference : met08_sn_6010
Sequence : MET08 08/26/14 Analyzed : 08/26/14 14:39

#	Type	Sample ID	Y A
		ICAL STD	2479195
		LOWER LIMIT	743758
		UPPER LIMIT	2975034
009	ICB		2562048
010	ICSA		2196145
011	ICSAB		2218671
014	BS	QC754559	2553728
015	BSD	QC754560	2455368
022	CCV		2551655
023	CCB		2512782

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259790 METALS Filtrate: EPA 6010C

Inst : MET08 Reviewer : ---
Calnum : 84343594001 Date : 26-AUG-2014 14:34
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	84343594002	L1	26-AUG-2014 14:39	S25067
L2	met08_sn_6010	84343594003	L2	26-AUG-2014 14:44	S25224
L3	met08_sn_6010	84343594004	L3	26-AUG-2014 14:48	S25223
L4	met08_sn_6010	84343594005	L4	26-AUG-2014 14:53	S25225
L5	met08_sn_6010	84343594006	L5	26-AUG-2014 15:00	S25226

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	36.710	31.108	31.792	32.954		LOR0	0.00000	0.03036		33.141	1.000	0.995	
Arsenic	A	16.320	19.011	19.947	20.664		LOR0	0.00000	0.04841		18.986	1.000	0.995	
Barium	A	430.38	401.53	418.68	407.43		LOR0	0.00000	0.00245		414.50	1.000	0.995	
Beryllium	A	5202.5	4738.2	4938.2			LOR0	0.00000	2.03E-4		4959.6	1.000	0.995	
Cadmium	A	249.88	232.38	241.93	238.87		LOR0	0.00000	0.00419		240.76	1.000	0.995	
Chromium	A	98.680	92.763	96.832	96.495		LOR0	0.00000	0.01036		96.193	1.000	0.995	
Cobalt	A	137.92	127.16	136.02	135.61		LOR0	0.00000	0.00737		134.18	1.000	0.995	
Copper	A	48.580	100.68	101.50	110.49		LOR0	0.00000	0.00906		90.311	1.000	0.995	
Lead	A	68.800	57.947	59.476	60.196		LOR0	0.00000	0.01661		61.605	1.000	0.995	
Manganese	A	1198.4	1133.0	1217.1	1128.9		LOR0	0.00000	8.85E-4		1169.4	1.000	0.995	
Molybdenum	A	36.920	35.083	36.248	36.685		LOR0	0.00000	0.02726		36.234	1.000	0.995	
Nickel	A	54.060	51.523	54.491	54.586		LOR0	0.00000	0.01832		53.665	1.000	0.995	
Selenium	A	25.440	28.148	29.917	31.221		LOR0	0.00000	0.03204		28.682	1.000	0.995	
Silver	A	690.30	700.63	732.08	726.38		LOR0	0.00000	0.00137		712.35	1.000	0.995	
Thallium	A	19.490	19.269	20.146	19.807		LOR0	0.00000	0.05048		19.678	1.000	0.995	
Vanadium	A	156.74	155.58	160.01	161.97		LOR0	0.00000	0.00617		158.57	1.000	0.995	
Zinc	A	81.410	77.386	80.103	81.036		LOR0	0.00000	0.01234		79.984	1.000	0.995	
Aluminum	R	0.4160		0.4856	0.5355	0.4665	LOR0	0.00000	2.14071		0.4759	1.000	0.995	
Magnesium	R	0.6810		0.6896	0.7193	0.6454	LOR0	0.00000	1.54757		0.6838	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	11	100.00	-6	1000.0	-3	10000	0		
Arsenic	A	5.0000	**-21**	100.00	-8	1000.0	-3	10000	0		
Barium	A	5.0000	6	100.00	-1	1000.0	3	10000	0		
Beryllium	A	2.0000	5	100.00	-4	1000.0	0				
Cadmium	A	5.0000	5	100.00	-3	1000.0	1	10000	0		
Chromium	A	5.0000	2	100.00	-4	1000.0	0	10000	0		
Cobalt	A	5.0000	2	100.00	-6	1000.0	0	10000	0		
Copper	A	5.0000	**-56**	100.00	-9	1000.0	-8	10000	0		
Lead	A	5.0000	14	100.00	-4	1000.0	-1	10000	0		
Manganese	A	5.0000	6	100.00	0	1000.0	8	10000	0		
Molybdenum	A	5.0000	1	100.00	-4	1000.0	-1	10000	0		
Nickel	A	5.0000	-1	100.00	-6	1000.0	0	10000	0		
Selenium	A	10.000	-18	100.00	-10	1000.0	-4	10000	0		
Silver	A	5.0000	-5	100.00	-4	1000.0	1	2000.0	0		
Thallium	A	10.000	-2	100.00	-3	1000.0	2	10000	0		
Vanadium	A	5.0000	-3	100.00	-4	1000.0	-1	10000	0		
Zinc	A	20.000	0	100.00	-4	1000.0	-1	10000	0		
Aluminum	R	100.00	-11			1000.0	4	10000	15	100000	0
Magnesium	R	200.00	5			1000.0	7	10000	11	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08
Calnum : 84343594001 Cal Date : 26-AUG-2014

ICV 84343594007 (26-AUG-2014) stds: S25072

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4849	ug/L	-3	10	
Arsenic	A	5000	4800	ug/L	-4	10	
Barium	A	5000	4796	ug/L	-4	10	
Beryllium	A	500.0	513.3	ug/L	3	10	
Cadmium	A	5000	4848	ug/L	-3	10	
Chromium	A	5000	4832	ug/L	-3	10	
Cobalt	A	5000	4837	ug/L	-3	10	
Copper	A	5000	4796	ug/L	-4	10	
Lead	A	5000	4713	ug/L	-6	10	
Manganese	A	5000	4777	ug/L	-4	10	
Molybdenum	A	5000	4879	ug/L	-2	10	
Nickel	A	5000	4773	ug/L	-5	10	
Selenium	A	5000	4738	ug/L	-5	10	
Silver	A	1000	962.9	ug/L	-4	10	
Thallium	A	5000	4780	ug/L	-4	10	
Vanadium	A	5000	4736	ug/L	-5	10	
Zinc	A	5000	4788	ug/L	-4	10	
Aluminum	R	20000	20420	ug/L	2	10	
Magnesium	R	20000	20340	ug/L	2	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84343594008.1 File : met08_sn_6010 Time : 26-AUG-2014 15:15
Cal : 84343594001 Caldate : 26-AUG-2014
Standards: S25074

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	12.46	ug/L	**25**	30	!cri+
Arsenic	A	5.000	5.841	ug/L	17	30	
Barium	A	5.000	5.430	ug/L	9	30	
Beryllium	A	2.000	1.982	ug/L	-1	30	
Cadmium	A	5.000	5.422	ug/L	8	30	
Chromium	A	5.000	5.283	ug/L	6	30	
Cobalt	A	5.000	5.196	ug/L	4	30	
Copper	A	5.000	1.896	ug/L	**-62**	30	cri- ***
Lead	A	5.000	6.242	ug/L	**25**	30	!cri+
Manganese	A	5.000	5.333	ug/L	7	30	
Molybdenum	A	5.000	5.339	ug/L	7	30	
Nickel	A	5.000	5.328	ug/L	7	30	
Selenium	A	10.00	8.470	ug/L	-15	30	
Silver	A	5.000	4.229	ug/L	-15	30	
Thallium	A	10.00	11.62	ug/L	16	30	
Vanadium	A	5.000	5.009	ug/L	0	30	
Zinc	A	20.00	22.22	ug/L	11	30	
Aluminum	R	100.0	115.0	ug/L	15	30	
Magnesium	R	200.0	224.8	ug/L	12	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2479195	2606159	5.12

!=warning +=high bias -=low bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84343594009.2 File : met08_sn_6010 Time : 26-AUG-2014 15:19
Cal : 84343594001 Caldate : 26-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2479195	2562048	3.34

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84343594010.2 File : met08_sn_6010 Time : 26-AUG-2014 15:25
Cal : 84343594001 Caldate : 26-AUG-2014
Standards: S25075

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[9.180]	10.00	ug/L	!a+
Arsenic	A	[-3.265]	5.000	ug/L	!a-
Barium	A	[-0.7818]	5.000	ug/L	
Beryllium	A	[0.9256]	2.000	ug/L	
Cadmium	A	[2.670]	5.000	ug/L	!a+
Cobalt	A	[0.7357]	5.000	ug/L	
Lead	A	[-2.083]	5.000	ug/L	
Molybdenum	A	[-2.734]	5.000	ug/L	!a-
Selenium	A	[-0.002424]	10.00	ug/L	
Silver	A	[2.998]	5.000	ug/L	!a+
Thallium	A	[0.01146]	10.00	ug/L	
Zinc	A	[-1.296]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec
Chromium	A	20000	19670	ug/L	98
Copper	A	20000	20780	ug/L	104
Manganese	A	20000	18710	ug/L	94
Nickel	A	20000	18290	ug/L	91
Vanadium	A	20000	18520	ug/L	93
Aluminum	R	500000	532800	ug/L	107
Calcium	R	500000	519700	ug/L	104
Iron	R	200000	202800	ug/L	101
Magnesium	R	500000	521400	ug/L	104
Titanium	R	20000	20740	ug/L	104

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2479195	2196145	-11.42

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84343594011.2 File : met08_sn_6010 Time : 26-AUG-2014 16:00
Cal : 84343594001 Caldate : 26-AUG-2014
Standards: S25227

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	500.9	ug/L	0	20	
Arsenic	A	500.0	501.5	ug/L	0	20	
Barium	A	500.0	542.6	ug/L	9	20	
Beryllium	A	500.0	542.3	ug/L	8	20	
Cadmium	A	1000	1031	ug/L	3	20	
Chromium	A	500.0	519.3	ug/L	4	20	
Cobalt	A	500.0	491.2	ug/L	-2	20	
Copper	A	500.0	540.5	ug/L	8	20	
Lead	A	1000	983.2	ug/L	-2	20	
Manganese	A	500.0	448.4	ug/L	-10	20	
Molybdenum	A	500.0	520.7	ug/L	4	20	
Nickel	A	1000	978.4	ug/L	-2	20	
Selenium	A	500.0	509.0	ug/L	2	20	
Silver	A	1000	1144	ug/L	14	20	
Thallium	A	500.0	483.3	ug/L	-3	20	
Vanadium	A	500.0	544.2	ug/L	9	20	
Zinc	A	1000	1020	ug/L	2	20	
Aluminum	R	500000	515700	ug/L	3		
Magnesium	R	500000	519100	ug/L	4		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2479195	2218671	-10.51

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84343594022.1 File : met08_sn_6010 Time : 26-AUG-2014 16:56
Cal : 84343594001 Caldate : 26-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	33.141	32.963	5000	5003	ug/L	0	10	
Arsenic	A	18.986	20.561	5000	4977	ug/L	0	10	
Barium	A	414.50	403.64	5000	4952	ug/L	-1	10	
Beryllium	A	4959.6	5287.1	500.0	535.5	ug/L	7	10	
Cadmium	A	240.76	238.92	5000	5001	ug/L	0	10	
Chromium	A	96.193	96.168	5000	4983	ug/L	0	10	
Cobalt	A	134.18	135.41	5000	4984	ug/L	0	10	
Copper	A	90.311	104.65	5000	4740	ug/L	-5	10	
Lead	A	61.605	58.593	5000	4867	ug/L	-3	10	
Manganese	A	1169.4	1143.3	5000	5060	ug/L	1	10	
Molybdenum	A	36.234	36.956	5000	5038	ug/L	1	10	
Nickel	A	53.665	53.683	5000	4917	ug/L	-2	10	
Selenium	A	28.682	30.788	5000	4933	ug/L	-1	10	
Silver	A	712.35	713.17	1000	980.4	ug/L	-2	10	
Thallium	A	19.678	19.657	5000	4961	ug/L	-1	10	
Vanadium	A	158.57	156.97	5000	4846	ug/L	-3	10	
Zinc	A	79.984	80.032	5000	4939	ug/L	-1	10	
Aluminum	R	0.4759	0.4942	20000	21160	ug/L	6	10	
Magnesium	R	0.6838	0.6873	20000	21270	ug/L	6	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2479195	2551655	2.92

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259790 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84343594023.1 File : met08_sn_6010 Time : 26-AUG-2014 17:03
Cal : 84343594001 Caldate : 26-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2479195	2512782	1.35

SAMPLE PREPARATION SUMMARY

Batch # : 214656
Started By : ARD
Method : METHOD
Spike #1 ID : S24678

Prep Date : 21-AUG-2014 16:30
Spike #2 ID : S24679

Analysis : ICAP
Finished By : ARD
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259786-001		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	MSS
259786-003		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259786-004		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259786-005		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259790-001		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259790-002		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259981-001		Filtrate	50	50	1	1.0						MN, NA	
259981-002		Filtrate	50	50	1	1.0						MN, NA	
QC754558	BLANK	Filtrate	50	50	1	1.0							
QC754559	BS	Filtrate	50	50	1	1.0		.5	.5				
QC754560	BSD	Filtrate	50	50	1	1.0		.5	.5				
QC754561	MS	Filtrate	50	50	1	1.0		.5	.5				
QC754562	MSD	Filtrate	50	50	1	1.0		.5	.5				
QC754563	SER	Filtrate	50	50	1	1.0							
QC754564	PDS	Filtrate	50	50	1	1.0							

Analyst: CRT Date: 08/25/14 Reviewer: EAH Date: 08/25/14

Water Digestion for ICP Curtis & Tompkins, Ltd.

LIMS Batch #: 214656
Digested by: ARD
Date Digested: 8.21.2014

Digestion Method
☐ EPA 3010a for ICP
☐ EPA 200.7
☒ Filtrate

BK3577
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Lvl.	Sample #	Container ID	Volume Sample(mL)	Final Volume (mL)	Filtered? (y/n)	ID ✓	Comments
	Blank		☑ 50	☑ 50	No	✓	QC754568
	BS *		☑ 50	☑ 50	↓	✓	559
	BSD *		☑ 50	☑ 50	↓	✓	↓ 560
	MS: 259786-001 *	↑	☑ 50	☑ 50	↓	✓	~~MSS~~ ARD 8.21.2014
5	MSD ↓ ~~-003~~ *	↑	☑ 50	☑ 50	↓	✓	
II	259786-001 ~~-004~~ ARD	P	☑ 50	☑ 50	↓	✓	MSS
↓	↑ -003 ~~-005~~ 8.21.14	F	☑ 50	☑ 50	↓	✓	
↓	↓ -004	↓	☑ 50	☑ 50	↓	✓	
↓	↓ -005	A	☑ 50	☑ 50	↓	✓	
III 10	259790-001	F	☑ 50	☑ 50	↓	✓	
↓	↓ -002	↓	☑ 50	☑ 50	↓	✓	
II	259981-001	F	☑ 50	☑ 50	↓	✓	
↓	↓ -002	↓	☑ 50	☑ 50	↓	✓	
			☐ 50	☐ 50			
15			☐ 50	☐ 50			
			☐ 50	☐ 50			
			☐ 50	☐ 50			
			☐ 50	☐ 50			
			☐ 50	☐ 50			
20			☐ 50	☐ 50			
			☐ 50	☐ 50			
			☐ 50	☐ 50			
			☐ 50	☐ 50			
			☐ 50	☐ 50			
			☐ 50	☐ 50			

	Reagent ID or LIMS #	Initials / Date
Digestion tubes, lot #	Accuflow	ARD 8.21.2014
0.5 mL of spike solution (Std1) was added to all spikes	S24678 *	↓
0.5 mL of spike solution (Std2) was added to all spikes	S24679 *	↓
Digestion Temperature (°C), Block and Probe Location	— —	↓
Digestion begun at (time)	16:30	↓
o Conc. HNO3 or ☒ 1:1 HNO3	JTB-66236	↓
1:1 HCl	JTB-75649	↓
digestion ended at (time)	—	↓
o filtered thru' Whatman # 541	—	↓
Relinquished to ICP group	ICAP	↓

Prep Chemist / Date 8.21.2014

Continued from page Ø
Continued on page

Reviewed Online / See LIMS

Mercury Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1074333431

Instrument : MET54 Begun : 08/19/14 13:11
Method : EPA 7470A SOP Version : hg_water_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met54	ICALBLK				08/19/14 13:11	1.0		
002	met54	ICAL	ICAL1			08/19/14 13:12	1.0	1	
003	met54	ICAL	ICAL2			08/19/14 13:13	1.0	1	
004	met54	ICAL	ICAL3			08/19/14 13:15	1.0	1	
005	met54	ICAL	ICAL4			08/19/14 13:16	1.0	1	
006	met54	ICAL	ICAL5			08/19/14 13:17	1.0	1	
007	met54	ICV				08/19/14 13:19	1.0	2	
008	met54	ICB				08/19/14 13:20	1.0		
009	met54	BLANK	QC754065	Water	214531	08/19/14 13:21	1.0		
010	met54	BS	QC754066	Water	214531	08/19/14 13:23	1.0		spk
011	met54	BSD	QC754067	Water	214531	08/19/14 13:24	1.0		spk
012	met54	MSS	259786-001	Filtrate	214531	08/19/14 13:25	1.0		spk
013	met54	MS	QC754068	Filtrate	214531	08/19/14 13:26	1.0		
014	met54	MSD	QC754069	Filtrate	214531	08/19/14 13:28	1.0		
015	met54	BS	QC754066	Water	214531	08/19/14 13:29	1.0		spk
016	met54	BSD	QC754067	Water	214531	08/19/14 13:30	1.0		spk
017	met54	SER	QC754070	Filtrate	214531	08/19/14 13:32	5.0		
018	met54	SAMPLE	259786-003	Filtrate	214531	08/19/14 13:33	1.0		spk
019	met54	CCV				08/19/14 13:34	1.0	3	
020	met54	CCB				08/19/14 13:36	1.0		
021	met54	MS	QC754068	Filtrate	214531	08/19/14 13:37	1.0		
022	met54	MSD	QC754069	Filtrate	214531	08/19/14 13:38	1.0		
023	met54	SAMPLE	259786-004	Filtrate	214531	08/19/14 13:40	1.0		spk
024	met54	SAMPLE	259786-005	Filtrate	214531	08/19/14 13:41	1.0		spk
025	met54	SAMPLE	259790-001	Filtrate	214531	08/19/14 13:42	1.0		spk
026	met54	SAMPLE	259790-002	Filtrate	214531	08/19/14 13:44	1.0		spk
027	met54	SAMPLE	259844-003	Water	214531	08/19/14 13:45	20.0		spk
028	met54	CCV				08/19/14 13:46	1.0	3	
029	met54	CCB				08/19/14 13:48	1.0		

NCD 08/19/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 29.

Standards used: 1=S25441 2=S25443 3=S25444

Flags used: spk=5% spike rule

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259790 METALS Filtrate: EPA 7470A

Inst : MET54
Calnum : 1074333431001
Units : ug/L

Date : 19-AUG-2014 13:11
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met54	1074333431002	ICAL1	19-AUG-2014 13:12	S25441 (500X)
L2	met54	1074333431003	ICAL2	19-AUG-2014 13:13	S25441 (200X)
L3	met54	1074333431004	ICAL3	19-AUG-2014 13:15	S25441 (50X)
L4	met54	1074333431005	ICAL4	19-AUG-2014 13:16	S25441 (20X)
L5	met54	1074333431006	ICAL5	19-AUG-2014 13:17	S25441 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0585	0.0578	0.0546	0.0500	0.0438	LIN0	-0.2209	22.7168		0.0529	0.995	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	**-78**	0.5000	-13	2.0000	13	5.0000	9	10.000	-3

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259790 METALS Filtrate
EPA 7470A

Inst : MET54
Calnum : 1074333431001 Cal Date : 19-AUG-2014

ICV 1074333431007 (19-AUG-2014) stds: S25443

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	4.963	ug/L	-1	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259790 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1074333431008.1 File : met54 Time : 19-AUG-2014 13:20
Cal : 1074333431001 Caldate : 19-AUG-2014

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1074333431019.1 File : met54 Time : 19-AUG-2014 13:34
Cal : 1074333431001 Caldate : 19-AUG-2014
Standards: S25444

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0529	0.0420	5.000	4.550	ug/L	-9	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259790 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1074333431020.1 File : met54 Time : 19-AUG-2014 13:36
Cal : 1074333431001 Caldate : 19-AUG-2014

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259790 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1074333431028.1 File : met54 Time : 19-AUG-2014 13:46
Cal : 1074333431001 Caldate : 19-AUG-2014
Standards: S25444

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0529	0.0418	5.000	4.529	ug/L	-9	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259790 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1074333431029.1 File : met54 Time : 19-AUG-2014 13:48
Cal : 1074333431001 Caldate : 19-AUG-2014

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 214531
Started By : NCD
Method : METHOD
Spike #1 ID : S25441

Prep Date : 19-AUG-2014 08:49

Analysis : HG
Finished By : NCD
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259786-001		Filtrate	50	50	1	1.0						T22/HG	
259786-003		Filtrate	50	50	1	1.0						T22/HG	
259786-004		Filtrate	50	50	1	1.0						T22/HG	
259786-005		Filtrate	50	50	1	1.0						T22/HG	
259790-001		Filtrate	50	50	1	1.0						T22/HG	
259790-002		Filtrate	50	50	1	1.0						T22/HG	
259844-003		Water	50	50	1	1.0						T22/HG	
QC754065	BLANK	Water	50	50	1	1.0							
QC754066	BS	Water	50	50	1	1.0		1.25					
QC754067	BSD	Water	50	50	1	1.0		1.25					
QC754068	MS	Filtrate	50	50	1	1.0		1.25					
QC754069	MSD	Filtrate	50	50	1	1.0		1.25					
QC754070	SER	Filtrate	50	50	1	1.0							

NCD 08/19/14 : ms/msd failed low bias, but RPD still within range. Suggesting interference with matrix.

Analyst: NCD Date: 08/19/14 Reviewer: PRW Date: 08/21/14

Water Digestion for Mercury

Curtis & Tompkins, Ltd.

LIMS Batch #: 214531

Date Digested: 8/19/2014

Digestion Method

☒ EPA 7470A/ EPA 245.1

☐ _____

BK3567

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Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
BLK		☑ 50 ☐	☑ 50 ☐	no	QC754065
BS		☑ 50 ☐	☑ 50 ☐		66
BSD		☑ 50 ☐	☑ 50 ☐		67
259786-001	P	☑ 50 ☐	☑ 50 ☐		MS
-001		☑ 50 ☐	☑ 50 ☐		MSD
-001		☑ 50 ☐	☑ 50 ☐		
-003	E	☑ 50 ☐	☑ 50 ☐		
-004	F	☑ 50 ☐	☑ 50 ☐		
-005	A	☑ 50 ☐	☑ 50 ☐		
259790-001	F	☑ 50 ☐	☑ 50 ☐		
-002		☑ 50 ☐	☑ 50 ☐		
259844-003	H	☑ 50 ☐	☑ 50 ☐		Oily
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		

8/19/2014

	Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tube Lot #	EW1321J	WAK 8/19/14
1.25 mL of spike solution was added to all spikes	S25441	
☐ CAL digested with this batch — ICAL Source LIMS S#	42	
ICV / CCV LIMS S#	43/44	
Digestion Temperature (°C), Block and Probe Location	98° B8	
Digestion Started at (time)	8:49	
concentrated H_2SO_4	2014020596 BDH	
concentrated HNO_3	66256 JTB	
5% $KMnO_4$	8/11/14	
5% $K_2S_2O_8$	8/7/14	
NaCl.hydroxylamine hydrochloride	7/31/14	
Stannous Chloride	8/15/14	
Digestion Completed at (time)	~~310~~ 8/19/14 10:49	
☐ filtered thru' 0.45 um syringe filter (lot #)	~~310045~~ 13	

8/19/14

Prep Chemist / Date

Continued from page ____

Continued on page ____

Reviewed Online / See LIMS

Dilutions for 259790 METALS Filtrate
Curtis & Tompkins Laboratories

Type	Sample ID	IDFs
SER	QC754070	5X
SER	QC754563	5X, 500X
PDS	QC754564	1X, 100X

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 259825
ANALYTICAL REPORT
Wet Chemistry

JM Waller Associates 11325 Random Hills Road Fairfax, VA 22030-6608	Project : N62473-11-D-2215 Location : BGMP-DRMO SOUTH Level : IV Contract # : N62473-11-D-2215

Sample ID	Lab ID
01W56081214	259825-001

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Tracy Babjar Date: 08/21/2014

Tracy Babjar
Project Manager
tracy.babjar@ctberk.com
(510) 204-2226

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
WET CHEMISTRY (SM2540C)

Laboratory number:	**259825**
Client:	**JM Waller Associates**
Project:	**N62473-11-D-2215**
Location:	**BGMP-DRMO SOUTH**
Request Date:	**08/12/14**
Samples Received:	**08/12/14**

This data package contains sample and QC results for one water sample, requested for the above referenced project on 08/12/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

All qualified data are compliant with appropriate corrective actions specified in Standard Operating Procedures. The Standard Operating Procedures are available upon request.

Manual integration documentation may be found in the "Case Narrative Addendum: Manual Integrations" sections.

Total Dissolved Solids (TDS) (SM2540C):
No analytical problems were encountered.

Chain of Custody

Curtis & Tompkins, Ltd.
Analytical Laboratory Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510)486-0900 Phone
(510)486-0532 Fax

CHAIN OF CUSTODY

Chain of Custody # : 1 2

C&T LOGIN # 259825 [redacted]

Project No: N62473-11-D-2215
Project Name: BGMP- DRMO South
EDD Format: _____ **Rpt Level:** ☐ II ☐ III ☑ IV
Turnaround Time: ☐ RUSH _____ ☑ Standard
PO#: ALT14-001-01-004-CTL

Sampler: M. Mandell
Report To: T. Chuhay, H. Wollenburg
Company : JM Waller and ERRG
Telephone 404-443-2777
Email:

Lab No.	Sample ID.	Sampling Date	Sampling Time	Matrix: Water	Matrix: Soil	Matrix:	Matrix:	# of Containers	Chemical Preservative: HCl	H_2SO_4	HNO_3	NaOH	None	Analytical Request: TDS
	01W56081214	8/12/2014	1352	X				1					X	X

Notes:

SAMPLE RECEIPT
☑ Intact ☑ Cold
☑ On Ice ☐ Ambient

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	DATE/TIME
M. Mandell	8/12/14 1610	[signature]	8/12/14 1610
[signature]	8/12/14 1715	Flor Juarez	8/12 1715
	DATE/TIME		DATE/TIME

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 759825 Date Received 8/12/14 Number of coolers 1
Client JMW Project N62473-11-D-2215

Date Opened 8/12/14 By (print) " " (sign) "
Date Logged in 8/14/14 By (print) " " (sign) "

1. Did cooler come with a shipping slip (airbill, etc)_____ YES ~~NO~~
   Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☐ ~~NO~~
   How many _____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO N/A
3. Were custody papers dry and intact when received? _____ ~~YES~~ NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ ~~YES~~ NO
5. Is the project identifiable from custody papers? (If so fill out top of form)___ ~~YES~~ NO
6. Indicate the packing in cooler: (if other, describe)_____

   ☐ Bubble Wrap ☐ Foam blocks ☑ Bags ☐ None
   ☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels
7. Temperature documentation: * Notify PM if temperature exceeds 6°C

   Type of ice used: ☑ Wet ☐ Blue/Gel ☐ None Temp(°C) 6.6°

   ☐ Samples received on ice & cold without a temperature blank; temp taken with IR gun

   ☑ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES ~~NO~~
   If YES, what time were they transferred to freezer? _____
9. Did all bottles arrive unbroken/unopened? _____ ~~YES~~ NO
10. Are there any missing / extra samples? _____ YES ~~NO~~
11. Are samples in the appropriate containers for indicated tests? _____ ~~YES~~ NO
12. Are sample labels present, in good condition and complete? _____ ~~YES~~ NO
13. Do the sample labels agree with custody papers? _____ ~~YES~~ NO
14. Was sufficient amount of sample sent for tests requested? _____ ~~YES~~ NO
15. Are the samples appropriately preserved? _____ YES NO ~~N/A~~
16. Did you check preservatives for all bottles for each sample? _____ YES NO ~~N/A~~
17. Did you document your preservative check? _____ YES NO ~~N/A~~
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO ~~N/A~~
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO ~~N/A~~
20. Are bubbles > 6mm absent in VOA samples? _____ YES NO ~~N/A~~
21. Was the client contacted concerning this sample delivery? _____ YES ~~NO~~
   If YES, Who was called?_____ By_____ Date:_____

COMMENTS

_____

Rev 10, 10/11

Results & QC Summary

Curtis & Tompkins, Ltd.

Total Dissolved Solids (TDS)

Lab #:	259825	Location:	BGMP-DRMO SOUTH
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	SM2540C
Analyte:	Total Dissolved Solids	Sampled:	08/12/14
Field ID:	01W56081214	Received:	08/12/14
Matrix:	Water	Prepared:	08/18/14
Units:	mg/L	Analyzed:	08/19/14
Batch#:	214481		

Type	Lab ID	Result	LOQ	Diln Fac
SAMPLE	259825-001	11,300	100	10.00
BLANK	QC753879	ND	10	1.000

ND= Not Detected
LOQ= Limit of Quantitation

Batch QC Report

Total Dissolved Solids (TDS)

Lab #:	259825	Location:	BGMP-DRMO SOUTH
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	SM2540C
Analyte:	Total Dissolved Solids	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	214481
Matrix:	Water	Prepared:	08/18/14
Units:	mg/L	Analyzed:	08/19/14

Type	MSS Lab ID	Lab ID	MSS Result	Spiked	Result	LOQ	%REC	Limits	RPD	Lim	Sampled	Received
LCS		QC753880		104.0	84.00		81	74-120				
SDUP	259774-001	QC753881	640.0		646.0	10.00			1	5	08/12/14	08/13/14
SDUP	259873-007	QC753882	1,038		1,078	10.00			4	5	08/14/14	08/15/14

LOQ= Limit of Quantitation
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Sample Batch Report

Batch Number: 214481
Date Started: 18-AUG-2014
Batched by : Kevin Riley

Analysis : TDS
Bgroup : N/A
Department : Wet Chemistry

Sample	Type		Client	Matrix	Analyses	Due Date
259751-002			JM Waller Associat	Water	TDS	22-AUG-2014
259751-003			JM Waller Associat	Water	TDS	22-AUG-2014
259751-004			JM Waller Associat	Water	TDS	22-AUG-2014
259774-001			Acton Mickelson En	Water	TDS	27-AUG-2014
259779-003			ICES	Water	TDS	19-AUG-2014
259785-001			Erler & Kalinowski	Water	TDS	20-AUG-2014
259785-002			Erler & Kalinowski	Water	TDS	20-AUG-2014
259785-003			Erler & Kalinowski	Water	TDS	20-AUG-2014
259785-004			Erler & Kalinowski	Water	TDS	20-AUG-2014
259785-005			Erler & Kalinowski	Water	TDS	20-AUG-2014
259785-006			Erler & Kalinowski	Water	TDS	20-AUG-2014
259823-001			Acton Mickelson En	Water	TDS	28-AUG-2014
259823-003			Acton Mickelson En	Water	TDS	28-AUG-2014
259825-001			JM Waller Associat	Water	TDS	22-AUG-2014
259865-001			Acton Mickelson En	Water	TDS	29-AUG-2014
259865-003			Acton Mickelson En	Water	TDS	29-AUG-2014
259873-007			U.S. Army Corps of	Water	TDS	27-AUG-2014
259882-001			JM Waller Associat	Water	TDS	27-AUG-2014
259882-002			JM Waller Associat	Water	TDS	27-AUG-2014
QC753879	BLANK			Water	TDS	
QC753880	LCS			Water	TDS	
QC753881	SDUP	of 259774-001		Water	TDS	
QC753882	SDUP	of 259873-007		Water	TDS	

Analysis:	**Total Dissolved Solids**	Analyst:	kr	QC Limits	RPD	Recovery	
Method:	SMWW 2540C	Filtration Date:	**8/18/14**	LCS/ BS/ BSD	5	80 -	120
Matrix:	Water	Analysis Date:	**8/19/14**	MS/ MSD/SDUP	5	65 -	130
SOP#:	tds_rv 12.doc	Batch #:	214481				

Sample	Sample Vol (mL)	DF (50/vol)	Initial Mass (g)	Constant Mass (g)	Residue Mass (g)	Report (mg/L)	Reporting Limit (mg/L)	Spike Std Conc (mg/L)	Spike Vol. Used (mL)	Spike (mg/L)	**Recovery,%**	**RPD,%**
MB	50	1	59.1284	59.1276	-0.0008	**ND**	10					
LCS	50	1	54.8430	54.8472	0.0042	**84.0**	10	104	50	104	**81**	
259774-001	50	1	59.9248	59.9568	0.0320	**640.0**	10					
SDUP 1	50	1	69.0401	69.0724	0.0323	**646.0**	10					**1**
259873-007	50	1	69.1004	69.1523	0.0519	**1,038.0**	10					
SDUP 2	50	1	68.0693	68.1232	0.0539	**1,078.0**	10					**4**
259751-002	5	10	59.6614	59.7158	0.0544	**10,880.0**	100					
259751-003	50	1	59.9024	59.9023	-0.0001	**ND**	10					
259751-004	50	1	68.7222	68.7220	-0.0002	**ND**	10					
259779-003	5	10	67.5327	67.5979	0.0652	**13,040.0**	100					
259785-001	30	1.667	58.6446	58.7275	0.0829	**2,763.3**	17					
259785-002	50	1	60.3894	60.4098	0.0204	**408.0**	10					
259785-003	50	1	67.5477	67.6011	0.0534	**1,068.0**	10					
259785-004	5	10	66.7249	66.7980	0.0731	**14,620.0**	100					
259785-005	5	10	58.4153	58.4565	0.0412	**8,240.0**	100					
259785-006	5	10	64.9679	65.0299	0.0620	**12,400.0**	100					
259823-001	50	1	68.5600	68.6188	0.0588	**1,176.0**	10					
259823-003	50	1	65.1436	65.1758	0.0322	**644.0**	10					
259825-001	5	10	66.5665	66.6229	0.0564	**11,280.0**	100					
259865-001	35	1.429	59.2431	59.3451	0.1020	**2,914.3**	14					
259865-003	25	2	68.2164	68.3274	0.1110	**4,440.0**	20					
259882-001	45	1.111	69.5821	69.6382	0.0561	**1,246.7**	11					
259882-002	5	10	68.1625	68.2405	0.0780	**15,600.0**	100					

TDS (Total Dissolved Solids)
SMWW 2540C

Curtis & Tompkins, Ltd.

LIMS Batch #: 214981 Prep Date: 18-Aug-14 Benchbook#: **BK 3594**
Filtered by: HR Prep Time: 1105 Page: **4**
EE

Filter Mfg/ Lot#: 60007-4090-T Spike Std Conc (mg/L): 104
Spike Std LIMS#: 524620 Spike Std Vol Added (mL): 50 Balance ID WETC1

	In	Out	In-2	Out-2	In-3	Out-3
Date:	8.18.14	8.19.14	8.18.14	8.19.14		
Time:	1300	1022	1228	1333		
Temp (C):	90	180	180	180		
Weighed by:		HR		HR	HR	8.19.14

Sample #	Container ID	EC Value (µS/cm)	Sample Vol. Filtered (mL)	Dish ID	Dish Wt (g)	1st Dry Wt.(g)	2nd Dry Wt (g)*	3rd Dry Wt (g)*
MB			50	100K	59.1284	59.1276	59.1279	
LCS			50	LAA	54.8930	54.8972	54.8967	
259774-001	CT	1005	50	TGM	59.9248	59.9568	59.9570	
SNP 774-001	CT	1000	50	STOP	69.0401	69.0724	69.0725	
259873-007	A	1681	50	MOW	69.1004	69.1523	69.1523	
SNP 873-007	A	1698	50	BIKE	68.0693	68.1232	68.1229	
259751-002	A	17240	5	GRL	59.6614	59.7158	59.7159	
— -003	A	4.12	50	CAV	59.9024	59.9023	59.9022	
— -004	A	2.06	50	RUN	68.7222	68.7220	68.7221	
259774-003	H	20280	5	SS	67.5327	67.5979	67.5980	
259785-001	AD	4900	50	JET	58.6946	58.7275	58.7279	HR 8/18
— -002	D	657	50	YOU	60.3894	60.4098	60.4095	
— -003	D	1769	50	BIB	67.5977	67.6011	67.6013	
— -004	D	22140	5	HKO	66.7249	66.7980	66.7977	
— -005	D	12070	5	SIT	58.4153	58.4565	58.4562	
— -006	D	18240	5	BSZ	64.9679	65.0299	65.0299	
259823-001	AE	1552	50	HOK	68.5600	68.6188	68.6192	
— -003	AE	1002	50	KKSF	65.1436	65.1758	65.1754	
259885-001	A	17420	5	FIRE	66.5665	66.6229	66.6224	
259805-001	AE	3770	35	NOW	59.2431	59.3451	59.3459	
— -003	AE	5340	25	PIPE	68.2164	68.3279	68.3271	
259882-001	G	2197	45	BILL	69.5821	69.6382	69.6380	
— -002	G	32400	5	COMB	68.1625	68.2405	68.2400	

* Constant weight must be within 0.0005 from previous reading.

18-Aug-14
Analyst / Date

8/19/14
Reviewed by / Date

PROJECT WET01 BALANCE CALIBRATION

Notebook No. BK2557

Continued From Page

DATE	ANALYST	0.0020 / 0.0200	100.0000	SET #	LEVEL
01-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
02-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
06-JUL-14	KR	0.0200	100.0001	HNS597 / 28659	✓
07-JUL-14	KR	0.0200	100.0002	HNS597 / 28659	✓
09-JUL-14	KR	0.0200	100.0001	HNS597 / 28659	✓
10-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
11-JUL-14	KR	0.0200	100.0002	HNS597 / 28659	✓
14-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
15-Jul-14	MB3	0.0018	100.0003	HEM-2 / HN 28659	✓
16-Jul-14	MB3	0.0201	100.0004	HN5 599 / 58657	✓
17-JUL-14	KR	0.0200	99.9999	HSS597 / 28659	✓
18-JUL-14	KR	0.0200	100.0000	HSS597 / 28659	✓
21-JUL-14	KR	0.0200	100.0001	HSS597 / 28659	✓
22-Jul-14	NJT	0.0201	100.0005	HNS597 / 28659	✓
23-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
24-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
25-JUL-14	KR	0.0200	99.9998	HSS597 / 28659	✓
28-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
29-JUL-14	KR	0.0200	99.9999	HNS597 / 28659	✓
30-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
31-JUL-14	KR	0.0200	100.0000	HNS597 / 28659	✓
01-AUG-14	KR	0.0200	100.0000	HNS597 / 28659	✓
2-Aug-14	NJT	0.0200	100.0001	HNS597 / 28659	✓
4-AUG-14	KR	0.0200	100.0001	HNS597 / 28659	✓
5-AUG-14	KR	0.0200	100.0001	HNS597 / 28659	✓
6-AUG-14	KR	0.0200	99.9999	HNS597 / 28659	✓
7-Aug-14	NJT	0.0200	100.0001	HNS597 / 28659	✓
8-AUG-14	KR	0.0200	100.0001	HNS597 / 28659	✓
11-AUG-14	KR	0.0200	100.0000	HNS597 / 28659	✓
12-AUG-14	KR	0.0200	100.0000	HNS597 / 28659	✓
13-AUG-14	KR	0.0200	100.0000	HNS597 / 28659	✓
14-AUG-14	KR	0.0200	100.0002	HNS597 / 28659	✓
15-Aug-14	JW	0.0200	100.0001	HNS597 / 28659	✓
18-AUG-14	KR	0.0200	100.0000	HNS597 / 28659	✓
19-AUG-14	KR	0.0200	100.0000	HNS597 / 28659	✓

Continued On Page

Read and Understood By

Signed Date Signed Date

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 259835
ANALYTICAL REPORT
Semivolatile Organics by GC/MS

JM Waller Associates 11325 Random Hills Road Fairfax, VA 22030-6608	Project : N62473-11-D-2215 Location : BGMP-1R04 Level : IV Contract # : N62473-11-D-2215

Sample ID	Lab ID
04W06-081414	259835-002

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Tracy Babjar Date: 09/03/2014

Tracy Babjar
Project Manager
tracy.babjar@ctberk.com
(510) 204-2226

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
SEMIVOLATILE ORGANICS BY GC/MS (EPA 8270D)

Laboratory number:	**259835**
Client:	**JM Waller Associates**
Project:	**N62473-11-D-2215**
Location:	**BGMP-1R04**
Request Date:	**08/14/14**
Samples Received:	**08/14/14**

This data package contains sample and QC results for one water sample, requested for the above referenced project on 08/14/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

All qualified data are compliant with appropriate corrective actions specified in Standard Operating Procedures. The Standard Operating Procedures are available upon request.

Manual integration documentation may be found in the "Case Narrative Addendum: Manual Integrations" sections.

Semivolatile Organics by GC/MS (EPA 8270D):
Low recoveries were observed for hexachlorocyclopentadiene in the BS/BSD for batch 214595; the associated RPD was within limits. High RPD was observed for 4-chloroaniline; this analyte was not detected at or above the RL in the associated sample.

No other analytical problems were encountered.

Chain of Custody

CHAIN OF CUSTODY

Chain of Custody # _____

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

C&T LOGIN # 259835

Project No: N62473-11-D-2215
Project Name: BGMP-IRA
Project P. O. No: ATL14-001-01-004-CTL
EDD Format: Report Level ☐ II ☐ III ☑ IV
Turnaround Time: ☐ RUSH _____ ☑ Standard

Sampler: M. Wardell
Report To: Murray + H. Wolenberg
Company: M. Waller + ERRG
Telephone: 404-443-2733
Email:

Lab No.	Sample ID.	SAMPLING Date Collected	SAMPLING Time Collected	MATRIX Water	MATRIX Solid	# of Containers	CHEMICAL PRESERVATIVE HCl	H2SO4	HNO3	NaOH	None	ANALYTICAL REQUEST: Metals - Field Filtered	Cr(VI)	SVOC	PAH
1	04W07-081414	8/14/14	0845	X		2			X			X	X		
2	04W06-081414	8/14/14	1040	X		4			X			X		X	X
3	04W15-081414	8/14/14	1345	X		1					X	X			

Notes:
04W15-081414 is Field Filtered in a 1L amber
FIX WITH NITRIC ACID UPON RECEIPT!

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:	DATE:	TIME:
M. Wardell	8/14/14	3:40p
[illegible]	8/14/14	2630
	DATE:	TIME:

RECEIVED BY:	DATE:	TIME:
[illegible]	8/14/14	1540
FLOR [illegible]	8/14/14	1630
	DATE:	TIME:

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 259835 [redacted] Date Received 8/14/14 Number of coolers 2
Client JM Waller + ERRG Project BGMP - IROH

Date Opened 8/14 By (print) GV (sign) [signature]
Date Logged in_____ By (print)_____ (sign)_____

1. Did cooler come with a shipping slip (airbill, etc)_____ YES ~~NO~~
   Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
   How many _____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO ~~N/A~~
3. Were custody papers dry and intact when received?_____ ~~YES~~ NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ ~~YES~~ NO
5. Is the project identifiable from custody papers? (If so fill out top of form)___ ~~YES~~ NO
6. Indicate the packing in cooler: (if other, describe)_____

☒ Bubble Wrap ☐ Foam blocks ☒ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C)_____

☐ Samples received on ice & cold without a temperature blank; temp taken with IR gun

☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present?_____ YES ~~NO~~
   If YES, what time were they transferred to freezer?_____
9. Did all bottles arrive unbroken/unopened?_____ ~~YES~~ NO
10. Are there any missing / extra samples? _____ YES ~~NO~~
11. Are samples in the appropriate containers for indicated tests? _____ ~~YES~~ NO
12. Are sample labels present, in good condition and complete? _____ ~~YES~~ NO
13. Do the sample labels agree with custody papers? _____ ~~YES~~ NO
14. Was sufficient amount of sample sent for tests requested? _____ ~~YES~~ NO
15. Are the samples appropriately preserved? _____ YES ~~NO~~ N/A
16. Did you check preservatives for all bottles for each sample? _____ ~~YES~~ NO N/A
17. Did you document your preservative check? _____ ~~YES~~ NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO ~~N/A~~
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO ~~N/A~~
20. Are bubbles > 6mm absent in VOA samples? _____ ~~YES~~ NO N/A
21. Was the client contacted concerning this sample delivery? _____ YES ~~NO~~
   If YES, Who was called?_____ By_____ Date:_____

COMMENTS
(15) Nitric Acid lot# 3390 added to -003 upon reciept; also added to -002 to pH<2

Rev 10, 10/11

Curtis & Tompkins Sample Preservation for 259835

Sample	pH: <2	>9	>12	Other
-001a	[ ]	[ ]	[ ]	_____
b	[X]	[ ]	[ ]	_____
-002a	[X]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
-003a	[X]	[ ]	[ ]	_____

Analyst: HV
Date: 8/14/14

Page 1 of 1

Results & QC Summary

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W06-081414	Batch#:	214595
Lab ID:	259835-002	Sampled:	08/14/14
Matrix:	Water	Received:	08/14/14
Units:	ug/L	Prepared:	08/21/14
Diln Fac:	1.000	Analyzed:	08/22/14

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	2.4 U	9.4	2.2
Phenol	2.4 U	9.4	1.6
bis(2-Chloroethyl)ether	2.4 U	9.4	1.5
2-Chlorophenol	2.4 U	9.4	1.5
1,3-Dichlorobenzene	2.4 U	9.4	1.5
1,4-Dichlorobenzene	2.4 U	9.4	1.6
Benzyl alcohol	2.4 U	9.4	1.4
1,2-Dichlorobenzene	2.4 U	9.4	1.6
2-Methylphenol	2.4 U	9.4	1.4
bis(2-Chloroisopropyl) ether	4.7 U	9.4	2.6
4-Methylphenol	2.4 U	9.4	1.4
N-Nitroso-di-n-propylamine	2.4 U	9.4	1.9
Hexachloroethane	2.4 U	9.4	1.6
Nitrobenzene	2.4 U	9.4	1.5
Isophorone	2.4 U	9.4	1.8
2-Nitrophenol	4.7 U	19	2.4
2,4-Dimethylphenol	2.4 U	9.4	1.2
Benzoic acid	24 U	47	9.6
bis(2-Chloroethoxy)methane	2.4 U	9.4	1.2
2,4-Dichlorophenol	2.4 U	9.4	1.3
1,2,4-Trichlorobenzene	2.4 U	9.4	1.3
Naphthalene	2.4 U	9.4	1.4
4-Chloroaniline	2.4 U	9.4	1.2
Hexachlorobutadiene	2.4 U	9.4	1.3
4-Chloro-3-methylphenol	2.4 U	9.4	1.3
2-Methylnaphthalene	2.4 U	9.4	1.4
Hexachlorocyclopentadiene	4.7 U	19	1.6
2,4,6-Trichlorophenol	2.4 U	9.4	0.93
2,4,5-Trichlorophenol	2.4 U	9.4	0.89
2-Chloronaphthalene	2.4 U	9.4	1.5
2-Nitroaniline	2.4 U	19	1.7
Dimethylphthalate	2.4 U	9.4	1.5
Acenaphthylene	2.4 U	9.4	1.4
2,6-Dinitrotoluene	2.4 U	9.4	1.3
3-Nitroaniline	2.4 U	19	0.98
Acenaphthene	2.4 U	9.4	1.3
2,4-Dinitrophenol	4.7 U	19	2.0
4-Nitrophenol	2.4 U	19	1.1
Dibenzofuran	2.4 U	9.4	1.4
2,4-Dinitrotoluene	2.4 U	9.4	1.4
Diethylphthalate	2.4 U	9.4	1.5
Fluorene	2.4 U	9.4	1.5
4-Chlorophenyl-phenylether	2.4 U	9.4	1.3
4-Nitroaniline	2.4 U	19	1.1
4,6-Dinitro-2-methylphenol	4.7 U	19	1.6
N-Nitrosodiphenylamine	2.4 U	9.4	1.2
Azobenzene	2.4 U	9.4	1.5
4-Bromophenyl-phenylether	2.4 U	9.4	1.1
Hexachlorobenzene	2.4 U	9.4	1.2
Pentachlorophenol	2.4 U	19	1.2
Phenanthrene	2.4 U	9.4	1.2
Anthracene	2.4 U	9.4	1.3
Carbazole	2.4 U	9.4	1.9

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W06-081414	Batch#:	214595
Lab ID:	259835-002	Sampled:	08/14/14
Matrix:	Water	Received:	08/14/14
Units:	ug/L	Prepared:	08/21/14
Diln Fac:	1.000	Analyzed:	08/22/14

Analyte	Result	LOQ	DL
Di-n-butylphthalate	2.4 U	9.4	1.1
Fluoranthene	2.4 U	9.4	1.5
Pyrene	2.4 U	9.4	1.2
Butylbenzylphthalate	2.4 U	9.4	1.3
3,3'-Dichlorobenzidine	2.4 U	19	0.59
Benzo(a)anthracene	2.4 U	9.4	1.3
Chrysene	2.4 U	9.4	1.3
bis(2-Ethylhexyl)phthalate	2.4 U	9.4	1.6
Di-n-octylphthalate	2.4 U	9.4	1.2
Benzo(b)fluoranthene	2.4 U	9.4	1.3
Benzo(k)fluoranthene	2.4 U	9.4	1.4
Benzo(a)pyrene	2.4 U	9.4	1.1
Indeno(1,2,3-cd)pyrene	2.4 U	9.4	1.4
Dibenz(a,h)anthracene	2.4 U	9.4	1.3
Benzo(g,h,i)perylene	2.4 U	9.4	1.4

Surrogate	%REC	Limits
2-Fluorophenol	73	20-110
Phenol-d5	75	10-115
2,4,6-Tribromophenol	102	40-125
Nitrobenzene-d5	70	40-110
2-Fluorobiphenyl	74	50-110
Terphenyl-d14	55	50-135

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC754310	Batch#:	214595
Matrix:	Water	Prepared:	08/20/14
Units:	ug/L	Analyzed:	08/21/14

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	5.0 U	10	1.5
Phenol	2.5 U	10	1.0
bis(2-Chloroethyl)ether	2.5 U	10	1.2
2-Chlorophenol	2.5 U	10	0.82
1,3-Dichlorobenzene	2.5 U	10	1.0
1,4-Dichlorobenzene	2.5 U	10	1.1
Benzyl alcohol	2.5 U	10	1.1
1,2-Dichlorobenzene	2.5 U	10	2.1
2-Methylphenol	2.5 U	10	2.2
bis(2-Chloroisopropyl) ether	2.5 U	10	1.4
4-Methylphenol	2.5 U	10	1.7
N-Nitroso-di-n-propylamine	2.5 U	10	1.2
Hexachloroethane	2.5 U	10	1.1
Nitrobenzene	2.5 U	10	1.2
Isophorone	2.5 U	10	1.3
2-Nitrophenol	5.0 U	20	2.6
2,4-Dimethylphenol	2.5 U	10	2.5
Benzoic acid	40 U	50	16
bis(2-Chloroethoxy)methane	2.5 U	10	1.1
2,4-Dichlorophenol	2.5 U	10	2.1
1,2,4-Trichlorobenzene	2.5 U	10	2.2
Naphthalene	2.5 U	10	1.9
4-Chloroaniline	5.0 U	10	2.1
Hexachlorobutadiene	2.5 U	10	2.4
4-Chloro-3-methylphenol	2.5 U	10	1.0
2-Methylnaphthalene	2.5 U	10	1.8
Hexachlorocyclopentadiene	2.5 U	20	0.68
2,4,6-Trichlorophenol	2.5 U	10	0.92
2,4,5-Trichlorophenol	2.5 U	10	0.85
2-Chloronaphthalene	2.5 U	10	1.8
2-Nitroaniline	2.5 U	20	1.2
Dimethylphthalate	2.5 U	10	2.0
Acenaphthylene	2.5 U	10	1.7
2,6-Dinitrotoluene	2.5 U	10	1.8
3-Nitroaniline	5.0 U	20	1.9
Acenaphthene	2.5 U	10	1.8
2,4-Dinitrophenol	18 U	20	2.6
4-Nitrophenol	5.0 U	20	1.8
Dibenzofuran	2.5 U	10	1.9
2,4-Dinitrotoluene	2.5 U	10	2.1
Diethylphthalate	2.5 U	10	1.0
Fluorene	2.5 U	10	1.8
4-Chlorophenyl-phenylether	2.5 U	10	1.6
4-Nitroaniline	5.0 U	20	2.4
4,6-Dinitro-2-methylphenol	5.0 U	20	1.2
N-Nitrosodiphenylamine	2.5 U	10	1.7
Azobenzene	2.5 U	10	1.2
4-Bromophenyl-phenylether	2.5 U	10	2.0
Hexachlorobenzene	2.5 U	10	2.0
Pentachlorophenol	5.0 U	20	1.9
Phenanthrene	2.5 U	10	1.9
Anthracene	2.5 U	10	1.8
Carbazole	2.5 U	10	2.3

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC754310	Batch#:	214595
Matrix:	Water	Prepared:	08/20/14
Units:	ug/L	Analyzed:	08/21/14

Analyte	Result	LOQ	DL
Di-n-butylphthalate	2.5 U	10	1.2
Fluoranthene	2.5 U	10	1.9
Pyrene	2.5 U	10	1.7
Butylbenzylphthalate	2.5 U	10	1.0
3,3'-Dichlorobenzidine	2.5 U	20	1.0
Benzo(a)anthracene	2.5 U	10	1.6
Chrysene	2.5 U	10	1.7
bis(2-Ethylhexyl)phthalate	2.5 U	10	1.8
Di-n-octylphthalate	2.5 U	10	1.8
Benzo(b)fluoranthene	2.5 U	10	1.7
Benzo(k)fluoranthene	2.5 U	10	2.0
Benzo(a)pyrene	2.5 U	10	1.6
Indeno(1,2,3-cd)pyrene	2.5 U	10	1.8
Dibenz(a,h)anthracene	2.5 U	10	1.8
Benzo(g,h,i)perylene	2.5 U	10	1.9

Surrogate	%REC	Limits
2-Fluorophenol	86	20-110
Phenol-d5	89	10-115
2,4,6-Tribromophenol	73	40-125
Nitrobenzene-d5	90	40-110
2-Fluorobiphenyl	89	50-110
Terphenyl-d14	88	50-135

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Matrix:	Water	Batch#:	214595
Units:	ug/L	Prepared:	08/20/14
Diln Fac:	1.000	Analyzed:	08/21/14

Type: BS Lab ID: QC754311

Analyte	Spiked	Result	%REC	Limits
N-Nitrosodimethylamine	80.00	61.39	77	25-110
Phenol	80.00	62.93	79	0-115
bis(2-Chloroethyl)ether	80.00	60.61	76	35-110
2-Chlorophenol	80.00	63.91	80	35-105
1,3-Dichlorobenzene	80.00	52.58	66	30-100
1,4-Dichlorobenzene	80.00	53.33	67	30-100
Benzyl alcohol	80.00	66.57	83	30-110
1,2-Dichlorobenzene	80.00	55.21	69	35-100
2-Methylphenol	80.00	61.53	77	40-110
bis(2-Chloroisopropyl) ether	80.00	61.66	77	25-130
4-Methylphenol	80.00	59.47	74	30-110
N-Nitroso-di-n-propylamine	80.00	59.72	75	35-130
Hexachloroethane	80.00	46.90	59	30-100
Nitrobenzene	80.00	65.13	81	45-110
Isophorone	80.00	69.61	87	50-110
2-Nitrophenol	80.00	69.64	87	40-115
2,4-Dimethylphenol	80.00	47.42	59	30-110
Benzoic acid	120.0	55.15	46	0-125
bis(2-Chloroethoxy)methane	30.00	24.79	83	45-105
2,4-Dichlorophenol	80.00	65.28	82	50-105
1,2,4-Trichlorobenzene	80.00	55.41	69	35-105
Naphthalene	30.00	24.43	81	40-100
4-Chloroaniline	80.00	45.19	56	15-110
Hexachlorobutadiene	80.00	49.20	62	25-105
4-Chloro-3-methylphenol	80.00	66.04	83	45-110
2-Methylnaphthalene	30.00	25.15	84	45-105
Hexachlorocyclopentadiene	80.00	4.610	6 *	8-120
2,4,6-Trichlorophenol	80.00	66.95	84	50-115
2,4,5-Trichlorophenol	80.00	66.47	83	50-110
2-Chloronaphthalene	30.00	24.43	81	50-105
2-Nitroaniline	80.00	69.16	86	50-115
Dimethylphthalate	80.00	67.52	84	25-125
Acenaphthylene	30.00	29.84	99	50-105
2,6-Dinitrotoluene	80.00	69.63	87	50-115
3-Nitroaniline	80.00	64.91	81	20-125
Acenaphthene	30.00	26.61	89	45-110
2,4-Dinitrophenol	80.00	61.33	77	15-140
4-Nitrophenol	80.00	62.51	78	0-125
Dibenzofuran	30.00	25.97	87	55-105
2,4-Dinitrotoluene	80.00	68.60	86	50-120
Diethylphthalate	30.00	27.13	90	40-120
Fluorene	30.00	26.66	89	50-110
4-Chlorophenyl-phenylether	30.00	26.02	87	50-110
4-Nitroaniline	80.00	63.13	79	35-120
4,6-Dinitro-2-methylphenol	80.00	71.62	90	40-130
N-Nitrosodiphenylamine	30.00	24.15	81	50-110
Azobenzene	30.00	24.09	80	55-115
4-Bromophenyl-phenylether	30.00	25.22	84	50-115
Hexachlorobenzene	80.00	56.88	71	50-110
Pentachlorophenol	80.00	65.89	82	40-115
Phenanthrene	30.00	26.36	88	50-115

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Matrix:	Water	Batch#:	214595
Units:	ug/L	Prepared:	08/20/14
Diln Fac:	1.000	Analyzed:	08/21/14

Analyte	Spiked	Result	%REC	Limits
Anthracene	30.00	26.25	87	55-110
Carbazole	80.00	61.39	77	50-115
Di-n-butylphthalate	30.00	25.65	86	55-115
Fluoranthene	30.00	26.05	87	55-115
Pyrene	30.00	27.29	91	50-130
Butylbenzylphthalate	30.00	26.10	87	45-115
3,3'-Dichlorobenzidine	80.00	45.41	57	20-110
Benzo(a)anthracene	30.00	25.99	87	55-110
Chrysene	30.00	26.37	88	55-110
bis(2-Ethylhexyl)phthalate	30.00	29.67	99	40-125
Di-n-octylphthalate	30.00	25.66	86	35-135
Benzo(b)fluoranthene	30.00	26.81	89	45-120
Benzo(k)fluoranthene	30.00	24.62	82	45-125
Benzo(a)pyrene	30.00	27.64	92	55-110
Indeno(1,2,3-cd)pyrene	30.00	26.83	89	45-125
Dibenz(a,h)anthracene	30.00	26.04	87	40-125
Benzo(g,h,i)perylene	30.00	28.00	93	40-125

Surrogate	%REC	Limits
2-Fluorophenol	79	20-110
Phenol-d5	81	10-115
2,4,6-Tribromophenol	83	40-125
Nitrobenzene-d5	81	40-110
2-Fluorobiphenyl	82	50-110
Terphenyl-d14	84	50-135

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Matrix:	Water	Batch#:	214595
Units:	ug/L	Prepared:	08/20/14
Diln Fac:	1.000	Analyzed:	08/21/14

Type: BSD Lab ID: QC754312

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
N-Nitrosodimethylamine	80.00	60.49	76	25-110	1	30
Phenol	80.00	61.74	77	0-115	2	30
bis(2-Chloroethyl)ether	80.00	59.67	75	35-110	2	30
2-Chlorophenol	80.00	62.73	78	35-105	2	30
1,3-Dichlorobenzene	80.00	50.18	63	30-100	5	30
1,4-Dichlorobenzene	80.00	51.20	64	30-100	4	30
Benzyl alcohol	80.00	64.78	81	30-110	3	30
1,2-Dichlorobenzene	80.00	52.97	66	35-100	4	30
2-Methylphenol	80.00	59.94	75	40-110	3	30
bis(2-Chloroisopropyl) ether	80.00	61.03	76	25-130	1	30
4-Methylphenol	80.00	58.33	73	30-110	2	30
N-Nitroso-di-n-propylamine	80.00	58.71	73	35-130	2	30
Hexachloroethane	80.00	43.39	54	30-100	8	30
Nitrobenzene	80.00	65.07	81	45-110	0	30
Isophorone	80.00	68.97	86	50-110	1	30
2-Nitrophenol	80.00	69.49	87	40-115	0	30
2,4-Dimethylphenol	80.00	45.75	57	30-110	4	30
Benzoic acid	120.0	54.30	45	0-125	2	30
bis(2-Chloroethoxy)methane	30.00	24.51	82	45-105	1	30
2,4-Dichlorophenol	80.00	65.85	82	50-105	1	30
1,2,4-Trichlorobenzene	80.00	53.85	67	35-105	3	30
Naphthalene	30.00	24.24	81	40-100	1	30
4-Chloroaniline	80.00	62.32	78	15-110	32 *	30
Hexachlorobutadiene	80.00	46.23	58	25-105	6	30
4-Chloro-3-methylphenol	80.00	64.49	81	45-110	2	30
2-Methylnaphthalene	30.00	24.73	82	45-105	2	30
Hexachlorocyclopentadiene	80.00	3.652	5 *	8-120	23	30
2,4,6-Trichlorophenol	80.00	66.29	83	50-115	1	30
2,4,5-Trichlorophenol	80.00	65.57	82	50-110	1	30
2-Chloronaphthalene	30.00	23.92	80	50-105	2	30
2-Nitroaniline	80.00	68.21	85	50-115	1	30
Dimethylphthalate	80.00	66.36	83	25-125	2	30
Acenaphthylene	30.00	28.95	97	50-105	3	30
2,6-Dinitrotoluene	80.00	67.79	85	50-115	3	30
3-Nitroaniline	80.00	64.34	80	20-125	1	30
Acenaphthene	30.00	26.53	88	45-110	0	30
2,4-Dinitrophenol	80.00	63.57	79	15-140	4	30
4-Nitrophenol	80.00	60.98	76	0-125	2	30
Dibenzofuran	30.00	25.35	85	55-105	2	30
2,4-Dinitrotoluene	80.00	68.68	86	50-120	0	30
Diethylphthalate	30.00	26.96	90	40-120	1	30
Fluorene	30.00	26.04	87	50-110	2	30
4-Chlorophenyl-phenylether	30.00	26.02	87	50-110	0	30
4-Nitroaniline	80.00	62.67	78	35-120	1	30
4,6-Dinitro-2-methylphenol	80.00	72.24	90	40-130	1	30
N-Nitrosodiphenylamine	30.00	24.00	80	50-110	1	30
Azobenzene	30.00	23.87	80	55-115	1	30
4-Bromophenyl-phenylether	30.00	24.47	82	50-115	3	30
Hexachlorobenzene	80.00	57.19	71	50-110	1	30
Pentachlorophenol	80.00	66.01	83	40-115	0	30
Phenanthrene	30.00	25.99	87	50-115	1	30

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Matrix:	Water	Batch#:	214595
Units:	ug/L	Prepared:	08/20/14
Diln Fac:	1.000	Analyzed:	08/21/14

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Anthracene	30.00	26.01	87	55-110	1	30
Carbazole	80.00	64.78	81	50-115	5	30
Di-n-butylphthalate	30.00	25.34	84	55-115	1	30
Fluoranthene	30.00	26.01	87	55-115	0	30
Pyrene	30.00	27.06	90	50-130	1	30
Butylbenzylphthalate	30.00	25.34	84	45-115	3	30
3,3'-Dichlorobenzidine	80.00	44.80	56	20-110	1	30
Benzo(a)anthracene	30.00	25.66	86	55-110	1	30
Chrysene	30.00	26.10	87	55-110	1	30
bis(2-Ethylhexyl)phthalate	30.00	26.27	88	40-125	12	30
Di-n-octylphthalate	30.00	25.54	85	35-135	0	30
Benzo(b)fluoranthene	30.00	25.70	86	45-120	4	30
Benzo(k)fluoranthene	30.00	24.86	83	45-125	1	30
Benzo(a)pyrene	30.00	27.05	90	55-110	2	30
Indeno(1,2,3-cd)pyrene	30.00	25.89	86	45-125	4	30
Dibenz(a,h)anthracene	30.00	25.22	84	40-125	3	30
Benzo(g,h,i)perylene	30.00	26.68	89	40-125	5	30

Surrogate	%REC	Limits
2-Fluorophenol	77	20-110
Phenol-d5	79	10-115
2,4,6-Tribromophenol	79	40-125
Nitrobenzene-d5	80	40-110
2-Fluorobiphenyl	80	50-110
Terphenyl-d14	82	50-135

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

CURTIS & TOMPKINS DFTPP TUNE FOR 259835 MSBNA Water
EPA 8270D

Inst : MSBNA05 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 544327680005 File : xhf05 Time : 15-AUG-2014 16:14

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	179726	48.09	
68	< 2% of mass 69	0	0.00	
69		205592	100.00	
70	< 2% of mass 69	1070	0.52	
127	40% - 60% of mass 198	209002	55.92	
197	< 1% of mass 198	0	0.00	
198		373760	100.00	
199	5% - 9% of mass 198	25200	6.74	
275	10% - 30% of mass 198	92424	24.73	
365	> 1% of mass 198	9809	2.62	
441	Present, < mass 443	47026	82.11	
442	> 40% and < 100% of mass 198	295850	79.16	
443	17% - 23% of mass 442	57269	19.36	

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/19/14

PEM Report

File Name : G:\msbna05\081514\XHF05.D
Date Acquired : 15 Aug 2014 4:14 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA05 BNA DFTPP/PEM
Inst. Name : MSBNA05
AcquisitionMeth: DFTPP05.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	0.741	5.49	488314
Benzidine	0.497	7.37	2960445
4,4'-DDT		8.41	1496561
4,4'-DDE		7.60	3131
4,4'-DDD		8.02	50514

% Breakdown: 4,4'-DDT	LIMIT <=20%	3%	PASS
Tailing: Pentachlorophenol	8270C <5.0	0.7	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.5	PASS
	8270D <=2	0	PASS

Fri Aug 15 16:25:44 2014

CURTIS & TOMPKINS DFTPP TUNE FOR 259835 MSBNA Water
EPA 8270D

Inst : MSBNA05 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 544337710002 File : xhm02 Time : 22-AUG-2014 12:58

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	154284	44.54	
68	< 2% of mass 69	0	0.00	
69		178773	100.00	
70	< 2% of mass 69	970	0.54	
127	40% - 60% of mass 198	187989	54.27	
197	< 1% of mass 198	0	0.00	
198		346368	100.00	
199	5% - 9% of mass 198	23234	6.71	
275	10% - 30% of mass 198	86856	25.08	
365	> 1% of mass 198	9146	2.64	
441	Present, < mass 443	44384	81.91	
442	> 40% and < 100% of mass 198	275114	79.43	
443	17% - 23% of mass 442	54189	19.70	

Analyst: KMH Date: 08/26/14 Reviewer: LW Date: 08/27/14

PEM Report

File Name : G:\msbna05\082214\XHM02.D
Date Acquired : 22 Aug 2014 12:58 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA05 BNA DFTPP/PEM
Inst. Name : MSBNA05
AcquisitionMeth: DFTPP05.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	0.898	5.49	309688
Benzidine	0.548	7.37	2679767
4,4'-DDT		8.40	1298764
4,4'-DDE		7.60	5425
4,4'-DDD		8.03	30386

% Breakdown: 4,4'-DDT	LIMIT <=20%	3%	PASS
Tailing: Pentachlorophenol	8270C <5.0	0.9	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.5	PASS
	8270D <=2	1	PASS

Fri Aug 22 13:08:25 2014

CURTIS & TOMPKINS DFTPP TUNE FOR 259835 MSBNA Water
EPA 8270D

Inst : MSBNA09 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 584305789015 File : rgv15 Time : 31-JUL-2014 18:29

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	345531	38.25	
68	< 2% of mass 69	6827	1.83	
69		373297	100.00	
70	< 2% of mass 69	1830	0.49	
127	40% - 60% of mass 198	470485	52.08	
197	< 1% of mass 198	0	0.00	
198		903338	100.00	
199	5% - 9% of mass 198	61034	6.76	
275	10% - 30% of mass 198	259093	28.68	
365	> 1% of mass 198	32093	3.55	
441	Present, < mass 443	124642	74.41	
442	> 40% and < 100% of mass 198	878869	97.29	
443	17% - 23% of mass 442	167509	19.06	

Analyst: KMH Date: 08/01/14 Reviewer: LW Date: 08/06/14

PEM Report

File Name : G:\msbna09\073114\RGV15.D
Date Acquired : 31 Jul 2014 6:29 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA09 BNA DFTPP/PEM
Inst. Name : MSBNA09
AcquisitionMeth: DFTPP09.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	1.171	5.52	1361316
Benzidine	0.799	7.39	7972851
4,4'-DDT		8.43	4312502
4,4'-DDE		7.63	22871
4,4'-DDD		8.05	107140

% Breakdown: 4,4'-DDT	LIMIT <=20%	3%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.2	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.8	PASS
	8270D <=2	1	PASS

Thu Jul 31 18:46:48 2014

CURTIS & TOMPKINS DFTPP TUNE FOR 259835 MSBNA Water
EPA 8270D

Inst : MSBNA09 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 584336313002 File : rhl02 Time : 21-AUG-2014 13:40

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	354721	42.89	
68	< 2% of mass 69	0	0.00	
69		346927	100.00	
70	< 2% of mass 69	1628	0.47	
127	40% - 60% of mass 198	397205	48.03	
197	< 1% of mass 198	0	0.00	
198		826986	100.00	
199	5% - 9% of mass 198	55477	6.71	
275	10% - 30% of mass 198	225344	27.25	
365	> 1% of mass 198	22336	2.70	
441	Present, < mass 443	104616	79.88	
442	> 40% and < 100% of mass 198	692565	83.75	
443	17% - 23% of mass 442	130973	18.91	

Analyst: KMH Date: 08/21/14 Reviewer: LW Date: 08/22/14

PEM Report

File Name : G:\msbna09\082114\RHL02.D
Date Acquired : 21 Aug 2014 1:40 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA09 BNA DFTPP/PEM
Inst. Name : MSBNA09
AcquisitionMeth: DFTPP09.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	1.032	5.50	1060329
Benzidine	0.948	7.36	7264690
4,4'-DDT		8.39	3658830
4,4'-DDE		7.60	10599
4,4'-DDD		8.02	246695

% Breakdown: 4,4'-DDT	LIMIT <=20%	7%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.0	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.9	PASS
	8270D <=2	1	PASS

Thu Aug 21 14:14:22 2014

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259835 MSBNA Water: EPA 8270D

Inst : MSBNA05
Calnum : 544327680001
Units : ug/mL

Name : 6PTBNA5
Date : 15-AUG-2014 16:36
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	xhf06	544327680006	ICAL	15-AUG-2014 16:36	S25407
L2	xhf07	544327680007	ICAL	15-AUG-2014 17:13	S25408
L3	xhf08	544327680008	ICAL	15-AUG-2014 17:48	S25409
L4	xhf09	544327680009	ICAL	15-AUG-2014 18:27	S25410
L5	xhf10	544327680010	ICAL	15-AUG-2014 19:04	S25411
L6	xhf11	544327680011	ICAL	15-AUG-2014 19:42	S25412
L7	xhf12	544327680012	ICAL	15-AUG-2014 20:18	S25413
L8	xhf13	544327680013	ICAL	15-AUG-2014 20:53	S25414
L9	xhf14	544327680014	ICAL	15-AUG-2014 21:30	S25415

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
N-Nitrosodimethylamine		0.6584	0.6527	0.6697	0.6691	0.6674	0.6778	0.6768	0.6869	AVRG		1.49291		0.6698	2	15	0.05	0.99	
Phenol		1.6930	1.7068	1.6823	1.6949	1.6792	1.7013	1.6690	1.6900	AVRG		0.59187		1.6896	1	15	0.800	0.99	
bis(2-Chloroethyl)ether		1.2353	1.2616	1.2630	1.2613	1.2275	1.2307	1.2069m	1.1601	AVRG		0.81248		1.2308	3	15	0.700	0.99	
2-Chlorophenol		1.4242	1.4375	1.4412	1.4216	1.4009	1.4092	1.3792	1.3626	AVRG		0.70944		1.4096	2	15	0.800	0.99	
1,3-Dichlorobenzene		1.6369	1.6278	1.5962	1.5701	1.5284	1.4579	1.3705	1.3138	AVRG		0.66107		1.5127	8	15	0.05	0.99	
1,4-Dichlorobenzene		1.6795	1.6559	1.6455	1.5847	1.5172	1.4352	1.3066	1.2470	AVRG		0.66271		1.5089	11	15	0.05	0.99	
Benzyl alcohol		0.9166	0.9356	0.9403	0.9479	0.9278	0.9535	0.9417	0.9631	AVRG		1.06293		0.9408	2	15	0.05	0.99	
1,2-Dichlorobenzene		1.6105	1.5953	1.5956	1.5493	1.4798	1.4148	1.3108	1.2591	AVRG		0.67709		1.4769	9	15	0.05	0.99	
2-Methylphenol		1.1459	1.1695	1.1624	1.1603	1.1422	1.1371	1.0999	1.0949	AVRG		0.87795		1.1390	2	15	0.700	0.99	
bis(2-Chloroisopropyl) ether		1.7687	1.8134	1.8240	1.8521	1.8305	1.9045	1.9136	1.9333	AVRG		0.53908		1.8550	3	15	0.010	0.99	
4-Methylphenol		1.6678	1.6865	1.6765	1.6779	1.6483	1.7285			AVRG		0.59491		1.6809	2	15	0.600	0.99	
N-Nitroso-di-n-propylamine		0.7818	0.8217	0.8336	0.8449	0.8413	0.8673	0.8550	0.8794	AVRG		1.18959		0.8406	4	15	0.500	0.99	
Hexachloroethane		0.6649	0.6780	0.6714	0.6686	0.6544	0.6390	0.5963	0.5732	AVRG		1.55467		0.6432	6	15	0.300	0.99	
Nitrobenzene		0.4043	0.4149	0.4096	0.4117	0.4078	0.4082	0.4061	0.4034	AVRG		2.44946		0.4083	1	15	0.200	0.99	
Isophorone		0.7250	0.7364	0.7213	0.7306	0.7295				AVRG		1.37256		0.7286	1	15	0.400	0.99	
2-Nitrophenol			0.2059	0.2054	0.2075	0.2070	0.2076	0.2022	0.2023m	AVRG		4.86811		0.2054	1	15	0.100	0.99	
2,4-Dimethylphenol		0.3752	0.3758	0.3671	0.3602	0.3530	0.3511	0.3490	0.3440	AVRG		2.78216		0.3594	3	15	0.200	0.99	
bis(2-Chloroethoxy)methane			0.4322	0.4265	0.4290	0.4319	0.4322	0.4309	0.4269	AVRG		2.32588		0.4299	1	15	0.300	0.99	
Benzoic acid		0.2204	0.2380	0.2569	0.2735	0.2798	0.2869	0.2932	0.2930	AVRG		3.73541		0.2677	10	15	0.05	0.99	
2,4-Dichlorophenol		0.3243	0.3289	0.3205	0.3204	0.3096	0.2924	0.2749	0.2609	AVRG		3.28958		0.3040	8	15	0.200	0.99	
1,2,4-Trichlorobenzene		0.3475	0.3507	0.3439	0.3376	0.3202	0.3040	0.2788	0.2625	AVRG		3.14316		0.3182	10	15	0.05	0.99	
Naphthalene	1.1701	1.1563	1.1652	1.1483	1.1243	1.0947	1.0491	0.9953	0.9561	AVRG		0.91283		1.0955	7	15	0.700	0.99	
4-Chloroaniline		0.2791	0.4744	0.4878m	0.4761m	0.4668m				LINR	2.73506	1.96829		0.4369	0.991	15	0.010	0.99	
Hexachlorobutadiene		0.1861	0.1851	0.1802	0.1764	0.1677	0.1541	0.1412	0.1293	AVRG		6.06045		0.1650	13	15	0.010	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
4-Chloro-3-methylphenol		0.3350	0.3342	0.3263	0.3257	0.3200	0.3144	0.3095	0.3002	AVRG		3.11857		0.3207	4	15	0.200	0.99	
2-Methylnaphthalene	0.7681	0.7746	0.7882	0.7653	0.7631	0.7358	0.7148	0.6816	0.6650	AVRG		1.35207		0.7396	6	15	0.400	0.99	
Hexachlorocyclopentadiene			0.3501	0.3584	0.3459	0.3391	0.3299	0.3023	0.2845	AVRG		3.02990		0.3300	8	15	0.050	0.99	
2,4,6-Trichlorophenol		0.3820	0.3841	0.3863	0.3780	0.3701	0.3601	0.3419	0.3253	AVRG		2.73240		0.3660	6	15	0.200	0.99	
2,4,5-Trichlorophenol		0.4104	0.4227	0.4268	0.4112	0.3937m	0.3772m	0.3479m	0.3304m	AVRG		2.56386		0.3900	9	15	0.200	0.99	
2-Chloronaphthalene			1.2316	1.2419	1.2013	1.1712	1.1512	1.0917	1.0704	AVRG		0.85792		1.1656	6	15	0.800	0.99	
2-Nitroaniline			0.3819	0.3959	0.3958	0.4002	0.4130	0.4079	0.4108	AVRG		2.49517		0.4008	3	15	0.010	0.99	
Dimethylphthalate		1.3494	1.3492	1.3528	1.3146	1.2783	1.2414	1.1631	1.1181	AVRG		0.78687		1.2709	7	15	0.010	0.99	
2,6-Dinitrotoluene		0.3011	0.3141	0.3200	0.3141	0.3161	0.3177	0.3093	0.3060	AVRG		3.20205		0.3123	2	15	0.200	0.99	
Acenaphthylene	1.9997	2.0460	2.0201	2.0350	1.9794	1.9588	1.9089	1.8163	1.7568	AVRG		0.51366		1.9468	5	15	0.900	0.99	
3-Nitroaniline			0.2531	0.3247	0.3456m	0.3571	0.3818	0.3786	0.3862	AVRG		2.88434		0.3467	14	15	0.010	0.99	
Acenaphthene	1.2227	1.2776	1.2754	1.3155	1.2906	1.2110m	1.1695	1.1068	1.0571	AVRG		0.82370		1.2140	7	15	0.900	0.99	
2,4-Dinitrophenol			0.1153	0.1400	0.1524	0.1648	0.1817	0.1927	0.1965	LINR	10.9335	4.65510		0.1633	0.999	15	0.010	0.99	
4-Nitrophenol			0.1768	0.1869	0.1867	0.1883	0.1917	0.1898	0.1922m	AVRG		5.33366		0.1875	3	15	0.010	0.99	
Dibenzofuran			1.7194	1.7329	1.6765	1.6444	1.6305	1.4943	1.3652	AVRG		0.62150		1.6090	8	15	0.800	0.99	
2,4-Dinitrotoluene		0.3997	0.4159	0.4286	0.4217	0.4198	0.4231	0.4008	0.3744	AVRG		2.43602		0.4105	4	15	0.200	0.99	
Diethylphthalate			1.4916	1.4896	1.4486	1.4389	1.4175	1.3484	1.3114	AVRG		0.70379		1.4209	5	15	0.010	0.99	
Fluorene	1.4365	1.4825	1.4736	1.4756	1.4263	1.3823	1.3411	1.2448	1.2030	AVRG		0.72199		1.3851	7	15	0.900	0.99	
4-Chlorophenyl-phenylether			0.6580	0.6672	0.6415	0.6281	0.6104	0.5713	0.5382	AVRG		1.62238		0.6164	8	15	0.400	0.99	
4-Nitroaniline			0.3328	0.3303	0.3512	0.3610	0.3828	0.3794	0.3781	AVRG		2.78252		0.3594	6	15	0.010	0.99	
4,6-Dinitro-2-methylphenol			0.1154	0.1274	0.1340	0.1386	0.1453	0.1460	0.1462	AVRG		7.34603		0.1361	8	15	0.010	0.99	
N-Nitrosodiphenylamine			0.6116	0.6218	0.6245	0.6194	0.6055	0.5936	0.5746	AVRG		1.64669		0.6073	3	15	0.010	0.99	
Azobenzene			0.9106	0.9296	0.9396	0.9332	0.9496	0.9252	0.9014	AVRG		1.07873		0.9270	2	15	0.05	0.99	
4-Bromophenyl-phenylether			0.2249	0.2273	0.2259	0.2241	0.2215	0.2144	0.2069	AVRG		4.53072		0.2207	3	15	0.100	0.99	
Hexachlorobenzene		0.2342	0.2377	0.2363	0.2354	0.2243	0.2116	0.1967	0.1832	AVRG		4.54731		0.2199	9	15	0.100	0.99	
Pentachlorophenol			0.1437	0.1536	0.1590	0.1584	0.1552	0.1480	0.1402	AVRG		6.61644		0.1511	5	15	0.050	0.99	
Phenanthrene	1.2081	1.2072	1.2011	1.1922	1.1811	1.1468	1.1067	1.0515	1.0035	AVRG		0.87394		1.1442	7	15	0.700	0.99	
Anthracene	1.2360	1.2164	1.2275	1.2149	1.1999	1.1783	1.1248	1.0598	1.0165m	AVRG		0.85926		1.1638	7	15	0.700	0.99	
Carbazole		0.9208	0.9914	1.0388	1.0497	0.9756	0.9587	0.9127	0.8774	AVRG		1.03559		0.9656	6	15	0.010	0.99	
Di-n-butylphthalate			1.5200	1.5230	1.5144	1.4877	1.4501	1.3438	1.2806	AVRG		0.69173		1.4456	7	15	0.010	0.99	
Fluoranthene	1.2951	1.3110	1.3020	1.3065	1.3047	1.2837	1.2525	1.1844	1.1337	AVRG		0.79132		1.2637	5	15	0.600	0.99	
Pyrene	1.2384	1.2648	1.2864	1.3174	1.3293	1.3088	1.3095	1.2698	1.2409	AVRG		0.77820		1.2850	3	15	0.600	0.99	
Butylbenzylphthalate			0.6033	0.6242	0.6478	0.6457	0.6743	0.6719	0.6592	AVRG		1.54649		0.6466	4	15	0.010	0.99	
3,3'-Dichlorobenzidine			0.3028	0.3631	0.3918	0.4052	0.4131	0.3681	0.3432	AVRG		2.70560		0.3696	10	15	0.010	0.99	
Benzo(a)anthracene	1.1530	1.1224	1.1428	1.1526	1.1440	1.1366	1.1611	1.1502	1.1340	AVRG		0.87408		1.1441	1	15	0.800	0.99	
bis(2-Ethylhexyl)phthalate			0.8808	0.9182	0.9283	0.9190	0.8788	0.7271	0.6237	AVRG		1.19130		0.8394	14	15	0.010	0.99	
Chrysene	1.0372	1.0454	1.0616	1.0607	1.0723	1.0494	1.0767	1.0420	1.0378	AVRG		0.94905		1.0537	1	15	0.700	0.99	
Di-n-octylphthalate			1.6002	1.7003	1.7383	1.7461	1.8451	1.8267	1.8210	AVRG		0.57014		1.7540	5	15	0.010	0.99	
Benzo(b)fluoranthene	1.0125	1.0824	1.1371	1.1905	1.1980	1.2078	1.3259	1.3554	1.3549	AVRG		0.82838		1.2072	10	15	0.700	0.99	
Benzo(k)fluoranthene	0.9880	1.0469	1.0839	1.1359	1.1431	1.1316	1.1322	1.1041	1.1065m	AVRG		0.91164		1.0969	5	15	0.700	0.99	
Benzo(a)pyrene	0.9770	1.0509	1.1075	1.1661	1.1639	1.1750	1.2477	1.2348	1.2452	AVRG		0.86805		1.1520	8	15	0.700	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Indeno(1,2,3-cd)pyrene	1.0501	1.1365	1.1978	1.2791	1.3128	1.3283	1.4156	1.4204		AVRG		0.78890		1.2676	10	15	0.500	0.99	
Dibenz(a,h)anthracene	0.8725	0.9478	0.9976	1.0747	1.0978	1.1140	1.1952	1.2027	1.2223	AVRG		0.92549		1.0805	11	15	0.400	0.99	
Benzo(g,h,i)perylene	0.9248	0.9245	0.9495	1.0256	1.0783	1.0922	1.1690	1.1811	1.1840	AVRG		0.94449		1.0588	10	15	0.500	0.99	
2-Fluorophenol	1.3378	1.3172	1.3419	1.3515	1.3569	1.3341	1.3673	1.3609	1.3712	AVRG		0.74142		1.3488	1	15	0.05	0.99	
Phenol-d5	1.6604	1.6374	1.6656	1.6621	1.6766	1.6617	1.7113	1.7060	1.7100	AVRG		0.59638		1.6768	2	15	0.05	0.99	
Nitrobenzene-d5	0.4335	0.4299	0.4442	0.4444	0.4527	0.4490	0.4521	0.4606	0.4580	AVRG		2.23631		0.4472	2	15	0.05	0.99	
2-Fluorobiphenyl	1.5118	1.5322	1.5224	1.5224	1.4688	1.4054	1.3489	1.2626	1.2275	AVRG		0.70301		1.4224	8	15	0.05	0.99	
2,4,6-Tribromophenol	0.1555	0.1723	0.1872	0.1930	0.1900	0.1910	0.1940	0.1846	0.1811	AVRG		5.45930		0.1832	7	15	0.05	0.99	
Terphenyl-d14	0.8361	0.8491	0.8869	0.8989	0.9115	0.9025	0.9030	0.8692	0.8323	AVRG		1.14076		0.8766	4	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
N-Nitrosodimethylamine			10.000	-2	20.000	-3	32.000	0	40.000	0	50.000	0	80.000	1	100.00	1	120.00	3
Phenol			10.000	0	20.000	1	32.000	0	40.000	0	50.000	-1	80.000	1	100.00	-1	120.00	0
bis(2-Chloroethyl)ether			10.000	0	20.000	3	32.000	3	40.000	2	50.000	0	80.000	0	100.00	-2	120.00	-6
2-Chlorophenol			10.000	1	20.000	2	32.000	2	40.000	1	50.000	-1	80.000	0	100.00	-2	120.00	-3
1,3-Dichlorobenzene			10.000	8	20.000	8	32.000	6	40.000	4	50.000	1	80.000	-4	100.00	-9	120.00	-13
1,4-Dichlorobenzene			10.000	11	20.000	10	32.000	9	40.000	5	50.000	1	80.000	-5	100.00	-13	120.00	-17
Benzyl alcohol			10.000	-3	20.000	-1	32.000	0	40.000	1	50.000	-1	80.000	1	100.00	0	120.00	2
1,2-Dichlorobenzene			10.000	9	20.000	8	32.000	8	40.000	5	50.000	0	80.000	-4	100.00	-11	120.00	-15
2-Methylphenol			10.000	1	20.000	3	32.000	2	40.000	2	50.000	0	80.000	0	100.00	-3	120.00	-4
bis(2-Chloroisopropyl) ether			10.000	-5	20.000	-2	32.000	-2	40.000	0	50.000	-1	80.000	3	100.00	3	120.00	4
4-Methylphenol			10.000	-1	20.000	0	32.000	0	40.000	0	50.000	-2	80.000	3				
N-Nitroso-di-n-propylamine			10.000	-7	20.000	-2	32.000	-1	40.000	1	50.000	0	80.000	3	100.00	2	120.00	5
Hexachloroethane			10.000	3	20.000	5	32.000	4	40.000	4	50.000	2	80.000	-1	100.00	-7	120.00	-11
Nitrobenzene			10.000	-1	20.000	2	32.000	0	40.000	1	50.000	0	80.000	0	100.00	-1	120.00	-1
Isophorone			10.000	0	20.000	1	32.000	-1	40.000	0	50.000	0						
2-Nitrophenol					20.000	0	32.000	0	40.000	1	50.000	1	80.000	1	100.00	-2	120.00	-2
2,4-Dimethylphenol			10.000	4	20.000	5	32.000	2	40.000	0	50.000	-2	80.000	-2	100.00	-3	120.00	-4
bis(2-Chloroethoxy)methane					10.000	1	16.000	-1	20.000	0	25.000	0	40.000	1	50.000	0	60.000	-1
Benzoic acid			50.000	-18	60.000	-11	80.000	-4	90.000	2	100.00	5	120.00	7	130.00	10	140.00	9
2,4-Dichlorophenol			10.000	7	20.000	8	32.000	5	40.000	5	50.000	2	80.000	-4	100.00	-10	120.00	-14
1,2,4-Trichlorobenzene			10.000	9	20.000	10	32.000	8	40.000	6	50.000	1	80.000	-4	100.00	-12	120.00	-17
Naphthalene	2.0000	7	5.0000	6	10.000	6	16.000	5	20.000	3	25.000	0	40.000	-4	50.000	-9	60.000	-13
4-Chloroaniline			10.000	-18	20.000	7	32.000	5	40.000	1	50.000	-3						
Hexachlorobutadiene			10.000	13	20.000	12	32.000	9	40.000	7	50.000	2	80.000	-7	100.00	-14	120.00	**-22**
4-Chloro-3-methylphenol			10.000	4	20.000	4	32.000	2	40.000	2	50.000	0	80.000	-2	100.00	-3	120.00	-6
2-Methylnaphthalene	2.0000	4	5.0000	5	10.000	7	16.000	3	20.000	3	25.000	-1	40.000	-3	50.000	-8	60.000	-10
Hexachlorocyclopentadiene					20.000	6	32.000	9	40.000	5	50.000	3	80.000	0	100.00	-8	120.00	-14
2,4,6-Trichlorophenol			10.000	4	20.000	5	32.000	6	40.000	3	50.000	1	80.000	-2	100.00	-7	120.00	-11
2,4,5-Trichlorophenol			10.000	5	20.000	8	32.000	9	40.000	5	50.000	1	80.000	-3	100.00	-11	120.00	-15
2-Chloronaphthalene					10.000	6	16.000	7	20.000	3	25.000	0	40.000	-1	50.000	-6	60.000	-8
2-Nitroaniline					20.000	-5	32.000	-1	40.000	-1	50.000	0	80.000	3	100.00	2	120.00	2
Dimethylphthalate			10.000	6	20.000	6	32.000	6	40.000	3	50.000	1	80.000	-2	100.00	-8	120.00	-12
2,6-Dinitrotoluene			10.000	-4	20.000	1	32.000	2	40.000	1	50.000	1	80.000	2	100.00	-1	120.00	-2
Acenaphthylene	2.0000	3	5.0000	5	10.000	4	16.000	5	20.000	2	25.000	1	40.000	-2	50.000	-7	60.000	-10
3-Nitroaniline					20.000	**-27**	32.000	-6	40.000	0	50.000	3	80.000	10	100.00	9	120.00	11
Acenaphthene	2.0000	1	5.0000	5	10.000	5	16.000	8	20.000	6	25.000	0	40.000	-4	50.000	-9	60.000	-13
2,4-Dinitrophenol					20.000	8	32.000	-1	40.000	-2	50.000	-1	80.000	-2	100.00	1	120.00	1
4-Nitrophenol					20.000	-6	32.000	0	40.000	0	50.000	0	80.000	2	100.00	1	120.00	3
Dibenzofuran					10.000	7	16.000	8	20.000	4	25.000	2	40.000	1	50.000	-7	60.000	-15
2,4-Dinitrotoluene			10.000	-3	20.000	1	32.000	4	40.000	3	50.000	2	80.000	3	100.00	-2	120.00	-9
Diethylphthalate					10.000	5	16.000	5	20.000	2	25.000	1	40.000	0	50.000	-5	60.000	-8
Fluorene	2.0000	4	5.0000	7	10.000	6	16.000	7	20.000	3	25.000	0	40.000	-3	50.000	-10	60.000	-13

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
4-Chlorophenyl-phenylether					10.000	7	16.000	8	20.000	4	25.000	2	40.000	-1	50.000	-7	60.000	-13
4-Nitroaniline					20.000	-7	32.000	-8	40.000	-2	50.000	0	80.000	7	100.00	6	120.00	5
4,6-Dinitro-2-methylphenol					20.000	-15	32.000	-6	40.000	-2	50.000	2	80.000	7	100.00	7	120.00	7
N-Nitrosodiphenylamine					10.000	1	16.000	2	20.000	3	25.000	2	40.000	0	50.000	-2	60.000	-5
Azobenzene					10.000	-2	16.000	0	20.000	1	25.000	1	40.000	2	50.000	0	60.000	-3
4-Bromophenyl-phenylether					10.000	2	16.000	3	20.000	2	25.000	2	40.000	0	50.000	-3	60.000	-6
Hexachlorobenzene			10.000	6	20.000	8	32.000	7	40.000	7	50.000	2	80.000	-4	100.00	-11	120.00	-17
Pentachlorophenol					20.000	-5	32.000	2	40.000	5	50.000	5	80.000	3	100.00	-2	120.00	-7
Phenanthrene	2.0000	6	5.0000	5	10.000	5	16.000	4	20.000	3	25.000	0	40.000	-3	50.000	-8	60.000	-12
Anthracene	2.0000	6	5.0000	5	10.000	5	16.000	4	20.000	3	25.000	1	40.000	-3	50.000	-9	60.000	-13
Carbazole			10.000	-5	20.000	3	32.000	8	40.000	9	50.000	1	80.000	-1	100.00	-5	120.00	-9
Di-n-butylphthalate					10.000	5	16.000	5	20.000	5	25.000	3	40.000	0	50.000	-7	60.000	-11
Fluoranthene	2.0000	2	5.0000	4	10.000	3	16.000	3	20.000	3	25.000	2	40.000	-1	50.000	-6	60.000	-10
Pyrene	2.0000	-4	5.0000	-2	10.000	0	16.000	3	20.000	3	25.000	2	40.000	2	50.000	-1	60.000	-3
Butylbenzylphthalate					10.000	-7	16.000	-3	20.000	0	25.000	0	40.000	4	50.000	4	60.000	2
3,3'-Dichlorobenzidine					20.000	-18	32.000	-2	40.000	6	50.000	10	80.000	12	100.00	0	120.00	-7
Benzo(a)anthracene	2.0000	1	5.0000	-2	10.000	0	16.000	1	20.000	0	25.000	-1	40.000	1	50.000	1	60.000	-1
bis(2-Ethylhexyl)phthalate					10.000	5	16.000	9	20.000	11	25.000	9	40.000	5	50.000	-13	60.000	**-26**
Chrysene	2.0000	-2	5.0000	-1	10.000	1	16.000	1	20.000	2	25.000	0	40.000	2	50.000	-1	60.000	-2
Di-n-octylphthalate					10.000	-9	16.000	-3	20.000	-1	25.000	0	40.000	5	50.000	4	60.000	4
Benzo(b)fluoranthene	2.0000	-16	5.0000	-10	10.000	-6	16.000	-1	20.000	-1	25.000	0	40.000	10	50.000	12	60.000	12
Benzo(k)fluoranthene	2.0000	-10	5.0000	-5	10.000	-1	16.000	4	20.000	4	25.000	3	40.000	3	50.000	1	60.000	1
Benzo(a)pyrene	2.0000	-15	5.0000	-9	10.000	-4	16.000	1	20.000	1	25.000	2	40.000	8	50.000	7	60.000	8
Indeno(1,2,3-cd)pyrene	2.0000	-17	5.0000	-10	10.000	-6	16.000	1	20.000	4	25.000	5	40.000	12	50.000	12		
Dibenz(a,h)anthracene	2.0000	-19	5.0000	-12	10.000	-8	16.000	-1	20.000	2	25.000	3	40.000	11	50.000	11	60.000	13
Benzo(g,h,i)perylene	2.0000	-13	5.0000	-13	10.000	-10	16.000	-3	20.000	2	25.000	3	40.000	10	50.000	12	60.000	12
2-Fluorophenol	2.0000	-1	5.0000	-2	10.000	-1	16.000	0	20.000	1	25.000	-1	40.000	1	50.000	1	60.000	2
Phenol-d5	2.0000	-1	5.0000	-2	10.000	-1	16.000	-1	20.000	0	25.000	-1	40.000	2	50.000	2	60.000	2
Nitrobenzene-d5	2.0000	-3	5.0000	-4	10.000	-1	16.000	-1	20.000	1	25.000	0	40.000	1	50.000	3	60.000	2
2-Fluorobiphenyl	2.0000	6	5.0000	8	10.000	7	16.000	7	20.000	3	25.000	-1	40.000	-5	50.000	-11	60.000	-14
2,4,6-Tribromophenol	2.0000	-15	5.0000	-6	10.000	2	16.000	5	20.000	4	25.000	4	40.000	6	50.000	1	60.000	-1
Terphenyl-d14	2.0000	-5	5.0000	-3	10.000	1	16.000	3	20.000	4	25.000	3	40.000	3	50.000	-1	60.000	-5

KMH 08/16/14 [Aniline]: Picked or reassigned peak in all levels.

KMH 08/16/14 [2-Nitrophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [3-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [4-Chloroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [2,4,5-Trichlorophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [Acenaphthene]: Corrected automatically drawn baseline in ICAL (xhf11).

KMH 08/16/14 [Pyridine]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [bis(2-Chloroethyl)ether]: Corrected automatically drawn baseline in ICAL (xhf13).

KMH 08/16/14 [4-Methylphenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [4-Nitrophenol]: Picked or reassigned peak in ICAL (xhf14).

KMH 08/16/14 [Anthracene]: Corrected automatically drawn baseline in ICAL (xhf14).

KMH 08/16/14 [Benzo(k)fluoranthene]: Picked or reassigned peak in ICAL (xhf14).

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/19/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; LINR=Linear regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259835 MSBNA Water
EPA 8270D

Inst : MSBNA05 Name : 6PTBNA5
Calnum : 544327680001 Cal Date : 15-AUG-2014

ICV 544327680015 (xhf15 15-AUG-2014) stds: S25418

Analyte	Spiked	Quant	Units	%D	Max	Flags
N-Nitrosodimethylamine	40.00	37.81	ug/mL	-5	20	
Phenol	40.00	37.82	ug/mL	-5	20	
bis(2-Chloroethyl)ether	40.00	38.43	ug/mL	-4	20	
2-Chlorophenol	40.00	38.18	ug/mL	-5	20	
1,3-Dichlorobenzene	40.00	38.79	ug/mL	-3	20	
1,4-Dichlorobenzene	40.00	39.02	ug/mL	-2	20	
Benzyl alcohol	40.00	37.97	ug/mL	-5	20	
1,2-Dichlorobenzene	40.00	38.80	ug/mL	-3	20	
2-Methylphenol	40.00	37.90	ug/mL	-5	20	
bis(2-Chloroisopropyl) ether	40.00	37.90	ug/mL	-5	20	
4-Methylphenol	40.00	33.62	ug/mL	-16	20	
N-Nitroso-di-n-propylamine	40.00	37.21	ug/mL	-7	20	
Hexachloroethane	40.00	38.46	ug/mL	-4	20	
Nitrobenzene	40.00	37.77	ug/mL	-6	20	
Isophorone	40.00	35.89	ug/mL	-10	20	
2-Nitrophenol	40.00	38.35	ug/mL	-4	20	
2,4-Dimethylphenol	40.00	38.51	ug/mL	-4	20	
bis(2-Chloroethoxy)methane	40.00	36.69	ug/mL	-8	20	
Benzoic acid	100.0	96.04	ug/mL	-4	20	
2,4-Dichlorophenol	40.00	39.07	ug/mL	-2	20	
1,2,4-Trichlorobenzene	40.00	38.91	ug/mL	-3	20	
Naphthalene	40.00	35.26	ug/mL	-12	20	
4-Chloroaniline	40.00	38.30	ug/mL	-4	20	
Hexachlorobutadiene	40.00	39.41	ug/mL	-1	20	
4-Chloro-3-methylphenol	40.00	37.64	ug/mL	-6	20	
2-Methylnaphthalene	40.00	36.56	ug/mL	-9	20	
Hexachlorocyclopentadiene	40.00	35.81	ug/mL	-10	20	
2,4,6-Trichlorophenol	40.00	37.22	ug/mL	-7	20	
2,4,5-Trichlorophenol	40.00	38.16	ug/mL	-5	20	m
2-Chloronaphthalene	40.00	35.99	ug/mL	-10	20	
2-Nitroaniline	40.00	37.48	ug/mL	-6	20	
Dimethylphthalate	40.00	38.49	ug/mL	-4	20	
2,6-Dinitrotoluene	40.00	38.38	ug/mL	-4	20	
Acenaphthylene	40.00	35.58	ug/mL	-11	20	
3-Nitroaniline	40.00	38.96	ug/mL	-3	20	
Acenaphthene	40.00	35.96	ug/mL	-10	20	
2,4-Dinitrophenol	40.00	38.44	ug/mL	-4	20	
4-Nitrophenol	40.00	37.46	ug/mL	-6	20	
Dibenzofuran	40.00	37.11	ug/mL	-7	20	
2,4-Dinitrotoluene	40.00	39.17	ug/mL	-2	20	
Diethylphthalate	40.00	35.10	ug/mL	-12	20	
Fluorene	40.00	35.26	ug/mL	-12	20	
4-Chlorophenyl-phenylether	40.00	35.97	ug/mL	-10	20	
4-Nitroaniline	40.00	37.23	ug/mL	-7	20	
4,6-Dinitro-2-methylphenol	40.00	37.16	ug/mL	-7	20	
N-Nitrosodiphenylamine	40.00	41.11	ug/mL	3	20	
Azobenzene	40.00	36.62	ug/mL	-8	20	
4-Bromophenyl-phenylether	40.00	35.88	ug/mL	-10	20	
Hexachlorobenzene	40.00	38.01	ug/mL	-5	20	

Analyte	Spiked	Quant	Units	%D	Max	Flags
Pentachlorophenol	40.00	36.42	ug/mL	-9	20	
Phenanthrene	40.00	34.71	ug/mL	-13	20	
Anthracene	40.00	35.37	ug/mL	-12	20	
Carbazole	40.00	41.57	ug/mL	4	20	
Di-n-butylphthalate	40.00	35.81	ug/mL	-10	20	
Fluoranthene	40.00	35.75	ug/mL	-11	20	
Pyrene	40.00	34.63	ug/mL	-13	20	
Butylbenzylphthalate	40.00	37.63	ug/mL	-6	20	
3,3'-Dichlorobenzidine	60.00	59.22	ug/mL	-1	20	
Benzo(a)anthracene	40.00	37.24	ug/mL	-7	20	
bis(2-Ethylhexyl)phthalate	40.00	39.51	ug/mL	-1	20	
Chrysene	40.00	35.31	ug/mL	-12	20	
Di-n-octylphthalate	40.00	37.37	ug/mL	-7	20	
Benzo(b)fluoranthene	40.00	39.18	ug/mL	-2	20	
Benzo(k)fluoranthene	40.00	40.20	ug/mL	0	20	
Benzo(a)pyrene	40.00	38.58	ug/mL	-4	20	
Indeno(1,2,3-cd)pyrene	40.00	39.56	ug/mL	-1	20	
Dibenz(a,h)anthracene	40.00	39.11	ug/mL	-2	20	
Benzo(g,h,i)perylene	40.00	38.86	ug/mL	-3	20	

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/19/14

m=manual integration

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259835 MSBNA Water: EPA 8270D

Inst : MSBNA09
Calnum : 584305789001
Units : ug/mL

Name : 6PTBNA9
Date : 31-JUL-2014 19:18
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	rgv16	584305789016	ICAL	31-JUL-2014 19:18	S24422
L2	rgv17	584305789017	ICAL	31-JUL-2014 19:47	S24424
L3	rgv18	584305789018	ICAL	31-JUL-2014 20:17	S24425
L4	rgv19	584305789019	ICAL	31-JUL-2014 20:47	S24427
L5	rgv20	584305789020	ICAL	31-JUL-2014 21:17	S24428
L6	rgv21	584305789021	ICAL	31-JUL-2014 21:47	S24429
L7	rgv22	584305789022	ICAL	31-JUL-2014 22:18	S24430
L8	rgv23	584305789023	ICAL	31-JUL-2014 22:48	S24431
L9	rgv24	584305789024	ICAL	31-JUL-2014 23:18	S24432

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
N-Nitrosodimethylamine		0.6914	0.7062	0.7007	0.6940	0.6725	0.6850	0.6819	0.6799	AVRG		1.45149		0.6889	2	15	0.05	0.99	
Phenol		1.7949	1.8023	1.7821	1.7353	1.6895	1.7229	1.7252	1.7515	AVRG		0.57127		1.7505	2	15	0.800	0.99	
bis(2-Chloroethyl)ether		1.4075	1.4036	1.3635	1.3501	1.2833	1.2794	1.2322	1.2695	AVRG		0.75549		1.3236	5	15	0.700	0.99	
2-Chlorophenol		1.5252	1.5553	1.5565	1.5171	1.4712	1.4674	1.4423	1.4243	AVRG		0.66894		1.4949	3	15	0.800	0.99	
1,3-Dichlorobenzene		1.6836	1.6923	1.6751	1.6451	1.5724	1.5313	1.4635	1.4190	AVRG		0.63080		1.5853	7	15	0.05	0.99	
1,4-Dichlorobenzene		1.7175	1.7260	1.7055	1.6600	1.5832	1.5430	1.4690	1.4208	AVRG		0.62379		1.6031	7	15	0.05	0.99	
Benzyl alcohol		0.8783	0.8970	0.9342	0.9213	0.9608	1.0349	1.0315	1.0526	AVRG		1.03753		0.9638	7	15	0.05	0.99	
1,2-Dichlorobenzene		1.5993	1.6039	1.5815	1.5474	1.4906	1.4410	1.3824	1.3423	AVRG		0.66731		1.4985	7	15	0.05	0.99	
2-Methylphenol		1.1171	1.1274	1.1118	1.0737	1.0832	1.1323	1.1342	1.1453	AVRG		0.89636		1.1156	2	15	0.700	0.99	
bis(2-Chloroisopropyl) ether		1.9727	1.9558	1.9040	1.8300	1.7737	1.7740	1.7754	1.7881	AVRG		0.54151		1.8467	5	15	0.010	0.99	
4-Methylphenol		1.6373	1.6384	1.6641	1.6442	1.6827	1.8013	1.8160	1.8706	AVRG		0.58162		1.7193	5	15	0.600	0.99	
N-Nitroso-di-n-propylamine		0.8428	0.9435	1.0001	0.9938	1.0010	1.0425	1.0284	1.0465	AVRG		1.01284		0.9873	7	15	0.500	0.99	
Hexachloroethane		0.6305	0.6461	0.6504	0.6384	0.6206	0.6148	0.5905	0.5843	AVRG		1.60785		0.6219	4	15	0.300	0.99	
Nitrobenzene		0.3688	0.3698	0.3745	0.3680	0.3528	0.3579	0.3478	0.3422	AVRG		2.77615		0.3602	3	15	0.200	0.99	
Isophorone		0.7212	0.7714	0.7920	0.7720	0.7313	0.7235	0.6973	0.6882	AVRG		1.35661		0.7371	5	15	0.400	0.99	
2-Nitrophenol			0.1920	0.2024	0.2063	0.2044	0.2117	0.2060	0.2004	AVRG		4.91861		0.2033	3	15	0.100	0.99	
2,4-Dimethylphenol		0.3502	0.3614	0.3938	0.3954	0.3748	0.3687	0.3520	0.3452	AVRG		2.71965		0.3677	5	15	0.200	0.99	
bis(2-Chloroethoxy)methane			0.4534	0.4786	0.4795	0.4612	0.4581	0.4414	0.4305	AVRG		2.18575		0.4575	4	15	0.300	0.99	
Benzoic acid		0.1993	0.2289	0.2591	0.2745	0.2684	0.2764	0.2780	0.2806	AVRG		3.87363		0.2582	11	15	0.05	0.99	
2,4-Dichlorophenol		0.3099	0.3220	0.3327	0.3328	0.3199	0.3147	0.2938	0.2838	AVRG		3.18777		0.3137	6	15	0.200	0.99	
1,2,4-Trichlorobenzene		0.3460	0.3520	0.3471	0.3375	0.3157	0.2983	0.2829	0.2702	AVRG		3.13757		0.3187	10	15	0.05	0.99	
Naphthalene	1.0603	1.1240	1.1396	1.1497	1.1258	1.0861	1.0761	1.0263	1.0125	AVRG		0.91832		1.0889	5	15	0.700	0.99	
4-Chloroaniline		0.4291	0.5232	0.5370	0.5333	0.5021m	0.4816m	0.4547m	0.4326	AVRG		2.05460		0.4867	9	15	0.010	0.99	
Hexachlorobutadiene		0.1897	0.1983	0.1954	0.1888	0.1744	0.1622	0.1554	0.1479	AVRG		5.66479		0.1765	11	15	0.010	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
4-Chloro-3-methylphenol		0.3495	0.3759	0.3870	0.3758	0.3585	0.3410	0.3230	0.3157	AVRG		2.83049		0.3533	7	15	0.200	0.99	
2-Methylnaphthalene	0.6790	0.7354	0.8185	0.8487	0.8356	0.7940	0.7702	0.7240	0.6978	AVRG		1.30374		0.7670	8	15	0.400	0.99	
Hexachlorocyclopentadiene			0.3628	0.3820	0.3910	0.3891	0.3910	0.3696	0.3516	AVRG		2.65445		0.3767	4	15	0.050	0.99	
2,4,6-Trichlorophenol		0.3702	0.3900	0.3946	0.3928	0.3896	0.3850	0.3751	0.3594	AVRG		2.61723		0.3821	3	15	0.200	0.99	
2,4,5-Trichlorophenol		0.3938	0.4222	0.4377	0.4348	0.4090	0.4100	0.3767m	0.3728	AVRG		2.45620		0.4071	6	15	0.200	0.99	
2-Chloronaphthalene			1.2135	1.2415	1.2276	1.1820	1.1969	1.1410	1.1148	AVRG		0.84162		1.1882	4	15	0.800	0.99	
2-Nitroaniline			0.3459	0.3605	0.3570	0.3516	0.3582	0.3490	0.3489	AVRG		2.83269		0.3530	2	15	0.010	0.99	
Dimethylphthalate		1.4357	1.4875	1.5029	1.4683	1.4179	1.4093	1.3182	1.2575	AVRG		0.70815		1.4121	6	15	0.010	0.99	
2,6-Dinitrotoluene		0.3140	0.3365	0.3492	0.3448	0.3440	0.3582	0.3461	0.3424	AVRG		2.92482		0.3419	4	15	0.200	0.99	
Acenaphthylene	1.6084	1.6989	1.7562	1.7792	1.7399	1.6886	1.6918	1.6354	1.5900	AVRG		0.59255		1.6876	4	15	0.900	0.99	
3-Nitroaniline			0.3513m	0.3755m	0.3801m	0.3815m	0.4011	0.3917	0.3896	AVRG		2.62094		0.3815	4	15	0.010	0.99	
Acenaphthene	1.1614	1.2447	1.2989	1.3096	1.3124	1.2524	1.2702	1.2282	1.2026	AVRG		0.79784		1.2534	4	15	0.900	0.99	
2,4-Dinitrophenol			0.1075	0.1355	0.1533m	0.1627m	0.1950m	0.1990m	0.2090m	LINR	12.9032	4.32381		0.1660	0.999	15	0.010	0.99	
4-Nitrophenol			0.1789m	0.1910m	0.1934m	0.1902m	0.1983	0.1938	0.1924	AVRG		5.23151		0.1911	3	15	0.010	0.99	
Dibenzofuran			1.7761	1.7981	1.7778	1.7325	1.7480	1.6956	1.6331	AVRG		0.57560		1.7373	3	15	0.800	0.99	
2,4-Dinitrotoluene		0.4297	0.4669	0.4928	0.4875	0.4806	0.4957	0.4746	0.4658	AVRG		2.10883		0.4742	4	15	0.200	0.99	
Diethylphthalate			1.5346	1.5774	1.5789	1.5402	1.5676	1.4907	1.4408	AVRG		0.65238		1.5329	3	15	0.010	0.99	
Fluorene	1.4029	1.4698	1.4874	1.5121	1.4829	1.4351	1.4335	1.3620	1.3259	AVRG		0.69704		1.4346	4	15	0.900	0.99	
4-Chlorophenyl-phenylether			0.7266	0.7476	0.7377	0.7257	0.7402	0.7091	0.6878	AVRG		1.37941		0.7249	3	15	0.400	0.99	
4-Nitroaniline			0.3768m	0.3971	0.3940	0.3921	0.4115	0.3986	0.3960	AVRG		2.53072		0.3951	3	15	0.010	0.99	
4,6-Dinitro-2-methylphenol			0.1203	0.1324	0.1431	0.1452	0.1565	0.1571	0.1610	AVRG		6.89283		0.1451	10	15	0.010	0.99	
N-Nitrosodiphenylamine			0.6099	0.6075	0.6153	0.5906	0.5980	0.5785	0.5820	AVRG		1.67390		0.5974	2	15	0.010	0.99	
Azobenzene			0.8263	0.8156	0.8188	0.7952	0.7896	0.7705	0.7757	AVRG		1.25187		0.7988	3	15	0.05	0.99	
4-Bromophenyl-phenylether			0.2467	0.2484	0.2529	0.2465	0.2497	0.2443	0.2463	AVRG		4.03511		0.2478	1	15	0.100	0.99	
Hexachlorobenzene		0.2744	0.2794	0.2797	0.2807	0.2686	0.2608	0.2507	0.2449	AVRG		3.73973		0.2674	5	15	0.100	0.99	
Pentachlorophenol			0.1520	0.1643	0.1742	0.1713	0.1779	0.1722	0.1747	AVRG		5.89909		0.1695	5	15	0.050	0.99	
Phenanthrene	1.1257	1.2289	1.2328	1.2329	1.2147	1.1617	1.1309	1.0744	1.0484	AVRG		0.86122		1.1611	6	15	0.700	0.99	
Anthracene	1.1163	1.1881	1.2121	1.2194	1.1959	1.1590	1.1147	1.0798m	1.0504	AVRG		0.87077		1.1484	5	15	0.700	0.99	
Carbazole		1.0130	1.1290	1.1193	1.1012	1.0359	0.9603	0.8887	0.8698	AVRG		0.98558		1.0146	10	15	0.010	0.99	
Di-n-butylphthalate			1.5949	1.5837	1.5815	1.4914	1.4069	1.3314	1.2868	AVRG		0.68116		1.4681	9	15	0.010	0.99	
Fluoranthene	1.2466	1.3764	1.3744	1.3861	1.3541	1.2644	1.2134	1.1548	1.1279	AVRG		0.78273		1.2776	8	15	0.600	0.99	
Pyrene	1.0705	1.2403	1.2712	1.2861	1.2697	1.2021	1.1804	1.1218	1.1187	AVRG		0.83638		1.1956	7	15	0.600	0.99	
Butylbenzylphthalate			0.5714	0.5901	0.5822	0.5623	0.5714	0.5514	0.5557	AVRG		1.75680		0.5692	2	15	0.010	0.99	
3,3'-Dichlorobenzidine			0.4289	0.4527	0.4639	0.4474	0.4333	0.4073	0.3928	AVRG		2.31307		0.4323	6	15	0.010	0.99	
Benzo(a)anthracene	1.0660	1.1287	1.1392	1.1627	1.1455	1.1191	1.1385	1.1132	1.1220	AVRG		0.88802		1.1261	2	15	0.800	0.99	
bis(2-Ethylhexyl)phthalate			0.8437	0.8679	0.8584	0.8240	0.7595	0.6940	0.6271	AVRG		1.27865		0.7821	12	15	0.010	0.99	
Chrysene	1.0039	1.0504	1.0893	1.1084	1.1131	1.0643	1.0814	1.0382	1.0530	AVRG		0.93731		1.0669	3	15	0.700	0.99	
Di-n-octylphthalate			1.4940	1.5597	1.5598	1.5231	1.5706	1.5559	1.5500	AVRG		0.64735		1.5448	2	15	0.010	0.99	
Benzo(b)fluoranthene	0.9916	1.0871	1.1600	1.1756	1.1816	1.1559	1.2252	1.1862	1.2768	AVRG		0.86207		1.1600	7	15	0.700	0.99	
Benzo(k)fluoranthene	0.9900	1.1041	1.1553	1.2287	1.2044	1.1555	1.1895	1.2014	1.1722	AVRG		0.86527		1.1557	6	15	0.700	0.99	
Benzo(a)pyrene	0.8192	0.9250	0.9765	1.0217	1.0207	0.9857	1.0411	1.0318	1.0461	AVRG		1.01490		0.9853	7	15	0.700	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Indeno(1,2,3-cd)pyrene	0.9412	1.0577	1.1284	1.1957	1.2067	1.1738	1.2069	1.2109	1.2328	AVRG		0.86923		1.1504	8	15	0.500	0.99	
Dibenz(a,h)anthracene	0.8363	0.9398	1.0131	1.0689	1.0750	1.0538	1.0925	1.0937	1.1175	AVRG		0.96871		1.0323	9	15	0.400	0.99	
Benzo(g,h,i)perylene	0.7966	0.8451	0.8928	0.9376	0.9559	0.9266	0.9628	0.9593	0.9672	AVRG		1.09171		0.9160	7	15	0.500	0.99	
2-Fluorophenol	1.3347	1.4475	1.4868	1.5063	1.4861	1.4485	1.5020	1.4901	1.4930	AVRG		0.68208		1.4661	4	15	0.05	0.99	
Phenol-d5	1.6070	1.7128	1.7315	1.7386	1.6936	1.6677	1.7342	1.7411	1.7664	AVRG		0.58468		1.7103	3	15	0.05	0.99	
Nitrobenzene-d5	0.3599	0.3882	0.3777	0.3952	0.3923	0.3846	0.3909	0.3870	0.3882	AVRG		2.59816		0.3849	3	15	0.05	0.99	
2-Fluorobiphenyl	1.3655	1.4485	1.5077	1.5205	1.4869	1.4289	1.4091	1.3532	1.2921	AVRG		0.70244		1.4236	5	15	0.05	0.99	
2,4,6-Tribromophenol	0.1537	0.1835	0.2001	0.2123	0.2198	0.2204	0.2463	0.2406	0.2452	AVRG		4.68243		0.2136	14	15	0.05	0.99	
Terphenyl-d14	0.8305	0.9362	0.9721	0.9975	0.9822	0.9426	0.9279	0.8872	0.8817	AVRG		1.07682		0.9287	6	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
N-Nitrosodimethylamine			10.000	0	20.000	3	32.000	2	40.000	1	50.000	-2	80.000	-1	100.00	-1	120.00	-1
Phenol			10.000	3	20.000	3	32.000	2	40.000	-1	50.000	-3	80.000	-2	100.00	-1	120.00	0
bis(2-Chloroethyl)ether			10.000	6	20.000	6	32.000	3	40.000	2	50.000	-3	80.000	-3	100.00	-7	120.00	-4
2-Chlorophenol			10.000	2	20.000	4	32.000	4	40.000	1	50.000	-2	80.000	-2	100.00	-4	120.00	-5
1,3-Dichlorobenzene			10.000	6	20.000	7	32.000	6	40.000	4	50.000	-1	80.000	-3	100.00	-8	120.00	-10
1,4-Dichlorobenzene			10.000	7	20.000	8	32.000	6	40.000	4	50.000	-1	80.000	-4	100.00	-8	120.00	-11
Benzyl alcohol			10.000	-9	20.000	-7	32.000	-3	40.000	-4	50.000	0	80.000	7	100.00	7	120.00	9
1,2-Dichlorobenzene			10.000	7	20.000	7	32.000	6	40.000	3	50.000	-1	80.000	-4	100.00	-8	120.00	-10
2-Methylphenol			10.000	0	20.000	1	32.000	0	40.000	-4	50.000	-3	80.000	1	100.00	2	120.00	3
bis(2-Chloroisopropyl) ether			10.000	7	20.000	6	32.000	3	40.000	-1	50.000	-4	80.000	-4	100.00	-4	120.00	-3
4-Methylphenol			10.000	-5	20.000	-5	32.000	-3	40.000	-4	50.000	-2	80.000	5	100.00	6	120.00	9
N-Nitroso-di-n-propylamine			10.000	-15	20.000	-4	32.000	1	40.000	1	50.000	1	80.000	6	100.00	4	120.00	6
Hexachloroethane			10.000	1	20.000	4	32.000	5	40.000	3	50.000	0	80.000	-1	100.00	-5	120.00	-6
Nitrobenzene			10.000	2	20.000	3	32.000	4	40.000	2	50.000	-2	80.000	-1	100.00	-3	120.00	-5
Isophorone			10.000	-2	20.000	5	32.000	7	40.000	5	50.000	-1	80.000	-2	100.00	-5	120.00	-7
2-Nitrophenol					20.000	-6	32.000	0	40.000	1	50.000	1	80.000	4	100.00	1	120.00	-1
2,4-Dimethylphenol			10.000	-5	20.000	-2	32.000	7	40.000	8	50.000	2	80.000	0	100.00	-4	120.00	-6
bis(2-Chloroethoxy)methane					10.000	-1	16.000	5	20.000	5	25.000	1	40.000	0	50.000	-4	60.000	-6
Benzoic acid			50.000	**-23**	60.000	-11	80.000	0	90.000	6	100.00	4	120.00	7	130.00	8	140.00	9
2,4-Dichlorophenol			10.000	-1	20.000	3	32.000	6	40.000	6	50.000	2	80.000	0	100.00	-6	120.00	-10
1,2,4-Trichlorobenzene			10.000	9	20.000	10	32.000	9	40.000	6	50.000	-1	80.000	-6	100.00	-11	120.00	-15
Naphthalene	2.0000	-3	5.0000	3	10.000	5	16.000	6	20.000	3	25.000	0	40.000	-1	50.000	-6	60.000	-7
4-Chloroaniline			10.000	-12	20.000	8	32.000	10	40.000	10	50.000	3	80.000	-1	100.00	-7	120.00	-11
Hexachlorobutadiene			10.000	7	20.000	12	32.000	11	40.000	7	50.000	-1	80.000	-8	100.00	-12	120.00	-16
4-Chloro-3-methylphenol			10.000	-1	20.000	6	32.000	10	40.000	6	50.000	1	80.000	-3	100.00	-9	120.00	-11
2-Methylnaphthalene	2.0000	-11	5.0000	-4	10.000	7	16.000	11	20.000	9	25.000	4	40.000	0	50.000	-6	60.000	-9
Hexachlorocyclopentadiene					20.000	-4	32.000	1	40.000	4	50.000	3	80.000	4	100.00	-2	120.00	-7
2,4,6-Trichlorophenol			10.000	-3	20.000	2	32.000	3	40.000	3	50.000	2	80.000	1	100.00	-2	120.00	-6
2,4,5-Trichlorophenol			10.000	-3	20.000	4	32.000	8	40.000	7	50.000	0	80.000	1	100.00	-7	120.00	-8
2-Chloronaphthalene					10.000	2	16.000	4	20.000	3	25.000	-1	40.000	1	50.000	-4	60.000	-6
2-Nitroaniline					20.000	-2	32.000	2	40.000	1	50.000	0	80.000	1	100.00	-1	120.00	-1
Dimethylphthalate			10.000	2	20.000	5	32.000	6	40.000	4	50.000	0	80.000	0	100.00	-7	120.00	-11
2,6-Dinitrotoluene			10.000	-8	20.000	-2	32.000	2	40.000	1	50.000	1	80.000	5	100.00	1	120.00	0
Acenaphthylene	2.0000	-5	5.0000	1	10.000	4	16.000	5	20.000	3	25.000	0	40.000	0	50.000	-3	60.000	-6
3-Nitroaniline					20.000	-8	32.000	-2	40.000	0	50.000	0	80.000	5	100.00	3	120.00	2
Acenaphthene	2.0000	-7	5.0000	-1	10.000	4	16.000	4	20.000	5	25.000	0	40.000	1	50.000	-2	60.000	-4
2,4-Dinitrophenol					20.000	11	32.000	-1	40.000	-1	50.000	-4	80.000	0	100.00	-1	120.00	1
4-Nitrophenol					20.000	-6	32.000	0	40.000	1	50.000	0	80.000	4	100.00	1	120.00	1
Dibenzofuran					10.000	2	16.000	3	20.000	2	25.000	0	40.000	1	50.000	-2	60.000	-6
2,4-Dinitrotoluene			10.000	-9	20.000	-2	32.000	4	40.000	3	50.000	1	80.000	5	100.00	0	120.00	-2
Diethylphthalate					10.000	0	16.000	3	20.000	3	25.000	0	40.000	2	50.000	-3	60.000	-6
Fluorene	2.0000	-2	5.0000	2	10.000	4	16.000	5	20.000	3	25.000	0	40.000	0	50.000	-5	60.000	-8

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
4-Chlorophenyl-phenylether					10.000	0	16.000	3	20.000	2	25.000	0	40.000	2	50.000	-2	60.000	-5
4-Nitroaniline					20.000	-5	32.000	0	40.000	0	50.000	-1	80.000	4	100.00	1	120.00	0
4,6-Dinitro-2-methylphenol					20.000	-17	32.000	-9	40.000	-1	50.000	0	80.000	8	100.00	8	120.00	11
N-Nitrosodiphenylamine					10.000	2	16.000	2	20.000	3	25.000	-1	40.000	0	50.000	-3	60.000	-3
Azobenzene					10.000	3	16.000	2	20.000	3	25.000	0	40.000	-1	50.000	-4	60.000	-3
4-Bromophenyl-phenylether					10.000	0	16.000	0	20.000	2	25.000	-1	40.000	1	50.000	-1	60.000	-1
Hexachlorobenzene			10.000	3	20.000	4	32.000	5	40.000	5	50.000	0	80.000	-2	100.00	-6	120.00	-8
Pentachlorophenol					20.000	-10	32.000	-3	40.000	3	50.000	1	80.000	5	100.00	2	120.00	3
Phenanthrene	2.0000	-3	5.0000	6	10.000	6	16.000	6	20.000	5	25.000	0	40.000	-3	50.000	-7	60.000	-10
Anthracene	2.0000	-3	5.0000	3	10.000	6	16.000	6	20.000	4	25.000	1	40.000	-3	50.000	-6	60.000	-9
Carbazole			10.000	0	20.000	11	32.000	10	40.000	9	50.000	2	80.000	-5	100.00	-12	120.00	-14
Di-n-butylphthalate					10.000	9	16.000	8	20.000	8	25.000	2	40.000	-4	50.000	-9	60.000	-12
Fluoranthene	2.0000	-2	5.0000	8	10.000	8	16.000	8	20.000	6	25.000	-1	40.000	-5	50.000	-10	60.000	-12
Pyrene	2.0000	-10	5.0000	4	10.000	6	16.000	8	20.000	6	25.000	1	40.000	-1	50.000	-6	60.000	-6
Butylbenzylphthalate					10.000	0	16.000	4	20.000	2	25.000	-1	40.000	0	50.000	-3	60.000	-2
3,3'-Dichlorobenzidine					20.000	-1	32.000	5	40.000	7	50.000	3	80.000	0	100.00	-6	120.00	-9
Benzo(a)anthracene	2.0000	-5	5.0000	0	10.000	1	16.000	3	20.000	2	25.000	-1	40.000	1	50.000	-1	60.000	0
bis(2-Ethylhexyl)phthalate					10.000	8	16.000	11	20.000	10	25.000	5	40.000	-3	50.000	-11	60.000	-20
Chrysene	2.0000	-6	5.0000	-2	10.000	2	16.000	4	20.000	4	25.000	0	40.000	1	50.000	-3	60.000	-1
Di-n-octylphthalate					10.000	-3	16.000	1	20.000	1	25.000	-1	40.000	2	50.000	1	60.000	0
Benzo(b)fluoranthene	2.0000	-15	5.0000	-6	10.000	0	16.000	1	20.000	2	25.000	0	40.000	6	50.000	2	60.000	10
Benzo(k)fluoranthene	2.0000	-14	5.0000	-4	10.000	0	16.000	6	20.000	4	25.000	0	40.000	3	50.000	4	60.000	1
Benzo(a)pyrene	2.0000	-17	5.0000	-6	10.000	-1	16.000	4	20.000	4	25.000	0	40.000	6	50.000	5	60.000	6
Indeno(1,2,3-cd)pyrene	2.0000	-18	5.0000	-8	10.000	-2	16.000	4	20.000	5	25.000	2	40.000	5	50.000	5	60.000	7
Dibenz(a,h)anthracene	2.0000	-19	5.0000	-9	10.000	-2	16.000	4	20.000	4	25.000	2	40.000	6	50.000	6	60.000	8
Benzo(g,h,i)perylene	2.0000	-13	5.0000	-8	10.000	-3	16.000	2	20.000	4	25.000	1	40.000	5	50.000	5	60.000	6
2-Fluorophenol	2.0000	-9	5.0000	-1	10.000	1	16.000	3	20.000	1	25.000	-1	40.000	2	50.000	2	60.000	2
Phenol-d5	2.0000	-6	5.0000	0	10.000	1	16.000	2	20.000	-1	25.000	-2	40.000	1	50.000	2	60.000	3
Nitrobenzene-d5	2.0000	-6	5.0000	1	10.000	-2	16.000	3	20.000	2	25.000	0	40.000	2	50.000	1	60.000	1
2-Fluorobiphenyl	2.0000	-4	5.0000	2	10.000	6	16.000	7	20.000	4	25.000	0	40.000	-1	50.000	-5	60.000	-9
2,4,6-Tribromophenol	2.0000	**-28**	5.0000	-14	10.000	-6	16.000	-1	20.000	3	25.000	3	40.000	15	50.000	13	60.000	15
Terphenyl-d14	2.0000	-11	5.0000	1	10.000	5	16.000	7	20.000	6	25.000	1	40.000	0	50.000	-4	60.000	-5

KMH 08/01/14 [Aniline]: Picked or reassigned peak in all levels.

KMH 08/01/14 [3-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [4-Nitrophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [4-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [3,3'-Dichlorobenzidine]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [2,4-Dinitrophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [4-Chloroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [2,4,5-Trichlorophenol]: Corrected automatically drawn baseline in ICAL (rgv23).

KMH 08/01/14 [Anthracene]: Corrected automatically drawn baseline in ICAL (rgv23).

Analyst: KMH Date: 08/01/14 Reviewer: LW Date: 08/06/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; LINR=Linear regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259835 MSBNA Water
EPA 8270D

Inst : MSBNA09 Name : 6PTBNA9
Calnum : 584305789001 Cal Date : 31-JUL-2014

ICV 584305789025 (rgv25 31-JUL-2014) stds: S24471

Analyte	Spiked	Quant	Units	%D	Max	Flags
N-Nitrosodimethylamine	40.00	38.45	ug/mL	-4	20	
Phenol	40.00	38.19	ug/mL	-5	20	
bis(2-Chloroethyl)ether	40.00	39.29	ug/mL	-2	20	
2-Chlorophenol	40.00	38.81	ug/mL	-3	20	
1,3-Dichlorobenzene	40.00	39.49	ug/mL	-1	20	
1,4-Dichlorobenzene	40.00	39.00	ug/mL	-3	20	
Benzyl alcohol	40.00	40.12	ug/mL	0	20	
1,2-Dichlorobenzene	40.00	39.12	ug/mL	-2	20	
2-Methylphenol	40.00	39.22	ug/mL	-2	20	
bis(2-Chloroisopropyl) ether	40.00	39.13	ug/mL	-2	20	
4-Methylphenol	40.00	34.09	ug/mL	-15	20	
N-Nitroso-di-n-propylamine	40.00	39.44	ug/mL	-1	20	
Hexachloroethane	40.00	39.10	ug/mL	-2	20	
Nitrobenzene	40.00	39.53	ug/mL	-1	20	
Isophorone	40.00	40.94	ug/mL	2	20	
2-Nitrophenol	40.00	39.56	ug/mL	-1	20	
2,4-Dimethylphenol	40.00	41.81	ug/mL	5	20	
bis(2-Chloroethoxy)methane	40.00	39.42	ug/mL	-1	20	
Benzoic acid	100.0	105.4	ug/mL	5	20	
2,4-Dichlorophenol	40.00	39.98	ug/mL	0	20	
1,2,4-Trichlorobenzene	40.00	39.54	ug/mL	-1	20	
Naphthalene	40.00	38.13	ug/mL	-5	20	
4-Chloroaniline	40.00	42.00	ug/mL	5	20	
Hexachlorobutadiene	40.00	40.75	ug/mL	2	20	
4-Chloro-3-methylphenol	40.00	39.84	ug/mL	0	20	
2-Methylnaphthalene	40.00	40.39	ug/mL	1	20	
Hexachlorocyclopentadiene	40.00	36.71	ug/mL	-8	20	
2,4,6-Trichlorophenol	40.00	38.79	ug/mL	-3	20	
2,4,5-Trichlorophenol	40.00	40.19	ug/mL	0	20	
2-Chloronaphthalene	40.00	38.31	ug/mL	-4	20	
2-Nitroaniline	40.00	38.87	ug/mL	-3	20	
Dimethylphthalate	40.00	39.93	ug/mL	0	20	
2,6-Dinitrotoluene	40.00	40.44	ug/mL	1	20	
Acenaphthylene	40.00	43.26	ug/mL	8	20	
3-Nitroaniline	40.00	40.11	ug/mL	0	20	
Acenaphthene	40.00	35.94	ug/mL	-10	20	
2,4-Dinitrophenol	40.00	40.36	ug/mL	1	20	m
4-Nitrophenol	40.00	38.52	ug/mL	-4	20	m
Dibenzofuran	40.00	38.29	ug/mL	-4	20	
2,4-Dinitrotoluene	40.00	39.63	ug/mL	-1	20	
Diethylphthalate	40.00	37.90	ug/mL	-5	20	
Fluorene	40.00	37.80	ug/mL	-6	20	
4-Chlorophenyl-phenylether	40.00	38.25	ug/mL	-4	20	
4-Nitroaniline	40.00	38.21	ug/mL	-4	20	
4,6-Dinitro-2-methylphenol	40.00	38.45	ug/mL	-4	20	
N-Nitrosodiphenylamine	40.00	44.66	ug/mL	12	20	
Azobenzene	40.00	37.93	ug/mL	-5	20	
4-Bromophenyl-phenylether	40.00	38.36	ug/mL	-4	20	
Hexachlorobenzene	40.00	39.17	ug/mL	-2	20	

Analyte	Spiked	Quant	Units	%D	Max	Flags
Pentachlorophenol	40.00	37.41	ug/mL	-6	20	
Phenanthrene	40.00	37.26	ug/mL	-7	20	
Anthracene	40.00	38.70	ug/mL	-3	20	
Carbazole	40.00	40.93	ug/mL	2	20	
Di-n-butylphthalate	40.00	37.30	ug/mL	-7	20	
Fluoranthene	40.00	36.70	ug/mL	-8	20	
Pyrene	40.00	36.20	ug/mL	-9	20	
Butylbenzylphthalate	40.00	38.51	ug/mL	-4	20	
3,3'-Dichlorobenzidine	60.00	59.84	ug/mL	0	20	
Benzo(a)anthracene	40.00	39.04	ug/mL	-2	20	
bis(2-Ethylhexyl)phthalate	40.00	39.42	ug/mL	-1	20	
Chrysene	40.00	37.36	ug/mL	-7	20	
Di-n-octylphthalate	40.00	38.60	ug/mL	-3	20	
Benzo(b)fluoranthene	40.00	42.43	ug/mL	6	20	
Benzo(k)fluoranthene	40.00	38.95	ug/mL	-3	20	
Benzo(a)pyrene	40.00	44.62	ug/mL	12	20	
Indeno(1,2,3-cd)pyrene	40.00	39.27	ug/mL	-2	20	
Dibenz(a,h)anthracene	40.00	38.70	ug/mL	-3	20	
Benzo(g,h,i)perylene	40.00	38.80	ug/mL	-3	20	

Analyst: KMH Date: 08/01/14 Reviewer: LW Date: 08/06/14

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 MSBNA Water
EPA 8270D

Inst : MSBNA05 IDF : 1.0
Seqnum : 544337710003.1 File : xhm03 Time : 22-AUG-2014 13:21
Cal : 544327680001 Caldate : 15-AUG-2014
Standards: S25410

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
N-Nitrosodimethylamine	0.6698	0.6237	32.00	29.80	ug/mL	-7	20	0.0500	
Phenol	1.6896	1.6734	32.00	31.69	ug/mL	-1	20	0.8000	
bis(2-Chloroethyl)ether	1.2308	1.2209	32.00	31.74	ug/mL	-1	20	0.7000	
2-Chlorophenol	1.4096	1.4448	32.00	32.80	ug/mL	2	20	0.8000	
1,3-Dichlorobenzene	1.5127	1.5961	32.00	33.76	ug/mL	6	20	0.0500	
1,4-Dichlorobenzene	1.5089	1.6387	32.00	34.75	ug/mL	9	20	0.0500	
Benzyl alcohol	0.9408	0.9272	32.00	31.54	ug/mL	-1	20	0.0500	
1,2-Dichlorobenzene	1.4769	1.5861	32.00	34.37	ug/mL	7	20	0.0500	
2-Methylphenol	1.1390	1.1543	32.00	32.43	ug/mL	1	20	0.7000	
bis(2-Chloroisopropyl) ether	1.8550	1.7147	32.00	29.58	ug/mL	-8	20	0.0100	
4-Methylphenol	1.6809	1.6529	32.00	31.47	ug/mL	-2	20	0.6000	
N-Nitroso-di-n-propylamine	0.8406	0.8372	32.00	31.87	ug/mL	0	20	0.5000	
Hexachloroethane	0.6432	0.6638	32.00	33.03	ug/mL	3	20	0.3000	
Nitrobenzene	0.4083	0.3898	32.00	30.55	ug/mL	-5	20	0.2000	
Isophorone	0.7286	0.6823	32.00	29.97	ug/mL	-6	20	0.4000	
2-Nitrophenol	0.2054	0.2075	32.00	32.32	ug/mL	1	20	0.1000	
2,4-Dimethylphenol	0.3594	0.3552	32.00	31.62	ug/mL	-1	20	0.2000	
bis(2-Chloroethoxy)methane	0.4299	0.4127	16.00	15.36	ug/mL	-4	20	0.3000	
Benzoic acid	0.2677	0.2252	80.00	67.30	ug/mL	-16	20	0.0500	
2,4-Dichlorophenol	0.3040	0.3226	32.00	33.96	ug/mL	6	20	0.2000	
1,2,4-Trichlorobenzene	0.3182	0.3506	32.00	35.26	ug/mL	10	20	0.0500	
Naphthalene	1.0955	1.1515	16.00	16.82	ug/mL	5	20	0.7000	
4-Chloroaniline	0.4369	0.4679	32.00	32.21	ug/mL	1	20	0.0100	
Hexachlorobutadiene	0.1650	0.1865	32.00	36.18	ug/mL	13	20	0.0100	
4-Chloro-3-methylphenol	0.3207	0.3176	32.00	31.70	ug/mL	-1	20	0.2000	
2-Methylnaphthalene	0.7396	0.7702	16.00	16.66	ug/mL	4	20	0.4000	
Hexachlorocyclopentadiene	0.3300	0.3548	32.00	34.40	ug/mL	7	20	0.0500	
2,4,6-Trichlorophenol	0.3660	0.3983	32.00	34.82	ug/mL	9	20	0.2000	
2,4,5-Trichlorophenol	0.3900	0.4295	32.00	35.24	ug/mL	10	20	0.2000	
2-Chloronaphthalene	1.1656	1.2477	16.00	17.13	ug/mL	7	20	0.8000	
2-Nitroaniline	0.4008	0.3894	32.00	31.09	ug/mL	-3	20	0.0100	
Dimethylphthalate	1.2709	1.3786	32.00	34.71	ug/mL	8	20	0.0100	
2,6-Dinitrotoluene	0.3123	0.3278	32.00	33.59	ug/mL	5	20	0.2000	
Acenaphthylene	1.9468	2.0174	16.00	16.58	ug/mL	4	20	0.9000	
3-Nitroaniline	0.3467	0.3376	32.00	31.16	ug/mL	-3	20	0.0100	
Acenaphthene	1.2140	1.2997	16.00	17.13	ug/mL	7	20	0.9000	
2,4-Dinitrophenol	0.1633	0.1332	32.00	30.77	ug/mL	-4	20	0.0100	
4-Nitrophenol	0.1875	0.1889	32.00	32.24	ug/mL	1	20	0.0100	
Dibenzofuran	1.6090	1.7668	16.00	17.57	ug/mL	10	20	0.8000	
2,4-Dinitrotoluene	0.4105	0.4432	32.00	34.55	ug/mL	8	20	0.2000	
Diethylphthalate	1.4209	1.4989	16.00	16.88	ug/mL	5	20	0.0100	
Fluorene	1.3851	1.5029	16.00	17.36	ug/mL	9	20	0.9000	
4-Chlorophenyl-phenylether	0.6164	0.6805	16.00	17.66	ug/mL	10	20	0.4000	
4-Nitroaniline	0.3594	0.3461	32.00	30.82	ug/mL	-4	20	0.0100	
4,6-Dinitro-2-methylphenol	0.1361	0.1337	32.00	31.43	ug/mL	-2	20	0.0100	
N-Nitrosodiphenylamine	0.6073	0.6155	16.00	16.22	ug/mL	1	20	0.0100	
Azobenzene	0.9270	0.8623	16.00	14.88	ug/mL	-7	20	0.0500	
4-Bromophenyl-phenylether	0.2207	0.2292	16.00	16.61	ug/mL	4	20	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Hexachlorobenzene	0.2199	0.2488	32.00	36.21	ug/mL	13	20	0.1000	
Pentachlorophenol	0.1511	0.1598	32.00	33.83	ug/mL	6	20	0.0500	
Phenanthrene	1.1442	1.1958	16.00	16.72	ug/mL	5	20	0.7000	
Anthracene	1.1638	1.2162	16.00	16.72	ug/mL	5	20	0.7000	
Carbazole	0.9656	1.0615	32.00	35.18	ug/mL	10	20	0.0100	
Di-n-butylphthalate	1.4456	1.4827	16.00	16.41	ug/mL	3	20	0.0100	
Fluoranthene	1.2637	1.3255	16.00	16.78	ug/mL	5	20	0.6000	
Pyrene	1.2850	1.2987	16.00	16.17	ug/mL	1	20	0.6000	
Butylbenzylphthalate	0.6466	0.5988	16.00	14.82	ug/mL	-7	20	0.0100	
3,3'-Dichlorobenzidine	0.3696	0.3720	32.00	32.21	ug/mL	1	20	0.0100	
Benzo(a)anthracene	1.1441	1.1317	16.00	15.83	ug/mL	-1	20	0.8000	
bis(2-Ethylhexyl)phthalate	0.8394	0.8588	16.00	16.37	ug/mL	2	20	0.0100	
Chrysene	1.0537	1.0607	16.00	16.11	ug/mL	1	20	0.7000	
Di-n-octylphthalate	1.7540	1.5766	16.00	14.38	ug/mL	-10	20	0.0100	
Benzo(b)fluoranthene	1.2072	1.1684	16.00	15.49	ug/mL	-3	20	0.7000	
Benzo(k)fluoranthene	1.0969	1.1143	16.00	16.25	ug/mL	2	20	0.7000	
Benzo(a)pyrene	1.1520	1.1383	16.00	15.81	ug/mL	-1	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.2676	1.2661	16.00	15.98	ug/mL	0	20	0.5000	
Dibenz(a,h)anthracene	1.0805	1.0496	16.00	15.54	ug/mL	-3	20	0.4000	
Benzo(g,h,i)perylene	1.0588	0.9985	16.00	15.09	ug/mL	-6	20	0.5000	
2-Fluorophenol	1.3488	1.3117	16.00	15.56	ug/mL	-3	20	0.0500	
Phenol-d5	1.6768	1.6384	16.00	15.63	ug/mL	-2	20	0.0500	
Nitrobenzene-d5	0.4472	0.4317	16.00	15.45	ug/mL	-3	20	0.0500	
2-Fluorobiphenyl	1.4224	1.5512	16.00	17.45	ug/mL	9	20	0.0500	
2,4,6-Tribromophenol	0.1832	0.2197	16.00	19.19	ug/mL	20	20	0.0500	
Terphenyl-d14	0.8766	0.9028	16.00	16.48	ug/mL	3	20	0.0500	

ISTD (ICAL xhf11)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	1031318	819662	-20.52
Naphthalene-d8	3900538	3193615	-18.12
Acenaphthene-d10	2287286	1835047	-19.77
Phenanthrene-d10	3792150	3280267	-13.50
Chrysene-d12	4068719	3737425	-8.14
Perylene-d12	3663483	3429326	-6.39

ISTD (ICAL xhf11)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.04	6.04	0.00
Naphthalene-d8	7.55	7.55	0.00
Acenaphthene-d10	9.73	9.73	0.00
Phenanthrene-d10	11.60	11.60	0.00
Chrysene-d12	15.04	15.04	0.00
Perylene-d12	18.01	18.01	0.00

KMH 08/27/14 [Aniline]: Picked or reassigned peak. [general version]

Analyst: KMH Date: 08/26/14 Reviewer: LW Date: 08/27/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 MSBNA Water
EPA 8270D

Inst : MSBNA09 IDF : 1.0
Seqnum : 584336313003.1 File : rhl03 Time : 21-AUG-2014 13:55
Cal : 584305789001 Caldate : 31-JUL-2014
Standards: S24428

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
N-Nitrosodimethylamine	0.6889	0.7185	40.00	41.72	ug/mL	4	20	0.0500	
Phenol	1.7505	1.7320	40.00	39.58	ug/mL	-1	20	0.8000	
bis(2-Chloroethyl)ether	1.3236	1.3003	40.00	39.30	ug/mL	-2	20	0.7000	
2-Chlorophenol	1.4949	1.5253	40.00	40.81	ug/mL	2	20	0.8000	
1,3-Dichlorobenzene	1.5853	1.6408	40.00	41.40	ug/mL	4	20	0.0500	
1,4-Dichlorobenzene	1.6031	1.6415	40.00	40.96	ug/mL	2	20	0.0500	
Benzyl alcohol	0.9638	0.9435	40.00	39.16	ug/mL	-2	20	0.0500	
1,2-Dichlorobenzene	1.4985	1.5398	40.00	41.10	ug/mL	3	20	0.0500	
2-Methylphenol	1.1156	1.1119	40.00	39.87	ug/mL	0	20	0.7000	
bis(2-Chloroisopropyl) ether	1.8467	1.8376	40.00	39.80	ug/mL	0	20	0.0100	
4-Methylphenol	1.7193	1.6807	40.00	39.10	ug/mL	-2	20	0.6000	
N-Nitroso-di-n-propylamine	0.9873	0.9595	40.00	38.87	ug/mL	-3	20	0.5000	
Hexachloroethane	0.6219	0.6059	40.00	38.97	ug/mL	-3	20	0.3000	
Nitrobenzene	0.3602	0.3709	40.00	41.19	ug/mL	3	20	0.2000	
Isophorone	0.7371	0.7420	40.00	40.27	ug/mL	1	20	0.4000	
2-Nitrophenol	0.2033	0.2246	40.00	44.19	ug/mL	10	20	0.1000	
2,4-Dimethylphenol	0.3677	0.3751	40.00	40.80	ug/mL	2	20	0.2000	
bis(2-Chloroethoxy)methane	0.4575	0.4562	20.00	19.94	ug/mL	0	20	0.3000	
Benzoic acid	0.2582	0.2216	90.00	77.24	ug/mL	-14	20	0.0500	
2,4-Dichlorophenol	0.3137	0.3374	40.00	43.02	ug/mL	8	20	0.2000	
1,2,4-Trichlorobenzene	0.3187	0.3377	40.00	42.38	ug/mL	6	20	0.0500	
Naphthalene	1.0889	1.1771	20.00	21.62	ug/mL	8	20	0.7000	
4-Chloroaniline	0.4867	0.5185	40.00	42.61	ug/mL	7	20	0.0100	
Hexachlorobutadiene	0.1765	0.1856	40.00	42.07	ug/mL	5	20	0.0100	
4-Chloro-3-methylphenol	0.3533	0.3715	40.00	42.07	ug/mL	5	20	0.2000	
2-Methylnaphthalene	0.7670	0.8551	20.00	22.30	ug/mL	11	20	0.4000	
Hexachlorocyclopentadiene	0.3767	0.3474	40.00	36.88	ug/mL	-8	20	0.0500	
2,4,6-Trichlorophenol	0.3821	0.4081	40.00	42.73	ug/mL	7	20	0.2000	
2,4,5-Trichlorophenol	0.4071	0.4466	40.00	43.88	ug/mL	10	20	0.2000	
2-Chloronaphthalene	1.1882	1.2636	20.00	21.27	ug/mL	6	20	0.8000	
2-Nitroaniline	0.3530	0.3755	40.00	42.55	ug/mL	6	20	0.0100	
Dimethylphthalate	1.4121	1.4962	40.00	42.38	ug/mL	6	20	0.0100	
2,6-Dinitrotoluene	0.3419	0.3627	40.00	42.43	ug/mL	6	20	0.2000	
Acenaphthylene	1.6876	1.8230	20.00	21.61	ug/mL	8	20	0.9000	
3-Nitroaniline	0.3815	0.3941	40.00	41.32	ug/mL	3	20	0.0100	
Acenaphthene	1.2534	1.3468	20.00	21.49	ug/mL	7	20	0.9000	
2,4-Dinitrophenol	0.1660	0.1331	40.00	35.93	ug/mL	-10	20	0.0100	
4-Nitrophenol	0.1911	0.1780	40.00	37.24	ug/mL	-7	20	0.0100	
Dibenzofuran	1.7373	1.8729	20.00	21.56	ug/mL	8	20	0.8000	
2,4-Dinitrotoluene	0.4742	0.5132	40.00	43.29	ug/mL	8	20	0.2000	
Diethylphthalate	1.5329	1.6040	20.00	20.93	ug/mL	5	20	0.0100	
Fluorene	1.4346	1.5696	20.00	21.88	ug/mL	9	20	0.9000	
4-Chlorophenyl-phenylether	0.7249	0.7815	20.00	21.56	ug/mL	8	20	0.4000	
4-Nitroaniline	0.3951	0.4009	40.00	40.58	ug/mL	1	20	0.0100	
4,6-Dinitro-2-methylphenol	0.1451	0.1378	40.00	38.00	ug/mL	-5	20	0.0100	
N-Nitrosodiphenylamine	0.5974	0.6363	20.00	21.30	ug/mL	7	20	0.0100	
Azobenzene	0.7988	0.7726	20.00	19.34	ug/mL	-3	20	0.0500	
4-Bromophenyl-phenylether	0.2478	0.2502	20.00	20.19	ug/mL	1	20	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Hexachlorobenzene	0.2674	0.2491	40.00	37.26	ug/mL	-7	20	0.1000	
Pentachlorophenol	0.1695	0.1642	40.00	38.74	ug/mL	-3	20	0.0500	
Phenanthrene	1.1611	1.2487	20.00	21.51	ug/mL	8	20	0.7000	
Anthracene	1.1484	1.2514	20.00	21.79	ug/mL	9	20	0.7000	
Carbazole	1.0146	1.1123	40.00	43.85	ug/mL	10	20	0.0100	
Di-n-butylphthalate	1.4681	1.5288	20.00	20.83	ug/mL	4	20	0.0100	
Fluoranthene	1.2776	1.3962	20.00	21.86	ug/mL	9	20	0.6000	
Pyrene	1.1956	1.3431	20.00	22.47	ug/mL	12	20	0.6000	
Butylbenzylphthalate	0.5692	0.5932	20.00	20.84	ug/mL	4	20	0.0100	
3,3'-Dichlorobenzidine	0.4323	0.4266	40.00	39.47	ug/mL	-1	20	0.0100	
Benzo(a)anthracene	1.1261	1.1796	20.00	20.95	ug/mL	5	20	0.8000	
bis(2-Ethylhexyl)phthalate	0.7821	0.8416	20.00	21.52	ug/mL	8	20	0.0100	
Chrysene	1.0669	1.1550	20.00	21.65	ug/mL	8	20	0.7000	
Di-n-octylphthalate	1.5448	1.6378	20.00	21.20	ug/mL	6	20	0.0100	
Benzo(b)fluoranthene	1.1600	1.2297	20.00	21.20	ug/mL	6	20	0.7000	
Benzo(k)fluoranthene	1.1557	1.2797	20.00	22.15	ug/mL	11	20	0.7000	
Benzo(a)pyrene	0.9853	1.0681	20.00	21.68	ug/mL	8	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.1504	1.2524	20.00	21.77	ug/mL	9	20	0.5000	
Dibenz(a,h)anthracene	1.0323	1.1196	20.00	21.69	ug/mL	8	20	0.4000	
Benzo(g,h,i)perylene	0.9160	0.9817	20.00	21.43	ug/mL	7	20	0.5000	
2-Fluorophenol	1.4661	1.4490	20.00	19.77	ug/mL	-1	20	0.0500	
Phenol-d5	1.7103	1.7276	20.00	20.20	ug/mL	1	20	0.0500	
Nitrobenzene-d5	0.3849	0.3887	20.00	20.20	ug/mL	1	20	0.0500	
2-Fluorobiphenyl	1.4236	1.5625	20.00	21.95	ug/mL	10	20	0.0500	
2,4,6-Tribromophenol	0.2136	0.2036	20.00	19.07	ug/mL	-5	20	0.0500	
Terphenyl-d14	0.9287	0.9933	20.00	21.39	ug/mL	7	20	0.0500	

ISTD (ICAL rgv21)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	1195108	1032764	-13.58
Naphthalene-d8	4635194	3857267	-16.78
Acenaphthene-d10	2989178	2470642	-17.35
Phenanthrene-d10	5453704	4608315	-15.50
Chrysene-d12	6186500	5098984	-17.58
Perylene-d12	5646577	4454688	-21.11

ISTD (ICAL rgv21)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.23	6.21	-0.02
Naphthalene-d8	7.72	7.70	-0.02
Acenaphthene-d10	9.88	9.86	-0.02
Phenanthrene-d10	11.73	11.72	-0.01
Chrysene-d12	15.19	15.17	-0.02
Perylene-d12	18.23	18.20	-0.03

KMH 08/21/14 [Aniline]: Picked or reassigned peak. [general version]

Analyst: KMH Date: 08/26/14 Reviewer: LW Date: 08/27/14

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 544336478

Date : 08/21/14 Reference : xhf11
Sequence : MSBNA05 xhl Analyzed : 08/15/14 19:42

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	1031318	3900538	2287286	3792150	4068719	3663483
		LOWER LIMIT	515659	1950269	1143643	1896075	2034360	1831742
		UPPER LIMIT	2062636	7801076	4574572	7584300	8137438	7326966
004	BS	QC754311	876764	3347323	1917720	3372572	3886889	3639618
005	BSD	QC754312	921498	3493062	2010154	3552415	4007110	3759990

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 544336478

Date : 08/21/14
Sequence : MSBNA05 xhl

Reference : xhl03
Analyzed : 08/21/14 16:46

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	6.04	7.55	9.73	11.60	15.05	18.02
		LOWER LIMIT	5.54	7.05	9.23	11.10	14.55	17.52
		UPPER LIMIT	6.54	8.05	10.23	12.10	15.55	18.52
004	BS	QC754311	6.04	7.55	9.73	11.60	15.04	18.01
005	BSD	QC754312	6.04	7.55	9.73	11.60	15.04	18.01

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 544337710

Date : 08/22/14 Reference : xhf11
Sequence : MSBNA05 xhm Analyzed : 08/15/14 19:42

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	1031318	3900538	2287286	3792150	4068719	3663483
		LOWER LIMIT	515659	1950269	1143643	1896075	2034360	1831742
		UPPER LIMIT	2062636	7801076	4574572	7584300	8137438	7326966
003	CCV		819662	3193615	1835047	3280267	3737425	3429326
004	BS	QC754311	844316	3157071	1812139	3184675	3609410	3278694
005	BSD	QC754312	861765	3239690	1860620	3229106	3692194	3365258
007	SAMPLE	259835-002	953069	3557197	2076440	3651762	4176422	4019485
008	SAMPLE	259841-005	928643	3444660	2012460	3490847	4009714	3767470
012	SAMPLE	259882-002	967884	3521875	2089201	3669232	4246965	4048844
013	SAMPLE	259882-001	927629	3457800	1979679	3441248	3925823	3601964
014	SAMPLE	259882-001	948647	3346840	1908253	3347120	3844751	3599252

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 544337710

Date : 08/22/14 Reference : xhf11
Sequence : MSBNA05 xhm Analyzed : 08/15/14 19:42

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	6.04	7.55	9.73	11.60	15.04	18.01
		LOWER LIMIT	5.54	7.05	9.23	11.10	14.54	17.51
		UPPER LIMIT	6.54	8.05	10.23	12.10	15.54	18.51
003	CCV		6.04	7.55	9.73	11.60	15.04	18.01

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 544337710

Date : 08/22/14
Sequence : MSBNA05 xhm

Reference : xhm03
Analyzed : 08/22/14 13:21

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	6.04	7.55	9.73	11.60	15.04	18.01
		LOWER LIMIT	5.54	7.05	9.23	11.10	14.54	17.51
		UPPER LIMIT	6.54	8.05	10.23	12.10	15.54	18.51
004	BS	QC754311	6.04	7.55	9.73	11.60	15.04	18.01
005	BSD	QC754312	6.04	7.55	9.73	11.60	15.04	18.01
007	SAMPLE	259835-002	6.04	7.55	9.73	11.60	15.05	18.04
008	SAMPLE	259841-005	6.04	7.55	9.73	11.60	15.06	18.04
012	SAMPLE	259882-002	6.04	7.55	9.73	11.60	15.05	18.03
013	SAMPLE	259882-001	6.05	7.55	9.73	11.60	15.04	18.02
014	SAMPLE	259882-001	6.04	7.55	9.73	11.60	15.04	18.02

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584336313

Date : 08/21/14 Reference : rgv21
Sequence : MSBNA09 rhl Analyzed : 07/31/14 21:47

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	1195108	4635194	2989178	5453704	6186500	5646577
		LOWER LIMIT	597554	2317597	1494589	2726852	3093250	2823289
		UPPER LIMIT	2390216	9270388	5978356	10907408	12373000	11293154
003	CCV		1032764	3857267	2470642	4608315	5098984	4454688
004	BLANK	QC754310	970897	3544000	2172084	3941018	5010181	4430666
005	BS	QC754311	970620	3749257	2432394	4557286	5020842	4556462
006	BSD	QC754312	986455	3730873	2432536	4563310	5042243	4529695
014	SAMPLE	259882-001	78844 *	5253260	2776947	5078585	4862783	1904607 *
015	SAMPLE	259882-002	960265	3517445	2280727	4257526	4250915	2447520 *

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584336313

Date : 08/21/14 Reference : rgv21
Sequence : MSBNA09 rhl Analyzed : 07/31/14 21:47

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	6.23	7.72	9.88	11.73	15.19	18.23
		LOWER LIMIT	5.73	7.22	9.38	11.23	14.69	17.73
		UPPER LIMIT	6.73	8.22	10.38	12.23	15.69	18.73
003	CCV		6.21	7.70	9.86	11.72	15.17	18.20

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584336313

Date : 08/21/14
Sequence : MSBNA09 rhl

Reference : rhl03
Analyzed : 08/21/14 13:55

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	6.21	7.70	9.86	11.72	15.17	18.20
		LOWER LIMIT	5.71	7.20	9.36	11.22	14.67	17.70
		UPPER LIMIT	6.71	8.20	10.36	12.22	15.67	18.70
004	BLANK	QC754310	6.21	7.70	9.86	11.72	15.17	18.20
005	BS	QC754311	6.21	7.70	9.87	11.72	15.17	18.20
006	BSD	QC754312	6.21	7.70	9.87	11.72	15.17	18.20
014	SAMPLE	259882-001	6.23	7.73	9.87	11.72	15.16	18.18
015	SAMPLE	259882-002	6.21	7.70	9.86	11.72	15.16	18.18

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 544327680

Instrument : MSBNA05 Begun : 08/15/14 13:20
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	xhf01	IB	IB			08/15/14 13:20	1.0		?t
002	xhf02	TUN	DFTPP/PEM			08/15/14 13:47	1.0	1	
003	xhf03	CCV	RTCHECK			08/15/14 14:10	1.0	2	cc+
004	xhf04	CCV	RFCHECK			08/15/14 15:37	1.0	3	cc-
005	xhf05	TUN	DFTPP/PEM			08/15/14 16:14	1.0	1	
006	xhf06	ICAL	ICAL			08/15/14 16:36	1.0	4	
007	xhf07	ICAL	ICAL			08/15/14 17:13	1.0	5	
008	xhf08	ICAL	ICAL			08/15/14 17:48	1.0	3	
009	xhf09	ICAL	ICAL			08/15/14 18:27	1.0	6	
010	xhf10	ICAL	ICAL			08/15/14 19:04	1.0	7	
011	xhf11	ICAL	ICAL			08/15/14 19:42	1.0	8	
012	xhf12	ICAL	ICAL			08/15/14 20:18	1.0	9	
013	xhf13	ICAL	ICAL			08/15/14 20:53	1.0	10	
014	xhf14	ICAL	ICAL			08/15/14 21:30	1.0	11	
015	xhf15	ICV	ICV			08/15/14 22:08	1.0	12	

KMH 08/16/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 15.

Standards used: 1=S24893 2=S24428 3=S25409 4=S25407 5=S25408 6=S25410 7=S25411 8=S25412 9=S25413 10=S25414 11=S25415 12=S25418

Flags used: +=high bias -=low bias ?t=missing tune cc=CCV CCC failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 544336478

Instrument : MSBNA05 Begun : 08/21/14 15:58
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	xhl01	IB	IB			08/21/14 15:58	1.0		?t
002	xhl02	TUN	DFTPP/PEM			08/21/14 16:26	1.0	1	
003	xhl03	CCV				08/21/14 16:46	1.0	2	
004	xhl04	BS	QC754311	Water	214595	08/21/14 17:23	2.0	3	
005	xhl05	BSD	QC754312	Water	214595	08/21/14 18:00	2.0	3	

KMH 08/22/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 5.

Standards used: 1=S24893 2=S25411 3=S25005

Flags used: ?t=missing tune

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 544337710

Instrument : MSBNA05 Begun : 08/22/14 12:30
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	xhm01	IB	IB			08/22/14 12:30	1.0		?t
002	xhm02	TUN	DFTPP/PEM			08/22/14 12:58	1.0	1	
003	xhm03	CCV				08/22/14 13:21	1.0	2	
004	xhm04	BS	QC754311	Water	214595	08/22/14 14:00	2.0	3	
005	xhm05	BSD	QC754312	Water	214595	08/22/14 14:39	2.0	3	
006	xhm06	SAMPLE	259968-001	Water	214556	08/22/14 15:21	1.0	3	
007	xhm07	SAMPLE	259835-002	Water	214595	08/22/14 16:00	1.0	3	
008	xhm08	SAMPLE	259841-005	Water	214595	08/22/14 16:37	1.0	3	
009	xhm09	SAMPLE	259968-003	Water	214556	08/22/14 17:17	1.0	3	
010	xhm10	SAMPLE	260003-001	Water	214556	08/22/14 17:56	1.0	3	
011	xhm11	SAMPLE	260003-003	Water	214556	08/22/14 18:37	1.0	3	
012	xhm12	SAMPLE	259882-002	Water	214595	08/22/14 19:17	1.0	3	
013	xhm13	SAMPLE	259882-001	Water	214595	08/22/14 19:55	10.0	3	high NT
014	xhm14	SAMPLE	259882-001	Water	214595	08/22/14 20:37	25.0	3	high NT
015	xhm15	SAMPLE	260011-002	Water	214595	08/22/14 21:18	3.0	3	high NT
016	xhm16	SAMPLE	260011-003	Water	214595	08/22/14 21:59	3.0	3	high NT
017	xhm17	SAMPLE	260011-004	Water	214595	08/22/14 22:41	3.0	3	high NT
018	xhm18	SAMPLE	260011-006	Water	214595	08/22/14 23:25	3.0	3	high NT
019	xhm19	SAMPLE	260011-007	Water	214595	08/23/14 00:05	3.0	3	high NT

KMH 08/25/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 19.

Standards used: 1=S24893 2=S25410 3=S25005

Flags used: ?t=missing tune

Page 1 of 1

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 584305789

Instrument : MSBNA09 Begun : 07/31/14 08:29
Method : EPA 8270C, EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	rgv01	X	IB			07/31/14 08:29	1.0		
002	rgv02	TUN	DFTPP/PEM			07/31/14 08:56	1.0	1	
003	rgv03	CCV	RTRFCHECK			07/31/14 09:12	1.0	2	cc+ cc-
004	rgv04	TUN	DFTPP/PEM			07/31/14 10:05	1.0	1	
005	rgv05	ICAL	ICAL			07/31/14 10:21	1.0	3	
006	rgv06	ICAL	ICAL			07/31/14 10:52	1.0	4	
007	rgv07	ICAL	ICAL			07/31/14 11:22	1.0	5	
008	rgv08	ICAL	ICAL			07/31/14 11:52	1.0	2	
009	rgv09	ICAL	ICAL			07/31/14 12:22	1.0	6	
010	rgv10	ICAL	ICAL			07/31/14 12:52	1.0	7	
012	rgv12	ICAL	ICAL			07/31/14 13:52	1.0	8	
013	rgv13	ICAL	ICAL			07/31/14 14:21	1.0	9	
014	rgv14	ICV	ICV			07/31/14 14:51	1.0	10	
015	rgv15	TUN	DFTPP/PEM			07/31/14 18:29	1.0	1	
016	rgv16	ICAL	ICAL			07/31/14 19:18	1.0	3	
017	rgv17	ICAL	ICAL			07/31/14 19:47	1.0	4	
018	rgv18	ICAL	ICAL			07/31/14 20:17	1.0	5	
019	rgv19	ICAL	ICAL			07/31/14 20:47	1.0	2	
020	rgv20	ICAL	ICAL			07/31/14 21:17	1.0	6	
021	rgv21	ICAL	ICAL			07/31/14 21:47	1.0	7	
022	rgv22	ICAL	ICAL			07/31/14 22:18	1.0	11	
023	rgv23	ICAL	ICAL			07/31/14 22:48	1.0	8	
024	rgv24	ICAL	ICAL			07/31/14 23:18	1.0	9	
025	rgv25	ICV	ICV			07/31/14 23:48	1.0	10	
026	rgv26	TUN	DFTPP/PEM			08/01/14 00:14	1.0	1	t
027	rgv27	ICAL	ICAL			08/01/14 00:26	1.0	12	t
028	rgv28	ICAL	ICAL			08/01/14 00:40	1.0	13	t
029	rgv29	ICAL	ICAL			08/01/14 00:54	1.0	14	t
030	rgv30	ICAL	ICAL			08/01/14 01:07	1.0	15	t
031	rgv31	ICAL	ICAL			08/01/14 01:21	1.0	16	t
032	rgv32	ICAL	ICAL			08/01/14 01:35	1.0	17	t
033	rgv33	ICAL	ICAL			08/01/14 01:48	1.0	18	t
034	rgv34	ICAL	ICAL			08/01/14 02:02	1.0	19	t
035	rgv35	ICV	ICV			08/01/14 02:16	1.0	20	t , 5:DNOP=120000

KMH 08/01/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 35.

LW 08/06/14 : Files 26-35 are a CPSC ICAL that ran blind and the tune failed.

Standards used: 1=S24893 2=S24427 3=S24422 4=S24424 5=S24425 6=S24428 7=S24429 8=S24431 9=S24432 10=S24471 11=S24430 12=S24549 13=S24550 14=S24551 15=S24552 16=S24553 17=S24554 18=S24555 19=S24556 20=S24557

Flags used: +=high bias -=low bias cc=CCV CCC failure t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 584336313

Instrument : MSBNA09 Begun : 08/21/14 13:13
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	rhl01	X	IB			08/21/14 13:13	1.0		
002	rhl02	TUN	DFTPP/PEM			08/21/14 13:40	1.0	1	
003	rhl03	CCV				08/21/14 13:55	1.0	2	
004	rhl04	BLANK	QC754310	Water	214595	08/21/14 14:45	1.0	3	
005	rhl05	BS	QC754311	Water	214595	08/21/14 15:14	1.0	3	
006	rhl06	BSD	QC754312	Water	214595	08/21/14 15:44	1.0	3	
007	rhl07	BLANK	QC754161	Water	214556	08/21/14 16:14	1.0	3	
008	rhl08	BS	QC754162	Water	214556	08/21/14 16:43	1.0	3	
009	rhl09	BSD	QC754163	Water	214556	08/21/14 17:13	1.0	3	
010	rhl10	SAMPLE	259865-001	Water	214556	08/21/14 17:43	1.0	3	
011	rhl11	SAMPLE	259865-003	Water	214556	08/21/14 18:12	1.0	3	
012	rhl12	SAMPLE	259918-001	Water	214556	08/21/14 18:42	1.0	3	
013	rhl13	SAMPLE	259918-003	Water	214556	08/21/14 19:12	1.0	3	
014	rhl14	SAMPLE	259882-001	Water	214595	08/21/14 19:42	1.0	3	1:BIS2CIE=230
015	rhl15	SAMPLE	259882-002	Water	214595	08/21/14 20:11	1.0	3	

KMH 08/22/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 15.

Standards used: 1=S24893 2=S24428 3=S25005

SAMPLE PREPARATION SUMMARY

Batch # : 214595 Analysis : 8270-1
Started By : CPK Prep Date : 20-AUG-2014 12:20 Finished By : AVW
Method : 3520C SOP Version : 8270_3520_rv20 Units : mL
Spike #1 ID : S24866 Spike #2 ID : S25396

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259835-002		Water	1060	1	1	0.0009434	7	.4				8270-1	Prepped 21-AUG-2014 12:06
259841-005		Water	1060	1	1	0.0009434	7	.4				8270-1	
259882-001		Water	1000	1	1	0.001	11	.4				8270-1	
259882-002		Water	1000	1	1	0.001	7	.4				8270-1	
260011-002		Water	1060	1	1	0.0009434	7	.4				8270-1	Prepped 21-AUG-2014 12:06
260011-003		Water	1060	1	1	0.0009434	7	.4				8270-1	Prepped 21-AUG-2014 12:06
260011-004		Water	1070	1	1	0.0009346	7	.4				8270-1	Prepped 21-AUG-2014 12:06
260011-006		Water	1060	1	1	0.0009434	7	.4				8270-1	Prepped 21-AUG-2014 12:06
260011-007		Water	1060	1	1	0.0009434	7	.4				8270-1	Prepped 21-AUG-2014 12:06
QC754310	BLANK	Water	1000	1	1	0.001		.4				8270-1	
QC754311	BS	Water	1000	1	1	0.001		.4	1			8270-1	
QC754312	BSD	Water	1000	1	1	0.001		.4	1			8270-1	

KMH 08/25/14 : Matrix spikes were not performed for this analysis in batch 214595 due to insufficient sample amount.

Analyst: KMH Date: 08/25/14 Reviewer: LW Date: 08/25/14

BNA (8270 & 625) Water Prep Log **Curtis & Tompkins, Ltd.**

LIMS Batch No: 214595
LIMS Analysis: 8270
Date Extracted: 8/20/14

Extraction Method:
☒ EPA 3520c cont. L/L
☐ _____

Sample #	Container ID	Volume of Sample (mL)	Sample pH	Final Volume (mL)	Confirmed pH ≤2	Comments
259882-001	M	1000	☐7 ☑11	☑1.0 ☐	☑≤2	
2	K	1000	☑7 ☐	☑1.0 ☐	☐≤2	
MB QC754310	MA	1000	☐7 ☐NA	☑1.0 ☐	☑≤2	
BS		1000	☐7 ☑	☑1.0 ☐	☑≤2	
BSD 2		1000	☐7 ☑	☑1.0 ☐	☐≤2	
259835-002	B	1060	☑7 ☐	☑1.0 ☐	☑≤2	a/o @ 1206 8/21/14 CPK
259841-005	D	1060	☑7 ☐	☑1.0 ☐	☑≤2	
260011-002	J	1060	☑7 ☐	☑1.0 ☐	☑≤2	
-003	D	1060	☑7 ☐	☑1.0 ☐	☑≤2	
-004	L	1070	☑7 ☐	☑1.0 ☐	☑≤2	
-006		1060	☑7 ☐	☑1.0 ☐	☑≤2	
-007		1060	☑7 ☐	☑1.0 ☐	☑≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	NDM 8/22/14

	Lot# / LIMS # / Time	Date/ Initials
0.4 mL of surrogate solution was added to all samples	S24866A	ARL 8/20/14
1.0 mL of matrix spiking solution was added to all spikes	S25396B	
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	PS14D656	
Cont. L/L extracted with 450mL of CH_2Cl_2	EM54153	
Extraction Start Time:	1220/1206	
Extraction End Time:	0642/0625	AUW 8/21/14
pH of all samples adjusted to pH ≥ 11 with 10 N NaOH	NA	AUW 8/21/14
Extraction Start Time:		
Extraction End Time:		
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	CMWL231	
Concentrated to final volume at temperature (degrees C)	70	
Relinquished to BNA department	✓	

8/20/14
Extraction Chemist **Date**

Contined from Page _____
Continued on Page _____

8/22/14
Reviewed by **Date**

Case Narrative Addendum: Manual Integrations for 259835 MSBNA (Water)

For CCV (MSBNA09 rhl03):
Aniline: Picked or reassigned peak.

For CCV (MSBNA05 xhm03):
Aniline: Picked or reassigned peak.

For SAMPLE 259835-002 (MSBNA05 xhm07):
Nitrobenzene-d5: Picked or reassigned peak.
2-Fluorophenol: Picked or reassigned peak.

For BSD QC754312 (MSBNA09 rhl06):
Aniline: Picked or reassigned peak for spike & dup.
3-Nitroaniline: Picked or reassigned peak for dup.

For Calibration MSBNA09 (584305789001):
Aniline: Picked or reassigned peak in all levels.
Anthracene: Corrected automatically drawn baseline in ICAL (rgv23).
4-Chloroaniline: Corrected automatically drawn baseline in multiple levels.
3,3'-Dichlorobenzidine: Corrected automatically drawn baseline in multiple levels.
2,4-Dinitrophenol: Corrected automatically drawn baseline in multiple levels.
3-Nitroaniline: Corrected automatically drawn baseline in multiple levels.
4-Nitroaniline: Corrected automatically drawn baseline in multiple levels.
4-Nitrophenol: Corrected automatically drawn baseline in multiple levels.
2,4,5-Trichlorophenol: Corrected automatically drawn baseline in ICAL (rgv23).

For ICV (MSBNA09 rgv25):
Aniline: Picked or reassigned peak.
2,4-Dinitrophenol: Corrected automatically drawn baseline.
4-Nitrophenol: Corrected automatically drawn baseline.

For Calibration MSBNA05 (544327680001):
Acenaphthene: Corrected automatically drawn baseline in ICAL (xhf11).
Aniline: Picked or reassigned peak in all levels.
Anthracene: Corrected automatically drawn baseline in ICAL (xhf14).
bis(2-Chloroethyl)ether: Corrected automatically drawn baseline in ICAL (xhf13).
Benzo(k)fluoranthene: Picked or reassigned peak in ICAL (xhf14).
4-Chloroaniline: Corrected automatically drawn baseline in multiple levels.
4-Methylphenol: Corrected automatically drawn baseline in multiple levels.
3-Nitroaniline: Corrected automatically drawn baseline in multiple levels.
2-Nitrophenol: Corrected automatically drawn baseline in multiple levels.
4-Nitrophenol: Picked or reassigned peak in ICAL (xhf14).
Pyridine: Corrected automatically drawn baseline in multiple levels.
2,4,5-Trichlorophenol: Corrected automatically drawn baseline in multiple levels.

For ICV (MSBNA05 xhf15):
Aniline: Picked or reassigned peak.
Nitrobenzene-d5: Corrected automatically drawn baseline.
2,4,5-Trichlorophenol: Corrected automatically drawn baseline.

Sample Raw Data

CURTIS & TOMPKINS SAMPLE USER REPORT FOR EPA 8270D

Inst	: MSBNA05	Lab ID	: 259835-002	Client ID	: 04W06-081414
Seqnum	: 544337710007	Matrix	: Water	Acct	: JMW (TLB)
File	: xhm07	Batch	: 214595	Time	: 22-AUG-2014 16:00
Cal	: 544327680001	Caldate	: 15-AUG-2014		
IDF	: 1.0	Raw Units	: ug/mL	Units	: ug/L

1060.00 mL --> 1.0 ml = 0.0009434 ml/ml PDF

Analyte	Raw	Result	RL	Blank	Flags
N-Nitrosodimethylamine	0.07690	ND	9.4		u
Phenol	0.1452	ND	9.4		u
bis(2-Chloroethyl)ether	0.04050	ND	9.4		u
2-Chlorophenol	0.03880	ND	9.4		u
1,3-Dichlorobenzene	0	ND	9.4		u
1,4-Dichlorobenzene	0	ND	9.4		u
Benzyl alcohol	0.05930	ND	9.4		u
1,2-Dichlorobenzene	0	ND	9.4		u
2-Methylphenol	0.09660	ND	9.4		u
bis(2-Chloroisopropyl) ether	0.06020	ND	9.4		u
4-Methylphenol	0.1541	ND	9.4		u
N-Nitroso-di-n-propylamine	0.2080	ND	9.4		u
Hexachloroethane	0.1288	ND	9.4		u
Nitrobenzene	0.06070	ND	9.4		u
Isophorone	0.4202	ND	9.4		u
2-Nitrophenol	0.5337	ND	19		u
2,4-Dimethylphenol	0.2206	ND	9.4		u
Benzoic acid	0.9852	ND	47		u
bis(2-Chloroethoxy)methane	0.02790	ND	9.4		u
2,4-Dichlorophenol	0	ND	9.4		u
1,2,4-Trichlorobenzene	0.03540	ND	9.4		u
Naphthalene	0.01620	ND	9.4		u
4-Chloroaniline	2.766	2.6 J	9.4		?curve+ u x
Hexachlorobutadiene	0	ND	9.4		u
4-Chloro-3-methylphenol	0.05740	ND	9.4		u
2-Methylnaphthalene	0.03450	ND	9.4		u
Hexachlorocyclopentadiene	0	ND	19		u
2,4,6-Trichlorophenol	0	ND	9.4		u
2,4,5-Trichlorophenol	0	ND	9.4		u
2-Chloronaphthalene	0.04230	ND	9.4		u
2-Nitroaniline	0.1501	ND	19		u
Dimethylphthalate	0.02000	ND	9.4		u
Acenaphthylene	0.01600	ND	9.4		u
2,6-Dinitrotoluene	0.3275	ND	9.4		u
3-Nitroaniline	0.2318	ND	19		u
Acenaphthene	0.1324	ND	9.4		u
2,4-Dinitrophenol	0	ND	19		u
4-Nitrophenol	0.3333	ND	19		u
Dibenzofuran	0	ND	9.4		u
2,4-Dinitrotoluene	0.05150	ND	9.4		u
Diethylphthalate	0.05160	ND	9.4		u
Fluorene	0.01970	ND	9.4		u
4-Chlorophenyl-phenylether	0	ND	9.4		u
4-Nitroaniline	0.4897	ND	19		u
4,6-Dinitro-2-methylphenol	0.1076	ND	19		u
N-Nitrosodiphenylamine	0.2352	ND	9.4		u
Azobenzene	0.04640	ND	9.4		u

Analyte	Raw	Result	RL	Blank	Flags
4-Bromophenyl-phenylether	1.042	ND	9.4		u
Hexachlorobenzene	0	ND	9.4		u
Pentachlorophenol	0.09570	ND	19		u
Phenanthrene	0.01950	ND	9.4		u
Anthracene	0.01500	ND	9.4		u
Carbazole	0.02890	ND	9.4		u
Di-n-butylphthalate	0.1456	ND	9.4		u
Fluoranthene	0.01020	ND	9.4		u
Pyrene	0.01670	ND	9.4		u
Butylbenzylphthalate	0.06570	ND	9.4		u
3,3'-Dichlorobenzidine	0	ND	19		u
Benzo(a)anthracene	0.09470	ND	9.4		u
Chrysene	0.1028	ND	9.4		u
bis(2-Ethylhexyl)phthalate	0.4319	ND	9.4		u
Di-n-octylphthalate	0.01180	ND	9.4		u
Benzo(b)fluoranthene	0	ND	9.4		u
Benzo(k)fluoranthene	0	ND	9.4		u
Benzo(a)pyrene	0.1236	ND	9.4		u
Indeno(1,2,3-cd)pyrene	0	ND	9.4		u
Dibenz(a,h)anthracene	0.01020	ND	9.4		u
Benzo(g,h,i)perylene	0.01170	ND	9.4		u

Surrogate	Raw	Spiked	Result	%Rec	Limits	Flags
2-Fluorophenol	29.03	37.74	27.39	73	20-110	m u
Phenol-d5	30.13	37.74	28.42	75	10-115	u
2,4,6-Tribromophenol	40.73	37.74	38.42	102	40-125	u
Nitrobenzene-d5	28.20	37.74	26.60	70	40-110	m u
2-Fluorobiphenyl	29.53	37.74	27.86	74	50-110	u
Terphenyl-d14	21.95	37.74	20.71	55	50-135	u

ISTD (ICAL xhf11)	ICAL Abund	SAMPLE Abund	%Drift
1,4-Dichlorobenzene-d4	1031318	953069	-7.59
Naphthalene-d8	3900538	3557197	-8.80
Acenaphthene-d10	2287286	2076440	-9.22
Phenanthrene-d10	3792150	3651762	-3.70
Chrysene-d12	4068719	4176422	2.65
Perylene-d12	3663483	4019485	9.72

ISTD (CCV xhm03)	CCV RT	SAMPLE RT	Drift
1,4-Dichlorobenzene-d4	6.04	6.04	0.00
Naphthalene-d8	7.55	7.55	0.00
Acenaphthene-d10	9.73	9.73	0.00
Phenanthrene-d10	11.60	11.60	0.00
Chrysene-d12	15.04	15.05	0.01
Perylene-d12	18.01	18.04	0.03

KMH 08/22/14 [2-Fluorophenol]: Picked or reassigned peak.

KMH 08/22/14 [Nitrobenzene-d5]: Picked or reassigned peak.

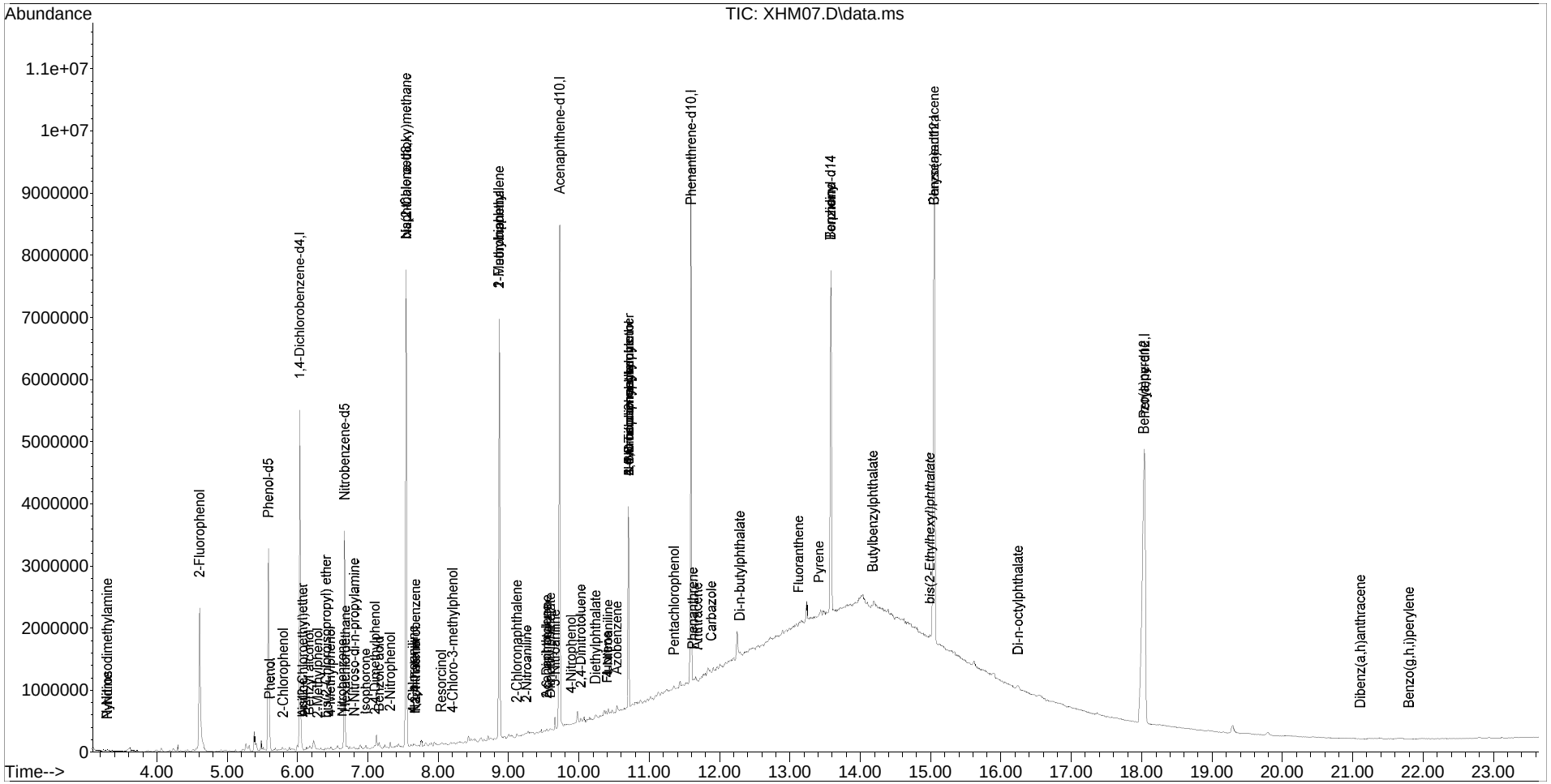
Analyst: KMH Date: 08/22/14 Reviewer: LW Date: 08/27/14

+=high bias ?curve=check curve m=manual integration u=use x=false positive

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\082214\
Data File : XHM07.D
Acq On : 22 Aug 2014 4:00 pm
Operator :
Sample : S,259835-002
Misc : 214595,1,
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 22 16:27:16 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 22 13:48:14 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\082214\
Data File : XHM07.D
Acq On : 22 Aug 2014 4:00 pm
Operator :
Sample : S,259835-002
Misc : 214595,1,
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 22 16:27:16 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 22 13:48:14 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.036	152	953069	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.548	136	3557197	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.733	164	2076440	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.603	188	3651762	40.0000	ug/mL	0.00
70) Chrysene-d12	15.054	240	4176422	40.0000	ug/mL	0.01
79) Perylene-d12	18.040	264	4019485	40.0000	ug/mL	0.03

Target Compounds						Qvalue
2) Pyridine	3.301	79	1133	0.0322	ug/mL	# 19
3) N-Nitrosodimethylamine	3.296	42	1228	0.0769	ug/mL	# 1
4) 2-Fluorophenol	4.615	112	932965m	29.0311	ug/mL	
5) Phenol-d5	5.593	99	1203770	30.1301	ug/mL	78
6) Phenol	5.609	94	5845	0.1452	ug/mL	# 1
7) Aniline	6.074	93	1189	0.0247	ug/mL	# 69
8) bis(2-Chloroethyl)ether	6.074	93	1189	0.0405	ug/mL	# 44
9) 2-Chlorophenol	5.801	128	1303	0.0388	ug/mL	94
10) 1,3-Dichlorobenzene	0.000	146	0	N.D.		
11) 1,4-Dichlorobenzene	0.000	146	0	N.D.		
12) Benzyl alcohol	6.175	108	1330	0.0593	ug/mL	# 46
13) 1,2-Dichlorobenzene	0.000	146	0	N.D.		
14) 2-Methylphenol	6.293	107	2621	0.0966	ug/mL	# 75
15) bis(2-Chloroisopropyl) ether	6.405	45	2660	0.0602	ug/mL	# 68
16) 4-Methylphenol	6.474	107	6171	0.1541	ug/mL	# 83
17) N-Nitroso-di-n-propylamine	6.811	70	4167	0.2080	ug/mL	87
18) Hexachloroethane	6.688	117	1974	0.1288	ug/mL	# 15
20) Nitrobenzene-d5	6.672	82	1121272m	28.1965	ug/mL	
21) Nitrobenzene	6.640	77	2204	0.0607	ug/mL	75
22) Isophorone	6.971	82	27224	0.4202	ug/mL	92
23) 2-Nitrophenol	7.324	139	9750	0.5337	ug/mL	# 40
24) 2,4-Dimethylphenol	7.105	107	7050	0.2206	ug/mL	79
25) bis(2-Chloroethoxy)methane	7.548	93	1066	0.0279	ug/mL	# 1
26) Benzoic acid	7.163	105	23455	0.9852	ug/mL	97
27) 2,4-Dichlorophenol	0.000	162	0	N.D.		
28) 1,2,4-Trichlorobenzene	7.676	180	1001	0.0354	ug/mL	# 1
29) Naphthalene	7.671	128	1575	0.0162	ug/mL	# 1
30) 4-Chloroaniline	7.644	127	1412	2.7663	ug/mL	# 1
31) Hexachlorobutadiene	0.000	225	0	N.D.		
32) Resorcinol	8.045	110	6442	14.8817	ug/mL	# 38
33) 4-Chloro-3-methylphenol	8.211	107	1636	0.0574	ug/mL	# 48
34) 2-Methylnaphthalene	8.868	142	2271	0.0345	ug/mL	100
35) 1-Methylnaphthalene	8.868	142	2271	0.0364	ug/mL	98
37) Hexachlorocyclopentadiene	0.000	237	0	N.D.		
38) 2,4,6-Trichlorophenol	0.000	196	0	N.D.		

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\082214\
Data File : XHM07.D
Acq On : 22 Aug 2014 4:00 pm
Operator :
Sample : S,259835-002
Misc : 214595,1,
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 22 16:27:16 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 22 13:48:14 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	0.000	196	0	N.D.		
40) 2-Fluorobiphenyl	8.868	172	2180575	29.5309	ug/mL	97
41) 2-Chloronaphthalene	9.119	162	2561	0.0423	ug/mL	96
42) 2-Nitroaniline	9.263	65	3123	0.1501	ug/mL #	35
43) Dimethylphthalate	9.600	163	1319	0.0200	ug/mL #	1
44) 2,6-Dinitrotoluene	9.551	165	5309	0.3275	ug/mL #	42
45) Acenaphthylene	9.546	152	1613	0.0160	ug/mL #	1
46) 3-Nitroaniline	9.669	138	4172	0.2318	ug/mL #	1
47) Acenaphthene	9.733	154	8345	0.1324	ug/mL #	32
48) 2,4-Dinitrophenol	0.000	184	0	N.D.		
49) 4-Nitrophenol	9.899	109	3244	0.3333	ug/mL #	21
50) Dibenzofuran	0.000	168	0	N.D.		
51) 2,4-Dinitrotoluene	10.032	165	1097	0.0515	ug/mL #	48
52) 2,3,4,6-Tetrachlorophenol	0.000	232	0	N.D.		
53) Diethylphthalate	10.235	149	3806	0.0516	ug/mL #	52
54) 4-Chlorophenyl-phenylether	0.000	204	0	N.D.		
55) Fluorene	10.406	166	1414	0.0197	ug/mL #	68
56) 4-Nitroaniline	10.422	138	9135	0.4897	ug/mL #	70
57) 2,4,6-Tribromophenol	10.716	330	387293	40.7303	ug/mL #	83
59) 4,6-Dinitro-2-methylphenol	10.716	198	1337	0.1076	ug/mL #	1
60) N-Nitrosodiphenylamine	10.716	169	13039	0.2352	ug/mL #	24
61) Azobenzene	10.545	77	3924	0.0464	ug/mL #	49
62) 4-Bromophenyl-phenylether	10.716	248	21004	1.0424	ug/mL #	1
63) Hexachlorobenzene	0.000	284	0	N.D.		
64) Pentachlorophenol	11.357	266	1321	0.0957	ug/mL	99
65) Phenanthrene	11.624	178	2036	0.0195	ug/mL #	1
66) Anthracene	11.688	178	1599	0.0150	ug/mL #	1
67) Carbazole	11.886	167	2546	0.0289	ug/mL #	1
68) Di-n-butylphthalate	12.292	149	19213	0.1456	ug/mL #	55
69) Fluoranthene	13.125	202	1176	0.0102	ug/mL #	1
71) Benzidine	13.585	184	26323	19.7317	ug/mL #	1
72) Pyrene	13.414	202	2246	0.0167	ug/mL #	1
73) Terphenyl-d14	13.585	244	2008905	21.9487	ug/mL	89
74) Butylbenzylphthalate	14.183	149	4439	0.0657	ug/mL #	1
75) 3,3'-Dichlorobenzidine	0.000	252	0	N.D.		
76) Benzo(a)anthracene	15.054	228	11310	0.0947	ug/mL #	63
77) bis(2-Ethylhexyl)phthalate	14.995	149	37858	0.4319	ug/mL	86
78) Chrysene	15.054	228	11310	0.1028	ug/mL #	58
80) Di-n-octylphthalate	16.245	149	2074	0.0118	ug/mL #	1
81) Benzo(b)fluoranthene	0.000	252	0	N.D.		
82) Benzo(k)fluoranthene	0.000	252	0	N.D.		
83) Benzo(a)pyrene	18.035	252	14303	0.1236	ug/mL #	16
84) Indeno(1,2,3-cd)pyrene	0.000	276	0	N.D.		

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\082214\
Data File : XHM07.D
Acq On : 22 Aug 2014 4:00 pm
Operator :
Sample : S,259835-002
Misc : 214595,1,
ALS Vial : 7 Sample Multiplier: 1

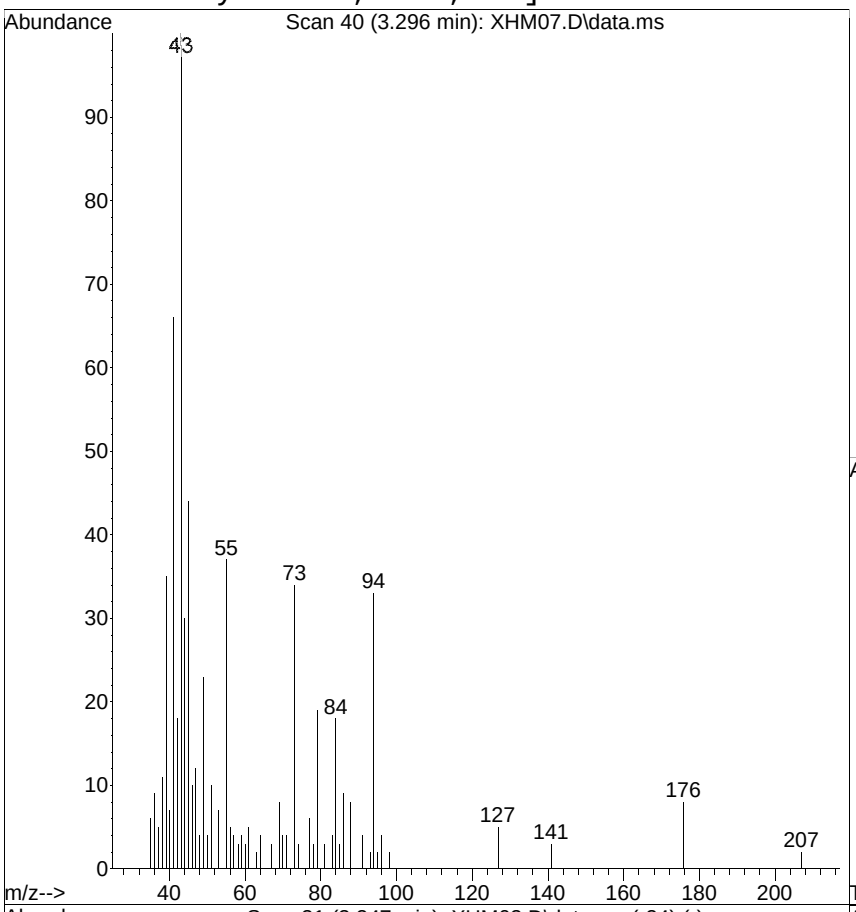
Quant Time: Aug 22 16:27:16 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 22 13:48:14 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.112	278	1109	0.0102	ug/mL #	1
86) Benzo(g,h,i)perylene	21.807	276	1244	0.0117	ug/mL #	1

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

[N-Nitrosodimethylamine; <RL; u]

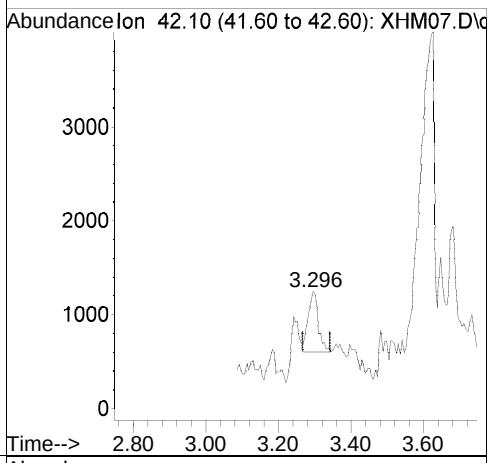
Raw



#3
N-Nitrosodimethylamine
Concen: 0.0769 ug/mL
RT: 3.296 min Scan# 40
Delta R.T. 0.048 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

Tgt Ion: 42 Resp: 1228

Ion	Ratio	Lower	Upper
42	100		
74	15.0	68.0	108.0#
44	171.8	1.0	41.0#



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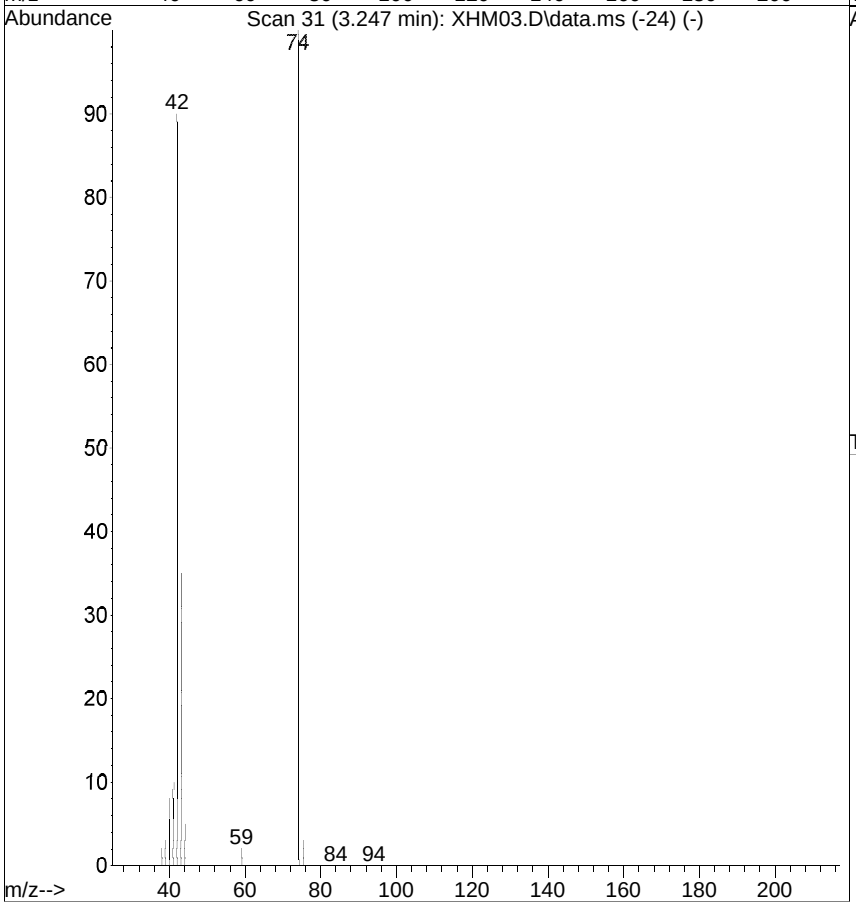
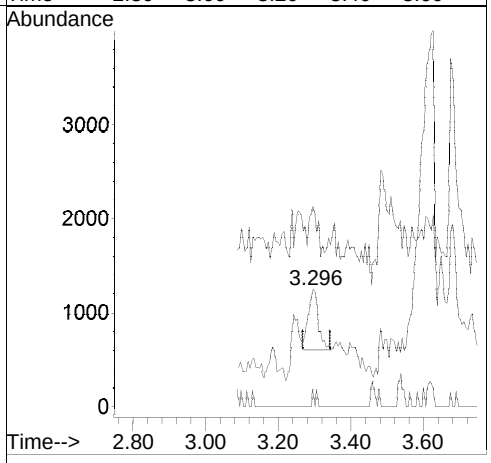
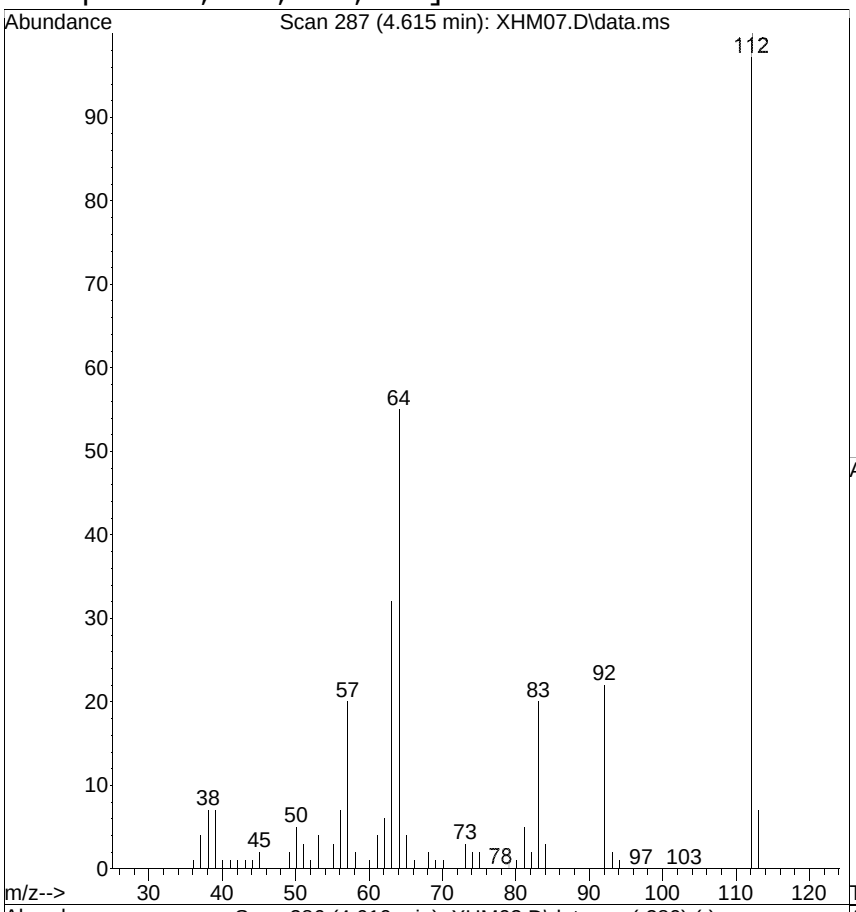




[2-Fluorophenol; 27; MI; u]

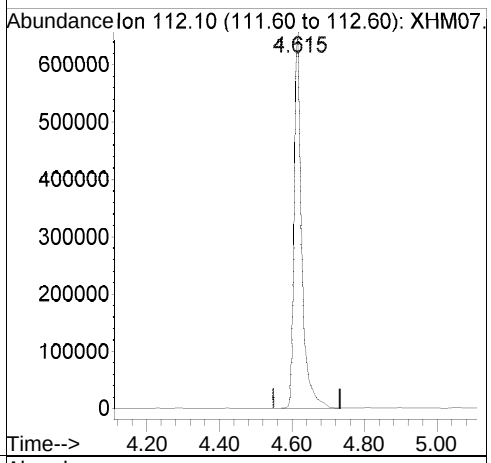
Raw



#4
2-Fluorophenol
Concen: 29.0311 ug/mL m
RT: 4.615 min Scan# 287
Delta R.T. 0.006 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

Tgt Ion:112 Resp: 932965

Ion	Ratio	Lower	Upper
112	100		
64	55.1	60.0	100.0#



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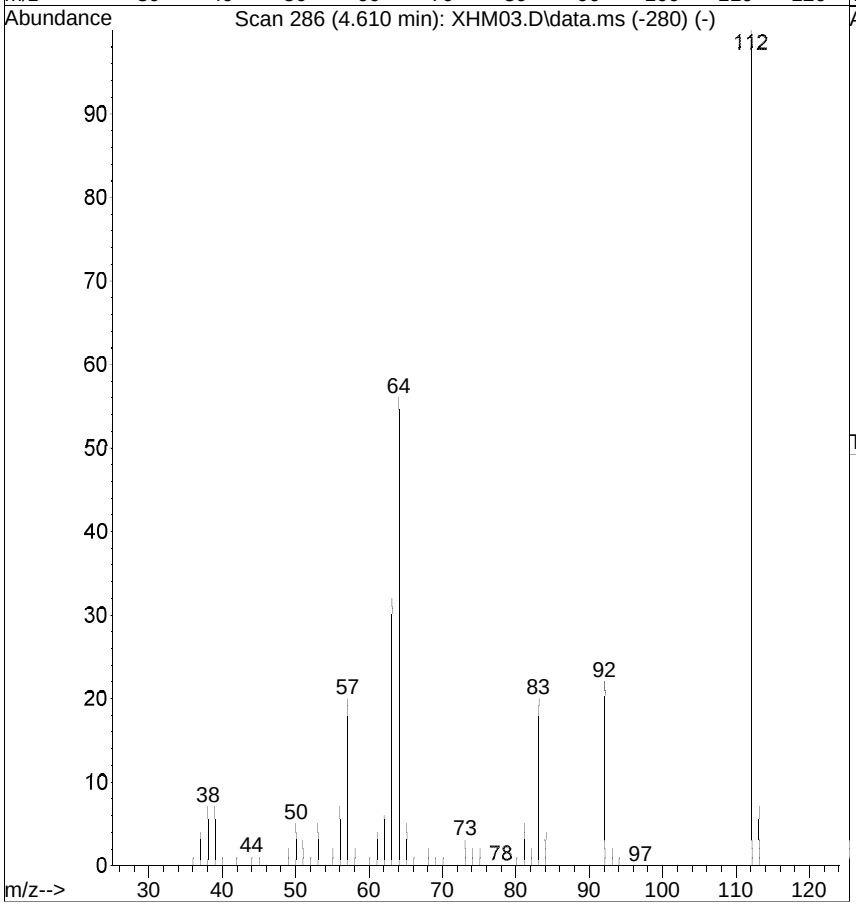
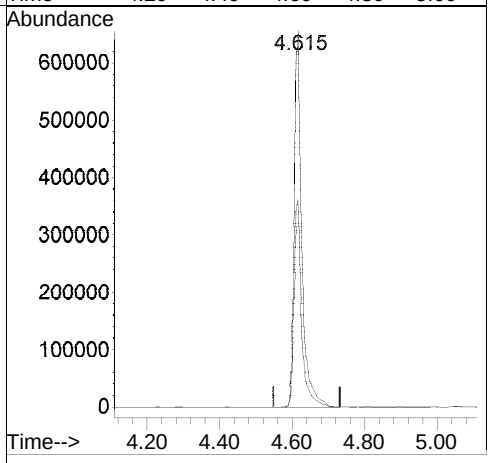
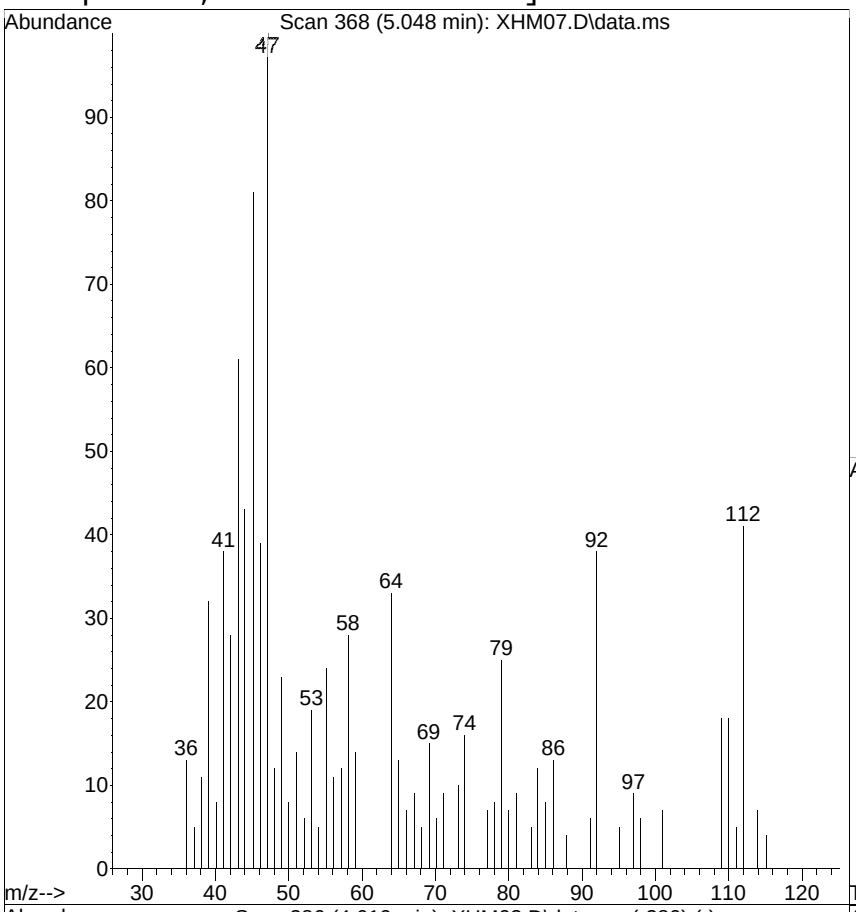




[2-Fluorophenol; before version]

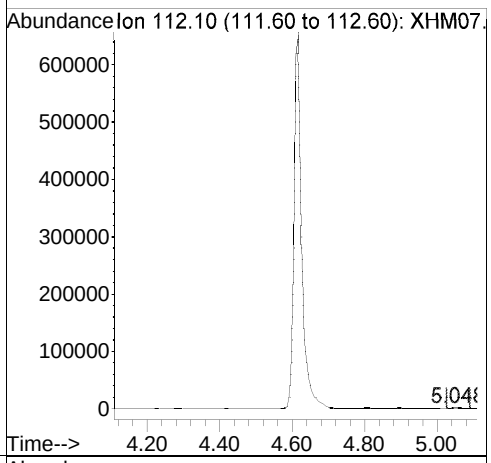
Raw



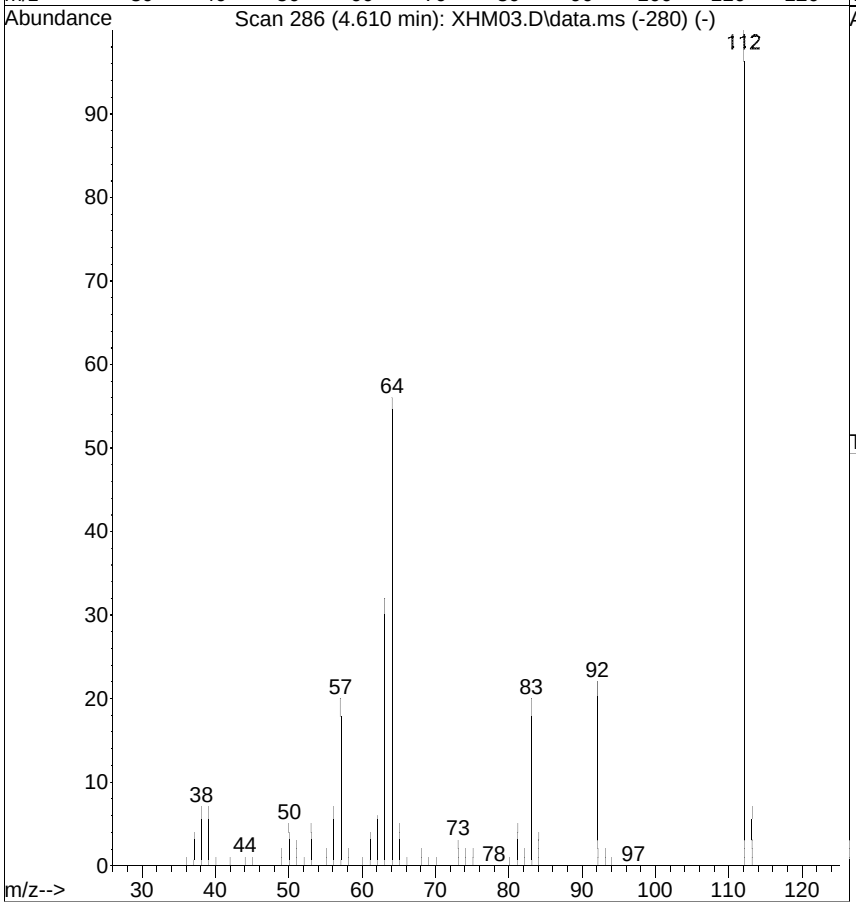
#4
2-Fluorophenol
Concen: 0.0659 ug/mL
RT: 5.048 min Scan# 368
Delta R.T. 0.438 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

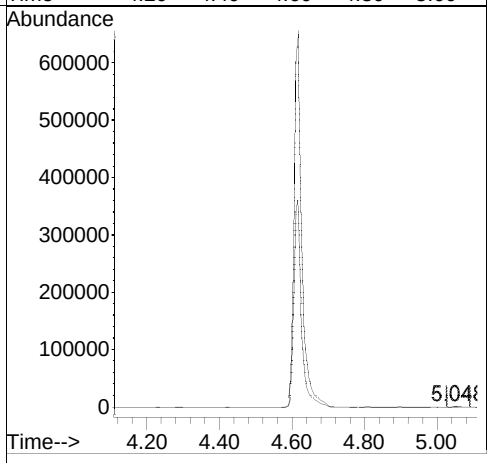
Tgt Ion:112 Resp: 2119

Ion	Ratio	Lower	Upper
112	100		
64	79.7	60.0	100.0



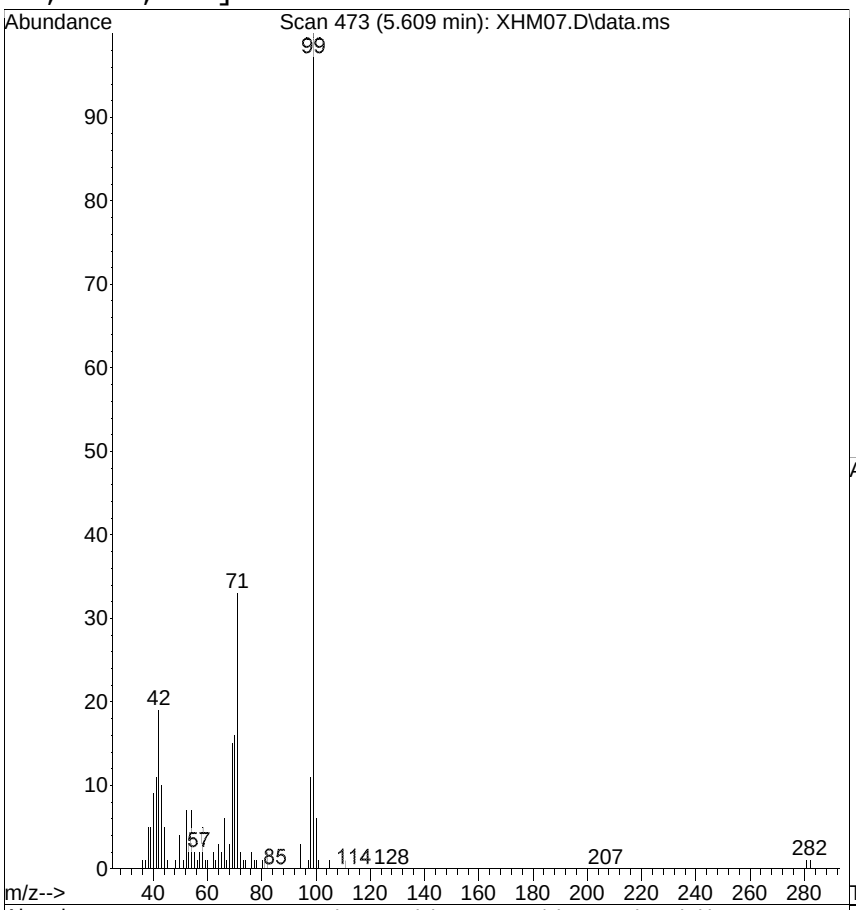
Ref





[Phenol; <RL; u]

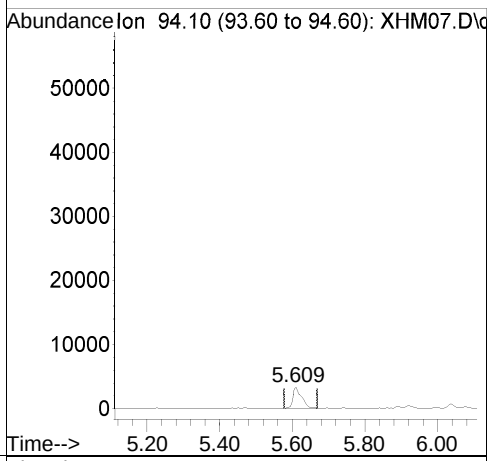
Raw



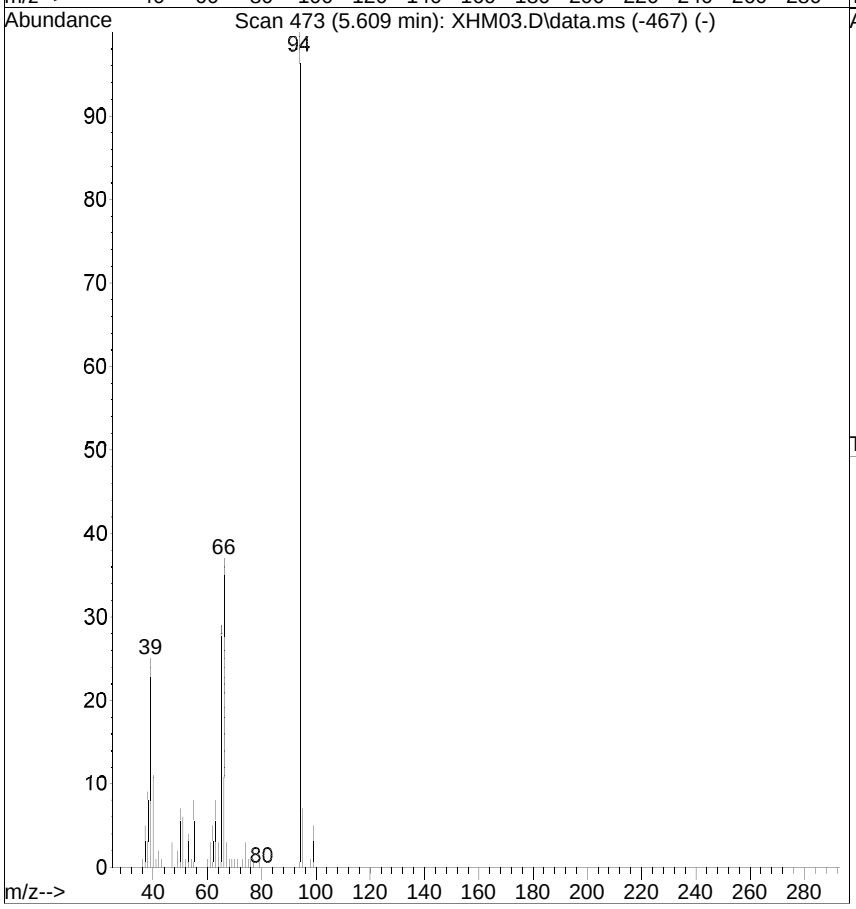
#6
Phenol
Concen: 0.1452 ug/mL
RT: 5.609 min Scan# 473
Delta R.T. 0.000 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

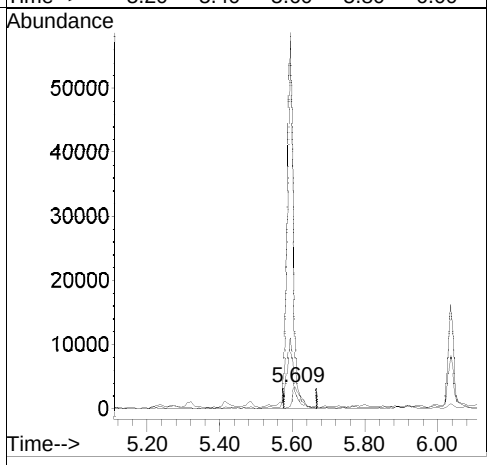
Tgt Ion: 94 Resp: 5845

Ion	Ratio	Lower	Upper
94	100		
65	69.4	1.0	41.0#
66	213.0	5.0	45.0#



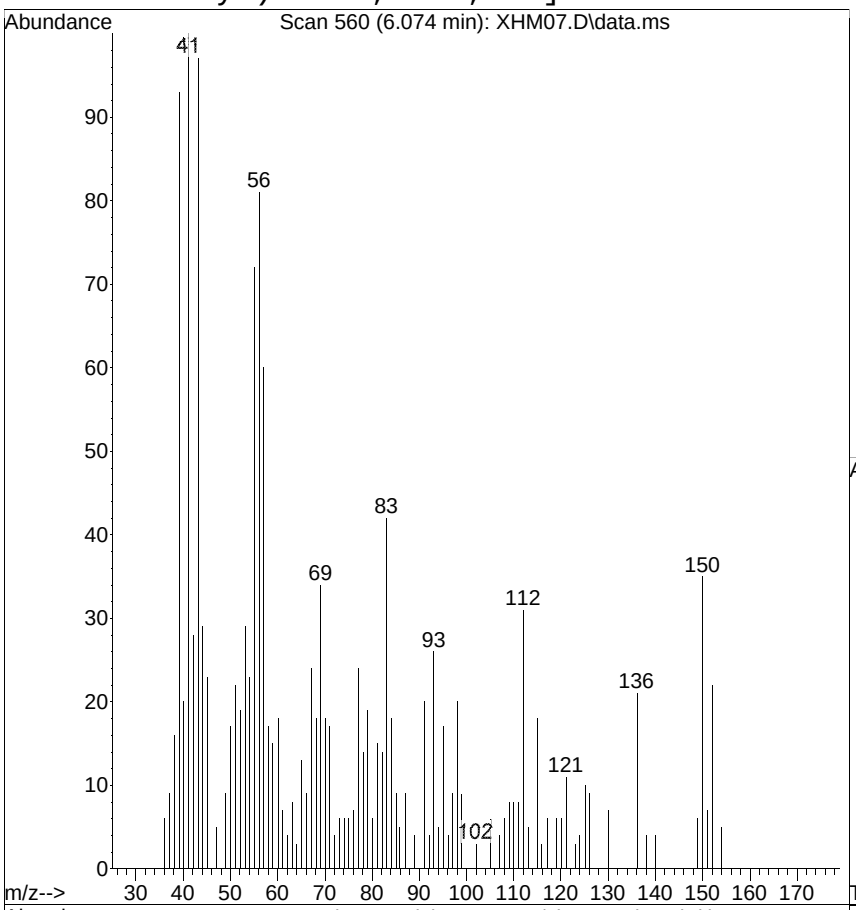
Ref





[bis(2-Chloroethyl)ether; <RL; u]

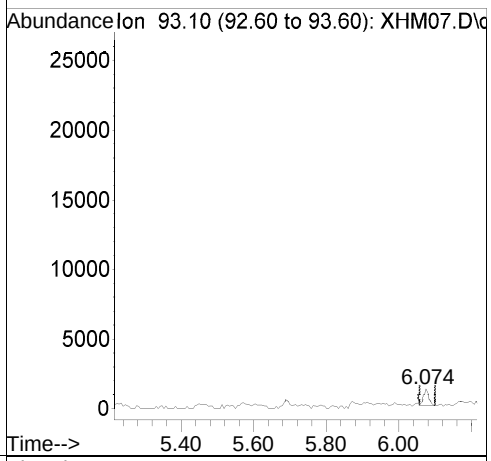
Raw



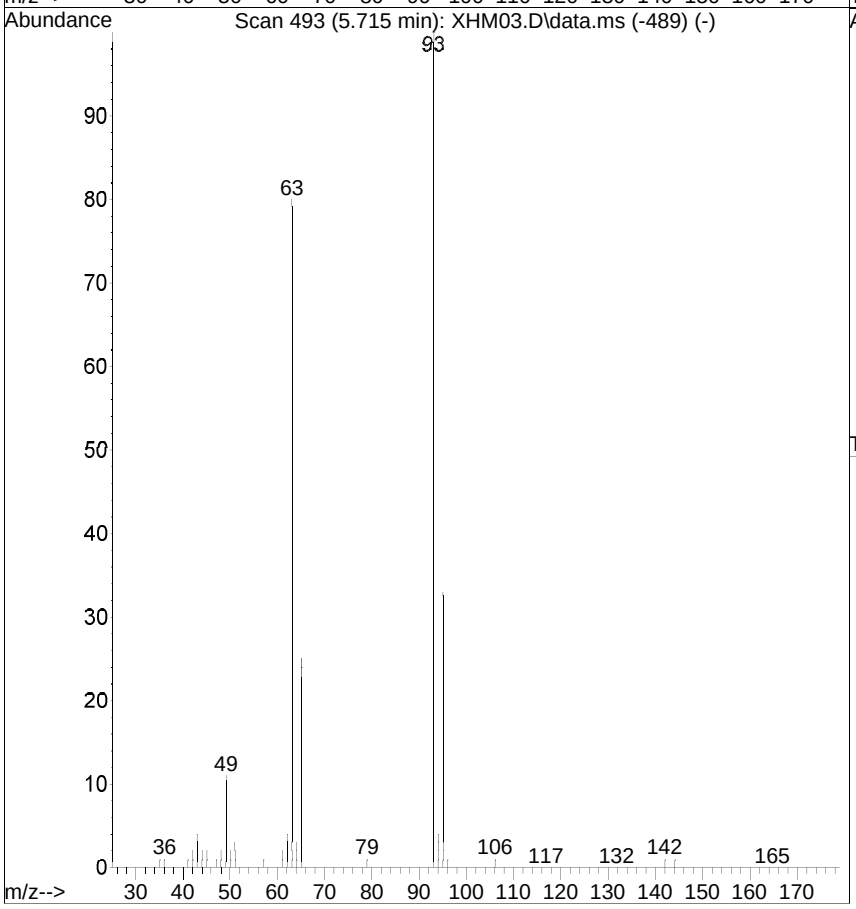
#8
bis(2-Chloroethyl)ether
Concen: 0.0405 ug/mL
RT: 6.074 min Scan# 560
Delta R.T. 0.358 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

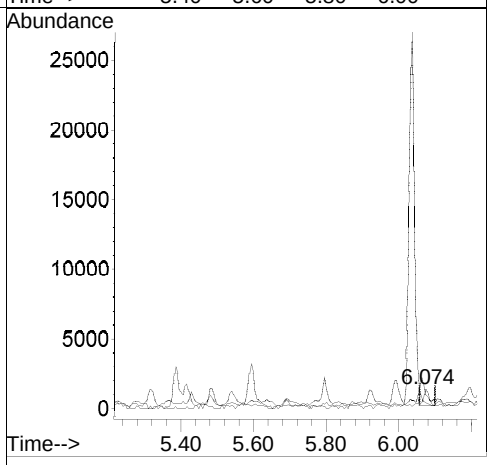
Tgt Ion: 93 Resp: 1189

Ion	Ratio	Lower	Upper
93	100		
63	29.5	54.0	94.0#
95	68.3	12.0	52.0#



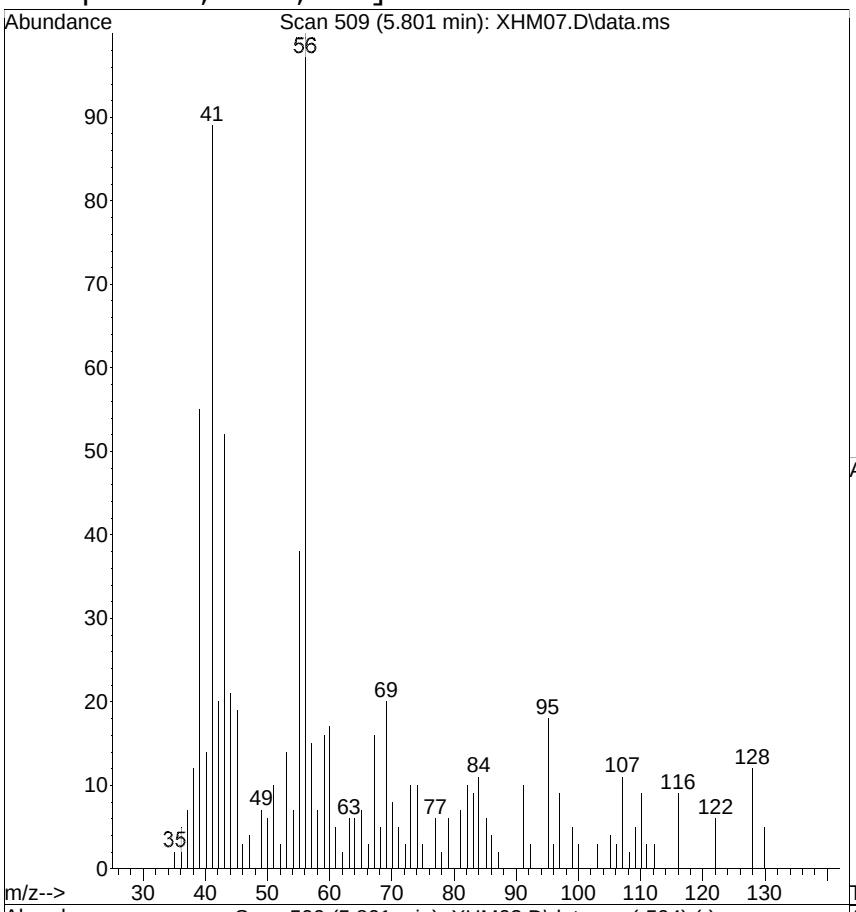
Ref





[2-Chlorophenol; <RL; u]

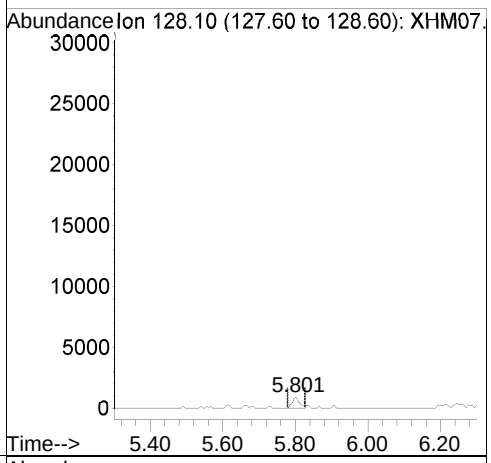
Raw



#9
2-Chlorophenol
Concen: 0.0388 ug/mL
RT: 5.801 min Scan# 509
Delta R.T. 0.000 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

Tgt Ion:128 Resp: 1303

Ion	Ratio	Lower	Upper
128	100		
64	49.9	32.0	72.0
130	37.5	12.0	52.0



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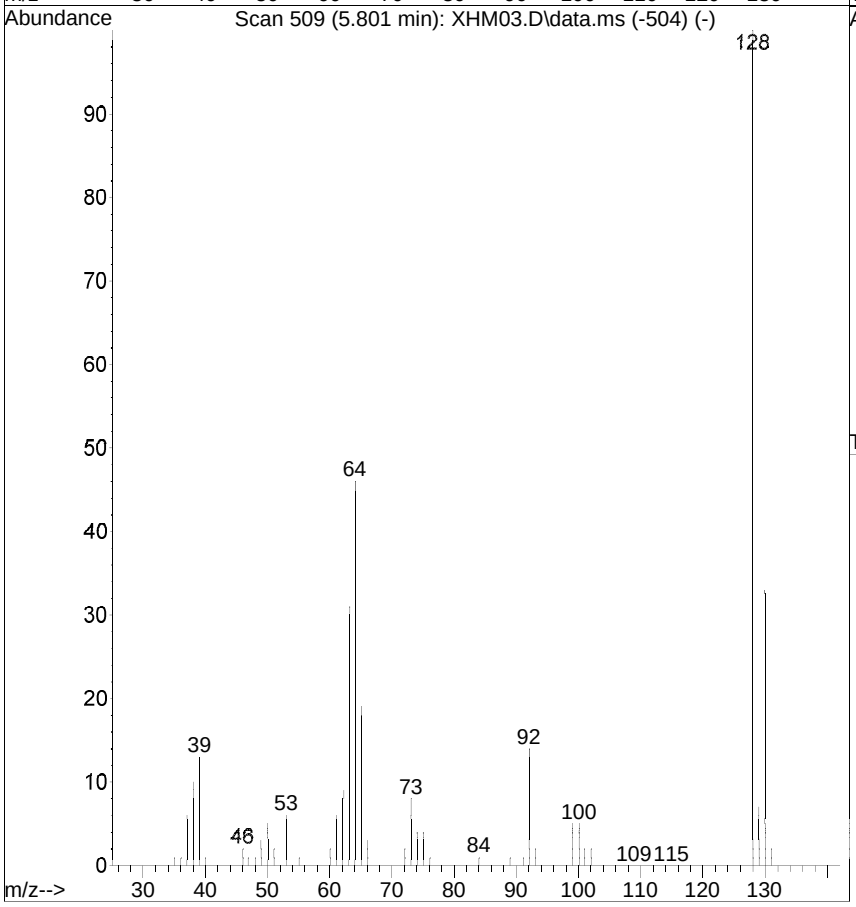
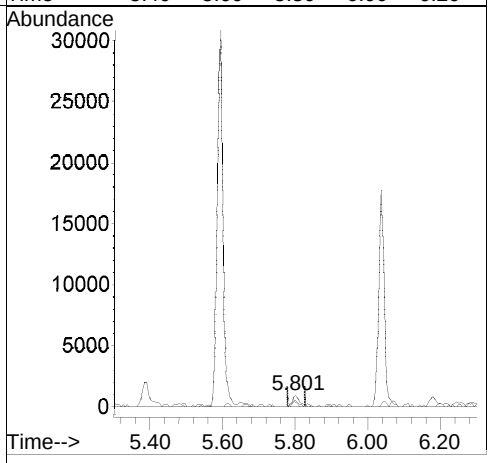
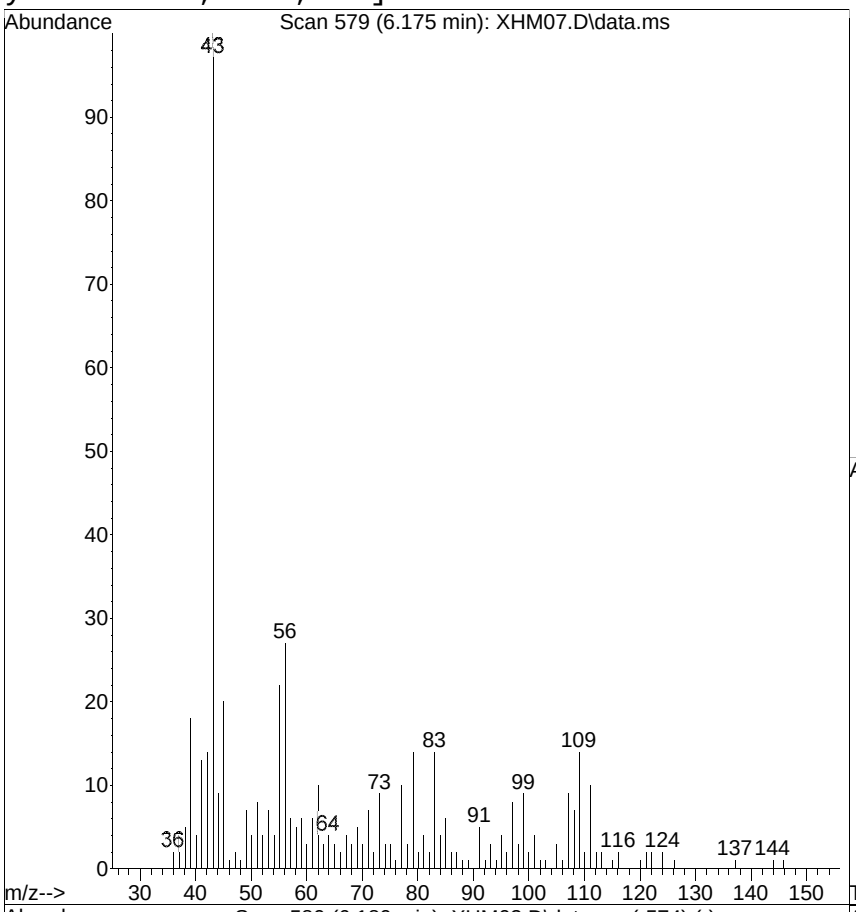




[Benzyl alcohol; <RL; u]

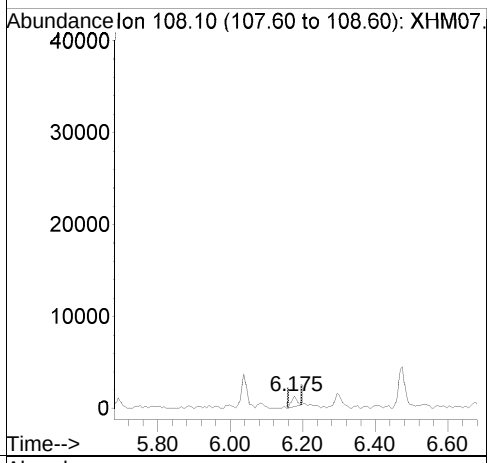
Raw



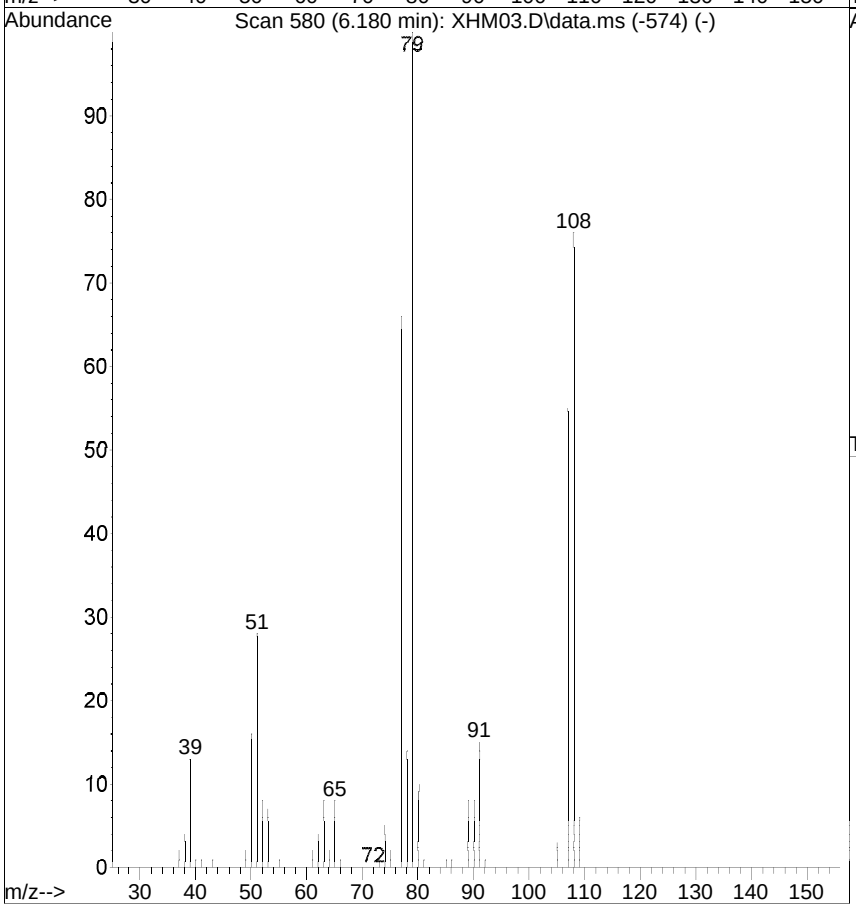
#12
Benzyl alcohol
Concen: 0.0593 ug/mL
RT: 6.175 min Scan# 579
Delta R.T. -0.005 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

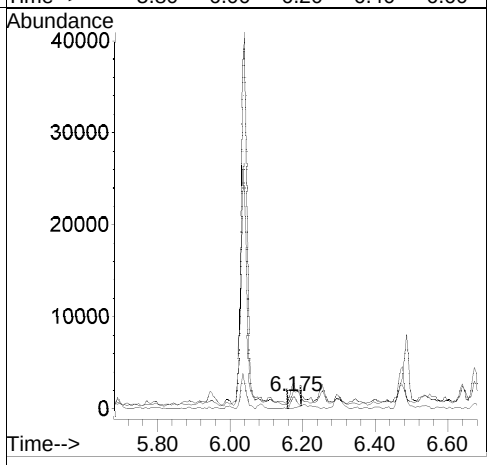
Tgt Ion:108 Resp: 1330

Ion	Ratio	Lower	Upper
108	100		
79	203.5	125.0	165.0#
77	150.1	68.0	108.0#



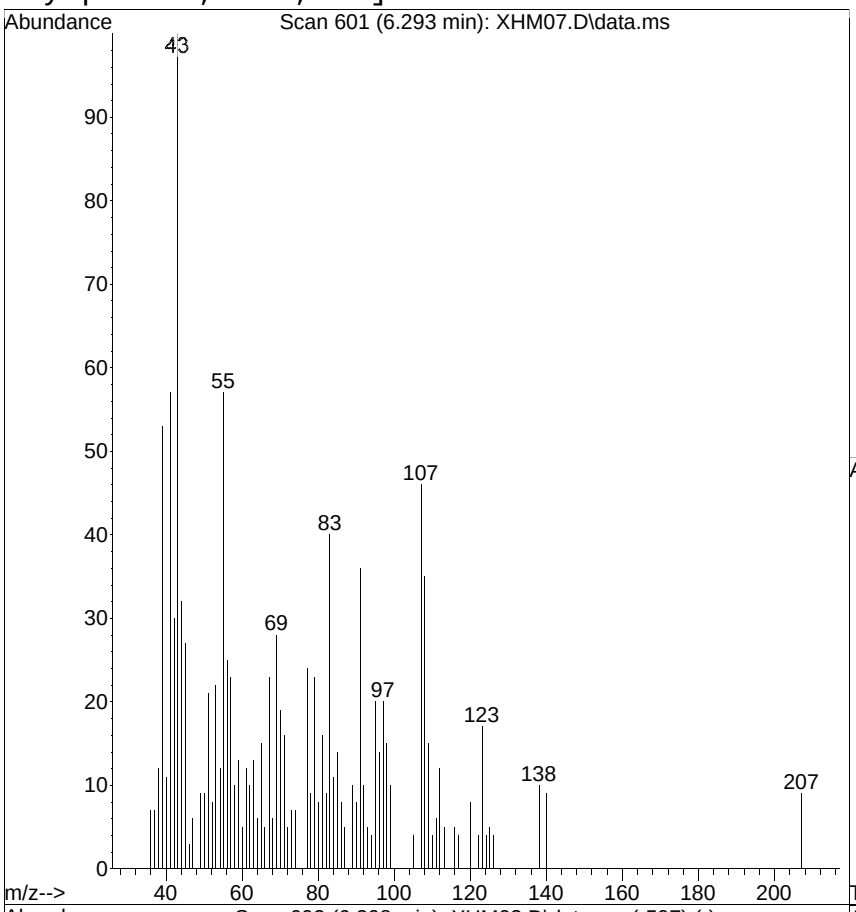
Ref





[2-Methylphenol; <RL; u]

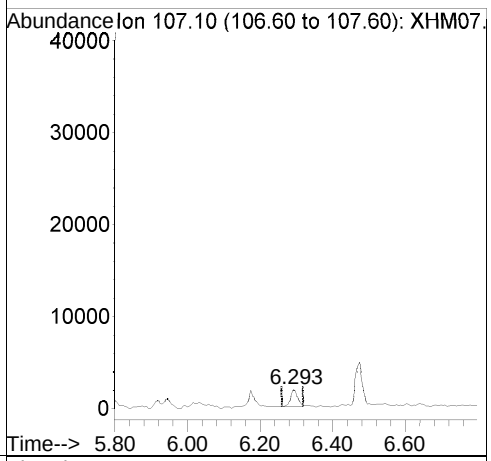
Raw



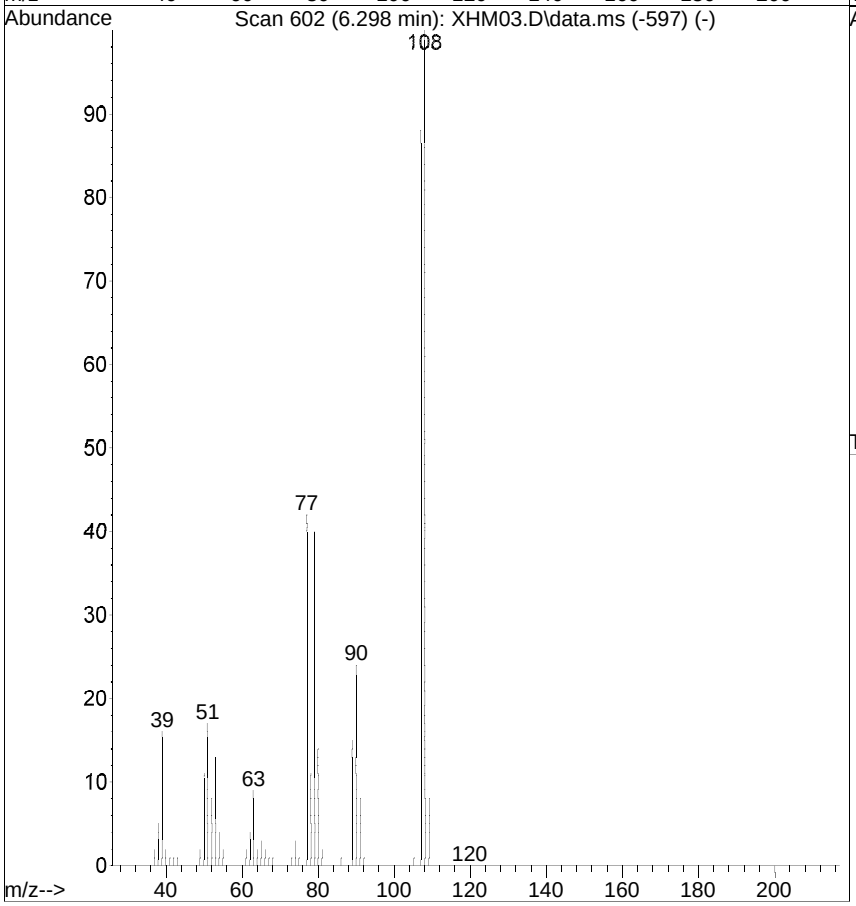
#14
2-Methylphenol
Concen: 0.0966 ug/mL
RT: 6.293 min Scan# 601
Delta R.T. -0.005 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

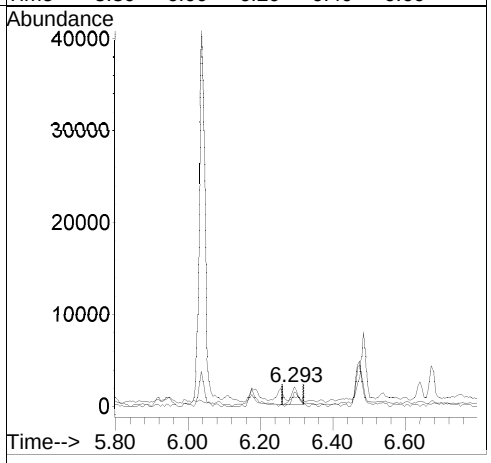
Tgt Ion:107 Resp: 2621

Ion	Ratio	Lower	Upper
107	100		
108	76.0	89.0	129.0#
77	51.7	26.0	66.0



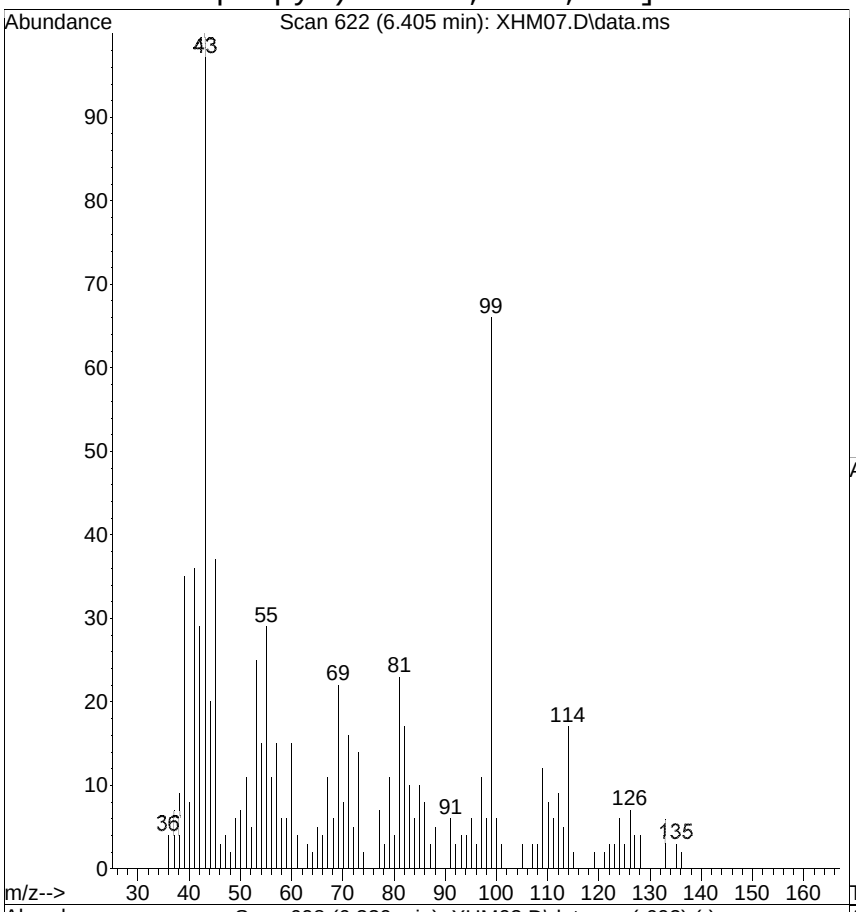
Ref





[bis(2-Chloroisopropyl) ether; <RL; u]

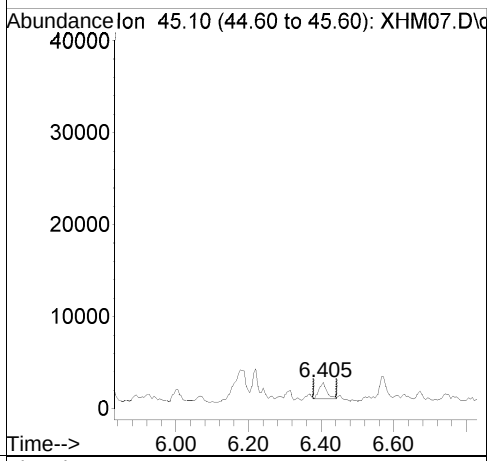
Raw



#15
bis(2-Chloroisopropyl) ether
Concen: 0.0602 ug/mL
RT: 6.405 min Scan# 622
Delta R.T. 0.075 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

Tgt Ion: 45 Resp: 2660

Ion	Ratio	Lower	Upper
45	100		
77	19.3	0.0	33.0
121	5.8	6.0	46.0#



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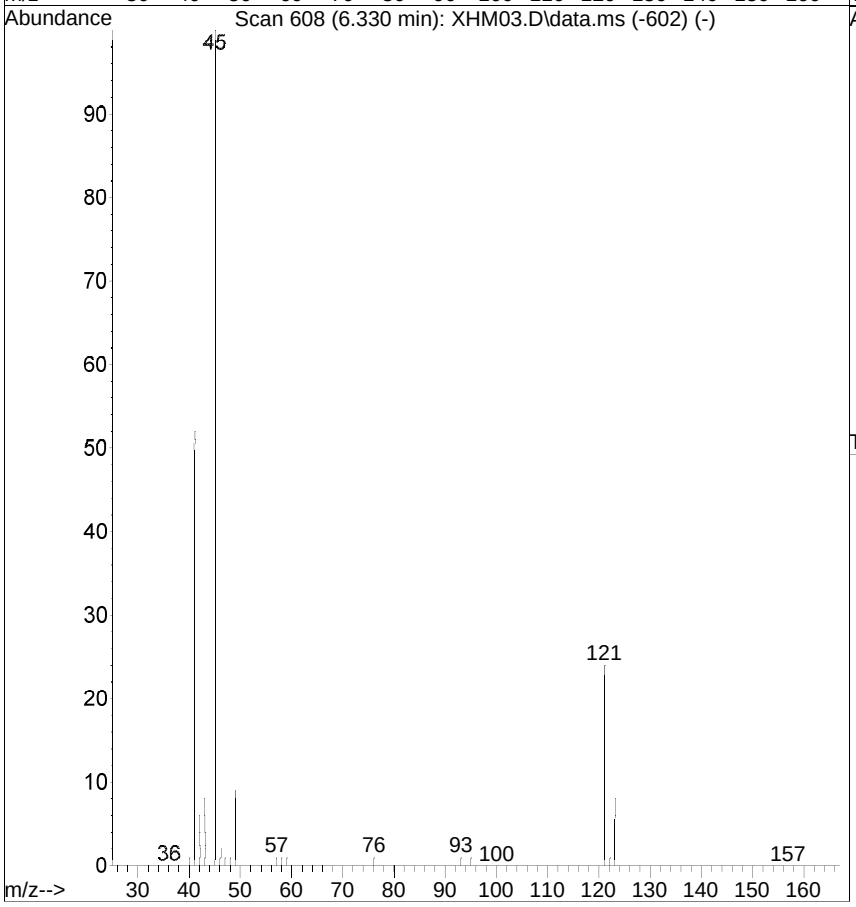
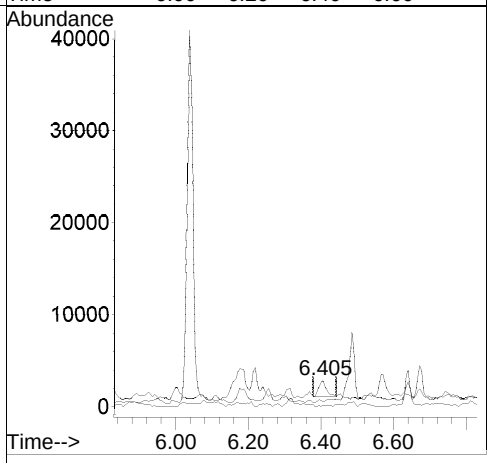
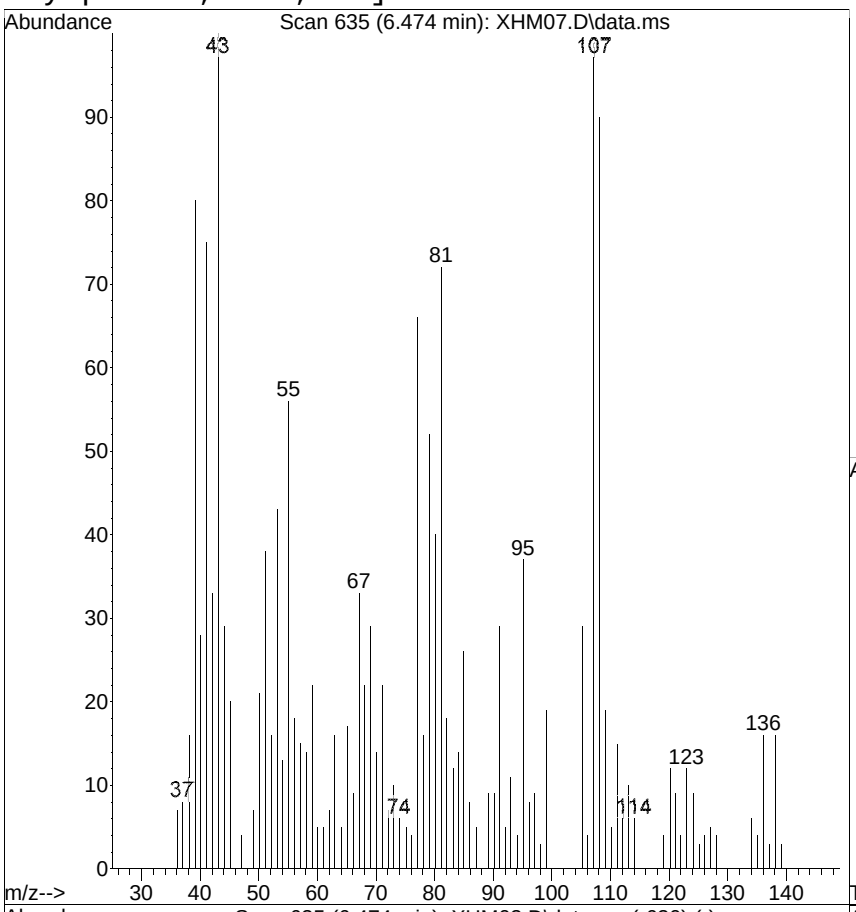




[4-Methylphenol; <RL; u]

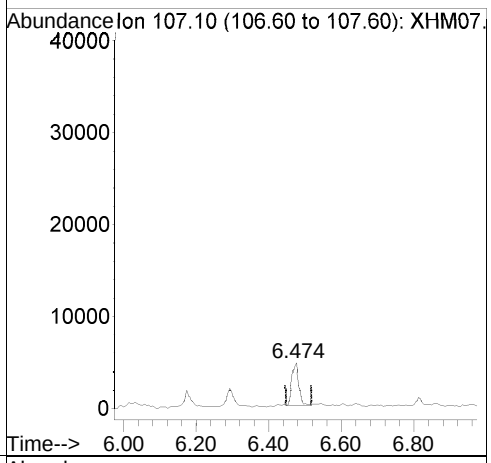
Raw



#16
4-Methylphenol
Concen: 0.1541 ug/mL
RT: 6.474 min Scan# 635
Delta R.T. 0.000 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

Tgt Ion:107 Resp: 6171

Ion	Ratio	Lower	Upper
107	100		
108	91.2	71.0	111.0
77	66.2	8.0	48.0#



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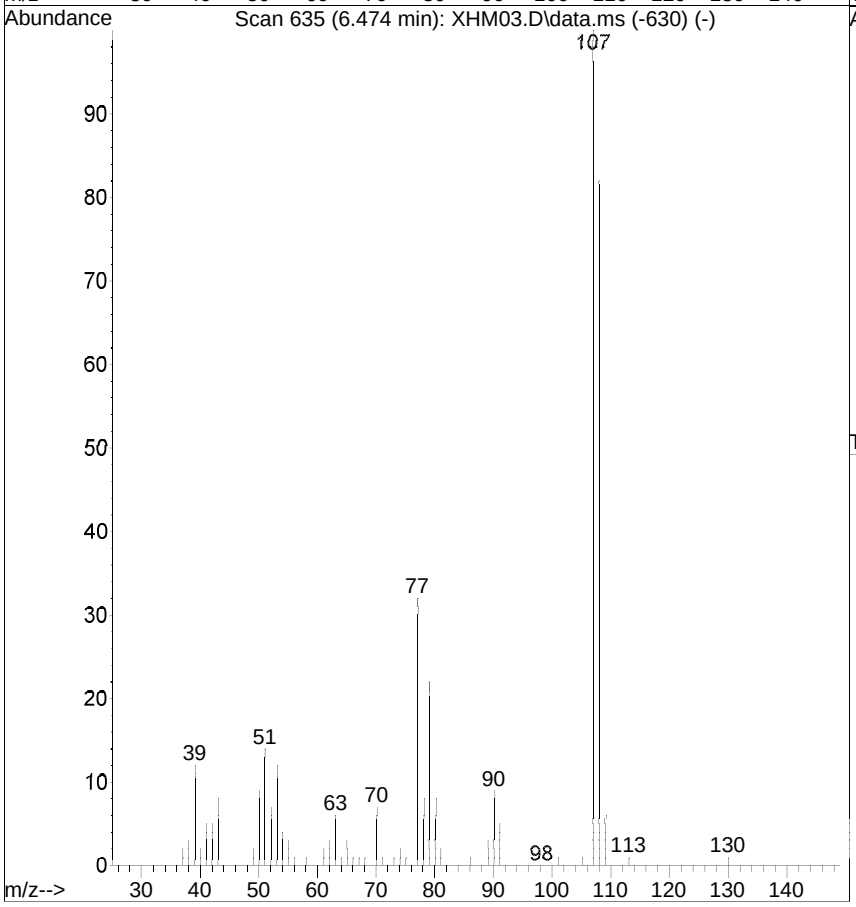
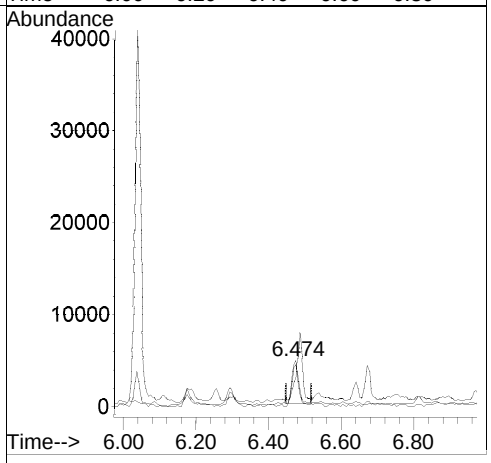
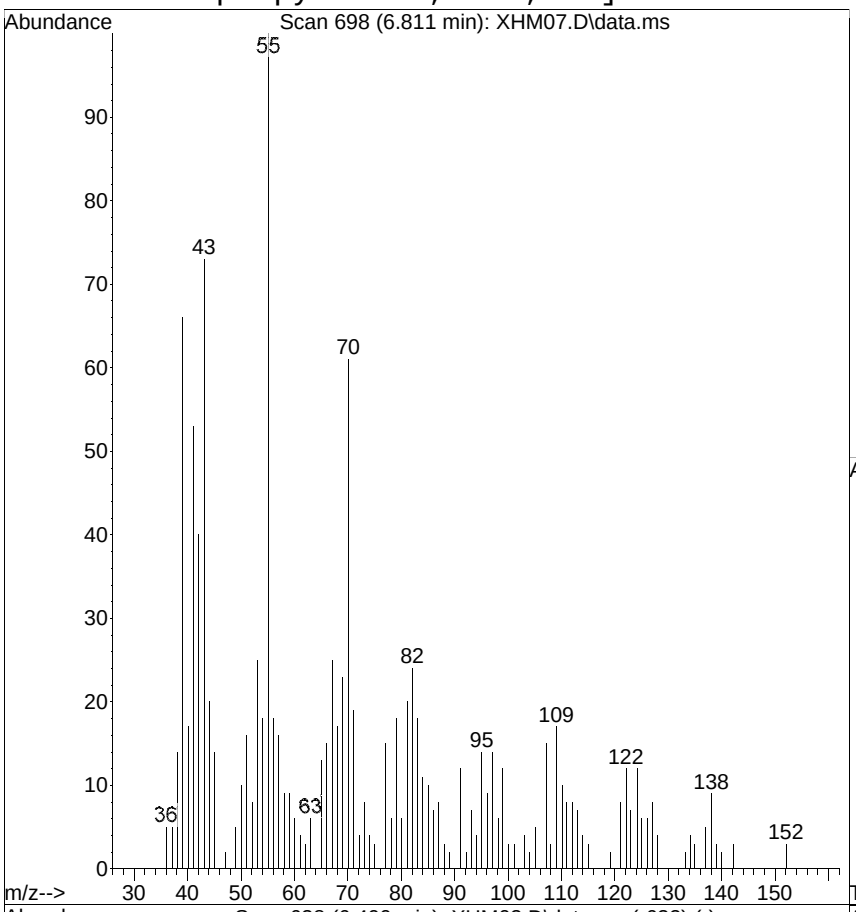




[N-Nitroso-di-n-propylamine; <RL; u]

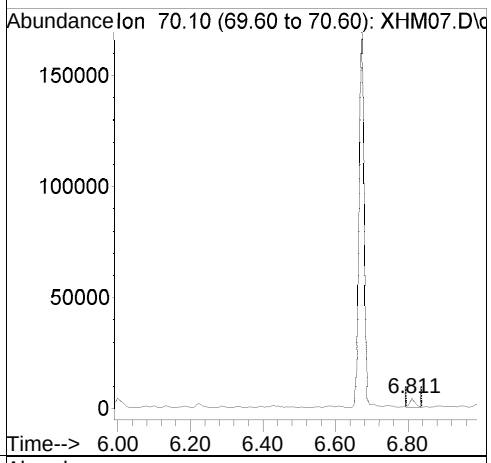
Raw



#17
N-Nitroso-di-n-propylamine
Concen: 0.2080 ug/mL
RT: 6.811 min Scan# 698
Delta R.T. 0.321 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

Tgt Ion: 70 Resp: 4167

Ion	Ratio	Lower	Upper
70	100		
42	65.8	55.0	95.0
101	5.1	0.0	34.0



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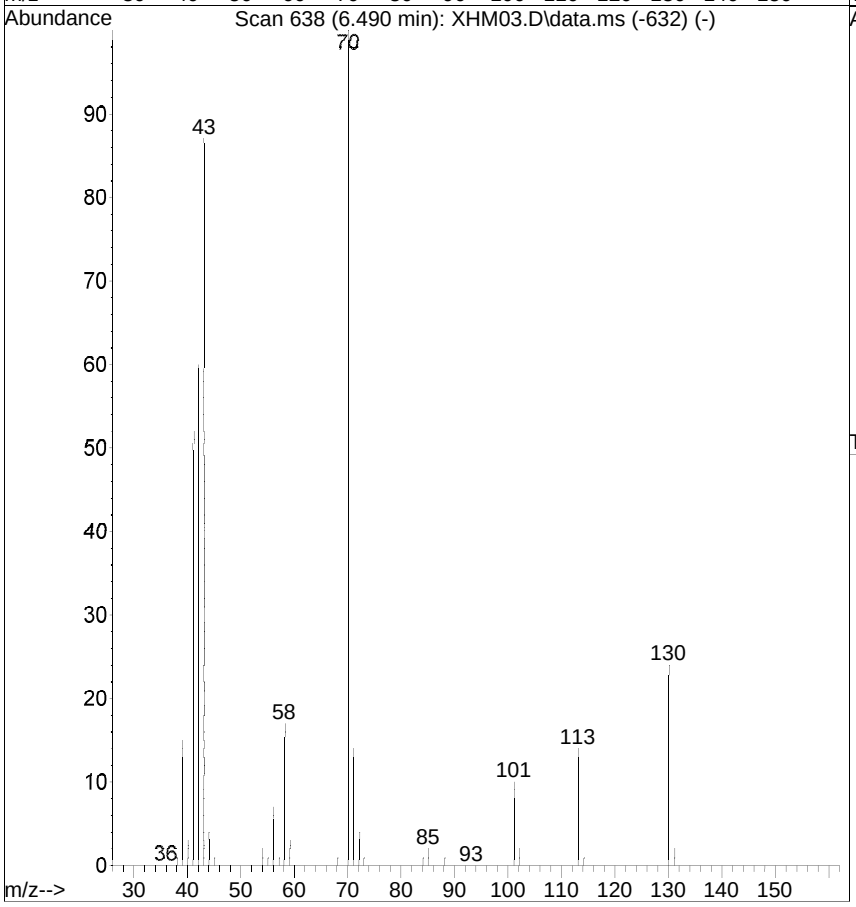
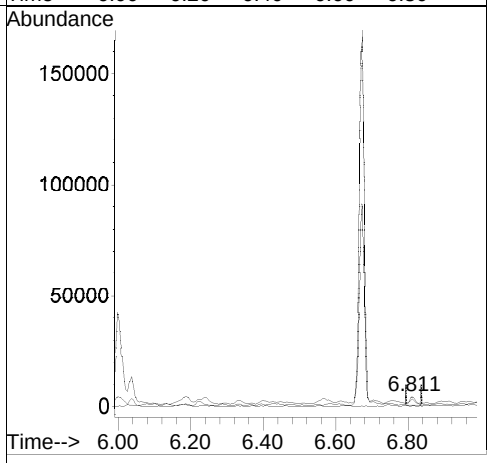
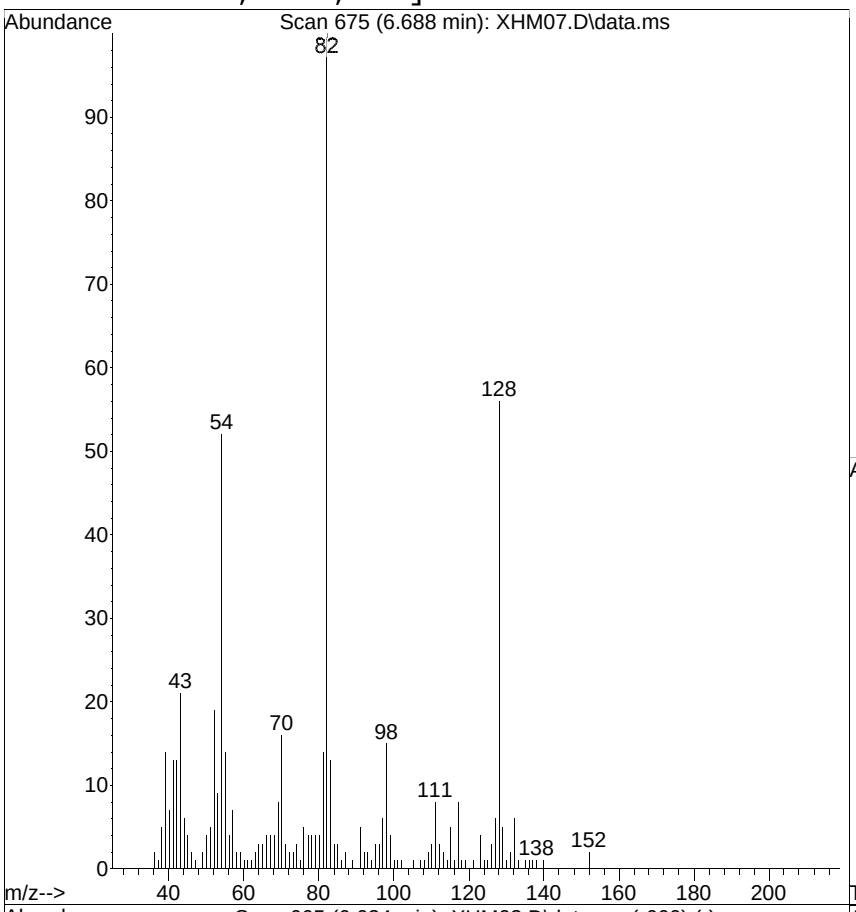




[Hexachloroethane; <RL; u]

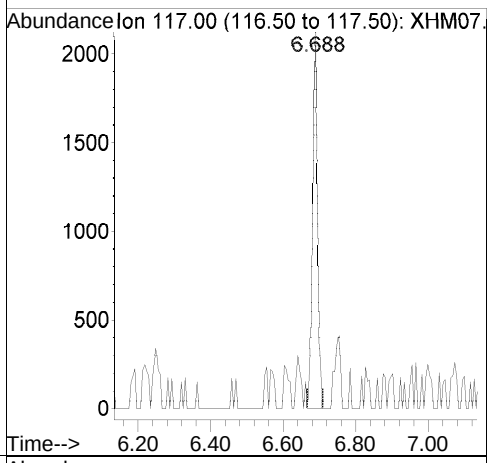
Raw



#18
Hexachloroethane
Concen: 0.1288 ug/mL
RT: 6.688 min Scan# 675
Delta R.T. 0.054 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

Tgt Ion:117 Resp: 1974

Ion	Ratio	Lower	Upper
117	100		
201	0.0	63.0	103.0#
199	0.0	32.0	72.0#



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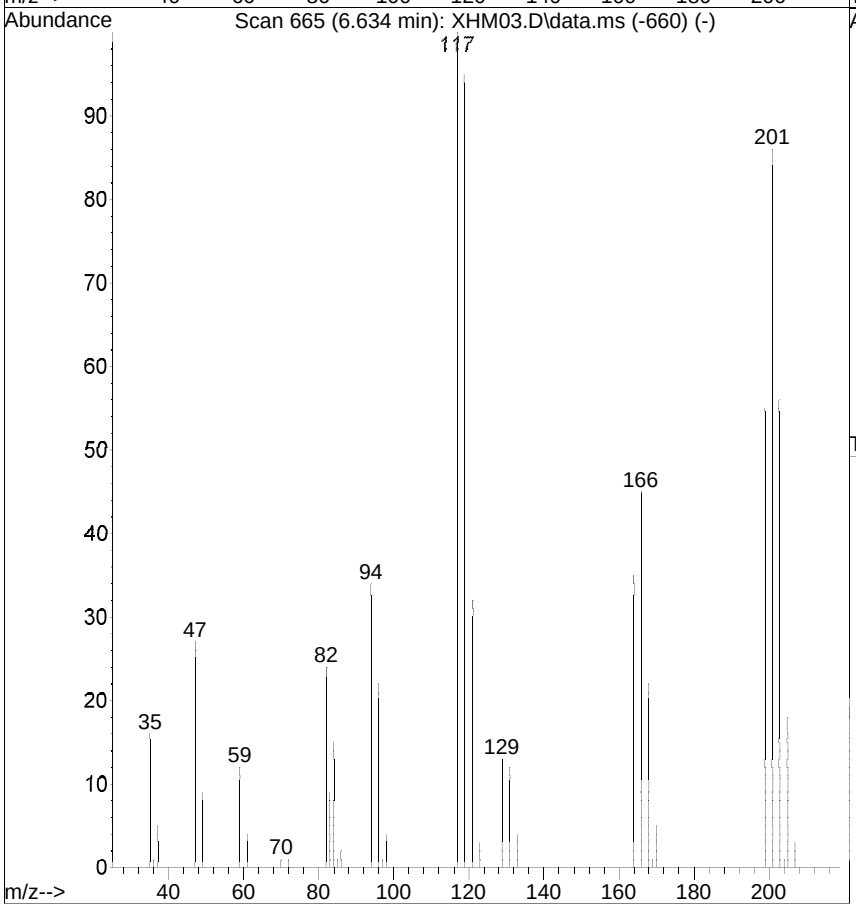
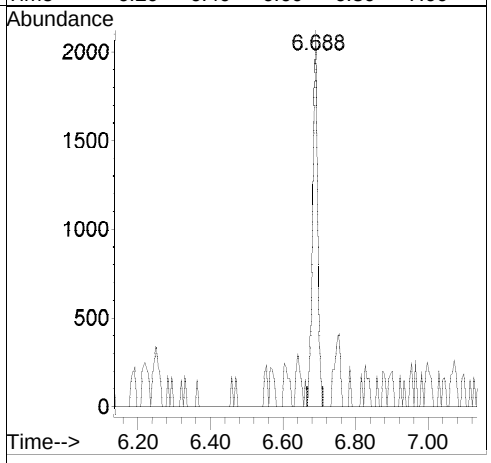
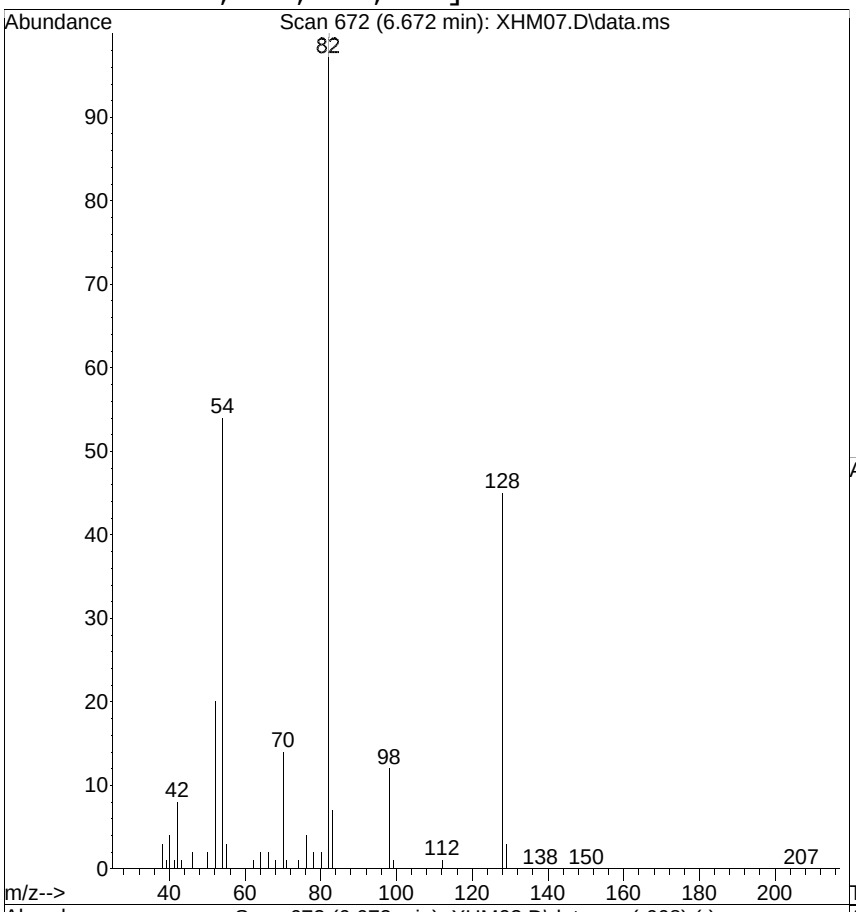




[Nitrobenzene-d5; 27; MI; u]

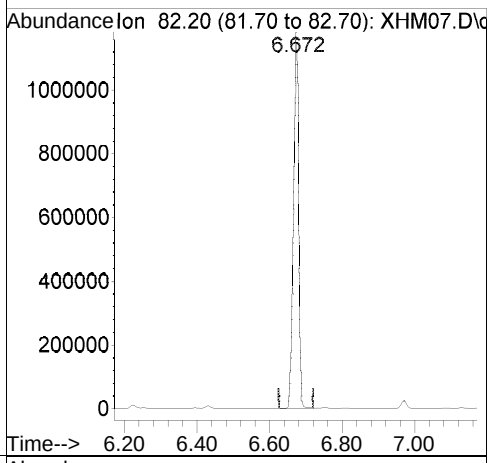
Raw



#20
Nitrobenzene-d5
Concen: 28.1965 ug/mL m
RT: 6.672 min Scan# 672
Delta R.T. 0.000 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

Tgt Ion: 82 Resp: 1121272

Ion	Ratio	Lower	Upper
82	100		
128	45.3	15.0	55.0
54	53.6	56.0	96.0#



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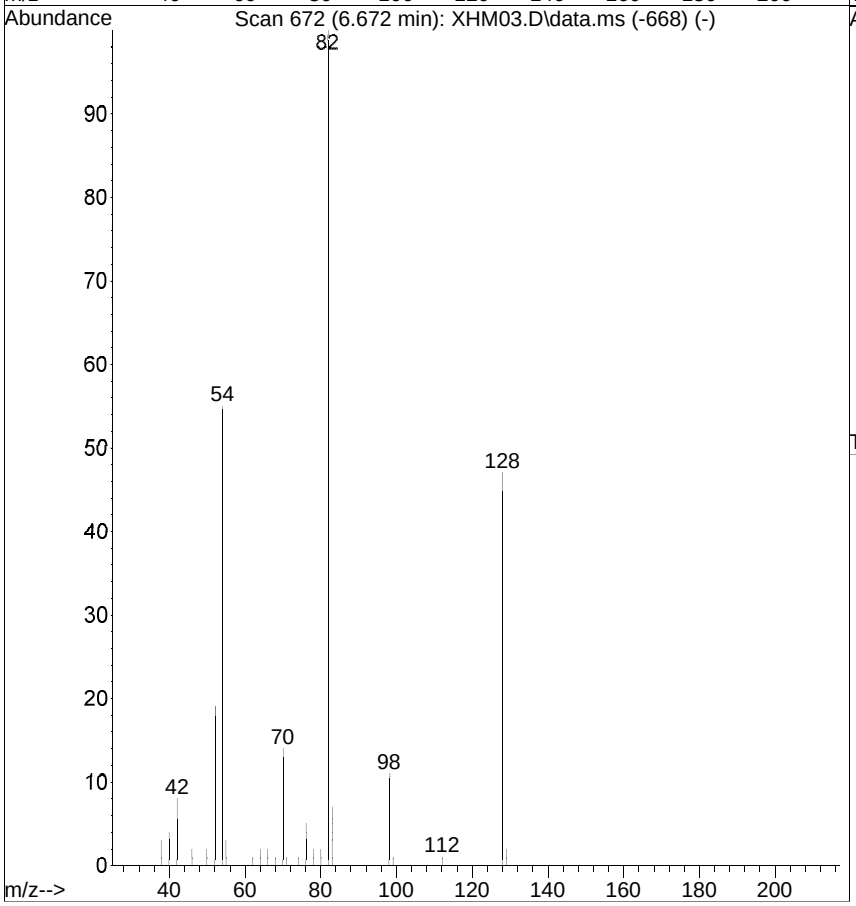
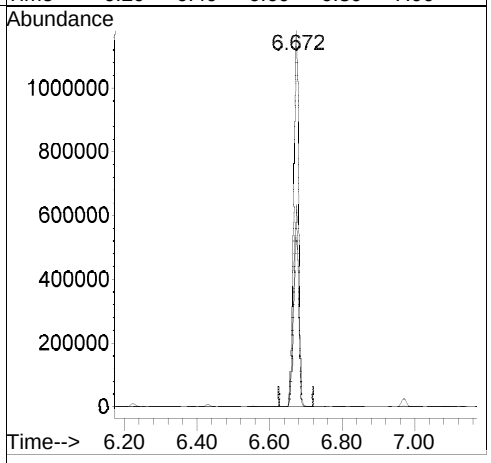
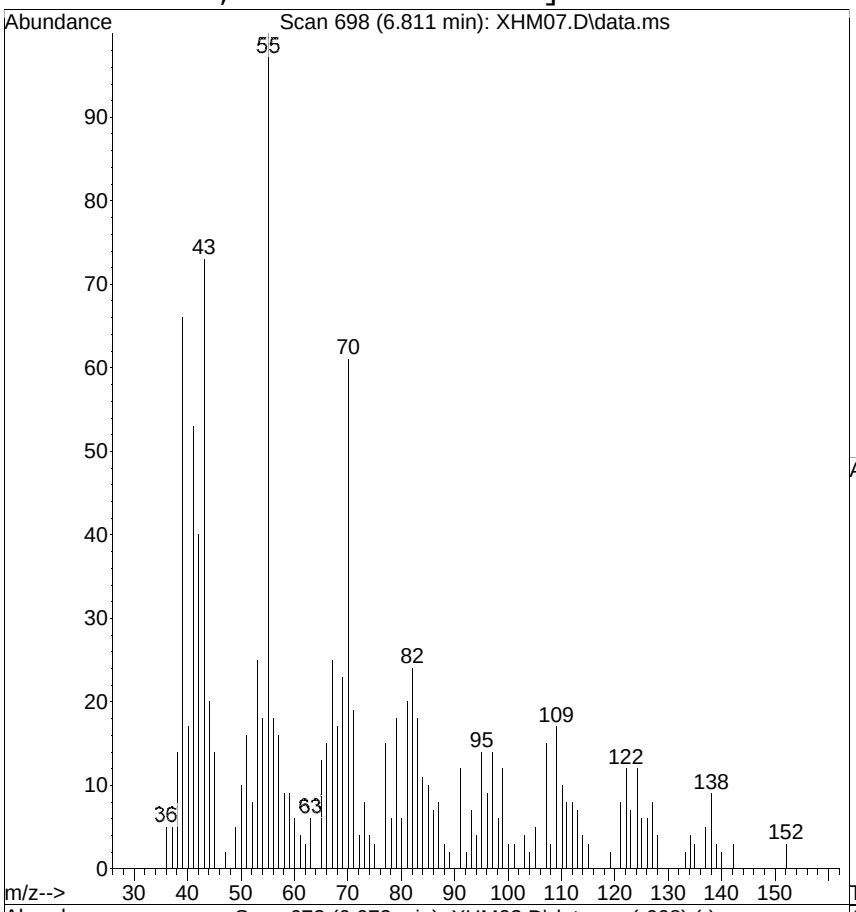




[Nitrobenzene-d5; before version]

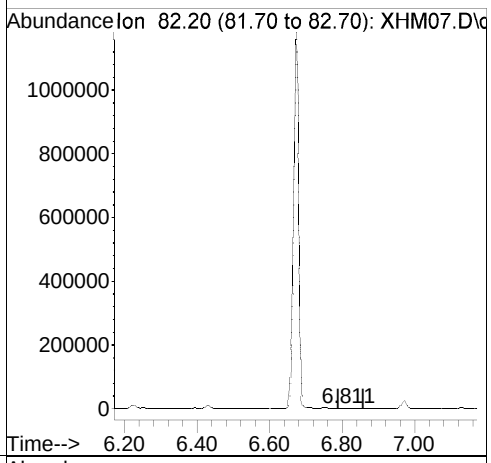
Raw



#20
Nitrobenzene-d5
Concen: 0.0633 ug/mL
RT: 6.811 min Scan# 698
Delta R.T. 0.139 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

Tgt Ion: 82 Resp: 2518

Ion	Ratio	Lower	Upper
82	100		
128	16.7	15.0	55.0
54	73.5	56.0	96.0



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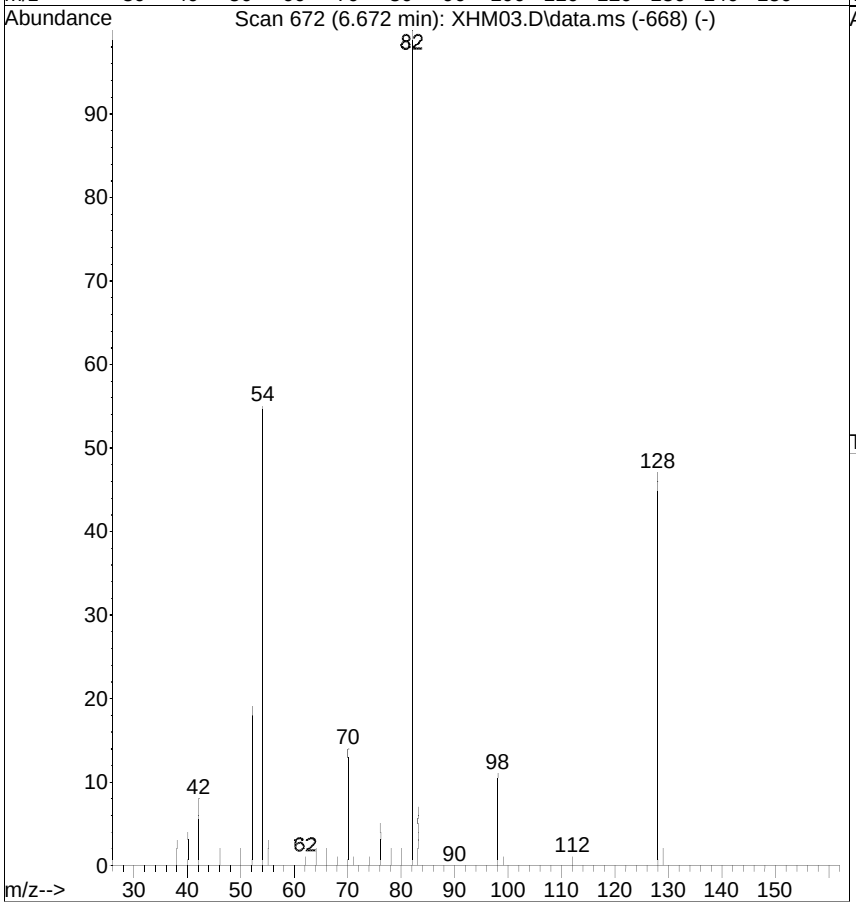
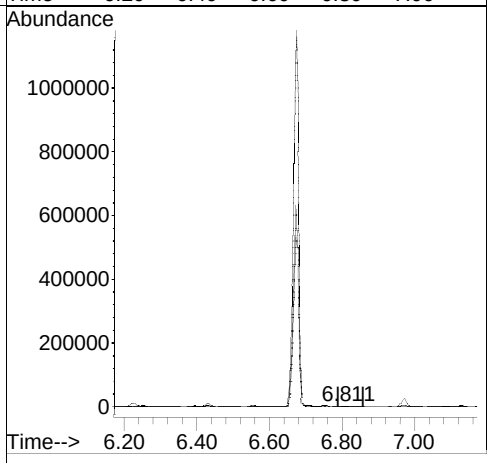
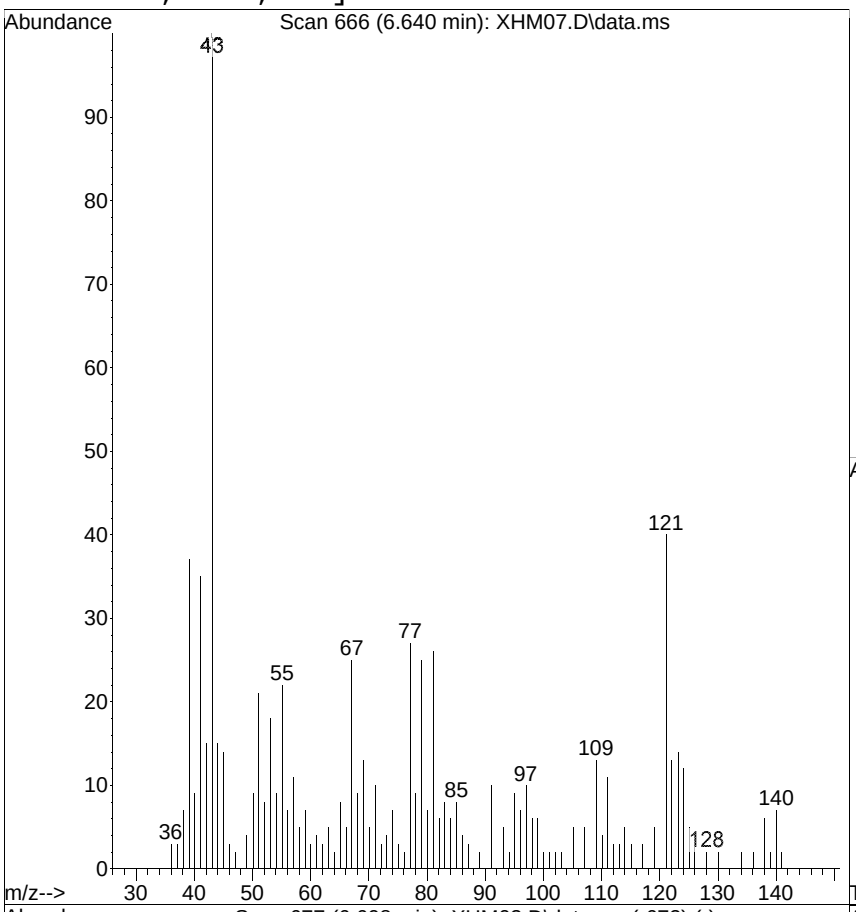




[Nitrobenzene; <RL; u]

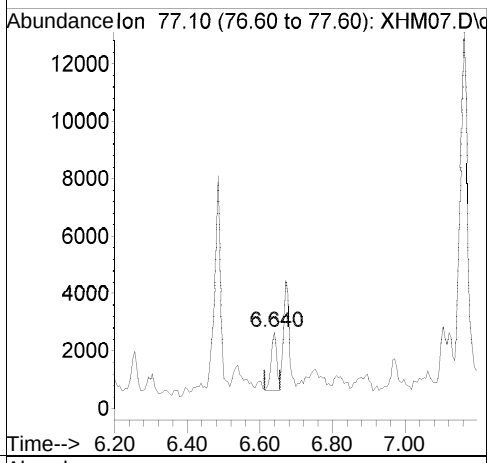
Raw



#21
Nitrobenzene
Concen: 0.0607 ug/mL
RT: 6.640 min Scan# 666
Delta R.T. -0.059 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

Tgt Ion: 77 Resp: 2204

Ion	Ratio	Lower	Upper
77	100		
123	53.1	19.0	59.0
65	28.4	0.0	36.0



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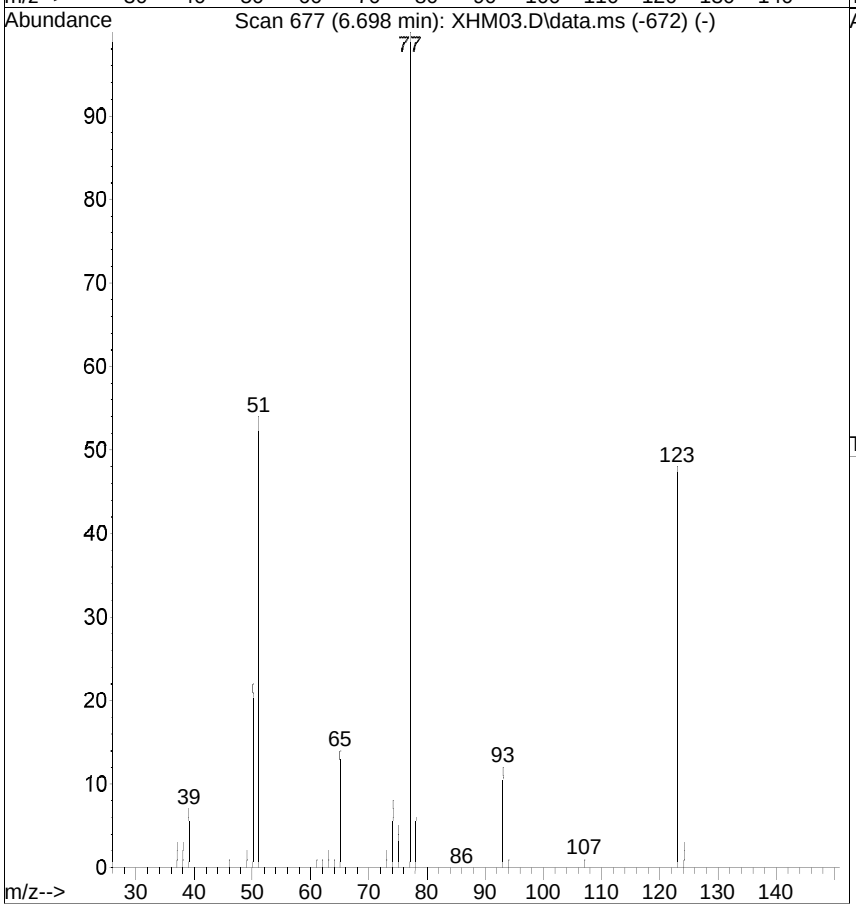
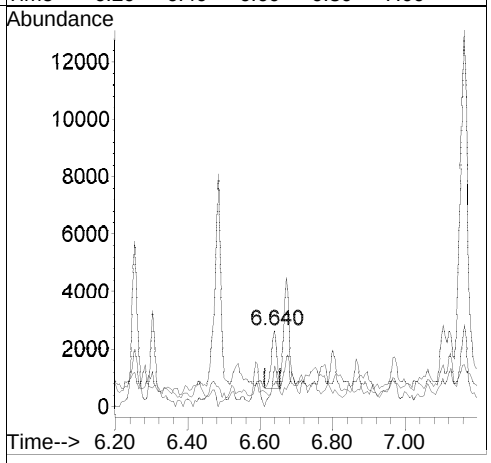
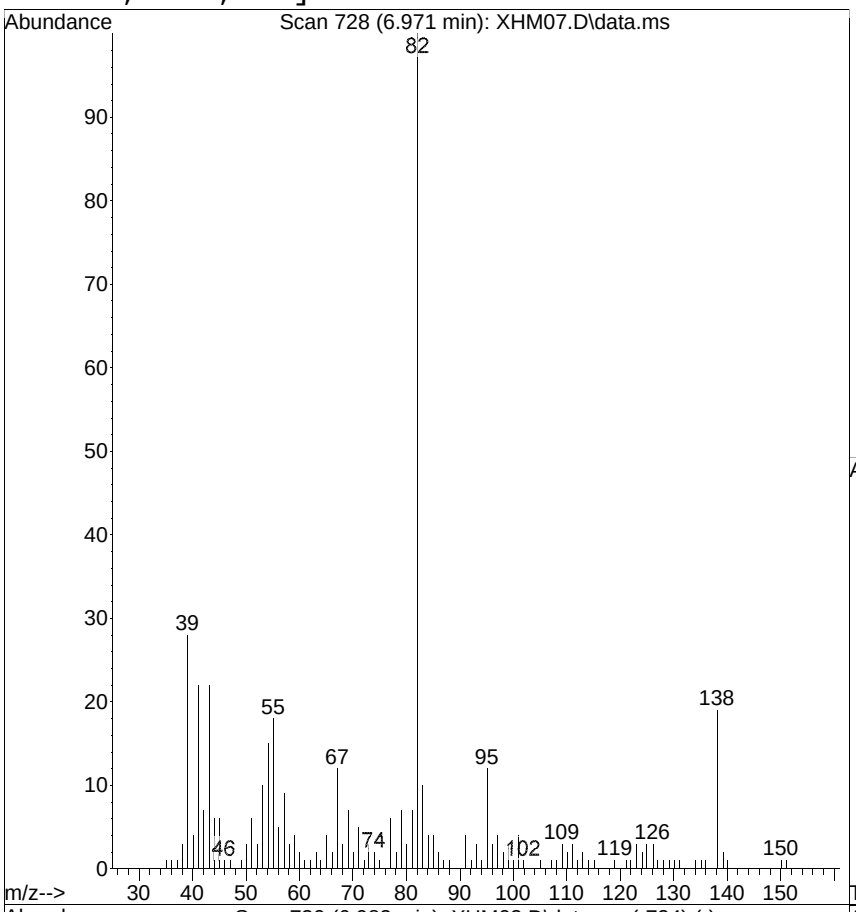




[Isophorone; <RL; u]

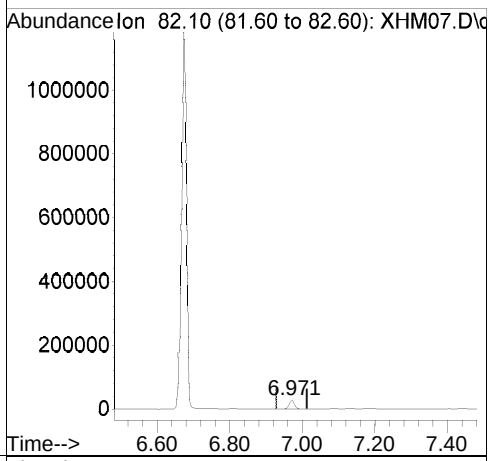
Raw



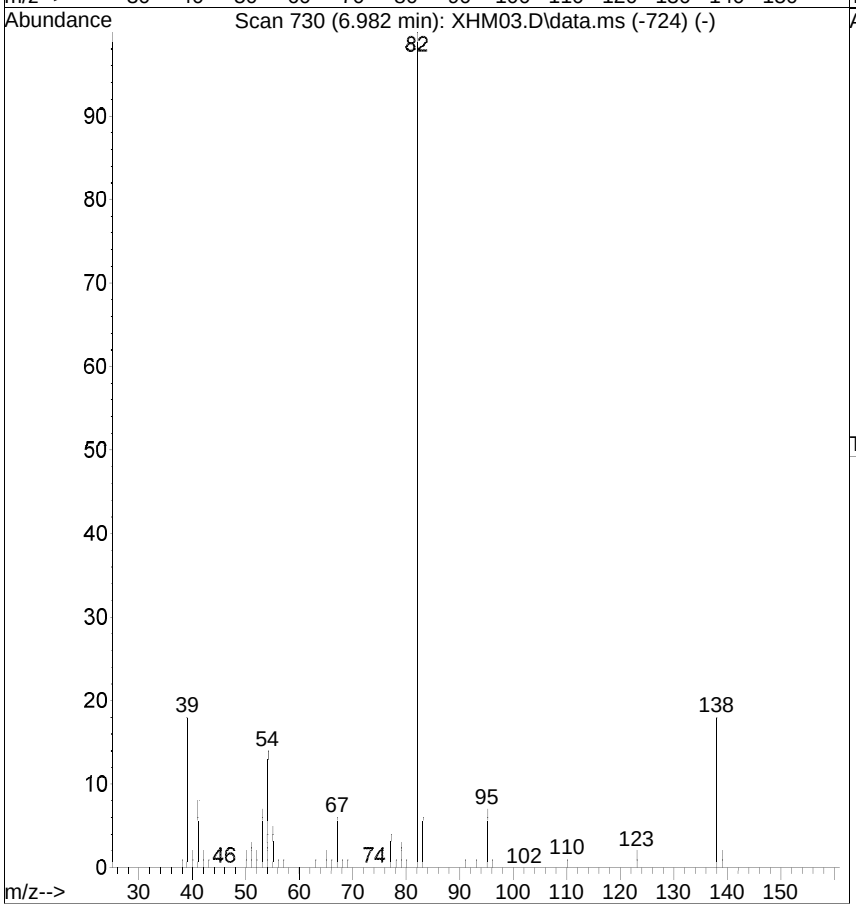
#22
Isophorone
Concen: 0.4202 ug/mL
RT: 6.971 min Scan# 728
Delta R.T. -0.010 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

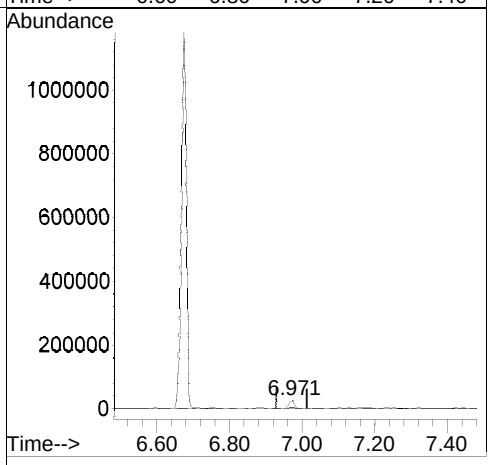
Tgt Ion: 82 Resp: 27224

Ion	Ratio	Lower	Upper
82	100		
95	11.6	0.0	26.0
138	19.3	0.0	37.0



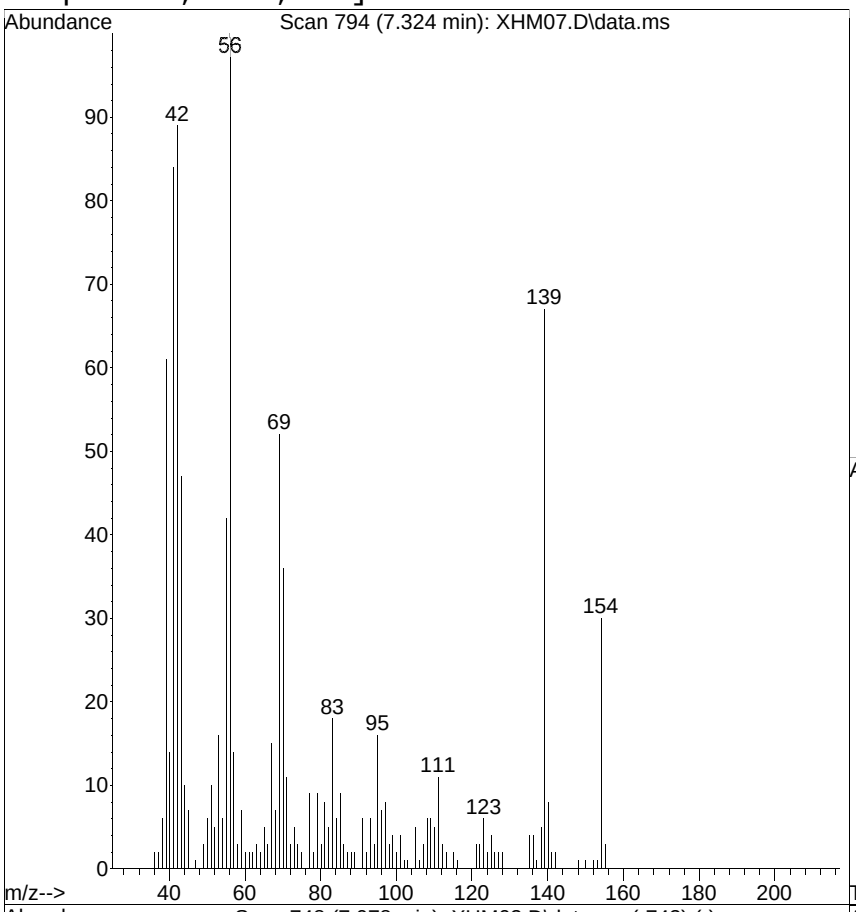
Ref





[2-Nitrophenol; <RL; u]

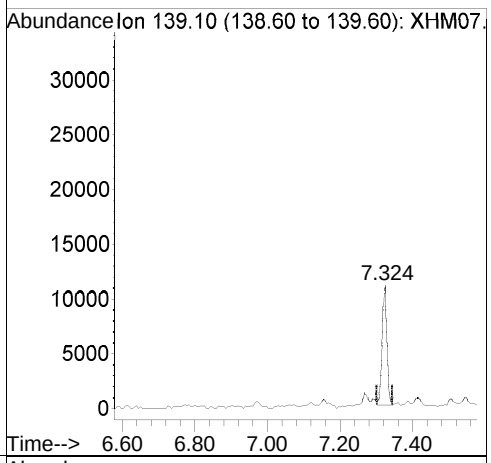
Raw



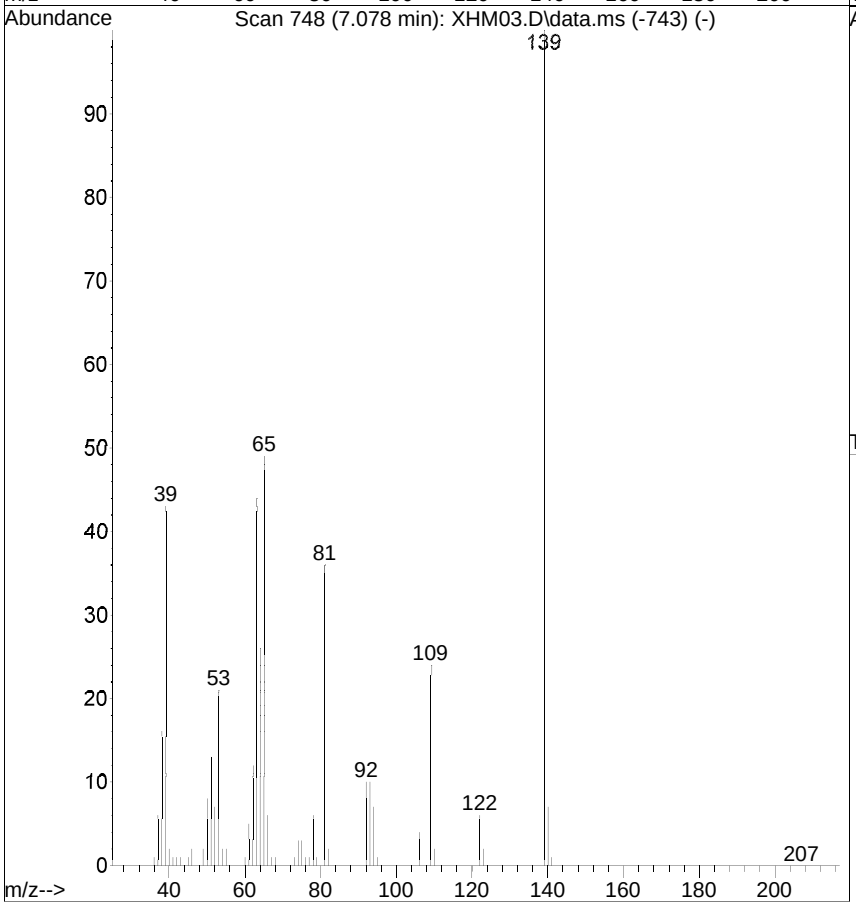
#23
2-Nitrophenol
Concen: 0.5337 ug/mL
RT: 7.324 min Scan# 794
Delta R.T. 0.246 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

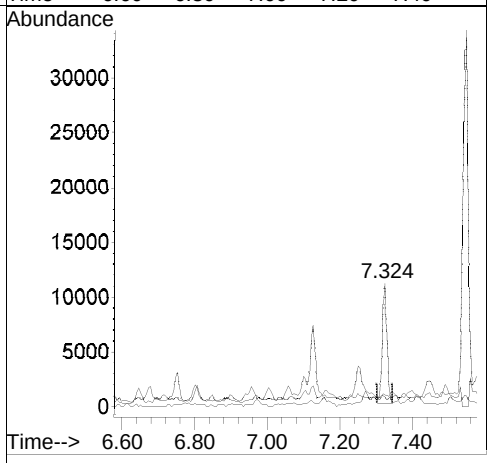
Tgt Ion:139 Resp: 9750

Ion	Ratio	Lower	Upper
139	100		
65	8.0	42.0	82.0#
109	9.5	14.0	54.0#



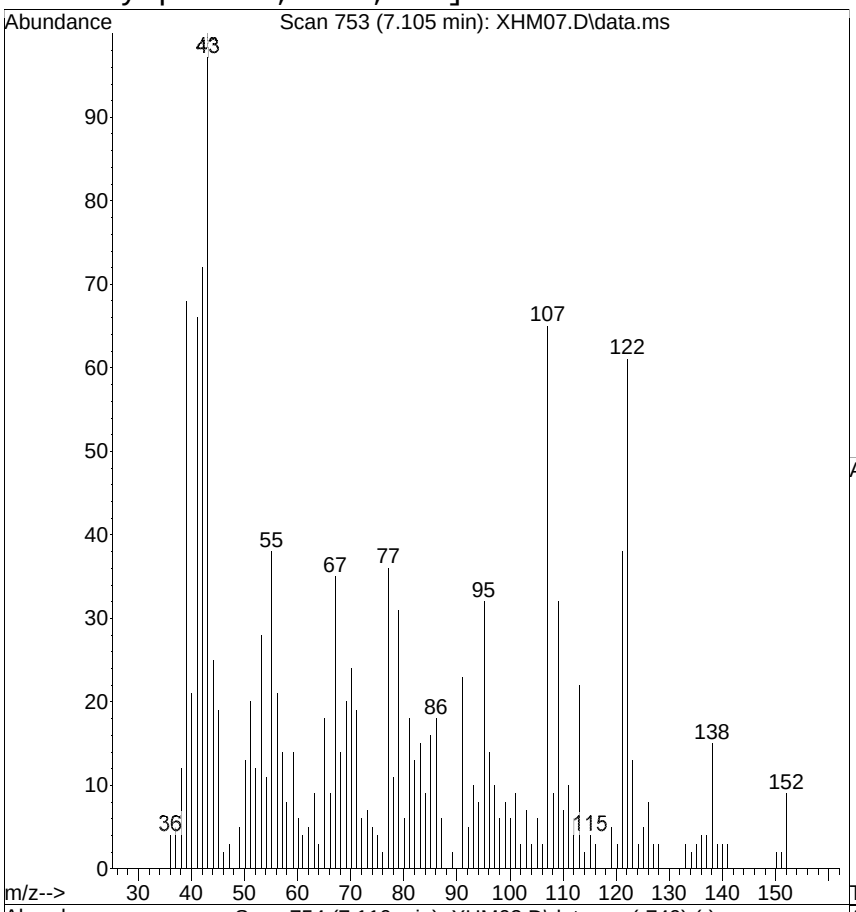
Ref





[2,4-Dimethylphenol; <RL; u]

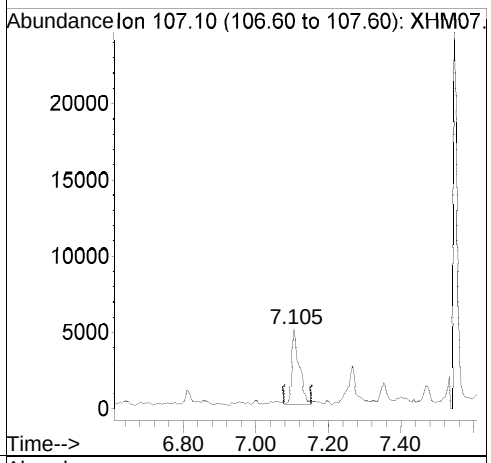
Raw



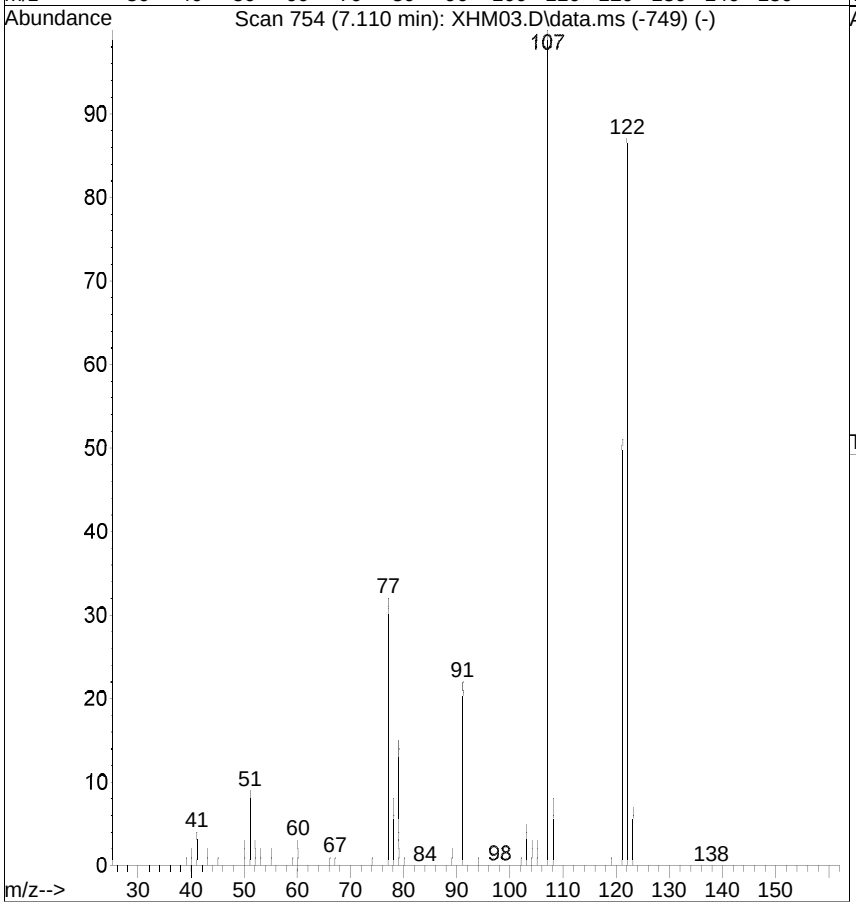
#24
2,4-Dimethylphenol
Concen: 0.2206 ug/mL
RT: 7.105 min Scan# 753
Delta R.T. -0.005 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

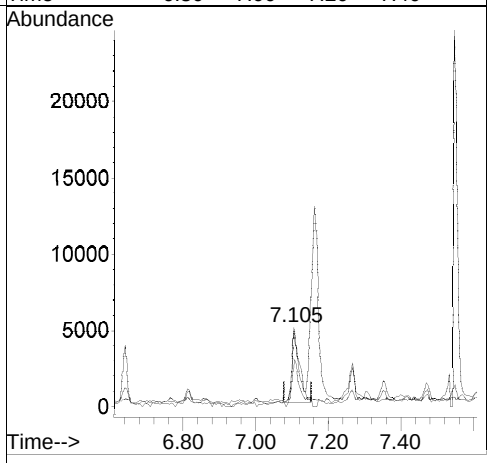
Tgt Ion:107 Resp: 7050

Ion	Ratio	Lower	Upper
107	100		
122	93.5	55.0	95.0
121	58.7	26.0	66.0



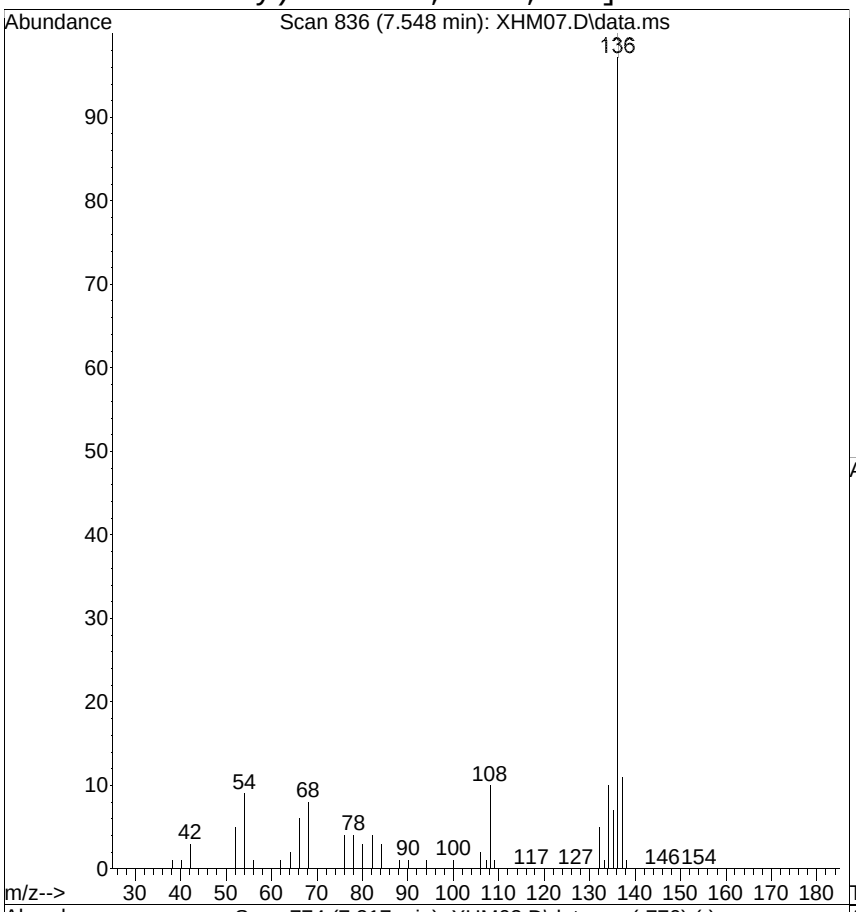
Ref





[bis(2-Chloroethoxy)methane; <RL; u]

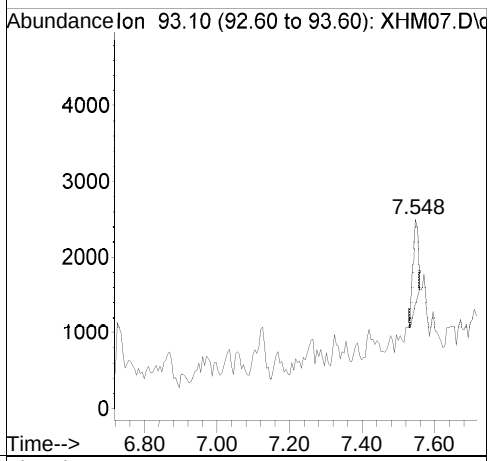
Raw



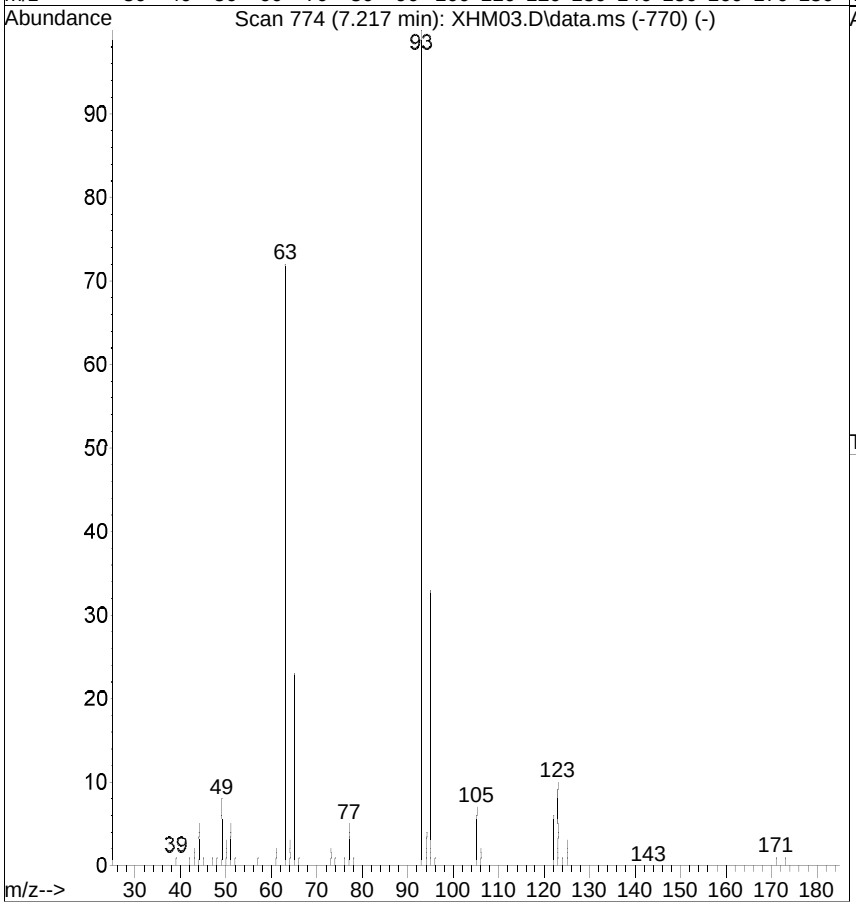
#25
bis(2-Chloroethoxy)methane
Concen: 0.0279 ug/mL
RT: 7.548 min Scan# 836
Delta R.T. 0.331 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

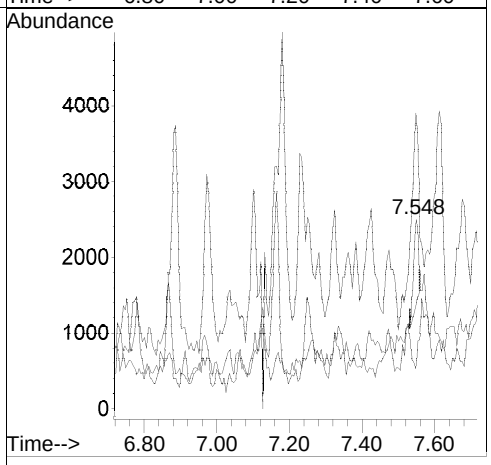
Tgt Ion: 93 Resp: 1066

Ion	Ratio	Lower	Upper
93	100		
95	156.2	13.0	53.0#
123	21.2	0.0	36.0



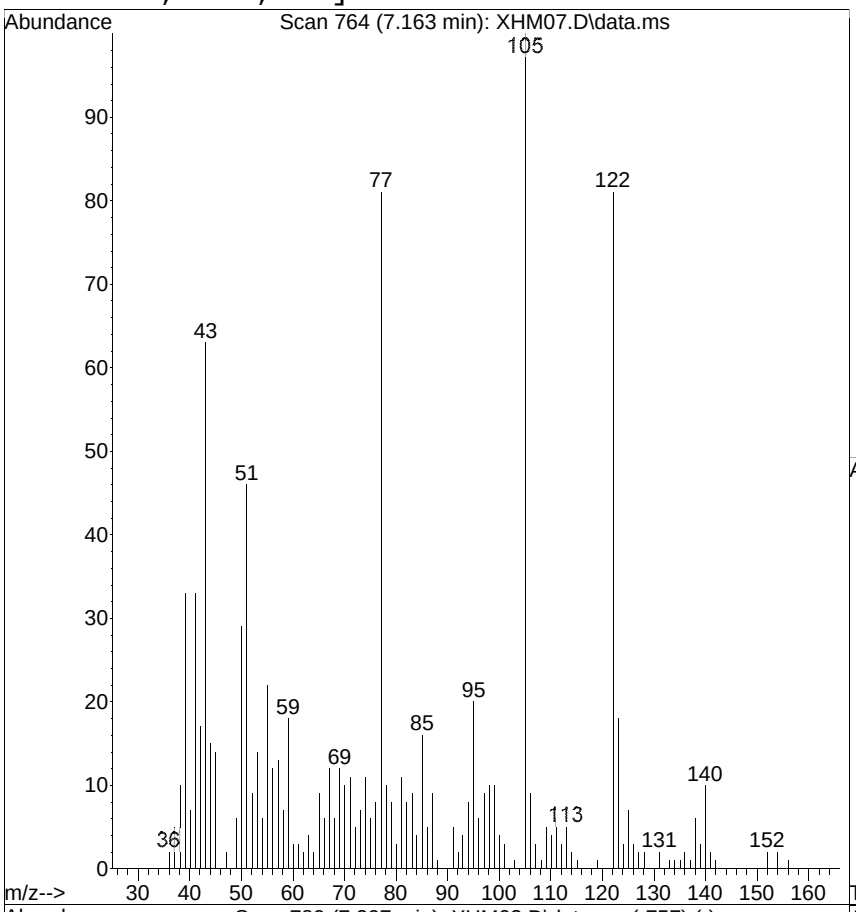
Ref





[Benzoic acid; <RL; u]

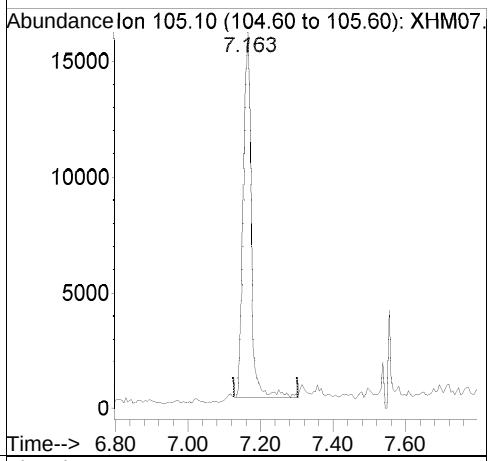
Raw



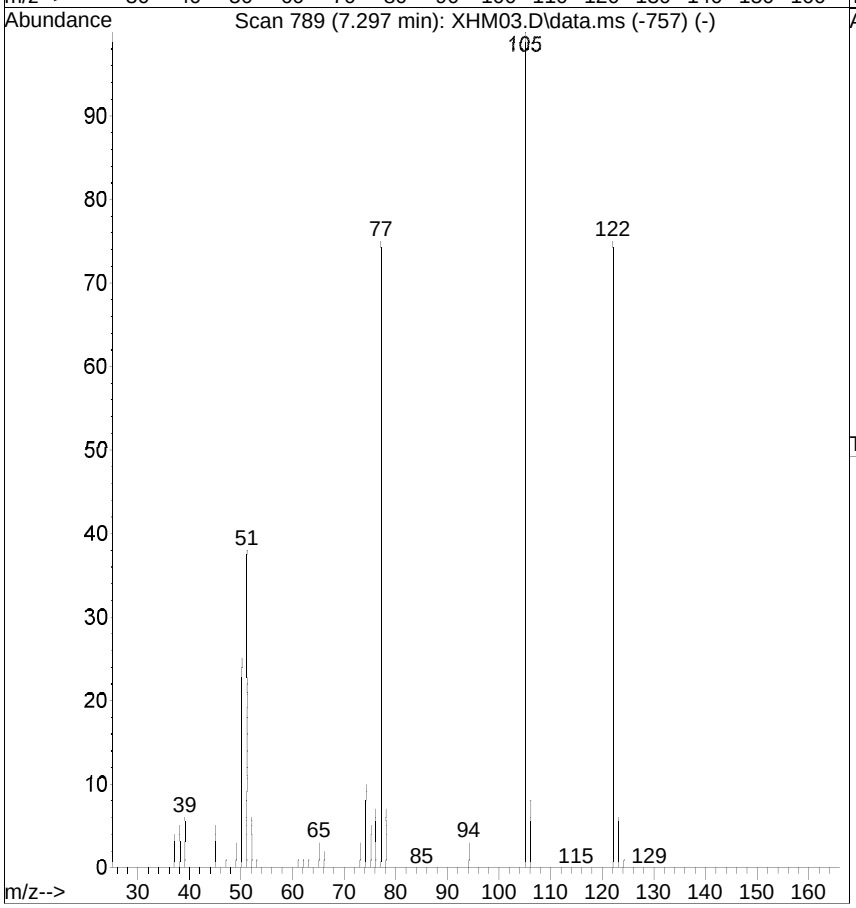
#26
Benzoic acid
Concen: 0.9852 ug/mL
RT: 7.163 min Scan# 764
Delta R.T. -0.133 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

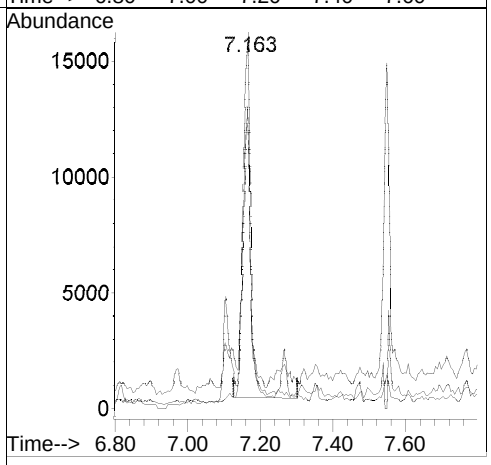
Tgt Ion:105 Resp: 23455

Ion	Ratio	Lower	Upper
105	100		
122	80.6	60.0	100.0
77	80.6	66.0	106.0



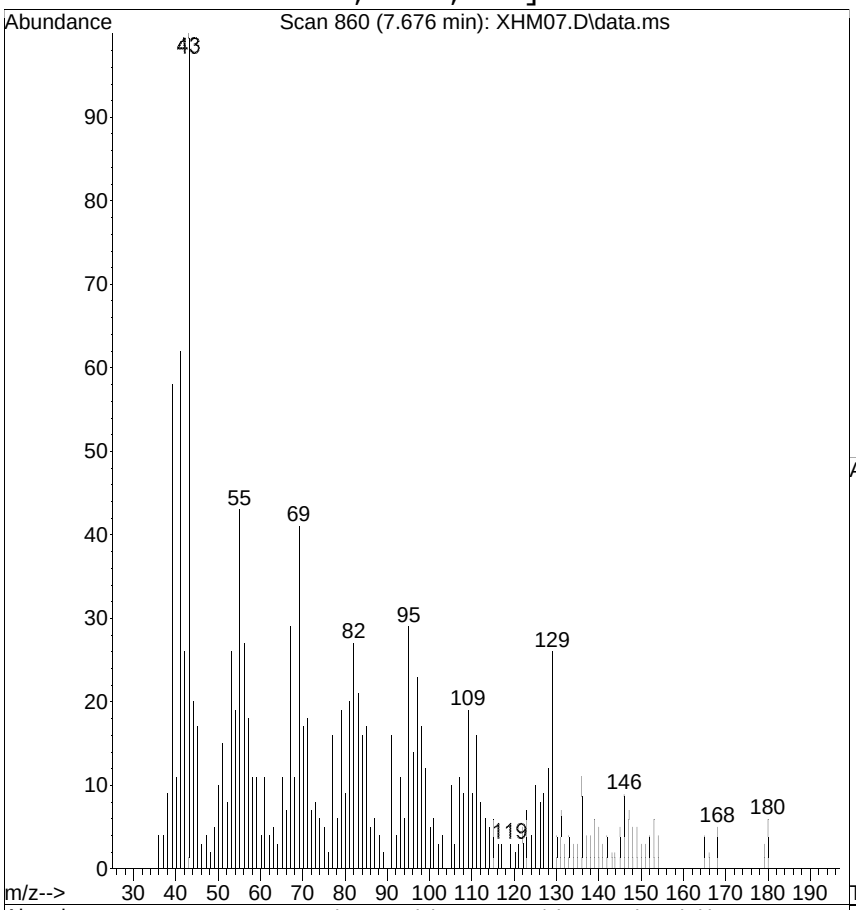
Ref





[1,2,4-Trichlorobenzene; <RL; u]

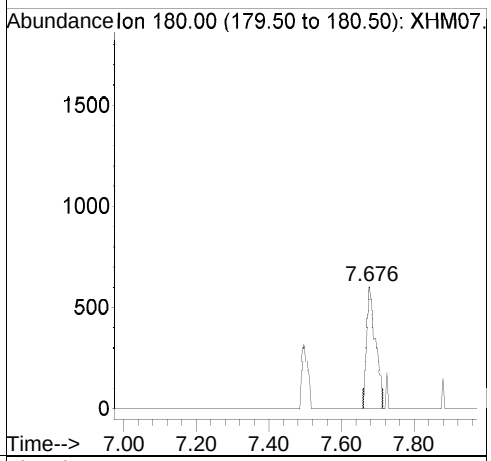
Raw



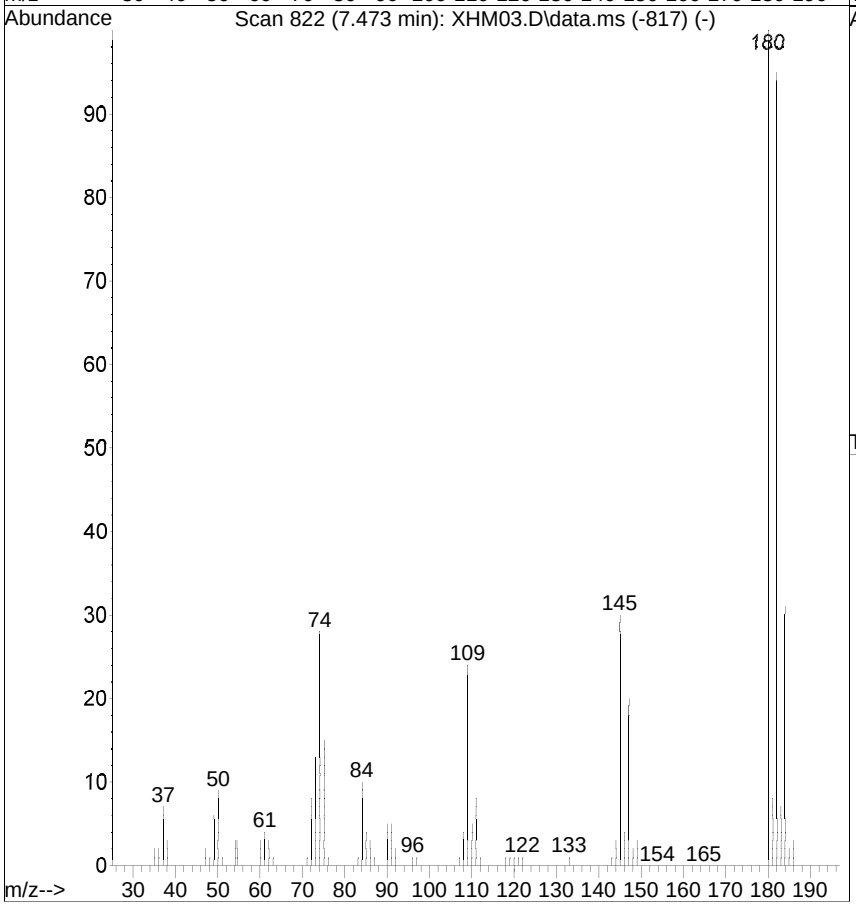
#28
1,2,4-Trichlorobenzene
Concen: 0.0354 ug/mL
RT: 7.676 min Scan# 860
Delta R.T. 0.203 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

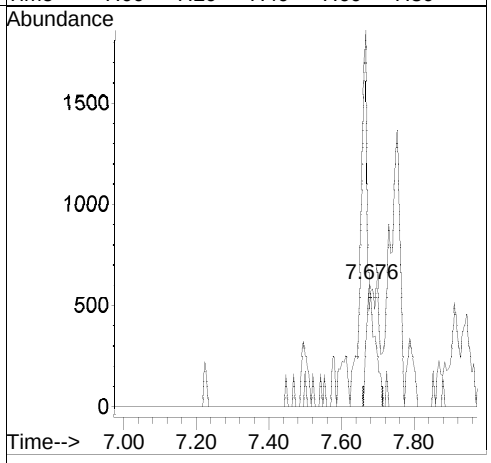
Tgt Ion:180 Resp: 1001

Ion	Ratio	Lower	Upper
180	100		
182	0.0	77.0	117.0#
145	77.6	5.0	45.0#



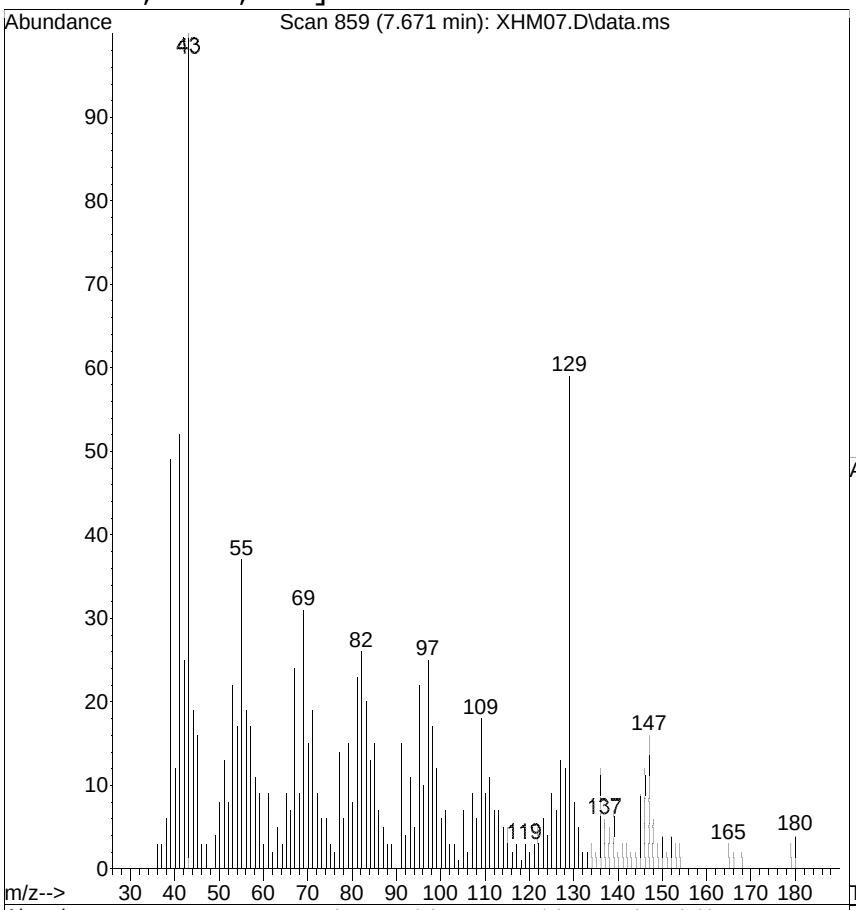
Ref





[Naphthalene; <RL; u]

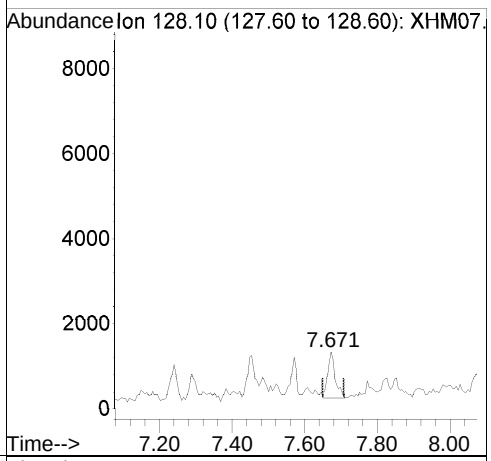
Raw



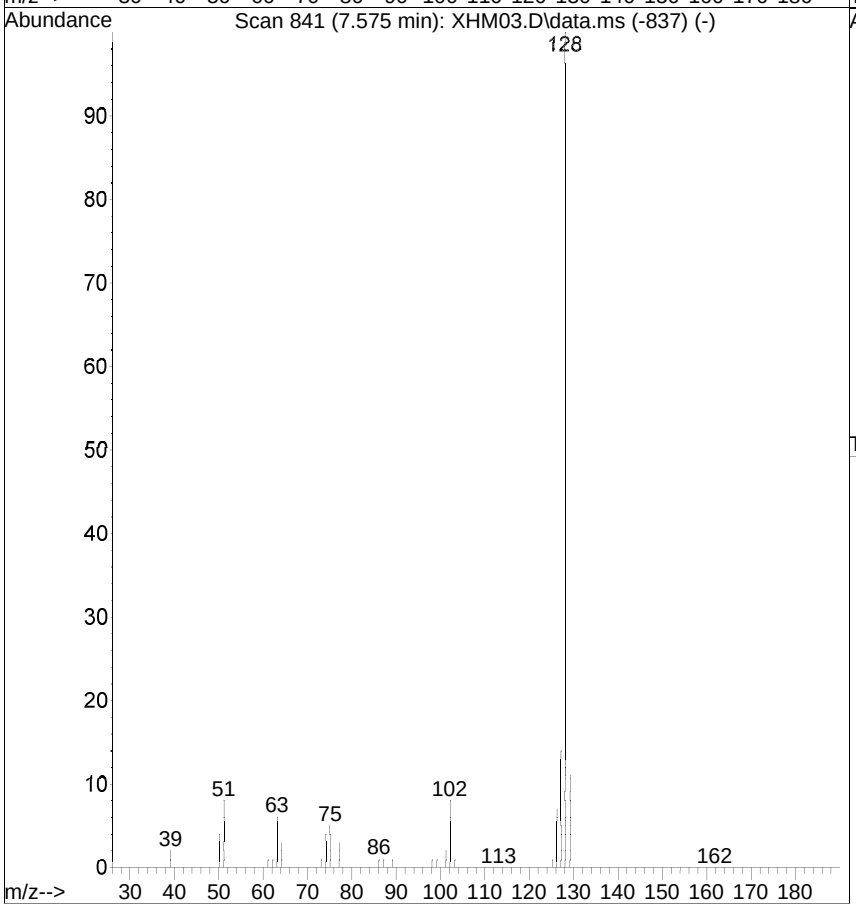
#29
Naphthalene
Concen: 0.0162 ug/mL
RT: 7.671 min Scan# 859
Delta R.T. 0.096 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

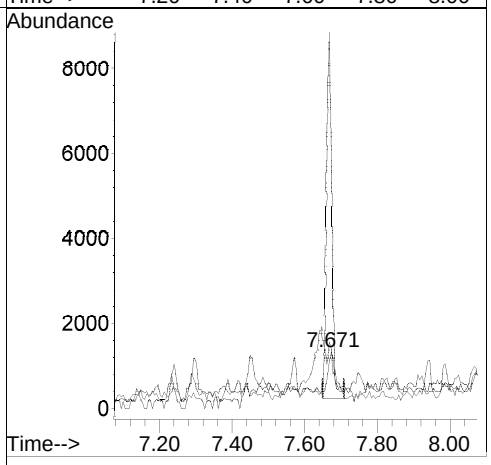
Tgt Ion:128 Resp: 1575

Ion	Ratio	Lower	Upper
128	100		
129	479.7	0.0	30.0#
127	104.6	0.0	32.0#



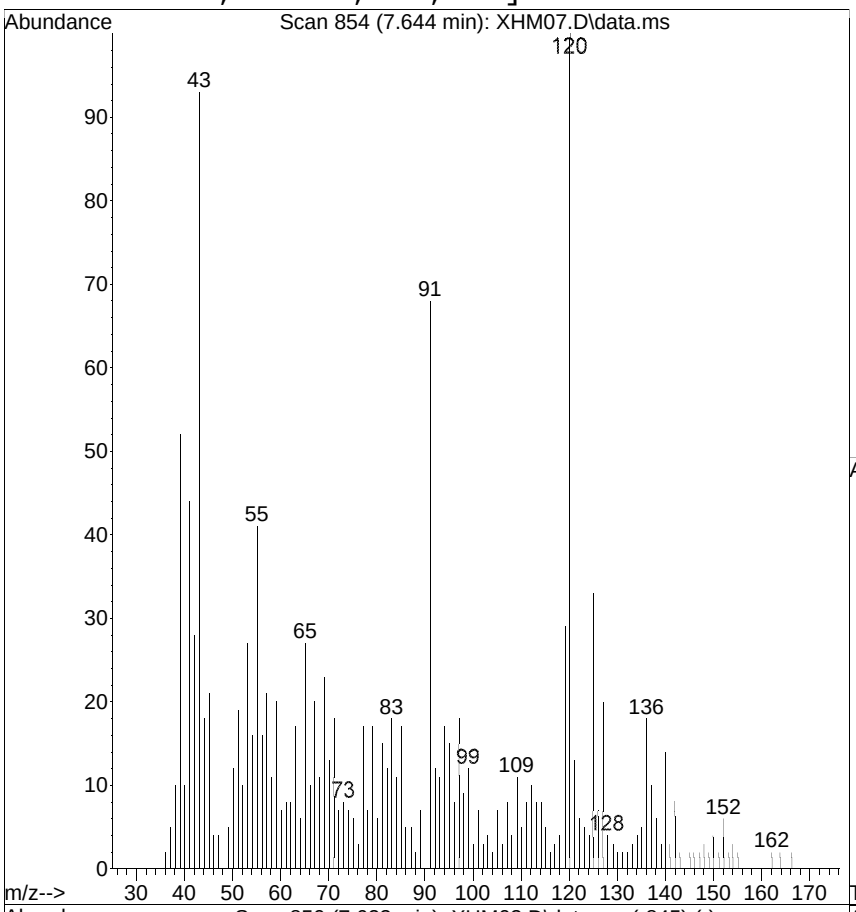
Ref





[4-Chloroaniline; 2.6 J; FP; u]

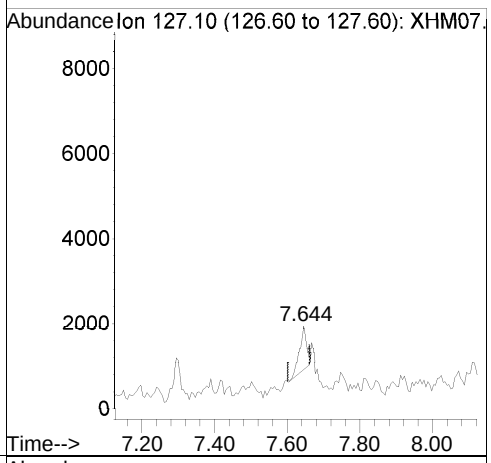
Raw



#30
4-Chloroaniline
Concen: 2.7663 ug/mL
RT: 7.644 min Scan# 854
Delta R.T. 0.022 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

Tgt Ion:127 Resp: 1412

Ion	Ratio	Lower	Upper
127	100		
129	17.5	11.0	51.0
65	135.5	3.0	43.0#



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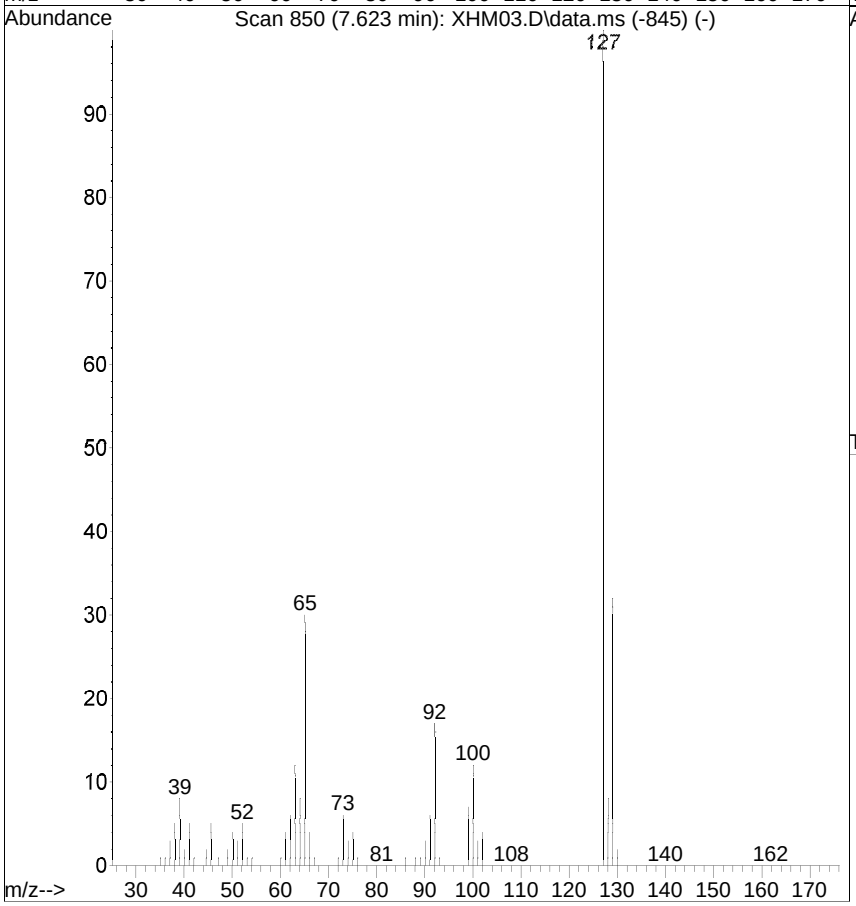
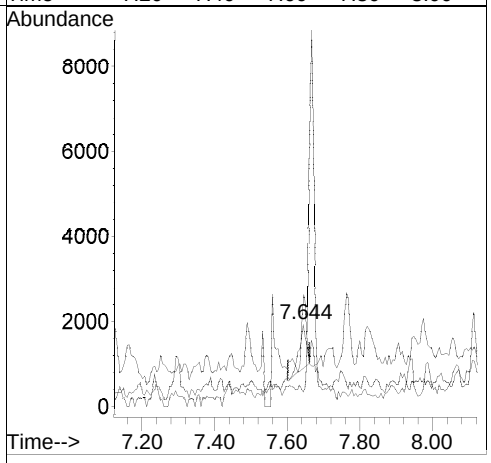
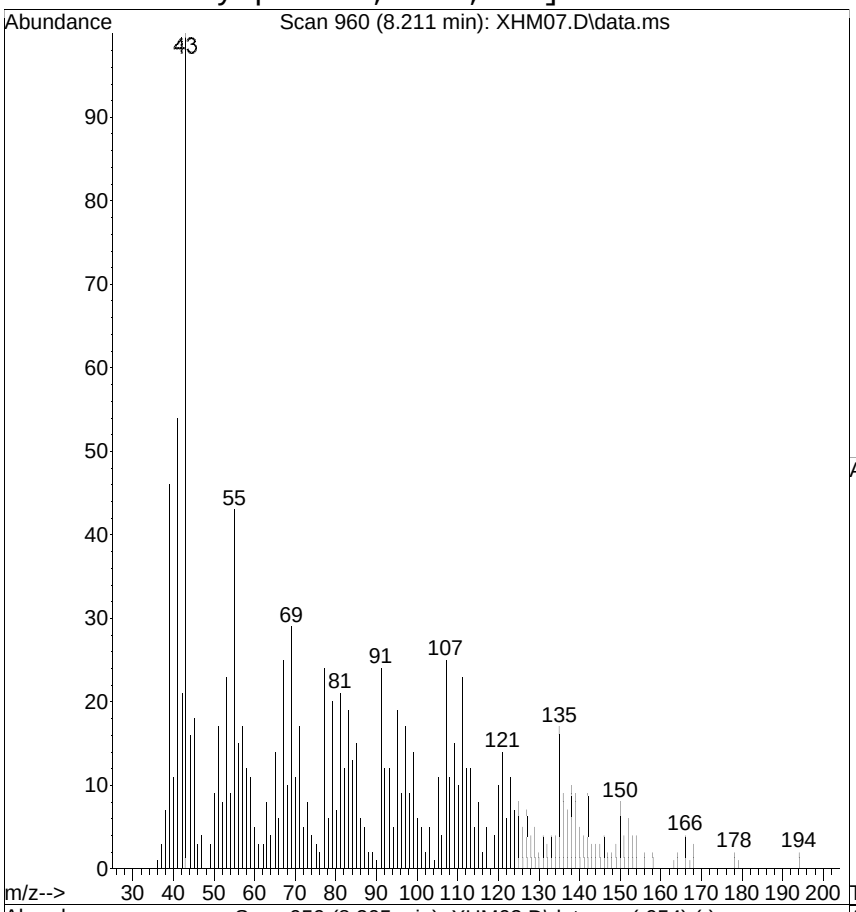




[4-Chloro-3-methylphenol; <RL; u]

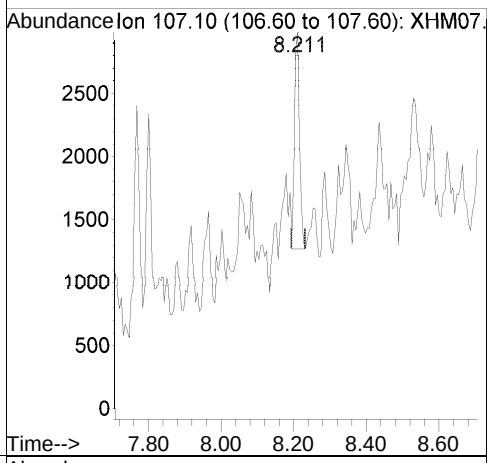
Raw



#33
4-Chloro-3-methylphenol
Concen: 0.0574 ug/mL
RT: 8.211 min Scan# 960
Delta R.T. 0.006 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

Tgt Ion:107 Resp: 1636

Ion	Ratio	Lower	Upper
107	100		
144	11.3	2.0	42.0
142	34.6	70.0	110.0#



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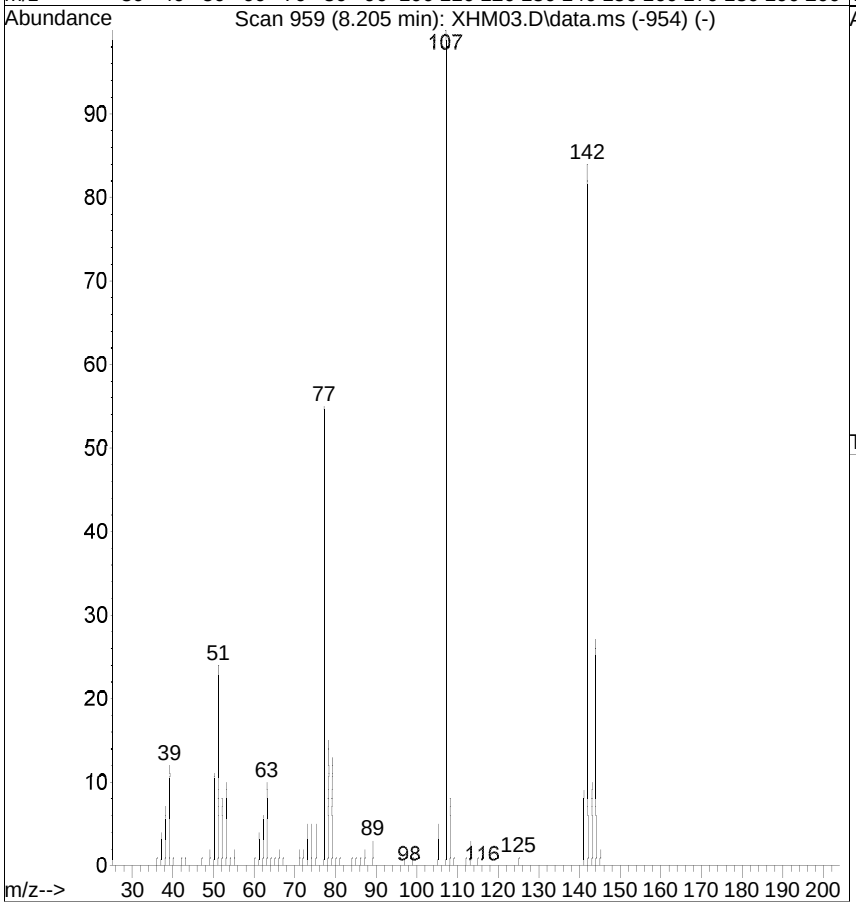
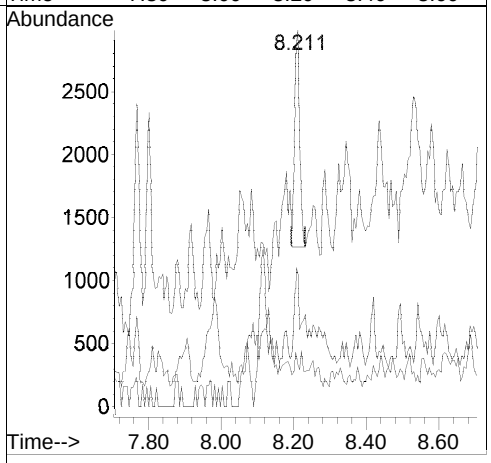
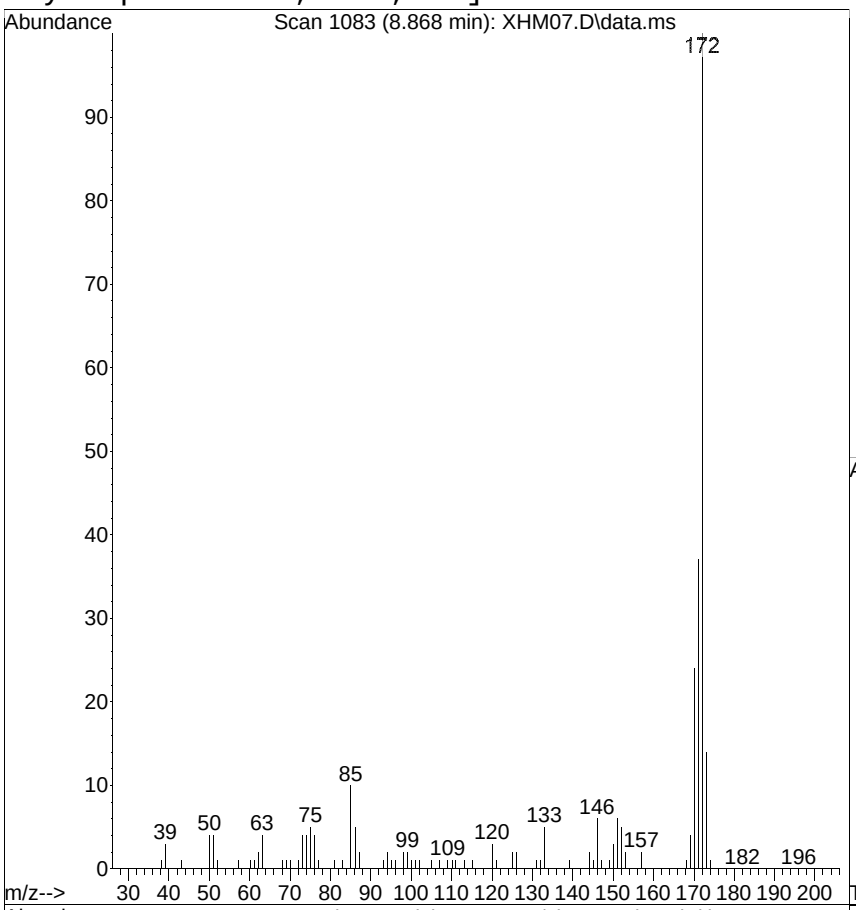




[2-Methylnaphthalene; <RL; u]

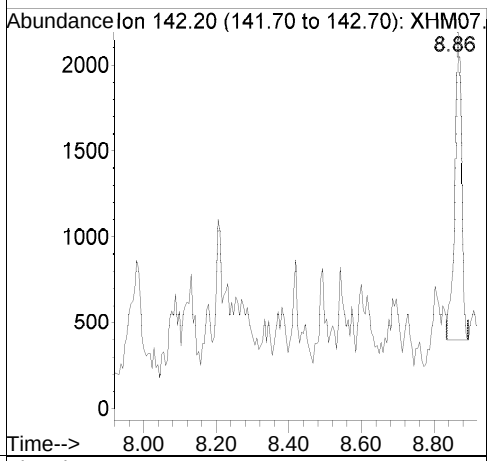
Raw



#34
2-Methylnaphthalene
Concen: 0.0345 ug/mL
RT: 8.868 min Scan# 1083
Delta R.T. 0.449 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

Tgt Ion:142 Resp: 2271

Ion	Ratio	Lower	Upper
142	100		
141	79.3	59.0	99.0



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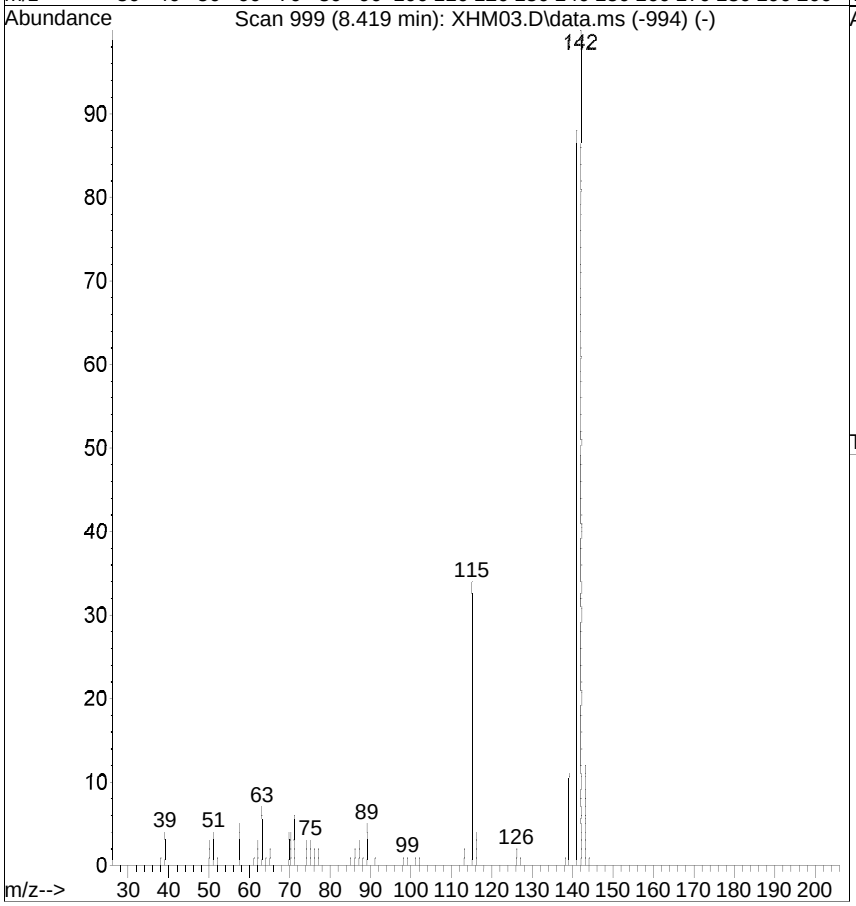
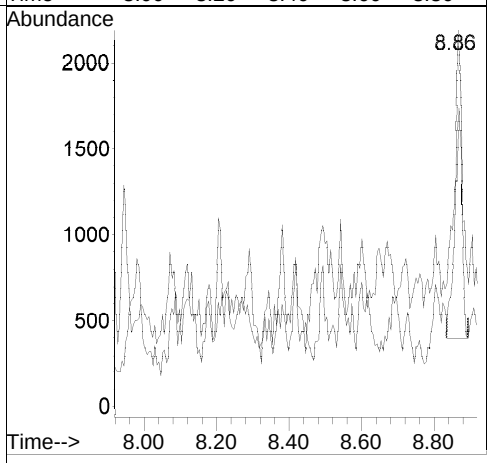
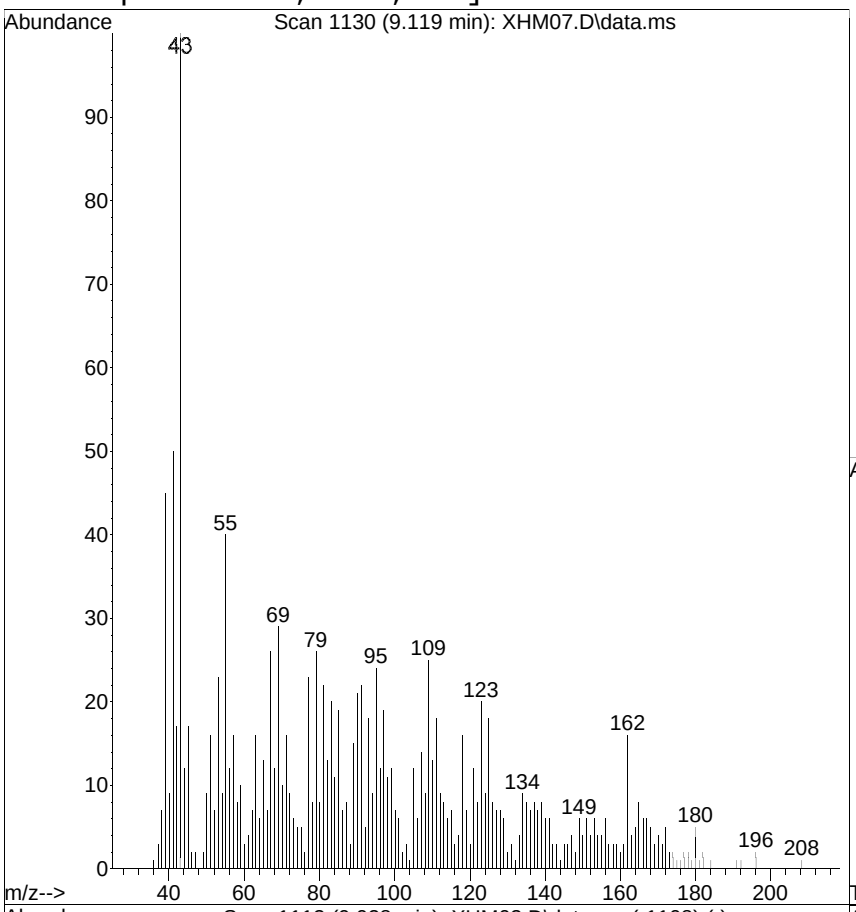




[2-Chloronaphthalene; <RL; u]

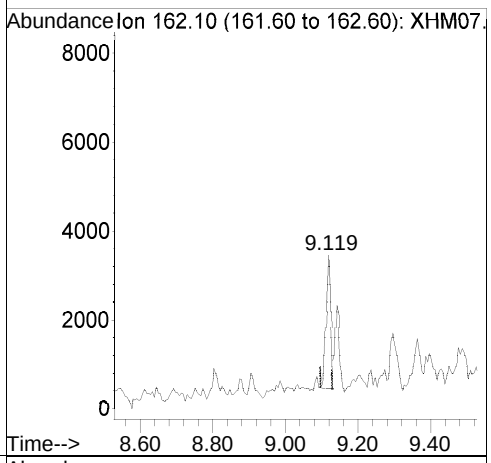
Raw



#41
2-Chloronaphthalene
Concen: 0.0423 ug/mL
RT: 9.119 min Scan# 1130
Delta R.T. 0.091 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

Tgt Ion:162 Resp: 2561

Ion	Ratio	Lower	Upper
162	100		
127	41.8	25.0	65.0
164	31.7	13.0	53.0



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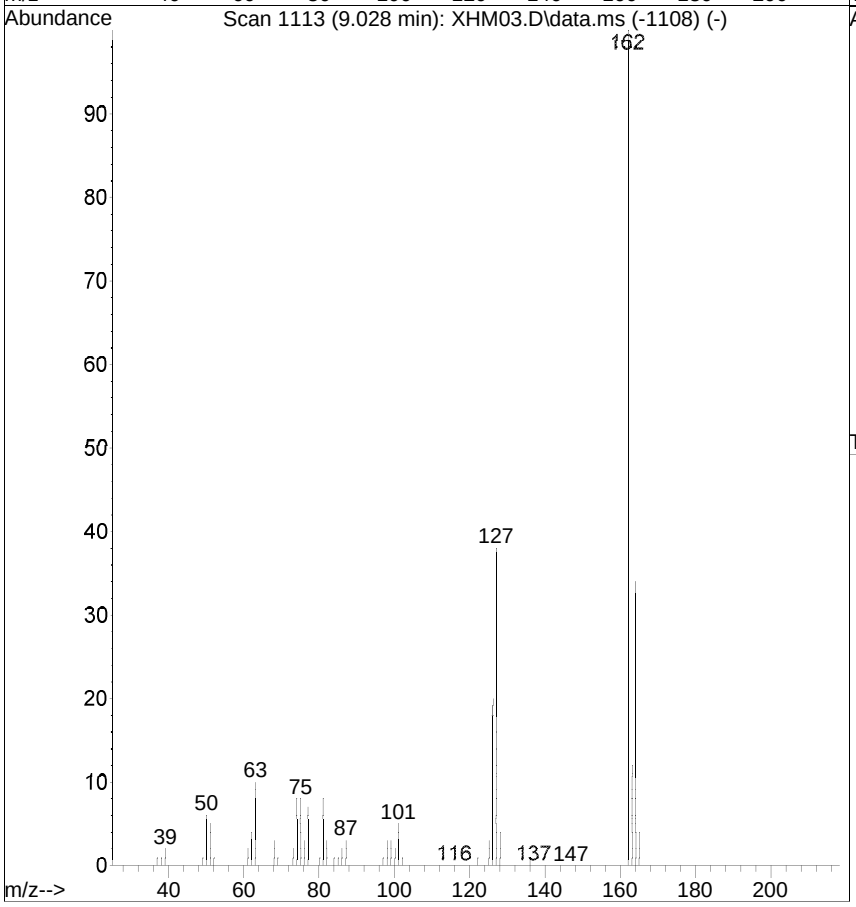
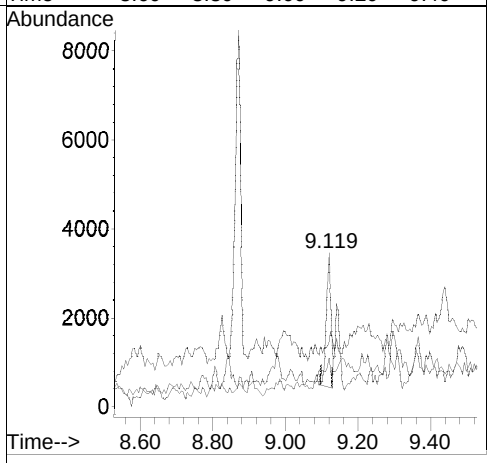
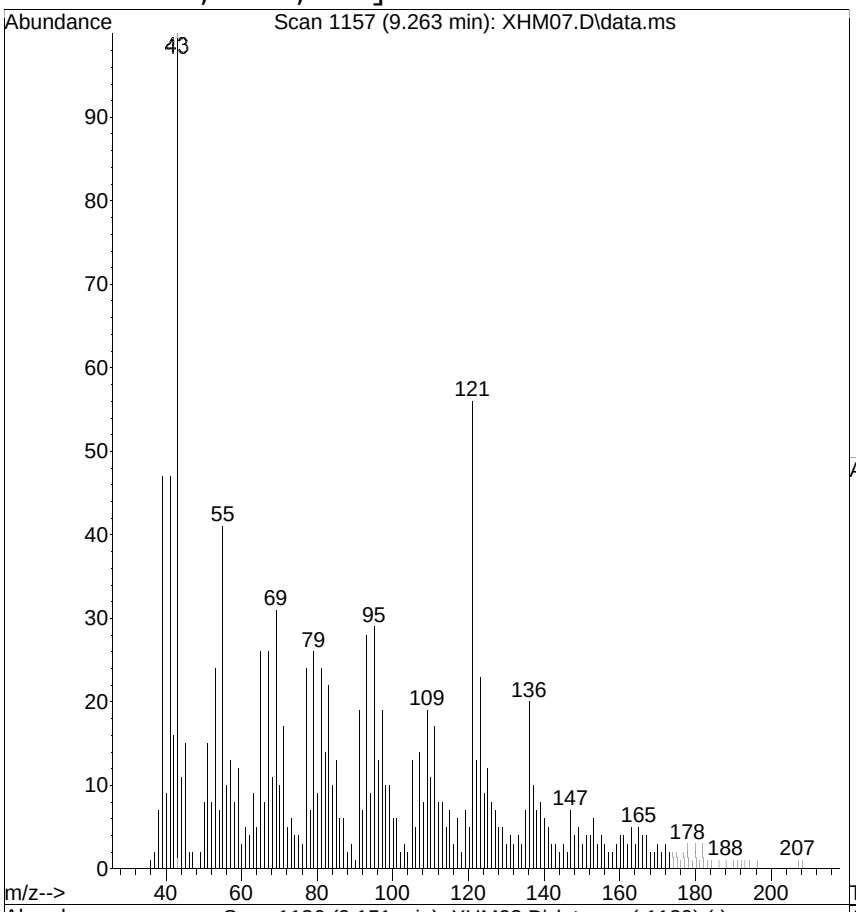




[2-Nitroaniline; <RL; u]

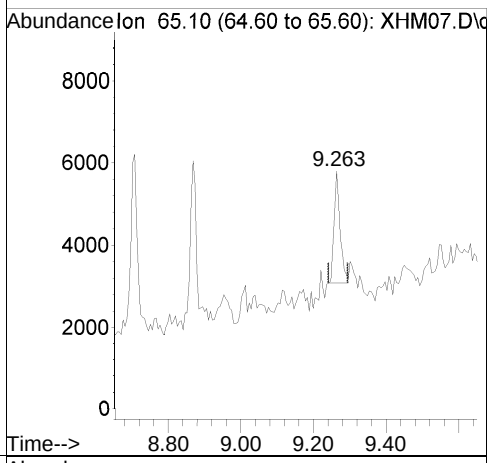
Raw



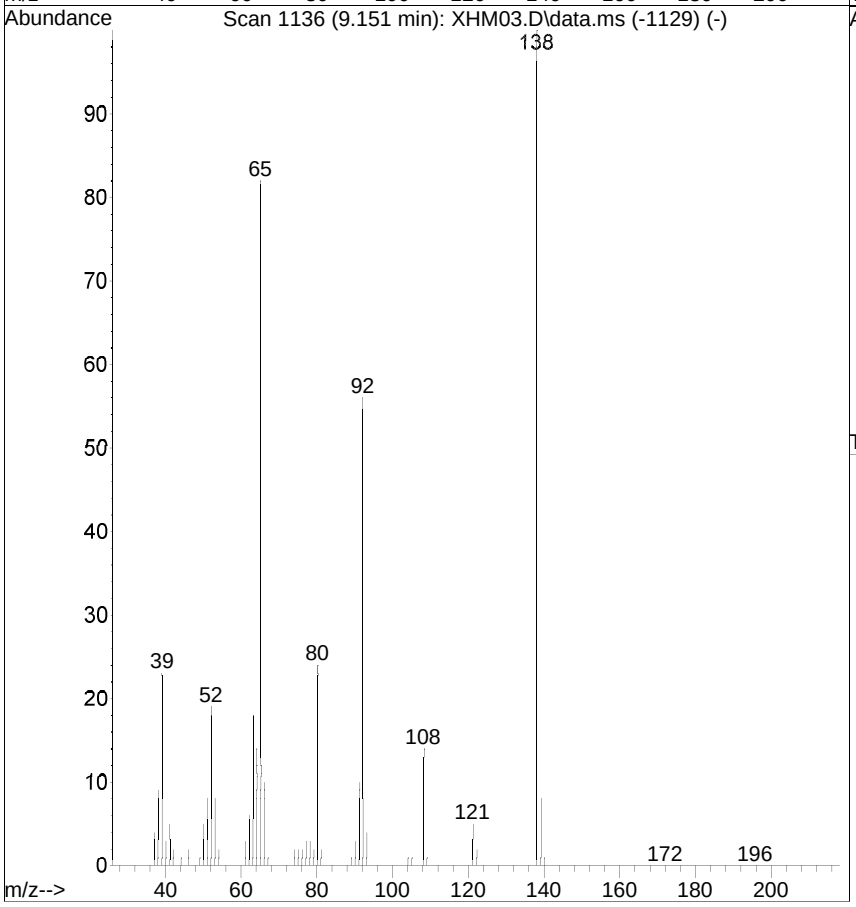
#42
2-Nitroaniline
Concen: 0.1501 ug/mL
RT: 9.263 min Scan# 1157
Delta R.T. 0.112 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

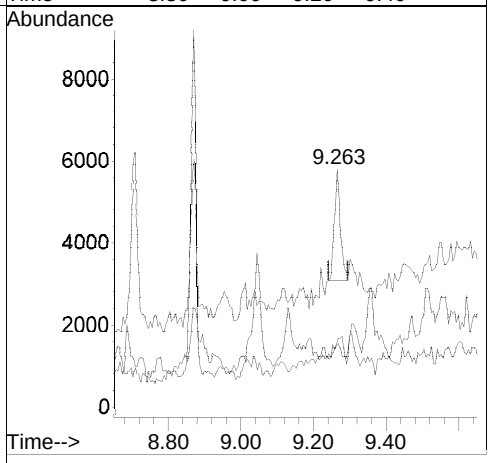
Tgt Ion: 65 Resp: 3123

Ion	Ratio	Lower	Upper
65	100		
92	25.5	46.0	86.0#
138	26.3	80.0	120.0#



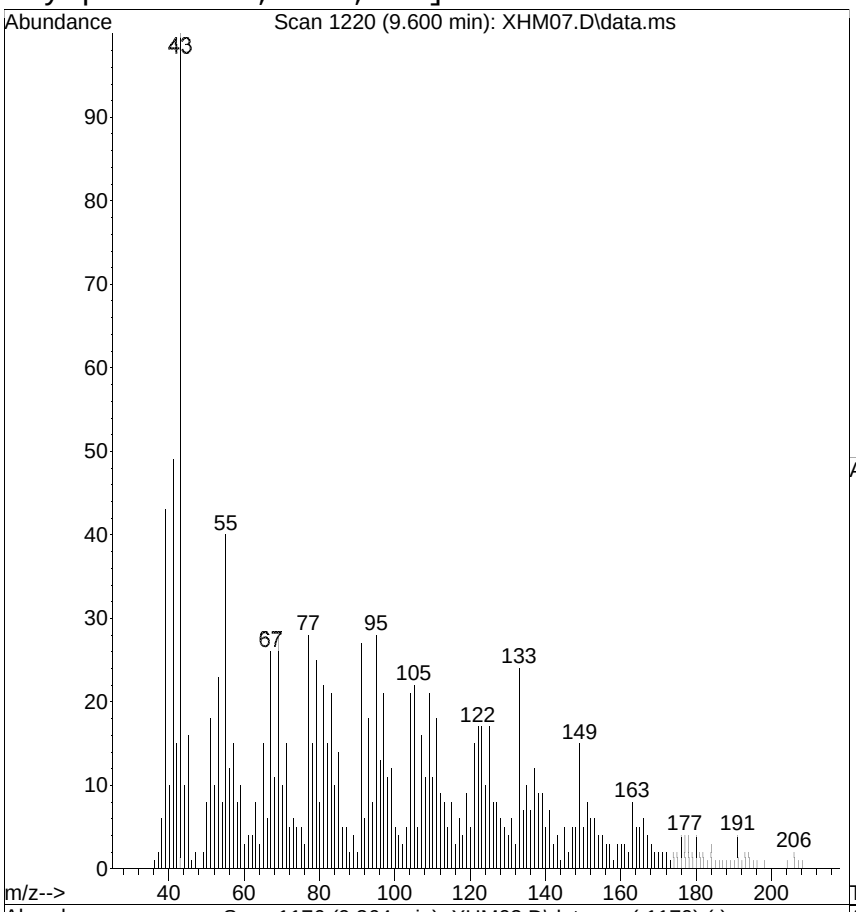
Ref





[Dimethylphthalate; <RL; u]

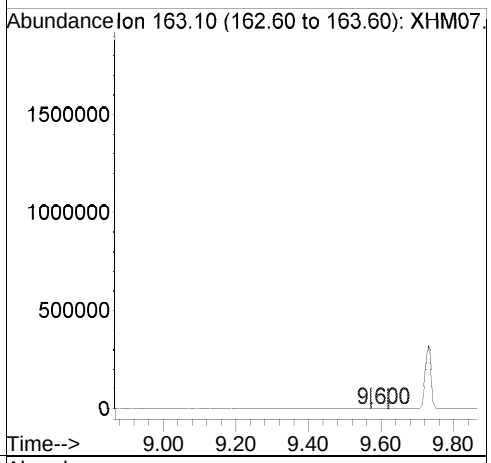
Raw



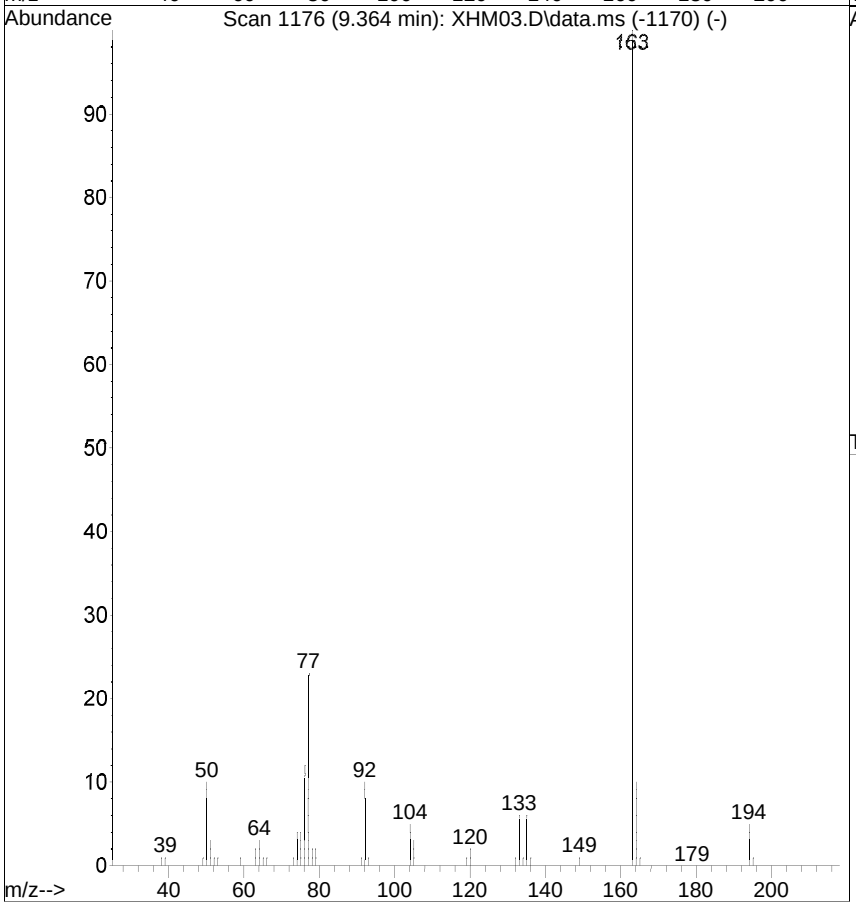
#43
Dimethylphthalate
Concen: 0.0200 ug/mL
RT: 9.600 min Scan# 1220
Delta R.T. 0.235 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

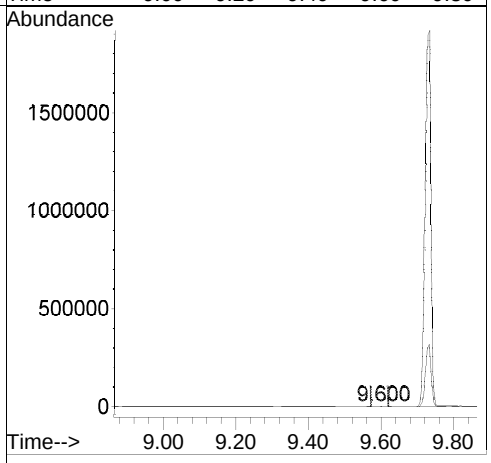
Tgt Ion:163 Resp: 1319

Ion	Ratio	Lower	Upper
163	100		
194	22.4	0.0	27.0
164	68.2	0.0	30.0#



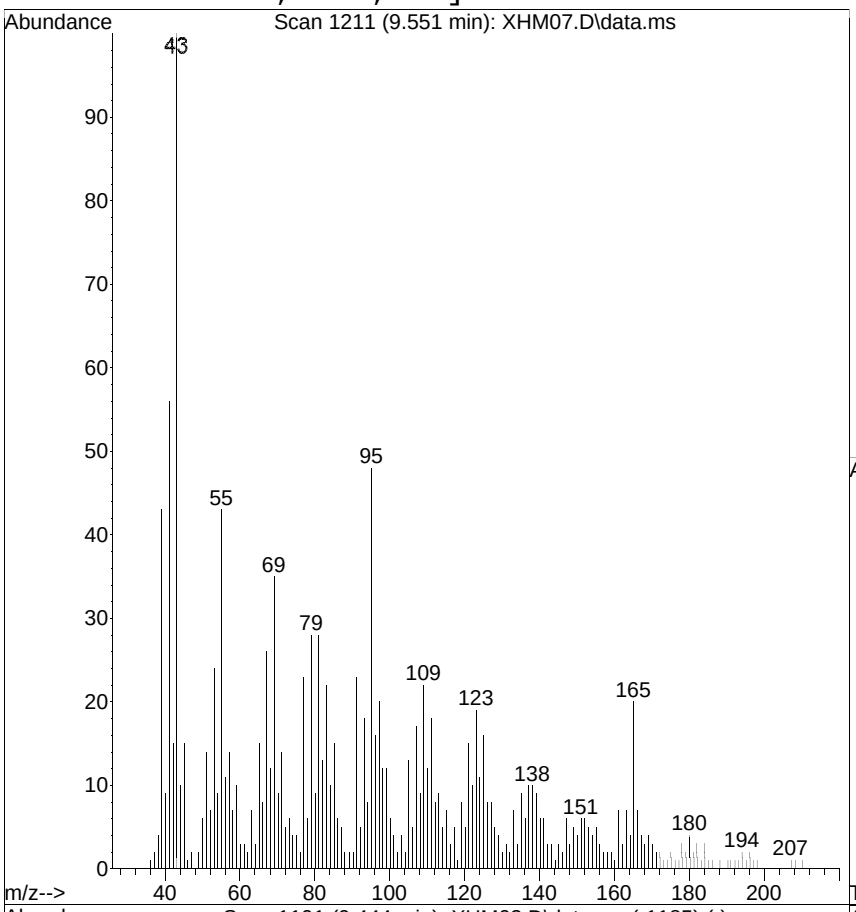
Ref





[2,6-Dinitrotoluene; <RL; u]

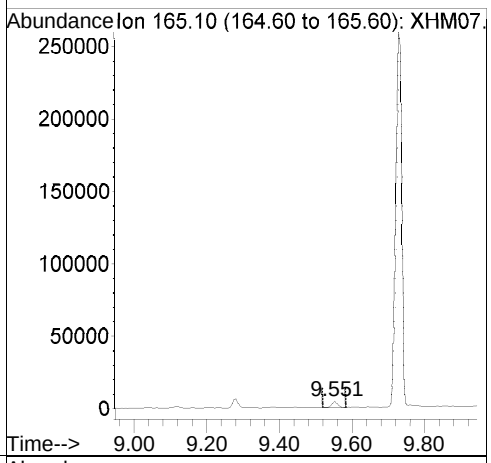
Raw



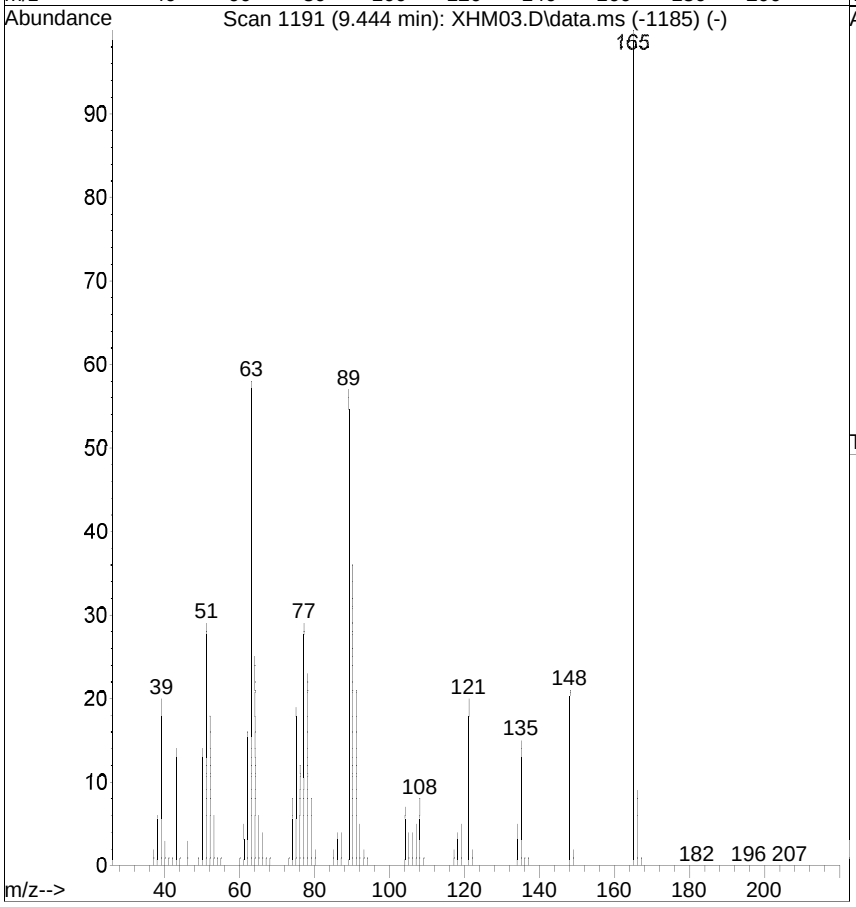
#44
2,6-Dinitrotoluene
Concen: 0.3275 ug/mL
RT: 9.551 min Scan# 1211
Delta R.T. 0.107 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

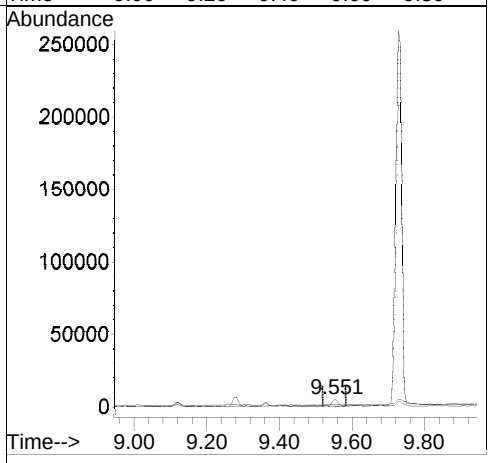
Tgt Ion:165 Resp: 5309

Ion	Ratio	Lower	Upper
165	100		
63	33.0	55.0	95.0#
89	11.4	46.0	86.0#



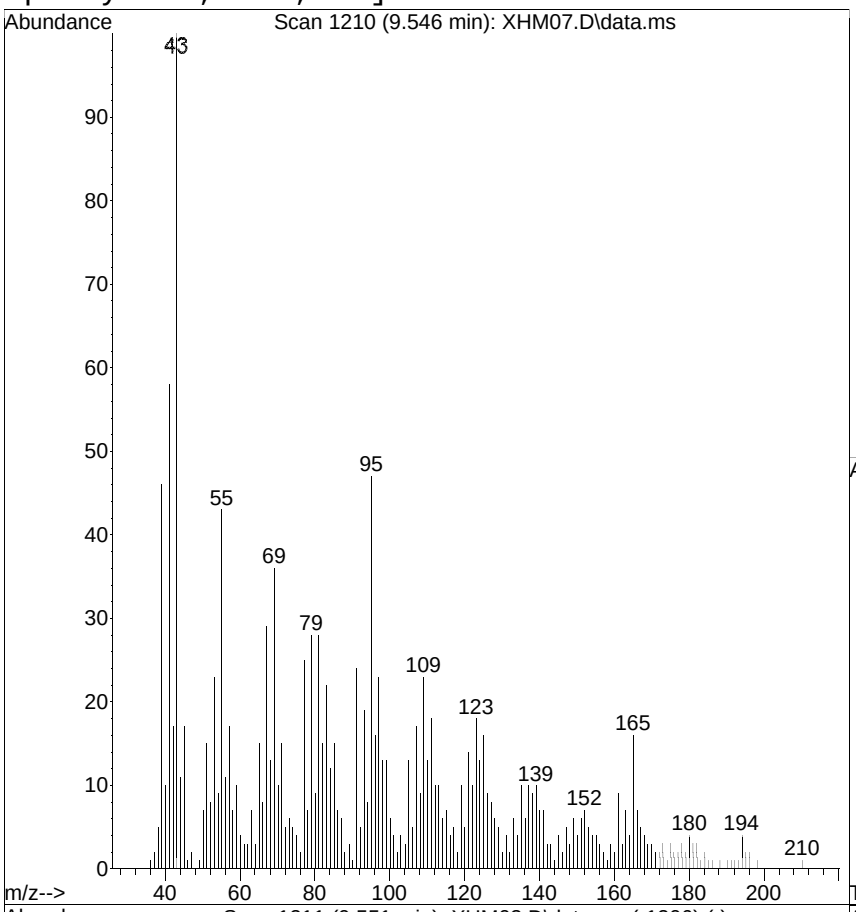
Ref





[Acenaphthylene; <RL; u]

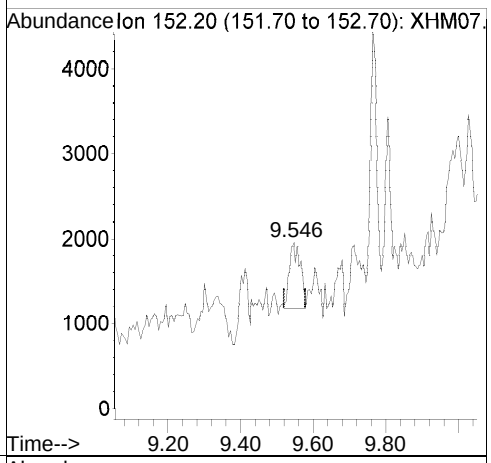
Raw



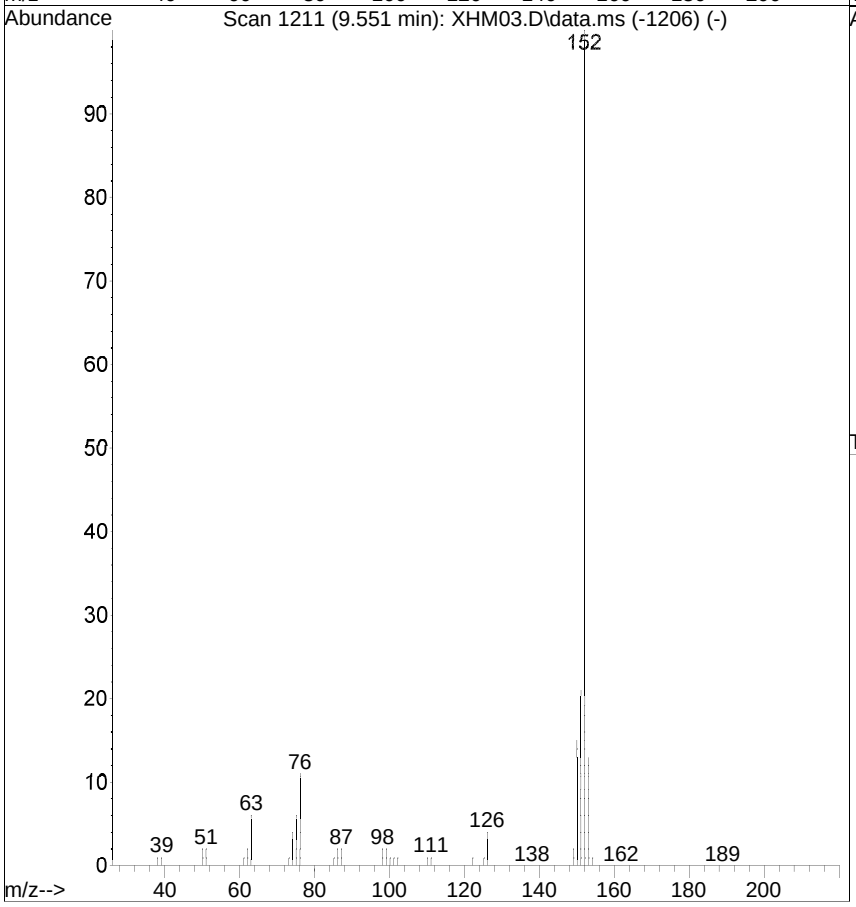
#45
Acenaphthylene
Concen: 0.0160 ug/mL
RT: 9.546 min Scan# 1210
Delta R.T. -0.005 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

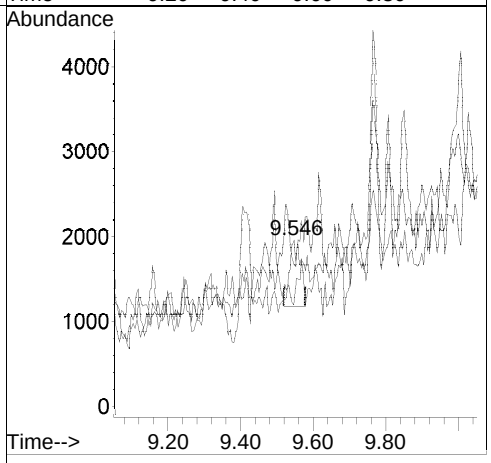
Tgt Ion:152 Resp: 1613

Ion	Ratio	Lower	Upper
152	100		
151	86.1	0.0	40.0#
153	61.0	0.0	34.0#



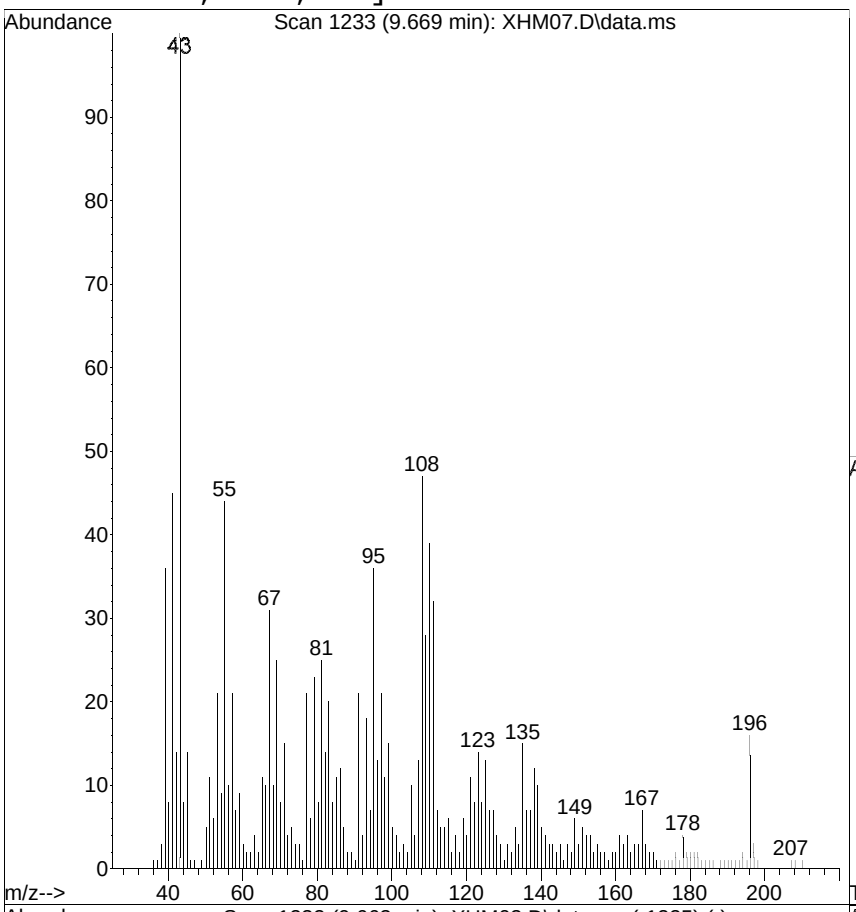
Ref





[3-Nitroaniline; <RL; u]

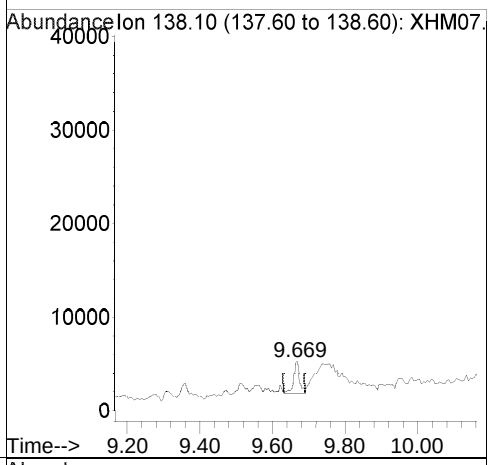
Raw



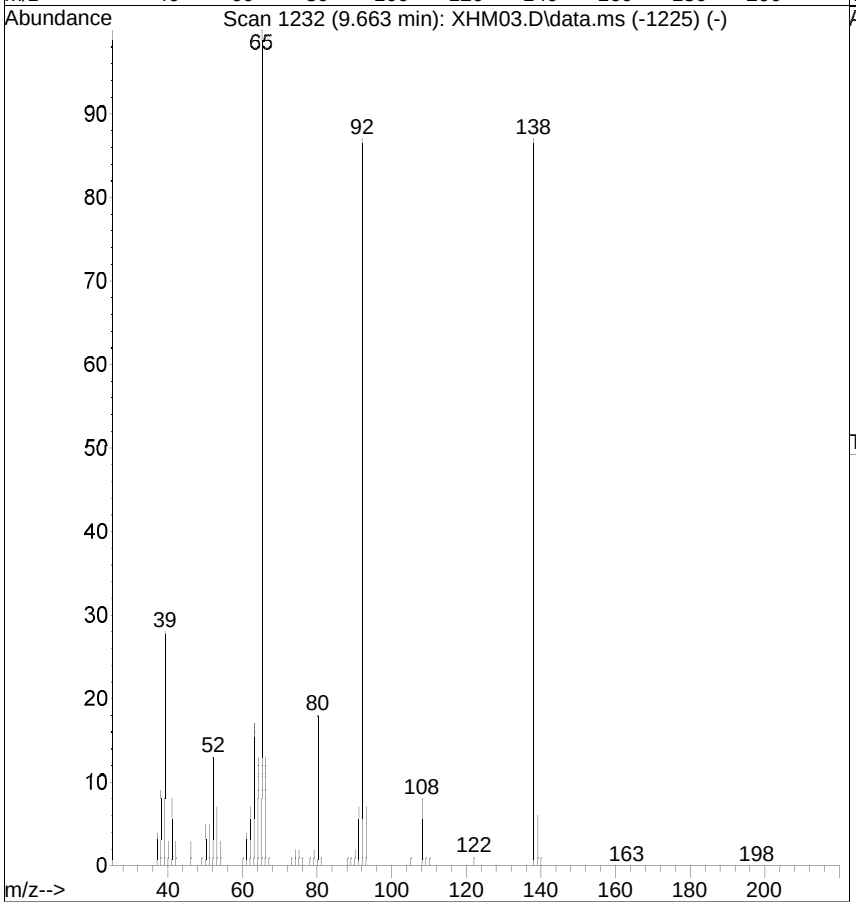
#46
3-Nitroaniline
Concen: 0.2318 ug/mL
RT: 9.669 min Scan# 1233
Delta R.T. 0.006 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

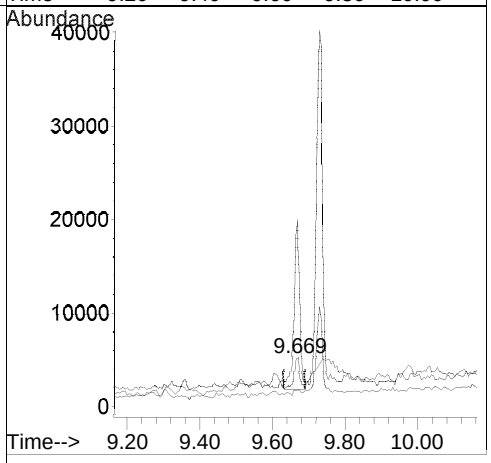
Tgt Ion:138 Resp: 4172

Ion	Ratio	Lower	Upper
138	100		
108	380.7	0.0	35.0#
92	33.3	131.0	171.0#



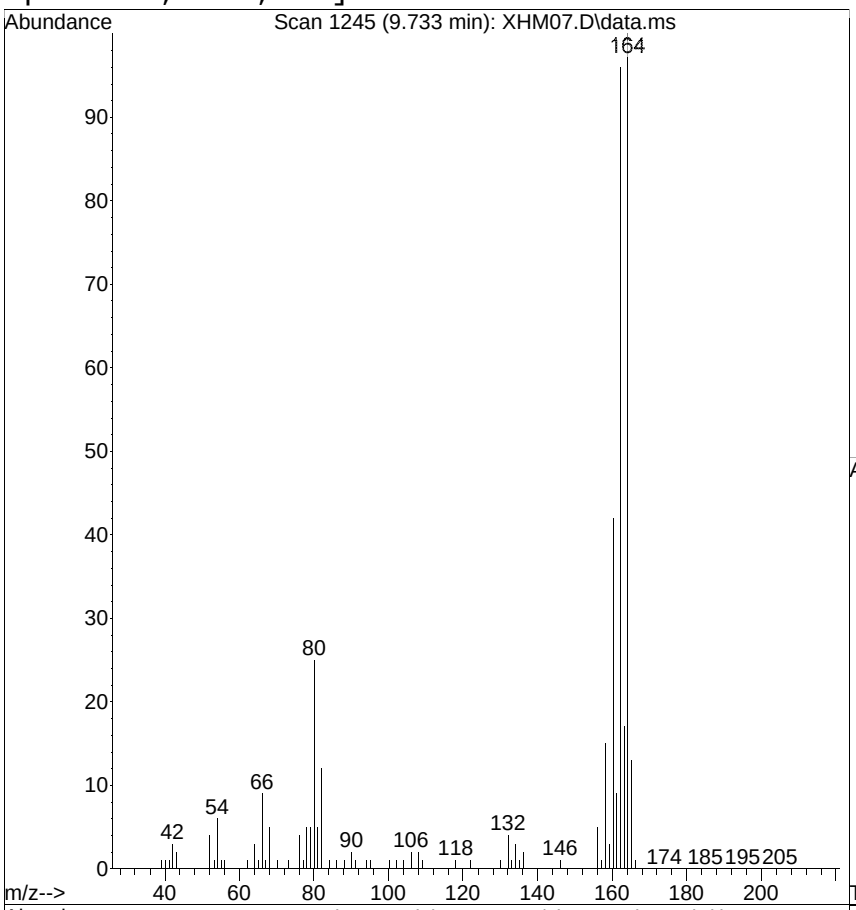
Ref





[Acenaphthene; <RL; u]

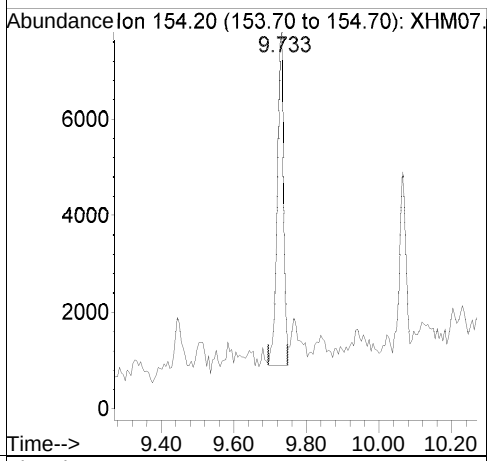
Raw



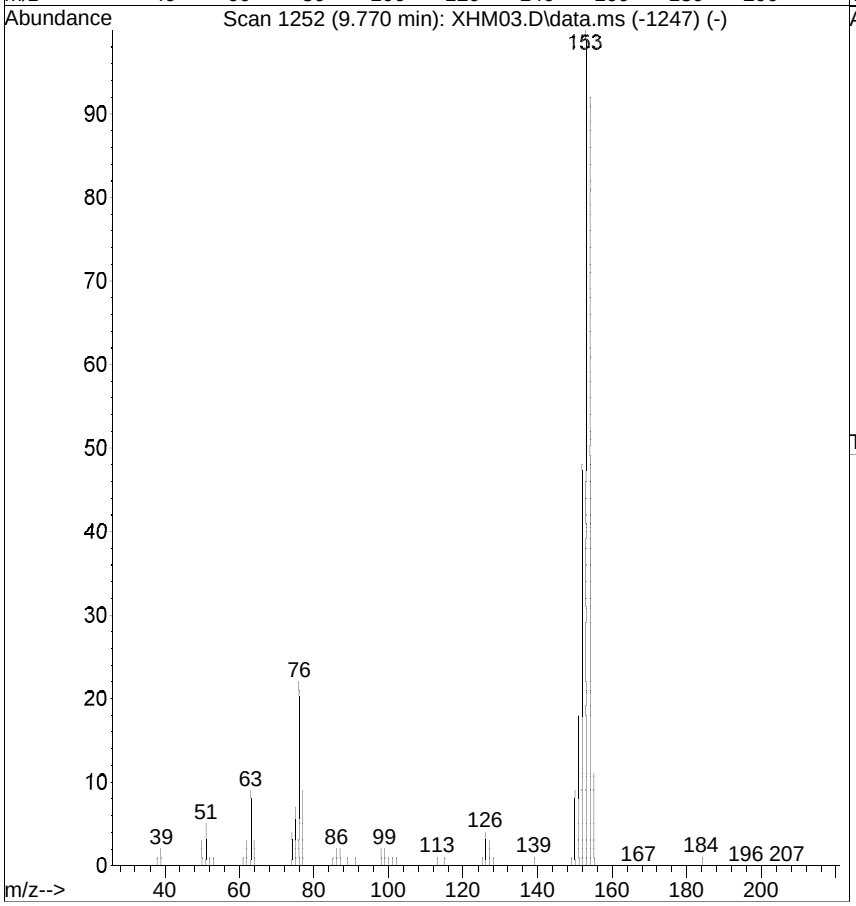
#47
Acenaphthene
Concen: 0.1324 ug/mL
RT: 9.733 min Scan# 1245
Delta R.T. -0.037 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

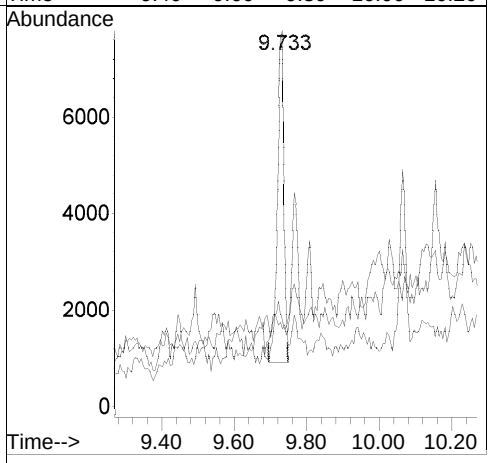
Tgt Ion:154 Resp: 8345

Ion	Ratio	Lower	Upper
154	100		
153	23.0	83.0	123.0#
152	20.9	36.0	76.0#



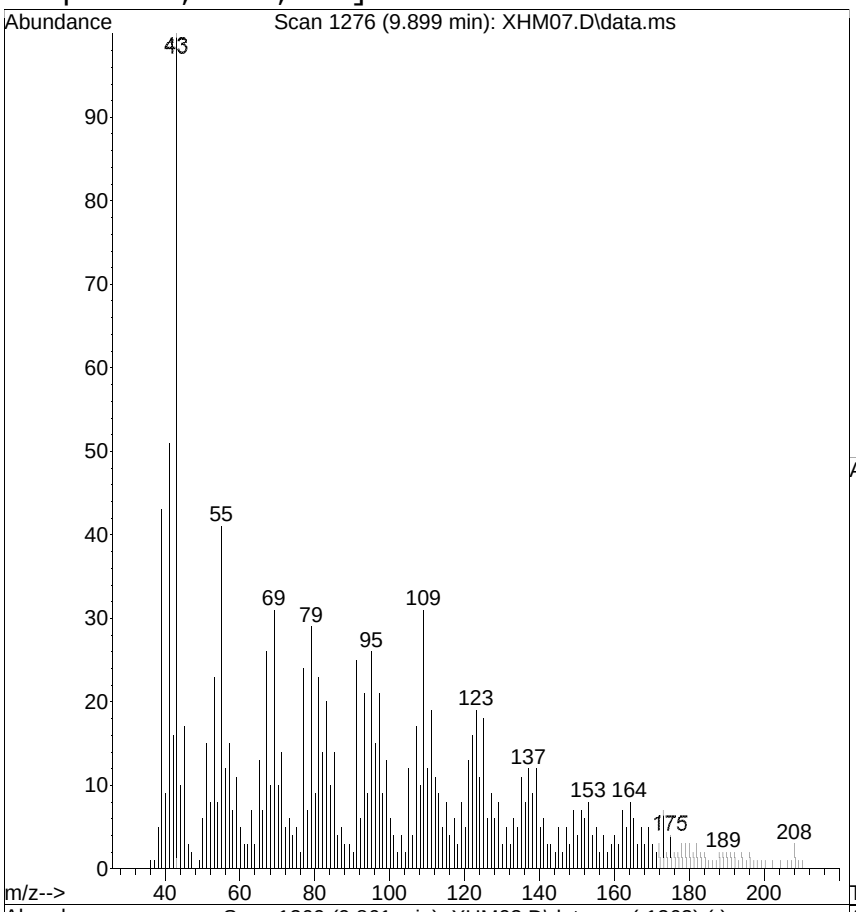
Ref





[4-Nitrophenol; <RL; u]

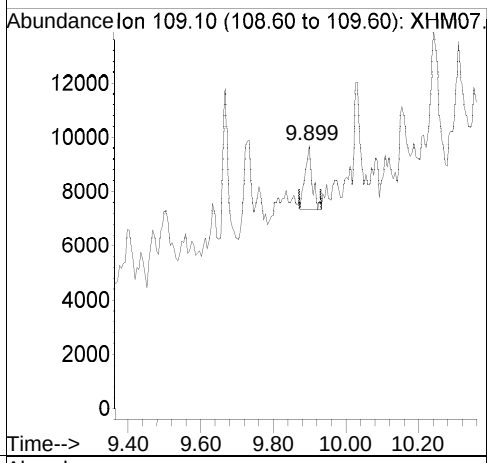
Raw



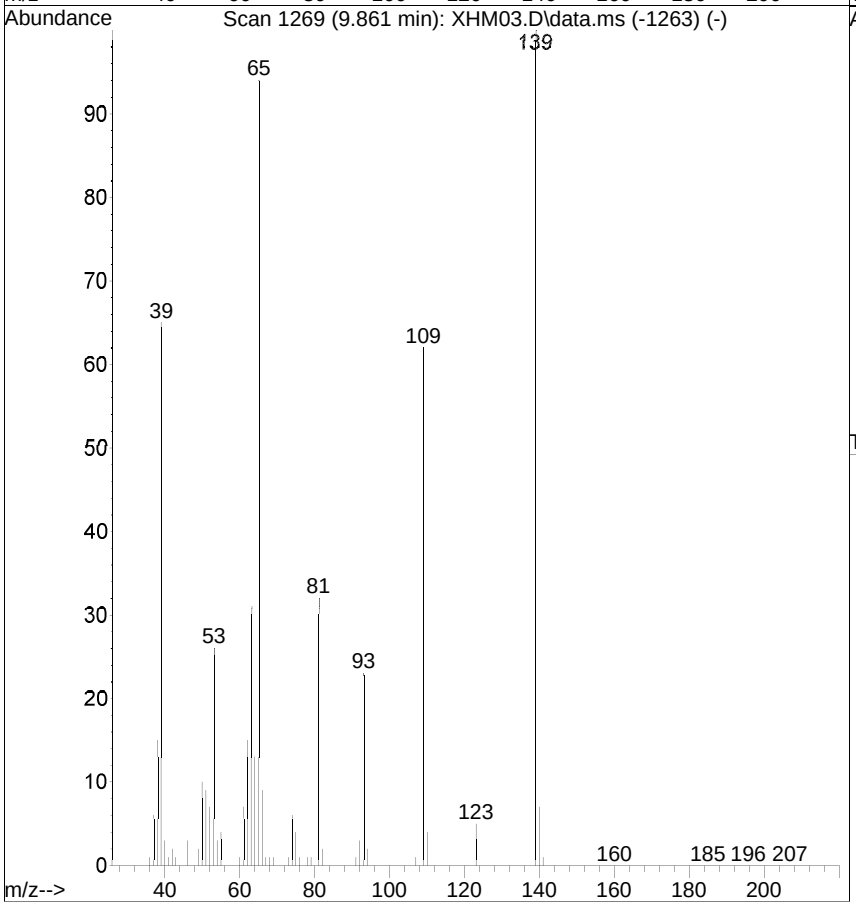
#49
4-Nitrophenol
Concen: 0.3333 ug/mL
RT: 9.899 min Scan# 1276
Delta R.T. 0.038 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

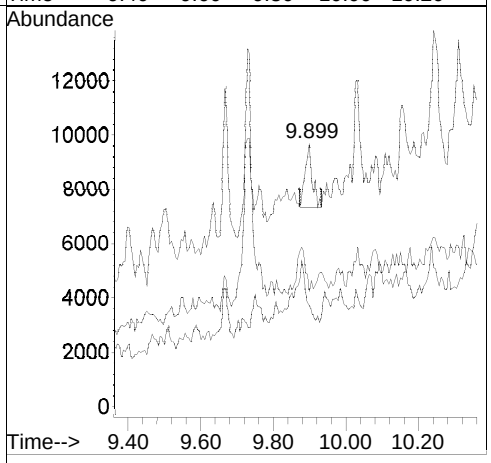
Tgt Ion:109 Resp: 3244

Ion	Ratio	Lower	Upper
109	100		
139	39.0	109.0	149.0#
65	43.8	122.0	162.0#



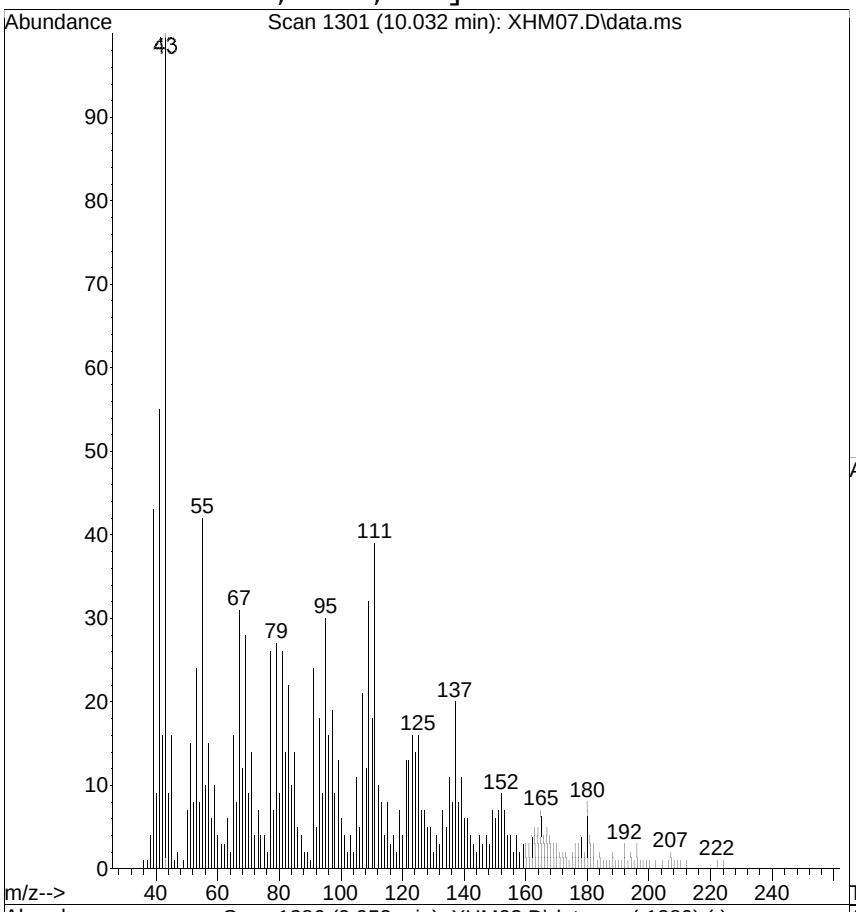
Ref





[2,4-Dinitrotoluene; <RL; u]

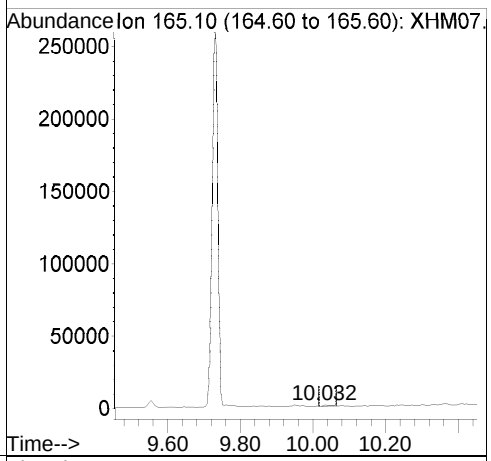
Raw



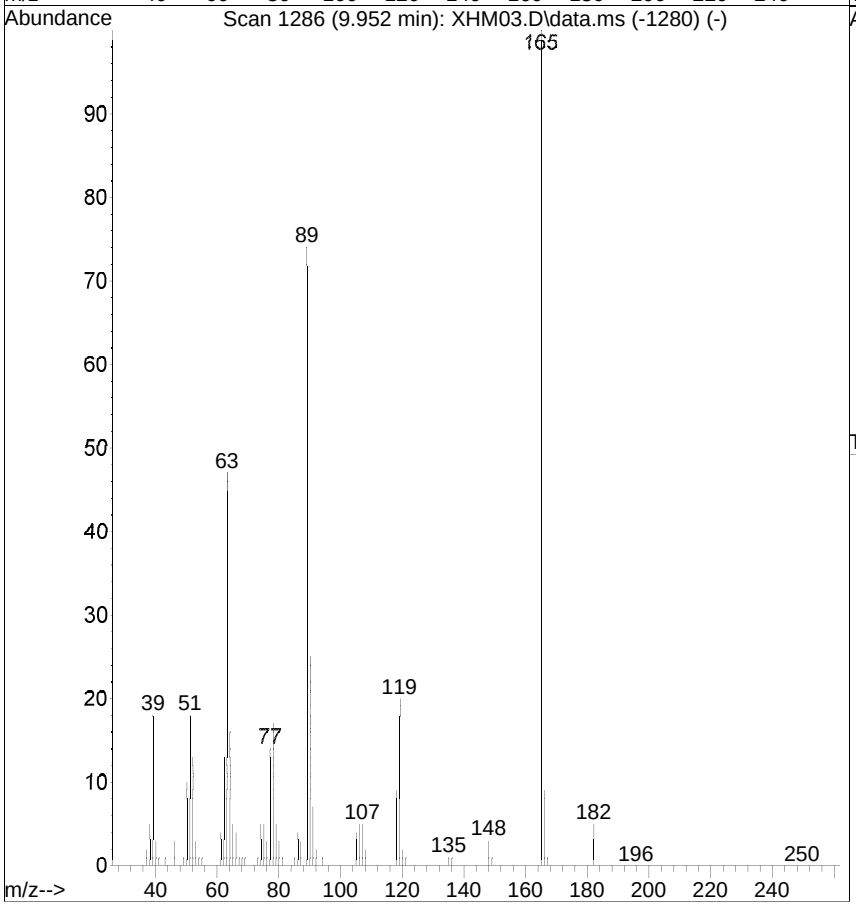
#51
2,4-Dinitrotoluene
Concen: 0.0515 ug/mL
RT: 10.032 min Scan# 1301
Delta R.T. 0.080 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

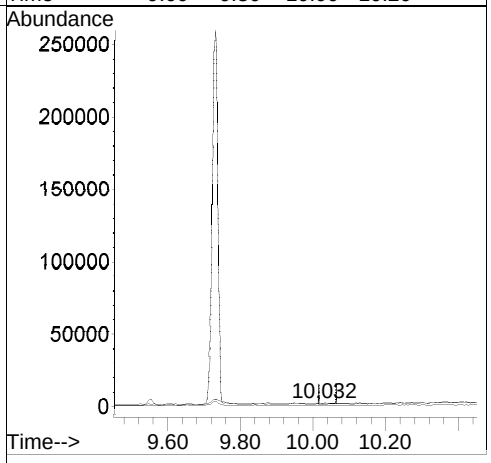
Tgt Ion:165 Resp: 1097

Ion	Ratio	Lower	Upper
165	100		
63	89.1	36.0	76.0#
89	33.0	64.0	104.0#



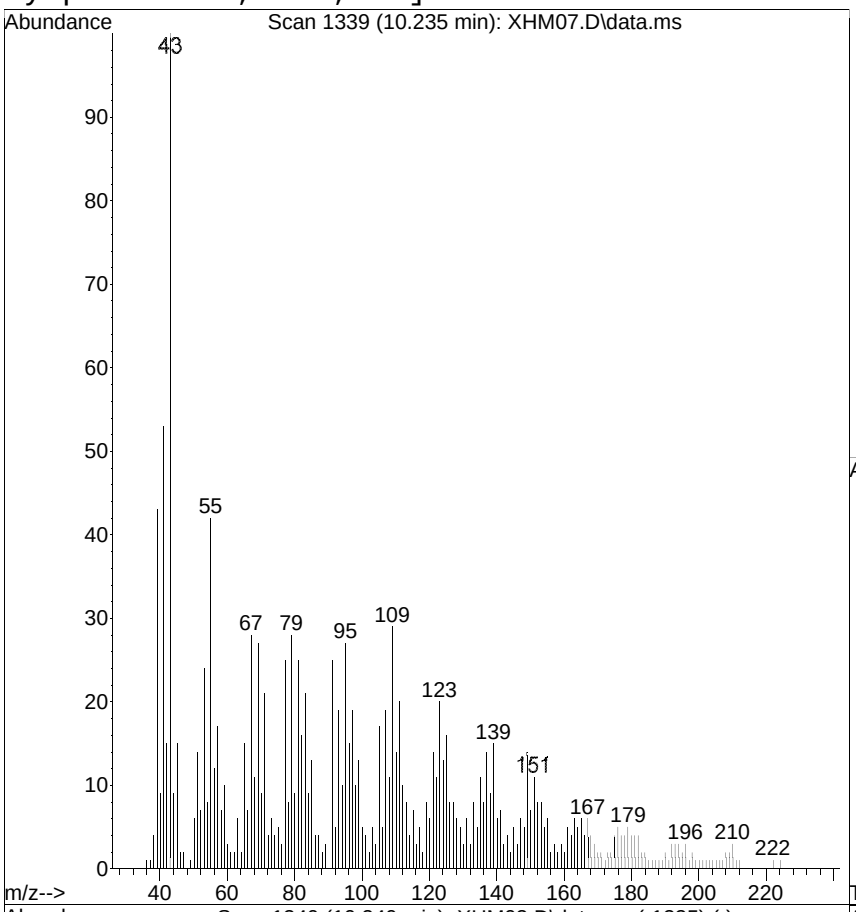
Ref





[Diethylphthalate; <RL; u]

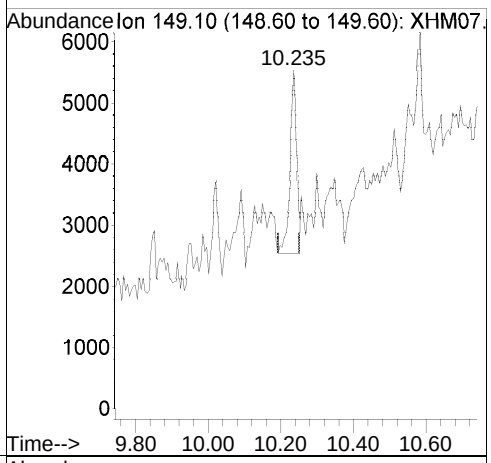
Raw



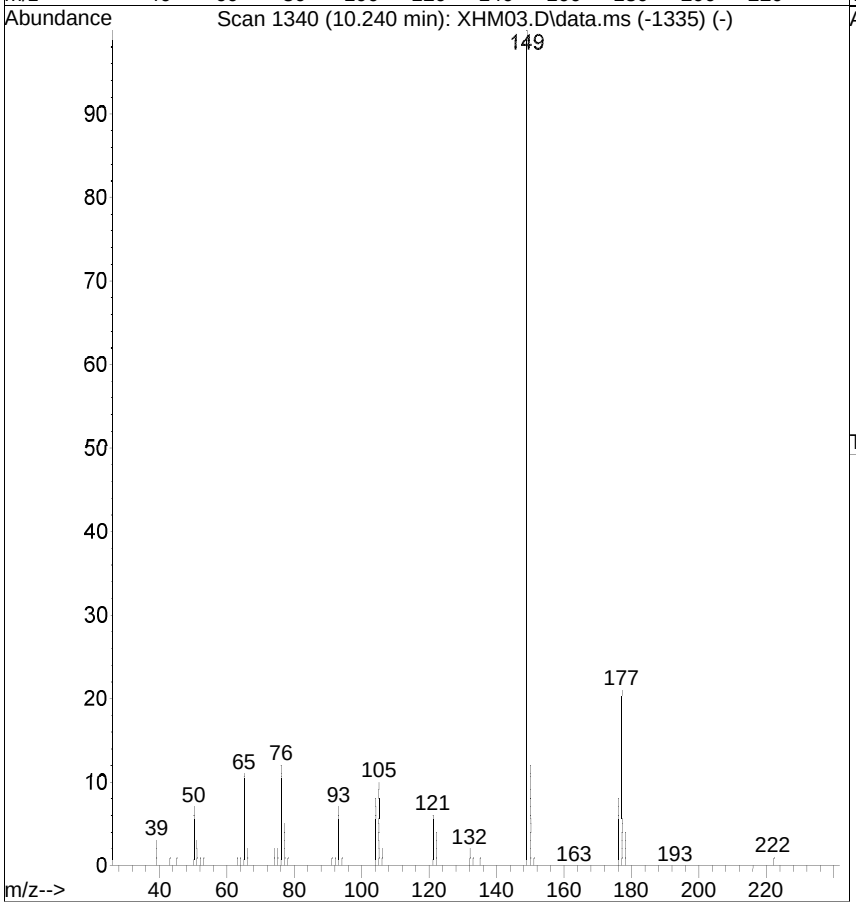
#53
Diethylphthalate
Concen: 0.0516 ug/mL
RT: 10.235 min Scan# 1339
Delta R.T. -0.005 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

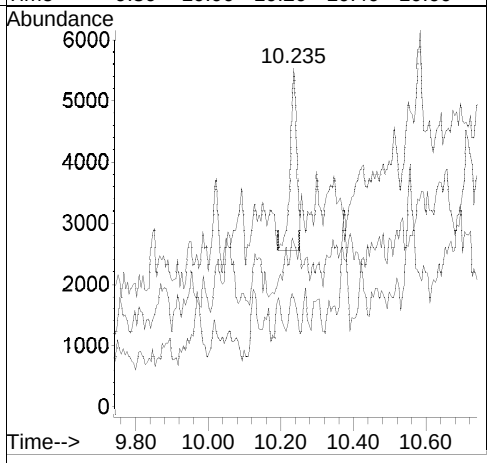
Tgt Ion:149 Resp: 3806

Ion	Ratio	Lower	Upper
149	100		
177	31.6	1.0	41.0
150	48.2	0.0	32.0#



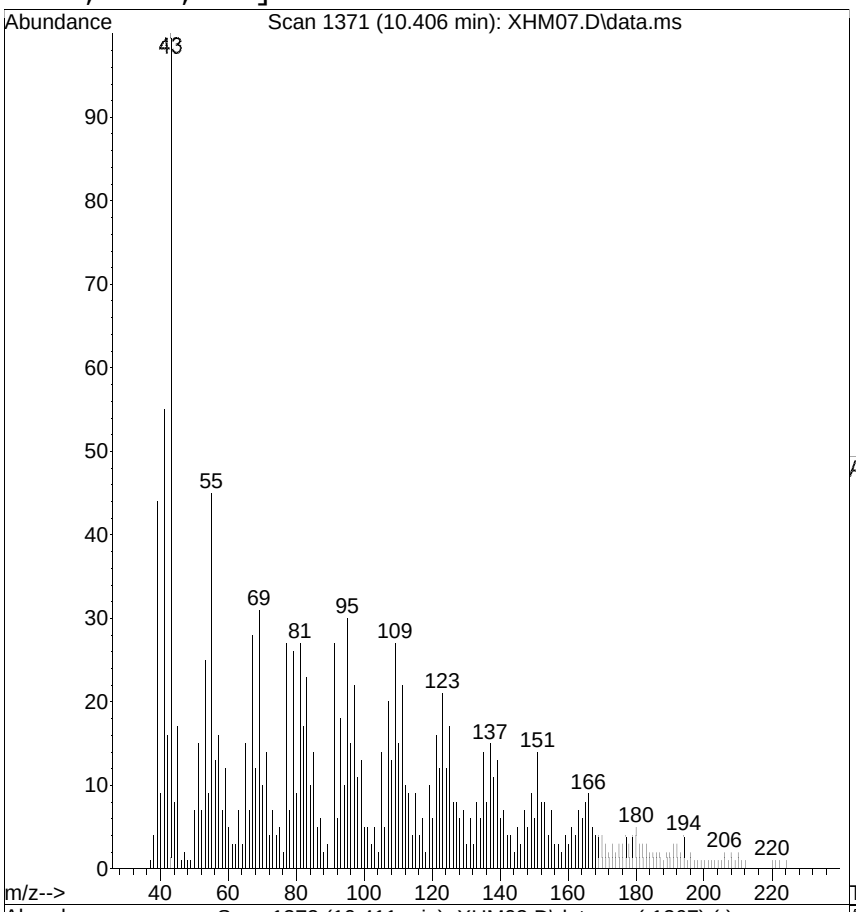
Ref





[Fluorene; <RL; u]

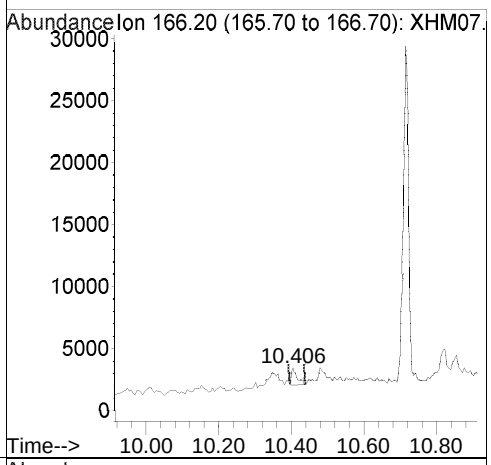
Raw



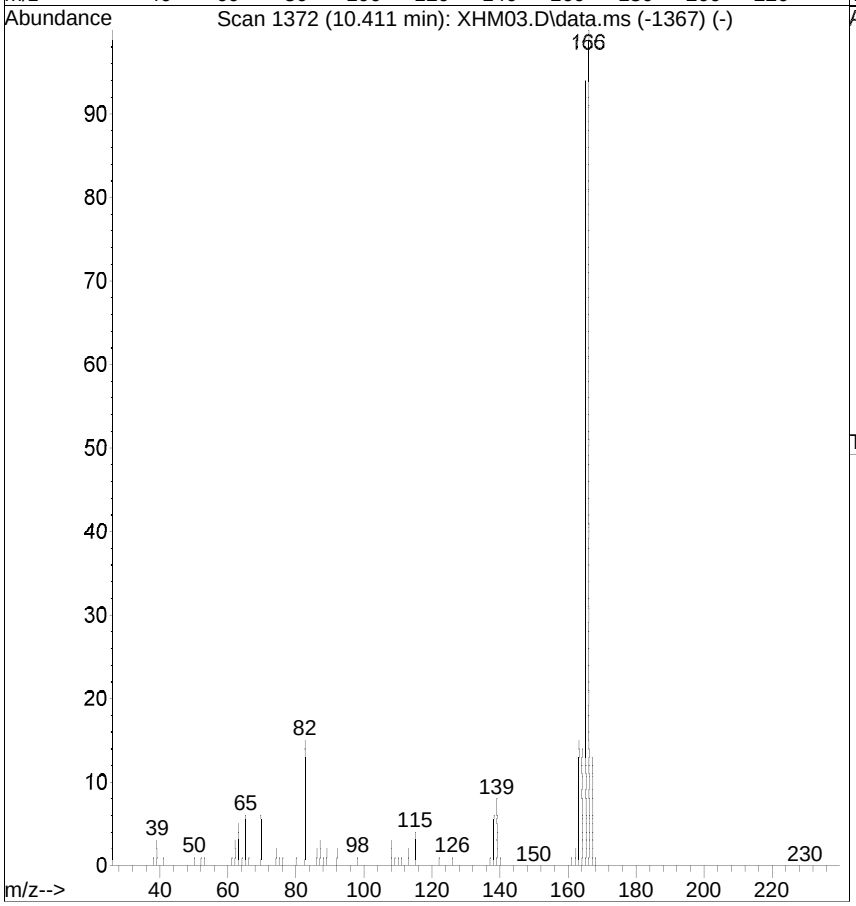
#55
Fluorene
Concen: 0.0197 ug/mL
RT: 10.406 min Scan# 1371
Delta R.T. -0.005 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

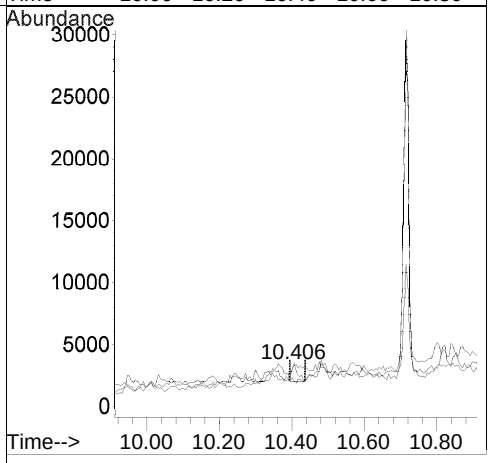
Tgt Ion:166 Resp: 1414

Ion	Ratio	Lower	Upper
166	100		
165	95.4	60.0	100.0
167	61.4	0.0	35.0#



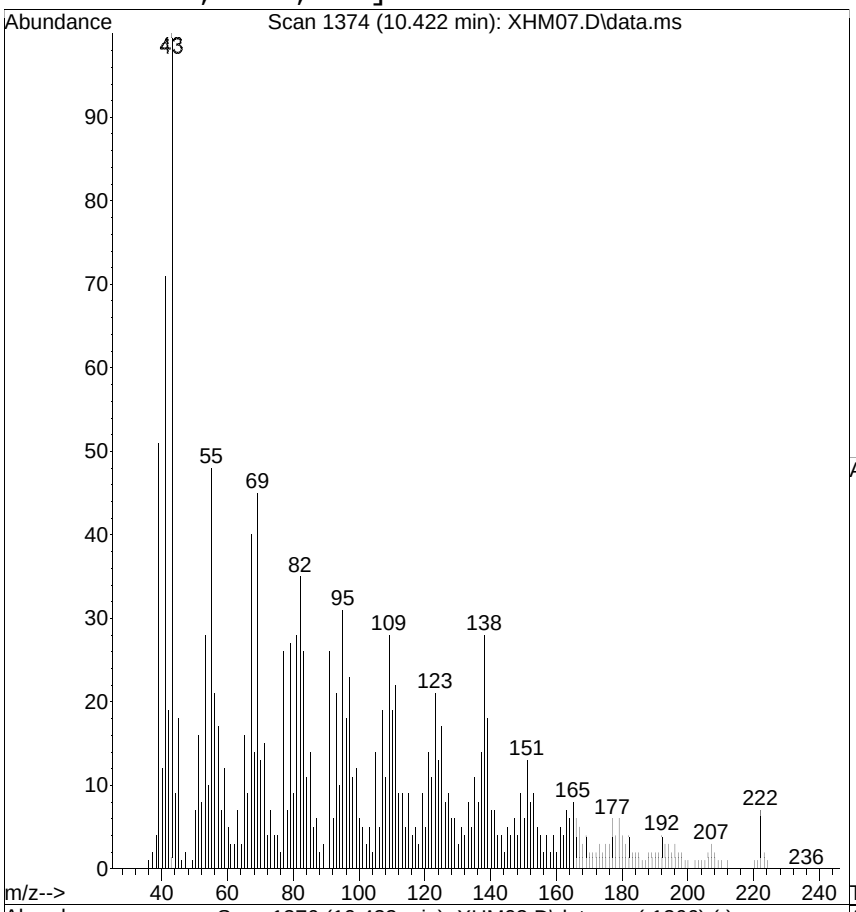
Ref





[4-Nitroaniline; <RL; u]

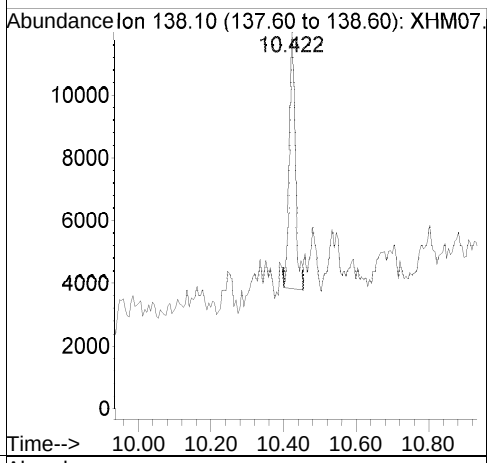
Raw



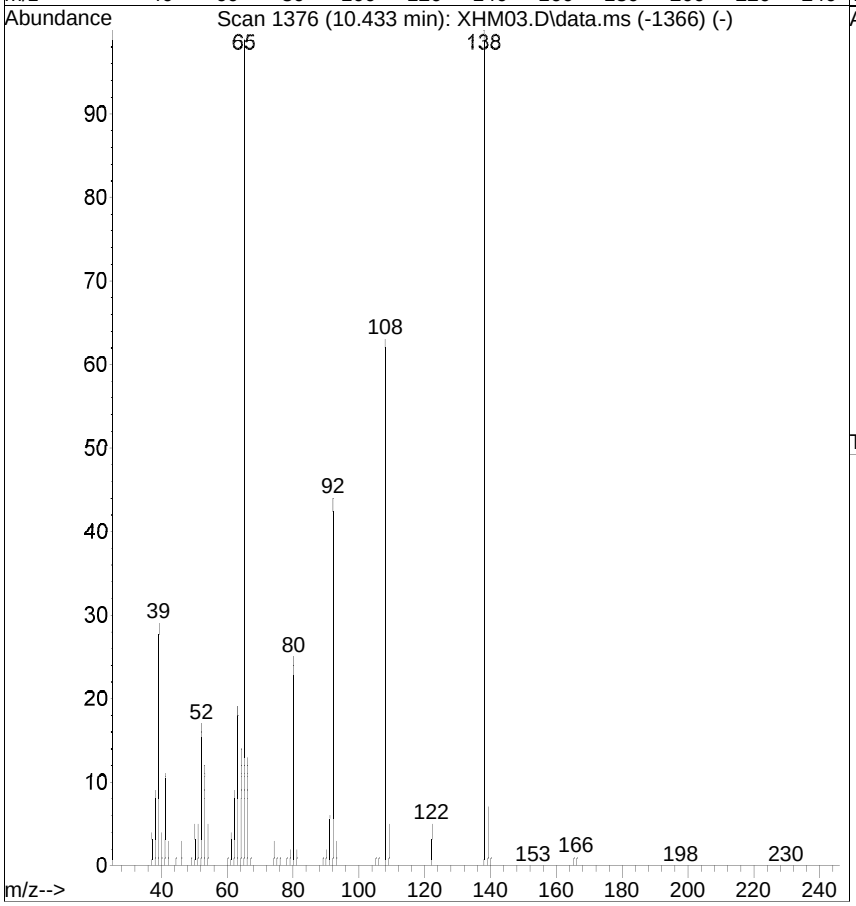
#56
4-Nitroaniline
Concen: 0.4897 ug/mL
RT: 10.422 min Scan# 1374
Delta R.T. -0.010 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

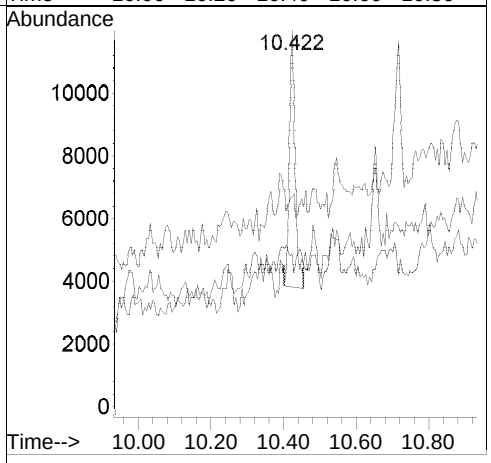
Tgt Ion:138 Resp: 9135

Ion	Ratio	Lower	Upper
138	100		
65	55.7	10.0	50.0#
108	40.7	13.0	53.0



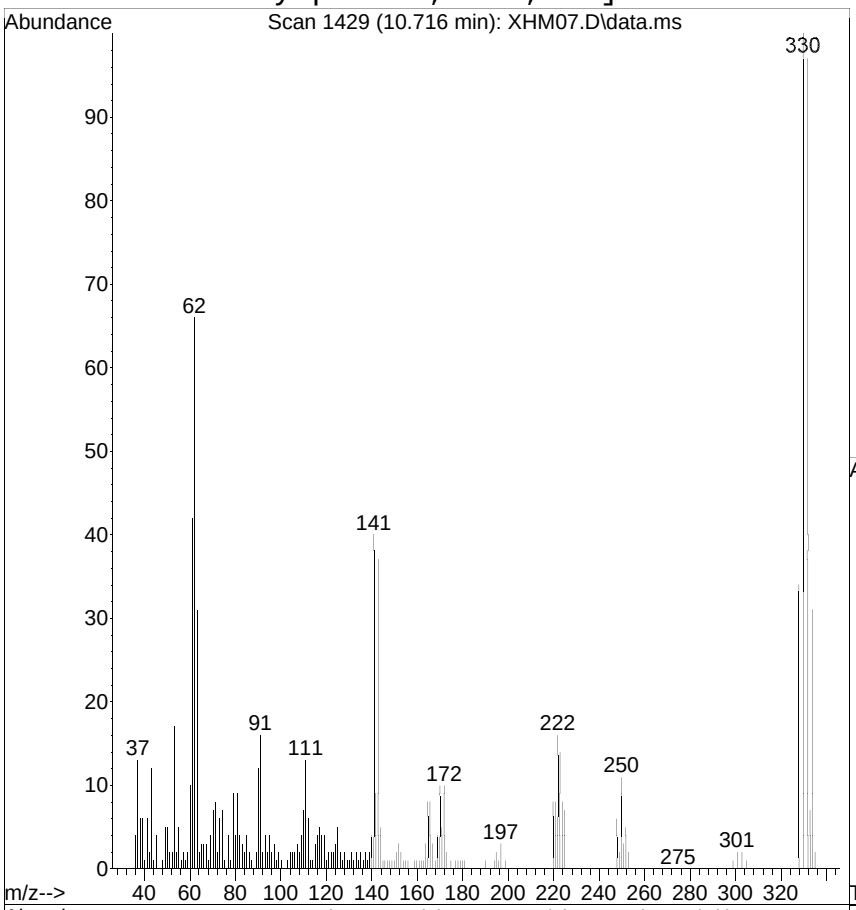
Ref





[4,6-Dinitro-2-methylphenol; <RL; u]

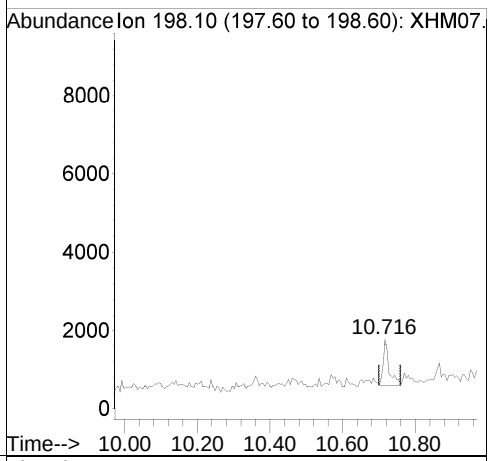
Raw



#59
4,6-Dinitro-2-methylphenol
Concen: 0.1076 ug/mL
RT: 10.716 min Scan# 1429
Delta R.T. 0.246 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

Tgt Ion:198 Resp: 1337

Ion	Ratio	Lower	Upper
198	100		
51	485.7	45.0	85.0#
105	515.6	24.0	64.0#



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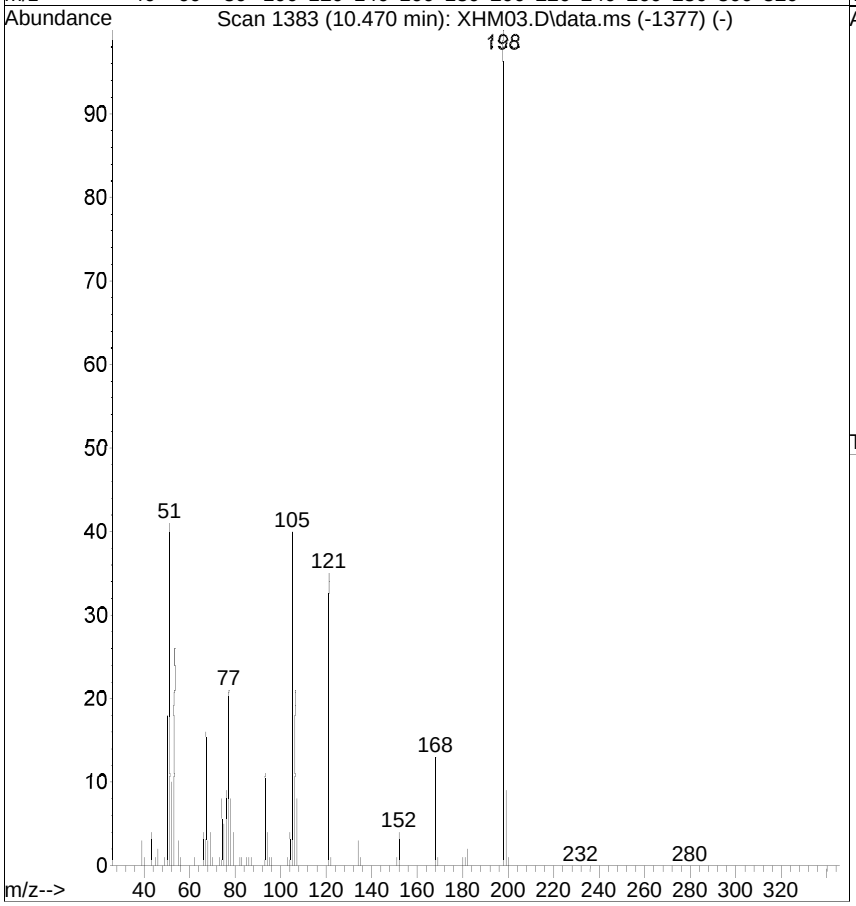
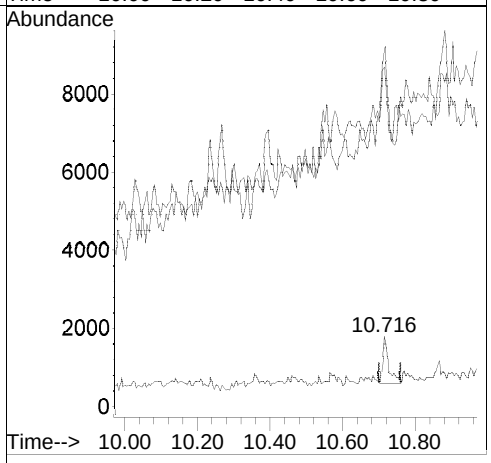
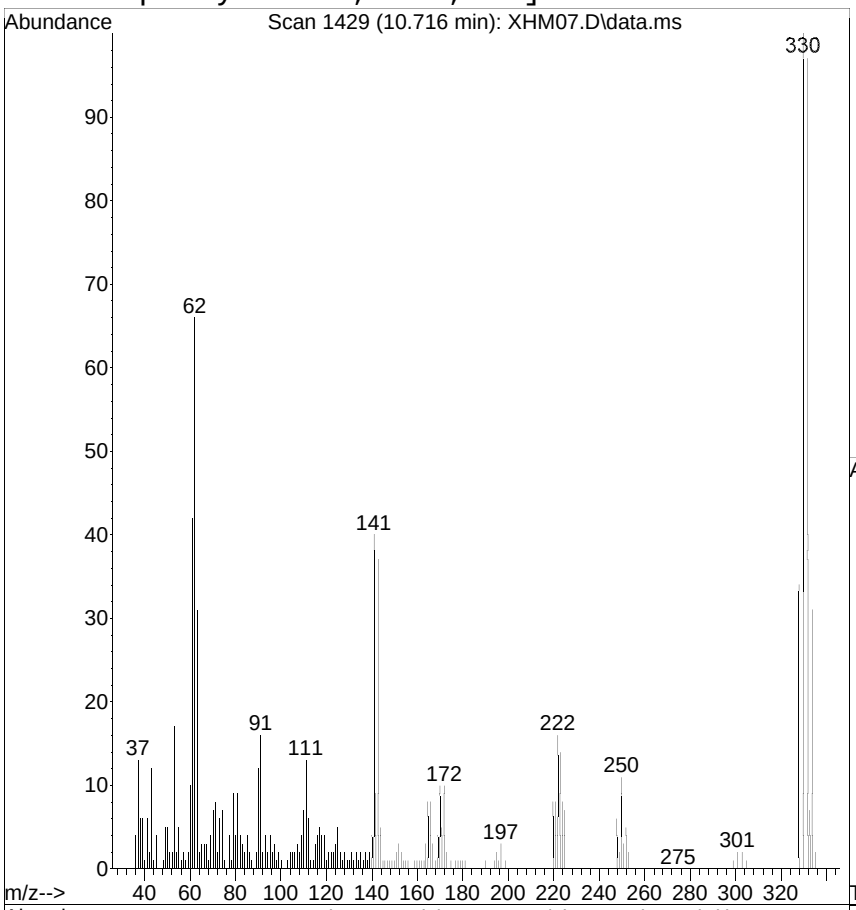




[N-Nitrosodiphenylamine; <RL; u]

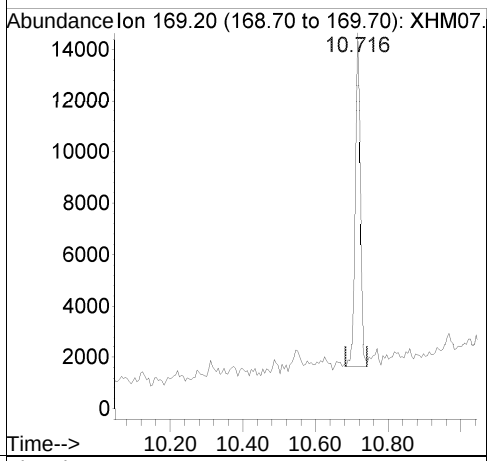
Raw



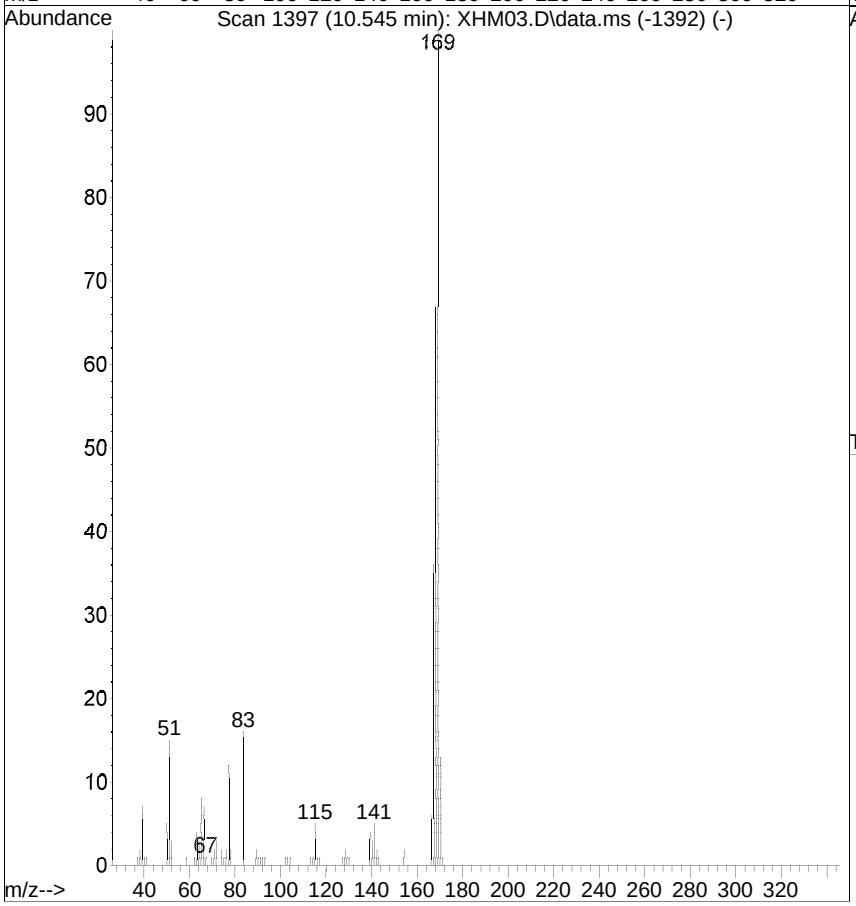
#60
N-Nitrosodiphenylamine
Concen: 0.2352 ug/mL
RT: 10.716 min Scan# 1429
Delta R.T. 0.171 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

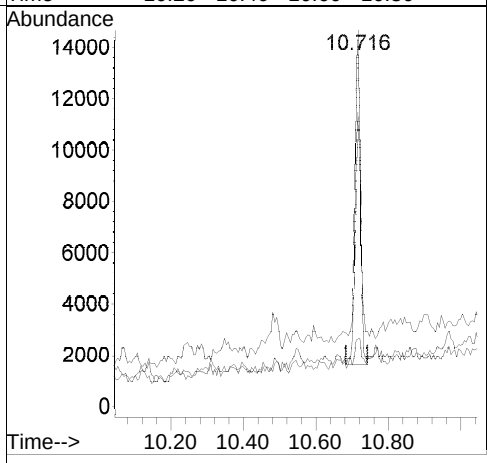
Tgt Ion:169 Resp: 13039

Ion	Ratio	Lower	Upper
169	100		
168	18.0	47.0	87.0#
167	78.3	1.0	41.0#



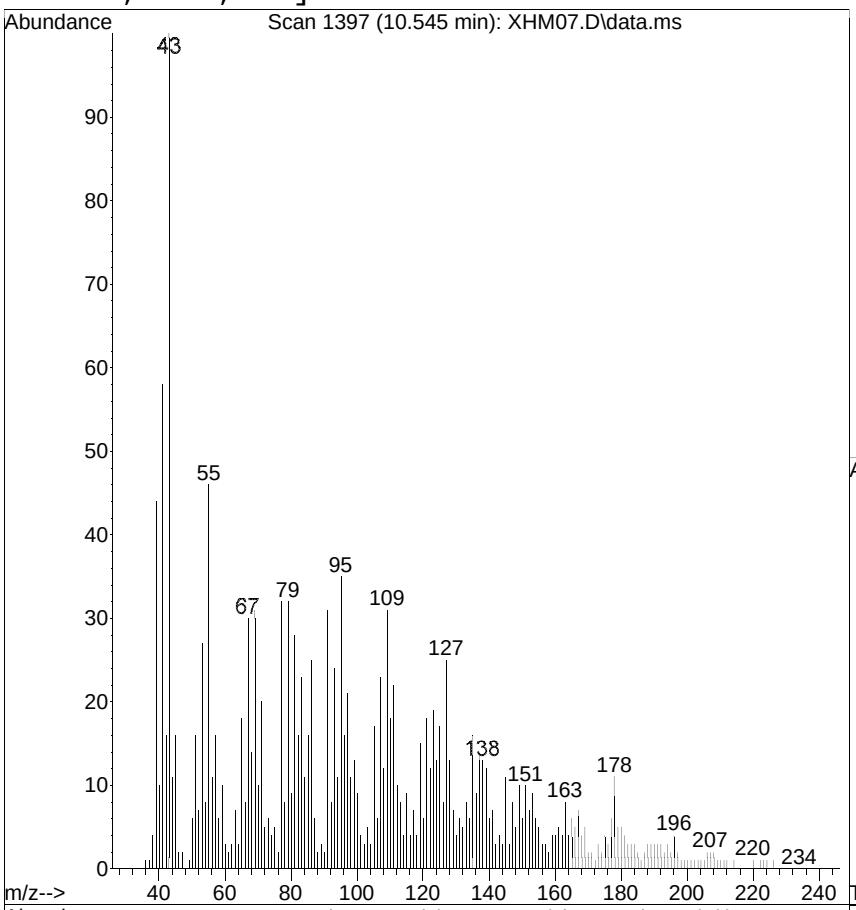
Ref





[Azobenzene; <RL; u]

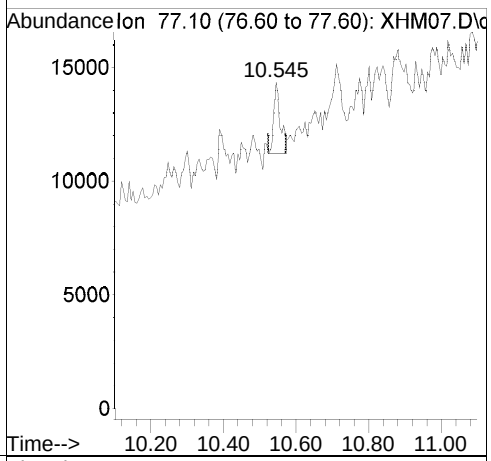
Raw



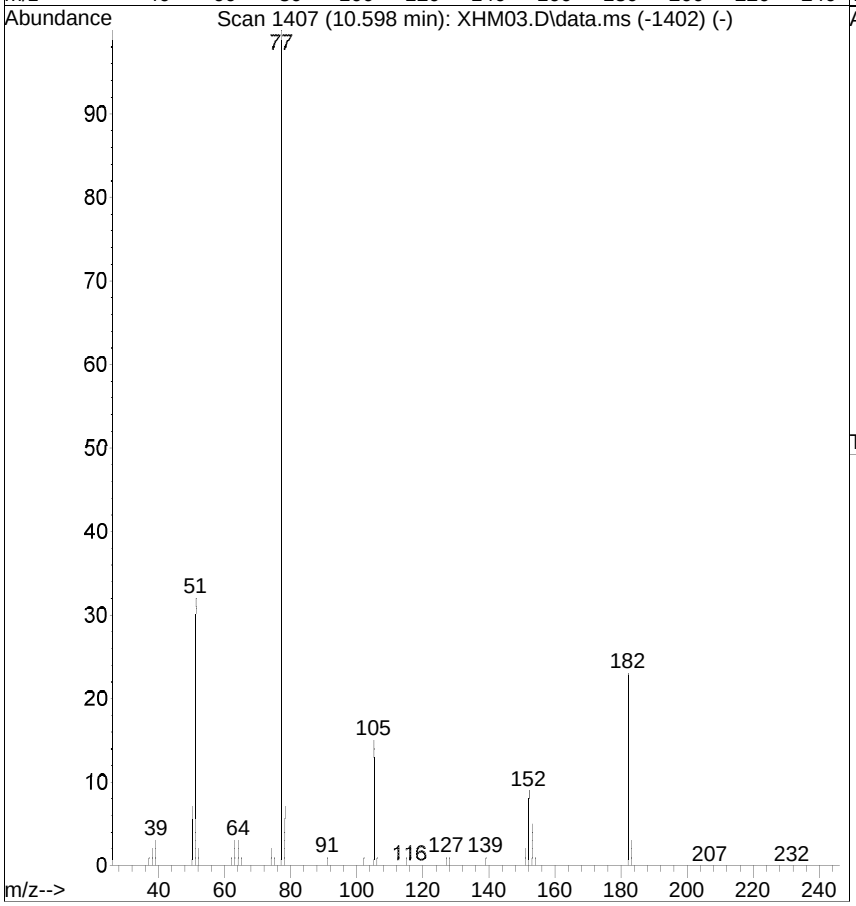
#61
Azobenzene
Concen: 0.0464 ug/mL
RT: 10.545 min Scan# 1397
Delta R.T. -0.053 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

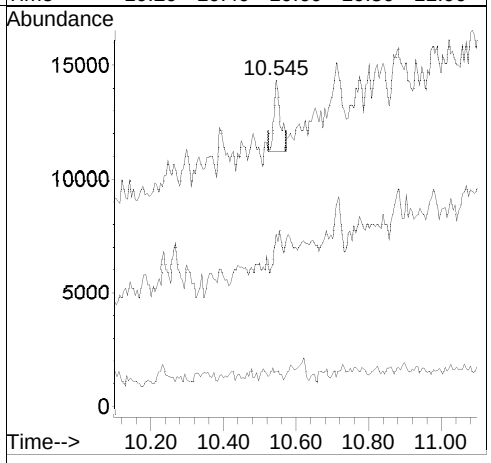
Tgt Ion: 77 Resp: 3924

Ion	Ratio	Lower	Upper
77	100		
105	52.8	0.0	37.0#
182	10.6	5.0	45.0



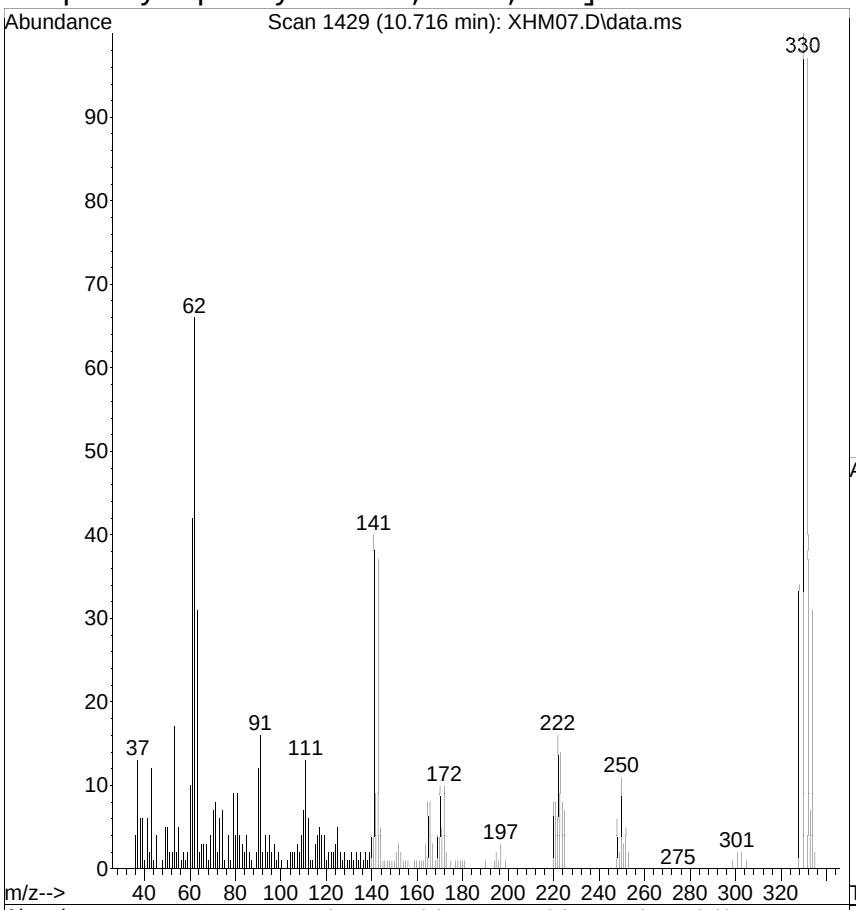
Ref





[4-Bromophenyl-phenylether; <RL; u]

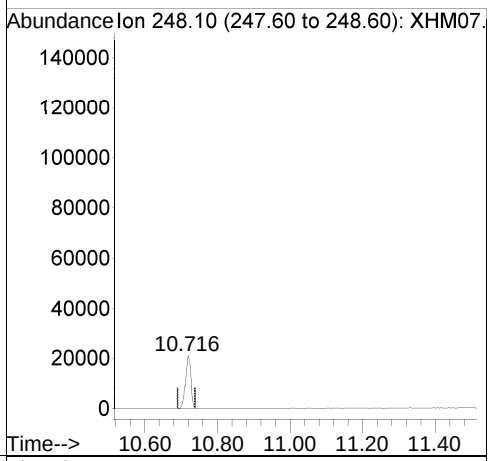
Raw



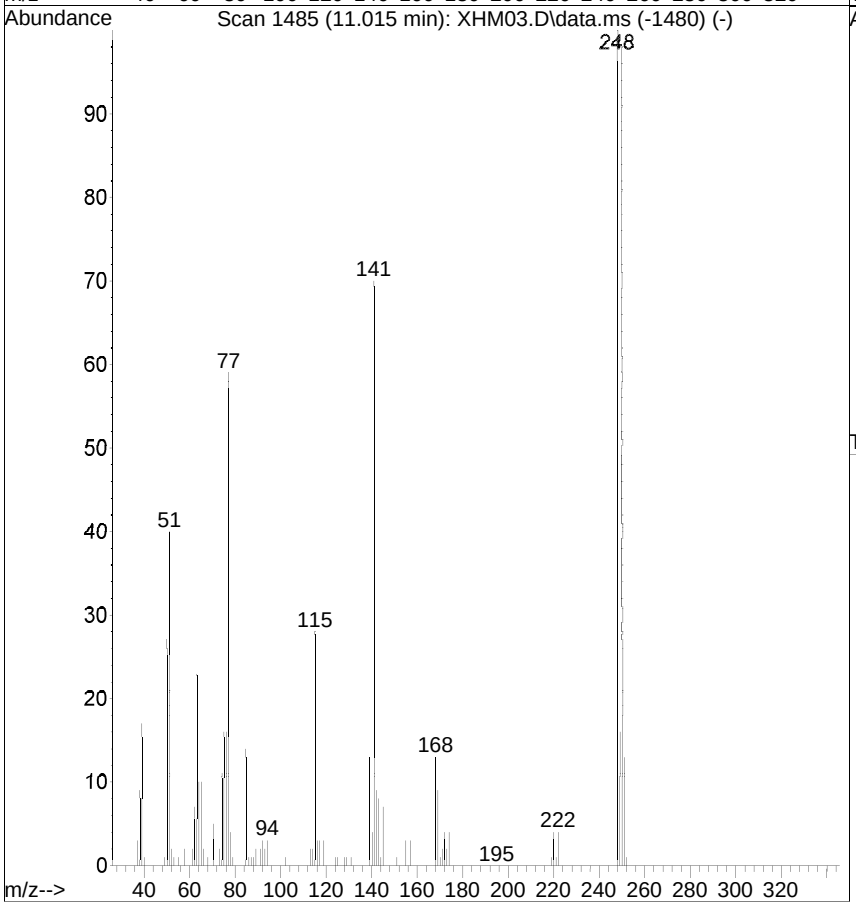
#62
4-Bromophenyl-phenylether
Concen: 1.0424 ug/mL
RT: 10.716 min Scan# 1429
Delta R.T. -0.299 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

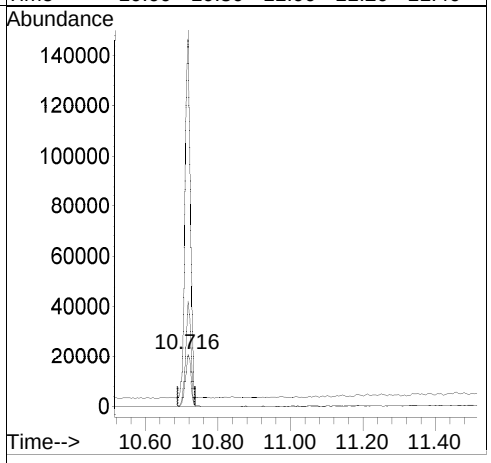
Tgt Ion:248 Resp: 21004

Ion	Ratio	Lower	Upper
248	100		
250	198.4	78.0	118.0#
141	709.5	0.0	39.0#



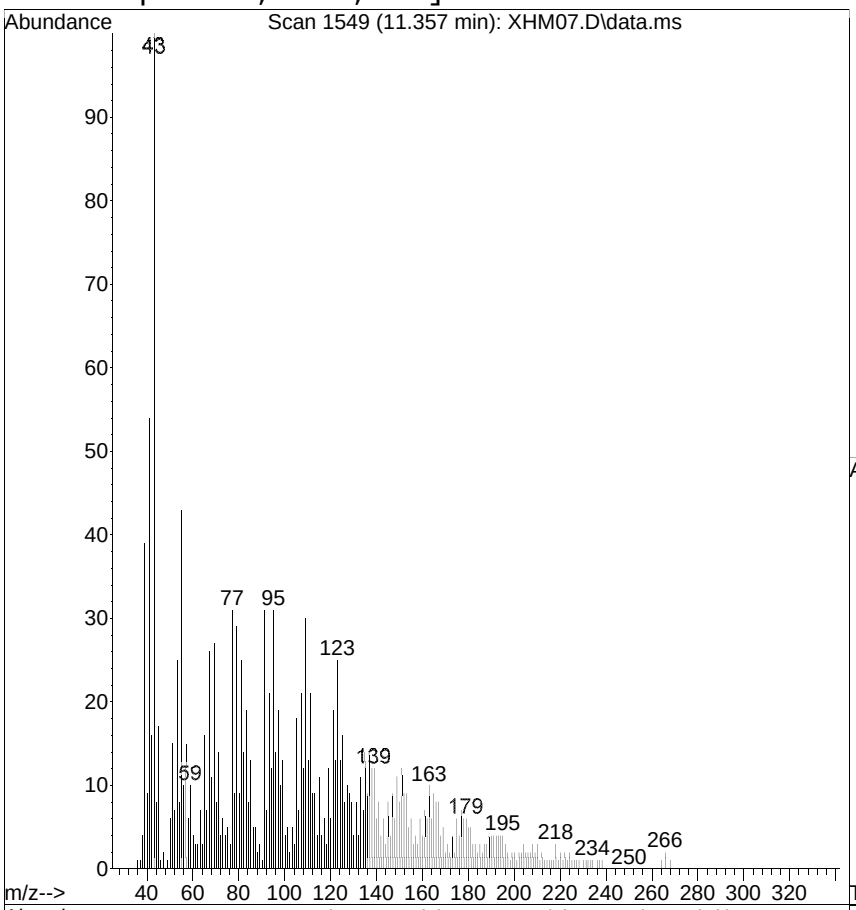
Ref





[Pentachlorophenol; <RL; u]

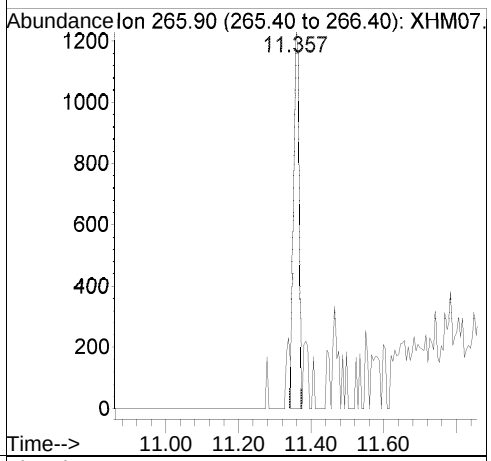
Raw



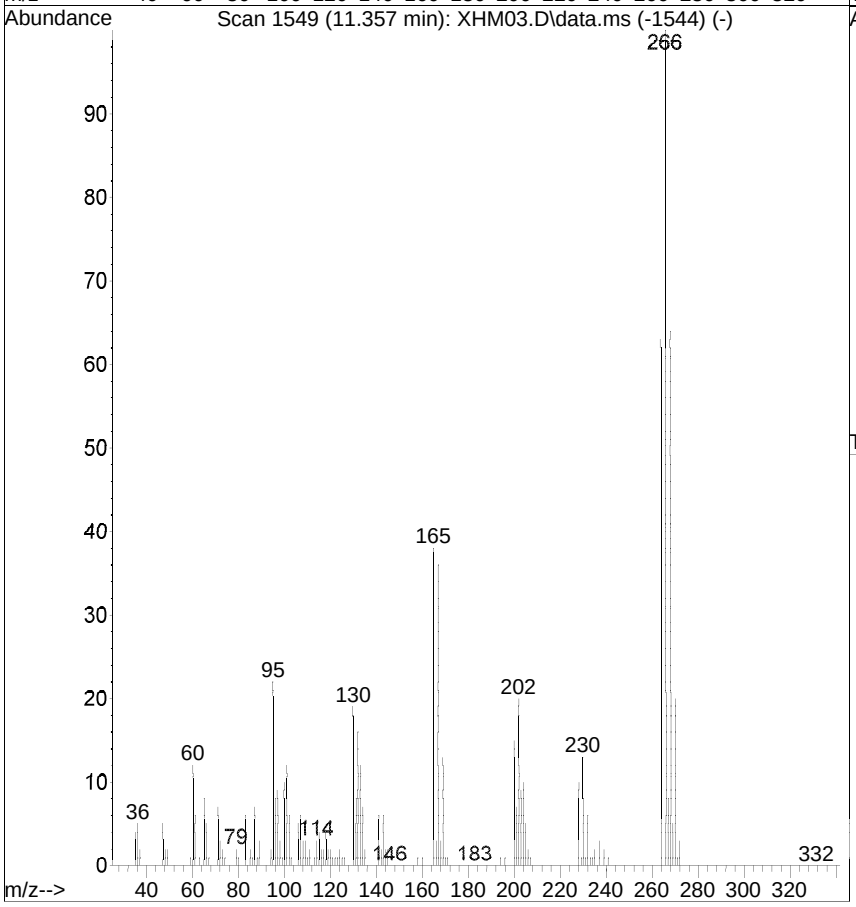
#64
Pentachlorophenol
Concen: 0.0957 ug/mL
RT: 11.357 min Scan# 1549
Delta R.T. 0.000 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

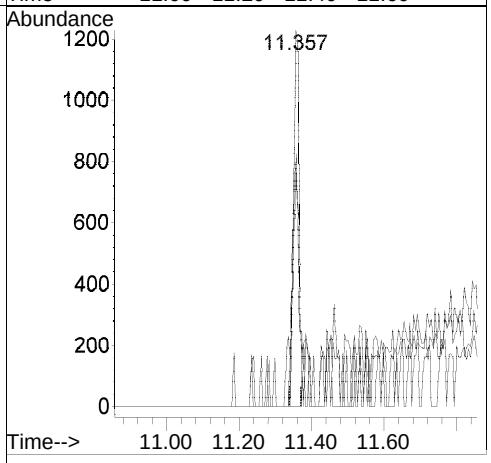
Tgt Ion:266 Resp: 1321

Ion	Ratio	Lower	Upper
266	100		
264	67.1	46.0	86.0
268	63.5	43.0	83.0



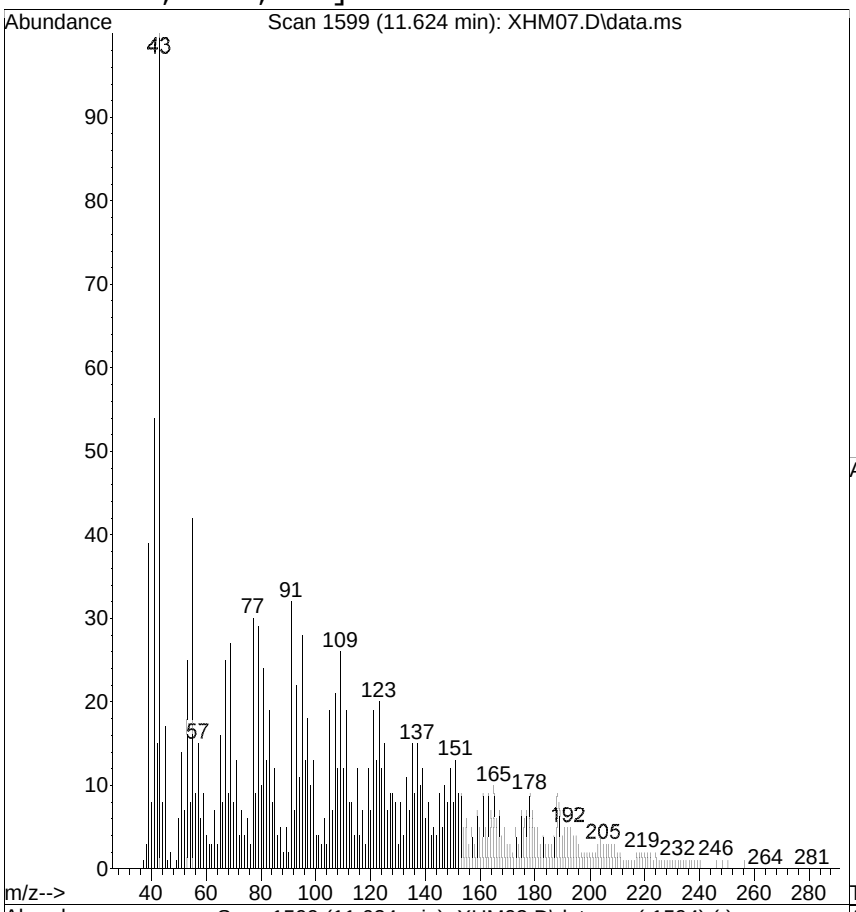
Ref





[Phenanthrene; <RL; u]

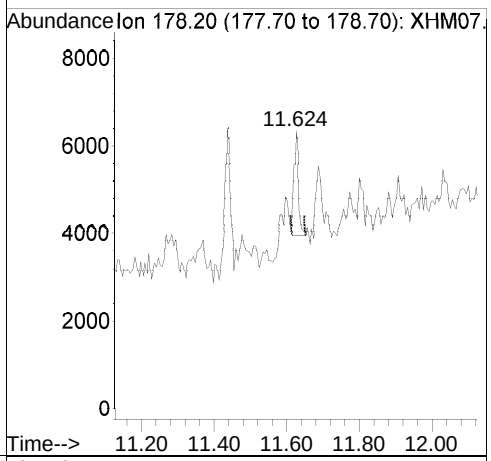
Raw



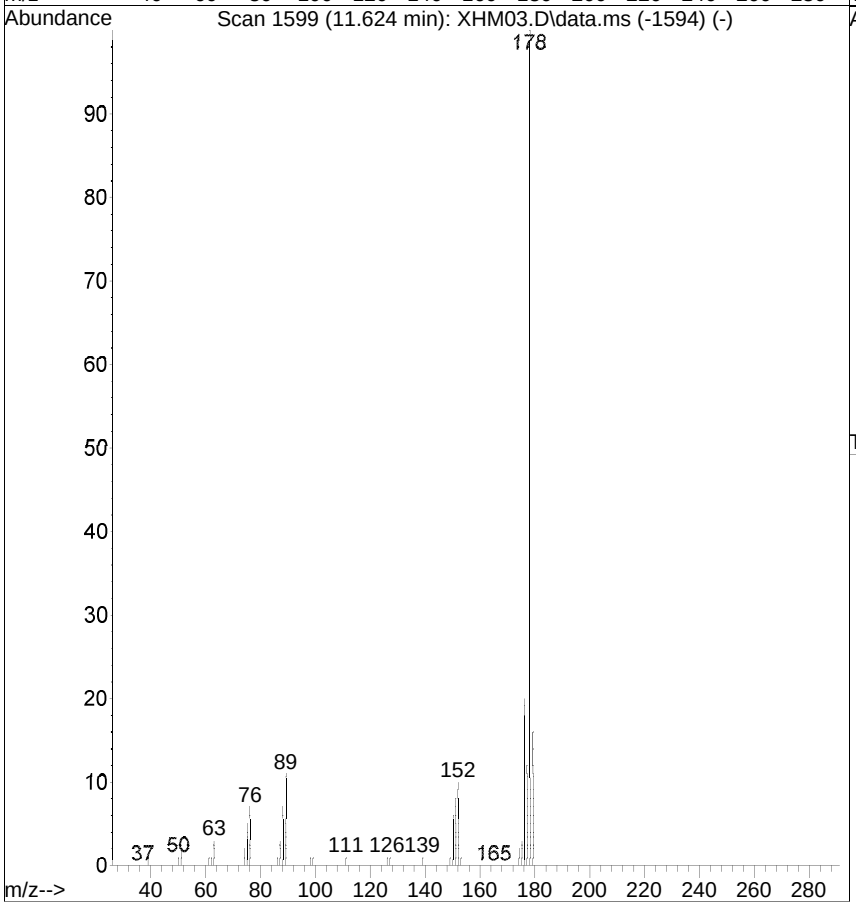
#65
Phenanthrene
Concen: 0.0195 ug/mL
RT: 11.624 min Scan# 1599
Delta R.T. 0.000 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

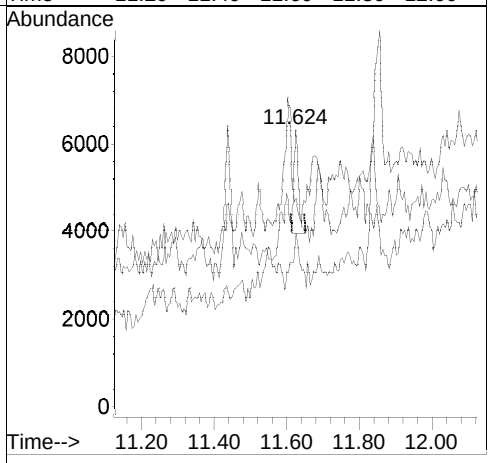
Tgt Ion:178 Resp: 2036

Ion	Ratio	Lower	Upper
178	100		
179	75.1	0.0	36.0#
176	62.4	0.0	37.0#



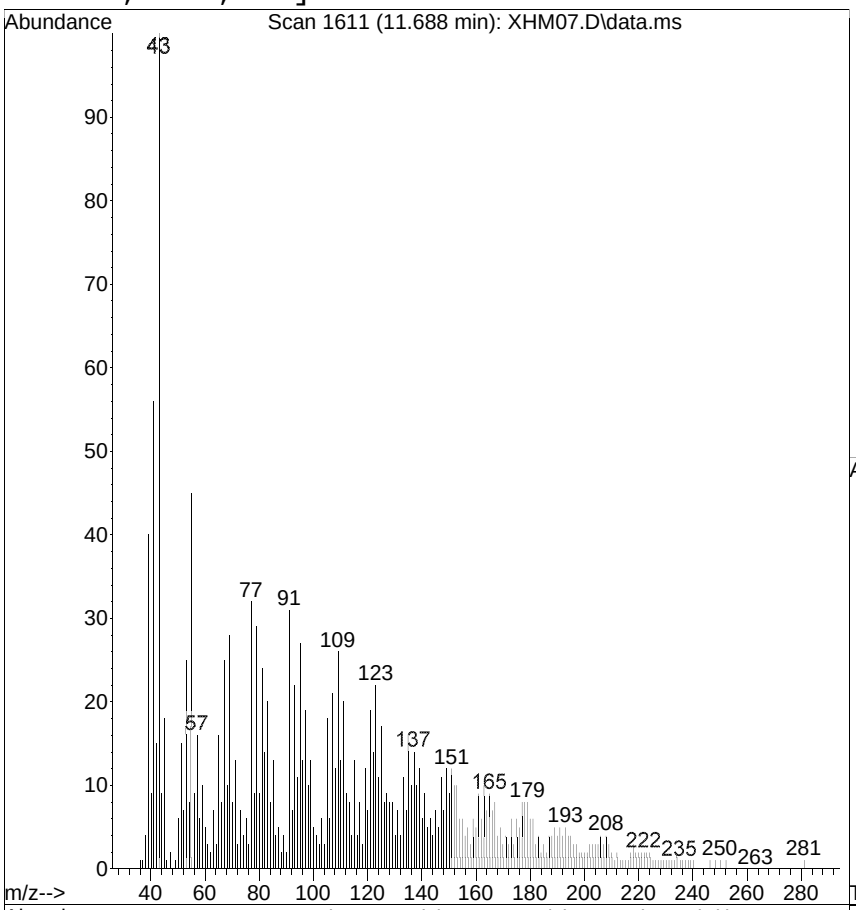
Ref





[Anthracene; <RL; u]

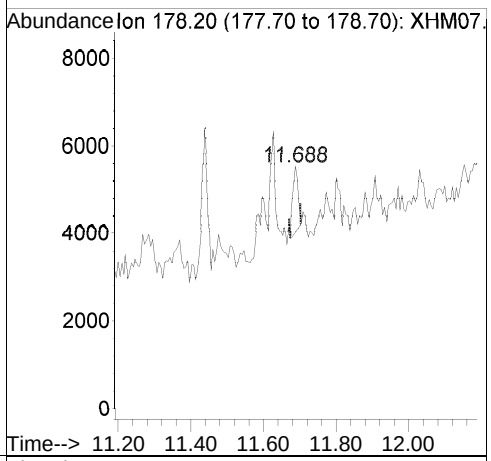
Raw



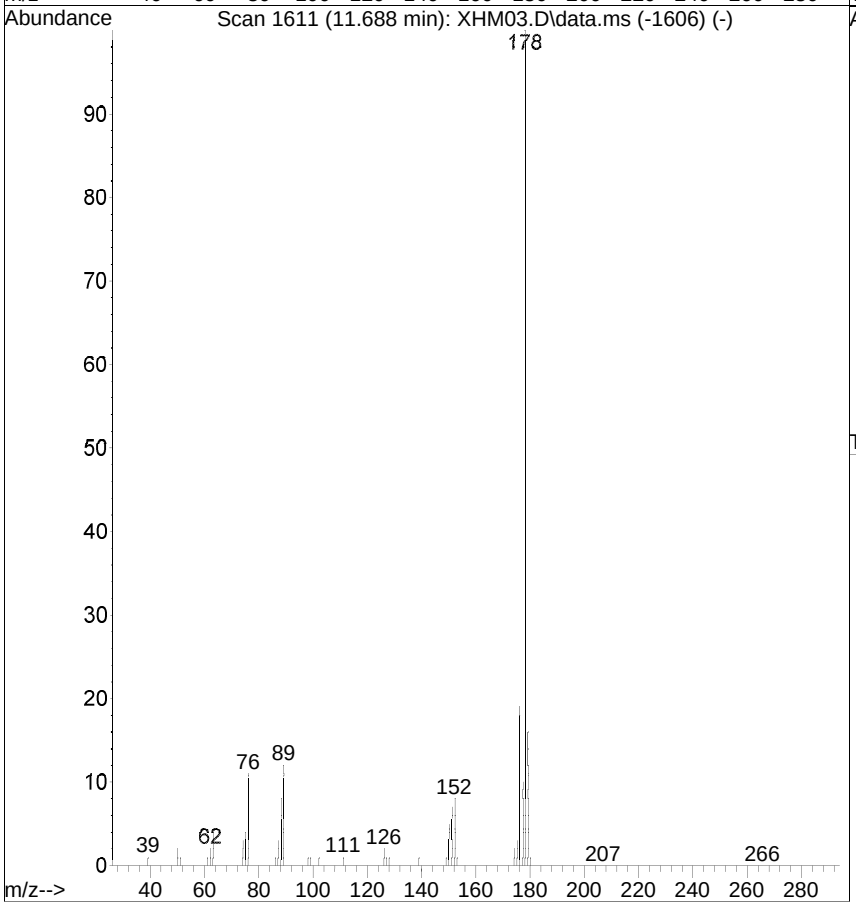
#66
Anthracene
Concen: 0.0150 ug/mL
RT: 11.688 min Scan# 1611
Delta R.T. 0.000 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

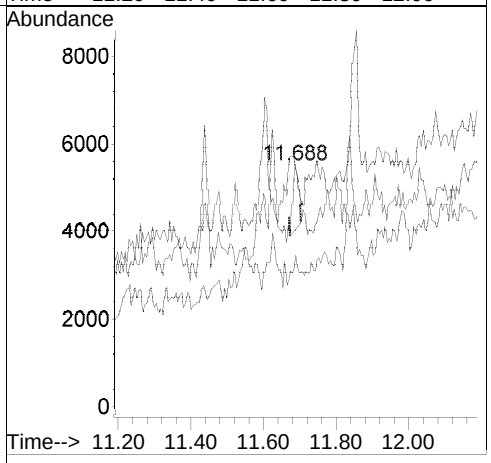
Tgt Ion:178 Resp: 1599

Ion	Ratio	Lower	Upper
178	100		
176	62.5	0.0	35.0#
179	98.5	0.0	35.0#



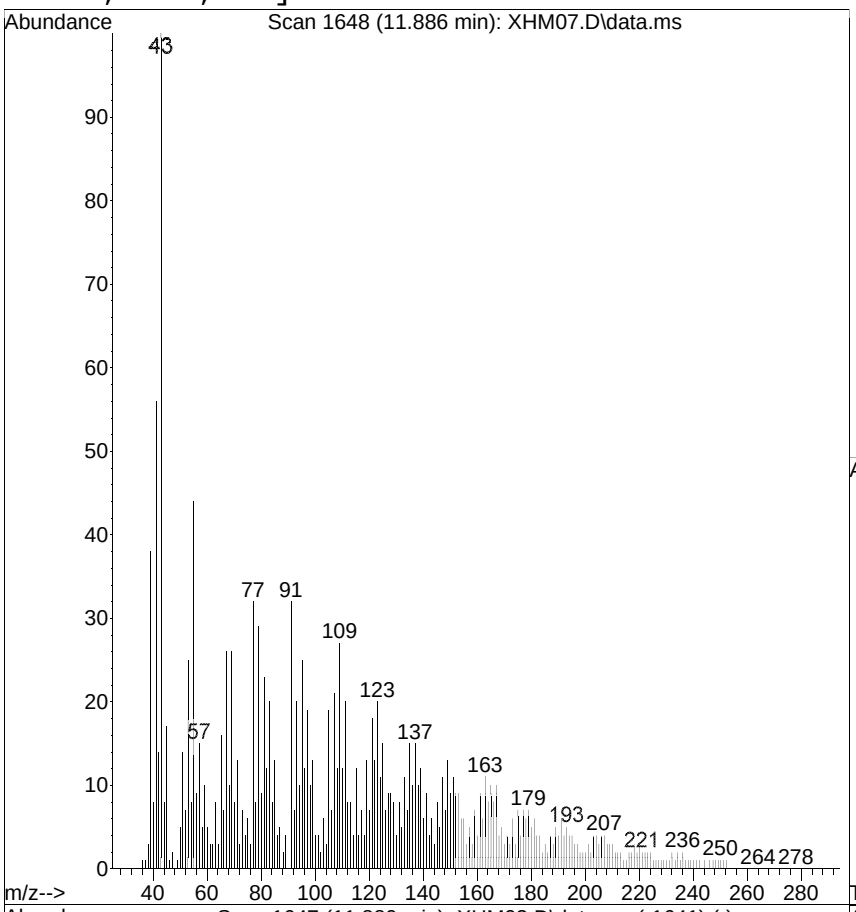
Ref





[Carbazole; <RL; u]

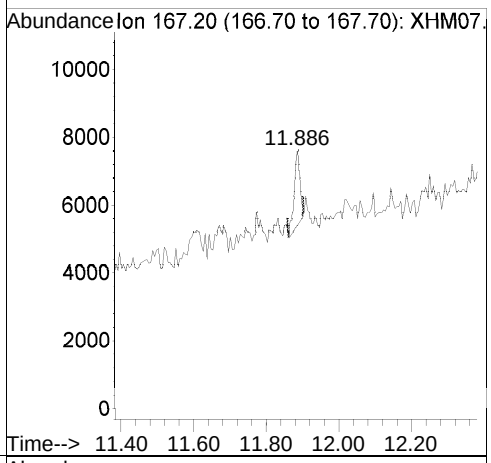
Raw



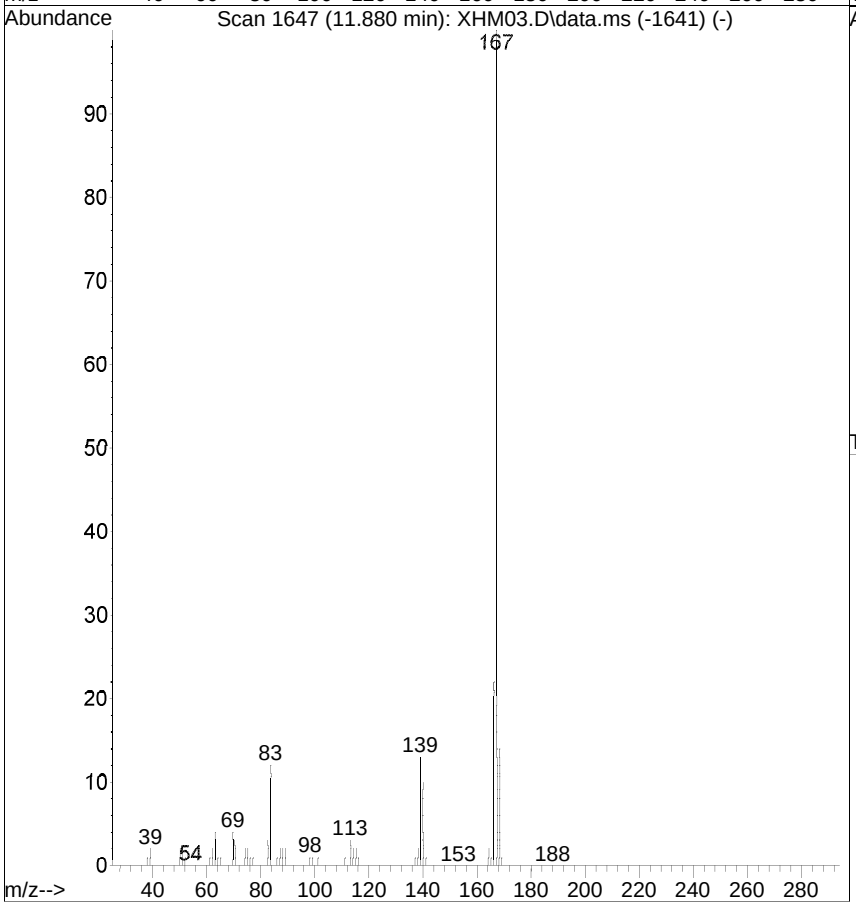
#67
Carbazole
Concen: 0.0289 ug/mL
RT: 11.886 min Scan# 1648
Delta R.T. 0.006 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

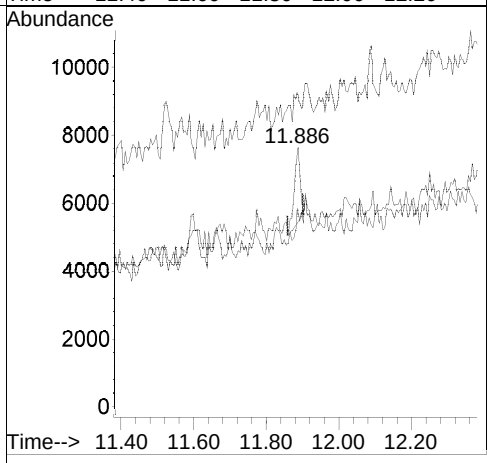
Tgt Ion:167 Resp: 2546

Ion	Ratio	Lower	Upper
167	100		
166	76.7	0.0	34.0#
139	121.3	0.0	30.0#



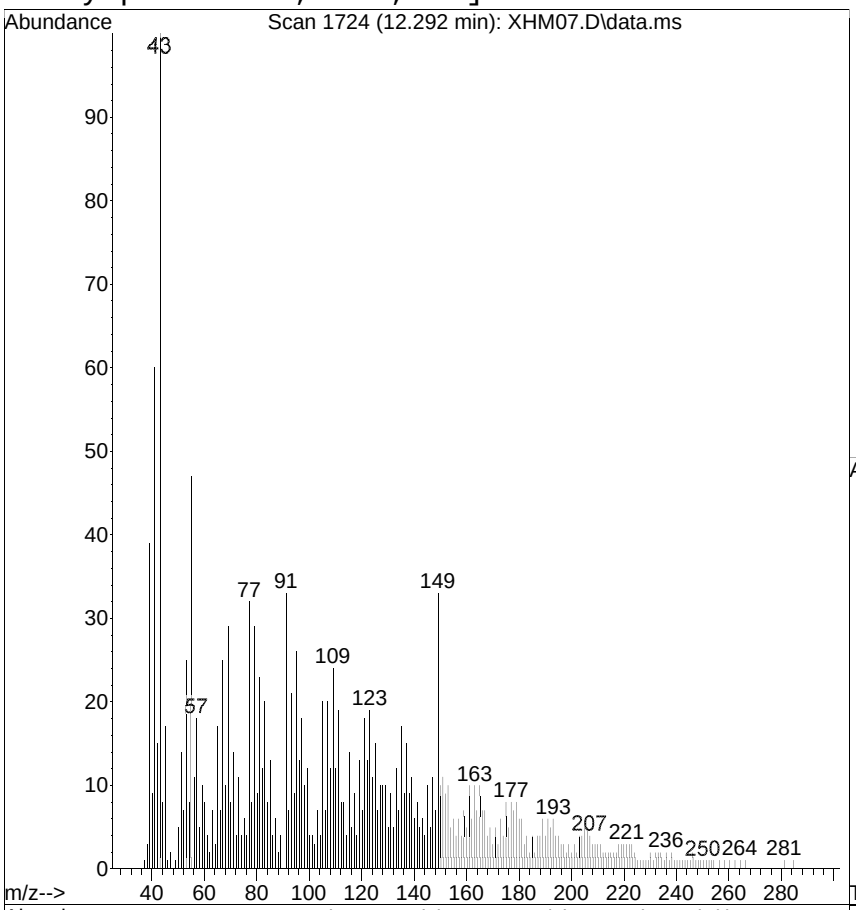
Ref





[Di-n-butylphthalate; <RL; u]

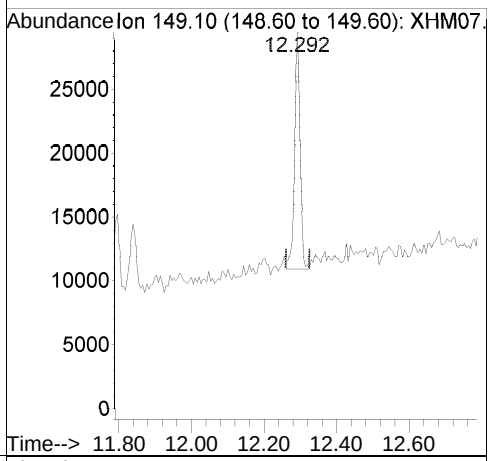
Raw



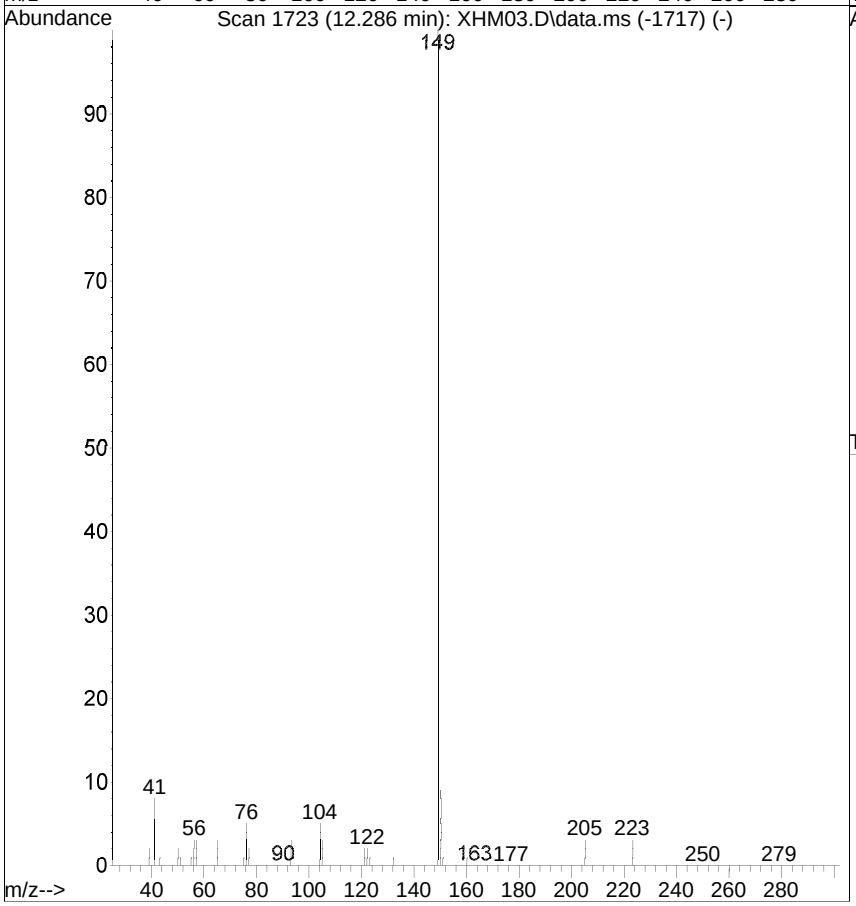
#68
Di-n-butylphthalate
Concen: 0.1456 ug/mL
RT: 12.292 min Scan# 1724
Delta R.T. 0.006 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

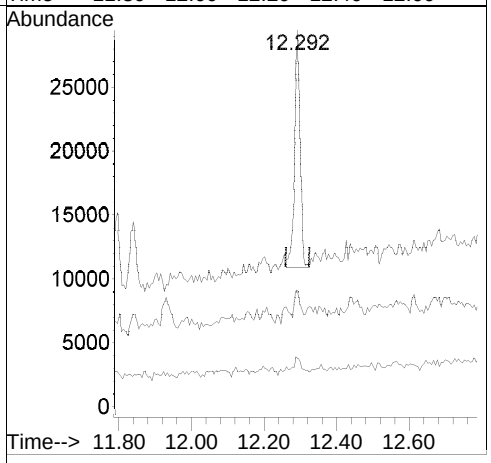
Tgt Ion:149 Resp: 19213

Ion	Ratio	Lower	Upper
149	100		
150	30.7	0.0	28.0#
104	12.9	0.0	26.0



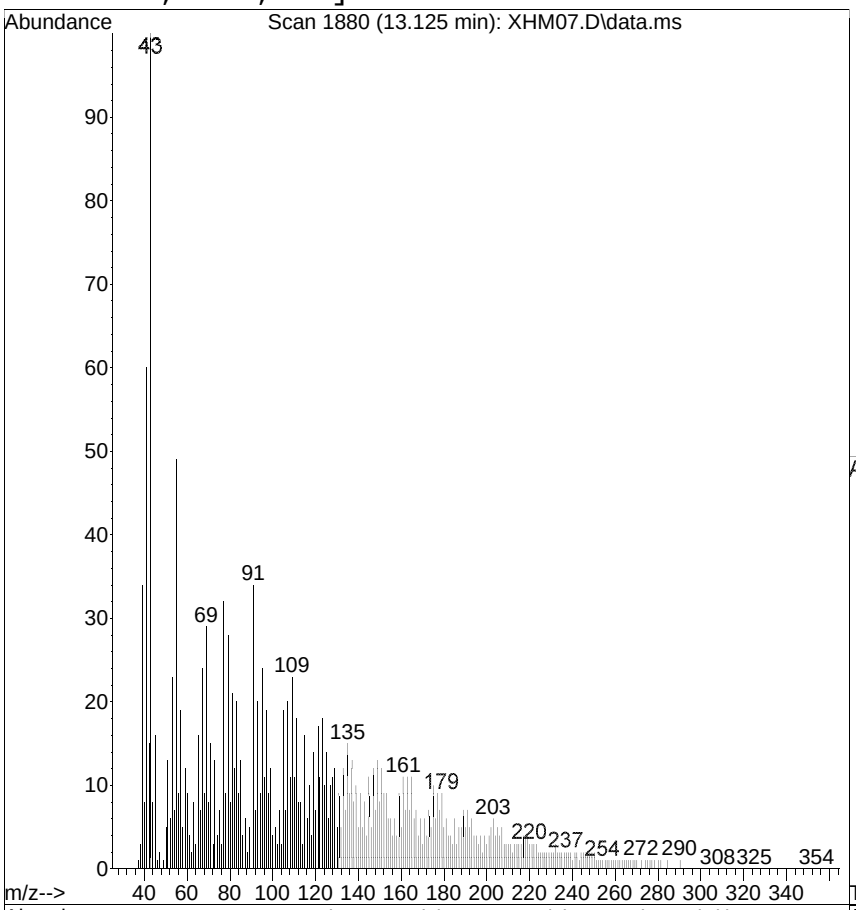
Ref





[Fluoranthene; <RL; u]

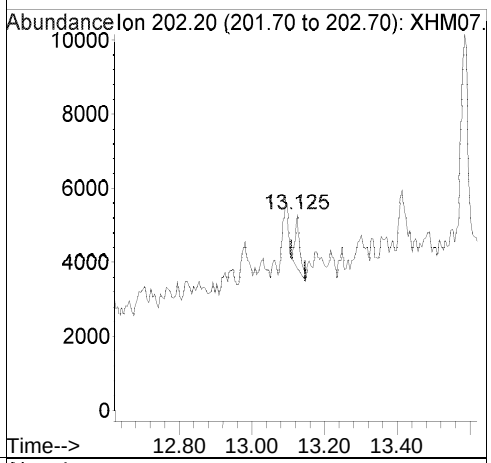
Raw



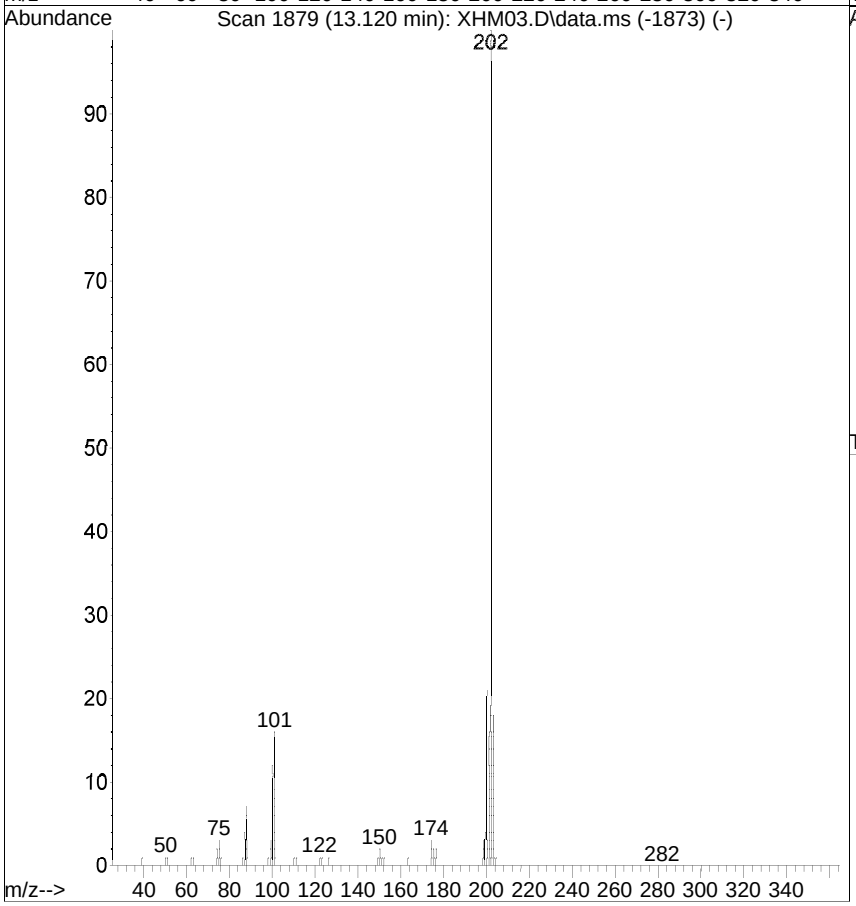
#69
Fluoranthene
Concen: 0.0102 ug/mL
RT: 13.125 min Scan# 1880
Delta R.T. 0.006 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

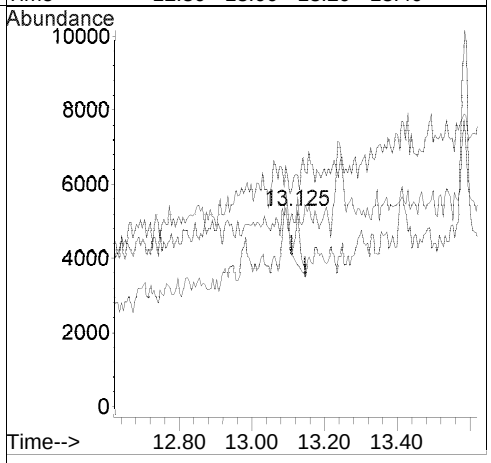
Tgt Ion:202 Resp: 1176

Ion	Ratio	Lower	Upper
202	100		
101	106.8	0.0	36.0#
203	118.0	0.0	38.0#



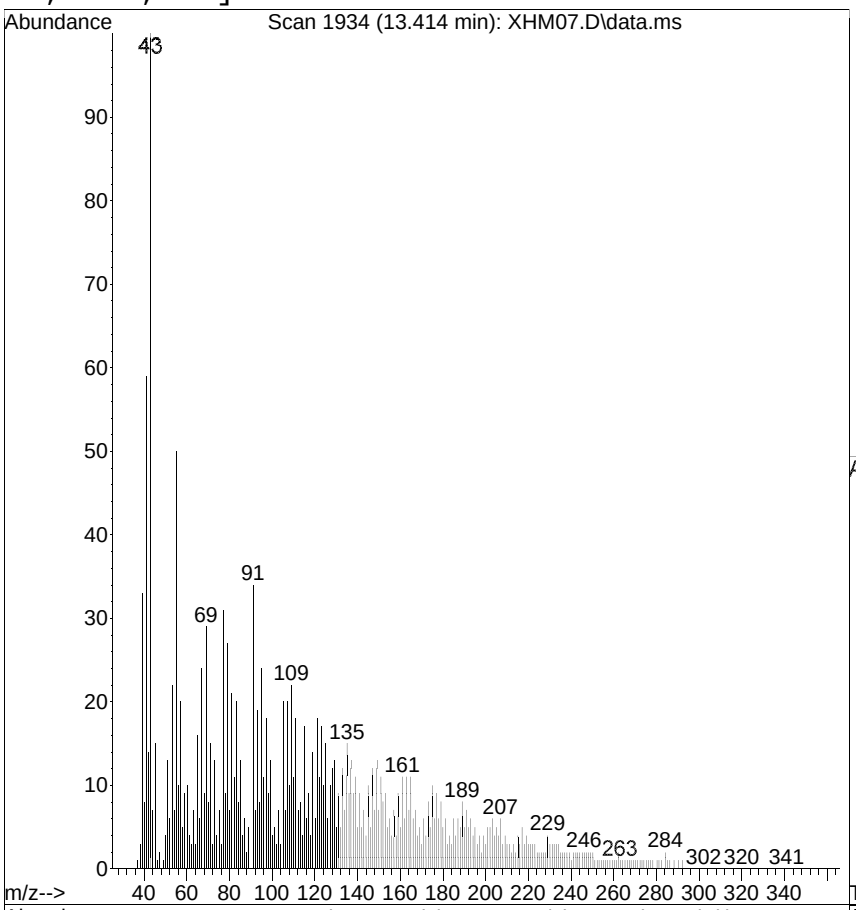
Ref





[Pyrene; <RL; u]

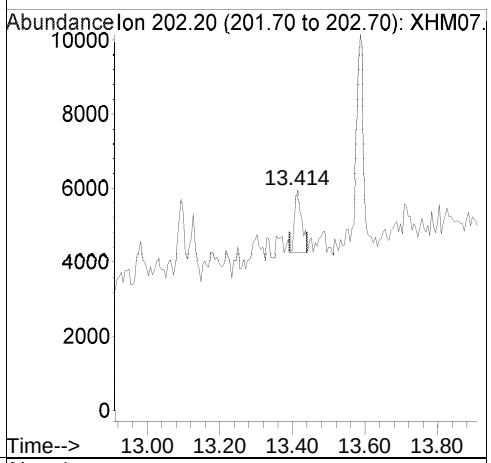
Raw



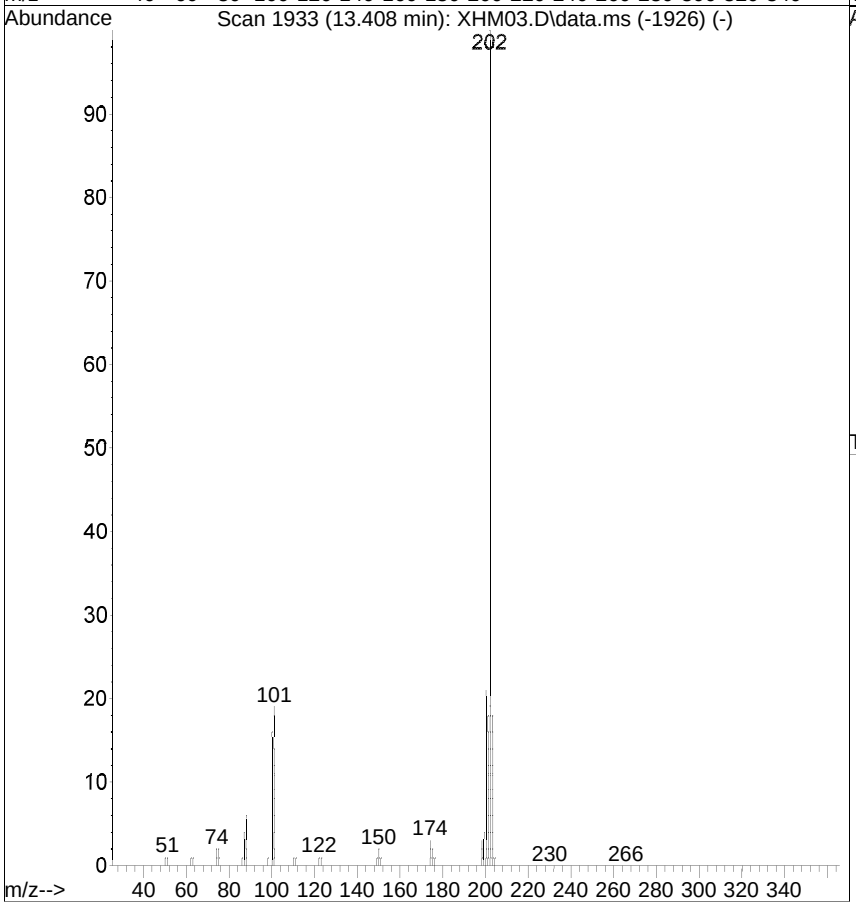
#72
Pyrene
Concen: 0.0167 ug/mL
RT: 13.414 min Scan# 1934
Delta R.T. 0.006 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

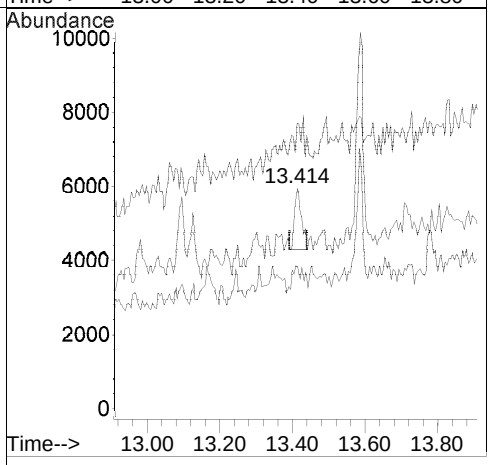
Tgt Ion:202 Resp: 2246

Ion	Ratio	Lower	Upper
202	100		
200	63.6	0.0	35.0#
203	129.4	0.0	37.0#



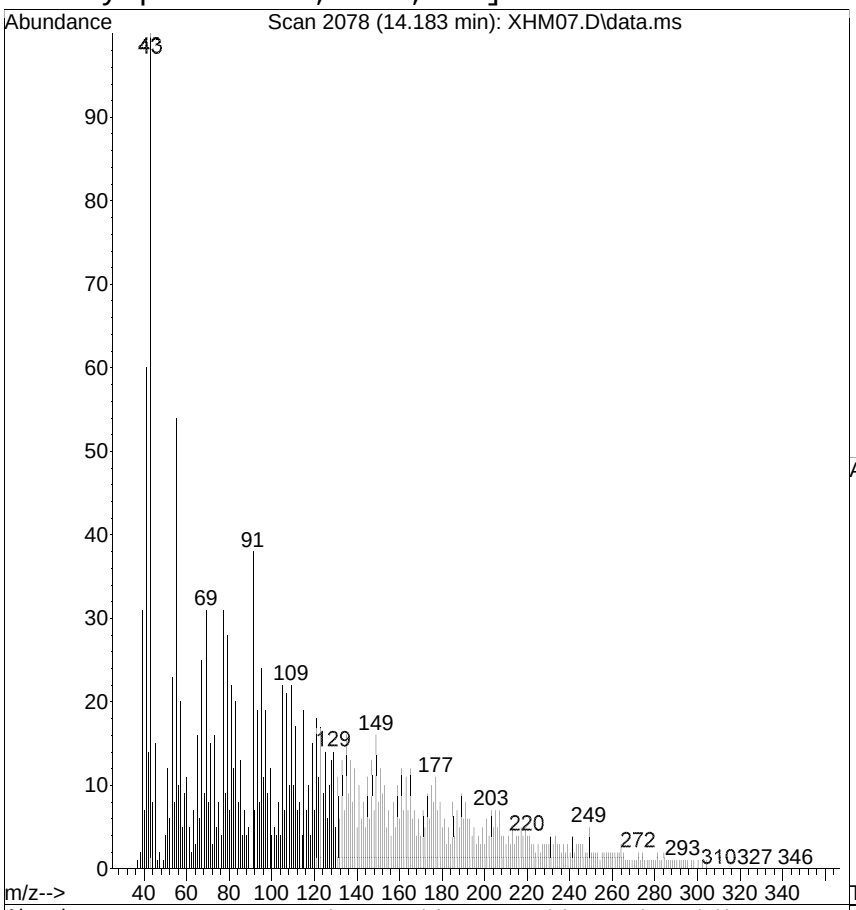
Ref





[Butylbenzylphthalate; <RL; u]

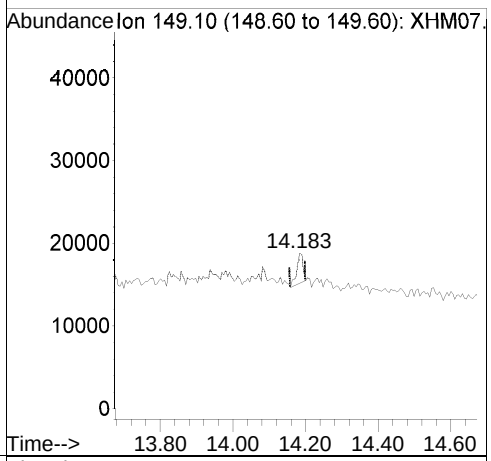
Raw



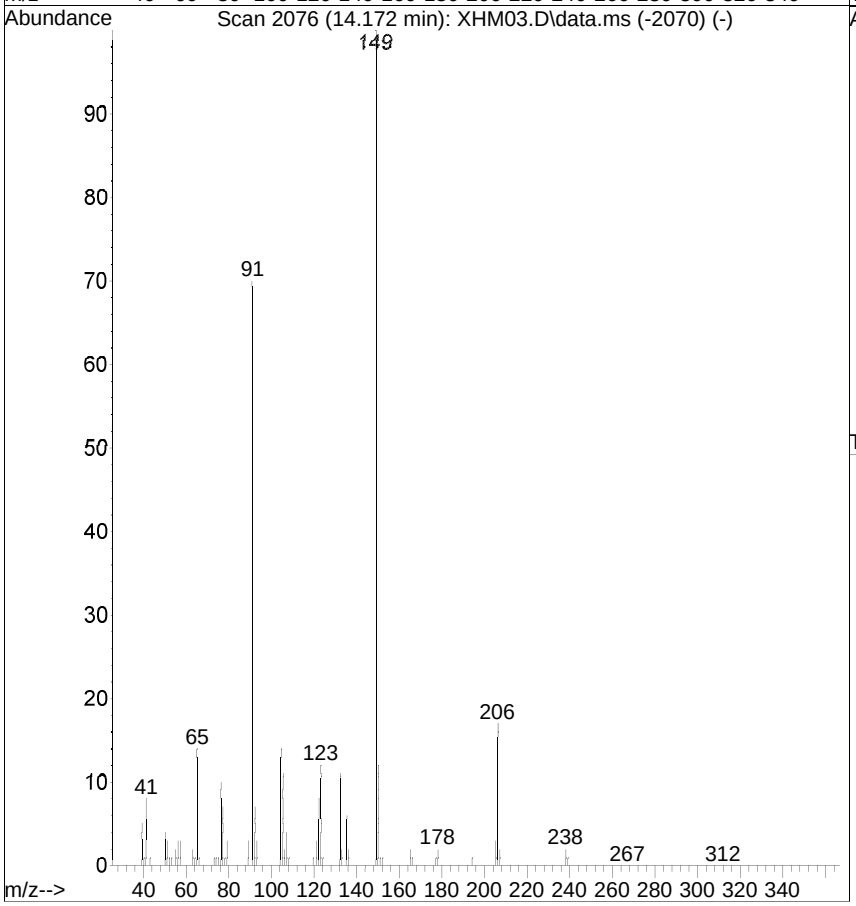
#74
Butylbenzylphthalate
Concen: 0.0657 ug/mL
RT: 14.183 min Scan# 2078
Delta R.T. 0.011 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

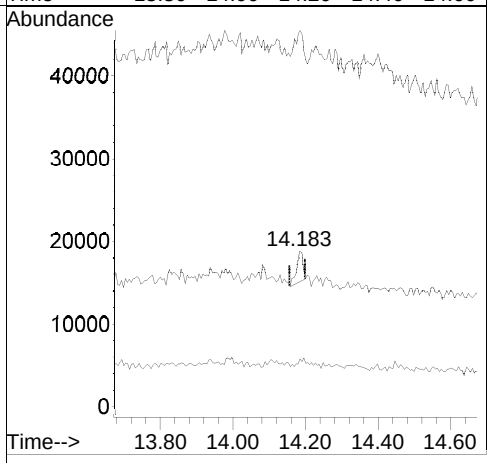
Tgt Ion:149 Resp: 4439

Ion	Ratio	Lower	Upper
149	100		
91	241.8	52.0	92.0#
206	30.4	3.0	43.0



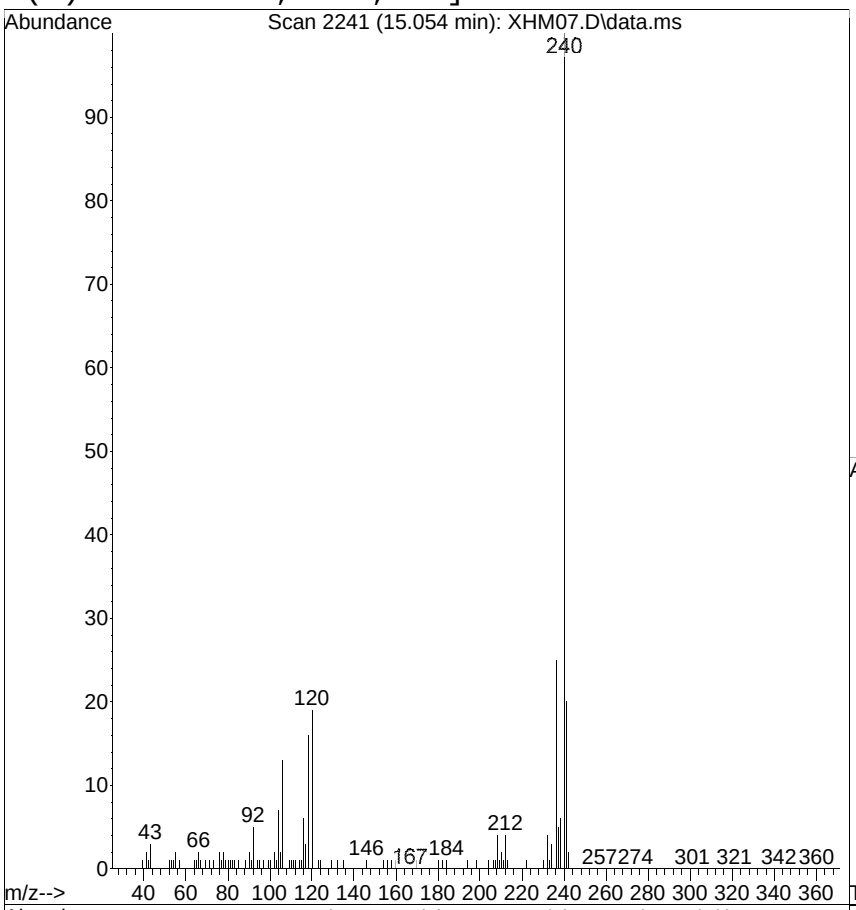
Ref





[Benzo(a)anthracene; <RL; u]

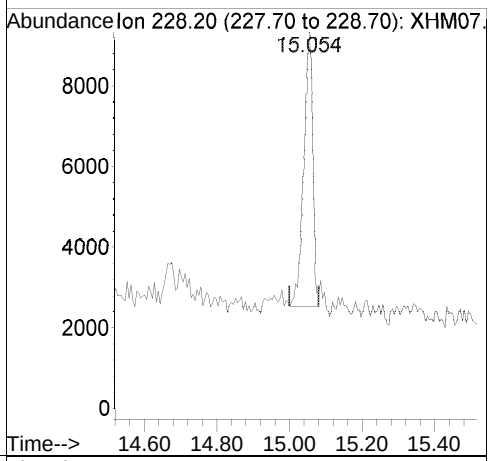
Raw



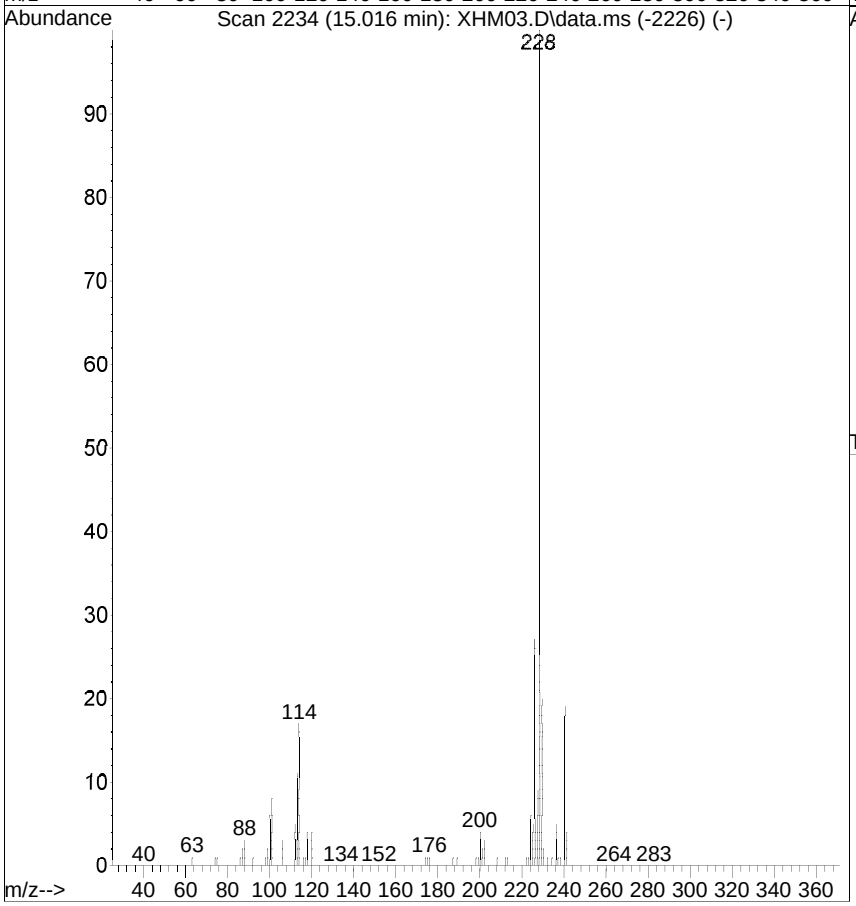
#76
Benzo(a)anthracene
Concen: 0.0947 ug/mL
RT: 15.054 min Scan# 2241
Delta R.T. 0.038 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

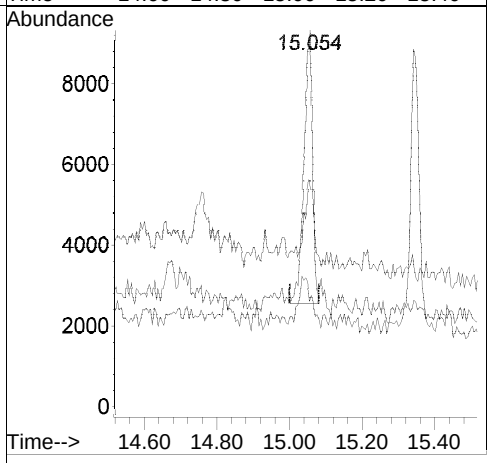
Tgt Ion:228 Resp: 11310

Ion	Ratio	Lower	Upper
228	100		
229	60.5	0.0	40.0#
226	27.9	8.0	48.0



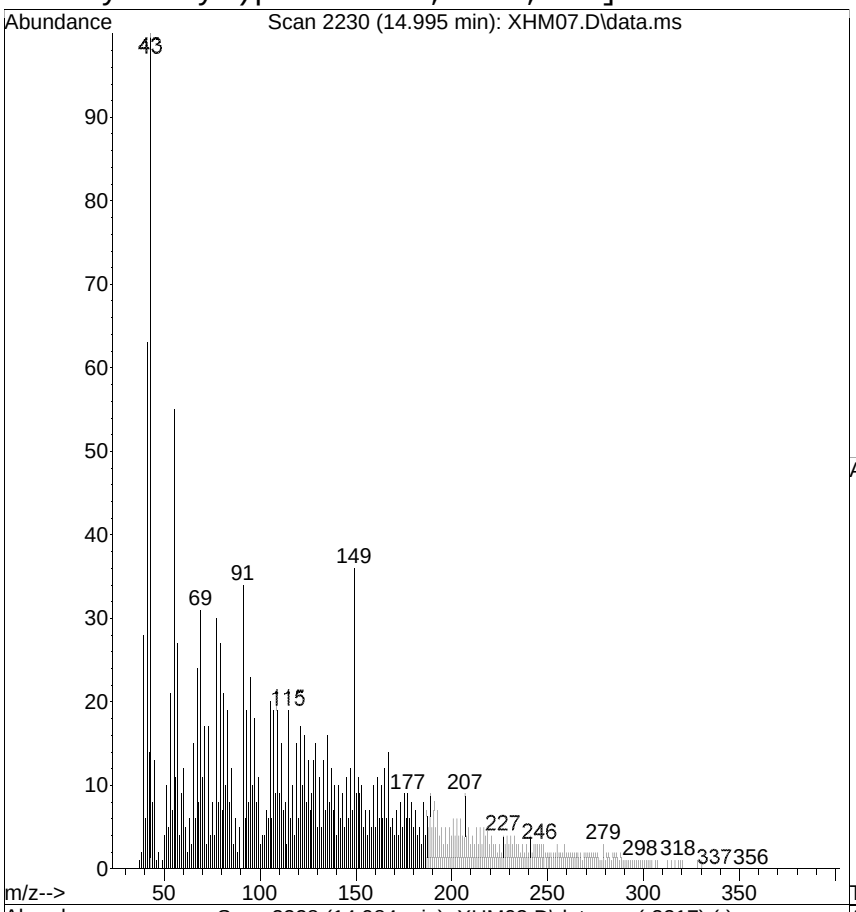
Ref





[bis(2-Ethylhexyl)phthalate; <RL; u]

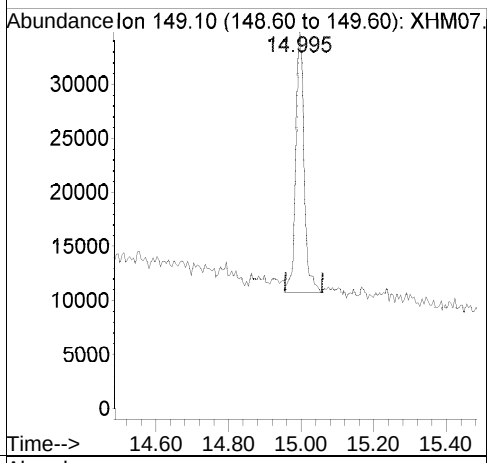
Raw



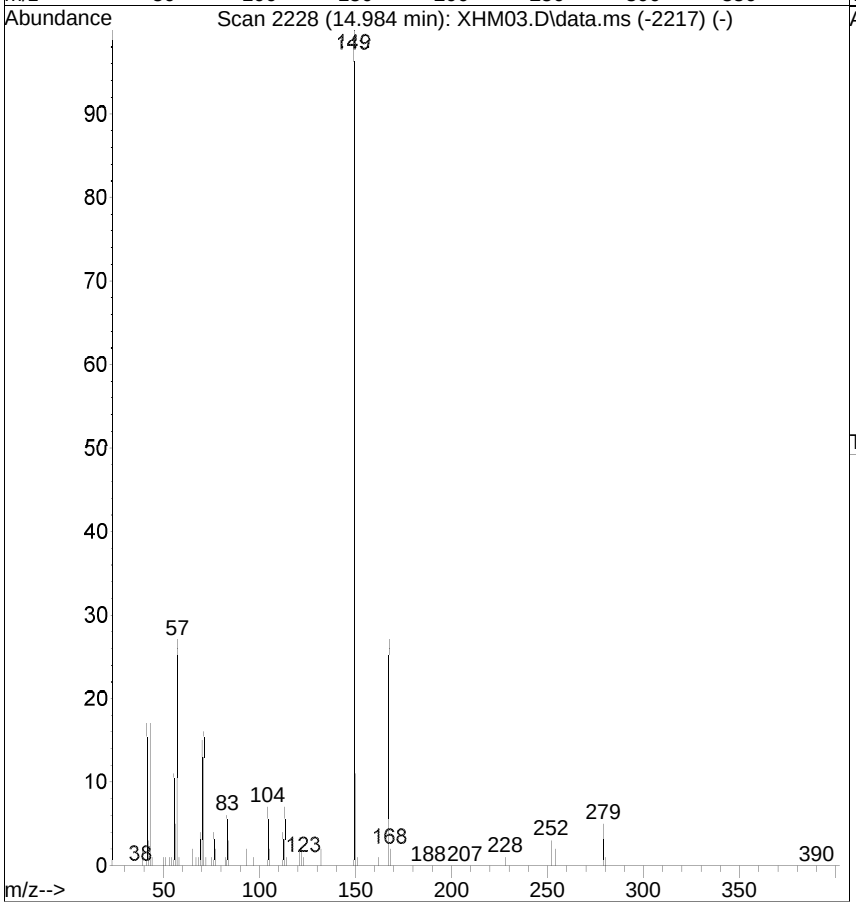
#77
bis(2-Ethylhexyl)phthalate
Concen: 0.4319 ug/mL
RT: 14.995 min Scan# 2230
Delta R.T. 0.011 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

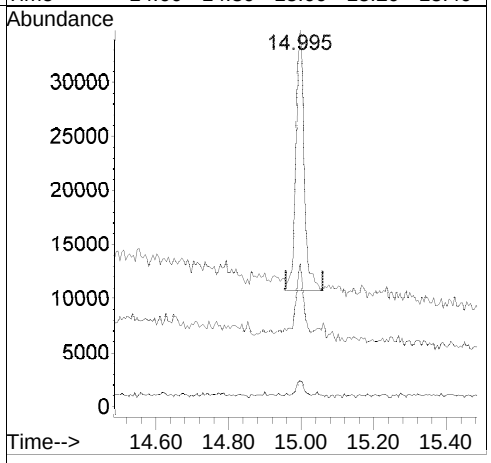
Tgt Ion:149 Resp: 37858

Ion	Ratio	Lower	Upper
149	100		
167	38.1	9.0	49.0
279	7.1	0.0	27.0



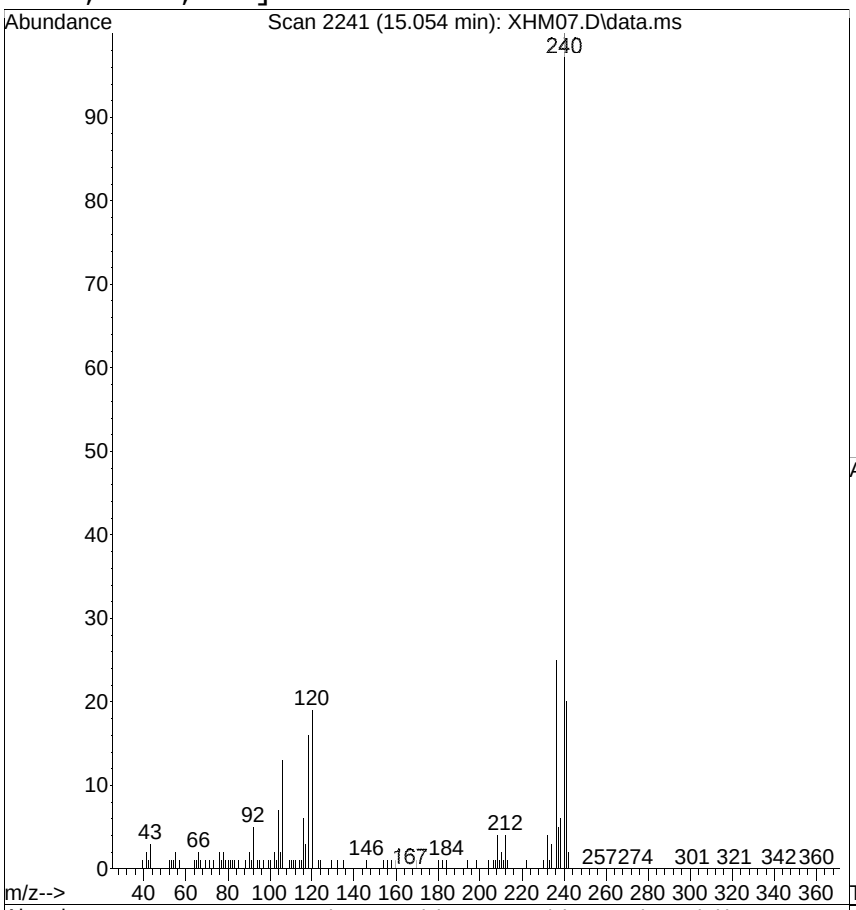
Ref





[Chrysene; <RL; u]

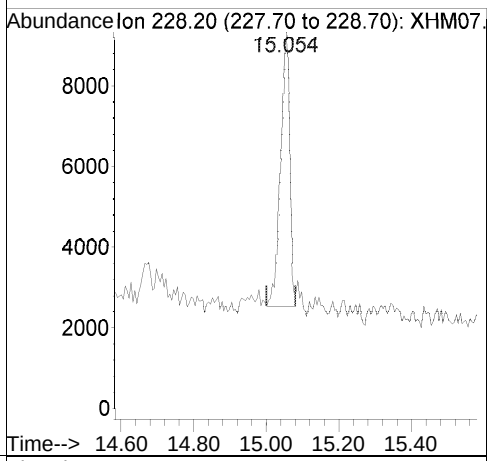
Raw



#78
Chrysene
Concen: 0.1028 ug/mL
RT: 15.054 min Scan# 2241
Delta R.T. -0.026 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

Tgt Ion:228 Resp: 11310

Ion	Ratio	Lower	Upper
228	100		
226	27.9	5.0	45.0
229	60.5	0.0	40.0#



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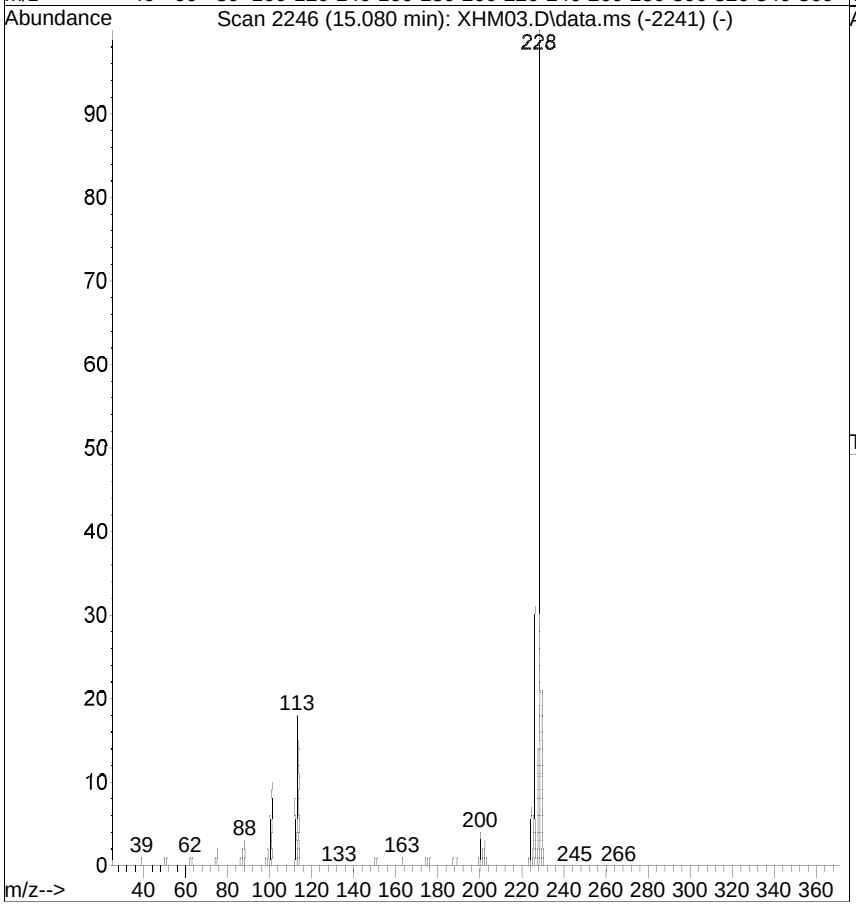
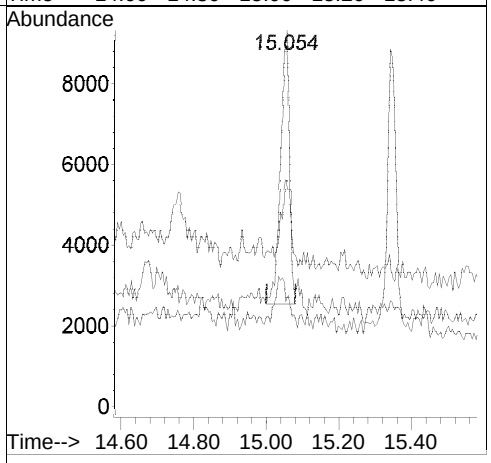
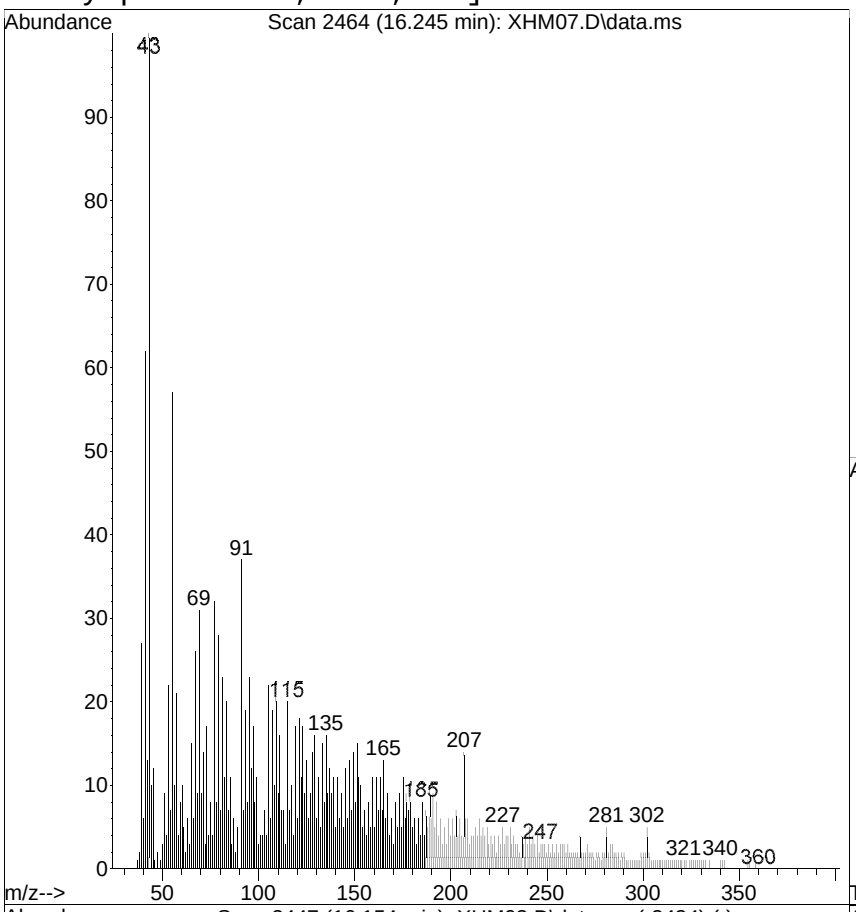




[Di-n-octylphthalate; <RL; u]

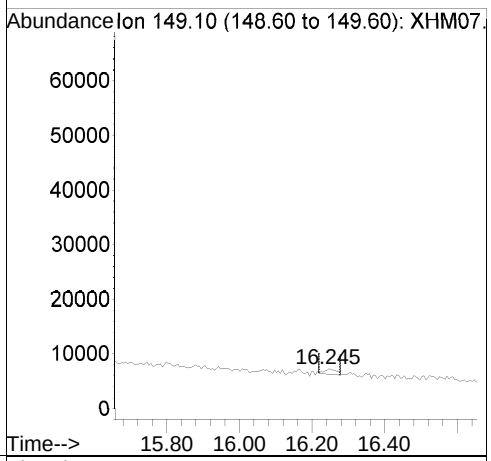
Raw



#80
Di-n-octylphthalate
Concen: 0.0118 ug/mL
RT: 16.245 min Scan# 2464
Delta R.T. 0.091 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

Tgt Ion:149 Resp: 2074

Ion	Ratio	Lower	Upper
149	100		
167	60.3	0.0	21.3#
43	707.0	0.0	29.0#



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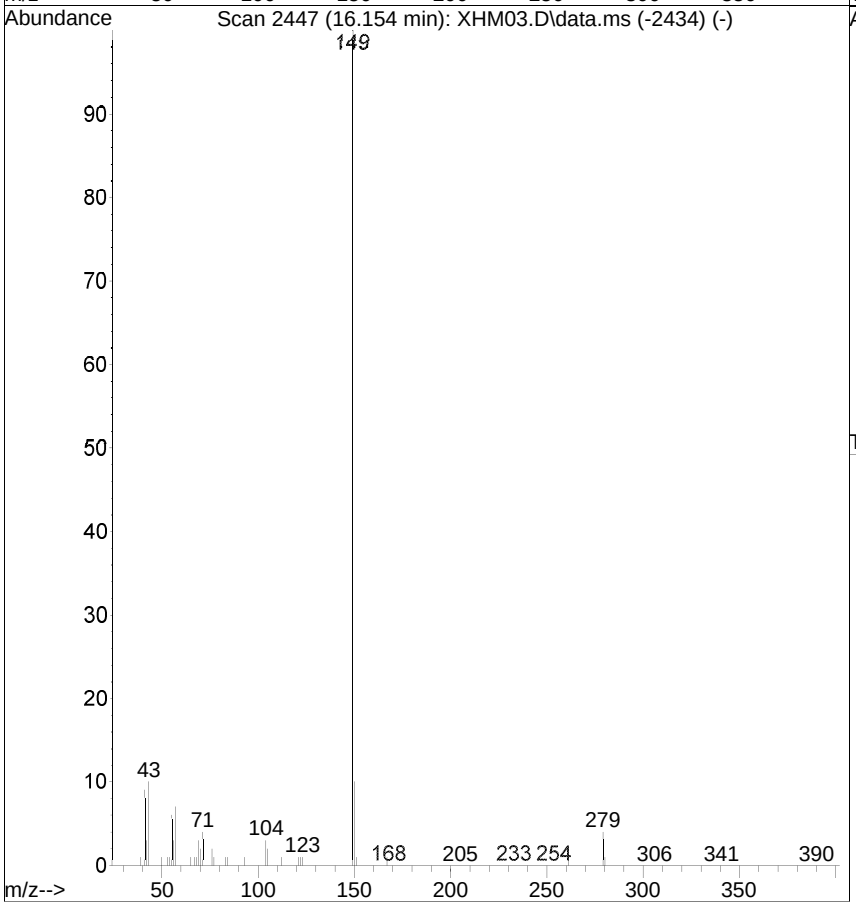
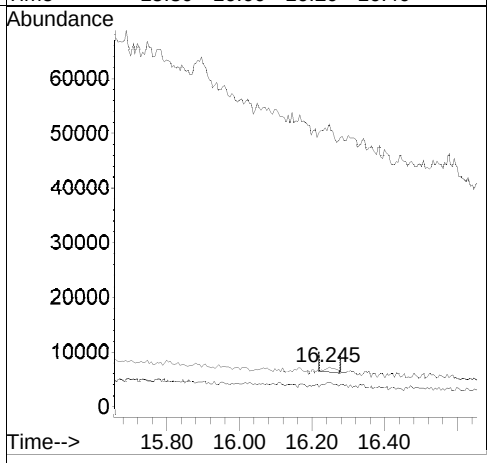
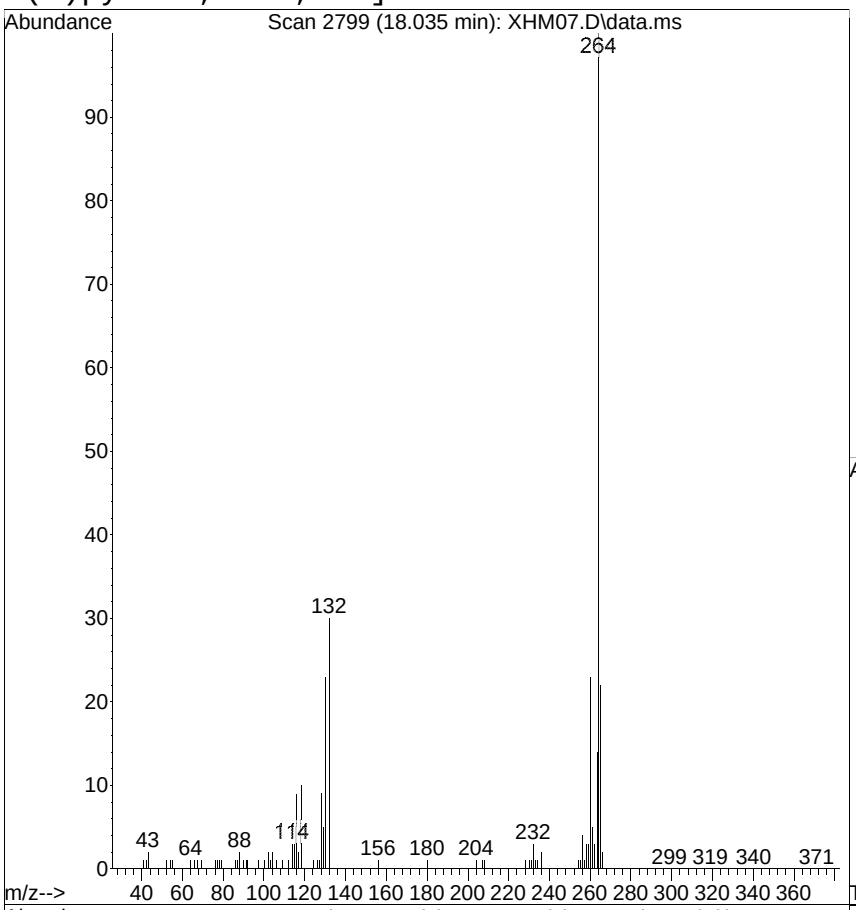




[Benzo(a)pyrene; <RL; u]

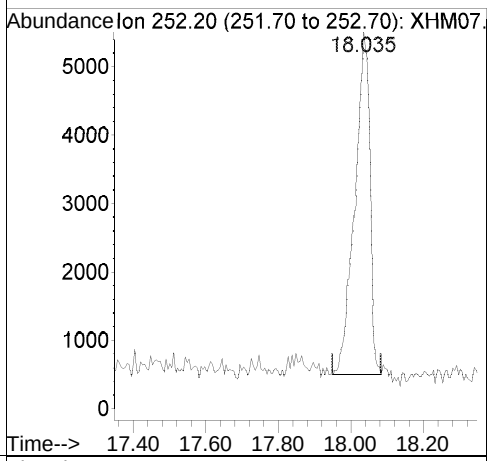
Raw



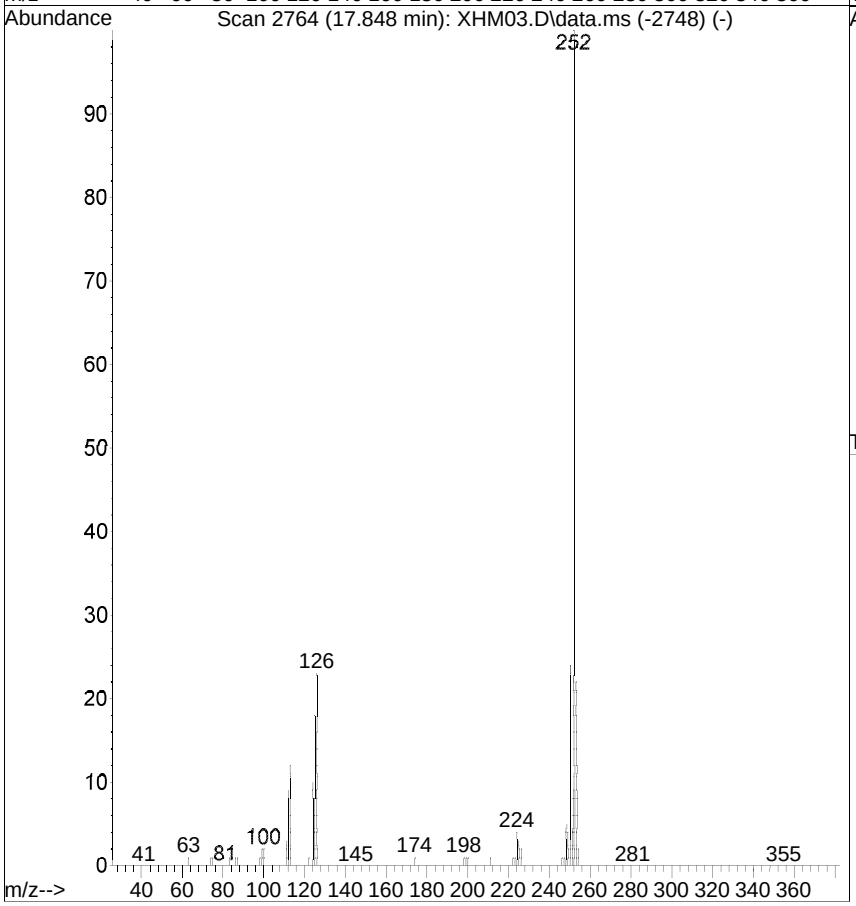
#83
Benzo(a)pyrene
Concen: 0.1236 ug/mL
RT: 18.035 min Scan# 2799
Delta R.T. 0.187 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

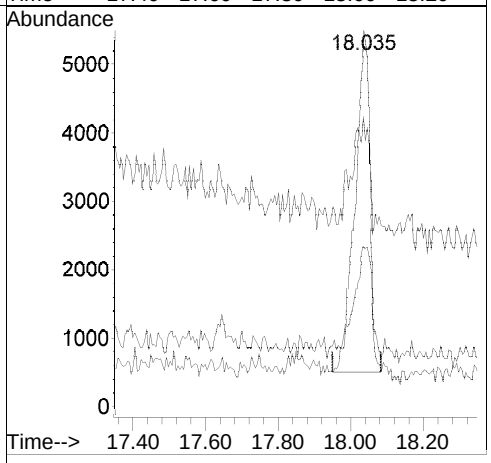
Tgt Ion:252 Resp: 14303

Ion	Ratio	Lower	Upper
252	100		
253	42.7	2.6	42.6#
125	77.2	0.0	36.8#



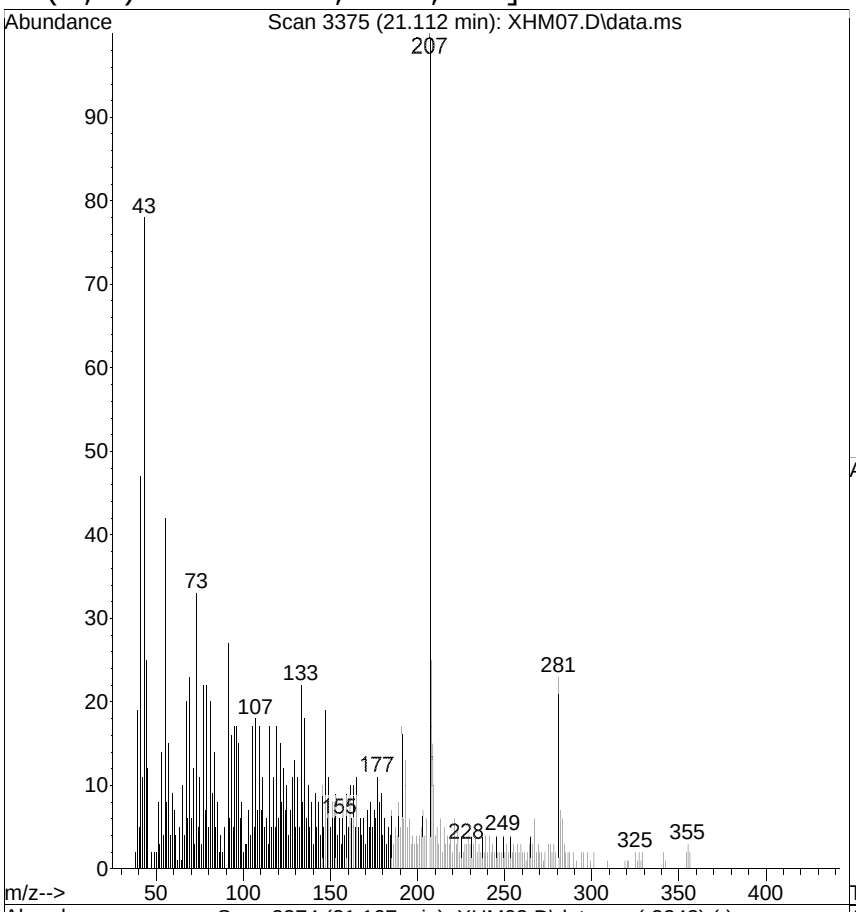
Ref





[Dibenz(a,h)anthracene; <RL; u]

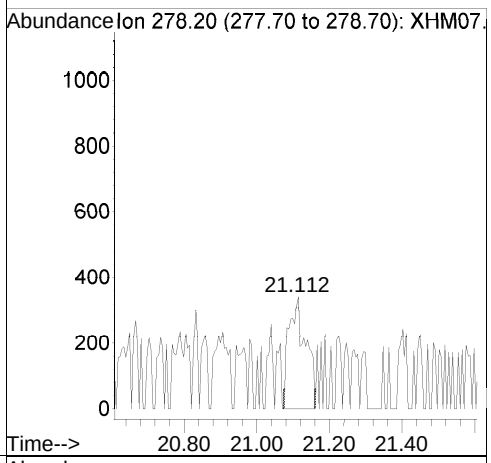
Raw



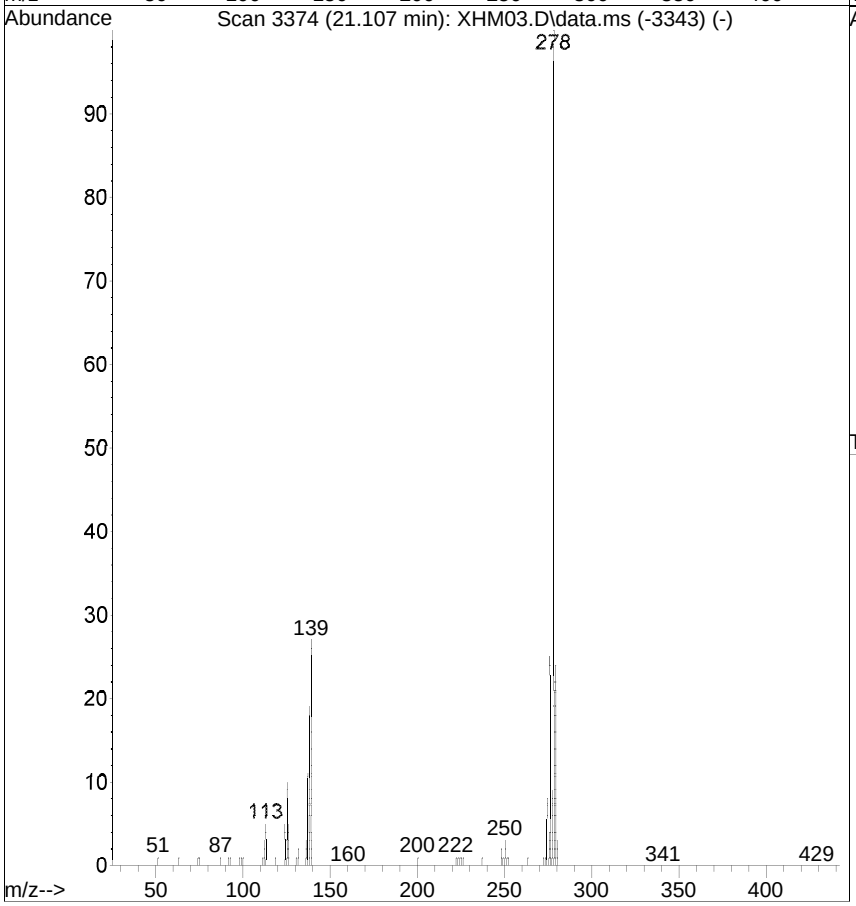
#85
Dibenz(a,h)anthracene
Concen: 0.0102 ug/mL
RT: 21.112 min Scan# 3375
Delta R.T. 0.006 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

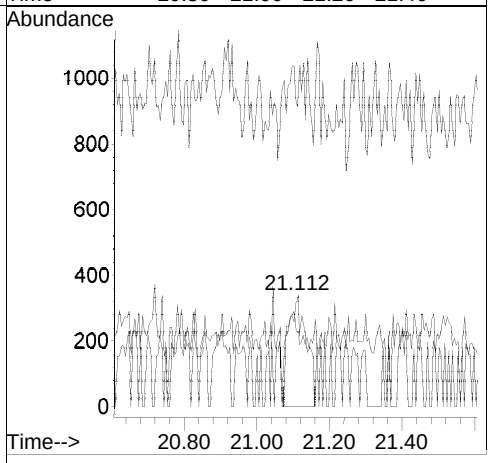
Tgt Ion:278 Resp: 1109

Ion	Ratio	Lower	Upper
278	100		
139	267.7	4.9	44.9#
279	66.0	4.1	44.1#



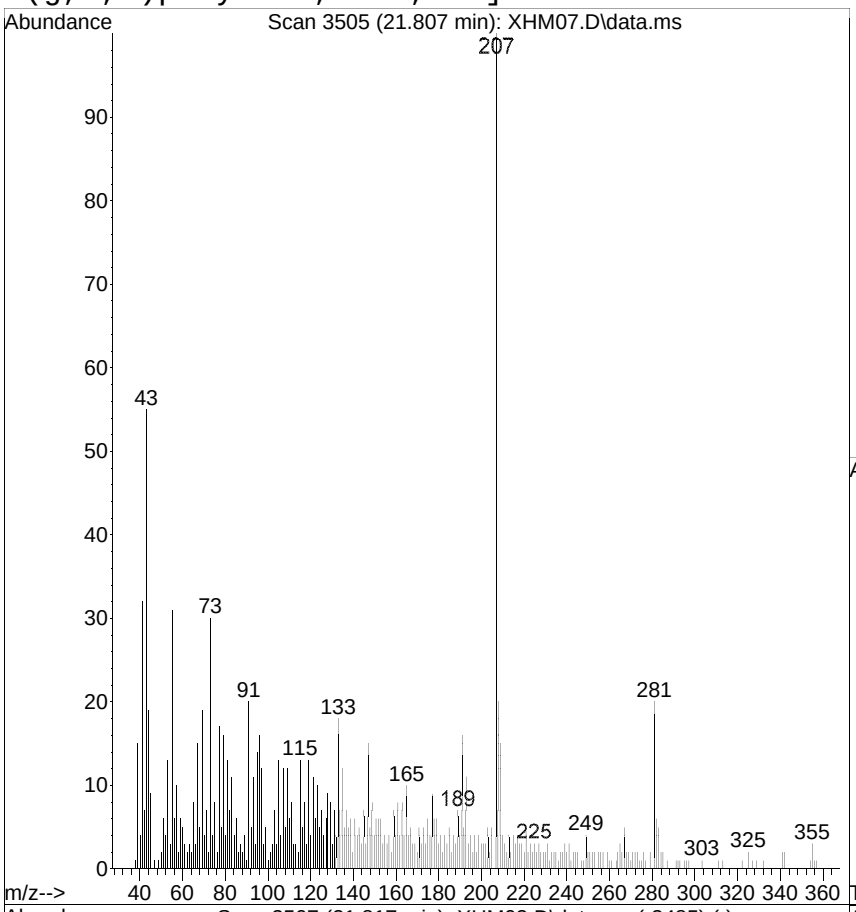
Ref





[Benzo(g,h,i)perylene; <RL; u]

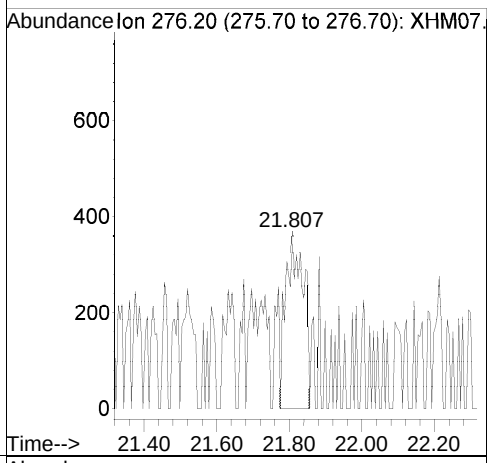
Raw



#86
Benzo(g,h,i)perylene
Concen: 0.0117 ug/mL
RT: 21.807 min Scan# 3505
Delta R.T. -0.010 min
Lab File: XHM07.D
Acq: 22 Aug 2014 4:00 pm

Tgt Ion:276 Resp: 1244

Ion	Ratio	Lower	Upper
276	100		
138	191.6	11.2	51.2#
277	53.9	4.0	44.0#



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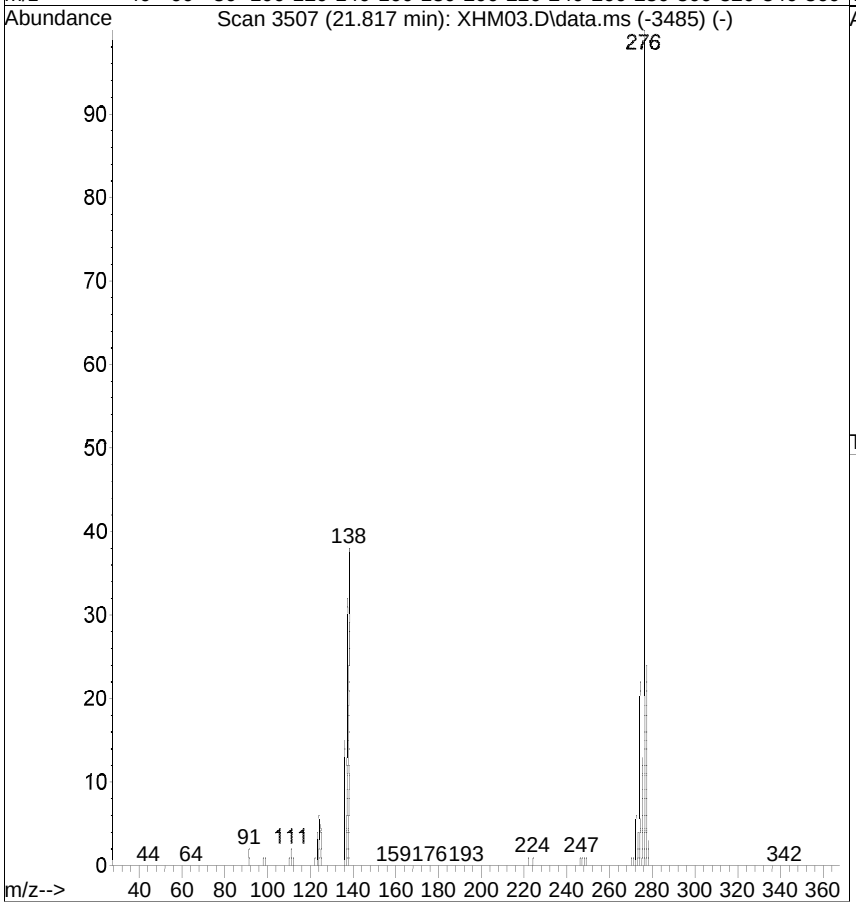
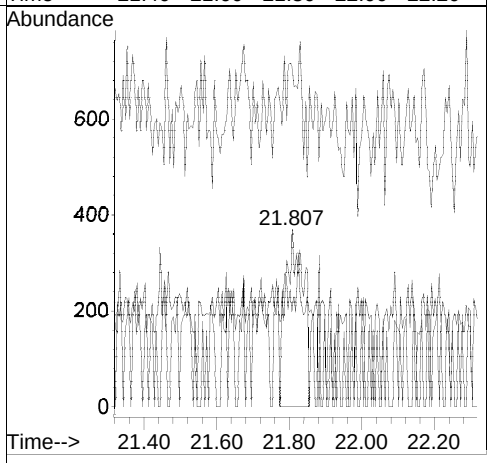




QC Raw Data

CURTIS & TOMPKINS BLANK USER REPORT FOR 259835 MSBNA Water
EPA 8270D

Inst : MSBNA09 Lab ID : QC754310
Seqnum : 584336313004.1 Matrix : Water
File : rhl04 Batch : 214595 Time : 21-AUG-2014 14:45
Cal : 584305789001 Caldate : 31-JUL-2014
IDF : 1.0 Raw Units : ug/mL Units : ug/L

1000.00 mL --> 1.0 ml = 0.001 ml/ml PDF

Analyte	Raw	Result	RTS	RL	Flags
N-Nitrosodimethylamine	0	ND		10	u
Phenol	0	ND		10	u
bis(2-Chloroethyl)ether	0	ND		10	u
2-Chlorophenol	0	ND		10	u
1,3-Dichlorobenzene	0	ND		10	u
1,4-Dichlorobenzene	0	ND		10	u
Benzyl alcohol	0.1373	ND		10	u
1,2-Dichlorobenzene	0	ND		10	u
2-Methylphenol	0	ND		10	u
bis(2-Chloroisopropyl) ether	0	ND		10	u
4-Methylphenol	0	ND		10	u
N-Nitroso-di-n-propylamine	6.738	6.7 J	0.183	10	u x
Hexachloroethane	0	ND		10	u
Nitrobenzene	0.1193	ND		10	u
Isophorone	0.02170	ND		10	u
2-Nitrophenol	0	ND		20	u
2,4-Dimethylphenol	0.6238	ND		10	u
Benzoic acid	0.1748	ND		50	u
bis(2-Chloroethoxy)methane	0.02730	ND		10	u
2,4-Dichlorophenol	0	ND		10	u
1,2,4-Trichlorobenzene	0	ND		10	u
Naphthalene	0.01070	ND		10	u
4-Chloroaniline	0	ND		10	u
Hexachlorobutadiene	0	ND		10	u
4-Chloro-3-methylphenol	0	ND		10	u
2-Methylnaphthalene	0.01750	ND		10	u
Hexachlorocyclopentadiene	0	ND		20	u
2,4,6-Trichlorophenol	0	ND		10	u
2,4,5-Trichlorophenol	0	ND		10	u
2-Chloronaphthalene	0	ND		10	u
2-Nitroaniline	0.2265	ND		20	u
Dimethylphthalate	4.498	4.5 J	0.365	10	u x
Acenaphthylene	0	ND		10	u
2,6-Dinitrotoluene	15.22	15	0.288	10	u x
3-Nitroaniline	0	ND		20	u
Acenaphthene	0.09990	ND		10	u
2,4-Dinitrophenol	0	ND		20	u
4-Nitrophenol	0.3223	ND		20	u
Dibenzofuran	0	ND		10	u
2,4-Dinitrotoluene	10.97	11	-0.218	10	u x
Diethylphthalate	0.1227	ND		10	u
Fluorene	0.2941	ND		10	u
4-Chlorophenyl-phenylether	0	ND		10	u
4-Nitroaniline	0	ND		20	u
4,6-Dinitro-2-methylphenol	0	ND		20	u
N-Nitrosodiphenylamine	0.2199	ND		10	u

Analyte	Raw	Result	RTS	RL	Flags
Azobenzene	0.02850	ND		10	u
4-Bromophenyl-phenylether	0.9886	ND		10	u
Hexachlorobenzene	0	ND		10	u
Pentachlorophenol	0	ND		20	u
Phenanthrene	0.01450	ND		10	u
Anthracene	0.01470	ND		10	u
Carbazole	0	ND		10	u
Di-n-butylphthalate	0.3364	ND		10	u
Fluoranthene	0.09400	ND		10	u
Pyrene	0.07900	ND		10	u
Butylbenzylphthalate	0.1409	ND		10	u
3,3'-Dichlorobenzidine	0	ND		20	u
Benzo(a)anthracene	0.08130	ND		10	u
Chrysene	0.08580	ND		10	u
bis(2-Ethylhexyl)phthalate	0.7812	ND		10	u
Di-n-octylphthalate	0.006000	ND		10	u
Benzo(b)fluoranthene	0	ND		10	u
Benzo(k)fluoranthene	0	ND		10	u
Benzo(a)pyrene	0.1250	ND		10	u
Indeno(1,2,3-cd)pyrene	0	ND		10	u
Dibenz(a,h)anthracene	0	ND		10	u
Benzo(g,h,i)perylene	0	ND		10	u

Surrogate	Raw	Spiked	Result	%Rec	Limits	Flags
2-Fluorophenol	34.25	40.00	34.25	86	20-110	u
Phenol-d5	35.62	40.00	35.62	89	10-115	u
2,4,6-Tribromophenol	29.32	40.00	29.32	73	40-125	u
Nitrobenzene-d5	36.07	40.00	36.07	90	40-110	u
2-Fluorobiphenyl	35.55	40.00	35.55	89	50-110	u
Terphenyl-d14	35.38	40.00	35.38	88	50-135	u

ISTD (ICAL rgv21)	ICAL Abund	BLANK Abund	%Drift
1,4-Dichlorobenzene-d4	1195108	970897	-18.76
Naphthalene-d8	4635194	3544000	-23.54
Acenaphthene-d10	2989178	2172084	-27.34
Phenanthrene-d10	5453704	3941018	-27.74
Chrysene-d12	6186500	5010181	-19.01
Perylene-d12	5646577	4430666	-21.53

ISTD (CCV rhl03)	CCV RT	BLANK RT	Drift
1,4-Dichlorobenzene-d4	6.21	6.21	0.00
Naphthalene-d8	7.70	7.70	0.00
Acenaphthene-d10	9.86	9.86	0.00
Phenanthrene-d10	11.72	11.72	0.00
Chrysene-d12	15.17	15.17	0.00
Perylene-d12	18.20	18.20	0.00

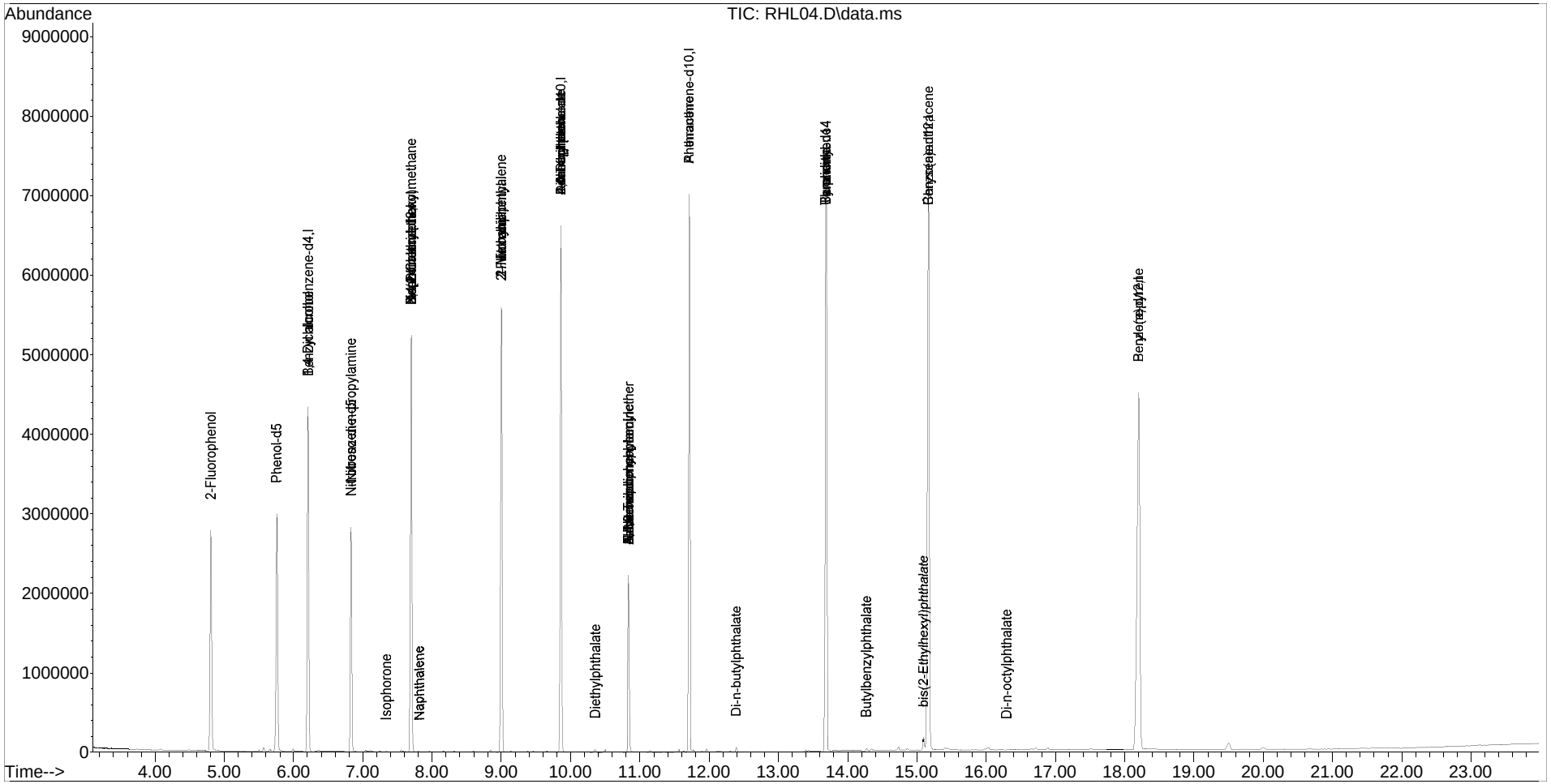
Analyst: KMH Date: 08/26/14 Reviewer: LW Date: 08/27/14

u=use x=false positive

Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082114\
Data File : RHL04.D
Acq On : 21 Aug 2014 2:45 pm
Operator :
Sample : MB,QC754310
Misc : 214595,1,
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 21 15:06:29 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Aug 21 14:21:14 2014
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082114\
Data File : RHL04.D
Acq On : 21 Aug 2014 2:45 pm
Operator :
Sample : MB,QC754310
Misc : 214595,1,
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 21 15:06:29 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Aug 21 14:21:14 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.210	152	970897	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.704	136	3544000	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.863	164	2172084	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.716	188	3941018	40.0000	ug/mL	0.00
70) Chrysene-d12	15.168	240	5010181	40.0000	ug/mL	0.00
79) Perylene-d12	18.203	264	4430666	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	0.000	79	0	N.D.		
3) N-Nitrosodimethylamine	0.000	42	0	N.D.		
4) 2-Fluorophenol	4.804	112	1218976	34.2544	ug/mL	# 71
5) Phenol-d5	5.757	99	1478604	35.6171	ug/mL	76
6) Phenol	0.000	94	0	N.D.		
7) Aniline	0.000	93	0	N.D.		
8) bis(2-Chloroethyl)ether	0.000	93	0	N.D.		
9) 2-Chlorophenol	0.000	128	0	N.D.		
10) 1,3-Dichlorobenzene	0.000	146	0	N.D.		
11) 1,4-Dichlorobenzene	0.000	146	0	N.D.		
12) Benzyl alcohol	6.210	108	3211	0.1373	ug/mL	# 1
13) 1,2-Dichlorobenzene	0.000	146	0	N.D.		
14) 2-Methylphenol	0.000	107	0	N.D.		
15) bis(2-Chloroisopropyl) ether	0.000	45	0	N.D.		
16) 4-Methylphenol	0.000	107	0	N.D.		
17) N-Nitroso-di-n-propylamine	6.834	70	161481	6.7383	ug/mL	77
18) Hexachloroethane	0.000	117	0	N.D.		
20) Nitrobenzene-d5	6.834	82	1229878	36.0657	ug/mL	# 74
21) Nitrobenzene	6.834	77	3806	0.1193	ug/mL	# 39
22) Isophorone	7.345	82	1419	0.0217	ug/mL	66
23) 2-Nitrophenol	0.000	139	0	N.D.		
24) 2,4-Dimethylphenol	7.704	107	20321	0.6238	ug/mL	# 22
25) bis(2-Chloroethoxy)methane	7.704	93	1105	0.0273	ug/mL	# 1
26) Benzoic acid	7.704	105	3997	0.1748	ug/mL	# 1
27) 2,4-Dichlorophenol	0.000	162	0	N.D.		
28) 1,2,4-Trichlorobenzene	0.000	180	0	N.D.		
29) Naphthalene	7.816	128	1028	0.0107	ug/mL	# 1
30) 4-Chloroaniline	0.000	127	0	N.D.		
31) Hexachlorobutadiene	0.000	225	0	N.D.		
32) Resorcinol	0.000	110	0	N.D.		
33) 4-Chloro-3-methylphenol	0.000	107	0	N.D.		
34) 2-Methylnaphthalene	9.004	142	1187	0.0175	ug/mL	88
35) 1-Methylnaphthalene	9.004	142	1187	0.0185	ug/mL	91
37) Hexachlorocyclopentadiene	0.000	237	0	N.D.		
38) 2,4,6-Trichlorophenol	0.000	196	0	N.D.		

Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082114\
Data File : RHL04.D
Acq On : 21 Aug 2014 2:45 pm
Operator :
Sample : MB,QC754310
Misc : 214595,1,
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 21 15:06:29 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Aug 21 14:21:14 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	0.000	196	0	N.D.		
40) 2-Fluorobiphenyl	9.010	172	2748386	35.5526	ug/mL	99
41) 2-Chloronaphthalene	0.000	162	0	N.D.		
42) 2-Nitroaniline	9.004	65	4342	0.2265	ug/mL #	1
43) Dimethylphthalate	9.863	163	344919	4.4980	ug/mL #	1
44) 2,6-Dinitrotoluene	9.863	165	282556	15.2190	ug/mL #	16
45) Acenaphthylene	0.000	152	0	N.D.		
46) 3-Nitroaniline	0.000	138	0	N.D.		
47) Acenaphthene	9.863	154	6802	0.0999	ug/mL #	7
48) 2,4-Dinitrophenol	0.000	184	0	N.D.		
49) 4-Nitrophenol	9.863	109	3345	0.3223	ug/mL #	3
50) Dibenzofuran	0.000	168	0	N.D.		
51) 2,4-Dinitrotoluene	9.863	165	282556	10.9731	ug/mL #	15
52) 2,3,4,6-Tetrachlorophenol	0.000	232	0	N.D.		
53) Diethylphthalate	10.357	149	10210	0.1227	ug/mL	97
54) 4-Chlorophenyl-phenylether	0.000	204	0	N.D.		
55) Fluorene	10.839	166	22911	0.2941	ug/mL #	70
56) 4-Nitroaniline	0.000	138	0	N.D.		
57) 2,4,6-Tribromophenol	10.839	330	340027	29.3203	ug/mL #	83
59) 4,6-Dinitro-2-methylphenol	0.000	198	0	N.D.		
60) N-Nitrosodiphenylamine	10.839	169	12943	0.2199	ug/mL #	23
61) Azobenzene	10.839	77	2243	0.0285	ug/mL #	1
62) 4-Bromophenyl-phenylether	10.839	248	24139	0.9886	ug/mL #	1
63) Hexachlorobenzene	0.000	284	0	N.D.		
64) Pentachlorophenol	0.000	266	0	N.D.		
65) Phenanthrene	11.716	178	1659	0.0145	ug/mL #	1
66) Anthracene	11.716	178	1659	0.0147	ug/mL #	1
67) Carbazole	0.000	167	0	N.D.		
68) Di-n-butylphthalate	12.392	149	48656	0.3364	ug/mL	97
69) Fluoranthene	13.686	202	11833	0.0940	ug/mL	92
71) Benzidine	13.686	184	45942	0.8418	ug/mL #	1
72) Pyrene	13.686	202	11833	0.0790	ug/mL #	56
73) Terphenyl-d14	13.686	244	4114857	35.3757	ug/mL	96
74) Butylbenzylphthalate	14.274	149	10043	0.1409	ug/mL	95
75) 3,3'-Dichlorobenzidine	0.000	252	0	N.D.		
76) Benzo(a)anthracene	15.168	228	11462	0.0813	ug/mL #	74
77) bis(2-Ethylhexyl)phthalate	15.098	149	76524	0.7812	ug/mL	98
78) Chrysene	15.168	228	11462	0.0858	ug/mL	78
80) Di-n-octylphthalate	16.298	149	1019	0.0060	ug/mL #	1
81) Benzo(b)fluoranthene	0.000	252	0	N.D.		
82) Benzo(k)fluoranthene	0.000	252	0	N.D.		
83) Benzo(a)pyrene	18.203	252	13642	0.1250	ug/mL	78
84) Indeno(1,2,3-cd)pyrene	0.000	276	0	N.D.		

Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082114\
Data File : RHL04.D
Acq On : 21 Aug 2014 2:45 pm
Operator :
Sample : MB,QC754310
Misc : 214595,1,
ALS Vial : 4 Sample Multiplier: 1

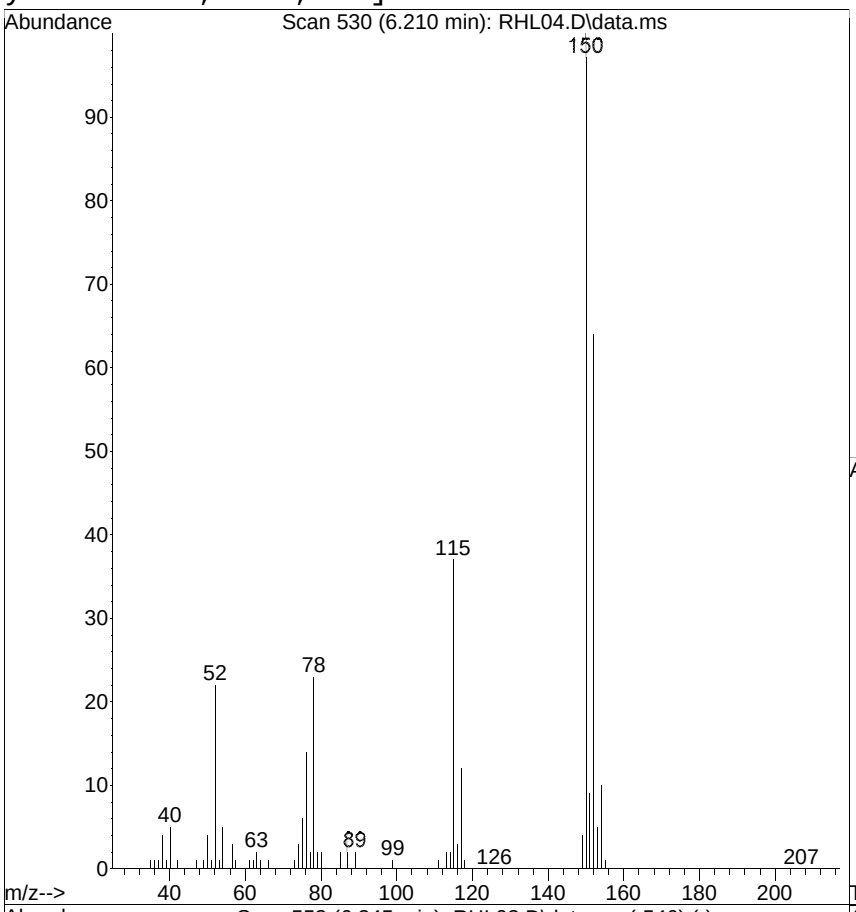
Quant Time: Aug 21 15:06:29 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Aug 21 14:21:14 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	0.000	278	0	N.D.		
86) Benzo(g,h,i)perylene	0.000	276	0	N.D.		

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

[Benzyl alcohol; <RL; u]

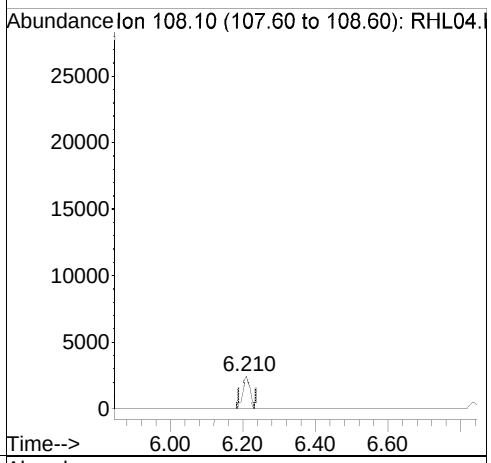
Raw



#12
Benzyl alcohol
Concen: 0.1373 ug/mL
RT: 6.210 min Scan# 530
Delta R.T. -0.135 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

Tgt Ion:108 Resp: 3211

Ion	Ratio	Lower	Upper
108	100		
79	764.2	125.0	165.0#
77	1161.7	68.0	108.0#



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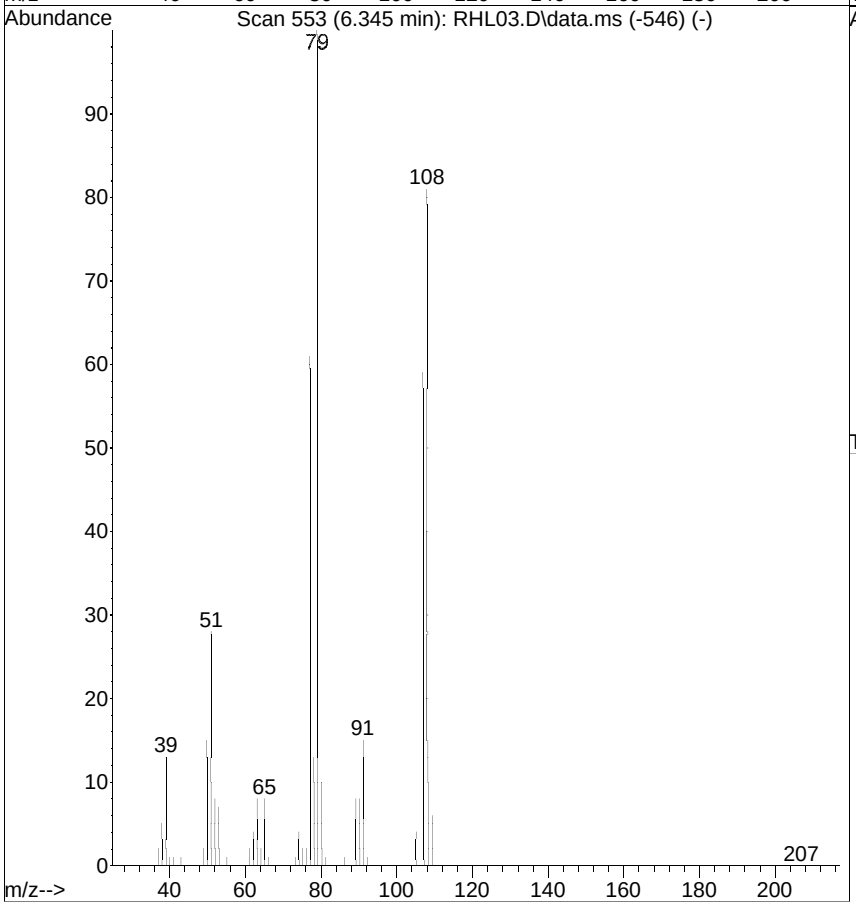
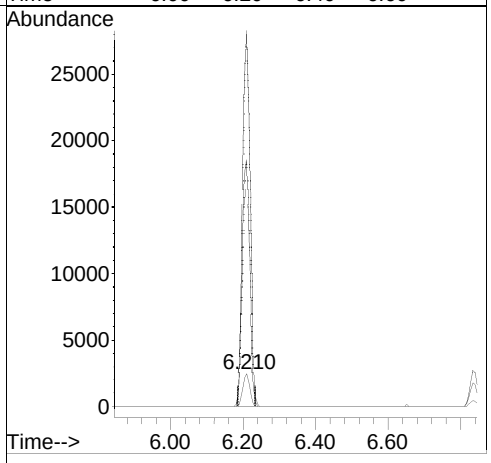
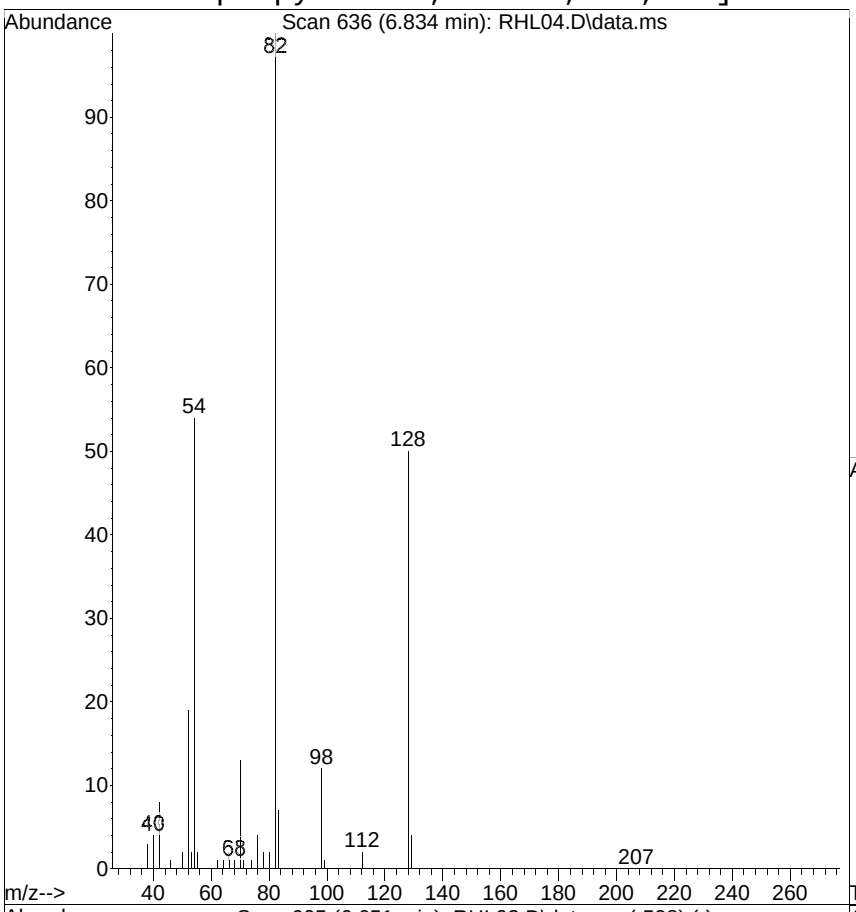




[N-Nitroso-di-n-propylamine; 6.7 J; FP; u]

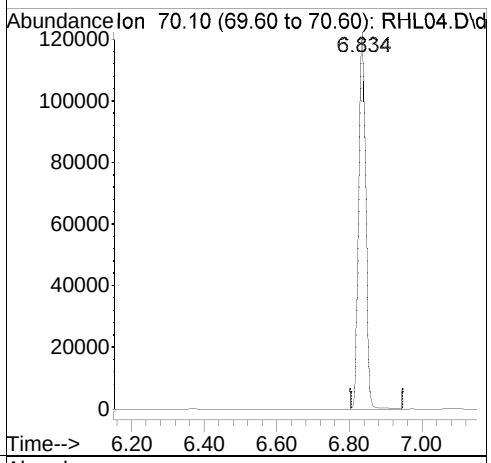
Raw



#17
N-Nitroso-di-n-propylamine
Concen: 6.7383 ug/mL
RT: 6.834 min Scan# 636
Delta R.T. 0.182 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

Tgt Ion: 70 Resp: 161481

Ion	Ratio	Lower	Upper
70	100		
42	57.5	55.0	95.0
101	0.0	0.0	34.0



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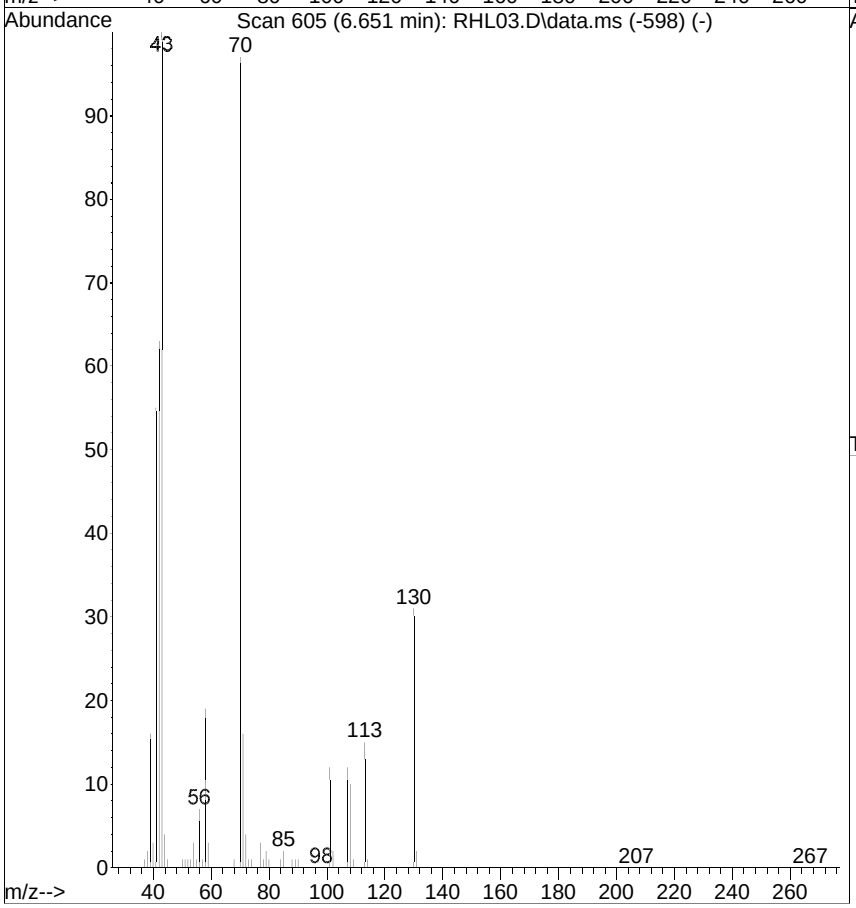
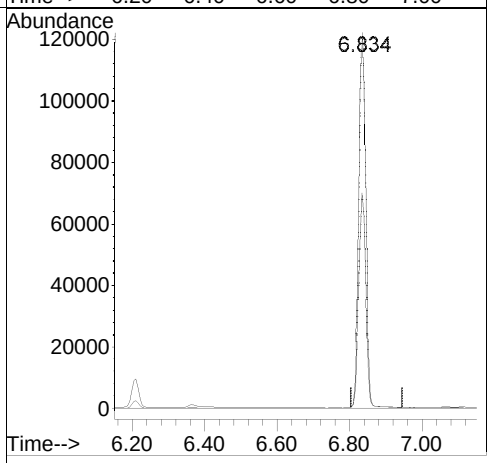
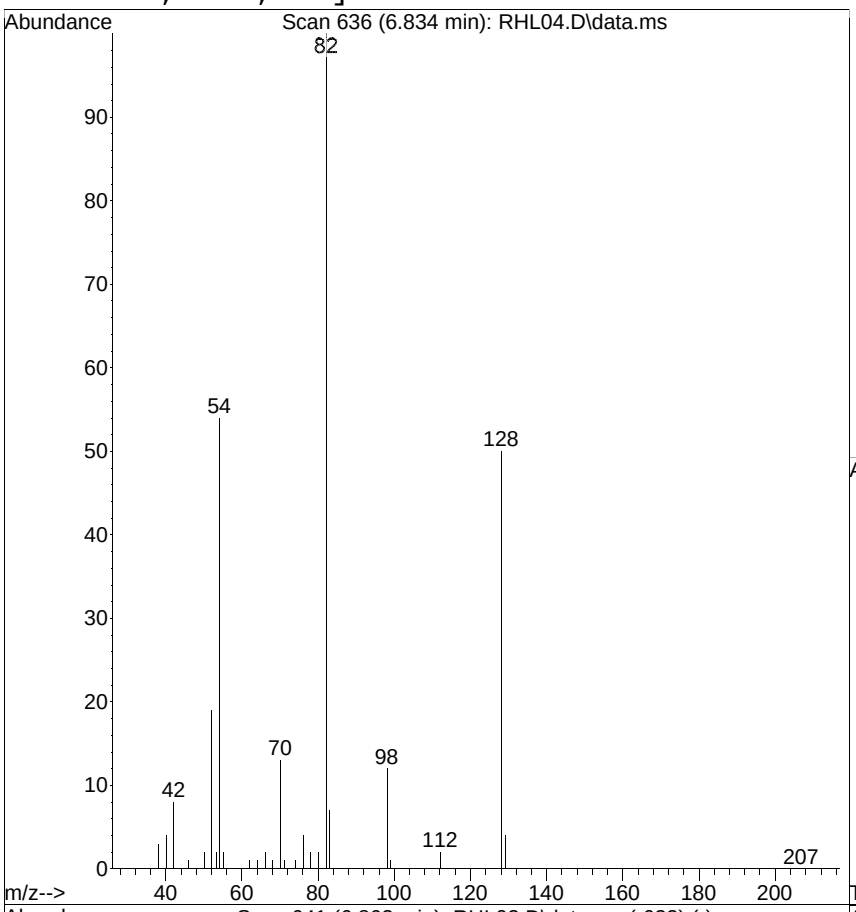




[Nitrobenzene; <RL; u]

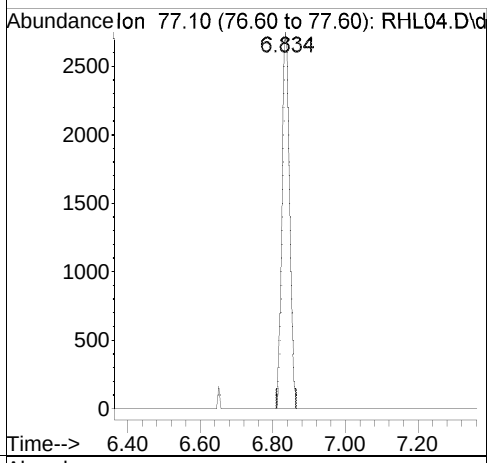
Raw



#21
Nitrobenzene
Concen: 0.1193 ug/mL
RT: 6.834 min Scan# 636
Delta R.T. -0.029 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

Tgt Ion: 77 Resp: 3806

Ion	Ratio	Lower	Upper
77	100		
123	0.0	19.0	59.0#
65	38.4	0.0	36.0#



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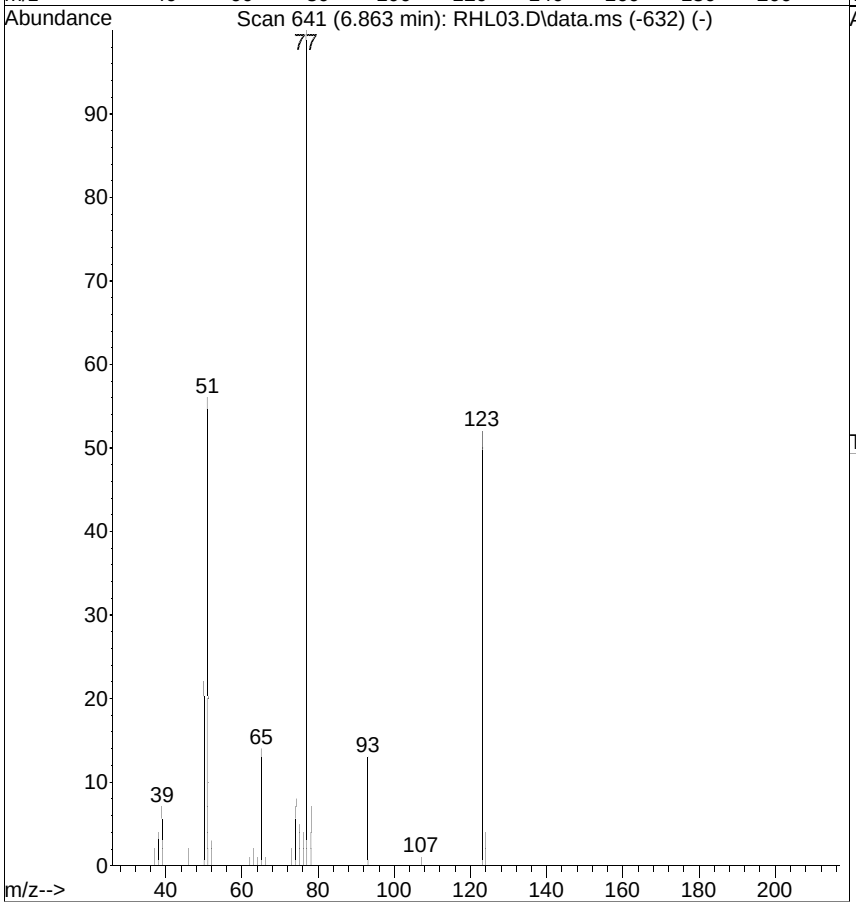
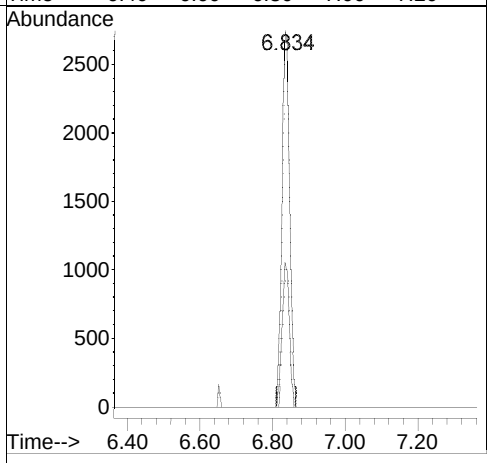
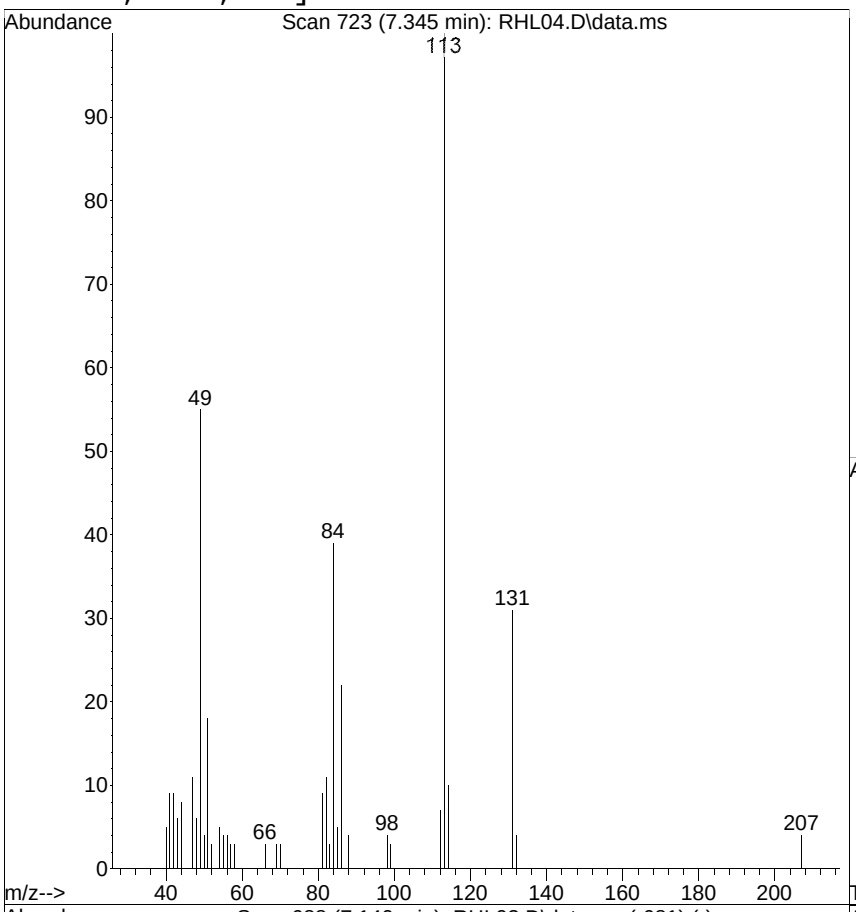




[Isophorone; <RL; u]

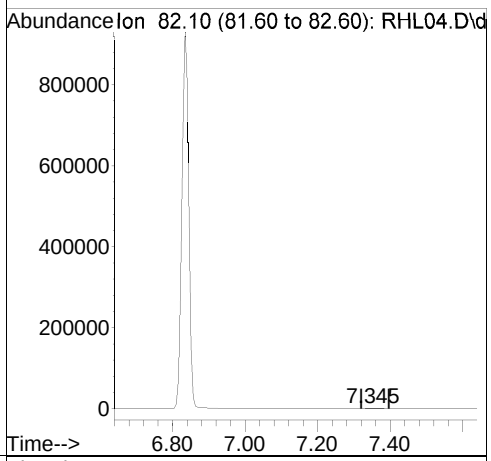
Raw



#22
Isophorone
Concen: 0.0217 ug/mL
RT: 7.345 min Scan# 723
Delta R.T. 0.206 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

Tgt Ion: 82 Resp: 1419

Ion	Ratio	Lower	Upper
82	100		
95	0.0	0.0	26.0
138	0.0	0.0	37.0



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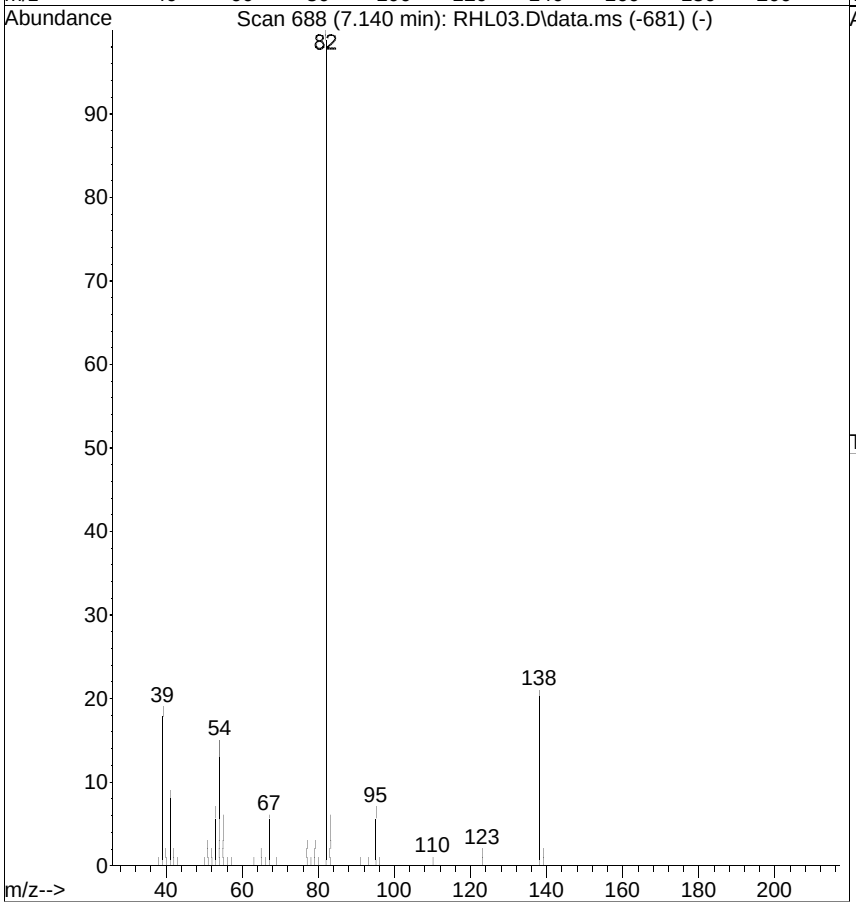
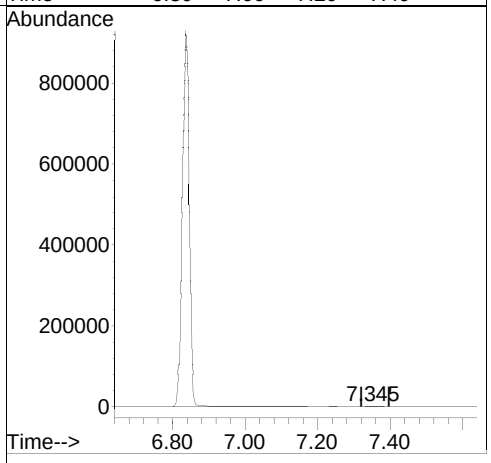
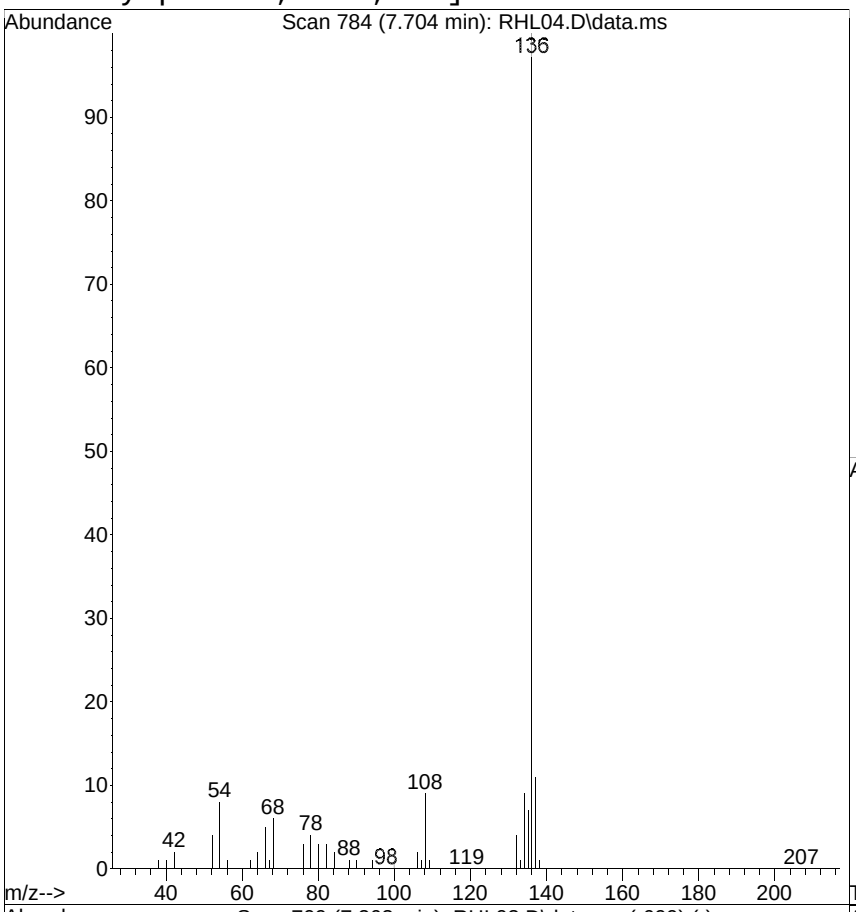




[2,4-Dimethylphenol; <RL; u]

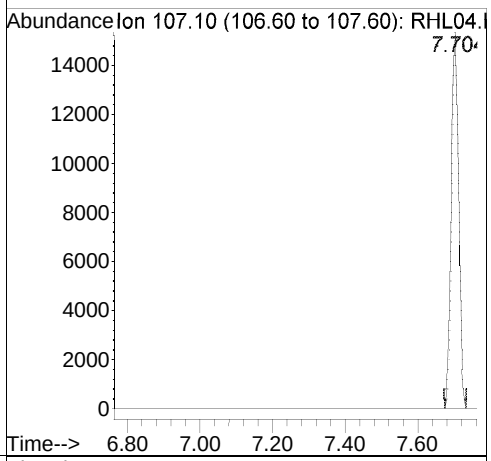
Raw



#24
2,4-Dimethylphenol
Concen: 0.6238 ug/mL
RT: 7.704 min Scan# 784
Delta R.T. 0.441 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

Tgt Ion:107 Resp: 20321

Ion	Ratio	Lower	Upper
107	100		
122	4.5	55.0	95.0#
121	0.0	26.0	66.0#



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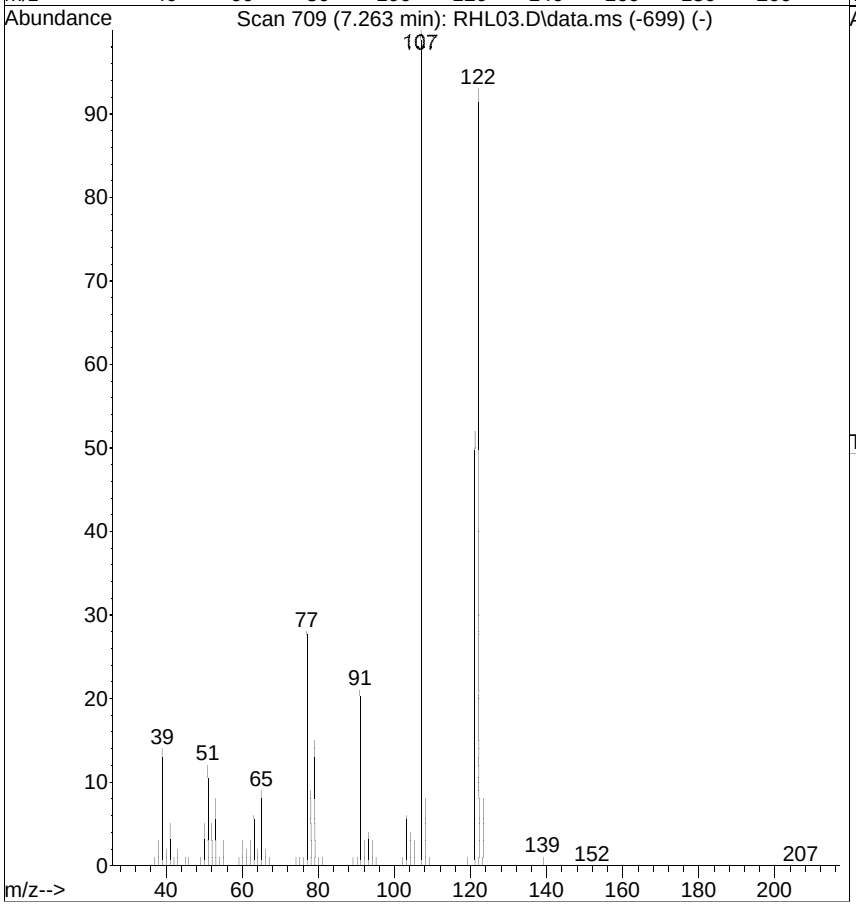
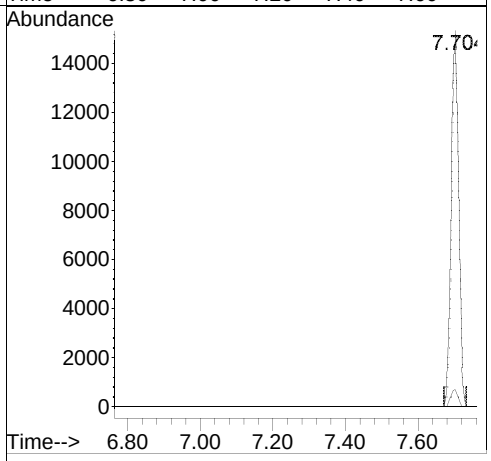
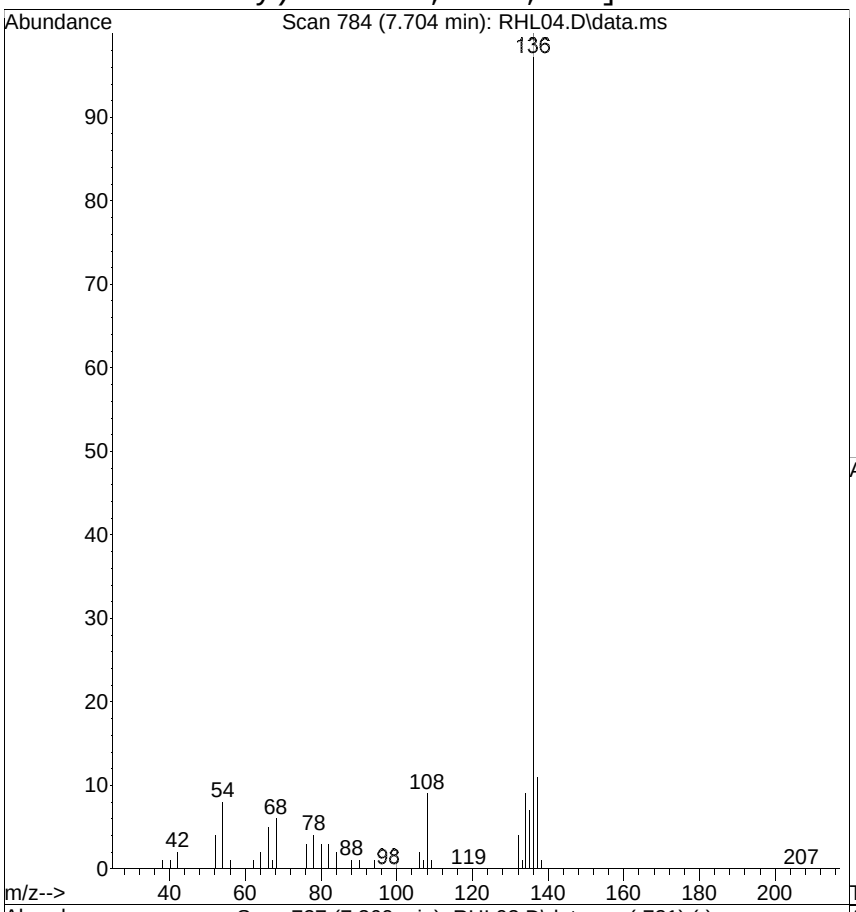




[bis(2-Chloroethoxy)methane; <RL; u]

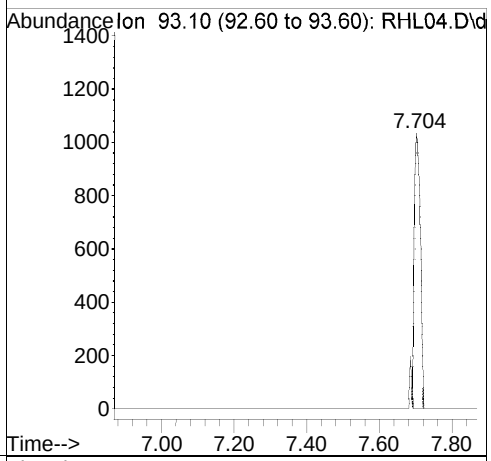
Raw



#25
bis(2-Chloroethoxy)methane
Concen: 0.0273 ug/mL
RT: 7.704 min Scan# 784
Delta R.T. 0.335 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

Tgt Ion: 93 Resp: 1105

Ion	Ratio	Lower	Upper
93	100		
95	132.9	13.0	53.0#
123	0.0	0.0	36.0



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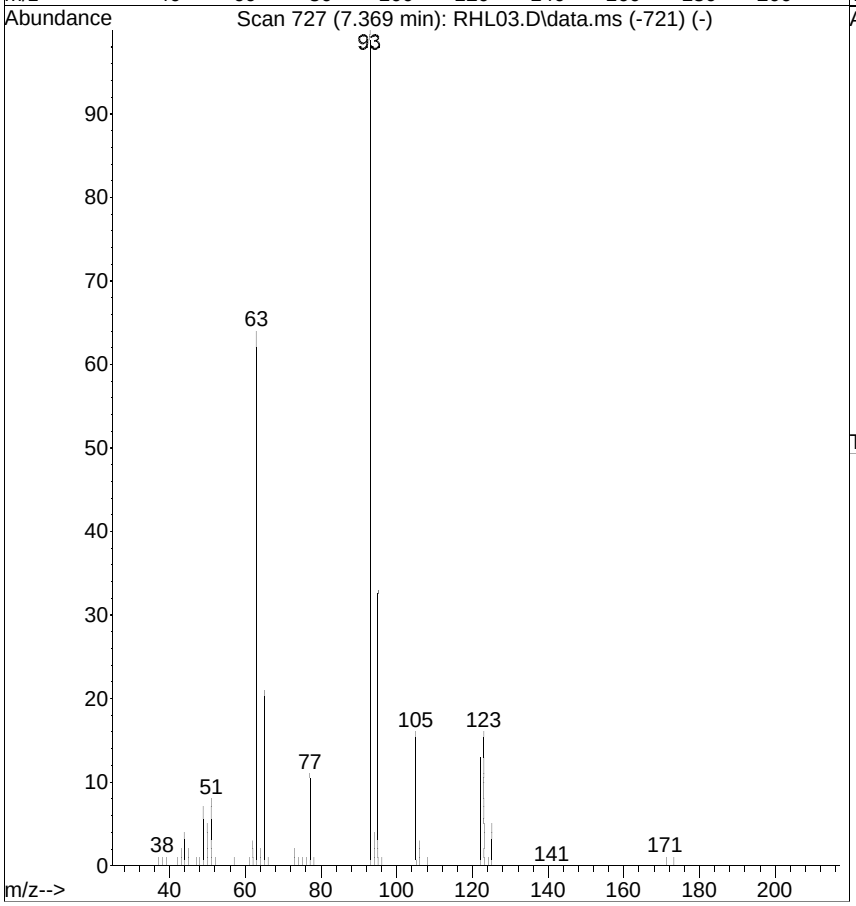
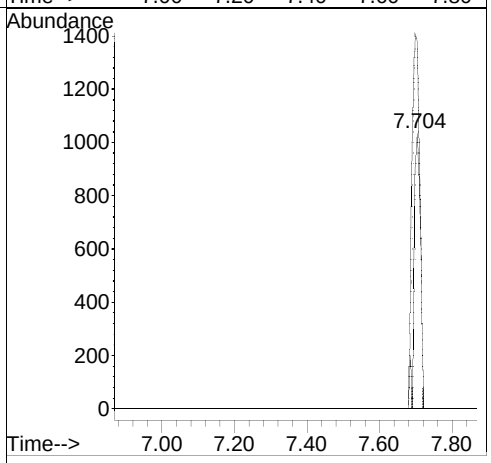
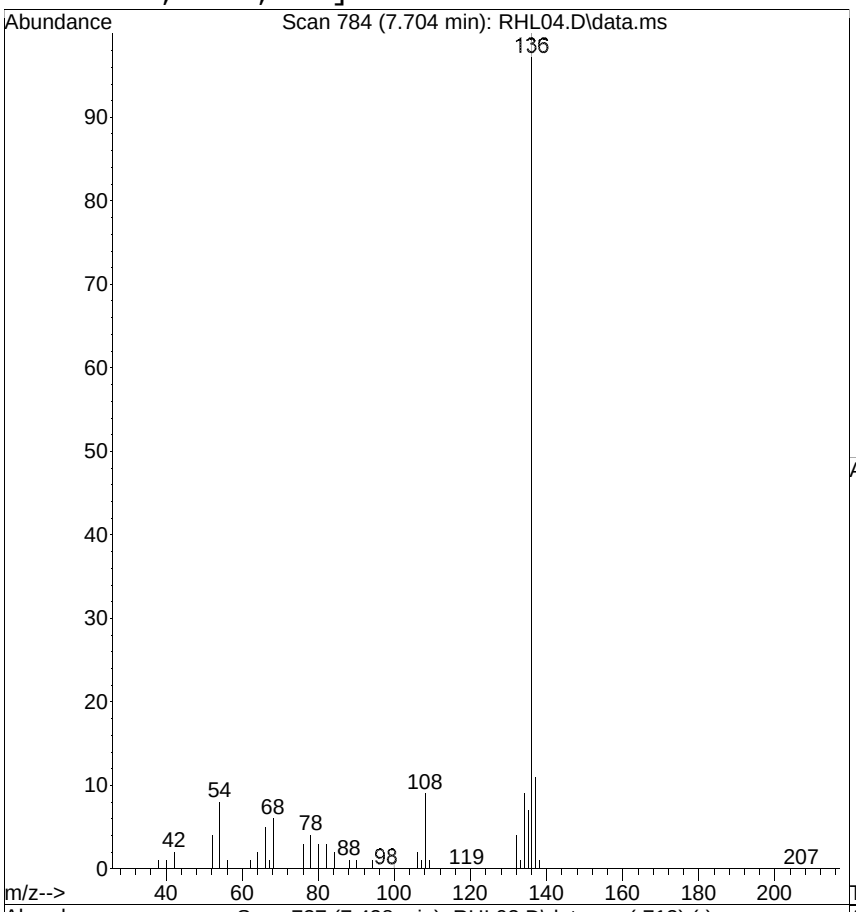




[Benzoic acid; <RL; u]

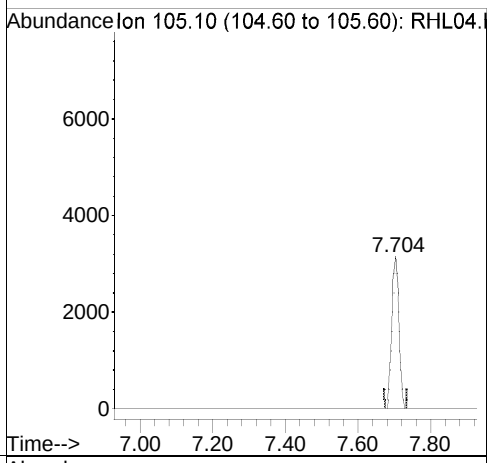
Raw



#26
Benzoic acid
Concen: 0.1748 ug/mL
RT: 7.704 min Scan# 784
Delta R.T. 0.276 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

Tgt Ion:105 Resp: 3997

Ion	Ratio	Lower	Upper
105	100		
122	21.9	60.0	100.0#
77	247.7	66.0	106.0#



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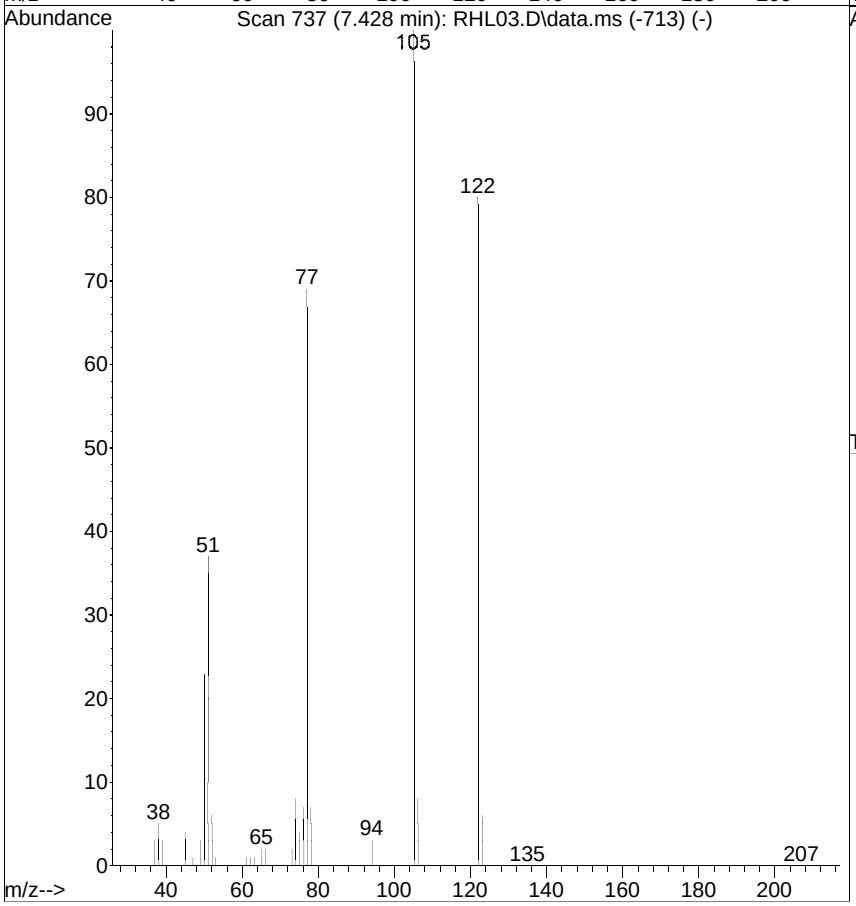
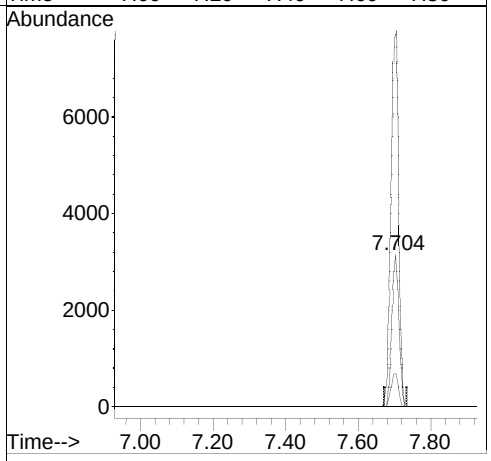
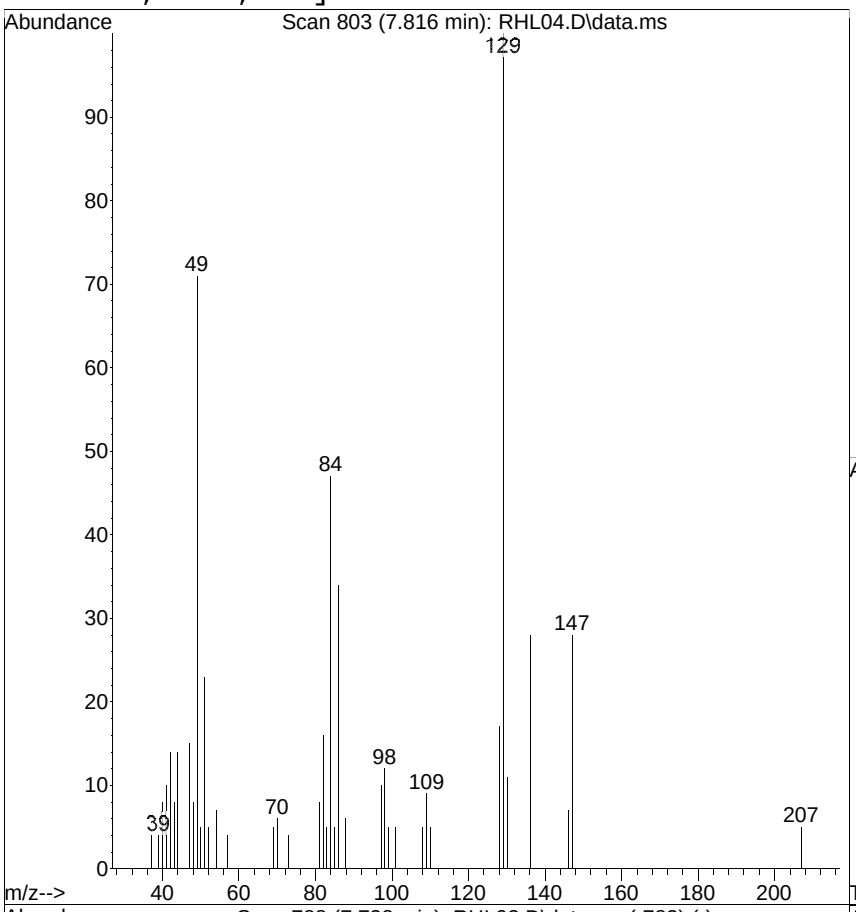




[Naphthalene; <RL; u]

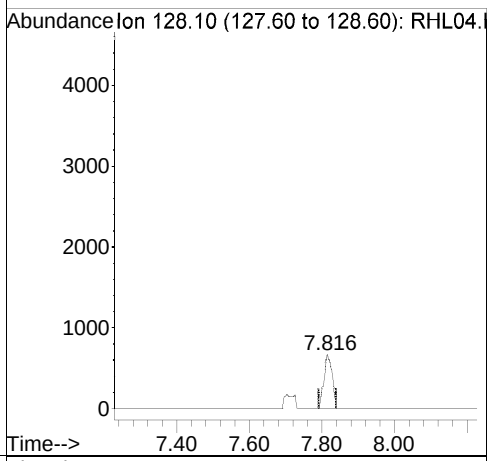
Raw



#29
Naphthalene
Concen: 0.0107 ug/mL
RT: 7.816 min Scan# 803
Delta R.T. 0.088 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

Tgt Ion:128 Resp: 1028

Ion	Ratio	Lower	Upper
128	100		
129	576.3	0.0	30.0#
127	0.0	0.0	32.0



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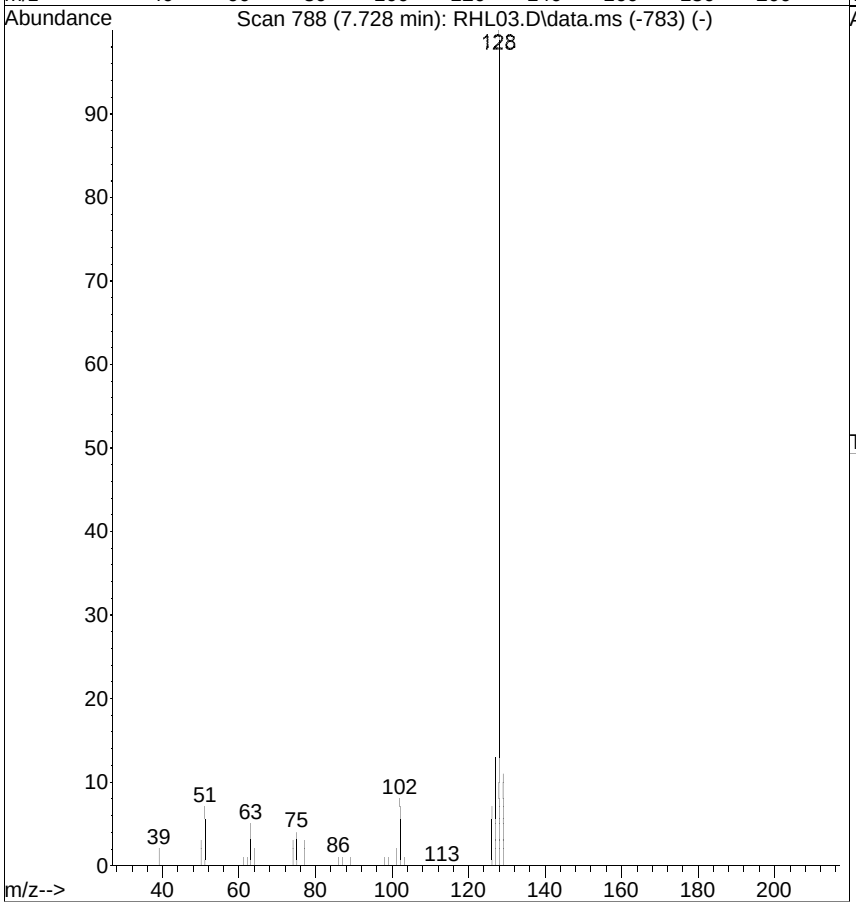
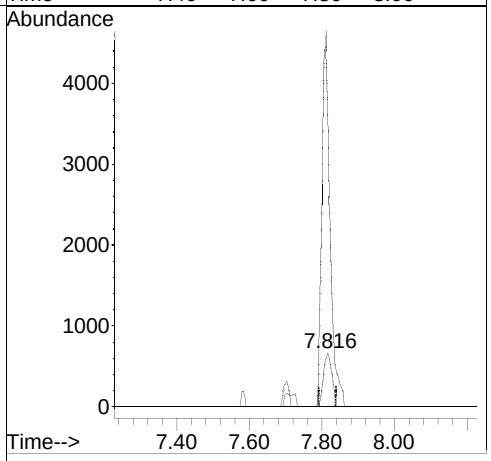
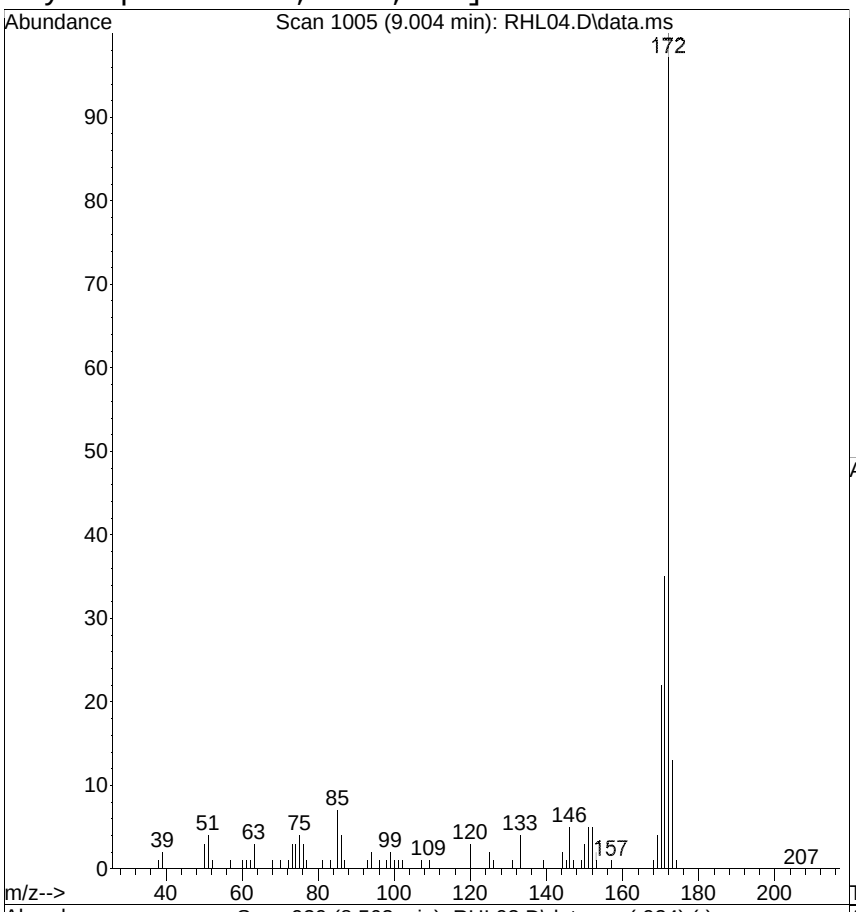




[2-Methylnaphthalene; <RL; u]

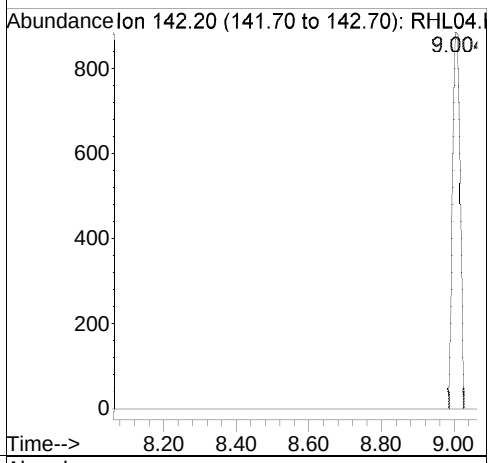
Raw



#34
2-Methylnaphthalene
Concen: 0.0175 ug/mL
RT: 9.004 min Scan# 1005
Delta R.T. 0.441 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

Tgt Ion:142 Resp: 1187

Ion	Ratio	Lower	Upper
142	100		
141	89.4	59.0	99.0



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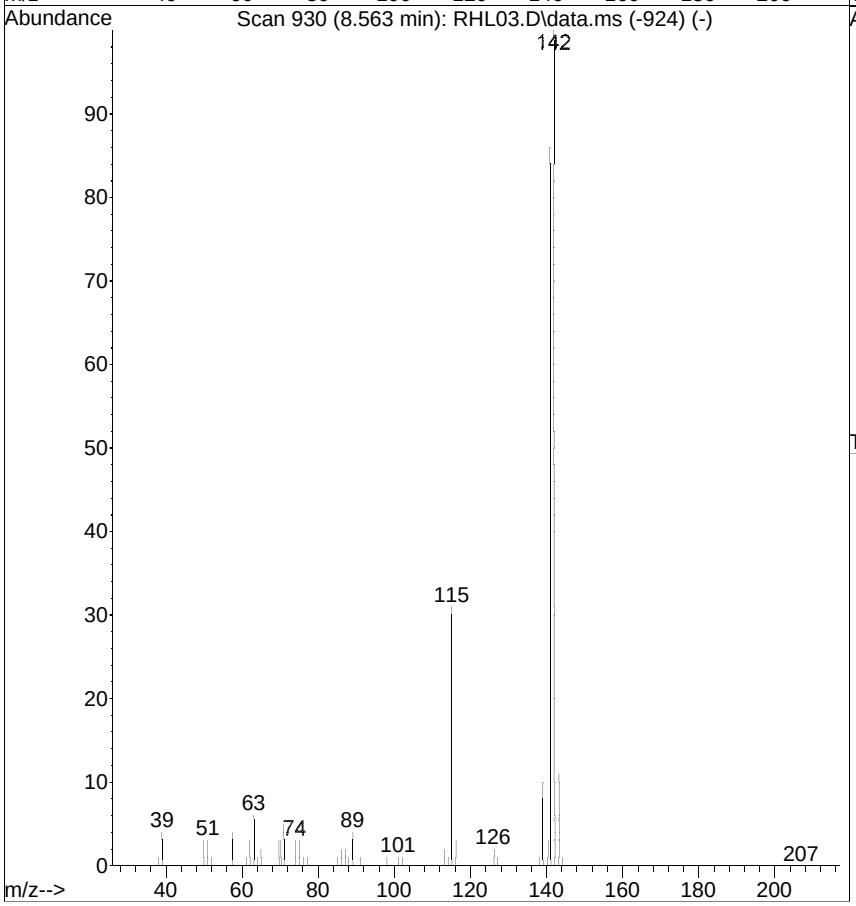
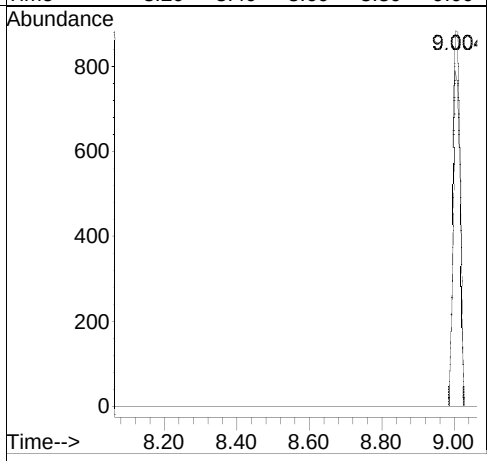
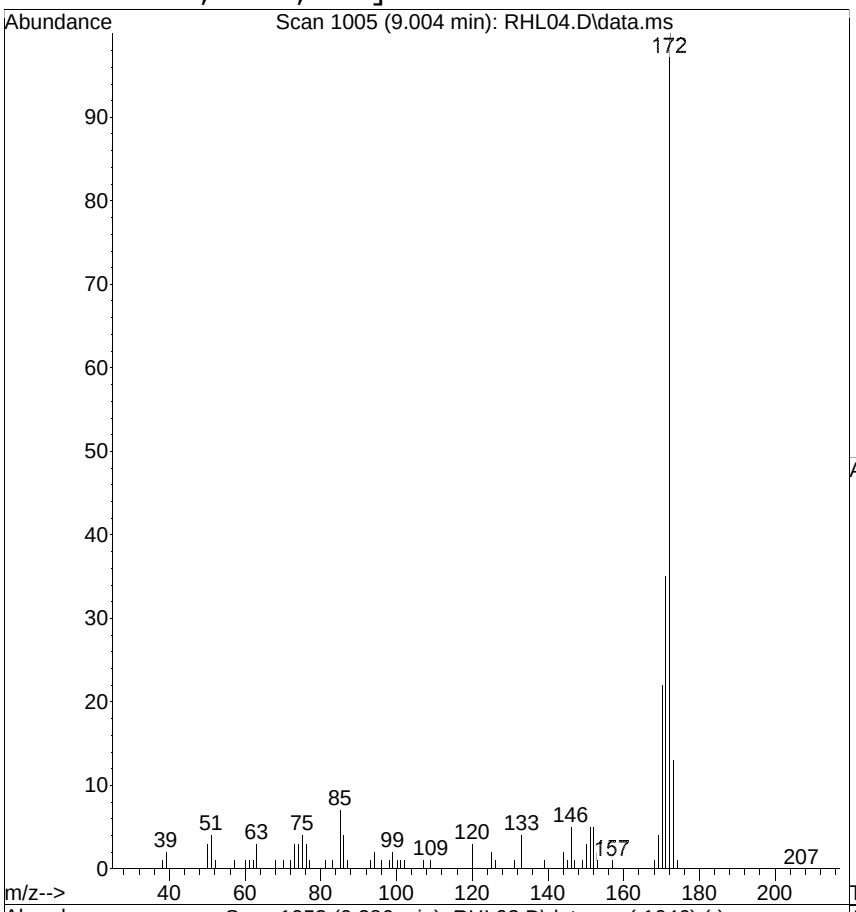




[2-Nitroaniline; <RL; u]

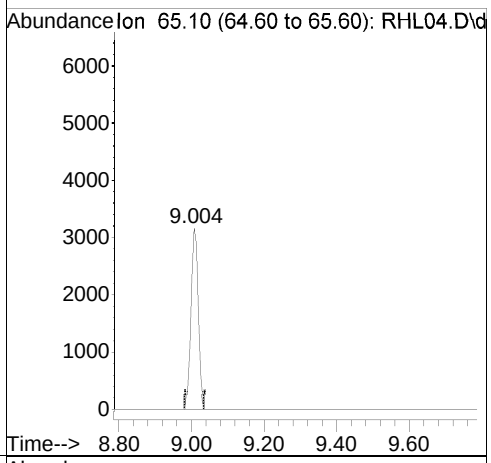
Raw



#42
2-Nitroaniline
Concen: 0.2265 ug/mL
RT: 9.004 min Scan# 1005
Delta R.T. -0.282 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

Tgt Ion: 65 Resp: 4342

Ion	Ratio	Lower	Upper
65	100		
92	208.2	46.0	86.0#
138	33.9	80.0	120.0#



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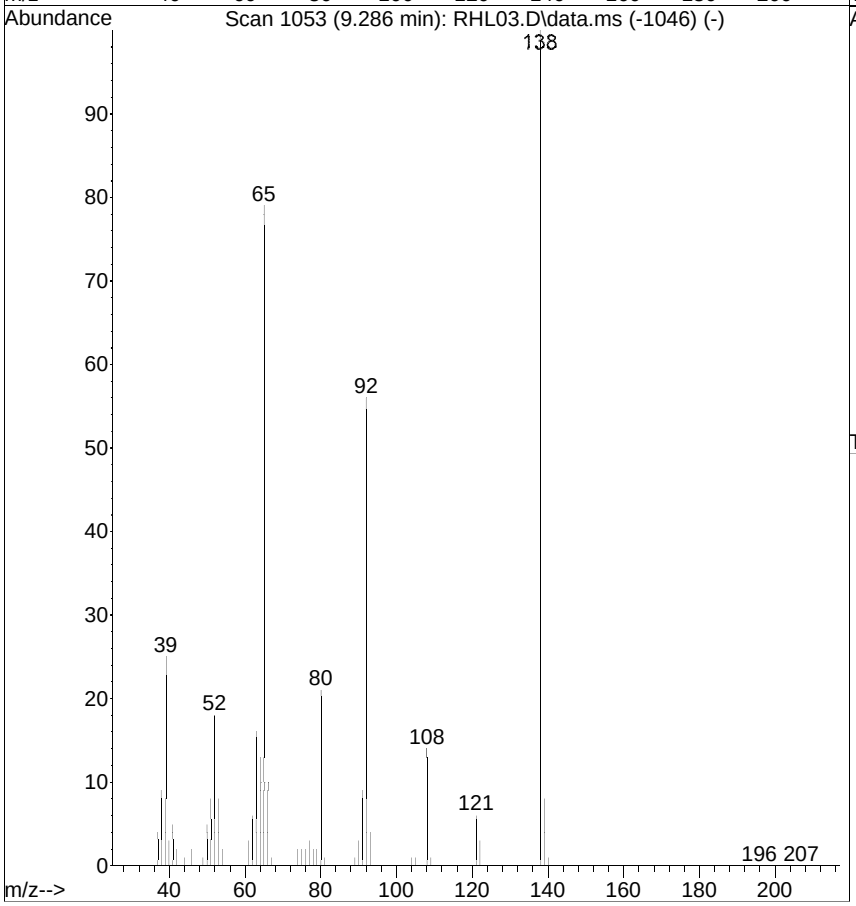
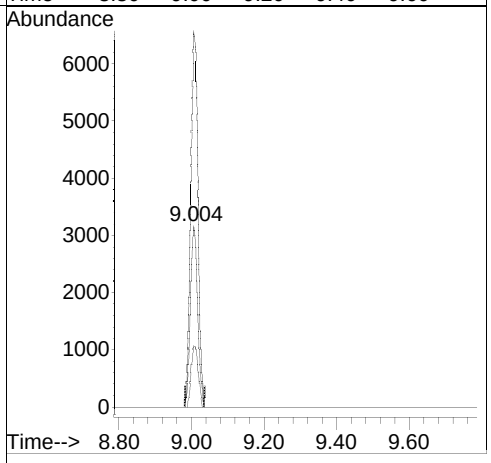
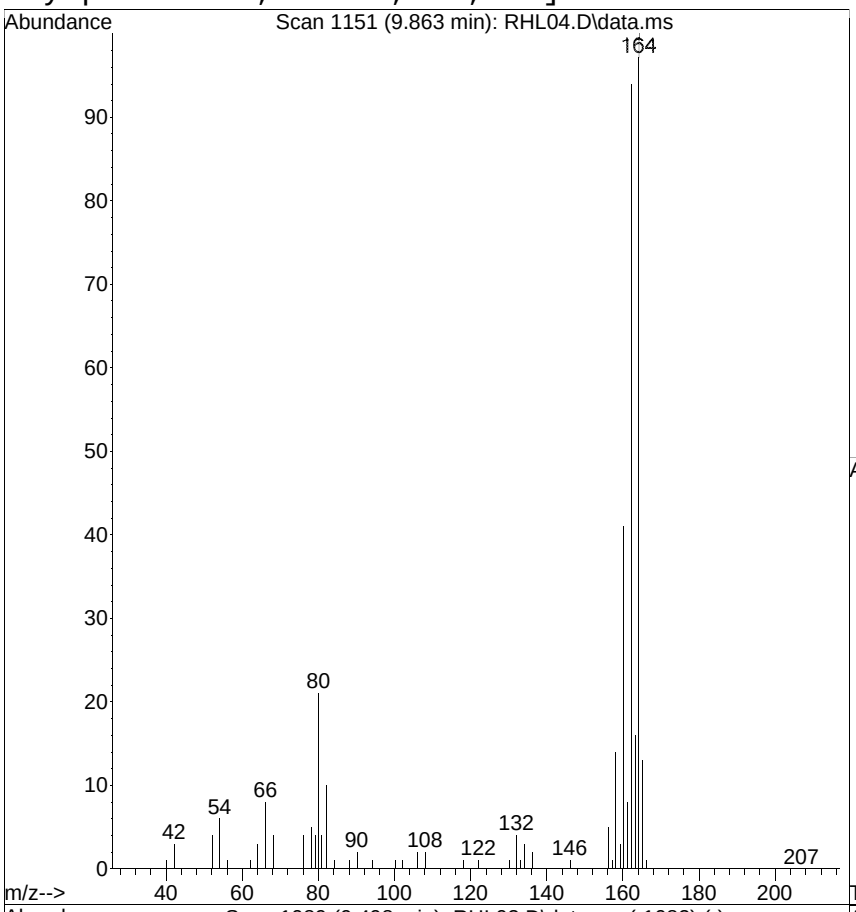




[Dimethylphthalate; 4.5 J; FP; u]

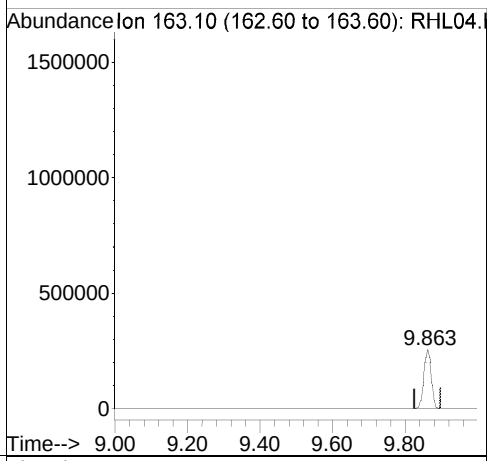
Raw



#43
Dimethylphthalate
Concen: 4.4980 ug/mL
RT: 9.863 min Scan# 1151
Delta R.T. 0.365 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

Tgt Ion:163 Resp: 344919

Ion	Ratio	Lower	Upper
163	100		
194	0.0	0.0	27.0
164	639.1	0.0	30.0#



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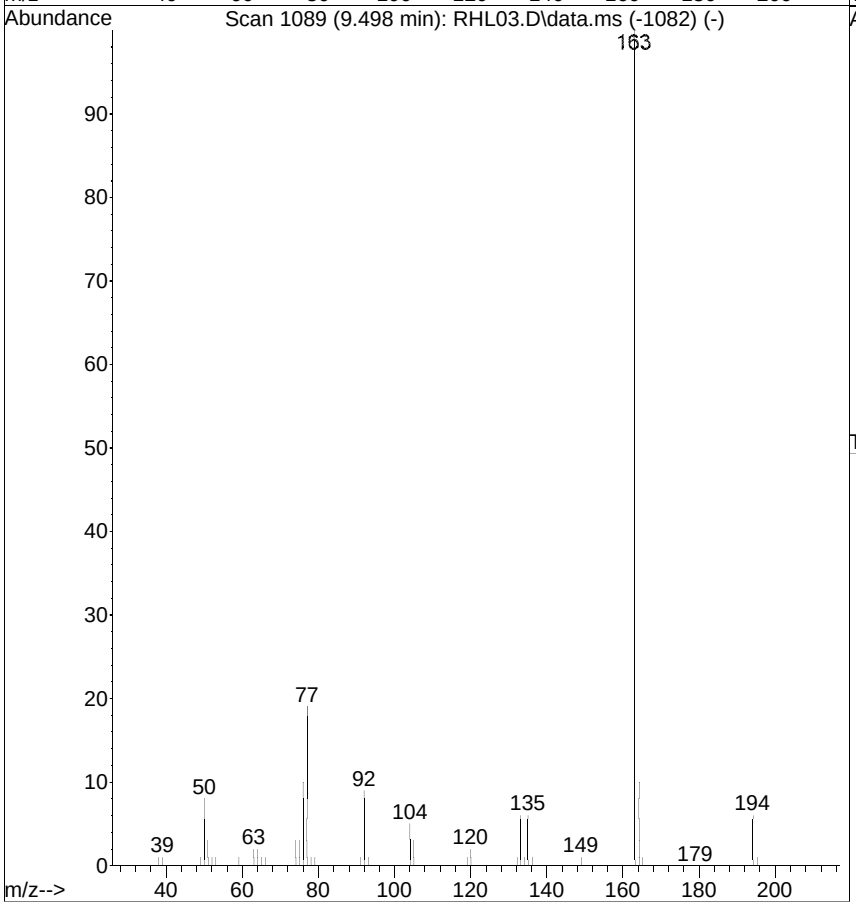
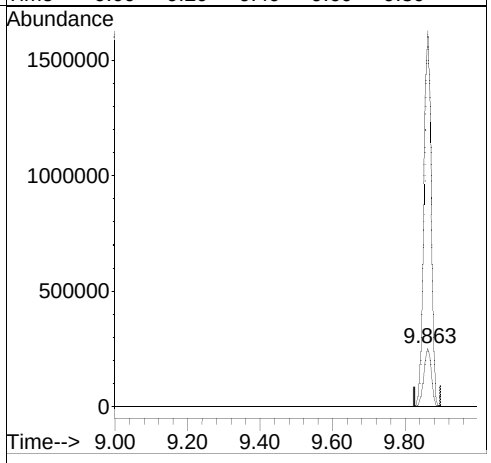
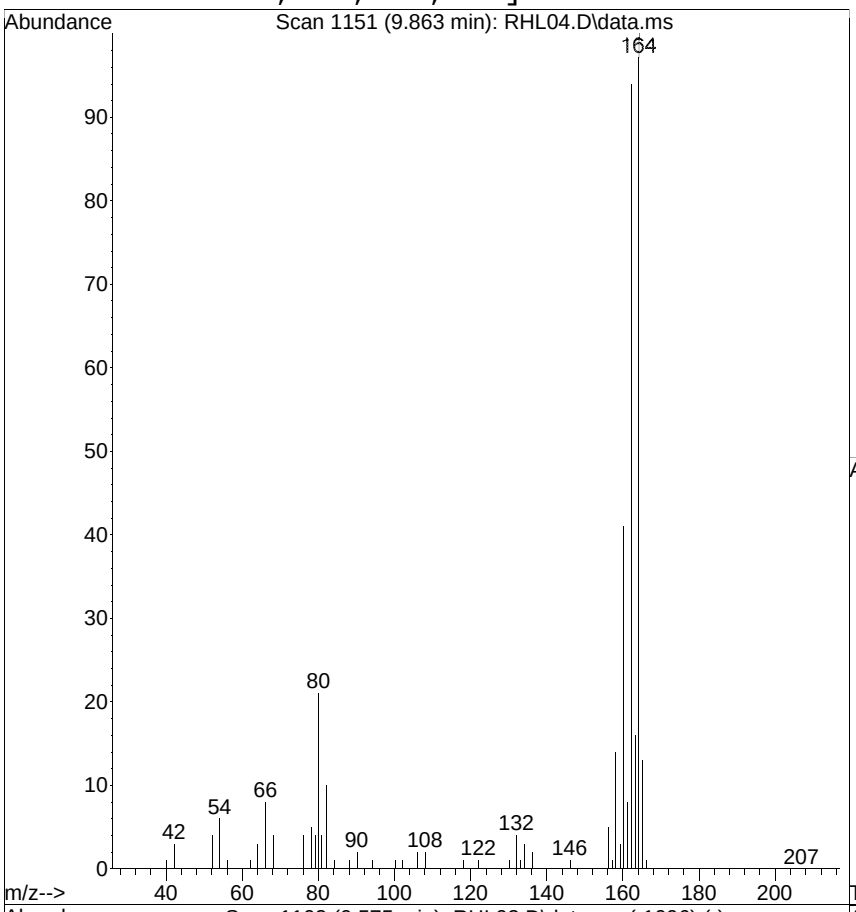




[2,6-Dinitrotoluene; 15; FP; u]

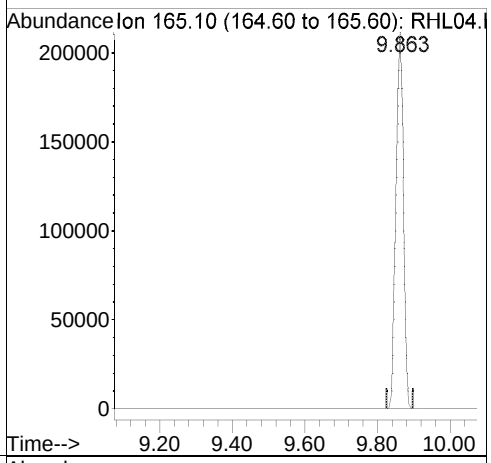
Raw



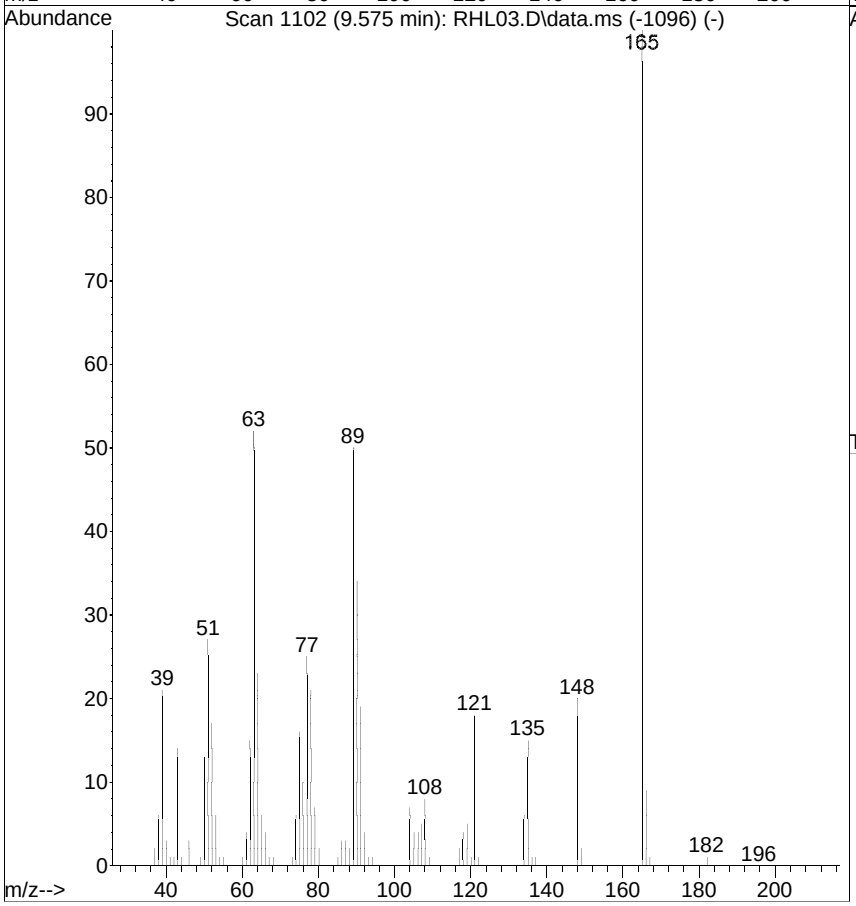
#44
2,6-Dinitrotoluene
Concen: 15.2190 ug/mL
RT: 9.863 min Scan# 1151
Delta R.T. 0.288 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

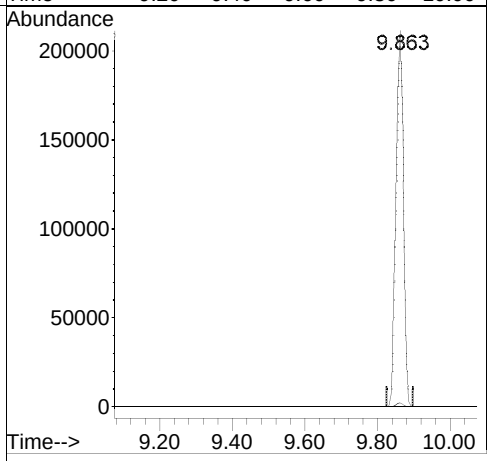
Tgt Ion:165 Resp: 282556

Ion	Ratio	Lower	Upper
165	100		
63	1.1	55.0	95.0#
89	1.1	46.0	86.0#



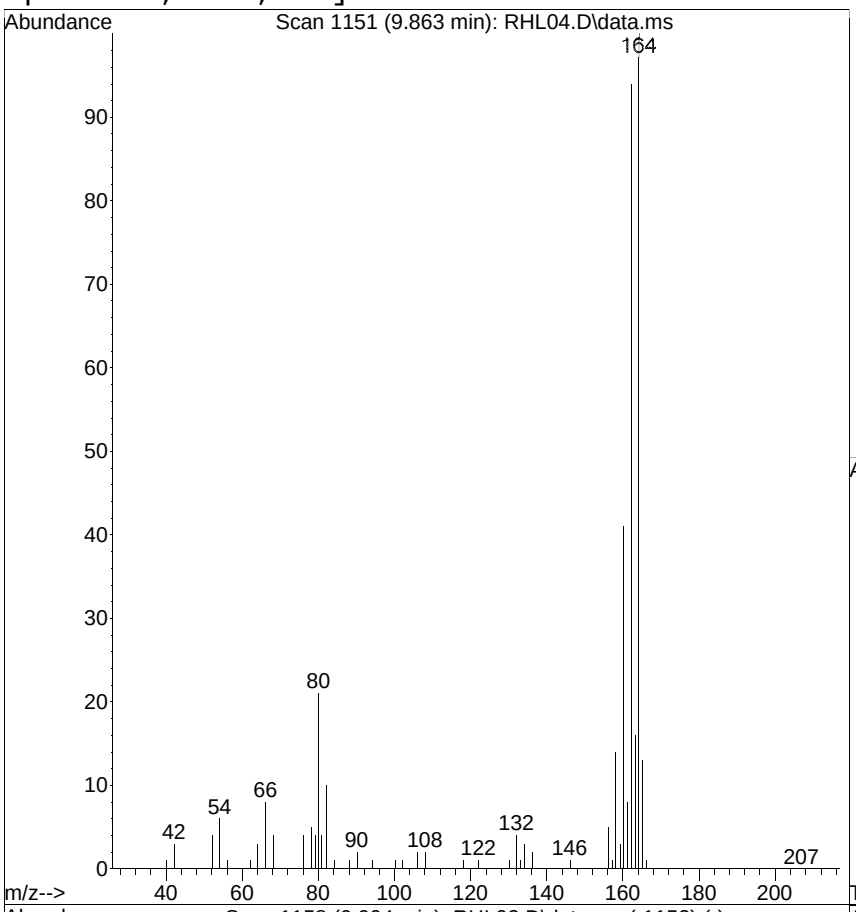
Ref





[Acenaphthene; <RL; u]

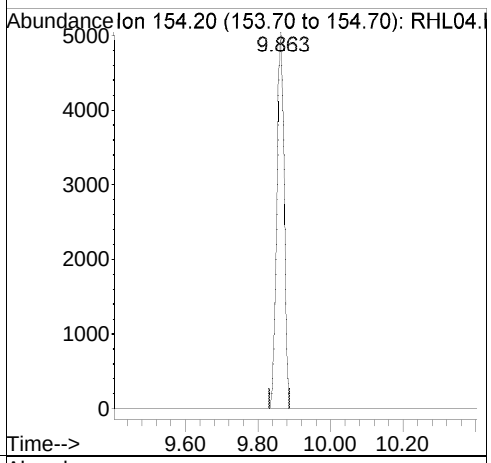
Raw



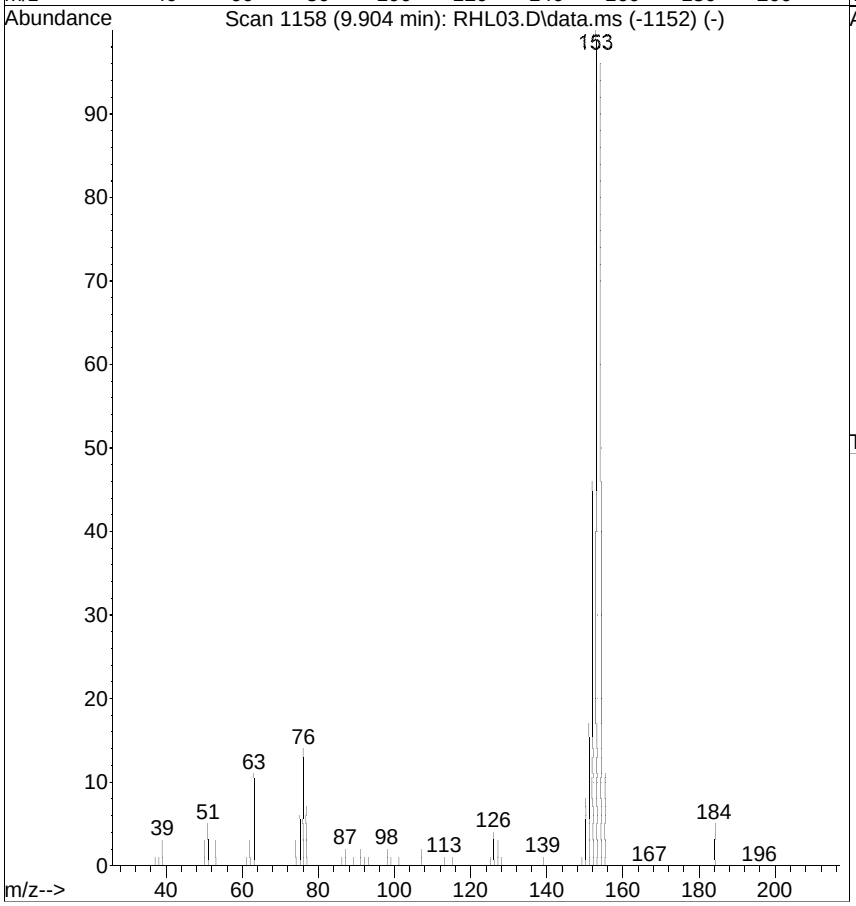
#47
Acenaphthene
Concen: 0.0999 ug/mL
RT: 9.863 min Scan# 1151
Delta R.T. -0.041 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

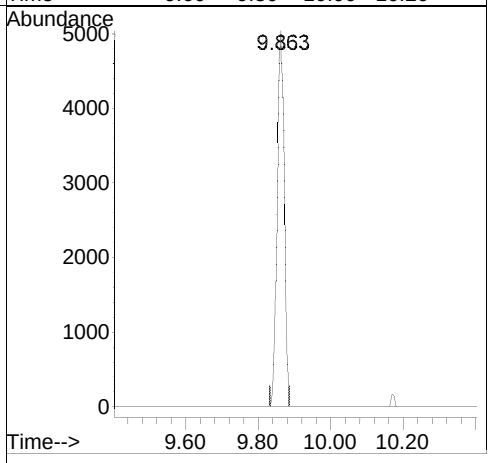
Tgt Ion:154 Resp: 6802

Ion	Ratio	Lower	Upper
154	100		
153	0.0	83.0	123.0#
152	0.0	36.0	76.0#



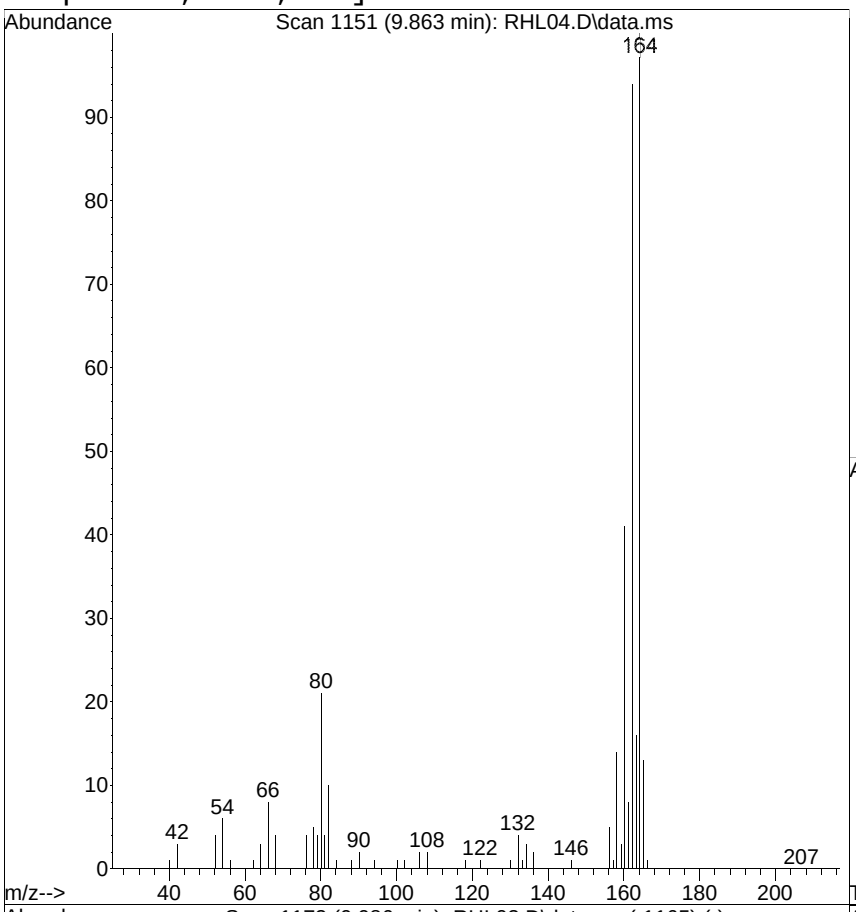
Ref





[4-Nitrophenol; <RL; u]

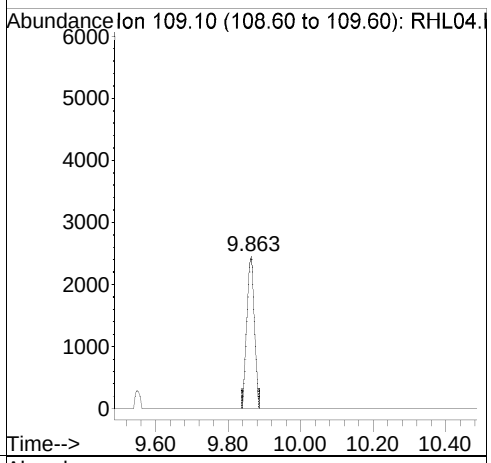
Raw



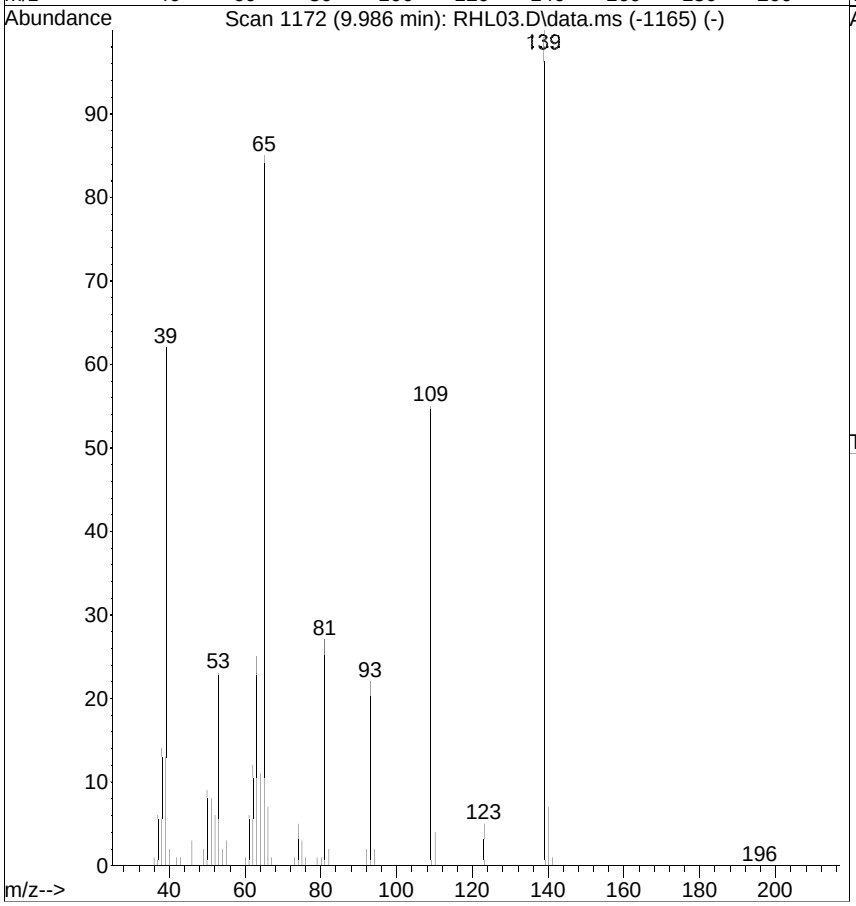
#49
4-Nitrophenol
Concen: 0.3223 ug/mL
RT: 9.863 min Scan# 1151
Delta R.T. -0.124 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

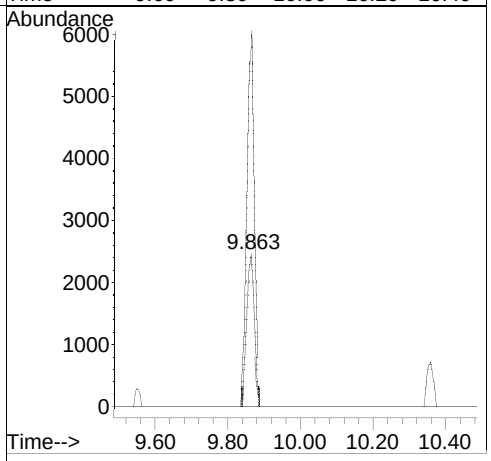
Tgt Ion:109 Resp: 3345

Ion	Ratio	Lower	Upper
109	100		
139	0.0	109.0	149.0#
65	246.2	122.0	162.0#



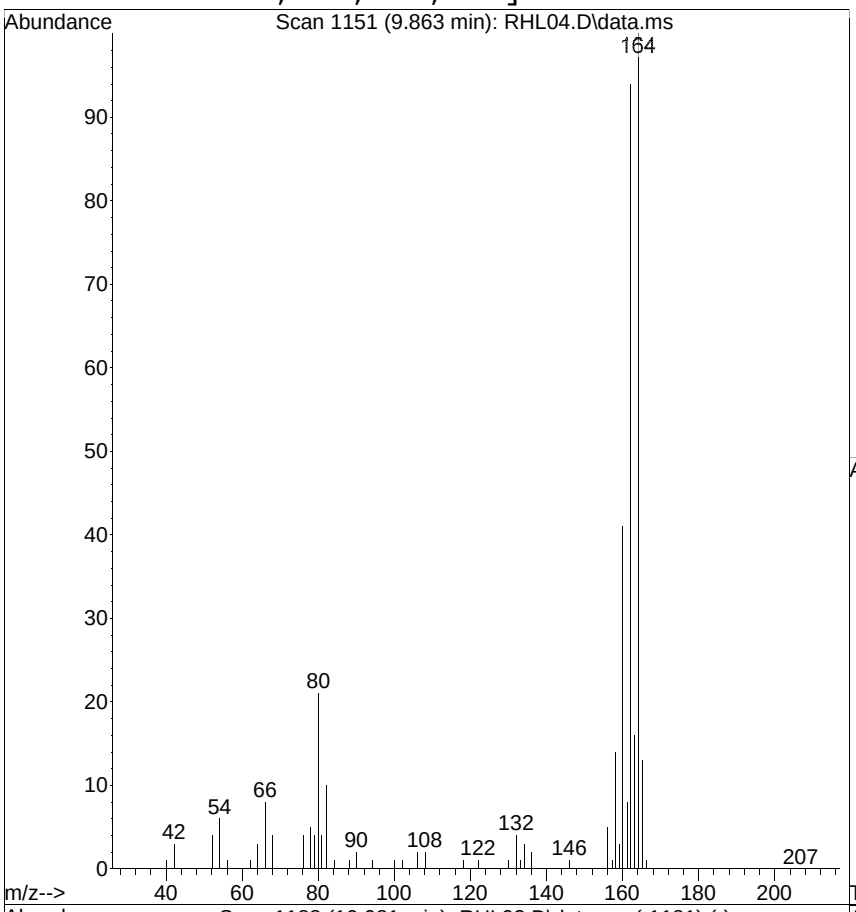
Ref





[2,4-Dinitrotoluene; 11; FP; u]

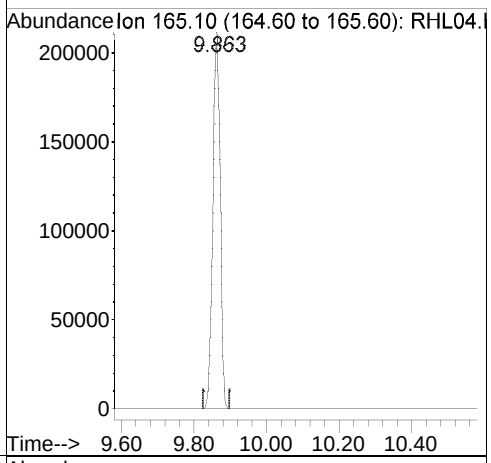
Raw



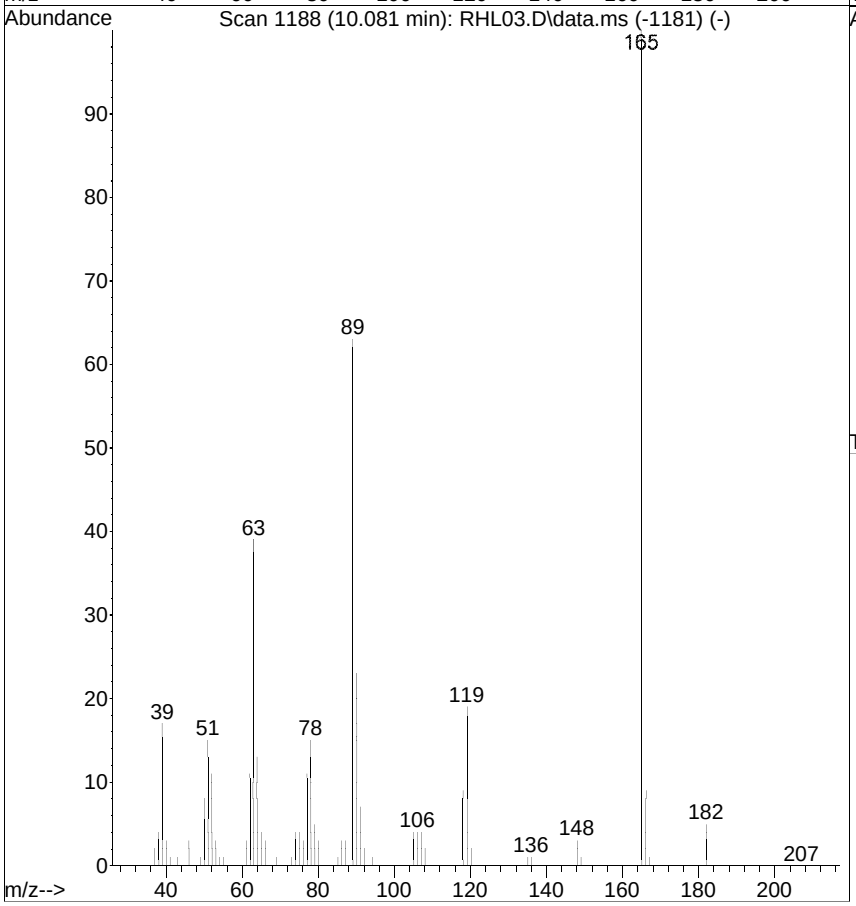
#51
2,4-Dinitrotoluene
Concen: 10.9731 ug/mL
RT: 9.863 min Scan# 1151
Delta R.T. -0.218 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

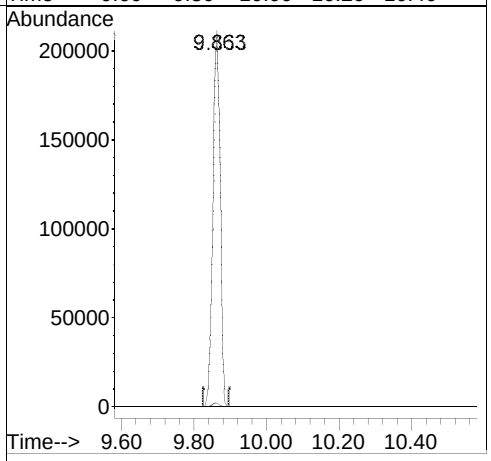
Tgt Ion:165 Resp: 282556

Ion	Ratio	Lower	Upper
165	100		
63	1.1	36.0	76.0#
89	1.1	64.0	104.0#



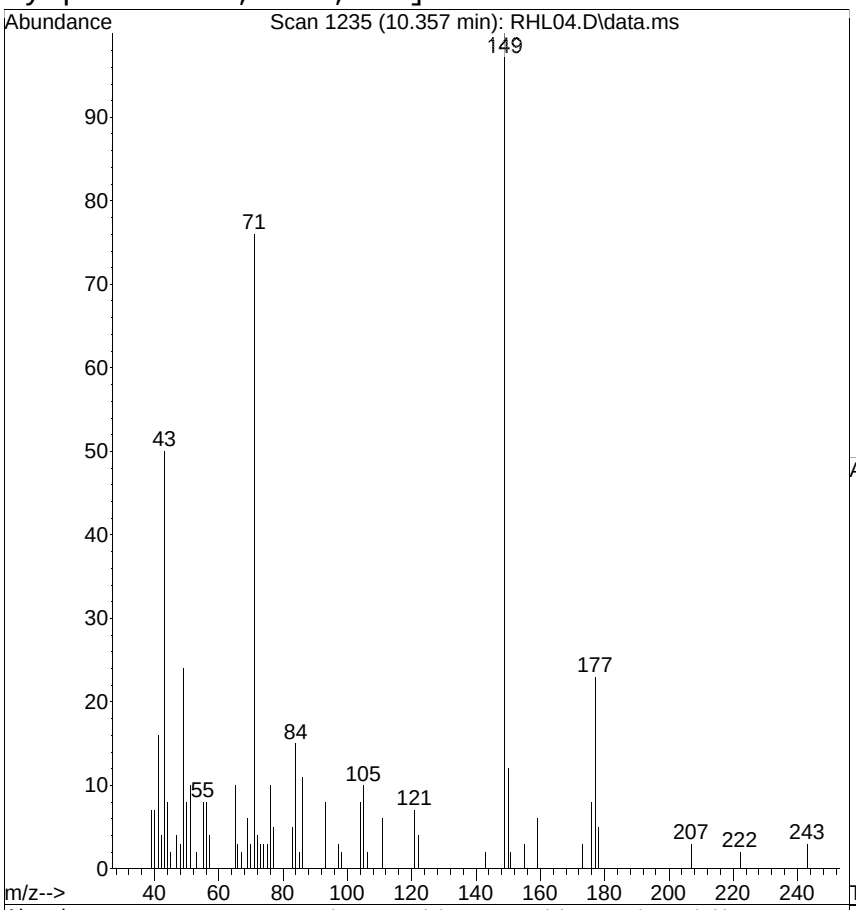
Ref





[Diethylphthalate; <RL; u]

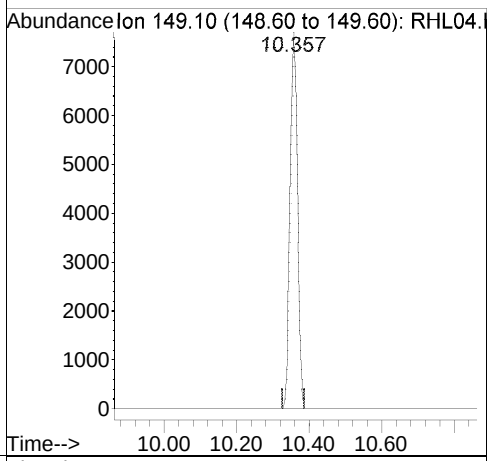
Raw



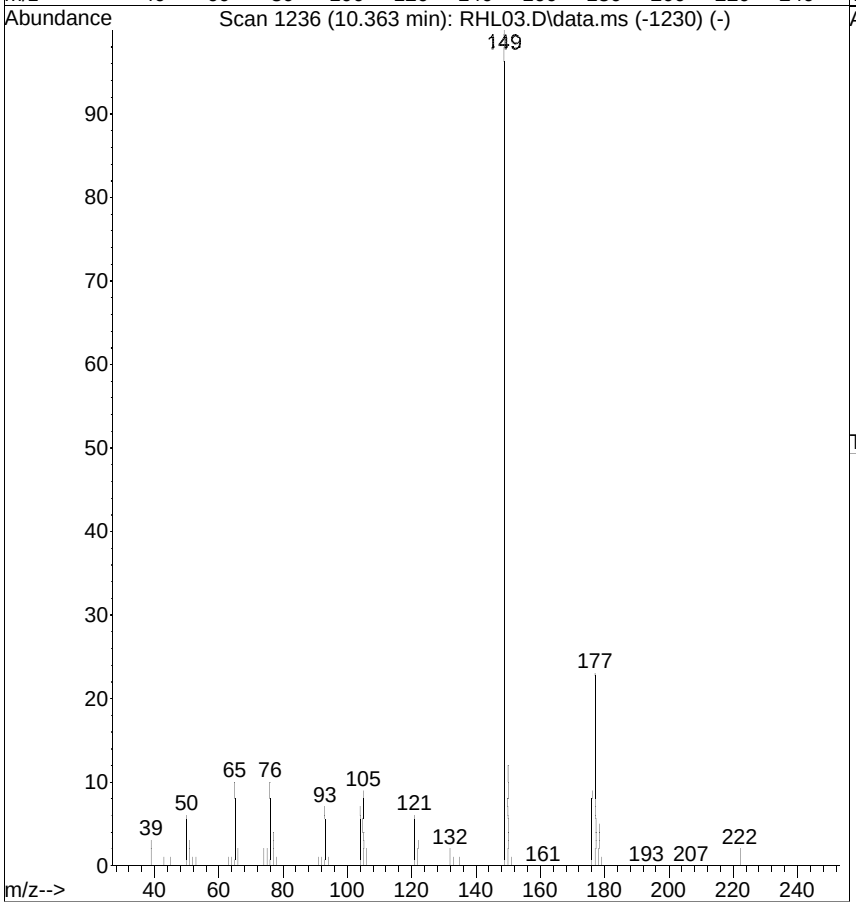
#53
Diethylphthalate
Concen: 0.1227 ug/mL
RT: 10.357 min Scan# 1235
Delta R.T. -0.006 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

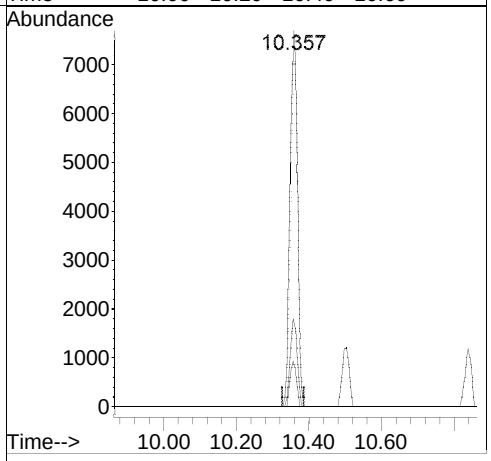
Tgt Ion:149 Resp: 10210

Ion	Ratio	Lower	Upper
149	100		
177	23.2	1.0	41.0
150	12.1	0.0	32.0



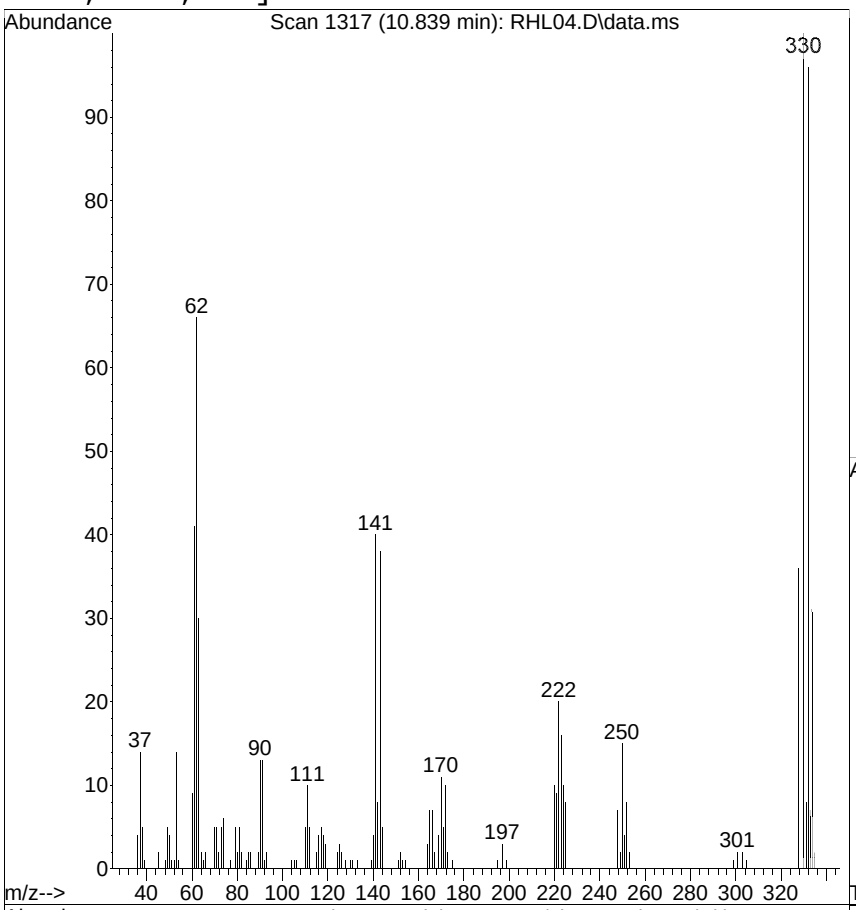
Ref





[Fluorene; <RL; u]

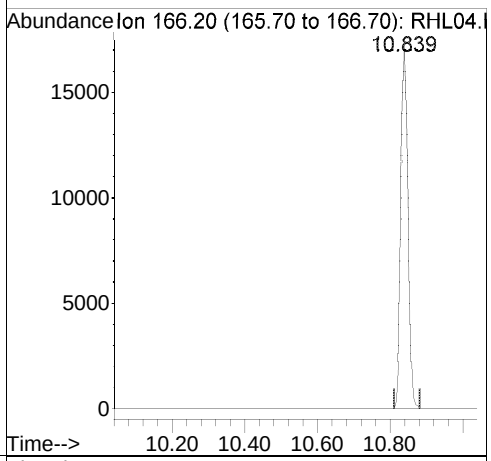
Raw



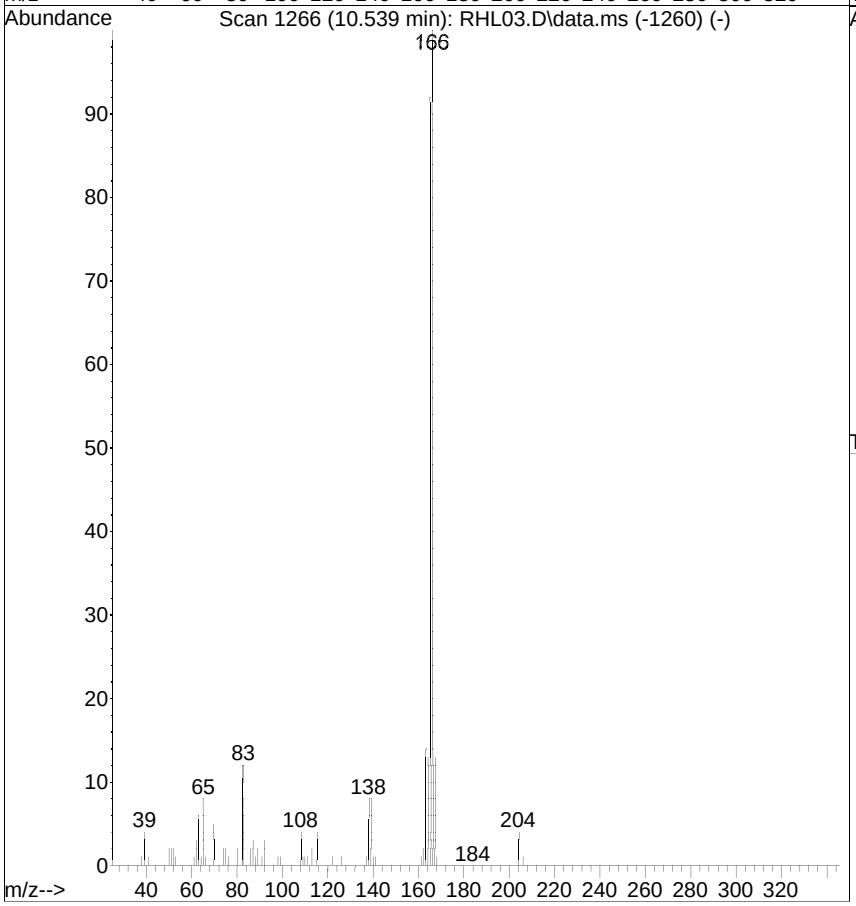
#55
Fluorene
Concen: 0.2941 ug/mL
RT: 10.839 min Scan# 1317
Delta R.T. 0.300 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

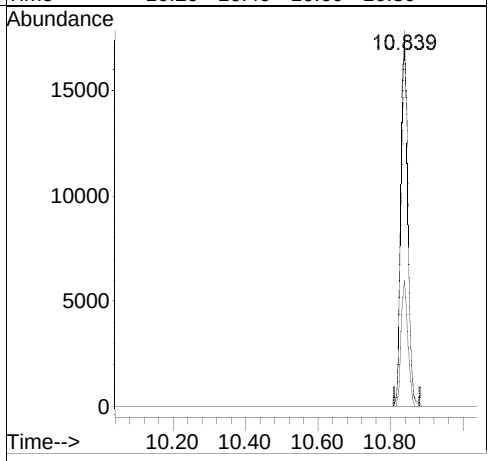
Tgt Ion:166 Resp: 22911

Ion	Ratio	Lower	Upper
166	100		
165	103.6	60.0	100.0#
167	34.7	0.0	35.0



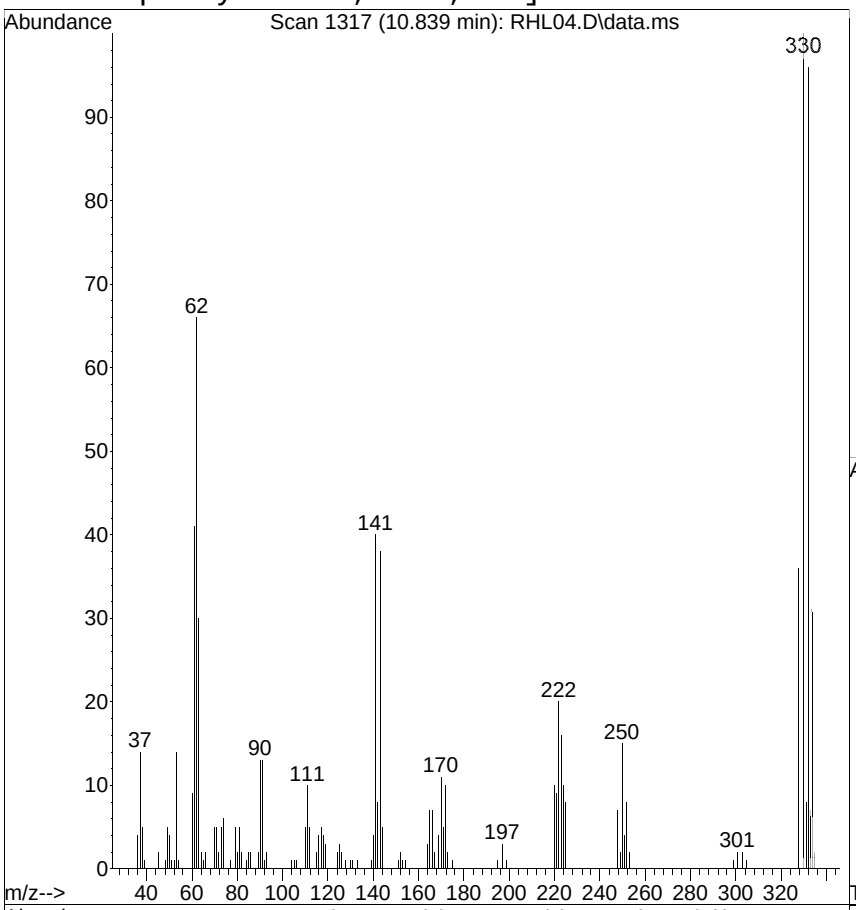
Ref





[N-Nitrosodiphenylamine; <RL; u]

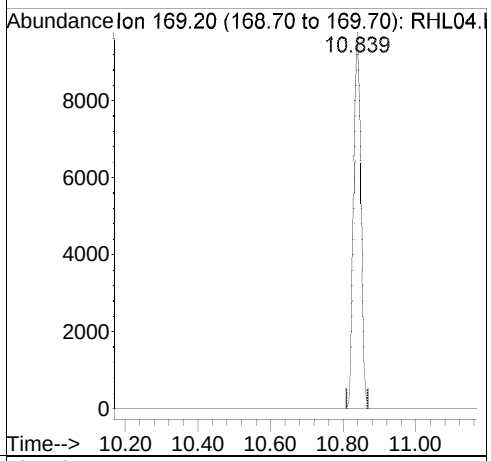
Raw



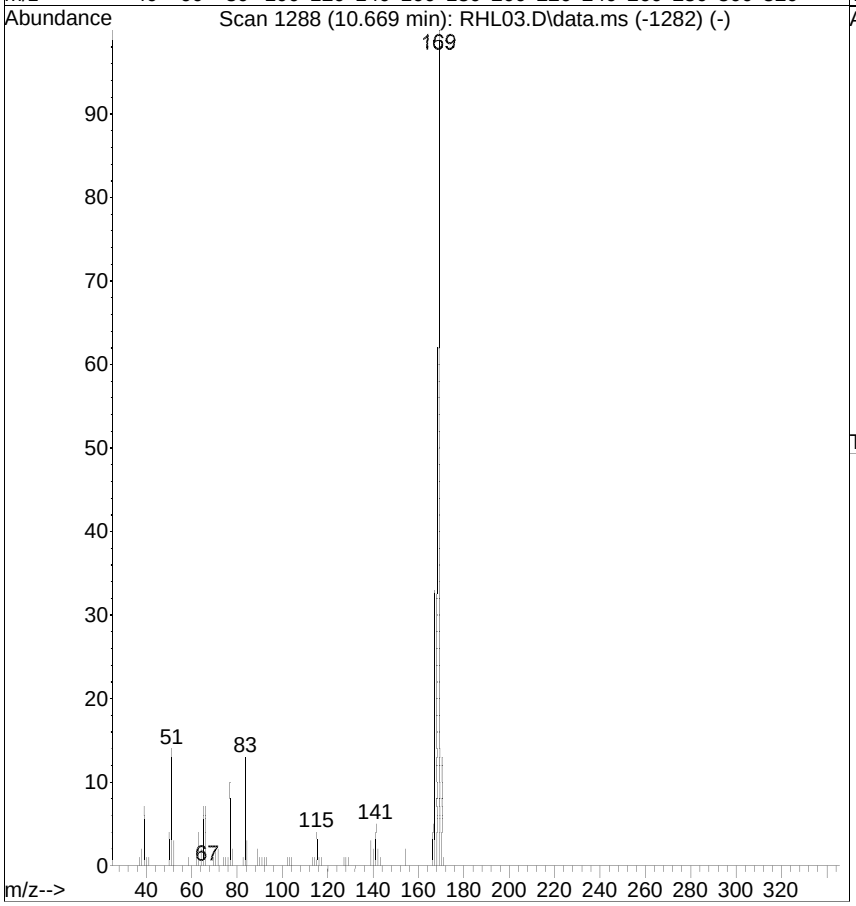
#60
N-Nitrosodiphenylamine
Concen: 0.2199 ug/mL
RT: 10.839 min Scan# 1317
Delta R.T. 0.171 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

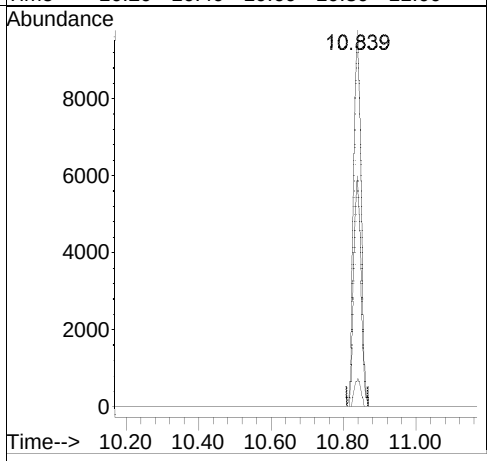
Tgt Ion:169 Resp: 12943

Ion	Ratio	Lower	Upper
169	100		
168	7.7	47.0	87.0#
167	61.1	1.0	41.0#



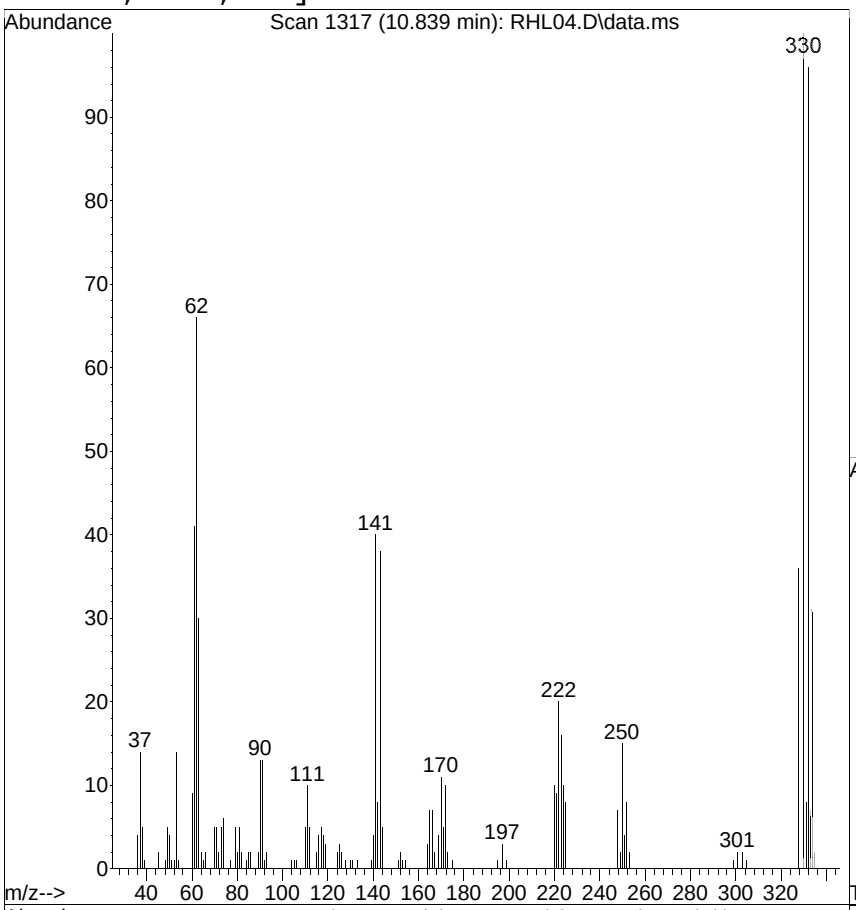
Ref





[Azobenzene; <RL; u]

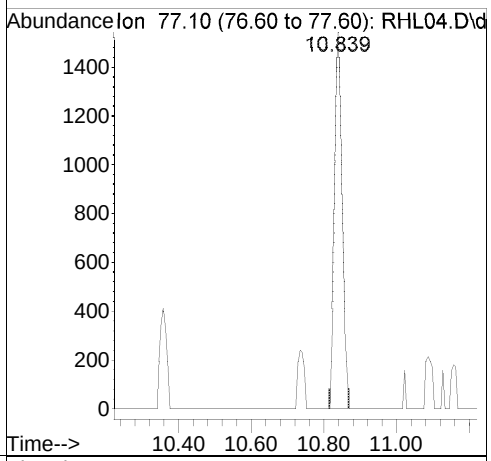
Raw



#61
Azobenzene
Concen: 0.0285 ug/mL
RT: 10.839 min Scan# 1317
Delta R.T. 0.118 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

Tgt Ion: 77 Resp: 2243

Ion	Ratio	Lower	Upper
77	100		
105	98.9	0.0	37.0#
182	0.0	5.0	45.0#



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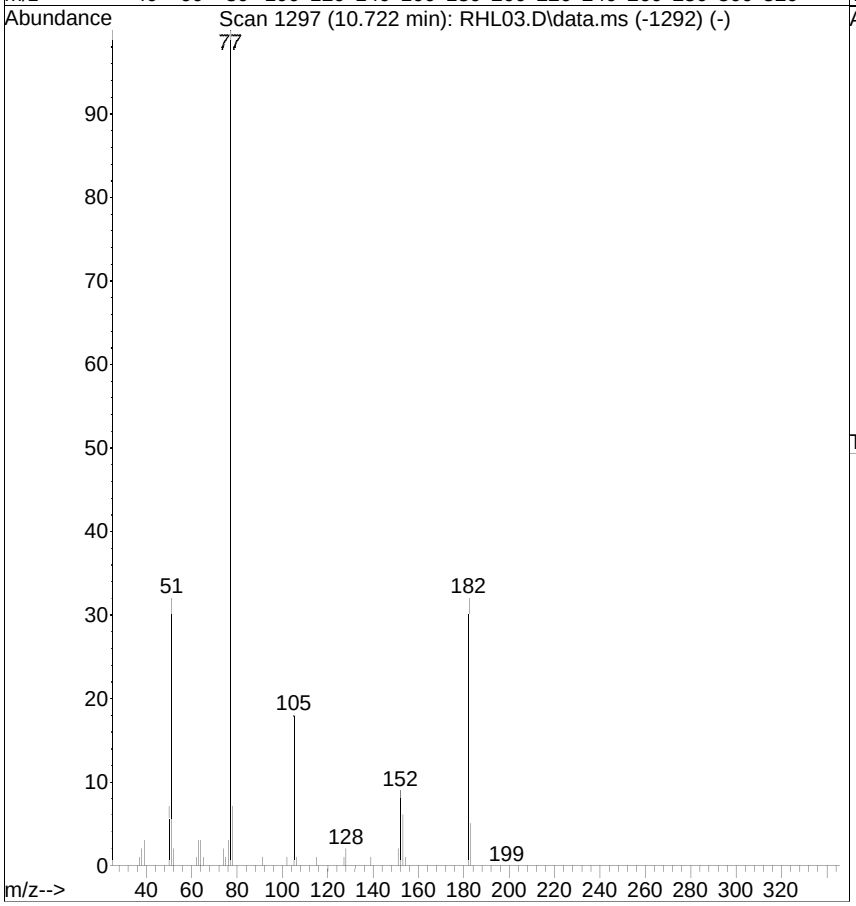
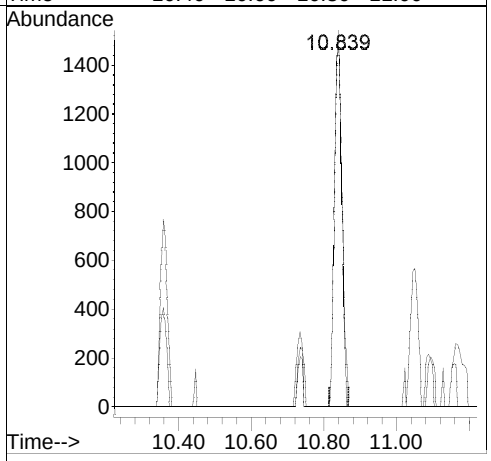
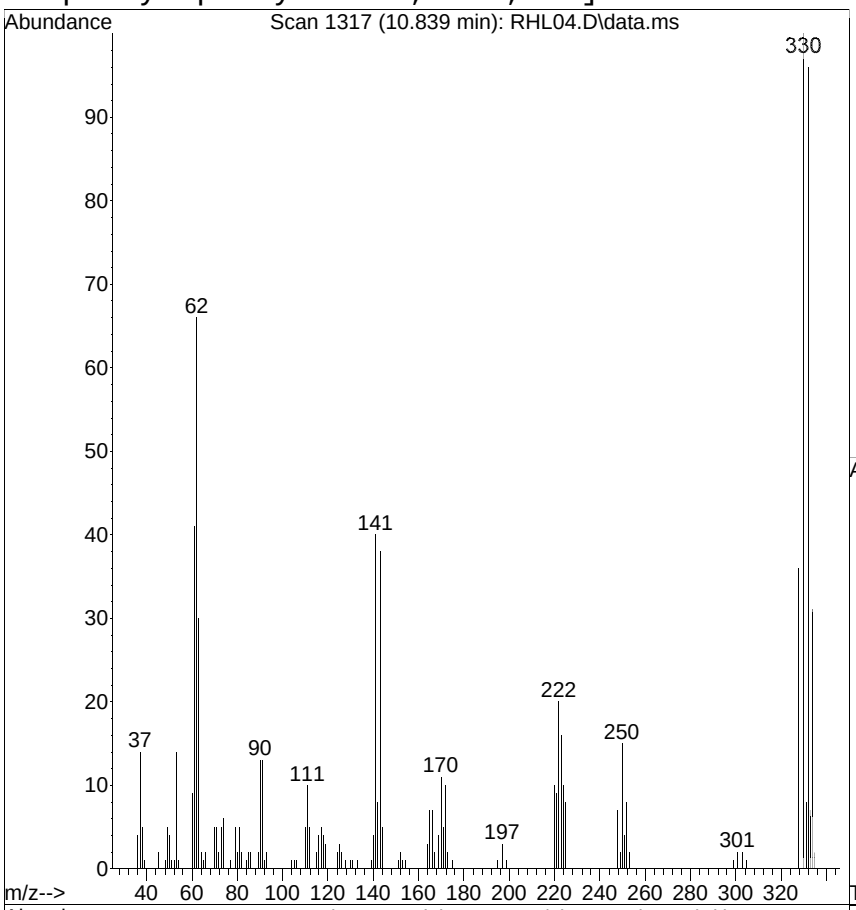




[4-Bromophenyl-phenylether; <RL; u]

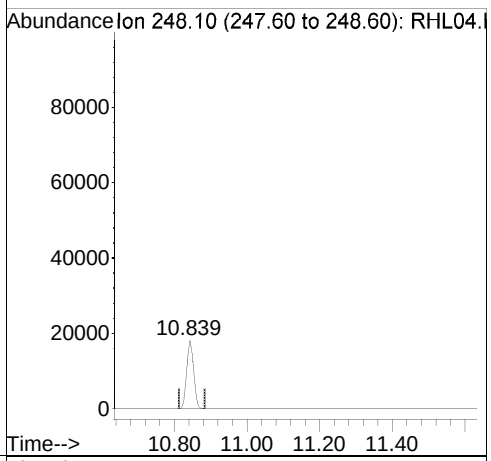
Raw



#62
4-Bromophenyl-phenylether
Concen: 0.9886 ug/mL
RT: 10.839 min Scan# 1317
Delta R.T. -0.294 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

Tgt Ion:248 Resp: 24139

Ion	Ratio	Lower	Upper
248	100		
250	201.9	78.0	118.0#
141	549.2	0.0	39.0#



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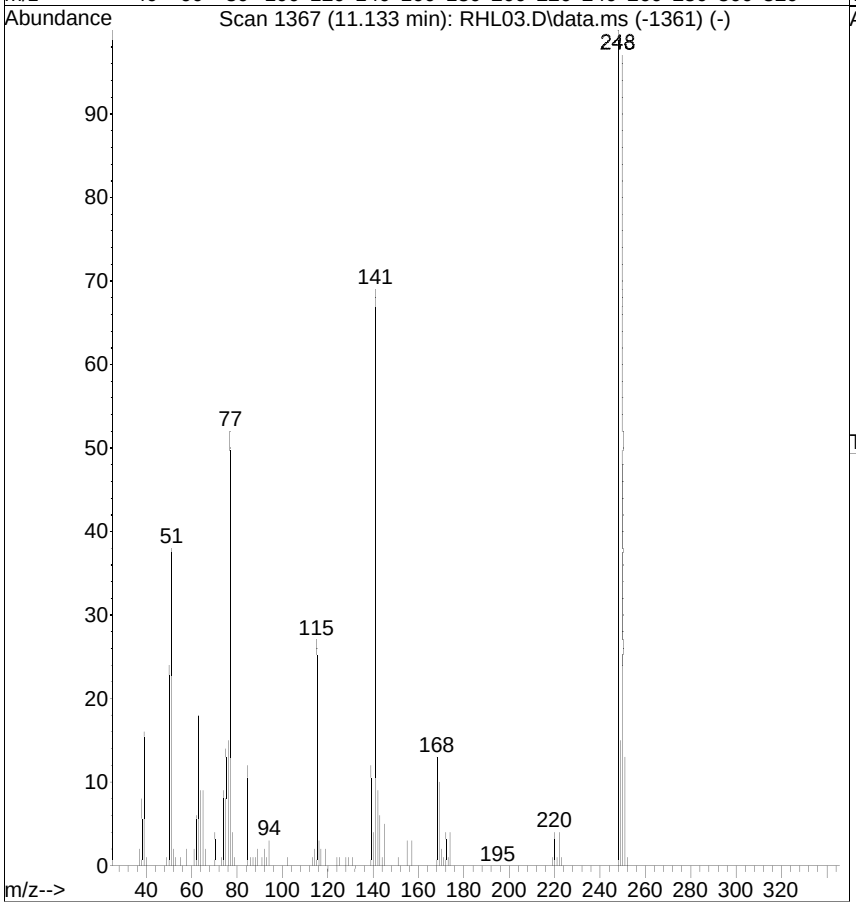
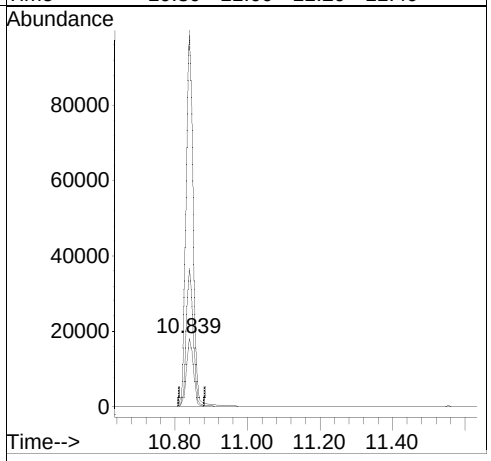
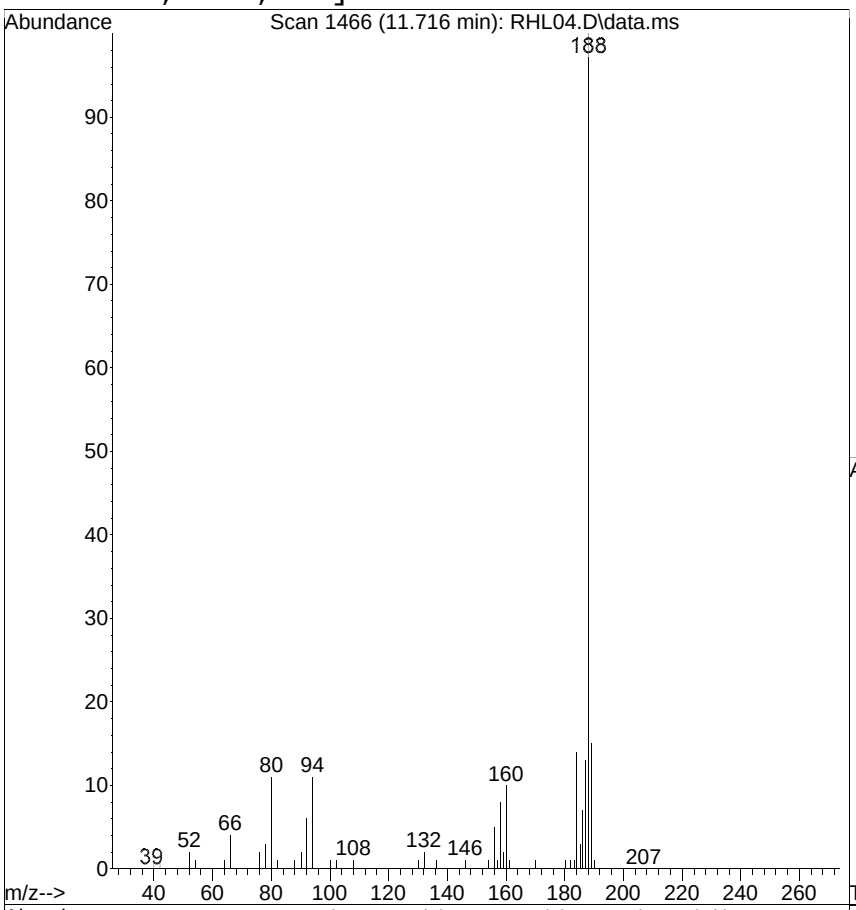




[Phenanthrene; <RL; u]

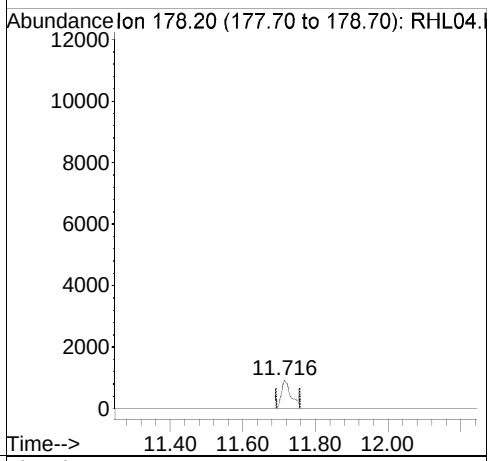
Raw



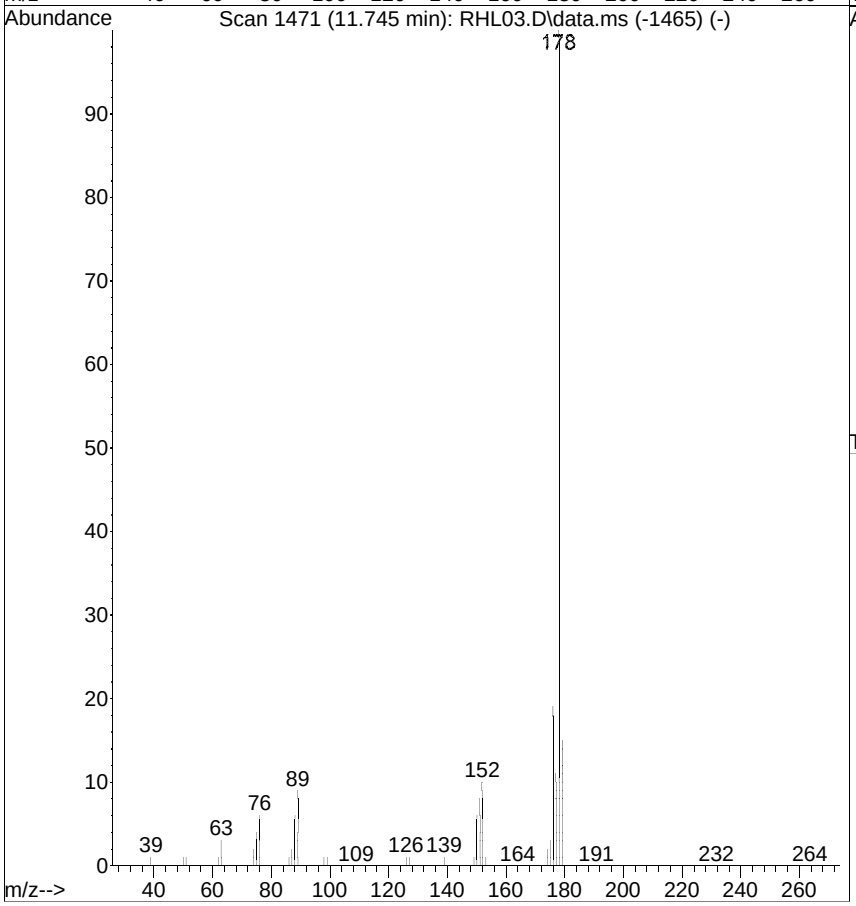
#65
Phenanthrene
Concen: 0.0145 ug/mL
RT: 11.716 min Scan# 1466
Delta R.T. -0.029 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

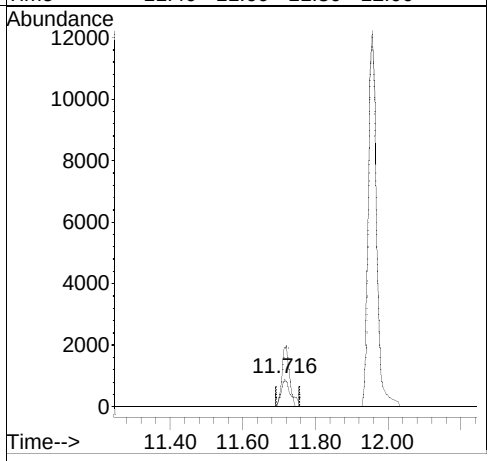
Tgt Ion:178 Resp: 1659

Ion	Ratio	Lower	Upper
178	100		
179	210.6	0.0	36.0#
176	0.0	0.0	37.0



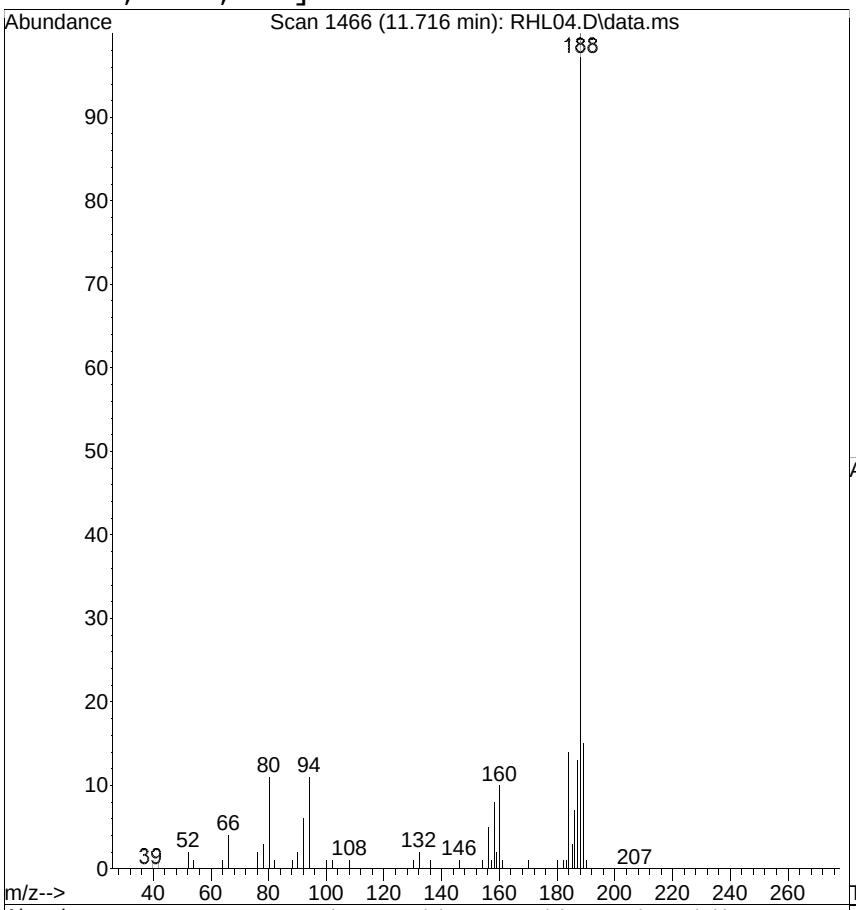
Ref





[Anthracene; <RL; u]

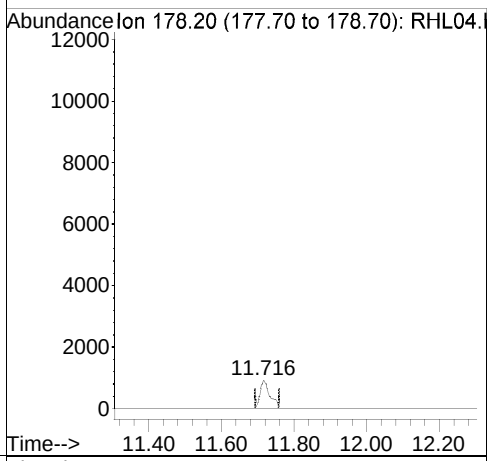
Raw



#66
Anthracene
Concen: 0.0147 ug/mL
RT: 11.716 min Scan# 1466
Delta R.T. -0.088 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

Tgt Ion:178 Resp: 1659

Ion	Ratio	Lower	Upper
178	100		
176	0.0	0.0	35.0
179	210.6	0.0	35.0#



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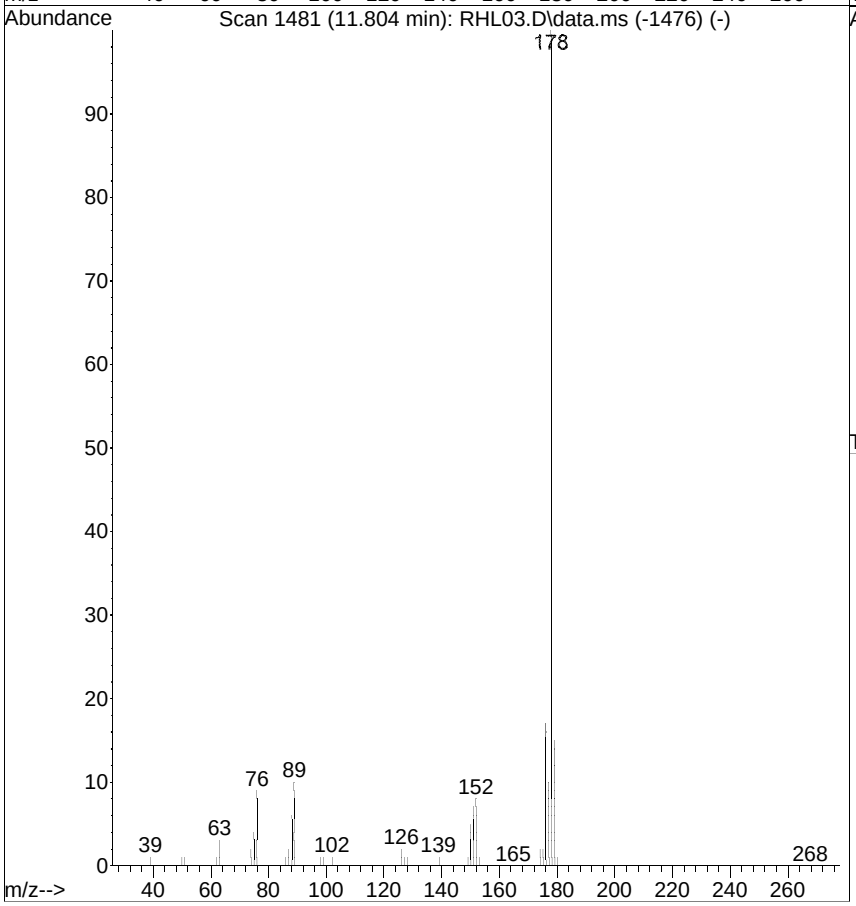
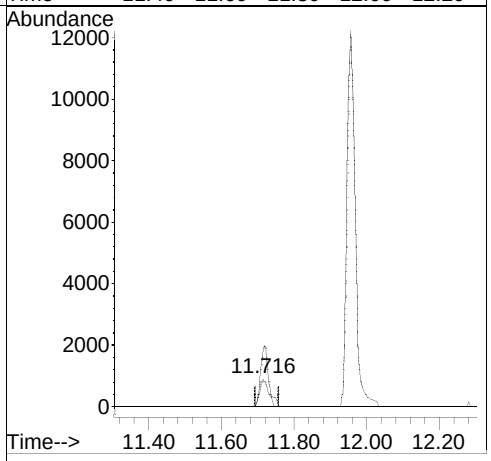
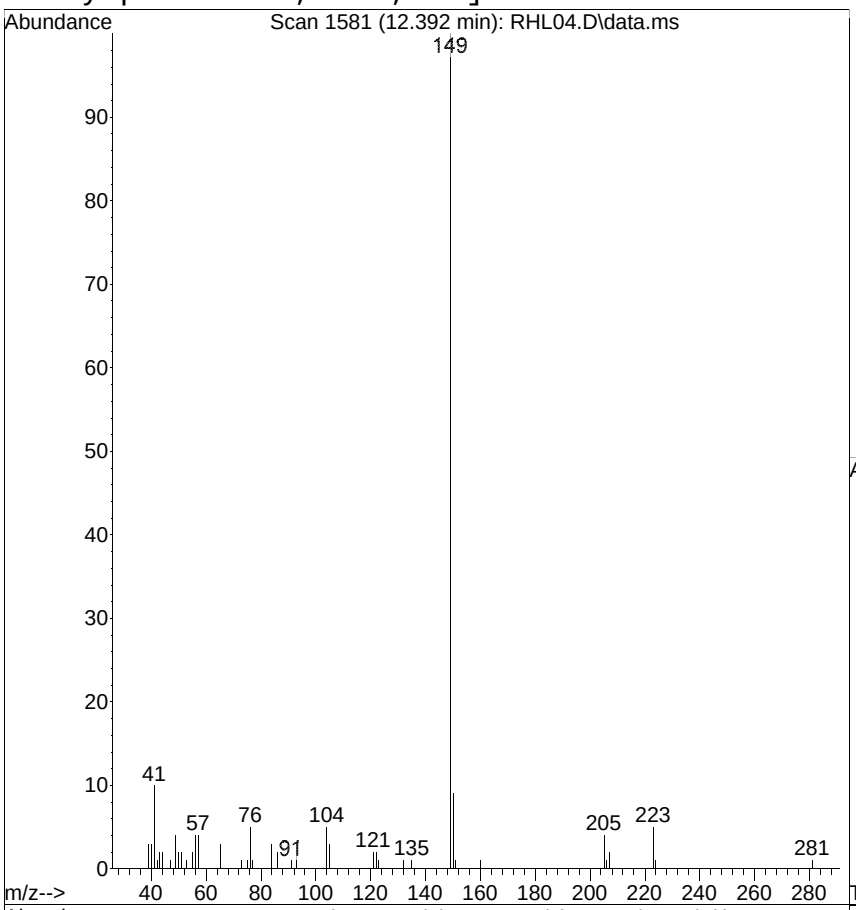




[Di-n-butylphthalate; <RL; u]

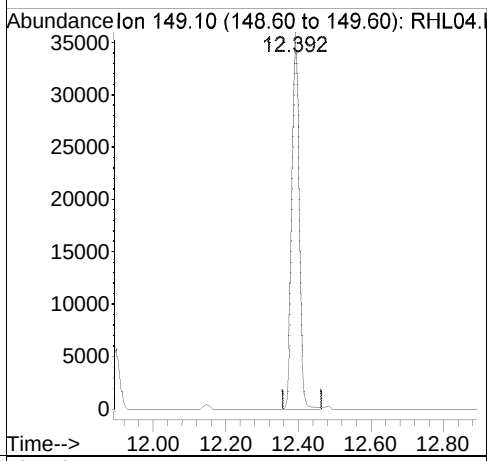
Raw



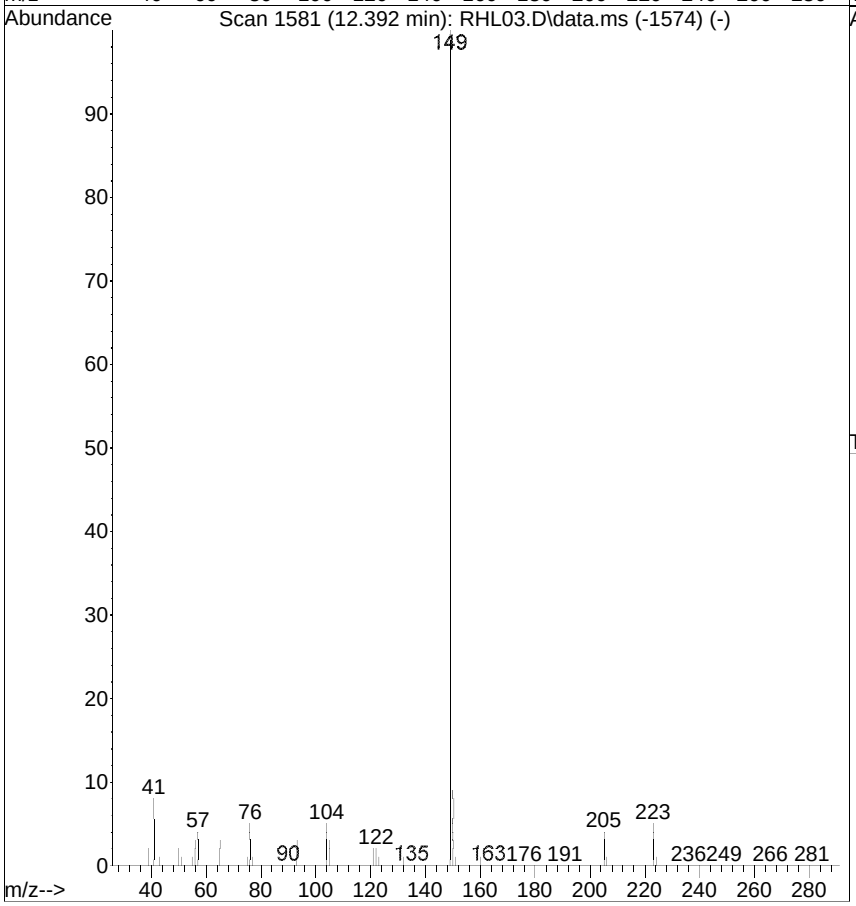
#68
Di-n-butylphthalate
Concen: 0.3364 ug/mL
RT: 12.392 min Scan# 1581
Delta R.T. -0.000 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

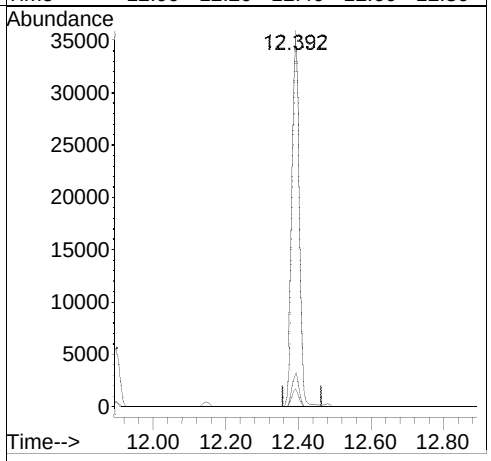
Tgt Ion:149 Resp: 48656

Ion	Ratio	Lower	Upper
149	100		
150	9.1	0.0	28.0
104	4.7	0.0	26.0



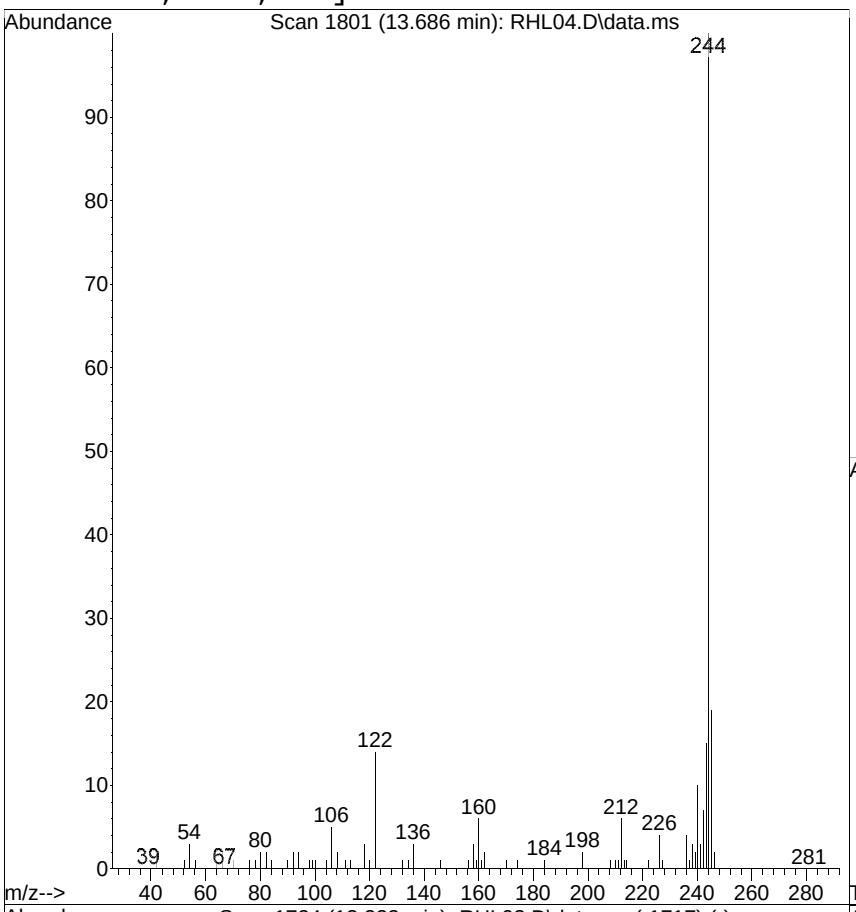
Ref





[Fluoranthene; <RL; u]

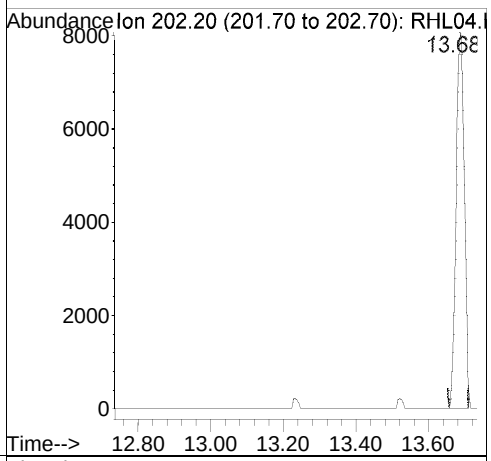
Raw



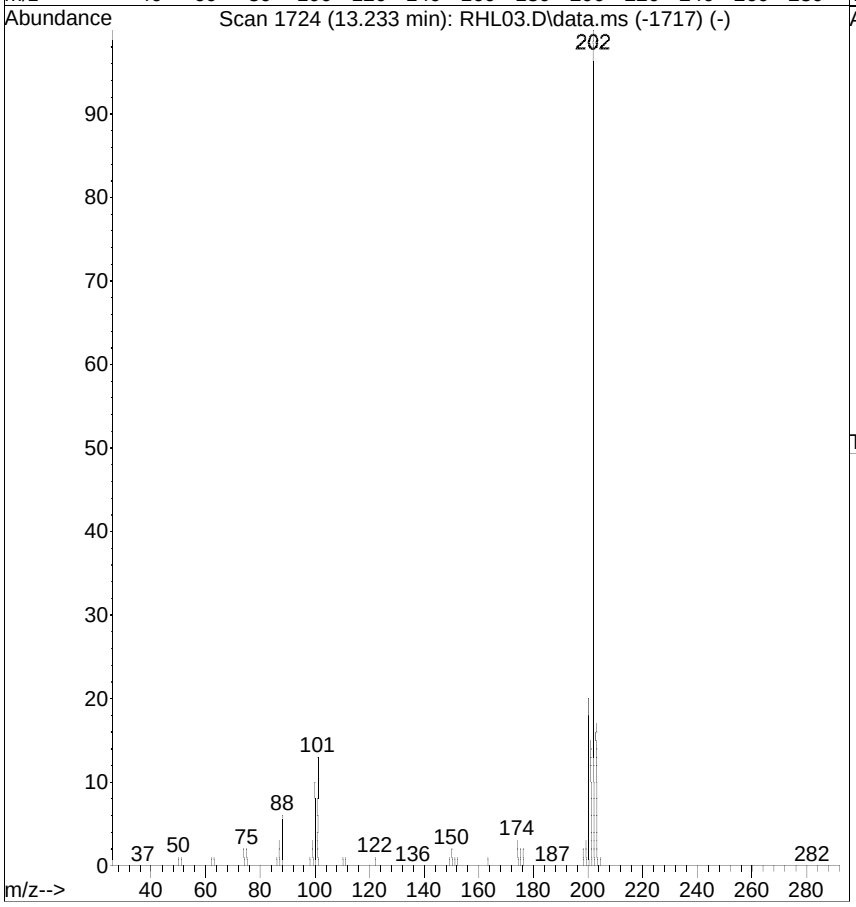
#69
Fluoranthene
Concen: 0.0940 ug/mL
RT: 13.686 min Scan# 1801
Delta R.T. 0.453 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

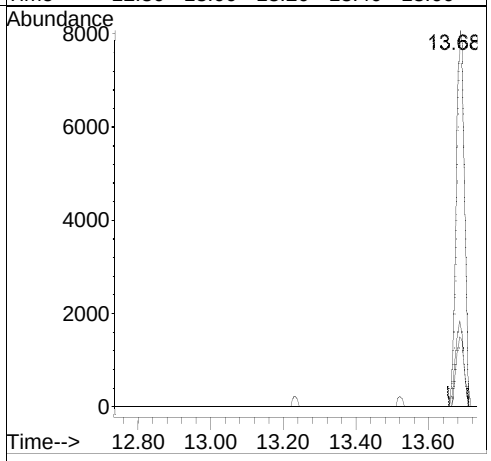
Tgt Ion:202 Resp: 11833

Ion	Ratio	Lower	Upper
202	100		
101	22.9	0.0	36.0
203	18.5	0.0	38.0



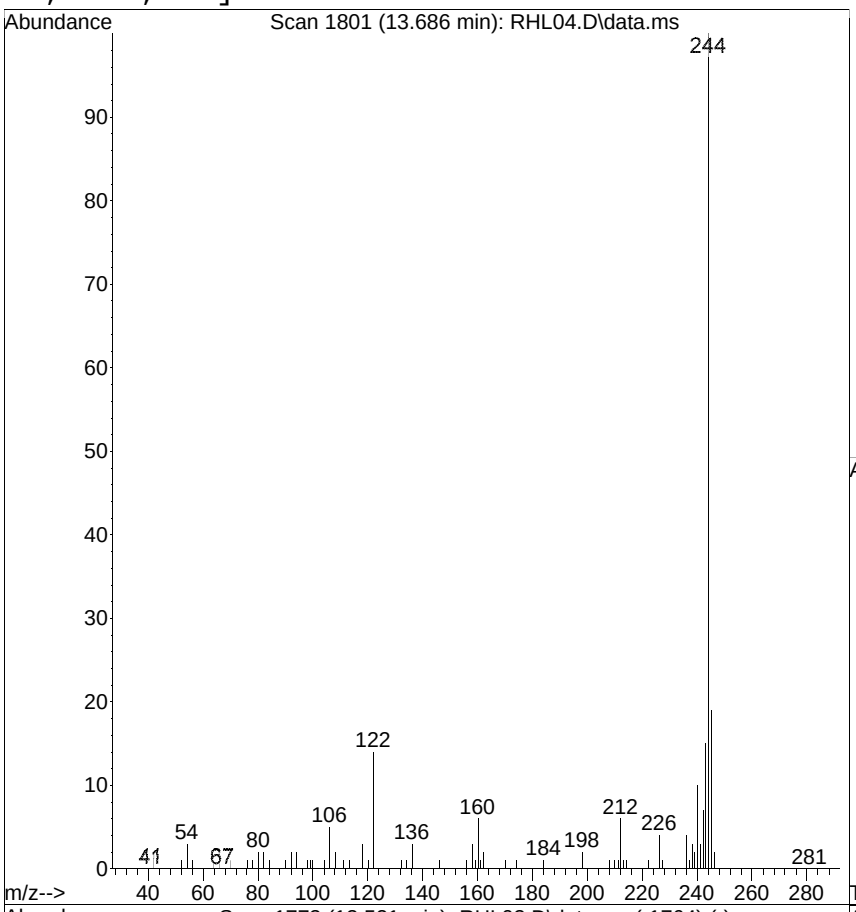
Ref





[Pyrene; <RL; u]

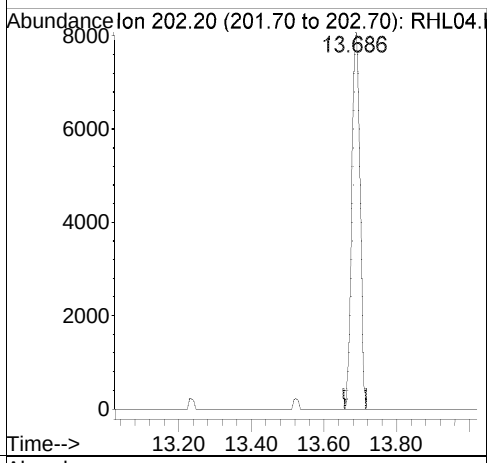
Raw



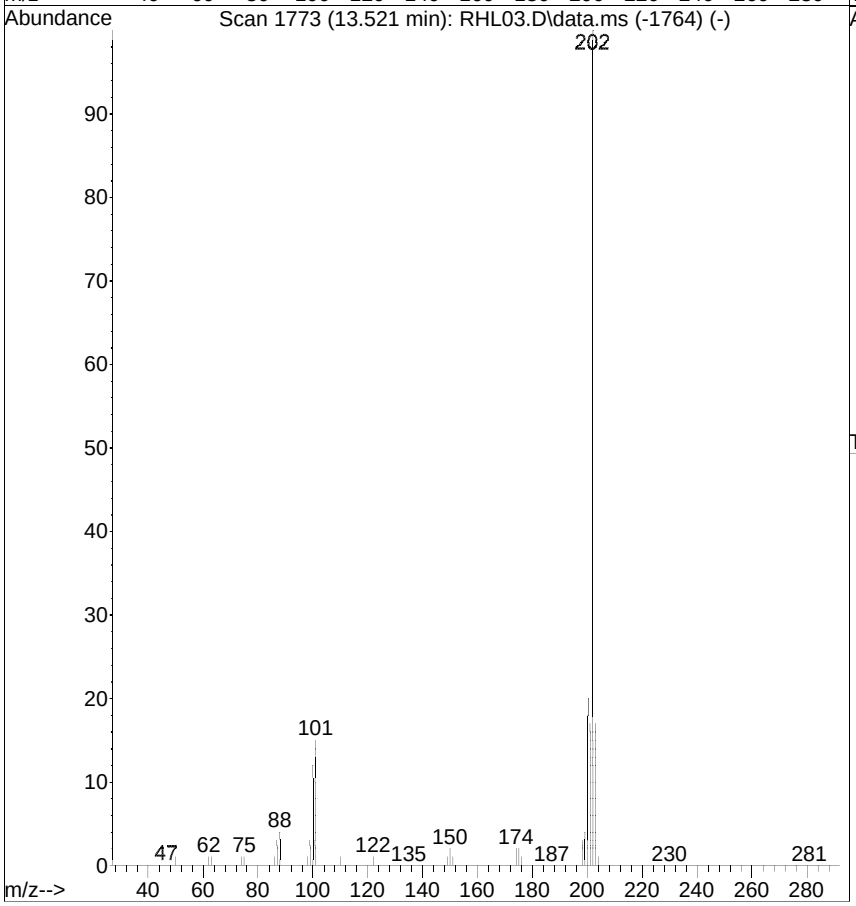
#72
Pyrene
Concen: 0.0790 ug/mL
RT: 13.686 min Scan# 1801
Delta R.T. 0.165 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

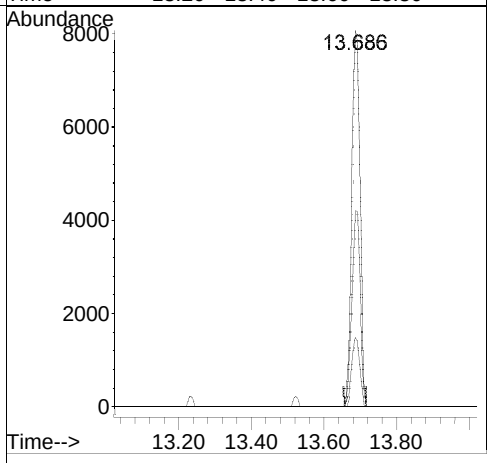
Tgt Ion:202 Resp: 11833

Ion	Ratio	Lower	Upper
202	100		
200	52.1	0.0	35.0#
203	18.5	0.0	37.0



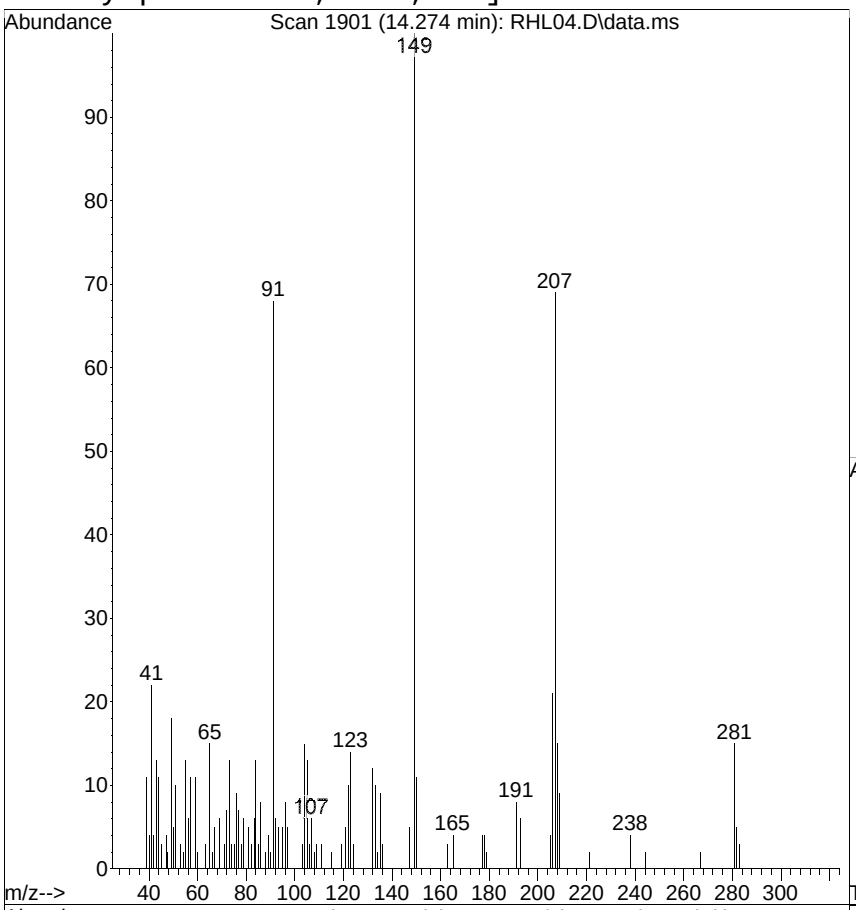
Ref





[Butylbenzylphthalate; <RL; u]

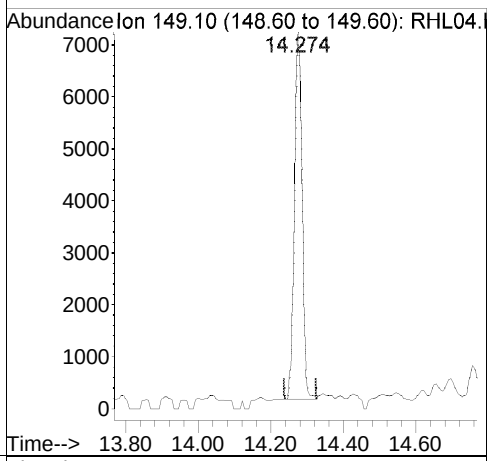
Raw



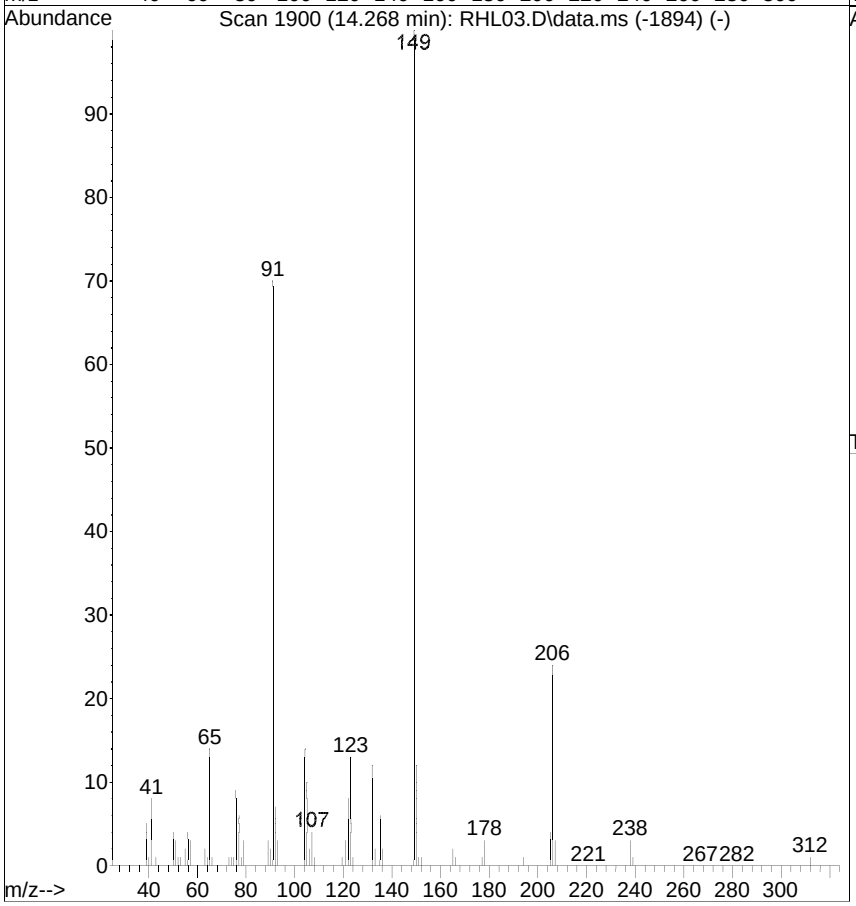
#74
Butylbenzylphthalate
Concen: 0.1409 ug/mL
RT: 14.274 min Scan# 1901
Delta R.T. 0.006 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

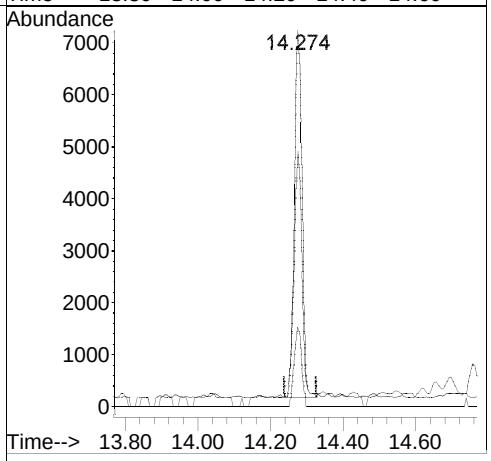
Tgt Ion:149 Resp: 10043

Ion	Ratio	Lower	Upper
149	100		
91	68.0	52.0	92.0
206	21.2	3.0	43.0



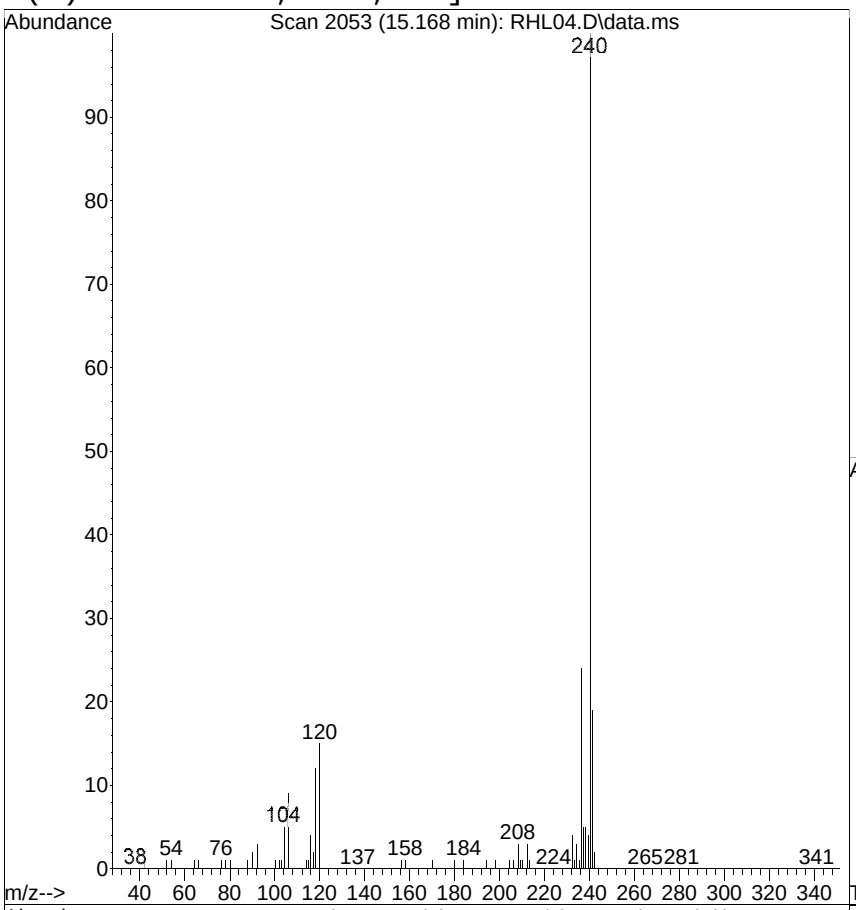
Ref





[Benzo(a)anthracene; <RL; u]

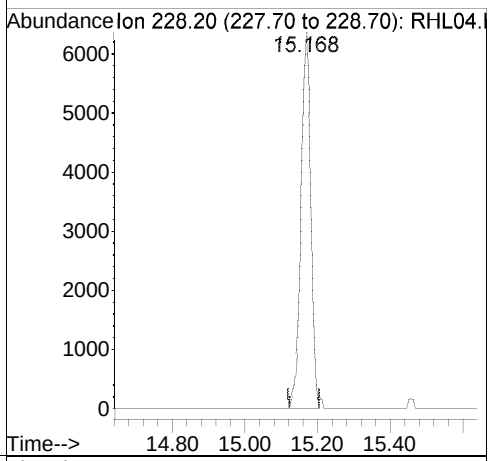
Raw



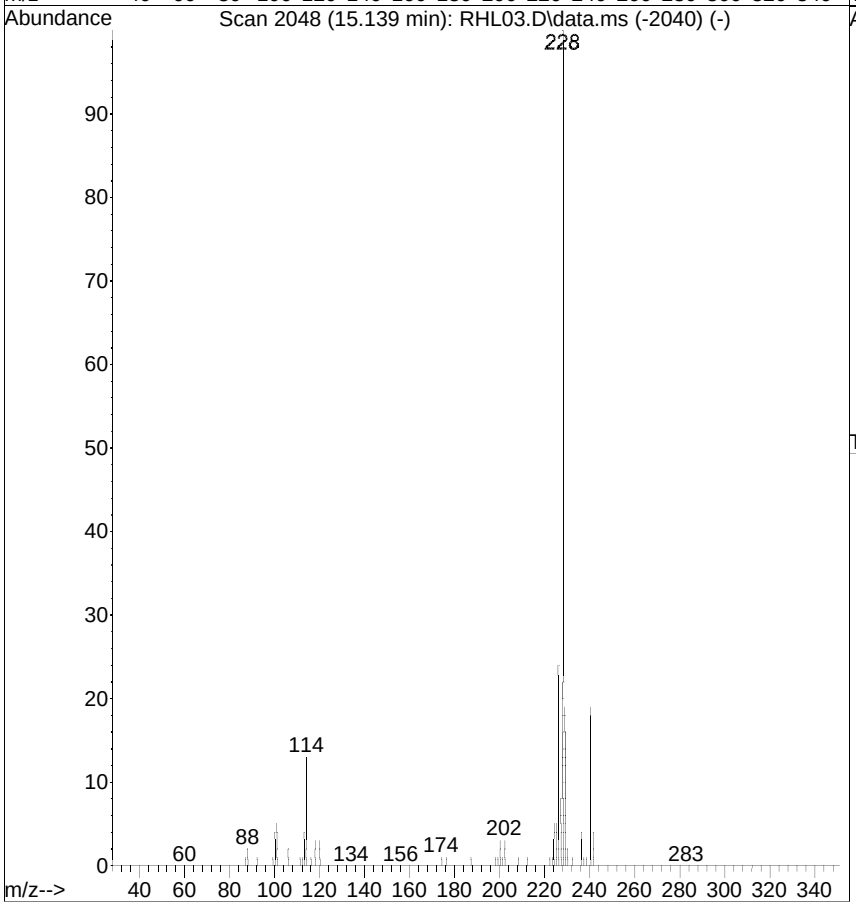
#76
Benzo(a)anthracene
Concen: 0.0813 ug/mL
RT: 15.168 min Scan# 2053
Delta R.T. 0.029 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

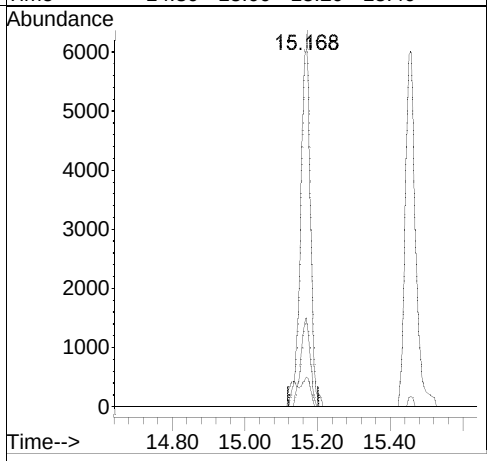
Tgt Ion:228 Resp: 11462

Ion	Ratio	Lower	Upper
228	100		
229	23.6	0.0	40.0
226	7.9	8.0	48.0#



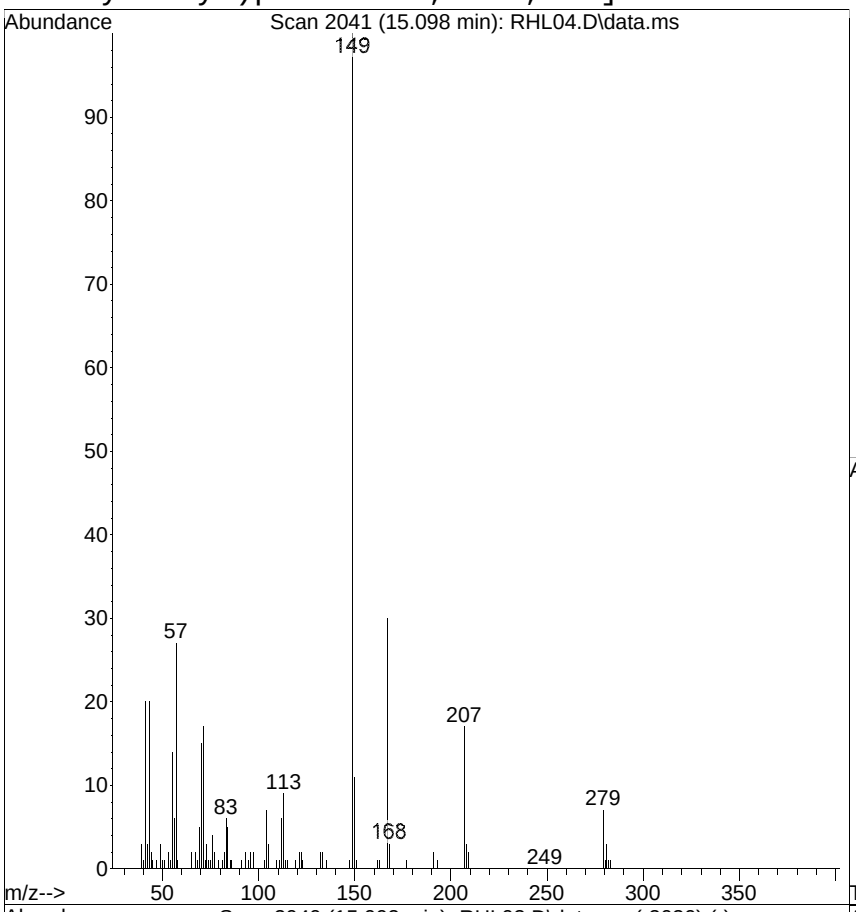
Ref





[bis(2-Ethylhexyl)phthalate; <RL; u]

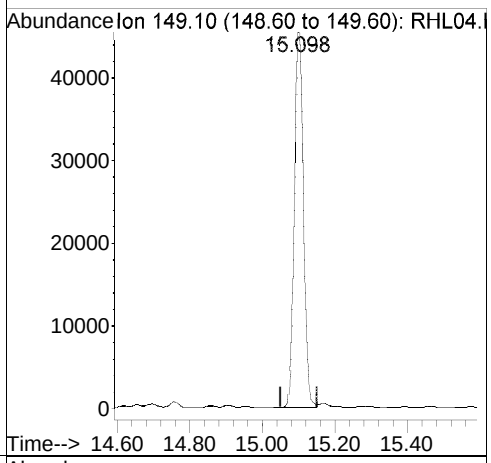
Raw



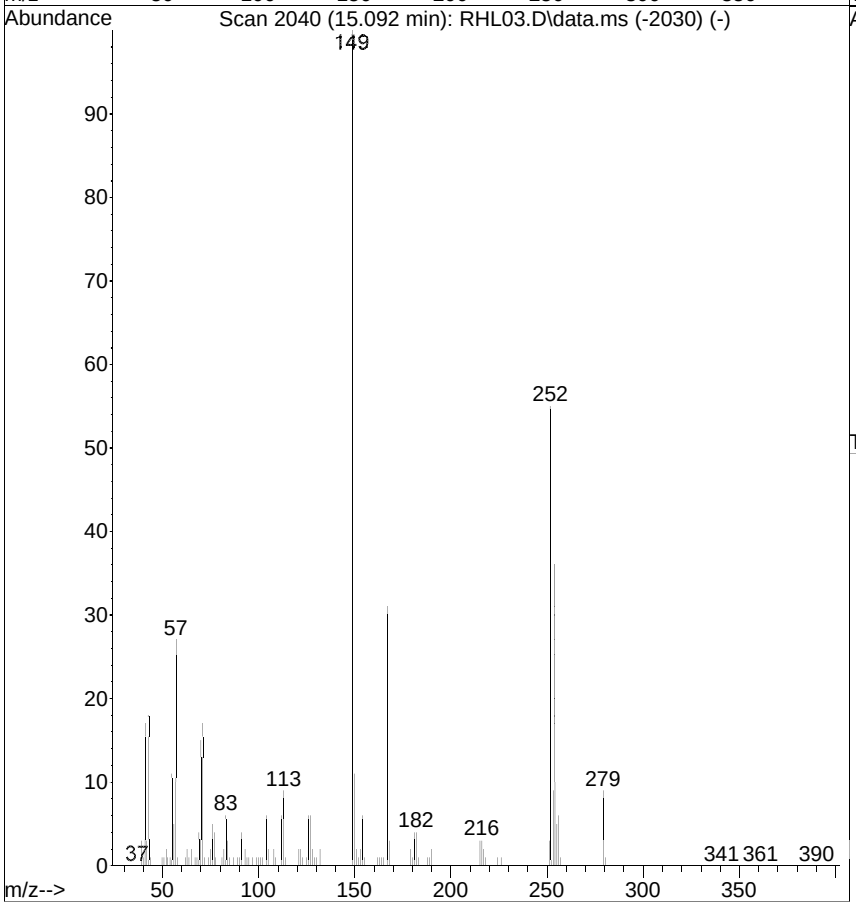
#77
bis(2-Ethylhexyl)phthalate
Concen: 0.7812 ug/mL
RT: 15.098 min Scan# 2041
Delta R.T. 0.006 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

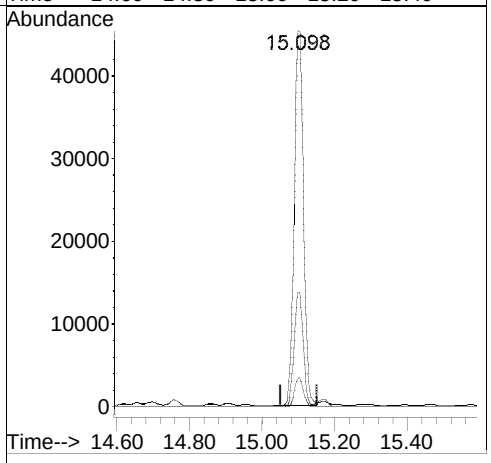
Tgt Ion:149 Resp: 76524

Ion	Ratio	Lower	Upper
149	100		
167	30.4	9.0	49.0
279	7.3	0.0	27.0



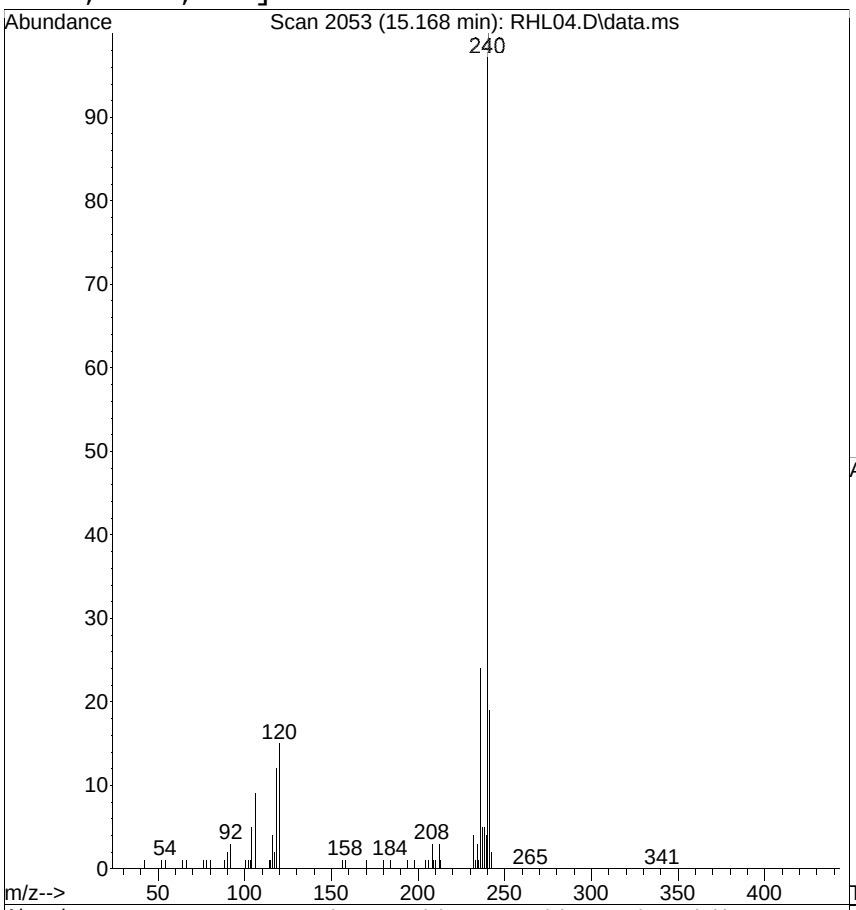
Ref





[Chrysene; <RL; u]

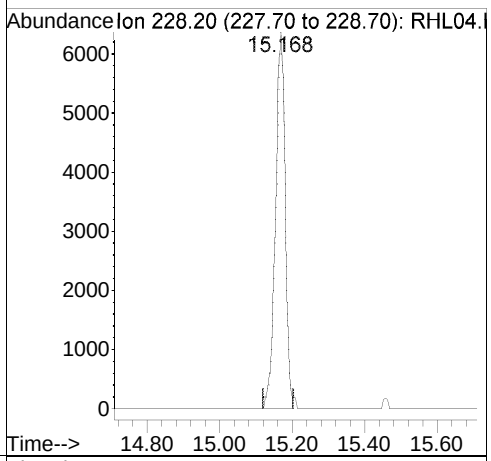
Raw



#78
Chrysene
Concen: 0.0858 ug/mL
RT: 15.168 min Scan# 2053
Delta R.T. -0.041 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

Tgt Ion:228 Resp: 11462

Ion	Ratio	Lower	Upper
228	100		
226	7.9	5.0	45.0
229	23.6	0.0	40.0



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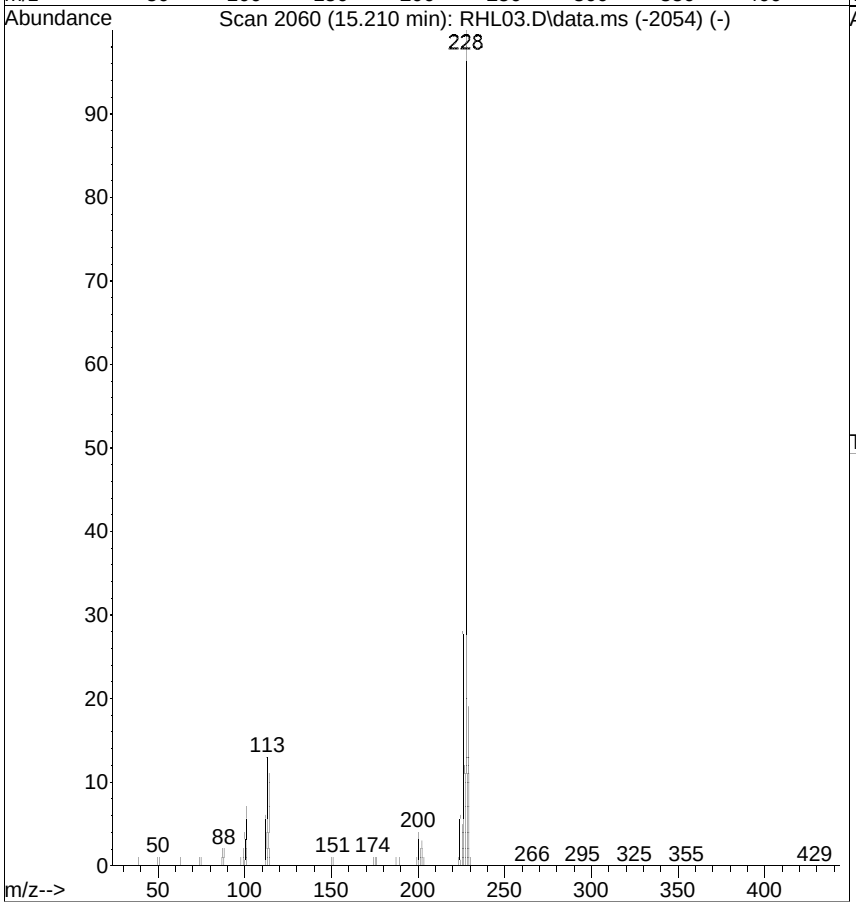
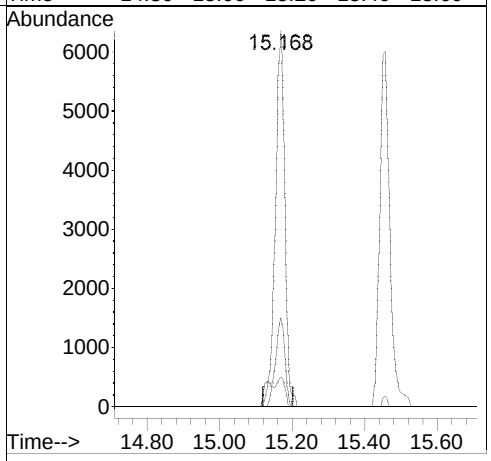
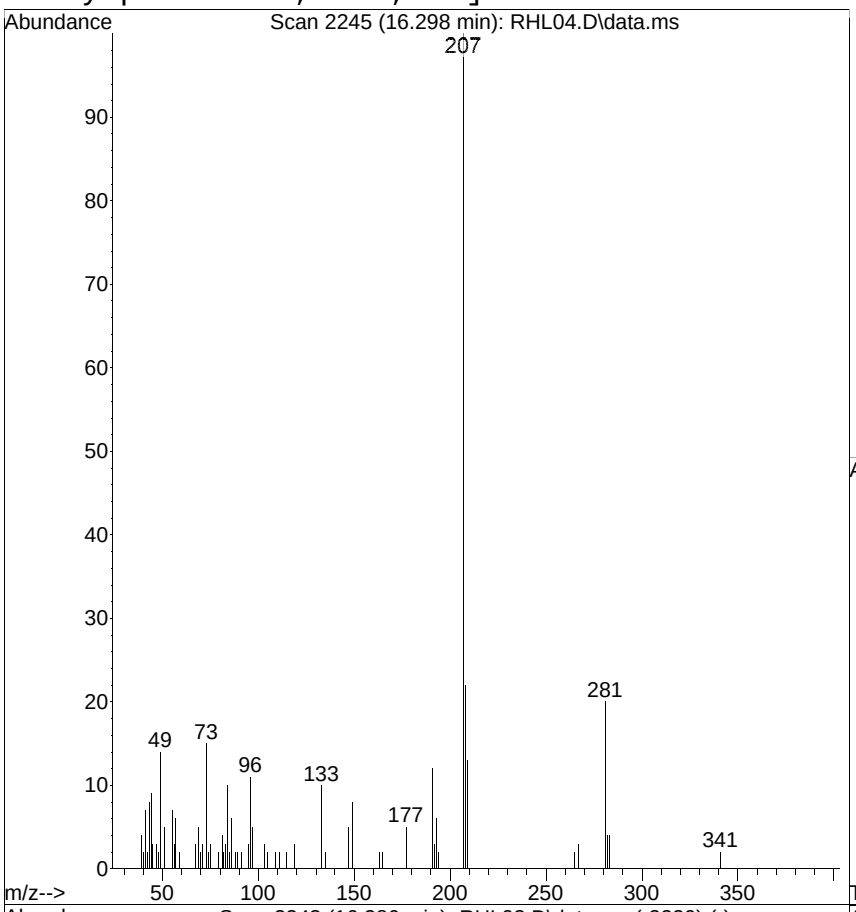




[Di-n-octylphthalate; <RL; u]

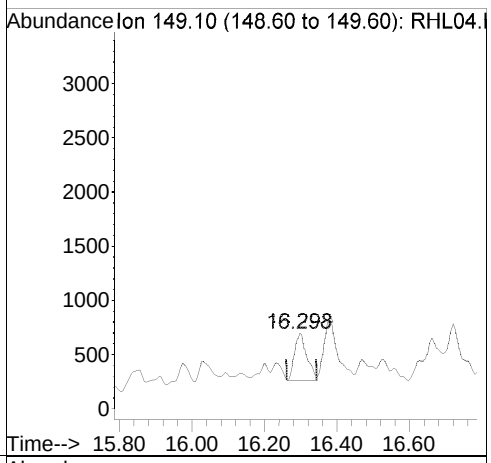
Raw



#80
Di-n-octylphthalate
Concen: 0.0060 ug/mL
RT: 16.298 min Scan# 2245
Delta R.T. 0.012 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

Tgt Ion:149 Resp: 1019

Ion	Ratio	Lower	Upper
149	100		
167	0.0	0.0	21.3
43	99.3	0.0	29.0#



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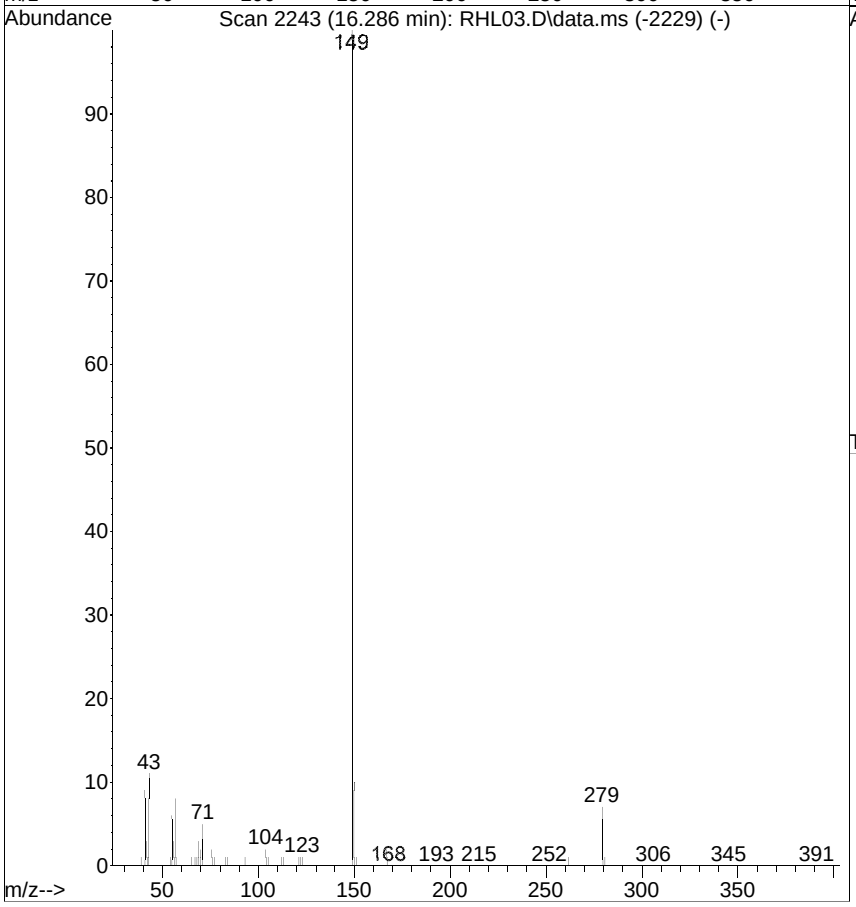
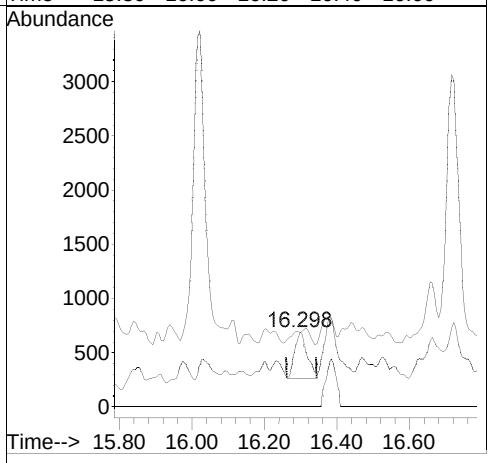
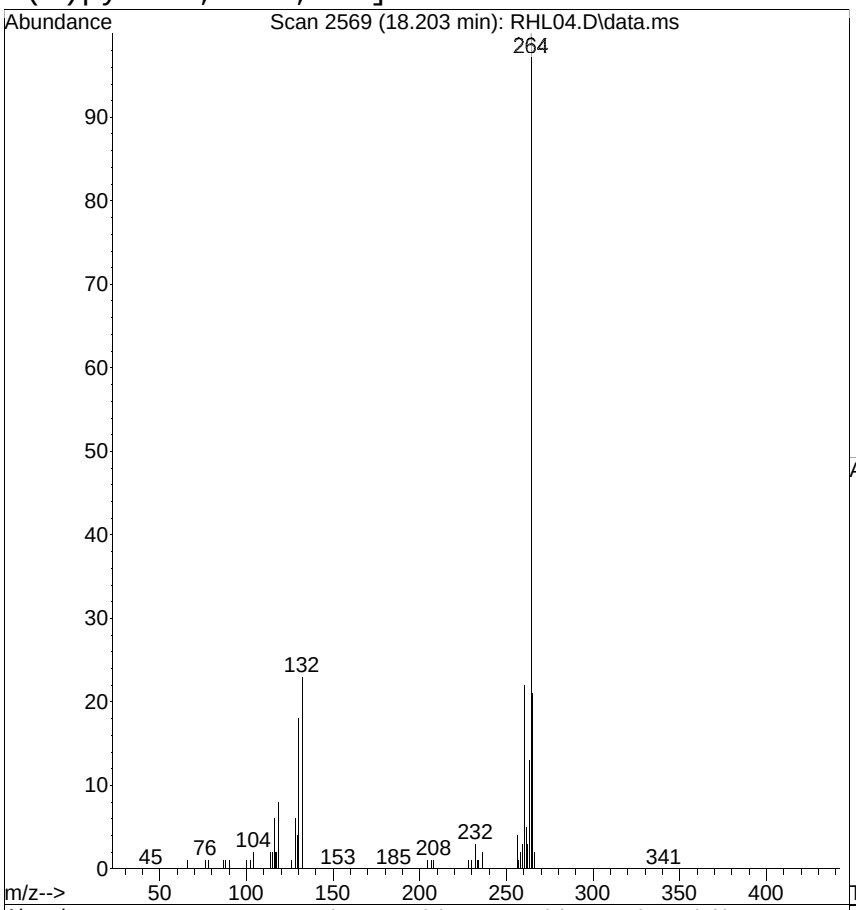




[Benzo(a)pyrene; <RL; u]

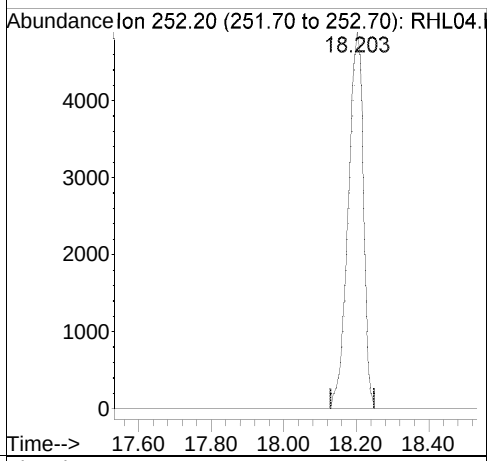
Raw



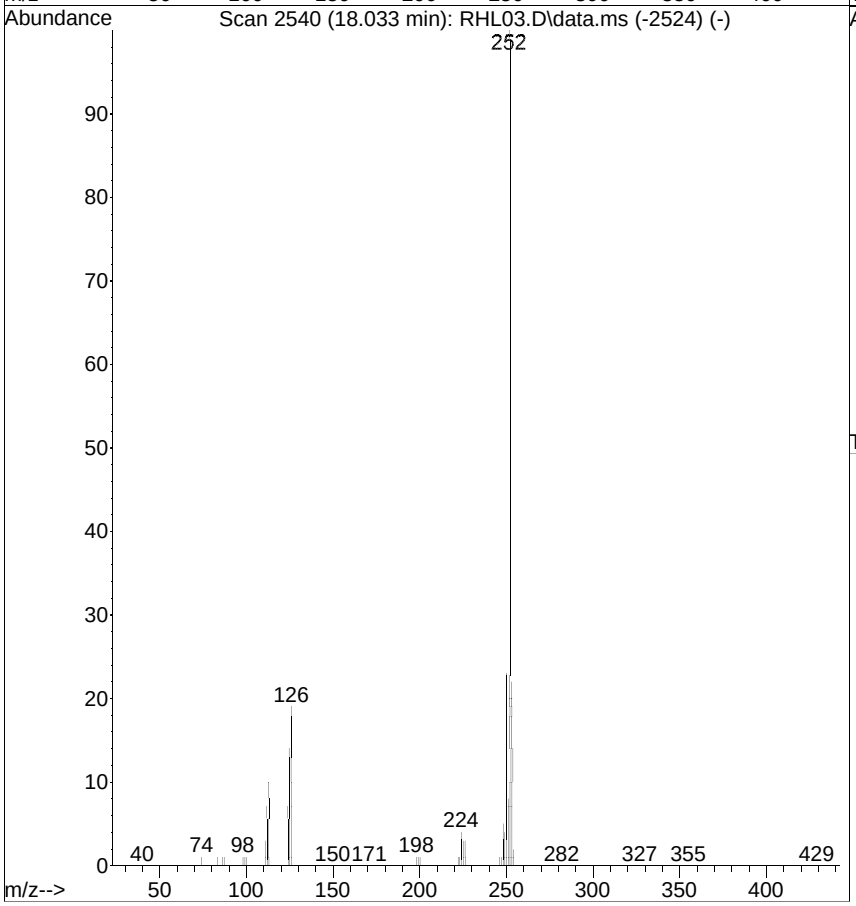
#83
Benzo(a)pyrene
Concen: 0.1250 ug/mL
RT: 18.203 min Scan# 2569
Delta R.T. 0.171 min
Lab File: RHL04.D
Acq: 21 Aug 2014 2:45 pm

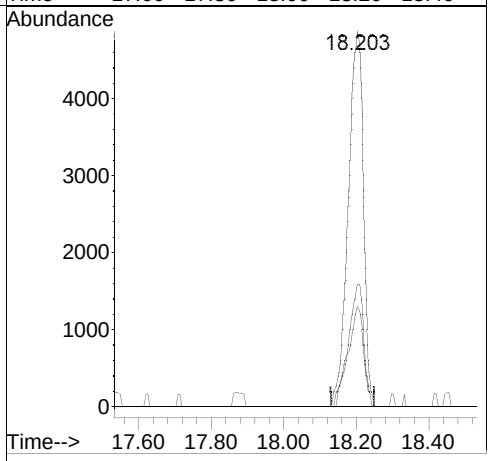
Tgt Ion:252 Resp: 13642

Ion	Ratio	Lower	Upper
252	100		
253	32.5	2.6	42.6
125	26.8	0.0	36.8



Ref





CURTIS & TOMPKINS SPIKE USER REPORT FOR 259835 MSBNA Water
EPA 8270D

Type : BS
Inst : MSBNA09
Seqnum : 584336313005.1
File : rhl05
IDF : 1.0
Lab ID : QC754311
Matrix : Water
Batch : 214595
Time : 21-AUG-2014 15:14
Cal : 584305789001
Units : ug/L

Type : BSD
Inst : MSBNA09
Seqnum : 584336313006.2
File : rhl06
IDF : 1.0
Lab ID : QC754312
Matrix : Water
Batch : 214595
Time : 21-AUG-2014 15:44
Cal : 584305789001

BS: 1000.00 mL --> 1.0 ml = 0.001 ml/ml PDF
BSD: 1000.00 mL --> 1.0 ml = 0.001 ml/ml PDF

Analyte	Spiked	BS Raw	BS Result	%Rec	BSD Raw	BSD Result	%Rec	Limits	RPD	Lim	Flags
N-Nitrosodimethylamine	80.00	61.39	61.39	77	60.49	60.49	76	25-110	1	30	u
Phenol	80.00	62.93	62.93	79	61.74	61.74	77	0-115	2	30	u
bis(2-Chloroethyl)ether	80.00	60.61	60.61	76	59.67	59.67	75	35-110	2	30	u
2-Chlorophenol	80.00	63.91	63.91	80	62.73	62.73	78	35-105	2	30	u
1,3-Dichlorobenzene	80.00	52.58	52.58	66	50.18	50.18	63	30-100	5	30	u
1,4-Dichlorobenzene	80.00	53.33	53.33	67	51.20	51.20	64	30-100	4	30	u
Benzyl alcohol	80.00	66.57	66.57	83	64.78	64.78	81	30-110	3	30	u
1,2-Dichlorobenzene	80.00	55.21	55.21	69	52.97	52.97	66	35-100	4	30	u
2-Methylphenol	80.00	61.53	61.53	77	59.94	59.94	75	40-110	3	30	u
bis(2-Chloroisopropyl) ether	80.00	61.66	61.66	77	61.03	61.03	76	25-130	1	30	u
4-Methylphenol	80.00	59.47	59.47	74	58.33	58.33	73	30-110	2	30	u
N-Nitroso-di-n-propylamine	80.00	59.72	59.72	75	58.71	58.71	73	35-130	2	30	u
Hexachloroethane	80.00	46.90	46.90	59	43.39	43.39	54	30-100	8	30	u
Nitrobenzene	80.00	65.13	65.13	81	65.07	65.07	81	45-110	0	30	u
Isophorone	80.00	69.61	69.61	87	68.97	68.97	86	50-110	1	30	u
2-Nitrophenol	80.00	69.64	69.64	87	69.49	69.49	87	40-115	0	30	u
2,4-Dimethylphenol	80.00	47.42	47.42	59	45.75	45.75	57	30-110	4	30	u
Benzoic acid	120.0	55.15	55.15	46	54.30	54.30	45	0-125	2	30	u
bis(2-Chloroethoxy)methane	30.00	24.79	24.79	83	24.51	24.51	82	45-105	1	30	u
2,4-Dichlorophenol	80.00	65.28	65.28	82	65.85	65.85	82	50-105	1	30	u
1,2,4-Trichlorobenzene	80.00	55.41	55.41	69	53.85	53.85	67	35-105	3	30	u
Naphthalene	30.00	24.43	24.43	81	24.24	24.24	81	40-100	1	30	u
4-Chloroaniline	80.00	45.19	45.19	56	62.32	62.32	78	15-110	**32***	30	u
Hexachlorobutadiene	80.00	49.20	49.20	62	46.23	46.23	58	25-105	6	30	u
4-Chloro-3-methylphenol	80.00	66.04	66.04	83	64.49	64.49	81	45-110	2	30	u
2-Methylnaphthalene	30.00	25.15	25.15	84	24.73	24.73	82	45-105	2	30	u
Hexachlorocyclopentadiene	80.00	4.610	4.610	**6***	3.652	3.652	**5***	8-120	23	30	u
2,4,6-Trichlorophenol	80.00	66.95	66.95	84	66.29	66.29	83	50-115	1	30	u
2,4,5-Trichlorophenol	80.00	66.47	66.47	83	65.57	65.57	82	50-110	1	30	u
2-Chloronaphthalene	30.00	24.43	24.43	81	23.92	23.92	80	50-105	2	30	u
2-Nitroaniline	80.00	69.16	69.16	86	68.21	68.21	85	50-115	1	30	u
Dimethylphthalate	80.00	67.52	67.52	84	66.36	66.36	83	25-125	2	30	u
Acenaphthylene	30.00	29.84	29.84	99	28.95	28.95	97	50-105	3	30	u
2,6-Dinitrotoluene	80.00	69.63	69.63	87	67.79	67.79	85	50-115	3	30	u
3-Nitroaniline	80.00	64.91	64.91	81	64.34	64.34	80	20-125	1	30	m u
Acenaphthene	30.00	26.61	26.61	89	26.53	26.53	88	45-110	0	30	u
2,4-Dinitrophenol	80.00	61.33	61.33	77	63.57	63.57	79	15-140	4	30	u
4-Nitrophenol	80.00	62.51	62.51	78	60.98	60.98	76	0-125	2	30	u

Analyte	Spiked	BS Raw	BS Result	%Rec	BSD Raw	BSD Result	%Rec	Limits	RPD	Lim	Flags
Dibenzofuran	30.00	25.97	25.97	87	25.35	25.35	85	55-105	2	30	u
2,4-Dinitrotoluene	80.00	68.60	68.60	86	68.68	68.68	86	50-120	0	30	u
Diethylphthalate	30.00	27.13	27.13	90	26.96	26.96	90	40-120	1	30	u
Fluorene	30.00	26.66	26.66	89	26.04	26.04	87	50-110	2	30	u
4-Chlorophenyl-phenylether	30.00	26.02	26.02	87	26.02	26.02	87	50-110	0	30	u
4-Nitroaniline	80.00	63.13	63.13	79	62.67	62.67	78	35-120	1	30	u
4,6-Dinitro-2-methylphenol	80.00	71.62	71.62	90	72.24	72.24	90	40-130	1	30	u
N-Nitrosodiphenylamine	30.00	24.15	24.15	81	24.00	24.00	80	50-110	1	30	u
Azobenzene	30.00	24.09	24.09	80	23.87	23.87	80	55-115	1	30	u
4-Bromophenyl-phenylether	30.00	25.22	25.22	84	24.47	24.47	82	50-115	3	30	u
Hexachlorobenzene	80.00	56.88	56.88	71	57.19	57.19	71	50-110	1	30	u
Pentachlorophenol	80.00	65.89	65.89	82	66.01	66.01	83	40-115	0	30	u
Phenanthrene	30.00	26.36	26.36	88	25.99	25.99	87	50-115	1	30	u
Anthracene	30.00	26.25	26.25	87	26.01	26.01	87	55-110	1	30	u
Carbazole	80.00	61.39	61.39	77	64.78	64.78	81	50-115	5	30	u
Di-n-butylphthalate	30.00	25.65	25.65	86	25.34	25.34	84	55-115	1	30	u
Fluoranthene	30.00	26.05	26.05	87	26.01	26.01	87	55-115	0	30	u
Pyrene	30.00	27.29	27.29	91	27.06	27.06	90	50-130	1	30	u
Butylbenzylphthalate	30.00	26.10	26.10	87	25.34	25.34	84	45-115	3	30	u
3,3'-Dichlorobenzidine	80.00	45.41	45.41	57	44.80	44.80	56	20-110	1	30	u
Benzo(a)anthracene	30.00	25.99	25.99	87	25.66	25.66	86	55-110	1	30	u
Chrysene	30.00	26.37	26.37	88	26.10	26.10	87	55-110	1	30	u
bis(2-Ethylhexyl)phthalate	30.00	29.67	29.67	99	26.27	26.27	88	40-125	12	30	u
Di-n-octylphthalate	30.00	25.66	25.66	86	25.54	25.54	85	35-135	0	30	u
Benzo(b)fluoranthene	30.00	26.81	26.81	89	25.70	25.70	86	45-120	4	30	u
Benzo(k)fluoranthene	30.00	24.62	24.62	82	24.86	24.86	83	45-125	1	30	u
Benzo(a)pyrene	30.00	27.64	27.64	92	27.05	27.05	90	55-110	2	30	u
Indeno(1,2,3-cd)pyrene	30.00	26.83	26.83	89	25.89	25.89	86	45-125	4	30	u
Dibenz(a,h)anthracene	30.00	26.04	26.04	87	25.22	25.22	84	40-125	3	30	u
Benzo(g,h,i)perylene	30.00	28.00	28.00	93	26.68	26.68	89	40-125	5	30	u
2-Fluorophenol	40.00	31.69	31.69	79	30.67	30.67	77	20-110			u
Phenol-d5	40.00	32.34	32.34	81	31.41	31.41	79	10-115			u
2,4,6-Tribromophenol	40.00	33.07	33.07	83	31.68	31.68	79	40-125			u
Nitrobenzene-d5	40.00	32.53	32.53	81	32.08	32.08	80	40-110			u
2-Fluorobiphenyl	40.00	32.73	32.73	82	31.99	31.99	80	50-110			u
Terphenyl-d14	40.00	33.54	33.54	84	32.82	32.82	82	50-135			u

ISTD (ICAL rgv21)	ICAL Abund	BS Abund	%Drift
1,4-Dichlorobenzene-d4	1195108	970620	-18.78
Naphthalene-d8	4635194	3749257	-19.11
Acenaphthene-d10	2989178	2432394	-18.63
Phenanthrene-d10	5453704	4557286	-16.44
Chrysene-d12	6186500	5020842	-18.84
Perylene-d12	5646577	4556462	-19.31

ISTD (CCV rhl03)	CCV RT	BS RT	Drift
1,4-Dichlorobenzene-d4	6.21	6.21	0.00
Naphthalene-d8	7.70	7.70	0.00
Acenaphthene-d10	9.86	9.87	0.01
Phenanthrene-d10	11.72	11.72	0.00
Chrysene-d12	15.17	15.17	0.00
Perylene-d12	18.20	18.20	0.00

ISTD (ICAL rgv21)	ICAL Abund	BSD Abund	%Drift
1,4-Dichlorobenzene-d4	1195108	986455	-17.46
Naphthalene-d8	4635194	3730873	-19.51
Acenaphthene-d10	2989178	2432536	-18.62
Phenanthrene-d10	5453704	4563310	-16.33
Chrysene-d12	6186500	5042243	-18.50
Perylene-d12	5646577	4529695	-19.78

ISTD (CCV rhl03)	CCV RT	BSD RT	Drift
1,4-Dichlorobenzene-d4	6.21	6.21	0.00
Naphthalene-d8	7.70	7.70	0.00
Acenaphthene-d10	9.86	9.87	0.01
Phenanthrene-d10	11.72	11.72	0.00
Chrysene-d12	15.17	15.17	0.00
Perylene-d12	18.20	18.20	0.00

KMH 08/21/14 [Aniline]: Picked or reassigned peak for spike & dup. [general version]

KMH 08/21/14 [3-Nitroaniline]: Picked or reassigned peak for dup. [general version]

KMH 08/25/14 [Hexachlorocyclopentadiene]: Results were confirmed by reanalysis. [general version]

KMH 08/25/14 : CAR 8345 [general version]

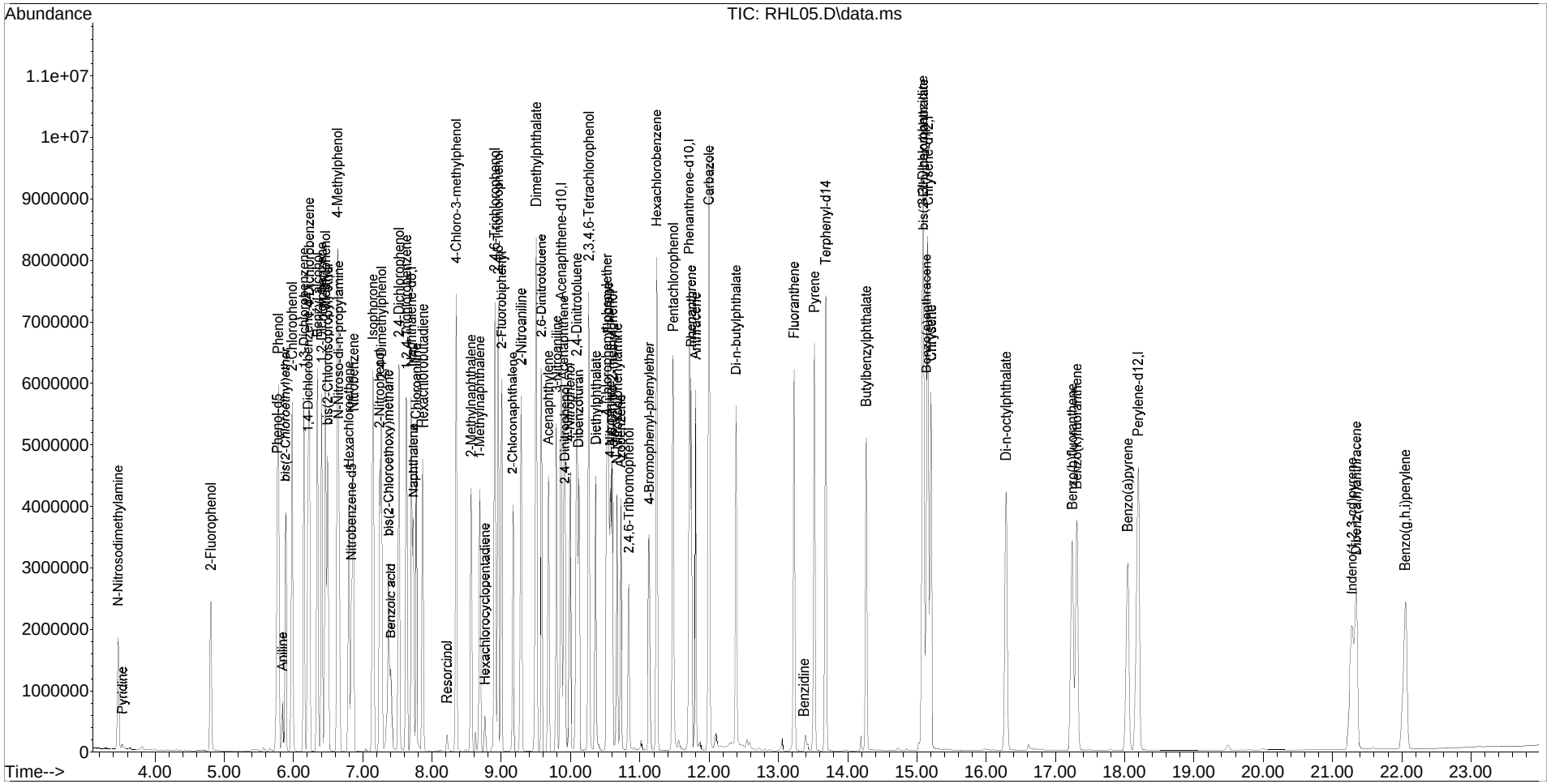
Analyst: KMH Date: 08/26/14 Reviewer: LW Date: 08/27/14

m=manual integration u=use

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\082114\
Data File : RHL05.D
Acq On : 21 Aug 2014 3:14 pm
Operator :
Sample : BS,QC754311
Misc : 214595,1,
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 21 16:22:18 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Aug 21 14:21:14 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\082114\
Data File : RHL05.D
Acq On : 21 Aug 2014 3:14 pm
Operator :
Sample : BS,QC754311
Misc : 214595,1,
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 21 16:22:18 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Aug 21 14:21:14 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.210	152	970620	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.704	136	3749257	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.869	164	2432394	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.716	188	4557286	40.0000	ug/mL	0.00
70) Chrysene-d12	15.168	240	5020842	40.0000	ug/mL	0.00
79) Perylene-d12	18.198	264	4556462	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.528	79	75017	1.9509	ug/mL	85
3) N-Nitrosodimethylamine	3.469	42	1026374	61.3947	ug/mL	79
4) 2-Fluorophenol	4.810	112	1127417	31.6905	ug/mL	# 68
5) Phenol-d5	5.769	99	1342189	32.3403	ug/mL	76
6) Phenol	5.781	94	2673175	62.9337	ug/mL	82
7) Aniline	5.840	93	439941m	8.7186	ug/mL	
8) bis(2-Chloroethyl)ether	5.887	93	1946683	60.6088	ug/mL	97
9) 2-Chlorophenol	5.981	128	2318417	63.9130	ug/mL	92
10) 1,3-Dichlorobenzene	6.151	146	2022743	52.5829	ug/mL	96
11) 1,4-Dichlorobenzene	6.228	146	2074461	53.3281	ug/mL	92
12) Benzyl alcohol	6.351	108	1556816	66.5657	ug/mL	# 84
13) 1,2-Dichlorobenzene	6.410	146	2007630	55.2109	ug/mL	97
14) 2-Methylphenol	6.463	107	1665769	61.5331	ug/mL	96
15) bis(2-Chloroisopropyl) ether	6.492	45	2763072	61.6604	ug/mL	99
16) 4-Methylphenol	6.640	107	2480935	59.4659	ug/mL	93
17) N-Nitroso-di-n-propylamine	6.657	70	1430686	59.7166	ug/mL	89
18) Hexachloroethane	6.804	117	707874	46.9043	ug/mL	90
20) Nitrobenzene-d5	6.840	82	1173657	32.5328	ug/mL	# 73
21) Nitrobenzene	6.869	77	2199021	65.1310	ug/mL	82
22) Isophorone	7.145	82	4809169	69.6051	ug/mL	93
23) 2-Nitrophenol	7.239	139	1327119	69.6413	ug/mL	79
24) 2,4-Dimethylphenol	7.263	107	1634403	47.4228	ug/mL	85
25) bis(2-Chloroethoxy)methane	7.369	93	1063167	24.7923	ug/mL	99
26) Benzoic acid	7.410	105	1334590	55.1545	ug/mL	89
27) 2,4-Dichlorophenol	7.528	162	1919452	65.2799	ug/mL	97
28) 1,2,4-Trichlorobenzene	7.634	180	1655438	55.4142	ug/mL	97
29) Naphthalene	7.734	128	2493893	24.4335	ug/mL	97
30) 4-Chloroaniline	7.775	127	2061625	45.1909	ug/mL	94
31) Hexachlorobutadiene	7.875	225	814153	49.2045	ug/mL	98
32) Resorcinol	8.222	110	146047	4.7579	ug/mL	92
33) 4-Chloro-3-methylphenol	8.351	107	2186802	66.0367	ug/mL	93
34) 2-Methylnaphthalene	8.569	142	1808054	25.1488	ug/mL	92
35) 1-Methylnaphthalene	8.692	142	1724945	25.4593	ug/mL	90
37) Hexachlorocyclopentadiene	8.763	237	105606	4.6099	ug/mL	97
38) 2,4,6-Trichlorophenol	8.910	196	1555599	66.9523	ug/mL	94

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\082114\
Data File : RHL05.D
Acq On : 21 Aug 2014 3:14 pm
Operator :
Sample : BS,QC754311
Misc : 214595,1,
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 21 16:22:18 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Aug 21 14:21:14 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.957	196	1645532	66.4655	ug/mL	93
40) 2-Fluorobiphenyl	9.010	172	2833136	32.7269	ug/mL	100
41) 2-Chloronaphthalene	9.169	162	1765306	24.4322	ug/mL	94
42) 2-Nitroaniline	9.292	65	1484565	69.1552	ug/mL #	83
43) Dimethylphthalate	9.504	163	5798066	67.5200	ug/mL	100
44) 2,6-Dinitrotoluene	9.581	165	1447647	69.6286	ug/mL #	75
45) Acenaphthylene	9.686	152	3061948	29.8367	ug/mL	99
46) 3-Nitroaniline	9.804	138	1506117	64.9146	ug/mL #	64
47) Acenaphthene	9.904	154	2028521	26.6147	ug/mL	95
48) 2,4-Dinitrophenol	9.922	184	681109	61.3326	ug/mL #	1
49) 4-Nitrophenol	9.998	109	726607	62.5105	ug/mL #	73
50) Dibenzofuran	10.116	168	2743763	25.9715	ug/mL	82
51) 2,4-Dinitrotoluene	10.092	165	1978011	68.5955	ug/mL #	75
52) 2,3,4,6-Tetrachlorophenol	10.269	232	1481963	72.8547	ug/mL	89
53) Diethylphthalate	10.369	149	2528928	27.1307	ug/mL	96
54) 4-Chlorophenyl-phenylether	10.528	204	1147195	26.0230	ug/mL #	79
55) Fluorene	10.545	166	2326040	26.6626	ug/mL	88
56) 4-Nitroaniline	10.575	138	1516919	63.1295	ug/mL #	20
57) 2,4,6-Tribromophenol	10.845	330	429488	33.0711	ug/mL #	80
59) 4,6-Dinitro-2-methylphenol	10.604	198	1183861	71.6229	ug/mL #	76
60) N-Nitrosodiphenylamine	10.675	169	1643934	24.1528	ug/mL	90
61) Azobenzene	10.727	77	2192076	24.0863	ug/mL	89
62) 4-Bromophenyl-phenylether	11.139	248	712001	25.2168	ug/mL #	83
63) Hexachlorobenzene	11.245	284	1732745	56.8760	ug/mL	91
64) Pentachlorophenol	11.480	266	1272560	65.8897	ug/mL	98
65) Phenanthrene	11.745	178	3487071	26.3590	ug/mL	98
66) Anthracene	11.810	178	3434460	26.2493	ug/mL	97
67) Carbazole	12.004	167	7096834	61.3918	ug/mL	87
68) Di-n-butylphthalate	12.392	149	4290671	25.6524	ug/mL	97
69) Fluoranthene	13.233	202	3792227	26.0532	ug/mL	96
71) Benzidine	13.374	184	4565	0.0835	ug/mL	94
72) Pyrene	13.521	202	4095806	27.2915	ug/mL	94
73) Terphenyl-d14	13.686	244	3910089	33.5439	ug/mL	98
74) Butylbenzylphthalate	14.274	149	1865077	26.1038	ug/mL	95
75) 3,3'-Dichlorobenzidine	15.086	252	2464297	45.4114	ug/mL	99
76) Benzo(a)anthracene	15.145	228	3673635	25.9898	ug/mL	97
77) bis(2-Ethylhexyl)phthalate	15.098	149	2912373	29.6675	ug/mL	94
78) Chrysene	15.210	228	3532001	26.3747	ug/mL	96
80) Di-n-octylphthalate	16.292	149	4515462	25.6611	ug/mL	96
81) Benzo(b)fluoranthene	17.251	252	3543108	26.8138	ug/mL	96
82) Benzo(k)fluoranthene	17.309	252	3241179	24.6201	ug/mL	95
83) Benzo(a)pyrene	18.045	252	3102274	27.6398	ug/mL	97
84) Indeno(1,2,3-cd)pyrene	21.286	276	3516569	26.8340	ug/mL	94

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\082114\
Data File : RHL05.D
Acq On : 21 Aug 2014 3:14 pm
Operator :
Sample : BS,QC754311
Misc : 214595,1,
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 21 16:22:18 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Aug 21 14:21:14 2014
Response via : Initial Calibration

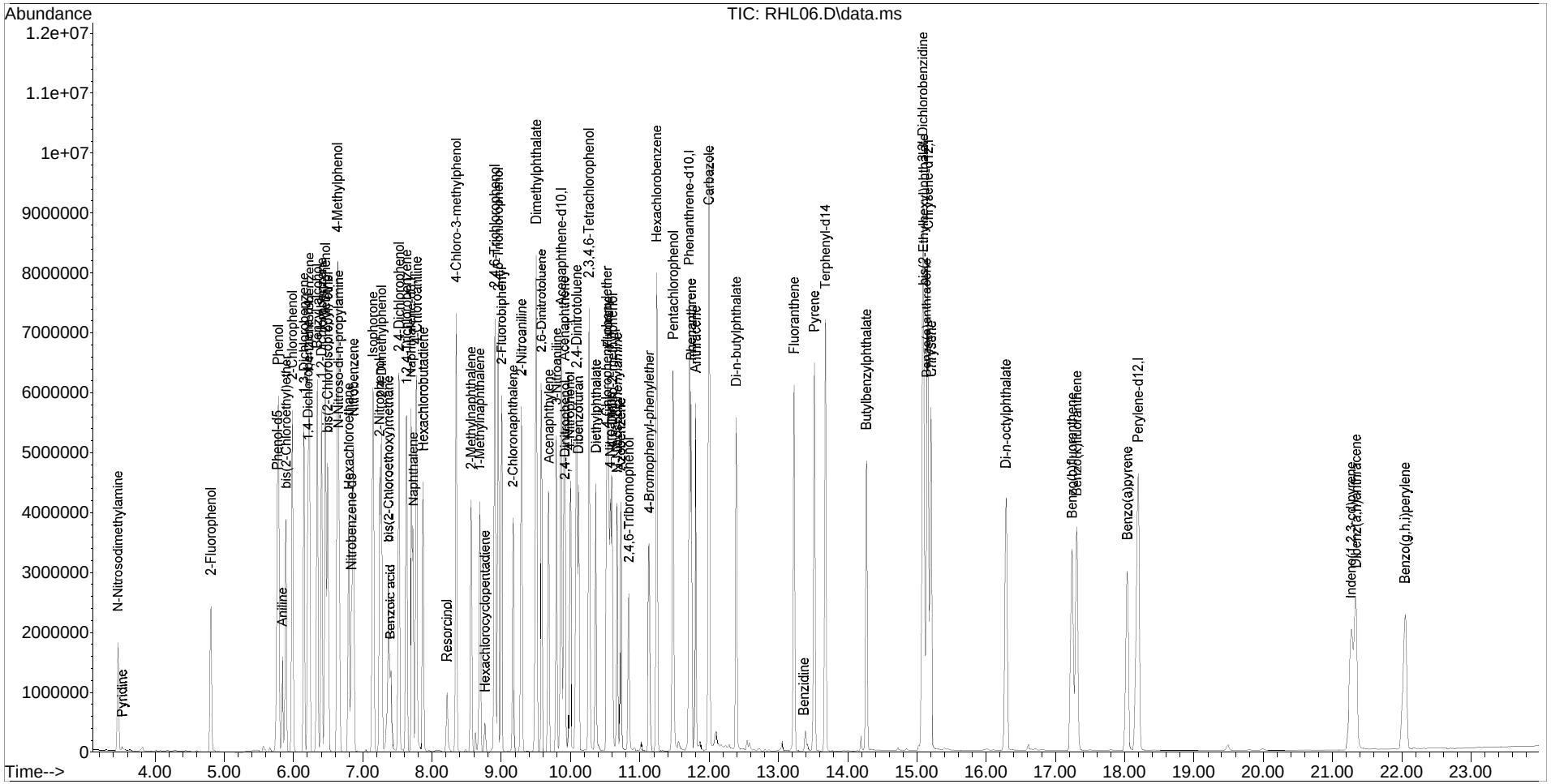
Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.344	278	3062334	26.0424	ug/mL	97
86) Benzo(g,h,i)perylene	22.056	276	2922040	28.0045	ug/mL	98

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

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\082114\
Data File : RHL06.D
Acq On : 21 Aug 2014 3:44 pm
Operator :
Sample : BSD,QC754312
Misc : 214595,1,
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 21 16:24:09 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Aug 21 14:21:14 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\082114\
Data File : RHL06.D
Acq On : 21 Aug 2014 3:44 pm
Operator :
Sample : BSD,QC754312
Misc : 214595,1,
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 21 16:24:09 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Aug 21 14:21:14 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.210	152	986455	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.704	136	3730873	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.869	164	2432536	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.716	188	4563310	40.0000	ug/mL	0.00
70) Chrysene-d12	15.168	240	5042243	40.0000	ug/mL	0.00
79) Perylene-d12	18.198	264	4529695	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.528	79	53658	1.3730	ug/mL	86
3) N-Nitrosodimethylamine	3.469	42	1027773	60.4915	ug/mL	79
4) 2-Fluorophenol	4.810	112	1109052	30.6739	ug/mL	# 69
5) Phenol-d5	5.769	99	1324895	31.4112	ug/mL	76
6) Phenol	5.781	94	2665147	61.7375	ug/mL	83
7) Aniline	5.840	93	855184m	16.6758	ug/mL	
8) bis(2-Chloroethyl)ether	5.893	93	1947756	59.6687	ug/mL	96
9) 2-Chlorophenol	5.981	128	2312577	62.7286	ug/mL	91
10) 1,3-Dichlorobenzene	6.151	146	1961861	50.1816	ug/mL	96
11) 1,4-Dichlorobenzene	6.234	146	2024337	51.2042	ug/mL	92
12) Benzyl alcohol	6.351	108	1539755	64.7794	ug/mL	85
13) 1,2-Dichlorobenzene	6.410	146	1957604	52.9709	ug/mL	97
14) 2-Methylphenol	6.463	107	1649037	59.9371	ug/mL	95
15) bis(2-Chloroisopropyl) ether	6.492	45	2779236	61.0255	ug/mL	99
16) 4-Methylphenol	6.640	107	2473126	58.3272	ug/mL	93
17) N-Nitroso-di-n-propylamine	6.657	70	1429406	58.7054	ug/mL	89
18) Hexachloroethane	6.804	117	665560	43.3926	ug/mL	89
20) Nitrobenzene-d5	6.840	82	1151659	32.0804	ug/mL	# 74
21) Nitrobenzene	6.869	77	2186352	65.0749	ug/mL	81
22) Isophorone	7.145	82	4741934	68.9701	ug/mL	92
23) 2-Nitrophenol	7.239	139	1317707	69.4881	ug/mL	78
24) 2,4-Dimethylphenol	7.263	107	1569069	45.7515	ug/mL	85
25) bis(2-Chloroethoxy)methane	7.369	93	1046022	24.5126	ug/mL	99
26) Benzoic acid	7.404	105	1307489	54.3007	ug/mL	90
27) 2,4-Dichlorophenol	7.528	162	1926842	65.8541	ug/mL	96
28) 1,2,4-Trichlorobenzene	7.634	180	1600712	53.8464	ug/mL	97
29) Naphthalene	7.734	128	2461751	24.2374	ug/mL	98
30) 4-Chloroaniline	7.781	127	2829202	62.3219	ug/mL	95
31) Hexachlorobutadiene	7.875	225	761105	46.2251	ug/mL	98
32) Resorcinol	8.222	110	521590	17.0759	ug/mL	92
33) 4-Chloro-3-methylphenol	8.351	107	2125202	64.4927	ug/mL	93
34) 2-Methylnaphthalene	8.569	142	1769174	24.7292	ug/mL	93
35) 1-Methylnaphthalene	8.692	142	1694394	25.1316	ug/mL	91
37) Hexachlorocyclopentadiene	8.763	237	83655	3.6515	ug/mL	97
38) 2,4,6-Trichlorophenol	8.910	196	1540407	66.2946	ug/mL	94

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\082114\
Data File : RHL06.D
Acq On : 21 Aug 2014 3:44 pm
Operator :
Sample : BSD,QC754312
Misc : 214595,1,
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 21 16:24:09 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Aug 21 14:21:14 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.957	196	1623424	65.5687	ug/mL	93
40) 2-Fluorobiphenyl	9.010	172	2769571	31.9907	ug/mL	99
41) 2-Chloronaphthalene	9.169	162	1728407	23.9201	ug/mL	93
42) 2-Nitroaniline	9.292	65	1464326	68.2085	ug/mL #	82
43) Dimethylphthalate	9.504	163	5698936	66.3617	ug/mL	99
44) 2,6-Dinitrotoluene	9.581	165	1409589	67.7941	ug/mL #	76
45) Acenaphthylene	9.692	152	2971533	28.9540	ug/mL	99
46) 3-Nitroaniline	9.804	138	1492926m	64.3423	ug/mL	
47) Acenaphthene	9.910	154	2022272	26.5312	ug/mL	94
48) 2,4-Dinitrophenol	9.922	184	712559	63.5658	ug/mL #	1
49) 4-Nitrophenol	9.998	109	708898	60.9834	ug/mL #	72
50) Dibenzofuran	10.116	168	2678596	25.3531	ug/mL	82
51) 2,4-Dinitrotoluene	10.092	165	1980599	68.6813	ug/mL #	75
52) 2,3,4,6-Tetrachlorophenol	10.269	232	1444596	71.0136	ug/mL	89
53) Diethylphthalate	10.369	149	2512899	26.9572	ug/mL	97
54) 4-Chlorophenyl-phenylether	10.528	204	1147152	26.0205	ug/mL #	78
55) Fluorene	10.545	166	2272282	26.0449	ug/mL	88
56) 4-Nitroaniline	10.575	138	1505865	62.6658	ug/mL #	20
57) 2,4,6-Tribromophenol	10.845	330	411397	31.6762	ug/mL #	82
59) 4,6-Dinitro-2-methylphenol	10.604	198	1195617	72.2387	ug/mL #	76
60) N-Nitrosodiphenylamine	10.675	169	1635389	23.9955	ug/mL	90
61) Azobenzene	10.728	77	2174857	23.8656	ug/mL	90
62) 4-Bromophenyl-phenylether	11.139	248	691839	24.4704	ug/mL #	82
63) Hexachlorobenzene	11.245	284	1744537	57.1875	ug/mL	92
64) Pentachlorophenol	11.480	266	1276555	66.0093	ug/mL	97
65) Phenanthrene	11.745	178	3443225	25.9932	ug/mL	97
66) Anthracene	11.810	178	3407840	26.0114	ug/mL	97
67) Carbazole	12.004	167	7498774	64.7831	ug/mL	87
68) Di-n-butylphthalate	12.392	149	4244263	25.3414	ug/mL	96
69) Fluoranthene	13.233	202	3790904	26.0097	ug/mL	96
71) Benzidine	13.374	184	10529	0.1917	ug/mL	91
72) Pyrene	13.521	202	4078060	27.0580	ug/mL	95
73) Terphenyl-d14	13.680	244	3842366	32.8230	ug/mL	96
74) Butylbenzylphthalate	14.274	149	1818472	25.3435	ug/mL	95
75) 3,3'-Dichlorobenzidine	15.086	252	2441634	44.8028	ug/mL	99
76) Benzo(a)anthracene	15.145	228	3642257	25.6585	ug/mL	97
77) bis(2-Ethylhexyl)phthalate	15.098	149	2589728	26.2689	ug/mL	94
78) Chrysene	15.210	228	3510179	26.1005	ug/mL	96
80) Di-n-octylphthalate	16.292	149	4467146	25.5365	ug/mL	96
81) Benzo(b)fluoranthene	17.245	252	3376541	25.7042	ug/mL	96
82) Benzo(k)fluoranthene	17.309	252	3254049	24.8639	ug/mL	95
83) Benzo(a)pyrene	18.039	252	3017835	27.0464	ug/mL	97
84) Indeno(1,2,3-cd)pyrene	21.280	276	3373166	25.8919	ug/mL	94

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\082114\
Data File : RHL06.D
Acq On : 21 Aug 2014 3:44 pm
Operator :
Sample : BSD,QC754312
Misc : 214595,1,
ALS Vial : 6 Sample Multiplier: 1

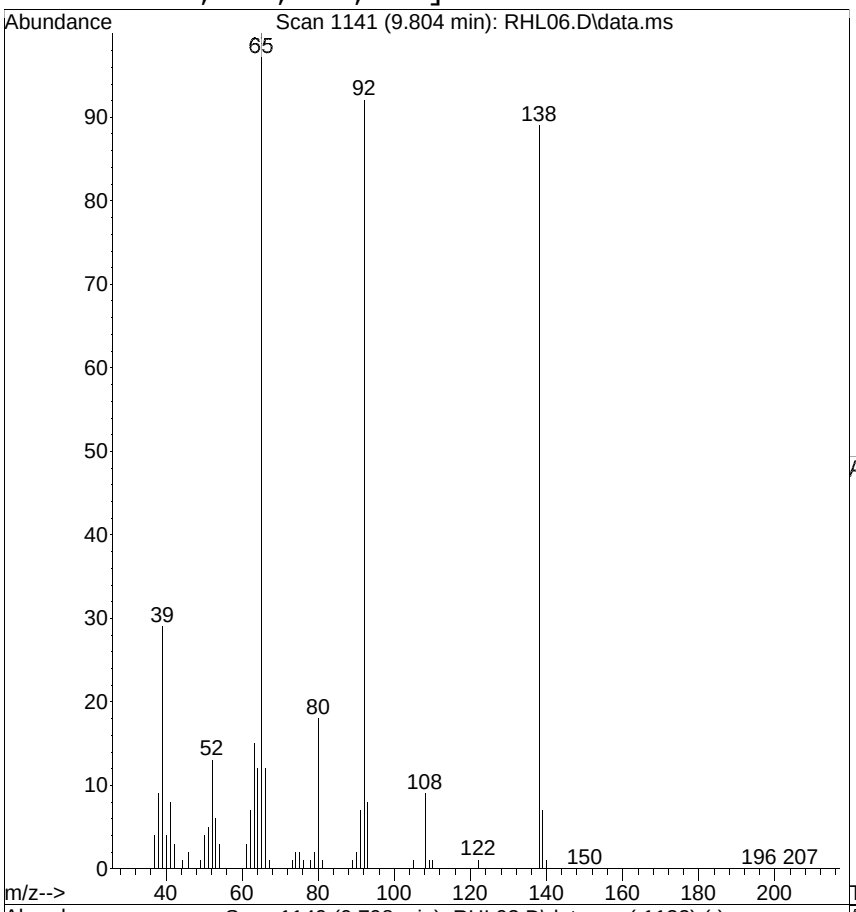
Quant Time: Aug 21 16:24:09 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Aug 21 14:21:14 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.344	278	2948756	25.2247	ug/mL	97
86) Benzo(g,h,i)perylene	22.056	276	2767937	26.6843	ug/mL	98

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

[3-Nitroaniline; 64; MI; u]

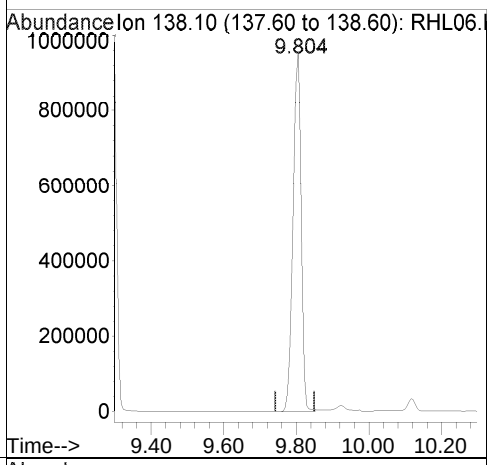
Raw



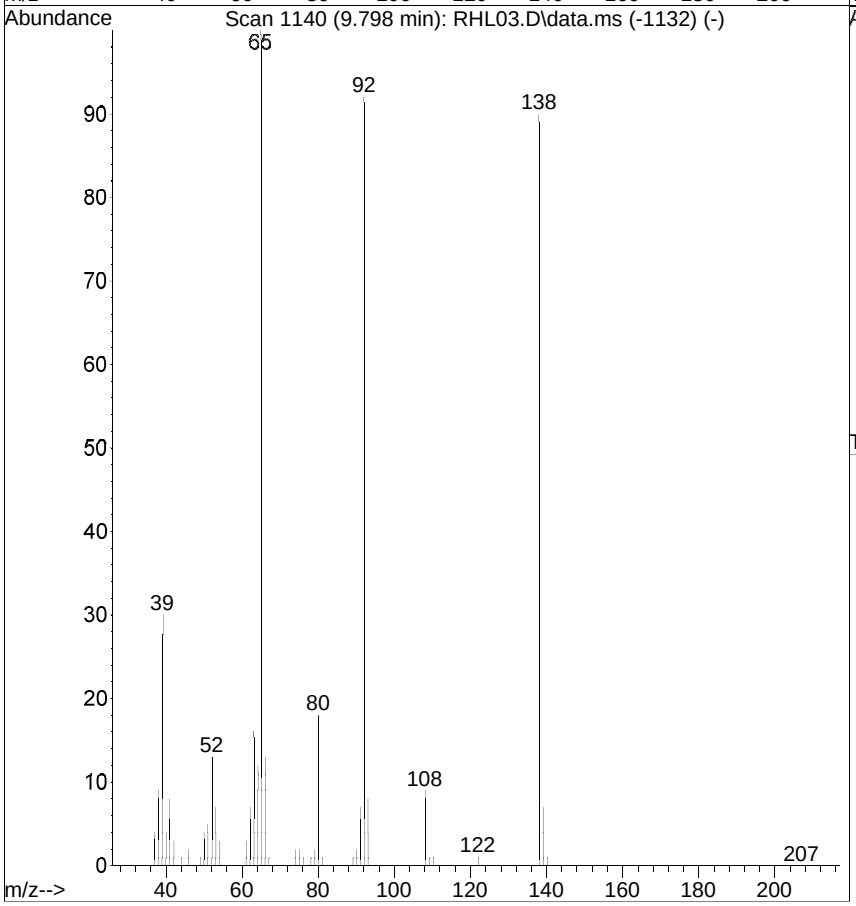
#46
3-Nitroaniline
Concen: 64.3423 ug/mL m
RT: 9.804 min Scan# 1141
Delta R.T. 0.006 min
Lab File: RHL06.D
Acq: 21 Aug 2014 3:44 pm

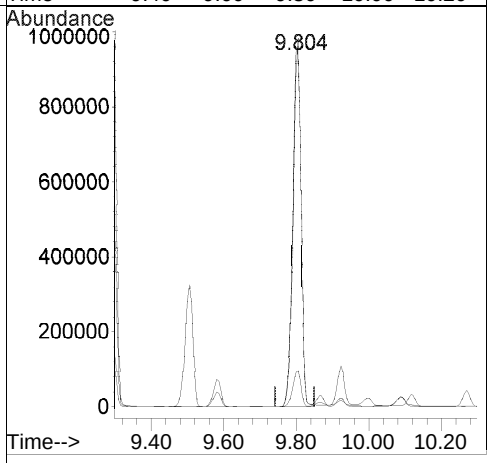
Tgt Ion:138 Resp: 1492926

Ion	Ratio	Lower	Upper
138	100		
108	10.1	0.0	35.0
92	102.8	131.0	171.0#



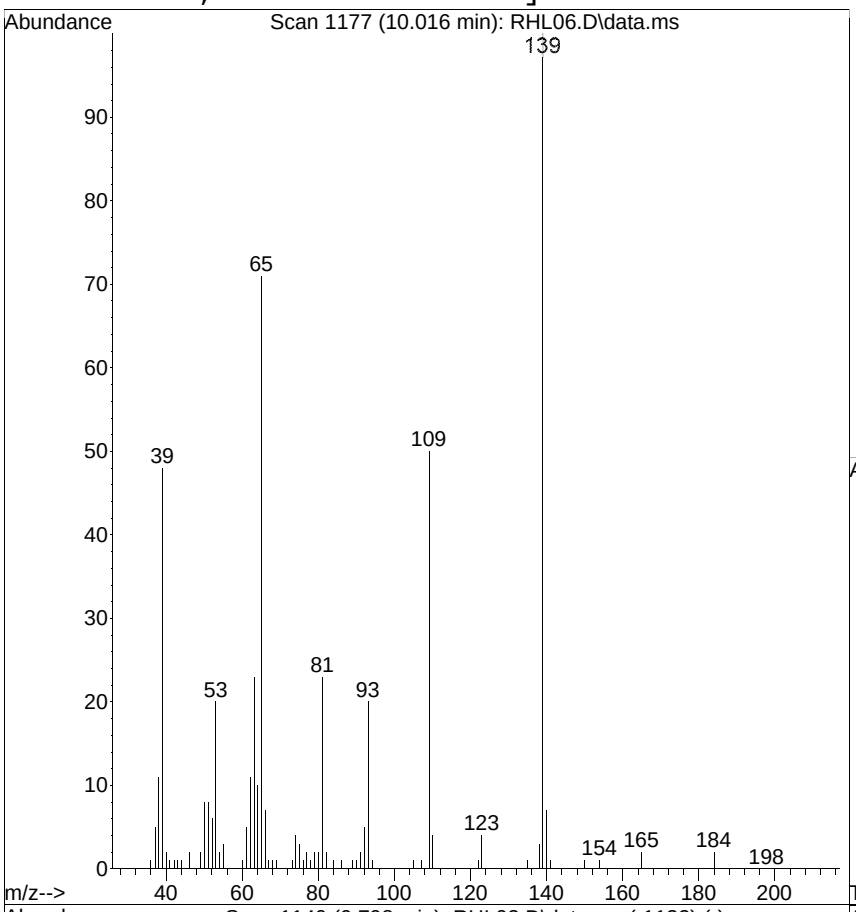
Ref





[3-Nitroaniline; before version]

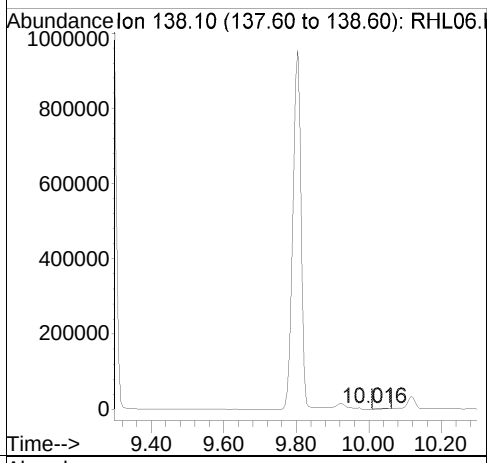
Raw



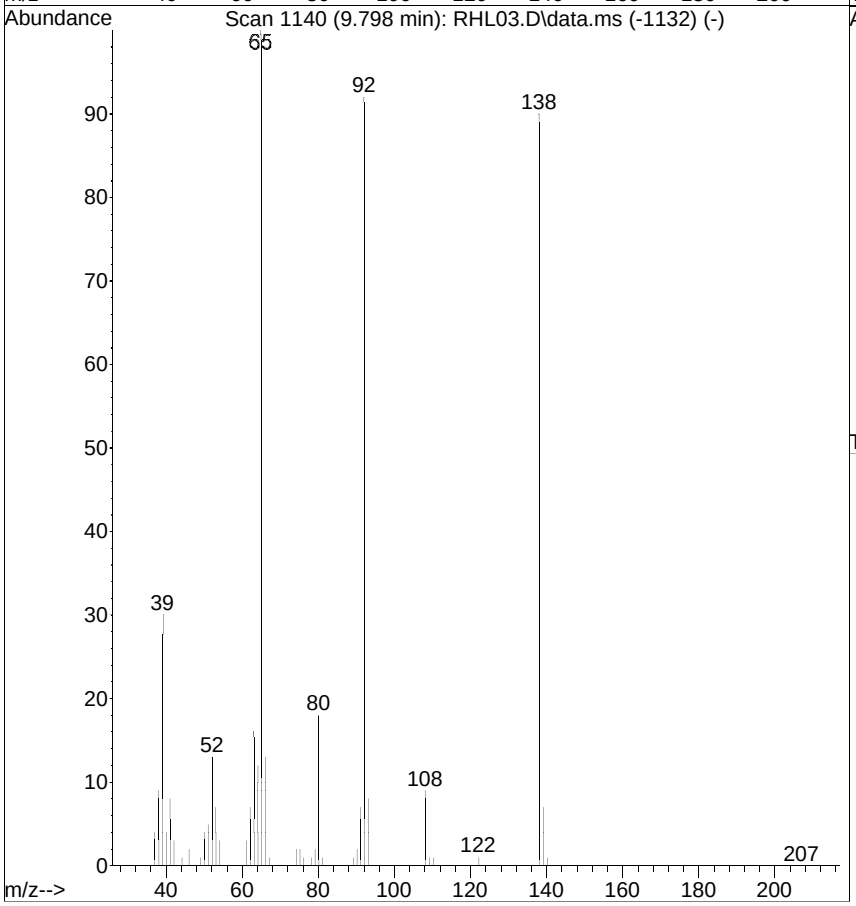
#46
3-Nitroaniline
Concen: 0.2043 ug/mL
RT: 10.016 min Scan# 1177
Delta R.T. 0.218 min
Lab File: RHL06.D
Acq: 21 Aug 2014 3:44 pm

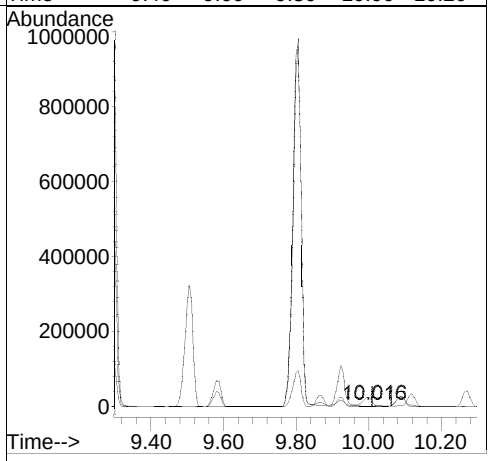
Tgt Ion:138 Resp: 4741

Ion	Ratio	Lower	Upper
138	100		
108	0.0	0.0	35.0
92	149.4	131.0	171.0



Ref





CURTIS & TOMPKINS SPIKE USER REPORT FOR 259835 MSBNA Water
EPA 8270D

Type : BS
Inst : MSBNA05
Seqnum : 544336478004.2
File : xhl04
IDF : 2.0
Lab ID : QC754311
Matrix : Water
Batch : 214595
Time : 21-AUG-2014 17:23
Cal : 544327680001
Units : ug/L

Type : BSD
Inst : MSBNA05
Seqnum : 544336478005.2
File : xhl05
IDF : 2.0
Lab ID : QC754312
Matrix : Water
Batch : 214595
Time : 21-AUG-2014 18:00
Cal : 544327680001

BS: 1000.00 mL --> 1.0 ml = 0.001 ml/ml PDF
BSD: 1000.00 mL --> 1.0 ml = 0.001 ml/ml PDF

Analyte	Spiked	BS Raw	BS Result	%Rec	BSD Raw	BSD Result	%Rec	Limits	RPD	Lim	Flags
N-Nitrosodimethylamine	80.00	29.04	58.09	73	28.89	57.78	72	25-110	1	30	
Phenol	80.00	33.46	66.92	84	33.54	67.08	84	0-115	0	30	
bis(2-Chloroethyl)ether	80.00	33.13	66.27	83	32.99	65.99	82	35-110	0	30	
2-Chlorophenol	80.00	34.97	69.94	87	34.71	69.42	87	35-105	1	30	
1,3-Dichlorobenzene	80.00	28.92	57.84	72	27.99	55.98	70	30-100	3	30	
1,4-Dichlorobenzene	80.00	30.40	60.81	76	29.18	58.37	73	30-100	4	30	
Benzyl alcohol	80.00	33.54	67.09	84	33.20	66.39	83	30-110	1	30	
1,2-Dichlorobenzene	80.00	30.64	61.27	77	29.79	59.58	74	35-100	3	30	
2-Methylphenol	80.00	32.57	65.15	81	32.45	64.91	81	40-110	0	30	
bis(2-Chloroisopropyl) ether	80.00	30.51	61.03	76	30.51	61.02	76	25-130	0	30	
4-Methylphenol	80.00	32.28	64.57	81	31.29	62.59	78	30-110	3	30	
N-Nitroso-di-n-propylamine	80.00	31.04	62.08	78	30.72	61.44	77	35-130	1	30	
Hexachloroethane	80.00	25.84	51.68	65	24.35	48.71	61	30-100	6	30	
Nitrobenzene	80.00	32.43	64.86	81	32.93	65.86	82	45-110	2	30	
Isophorone	80.00	32.82	65.65	82	32.55	65.11	81	50-110	1	30	
2-Nitrophenol	80.00	34.42	68.85	86	35.02	70.03	88	40-115	2	30	
2,4-Dimethylphenol	80.00	24.01	48.01	60	23.22	46.43	58	30-110	3	30	
Benzoic acid	120.0	25.00	50.00	42	24.98	49.95	42	0-125	0	30	
bis(2-Chloroethoxy)methane	30.00	12.32	24.63	82	12.27	24.54	82	45-105	0	30	
2,4-Dichlorophenol	80.00	35.20	70.40	88	35.75	71.50	89	50-105	2	30	
1,2,4-Trichlorobenzene	80.00	30.90	61.80	77	30.36	60.72	76	35-105	2	30	
Naphthalene	30.00	12.46	24.91	83	12.33	24.65	82	40-100	1	30	
4-Chloroaniline	80.00	22.07	44.15	55	31.06	62.13	78	15-110	**34***	30	
Hexachlorobutadiene	80.00	28.32	56.63	71	26.60	53.19	66	25-105	6	30	
4-Chloro-3-methylphenol	80.00	33.04	66.07	83	32.86	65.71	82	45-110	1	30	
2-Methylnaphthalene	30.00	12.41	24.81	83	12.14	24.29	81	45-105	2	30	
Hexachlorocyclopentadiene	80.00	2.485	4.970	**6***	1.966	3.933	**5***	8-120	23	30	
2,4,6-Trichlorophenol	80.00	36.30	72.60	91	35.98	71.96	90	50-115	1	30	
2,4,5-Trichlorophenol	80.00	36.36	72.72	91	35.94	71.88	90	50-110	1	30	
2-Chloronaphthalene	30.00	12.91	25.82	86	12.70	25.40	85	50-105	2	30	
2-Nitroaniline	80.00	33.20	66.39	83	33.31	66.61	83	50-115	0	30	
Dimethylphthalate	80.00	38.35	76.70	96	37.26	74.51	93	25-125	3	30	
Acenaphthylene	30.00	13.10	26.19	87	12.67	25.35	84	50-105	3	30	
2,6-Dinitrotoluene	80.00	36.90	73.79	92	35.87	71.75	90	50-115	3	30	
3-Nitroaniline	80.00	29.75	59.51	74	29.75	59.51	74	20-125	0	30	
Acenaphthene	30.00	13.68	27.36	91	13.61	27.22	91	45-110	1	30	
2,4-Dinitrophenol	80.00	29.56	59.12	74	30.94	61.88	77	15-140	5	30	
4-Nitrophenol	80.00	36.01	72.02	90	35.23	70.46	88	0-125	2	30	

Analyte	Spiked	BS Raw	BS Result	%Rec	BSD Raw	BSD Result	%Rec	Limits	RPD	Lim	Flags
Dibenzofuran	30.00	13.51	27.02	90	13.57	27.14	90	55-105	0	30	
2,4-Dinitrotoluene	80.00	37.40	74.79	93	36.72	73.45	92	50-120	2	30	
Diethylphthalate	30.00	14.18	28.35	95	13.82	27.63	92	40-120	3	30	
Fluorene	30.00	13.84	27.68	92	13.57	27.14	90	50-110	2	30	
4-Chlorophenyl-phenylether	30.00	13.80	27.59	92	13.65	27.31	91	50-110	1	30	
4-Nitroaniline	80.00	29.01	58.01	73	32.25	64.49	81	35-120	11	30	
4,6-Dinitro-2-methylphenol	80.00	33.43	66.85	84	33.92	67.85	85	40-130	1	30	
N-Nitrosodiphenylamine	30.00	11.84	23.69	79	11.78	23.56	79	50-110	1	30	
Azobenzene	30.00	12.08	24.16	81	11.93	23.86	80	55-115	1	30	
4-Bromophenyl-phenylether	30.00	13.10	26.21	87	12.97	25.93	86	50-115	1	30	
Hexachlorobenzene	80.00	37.94	75.87	95	37.20	74.41	93	50-110	2	30	
Pentachlorophenol	80.00	37.22	74.45	93	36.22	72.43	91	40-115	3	30	
Phenanthrene	30.00	13.62	27.23	91	13.44	26.88	90	50-115	1	30	
Anthracene	30.00	13.38	26.77	89	13.18	26.37	88	55-110	2	30	
Carbazole	80.00	28.65	57.31	72	36.26	72.52	91	50-115	23	30	
Di-n-butylphthalate	30.00	13.64	27.29	91	13.49	26.98	90	55-115	1	30	
Fluoranthene	30.00	13.81	27.62	92	13.50	27.00	90	55-115	2	30	
Pyrene	30.00	12.95	25.89	86	13.04	26.08	87	50-130	1	30	
Butylbenzylphthalate	30.00	12.11	24.21	81	12.11	24.22	81	45-115	0	30	
3,3'-Dichlorobenzidine	80.00	20.13	40.25	50	17.98	35.96	45	20-110	11	30	
Benzo(a)anthracene	30.00	12.57	25.14	84	12.70	25.40	85	55-110	1	30	
Chrysene	30.00	12.79	25.58	85	12.87	25.74	86	55-110	1	30	
bis(2-Ethylhexyl)phthalate	30.00	15.49	30.97	103	13.92	27.84	93	40-125	11	30	
Di-n-octylphthalate	30.00	11.48	22.96	77	11.50	23.00	77	35-135	0	30	
Benzo(b)fluoranthene	30.00	12.03	24.05	80	11.87	23.74	79	45-120	1	30	
Benzo(k)fluoranthene	30.00	12.67	25.34	84	12.82	25.64	85	45-125	1	30	
Benzo(a)pyrene	30.00	11.58	23.17	77	11.61	23.22	77	55-110	0	30	
Indeno(1,2,3-cd)pyrene	30.00	12.54	25.08	84	12.57	25.15	84	45-125	0	30	
Dibenz(a,h)anthracene	30.00	12.15	24.29	81	12.29	24.59	82	40-125	1	30	
Benzo(g,h,i)perylene	30.00	12.88	25.76	86	12.81	25.61	85	40-125	1	30	
2-Fluorophenol	40.00	15.82	31.64	79	15.66	31.32	78	20-110			
Phenol-d5	40.00	16.38	32.76	82	16.35	32.70	82	10-115			
2,4,6-Tribromophenol	40.00	20.00	40.01	100	19.34	38.69	97	40-125			
Nitrobenzene-d5	40.00	15.67	31.35	78	15.67	31.33	78	40-110			
2-Fluorobiphenyl	40.00	17.12	34.24	86	16.61	33.23	83	50-110			
Terphenyl-d14	40.00	16.93	33.85	85	16.68	33.35	83	50-135			

ISTD (ICAL xhf11)	ICAL Abund	BS Abund	%Drift
1,4-Dichlorobenzene-d4	1031318	876764	-14.99
Naphthalene-d8	3900538	3347323	-14.18
Acenaphthene-d10	2287286	1917720	-16.16
Phenanthrene-d10	3792150	3372572	-11.06
Chrysene-d12	4068719	3886889	-4.47
Perylene-d12	3663483	3639618	-0.65

ISTD (CCV xhl03)	CCV RT	BS RT	Drift
1,4-Dichlorobenzene-d4	6.04	6.04	0.00
Naphthalene-d8	7.55	7.55	0.00
Acenaphthene-d10	9.73	9.73	0.00
Phenanthrene-d10	11.60	11.60	0.00
Chrysene-d12	15.05	15.04	-0.01
Perylene-d12	18.02	18.01	-0.01

ISTD (ICAL xhf11)	ICAL Abund	BSD Abund	%Drift
1,4-Dichlorobenzene-d4	1031318	921498	-10.65
Naphthalene-d8	3900538	3493062	-10.45
Acenaphthene-d10	2287286	2010154	-12.12
Phenanthrene-d10	3792150	3552415	-6.32
Chrysene-d12	4068719	4007110	-1.51
Perylene-d12	3663483	3759990	2.63

ISTD (CCV xhl03)	CCV RT	BSD RT	Drift
1,4-Dichlorobenzene-d4	6.04	6.04	0.00
Naphthalene-d8	7.55	7.55	0.00
Acenaphthene-d10	9.73	9.73	0.00
Phenanthrene-d10	11.60	11.60	0.00
Chrysene-d12	15.05	15.04	-0.01
Perylene-d12	18.02	18.01	-0.01

08/21/14 : lr [general version]

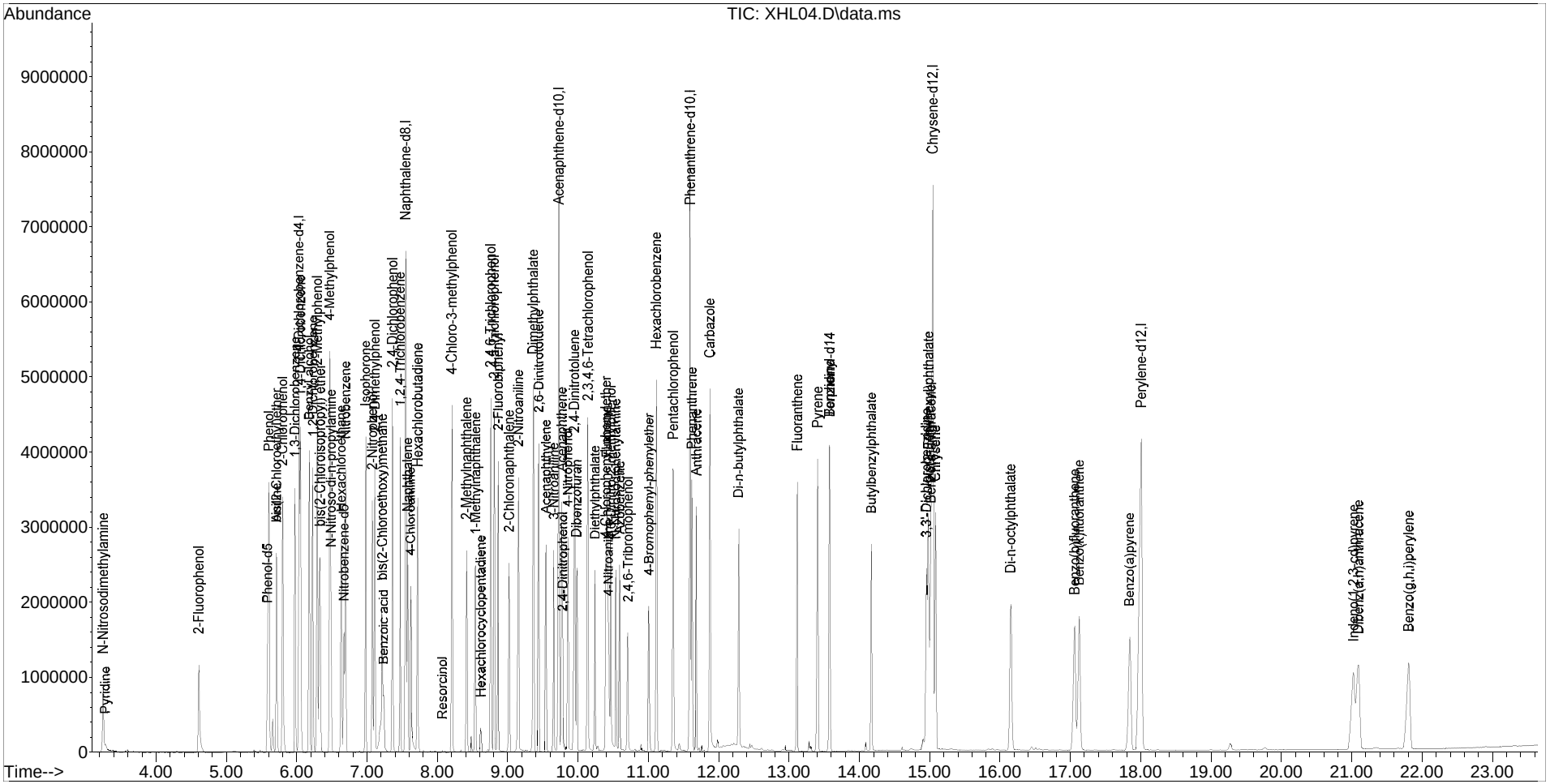
KMH 08/25/14 : Confirmation run only [general version]

Analyst: KMH Date: 08/26/14 Reviewer: _____ Date: _____

Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082114\
Data File : XHL04.D
Acq On : 21 Aug 2014 5:23 pm
Operator :
Sample : BS,QC754311
Misc : 214595,2,
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 21 17:47:13 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Thu Aug 21 17:14:05 2014
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082114\
Data File : XHL04.D
Acq On : 21 Aug 2014 5:23 pm
Operator :
Sample : BS,QC754311
Misc : 214595,2,
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 21 17:47:13 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Thu Aug 21 17:14:05 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.036	152	876764	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.548	136	3347323	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.733	164	1917720	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.597	188	3372572	40.0000	ug/mL	0.00
70) Chrysene-d12	15.043	240	3886889	40.0000	ug/mL	0.00
79) Perylene-d12	18.013	264	3639618	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.285	79	30700	0.9495	ug/mL	87
3) N-Nitrosodimethylamine	3.253	42	426408	29.0427	ug/mL	76
4) 2-Fluorophenol	4.610	112	467716	15.8206	ug/mL	# 73
5) Phenol-d5	5.593	99	602104	16.3821	ug/mL	79
6) Phenol	5.609	94	1239137	33.4598	ug/mL	77
7) Aniline	5.716	93	892205	20.1694	ug/mL	# 55
8) bis(2-Chloroethyl)ether	5.716	93	893863	33.1328	ug/mL	94
9) 2-Chlorophenol	5.801	128	1080434	34.9697	ug/mL	93
10) 1,3-Dichlorobenzene	5.977	146	958826	28.9179	ug/mL	97
11) 1,4-Dichlorobenzene	6.058	146	1005562	30.4027	ug/mL	91
12) Benzyl alcohol	6.180	108	691740	33.5448	ug/mL	94
13) 1,2-Dichlorobenzene	6.239	146	991771	30.6364	ug/mL	98
14) 2-Methylphenol	6.298	107	813227	32.5732	ug/mL	95
15) bis(2-Chloroisopropyl) ether	6.335	45	1240720	30.5145	ug/mL	96
16) 4-Methylphenol	6.474	107	1189439	32.2830	ug/mL	91
17) N-Nitroso-di-n-propylamine	6.490	70	571977	31.0423	ug/mL	85
18) Hexachloroethane	6.634	117	364280	25.8375	ug/mL	99
20) Nitrobenzene-d5	6.677	82	586484	15.6730	ug/mL	# 74
21) Nitrobenzene	6.699	77	1107853	32.4275	ug/mL	91
22) Isophorone	6.982	82	2001296	32.8249	ug/mL	98
23) 2-Nitrophenol	7.078	139	591729	34.4227	ug/mL	83
24) 2,4-Dimethylphenol	7.110	107	722092	24.0070	ug/mL	87
25) bis(2-Chloroethoxy)methane	7.217	93	443165	12.3173	ug/mL	96
26) Benzoic acid	7.238	105	560079	25.0006	ug/mL	95
27) 2,4-Dichlorophenol	7.366	162	895409	35.1985	ug/mL	96
28) 1,2,4-Trichlorobenzene	7.473	180	822715	30.9014	ug/mL	96
29) Naphthalene	7.575	128	1141875	12.4558	ug/mL	96
30) 4-Chloroaniline	7.623	127	822173	22.0732	ug/mL	93
31) Hexachlorobutadiene	7.724	225	390984	28.3156	ug/mL	97
32) Resorcinol	8.077	110	9989	15.0070	ug/mL	94
33) 4-Chloro-3-methylphenol	8.205	107	886467	33.0354	ug/mL	92
34) 2-Methylnaphthalene	8.419	142	767788	12.4052	ug/mL	91
35) 1-Methylnaphthalene	8.547	142	730824	12.4333	ug/mL	90
37) Hexachlorocyclopentadiene	8.622	237	39320	2.4849	ug/mL	98
38) 2,4,6-Trichlorophenol	8.766	196	636932	36.3004	ug/mL	92

Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082114\
Data File : XHL04.D
Acq On : 21 Aug 2014 5:23 pm
Operator :
Sample : BS,QC754311
Misc : 214595,2,
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 21 17:47:13 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Thu Aug 21 17:14:05 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.814	196	679941	36.3614	ug/mL	92
40) 2-Fluorobiphenyl	8.868	172	1167446	17.1189	ug/mL	97
41) 2-Chloronaphthalene	9.028	162	721485	12.9106	ug/mL	93
42) 2-Nitroaniline	9.151	65	637855	33.1968	ug/mL	89
43) Dimethylphthalate	9.364	163	2336554	38.3487	ug/mL	96
44) 2,6-Dinitrotoluene	9.444	165	552440	36.8967	ug/mL	86
45) Acenaphthylene	9.551	152	1222326	13.0961	ug/mL	98
46) 3-Nitroaniline	9.664	138	494556	29.7534	ug/mL #	65
47) Acenaphthene	9.770	154	796248	13.6802	ug/mL	94
48) 2,4-Dinitrophenol	9.786	184	191821	29.5586	ug/mL #	1
49) 4-Nitrophenol	9.861	109	323702	36.0119	ug/mL #	81
50) Dibenzofuran	9.984	168	1042206	13.5104	ug/mL	79
51) 2,4-Dinitrotoluene	9.952	165	735999	37.3966	ug/mL	91
52) 2,3,4,6-Tetrachlorophenol	10.139	232	584579	41.0337	ug/mL	88
53) Diethylphthalate	10.241	149	965702	14.1763	ug/mL	99
54) 4-Chlorophenyl-phenylether	10.395	204	407711	13.7969	ug/mL #	72
55) Fluorene	10.411	166	919089	13.8408	ug/mL	84
56) 4-Nitroaniline	10.433	138	499778	29.0061	ug/mL #	11
57) 2,4,6-Tribromophenol	10.716	330	175665	20.0031	ug/mL #	83
59) 4,6-Dinitro-2-methylphenol	10.470	198	383661	33.4271	ug/mL	83
60) N-Nitrosodiphenylamine	10.545	169	606485	11.8449	ug/mL	92
61) Azobenzene	10.598	77	944085	12.0787	ug/mL	96
62) 4-Bromophenyl-phenylether	11.015	248	243853	13.1037	ug/mL #	82
63) Hexachlorobenzene	11.117	284	703415	37.9371	ug/mL	84
64) Pentachlorophenol	11.357	266	474336	37.2228	ug/mL	97
65) Phenanthrene	11.624	178	1313695	13.6168	ug/mL	97
66) Anthracene	11.688	178	1313335	13.3844	ug/mL	95
67) Carbazole	11.881	167	2332892	28.6537	ug/mL	85
68) Di-n-butylphthalate	12.287	149	1662947	13.6431	ug/mL	97
69) Fluoranthene	13.120	202	1471656	13.8120	ug/mL	99
71) Benzidine	13.579	184	19823	19.6524	ug/mL #	1
72) Pyrene	13.408	202	1616665	12.9470	ug/mL	93
73) Terphenyl-d14	13.579	244	1441746	16.9255	ug/mL	94
74) Butylbenzylphthalate	14.172	149	760626	12.1053	ug/mL	96
75) 3,3'-Dichlorobenzidine	14.958	252	722826	20.1259	ug/mL	99
76) Benzo(a)anthracene	15.016	228	1397578	12.5714	ug/mL	98
77) bis(2-Ethylhexyl)phthalate	14.984	149	1263116	15.4853	ug/mL	96
78) Chrysene	15.081	228	1309309	12.7876	ug/mL	94
80) Di-n-octylphthalate	16.149	149	1832480	11.4822	ug/mL	97
81) Benzo(b)fluoranthene	17.068	252	1320991	12.0263	ug/mL	98
82) Benzo(k)fluoranthene	17.127	252	1264516	12.6693	ug/mL	99
83) Benzo(a)pyrene	17.843	252	1214269	11.5842	ug/mL	98
84) Indeno(1,2,3-cd)pyrene	21.032	276	1446274	12.5395	ug/mL	95

Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082114\
Data File : XHL04.D
Acq On : 21 Aug 2014 5:23 pm
Operator :
Sample : BS,QC754311
Misc : 214595,2,
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 21 17:47:13 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Thu Aug 21 17:14:05 2014
Response via : Initial Calibration

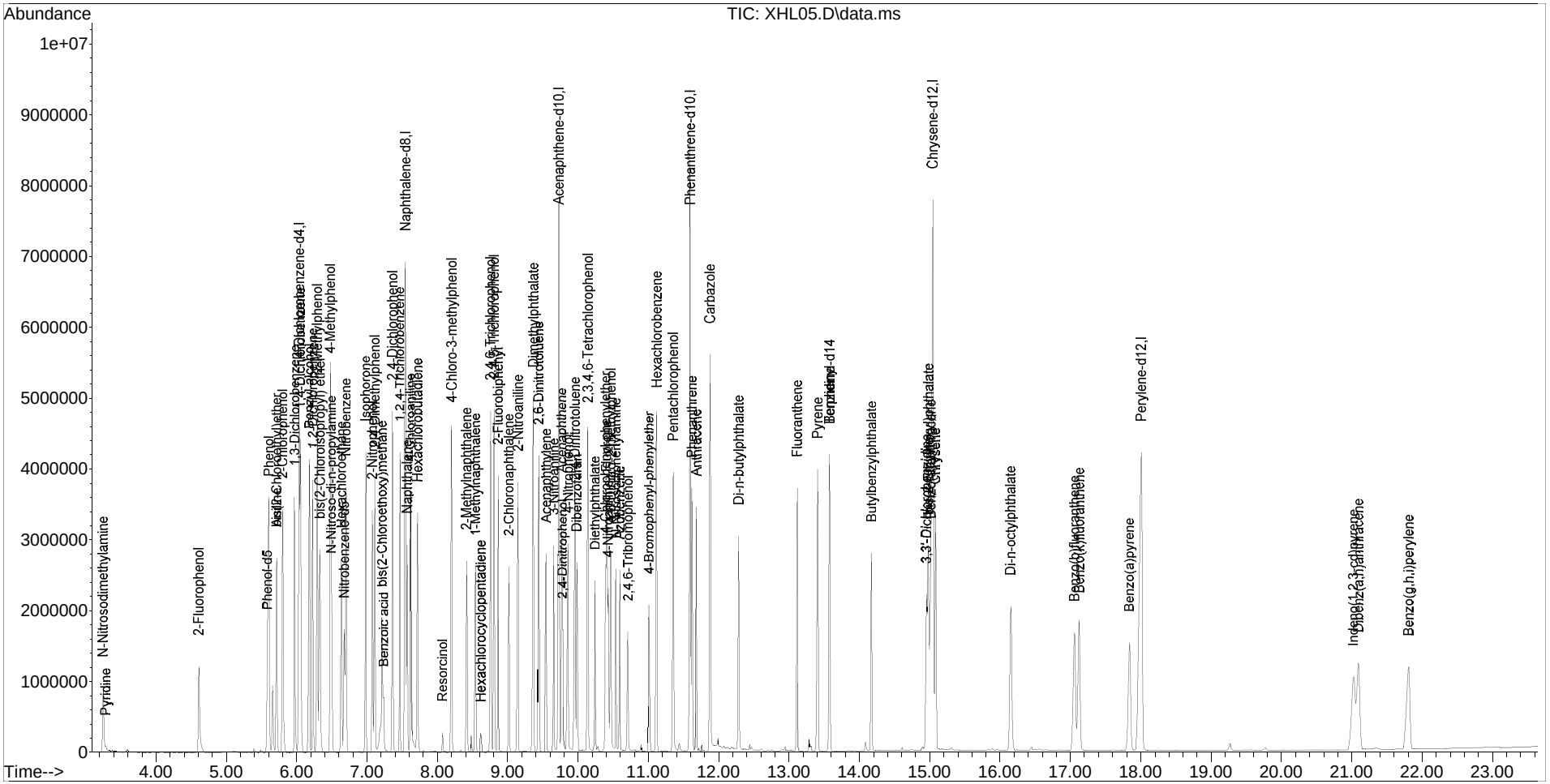
Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.101	278	1194180	12.1464	ug/mL	97
86) Benzo(g,h,i)perylene	21.812	276	1240773	12.8793	ug/mL	94

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

Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082114\
Data File : XHL05.D
Acq On : 21 Aug 2014 6:00 pm
Operator :
Sample : BSD,QC754312
Misc : 214595,2, //LR
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 21 18:24:12 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Thu Aug 21 17:14:05 2014
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082114\
Data File : XHL05.D
Acq On : 21 Aug 2014 6:00 pm
Operator :
Sample : BSD,QC754312
Misc : 214595,2, //LR
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 21 18:24:12 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Thu Aug 21 17:14:05 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.041	152	921498	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.553	136	3493062	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.733	164	2010154	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.597	188	3552415	40.0000	ug/mL	0.00
70) Chrysene-d12	15.043	240	4007110	40.0000	ug/mL	0.00
79) Perylene-d12	18.013	264	3759990	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.290	79	24133	0.7101	ug/mL	94
3) N-Nitrosodimethylamine	3.253	42	445828	28.8914	ug/mL	77
4) 2-Fluorophenol	4.610	112	486647	15.6618	ug/mL	# 72
5) Phenol-d5	5.593	99	631587	16.3501	ug/mL	78
6) Phenol	5.614	94	1305538	33.5415	ug/mL	81
7) Aniline	5.721	93	932250	20.0516	ug/mL	# 55
8) bis(2-Chloroethyl)ether	5.721	93	935555	32.9948	ug/mL	96
9) 2-Chlorophenol	5.801	128	1127187	34.7119	ug/mL	94
10) 1,3-Dichlorobenzene	5.977	146	975445	27.9910	ug/mL	97
11) 1,4-Dichlorobenzene	6.057	146	1014536	29.1849	ug/mL	91
12) Benzyl alcohol	6.186	108	719478	33.1961	ug/mL	92
13) 1,2-Dichlorobenzene	6.239	146	1013511	29.7881	ug/mL	99
14) 2-Methylphenol	6.298	107	851584	32.4537	ug/mL	98
15) bis(2-Chloroisopropyl) ether	6.335	45	1303744	30.5079	ug/mL	96
16) 4-Methylphenol	6.474	107	1211793	31.2931	ug/mL	92
17) N-Nitroso-di-n-propylamine	6.490	70	594926	30.7203	ug/mL	86
18) Hexachloroethane	6.634	117	360895	24.3548	ug/mL	97
20) Nitrobenzene-d5	6.677	82	611786	15.6670	ug/mL	# 74
21) Nitrobenzene	6.699	77	1174065	32.9318	ug/mL	91
22) Isophorone	6.982	82	2071247	32.5549	ug/mL	99
23) 2-Nitrophenol	7.078	139	628118	35.0151	ug/mL	83
24) 2,4-Dimethylphenol	7.110	107	728730	23.2168	ug/mL	84
25) bis(2-Chloroethoxy)methane	7.217	93	460643	12.2689	ug/mL	96
26) Benzoic acid	7.243	105	583883	24.9757	ug/mL	92
27) 2,4-Dichlorophenol	7.366	162	948982	35.7480	ug/mL	97
28) 1,2,4-Trichlorobenzene	7.473	180	843493	30.3600	ug/mL	96
29) Naphthalene	7.575	128	1179159	12.3258	ug/mL	96
30) 4-Chloroaniline	7.623	127	1256837	31.0635	ug/mL	92
31) Hexachlorobutadiene	7.724	225	383225	26.5958	ug/mL	98
32) Resorcinol	8.077	110	86182	17.3224	ug/mL	93
33) 4-Chloro-3-methylphenol	8.210	107	920072	32.8572	ug/mL	95
34) 2-Methylnaphthalene	8.419	142	784355	12.1441	ug/mL	89
35) 1-Methylnaphthalene	8.547	142	745588	12.1552	ug/mL	89
37) Hexachlorocyclopentadiene	8.622	237	32614	1.9664	ug/mL	96
38) 2,4,6-Trichlorophenol	8.766	196	661753	35.9808	ug/mL	94

Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082114\
Data File : XHL05.D
Acq On : 21 Aug 2014 6:00 pm
Operator :
Sample : BSD,QC754312
Misc : 214595,2, //LR
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 21 18:24:12 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Thu Aug 21 17:14:05 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.814	196	704422	35.9384	ug/mL	89
40) 2-Fluorobiphenyl	8.867	172	1187667	16.6146	ug/mL	96
41) 2-Chloronaphthalene	9.028	162	744059	12.7023	ug/mL	94
42) 2-Nitroaniline	9.151	65	670823	33.3072	ug/mL	90
43) Dimethylphthalate	9.370	163	2379377	37.2558	ug/mL	97
44) 2,6-Dinitrotoluene	9.444	165	562999	35.8729	ug/mL	89
45) Acenaphthylene	9.551	152	1239834	12.6728	ug/mL	98
46) 3-Nitroaniline	9.664	138	518391	29.7532	ug/mL #	65
47) Acenaphthene	9.770	154	830219	13.6080	ug/mL	94
48) 2,4-Dinitrophenol	9.786	184	215959	30.9381	ug/mL #	1
49) 4-Nitrophenol	9.867	109	331934	35.2296	ug/mL #	84
50) Dibenzofuran	9.984	168	1097215	13.5695	ug/mL	78
51) 2,4-Dinitrotoluene	9.957	165	757602	36.7242	ug/mL	82
52) 2,3,4,6-Tetrachlorophenol	10.139	232	603392	40.4066	ug/mL	89
53) Diethylphthalate	10.240	149	986545	13.8163	ug/mL	99
54) 4-Chlorophenyl-phenylether	10.401	204	422918	13.6534	ug/mL #	77
55) Fluorene	10.411	166	944665	13.5718	ug/mL	84
56) 4-Nitroaniline	10.433	138	582380	32.2459	ug/mL #	4
57) 2,4,6-Tribromophenol	10.716	330	178067	19.3442	ug/mL #	83
59) 4,6-Dinitro-2-methylphenol	10.470	198	410126	33.9239	ug/mL	86
60) N-Nitrosodiphenylamine	10.545	169	635389	11.7812	ug/mL	91
61) Azobenzene	10.598	77	982077	11.9287	ug/mL	96
62) 4-Bromophenyl-phenylether	11.015	248	254163	12.9663	ug/mL #	79
63) Hexachlorobenzene	11.122	284	726595	37.2034	ug/mL	92
64) Pentachlorophenol	11.357	266	486126	36.2167	ug/mL	98
65) Phenanthrene	11.624	178	1365784	13.4400	ug/mL	97
66) Anthracene	11.688	178	1362682	13.1842	ug/mL	95
67) Carbazole	11.881	167	3109591	36.2599	ug/mL	84
68) Di-n-butylphthalate	12.287	149	1731885	13.4894	ug/mL	97
69) Fluoranthene	13.120	202	1515159	13.5004	ug/mL	99
71) Benzidine	13.579	184	19927	19.6440	ug/mL #	1
72) Pyrene	13.408	202	1678898	13.0420	ug/mL	91
73) Terphenyl-d14	13.579	244	1464472	16.6765	ug/mL	93
74) Butylbenzylphthalate	14.172	149	784493	12.1106	ug/mL	95
75) 3,3'-Dichlorobenzidine	14.958	252	665748	17.9805	ug/mL	99
76) Benzo(a)anthracene	15.016	228	1455394	12.6987	ug/mL	99
77) bis(2-Ethylhexyl)phthalate	14.984	149	1170531	13.9197	ug/mL	96
78) Chrysene	15.081	228	1358704	12.8719	ug/mL	95
80) Di-n-octylphthalate	16.149	149	1896194	11.5011	ug/mL	96
81) Benzo(b)fluoranthene	17.068	252	1347050	11.8710	ug/mL	98
82) Benzo(k)fluoranthene	17.132	252	1321854	12.8198	ug/mL	97
83) Benzo(a)pyrene	17.842	252	1257117	11.6090	ug/mL	98
84) Indeno(1,2,3-cd)pyrene	21.026	276	1498238	12.5741	ug/mL	95

Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082114\
Data File : XHL05.D
Acq On : 21 Aug 2014 6:00 pm
Operator :
Sample : BSD,QC754312
Misc : 214595,2, //LR
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 21 18:24:12 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Thu Aug 21 17:14:05 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.096	278	1248652	12.2938	ug/mL	96
86) Benzo(g,h,i)perylene	21.817	276	1274623	12.8071	ug/mL	95

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

Initial Calibration Raw Data

CURTIS & TOMPKINS DFTPP TUNE FOR 259835 MSBNA Water
EPA 8270D

Inst : MSBNA05 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 544327680005 File : xhf05 Time : 15-AUG-2014 16:14

Standards: S24893

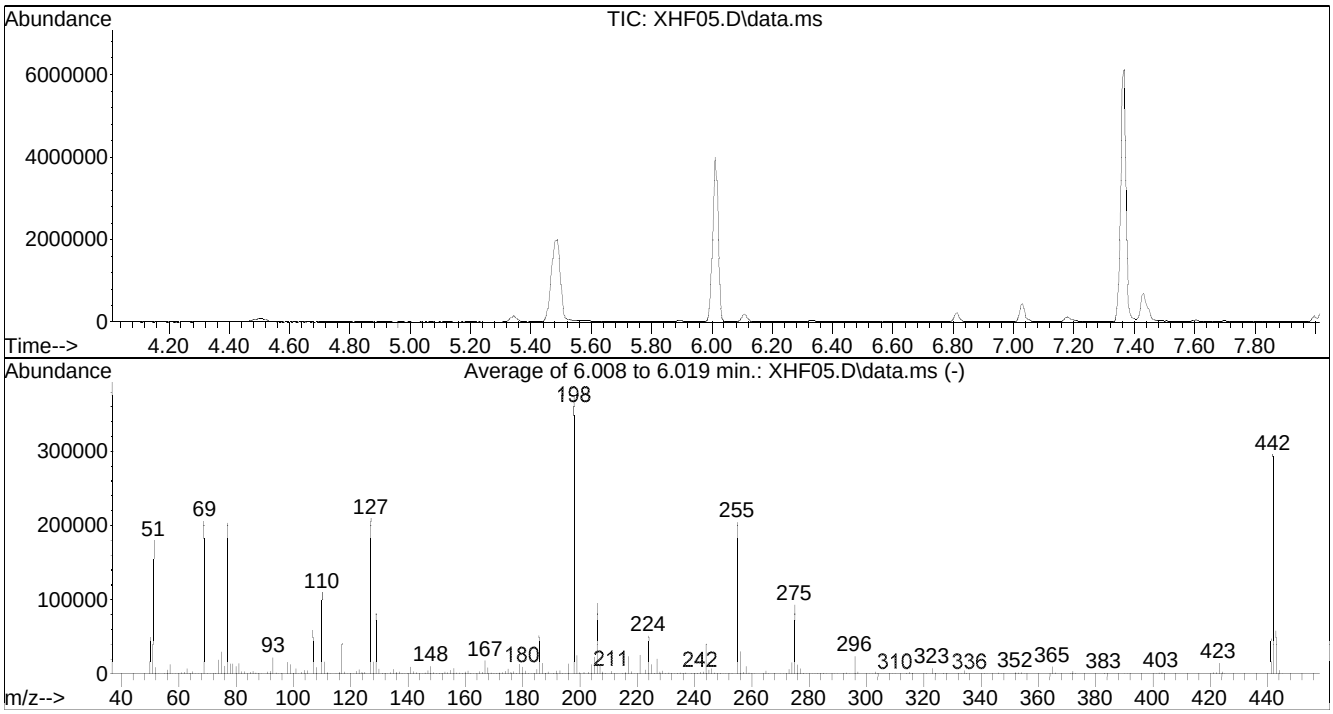
Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	179726	48.09	
68	< 2% of mass 69	0	0.00	
69		205592	100.00	
70	< 2% of mass 69	1070	0.52	
127	40% - 60% of mass 198	209002	55.92	
197	< 1% of mass 198	0	0.00	
198		373760	100.00	
199	5% - 9% of mass 198	25200	6.74	
275	10% - 30% of mass 198	92424	24.73	
365	> 1% of mass 198	9809	2.62	
441	Present, < mass 443	47026	82.11	
442	> 40% and < 100% of mass 198	295850	79.16	
443	17% - 23% of mass 442	57269	19.36	

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/19/14

Data Path : G:\msbna05\081514\
Data File : XHF05.D
Acq On : 15 Aug 2014 4:14 pm
Operator :
Sample : TUN,S24893
Misc : DFTPP/PEM
ALS Vial : 5 Sample Multiplier: 1

Integration File: normal.p

Method : G:\msbna05\081514\DFTPP05.M
Title : MSBNA05 BNA DFTPP/PEM
Last Update : Fri Aug 15 13:59:08 2014



AutoFind: Scans 512, 513, 514; Background Corrected with Scan 505

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	48.1	179726	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	55.0	205592	PASS
70	69	0.00	2	0.5	1070	PASS
127	198	40	60	55.9	209002	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	373760	PASS
199	198	5	9	6.7	25200	PASS
275	198	10	30	24.7	92424	PASS
365	198	1	100	2.6	9809	PASS
441	443	0.01	100	82.1	47026	PASS
442	198	40	100	79.2	295850	PASS
443	442	17	23	19.4	57269	PASS

PEM Report

File Name : G:\msbna05\081514\XHF05.D
Date Acquired : 15 Aug 2014 4:14 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA05 BNA DFTPP/PEM
Inst. Name : MSBNA05
AcquisitionMeth: DFTPP05.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	0.741	5.49	488314
Benzidine	0.497	7.37	2960445
4,4'-DDT		8.41	1496561
4,4'-DDE		7.60	3131
4,4'-DDD		8.02	50514

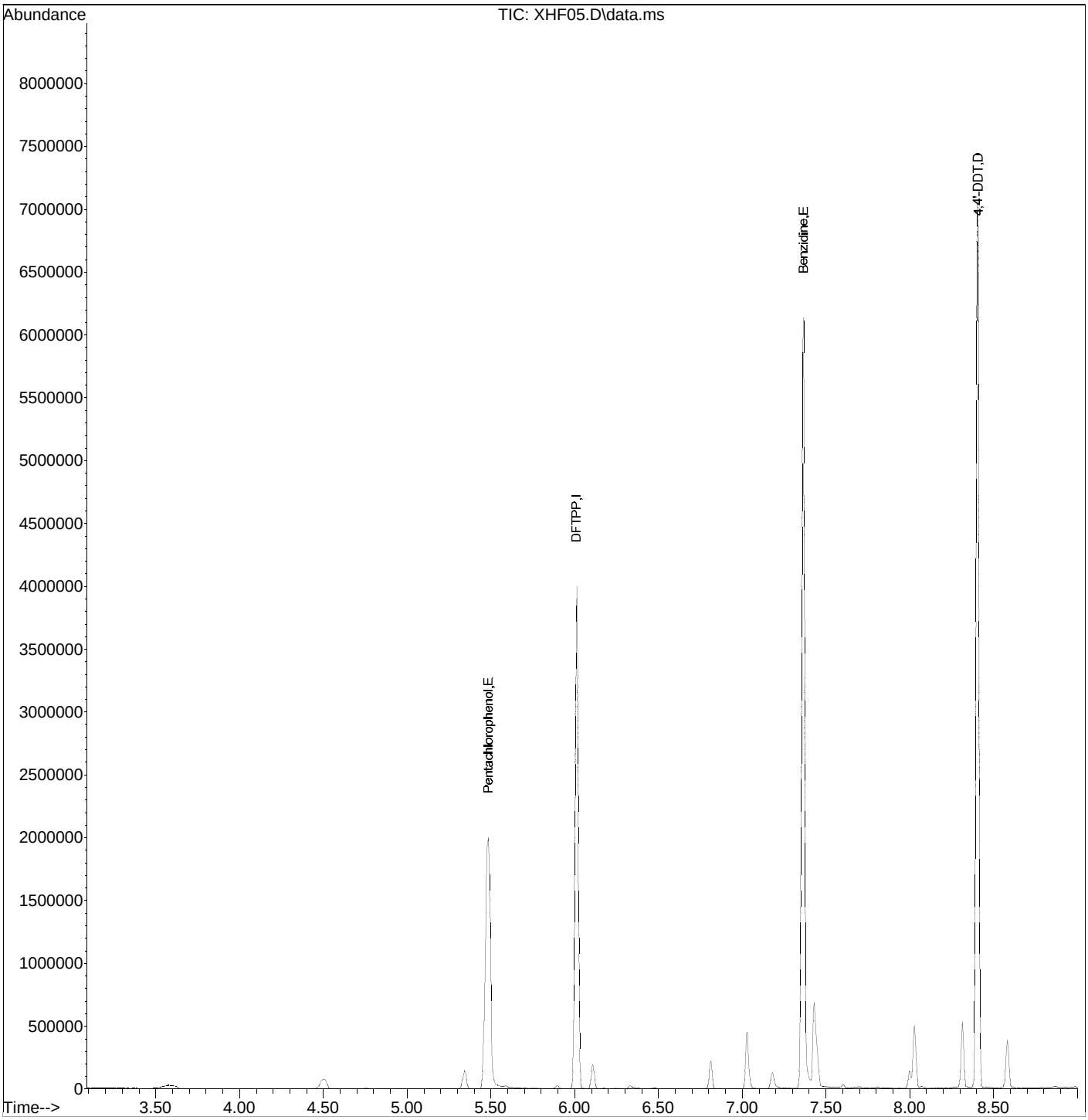
% Breakdown: 4,4'-DDT	LIMIT <=20%	3%	PASS
Tailing: Pentachlorophenol	8270C <5.0	0.7	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.5	PASS
	8270D <=2	0	PASS

Fri Aug 15 16:25:44 2014

Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\081514\
Data File : XHF05.D
Acq On : 15 Aug 2014 4:14 pm
Operator :
Sample : TUN,S24893
Misc : DFTPP/PEM
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 15 16:23:53 2014
Quant Method : C:\msdchem\1\METHODS\DFTPP05.M
Quant Title : MSBNA05 BNA DFTPP/PEM
QLast Update : Fri Aug 15 13:59:08 2014
Response via : Continuing Cal File: G:\msbna05\081514\XHF02.D



Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\081514\
Data File : XHF05.D
Acq On : 15 Aug 2014 4:14 pm
Operator :
Sample : TUN,S24893
Misc : DFTPP/PEM
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 15 16:23:53 2014
Quant Method : C:\msdchem\1\METHODS\DFTPP05.M
Quant Title : MSBNA05 BNA DFTPP/PEM
QLast Update : Fri Aug 15 13:59:08 2014
Response via : Continuing Cal File: G:\msbna05\081514\XHF02.D

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
2) DFTPP	6.013	198	542681	50.0000	ug/mL	0.00
4) 4,4'-DDT	8.408	235	1496561	50.0000	ug/mL	0.01

Target Compounds						Qvalue
1) Pentachlorophenol	5.488	266	488314	74.8204	ug/mL	96
3) Benzidine	7.368	184	2960445	49.9945	ug/mL	98
5) 4,4'-DDE	7.602	246	3131	No CC lev	#	
6) 4,4'-DDD	8.020	235	50514	No CC lev		

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

CURTIS & TOMPKINS DFTPP TUNE FOR 259835 MSBNA Water
EPA 8270D

Inst : MSBNA05 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 544337710002 File : xhm02 Time : 22-AUG-2014 12:58

Standards: S24893

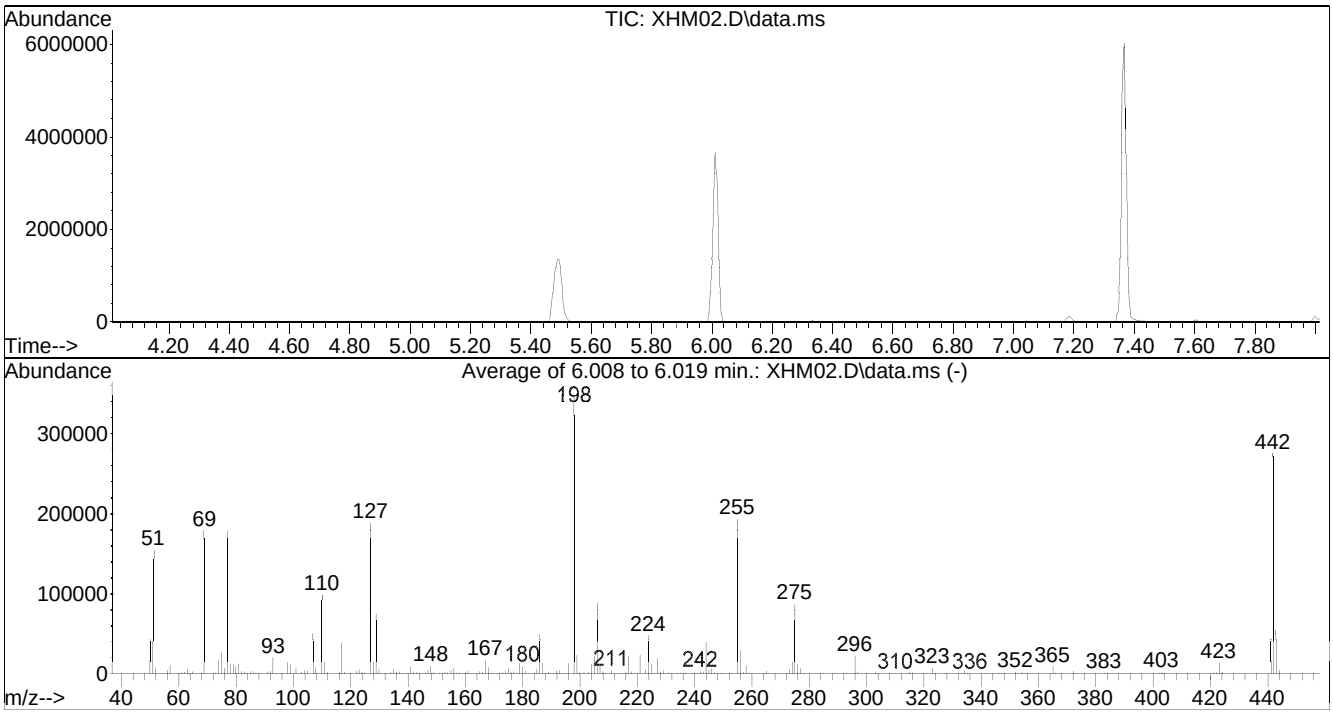
Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	154284	44.54	
68	< 2% of mass 69	0	0.00	
69		178773	100.00	
70	< 2% of mass 69	970	0.54	
127	40% - 60% of mass 198	187989	54.27	
197	< 1% of mass 198	0	0.00	
198		346368	100.00	
199	5% - 9% of mass 198	23234	6.71	
275	10% - 30% of mass 198	86856	25.08	
365	> 1% of mass 198	9146	2.64	
441	Present, < mass 443	44384	81.91	
442	> 40% and < 100% of mass 198	275114	79.43	
443	17% - 23% of mass 442	54189	19.70	

Analyst: KMH Date: 08/26/14 Reviewer: LW Date: 08/27/14

Data Path : G:\msbna05\082214\
Data File : XHM02.D
Acq On : 22 Aug 2014 12:58 pm
Operator :
Sample : TUN,S24893
Misc : DFTPP/PEM
ALS Vial : 2 Sample Multiplier: 1

Integration File: normal.p

Method : C:\msdchem\1\METHODS\DFTPP05.M
Title : MSBNA05 BNA DFTPP/PEM
Last Update : Thu Aug 21 16:36:34 2014



AutoFind: Scans 512, 513, 514; Background Corrected with Scan 505

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	44.5	154284	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	51.6	178773	PASS
70	69	0.00	2	0.5	970	PASS
127	198	40	60	54.3	187989	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	346368	PASS
199	198	5	9	6.7	23234	PASS
275	198	10	30	25.1	86856	PASS
365	198	1	100	2.6	9146	PASS
441	443	0.01	100	81.9	44384	PASS
442	198	40	100	79.4	275114	PASS
443	442	17	23	19.7	54189	PASS

PEM Report

File Name : G:\msbna05\082214\XHM02.D
Date Acquired : 22 Aug 2014 12:58 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA05 BNA DFTPP/PEM
Inst. Name : MSBNA05
AcquisitionMeth: DFTPP05.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	0.898	5.49	309688
Benzidine	0.548	7.37	2679767
4,4'-DDT		8.40	1298764
4,4'-DDE		7.60	5425
4,4'-DDD		8.03	30386

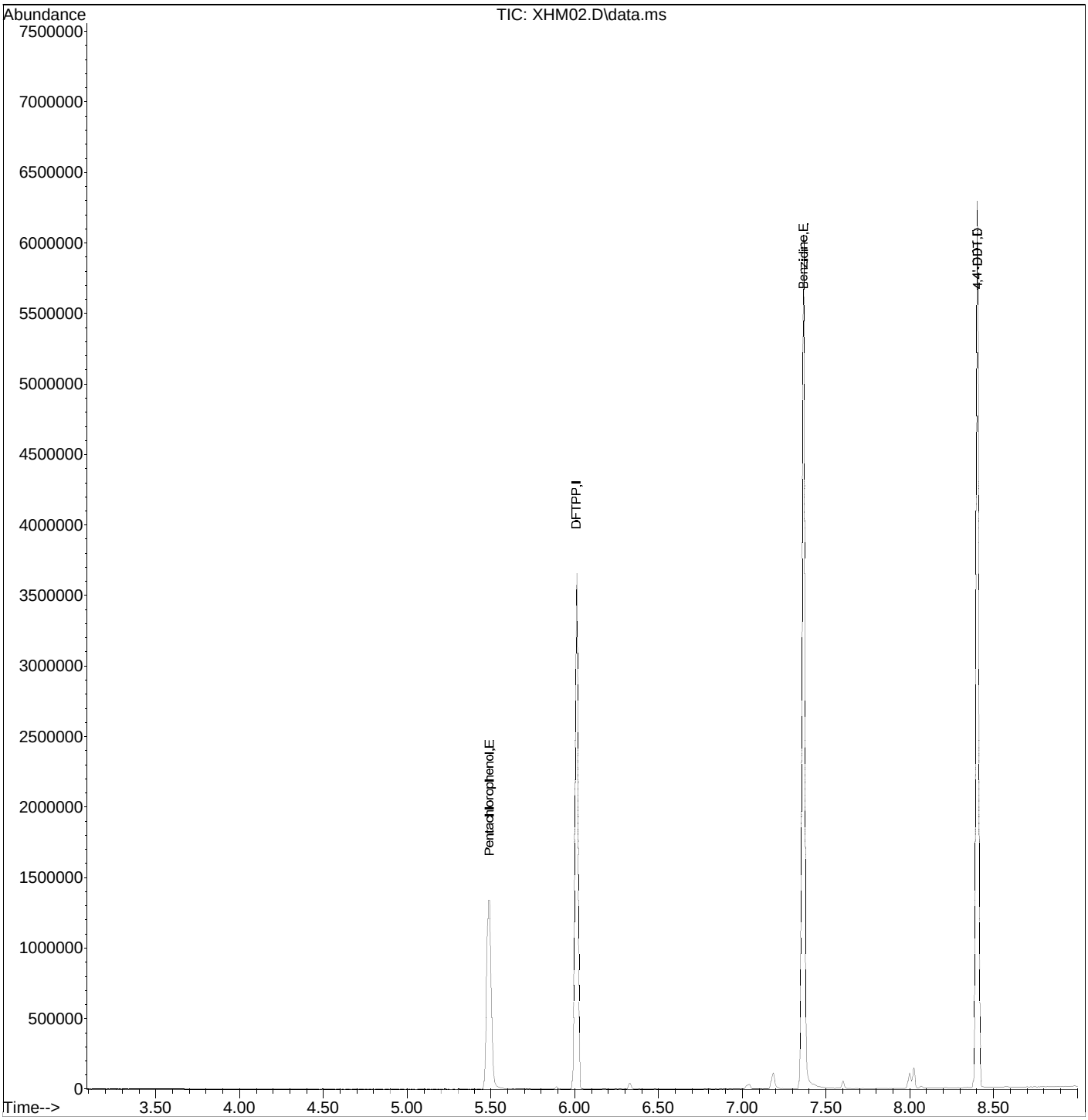
% Breakdown: 4,4'-DDT	LIMIT <=20%	3%	PASS
Tailing: Pentachlorophenol	8270C <5.0	0.9	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.5	PASS
	8270D <=2	1	PASS

Fri Aug 22 13:08:25 2014

Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082214\
Data File : XHM02.D
Acq On : 22 Aug 2014 12:58 pm
Operator :
Sample : TUN,S24893
Misc : DFTPP/PEM
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 22 13:08:06 2014
Quant Method : C:\msdchem\1\METHODS\DFTPP05.M
Quant Title : MSBNA05 BNA DFTPP/PEM
QLast Update : Thu Aug 21 16:36:34 2014
Response via : Continuing Cal File: G:\msbna05\082114\XHL02.D



Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082214\
Data File : XHM02.D
Acq On : 22 Aug 2014 12:58 pm
Operator :
Sample : TUN,S24893
Misc : DFTPP/PEM
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 22 13:08:06 2014
Quant Method : C:\msdchem\1\METHODS\DFTPP05.M
Quant Title : MSBNA05 BNA DFTPP/PEM
QLast Update : Thu Aug 21 16:36:34 2014
Response via : Continuing Cal File: G:\msbna05\082114\XHL02.D

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
2) DFTPP	6.013	198	492445	50.0000	ug/mL	0.00
4) 4,4'-DDT	8.402	235	1298764	50.0000	ug/mL	0.00

Target Compounds						Qvalue
1) Pentachlorophenol	5.493	266	309688	31.3873	ug/mL	97
3) Benzidine	7.368	184	2679767	47.9770	ug/mL	98
5) 4,4'-DDE	7.602	246	5425	No CC lev	#	
6) 4,4'-DDD	8.025	235	30386	No CC lev		

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

CURTIS & TOMPKINS DFTPP TUNE FOR 259835 MSBNA Water
EPA 8270D

Inst : MSBNA09 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 584305789015 File : rgv15 Time : 31-JUL-2014 18:29

Standards: S24893

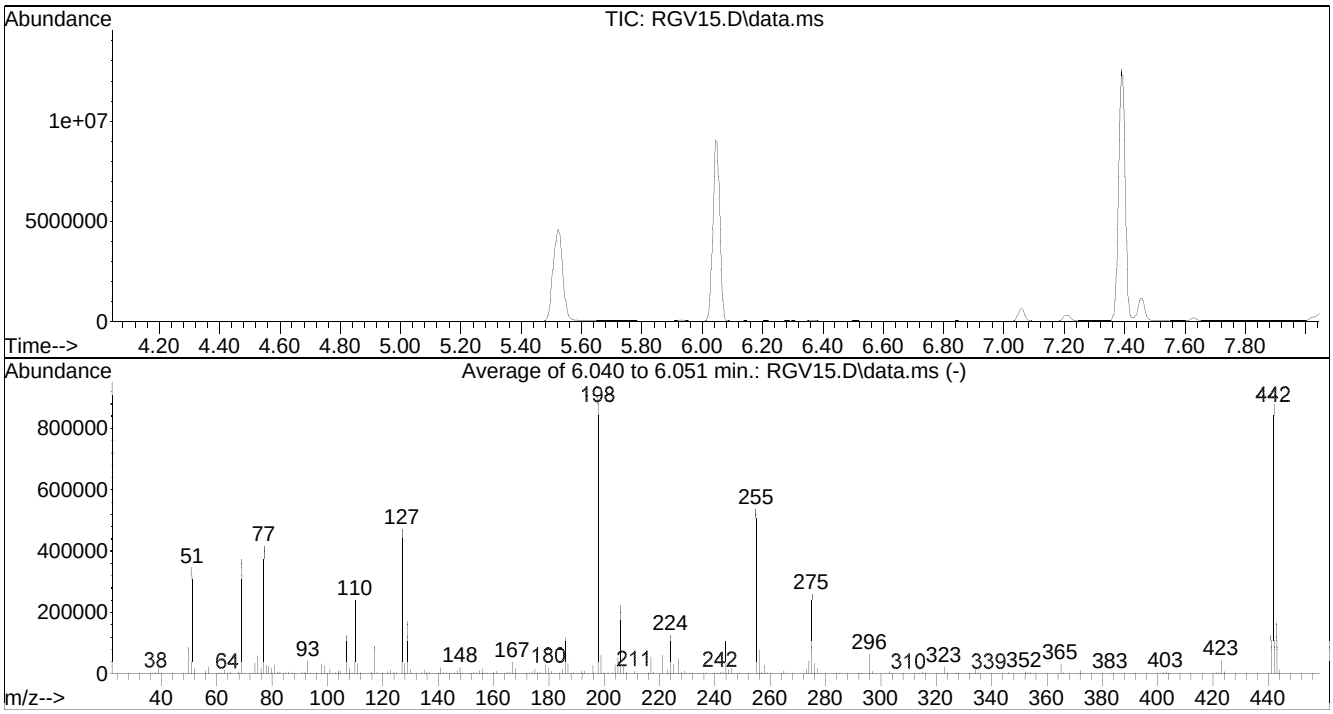
Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	345531	38.25	
68	< 2% of mass 69	6827	1.83	
69		373297	100.00	
70	< 2% of mass 69	1830	0.49	
127	40% - 60% of mass 198	470485	52.08	
197	< 1% of mass 198	0	0.00	
198		903338	100.00	
199	5% - 9% of mass 198	61034	6.76	
275	10% - 30% of mass 198	259093	28.68	
365	> 1% of mass 198	32093	3.55	
441	Present, < mass 443	124642	74.41	
442	> 40% and < 100% of mass 198	878869	97.29	
443	17% - 23% of mass 442	167509	19.06	

Analyst: KMH Date: 08/01/14 Reviewer: LW Date: 08/06/14

Data Path : G:\msbna09\073114\
Data File : RGV15.D
Acq On : 31 Jul 2014 6:29 pm
Operator :
Sample : TUN,S24893
Misc : DFTPP/PEM
ALS Vial : 15 Sample Multiplier: 1

Integration File: normal.p

Method : G:\msbna09\073114\DFTPP09.M
Title : MSBNA09 BNA DFTPP/PEM
Last Update : Thu Jul 31 09:13:15 2014



AutoFind: Scans 586, 587, 588; Background Corrected with Scan 579

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	38.3	345531	PASS
68	69	0.00	2	1.8	6827	PASS
69	198	0.00	100	41.3	373297	PASS
70	69	0.00	2	0.5	1830	PASS
127	198	40	60	52.1	470485	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	903338	PASS
199	198	5	9	6.8	61034	PASS
275	198	10	30	28.7	259093	PASS
365	198	1	100	3.6	32093	PASS
441	443	0.01	100	74.4	124642	PASS
442	198	40	100	97.3	878869	PASS
443	442	17	23	19.1	167509	PASS

PEM Report

File Name : G:\msbna09\073114\RGV15.D
Date Acquired : 31 Jul 2014 6:29 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA09 BNA DFTPP/PEM
Inst. Name : MSBNA09
AcquisitionMeth: DFTPP09.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	1.171	5.52	1361316
Benzidine	0.799	7.39	7972851
4,4'-DDT		8.43	4312502
4,4'-DDE		7.63	22871
4,4'-DDD		8.05	107140

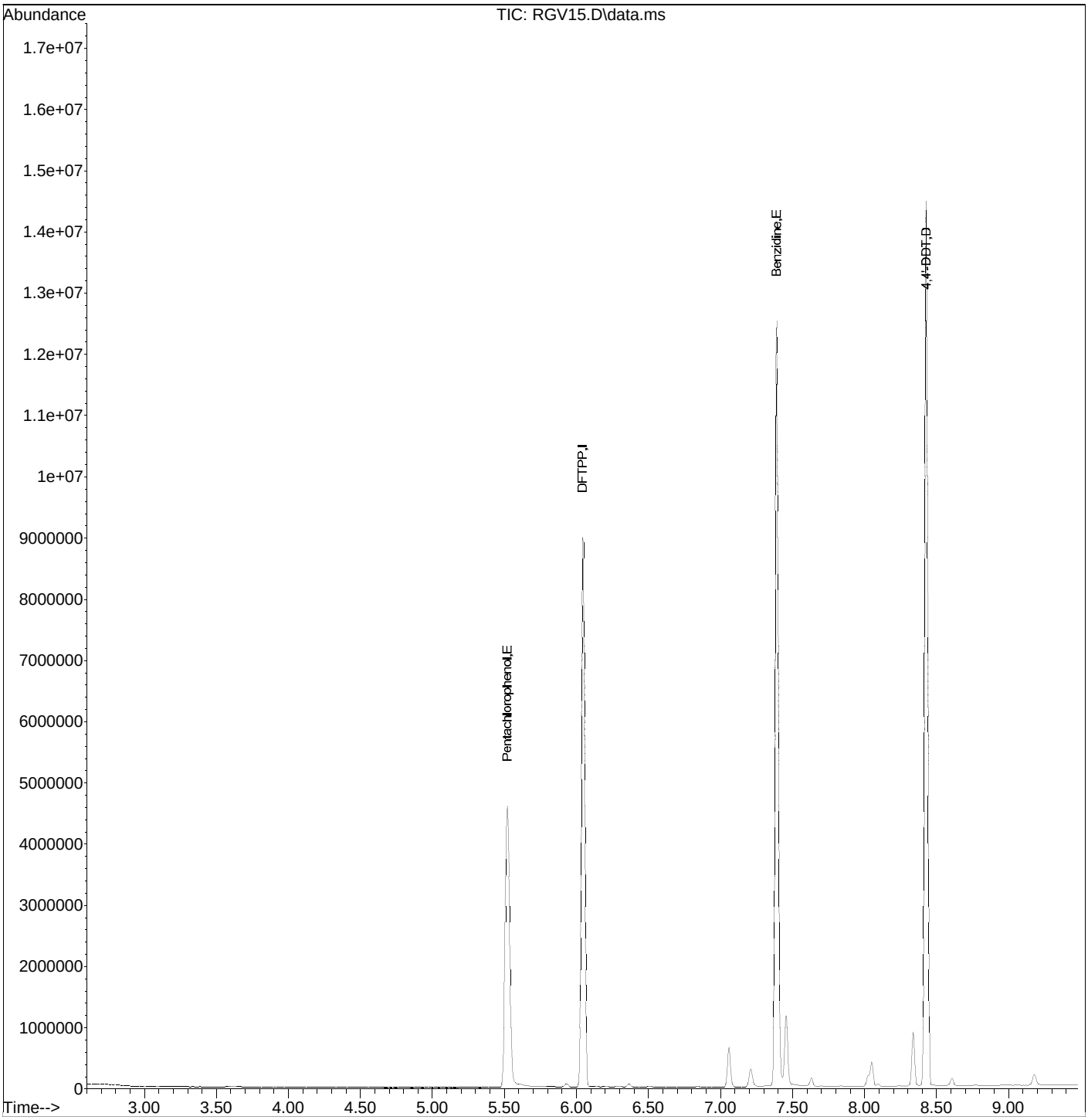
% Breakdown: 4,4'-DDT	LIMIT <=20%	3%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.2	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.8	PASS
	8270D <=2	1	PASS

Thu Jul 31 18:46:48 2014

Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\073114\
Data File : RGV15.D
Acq On : 31 Jul 2014 6:29 pm
Operator :
Sample : TUN,S24893
Misc : DFTPP/PEM
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jul 31 18:36:44 2014
Quant Method : C:\msdchem\1\METHODS\DFTPP09.M
Quant Title : MSBNA09 BNA DFTPP/PEM
QLast Update : Thu Jul 31 09:13:15 2014
Response via : Continuing Cal File: G:\msbna09\073114\RGV02.D



Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\073114\
Data File : RGV15.D
Acq On : 31 Jul 2014 6:29 pm
Operator :
Sample : TUN,S24893
Misc : DFTPP/PEM
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jul 31 18:36:44 2014
Quant Method : C:\msdchem\1\METHODS\DFTPP09.M
Quant Title : MSBNA09 BNA DFTPP/PEM
QLast Update : Thu Jul 31 09:13:15 2014
Response via : Continuing Cal File: G:\msbna09\073114\RGV02.D

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
2) DFTPP	6.046	198	1559297	50.0000	ug/mL	0.01
4) 4,4'-DDT	8.428	235	4312502	50.0000	ug/mL	0.02

Target Compounds						Qvalue
1) Pentachlorophenol	5.522	266	1361316	117.6046	ug/mL	100
3) Benzidine	7.393	184	7972851	49.4505	ug/mL	98
5) 4,4'-DDE	7.628	246	22871	No CC lev		
6) 4,4'-DDD	8.045	235	107140	No CC lev		

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

CURTIS & TOMPKINS DFTPP TUNE FOR 259835 MSBNA Water
EPA 8270D

Inst : MSBNA09 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 584336313002 File : rhl02 Time : 21-AUG-2014 13:40

Standards: S24893

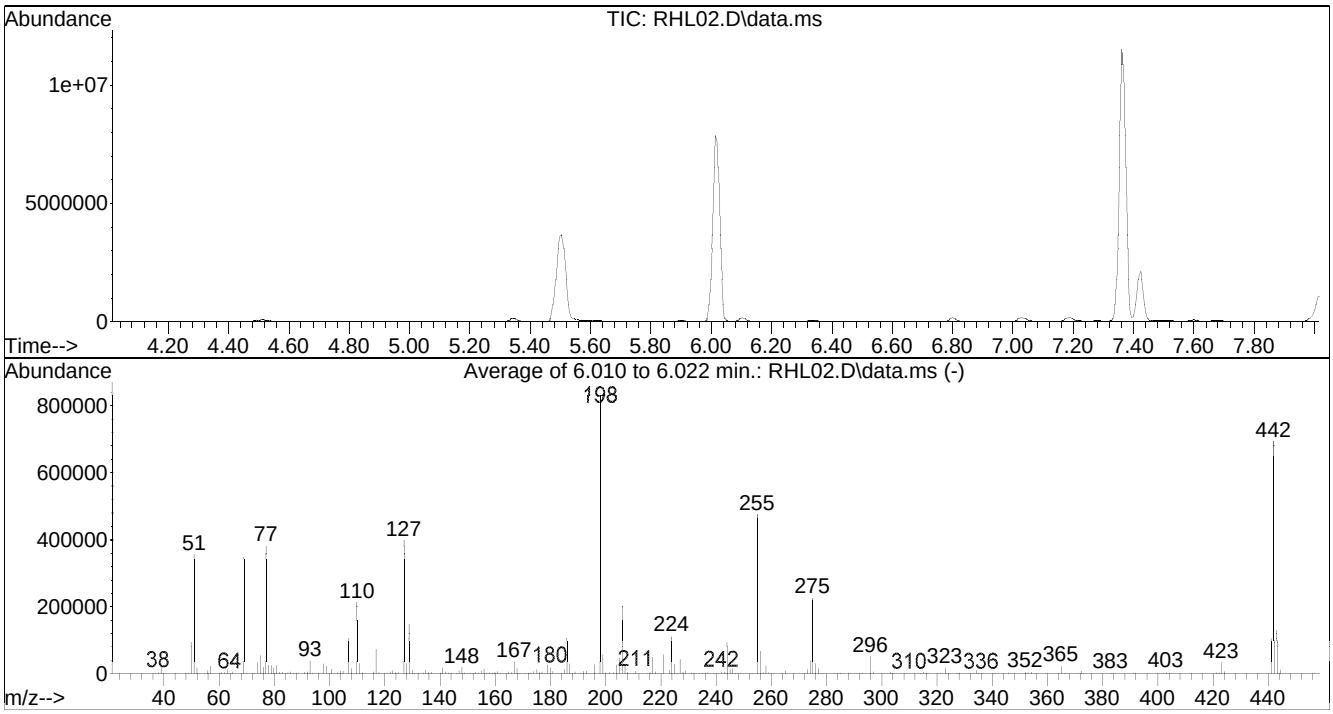
Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	354721	42.89	
68	< 2% of mass 69	0	0.00	
69		346927	100.00	
70	< 2% of mass 69	1628	0.47	
127	40% - 60% of mass 198	397205	48.03	
197	< 1% of mass 198	0	0.00	
198		826986	100.00	
199	5% - 9% of mass 198	55477	6.71	
275	10% - 30% of mass 198	225344	27.25	
365	> 1% of mass 198	22336	2.70	
441	Present, < mass 443	104616	79.88	
442	> 40% and < 100% of mass 198	692565	83.75	
443	17% - 23% of mass 442	130973	18.91	

Analyst: KMH Date: 08/21/14 Reviewer: LW Date: 08/22/14

Data Path : G:\msbna09\082114\
Data File : RHL02.D
Acq On : 21 Aug 2014 1:40 pm
Operator :
Sample : TUN,S24893
Misc : DFTPP/PEM
ALS Vial : 2 Sample Multiplier: 1

Integration File: normal.p

Method : C:\msdchem\1\METHODS\DFTPP09.M
Title : MSBNA09 BNA DFTPP/PEM
Last Update : Wed Aug 20 12:21:56 2014



AutoFind: Scans 581, 582, 583; Background Corrected with Scan 574

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	42.9	354721	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	42.0	346927	PASS
70	69	0.00	2	0.5	1628	PASS
127	198	40	60	48.0	397205	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	826986	PASS
199	198	5	9	6.7	55477	PASS
275	198	10	30	27.2	225344	PASS
365	198	1	100	2.7	22336	PASS
441	443	0.01	100	79.9	104616	PASS
442	198	40	100	83.7	692565	PASS
443	442	17	23	18.9	130973	PASS

PEM Report

File Name : G:\msbna09\082114\RHL02.D
Date Acquired : 21 Aug 2014 1:40 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA09 BNA DFTPP/PEM
Inst. Name : MSBNA09
AcquisitionMeth: DFTPP09.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	1.032	5.50	1060329
Benzidine	0.948	7.36	7264690
4,4'-DDT		8.39	3658830
4,4'-DDE		7.60	10599
4,4'-DDD		8.02	246695

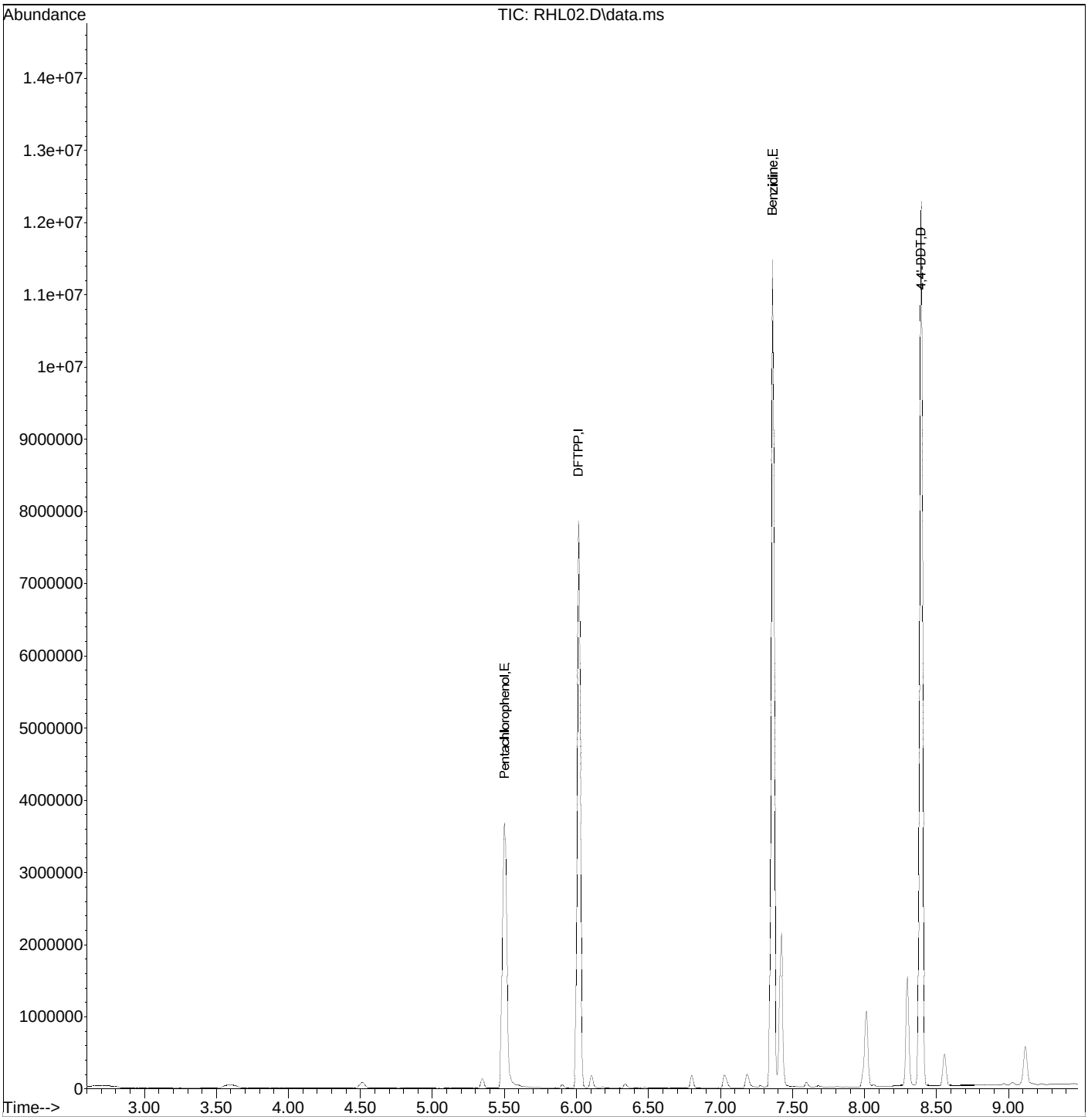
% Breakdown: 4,4'-DDT	LIMIT <=20%	7%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.0	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.9	PASS
	8270D <=2	1	PASS

Thu Aug 21 14:14:22 2014

Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082114\
Data File : RHL02.D
Acq On : 21 Aug 2014 1:40 pm
Operator :
Sample : TUN,S24893
Misc : DFTPP/PEM
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 21 13:47:28 2014
Quant Method : C:\msdchem\1\METHODS\DFTPP09.M
Quant Title : MSBNA09 BNA DFTPP/PEM
QLast Update : Wed Aug 20 12:21:56 2014
Response via : Continuing Cal File: G:\msbna09\082014\RHK02.D



Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082114\
Data File : RHL02.D
Acq On : 21 Aug 2014 1:40 pm
Operator :
Sample : TUN,S24893
Misc : DFTPP/PEM
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 21 13:47:28 2014
Quant Method : C:\msdchem\1\METHODS\DFTPP09.M
Quant Title : MSBNA09 BNA DFTPP/PEM
QLast Update : Wed Aug 20 12:21:56 2014
Response via : Continuing Cal File: G:\msbna09\082014\RHK02.D

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
2) DFTPP	6.016	198	1452449	50.0000	ug/mL	0.00
4) 4,4'-DDT	8.392	235	3658830	50.0000	ug/mL	0.00

Target Compounds						Qvalue
1) Pentachlorophenol	5.504	266	1060329	59.2727	ug/mL	98
3) Benzidine	7.363	184	7264690	46.5442	ug/mL	98
5) 4,4'-DDE	7.598	246	10599	No CC lev		
6) 4,4'-DDD	8.016	235	246695	No CC lev		

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

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259835 MSBNA Water: EPA 8270D

Inst : MSBNA05
Calnum : 544327680001
Units : ug/mL

Name : 6PTBNA5
Date : 15-AUG-2014 16:36
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	xhf06	544327680006	ICAL	15-AUG-2014 16:36	S25407
L2	xhf07	544327680007	ICAL	15-AUG-2014 17:13	S25408
L3	xhf08	544327680008	ICAL	15-AUG-2014 17:48	S25409
L4	xhf09	544327680009	ICAL	15-AUG-2014 18:27	S25410
L5	xhf10	544327680010	ICAL	15-AUG-2014 19:04	S25411
L6	xhf11	544327680011	ICAL	15-AUG-2014 19:42	S25412
L7	xhf12	544327680012	ICAL	15-AUG-2014 20:18	S25413
L8	xhf13	544327680013	ICAL	15-AUG-2014 20:53	S25414
L9	xhf14	544327680014	ICAL	15-AUG-2014 21:30	S25415

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
N-Nitrosodimethylamine		0.6584	0.6527	0.6697	0.6691	0.6674	0.6778	0.6768	0.6869	AVRG		1.49291		0.6698	2	15	0.05	0.99	
Phenol		1.6930	1.7068	1.6823	1.6949	1.6792	1.7013	1.6690	1.6900	AVRG		0.59187		1.6896	1	15	0.800	0.99	
bis(2-Chloroethyl)ether		1.2353	1.2616	1.2630	1.2613	1.2275	1.2307	1.2069m	1.1601	AVRG		0.81248		1.2308	3	15	0.700	0.99	
2-Chlorophenol		1.4242	1.4375	1.4412	1.4216	1.4009	1.4092	1.3792	1.3626	AVRG		0.70944		1.4096	2	15	0.800	0.99	
1,3-Dichlorobenzene		1.6369	1.6278	1.5962	1.5701	1.5284	1.4579	1.3705	1.3138	AVRG		0.66107		1.5127	8	15	0.05	0.99	
1,4-Dichlorobenzene		1.6795	1.6559	1.6455	1.5847	1.5172	1.4352	1.3066	1.2470	AVRG		0.66271		1.5089	11	15	0.05	0.99	
Benzyl alcohol		0.9166	0.9356	0.9403	0.9479	0.9278	0.9535	0.9417	0.9631	AVRG		1.06293		0.9408	2	15	0.05	0.99	
1,2-Dichlorobenzene		1.6105	1.5953	1.5956	1.5493	1.4798	1.4148	1.3108	1.2591	AVRG		0.67709		1.4769	9	15	0.05	0.99	
2-Methylphenol		1.1459	1.1695	1.1624	1.1603	1.1422	1.1371	1.0999	1.0949	AVRG		0.87795		1.1390	2	15	0.700	0.99	
bis(2-Chloroisopropyl) ether		1.7687	1.8134	1.8240	1.8521	1.8305	1.9045	1.9136	1.9333	AVRG		0.53908		1.8550	3	15	0.010	0.99	
4-Methylphenol		1.6678	1.6865	1.6765	1.6779	1.6483	1.7285			AVRG		0.59491		1.6809	2	15	0.600	0.99	
N-Nitroso-di-n-propylamine		0.7818	0.8217	0.8336	0.8449	0.8413	0.8673	0.8550	0.8794	AVRG		1.18959		0.8406	4	15	0.500	0.99	
Hexachloroethane		0.6649	0.6780	0.6714	0.6686	0.6544	0.6390	0.5963	0.5732	AVRG		1.55467		0.6432	6	15	0.300	0.99	
Nitrobenzene		0.4043	0.4149	0.4096	0.4117	0.4078	0.4082	0.4061	0.4034	AVRG		2.44946		0.4083	1	15	0.200	0.99	
Isophorone		0.7250	0.7364	0.7213	0.7306	0.7295				AVRG		1.37256		0.7286	1	15	0.400	0.99	
2-Nitrophenol			0.2059	0.2054	0.2075	0.2070	0.2076	0.2022	0.2023m	AVRG		4.86811		0.2054	1	15	0.100	0.99	
2,4-Dimethylphenol		0.3752	0.3758	0.3671	0.3602	0.3530	0.3511	0.3490	0.3440	AVRG		2.78216		0.3594	3	15	0.200	0.99	
bis(2-Chloroethoxy)methane			0.4322	0.4265	0.4290	0.4319	0.4322	0.4309	0.4269	AVRG		2.32588		0.4299	1	15	0.300	0.99	
Benzoic acid		0.2204	0.2380	0.2569	0.2735	0.2798	0.2869	0.2932	0.2930	AVRG		3.73541		0.2677	10	15	0.05	0.99	
2,4-Dichlorophenol		0.3243	0.3289	0.3205	0.3204	0.3096	0.2924	0.2749	0.2609	AVRG		3.28958		0.3040	8	15	0.200	0.99	
1,2,4-Trichlorobenzene		0.3475	0.3507	0.3439	0.3376	0.3202	0.3040	0.2788	0.2625	AVRG		3.14316		0.3182	10	15	0.05	0.99	
Naphthalene	1.1701	1.1563	1.1652	1.1483	1.1243	1.0947	1.0491	0.9953	0.9561	AVRG		0.91283		1.0955	7	15	0.700	0.99	
4-Chloroaniline		0.2791	0.4744	0.4878m	0.4761m	0.4668m				LINR	2.73506	1.96829		0.4369	0.991	15	0.010	0.99	
Hexachlorobutadiene		0.1861	0.1851	0.1802	0.1764	0.1677	0.1541	0.1412	0.1293	AVRG		6.06045		0.1650	13	15	0.010	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
4-Chloro-3-methylphenol		0.3350	0.3342	0.3263	0.3257	0.3200	0.3144	0.3095	0.3002	AVRG		3.11857		0.3207	4	15	0.200	0.99	
2-Methylnaphthalene	0.7681	0.7746	0.7882	0.7653	0.7631	0.7358	0.7148	0.6816	0.6650	AVRG		1.35207		0.7396	6	15	0.400	0.99	
Hexachlorocyclopentadiene			0.3501	0.3584	0.3459	0.3391	0.3299	0.3023	0.2845	AVRG		3.02990		0.3300	8	15	0.050	0.99	
2,4,6-Trichlorophenol		0.3820	0.3841	0.3863	0.3780	0.3701	0.3601	0.3419	0.3253	AVRG		2.73240		0.3660	6	15	0.200	0.99	
2,4,5-Trichlorophenol		0.4104	0.4227	0.4268	0.4112	0.3937m	0.3772m	0.3479m	0.3304m	AVRG		2.56386		0.3900	9	15	0.200	0.99	
2-Chloronaphthalene			1.2316	1.2419	1.2013	1.1712	1.1512	1.0917	1.0704	AVRG		0.85792		1.1656	6	15	0.800	0.99	
2-Nitroaniline			0.3819	0.3959	0.3958	0.4002	0.4130	0.4079	0.4108	AVRG		2.49517		0.4008	3	15	0.010	0.99	
Dimethylphthalate		1.3494	1.3492	1.3528	1.3146	1.2783	1.2414	1.1631	1.1181	AVRG		0.78687		1.2709	7	15	0.010	0.99	
2,6-Dinitrotoluene		0.3011	0.3141	0.3200	0.3141	0.3161	0.3177	0.3093	0.3060	AVRG		3.20205		0.3123	2	15	0.200	0.99	
Acenaphthylene	1.9997	2.0460	2.0201	2.0350	1.9794	1.9588	1.9089	1.8163	1.7568	AVRG		0.51366		1.9468	5	15	0.900	0.99	
3-Nitroaniline			0.2531	0.3247	0.3456m	0.3571	0.3818	0.3786	0.3862	AVRG		2.88434		0.3467	14	15	0.010	0.99	
Acenaphthene	1.2227	1.2776	1.2754	1.3155	1.2906	1.2110m	1.1695	1.1068	1.0571	AVRG		0.82370		1.2140	7	15	0.900	0.99	
2,4-Dinitrophenol			0.1153	0.1400	0.1524	0.1648	0.1817	0.1927	0.1965	LINR	10.9335	4.65510		0.1633	0.999	15	0.010	0.99	
4-Nitrophenol			0.1768	0.1869	0.1867	0.1883	0.1917	0.1898	0.1922m	AVRG		5.33366		0.1875	3	15	0.010	0.99	
Dibenzofuran			1.7194	1.7329	1.6765	1.6444	1.6305	1.4943	1.3652	AVRG		0.62150		1.6090	8	15	0.800	0.99	
2,4-Dinitrotoluene		0.3997	0.4159	0.4286	0.4217	0.4198	0.4231	0.4008	0.3744	AVRG		2.43602		0.4105	4	15	0.200	0.99	
Diethylphthalate			1.4916	1.4896	1.4486	1.4389	1.4175	1.3484	1.3114	AVRG		0.70379		1.4209	5	15	0.010	0.99	
Fluorene	1.4365	1.4825	1.4736	1.4756	1.4263	1.3823	1.3411	1.2448	1.2030	AVRG		0.72199		1.3851	7	15	0.900	0.99	
4-Chlorophenyl-phenylether			0.6580	0.6672	0.6415	0.6281	0.6104	0.5713	0.5382	AVRG		1.62238		0.6164	8	15	0.400	0.99	
4-Nitroaniline			0.3328	0.3303	0.3512	0.3610	0.3828	0.3794	0.3781	AVRG		2.78252		0.3594	6	15	0.010	0.99	
4,6-Dinitro-2-methylphenol			0.1154	0.1274	0.1340	0.1386	0.1453	0.1460	0.1462	AVRG		7.34603		0.1361	8	15	0.010	0.99	
N-Nitrosodiphenylamine			0.6116	0.6218	0.6245	0.6194	0.6055	0.5936	0.5746	AVRG		1.64669		0.6073	3	15	0.010	0.99	
Azobenzene			0.9106	0.9296	0.9396	0.9332	0.9496	0.9252	0.9014	AVRG		1.07873		0.9270	2	15	0.05	0.99	
4-Bromophenyl-phenylether			0.2249	0.2273	0.2259	0.2241	0.2215	0.2144	0.2069	AVRG		4.53072		0.2207	3	15	0.100	0.99	
Hexachlorobenzene		0.2342	0.2377	0.2363	0.2354	0.2243	0.2116	0.1967	0.1832	AVRG		4.54731		0.2199	9	15	0.100	0.99	
Pentachlorophenol			0.1437	0.1536	0.1590	0.1584	0.1552	0.1480	0.1402	AVRG		6.61644		0.1511	5	15	0.050	0.99	
Phenanthrene	1.2081	1.2072	1.2011	1.1922	1.1811	1.1468	1.1067	1.0515	1.0035	AVRG		0.87394		1.1442	7	15	0.700	0.99	
Anthracene	1.2360	1.2164	1.2275	1.2149	1.1999	1.1783	1.1248	1.0598	1.0165m	AVRG		0.85926		1.1638	7	15	0.700	0.99	
Carbazole		0.9208	0.9914	1.0388	1.0497	0.9756	0.9587	0.9127	0.8774	AVRG		1.03559		0.9656	6	15	0.010	0.99	
Di-n-butylphthalate			1.5200	1.5230	1.5144	1.4877	1.4501	1.3438	1.2806	AVRG		0.69173		1.4456	7	15	0.010	0.99	
Fluoranthene	1.2951	1.3110	1.3020	1.3065	1.3047	1.2837	1.2525	1.1844	1.1337	AVRG		0.79132		1.2637	5	15	0.600	0.99	
Pyrene	1.2384	1.2648	1.2864	1.3174	1.3293	1.3088	1.3095	1.2698	1.2409	AVRG		0.77820		1.2850	3	15	0.600	0.99	
Butylbenzylphthalate			0.6033	0.6242	0.6478	0.6457	0.6743	0.6719	0.6592	AVRG		1.54649		0.6466	4	15	0.010	0.99	
3,3'-Dichlorobenzidine			0.3028	0.3631	0.3918	0.4052	0.4131	0.3681	0.3432	AVRG		2.70560		0.3696	10	15	0.010	0.99	
Benzo(a)anthracene	1.1530	1.1224	1.1428	1.1526	1.1440	1.1366	1.1611	1.1502	1.1340	AVRG		0.87408		1.1441	1	15	0.800	0.99	
bis(2-Ethylhexyl)phthalate			0.8808	0.9182	0.9283	0.9190	0.8788	0.7271	0.6237	AVRG		1.19130		0.8394	14	15	0.010	0.99	
Chrysene	1.0372	1.0454	1.0616	1.0607	1.0723	1.0494	1.0767	1.0420	1.0378	AVRG		0.94905		1.0537	1	15	0.700	0.99	
Di-n-octylphthalate			1.6002	1.7003	1.7383	1.7461	1.8451	1.8267	1.8210	AVRG		0.57014		1.7540	5	15	0.010	0.99	
Benzo(b)fluoranthene	1.0125	1.0824	1.1371	1.1905	1.1980	1.2078	1.3259	1.3554	1.3549	AVRG		0.82838		1.2072	10	15	0.700	0.99	
Benzo(k)fluoranthene	0.9880	1.0469	1.0839	1.1359	1.1431	1.1316	1.1322	1.1041	1.1065m	AVRG		0.91164		1.0969	5	15	0.700	0.99	
Benzo(a)pyrene	0.9770	1.0509	1.1075	1.1661	1.1639	1.1750	1.2477	1.2348	1.2452	AVRG		0.86805		1.1520	8	15	0.700	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Indeno(1,2,3-cd)pyrene	1.0501	1.1365	1.1978	1.2791	1.3128	1.3283	1.4156	1.4204		AVRG		0.78890		1.2676	10	15	0.500	0.99	
Dibenz(a,h)anthracene	0.8725	0.9478	0.9976	1.0747	1.0978	1.1140	1.1952	1.2027	1.2223	AVRG		0.92549		1.0805	11	15	0.400	0.99	
Benzo(g,h,i)perylene	0.9248	0.9245	0.9495	1.0256	1.0783	1.0922	1.1690	1.1811	1.1840	AVRG		0.94449		1.0588	10	15	0.500	0.99	
2-Fluorophenol	1.3378	1.3172	1.3419	1.3515	1.3569	1.3341	1.3673	1.3609	1.3712	AVRG		0.74142		1.3488	1	15	0.05	0.99	
Phenol-d5	1.6604	1.6374	1.6656	1.6621	1.6766	1.6617	1.7113	1.7060	1.7100	AVRG		0.59638		1.6768	2	15	0.05	0.99	
Nitrobenzene-d5	0.4335	0.4299	0.4442	0.4444	0.4527	0.4490	0.4521	0.4606	0.4580	AVRG		2.23631		0.4472	2	15	0.05	0.99	
2-Fluorobiphenyl	1.5118	1.5322	1.5224	1.5224	1.4688	1.4054	1.3489	1.2626	1.2275	AVRG		0.70301		1.4224	8	15	0.05	0.99	
2,4,6-Tribromophenol	0.1555	0.1723	0.1872	0.1930	0.1900	0.1910	0.1940	0.1846	0.1811	AVRG		5.45930		0.1832	7	15	0.05	0.99	
Terphenyl-d14	0.8361	0.8491	0.8869	0.8989	0.9115	0.9025	0.9030	0.8692	0.8323	AVRG		1.14076		0.8766	4	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
N-Nitrosodimethylamine			10.000	-2	20.000	-3	32.000	0	40.000	0	50.000	0	80.000	1	100.00	1	120.00	3
Phenol			10.000	0	20.000	1	32.000	0	40.000	0	50.000	-1	80.000	1	100.00	-1	120.00	0
bis(2-Chloroethyl)ether			10.000	0	20.000	3	32.000	3	40.000	2	50.000	0	80.000	0	100.00	-2	120.00	-6
2-Chlorophenol			10.000	1	20.000	2	32.000	2	40.000	1	50.000	-1	80.000	0	100.00	-2	120.00	-3
1,3-Dichlorobenzene			10.000	8	20.000	8	32.000	6	40.000	4	50.000	1	80.000	-4	100.00	-9	120.00	-13
1,4-Dichlorobenzene			10.000	11	20.000	10	32.000	9	40.000	5	50.000	1	80.000	-5	100.00	-13	120.00	-17
Benzyl alcohol			10.000	-3	20.000	-1	32.000	0	40.000	1	50.000	-1	80.000	1	100.00	0	120.00	2
1,2-Dichlorobenzene			10.000	9	20.000	8	32.000	8	40.000	5	50.000	0	80.000	-4	100.00	-11	120.00	-15
2-Methylphenol			10.000	1	20.000	3	32.000	2	40.000	2	50.000	0	80.000	0	100.00	-3	120.00	-4
bis(2-Chloroisopropyl) ether			10.000	-5	20.000	-2	32.000	-2	40.000	0	50.000	-1	80.000	3	100.00	3	120.00	4
4-Methylphenol			10.000	-1	20.000	0	32.000	0	40.000	0	50.000	-2	80.000	3				
N-Nitroso-di-n-propylamine			10.000	-7	20.000	-2	32.000	-1	40.000	1	50.000	0	80.000	3	100.00	2	120.00	5
Hexachloroethane			10.000	3	20.000	5	32.000	4	40.000	4	50.000	2	80.000	-1	100.00	-7	120.00	-11
Nitrobenzene			10.000	-1	20.000	2	32.000	0	40.000	1	50.000	0	80.000	0	100.00	-1	120.00	-1
Isophorone			10.000	0	20.000	1	32.000	-1	40.000	0	50.000	0						
2-Nitrophenol					20.000	0	32.000	0	40.000	1	50.000	1	80.000	1	100.00	-2	120.00	-2
2,4-Dimethylphenol			10.000	4	20.000	5	32.000	2	40.000	0	50.000	-2	80.000	-2	100.00	-3	120.00	-4
bis(2-Chloroethoxy)methane					10.000	1	16.000	-1	20.000	0	25.000	0	40.000	1	50.000	0	60.000	-1
Benzoic acid			50.000	-18	60.000	-11	80.000	-4	90.000	2	100.00	5	120.00	7	130.00	10	140.00	9
2,4-Dichlorophenol			10.000	7	20.000	8	32.000	5	40.000	5	50.000	2	80.000	-4	100.00	-10	120.00	-14
1,2,4-Trichlorobenzene			10.000	9	20.000	10	32.000	8	40.000	6	50.000	1	80.000	-4	100.00	-12	120.00	-17
Naphthalene	2.0000	7	5.0000	6	10.000	6	16.000	5	20.000	3	25.000	0	40.000	-4	50.000	-9	60.000	-13
4-Chloroaniline			10.000	-18	20.000	7	32.000	5	40.000	1	50.000	-3						
Hexachlorobutadiene			10.000	13	20.000	12	32.000	9	40.000	7	50.000	2	80.000	-7	100.00	-14	120.00	**-22**
4-Chloro-3-methylphenol			10.000	4	20.000	4	32.000	2	40.000	2	50.000	0	80.000	-2	100.00	-3	120.00	-6
2-Methylnaphthalene	2.0000	4	5.0000	5	10.000	7	16.000	3	20.000	3	25.000	-1	40.000	-3	50.000	-8	60.000	-10
Hexachlorocyclopentadiene					20.000	6	32.000	9	40.000	5	50.000	3	80.000	0	100.00	-8	120.00	-14
2,4,6-Trichlorophenol			10.000	4	20.000	5	32.000	6	40.000	3	50.000	1	80.000	-2	100.00	-7	120.00	-11
2,4,5-Trichlorophenol			10.000	5	20.000	8	32.000	9	40.000	5	50.000	1	80.000	-3	100.00	-11	120.00	-15
2-Chloronaphthalene					10.000	6	16.000	7	20.000	3	25.000	0	40.000	-1	50.000	-6	60.000	-8
2-Nitroaniline					20.000	-5	32.000	-1	40.000	-1	50.000	0	80.000	3	100.00	2	120.00	2
Dimethylphthalate			10.000	6	20.000	6	32.000	6	40.000	3	50.000	1	80.000	-2	100.00	-8	120.00	-12
2,6-Dinitrotoluene			10.000	-4	20.000	1	32.000	2	40.000	1	50.000	1	80.000	2	100.00	-1	120.00	-2
Acenaphthylene	2.0000	3	5.0000	5	10.000	4	16.000	5	20.000	2	25.000	1	40.000	-2	50.000	-7	60.000	-10
3-Nitroaniline					20.000	**-27**	32.000	-6	40.000	0	50.000	3	80.000	10	100.00	9	120.00	11
Acenaphthene	2.0000	1	5.0000	5	10.000	5	16.000	8	20.000	6	25.000	0	40.000	-4	50.000	-9	60.000	-13
2,4-Dinitrophenol					20.000	8	32.000	-1	40.000	-2	50.000	-1	80.000	-2	100.00	1	120.00	1
4-Nitrophenol					20.000	-6	32.000	0	40.000	0	50.000	0	80.000	2	100.00	1	120.00	3
Dibenzofuran					10.000	7	16.000	8	20.000	4	25.000	2	40.000	1	50.000	-7	60.000	-15
2,4-Dinitrotoluene			10.000	-3	20.000	1	32.000	4	40.000	3	50.000	2	80.000	3	100.00	-2	120.00	-9
Diethylphthalate					10.000	5	16.000	5	20.000	2	25.000	1	40.000	0	50.000	-5	60.000	-8
Fluorene	2.0000	4	5.0000	7	10.000	6	16.000	7	20.000	3	25.000	0	40.000	-3	50.000	-10	60.000	-13

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
4-Chlorophenyl-phenylether					10.000	7	16.000	8	20.000	4	25.000	2	40.000	-1	50.000	-7	60.000	-13
4-Nitroaniline					20.000	-7	32.000	-8	40.000	-2	50.000	0	80.000	7	100.00	6	120.00	5
4,6-Dinitro-2-methylphenol					20.000	-15	32.000	-6	40.000	-2	50.000	2	80.000	7	100.00	7	120.00	7
N-Nitrosodiphenylamine					10.000	1	16.000	2	20.000	3	25.000	2	40.000	0	50.000	-2	60.000	-5
Azobenzene					10.000	-2	16.000	0	20.000	1	25.000	1	40.000	2	50.000	0	60.000	-3
4-Bromophenyl-phenylether					10.000	2	16.000	3	20.000	2	25.000	2	40.000	0	50.000	-3	60.000	-6
Hexachlorobenzene			10.000	6	20.000	8	32.000	7	40.000	7	50.000	2	80.000	-4	100.00	-11	120.00	-17
Pentachlorophenol					20.000	-5	32.000	2	40.000	5	50.000	5	80.000	3	100.00	-2	120.00	-7
Phenanthrene	2.0000	6	5.0000	5	10.000	5	16.000	4	20.000	3	25.000	0	40.000	-3	50.000	-8	60.000	-12
Anthracene	2.0000	6	5.0000	5	10.000	5	16.000	4	20.000	3	25.000	1	40.000	-3	50.000	-9	60.000	-13
Carbazole			10.000	-5	20.000	3	32.000	8	40.000	9	50.000	1	80.000	-1	100.00	-5	120.00	-9
Di-n-butylphthalate					10.000	5	16.000	5	20.000	5	25.000	3	40.000	0	50.000	-7	60.000	-11
Fluoranthene	2.0000	2	5.0000	4	10.000	3	16.000	3	20.000	3	25.000	2	40.000	-1	50.000	-6	60.000	-10
Pyrene	2.0000	-4	5.0000	-2	10.000	0	16.000	3	20.000	3	25.000	2	40.000	2	50.000	-1	60.000	-3
Butylbenzylphthalate					10.000	-7	16.000	-3	20.000	0	25.000	0	40.000	4	50.000	4	60.000	2
3,3'-Dichlorobenzidine					20.000	-18	32.000	-2	40.000	6	50.000	10	80.000	12	100.00	0	120.00	-7
Benzo(a)anthracene	2.0000	1	5.0000	-2	10.000	0	16.000	1	20.000	0	25.000	-1	40.000	1	50.000	1	60.000	-1
bis(2-Ethylhexyl)phthalate					10.000	5	16.000	9	20.000	11	25.000	9	40.000	5	50.000	-13	60.000	**-26**
Chrysene	2.0000	-2	5.0000	-1	10.000	1	16.000	1	20.000	2	25.000	0	40.000	2	50.000	-1	60.000	-2
Di-n-octylphthalate					10.000	-9	16.000	-3	20.000	-1	25.000	0	40.000	5	50.000	4	60.000	4
Benzo(b)fluoranthene	2.0000	-16	5.0000	-10	10.000	-6	16.000	-1	20.000	-1	25.000	0	40.000	10	50.000	12	60.000	12
Benzo(k)fluoranthene	2.0000	-10	5.0000	-5	10.000	-1	16.000	4	20.000	4	25.000	3	40.000	3	50.000	1	60.000	1
Benzo(a)pyrene	2.0000	-15	5.0000	-9	10.000	-4	16.000	1	20.000	1	25.000	2	40.000	8	50.000	7	60.000	8
Indeno(1,2,3-cd)pyrene	2.0000	-17	5.0000	-10	10.000	-6	16.000	1	20.000	4	25.000	5	40.000	12	50.000	12		
Dibenz(a,h)anthracene	2.0000	-19	5.0000	-12	10.000	-8	16.000	-1	20.000	2	25.000	3	40.000	11	50.000	11	60.000	13
Benzo(g,h,i)perylene	2.0000	-13	5.0000	-13	10.000	-10	16.000	-3	20.000	2	25.000	3	40.000	10	50.000	12	60.000	12
2-Fluorophenol	2.0000	-1	5.0000	-2	10.000	-1	16.000	0	20.000	1	25.000	-1	40.000	1	50.000	1	60.000	2
Phenol-d5	2.0000	-1	5.0000	-2	10.000	-1	16.000	-1	20.000	0	25.000	-1	40.000	2	50.000	2	60.000	2
Nitrobenzene-d5	2.0000	-3	5.0000	-4	10.000	-1	16.000	-1	20.000	1	25.000	0	40.000	1	50.000	3	60.000	2
2-Fluorobiphenyl	2.0000	6	5.0000	8	10.000	7	16.000	7	20.000	3	25.000	-1	40.000	-5	50.000	-11	60.000	-14
2,4,6-Tribromophenol	2.0000	-15	5.0000	-6	10.000	2	16.000	5	20.000	4	25.000	4	40.000	6	50.000	1	60.000	-1
Terphenyl-d14	2.0000	-5	5.0000	-3	10.000	1	16.000	3	20.000	4	25.000	3	40.000	3	50.000	-1	60.000	-5

KMH 08/16/14 [Aniline]: Picked or reassigned peak in all levels.

KMH 08/16/14 [2-Nitrophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [3-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [4-Chloroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [2,4,5-Trichlorophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [Acenaphthene]: Corrected automatically drawn baseline in ICAL (xhf11).

KMH 08/16/14 [Pyridine]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [bis(2-Chloroethyl)ether]: Corrected automatically drawn baseline in ICAL (xhf13).

KMH 08/16/14 [4-Methylphenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [4-Nitrophenol]: Picked or reassigned peak in ICAL (xhf14).

KMH 08/16/14 [Anthracene]: Corrected automatically drawn baseline in ICAL (xhf14).

KMH 08/16/14 [Benzo(k)fluoranthene]: Picked or reassigned peak in ICAL (xhf14).

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/19/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; LINR=Linear regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259835 MSBNA Water
EPA 8270D

Inst : MSBNA05 Name : 6PTBNA5
Calnum : 544327680001 Cal Date : 15-AUG-2014

ICV 544327680015 (xhf15 15-AUG-2014) stds: S25418

Analyte	Spiked	Quant	Units	%D	Max	Flags
N-Nitrosodimethylamine	40.00	37.81	ug/mL	-5	20	
Phenol	40.00	37.82	ug/mL	-5	20	
bis(2-Chloroethyl)ether	40.00	38.43	ug/mL	-4	20	
2-Chlorophenol	40.00	38.18	ug/mL	-5	20	
1,3-Dichlorobenzene	40.00	38.79	ug/mL	-3	20	
1,4-Dichlorobenzene	40.00	39.02	ug/mL	-2	20	
Benzyl alcohol	40.00	37.97	ug/mL	-5	20	
1,2-Dichlorobenzene	40.00	38.80	ug/mL	-3	20	
2-Methylphenol	40.00	37.90	ug/mL	-5	20	
bis(2-Chloroisopropyl) ether	40.00	37.90	ug/mL	-5	20	
4-Methylphenol	40.00	33.62	ug/mL	-16	20	
N-Nitroso-di-n-propylamine	40.00	37.21	ug/mL	-7	20	
Hexachloroethane	40.00	38.46	ug/mL	-4	20	
Nitrobenzene	40.00	37.77	ug/mL	-6	20	
Isophorone	40.00	35.89	ug/mL	-10	20	
2-Nitrophenol	40.00	38.35	ug/mL	-4	20	
2,4-Dimethylphenol	40.00	38.51	ug/mL	-4	20	
bis(2-Chloroethoxy)methane	40.00	36.69	ug/mL	-8	20	
Benzoic acid	100.0	96.04	ug/mL	-4	20	
2,4-Dichlorophenol	40.00	39.07	ug/mL	-2	20	
1,2,4-Trichlorobenzene	40.00	38.91	ug/mL	-3	20	
Naphthalene	40.00	35.26	ug/mL	-12	20	
4-Chloroaniline	40.00	38.30	ug/mL	-4	20	
Hexachlorobutadiene	40.00	39.41	ug/mL	-1	20	
4-Chloro-3-methylphenol	40.00	37.64	ug/mL	-6	20	
2-Methylnaphthalene	40.00	36.56	ug/mL	-9	20	
Hexachlorocyclopentadiene	40.00	35.81	ug/mL	-10	20	
2,4,6-Trichlorophenol	40.00	37.22	ug/mL	-7	20	
2,4,5-Trichlorophenol	40.00	38.16	ug/mL	-5	20	m
2-Chloronaphthalene	40.00	35.99	ug/mL	-10	20	
2-Nitroaniline	40.00	37.48	ug/mL	-6	20	
Dimethylphthalate	40.00	38.49	ug/mL	-4	20	
2,6-Dinitrotoluene	40.00	38.38	ug/mL	-4	20	
Acenaphthylene	40.00	35.58	ug/mL	-11	20	
3-Nitroaniline	40.00	38.96	ug/mL	-3	20	
Acenaphthene	40.00	35.96	ug/mL	-10	20	
2,4-Dinitrophenol	40.00	38.44	ug/mL	-4	20	
4-Nitrophenol	40.00	37.46	ug/mL	-6	20	
Dibenzofuran	40.00	37.11	ug/mL	-7	20	
2,4-Dinitrotoluene	40.00	39.17	ug/mL	-2	20	
Diethylphthalate	40.00	35.10	ug/mL	-12	20	
Fluorene	40.00	35.26	ug/mL	-12	20	
4-Chlorophenyl-phenylether	40.00	35.97	ug/mL	-10	20	
4-Nitroaniline	40.00	37.23	ug/mL	-7	20	
4,6-Dinitro-2-methylphenol	40.00	37.16	ug/mL	-7	20	
N-Nitrosodiphenylamine	40.00	41.11	ug/mL	3	20	
Azobenzene	40.00	36.62	ug/mL	-8	20	
4-Bromophenyl-phenylether	40.00	35.88	ug/mL	-10	20	
Hexachlorobenzene	40.00	38.01	ug/mL	-5	20	

Analyte	Spiked	Quant	Units	%D	Max	Flags
Pentachlorophenol	40.00	36.42	ug/mL	-9	20	
Phenanthrene	40.00	34.71	ug/mL	-13	20	
Anthracene	40.00	35.37	ug/mL	-12	20	
Carbazole	40.00	41.57	ug/mL	4	20	
Di-n-butylphthalate	40.00	35.81	ug/mL	-10	20	
Fluoranthene	40.00	35.75	ug/mL	-11	20	
Pyrene	40.00	34.63	ug/mL	-13	20	
Butylbenzylphthalate	40.00	37.63	ug/mL	-6	20	
3,3'-Dichlorobenzidine	60.00	59.22	ug/mL	-1	20	
Benzo(a)anthracene	40.00	37.24	ug/mL	-7	20	
bis(2-Ethylhexyl)phthalate	40.00	39.51	ug/mL	-1	20	
Chrysene	40.00	35.31	ug/mL	-12	20	
Di-n-octylphthalate	40.00	37.37	ug/mL	-7	20	
Benzo(b)fluoranthene	40.00	39.18	ug/mL	-2	20	
Benzo(k)fluoranthene	40.00	40.20	ug/mL	0	20	
Benzo(a)pyrene	40.00	38.58	ug/mL	-4	20	
Indeno(1,2,3-cd)pyrene	40.00	39.56	ug/mL	-1	20	
Dibenz(a,h)anthracene	40.00	39.11	ug/mL	-2	20	
Benzo(g,h,i)perylene	40.00	38.86	ug/mL	-3	20	

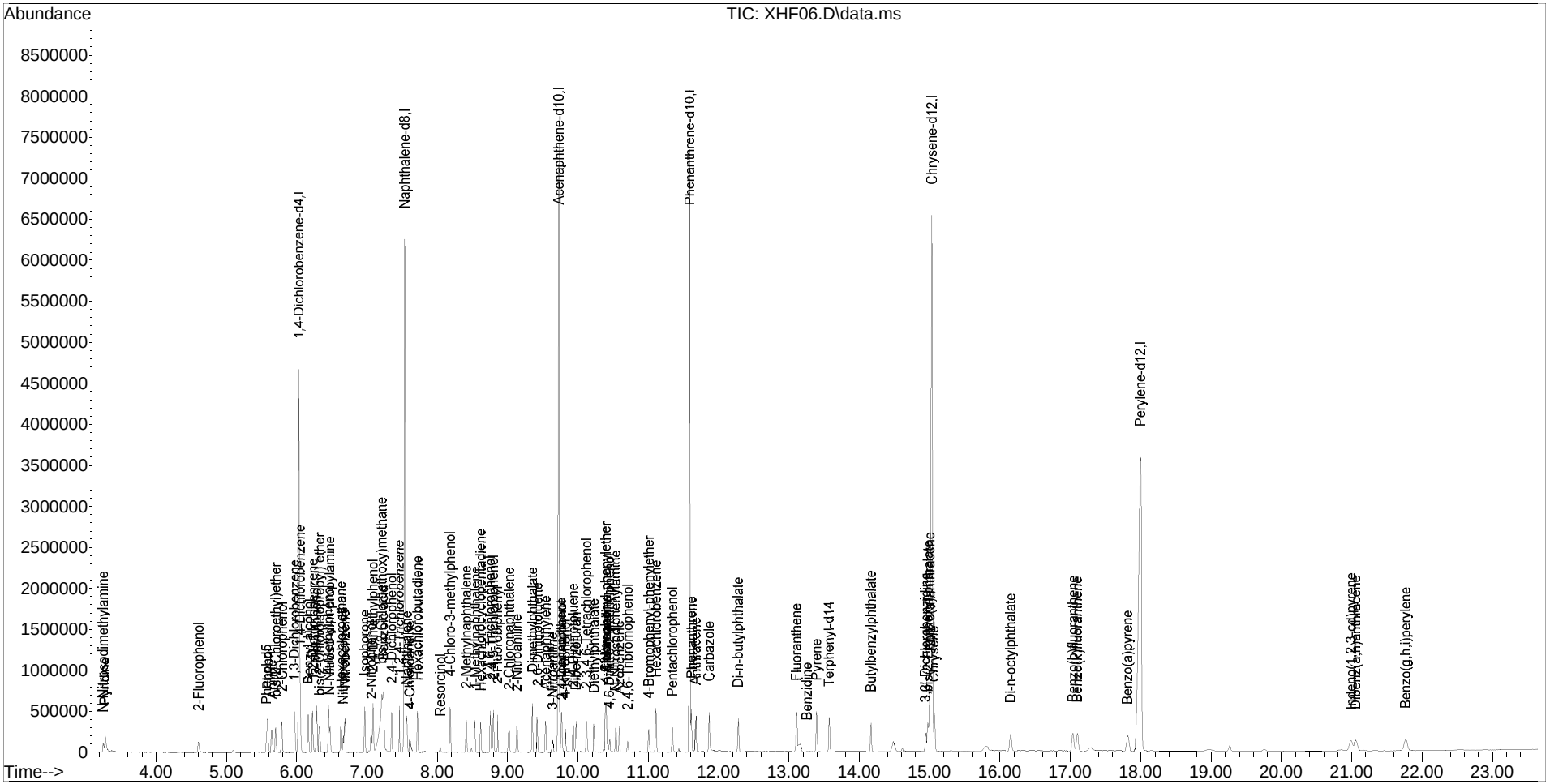
Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/19/14

m=manual integration

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF06.D
Acq On : 15 Aug 2014 4:36 pm
Operator :
Sample : ICAL,S25407
Misc : ICAL
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 16 14:23:58 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF06.D
Acq On : 15 Aug 2014 4:36 pm
Operator :
Sample : ICAL,S25407
Misc : ICAL
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 16 14:23:58 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.036	152	809772	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.543	136	2977535	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.728	164	1780835	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.592	188	3003126	40.0000	ug/mL	0.00
70) Chrysene-d12	15.032	240	3467542	40.0000	ug/mL	-0.01
79) Perylene-d12	17.997	264	3178741	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.274	79	114842	3.9272	ug/mL	88
3) N-Nitrosodimethylamine	3.247	42	50179	3.4332	ug/mL	# 77
4) 2-Fluorophenol	4.604	112	54166	2.2545	ug/mL	# 70
5) Phenol-d5	5.577	99	67226	2.0807	ug/mL	78
6) Phenol	5.593	94	139175	4.0921	ug/mL	79
7) Aniline	5.657	93	113070m	2.9944	ug/mL	
8) bis(2-Chloroethyl)ether	5.710	93	102844	4.1465	ug/mL	96
9) 2-Chlorophenol	5.796	128	117172	4.2585	ug/mL	90
10) 1,3-Dichlorobenzene	5.972	146	135063	4.2793	ug/mL	97
11) 1,4-Dichlorobenzene	6.052	146	140534	4.3054	ug/mL	92
12) Benzyl alcohol	6.170	108	72980	4.2110	ug/mL	90
13) 1,2-Dichlorobenzene	6.234	146	131704	4.2946	ug/mL	97
14) 2-Methylphenol	6.282	107	93718	4.1801	ug/mL	98
15) bis(2-Chloroisopropyl) ether	6.325	45	145560	4.6686	ug/mL	95
16) 4-Methylphenol	6.453	107	135360	4.2461	ug/mL	89
17) N-Nitroso-di-n-propylamine	6.474	70	63073	3.5166	ug/mL	86
18) Hexachloroethane	6.634	117	53875	3.9680	ug/mL	96
20) Nitrobenzene-d5	6.666	82	64538	2.0215	ug/mL	# 75
21) Nitrobenzene	6.688	77	121341	3.6364	ug/mL	92
22) Isophorone	6.966	82	219894	4.3838	ug/mL	98
23) 2-Nitrophenol	7.072	139	58313m	3.8426	ug/mL	
24) 2,4-Dimethylphenol	7.094	107	114388	4.3386	ug/mL	87
25) bis(2-Chloroethoxy)methane	7.211	93	63934	2.1235	ug/mL	97
26) Benzoic acid	7.238	105	612762	30.9056	ug/mL	95
27) 2,4-Dichlorophenol	7.356	162	94411	4.1476	ug/mL	94
28) 1,2,4-Trichlorobenzene	7.468	180	103033	4.1447	ug/mL	95
29) Naphthalene	7.569	128	174196	2.3942	ug/mL	97
30) 4-Chloroaniline	7.612	127	53888	5.9534	ug/mL	94
31) Hexachlorobutadiene	7.719	225	53110	3.9026	ug/mL	99
32) Resorcinol	8.050	110	18885	17.8779	ug/mL	95
33) 4-Chloro-3-methylphenol	8.189	107	97985	4.0327	ug/mL	91
34) 2-Methylnaphthalene	8.413	142	114346	2.2575	ug/mL	91
35) 1-Methylnaphthalene	8.542	142	110243	2.3359	ug/mL	87
37) Hexachlorocyclopentadiene	8.622	237	53299	3.3146	ug/mL	98
38) 2,4,6-Trichlorophenol	8.755	196	64346	3.6633	ug/mL	96

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF06.D
Acq On : 15 Aug 2014 4:36 pm
Operator :
Sample : ICAL,S25407
Misc : ICAL
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 16 14:23:58 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.798	196	70938	3.8528	ug/mL	88
40) 2-Fluorobiphenyl	8.862	172	134617	2.2587	ug/mL	98
41) 2-Chloronaphthalene	9.022	162	107054	2.1404	ug/mL	93
42) 2-Nitroaniline	9.135	65	59883	3.2076	ug/mL #	86
43) Dimethylphthalate	9.354	163	236723	4.1660	ug/mL	97
44) 2,6-Dinitrotoluene	9.428	165	48744	3.5811	ug/mL	93
45) Acenaphthylene	9.546	152	178059	2.6474	ug/mL	98
46) 3-Nitroaniline	9.642	138	27872	12.7733	ug/mL #	71
47) Acenaphthene	9.760	154	108873	2.0863	ug/mL	95
48) 2,4-Dinitrophenol	9.770	184	7406	0.8276	ug/mL #	1
49) 4-Nitrophenol	9.829	109	26118	2.7787	ug/mL #	86
50) Dibenzofuran	9.973	168	150398	2.0771	ug/mL	76
51) 2,4-Dinitrotoluene	9.936	165	64422	3.5830	ug/mL	93
52) 2,3,4,6-Tetrachlorophenol	10.123	232	46313	3.1591	ug/mL	89
53) Diethylphthalate	10.230	149	129075	2.1883	ug/mL	99
54) 4-Chlorophenyl-phenylether	10.395	204	56835	2.0240	ug/mL #	75
55) Fluorene	10.406	166	127911	2.0507	ug/mL	85
56) 4-Nitroaniline	10.406	138	40544	2.9788	ug/mL #	1
57) 2,4,6-Tribromophenol	10.705	330	13842	1.4850	ug/mL #	85
59) 4,6-Dinitro-2-methylphenol	10.449	198	17956	1.5080	ug/mL	91
60) N-Nitrosodiphenylamine	10.534	169	91362	2.1831	ug/mL	90
61) Azobenzene	10.593	77	132844	1.9027	ug/mL	96
62) 4-Bromophenyl-phenylether	11.010	248	33496	1.8587	ug/mL #	80
63) Hexachlorobenzene	11.111	284	68040	3.7870	ug/mL	82
64) Pentachlorophenol	11.346	266	34087	2.5991	ug/mL	98
65) Phenanthrene	11.619	178	181404	2.2005	ug/mL	96
66) Anthracene	11.677	178	185590	2.3249	ug/mL	94
67) Carbazole	11.870	167	231608	3.4859	ug/mL	86
68) Di-n-butylphthalate	12.281	149	224953	2.3261	ug/mL	97
69) Fluoranthene	13.109	202	194461	2.1236	ug/mL	99
71) Benzidine	13.264	184	5163	19.5067	ug/mL	92
72) Pyrene	13.398	202	214702	2.0974	ug/mL	93
73) Terphenyl-d14	13.569	244	144952	2.0229	ug/mL	90
74) Butylbenzylphthalate	14.167	149	94865	1.9610	ug/mL	96
75) 3,3'-Dichlorobenzidine	14.947	252	72122	2.4320	ug/mL	99
76) Benzo(a)anthracene	15.006	228	199907	2.0415	ug/mL	97
77) bis(2-Ethylhexyl)phthalate	14.979	149	134050	2.0558	ug/mL	94
78) Chrysene	15.064	228	179825	1.9886	ug/mL	94
80) Di-n-octylphthalate	16.149	149	199514	1.7675	ug/mL	95
81) Benzo(b)fluoranthene	17.046	252	160929	1.7431	ug/mL	98
82) Benzo(k)fluoranthene	17.105	252	157025	1.7879	ug/mL	99
83) Benzo(a)pyrene	17.816	252	155280	1.9929	ug/mL	98
84) Indeno(1,2,3-cd)pyrene	20.994	276	166902	1.7132	ug/mL	94

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF06.D
Acq On : 15 Aug 2014 4:36 pm
Operator :
Sample : ICAL,S25407
Misc : ICAL
ALS Vial : 6 Sample Multiplier: 1

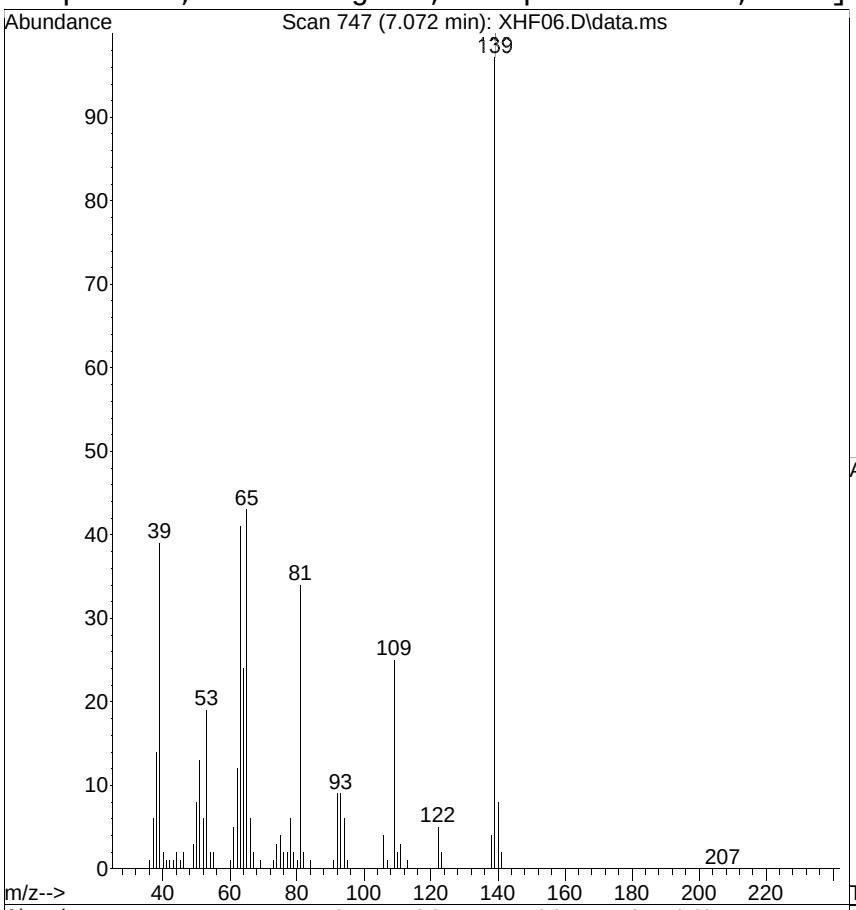
Quant Time: Aug 16 14:23:58 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.058	278	138676	1.6196	ug/mL	96
86) Benzo(g,h,i)perylene	21.769	276	146984	1.8640	ug/mL	94

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

[2-Nitrophenol; 4.000 ug/mL; response=58313; MI]

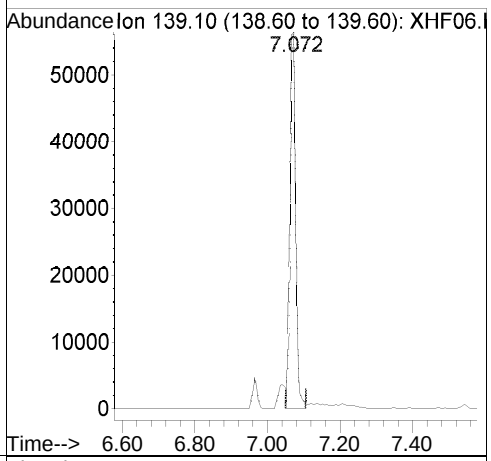
Raw



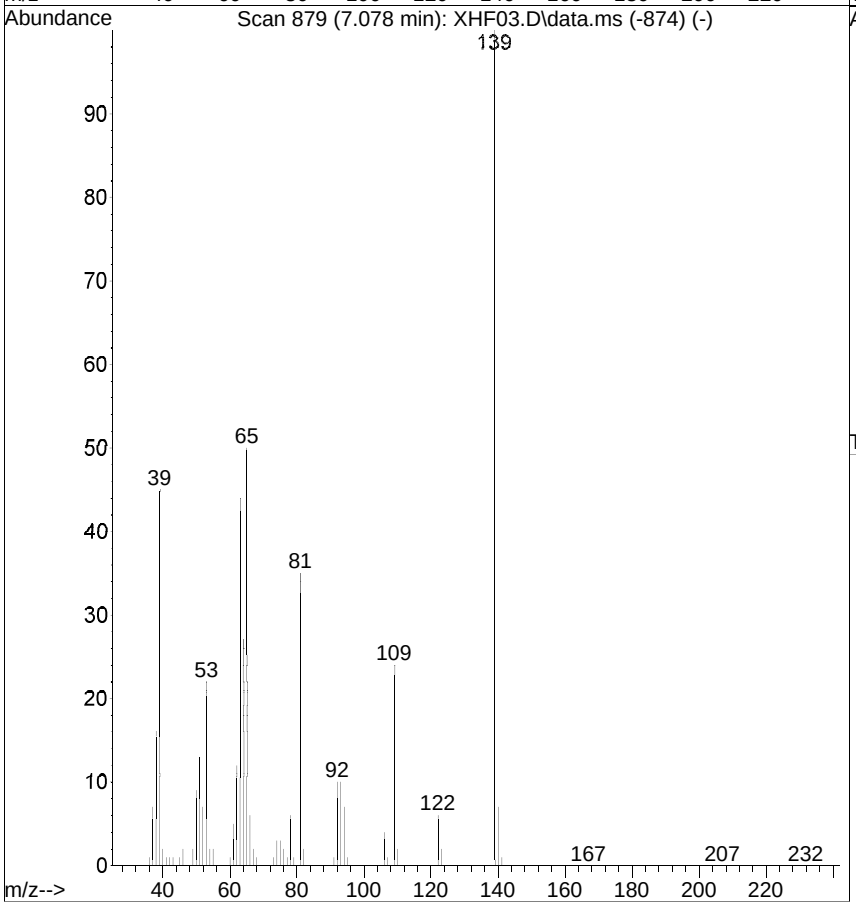
#23
2-Nitrophenol
Concen: 3.8426 ug/mL m
RT: 7.072 min Scan# 747
Delta R.T. -0.005 min
Lab File: XHF06.D
Acq: 15 Aug 2014 4:36 pm

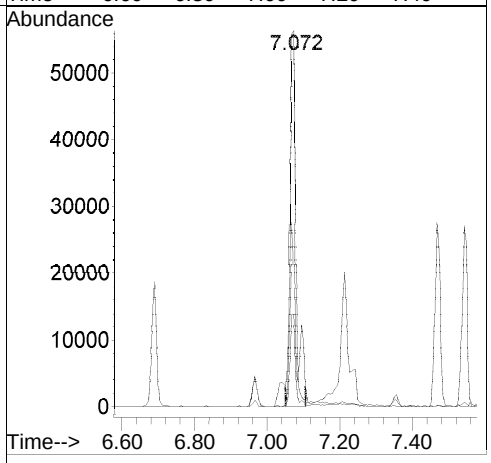
Tgt Ion:139 Resp: 58313

Ion	Ratio	Lower	Upper
139	100		
65	43.4	42.0	82.0
109	24.6	14.0	54.0



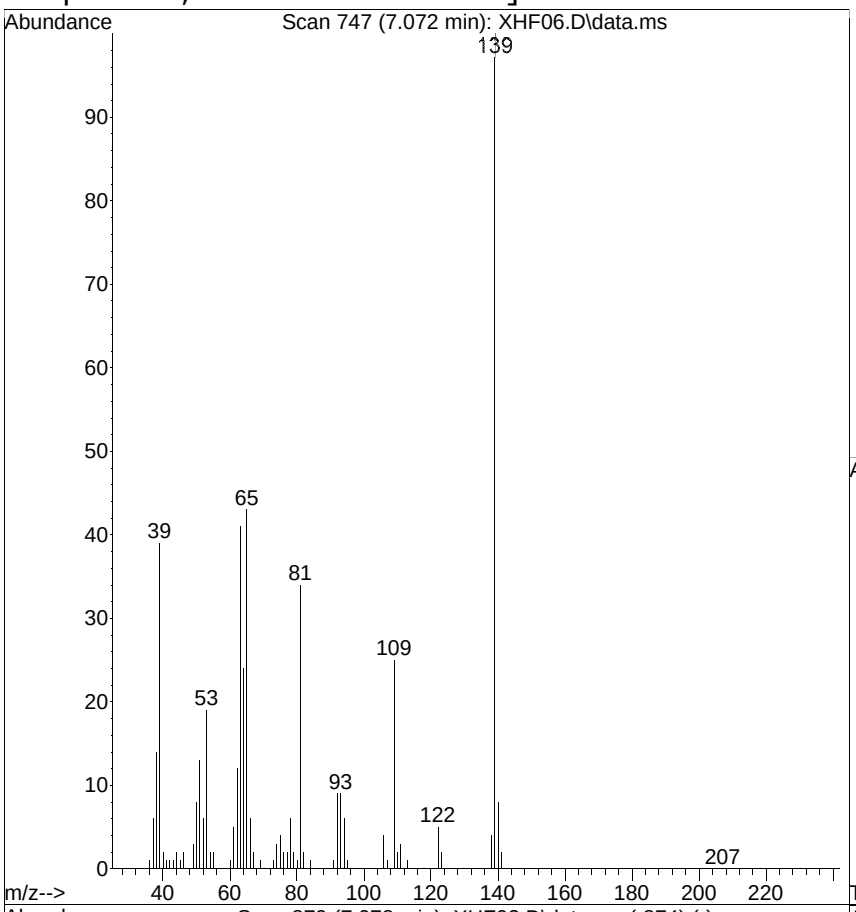
Ref





[2-Nitrophenol; before version]

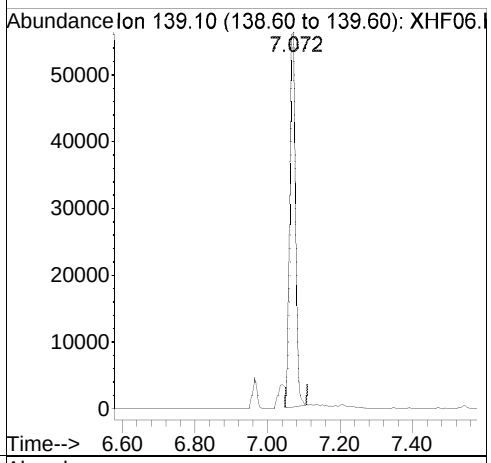
Raw



#23
2-Nitrophenol
Concen: 3.7556 ug/mL
RT: 7.072 min Scan# 747
Delta R.T. -0.005 min
Lab File: XHF06.D
Acq: 15 Aug 2014 4:36 pm

Tgt Ion:139 Resp: 56992

Ion	Ratio	Lower	Upper
139	100		
65	43.4	42.0	82.0
109	24.6	14.0	54.0



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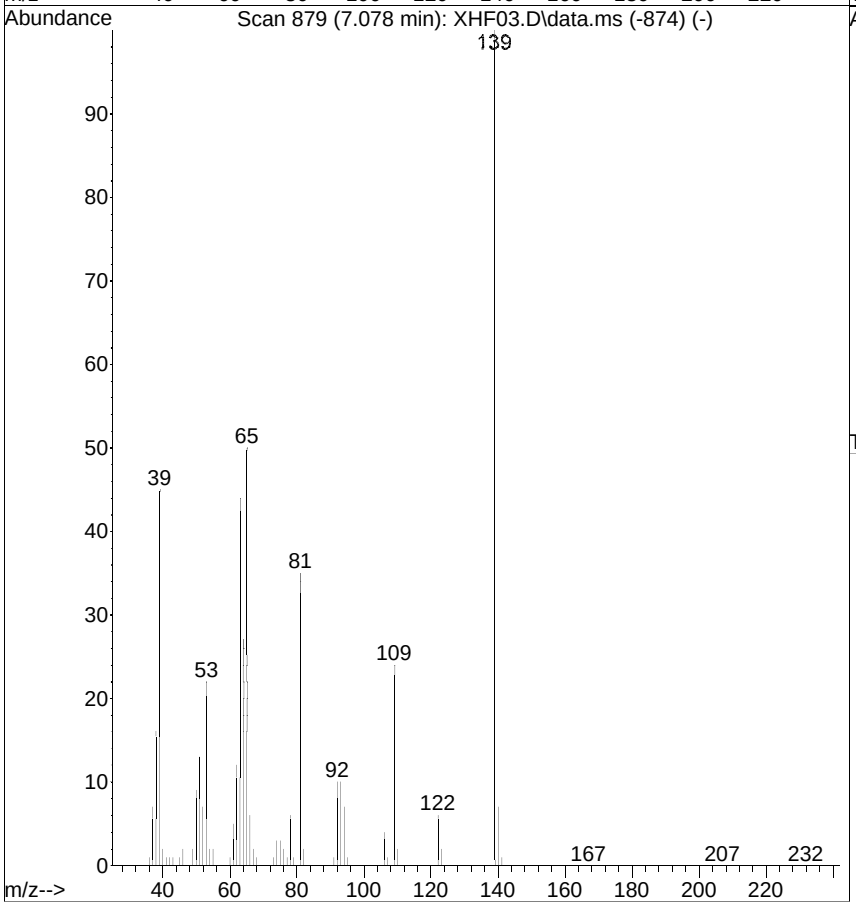
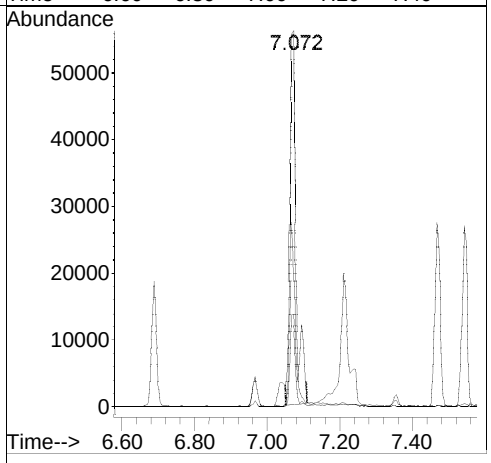
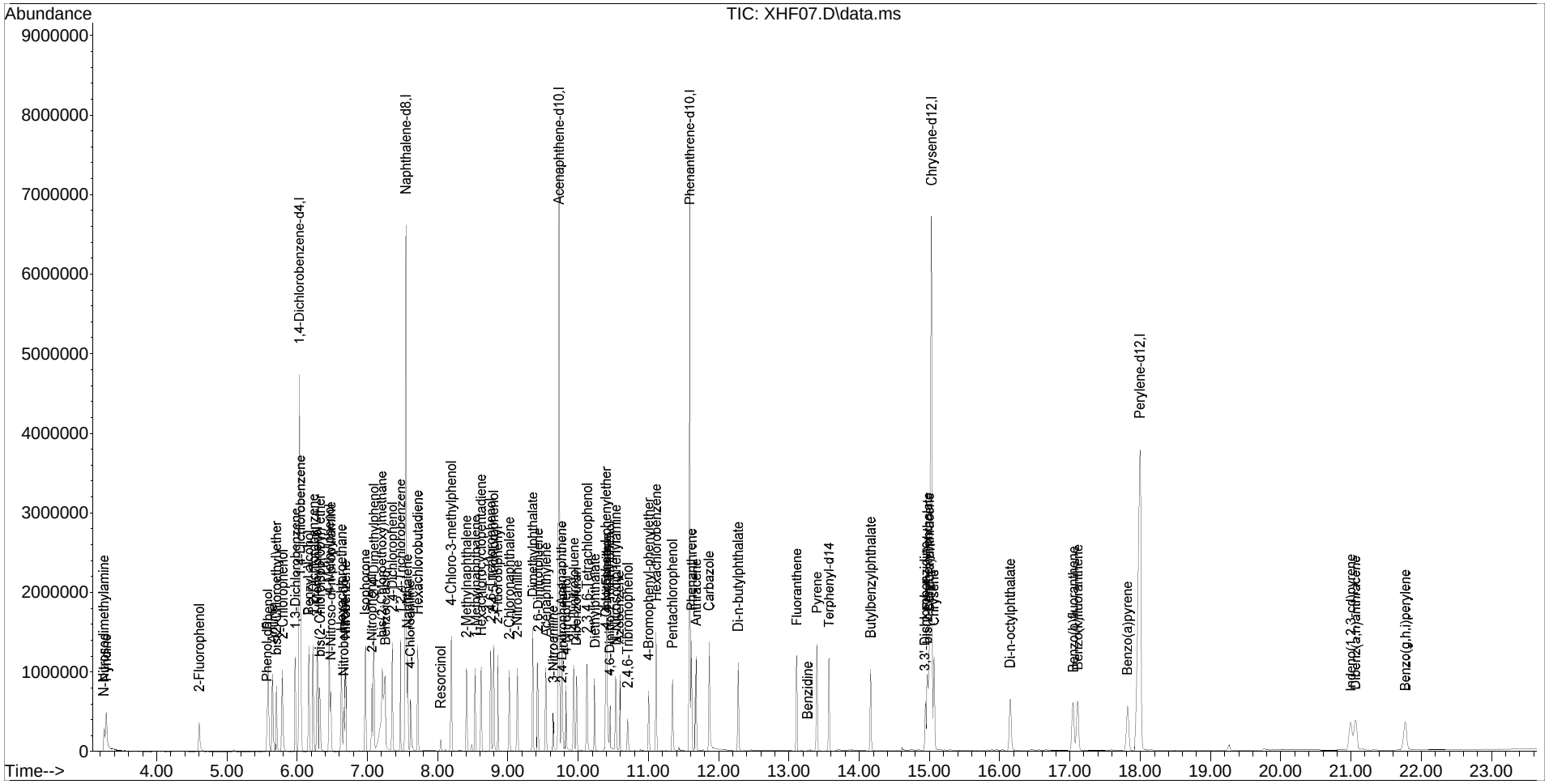




Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF07.D
Acq On : 15 Aug 2014 5:13 pm
Operator :
Sample : ICAL,S25408
Misc : ICAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 16 14:25:36 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF07.D
Acq On : 15 Aug 2014 5:13 pm
Operator :
Sample : ICAL,S25408
Misc : ICAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 16 14:25:36 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.036	152	850862	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.548	136	3161602	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.728	164	1868886	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.592	188	3203684	40.0000	ug/mL	0.00
70) Chrysene-d12	15.038	240	3708733	40.0000	ug/mL	0.00
79) Perylene-d12	17.997	264	3364925	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.279	79	307344	10.0025	ug/mL	92
3) N-Nitrosodimethylamine	3.253	42	140051	9.1195	ug/mL	# 72
4) 2-Fluorophenol	4.604	112	140098	5.5496	ug/mL	# 72
5) Phenol-d5	5.577	99	174150	5.1299	ug/mL	79
6) Phenol	5.593	94	360123	10.0771	ug/mL	79
7) Aniline	5.657	93	355102m	8.9498	ug/mL	
8) bis(2-Chloroethyl)ether	5.710	93	262770	10.0829	ug/mL	95
9) 2-Chlorophenol	5.796	128	302959	10.4791	ug/mL	92
10) 1,3-Dichlorobenzene	5.977	146	348198	10.4994	ug/mL	98
11) 1,4-Dichlorobenzene	6.052	146	357261	10.4166	ug/mL	93
12) Benzyl alcohol	6.170	108	194968	10.7064	ug/mL	93
13) 1,2-Dichlorobenzene	6.234	146	342578	10.6312	ug/mL	98
14) 2-Methylphenol	6.287	107	243756	10.3472	ug/mL	98
15) bis(2-Chloroisopropyl) ether	6.325	45	376221	11.4840	ug/mL	95
16) 4-Methylphenol	6.458	107	354776	10.5915	ug/mL	91
17) N-Nitroso-di-n-propylamine	6.479	70	166299	8.8242	ug/mL	84
18) Hexachloroethane	6.634	117	141431	9.9135	ug/mL	98
20) Nitrobenzene-d5	6.666	82	169908	5.0121	ug/mL	# 76
21) Nitrobenzene	6.688	77	319562	9.0192	ug/mL	93
22) Isophorone	6.971	82	573051	10.7591	ug/mL	97
23) 2-Nitrophenol	7.072	139	160618	9.9679	ug/mL	79
24) 2,4-Dimethylphenol	7.099	107	296572	10.5937	ug/mL	88
25) bis(2-Chloroethoxy)methane	7.211	93	164038	5.1311	ug/mL	97
26) Benzoic acid	7.259	105	871012	41.3732	ug/mL	95
27) 2,4-Dichlorophenol	7.356	162	256329	10.6052	ug/mL	95
28) 1,2,4-Trichlorobenzene	7.473	180	274658	10.4054	ug/mL	98
29) Naphthalene	7.569	128	456951	5.9147	ug/mL	96
30) 4-Chloroaniline	7.612	127	220616	10.2643	ug/mL	92
31) Hexachlorobutadiene	7.719	225	147112	10.1806	ug/mL	98
32) Resorcinol	8.050	110	41290	18.7650	ug/mL	96
33) 4-Chloro-3-methylphenol	8.194	107	264820	10.2646	ug/mL	94
34) 2-Methylnaphthalene	8.413	142	306132	5.6920	ug/mL	91
35) 1-Methylnaphthalene	8.542	142	290634	5.7995	ug/mL	89
37) Hexachlorocyclopentadiene	8.622	237	157079	9.3082	ug/mL	96
38) 2,4,6-Trichlorophenol	8.761	196	178460	9.6812	ug/mL	97

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF07.D
Acq On : 15 Aug 2014 5:13 pm
Operator :
Sample : ICAL,S25408
Misc : ICAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 16 14:25:36 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.798	196	191733	9.9228	ug/mL	88
40) 2-Fluorobiphenyl	8.862	172	357933	5.7227	ug/mL	97
41) 2-Chloronaphthalene	9.022	162	286879	5.4656	ug/mL	94
42) 2-Nitroaniline	9.135	65	169127	8.6323	ug/mL	93
43) Dimethylphthalate	9.354	163	630476	10.5727	ug/mL	96
44) 2,6-Dinitrotoluene	9.434	165	140688	9.8491	ug/mL	84
45) Acenaphthylene	9.546	152	477977	6.7718	ug/mL	99
46) 3-Nitroaniline	9.647	138	80421m	15.4845	ug/mL	
47) Acenaphthene	9.765	154	298463	5.4499	ug/mL	96
48) 2,4-Dinitrophenol	9.776	184	36008	3.8341	ug/mL #	25
49) 4-Nitrophenol	9.834	109	80130	8.1234	ug/mL #	85
50) Dibenzofuran	9.979	168	400257	5.2674	ug/mL	79
51) 2,4-Dinitrotoluene	9.941	165	186757	9.8976	ug/mL	85
52) 2,3,4,6-Tetrachlorophenol	10.128	232	135073	8.7794	ug/mL	88
53) Diethylphthalate	10.235	149	350442	5.6614	ug/mL	99
54) 4-Chlorophenyl-phenylether	10.395	204	153504	5.2089	ug/mL #	74
55) Fluorene	10.406	166	346327	5.2908	ug/mL	88
56) 4-Nitroaniline	10.411	138	136416	9.5505	ug/mL #	10
57) 2,4,6-Tribromophenol	10.705	330	40240	4.1136	ug/mL #	86
59) 4,6-Dinitro-2-methylphenol	10.454	198	72143	5.6794	ug/mL	88
60) N-Nitrosodiphenylamine	10.534	169	245190	5.4920	ug/mL	90
61) Azobenzene	10.593	77	363787	4.8843	ug/mL	95
62) 4-Bromophenyl-phenylether	11.010	248	90124	4.6880	ug/mL #	80
63) Hexachlorobenzene	11.111	284	187564	9.7860	ug/mL	83
64) Pentachlorophenol	11.346	266	101227	7.2352	ug/mL	97
65) Phenanthrene	11.619	178	483426	5.4970	ug/mL	97
66) Anthracene	11.683	178	487109	5.7199	ug/mL	94
67) Carbazole	11.870	167	737465	10.4045	ug/mL	85
68) Di-n-butylphthalate	12.281	149	602602	5.8409	ug/mL	97
69) Fluoranthene	13.115	202	525016	5.3746	ug/mL	98
71) Benzidine	13.269	184	6224	19.5234	ug/mL	97
72) Pyrene	13.403	202	586331	5.3553	ug/mL	93
73) Terphenyl-d14	13.574	244	393615	5.1360	ug/mL	93
74) Butylbenzylphthalate	14.167	149	267840	5.1765	ug/mL	96
75) 3,3'-Dichlorobenzidine	14.947	252	185747	5.8563	ug/mL	98
76) Benzo(a)anthracene	15.006	228	520327	4.9682	ug/mL	98
77) bis(2-Ethylhexyl)phthalate	14.979	149	388300	5.5678	ug/mL	94
78) Chrysene	15.070	228	484656	5.0112	ug/mL	95
80) Di-n-octylphthalate	16.149	149	610045	5.1053	ug/mL	97
81) Benzo(b)fluoranthene	17.052	252	455255	4.6583	ug/mL	98
82) Benzo(k)fluoranthene	17.111	252	440358	4.7364	ug/mL	98
83) Benzo(a)pyrene	17.821	252	442030	5.3592	ug/mL	99
84) Indeno(1,2,3-cd)pyrene	21.000	276	478023	4.6352	ug/mL	95

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF07.D
Acq On : 15 Aug 2014 5:13 pm
Operator :
Sample : ICAL,S25408
Misc : ICAL
ALS Vial : 7 Sample Multiplier: 1

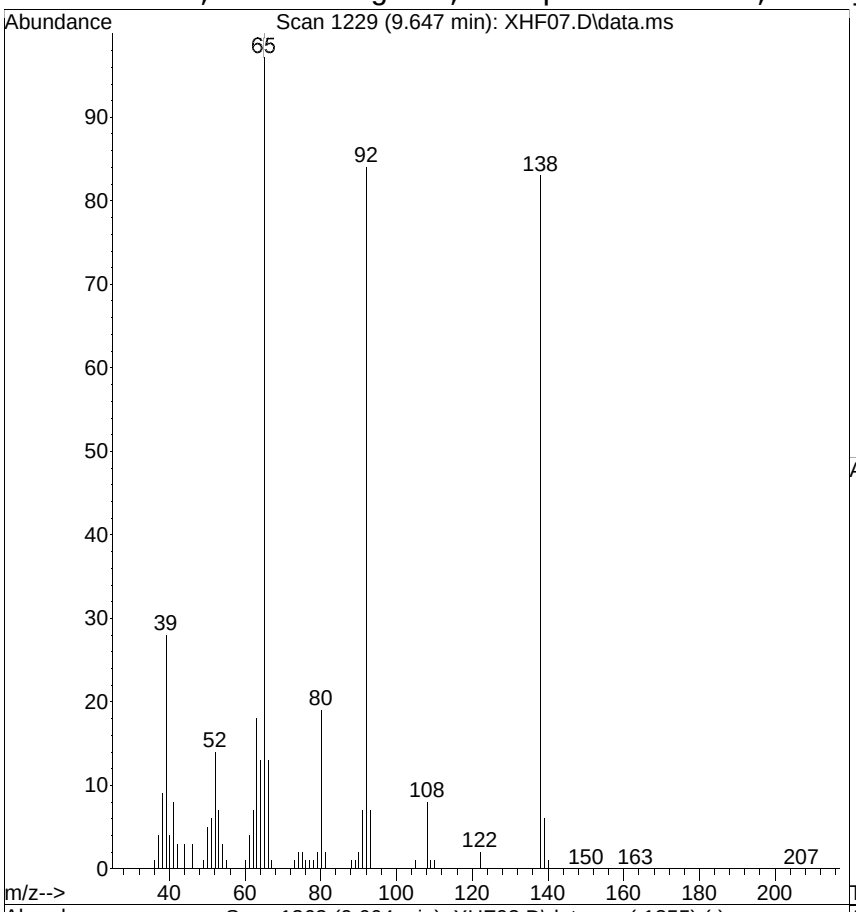
Quant Time: Aug 16 14:25:36 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.069	278	398666	4.3984	ug/mL	96
86) Benzo(g,h,i)perylene	21.774	276	388878	4.6588	ug/mL	93

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

[3-Nitroaniline; 10.00 ug/mL; response=80421; MI]

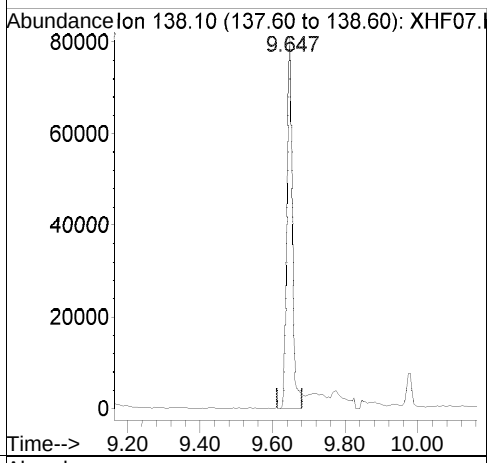
Raw



#46
3-Nitroaniline
Concen: 15.4845 ug/mL m
RT: 9.647 min Scan# 1229
Delta R.T. -0.016 min
Lab File: XHF07.D
Acq: 15 Aug 2014 5:13 pm

Tgt Ion:138 Resp: 80421

Ion	Ratio	Lower	Upper
138	100		
108	9.8	0.0	35.0
92	101.3	131.0	171.0#



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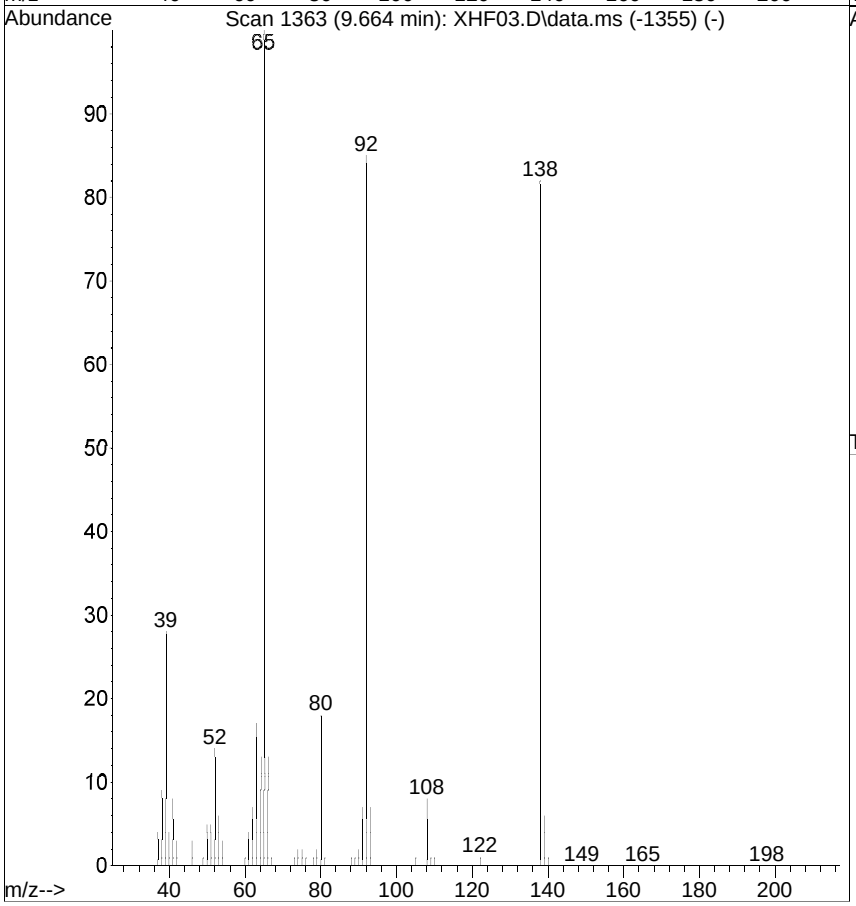
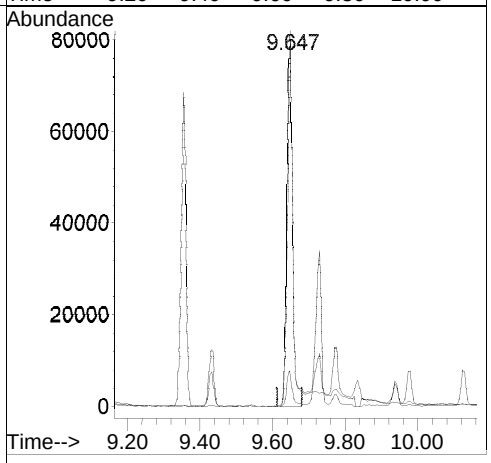
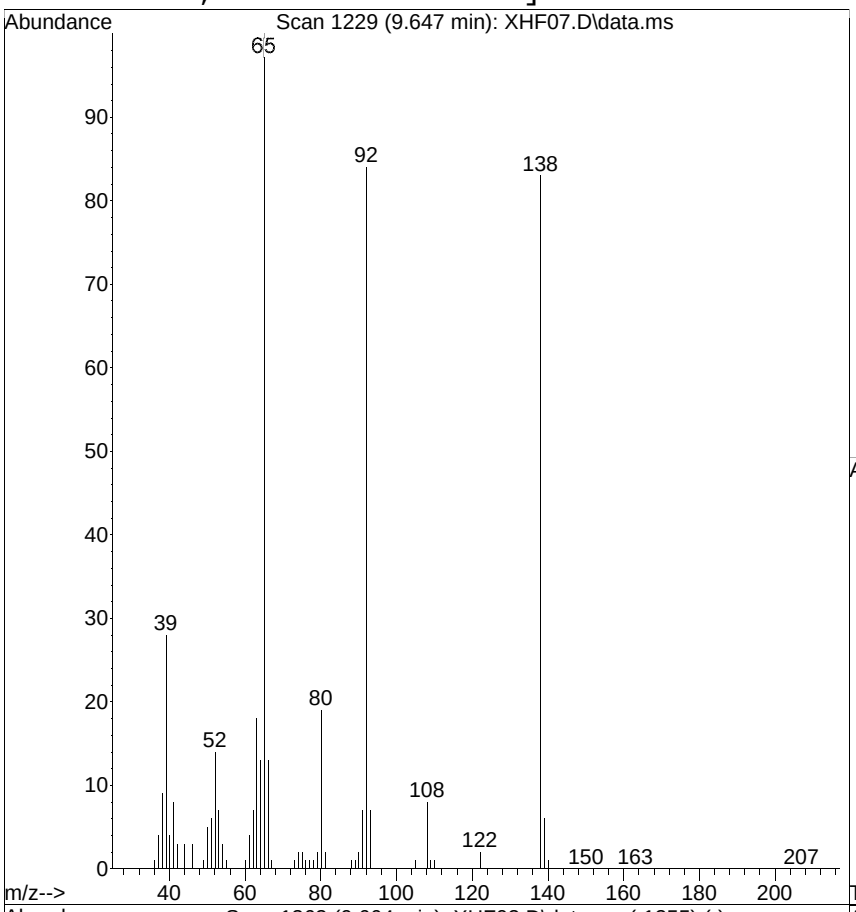




[3-Nitroaniline; before version]

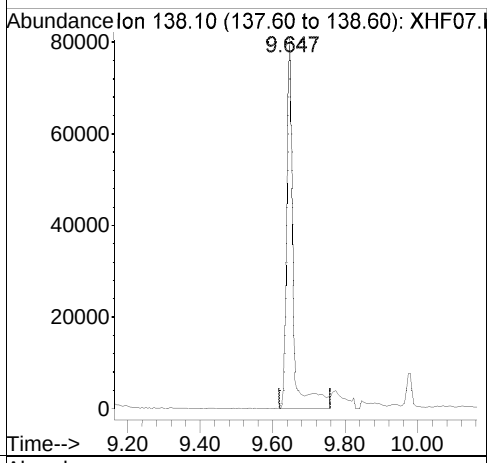
Raw



#46
3-Nitroaniline
Concen: 16.2391 ug/mL
RT: 9.647 min Scan# 1229
Delta R.T. -0.016 min
Lab File: XHF07.D
Acq: 15 Aug 2014 5:13 pm

Tgt Ion:138 Resp: 94664

Ion	Ratio	Lower	Upper
138	100		
108	9.8	0.0	35.0
92	101.3	131.0	171.0#



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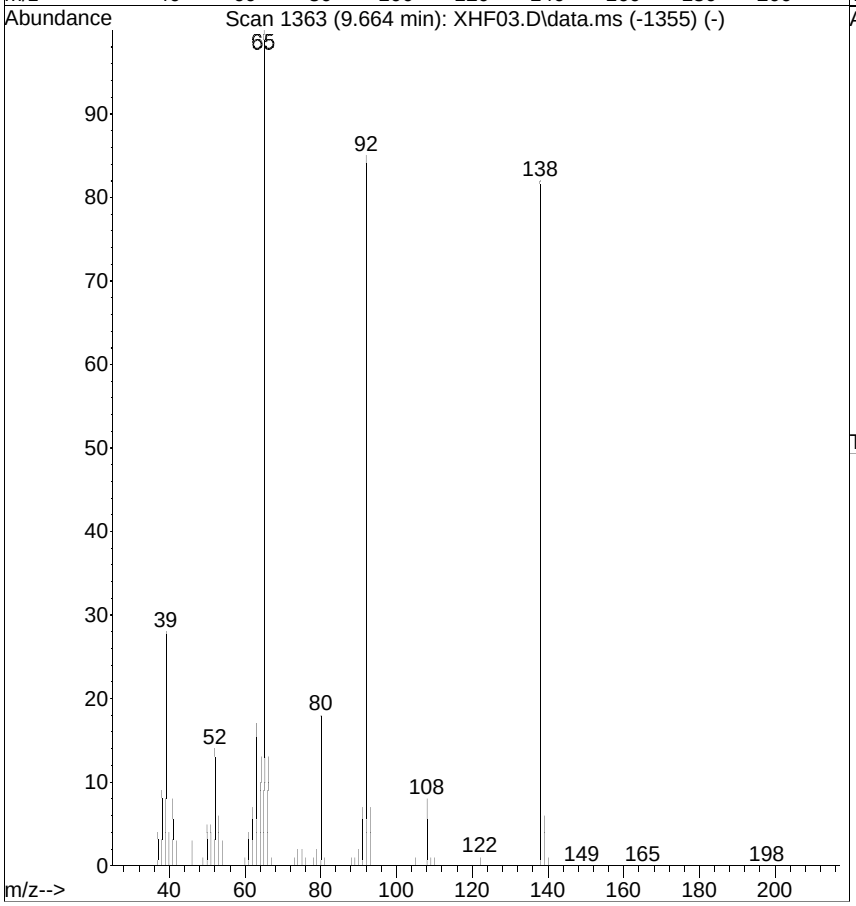
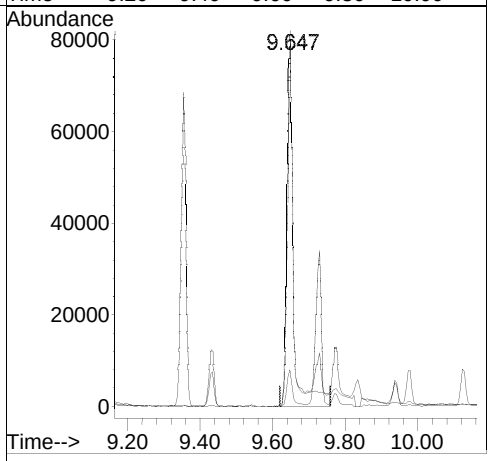
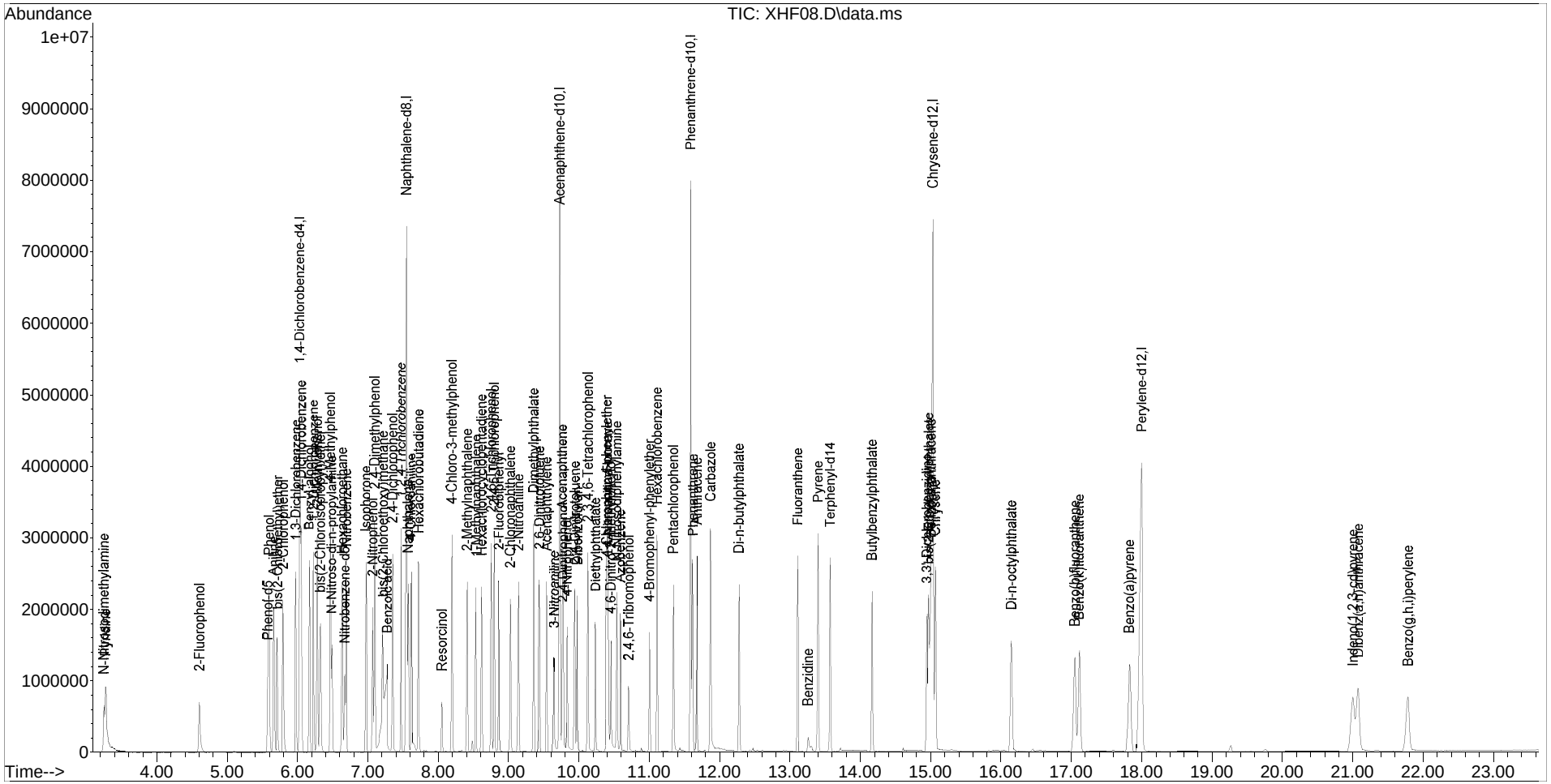




Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF08.D
Acq On : 15 Aug 2014 5:48 pm
Operator :
Sample : ICAL,S25409
Misc : ICAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 16 14:27:50 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF08.D
Acq On : 15 Aug 2014 5:48 pm
Operator :
Sample : ICAL,S25409
Misc : ICAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 16 14:27:50 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.036	152	905805	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.548	136	3399710	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.728	164	2039110	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.592	188	3496206	40.0000	ug/mL	0.00
70) Chrysene-d12	15.038	240	3931509	40.0000	ug/mL	0.00
79) Perylene-d12	18.003	264	3559270	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.274	79	668485	20.4361	ug/mL	92
3) N-Nitrosodimethylamine	3.253	42	295590	18.0801	ug/mL	# 69
4) 2-Fluorophenol	4.604	112	303866	11.3067	ug/mL	# 70
5) Phenol-d5	5.582	99	377168	10.4362	ug/mL	78
6) Phenol	5.598	94	773023	20.3191	ug/mL	79
7) Aniline	5.662	93	884105m	20.9310	ug/mL	
8) bis(2-Chloroethyl)ether	5.716	93	571401	20.5956	ug/mL	97
9) 2-Chlorophenol	5.796	128	651029	21.1526	ug/mL	94
10) 1,3-Dichlorobenzene	5.977	146	737251	20.8823	ug/mL	97
11) 1,4-Dichlorobenzene	6.057	146	749962	20.5402	ug/mL	92
12) Benzyl alcohol	6.175	108	423729	21.8572	ug/mL	92
13) 1,2-Dichlorobenzene	6.234	146	722493	21.0612	ug/mL	97
14) 2-Methylphenol	6.287	107	529661	21.1199	ug/mL	98
15) bis(2-Chloroisopropyl) ether	6.330	45	821282	23.5487	ug/mL	94
16) 4-Methylphenol	6.463	107	763808	21.4195	ug/mL	91
17) N-Nitroso-di-n-propylamine	6.485	70	372157	18.5496	ug/mL	85
18) Hexachloroethane	6.634	117	307082	20.2191	ug/mL	98
20) Nitrobenzene-d5	6.672	82	377546	10.3571	ug/mL	# 74
21) Nitrobenzene	6.693	77	705317	18.5123	ug/mL	91
22) Isophorone	6.976	82	1251718	21.8552	ug/mL	98
23) 2-Nitrophenol	7.072	139	349977	20.1984	ug/mL	84
24) 2,4-Dimethylphenol	7.099	107	638769	21.2191	ug/mL	89
25) bis(2-Chloroethoxy)methane	7.217	93	367368	10.6864	ug/mL	97
26) Benzoic acid	7.281	105	1213563	53.6071	ug/mL	94
27) 2,4-Dichlorophenol	7.356	162	559059	21.5102	ug/mL	97
28) 1,2,4-Trichlorobenzene	7.473	180	596134	21.0027	ug/mL	96
29) Naphthalene	7.569	128	990356	11.9212	ug/mL	95
30) 4-Chloroaniline	7.617	127	806482	24.2311	ug/mL	93
31) Hexachlorobutadiene	7.724	225	314696	20.2527	ug/mL	99
32) Resorcinol	8.055	110	218405	25.5245	ug/mL	93
33) 4-Chloro-3-methylphenol	8.194	107	568087	20.4772	ug/mL	93
34) 2-Methylnaphthalene	8.419	142	669928	11.5838	ug/mL	90
35) 1-Methylnaphthalene	8.542	142	636311	11.8081	ug/mL	89
37) Hexachlorocyclopentadiene	8.622	237	356936	19.3857	ug/mL	96
38) 2,4,6-Trichlorophenol	8.761	196	391655	19.4730	ug/mL	94

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF08.D
Acq On : 15 Aug 2014 5:48 pm
Operator :
Sample : ICAL,S25409
Misc : ICAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 16 14:27:50 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.803	196	430930	20.4403	ug/mL	91
40) 2-Fluorobiphenyl	8.867	172	776073	11.3723	ug/mL	98
41) 2-Chloronaphthalene	9.022	162	627847	10.9631	ug/mL	94
42) 2-Nitroaniline	9.140	65	389331	18.2127	ug/mL	93
43) Dimethylphthalate	9.359	163	1375603	21.1422	ug/mL	96
44) 2,6-Dinitrotoluene	9.439	165	320229	20.5467	ug/mL	84
45) Acenaphthylene	9.546	152	1029807	13.3720	ug/mL	99
46) 3-Nitroaniline	9.653	138	258026	23.7533	ug/mL #	63
47) Acenaphthene	9.765	154	650181	10.8812	ug/mL	94
48) 2,4-Dinitrophenol	9.776	184	117532	11.4700	ug/mL #	37
49) 4-Nitrophenol	9.840	109	180294	16.7519	ug/mL #	80
50) Dibenzofuran	9.979	168	876495	10.5717	ug/mL	78
51) 2,4-Dinitrotoluene	9.947	165	424067	20.5983	ug/mL	87
52) 2,3,4,6-Tetrachlorophenol	10.128	232	316672	18.8647	ug/mL	88
53) Diethylphthalate	10.235	149	760396	11.2587	ug/mL	98
54) 4-Chlorophenyl-phenylether	10.395	204	335428	10.4320	ug/mL #	73
55) Fluorene	10.411	166	751188	10.5179	ug/mL	86
56) 4-Nitroaniline	10.417	138	339322	21.7728	ug/mL #	5
57) 2,4,6-Tribromophenol	10.711	330	95416	8.9397	ug/mL #	82
59) 4,6-Dinitro-2-methylphenol	10.459	198	201716	14.5514	ug/mL	88
60) N-Nitrosodiphenylamine	10.540	169	534588	10.9724	ug/mL	91
61) Azobenzene	10.593	77	795889	9.7917	ug/mL	93
62) 4-Bromophenyl-phenylether	11.010	248	196559	9.3691	ug/mL #	80
63) Hexachlorobenzene	11.111	284	415511	19.8652	ug/mL	80
64) Pentachlorophenol	11.346	266	251133	16.4478	ug/mL	97
65) Phenanthrene	11.624	178	1049834	10.9387	ug/mL	96
66) Anthracene	11.683	178	1072938	11.5450	ug/mL	94
67) Carbazole	11.875	167	1732987	22.4042	ug/mL	85
68) Di-n-butylphthalate	12.281	149	1328540	11.7999	ug/mL	97
69) Fluoranthene	13.115	202	1137984	10.6749	ug/mL	100
71) Benzidine	13.264	184	140532	22.5168	ug/mL	90
72) Pyrene	13.403	202	1264403	10.8942	ug/mL	92
73) Terphenyl-d14	13.574	244	871699	10.7296	ug/mL	92
74) Butylbenzylphthalate	14.167	149	592929	10.8100	ug/mL	95
75) 3,3'-Dichlorobenzidine	14.952	252	595171	17.7014	ug/mL	96
76) Benzo(a)anthracene	15.011	228	1123196	10.1169	ug/mL	99
77) bis(2-Ethylhexyl)phthalate	14.979	149	865728	11.7102	ug/mL	95
78) Chrysene	15.070	228	1043420	10.1772	ug/mL	95
80) Di-n-octylphthalate	16.149	149	1423922	11.2657	ug/mL	96
81) Benzo(b)fluoranthene	17.057	252	1011773	9.7874	ug/mL	98
82) Benzo(k)fluoranthene	17.116	252	964507	9.8077	ug/mL	99
83) Benzo(a)pyrene	17.826	252	985434	11.2951	ug/mL	97
84) Indeno(1,2,3-cd)pyrene	21.010	276	1065866	9.7710	ug/mL	91

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF08.D
Acq On : 15 Aug 2014 5:48 pm
Operator :
Sample : ICAL,S25409
Misc : ICAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 16 14:27:50 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

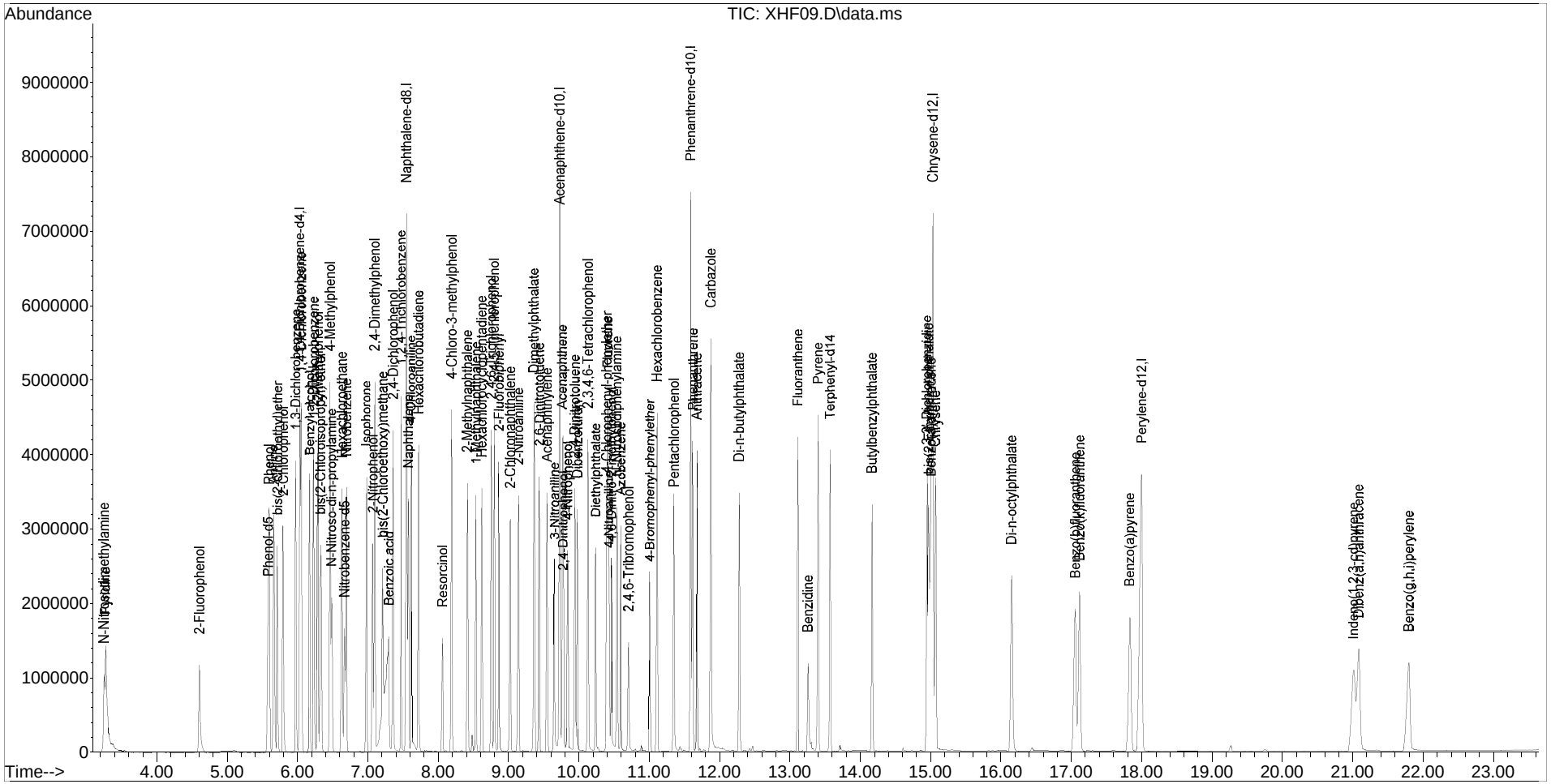
Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.080	278	887708	9.2590	ug/mL	95
86) Benzo(g,h,i)perylene	21.790	276	844910	9.5695	ug/mL	94

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

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF09.D
Acq On : 15 Aug 2014 6:27 pm
Operator :
Sample : ICAL,S25410
Misc : ICAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 16 14:26:50 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF09.D
Acq On : 15 Aug 2014 6:27 pm
Operator :
Sample : ICAL,S25410
Misc : ICAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 16 14:26:50 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.036	152	869601	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.548	136	3313441	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.728	164	1920727	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.592	188	3298465	40.0000	ug/mL	0.00
70) Chrysene-d12	15.038	240	3631927	40.0000	ug/mL	0.00
79) Perylene-d12	18.003	264	3231362	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.274	79	1029806	32.7927	ug/mL	92
3) N-Nitrosodimethylamine	3.253	42	465890	29.6830	ug/mL	# 74
4) 2-Fluorophenol	4.605	112	470107	18.2208	ug/mL	# 72
5) Phenol-d5	5.588	99	578158	16.6637	ug/mL	77
6) Phenol	5.604	94	1170377	32.0444	ug/mL	80
7) Aniline	5.662	93	1407891m	34.7192	ug/mL	
8) bis(2-Chloroethyl)ether	5.716	93	878669	32.9893	ug/mL	94
9) 2-Chlorophenol	5.801	128	1002620	33.9324	ug/mL	93
10) 1,3-Dichlorobenzene	5.978	146	1110439	32.7621	ug/mL	97
11) 1,4-Dichlorobenzene	6.058	146	1144711	32.6569	ug/mL	91
12) Benzyl alcohol	6.181	108	654127	35.1465	ug/mL	89
13) 1,2-Dichlorobenzene	6.234	146	1110030	33.7053	ug/mL	96
14) 2-Methylphenol	6.293	107	808661	33.5873	ug/mL	97
15) bis(2-Chloroisopropyl) ether	6.330	45	1268940	37.8992	ug/mL	94
16) 4-Methylphenol	6.469	107	1166277	34.0676	ug/mL	90
17) N-Nitroso-di-n-propylamine	6.490	70	579954	30.1104	ug/mL	85
18) Hexachloroethane	6.635	117	467095	32.0352	ug/mL	98
20) Nitrobenzene-d5	6.672	82	588978	16.5780	ug/mL	# 76
21) Nitrobenzene	6.699	77	1085669	29.2372	ug/mL	90
22) Isophorone	6.982	82	1912078	34.2544	ug/mL	98
23) 2-Nitrophenol	7.078	139	544370	32.2354	ug/mL	81
24) 2,4-Dimethylphenol	7.105	107	973160	33.1688	ug/mL	87
25) bis(2-Chloroethoxy)methane	7.217	93	565254	16.8708	ug/mL	95
26) Benzoic acid	7.302	105	1702433	77.1601	ug/mL	95
27) 2,4-Dichlorophenol	7.361	162	849528	33.5372	ug/mL	96
28) 1,2,4-Trichlorobenzene	7.473	180	911718	32.9575	ug/mL	97
29) Naphthalene	7.575	128	1521992	18.7977	ug/mL	96
30) 4-Chloroaniline	7.618	127	1293010m	36.9942	ug/mL	
31) Hexachlorobutadiene	7.724	225	477547	31.5334	ug/mL	98
32) Resorcinol	8.066	110	507396	37.2638	ug/mL	92
33) 4-Chloro-3-methylphenol	8.200	107	865018	31.9921	ug/mL	94
34) 2-Methylnaphthalene	8.419	142	1014301	17.9951	ug/mL	89
35) 1-Methylnaphthalene	8.542	142	970575	18.4800	ug/mL	89
37) Hexachlorocyclopentadiene	8.622	237	550766	31.7565	ug/mL	96
38) 2,4,6-Trichlorophenol	8.761	196	593643	31.3349	ug/mL	97

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF09.D
Acq On : 15 Aug 2014 6:27 pm
Operator :
Sample : ICAL,S25410
Misc : ICAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 16 14:26:50 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.804	196	655875	33.0276	ug/mL	89
40) 2-Fluorobiphenyl	8.868	172	1169629	18.1956	ug/mL	97
41) 2-Chloronaphthalene	9.028	162	954120	17.6872	ug/mL	93
42) 2-Nitroaniline	9.145	65	608381	30.2138	ug/mL	91
43) Dimethylphthalate	9.364	163	2078718	33.9179	ug/mL	96
44) 2,6-Dinitrotoluene	9.439	165	491674	33.4915	ug/mL	92
45) Acenaphthylene	9.546	152	1563462	21.5528	ug/mL	98
46) 3-Nitroaniline	9.658	138	498888	36.9427	ug/mL #	64
47) Acenaphthene	9.765	154	1010654	17.9564	ug/mL	94
48) 2,4-Dinitrophenol	9.781	184	215097	22.2852	ug/mL #	1
49) 4-Nitrophenol	9.845	109	287126	28.3224	ug/mL #	80
50) Dibenzofuran	9.979	168	1331377	17.0479	ug/mL	77
51) 2,4-Dinitrotoluene	9.947	165	658532	33.9585	ug/mL	94
52) 2,3,4,6-Tetrachlorophenol	10.128	232	491558	31.0878	ug/mL	90
53) Diethylphthalate	10.241	149	1144462	17.9897	ug/mL	100
54) 4-Chlorophenyl-phenylether	10.396	204	512571	16.9239	ug/mL #	73
55) Fluorene	10.412	166	1133664	16.8515	ug/mL	88
56) 4-Nitroaniline	10.428	138	507525	34.5728	ug/mL #	10
57) 2,4,6-Tribromophenol	10.711	330	148263	14.7472	ug/mL #	83
59) 4,6-Dinitro-2-methylphenol	10.465	198	336233	25.7093	ug/mL	89
60) N-Nitrosodiphenylamine	10.540	169	820399	17.8481	ug/mL	91
61) Azobenzene	10.599	77	1226493	15.9940	ug/mL	94
62) 4-Bromophenyl-phenylether	11.015	248	299848	15.1492	ug/mL #	82
63) Hexachlorobenzene	11.117	284	623541	31.5980	ug/mL	85
64) Pentachlorophenol	11.352	266	405306	28.1367	ug/mL	96
65) Phenanthrene	11.624	178	1572957	17.3719	ug/mL	97
66) Anthracene	11.683	178	1602958	18.2821	ug/mL	94
67) Carbazole	11.875	167	2741090	37.5614	ug/mL	84
68) Di-n-butylphthalate	12.281	149	2009423	18.9174	ug/mL	97
69) Fluoranthene	13.115	202	1723721	17.1387	ug/mL	99
71) Benzidine	13.264	184	599718	33.8854	ug/mL	91
72) Pyrene	13.403	202	1913873	17.8503	ug/mL	92
73) Terphenyl-d14	13.574	244	1305918	17.4003	ug/mL	91
74) Butylbenzylphthalate	14.167	149	906762	17.8953	ug/mL	95
75) 3,3'-Dichlorobenzidine	14.952	252	1054899	33.9624	ug/mL	98
76) Benzo(a)anthracene	15.011	228	1674513	16.3268	ug/mL	99
77) bis(2-Ethylhexyl)phthalate	14.979	149	1333962	19.5320	ug/mL	96
78) Chrysene	15.075	228	1541012	16.2704	ug/mL	94
80) Di-n-octylphthalate	16.149	149	2197725	19.1523	ug/mL	96
81) Benzo(b)fluoranthene	17.063	252	1538816	16.3963	ug/mL	98
82) Benzo(k)fluoranthene	17.121	252	1468173	16.4442	ug/mL	99
83) Benzo(a)pyrene	17.832	252	1507235	19.0291	ug/mL	98
84) Indeno(1,2,3-cd)pyrene	21.016	276	1653272	16.6938	ug/mL	91

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF09.D
Acq On : 15 Aug 2014 6:27 pm
Operator :
Sample : ICAL,S25410
Misc : ICAL
ALS Vial : 9 Sample Multiplier: 1

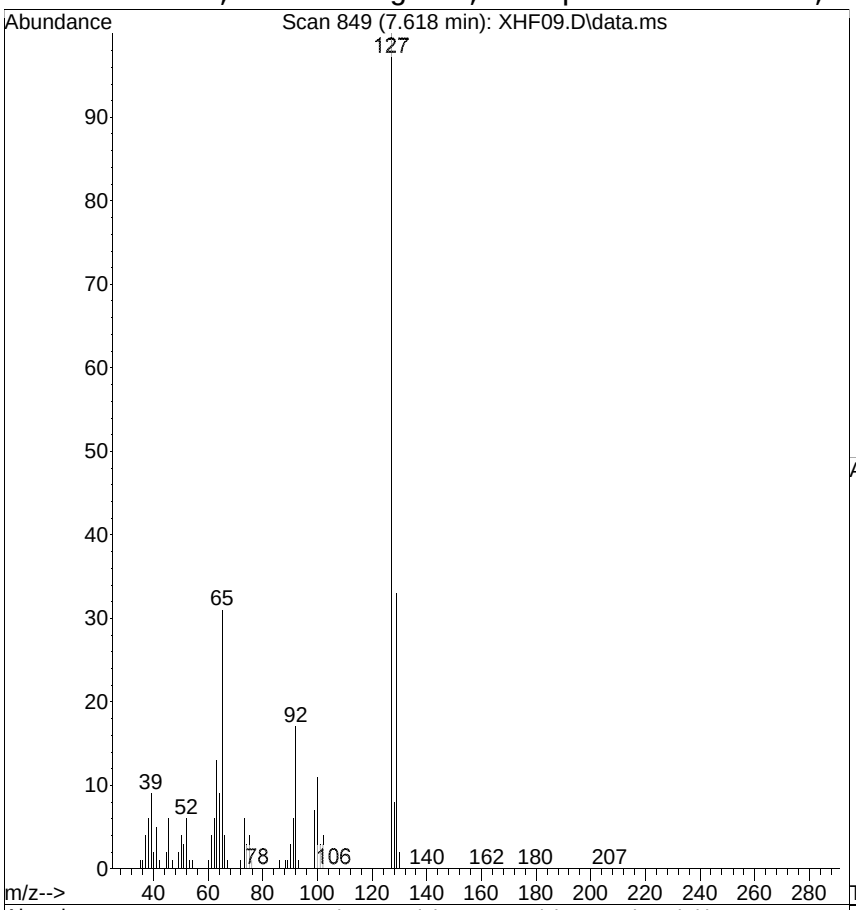
Quant Time: Aug 16 14:26:50 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.085	278	1389050	15.9584	ug/mL	95
86) Benzo(g,h,i)perylene	21.801	276	1325592	16.5373	ug/mL	93

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

[4-Chloroaniline; 32.00 ug/mL; response=1293010; MI]

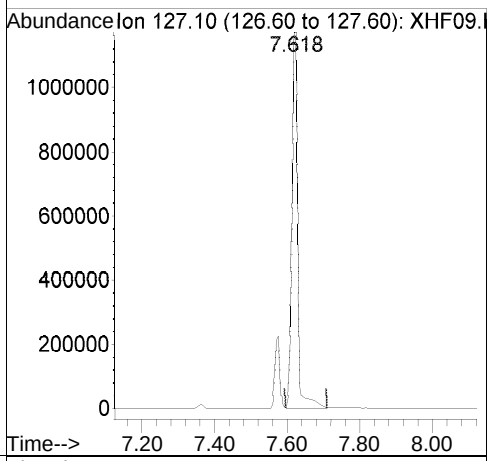
Raw



#30
4-Chloroaniline
Concen: 36.9942 ug/mL m
RT: 7.618 min Scan# 849
Delta R.T. -0.005 min
Lab File: XHF09.D
Acq: 15 Aug 2014 6:27 pm

Tgt Ion:127 Resp: 1293010

Ion	Ratio	Lower	Upper
127	100		
129	32.6	11.0	51.0
65	31.3	3.0	43.0



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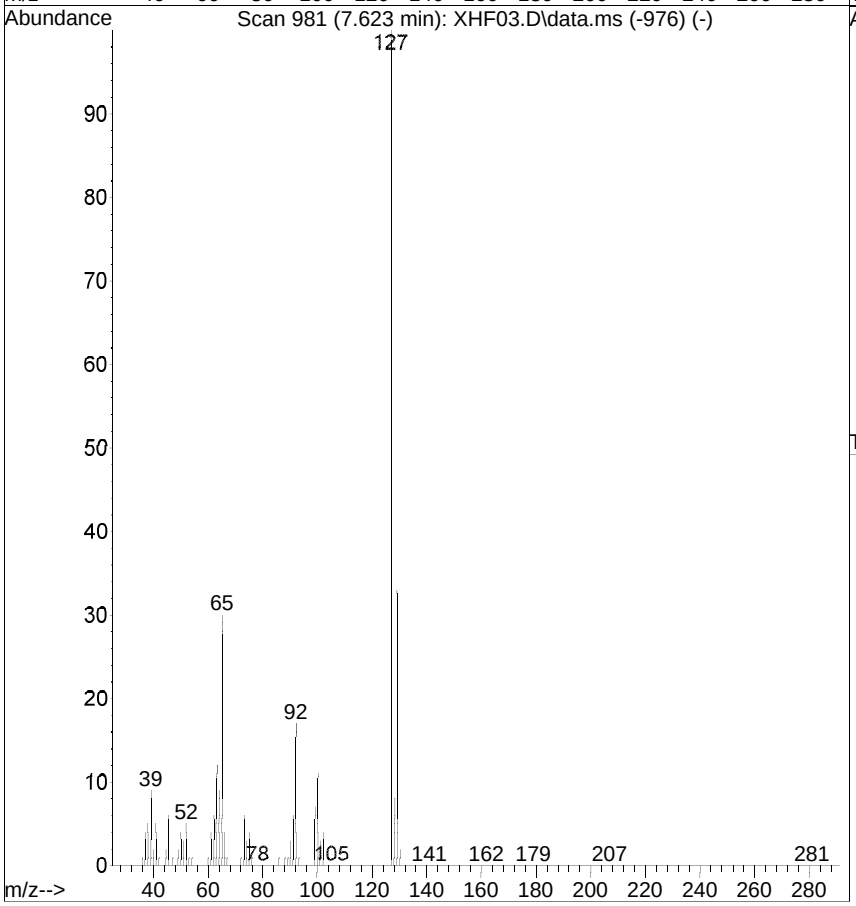
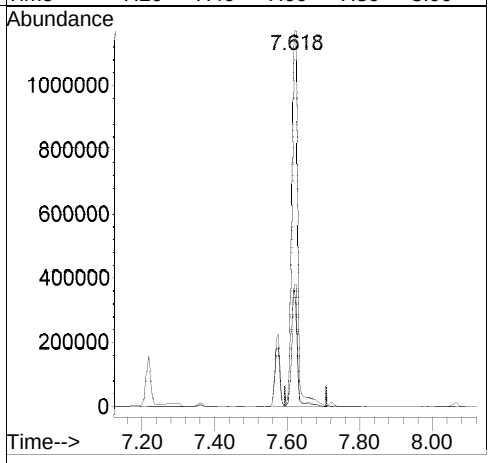
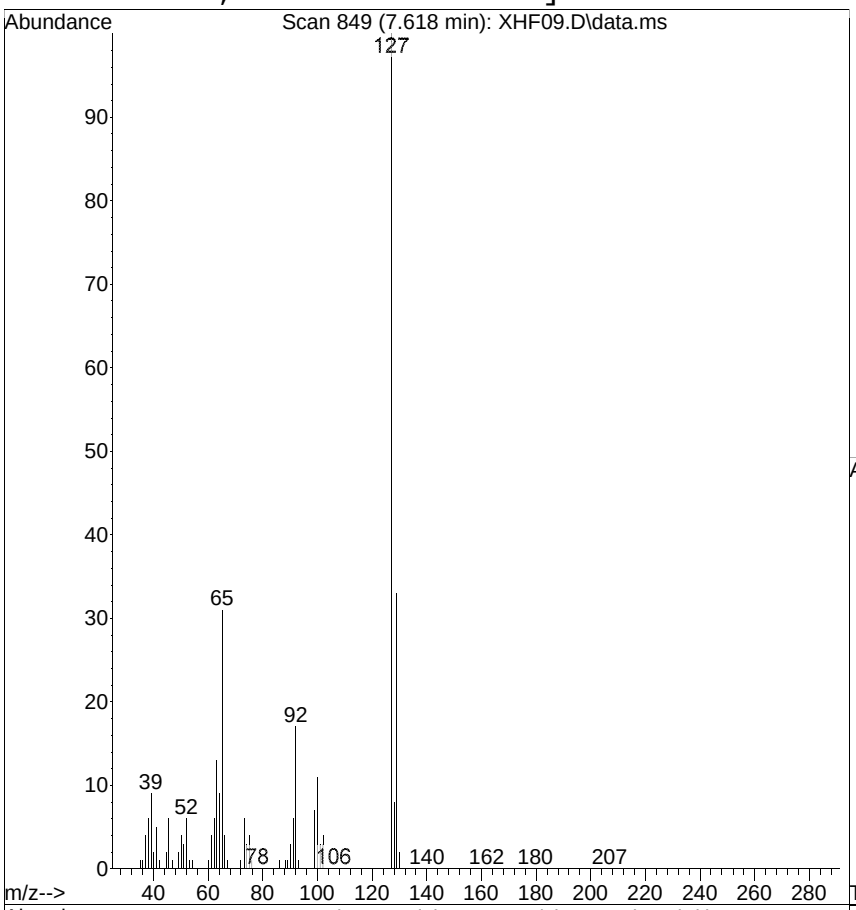




[4-Chloroaniline; before version]

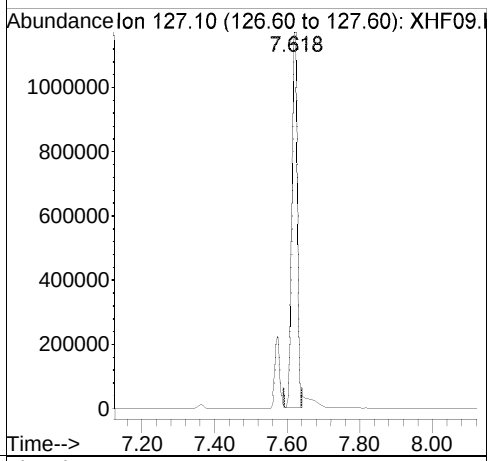
Raw



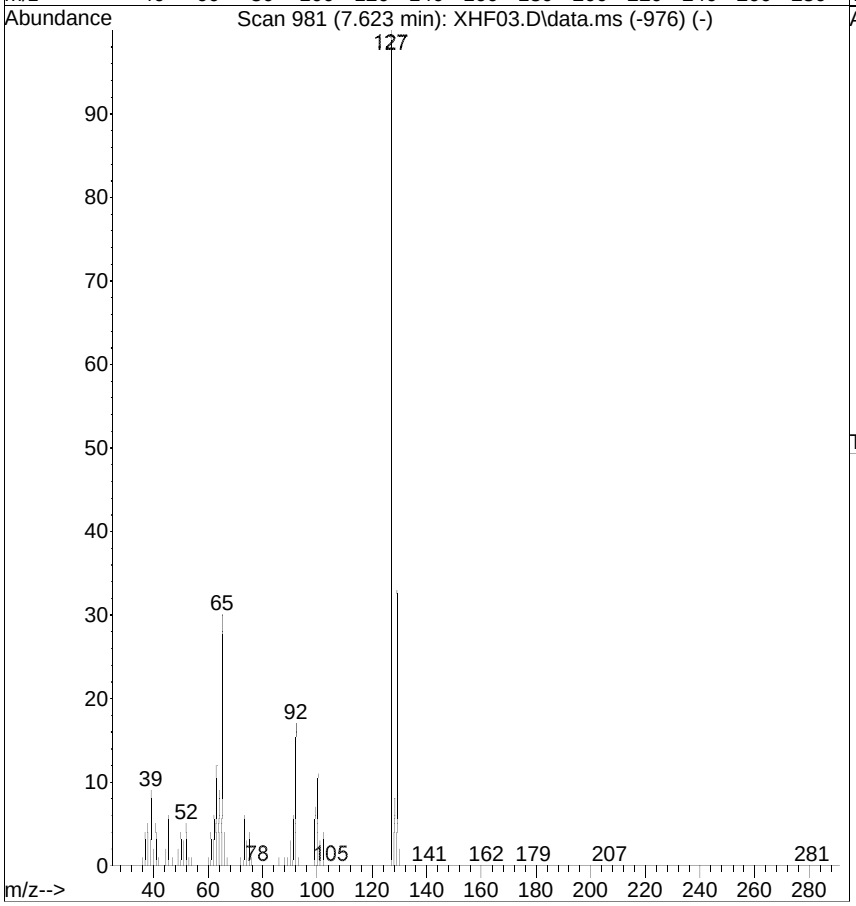
#30
4-Chloroaniline
Concen: 34.8621 ug/mL
RT: 7.618 min Scan# 849
Delta R.T. -0.005 min
Lab File: XHF09.D
Acq: 15 Aug 2014 6:27 pm

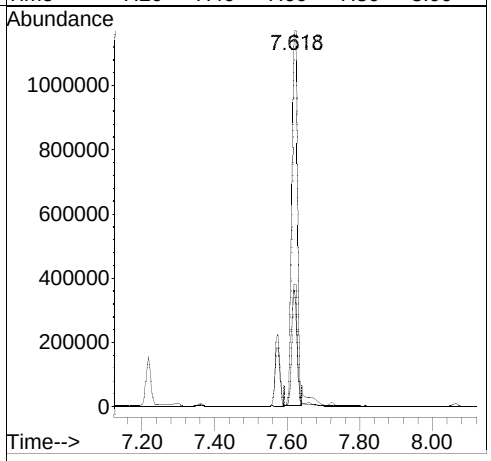
Tgt Ion:127 Resp: 1208313

Ion	Ratio	Lower	Upper
127	100		
129	32.6	11.0	51.0
65	31.3	3.0	43.0



Ref

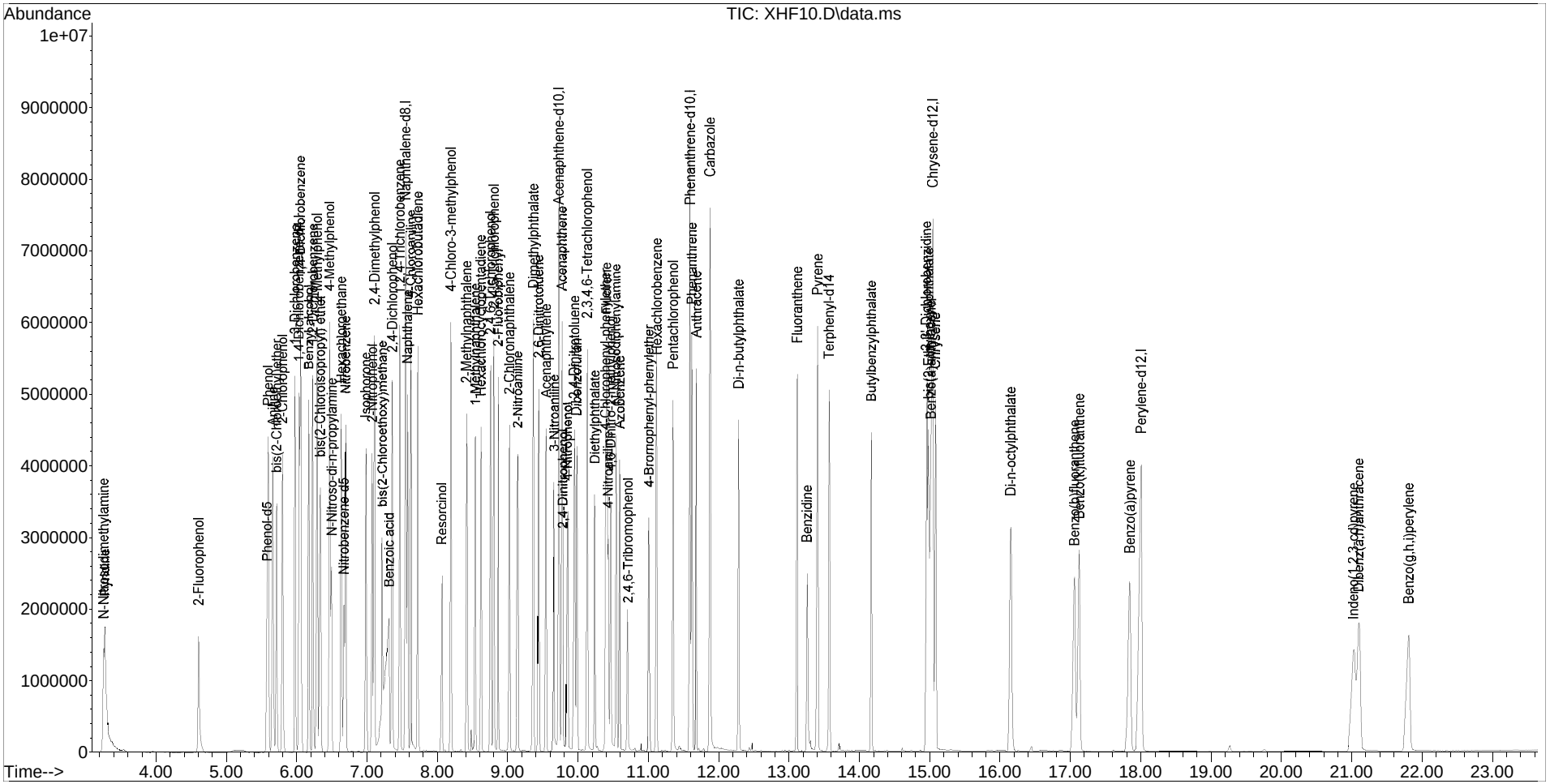




Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF10.D
Acq On : 15 Aug 2014 7:04 pm
Operator :
Sample : ICAL,S25411
Misc : ICAL
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 16 14:29:24 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF10.D
Acq On : 15 Aug 2014 7:04 pm
Operator :
Sample : ICAL,S25411
Misc : ICAL
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 16 14:29:24 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.036	152	941095	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.548	136	3594287	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.728	164	2111833	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.597	188	3532187	40.0000	ug/mL	0.00
70) Chrysene-d12	15.043	240	3835082	40.0000	ug/mL	0.00
79) Perylene-d12	18.008	264	3440894	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.279	79	1397174	41.1111	ug/mL	94
3) N-Nitrosodimethylamine	3.258	42	629644	37.0686	ug/mL	# 75
4) 2-Fluorophenol	4.604	112	638503	22.8676	ug/mL	# 74
5) Phenol-d5	5.587	99	788917	21.0108	ug/mL	79
6) Phenol	5.603	94	1595016	40.3532	ug/mL	78
7) Aniline	5.667	93	1934968m	44.0921	ug/mL	
8) bis(2-Chloroethyl)ether	5.721	93	1187016	41.1804	ug/mL	96
9) 2-Chlorophenol	5.801	128	1337836	41.8377	ug/mL	95
10) 1,3-Dichlorobenzene	5.977	146	1477609	40.2831	ug/mL	96
11) 1,4-Dichlorobenzene	6.057	146	1491339	39.3136	ug/mL	90
12) Benzyl alcohol	6.180	108	892109	44.2919	ug/mL	94
13) 1,2-Dichlorobenzene	6.239	146	1458049	40.9093	ug/mL	97
14) 2-Methylphenol	6.293	107	1091945	41.9079	ug/mL	96
15) bis(2-Chloroisopropyl) ether	6.335	45	1743000	48.1031	ug/mL	94
16) 4-Methylphenol	6.474	107	1579074	42.6216	ug/mL	90
17) N-Nitroso-di-n-propylamine	6.501	70	795126	38.1457	ug/mL	84
18) Hexachloroethane	6.634	117	629201	39.8747	ug/mL	98
20) Nitrobenzene-d5	6.672	82	813613	21.1114	ug/mL	# 77
21) Nitrobenzene	6.699	77	1479619	36.7329	ug/mL	92
22) Isophorone	6.987	82	2625960	43.3676	ug/mL	99
23) 2-Nitrophenol	7.078	139	745901	40.7180	ug/mL	84
24) 2,4-Dimethylphenol	7.110	107	1294725	40.6809	ug/mL	87
25) bis(2-Chloroethoxy)methane	7.222	93	770929	21.2116	ug/mL	96
26) Benzoic acid	7.324	105	2211844	92.4152	ug/mL	94
27) 2,4-Dichlorophenol	7.366	162	1151598	41.9098	ug/mL	95
28) 1,2,4-Trichlorobenzene	7.473	180	1213321	40.4330	ug/mL	96
29) Naphthalene	7.575	128	2020603	23.0060	ug/mL	95
30) 4-Chloroaniline	7.623	127	1711407m	44.1607	ug/mL	
31) Hexachlorobutadiene	7.724	225	633989	38.5925	ug/mL	98
32) Resorcinol	8.071	110	842096	47.9816	ug/mL	93
33) 4-Chloro-3-methylphenol	8.200	107	1170687	39.9139	ug/mL	91
34) 2-Methylnaphthalene	8.419	142	1371340	22.4284	ug/mL	90
35) 1-Methylnaphthalene	8.547	142	1294357	22.7193	ug/mL	89
37) Hexachlorocyclopentadiene	8.622	237	730491	38.3077	ug/mL	97
38) 2,4,6-Trichlorophenol	8.766	196	798286	38.3238	ug/mL	95

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF10.D
Acq On : 15 Aug 2014 7:04 pm
Operator :
Sample : ICAL,S25411
Misc : ICAL
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 16 14:29:24 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.809	196	868449	39.7747	ug/mL	91
40) 2-Fluorobiphenyl	8.867	172	1550934	21.9441	ug/mL	97
41) 2-Chloronaphthalene	9.028	162	1268449	21.3863	ug/mL	94
42) 2-Nitroaniline	9.145	65	835944	37.7584	ug/mL	94
43) Dimethylphthalate	9.370	163	2776161	41.1987	ug/mL	97
44) 2,6-Dinitrotoluene	9.444	165	663328	41.0953	ug/mL	91
45) Acenaphthylene	9.551	152	2090101	26.2053	ug/mL	98
46) 3-Nitroaniline	9.663	138	729802m	45.4424	ug/mL	
47) Acenaphthene	9.770	154	1362784	22.0217	ug/mL	95
48) 2,4-Dinitrophenol	9.786	184	321772	30.3205	ug/mL #	1
49) 4-Nitrophenol	9.856	109	394329	35.3771	ug/mL #	78
50) Dibenzofuran	9.984	168	1770210	20.6159	ug/mL	79
51) 2,4-Dinitrotoluene	9.952	165	890598	41.7696	ug/mL	95
52) 2,3,4,6-Tetrachlorophenol	10.134	232	664296	38.2105	ug/mL	89
53) Diethylphthalate	10.240	149	1529623	21.8682	ug/mL	99
54) 4-Chlorophenyl-phenylether	10.395	204	677336	20.3402	ug/mL #	71
55) Fluorene	10.411	166	1506026	20.3607	ug/mL	87
56) 4-Nitroaniline	10.433	138	741609	45.9471	ug/mL #	2
57) 2,4,6-Tribromophenol	10.716	330	200602	18.1476	ug/mL #	81
59) 4,6-Dinitro-2-methylphenol	10.470	198	473358	33.7993	ug/mL	90
60) N-Nitrosodiphenylamine	10.545	169	1102869	22.4057	ug/mL	92
61) Azobenzene	10.598	77	1659345	20.2067	ug/mL	93
62) 4-Bromophenyl-phenylether	11.015	248	398980	18.8238	ug/mL #	81
63) Hexachlorobenzene	11.122	284	831639	39.3548	ug/mL	91
64) Pentachlorophenol	11.352	266	561456	36.3977	ug/mL	97
65) Phenanthrene	11.624	178	2085941	21.5130	ug/mL	96
66) Anthracene	11.688	178	2119154	22.5701	ug/mL	93
67) Carbazole	11.880	167	3707603	47.4439	ug/mL	83
68) Di-n-butylphthalate	12.286	149	2674550	23.5131	ug/mL	97
69) Fluoranthene	13.120	202	2304211	21.3945	ug/mL	99
71) Benzidine	13.264	184	1131720	45.3062	ug/mL	92
72) Pyrene	13.408	202	2548920	22.5139	ug/mL	91
73) Terphenyl-d14	13.574	244	1747864	22.0552	ug/mL	87
74) Butylbenzylphthalate	14.172	149	1242200	23.2167	ug/mL	96
75) 3,3'-Dichlorobenzidine	14.958	252	1502518	45.8109	ug/mL	97
76) Benzo(a)anthracene	15.016	228	2193616	20.2552	ug/mL	99
77) bis(2-Ethylhexyl)phthalate	14.984	149	1780088	24.6835	ug/mL	96
78) Chrysene	15.080	228	2056275	20.5606	ug/mL	95
80) Di-n-octylphthalate	16.154	149	2990595	24.4748	ug/mL	97
81) Benzo(b)fluoranthene	17.068	252	2061046	20.6234	ug/mL	97
82) Benzo(k)fluoranthene	17.132	252	1966658	20.6862	ug/mL	99
83) Benzo(a)pyrene	17.848	252	2002359	23.7406	ug/mL	98
84) Indeno(1,2,3-cd)pyrene	21.026	276	2258538	21.4167	ug/mL	93

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF10.D
Acq On : 15 Aug 2014 7:04 pm
Operator :
Sample : ICAL,S25411
Misc : ICAL
ALS Vial : 10 Sample Multiplier: 1

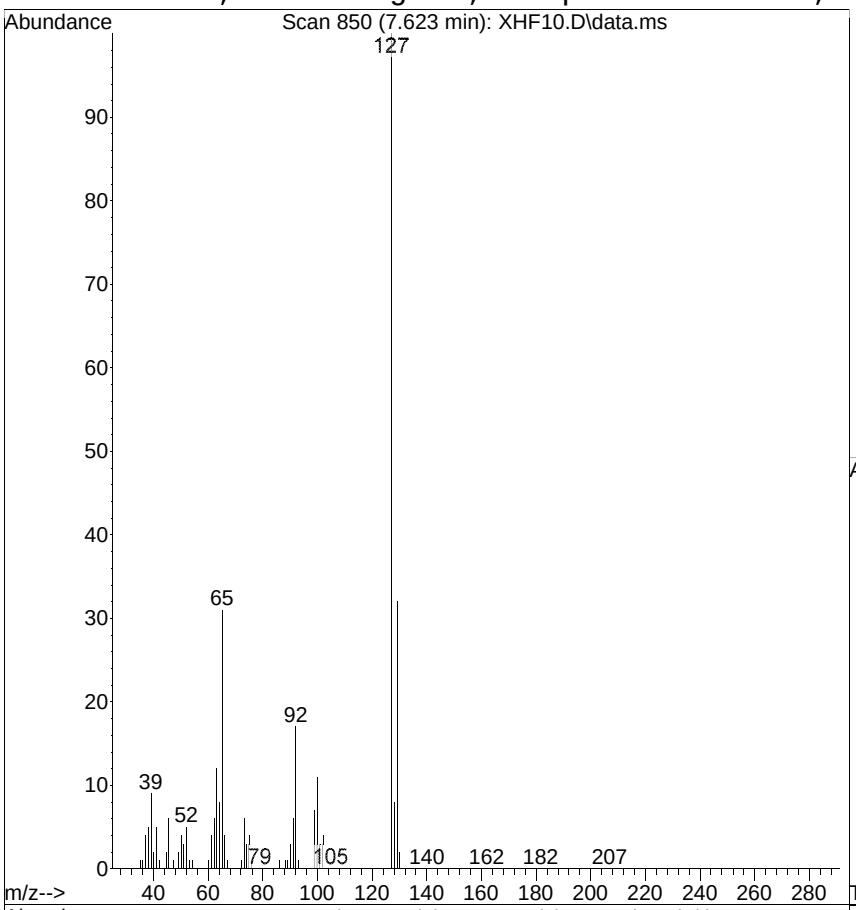
Quant Time: Aug 16 14:29:24 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.101	278	1888708	20.3774	ug/mL	95
86) Benzo(g,h,i)perylene	21.817	276	1855163	21.7345	ug/mL	92

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

[4-Chloroaniline; 40.00 ug/mL; response=1711407; MI]

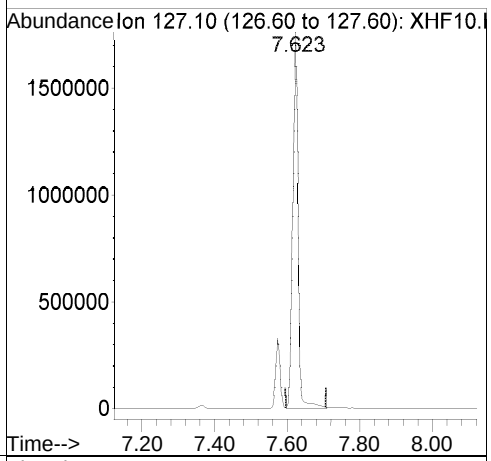
Raw



#30
4-Chloroaniline
Concen: 44.1607 ug/mL m
RT: 7.623 min Scan# 850
Delta R.T. -0.000 min
Lab File: XHF10.D
Acq: 15 Aug 2014 7:04 pm

Tgt Ion:127 Resp: 1711407

Ion	Ratio	Lower	Upper
127	100		
129	32.3	11.0	51.0
65	30.5	3.0	43.0



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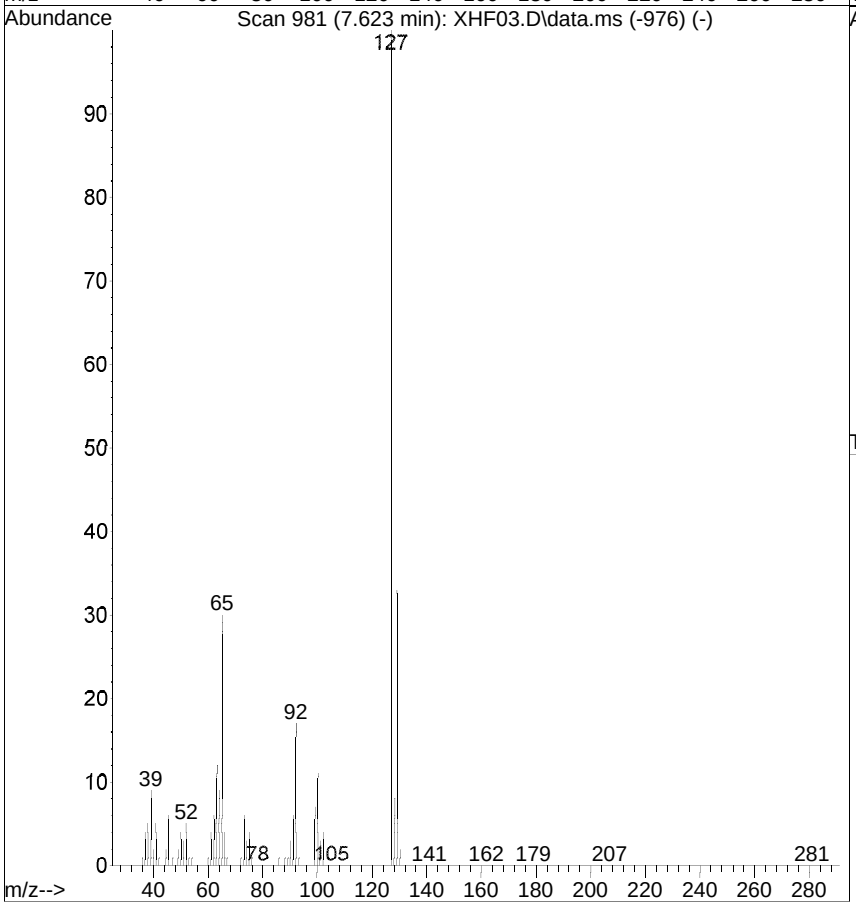
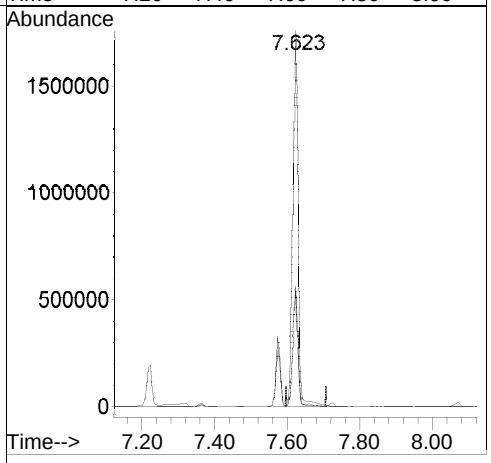
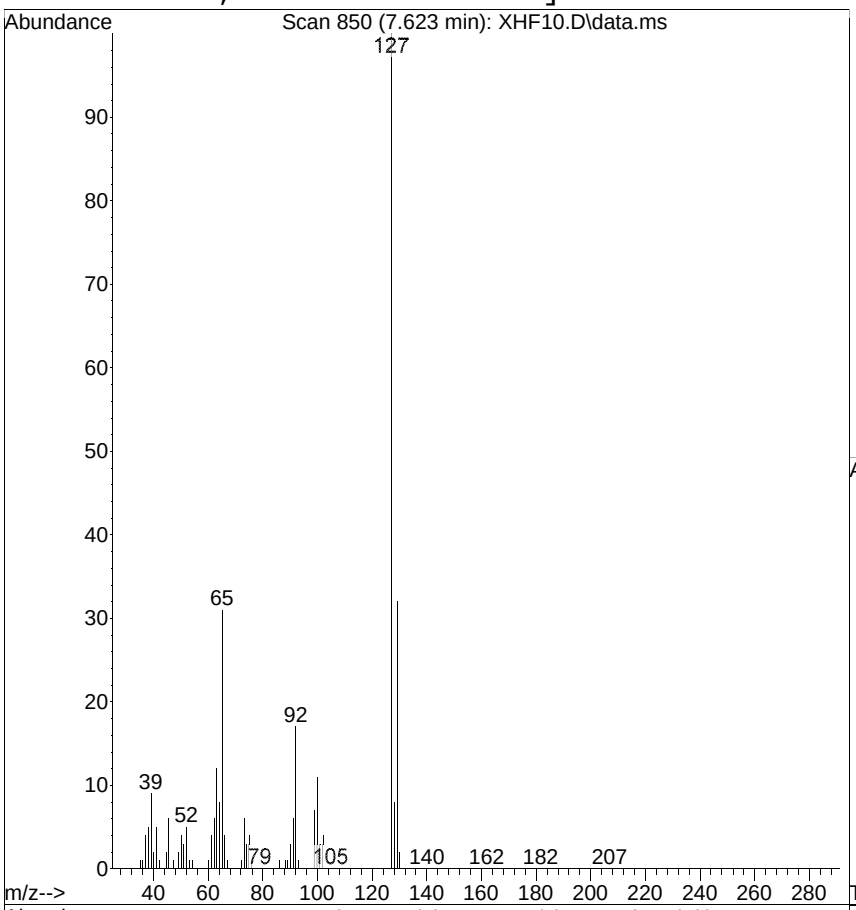




[4-Chloroaniline; before version]

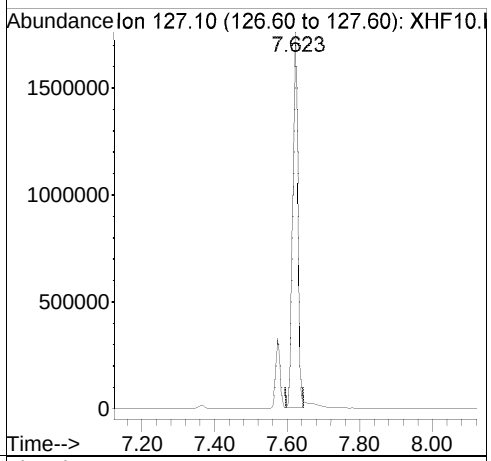
Raw



#30
4-Chloroaniline
Concen: 42.4931 ug/mL
RT: 7.623 min Scan# 850
Delta R.T. -0.000 min
Lab File: XHF10.D
Acq: 15 Aug 2014 7:04 pm

Tgt Ion:127 Resp: 1639549

Ion	Ratio	Lower	Upper
127	100		
129	32.3	11.0	51.0
65	30.5	3.0	43.0



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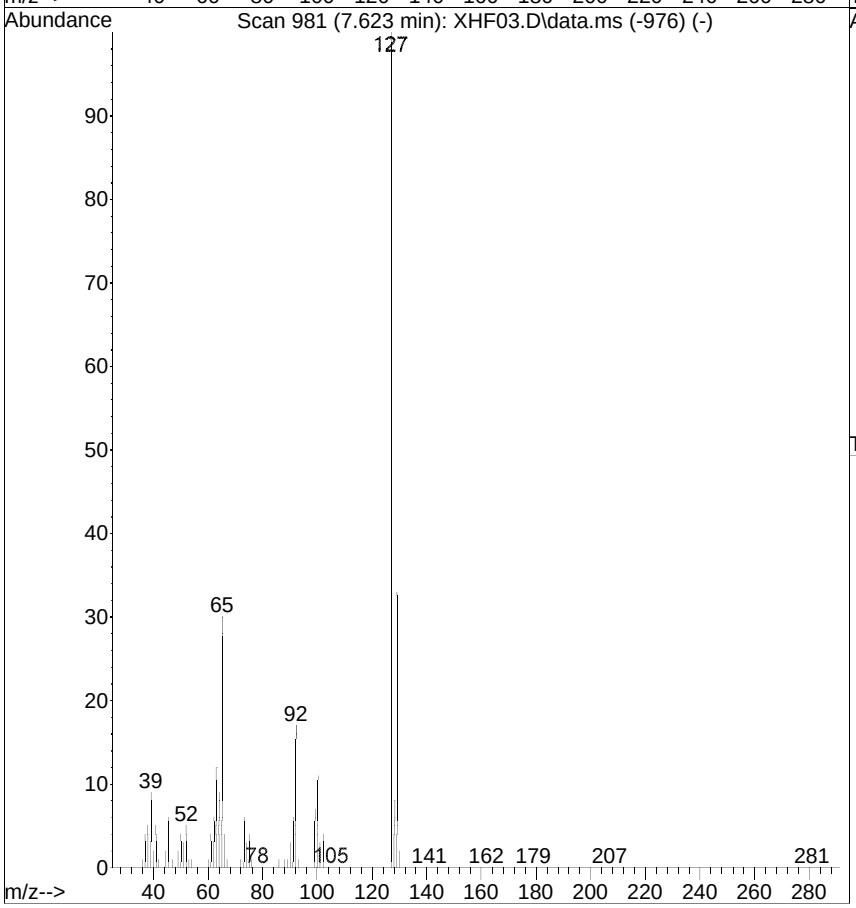
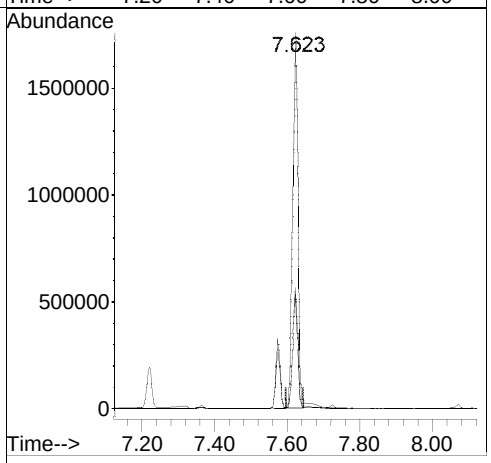
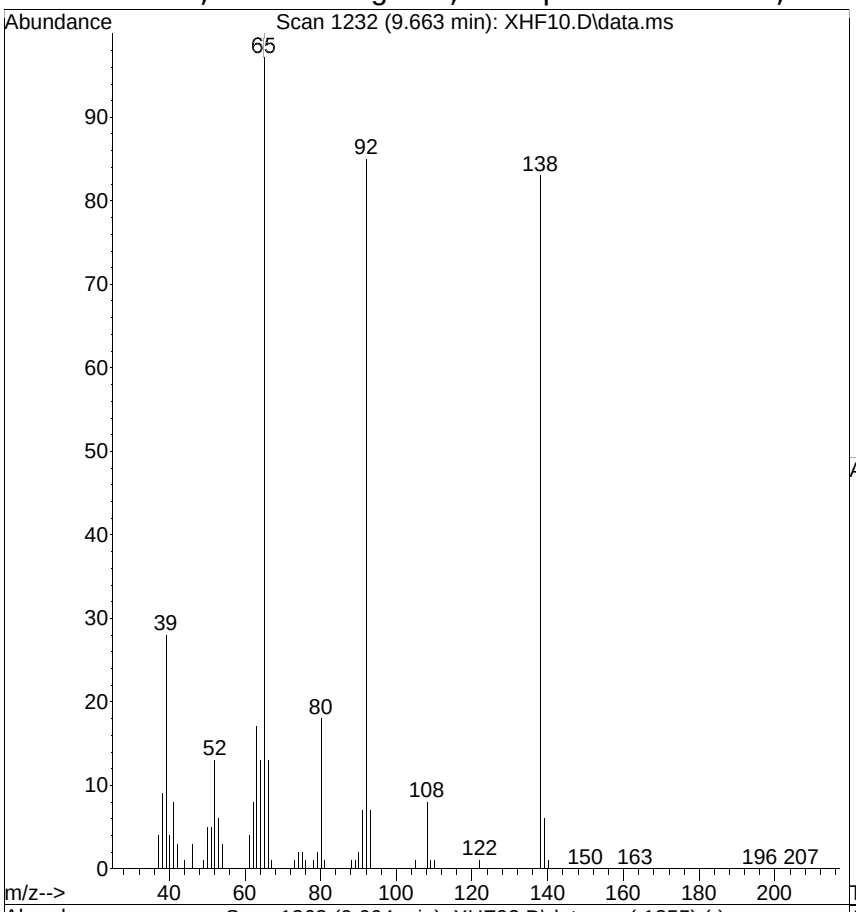




[3-Nitroaniline; 40.00 ug/mL; response=729802; MI]

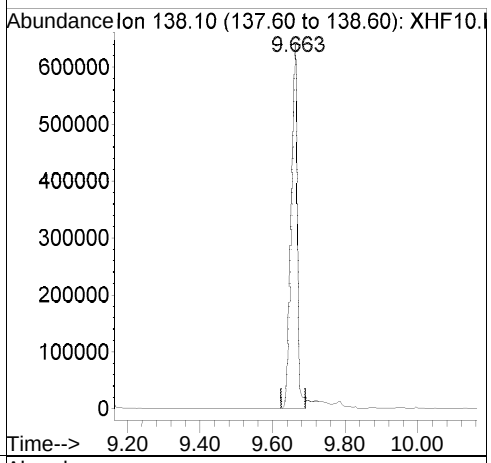
Raw



#46
3-Nitroaniline
Concen: 45.4424 ug/mL m
RT: 9.663 min Scan# 1232
Delta R.T. -0.000 min
Lab File: XHF10.D
Acq: 15 Aug 2014 7:04 pm

Tgt Ion:138 Resp: 729802

Ion	Ratio	Lower	Upper
138	100		
108	9.4	0.0	35.0
92	102.6	131.0	171.0#



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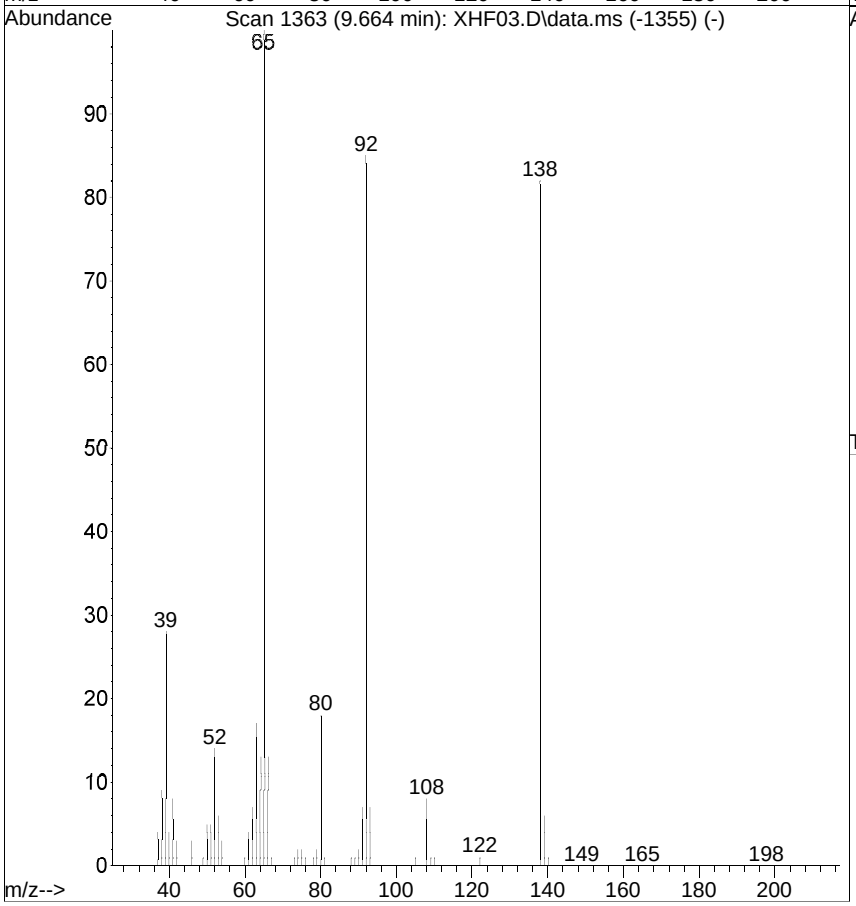
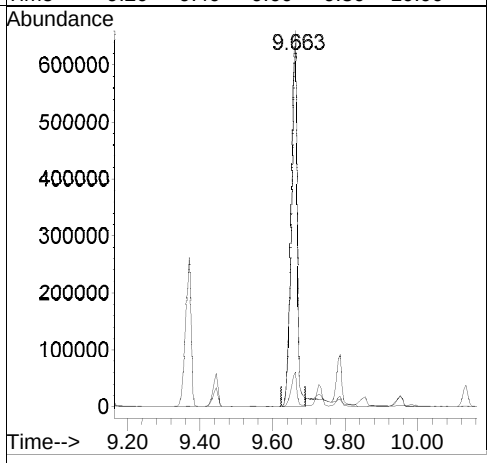
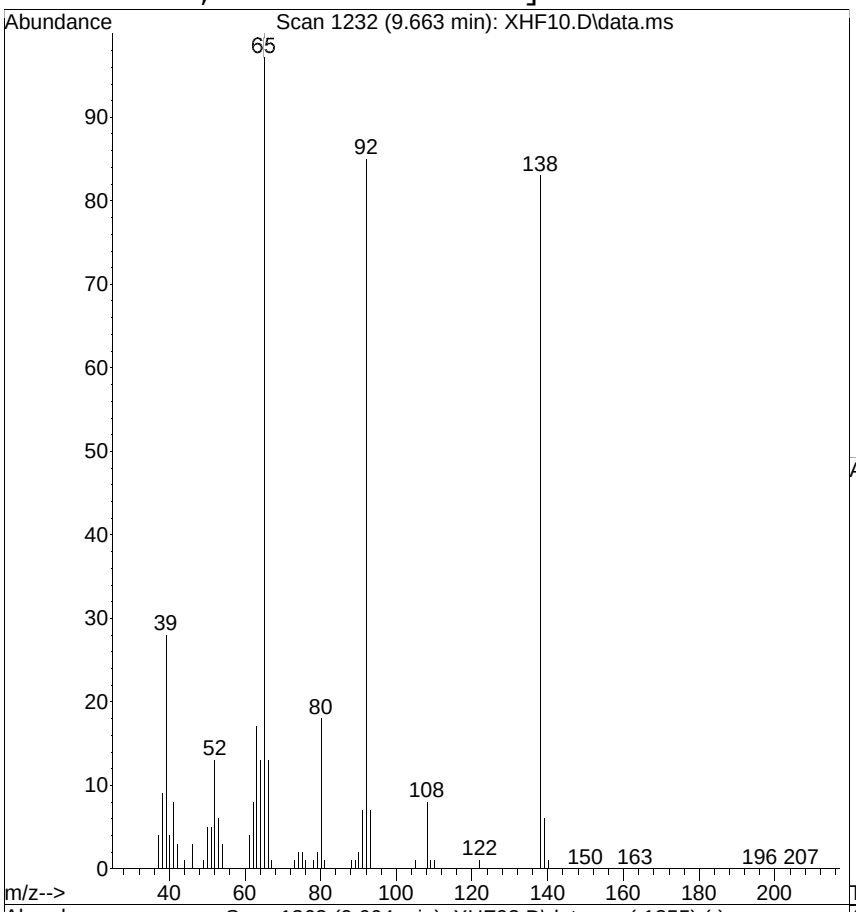




[3-Nitroaniline; before version]

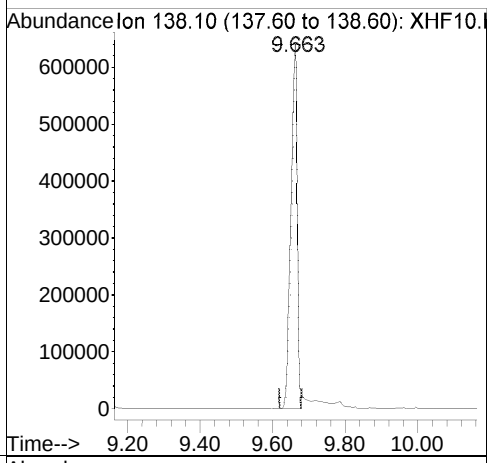
Raw



#46
3-Nitroaniline
Concen: 44.9010 ug/mL
RT: 9.663 min Scan# 1232
Delta R.T. -0.000 min
Lab File: XHF10.D
Acq: 15 Aug 2014 7:04 pm

Tgt Ion:138 Resp: 718255

Ion	Ratio	Lower	Upper
138	100		
108	9.4	0.0	35.0
92	102.6	131.0	171.0#



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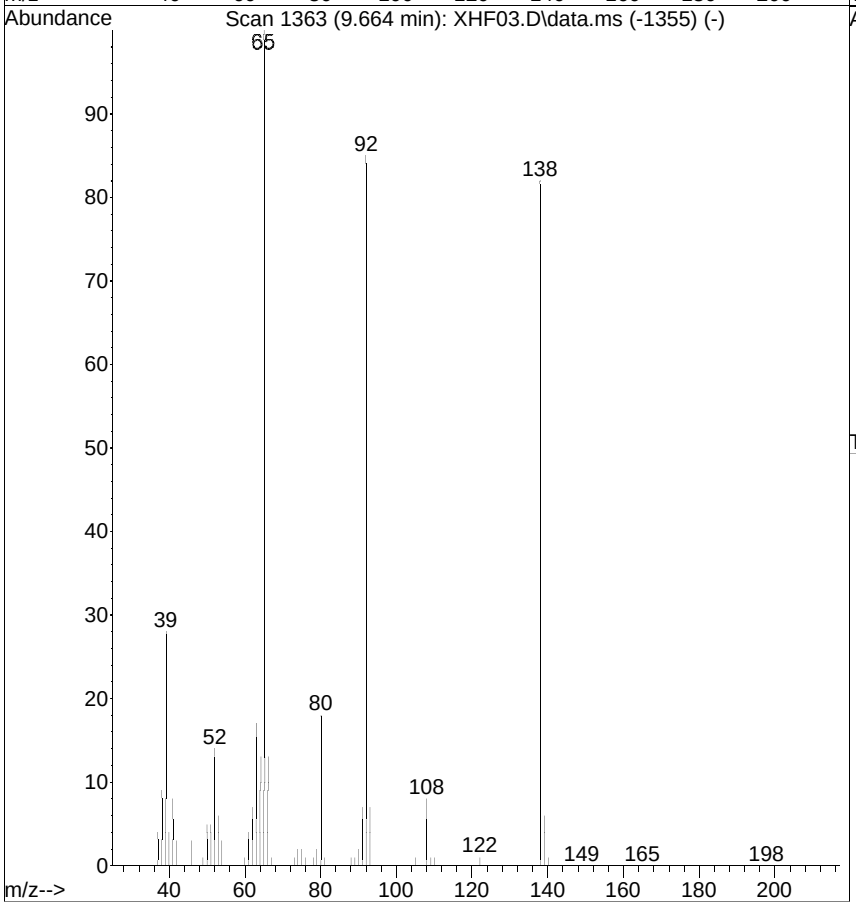
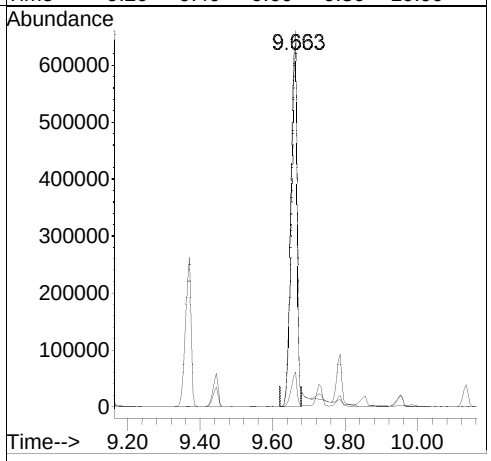
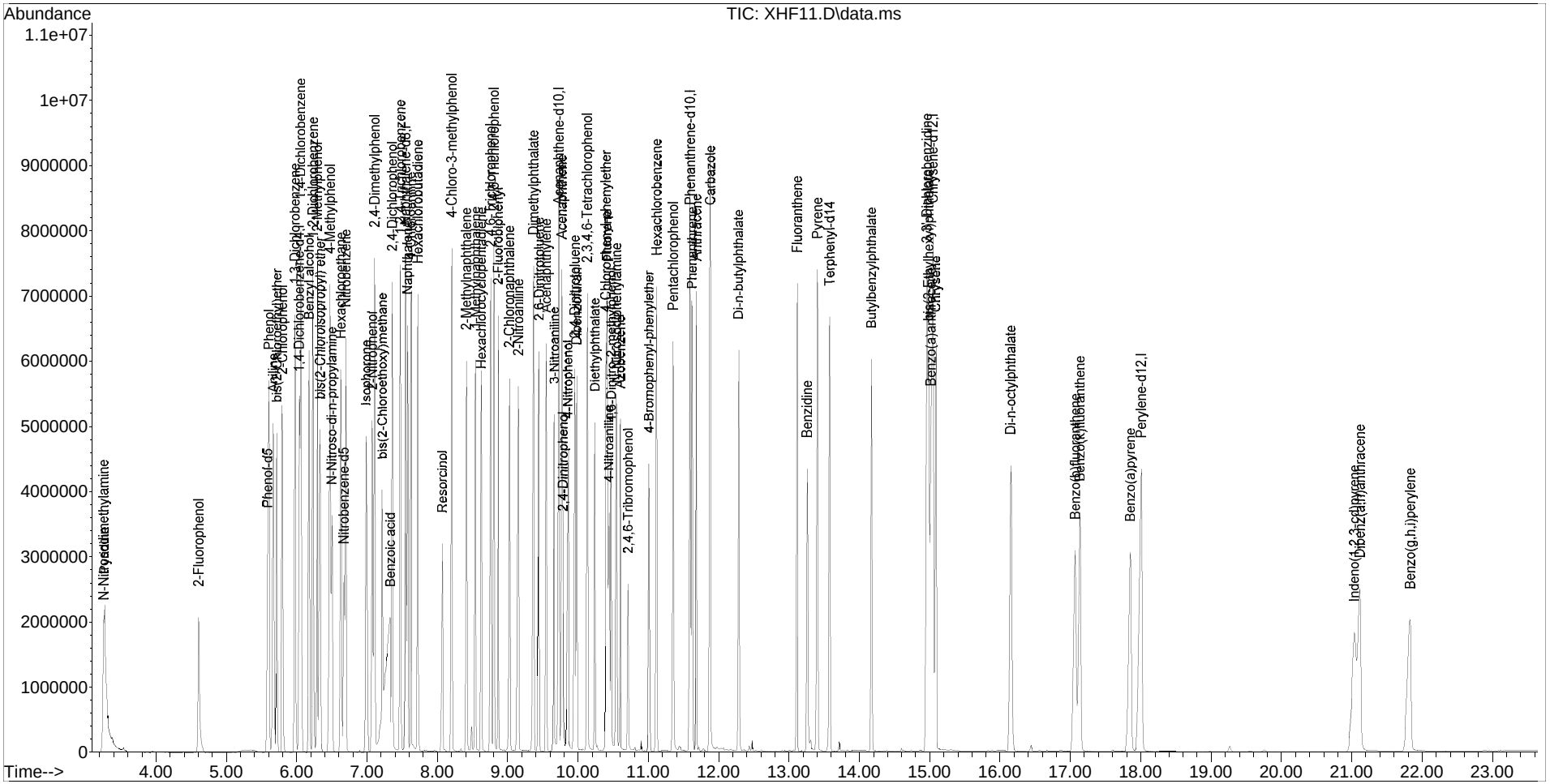




Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF11.D
Acq On : 15 Aug 2014 7:42 pm
Operator :
Sample : ICAL,S25412
Misc : ICAL
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 16 14:33:28 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF11.D
Acq On : 15 Aug 2014 7:42 pm
Operator :
Sample : ICAL,S25412
Misc : ICAL
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 16 14:33:28 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.036	152	1031318	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.548	136	3900538	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.733	164	2287286	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.598	188	3792150	40.0000	ug/mL	0.00
70) Chrysene-d12	15.043	240	4068719	40.0000	ug/mL	0.00
79) Perylene-d12	18.008	264	3663483	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.274	79	1873429	50.3021	ug/mL	90
3) N-Nitrosodimethylamine	3.258	42	860328	46.2185	ug/mL	# 74
4) 2-Fluorophenol	4.605	112	859952	28.1042	ug/mL	# 73
5) Phenol-d5	5.593	99	1071109	26.0306	ug/mL	79
6) Phenol	5.609	94	2164763	49.9763	ug/mL	79
7) Aniline	5.668	93	2618309m	54.4438	ug/mL	
8) bis(2-Chloroethyl)ether	5.721	93	1582389	50.0942	ug/mL	92
9) 2-Chlorophenol	5.801	128	1805977	51.5368	ug/mL	96
10) 1,3-Dichlorobenzene	5.978	146	1970271	49.0151	ug/mL	96
11) 1,4-Dichlorobenzene	6.058	146	1955892	47.0491	ug/mL	90
12) Benzyl alcohol	6.186	108	1196086	54.1889	ug/mL	93
13) 1,2-Dichlorobenzene	6.239	146	1907714	48.8432	ug/mL	97
14) 2-Methylphenol	6.298	107	1472425	51.5667	ug/mL	97
15) bis(2-Chloroisopropyl) ether	6.335	45	2359750	59.4268	ug/mL	94
16) 4-Methylphenol	6.480	107	2124915	52.3371	ug/mL	90
17) N-Nitroso-di-n-propylamine	6.506	70	1084529	47.4779	ug/mL	85
18) Hexachloroethane	6.635	117	843583	48.7840	ug/mL	99
20) Nitrobenzene-d5	6.677	82	1094604	26.1724	ug/mL	# 76
21) Nitrobenzene	6.704	77	1988405	45.4881	ug/mL	91
22) Isophorone	6.993	82	3556950	54.1306	ug/mL	99
23) 2-Nitrophenol	7.078	139	1009403	50.7760	ug/mL	86
24) 2,4-Dimethylphenol	7.110	107	1721152	49.8333	ug/mL	87
25) bis(2-Chloroethoxy)methane	7.222	93	1052840	26.6938	ug/mL	96
26) Benzoic acid	7.340	105	2728374	105.0464	ug/mL	93
27) 2,4-Dichlorophenol	7.367	162	1509588	50.6246	ug/mL	97
28) 1,2,4-Trichlorobenzene	7.479	180	1561036	47.9360	ug/mL	97
29) Naphthalene	7.575	128	2668780	28.0002	ug/mL	94
30) 4-Chloroaniline	7.628	127	2276088m	53.1180	ug/mL	
31) Hexachlorobutadiene	7.724	225	817522	45.8573	ug/mL	98
32) Resorcinol	8.077	110	1276231	60.2513	ug/mL	93
33) 4-Chloro-3-methylphenol	8.205	107	1560066	49.0134	ug/mL	93
34) 2-Methylnaphthalene	8.419	142	1793715	27.0331	ug/mL	90
35) 1-Methylnaphthalene	8.547	142	1709734	27.6539	ug/mL	90
37) Hexachlorocyclopentadiene	8.627	237	969569	46.9450	ug/mL	98
38) 2,4,6-Trichlorophenol	8.766	196	1058151	46.9025	ug/mL	96

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF11.D
Acq On : 15 Aug 2014 7:42 pm
Operator :
Sample : ICAL,S25412
Misc : ICAL
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 16 14:33:28 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.809	196	1125539m	47.5951	ug/mL	
40) 2-Fluorobiphenyl	8.868	172	2009132	26.2466	ug/mL	95
41) 2-Chloronaphthalene	9.028	162	1674279	26.0633	ug/mL	94
42) 2-Nitroaniline	9.151	65	1144077	47.7123	ug/mL	94
43) Dimethylphthalate	9.375	163	3654812	50.0776	ug/mL	97
44) 2,6-Dinitrotoluene	9.450	165	903796	51.6979	ug/mL	86
45) Acenaphthylene	9.551	152	2800202	32.4154	ug/mL	98
46) 3-Nitroaniline	9.669	138	1020962	55.4222	ug/mL #	67
47) Acenaphthene	9.771	154	1731205m	25.8292	ug/mL	
48) 2,4-Dinitrophenol	9.792	184	471244	40.9990	ug/mL #	1
49) 4-Nitrophenol	9.861	109	538369	44.5947	ug/mL #	76
50) Dibenzofuran	9.984	168	2350748	25.2768	ug/mL	79
51) 2,4-Dinitrotoluene	9.957	165	1200291	51.9761	ug/mL	96
52) 2,3,4,6-Tetrachlorophenol	10.134	232	875465	46.4942	ug/mL	90
53) Diethylphthalate	10.246	149	2057007	27.1521	ug/mL	99
54) 4-Chlorophenyl-phenylether	10.401	204	897906	24.8955	ug/mL #	76
55) Fluorene	10.417	166	1976049	24.6659	ug/mL	88
56) 4-Nitroaniline	10.444	138	1032270	59.0494	ug/mL #	1
57) 2,4,6-Tribromophenol	10.716	330	273012	22.8036	ug/mL #	83
59) 4,6-Dinitro-2-methylphenol	10.476	198	656980	43.6947	ug/mL	91
60) N-Nitrosodiphenylamine	10.550	169	1467973	27.7786	ug/mL	91
61) Azobenzene	10.604	77	2211774	25.0875	ug/mL	96
62) 4-Bromophenyl-phenylether	11.015	248	531172	23.3426	ug/mL #	80
63) Hexachlorobenzene	11.122	284	1062999	46.8548	ug/mL	86
64) Pentachlorophenol	11.352	266	750615	45.3246	ug/mL	97
65) Phenanthrene	11.630	178	2718124	26.1112	ug/mL	97
66) Anthracene	11.688	178	2792675	27.7045	ug/mL	93
67) Carbazole	11.886	167	4624708	55.1226	ug/mL	83
68) Di-n-butylphthalate	12.287	149	3525904	28.8727	ug/mL	96
69) Fluoranthene	13.120	202	3042417	26.3122	ug/mL	96
71) Benzidine	13.264	184	1904065	60.4972	ug/mL	93
72) Pyrene	13.409	202	3328268	27.7096	ug/mL	90
73) Terphenyl-d14	13.580	244	2295066	27.2970	ug/mL	91
74) Butylbenzylphthalate	14.173	149	1642080	28.9281	ug/mL	96
75) 3,3'-Dichlorobenzidine	14.963	252	2060904	59.2276	ug/mL	97
76) Benzo(a)anthracene	15.017	228	2890268	25.1554	ug/mL	99
77) bis(2-Ethylhexyl)phthalate	14.985	149	2336871	30.5434	ug/mL	96
78) Chrysene	15.086	228	2668473	25.1498	ug/mL	94
80) Di-n-octylphthalate	16.154	149	3997955	30.7311	ug/mL	95
81) Benzo(b)fluoranthene	17.073	252	2765565	25.9917	ug/mL	97
82) Benzo(k)fluoranthene	17.137	252	2591064	25.5980	ug/mL	98
83) Benzo(a)pyrene	17.853	252	2690347	29.9596	ug/mL	97
84) Indeno(1,2,3-cd)pyrene	21.043	276	3041462	27.0885	ug/mL	91

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF11.D
Acq On : 15 Aug 2014 7:42 pm
Operator :
Sample : ICAL,S25412
Misc : ICAL
ALS Vial : 11 Sample Multiplier: 1

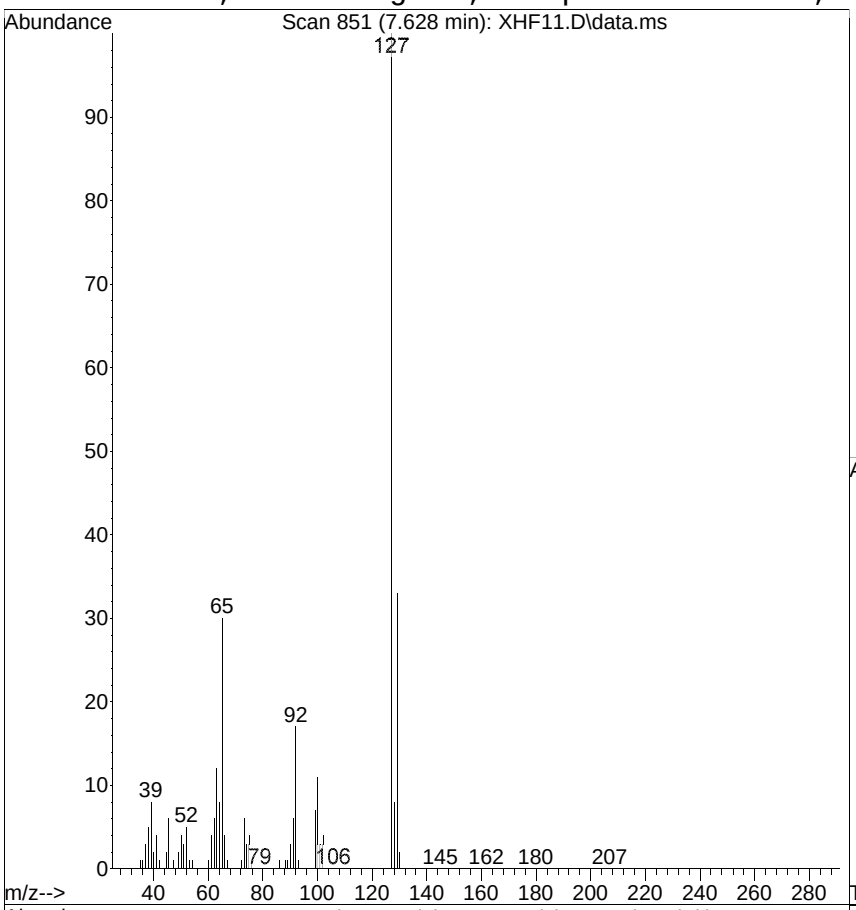
Quant Time: Aug 16 14:33:28 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.117	278	2550766	25.8483	ug/mL	95
86) Benzo(g,h,i)perylene	21.833	276	2500765	27.5181	ug/mL	91

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

[4-Chloroaniline; 50.00 ug/mL; response=2276088; MI]

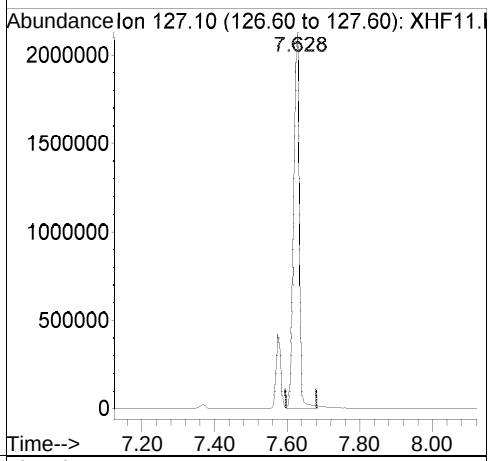
Raw



#30
4-Chloroaniline
Concen: 53.1180 ug/mL m
RT: 7.628 min Scan# 851
Delta R.T. 0.006 min
Lab File: XHF11.D
Acq: 15 Aug 2014 7:42 pm

Tgt Ion:127 Resp: 2276088

Ion	Ratio	Lower	Upper
127	100		
129	32.9	11.0	51.0
65	29.6	3.0	43.0



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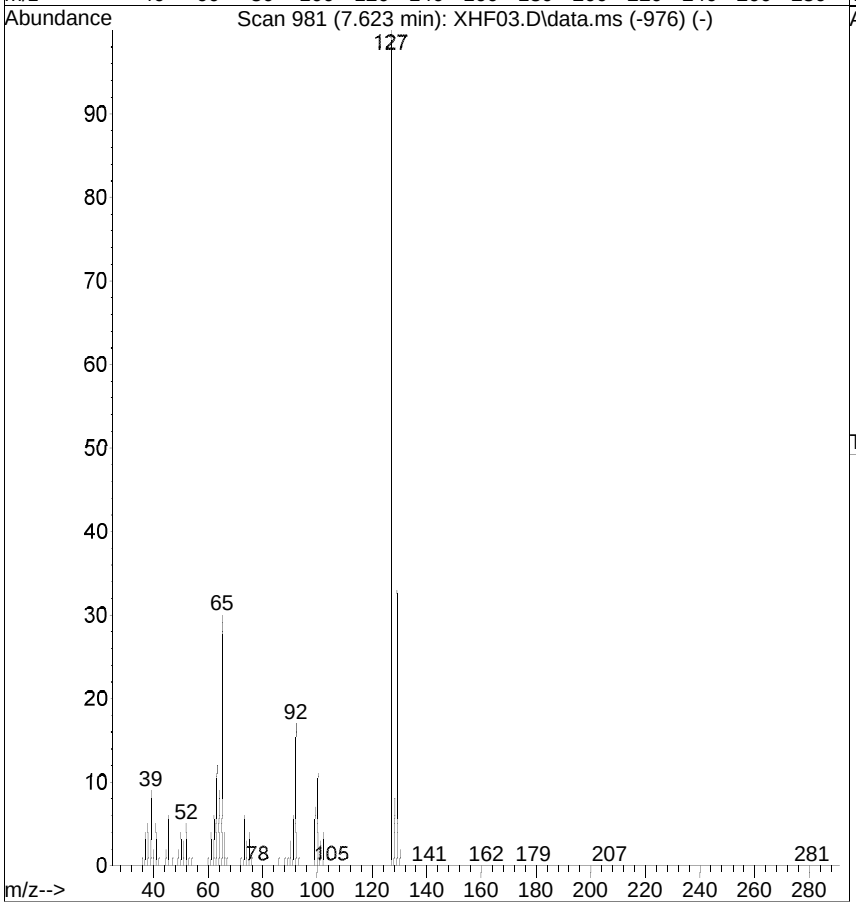
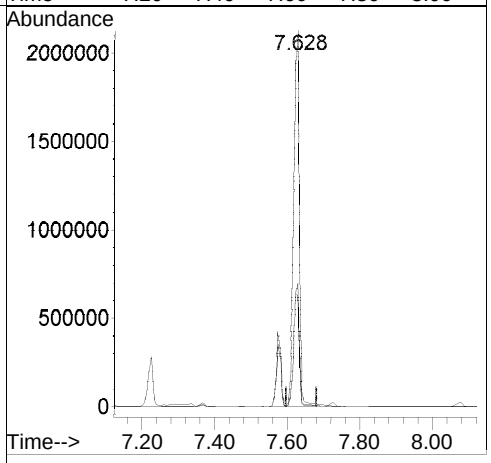
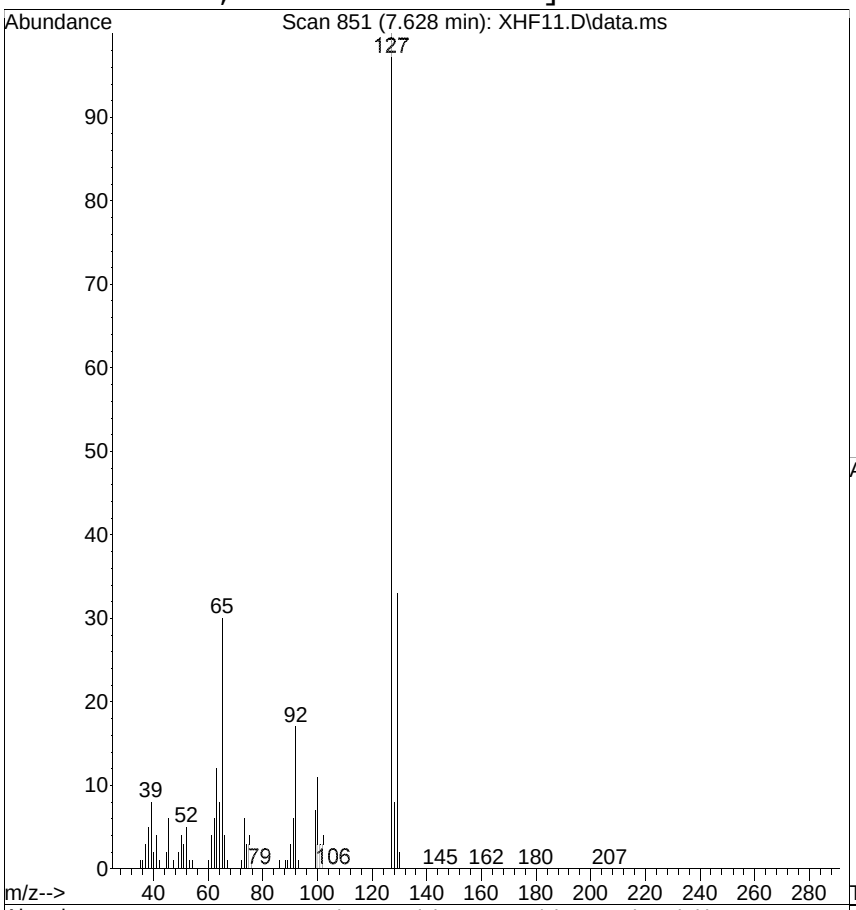




[4-Chloroaniline; before version]

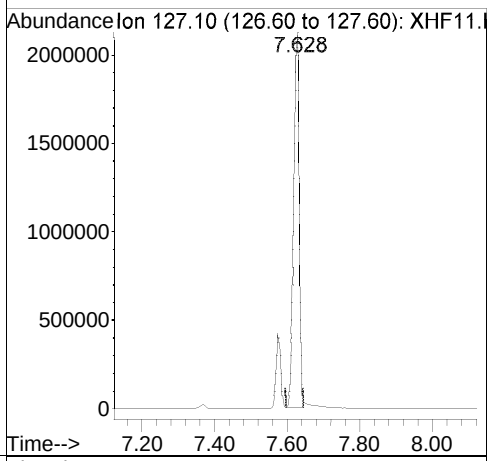
Raw



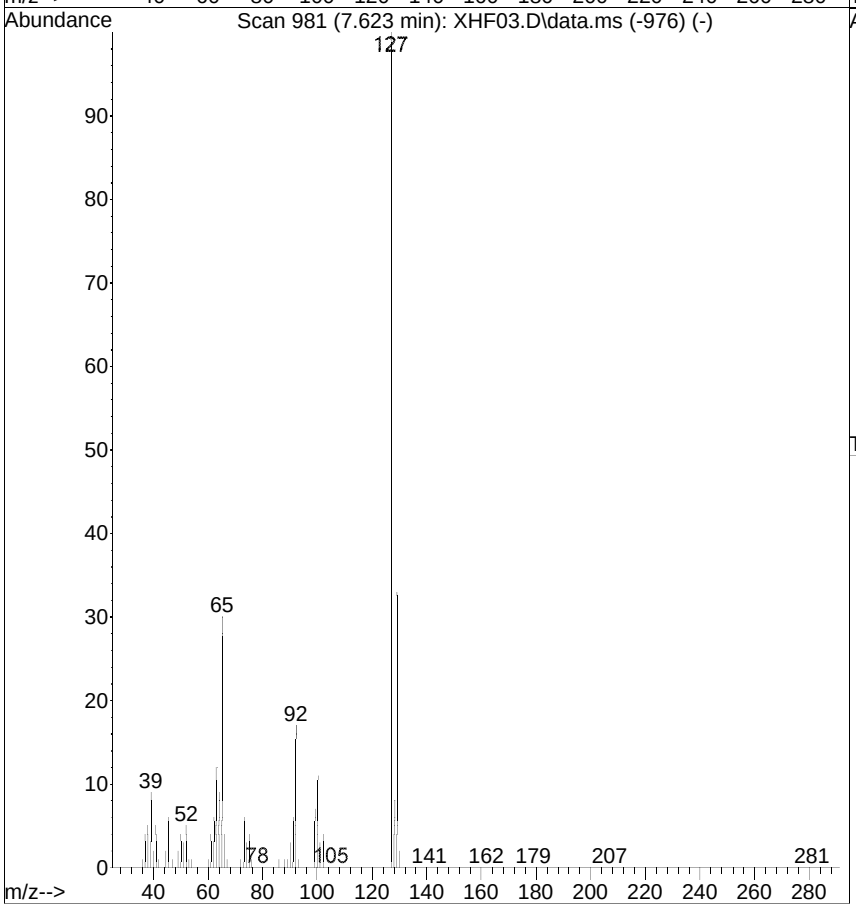
#30
4-Chloroaniline
Concen: 51.9493 ug/mL
RT: 7.628 min Scan# 851
Delta R.T. 0.006 min
Lab File: XHF11.D
Acq: 15 Aug 2014 7:42 pm

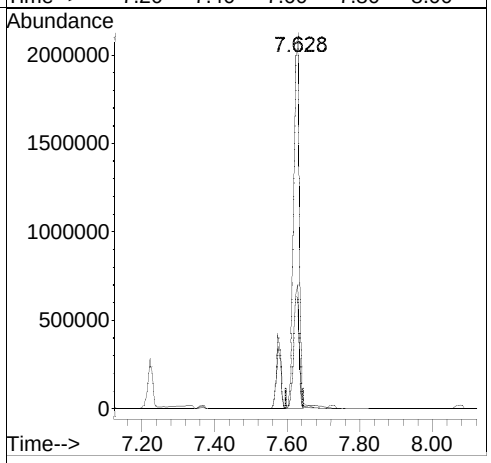
Tgt Ion:127 Resp: 2221434

Ion	Ratio	Lower	Upper
127	100		
129	32.9	11.0	51.0
65	29.6	3.0	43.0



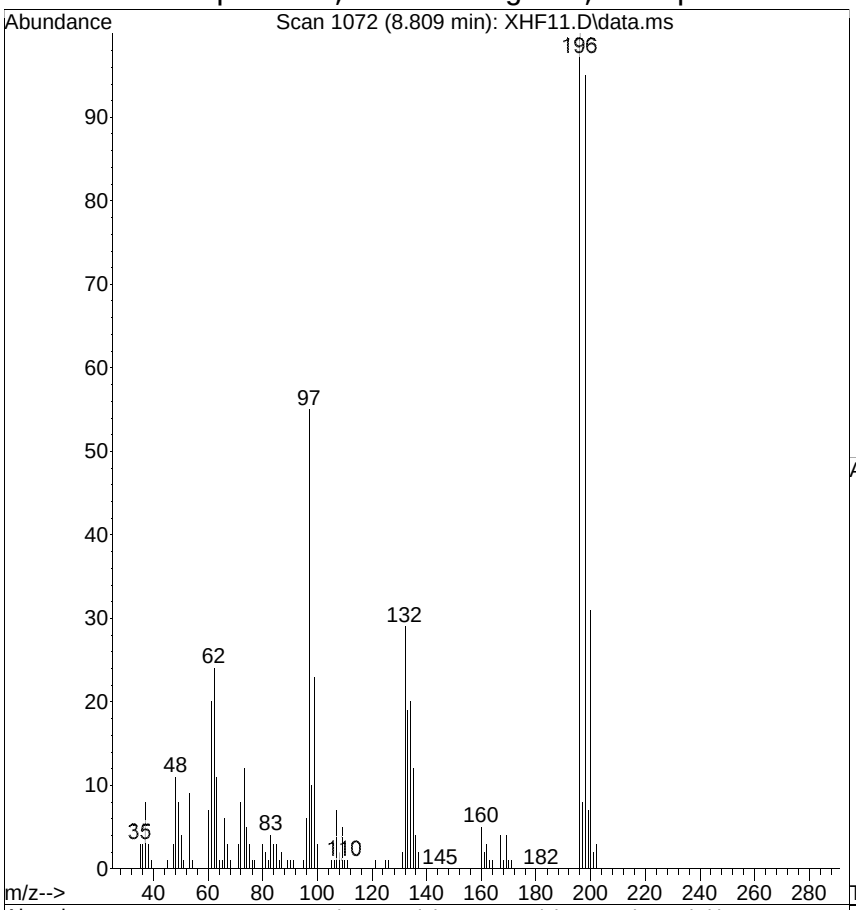
Ref





[2,4,5-Trichlorophenol; 50.00 ug/mL; response=1125539; MI]

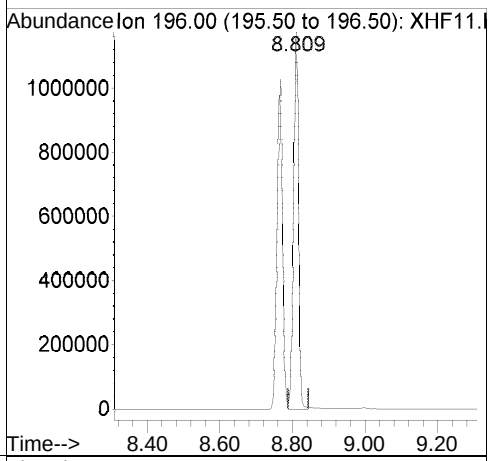
Raw



#39
2,4,5-Trichlorophenol
Concen: 47.5951 ug/mL m
RT: 8.809 min Scan# 1072
Delta R.T. 0.000 min
Lab File: XHF11.D
Acq: 15 Aug 2014 7:42 pm

Tgt Ion:196 Resp: 1125539

Ion	Ratio	Lower	Upper
196	100		
198	95.0	69.0	109.0
97	54.6	21.0	61.0



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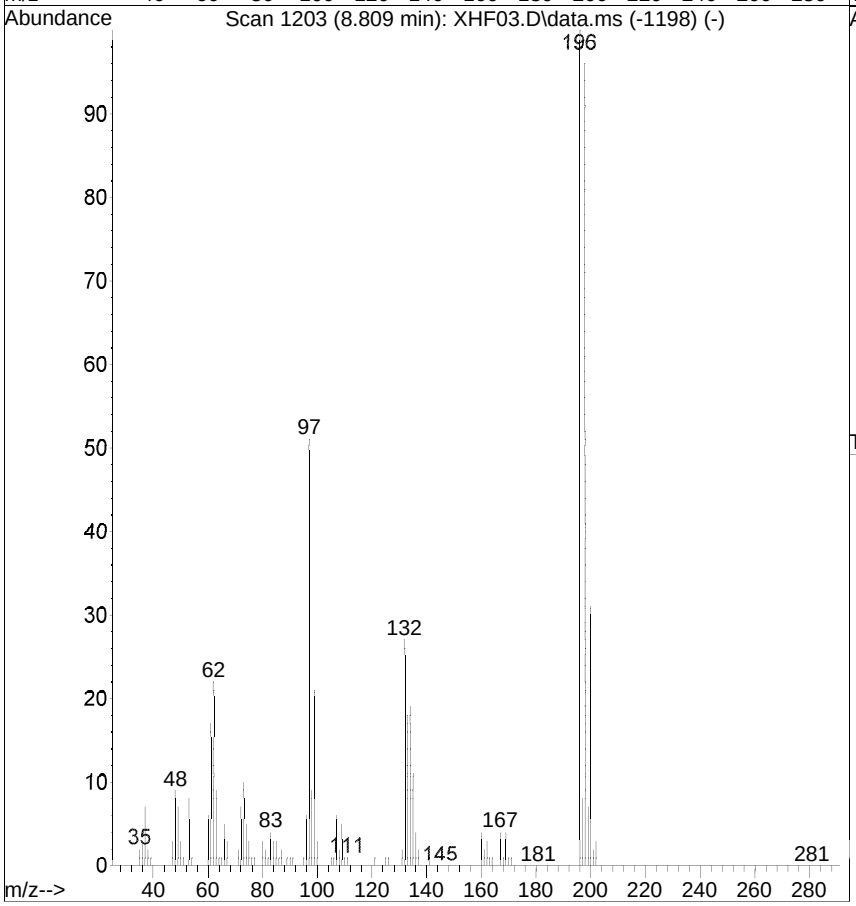
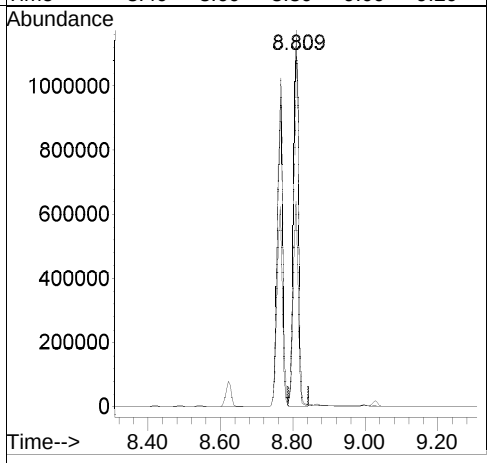
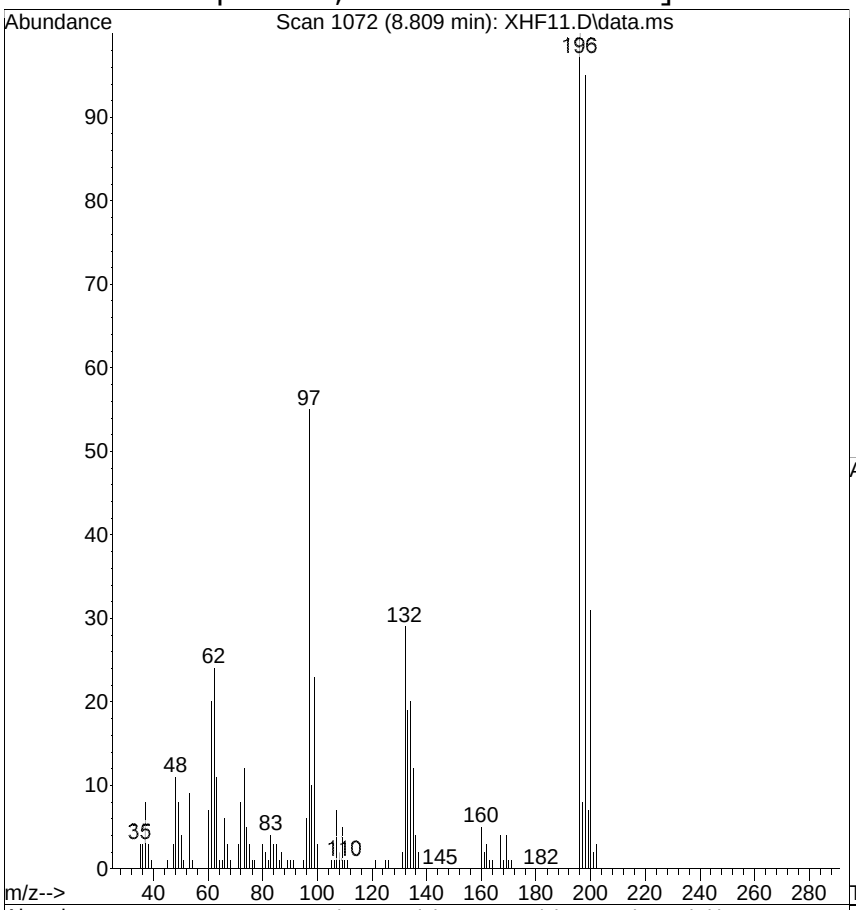




[2,4,5-Trichlorophenol; before version]

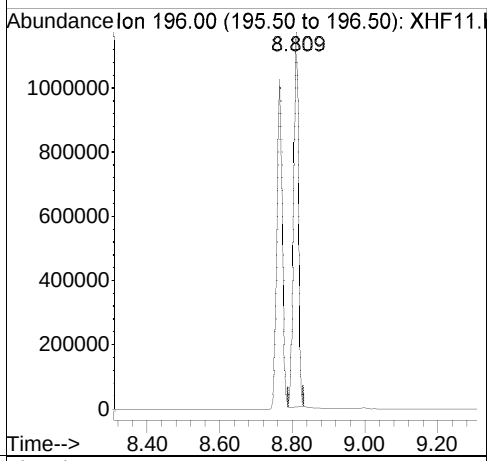
Raw



#39
2,4,5-Trichlorophenol
Concen: 46.6624 ug/mL
RT: 8.809 min Scan# 1072
Delta R.T. 0.000 min
Lab File: XHF11.D
Acq: 15 Aug 2014 7:42 pm

Tgt Ion:196 Resp: 1103482

Ion	Ratio	Lower	Upper
196	100		
198	95.0	69.0	109.0
97	54.6	21.0	61.0



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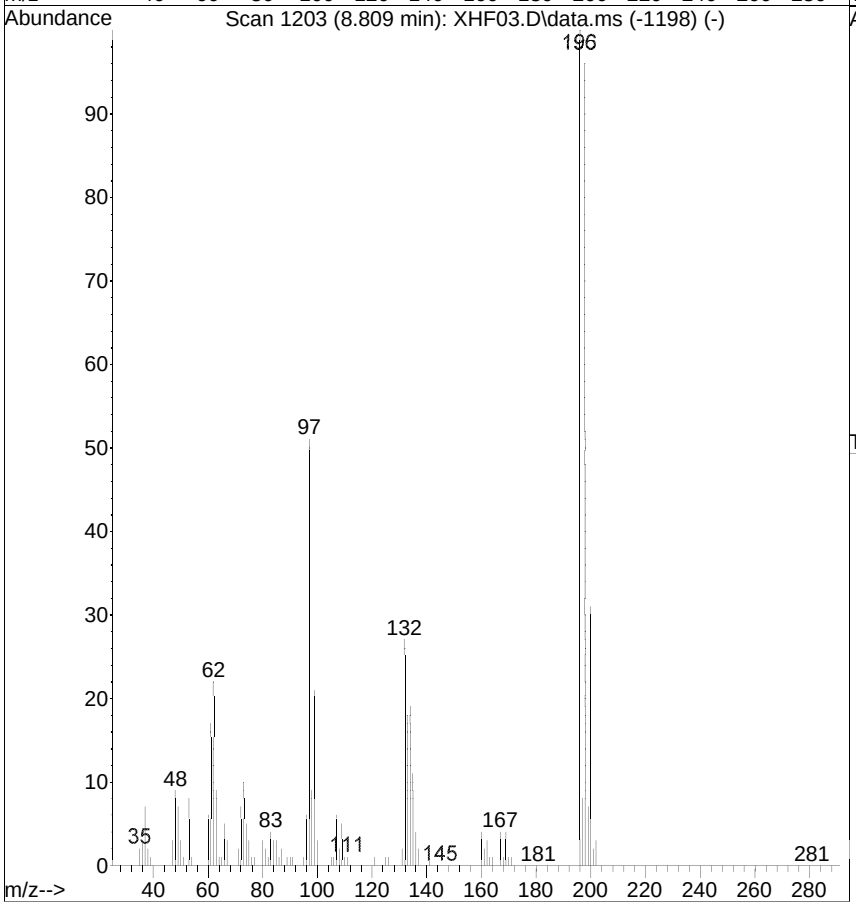
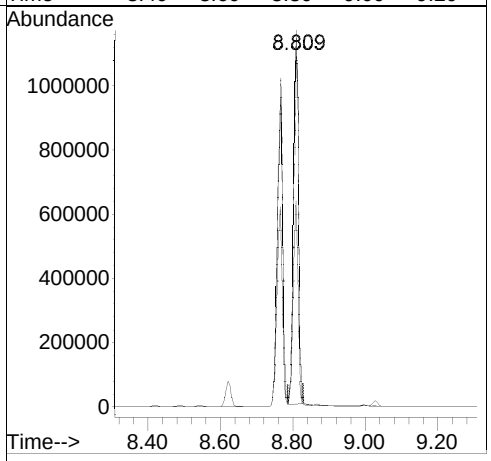
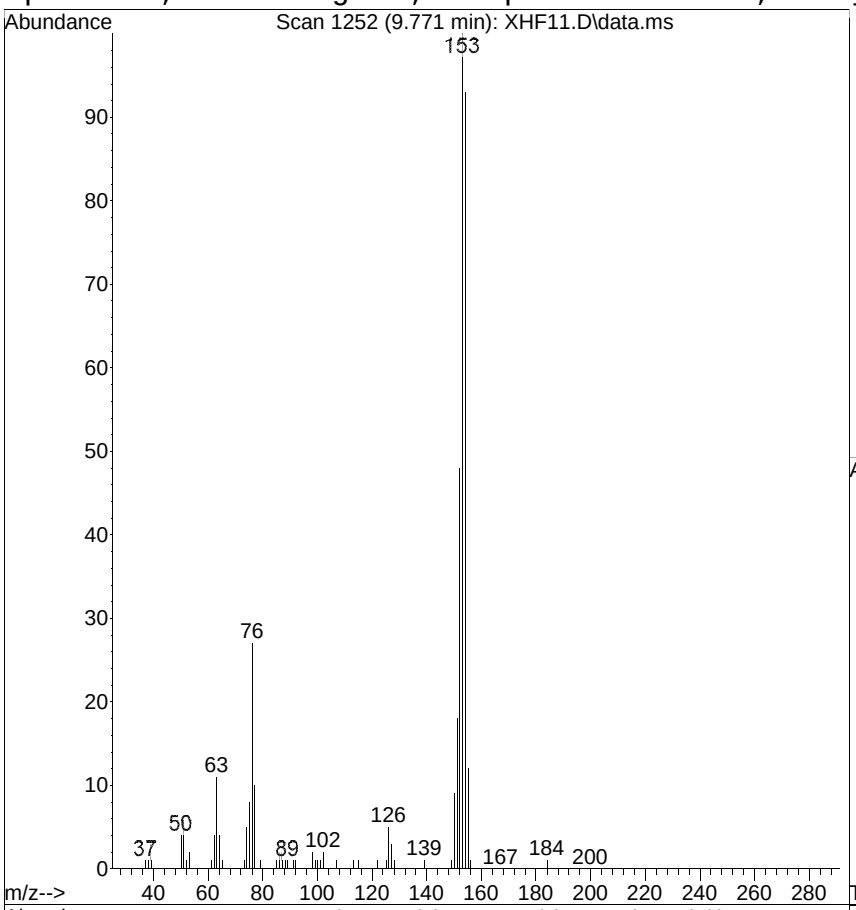




[Acenaphthene; 25.00 ug/mL; response=1731205; MI]

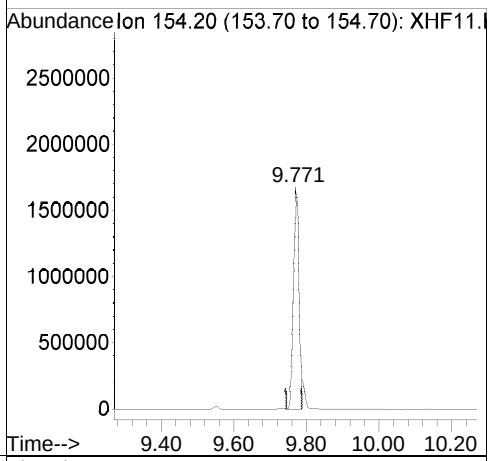
Raw



#47
Acenaphthene
Concen: 25.8292 ug/mL m
RT: 9.771 min Scan# 1252
Delta R.T. 0.000 min
Lab File: XHF11.D
Acq: 15 Aug 2014 7:42 pm

Tgt Ion:154 Resp: 1731205

Ion	Ratio	Lower	Upper
154	100		
153	107.1	83.0	123.0
152	51.4	36.0	76.0



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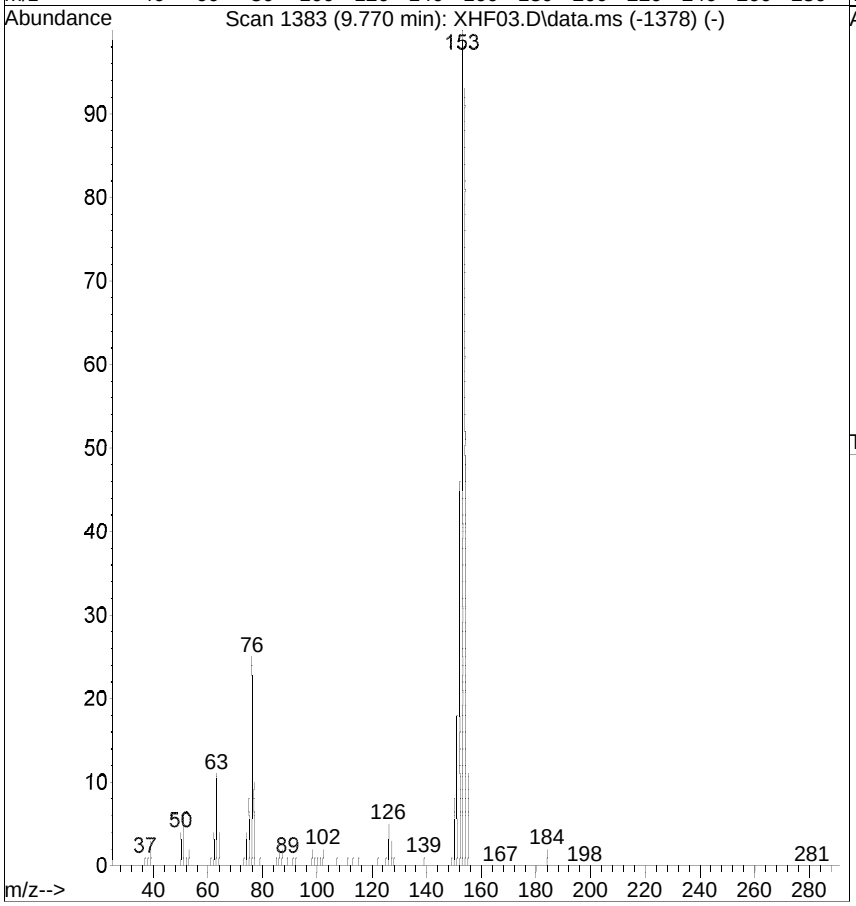
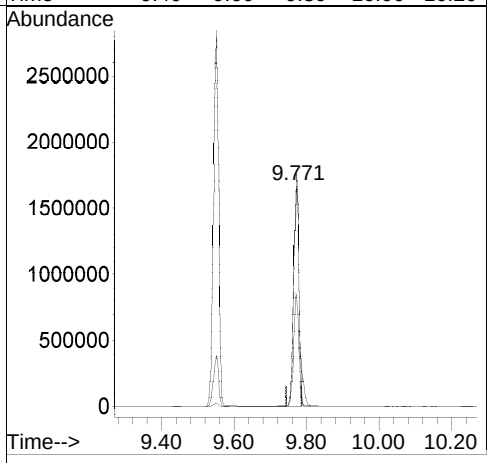
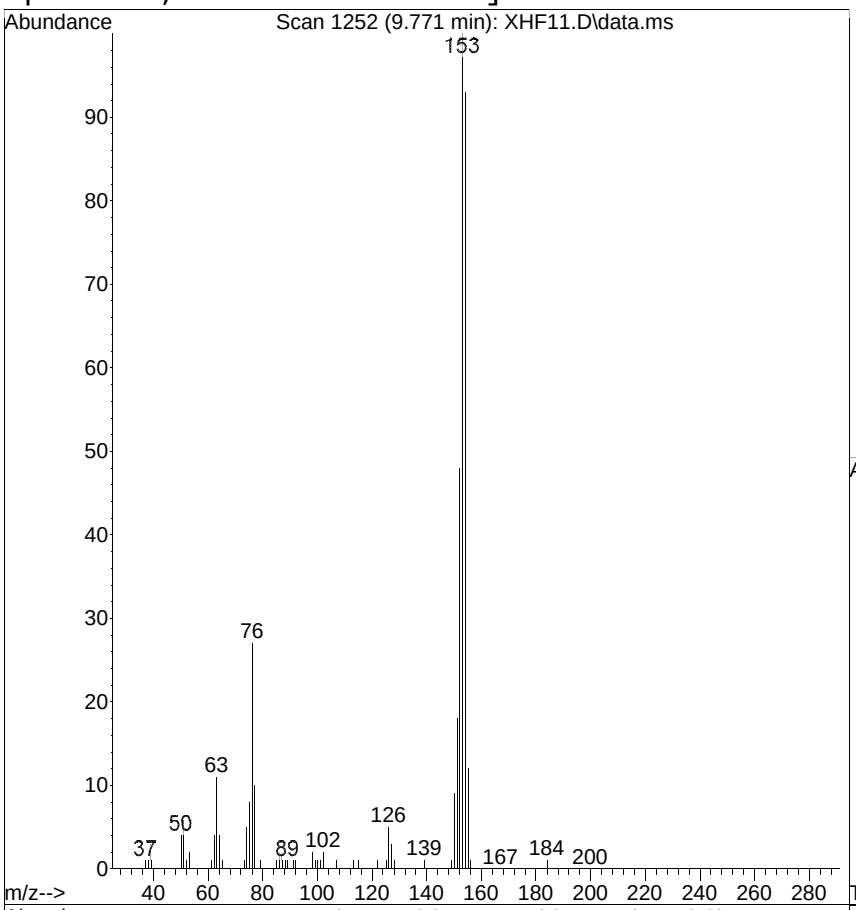




[Acenaphthene; before version]

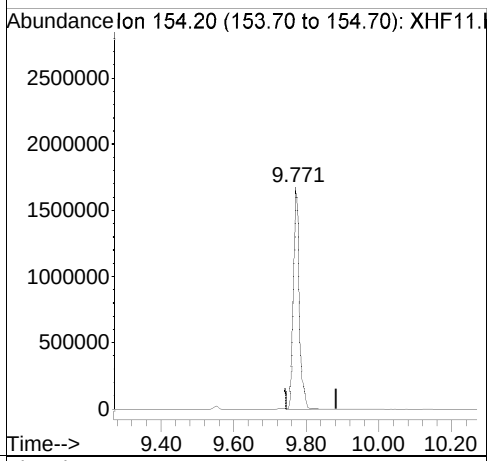
Raw



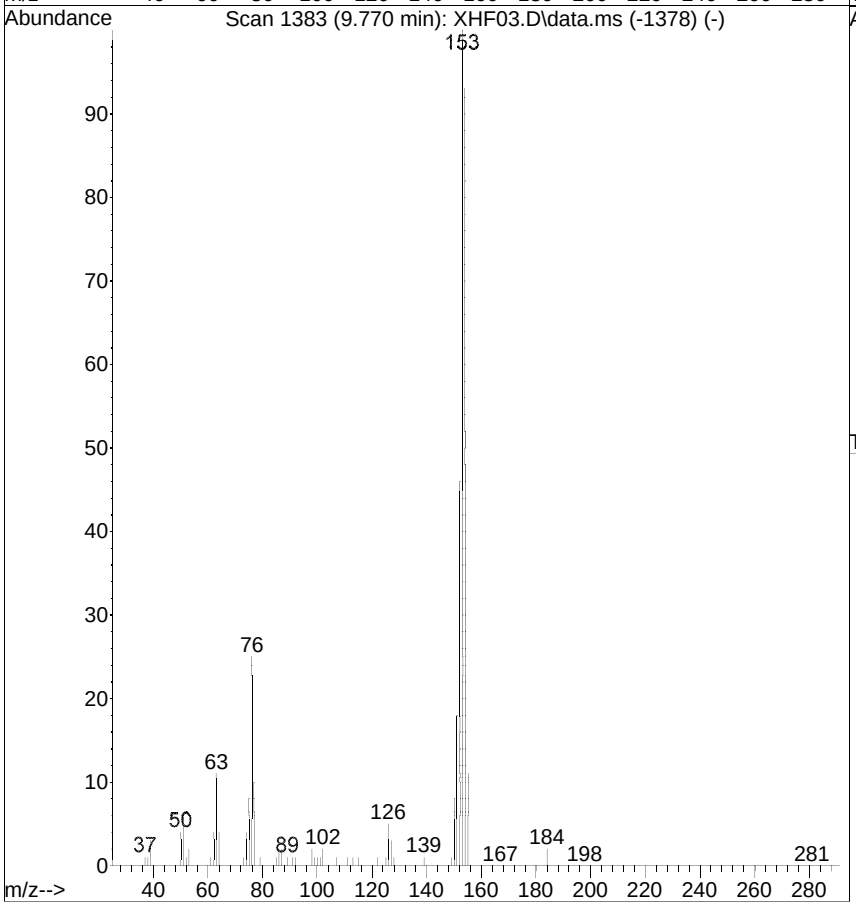
#47
Acenaphthene
Concen: 27.2638 ug/mL
RT: 9.771 min Scan# 1252
Delta R.T. 0.000 min
Lab File: XHF11.D
Acq: 15 Aug 2014 7:42 pm

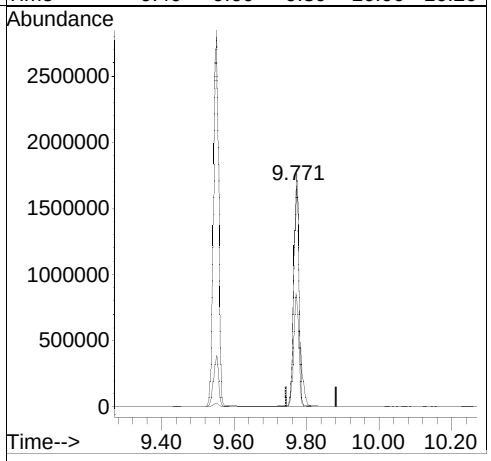
Tgt Ion:154 Resp: 1827357

Ion	Ratio	Lower	Upper
154	100		
153	107.1	83.0	123.0
152	51.4	36.0	76.0



Ref

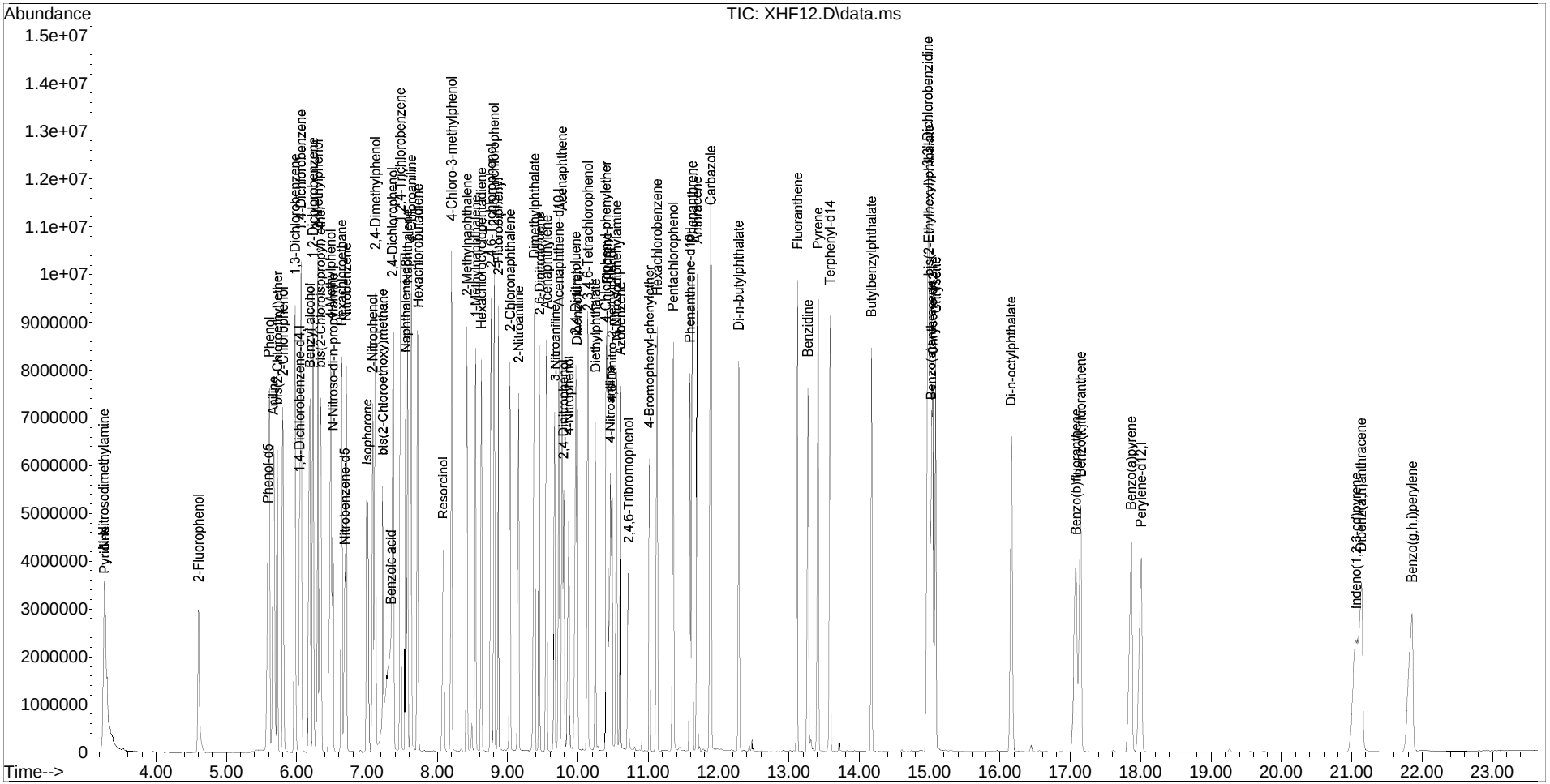




Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF12.D
Acq On : 15 Aug 2014 8:18 pm
Operator :
Sample : ICAL,S25413
Misc : ICAL
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Aug 16 14:32:28 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF12.D
Acq On : 15 Aug 2014 8:18 pm
Operator :
Sample : ICAL,S25413
Misc : ICAL
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Aug 16 14:32:28 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.041	152	958195	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.553	136	3729237	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.733	164	2140328	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.597	188	3592605	40.0000	ug/mL	0.00
70) Chrysene-d12	15.048	240	3679197	40.0000	ug/mL	0.00
79) Perylene-d12	18.013	264	3303554	40.0000	ug/mL	0.01

Target Compounds						Qvalue
2) Pyridine	3.274	79	2897024	83.7221	ug/mL	93
3) N-Nitrosodimethylamine	3.263	42	1298884	75.1037	ug/mL	# 69
4) 2-Fluorophenol	4.610	112	1310148	46.0847	ug/mL	# 72
5) Phenol-d5	5.598	99	1639732	42.8907	ug/mL	79
6) Phenol	5.619	94	3260283	81.0116	ug/mL	79
7) Aniline	5.673	93	4032697m	90.2531	ug/mL	
8) bis(2-Chloroethyl)ether	5.726	93	2358527	80.3626	ug/mL	90
9) 2-Chlorophenol	5.806	128	2700651	82.9493	ug/mL	98
10) 1,3-Dichlorobenzene	5.983	146	2793821	74.8068	ug/mL	96
11) 1,4-Dichlorobenzene	6.063	146	2750415	71.2104	ug/mL	88
12) Benzyl alcohol	6.196	108	1827188	89.0983	ug/mL	93
13) 1,2-Dichlorobenzene	6.239	146	2711306	74.7150	ug/mL	96
14) 2-Methylphenol	6.303	107	2179152	82.1414	ug/mL	97
15) bis(2-Chloroisopropyl) ether	6.340	45	3649799	98.9291	ug/mL	92
16) 4-Methylphenol	6.490	107	3312458	87.8126	ug/mL	91
17) N-Nitroso-di-n-propylamine	6.522	70	1662014	78.3112	ug/mL	84
18) Hexachloroethane	6.640	117	1224568	76.2204	ug/mL	98
20) Nitrobenzene-d5	6.682	82	1686076	42.1666	ug/mL	# 77
21) Nitrobenzene	6.709	77	3044337	72.8435	ug/mL	93
22) Isophorone	7.003	82	5440223	86.5937	ug/mL	99
23) 2-Nitrophenol	7.083	139	1548502	81.4723	ug/mL	85
24) 2,4-Dimethylphenol	7.120	107	2618476	79.2965	ug/mL	87
25) bis(2-Chloroethoxy)methane	7.227	93	1611883	42.7450	ug/mL	95
26) Benzoic acid	7.345	105	3209722	129.2556	ug/mL	95
27) 2,4-Dichlorophenol	7.372	162	2181197	76.5073	ug/mL	98
28) 1,2,4-Trichlorobenzene	7.478	180	2267206	72.8190	ug/mL	96
29) Naphthalene	7.580	128	3912475	42.9342	ug/mL	94
30) 4-Chloroaniline	7.633	127	3306332m	78.3977	ug/mL	
31) Hexachlorobutadiene	7.729	225	1149501	67.4408	ug/mL	98
32) Resorcinol	8.087	110	2244021	96.5091	ug/mL	93
33) 4-Chloro-3-methylphenol	8.210	107	2344759	77.0504	ug/mL	92
34) 2-Methylnaphthalene	8.424	142	2665625	42.0190	ug/mL	91
35) 1-Methylnaphthalene	8.547	142	2527177	42.7532	ug/mL	89
37) Hexachlorocyclopentadiene	8.627	237	1412279	73.0754	ug/mL	99
38) 2,4,6-Trichlorophenol	8.771	196	1541579	73.0221	ug/mL	96

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF12.D
Acq On : 15 Aug 2014 8:18 pm
Operator :
Sample : ICAL,S25413
Misc : ICAL
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Aug 16 14:32:28 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.814	196	1614542m	72.9611	ug/mL	
40) 2-Fluorobiphenyl	8.873	172	2887091	40.3055	ug/mL	94
41) 2-Chloronaphthalene	9.033	162	2463933	40.9893	ug/mL	94
42) 2-Nitroaniline	9.161	65	1767891	78.7900	ug/mL	92
43) Dimethylphthalate	9.386	163	5314115	77.8125	ug/mL	96
44) 2,6-Dinitrotoluene	9.455	165	1360057	83.1381	ug/mL	94
45) Acenaphthylene	9.556	152	4085733	50.5442	ug/mL	97
46) 3-Nitroaniline	9.679	138	1634146	86.8250	ug/mL #	68
47) Acenaphthene	9.775	154	2503189	39.9114	ug/mL	96
48) 2,4-Dinitrophenol	9.797	184	777823	72.3183	ug/mL #	1
49) 4-Nitrophenol	9.877	109	820515	72.6323	ug/mL #	74
50) Dibenzofuran	9.989	168	3489728	40.1003	ug/mL	78
51) 2,4-Dinitrotoluene	9.968	165	1811181	83.8145	ug/mL	96
52) 2,3,4,6-Tetrachlorophenol	10.144	232	1265349	71.8143	ug/mL	90
53) Diethylphthalate	10.251	149	3033950	42.7973	ug/mL	99
54) 4-Chlorophenyl-phenylether	10.401	204	1306407	38.7087	ug/mL #	73
55) Fluorene	10.417	166	2870436	38.2902	ug/mL	88
56) 4-Nitroaniline	10.465	138	1638657	100.1730	ug/mL #	1
57) 2,4,6-Tribromophenol	10.721	330	415158	37.0575	ug/mL #	81
59) 4,6-Dinitro-2-methylphenol	10.486	198	1043843	73.2803	ug/mL	93
60) N-Nitrosodiphenylamine	10.555	169	2175272	43.4492	ug/mL	91
61) Azobenzene	10.609	77	3411652	40.8468	ug/mL	96
62) 4-Bromophenyl-phenylether	11.020	248	795718	36.9105	ug/mL #	81
63) Hexachlorobenzene	11.127	284	1520327	70.7350	ug/mL	86
64) Pentachlorophenol	11.357	266	1115305	71.0863	ug/mL	96
65) Phenanthrene	11.629	178	3975817	40.3144	ug/mL	95
66) Anthracene	11.693	178	4041096	42.3160	ug/mL	92
67) Carbazole	11.891	167	6888654	86.6674	ug/mL	80
68) Di-n-butylphthalate	12.286	149	5209756	45.0309	ug/mL	96
69) Fluoranthene	13.125	202	4499664	41.0765	ug/mL	94
71) Benzidine	13.269	184	3498128	102.9219	ug/mL	94
72) Pyrene	13.414	202	4817864	44.3579	ug/mL	90
73) Terphenyl-d14	13.579	244	3322496	43.7007	ug/mL	86
74) Butylbenzylphthalate	14.172	149	2480961	48.3337	ug/mL	91
75) 3,3'-Dichlorobenzidine	14.974	252	3039471	96.5982	ug/mL	97
76) Benzo(a)anthracene	15.022	228	4271866	41.1163	ug/mL	98
77) bis(2-Ethylhexyl)phthalate	14.990	149	3233349	46.7348	ug/mL	98
78) Chrysene	15.091	228	3961347	41.2876	ug/mL	94
80) Di-n-octylphthalate	16.159	149	6095464	51.9588	ug/mL	93
81) Benzo(b)fluoranthene	17.089	252	4380311	45.6529	ug/mL	97
82) Benzo(k)fluoranthene	17.153	252	3740333	40.9780	ug/mL	98
83) Benzo(a)pyrene	17.864	252	4121831	50.9015	ug/mL	97
84) Indeno(1,2,3-cd)pyrene	21.069	276	4676662	46.1904	ug/mL	88

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF12.D
Acq On : 15 Aug 2014 8:18 pm
Operator :
Sample : ICAL,S25413
Misc : ICAL
ALS Vial : 12 Sample Multiplier: 1

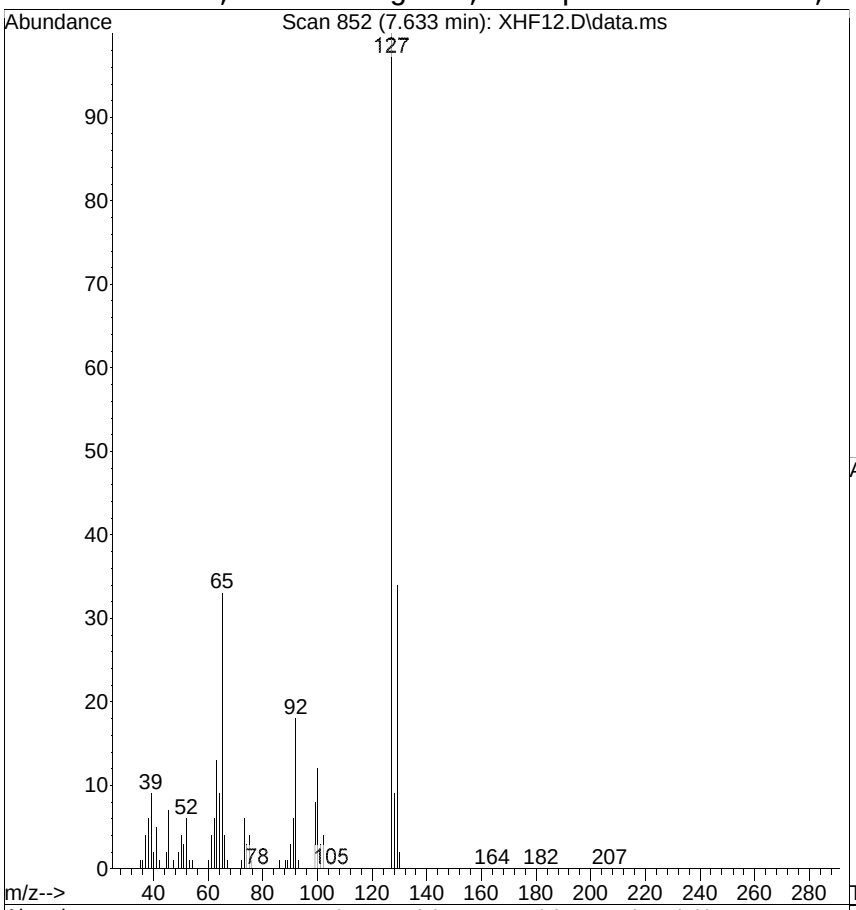
Quant Time: Aug 16 14:32:28 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.138	278	3948262	44.3691	ug/mL	94
86) Benzo(g,h,i)perylene	21.860	276	3861850	47.1252	ug/mL	91

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

[4-Chloroaniline; 80.00 ug/mL; response=3306332; MI]

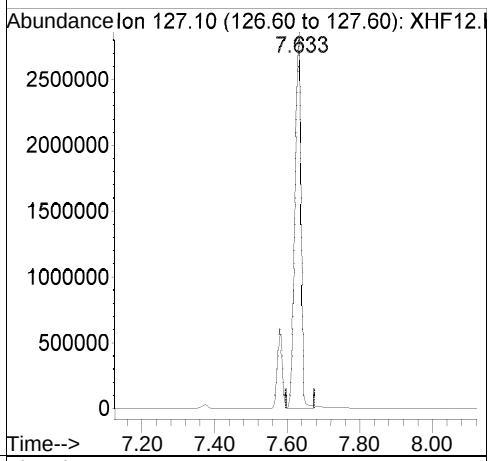
Raw



#30
4-Chloroaniline
Concen: 78.3977 ug/mL m
RT: 7.633 min Scan# 852
Delta R.T. 0.011 min
Lab File: XHF12.D
Acq: 15 Aug 2014 8:18 pm

Tgt Ion:127 Resp: 3306332

Ion	Ratio	Lower	Upper
127	100		
129	33.7	11.0	51.0
65	32.8	3.0	43.0



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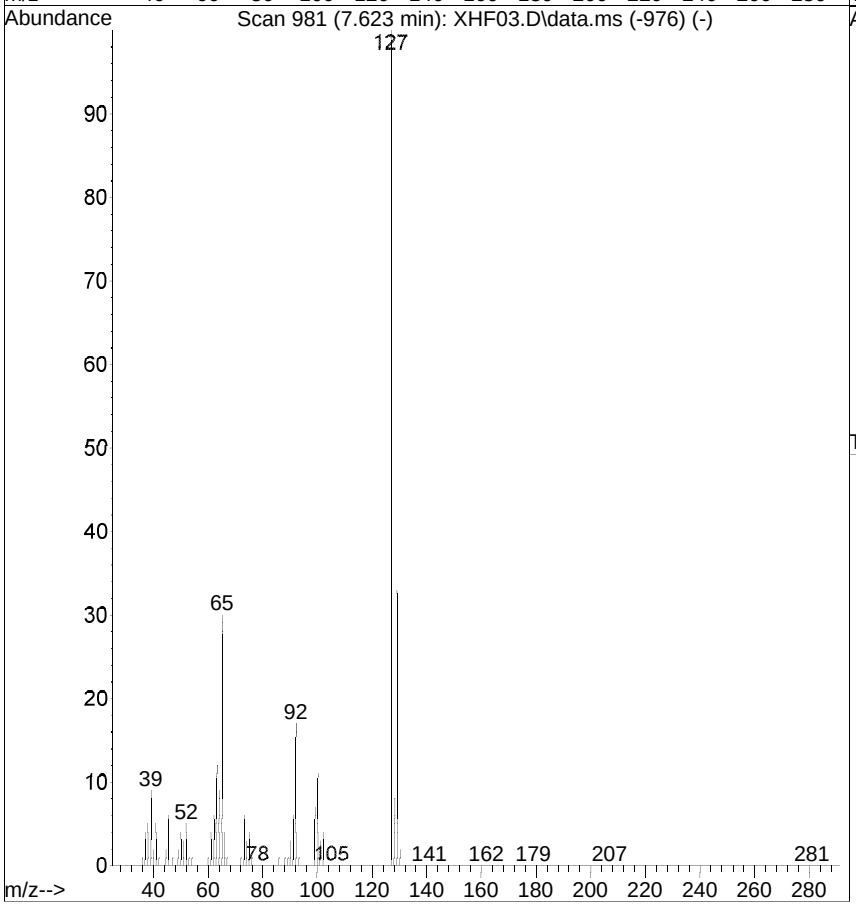
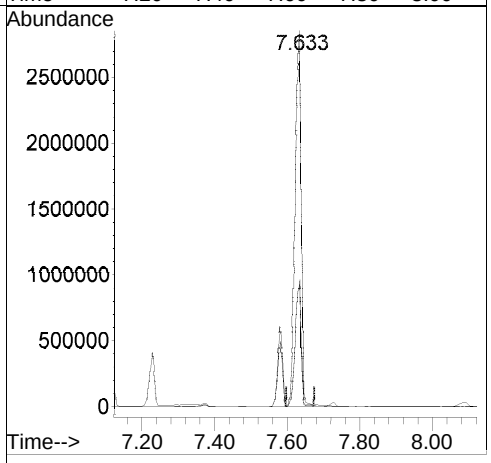
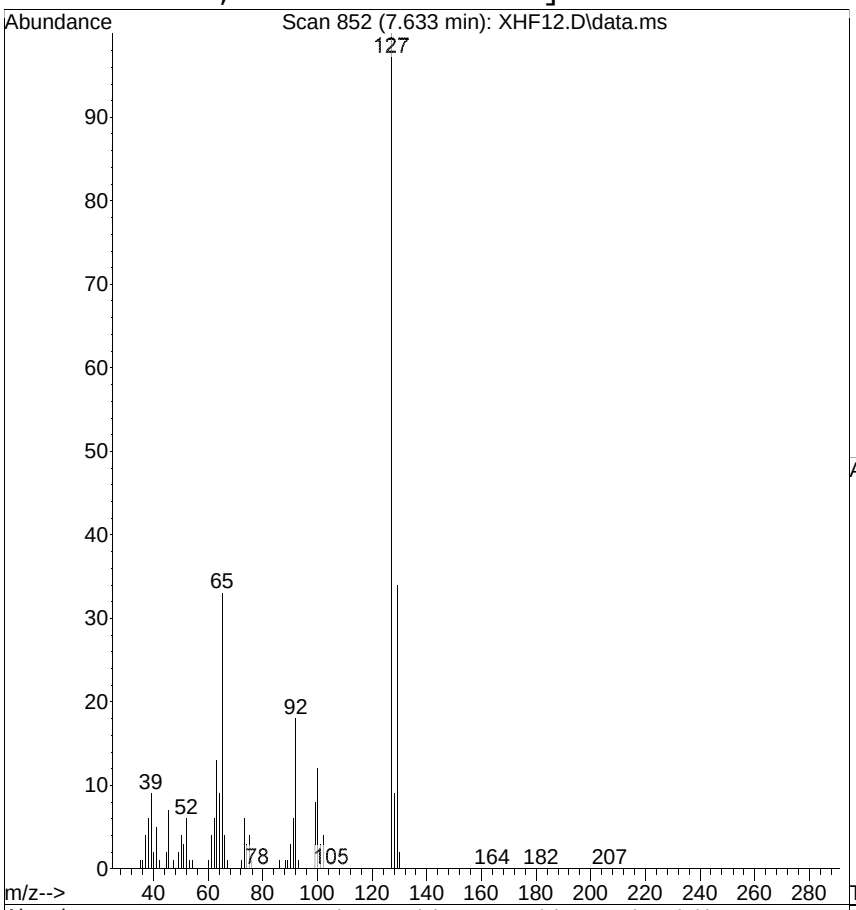




[4-Chloroaniline; before version]

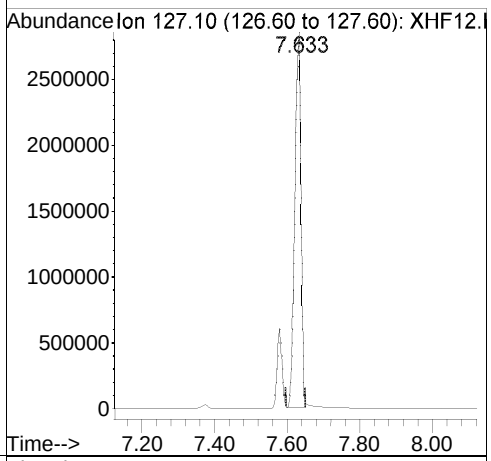
Raw



#30
4-Chloroaniline
Concen: 77.2795 ug/mL
RT: 7.633 min Scan# 852
Delta R.T. 0.011 min
Lab File: XHF12.D
Acq: 15 Aug 2014 8:18 pm

Tgt Ion:127 Resp: 3256336

Ion	Ratio	Lower	Upper
127	100		
129	33.7	11.0	51.0
65	32.8	3.0	43.0



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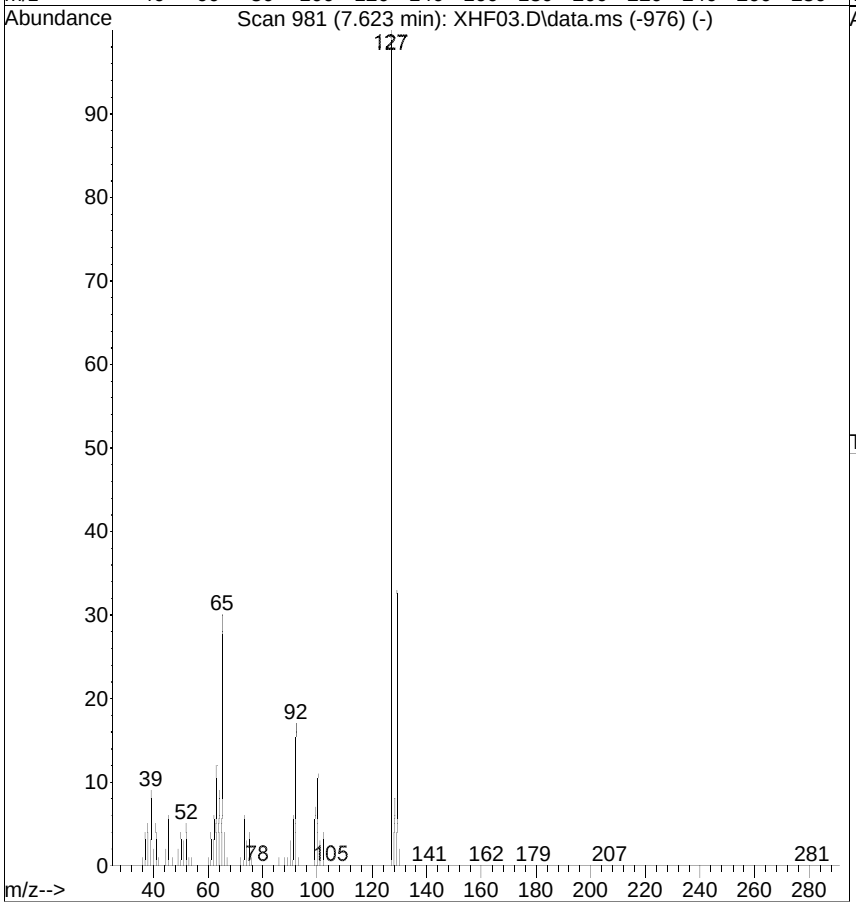
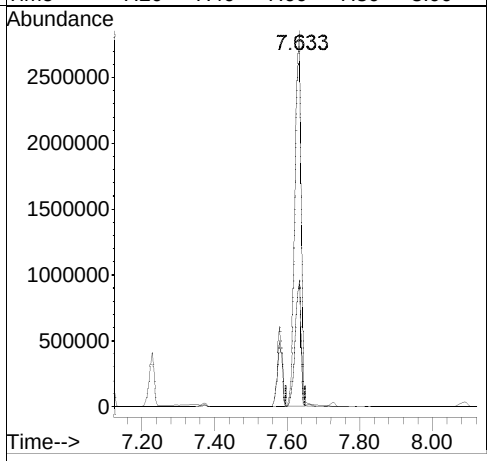
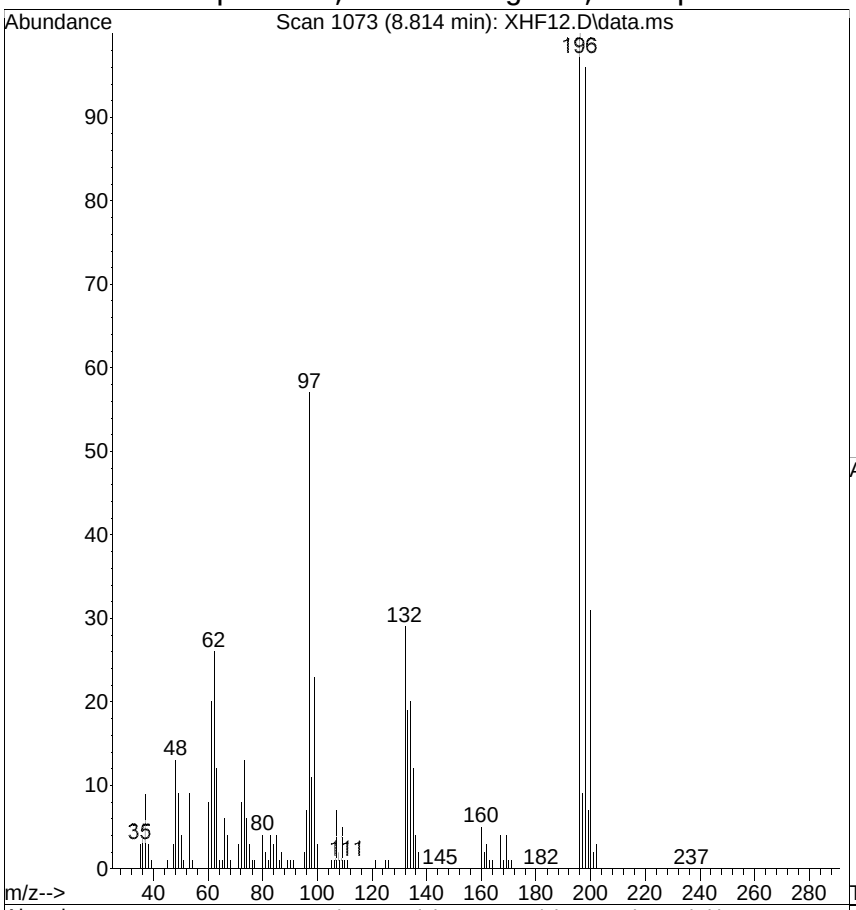




[2,4,5-Trichlorophenol; 80.00 ug/mL; response=1614542; MI]

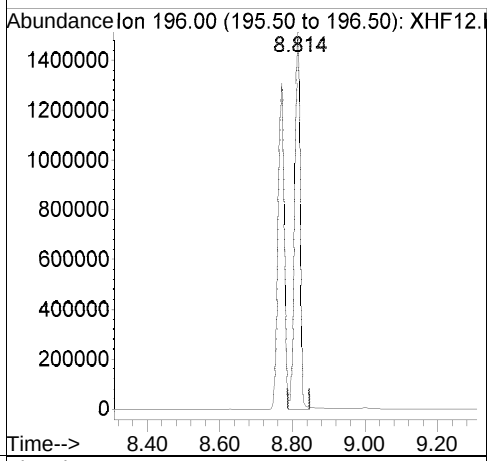
Raw



#39
2,4,5-Trichlorophenol
Concen: 72.9611 ug/mL m
RT: 8.814 min Scan# 1073
Delta R.T. 0.005 min
Lab File: XHF12.D
Acq: 15 Aug 2014 8:18 pm

Tgt Ion:196 Resp: 1614542

Ion	Ratio	Lower	Upper
196	100		
198	96.1	69.0	109.0
97	56.8	21.0	61.0



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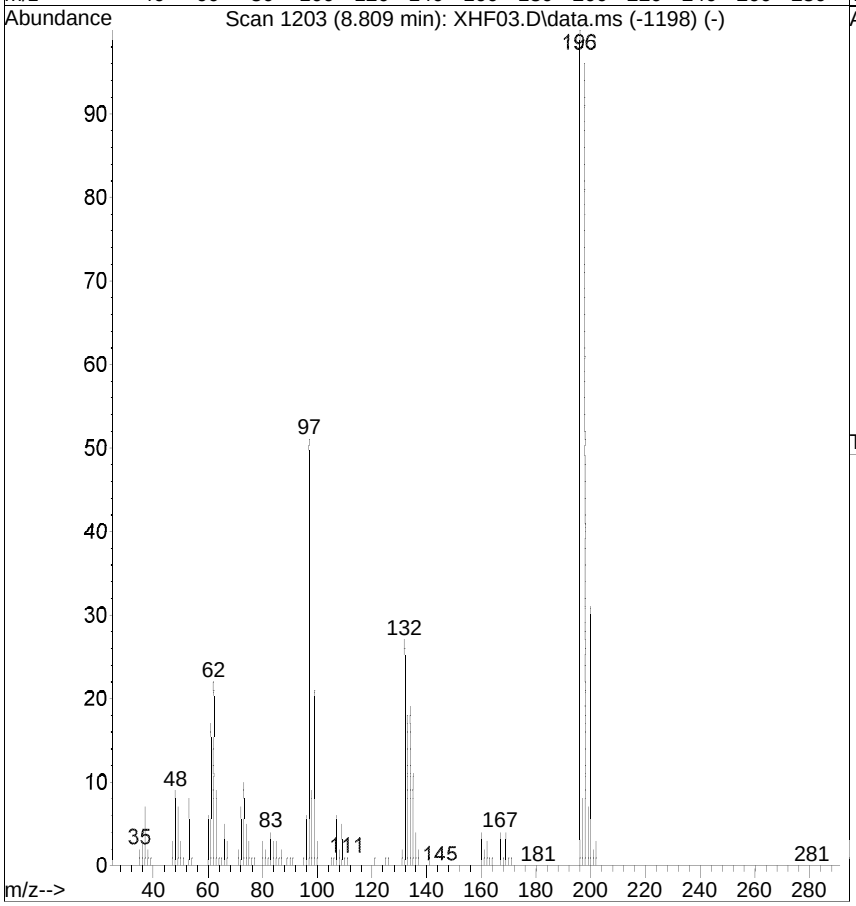
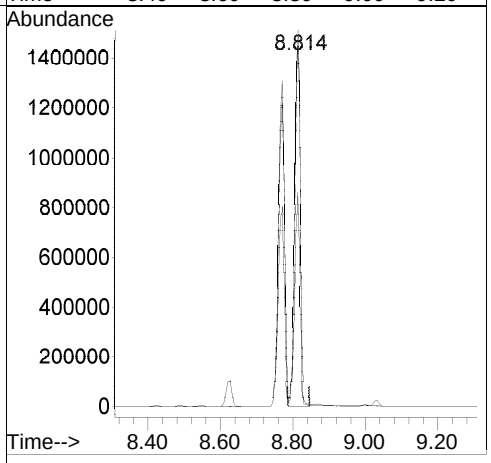
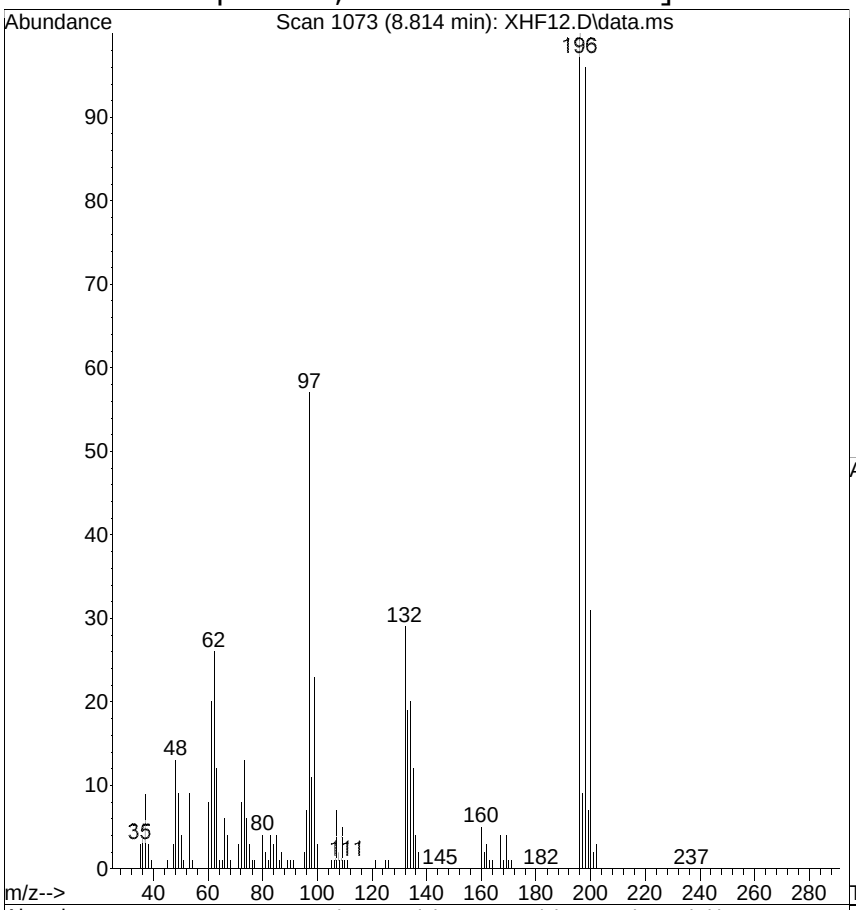




[2,4,5-Trichlorophenol; before version]

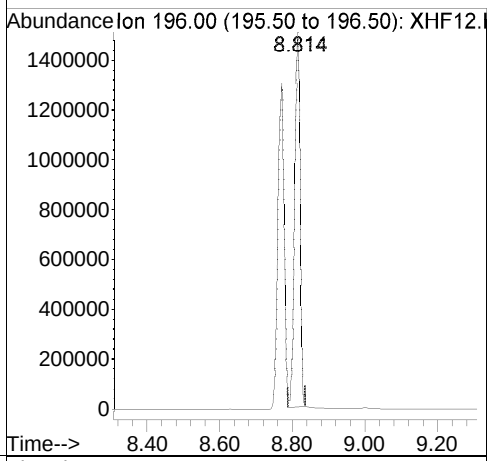
Raw



#39
2,4,5-Trichlorophenol
Concen: 71.5965 ug/mL
RT: 8.814 min Scan# 1073
Delta R.T. 0.005 min
Lab File: XHF12.D
Acq: 15 Aug 2014 8:18 pm

Tgt Ion:196 Resp: 1584347

Ion	Ratio	Lower	Upper
196	100		
198	96.1	69.0	109.0
97	56.8	21.0	61.0



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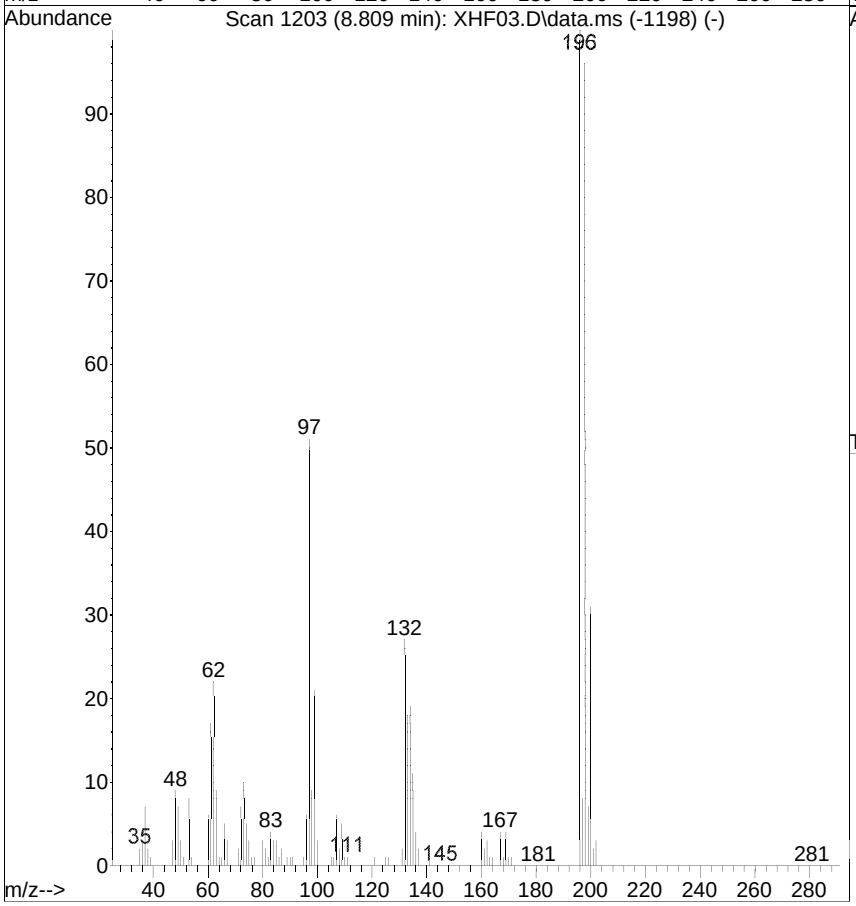
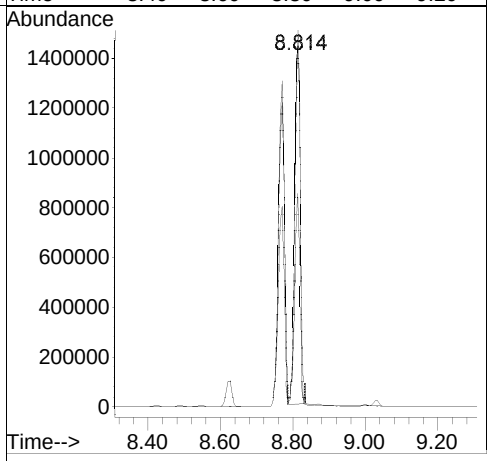
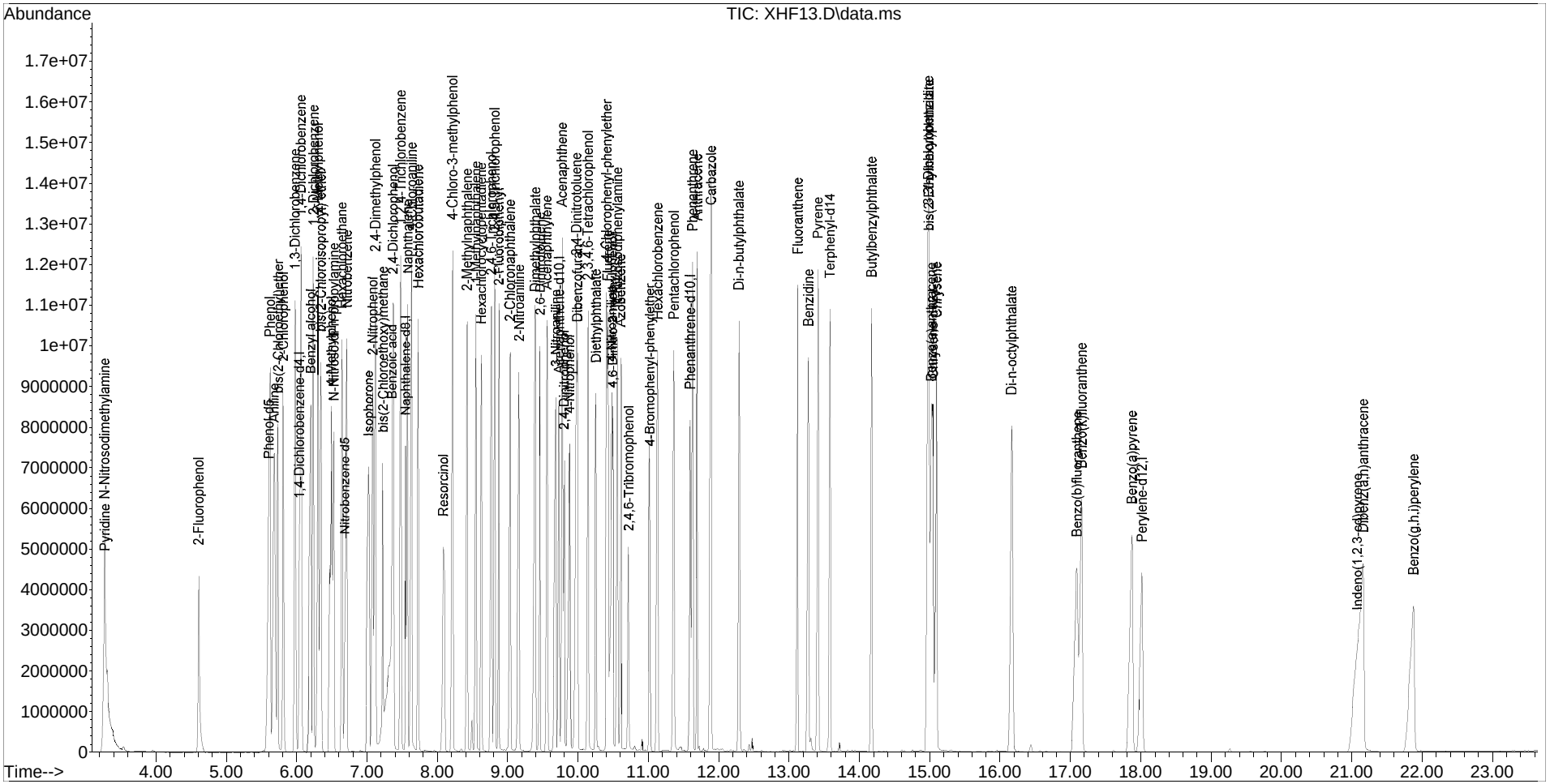




Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF13.D
Acq On : 15 Aug 2014 8:53 pm
Operator :
Sample : ICAL,S25414
Misc : ICAL
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 16 14:34:46 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF13.D
Acq On : 15 Aug 2014 8:53 pm
Operator :
Sample : ICAL,S25414
Misc : ICAL
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 16 14:34:46 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.041	152	1035767	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.553	136	3999067	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.738	164	2339082	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.603	188	3861527	40.0000	ug/mL	0.00
70) Chrysene-d12	15.054	240	3875901	40.0000	ug/mL	0.01
79) Perylene-d12	18.019	264	3506909	40.0000	ug/mL	0.02

Target Compounds						Qvalue
2) Pyridine	3.280	79	3890692m	104.0175	ug/mL	
3) N-Nitrosodimethylamine	3.274	42	1752606	93.7491	ug/mL	# 68
4) 2-Fluorophenol	4.610	112	1762013	57.3373	ug/mL	# 74
5) Phenol-d5	5.609	99	2208801	53.4488	ug/mL	79
6) Phenol	5.630	94	4321752	99.3445	ug/mL	78
7) Aniline	5.684	93	5512526m	114.1324	ug/mL	
8) bis(2-Chloroethyl)ether	5.737	93	3125137m	98.5086	ug/mL	
9) 2-Chlorophenol	5.812	128	3571306	101.4759	ug/mL	99
10) 1,3-Dichlorobenzene	5.983	146	3548672	87.9023	ug/mL	94
11) 1,4-Dichlorobenzene	6.063	146	3383452	81.0396	ug/mL	87
12) Benzyl alcohol	6.207	108	2438394	109.9973	ug/mL	93
13) 1,2-Dichlorobenzene	6.244	146	3394238	86.5294	ug/mL	95
14) 2-Methylphenol	6.309	107	2847977	99.3123	ug/mL	96
15) bis(2-Chloroisopropyl) ether	6.346	45	4955114	124.2513	ug/mL	92
16) 4-Methylphenol	6.496	107	4469898m	109.6215	ug/mL	
17) N-Nitroso-di-n-propylamine	6.533	70	2213911	96.5031	ug/mL	85
18) Hexachloroethane	6.640	117	1543955	88.9026	ug/mL	99
20) Nitrobenzene-d5	6.688	82	2302655	53.7010	ug/mL	# 77
21) Nitrobenzene	6.720	77	4060552	90.6033	ug/mL	92
22) Isophorone	7.030	82	7456148	110.6740	ug/mL	100
23) 2-Nitrophenol	7.089	139	2021637	99.1888	ug/mL	88
24) 2,4-Dimethylphenol	7.126	107	3489424	98.5418	ug/mL	91
25) bis(2-Chloroethoxy)methane	7.233	93	2154164	53.2712	ug/mL	95
26) Benzoic acid	7.366	105	3810263	143.0863	ug/mL	95
27) 2,4-Dichlorophenol	7.382	162	2748521	89.9018	ug/mL	97
28) 1,2,4-Trichlorobenzene	7.484	180	2787607	83.4923	ug/mL	96
29) Naphthalene	7.585	128	4975106	50.9115	ug/mL	92
30) 4-Chloroaniline	7.639	127	4224837	92.5662	ug/mL	86
31) Hexachlorobutadiene	7.730	225	1411254	77.2112	ug/mL	98
32) Resorcinol	8.093	110	3239151	124.0103	ug/mL	93
33) 4-Chloro-3-methylphenol	8.216	107	3093872	94.8070	ug/mL	90
34) 2-Methylnaphthalene	8.429	142	3407370	50.0872	ug/mL	89
35) 1-Methylnaphthalene	8.552	142	3217545	50.7597	ug/mL	88
37) Hexachlorocyclopentadiene	8.627	237	1767699	83.6939	ug/mL	99
38) 2,4,6-Trichlorophenol	8.777	196	1999039	86.6453	ug/mL	95

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF13.D
Acq On : 15 Aug 2014 8:53 pm
Operator :
Sample : ICAL,S25414
Misc : ICAL
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 16 14:34:46 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.819	196	2034560m	84.1293	ug/mL	
40) 2-Fluorobiphenyl	8.878	172	3691742	47.1596	ug/mL	95
41) 2-Chloronaphthalene	9.038	162	3192086	48.5904	ug/mL	94
42) 2-Nitroaniline	9.167	65	2385054	97.2632	ug/mL	96
43) Dimethylphthalate	9.396	163	6801220	91.1255	ug/mL	97
44) 2,6-Dinitrotoluene	9.466	165	1808438	101.1536	ug/mL	89
45) Acenaphthylene	9.557	152	5310737	60.1162	ug/mL	96
46) 3-Nitroaniline	9.690	138	2213768	104.9380	ug/mL #	70
47) Acenaphthene	9.781	154	3235992	47.2113	ug/mL	96
48) 2,4-Dinitrophenol	9.808	184	1127005	95.8800	ug/mL #	1
49) 4-Nitrophenol	9.888	109	1109868	89.8979	ug/mL #	71
50) Dibenzofuran	9.995	168	4369157	45.9398	ug/mL	75
51) 2,4-Dinitrotoluene	9.979	165	2343897	99.2501	ug/mL	98
52) 2,3,4,6-Tetrachlorophenol	10.144	232	1612798	83.7559	ug/mL	91
53) Diethylphthalate	10.256	149	3942519	50.8882	ug/mL	99
54) 4-Chlorophenyl-phenylether	10.406	204	1670494	45.2908	ug/mL #	74
55) Fluorene	10.422	166	3639506	44.4240	ug/mL	88
56) 4-Nitroaniline	10.481	138	2218902	124.1182	ug/mL #	1
57) 2,4,6-Tribromophenol	10.727	330	539882	44.0957	ug/mL #	81
59) 4,6-Dinitro-2-methylphenol	10.497	198	1409150	92.0364	ug/mL	96
60) N-Nitrosodiphenylamine	10.561	169	2865298	53.2462	ug/mL	92
61) Azobenzene	10.609	77	4465722	49.7434	ug/mL	92
62) 4-Bromophenyl-phenylether	11.026	248	1034953	44.6644	ug/mL #	81
63) Hexachlorobenzene	11.133	284	1898484	82.1778	ug/mL	86
64) Pentachlorophenol	11.362	266	1428935	84.7335	ug/mL	95
65) Phenanthrene	11.635	178	5075400	47.8800	ug/mL	94
66) Anthracene	11.699	178	5115449	49.8356	ug/mL	91
67) Carbazole	11.897	167	8811388	103.1374	ug/mL	79
68) Di-n-butylphthalate	12.292	149	6486492	52.1619	ug/mL	96
69) Fluoranthene	13.131	202	5716961	48.5545	ug/mL	94
71) Benzidine	13.280	184	4713129	126.2272	ug/mL	94
72) Pyrene	13.419	202	6151950	53.7662	ug/mL	89
73) Terphenyl-d14	13.585	244	4210944	52.5756	ug/mL	86
74) Butylbenzylphthalate	14.178	149	3255247	60.1997	ug/mL	92
75) 3,3'-Dichlorobenzidine	14.984	252	3566995	107.6103	ug/mL	98
76) Benzo(a)anthracene	15.027	228	5572472	50.9126	ug/mL	98
77) bis(2-Ethylhexyl)phthalate	14.995	149	3522735	48.3334	ug/mL	98
78) Chrysene	15.102	228	5048558	49.9487	ug/mL	94
80) Di-n-octylphthalate	16.165	149	8007530	64.2995	ug/mL	93
81) Benzo(b)fluoranthene	17.100	252	5941701	58.3352	ug/mL	96
82) Benzo(k)fluoranthene	17.164	252	4840103	49.9520	ug/mL	97
83) Benzo(a)pyrene	17.880	252	5412958	62.9698	ug/mL	96
84) Indeno(1,2,3-cd)pyrene	21.085	276	6226453	57.9313	ug/mL	83

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF13.D
Acq On : 15 Aug 2014 8:53 pm
Operator :
Sample : ICAL,S25414
Misc : ICAL
ALS Vial : 13 Sample Multiplier: 1

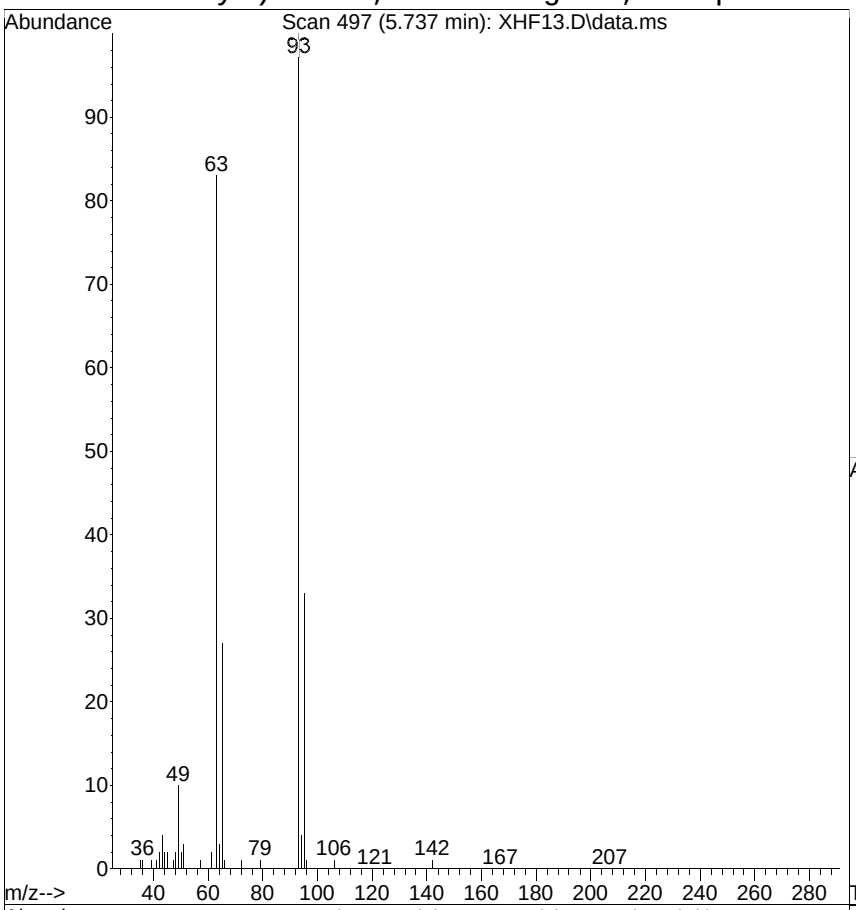
Quant Time: Aug 16 14:34:46 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.165	278	5271982	55.8092	ug/mL	94
86) Benzo(g,h,i)perylene	21.881	276	5177478	59.5159	ug/mL	90

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

[bis(2-Chloroethyl)ether; 100.0 ug/mL; response=3125137; MI]

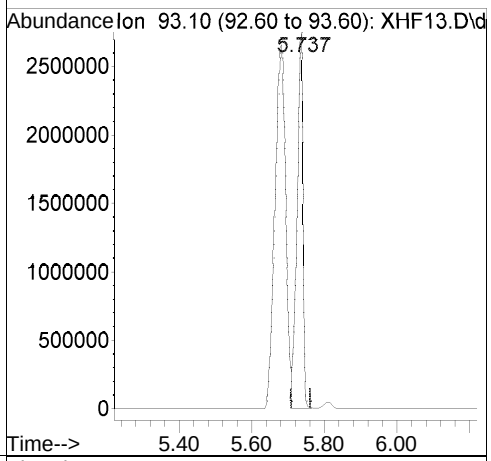
Raw



#8
bis(2-Chloroethyl)ether
Concen: 98.5086 ug/mL m
RT: 5.737 min Scan# 497
Delta R.T. 0.016 min
Lab File: XHF13.D
Acq: 15 Aug 2014 8:53 pm

Tgt Ion: 93 Resp: 3125137

Ion	Ratio	Lower	Upper
93	100		
63	83.2	54.0	94.0
95	32.6	12.0	52.0



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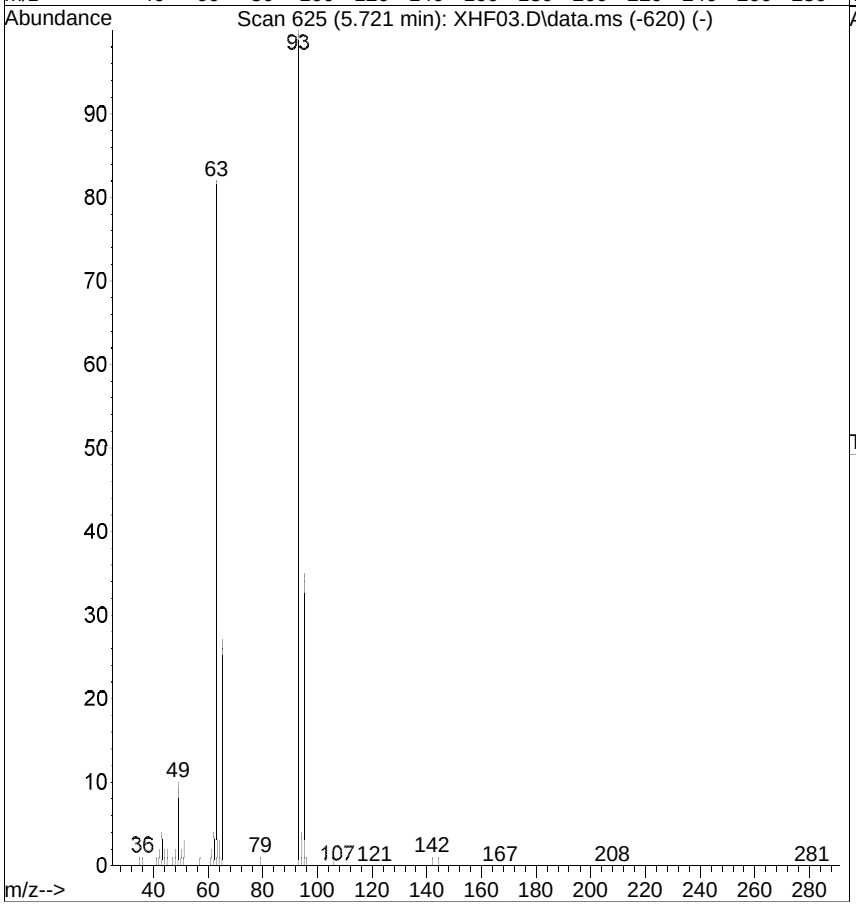
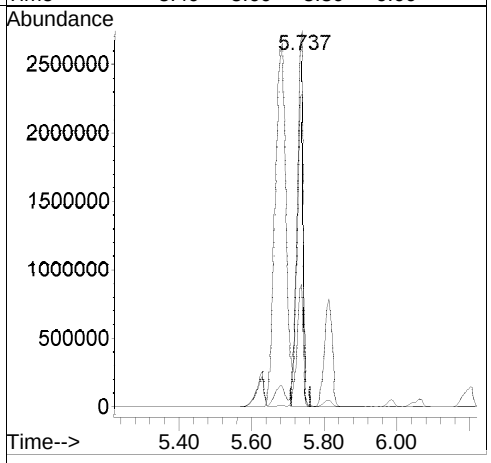
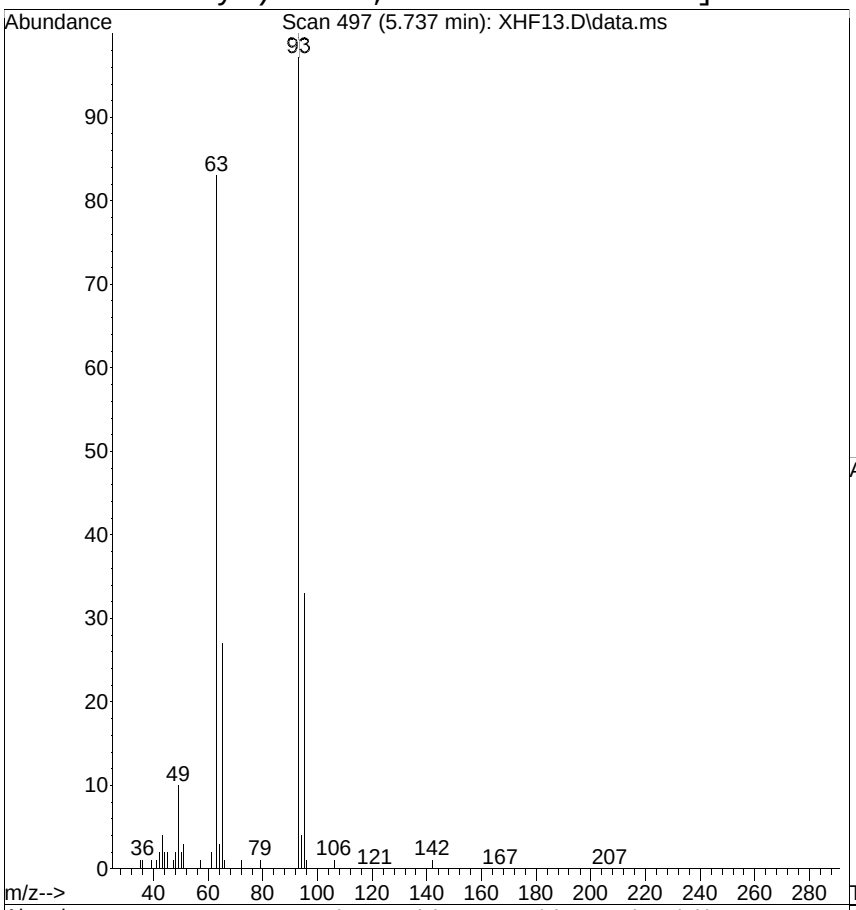




[bis(2-Chloroethyl)ether; before version]

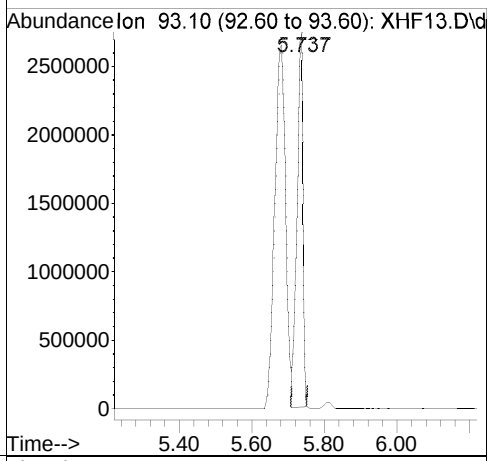
Raw



#8
bis(2-Chloroethyl)ether
Concen: 97.1564 ug/mL
RT: 5.737 min Scan# 497
Delta R.T. 0.016 min
Lab File: XHF13.D
Acq: 15 Aug 2014 8:53 pm

Tgt Ion: 93 Resp: 3082239

Ion	Ratio	Lower	Upper
93	100		
63	83.2	54.0	94.0
95	32.6	12.0	52.0



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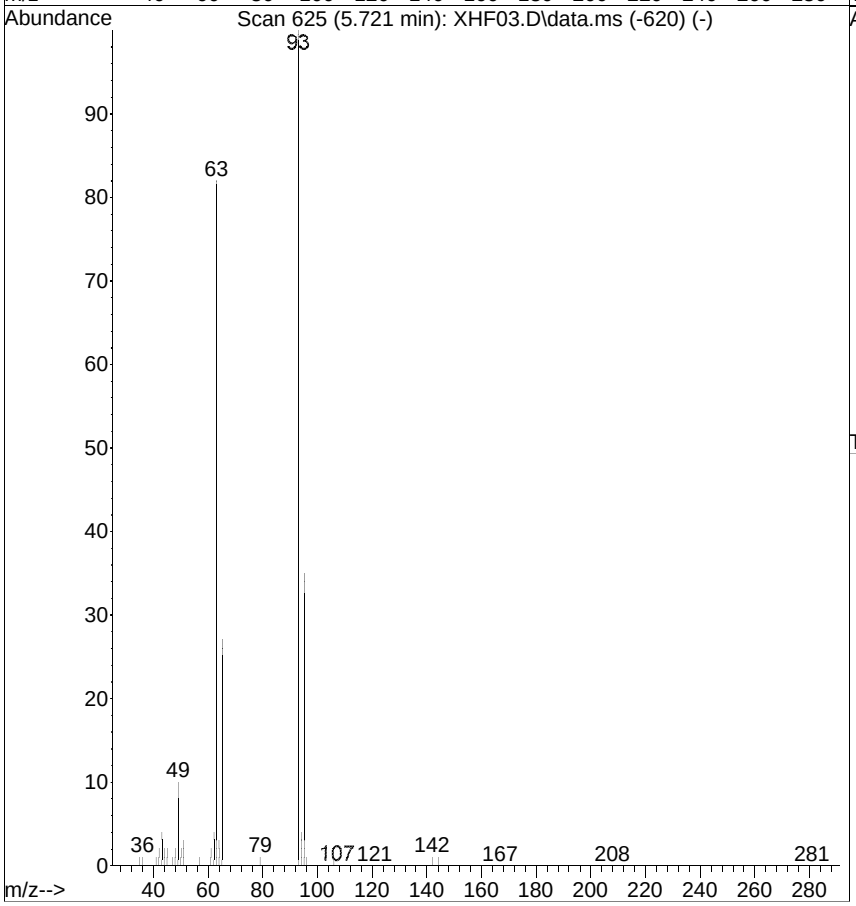
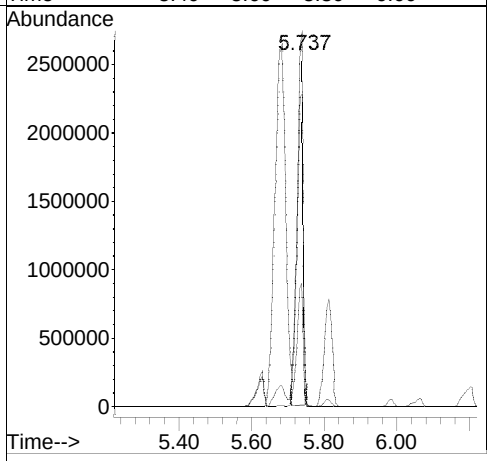
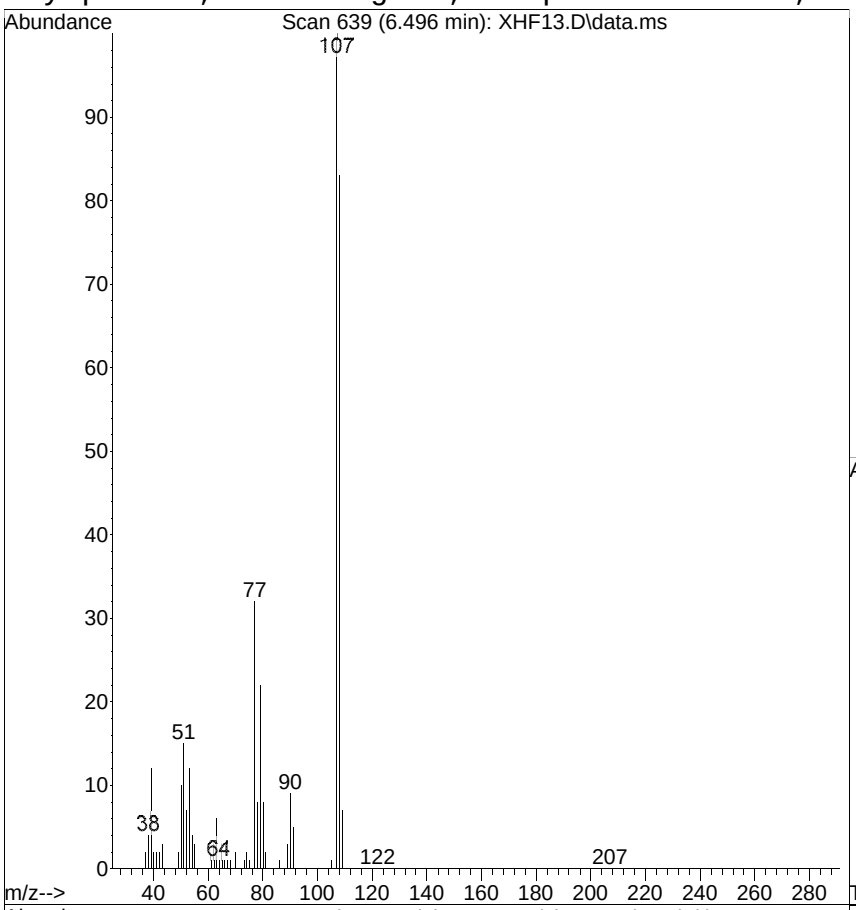




[4-Methylphenol; 100.0 ug/mL; response=4469898; MI]

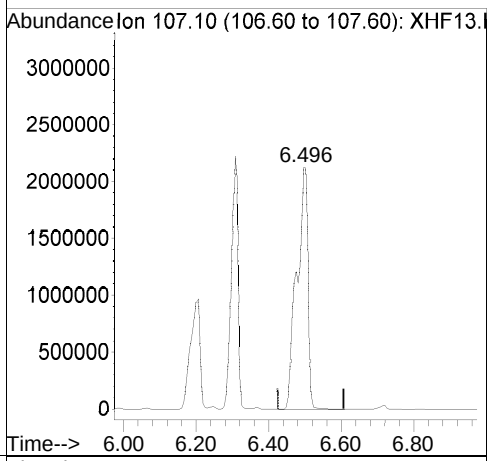
Raw



#16
4-Methylphenol
Concen: 109.6215 ug/mL m
RT: 6.496 min Scan# 639
Delta R.T. 0.021 min
Lab File: XHF13.D
Acq: 15 Aug 2014 8:53 pm

Tgt Ion:107 Resp: 4469898

Ion	Ratio	Lower	Upper
107	100		
108	82.7	71.0	111.0
77	32.4	8.0	48.0



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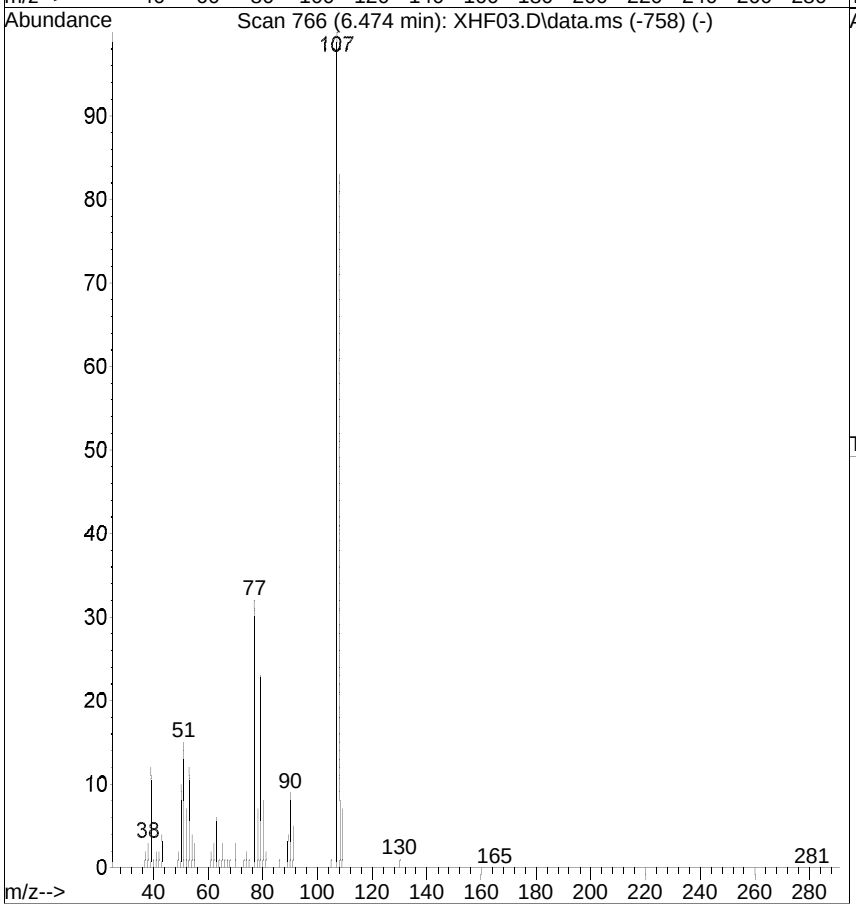
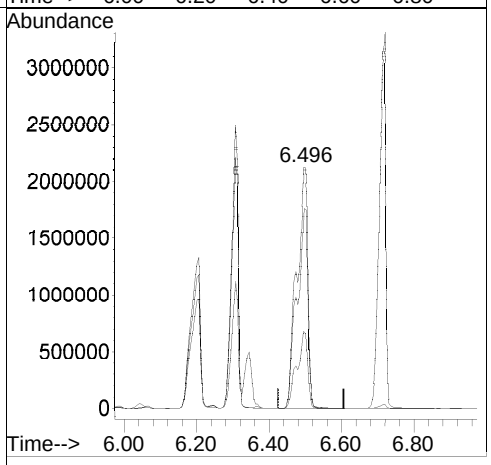
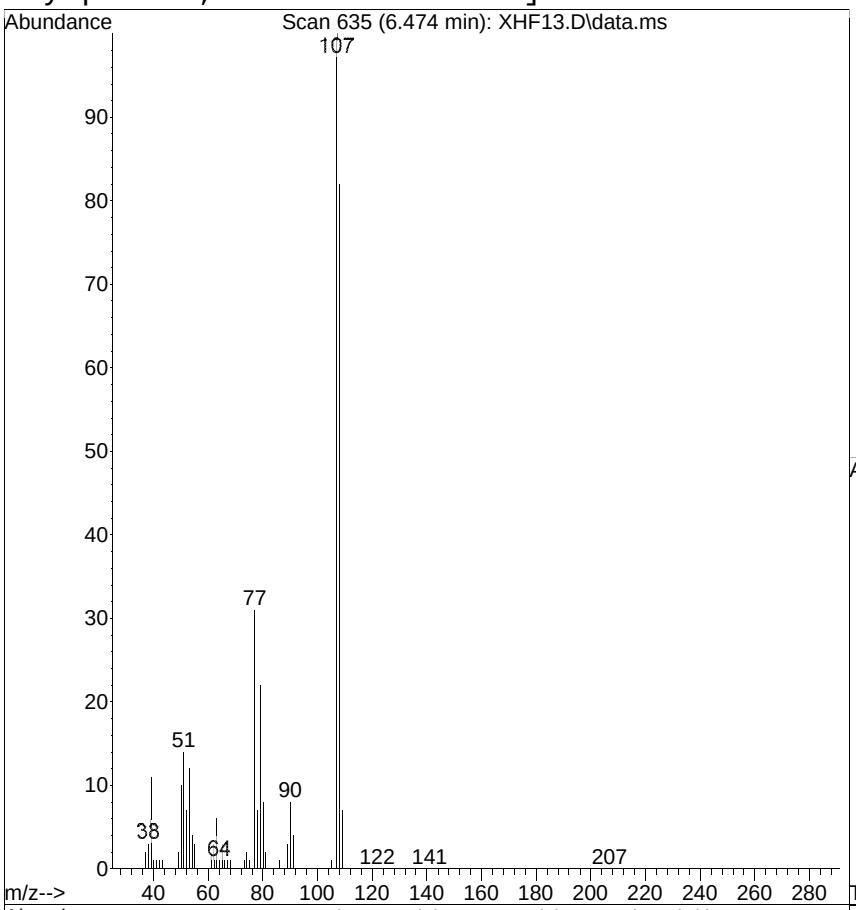




[4-Methylphenol; before version]

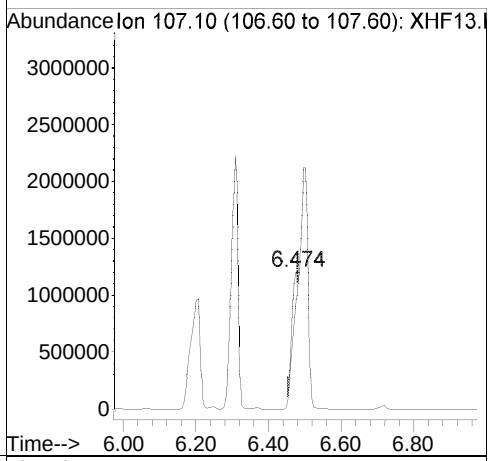
Raw



#16
4-Methylphenol
Concen: 11.7884 ug/mL
RT: 6.474 min Scan# 635
Delta R.T. -0.000 min
Lab File: XHF13.D
Acq: 15 Aug 2014 8:53 pm

Tgt Ion:107 Resp: 480680

Ion	Ratio	Lower	Upper
107	100		
108	81.6	71.0	111.0
77	31.0	8.0	48.0



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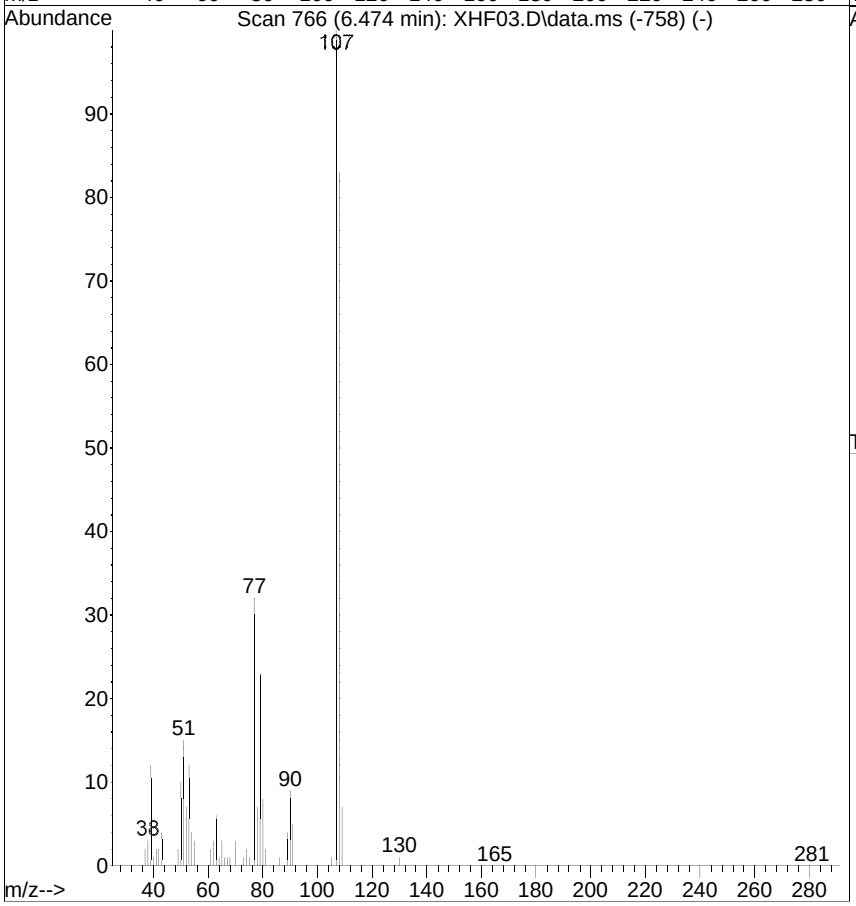
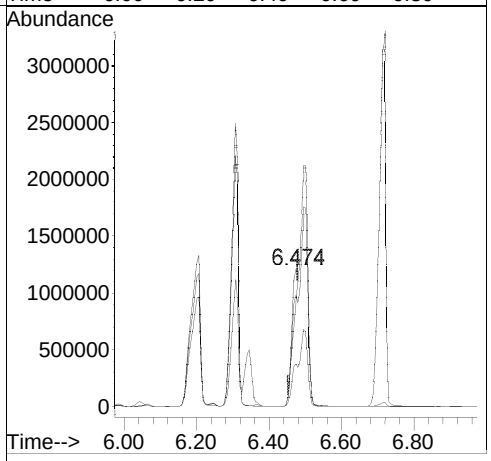
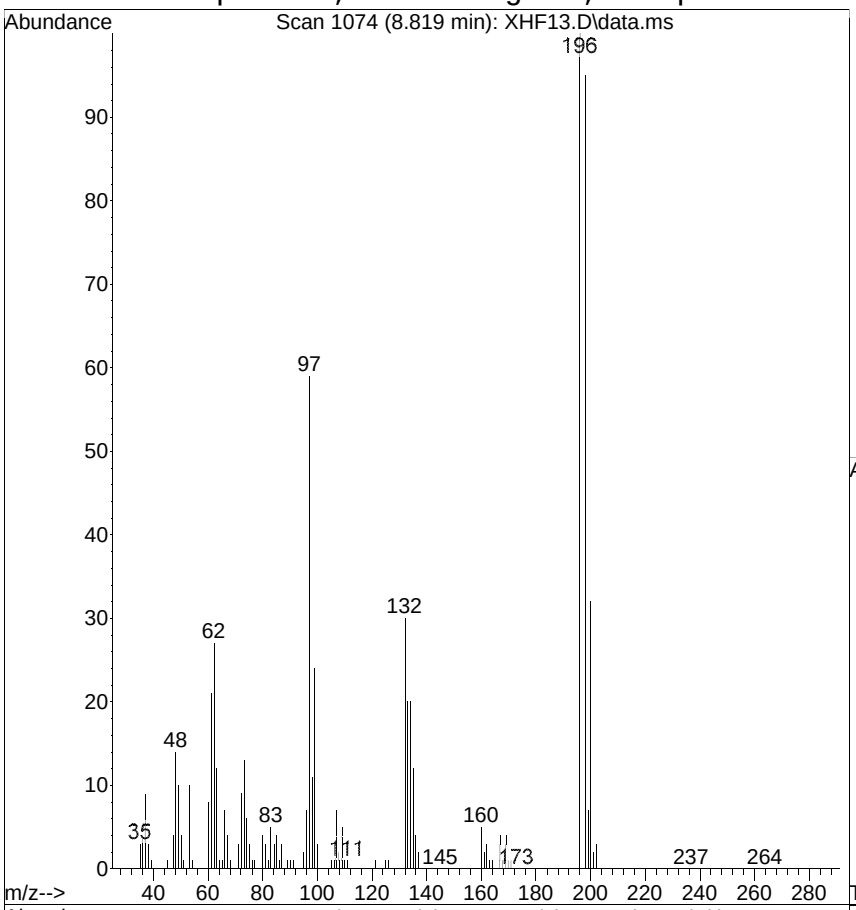




[2,4,5-Trichlorophenol; 100.0 ug/mL; response=2034560; MI]

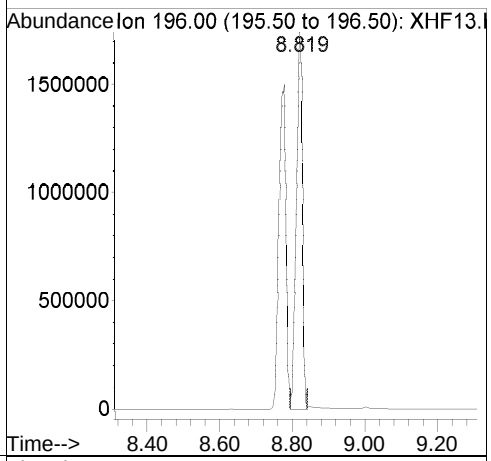
Raw



#39
2,4,5-Trichlorophenol
Concen: 84.1293 ug/mL m
RT: 8.819 min Scan# 1074
Delta R.T. 0.011 min
Lab File: XHF13.D
Acq: 15 Aug 2014 8:53 pm

Tgt Ion:196 Resp: 2034560

Ion	Ratio	Lower	Upper
196	100		
198	94.8	69.0	109.0
97	59.2	21.0	61.0



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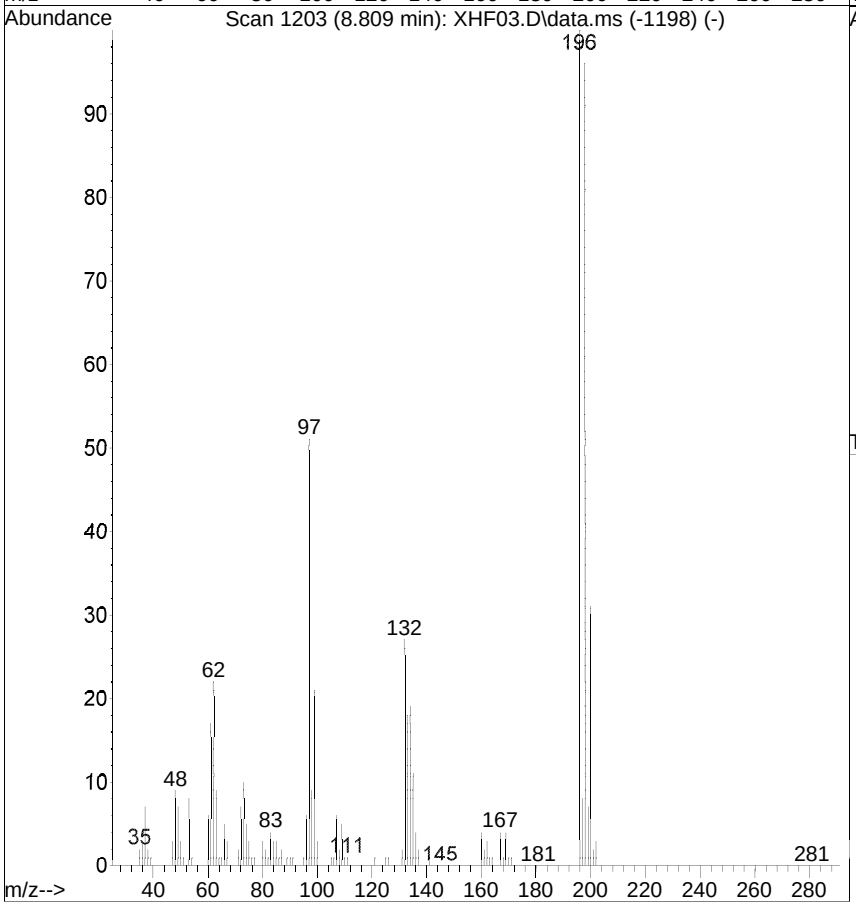
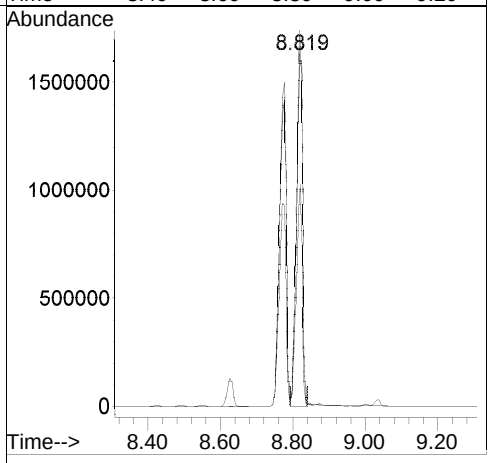
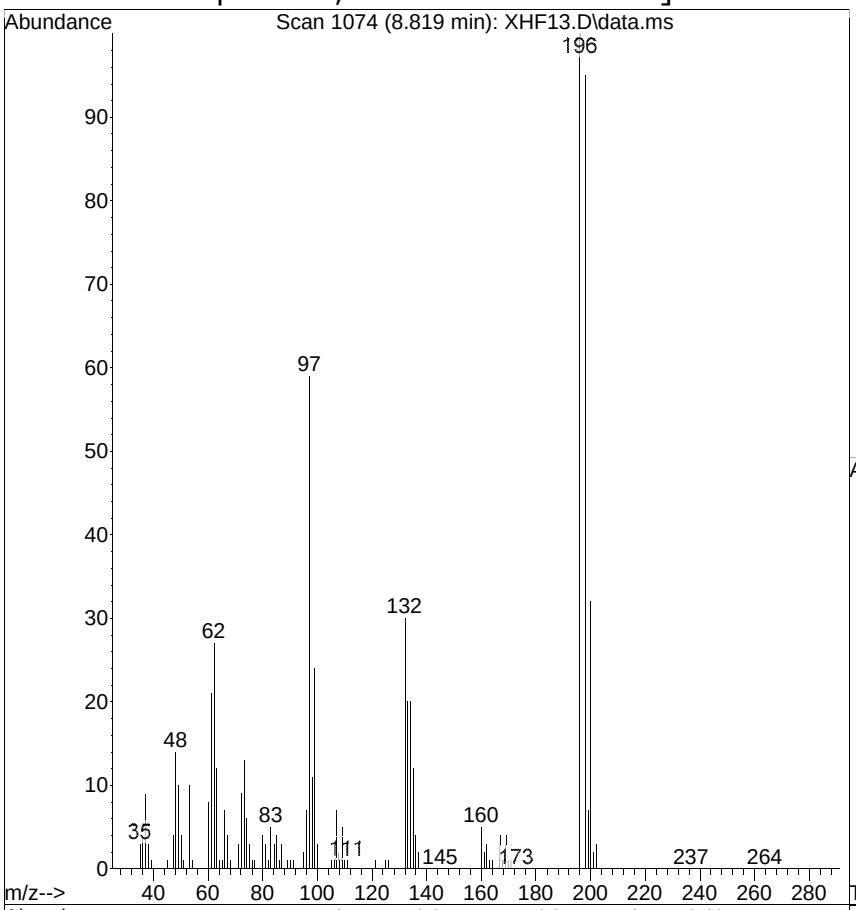




[2,4,5-Trichlorophenol; before version]

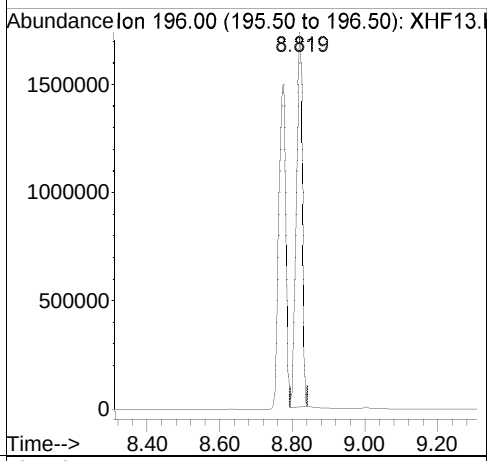
Raw



#39
2,4,5-Trichlorophenol
Concen: 82.8966 ug/mL
RT: 8.819 min Scan# 1074
Delta R.T. 0.011 min
Lab File: XHF13.D
Acq: 15 Aug 2014 8:53 pm

Tgt Ion:196 Resp: 2004750

Ion	Ratio	Lower	Upper
196	100		
198	94.8	69.0	109.0
97	59.2	21.0	61.0



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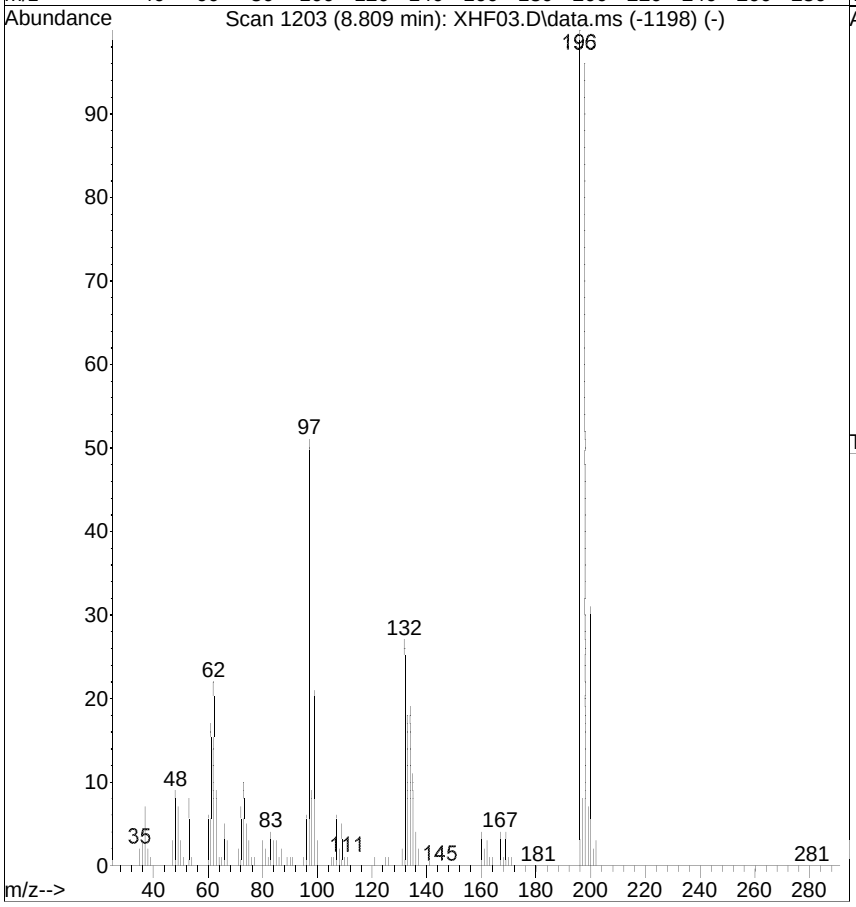
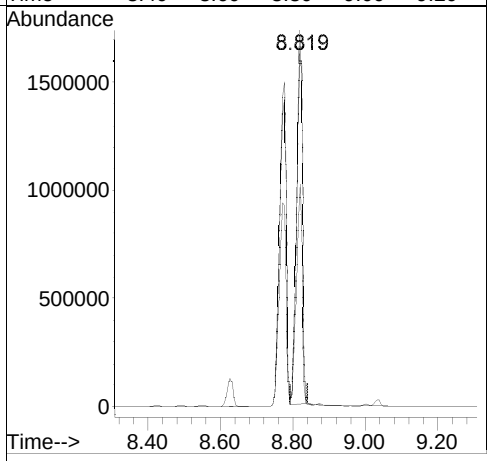
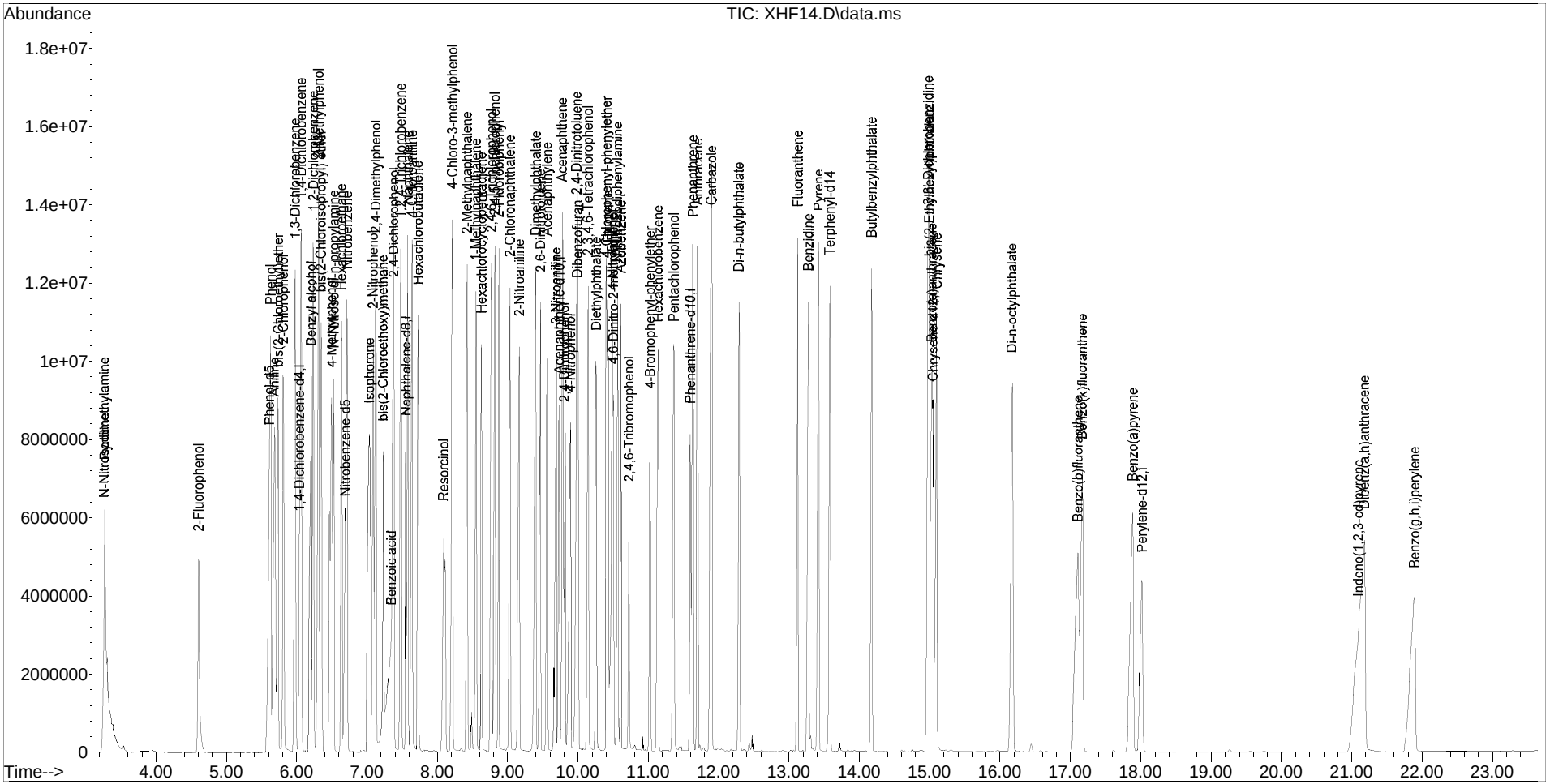




Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF14.D
Acq On : 15 Aug 2014 9:30 pm
Operator :
Sample : ICAL,S25415
Misc : ICAL
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 16 14:36:47 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF14.D
Acq On : 15 Aug 2014 9:30 pm
Operator :
Sample : ICAL,S25415
Misc : ICAL
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 16 14:36:47 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.042	152	1031689	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.559	136	4037283	40.0000	ug/mL	0.01
36) Acenaphthene-d10	9.738	164	2353882	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.603	188	3928469	40.0000	ug/mL	0.00
70) Chrysene-d12	15.054	240	3862322	40.0000	ug/mL	0.01
79) Perylene-d12	18.024	264	3490806	40.0000	ug/mL	0.02

Target Compounds						Qvalue
2) Pyridine	3.280	79	4719449m	126.6731	ug/mL	
3) N-Nitrosodimethylamine	3.274	42	2125929	114.1681	ug/mL	# 68
4) 2-Fluorophenol	4.615	112	2121961	69.3233	ug/mL	# 74
5) Phenol-d5	5.614	99	2646294	64.2885	ug/mL	79
6) Phenol	5.636	94	5230565	120.7107	ug/mL	78
7) Aniline	5.684	93	6745642m	140.2151	ug/mL	
8) bis(2-Chloroethyl)ether	5.737	93	3590521	113.6255	ug/mL	88
9) 2-Chlorophenol	5.812	128	4217476	120.3101	ug/mL	97
10) 1,3-Dichlorobenzene	5.988	146	4066383	101.1244	ug/mL	93
11) 1,4-Dichlorobenzene	6.068	146	3859461	92.8062	ug/mL	86
12) Benzyl alcohol	6.213	108	2980730	134.9939	ug/mL	94
13) 1,2-Dichlorobenzene	6.245	146	3897038	99.7400	ug/mL	95
14) 2-Methylphenol	6.314	107	3388667	118.6338	ug/mL	95
15) bis(2-Chloroisopropyl) ether	6.346	45	5983703	150.6366	ug/mL	91
16) 4-Methylphenol	6.506	107	5469646m	134.6700	ug/mL	
17) N-Nitroso-di-n-propylamine	6.538	70	2721888	119.1145	ug/mL	86
18) Hexachloroethane	6.640	117	1774247	102.5669	ug/mL	98
20) Nitrobenzene-d5	6.693	82	2773379	64.0666	ug/mL	# 77
21) Nitrobenzene	6.720	77	4886260	107.9954	ug/mL	94
22) Isophorone	7.041	82	9057647	133.1729	ug/mL	100
23) 2-Nitrophenol	7.094	139	2450226m	119.0790	ug/mL	
24) 2,4-Dimethylphenol	7.131	107	4166673	116.5536	ug/mL	90
25) bis(2-Chloroethoxy)methane	7.233	93	2585176	63.3247	ug/mL	95
26) Benzoic acid	7.351	105	4140738	154.0247	ug/mL	95
27) 2,4-Dichlorophenol	7.388	162	3159645	102.3710	ug/mL	96
28) 1,2,4-Trichlorobenzene	7.484	180	3179751	94.3360	ug/mL	96
29) Naphthalene	7.586	128	5790092	58.6906	ug/mL	91
30) 4-Chloroaniline	7.644	127	4997820	107.7024	ug/mL	88
31) Hexachlorobutadiene	7.730	225	1565876	84.8598	ug/mL	98
32) Resorcinol	8.098	110	4056444	149.7327	ug/mL	93
33) 4-Chloro-3-methylphenol	8.221	107	3635945	110.3633	ug/mL	88
34) 2-Methylnaphthalene	8.430	142	4027020	58.6356	ug/mL	90
35) 1-Methylnaphthalene	8.553	142	3766310	58.8545	ug/mL	88
37) Hexachlorocyclopentadiene	8.633	237	2009376	94.5382	ug/mL	98
38) 2,4,6-Trichlorophenol	8.777	196	2297210	98.9430	ug/mL	95

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF14.D
Acq On : 15 Aug 2014 9:30 pm
Operator :
Sample : ICAL,S25415
Misc : ICAL
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 16 14:36:47 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.825	196	2333341m	95.8773	ug/mL	
40) 2-Fluorobiphenyl	8.878	172	4334004	55.0160	ug/mL	93
41) 2-Chloronaphthalene	9.039	162	3779479	57.1701	ug/mL	94
42) 2-Nitroaniline	9.172	65	2900781	117.5509	ug/mL	97
43) Dimethylphthalate	9.402	163	7895696	105.1246	ug/mL	96
44) 2,6-Dinitrotoluene	9.471	165	2161055	120.1169	ug/mL	91
45) Acenaphthylene	9.562	152	6202938	69.7742	ug/mL	95
46) 3-Nitroaniline	9.696	138	2726925	125.9354	ug/mL #	72
47) Acenaphthene	9.781	154	3732568	54.1136	ug/mL	95
48) 2,4-Dinitrophenol	9.813	184	1387536	117.3025	ug/mL #	1
49) 4-Nitrophenol	9.899	109	1357426m	109.2585	ug/mL	
50) Dibenzofuran	9.995	168	4820203	50.3636	ug/mL	73
51) 2,4-Dinitrotoluene	9.984	165	2643627	111.2380	ug/mL	96
52) 2,3,4,6-Tetrachlorophenol	10.150	232	1874521	96.7356	ug/mL	91
53) Diethylphthalate	10.262	149	4630464	59.3920	ug/mL	99
54) 4-Chlorophenyl-phenylether	10.406	204	1900346	51.1987	ug/mL #	71
55) Fluorene	10.428	166	4247591	51.5203	ug/mL	87
56) 4-Nitroaniline	10.492	138	2670223	148.4245	ug/mL #	1
57) 2,4,6-Tribromophenol	10.727	330	639549	51.9077	ug/mL #	85
59) 4,6-Dinitro-2-methylphenol	10.508	198	1723362	110.6407	ug/mL	93
60) N-Nitrosodiphenylamine	10.567	169	3385897	61.8484	ug/mL	90
61) Azobenzene	10.615	77	5311750	58.1590	ug/mL	94
62) 4-Bromophenyl-phenylether	11.026	248	1219419	51.7284	ug/mL #	77
63) Hexachlorobenzene	11.138	284	2158613	91.8456	ug/mL	87
64) Pentachlorophenol	11.368	266	1651948	96.2886	ug/mL	95
65) Phenanthrene	11.640	178	5913542	54.8362	ug/mL	94
66) Anthracene	11.704	178	5989837m	57.3597	ug/mL	
67) Carbazole	11.902	167	10340745	118.9760	ug/mL	78
68) Di-n-butylphthalate	12.292	149	7545946	59.6476	ug/mL	95
69) Fluoranthene	13.131	202	6680320	55.7695	ug/mL	91
71) Benzidine	13.280	184	5865433	152.8186	ug/mL	96
72) Pyrene	13.425	202	7188939	63.0501	ug/mL	88
73) Terphenyl-d14	13.585	244	4822147	60.4184	ug/mL	86
74) Butylbenzylphthalate	14.178	149	3819074	70.8750	ug/mL	89
75) 3,3'-Dichlorobenzidine	14.985	252	3976693	120.3920	ug/mL	99
76) Benzo(a)anthracene	15.033	228	6569553	60.2334	ug/mL	99
77) bis(2-Ethylhexyl)phthalate	15.001	149	3613543	49.7537	ug/mL	99
78) Chrysene	15.107	228	6012251	59.6923	ug/mL	93
80) Di-n-octylphthalate	16.171	149	9534960	76.9178	ug/mL	93
81) Benzo(b)fluoranthene	17.111	252	7094686	69.9764	ug/mL	96
82) Benzo(k)fluoranthene	17.175	252	5793824m	60.0706	ug/mL	
83) Benzo(a)pyrene	17.891	252	6520340	76.2020	ug/mL	96
84) Indeno(1,2,3-cd)pyrene	21.101	276	7522419	70.3119	ug/mL	81

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF14.D
Acq On : 15 Aug 2014 9:30 pm
Operator :
Sample : ICAL,S25415
Misc : ICAL
ALS Vial : 14 Sample Multiplier: 1

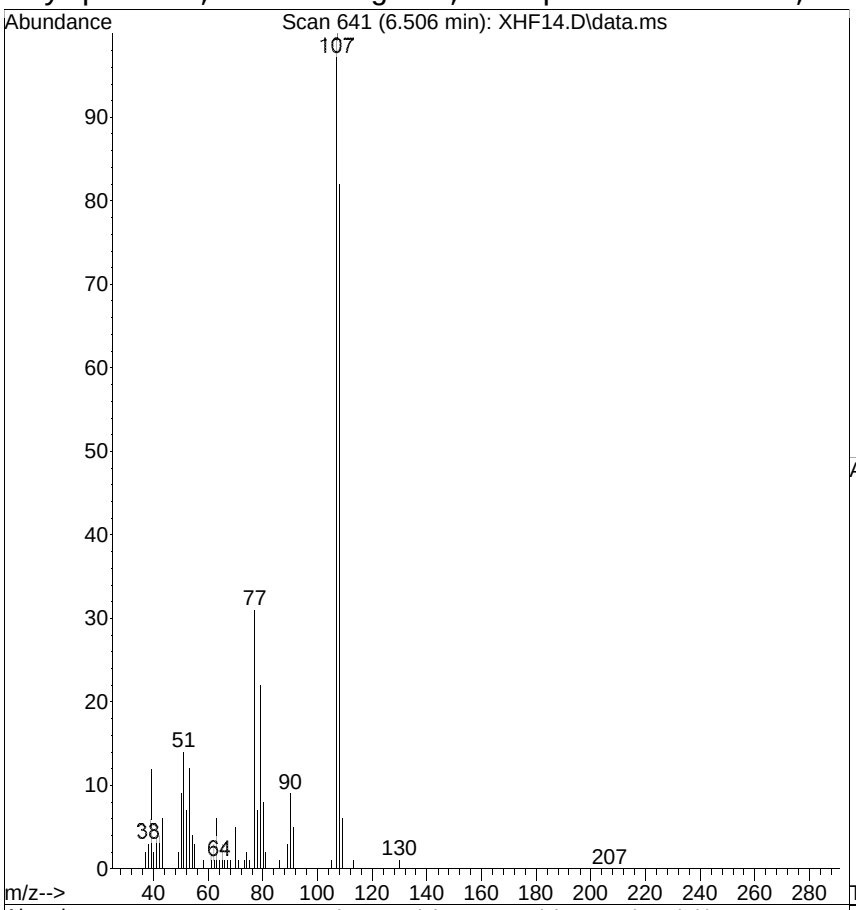
Quant Time: Aug 16 14:36:47 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Fri Aug 15 15:33:52 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.182	278	6400232	68.0654	ug/mL	94
86) Benzo(g,h,i)perylene	21.897	276	6199455	71.5924	ug/mL	91

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

[4-Methylphenol; 120.0 ug/mL; response=5469646; MI]

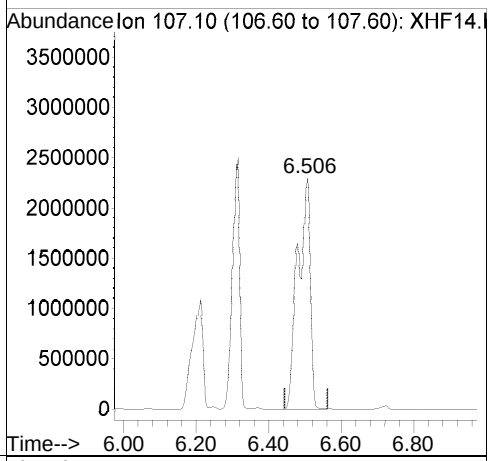
Raw



#16
4-Methylphenol
Concen: 134.6700 ug/mL m
RT: 6.506 min Scan# 641
Delta R.T. 0.032 min
Lab File: XHF14.D
Acq: 15 Aug 2014 9:30 pm

Tgt Ion:107 Resp: 5469646

Ion	Ratio	Lower	Upper
107	100		
108	81.9	71.0	111.0
77	31.1	8.0	48.0



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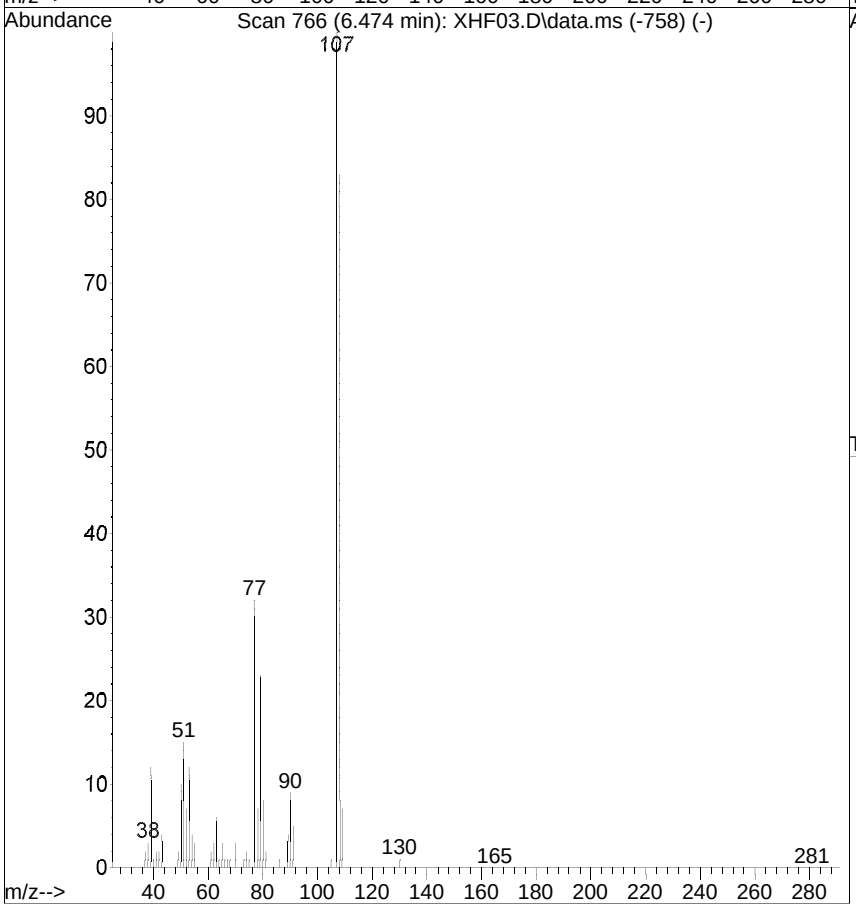
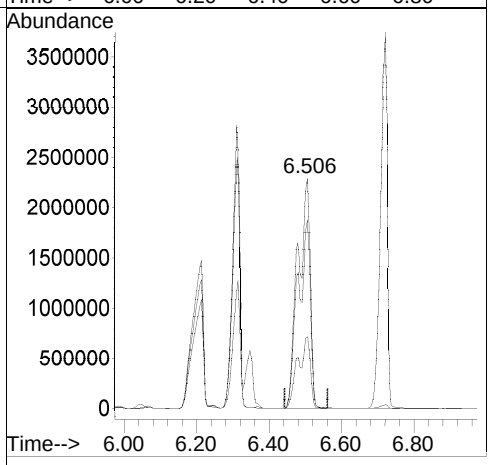
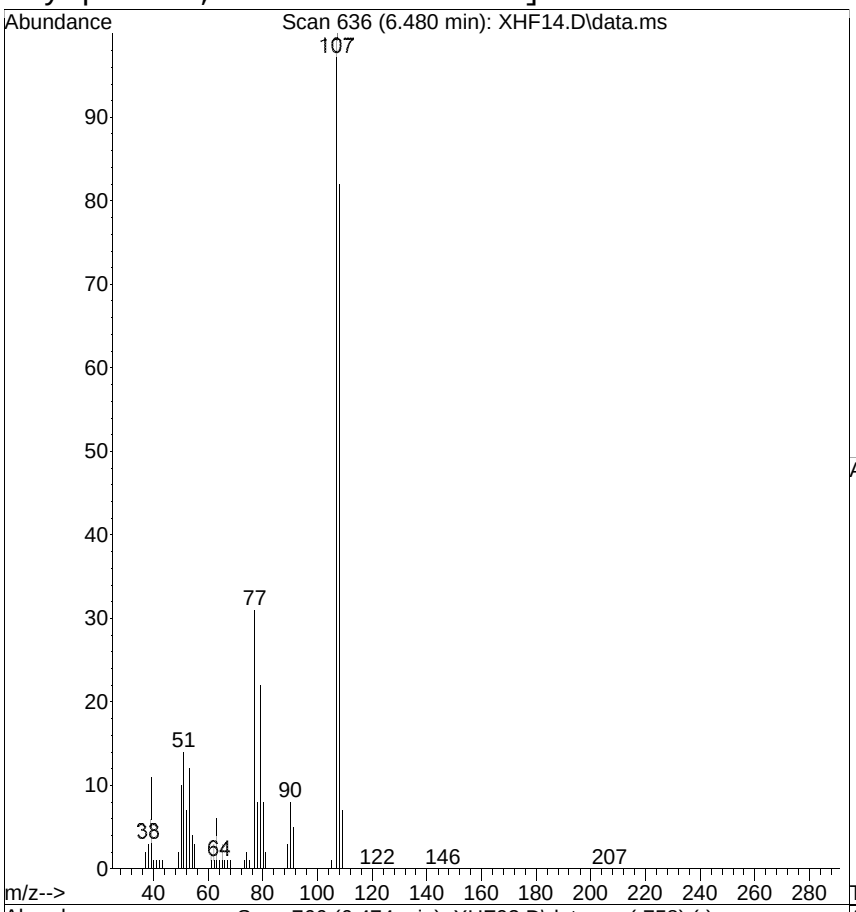




[4-Methylphenol; before version]

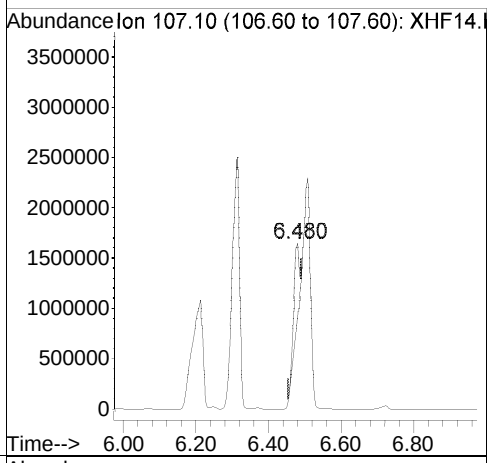
Raw



#16
4-Methylphenol
Concen: 24.7879 ug/mL
RT: 6.480 min Scan# 636
Delta R.T. 0.006 min
Lab File: XHF14.D
Acq: 15 Aug 2014 9:30 pm

Tgt Ion:107 Resp: 1006764

Ion	Ratio	Lower	Upper
107	100		
108	82.4	71.0	111.0
77	31.4	8.0	48.0



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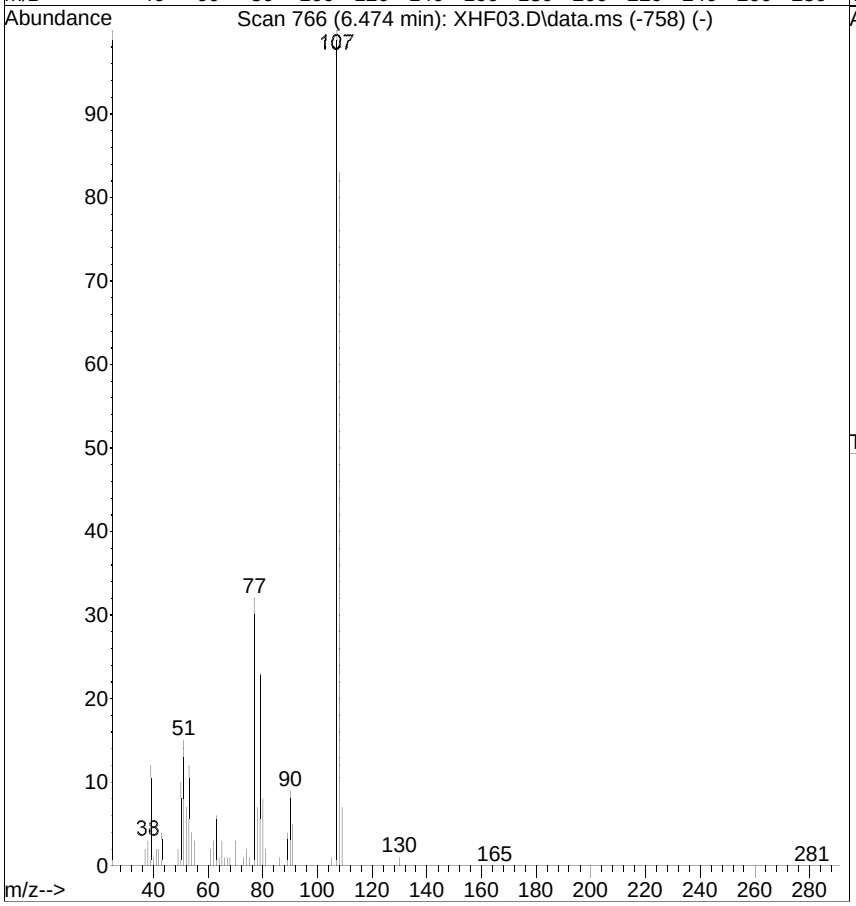
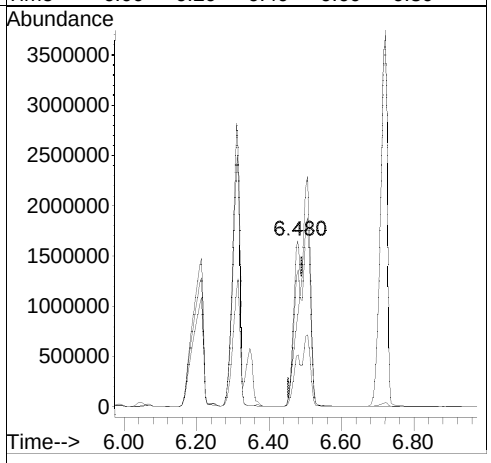
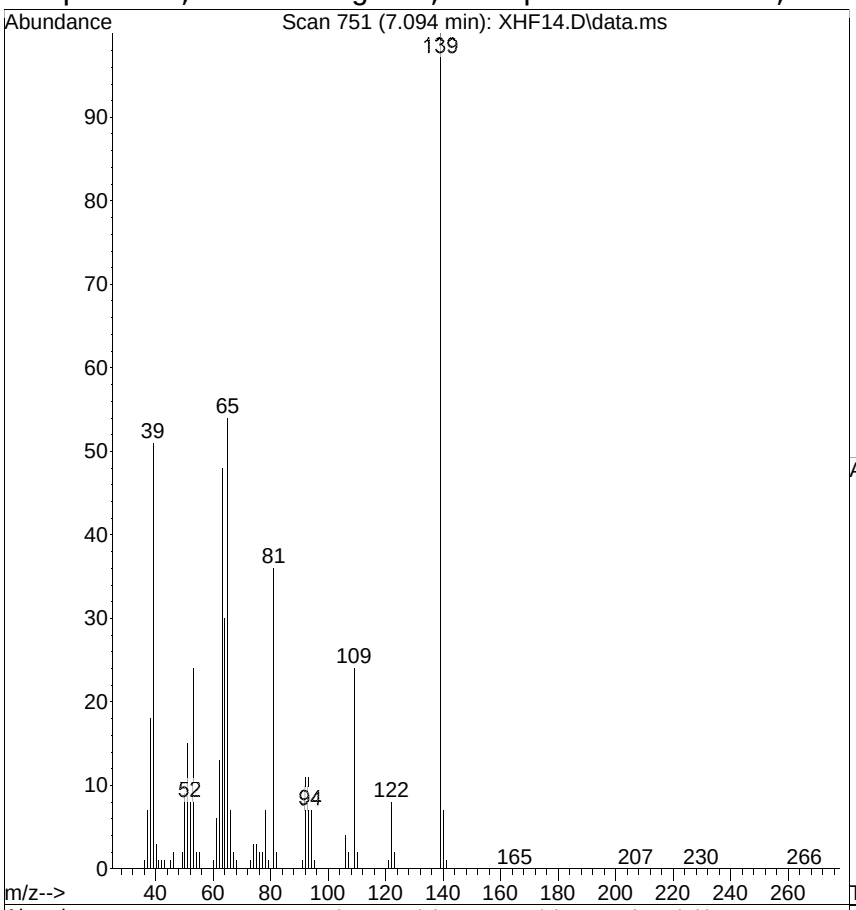




[2-Nitrophenol; 120.0 ug/mL; response=2450226; MI]

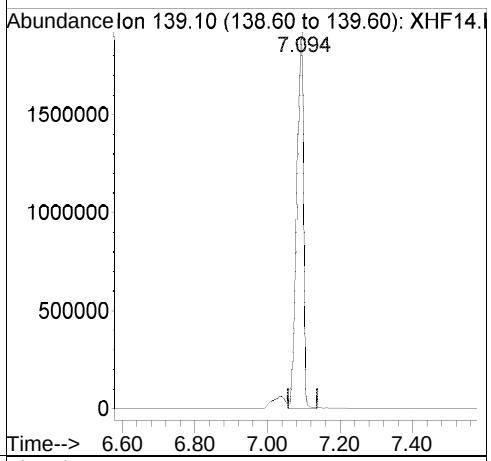
Raw



#23
2-Nitrophenol
Concen: 119.0790 ug/mL m
RT: 7.094 min Scan# 751
Delta R.T. 0.016 min
Lab File: XHF14.D
Acq: 15 Aug 2014 9:30 pm

Tgt Ion:139 Resp: 2450226

Ion	Ratio	Lower	Upper
139	100		
65	53.8	42.0	82.0
109	24.2	14.0	54.0



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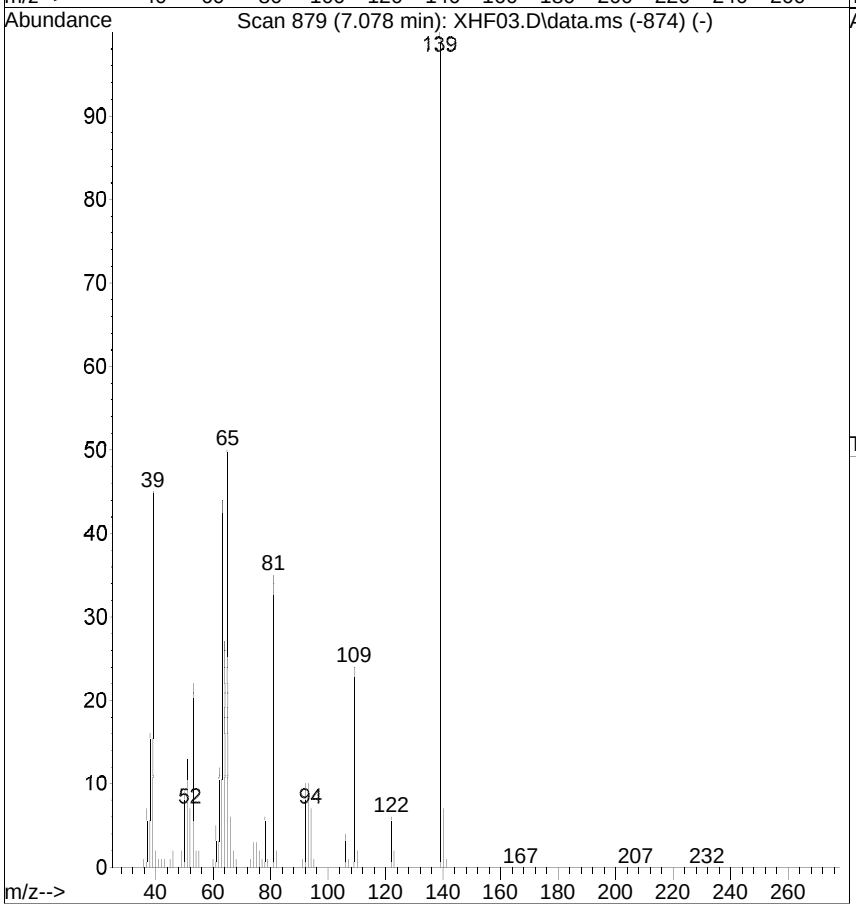
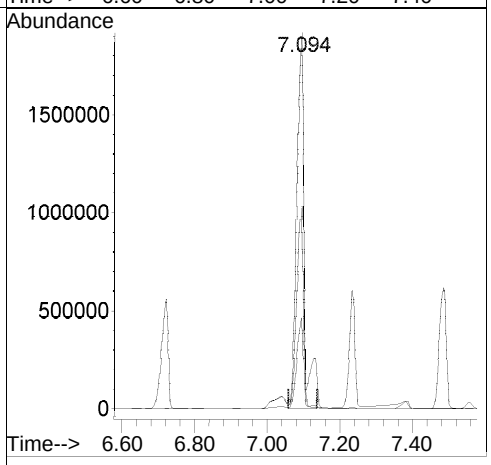
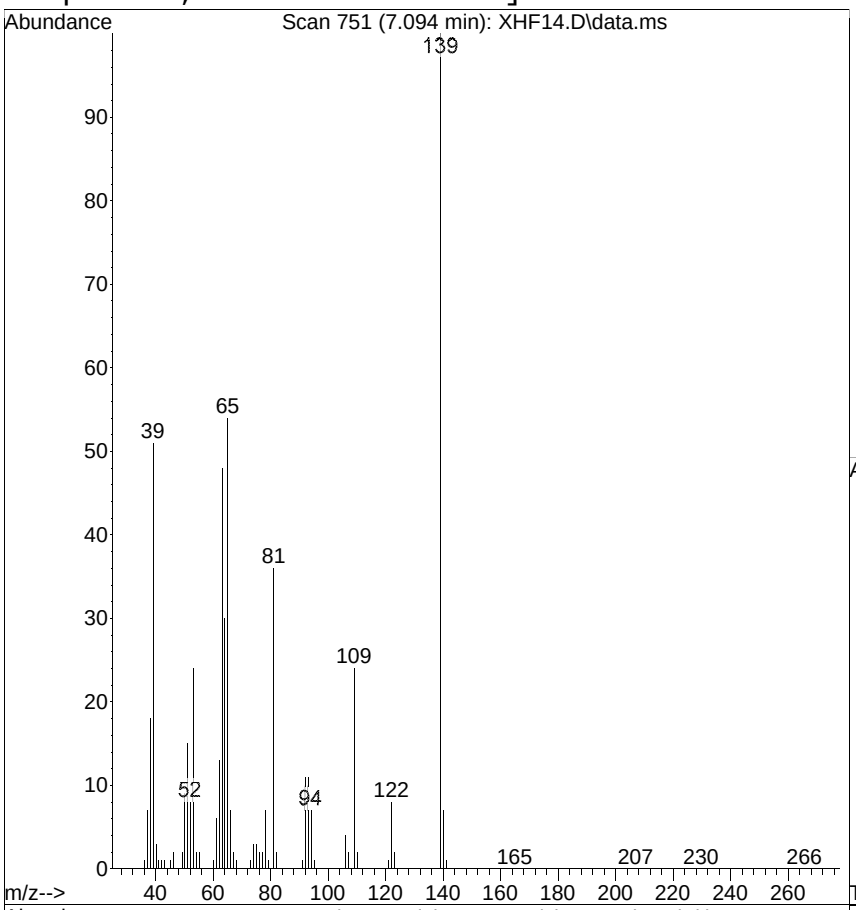




[2-Nitrophenol; before version]

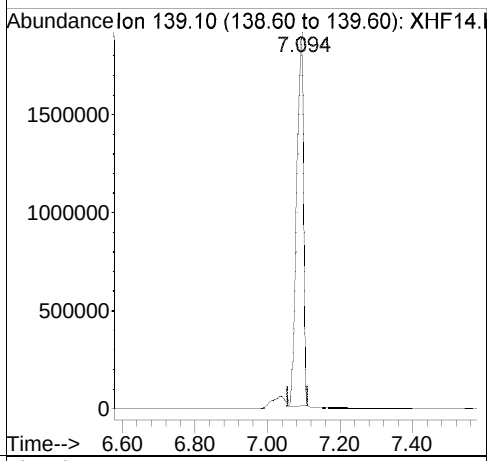
Raw



#23
2-Nitrophenol
Concen: 116.6601 ug/mL
RT: 7.094 min Scan# 751
Delta R.T. 0.016 min
Lab File: XHF14.D
Acq: 15 Aug 2014 9:30 pm

Tgt Ion:139 Resp: 2400452

Ion	Ratio	Lower	Upper
139	100		
65	53.8	42.0	82.0
109	24.2	14.0	54.0



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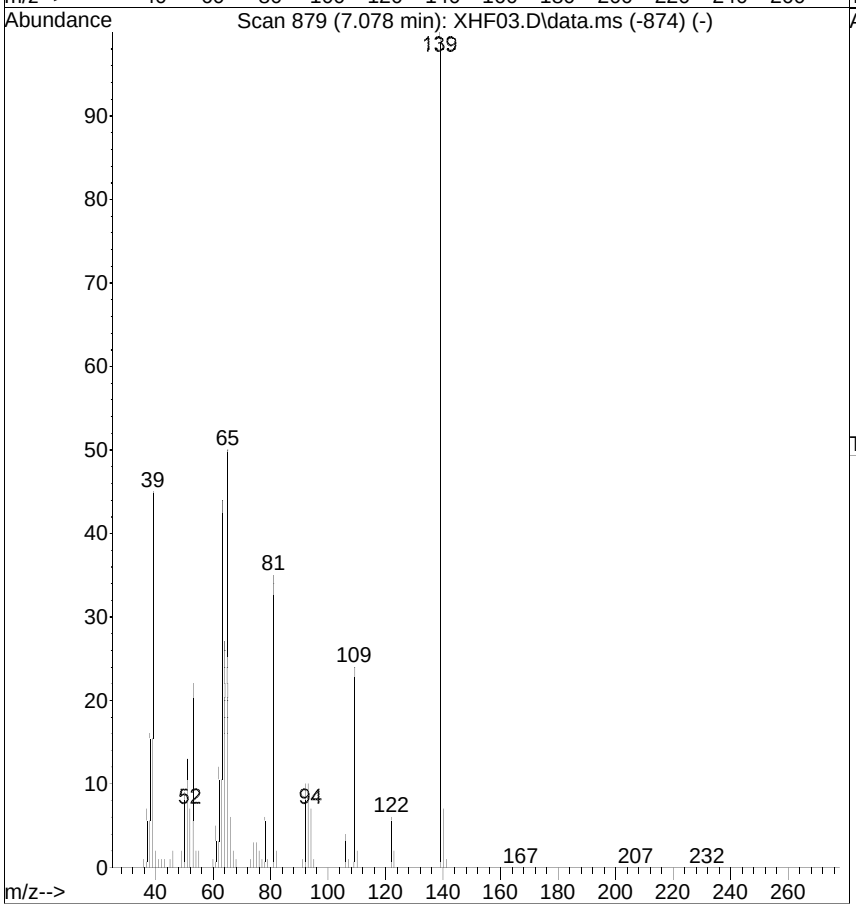
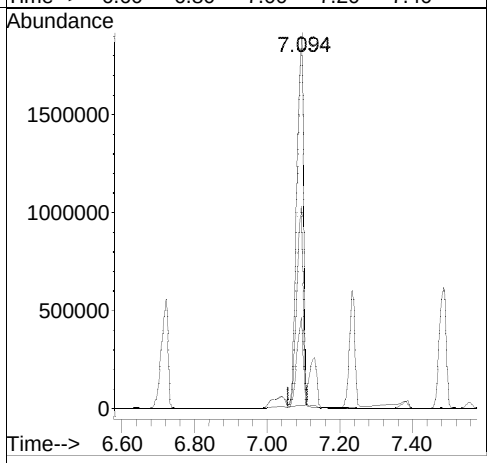
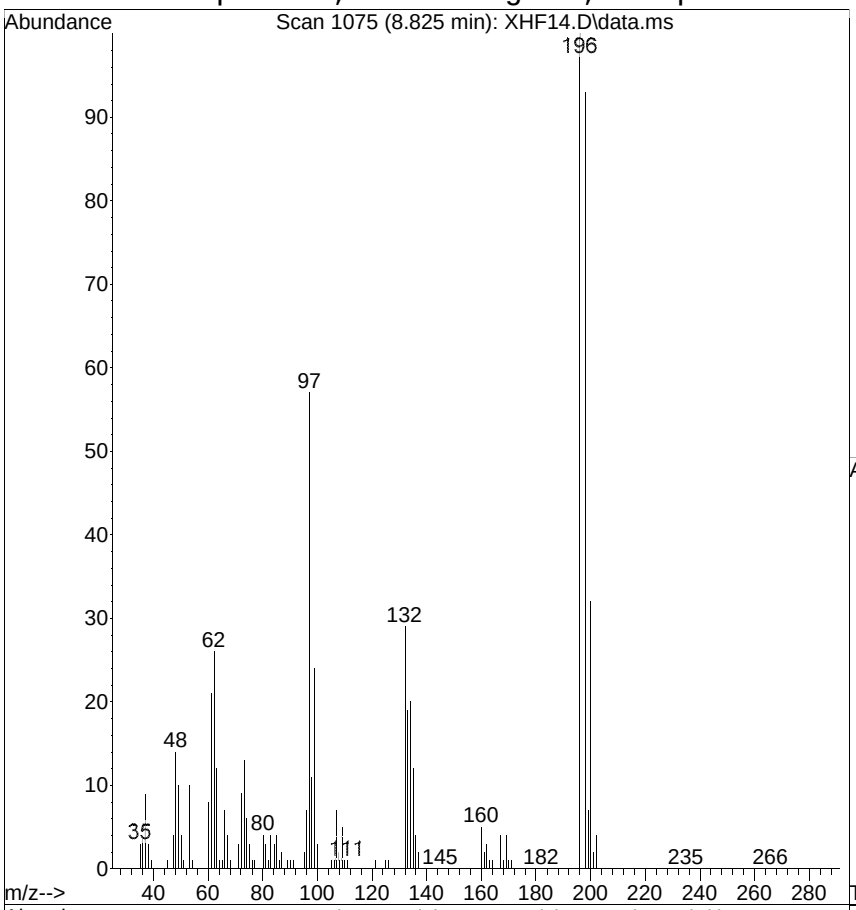




[2,4,5-Trichlorophenol; 120.0 ug/mL; response=2333341; MI]

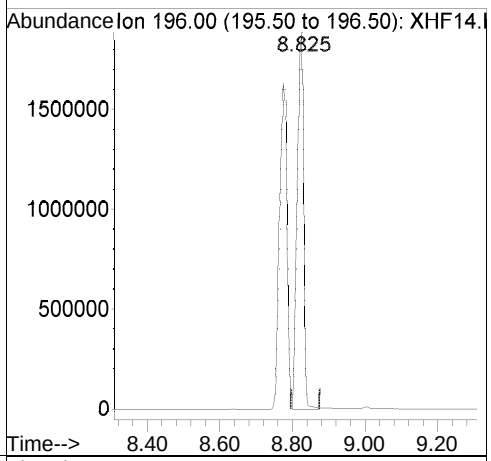
Raw



#39
2,4,5-Trichlorophenol
Concen: 95.8773 ug/mL m
RT: 8.825 min Scan# 1075
Delta R.T. 0.016 min
Lab File: XHF14.D
Acq: 15 Aug 2014 9:30 pm

Tgt Ion:196 Resp: 2333341

Ion	Ratio	Lower	Upper
196	100		
198	93.5	69.0	109.0
97	57.2	21.0	61.0



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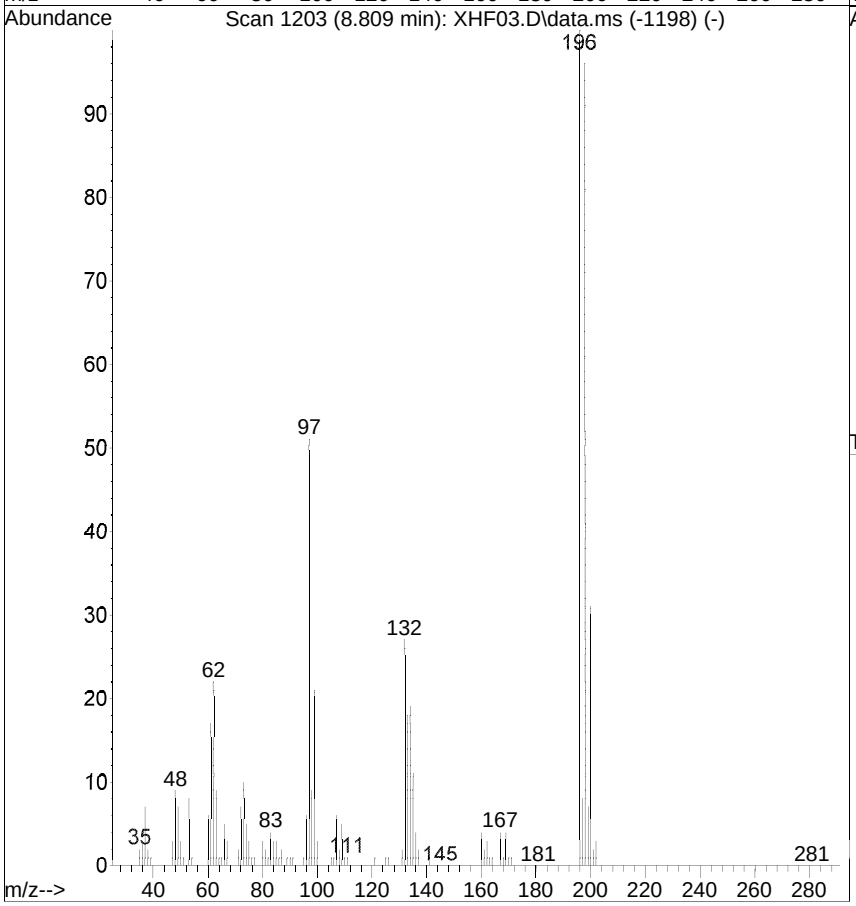
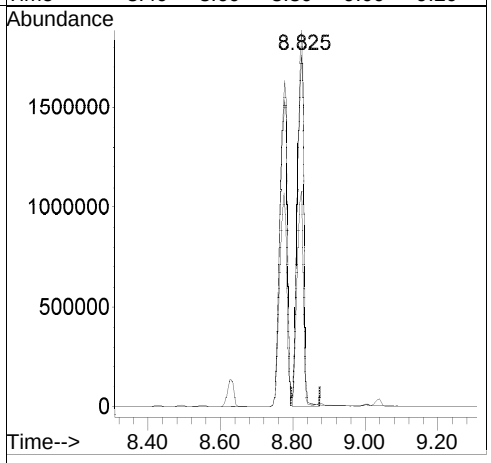
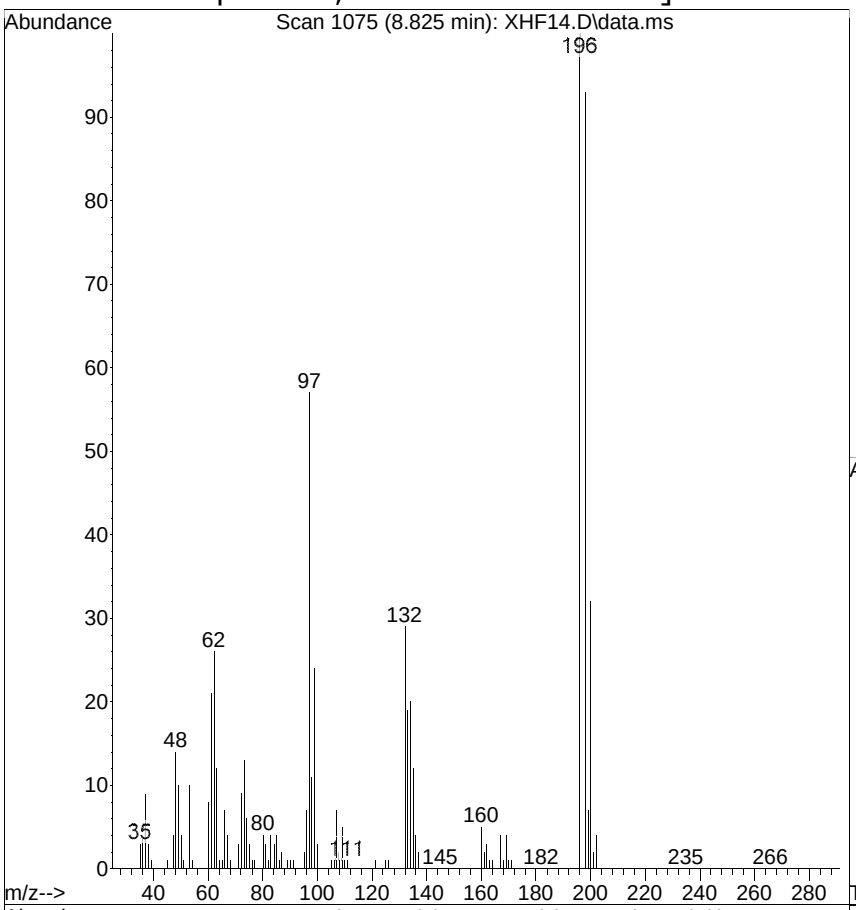




[2,4,5-Trichlorophenol; before version]

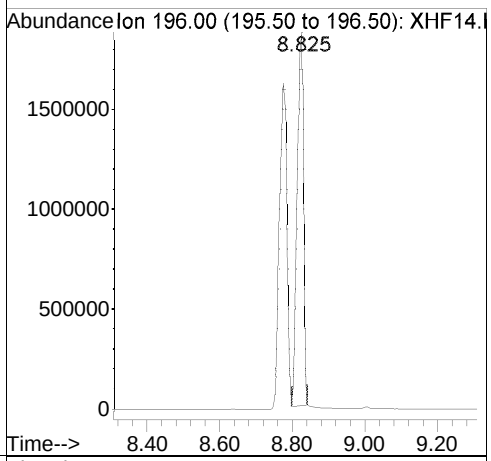
Raw



#39
2,4,5-Trichlorophenol
Concen: 93.4060 ug/mL
RT: 8.825 min Scan# 1075
Delta R.T. 0.016 min
Lab File: XHF14.D
Acq: 15 Aug 2014 9:30 pm

Tgt Ion:196 Resp: 2273199

Ion	Ratio	Lower	Upper
196	100		
198	93.5	69.0	109.0
97	57.2	21.0	61.0



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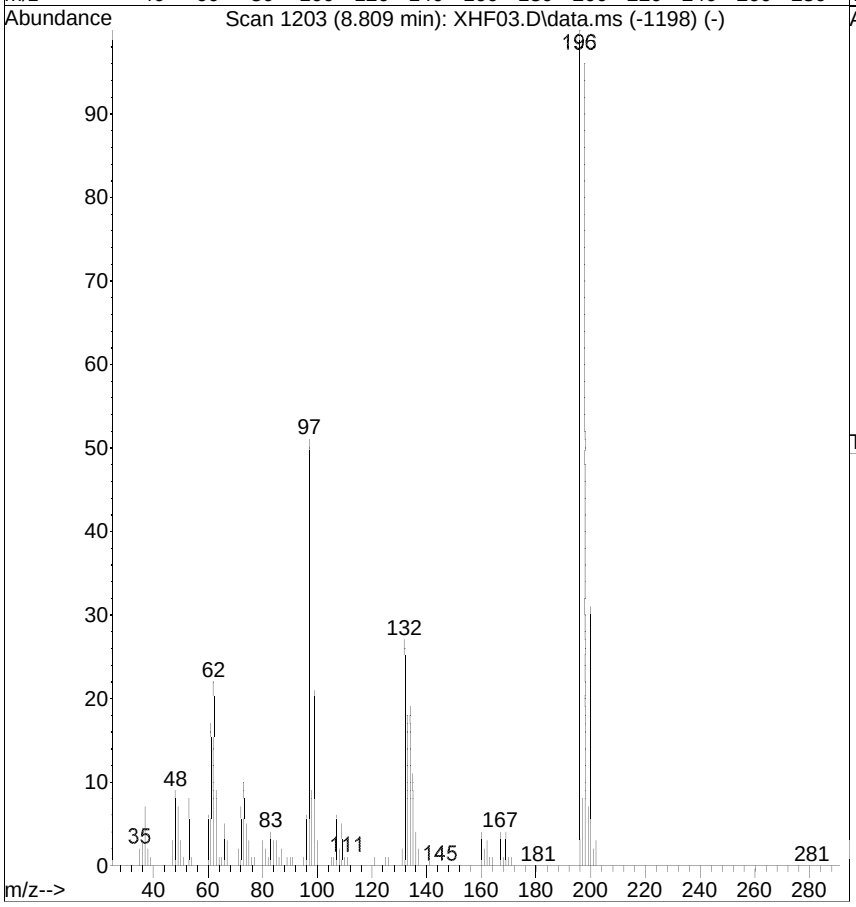
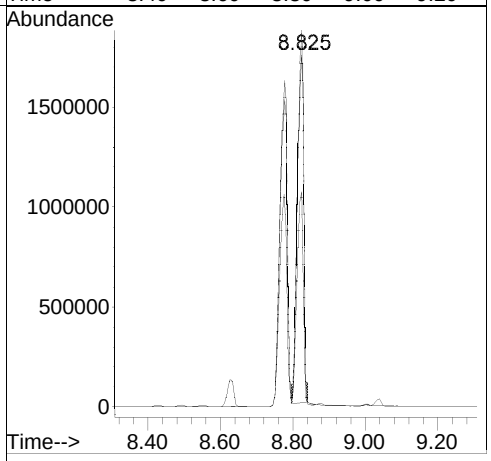
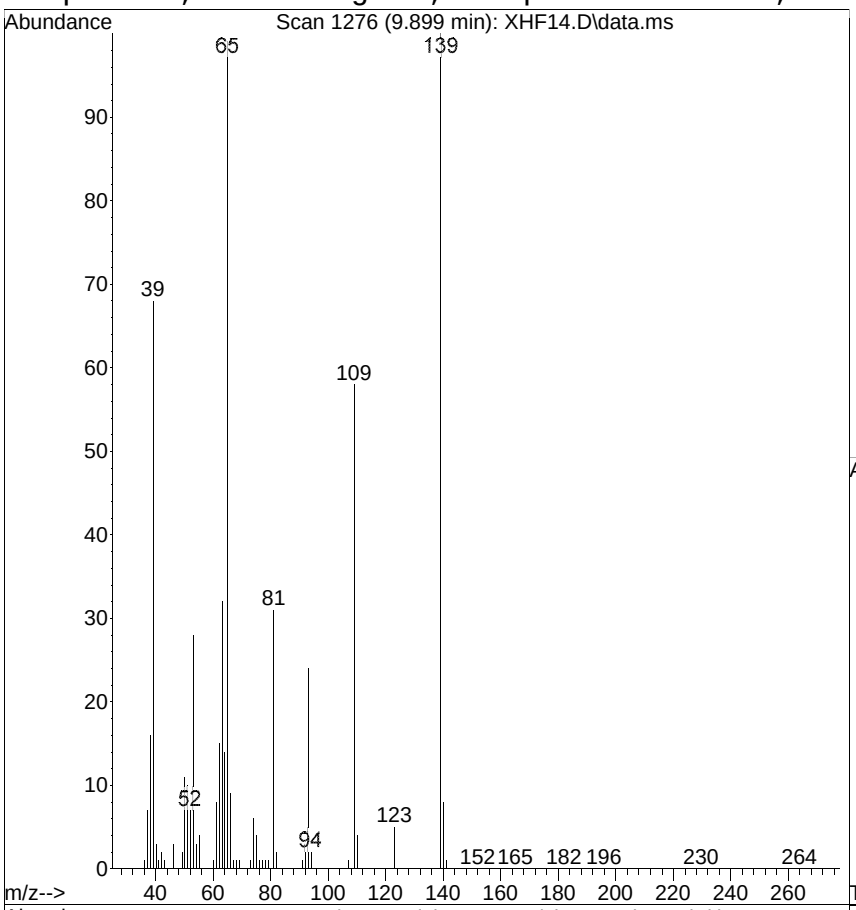




[4-Nitrophenol; 120.0 ug/mL; response=1357426; MI]

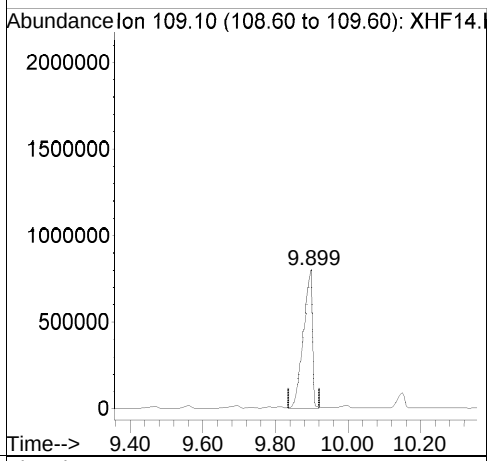
Raw



#49
4-Nitrophenol
Concen: 109.2585 ug/mL m
RT: 9.899 min Scan# 1276
Delta R.T. 0.043 min
Lab File: XHF14.D
Acq: 15 Aug 2014 9:30 pm

Tgt Ion:109 Resp: 1357426

Ion	Ratio	Lower	Upper
109	100		
139	172.6	109.0	149.0#
65	171.0	122.0	162.0#



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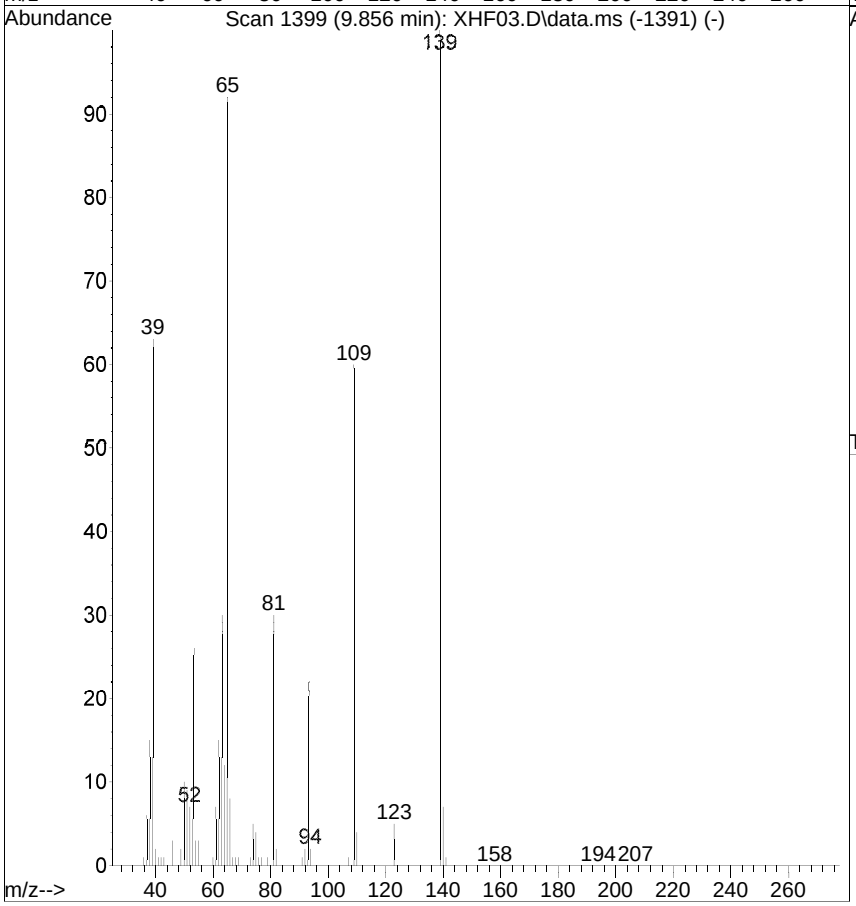
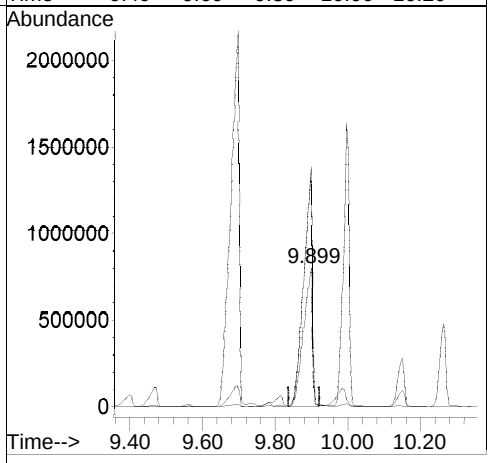
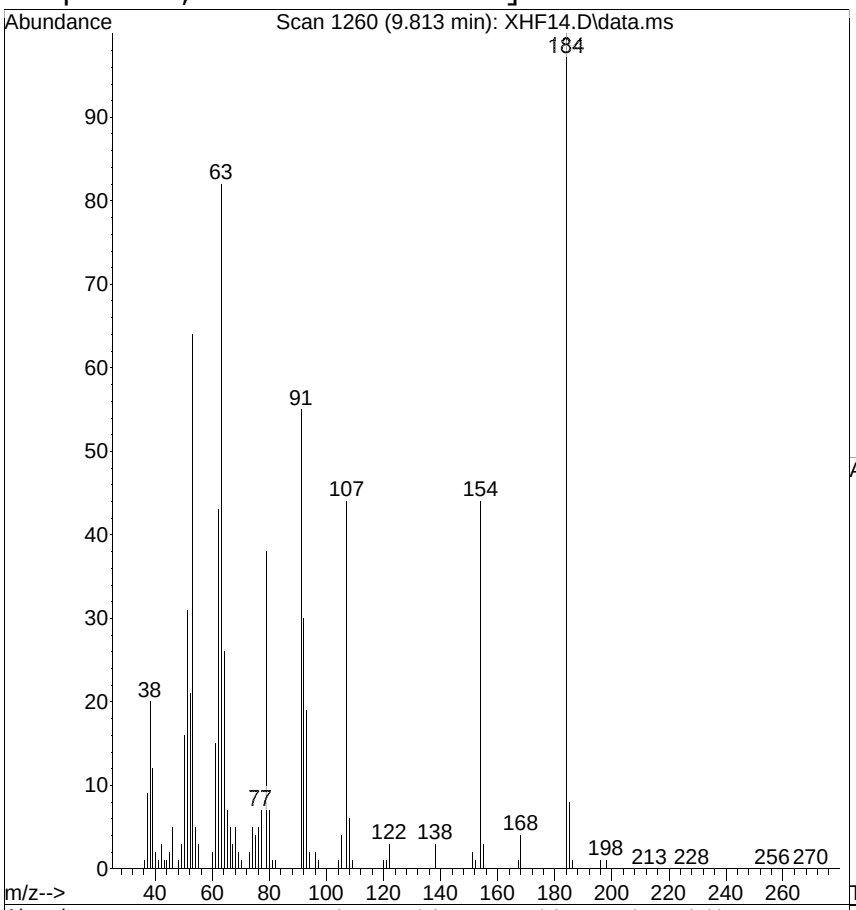




[4-Nitrophenol; before version]

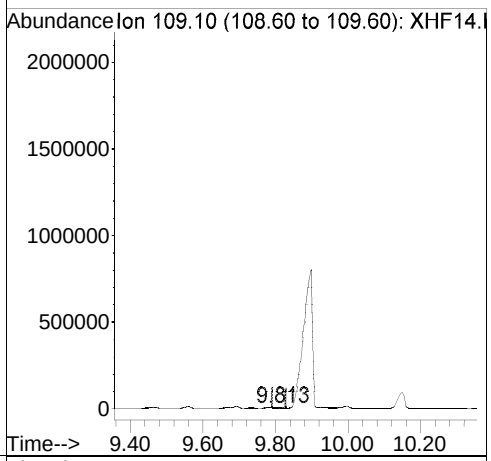
Raw



#49
4-Nitrophenol
Concen: 0.4076 ug/mL
RT: 9.813 min Scan# 1260
Delta R.T. -0.043 min
Lab File: XHF14.D
Acq: 15 Aug 2014 9:30 pm

Tgt Ion:109 Resp: 5064

Ion	Ratio	Lower	Upper
109	100		
139	51.3	109.0	149.0#
65	935.6	122.0	162.0#



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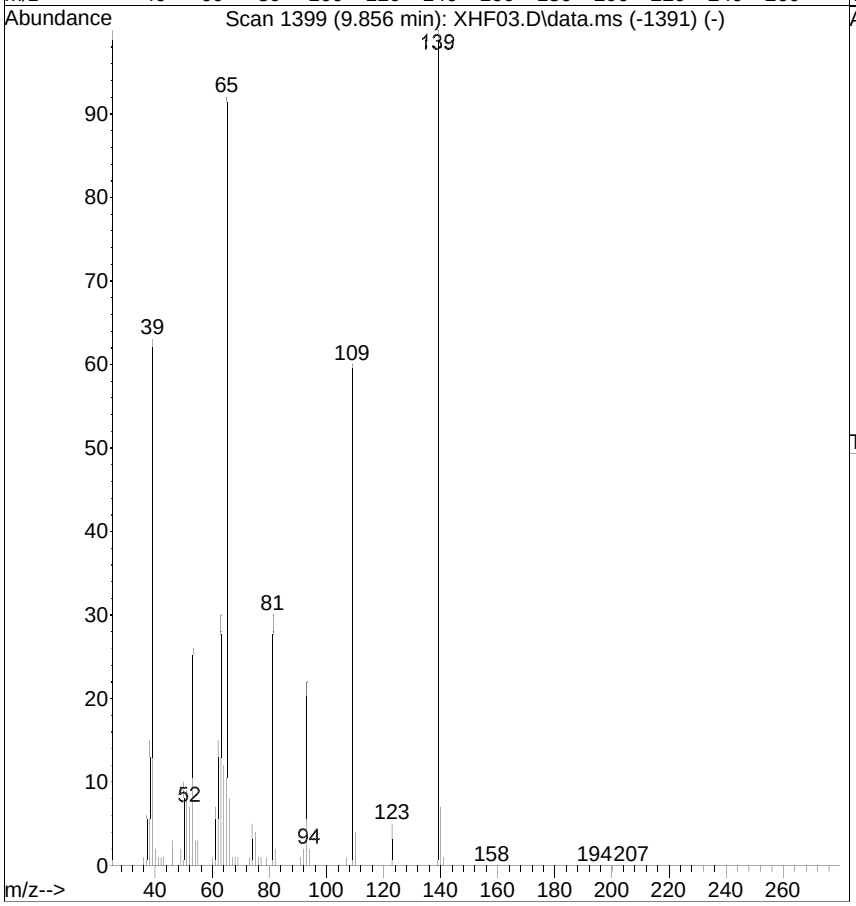
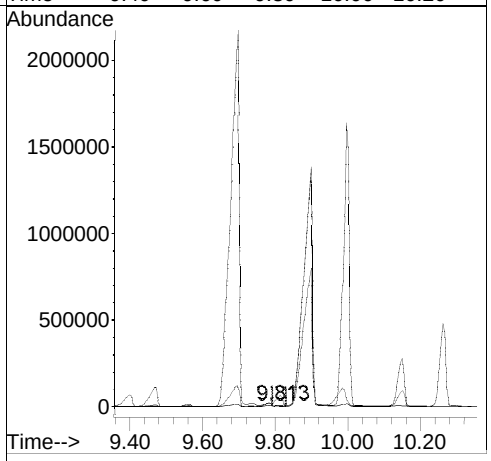
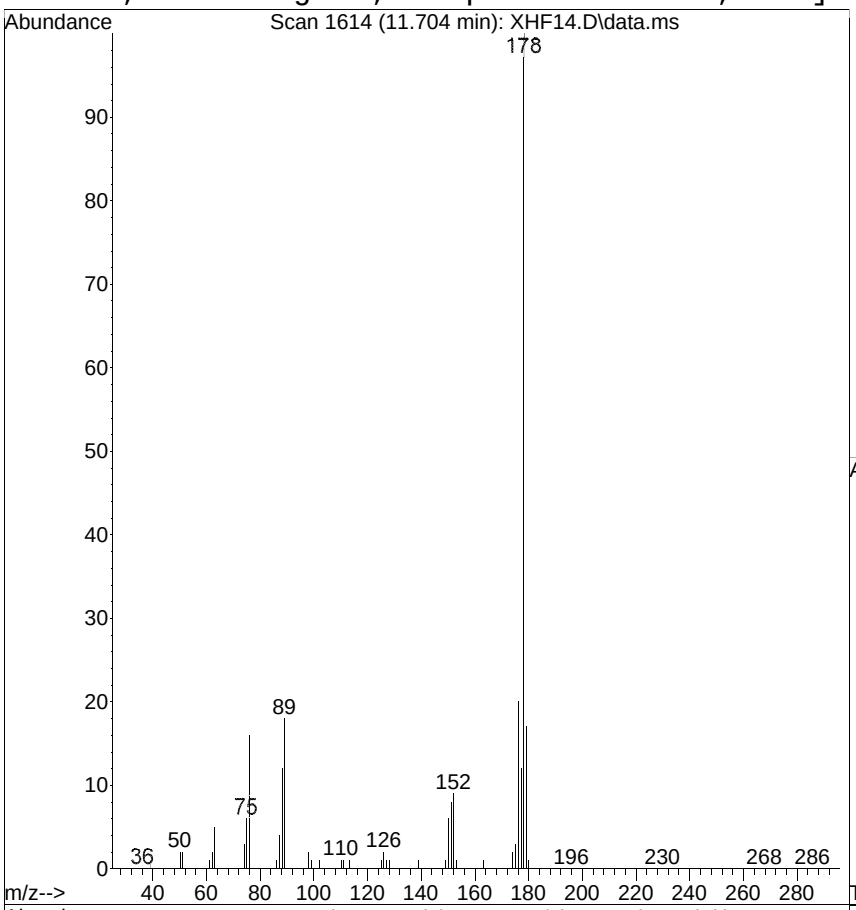




[Anthracene; 60.00 ug/mL; response=5989837; MI]

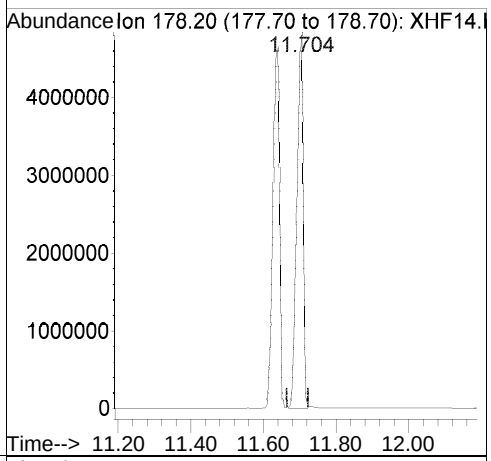
Raw



#66
Anthracene
Concen: 57.3597 ug/mL m
RT: 11.704 min Scan# 1614
Delta R.T. 0.016 min
Lab File: XHF14.D
Acq: 15 Aug 2014 9:30 pm

Tgt Ion:178 Resp: 5989837

Ion	Ratio	Lower	Upper
178	100		
176	20.2	0.0	35.0
179	17.1	0.0	35.0



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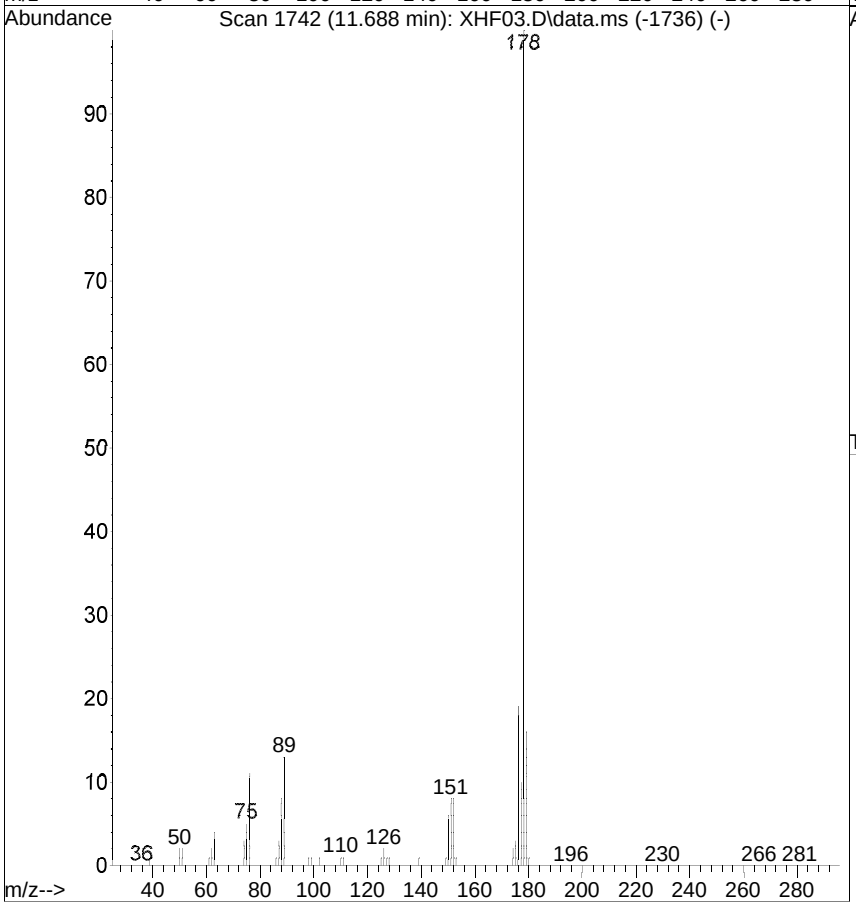
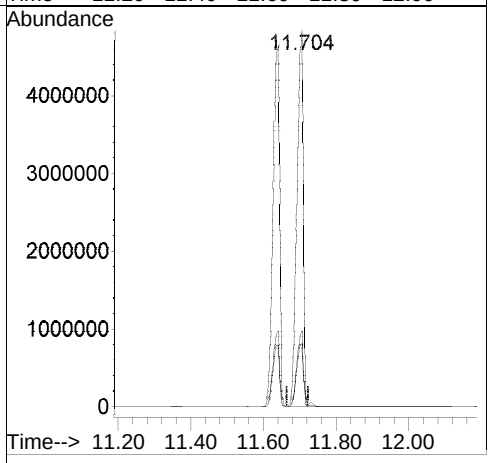
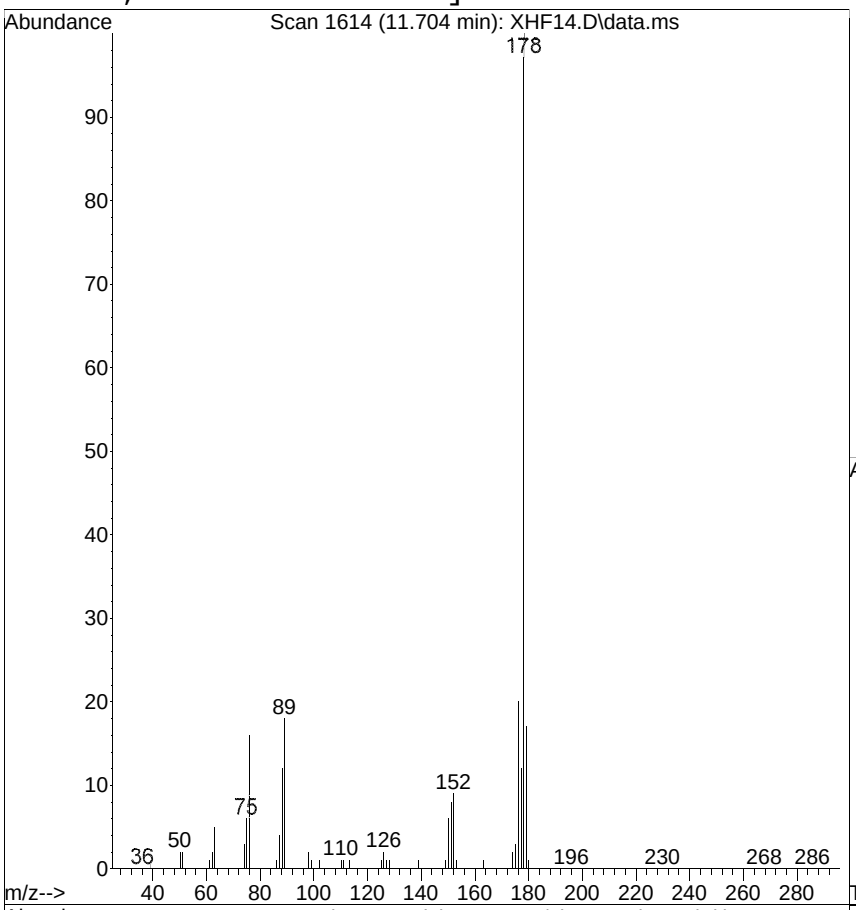




[Anthracene; before version]

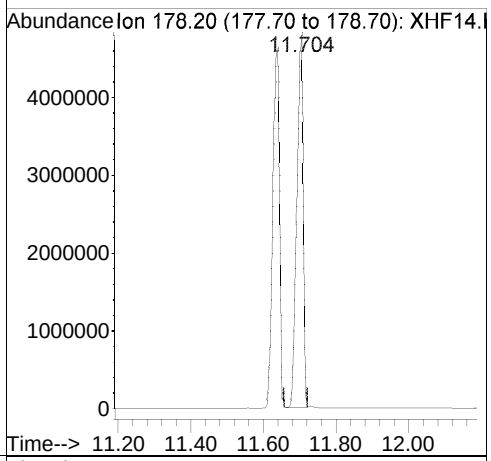
Raw



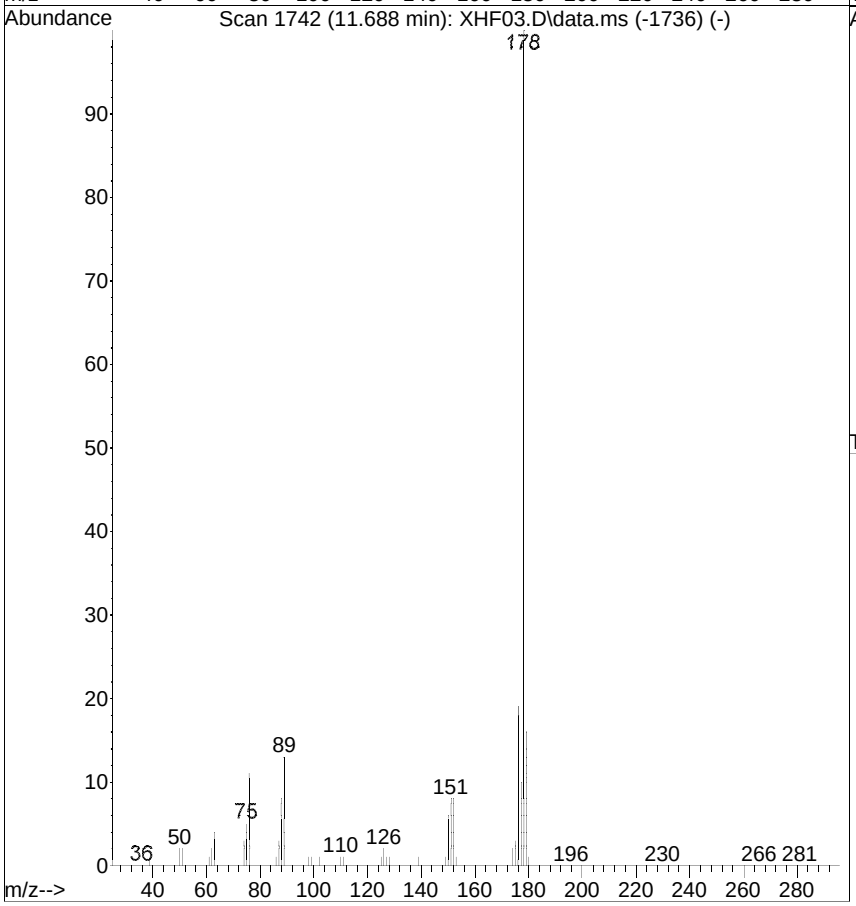
#66
Anthracene
Concen: 57.0155 ug/mL
RT: 11.704 min Scan# 1614
Delta R.T. 0.016 min
Lab File: XHF14.D
Acq: 15 Aug 2014 9:30 pm

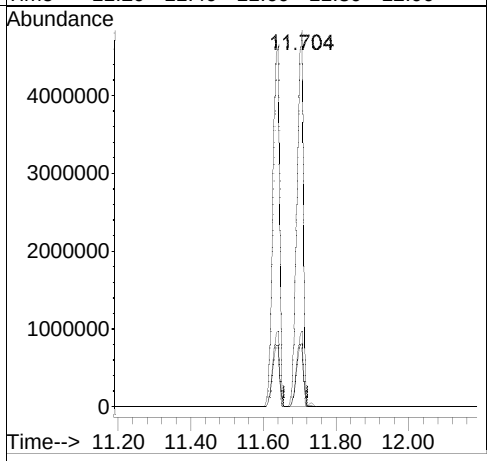
Tgt Ion:178 Resp: 5953896

Ion	Ratio	Lower	Upper
178	100		
176	20.2	0.0	35.0
179	17.1	0.0	35.0



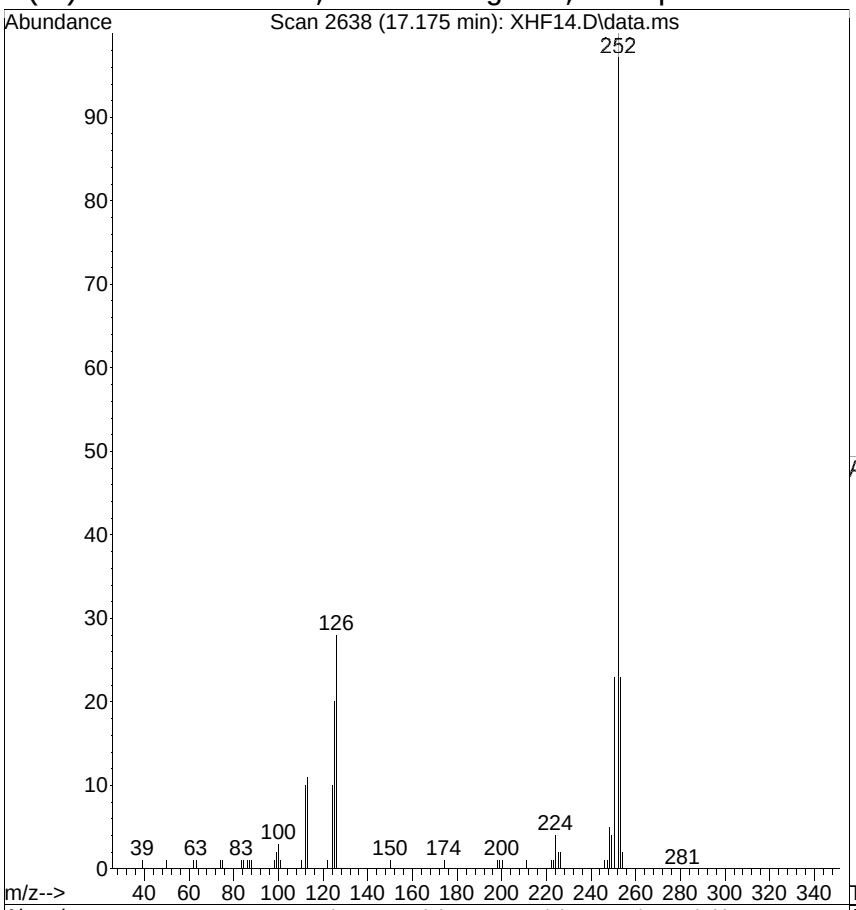
Ref





[Benzo(k)fluoranthene; 60.00 ug/mL; response=5793824; MI]

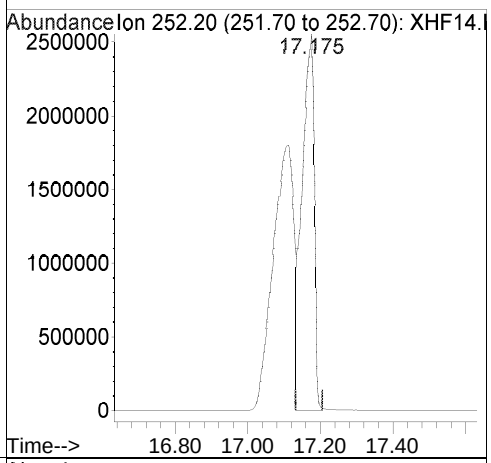
Raw



#82
Benzo(k)fluoranthene
Concen: 60.0706 ug/mL m
RT: 17.175 min Scan# 2638
Delta R.T. 0.043 min
Lab File: XHF14.D
Acq: 15 Aug 2014 9:30 pm

Tgt Ion:252 Resp: 5793824

Ion	Ratio	Lower	Upper
252	100		
253	23.1	3.0	43.0
125	19.7	0.0	37.0



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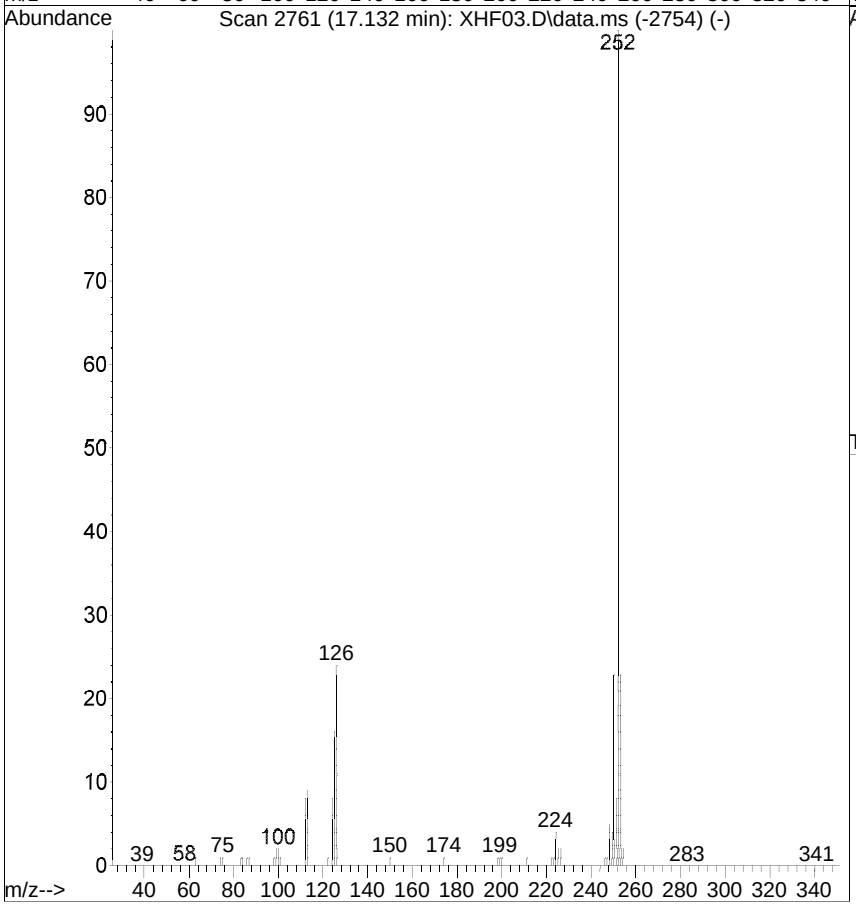
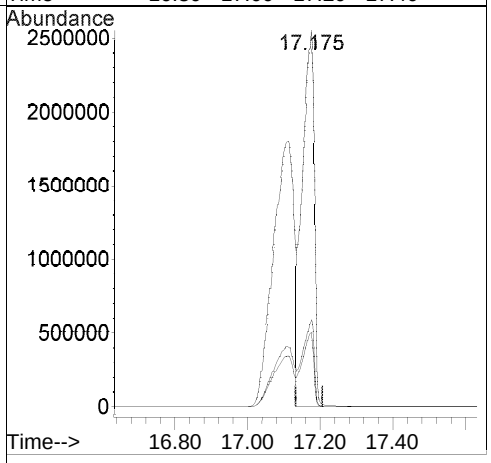
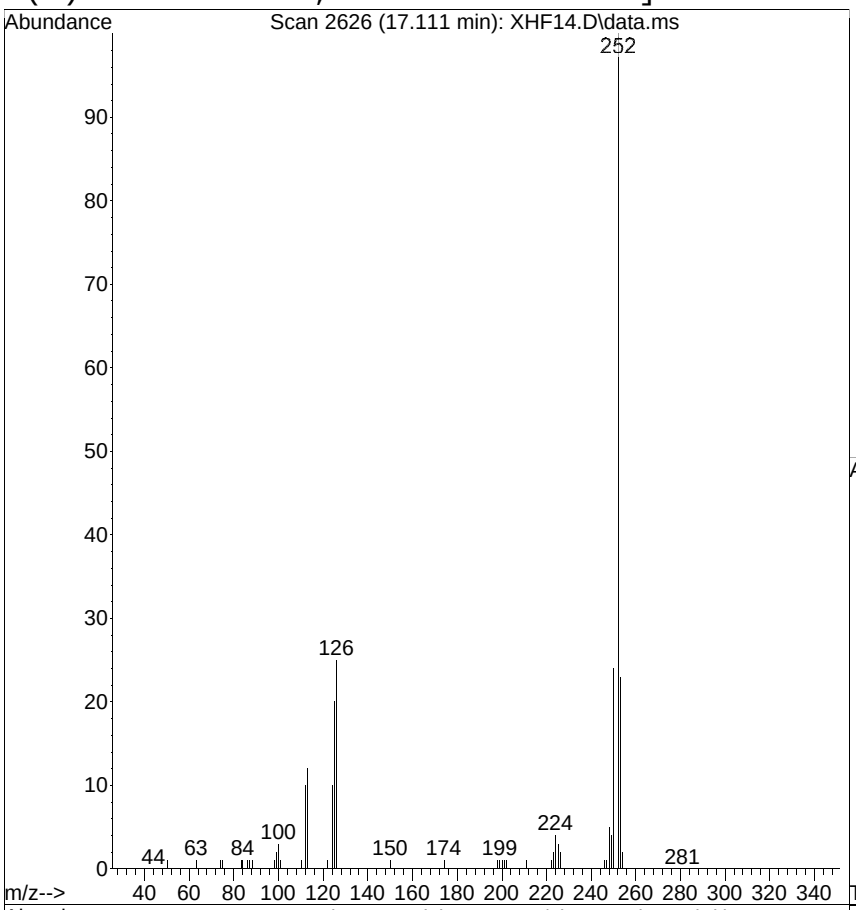




[Benzo(k)fluoranthene; before version]

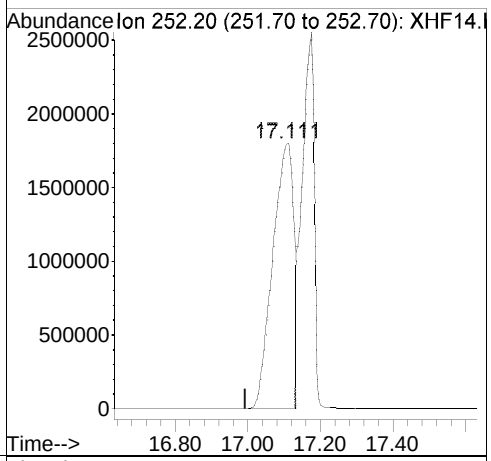
Raw



#82
Benzo(k)fluoranthene
Concen: 73.5580 ug/mL
RT: 17.111 min Scan# 2626
Delta R.T. -0.021 min
Lab File: XHF14.D
Acq: 15 Aug 2014 9:30 pm

Tgt Ion:252 Resp: 7094686

Ion	Ratio	Lower	Upper
252	100		
253	22.7	3.0	43.0
125	19.5	0.0	37.0



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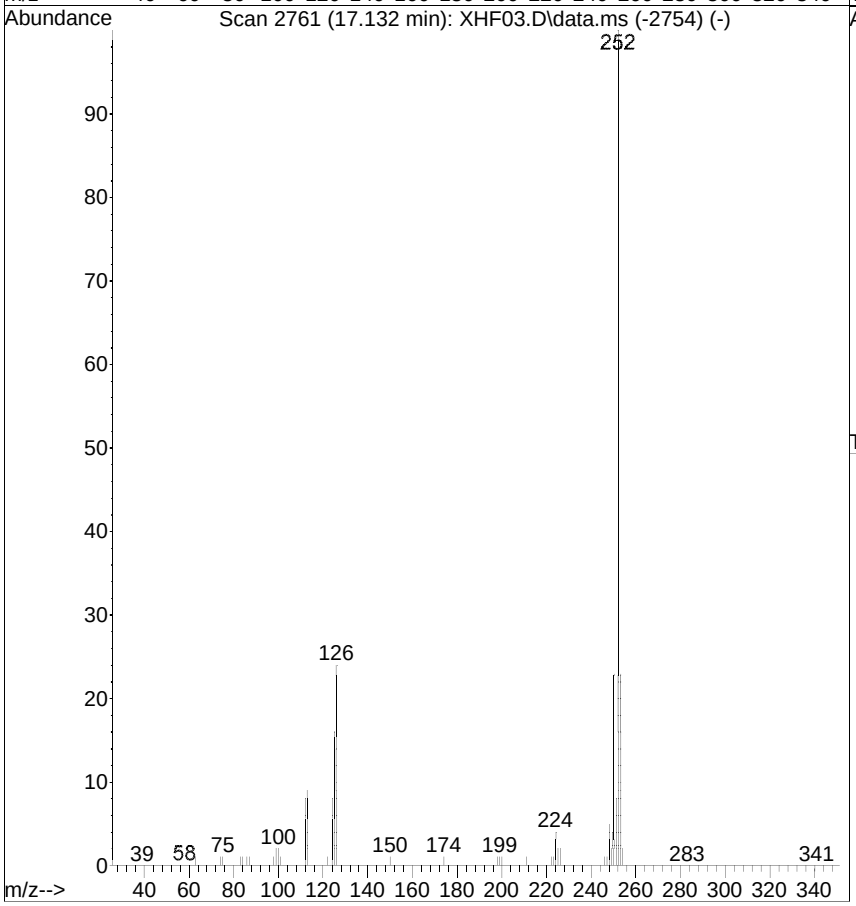
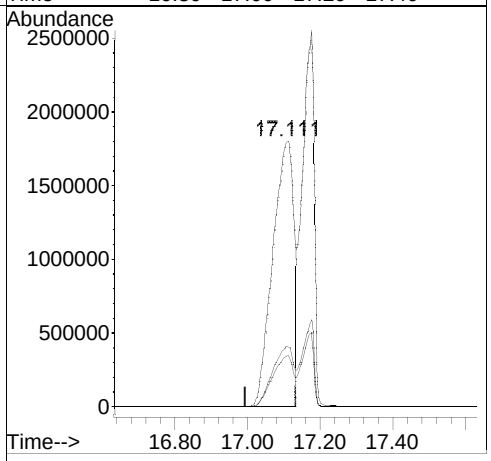
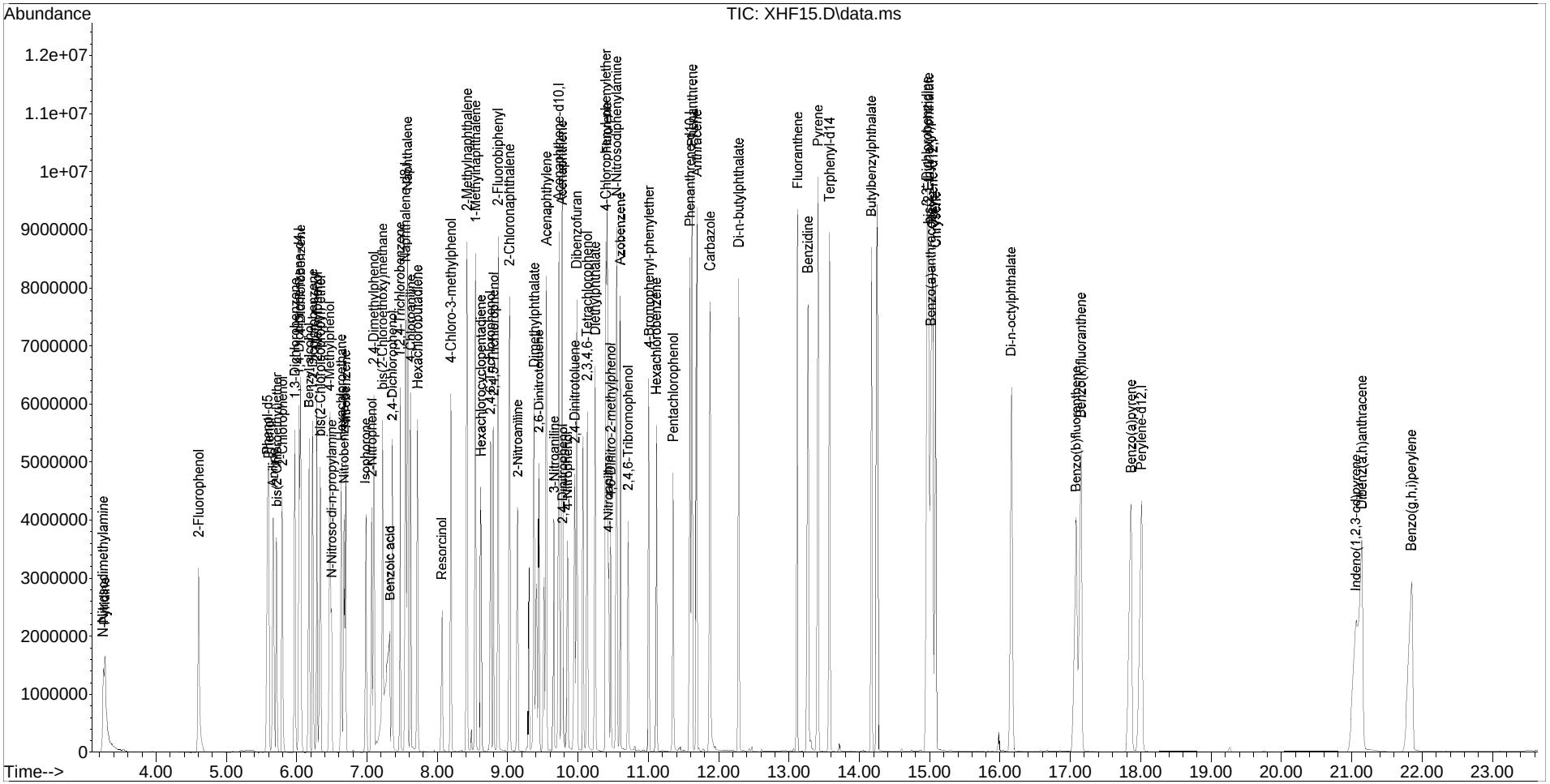




Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF15.D
Acq On : 15 Aug 2014 10:08 pm
Operator :
Sample : ICV,S25418
Misc : ICV
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Aug 16 15:02:10 2014
Quant Method : G:\msbna05\081514\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Sat Aug 16 14:59:58 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF15.D
Acq On : 15 Aug 2014 10:08 pm
Operator :
Sample : ICV,S25418
Misc : ICV
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Aug 16 15:02:10 2014
Quant Method : G:\msbna05\081514\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Sat Aug 16 14:59:58 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.036	152	1058247	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.548	136	4010103	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.733	164	2299510	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.597	188	3874227	40.0000	ug/mL	0.00
70) Chrysene-d12	15.049	240	4016049	40.0000	ug/mL	0.00
79) Perylene-d12	18.013	264	3628053	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.274	79	1418309	36.3427	ug/mL	91
3) N-Nitrosodimethylamine	3.253	42	670100	37.8136	ug/mL	77
4) 2-Fluorophenol	4.604	112	1296080	36.3218	ug/mL	# 75
5) Phenol-d5	5.593	99	1626923	36.6743	ug/mL	78
6) Phenol	5.609	94	1690343	37.8159	ug/mL	82
7) Aniline	5.668	93	2052893m	38.4495	ug/mL	
8) bis(2-Chloroethyl)ether	5.716	93	1251385	38.4303	ug/mL	92
9) 2-Chlorophenol	5.801	128	1423833	38.1811	ug/mL	94
10) 1,3-Dichlorobenzene	5.977	146	1552538	38.7940	ug/mL	96
11) 1,4-Dichlorobenzene	6.058	146	1557717	39.0200	ug/mL	89
12) Benzyl alcohol	6.180	108	944956	37.9655	ug/mL	91
13) 1,2-Dichlorobenzene	6.234	146	1515918	38.7969	ug/mL	96
14) 2-Methylphenol	6.293	107	1142024	37.8983	ug/mL	96
15) bis(2-Chloroisopropyl) ether	6.335	45	1859975	37.8996	ug/mL	93
16) 4-Methylphenol	6.474	107	1494953	33.6167	ug/mL	97
17) N-Nitroso-di-n-propylamine	6.501	70	827444	37.2057	ug/mL	87
18) Hexachloroethane	6.635	117	654566	38.4648	ug/mL	98
20) Nitrobenzene-d5	6.677	82	1640631m	36.5972	ug/mL	
21) Nitrobenzene	6.699	77	1545737	37.7668	ug/mL	93
22) Isophorone	6.987	82	2621300	35.8882	ug/mL	100
23) 2-Nitrophenol	7.078	139	789849	38.3538	ug/mL	82
24) 2,4-Dimethylphenol	7.105	107	1387832	38.5145	ug/mL	88
25) bis(2-Chloroethoxy)methane	7.222	93	1581350	36.6876	ug/mL	95
26) Benzoic acid	7.329	105	2577629	96.0425	ug/mL	95
27) 2,4-Dichlorophenol	7.366	162	1190831	39.0746	ug/mL	94
28) 1,2,4-Trichlorobenzene	7.473	180	1241052	38.9100	ug/mL	97
29) Naphthalene	7.575	128	3872819	35.2632	ug/mL	94
30) 4-Chloroaniline	7.623	127	1811413	38.2992	ug/mL	91
31) Hexachlorobutadiene	7.724	225	651957	39.4120	ug/mL	98
32) Resorcinol	8.072	110	1011691	41.6229	ug/mL	93
33) 4-Chloro-3-methylphenol	8.200	107	1210114	37.6431	ug/mL	92
34) 2-Methylnaphthalene	8.424	142	2710616	36.5572	ug/mL	89
35) 1-Methylnaphthalene	8.547	142	2509631	35.6389	ug/mL	88
37) Hexachlorocyclopentadiene	8.622	237	679391	35.8075	ug/mL	99
38) 2,4,6-Trichlorophenol	8.766	196	783034	37.2177	ug/mL	95

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF15.D
Acq On : 15 Aug 2014 10:08 pm
Operator :
Sample : ICV,S25418
Misc : ICV
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Aug 16 15:02:10 2014
Quant Method : G:\msbna05\081514\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Sat Aug 16 14:59:58 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.809	196	855706m	38.1631	ug/mL	
40) 2-Fluorobiphenyl	8.868	172	2876558	35.1773	ug/mL	95
41) 2-Chloronaphthalene	9.028	162	2411736	35.9914	ug/mL	95
42) 2-Nitroaniline	9.145	65	863580	37.4824	ug/mL	94
43) Dimethylphthalate	9.380	163	2811959	38.4888	ug/mL	97
44) 2,6-Dinitrotoluene	9.450	165	688979	38.3759	ug/mL	89
45) Acenaphthylene	9.557	152	3981905	35.5791	ug/mL	97
46) 3-Nitroaniline	9.669	138	776455	38.9571	ug/mL #	64
47) Acenaphthene	9.776	154	2509485	35.9567	ug/mL	96
48) 2,4-Dinitrophenol	9.786	184	339646	38.4365	ug/mL #	4
49) 4-Nitrophenol	9.856	109	403724	37.4571	ug/mL #	79
50) Dibenzofuran	9.984	168	3432195	37.1054	ug/mL	77
51) 2,4-Dinitrotoluene	9.957	165	924272	39.1656	ug/mL	93
52) 2,3,4,6-Tetrachlorophenol	10.134	232	661358	38.7154	ug/mL	89
53) Diethylphthalate	10.246	149	2866929	35.0982	ug/mL	99
54) 4-Chlorophenyl-phenylether	10.401	204	1274647	35.9723	ug/mL #	75
55) Fluorene	10.417	166	2807607	35.2607	ug/mL	88
56) 4-Nitroaniline	10.438	138	769254	37.2334	ug/mL #	6
57) 2,4,6-Tribromophenol	10.716	330	395593	37.5673	ug/mL #	85
59) 4,6-Dinitro-2-methylphenol	10.470	198	489923	37.1583	ug/mL	94
60) N-Nitrosodiphenylamine	10.550	169	2417759	41.1055	ug/mL	92
61) Azobenzene	10.604	77	3287727	36.6169	ug/mL	95
62) 4-Bromophenyl-phenylether	11.015	248	767044	35.8808	ug/mL #	80
63) Hexachlorobenzene	11.117	284	809696	38.0147	ug/mL	81
64) Pentachlorophenol	11.352	266	533189	36.4234	ug/mL	97
65) Phenanthrene	11.629	178	3846958	34.7115	ug/mL	95
66) Anthracene	11.694	178	3987242	35.3730	ug/mL	92
67) Carbazole	11.881	167	3887988	41.5706	ug/mL	82
68) Di-n-butylphthalate	12.287	149	5014643	35.8140	ug/mL	96
69) Fluoranthene	13.125	202	4375431	35.7477	ug/mL	96
71) Benzidine	13.275	184	3633563	79.0166	ug/mL	92
72) Pyrene	13.414	202	4468196	34.6325	ug/mL	89
73) Terphenyl-d14	13.579	244	3263261	37.0772	ug/mL	88
74) Butylbenzylphthalate	14.172	149	2442715	37.6253	ug/mL	90
75) 3,3'-Dichlorobenzidine	14.968	252	2197725	59.2241	ug/mL	97
76) Benzo(a)anthracene	15.022	228	4277763	37.2415	ug/mL	99
77) bis(2-Ethylhexyl)phthalate	14.990	149	3329589	39.5067	ug/mL	97
78) Chrysene	15.091	228	3734976	35.3051	ug/mL	94
80) Di-n-octylphthalate	16.160	149	5945048	37.3701	ug/mL	94
81) Benzo(b)fluoranthene	17.084	252	4289558	39.1767	ug/mL	96
82) Benzo(k)fluoranthene	17.153	252	3999383	40.1979	ug/mL	98
83) Benzo(a)pyrene	17.869	252	4031666	38.5848	ug/mL	97
84) Indeno(1,2,3-cd)pyrene	21.059	276	4548368	39.5609	ug/mL	90

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\081514\
Data File : XHF15.D
Acq On : 15 Aug 2014 10:08 pm
Operator :
Sample : ICV,S25418
Misc : ICV
ALS Vial : 15 Sample Multiplier: 1

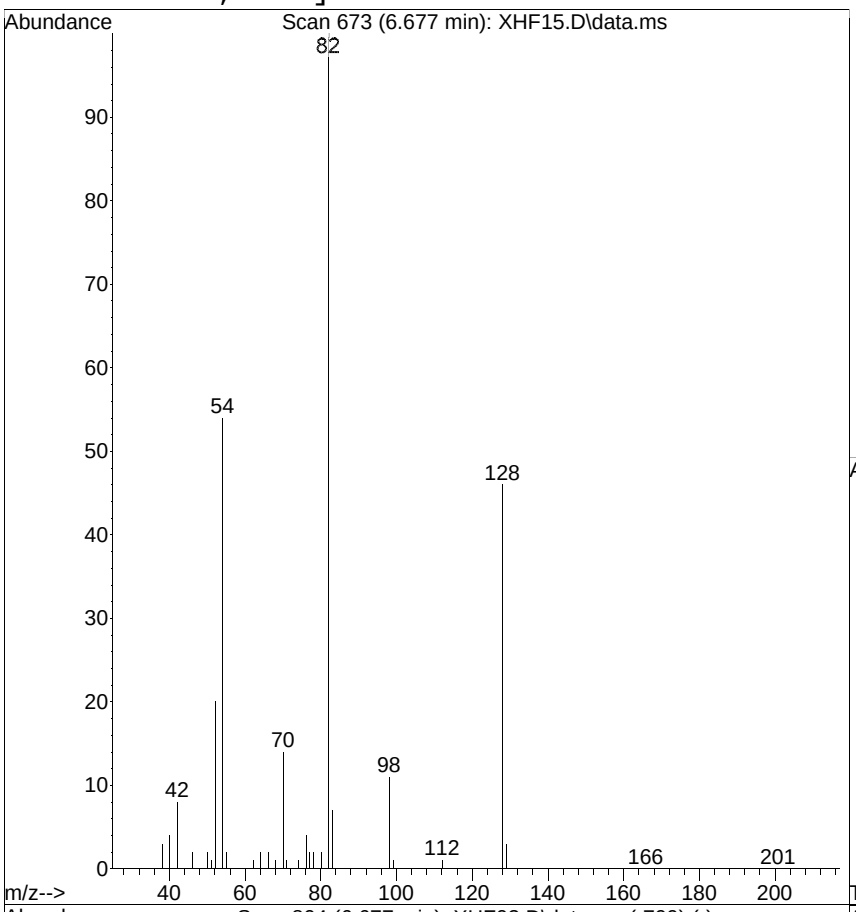
Quant Time: Aug 16 15:02:10 2014
Quant Method : G:\msbna05\081514\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Sat Aug 16 14:59:58 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.144	278	3832854	39.1094	ug/mL	95
86) Benzo(g,h,i)perylene	21.855	276	3731663	38.8584	ug/mL	89

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

[Nitrobenzene-d5; MI]

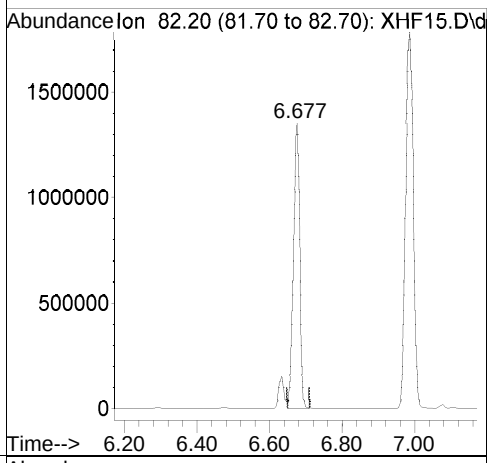
Raw



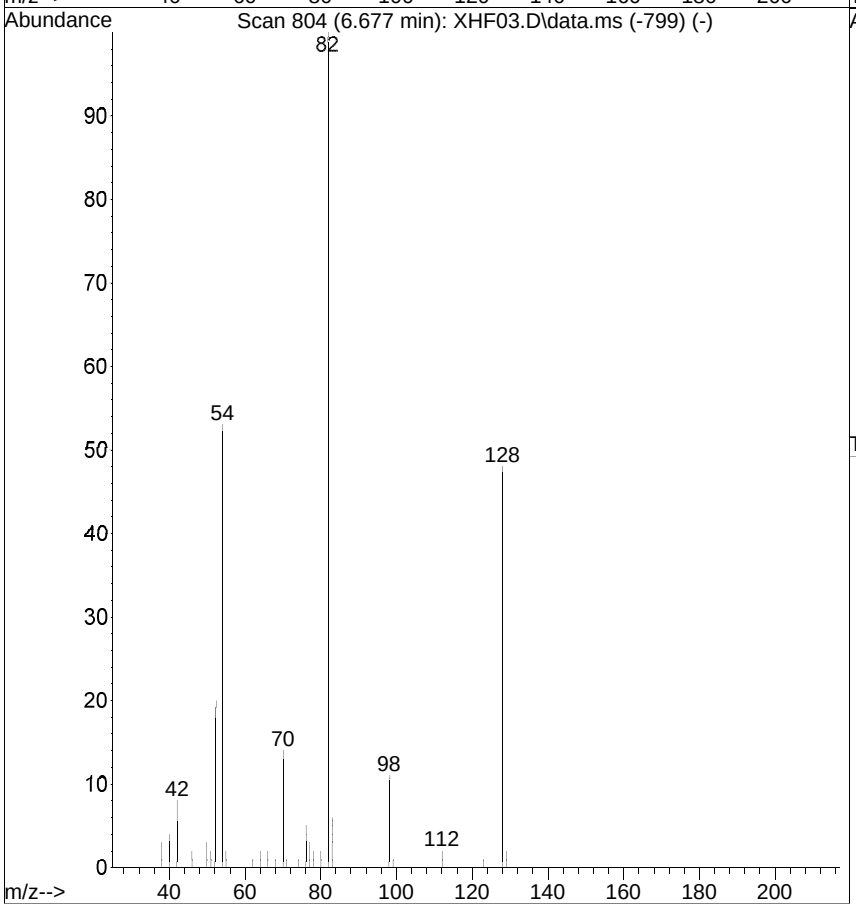
#20
Nitrobenzene-d5
Concen: 36.5972 ug/mL m
RT: 6.677 min Scan# 673
Delta R.T. 0.005 min
Lab File: XHF15.D
Acq: 15 Aug 2014 10:08 pm

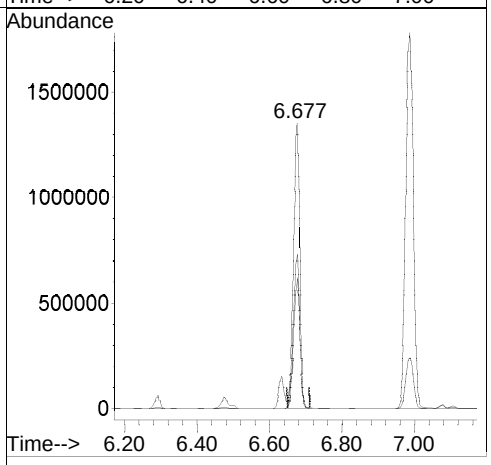
Tgt Ion: 82 Resp: 1640631

Ion	Ratio	Lower	Upper
82	100		
128	45.7	15.0	55.0
54	54.2	56.0	96.0#



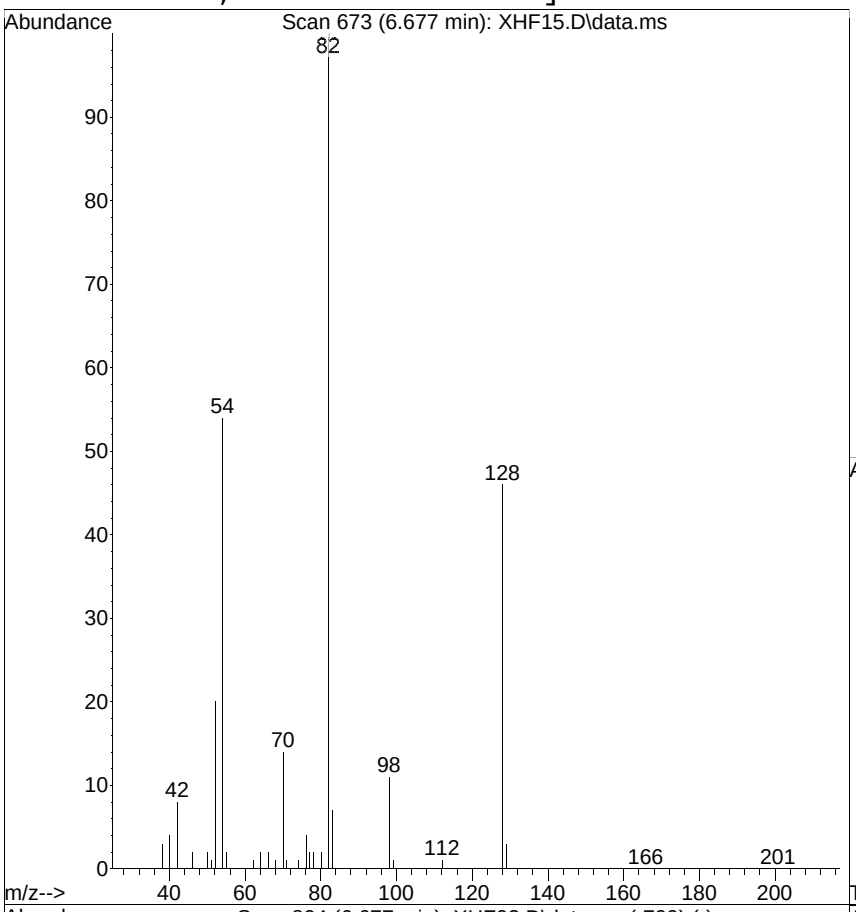
Ref





[Nitrobenzene-d5; before version]

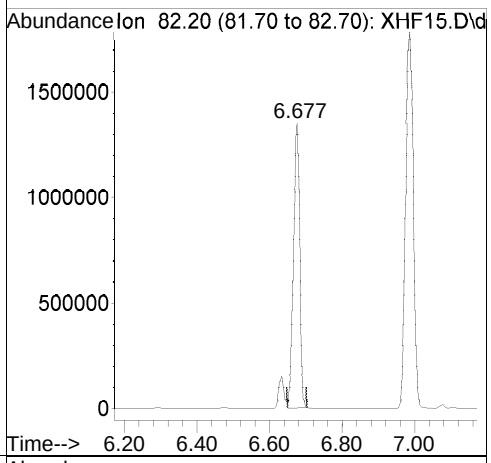
Raw



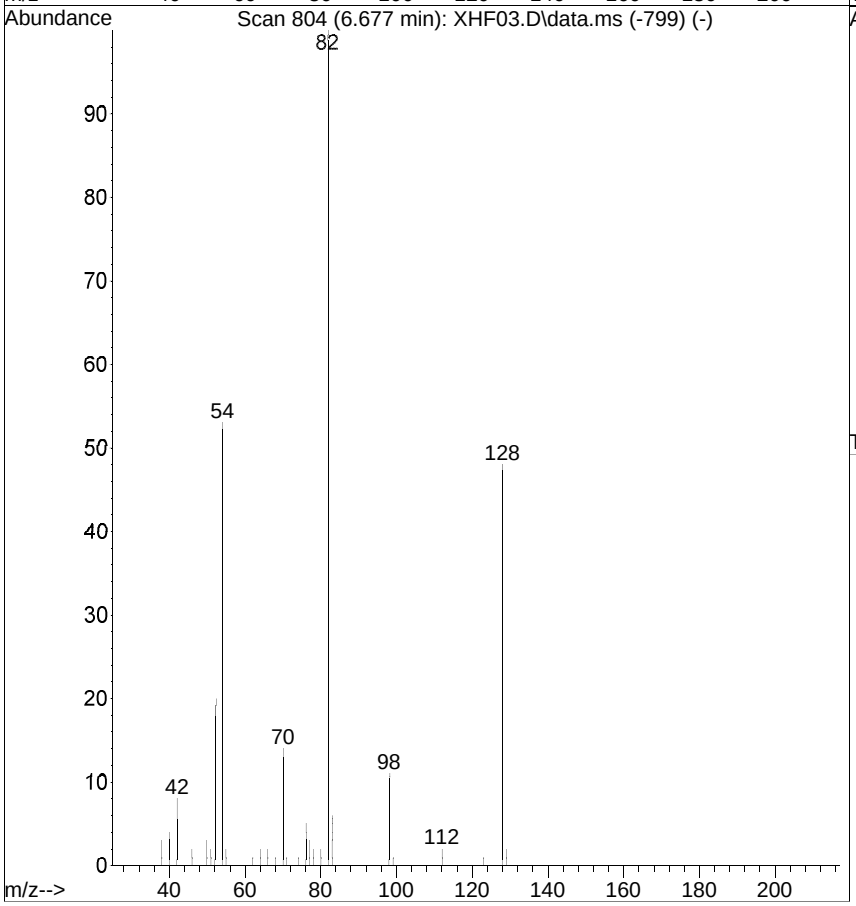
#20
Nitrobenzene-d5
Concen: 36.3473 ug/mL
RT: 6.677 min Scan# 673
Delta R.T. 0.005 min
Lab File: XHF15.D
Acq: 15 Aug 2014 10:08 pm

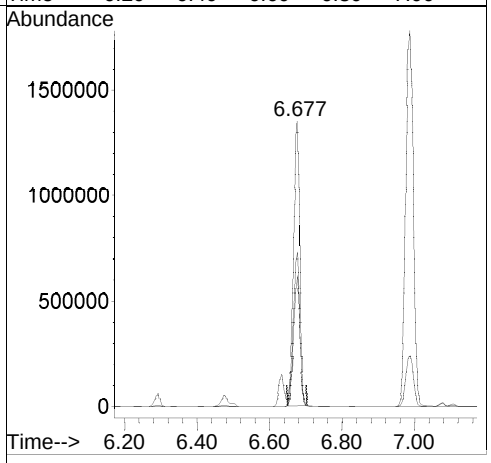
Tgt Ion: 82 Resp: 1629428

Ion	Ratio	Lower	Upper
82	100		
128	45.7	15.0	55.0
54	54.2	56.0	96.0#



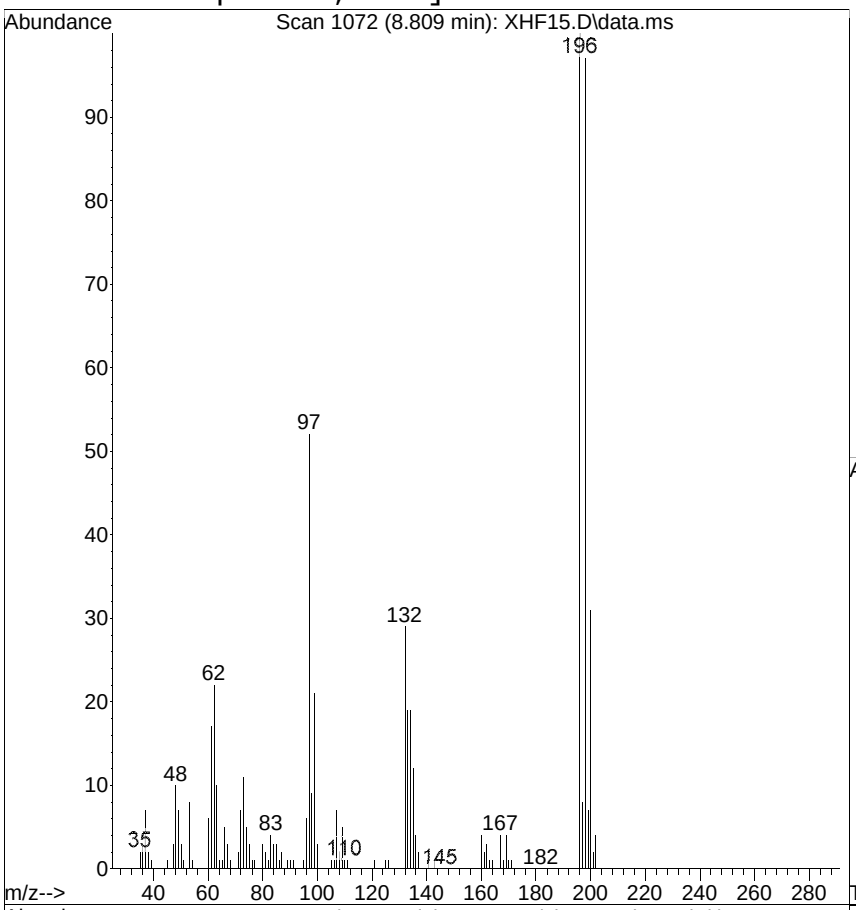
Ref





[2,4,5-Trichlorophenol; MI]

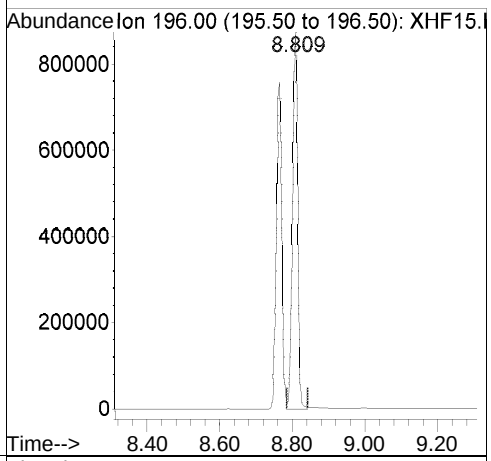
Raw



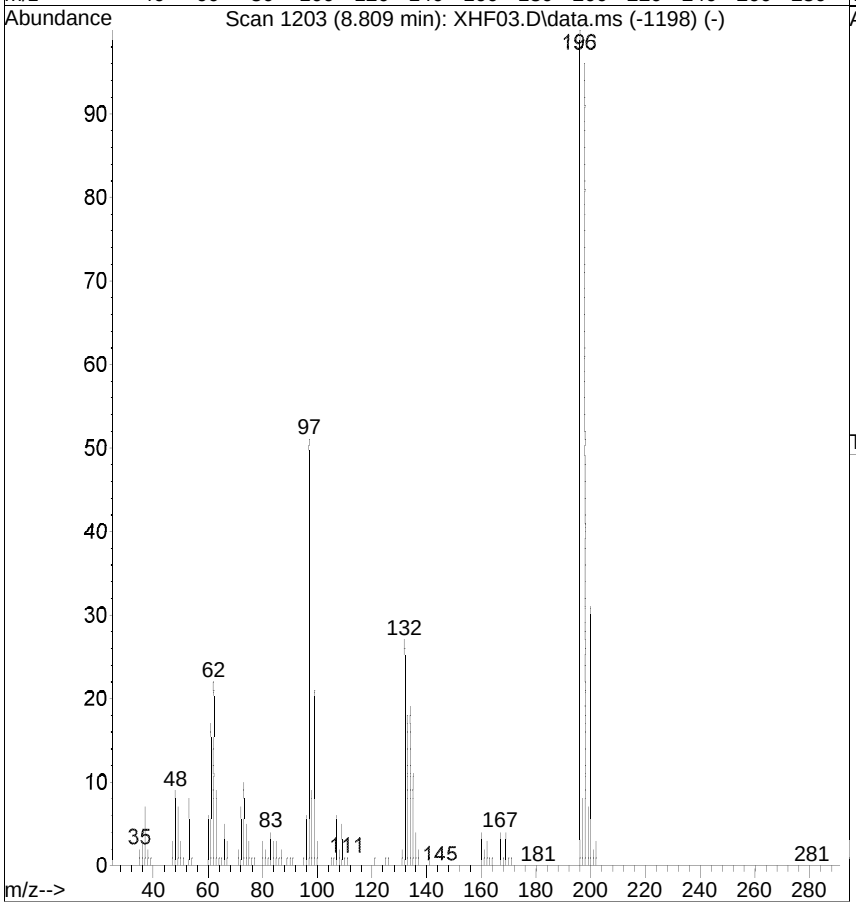
#39
2,4,5-Trichlorophenol
Concen: 38.1631 ug/mL m
RT: 8.809 min Scan# 1072
Delta R.T. 0.000 min
Lab File: XHF15.D
Acq: 15 Aug 2014 10:08 pm

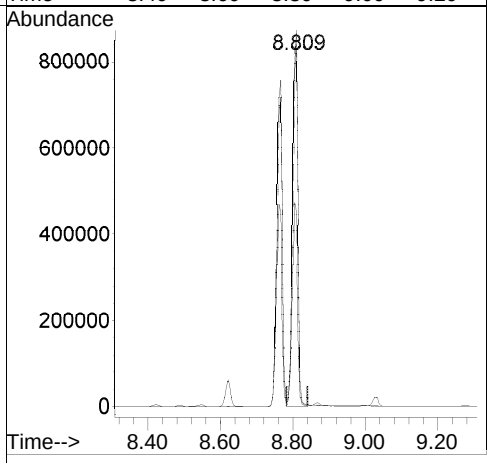
Tgt Ion:196 Resp: 855706

Ion	Ratio	Lower	Upper
196	100		
198	97.5	69.0	109.0
97	51.7	21.0	61.0



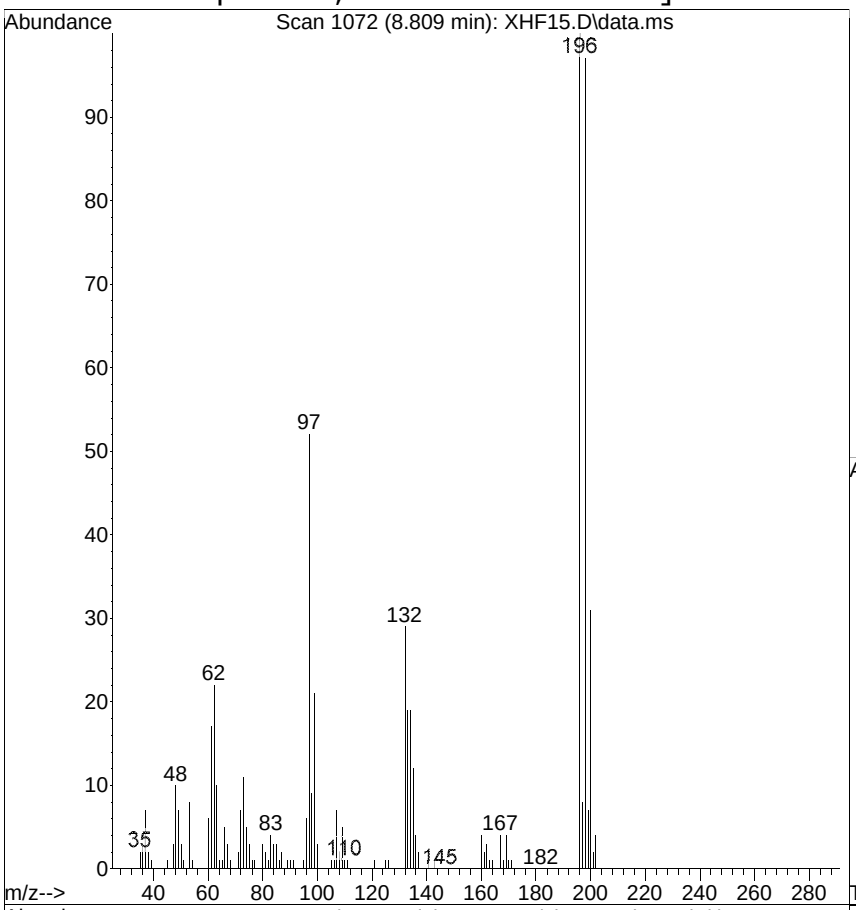
Ref





[2,4,5-Trichlorophenol; before version]

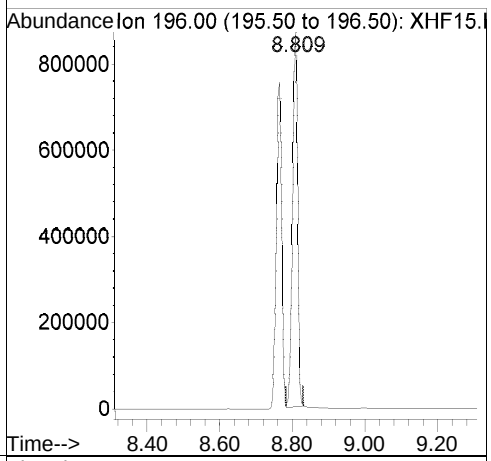
Raw



#39
2,4,5-Trichlorophenol
Concen: 37.4822 ug/mL
RT: 8.809 min Scan# 1072
Delta R.T. 0.000 min
Lab File: XHF15.D
Acq: 15 Aug 2014 10:08 pm

Tgt Ion:196 Resp: 840437

Ion	Ratio	Lower	Upper
196	100		
198	97.5	69.0	109.0
97	51.7	21.0	61.0



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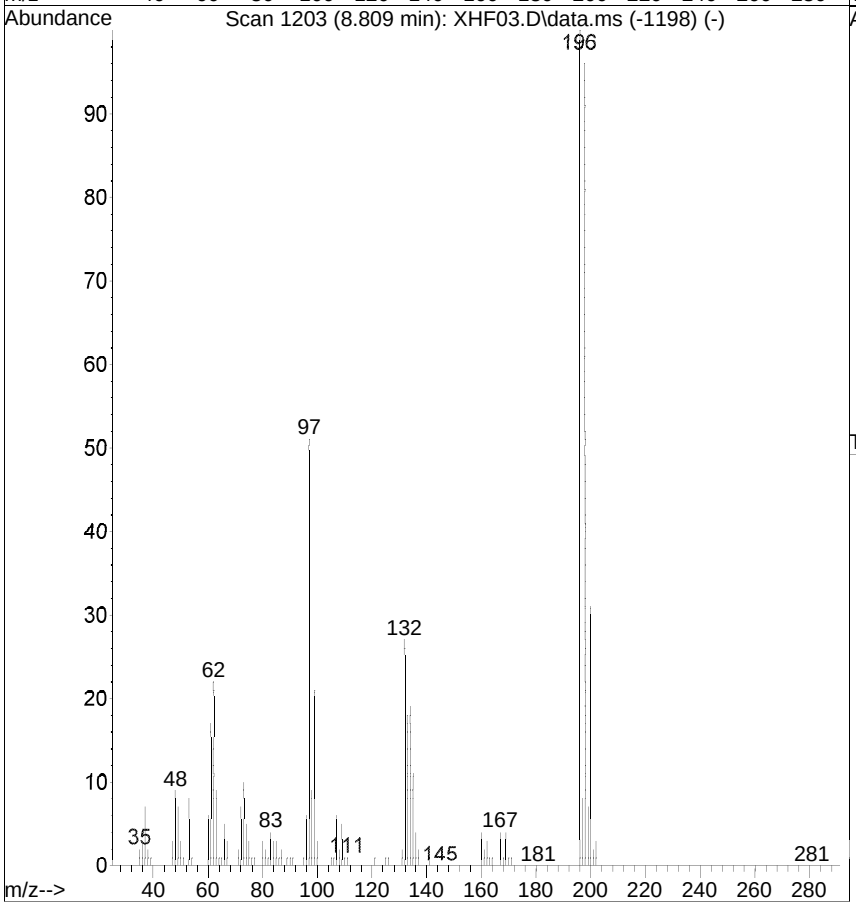
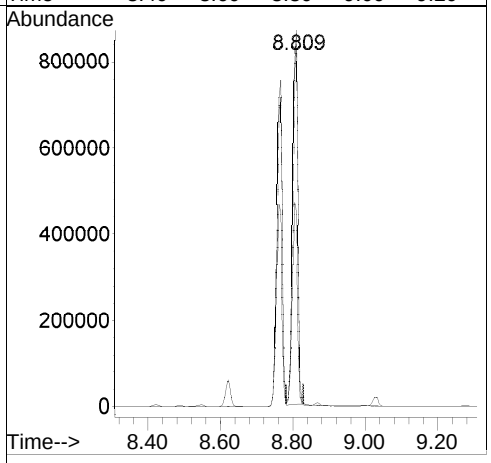




CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259835 MSBNA Water: EPA 8270D

Inst : MSBNA09
Calnum : 584305789001
Units : ug/mL

Name : 6PTBNA9
Date : 31-JUL-2014 19:18
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	rgv16	584305789016	ICAL	31-JUL-2014 19:18	S24422
L2	rgv17	584305789017	ICAL	31-JUL-2014 19:47	S24424
L3	rgv18	584305789018	ICAL	31-JUL-2014 20:17	S24425
L4	rgv19	584305789019	ICAL	31-JUL-2014 20:47	S24427
L5	rgv20	584305789020	ICAL	31-JUL-2014 21:17	S24428
L6	rgv21	584305789021	ICAL	31-JUL-2014 21:47	S24429
L7	rgv22	584305789022	ICAL	31-JUL-2014 22:18	S24430
L8	rgv23	584305789023	ICAL	31-JUL-2014 22:48	S24431
L9	rgv24	584305789024	ICAL	31-JUL-2014 23:18	S24432

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
N-Nitrosodimethylamine		0.6914	0.7062	0.7007	0.6940	0.6725	0.6850	0.6819	0.6799	AVRG		1.45149		0.6889	2	15	0.05	0.99	
Phenol		1.7949	1.8023	1.7821	1.7353	1.6895	1.7229	1.7252	1.7515	AVRG		0.57127		1.7505	2	15	0.800	0.99	
bis(2-Chloroethyl)ether		1.4075	1.4036	1.3635	1.3501	1.2833	1.2794	1.2322	1.2695	AVRG		0.75549		1.3236	5	15	0.700	0.99	
2-Chlorophenol		1.5252	1.5553	1.5565	1.5171	1.4712	1.4674	1.4423	1.4243	AVRG		0.66894		1.4949	3	15	0.800	0.99	
1,3-Dichlorobenzene		1.6836	1.6923	1.6751	1.6451	1.5724	1.5313	1.4635	1.4190	AVRG		0.63080		1.5853	7	15	0.05	0.99	
1,4-Dichlorobenzene		1.7175	1.7260	1.7055	1.6600	1.5832	1.5430	1.4690	1.4208	AVRG		0.62379		1.6031	7	15	0.05	0.99	
Benzyl alcohol		0.8783	0.8970	0.9342	0.9213	0.9608	1.0349	1.0315	1.0526	AVRG		1.03753		0.9638	7	15	0.05	0.99	
1,2-Dichlorobenzene		1.5993	1.6039	1.5815	1.5474	1.4906	1.4410	1.3824	1.3423	AVRG		0.66731		1.4985	7	15	0.05	0.99	
2-Methylphenol		1.1171	1.1274	1.1118	1.0737	1.0832	1.1323	1.1342	1.1453	AVRG		0.89636		1.1156	2	15	0.700	0.99	
bis(2-Chloroisopropyl) ether		1.9727	1.9558	1.9040	1.8300	1.7737	1.7740	1.7754	1.7881	AVRG		0.54151		1.8467	5	15	0.010	0.99	
4-Methylphenol		1.6373	1.6384	1.6641	1.6442	1.6827	1.8013	1.8160	1.8706	AVRG		0.58162		1.7193	5	15	0.600	0.99	
N-Nitroso-di-n-propylamine		0.8428	0.9435	1.0001	0.9938	1.0010	1.0425	1.0284	1.0465	AVRG		1.01284		0.9873	7	15	0.500	0.99	
Hexachloroethane		0.6305	0.6461	0.6504	0.6384	0.6206	0.6148	0.5905	0.5843	AVRG		1.60785		0.6219	4	15	0.300	0.99	
Nitrobenzene		0.3688	0.3698	0.3745	0.3680	0.3528	0.3579	0.3478	0.3422	AVRG		2.77615		0.3602	3	15	0.200	0.99	
Isophorone		0.7212	0.7714	0.7920	0.7720	0.7313	0.7235	0.6973	0.6882	AVRG		1.35661		0.7371	5	15	0.400	0.99	
2-Nitrophenol			0.1920	0.2024	0.2063	0.2044	0.2117	0.2060	0.2004	AVRG		4.91861		0.2033	3	15	0.100	0.99	
2,4-Dimethylphenol		0.3502	0.3614	0.3938	0.3954	0.3748	0.3687	0.3520	0.3452	AVRG		2.71965		0.3677	5	15	0.200	0.99	
bis(2-Chloroethoxy)methane			0.4534	0.4786	0.4795	0.4612	0.4581	0.4414	0.4305	AVRG		2.18575		0.4575	4	15	0.300	0.99	
Benzoic acid		0.1993	0.2289	0.2591	0.2745	0.2684	0.2764	0.2780	0.2806	AVRG		3.87363		0.2582	11	15	0.05	0.99	
2,4-Dichlorophenol		0.3099	0.3220	0.3327	0.3328	0.3199	0.3147	0.2938	0.2838	AVRG		3.18777		0.3137	6	15	0.200	0.99	
1,2,4-Trichlorobenzene		0.3460	0.3520	0.3471	0.3375	0.3157	0.2983	0.2829	0.2702	AVRG		3.13757		0.3187	10	15	0.05	0.99	
Naphthalene	1.0603	1.1240	1.1396	1.1497	1.1258	1.0861	1.0761	1.0263	1.0125	AVRG		0.91832		1.0889	5	15	0.700	0.99	
4-Chloroaniline		0.4291	0.5232	0.5370	0.5333	0.5021m	0.4816m	0.4547m	0.4326	AVRG		2.05460		0.4867	9	15	0.010	0.99	
Hexachlorobutadiene		0.1897	0.1983	0.1954	0.1888	0.1744	0.1622	0.1554	0.1479	AVRG		5.66479		0.1765	11	15	0.010	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
4-Chloro-3-methylphenol		0.3495	0.3759	0.3870	0.3758	0.3585	0.3410	0.3230	0.3157	AVRG		2.83049		0.3533	7	15	0.200	0.99	
2-Methylnaphthalene	0.6790	0.7354	0.8185	0.8487	0.8356	0.7940	0.7702	0.7240	0.6978	AVRG		1.30374		0.7670	8	15	0.400	0.99	
Hexachlorocyclopentadiene			0.3628	0.3820	0.3910	0.3891	0.3910	0.3696	0.3516	AVRG		2.65445		0.3767	4	15	0.050	0.99	
2,4,6-Trichlorophenol		0.3702	0.3900	0.3946	0.3928	0.3896	0.3850	0.3751	0.3594	AVRG		2.61723		0.3821	3	15	0.200	0.99	
2,4,5-Trichlorophenol		0.3938	0.4222	0.4377	0.4348	0.4090	0.4100	0.3767m	0.3728	AVRG		2.45620		0.4071	6	15	0.200	0.99	
2-Chloronaphthalene			1.2135	1.2415	1.2276	1.1820	1.1969	1.1410	1.1148	AVRG		0.84162		1.1882	4	15	0.800	0.99	
2-Nitroaniline			0.3459	0.3605	0.3570	0.3516	0.3582	0.3490	0.3489	AVRG		2.83269		0.3530	2	15	0.010	0.99	
Dimethylphthalate		1.4357	1.4875	1.5029	1.4683	1.4179	1.4093	1.3182	1.2575	AVRG		0.70815		1.4121	6	15	0.010	0.99	
2,6-Dinitrotoluene		0.3140	0.3365	0.3492	0.3448	0.3440	0.3582	0.3461	0.3424	AVRG		2.92482		0.3419	4	15	0.200	0.99	
Acenaphthylene	1.6084	1.6989	1.7562	1.7792	1.7399	1.6886	1.6918	1.6354	1.5900	AVRG		0.59255		1.6876	4	15	0.900	0.99	
3-Nitroaniline			0.3513m	0.3755m	0.3801m	0.3815m	0.4011	0.3917	0.3896	AVRG		2.62094		0.3815	4	15	0.010	0.99	
Acenaphthene	1.1614	1.2447	1.2989	1.3096	1.3124	1.2524	1.2702	1.2282	1.2026	AVRG		0.79784		1.2534	4	15	0.900	0.99	
2,4-Dinitrophenol			0.1075	0.1355	0.1533m	0.1627m	0.1950m	0.1990m	0.2090m	LINR	12.9032	4.32381		0.1660	0.999	15	0.010	0.99	
4-Nitrophenol			0.1789m	0.1910m	0.1934m	0.1902m	0.1983	0.1938	0.1924	AVRG		5.23151		0.1911	3	15	0.010	0.99	
Dibenzofuran			1.7761	1.7981	1.7778	1.7325	1.7480	1.6956	1.6331	AVRG		0.57560		1.7373	3	15	0.800	0.99	
2,4-Dinitrotoluene		0.4297	0.4669	0.4928	0.4875	0.4806	0.4957	0.4746	0.4658	AVRG		2.10883		0.4742	4	15	0.200	0.99	
Diethylphthalate			1.5346	1.5774	1.5789	1.5402	1.5676	1.4907	1.4408	AVRG		0.65238		1.5329	3	15	0.010	0.99	
Fluorene	1.4029	1.4698	1.4874	1.5121	1.4829	1.4351	1.4335	1.3620	1.3259	AVRG		0.69704		1.4346	4	15	0.900	0.99	
4-Chlorophenyl-phenylether			0.7266	0.7476	0.7377	0.7257	0.7402	0.7091	0.6878	AVRG		1.37941		0.7249	3	15	0.400	0.99	
4-Nitroaniline			0.3768m	0.3971	0.3940	0.3921	0.4115	0.3986	0.3960	AVRG		2.53072		0.3951	3	15	0.010	0.99	
4,6-Dinitro-2-methylphenol			0.1203	0.1324	0.1431	0.1452	0.1565	0.1571	0.1610	AVRG		6.89283		0.1451	10	15	0.010	0.99	
N-Nitrosodiphenylamine			0.6099	0.6075	0.6153	0.5906	0.5980	0.5785	0.5820	AVRG		1.67390		0.5974	2	15	0.010	0.99	
Azobenzene			0.8263	0.8156	0.8188	0.7952	0.7896	0.7705	0.7757	AVRG		1.25187		0.7988	3	15	0.05	0.99	
4-Bromophenyl-phenylether			0.2467	0.2484	0.2529	0.2465	0.2497	0.2443	0.2463	AVRG		4.03511		0.2478	1	15	0.100	0.99	
Hexachlorobenzene		0.2744	0.2794	0.2797	0.2807	0.2686	0.2608	0.2507	0.2449	AVRG		3.73973		0.2674	5	15	0.100	0.99	
Pentachlorophenol			0.1520	0.1643	0.1742	0.1713	0.1779	0.1722	0.1747	AVRG		5.89909		0.1695	5	15	0.050	0.99	
Phenanthrene	1.1257	1.2289	1.2328	1.2329	1.2147	1.1617	1.1309	1.0744	1.0484	AVRG		0.86122		1.1611	6	15	0.700	0.99	
Anthracene	1.1163	1.1881	1.2121	1.2194	1.1959	1.1590	1.1147	1.0798m	1.0504	AVRG		0.87077		1.1484	5	15	0.700	0.99	
Carbazole		1.0130	1.1290	1.1193	1.1012	1.0359	0.9603	0.8887	0.8698	AVRG		0.98558		1.0146	10	15	0.010	0.99	
Di-n-butylphthalate			1.5949	1.5837	1.5815	1.4914	1.4069	1.3314	1.2868	AVRG		0.68116		1.4681	9	15	0.010	0.99	
Fluoranthene	1.2466	1.3764	1.3744	1.3861	1.3541	1.2644	1.2134	1.1548	1.1279	AVRG		0.78273		1.2776	8	15	0.600	0.99	
Pyrene	1.0705	1.2403	1.2712	1.2861	1.2697	1.2021	1.1804	1.1218	1.1187	AVRG		0.83638		1.1956	7	15	0.600	0.99	
Butylbenzylphthalate			0.5714	0.5901	0.5822	0.5623	0.5714	0.5514	0.5557	AVRG		1.75680		0.5692	2	15	0.010	0.99	
3,3'-Dichlorobenzidine			0.4289	0.4527	0.4639	0.4474	0.4333	0.4073	0.3928	AVRG		2.31307		0.4323	6	15	0.010	0.99	
Benzo(a)anthracene	1.0660	1.1287	1.1392	1.1627	1.1455	1.1191	1.1385	1.1132	1.1220	AVRG		0.88802		1.1261	2	15	0.800	0.99	
bis(2-Ethylhexyl)phthalate			0.8437	0.8679	0.8584	0.8240	0.7595	0.6940	0.6271	AVRG		1.27865		0.7821	12	15	0.010	0.99	
Chrysene	1.0039	1.0504	1.0893	1.1084	1.1131	1.0643	1.0814	1.0382	1.0530	AVRG		0.93731		1.0669	3	15	0.700	0.99	
Di-n-octylphthalate			1.4940	1.5597	1.5598	1.5231	1.5706	1.5559	1.5500	AVRG		0.64735		1.5448	2	15	0.010	0.99	
Benzo(b)fluoranthene	0.9916	1.0871	1.1600	1.1756	1.1816	1.1559	1.2252	1.1862	1.2768	AVRG		0.86207		1.1600	7	15	0.700	0.99	
Benzo(k)fluoranthene	0.9900	1.1041	1.1553	1.2287	1.2044	1.1555	1.1895	1.2014	1.1722	AVRG		0.86527		1.1557	6	15	0.700	0.99	
Benzo(a)pyrene	0.8192	0.9250	0.9765	1.0217	1.0207	0.9857	1.0411	1.0318	1.0461	AVRG		1.01490		0.9853	7	15	0.700	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Indeno(1,2,3-cd)pyrene	0.9412	1.0577	1.1284	1.1957	1.2067	1.1738	1.2069	1.2109	1.2328	AVRG		0.86923		1.1504	8	15	0.500	0.99	
Dibenz(a,h)anthracene	0.8363	0.9398	1.0131	1.0689	1.0750	1.0538	1.0925	1.0937	1.1175	AVRG		0.96871		1.0323	9	15	0.400	0.99	
Benzo(g,h,i)perylene	0.7966	0.8451	0.8928	0.9376	0.9559	0.9266	0.9628	0.9593	0.9672	AVRG		1.09171		0.9160	7	15	0.500	0.99	
2-Fluorophenol	1.3347	1.4475	1.4868	1.5063	1.4861	1.4485	1.5020	1.4901	1.4930	AVRG		0.68208		1.4661	4	15	0.05	0.99	
Phenol-d5	1.6070	1.7128	1.7315	1.7386	1.6936	1.6677	1.7342	1.7411	1.7664	AVRG		0.58468		1.7103	3	15	0.05	0.99	
Nitrobenzene-d5	0.3599	0.3882	0.3777	0.3952	0.3923	0.3846	0.3909	0.3870	0.3882	AVRG		2.59816		0.3849	3	15	0.05	0.99	
2-Fluorobiphenyl	1.3655	1.4485	1.5077	1.5205	1.4869	1.4289	1.4091	1.3532	1.2921	AVRG		0.70244		1.4236	5	15	0.05	0.99	
2,4,6-Tribromophenol	0.1537	0.1835	0.2001	0.2123	0.2198	0.2204	0.2463	0.2406	0.2452	AVRG		4.68243		0.2136	14	15	0.05	0.99	
Terphenyl-d14	0.8305	0.9362	0.9721	0.9975	0.9822	0.9426	0.9279	0.8872	0.8817	AVRG		1.07682		0.9287	6	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
N-Nitrosodimethylamine			10.000	0	20.000	3	32.000	2	40.000	1	50.000	-2	80.000	-1	100.00	-1	120.00	-1
Phenol			10.000	3	20.000	3	32.000	2	40.000	-1	50.000	-3	80.000	-2	100.00	-1	120.00	0
bis(2-Chloroethyl)ether			10.000	6	20.000	6	32.000	3	40.000	2	50.000	-3	80.000	-3	100.00	-7	120.00	-4
2-Chlorophenol			10.000	2	20.000	4	32.000	4	40.000	1	50.000	-2	80.000	-2	100.00	-4	120.00	-5
1,3-Dichlorobenzene			10.000	6	20.000	7	32.000	6	40.000	4	50.000	-1	80.000	-3	100.00	-8	120.00	-10
1,4-Dichlorobenzene			10.000	7	20.000	8	32.000	6	40.000	4	50.000	-1	80.000	-4	100.00	-8	120.00	-11
Benzyl alcohol			10.000	-9	20.000	-7	32.000	-3	40.000	-4	50.000	0	80.000	7	100.00	7	120.00	9
1,2-Dichlorobenzene			10.000	7	20.000	7	32.000	6	40.000	3	50.000	-1	80.000	-4	100.00	-8	120.00	-10
2-Methylphenol			10.000	0	20.000	1	32.000	0	40.000	-4	50.000	-3	80.000	1	100.00	2	120.00	3
bis(2-Chloroisopropyl) ether			10.000	7	20.000	6	32.000	3	40.000	-1	50.000	-4	80.000	-4	100.00	-4	120.00	-3
4-Methylphenol			10.000	-5	20.000	-5	32.000	-3	40.000	-4	50.000	-2	80.000	5	100.00	6	120.00	9
N-Nitroso-di-n-propylamine			10.000	-15	20.000	-4	32.000	1	40.000	1	50.000	1	80.000	6	100.00	4	120.00	6
Hexachloroethane			10.000	1	20.000	4	32.000	5	40.000	3	50.000	0	80.000	-1	100.00	-5	120.00	-6
Nitrobenzene			10.000	2	20.000	3	32.000	4	40.000	2	50.000	-2	80.000	-1	100.00	-3	120.00	-5
Isophorone			10.000	-2	20.000	5	32.000	7	40.000	5	50.000	-1	80.000	-2	100.00	-5	120.00	-7
2-Nitrophenol					20.000	-6	32.000	0	40.000	1	50.000	1	80.000	4	100.00	1	120.00	-1
2,4-Dimethylphenol			10.000	-5	20.000	-2	32.000	7	40.000	8	50.000	2	80.000	0	100.00	-4	120.00	-6
bis(2-Chloroethoxy)methane					10.000	-1	16.000	5	20.000	5	25.000	1	40.000	0	50.000	-4	60.000	-6
Benzoic acid			50.000	**-23**	60.000	-11	80.000	0	90.000	6	100.00	4	120.00	7	130.00	8	140.00	9
2,4-Dichlorophenol			10.000	-1	20.000	3	32.000	6	40.000	6	50.000	2	80.000	0	100.00	-6	120.00	-10
1,2,4-Trichlorobenzene			10.000	9	20.000	10	32.000	9	40.000	6	50.000	-1	80.000	-6	100.00	-11	120.00	-15
Naphthalene	2.0000	-3	5.0000	3	10.000	5	16.000	6	20.000	3	25.000	0	40.000	-1	50.000	-6	60.000	-7
4-Chloroaniline			10.000	-12	20.000	8	32.000	10	40.000	10	50.000	3	80.000	-1	100.00	-7	120.00	-11
Hexachlorobutadiene			10.000	7	20.000	12	32.000	11	40.000	7	50.000	-1	80.000	-8	100.00	-12	120.00	-16
4-Chloro-3-methylphenol			10.000	-1	20.000	6	32.000	10	40.000	6	50.000	1	80.000	-3	100.00	-9	120.00	-11
2-Methylnaphthalene	2.0000	-11	5.0000	-4	10.000	7	16.000	11	20.000	9	25.000	4	40.000	0	50.000	-6	60.000	-9
Hexachlorocyclopentadiene					20.000	-4	32.000	1	40.000	4	50.000	3	80.000	4	100.00	-2	120.00	-7
2,4,6-Trichlorophenol			10.000	-3	20.000	2	32.000	3	40.000	3	50.000	2	80.000	1	100.00	-2	120.00	-6
2,4,5-Trichlorophenol			10.000	-3	20.000	4	32.000	8	40.000	7	50.000	0	80.000	1	100.00	-7	120.00	-8
2-Chloronaphthalene					10.000	2	16.000	4	20.000	3	25.000	-1	40.000	1	50.000	-4	60.000	-6
2-Nitroaniline					20.000	-2	32.000	2	40.000	1	50.000	0	80.000	1	100.00	-1	120.00	-1
Dimethylphthalate			10.000	2	20.000	5	32.000	6	40.000	4	50.000	0	80.000	0	100.00	-7	120.00	-11
2,6-Dinitrotoluene			10.000	-8	20.000	-2	32.000	2	40.000	1	50.000	1	80.000	5	100.00	1	120.00	0
Acenaphthylene	2.0000	-5	5.0000	1	10.000	4	16.000	5	20.000	3	25.000	0	40.000	0	50.000	-3	60.000	-6
3-Nitroaniline					20.000	-8	32.000	-2	40.000	0	50.000	0	80.000	5	100.00	3	120.00	2
Acenaphthene	2.0000	-7	5.0000	-1	10.000	4	16.000	4	20.000	5	25.000	0	40.000	1	50.000	-2	60.000	-4
2,4-Dinitrophenol					20.000	11	32.000	-1	40.000	-1	50.000	-4	80.000	0	100.00	-1	120.00	1
4-Nitrophenol					20.000	-6	32.000	0	40.000	1	50.000	0	80.000	4	100.00	1	120.00	1
Dibenzofuran					10.000	2	16.000	3	20.000	2	25.000	0	40.000	1	50.000	-2	60.000	-6
2,4-Dinitrotoluene			10.000	-9	20.000	-2	32.000	4	40.000	3	50.000	1	80.000	5	100.00	0	120.00	-2
Diethylphthalate					10.000	0	16.000	3	20.000	3	25.000	0	40.000	2	50.000	-3	60.000	-6
Fluorene	2.0000	-2	5.0000	2	10.000	4	16.000	5	20.000	3	25.000	0	40.000	0	50.000	-5	60.000	-8

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
4-Chlorophenyl-phenylether					10.000	0	16.000	3	20.000	2	25.000	0	40.000	2	50.000	-2	60.000	-5
4-Nitroaniline					20.000	-5	32.000	0	40.000	0	50.000	-1	80.000	4	100.00	1	120.00	0
4,6-Dinitro-2-methylphenol					20.000	-17	32.000	-9	40.000	-1	50.000	0	80.000	8	100.00	8	120.00	11
N-Nitrosodiphenylamine					10.000	2	16.000	2	20.000	3	25.000	-1	40.000	0	50.000	-3	60.000	-3
Azobenzene					10.000	3	16.000	2	20.000	3	25.000	0	40.000	-1	50.000	-4	60.000	-3
4-Bromophenyl-phenylether					10.000	0	16.000	0	20.000	2	25.000	-1	40.000	1	50.000	-1	60.000	-1
Hexachlorobenzene			10.000	3	20.000	4	32.000	5	40.000	5	50.000	0	80.000	-2	100.00	-6	120.00	-8
Pentachlorophenol					20.000	-10	32.000	-3	40.000	3	50.000	1	80.000	5	100.00	2	120.00	3
Phenanthrene	2.0000	-3	5.0000	6	10.000	6	16.000	6	20.000	5	25.000	0	40.000	-3	50.000	-7	60.000	-10
Anthracene	2.0000	-3	5.0000	3	10.000	6	16.000	6	20.000	4	25.000	1	40.000	-3	50.000	-6	60.000	-9
Carbazole			10.000	0	20.000	11	32.000	10	40.000	9	50.000	2	80.000	-5	100.00	-12	120.00	-14
Di-n-butylphthalate					10.000	9	16.000	8	20.000	8	25.000	2	40.000	-4	50.000	-9	60.000	-12
Fluoranthene	2.0000	-2	5.0000	8	10.000	8	16.000	8	20.000	6	25.000	-1	40.000	-5	50.000	-10	60.000	-12
Pyrene	2.0000	-10	5.0000	4	10.000	6	16.000	8	20.000	6	25.000	1	40.000	-1	50.000	-6	60.000	-6
Butylbenzylphthalate					10.000	0	16.000	4	20.000	2	25.000	-1	40.000	0	50.000	-3	60.000	-2
3,3'-Dichlorobenzidine					20.000	-1	32.000	5	40.000	7	50.000	3	80.000	0	100.00	-6	120.00	-9
Benzo(a)anthracene	2.0000	-5	5.0000	0	10.000	1	16.000	3	20.000	2	25.000	-1	40.000	1	50.000	-1	60.000	0
bis(2-Ethylhexyl)phthalate					10.000	8	16.000	11	20.000	10	25.000	5	40.000	-3	50.000	-11	60.000	-20
Chrysene	2.0000	-6	5.0000	-2	10.000	2	16.000	4	20.000	4	25.000	0	40.000	1	50.000	-3	60.000	-1
Di-n-octylphthalate					10.000	-3	16.000	1	20.000	1	25.000	-1	40.000	2	50.000	1	60.000	0
Benzo(b)fluoranthene	2.0000	-15	5.0000	-6	10.000	0	16.000	1	20.000	2	25.000	0	40.000	6	50.000	2	60.000	10
Benzo(k)fluoranthene	2.0000	-14	5.0000	-4	10.000	0	16.000	6	20.000	4	25.000	0	40.000	3	50.000	4	60.000	1
Benzo(a)pyrene	2.0000	-17	5.0000	-6	10.000	-1	16.000	4	20.000	4	25.000	0	40.000	6	50.000	5	60.000	6
Indeno(1,2,3-cd)pyrene	2.0000	-18	5.0000	-8	10.000	-2	16.000	4	20.000	5	25.000	2	40.000	5	50.000	5	60.000	7
Dibenz(a,h)anthracene	2.0000	-19	5.0000	-9	10.000	-2	16.000	4	20.000	4	25.000	2	40.000	6	50.000	6	60.000	8
Benzo(g,h,i)perylene	2.0000	-13	5.0000	-8	10.000	-3	16.000	2	20.000	4	25.000	1	40.000	5	50.000	5	60.000	6
2-Fluorophenol	2.0000	-9	5.0000	-1	10.000	1	16.000	3	20.000	1	25.000	-1	40.000	2	50.000	2	60.000	2
Phenol-d5	2.0000	-6	5.0000	0	10.000	1	16.000	2	20.000	-1	25.000	-2	40.000	1	50.000	2	60.000	3
Nitrobenzene-d5	2.0000	-6	5.0000	1	10.000	-2	16.000	3	20.000	2	25.000	0	40.000	2	50.000	1	60.000	1
2-Fluorobiphenyl	2.0000	-4	5.0000	2	10.000	6	16.000	7	20.000	4	25.000	0	40.000	-1	50.000	-5	60.000	-9
2,4,6-Tribromophenol	2.0000	**-28**	5.0000	-14	10.000	-6	16.000	-1	20.000	3	25.000	3	40.000	15	50.000	13	60.000	15
Terphenyl-d14	2.0000	-11	5.0000	1	10.000	5	16.000	7	20.000	6	25.000	1	40.000	0	50.000	-4	60.000	-5

KMH 08/01/14 [Aniline]: Picked or reassigned peak in all levels.

KMH 08/01/14 [3-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [4-Nitrophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [4-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [3,3'-Dichlorobenzidine]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [2,4-Dinitrophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [4-Chloroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [2,4,5-Trichlorophenol]: Corrected automatically drawn baseline in ICAL (rgv23).

KMH 08/01/14 [Anthracene]: Corrected automatically drawn baseline in ICAL (rgv23).

Analyst: KMH Date: 08/01/14 Reviewer: LW Date: 08/06/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; LINR=Linear regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259835 MSBNA Water
EPA 8270D

Inst : MSBNA09 Name : 6PTBNA9
Calnum : 584305789001 Cal Date : 31-JUL-2014

ICV 584305789025 (rgv25 31-JUL-2014) stds: S24471

Analyte	Spiked	Quant	Units	%D	Max	Flags
N-Nitrosodimethylamine	40.00	38.45	ug/mL	-4	20	
Phenol	40.00	38.19	ug/mL	-5	20	
bis(2-Chloroethyl)ether	40.00	39.29	ug/mL	-2	20	
2-Chlorophenol	40.00	38.81	ug/mL	-3	20	
1,3-Dichlorobenzene	40.00	39.49	ug/mL	-1	20	
1,4-Dichlorobenzene	40.00	39.00	ug/mL	-3	20	
Benzyl alcohol	40.00	40.12	ug/mL	0	20	
1,2-Dichlorobenzene	40.00	39.12	ug/mL	-2	20	
2-Methylphenol	40.00	39.22	ug/mL	-2	20	
bis(2-Chloroisopropyl) ether	40.00	39.13	ug/mL	-2	20	
4-Methylphenol	40.00	34.09	ug/mL	-15	20	
N-Nitroso-di-n-propylamine	40.00	39.44	ug/mL	-1	20	
Hexachloroethane	40.00	39.10	ug/mL	-2	20	
Nitrobenzene	40.00	39.53	ug/mL	-1	20	
Isophorone	40.00	40.94	ug/mL	2	20	
2-Nitrophenol	40.00	39.56	ug/mL	-1	20	
2,4-Dimethylphenol	40.00	41.81	ug/mL	5	20	
bis(2-Chloroethoxy)methane	40.00	39.42	ug/mL	-1	20	
Benzoic acid	100.0	105.4	ug/mL	5	20	
2,4-Dichlorophenol	40.00	39.98	ug/mL	0	20	
1,2,4-Trichlorobenzene	40.00	39.54	ug/mL	-1	20	
Naphthalene	40.00	38.13	ug/mL	-5	20	
4-Chloroaniline	40.00	42.00	ug/mL	5	20	
Hexachlorobutadiene	40.00	40.75	ug/mL	2	20	
4-Chloro-3-methylphenol	40.00	39.84	ug/mL	0	20	
2-Methylnaphthalene	40.00	40.39	ug/mL	1	20	
Hexachlorocyclopentadiene	40.00	36.71	ug/mL	-8	20	
2,4,6-Trichlorophenol	40.00	38.79	ug/mL	-3	20	
2,4,5-Trichlorophenol	40.00	40.19	ug/mL	0	20	
2-Chloronaphthalene	40.00	38.31	ug/mL	-4	20	
2-Nitroaniline	40.00	38.87	ug/mL	-3	20	
Dimethylphthalate	40.00	39.93	ug/mL	0	20	
2,6-Dinitrotoluene	40.00	40.44	ug/mL	1	20	
Acenaphthylene	40.00	43.26	ug/mL	8	20	
3-Nitroaniline	40.00	40.11	ug/mL	0	20	
Acenaphthene	40.00	35.94	ug/mL	-10	20	
2,4-Dinitrophenol	40.00	40.36	ug/mL	1	20	m
4-Nitrophenol	40.00	38.52	ug/mL	-4	20	m
Dibenzofuran	40.00	38.29	ug/mL	-4	20	
2,4-Dinitrotoluene	40.00	39.63	ug/mL	-1	20	
Diethylphthalate	40.00	37.90	ug/mL	-5	20	
Fluorene	40.00	37.80	ug/mL	-6	20	
4-Chlorophenyl-phenylether	40.00	38.25	ug/mL	-4	20	
4-Nitroaniline	40.00	38.21	ug/mL	-4	20	
4,6-Dinitro-2-methylphenol	40.00	38.45	ug/mL	-4	20	
N-Nitrosodiphenylamine	40.00	44.66	ug/mL	12	20	
Azobenzene	40.00	37.93	ug/mL	-5	20	
4-Bromophenyl-phenylether	40.00	38.36	ug/mL	-4	20	
Hexachlorobenzene	40.00	39.17	ug/mL	-2	20	

Analyte	Spiked	Quant	Units	%D	Max	Flags
Pentachlorophenol	40.00	37.41	ug/mL	-6	20	
Phenanthrene	40.00	37.26	ug/mL	-7	20	
Anthracene	40.00	38.70	ug/mL	-3	20	
Carbazole	40.00	40.93	ug/mL	2	20	
Di-n-butylphthalate	40.00	37.30	ug/mL	-7	20	
Fluoranthene	40.00	36.70	ug/mL	-8	20	
Pyrene	40.00	36.20	ug/mL	-9	20	
Butylbenzylphthalate	40.00	38.51	ug/mL	-4	20	
3,3'-Dichlorobenzidine	60.00	59.84	ug/mL	0	20	
Benzo(a)anthracene	40.00	39.04	ug/mL	-2	20	
bis(2-Ethylhexyl)phthalate	40.00	39.42	ug/mL	-1	20	
Chrysene	40.00	37.36	ug/mL	-7	20	
Di-n-octylphthalate	40.00	38.60	ug/mL	-3	20	
Benzo(b)fluoranthene	40.00	42.43	ug/mL	6	20	
Benzo(k)fluoranthene	40.00	38.95	ug/mL	-3	20	
Benzo(a)pyrene	40.00	44.62	ug/mL	12	20	
Indeno(1,2,3-cd)pyrene	40.00	39.27	ug/mL	-2	20	
Dibenz(a,h)anthracene	40.00	38.70	ug/mL	-3	20	
Benzo(g,h,i)perylene	40.00	38.80	ug/mL	-3	20	

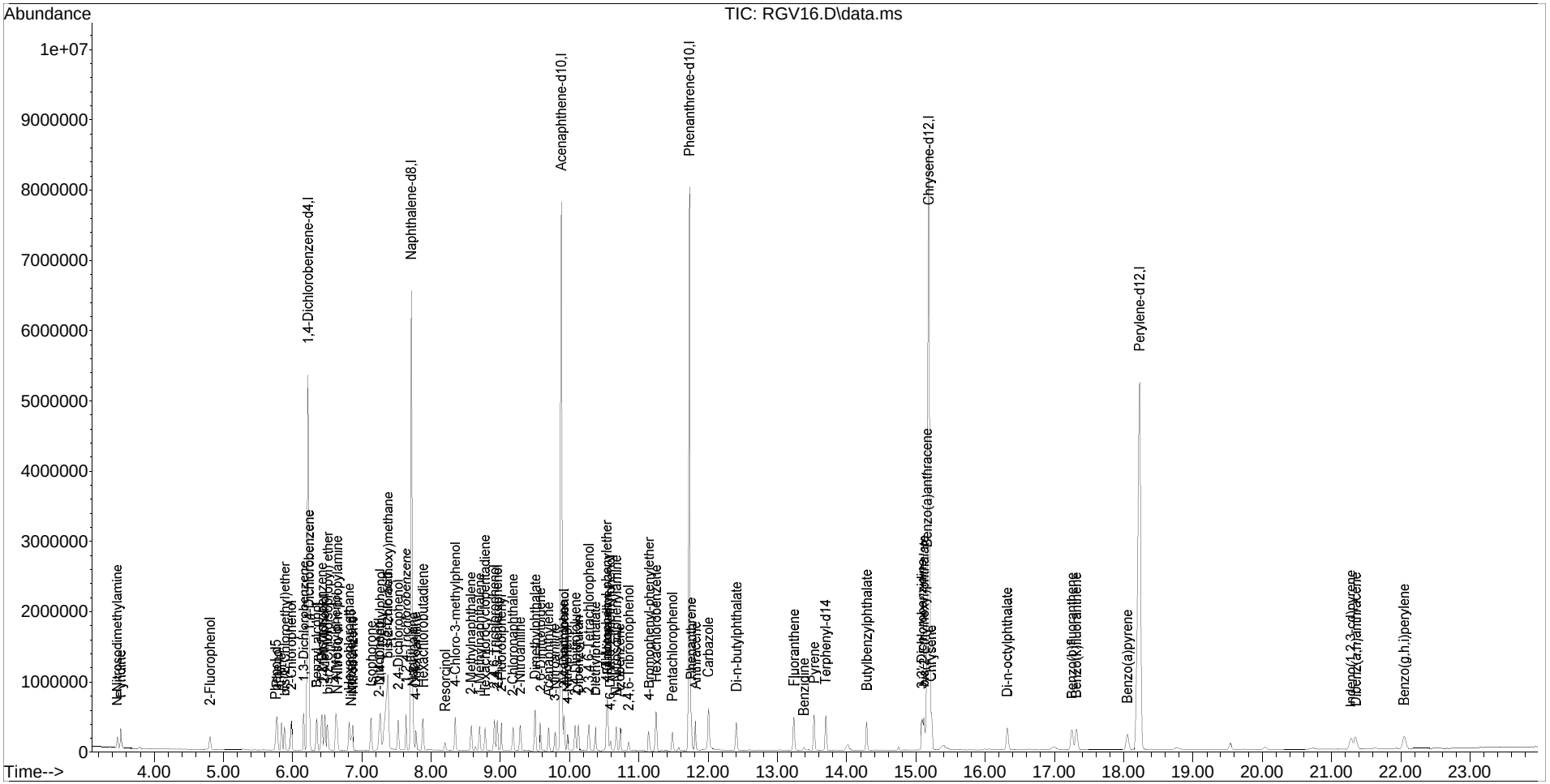
Analyst: KMH Date: 08/01/14 Reviewer: LW Date: 08/06/14

m=manual integration

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV16.D
Acq On : 31 Jul 2014 7:18 pm
Operator :
Sample : ICAL,S24422
Misc : ICAL
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Aug 01 09:24:43 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV16.D
Acq On : 31 Jul 2014 7:18 pm
Operator :
Sample : ICAL,S24422
Misc : ICAL
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Aug 01 09:24:43 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.222	152	1169383	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.716	136	4242127	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.881	164	2631417	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.733	188	4632545	40.0000	ug/mL	0.00
70) Chrysene-d12	15.186	240	5837740	40.0000	ug/mL	0.00
79) Perylene-d12	18.233	264	5288177	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.522	79	170123	4.0408	ug/mL	89
3) N-Nitrosodimethylamine	3.469	42	76327	3.5842	ug/mL	# 70
4) 2-Fluorophenol	4.810	112	78037	2.0940	ug/mL	# 69
5) Phenol-d5	5.757	99	93962	2.0021	ug/mL	76
6) Phenol	5.775	94	197343	3.9372	ug/mL	86
7) Aniline	5.846	93	206225m	3.4748	ug/mL	
8) bis(2-Chloroethyl)ether	5.893	93	157451	4.0714	ug/mL	97
9) 2-Chlorophenol	5.987	128	164908	3.8149	ug/mL	90
10) 1,3-Dichlorobenzene	6.163	146	182752	3.9612	ug/mL	97
11) 1,4-Dichlorobenzene	6.240	146	186312	3.9313	ug/mL	90
12) Benzyl alcohol	6.346	108	96596	3.6373	ug/mL	# 85
13) 1,2-Dichlorobenzene	6.422	146	174464	3.9857	ug/mL	97
14) 2-Methylphenol	6.457	107	123202	3.7888	ug/mL	95
15) bis(2-Chloroisopropyl) ether	6.504	45	216383	3.6991	ug/mL	97
16) 4-Methylphenol	6.628	107	181293	3.7042	ug/mL	93
17) N-Nitroso-di-n-propylamine	6.646	70	88479	3.1011	ug/mL	86
18) Hexachloroethane	6.816	117	68206	3.9061	ug/mL	96
20) Nitrobenzene-d5	6.846	82	76332	2.0617	ug/mL	# 73
21) Nitrobenzene	6.869	77	146904	3.9007	ug/mL	82
22) Isophorone	7.140	82	267575	3.6332	ug/mL	94
23) 2-Nitrophenol	7.246	139	74250	3.5365	ug/mL	81
24) 2,4-Dimethylphenol	7.263	107	139695	3.7548	ug/mL	86
25) bis(2-Chloroethoxy)methane	7.381	93	84159	1.9481	ug/mL	88
26) Benzoic acid	7.369	105	779381	50.8984	ug/mL	90
27) 2,4-Dichlorophenol	7.528	162	121689	3.9854	ug/mL	96
28) 1,2,4-Trichlorobenzene	7.640	180	137892	4.4211	ug/mL	97
29) Naphthalene	7.740	128	224900	2.0140	ug/mL	97
30) 4-Chloroaniline	7.781	127	120683	2.5102	ug/mL	95
31) Hexachlorobutadiene	7.887	225	75305	4.6539	ug/mL	98
32) Resorcinol	8.204	110	52655	9.7103	ug/mL	91
33) 4-Chloro-3-methylphenol	8.351	107	134308	3.7985	ug/mL	94
34) 2-Methylnaphthalene	8.581	142	144030	1.8743	ug/mL	94
35) 1-Methylnaphthalene	8.704	142	135225	1.8725	ug/mL	91
37) Hexachlorocyclopentadiene	8.781	237	71586	3.3397	ug/mL	98
38) 2,4,6-Trichlorophenol	8.916	196	88225	3.6909	ug/mL	96

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV16.D
Acq On : 31 Jul 2014 7:18 pm
Operator :
Sample : ICAL,S24422
Misc : ICAL
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Aug 01 09:24:43 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units		Rel.RT
39) 2,4,5-Trichlorophenol	8.957	196	92350	3.6382	ug/mL		91
40) 2-Fluorobiphenyl	9.022	172	179665	2.0963	ug/mL		98
41) 2-Chloronaphthalene	9.181	162	141188	1.9166	ug/mL		94
42) 2-Nitroaniline	9.287	65	82615	3.3106	ug/mL	#	84
43) Dimethylphthalate	9.504	163	358045	3.8920	ug/mL		99
44) 2,6-Dinitrotoluene	9.581	165	74221	3.4582	ug/mL	#	79
45) Acenaphthylene	9.698	152	211615	1.9603	ug/mL		98
46) 3-Nitroaniline	9.792	138	62880m	2.6939	ug/mL		
47) Acenaphthene	9.916	154	152801	1.8860	ug/mL		96
48) 2,4-Dinitrophenol	9.922	184	10613	12.5084	ug/mL	#	1
49) 4-Nitrophenol	9.975	109	35175m	3.1967	ug/mL		
50) Dibenzofuran	10.128	168	218610	1.9987	ug/mL		80
51) 2,4-Dinitrotoluene	10.087	165	95979	3.2883	ug/mL		81
52) 2,3,4,6-Tetrachlorophenol	10.275	232	70066	3.3549	ug/mL		89
53) Diethylphthalate	10.375	149	178109	1.8410	ug/mL		97
54) 4-Chlorophenyl-phenylether	10.539	204	89283	2.0654	ug/mL	#	78
55) Fluorene	10.557	166	184583	1.9899	ug/mL		87
56) 4-Nitroaniline	10.551	138	71134m	3.0701	ug/mL		
57) 2,4,6-Tribromophenol	10.851	330	20221	1.6325	ug/mL	#	83
59) 4,6-Dinitro-2-methylphenol	10.592	198	26896	1.7204	ug/mL		89
60) N-Nitrosodiphenylamine	10.681	169	129723	1.9222	ug/mL		90
61) Azobenzene	10.734	77	179148	1.8982	ug/mL		97
62) 4-Bromophenyl-phenylether	11.151	248	52672	2.1159	ug/mL	#	82
63) Hexachlorobenzene	11.257	284	116593	4.3455	ug/mL		95
64) Pentachlorophenol	11.486	266	48124	2.7283	ug/mL		97
65) Phenanthrene	11.757	178	260741	1.9727	ug/mL		97
66) Anthracene	11.822	178	258574	1.9978	ug/mL		97
67) Carbazole	12.004	167	383526	3.3947	ug/mL		88
68) Di-n-butylphthalate	12.410	149	317401	1.9372	ug/mL		97
69) Fluoranthene	13.245	202	288749	2.1405	ug/mL		96
71) Benzidine	13.386	184	35080	0.5231	ug/mL		90
72) Pyrene	13.533	202	312471	1.6375	ug/mL		93
73) Terphenyl-d14	13.698	244	242423	1.8291	ug/mL		98
74) Butylbenzylphthalate	14.292	149	142957	1.5393	ug/mL		100
75) 3,3'-Dichlorobenzidine	15.092	252	169057m	2.8762	ug/mL		
76) Benzo(a)anthracene	15.163	228	311140	1.9599	ug/mL		97
77) bis(2-Ethylhexyl)phthalate	15.121	149	209544	1.5938	ug/mL		96
78) Chrysene	15.221	228	293038	1.9517	ug/mL		96
80) Di-n-octylphthalate	16.321	149	315693	1.2933	ug/mL		95
81) Benzo(b)fluoranthene	17.257	252	262175	1.7429	ug/mL		96
82) Benzo(k)fluoranthene	17.321	252	261767	1.7164	ug/mL		94
83) Benzo(a)pyrene	18.057	252	216608	1.7139	ug/mL		95
84) Indeno(1,2,3-cd)pyrene	21.286	276	248851	1.7431	ug/mL		88

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV16.D
Acq On : 31 Jul 2014 7:18 pm
Operator :
Sample : ICAL,S24422
Misc : ICAL
ALS Vial : 16 Sample Multiplier: 1

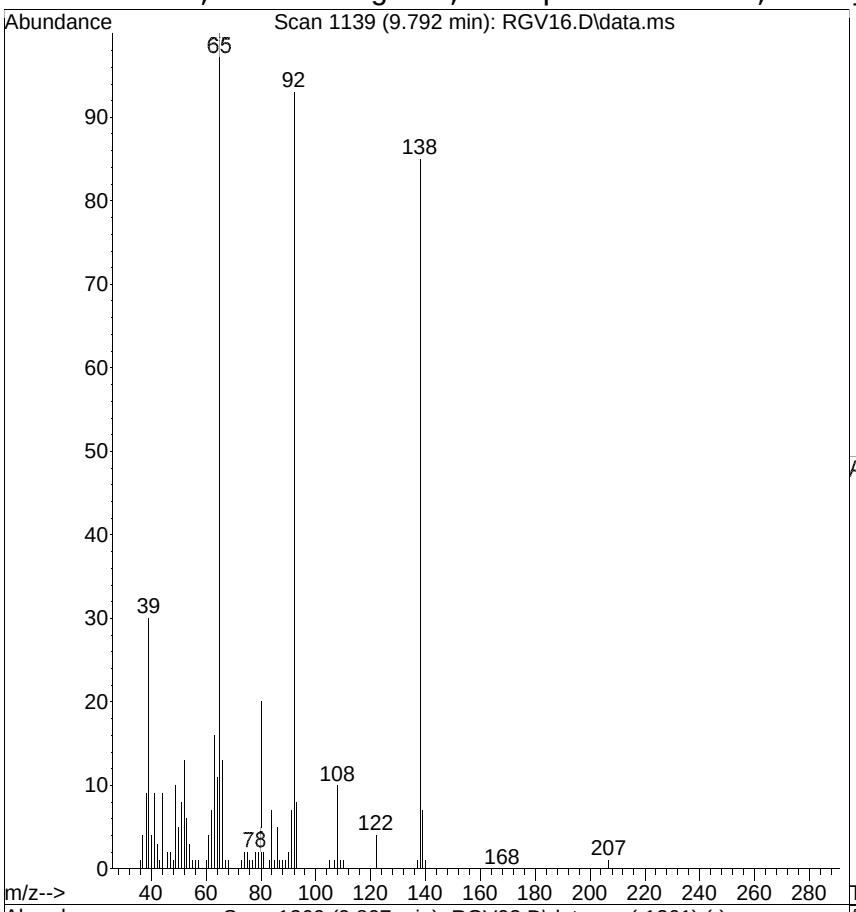
Quant Time: Aug 01 09:24:43 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.356	278	221114	1.7500	ug/mL	94
86) Benzo(g,h,i)perylene	22.056	276	210620	1.8850	ug/mL	96

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

[3-Nitroaniline; 4.000 ug/mL; response=62880; MI]

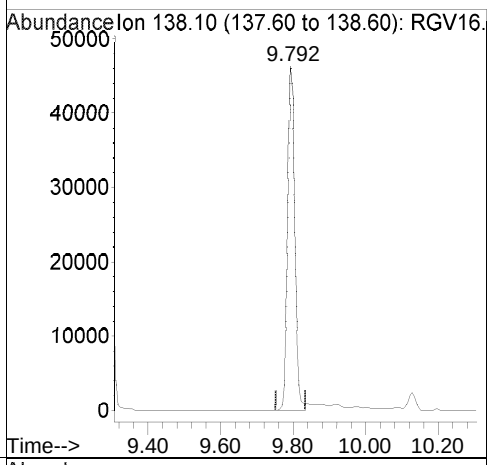
Raw



#46
3-Nitroaniline
Concen: 2.6939 ug/mL m
RT: 9.792 min Scan# 1139
Delta R.T. -0.014 min
Lab File: RGV16.D
Acq: 31 Jul 2014 7:18 pm

Tgt Ion:138 Resp: 62880

Ion	Ratio	Lower	Upper
138	100		
108	11.9	0.0	35.0
92	109.1	131.0	171.0#



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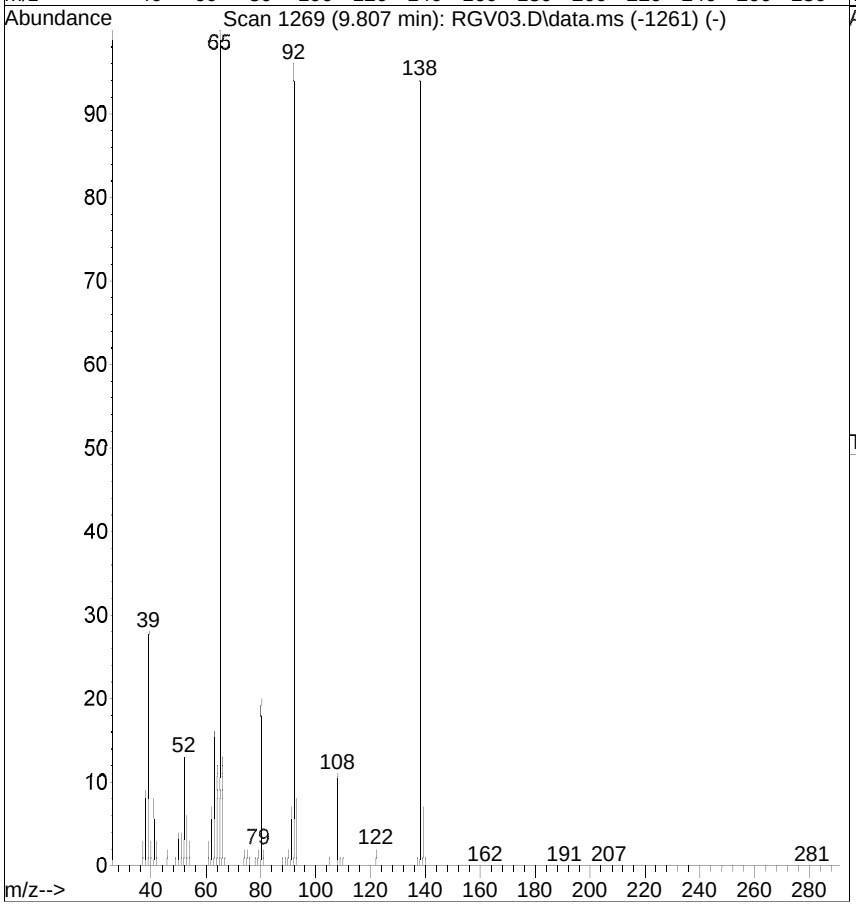
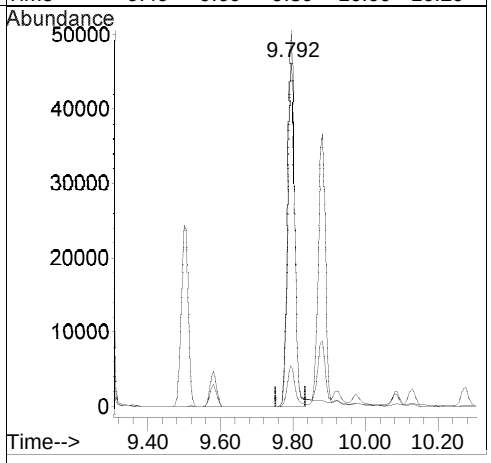
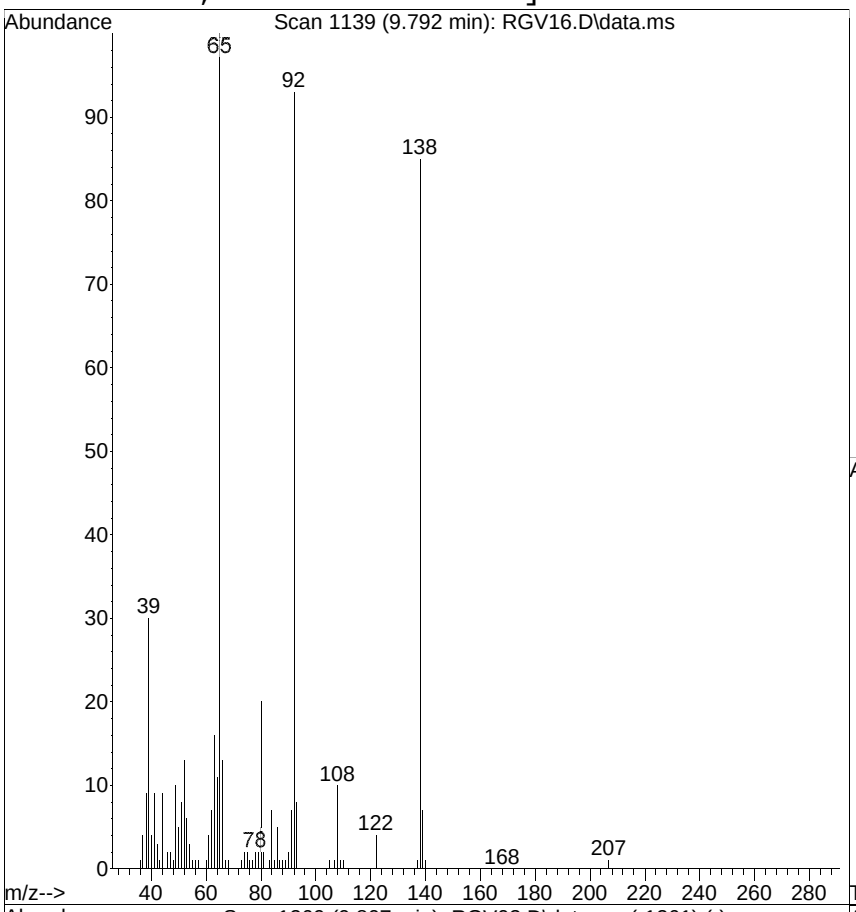




[3-Nitroaniline; before version]

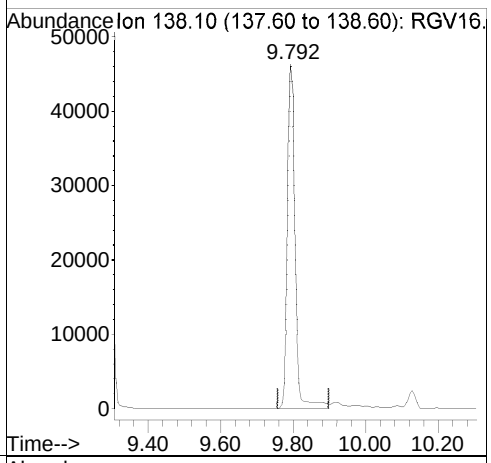
Raw



#46
3-Nitroaniline
Concen: 2.8238 ug/mL
RT: 9.792 min Scan# 1139
Delta R.T. -0.014 min
Lab File: RGV16.D
Acq: 31 Jul 2014 7:18 pm

Tgt Ion:138 Resp: 65911

Ion	Ratio	Lower	Upper
138	100		
108	11.9	0.0	35.0
92	109.1	131.0	171.0#



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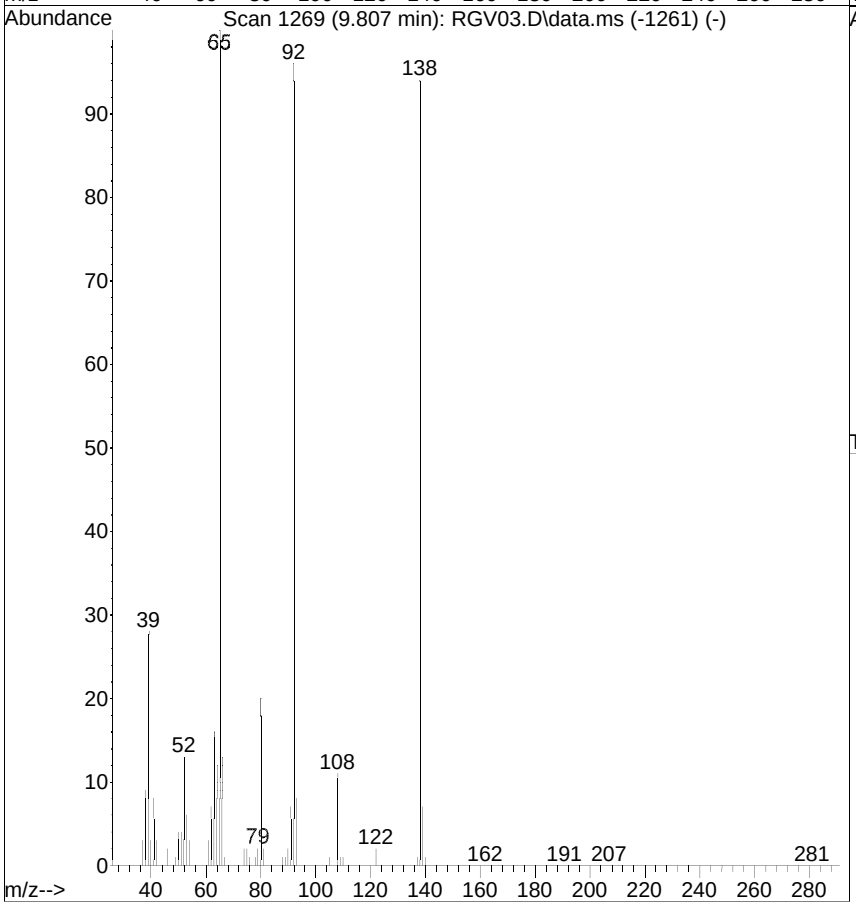
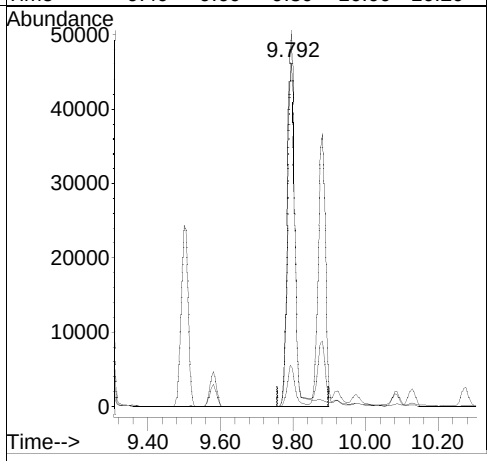
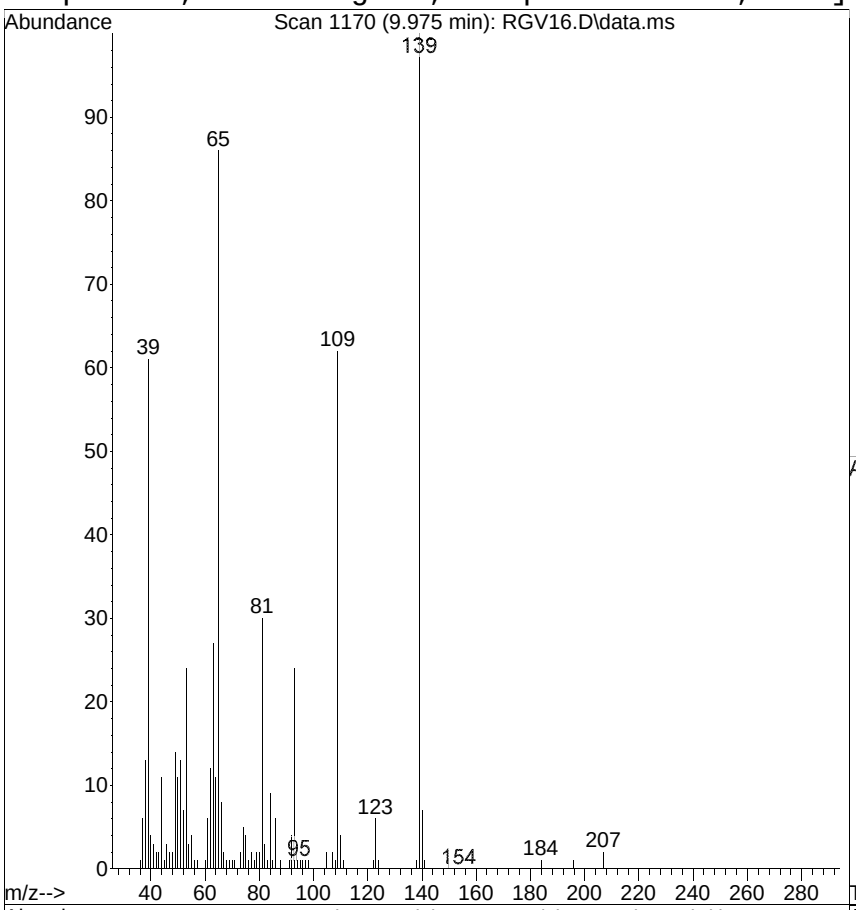




[4-Nitrophenol; 4.000 ug/mL; response=35175; MI]

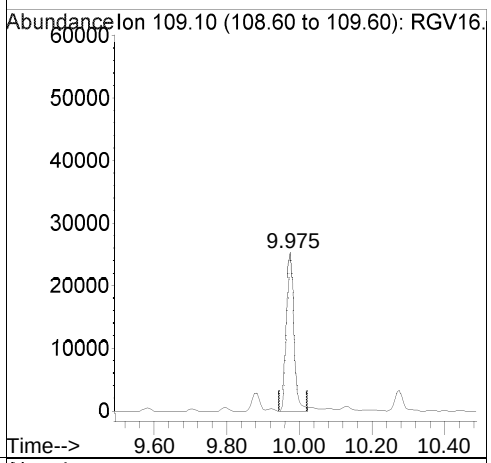
Raw



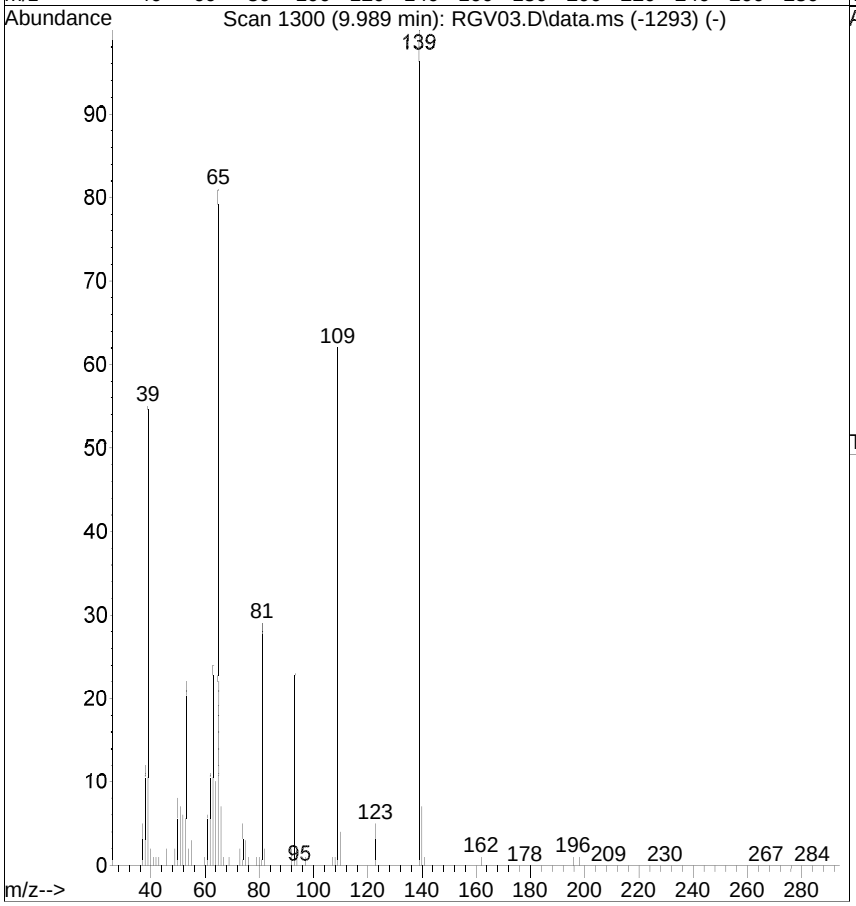
#49
4-Nitrophenol
Concen: 3.1967 ug/mL m
RT: 9.975 min Scan# 1170
Delta R.T. -0.014 min
Lab File: RGV16.D
Acq: 31 Jul 2014 7:18 pm

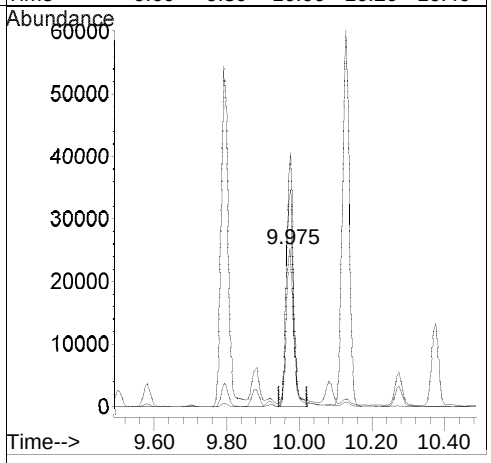
Tgt Ion:109 Resp: 35175

Ion	Ratio	Lower	Upper
109	100		
139	160.8	109.0	149.0#
65	137.6	122.0	162.0



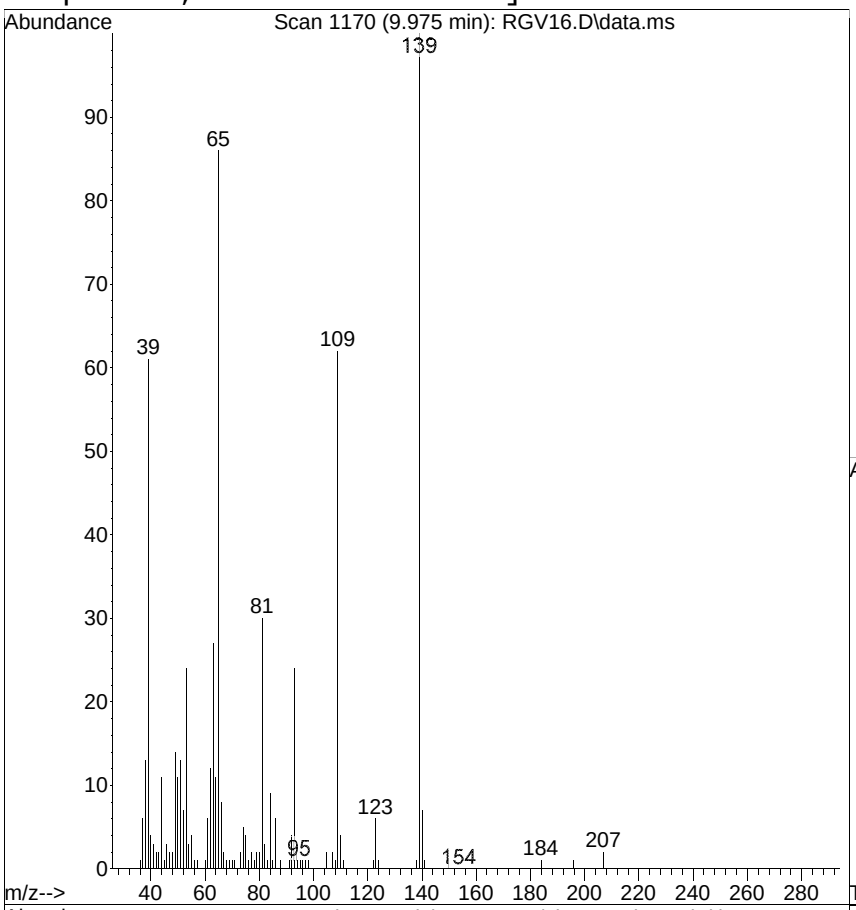
Ref





[4-Nitrophenol; before version]

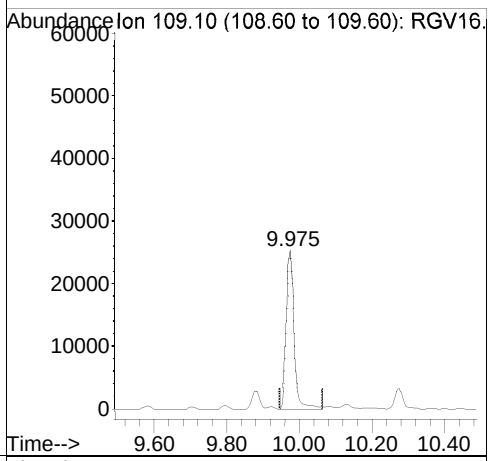
Raw



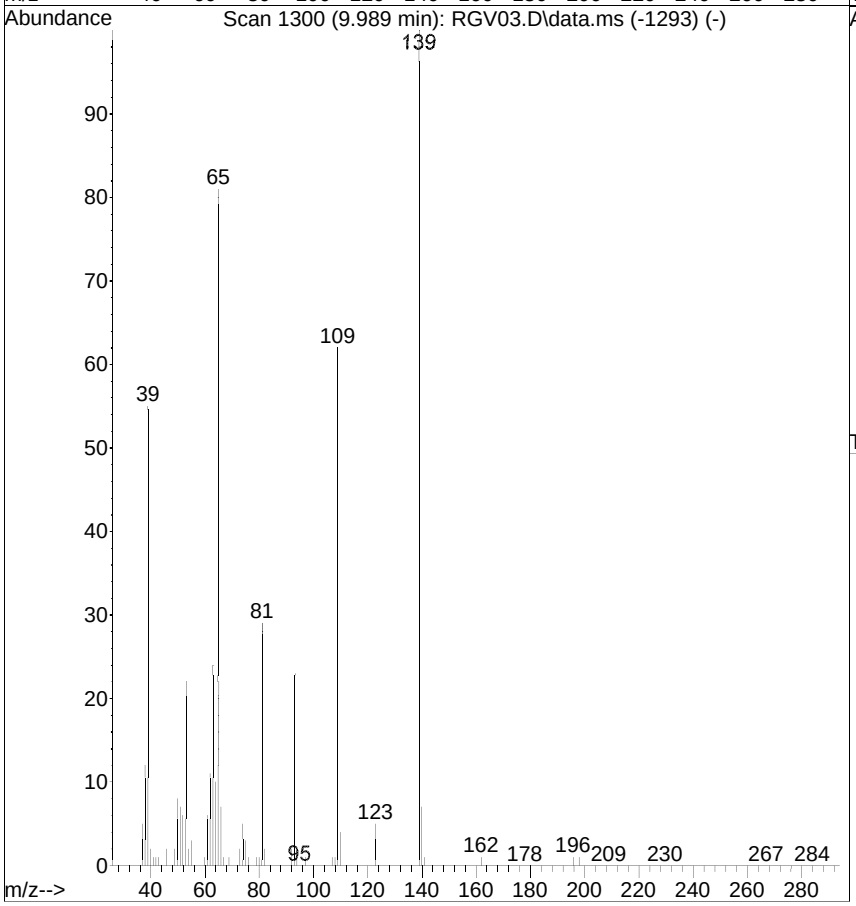
#49
4-Nitrophenol
Concen: 3.2978 ug/mL
RT: 9.975 min Scan# 1170
Delta R.T. -0.014 min
Lab File: RGV16.D
Acq: 31 Jul 2014 7:18 pm

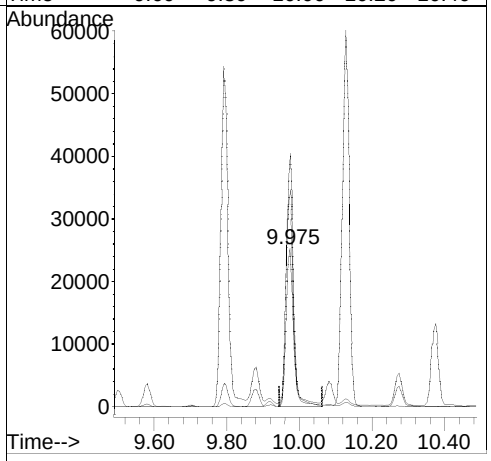
Tgt Ion:109 Resp: 36288

Ion	Ratio	Lower	Upper
109	100		
139	160.8	109.0	149.0#
65	137.6	122.0	162.0



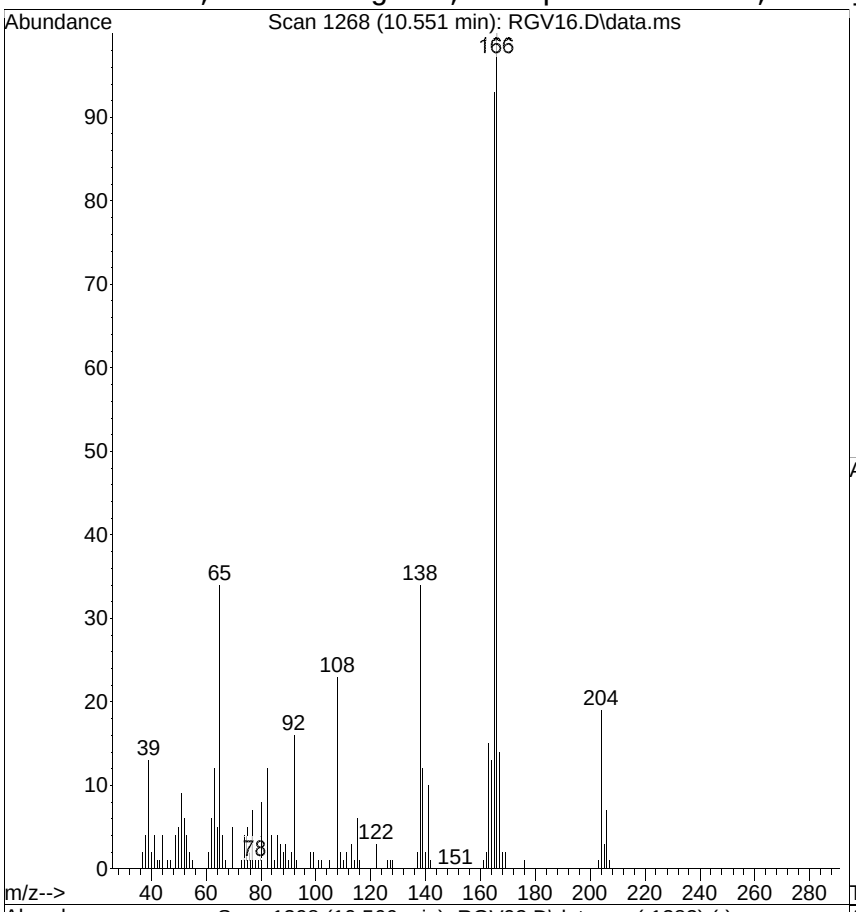
Ref





[4-Nitroaniline; 4.000 ug/mL; response=71134; MI]

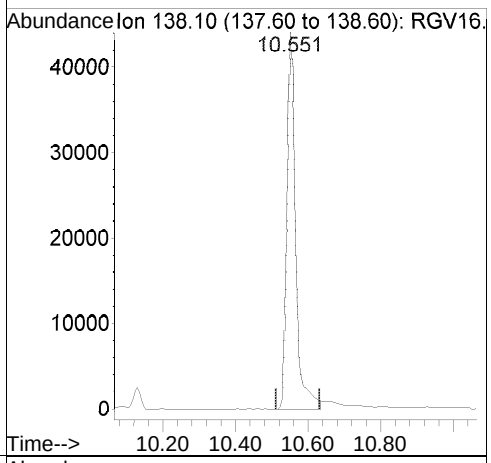
Raw



#56
4-Nitroaniline
Concen: 3.0701 ug/mL m
RT: 10.551 min Scan# 1268
Delta R.T. -0.014 min
Lab File: RGV16.D
Acq: 31 Jul 2014 7:18 pm

Tgt Ion:138 Resp: 71134

Ion	Ratio	Lower	Upper
138	100		
65	99.0	10.0	50.0#
108	67.0	13.0	53.0#



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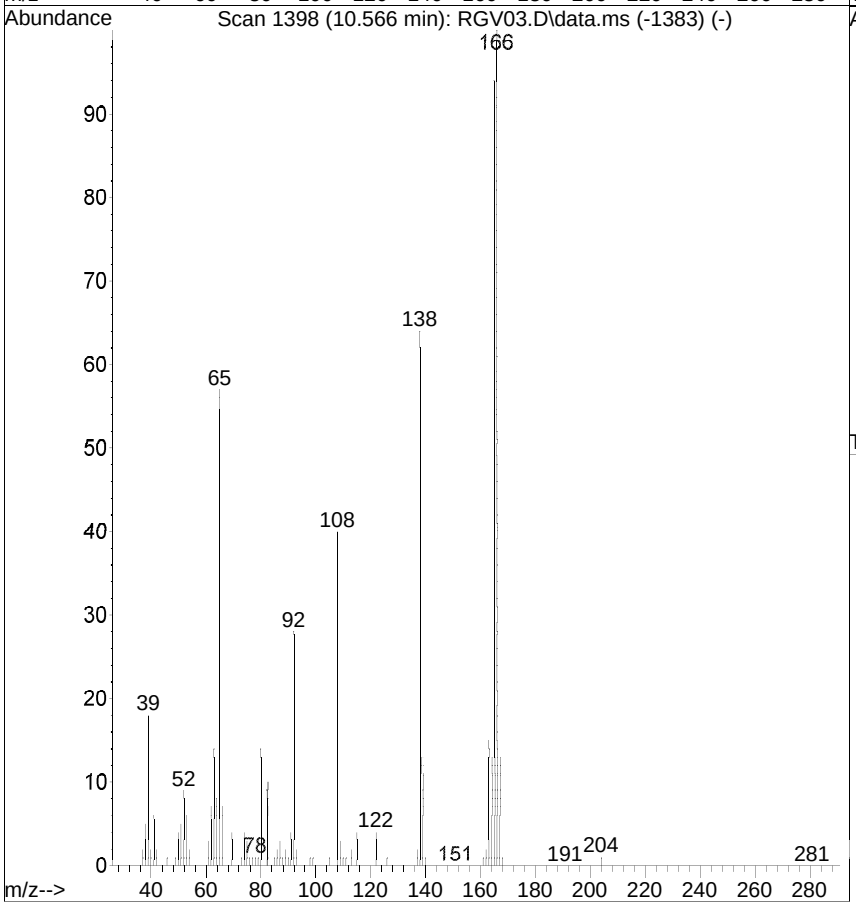
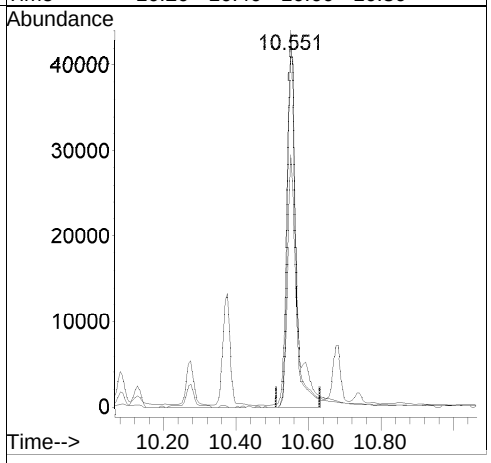
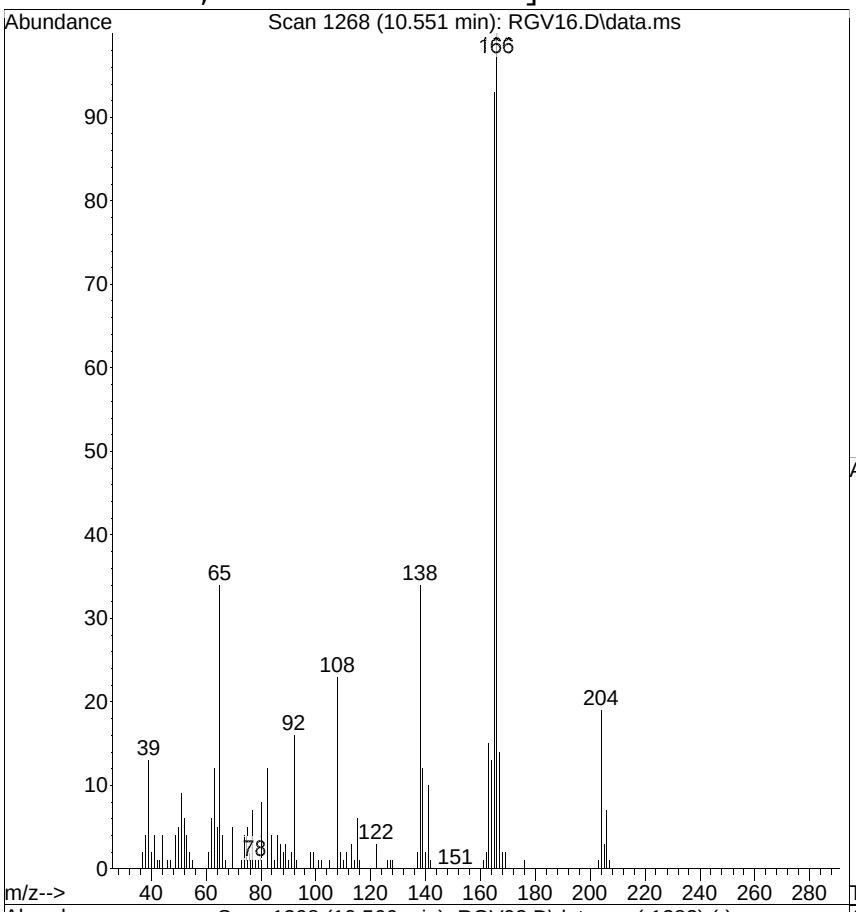




[4-Nitroaniline; before version]

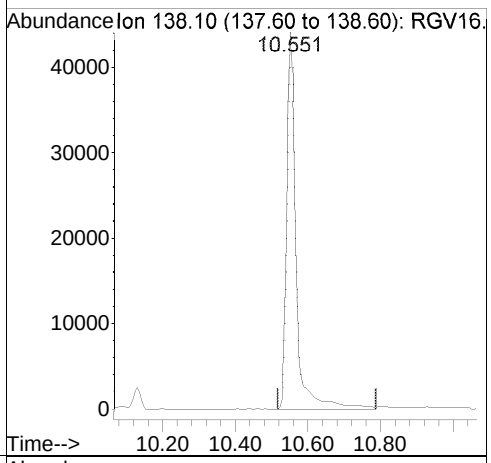
Raw



#56
4-Nitroaniline
Concen: 3.2810 ug/mL
RT: 10.551 min Scan# 1268
Delta R.T. -0.014 min
Lab File: RGV16.D
Acq: 31 Jul 2014 7:18 pm

Tgt Ion:138 Resp: 76019

Ion	Ratio	Lower	Upper
138	100		
65	99.0	10.0	50.0#
108	67.0	13.0	53.0#



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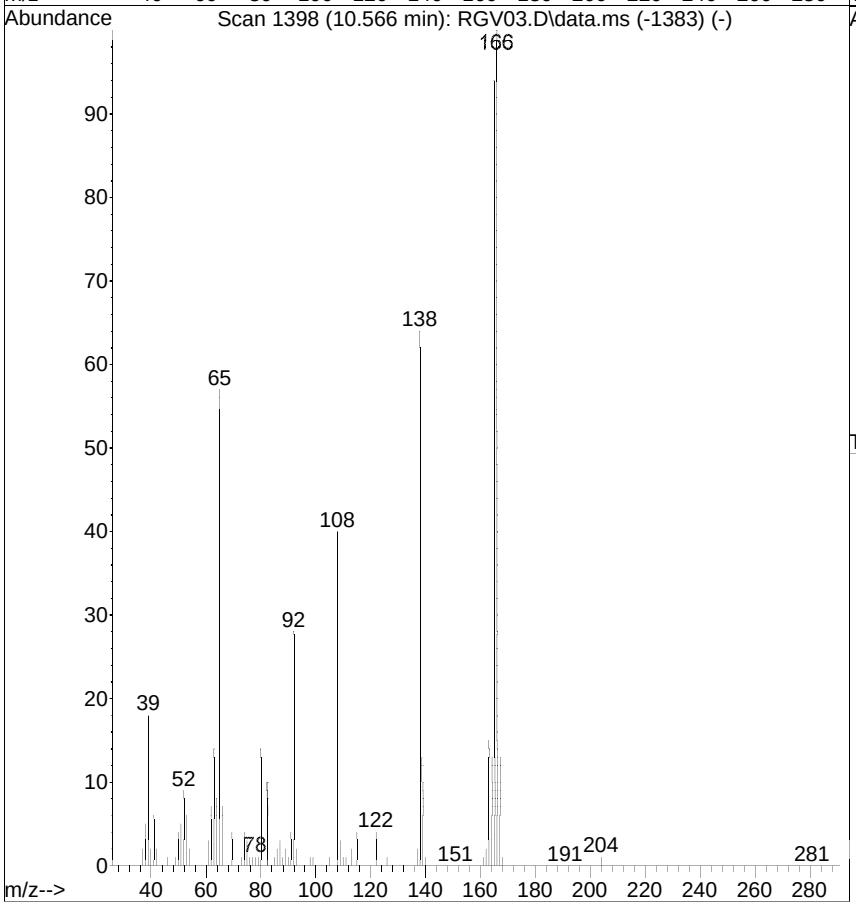
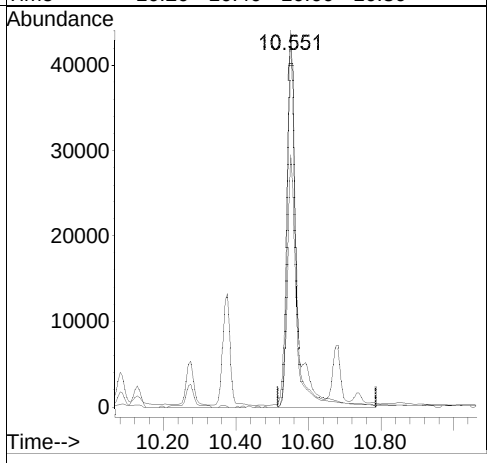
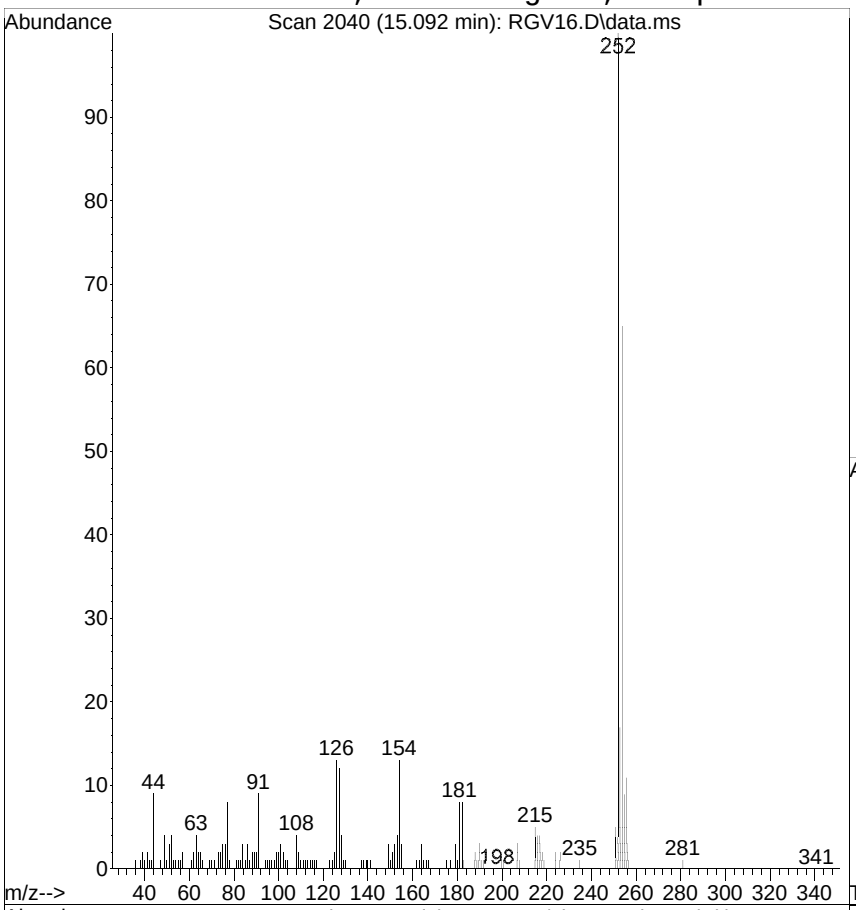




[3,3'-Dichlorobenzidine; 4.000 ug/mL; response=169057; MI]

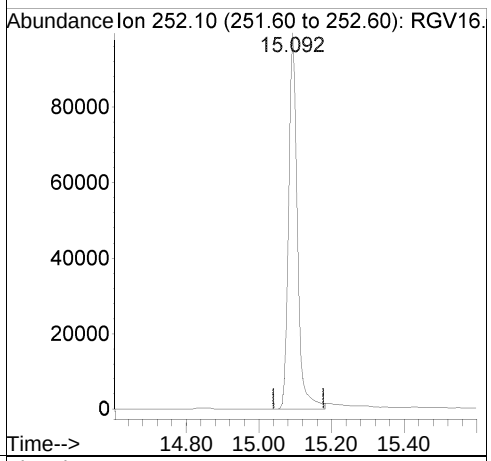
Raw



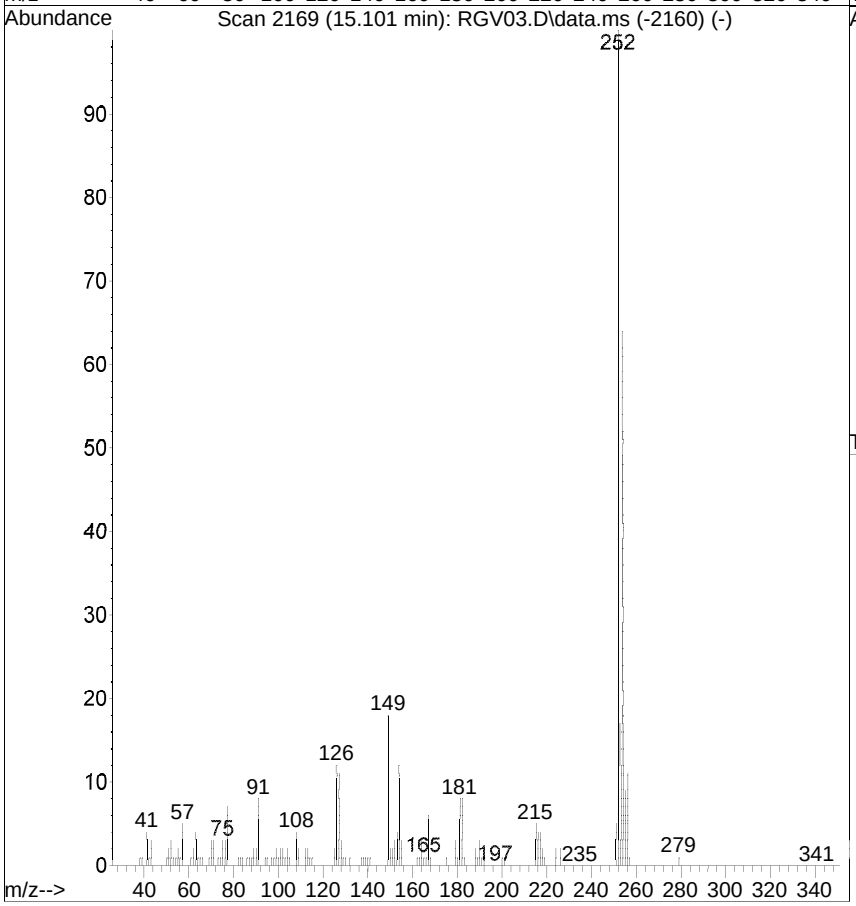
#75
3,3'-Dichlorobenzidine
Concen: 2.8762 ug/mL m
RT: 15.092 min Scan# 2040
Delta R.T. -0.009 min
Lab File: RGV16.D
Acq: 31 Jul 2014 7:18 pm

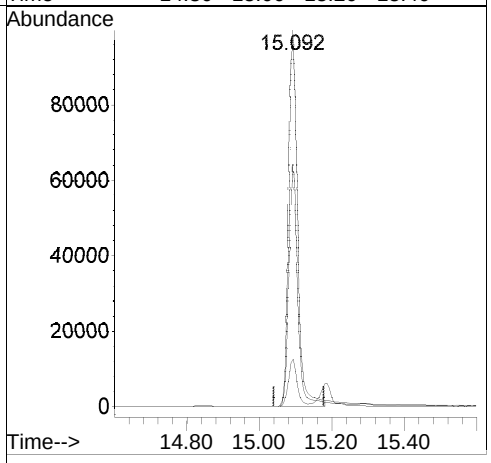
Tgt Ion:252 Resp: 169057

Ion	Ratio	Lower	Upper
252	100		
254	64.6	44.0	84.0
126	12.7	0.0	34.0



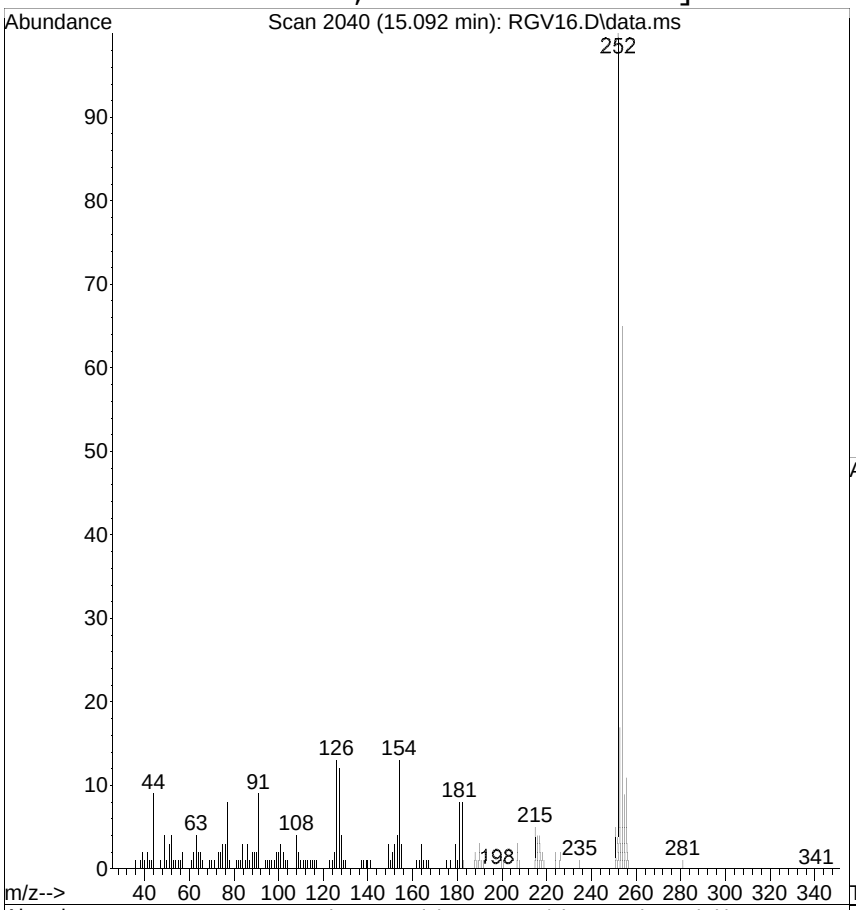
Ref





[3,3'-Dichlorobenzidine; before version]

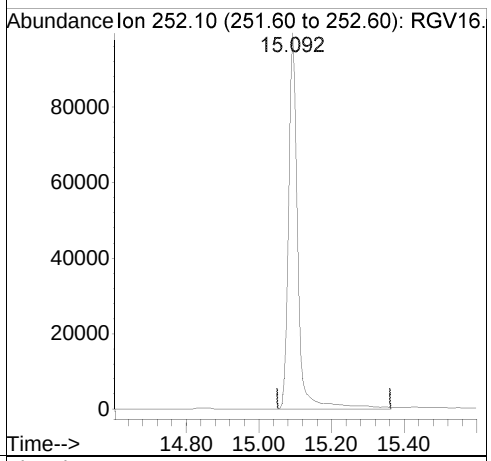
Raw



#75
3,3'-Dichlorobenzidine
Concen: 3.0214 ug/mL
RT: 15.092 min Scan# 2040
Delta R.T. -0.009 min
Lab File: RGV16.D
Acq: 31 Jul 2014 7:18 pm

Tgt Ion:252 Resp: 177593

Ion	Ratio	Lower	Upper
252	100		
254	64.6	44.0	84.0
126	12.7	0.0	34.0



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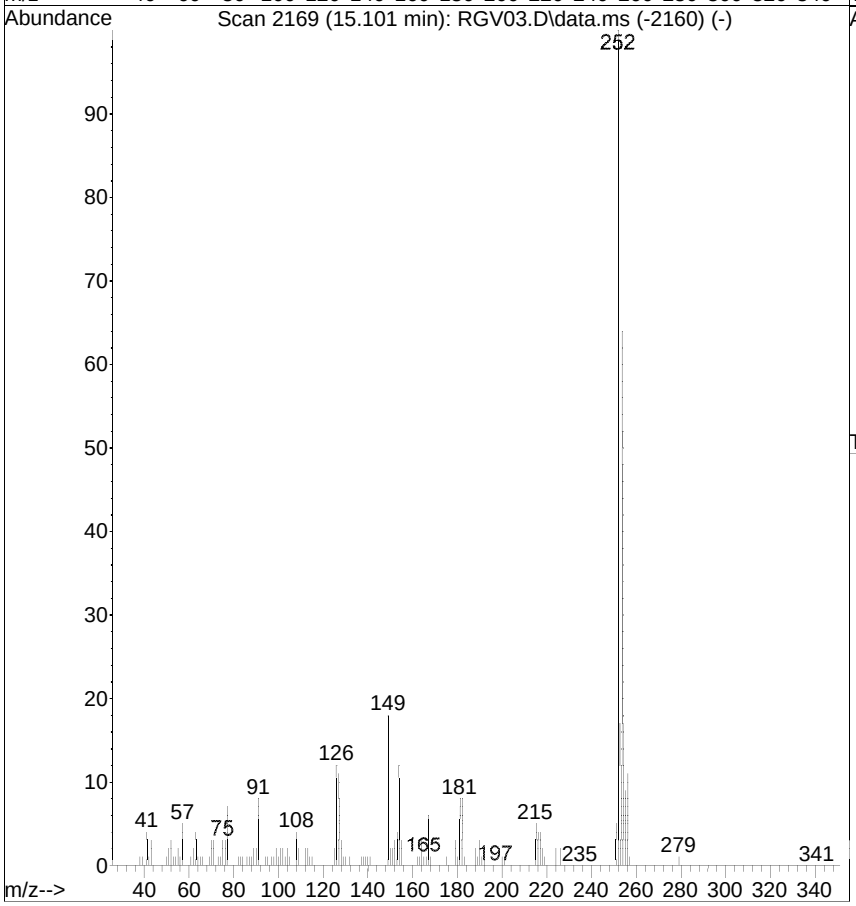
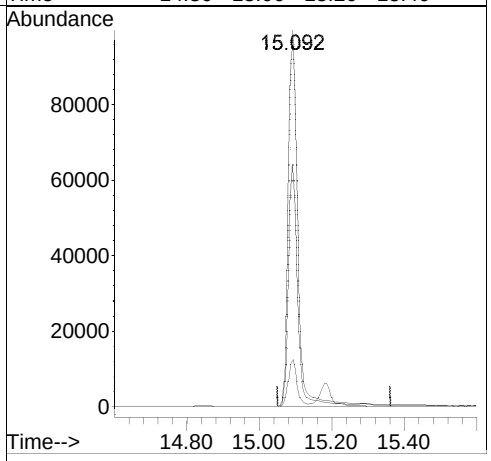
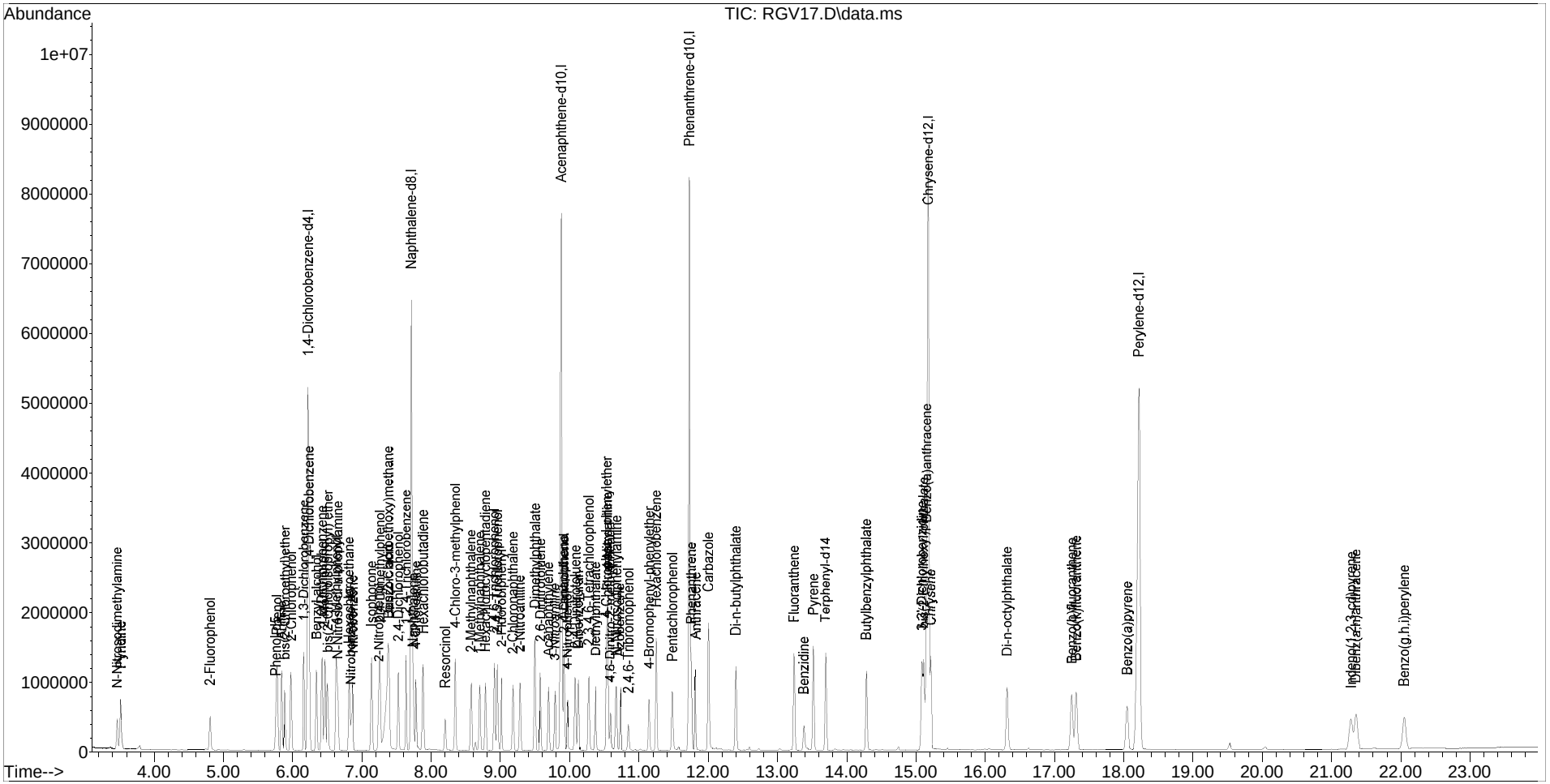




Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV17.D
Acq On : 31 Jul 2014 7:47 pm
Operator :
Sample : ICAL,S24424
Misc : ICAL
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Aug 01 09:26:50 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV17.D
Acq On : 31 Jul 2014 7:47 pm
Operator :
Sample : ICAL,S24424
Misc : ICAL
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Aug 01 09:26:50 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.222	152	1138625	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.716	136	4218037	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.880	164	2690029	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.727	188	4743853	40.0000	ug/mL	0.00
70) Chrysene-d12	15.180	240	5784965	40.0000	ug/mL	0.00
79) Perylene-d12	18.221	264	5242710	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.522	79	442184	10.7866	ug/mL	90
3) N-Nitrosodimethylamine	3.469	42	196816	9.4919	ug/mL	# 68
4) 2-Fluorophenol	4.810	112	206027	5.6776	ug/mL	# 69
5) Phenol-d5	5.757	99	243786	5.3347	ug/mL	76
6) Phenol	5.775	94	510943	10.4692	ug/mL	86
7) Aniline	5.845	93	582982m	10.0883	ug/mL	
8) bis(2-Chloroethyl)ether	5.892	93	400648	10.6400	ug/mL	95
9) 2-Chlorophenol	5.987	128	434149	10.3147	ug/mL	90
10) 1,3-Dichlorobenzene	6.163	146	479237	10.6683	ug/mL	97
11) 1,4-Dichlorobenzene	6.239	146	488892	10.5947	ug/mL	91
12) Benzyl alcohol	6.345	108	250023	9.6690	ug/mL	# 85
13) 1,2-Dichlorobenzene	6.422	146	455246	10.6813	ug/mL	97
14) 2-Methylphenol	6.457	107	317982	10.0429	ug/mL	95
15) bis(2-Chloroisopropyl) ether	6.504	45	561534	9.8589	ug/mL	99
16) 4-Methylphenol	6.628	107	466060	9.7798	ug/mL	93
17) N-Nitroso-di-n-propylamine	6.651	70	239914	8.6359	ug/mL	85
18) Hexachloroethane	6.816	117	179471	10.5558	ug/mL	94
20) Nitrobenzene-d5	6.845	82	204660	5.5593	ug/mL	# 72
21) Nitrobenzene	6.869	77	388905	10.3854	ug/mL	83
22) Isophorone	7.139	82	760559	10.3859	ug/mL	94
23) 2-Nitrophenol	7.245	139	187655	8.9889	ug/mL	82
24) 2,4-Dimethylphenol	7.263	107	369270	9.9821	ug/mL	86
25) bis(2-Chloroethoxy)methane	7.381	93	218283	5.0815	ug/mL	92
26) Benzoic acid	7.386	105	1050694	58.9838	ug/mL	91
27) 2,4-Dichlorophenol	7.528	162	326742	10.7620	ug/mL	96
28) 1,2,4-Trichlorobenzene	7.639	180	364837	11.7644	ug/mL	97
29) Naphthalene	7.739	128	592637	5.3373	ug/mL	98
30) 4-Chloroaniline	7.781	127	452535	9.4664	ug/mL	96
31) Hexachlorobutadiene	7.886	225	200062	12.4346	ug/mL	98
32) Resorcinol	8.204	110	202529	13.7951	ug/mL	92
33) 4-Chloro-3-methylphenol	8.351	107	368540	10.4827	ug/mL	95
34) 2-Methylnaphthalene	8.581	142	387753	5.0748	ug/mL	92
35) 1-Methylnaphthalene	8.704	142	371478	5.1733	ug/mL	92
37) Hexachlorocyclopentadiene	8.781	237	214599	9.7935	ug/mL	97
38) 2,4,6-Trichlorophenol	8.916	196	248943	10.1875	ug/mL	95

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV17.D
Acq On : 31 Jul 2014 7:47 pm
Operator :
Sample : ICAL,S24424
Misc : ICAL
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Aug 01 09:26:50 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.957	196	264836	10.2060	ug/mL	90
40) 2-Fluorobiphenyl	9.022	172	487049	5.5591	ug/mL	99
41) 2-Chloronaphthalene	9.180	162	395240	5.2483	ug/mL	93
42) 2-Nitroaniline	9.286	65	222782	8.7330	ug/mL #	84
43) Dimethylphthalate	9.504	163	965510	10.2666	ug/mL	99
44) 2,6-Dinitrotoluene	9.580	165	211182	9.6252	ug/mL #	78
45) Acenaphthylene	9.698	152	571260	5.1766	ug/mL	99
46) 3-Nitroaniline	9.792	138	198212m	8.3068	ug/mL	
47) Acenaphthene	9.916	154	418544	5.0535	ug/mL	95
48) 2,4-Dinitrophenol	9.922	184	46420m	15.0107	ug/mL	
49) 4-Nitrophenol	9.975	109	104992m	9.3338	ug/mL	
50) Dibenzofuran	10.127	168	588489	5.2633	ug/mL	80
51) 2,4-Dinitrotoluene	10.086	165	288981	9.6850	ug/mL	80
52) 2,3,4,6-Tetrachlorophenol	10.275	232	195768	9.1696	ug/mL	89
53) Diethylphthalate	10.375	149	492522	4.9799	ug/mL	98
54) 4-Chlorophenyl-phenylether	10.539	204	240620	5.4451	ug/mL #	78
55) Fluorene	10.557	166	494226	5.2119	ug/mL	87
56) 4-Nitroaniline	10.551	138	218331m	9.2178	ug/mL	
57) 2,4,6-Tribromophenol	10.851	330	61714	4.8736	ug/mL #	81
59) 4,6-Dinitro-2-methylphenol	10.592	198	108855	6.7996	ug/mL	86
60) N-Nitrosodiphenylamine	10.680	169	353899	5.1208	ug/mL	89
61) Azobenzene	10.733	77	486022	5.0290	ug/mL	96
62) 4-Bromophenyl-phenylether	11.151	248	142877	5.6049	ug/mL #	83
63) Hexachlorobenzene	11.251	284	325470	11.8459	ug/mL	90
64) Pentachlorophenol	11.486	266	154107	8.5319	ug/mL	97
65) Phenanthrene	11.757	178	728727	5.3840	ug/mL	98
66) Anthracene	11.821	178	704531	5.3156	ug/mL	95
67) Carbazole	12.004	167	1201398	10.3844	ug/mL	88
68) Di-n-butylphthalate	12.404	149	920287	5.4849	ug/mL	97
69) Fluoranthene	13.239	202	816200	5.9086	ug/mL	96
71) Benzidine	13.380	184	249192	3.7495	ug/mL	90
72) Pyrene	13.527	202	896859	4.7428	ug/mL	94
73) Terphenyl-d14	13.692	244	676977	5.1545	ug/mL	98
74) Butylbenzylphthalate	14.286	149	398103	4.3257	ug/mL	98
75) 3,3'-Dichlorobenzidine	15.086	252	497895m	8.5480	ug/mL	
76) Benzo(a)anthracene	15.157	228	816219	5.1884	ug/mL	97
77) bis(2-Ethylhexyl)phthalate	15.115	149	583683	4.4799	ug/mL	97
78) Chrysene	15.215	228	759532	5.1047	ug/mL	95
80) Di-n-octylphthalate	16.315	149	907427	3.7496	ug/mL	95
81) Benzo(b)fluoranthene	17.256	252	712440	4.7774	ug/mL	95
82) Benzo(k)fluoranthene	17.315	252	723576	4.7855	ug/mL	94
83) Benzo(a)pyrene	18.050	252	606168	4.8379	ug/mL	95
84) Indeno(1,2,3-cd)pyrene	21.286	276	693157	4.8974	ug/mL	88

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV17.D
Acq On : 31 Jul 2014 7:47 pm
Operator :
Sample : ICAL,S24424
Misc : ICAL
ALS Vial : 17 Sample Multiplier: 1

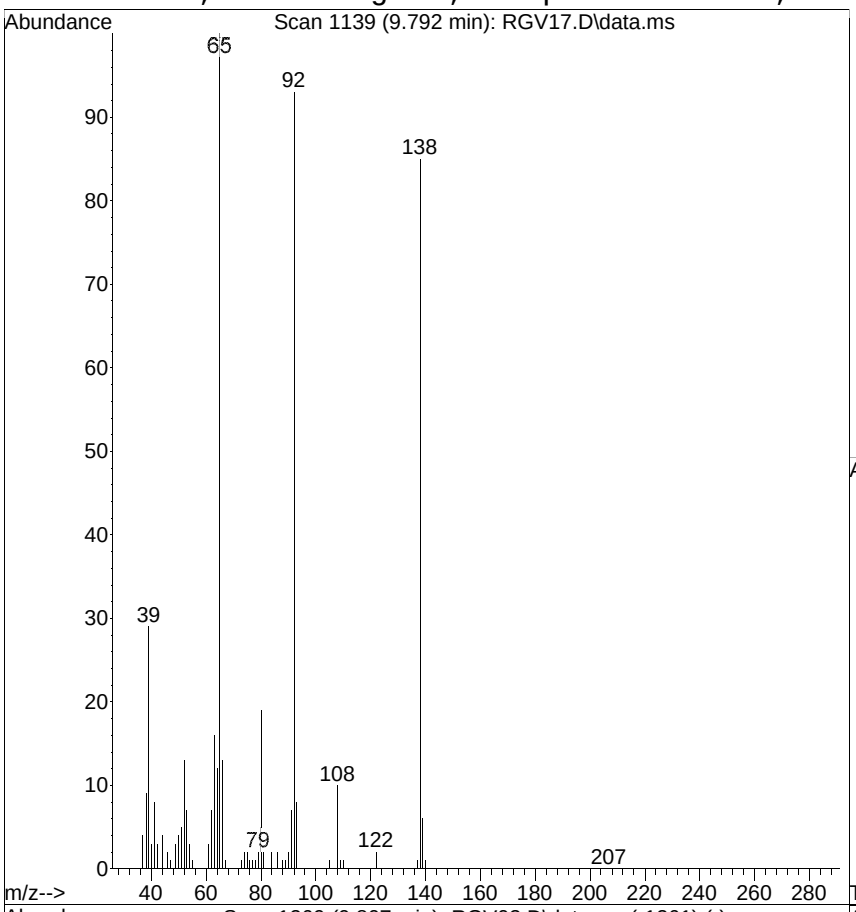
Quant Time: Aug 01 09:26:50 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.350	278	615906	4.9167	ug/mL	95
86) Benzo(g,h,i)perylene	22.050	276	553841	4.9997	ug/mL	95

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

[3-Nitroaniline; 10.00 ug/mL; response=198212; MI]

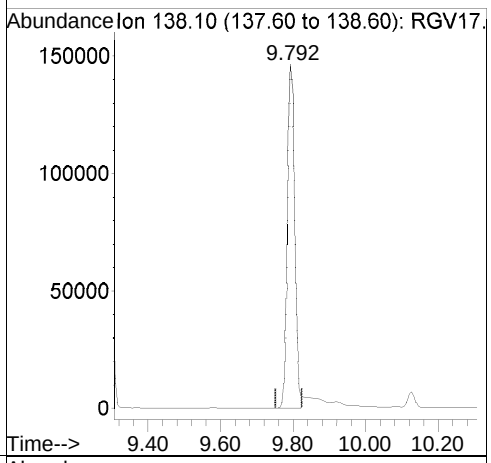
Raw



#46
3-Nitroaniline
Concen: 8.3068 ug/mL m
RT: 9.792 min Scan# 1139
Delta R.T. -0.015 min
Lab File: RGV17.D
Acq: 31 Jul 2014 7:47 pm

Tgt Ion:138 Resp: 198212

Ion	Ratio	Lower	Upper
138	100		
108	11.5	0.0	35.0
92	109.2	131.0	171.0#



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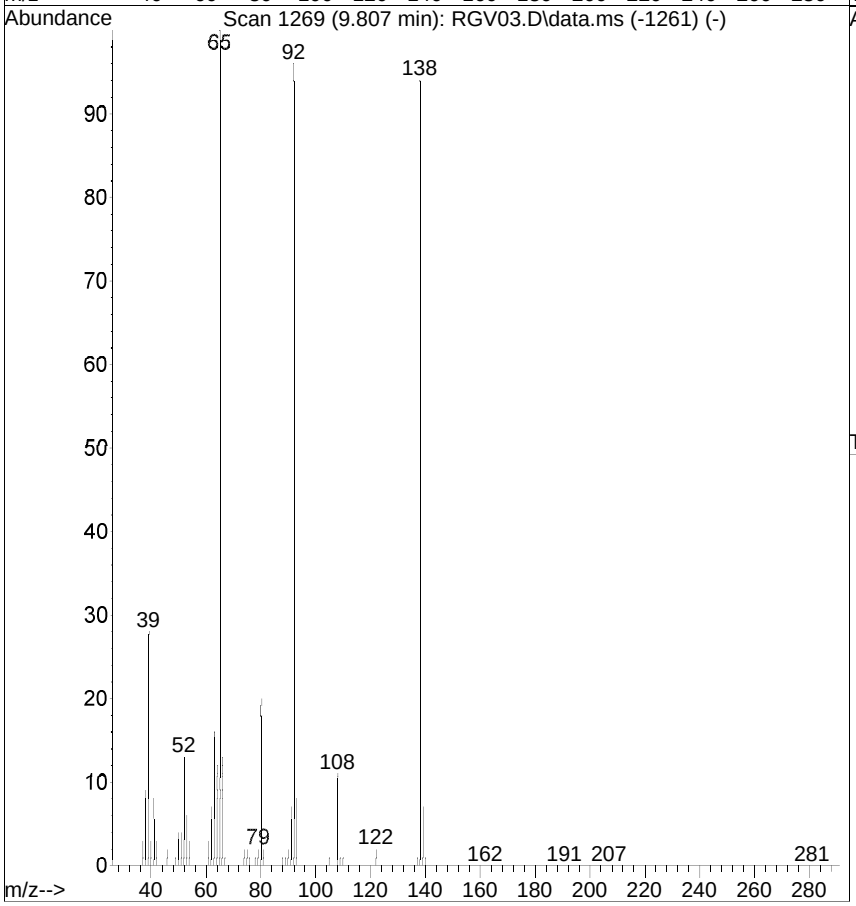
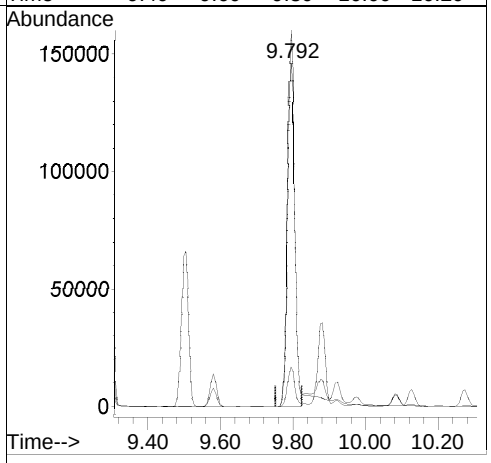
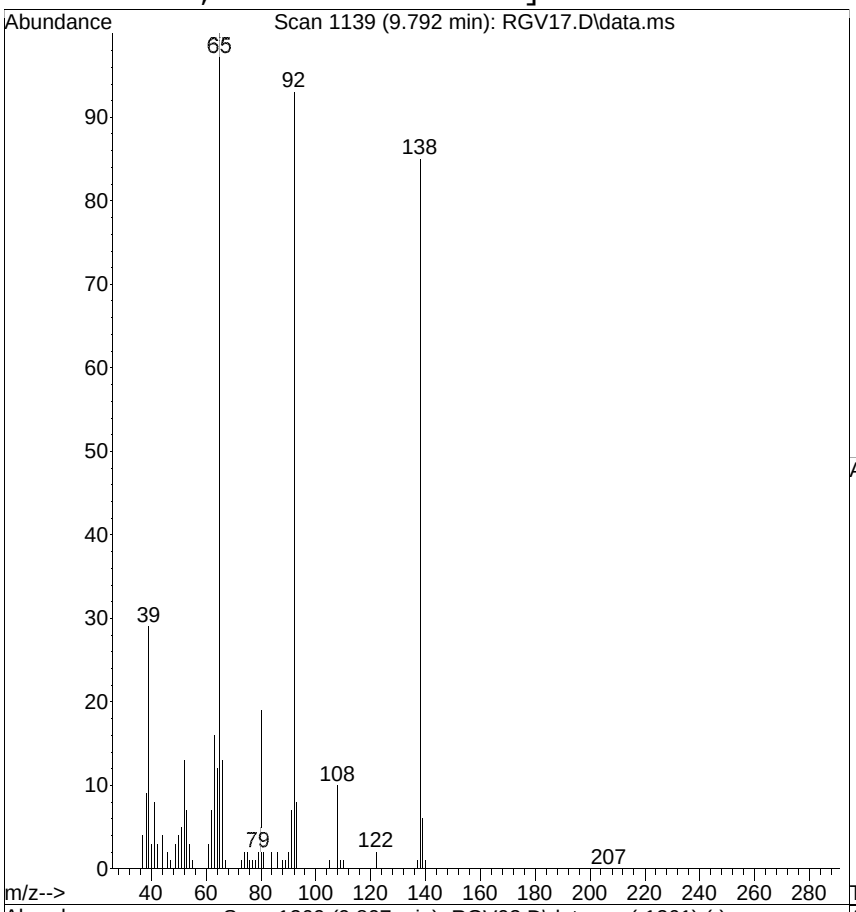




[3-Nitroaniline; before version]

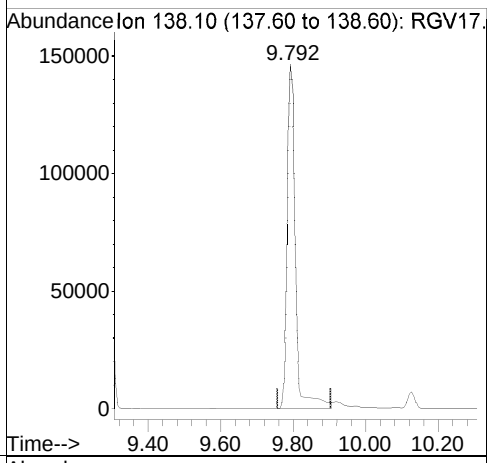
Raw



#46
3-Nitroaniline
Concen: 9.1342 ug/mL
RT: 9.792 min Scan# 1139
Delta R.T. -0.015 min
Lab File: RGV17.D
Acq: 31 Jul 2014 7:47 pm

Tgt Ion:138 Resp: 217957

Ion	Ratio	Lower	Upper
138	100		
108	11.5	0.0	35.0
92	109.2	131.0	171.0#



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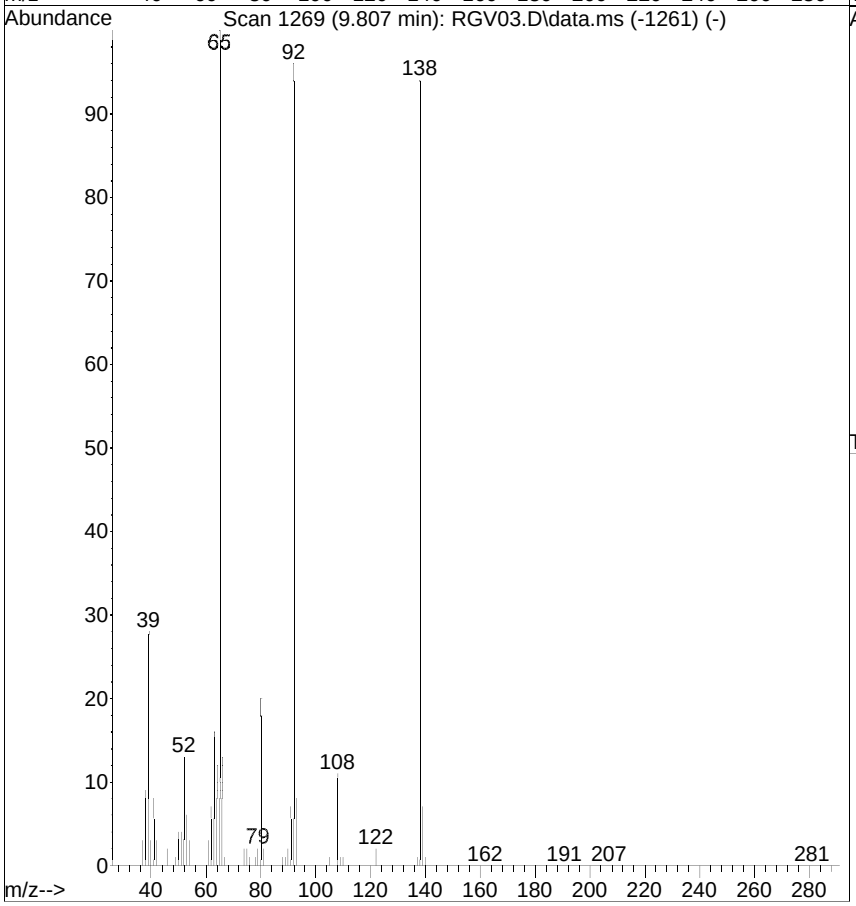
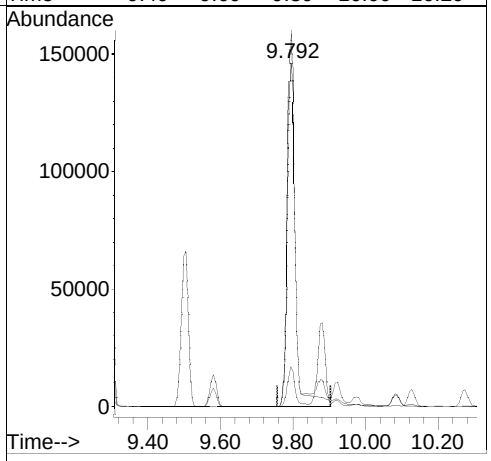
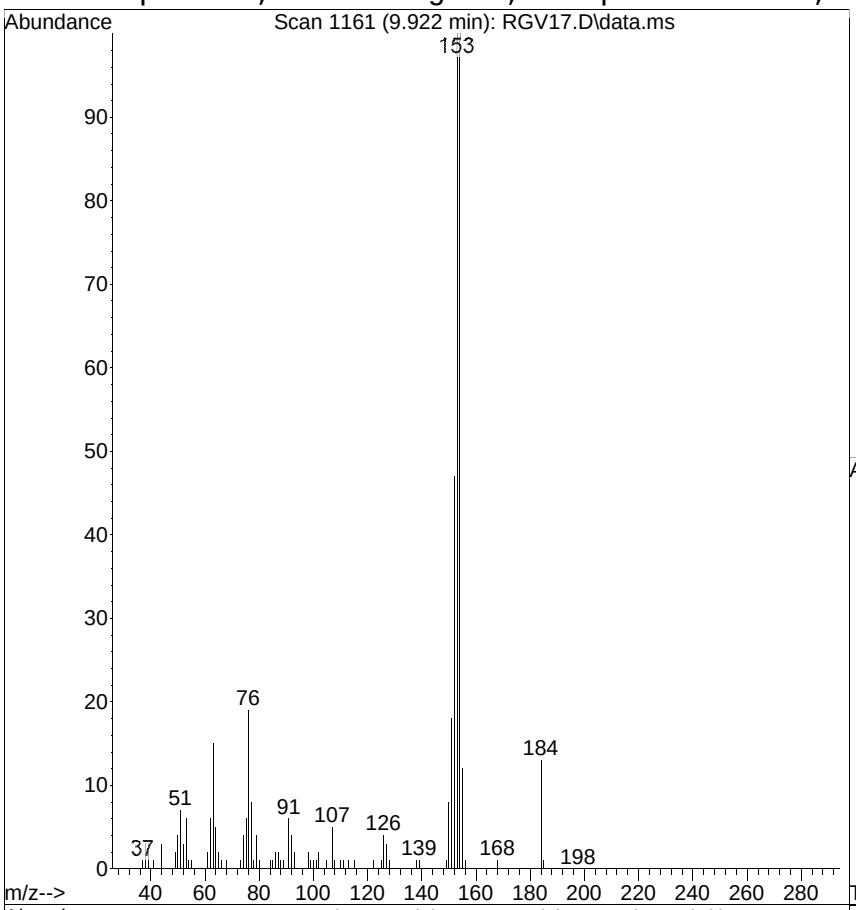




[2,4-Dinitrophenol; 10.00 ug/mL; response=46420; MI]

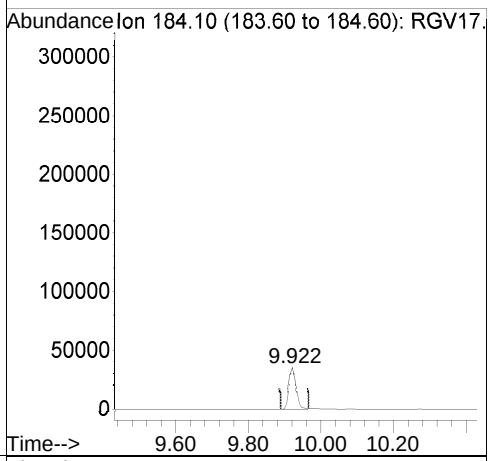
Raw



#48
2,4-Dinitrophenol
Concen: 15.0107 ug/mL m
RT: 9.922 min Scan# 1161
Delta R.T. -0.009 min
Lab File: RGV17.D
Acq: 31 Jul 2014 7:47 pm

Tgt Ion:184 Resp: 46420

Ion	Ratio	Lower	Upper
184	100		
63	113.4	75.0	115.0
154	776.6	330.0	370.0#



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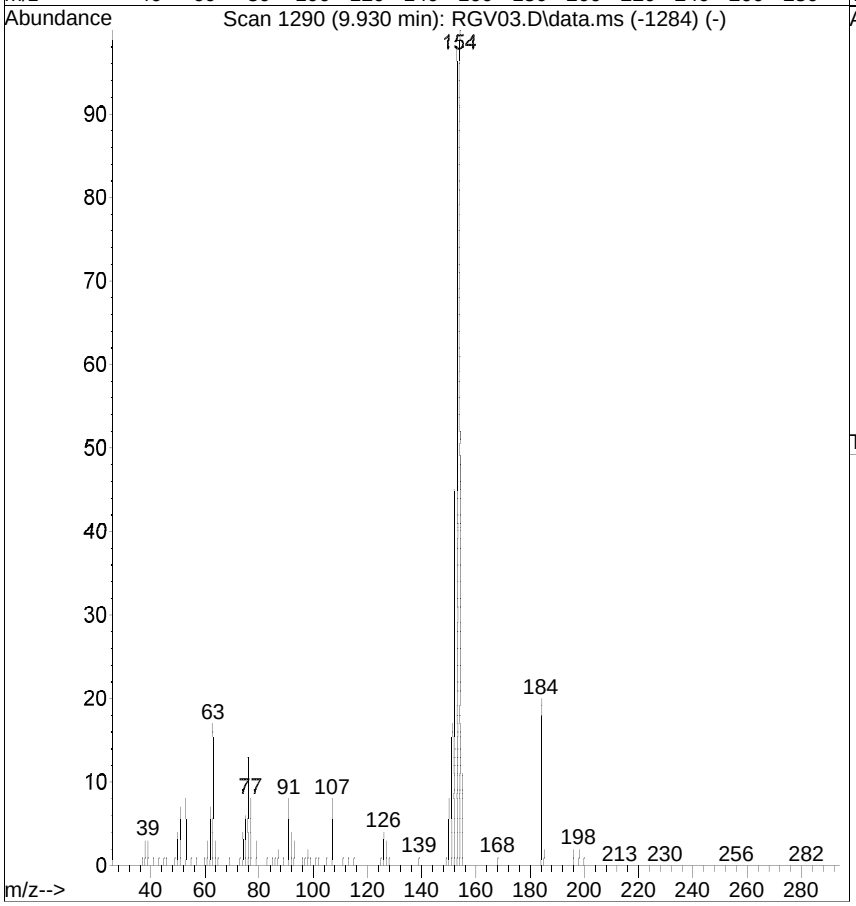
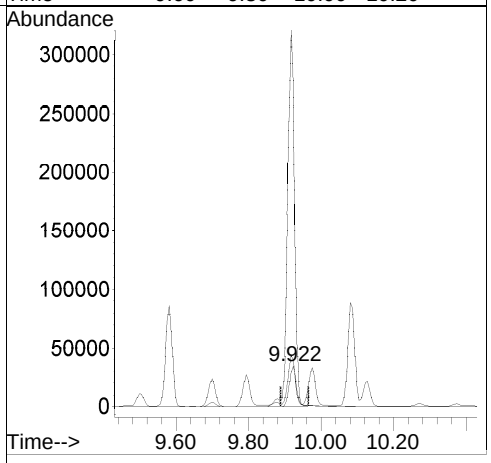
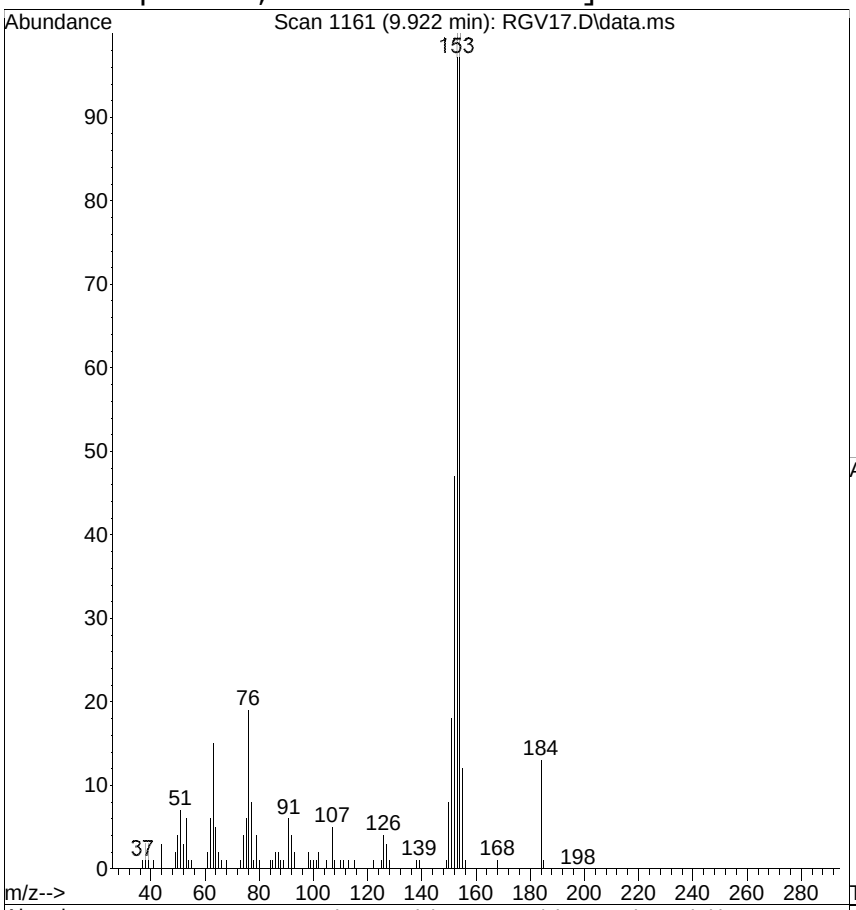




[2,4-Dinitrophenol; before version]

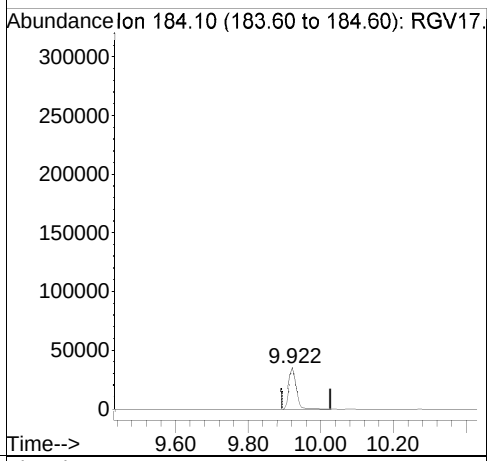
Raw



#48
2,4-Dinitrophenol
Concen: 15.1117 ug/mL
RT: 9.922 min Scan# 1161
Delta R.T. -0.009 min
Lab File: RGV17.D
Acq: 31 Jul 2014 7:47 pm

Tgt Ion:184 Resp: 47856

Ion	Ratio	Lower	Upper
184	100		
63	113.4	75.0	115.0
154	776.6	330.0	370.0#



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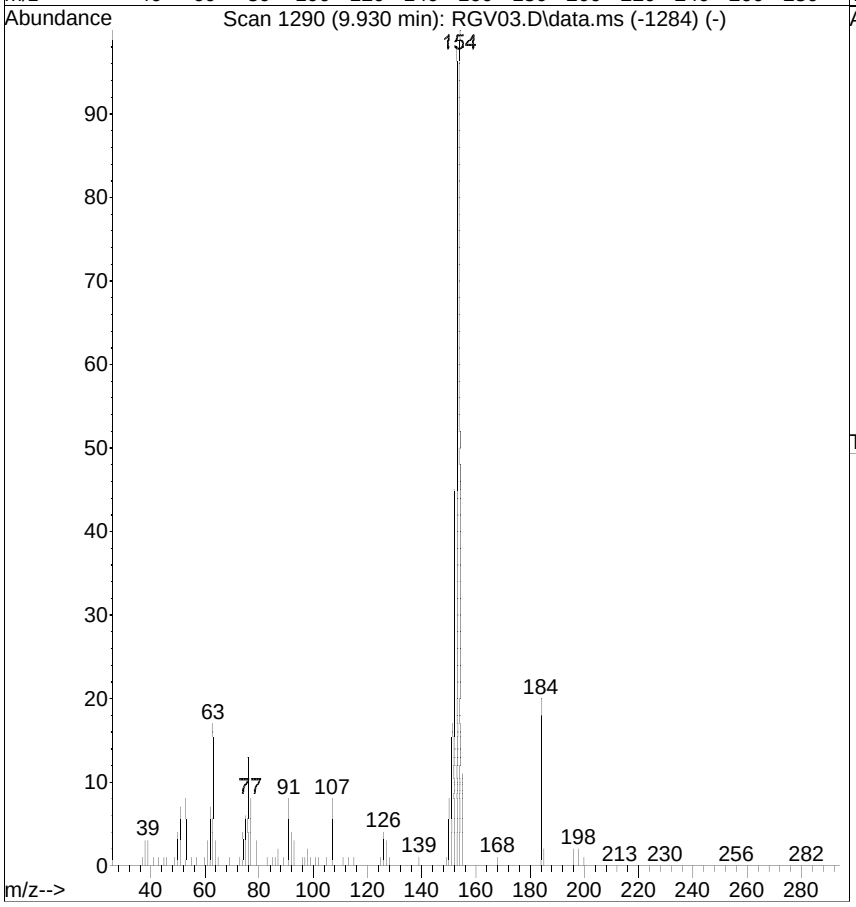
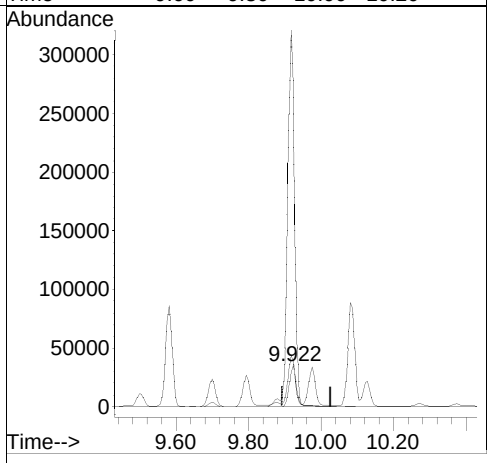
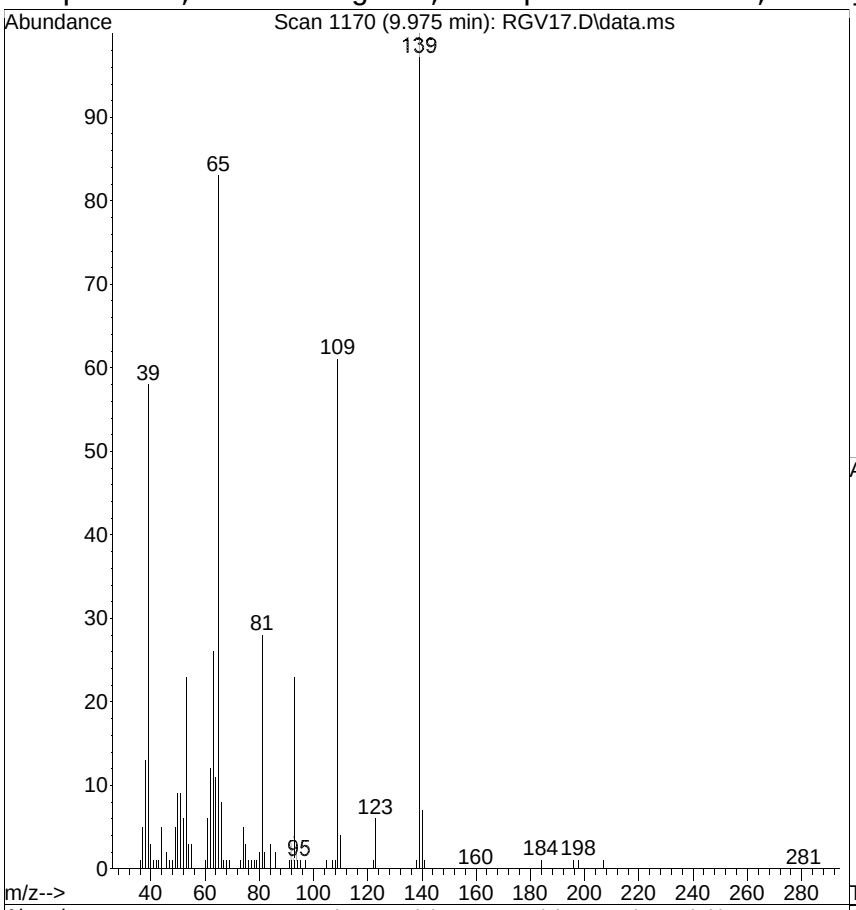




[4-Nitrophenol; 10.00 ug/mL; response=104992; MI]

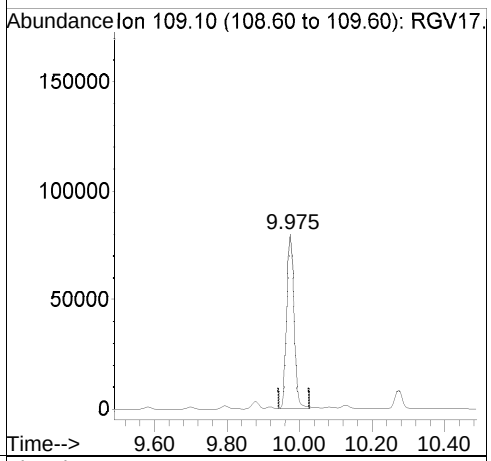
Raw



#49
4-Nitrophenol
Concen: 9.3338 ug/mL m
RT: 9.975 min Scan# 1170
Delta R.T. -0.015 min
Lab File: RGV17.D
Acq: 31 Jul 2014 7:47 pm

Tgt Ion:109 Resp: 104992

Ion	Ratio	Lower	Upper
109	100		
139	163.6	109.0	149.0#
65	135.2	122.0	162.0



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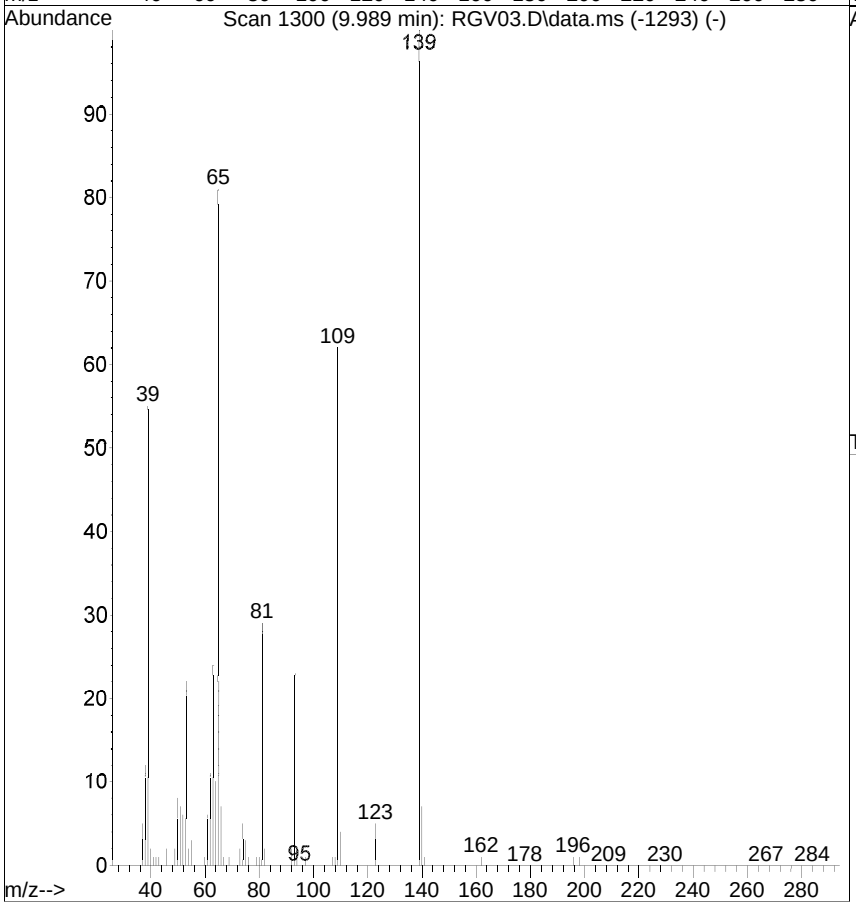
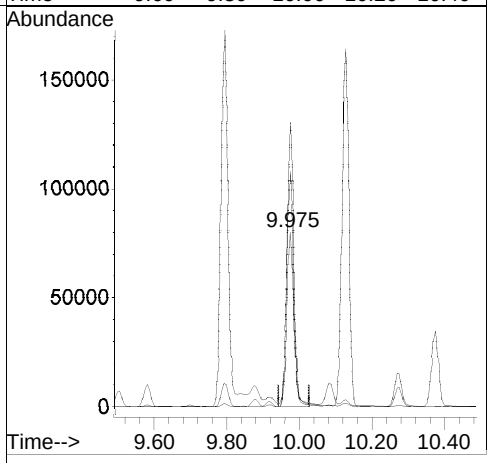
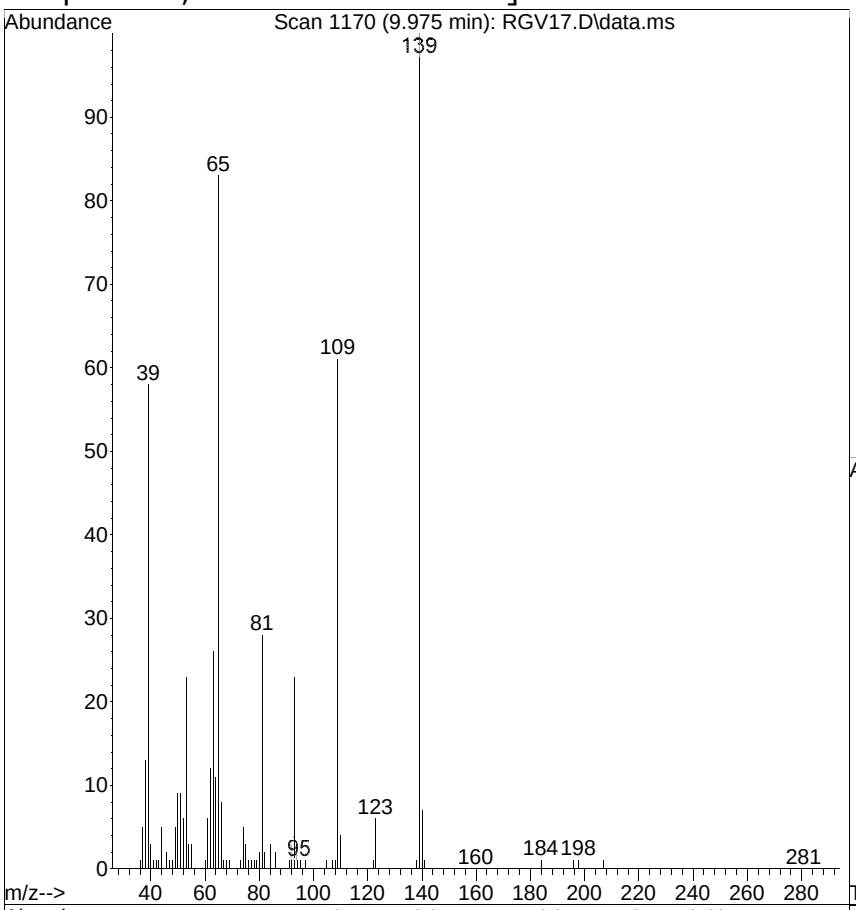




[4-Nitrophenol; before version]

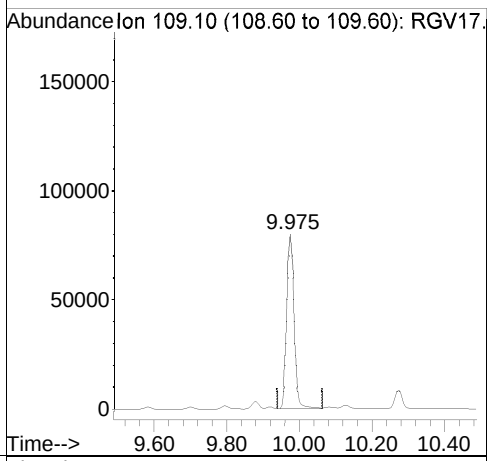
Raw



#49
4-Nitrophenol
Concen: 9.4764 ug/mL
RT: 9.975 min Scan# 1170
Delta R.T. -0.015 min
Lab File: RGV17.D
Acq: 31 Jul 2014 7:47 pm

Tgt Ion:109 Resp: 106596

Ion	Ratio	Lower	Upper
109	100		
139	163.6	109.0	149.0#
65	135.2	122.0	162.0



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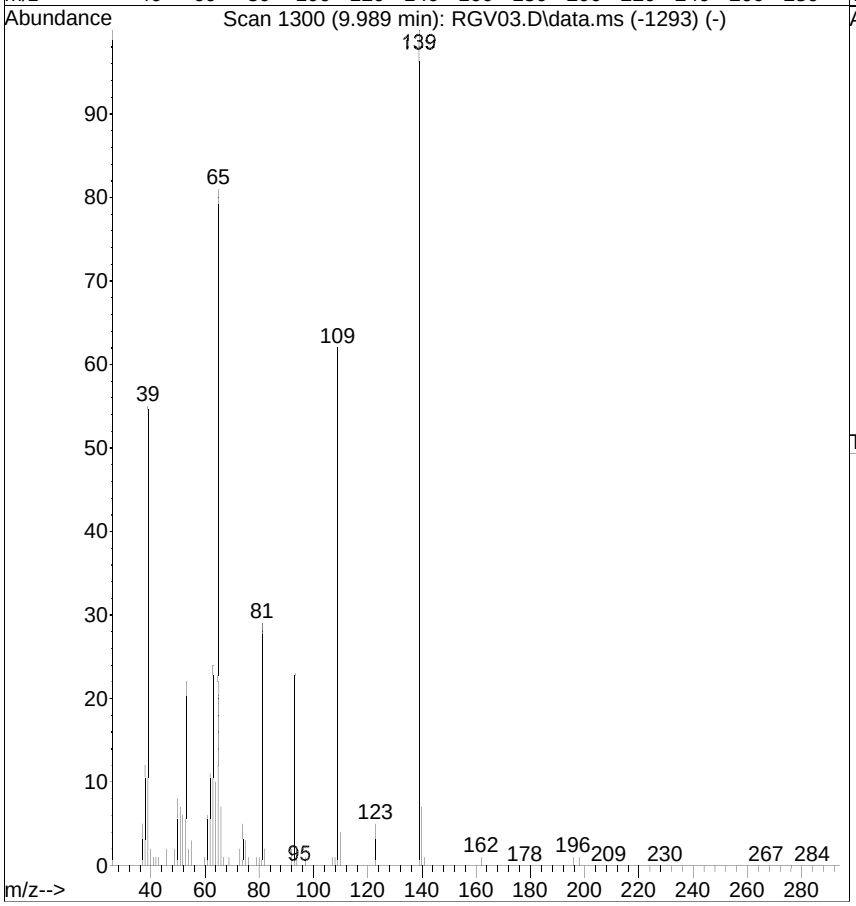
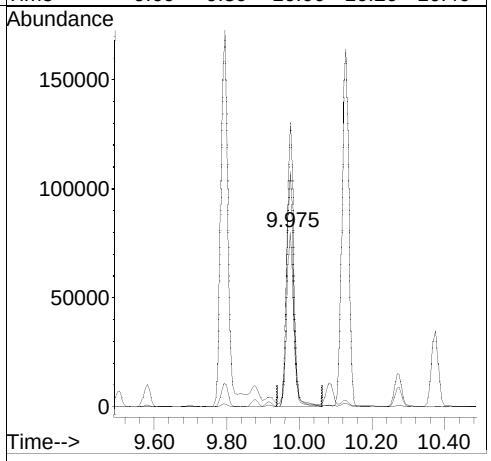
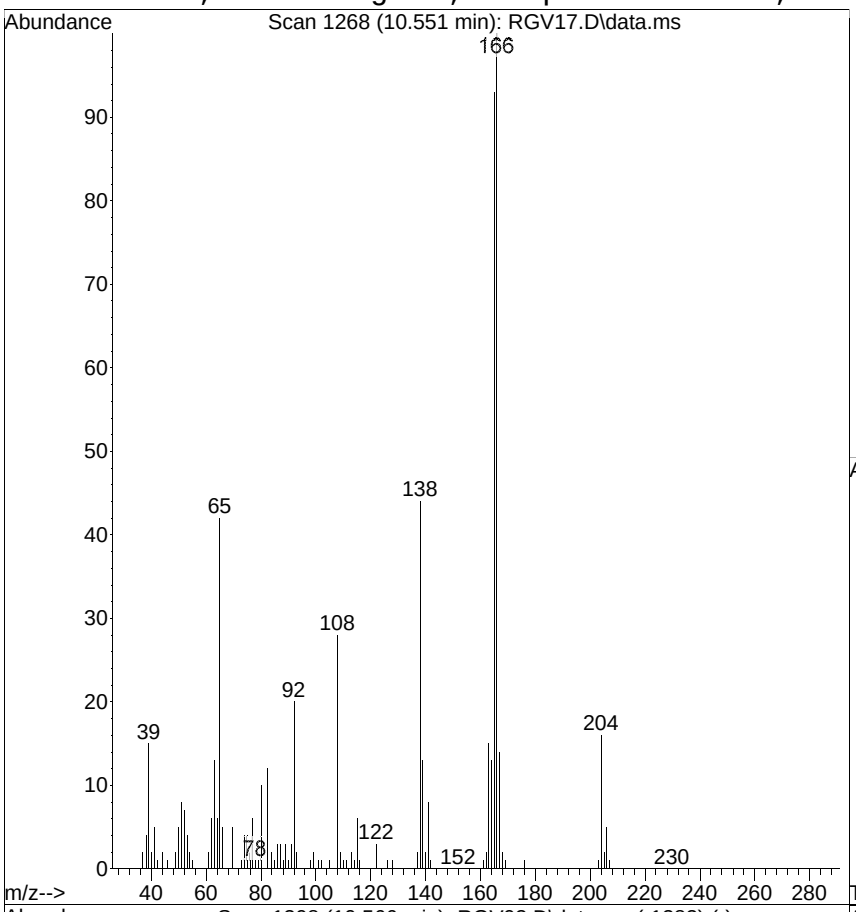




[4-Nitroaniline; 10.00 ug/mL; response=218331; MI]

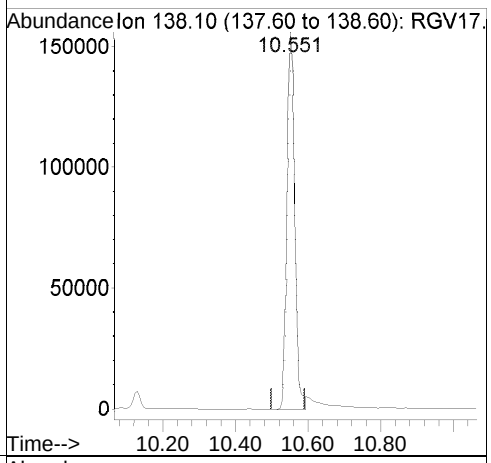
Raw



#56
4-Nitroaniline
Concen: 9.2178 ug/mL m
RT: 10.551 min Scan# 1268
Delta R.T. -0.015 min
Lab File: RGV17.D
Acq: 31 Jul 2014 7:47 pm

Tgt Ion:138 Resp: 218331

Ion	Ratio	Lower	Upper
138	100		
65	96.1	10.0	50.0#
108	64.4	13.0	53.0#



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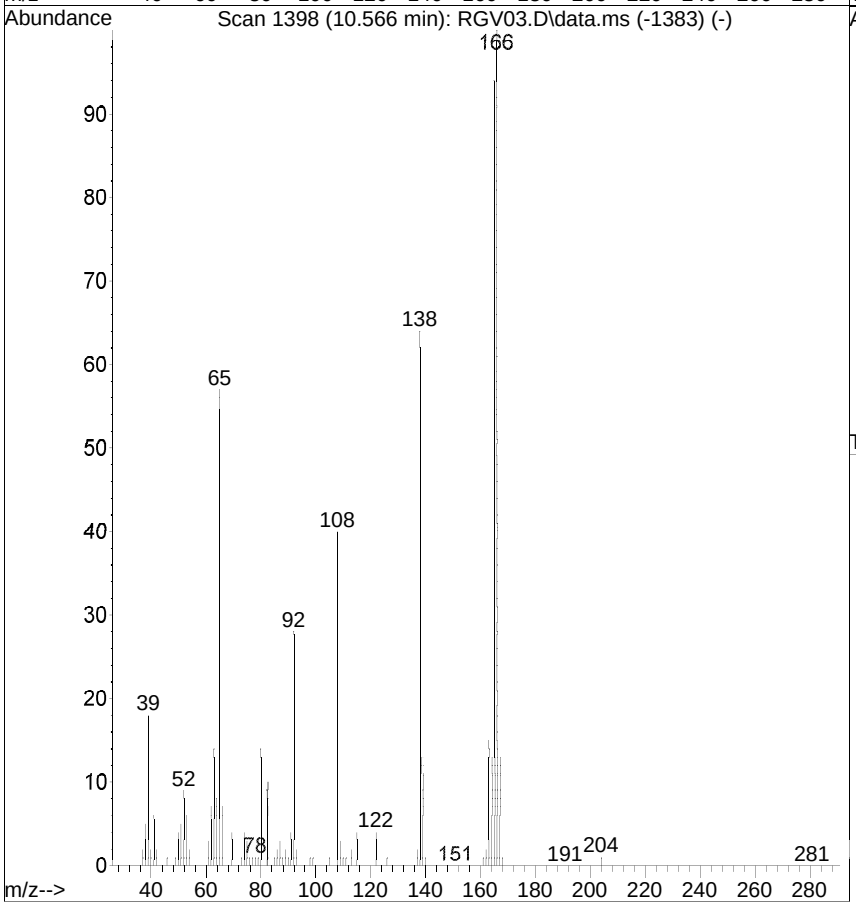
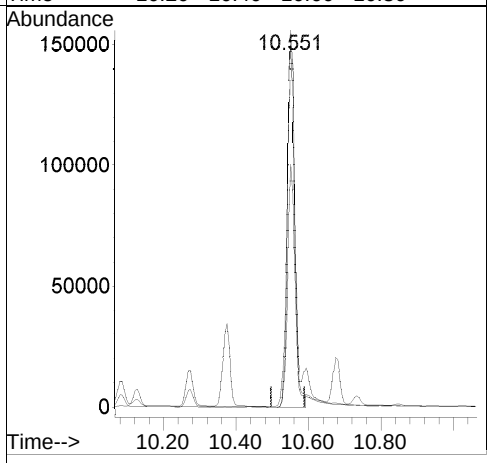
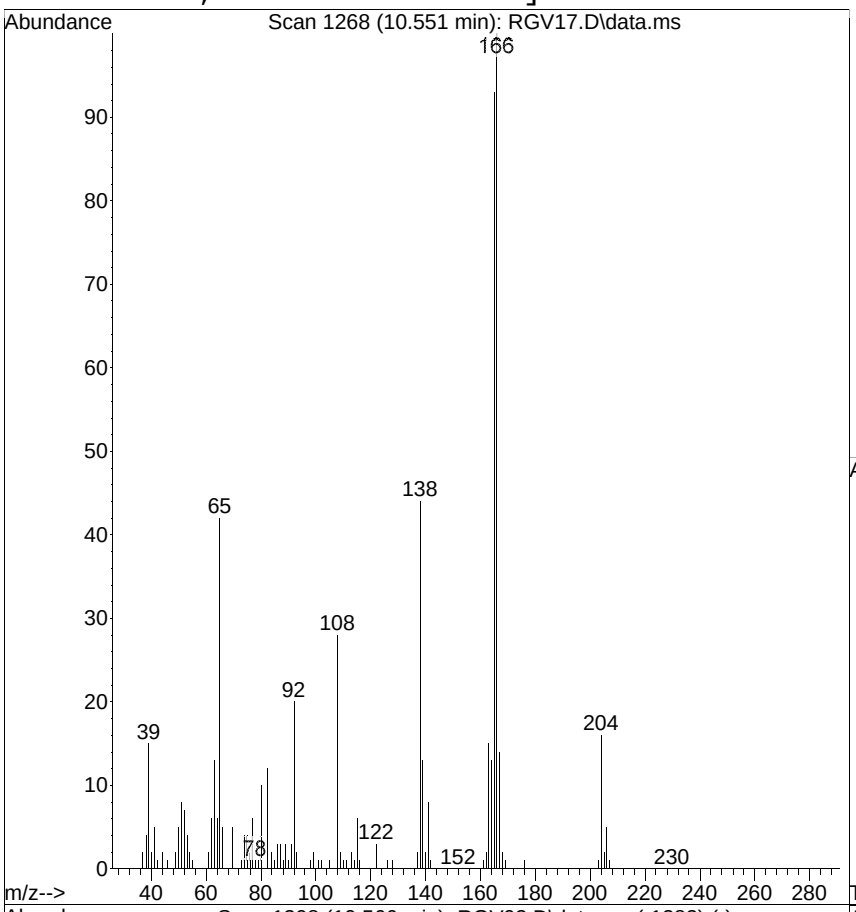




[4-Nitroaniline; before version]

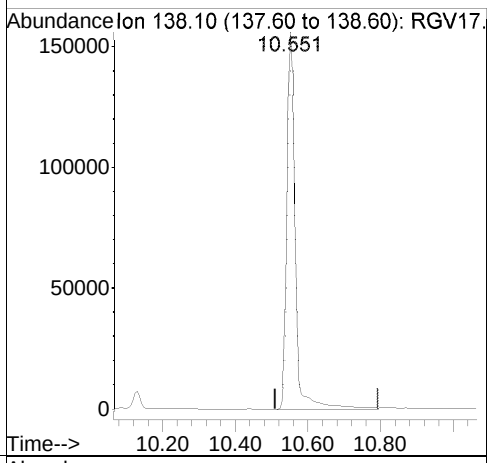
Raw



#56
4-Nitroaniline
Concen: 10.0440 ug/mL
RT: 10.551 min Scan# 1268
Delta R.T. -0.015 min
Lab File: RGV17.D
Acq: 31 Jul 2014 7:47 pm

Tgt Ion:138 Resp: 237899

Ion	Ratio	Lower	Upper
138	100		
65	96.1	10.0	50.0#
108	64.4	13.0	53.0#



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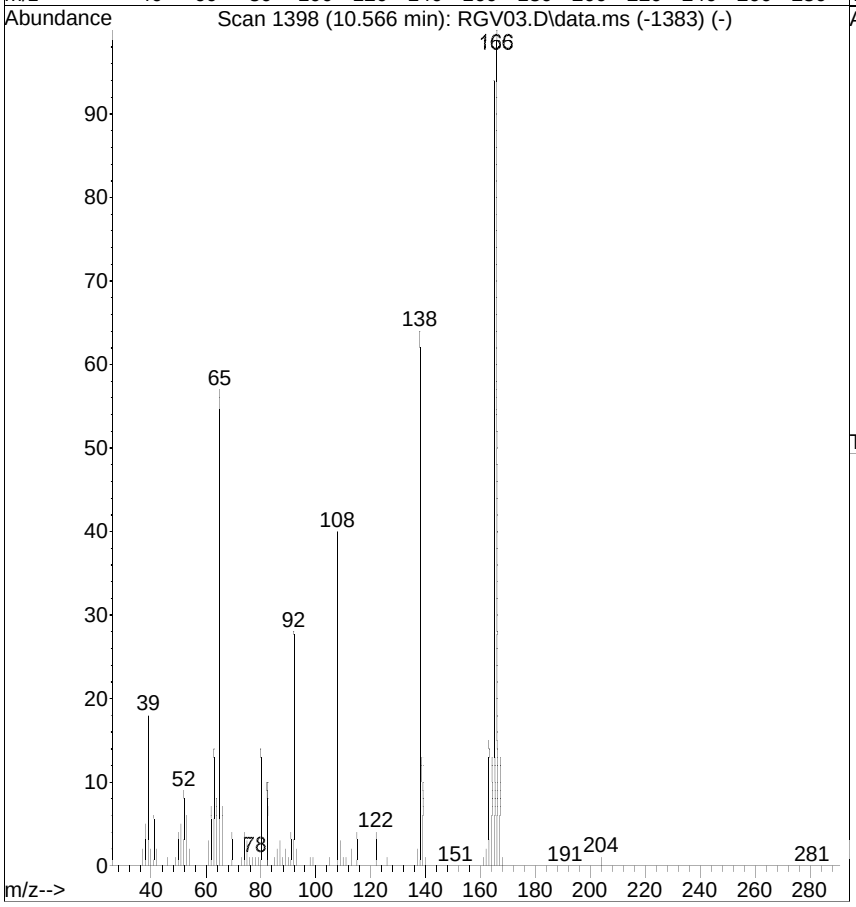
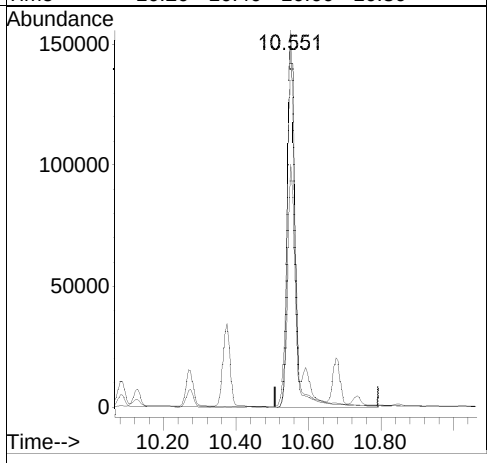
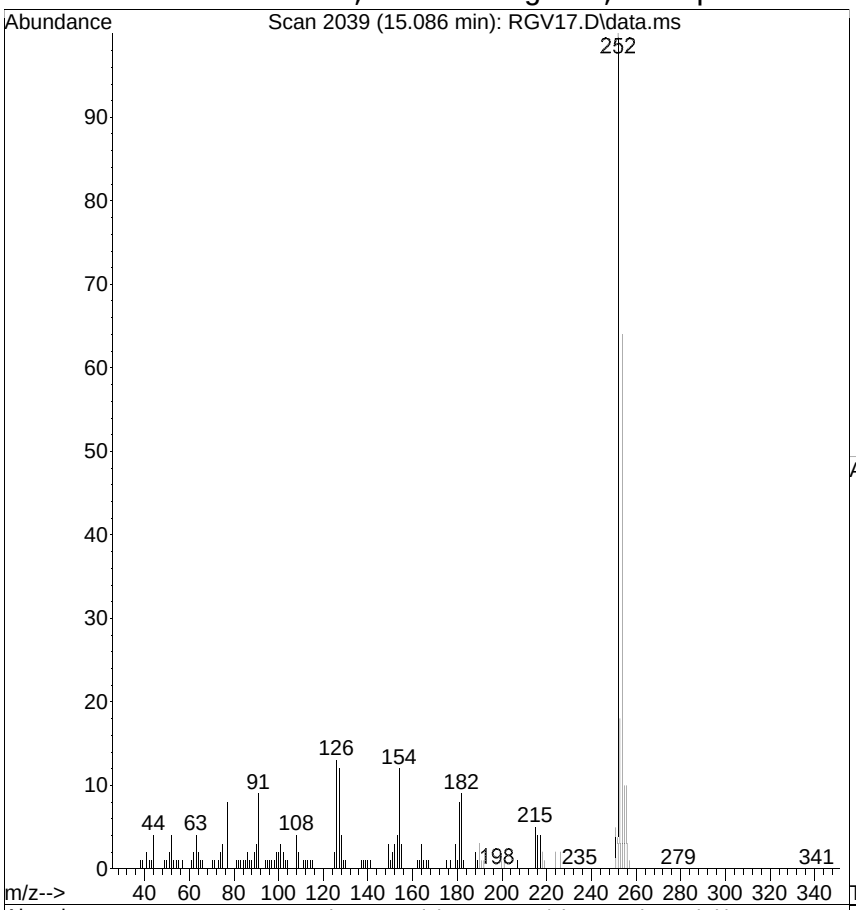




[3,3'-Dichlorobenzidine; 10.00 ug/mL; response=497895; MI]

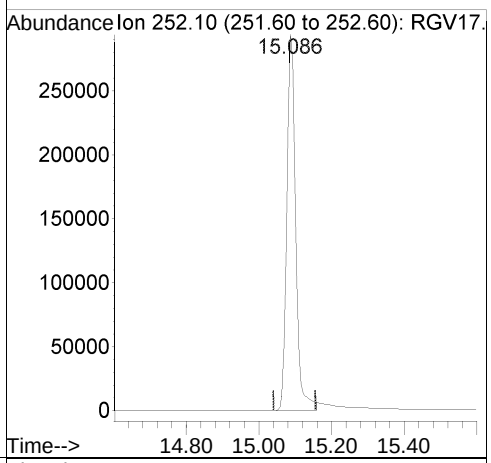
Raw



#75
3,3'-Dichlorobenzidine
Concen: 8.5480 ug/mL m
RT: 15.086 min Scan# 2039
Delta R.T. -0.015 min
Lab File: RGV17.D
Acq: 31 Jul 2014 7:47 pm

Tgt Ion:252 Resp: 497895

Ion	Ratio	Lower	Upper
252	100		
254	64.5	44.0	84.0
126	13.5	0.0	34.0



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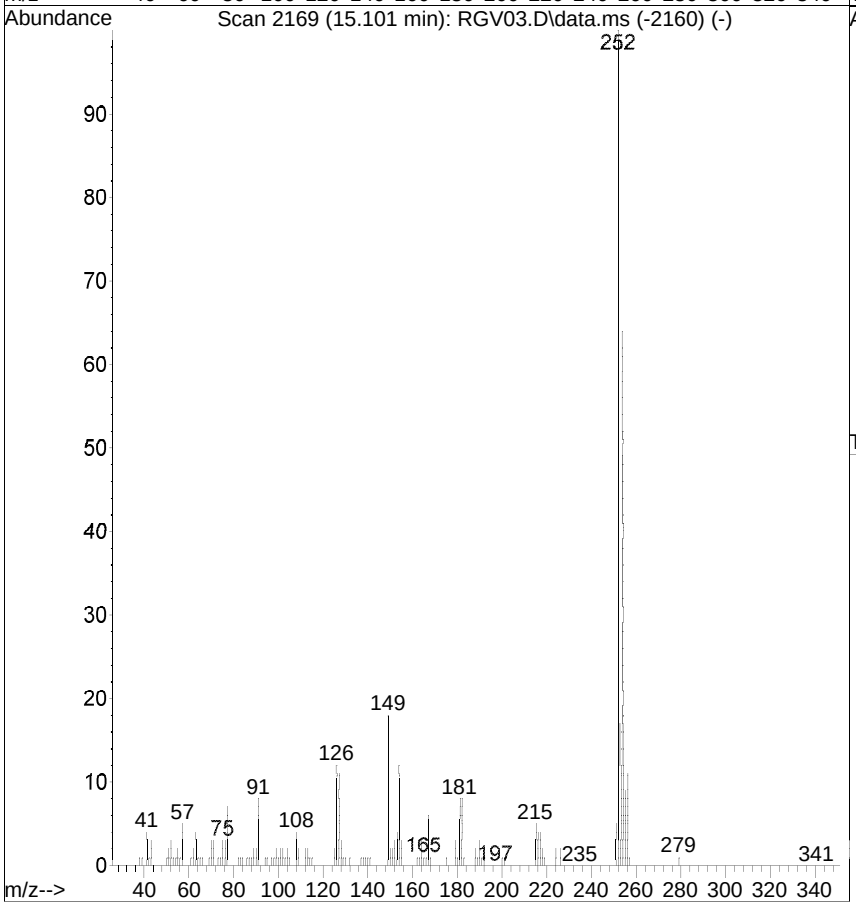
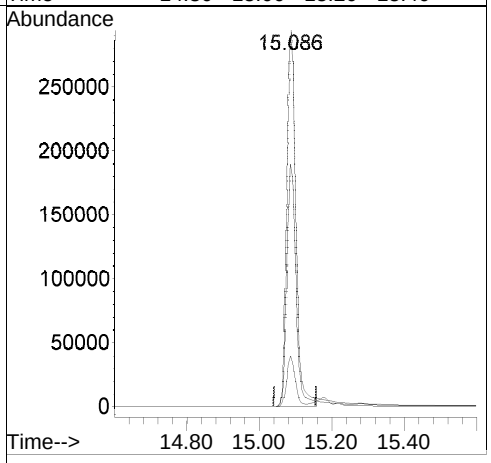
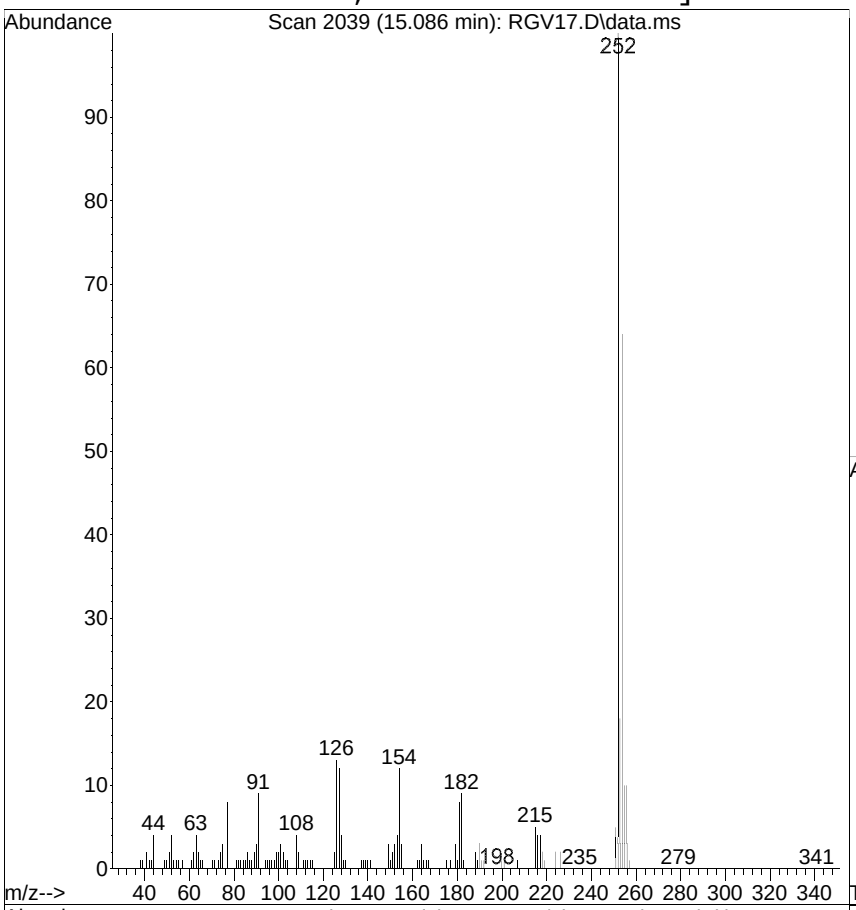




[3,3'-Dichlorobenzidine; before version]

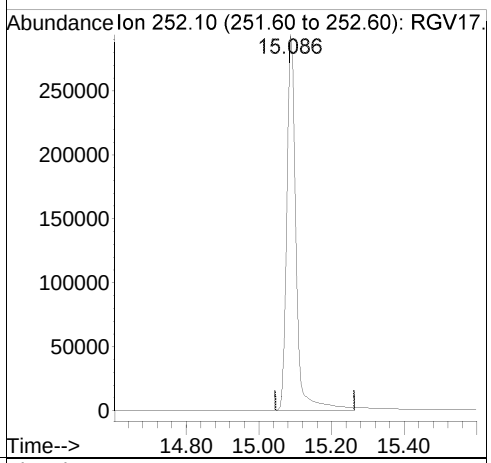
Raw



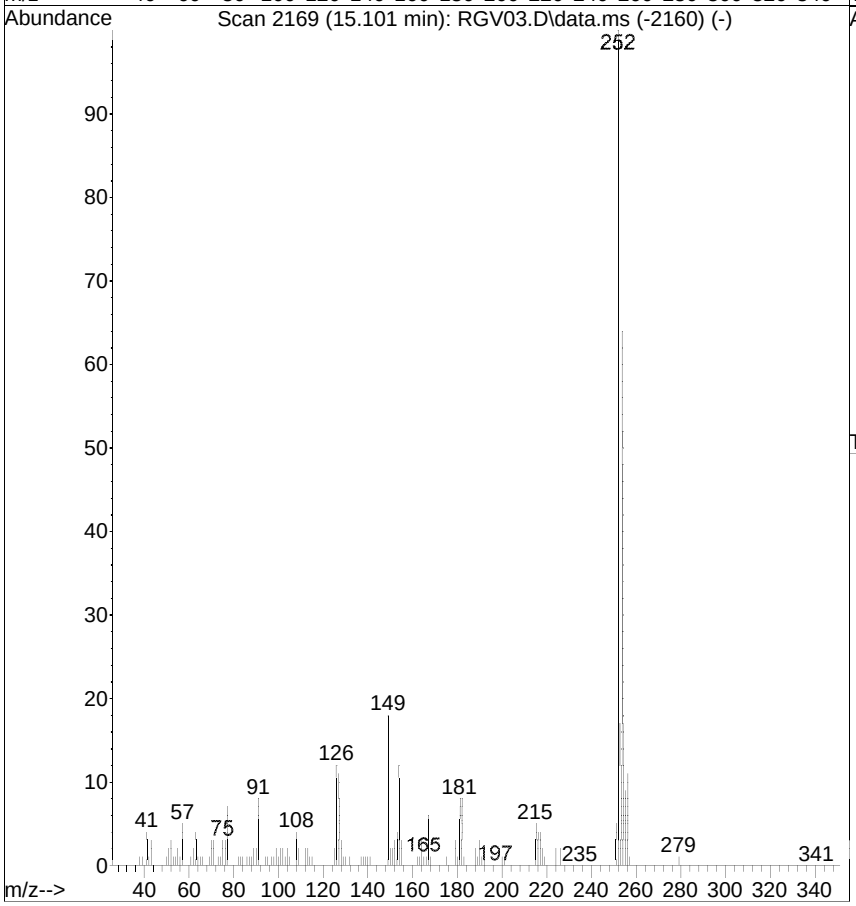
#75
3,3'-Dichlorobenzidine
Concen: 8.9307 ug/mL
RT: 15.086 min Scan# 2039
Delta R.T. -0.015 min
Lab File: RGV17.D
Acq: 31 Jul 2014 7:47 pm

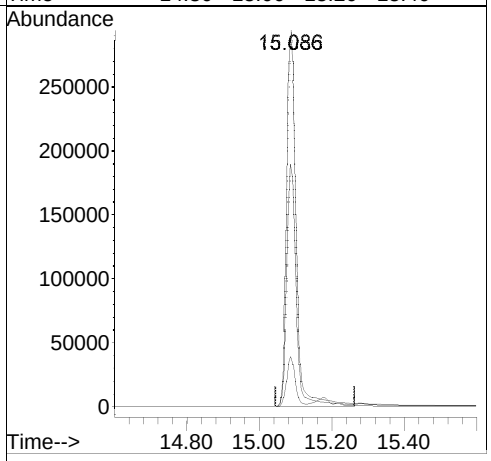
Tgt Ion:252 Resp: 520188

Ion	Ratio	Lower	Upper
252	100		
254	64.5	44.0	84.0
126	13.5	0.0	34.0



Ref

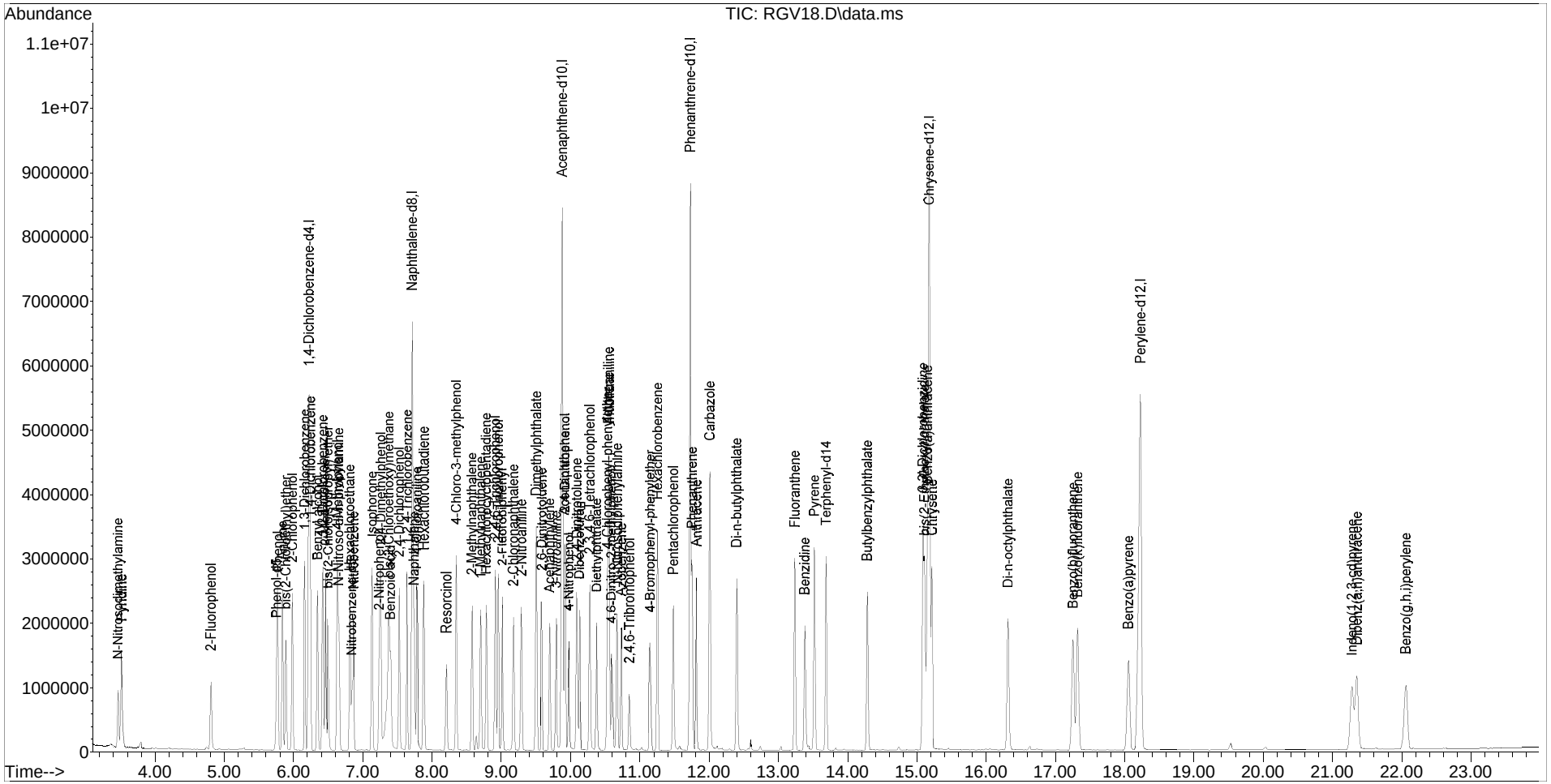




Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV18.D
Acq On : 31 Jul 2014 8:17 pm
Operator :
Sample : ICAL,S24425
Misc : ICAL
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Aug 01 09:29:34 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV18.D
Acq On : 31 Jul 2014 8:17 pm
Operator :
Sample : ICAL,S24425
Misc : ICAL
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Aug 01 09:29:34 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.222	152	1206241	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.716	136	4402116	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.881	164	2880031	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.733	188	5179915	40.0000	ug/mL	0.00
70) Chrysene-d12	15.180	240	6125243	40.0000	ug/mL	0.00
79) Perylene-d12	18.227	264	5523390	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.522	79	965239	22.2261	ug/mL	90
3) N-Nitrosodimethylamine	3.469	42	425914	19.3892	ug/mL	# 69
4) 2-Fluorophenol	4.810	112	448346	11.6628	ug/mL	# 68
5) Phenol-d5	5.763	99	522152	10.7857	ug/mL	75
6) Phenol	5.781	94	1087017	21.0244	ug/mL	87
7) Aniline	5.846	93	1275860m	20.8408	ug/mL	
8) bis(2-Chloroethyl)ether	5.893	93	846567	21.2220	ug/mL	96
9) 2-Chlorophenol	5.987	128	938022	21.0366	ug/mL	90
10) 1,3-Dichlorobenzene	6.163	146	1020635	21.4467	ug/mL	97
11) 1,4-Dichlorobenzene	6.245	146	1040964	21.2940	ug/mL	92
12) Benzyl alcohol	6.351	108	540994	19.7487	ug/mL	# 84
13) 1,2-Dichlorobenzene	6.422	146	967369	21.4248	ug/mL	96
14) 2-Methylphenol	6.463	107	679942	20.2709	ug/mL	95
15) bis(2-Chloroisopropyl) ether	6.504	45	1179574	19.5490	ug/mL	99
16) 4-Methylphenol	6.634	107	988157	19.5731	ug/mL	93
17) N-Nitroso-di-n-propylamine	6.651	70	569029	19.3345	ug/mL	86
18) Hexachloroethane	6.816	117	389681	21.6348	ug/mL	95
20) Nitrobenzene-d5	6.845	82	415628	10.8179	ug/mL	# 72
21) Nitrobenzene	6.869	77	813967	20.8274	ug/mL	83
22) Isophorone	7.145	82	1697988	22.2175	ug/mL	93
23) 2-Nitrophenol	7.245	139	422570	19.3953	ug/mL	80
24) 2,4-Dimethylphenol	7.269	107	795436	20.6030	ug/mL	85
25) bis(2-Chloroethoxy)methane	7.381	93	498950	11.1296	ug/mL	98
26) Benzoic acid	7.404	105	1511175	70.6332	ug/mL	91
27) 2,4-Dichlorophenol	7.528	162	708666	22.3656	ug/mL	97
28) 1,2,4-Trichlorobenzene	7.645	180	774764	23.9380	ug/mL	97
29) Naphthalene	7.740	128	1254217	10.8232	ug/mL	98
30) 4-Chloroaniline	7.781	127	1151637	23.0833	ug/mL	96
31) Hexachlorobutadiene	7.887	225	436491	25.9950	ug/mL	98
32) Resorcinol	8.210	110	610929	24.2089	ug/mL	91
33) 4-Chloro-3-methylphenol	8.351	107	827457	22.5519	ug/mL	96
34) 2-Methylnaphthalene	8.581	142	900786	11.2962	ug/mL	92
35) 1-Methylnaphthalene	8.704	142	855130	11.4107	ug/mL	91
37) Hexachlorocyclopentadiene	8.781	237	522389	22.2672	ug/mL	97
38) 2,4,6-Trichlorophenol	8.916	196	561664	21.4687	ug/mL	95

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV18.D
Acq On : 31 Jul 2014 8:17 pm
Operator :
Sample : ICAL,S24425
Misc : ICAL
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Aug 01 09:29:34 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.957	196	607981	21.8841	ug/mL	89
40) 2-Fluorobiphenyl	9.022	172	1085584	11.5732	ug/mL	98
41) 2-Chloronaphthalene	9.181	162	873694	10.8362	ug/mL	94
42) 2-Nitroaniline	9.292	65	498112	18.2378	ug/mL #	80
43) Dimethylphthalate	9.504	163	2141979	21.2738	ug/mL	99
44) 2,6-Dinitrotoluene	9.586	165	484584	20.6292	ug/mL #	74
45) Acenaphthylene	9.698	152	1264461	10.7023	ug/mL	98
46) 3-Nitroaniline	9.798	138	505924m	19.8037	ug/mL	
47) Acenaphthene	9.916	154	935246	10.5473	ug/mL	95
48) 2,4-Dinitrophenol	9.922	184	154746	21.9130	ug/mL #	22
49) 4-Nitrophenol	9.981	109	257607m	21.3903	ug/mL	
50) Dibenzofuran	10.128	168	1278825	10.6829	ug/mL	81
51) 2,4-Dinitrotoluene	10.086	165	672366	21.0472	ug/mL	82
52) 2,3,4,6-Tetrachlorophenol	10.275	232	466449	20.4067	ug/mL	89
53) Diethylphthalate	10.375	149	1104893	10.4346	ug/mL	98
54) 4-Chlorophenyl-phenylether	10.539	204	523128	11.0570	ug/mL #	77
55) Fluorene	10.557	166	1070943	10.5487	ug/mL	87
56) 4-Nitroaniline	10.557	138	542568m	21.3958	ug/mL	
57) 2,4,6-Tribromophenol	10.851	330	144070	10.6268	ug/mL #	82
59) 4,6-Dinitro-2-methylphenol	10.598	198	311664	17.8291	ug/mL #	83
60) N-Nitrosodiphenylamine	10.681	169	789795	10.4660	ug/mL	90
61) Azobenzene	10.739	77	1070063	10.1401	ug/mL	93
62) 4-Bromophenyl-phenylether	11.151	248	319518	11.4791	ug/mL #	82
63) Hexachlorobenzene	11.257	284	723619	24.1199	ug/mL	93
64) Pentachlorophenol	11.486	266	393660	19.9596	ug/mL	98
65) Phenanthrene	11.757	178	1596406	10.8016	ug/mL	97
66) Anthracene	11.822	178	1569595	10.8456	ug/mL	96
67) Carbazole	12.010	167	2923985	23.1462	ug/mL	88
68) Di-n-butylphthalate	12.404	149	2065417	11.2736	ug/mL	97
69) Fluoranthene	13.239	202	1779871	11.8002	ug/mL	97
71) Benzidine	13.380	184	1158941	16.4696	ug/mL	90
72) Pyrene	13.527	202	1946533	9.7218	ug/mL	93
73) Terphenyl-d14	13.692	244	1488556	10.7043	ug/mL	98
74) Butylbenzylphthalate	14.286	149	874959	8.9789	ug/mL	98
75) 3,3'-Dichlorobenzidine	15.092	252	1313696	21.3008	ug/mL	99
76) Benzo(a)anthracene	15.157	228	1744511	10.4732	ug/mL	97
77) bis(2-Ethylhexyl)phthalate	15.116	149	1291914	9.3650	ug/mL	97
78) Chrysene	15.221	228	1668019	10.5878	ug/mL	95
80) Di-n-octylphthalate	16.315	149	2063007	8.0915	ug/mL	96
81) Benzo(b)fluoranthene	17.257	252	1601775	10.1951	ug/mL	97
82) Benzo(k)fluoranthene	17.321	252	1595334	10.0148	ug/mL	94
83) Benzo(a)pyrene	18.057	252	1348455	10.2153	ug/mL	96
84) Indeno(1,2,3-cd)pyrene	21.292	276	1558116	10.4493	ug/mL	88

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV18.D
Acq On : 31 Jul 2014 8:17 pm
Operator :
Sample : ICAL,S24425
Misc : ICAL
ALS Vial : 18 Sample Multiplier: 1

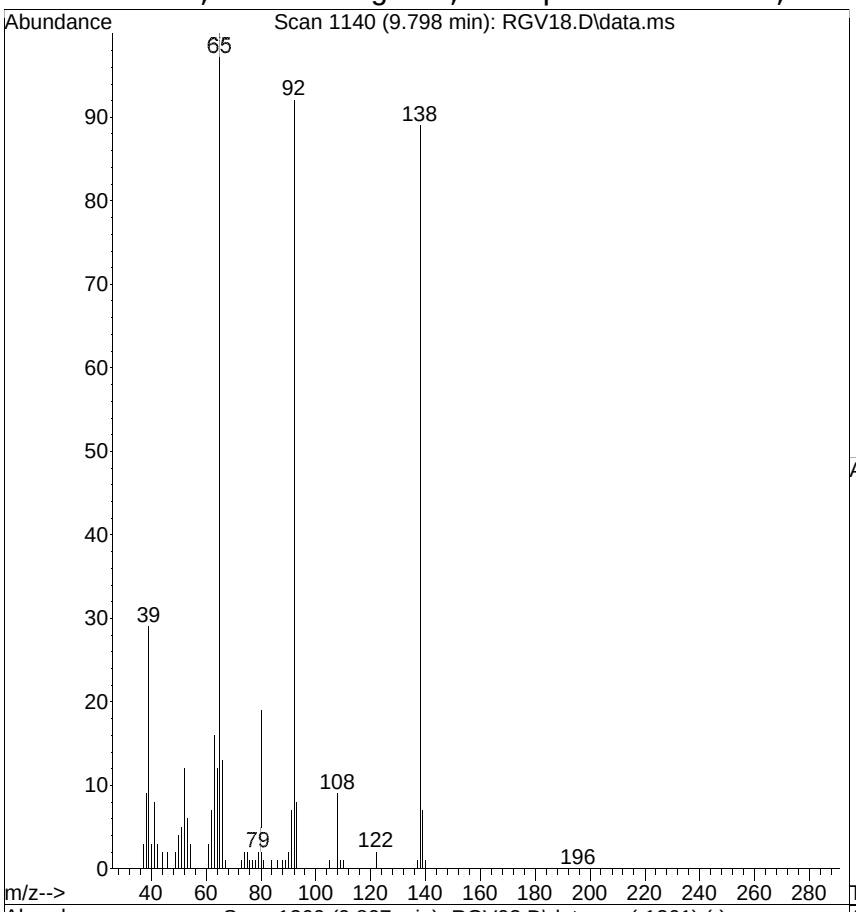
Quant Time: Aug 01 09:29:34 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.356	278	1398961	10.6003	ug/mL	95
86) Benzo(g,h,i)perylene	22.062	276	1232827	10.5635	ug/mL	95

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

[3-Nitroaniline; 20.00 ug/mL; response=505924; MI]

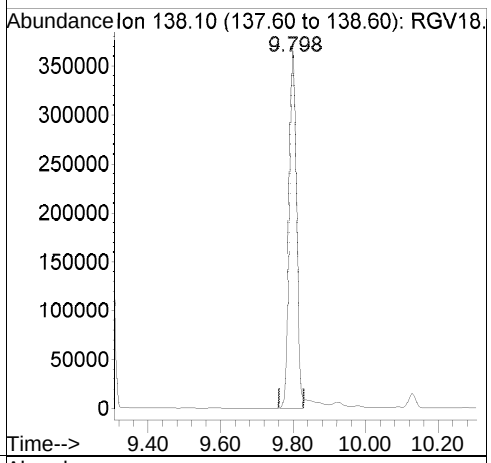
Raw



#46
3-Nitroaniline
Concen: 19.8037 ug/mL m
RT: 9.798 min Scan# 1140
Delta R.T. -0.009 min
Lab File: RGV18.D
Acq: 31 Jul 2014 8:17 pm

Tgt Ion:138 Resp: 505924

Ion	Ratio	Lower	Upper
138	100		
108	10.6	0.0	35.0
92	103.8	131.0	171.0#



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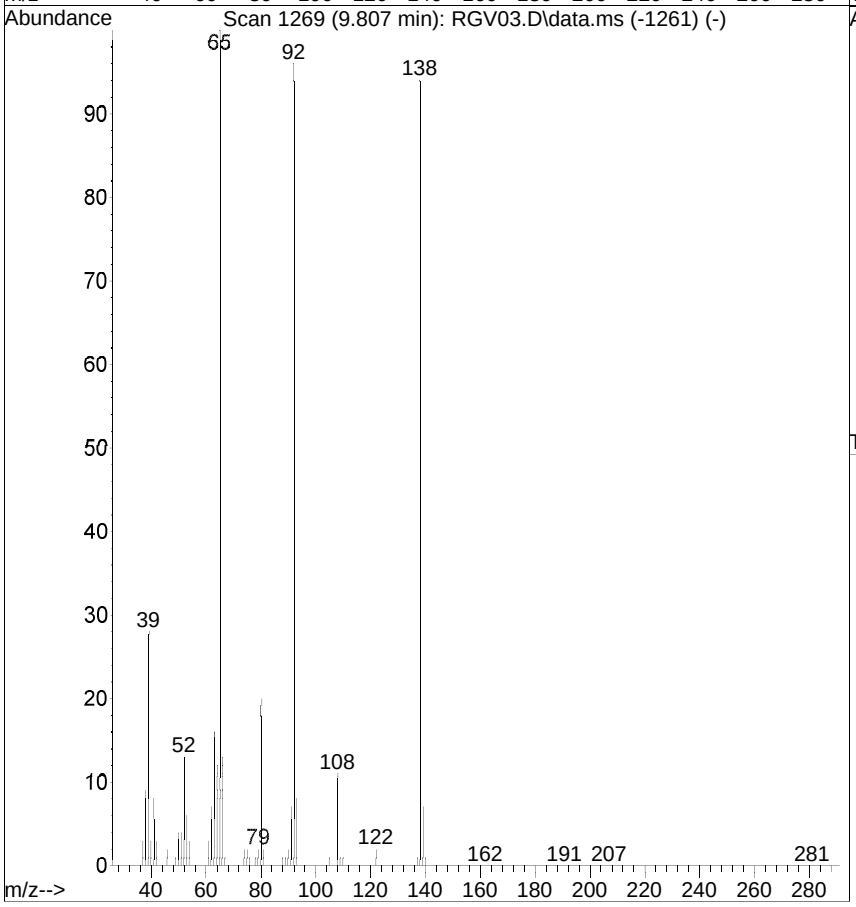
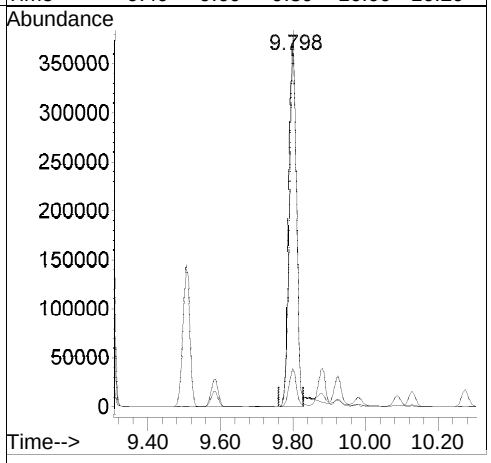
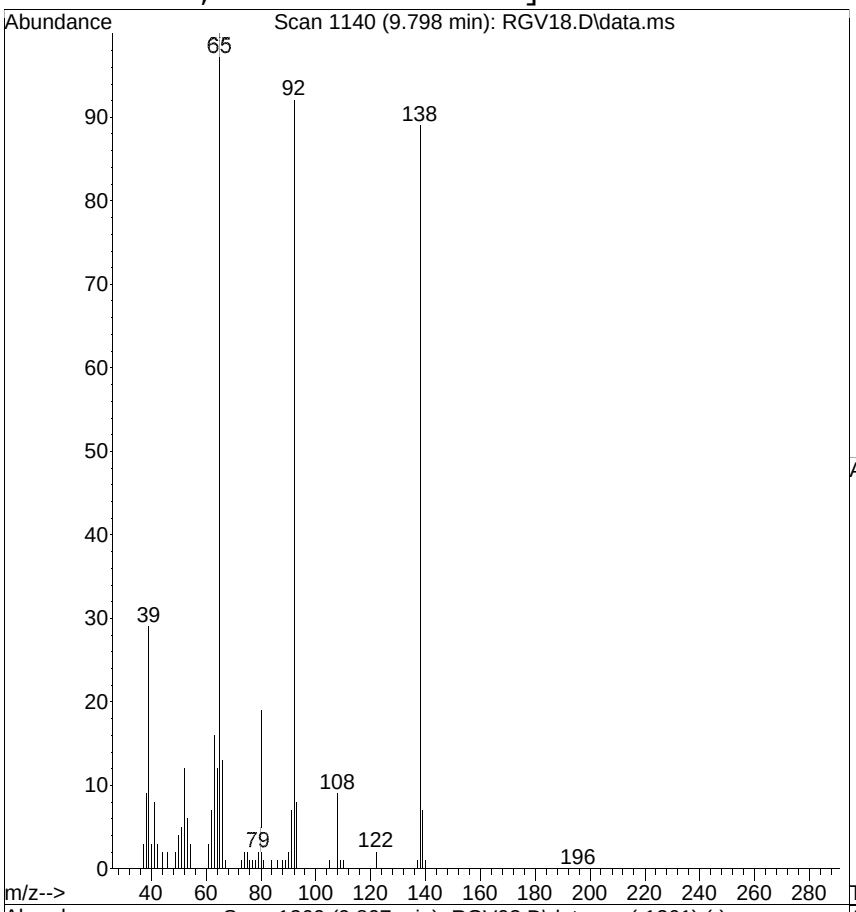




[3-Nitroaniline; before version]

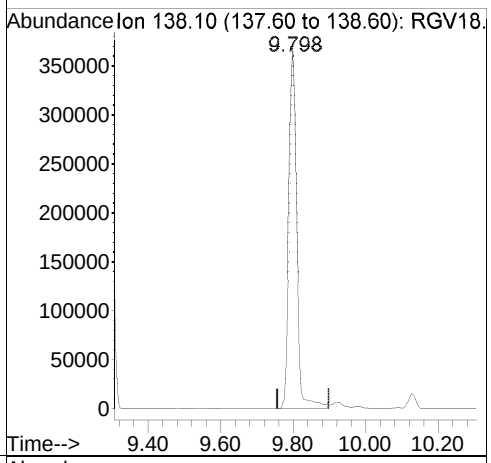
Raw



#46
3-Nitroaniline
Concen: 20.8217 ug/mL
RT: 9.798 min Scan# 1140
Delta R.T. -0.009 min
Lab File: RGV18.D
Acq: 31 Jul 2014 8:17 pm

Tgt Ion:138 Resp: 531930

Ion	Ratio	Lower	Upper
138	100		
108	10.6	0.0	35.0
92	103.8	131.0	171.0#



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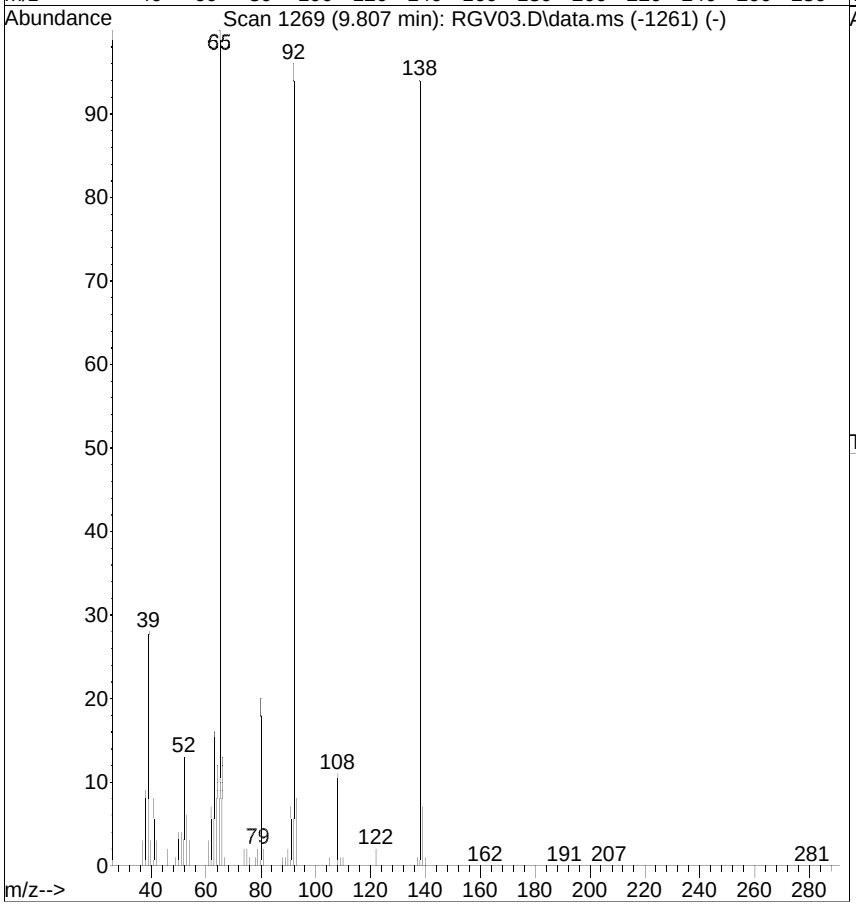
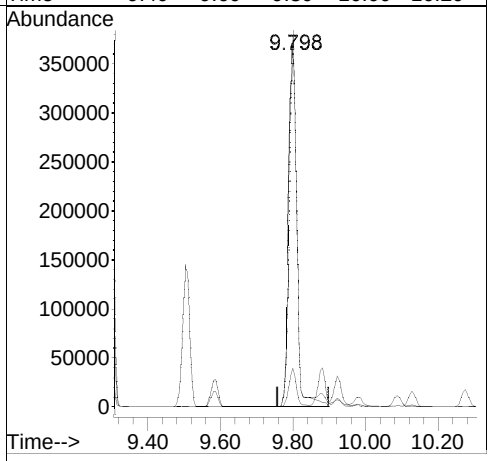
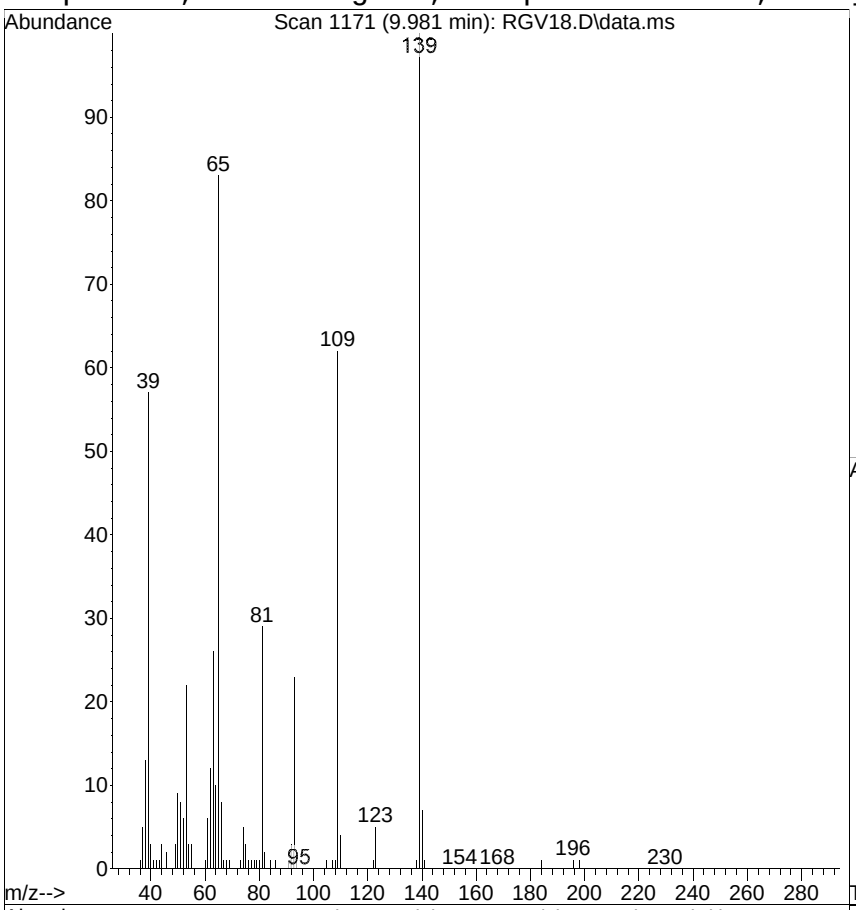




[4-Nitrophenol; 20.00 ug/mL; response=257607; MI]

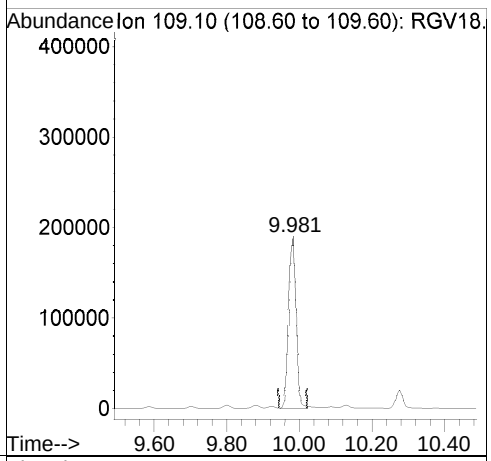
Raw



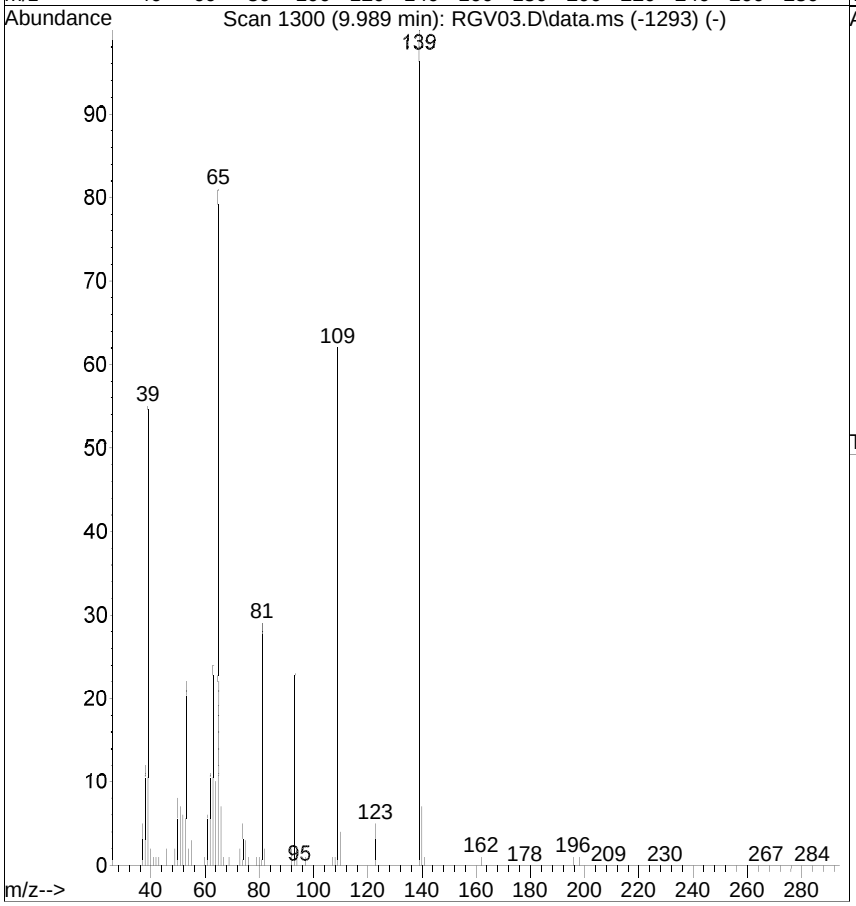
#49
4-Nitrophenol
Concen: 21.3903 ug/mL m
RT: 9.981 min Scan# 1171
Delta R.T. -0.009 min
Lab File: RGV18.D
Acq: 31 Jul 2014 8:17 pm

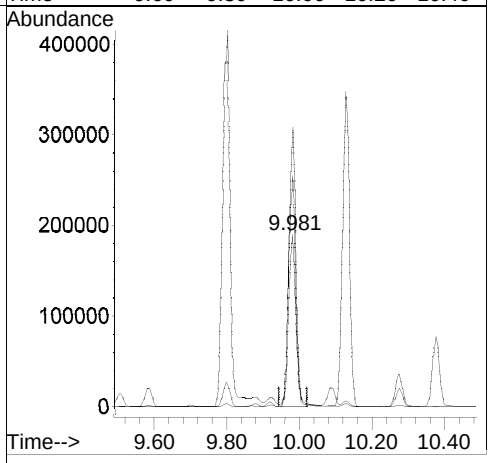
Tgt Ion:109 Resp: 257607

Ion	Ratio	Lower	Upper
109	100		
139	162.5	109.0	149.0#
65	134.4	122.0	162.0



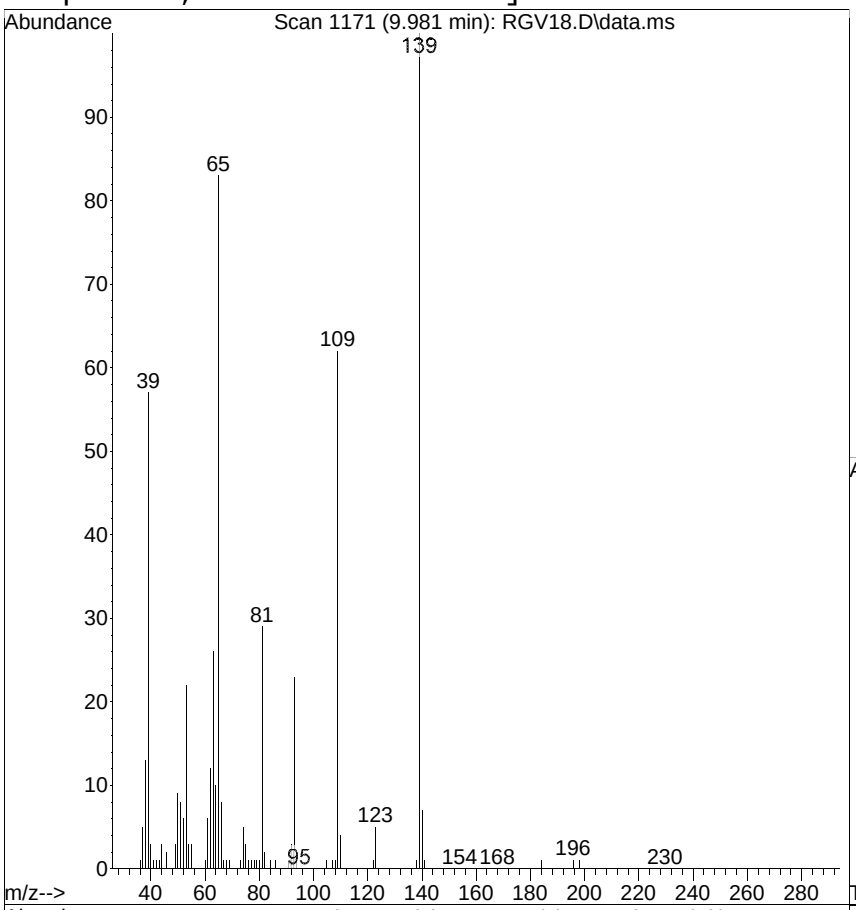
Ref





[4-Nitrophenol; before version]

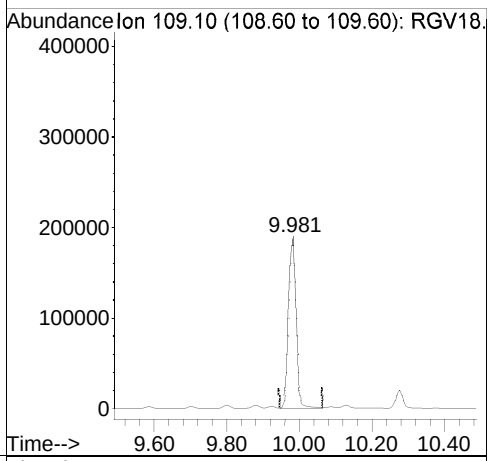
Raw



#49
4-Nitrophenol
Concen: 21.5498 ug/mL
RT: 9.981 min Scan# 1171
Delta R.T. -0.009 min
Lab File: RGV18.D
Acq: 31 Jul 2014 8:17 pm

Tgt Ion:109 Resp: 259528

Ion	Ratio	Lower	Upper
109	100		
139	162.5	109.0	149.0#
65	134.4	122.0	162.0



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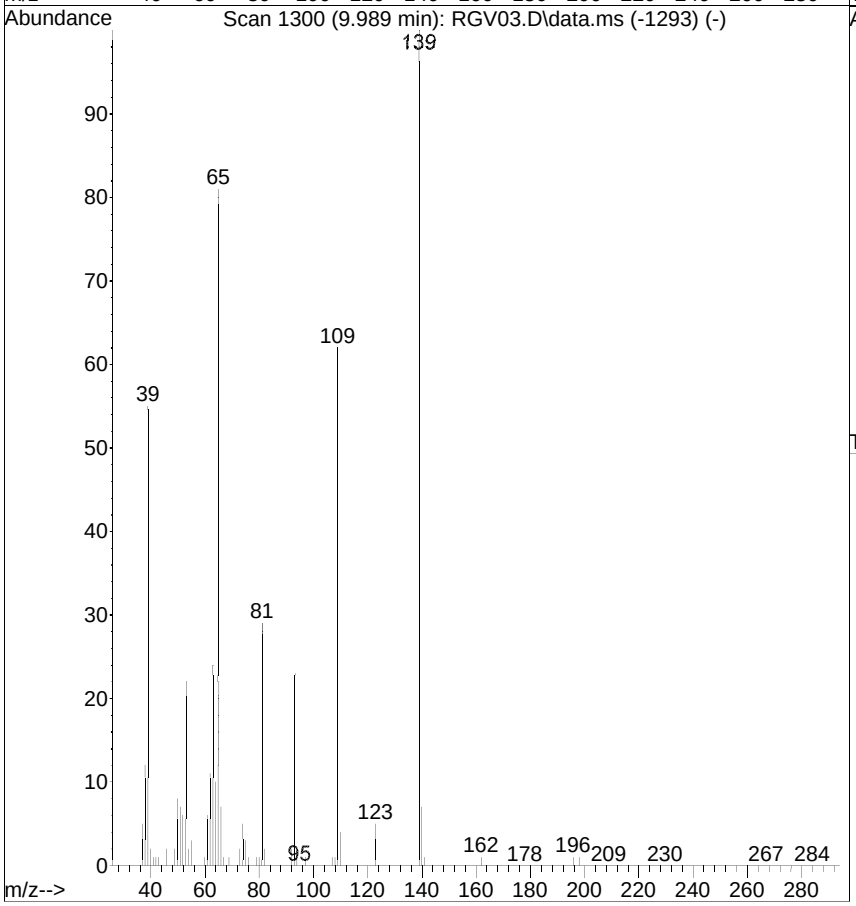
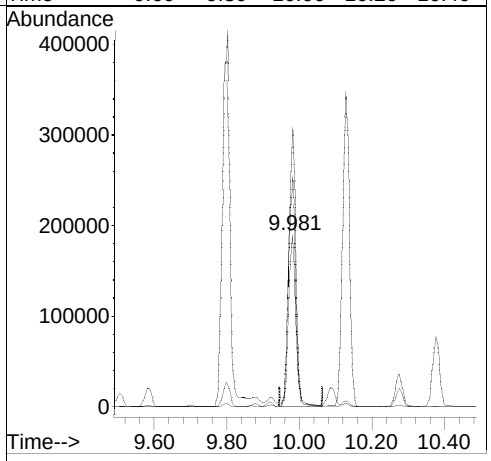
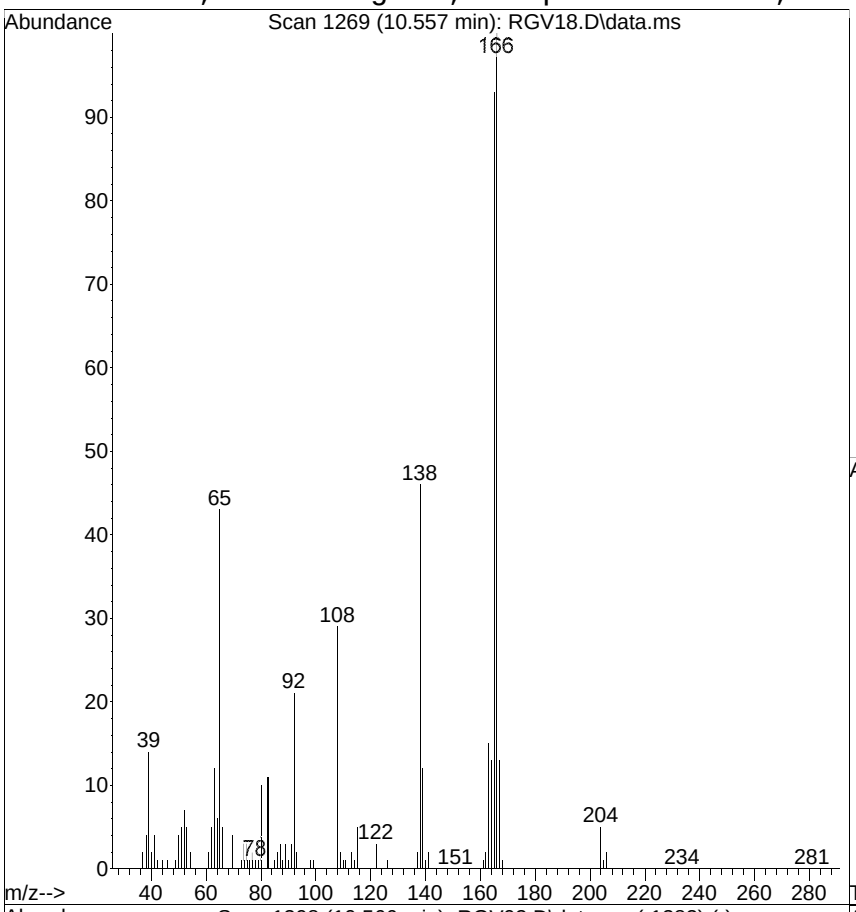




[4-Nitroaniline; 20.00 ug/mL; response=542568; MI]

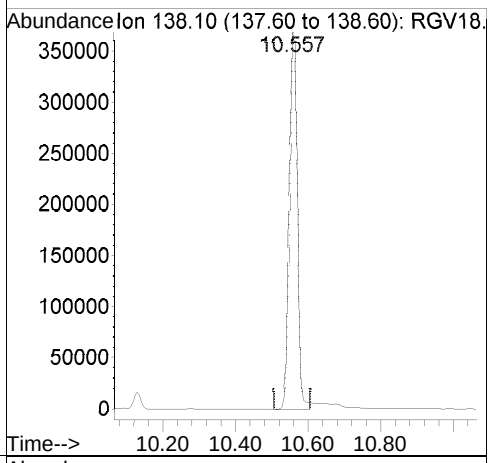
Raw



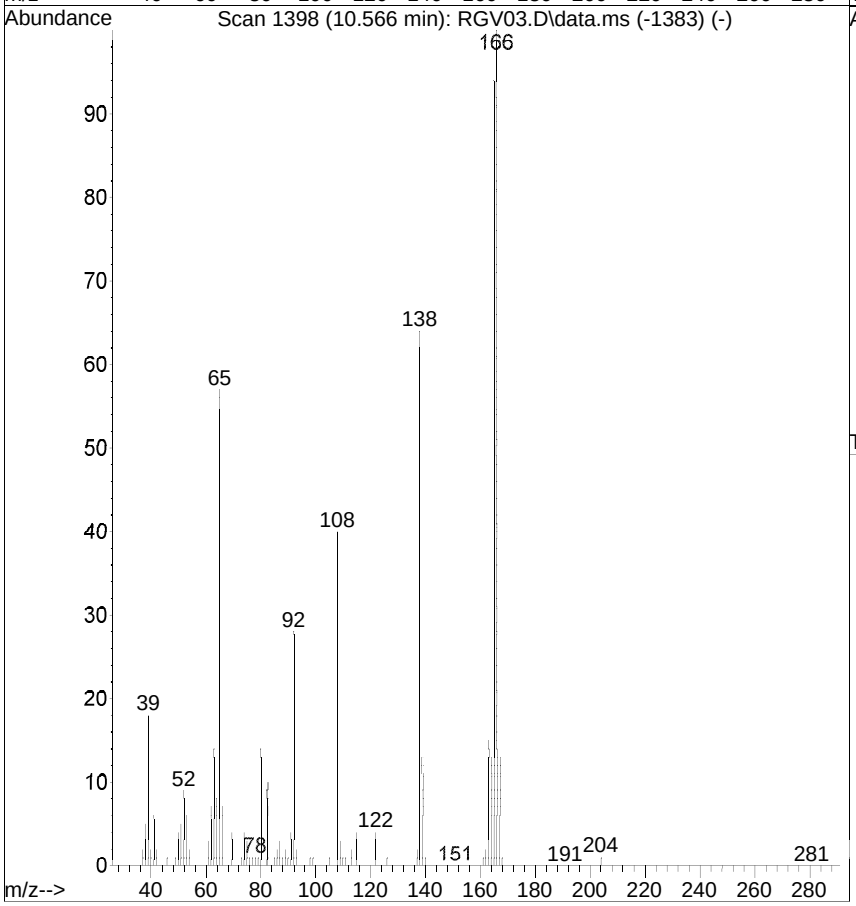
#56
4-Nitroaniline
Concen: 21.3958 ug/mL m
RT: 10.557 min Scan# 1269
Delta R.T. -0.009 min
Lab File: RGV18.D
Acq: 31 Jul 2014 8:17 pm

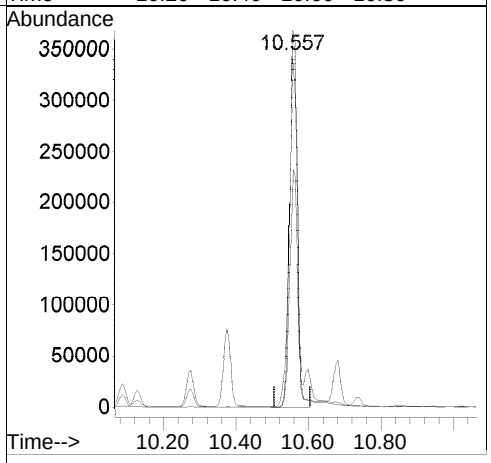
Tgt Ion:138 Resp: 542568

Ion	Ratio	Lower	Upper
138	100		
65	93.1	10.0	50.0#
108	63.1	13.0	53.0#



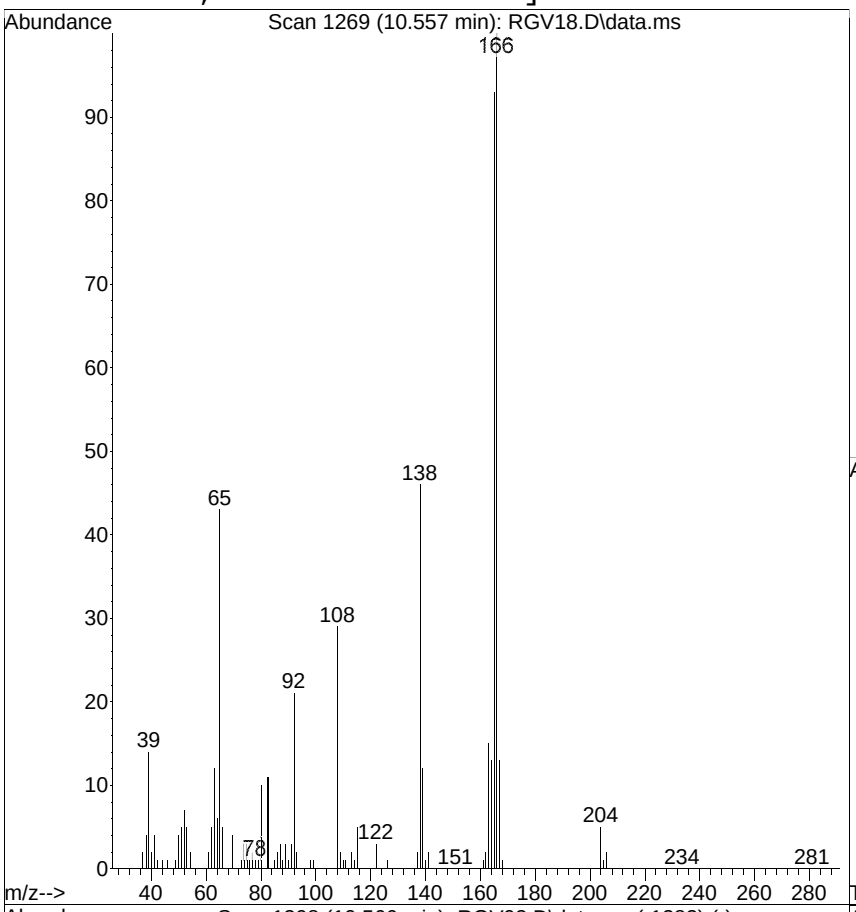
Ref





[4-Nitroaniline; before version]

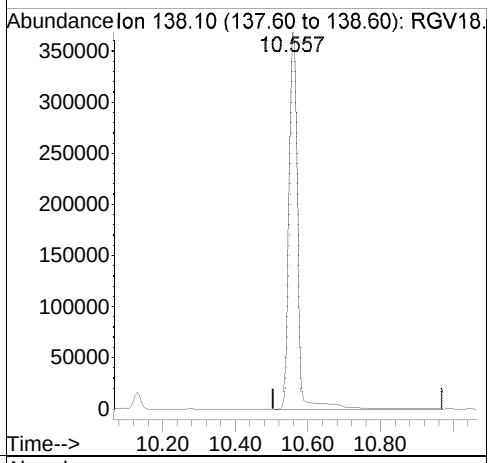
Raw



#56
4-Nitroaniline
Concen: 23.0000 ug/mL
RT: 10.557 min Scan# 1269
Delta R.T. -0.009 min
Lab File: RGV18.D
Acq: 31 Jul 2014 8:17 pm

Tgt Ion:138 Resp: 583250

Ion	Ratio	Lower	Upper
138	100		
65	93.1	10.0	50.0#
108	63.1	13.0	53.0#



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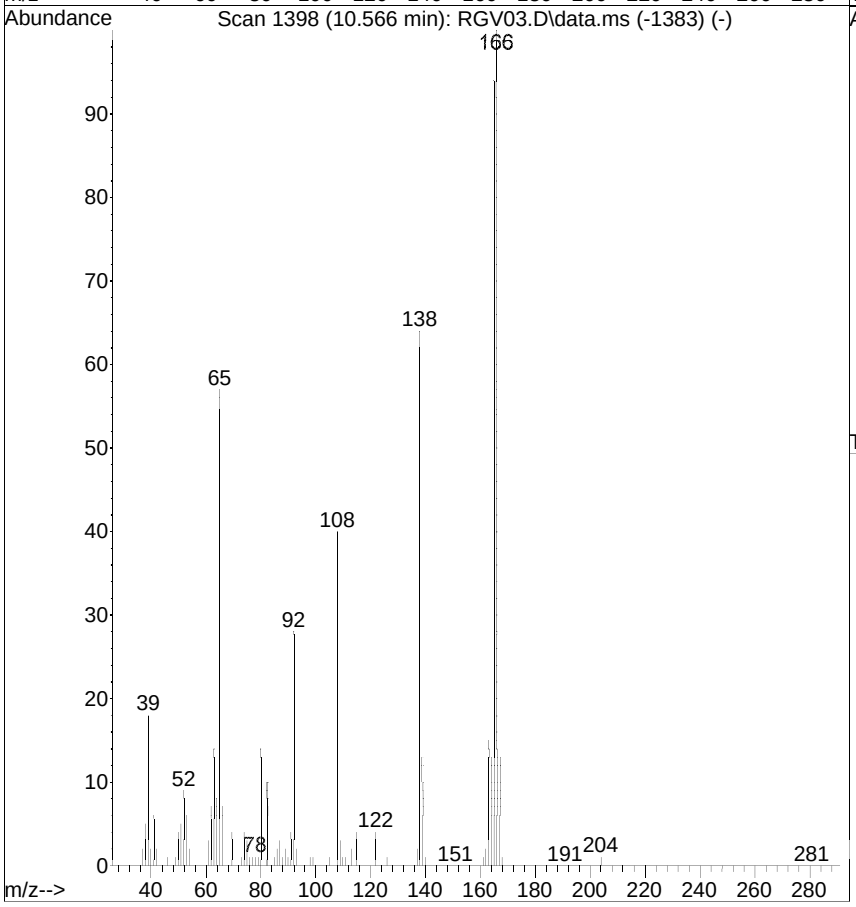
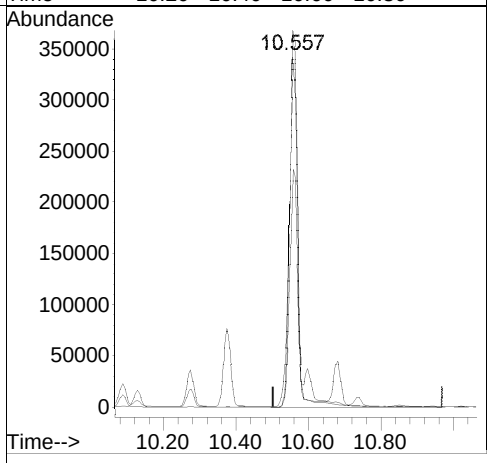
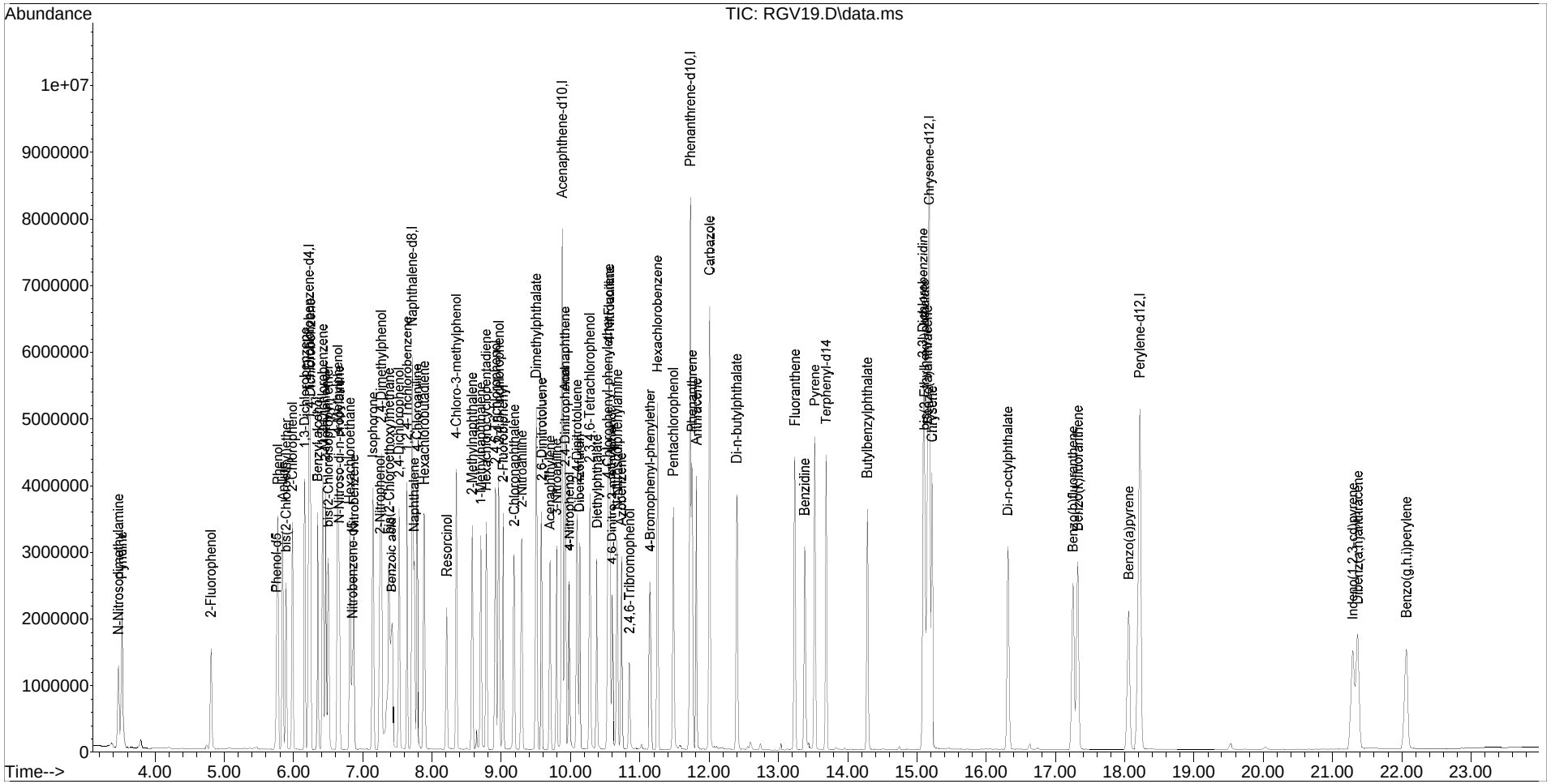




Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV19.D
Acq On : 31 Jul 2014 8:47 pm
Operator :
Sample : ICAL,S24427
Misc : ICAL
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 01 09:32:39 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV19.D
Acq On : 31 Jul 2014 8:47 pm
Operator :
Sample : ICAL,S24427
Misc : ICAL
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 01 09:32:39 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.222	152	1084689	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.716	136	3953922	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.881	164	2619900	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.733	188	4814071	40.0000	ug/mL	0.00
70) Chrysene-d12	15.180	240	5543326	40.0000	ug/mL	0.00
79) Perylene-d12	18.221	264	4984607	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.522	79	1387781	35.5368	ug/mL	90
3) N-Nitrosodimethylamine	3.475	42	608050	30.7827	ug/mL	# 67
4) 2-Fluorophenol	4.810	112	653567	18.9064	ug/mL	# 70
5) Phenol-d5	5.763	99	754330	17.3277	ug/mL	76
6) Phenol	5.781	94	1546429	33.2618	ug/mL	86
7) Aniline	5.851	93	1827863m	33.2035	ug/mL	
8) bis(2-Chloroethyl)ether	5.898	93	1183181	32.9842	ug/mL	94
9) 2-Chlorophenol	5.987	128	1350678	33.6856	ug/mL	91
10) 1,3-Dichlorobenzene	6.163	146	1453583	33.9672	ug/mL	96
11) 1,4-Dichlorobenzene	6.245	146	1479910	33.6656	ug/mL	91
12) Benzyl alcohol	6.351	108	810651	32.9086	ug/mL	# 84
13) 1,2-Dichlorobenzene	6.422	146	1372338	33.7999	ug/mL	97
14) 2-Methylphenol	6.463	107	964728	31.9842	ug/mL	95
15) bis(2-Chloroisopropyl) ether	6.504	45	1652156	30.4494	ug/mL	99
16) 4-Methylphenol	6.640	107	1443983	31.8072	ug/mL	92
17) N-Nitroso-di-n-propylamine	6.657	70	867858	32.7925	ug/mL	84
18) Hexachloroethane	6.816	117	564365	34.8444	ug/mL	96
20) Nitrobenzene-d5	6.851	82	625076	18.1136	ug/mL	# 70
21) Nitrobenzene	6.875	77	1184483	33.7436	ug/mL	81
22) Isophorone	7.151	82	2505359	36.4976	ug/mL	93
23) 2-Nitrophenol	7.251	139	640258	32.7179	ug/mL	79
24) 2,4-Dimethylphenol	7.269	107	1245634	35.9211	ug/mL	87
25) bis(2-Chloroethoxy)methane	7.381	93	756894	18.7972	ug/mL	98
26) Benzoic acid	7.422	105	2049213	92.2765	ug/mL	91
27) 2,4-Dichlorophenol	7.528	162	1052277	36.9745	ug/mL	97
28) 1,2,4-Trichlorobenzene	7.645	180	1097868	37.7661	ug/mL	97
29) Naphthalene	7.745	128	1818305	17.4696	ug/mL	98
30) 4-Chloroaniline	7.787	127	1698735	37.9090	ug/mL	96
31) Hexachlorobutadiene	7.892	225	618156	40.9870	ug/mL	98
32) Resorcinol	8.216	110	1007070	37.5088	ug/mL	91
33) 4-Chloro-3-methylphenol	8.351	107	1224055	37.1425	ug/mL	93
34) 2-Methylnaphthalene	8.581	142	1342340	18.7416	ug/mL	93
35) 1-Methylnaphthalene	8.704	142	1269190	18.8557	ug/mL	92
37) Hexachlorocyclopentadiene	8.781	237	800542	37.5118	ug/mL	98
38) 2,4,6-Trichlorophenol	8.922	196	827037	34.7509	ug/mL	94

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV19.D
Acq On : 31 Jul 2014 8:47 pm
Operator :
Sample : ICAL,S24427
Misc : ICAL
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 01 09:32:39 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.963	196	917446	36.3022	ug/mL	92
40) 2-Fluorobiphenyl	9.022	172	1593411	18.6737	ug/mL	98
41) 2-Chloronaphthalene	9.186	162	1301091	17.7394	ug/mL	93
42) 2-Nitroaniline	9.298	65	755596	30.4122	ug/mL #	76
43) Dimethylphthalate	9.510	163	3149855	34.3901	ug/mL	99
44) 2,6-Dinitrotoluene	9.586	165	731835	34.2483	ug/mL #	76
45) Acenaphthylene	9.704	152	1864550	17.3483	ug/mL	98
46) 3-Nitroaniline	9.804	138	786929m	33.8617	ug/mL	
47) Acenaphthene	9.922	154	1372460	17.0148	ug/mL	92
48) 2,4-Dinitrophenol	9.928	184	283954	32.2552	ug/mL #	84
49) 4-Nitrophenol	9.986	109	400257m	36.5352	ug/mL	
50) Dibenzofuran	10.128	168	1884313	17.3039	ug/mL	80
51) 2,4-Dinitrotoluene	10.092	165	1032871	35.5425	ug/mL	77
52) 2,3,4,6-Tetrachlorophenol	10.275	232	720593	34.6555	ug/mL	89
53) Diethylphthalate	10.381	149	1653026	17.1612	ug/mL	97
54) 4-Chlorophenyl-phenylether	10.539	204	783430	18.2030	ug/mL #	77
55) Fluorene	10.557	166	1584578	17.1577	ug/mL	88
56) 4-Nitroaniline	10.563	138	832212	36.0762	ug/mL #	20
57) 2,4,6-Tribromophenol	10.857	330	222524	18.0434	ug/mL #	80
59) 4,6-Dinitro-2-methylphenol	10.604	198	509751	31.3771	ug/mL #	80
60) N-Nitrosodiphenylamine	10.681	169	1169904	16.6813	ug/mL	90
61) Azobenzene	10.739	77	1570463	16.0129	ug/mL	93
62) 4-Bromophenyl-phenylether	11.151	248	478286	18.4889	ug/mL #	83
63) Hexachlorobenzene	11.257	284	1077289	38.6374	ug/mL	92
64) Pentachlorophenol	11.486	266	632887	34.5277	ug/mL	98
65) Phenanthrene	11.757	178	2374123	17.2846	ug/mL	97
66) Anthracene	11.822	178	2348018	17.4572	ug/mL	96
67) Carbazole	12.010	167	4310593	36.7157	ug/mL	88
68) Di-n-butylphthalate	12.404	149	3049532	17.9101	ug/mL	97
69) Fluoranthene	13.245	202	2669088	19.0402	ug/mL	96
71) Benzidine	13.380	184	1827000	28.6888	ug/mL	90
72) Pyrene	13.533	202	2851781	15.7382	ug/mL	94
73) Terphenyl-d14	13.692	244	2211709	17.5742	ug/mL	97
74) Butylbenzylphthalate	14.286	149	1308532	14.8379	ug/mL	98
75) 3,3'-Dichlorobenzidine	15.092	252	2007448	35.9666	ug/mL	99
76) Benzo(a)anthracene	15.157	228	2578064	17.1023	ug/mL	97
77) bis(2-Ethylhexyl)phthalate	15.116	149	1924352	15.4138	ug/mL	97
78) Chrysene	15.221	228	2457757	17.2383	ug/mL	95
80) Di-n-octylphthalate	16.315	149	3109868	13.5159	ug/mL	96
81) Benzo(b)fluoranthene	17.262	252	2343899	16.5312	ug/mL	96
82) Benzo(k)fluoranthene	17.327	252	2449876	17.0416	ug/mL	94
83) Benzo(a)pyrene	18.062	252	2037020	17.0995	ug/mL	95
84) Indeno(1,2,3-cd)pyrene	21.297	276	2383969	17.7159	ug/mL	89

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV19.D
Acq On : 31 Jul 2014 8:47 pm
Operator :
Sample : ICAL,S24427
Misc : ICAL
ALS Vial : 19 Sample Multiplier: 1

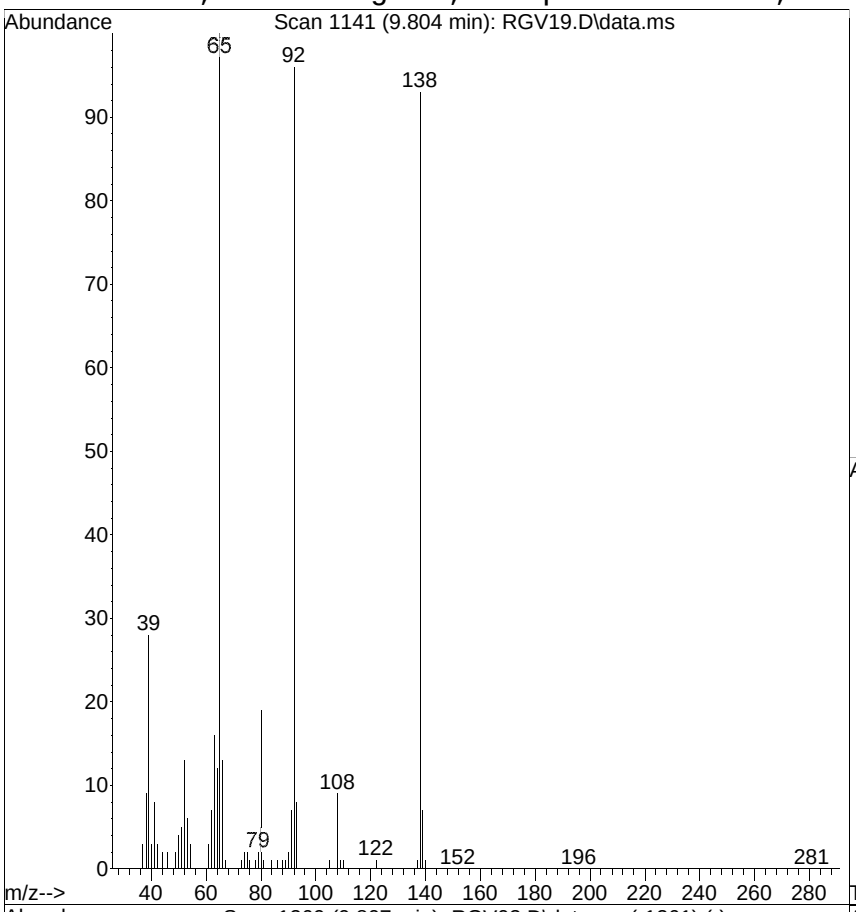
Quant Time: Aug 01 09:32:39 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.368	278	2131299	17.8950	ug/mL	94
86) Benzo(g,h,i)perylene	22.068	276	1869467	17.7500	ug/mL	96

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

[3-Nitroaniline; 32.00 ug/mL; response=786929; MI]

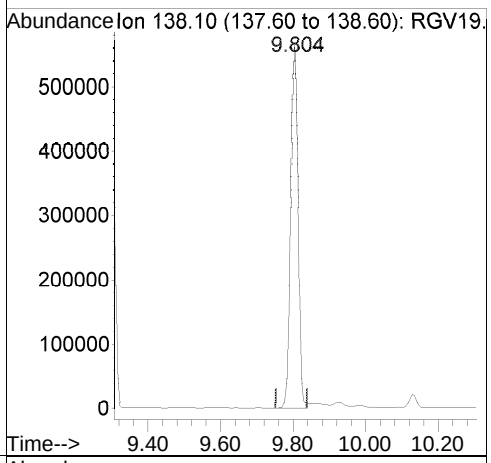
Raw



#46
3-Nitroaniline
Concen: 33.8617 ug/mL m
RT: 9.804 min Scan# 1141
Delta R.T. -0.003 min
Lab File: RGV19.D
Acq: 31 Jul 2014 8:47 pm

Tgt Ion:138 Resp: 786929

Ion	Ratio	Lower	Upper
138	100		
108	10.2	0.0	35.0
92	103.2	131.0	171.0#



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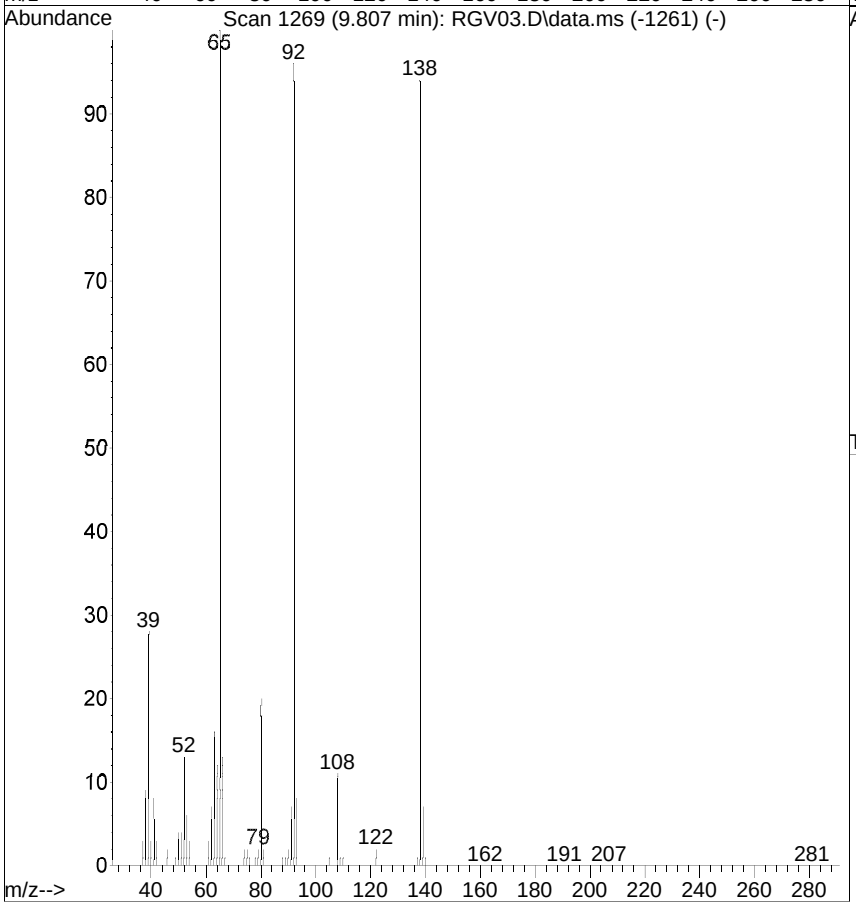
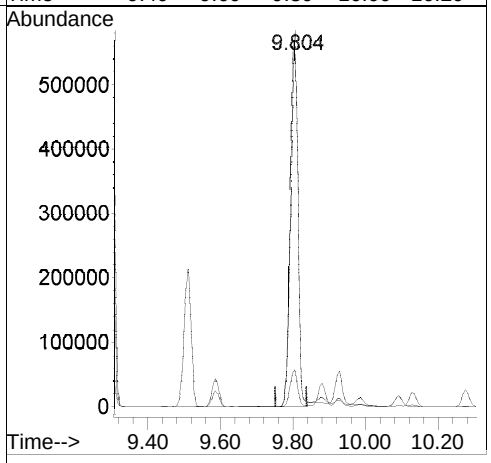
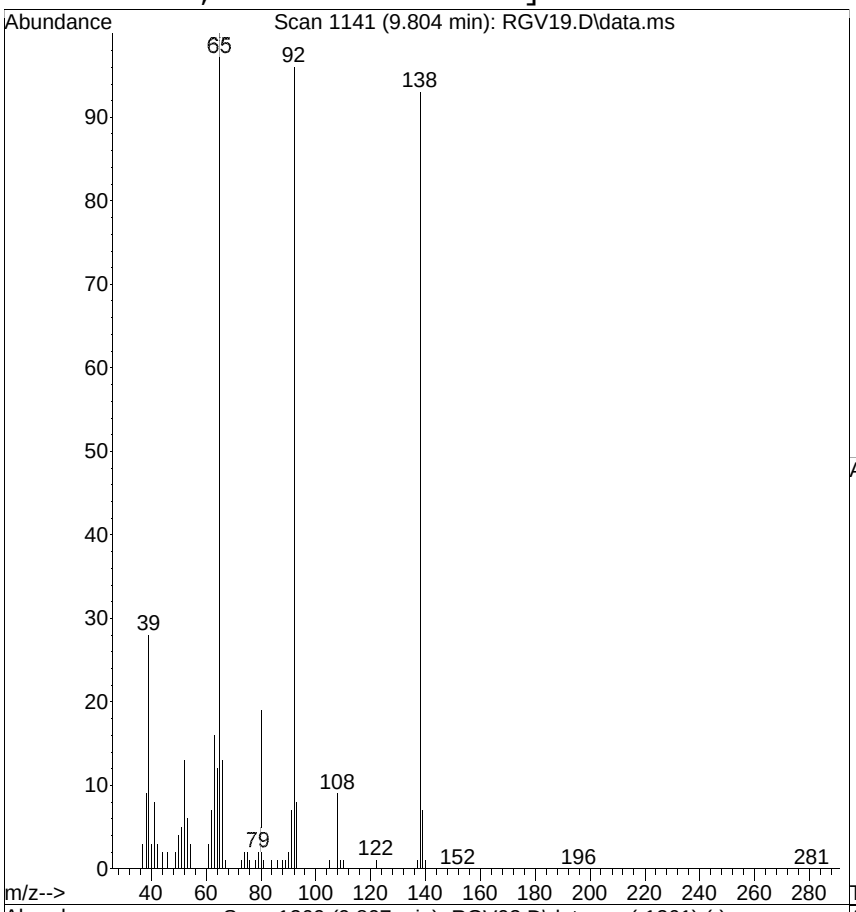




[3-Nitroaniline; before version]

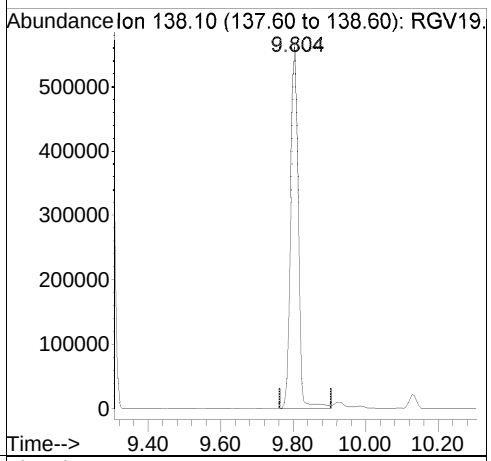
Raw



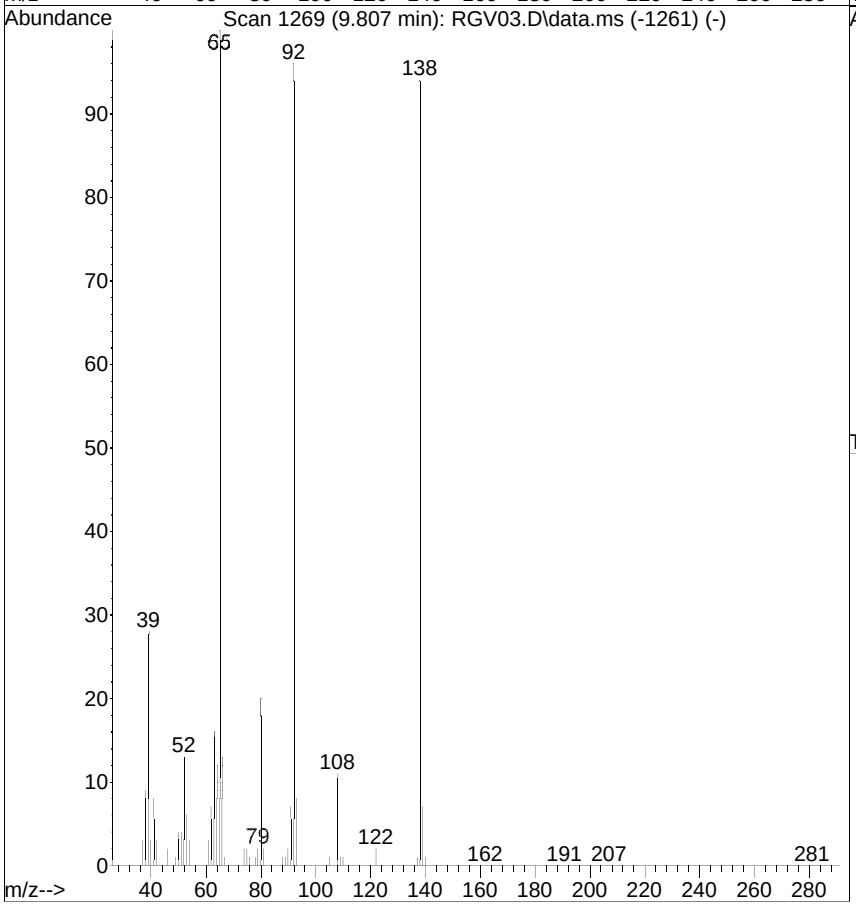
#46
3-Nitroaniline
Concen: 34.7645 ug/mL
RT: 9.804 min Scan# 1141
Delta R.T. -0.003 min
Lab File: RGV19.D
Acq: 31 Jul 2014 8:47 pm

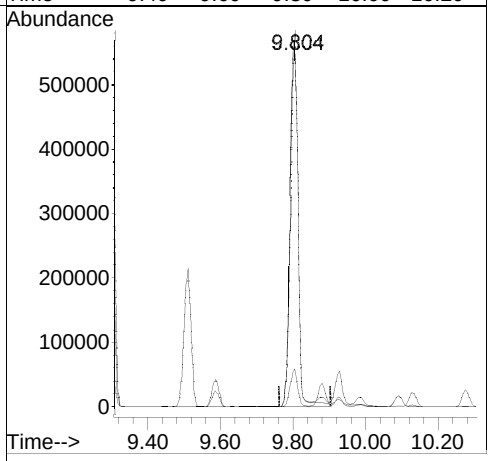
Tgt Ion:138 Resp: 807910

Ion	Ratio	Lower	Upper
138	100		
108	10.2	0.0	35.0
92	103.2	131.0	171.0#



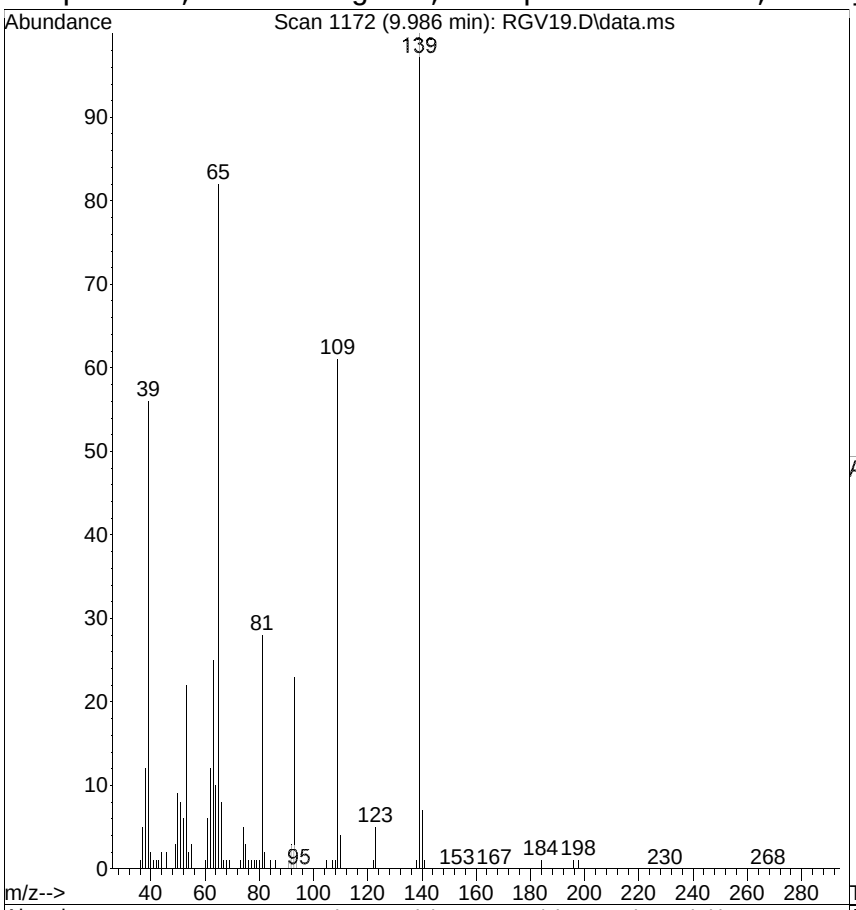
Ref





[4-Nitrophenol; 32.00 ug/mL; response=400257; MI]

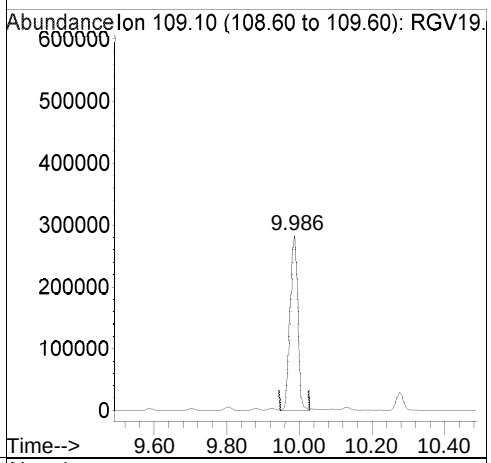
Raw



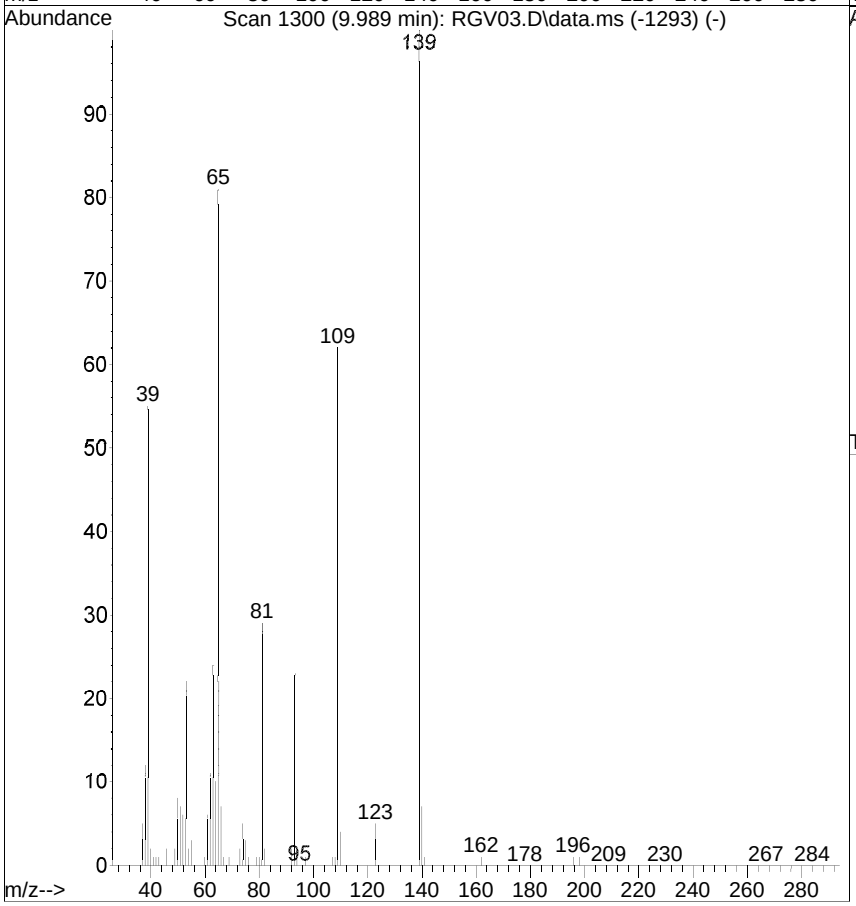
#49
4-Nitrophenol
Concen: 36.5352 ug/mL m
RT: 9.986 min Scan# 1172
Delta R.T. -0.003 min
Lab File: RGV19.D
Acq: 31 Jul 2014 8:47 pm

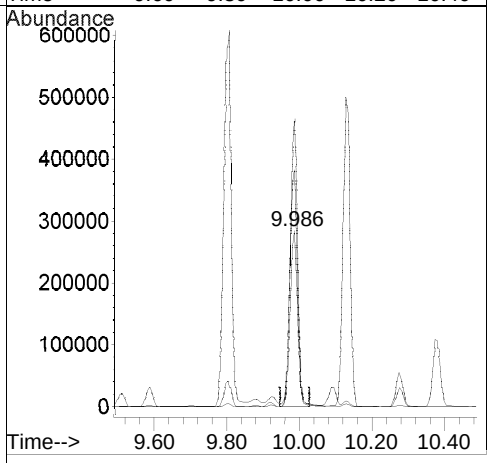
Tgt Ion:109 Resp: 400257

Ion	Ratio	Lower	Upper
109	100		
139	164.5	109.0	149.0#
65	135.1	122.0	162.0



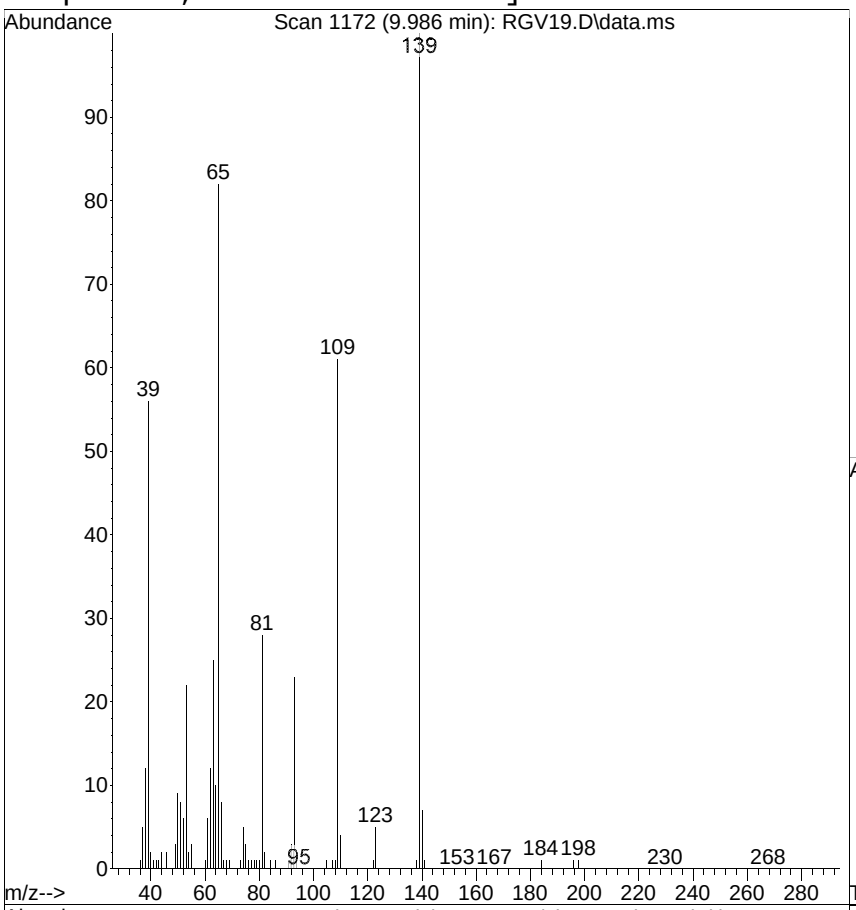
Ref





[4-Nitrophenol; before version]

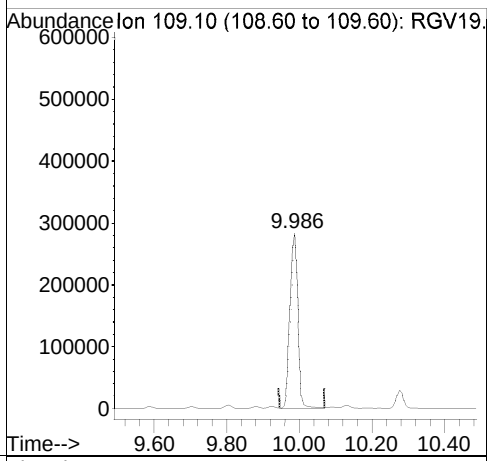
Raw



#49
4-Nitrophenol
Concen: 36.7186 ug/mL
RT: 9.986 min Scan# 1172
Delta R.T. -0.003 min
Lab File: RGV19.D
Acq: 31 Jul 2014 8:47 pm

Tgt Ion:109 Resp: 402266

Ion	Ratio	Lower	Upper
109	100		
139	164.5	109.0	149.0#
65	135.1	122.0	162.0



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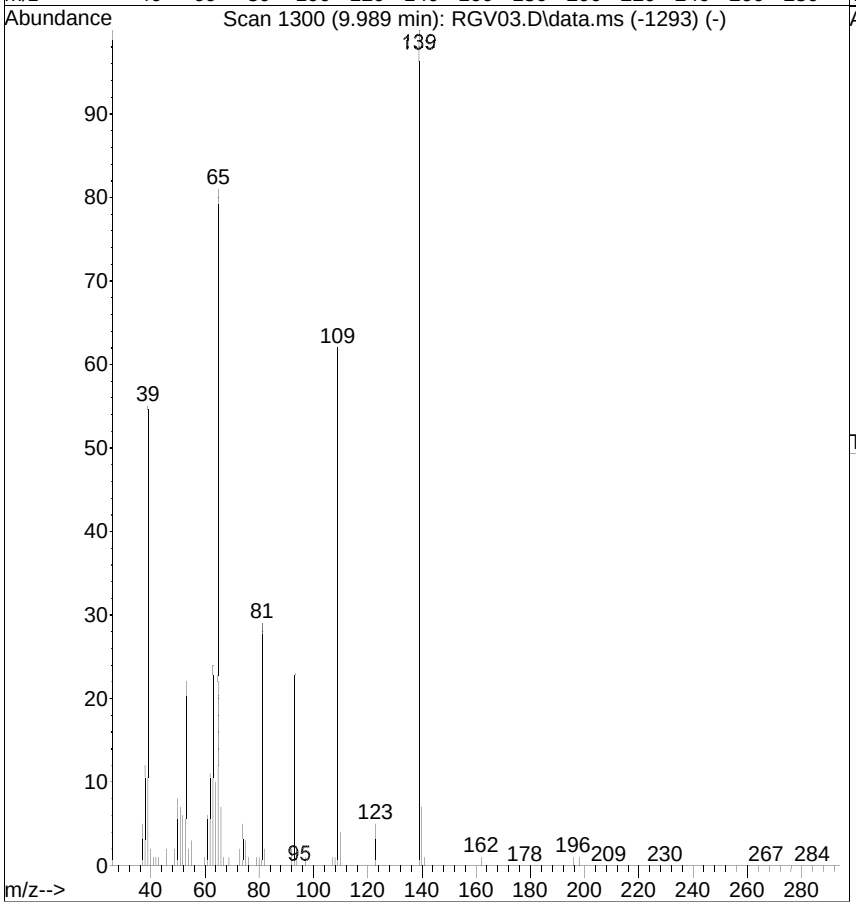
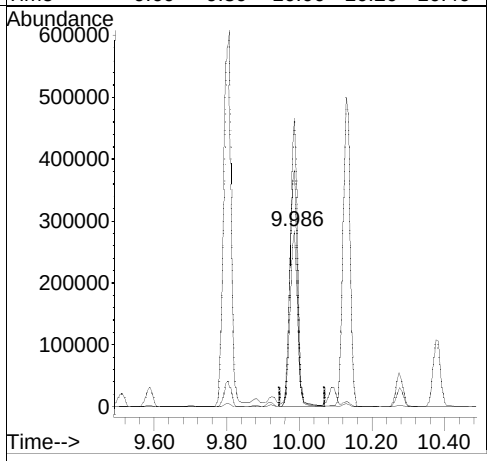
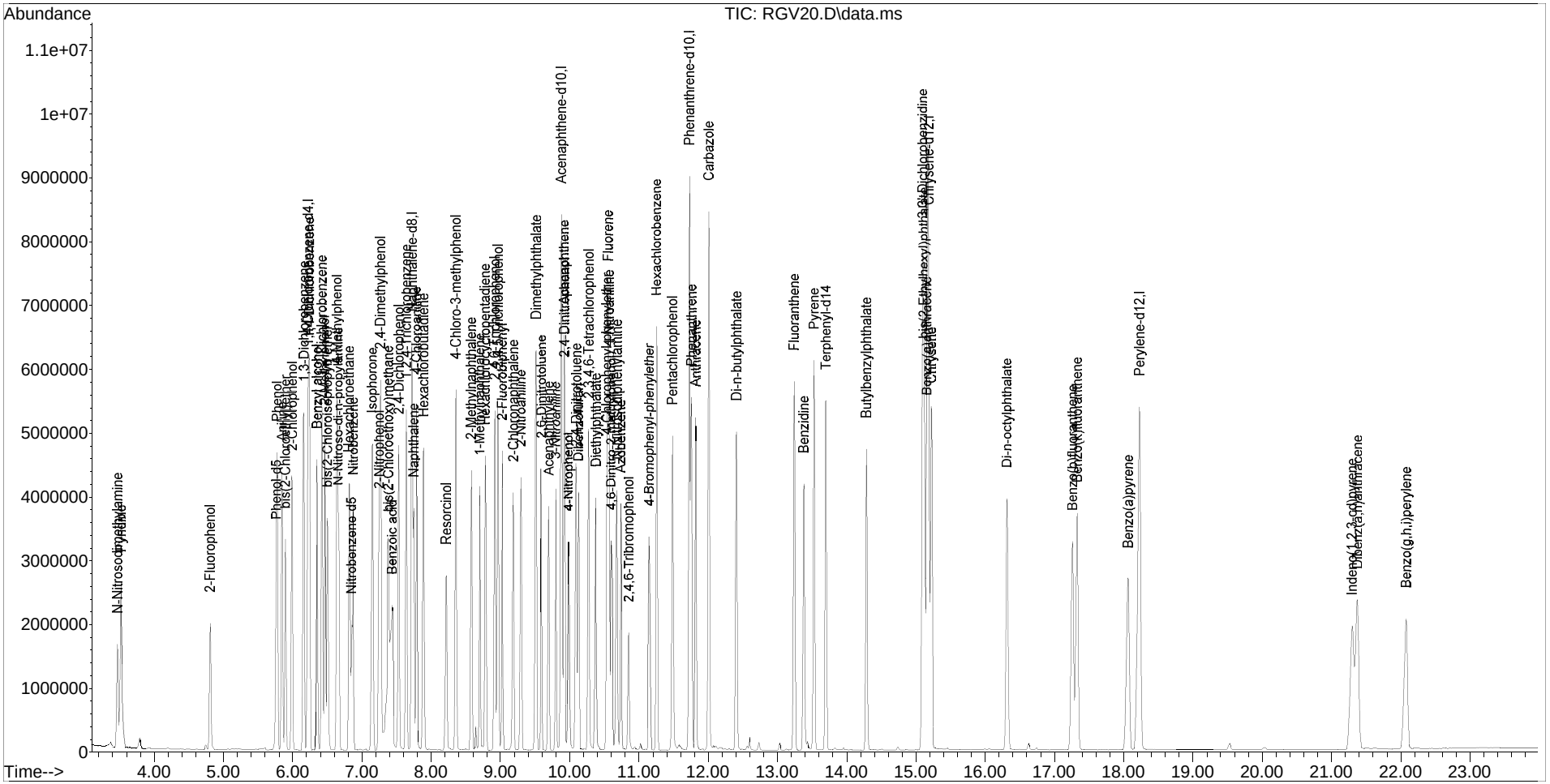




Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV20.D
Acq On : 31 Jul 2014 9:17 pm
Operator :
Sample : ICAL,S24428
Misc : ICAL
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 01 09:34:01 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV20.D
Acq On : 31 Jul 2014 9:17 pm
Operator :
Sample : ICAL,S24428
Misc : ICAL
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 01 09:34:01 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.228	152	1174849	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.722	136	4289775	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.880	164	2815465	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.733	188	5085730	40.0000	ug/mL	0.00
70) Chrysene-d12	15.186	240	5854507	40.0000	ug/mL	0.00
79) Perylene-d12	18.227	264	5330896	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.522	79	1831682	43.3043	ug/mL	89
3) N-Nitrosodimethylamine	3.475	42	815370	38.1106	ug/mL	# 68
4) 2-Fluorophenol	4.810	112	872983	23.3157	ug/mL	# 69
5) Phenol-d5	5.769	99	994887	21.0998	ug/mL	75
6) Phenol	5.781	94	2038734	40.4856	ug/mL	86
7) Aniline	5.851	93	2387004m	40.0328	ug/mL	
8) bis(2-Chloroethyl)ether	5.898	93	1586185	40.8255	ug/mL	95
9) 2-Chlorophenol	5.992	128	1782400	41.0412	ug/mL	89
10) 1,3-Dichlorobenzene	6.169	146	1932752	41.6983	ug/mL	97
11) 1,4-Dichlorobenzene	6.245	146	1950226	40.9599	ug/mL	91
12) Benzyl alcohol	6.357	108	1082388	40.5678	ug/mL	# 84
13) 1,2-Dichlorobenzene	6.422	146	1818007	41.3402	ug/mL	97
14) 2-Methylphenol	6.463	107	1261393	38.6104	ug/mL	95
15) bis(2-Chloroisopropyl) ether	6.504	45	2150032	36.5844	ug/mL	99
16) 4-Methylphenol	6.640	107	1931721	39.2854	ug/mL	92
17) N-Nitroso-di-n-propylamine	6.663	70	1167525	40.7301	ug/mL	84
18) Hexachloroethane	6.816	117	750075	42.7564	ug/mL	96
20) Nitrobenzene-d5	6.851	82	841525	22.4766	ug/mL	# 71
21) Nitrobenzene	6.875	77	1578709	41.4532	ug/mL	81
22) Isophorone	7.157	82	3311713	44.4673	ug/mL	92
23) 2-Nitrophenol	7.251	139	884959	41.6819	ug/mL	78
24) 2,4-Dimethylphenol	7.269	107	1696253	45.0862	ug/mL	87
25) bis(2-Chloroethoxy)methane	7.381	93	1028452	23.5416	ug/mL	99
26) Benzoic acid	7.439	105	2649860	104.5758	ug/mL	91
27) 2,4-Dichlorophenol	7.534	162	1427814	46.2421	ug/mL	96
28) 1,2,4-Trichlorobenzene	7.645	180	1447895	45.9074	ug/mL	97
29) Naphthalene	7.745	128	2414786	21.3840	ug/mL	98
30) 4-Chloroaniline	7.786	127	2287700	47.0554	ug/mL	96
31) Hexachlorobutadiene	7.892	225	809939	49.4988	ug/mL	98
32) Resorcinol	8.222	110	1422443	46.3304	ug/mL	90
33) 4-Chloro-3-methylphenol	8.357	107	1612195	45.0902	ug/mL	95
34) 2-Methylnaphthalene	8.581	142	1792172	23.0631	ug/mL	94
35) 1-Methylnaphthalene	8.704	142	1682043	23.0328	ug/mL	92
37) Hexachlorocyclopentadiene	8.781	237	1100735	47.9956	ug/mL	98
38) 2,4,6-Trichlorophenol	8.922	196	1105796	43.2365	ug/mL	94

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV20.D
Acq On : 31 Jul 2014 9:17 pm
Operator :
Sample : ICAL,S24428
Misc : ICAL
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 01 09:34:01 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.963	196	1224075	45.0707	ug/mL	91
40) 2-Fluorobiphenyl	9.022	172	2093178	22.8267	ug/mL	99
41) 2-Chloronaphthalene	9.186	162	1728143	21.9253	ug/mL	93
42) 2-Nitroaniline	9.298	65	1005259	37.6505	ug/mL #	77
43) Dimethylphthalate	9.516	163	4133940	41.9993	ug/mL	99
44) 2,6-Dinitrotoluene	9.592	165	970795	42.2755	ug/mL #	74
45) Acenaphthylene	9.704	152	2449375	21.2067	ug/mL	99
46) 3-Nitroaniline	9.804	138	1070096m	42.8480	ug/mL	
47) Acenaphthene	9.922	154	1847482	21.3129	ug/mL	92
48) 2,4-Dinitrophenol	9.928	184	431492m	40.7471	ug/mL	
49) 4-Nitrophenol	9.986	109	544522m	46.2511	ug/mL	
50) Dibenzofuran	10.133	168	2502721	21.3864	ug/mL	81
51) 2,4-Dinitrotoluene	10.098	165	1372493	43.9487	ug/mL #	76
52) 2,3,4,6-Tetrachlorophenol	10.280	232	987167	44.1781	ug/mL	88
53) Diethylphthalate	10.380	149	2222608	21.4716	ug/mL	98
54) 4-Chlorophenyl-phenylether	10.539	204	1038445	22.4523	ug/mL #	76
55) Fluorene	10.557	166	2087567	21.0339	ug/mL	88
56) 4-Nitroaniline	10.569	138	1109422	44.7525	ug/mL #	18
57) 2,4,6-Tribromophenol	10.857	330	309458	23.3496	ug/mL #	81
59) 4,6-Dinitro-2-methylphenol	10.604	198	727558	42.3917	ug/mL #	83
60) N-Nitrosodiphenylamine	10.686	169	1564658	21.1182	ug/mL	90
61) Azobenzene	10.739	77	2082060	20.0953	ug/mL	94
62) 4-Bromophenyl-phenylether	11.151	248	642970	23.5274	ug/mL #	82
63) Hexachlorobenzene	11.257	284	1427534	48.4642	ug/mL	91
64) Pentachlorophenol	11.486	266	886188	45.7642	ug/mL	98
65) Phenanthrene	11.763	178	3088711	21.2859	ug/mL	97
66) Anthracene	11.822	178	3041063	21.4022	ug/mL	96
67) Carbazole	12.010	167	5600417	45.1538	ug/mL	87
68) Di-n-butylphthalate	12.410	149	4021503	22.3569	ug/mL	97
69) Fluoranthene	13.245	202	3443218	23.2506	ug/mL	97
71) Benzidine	13.386	184	2549105	37.9002	ug/mL	90
72) Pyrene	13.533	202	3716597	19.4206	ug/mL	94
73) Terphenyl-d14	13.698	244	2875288	21.6326	ug/mL	99
74) Butylbenzylphthalate	14.286	149	1704362	18.2991	ug/mL	98
75) 3,3'-Dichlorobenzidine	15.098	252	2715953	46.0741	ug/mL	99
76) Benzo(a)anthracene	15.157	228	3353044	21.0610	ug/mL	97
77) bis(2-Ethylhexyl)phthalate	15.115	149	2512762	19.0571	ug/mL	97
78) Chrysene	15.227	228	3258193	21.6378	ug/mL	96
80) Di-n-octylphthalate	16.315	149	4157686	16.8961	ug/mL	96
81) Benzo(b)fluoranthene	17.268	252	3149557	20.7704	ug/mL	96
82) Benzo(k)fluoranthene	17.333	252	3210359	20.8810	ug/mL	94
83) Benzo(a)pyrene	18.068	252	2720620	21.3544	ug/mL	95
84) Indeno(1,2,3-cd)pyrene	21.303	276	3216499	22.3500	ug/mL	90

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV20.D
Acq On : 31 Jul 2014 9:17 pm
Operator :
Sample : ICAL,S24428
Misc : ICAL
ALS Vial : 20 Sample Multiplier: 1

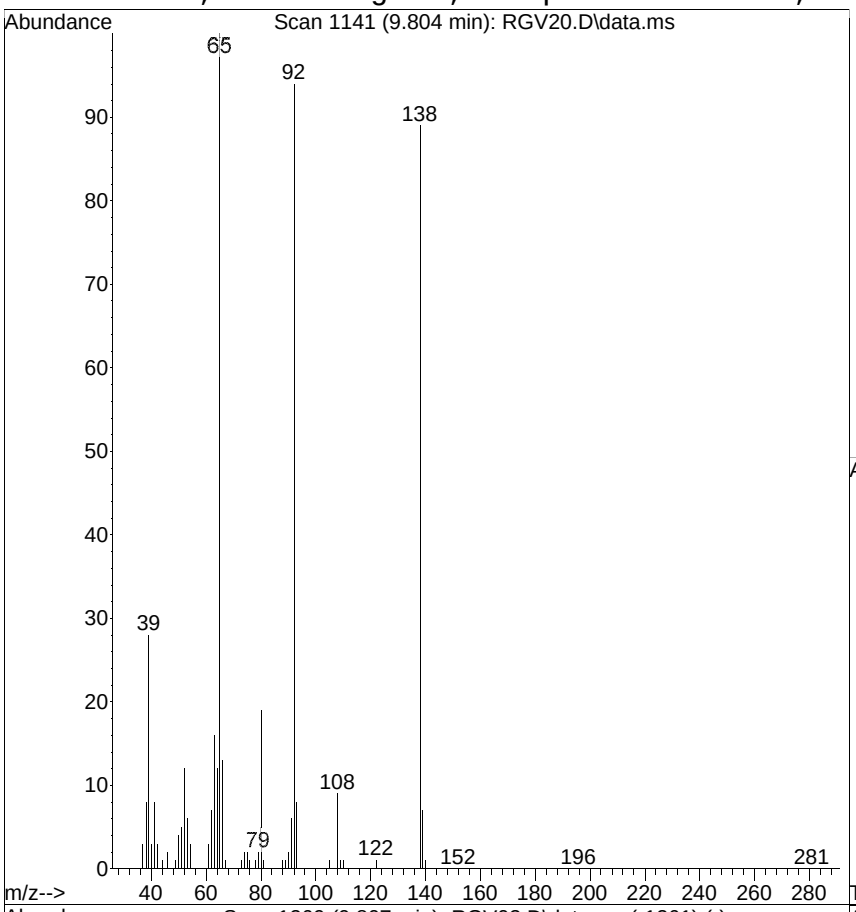
Quant Time: Aug 01 09:34:01 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.374	278	2865459	22.4963	ug/mL	95
86) Benzo(g,h,i)perylene	22.080	276	2547895	22.6200	ug/mL	95

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

[3-Nitroaniline; 40.00 ug/mL; response=1070096; MI]

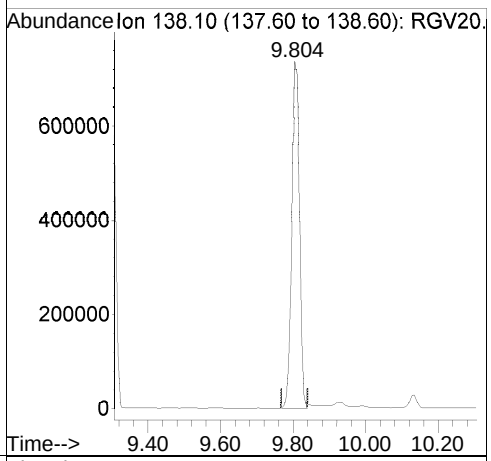
Raw



#46
3-Nitroaniline
Concen: 42.8480 ug/mL m
RT: 9.804 min Scan# 1141
Delta R.T. -0.003 min
Lab File: RGV20.D
Acq: 31 Jul 2014 9:17 pm

Tgt Ion:138 Resp: 1070096

Ion	Ratio	Lower	Upper
138	100		
108	10.2	0.0	35.0
92	106.3	131.0	171.0#



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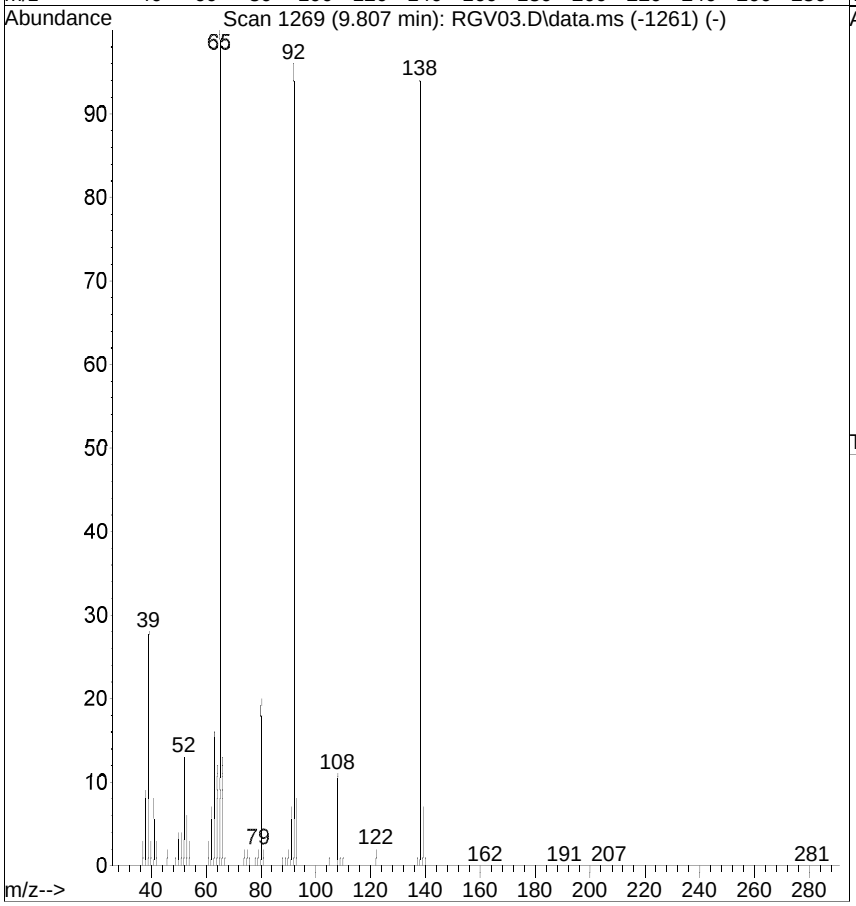
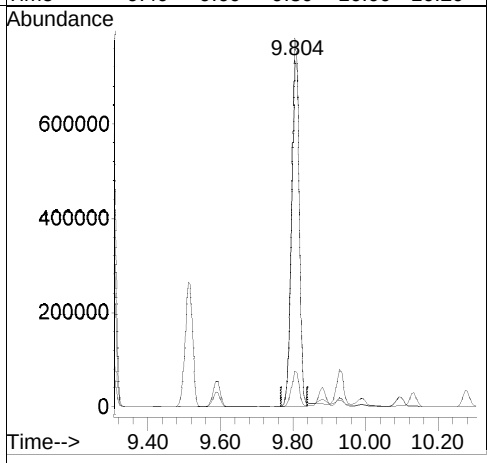
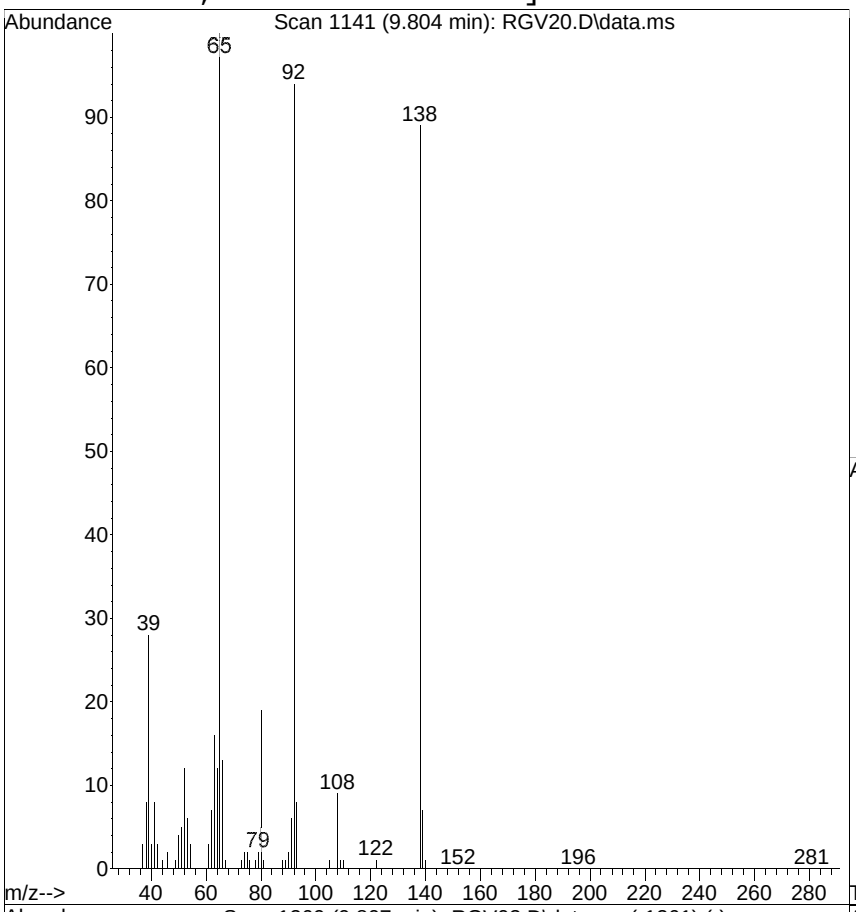




[3-Nitroaniline; before version]

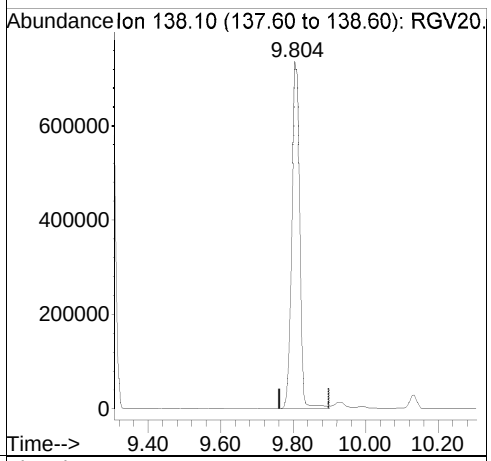
Raw



#46
3-Nitroaniline
Concen: 43.6721 ug/mL
RT: 9.804 min Scan# 1141
Delta R.T. -0.003 min
Lab File: RGV20.D
Acq: 31 Jul 2014 9:17 pm

Tgt Ion:138 Resp: 1090676

Ion	Ratio	Lower	Upper
138	100		
108	10.2	0.0	35.0
92	106.3	131.0	171.0#



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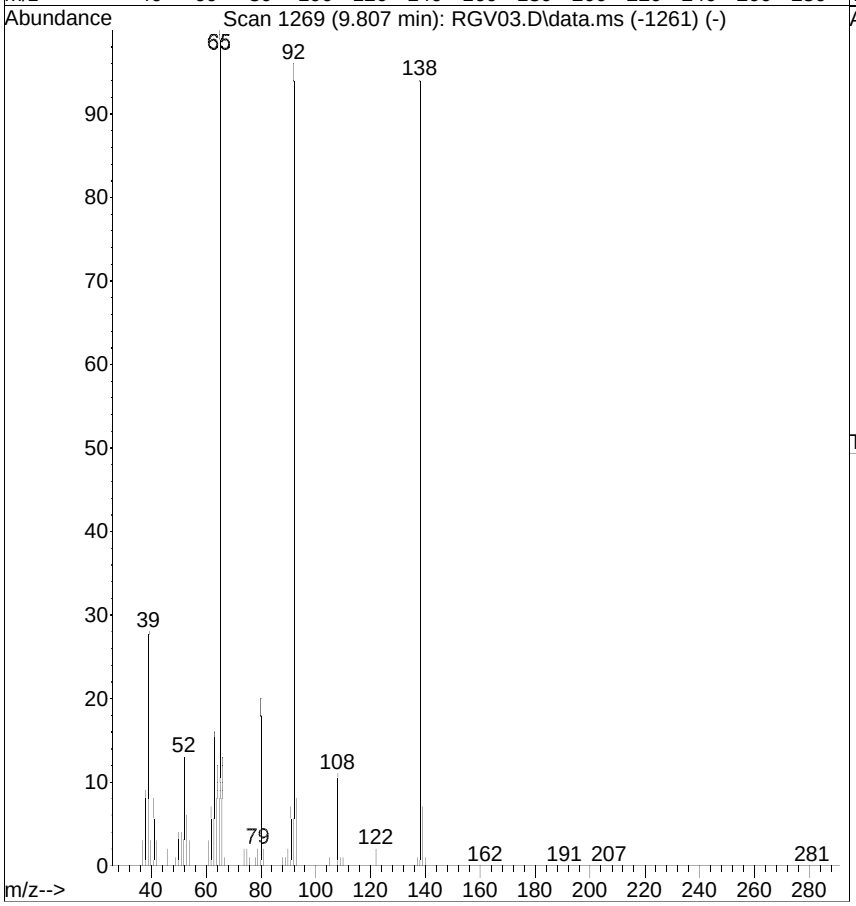
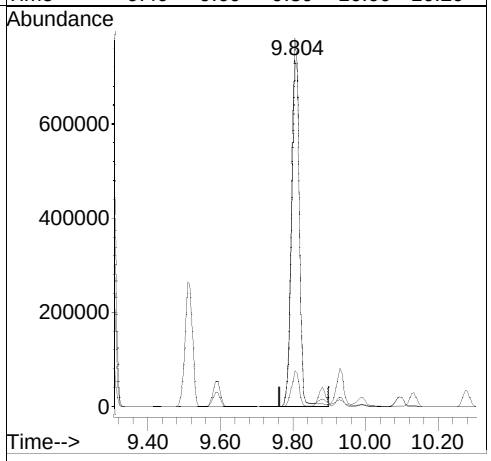
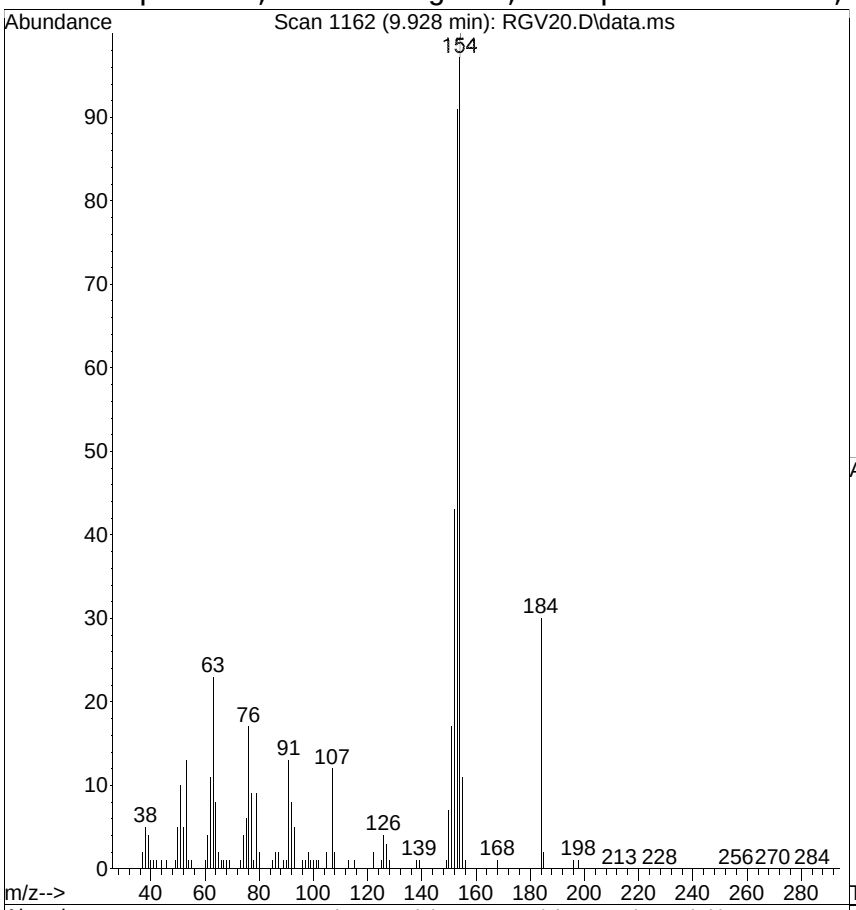




[2,4-Dinitrophenol; 40.00 ug/mL; response=431492; MI]

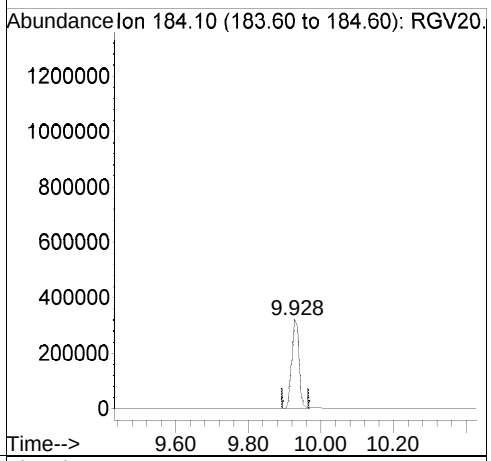
Raw



#48
2,4-Dinitrophenol
Concen: 40.7471 ug/mL m
RT: 9.928 min Scan# 1162
Delta R.T. -0.003 min
Lab File: RGV20.D
Acq: 31 Jul 2014 9:17 pm

Tgt Ion:184 Resp: 431492

Ion	Ratio	Lower	Upper
184	100		
63	77.1	75.0	115.0
154	329.2	330.0	370.0#



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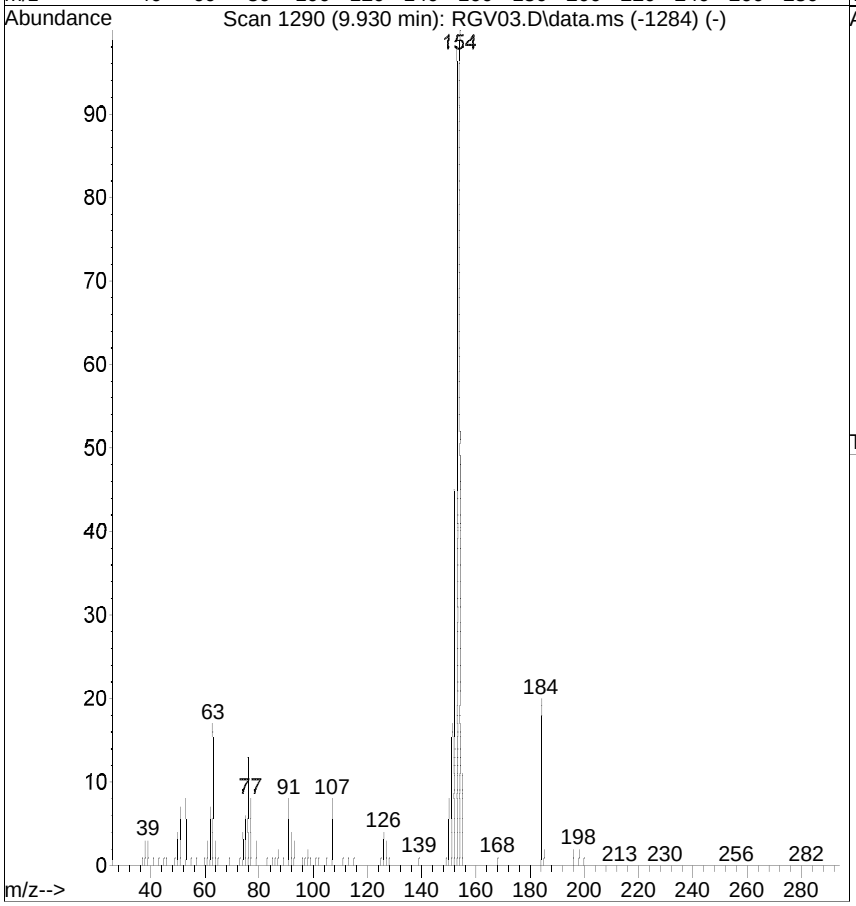
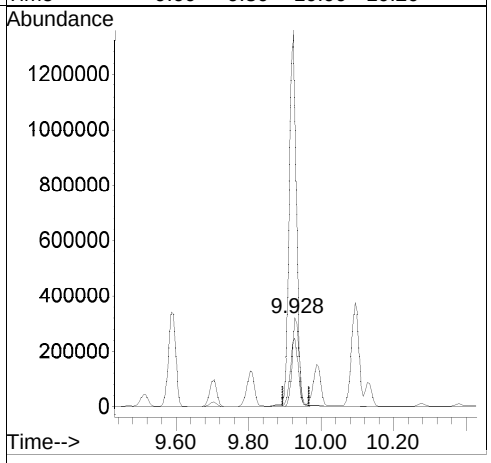
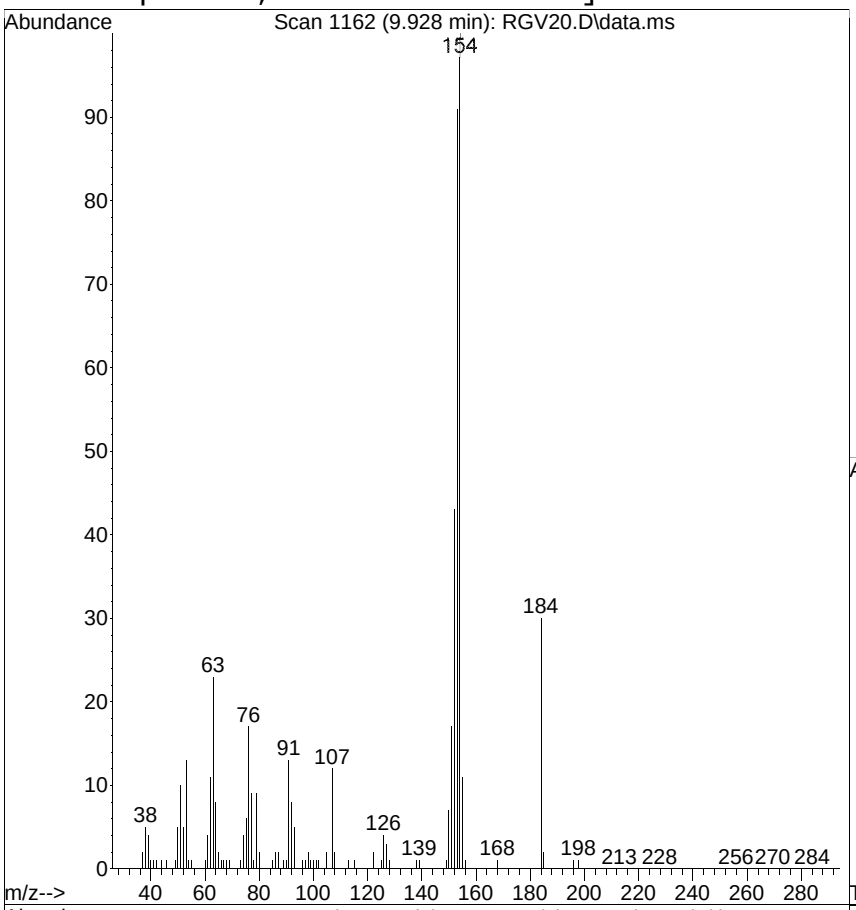




[2,4-Dinitrophenol; before version]

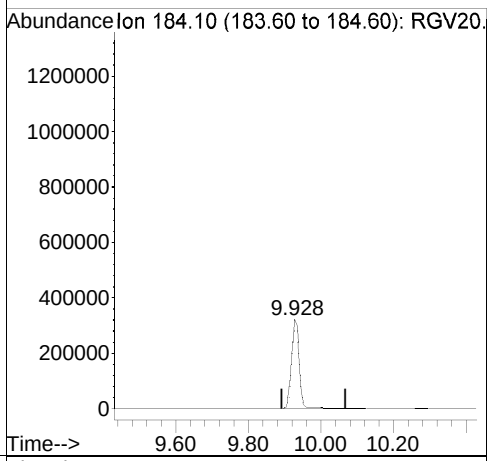
Raw



#48
2,4-Dinitrophenol
Concen: 41.3581 ug/mL
RT: 9.928 min Scan# 1162
Delta R.T. -0.003 min
Lab File: RGV20.D
Acq: 31 Jul 2014 9:17 pm

Tgt Ion:184 Resp: 440583

Ion	Ratio	Lower	Upper
184	100		
63	77.1	75.0	115.0
154	329.2	330.0	370.0#



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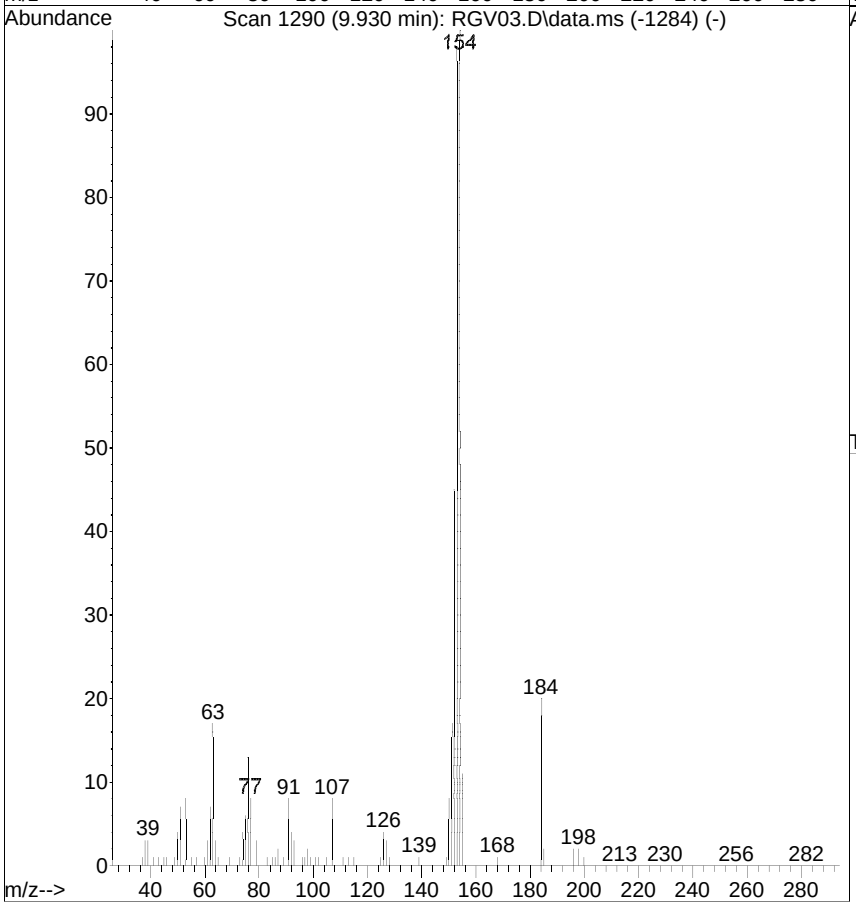
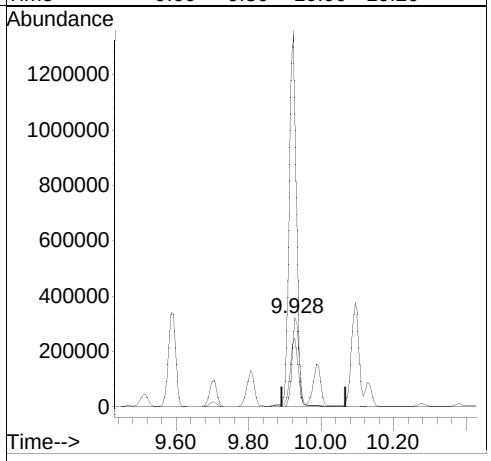
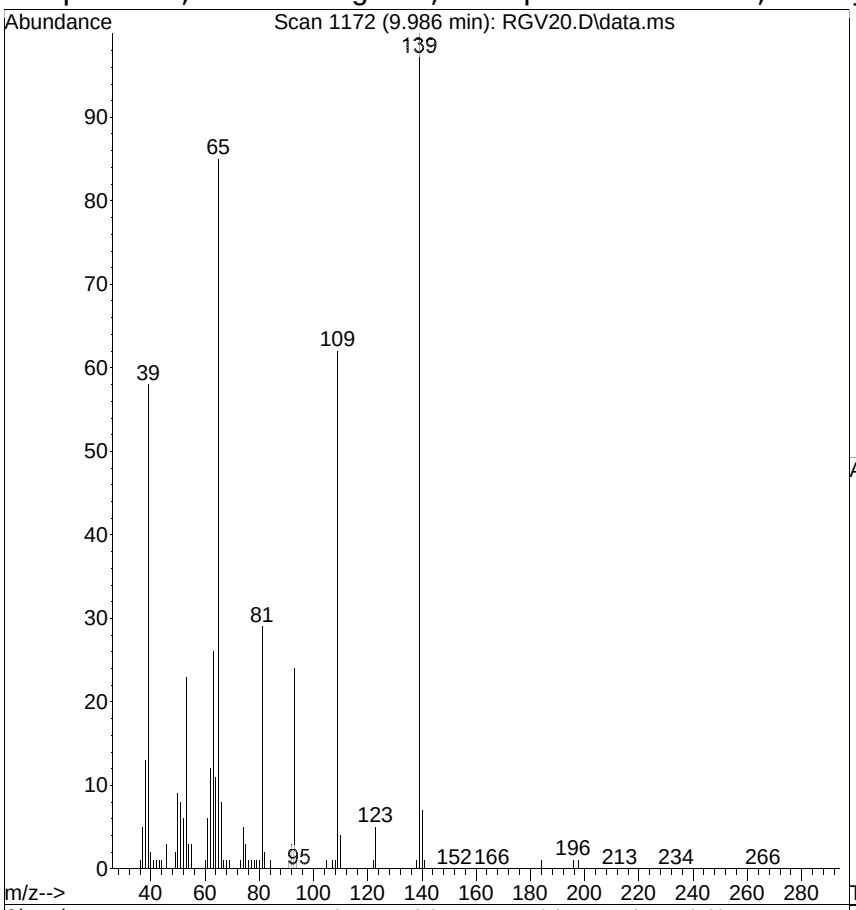




[4-Nitrophenol; 40.00 ug/mL; response=544522; MI]

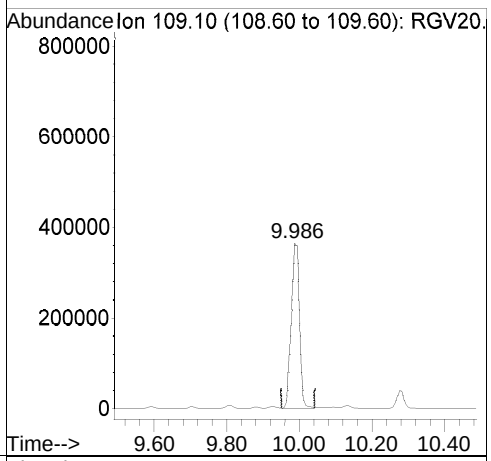
Raw



#49
4-Nitrophenol
Concen: 46.2511 ug/mL m
RT: 9.986 min Scan# 1172
Delta R.T. -0.003 min
Lab File: RGV20.D
Acq: 31 Jul 2014 9:17 pm

Tgt Ion:109 Resp: 544522

Ion	Ratio	Lower	Upper
109	100		
139	162.0	109.0	149.0#
65	137.8	122.0	162.0



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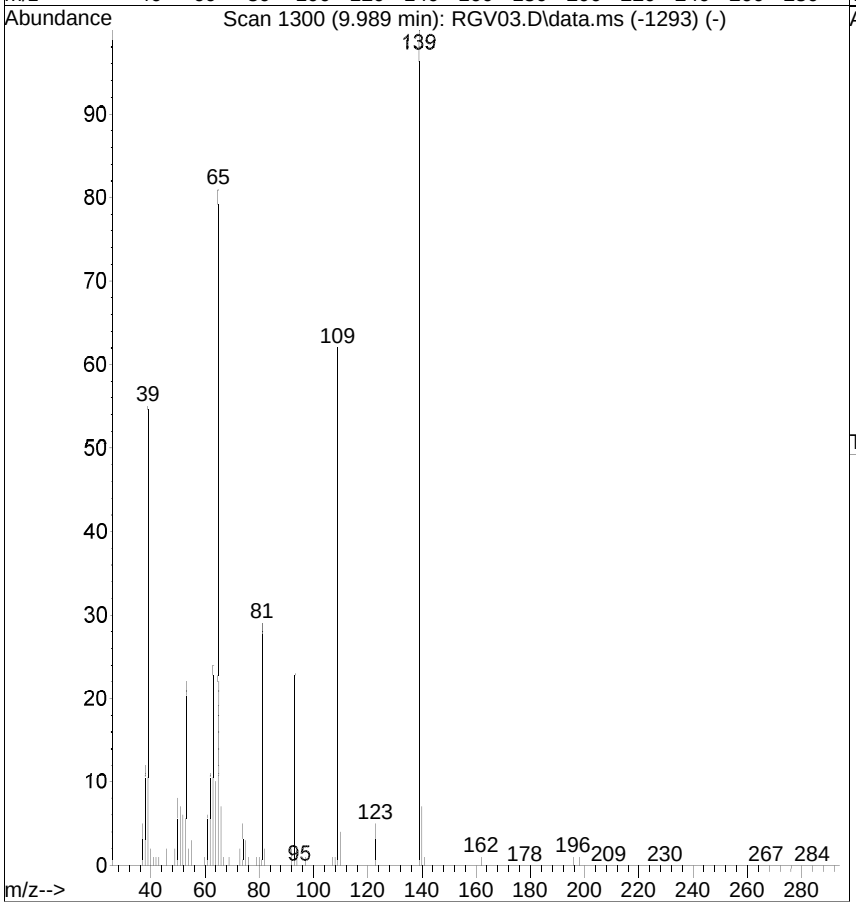
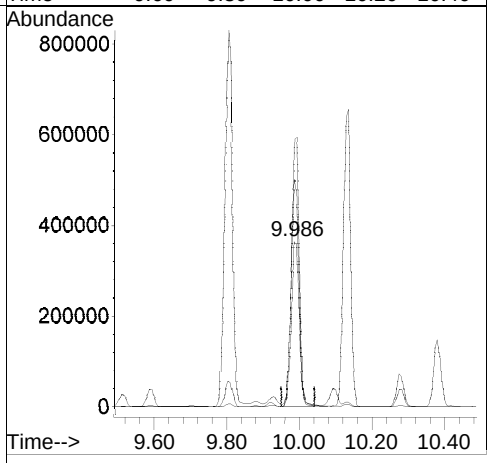
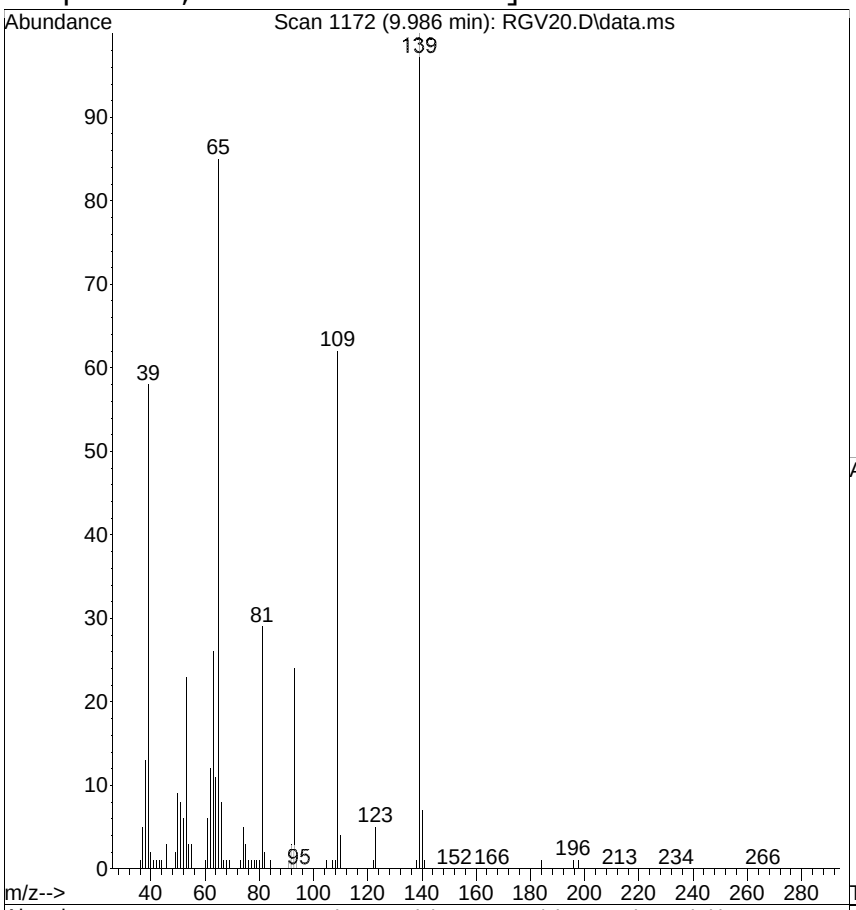




[4-Nitrophenol; before version]

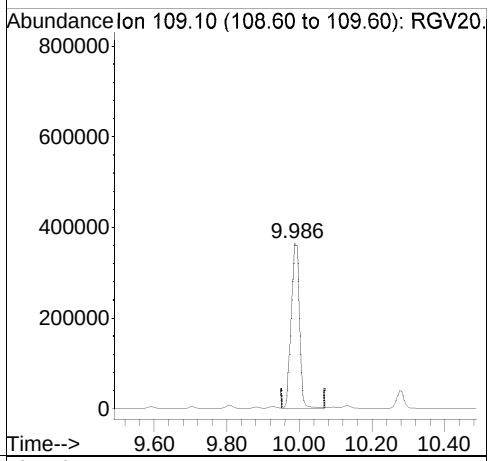
Raw



#49
4-Nitrophenol
Concen: 46.3043 ug/mL
RT: 9.986 min Scan# 1172
Delta R.T. -0.003 min
Lab File: RGV20.D
Acq: 31 Jul 2014 9:17 pm

Tgt Ion:109 Resp: 545148

Ion	Ratio	Lower	Upper
109	100		
139	162.0	109.0	149.0#
65	137.8	122.0	162.0



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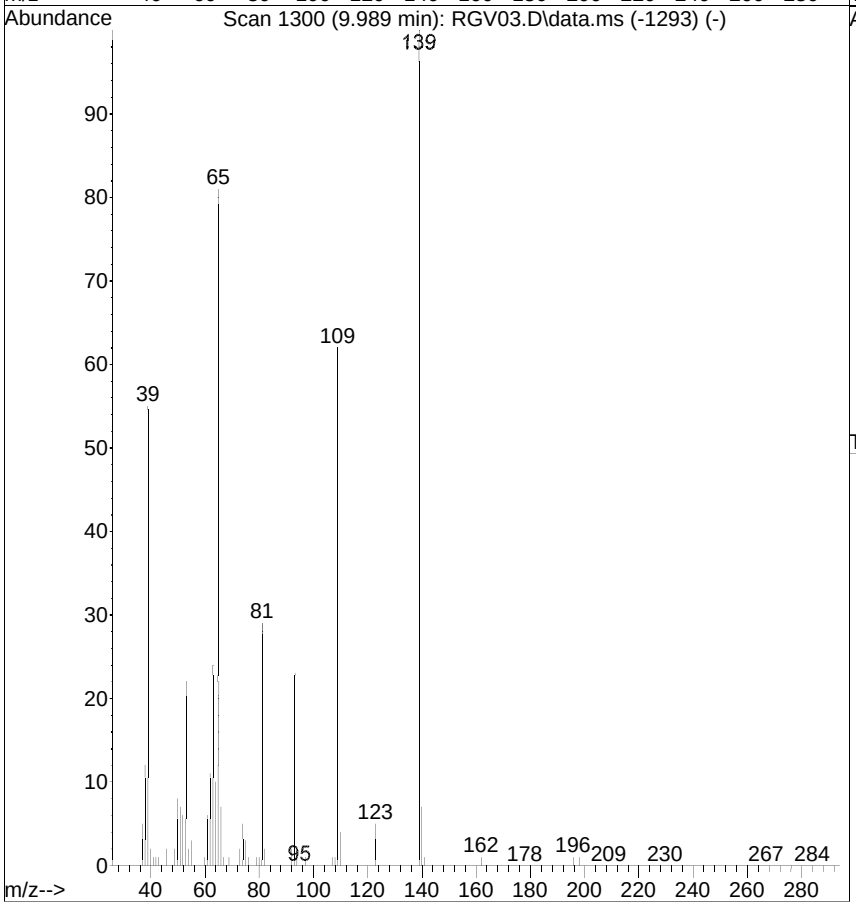
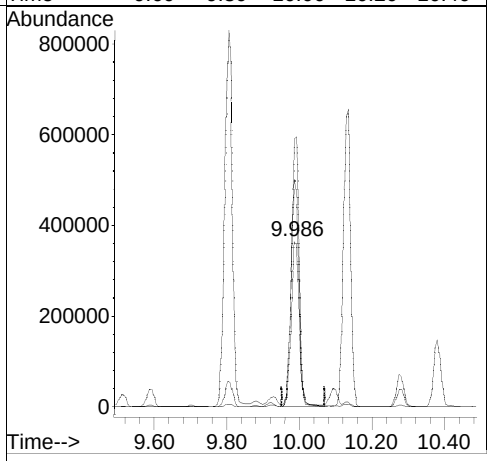
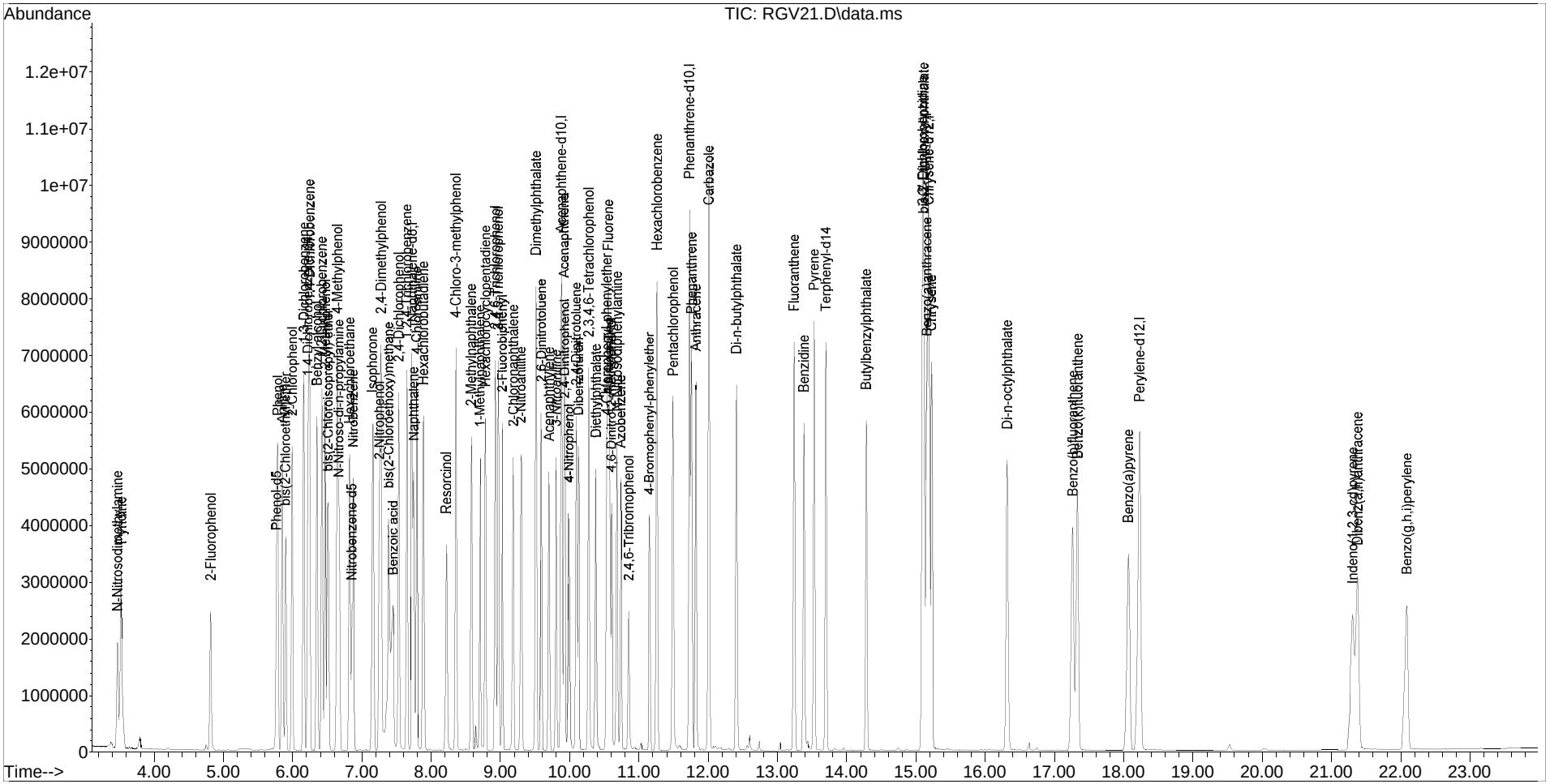




Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV21.D
Acq On : 31 Jul 2014 9:47 pm
Operator :
Sample : ICAL,S24429
Misc : ICAL
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Aug 01 09:36:49 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV21.D
Acq On : 31 Jul 2014 9:47 pm
Operator :
Sample : ICAL,S24429
Misc : ICAL
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Aug 01 09:36:49 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.228	152	1195108	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.722	136	4635194	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.881	164	2989178	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.733	188	5453704	40.0000	ug/mL	0.00
70) Chrysene-d12	15.186	240	6186500	40.0000	ug/mL	0.00
79) Perylene-d12	18.227	264	5646577	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.528	79	2310290	53.6935	ug/mL	91
3) N-Nitrosodimethylamine	3.475	42	1004630	46.1606	ug/mL	# 68
4) 2-Fluorophenol	4.816	112	1081944	28.4068	ug/mL	# 68
5) Phenol-d5	5.769	99	1245648	25.9701	ug/mL	75
6) Phenol	5.787	94	2523975	49.2719	ug/mL	87
7) Aniline	5.852	93	3003689m	49.5214	ug/mL	
8) bis(2-Chloroethyl)ether	5.899	93	1917173	48.5081	ug/mL	96
9) 2-Chlorophenol	5.993	128	2197752	49.7472	ug/mL	89
10) 1,3-Dichlorobenzene	6.169	146	2348959	49.8188	ug/mL	96
11) 1,4-Dichlorobenzene	6.246	146	2365078	48.8309	ug/mL	90
12) Benzyl alcohol	6.357	108	1435311	52.8834	ug/mL	# 84
13) 1,2-Dichlorobenzene	6.422	146	2226730	49.7760	ug/mL	95
14) 2-Methylphenol	6.469	107	1618216	48.6928	ug/mL	95
15) bis(2-Chloroisopropyl) ether	6.510	45	2649669	44.3219	ug/mL	99
16) 4-Methylphenol	6.646	107	2513751	50.2555	ug/mL	93
17) N-Nitroso-di-n-propylamine	6.669	70	1495448	51.2856	ug/mL	84
18) Hexachloroethane	6.822	117	927146	51.9541	ug/mL	91
20) Nitrobenzene-d5	6.851	82	1114268	27.5436	ug/mL	# 71
21) Nitrobenzene	6.875	77	2043915	49.6690	ug/mL	82
22) Isophorone	7.157	82	4237188	52.6542	ug/mL	93
23) 2-Nitrophenol	7.251	139	1184076	51.6143	ug/mL	79
24) 2,4-Dimethylphenol	7.275	107	2171574	53.4188	ug/mL	86
25) bis(2-Chloroethoxy)methane	7.387	93	1335992	28.3023	ug/mL	98
26) Benzoic acid	7.451	105	3109879	111.1572	ug/mL	91
27) 2,4-Dichlorophenol	7.534	162	1853729	55.5621	ug/mL	97
28) 1,2,4-Trichlorobenzene	7.646	180	1829335	53.6791	ug/mL	95
29) Naphthalene	7.746	128	3146428	25.7867	ug/mL	98
30) 4-Chloroaniline	7.793	127	2909144m	55.3786	ug/mL	
31) Hexachlorobutadiene	7.893	225	1010286	57.1417	ug/mL	97
32) Resorcinol	8.222	110	1908315	55.5219	ug/mL	91
33) 4-Chloro-3-methylphenol	8.357	107	2077318	53.7692	ug/mL	94
34) 2-Methylnaphthalene	8.581	142	2300175	27.3946	ug/mL	93
35) 1-Methylnaphthalene	8.710	142	2139451	27.1130	ug/mL	91
37) Hexachlorocyclopentadiene	8.787	237	1453927	59.7117	ug/mL	98
38) 2,4,6-Trichlorophenol	8.922	196	1455763	53.6123	ug/mL	95

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV21.D
Acq On : 31 Jul 2014 9:47 pm
Operator :
Sample : ICAL,S24429
Misc : ICAL
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Aug 01 09:36:49 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.963	196	1528131	52.9963	ug/mL	91
40) 2-Fluorobiphenyl	9.022	172	2669468	27.4196	ug/mL	98
41) 2-Chloronaphthalene	9.187	162	2208193	26.3876	ug/mL	93
42) 2-Nitroaniline	9.298	65	1313908	46.3506	ug/mL #	80
43) Dimethylphthalate	9.516	163	5297902	50.6967	ug/mL	99
44) 2,6-Dinitrotoluene	9.592	165	1285380	52.7219	ug/mL #	75
45) Acenaphthylene	9.704	152	3154749	25.7265	ug/mL	98
46) 3-Nitroaniline	9.810	138	1425302m	53.7543	ug/mL	
47) Acenaphthene	9.922	154	2339725	25.4229	ug/mL	95
48) 2,4-Dinitrophenol	9.934	184	608027m	50.2375	ug/mL	
49) 4-Nitrophenol	9.992	109	710731m	56.8605	ug/mL	
50) Dibenzofuran	10.134	168	3236733	26.0513	ug/mL	81
51) 2,4-Dinitrotoluene	10.098	165	1795699	54.1587	ug/mL	78
52) 2,3,4,6-Tetrachlorophenol	10.281	232	1288274	54.3029	ug/mL	89
53) Diethylphthalate	10.381	149	2877368	26.1816	ug/mL	98
54) 4-Chlorophenyl-phenylether	10.539	204	1355727	27.6088	ug/mL #	77
55) Fluorene	10.563	166	2681110	25.4444	ug/mL	87
56) 4-Nitroaniline	10.575	138	1464942	55.6595	ug/mL #	18
57) 2,4,6-Tribromophenol	10.857	330	411774	29.2641	ug/mL #	81
59) 4,6-Dinitro-2-methylphenol	10.610	198	989899	53.7856	ug/mL #	81
60) N-Nitrosodiphenylamine	10.687	169	2013219	25.3391	ug/mL	90
61) Azobenzene	10.739	77	2710614	24.3967	ug/mL	95
62) 4-Bromophenyl-phenylether	11.157	248	840224	28.6708	ug/mL #	84
63) Hexachlorobenzene	11.263	284	1831360	57.9789	ug/mL	94
64) Pentachlorophenol	11.492	266	1167695	56.2330	ug/mL	97
65) Phenanthrene	11.763	178	3959573	25.4463	ug/mL	97
66) Anthracene	11.828	178	3950403	25.9261	ug/mL	96
67) Carbazole	12.016	167	7061577	53.0930	ug/mL	87
68) Di-n-butylphthalate	12.410	149	5083573	26.3545	ug/mL	97
69) Fluoranthene	13.245	202	4309874	27.1391	ug/mL	98
71) Benzidine	13.386	184	3432561	48.2967	ug/mL	90
72) Pyrene	13.533	202	4647908	22.9838	ug/mL	93
73) Terphenyl-d14	13.698	244	3644537	25.9486	ug/mL	98
74) Butylbenzylphthalate	14.286	149	2174158	22.0904	ug/mL	99
75) 3,3'-Dichlorobenzidine	15.104	252	3459569	55.5395	ug/mL	99
76) Benzo(a)anthracene	15.163	228	4327087	25.7206	ug/mL	97
77) bis(2-Ethylhexyl)phthalate	15.116	149	3185911	22.8657	ug/mL	96
78) Chrysene	15.227	228	4115205	25.8626	ug/mL	96
80) Di-n-octylphthalate	16.321	149	5375312	20.6230	ug/mL	97
81) Benzo(b)fluoranthene	17.274	252	4079160	25.3970	ug/mL	96
82) Benzo(k)fluoranthene	17.339	252	4077970	25.0413	ug/mL	94
83) Benzo(a)pyrene	18.068	252	3478804	25.7789	ug/mL	96
84) Indeno(1,2,3-cd)pyrene	21.315	276	4142358	27.1741	ug/mL	89

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV21.D
Acq On : 31 Jul 2014 9:47 pm
Operator :
Sample : ICAL,S24429
Misc : ICAL
ALS Vial : 21 Sample Multiplier: 1

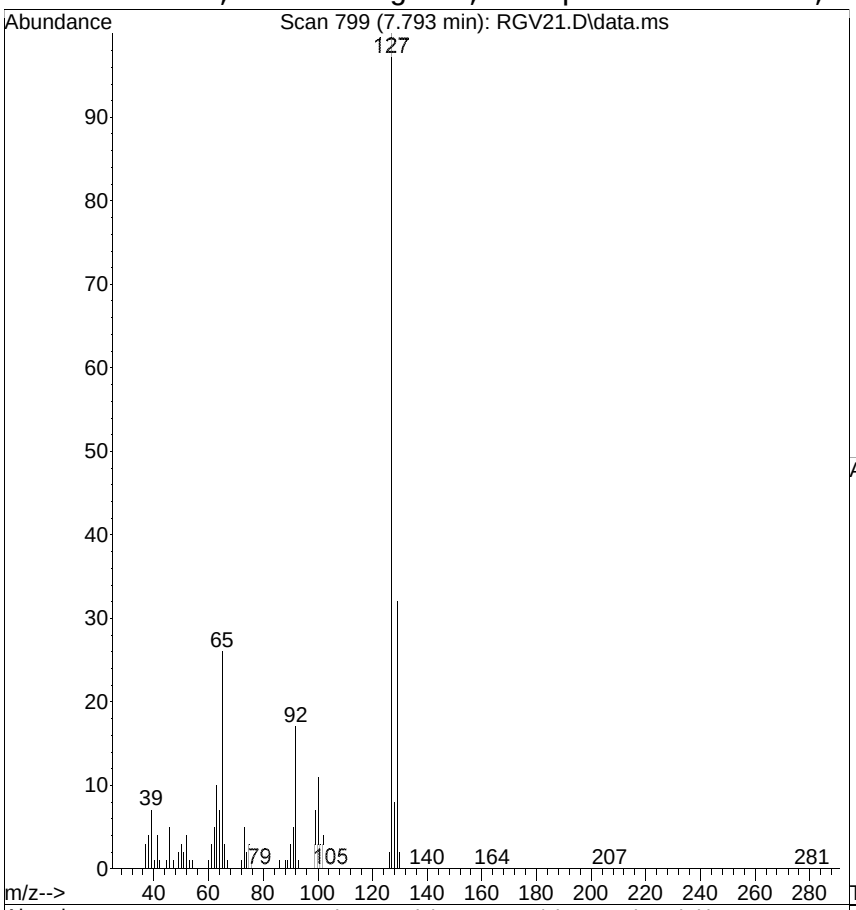
Quant Time: Aug 01 09:36:49 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.380	278	3719028	27.5652	ug/mL	95
86) Benzo(g,h,i)perylene	22.092	276	3270052	27.4083	ug/mL	95

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

[4-Chloroaniline; 50.00 ug/mL; response=2909144; MI]

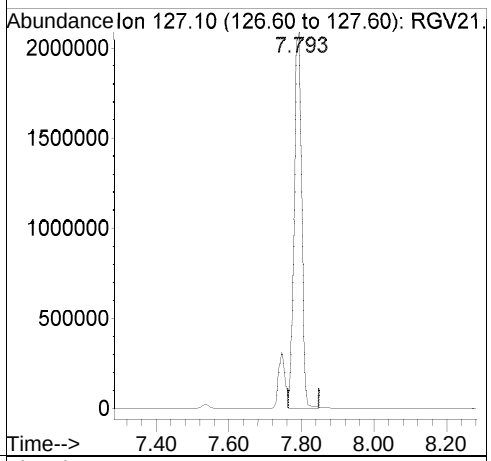
Raw



#30
4-Chloroaniline
Concen: 55.3786 ug/mL m
RT: 7.793 min Scan# 799
Delta R.T. 0.009 min
Lab File: RGV21.D
Acq: 31 Jul 2014 9:47 pm

Tgt Ion:127 Resp: 2909144

Ion	Ratio	Lower	Upper
127	100		
129	32.3	11.0	51.0
65	25.7	3.0	43.0



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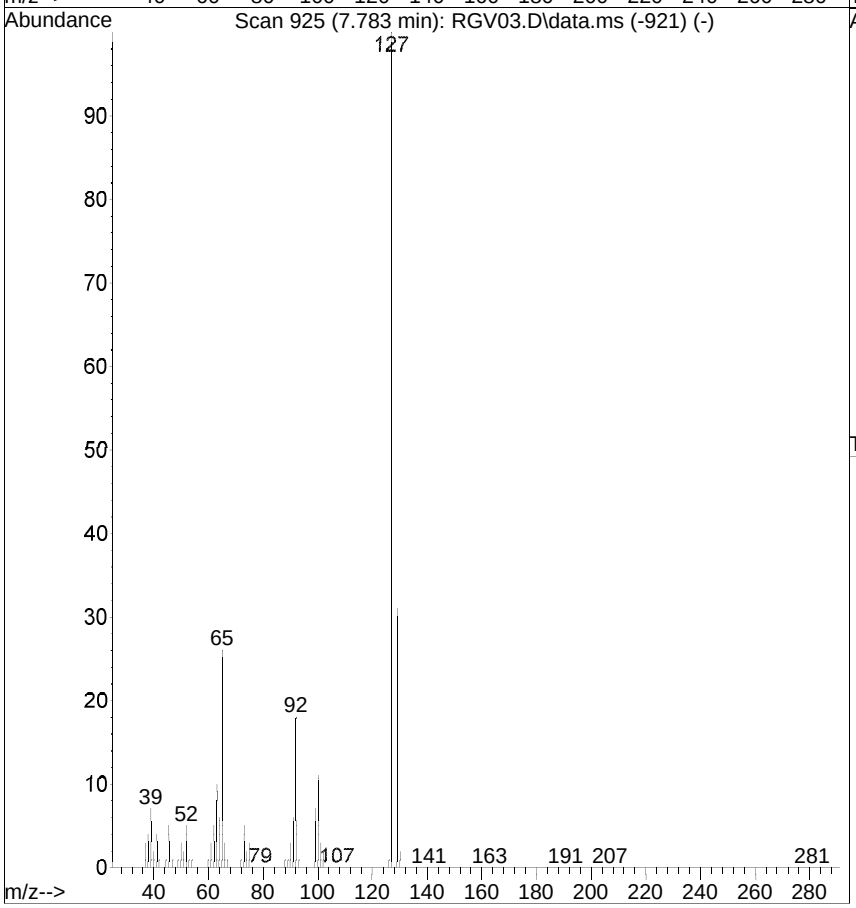
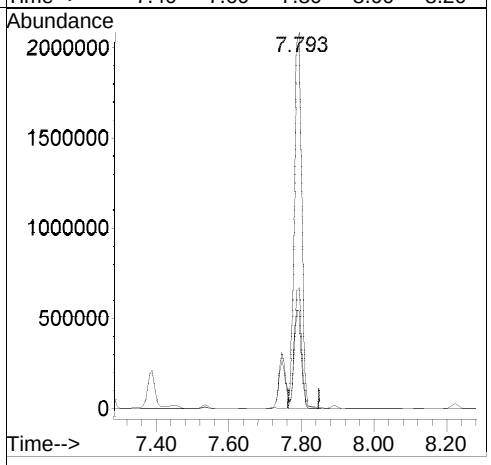
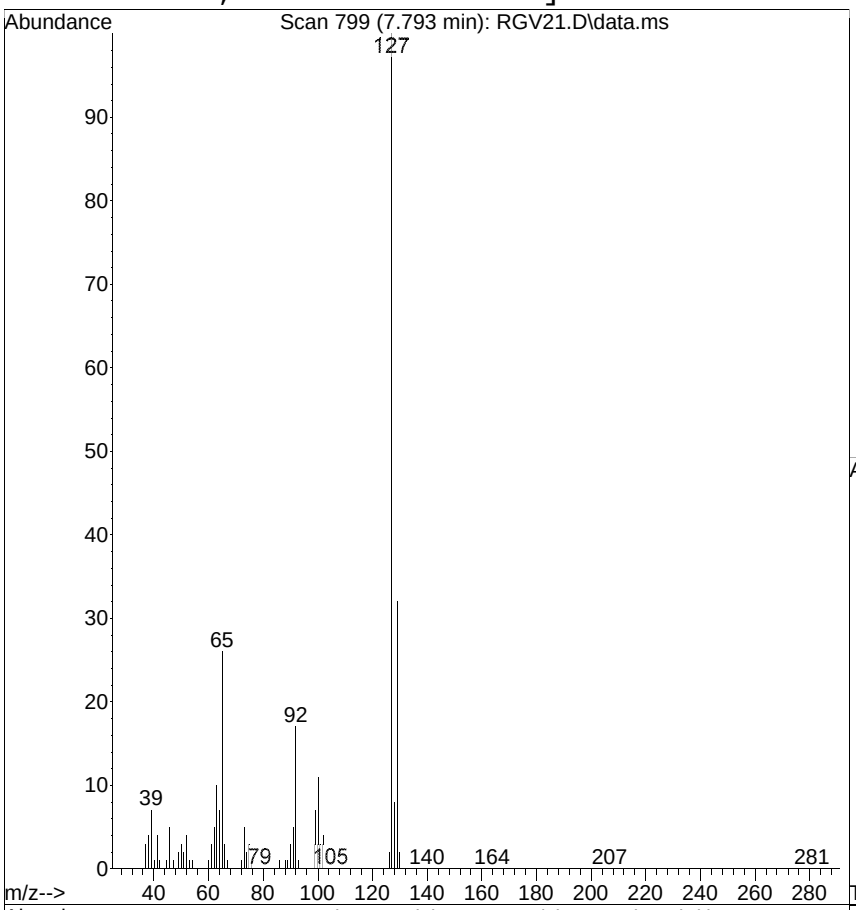




[4-Chloroaniline; before version]

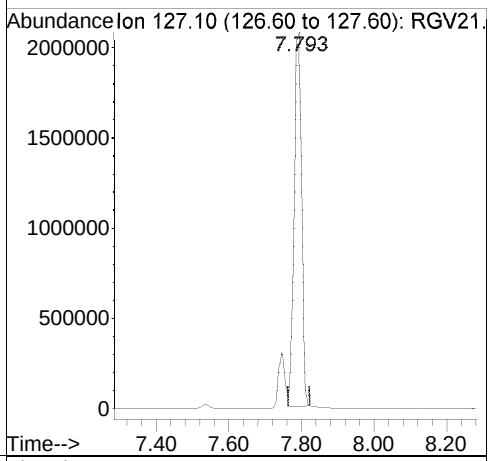
Raw



#30
4-Chloroaniline
Concen: 54.3595 ug/mL
RT: 7.793 min Scan# 799
Delta R.T. 0.009 min
Lab File: RGV21.D
Acq: 31 Jul 2014 9:47 pm

Tgt Ion:127 Resp: 2855612

Ion	Ratio	Lower	Upper
127	100		
129	32.3	11.0	51.0
65	25.7	3.0	43.0



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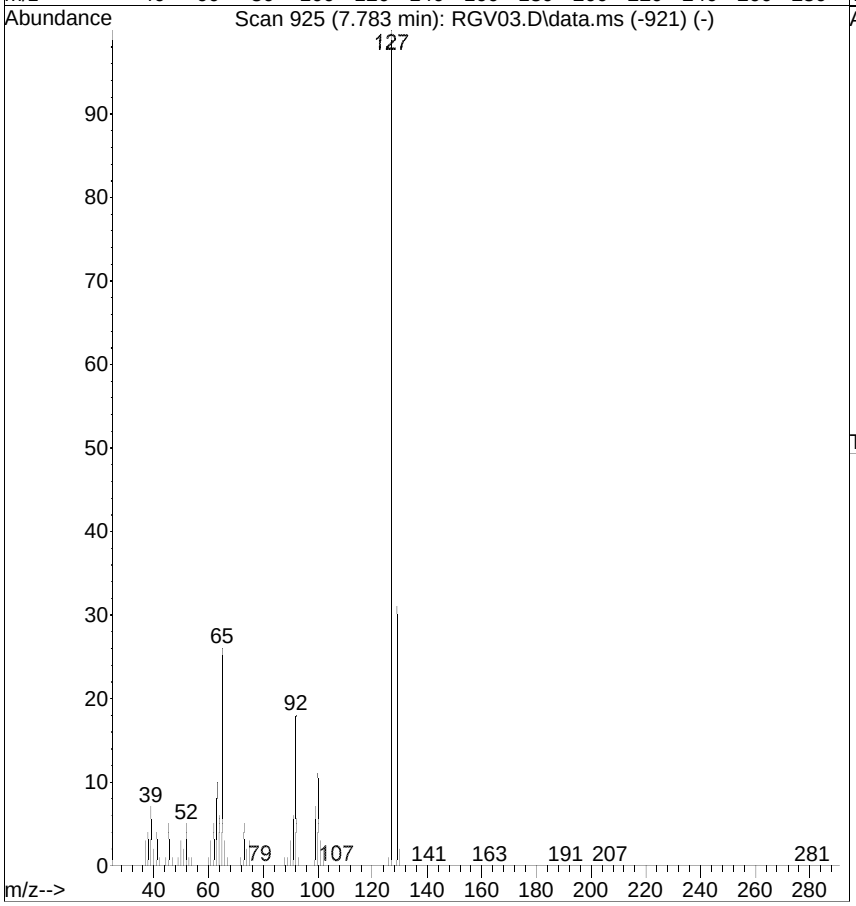
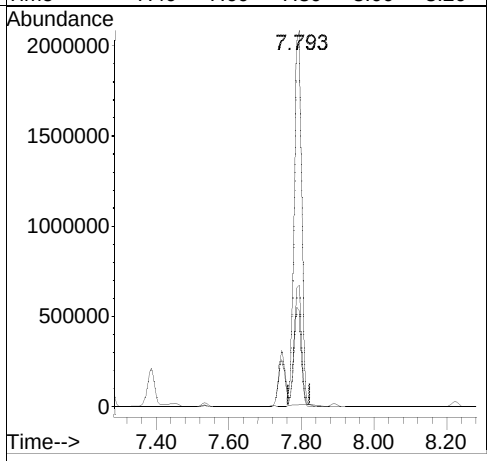
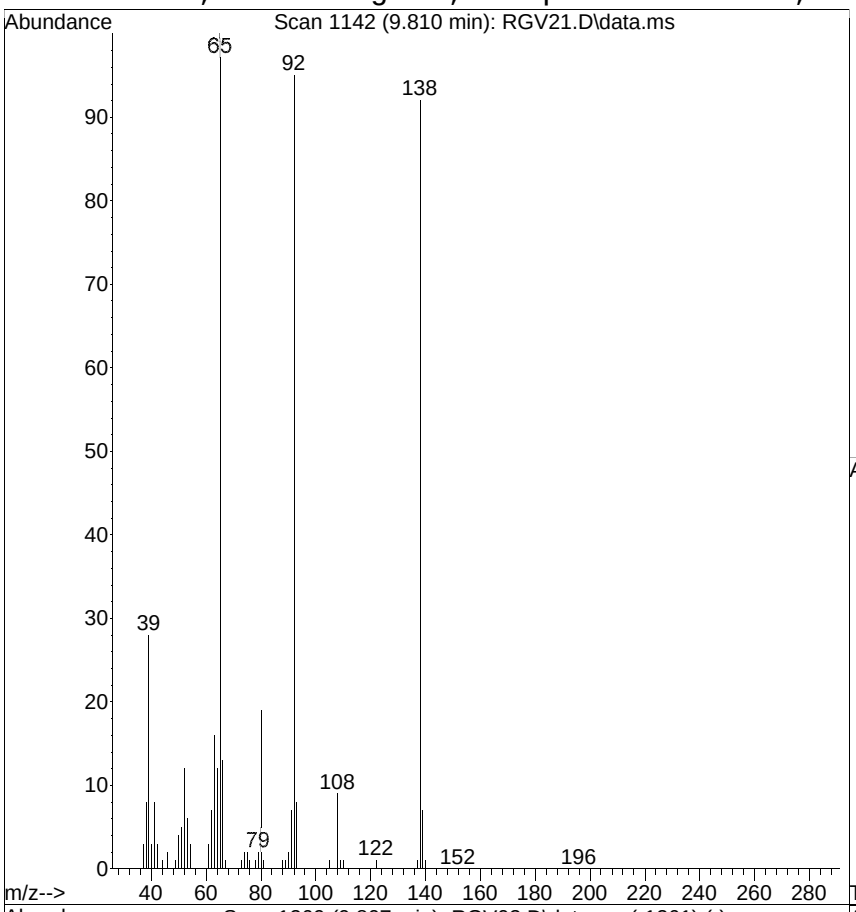




[3-Nitroaniline; 50.00 ug/mL; response=1425302; MI]

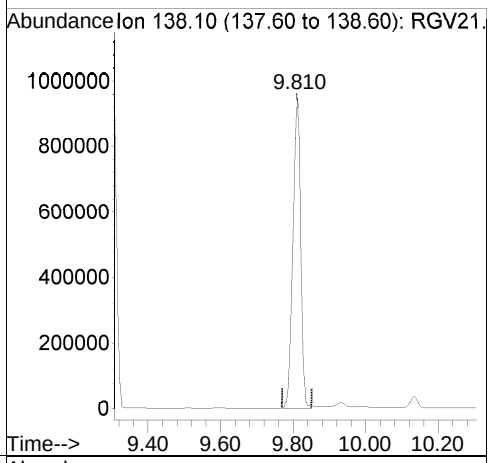
Raw



#46
3-Nitroaniline
Concen: 53.7543 ug/mL m
RT: 9.810 min Scan# 1142
Delta R.T. 0.003 min
Lab File: RGV21.D
Acq: 31 Jul 2014 9:47 pm

Tgt Ion:138 Resp: 1425302

Ion	Ratio	Lower	Upper
138	100		
108	10.1	0.0	35.0
92	102.9	131.0	171.0#



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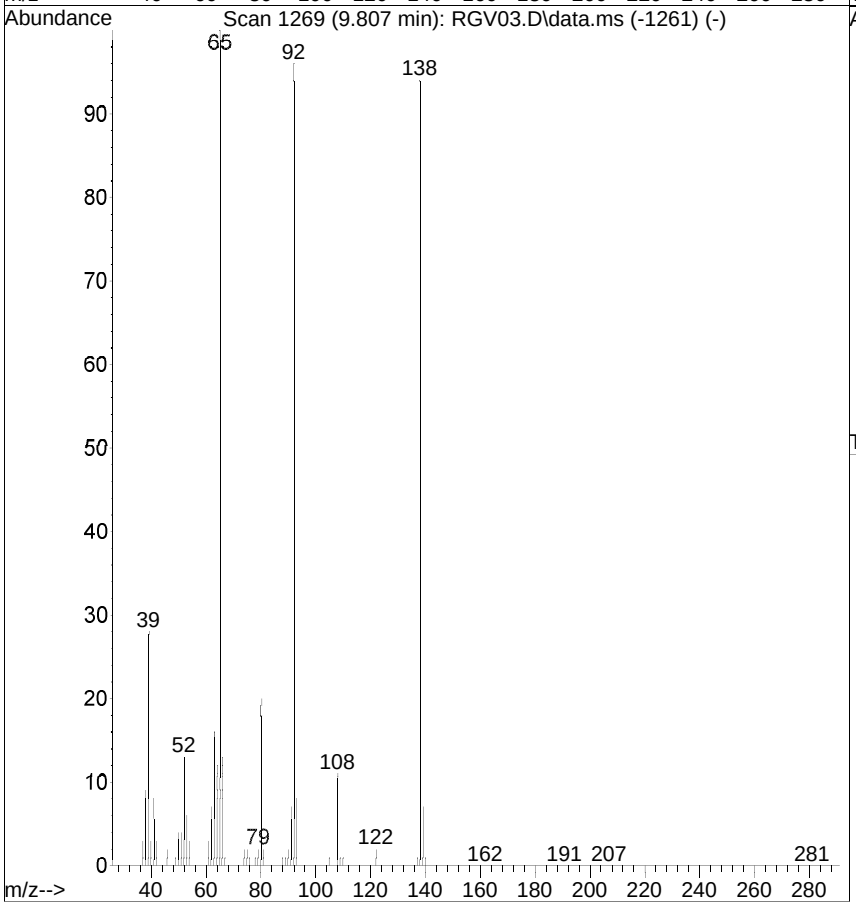
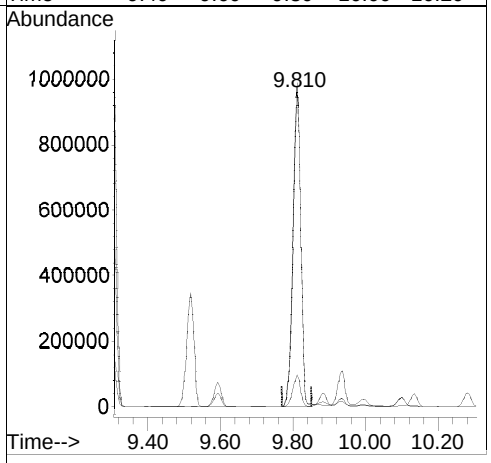
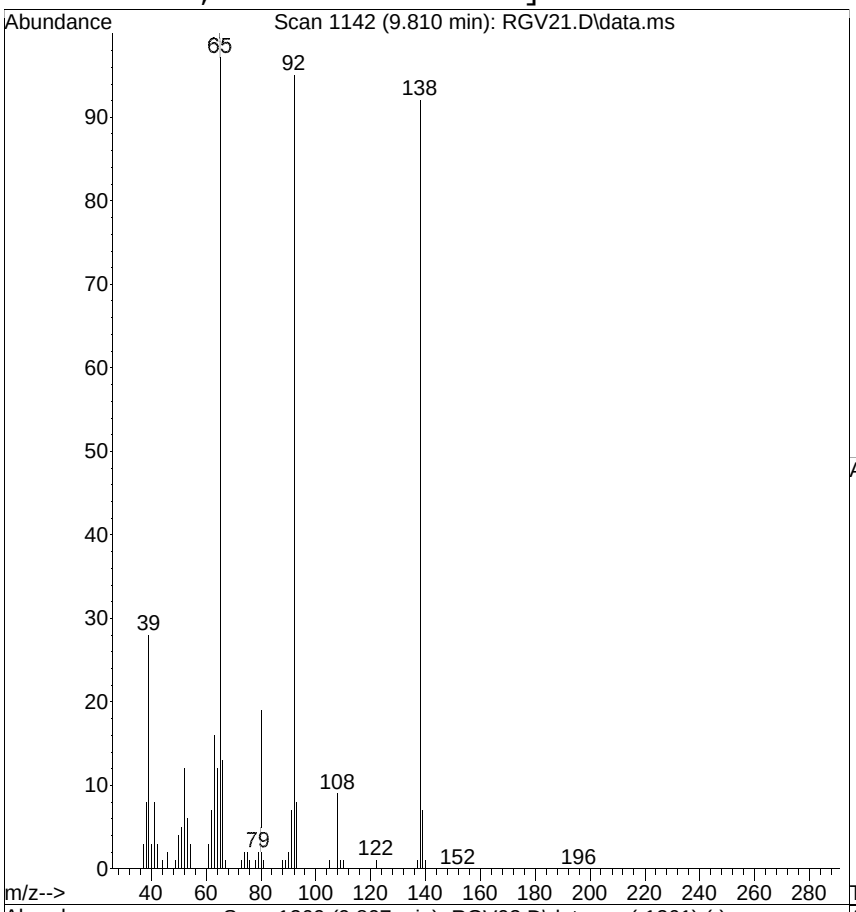




[3-Nitroaniline; before version]

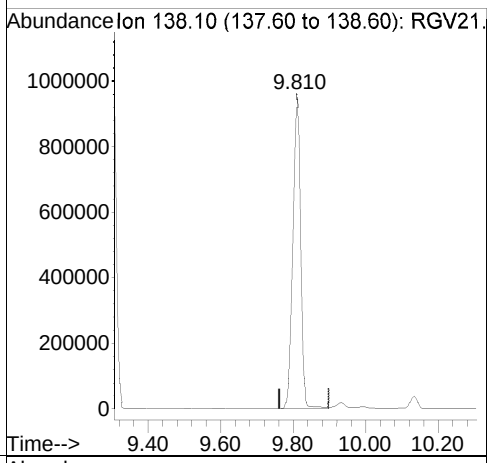
Raw



#46
3-Nitroaniline
Concen: 54.3124 ug/mL
RT: 9.810 min Scan# 1142
Delta R.T. 0.003 min
Lab File: RGV21.D
Acq: 31 Jul 2014 9:47 pm

Tgt Ion:138 Resp: 1440099

Ion	Ratio	Lower	Upper
138	100		
108	10.1	0.0	35.0
92	102.9	131.0	171.0#



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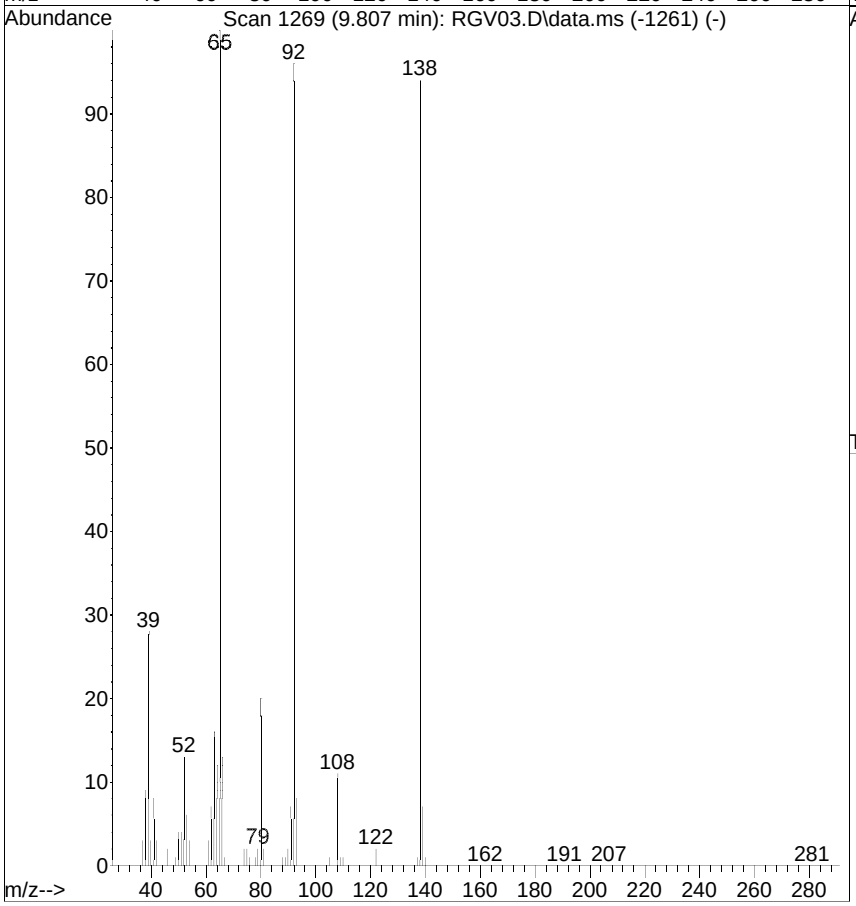
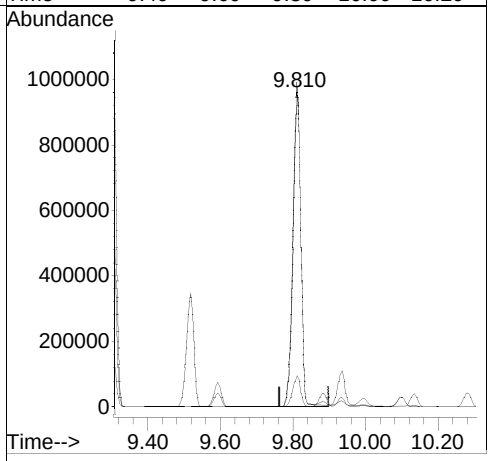
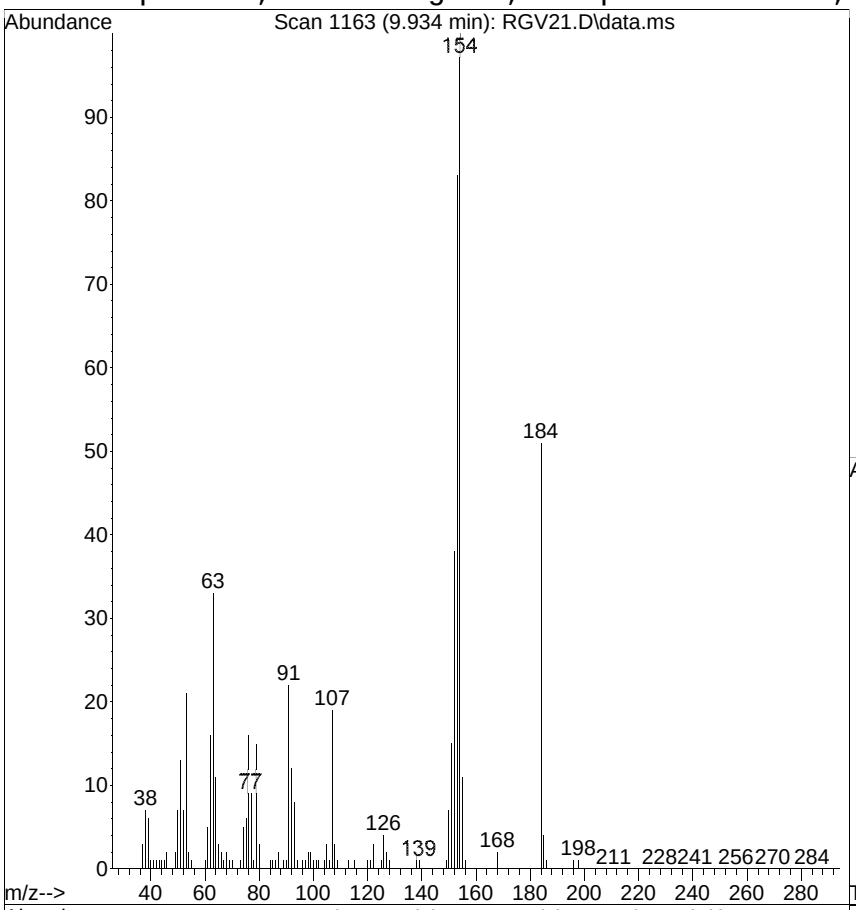




[2,4-Dinitrophenol; 50.00 ug/mL; response=608027; MI]

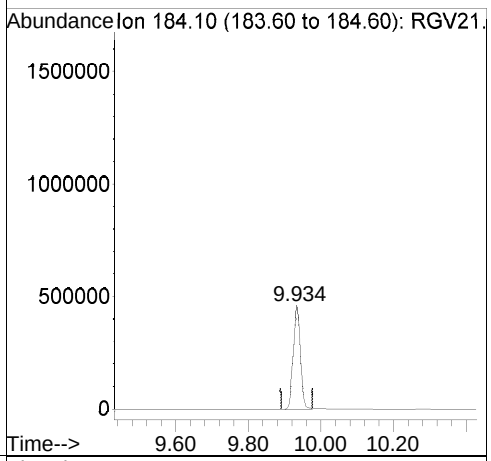
Raw



#48
2,4-Dinitrophenol
Concen: 50.2375 ug/mL m
RT: 9.934 min Scan# 1163
Delta R.T. 0.003 min
Lab File: RGV21.D
Acq: 31 Jul 2014 9:47 pm

Tgt Ion:184 Resp: 608027

Ion	Ratio	Lower	Upper
184	100		
63	65.1	75.0	115.0#
154	196.7	330.0	370.0#



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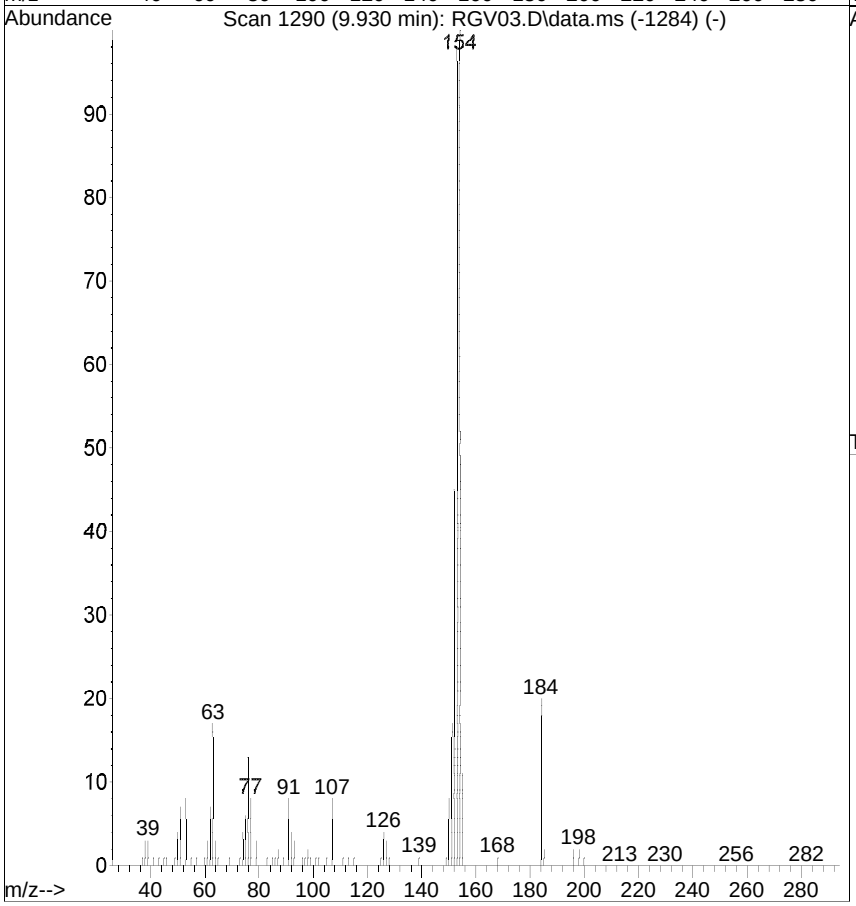
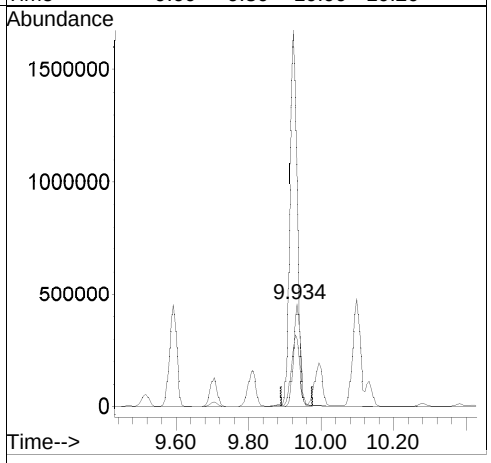
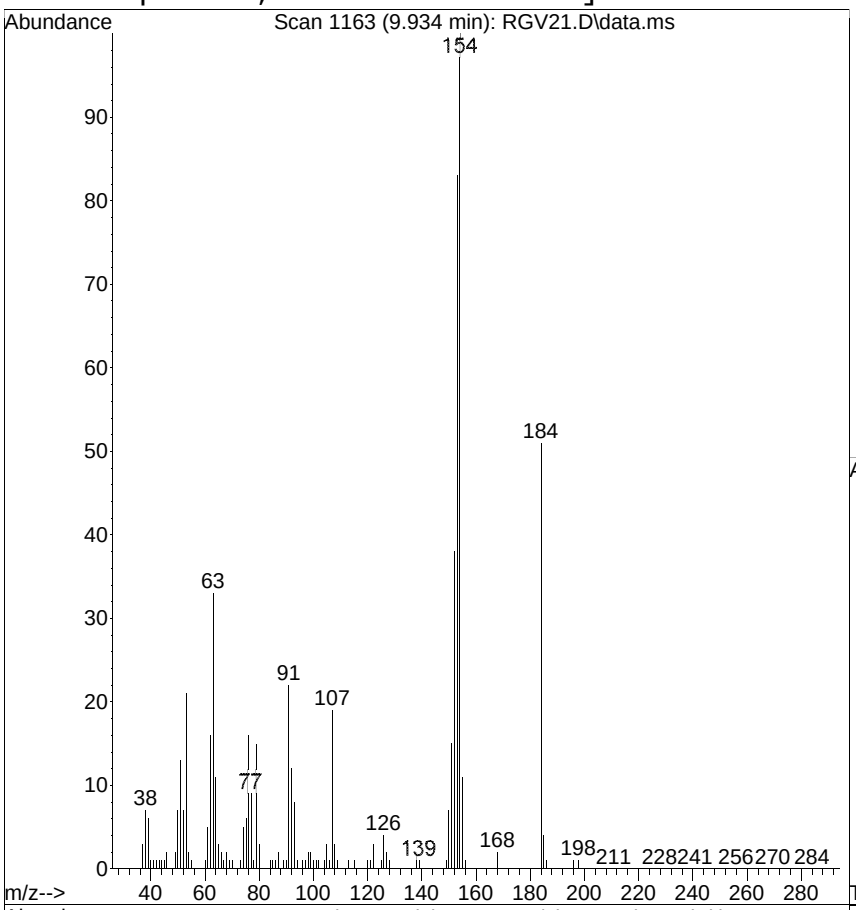




[2,4-Dinitrophenol; before version]

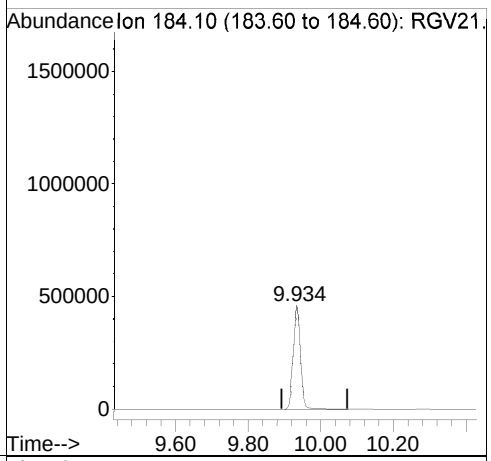
Raw



#48
2,4-Dinitrophenol
Concen: 50.9418 ug/mL
RT: 9.934 min Scan# 1163
Delta R.T. 0.003 min
Lab File: RGV21.D
Acq: 31 Jul 2014 9:47 pm

Tgt Ion:184 Resp: 619151

Ion	Ratio	Lower	Upper
184	100		
63	65.1	75.0	115.0#
154	196.7	330.0	370.0#



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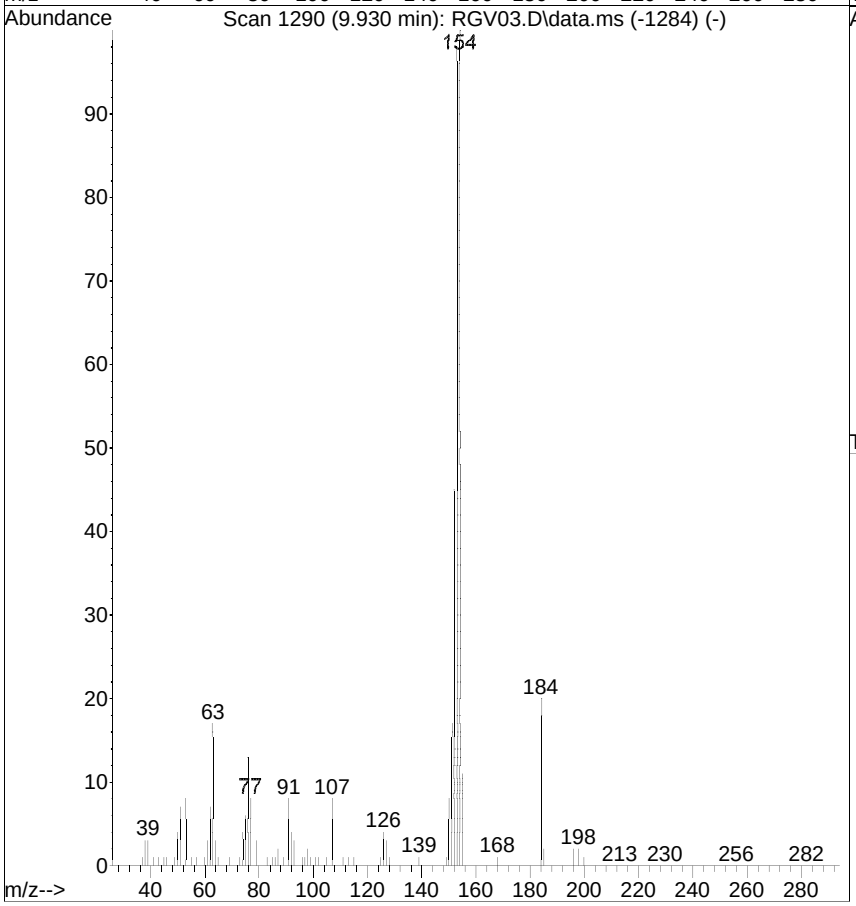
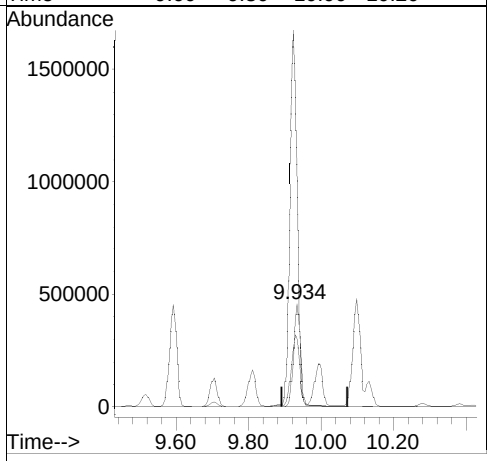
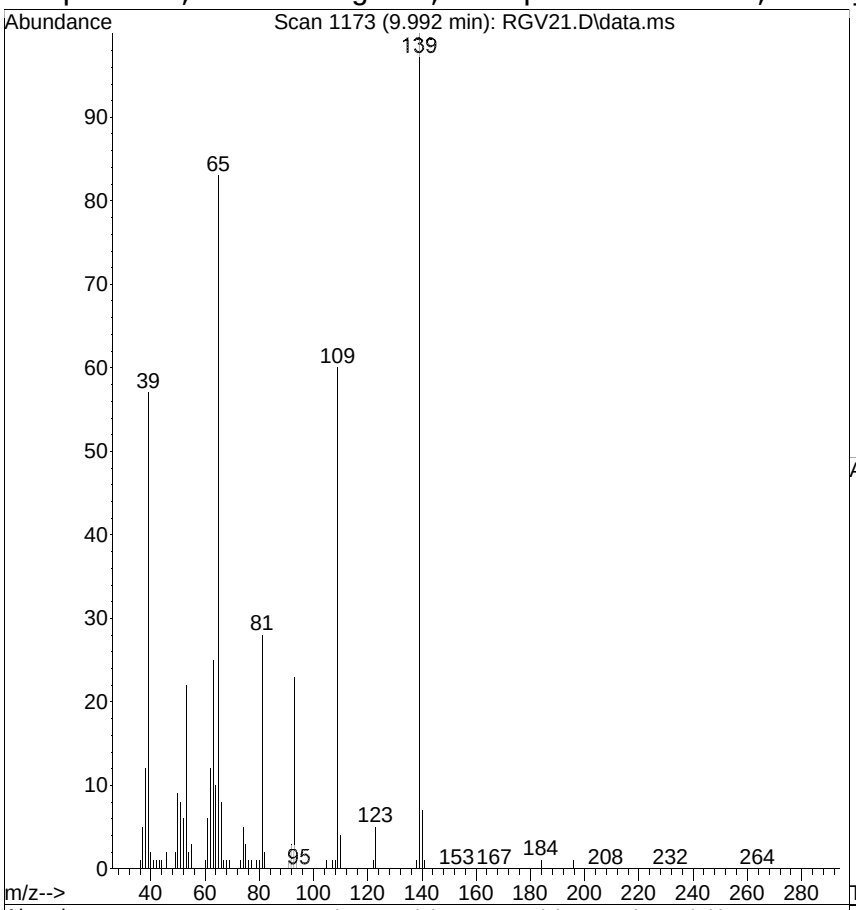




[4-Nitrophenol; 50.00 ug/mL; response=710731; MI]

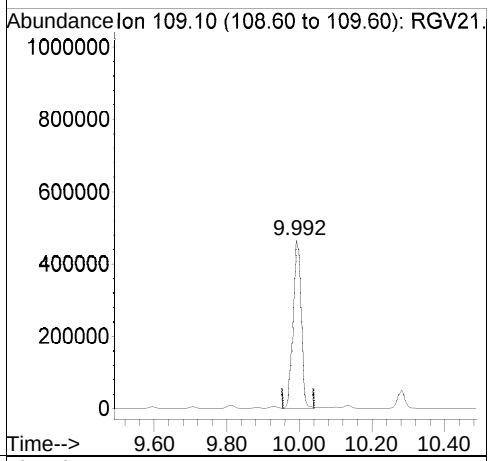
Raw



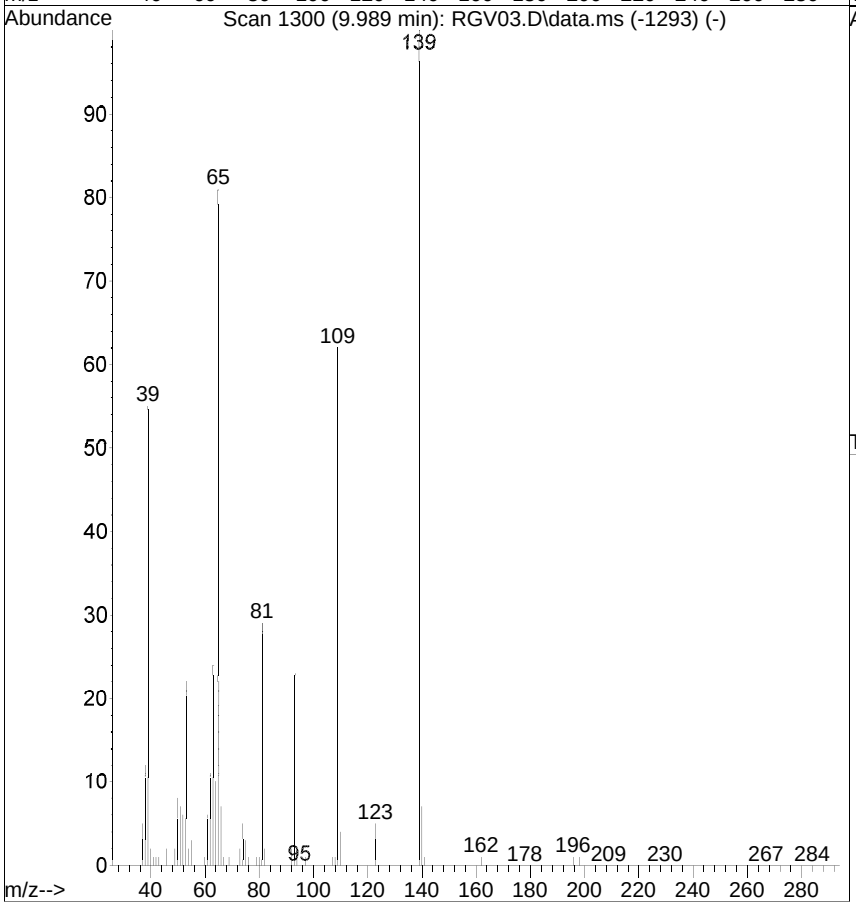
#49
4-Nitrophenol
Concen: 56.8605 ug/mL m
RT: 9.992 min Scan# 1173
Delta R.T. 0.003 min
Lab File: RGV21.D
Acq: 31 Jul 2014 9:47 pm

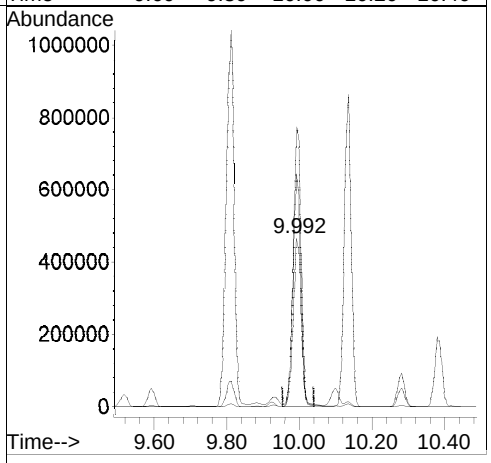
Tgt Ion:109 Resp: 710731

Ion	Ratio	Lower	Upper
109	100		
139	165.7	109.0	149.0#
65	138.2	122.0	162.0



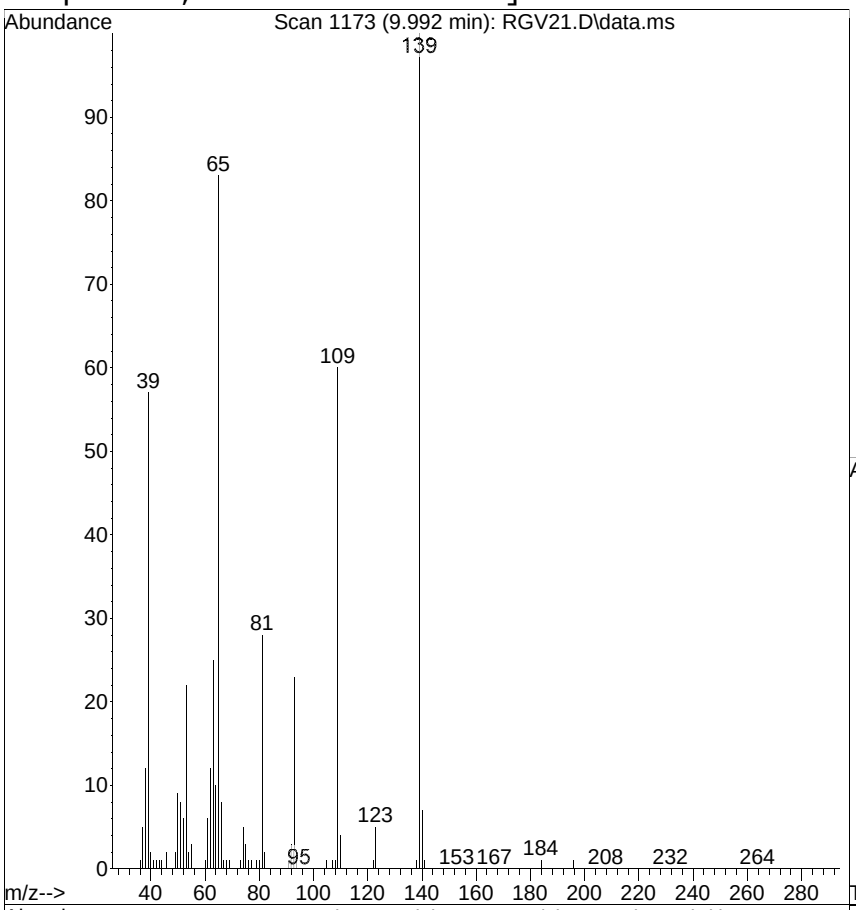
Ref





[4-Nitrophenol; before version]

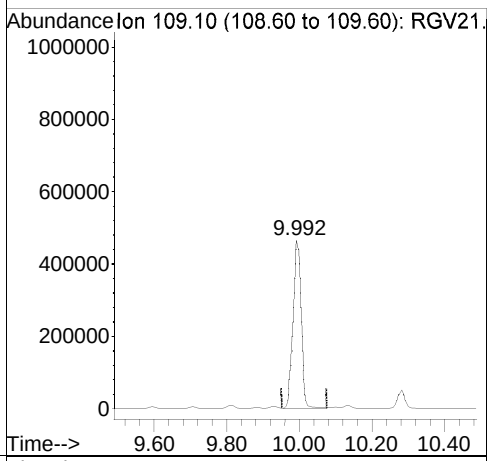
Raw



#49
4-Nitrophenol
Concen: 57.0762 ug/mL
RT: 9.992 min Scan# 1173
Delta R.T. 0.003 min
Lab File: RGV21.D
Acq: 31 Jul 2014 9:47 pm

Tgt Ion:109 Resp: 713427

Ion	Ratio	Lower	Upper
109	100		
139	165.7	109.0	149.0#
65	138.2	122.0	162.0



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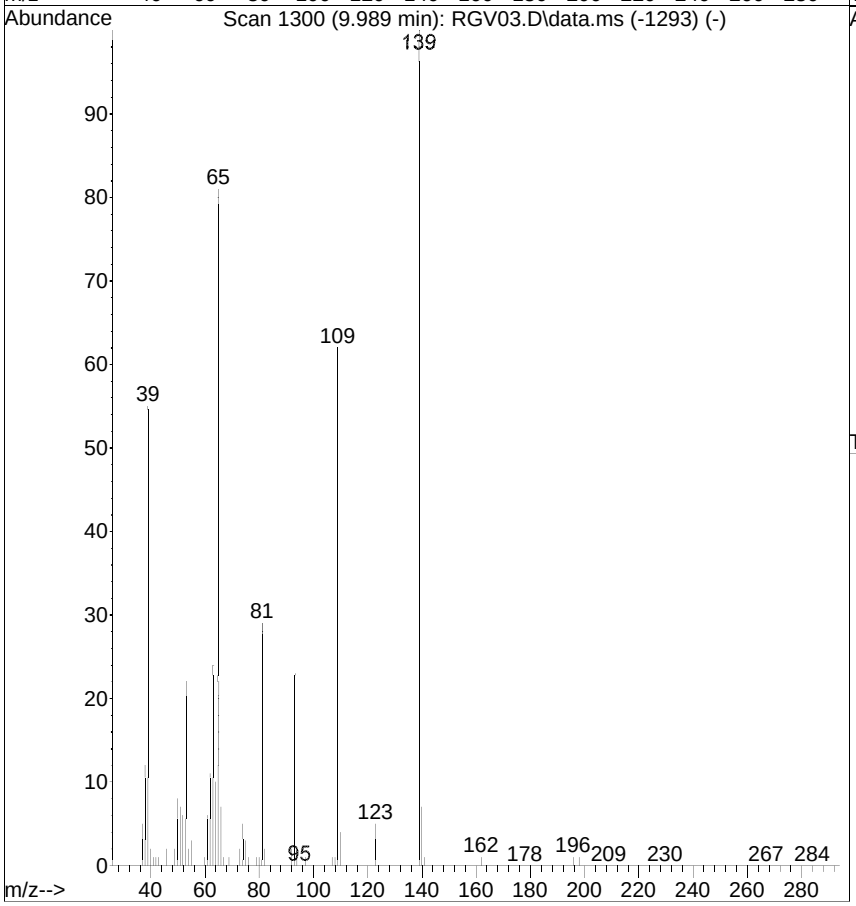
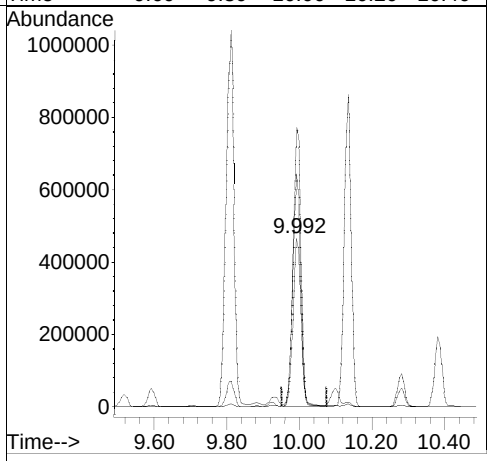
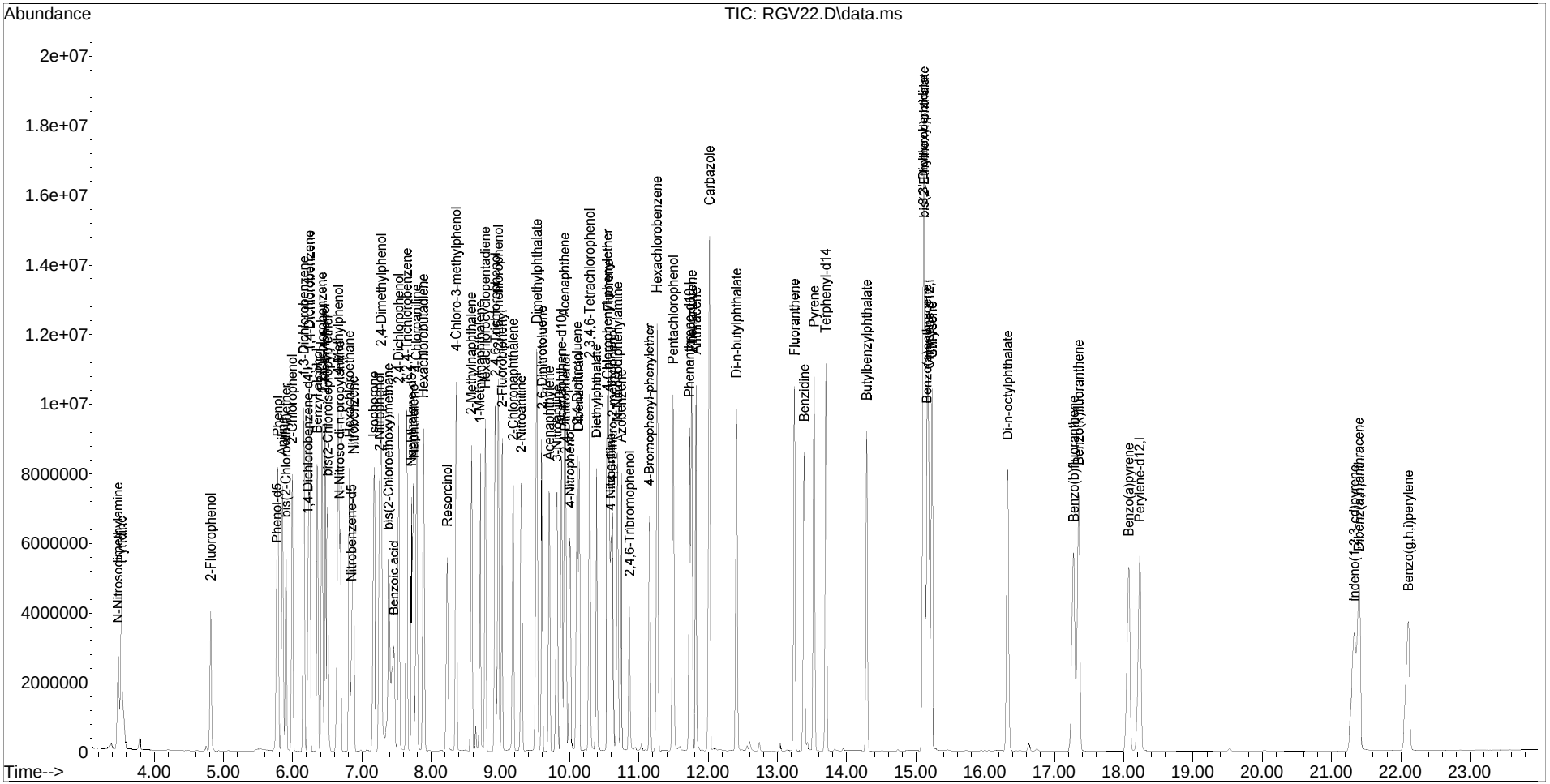




Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV22.D
Acq On : 31 Jul 2014 10:18 pm
Operator :
Sample : ICAL,S24430
Misc : ICAL
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Aug 01 09:37:58 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV22.D
Acq On : 31 Jul 2014 10:18 pm
Operator :
Sample : ICAL,S24430
Misc : ICAL
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Aug 01 09:37:58 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.228	152	1156912	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.722	136	4791752	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.881	164	2976423	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.733	188	5580657	40.0000	ug/mL	0.00
70) Chrysene-d12	15.192	240	6126900	40.0000	ug/mL	0.00
79) Perylene-d12	18.233	264	5536438	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.528	79	3707302	89.0062	ug/mL	90
3) N-Nitrosodimethylamine	3.481	42	1584861	75.2252	ug/mL	# 67
4) 2-Fluorophenol	4.816	112	1737649	47.1288	ug/mL	# 68
5) Phenol-d5	5.775	99	2006328	43.2103	ug/mL	75
6) Phenol	5.793	94	3986440	80.3908	ug/mL	86
7) Aniline	5.857	93	4813945m	81.9872	ug/mL	
8) bis(2-Chloroethyl)ether	5.904	93	2960356	77.3755	ug/mL	94
9) 2-Chlorophenol	5.993	128	3395280	79.3913	ug/mL	90
10) 1,3-Dichlorobenzene	6.169	146	3543192	77.6281	ug/mL	95
11) 1,4-Dichlorobenzene	6.246	146	3570192	76.1461	ug/mL	91
12) Benzyl alcohol	6.363	108	2394675	91.1437	ug/mL	# 85
13) 1,2-Dichlorobenzene	6.428	146	3334222	76.9934	ug/mL	96
14) 2-Methylphenol	6.475	107	2619953	81.4383	ug/mL	95
15) bis(2-Chloroisopropyl) ether	6.510	45	4104702	70.9275	ug/mL	98
16) 4-Methylphenol	6.657	107	4167963	86.0780	ug/mL	94
17) N-Nitroso-di-n-propylamine	6.681	70	2412151	85.4547	ug/mL	83
18) Hexachloroethane	6.822	117	1422561	82.3472	ug/mL	92
20) Nitrobenzene-d5	6.857	82	1873099	44.7884	ug/mL	# 70
21) Nitrobenzene	6.881	77	3429806	80.6243	ug/mL	82
22) Isophorone	7.175	82	6934059	83.3520	ug/mL	92
23) 2-Nitrophenol	7.257	139	2028911	85.5514	ug/mL	78
24) 2,4-Dimethylphenol	7.281	107	3533487	84.0808	ug/mL	86
25) bis(2-Chloroethoxy)methane	7.387	93	2195048	44.9817	ug/mL	98
26) Benzoic acid	7.469	105	3973690	130.7423	ug/mL	91
27) 2,4-Dichlorophenol	7.540	162	3016106	87.4485	ug/mL	98
28) 1,2,4-Trichlorobenzene	7.651	180	2858831	81.1473	ug/mL	96
29) Naphthalene	7.751	128	5156197	40.8771	ug/mL	98
30) 4-Chloroaniline	7.793	127	4615010m	84.9812	ug/mL	
31) Hexachlorobutadiene	7.893	225	1554573	85.0537	ug/mL	98
32) Resorcinol	8.234	110	3340234	88.2642	ug/mL	90
33) 4-Chloro-3-methylphenol	8.363	107	3267959	81.8241	ug/mL	95
34) 2-Methylnaphthalene	8.587	142	3690640	42.5186	ug/mL	93
35) 1-Methylnaphthalene	8.710	142	3463048	42.4529	ug/mL	93
37) Hexachlorocyclopentadiene	8.787	237	2327831	96.0119	ug/mL	98
38) 2,4,6-Trichlorophenol	8.928	196	2292064	84.7730	ug/mL	94

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV22.D
Acq On : 31 Jul 2014 10:18 pm
Operator :
Sample : ICAL,S24430
Misc : ICAL
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Aug 01 09:37:58 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.969	196	2440917	85.0149	ug/mL	90
40) 2-Fluorobiphenyl	9.028	172	4194161	43.2651	ug/mL	98
41) 2-Chloronaphthalene	9.187	162	3562548	42.7545	ug/mL	94
42) 2-Nitroaniline	9.304	65	2132281	75.5426	ug/mL #	77
43) Dimethylphthalate	9.528	163	8389258	80.6226	ug/mL	99
44) 2,6-Dinitrotoluene	9.598	165	2132214	87.8309	ug/mL #	73
45) Acenaphthylene	9.704	152	5035557	41.2402	ug/mL	99
46) 3-Nitroaniline	9.822	138	2387949	90.4459	ug/mL #	63
47) Acenaphthene	9.928	154	3780610	41.2552	ug/mL	94
48) 2,4-Dinitrophenol	9.939	184	1160569m	85.5321	ug/mL	
49) 4-Nitrophenol	10.004	109	1180598	94.8559	ug/mL #	82
50) Dibenzofuran	10.134	168	5202642	42.0537	ug/mL	79
51) 2,4-Dinitrotoluene	10.110	165	2950834	89.3792	ug/mL #	76
52) 2,3,4,6-Tetrachlorophenol	10.287	232	2102626	89.0091	ug/mL	89
53) Diethylphthalate	10.386	149	4665754	42.6363	ug/mL	97
54) 4-Chlorophenyl-phenylether	10.545	204	2203223	45.0600	ug/mL #	78
55) Fluorene	10.563	166	4266677	40.6653	ug/mL	88
56) 4-Nitroaniline	10.592	138	2449357	93.4606	ug/mL #	19
57) 2,4,6-Tribromophenol	10.863	330	733190	52.3298	ug/mL #	79
59) 4,6-Dinitro-2-methylphenol	10.622	198	1747217	92.7744	ug/mL #	76
60) N-Nitrosodiphenylamine	10.692	169	3337199	41.0476	ug/mL	89
61) Azobenzene	10.745	77	4406431	38.7575	ug/mL	92
62) 4-Bromophenyl-phenylether	11.157	248	1393615	46.4723	ug/mL #	83
63) Hexachlorobenzene	11.263	284	2910673	90.0525	ug/mL	93
64) Pentachlorophenol	11.492	266	1985086	93.4216	ug/mL	98
65) Phenanthrene	11.769	178	6311058	39.6355	ug/mL	97
66) Anthracene	11.828	178	6220497	39.8957	ug/mL	96
67) Carbazole	12.022	167	10717932	78.7504	ug/mL	87
68) Di-n-butylphthalate	12.410	149	7851661	39.7790	ug/mL	97
69) Fluoranthene	13.251	202	6771506	41.6699	ug/mL	97
71) Benzidine	13.392	184	5533731	78.6180	ug/mL	90
72) Pyrene	13.539	202	7232023	36.1100	ug/mL	93
73) Terphenyl-d14	13.698	244	5685433	40.8733	ug/mL	97
74) Butylbenzylphthalate	14.292	149	3500757	35.9153	ug/mL	97
75) 3,3'-Dichlorobenzidine	15.110	252	5309750	86.0713	ug/mL	99
76) Benzo(a)anthracene	15.163	228	6975222	41.8647	ug/mL	97
77) bis(2-Ethylhexyl)phthalate	15.121	149	4653504	33.7238	ug/mL	94
78) Chrysene	15.233	228	6625345	42.0430	ug/mL	95
80) Di-n-octylphthalate	16.327	149	8695282	34.0242	ug/mL	99
81) Benzo(b)fluoranthene	17.286	252	6783516	43.0746	ug/mL	96
82) Benzo(k)fluoranthene	17.351	252	6585617	41.2443	ug/mL	94
83) Benzo(a)pyrene	18.080	252	5764070	43.5630	ug/mL	95
84) Indeno(1,2,3-cd)pyrene	21.339	276	6681930	44.7059	ug/mL	90

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV22.D
Acq On : 31 Jul 2014 10:18 pm
Operator :
Sample : ICAL,S24430
Misc : ICAL
ALS Vial : 22 Sample Multiplier: 1

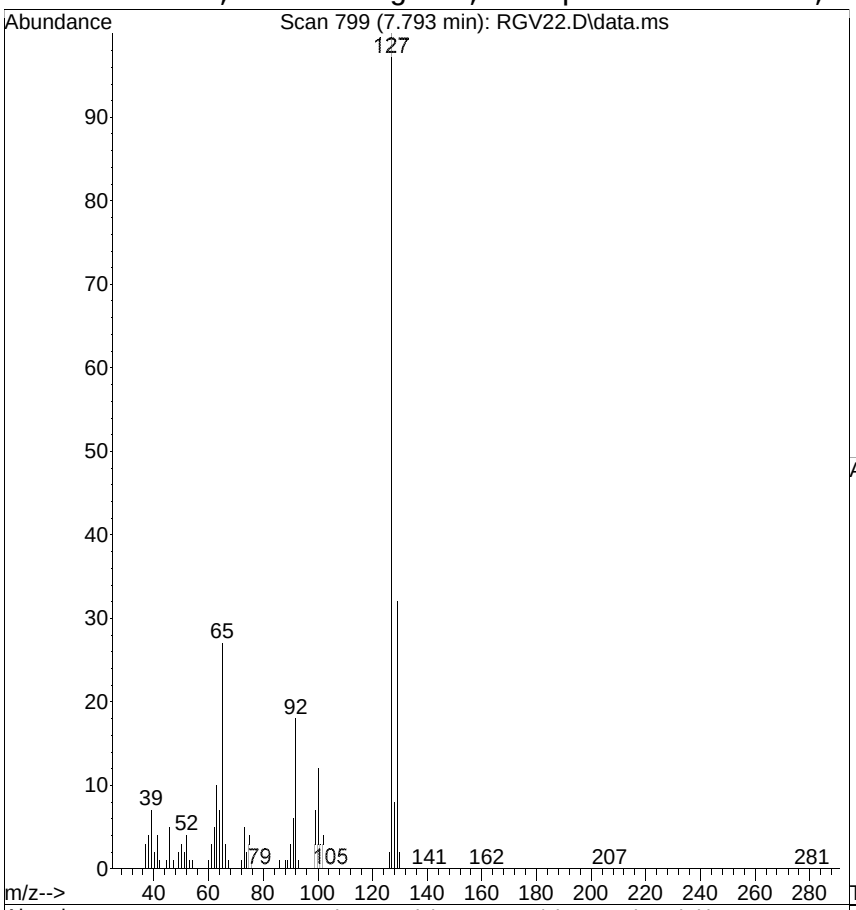
Quant Time: Aug 01 09:37:58 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.403	278	6048719	45.7246	ug/mL	95
86) Benzo(g,h,i)perylene	22.115	276	5330484	45.5668	ug/mL	96

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

[4-Chloroaniline; 80.00 ug/mL; response=4615010; MI]

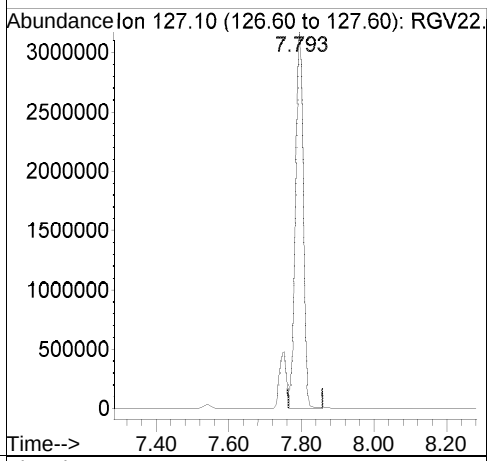
Raw



#30
4-Chloroaniline
Concen: 84.9812 ug/mL m
RT: 7.793 min Scan# 799
Delta R.T. 0.009 min
Lab File: RGV22.D
Acq: 31 Jul 2014 10:18 pm

Tgt Ion:127 Resp: 4615010

Ion	Ratio	Lower	Upper
127	100		
129	31.9	11.0	51.0
65	26.7	3.0	43.0



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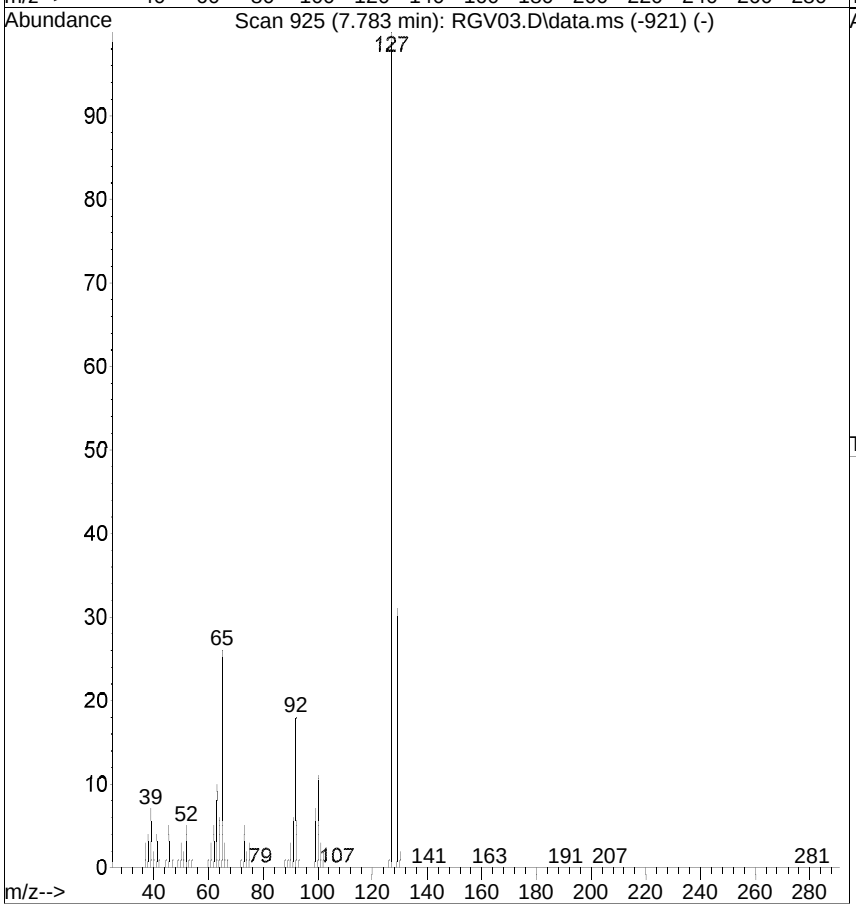
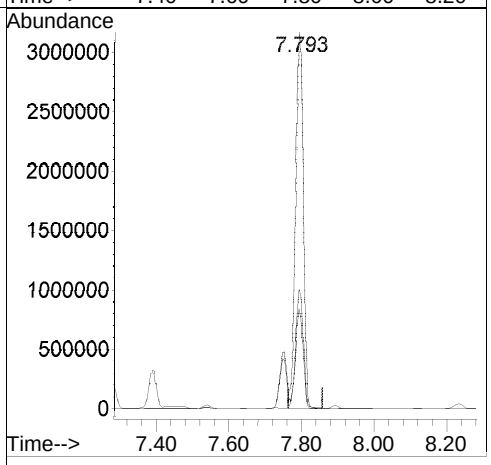
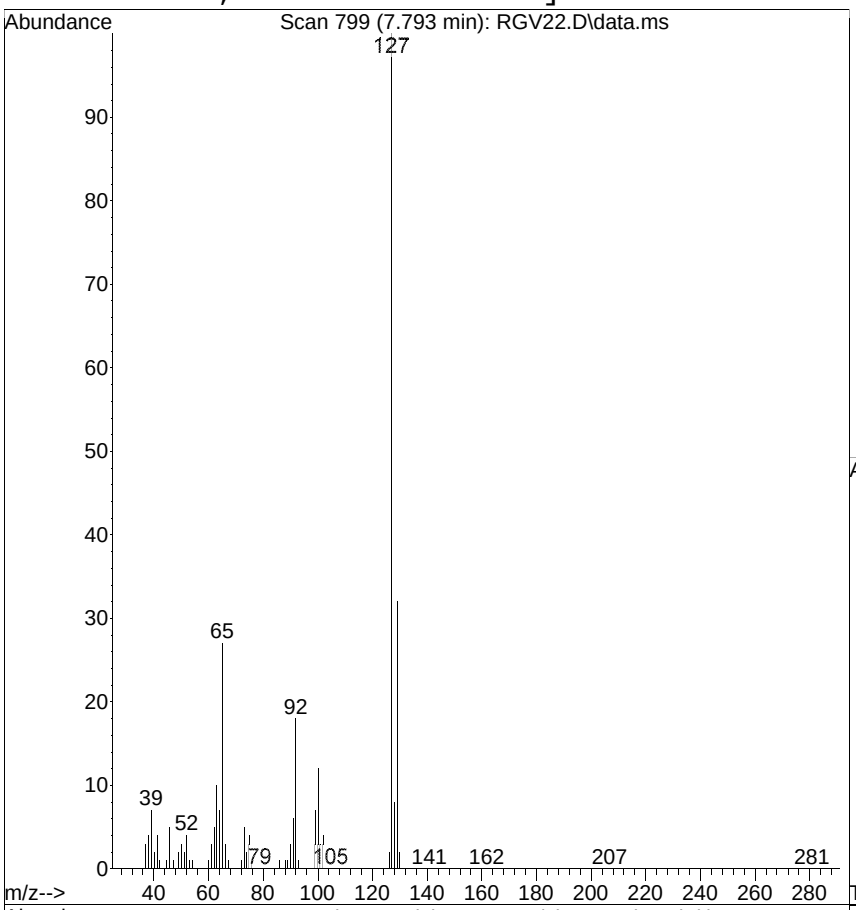




[4-Chloroaniline; before version]

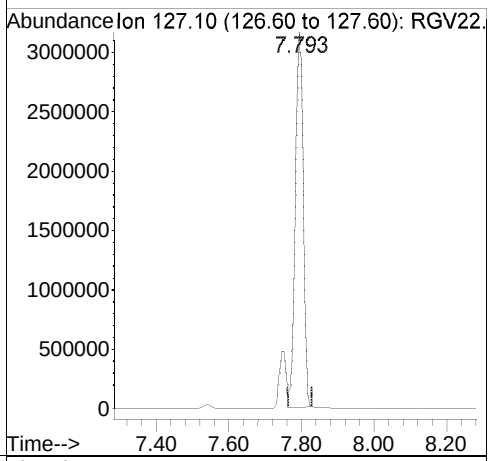
Raw



#30
4-Chloroaniline
Concen: 84.0169 ug/mL
RT: 7.793 min Scan# 799
Delta R.T. 0.009 min
Lab File: RGV22.D
Acq: 31 Jul 2014 10:18 pm

Tgt Ion:127 Resp: 4562645

Ion	Ratio	Lower	Upper
127	100		
129	31.9	11.0	51.0
65	26.7	3.0	43.0



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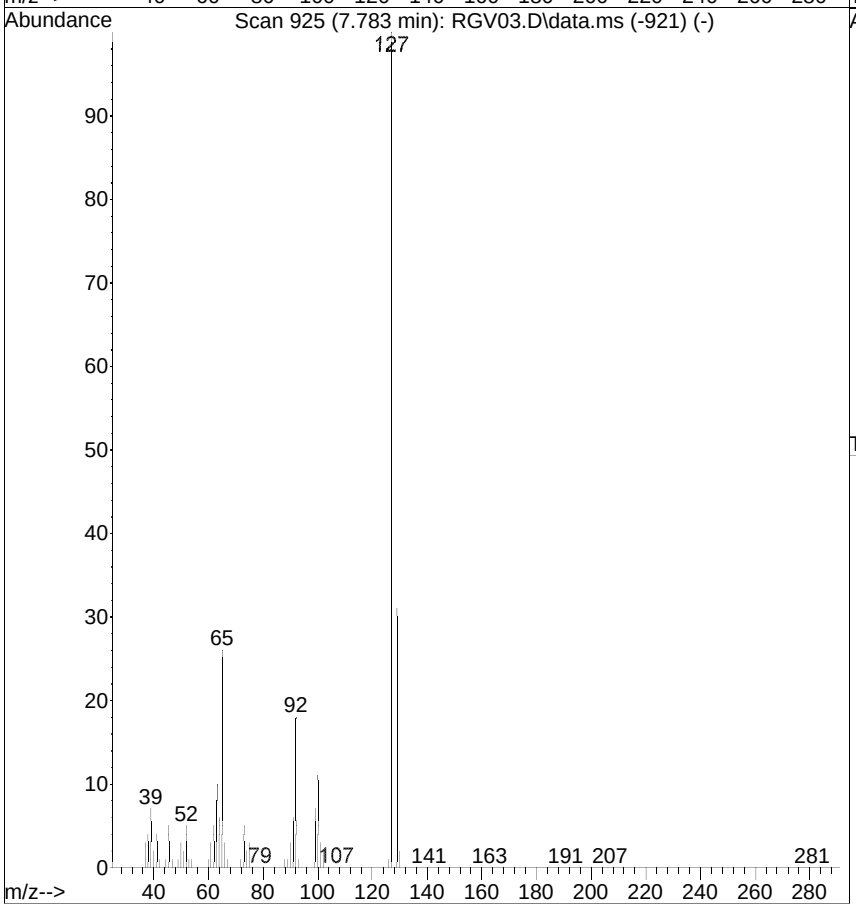
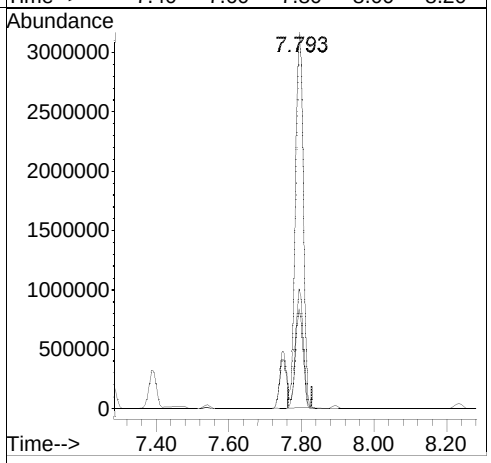
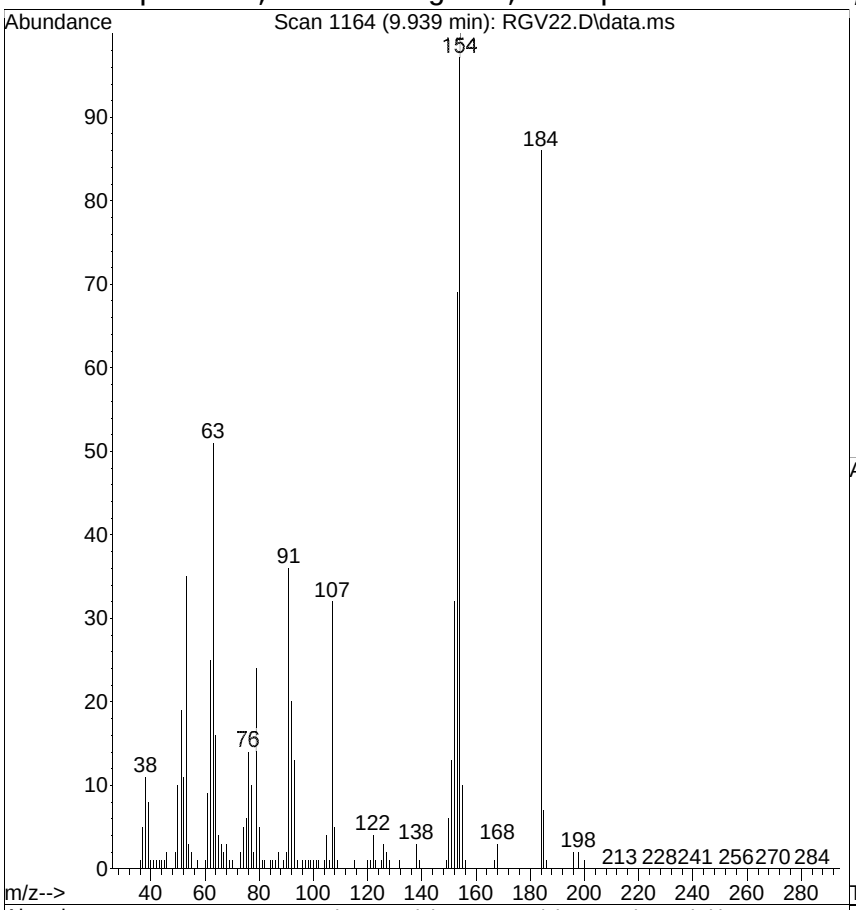




[2,4-Dinitrophenol; 80.00 ug/mL; response=1160569; MI]

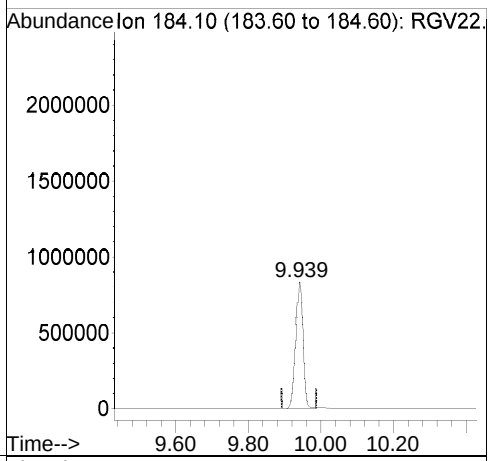
Raw



#48
2,4-Dinitrophenol
Concen: 85.5321 ug/mL m
RT: 9.939 min Scan# 1164
Delta R.T. 0.009 min
Lab File: RGV22.D
Acq: 31 Jul 2014 10:18 pm

Tgt Ion:184 Resp: 1160569

Ion	Ratio	Lower	Upper
184	100		
63	59.1	75.0	115.0#
154	116.6	330.0	370.0#



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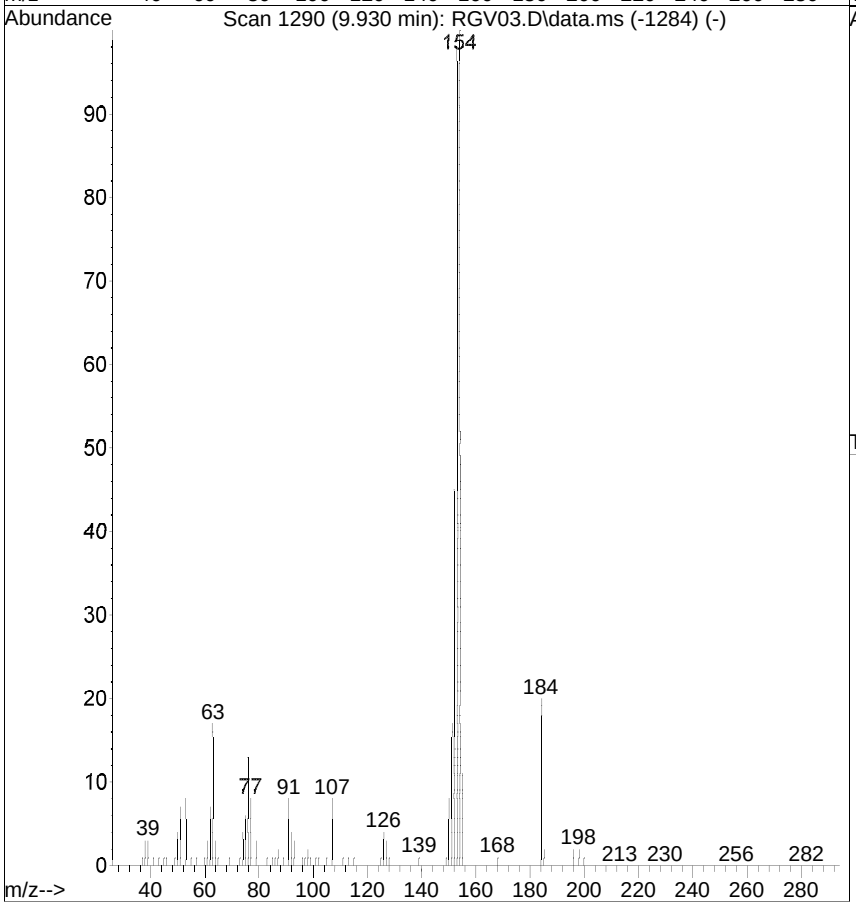
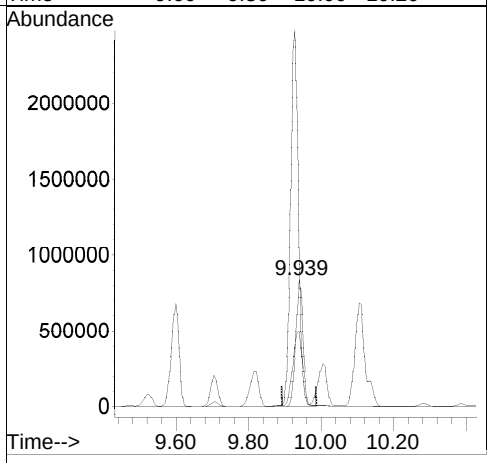
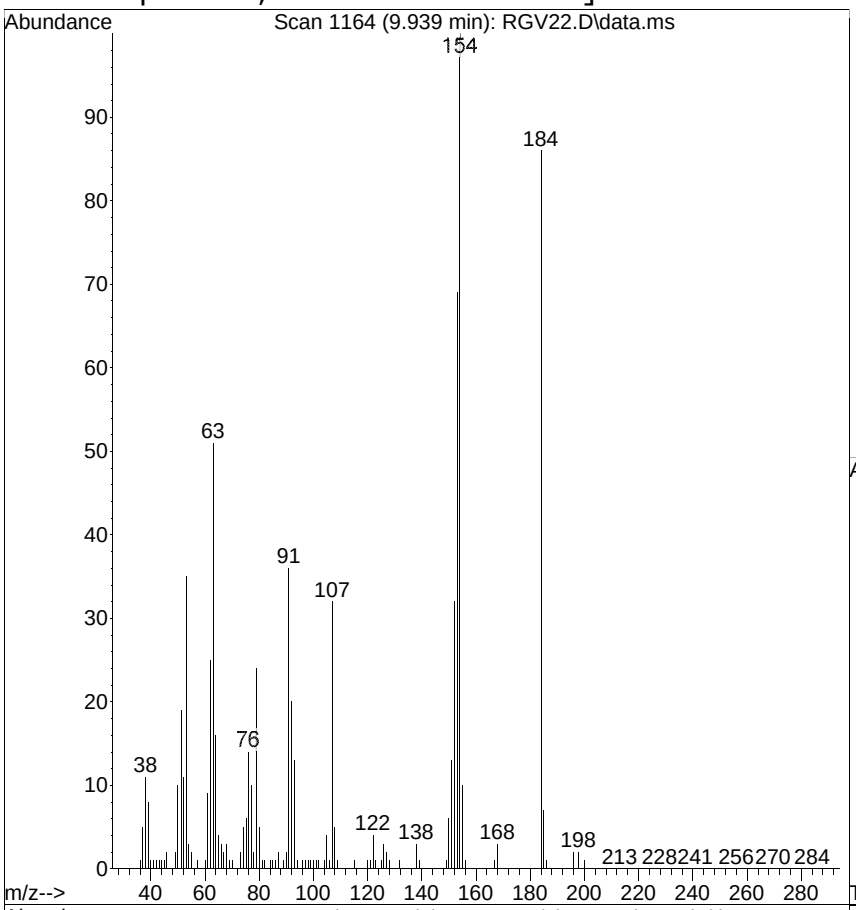




[2,4-Dinitrophenol; before version]

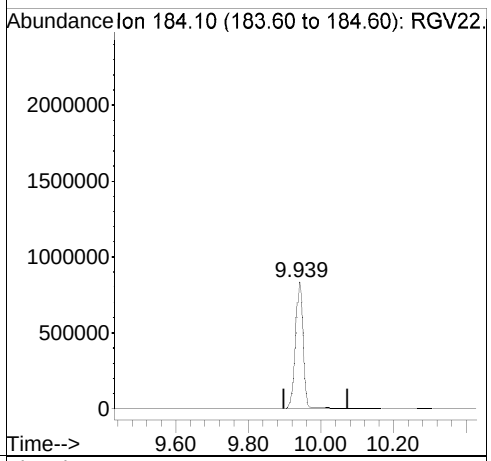
Raw



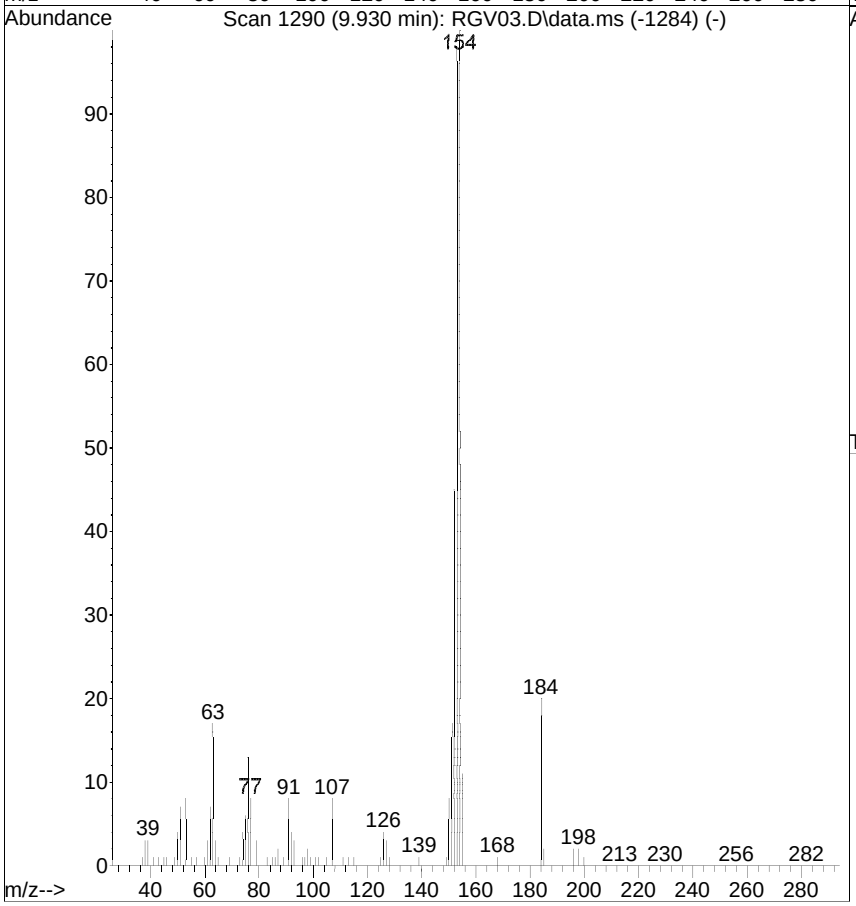
#48
2,4-Dinitrophenol
Concen: 86.5654 ug/mL
RT: 9.939 min Scan# 1164
Delta R.T. 0.009 min
Lab File: RGV22.D
Acq: 31 Jul 2014 10:18 pm

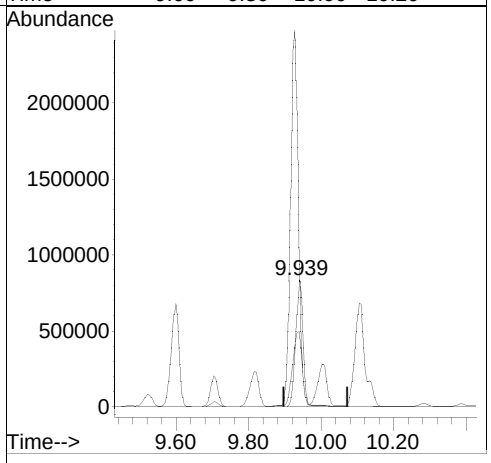
Tgt Ion:184 Resp: 1176821

Ion	Ratio	Lower	Upper
184	100		
63	59.1	75.0	115.0#
154	116.6	330.0	370.0#



Ref

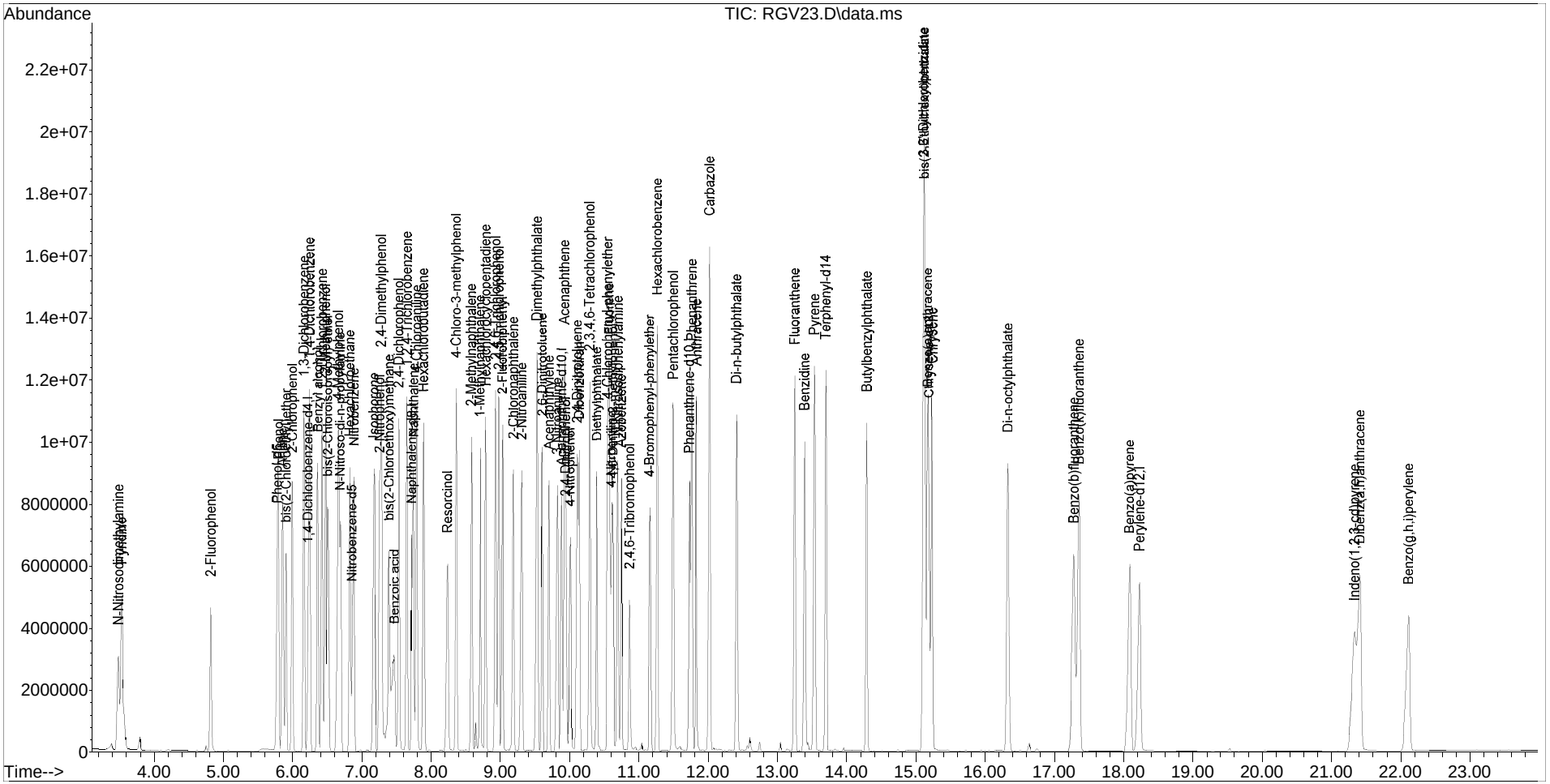




Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV23.D
Acq On : 31 Jul 2014 10:48 pm
Operator :
Sample : ICAL,S24431
Misc : ICAL
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Aug 01 09:39:49 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV23.D
Acq On : 31 Jul 2014 10:48 pm
Operator :
Sample : ICAL,S24431
Misc : ICAL
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Aug 01 09:39:49 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.228	152	1087158	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.722	136	4645182	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.887	164	2860588	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.733	188	5294068	40.0000	ug/mL	0.00
70) Chrysene-d12	15.192	240	5814377	40.0000	ug/mL	0.00
79) Perylene-d12	18.233	264	5183606	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.528	79	4337599	110.8203	ug/mL	90
3) N-Nitrosodimethylamine	3.487	42	1853268	93.6091	ug/mL	# 65
4) 2-Fluorophenol	4.816	112	2024951	58.4448	ug/mL	# 68
5) Phenol-d5	5.781	99	2366000	54.2260	ug/mL	74
6) Phenol	5.799	94	4688911	100.6238	ug/mL	87
7) Aniline	5.857	93	5704974m	103.3966	ug/mL	
8) bis(2-Chloroethyl)ether	5.910	93	3348894	93.1469	ug/mL	94
9) 2-Chlorophenol	5.999	128	3920055	97.5432	ug/mL	89
10) 1,3-Dichlorobenzene	6.169	146	3977693	92.7392	ug/mL	94
11) 1,4-Dichlorobenzene	6.246	146	3992513	90.6171	ug/mL	90
12) Benzyl alcohol	6.369	108	2803409	113.5466	ug/mL	# 84
13) 1,2-Dichlorobenzene	6.428	146	3757215	92.3279	ug/mL	95
14) 2-Methylphenol	6.475	107	3082721	101.9711	ug/mL	95
15) bis(2-Chloroisopropyl) ether	6.510	45	4825363	88.7301	ug/mL	98
16) 4-Methylphenol	6.657	107	4935664	108.4729	ug/mL	93
17) N-Nitroso-di-n-propylamine	6.687	70	2794980	105.3702	ug/mL	82
18) Hexachloroethane	6.822	117	1604861	98.8606	ug/mL	92
20) Nitrobenzene-d5	6.857	82	2247137	55.4276	ug/mL	# 70
21) Nitrobenzene	6.887	77	4038445	97.9269	ug/mL	80
22) Isophorone	7.181	82	8097739	100.4116	ug/mL	92
23) 2-Nitrophenol	7.257	139	2392501	104.0657	ug/mL	78
24) 2,4-Dimethylphenol	7.281	107	4088150	100.3487	ug/mL	86
25) bis(2-Chloroethoxy)methane	7.393	93	2562848	54.1759	ug/mL	98
26) Benzoic acid	7.475	105	4196811	139.9195	ug/mL	90
27) 2,4-Dichlorophenol	7.540	162	3411690	102.0392	ug/mL	98
28) 1,2,4-Trichlorobenzene	7.651	180	3285569	96.2028	ug/mL	97
29) Naphthalene	7.751	128	5959460	48.7359	ug/mL	98
30) 4-Chloroaniline	7.798	127	5280743m	100.3083	ug/mL	
31) Hexachlorobutadiene	7.893	225	1805180	101.8812	ug/mL	98
32) Resorcinol	8.240	110	3968999	106.3178	ug/mL	90
33) 4-Chloro-3-methylphenol	8.363	107	3750460	96.8681	ug/mL	93
34) 2-Methylnaphthalene	8.587	142	4203929	49.9602	ug/mL	93
35) 1-Methylnaphthalene	8.710	142	3960773	50.0865	ug/mL	93
37) Hexachlorocyclopentadiene	8.787	237	2643380	113.4417	ug/mL	98
38) 2,4,6-Trichlorophenol	8.928	196	2682487	103.2305	ug/mL	95

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV23.D
Acq On : 31 Jul 2014 10:48 pm
Operator :
Sample : ICAL,S24431
Misc : ICAL
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Aug 01 09:39:49 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.975	196	2694288m	97.6395	ug/mL	
40) 2-Fluorobiphenyl	9.028	172	4838732	51.9355	ug/mL	98
41) 2-Chloronaphthalene	9.192	162	4080087	50.9483	ug/mL	94
42) 2-Nitroaniline	9.310	65	2495629	91.9956	ug/mL #	77
43) Dimethylphthalate	9.528	163	9426749	94.2615	ug/mL	99
44) 2,6-Dinitrotoluene	9.604	165	2475416	106.0972	ug/mL #	72
45) Acenaphthylene	9.710	152	5847811	49.8318	ug/mL	98
46) 3-Nitroaniline	9.822	138	2801416	110.4029	ug/mL #	64
47) Acenaphthene	9.928	154	4391730	49.8646	ug/mL	95
48) 2,4-Dinitrophenol	9.945	184	1423288m	105.8996	ug/mL	
49) 4-Nitrophenol	10.010	109	1386312	115.8945	ug/mL #	81
50) Dibenzofuran	10.139	168	6062841	50.9913	ug/mL	80
51) 2,4-Dinitrotoluene	10.110	165	3393785	106.9585	ug/mL	78
52) 2,3,4,6-Tetrachlorophenol	10.287	232	2412444	106.2597	ug/mL	89
53) Diethylphthalate	10.392	149	5330395	50.6823	ug/mL	97
54) 4-Chlorophenyl-phenylether	10.545	204	2535644	53.9586	ug/mL #	77
55) Fluorene	10.569	166	4870287	48.2979	ug/mL	88
56) 4-Nitroaniline	10.604	138	2850568	113.1741	ug/mL #	21
57) 2,4,6-Tribromophenol	10.863	330	860469	63.9009	ug/mL #	80
59) 4,6-Dinitro-2-methylphenol	10.628	198	2078732	116.3524	ug/mL #	76
60) N-Nitrosodiphenylamine	10.698	169	3828340	49.6377	ug/mL	89
61) Azobenzene	10.745	77	5098627	47.2735	ug/mL	94
62) 4-Bromophenyl-phenylether	11.157	248	1616730	56.8309	ug/mL #	83
63) Hexachlorobenzene	11.269	284	3317460	108.1942	ug/mL	96
64) Pentachlorophenol	11.498	266	2279028	113.0612	ug/mL	97
65) Phenanthrene	11.769	178	7109828	47.0693	ug/mL	97
66) Anthracene	11.833	178	7145703m	48.3106	ug/mL	
67) Carbazole	12.022	167	11761551	91.0966	ug/mL	86
68) Di-n-butylphthalate	12.410	149	8810422	47.0527	ug/mL	97
69) Fluoranthene	13.251	202	7642116	49.5731	ug/mL	98
71) Benzidine	13.392	184	6327998	94.7344	ug/mL	90
72) Pyrene	13.539	202	8153035	42.8968	ug/mL	93
73) Terphenyl-d14	13.698	244	6448457	48.8506	ug/mL	96
74) Butylbenzylphthalate	14.292	149	4007574	43.3248	ug/mL	98
75) 3,3'-Dichlorobenzidine	15.110	252	5919931	101.1204	ug/mL	99
76) Benzo(a)anthracene	15.169	228	8090840	51.1707	ug/mL	97
77) bis(2-Ethylhexyl)phthalate	15.121	149	5043743	38.5165	ug/mL	93
78) Chrysene	15.239	228	7545689	50.4571	ug/mL	95
80) Di-n-octylphthalate	16.327	149	10081685	42.1343	ug/mL	98
81) Benzo(b)fluoranthene	17.286	252	7685858	52.1263	ug/mL	97
82) Benzo(k)fluoranthene	17.357	252	7784802	52.0731	ug/mL	94
83) Benzo(a)pyrene	18.086	252	6685670	53.9675	ug/mL	96
84) Indeno(1,2,3-cd)pyrene	21.339	276	7846020	56.0675	ug/mL	90

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV23.D
Acq On : 31 Jul 2014 10:48 pm
Operator :
Sample : ICAL,S24431
Misc : ICAL
ALS Vial : 23 Sample Multiplier: 1

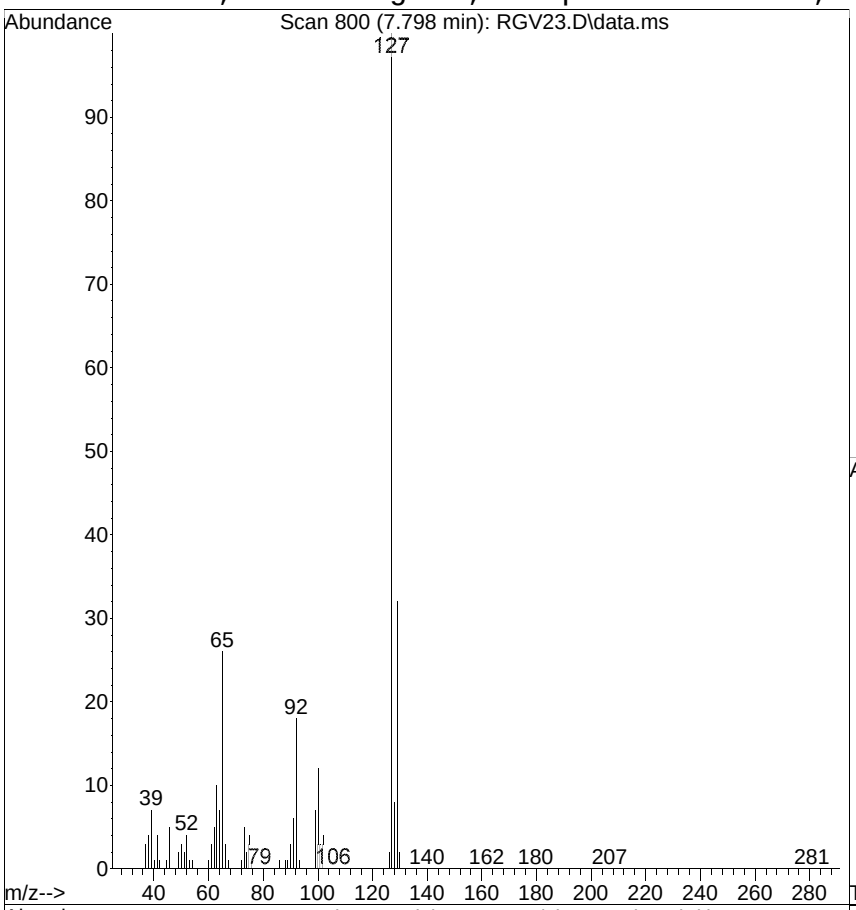
Quant Time: Aug 01 09:39:49 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.409	278	7086419	57.2153	ug/mL	95
86) Benzo(g,h,i)perylene	22.115	276	6215894	56.7523	ug/mL	96

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

[4-Chloroaniline; 100.0 ug/mL; response=5280743; MI]

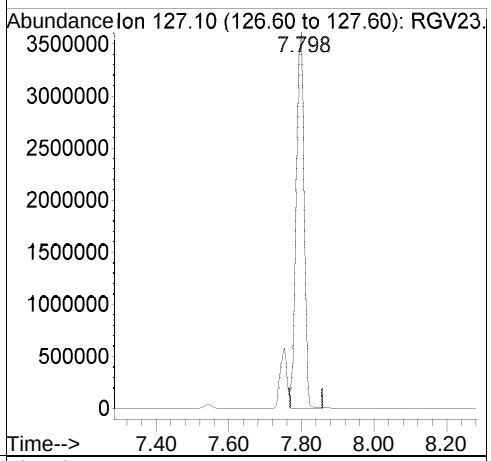
Raw



#30
4-Chloroaniline
Concen: 100.3083 ug/mL m
RT: 7.798 min Scan# 800
Delta R.T. 0.015 min
Lab File: RGV23.D
Acq: 31 Jul 2014 10:48 pm

Tgt Ion:127 Resp: 5280743

Ion	Ratio	Lower	Upper
127	100		
129	31.9	11.0	51.0
65	26.0	3.0	43.0



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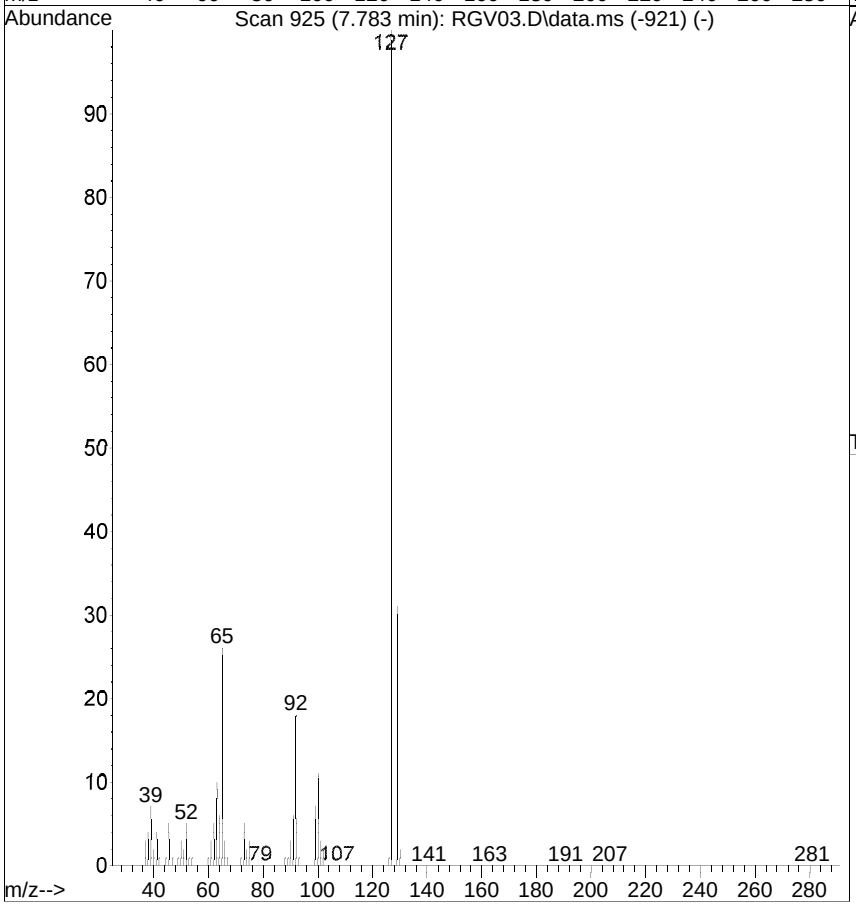
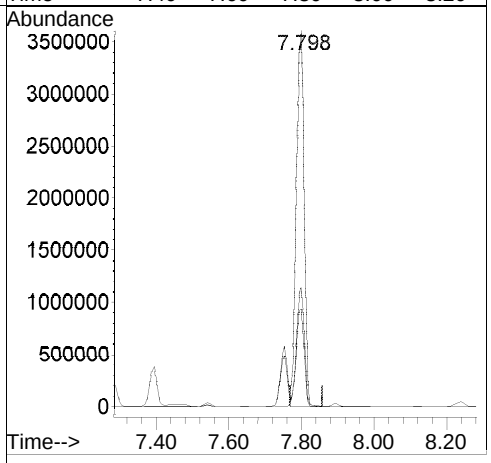
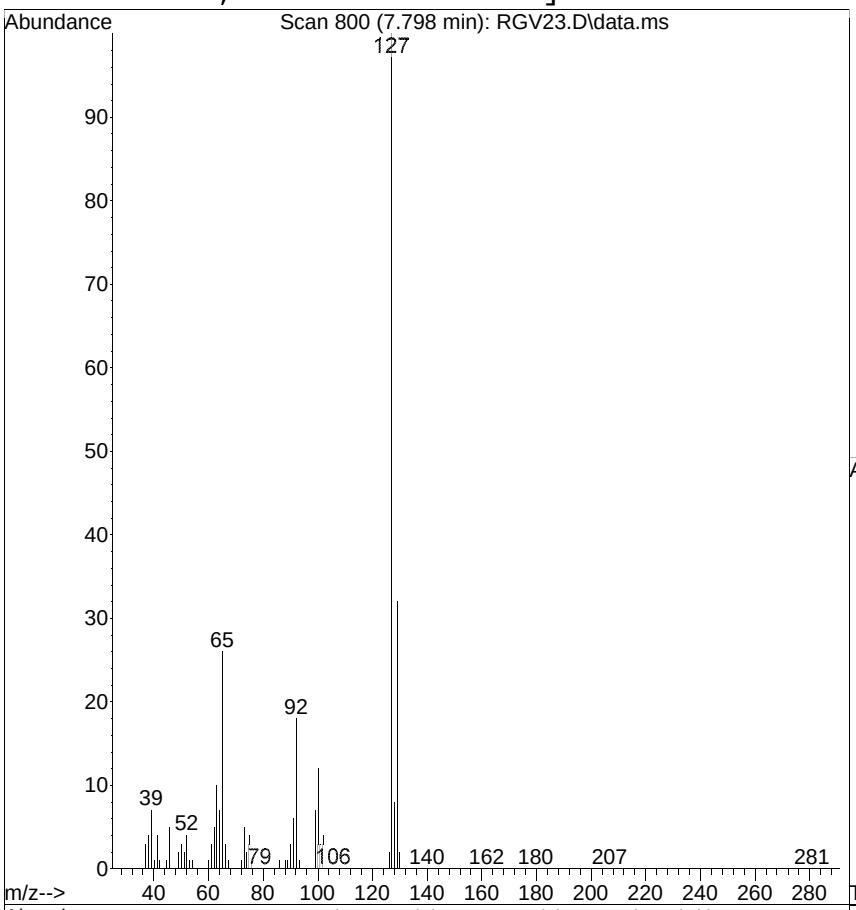




[4-Chloroaniline; before version]

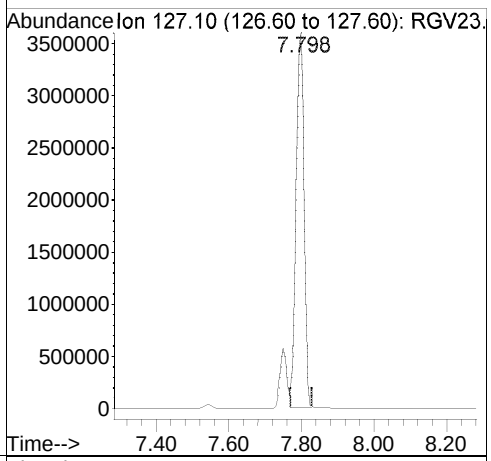
Raw



#30
4-Chloroaniline
Concen: 99.3784 ug/mL
RT: 7.798 min Scan# 800
Delta R.T. 0.015 min
Lab File: RGV23.D
Acq: 31 Jul 2014 10:48 pm

Tgt Ion:127 Resp: 5231787

Ion	Ratio	Lower	Upper
127	100		
129	31.9	11.0	51.0
65	26.0	3.0	43.0



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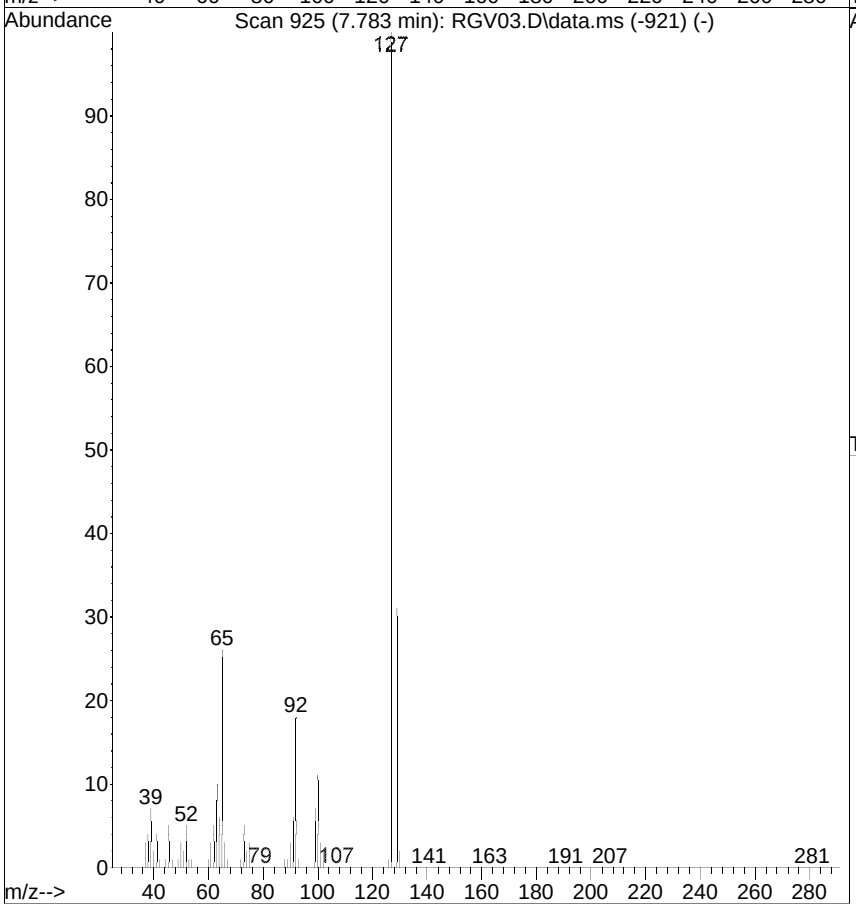
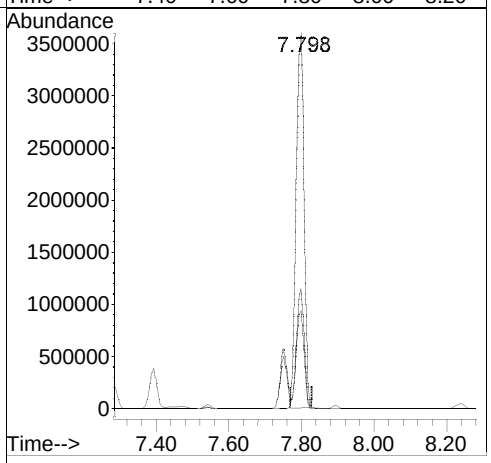
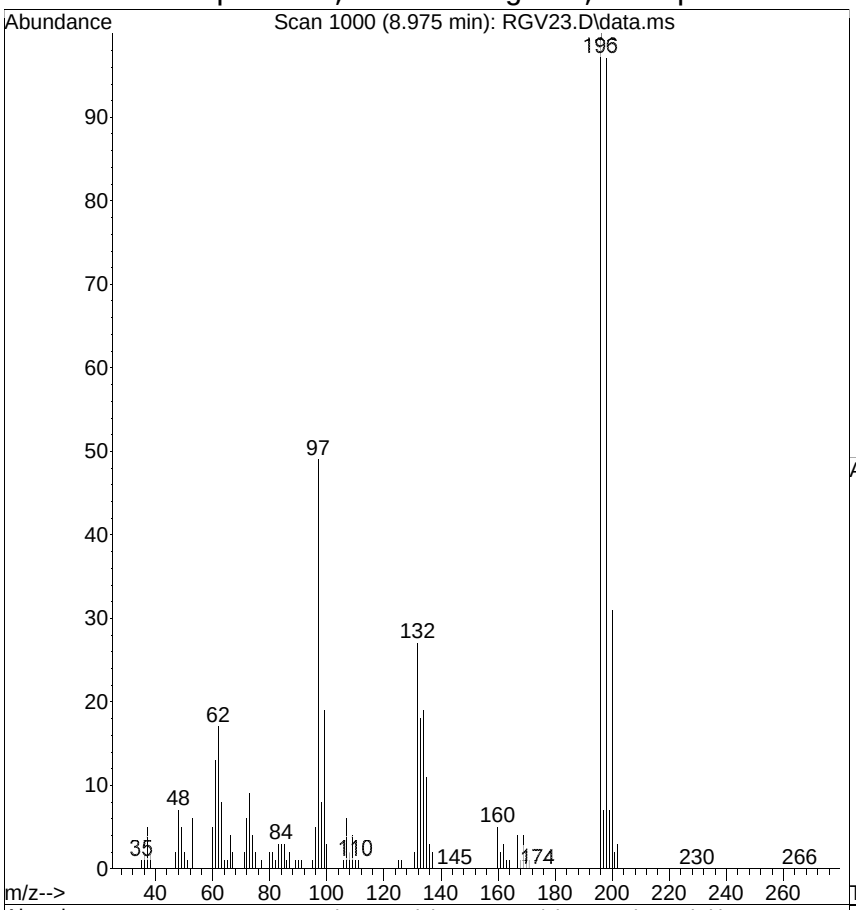




[2,4,5-Trichlorophenol; 100.0 ug/mL; response=2694288; MI]

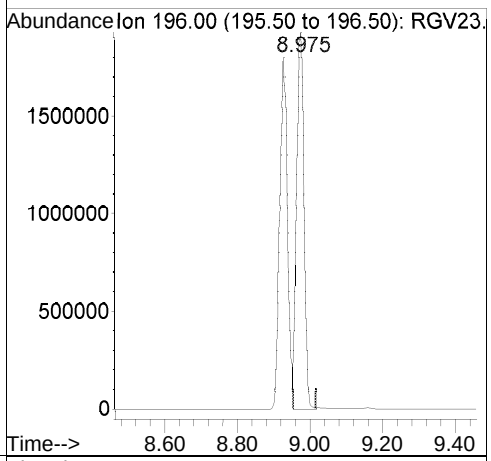
Raw



#39
2,4,5-Trichlorophenol
Concen: 97.6395 ug/mL m
RT: 8.975 min Scan# 1000
Delta R.T. 0.015 min
Lab File: RGV23.D
Acq: 31 Jul 2014 10:48 pm

Tgt Ion:196 Resp: 2694288

Ion	Ratio	Lower	Upper
196	100		
198	96.5	69.0	109.0
97	48.7	21.0	61.0



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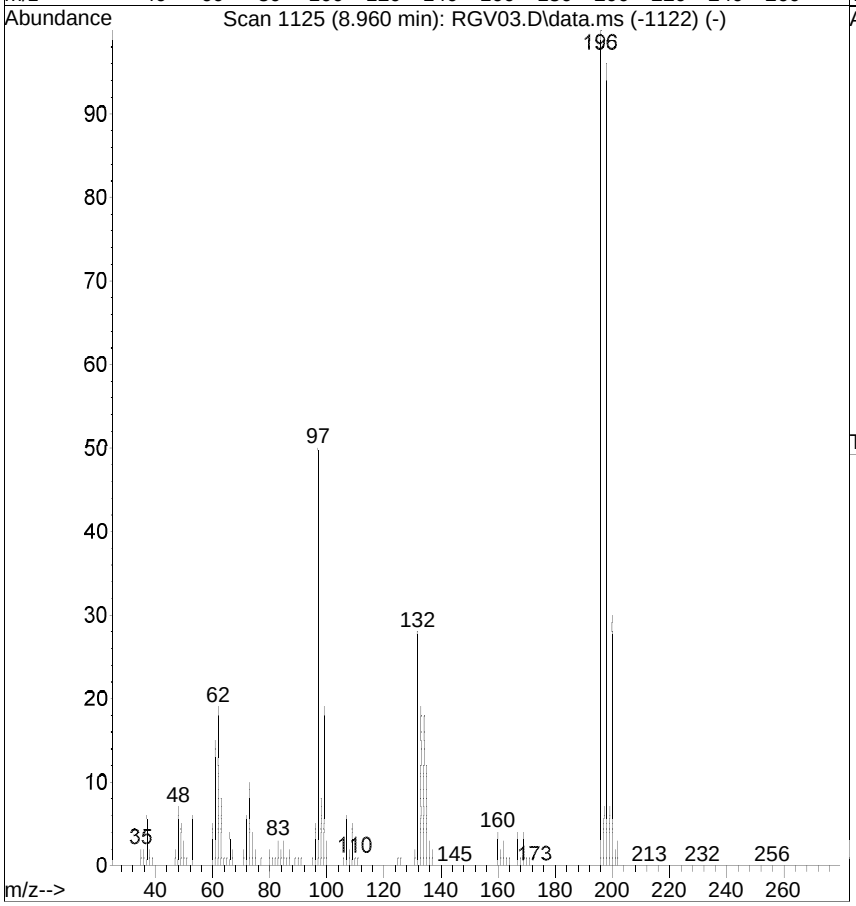
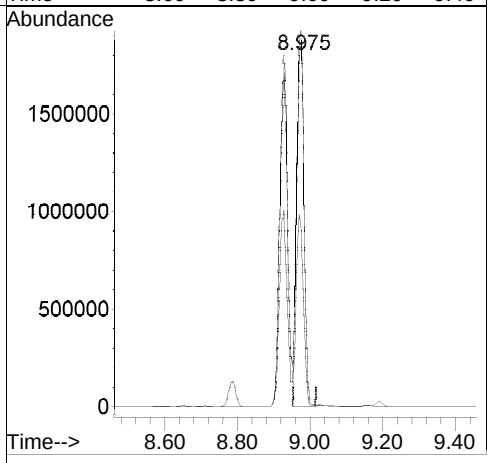
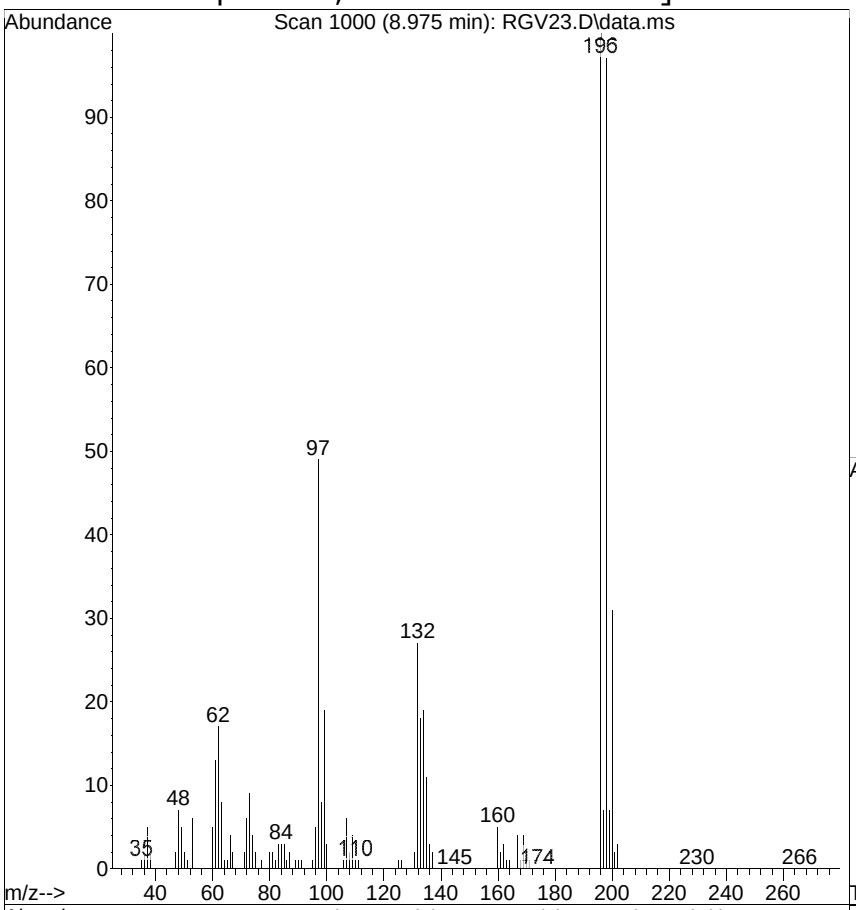




[2,4,5-Trichlorophenol; before version]

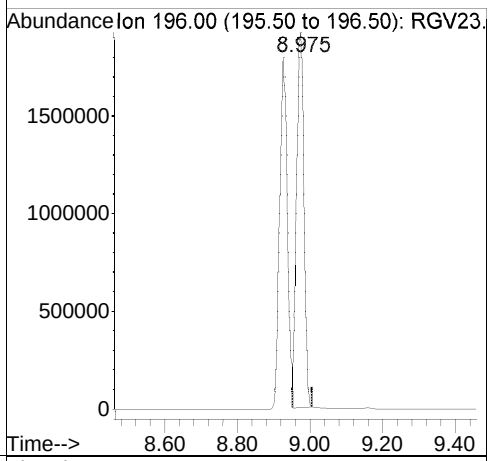
Raw



#39
2,4,5-Trichlorophenol
Concen: 96.3309 ug/mL
RT: 8.975 min Scan# 1000
Delta R.T. 0.015 min
Lab File: RGV23.D
Acq: 31 Jul 2014 10:48 pm

Tgt Ion:196 Resp: 2658178

Ion	Ratio	Lower	Upper
196	100		
198	96.5	69.0	109.0
97	48.7	21.0	61.0



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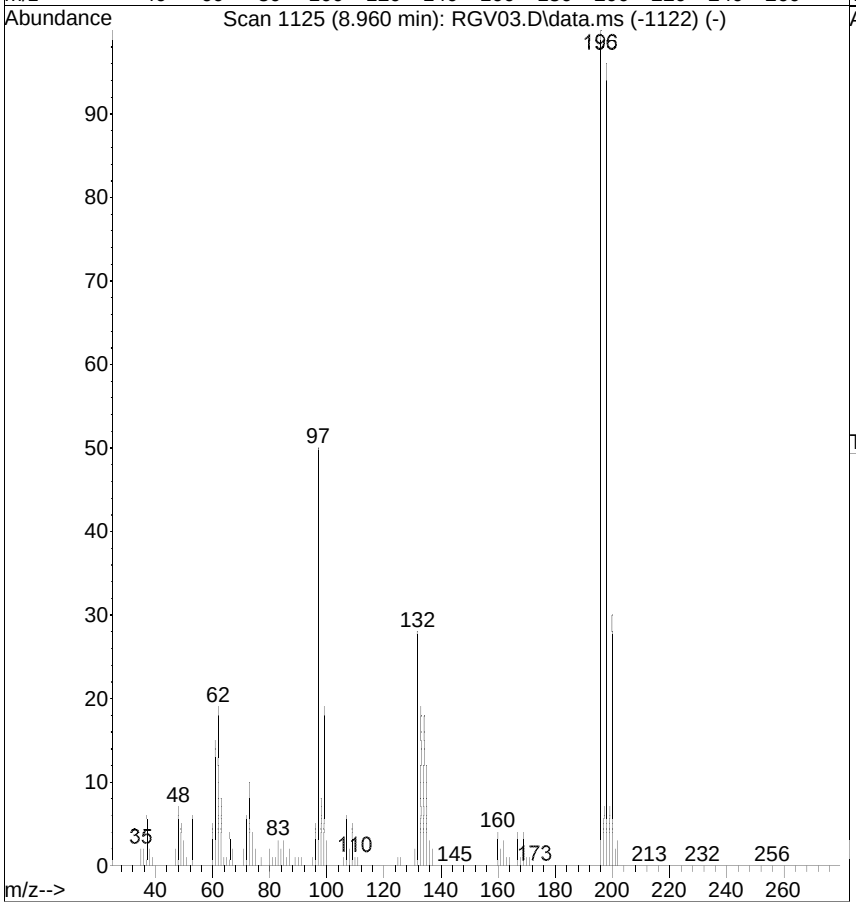
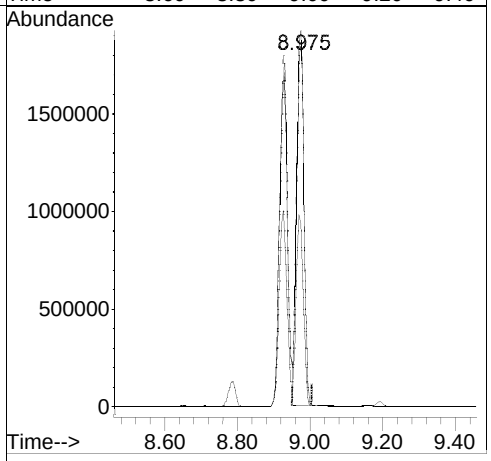
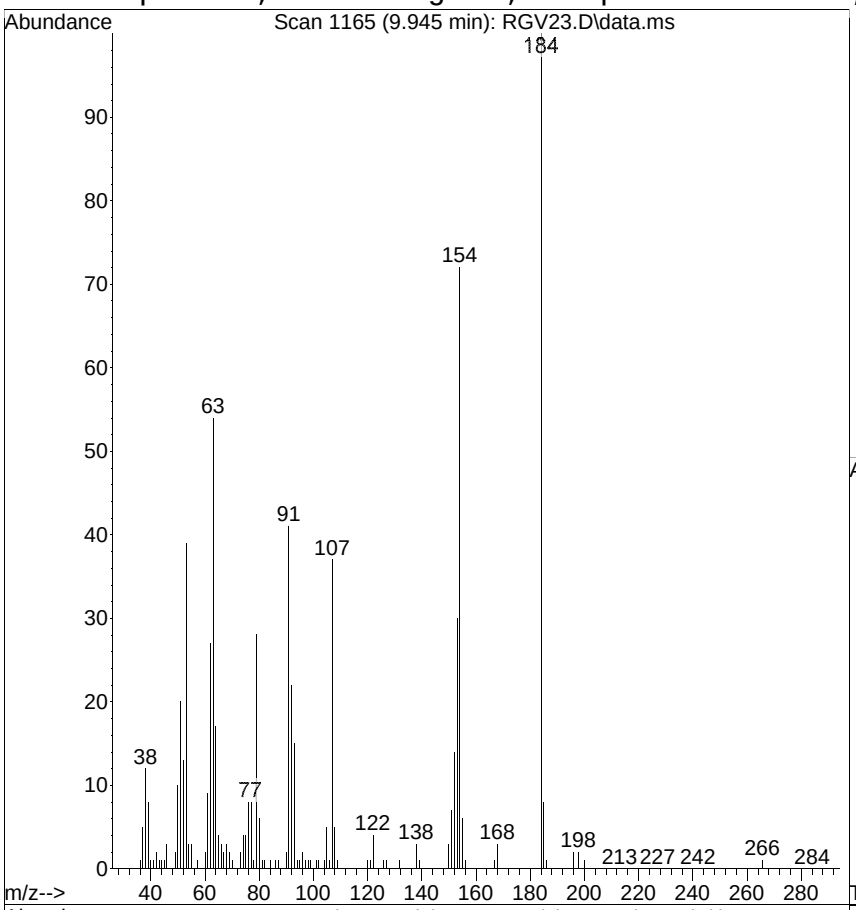




[2,4-Dinitrophenol; 100.0 ug/mL; response=1423288; MI]

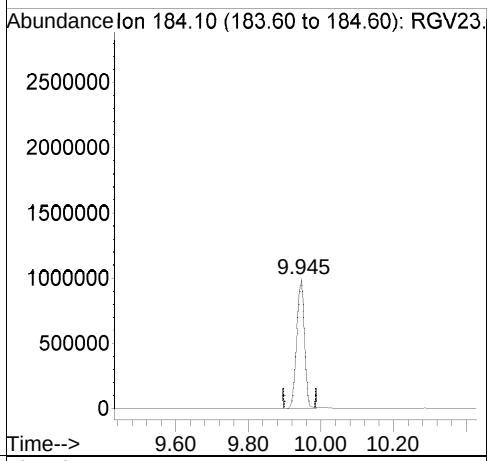
Raw



#48
2,4-Dinitrophenol
Concen: 105.8996 ug/mL m
RT: 9.945 min Scan# 1165
Delta R.T. 0.015 min
Lab File: RGV23.D
Acq: 31 Jul 2014 10:48 pm

Tgt Ion:184 Resp: 1423288

Ion	Ratio	Lower	Upper
184	100		
63	54.4	75.0	115.0#
154	71.7	330.0	370.0#



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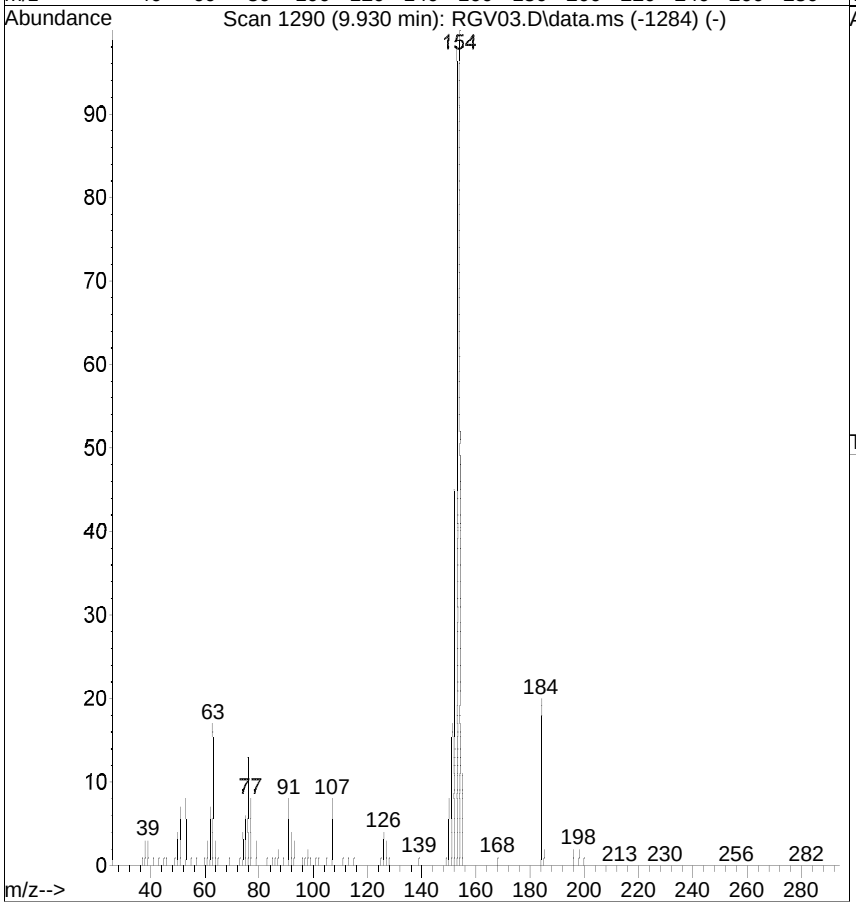
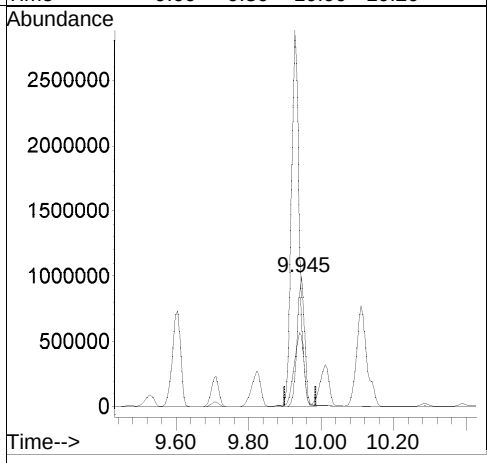
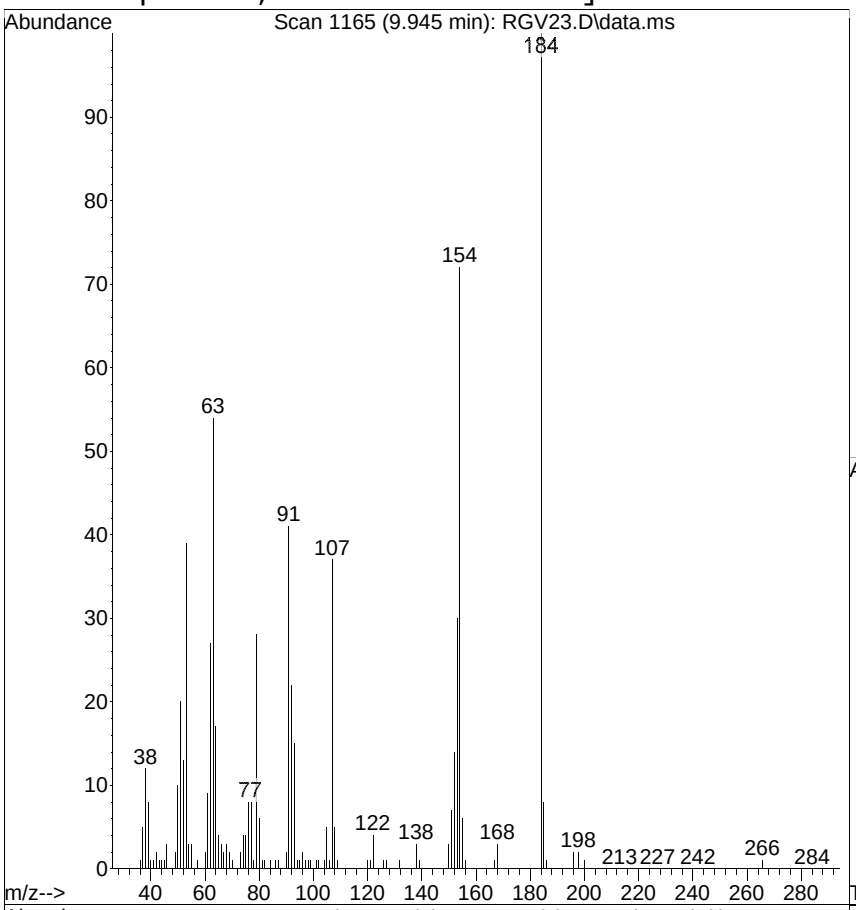




[2,4-Dinitrophenol; before version]

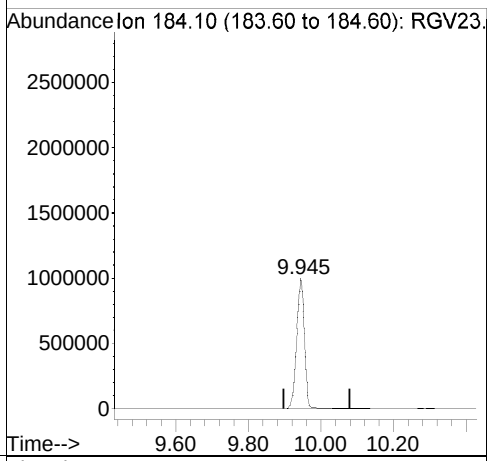
Raw



#48
2,4-Dinitrophenol
Concen: 107.3204 ug/mL
RT: 9.945 min Scan# 1165
Delta R.T. 0.015 min
Lab File: RGV23.D
Acq: 31 Jul 2014 10:48 pm

Tgt Ion:184 Resp: 1444767

Ion	Ratio	Lower	Upper
184	100		
63	54.4	75.0	115.0#
154	71.7	330.0	370.0#



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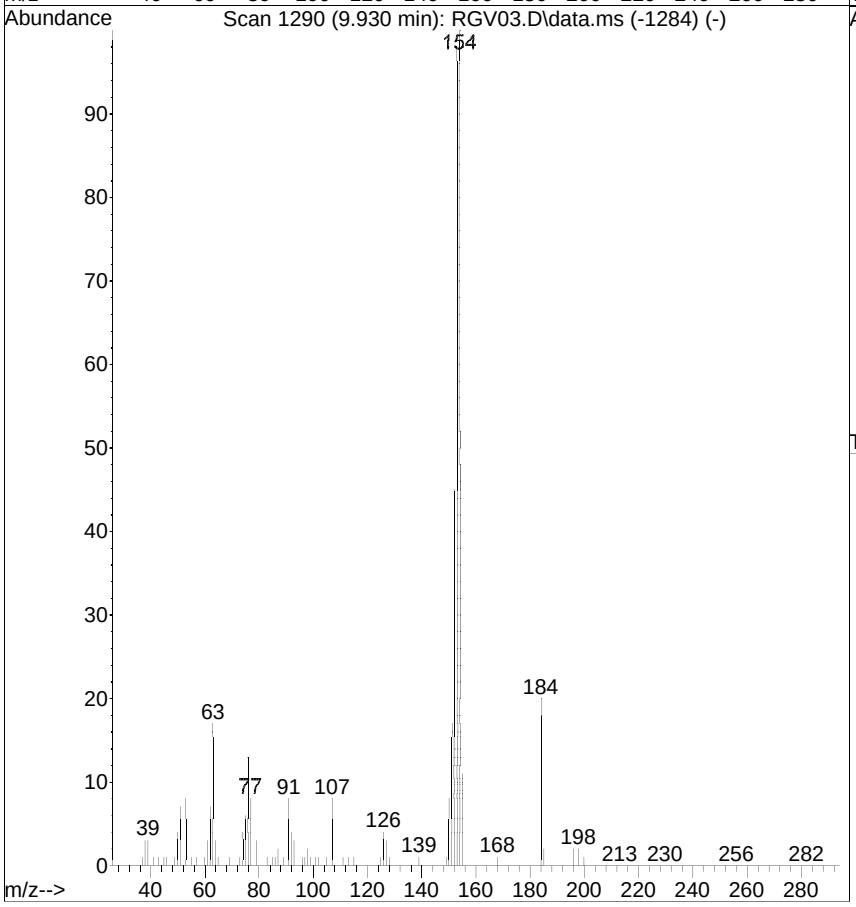
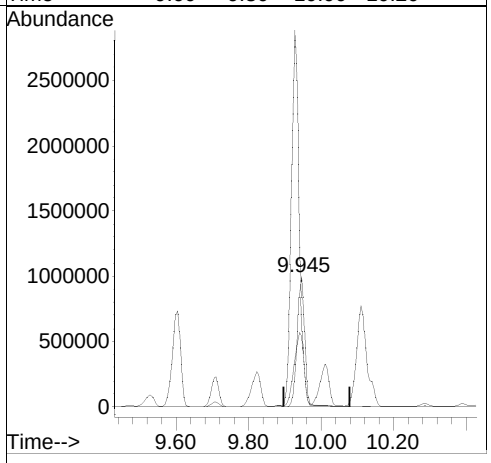
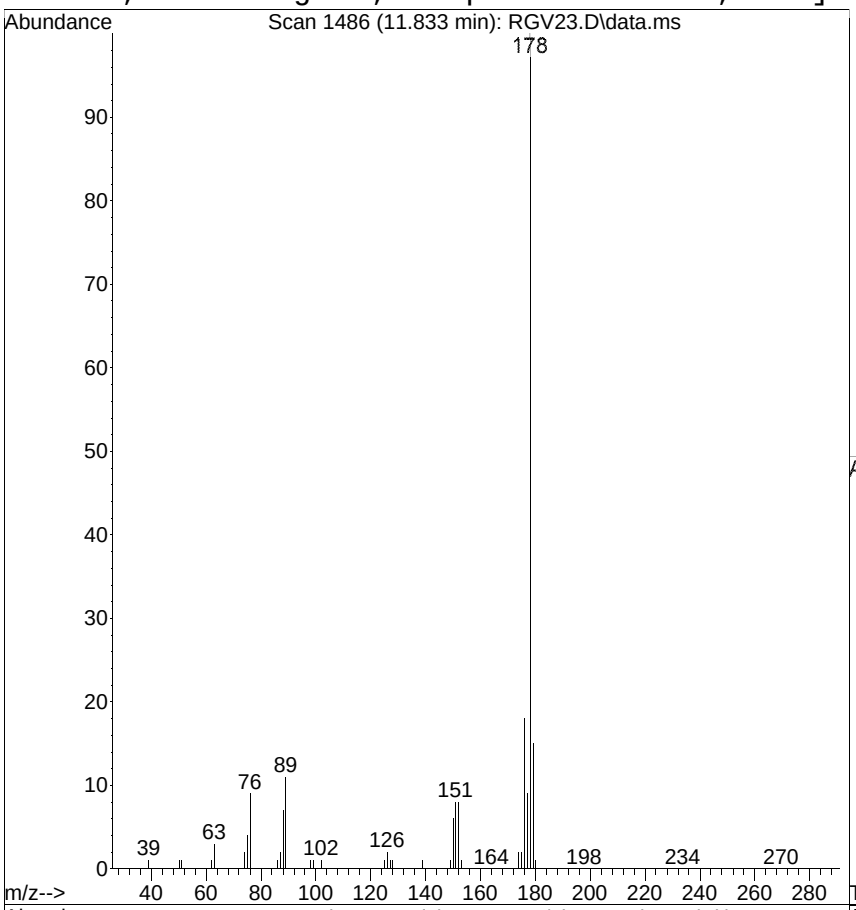




[Anthracene; 50.00 ug/mL; response=7145703; MI]

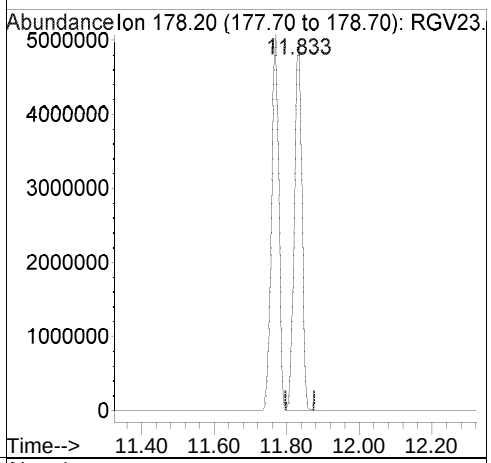
Raw



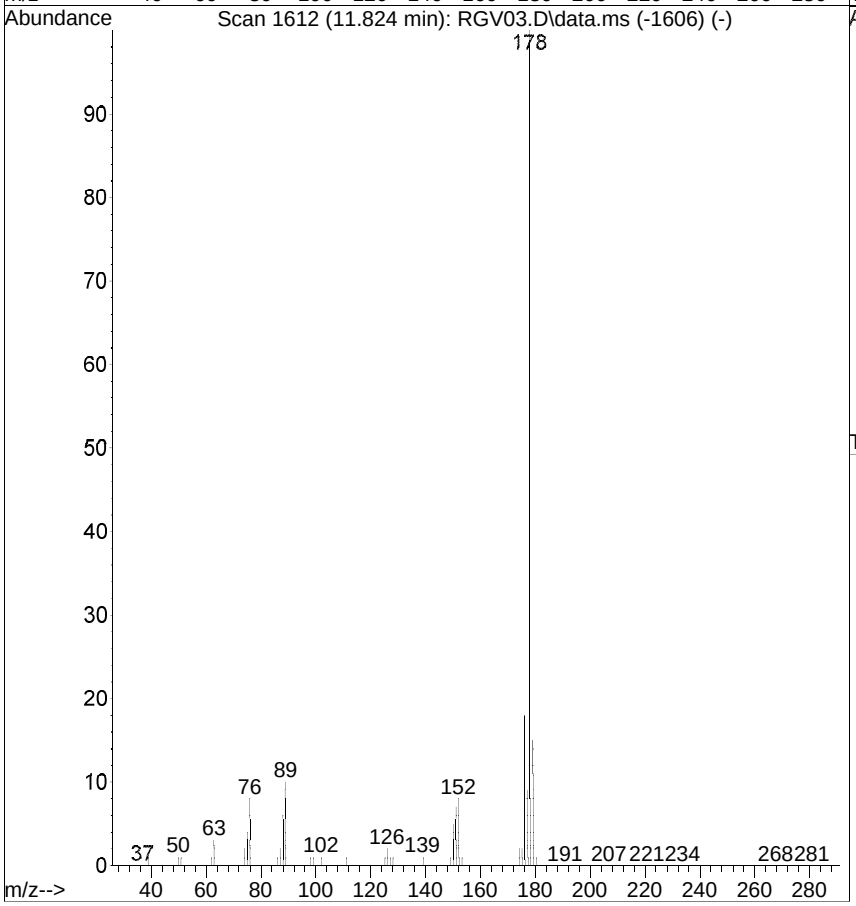
#66
Anthracene
Concen: 48.3106 ug/mL m
RT: 11.833 min Scan# 1486
Delta R.T. 0.009 min
Lab File: RGV23.D
Acq: 31 Jul 2014 10:48 pm

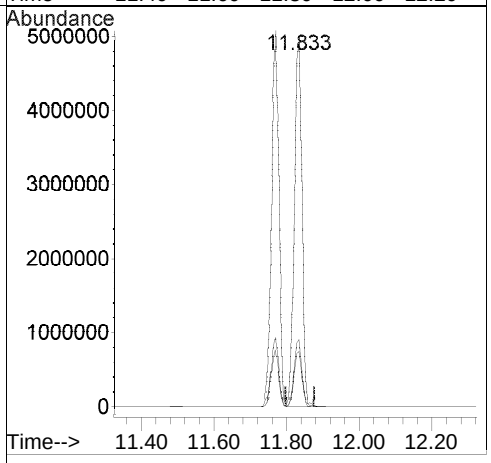
Tgt Ion:178 Resp: 7145703

Ion	Ratio	Lower	Upper
178	100		
176	18.3	0.0	35.0
179	15.3	0.0	35.0



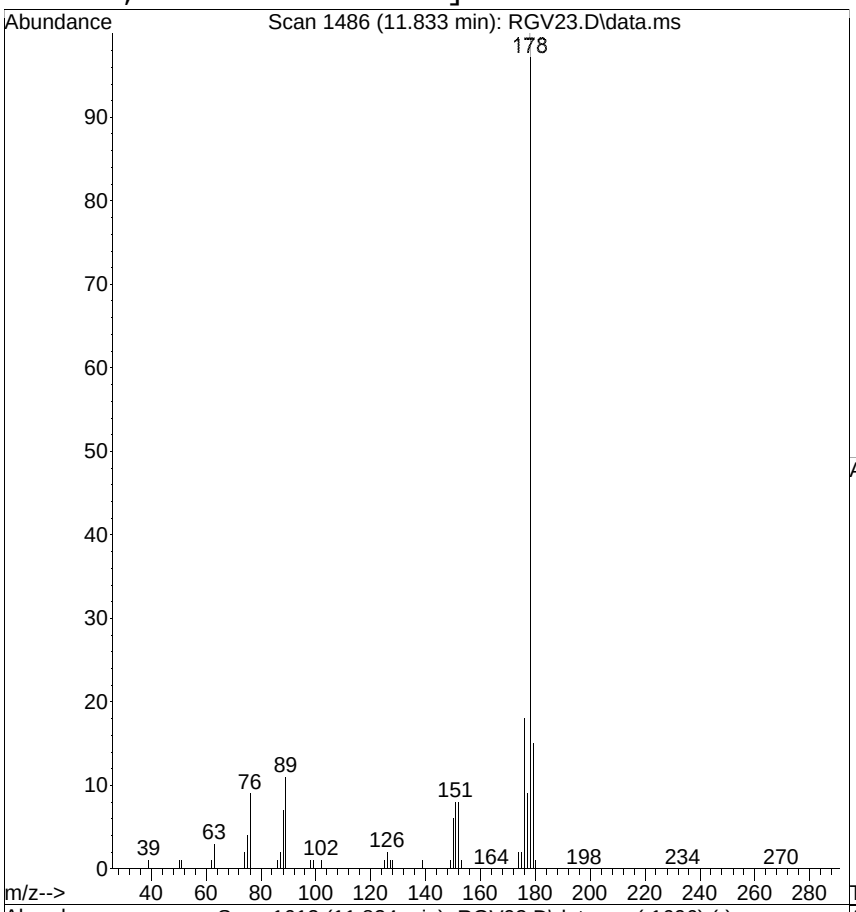
Ref





[Anthracene; before version]

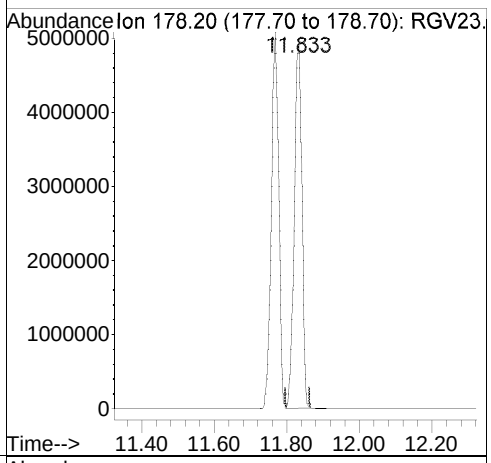
Raw



#66
Anthracene
Concen: 47.8972 ug/mL
RT: 11.833 min Scan# 1486
Delta R.T. 0.009 min
Lab File: RGV23.D
Acq: 31 Jul 2014 10:48 pm

Tgt Ion:178 Resp: 7084559

Ion	Ratio	Lower	Upper
178	100		
176	18.3	0.0	35.0
179	15.3	0.0	35.0



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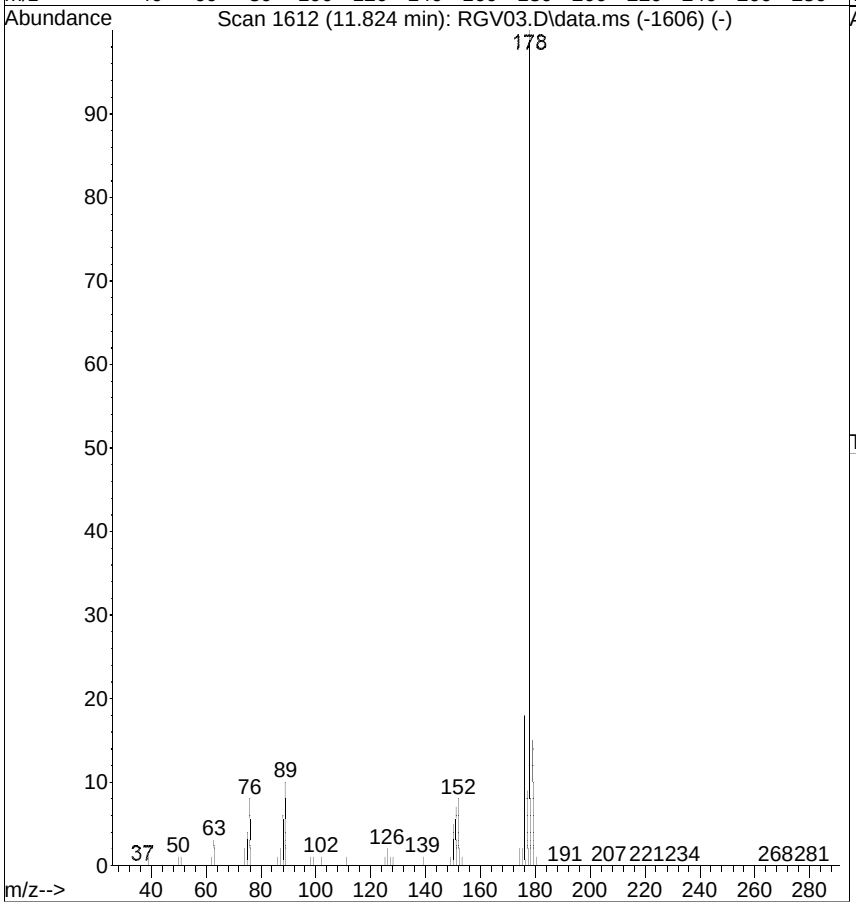
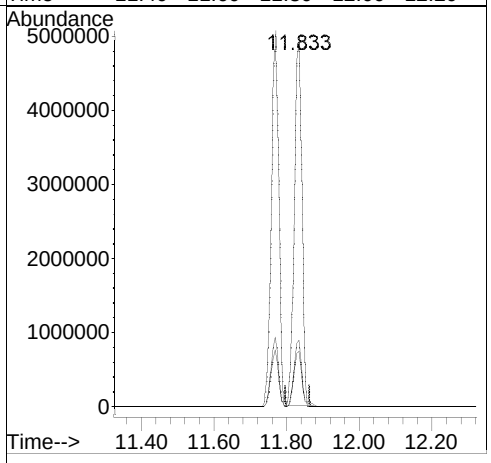
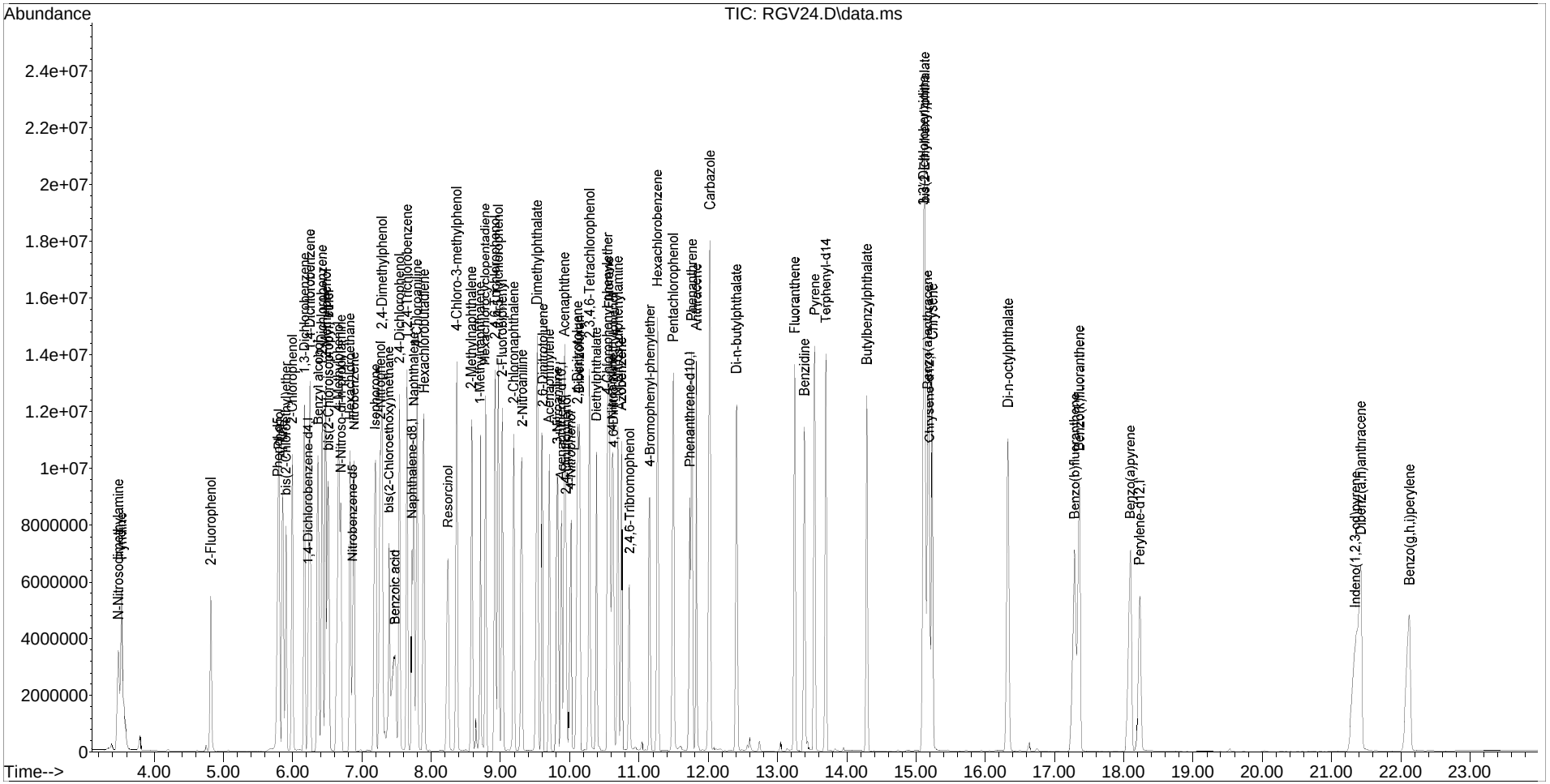




Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV24.D
Acq On : 31 Jul 2014 11:18 pm
Operator :
Sample : ICAL,S24432
Misc : ICAL
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Aug 01 09:41:13 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV24.D
Acq On : 31 Jul 2014 11:18 pm
Operator :
Sample : ICAL,S24432
Misc : ICAL
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Aug 01 09:41:13 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.228	152	1090538	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.728	136	4820948	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.886	164	2941498	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.739	188	5349666	40.0000	ug/mL	0.00
70) Chrysene-d12	15.198	240	5747336	40.0000	ug/mL	0.00
79) Perylene-d12	18.233	264	5120918	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.528	79	5302289	135.0471	ug/mL	91
3) N-Nitrosodimethylamine	3.487	42	2224402	112.0070	ug/mL	# 65
4) 2-Fluorophenol	4.816	112	2442201	70.2692	ug/mL	# 69
5) Phenol-d5	5.787	99	2889542	66.0198	ug/mL	74
6) Phenol	5.804	94	5730094	122.5865	ug/mL	88
7) Aniline	5.863	93	7014551m	126.7373	ug/mL	
8) bis(2-Chloroethyl)ether	5.910	93	4153183	115.1596	ug/mL	94
9) 2-Chlorophenol	5.998	128	4659623	115.5866	ug/mL	90
10) 1,3-Dichlorobenzene	6.175	146	4642429	107.9019	ug/mL	94
11) 1,4-Dichlorobenzene	6.251	146	4648201	105.1721	ug/mL	90
12) Benzyl alcohol	6.375	108	3443613	139.0445	ug/mL	# 84
13) 1,2-Dichlorobenzene	6.428	146	4391333	107.5759	ug/mL	94
14) 2-Methylphenol	6.481	107	3747130	123.5644	ug/mL	95
15) bis(2-Chloroisopropyl) ether	6.516	45	5849897	107.2361	ug/mL	95
16) 4-Methylphenol	6.663	107	6119966	134.0839	ug/mL	93
17) N-Nitroso-di-n-propylamine	6.698	70	3423782	128.6758	ug/mL	80
18) Hexachloroethane	6.822	117	1911474	117.3832	ug/mL	94
20) Nitrobenzene-d5	6.863	82	2807155	66.7165	ug/mL	# 70
21) Nitrobenzene	6.887	77	4949035	115.6322	ug/mL	82
22) Isophorone	7.192	82	9952634	118.9127	ug/mL	92
23) 2-Nitrophenol	7.263	139	2898121	121.4626	ug/mL	78
24) 2,4-Dimethylphenol	7.287	107	4993015	118.0913	ug/mL	86
25) bis(2-Chloroethoxy)methane	7.392	93	3113139	63.4092	ug/mL	99
26) Benzoic acid	7.481	105	4735475	149.6650	ug/mL	90
27) 2,4-Dichlorophenol	7.545	162	4104843	118.2944	ug/mL	98
28) 1,2,4-Trichlorobenzene	7.651	180	3907916	110.2536	ug/mL	96
29) Naphthalene	7.751	128	7322053	57.6960	ug/mL	98
30) 4-Chloroaniline	7.798	127	6257010	114.5194	ug/mL	95
31) Hexachlorobutadiene	7.898	225	2139682	116.3572	ug/mL	97
32) Resorcinol	8.245	110	4992851	127.1102	ug/mL	90
33) 4-Chloro-3-methylphenol	8.369	107	4565401	113.6175	ug/mL	93
34) 2-Methylnaphthalene	8.587	142	5045773	57.7786	ug/mL	94
35) 1-Methylnaphthalene	8.710	142	4746944	57.8396	ug/mL	93
37) Hexachlorocyclopentadiene	8.787	237	3102820	129.4960	ug/mL	98
38) 2,4,6-Trichlorophenol	8.928	196	3171183	118.6802	ug/mL	96

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV24.D
Acq On : 31 Jul 2014 11:18 pm
Operator :
Sample : ICAL,S24432
Misc : ICAL
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Aug 01 09:41:13 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.975	196	3289692	115.9374	ug/mL	91
40) 2-Fluorobiphenyl	9.028	172	5700996	59.5072	ug/mL	99
41) 2-Chloronaphthalene	9.192	162	4918578	59.7292	ug/mL	95
42) 2-Nitroaniline	9.316	65	3078642	110.3654	ug/mL #	73
43) Dimethylphthalate	9.534	163	11096432	107.9053	ug/mL	99
44) 2,6-Dinitrotoluene	9.610	165	3021194	125.9277	ug/mL #	70
45) Acenaphthylene	9.710	152	7015673	58.1392	ug/mL	98
46) 3-Nitroaniline	9.828	138	3438036	131.7650	ug/mL #	66
47) Acenaphthene	9.928	154	5306338	58.5920	ug/mL	96
48) 2,4-Dinitrophenol	9.951	184	1844693m	130.4200	ug/mL	
49) 4-Nitrophenol	10.022	109	1697746	138.0261	ug/mL #	80
50) Dibenzofuran	10.139	168	7205561	58.9351	ug/mL	78
51) 2,4-Dinitrotoluene	10.116	165	4110658	125.9880	ug/mL	78
52) 2,3,4,6-Tetrachlorophenol	10.292	232	2923337	125.2210	ug/mL	89
53) Diethylphthalate	10.392	149	6357006	58.7809	ug/mL	97
54) 4-Chlorophenyl-phenylether	10.545	204	3034711	62.8024	ug/mL #	76
55) Fluorene	10.569	166	5850359	56.4213	ug/mL	88
56) 4-Nitroaniline	10.616	138	3494503	134.9236	ug/mL #	19
57) 2,4,6-Tribromophenol	10.869	330	1081934	78.1375	ug/mL #	78
59) 4,6-Dinitro-2-methylphenol	10.633	198	2583614	143.1092	ug/mL #	76
60) N-Nitrosodiphenylamine	10.698	169	4670006	59.9214	ug/mL	89
61) Azobenzene	10.751	77	6224282	57.1106	ug/mL	92
62) 4-Bromophenyl-phenylether	11.163	248	1976203	68.7450	ug/mL #	83
63) Hexachlorobenzene	11.269	284	3929834	126.8338	ug/mL	95
64) Pentachlorophenol	11.498	266	2803895	137.6539	ug/mL	98
65) Phenanthrene	11.769	178	8412922	55.1173	ug/mL	97
66) Anthracene	11.833	178	8429235	56.3960	ug/mL	96
67) Carbazole	12.027	167	13959460	106.9964	ug/mL	86
68) Di-n-butylphthalate	12.416	149	10325865	54.5729	ug/mL	97
69) Fluoranthene	13.251	202	9050910	58.1015	ug/mL	99
71) Benzidine	13.392	184	7519122	113.8794	ug/mL	91
72) Pyrene	13.545	202	9644074	51.3337	ug/mL	93
73) Terphenyl-d14	13.704	244	7600764	58.2516	ug/mL	98
74) Butylbenzylphthalate	14.292	149	4790525	52.3932	ug/mL	99
75) 3,3'-Dichlorobenzidine	15.116	252	6772847	117.0388	ug/mL	99
76) Benzo(a)anthracene	15.168	228	9672858	61.8898	ug/mL	98
77) bis(2-Ethylhexyl)phthalate	15.127	149	5406579	41.7689	ug/mL	92
78) Chrysene	15.239	228	9077945	61.4112	ug/mL	96
80) Di-n-octylphthalate	16.333	149	11906518	50.3699	ug/mL	98
81) Benzo(b)fluoranthene	17.298	252	9807965	67.3329	ug/mL	96
82) Benzo(k)fluoranthene	17.362	252	9004303	60.9678	ug/mL	94
83) Benzo(a)pyrene	18.098	252	8035656	65.6587	ug/mL	96
84) Indeno(1,2,3-cd)pyrene	21.350	276	9469428	68.4967	ug/mL	91

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV24.D
Acq On : 31 Jul 2014 11:18 pm
Operator :
Sample : ICAL,S24432
Misc : ICAL
ALS Vial : 24 Sample Multiplier: 1

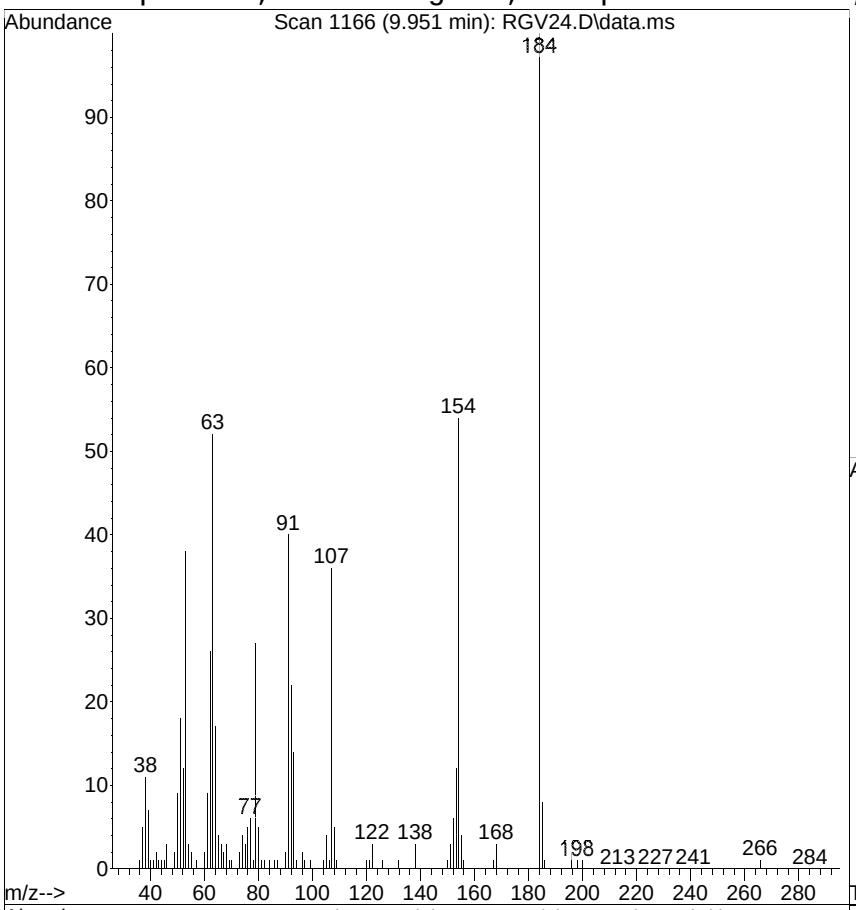
Quant Time: Aug 01 09:41:13 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Thu Jul 31 09:44:35 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.427	278	8583682	70.1525	ug/mL	95
86) Benzo(g,h,i)perylene	22.133	276	7429403	68.6623	ug/mL	95

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

[2,4-Dinitrophenol; 120.0 ug/mL; response=1844693; MI]

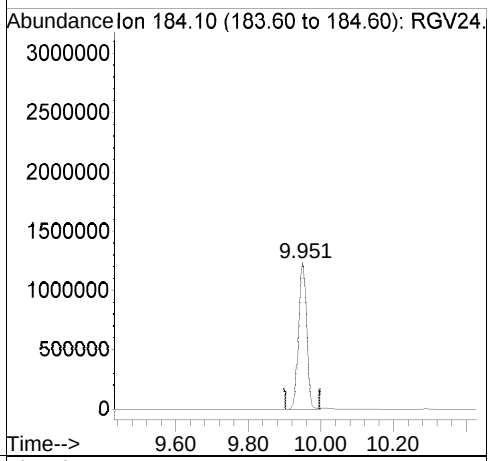
Raw



#48
2,4-Dinitrophenol
Concen: 130.4200 ug/mL m
RT: 9.951 min Scan# 1166
Delta R.T. 0.021 min
Lab File: RGV24.D
Acq: 31 Jul 2014 11:18 pm

Tgt Ion:184 Resp: 1844693

Ion	Ratio	Lower	Upper
184	100		
63	51.7	75.0	115.0#
154	54.1	330.0	370.0#



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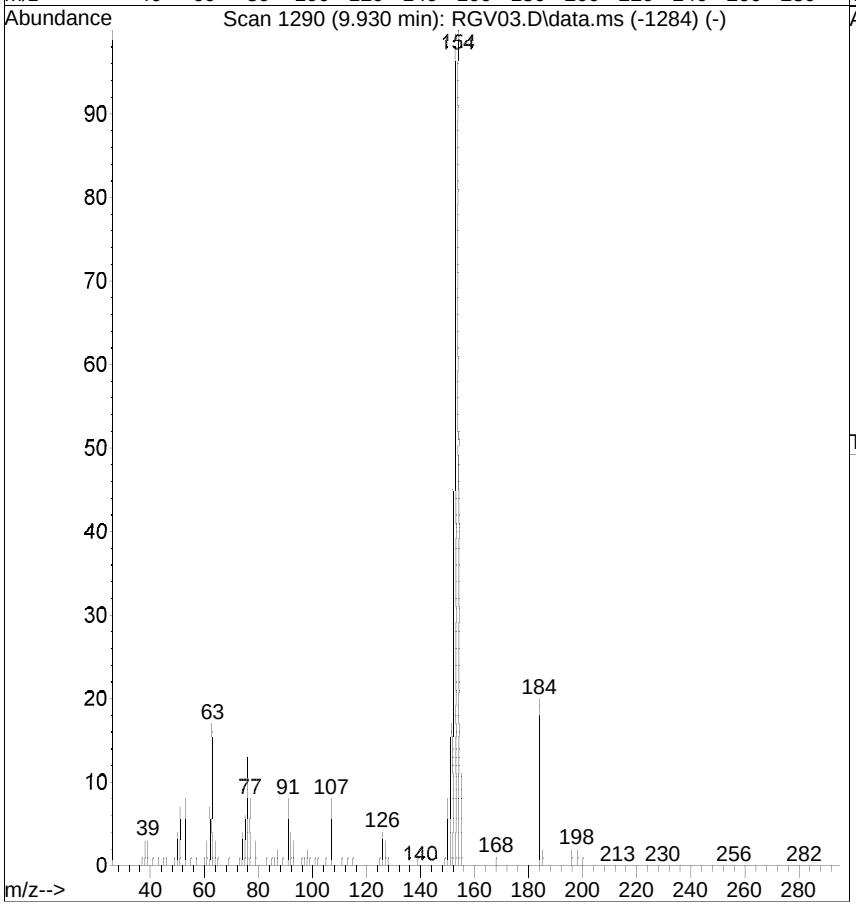
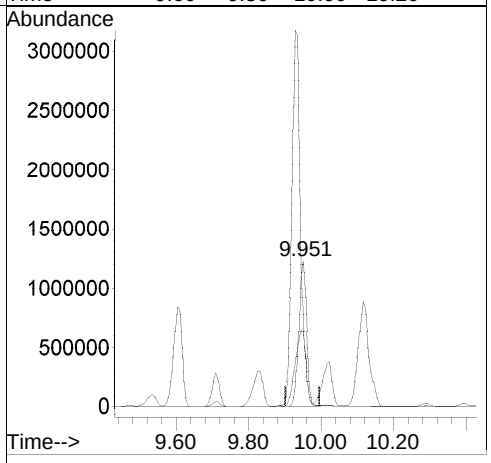
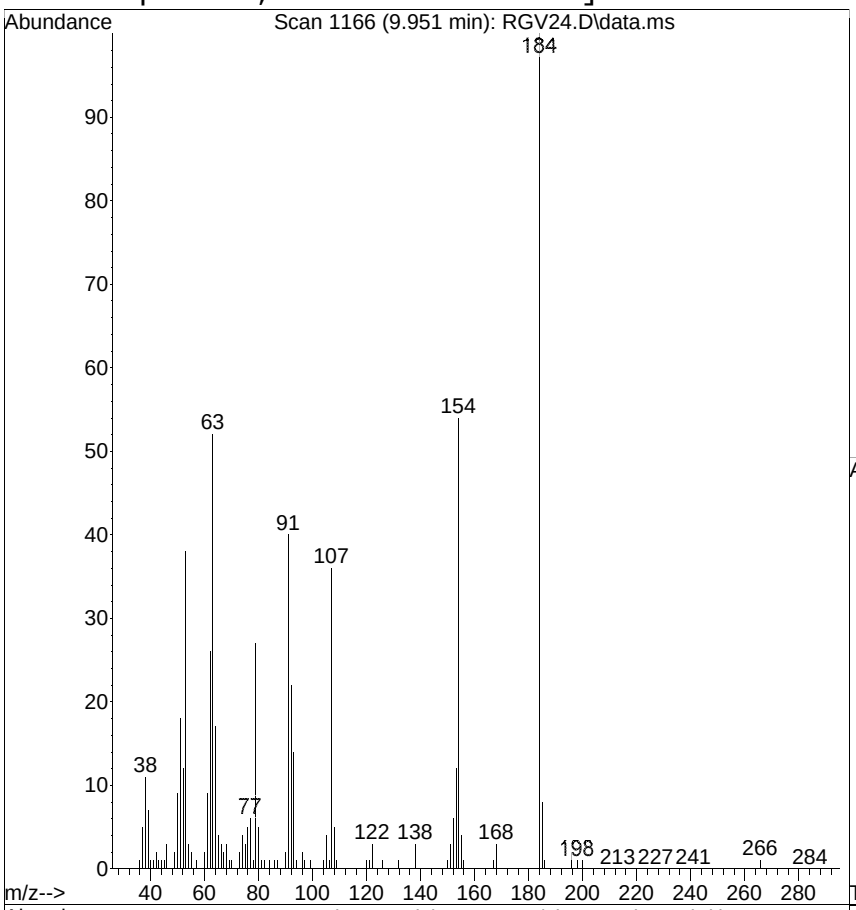




[2,4-Dinitrophenol; before version]

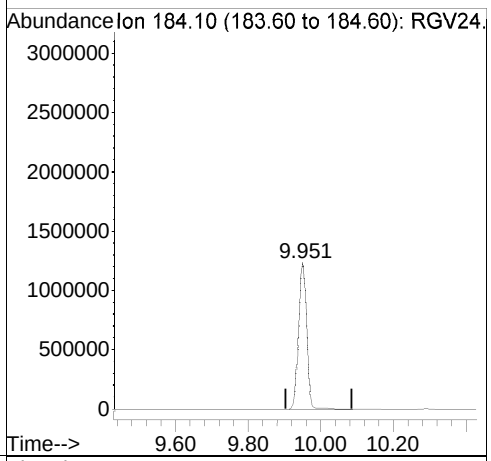
Raw



#48
2,4-Dinitrophenol
Concen: 131.8701 ug/mL
RT: 9.951 min Scan# 1166
Delta R.T. 0.021 min
Lab File: RGV24.D
Acq: 31 Jul 2014 11:18 pm

Tgt Ion:184 Resp: 1867233

Ion	Ratio	Lower	Upper
184	100		
63	51.7	75.0	115.0#
154	54.1	330.0	370.0#



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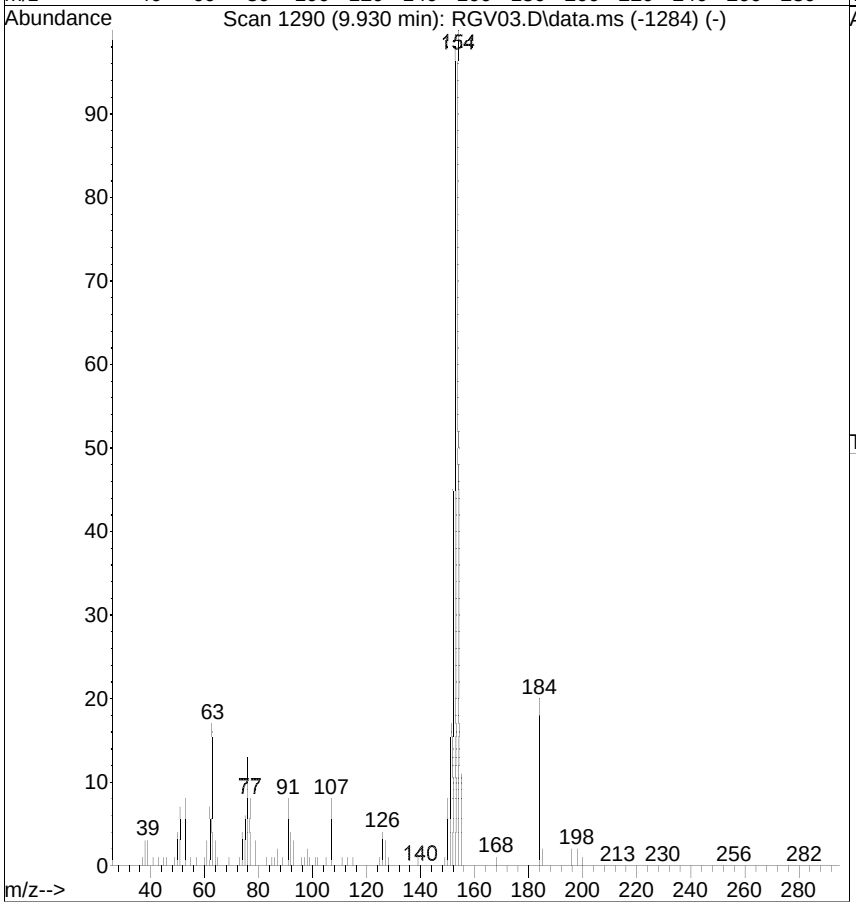
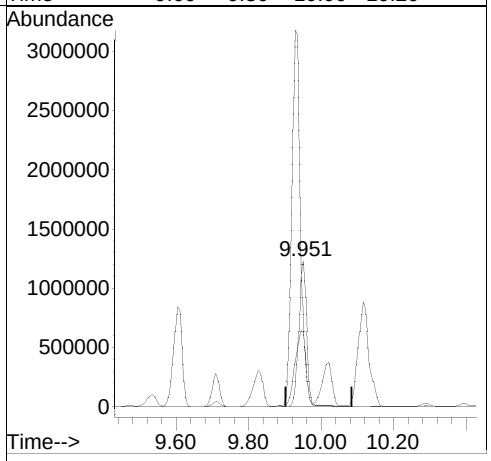
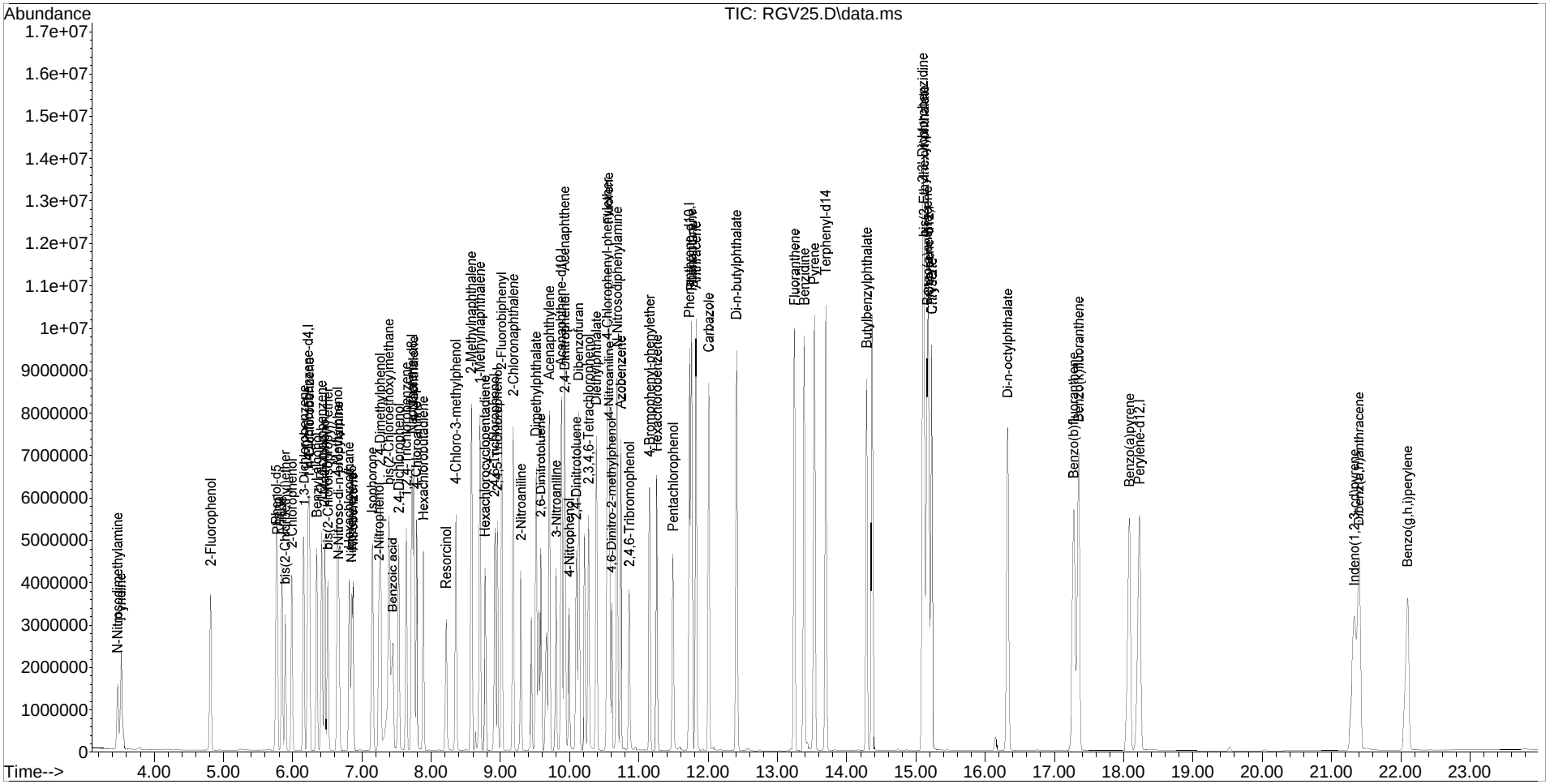




Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV25.D
Acq On : 31 Jul 2014 11:48 pm
Operator :
Sample : ICV,S24471
Misc : ICV
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Aug 01 10:15:27 2014
Quant Method : G:\msbna09\073114\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Fri Aug 01 10:08:44 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV25.D
Acq On : 31 Jul 2014 11:48 pm
Operator :
Sample : ICV,S24471
Misc : ICV
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Aug 01 10:15:27 2014
Quant Method : G:\msbna09\073114\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Fri Aug 01 10:08:44 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.228	152	1182180	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.722	136	4548128	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.881	164	2933976	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.734	188	5437830	40.0000	ug/mL	0.00
70) Chrysene-d12	15.192	240	6082866	40.0000	ug/mL	0.00
79) Perylene-d12	18.233	264	5491355	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.522	79	1767947	37.7486	ug/mL	89
3) N-Nitrosodimethylamine	3.475	42	782845	38.4474	ug/mL	# 67
4) 2-Fluorophenol	4.816	112	1668007	38.4954	ug/mL	# 67
5) Phenol-d5	5.769	99	1949732	38.5719	ug/mL	75
6) Phenol	5.787	94	1975968	38.1945	ug/mL	87
7) Aniline	5.852	93	2418669m	39.3546	ug/mL	
8) bis(2-Chloroethyl)ether	5.899	93	1537116	39.2927	ug/mL	95
9) 2-Chlorophenol	5.993	128	1714728	38.8113	ug/mL	89
10) 1,3-Dichlorobenzene	6.169	146	1850144	39.4889	ug/mL	97
11) 1,4-Dichlorobenzene	6.246	146	1847652	38.9975	ug/mL	90
12) Benzyl alcohol	6.357	108	1142921	40.1231	ug/mL	# 83
13) 1,2-Dichlorobenzene	6.422	146	1732408	39.1162	ug/mL	96
14) 2-Methylphenol	6.463	107	1293185	39.2211	ug/mL	96
15) bis(2-Chloroisopropyl) ether	6.510	45	2135720	39.1313	ug/mL	99
16) 4-Methylphenol	6.646	107	1732025	34.0857	ug/mL	97
17) N-Nitroso-di-n-propylamine	6.663	70	1150768	39.4370	ug/mL	85
18) Hexachloroethane	6.816	117	718779	39.1037	ug/mL	96
20) Nitrobenzene-d5	6.852	82	1691802	38.6583	ug/mL	# 71
21) Nitrobenzene	6.875	77	1618830	39.5250	ug/mL	83
22) Isophorone	7.157	82	3431226	40.9386	ug/mL	93
23) 2-Nitrophenol	7.252	139	914482	39.5589	ug/mL	79
24) 2,4-Dimethylphenol	7.269	107	1748016	41.8106	ug/mL	86
25) bis(2-Chloroethoxy)methane	7.387	93	2050385	39.4151	ug/mL	99
26) Benzoic acid	7.446	105	3093297	105.3821	ug/mL	91
27) 2,4-Dichlorophenol	7.534	162	1426145	39.9833	ug/mL	97
28) 1,2,4-Trichlorobenzene	7.646	180	1433013	39.5431	ug/mL	96
29) Naphthalene	7.746	128	4721471	38.1327	ug/mL	98
30) 4-Chloroaniline	7.787	127	2324328	42.0002	ug/mL	96
31) Hexachlorobutadiene	7.893	225	817972	40.7521	ug/mL	98
32) Resorcinol	8.222	110	1612548	43.3056	ug/mL	90
33) 4-Chloro-3-methylphenol	8.357	107	1600532	39.8431	ug/mL	95
34) 2-Methylnaphthalene	8.587	142	3522783	40.3928	ug/mL	94
35) 1-Methylnaphthalene	8.710	142	3266736	39.7464	ug/mL	92
37) Hexachlorocyclopentadiene	8.781	237	1014435	36.7115	ug/mL	98
38) 2,4,6-Trichlorophenol	8.922	196	1087133	38.7907	ug/mL	94

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV25.D
Acq On : 31 Jul 2014 11:48 pm
Operator :
Sample : ICV,S24471
Misc : ICV
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Aug 01 10:15:27 2014
Quant Method : G:\msbna09\073114\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Fri Aug 01 10:08:44 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.963	196	1200287	40.1932	ug/mL	91
40) 2-Fluorobiphenyl	9.022	172	3896885	37.3192	ug/mL	99
41) 2-Chloronaphthalene	9.187	162	3339246	38.3149	ug/mL	94
42) 2-Nitroaniline	9.298	65	1006568	38.8728	ug/mL #	77
43) Dimethylphthalate	9.522	163	4135934	39.9301	ug/mL	99
44) 2,6-Dinitrotoluene	9.593	165	1014218	40.4421	ug/mL #	75
45) Acenaphthylene	9.710	152	5354705	43.2580	ug/mL	99
46) 3-Nitroaniline	9.810	138	1122391	40.1056	ug/mL #	65
47) Acenaphthene	9.928	154	3303777	35.9360	ug/mL	94
48) 2,4-Dinitrophenol	9.934	184	465776m	40.3598	ug/mL	
49) 4-Nitrophenol	9.992	109	540025m	38.5163	ug/mL	
50) Dibenzofuran	10.134	168	4879132	38.2886	ug/mL	80
51) 2,4-Dinitrotoluene	10.098	165	1378348	39.6281	ug/mL	80
52) 2,3,4,6-Tetrachlorophenol	10.281	232	1053623	42.9421	ug/mL	89
53) Diethylphthalate	10.387	149	4261215	37.8997	ug/mL	97
54) 4-Chlorophenyl-phenylether	10.545	204	2033818	38.2481	ug/mL #	78
55) Fluorene	10.563	166	3977628	37.7996	ug/mL	88
56) 4-Nitroaniline	10.575	138	1107412	38.2082	ug/mL #	22
57) 2,4,6-Tribromophenol	10.863	330	671879	42.8910	ug/mL #	79
59) 4,6-Dinitro-2-methylphenol	10.610	198	758254	38.4456	ug/mL #	82
60) N-Nitrosodiphenylamine	10.692	169	3626846	44.6573	ug/mL	89
61) Azobenzene	10.745	77	4118927	37.9297	ug/mL	92
62) 4-Bromophenyl-phenylether	11.157	248	1292410	38.3610	ug/mL #	84
63) Hexachlorobenzene	11.263	284	1423719	39.1651	ug/mL	95
64) Pentachlorophenol	11.492	266	862073	37.4079	ug/mL	98
65) Phenanthrene	11.763	178	5882286	37.2645	ug/mL	97
66) Anthracene	11.828	178	6041735	38.6991	ug/mL	96
67) Carbazole	12.010	167	5644994	40.9251	ug/mL	87
68) Di-n-butylphthalate	12.410	149	7444228	37.2995	ug/mL	97
69) Fluoranthene	13.251	202	6374894	36.7046	ug/mL	97
71) Benzidine	13.392	184	6286009	94.8690	ug/mL	90
72) Pyrene	13.539	202	6582567	36.2036	ug/mL	94
73) Terphenyl-d14	13.698	244	5403602	38.2629	ug/mL	97
74) Butylbenzylphthalate	14.292	149	3333693	38.5124	ug/mL	97
75) 3,3'-Dichlorobenzidine	15.104	252	3933884	59.8359	ug/mL	99
76) Benzo(a)anthracene	15.169	228	6685242	39.0385	ug/mL	97
77) bis(2-Ethylhexyl)phthalate	15.122	149	4688187	39.4192	ug/mL	95
78) Chrysene	15.233	228	6060591	37.3552	ug/mL	96
80) Di-n-octylphthalate	16.327	149	8186900	38.6048	ug/mL	98
81) Benzo(b)fluoranthene	17.280	252	6756942	42.4299	ug/mL	96
82) Benzo(k)fluoranthene	17.351	252	6179071	38.9455	ug/mL	94
83) Benzo(a)pyrene	18.086	252	6035991	44.6223	ug/mL	96
84) Indeno(1,2,3-cd)pyrene	21.333	276	6202837	39.2740	ug/mL	89

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\073114\
Data File : RGV25.D
Acq On : 31 Jul 2014 11:48 pm
Operator :
Sample : ICV,S24471
Misc : ICV
ALS Vial : 25 Sample Multiplier: 1

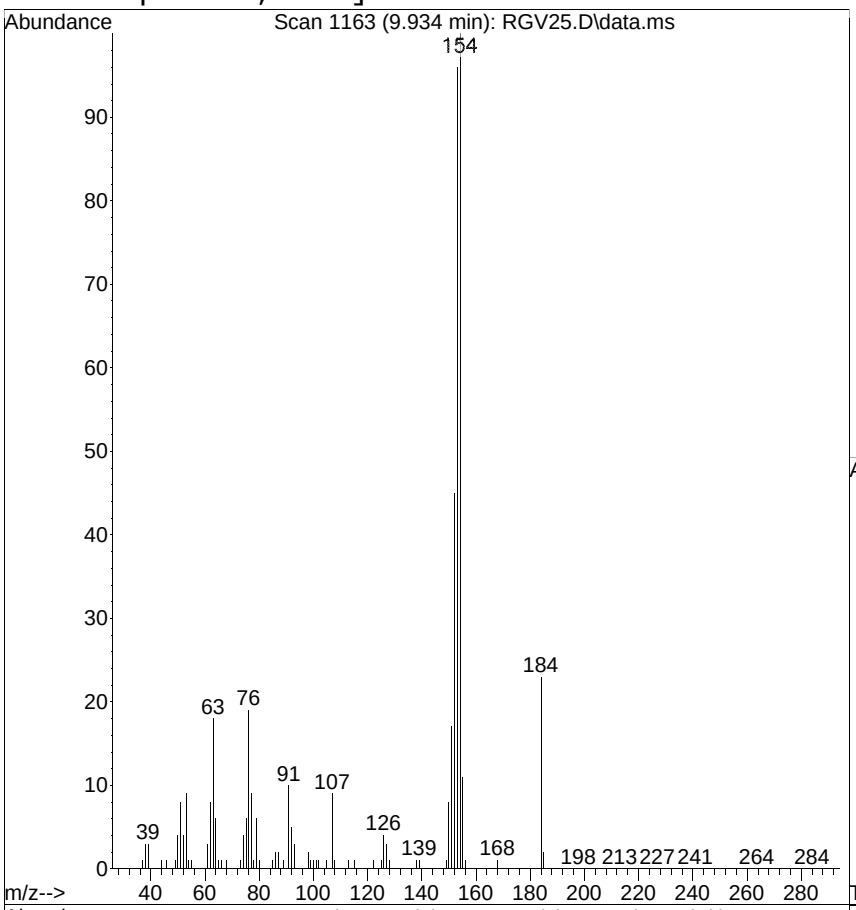
Quant Time: Aug 01 10:15:27 2014
Quant Method : G:\msbna09\073114\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Fri Aug 01 10:08:44 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.398	278	5484867	38.7028	ug/mL	95
86) Benzo(g,h,i)perylene	22.103	276	4878755	38.7970	ug/mL	96

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

[2,4-Dinitrophenol; MI]

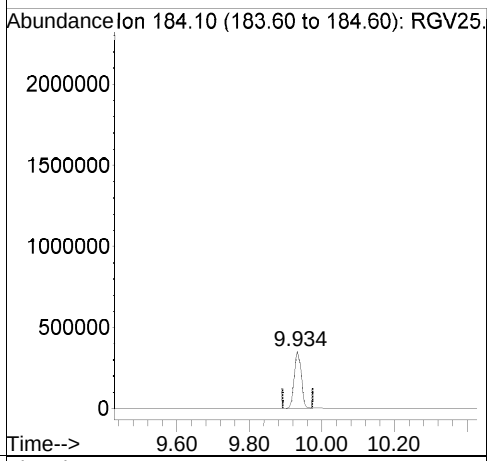
Raw



#48
2,4-Dinitrophenol
Concen: 40.3598 ug/mL m
RT: 9.934 min Scan# 1163
Delta R.T. 0.006 min
Lab File: RGV25.D
Acq: 31 Jul 2014 11:48 pm

Tgt Ion:184 Resp: 465776

Ion	Ratio	Lower	Upper
184	100		
63	81.6	75.0	115.0
154	441.7	330.0	370.0#



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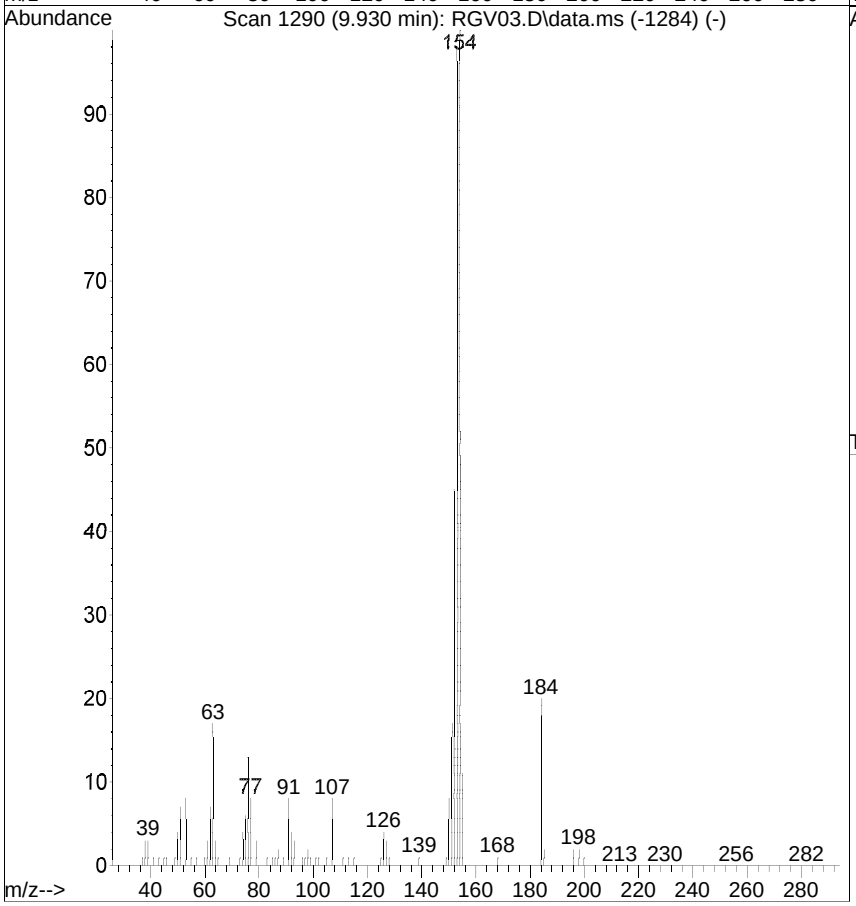
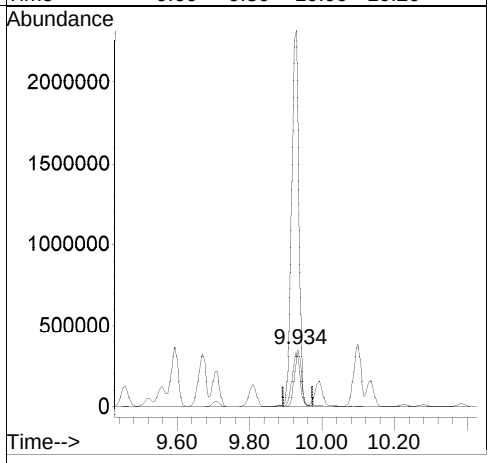
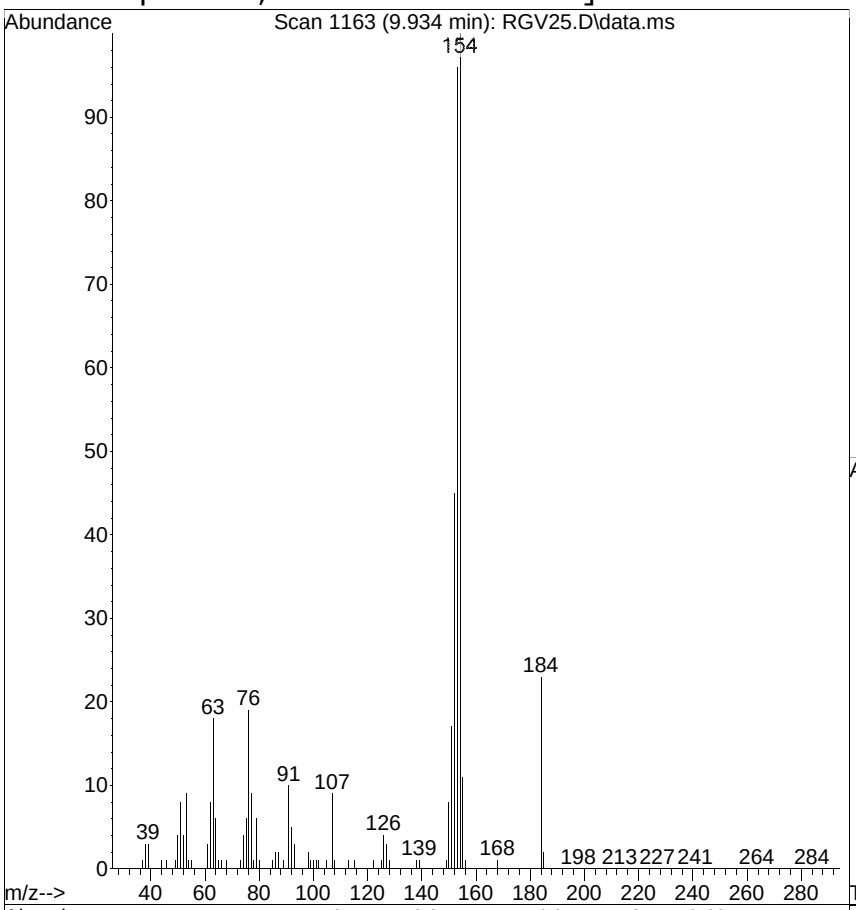




[2,4-Dinitrophenol; before version]

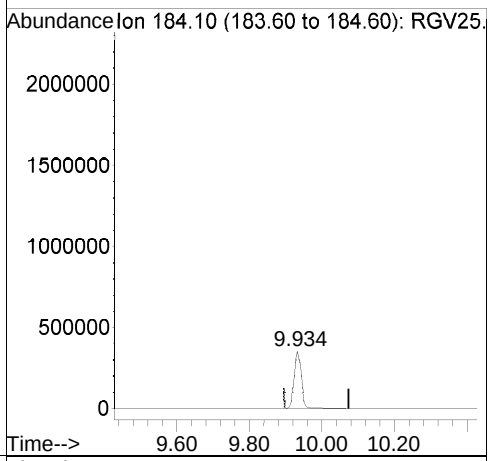
Raw



#48
2,4-Dinitrophenol
Concen: 40.9185 ug/mL
RT: 9.934 min Scan# 1163
Delta R.T. 0.006 min
Lab File: RGV25.D
Acq: 31 Jul 2014 11:48 pm

Tgt Ion:184 Resp: 475254

Ion	Ratio	Lower	Upper
184	100		
63	81.6	75.0	115.0
154	441.7	330.0	370.0#



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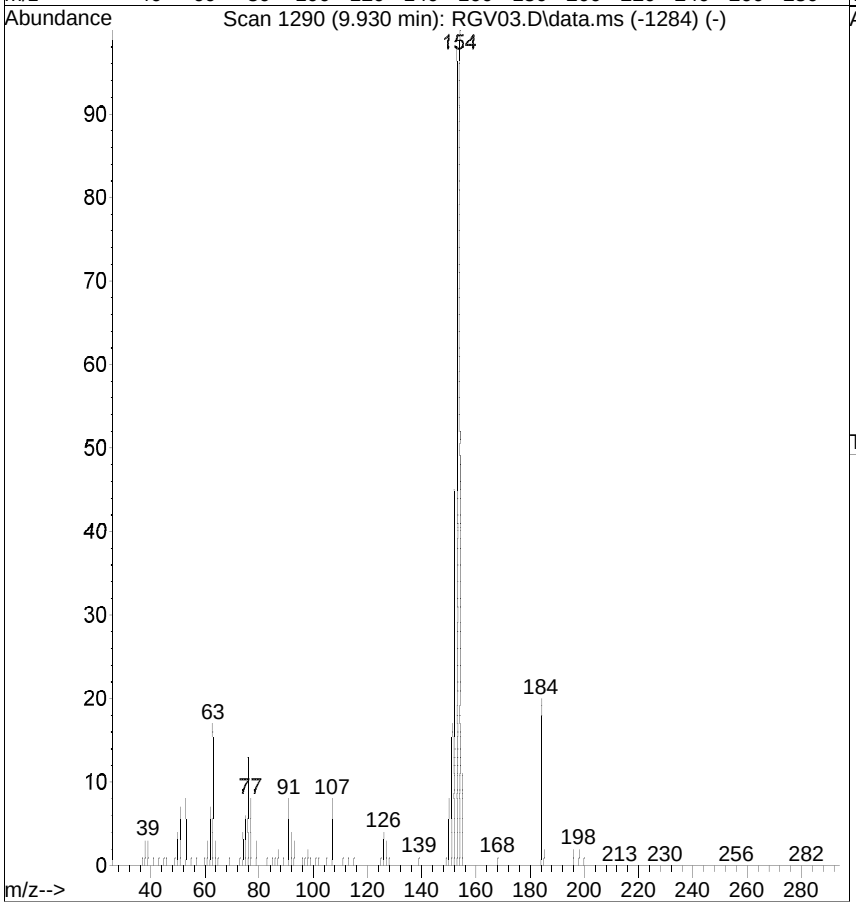
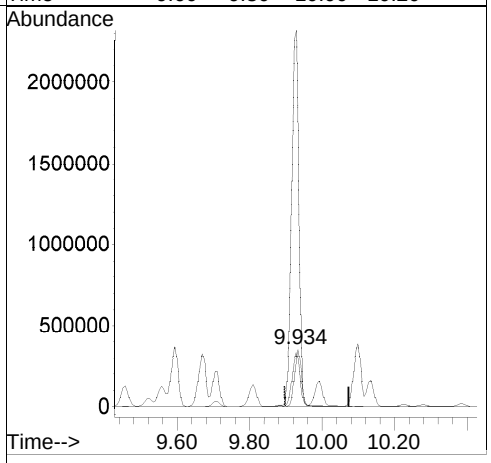
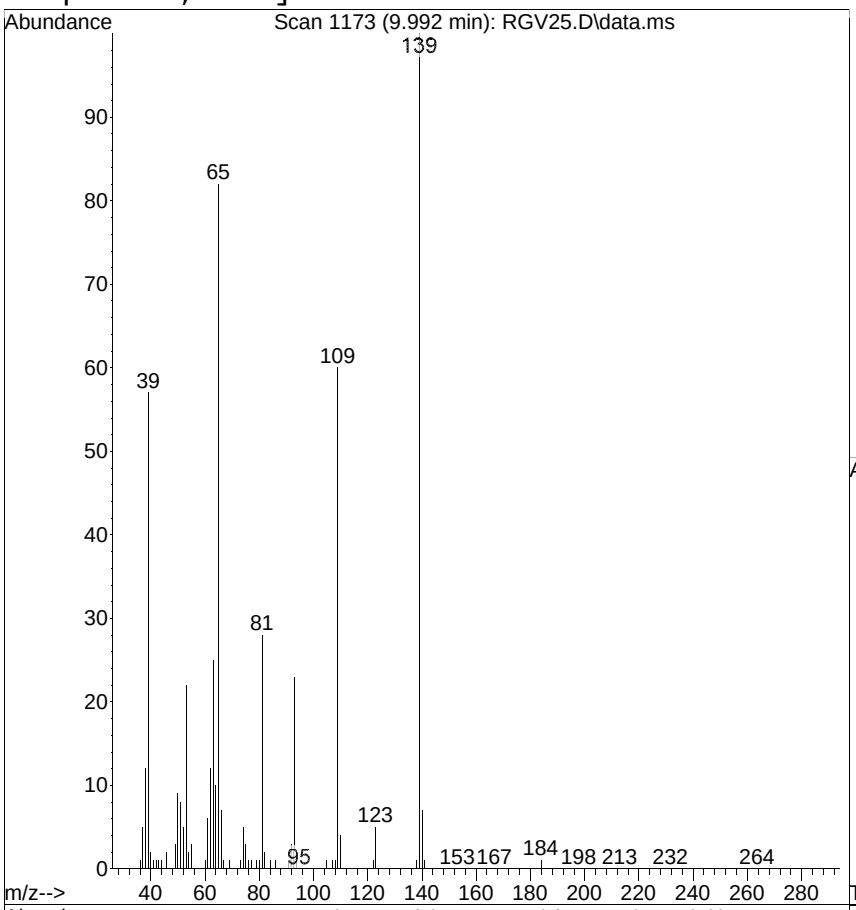




[4-Nitrophenol; MI]

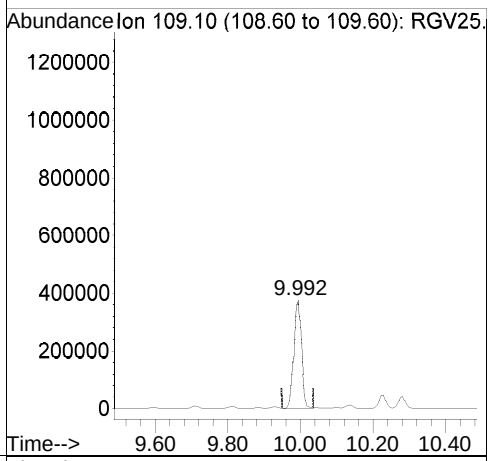
Raw



#49
4-Nitrophenol
Concen: 38.5163 ug/mL m
RT: 9.992 min Scan# 1173
Delta R.T. 0.006 min
Lab File: RGV25.D
Acq: 31 Jul 2014 11:48 pm

Tgt Ion:109 Resp: 540025

Ion	Ratio	Lower	Upper
109	100		
139	167.6	109.0	149.0#
65	138.0	122.0	162.0



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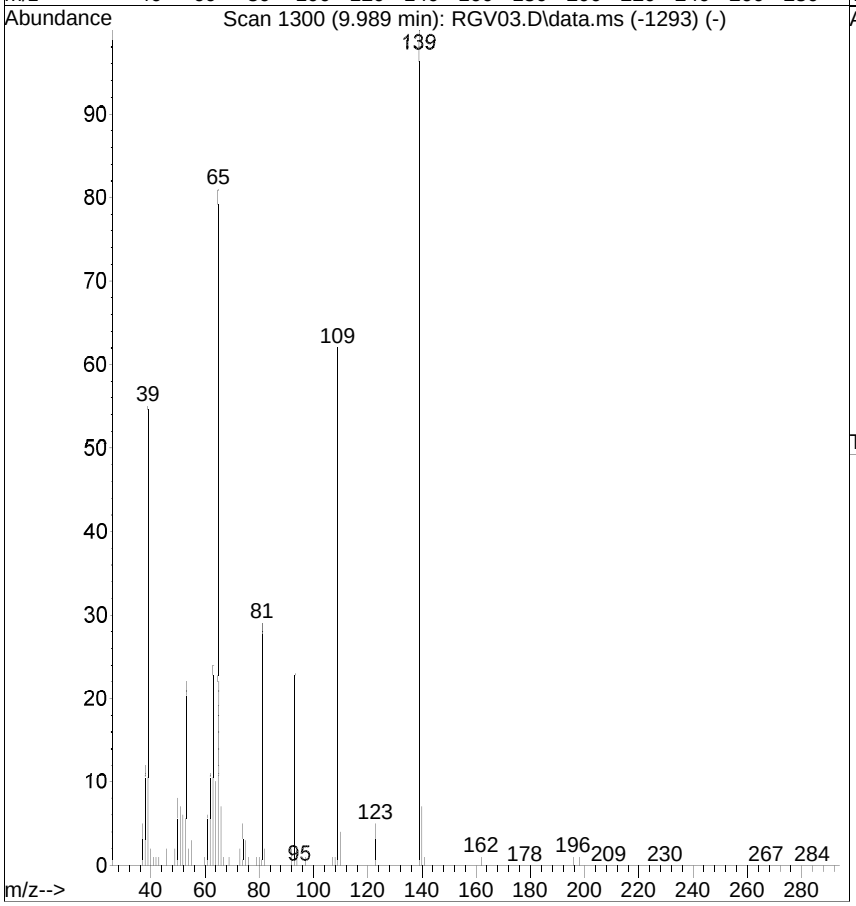
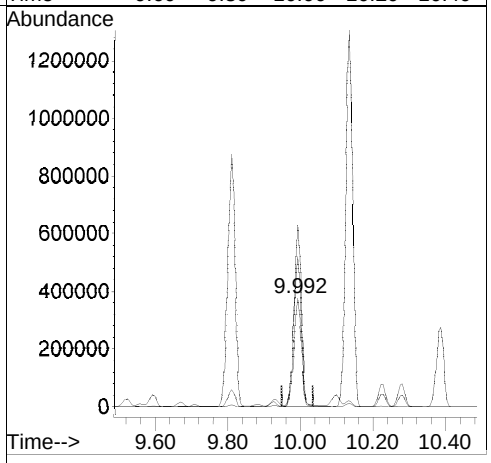
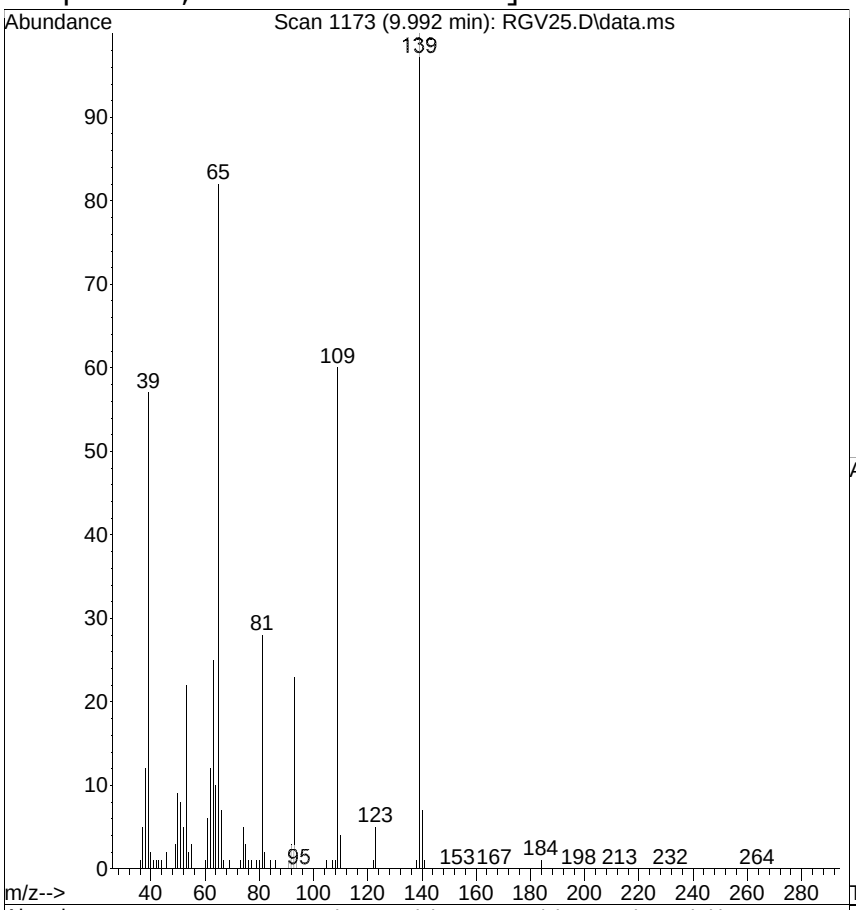




[4-Nitrophenol; before version]

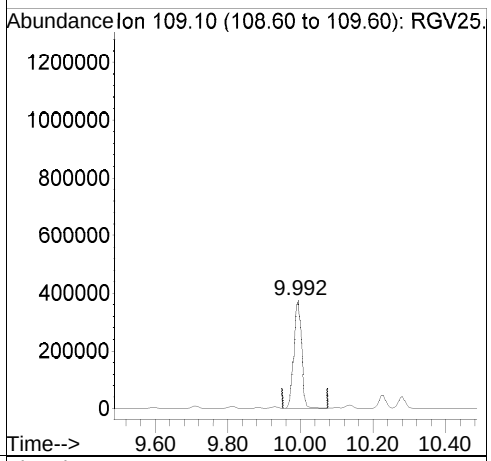
Raw



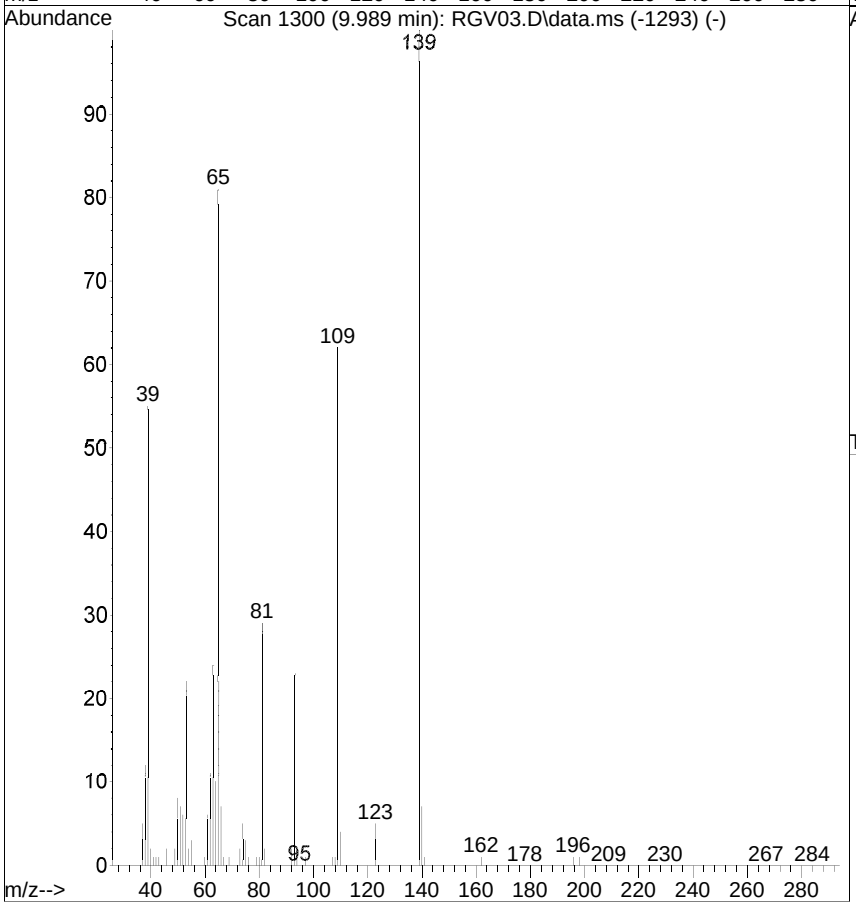
#49
4-Nitrophenol
Concen: 38.7218 ug/mL
RT: 9.992 min Scan# 1173
Delta R.T. 0.006 min
Lab File: RGV25.D
Acq: 31 Jul 2014 11:48 pm

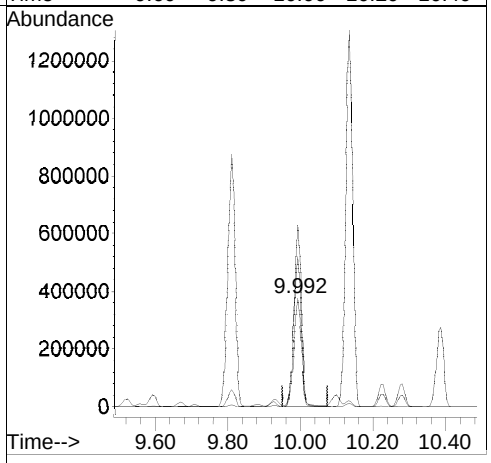
Tgt Ion:109 Resp: 542906

Ion	Ratio	Lower	Upper
109	100		
139	167.6	109.0	149.0#
65	138.0	122.0	162.0



Ref





Continuing Calibration Verification Raw Data

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 MSBNA Water
EPA 8270D

Inst : MSBNA05 IDF : 1.0
Seqnum : 544337710003.1 File : xhm03 Time : 22-AUG-2014 13:21
Cal : 544327680001 Caldate : 15-AUG-2014
Standards: S25410

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
N-Nitrosodimethylamine	0.6698	0.6237	32.00	29.80	ug/mL	-7	20	0.0500	
Phenol	1.6896	1.6734	32.00	31.69	ug/mL	-1	20	0.8000	
bis(2-Chloroethyl)ether	1.2308	1.2209	32.00	31.74	ug/mL	-1	20	0.7000	
2-Chlorophenol	1.4096	1.4448	32.00	32.80	ug/mL	2	20	0.8000	
1,3-Dichlorobenzene	1.5127	1.5961	32.00	33.76	ug/mL	6	20	0.0500	
1,4-Dichlorobenzene	1.5089	1.6387	32.00	34.75	ug/mL	9	20	0.0500	
Benzyl alcohol	0.9408	0.9272	32.00	31.54	ug/mL	-1	20	0.0500	
1,2-Dichlorobenzene	1.4769	1.5861	32.00	34.37	ug/mL	7	20	0.0500	
2-Methylphenol	1.1390	1.1543	32.00	32.43	ug/mL	1	20	0.7000	
bis(2-Chloroisopropyl) ether	1.8550	1.7147	32.00	29.58	ug/mL	-8	20	0.0100	
4-Methylphenol	1.6809	1.6529	32.00	31.47	ug/mL	-2	20	0.6000	
N-Nitroso-di-n-propylamine	0.8406	0.8372	32.00	31.87	ug/mL	0	20	0.5000	
Hexachloroethane	0.6432	0.6638	32.00	33.03	ug/mL	3	20	0.3000	
Nitrobenzene	0.4083	0.3898	32.00	30.55	ug/mL	-5	20	0.2000	
Isophorone	0.7286	0.6823	32.00	29.97	ug/mL	-6	20	0.4000	
2-Nitrophenol	0.2054	0.2075	32.00	32.32	ug/mL	1	20	0.1000	
2,4-Dimethylphenol	0.3594	0.3552	32.00	31.62	ug/mL	-1	20	0.2000	
bis(2-Chloroethoxy)methane	0.4299	0.4127	16.00	15.36	ug/mL	-4	20	0.3000	
Benzoic acid	0.2677	0.2252	80.00	67.30	ug/mL	-16	20	0.0500	
2,4-Dichlorophenol	0.3040	0.3226	32.00	33.96	ug/mL	6	20	0.2000	
1,2,4-Trichlorobenzene	0.3182	0.3506	32.00	35.26	ug/mL	10	20	0.0500	
Naphthalene	1.0955	1.1515	16.00	16.82	ug/mL	5	20	0.7000	
4-Chloroaniline	0.4369	0.4679	32.00	32.21	ug/mL	1	20	0.0100	
Hexachlorobutadiene	0.1650	0.1865	32.00	36.18	ug/mL	13	20	0.0100	
4-Chloro-3-methylphenol	0.3207	0.3176	32.00	31.70	ug/mL	-1	20	0.2000	
2-Methylnaphthalene	0.7396	0.7702	16.00	16.66	ug/mL	4	20	0.4000	
Hexachlorocyclopentadiene	0.3300	0.3548	32.00	34.40	ug/mL	7	20	0.0500	
2,4,6-Trichlorophenol	0.3660	0.3983	32.00	34.82	ug/mL	9	20	0.2000	
2,4,5-Trichlorophenol	0.3900	0.4295	32.00	35.24	ug/mL	10	20	0.2000	
2-Chloronaphthalene	1.1656	1.2477	16.00	17.13	ug/mL	7	20	0.8000	
2-Nitroaniline	0.4008	0.3894	32.00	31.09	ug/mL	-3	20	0.0100	
Dimethylphthalate	1.2709	1.3786	32.00	34.71	ug/mL	8	20	0.0100	
2,6-Dinitrotoluene	0.3123	0.3278	32.00	33.59	ug/mL	5	20	0.2000	
Acenaphthylene	1.9468	2.0174	16.00	16.58	ug/mL	4	20	0.9000	
3-Nitroaniline	0.3467	0.3376	32.00	31.16	ug/mL	-3	20	0.0100	
Acenaphthene	1.2140	1.2997	16.00	17.13	ug/mL	7	20	0.9000	
2,4-Dinitrophenol	0.1633	0.1332	32.00	30.77	ug/mL	-4	20	0.0100	
4-Nitrophenol	0.1875	0.1889	32.00	32.24	ug/mL	1	20	0.0100	
Dibenzofuran	1.6090	1.7668	16.00	17.57	ug/mL	10	20	0.8000	
2,4-Dinitrotoluene	0.4105	0.4432	32.00	34.55	ug/mL	8	20	0.2000	
Diethylphthalate	1.4209	1.4989	16.00	16.88	ug/mL	5	20	0.0100	
Fluorene	1.3851	1.5029	16.00	17.36	ug/mL	9	20	0.9000	
4-Chlorophenyl-phenylether	0.6164	0.6805	16.00	17.66	ug/mL	10	20	0.4000	
4-Nitroaniline	0.3594	0.3461	32.00	30.82	ug/mL	-4	20	0.0100	
4,6-Dinitro-2-methylphenol	0.1361	0.1337	32.00	31.43	ug/mL	-2	20	0.0100	
N-Nitrosodiphenylamine	0.6073	0.6155	16.00	16.22	ug/mL	1	20	0.0100	
Azobenzene	0.9270	0.8623	16.00	14.88	ug/mL	-7	20	0.0500	
4-Bromophenyl-phenylether	0.2207	0.2292	16.00	16.61	ug/mL	4	20	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Hexachlorobenzene	0.2199	0.2488	32.00	36.21	ug/mL	13	20	0.1000	
Pentachlorophenol	0.1511	0.1598	32.00	33.83	ug/mL	6	20	0.0500	
Phenanthrene	1.1442	1.1958	16.00	16.72	ug/mL	5	20	0.7000	
Anthracene	1.1638	1.2162	16.00	16.72	ug/mL	5	20	0.7000	
Carbazole	0.9656	1.0615	32.00	35.18	ug/mL	10	20	0.0100	
Di-n-butylphthalate	1.4456	1.4827	16.00	16.41	ug/mL	3	20	0.0100	
Fluoranthene	1.2637	1.3255	16.00	16.78	ug/mL	5	20	0.6000	
Pyrene	1.2850	1.2987	16.00	16.17	ug/mL	1	20	0.6000	
Butylbenzylphthalate	0.6466	0.5988	16.00	14.82	ug/mL	-7	20	0.0100	
3,3'-Dichlorobenzidine	0.3696	0.3720	32.00	32.21	ug/mL	1	20	0.0100	
Benzo(a)anthracene	1.1441	1.1317	16.00	15.83	ug/mL	-1	20	0.8000	
bis(2-Ethylhexyl)phthalate	0.8394	0.8588	16.00	16.37	ug/mL	2	20	0.0100	
Chrysene	1.0537	1.0607	16.00	16.11	ug/mL	1	20	0.7000	
Di-n-octylphthalate	1.7540	1.5766	16.00	14.38	ug/mL	-10	20	0.0100	
Benzo(b)fluoranthene	1.2072	1.1684	16.00	15.49	ug/mL	-3	20	0.7000	
Benzo(k)fluoranthene	1.0969	1.1143	16.00	16.25	ug/mL	2	20	0.7000	
Benzo(a)pyrene	1.1520	1.1383	16.00	15.81	ug/mL	-1	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.2676	1.2661	16.00	15.98	ug/mL	0	20	0.5000	
Dibenz(a,h)anthracene	1.0805	1.0496	16.00	15.54	ug/mL	-3	20	0.4000	
Benzo(g,h,i)perylene	1.0588	0.9985	16.00	15.09	ug/mL	-6	20	0.5000	
2-Fluorophenol	1.3488	1.3117	16.00	15.56	ug/mL	-3	20	0.0500	
Phenol-d5	1.6768	1.6384	16.00	15.63	ug/mL	-2	20	0.0500	
Nitrobenzene-d5	0.4472	0.4317	16.00	15.45	ug/mL	-3	20	0.0500	
2-Fluorobiphenyl	1.4224	1.5512	16.00	17.45	ug/mL	9	20	0.0500	
2,4,6-Tribromophenol	0.1832	0.2197	16.00	19.19	ug/mL	20	20	0.0500	
Terphenyl-d14	0.8766	0.9028	16.00	16.48	ug/mL	3	20	0.0500	

ISTD (ICAL xhf11)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	1031318	819662	-20.52
Naphthalene-d8	3900538	3193615	-18.12
Acenaphthene-d10	2287286	1835047	-19.77
Phenanthrene-d10	3792150	3280267	-13.50
Chrysene-d12	4068719	3737425	-8.14
Perylene-d12	3663483	3429326	-6.39

ISTD (ICAL xhf11)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.04	6.04	0.00
Naphthalene-d8	7.55	7.55	0.00
Acenaphthene-d10	9.73	9.73	0.00
Phenanthrene-d10	11.60	11.60	0.00
Chrysene-d12	15.04	15.04	0.00
Perylene-d12	18.01	18.01	0.00

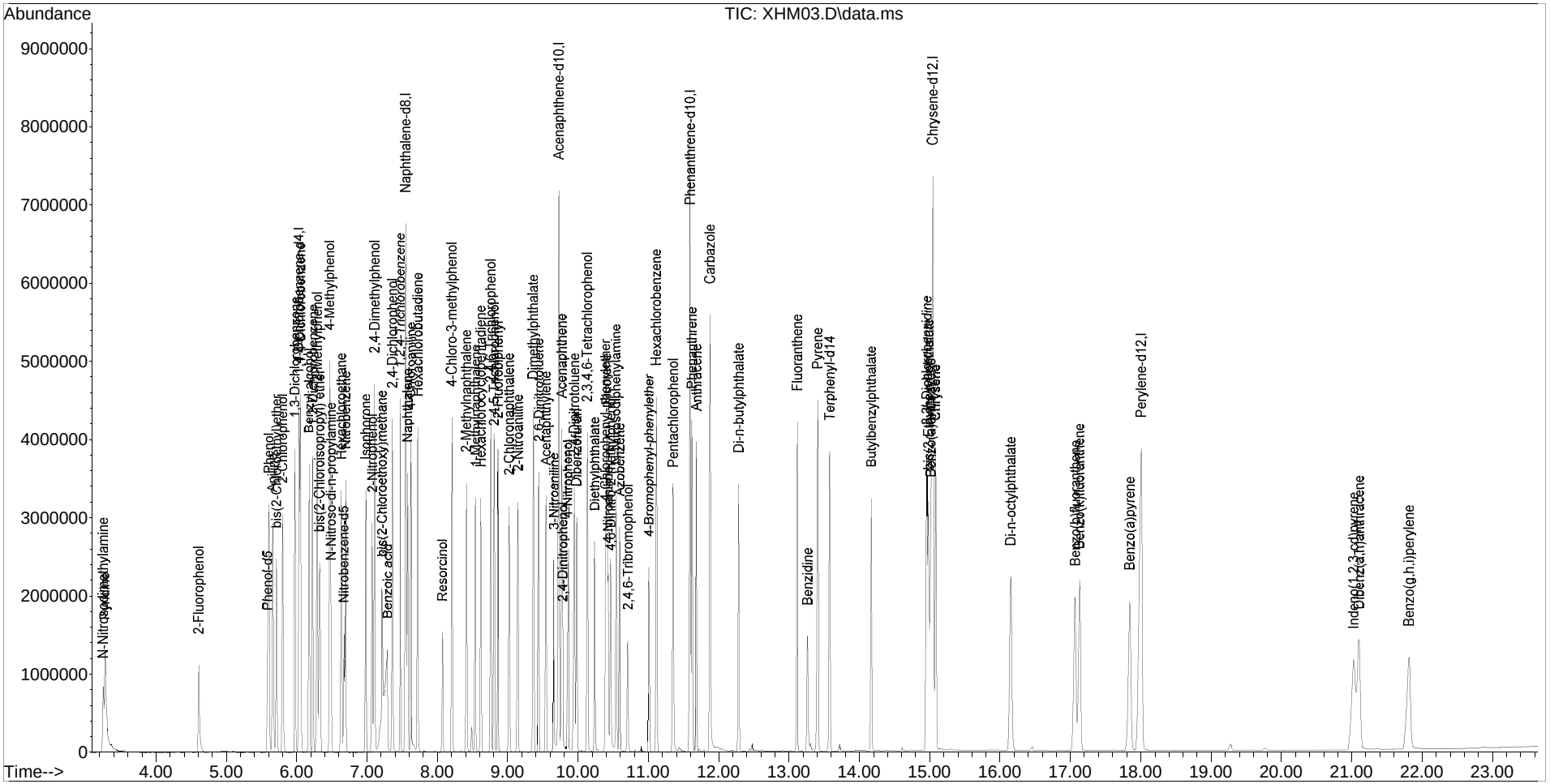
KMH 08/27/14 [Aniline]: Picked or reassigned peak. [general version]

Analyst: KMH Date: 08/26/14 Reviewer: LW Date: 08/27/14

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\082214\
Data File : XHM03.D
Acq On : 22 Aug 2014 1:21 pm
Operator :
Sample : CCV,S25410
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 22 13:47:26 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Thu Aug 21 17:14:05 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\082214\
Data File : XHM03.D
Acq On : 22 Aug 2014 1:21 pm
Operator :
Sample : CCV,S25410
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 22 13:47:26 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Thu Aug 21 17:14:05 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.036	152	819662	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.548	136	3193615	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.733	164	1835047	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.597	188	3280267	40.0000	ug/mL	0.00
70) Chrysene-d12	15.043	240	3737425	40.0000	ug/mL	0.00
79) Perylene-d12	18.013	264	3429326	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.274	79	920508	30.4527	ug/mL	94
3) N-Nitrosodimethylamine	3.247	42	408968	29.7954	ug/mL	# 73
4) 2-Fluorophenol	4.610	112	430050	15.5599	ug/mL	# 73
5) Phenol-d5	5.593	99	537169	15.6336	ug/mL	79
6) Phenol	5.609	94	1097297	31.6940	ug/mL	78
7) Aniline	5.662	93	1298108m	31.3897	ug/mL	
8) bis(2-Chloroethyl)ether	5.715	93	800598	31.7431	ug/mL	96
9) 2-Chlorophenol	5.801	128	947369	32.7990	ug/mL	94
10) 1,3-Dichlorobenzene	5.977	146	1046602	33.7642	ug/mL	97
11) 1,4-Dichlorobenzene	6.057	146	1074570	34.7525	ug/mL	91
12) Benzyl alcohol	6.180	108	608010	31.5385	ug/mL	92
13) 1,2-Dichlorobenzene	6.239	146	1040036	34.3655	ug/mL	99
14) 2-Methylphenol	6.298	107	756929	32.4304	ug/mL	97
15) bis(2-Chloroisopropyl) ether	6.330	45	1124389	29.5799	ug/mL	96
16) 4-Methylphenol	6.474	107	1083878	31.4674	ug/mL	91
17) N-Nitroso-di-n-propylamine	6.490	70	548995	31.8707	ug/mL	83
18) Hexachloroethane	6.634	117	435303	33.0259	ug/mL	96
20) Nitrobenzene-d5	6.672	82	551414	15.4450	ug/mL	# 77
21) Nitrobenzene	6.698	77	995806	30.5507	ug/mL	88
22) Isophorone	6.982	82	1743233	29.9684	ug/mL	99
23) 2-Nitrophenol	7.078	139	530072	32.3201	ug/mL	83
24) 2,4-Dimethylphenol	7.110	107	907431	31.6208	ug/mL	87
25) bis(2-Chloroethoxy)methane	7.217	93	527173	15.3574	ug/mL	96
26) Benzoic acid	7.297	105	1438561	67.3046	ug/mL	95
27) 2,4-Dichlorophenol	7.366	162	824258	33.9610	ug/mL	97
28) 1,2,4-Trichlorobenzene	7.473	180	895624	35.2590	ug/mL	96
29) Naphthalene	7.575	128	1470983	16.8180	ug/mL	96
30) 4-Chloroaniline	7.623	127	1195507	32.2077	ug/mL	93
31) Hexachlorobutadiene	7.724	225	476612	36.1782	ug/mL	98
32) Resorcinol	8.077	110	514630	31.8924	ug/mL	94
33) 4-Chloro-3-methylphenol	8.205	107	811461	31.6957	ug/mL	92
34) 2-Methylnaphthalene	8.419	142	983950	16.6629	ug/mL	90
35) 1-Methylnaphthalene	8.547	142	929509	16.5745	ug/mL	88
37) Hexachlorocyclopentadiene	8.622	237	520816	34.3974	ug/mL	97
38) 2,4,6-Trichlorophenol	8.766	196	584692	34.8244	ug/mL	94

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\082214\
Data File : XHM03.D
Acq On : 22 Aug 2014 1:21 pm
Operator :
Sample : CCV,S25410
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 22 13:47:26 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Thu Aug 21 17:14:05 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.814	196	630559	35.2398	ug/mL	90
40) 2-Fluorobiphenyl	8.867	172	1138618	17.4484	ug/mL	97
41) 2-Chloronaphthalene	9.028	162	915837	17.1268	ug/mL	93
42) 2-Nitroaniline	9.151	65	571685	31.0935	ug/mL #	85
43) Dimethylphthalate	9.364	163	2023842	34.7128	ug/mL	97
44) 2,6-Dinitrotoluene	9.444	165	481221	33.5881	ug/mL	85
45) Acenaphthylene	9.551	152	1480810	16.5803	ug/mL	98
46) 3-Nitroaniline	9.663	138	495556	31.1567	ug/mL #	62
47) Acenaphthene	9.770	154	954031	17.1296	ug/mL	95
48) 2,4-Dinitrophenol	9.786	184	195473	30.7683	ug/mL #	1
49) 4-Nitrophenol	9.861	109	277272	32.2362	ug/mL #	82
50) Dibenzofuran	9.984	168	1296873	17.5691	ug/mL	80
51) 2,4-Dinitrotoluene	9.952	165	650638	34.5488	ug/mL	89
52) 2,3,4,6-Tetrachlorophenol	10.134	232	519865	38.1352	ug/mL	90
53) Diethylphthalate	10.240	149	1100248	16.8790	ug/mL	100
54) 4-Chlorophenyl-phenylether	10.395	204	499496	17.6644	ug/mL #	74
55) Fluorene	10.411	166	1103132	17.3608	ug/mL	86
56) 4-Nitroaniline	10.433	138	508083	30.8166	ug/mL #	11
57) 2,4,6-Tribromophenol	10.716	330	161258	19.1898	ug/mL #	81
59) 4,6-Dinitro-2-methylphenol	10.470	198	350906	31.4336	ug/mL	83
60) N-Nitrosodiphenylamine	10.545	169	807585	16.2163	ug/mL	92
61) Azobenzene	10.598	77	1131440	14.8831	ug/mL	96
62) 4-Bromophenyl-phenylether	11.015	248	300685	16.6123	ug/mL #	81
63) Hexachlorobenzene	11.117	284	652947	36.2062	ug/mL	86
64) Pentachlorophenol	11.357	266	419356	33.8344	ug/mL	97
65) Phenanthrene	11.624	178	1568952	16.7202	ug/mL	97
66) Anthracene	11.688	178	1595758	16.7202	ug/mL	95
67) Carbazole	11.880	167	2785694	35.1780	ug/mL	85
68) Di-n-butylphthalate	12.286	149	1945423	16.4098	ug/mL	97
69) Fluoranthene	13.120	202	1739246	16.7828	ug/mL	100
71) Benzidine	13.269	184	715001	31.9394	ug/mL	90
72) Pyrene	13.408	202	1941516	16.1703	ug/mL	92
73) Terphenyl-d14	13.579	244	1349660	16.4780	ug/mL	94
74) Butylbenzylphthalate	14.172	149	895154	14.8160	ug/mL	95
75) 3,3'-Dichlorobenzidine	14.963	252	1112267	32.2078	ug/mL	98
76) Benzo(a)anthracene	15.016	228	1691854	15.8271	ug/mL	99
77) bis(2-Ethylhexyl)phthalate	14.984	149	1283869	16.3692	ug/mL	96
78) Chrysene	15.080	228	1585719	16.1066	ug/mL	93
80) Di-n-octylphthalate	16.154	149	2162647	14.3820	ug/mL	98
81) Benzo(b)fluoranthene	17.073	252	1602773	15.4865	ug/mL	98
82) Benzo(k)fluoranthene	17.132	252	1528547	16.2538	ug/mL	99
83) Benzo(a)pyrene	17.848	252	1561472	15.8100	ug/mL	98
84) Indeno(1,2,3-cd)pyrene	21.032	276	1736712	15.9810	ug/mL	96

Quantitation Report (QT Reviewed)

Data Path : G:\msbna05\082214\
Data File : XHM03.D
Acq On : 22 Aug 2014 1:21 pm
Operator :
Sample : CCV,S25410
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 22 13:47:26 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA5.M
Quant Title : MSBNA05 BNA
QLast Update : Thu Aug 21 17:14:05 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.107	278	1439777	15.5424	ug/mL	98
86) Benzo(g,h,i)perylene	21.817	276	1369640	15.0888	ug/mL	93

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

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 MSBNA Water
EPA 8270D

Inst : MSBNA09 IDF : 1.0
Seqnum : 584336313003.1 File : rhl03 Time : 21-AUG-2014 13:55
Cal : 584305789001 Caldate : 31-JUL-2014
Standards: S24428

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
N-Nitrosodimethylamine	0.6889	0.7185	40.00	41.72	ug/mL	4	20	0.0500	
Phenol	1.7505	1.7320	40.00	39.58	ug/mL	-1	20	0.8000	
bis(2-Chloroethyl)ether	1.3236	1.3003	40.00	39.30	ug/mL	-2	20	0.7000	
2-Chlorophenol	1.4949	1.5253	40.00	40.81	ug/mL	2	20	0.8000	
1,3-Dichlorobenzene	1.5853	1.6408	40.00	41.40	ug/mL	4	20	0.0500	
1,4-Dichlorobenzene	1.6031	1.6415	40.00	40.96	ug/mL	2	20	0.0500	
Benzyl alcohol	0.9638	0.9435	40.00	39.16	ug/mL	-2	20	0.0500	
1,2-Dichlorobenzene	1.4985	1.5398	40.00	41.10	ug/mL	3	20	0.0500	
2-Methylphenol	1.1156	1.1119	40.00	39.87	ug/mL	0	20	0.7000	
bis(2-Chloroisopropyl) ether	1.8467	1.8376	40.00	39.80	ug/mL	0	20	0.0100	
4-Methylphenol	1.7193	1.6807	40.00	39.10	ug/mL	-2	20	0.6000	
N-Nitroso-di-n-propylamine	0.9873	0.9595	40.00	38.87	ug/mL	-3	20	0.5000	
Hexachloroethane	0.6219	0.6059	40.00	38.97	ug/mL	-3	20	0.3000	
Nitrobenzene	0.3602	0.3709	40.00	41.19	ug/mL	3	20	0.2000	
Isophorone	0.7371	0.7420	40.00	40.27	ug/mL	1	20	0.4000	
2-Nitrophenol	0.2033	0.2246	40.00	44.19	ug/mL	10	20	0.1000	
2,4-Dimethylphenol	0.3677	0.3751	40.00	40.80	ug/mL	2	20	0.2000	
bis(2-Chloroethoxy)methane	0.4575	0.4562	20.00	19.94	ug/mL	0	20	0.3000	
Benzoic acid	0.2582	0.2216	90.00	77.24	ug/mL	-14	20	0.0500	
2,4-Dichlorophenol	0.3137	0.3374	40.00	43.02	ug/mL	8	20	0.2000	
1,2,4-Trichlorobenzene	0.3187	0.3377	40.00	42.38	ug/mL	6	20	0.0500	
Naphthalene	1.0889	1.1771	20.00	21.62	ug/mL	8	20	0.7000	
4-Chloroaniline	0.4867	0.5185	40.00	42.61	ug/mL	7	20	0.0100	
Hexachlorobutadiene	0.1765	0.1856	40.00	42.07	ug/mL	5	20	0.0100	
4-Chloro-3-methylphenol	0.3533	0.3715	40.00	42.07	ug/mL	5	20	0.2000	
2-Methylnaphthalene	0.7670	0.8551	20.00	22.30	ug/mL	11	20	0.4000	
Hexachlorocyclopentadiene	0.3767	0.3474	40.00	36.88	ug/mL	-8	20	0.0500	
2,4,6-Trichlorophenol	0.3821	0.4081	40.00	42.73	ug/mL	7	20	0.2000	
2,4,5-Trichlorophenol	0.4071	0.4466	40.00	43.88	ug/mL	10	20	0.2000	
2-Chloronaphthalene	1.1882	1.2636	20.00	21.27	ug/mL	6	20	0.8000	
2-Nitroaniline	0.3530	0.3755	40.00	42.55	ug/mL	6	20	0.0100	
Dimethylphthalate	1.4121	1.4962	40.00	42.38	ug/mL	6	20	0.0100	
2,6-Dinitrotoluene	0.3419	0.3627	40.00	42.43	ug/mL	6	20	0.2000	
Acenaphthylene	1.6876	1.8230	20.00	21.61	ug/mL	8	20	0.9000	
3-Nitroaniline	0.3815	0.3941	40.00	41.32	ug/mL	3	20	0.0100	
Acenaphthene	1.2534	1.3468	20.00	21.49	ug/mL	7	20	0.9000	
2,4-Dinitrophenol	0.1660	0.1331	40.00	35.93	ug/mL	-10	20	0.0100	
4-Nitrophenol	0.1911	0.1780	40.00	37.24	ug/mL	-7	20	0.0100	
Dibenzofuran	1.7373	1.8729	20.00	21.56	ug/mL	8	20	0.8000	
2,4-Dinitrotoluene	0.4742	0.5132	40.00	43.29	ug/mL	8	20	0.2000	
Diethylphthalate	1.5329	1.6040	20.00	20.93	ug/mL	5	20	0.0100	
Fluorene	1.4346	1.5696	20.00	21.88	ug/mL	9	20	0.9000	
4-Chlorophenyl-phenylether	0.7249	0.7815	20.00	21.56	ug/mL	8	20	0.4000	
4-Nitroaniline	0.3951	0.4009	40.00	40.58	ug/mL	1	20	0.0100	
4,6-Dinitro-2-methylphenol	0.1451	0.1378	40.00	38.00	ug/mL	-5	20	0.0100	
N-Nitrosodiphenylamine	0.5974	0.6363	20.00	21.30	ug/mL	7	20	0.0100	
Azobenzene	0.7988	0.7726	20.00	19.34	ug/mL	-3	20	0.0500	
4-Bromophenyl-phenylether	0.2478	0.2502	20.00	20.19	ug/mL	1	20	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Hexachlorobenzene	0.2674	0.2491	40.00	37.26	ug/mL	-7	20	0.1000	
Pentachlorophenol	0.1695	0.1642	40.00	38.74	ug/mL	-3	20	0.0500	
Phenanthrene	1.1611	1.2487	20.00	21.51	ug/mL	8	20	0.7000	
Anthracene	1.1484	1.2514	20.00	21.79	ug/mL	9	20	0.7000	
Carbazole	1.0146	1.1123	40.00	43.85	ug/mL	10	20	0.0100	
Di-n-butylphthalate	1.4681	1.5288	20.00	20.83	ug/mL	4	20	0.0100	
Fluoranthene	1.2776	1.3962	20.00	21.86	ug/mL	9	20	0.6000	
Pyrene	1.1956	1.3431	20.00	22.47	ug/mL	12	20	0.6000	
Butylbenzylphthalate	0.5692	0.5932	20.00	20.84	ug/mL	4	20	0.0100	
3,3'-Dichlorobenzidine	0.4323	0.4266	40.00	39.47	ug/mL	-1	20	0.0100	
Benzo(a)anthracene	1.1261	1.1796	20.00	20.95	ug/mL	5	20	0.8000	
bis(2-Ethylhexyl)phthalate	0.7821	0.8416	20.00	21.52	ug/mL	8	20	0.0100	
Chrysene	1.0669	1.1550	20.00	21.65	ug/mL	8	20	0.7000	
Di-n-octylphthalate	1.5448	1.6378	20.00	21.20	ug/mL	6	20	0.0100	
Benzo(b)fluoranthene	1.1600	1.2297	20.00	21.20	ug/mL	6	20	0.7000	
Benzo(k)fluoranthene	1.1557	1.2797	20.00	22.15	ug/mL	11	20	0.7000	
Benzo(a)pyrene	0.9853	1.0681	20.00	21.68	ug/mL	8	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.1504	1.2524	20.00	21.77	ug/mL	9	20	0.5000	
Dibenz(a,h)anthracene	1.0323	1.1196	20.00	21.69	ug/mL	8	20	0.4000	
Benzo(g,h,i)perylene	0.9160	0.9817	20.00	21.43	ug/mL	7	20	0.5000	
2-Fluorophenol	1.4661	1.4490	20.00	19.77	ug/mL	-1	20	0.0500	
Phenol-d5	1.7103	1.7276	20.00	20.20	ug/mL	1	20	0.0500	
Nitrobenzene-d5	0.3849	0.3887	20.00	20.20	ug/mL	1	20	0.0500	
2-Fluorobiphenyl	1.4236	1.5625	20.00	21.95	ug/mL	10	20	0.0500	
2,4,6-Tribromophenol	0.2136	0.2036	20.00	19.07	ug/mL	-5	20	0.0500	
Terphenyl-d14	0.9287	0.9933	20.00	21.39	ug/mL	7	20	0.0500	

ISTD (ICAL rgv21)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	1195108	1032764	-13.58
Naphthalene-d8	4635194	3857267	-16.78
Acenaphthene-d10	2989178	2470642	-17.35
Phenanthrene-d10	5453704	4608315	-15.50
Chrysene-d12	6186500	5098984	-17.58
Perylene-d12	5646577	4454688	-21.11

ISTD (ICAL rgv21)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.23	6.21	-0.02
Naphthalene-d8	7.72	7.70	-0.02
Acenaphthene-d10	9.88	9.86	-0.02
Phenanthrene-d10	11.73	11.72	-0.01
Chrysene-d12	15.19	15.17	-0.02
Perylene-d12	18.23	18.20	-0.03

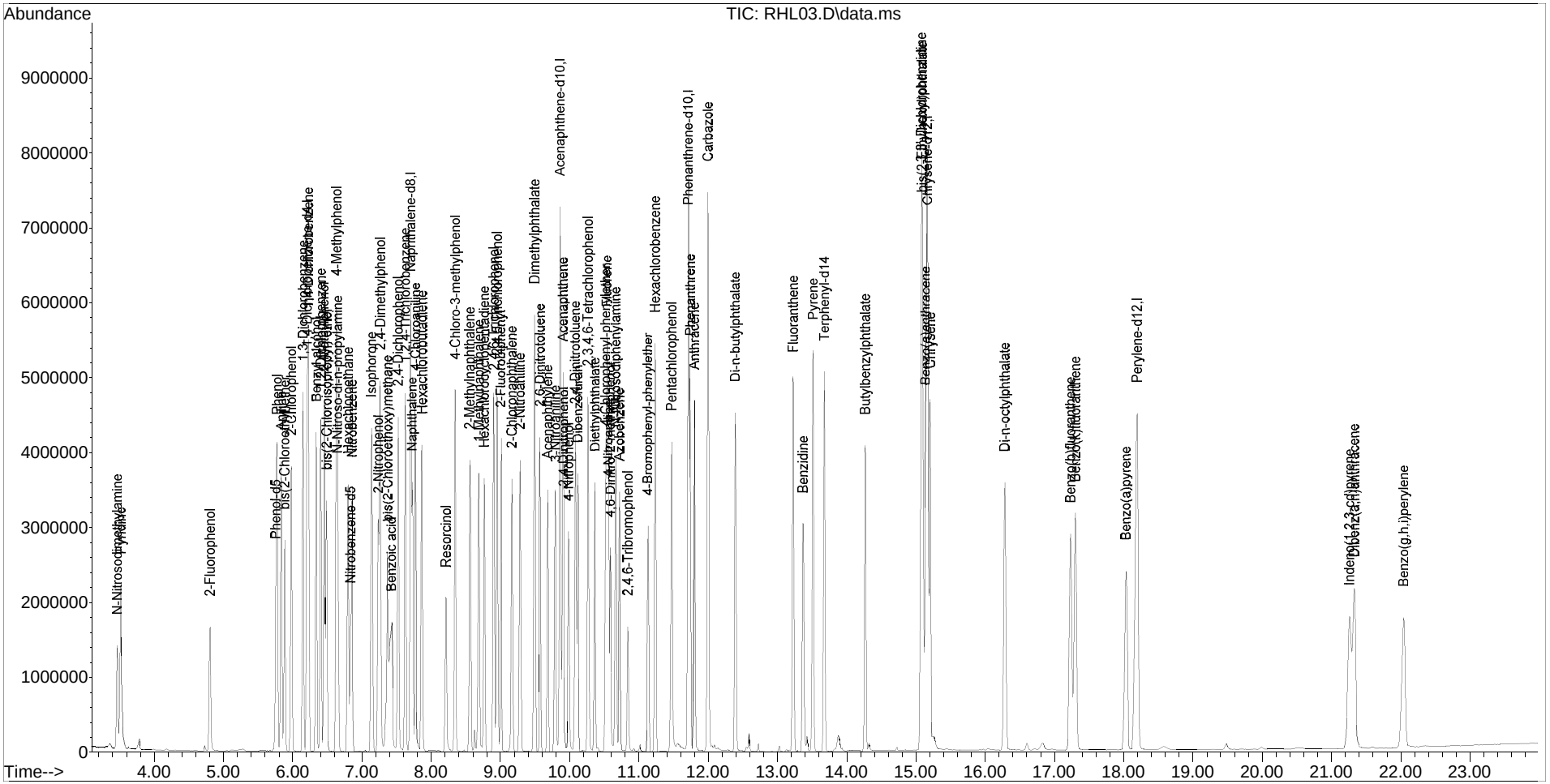
KMH 08/21/14 [Aniline]: Picked or reassigned peak. [general version]

Analyst: KMH Date: 08/26/14 Reviewer: LW Date: 08/27/14

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\082114\
Data File : RHL03.D
Acq On : 21 Aug 2014 1:55 pm
Operator :
Sample : CCV,S24428
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 21 14:20:02 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Wed Aug 20 12:24:00 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\082114\
Data File : RHL03.D
Acq On : 21 Aug 2014 1:55 pm
Operator :
Sample : CCV,S24428
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 21 14:20:02 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Wed Aug 20 12:24:00 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	6.210	152	1032764	40.0000	ug/mL	0.00
19) Naphthalene-d8	7.704	136	3857267	40.0000	ug/mL	0.00
36) Acenaphthene-d10	9.863	164	2470642	40.0000	ug/mL	0.00
58) Phenanthrene-d10	11.716	188	4608315	40.0000	ug/mL	0.00
70) Chrysene-d12	15.168	240	5098984	40.0000	ug/mL	0.00
79) Perylene-d12	18.198	264	4454688	40.0000	ug/mL	0.00

Target Compounds						Qvalue
2) Pyridine	3.516	79	1515056	37.0290	ug/mL	84
3) N-Nitrosodimethylamine	3.469	42	742086	41.7184	ug/mL	78
4) 2-Fluorophenol	4.810	112	748214	19.7660	ug/mL #	68
5) Phenol-d5	5.763	99	892121	20.2024	ug/mL	76
6) Phenol	5.781	94	1788730	39.5775	ug/mL	83
7) Aniline	5.840	93	2056705m	38.3066	ug/mL	
8) bis(2-Chloroethyl)ether	5.887	93	1342928	39.2953	ug/mL	95
9) 2-Chlorophenol	5.981	128	1575299	40.8139	ug/mL	90
10) 1,3-Dichlorobenzene	6.151	146	1694596	41.4017	ug/mL	97
11) 1,4-Dichlorobenzene	6.228	146	1695263	40.9578	ug/mL	91
12) Benzyl alcohol	6.345	108	974447	39.1579	ug/mL #	85
13) 1,2-Dichlorobenzene	6.410	146	1590241	41.1009	ug/mL	97
14) 2-Methylphenol	6.457	107	1148363	39.8677	ug/mL	95
15) bis(2-Chloroisopropyl) ether	6.493	45	1897787	39.8024	ug/mL	99
16) 4-Methylphenol	6.634	107	1735758	39.1012	ug/mL	93
17) N-Nitroso-di-n-propylamine	6.651	70	990958	38.8735	ug/mL	90
18) Hexachloroethane	6.804	117	625755	38.9681	ug/mL	88
20) Nitrobenzene-d5	6.840	82	749664	20.1982	ug/mL #	73
21) Nitrobenzene	6.863	77	1430612	41.1856	ug/mL	82
22) Isophorone	7.140	82	2862271	40.2668	ug/mL	92
23) 2-Nitrophenol	7.234	139	866365	44.1899	ug/mL	79
24) 2,4-Dimethylphenol	7.263	107	1446699	40.8011	ug/mL	83
25) bis(2-Chloroethoxy)methane	7.369	93	879876	19.9435	ug/mL	99
26) Benzoic acid	7.428	105	1922910	77.2427	ug/mL	89
27) 2,4-Dichlorophenol	7.522	162	1301489	43.0237	ug/mL	97
28) 1,2,4-Trichlorobenzene	7.628	180	1302418	42.3764	ug/mL	96
29) Naphthalene	7.728	128	2270217	21.6193	ug/mL	98
30) 4-Chloroaniline	7.775	127	1999804	42.6084	ug/mL	94
31) Hexachlorobutadiene	7.875	225	716084	42.0657	ug/mL	97
32) Resorcinol	8.222	110	1085232	34.3642	ug/mL	91
33) 4-Chloro-3-methylphenol	8.351	107	1433164	42.0666	ug/mL	94
34) 2-Methylnaphthalene	8.563	142	1649096	22.2955	ug/mL	92
35) 1-Methylnaphthalene	8.692	142	1556219	22.3258	ug/mL	90
37) Hexachlorocyclopentadiene	8.763	237	858218	36.8826	ug/mL	97
38) 2,4,6-Trichlorophenol	8.910	196	1008315	42.7256	ug/mL	93

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\082114\
Data File : RHL03.D
Acq On : 21 Aug 2014 1:55 pm
Operator :
Sample : CCV,S24428
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 21 14:20:02 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Wed Aug 20 12:24:00 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
39) 2,4,5-Trichlorophenol	8.951	196	1103453	43.8801	ug/mL	92
40) 2-Fluorobiphenyl	9.004	172	1930151	21.9509	ug/mL	100
41) 2-Chloronaphthalene	9.169	162	1560967	21.2696	ug/mL	94
42) 2-Nitroaniline	9.286	65	927693	42.5456	ug/mL #	81
43) Dimethylphthalate	9.498	163	3696473	42.3800	ug/mL	99
44) 2,6-Dinitrotoluene	9.575	165	896088	42.4326	ug/mL #	76
45) Acenaphthylene	9.686	152	2252046	21.6050	ug/mL	99
46) 3-Nitroaniline	9.798	138	973706	41.3176	ug/mL #	64
47) Acenaphthene	9.904	154	1663759	21.4910	ug/mL	96
48) 2,4-Dinitrophenol	9.916	184	328937	35.9298	ug/mL #	53
49) 4-Nitrophenol	9.986	109	439694	37.2416	ug/mL #	73
50) Dibenzofuran	10.116	168	2313579	21.5605	ug/mL	82
51) 2,4-Dinitrotoluene	10.081	165	1267923	43.2897	ug/mL #	77
52) 2,3,4,6-Tetrachlorophenol	10.263	232	918792	44.4694	ug/mL	89
53) Diethylphthalate	10.363	149	1981454	20.9283	ug/mL	97
54) 4-Chlorophenyl-phenylether	10.522	204	965442	21.5611	ug/mL #	76
55) Fluorene	10.539	166	1938991	21.8819	ug/mL	88
56) 4-Nitroaniline	10.563	138	990487	40.5829	ug/mL #	22
57) 2,4,6-Tribromophenol	10.839	330	251495	19.0656	ug/mL #	84
59) 4,6-Dinitro-2-methylphenol	10.592	198	635141	38.0002	ug/mL #	80
60) N-Nitrosodiphenylamine	10.669	169	1466169	21.3025	ug/mL	90
61) Azobenzene	10.722	77	1780226	19.3443	ug/mL	91
62) 4-Bromophenyl-phenylether	11.133	248	576409	20.1885	ug/mL #	81
63) Hexachlorobenzene	11.239	284	1147806	37.2586	ug/mL	88
64) Pentachlorophenol	11.475	266	756615	38.7416	ug/mL	96
65) Phenanthrene	11.745	178	2877168	21.5079	ug/mL	97
66) Anthracene	11.804	178	2883321	21.7929	ug/mL	97
67) Carbazole	11.998	167	5125942	43.8514	ug/mL	88
68) Di-n-butylphthalate	12.392	149	3522700	20.8277	ug/mL	97
69) Fluoranthene	13.233	202	3217025	21.8567	ug/mL	95
71) Benzidine	13.374	184	1902679	34.2562	ug/mL	89
72) Pyrene	13.521	202	3424218	22.4669	ug/mL	94
73) Terphenyl-d14	13.680	244	2532490	21.3928	ug/mL	97
74) Butylbenzylphthalate	14.268	149	1512259	20.8413	ug/mL	98
75) 3,3'-Dichlorobenzidine	15.080	252	2175225	39.4702	ug/mL	99
76) Benzo(a)anthracene	15.139	228	3007283	20.9496	ug/mL	96
77) bis(2-Ethylhexyl)phthalate	15.092	149	2145733	21.5230	ug/mL	96
78) Chrysene	15.210	228	2944663	21.6519	ug/mL	96
80) Di-n-octylphthalate	16.286	149	3647969	21.2048	ug/mL	96
81) Benzo(b)fluoranthene	17.239	252	2739017	21.2021	ug/mL	96
82) Benzo(k)fluoranthene	17.304	252	2850306	22.1456	ug/mL	94
83) Benzo(a)pyrene	18.033	252	2378952	21.6796	ug/mL	96
84) Indeno(1,2,3-cd)pyrene	21.268	276	2789620	21.7732	ug/mL	93

Quantitation Report (QT Reviewed)

Data Path : G:\msbna09\082114\
Data File : RHL03.D
Acq On : 21 Aug 2014 1:55 pm
Operator :
Sample : CCV,S24428
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 21 14:20:02 2014
Quant Method : C:\msdchem\1\METHODS\6PTBNA9.M
Quant Title : MSBNA09 BNA
QLast Update : Wed Aug 20 12:24:00 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
85) Dibenz(a,h)anthracene	21.333	278	2493711	21.6913	ug/mL	97
86) Benzo(g,h,i)perylene	22.044	276	2186554	21.4344	ug/mL	98

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

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 259835
ANALYTICAL REPORT
Semivolatile Organics by GC/MS SIM

JM Waller Associates 11325 Random Hills Road Fairfax, VA 22030-6608	Project : N62473-11-D-2215 Location : BGMP-1R04 Level : IV Contract # : N62473-11-D-2215

Sample ID	Lab ID
04W06-081414	259835-002

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Tracy Babjar Date: 09/03/2014

Tracy Babjar
Project Manager
tracy.babjar@ctberk.com
(510) 204-2226

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
SEMIVOLATILE ORGANICS BY GC/MS SIM (EPA 8270D-SIM)

Laboratory number:	**259835**
Client:	**JM Waller Associates**
Project:	**N62473-11-D-2215**
Location:	**BGMP-1R04**
Request Date:	**08/14/14**
Samples Received:	**08/14/14**

This data package contains sample and QC results for one water sample, requested for the above referenced project on 08/14/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

All qualified data are compliant with appropriate corrective actions specified in Standard Operating Procedures. The Standard Operating Procedures are available upon request.

Manual integration documentation may be found in the "Case Narrative Addendum: Manual Integrations" sections.

Semivolatile Organics by GC/MS SIM (EPA 8270D-SIM):
No analytical problems were encountered.

Chain of Custody

CHAIN OF CUSTODY

Chain of Custody # _____

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

C&T LOGIN # 259835

Project No: N62473-11-D-2215
Project Name: BGMP-IRP4
Project P. O. No: ATL14-001-01-004-CTL
EDD Format: Report Level ☐ II ☐ III ☑ IV
Turnaround Time: ☐ RUSH _____ ☑ Standard

Sampler: N. Wardell
Report To: Murray + H. Wolenberg
Company: N. Waller + ERRS
Telephone: 404-443-2733
Email:

Lab No.	Sample ID.	SAMPLING Date Collected	SAMPLING Time Collected	MATRIX Water	MATRIX Solid	# of Containers	CHEMICAL PRESERVATIVE HCl	H2SO4	HNO3	NaOH	None	ANALYTICAL REQUEST Metals - Field Filtered	Cr(VI)	SVOC	PAH
1	04W07-081414	8/14/14	0845	X		2			X			X	X		
2	04W06-081414	8/14/14	1040	X		4			X			X		X	X
3	04W15-081414	8/14/14	1345	X		1					X	X			

Notes:
04W15-081414 is Field Filtered in a 1L amber
FIX WITH NITRIC ACID UPON RECEIPT!

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:
N. Wardell DATE: 8/14/14 TIME: 3:40p
[signature] DATE: 8/14/14 TIME: 2630
DATE: TIME:

RECEIVED BY:
[signature] DATE: 8/14/14 TIME: 1540
[signature] DATE: 8/14/14 TIME: 1630
DATE: TIME:

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 259835 [redacted] Date Received 8/14/14 Number of coolers 2
Client JM Waller + ERRG Project BGMP - IROH

Date Opened 8/14 By (print) GV (sign) [signature]
Date Logged in_____ By (print)_____ (sign)_____

1. Did cooler come with a shipping slip (airbill, etc)_____ YES ~~NO~~
   Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
   How many _____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO ~~N/A~~
3. Were custody papers dry and intact when received?_____ ~~YES~~ NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ ~~YES~~ NO
5. Is the project identifiable from custody papers? (If so fill out top of form)___ ~~YES~~ NO
6. Indicate the packing in cooler: (if other, describe)_____

☒ Bubble Wrap ☐ Foam blocks ☒ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C)_____

☐ Samples received on ice & cold without a temperature blank; temp taken with IR gun

☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present?_____ YES ~~NO~~
   If YES, what time were they transferred to freezer?_____
9. Did all bottles arrive unbroken/unopened?_____ ~~YES~~ NO
10. Are there any missing / extra samples? _____ YES ~~NO~~
11. Are samples in the appropriate containers for indicated tests? _____ ~~YES~~ NO
12. Are sample labels present, in good condition and complete? _____ ~~YES~~ NO
13. Do the sample labels agree with custody papers? _____ ~~YES~~ NO
14. Was sufficient amount of sample sent for tests requested? _____ ~~YES~~ NO
15. Are the samples appropriately preserved? _____ YES ~~NO~~ N/A
16. Did you check preservatives for all bottles for each sample? _____ ~~YES~~ NO N/A
17. Did you document your preservative check? _____ ~~YES~~ NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO ~~N/A~~
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO ~~N/A~~
20. Are bubbles > 6mm absent in VOA samples? _____ ~~YES~~ NO N/A
21. Was the client contacted concerning this sample delivery? _____ YES ~~NO~~
   If YES, Who was called?_____ By_____ Date:_____

COMMENTS
(15) Nitric Acid lot# 3390 added to -003 upon reciept; also added to -002 to pH<2

Rev 10, 10/11

Curtis & Tompkins Sample Preservation for 259835

Sample	pH: <2	>9	>12	Other
-001a	[ ]	[ ]	[ ]	_____
b	[X]	[ ]	[ ]	_____
-002a	[X]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
-003a	[X]	[ ]	[ ]	_____

Analyst: HV
Date: 8/14/14

Page 1 of 1

Results & QC Summary

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Field ID:	04W06-081414	Batch#:	214554
Lab ID:	259835-002	Sampled:	08/14/14
Matrix:	Water	Received:	08/14/14
Units:	ug/L	Prepared:	08/19/14
Diln Fac:	1.000	Analyzed:	08/21/14

Analyte	Result	LOQ	DL
Naphthalene	0.04 U	0.1	0.02
2-Methylnaphthalene	0.04 U	0.1	0.02
Acenaphthylene	0.04 U	0.1	0.02
Acenaphthene	0.04 U	0.1	0.02
Fluorene	0.04 U	0.1	0.02
Phenanthrene	0.03 J	0.1	0.02
Anthracene	0.04 U	0.1	0.02
Fluoranthene	0.04 U	0.1	0.02
Pyrene	0.04 U	0.1	0.02
Benzo(a)anthracene	0.04 U	0.1	0.02
Chrysene	0.04 U	0.1	0.02
Benzo(b)fluoranthene	0.04 U	0.1	0.02
Benzo(k)fluoranthene	0.04 U	0.1	0.02
Benzo(a)pyrene	0.04 U	0.1	0.02
Indeno(1,2,3-cd)pyrene	0.04 U	0.1	0.02
Dibenz(a,h)anthracene	0.04 U	0.1	0.02
Benzo(g,h,i)perylene	0.04 U	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	77	40-110
2-Fluorobiphenyl	80	50-110
Terphenyl-d14	76	50-135

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC754152	Batch#:	214554
Matrix:	Water	Prepared:	08/19/14
Units:	ug/L	Analyzed:	08/20/14

Analyte	Result	LOQ	DL
Naphthalene	0.04 U	0.1	0.02
2-Methylnaphthalene	0.04 U	0.1	0.02
Acenaphthylene	0.04 U	0.1	0.02
Acenaphthene	0.04 U	0.1	0.02
Fluorene	0.04 U	0.1	0.02
Phenanthrene	0.04 U	0.1	0.02
Anthracene	0.04 U	0.1	0.02
Fluoranthene	0.04 U	0.1	0.02
Pyrene	0.04 U	0.1	0.02
Benzo(a)anthracene	0.04 U	0.1	0.02
Chrysene	0.04 U	0.1	0.02
Benzo(b)fluoranthene	0.04 U	0.1	0.02
Benzo(k)fluoranthene	0.04 U	0.1	0.02
Benzo(a)pyrene	0.04 U	0.1	0.02
Indeno(1,2,3-cd)pyrene	0.04 U	0.1	0.02
Dibenz(a,h)anthracene	0.04 U	0.1	0.02
Benzo(g,h,i)perylene	0.04 U	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	79	40-110
2-Fluorobiphenyl	84	50-110
Terphenyl-d14	93	50-135

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC754153	Batch#:	214554
Matrix:	Water	Prepared:	08/19/14
Units:	ug/L	Analyzed:	08/20/14

Analyte	Spiked	Result	%REC	Limits
Naphthalene	1.000	0.7952	80	40-100
2-Methylnaphthalene	1.000	0.7797	78	45-105
Acenaphthylene	1.000	0.8075	81	50-105
Acenaphthene	1.000	0.8164	82	45-110
Fluorene	1.000	0.8879	89	50-110
Phenanthrene	1.000	0.8270	83	50-115
Anthracene	1.000	0.7890	79	55-110
Fluoranthene	1.000	0.8629	86	55-115
Pyrene	1.000	0.8313	83	50-130
Benzo(a)anthracene	1.000	0.7752	78	55-110
Chrysene	1.000	0.7475	75	55-110
Benzo(b)fluoranthene	1.000	0.7937	79	45-120
Benzo(k)fluoranthene	1.000	0.8476	85	45-125
Benzo(a)pyrene	1.000	0.7250	73	55-110
Indeno(1,2,3-cd)pyrene	1.000	0.7197	72	45-125
Dibenz(a,h)anthracene	1.000	0.6440	64	40-125
Benzo(g,h,i)perylene	1.000	0.7680	77	40-125

Surrogate	%REC	Limits
Nitrobenzene-d5	74	40-110
2-Fluorobiphenyl	75	50-110
Terphenyl-d14	77	50-135

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Field ID:	04W19-081314	Batch#:	214554
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/19/14
Diln Fac:	1.000	Analyzed:	08/21/14

Type: MS Lab ID: QC754154

Analyte	MSS Result	Spiked	Result	%REC	Limits
Naphthalene	0.04452	0.9804	0.7061	67	40-100
2-Methylnaphthalene	0.01971	0.9804	0.7444	74	45-105
Acenaphthylene	0.03000	0.9804	0.6895	67	50-105
Acenaphthene	0.02875	0.9804	0.7104	70	45-110
Fluorene	0.06202	0.9804	0.7785	73	50-110
Phenanthrene	0.3788	0.9804	0.9321	56	50-115
Anthracene	0.03625	0.9804	0.6713	65	55-110
Fluoranthene	0.2172	0.9804	0.9452	74	55-115
Pyrene	0.2482	0.9804	0.8555	62	50-130
Benzo(a)anthracene	0.02058	0.9804	0.7438	74	55-110
Chrysene	<0.01923	0.9804	0.6598	67	55-110
Benzo(b)fluoranthene	0.02913	0.9804	0.7215	71	45-120
Benzo(k)fluoranthene	<0.01923	0.9804	0.6952	71	45-125
Benzo(a)pyrene	<0.01923	0.9804	0.6713	68	55-110
Indeno(1,2,3-cd)pyrene	<0.01923	0.9804	0.6884	70	45-125
Dibenz(a,h)anthracene	<0.01923	0.9804	0.6256	64	40-125
Benzo(g,h,i)perylene	<0.01923	0.9804	0.6921	71	40-125

Surrogate	%REC	Limits
Nitrobenzene-d5	64	40-110
2-Fluorobiphenyl	67	50-110
Terphenyl-d14	67	50-135

Type: MSD Lab ID: QC754155

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Naphthalene	0.9615	0.7287	71	40-100	5	30
2-Methylnaphthalene	0.9615	0.7515	76	45-105	3	30
Acenaphthylene	0.9615	0.7292	73	50-105	7	30
Acenaphthene	0.9615	0.7146	71	45-110	2	30
Fluorene	0.9615	0.7910	76	50-110	3	30
Phenanthrene	0.9615	0.9637	61	50-115	5	30
Anthracene	0.9615	0.6571	65	55-110	0	30
Fluoranthene	0.9615	0.9528	77	55-115	2	30
Pyrene	0.9615	0.9069	69	50-130	7	30
Benzo(a)anthracene	0.9615	0.7621	77	55-110	4	30
Chrysene	0.9615	0.6889	72	55-110	6	30
Benzo(b)fluoranthene	0.9615	0.7534	75	45-120	6	30
Benzo(k)fluoranthene	0.9615	0.6856	71	45-125	1	30
Benzo(a)pyrene	0.9615	0.6942	72	55-110	5	30
Indeno(1,2,3-cd)pyrene	0.9615	0.6869	71	45-125	2	30
Dibenz(a,h)anthracene	0.9615	0.6377	66	40-125	4	30
Benzo(g,h,i)perylene	0.9615	0.6857	71	40-125	1	30

Surrogate	%REC	Limits
Nitrobenzene-d5	71	40-110
2-Fluorobiphenyl	71	50-110
Terphenyl-d14	67	50-135

RPD= Relative Percent Difference

CURTIS & TOMPKINS DFTPP TUNE FOR 259835 MSSIM Water
EPA 8270D

Inst : MSBNA03 Run Name : DFTPP IDF : 1.0
Seqnum : 524271263019 File : vg719 Time : 07-JUL-2014 20:11

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	167466	40.80	
68	< 2% of mass 69	0	0.00	
69		229696	100.00	
70	< 2% of mass 69	0	0.00	
127	40% - 60% of mass 198	211157	51.45	
197	< 1% of mass 198	0	0.00	
198		410410	100.00	
199	5% - 9% of mass 198	28728	7.00	
275	10% - 30% of mass 198	111824	27.25	
365	> 1% of mass 198	12139	2.96	
441	Present, < mass 443	47200	79.54	
442	> 40% and < 100% of mass 198	301248	73.40	
443	17% - 23% of mass 442	59344	19.70	

Analyst: KMH Date: 07/08/14 Reviewer: LW Date: 07/08/14

CURTIS & TOMPKINS DFTPP TUNE FOR 259835 MSSIM Water
EPA 8270D

Inst : MSBNA03 Run Name : DFTPP IDF : 1.0
Seqnum : 524334764002 File : vhk02 Time : 20-AUG-2014 11:50

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	217216	45.86	
68	< 2% of mass 69	0	0.00	
69		280405	100.00	
70	< 2% of mass 69	1313	0.47	
127	40% - 60% of mass 198	255616	53.96	
197	< 1% of mass 198	0	0.00	
198		473685	100.00	
199	5% - 9% of mass 198	34349	7.25	
275	10% - 30% of mass 198	136781	28.88	
365	> 1% of mass 198	16091	3.40	
441	Present, < mass 443	69117	82.62	
442	> 40% and < 100% of mass 198	411584	86.89	
443	17% - 23% of mass 442	83656	20.33	

NPM: 08/20/14 KMH: 08/20/14 LW: 08/27/14

CURTIS & TOMPKINS DFTPP TUNE FOR 259835 MSSIM Water
EPA 8270D

Inst : MSBNA04 Run Name : DFTPP IDF : 1.0
Seqnum : 534275763005 File : wga05 Time : 10-JUL-2014 15:44

Standards: S24369

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	97047	55.72	
68	< 2% of mass 69	0	0.00	
69		109917	100.00	
70	< 2% of mass 69	587	0.53	
127	40% - 60% of mass 198	94581	54.30	
197	< 1% of mass 198	0	0.00	
198		174173	100.00	
199	5% - 9% of mass 198	11550	6.63	
275	10% - 30% of mass 198	31925	18.33	
365	> 1% of mass 198	3062	1.76	
441	Present, < mass 443	12761	75.92	
442	> 40% and < 100% of mass 198	86725	49.79	
443	17% - 23% of mass 442	16808	19.38	

Analyst: KMH Date: 07/11/14 Reviewer: LW Date: 07/11/14

CURTIS & TOMPKINS DFTPP TUNE FOR 259835 MSSIM Water
EPA 8270D

Inst : MSBNA04 Run Name : DFTPP IDF : 1.0
Seqnum : 534336091008 File : whl08 Time : 21-AUG-2014 11:54

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	94709	52.13	
68	< 2% of mass 69	0	0.00	
69		97984	100.00	
70	< 2% of mass 69	449	0.46	
127	40% - 60% of mass 198	102296	56.31	
197	< 1% of mass 198	0	0.00	
198		181674	100.00	
199	5% - 9% of mass 198	11869	6.53	
275	10% - 30% of mass 198	36189	19.92	
365	> 1% of mass 198	4461	2.46	
441	Present, < mass 443	11663	76.32	
442	> 40% and < 100% of mass 198	79681	43.86	
443	17% - 23% of mass 442	15282	19.18	

Analyst: KMH Date: 08/21/14 Reviewer: LW Date: 08/21/14

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259835 MSSIM Water: EPA 8270D-SIM

Inst : MSBNA03
Calnum : 524271263002
Units : ug/mL

Name : 3PAHSIM
Date : 07-JUL-2014 20:28
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	vg720	524271263020	ICAL	07-JUL-2014 20:28	S25125
L2	vg721	524271263021	ICAL	07-JUL-2014 21:02	S25126
L3	vg722	524271263022	ICAL	07-JUL-2014 21:35	S25128
L4	vg723	524271263023	ICAL	07-JUL-2014 22:10	S25129
L5	vg724	524271263024	ICAL	07-JUL-2014 22:42	S25130
L6	vg725	524271263025	ICAL	07-JUL-2014 23:17	S25132
L7	vg726	524271263026	ICAL	07-JUL-2014 23:50	S25133

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene	0.9269	0.9450	0.9456	0.9215	0.8641	0.7909	0.7353	AVRG		1.14205		0.8756	9	15	0.700	0.99	
2-Methylnaphthalene	0.6999	0.7117	0.7127	0.6848	0.6403	0.5856	0.5454	AVRG		1.52820		0.6544	10	15	0.400	0.99	
Acenaphthylene	1.4572	1.5302	1.6252	1.6440	1.5910	1.4308	1.3569	AVRG		0.65819		1.5193	7	15	0.900	0.99	
Acenaphthene	0.9776	1.0118	1.0260	1.0039	0.9750	0.8954	0.8673	AVRG		1.03596		0.9653	6	15	0.900	0.99	
Fluorene	1.1867	1.1884	1.2006	1.1526	1.1030	0.9696	0.9466	AVRG		0.90352		1.1068	10	15	0.900	0.99	
Phenanthrene	1.0278	1.0639	1.0687	1.0432	1.0003	0.8879	0.8064	AVRG		1.01475		0.9855	10	15	0.700	0.99	
Anthracene	0.8909	0.9428	0.9867	0.9817	0.9713	0.8559	0.7747	AVRG		1.09308		0.9148	9	15	0.700	0.99	
Fluoranthene	1.0752	1.1145	1.1427	1.1685	1.1174	0.9990	0.9038	AVRG		0.93071		1.0745	9	15	0.600	0.99	
Pyrene	1.1224	1.1145	1.1827	1.1919	1.1719	1.0950	1.0428	AVRG		0.88370		1.1316	5	15	0.600	0.99	
Benzo(a)anthracene	0.9824	0.9124	1.0147	1.0467	1.0332	0.9519	0.9022	AVRG		1.02286		0.9777	6	15	0.800	0.99	
Chrysene	0.9844	1.0148	1.0467	1.0458	1.0200	0.9309	0.8647	AVRG		1.01342		0.9868	7	15	0.700	0.99	
Benzo(b)fluoranthene	1.1501	1.1770	1.2366	1.2309	1.1924	1.0493	0.9891	AVRG		0.87223		1.1465	8	15	0.700	0.99	
Benzo(k)fluoranthene	1.1396m	1.1541	1.1739	1.1550	1.2286	1.1068	0.9578	AVRG		0.88431		1.1308	7	15	0.700	0.99	
Benzo(a)pyrene	0.9810	0.9929	1.0925	1.1248	1.1050	1.0470	0.9981	AVRG		0.95351		1.0488	6	15	0.700	0.99	
Indeno(1,2,3-cd)pyrene	1.0215	1.0659	1.1123	1.1362	1.1396	1.0726	1.0529	AVRG		0.92094		1.0858	4	15	0.500	0.99	
Dibenz(a,h)anthracene	0.8632m	0.8991m	0.9347	0.9443	0.9590	0.9178	0.9098	AVRG		1.08901		0.9183	3	15	0.400	0.99	
Benzo(g,h,i)perylene	0.9184	0.9425	0.9674	0.9716	0.9658	0.8998	0.8777	AVRG		1.06982		0.9347	4	15	0.500	0.99	
Nitrobenzene-d5	0.2863	0.2921	0.3064m	0.3210m	0.3233	0.3184	0.3189	AVRG		3.23110		0.3095	5	15	0.05	0.99	
2-Fluorobiphenyl	1.5822	1.6124	1.5918	1.5204	1.4105	1.2350	1.1419	AVRG		0.69347		1.4420	13	15	0.05	0.99	
Terphenyl-d14	0.8319	0.8606	0.8639	0.8767	0.8685	0.8153	0.7927	AVRG		1.18450		0.8442	4	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	6	0.2000	8	0.5000	8	1.0000	5	2.0000	-1	5.0000	-10	10.000	-16
2-Methylnaphthalene	0.1000	7	0.2000	9	0.5000	9	1.0000	5	2.0000	-2	5.0000	-11	10.000	-17
Acenaphthylene	0.1000	-4	0.2000	1	0.5000	7	1.0000	8	2.0000	5	5.0000	-6	10.000	-11
Acenaphthene	0.1000	1	0.2000	5	0.5000	6	1.0000	4	2.0000	1	5.0000	-7	10.000	-10
Fluorene	0.1000	7	0.2000	7	0.5000	8	1.0000	4	2.0000	0	5.0000	-12	10.000	-14
Phenanthrene	0.1000	4	0.2000	8	0.5000	8	1.0000	6	2.0000	2	5.0000	-10	10.000	-18
Anthracene	0.1000	-3	0.2000	3	0.5000	8	1.0000	7	2.0000	6	5.0000	-6	10.000	-15
Fluoranthene	0.1000	0	0.2000	4	0.5000	6	1.0000	9	2.0000	4	5.0000	-7	10.000	-16
Pyrene	0.1000	-1	0.2000	-2	0.5000	5	1.0000	5	2.0000	4	5.0000	-3	10.000	-8
Benzo(a)anthracene	0.1000	0	0.2000	-7	0.5000	4	1.0000	7	2.0000	6	5.0000	-3	10.000	-8
Chrysene	0.1000	0	0.2000	3	0.5000	6	1.0000	6	2.0000	3	5.0000	-6	10.000	-12
Benzo(b)fluoranthene	0.1000	0	0.2000	3	0.5000	8	1.0000	7	2.0000	4	5.0000	-8	10.000	-14
Benzo(k)fluoranthene	0.1000	1	0.2000	2	0.5000	4	1.0000	2	2.0000	9	5.0000	-2	10.000	-15
Benzo(a)pyrene	0.1000	-6	0.2000	-5	0.5000	4	1.0000	7	2.0000	5	5.0000	0	10.000	-5
Indeno(1,2,3-cd)pyrene	0.1000	-6	0.2000	-2	0.5000	2	1.0000	5	2.0000	5	5.0000	-1	10.000	-3
Dibenz(a,h)anthracene	0.1000	-6	0.2000	-2	0.5000	2	1.0000	3	2.0000	4	5.0000	0	10.000	-1
Benzo(g,h,i)perylene	0.1000	-2	0.2000	1	0.5000	3	1.0000	4	2.0000	3	5.0000	-4	10.000	-6
Nitrobenzene-d5	0.1000	-8	0.2000	-6	0.5000	-1	1.0000	4	2.0000	4	5.0000	3	10.000	3
2-Fluorobiphenyl	0.1000	10	0.2000	12	0.5000	10	1.0000	5	2.0000	-2	5.0000	-14	10.000	**-21**
Terphenyl-d14	0.1000	-1	0.2000	2	0.5000	2	1.0000	4	2.0000	3	5.0000	-3	10.000	-6

KMH 07/08/14 [1,4-Dioxane]: Corrected automatically drawn baseline in multiple levels.

KMH 07/08/14 [Dibenz(a,h)anthracene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/08/14 [Nitrobenzene-d5]: Corrected automatically drawn baseline in multiple levels.

KMH 07/08/14 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline in ICAL (vg720).

Analyst: KMH Date: 07/08/14 Reviewer: LW Date: 07/08/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259835 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA03 Name : 3PAHSIM
Calnum : 524271263002 Cal Date : 07-JUL-2014

ICV 524271263027 (vg727 08-JUL-2014) stds: S25107

Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	1.023	ug/mL	2	20	
2-Methylnaphthalene	1.000	1.037	ug/mL	4	20	
Acenaphthylene	1.000	1.092	ug/mL	9	20	
Acenaphthene	1.000	1.035	ug/mL	3	20	
Fluorene	1.000	1.086	ug/mL	9	20	
Phenanthrene	1.000	1.029	ug/mL	3	20	
Anthracene	1.000	0.9769	ug/mL	-2	20	
Fluoranthene	1.000	1.063	ug/mL	6	20	
Pyrene	1.000	0.9847	ug/mL	-2	20	
Benzo(a)anthracene	1.000	1.013	ug/mL	1	20	
Chrysene	1.000	0.9865	ug/mL	-1	20	
Benzo(b)fluoranthene	1.000	1.061	ug/mL	6	20	
Benzo(k)fluoranthene	1.000	1.029	ug/mL	3	20	
Benzo(a)pyrene	1.000	1.062	ug/mL	6	20	
Indeno(1,2,3-cd)pyrene	1.000	1.023	ug/mL	2	20	
Dibenz(a,h)anthracene	1.000	1.029	ug/mL	3	20	
Benzo(g,h,i)perylene	1.000	1.041	ug/mL	4	20	

Analyst: KMH Date: 07/08/14 Reviewer: LW Date: 07/08/14

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259835 MSSIM Water: EPA 8270D-SIM

Inst : MSBNA04
Calnum : 534275763001
Units : ug/mL

Name : 4PAHSIM
Date : 10-JUL-2014 16:29
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	wga06	534275763006	ICAL	10-JUL-2014 16:29	S25125
L2	wga07	534275763007	ICAL	10-JUL-2014 17:02	S25126
L3	wga08	534275763008	ICAL	10-JUL-2014 17:35	S25128
L4	wga09	534275763009	ICAL	10-JUL-2014 18:08	S25129
L5	wga10	534275763010	ICAL	10-JUL-2014 18:41	S25130
L6	wga11	534275763011	ICAL	10-JUL-2014 19:14	S25132
L7	wga12	534275763012	ICAL	10-JUL-2014 19:47	S25133

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene	1.0858	1.1077	1.1314	1.1333	1.1322	1.1136	1.1238	AVRG		0.89425		1.1183	2	15	0.700	0.99	
2-Methylnaphthalene	0.6104	0.6255	0.6457	0.6585	0.6617	0.6591	0.6601	AVRG		1.54832		0.6459	3	15	0.400	0.99	
Acenaphthylene	1.5803	1.6305	1.7018	1.7244	1.7816	1.7638	1.7810	AVRG		0.58512		1.7091	5	15	0.900	0.99	
Acenaphthene	0.9777	0.9929	1.0324	1.0493	1.0595	1.0544	1.0656	AVRG		0.96795		1.0331	3	15	0.900	0.99	
Fluorene	1.1010	1.1343	1.1773	1.2089	1.2062	1.1900	1.2084	AVRG		0.85096		1.1751	4	15	0.900	0.99	
Phenanthrene	1.0262	1.0403	1.0846	1.0810	1.0813	1.0732	1.0737	AVRG		0.93829		1.0658	2	15	0.700	0.99	
Anthracene	0.9565	0.9849	1.0468	1.0492m	1.0655m	1.0778m	1.1026m	AVRG		0.96110		1.0405	5	15	0.700	0.99	
Fluoranthene	0.9537	0.9695	1.0213	1.0184	1.0387	1.0600	1.0570	AVRG		0.98335		1.0169	4	15	0.600	0.99	
Pyrene	1.2804	1.3046	1.3510	1.3759	1.3592	1.3510	1.3081	AVRG		0.75024		1.3329	3	15	0.600	0.99	
Benzo(a)anthracene	0.9224	0.9077	0.9333	0.9538	0.9553	0.9547	0.9569	AVRG		1.06317		0.9406	2	15	0.800	0.99	
Chrysene	0.9309	0.9496	0.9674	0.9859m	0.9752m	0.9600m	0.9614m	AVRG		1.04007		0.9615	2	15	0.700	0.99	
Benzo(b)fluoranthene	0.9949	1.0334	1.1103	1.1347	1.1887	1.1759	1.2003	AVRG		0.89306		1.1197	7	15	0.700	0.99	
Benzo(k)fluoranthene	1.0985m	1.1154m	1.1419m	1.1741m	1.1946m	1.2007m	1.2147m	AVRG		0.85995		1.1629	4	15	0.700	0.99	
Benzo(a)pyrene	0.9139	0.9149	0.9689	0.9986	1.0295	1.0580	1.0833	AVRG		1.00473		0.9953	7	15	0.700	0.99	
Indeno(1,2,3-cd)pyrene	1.0481m	1.0698	1.1392	1.1999	1.2482	1.2886	1.3454	AVRG		0.83940		1.1913	9	15	0.500	0.99	
Dibenz(a,h)anthracene	0.7856m	0.8212m	0.8734	0.9272	0.9710	1.0025	1.0450	AVRG		1.08936		0.9180	10	15	0.400	0.99	
Benzo(g,h,i)perylene	0.9629m	0.9796m	1.0212	1.0639	1.0858	1.0884	1.1328	AVRG		0.95438		1.0478	6	15	0.500	0.99	
Nitrobenzene-d5	0.3832m	0.4042m	0.4071m	0.4141	0.4132	0.4214	0.4168	AVRG		2.44752		0.4086	3	15	0.05	0.99	
2-Fluorobiphenyl	1.3147	1.3456	1.3745	1.4001	1.3855	1.3547	1.3669	AVRG		0.73360		1.3631	2	15	0.05	0.99	
Terphenyl-d14	1.0057	1.0202	1.0457	1.0586	1.0608	1.0468	1.0729	AVRG		0.95750		1.0444	2	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	-3	0.2000	-1	0.5000	1	1.0000	1	2.0000	1	5.0000	0	10.000	0
2-Methylnaphthalene	0.1000	-5	0.2000	-3	0.5000	0	1.0000	2	2.0000	2	5.0000	2	10.000	2
Acenaphthylene	0.1000	-8	0.2000	-5	0.5000	0	1.0000	1	2.0000	4	5.0000	3	10.000	4
Acenaphthene	0.1000	-5	0.2000	-4	0.5000	0	1.0000	2	2.0000	3	5.0000	2	10.000	3
Fluorene	0.1000	-6	0.2000	-3	0.5000	0	1.0000	3	2.0000	3	5.0000	1	10.000	3
Phenanthrene	0.1000	-4	0.2000	-2	0.5000	2	1.0000	1	2.0000	1	5.0000	1	10.000	1
Anthracene	0.1000	-8	0.2000	-5	0.5000	1	1.0000	1	2.0000	2	5.0000	4	10.000	6
Fluoranthene	0.1000	-6	0.2000	-5	0.5000	0	1.0000	0	2.0000	2	5.0000	4	10.000	4
Pyrene	0.1000	-4	0.2000	-2	0.5000	1	1.0000	3	2.0000	2	5.0000	1	10.000	-2
Benzo(a)anthracene	0.1000	-2	0.2000	-3	0.5000	-1	1.0000	1	2.0000	2	5.0000	1	10.000	2
Chrysene	0.1000	-3	0.2000	-1	0.5000	1	1.0000	3	2.0000	1	5.0000	0	10.000	0
Benzo(b)fluoranthene	0.1000	-11	0.2000	-8	0.5000	-1	1.0000	1	2.0000	6	5.0000	5	10.000	7
Benzo(k)fluoranthene	0.1000	-6	0.2000	-4	0.5000	-2	1.0000	1	2.0000	3	5.0000	3	10.000	4
Benzo(a)pyrene	0.1000	-8	0.2000	-8	0.5000	-3	1.0000	0	2.0000	3	5.0000	6	10.000	9
Indeno(1,2,3-cd)pyrene	0.1000	-12	0.2000	-10	0.5000	-4	1.0000	1	2.0000	5	5.0000	8	10.000	13
Dibenz(a,h)anthracene	0.1000	-14	0.2000	-11	0.5000	-5	1.0000	1	2.0000	6	5.0000	9	10.000	14
Benzo(g,h,i)perylene	0.1000	-8	0.2000	-7	0.5000	-3	1.0000	2	2.0000	4	5.0000	4	10.000	8
Nitrobenzene-d5	0.1000	-6	0.2000	-1	0.5000	0	1.0000	1	2.0000	1	5.0000	3	10.000	2
2-Fluorobiphenyl	0.1000	-4	0.2000	-1	0.5000	1	1.0000	3	2.0000	2	5.0000	-1	10.000	0
Terphenyl-d14	0.1000	-4	0.2000	-2	0.5000	0	1.0000	1	2.0000	2	5.0000	0	10.000	3

KMH 07/11/14 [1,4-Dioxane]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Anthracene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Chrysene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline in all levels.

KMH 07/11/14 [Nitrobenzene-d5]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Indeno(1,2,3-cd)pyrene]: Corrected automatically drawn baseline in ICAL (wga06).

KMH 07/11/14 [Dibenz(a,h)anthracene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Benzo(g,h,i)perylene]: Corrected automatically drawn baseline in multiple levels.

Analyst: KMH Date: 07/11/14 Reviewer: LW Date: 07/11/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259835 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA04 Name : 4PAHSIM
Calnum : 534275763001 Cal Date : 10-JUL-2014

ICV 534275763013 (wga13 10-JUL-2014) stds: S24935

Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	0.9816	ug/mL	-2	20	
2-Methylnaphthalene	1.000	0.9849	ug/mL	-2	20	
Acenaphthylene	1.000	1.055	ug/mL	5	20	
Acenaphthene	1.000	1.006	ug/mL	1	20	
Fluorene	1.000	0.9943	ug/mL	-1	20	
Phenanthrene	1.000	1.016	ug/mL	2	20	
Anthracene	1.000	1.005	ug/mL	1	20	
Fluoranthene	1.000	1.007	ug/mL	1	20	
Pyrene	1.000	0.9940	ug/mL	-1	20	
Benzo(a)anthracene	1.000	1.025	ug/mL	2	20	
Chrysene	1.000	1.010	ug/mL	1	20	
Benzo(b)fluoranthene	1.000	0.9970	ug/mL	0	20	
Benzo(k)fluoranthene	1.000	0.9587	ug/mL	-4	20	
Benzo(a)pyrene	1.000	0.9585	ug/mL	-4	20	
Indeno(1,2,3-cd)pyrene	1.000	0.9407	ug/mL	-6	20	
Dibenz(a,h)anthracene	1.000	0.9949	ug/mL	-1	20	
Benzo(g,h,i)perylene	1.000	0.9591	ug/mL	-4	20	

Analyst: KMH Date: 07/11/14 Reviewer: LW Date: 07/11/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA03 IDF : 1.0
Seqnum : 524334764003.1 File : vhk03 Time : 20-AUG-2014 12:08
Cal : 524271263002 Caldate : 07-JUL-2014
Standards: S25129

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.8756	0.8996	1.000	1.027	ug/mL	3	20	0.7000	
2-Methylnaphthalene	0.6544	0.6667	1.000	1.019	ug/mL	2	20	0.4000	
Acenaphthylene	1.5193	1.6168	1.000	1.064	ug/mL	6	20	0.9000	
Acenaphthene	0.9653	1.0104	1.000	1.047	ug/mL	5	20	0.9000	
Fluorene	1.1068	1.2189	1.000	1.101	ug/mL	10	20	0.9000	
Phenanthrene	0.9855	1.0332	1.000	1.048	ug/mL	5	20	0.7000	
Anthracene	0.9148	0.9824	1.000	1.074	ug/mL	7	20	0.7000	m
Fluoranthene	1.0745	1.1650	1.000	1.084	ug/mL	8	20	0.6000	
Pyrene	1.1316	1.2095	1.000	1.069	ug/mL	7	20	0.6000	
Benzo(a)anthracene	0.9777	1.0158	1.000	1.039	ug/mL	4	20	0.8000	
Chrysene	0.9868	1.0355	1.000	1.049	ug/mL	5	20	0.7000	
Benzo(b)fluoranthene	1.1465	1.1846	1.000	1.033	ug/mL	3	20	0.7000	
Benzo(k)fluoranthene	1.1308	1.1675	1.000	1.032	ug/mL	3	20	0.7000	m
Benzo(a)pyrene	1.0488	1.0789	1.000	1.029	ug/mL	3	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.0858	1.0904	1.000	1.004	ug/mL	0	20	0.5000	
Dibenz(a,h)anthracene	0.9183	0.9092	1.000	0.9902	ug/mL	-1	20	0.4000	
Benzo(g,h,i)perylene	0.9347	0.9537	1.000	1.020	ug/mL	2	20	0.5000	
Nitrobenzene-d5	0.3095	0.3271	1.000	1.057	ug/mL	6	20	0.0500	
2-Fluorobiphenyl	1.4420	1.4769	1.000	1.024	ug/mL	2	20	0.0500	
Terphenyl-d14	0.8442	0.8938	1.000	1.059	ug/mL	6	20	0.0500	

ISTD (ICAL vg723)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	32023	45383	41.72
Naphthalene-d8	113951	161602	41.82
Acenaphthene-d10	66733	93243	39.73
Phenanthrene-d10	117708	175224	48.86
Chrysene-d12	117775	177686	50.87
Perylene-d12	94243	144349	53.17

ISTD (ICAL vg723)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	7.34	7.31	-0.03
Naphthalene-d8	8.96	8.93	-0.03
Acenaphthene-d10	11.26	11.23	-0.03
Phenanthrene-d10	13.20	13.17	-0.03
Chrysene-d12	16.65	16.62	-0.03
Perylene-d12	18.37	18.35	-0.02

NPM 08/20/14 [1-Methylnaphthalene]: Corrected automatically drawn baseline. [general version]

NPM 08/20/14 [Anthracene]: Corrected automatically drawn baseline. [general version]

NPM 08/20/14 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline. [general version]

Analyst: KMH Date: 08/22/14 Reviewer: LW Date: 08/27/14

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA04 Run Name : PAHDIOX IDF : 1.0
Seqnum : 534336091009.1 File : whl09 Time : 21-AUG-2014 12:14
Cal : 534275763001 Caldate : 10-JUL-2014
Standards: S25130

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	1.1183	1.0861	2.000	1.942	ug/mL	-3	20	0.7000	
2-Methylnaphthalene	0.6459	0.6642	2.000	2.057	ug/mL	3	20	0.4000	
Acenaphthylene	1.7091	1.6839	2.000	1.971	ug/mL	-1	20	0.9000	
Acenaphthene	1.0331	1.0498	2.000	2.032	ug/mL	2	20	0.9000	
Fluorene	1.1751	1.1919	2.000	2.029	ug/mL	1	20	0.9000	
Phenanthrene	1.0658	1.0954	2.000	2.056	ug/mL	3	20	0.7000	
Anthracene	1.0405	1.0680	2.000	2.053	ug/mL	3	20	0.7000	
Fluoranthene	1.0169	1.0637	2.000	2.092	ug/mL	5	20	0.6000	
Pyrene	1.3329	1.2978	2.000	1.947	ug/mL	-3	20	0.6000	
Benzo(a)anthracene	0.9406	0.9324	2.000	1.983	ug/mL	-1	20	0.8000	
Chrysene	0.9615	0.9884	2.000	2.056	ug/mL	3	20	0.7000	
Benzo(b)fluoranthene	1.1197	1.1395	2.000	2.035	ug/mL	2	20	0.7000	
Benzo(k)fluoranthene	1.1629	1.2810	2.000	2.203	ug/mL	10	20	0.7000	
Benzo(a)pyrene	0.9953	1.0342	2.000	2.078	ug/mL	4	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.1913	1.3256	2.000	2.225	ug/mL	11	20	0.5000	
Dibenz(a,h)anthracene	0.9180	1.0479	2.000	2.283	ug/mL	14	20	0.4000	
Benzo(g,h,i)perylene	1.0478	1.1724	2.000	2.238	ug/mL	12	20	0.5000	
Nitrobenzene-d5	0.4086	0.3603	2.000	1.764	ug/mL	-12	20	0.0500	
2-Fluorobiphenyl	1.3631	1.4462	2.000	2.122	ug/mL	6	20	0.0500	
Terphenyl-d14	1.0444	1.0094	2.000	1.933	ug/mL	-3	20	0.0500	

ISTD (ICAL wga09)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	61411	35015	-42.98
Naphthalene-d8	237683	130606	-45.05
Acenaphthene-d10	124978	72340	-42.12
Phenanthrene-d10	182537	110793	-39.30
Chrysene-d12	142444	98468	-30.87
Perylene-d12	111189	76969	-30.78

ISTD (ICAL wga09)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	7.86	7.84	-0.02
Naphthalene-d8	9.43	9.41	-0.02
Acenaphthene-d10	11.71	11.69	-0.02
Phenanthrene-d10	13.66	13.65	-0.01
Chrysene-d12	17.23	17.20	-0.03
Perylene-d12	19.16	19.14	-0.02

Analyst: KMH Date: 08/22/14 Reviewer: LW Date: 08/27/14

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 524334764

Date : 08/20/14 Reference : vg723
Sequence : MSBNA03 vhk Analyzed : 07/07/14 22:10

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	32023	113951	66733	117708	117775	94243
		LOWER LIMIT	16012	56976	33367	58854	58888	47122
		UPPER LIMIT	64046	227902	133466	235416	235550	188486
003	CCV		45383	161602	93243	175224	177686	144349
004	BLANK	QC754152	40074	144978	90135	169104	169862	131364
005	LCS	QC754153	40800	147837	87175	166901	171626	137851
006	SAMPLE	259841-005	38262	134783	80787	121279	106048	100216
007	SAMPLE	259835-002	33709	118975	70908	111991	99911	85941
008	MSS	259786-001	32484	116704	71225	124686	112256	102731
009	MS	QC754154	33637	119459	71821	129585	113679	106422
010	MSD	QC754155	31453	113275	67791	121054	107085	99825
011	SAMPLE	259786-003	33291	119260	73578	125808	116559	105831
012	SAMPLE	259786-004	33357	118616	71977	119452	108650	102469
013	SAMPLE	259790-001	31962	118955	73275	136976	131601	112052

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 524334764

Date : 08/20/14 Reference : vg723
Sequence : MSBNA03 vhk Analyzed : 07/07/14 22:10

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	7.34	8.96	11.26	13.20	16.65	18.37
		LOWER LIMIT	6.84	8.46	10.76	12.70	16.15	17.87
		UPPER LIMIT	7.84	9.46	11.76	13.70	17.15	18.87
003	CCV		7.31	8.93	11.23	13.17	16.62	18.35

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 524334764

Date : 08/20/14
Sequence : MSBNA03 vhk

Reference : vhk03
Analyzed : 08/20/14 12:08

#	Type	Sample ID	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT	DCBZ14D4 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	8.93	11.23	13.17	16.62	18.35	7.31
		LOWER LIMIT	8.43	10.73	12.67	16.12	17.85	6.81
		UPPER LIMIT	9.43	11.73	13.67	17.12	18.85	7.81
004	BLANK	QC754152	8.93	11.23	13.17	16.62	18.35	7.31
005	LCS	QC754153	8.93	11.23	13.18	16.62	18.35	7.31
006	SAMPLE	259841-005	8.93	11.23	13.18	16.63	18.36	7.31
007	SAMPLE	259835-002	8.93	11.23	13.18	16.63	18.36	7.31
008	MSS	259786-001	8.93	11.24	13.18	16.63	18.36	7.31
009	MS	QC754154	8.94	11.23	13.18	16.63	18.35	7.31
010	MSD	QC754155	8.94	11.23	13.18	16.63	18.35	7.31
011	SAMPLE	259786-003	8.93	11.23	13.18	16.63	18.35	7.31
012	SAMPLE	259786-004	8.93	11.23	13.18	16.63	18.36	7.31
013	SAMPLE	259790-001	8.93	11.23	13.18	16.62	18.35	7.31

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 534336091

Date : 08/21/14 Reference : wga09
Sequence : MSBNA04 whl Analyzed : 07/10/14 18:08

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	61411	237683	124978	182537	142444	111189
		LOWER LIMIT	30706	118842	62489	91269	71222	55595
		UPPER LIMIT	122822	475366	249956	365074	284888	222378
009	CCV	PAHDIOX	35015	130606	72340	110793	98468	76969
011	MS	QC754154	40133	158623	96950	170711	153825	127803
012	MSD	QC754155	46019	179158	103599	183574	161608	133091
013	SAMPLE	259835-002	47345	179122	107103	191047	173301	130136
014	SAMPLE	259841-007	28041 *	110847 *	69801	117081	93223	78792
015	SAMPLE	259882-001	9148 *	195725	111255	183963	162293	69481
016	SAMPLE	259882-002	48643	180183	104930	174666	153308	115706
026	SAMPLE	259841-007	47986	183106	110529	187043	155984	110179

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 534336091

Date : 08/21/14 Reference : wga09
Sequence : MSBNA04 whl Analyzed : 07/10/14 18:08

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	7.86	9.43	11.71	13.66	17.23	19.16
		LOWER LIMIT	7.36	8.93	11.21	13.16	16.73	18.66
		UPPER LIMIT	8.36	9.93	12.21	14.16	17.73	19.66
009	CCV	PAHDIOX	7.84	9.41	11.69	13.65	17.20	19.14

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 534336091

Date : 08/21/14 Reference : whl09
Sequence : MSBNA04 whl Analyzed : 08/21/14 12:14

#	Type	Sample ID	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	9.41	11.69	13.65	17.20	19.14
		LOWER LIMIT	8.91	11.19	13.15	16.70	18.64
		UPPER LIMIT	9.91	12.19	14.15	17.70	19.64
011	MS	QC754154	9.42	11.69	13.65	17.21	19.15
012	MSD	QC754155	9.42	11.69	13.65	17.21	19.15
013	SAMPLE	259835-002	9.41	11.69	13.65	17.22	19.16
014	SAMPLE	259841-007	9.42	11.69	13.64	17.20	19.14
015	SAMPLE	259882-001	9.47	11.69	13.66	17.22	19.15
016	SAMPLE	259882-002	9.42	11.69	13.65	17.22	19.15
026	SAMPLE	259841-007	9.41	11.68	13.65	17.21	19.14

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 524271263

Instrument : MSBNA03 Begun : 07/07/14 09:03
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vg701	IB	IB			07/07/14 09:03	1.0		?t
002	vg702	TUN	DFTPP			07/07/14 09:28	1.0	1	
003	vg703	CCV	PAHDIOX			07/07/14 09:47	1.0	2	
004	vg704	SAMPLE	258690-001	Soil	212952	07/07/14 10:20	2.0	3	
005	vg705	SAMPLE	258434-007	Soil	212801	07/07/14 10:54	5.0	3	
006	vg706	SAMPLE	258434-008	Soil	212801	07/07/14 11:27	5.0	3	
007	vg707	IB	IB			07/07/14 12:53	1.0		
008	vg708	TUN	DFTPP			07/07/14 13:19	1.0	1	
009	vg709	ICAL	ICAL			07/07/14 13:38	1.0	4	
010	vg710	ICAL	ICAL			07/07/14 14:10	1.0	5	
011	vg711	ICAL	ICAL			07/07/14 14:43	1.0	6	
012	vg712	ICAL	ICAL			07/07/14 15:15	1.0	7	
013	vg713	ICAL	ICAL			07/07/14 15:47	1.0	8	
014	vg714	ICAL	ICAL			07/07/14 16:19	1.0	9	
015	vg715	ICAL	ICAL			07/07/14 16:51	1.0	10	
016	vg716	ICV	ICV			07/07/14 17:23	1.0	2	
017	vg717	TUN	DFTPP			07/07/14 17:48	1.0	1	t
018	vg718	CCV	PAHDIOX			07/07/14 18:06	1.0	6	t
019	vg719	TUN	DFTPP			07/07/14 20:11	1.0	1	
020	vg720	ICAL	ICAL			07/07/14 20:28	1.0	11	
021	vg721	ICAL	ICAL			07/07/14 21:02	1.0	12	
022	vg722	ICAL	ICAL			07/07/14 21:35	1.0	13	
023	vg723	ICAL	ICAL			07/07/14 22:10	1.0	14	
024	vg724	ICAL	ICAL			07/07/14 22:42	1.0	15	
025	vg725	ICAL	ICAL			07/07/14 23:17	1.0	16	
026	vg726	ICAL	ICAL			07/07/14 23:50	1.0	17	
027	vg727	ICV	ICV			07/08/14 00:22	1.0	2	
028	vg728	CHECK	ICV			07/08/14 00:56	1.0	18	
029	vg729	CHECK	ICV			07/08/14 01:28	1.0	19	

KMH 07/08/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 29.

KMH 07/07/14 : maintenance done after run 6

Standards used: 1=S24893 2=S25107 3=S24600 4=S24925 5=S24927 6=S24928 7=S24929 8=S24931 9=S24933 10=S24934 11=S25125 12=S25126 13=S25128 14=S25129 15=S25130 16=S25132 17=S25133 18=S24935 19=S25080

Flags used: ?t=missing tune t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 524334764

Instrument : MSBNA03 Begun : 08/20/14 11:24
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vhk01	IB	IB			08/20/14 11:24	1.0		?t
002	vhk02	TUN	DFTPP			08/20/14 11:50	1.0	1	
003	vhk03	CCV				08/20/14 12:08	1.0	2	
004	vhk04	BLANK	QC754152	Water	214554	08/20/14 12:43	1.0	3	
005	vhk05	LCS	QC754153	Water	214554	08/20/14 13:15	1.0	3	
006	vhk06	SAMPLE	259841-005	Water	214554	08/20/14 13:48	1.0	3	
007	vhk07	SAMPLE	259835-002	Water	214554	08/20/14 14:23	1.0	3	
008	vhk08	MSS	259786-001	Water	214554	08/20/14 14:56	1.0	3	
009	vhk09	MS	QC754154	Water	214554	08/20/14 15:29	1.0	3	
010	vhk10	MSD	QC754155	Water	214554	08/20/14 16:02	1.0	3	
011	vhk11	SAMPLE	259786-003	Water	214554	08/20/14 16:34	1.0	3	
012	vhk12	SAMPLE	259786-004	Water	214554	08/20/14 17:06	1.0	3	
013	vhk13	SAMPLE	259790-001	Water	214554	08/20/14 17:38	1.0	3	

KMH 08/21/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 13.

Standards used: 1=S24893 2=S25129 3=S24915

Flags used: ?t=missing tune

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 534275763

Instrument : MSBNA04 Begun : 07/10/14 12:03
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	wga01	TUN	DFTPP			07/10/14 12:03	1.0	1	
002	wga02	CCV	RTCHECK			07/10/14 12:32	1.0	2	2:ANTH=2.4
003	wga03	CCV	RTCHECK			07/10/14 13:14	1.0	2	2:ANTH=2.5
004	wga04	TUN	DFTPP			07/10/14 14:05	1.0	1	
005	wga05	TUN	DFTPP			07/10/14 15:44	1.0	1	
006	wga06	ICAL	ICAL			07/10/14 16:29	1.0	3	
007	wga07	ICAL	ICAL			07/10/14 17:02	1.0	4	
008	wga08	ICAL	ICAL			07/10/14 17:35	1.0	5	
009	wga09	ICAL	ICAL			07/10/14 18:08	1.0	6	
010	wga10	ICAL	ICAL			07/10/14 18:41	1.0	2	
011	wga11	ICAL	ICAL			07/10/14 19:14	1.0	7	
012	wga12	ICAL	ICAL			07/10/14 19:47	1.0	8	
013	wga13	ICV	ICV			07/10/14 20:21	1.0	9	

KMH 07/11/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 13.

Standards used: 1=S24369 2=S25130 3=S25125 4=S25126 5=S25128 6=S25129 7=S25132 8=S25133 9=S24935

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 534336091

Instrument : MSBNA04 Begun : 08/21/14 09:31
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	whl01	IB	IB			08/21/14 09:31	1.0		?t
002	whl02	TUN	DFTPP			08/21/14 09:57	1.0	1	t
003	whl03	TUN	DFTPP			08/21/14 10:14	1.0	1	t
004	whl04	TUN	DFTPP			08/21/14 10:30	1.0	1	t
005	whl05	TUN	DFTPP			08/21/14 10:48	1.0	1	t
006	whl06	TUN	DFTPP			08/21/14 11:04	1.0	1	
007	whl07	CCV	PAHDIOX			08/21/14 11:24	1.0	2	
008	whl08	TUN	DFTPP			08/21/14 11:54	1.0	1	
009	whl09	CCV	PAHDIOX			08/21/14 12:14	1.0	2	
010	whl10	BLANK	QC754284	Soil	214589	08/21/14 12:46	1.0	3	
011	whl11	MS	QC754154	Water	214554	08/21/14 13:18	1.0	3	
012	whl12	MSD	QC754155	Water	214554	08/21/14 13:49	1.0	3	
013	whl13	SAMPLE	259835-002	Water	214554	08/21/14 14:21	1.0	3	
014	whl14	SAMPLE	259841-007	Water	214554	08/21/14 14:53	1.0	3	
015	whl15	SAMPLE	259882-001	Water	214554	08/21/14 15:25	1.0	3	
016	whl16	SAMPLE	259882-002	Water	214554	08/21/14 15:57	1.0	3	
017	whl17	SAMPLE	259781-001	Soil	214589	08/21/14 16:29	2.0	3	
018	whl18	SAMPLE	259781-002	Soil	214589	08/21/14 17:01	1.0	3	
019	whl19	SAMPLE	259818-002	Soil	214589	08/21/14 17:33	1.0	3	
020	whl20	SAMPLE	259924-003	Soil	214589	08/21/14 18:05	1.0	3	
021	whl21	SAMPLE	259826-001	Soil	214589	08/21/14 18:37	1.0	3	
022	whl22	SAMPLE	259924-001	Soil	214589	08/21/14 19:09	1.0	3	
023	whl23	SAMPLE	259924-002	Soil	214589	08/21/14 19:43	1.0	3	
024	whl24	SAMPLE	259868-001	Soil	214589	08/21/14 20:17	1.0	3	
025	whl25	SAMPLE	259866-001	Soil	214589	08/21/14 20:50	1.0	3	
026	whl26	SAMPLE	259841-007	Water	214554	08/21/14 21:22	1.0	3	
027	whl27	SAMPLE	259983-020	Soil	214589	08/21/14 21:54	1.0	3	

KMH 08/21/14 : adjusted tune after runs 3, 4, 5 & 7

KMH 08/22/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 27.

Standards used: 1=S24893 2=S25130 3=S24915

Flags used: ?t=missing tune t=tune failure

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SAMPLE PREPARATION SUMMARY

Batch # : 214554
Started By : ARG
Method : 3520C
Spike #1 ID : S24814

Prep Date : 19-AUG-2014 14:25
SOP Version : 8270-SIM_3520_rv5
Spike #2 ID : S24884

Analysis : 8270-SIM
Finished By : CPK
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259786-001		Water	1040	1	1	0.0009615	7	1				8270-SIM	
259786-003		Water	1020	1	1	0.0009804	7	1				8270-SIM	
259786-004		Water	1040	1	1	0.0009615	7	1				8270-SIM	
259790-001		Water	1000	1	1	0.001	7	1				8270-SIM	
259790-002		Water	1060	1	1	0.0009434	7	1				8270-SIM	
259835-002		Water	1020	1	1	0.0009804	7	1				8270-SIM	
259841-005		Water	1020	1	1	0.0009804	7	1				8270-SIM	
259841-007		Water	1040	1	1	0.0009615	7	1				8270-SIM	
259882-001		Water	1020	1	1	0.0009804	11	1				8270-SIM	
259882-002		Water	1020	1	1	0.0009804	7	1				8270-SIM	
QC754152	BLANK	Water	1000	1	1	0.001		1				8270-SIM	
QC754153	LCS	Water	1000	1	1	0.001		1	1			8270-SIM	
QC754154	MS	Water	1020	1	1	0.0009804		1	1			8270-SIM	
QC754155	MSD	Water	1040	1	1	0.0009615		1	1			8270-SIM	

Analyst: KMH Date: 08/21/14 Reviewer: LW Date: 08/21/14

BNA (8270 & 625) Water Prep Log **Curtis & Tompkins, Ltd.**

Page 6 **BK 3598**

LIMS Batch No: 214554 Extraction Method:
LIMS Analysis: SIM ☒ EPA 3520c cont. L/L
Date Extracted: 8/9/14 ☐

Sample #	Container ID	Volume of Sample (mL)	Sample pH	Final Volume (mL)	Confirmed pH <2	Comments
259786-001	Z	1040	☒7 ☐	☒1.0 ☐	☒≤2	MSS
259786-003	I	1020	☒7 ☐	☒1.0 ☐	☒≤2	
4	G	1040	☒7 ☐	☒1.0 ☐	☒≤2	
259790-001	H	1000	☒7 ☐	☒1.0 ☐	☒≤2	
2	H	1060	☒7 ☐	☒1.0 ☐	☒≤2	
259835-002	C	1020	☒7 ☐	☒1.0 ☐	☒≤2	
259841-005	C	1020	☒7 ☐	☒1.0 ☐	☒≤2	
7	G	1040	☒7 ☐	☒1.0 ☐	☒≤2	
259882-001	K	1020	☐7 ☒11	☒1.0 ☐	☒≤2	
2	M	1020	☒7 ☐	☒1.0 ☐	☒≤2	
MBWC754152	MA	1000	☐7 ☒NA	☒1.0 ☐	☒≤2	
LCS 3		1000	☐7 ☒	☒1.0 ☐	☒≤2	
MS 4	Y	1020	☒7 ☐	☒1.0 ☐	☒≤2	
MSD 5	AB	1040	☒7 ☐	☒1.0 ☐	☒≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	

	Lot# / LIMS # / Time	Date/ Initials
1.0 mL of surrogate solution was added to all samples	524814A	AR 8/9/14
1.0 mL of matrix spiking solution was added to all spikes	524884B	
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	FS140656	
Cont. L/L extracted with 450mL of CH_2Cl_2	EM54153	
Extraction Start Time:	1425	
Extraction End Time:	830	CPK 8/20/14
pH of all samples adjusted to pH ≥ 11 with 10 N NaOH	NA	CPK 8/20/14
Extraction Start Time:		
Extraction End Time:		
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EMWL23I	
Concentrated to final volume at temperature (degrees C)	70	
Relinquished to BNA department		

8/9/14
Extraction Chemist **Date**

Contined from Page
Continued on Page

8/20/14
Reviewed by **Date**

Case Narrative Addendum: Manual Integrations for 259835 MSSIM (Water)

For CCV (MSBNA03 vhk03):
Anthracene: Corrected automatically drawn baseline.
Benzo(k)fluoranthene: Corrected automatically drawn baseline.
1-Methylnaphthalene: Corrected automatically drawn baseline.

For SAMPLE 259835-002 (MSBNA04 whl13):
Pyrene: Corrected automatically drawn baseline.

For MSD QC754155 (MSBNA04 whl12):
1,4-Dioxane: Corrected automatically drawn baseline for spike & dup.
Fluorene: Corrected automatically drawn baseline for spike.
Nitrobenzene-d5: Corrected automatically drawn baseline for dup.

For Calibration MSBNA03 (524271263002):
Benzo(k)fluoranthene: Corrected automatically drawn baseline in ICAL (vg720).
Dibenz(a,h)anthracene: Corrected automatically drawn baseline in multiple levels.
1,4-Dioxane: Corrected automatically drawn baseline in multiple levels.
Nitrobenzene-d5: Corrected automatically drawn baseline in multiple levels.

For Calibration MSBNA04 (534275763001):
Anthracene: Corrected automatically drawn baseline in multiple levels.
Benzo(g,h,i)perylene: Corrected automatically drawn baseline in multiple levels.
Benzo(k)fluoranthene: Corrected automatically drawn baseline in all levels.
Chrysene: Corrected automatically drawn baseline in multiple levels.
Dibenz(a,h)anthracene: Corrected automatically drawn baseline in multiple levels.
1,4-Dioxane: Corrected automatically drawn baseline in multiple levels.
Indeno(1,2,3-cd)pyrene: Corrected automatically drawn baseline in ICAL (wga06).
Nitrobenzene-d5: Corrected automatically drawn baseline in multiple levels.

For ICV (MSBNA04 wga13):
1,4-Dioxane: Corrected automatically drawn baseline.

Sample Raw Data

CURTIS & TOMPKINS SAMPLE USER REPORT FOR EPA 8270D-SIM

Inst	: MSBNA04	Lab ID	: 259835-002	Client ID	: 04W06-081414
Seqnum	: 534336091013	Matrix	: Water	Acct	: JMW (TLB)
File	: whl13	Batch	: 214554	Time	: 21-AUG-2014 14:21
Cal	: 534275763001	Caldate	: 10-JUL-2014		
IDF	: 1.0	Raw Units	: ug/mL	Units	: ug/L

1020.00 mL --> 1.0 ml = 0.0009804 ml/ml PDF

Analyte	Raw	Result	RTS	RL	Blank	Flags
Naphthalene	0.01770	ND		0.1		u
2-Methylnaphthalene	0.009000	ND		0.1		u
Acenaphthylene	0.02010	0.02 J		0.1		l u x
Acenaphthene	0.007000	ND		0.1		u
Fluorene	0.03040	0.03 J		0.1		l u x
Phenanthrene	0.03490	0.03 J		0.1		u
Anthracene	0.02450	0.02 J		0.1		l u x
Fluoranthene	0.02060	0.02 J		0.1		l u x
Pyrene	0.01860	ND		0.1		l m u
Benzo(a)anthracene	0.09550	0.09 J	-0.246	0.1		u x
Chrysene	0.09350	0.09 J	-0.302	0.1		u x
Benzo(b)fluoranthene	0.02070	0.02 J	-0.214	0.1		u x
Benzo(k)fluoranthene	0.01990	ND		0.1		u
Benzo(a)pyrene	0.003900	ND		0.1		u
Indeno(1,2,3-cd)pyrene	0.008100	ND		0.1		u
Dibenz(a,h)anthracene	0.008000	ND		0.1		u
Benzo(g,h,i)perylene	0.003800	ND		0.1		u

Surrogate	Raw	Spiked	Result	%Rec	Limits	Flags
Nitrobenzene-d5	0.7742	0.9804	0.7590	77	40-110	u
2-Fluorobiphenyl	0.8011	0.9804	0.7854	80	50-110	u
Terphenyl-d14	0.7644	0.9804	0.7494	76	50-135	u

ISTD (ICAL wga09)	ICAL Abund	SAMPLE Abund	%Drift
Naphthalene-d8	237683	179122	-24.64
Acenaphthene-d10	124978	107103	-14.30
Phenanthrene-d10	182537	191047	4.66
Chrysene-d12	142444	173301	21.66
Perylene-d12	111189	130136	17.04

ISTD (CCV whl09)	CCV RT	SAMPLE RT	Drift
Naphthalene-d8	9.41	9.41	0.00
Acenaphthene-d10	11.69	11.69	0.00
Phenanthrene-d10	13.65	13.65	0.01
Chrysene-d12	17.20	17.22	0.02
Perylene-d12	19.14	19.16	0.02

KMH 08/21/14 : High chromatographic background.

KMH 08/21/14 [Acenaphthylene]: Subtracted background does not confirm

KMH 08/21/14 [Fluorene]: Subtracted background does not confirm

KMH 08/21/14 [Phenanthrene]: Subtracted background does confirm

KMH 08/21/14 [Anthracene]: Subtracted background does not confirm

KMH 08/21/14 [Fluoranthene]: Subtracted background does not confirm

KMH 08/21/14 [Pyrene]: Subtracted background does not confirm

KMH 08/21/14 [Pyrene]: Corrected automatically drawn baseline.

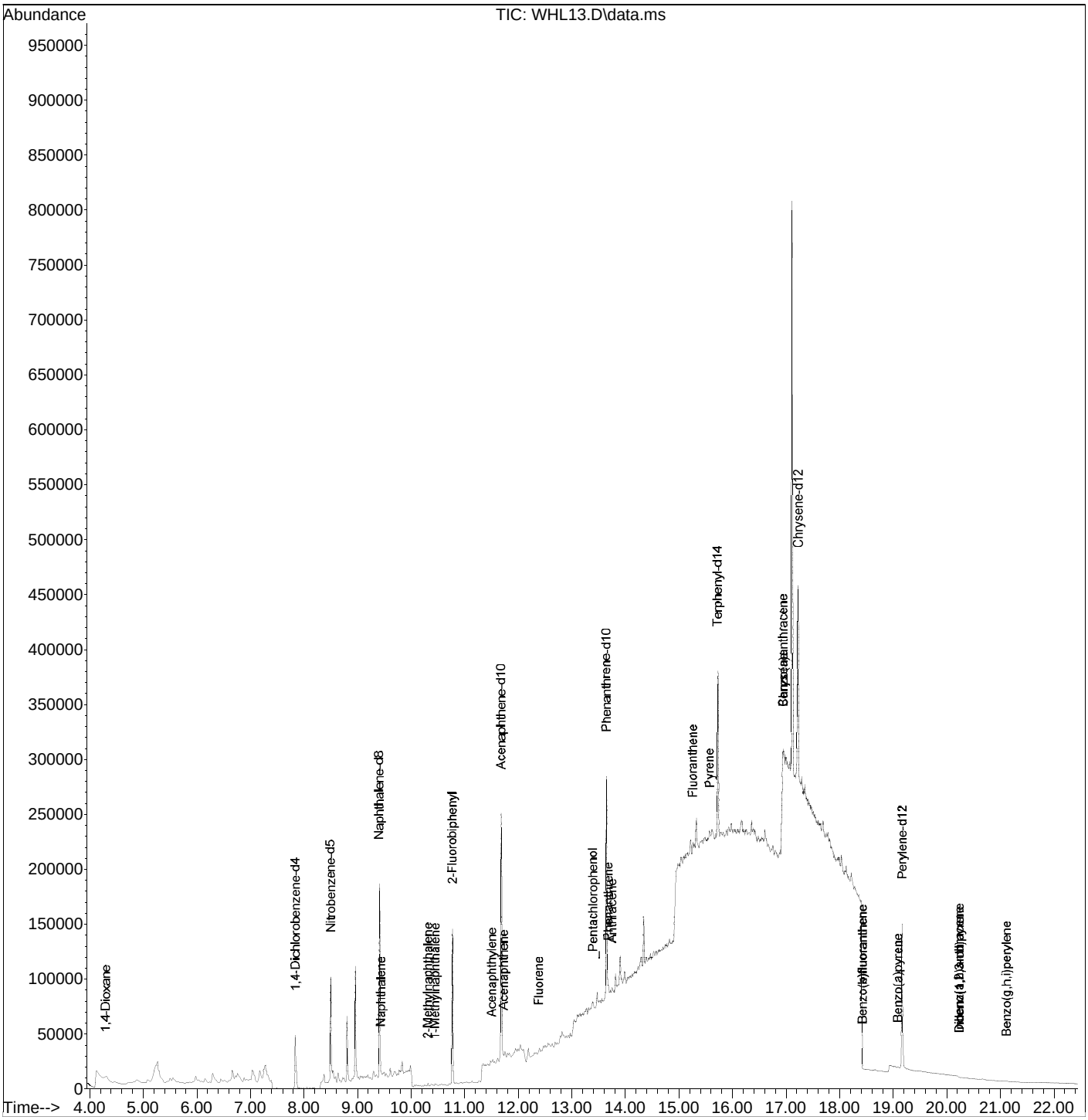
Analyst: KMH Date: 08/21/14 Reviewer: LW Date: 08/27/14

l=false positive flag altered m=manual integration u=use x=false positive

Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\082114\
Data File : WHL13.D
Acq On : 21 Aug 2014 2:21 pm
Operator :
Sample : S,259835-002
Misc : 214554,1,
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 21 15:07:22 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Thu Aug 21 12:34:48 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\082114\
Data File : WHL13.D
Acq On : 21 Aug 2014 2:21 pm
Operator :
Sample : S,259835-002
Misc : 214554,1,
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 21 15:07:22 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Thu Aug 21 12:34:48 2014
Response via : Initial Calibration

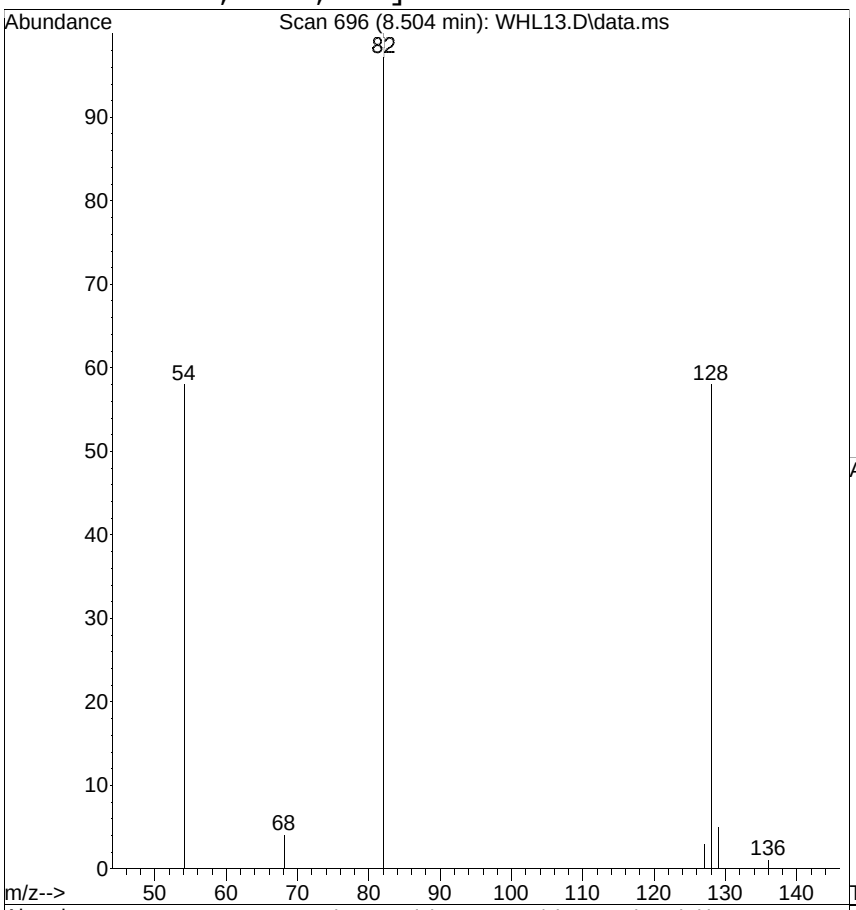
Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.843	152	47345	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.411	136	179122	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.686	164	107103	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.646	188	191047	1.0000	ug/mL	0.00
18) Chrysene-d12	17.219	240	173301	1.0000	ug/mL	0.02
23) Perylene-d12	19.156	264	130136	1.0000	ug/mL	0.02

Target Compounds						Qvalue
2) 1,4-Dioxane	4.304	88	4721	0.1875	ug/mL	# 1
4) Nitrobenzene-d5	8.504	82	56658	0.7742	ug/mL	96
5) Naphthalene	9.440	128	3546	0.0177	ug/mL	# 32
6) 2-Methylnaphthalene	10.317	142	1045	0.0090	ug/mL	# 71
7) 1-Methylnaphthalene	10.449	142	1741	0.0157	ug/mL	# 75
9) 2-Fluorobiphenyl	10.771	172	116954	0.8011	ug/mL	99
10) Acenaphthylene	11.505	152	3683	0.0201	ug/mL	# 1
11) Acenaphthene	11.727	154	780	0.0070	ug/mL	# 46
12) Fluorene	12.385	166	3832	0.0304	ug/mL	# 67
14) _Pentachlorophenol	13.394	266	999	3.3906	ug/mL	86
15) Phenanthrene	13.676	178	7096	0.0349	ug/mL	# 1
16) Anthracene	13.749	178	4873	0.0245	ug/mL	# 1
17) Fluoranthene	15.259	202	4001	0.0206	ug/mL	# 1
19) Pyrene	15.571	202	4294m	0.0186	ug/mL	
20) Terphenyl-d14	15.727	244	138353	0.7644	ug/mL	84
21) Benzo(a)anthracene	16.938	228	15575	0.0955	ug/mL	# 1
22) Chrysene	16.938	228	15575	0.0935	ug/mL	# 1
24) Benzo(b)fluoranthene	18.420	252	3011	0.0207	ug/mL	# 1
25) Benzo(k)fluoranthene	18.420	252	3011	0.0199	ug/mL	# 1
26) Benzo(a)pyrene	19.080	252	509	0.0039	ug/mL	# 1
27) Indeno(1,2,3-cd)pyrene	20.230	276	1255	0.0081	ug/mL	# 1
28) Dibenz(a,h)anthracene	20.223	278	959	0.0080	ug/mL	# 1
29) Benzo(g,h,i)perylene	21.103	276	512	0.0038	ug/mL	# 1

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

[Nitrobenzene-d5; 0.8; u]

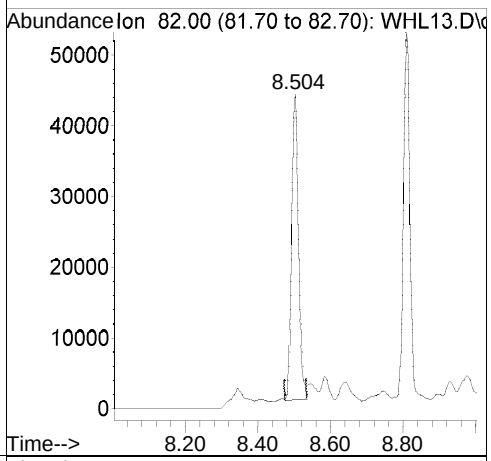
Raw



#4
Nitrobenzene-d5
Concen: 0.7742 ug/mL
RT: 8.504 min Scan# 696
Delta R.T. -0.001 min
Lab File: WHL13.D
Acq: 21 Aug 2014 2:21 pm

Tgt Ion: 82 Resp: 56658

Ion	Ratio	Lower	Upper
82	100		
128	58.3	35.4	75.4
54	58.2	35.4	75.4



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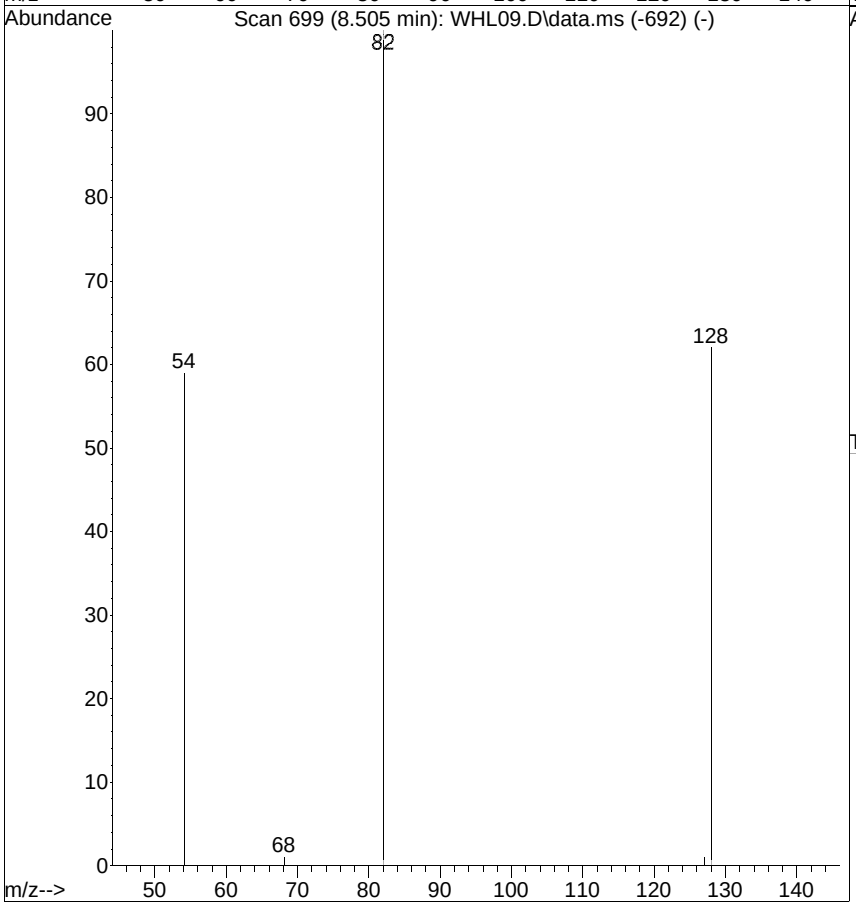
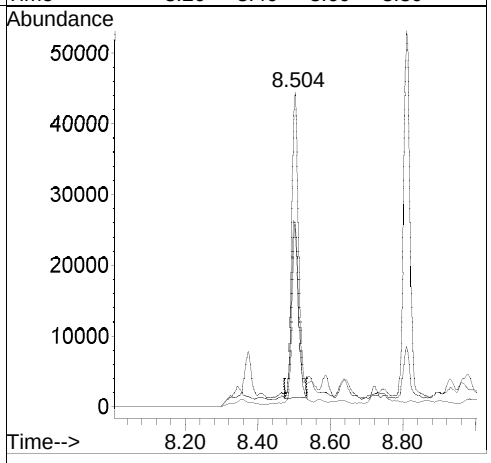
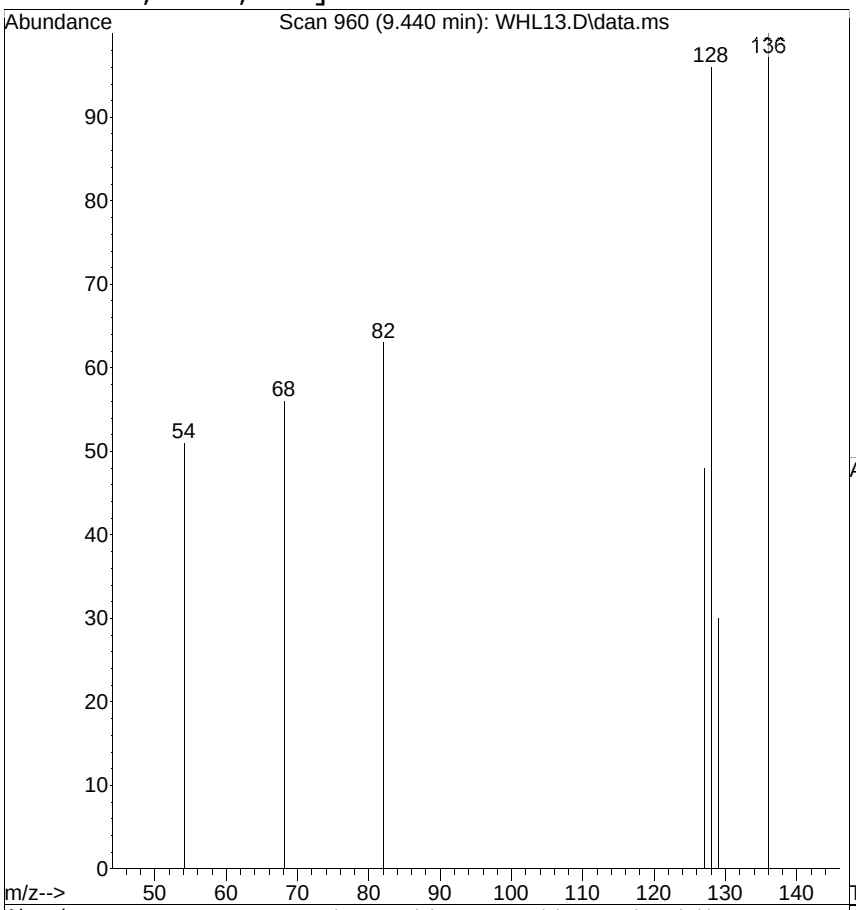




[Naphthalene; <RL; u]

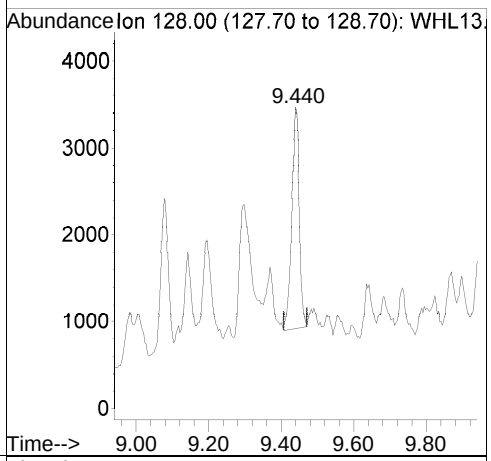
Raw



#5
Naphthalene
Concen: 0.0177 ug/mL
RT: 9.440 min Scan# 960
Delta R.T. -0.001 min
Lab File: WHL13.D
Acq: 21 Aug 2014 2:21 pm

Tgt Ion:128 Resp: 3546

Ion	Ratio	Lower	Upper
128	100		
129	31.3	0.0	33.4
127	50.3	0.0	33.8#



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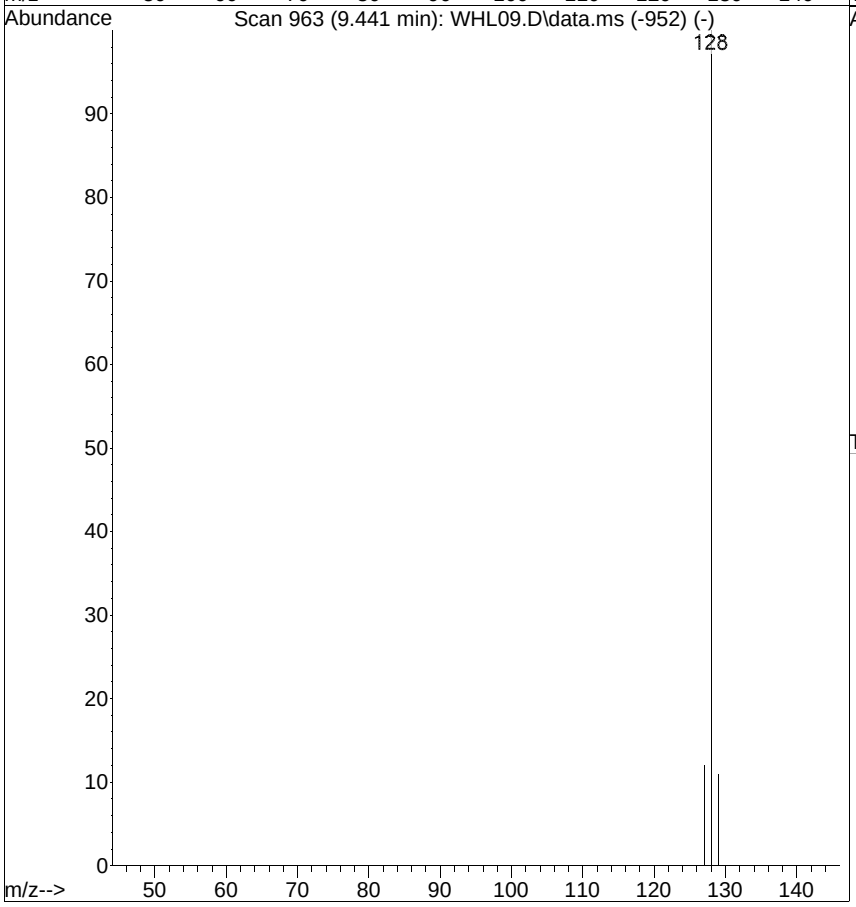
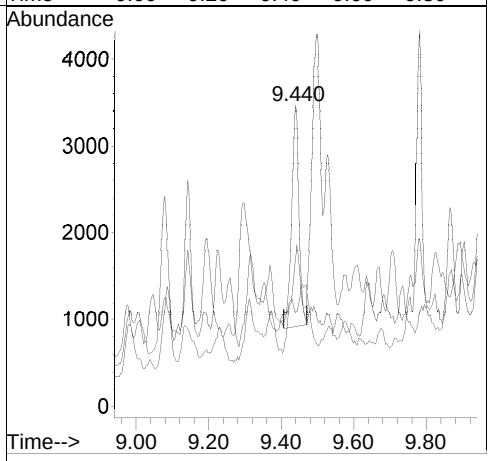
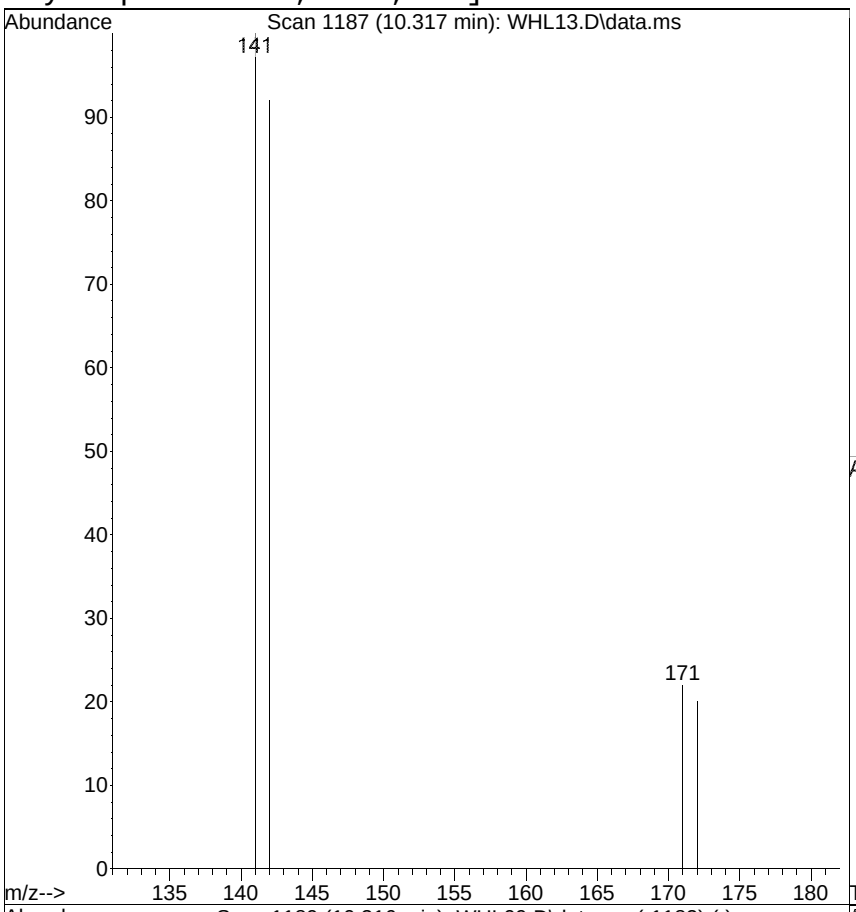




[2-Methylnaphthalene; <RL; u]

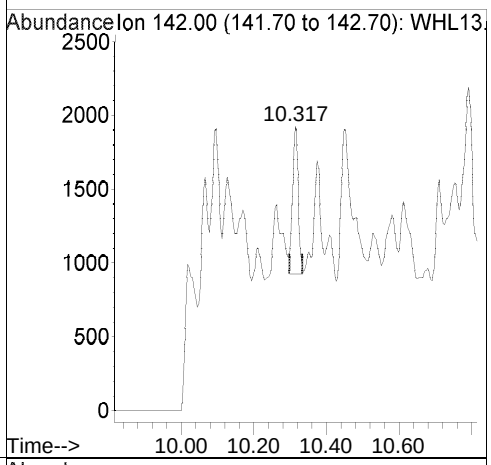
Raw



#6
2-Methylnaphthalene
Concen: 0.0090 ug/mL
RT: 10.317 min Scan# 1187
Delta R.T. 0.001 min
Lab File: WHL13.D
Acq: 21 Aug 2014 2:21 pm

Tgt Ion:142 Resp: 1045

Ion	Ratio	Lower	Upper
142	100		
141	108.7	62.3	102.3#



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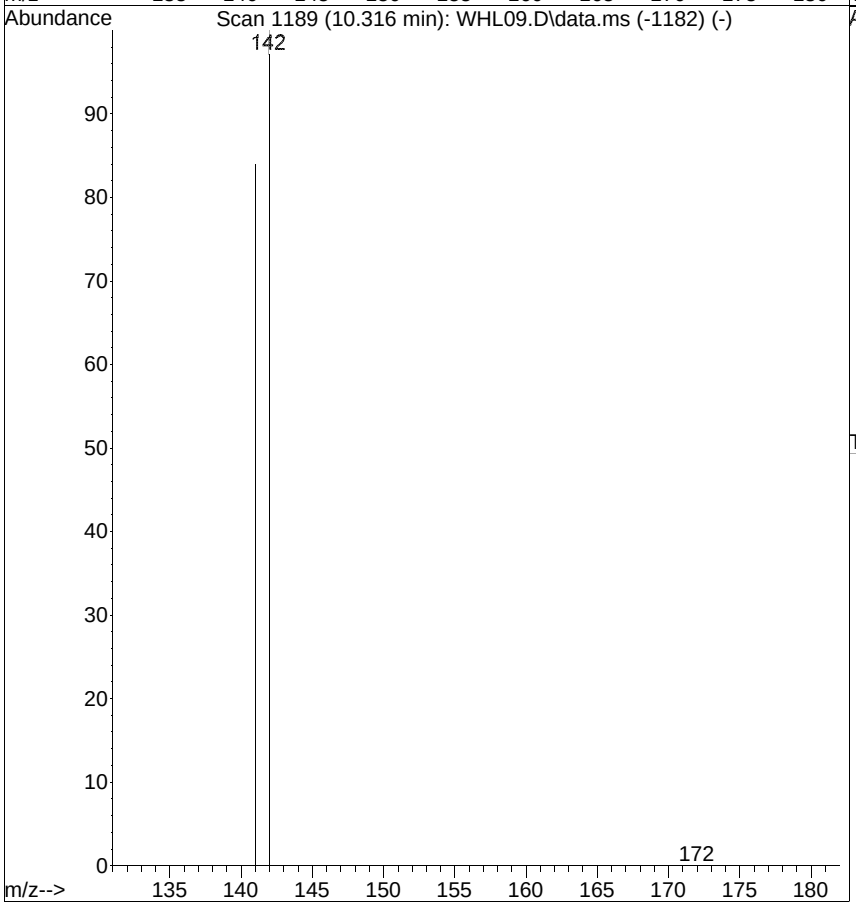
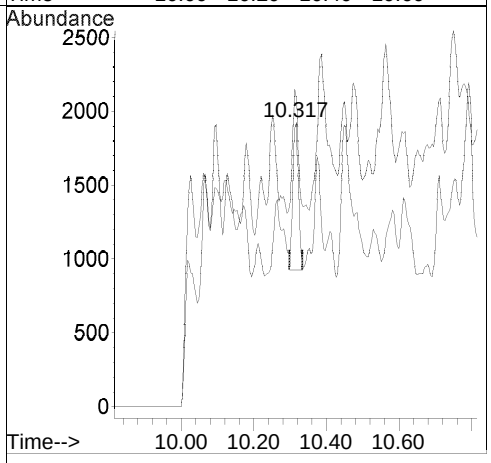
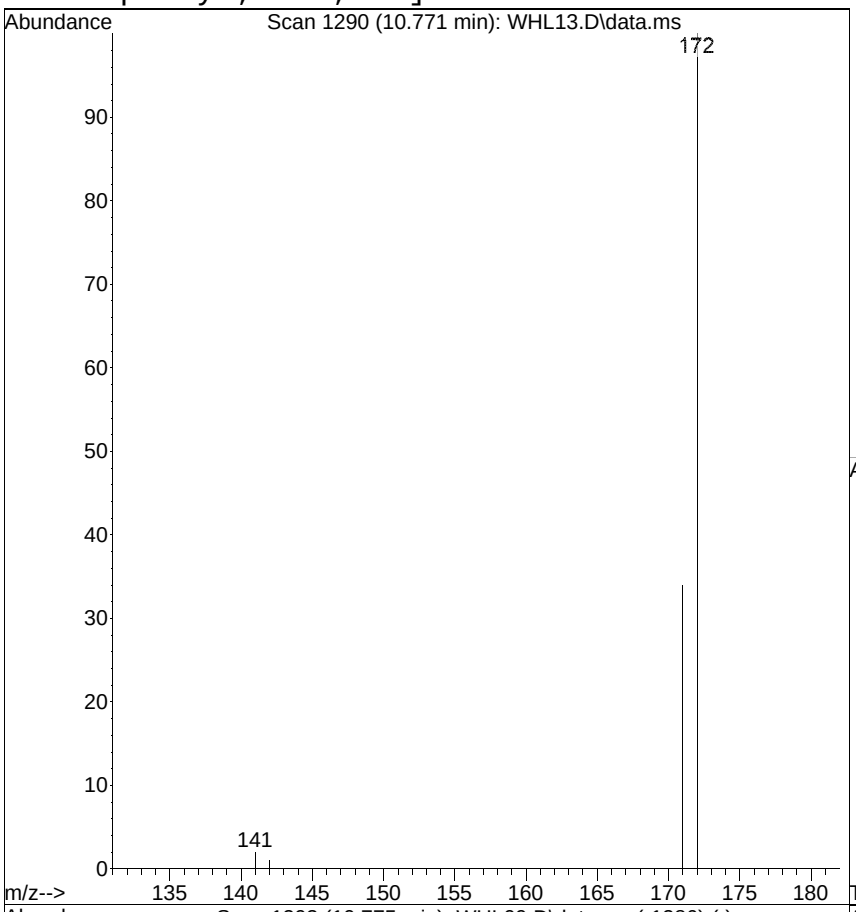




[2-Fluorobiphenyl; 0.8; u]

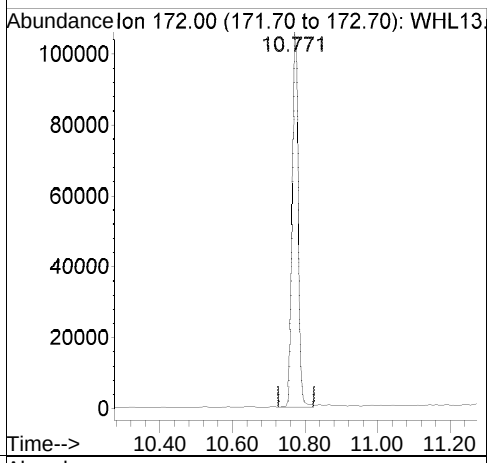
Raw



#9
2-Fluorobiphenyl
Concen: 0.8011 ug/mL
RT: 10.771 min Scan# 1290
Delta R.T. -0.003 min
Lab File: WHL13.D
Acq: 21 Aug 2014 2:21 pm

Tgt Ion:172 Resp: 116954

Ion	Ratio	Lower	Upper
172	100		
171	34.2	14.7	54.7



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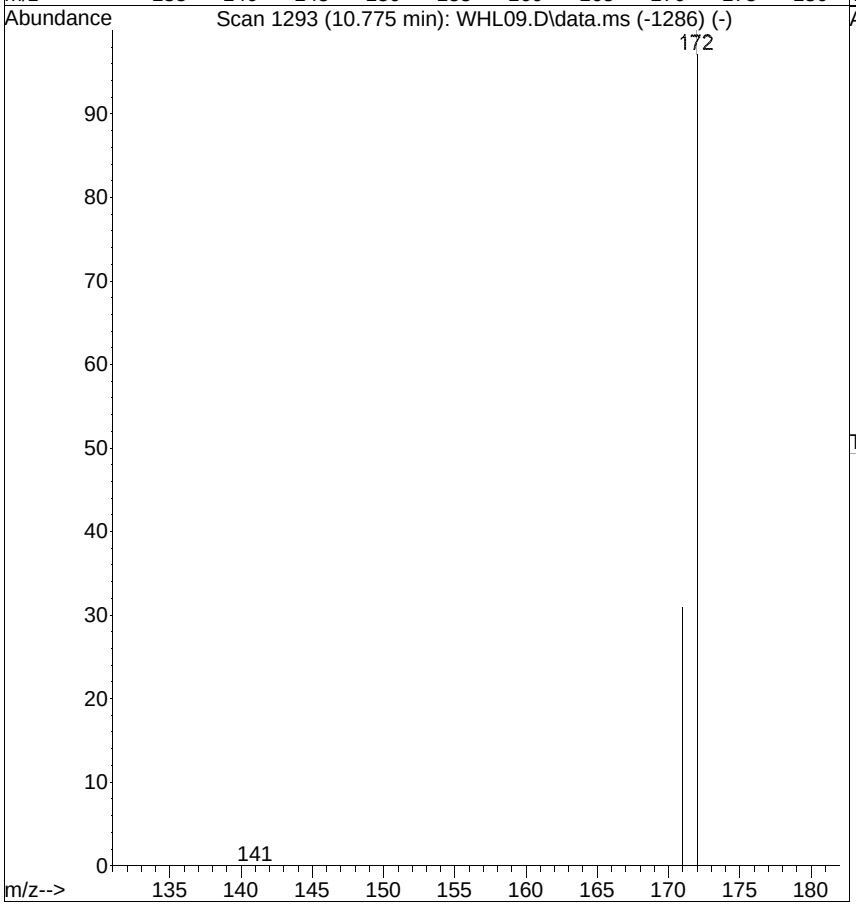
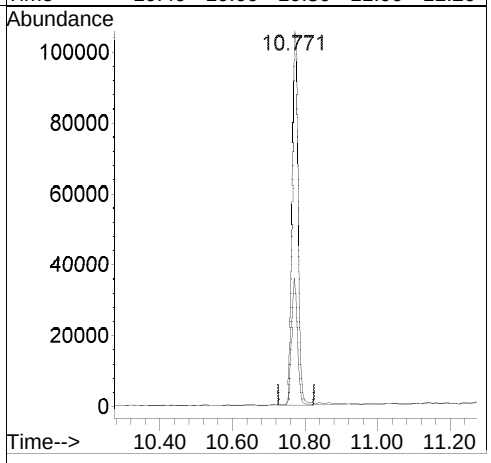
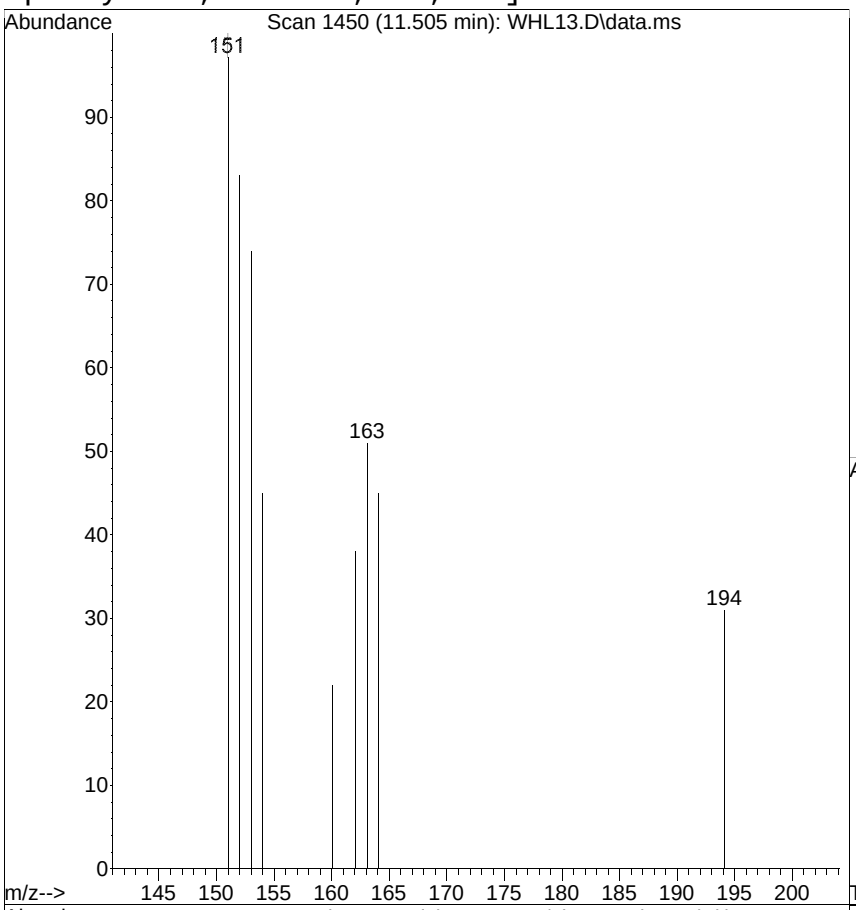




[Acenaphthylene; 0.02 J; FP; u]

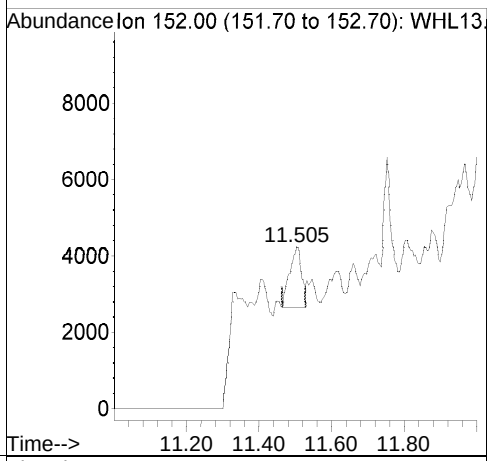
Raw



#10
Acenaphthylene
Concen: 0.0201 ug/mL
RT: 11.505 min Scan# 1450
Delta R.T. 0.004 min
Lab File: WHL13.D
Acq: 21 Aug 2014 2:21 pm

Tgt Ion:152 Resp: 3683

Ion	Ratio	Lower	Upper
152	100		
151	120.7	0.9	40.9#
153	89.2	0.0	35.9#



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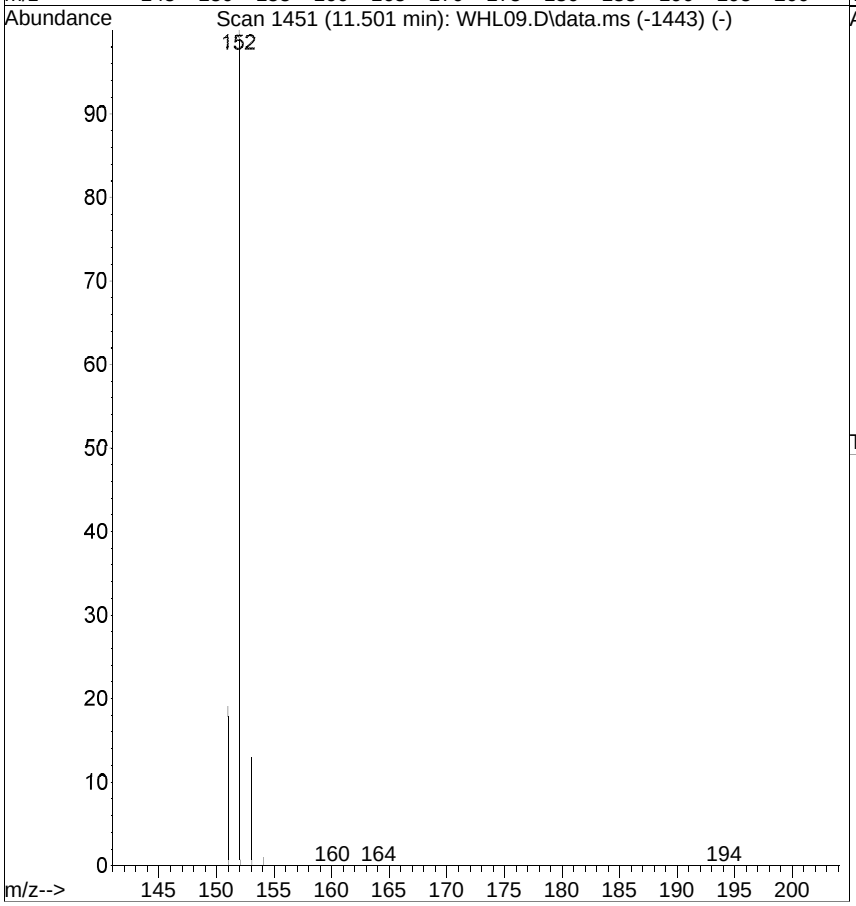
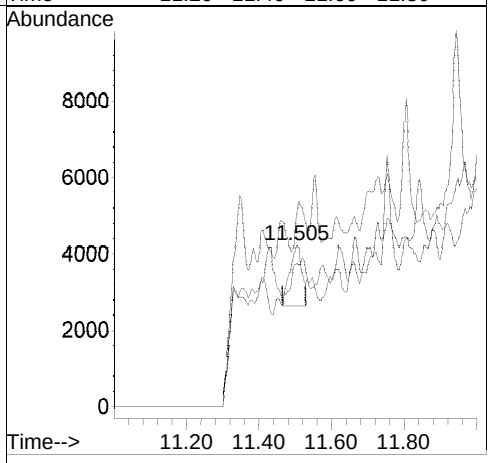
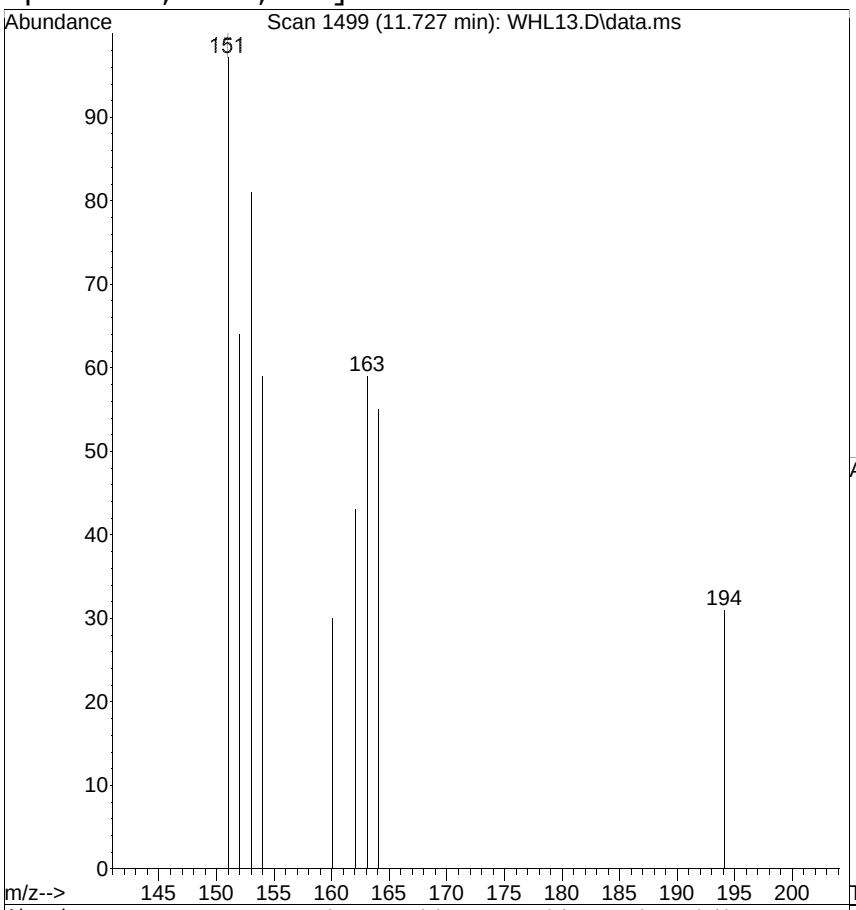




[Acenaphthene; <RL; u]

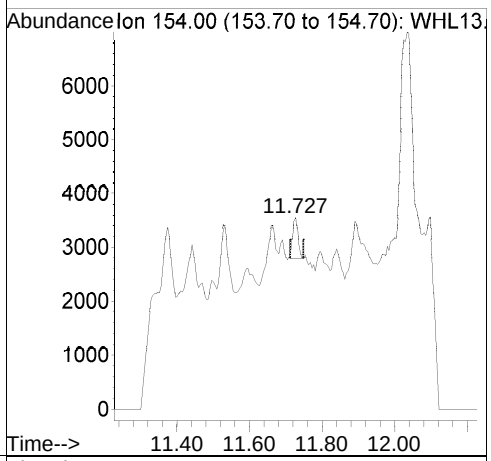
Raw



#11
Acenaphthene
Concen: 0.0070 ug/mL
RT: 11.727 min Scan# 1499
Delta R.T. -0.000 min
Lab File: WHL13.D
Acq: 21 Aug 2014 2:21 pm

Tgt Ion:154 Resp: 780

Ion	Ratio	Lower	Upper
154	100		
152	109.4	29.1	69.1#
153	136.9	79.3	119.3#



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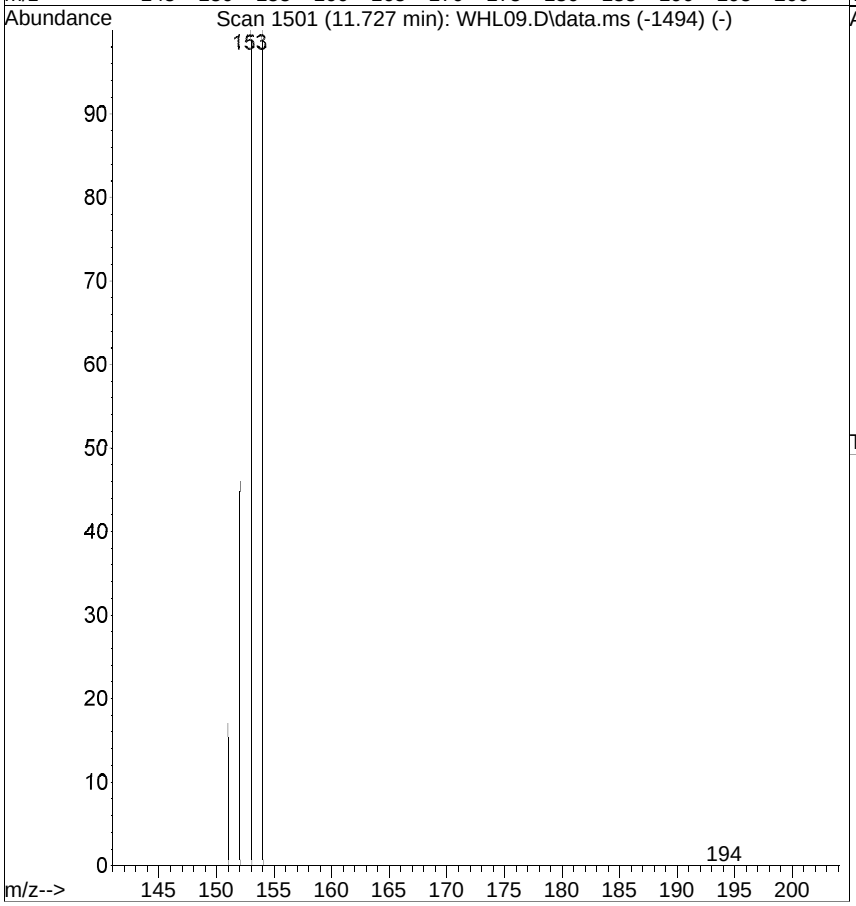
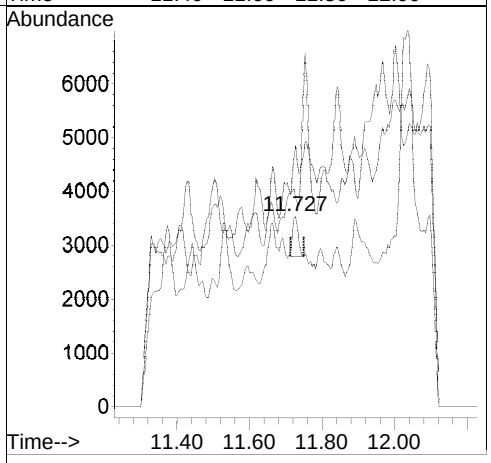
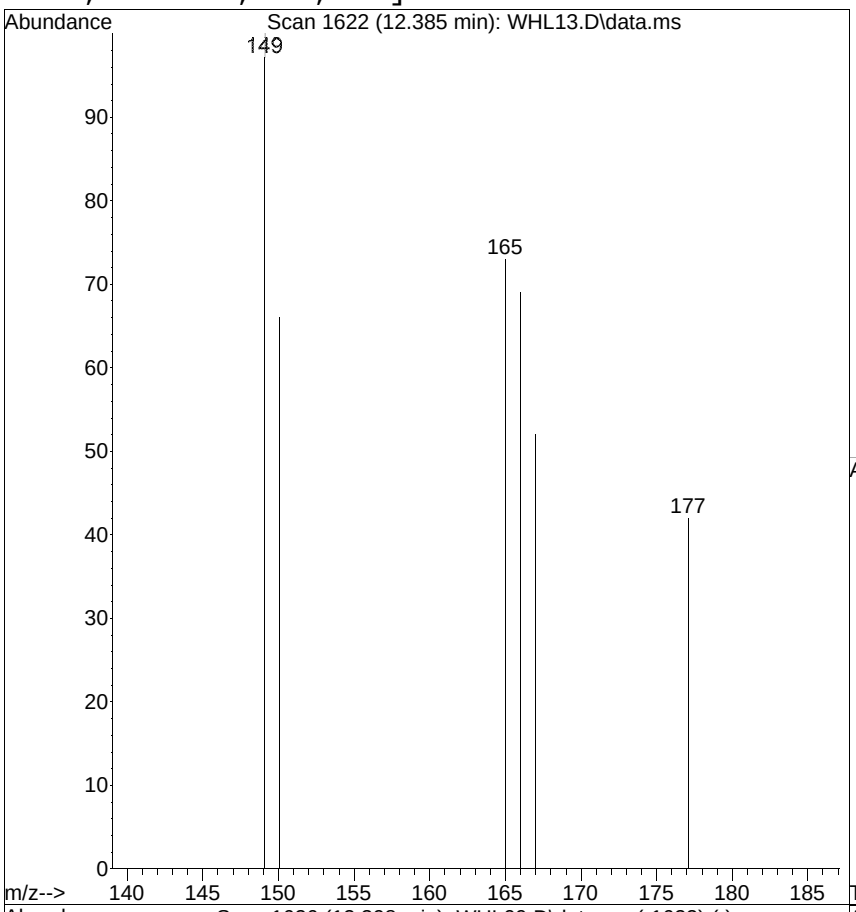




[Fluorene; 0.03 J; FP; u]

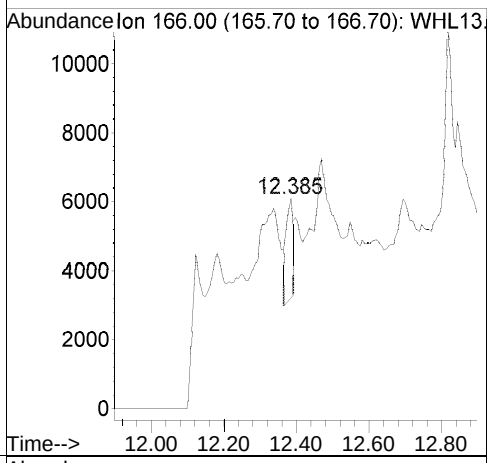
Raw



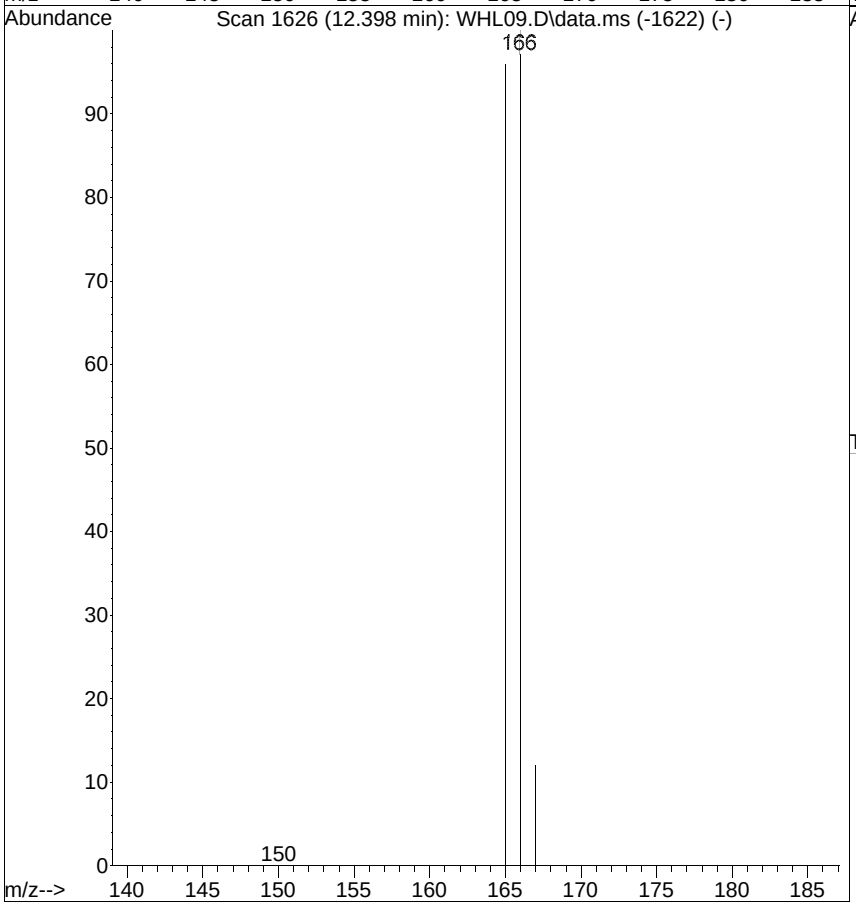
#12
Fluorene
Concen: 0.0304 ug/mL
RT: 12.385 min Scan# 1622
Delta R.T. -0.013 min
Lab File: WHL13.D
Acq: 21 Aug 2014 2:21 pm

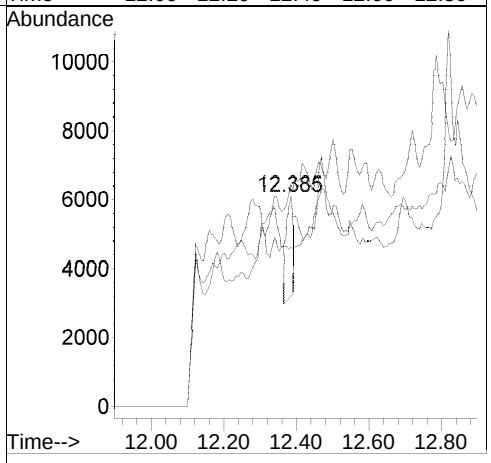
Tgt Ion:166 Resp: 3832

Ion	Ratio	Lower	Upper
166	100		
165	105.8	71.6	111.6
167	75.7	0.0	34.4#



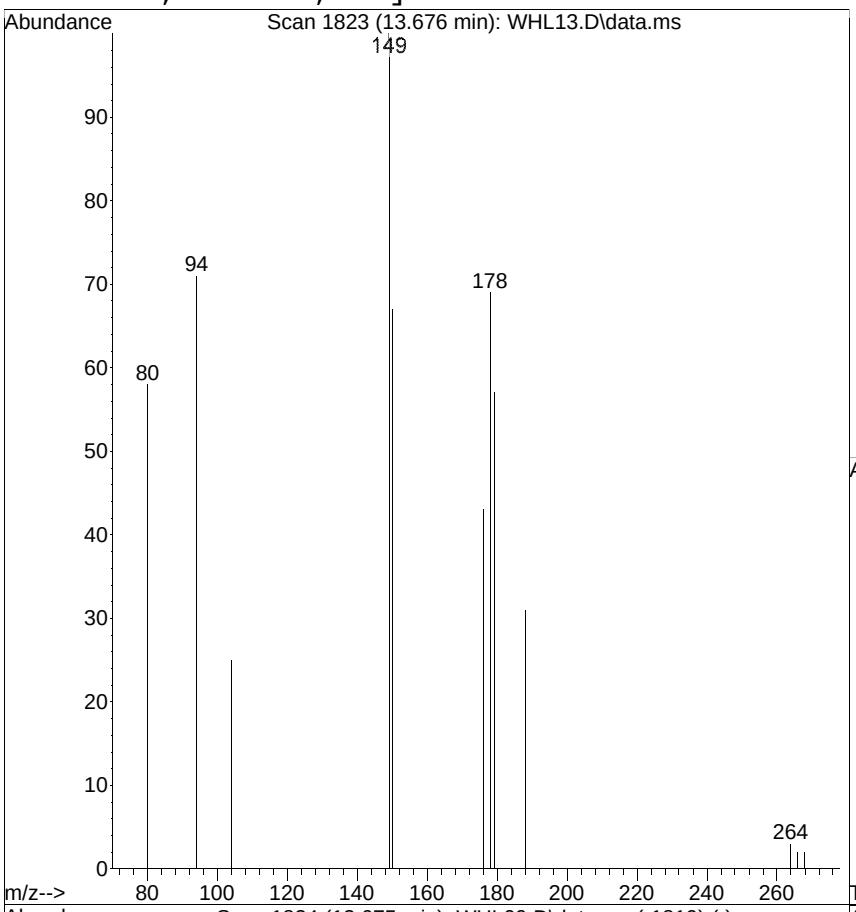
Ref





[Phenanthrene; 0.03 J; u]

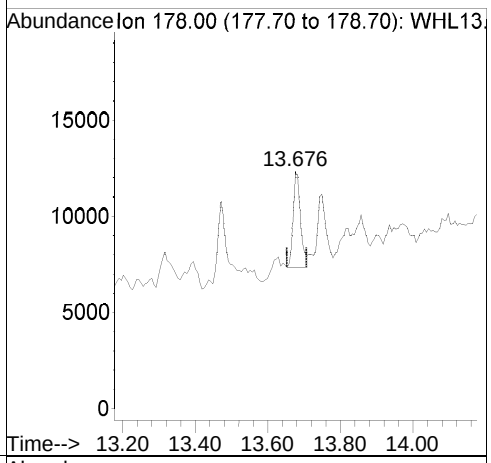
Raw



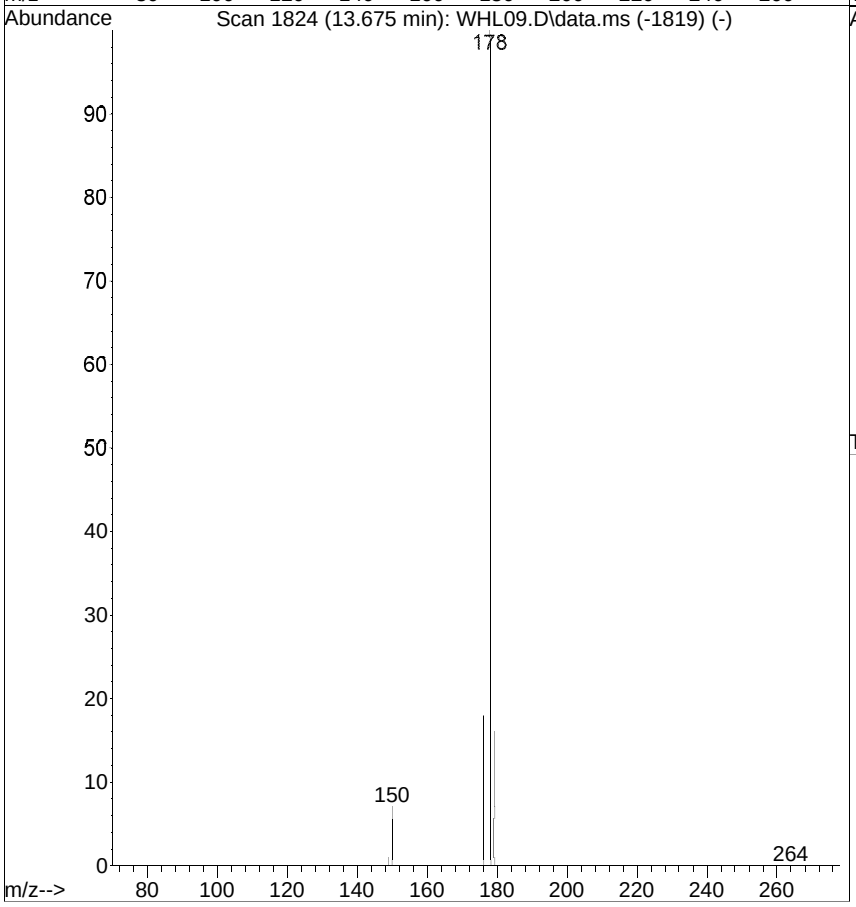
#15
Phenanthrene
Concen: 0.0349 ug/mL
RT: 13.676 min Scan# 1823
Delta R.T. 0.002 min
Lab File: WHL13.D
Acq: 21 Aug 2014 2:21 pm

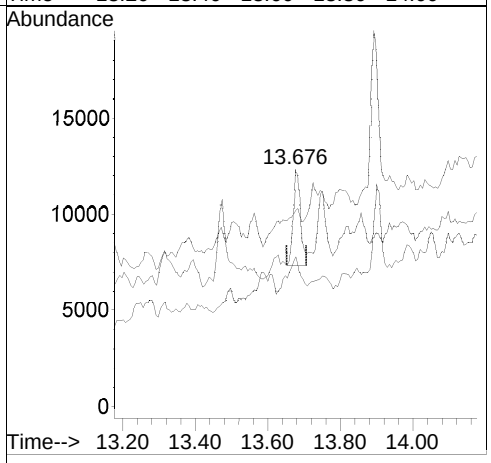
Tgt Ion:178 Resp: 7096

Ion	Ratio	Lower	Upper
178	100		
179	82.8	0.0	38.1#
176	63.0	0.0	39.5#



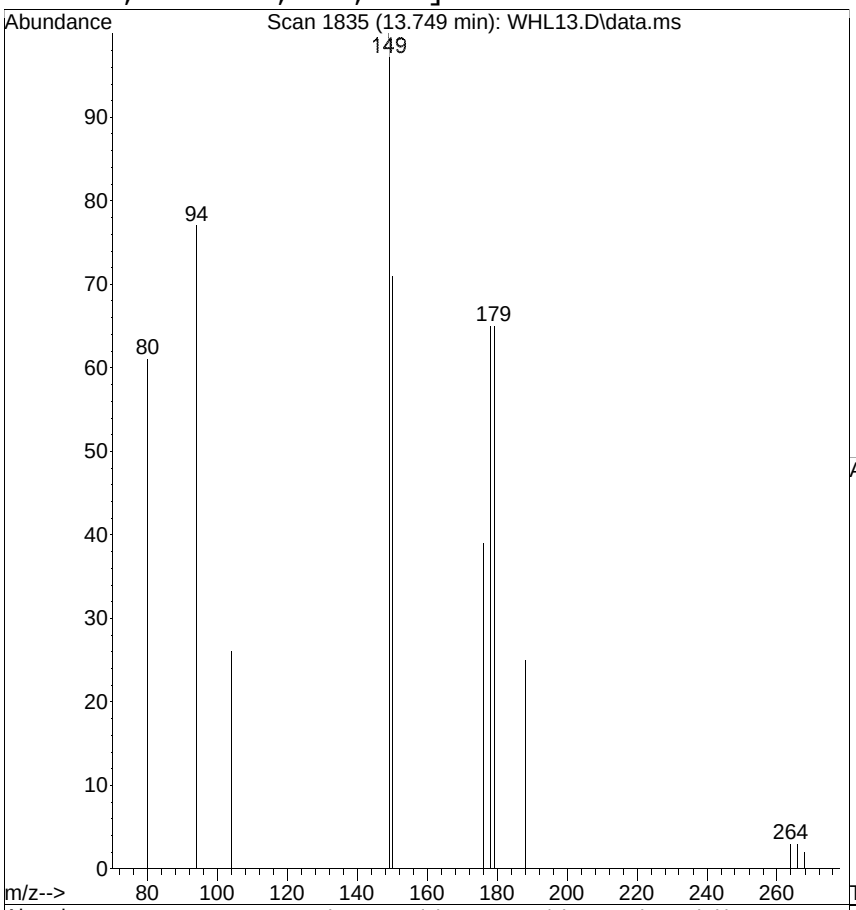
Ref





[Anthracene; 0.02 J; FP; u]

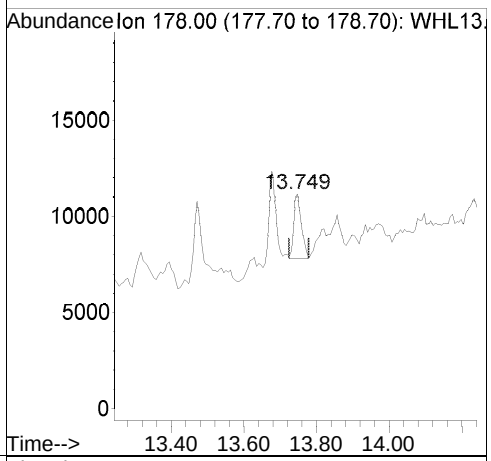
Raw



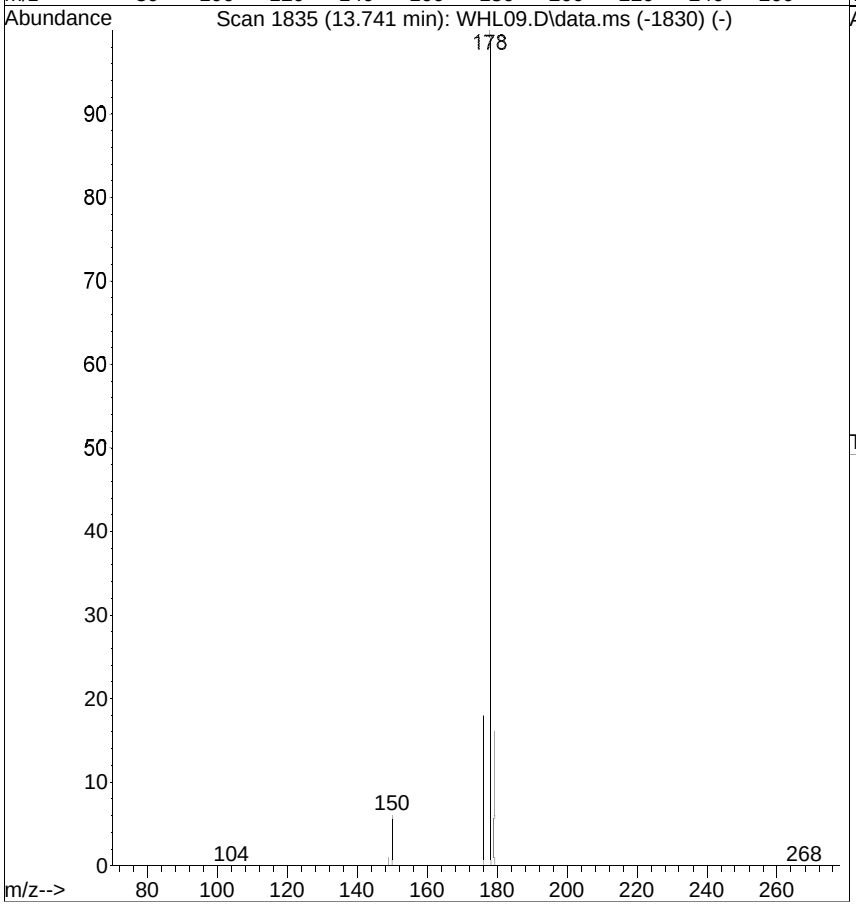
#16
Anthracene
Concen: 0.0245 ug/mL
RT: 13.749 min Scan# 1835
Delta R.T. 0.008 min
Lab File: WHL13.D
Acq: 21 Aug 2014 2:21 pm

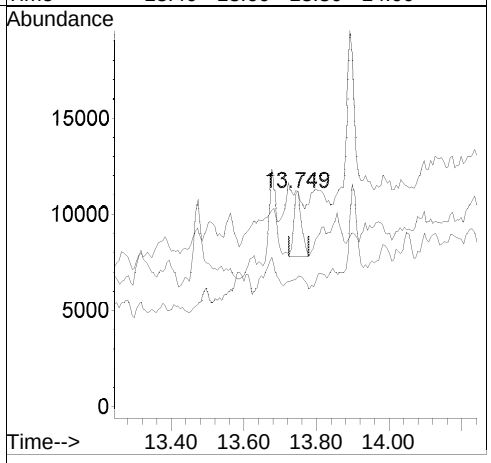
Tgt Ion:178 Resp: 4873

Ion	Ratio	Lower	Upper
178	100		
179	99.7	0.0	37.7#
176	60.6	0.0	39.4#



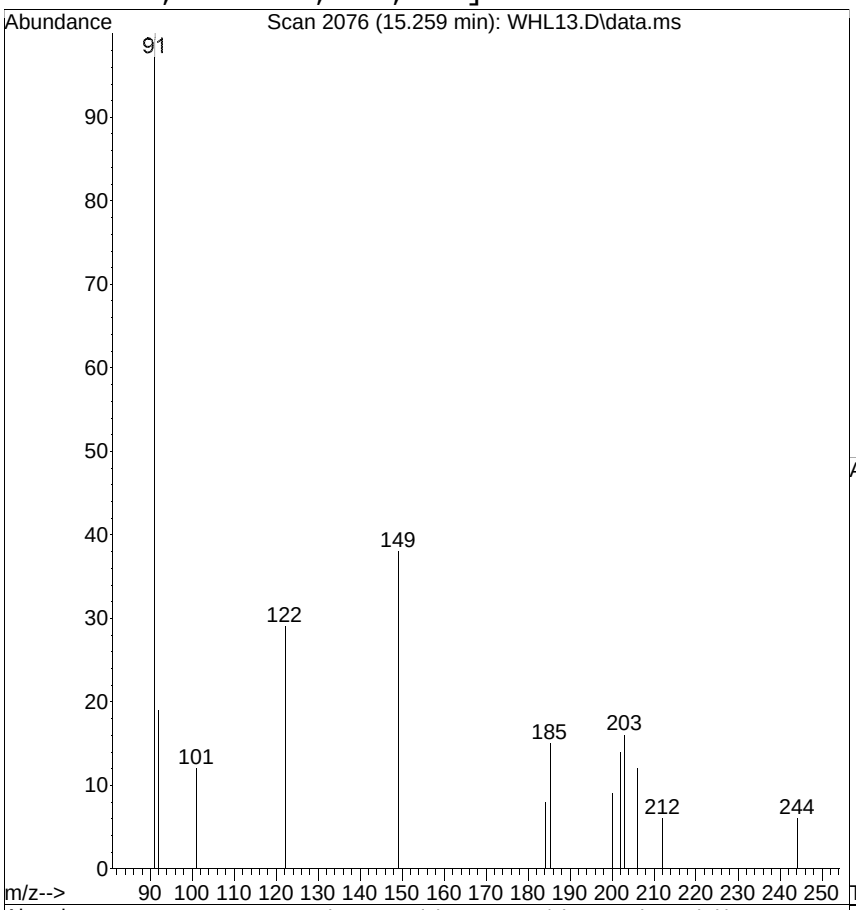
Ref





[Fluoranthene; 0.02 J; FP; u]

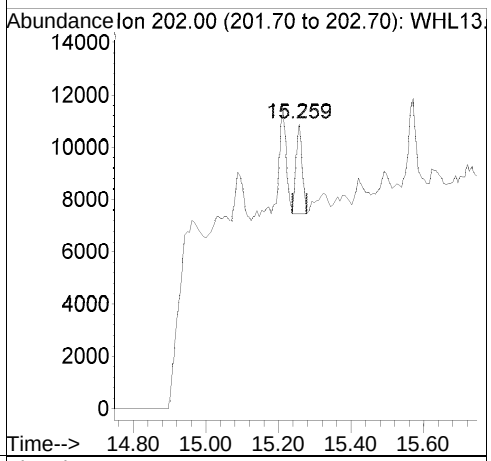
Raw



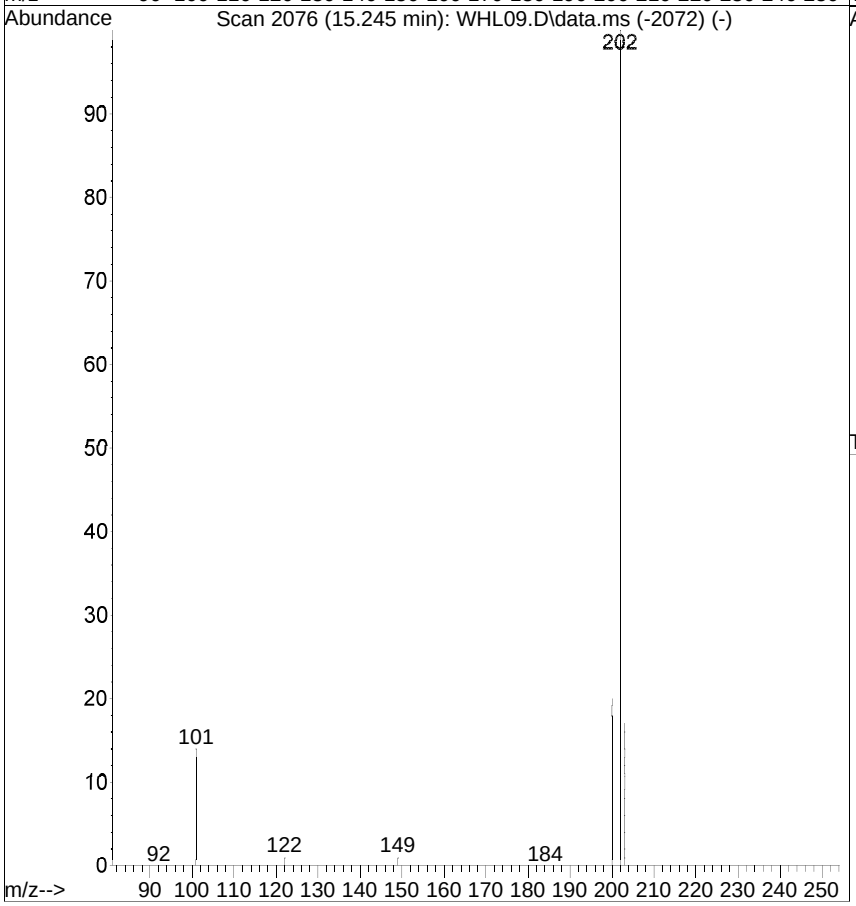
#17
Fluoranthene
Concen: 0.0206 ug/mL
RT: 15.259 min Scan# 2076
Delta R.T. 0.014 min
Lab File: WHL13.D
Acq: 21 Aug 2014 2:21 pm

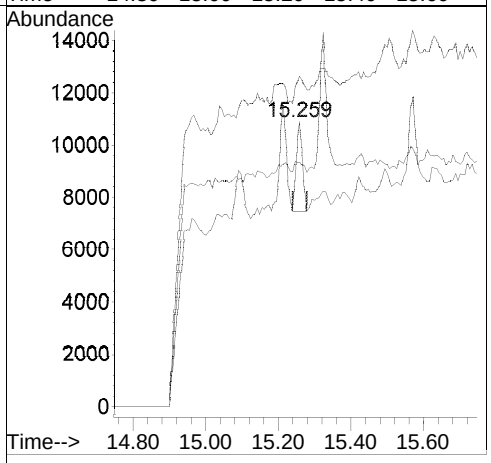
Tgt Ion:202 Resp: 4001

Ion	Ratio	Lower	Upper
202	100		
101	85.9	0.0	35.1#
203	116.0	0.5	40.5#



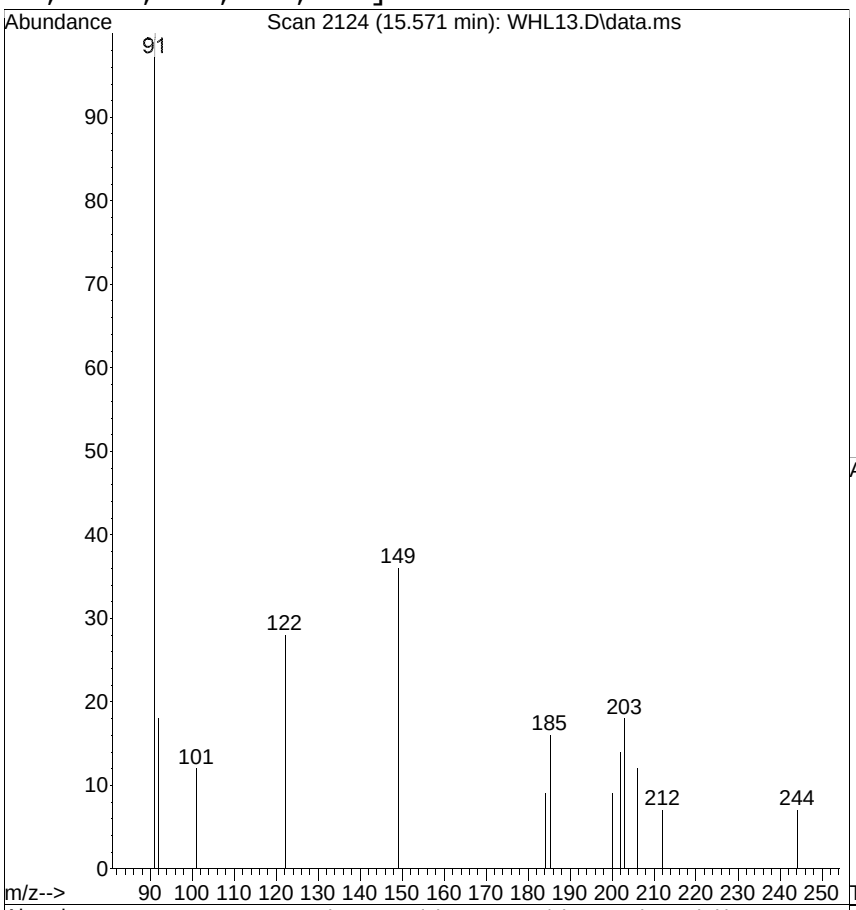
Ref





[Pyrene; <RL; MI; FP; u]

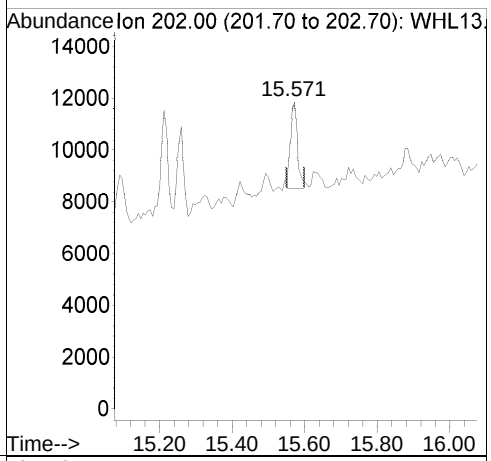
Raw



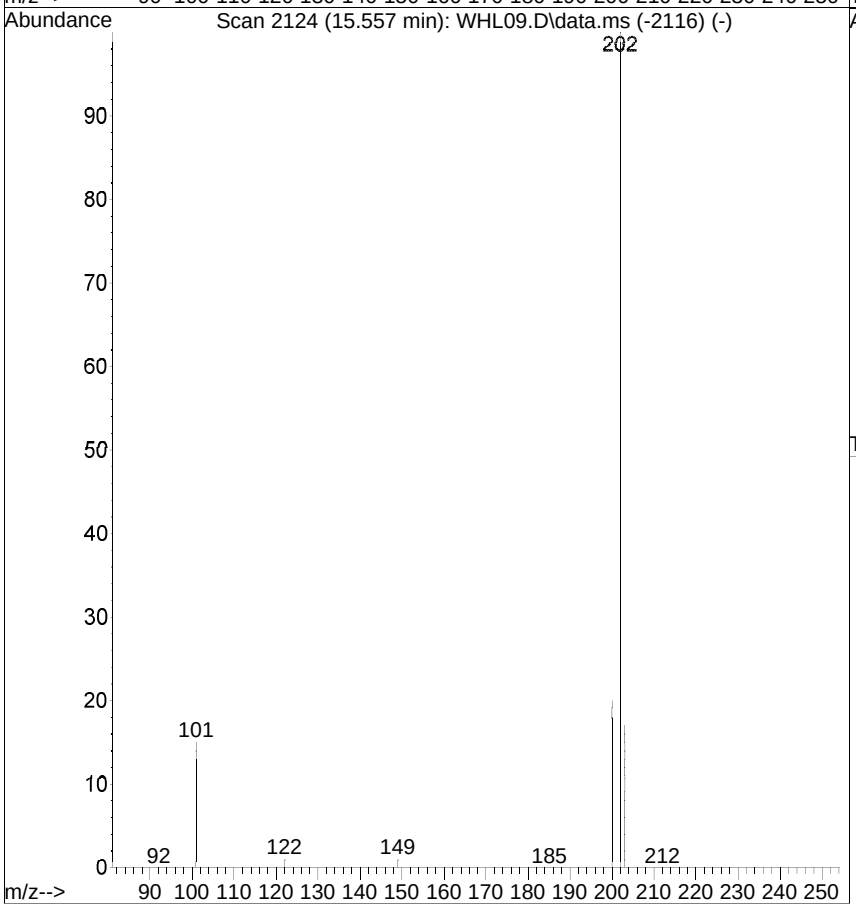
#19
Pyrene
Concen: 0.0186 ug/mL m
RT: 15.571 min Scan# 2124
Delta R.T. 0.014 min
Lab File: WHL13.D
Acq: 21 Aug 2014 2:21 pm

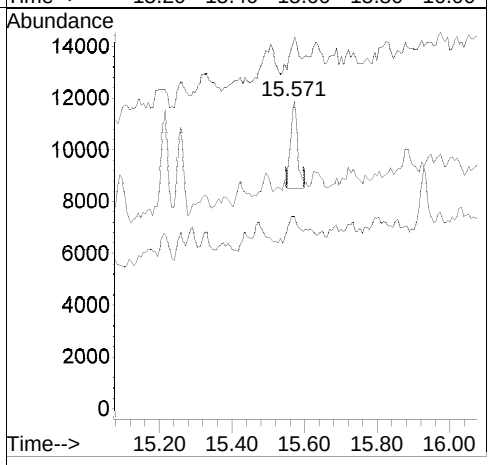
Tgt Ion:202 Resp: 4294

Ion	Ratio	Lower	Upper
202	100		
200	62.6	1.9	41.9#
203	120.9	0.5	40.5#



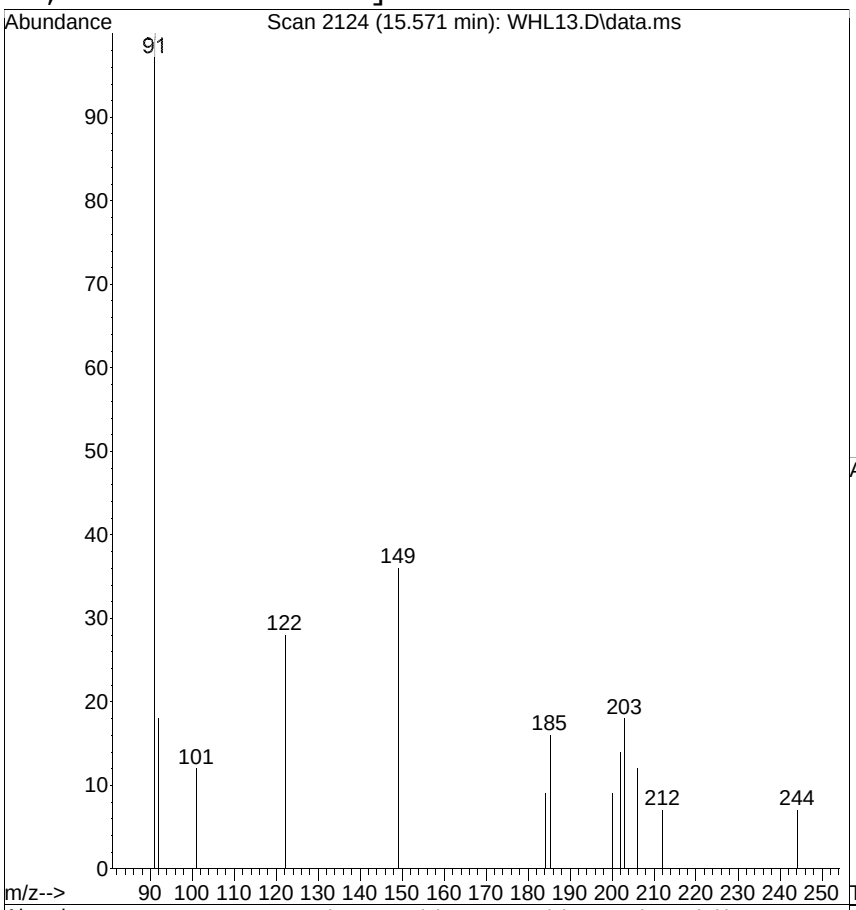
Ref





[Pyrene; before version]

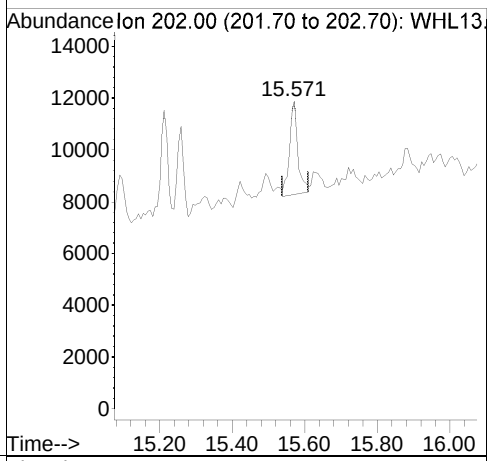
Raw



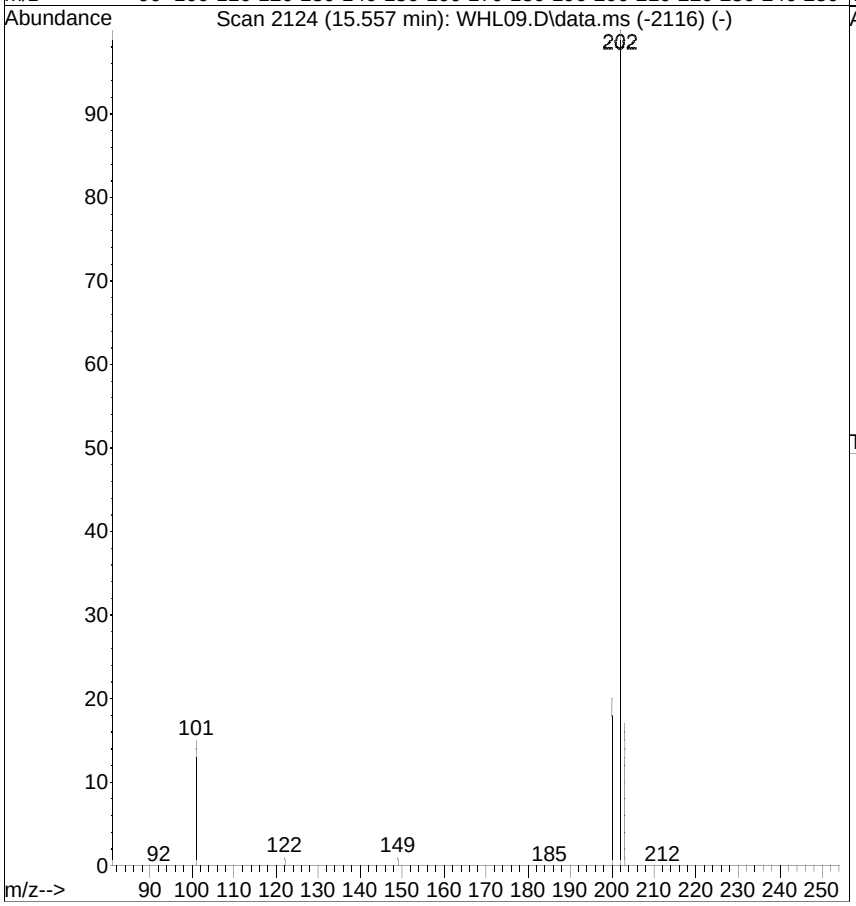
#19
Pyrene
Concen: 0.0247 ug/mL
RT: 15.571 min Scan# 2124
Delta R.T. 0.014 min
Lab File: WHL13.D
Acq: 21 Aug 2014 2:21 pm

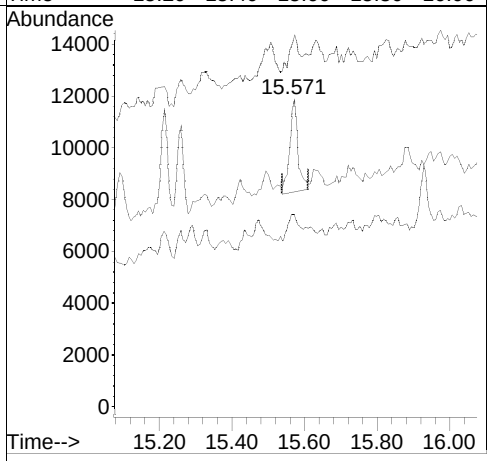
Tgt Ion:202 Resp: 5703

Ion	Ratio	Lower	Upper
202	100		
200	62.6	1.9	41.9#
203	120.9	0.5	40.5#



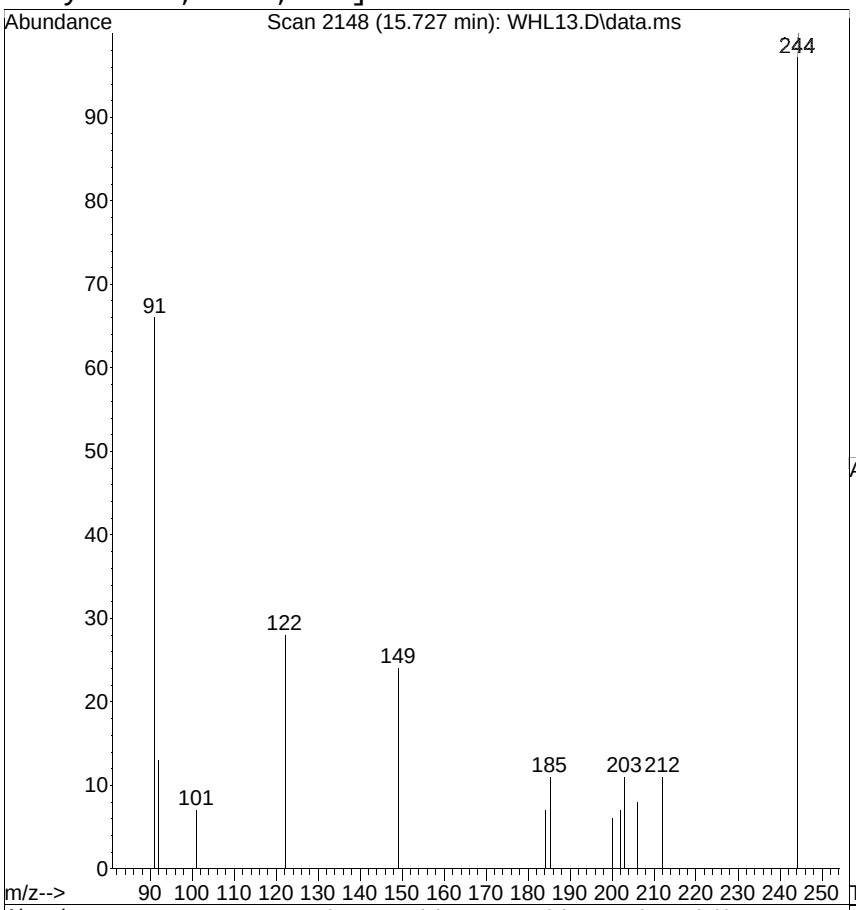
Ref





[Terphenyl-d14; 0.7; u]

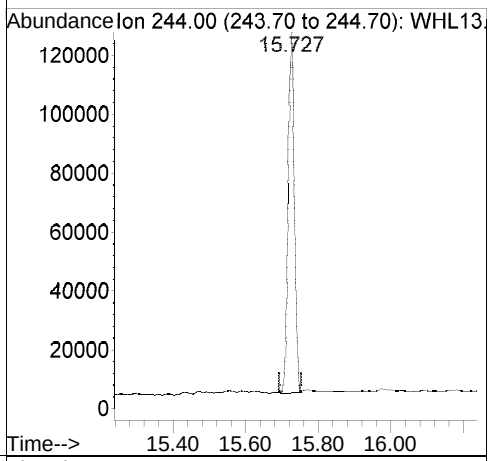
Raw



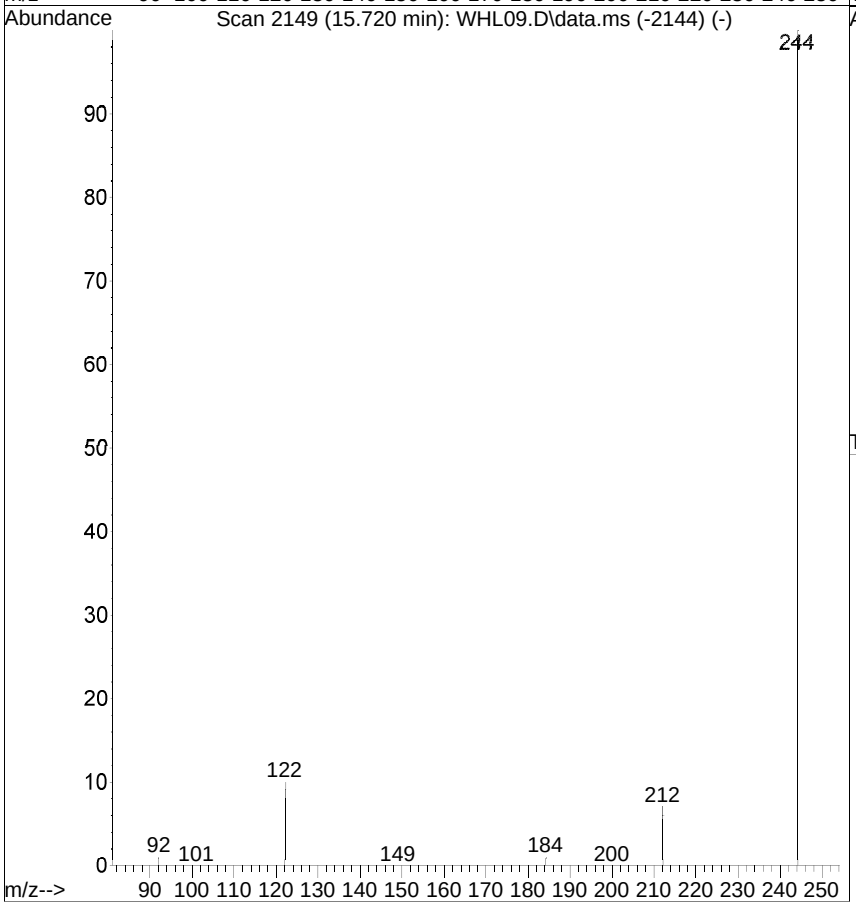
#20
Terphenyl-d14
Concen: 0.7644 ug/mL
RT: 15.727 min Scan# 2148
Delta R.T. 0.007 min
Lab File: WHL13.D
Acq: 21 Aug 2014 2:21 pm

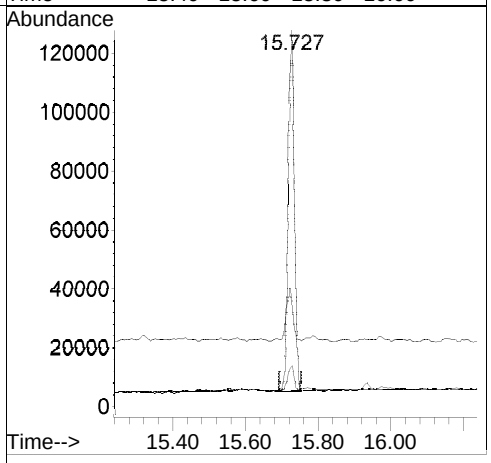
Tgt Ion:244 Resp: 138353

Ion	Ratio	Lower	Upper
244	100		
122	27.6	0.0	38.7
212	10.9	0.0	27.8



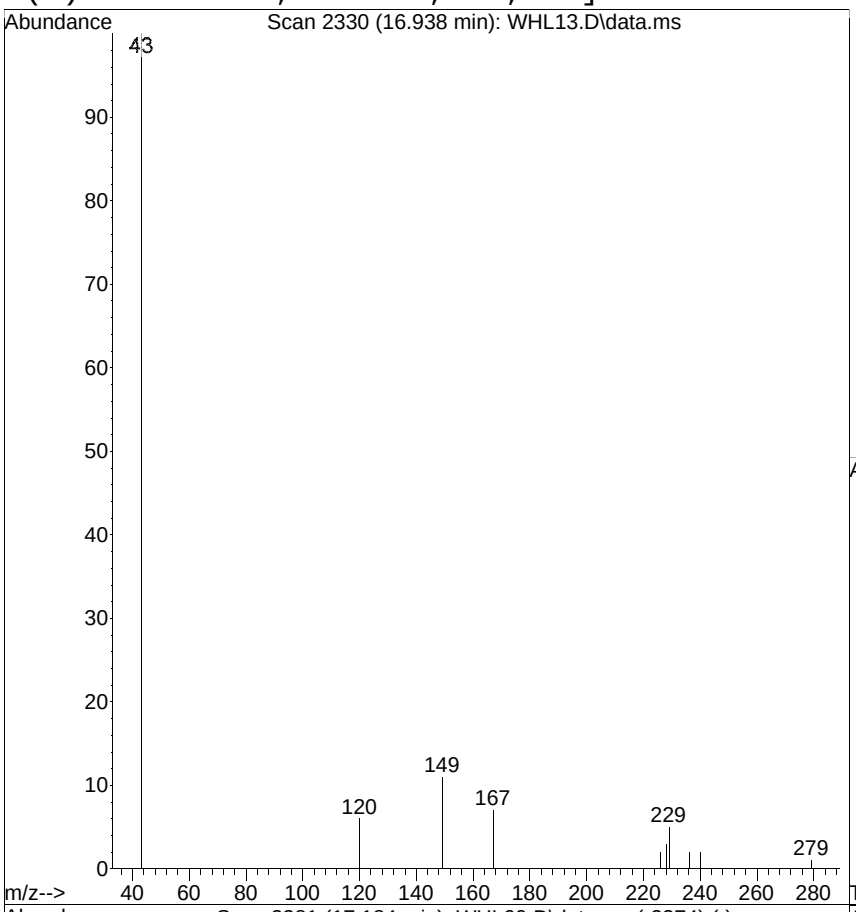
Ref





[Benzo(a)anthracene; 0.09 J; FP; u]

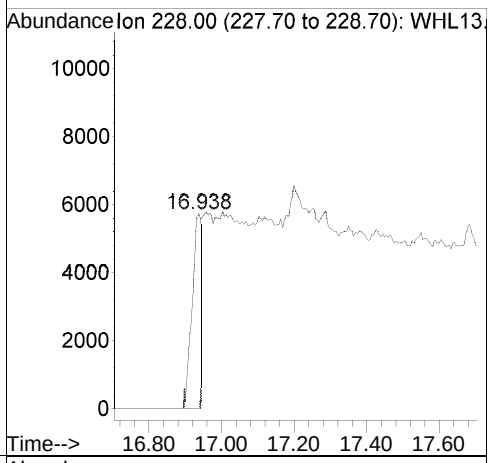
Raw



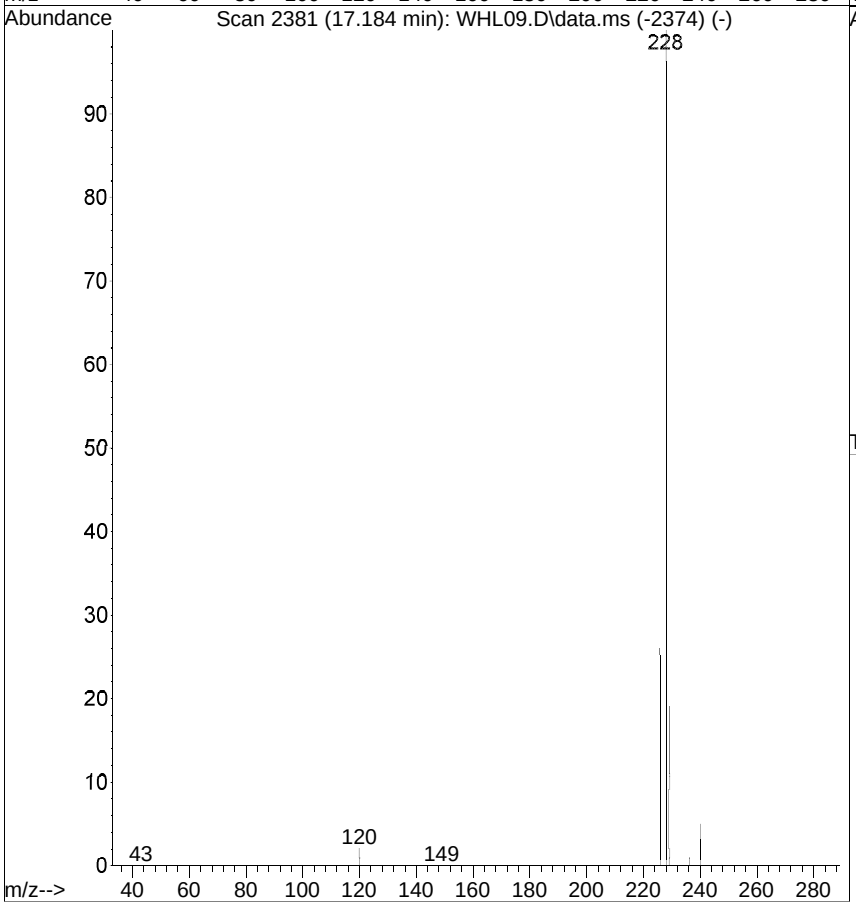
#21
Benzo(a)anthracene
Concen: 0.0955 ug/mL
RT: 16.938 min Scan# 2330
Delta R.T. -0.247 min
Lab File: WHL13.D
Acq: 21 Aug 2014 2:21 pm

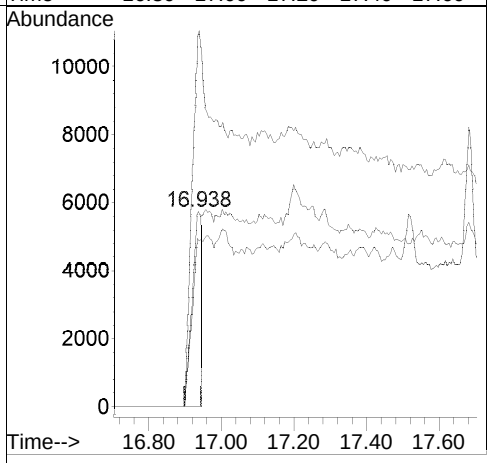
Tgt Ion:228 Resp: 15575

Ion	Ratio	Lower	Upper
228	100		
229	193.0	0.1	40.1#
226	85.1	7.0	47.0#



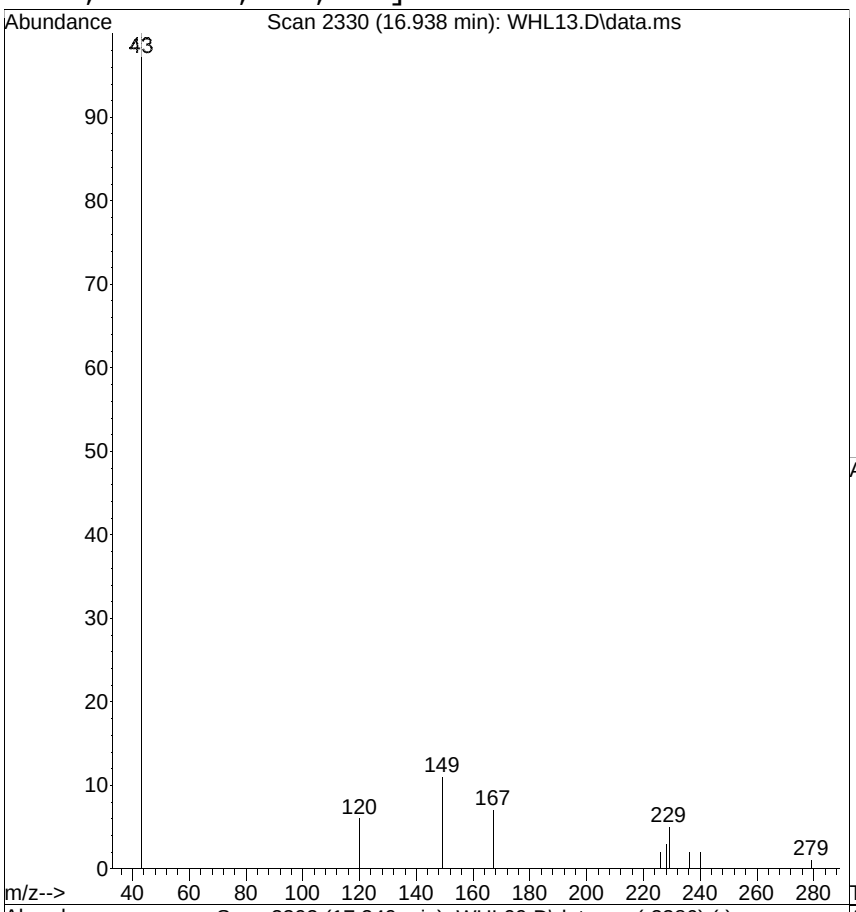
Ref





[Chrysene; 0.09 J; FP; u]

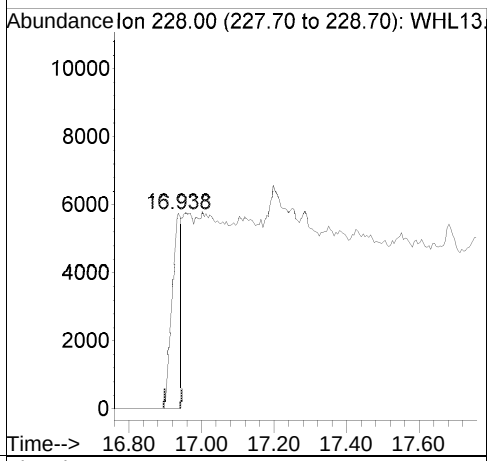
Raw



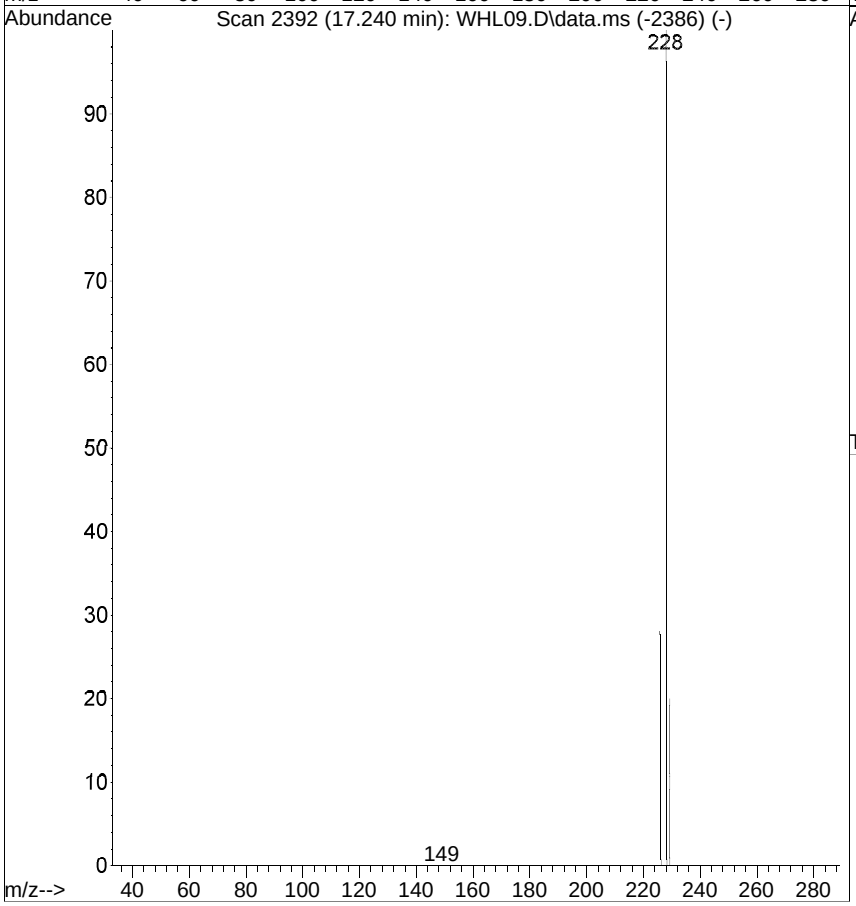
#22
Chrysene
Concen: 0.0935 ug/mL
RT: 16.938 min Scan# 2330
Delta R.T. -0.302 min
Lab File: WHL13.D
Acq: 21 Aug 2014 2:21 pm

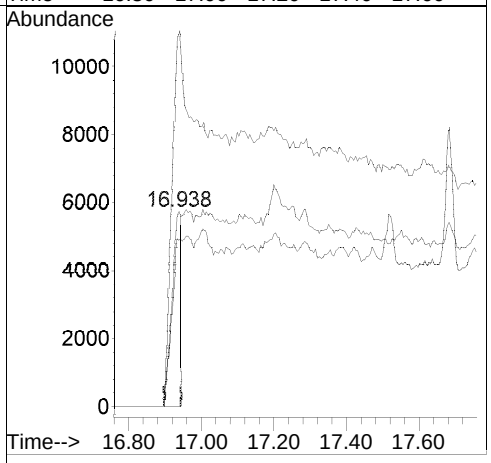
Tgt Ion:228 Resp: 15575

Ion	Ratio	Lower	Upper
228	100		
226	85.1	9.6	49.6#
229	193.0	0.0	39.6#



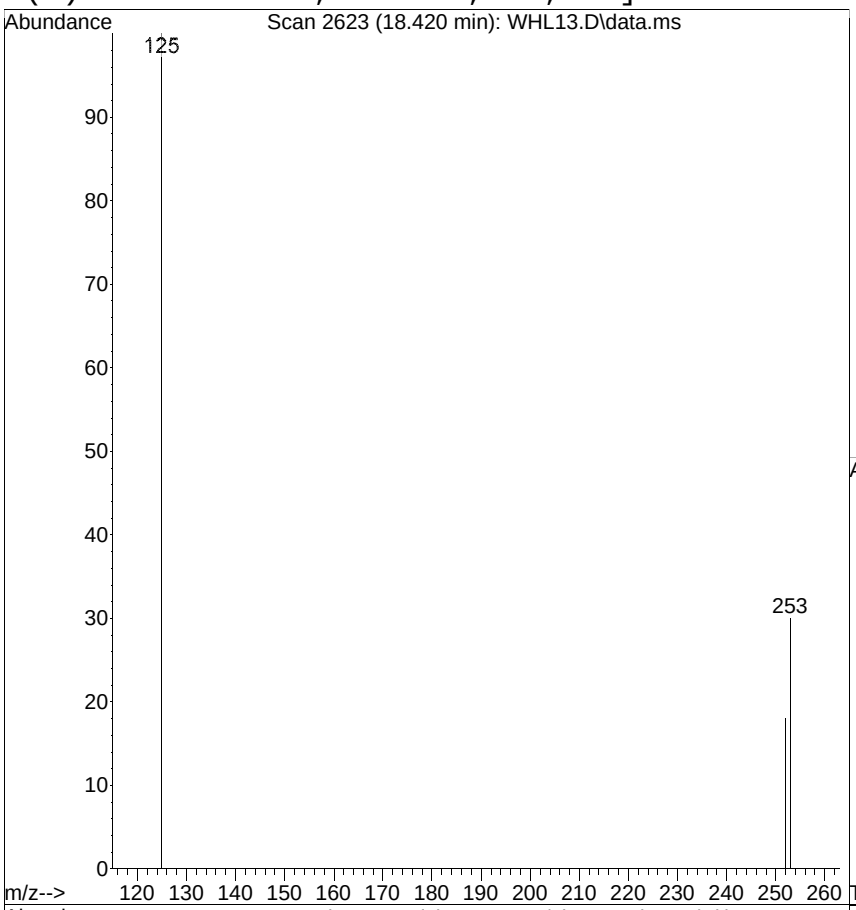
Ref





[Benzo(b)fluoranthene; 0.02 J; FP; u]

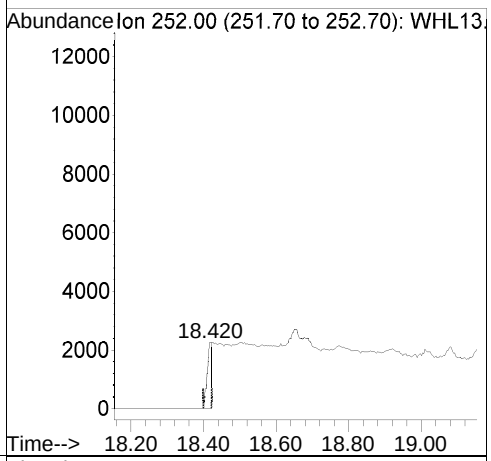
Raw



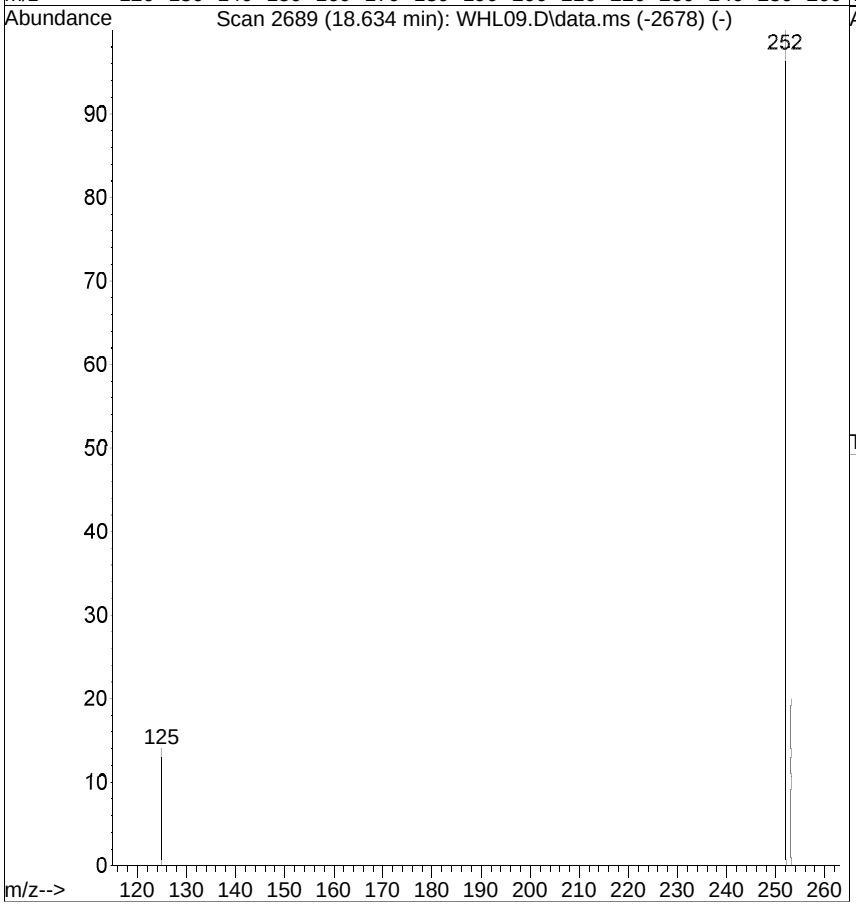
#24
Benzo(b)fluoranthene
Concen: 0.0207 ug/mL
RT: 18.420 min Scan# 2623
Delta R.T. -0.214 min
Lab File: WHL13.D
Acq: 21 Aug 2014 2:21 pm

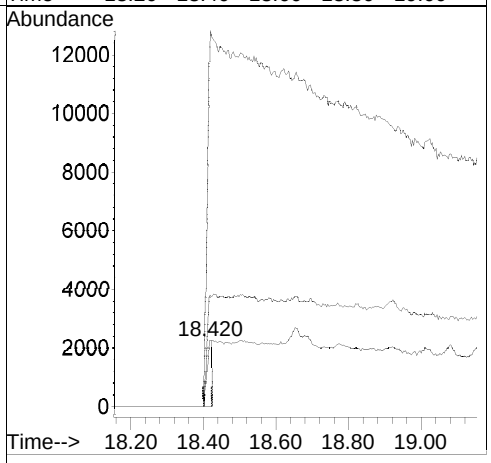
Tgt Ion:252 Resp: 3011

Ion	Ratio	Lower	Upper
252	100		
253	167.7	0.8	40.8#
125	559.7	0.0	35.5#



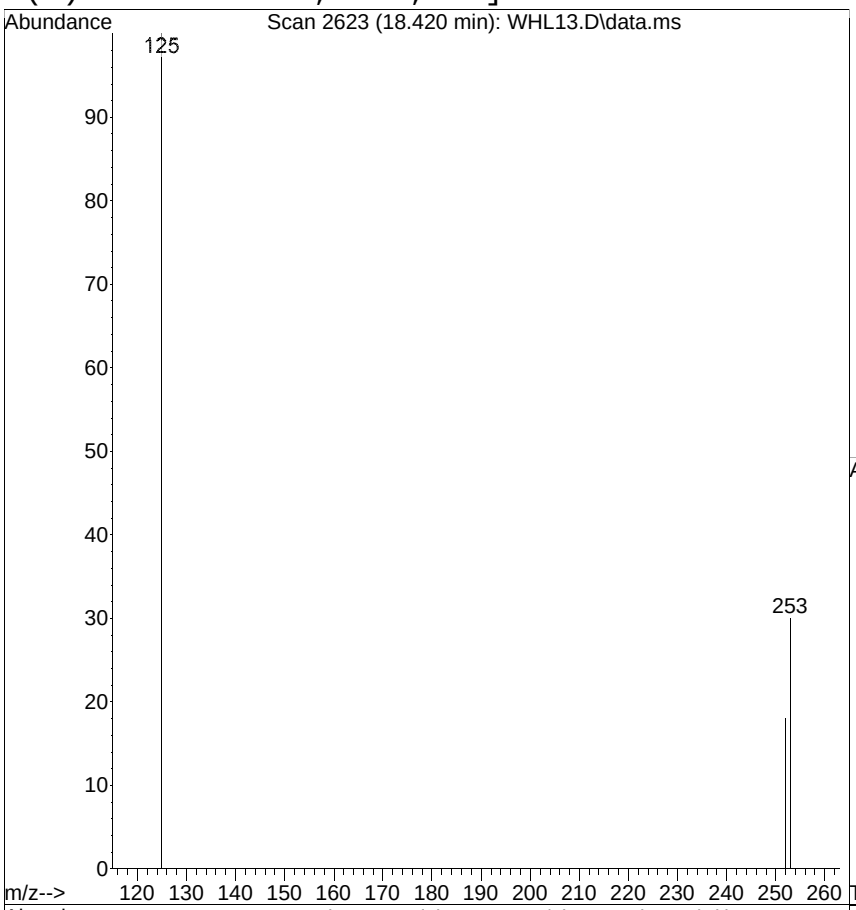
Ref





[Benzo(k)fluoranthene; <RL; u]

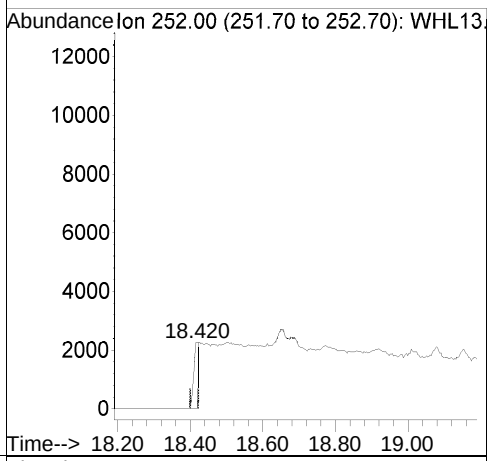
Raw



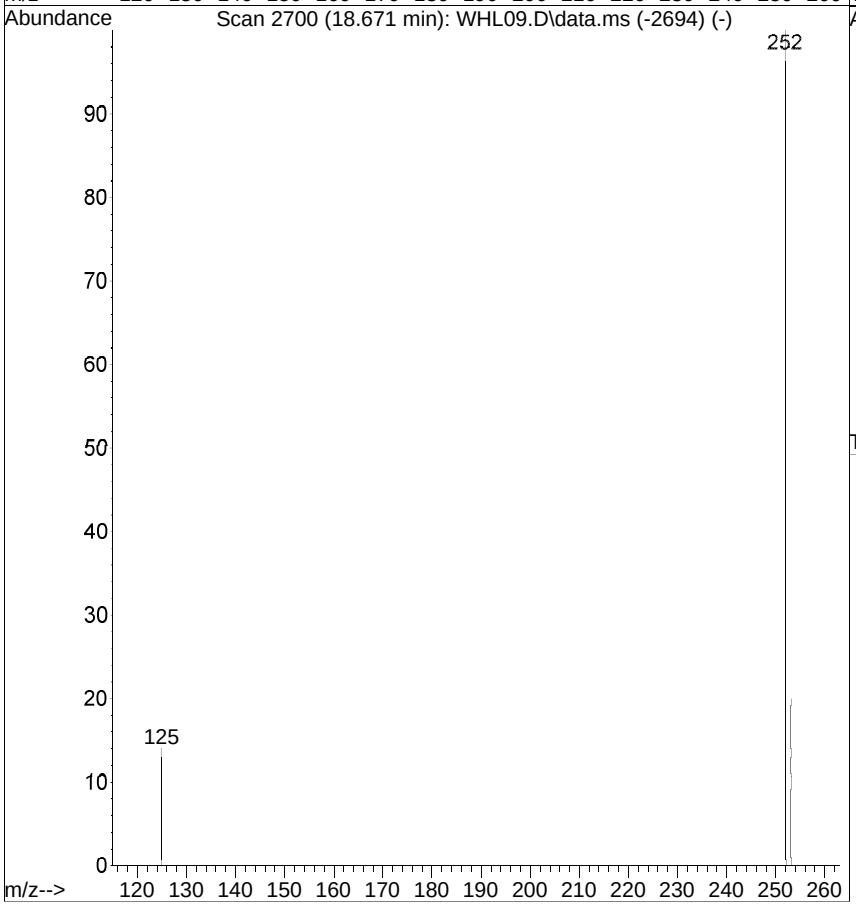
#25
Benzo(k)fluoranthene
Concen: 0.0199 ug/mL
RT: 18.420 min Scan# 2623
Delta R.T. -0.251 min
Lab File: WHL13.D
Acq: 21 Aug 2014 2:21 pm

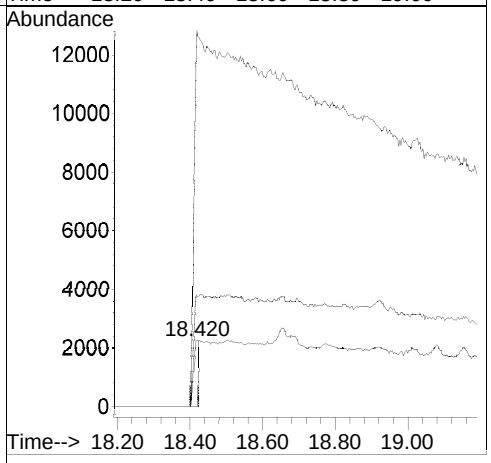
Tgt Ion:252 Resp: 3011

Ion	Ratio	Lower	Upper
252	100		
253	167.7	1.0	41.0#
125	559.7	0.0	35.6#



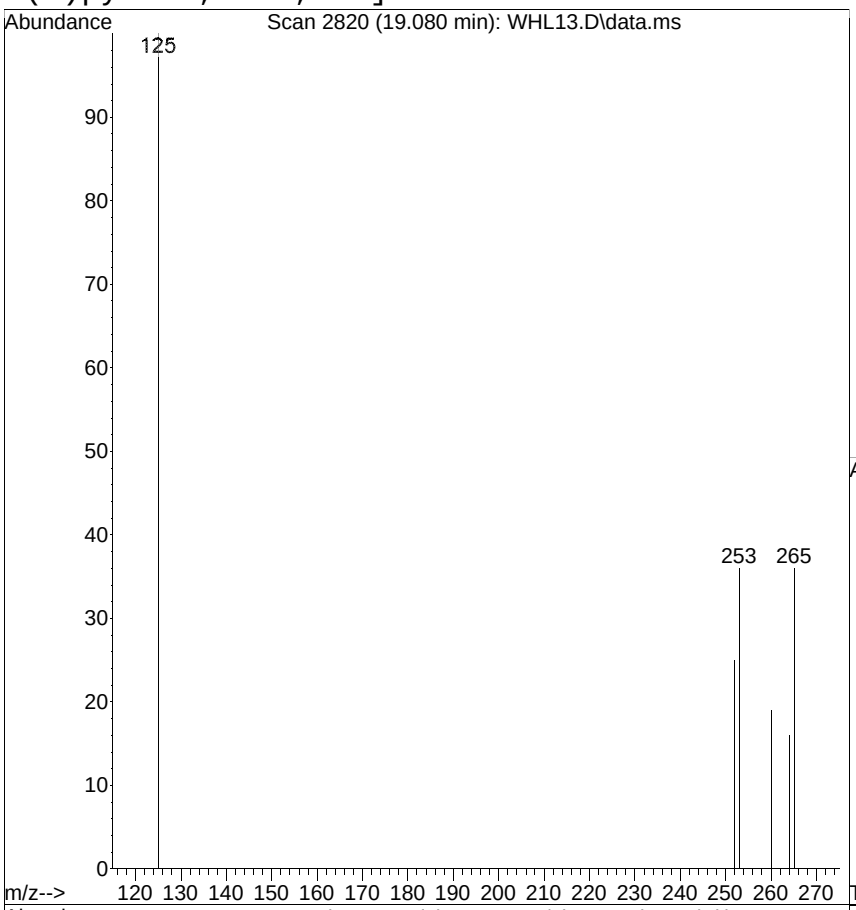
Ref





[Benzo(a)pyrene; <RL; u]

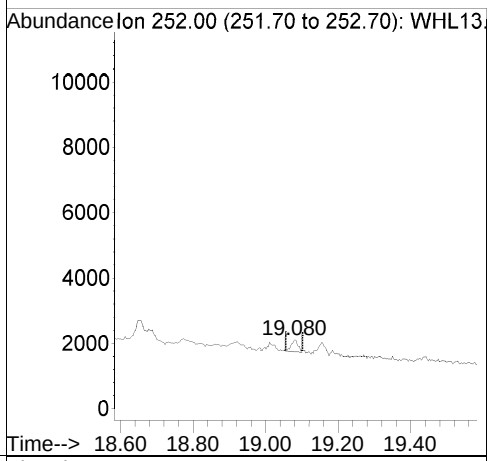
Raw



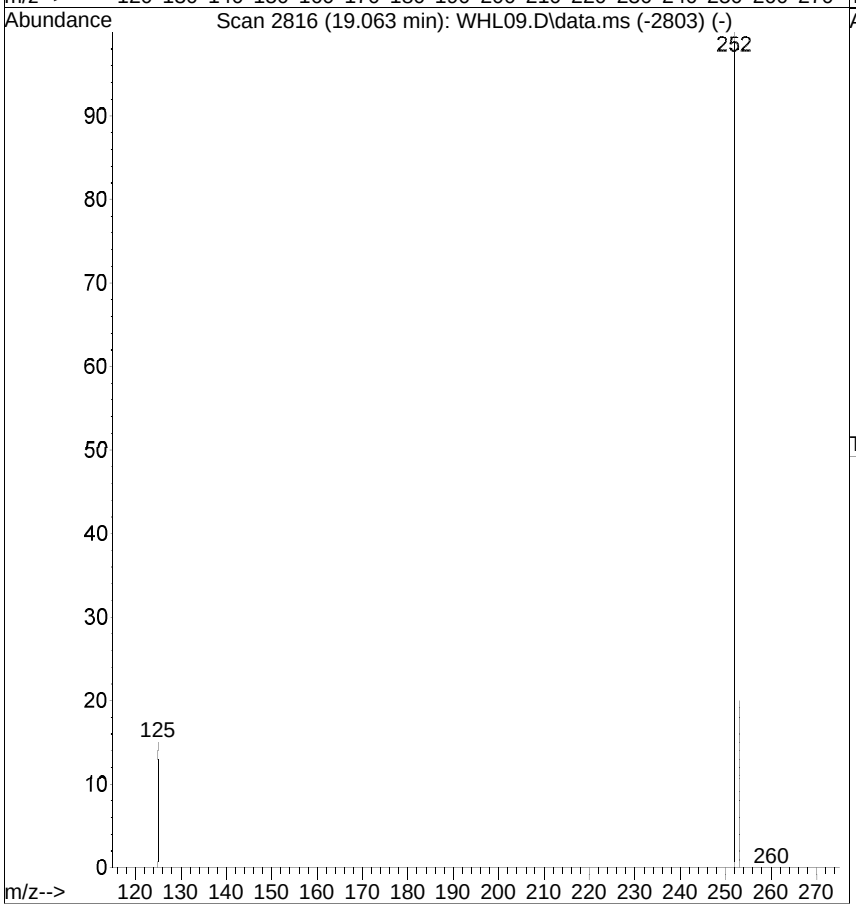
#26
Benzo(a)pyrene
Concen: 0.0039 ug/mL
RT: 19.080 min Scan# 2820
Delta R.T. 0.017 min
Lab File: WHL13.D
Acq: 21 Aug 2014 2:21 pm

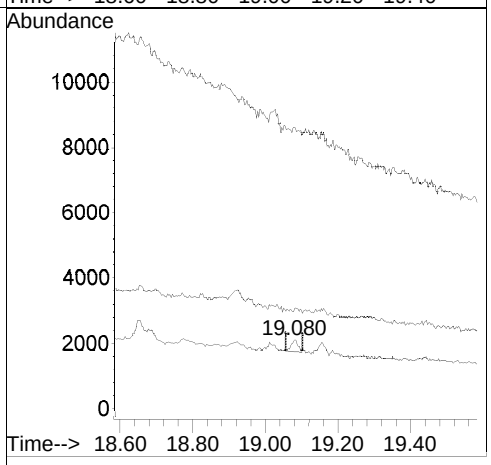
Tgt Ion:252 Resp: 509

Ion	Ratio	Lower	Upper
252	100		
253	145.3	1.6	41.6#
125	407.9	0.0	37.2#



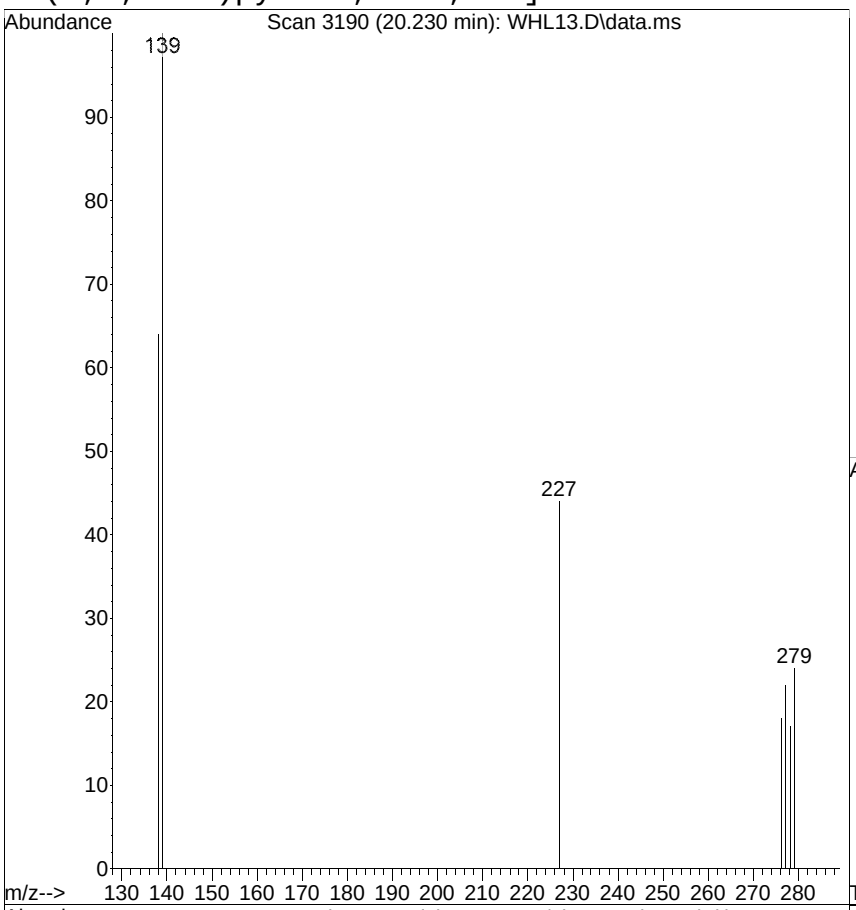
Ref





[Indeno(1,2,3-cd)pyrene; <RL; u]

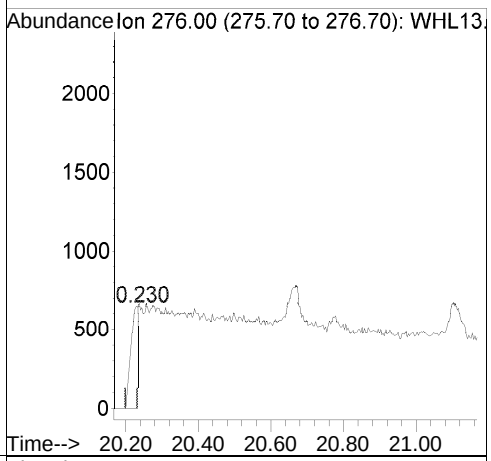
Raw



#27
Indeno(1,2,3-cd)pyrene
Concen: 0.0081 ug/mL
RT: 20.230 min Scan# 3190
Delta R.T. -0.416 min
Lab File: WHL13.D
Acq: 21 Aug 2014 2:21 pm

Tgt Ion:276 Resp: 1255

Ion	Ratio	Lower	Upper
276	100		
138	360.2	9.9	49.9#
227	246.6	0.0	20.2#



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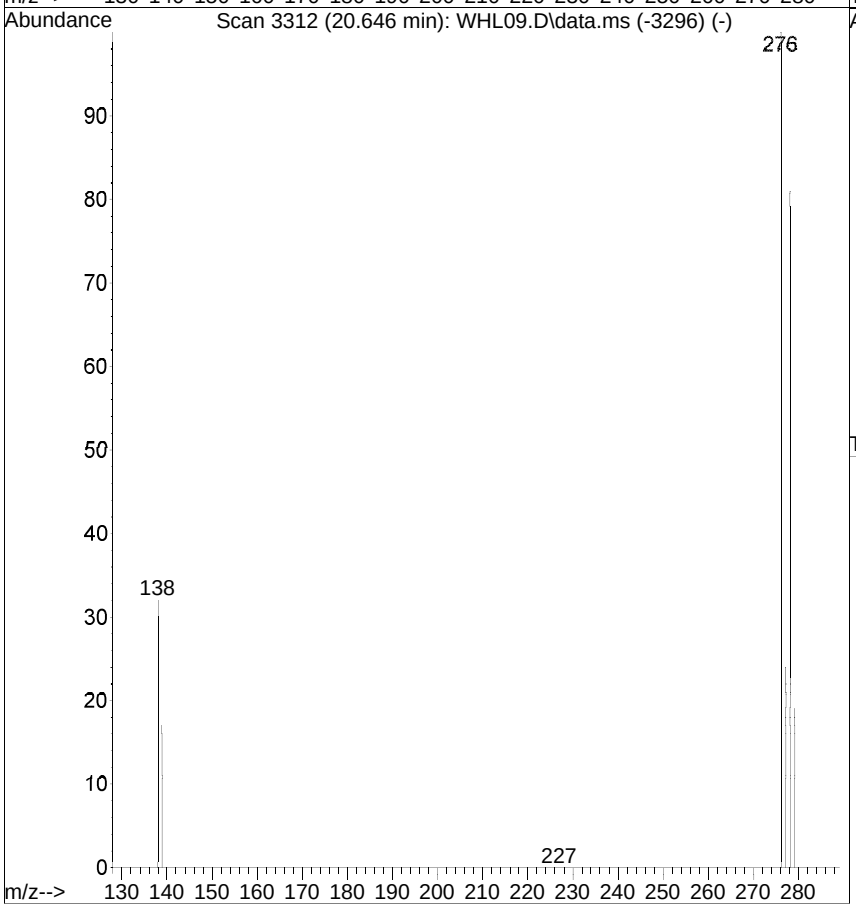
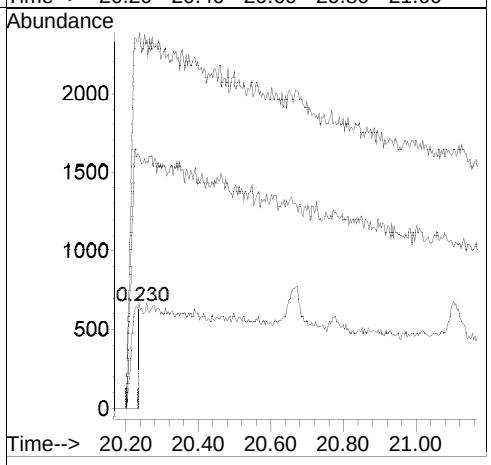
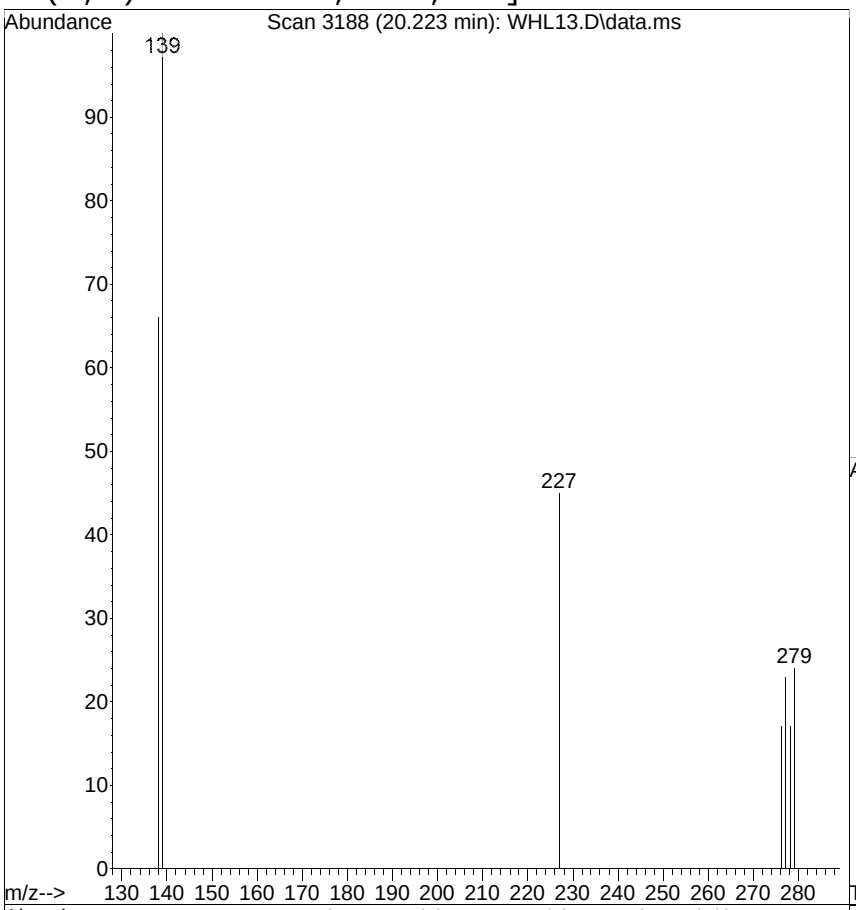




[Dibenz(a,h)anthracene; <RL; u]

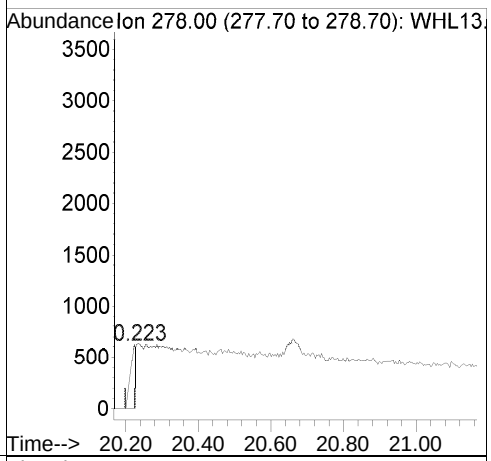
Raw



#28
Dibenz(a,h)anthracene
Concen: 0.0080 ug/mL
RT: 20.223 min Scan# 3188
Delta R.T. -0.423 min
Lab File: WHL13.D
Acq: 21 Aug 2014 2:21 pm

Tgt Ion:278 Resp: 959

Ion	Ratio	Lower	Upper
278	100		
139	572.4	5.2	45.2#
279	139.7	5.4	45.4#



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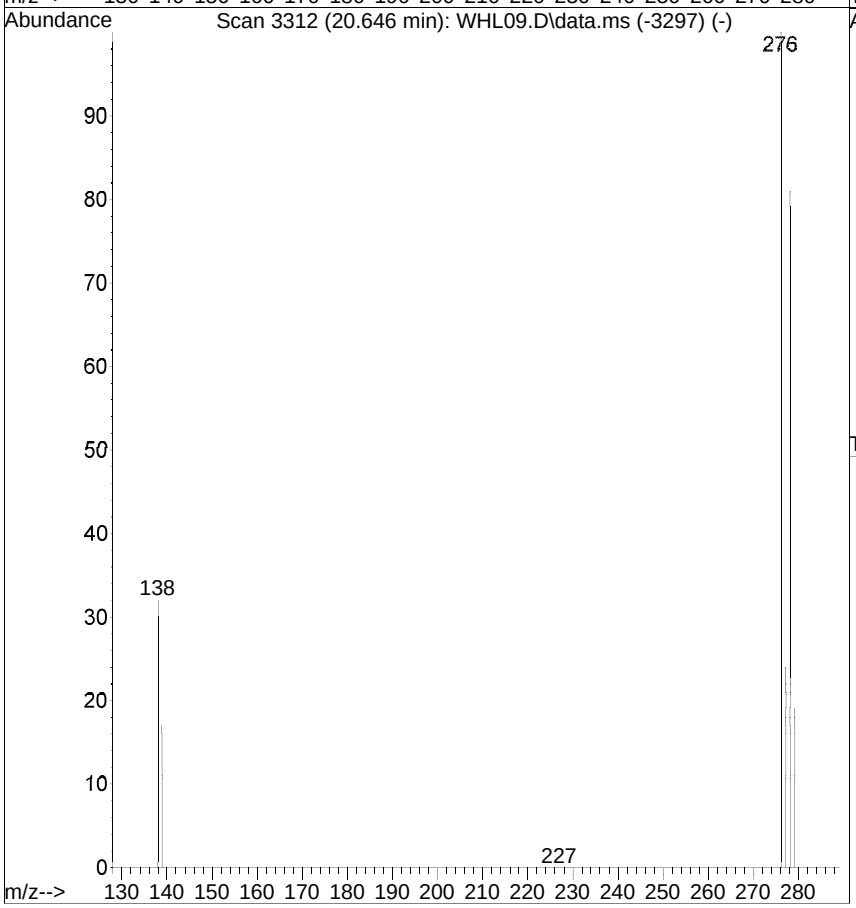
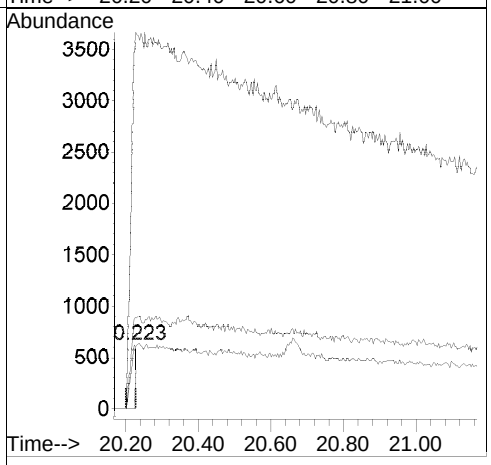
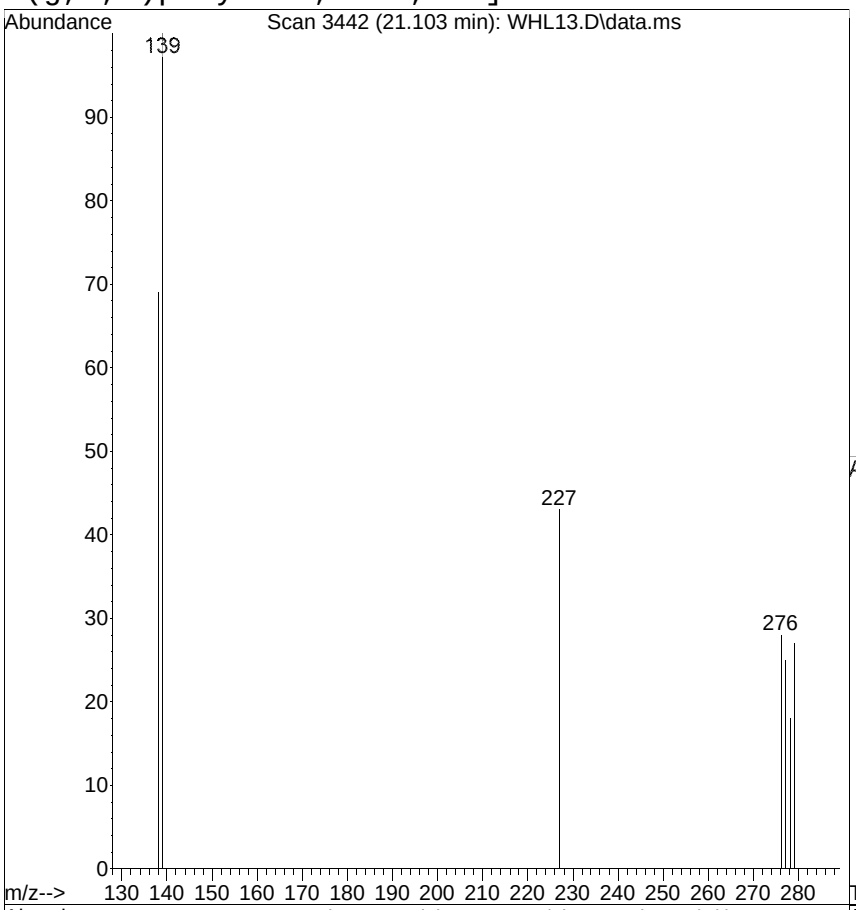




[Benzo(g,h,i)perylene; <RL; u]

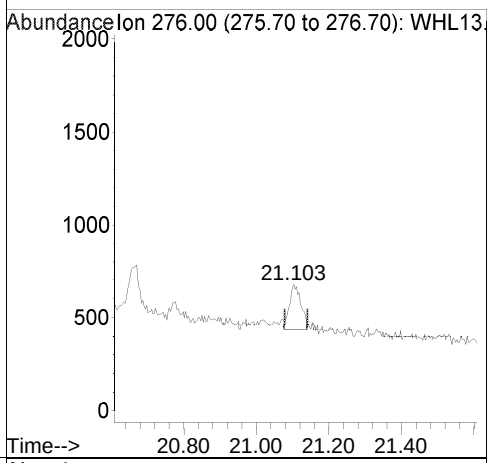
Raw



#29
Benzo(g,h,i)perylene
Concen: 0.0038 ug/mL
RT: 21.103 min Scan# 3442
Delta R.T. 0.017 min
Lab File: WHL13.D
Acq: 21 Aug 2014 2:21 pm

Tgt Ion:276 Resp: 512

Ion	Ratio	Lower	Upper
276	100		
138	244.8	13.7	53.7#
277	89.2	0.0	20.0#



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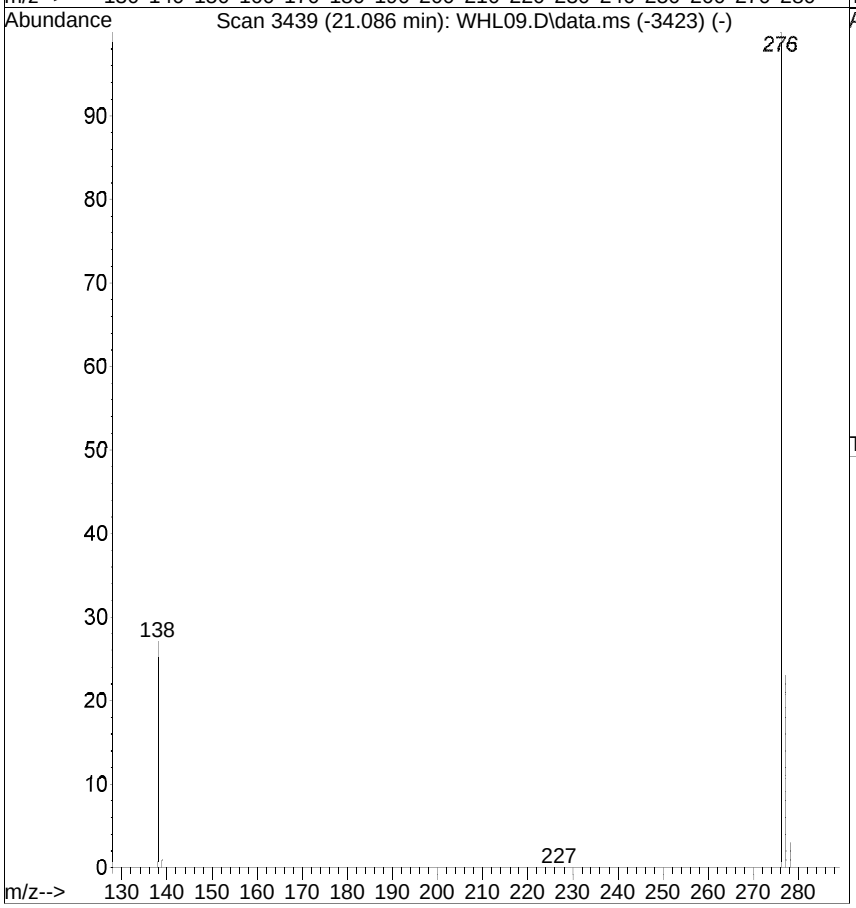
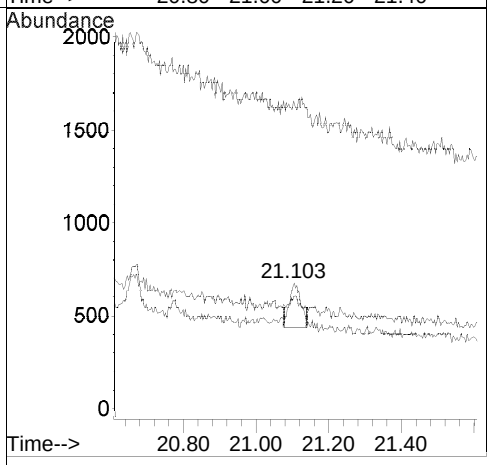




QC Raw Data

CURTIS & TOMPKINS BLANK USER REPORT FOR 259835 MSSIM Water
EPA 8270D-SIM

Inst	: MSBNA03	Lab ID	: QC754152		
Seqnum	: 524334764004.3	Matrix	: Water		
File	: vhk04	Batch	: 214554	Time	: 20-AUG-2014 12:43
Cal	: 524271263002	Caldate	: 07-JUL-2014		
IDF	: 1.0	Raw Units	: ug/mL	Units	: ug/L

1000.00 mL --> 1.0 ml = 0.001 ml/ml PDF

Analyte	Raw	Result	RL	Flags
Naphthalene	0.001200	ND	0.1	u
2-Methylnaphthalene	0	ND	0.1	u
Acenaphthylene	0	ND	0.1	u
Acenaphthene	0.003500	ND	0.1	u
Fluorene	0	ND	0.1	u
Phenanthrene	0.002100	ND	0.1	u
Anthracene	0.0007000	ND	0.1	u
Fluoranthene	0.002400	ND	0.1	u
Pyrene	0.001800	ND	0.1	u
Benzo(a)anthracene	0.003500	ND	0.1	u
Chrysene	0.0009000	ND	0.1	u
Benzo(b)fluoranthene	0.0008000	ND	0.1	u
Benzo(k)fluoranthene	0.0008000	ND	0.1	u
Benzo(a)pyrene	0.003200	ND	0.1	u
Indeno(1,2,3-cd)pyrene	0.001200	ND	0.1	u
Dibenz(a,h)anthracene	0	ND	0.1	u
Benzo(g,h,i)perylene	0.001400	ND	0.1	u

Surrogate	Raw	Spiked	Result	%Rec	Limits	Flags
Nitrobenzene-d5	0.7902	1.000	0.7902	79	40-110	u
2-Fluorobiphenyl	0.8365	1.000	0.8365	84	50-110	u
Terphenyl-d14	0.9337	1.000	0.9337	93	50-135	u

ISTD (ICAL vg723)	ICAL Abund	BLANK Abund	%Drift
Naphthalene-d8	113951	144978	27.23
Acenaphthene-d10	66733	90135	35.07
Phenanthrene-d10	117708	169104	43.66
Chrysene-d12	117775	169862	44.23
Perylene-d12	94243	131364	39.39

ISTD (CCV vhk03)	CCV RT	BLANK RT	Drift
Naphthalene-d8	8.93	8.93	0.00
Acenaphthene-d10	11.23	11.23	0.00
Phenanthrene-d10	13.17	13.17	0.00
Chrysene-d12	16.62	16.62	0.00
Perylene-d12	18.35	18.35	0.00

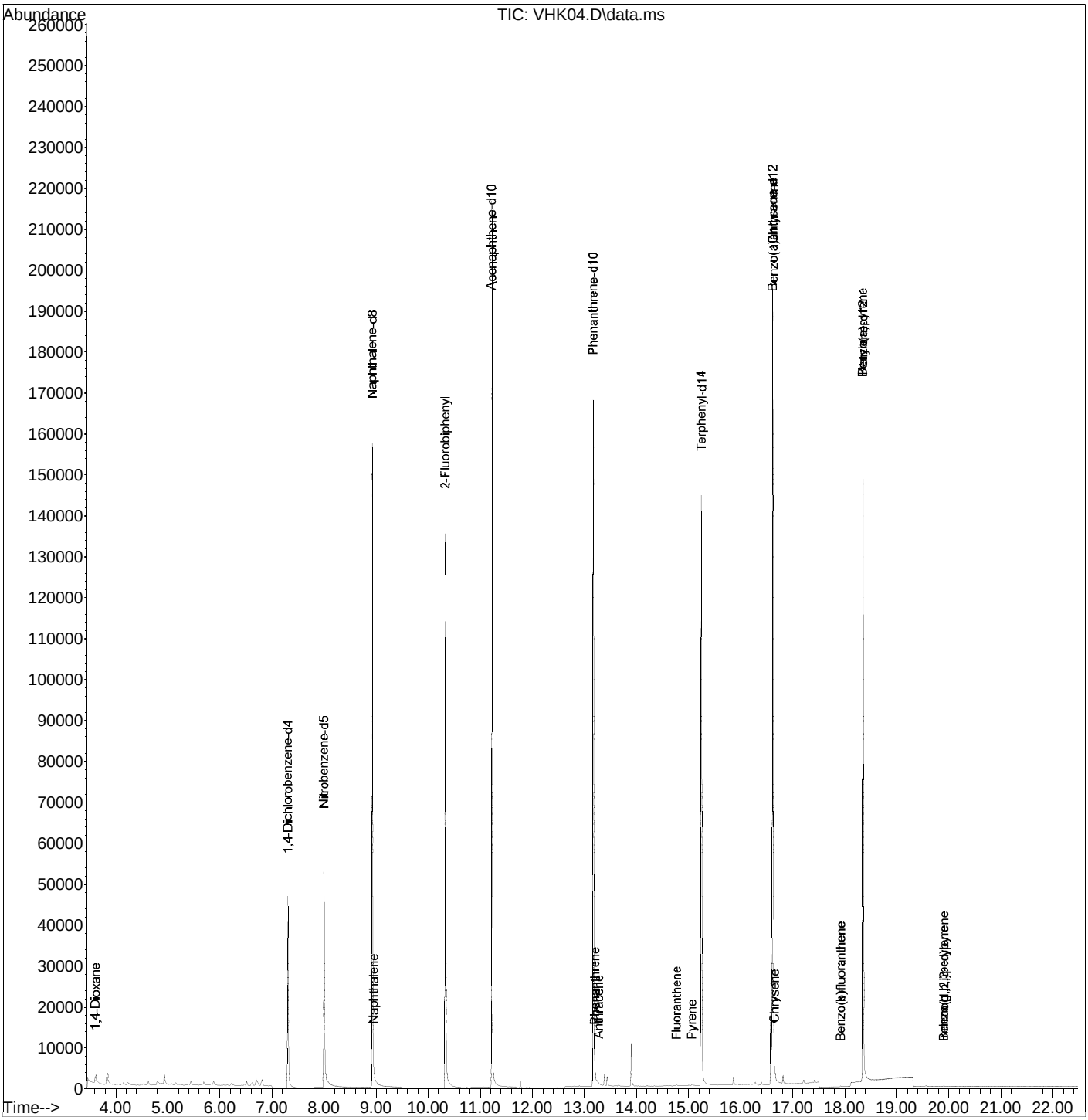
Analyst: KMH Date: 08/22/14 Reviewer: LW Date: 08/27/14

u=use

Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082014\
Data File : VHK04.D
Acq On : 20 Aug 2014 12:43 pm
Operator :
Sample : MB,QC754152
Misc : 214554,1,
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 20 13:06:40 2014
Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
Quant Title : MSBNA03 BNASIM
QLast Update : Wed Aug 20 13:06:06 2014
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082014\
Data File : VHK04.D
Acq On : 20 Aug 2014 12:43 pm
Operator :
Sample : MB,QC754152
Misc : 214554,1,
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 20 13:06:40 2014
Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
Quant Title : MSBNA03 BNASIM
QLast Update : Wed Aug 20 13:06:06 2014
Response via : Initial Calibration

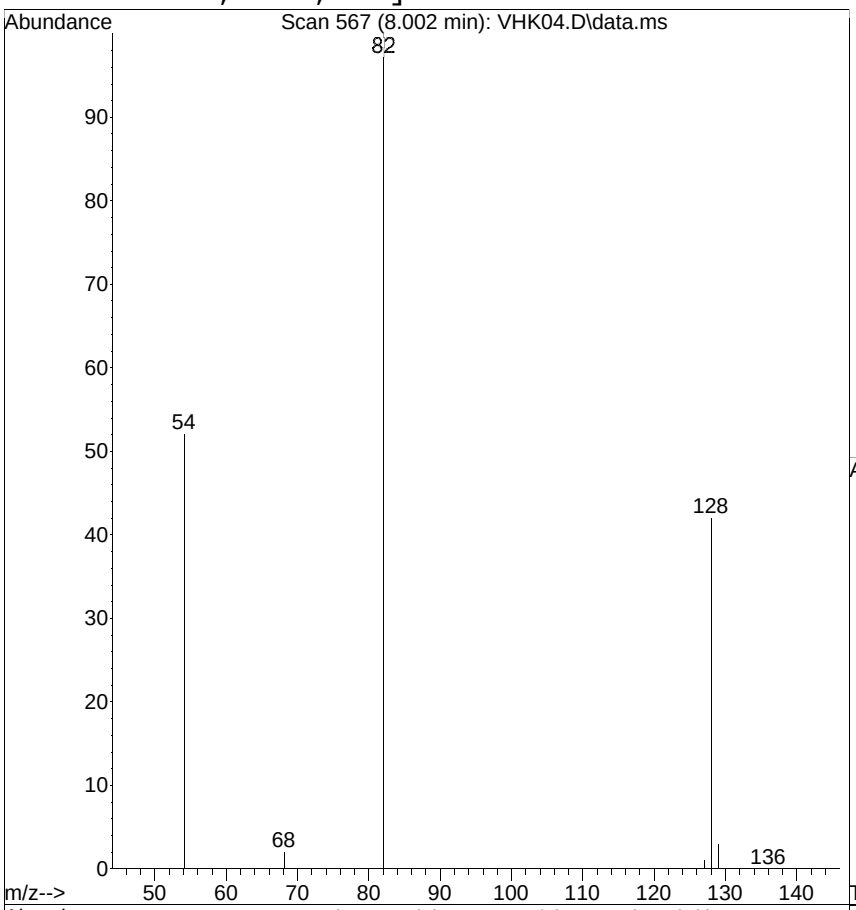
Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.311	152	40074	1.0000	ug/mL	0.00
3) Naphthalene-d8	8.932	136	144978	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.231	164	90135	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.172	188	169104	1.0000	ug/mL	0.00
18) Chrysene-d12	16.622	240	169862	1.0000	ug/mL	0.00
23) Perylene-d12	18.350	264	131364	1.0000	ug/mL	0.00

Target Compounds						Qvalue
2) 1,4-Dioxane	3.617	88	2831	0.1412	ug/mL	85
4) Nitrobenzene-d5	8.002	82	35457	0.7902	ug/mL	# 74
5) Naphthalene	8.960	128	156	0.0012	ug/mL	# 49
6) 2-Methylnaphthalene	0.000	142	0	N.D.		
7) 1-Methylnaphthalene	0.000	142	0	N.D.		
9) 2-Fluorobiphenyl	10.332	172	108729	0.8365	ug/mL	94
10) Acenaphthylene	0.000	152	0	N.D.		
11) Acenaphthene	11.227	154	304	0.0035	ug/mL	# 20
12) Fluorene	0.000	166	0	N.D.		
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.207	178	357	0.0021	ug/mL	78
16) Anthracene	13.278	178	111	0.0007	ug/mL	# 42
17) Fluoranthene	14.771	202	428	0.0024	ug/mL	71
19) Pyrene	15.066	202	338	0.0018	ug/mL	71
20) Terphenyl-d14	15.245	244	133893	0.9337	ug/mL	87
21) Benzo(a)anthracene	16.617	228	584	0.0035	ug/mL	80
22) Chrysene	16.651	228	147	0.0009	ug/mL	# 66
24) Benzo(b)fluoranthene	17.921	252	121	0.0008	ug/mL	# 1
25) Benzo(k)fluoranthene	17.921	252	121	0.0008	ug/mL	# 1
26) Benzo(a)pyrene	18.347	252	445	0.0032	ug/mL	# 13
27) Indeno(1,2,3-cd)pyrene	19.904	276	168	0.0012	ug/mL	# 1
28) Dibenz(a,h)anthracene	0.000	278	0	N.D.		
29) Benzo(g,h,i)perylene	19.904	276	168	0.0014	ug/mL	# 3

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

[Nitrobenzene-d5; 0.8; u]

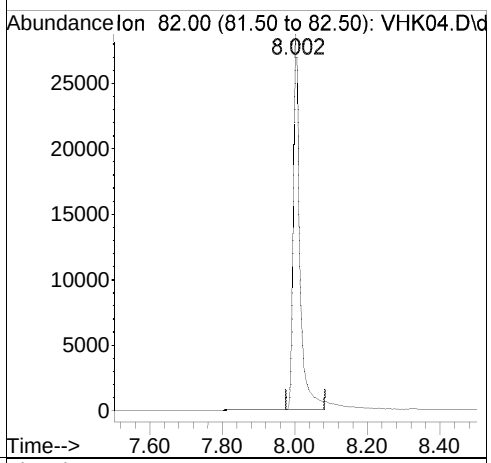
Raw



#4
Nitrobenzene-d5
Concen: 0.7902 ug/mL
RT: 8.002 min Scan# 567
Delta R.T. -0.001 min
Lab File: VHK04.D
Acq: 20 Aug 2014 12:43 pm

Tgt Ion: 82 Resp: 35457

Ion	Ratio	Lower	Upper
82	100		
128	42.5	10.5	50.5
54	52.2	56.2	96.2#



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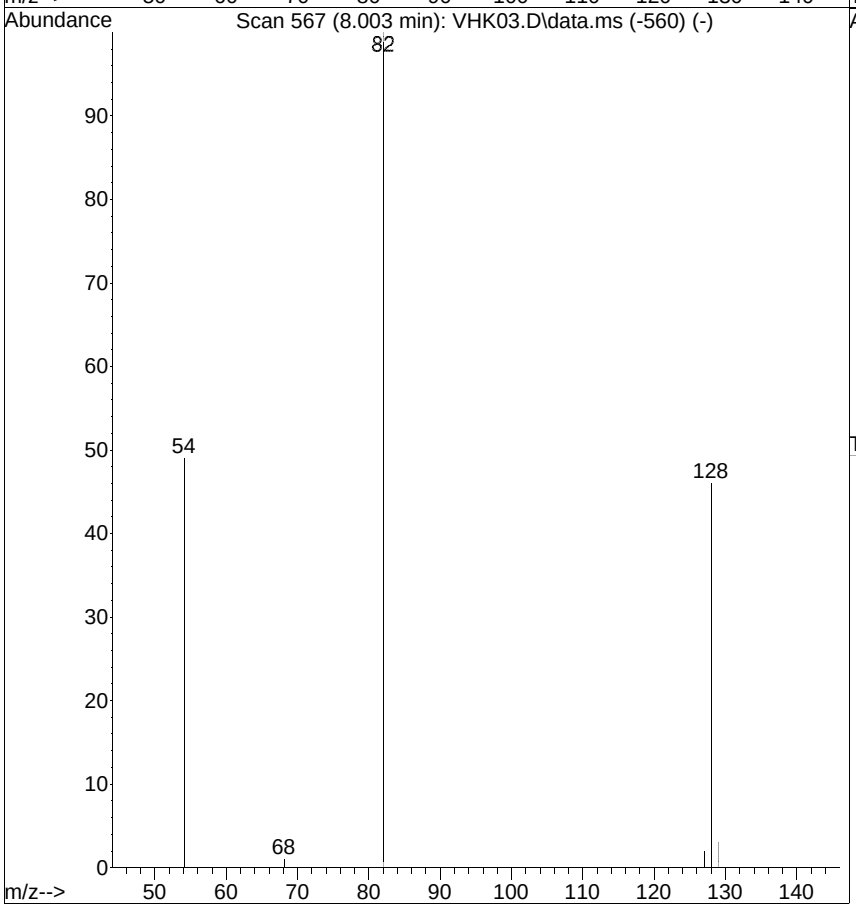
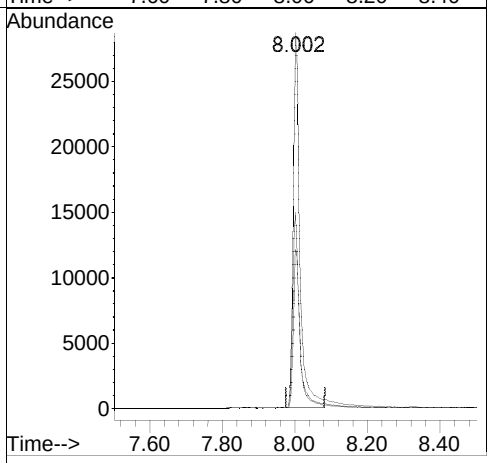
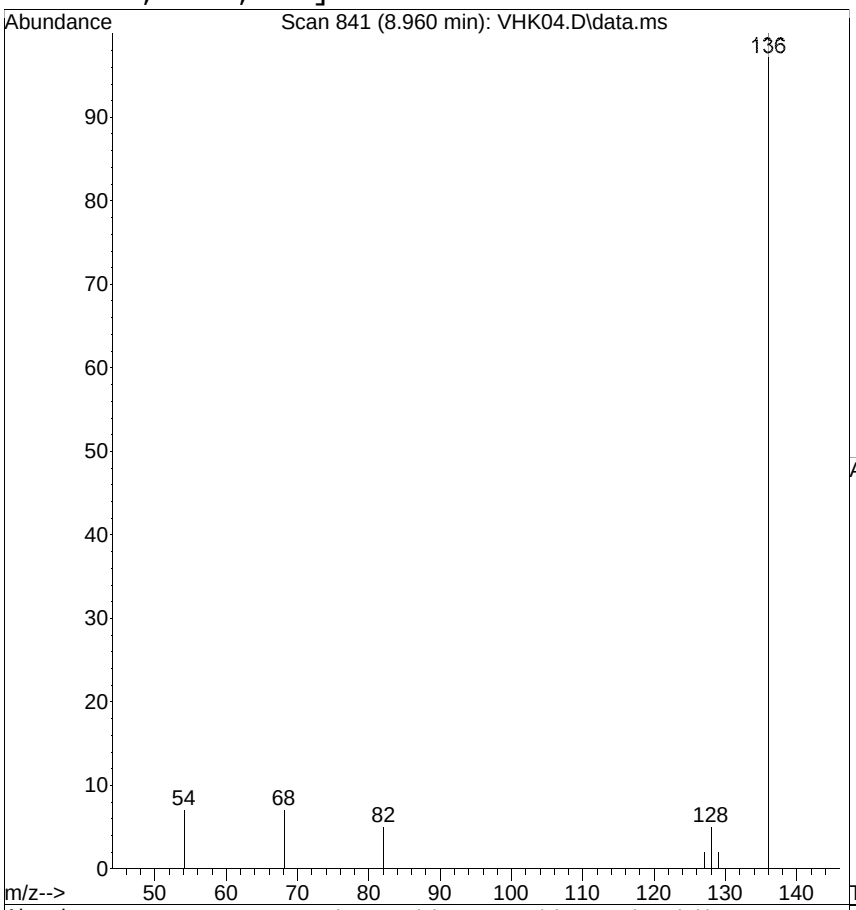




[Naphthalene; <RL; u]

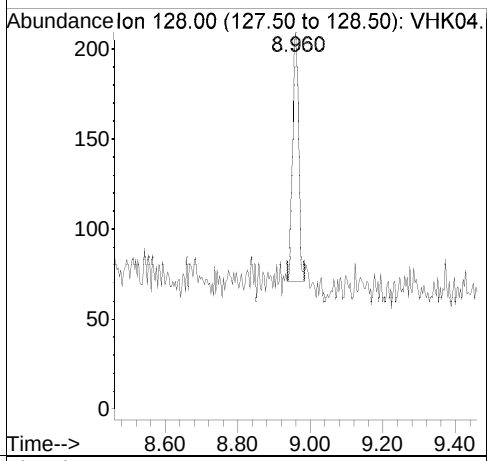
Raw



#5
Naphthalene
Concen: 0.0012 ug/mL
RT: 8.960 min Scan# 841
Delta R.T. -0.001 min
Lab File: VHK04.D
Acq: 20 Aug 2014 12:43 pm

Tgt Ion:128 Resp: 156

Ion	Ratio	Lower	Upper
128	100		
129	33.5	0.0	31.1#
127	32.1	0.0	34.0



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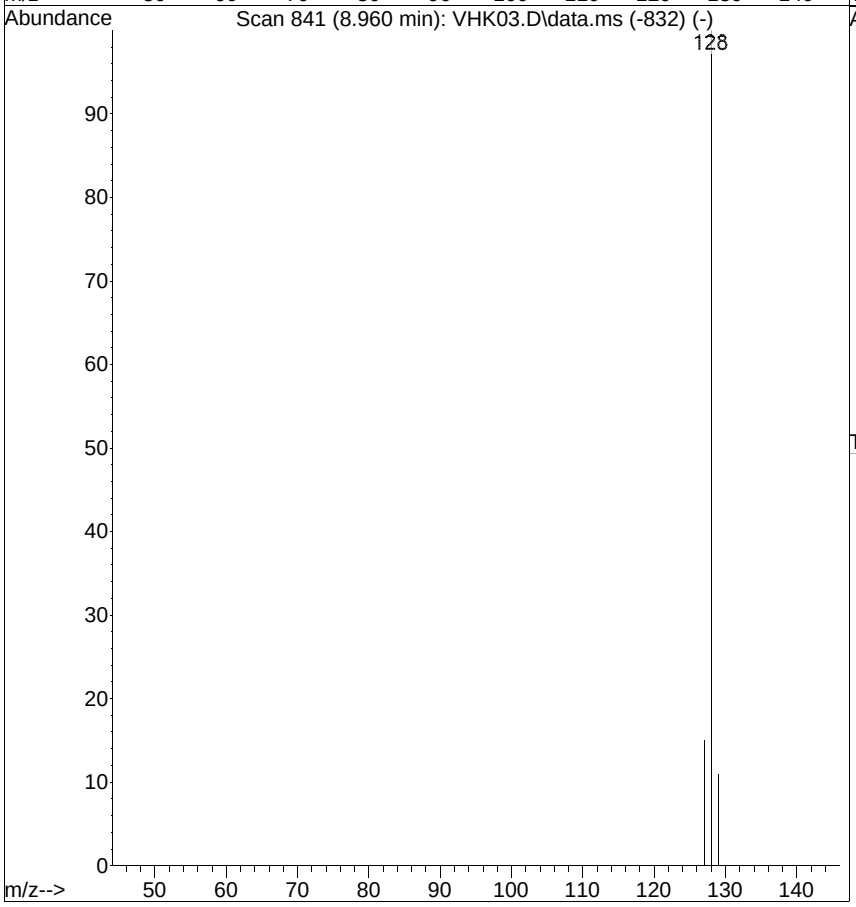
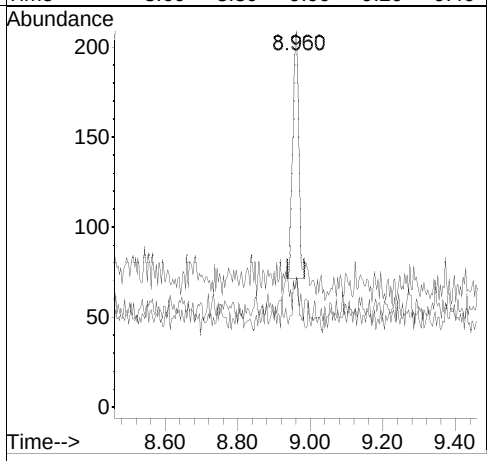
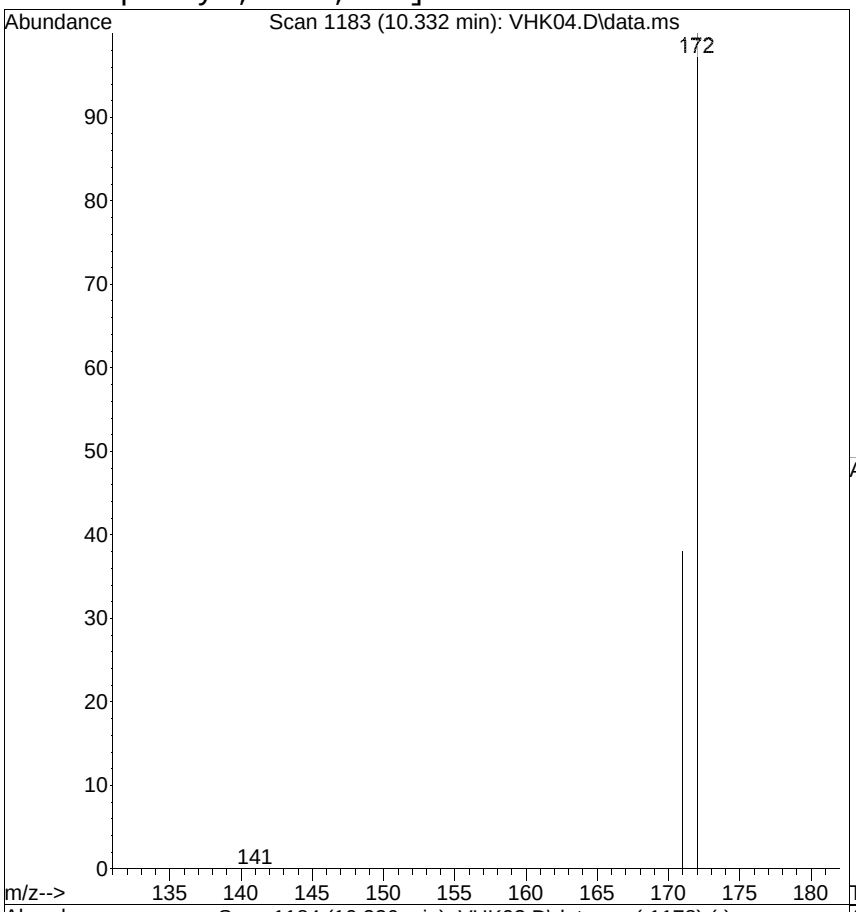




[2-Fluorobiphenyl; 0.8; u]

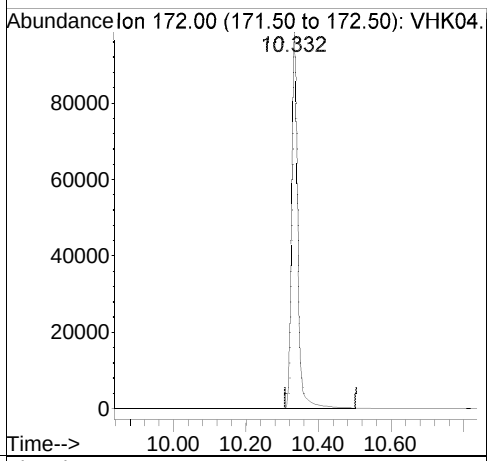
Raw



#9
2-Fluorobiphenyl
Concen: 0.8365 ug/mL
RT: 10.332 min Scan# 1183
Delta R.T. -0.004 min
Lab File: VHK04.D
Acq: 20 Aug 2014 12:43 pm

Tgt Ion:172 Resp: 108729

Ion	Ratio	Lower	Upper
172	100		
171	37.7	14.4	54.4



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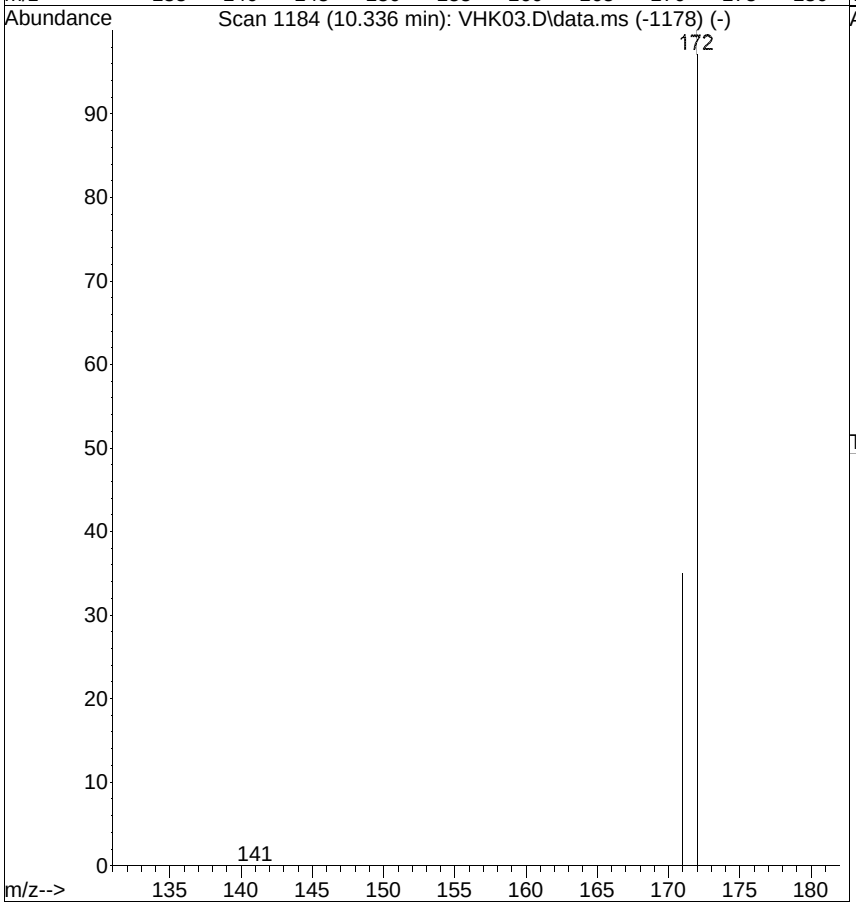
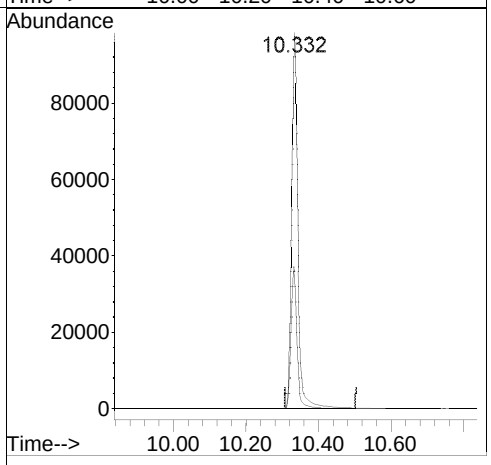
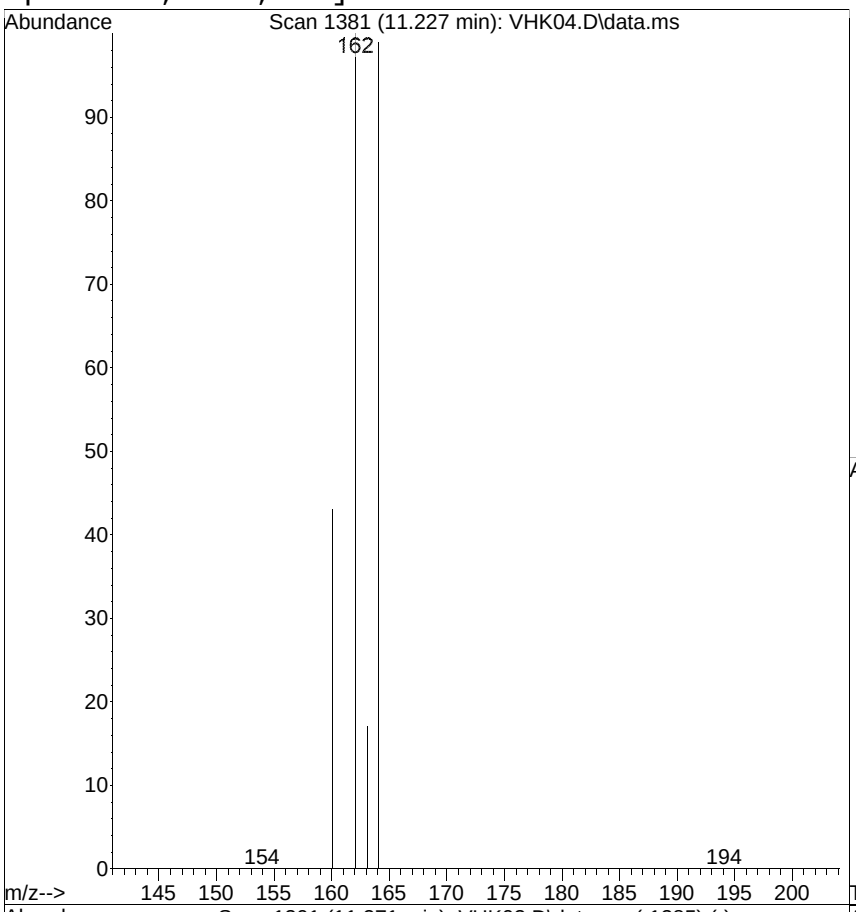




[Acenaphthene; <RL; u]

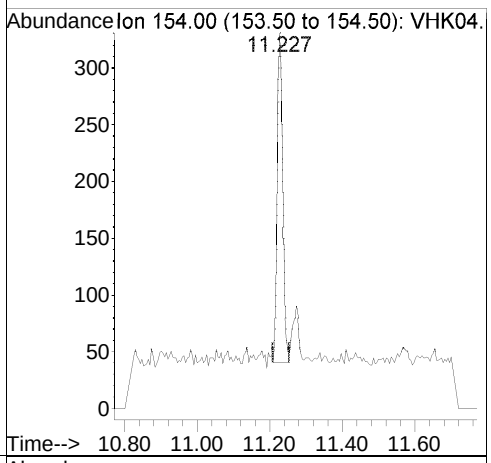
Raw



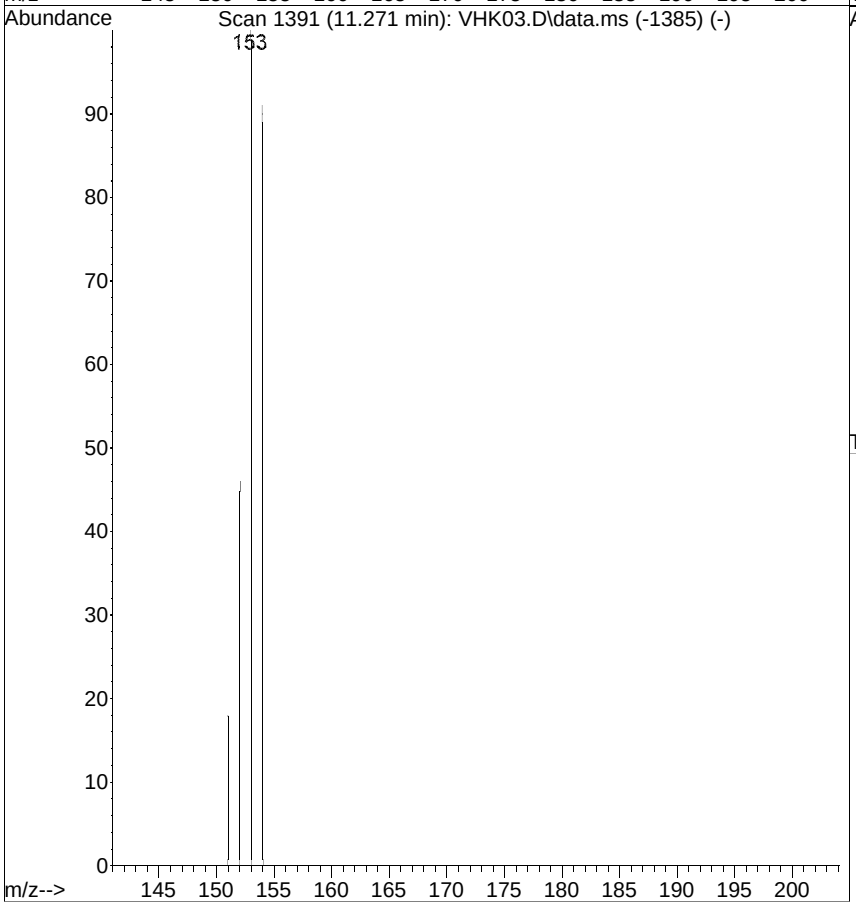
#11
Acenaphthene
Concen: 0.0035 ug/mL
RT: 11.227 min Scan# 1381
Delta R.T. -0.044 min
Lab File: VHK04.D
Acq: 20 Aug 2014 12:43 pm

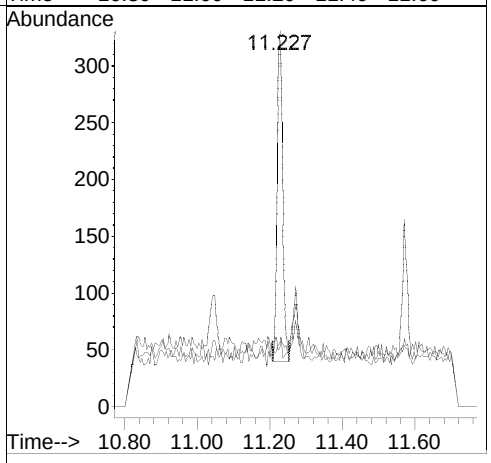
Tgt Ion:154 Resp: 304

Ion	Ratio	Lower	Upper
154	100		
152	15.4	35.4	75.4#
153	16.6	96.8	136.8#



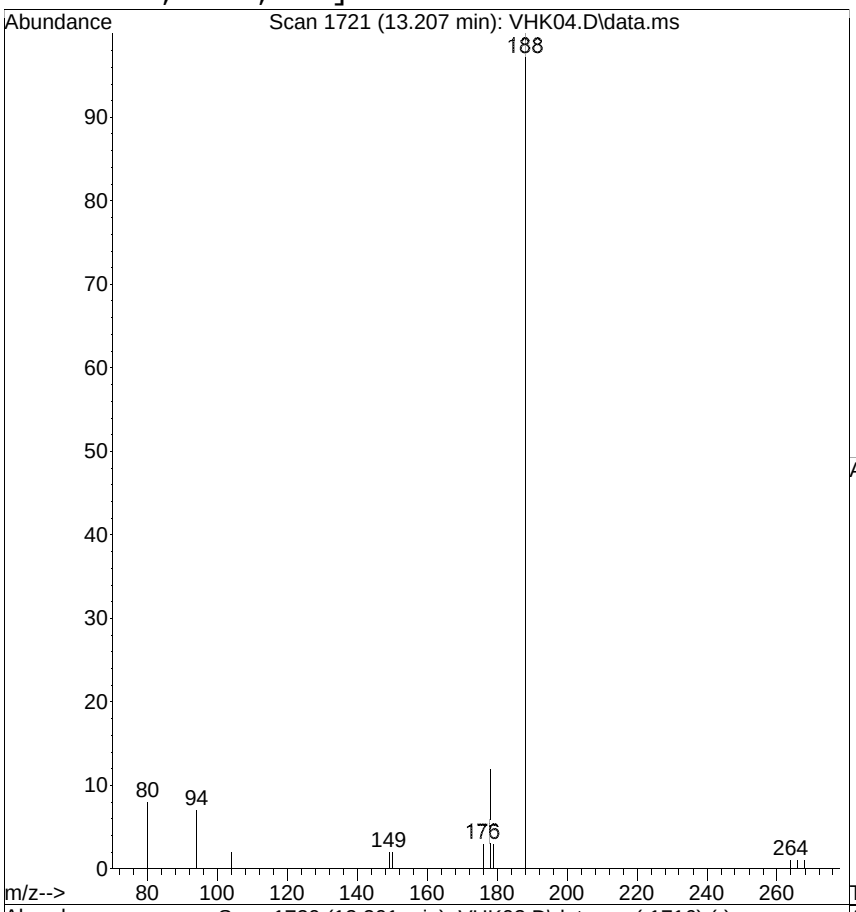
Ref





[Phenanthrene; <RL; u]

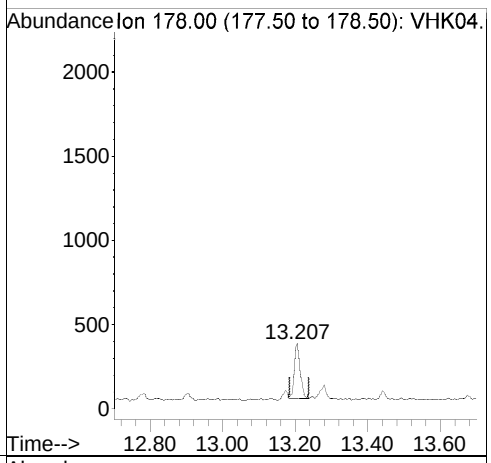
Raw



#15
Phenanthrene
Concen: 0.0021 ug/mL
RT: 13.207 min Scan# 1721
Delta R.T. 0.006 min
Lab File: VHK04.D
Acq: 20 Aug 2014 12:43 pm

Tgt Ion:178 Resp: 357

Ion	Ratio	Lower	Upper
178	100		
179	26.0	0.0	35.0
176	27.3	0.0	38.9



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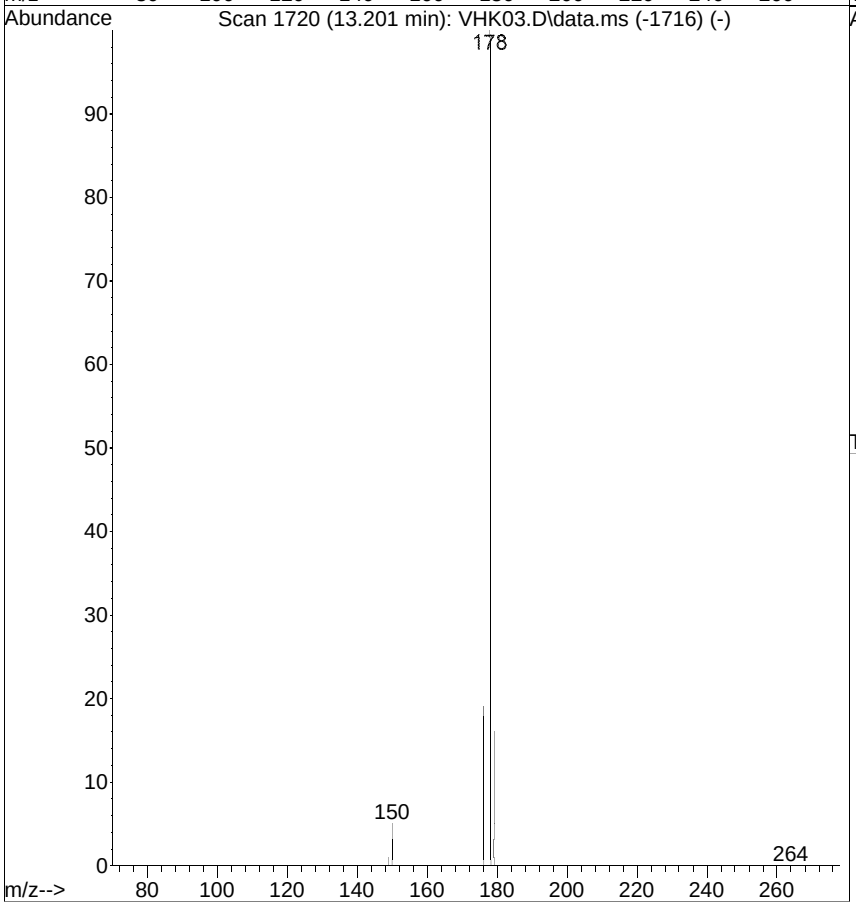
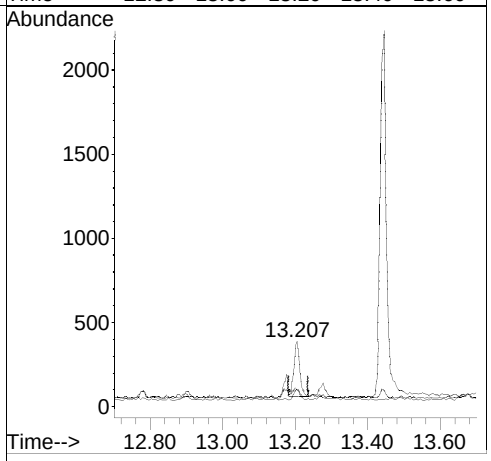
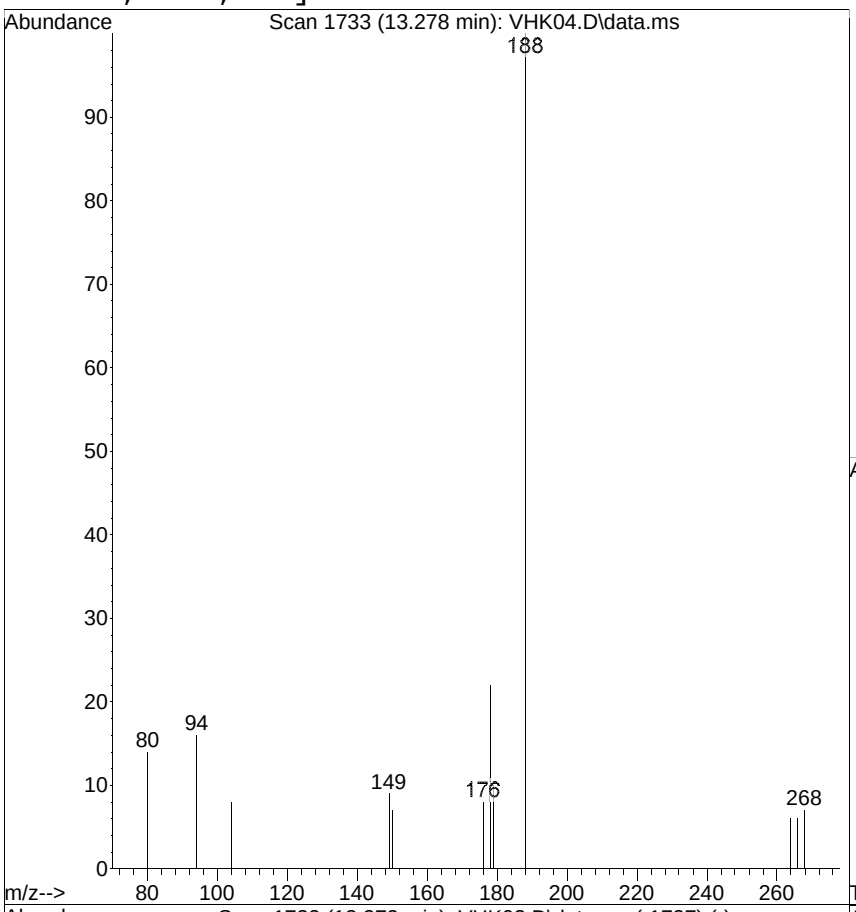




[Anthracene; <RL; u]

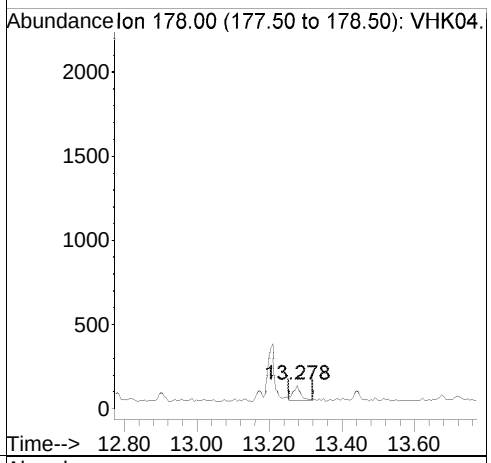
Raw



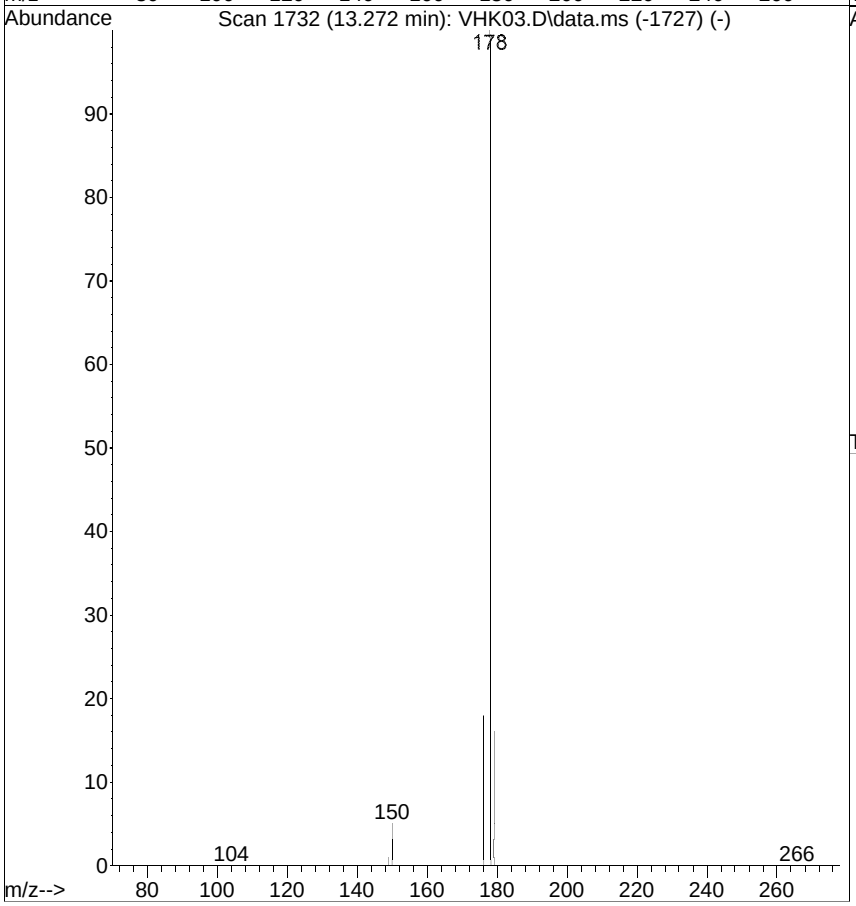
#16
Anthracene
Concen: 0.0007 ug/mL
RT: 13.278 min Scan# 1733
Delta R.T. 0.006 min
Lab File: VHK04.D
Acq: 20 Aug 2014 12:43 pm

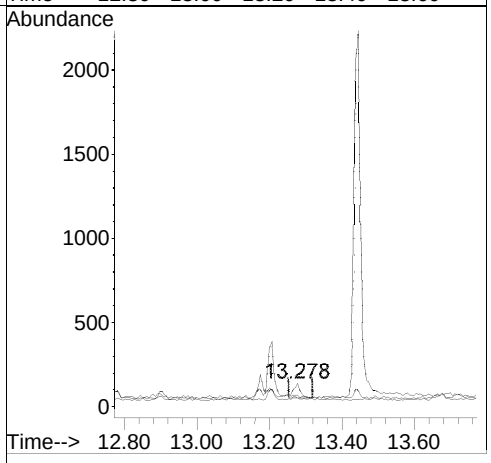
Tgt Ion:178 Resp: 111

Ion	Ratio	Lower	Upper
178	100		
179	48.6	0.0	34.4#
176	37.1	0.0	39.5



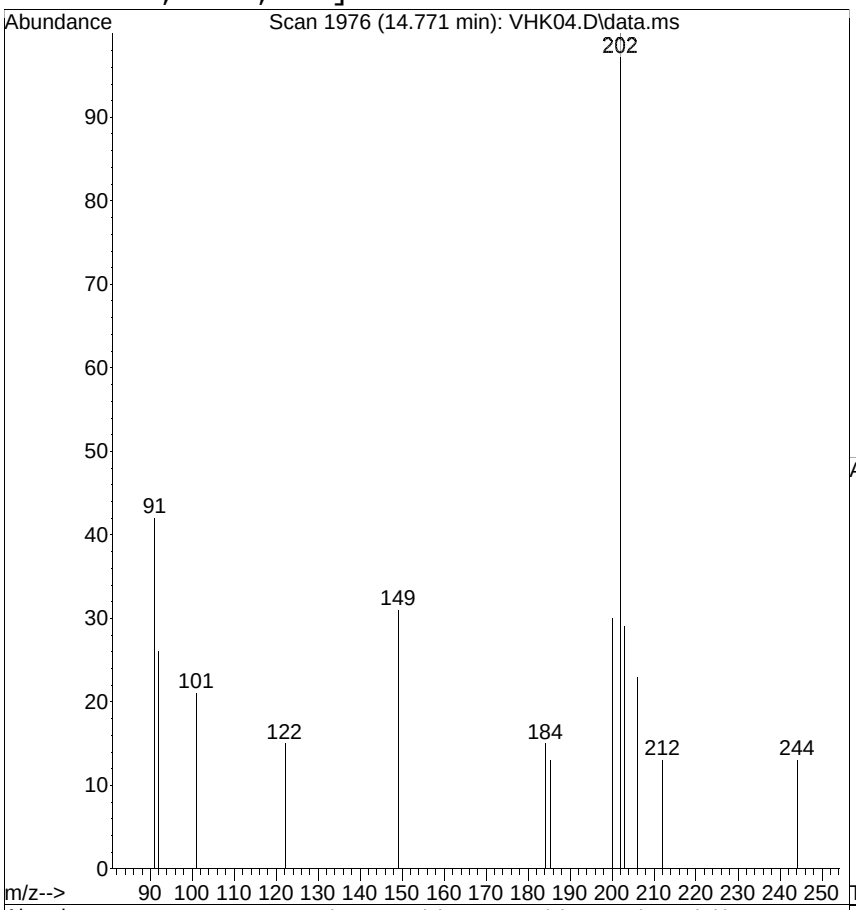
Ref





[Fluoranthene; <RL; u]

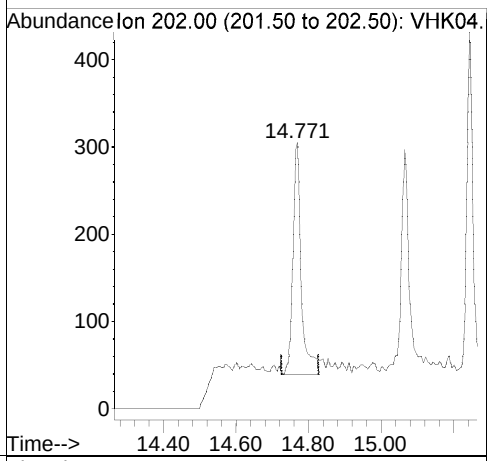
Raw



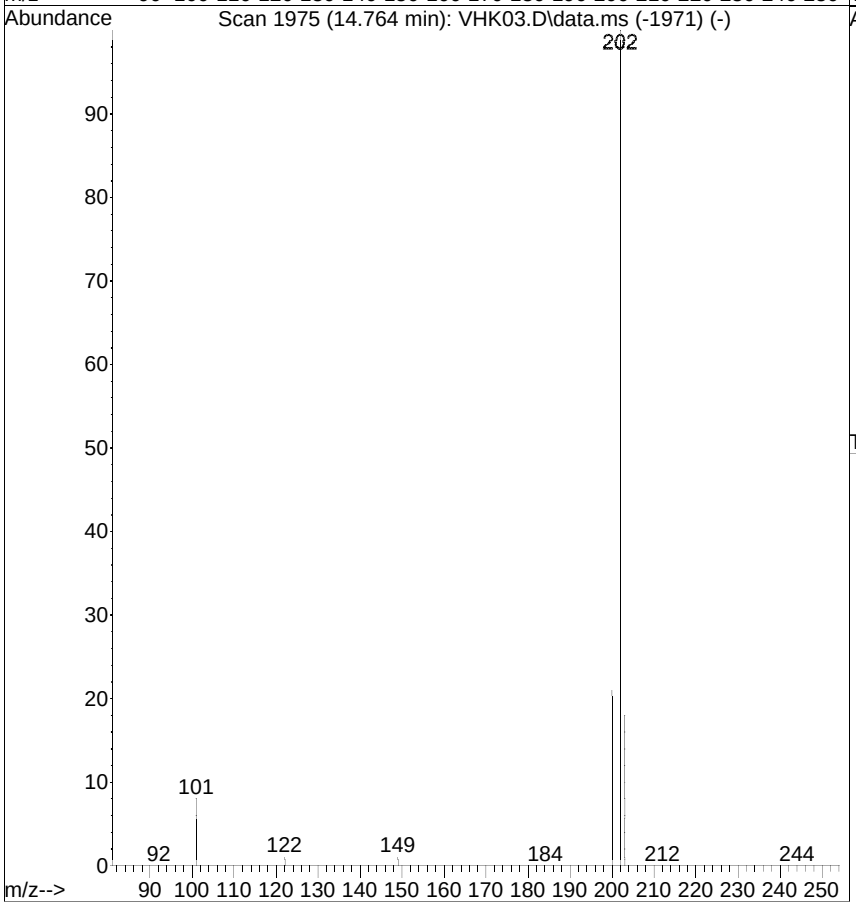
#17
Fluoranthene
Concen: 0.0024 ug/mL
RT: 14.771 min Scan# 1976
Delta R.T. 0.006 min
Lab File: VHK04.D
Acq: 20 Aug 2014 12:43 pm

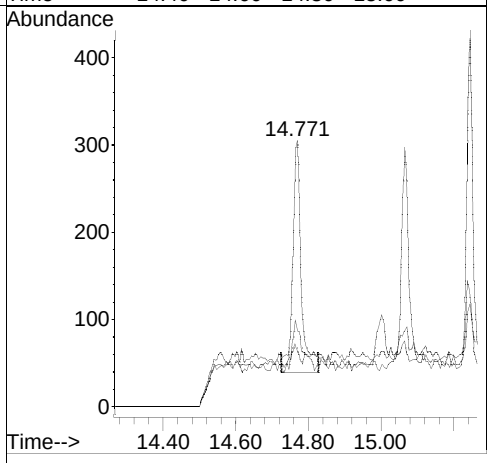
Tgt Ion:202 Resp: 428

Ion	Ratio	Lower	Upper
202	100		
101	21.0	0.0	21.1
203	28.9	0.0	37.0



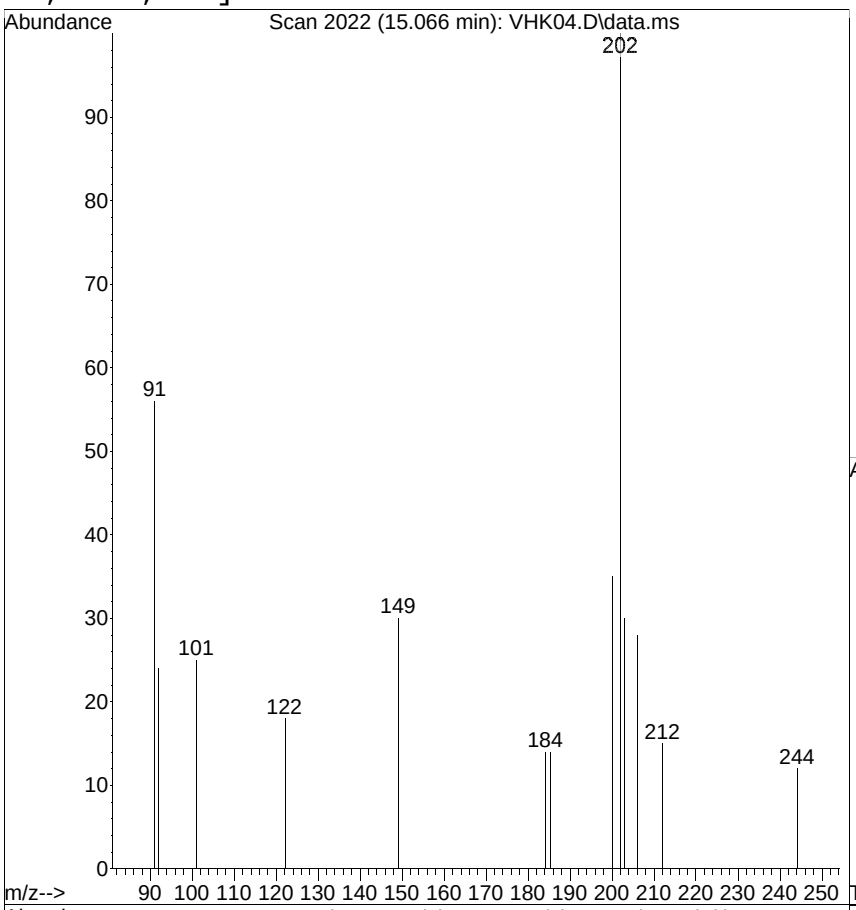
Ref





[Pyrene; <RL; u]

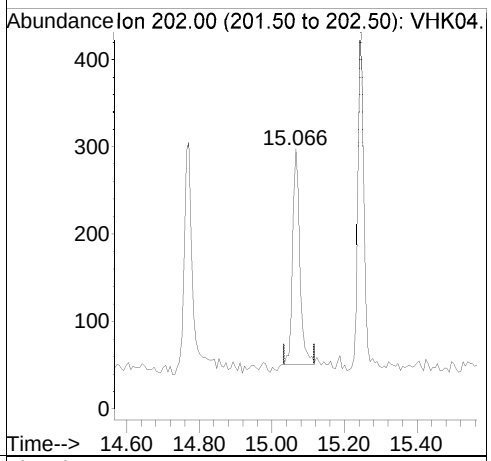
Raw



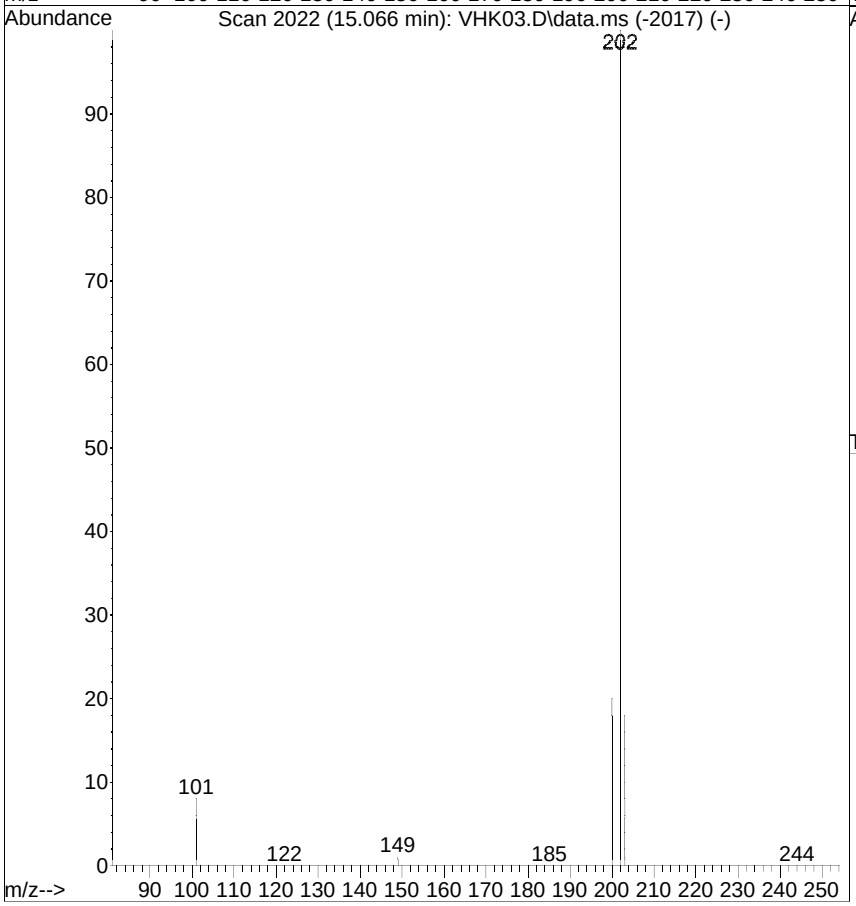
#19
Pyrene
Concen: 0.0018 ug/mL
RT: 15.066 min Scan# 2022
Delta R.T. 0.000 min
Lab File: VHK04.D
Acq: 20 Aug 2014 12:43 pm

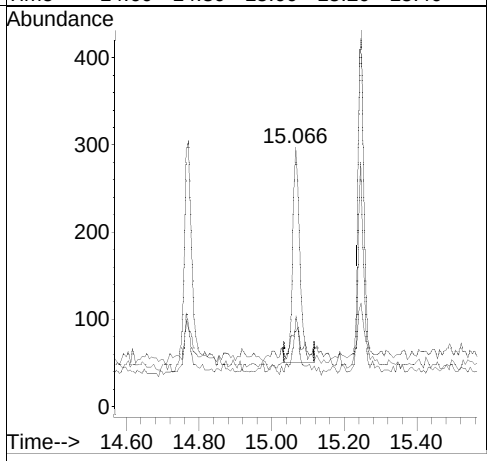
Tgt Ion:202 Resp: 338

Ion	Ratio	Lower	Upper
202	100		
200	35.0	1.1	41.1
203	29.6	0.0	37.7



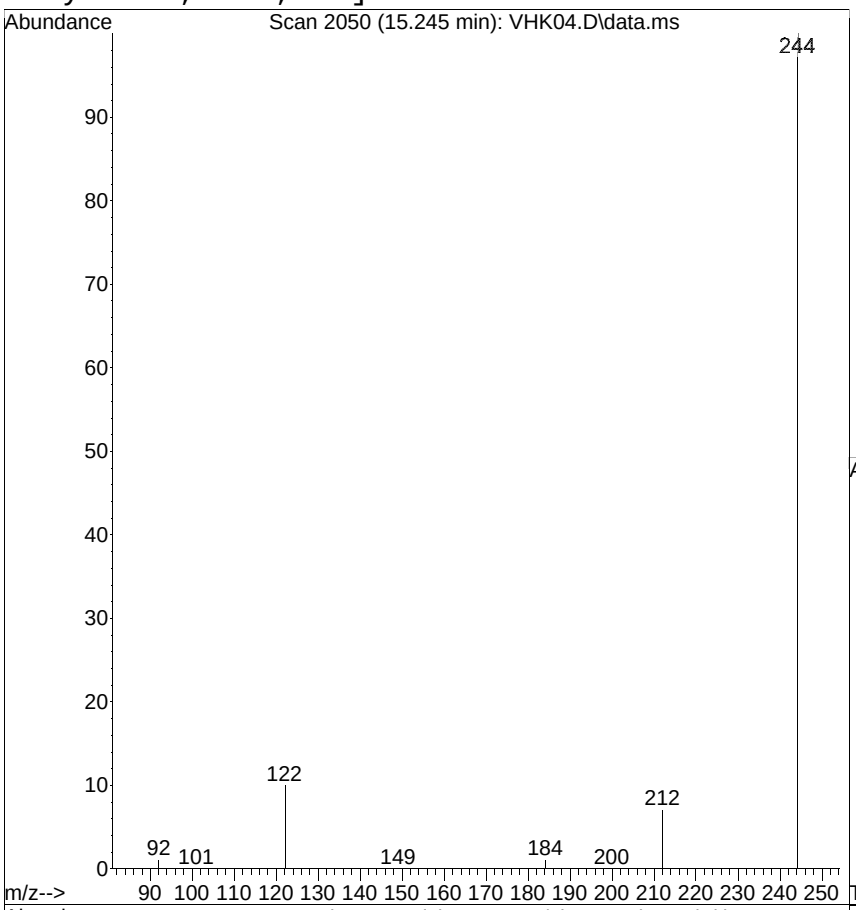
Ref





[Terphenyl-d14; 0.9; u]

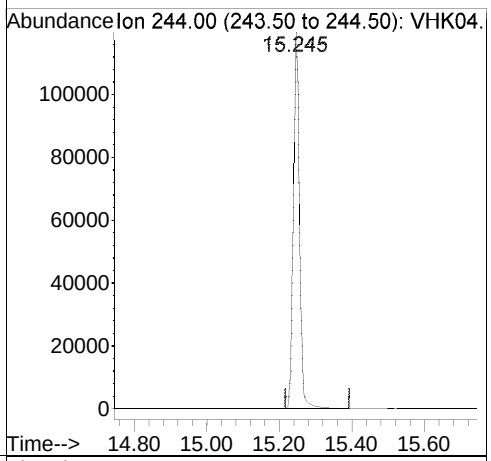
Raw



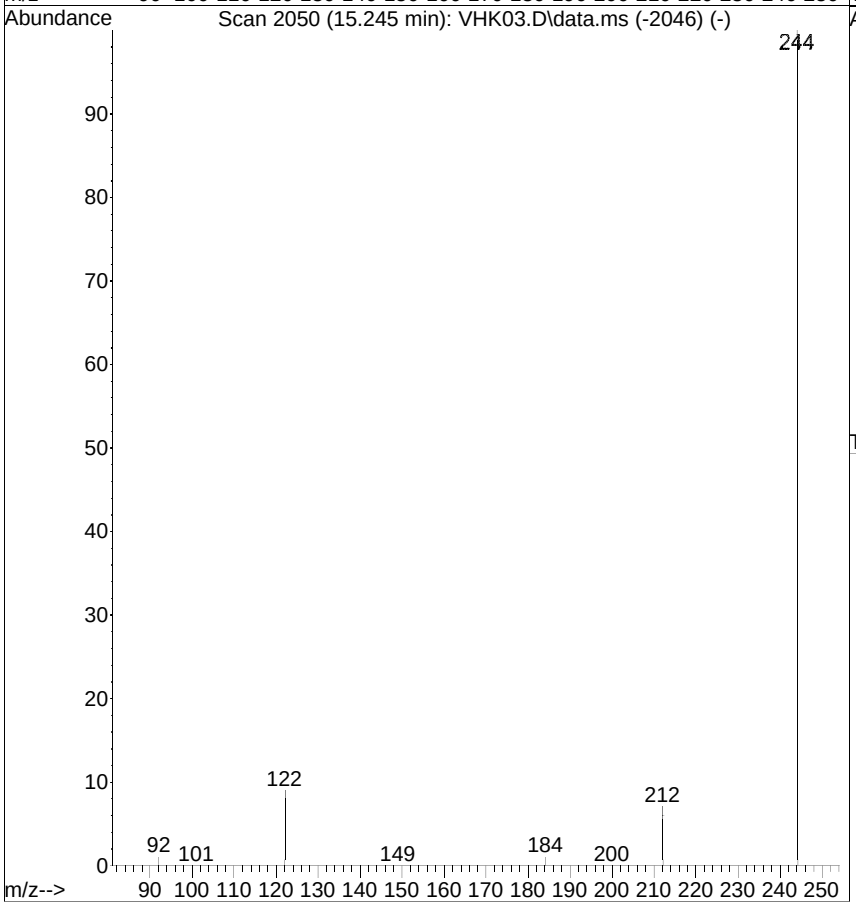
#20
Terphenyl-d14
Concen: 0.9337 ug/mL
RT: 15.245 min Scan# 2050
Delta R.T. 0.000 min
Lab File: VHK04.D
Acq: 20 Aug 2014 12:43 pm

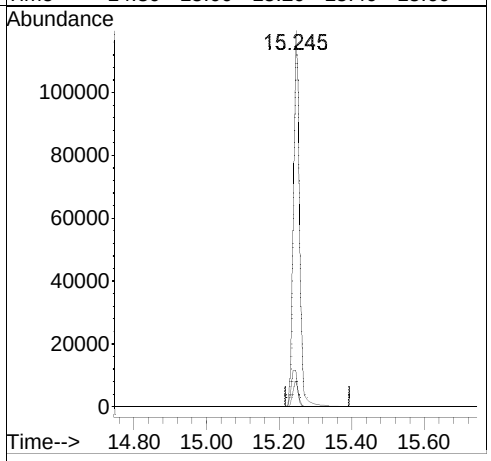
Tgt Ion:244 Resp: 133893

Ion	Ratio	Lower	Upper
244	100		
122	9.7	0.0	25.0
212	6.9	0.0	31.4



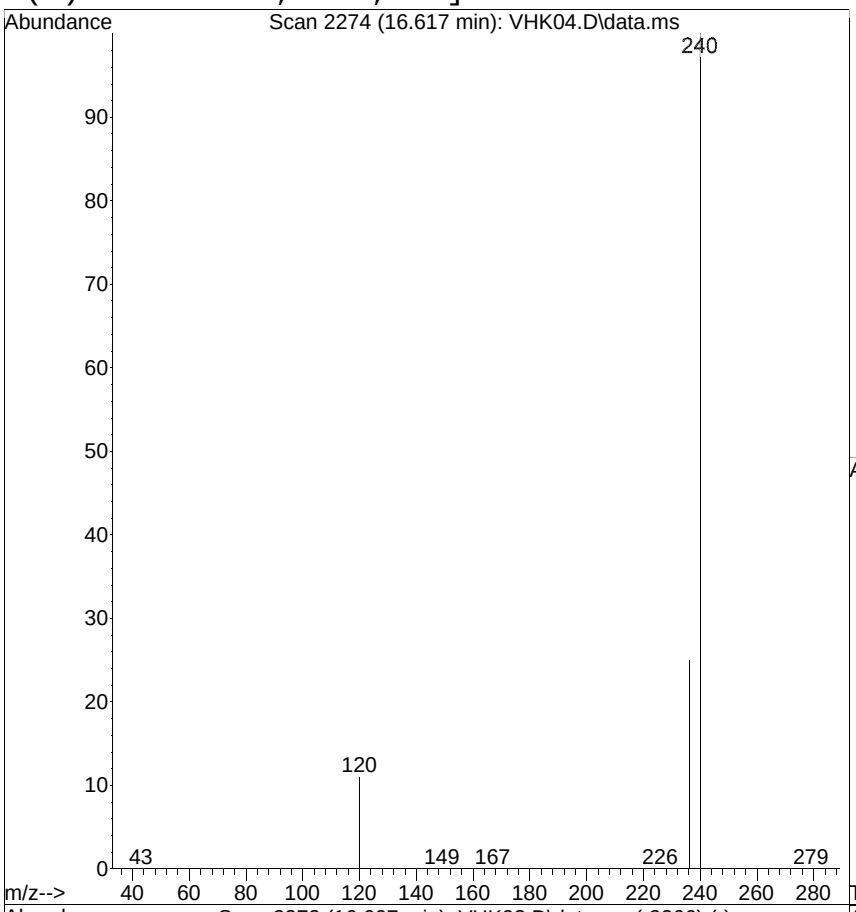
Ref





[Benzo(a)anthracene; <RL; u]

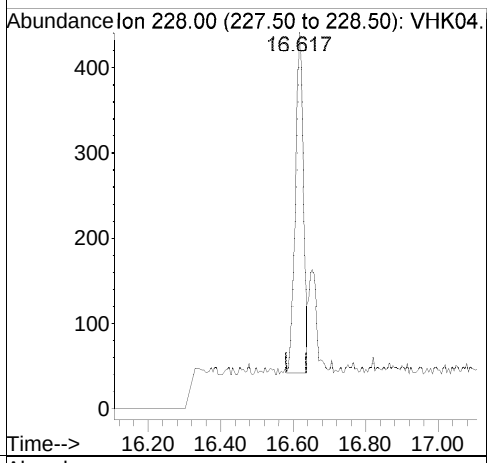
Raw



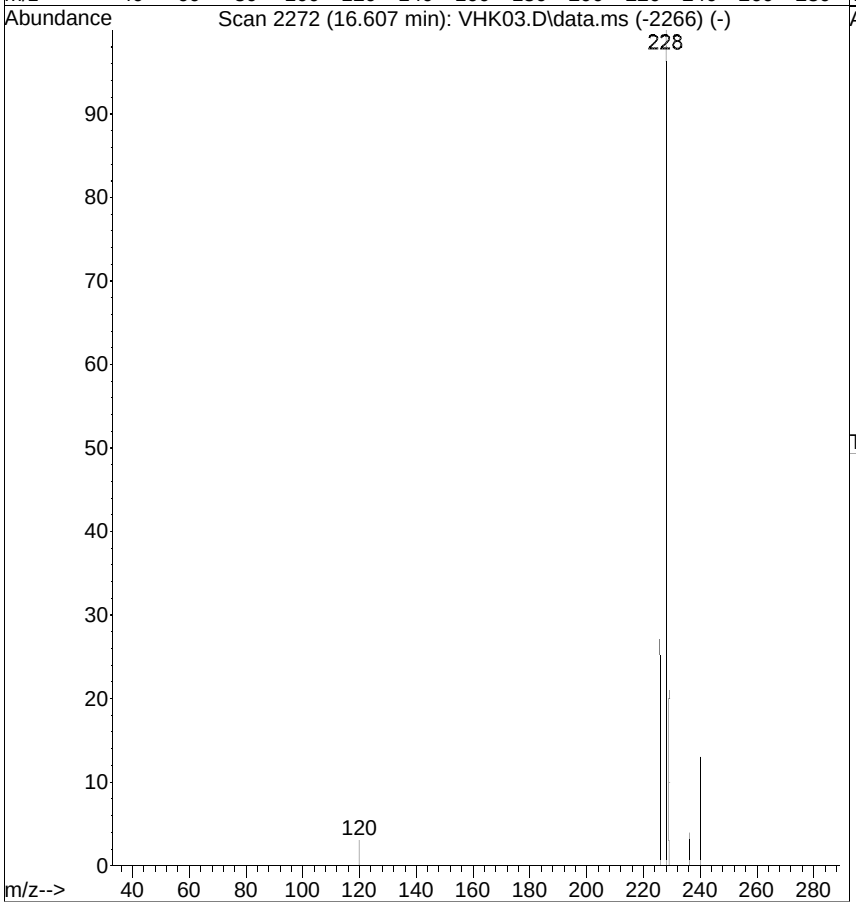
#21
Benzo(a)anthracene
Concen: 0.0035 ug/mL
RT: 16.617 min Scan# 2274
Delta R.T. 0.010 min
Lab File: VHK04.D
Acq: 20 Aug 2014 12:43 pm

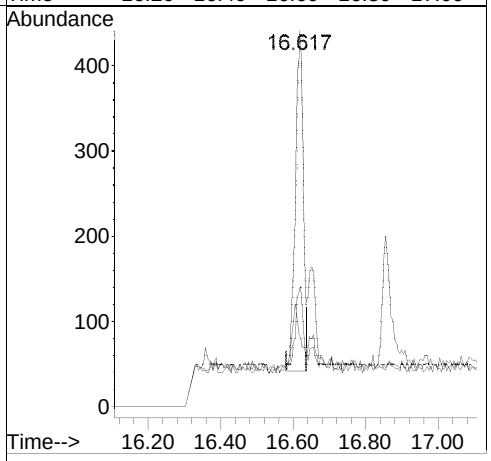
Tgt Ion:228 Resp: 584

Ion	Ratio	Lower	Upper
228	100		
229	30.4	0.1	40.1
226	19.5	9.3	49.3



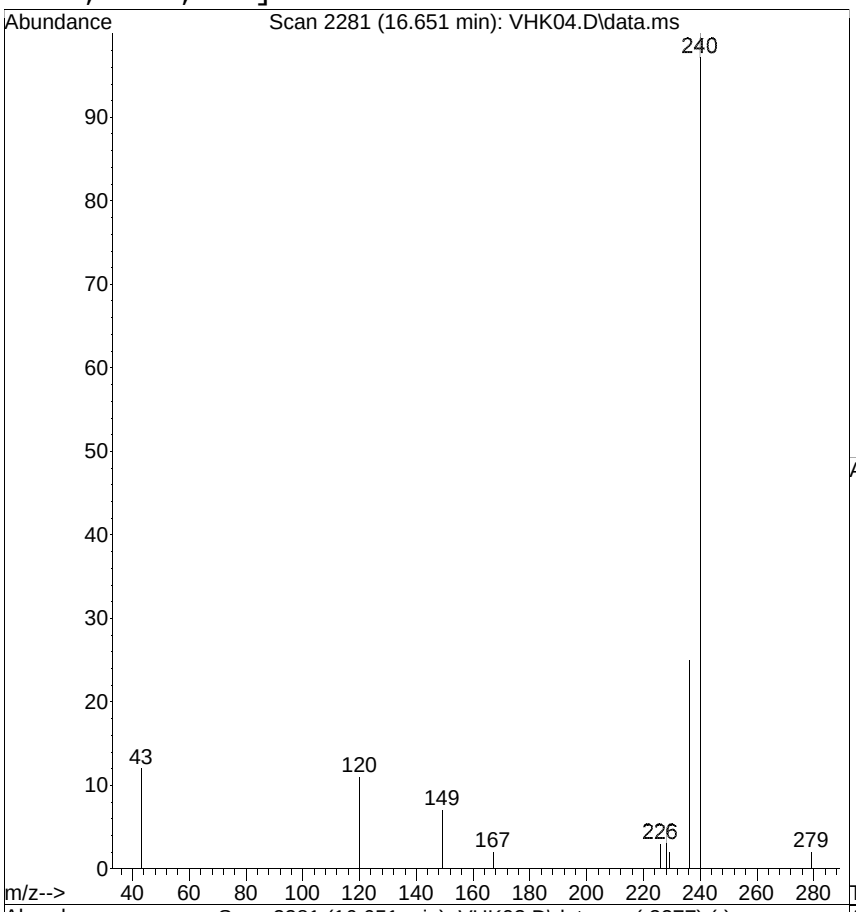
Ref





[Chrysene; <RL; u]

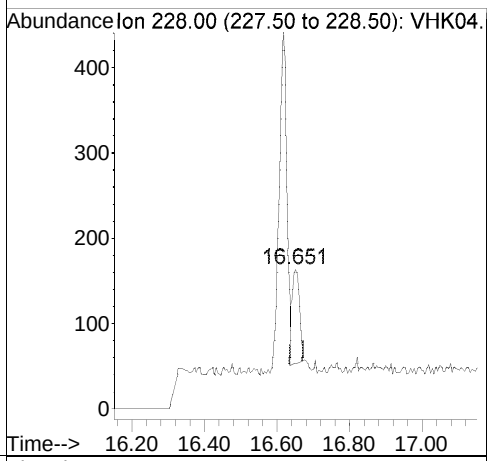
Raw



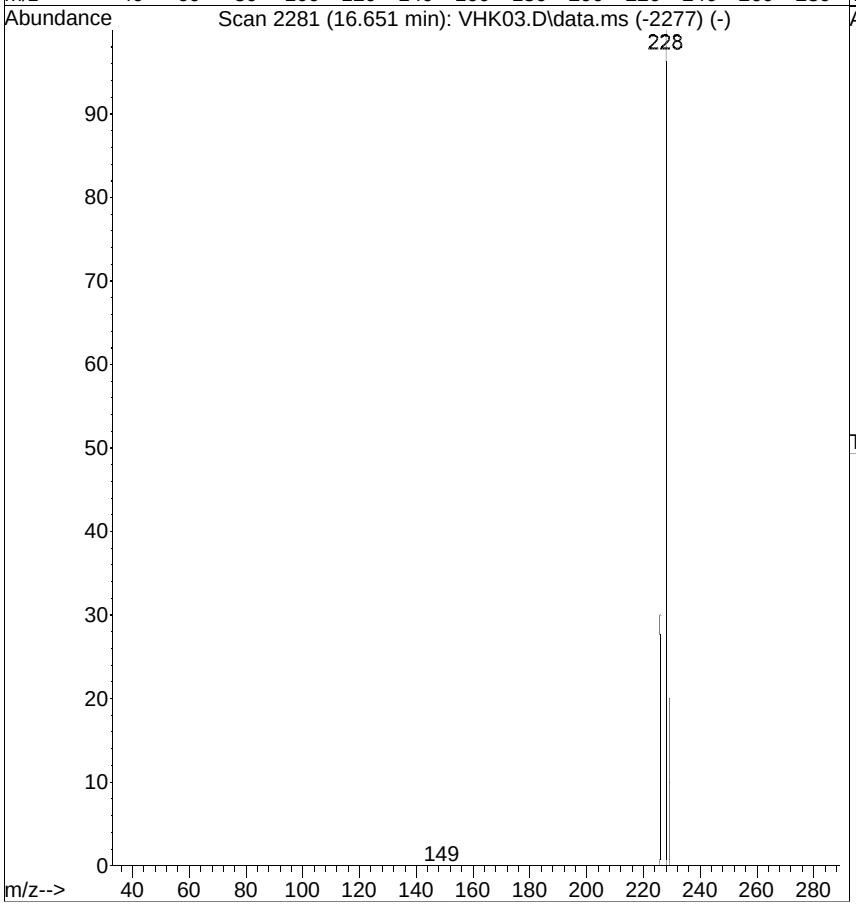
#22
Chrysene
Concen: 0.0009 ug/mL
RT: 16.651 min Scan# 2281
Delta R.T. 0.000 min
Lab File: VHK04.D
Acq: 20 Aug 2014 12:43 pm

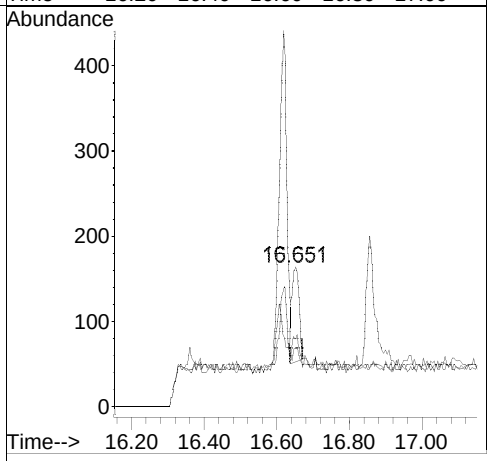
Tgt Ion:228 Resp: 147

Ion	Ratio	Lower	Upper
228	100		
226	48.2	13.4	53.4
229	42.1	0.8	40.8#



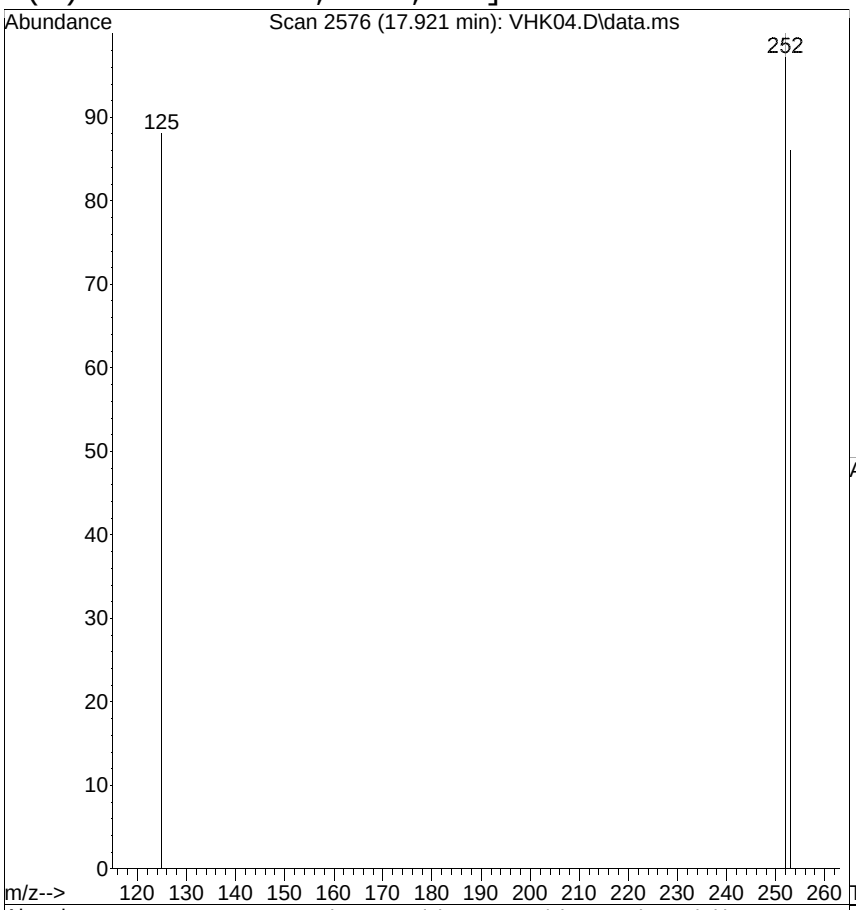
Ref





[Benzo(b)fluoranthene; <RL; u]

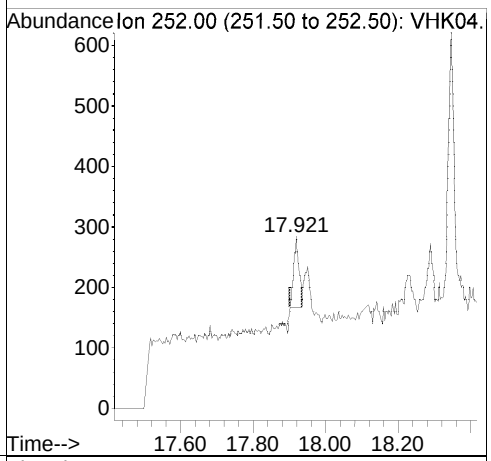
Raw



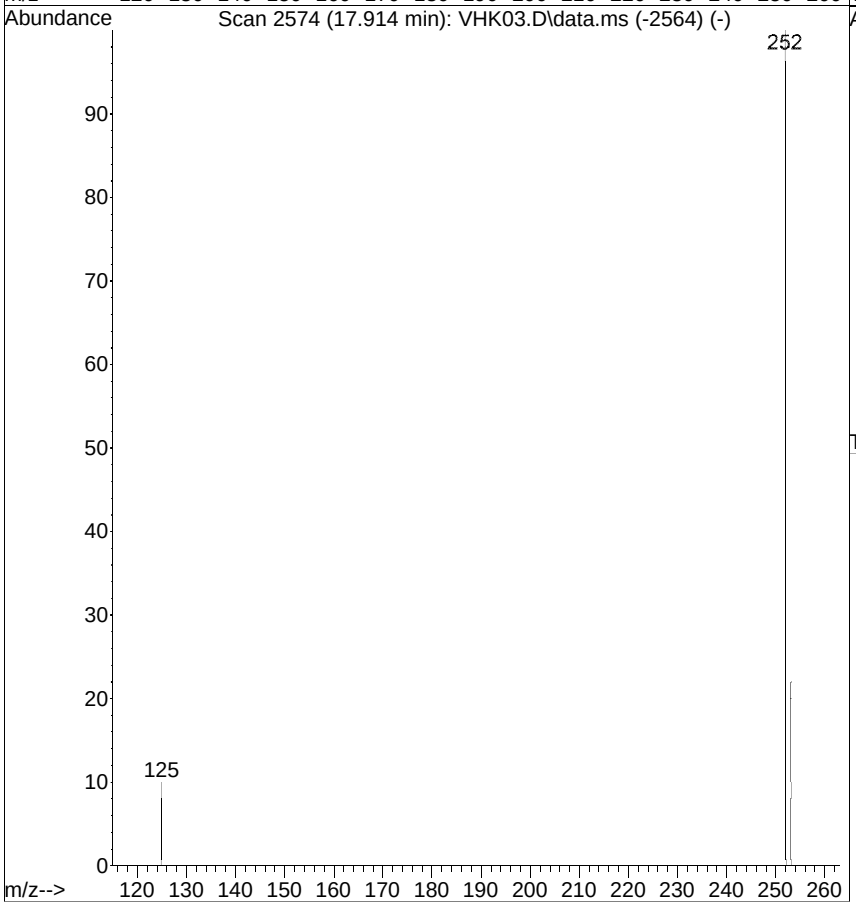
#24
Benzo(b)fluoranthene
Concen: 0.0008 ug/mL
RT: 17.921 min Scan# 2576
Delta R.T. 0.007 min
Lab File: VHK04.D
Acq: 20 Aug 2014 12:43 pm

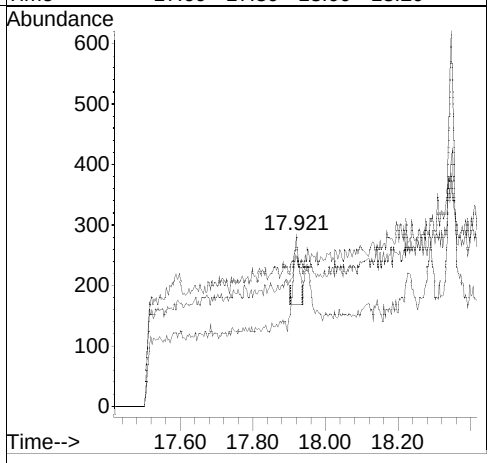
Tgt Ion:252 Resp: 121

Ion	Ratio	Lower	Upper
252	100		
253	86.3	1.0	41.0#
125	87.7	0.0	20.9#



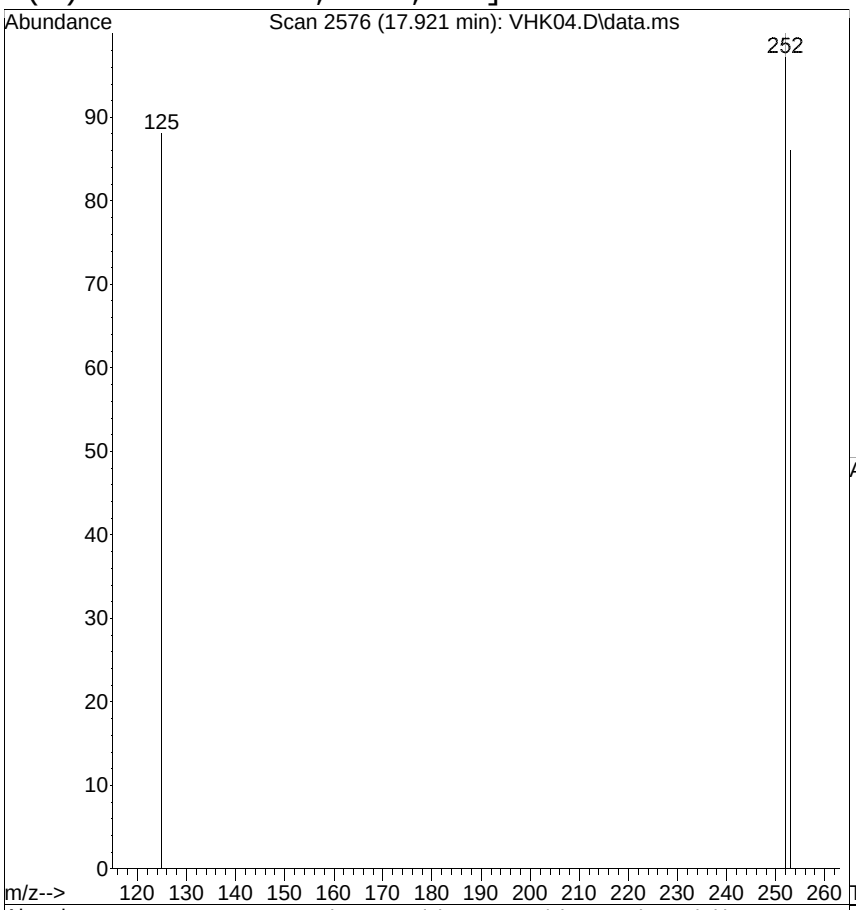
Ref





[Benzo(k)fluoranthene; <RL; u]

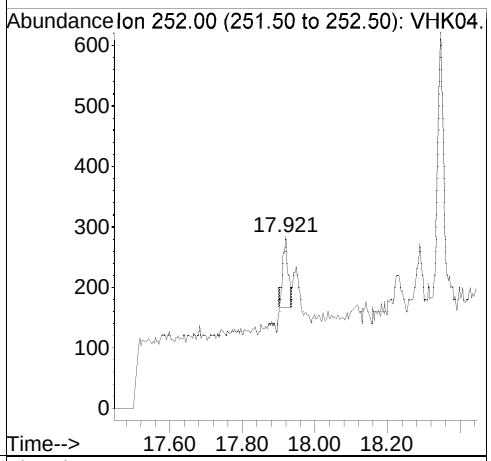
Raw



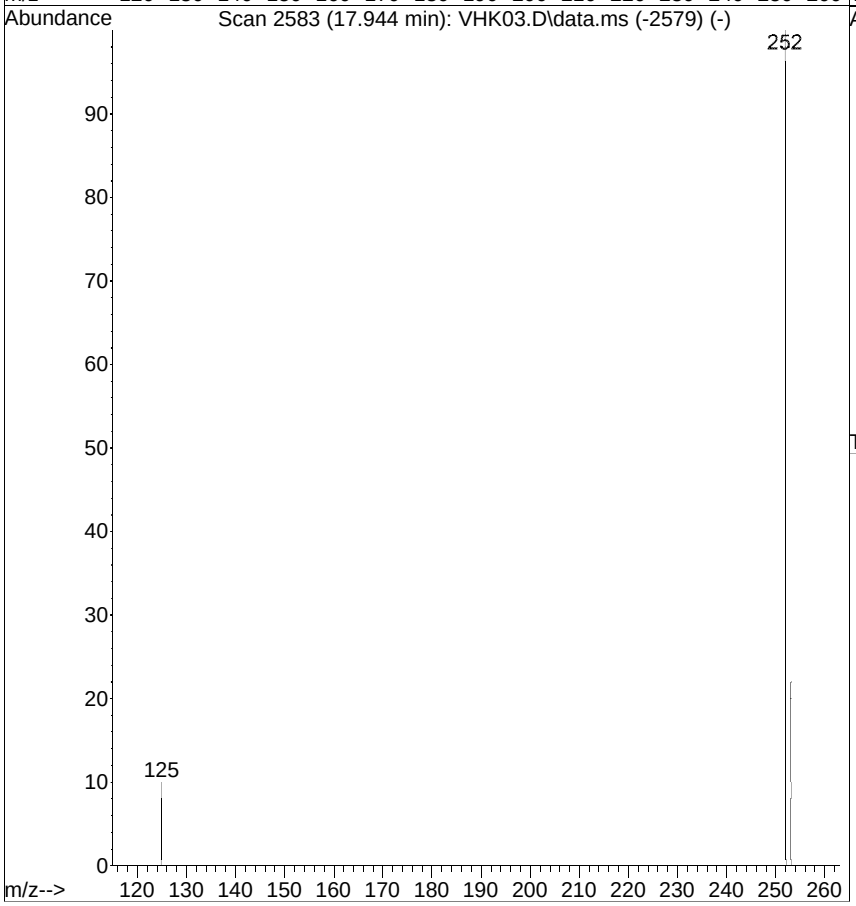
#25
Benzo(k)fluoranthene
Concen: 0.0008 ug/mL
RT: 17.921 min Scan# 2576
Delta R.T. -0.023 min
Lab File: VHK04.D
Acq: 20 Aug 2014 12:43 pm

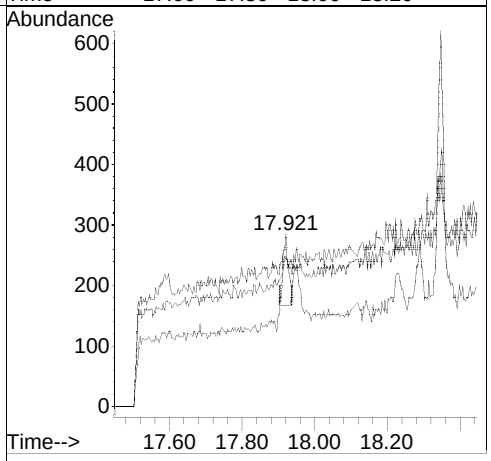
Tgt Ion:252 Resp: 121

Ion	Ratio	Lower	Upper
252	100		
253	86.3	1.1	41.1#
125	87.7	0.0	21.1#



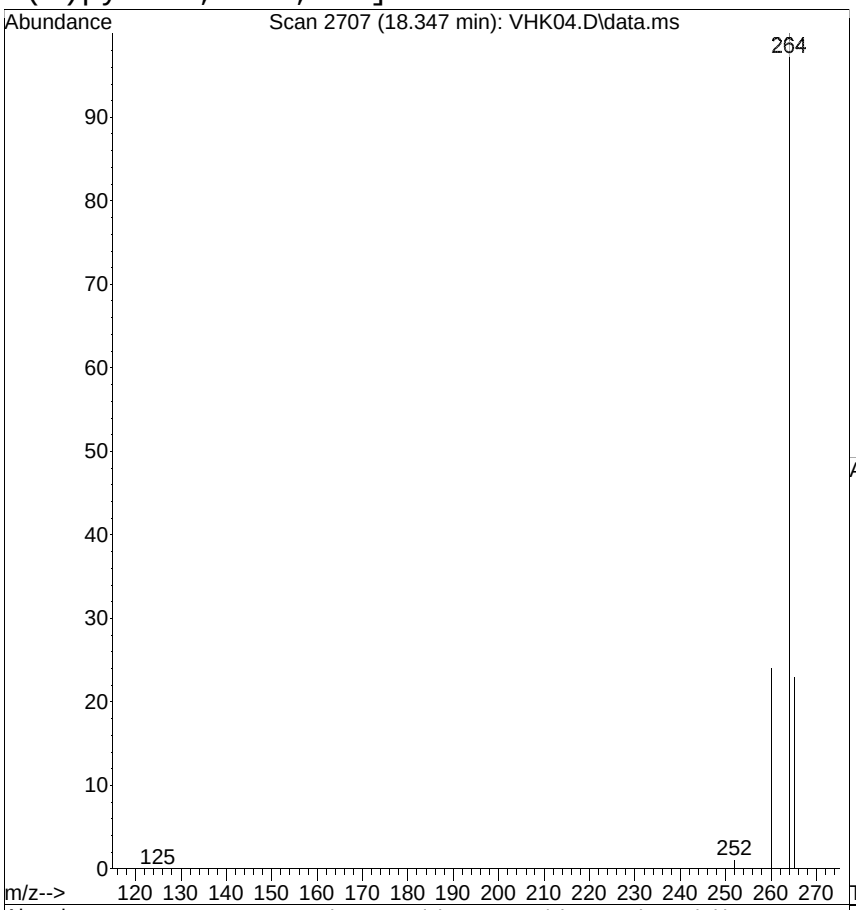
Ref





[Benzo(a)pyrene; <RL; u]

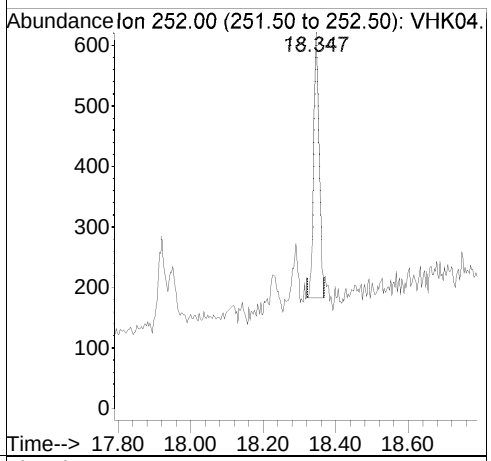
Raw



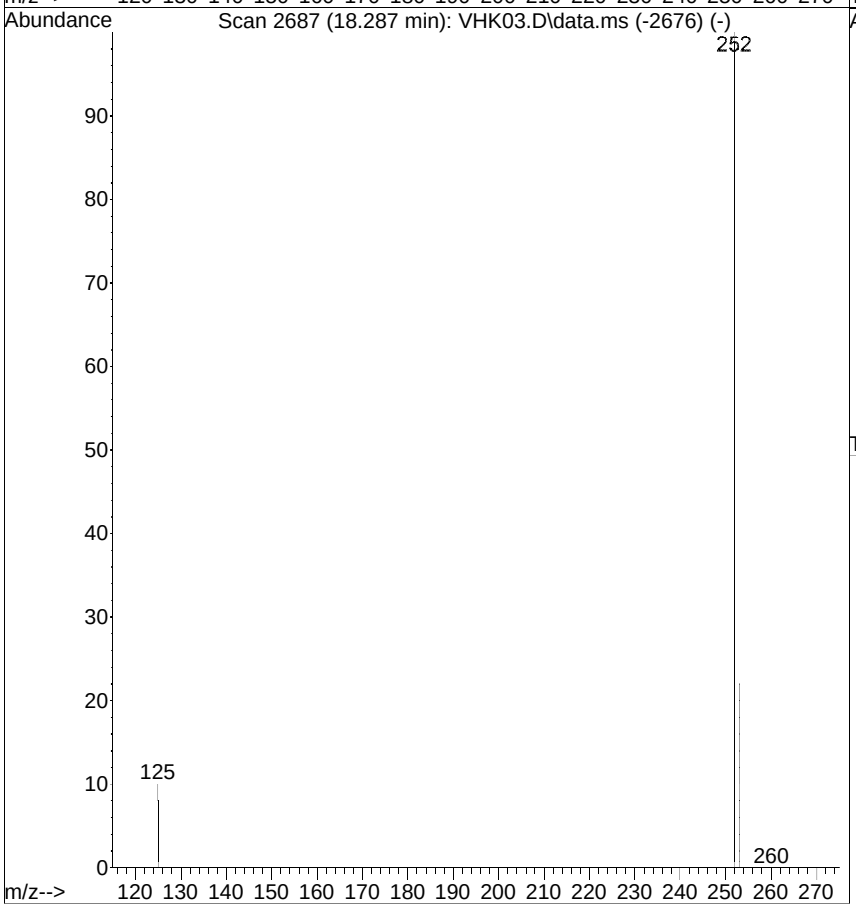
#26
Benzo(a)pyrene
Concen: 0.0032 ug/mL
RT: 18.347 min Scan# 2707
Delta R.T. 0.060 min
Lab File: VHK04.D
Acq: 20 Aug 2014 12:43 pm

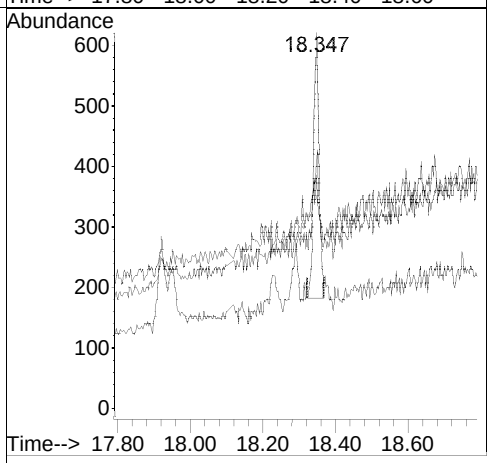
Tgt Ion:252 Resp: 445

Ion	Ratio	Lower	Upper
252	100		
253	65.1	3.4	43.4#
125	62.2	0.0	20.9#



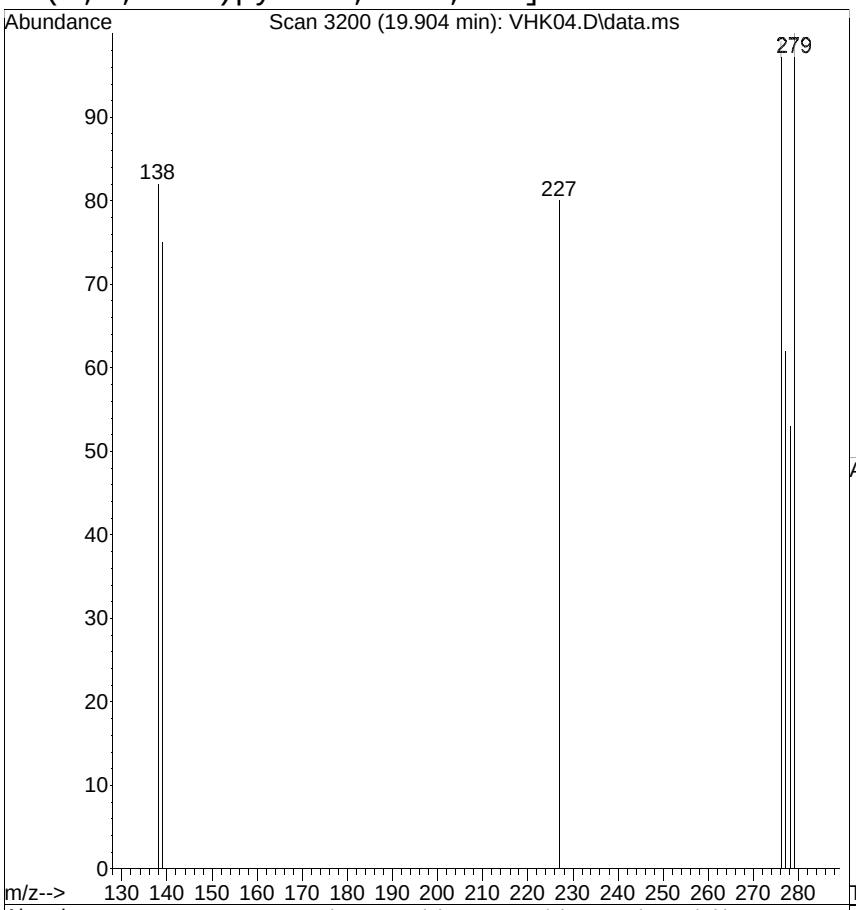
Ref





[Indeno(1,2,3-cd)pyrene; <RL; u]

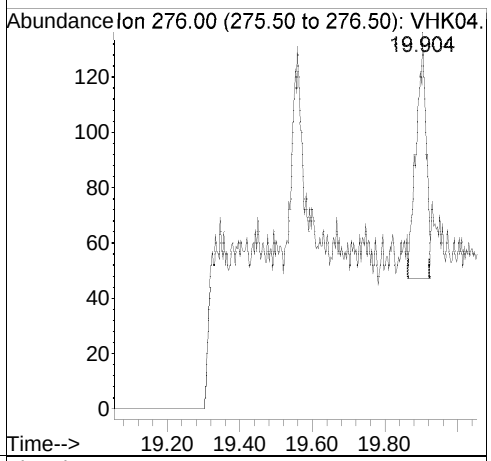
Raw



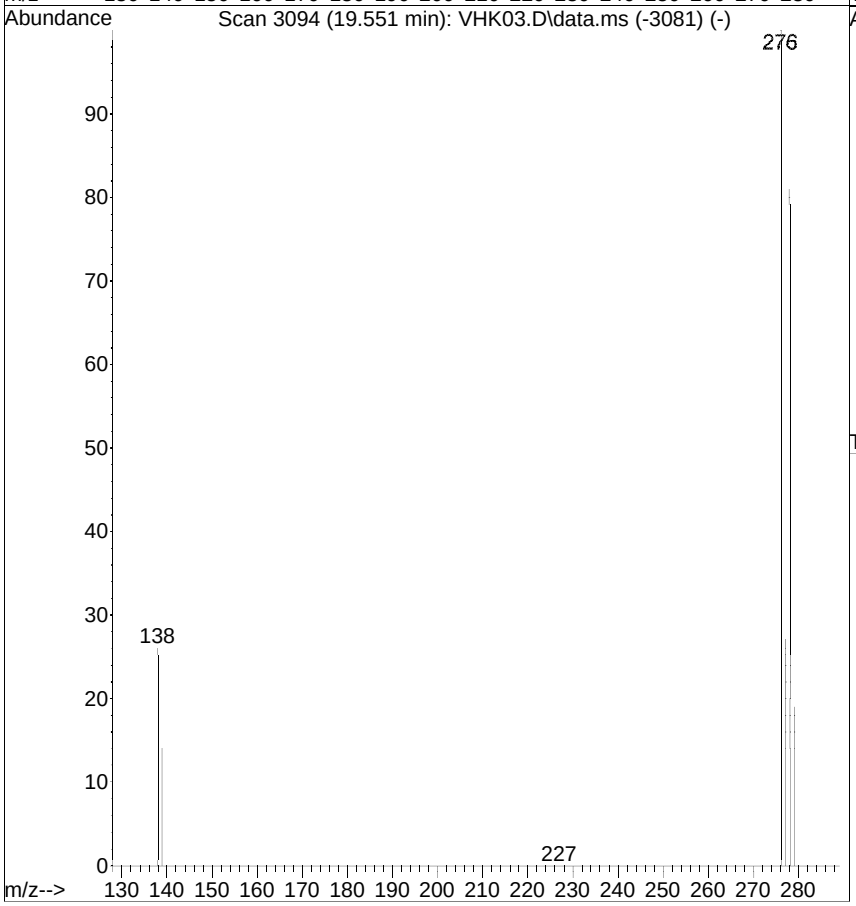
#27
Indeno(1,2,3-cd)pyrene
Concen: 0.0012 ug/mL
RT: 19.904 min Scan# 3200
Delta R.T. 0.353 min
Lab File: VHK04.D
Acq: 20 Aug 2014 12:43 pm

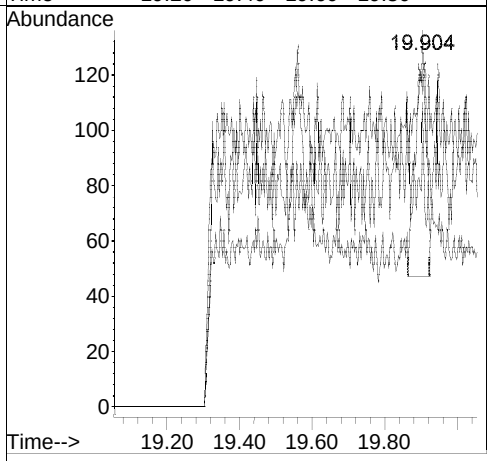
Tgt Ion:276 Resp: 168

Ion	Ratio	Lower	Upper
276	100		
138	83.1	0.0	23.1#
227	80.9	0.0	21.0#



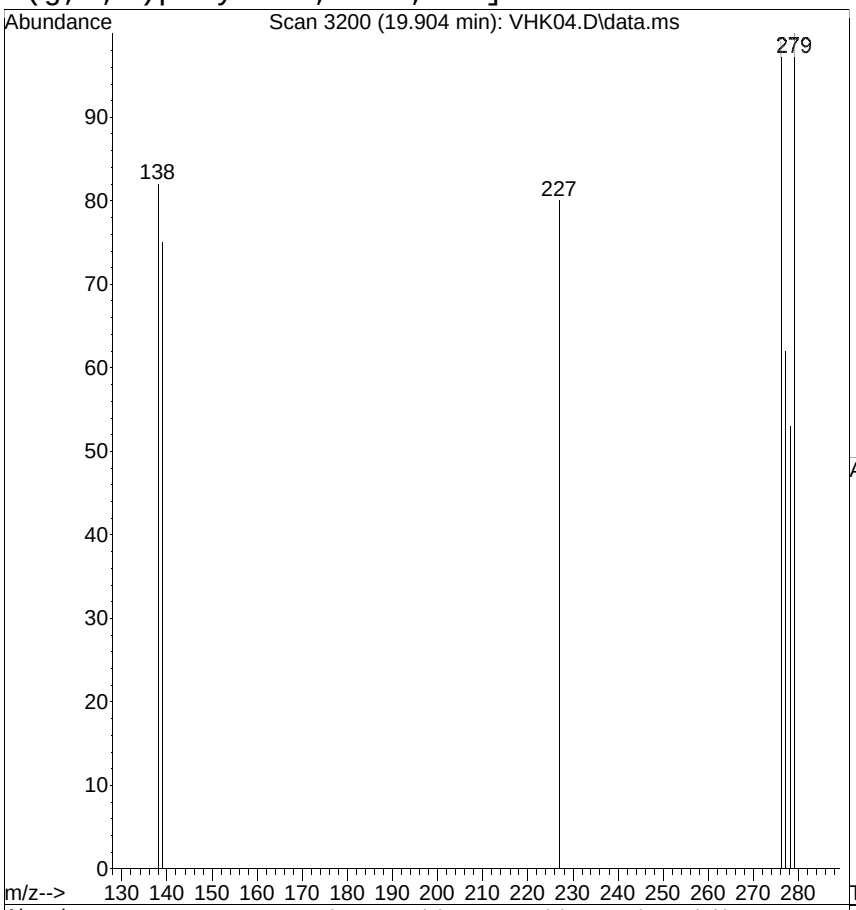
Ref





[Benzo(g,h,i)perylene; <RL; u]

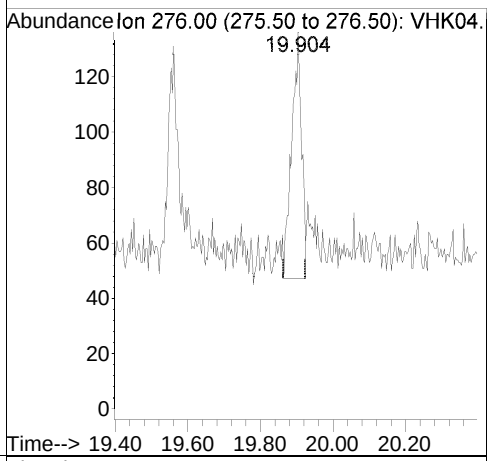
Raw



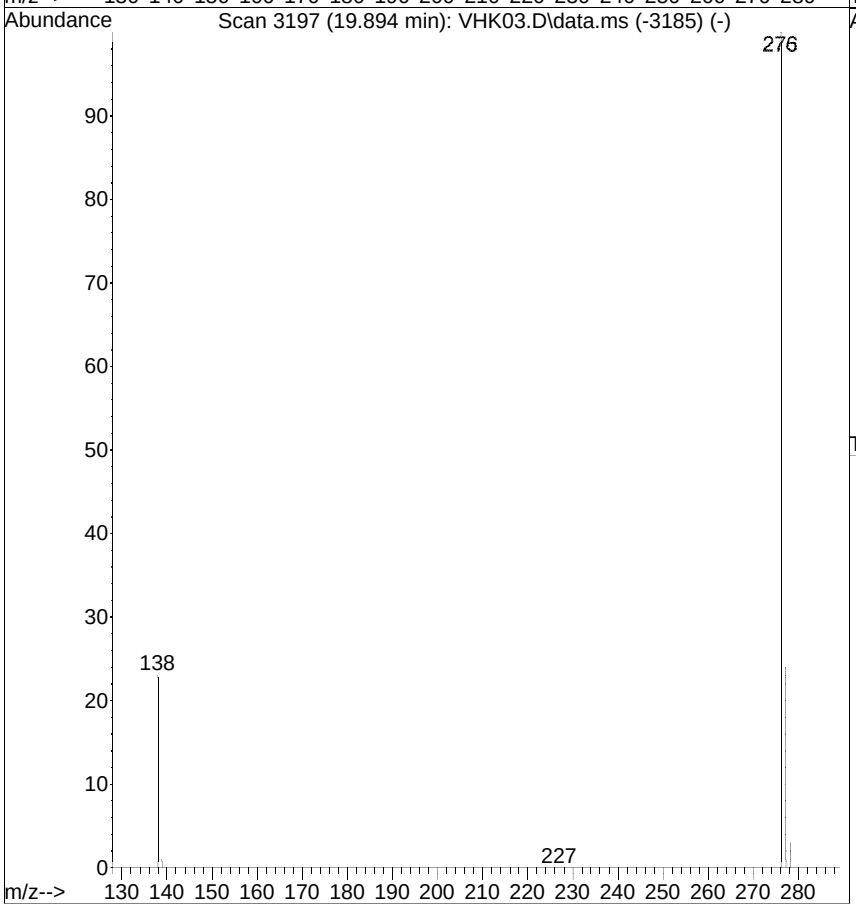
#29
Benzo(g,h,i)perylene
Concen: 0.0014 ug/mL
RT: 19.904 min Scan# 3200
Delta R.T. 0.010 min
Lab File: VHK04.D
Acq: 20 Aug 2014 12:43 pm

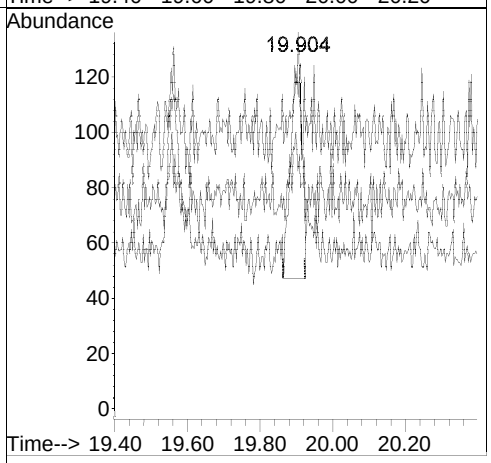
Tgt Ion:276 Resp: 168

Ion	Ratio	Lower	Upper
276	100		
138	83.1	0.0	22.1#
277	63.2	2.5	42.5#



Ref





CURTIS & TOMPKINS SPIKE USER REPORT FOR 259835 MSSIM Water
EPA 8270D-SIM

Type : LCS
Inst : MSBNA03
Seqnum : 524334764005.3
File : vhk05
IDF : 1.0
Lab ID : QC754153
Matrix : Water
Batch : 214554
Time : 20-AUG-2014 13:15
Cal : 524271263002
Units : ug/L

LCS: 1000.00 mL --> 1.0 ml = 0.001 ml/ml PDF

Analyte	Spiked	Raw	LCS	%Rec	Limits	Flags
Naphthalene	1.000	0.7952	0.7952	80	40-100	u
2-Methylnaphthalene	1.000	0.7797	0.7797	78	45-105	u
Acenaphthylene	1.000	0.8075	0.8075	81	50-105	u
Acenaphthene	1.000	0.8164	0.8164	82	45-110	u
Fluorene	1.000	0.8879	0.8879	89	50-110	u
Phenanthrene	1.000	0.8270	0.8270	83	50-115	u
Anthracene	1.000	0.7890	0.7890	79	55-110	u
Fluoranthene	1.000	0.8629	0.8629	86	55-115	u
Pyrene	1.000	0.8313	0.8313	83	50-130	u
Benzo(a)anthracene	1.000	0.7752	0.7752	78	55-110	u
Chrysene	1.000	0.7475	0.7475	75	55-110	u
Benzo(b)fluoranthene	1.000	0.7937	0.7937	79	45-120	u
Benzo(k)fluoranthene	1.000	0.8476	0.8476	85	45-125	u
Benzo(a)pyrene	1.000	0.7250	0.7250	73	55-110	u
Indeno(1,2,3-cd)pyrene	1.000	0.7197	0.7197	72	45-125	u
Dibenz(a,h)anthracene	1.000	0.6440	0.6440	64	40-125	u
Benzo(g,h,i)perylene	1.000	0.7680	0.7680	77	40-125	u
Nitrobenzene-d5	1.000	0.7428	0.7428	74	40-110	u
2-Fluorobiphenyl	1.000	0.7530	0.7530	75	50-110	u
Terphenyl-d14	1.000	0.7661	0.7661	77	50-135	u

ISTD (ICAL vg723)	ICAL Abund	LCS Abund	%Drift
Naphthalene-d8	113951	147837	29.74
Acenaphthene-d10	66733	87175	30.63
Phenanthrene-d10	117708	166901	41.79
Chrysene-d12	117775	171626	45.72
Perylene-d12	94243	137851	46.27

ISTD (CCV vhk03)	CCV RT	LCS RT	Drift
Naphthalene-d8	8.93	8.93	0.00
Acenaphthene-d10	11.23	11.23	0.00
Phenanthrene-d10	13.17	13.18	0.01
Chrysene-d12	16.62	16.62	0.00
Perylene-d12	18.35	18.35	0.00

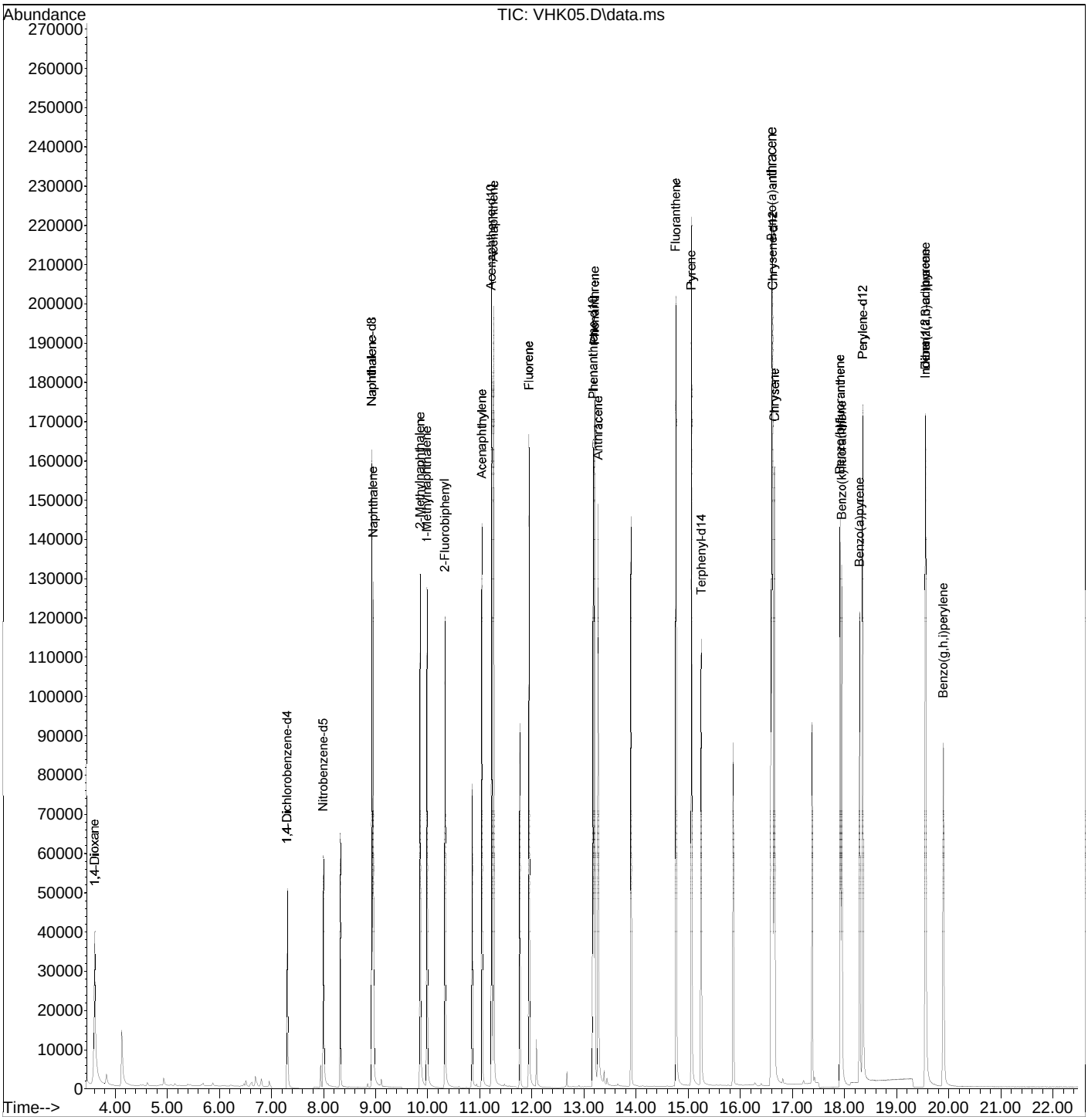
Analyst: KMH Date: 08/22/14 Reviewer: LW Date: 08/27/14

u=use

Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082014\
Data File : VHK05.D
Acq On : 20 Aug 2014 1:15 pm
Operator :
Sample : LCS,QC754153
Misc : 214554,1,
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 20 13:39:01 2014
Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
Quant Title : MSBNA03 BNASIM
QLast Update : Wed Aug 20 13:06:06 2014
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082014\
Data File : VHK05.D
Acq On : 20 Aug 2014 1:15 pm
Operator :
Sample : LCS,QC754153
Misc : 214554,1,
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 20 13:39:01 2014
Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
Quant Title : MSBNA03 BNASIM
QLast Update : Wed Aug 20 13:06:06 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.309	152	40800	1.0000	ug/mL	0.00
3) Naphthalene-d8	8.932	136	147837	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.231	164	87175	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.177	188	166901	1.0000	ug/mL	0.00
18) Chrysene-d12	16.621	240	171626	1.0000	ug/mL	0.00
23) Perylene-d12	18.349	264	137851	1.0000	ug/mL	0.00

Target Compounds						Qvalue
2) 1,4-Dioxane	3.614	88	48575	2.3796	ug/mL	97
4) Nitrobenzene-d5	8.002	82	33988	0.7428	ug/mL	# 73
5) Naphthalene	8.960	128	102943	0.7952	ug/mL	99
6) 2-Methylnaphthalene	9.857	142	75429	0.7797	ug/mL	99
7) 1-Methylnaphthalene	9.989	142	71150	0.7932	ug/mL	97
9) 2-Fluorobiphenyl	10.334	172	94664	0.7530	ug/mL	95
10) Acenaphthylene	11.044	152	106947	0.8075	ug/mL	98
11) Acenaphthene	11.271	154	68700	0.8164	ug/mL	93
12) Fluorene	11.947	166	85672	0.8879	ug/mL	97
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.207	178	136025	0.8270	ug/mL	98
16) Anthracene	13.272	178	120464	0.7890	ug/mL	98
17) Fluoranthene	14.763	202	154737	0.8629	ug/mL	97
19) Pyrene	15.064	202	161443	0.8313	ug/mL	99
20) Terphenyl-d14	15.250	244	111003	0.7661	ug/mL	90
21) Benzo(a)anthracene	16.606	228	130067	0.7752	ug/mL	97
22) Chrysene	16.656	228	126586	0.7475	ug/mL	95
24) Benzo(b)fluoranthene	17.915	252	125437	0.7937	ug/mL	97
25) Benzo(k)fluoranthene	17.945	252	132131	0.8476	ug/mL	96
26) Benzo(a)pyrene	18.288	252	104816	0.7250	ug/mL	97
27) Indeno(1,2,3-cd)pyrene	19.549	276	107725	0.7197	ug/mL	# 46
28) Dibenz(a,h)anthracene	19.552	278	81522	0.6440	ug/mL	90
29) Benzo(g,h,i)perylene	19.892	276	98957	0.7680	ug/mL	# 92

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

CURTIS & TOMPKINS SPIKE USER REPORT FOR 259835 MSSIM Water
EPA 8270D-SIM

Type : MSS	Type : MS	Type : MSD
Inst : MSBNA03	Inst : MSBNA04	Inst : MSBNA04
Seqnum : 524334764008	Seqnum : 534336091011.2	Seqnum : 534336091012.2
File : vhk08	File : whl11	File : whl12
IDF : 1.0	IDF : 1.0	IDF : 1.0
Lab ID : 259786-001	Lab ID : QC754154	Lab ID : QC754155
Matrix : Water	Matrix : Water	Matrix : Water
Batch : 214554	Batch : 214554	Batch : 214554
Time : 20-AUG-2014 14:56	Time : 21-AUG-2014 13:18	Time : 21-AUG-2014 13:49
Cal : 524271263002	Cal : 534275763001	Cal : 534275763001
Units : ug/L		

MSS: 1040.00 mL --> 1.0 ml = 0.0009615 ml/ml PDF
MS: 1020.00 mL --> 1.0 ml = 0.0009804 ml/ml PDF
MSD: 1040.00 mL --> 1.0 ml = 0.0009615 ml/ml PDF

Analyte	MSS	Spiked	MS Raw	MS Result	%Rec	Spiked	MSD Raw	MSD Result	%Rec	Limits	RPD	Lim	Flags
Naphthalene	0.04452 J	0.9804	0.7202	0.7061	67	0.9615	0.7578	0.7287	71	40-100	5	30	u
2-Methylnaphthalene	0.01971 J	0.9804	0.7593	0.7444	74	0.9615	0.7816	0.7515	76	45-105	3	30	u
Acenaphthylene	0.03000 J	0.9804	0.7033	0.6895	67	0.9615	0.7584	0.7292	73	50-105	7	30	u
Acenaphthene	0.02875 J	0.9804	0.7246	0.7104	70	0.9615	0.7432	0.7146	71	45-110	2	30	u
Fluorene	0.06202 J	0.9804	0.7941	0.7785	73	0.9615	0.8226	0.7910	76	50-110	3	30	m u
Phenanthrene	0.3788	0.9804	0.9507	0.9321	56	0.9615	1.002	0.9637	61	50-115	5	30	u
Anthracene	0.03625 J	0.9804	0.6847	0.6713	65	0.9615	0.6834	0.6571	65	55-110	0	30	u
Fluoranthene	0.2172	0.9804	0.9641	0.9452	74	0.9615	0.9909	0.9528	77	55-115	2	30	u
Pyrene	0.2482	0.9804	0.8726	0.8555	62	0.9615	0.9432	0.9069	69	50-130	7	30	u
Benzo(a)anthracene	0.02058 J	0.9804	0.7587	0.7438	74	0.9615	0.7926	0.7621	77	55-110	4	30	u
Chrysene	ND	0.9804	0.6730	0.6598	67	0.9615	0.7165	0.6889	72	55-110	6	30	u
Benzo(b)fluoranthene	0.02913 J	0.9804	0.7359	0.7215	71	0.9615	0.7835	0.7534	75	45-120	6	30	u
Benzo(k)fluoranthene	ND	0.9804	0.7091	0.6952	71	0.9615	0.7130	0.6856	71	45-125	1	30	u
Benzo(a)pyrene	ND	0.9804	0.6847	0.6713	68	0.9615	0.7220	0.6942	72	55-110	5	30	u
Indeno(1,2,3-cd)pyrene	ND	0.9804	0.7022	0.6884	70	0.9615	0.7144	0.6869	71	45-125	2	30	u
Dibenz(a,h)anthracene	ND	0.9804	0.6381	0.6256	64	0.9615	0.6632	0.6377	66	40-125	4	30	u
Benzo(g,h,i)perylene	ND	0.9804	0.7059	0.6921	71	0.9615	0.7131	0.6857	71	40-125	1	30	u
Nitrobenzene-d5		0.9804	0.6374	0.6249	64	0.9615	0.7051	0.6780	71	40-110			m u
2-Fluorobiphenyl		0.9804	0.6715	0.6583	67	0.9615	0.7084	0.6812	71	50-110			u
Terphenyl-d14		0.9804	0.6661	0.6530	67	0.9615	0.6743	0.6484	67	50-135			u

ISTD (ICAL wga09)	ICAL Abund	MS Abund	%Drift
Naphthalene-d8	237683	158623	-33.26
Acenaphthene-d10	124978	96950	-22.43
Phenanthrene-d10	182537	170711	-6.48
Chrysene-d12	142444	153825	7.99
Perylene-d12	111189	127803	14.94

ISTD (CCV whl09)	CCV RT	MS RT	Drift
Naphthalene-d8	9.41	9.42	0.01
Acenaphthene-d10	11.69	11.69	0.00
Phenanthrene-d10	13.65	13.65	0.01
Chrysene-d12	17.20	17.21	0.01
Perylene-d12	19.14	19.15	0.01

ISTD (ICAL wga09)	ICAL Abund	MSD Abund	%Drift
Naphthalene-d8	237683	179158	-24.62
Acenaphthene-d10	124978	103599	-17.11
Phenanthrene-d10	182537	183574	0.57
Chrysene-d12	142444	161608	13.45
Perylene-d12	111189	133091	19.70

ISTD (CCV whl09)	CCV RT	MSD RT	Drift
Naphthalene-d8	9.41	9.42	0.01
Acenaphthene-d10	11.69	11.69	0.00
Phenanthrene-d10	13.65	13.65	0.01
Chrysene-d12	17.20	17.21	0.01
Perylene-d12	19.14	19.15	0.01

KMH 08/21/14 [1,4-Dioxane]: Corrected automatically drawn baseline for spike & dup. [general version]

KMH 08/21/14 [Fluorene]: Corrected automatically drawn baseline for spike. [general version]

KMH 08/21/14 [Nitrobenzene-d5]: Corrected automatically drawn baseline for dup. [general version]

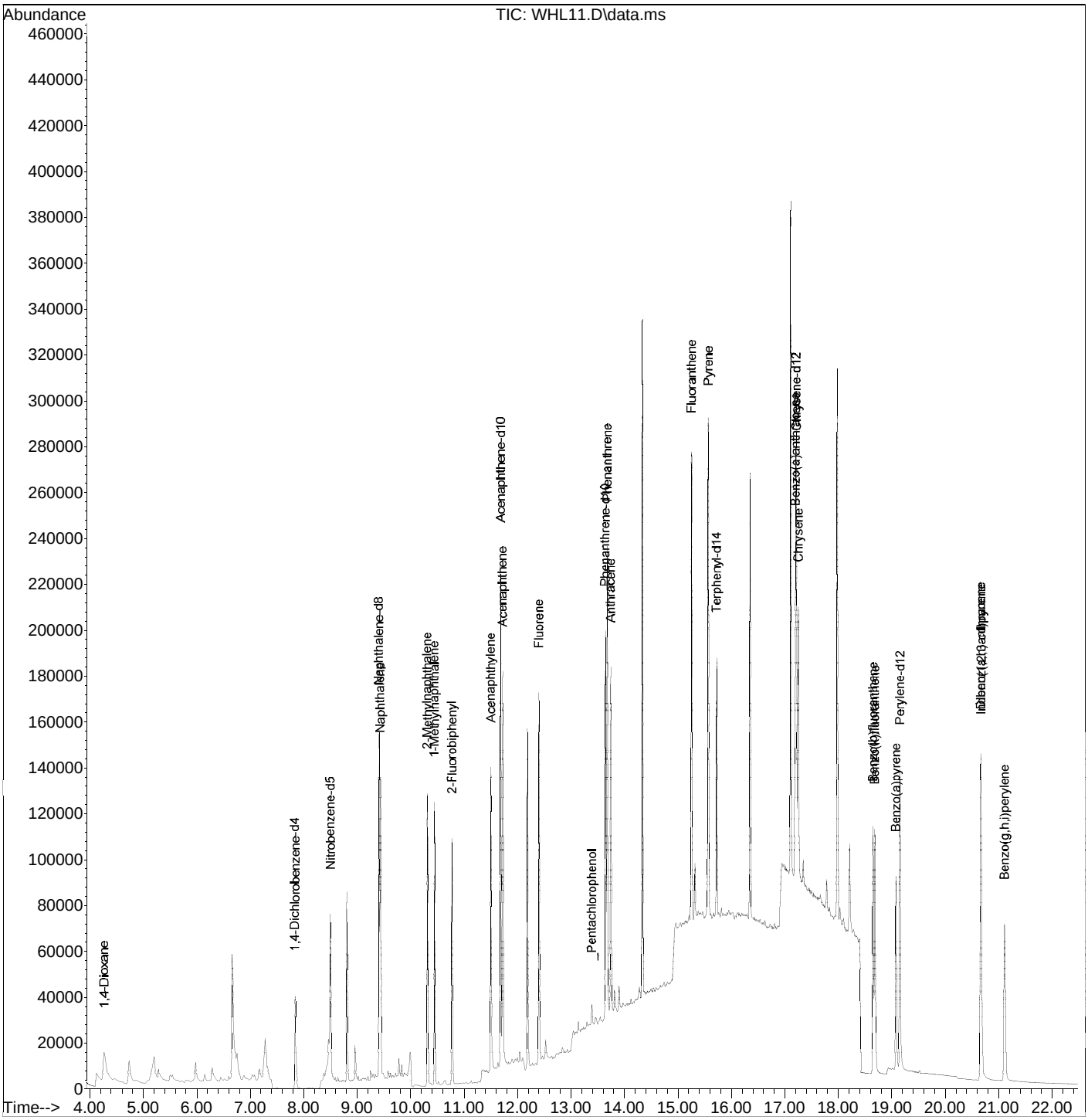
Analyst: KMH Date: 08/22/14 Reviewer: LW Date: 08/27/14

m=manual integration u=use

Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\082114\
Data File : WHL11.D
Acq On : 21 Aug 2014 1:18 pm
Operator :
Sample : MS,QC754154
Misc : 214554,1,
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 21 14:44:26 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Thu Aug 21 12:34:48 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\082114\
Data File : WHL11.D
Acq On : 21 Aug 2014 1:18 pm
Operator :
Sample : MS,QC754154
Misc : 214554,1,
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 21 14:44:26 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Thu Aug 21 12:34:48 2014
Response via : Initial Calibration

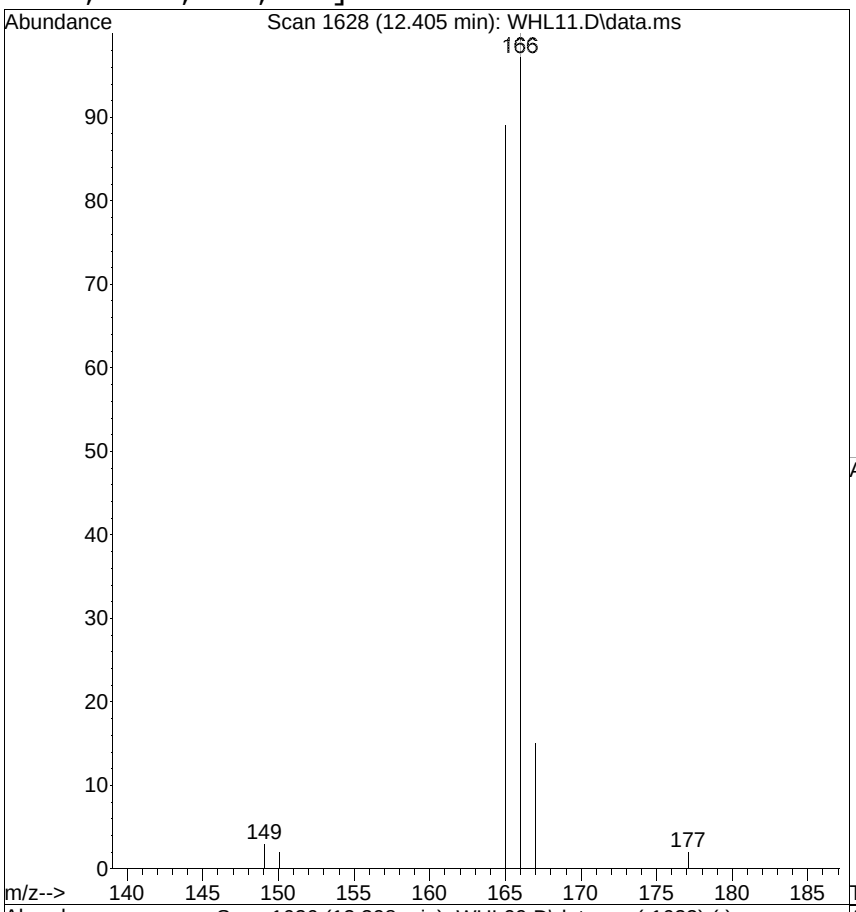
Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.844	152	40133	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.416	136	158623	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.687	164	96950	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.645	188	170711	1.0000	ug/mL	0.00
18) Chrysene-d12	17.214	240	153825	1.0000	ug/mL	0.01
23) Perylene-d12	19.147	264	127803	1.0000	ug/mL	0.01

Target Compounds						Qvalue
2) 1,4-Dioxane	4.270	88	34419m	1.6127	ug/mL	
4) Nitrobenzene-d5	8.505	82	41311	0.6374	ug/mL	97
5) Naphthalene	9.440	128	127755	0.7202	ug/mL	95
6) 2-Methylnaphthalene	10.318	142	77788	0.7593	ug/mL	99
7) 1-Methylnaphthalene	10.450	142	74395	0.7569	ug/mL	97
9) 2-Fluorobiphenyl	10.776	172	88736	0.6715	ug/mL	96
10) Acenaphthylene	11.501	152	116535	0.7033	ug/mL	98
11) Acenaphthene	11.728	154	72578	0.7246	ug/mL	96
12) Fluorene	12.405	166	90473m	0.7941	ug/mL	
14) _Pentachlorophenol	13.392	266	4896	18.5963	ug/mL	94
15) Phenanthrene	13.681	178	172975	0.9507	ug/mL	99
16) Anthracene	13.747	178	121610	0.6847	ug/mL	98
17) Fluoranthene	15.258	202	167369	0.9641	ug/mL	97
19) Pyrene	15.570	202	178904	0.8726	ug/mL	98
20) Terphenyl-d14	15.726	244	107004	0.6661	ug/mL	98
21) Benzo(a)anthracene	17.194	228	109771	0.7587	ug/mL	99
22) Chrysene	17.249	228	99534	0.6730	ug/mL	97
24) Benzo(b)fluoranthene	18.646	252	105318	0.7359	ug/mL	94
25) Benzo(k)fluoranthene	18.680	252	105382	0.7091	ug/mL	95
26) Benzo(a)pyrene	19.074	252	87099	0.6847	ug/mL	95
27) Indeno(1,2,3-cd)pyrene	20.663	276	106908	0.7022	ug/mL	95
28) Dibenz(a,h)anthracene	20.660	278	74866	0.6381	ug/mL	99
29) Benzo(g,h,i)perylene	21.103	276	94523	0.7059	ug/mL #	92

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

[Fluorene; 0.8; MI; u]

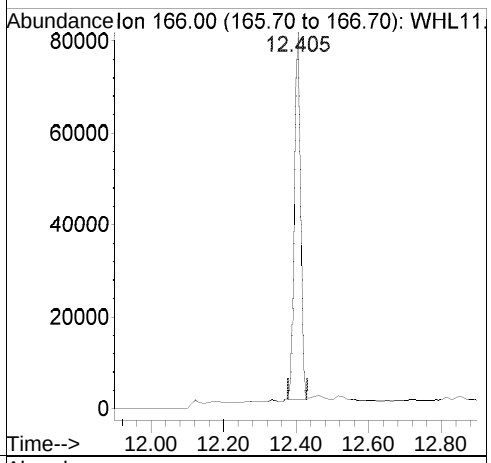
Raw



#12
Fluorene
Concen: 0.7941 ug/mL m
RT: 12.405 min Scan# 1628
Delta R.T. 0.007 min
Lab File: WHL11.D
Acq: 21 Aug 2014 1:18 pm

Tgt Ion:166 Resp: 90473

Ion	Ratio	Lower	Upper
166	100		
165	88.5	71.6	111.6
167	15.2	0.0	34.4



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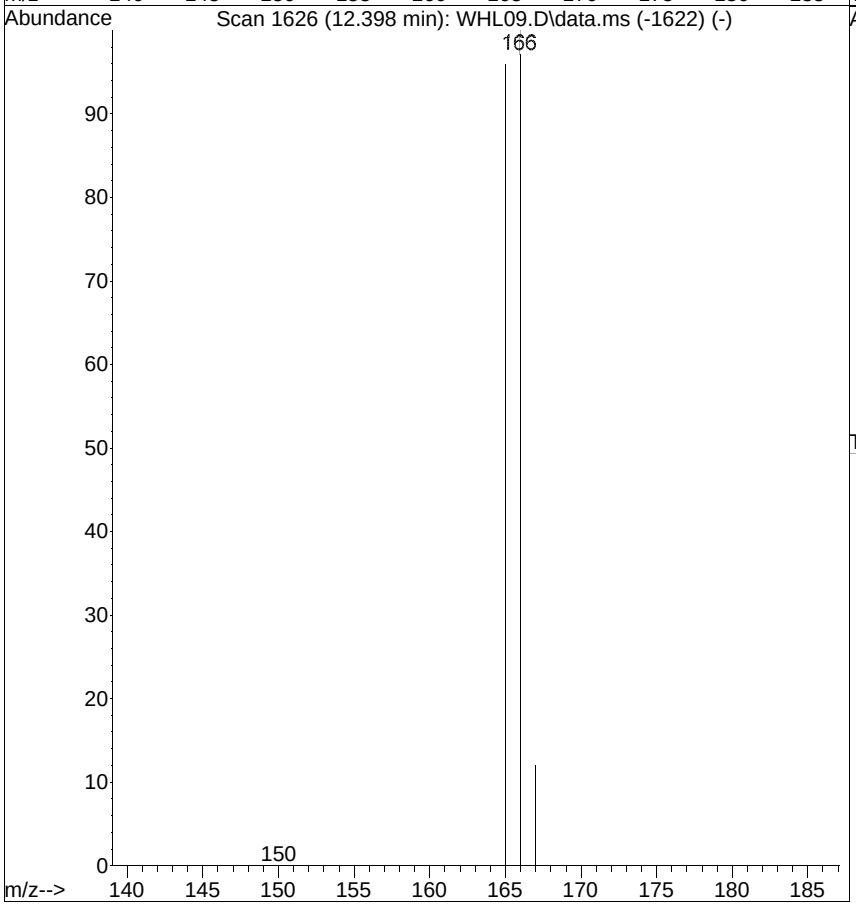
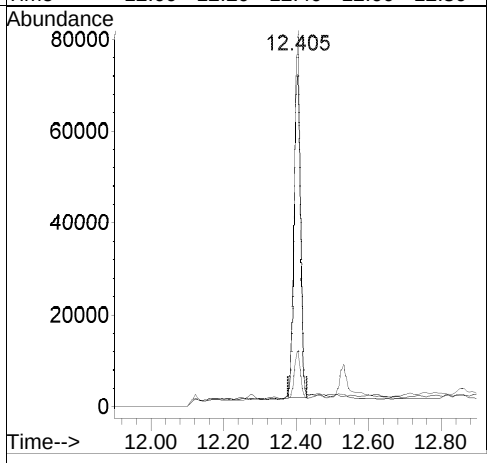
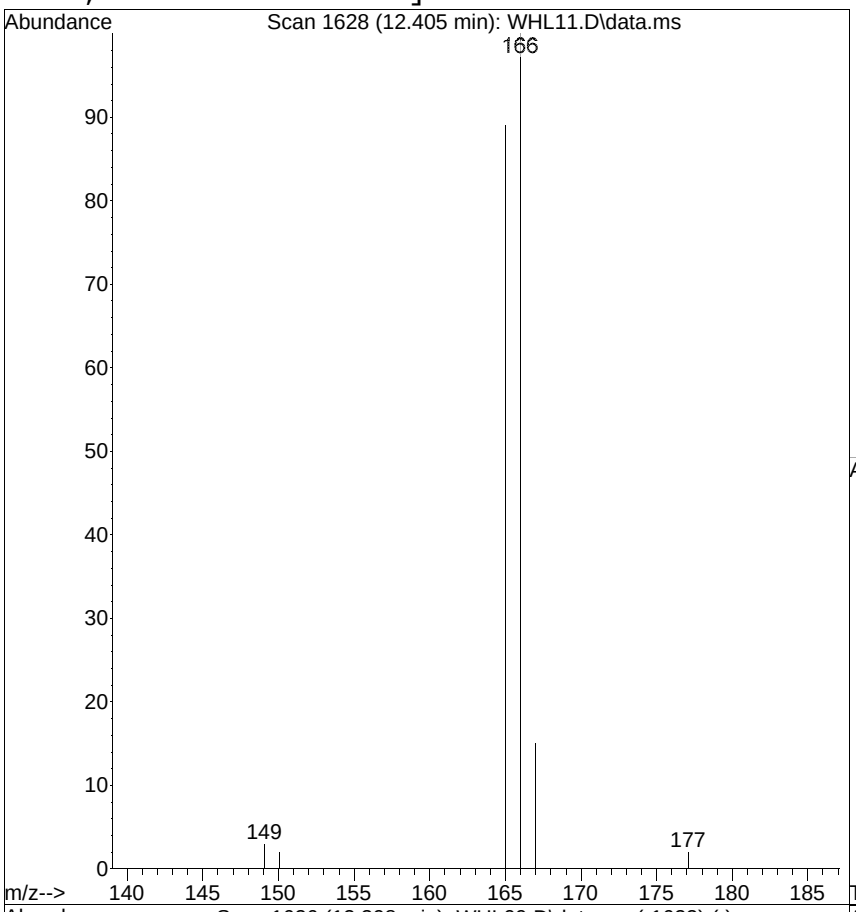




[Fluorene; before version]

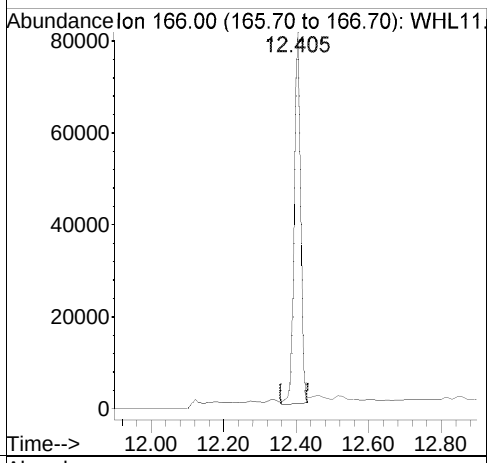
Raw



#12
Fluorene
Concen: 0.8301 ug/mL
RT: 12.405 min Scan# 1628
Delta R.T. 0.007 min
Lab File: WHL11.D
Acq: 21 Aug 2014 1:18 pm

Tgt Ion:166 Resp: 94576

Ion	Ratio	Lower	Upper
166	100		
165	88.5	71.6	111.6
167	15.2	0.0	34.4



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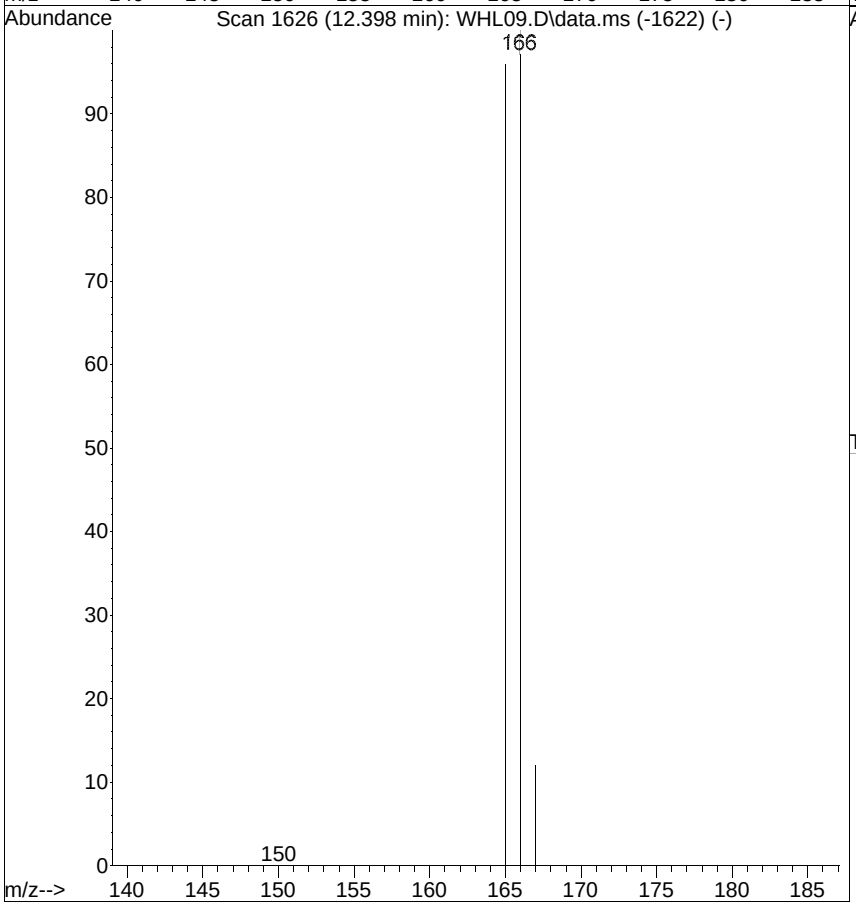
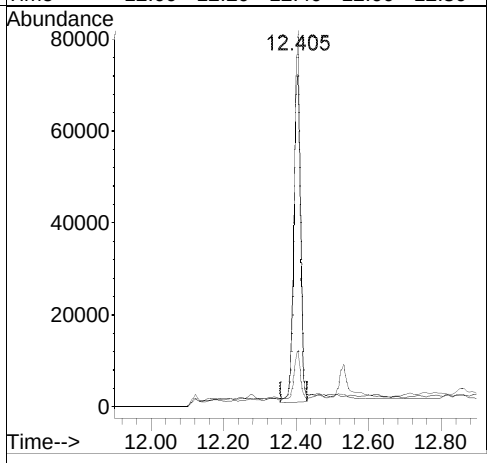
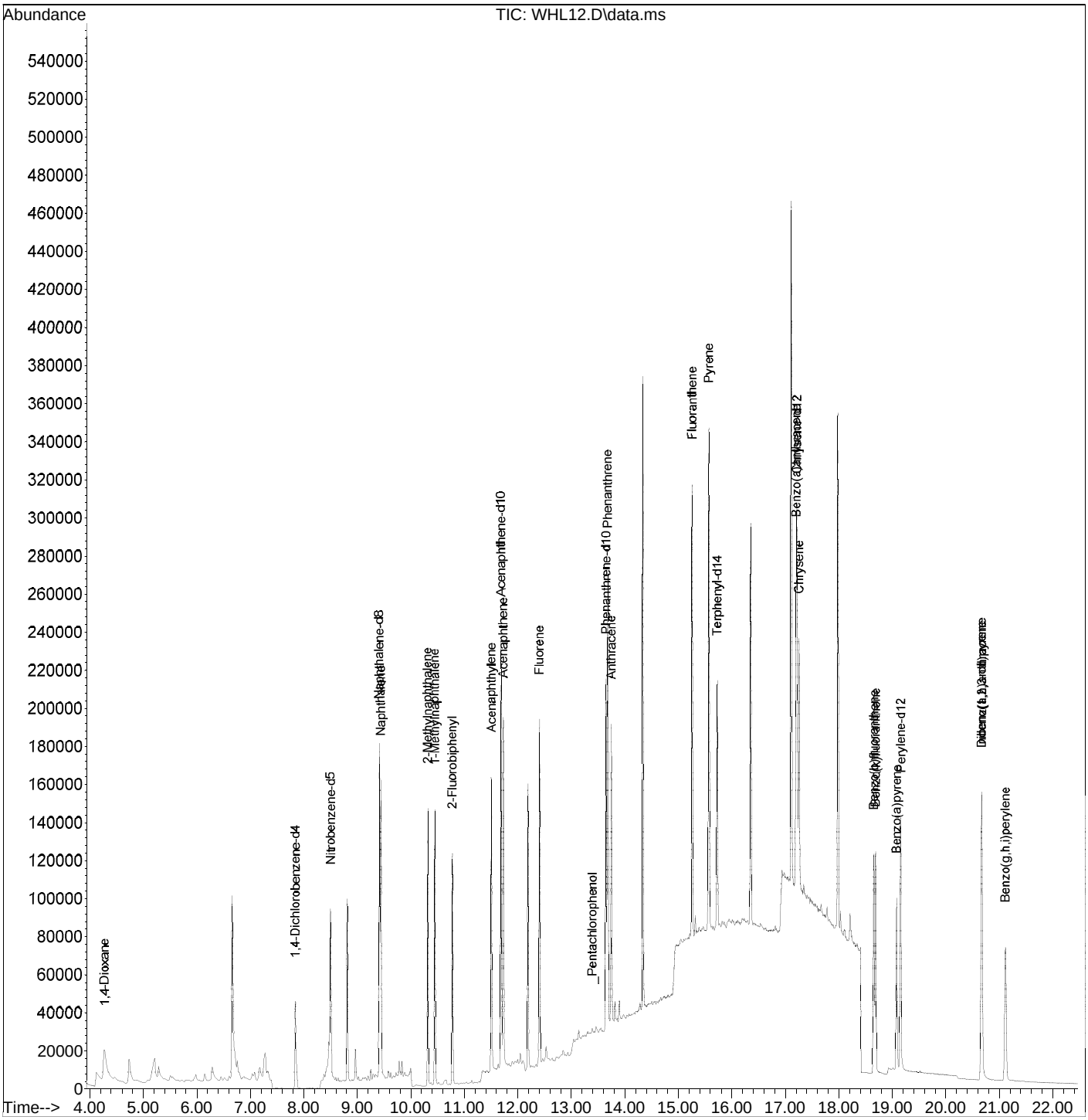




Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\082114\
Data File : WHL12.D
Acq On : 21 Aug 2014 1:49 pm
Operator :
Sample : MSD,QC754155
Misc : 214554,1,
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Aug 21 14:44:54 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Thu Aug 21 12:34:48 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\082114\
Data File : WHL12.D
Acq On : 21 Aug 2014 1:49 pm
Operator :
Sample : MSD,QC754155
Misc : 214554,1,
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Aug 21 14:44:54 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Thu Aug 21 12:34:48 2014
Response via : Initial Calibration

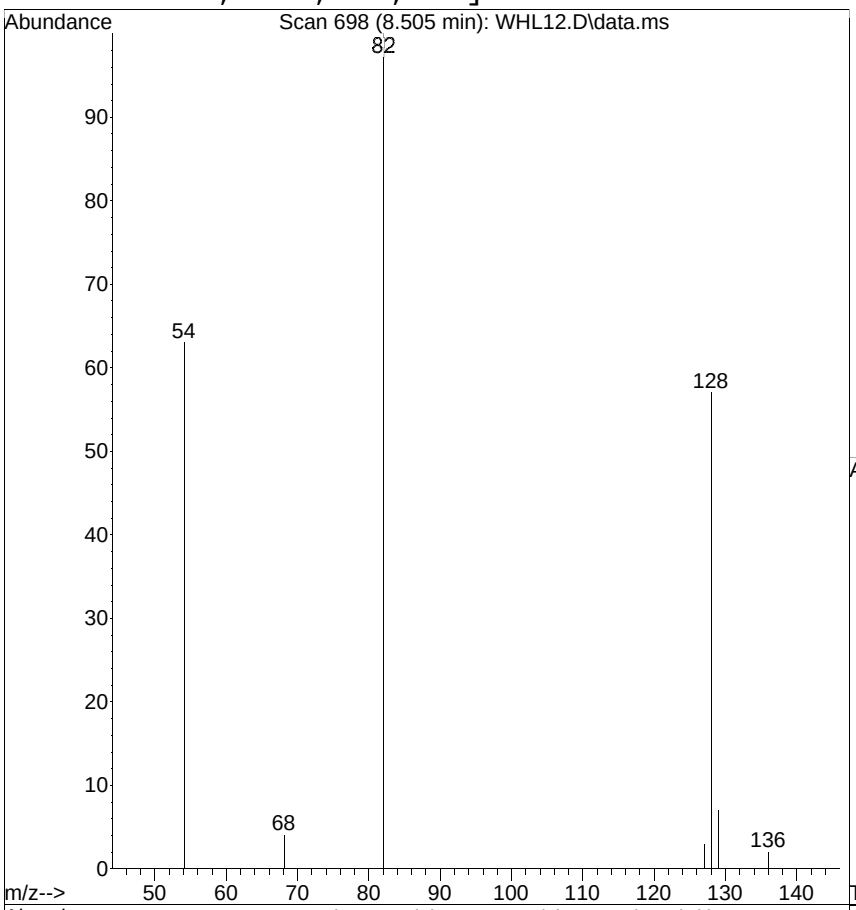
Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.848	152	46019	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.416	136	179158	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.687	164	103599	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.651	188	183574	1.0000	ug/mL	0.00
18) Chrysene-d12	17.214	240	161608	1.0000	ug/mL	0.01
23) Perylene-d12	19.151	264	133091	1.0000	ug/mL	0.01

Target Compounds						Qvalue
2) 1,4-Dioxane	4.282	88	45535m	1.8607	ug/mL	
4) Nitrobenzene-d5	8.505	82	51614m	0.7051	ug/mL	
5) Naphthalene	9.444	128	151826	0.7578	ug/mL	95
6) 2-Methylnaphthalene	10.317	142	90437	0.7816	ug/mL	96
7) 1-Methylnaphthalene	10.449	142	85891	0.7736	ug/mL	93
9) 2-Fluorobiphenyl	10.776	172	100045	0.7084	ug/mL	98
10) Acenaphthylene	11.506	152	134272	0.7584	ug/mL	98
11) Acenaphthene	11.732	154	79546	0.7432	ug/mL	98
12) Fluorene	12.404	166	100146	0.8226	ug/mL	99
14) _Pentachlorophenol	13.392	266	1028	3.6310	ug/mL	94
15) Phenanthrene	13.681	178	196074	1.0022	ug/mL	100
16) Anthracene	13.747	178	130529	0.6834	ug/mL	99
17) Fluoranthene	15.257	202	184977	0.9909	ug/mL	98
19) Pyrene	15.569	202	203168	0.9432	ug/mL	98
20) Terphenyl-d14	15.725	244	113810	0.6743	ug/mL	97
21) Benzo(a)anthracene	17.199	228	120482	0.7926	ug/mL	98
22) Chrysene	17.249	228	111336	0.7165	ug/mL	98
24) Benzo(b)fluoranthene	18.647	252	116761	0.7835	ug/mL	94
25) Benzo(k)fluoranthene	18.683	252	110351	0.7130	ug/mL	94
26) Benzo(a)pyrene	19.074	252	95636	0.7220	ug/mL	94
27) Indeno(1,2,3-cd)pyrene	20.663	276	113277	0.7144	ug/mL	93
28) Dibenz(a,h)anthracene	20.663	278	81021	0.6632	ug/mL	98
29) Benzo(g,h,i)perylene	21.107	276	99448	0.7131	ug/mL #	93

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

[Nitrobenzene-d5; 0.7; MI; u]

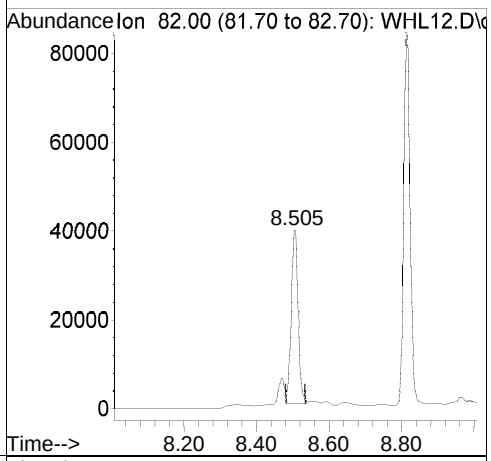
Raw



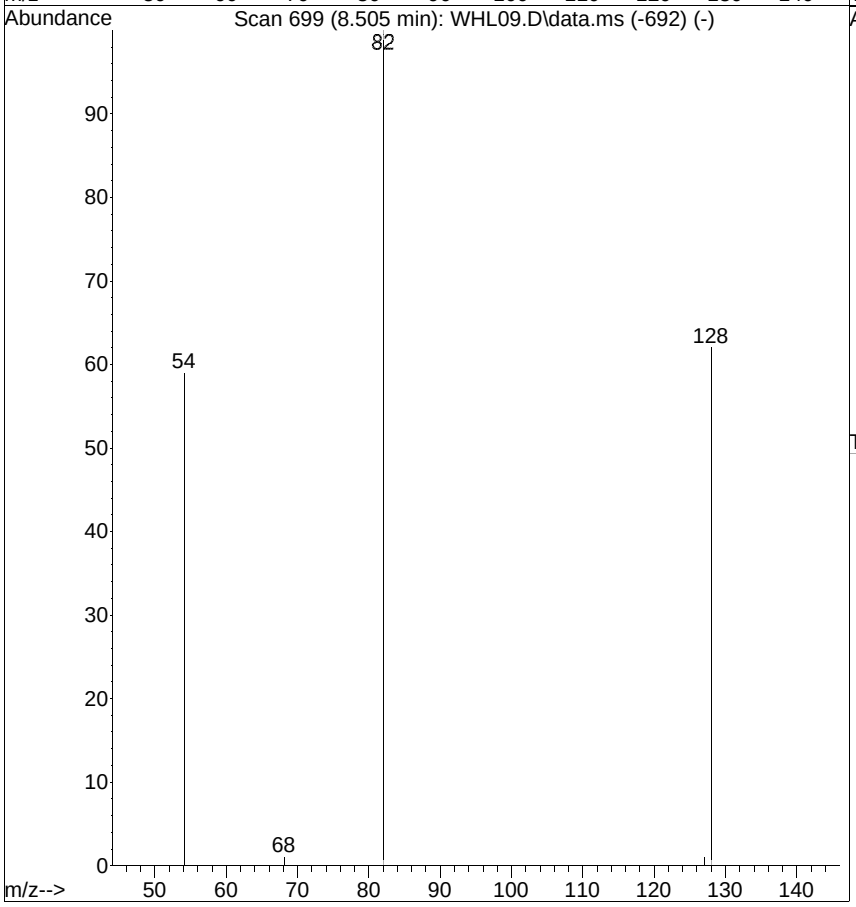
#4
Nitrobenzene-d5
Concen: 0.7051 ug/mL m
RT: 8.505 min Scan# 698
Delta R.T. -0.000 min
Lab File: WHL12.D
Acq: 21 Aug 2014 1:49 pm

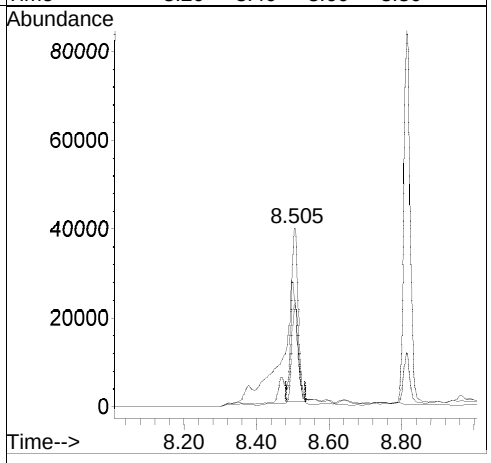
Tgt Ion: 82 Resp: 51614

Ion	Ratio	Lower	Upper
82	100		
128	56.7	35.4	75.4
54	63.0	35.4	75.4



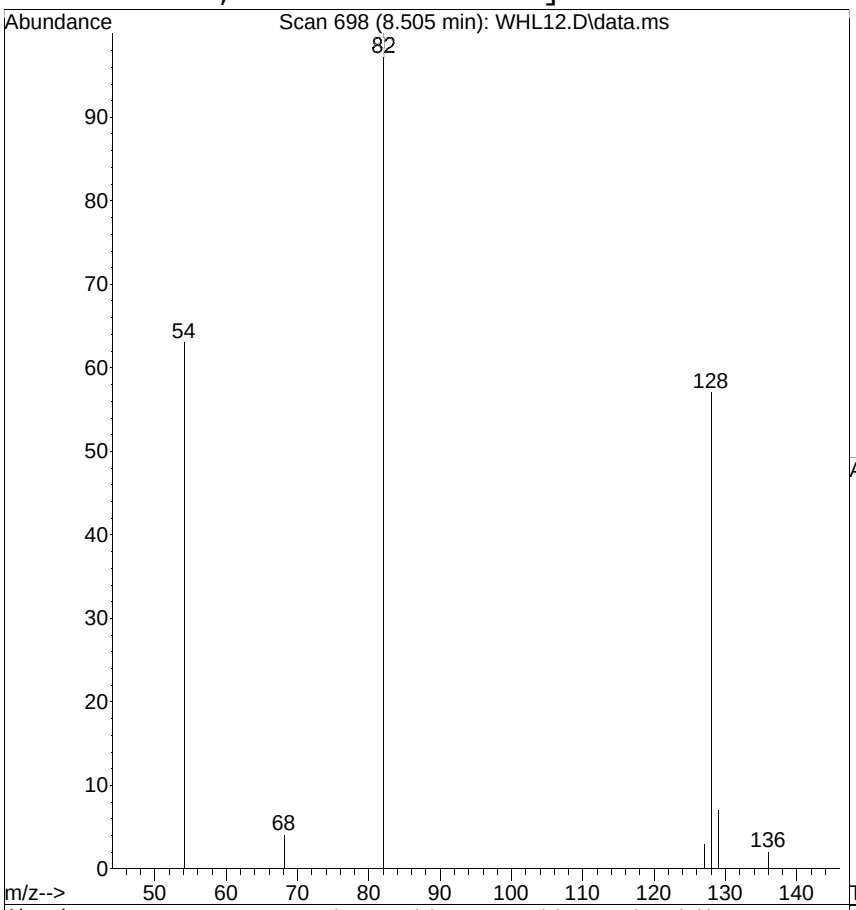
Ref





[Nitrobenzene-d5; before version]

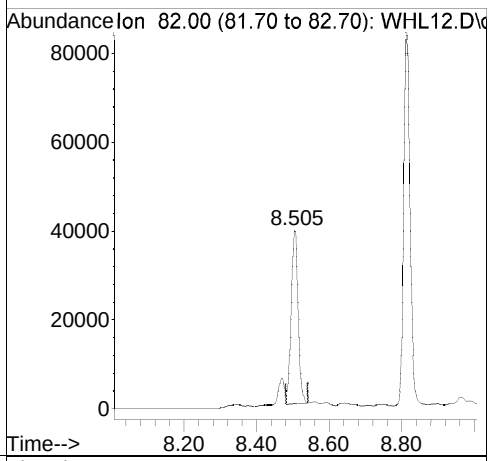
Raw



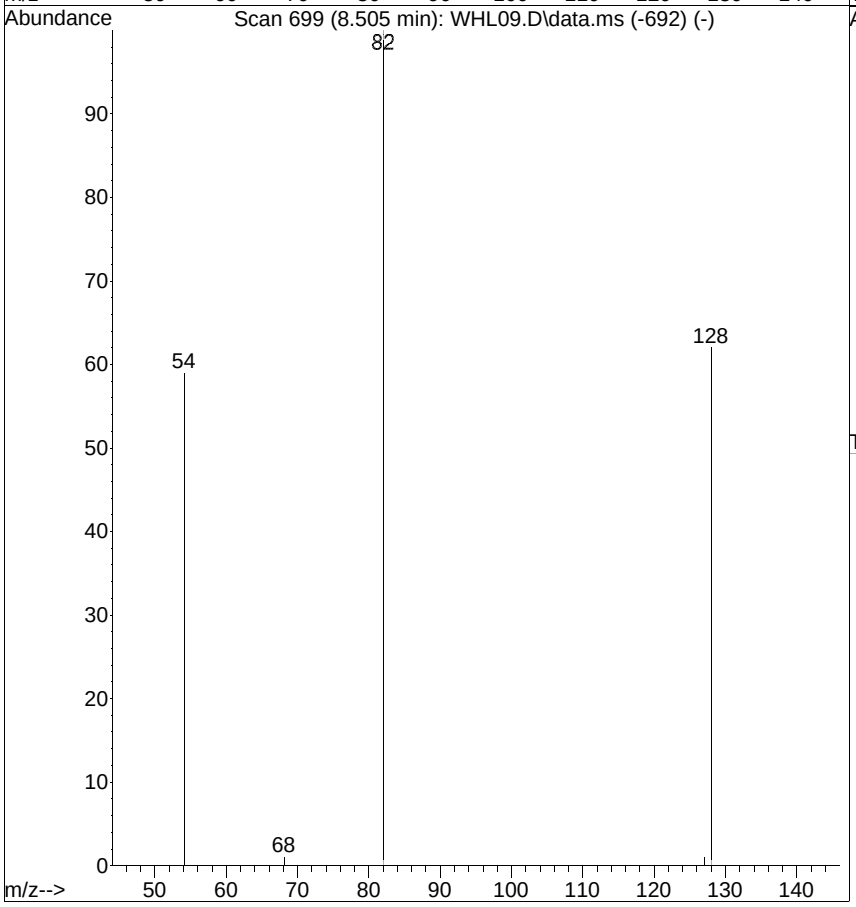
#4
Nitrobenzene-d5
Concen: 0.6963 ug/mL
RT: 8.505 min Scan# 698
Delta R.T. -0.000 min
Lab File: WHL12.D
Acq: 21 Aug 2014 1:49 pm

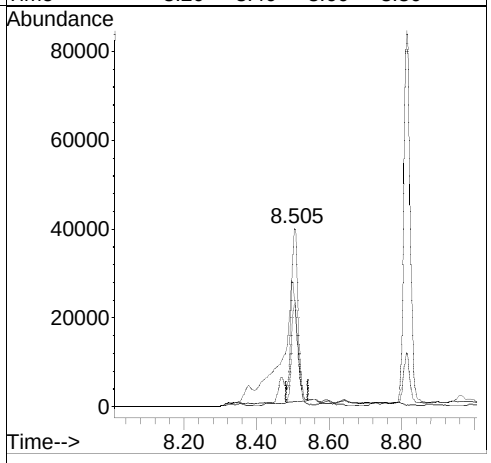
Tgt Ion: 82 Resp: 50967

Ion	Ratio	Lower	Upper
82	100		
128	56.7	35.4	75.4
54	63.0	35.4	75.4



Ref





Initial Calibration Raw Data

CURTIS & TOMPKINS DFTPP TUNE FOR 259835 MSSIM Water
EPA 8270D

Inst : MSBNA03 Run Name : DFTPP IDF : 1.0
Seqnum : 524271263019 File : vg719 Time : 07-JUL-2014 20:11

Standards: S24893

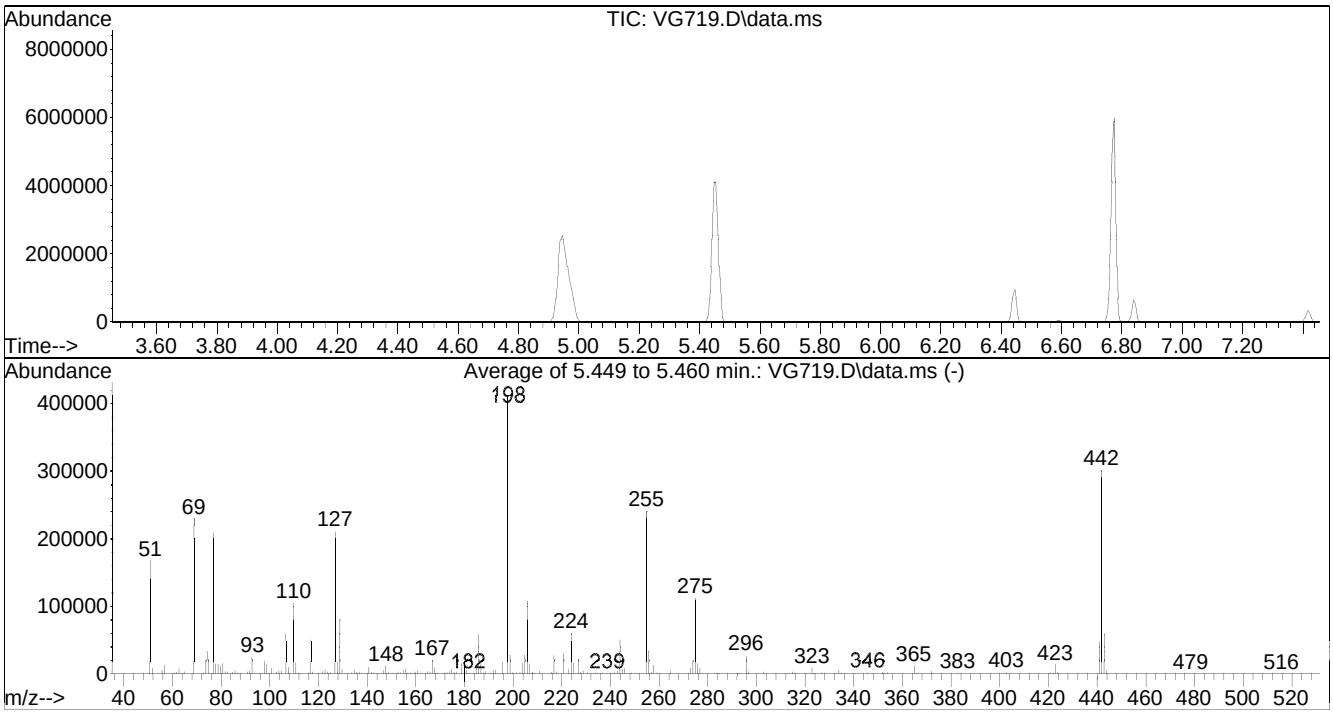
Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	167466	40.80	
68	< 2% of mass 69	0	0.00	
69		229696	100.00	
70	< 2% of mass 69	0	0.00	
127	40% - 60% of mass 198	211157	51.45	
197	< 1% of mass 198	0	0.00	
198		410410	100.00	
199	5% - 9% of mass 198	28728	7.00	
275	10% - 30% of mass 198	111824	27.25	
365	> 1% of mass 198	12139	2.96	
441	Present, < mass 443	47200	79.54	
442	> 40% and < 100% of mass 198	301248	73.40	
443	17% - 23% of mass 442	59344	19.70	

Analyst: KMH Date: 07/08/14 Reviewer: LW Date: 07/08/14

Data Path : G:\msbna03\070714\
Data File : VG719.D
Acq On : 7 Jul 2014 8:11 pm
Operator :
Sample : TUN,S24893
Misc : DFTPP
ALS Vial : 19 Sample Multiplier: 1

Integration File: normal.p

Method : G:\msbna03\070714\DFTPP03.M
Title : MSBNA03 BNA DFTPP/PEM
Last Update : Mon Jul 07 09:40:02 2014



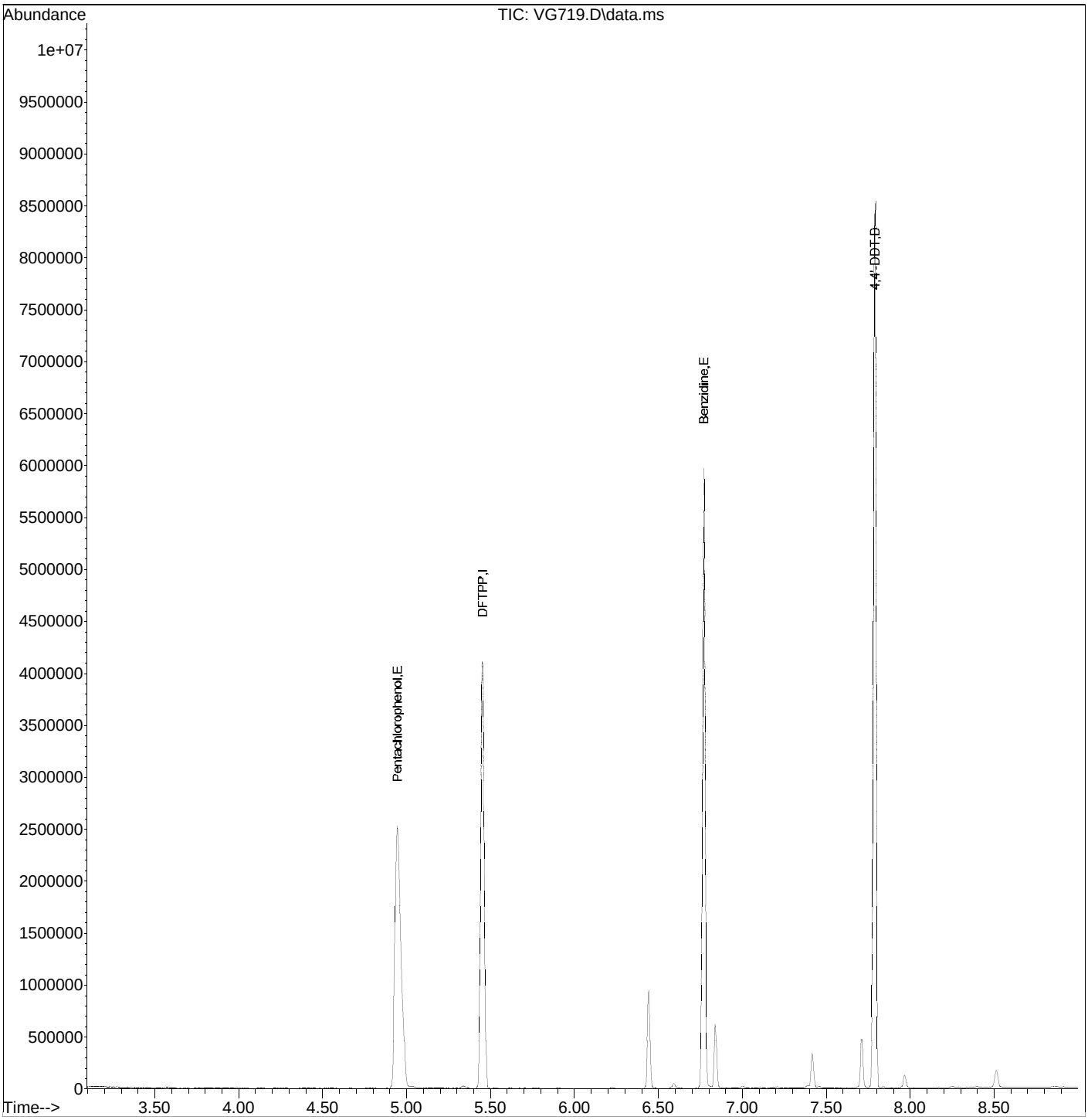
AutoFind: Scans 413, 414, 415; Background Corrected with Scan 406

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	40.8	167466	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	56.0	229696	PASS
70	69	0.00	2	0.0	0	PASS
127	198	40	60	51.5	211157	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	410410	PASS
199	198	5	9	7.0	28728	PASS
275	198	10	30	27.2	111824	PASS
365	198	1	100	3.0	12139	PASS
441	443	0.01	100	79.5	47200	PASS
442	198	40	100	73.4	301248	PASS
443	442	17	23	19.7	59344	PASS

Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\070714\
Data File : VG719.D
Acq On : 7 Jul 2014 8:11 pm
Operator :
Sample : TUN,S24893
Misc : DFTPP
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jul 07 20:20:51 2014
Quant Method : C:\msdchem\1\METHODS\DFTPP03.M
Quant Title : MSBNA03 BNA DFTPP/PEM
QLast Update : Mon Jul 07 09:40:02 2014
Response via : Continuing Cal File: G:\msbna03\070714\VG702.D



Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\070714\
Data File : VG719.D
Acq On : 7 Jul 2014 8:11 pm
Operator :
Sample : TUN,S24893
Misc : DFTPP
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jul 07 20:20:51 2014
Quant Method : C:\msdchem\1\METHODS\DFTPP03.M
Quant Title : MSBNA03 BNA DFTPP/PEM
QLast Update : Mon Jul 07 09:40:02 2014
Response via : Continuing Cal File: G:\msbna03\070714\VG702.D

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
2) DFTPP	5.454	198	679306	50.0000	ug/mL	0.00
4) 4,4'-DDT	7.792	235	1790893	50.0000	ug/mL	0.01

Target Compounds						Qvalue
1) Pentachlorophenol	4.946	266	839301	75.9539	ug/mL	96
3) Benzidine	6.775	184	2532272	41.0850	ug/mL	90
5) 4,4'-DDE	7.003	246	2323	No CC lev	#	
6) 4,4'-DDD	7.792	235	1793760	No CC lev		

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

CURTIS & TOMPKINS DFTPP TUNE FOR 259835 MSSIM Water
EPA 8270D

Inst : MSBNA03 Run Name : DFTPP IDF : 1.0
Seqnum : 524334764002 File : vhk02 Time : 20-AUG-2014 11:50

Standards: S24893

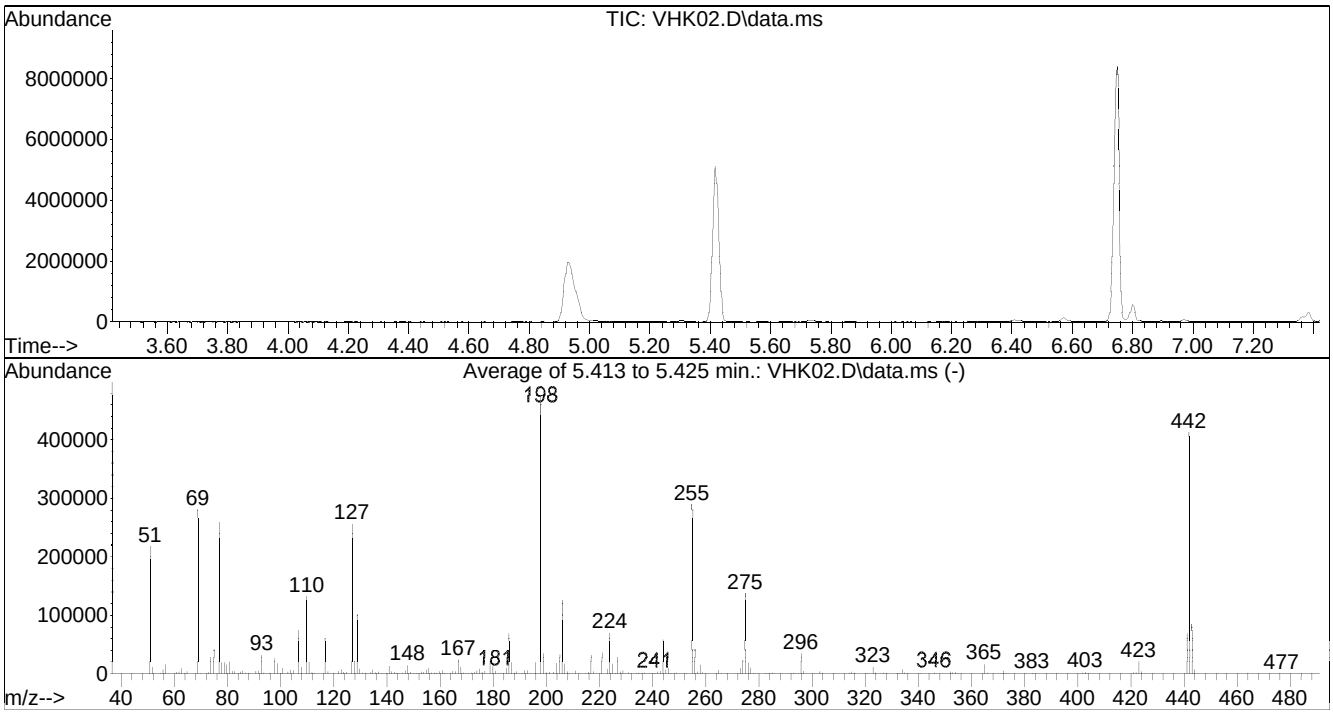
Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	217216	45.86	
68	< 2% of mass 69	0	0.00	
69		280405	100.00	
70	< 2% of mass 69	1313	0.47	
127	40% - 60% of mass 198	255616	53.96	
197	< 1% of mass 198	0	0.00	
198		473685	100.00	
199	5% - 9% of mass 198	34349	7.25	
275	10% - 30% of mass 198	136781	28.88	
365	> 1% of mass 198	16091	3.40	
441	Present, < mass 443	69117	82.62	
442	> 40% and < 100% of mass 198	411584	86.89	
443	17% - 23% of mass 442	83656	20.33	

NPM: 08/20/14 KMH: 08/20/14 LW: 08/27/14

Data Path : G:\msbna03\082014\
Data File : VHK02.D
Acq On : 20 Aug 2014 11:50 am
Operator :
Sample : TUN,S24893
Misc : DFTPP
ALS Vial : 2 Sample Multiplier: 1

Integration File: normal.p

Method : C:\msdchem\1\METHODS\DFTPP03.M
Title : MSBNA03 BNA DFTPP/PEM
Last Update : Fri Aug 15 12:03:51 2014



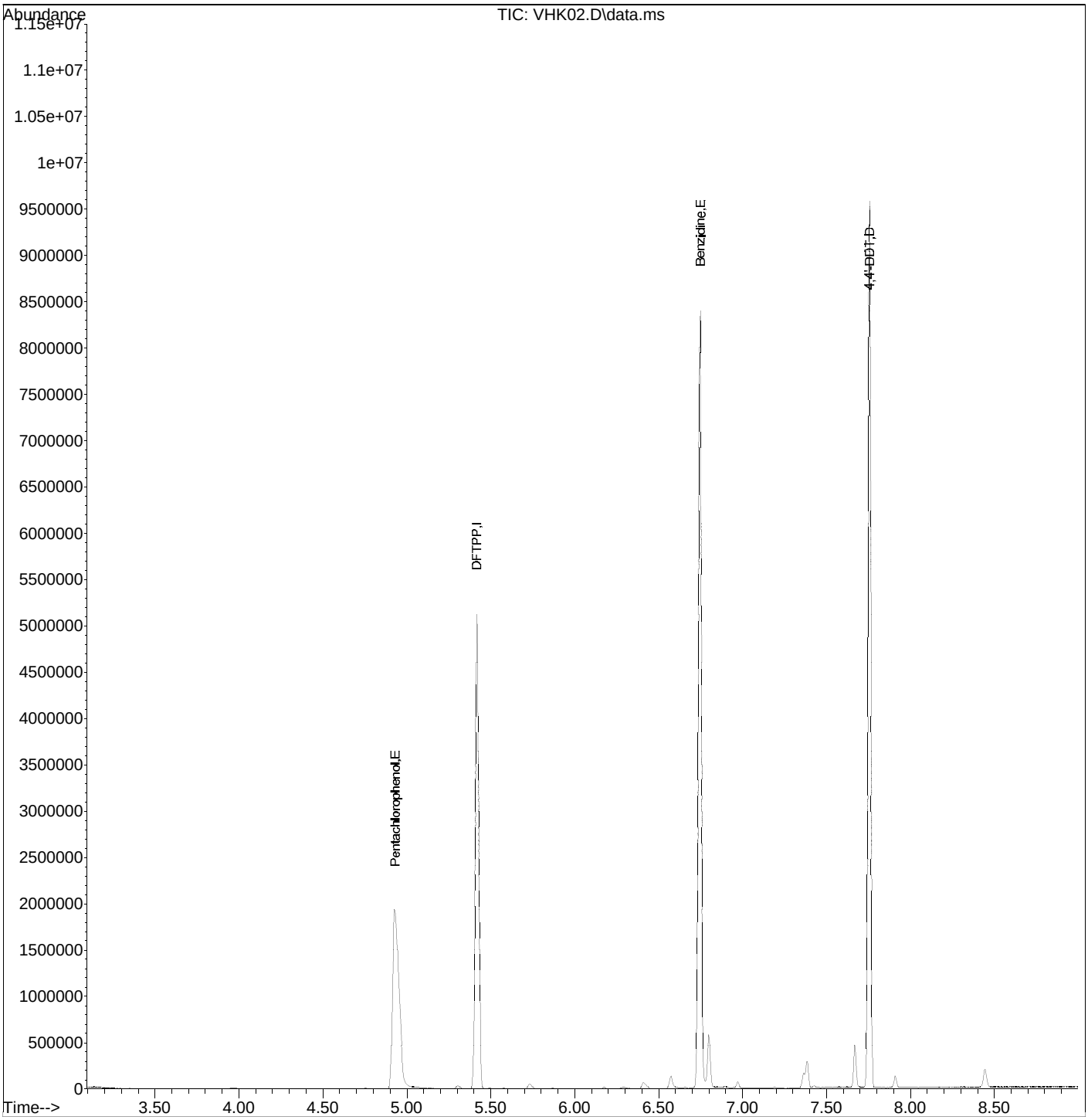
AutoFind: Scans 407, 408, 409; Background Corrected with Scan 400

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	45.9	217216	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	59.2	280405	PASS
70	69	0.00	2	0.5	1313	PASS
127	198	40	60	54.0	255616	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	473685	PASS
199	198	5	9	7.3	34349	PASS
275	198	10	30	28.9	136781	PASS
365	198	1	100	3.4	16091	PASS
441	443	0.01	100	82.6	69117	PASS
442	198	40	100	86.9	411584	PASS
443	442	17	23	20.3	83656	PASS

Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082014\
Data File : VHK02.D
Acq On : 20 Aug 2014 11:50 am
Operator :
Sample : TUN,S24893
Misc : DFTPP
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 20 12:00:02 2014
Quant Method : C:\msdchem\1\METHODS\DFTPP03.M
Quant Title : MSBNA03 BNA DFTPP/PEM
QLast Update : Fri Aug 15 12:03:51 2014
Response via : Continuing Cal File: G:\msbna03\081514\VHF02.D



Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082014\
Data File : VHK02.D
Acq On : 20 Aug 2014 11:50 am
Operator :
Sample : TUN,S24893
Misc : DFTPP
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 20 12:00:02 2014
Quant Method : C:\msdchem\1\METHODS\DFTPP03.M
Quant Title : MSBNA03 BNA DFTPP/PEM
QLast Update : Fri Aug 15 12:03:51 2014
Response via : Continuing Cal File: G:\msbna03\081514\VHF02.D

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
2) DFTPP	5.419	198	759386	50.0000	ug/mL	0.00
4) 4,4'-DDT	7.757	235	1811898	50.0000	ug/mL	0.00

Target Compounds						Qvalue
1) Pentachlorophenol	4.933	266	709555	56.4066	ug/mL	97
3) Benzidine	6.751	184	3690588	51.2897	ug/mL	86
5) 4,4'-DDE	6.974	246	8491	No CC lev	#	
6) 4,4'-DDD	7.385	235	69064	No CC lev		

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

CURTIS & TOMPKINS DFTPP TUNE FOR 259835 MSSIM Water
EPA 8270D

Inst : MSBNA04 Run Name : DFTPP IDF : 1.0
Seqnum : 534275763005 File : wga05 Time : 10-JUL-2014 15:44

Standards: S24369

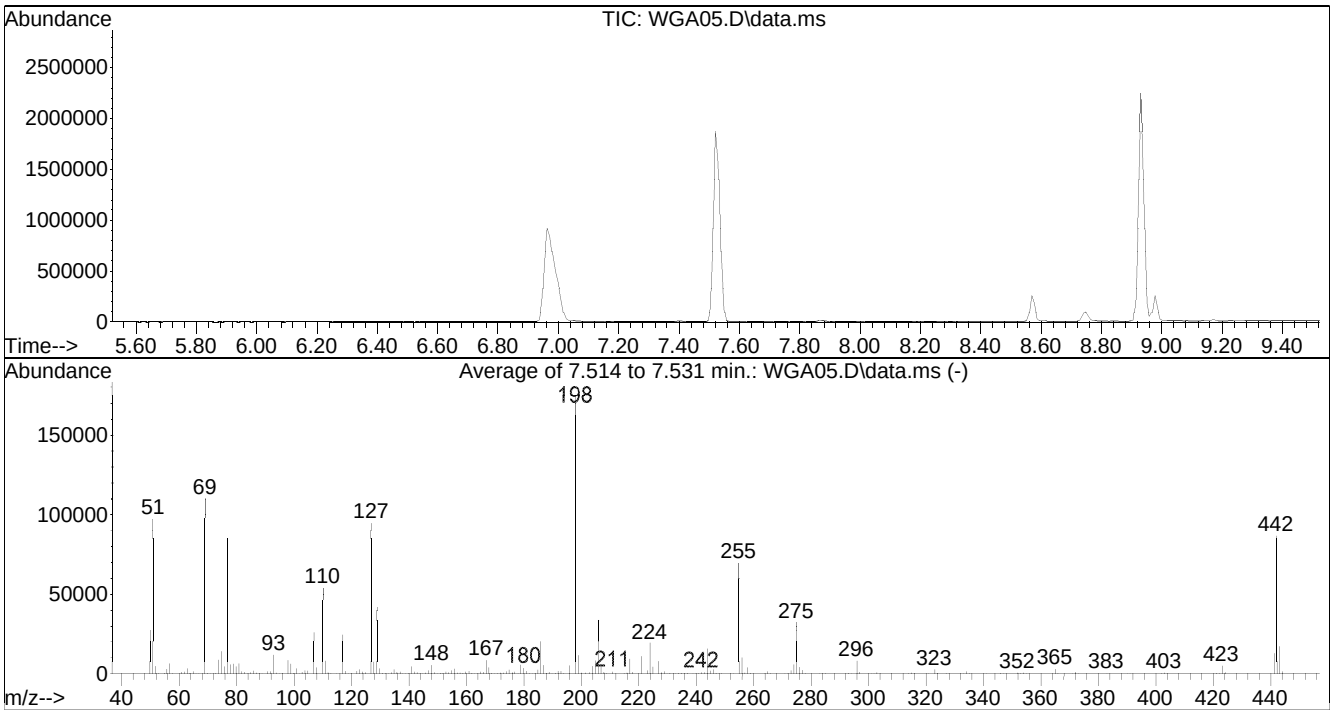
Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	97047	55.72	
68	< 2% of mass 69	0	0.00	
69		109917	100.00	
70	< 2% of mass 69	587	0.53	
127	40% - 60% of mass 198	94581	54.30	
197	< 1% of mass 198	0	0.00	
198		174173	100.00	
199	5% - 9% of mass 198	11550	6.63	
275	10% - 30% of mass 198	31925	18.33	
365	> 1% of mass 198	3062	1.76	
441	Present, < mass 443	12761	75.92	
442	> 40% and < 100% of mass 198	86725	49.79	
443	17% - 23% of mass 442	16808	19.38	

Analyst: KMH Date: 07/11/14 Reviewer: LW Date: 07/11/14

Data Path : G:\msbna04\071014\
Data File : WGA05.D
Acq On : 10 Jul 2014 3:44 pm
Operator :
Sample : TUN,S24369
Misc : DFTPP
ALS Vial : 5 Sample Multiplier: 1

Integration File: normal.p

Method : G:\msbna04\071014\DFTPP04.M
Title : MSBNA04 BNA DFTPP/PEM
Last Update : Thu Jul 10 12:19:20 2014



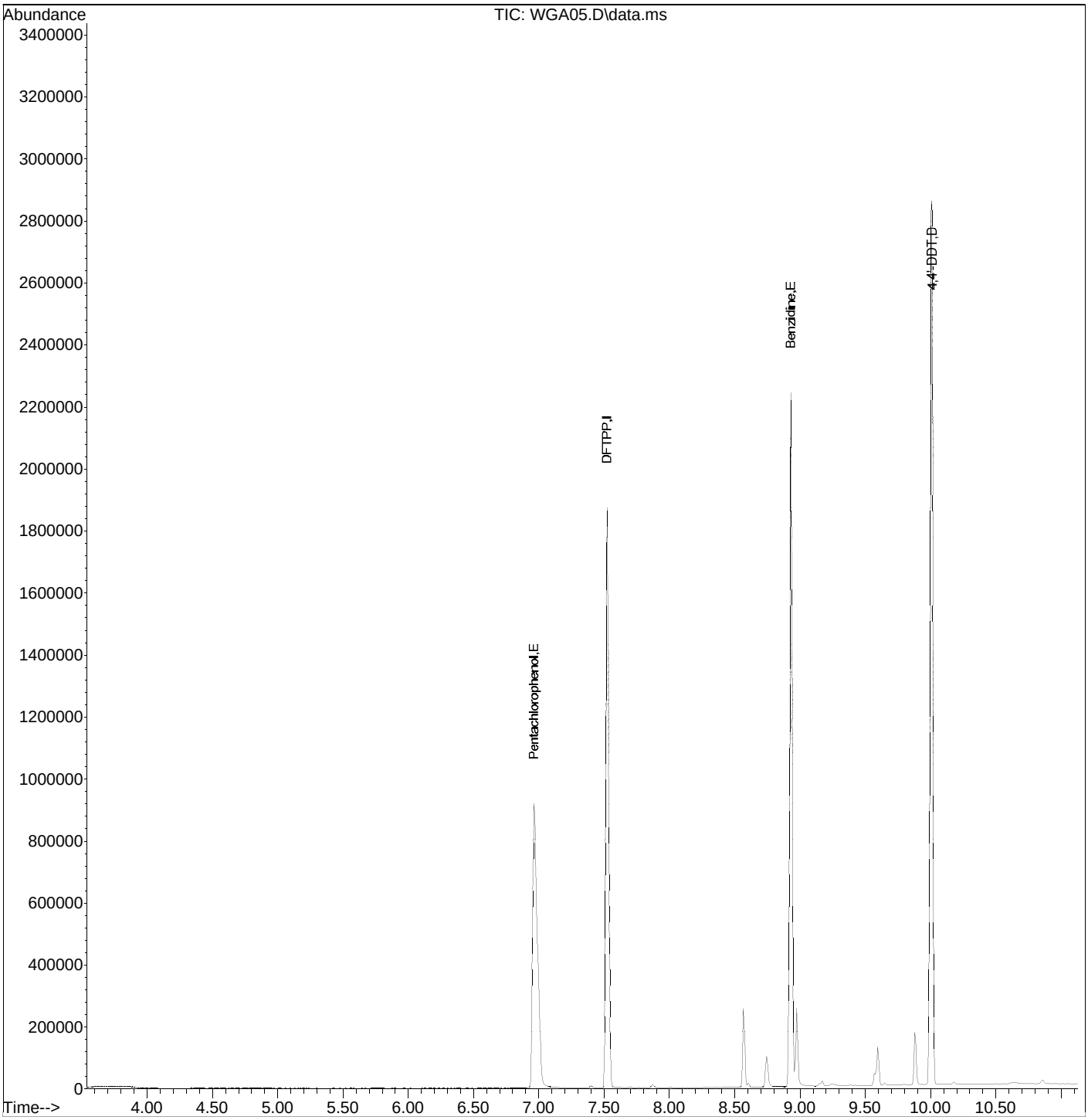
AutoFind: Scans 450, 451, 452; Background Corrected with Scan 446

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	55.7	97047	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	63.1	109917	PASS
70	69	0.00	2	0.5	587	PASS
127	198	40	60	54.3	94581	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	174173	PASS
199	198	5	9	6.6	11550	PASS
275	198	10	30	18.3	31925	PASS
365	198	1	100	1.8	3062	PASS
441	443	0.01	100	75.9	12761	PASS
442	198	40	100	49.8	86725	PASS
443	442	17	23	19.4	16808	PASS

Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\071014\
Data File : WGA05.D
Acq On : 10 Jul 2014 3:44 pm
Operator :
Sample : TUN,S24369
Misc : DFTPP
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jul 10 15:49:31 2014
Quant Method : C:\msdchem\1\METHODS\DFTPP04.M
Quant Title : MSBNA04 BNA DFTPP/PEM
QLast Update : Thu Jul 10 12:19:20 2014
Response via : Continuing Cal File: G:\msbna04\071014\WGA01.D



Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\071014\
Data File : WGA05.D
Acq On : 10 Jul 2014 3:44 pm
Operator :
Sample : TUN,S24369
Misc : DFTPP
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jul 10 15:49:31 2014
Quant Method : C:\msdchem\1\METHODS\DFTPP04.M
Quant Title : MSBNA04 BNA DFTPP/PEM
QLast Update : Thu Jul 10 12:19:20 2014
Response via : Continuing Cal File: G:\msbna04\071014\WGA01.D

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
2) DFTPP	7.523	198	334077	50.0000	ug/mL	0.00
4) 4,4'-DDT	10.011	235	693563	50.0000	ug/mL	0.00

Target Compounds						Qvalue
1) Pentachlorophenol	6.965	266	282522	61.2822	ug/mL	94
3) Benzidine	8.931	184	1058579	51.5769	ug/mL	94
5) 4,4'-DDE	9.170	246	1978	No CC lev		
6) 4,4'-DDD	9.595	235	24492	No CC lev		

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

CURTIS & TOMPKINS DFTPP TUNE FOR 259835 MSSIM Water
EPA 8270D

Inst : MSBNA04 Run Name : DFTPP IDF : 1.0
Seqnum : 534336091008 File : whl08 Time : 21-AUG-2014 11:54

Standards: S24893

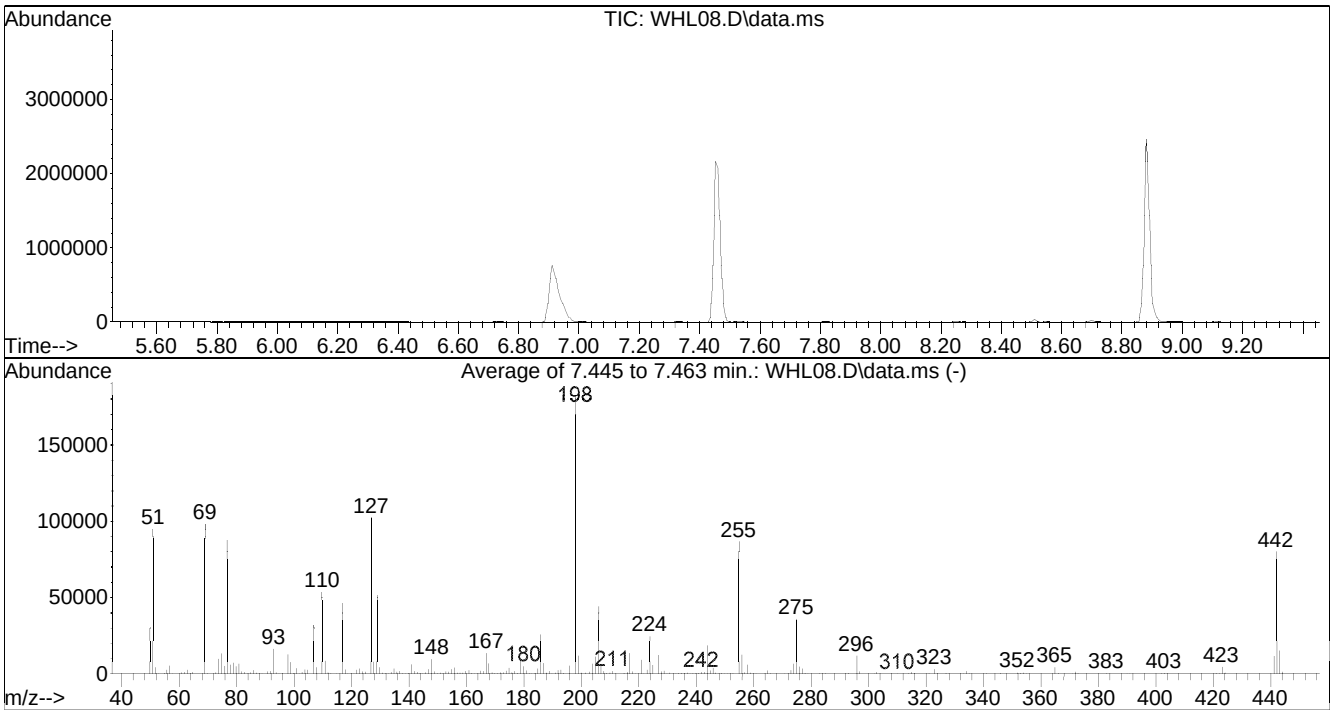
Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	94709	52.13	
68	< 2% of mass 69	0	0.00	
69		97984	100.00	
70	< 2% of mass 69	449	0.46	
127	40% - 60% of mass 198	102296	56.31	
197	< 1% of mass 198	0	0.00	
198		181674	100.00	
199	5% - 9% of mass 198	11869	6.53	
275	10% - 30% of mass 198	36189	19.92	
365	> 1% of mass 198	4461	2.46	
441	Present, < mass 443	11663	76.32	
442	> 40% and < 100% of mass 198	79681	43.86	
443	17% - 23% of mass 442	15282	19.18	

Analyst: KMH Date: 08/21/14 Reviewer: LW Date: 08/21/14

Data Path : G:\msbna04\082114\
Data File : WHL08.D
Acq On : 21 Aug 2014 11:54 am
Operator :
Sample : TUN,S24893
Misc : DFTPP
ALS Vial : 8 Sample Multiplier: 1

Integration File: normal.p

Method : C:\msdchem\1\METHODS\DFTPP04.M
Title : MSBNA04 BNA DFTPP/PEM
Last Update : Thu Aug 21 11:11:50 2014



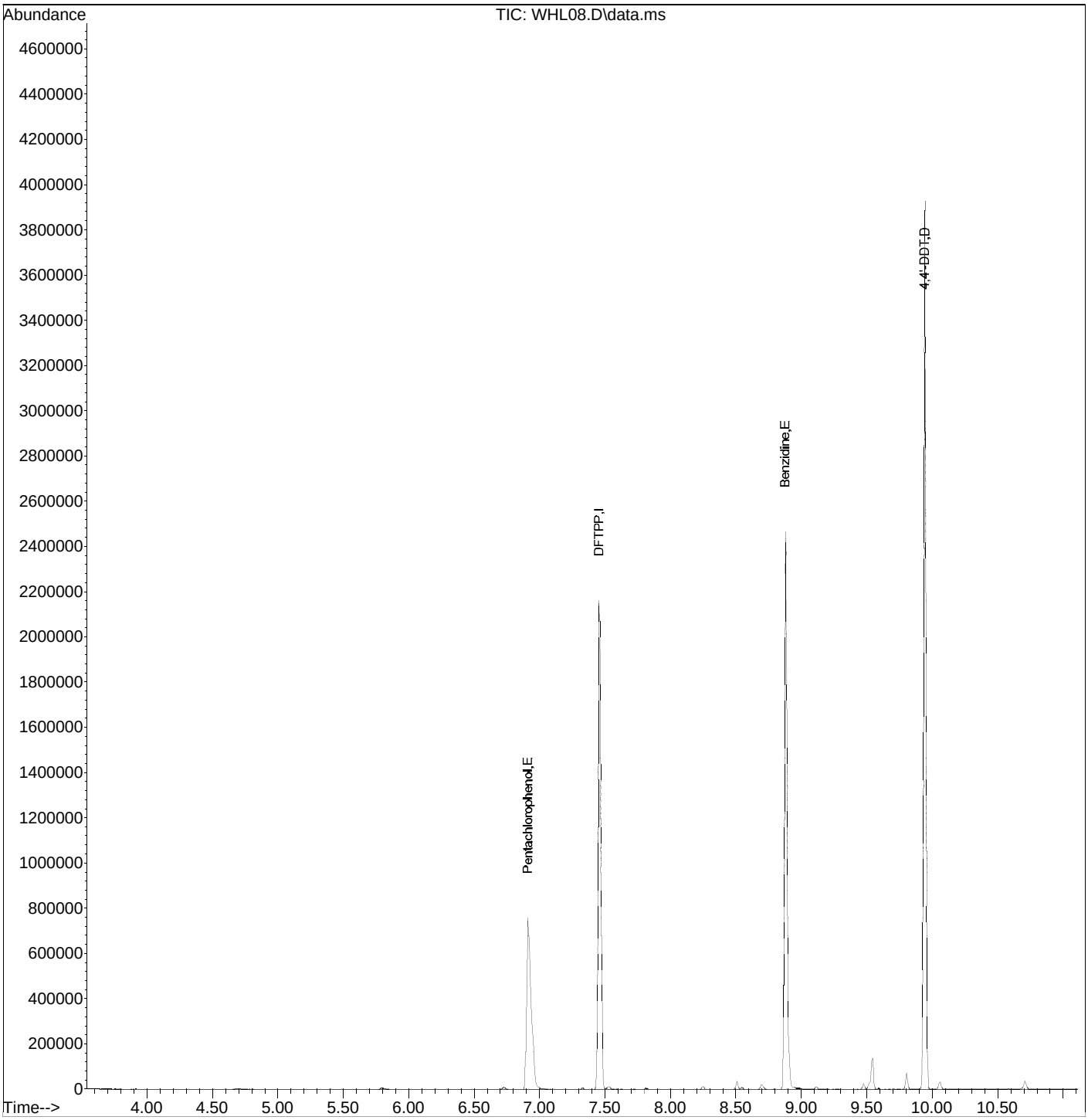
AutoFind: Scans 442, 443, 444; Background Corrected with Scan 439

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	52.1	94709	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	53.9	97984	PASS
70	69	0.00	2	0.5	449	PASS
127	198	40	60	56.3	102296	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	181674	PASS
199	198	5	9	6.5	11869	PASS
275	198	10	30	19.9	36189	PASS
365	198	1	100	2.5	4461	PASS
441	443	0.01	100	76.3	11663	PASS
442	198	40	100	43.9	79681	PASS
443	442	17	23	19.2	15282	PASS

Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082114\
Data File : WHL08.D
Acq On : 21 Aug 2014 11:54 am
Operator :
Sample : TUN,S24893
Misc : DFTPP
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 21 11:58:51 2014
Quant Method : C:\msdchem\1\METHODS\DFTPP04.M
Quant Title : MSBNA04 BNA DFTPP/PEM
QLast Update : Thu Aug 21 11:11:50 2014
Response via : Continuing Cal File: G:\msbna04\082114\WHL06.D



Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082114\
Data File : WHL08.D
Acq On : 21 Aug 2014 11:54 am
Operator :
Sample : TUN,S24893
Misc : DFTPP
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 21 11:58:51 2014
Quant Method : C:\msdchem\1\METHODS\DFTPP04.M
Quant Title : MSBNA04 BNA DFTPP/PEM
QLast Update : Thu Aug 21 11:11:50 2014
Response via : Continuing Cal File: G:\msbna04\082114\WHL06.D

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
2) DFTPP	7.454	198	350145	50.0000	ug/mL	0.00
4) 4,4'-DDT	9.943	235	734745	50.0000	ug/mL	0.00

Target Compounds						Qvalue
1) Pentachlorophenol	6.914	266	191073	88.9995	ug/mL	95
3) Benzidine	8.880	184	1172976	49.7927	ug/mL	99
5) 4,4'-DDE	9.110	246	1622	No CC lev	#	
6) 4,4'-DDD	9.544	235	27851	No CC lev		

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

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259835 MSSIM Water: EPA 8270D-SIM

Inst : MSBNA03
Calnum : 524271263002
Units : ug/mL

Name : 3PAHSIM
Date : 07-JUL-2014 20:28
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	vg720	524271263020	ICAL	07-JUL-2014 20:28	S25125
L2	vg721	524271263021	ICAL	07-JUL-2014 21:02	S25126
L3	vg722	524271263022	ICAL	07-JUL-2014 21:35	S25128
L4	vg723	524271263023	ICAL	07-JUL-2014 22:10	S25129
L5	vg724	524271263024	ICAL	07-JUL-2014 22:42	S25130
L6	vg725	524271263025	ICAL	07-JUL-2014 23:17	S25132
L7	vg726	524271263026	ICAL	07-JUL-2014 23:50	S25133

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene	0.9269	0.9450	0.9456	0.9215	0.8641	0.7909	0.7353	AVRG		1.14205		0.8756	9	15	0.700	0.99	
2-Methylnaphthalene	0.6999	0.7117	0.7127	0.6848	0.6403	0.5856	0.5454	AVRG		1.52820		0.6544	10	15	0.400	0.99	
Acenaphthylene	1.4572	1.5302	1.6252	1.6440	1.5910	1.4308	1.3569	AVRG		0.65819		1.5193	7	15	0.900	0.99	
Acenaphthene	0.9776	1.0118	1.0260	1.0039	0.9750	0.8954	0.8673	AVRG		1.03596		0.9653	6	15	0.900	0.99	
Fluorene	1.1867	1.1884	1.2006	1.1526	1.1030	0.9696	0.9466	AVRG		0.90352		1.1068	10	15	0.900	0.99	
Phenanthrene	1.0278	1.0639	1.0687	1.0432	1.0003	0.8879	0.8064	AVRG		1.01475		0.9855	10	15	0.700	0.99	
Anthracene	0.8909	0.9428	0.9867	0.9817	0.9713	0.8559	0.7747	AVRG		1.09308		0.9148	9	15	0.700	0.99	
Fluoranthene	1.0752	1.1145	1.1427	1.1685	1.1174	0.9990	0.9038	AVRG		0.93071		1.0745	9	15	0.600	0.99	
Pyrene	1.1224	1.1145	1.1827	1.1919	1.1719	1.0950	1.0428	AVRG		0.88370		1.1316	5	15	0.600	0.99	
Benzo(a)anthracene	0.9824	0.9124	1.0147	1.0467	1.0332	0.9519	0.9022	AVRG		1.02286		0.9777	6	15	0.800	0.99	
Chrysene	0.9844	1.0148	1.0467	1.0458	1.0200	0.9309	0.8647	AVRG		1.01342		0.9868	7	15	0.700	0.99	
Benzo(b)fluoranthene	1.1501	1.1770	1.2366	1.2309	1.1924	1.0493	0.9891	AVRG		0.87223		1.1465	8	15	0.700	0.99	
Benzo(k)fluoranthene	1.1396m	1.1541	1.1739	1.1550	1.2286	1.1068	0.9578	AVRG		0.88431		1.1308	7	15	0.700	0.99	
Benzo(a)pyrene	0.9810	0.9929	1.0925	1.1248	1.1050	1.0470	0.9981	AVRG		0.95351		1.0488	6	15	0.700	0.99	
Indeno(1,2,3-cd)pyrene	1.0215	1.0659	1.1123	1.1362	1.1396	1.0726	1.0529	AVRG		0.92094		1.0858	4	15	0.500	0.99	
Dibenz(a,h)anthracene	0.8632m	0.8991m	0.9347	0.9443	0.9590	0.9178	0.9098	AVRG		1.08901		0.9183	3	15	0.400	0.99	
Benzo(g,h,i)perylene	0.9184	0.9425	0.9674	0.9716	0.9658	0.8998	0.8777	AVRG		1.06982		0.9347	4	15	0.500	0.99	
Nitrobenzene-d5	0.2863	0.2921	0.3064m	0.3210m	0.3233	0.3184	0.3189	AVRG		3.23110		0.3095	5	15	0.05	0.99	
2-Fluorobiphenyl	1.5822	1.6124	1.5918	1.5204	1.4105	1.2350	1.1419	AVRG		0.69347		1.4420	13	15	0.05	0.99	
Terphenyl-d14	0.8319	0.8606	0.8639	0.8767	0.8685	0.8153	0.7927	AVRG		1.18450		0.8442	4	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	6	0.2000	8	0.5000	8	1.0000	5	2.0000	-1	5.0000	-10	10.000	-16
2-Methylnaphthalene	0.1000	7	0.2000	9	0.5000	9	1.0000	5	2.0000	-2	5.0000	-11	10.000	-17
Acenaphthylene	0.1000	-4	0.2000	1	0.5000	7	1.0000	8	2.0000	5	5.0000	-6	10.000	-11
Acenaphthene	0.1000	1	0.2000	5	0.5000	6	1.0000	4	2.0000	1	5.0000	-7	10.000	-10
Fluorene	0.1000	7	0.2000	7	0.5000	8	1.0000	4	2.0000	0	5.0000	-12	10.000	-14
Phenanthrene	0.1000	4	0.2000	8	0.5000	8	1.0000	6	2.0000	2	5.0000	-10	10.000	-18
Anthracene	0.1000	-3	0.2000	3	0.5000	8	1.0000	7	2.0000	6	5.0000	-6	10.000	-15
Fluoranthene	0.1000	0	0.2000	4	0.5000	6	1.0000	9	2.0000	4	5.0000	-7	10.000	-16
Pyrene	0.1000	-1	0.2000	-2	0.5000	5	1.0000	5	2.0000	4	5.0000	-3	10.000	-8
Benzo(a)anthracene	0.1000	0	0.2000	-7	0.5000	4	1.0000	7	2.0000	6	5.0000	-3	10.000	-8
Chrysene	0.1000	0	0.2000	3	0.5000	6	1.0000	6	2.0000	3	5.0000	-6	10.000	-12
Benzo(b)fluoranthene	0.1000	0	0.2000	3	0.5000	8	1.0000	7	2.0000	4	5.0000	-8	10.000	-14
Benzo(k)fluoranthene	0.1000	1	0.2000	2	0.5000	4	1.0000	2	2.0000	9	5.0000	-2	10.000	-15
Benzo(a)pyrene	0.1000	-6	0.2000	-5	0.5000	4	1.0000	7	2.0000	5	5.0000	0	10.000	-5
Indeno(1,2,3-cd)pyrene	0.1000	-6	0.2000	-2	0.5000	2	1.0000	5	2.0000	5	5.0000	-1	10.000	-3
Dibenz(a,h)anthracene	0.1000	-6	0.2000	-2	0.5000	2	1.0000	3	2.0000	4	5.0000	0	10.000	-1
Benzo(g,h,i)perylene	0.1000	-2	0.2000	1	0.5000	3	1.0000	4	2.0000	3	5.0000	-4	10.000	-6
Nitrobenzene-d5	0.1000	-8	0.2000	-6	0.5000	-1	1.0000	4	2.0000	4	5.0000	3	10.000	3
2-Fluorobiphenyl	0.1000	10	0.2000	12	0.5000	10	1.0000	5	2.0000	-2	5.0000	-14	10.000	**-21**
Terphenyl-d14	0.1000	-1	0.2000	2	0.5000	2	1.0000	4	2.0000	3	5.0000	-3	10.000	-6

KMH 07/08/14 [1,4-Dioxane]: Corrected automatically drawn baseline in multiple levels.

KMH 07/08/14 [Dibenz(a,h)anthracene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/08/14 [Nitrobenzene-d5]: Corrected automatically drawn baseline in multiple levels.

KMH 07/08/14 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline in ICAL (vg720).

Analyst: KMH Date: 07/08/14 Reviewer: LW Date: 07/08/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259835 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA03 Name : 3PAHSIM
Calnum : 524271263002 Cal Date : 07-JUL-2014

ICV 524271263027 (vg727 08-JUL-2014) stds: S25107

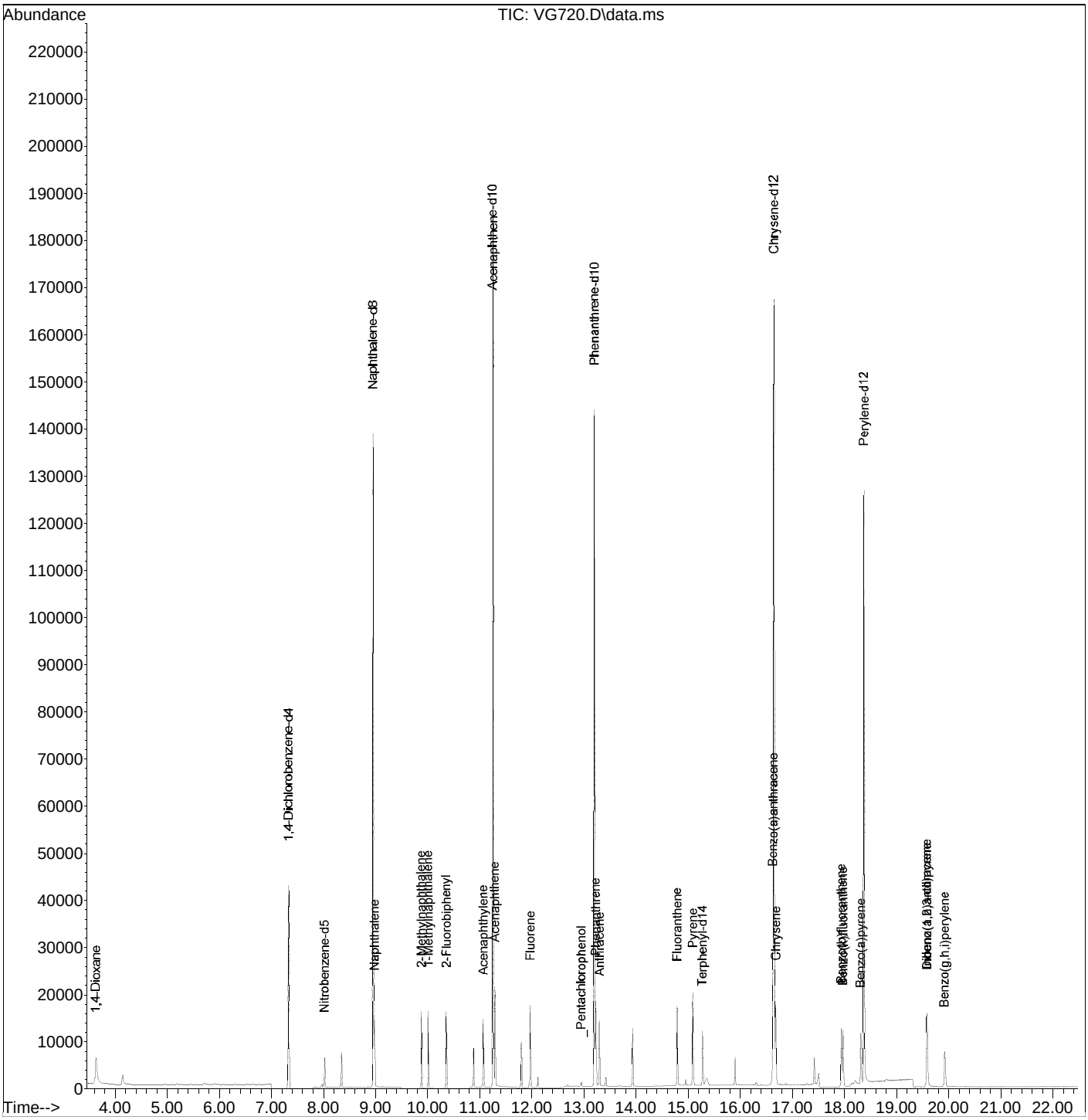
Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	1.023	ug/mL	2	20	
2-Methylnaphthalene	1.000	1.037	ug/mL	4	20	
Acenaphthylene	1.000	1.092	ug/mL	9	20	
Acenaphthene	1.000	1.035	ug/mL	3	20	
Fluorene	1.000	1.086	ug/mL	9	20	
Phenanthrene	1.000	1.029	ug/mL	3	20	
Anthracene	1.000	0.9769	ug/mL	-2	20	
Fluoranthene	1.000	1.063	ug/mL	6	20	
Pyrene	1.000	0.9847	ug/mL	-2	20	
Benzo(a)anthracene	1.000	1.013	ug/mL	1	20	
Chrysene	1.000	0.9865	ug/mL	-1	20	
Benzo(b)fluoranthene	1.000	1.061	ug/mL	6	20	
Benzo(k)fluoranthene	1.000	1.029	ug/mL	3	20	
Benzo(a)pyrene	1.000	1.062	ug/mL	6	20	
Indeno(1,2,3-cd)pyrene	1.000	1.023	ug/mL	2	20	
Dibenz(a,h)anthracene	1.000	1.029	ug/mL	3	20	
Benzo(g,h,i)perylene	1.000	1.041	ug/mL	4	20	

Analyst: KMH Date: 07/08/14 Reviewer: LW Date: 07/08/14

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\070714\
Data File : VG720.D
Acq On : 7 Jul 2014 8:28 pm
Operator :
Sample : ICAL,S25125
Misc : ICAL
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 08 08:09:21 2014
Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
Quant Title : MSBNA03 BNASIM
QLast Update : Mon Jul 07 10:12:59 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\070714\
Data File : VG720.D
Acq On : 7 Jul 2014 8:28 pm
Operator :
Sample : ICAL,S25125
Misc : ICAL
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 08 08:09:21 2014
Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
Quant Title : MSBNA03 BNASIM
QLast Update : Mon Jul 07 10:12:59 2014
Response via : Initial Calibration

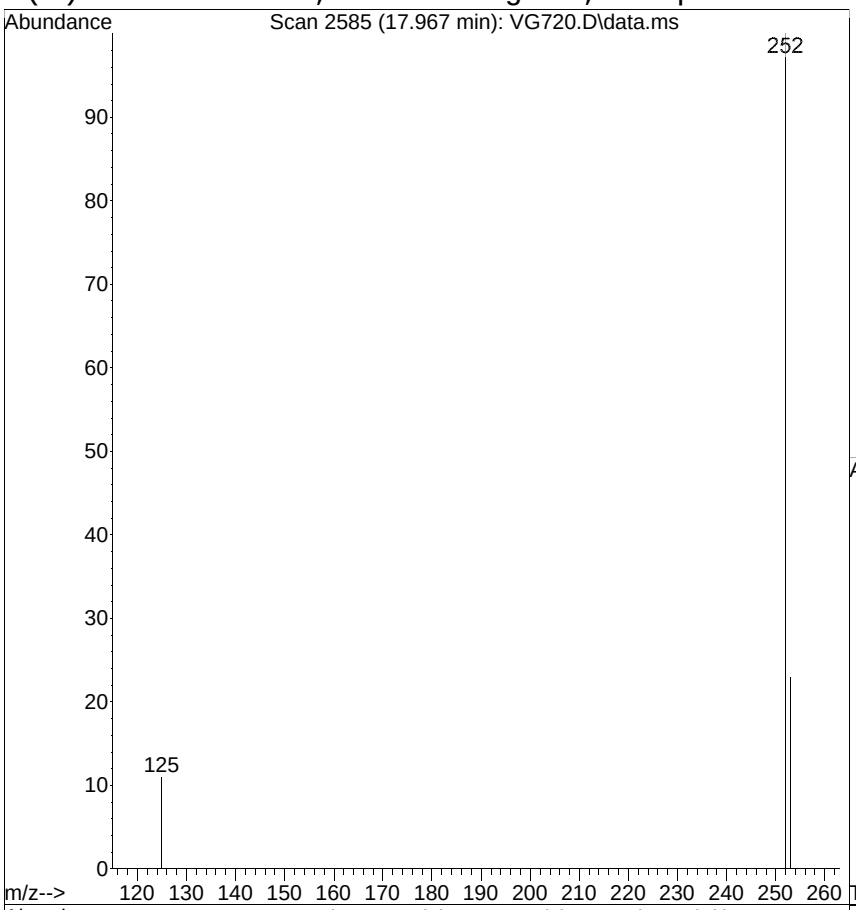
Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.331	152	32135	1.0000	ug/mL	0.00
3) Naphthalene-d8	8.954	136	116466	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.252	164	70631	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.196	188	121686	1.0000	ug/mL	0.00
18) Chrysene-d12	16.642	240	124587	1.0000	ug/mL	0.00
23) Perylene-d12	18.368	264	92946	1.0000	ug/mL	0.00

Target Compounds						Qvalue
2) 1,4-Dioxane	3.636	88	8769m	0.5305	ug/mL	
4) Nitrobenzene-d5	8.021	82	3334	0.0847	ug/mL	# 71
5) Naphthalene	8.982	128	10795	0.1059	ug/mL	99
6) 2-Methylnaphthalene	9.882	142	8152	0.1052	ug/mL	97
7) 1-Methylnaphthalene	10.014	142	7683	0.1057	ug/mL	100
9) 2-Fluorobiphenyl	10.359	172	11175	0.1106	ug/mL	97
10) Acenaphthylene	11.065	152	10292	0.0950	ug/mL	97
11) Acenaphthene	11.293	154	6905	0.1020	ug/mL	98
12) Fluorene	11.968	166	8382	0.1050	ug/mL	99
14) _Pentachlorophenol	12.947	266	536	3.2760	ug/mL	92
15) Phenanthrene	13.225	178	12507	0.1061	ug/mL	99
16) Anthracene	13.296	178	10841	0.0983	ug/mL	95
17) Fluoranthene	14.783	202	13084	0.0960	ug/mL	97
19) Pyrene	15.084	202	13984	0.0950	ug/mL	99
20) Terphenyl-d14	15.270	244	10365	0.0938	ug/mL	88
21) Benzo(a)anthracene	16.627	228	12240	0.0978	ug/mL	98
22) Chrysene	16.676	228	12264	0.1172	ug/mL	94
24) Benzo(b)fluoranthene	17.934	252	10690	0.0983	ug/mL	97
25) Benzo(k)fluoranthene	17.967	252	10592m	0.0995	ug/mL	
26) Benzo(a)pyrene	18.304	252	9118	0.0930	ug/mL	99
27) Indeno(1,2,3-cd)pyrene	19.574	276	9494	0.0974	ug/mL	# 41
28) Dibenz(a,h)anthracene	19.577	278	8023m	0.1191	ug/mL	
29) Benzo(g,h,i)perylene	19.914	276	8536	0.0978	ug/mL	# 92

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

[Benzo(k)fluoranthene; 0.1000 ug/mL; response=10592; MI]

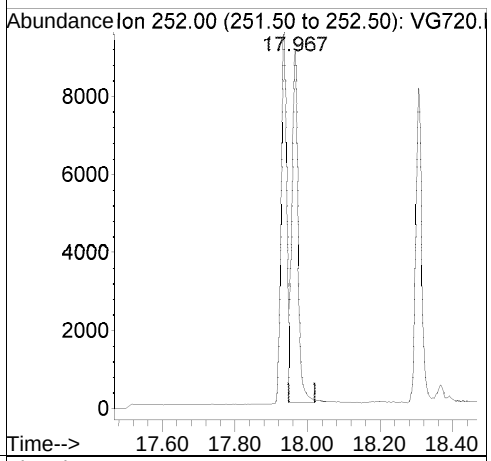
Raw



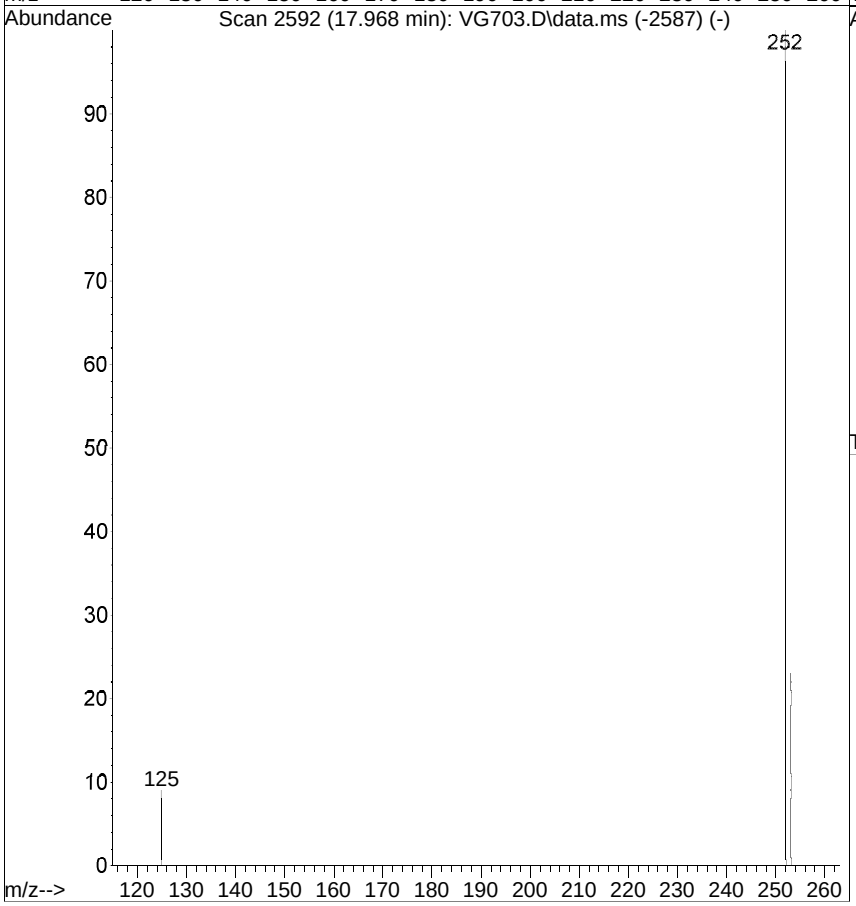
#25
Benzo(k)fluoranthene
Concen: 0.0995 ug/mL m
RT: 17.967 min Scan# 2585
Delta R.T. -0.001 min
Lab File: VG720.D
Acq: 7 Jul 2014 8:28 pm

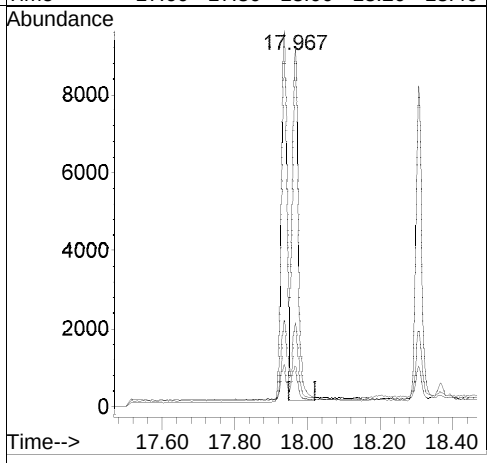
Tgt Ion:252 Resp: 10592

Ion	Ratio	Lower	Upper
252	100		
253	23.4	1.1	41.1
125	11.1	0.0	21.1



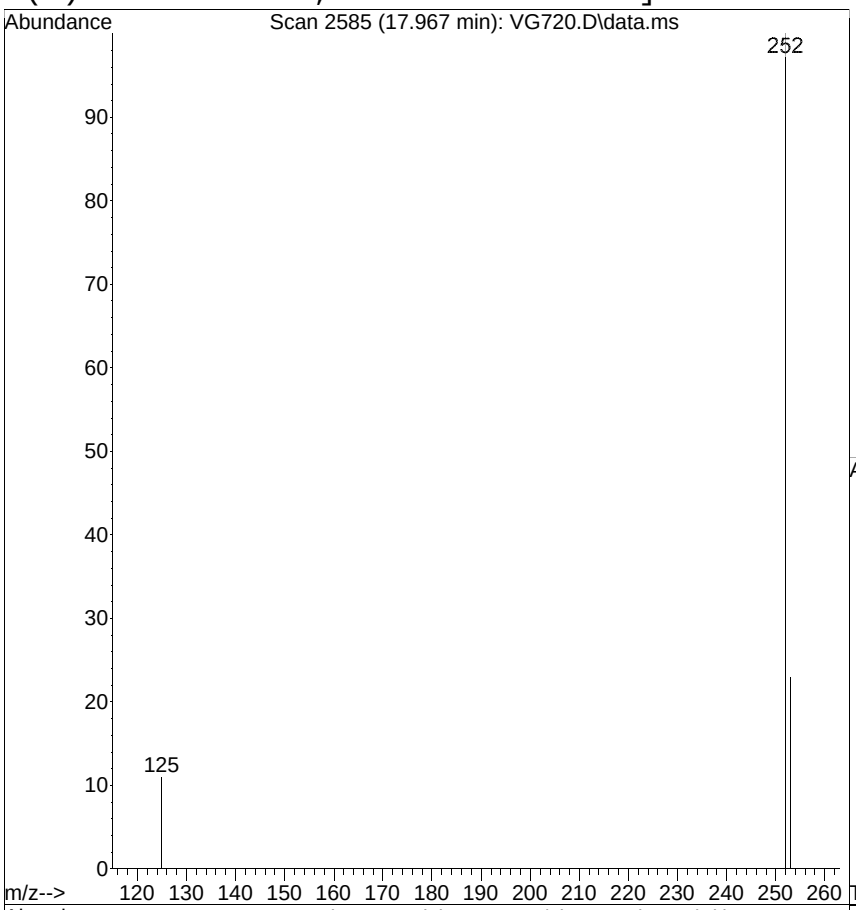
Ref





[Benzo(k)fluoranthene; before version]

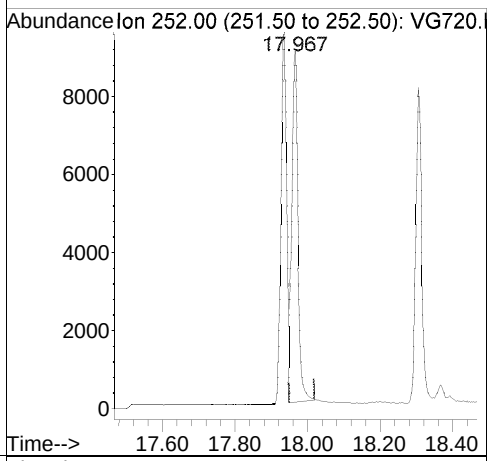
Raw



#25
Benzo(k)fluoranthene
Concen: 0.0974 ug/mL
RT: 17.967 min Scan# 2585
Delta R.T. -0.001 min
Lab File: VG720.D
Acq: 7 Jul 2014 8:28 pm

Tgt Ion:252 Resp: 10377

Ion	Ratio	Lower	Upper
252	100		
253	23.4	1.1	41.1
125	11.1	0.0	21.1



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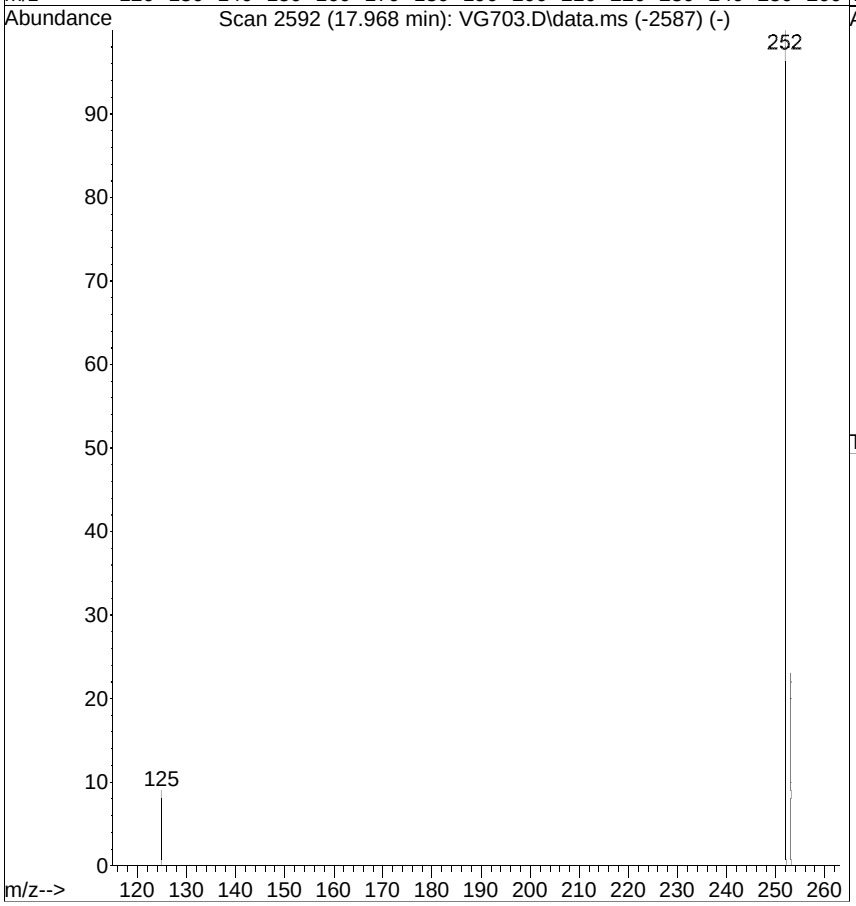
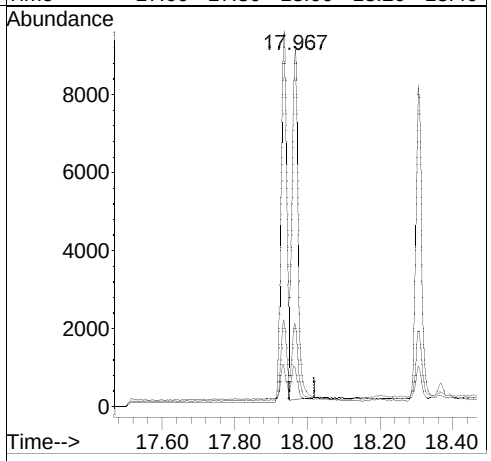
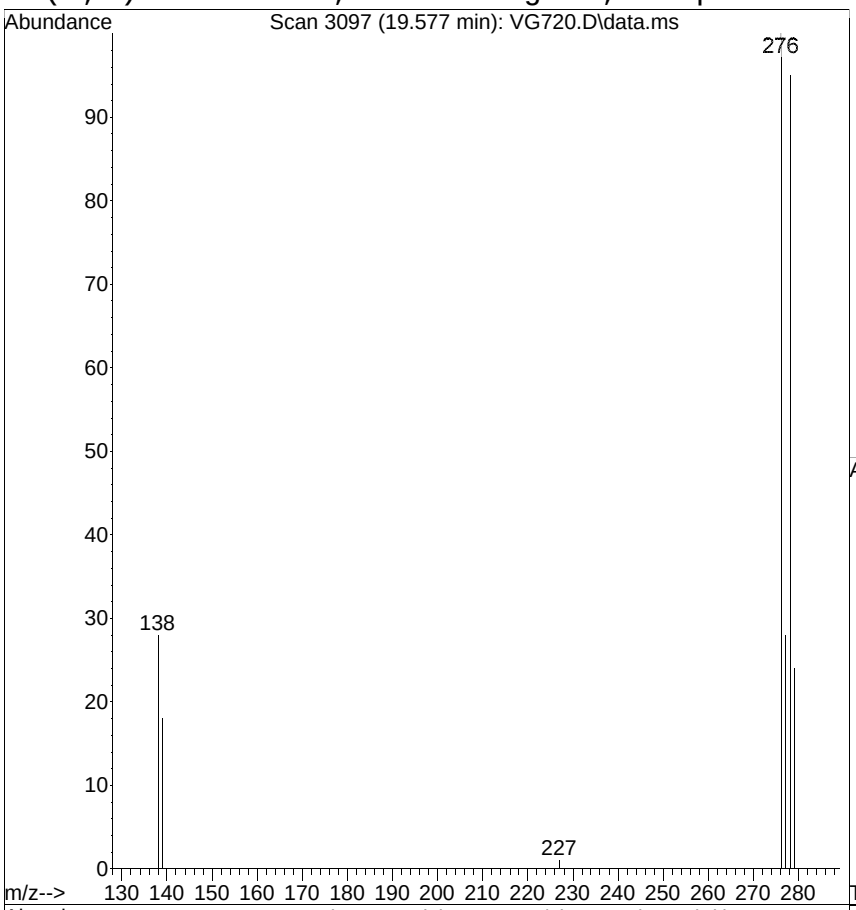




[Dibenz(a,h)anthracene; 0.1000 ug/mL; response=8023; MI]

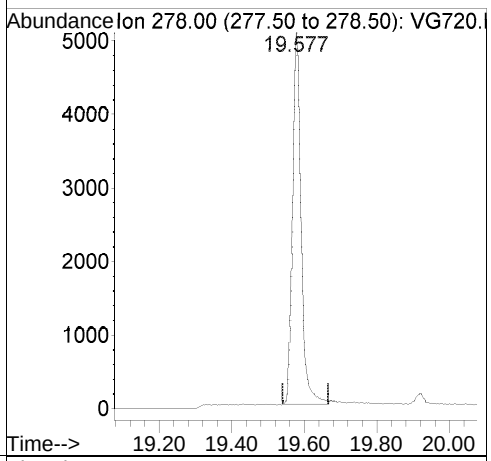
Raw



#28
Dibenz(a,h)anthracene
Concen: 0.1191 ug/mL m
RT: 19.577 min Scan# 3097
Delta R.T. 0.001 min
Lab File: VG720.D
Acq: 7 Jul 2014 8:28 pm

Tgt Ion:278 Resp: 8023

Ion	Ratio	Lower	Upper
278	100		
139	18.7	0.0	22.2
279	25.1	0.7	40.7



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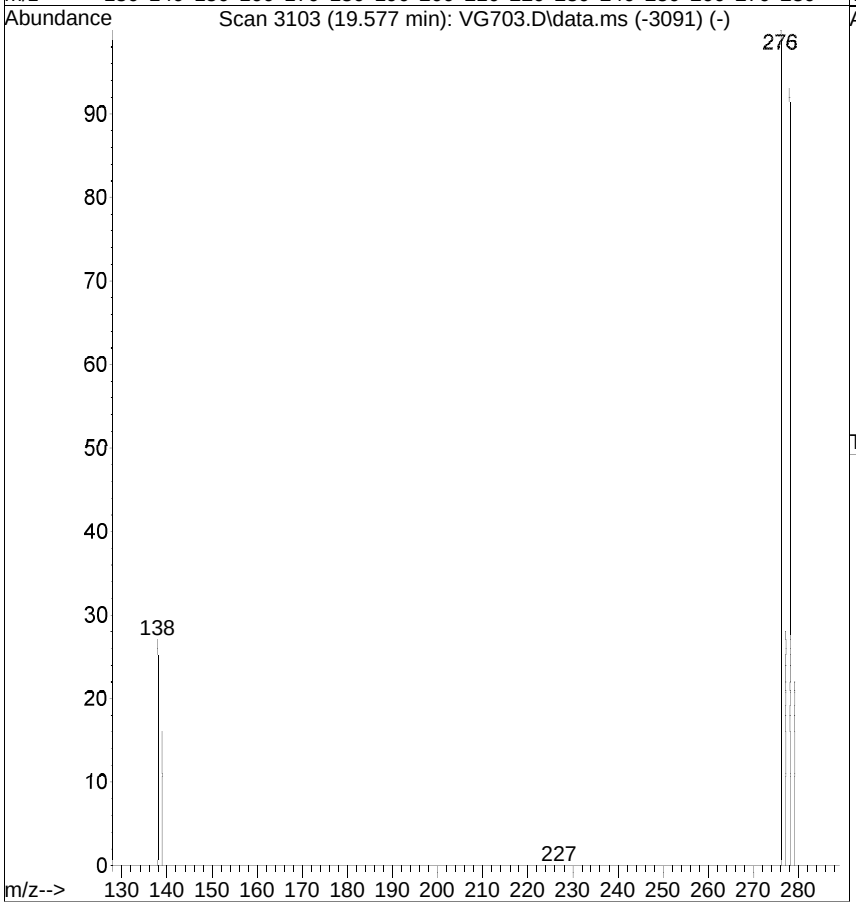
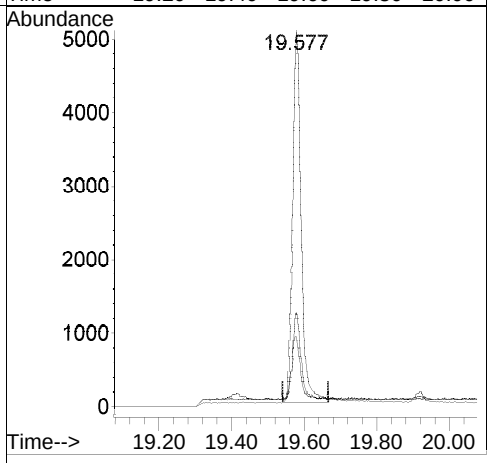
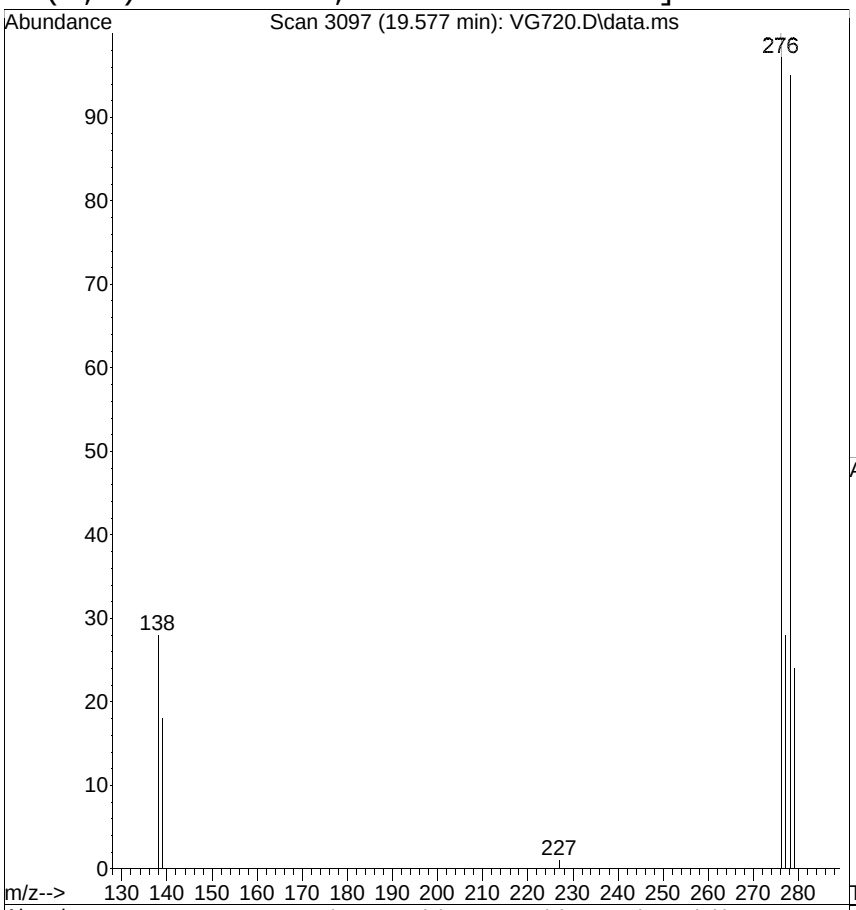




[Dibenz(a,h)anthracene; before version]

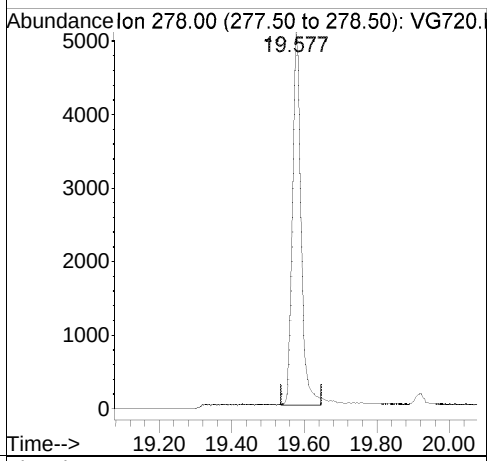
Raw



#28
Dibenz(a,h)anthracene
Concen: 0.1193 ug/mL
RT: 19.577 min Scan# 3097
Delta R.T. 0.001 min
Lab File: VG720.D
Acq: 7 Jul 2014 8:28 pm

Tgt Ion:278 Resp: 8035

Ion	Ratio	Lower	Upper
278	100		
139	18.7	0.0	22.2
279	25.1	0.7	40.7



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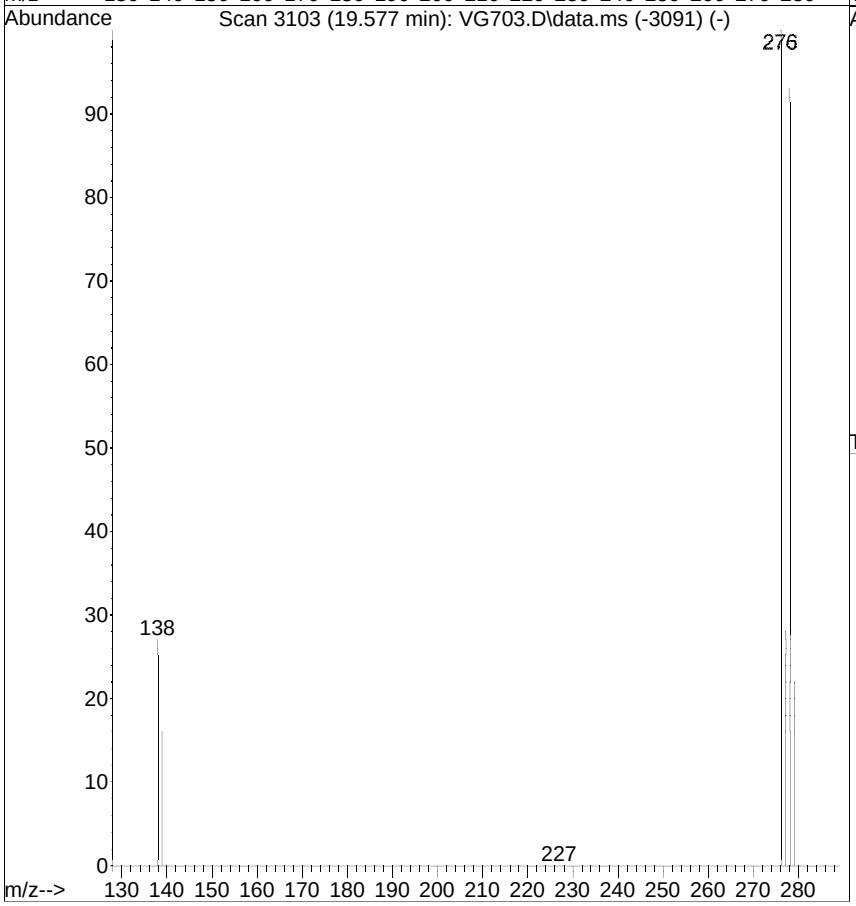
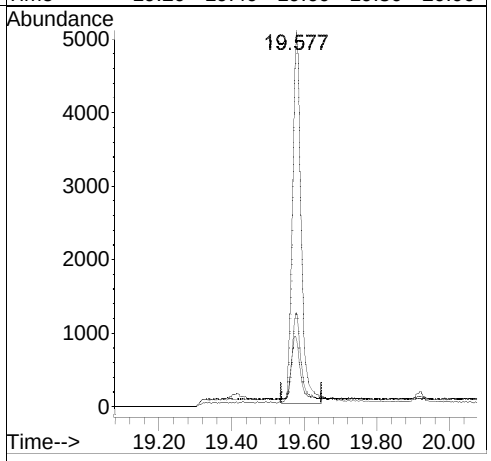
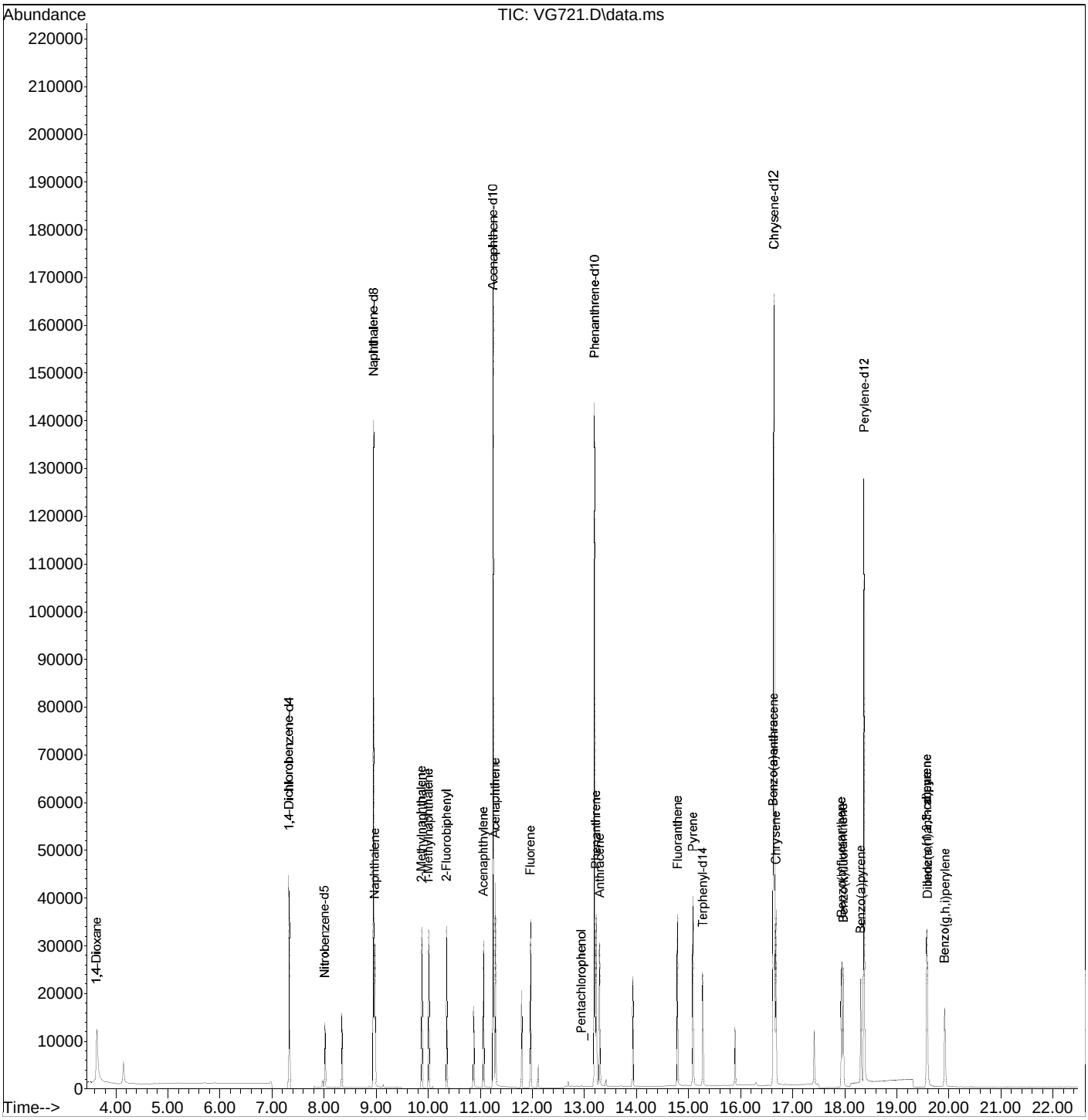




Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\070714\
Data File : VG721.D
Acq On : 7 Jul 2014 9:02 pm
Operator :
Sample : ICAL,S25126
Misc : ICAL
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 08 08:09:58 2014
Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
Quant Title : MSBNA03 BNASIM
QLast Update : Mon Jul 07 10:12:59 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\070714\
Data File : VG721.D
Acq On : 7 Jul 2014 9:02 pm
Operator :
Sample : ICAL,S25126
Misc : ICAL
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 08 08:09:58 2014
Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
Quant Title : MSBNA03 BNASIM
QLast Update : Mon Jul 07 10:12:59 2014
Response via : Initial Calibration

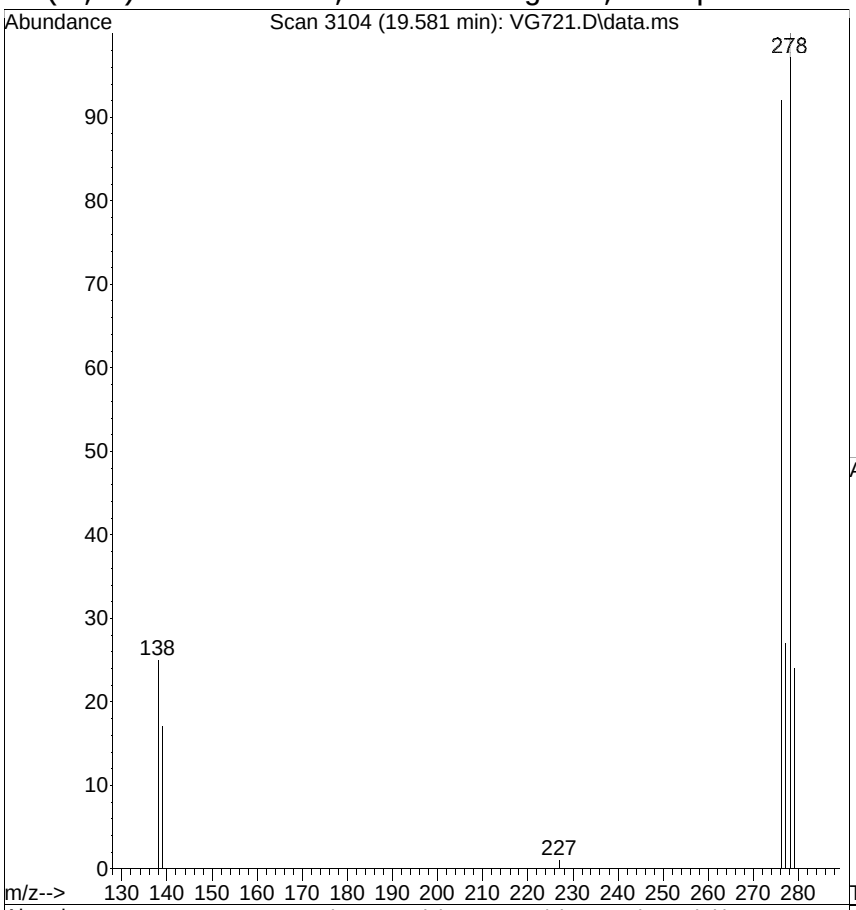
Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.332	152	32863	1.0000	ug/mL	0.00
3) Naphthalene-d8	8.957	136	119820	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.253	164	71321	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.195	188	123281	1.0000	ug/mL	0.00
18) Chrysene-d12	16.641	240	126164	1.0000	ug/mL	0.00
23) Perylene-d12	18.368	264	95688	1.0000	ug/mL	0.00

Target Compounds						Qvalue
2) 1,4-Dioxane	3.640	88	17785m	1.0520	ug/mL	
4) Nitrobenzene-d5	8.020	82	7001	0.1728	ug/mL	# 74
5) Naphthalene	8.981	128	22645	0.2159	ug/mL	98
6) 2-Methylnaphthalene	9.881	142	17056	0.2138	ug/mL	99
7) 1-Methylnaphthalene	10.013	142	16040	0.2146	ug/mL	98
9) 2-Fluorobiphenyl	10.358	172	23000	0.2254	ug/mL	95
10) Acenaphthylene	11.066	152	21827	0.1996	ug/mL	98
11) Acenaphthene	11.293	154	14433	0.2112	ug/mL	96
12) Fluorene	11.967	166	16952	0.2103	ug/mL	95
14) _Pentachlorophenol	12.947	266	156	0.9411	ug/mL	92
15) Phenanthrene	13.225	178	26232	0.2196	ug/mL	100
16) Anthracene	13.296	178	23246	0.2082	ug/mL	97
17) Fluoranthene	14.789	202	27480	0.1991	ug/mL	97
19) Pyrene	15.084	202	28123	0.1886	ug/mL	99
20) Terphenyl-d14	15.270	244	21715	0.1940	ug/mL	86
21) Benzo(a)anthracene	16.626	228	23023	0.1816	ug/mL	98
22) Chrysene	16.676	228	25605	0.2416	ug/mL	94
24) Benzo(b)fluoranthene	17.934	252	22525	0.2011	ug/mL	97
25) Benzo(k)fluoranthene	17.967	252	22086	0.2014	ug/mL	96
26) Benzo(a)pyrene	18.305	252	19002	0.1882	ug/mL	97
27) Indeno(1,2,3-cd)pyrene	19.574	276	20398	0.2033	ug/mL	# 44
28) Dibenz(a,h)anthracene	19.581	278	17207m	0.2482	ug/mL	
29) Benzo(g,h,i)perylene	19.917	276	18037	0.2008	ug/mL	# 91

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

[Dibenz(a,h)anthracene; 0.2000 ug/mL; response=17207; MI]

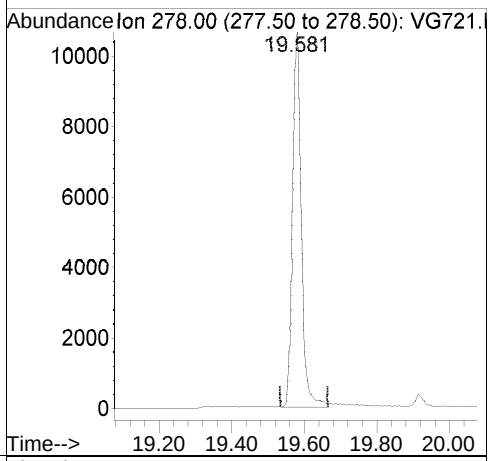
Raw



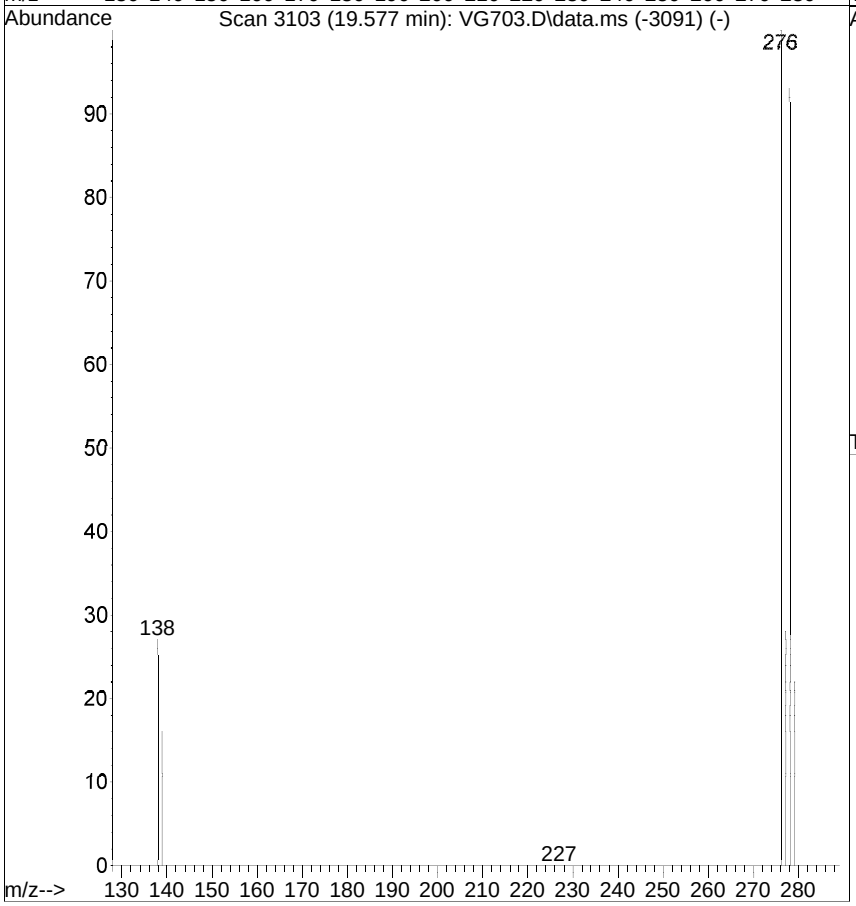
#28
Dibenz(a,h)anthracene
Concen: 0.2482 ug/mL m
RT: 19.581 min Scan# 3104
Delta R.T. 0.004 min
Lab File: VG721.D
Acq: 7 Jul 2014 9:02 pm

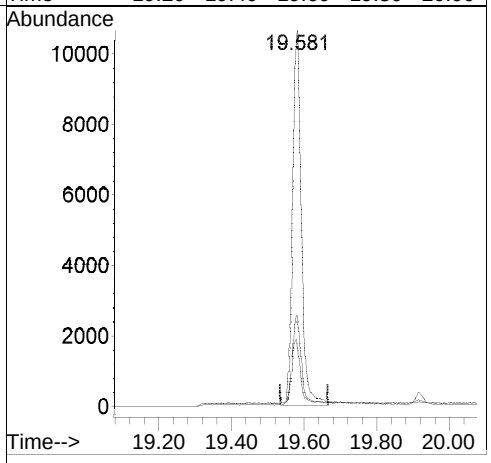
Tgt Ion:278 Resp: 17207

Ion	Ratio	Lower	Upper
278	100		
139	16.9	0.0	22.2
279	24.2	0.7	40.7



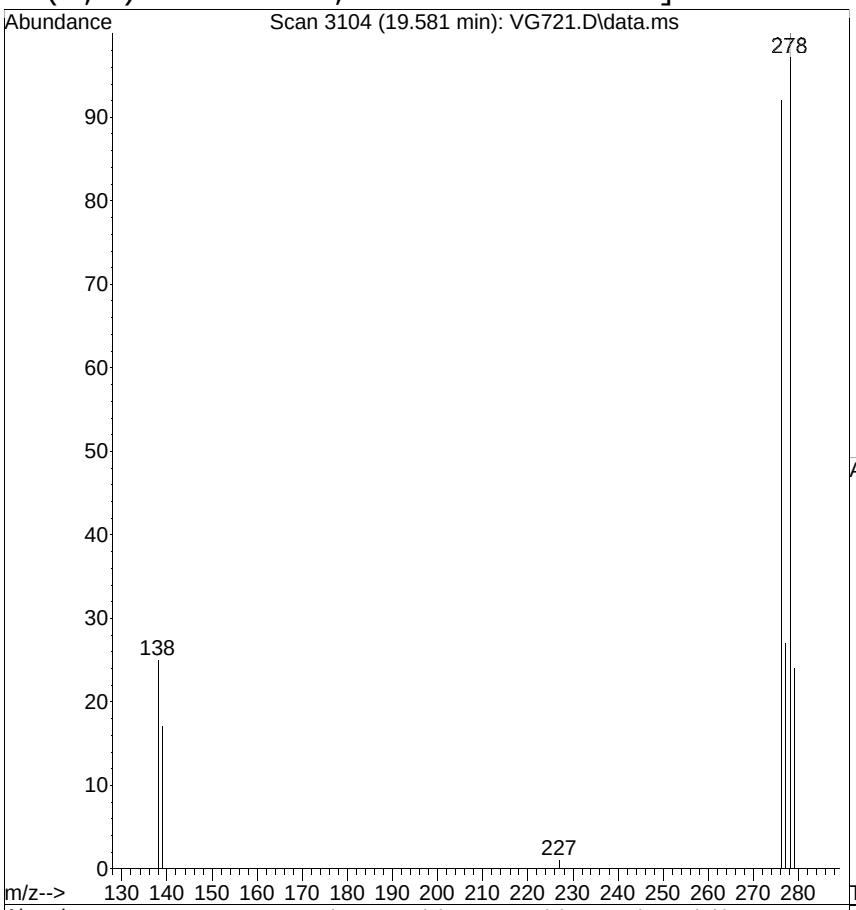
Ref





[Dibenz(a,h)anthracene; before version]

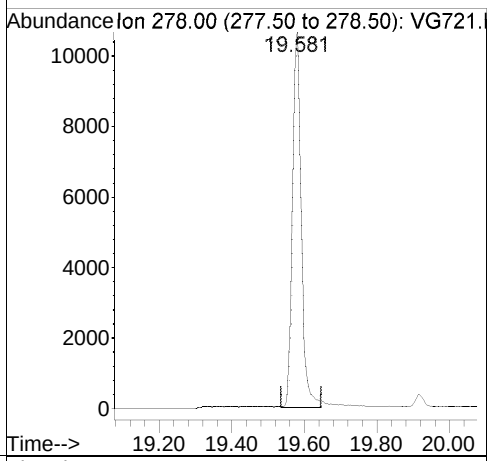
Raw



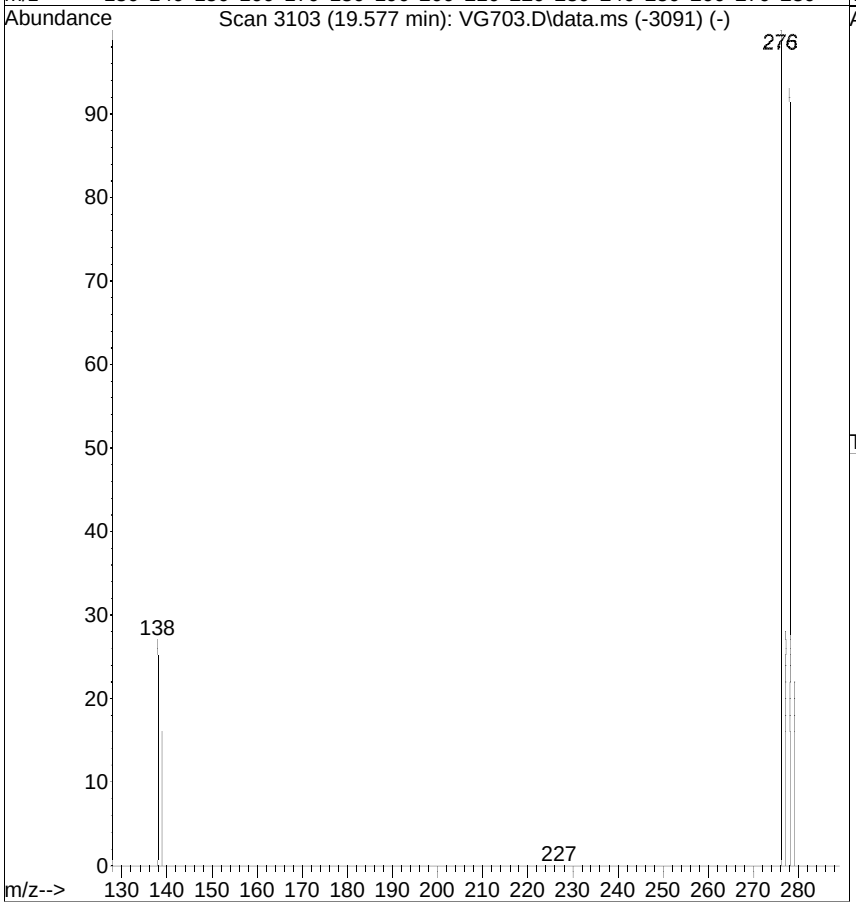
#28
Dibenz(a,h)anthracene
Concen: 0.2458 ug/mL
RT: 19.581 min Scan# 3104
Delta R.T. 0.004 min
Lab File: VG721.D
Acq: 7 Jul 2014 9:02 pm

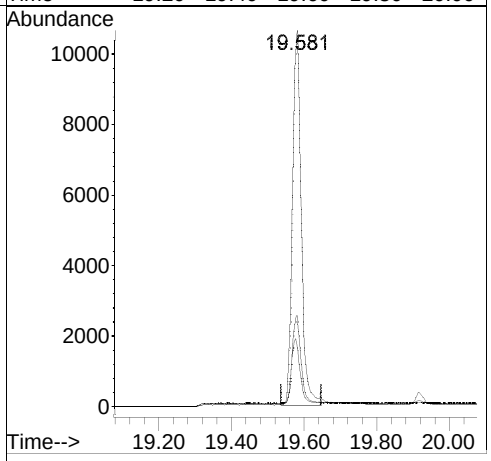
Tgt Ion:278 Resp: 17039

Ion	Ratio	Lower	Upper
278	100		
139	16.9	0.0	22.2
279	24.2	0.7	40.7



Ref

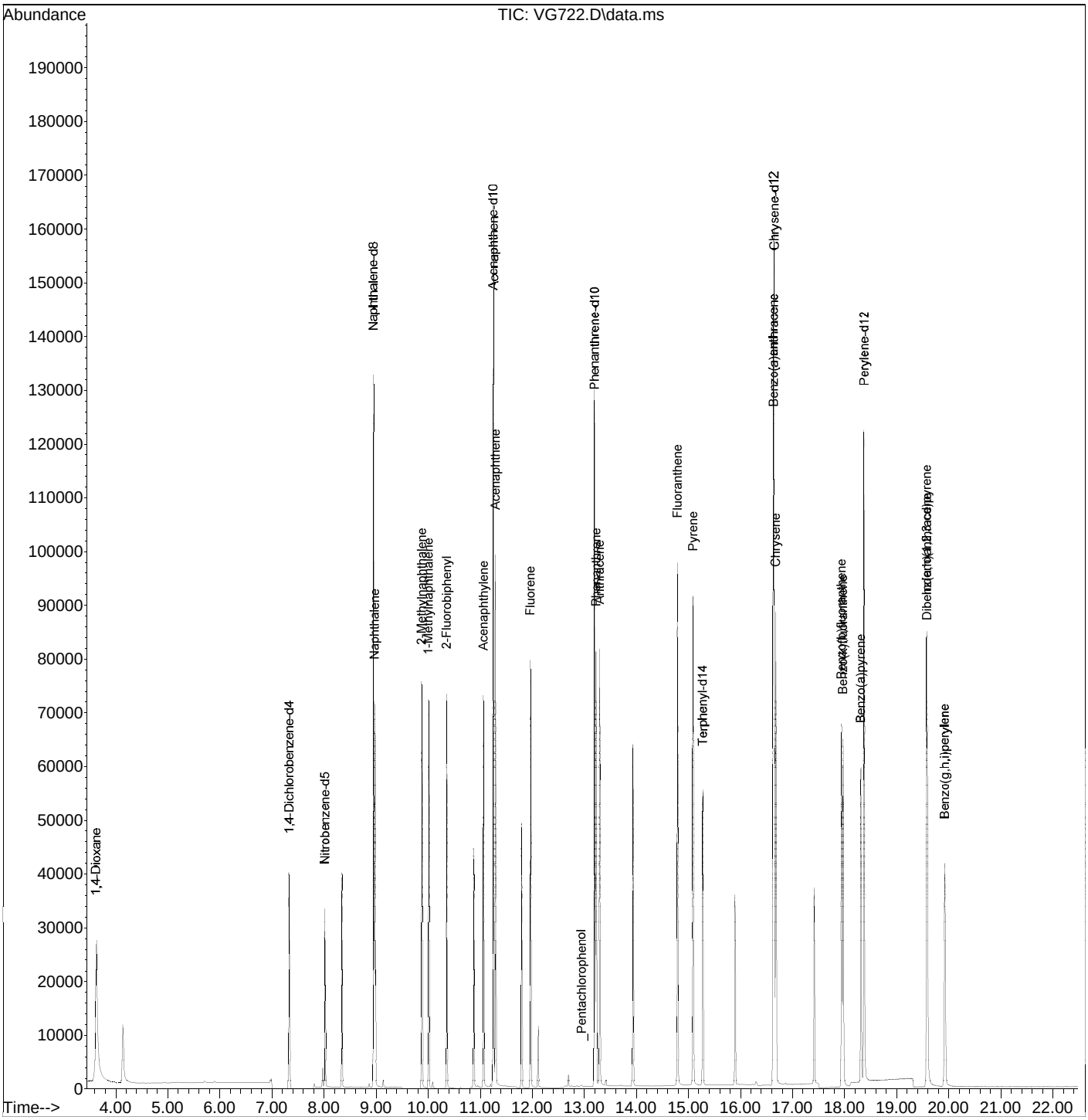




Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\070714\
Data File : VG722.D
Acq On : 7 Jul 2014 9:35 pm
Operator :
Sample : ICAL,S25128
Misc : ICAL
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jul 08 08:10:20 2014
Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
Quant Title : MSBNA03 BNASIM
QLast Update : Mon Jul 07 10:12:59 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\070714\
Data File : VG722.D
Acq On : 7 Jul 2014 9:35 pm
Operator :
Sample : ICAL,S25128
Misc : ICAL
ALS Vial : 22 Sample Multiplier: 1

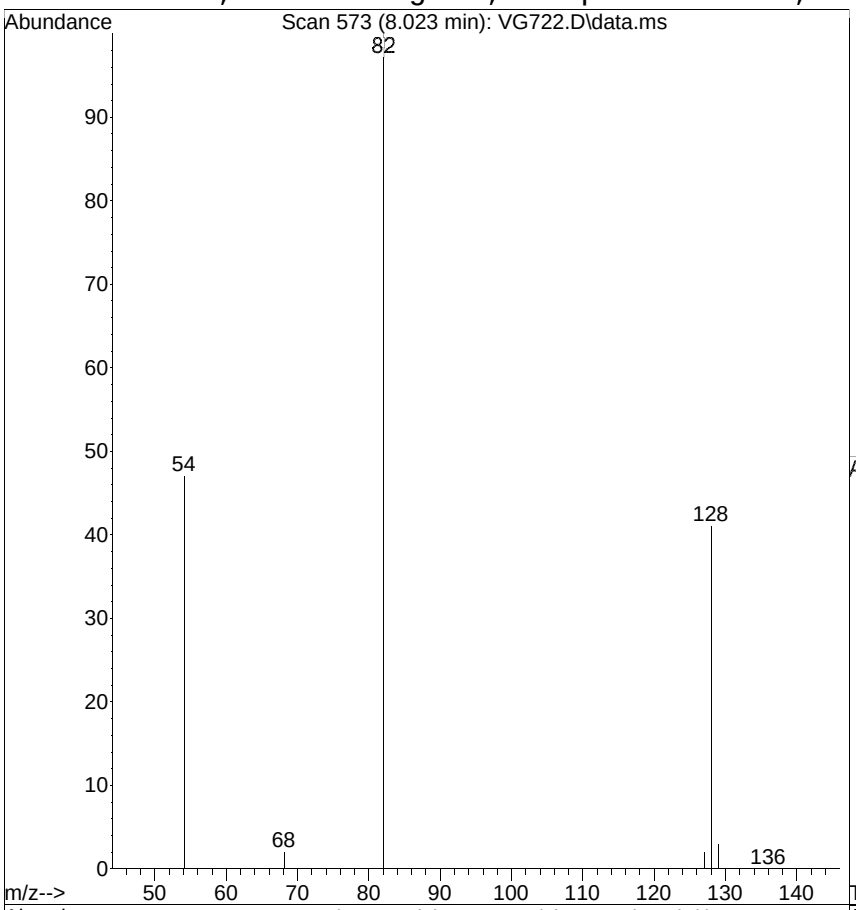
Quant Time: Jul 08 08:10:20 2014
Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
Quant Title : MSBNA03 BNASIM
QLast Update : Mon Jul 07 10:12:59 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.335	152	31300	1.0000	ug/mL	0.00
3) Naphthalene-d8	8.957	136	112853	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.258	164	66466	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.201	188	116709	1.0000	ug/mL	0.00
18) Chrysene-d12	16.646	240	117631	1.0000	ug/mL	0.00
23) Perylene-d12	18.369	264	92228	1.0000	ug/mL	0.00
Target Compounds						**Qvalue**
2) 1,4-Dioxane	3.629	88	42179	2.6196	ug/mL	95
4) Nitrobenzene-d5	8.023	82	17289m	0.4532	ug/mL	
5) Naphthalene	8.985	128	53358	0.5400	ug/mL	99
6) 2-Methylnaphthalene	9.886	142	40215	0.5353	ug/mL	91
7) 1-Methylnaphthalene	10.013	142	36966	0.5250	ug/mL	96
9) 2-Fluorobiphenyl	10.363	172	52901	0.5563	ug/mL	100
10) Acenaphthylene	11.070	152	54010	0.5300	ug/mL	99
11) Acenaphthene	11.298	154	34098	0.5354	ug/mL	94
12) Fluorene	11.968	166	39901	0.5312	ug/mL	95
14) _Pentachlorophenol	12.947	266	115	0.7329	ug/mL	90
15) Phenanthrene	13.231	178	62364	0.5515	ug/mL	98
16) Anthracene	13.296	178	57576	0.5446	ug/mL	98
17) Fluoranthene	14.790	202	66682	0.5102	ug/mL	97
19) Pyrene	15.091	202	69560	0.5004	ug/mL	98
20) Terphenyl-d14	15.277	244	50813	0.4869	ug/mL	90
21) Benzo(a)anthracene	16.632	228	59678	0.5048	ug/mL	96
22) Chrysene	16.676	228	61564	0.6231	ug/mL	95
24) Benzo(b)fluoranthene	17.937	252	57023	0.5282	ug/mL	98
25) Benzo(k)fluoranthene	17.967	252	54134	0.5123	ug/mL	98
26) Benzo(a)pyrene	18.308	252	50381	0.5177	ug/mL	96
27) Indeno(1,2,3-cd)pyrene	19.574	276	51294	0.5303	ug/mL	# 44
28) Dibenz(a,h)anthracene	19.581	278	43104	0.6451	ug/mL	90
29) Benzo(g,h,i)perylene	19.918	276	44612	0.5152	ug/mL	# 92

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

[Nitrobenzene-d5; 0.5000 ug/mL; response=17289; MI]

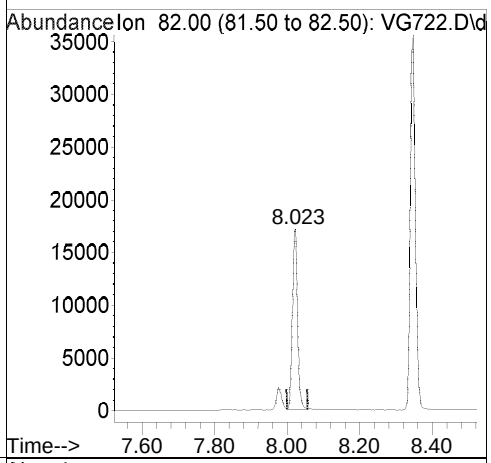
Raw



#4
Nitrobenzene-d5
Concen: 0.4532 ug/mL m
RT: 8.023 min Scan# 573
Delta R.T. -0.000 min
Lab File: VG722.D
Acq: 7 Jul 2014 9:35 pm

Tgt Ion: 82 Resp: 17289

Ion	Ratio	Lower	Upper
82	100		
128	41.3	10.5	50.5
54	47.0	56.2	96.2#



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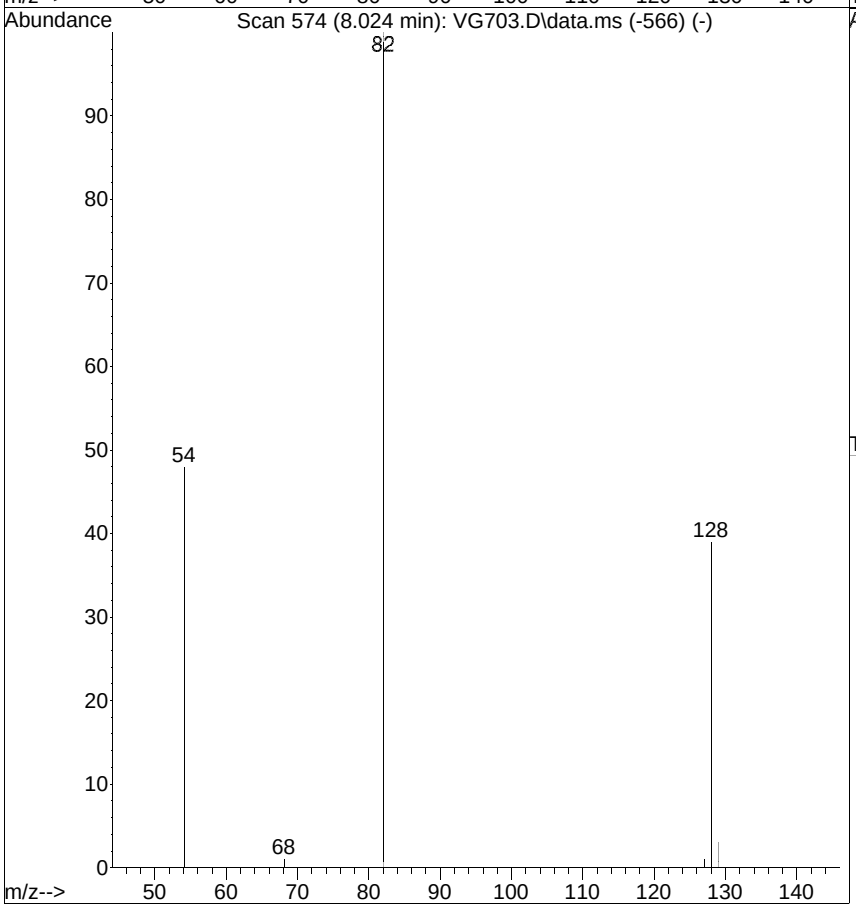
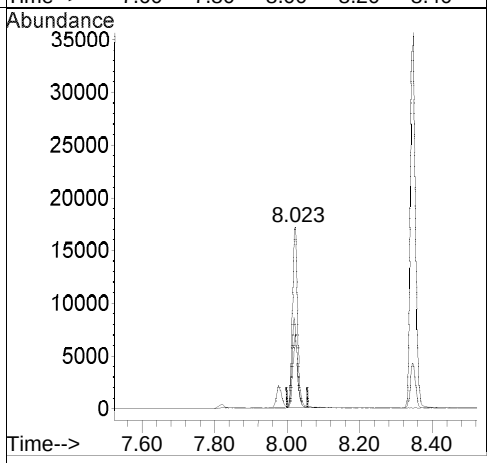
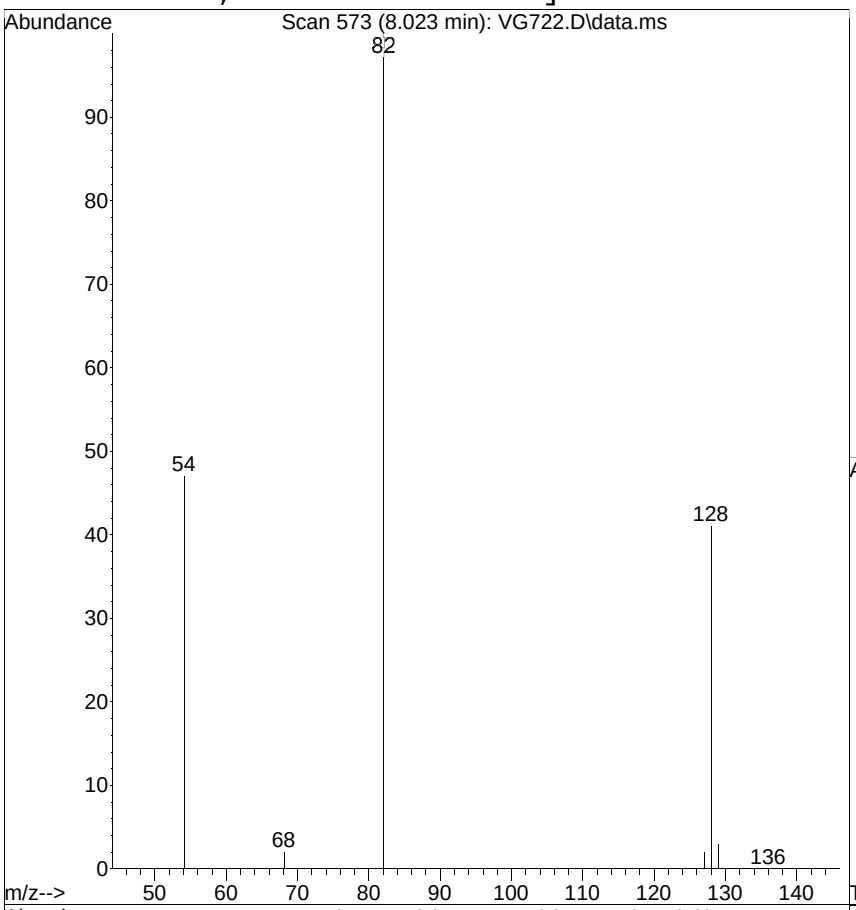




[Nitrobenzene-d5; before version]

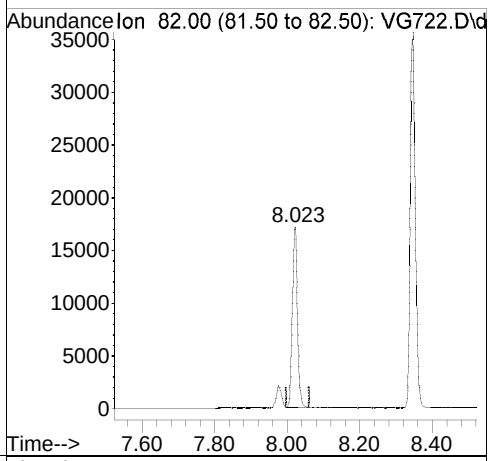
Raw



#4
Nitrobenzene-d5
Concen: 0.4506 ug/mL
RT: 8.023 min Scan# 573
Delta R.T. -0.000 min
Lab File: VG722.D
Acq: 7 Jul 2014 9:35 pm

Tgt Ion: 82 Resp: 17190

Ion	Ratio	Lower	Upper
82	100		
128	41.3	10.5	50.5
54	47.0	56.2	96.2#



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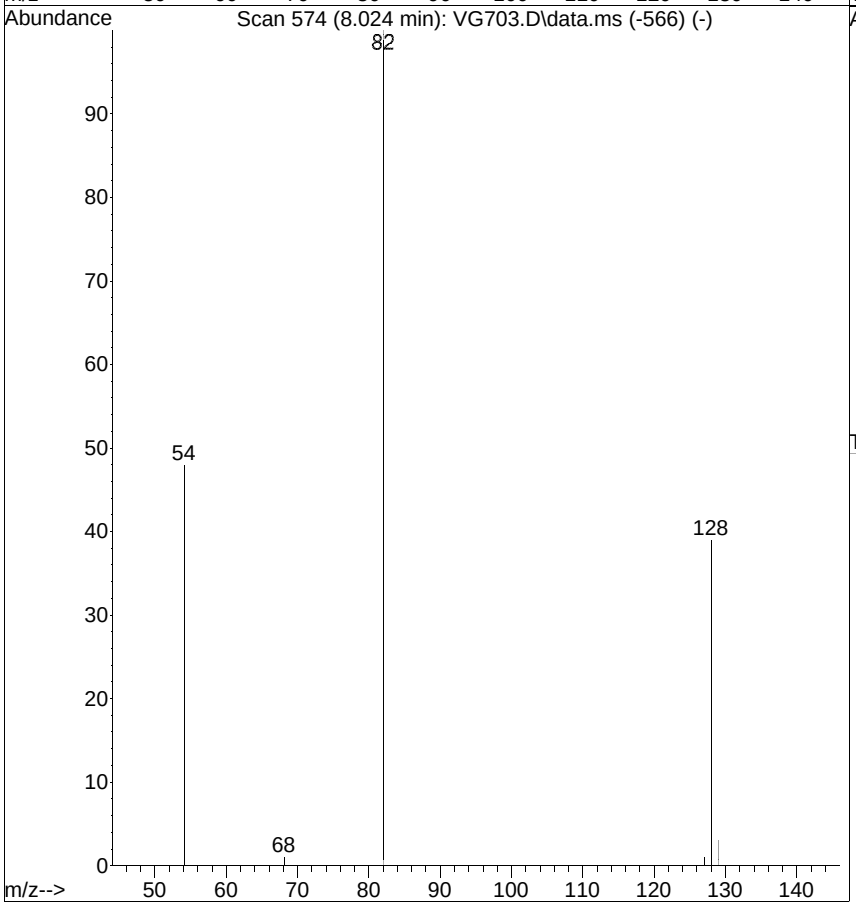
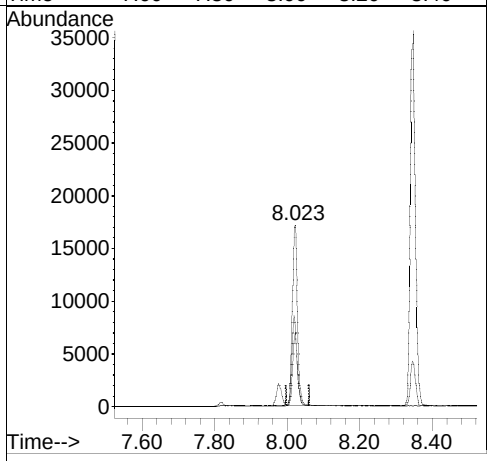
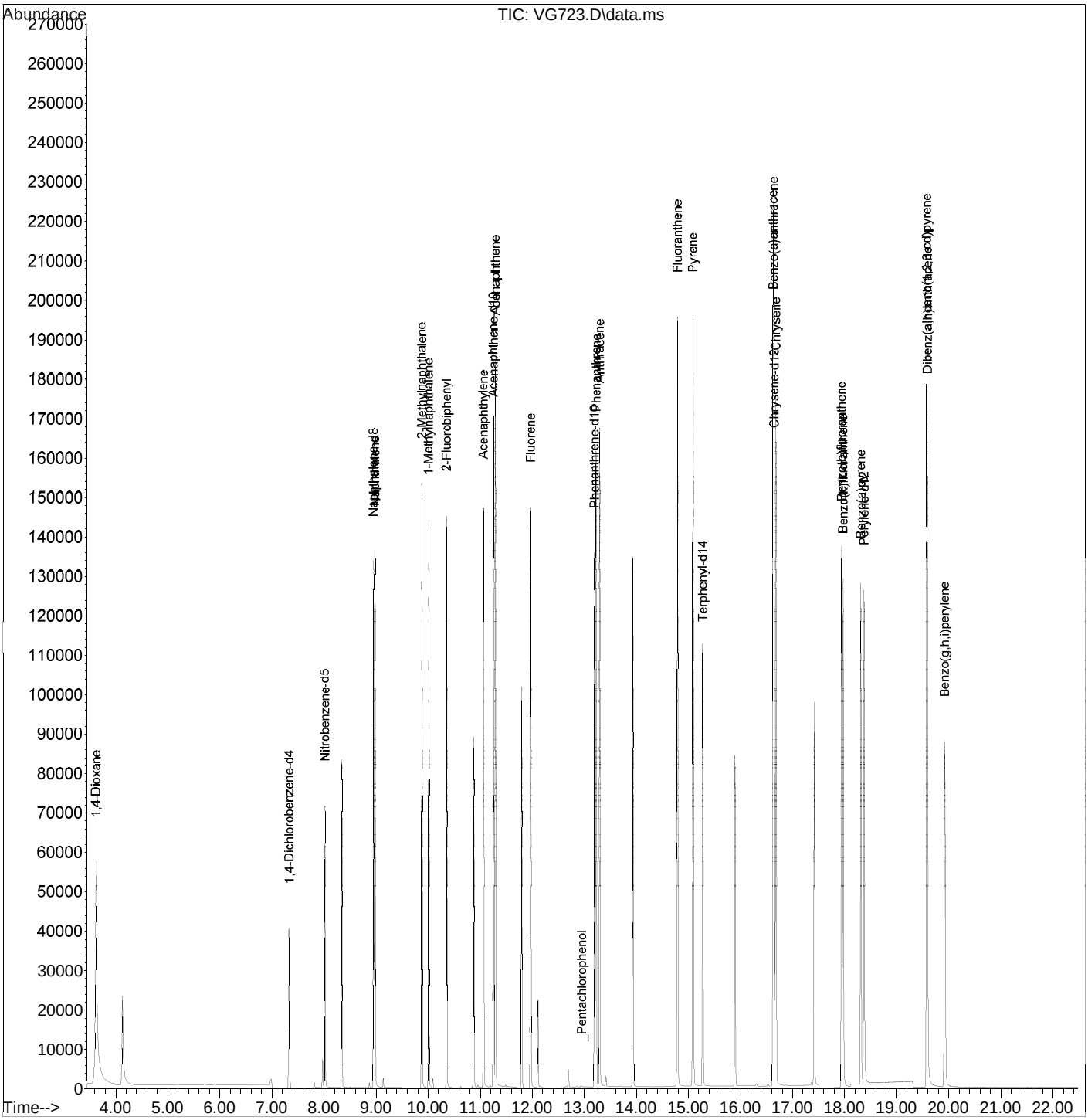




Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\070714\
Data File : VG723.D
Acq On : 7 Jul 2014 10:10 pm
Operator :
Sample : ICAL,S25129
Misc : ICAL
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 08 08:10:52 2014
Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
Quant Title : MSBNA03 BNASIM
QLast Update : Mon Jul 07 10:12:59 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\070714\
Data File : VG723.D
Acq On : 7 Jul 2014 10:10 pm
Operator :
Sample : ICAL,S25129
Misc : ICAL
ALS Vial : 23 Sample Multiplier: 1

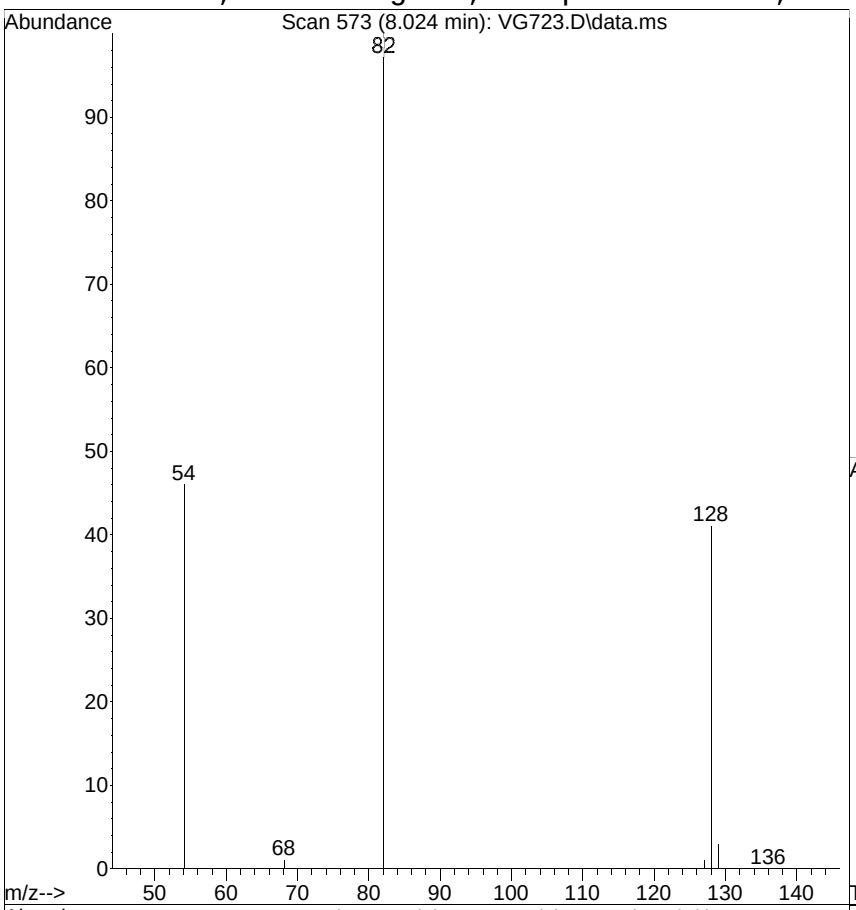
Quant Time: Jul 08 08:10:52 2014
Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
Quant Title : MSBNA03 BNASIM
QLast Update : Mon Jul 07 10:12:59 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.335	152	32023	1.0000	ug/mL	0.00
3) Naphthalene-d8	8.957	136	113951	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.258	164	66733	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.196	188	117708	1.0000	ug/mL	0.00
18) Chrysene-d12	16.647	240	117775	1.0000	ug/mL	0.00
23) Perylene-d12	18.369	264	94243	1.0000	ug/mL	0.00
Target Compounds						**Qvalue**
2) 1,4-Dioxane	3.629	88	82644	5.0169	ug/mL	94
4) Nitrobenzene-d5	8.024	82	36576m	0.9495	ug/mL	
5) Naphthalene	8.985	128	105009	1.0525	ug/mL	99
6) 2-Methylnaphthalene	9.882	142	78036	1.0288	ug/mL	100
7) 1-Methylnaphthalene	10.014	142	71840	1.0105	ug/mL	98
9) 2-Fluorobiphenyl	10.359	172	101464	1.0628	ug/mL	93
10) Acenaphthylene	11.066	152	109707	1.0721	ug/mL	97
11) Acenaphthene	11.298	154	66993	1.0478	ug/mL	92
12) Fluorene	11.973	166	76916	1.0199	ug/mL	93
14) _Pentachlorophenol	12.953	266	124	0.7835	ug/mL	95
15) Phenanthrene	13.231	178	122791	1.0766	ug/mL	98
16) Anthracene	13.297	178	115552	1.0837	ug/mL	97
17) Fluoranthene	14.790	202	137539	1.0435	ug/mL	96
19) Pyrene	15.085	202	140380	1.0086	ug/mL	99
20) Terphenyl-d14	15.277	244	103253	0.9882	ug/mL	90
21) Benzo(a)anthracene	16.632	228	123278	1.0416	ug/mL	97
22) Chrysene	16.676	228	123168	1.2451	ug/mL	96
24) Benzo(b)fluoranthene	17.938	252	116007	1.0516	ug/mL	97
25) Benzo(k)fluoranthene	17.968	252	108848	1.0080	ug/mL	99
26) Benzo(a)pyrene	18.308	252	106007	1.0660	ug/mL	97
27) Indeno(1,2,3-cd)pyrene	19.576	276	107077	1.0833	ug/mL	# 43
28) Dibenz(a,h)anthracene	19.582	278	88990	1.3034	ug/mL	89
29) Benzo(g,h,i)perylene	19.919	276	91562	1.0347	ug/mL	# 92

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

[Nitrobenzene-d5; 1.000 ug/mL; response=36576; MI]

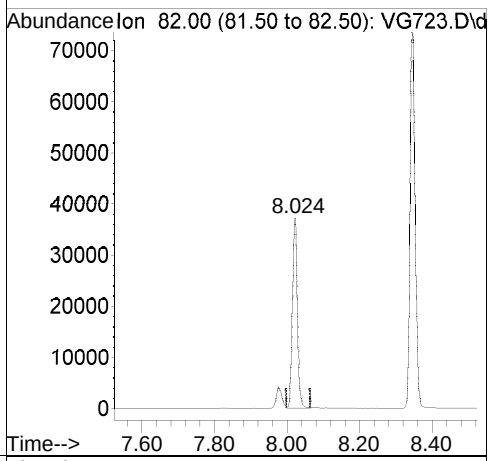
Raw



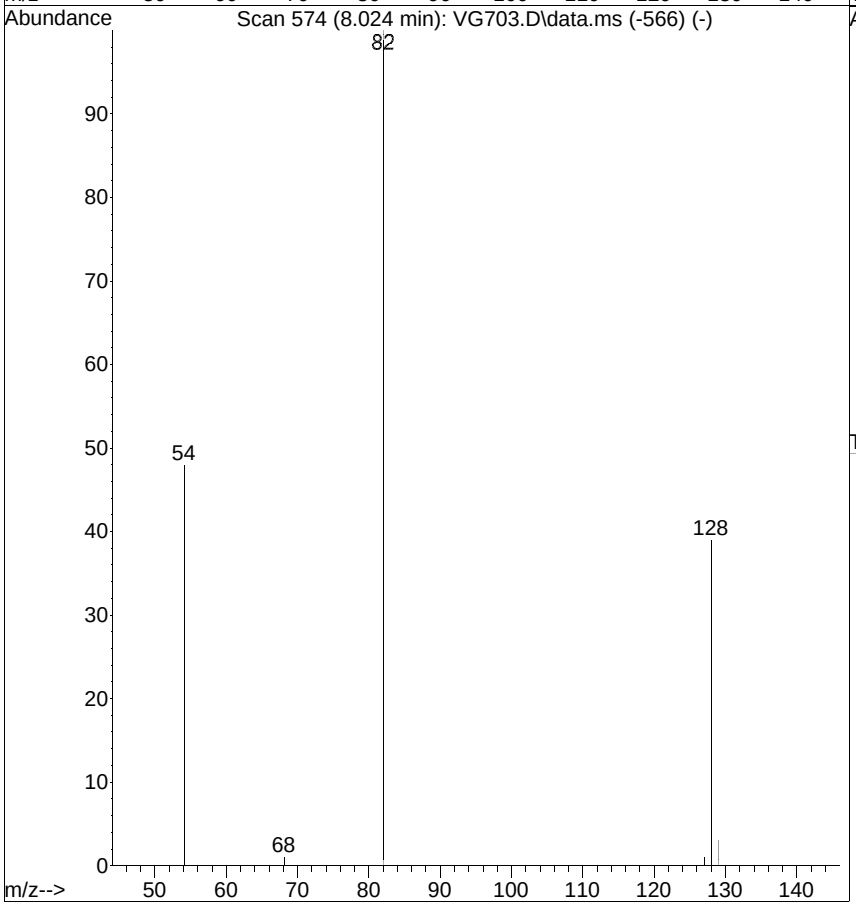
#4
Nitrobenzene-d5
Concen: 0.9495 ug/mL m
RT: 8.024 min Scan# 573
Delta R.T. 0.000 min
Lab File: VG723.D
Acq: 7 Jul 2014 10:10 pm

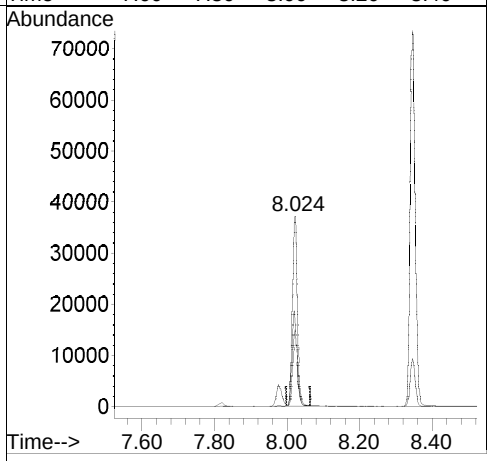
Tgt Ion: 82 Resp: 36576

Ion	Ratio	Lower	Upper
82	100		
128	41.0	10.5	50.5
54	45.9	56.2	96.2#



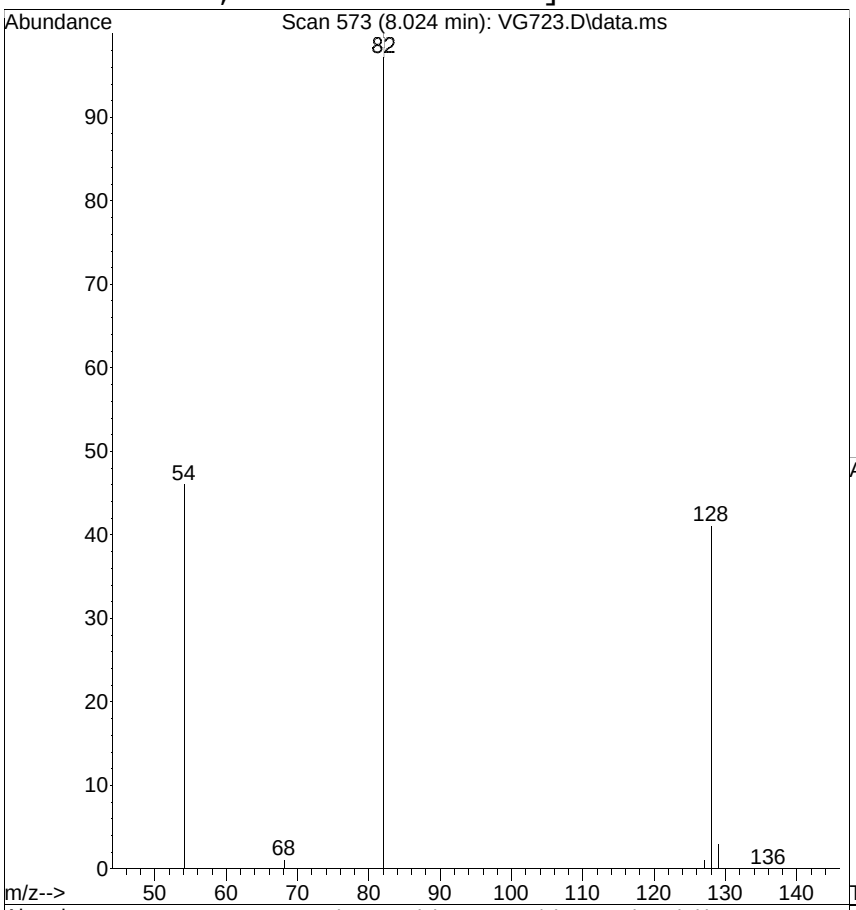
Ref





[Nitrobenzene-d5; before version]

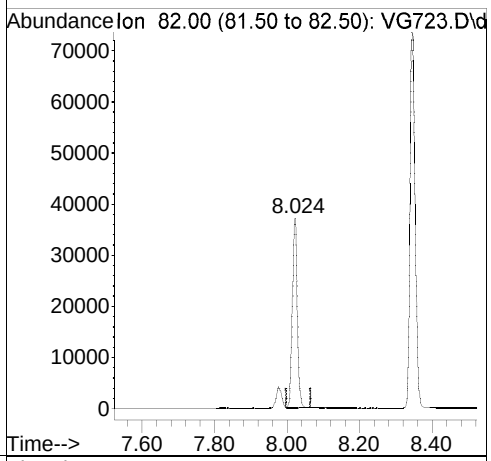
Raw



#4
Nitrobenzene-d5
Concen: 0.9431 ug/mL
RT: 8.024 min Scan# 573
Delta R.T. 0.000 min
Lab File: VG723.D
Acq: 7 Jul 2014 10:10 pm

Tgt Ion: 82 Resp: 36327

Ion	Ratio	Lower	Upper
82	100		
128	41.0	10.5	50.5
54	45.9	56.2	96.2#



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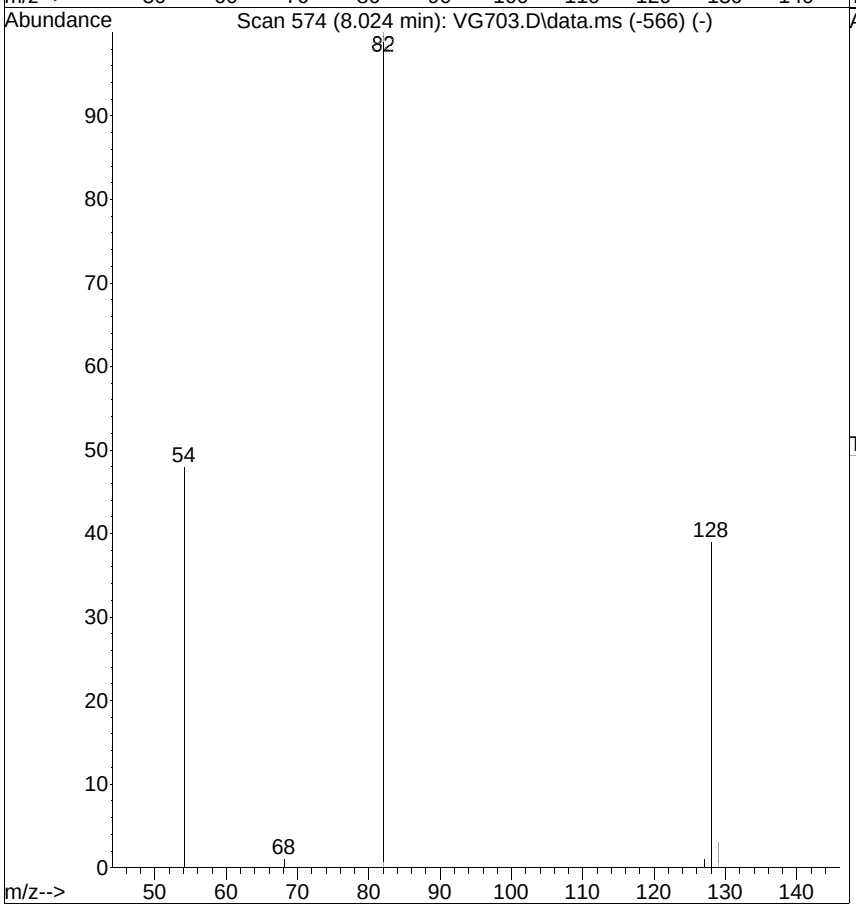
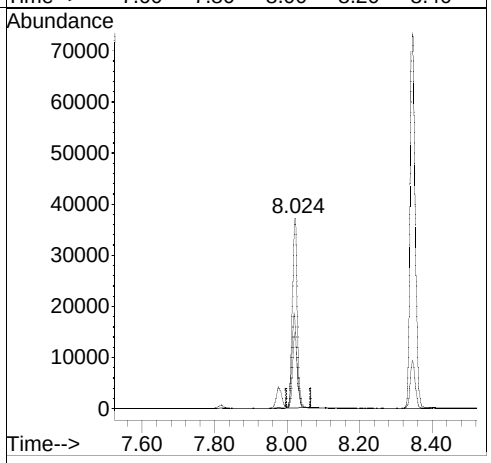
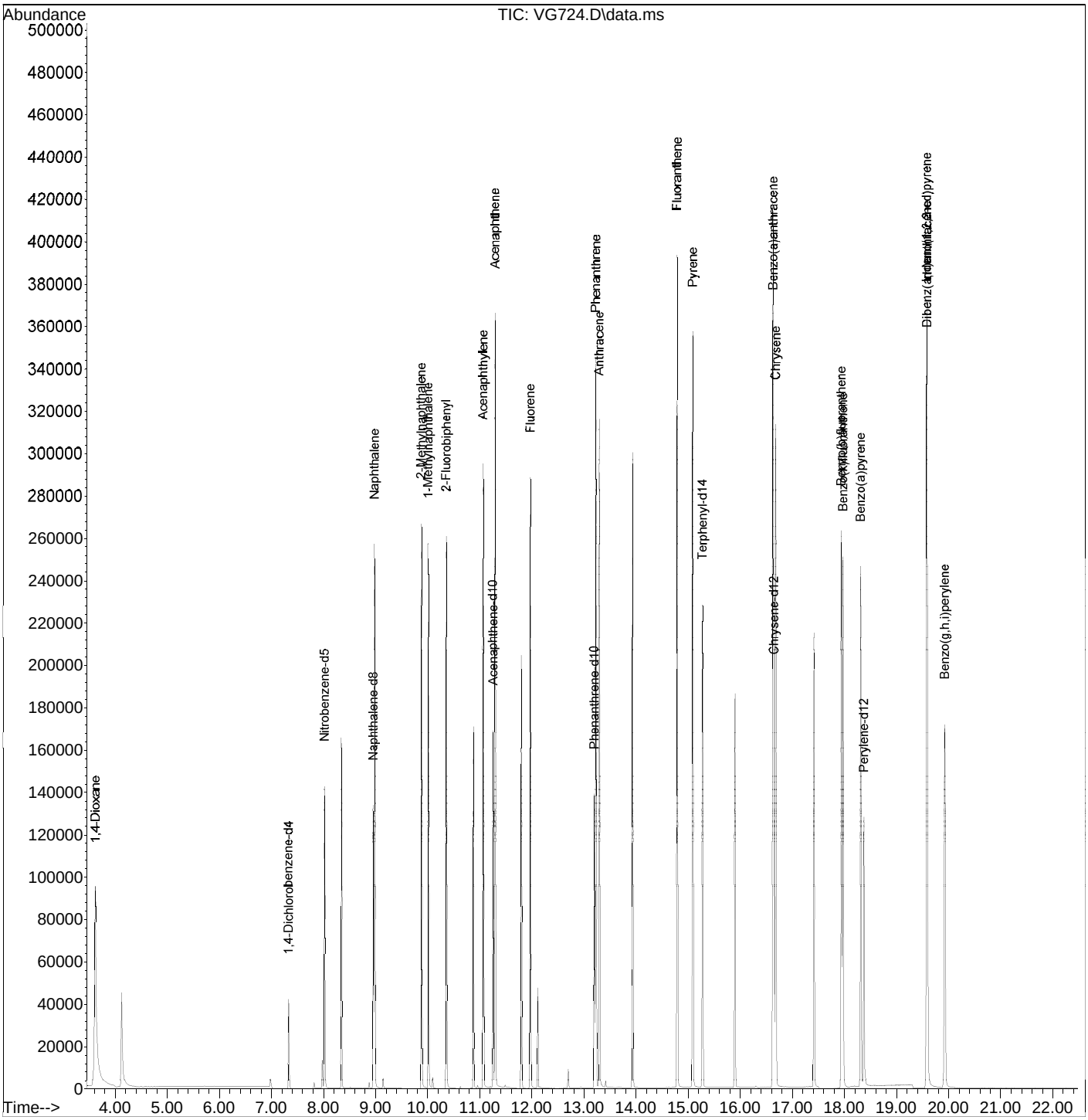




Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\070714\
Data File : VG724.D
Acq On : 7 Jul 2014 10:42 pm
Operator :
Sample : ICAL,S25130
Misc : ICAL
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 07 23:05:59 2014
Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
Quant Title : MSBNA03 BNASIM
QLast Update : Mon Jul 07 10:12:59 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\070714\
Data File : VG724.D
Acq On : 7 Jul 2014 10:42 pm
Operator :
Sample : ICAL,S25130
Misc : ICAL
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 07 23:05:59 2014
Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
Quant Title : MSBNA03 BNASIM
QLast Update : Mon Jul 07 10:12:59 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.332	152	31651	1.0000	ug/mL	0.00
3) Naphthalene-d8	8.956	136	113064	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.258	164	66608	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.200	188	118161	1.0000	ug/mL	0.00
18) Chrysene-d12	16.646	240	115195	1.0000	ug/mL	0.00
23) Perylene-d12	18.369	264	94509	1.0000	ug/mL	0.00

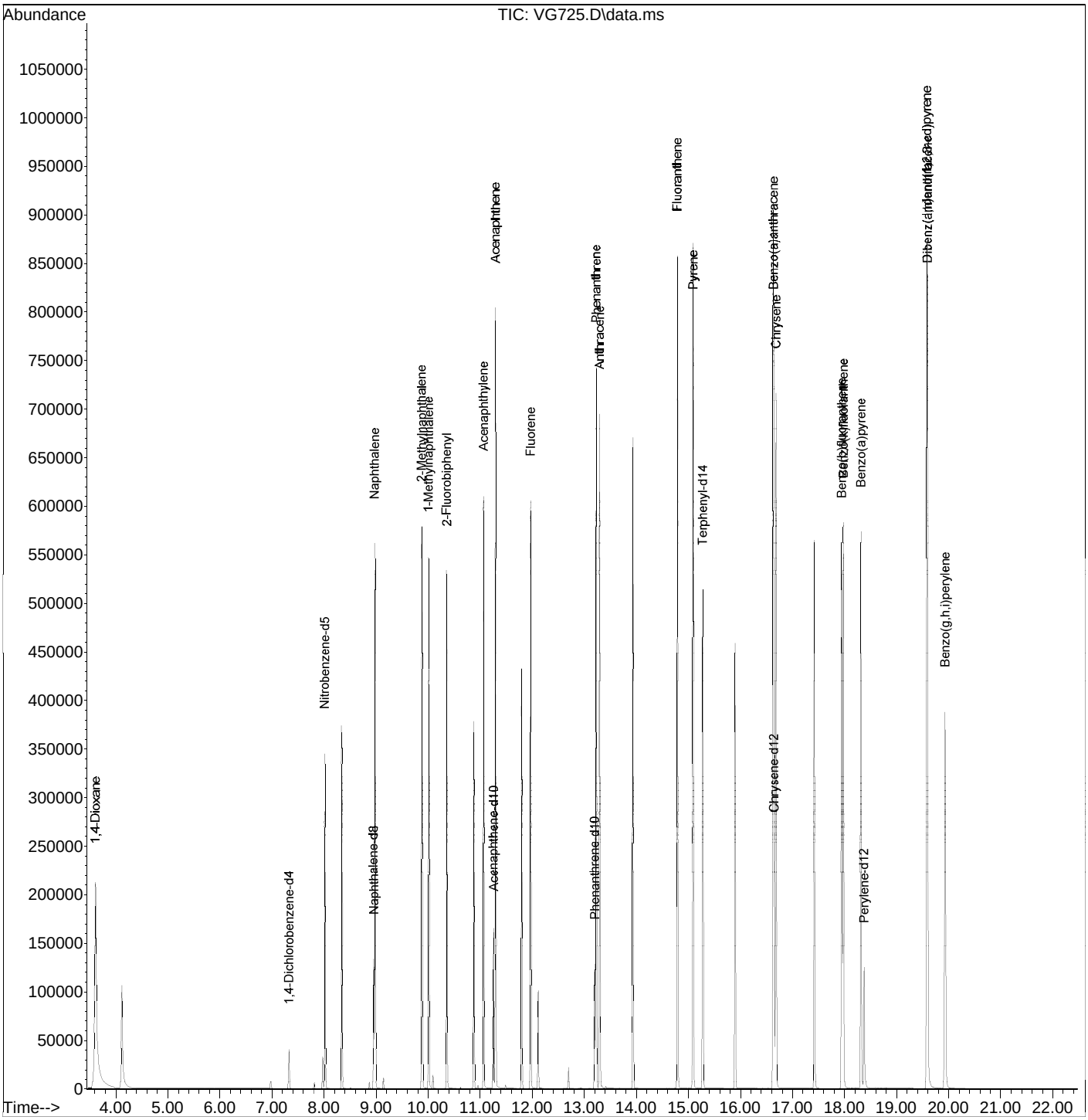
Target Compounds						Qvalue
2) 1,4-Dioxane	3.625	88	153085	9.4022	ug/mL	97
4) Nitrobenzene-d5	8.023	82	73116	1.9130	ug/mL	# 70
5) Naphthalene	8.984	128	195399	1.9739	ug/mL	98
6) 2-Methylnaphthalene	9.883	142	144800	1.9240	ug/mL	97
7) 1-Methylnaphthalene	10.014	142	134379	1.9051	ug/mL	98
9) 2-Fluorobiphenyl	10.360	172	187900	1.9719	ug/mL	93
10) Acenaphthylene	11.070	152	211949	2.0752	ug/mL	98
11) Acenaphthene	11.298	154	129884	2.0352	ug/mL	91
12) Fluorene	11.973	166	146932	1.9520	ug/mL	94
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.230	178	236386	2.0647	ug/mL	99
16) Anthracene	13.295	178	229543	2.1445	ug/mL	97
17) Fluoranthene	14.789	202	264071	1.9957	ug/mL	95
19) Pyrene	15.091	202	269986	1.9832	ug/mL	98
20) Terphenyl-d14	15.276	244	200087	1.9578	ug/mL	89
21) Benzo(a)anthracene	16.631	228	238035	2.0563	ug/mL	97
22) Chrysene	16.680	228	234989	2.4286	ug/mL	95
24) Benzo(b)fluoranthene	17.938	252	225389	2.0375	ug/mL	96
25) Benzo(k)fluoranthene	17.968	252	232219	2.1445	ug/mL	97
26) Benzo(a)pyrene	18.309	252	208869	2.0945	ug/mL	97
27) Indeno(1,2,3-cd)pyrene	19.576	276	215400	2.1731	ug/mL	# 42
28) Dibenz(a,h)anthracene	19.583	278	181271	2.6475	ug/mL	89
29) Benzo(g,h,i)perylene	19.919	276	182560	2.0573	ug/mL	# 91

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

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\070714\
Data File : VG725.D
Acq On : 7 Jul 2014 11:17 pm
Operator :
Sample : ICAL,S25132
Misc : ICAL
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jul 07 23:40:44 2014
Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
Quant Title : MSBNA03 BNASIM
QLast Update : Mon Jul 07 10:12:59 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\070714\
Data File : VG725.D
Acq On : 7 Jul 2014 11:17 pm
Operator :
Sample : ICAL,S25132
Misc : ICAL
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jul 07 23:40:44 2014
Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
Quant Title : MSBNA03 BNASIM
QLast Update : Mon Jul 07 10:12:59 2014
Response via : Initial Calibration

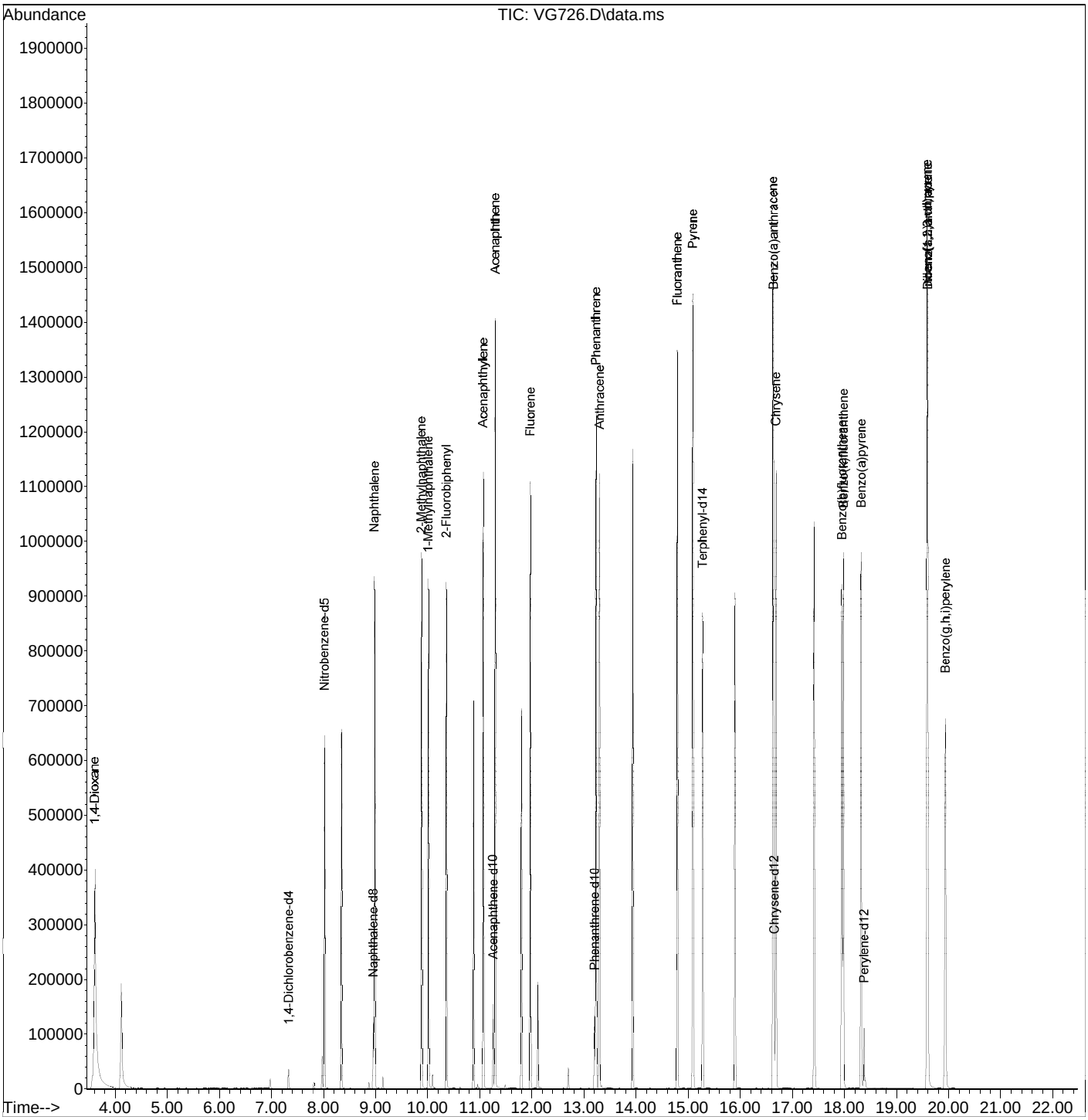
Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.332	152	30716	1.0000	ug/mL	0.00
3) Naphthalene-d8	8.957	136	110288	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.258	164	64822	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.201	188	117421	1.0000	ug/mL	0.00
18) Chrysene-d12	16.646	240	109503	1.0000	ug/mL	0.00
23) Perylene-d12	18.372	264	92563	1.0000	ug/mL	0.00
Target Compounds						**Qvalue**
2) 1,4-Dioxane	3.617	88	348670	22.0664	ug/mL	96
4) Nitrobenzene-d5	8.024	82	175592	4.7099	ug/mL	# 69
5) Naphthalene	8.985	128	436148	4.5168	ug/mL	96
6) 2-Methylnaphthalene	9.887	142	322917	4.3987	ug/mL	91
7) 1-Methylnaphthalene	10.018	142	296695	4.3121	ug/mL	94
9) 2-Fluorobiphenyl	10.363	172	400267	4.3162	ug/mL	95
10) Acenaphthylene	11.071	152	463730	4.6656	ug/mL	96
11) Acenaphthene	11.299	154	290197	4.6725	ug/mL	89
12) Fluorene	11.974	166	314250	4.2899	ug/mL	93
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.231	178	521315	4.5820	ug/mL	97
16) Anthracene	13.296	178	502508	4.7243	ug/mL	97
17) Fluoranthene	14.789	202	586547	4.4608	ug/mL	93
19) Pyrene	15.090	202	599520	4.6327	ug/mL	97
20) Terphenyl-d14	15.276	244	446383	4.5947	ug/mL	89
21) Benzo(a)anthracene	16.631	228	521163	4.7361	ug/mL	97
22) Chrysene	16.681	228	509699	5.5415	ug/mL	95
24) Benzo(b)fluoranthene	17.942	252	485646	4.4824	ug/mL	91
25) Benzo(k)fluoranthene	17.972	252	512253	4.8301	ug/mL	91
26) Benzo(a)pyrene	18.311	252	484547	4.9612	ug/mL	98
27) Indeno(1,2,3-cd)pyrene	19.580	276	496435	5.1136	ug/mL	# 37
28) Dibenz(a,h)anthracene	19.587	278	424766	6.3341	ug/mL	86
29) Benzo(g,h,i)perylene	19.927	276	416441	4.7916	ug/mL	# 89

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

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\070714\
Data File : VG726.D
Acq On : 7 Jul 2014 11:50 pm
Operator :
Sample : ICAL,S25133
Misc : ICAL
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Jul 08 00:14:13 2014
Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
Quant Title : MSBNA03 BNASIM
QLast Update : Mon Jul 07 10:12:59 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\070714\
Data File : VG726.D
Acq On : 7 Jul 2014 11:50 pm
Operator :
Sample : ICAL,S25133
Misc : ICAL
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Jul 08 00:14:13 2014
Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
Quant Title : MSBNA03 BNASIM
QLast Update : Mon Jul 07 10:12:59 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.336	152	28625	1.0000	ug/mL	0.00
3) Naphthalene-d8	8.957	136	101913	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.258	164	58991	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.201	188	111124	1.0000	ug/mL	0.00
18) Chrysene-d12	16.651	240	97187	1.0000	ug/mL	0.00
23) Perylene-d12	18.374	264	83430	1.0000	ug/mL	0.00

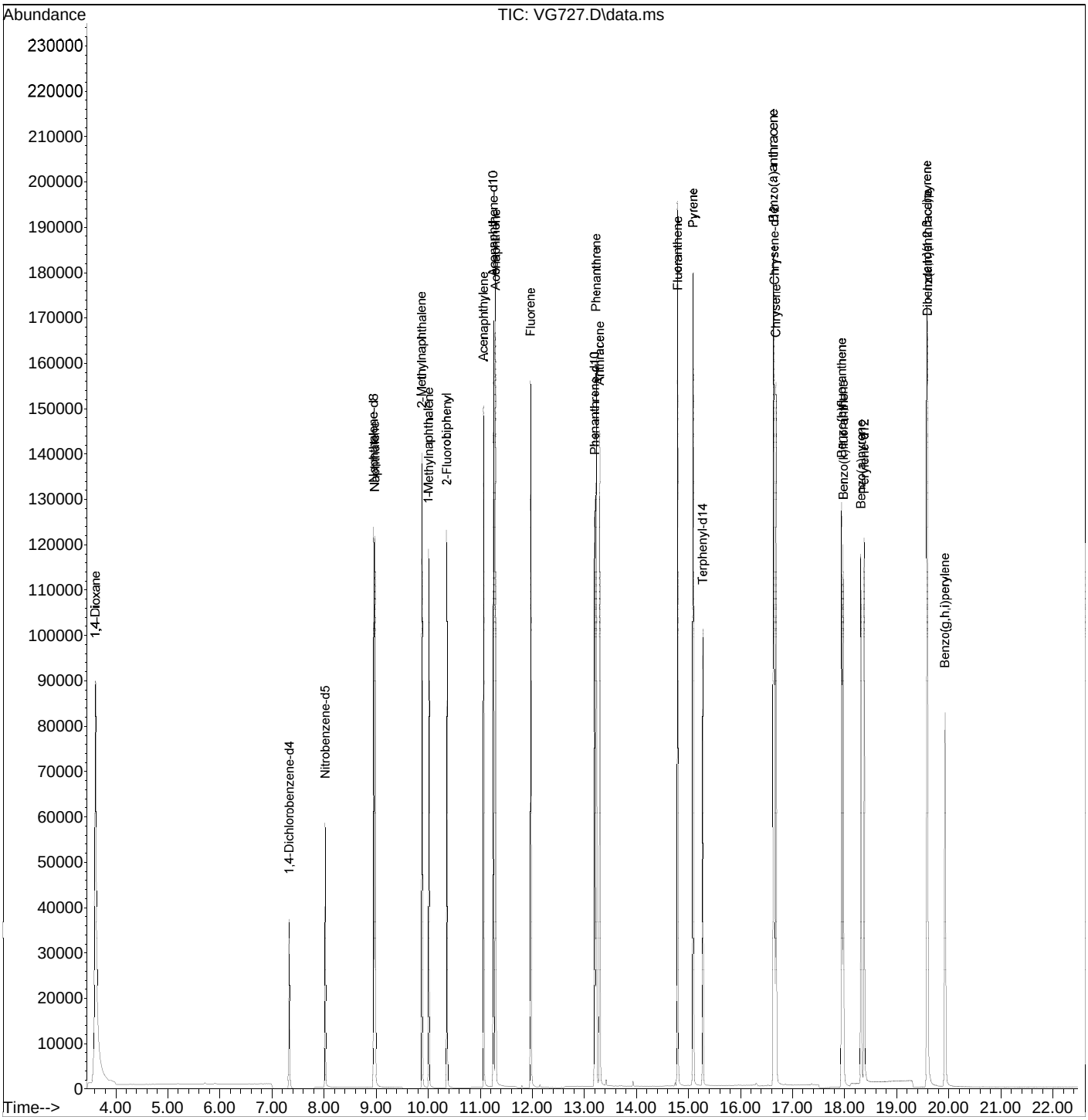
Target Compounds						Qvalue
2) 1,4-Dioxane	3.614	88	604611	41.0594	ug/mL	87
4) Nitrobenzene-d5	8.024	82	324995	9.4338	ug/mL	# 72
5) Naphthalene	8.985	128	749393	8.3985	ug/mL	94
6) 2-Methylnaphthalene	9.888	142	555867	8.1940	ug/mL	88
7) 1-Methylnaphthalene	10.019	142	510106	8.0229	ug/mL	92
9) 2-Fluorobiphenyl	10.365	172	673619	7.9819	ug/mL	93
10) Acenaphthylene	11.071	152	800443	8.8492	ug/mL	93
11) Acenaphthene	11.298	154	511618	9.0519	ug/mL	90
12) Fluorene	11.973	166	558386	8.3761	ug/mL	95
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.231	178	896103	8.3225	ug/mL	93
16) Anthracene	13.302	178	860828	8.5516	ug/mL	95
17) Fluoranthene	14.789	202	1004293	8.0706	ug/mL	90
19) Pyrene	15.090	202	1013435	8.8235	ug/mL	93
20) Terphenyl-d14	15.276	244	770439	8.9353	ug/mL	86
21) Benzo(a)anthracene	16.636	228	876860	8.9782	ug/mL	96
22) Chrysene	16.681	228	840418	10.2951	ug/mL	96
24) Benzo(b)fluoranthene	17.945	252	825177	8.4500	ug/mL	87
25) Benzo(k)fluoranthene	17.975	252	799125	8.3598	ug/mL	90
26) Benzo(a)pyrene	18.314	252	832682	9.4590	ug/mL	94
27) Indeno(1,2,3-cd)pyrene	19.586	276	878424	10.0389	ug/mL	# 29
28) Dibenz(a,h)anthracene	19.590	278	759007	12.5573	ug/mL	83
29) Benzo(g,h,i)perylene	19.933	276	732258	9.3478	ug/mL	# 86

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

Quantitation Report (Not Reviewed)

Data Path : G:\msbna03\070714\
Data File : VG727.D
Acq On : 8 Jul 2014 12:22 am
Operator :
Sample : ICV,S25107
Misc : ICV
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Jul 08 08:15:39 2014
Quant Method : G:\msbna03\070714\3PAHSIM.m
Quant Title : MSBNA03 BNASIM
QLast Update : Tue Jul 08 08:15:16 2014
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : G:\msbna03\070714\
Data File : VG727.D
Acq On : 8 Jul 2014 12:22 am
Operator :
Sample : ICV,S25107
Misc : ICV
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Jul 08 08:15:39 2014
Quant Method : G:\msbna03\070714\3PAHSIM.m
Quant Title : MSBNA03 BNASIM
QLast Update : Tue Jul 08 08:15:16 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.335	152	28912	1.0000	ug/mL	0.00
3) Naphthalene-d8	8.960	136	106531	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.258	164	62825	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.202	188	114523	1.0000	ug/mL	0.00
18) Chrysene-d12	16.647	240	116182	1.0000	ug/mL	0.00
23) Perylene-d12	18.372	264	88872	1.0000	ug/mL	0.00

Target Compounds						Qvalue
2) 1,4-Dioxane	3.618	88	136996	9.4706	ug/mL	96
4) Nitrobenzene-d5	8.023	82	30131	0.9139	ug/mL	# 73
5) Naphthalene	8.988	128	95450	1.0233	ug/mL	99
6) 2-Methylnaphthalene	9.887	142	72265	1.0366	ug/mL	93
7) 1-Methylnaphthalene	10.018	142	60104	0.9298	ug/mL	96
9) 2-Fluorobiphenyl	10.363	172	85944	0.9487	ug/mL	98
10) Acenaphthylene	11.070	152	104202	1.0917	ug/mL	98
11) Acenaphthene	11.298	154	62752	1.0348	ug/mL	94
12) Fluorene	11.972	166	75491	1.0857	ug/mL	97
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.231	178	116080	1.0286	ug/mL	99
16) Anthracene	13.297	178	102351	0.9769	ug/mL	97
17) Fluoranthene	14.790	202	130783	1.0628	ug/mL	97
19) Pyrene	15.091	202	129459	0.9847	ug/mL	99
20) Terphenyl-d14	15.277	244	84425	0.8607	ug/mL	89
21) Benzo(a)anthracene	16.632	228	115112	1.0134	ug/mL	97
22) Chrysene	16.677	228	113099	0.9865	ug/mL	95
24) Benzo(b)fluoranthene	17.938	252	108082	1.0608	ug/mL	98
25) Benzo(k)fluoranthene	17.971	252	103359	1.0285	ug/mL	97
26) Benzo(a)pyrene	18.308	252	98951	1.0616	ug/mL	96
27) Indeno(1,2,3-cd)pyrene	19.579	276	98689	1.0227	ug/mL	# 42
28) Dibenz(a,h)anthracene	19.585	278	83967	1.0289	ug/mL	89
29) Benzo(g,h,i)perylene	19.922	276	86490	1.0411	ug/mL	# 91

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

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259835 MSSIM Water: EPA 8270D-SIM

Inst : MSBNA04
Calnum : 534275763001
Units : ug/mL

Name : 4PAHSIM
Date : 10-JUL-2014 16:29
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	wga06	534275763006	ICAL	10-JUL-2014 16:29	S25125
L2	wga07	534275763007	ICAL	10-JUL-2014 17:02	S25126
L3	wga08	534275763008	ICAL	10-JUL-2014 17:35	S25128
L4	wga09	534275763009	ICAL	10-JUL-2014 18:08	S25129
L5	wga10	534275763010	ICAL	10-JUL-2014 18:41	S25130
L6	wga11	534275763011	ICAL	10-JUL-2014 19:14	S25132
L7	wga12	534275763012	ICAL	10-JUL-2014 19:47	S25133

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene	1.0858	1.1077	1.1314	1.1333	1.1322	1.1136	1.1238	AVRG		0.89425		1.1183	2	15	0.700	0.99	
2-Methylnaphthalene	0.6104	0.6255	0.6457	0.6585	0.6617	0.6591	0.6601	AVRG		1.54832		0.6459	3	15	0.400	0.99	
Acenaphthylene	1.5803	1.6305	1.7018	1.7244	1.7816	1.7638	1.7810	AVRG		0.58512		1.7091	5	15	0.900	0.99	
Acenaphthene	0.9777	0.9929	1.0324	1.0493	1.0595	1.0544	1.0656	AVRG		0.96795		1.0331	3	15	0.900	0.99	
Fluorene	1.1010	1.1343	1.1773	1.2089	1.2062	1.1900	1.2084	AVRG		0.85096		1.1751	4	15	0.900	0.99	
Phenanthrene	1.0262	1.0403	1.0846	1.0810	1.0813	1.0732	1.0737	AVRG		0.93829		1.0658	2	15	0.700	0.99	
Anthracene	0.9565	0.9849	1.0468	1.0492m	1.0655m	1.0778m	1.1026m	AVRG		0.96110		1.0405	5	15	0.700	0.99	
Fluoranthene	0.9537	0.9695	1.0213	1.0184	1.0387	1.0600	1.0570	AVRG		0.98335		1.0169	4	15	0.600	0.99	
Pyrene	1.2804	1.3046	1.3510	1.3759	1.3592	1.3510	1.3081	AVRG		0.75024		1.3329	3	15	0.600	0.99	
Benzo(a)anthracene	0.9224	0.9077	0.9333	0.9538	0.9553	0.9547	0.9569	AVRG		1.06317		0.9406	2	15	0.800	0.99	
Chrysene	0.9309	0.9496	0.9674	0.9859m	0.9752m	0.9600m	0.9614m	AVRG		1.04007		0.9615	2	15	0.700	0.99	
Benzo(b)fluoranthene	0.9949	1.0334	1.1103	1.1347	1.1887	1.1759	1.2003	AVRG		0.89306		1.1197	7	15	0.700	0.99	
Benzo(k)fluoranthene	1.0985m	1.1154m	1.1419m	1.1741m	1.1946m	1.2007m	1.2147m	AVRG		0.85995		1.1629	4	15	0.700	0.99	
Benzo(a)pyrene	0.9139	0.9149	0.9689	0.9986	1.0295	1.0580	1.0833	AVRG		1.00473		0.9953	7	15	0.700	0.99	
Indeno(1,2,3-cd)pyrene	1.0481m	1.0698	1.1392	1.1999	1.2482	1.2886	1.3454	AVRG		0.83940		1.1913	9	15	0.500	0.99	
Dibenz(a,h)anthracene	0.7856m	0.8212m	0.8734	0.9272	0.9710	1.0025	1.0450	AVRG		1.08936		0.9180	10	15	0.400	0.99	
Benzo(g,h,i)perylene	0.9629m	0.9796m	1.0212	1.0639	1.0858	1.0884	1.1328	AVRG		0.95438		1.0478	6	15	0.500	0.99	
Nitrobenzene-d5	0.3832m	0.4042m	0.4071m	0.4141	0.4132	0.4214	0.4168	AVRG		2.44752		0.4086	3	15	0.05	0.99	
2-Fluorobiphenyl	1.3147	1.3456	1.3745	1.4001	1.3855	1.3547	1.3669	AVRG		0.73360		1.3631	2	15	0.05	0.99	
Terphenyl-d14	1.0057	1.0202	1.0457	1.0586	1.0608	1.0468	1.0729	AVRG		0.95750		1.0444	2	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	-3	0.2000	-1	0.5000	1	1.0000	1	2.0000	1	5.0000	0	10.000	0
2-Methylnaphthalene	0.1000	-5	0.2000	-3	0.5000	0	1.0000	2	2.0000	2	5.0000	2	10.000	2
Acenaphthylene	0.1000	-8	0.2000	-5	0.5000	0	1.0000	1	2.0000	4	5.0000	3	10.000	4
Acenaphthene	0.1000	-5	0.2000	-4	0.5000	0	1.0000	2	2.0000	3	5.0000	2	10.000	3
Fluorene	0.1000	-6	0.2000	-3	0.5000	0	1.0000	3	2.0000	3	5.0000	1	10.000	3
Phenanthrene	0.1000	-4	0.2000	-2	0.5000	2	1.0000	1	2.0000	1	5.0000	1	10.000	1
Anthracene	0.1000	-8	0.2000	-5	0.5000	1	1.0000	1	2.0000	2	5.0000	4	10.000	6
Fluoranthene	0.1000	-6	0.2000	-5	0.5000	0	1.0000	0	2.0000	2	5.0000	4	10.000	4
Pyrene	0.1000	-4	0.2000	-2	0.5000	1	1.0000	3	2.0000	2	5.0000	1	10.000	-2
Benzo(a)anthracene	0.1000	-2	0.2000	-3	0.5000	-1	1.0000	1	2.0000	2	5.0000	1	10.000	2
Chrysene	0.1000	-3	0.2000	-1	0.5000	1	1.0000	3	2.0000	1	5.0000	0	10.000	0
Benzo(b)fluoranthene	0.1000	-11	0.2000	-8	0.5000	-1	1.0000	1	2.0000	6	5.0000	5	10.000	7
Benzo(k)fluoranthene	0.1000	-6	0.2000	-4	0.5000	-2	1.0000	1	2.0000	3	5.0000	3	10.000	4
Benzo(a)pyrene	0.1000	-8	0.2000	-8	0.5000	-3	1.0000	0	2.0000	3	5.0000	6	10.000	9
Indeno(1,2,3-cd)pyrene	0.1000	-12	0.2000	-10	0.5000	-4	1.0000	1	2.0000	5	5.0000	8	10.000	13
Dibenz(a,h)anthracene	0.1000	-14	0.2000	-11	0.5000	-5	1.0000	1	2.0000	6	5.0000	9	10.000	14
Benzo(g,h,i)perylene	0.1000	-8	0.2000	-7	0.5000	-3	1.0000	2	2.0000	4	5.0000	4	10.000	8
Nitrobenzene-d5	0.1000	-6	0.2000	-1	0.5000	0	1.0000	1	2.0000	1	5.0000	3	10.000	2
2-Fluorobiphenyl	0.1000	-4	0.2000	-1	0.5000	1	1.0000	3	2.0000	2	5.0000	-1	10.000	0
Terphenyl-d14	0.1000	-4	0.2000	-2	0.5000	0	1.0000	1	2.0000	2	5.0000	0	10.000	3

KMH 07/11/14 [1,4-Dioxane]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Anthracene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Chrysene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline in all levels.

KMH 07/11/14 [Nitrobenzene-d5]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Indeno(1,2,3-cd)pyrene]: Corrected automatically drawn baseline in ICAL (wga06).

KMH 07/11/14 [Dibenz(a,h)anthracene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Benzo(g,h,i)perylene]: Corrected automatically drawn baseline in multiple levels.

Analyst: KMH Date: 07/11/14 Reviewer: LW Date: 07/11/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259835 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA04 Name : 4PAHSIM
Calnum : 534275763001 Cal Date : 10-JUL-2014

ICV 534275763013 (wga13 10-JUL-2014) stds: S24935

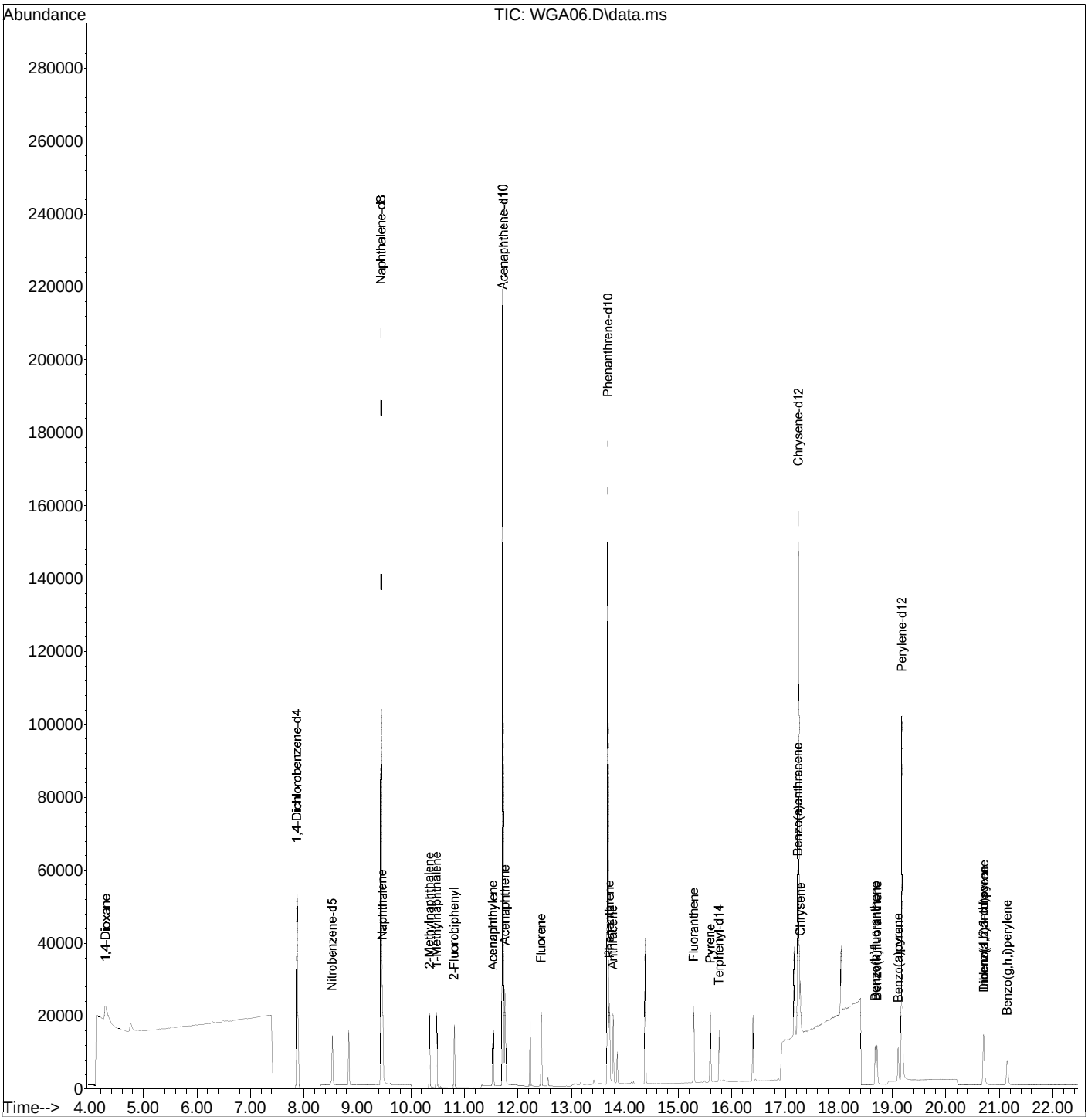
Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	0.9816	ug/mL	-2	20	
2-Methylnaphthalene	1.000	0.9849	ug/mL	-2	20	
Acenaphthylene	1.000	1.055	ug/mL	5	20	
Acenaphthene	1.000	1.006	ug/mL	1	20	
Fluorene	1.000	0.9943	ug/mL	-1	20	
Phenanthrene	1.000	1.016	ug/mL	2	20	
Anthracene	1.000	1.005	ug/mL	1	20	
Fluoranthene	1.000	1.007	ug/mL	1	20	
Pyrene	1.000	0.9940	ug/mL	-1	20	
Benzo(a)anthracene	1.000	1.025	ug/mL	2	20	
Chrysene	1.000	1.010	ug/mL	1	20	
Benzo(b)fluoranthene	1.000	0.9970	ug/mL	0	20	
Benzo(k)fluoranthene	1.000	0.9587	ug/mL	-4	20	
Benzo(a)pyrene	1.000	0.9585	ug/mL	-4	20	
Indeno(1,2,3-cd)pyrene	1.000	0.9407	ug/mL	-6	20	
Dibenz(a,h)anthracene	1.000	0.9949	ug/mL	-1	20	
Benzo(g,h,i)perylene	1.000	0.9591	ug/mL	-4	20	

Analyst: KMH Date: 07/11/14 Reviewer: LW Date: 07/11/14

Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\071014\
Data File : WGA06.D
Acq On : 10 Jul 2014 4:29 pm
Operator :
Sample : ICAL,S25125
Misc : ICAL
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jul 11 10:19:14 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Thu Jul 10 15:38:18 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\071014\
Data File : WGA06.D
Acq On : 10 Jul 2014 4:29 pm
Operator :
Sample : ICAL,S25125
Misc : ICAL
ALS Vial : 6 Sample Multiplier: 1

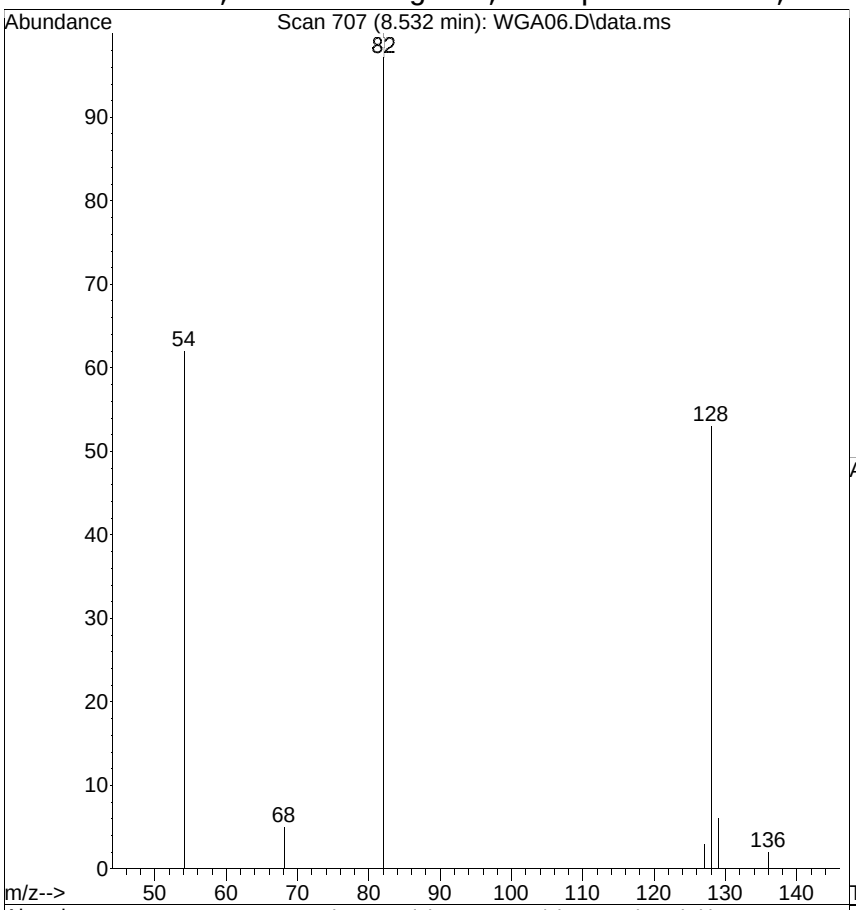
Quant Time: Jul 11 10:19:14 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Thu Jul 10 15:38:18 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.875	152	55051	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.447	136	210413	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.719	164	111033	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.680	188	163288	1.0000	ug/mL	0.01
18) Chrysene-d12	17.239	240	126035	1.0000	ug/mL	0.00
23) Perylene-d12	19.175	264	101106	1.0000	ug/mL	0.00
Target Compounds						**Qvalue**
2) 1,4-Dioxane	4.304	88	13637m	1.3922	ug/mL	
4) Nitrobenzene-d5	8.532	82	8064m	0.0643	ug/mL	
5) Naphthalene	9.472	128	22847	0.1055	ug/mL	96
6) 2-Methylnaphthalene	10.348	142	12843	0.0849	ug/mL	97
7) 1-Methylnaphthalene	10.480	142	12384	0.0829	ug/mL	97
9) 2-Fluorobiphenyl	10.811	172	14597	0.0864	ug/mL	95
10) Acenaphthylene	11.533	152	17547	0.1097	ug/mL	97
11) Acenaphthene	11.759	154	10856	0.1063	ug/mL	96
12) Fluorene	12.437	166	12225	0.0872	ug/mL	97
14) _Pentachlorophenol	13.416	266	858	No Calib		
15) Phenanthrene	13.710	178	16757	0.0980	ug/mL	98
16) Anthracene	13.776	178	15618	0.1120	ug/mL	97
17) Fluoranthene	15.284	202	15572	0.0906	ug/mL	94
19) Pyrene	15.596	202	16138	0.1249	ug/mL	95
20) Terphenyl-d14	15.758	244	12675	0.1028	ug/mL	98
21) Benzo(a)anthracene	17.224	228	11625	0.1084	ug/mL	98
22) Chrysene	17.274	228	11733	0.1191	ug/mL	98
24) Benzo(b)fluoranthene	18.673	252	10059	0.0942	ug/mL	83
25) Benzo(k)fluoranthene	18.706	252	11106m	0.0859	ug/mL	
26) Benzo(a)pyrene	19.102	252	9240	0.1001	ug/mL	78
27) Indeno(1,2,3-cd)pyrene	20.700	276	10597m	0.1314	ug/mL	
28) Dibenz(a,h)anthracene	20.704	278	7943m	0.1487	ug/mL	
29) Benzo(g,h,i)perylene	21.141	276	9736m	0.0895	ug/mL	

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

[Nitrobenzene-d5; 0.1000 ug/mL; response=8064; MI]

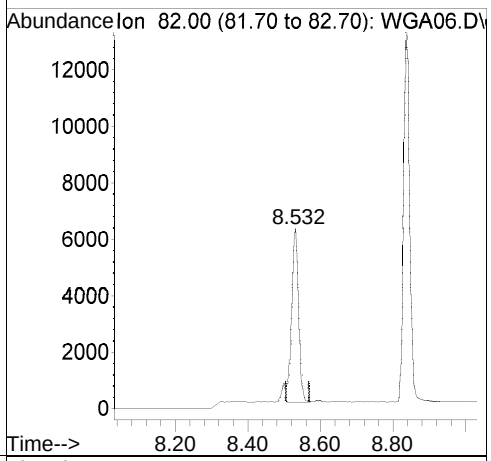
Raw



#4
Nitrobenzene-d5
Concen: 0.0643 ug/mL m
RT: 8.532 min Scan# 707
Delta R.T. 0.007 min
Lab File: WGA06.D
Acq: 10 Jul 2014 4:29 pm

Tgt Ion: 82 Resp: 8064

Ion	Ratio	Lower	Upper
82	100		
128	53.5	35.4	75.4
54	62.2	35.4	75.4



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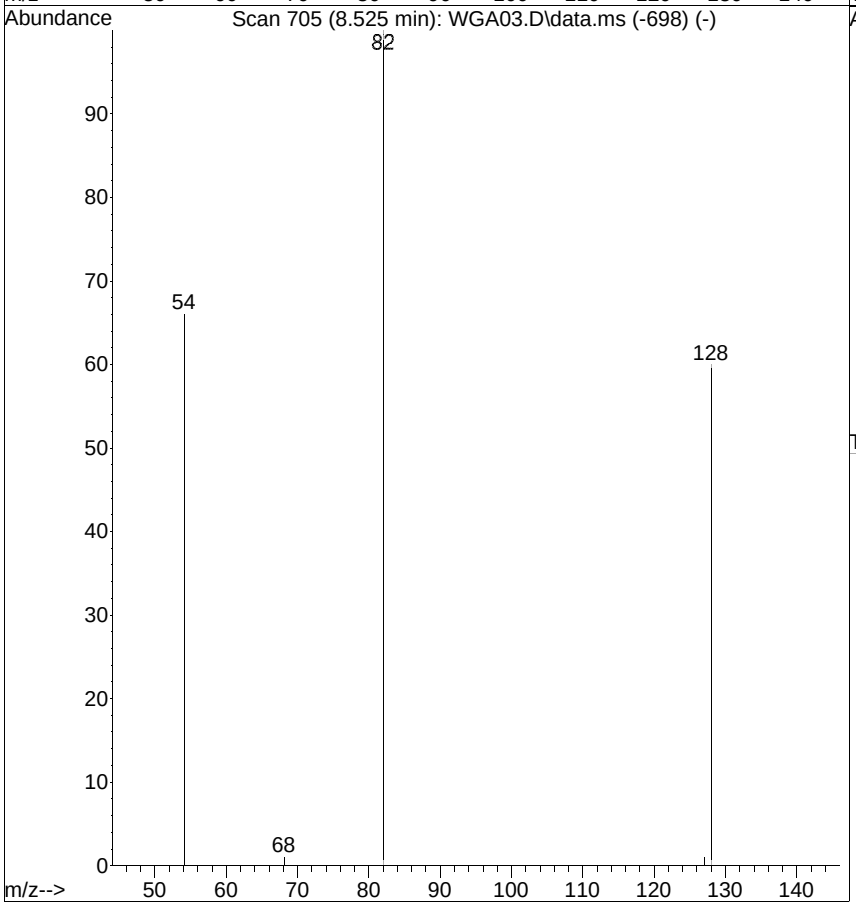
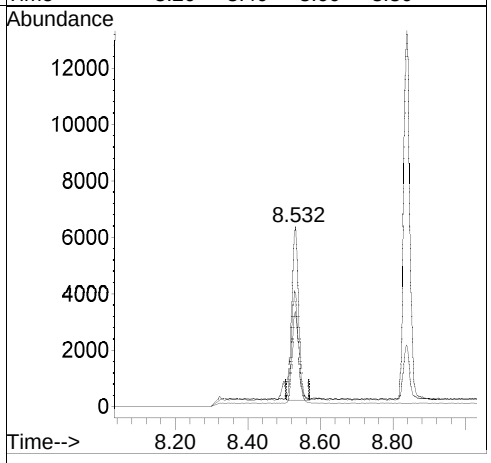
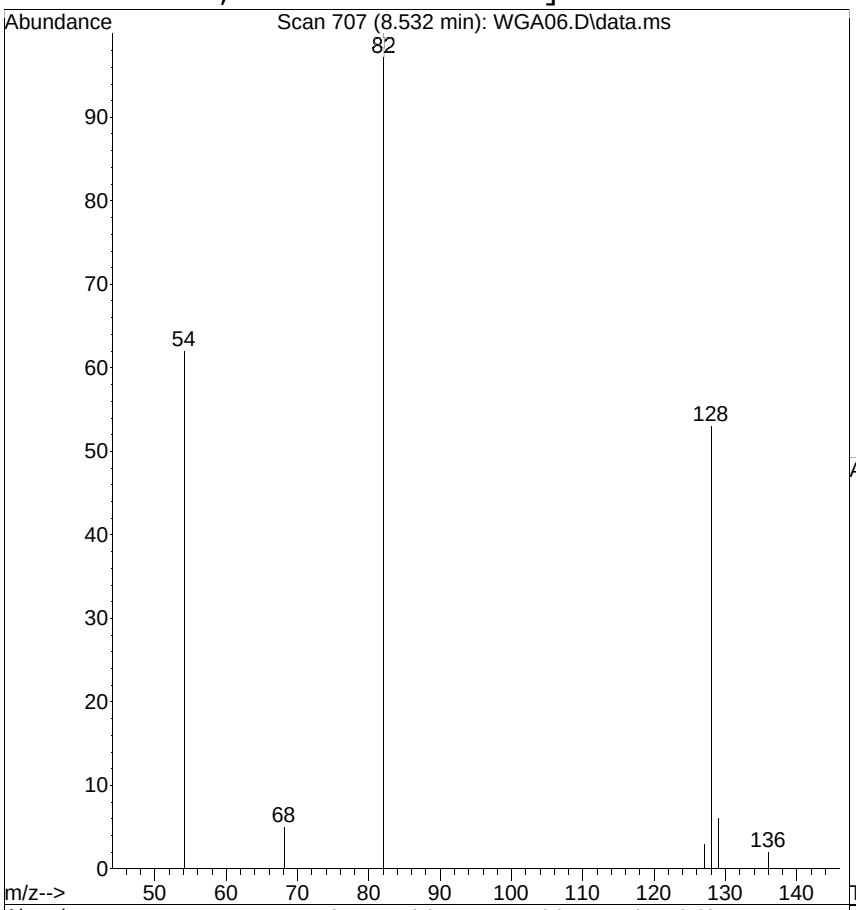




[Nitrobenzene-d5; before version]

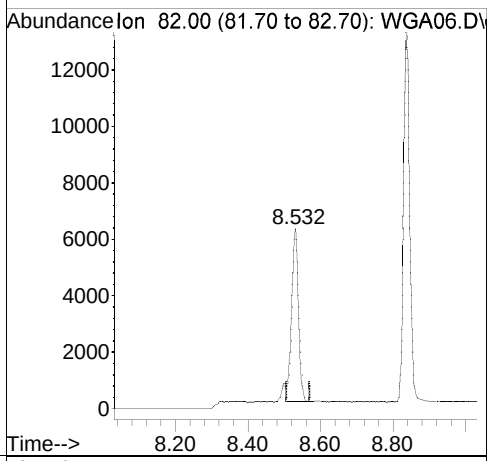
Raw



#4
Nitrobenzene-d5
Concen: 0.0634 ug/mL
RT: 8.532 min Scan# 707
Delta R.T. 0.007 min
Lab File: WGA06.D
Acq: 10 Jul 2014 4:29 pm

Tgt Ion: 82 Resp: 7942

Ion	Ratio	Lower	Upper
82	100		
128	53.5	35.4	75.4
54	62.2	35.4	75.4



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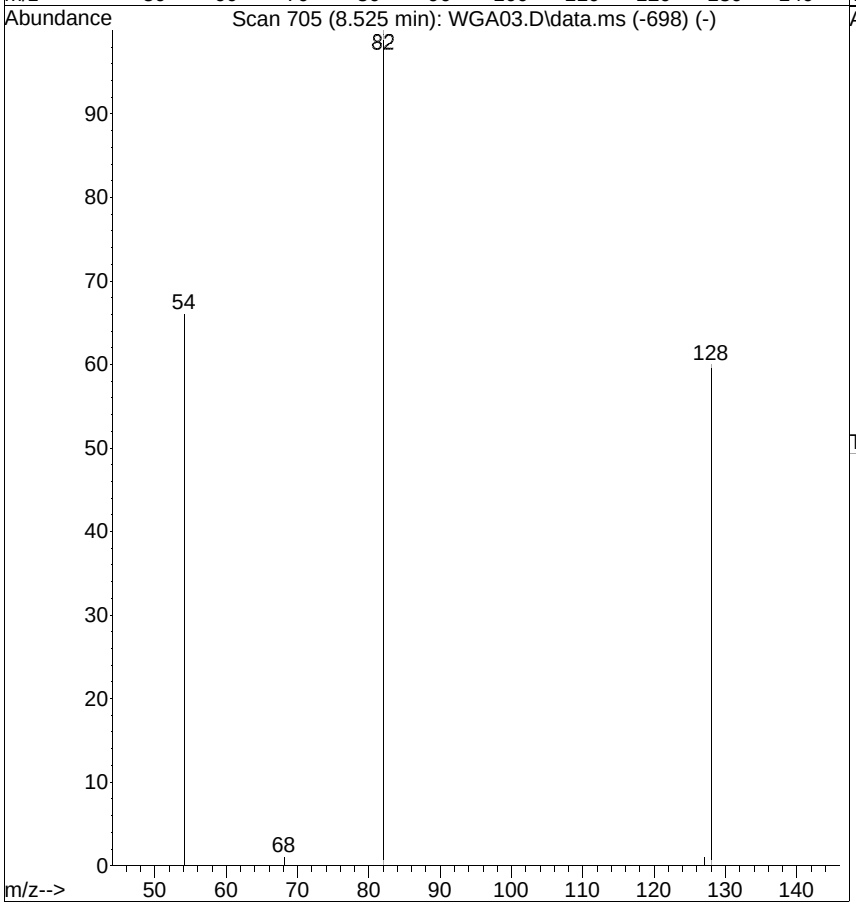
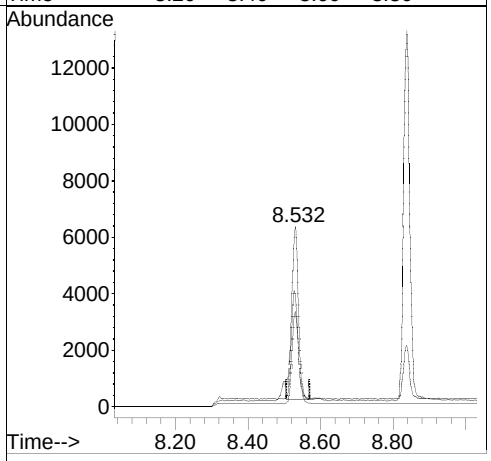
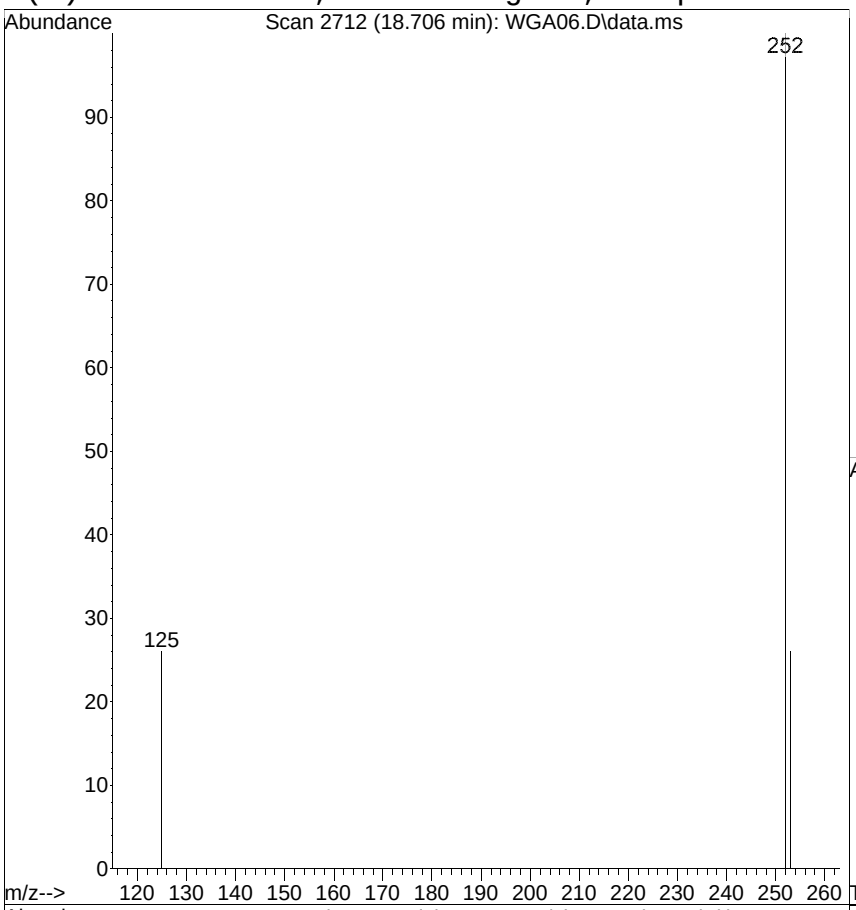




[Benzo(k)fluoranthene; 0.1000 ug/mL; response=11106; MI]

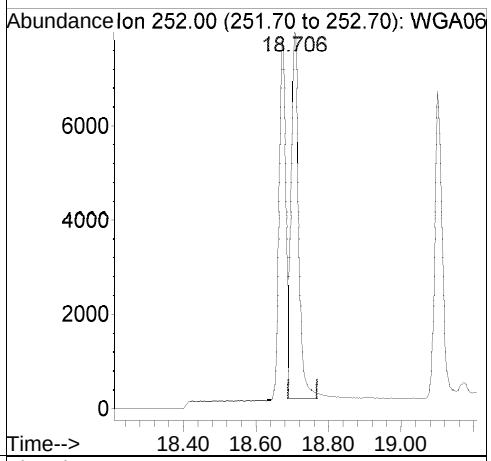
Raw



#25
Benzo(k)fluoranthene
Concen: 0.0859 ug/mL m
RT: 18.706 min Scan# 2712
Delta R.T. 0.003 min
Lab File: WGA06.D
Acq: 10 Jul 2014 4:29 pm

Tgt Ion:252 Resp: 11106

Ion	Ratio	Lower	Upper
252	100		
253	26.1	1.0	41.0
125	26.0	0.0	35.6



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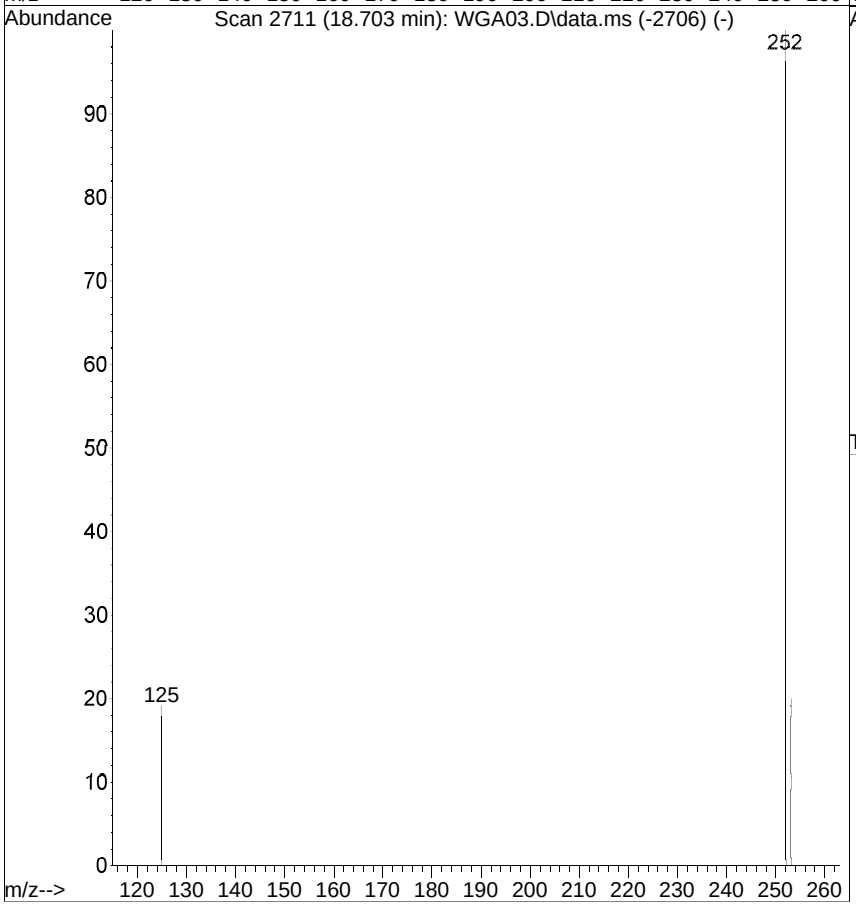
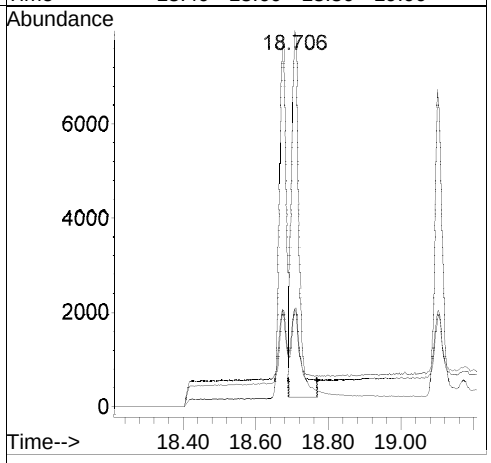
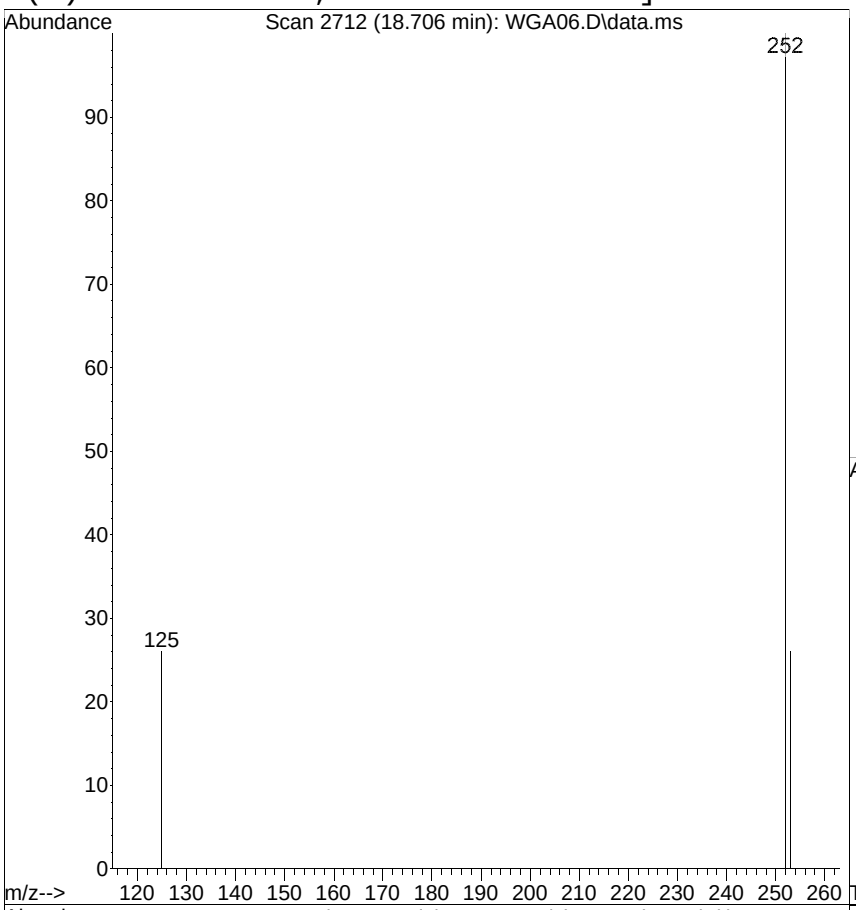




[Benzo(k)fluoranthene; before version]

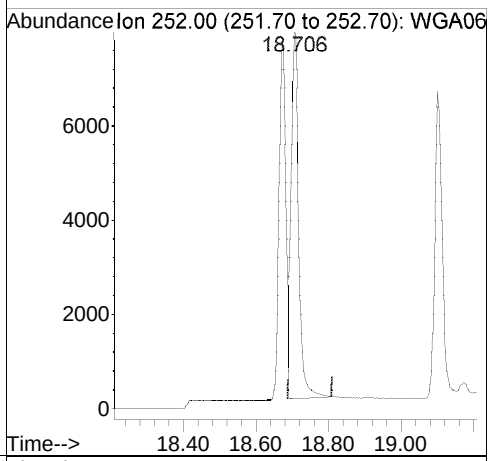
Raw



#25
Benzo(k)fluoranthene
Concen: 0.0858 ug/mL
RT: 18.706 min Scan# 2712
Delta R.T. 0.003 min
Lab File: WGA06.D
Acq: 10 Jul 2014 4:29 pm

Tgt Ion:252 Resp: 11101

Ion	Ratio	Lower	Upper
252	100		
253	26.1	1.0	41.0
125	26.0	0.0	35.6



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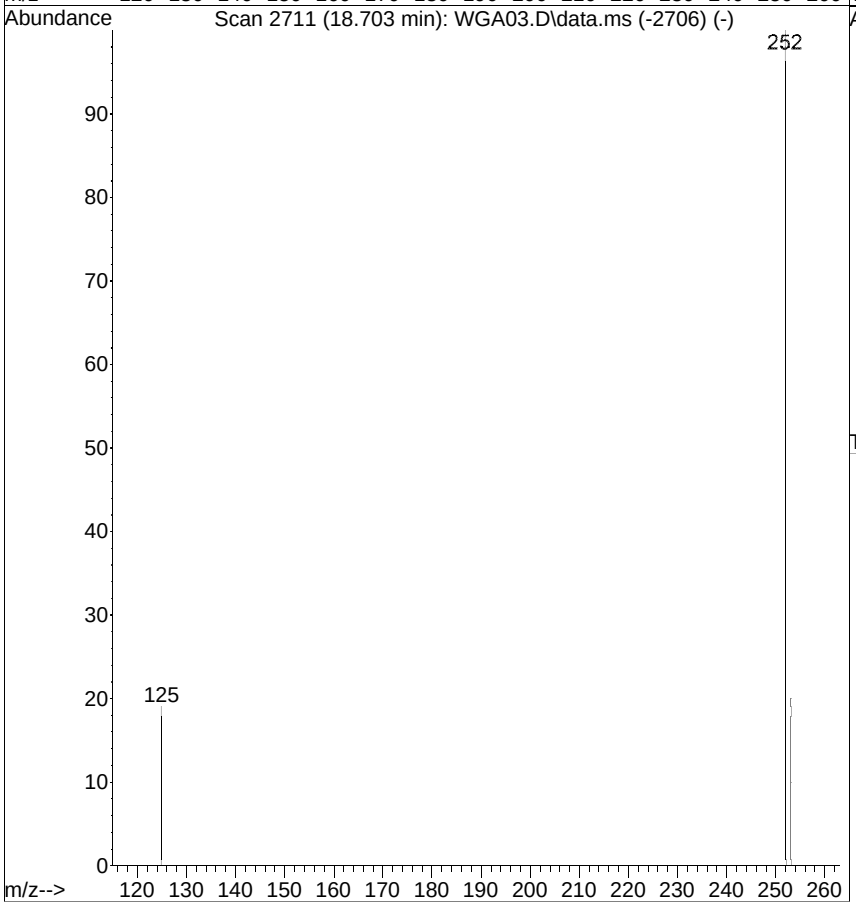
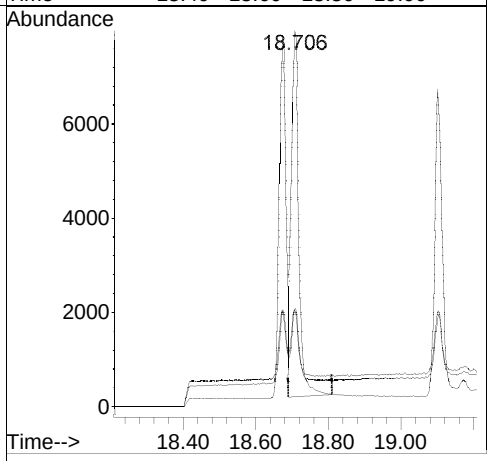
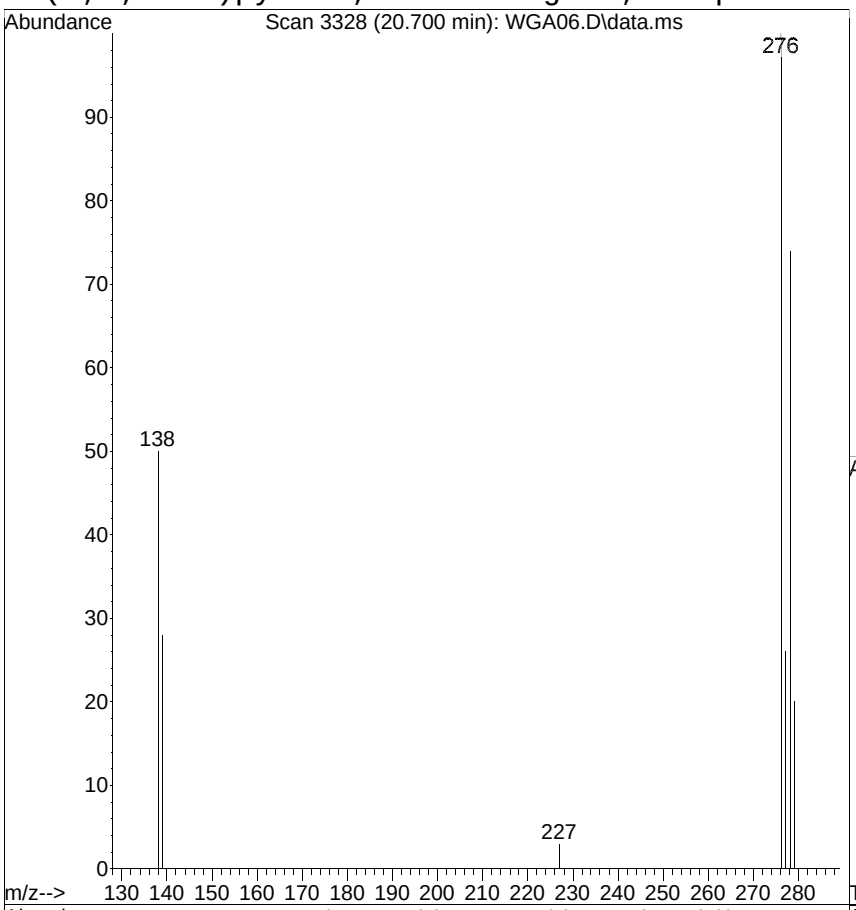




[Indeno(1,2,3-cd)pyrene; 0.1000 ug/mL; response=10597; MI]

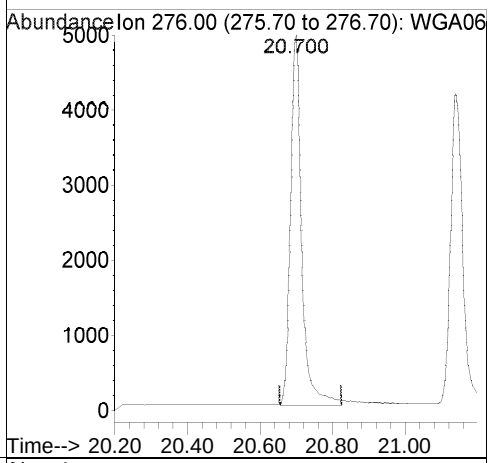
Raw



#27
Indeno(1,2,3-cd)pyrene
Concen: 0.1314 ug/mL m
RT: 20.700 min Scan# 3328
Delta R.T. 0.009 min
Lab File: WGA06.D
Acq: 10 Jul 2014 4:29 pm

Tgt Ion:276 Resp: 10597

Ion	Ratio	Lower	Upper
276	100		
138	49.7	9.9	49.9
227	2.8	0.0	20.2



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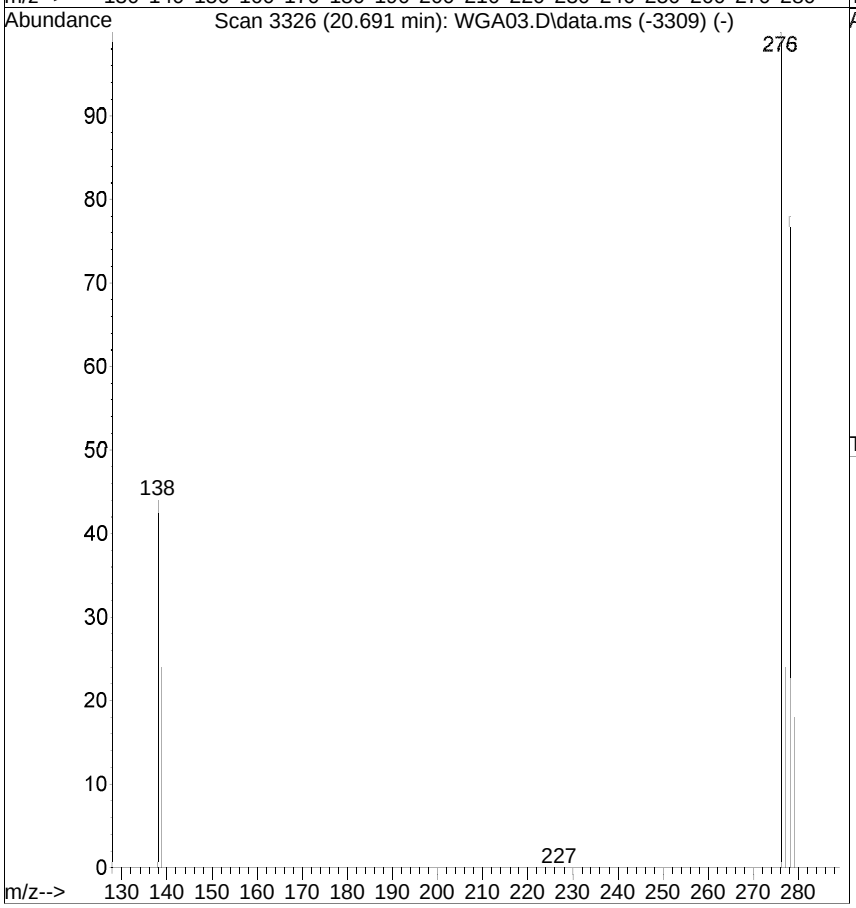
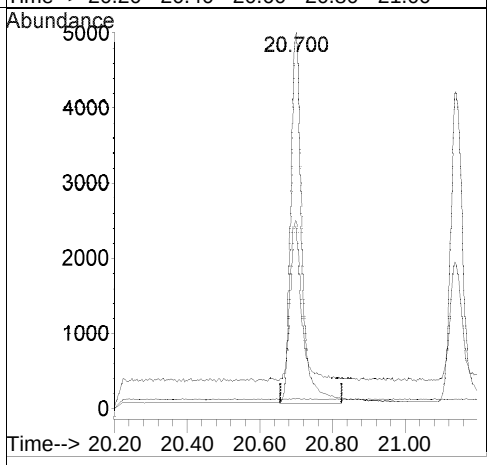
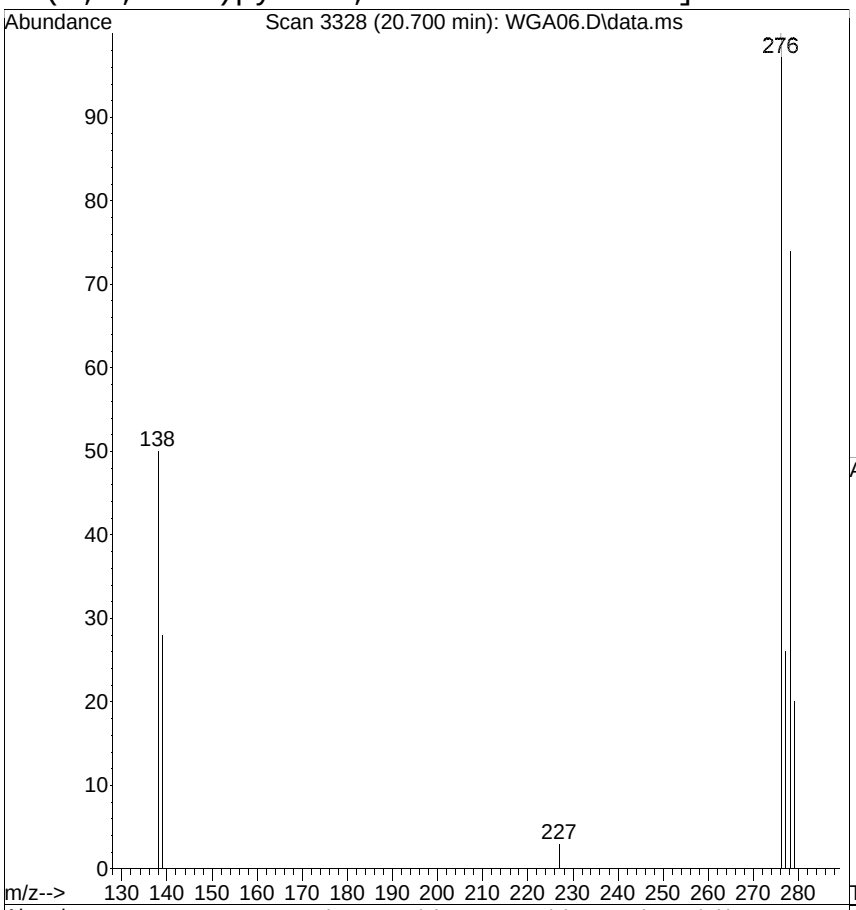




[Indeno(1,2,3-cd)pyrene; before version]

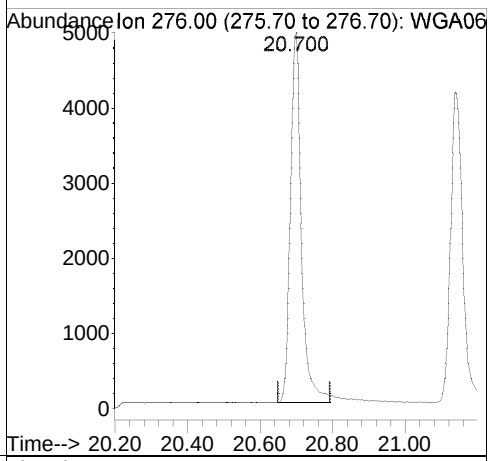
Raw



#27
Indeno(1,2,3-cd)pyrene
Concen: 0.1287 ug/mL
RT: 20.700 min Scan# 3328
Delta R.T. 0.009 min
Lab File: WGA06.D
Acq: 10 Jul 2014 4:29 pm

Tgt Ion:276 Resp: 10293

Ion	Ratio	Lower	Upper
276	100		
138	49.7	9.9	49.9
227	2.8	0.0	20.2



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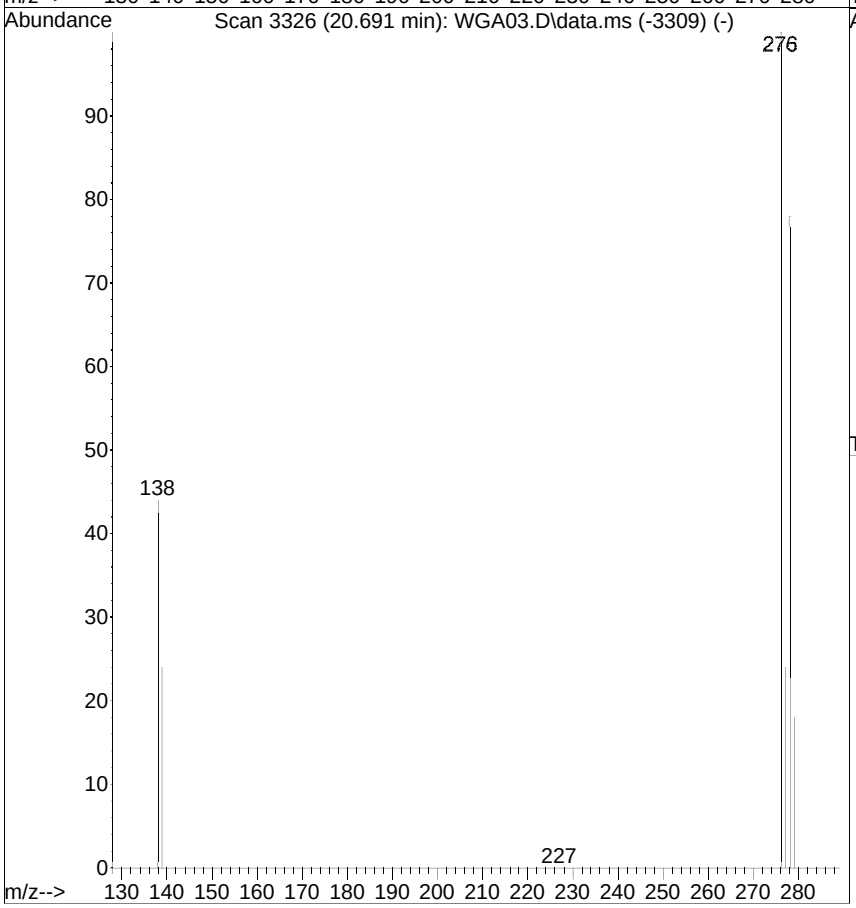
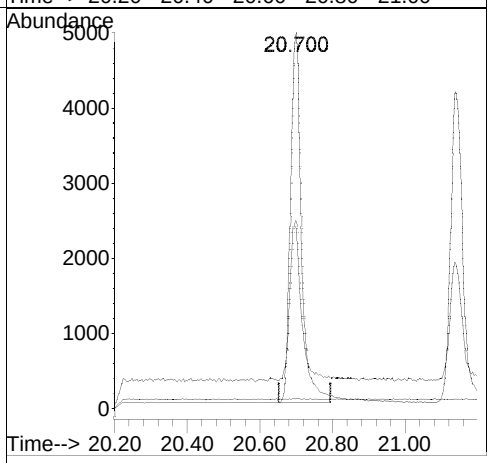
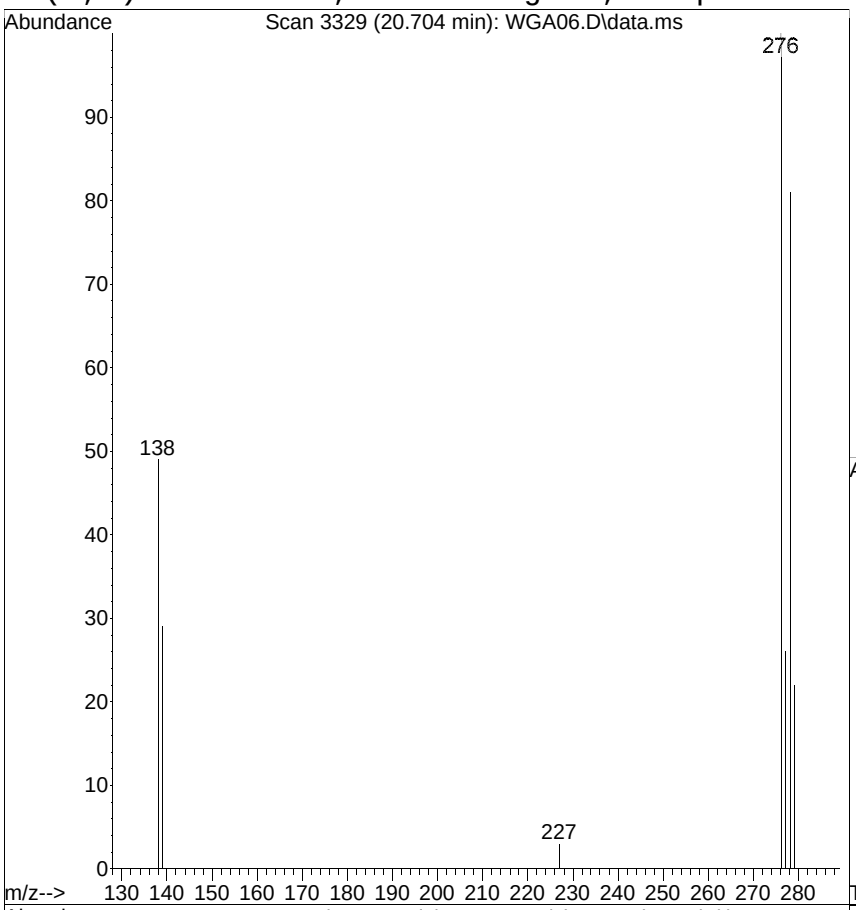




[Dibenz(a,h)anthracene; 0.1000 ug/mL; response=7943; MI]

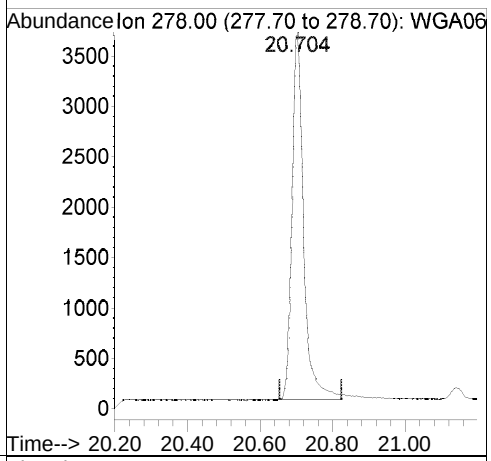
Raw



#28
Dibenz(a,h)anthracene
Concen: 0.1487 ug/mL m
RT: 20.704 min Scan# 3329
Delta R.T. 0.013 min
Lab File: WGA06.D
Acq: 10 Jul 2014 4:29 pm

Tgt Ion:278 Resp: 7943

Ion	Ratio	Lower	Upper
278	100		
139	35.7	5.2	45.2
279	26.7	5.4	45.4



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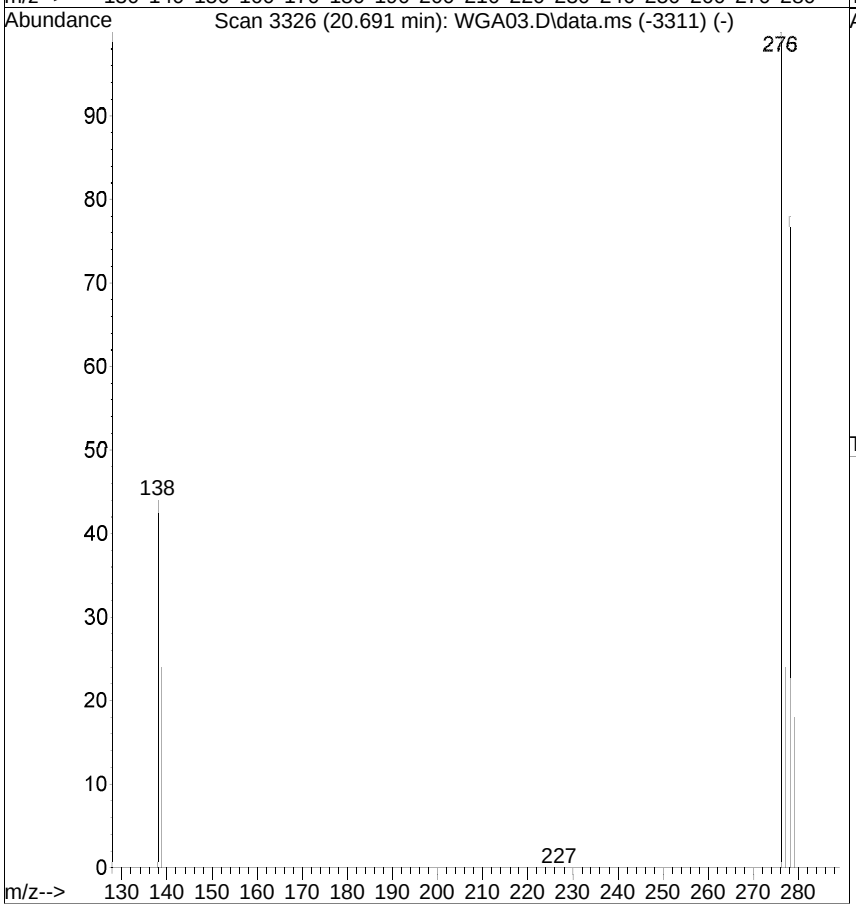
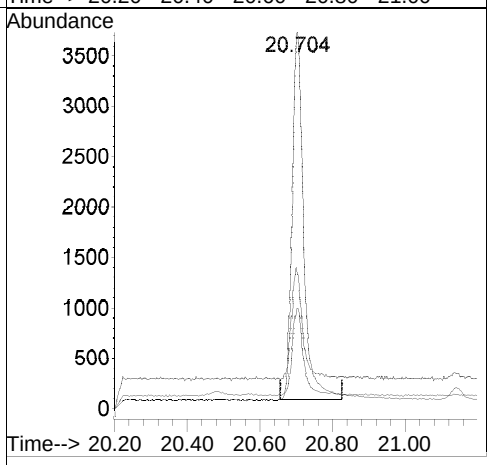
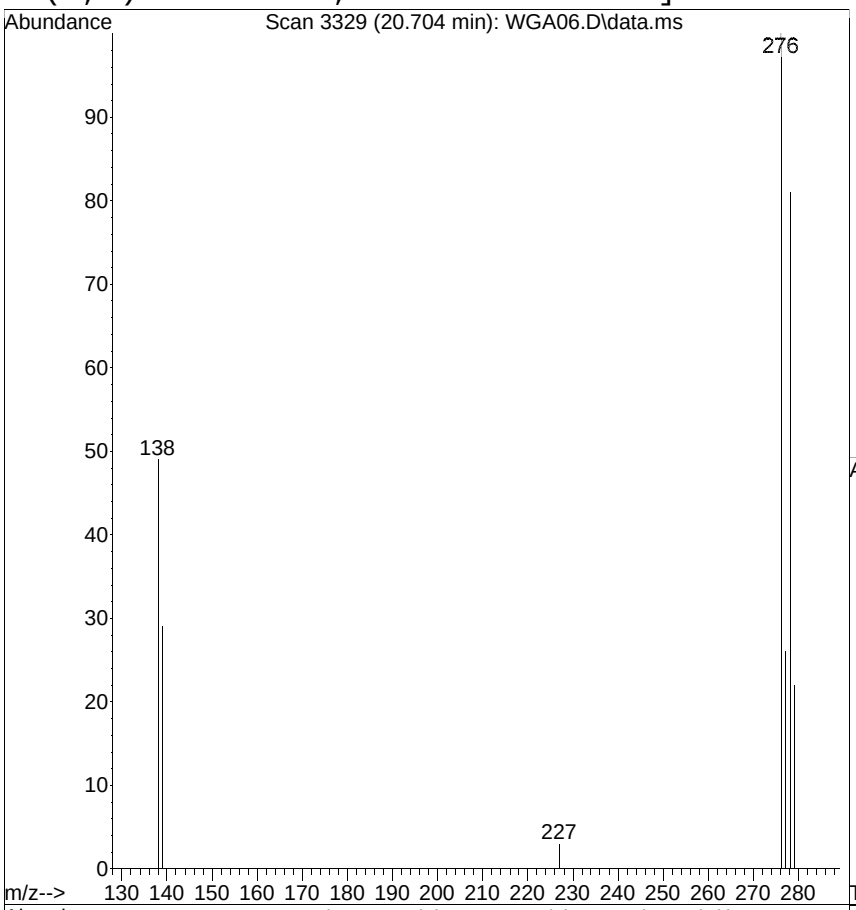




[Dibenz(a,h)anthracene; before version]

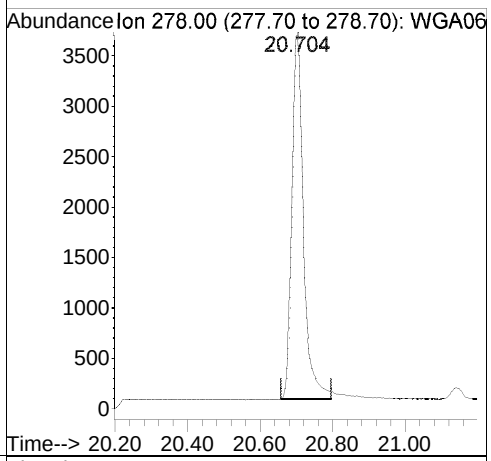
Raw



#28
Dibenz(a,h)anthracene
Concen: 0.1459 ug/mL
RT: 20.704 min Scan# 3329
Delta R.T. 0.013 min
Lab File: WGA06.D
Acq: 10 Jul 2014 4:29 pm

Tgt Ion:278 Resp: 7758

Ion	Ratio	Lower	Upper
278	100		
139	35.7	5.2	45.2
279	26.7	5.4	45.4



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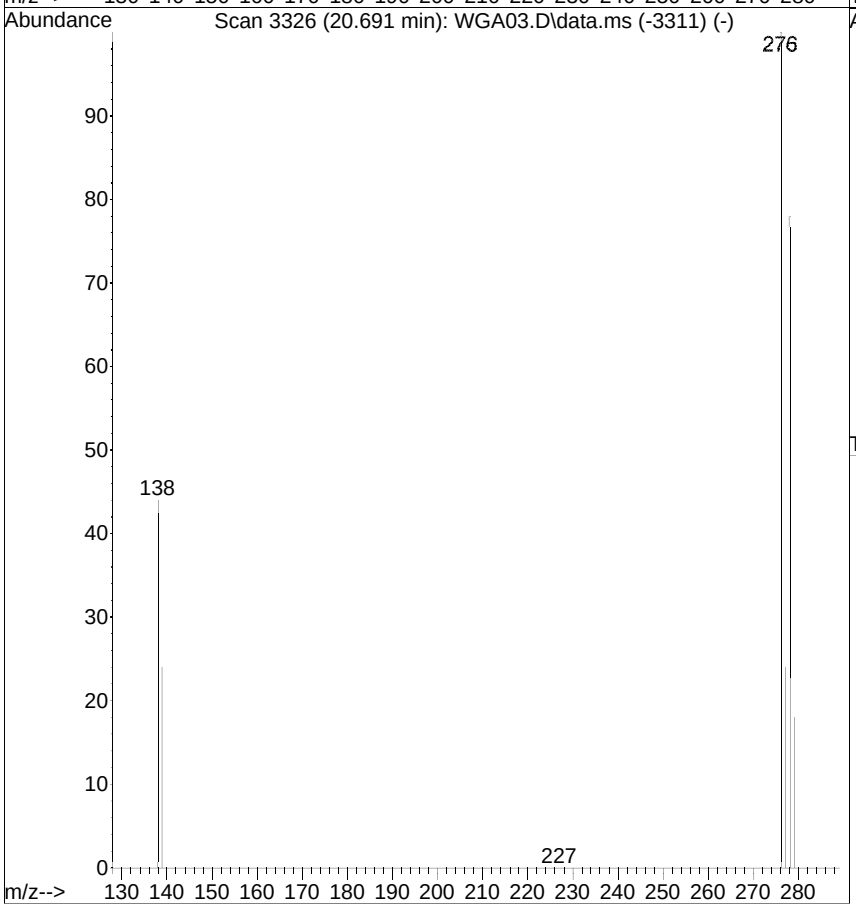
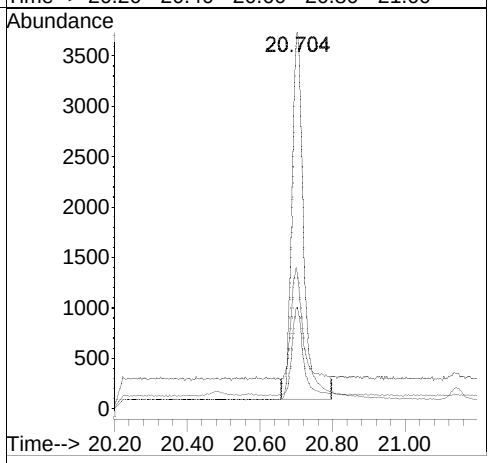
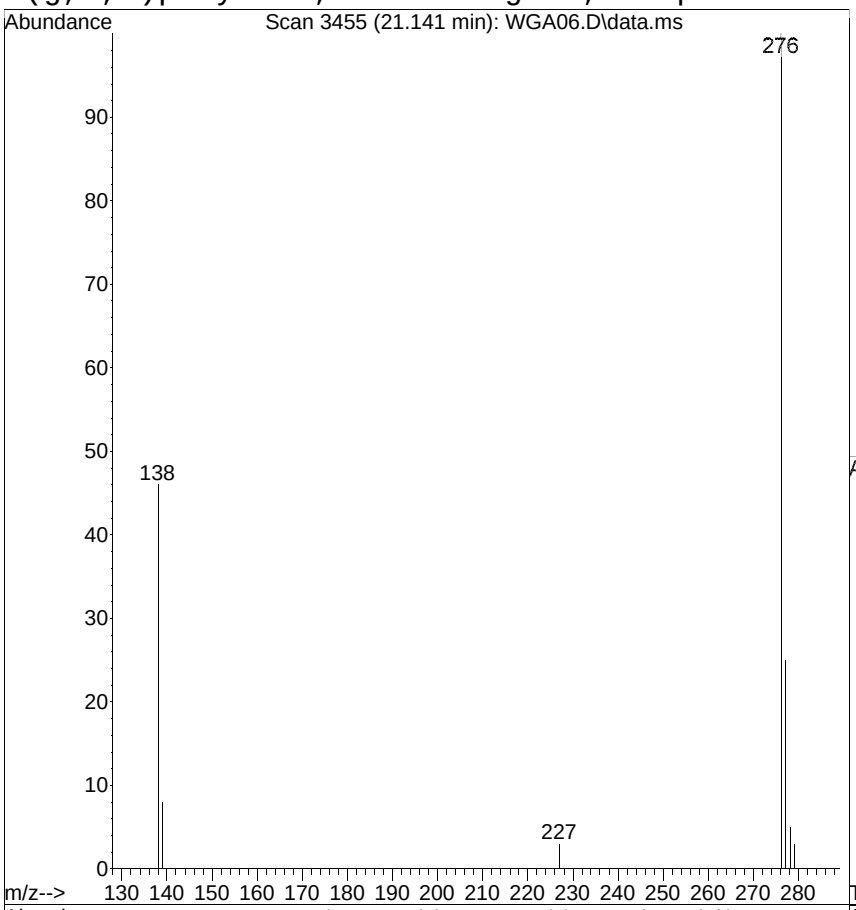




[Benzo(g,h,i)perylene; 0.1000 ug/mL; response=9736; MI]

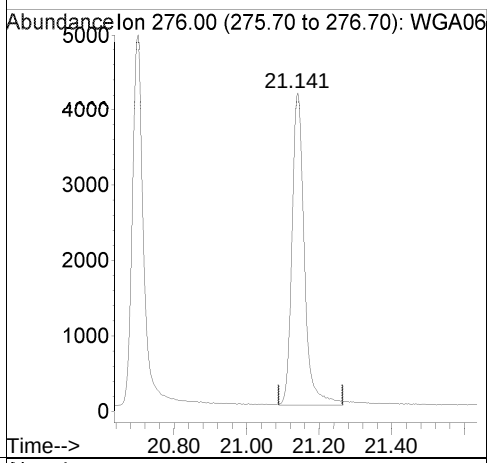
Raw



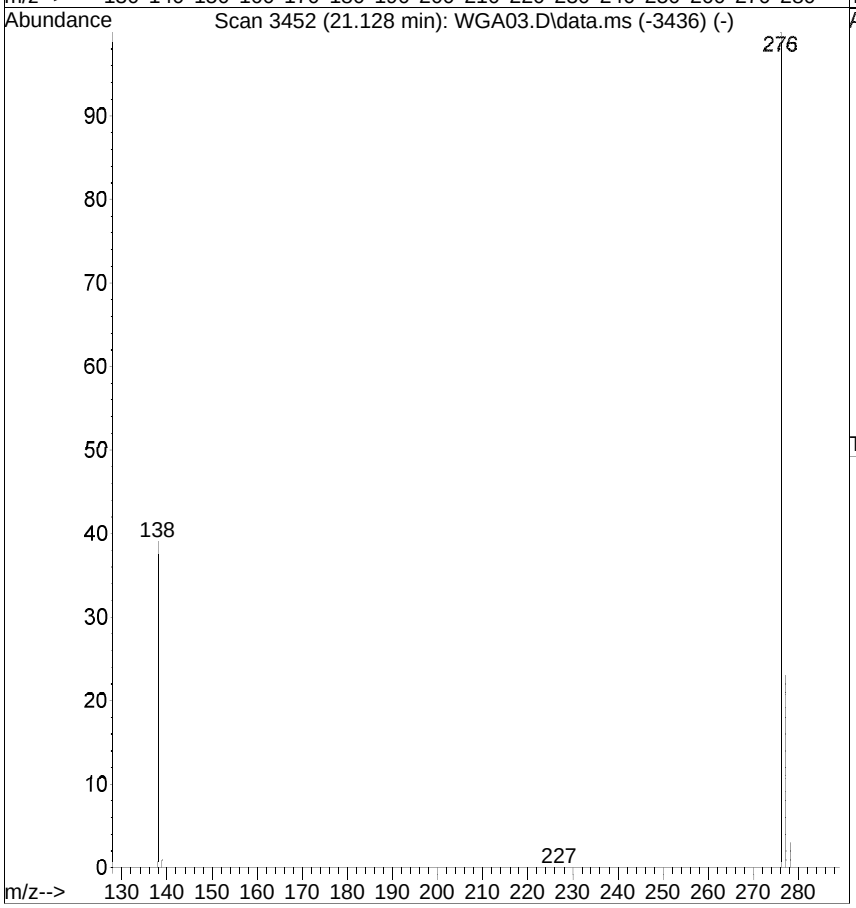
#29
Benzo(g,h,i)perylene
Concen: 0.0895 ug/mL m
RT: 21.141 min Scan# 3455
Delta R.T. 0.013 min
Lab File: WGA06.D
Acq: 10 Jul 2014 4:29 pm

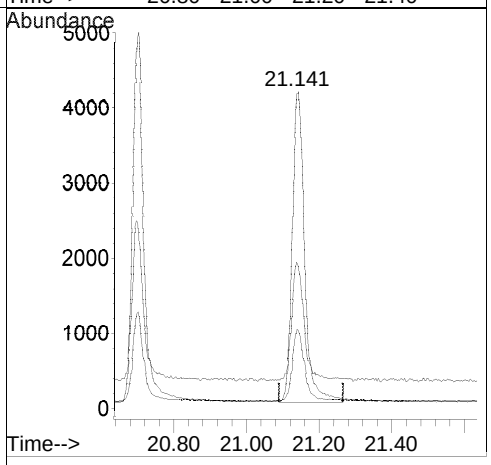
Tgt Ion:276 Resp: 9736

Ion	Ratio	Lower	Upper
276	100		
138	45.5	13.7	53.7
277	24.6	0.0	20.0#



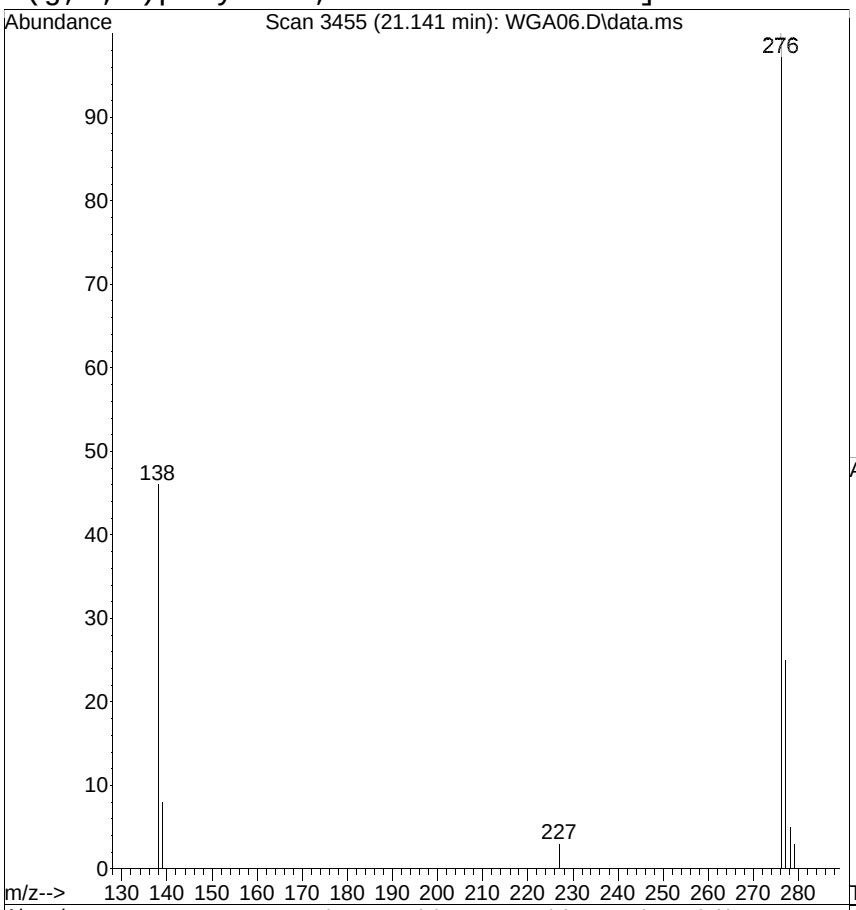
Ref





[Benzo(g,h,i)perylene; before version]

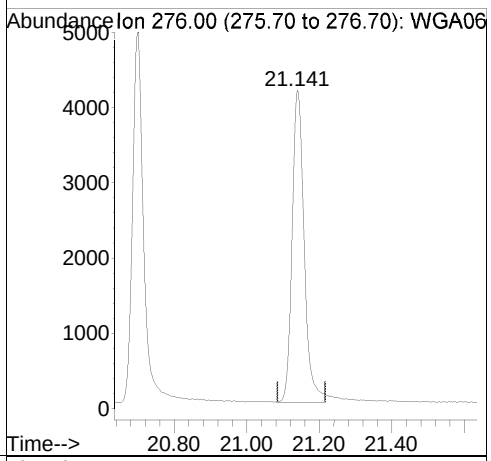
Raw



#29
Benzo(g,h,i)perylene
Concen: 0.0872 ug/mL
RT: 21.141 min Scan# 3455
Delta R.T. 0.013 min
Lab File: WGA06.D
Acq: 10 Jul 2014 4:29 pm

Tgt Ion:276 Resp: 9480

Ion	Ratio	Lower	Upper
276	100		
138	45.5	13.7	53.7
277	24.6	0.0	20.0#



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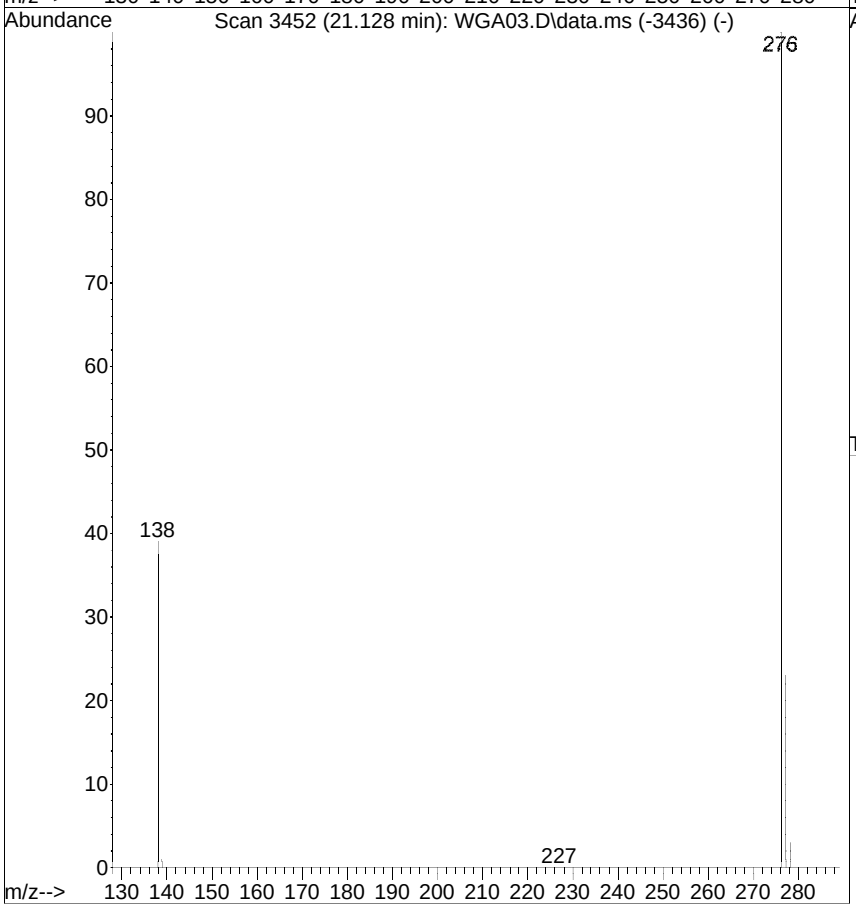
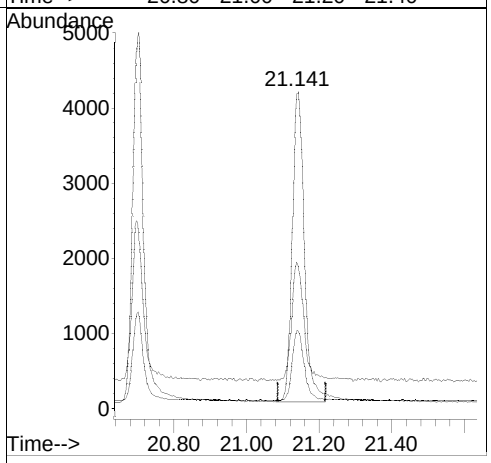
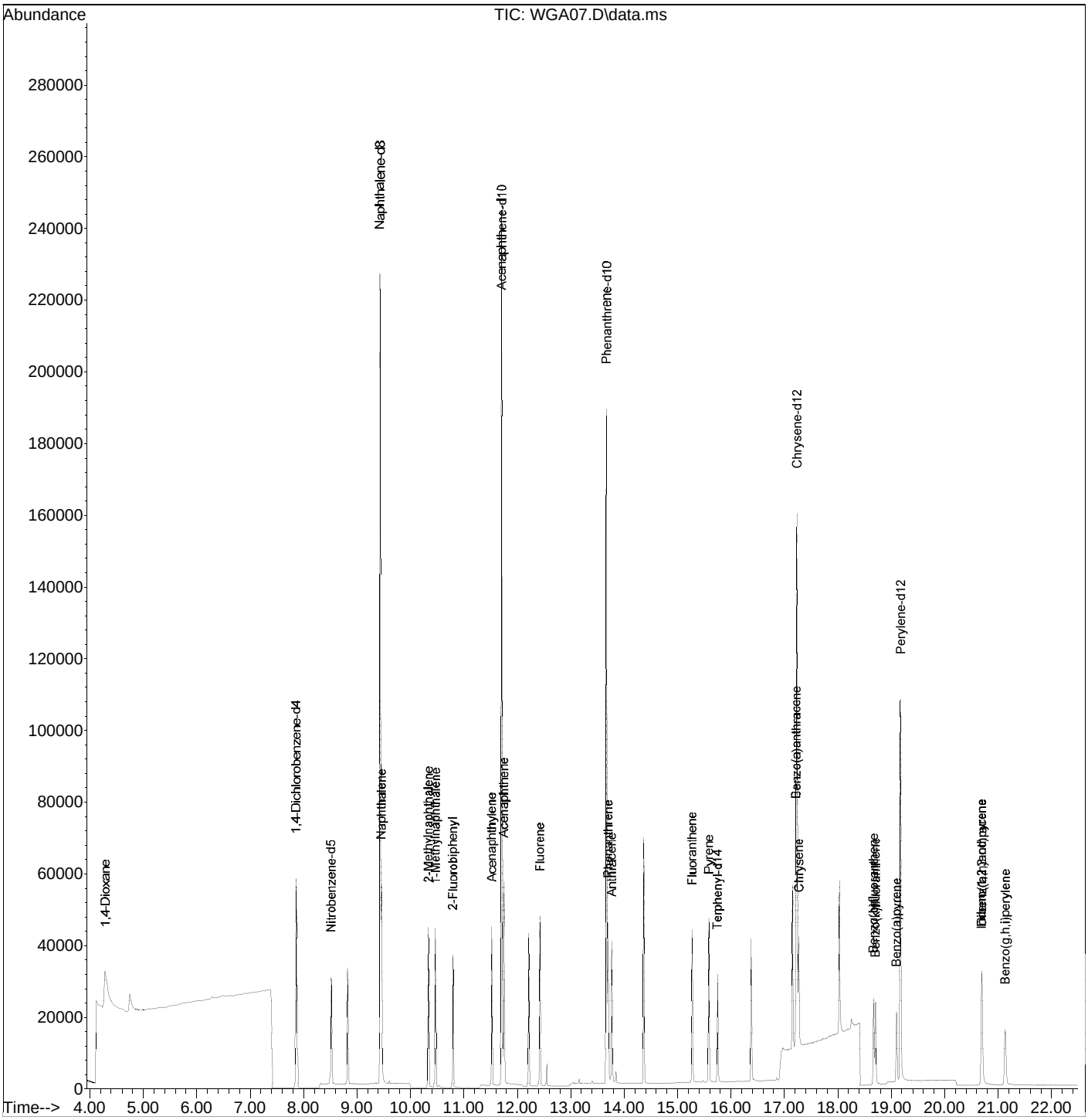




Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\071014\
Data File : WGA07.D
Acq On : 10 Jul 2014 5:02 pm
Operator :
Sample : ICAL,S25126
Misc : ICAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 11 10:20:23 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Thu Jul 10 15:38:18 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\071014\
Data File : WGA07.D
Acq On : 10 Jul 2014 5:02 pm
Operator :
Sample : ICAL,S25126
Misc : ICAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 11 10:20:23 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Thu Jul 10 15:38:18 2014
Response via : Initial Calibration

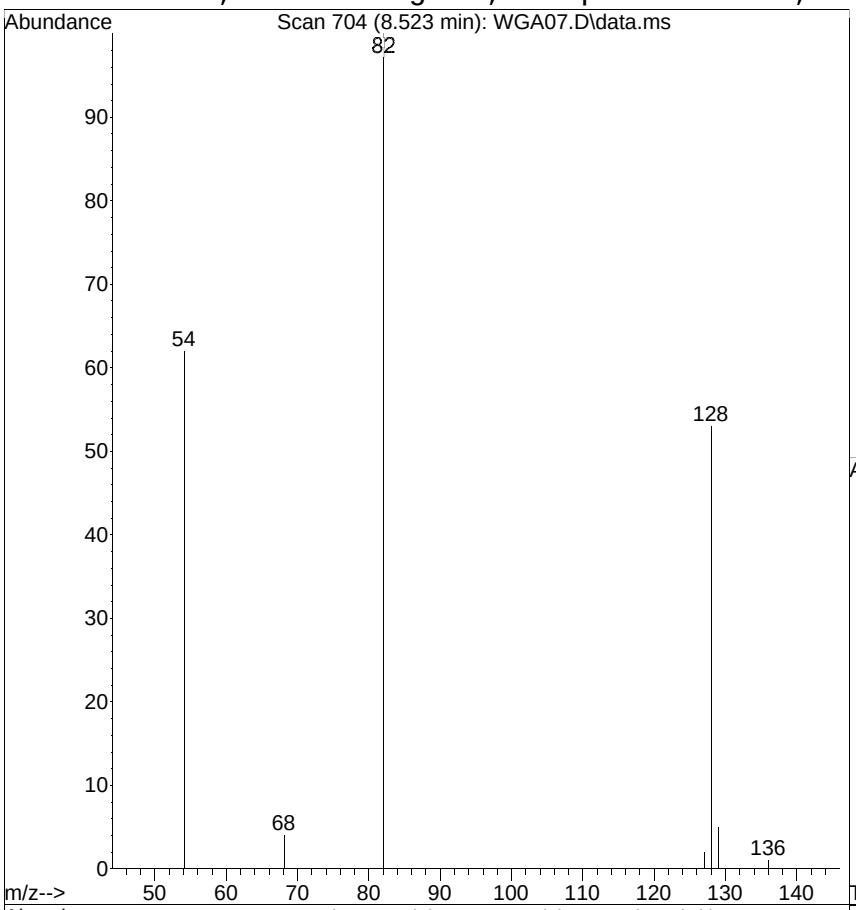
Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.864	152	58079	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.437	136	223180	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.710	164	116087	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.669	188	168487	1.0000	ug/mL	0.00
18) Chrysene-d12	17.230	240	132765	1.0000	ug/mL	0.00
23) Perylene-d12	19.166	264	107053	1.0000	ug/mL	0.00

Target Compounds						Qvalue
2) 1,4-Dioxane	4.293	88	30910m	2.9911	ug/mL	
4) Nitrobenzene-d5	8.523	82	18043m	0.1357	ug/mL	
5) Naphthalene	9.462	128	49445	0.2153	ug/mL	95
6) 2-Methylnaphthalene	10.338	142	27920	0.1740	ug/mL	98
7) 1-Methylnaphthalene	10.471	142	27064	0.1707	ug/mL	98
9) 2-Fluorobiphenyl	10.797	172	31242	0.1769	ug/mL	98
10) Acenaphthylene	11.524	152	37856	0.2263	ug/mL	95
11) Acenaphthene	11.750	154	23053	0.2160	ug/mL	97
12) Fluorene	12.425	166	26336	0.1797	ug/mL	98
14) _Pentachlorophenol	13.405	266	554	No Calib		
15) Phenanthrene	13.699	178	35055	0.1986	ug/mL	97
16) Anthracene	13.765	178	33190	0.2307	ug/mL	97
17) Fluoranthene	15.271	202	32668	0.1842	ug/mL	91
19) Pyrene	15.583	202	34642	0.2545	ug/mL	94
20) Terphenyl-d14	15.746	244	27089	0.2085	ug/mL	96
21) Benzo(a)anthracene	17.215	228	24103	0.2134	ug/mL	98
22) Chrysene	17.265	228	25215	0.2429	ug/mL	98
24) Benzo(b)fluoranthene	18.664	252	22126	0.1957	ug/mL	92
25) Benzo(k)fluoranthene	18.701	252	23882m	0.1744	ug/mL	
26) Benzo(a)pyrene	19.093	252	19589	0.2004	ug/mL	90
27) Indeno(1,2,3-cd)pyrene	20.684	276	22906	0.2285	ug/mL	70
28) Dibenz(a,h)anthracene	20.688	278	17583m	0.2761	ug/mL	
29) Benzo(g,h,i)perylene	21.128	276	20973m	0.1822	ug/mL	

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

[Nitrobenzene-d5; 0.2000 ug/mL; response=18043; MI]

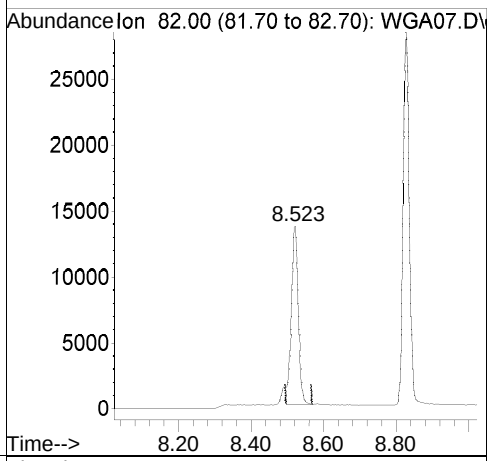
Raw



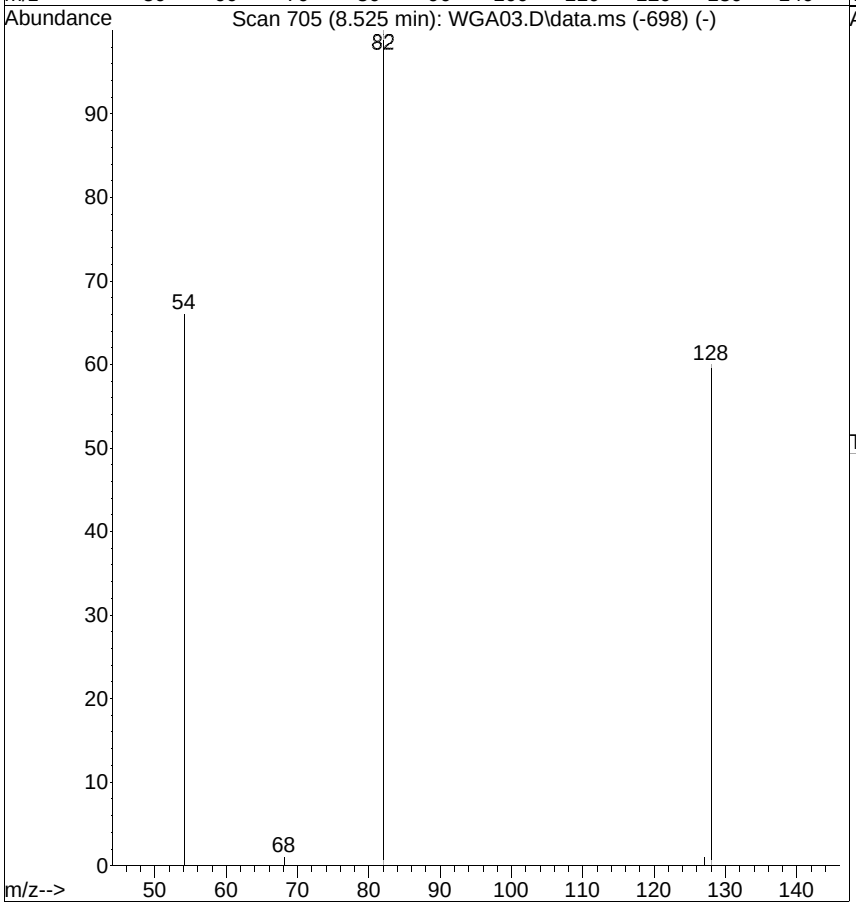
#4
Nitrobenzene-d5
Concen: 0.1357 ug/mL m
RT: 8.523 min Scan# 704
Delta R.T. -0.003 min
Lab File: WGA07.D
Acq: 10 Jul 2014 5:02 pm

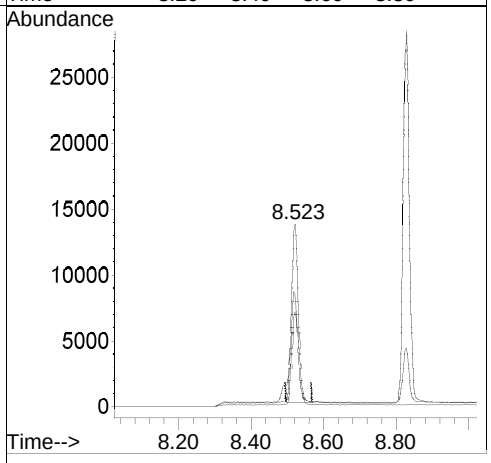
Tgt Ion: 82 Resp: 18043

Ion	Ratio	Lower	Upper
82	100		
128	52.7	35.4	75.4
54	61.8	35.4	75.4



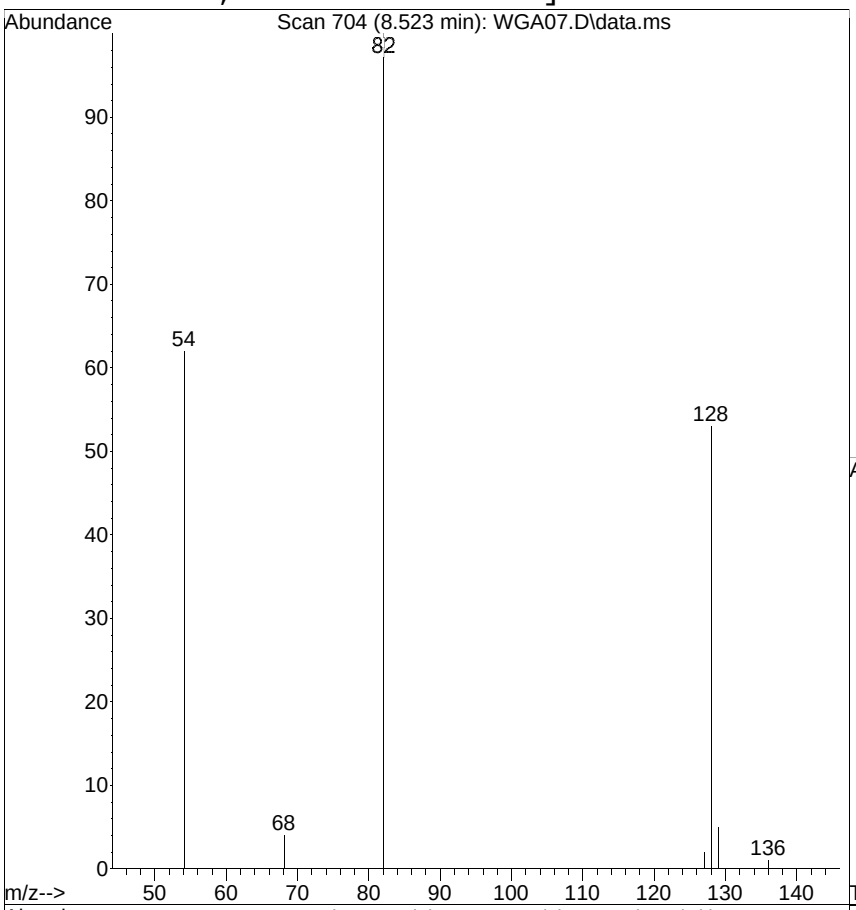
Ref





[Nitrobenzene-d5; before version]

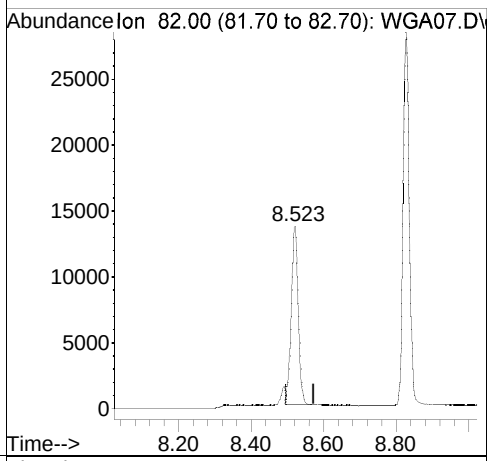
Raw



#4
Nitrobenzene-d5
Concen: 0.1351 ug/mL
RT: 8.523 min Scan# 704
Delta R.T. -0.003 min
Lab File: WGA07.D
Acq: 10 Jul 2014 5:02 pm

Tgt Ion: 82 Resp: 17956

Ion	Ratio	Lower	Upper
82	100		
128	52.7	35.4	75.4
54	61.8	35.4	75.4



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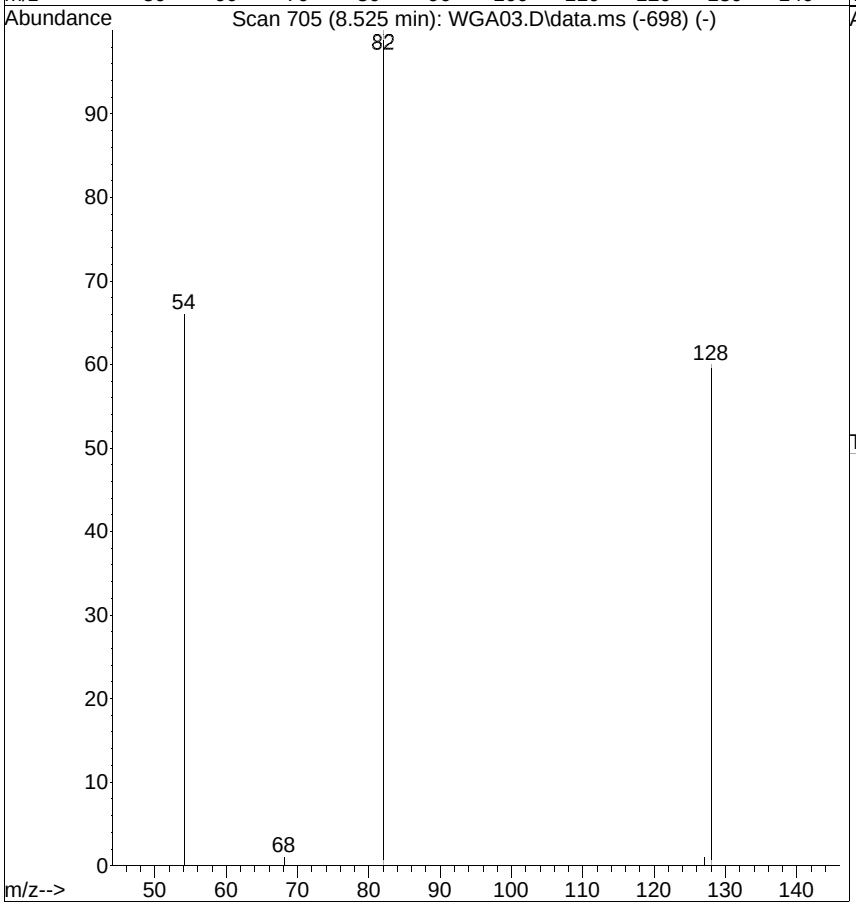
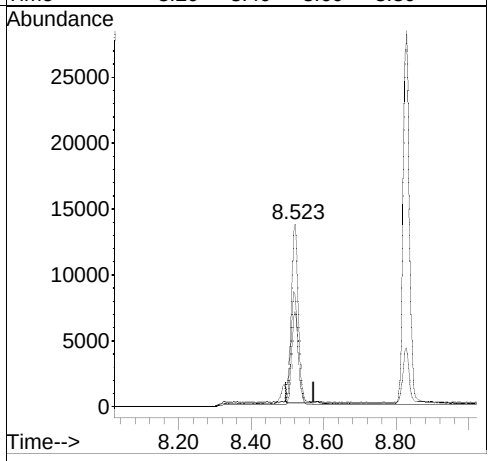
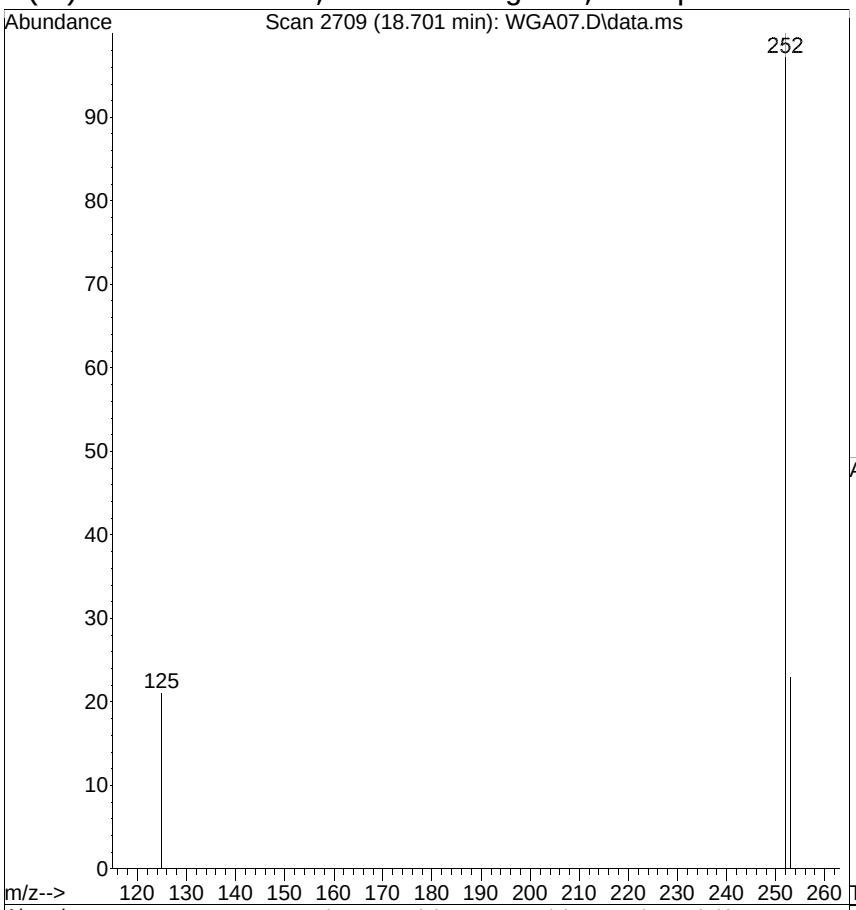




[Benzo(k)fluoranthene; 0.2000 ug/mL; response=23882; MI]

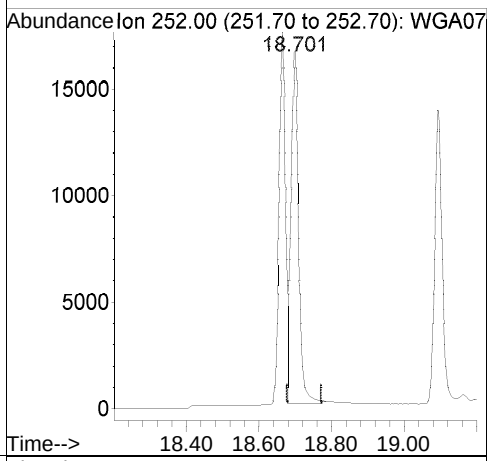
Raw



#25
Benzo(k)fluoranthene
Concen: 0.1744 ug/mL m
RT: 18.701 min Scan# 2709
Delta R.T. -0.003 min
Lab File: WGA07.D
Acq: 10 Jul 2014 5:02 pm

Tgt Ion:252 Resp: 23882

Ion	Ratio	Lower	Upper
252	100		
253	23.2	1.0	41.0
125	21.2	0.0	35.6



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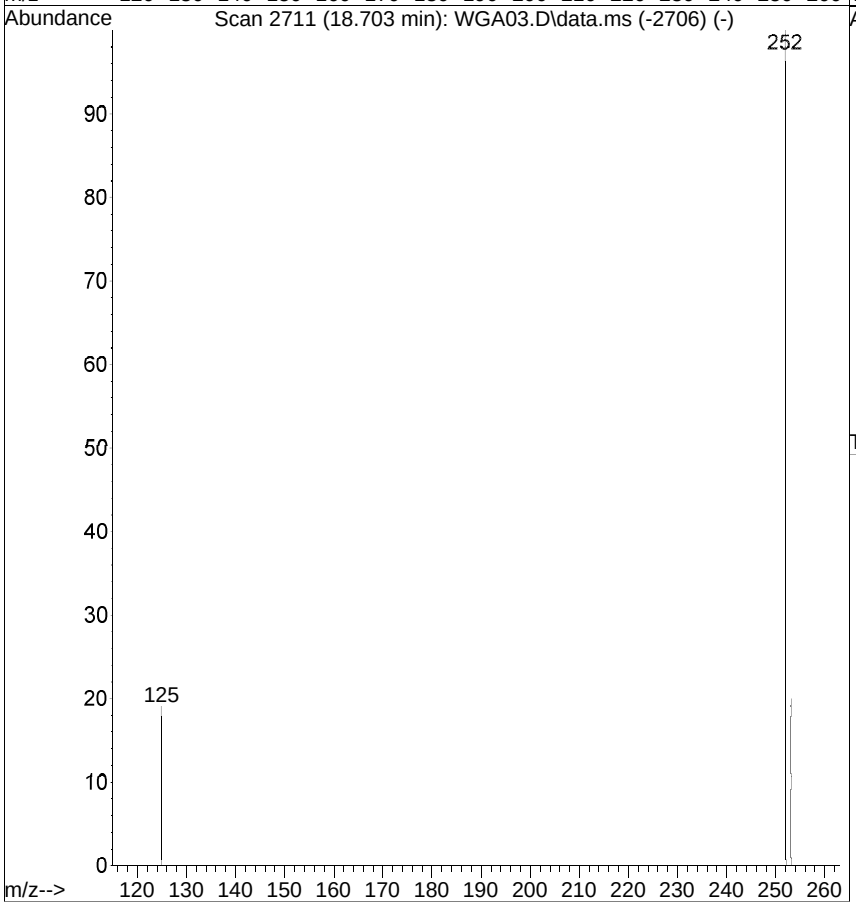
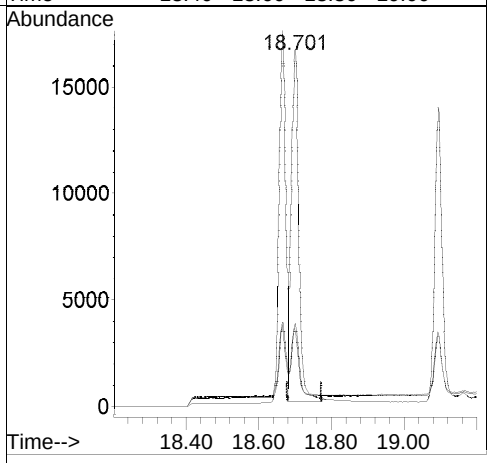
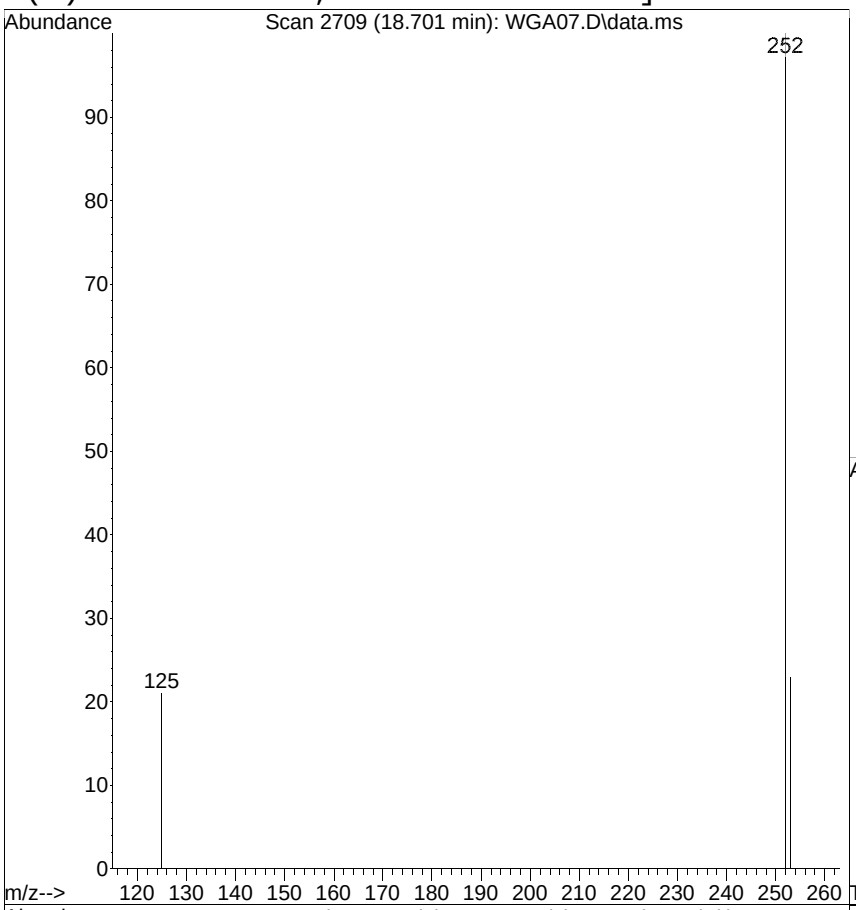




[Benzo(k)fluoranthene; before version]

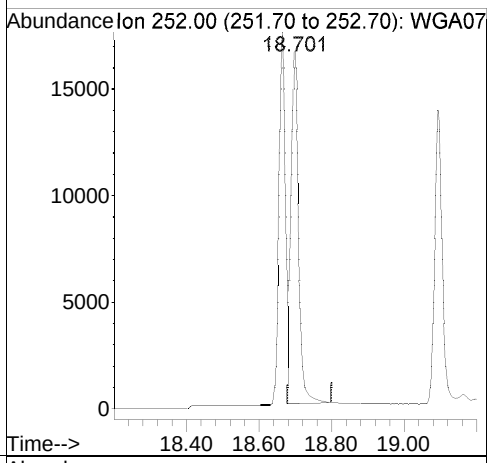
Raw



#25
Benzo(k)fluoranthene
Concen: 0.1739 ug/mL
RT: 18.701 min Scan# 2709
Delta R.T. -0.003 min
Lab File: WGA07.D
Acq: 10 Jul 2014 5:02 pm

Tgt Ion:252 Resp: 23807

Ion	Ratio	Lower	Upper
252	100		
253	23.2	1.0	41.0
125	21.2	0.0	35.6



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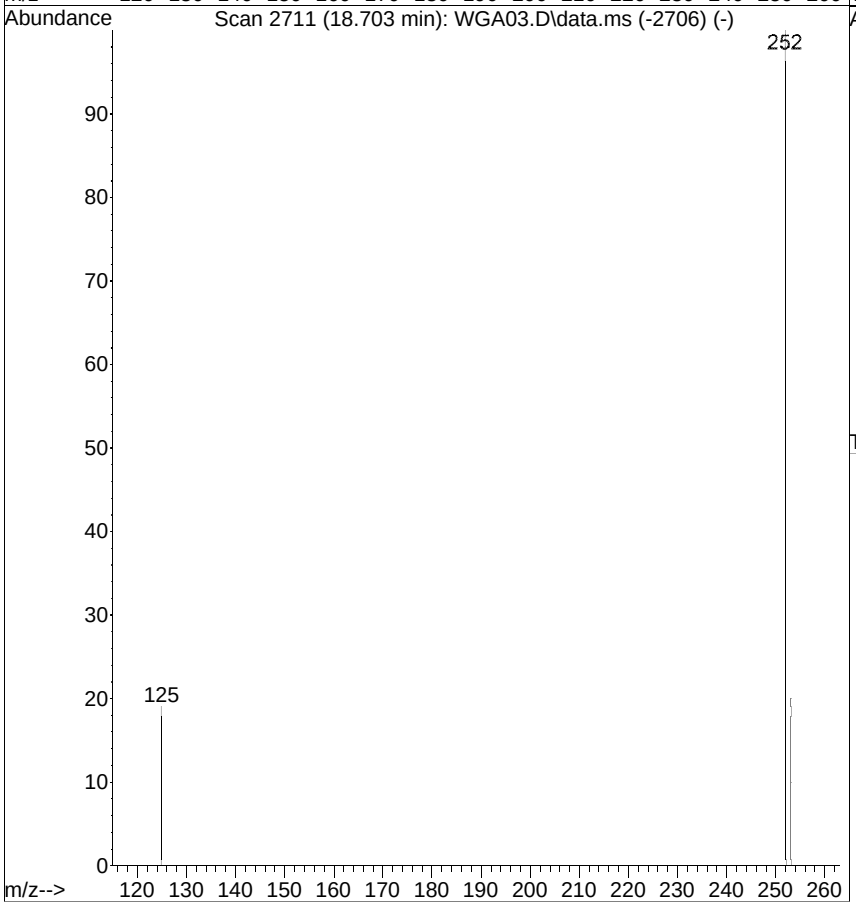
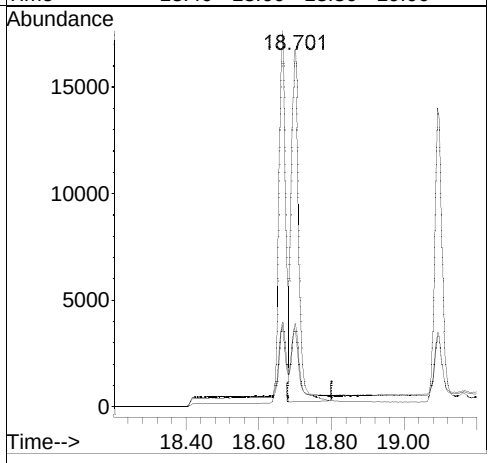
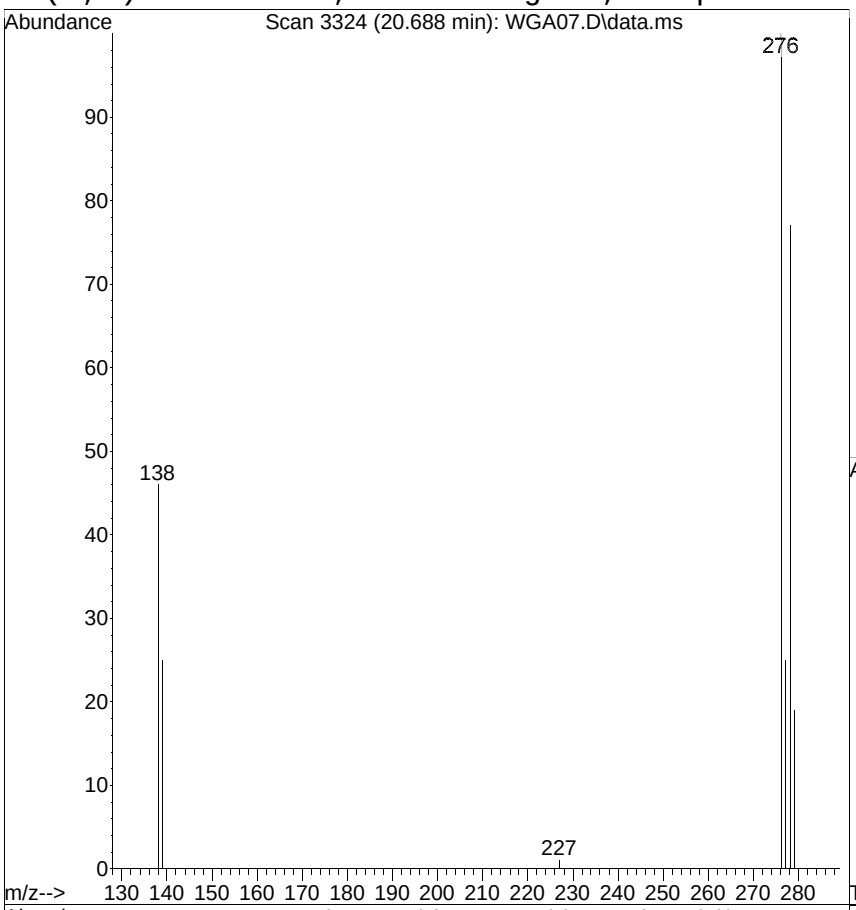




[Dibenz(a,h)anthracene; 0.2000 ug/mL; response=17583; MI]

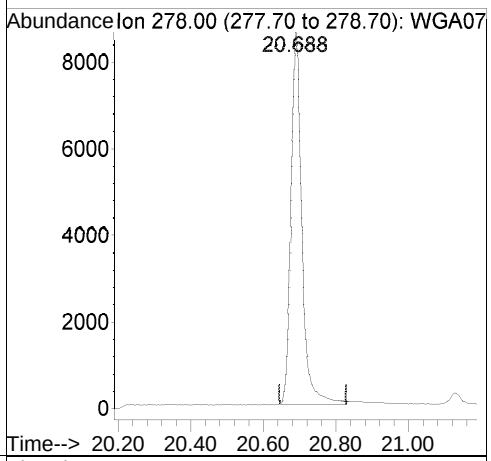
Raw



#28
Dibenz(a,h)anthracene
Concen: 0.2761 ug/mL m
RT: 20.688 min Scan# 3324
Delta R.T. -0.003 min
Lab File: WGA07.D
Acq: 10 Jul 2014 5:02 pm

Tgt Ion:278 Resp: 17583

Ion	Ratio	Lower	Upper
278	100		
139	32.3	5.2	45.2
279	24.5	5.4	45.4



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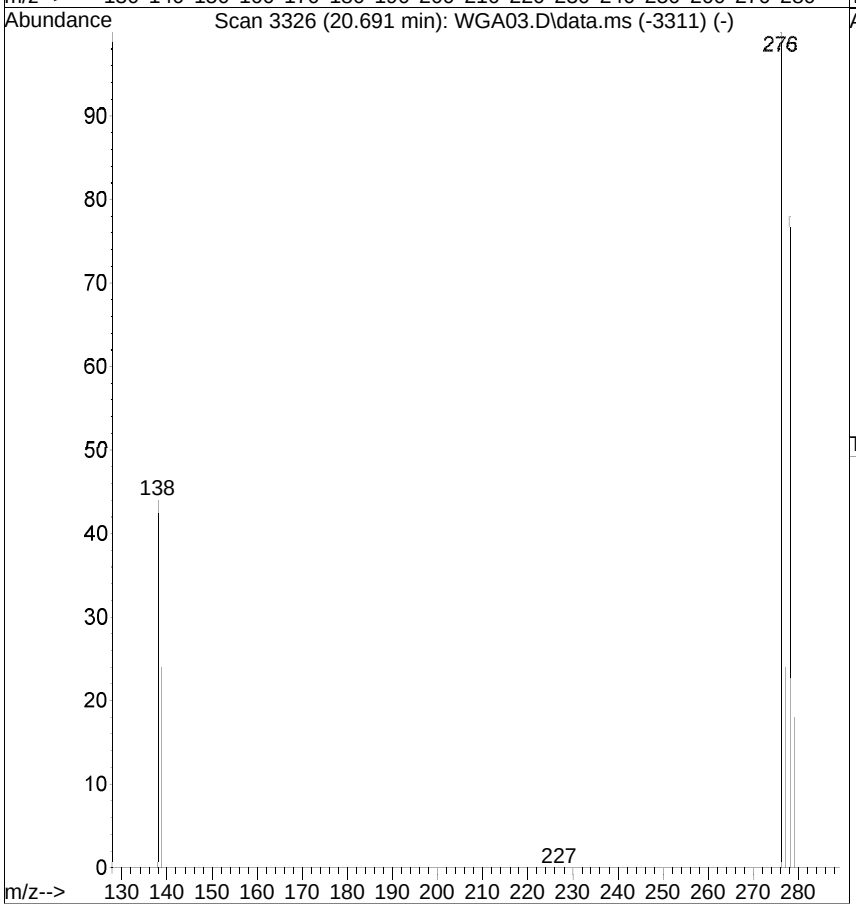
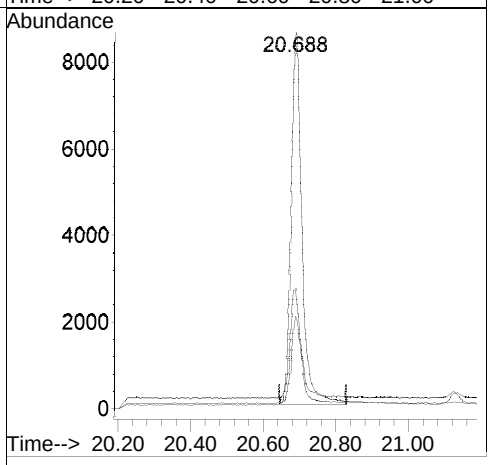
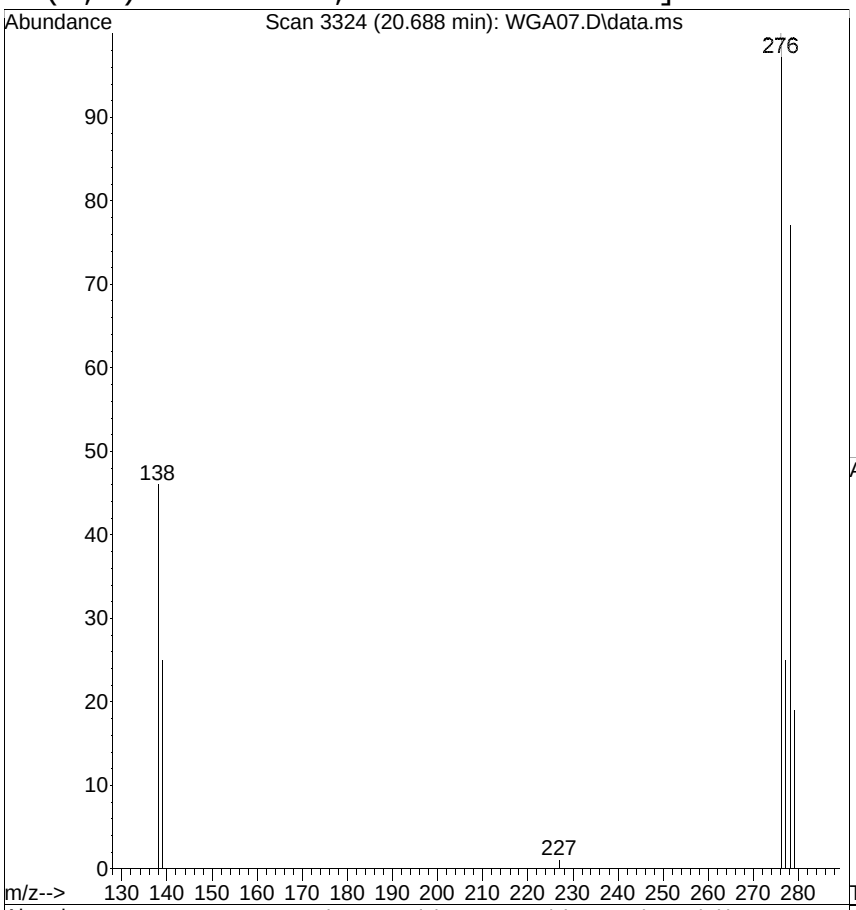




[Dibenz(a,h)anthracene; before version]

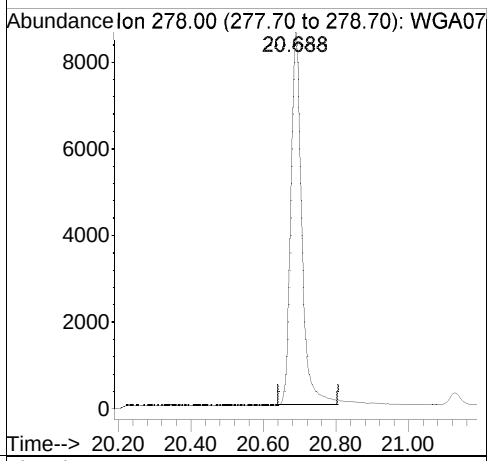
Raw



#28
Dibenz(a,h)anthracene
Concen: 0.2742 ug/mL
RT: 20.688 min Scan# 3324
Delta R.T. -0.003 min
Lab File: WGA07.D
Acq: 10 Jul 2014 5:02 pm

Tgt Ion:278 Resp: 17445

Ion	Ratio	Lower	Upper
278	100		
139	32.3	5.2	45.2
279	24.5	5.4	45.4



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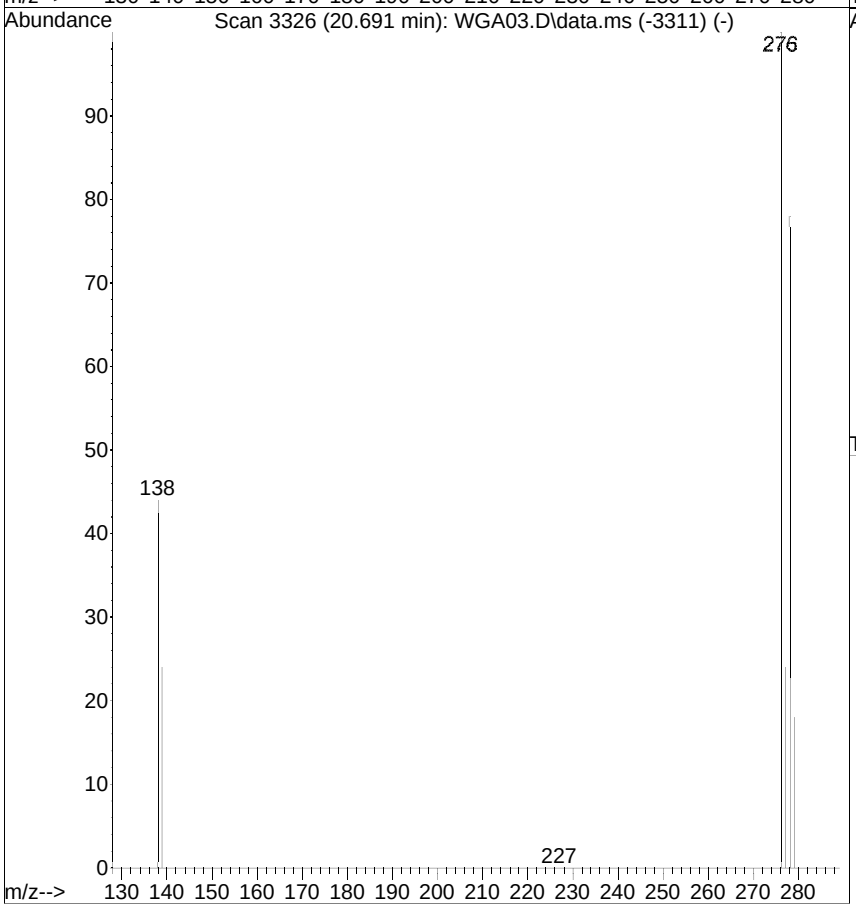
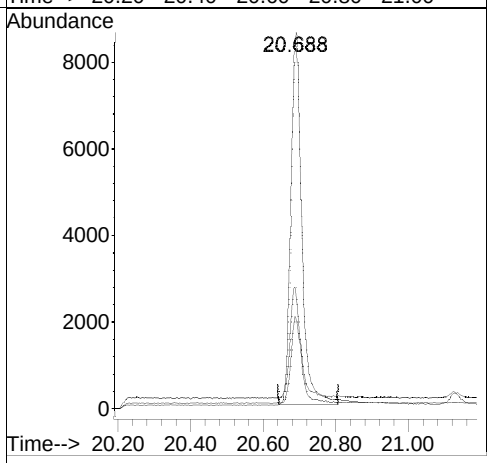
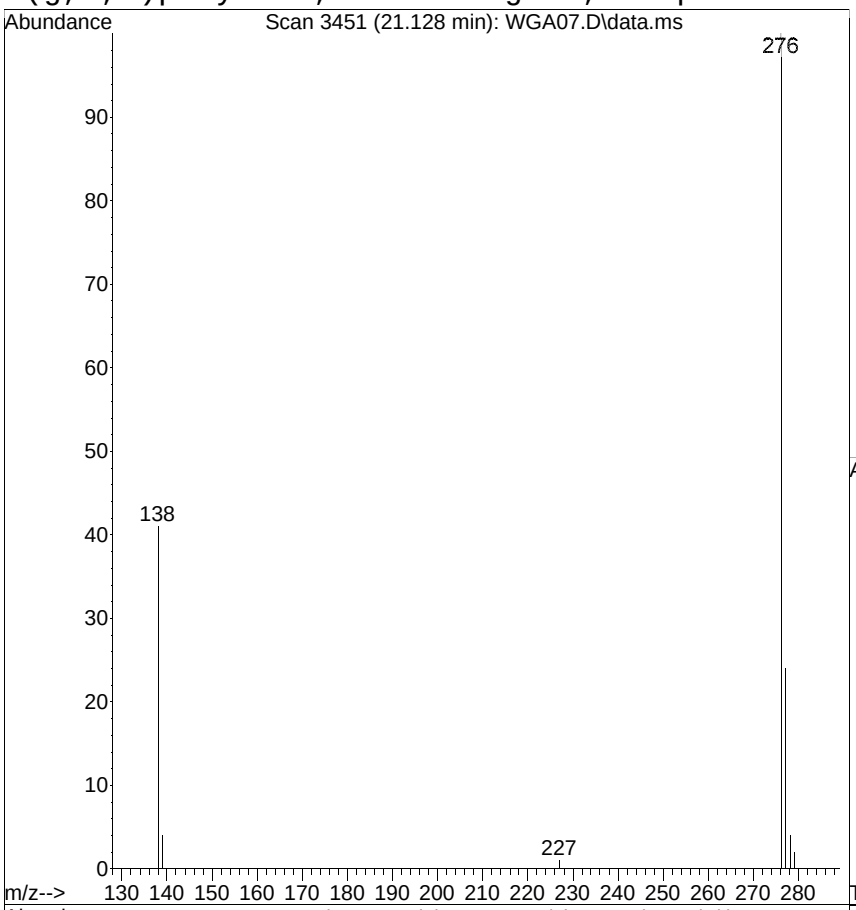




[Benzo(g,h,i)perylene; 0.2000 ug/mL; response=20973; MI]

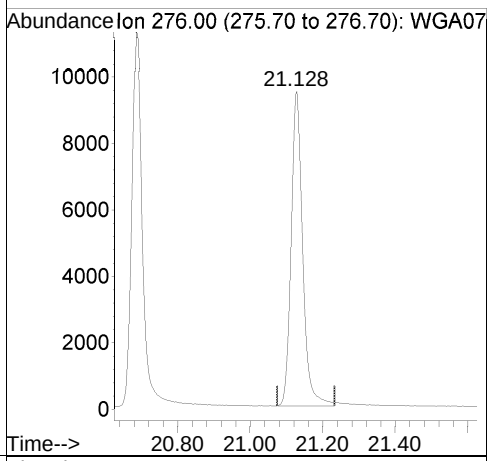
Raw



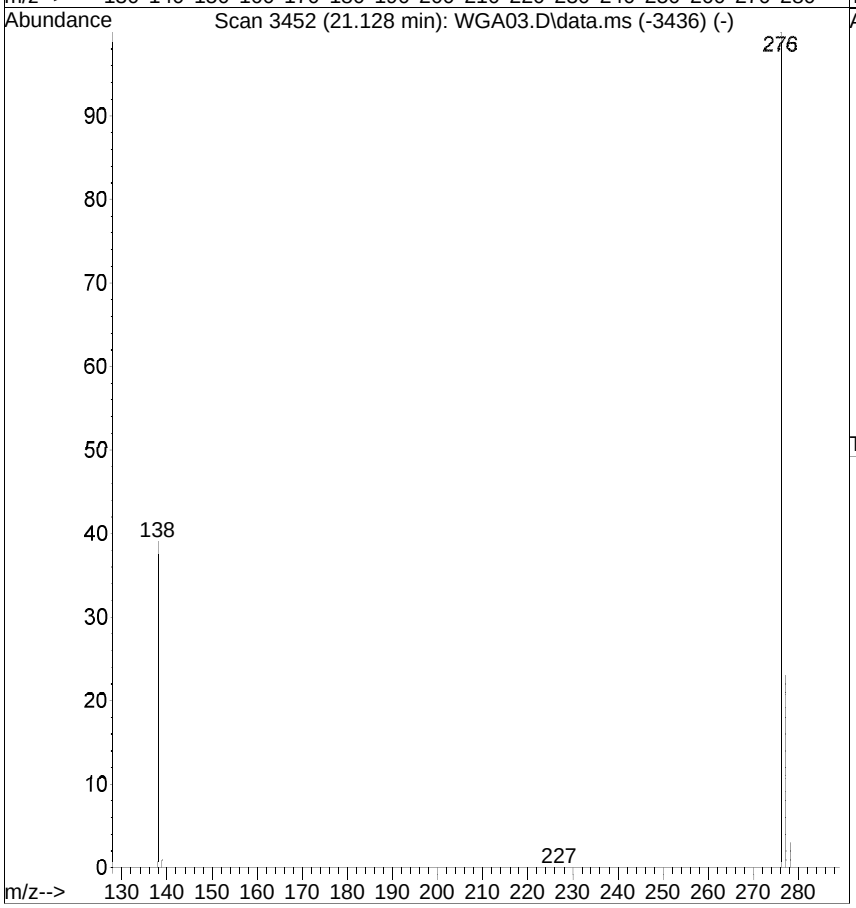
#29
Benzo(g,h,i)perylene
Concen: 0.1822 ug/mL m
RT: 21.128 min Scan# 3451
Delta R.T. -0.000 min
Lab File: WGA07.D
Acq: 10 Jul 2014 5:02 pm

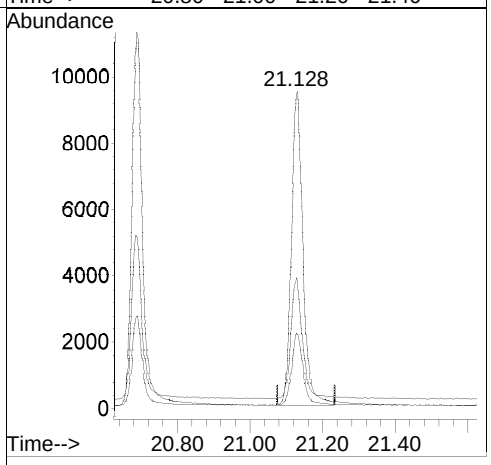
Tgt Ion:276 Resp: 20973

Ion	Ratio	Lower	Upper
276	100		
138	41.2	13.7	53.7
277	23.7	0.0	20.0#



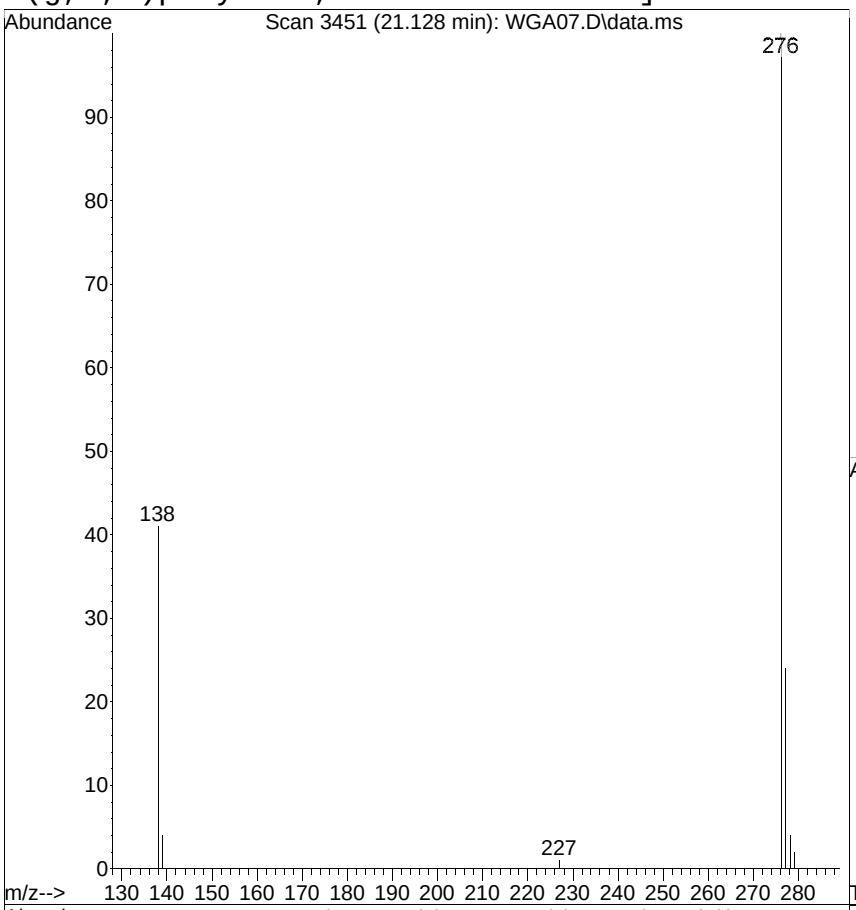
Ref





[Benzo(g,h,i)perylene; before version]

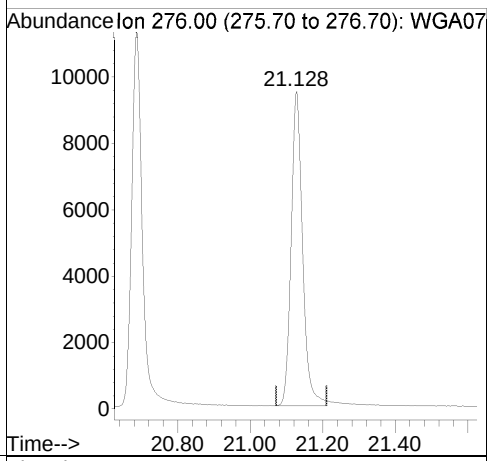
Raw



#29
Benzo(g,h,i)perylene
Concen: 0.1807 ug/mL
RT: 21.128 min Scan# 3451
Delta R.T. -0.000 min
Lab File: WGA07.D
Acq: 10 Jul 2014 5:02 pm

Tgt Ion:276 Resp: 20804

Ion	Ratio	Lower	Upper
276	100		
138	41.2	13.7	53.7
277	23.7	0.0	20.0#



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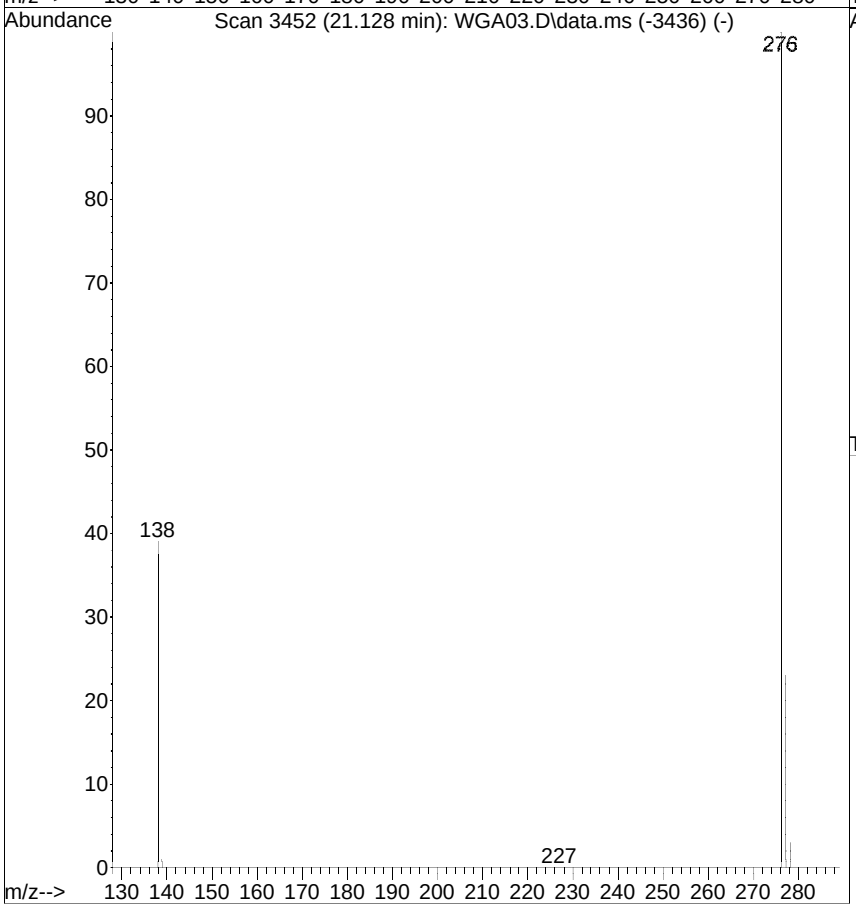
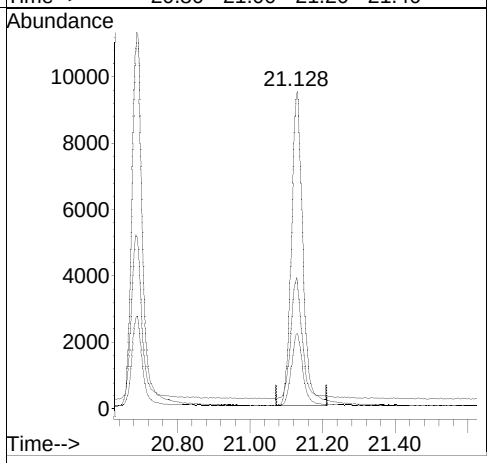
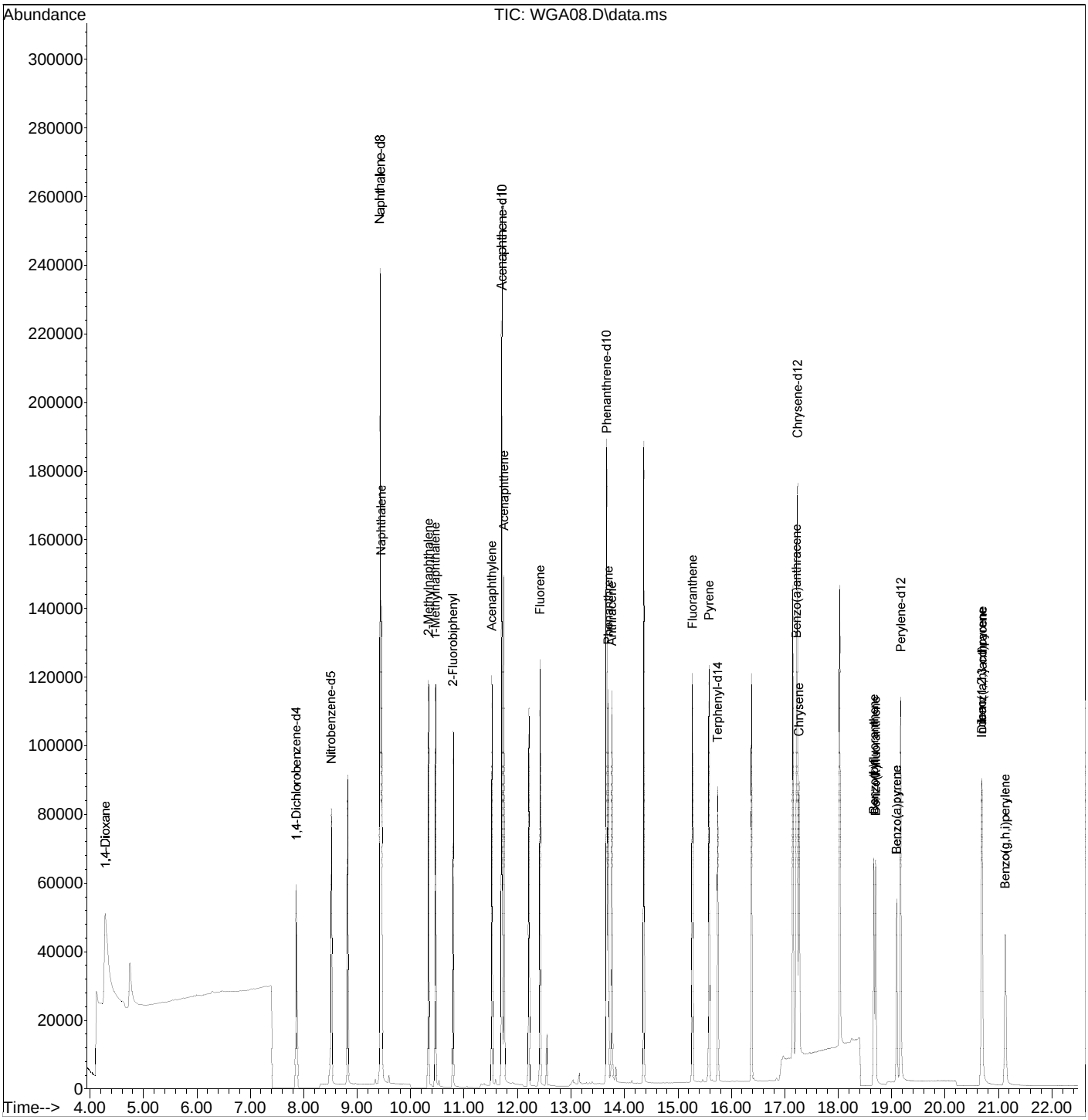




Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\071014\
Data File : WGA08.D
Acq On : 10 Jul 2014 5:35 pm
Operator :
Sample : ICAL,S25128
Misc : ICAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jul 11 10:22:03 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Thu Jul 10 15:38:18 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\071014\
Data File : WGA08.D
Acq On : 10 Jul 2014 5:35 pm
Operator :
Sample : ICAL,S25128
Misc : ICAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jul 11 10:22:03 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Thu Jul 10 15:38:18 2014
Response via : Initial Calibration

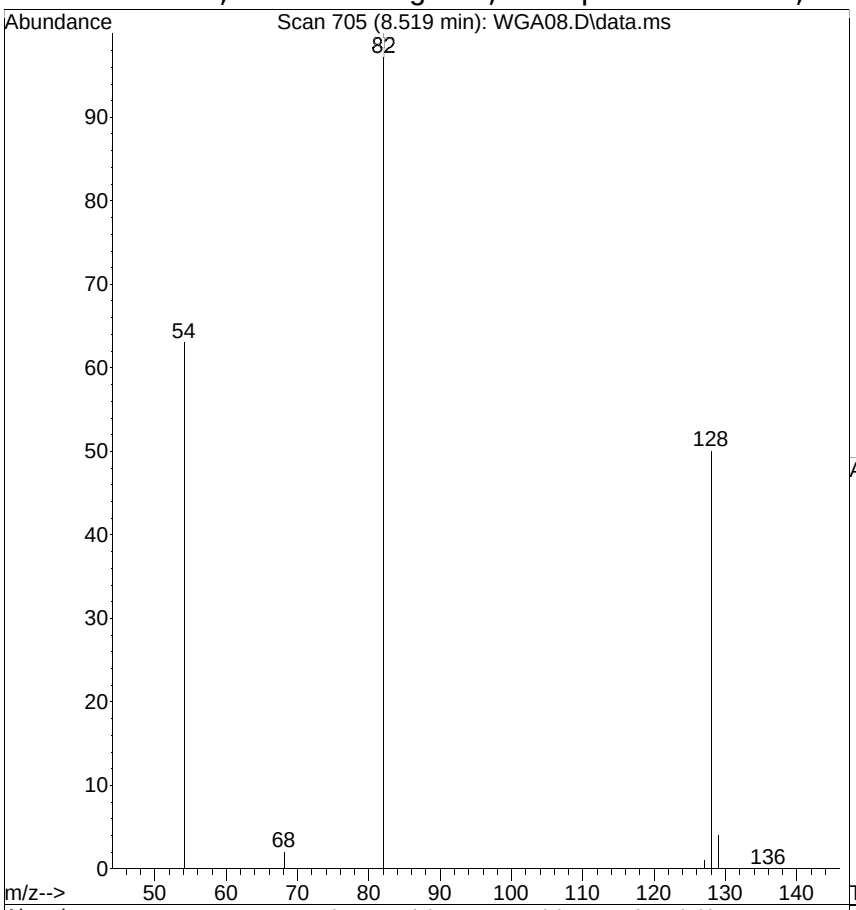
Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.864	152	60879	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.434	136	235795	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.709	164	122485	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.670	188	175847	1.0000	ug/mL	0.00
18) Chrysene-d12	17.230	240	140197	1.0000	ug/mL	0.00
23) Perylene-d12	19.165	264	111499	1.0000	ug/mL	0.00

Target Compounds						Qvalue
2) 1,4-Dioxane	4.294	88	82675m	7.6322	ug/mL	
4) Nitrobenzene-d5	8.519	82	47995m	0.3418	ug/mL	
5) Naphthalene	9.459	128	133388	0.5498	ug/mL	95
6) 2-Methylnaphthalene	10.339	142	76128	0.4490	ug/mL	98
7) 1-Methylnaphthalene	10.471	142	74063	0.4422	ug/mL	98
9) 2-Fluorobiphenyl	10.797	172	84175	0.4518	ug/mL	94
10) Acenaphthylene	11.523	152	104222	0.5904	ug/mL	95
11) Acenaphthene	11.750	154	63225	0.5613	ug/mL	98
12) Fluorene	12.425	166	72099	0.4663	ug/mL	94
14) _Pentachlorophenol	13.405	266	347	No Calib		
15) Phenanthrene	13.700	178	95365	0.5177	ug/mL	96
16) Anthracene	13.766	178	92034	0.6129	ug/mL	96
17) Fluoranthene	15.272	202	89794	0.4852	ug/mL	93
19) Pyrene	15.584	202	94704	0.6589	ug/mL	94
20) Terphenyl-d14	15.746	244	73304	0.5344	ug/mL	98
21) Benzo(a)anthracene	17.215	228	65425	0.5486	ug/mL	97
22) Chrysene	17.265	228	67814	0.6188	ug/mL	98
24) Benzo(b)fluoranthene	18.664	252	61897	0.5256	ug/mL	96
25) Benzo(k)fluoranthene	18.697	252	63662m	0.4464	ug/mL	
26) Benzo(a)pyrene	19.092	252	54013	0.5306	ug/mL	95
27) Indeno(1,2,3-cd)pyrene	20.681	276	63511	0.5369	ug/mL	72
28) Dibenz(a,h)anthracene	20.684	278	48692	0.6652	ug/mL	93
29) Benzo(g,h,i)perylene	21.121	276	56931	0.4748	ug/mL #	90

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

[Nitrobenzene-d5; 0.5000 ug/mL; response=47995; MI]

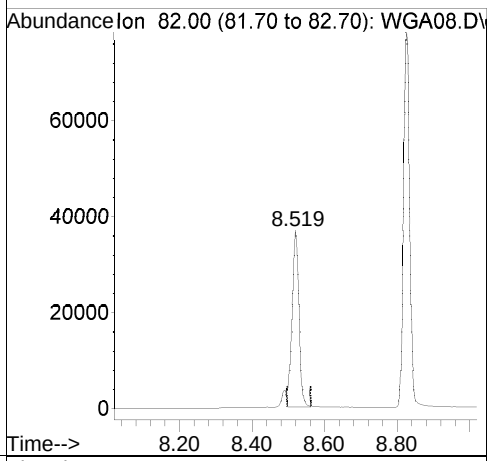
Raw



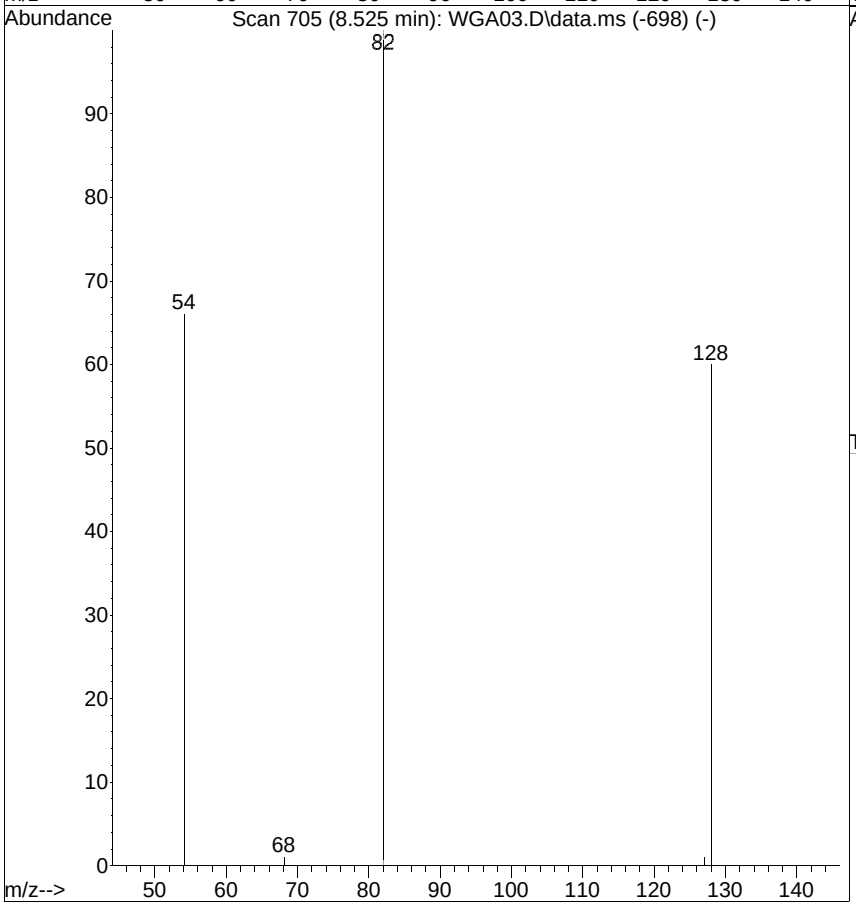
#4
Nitrobenzene-d5
Concen: 0.3418 ug/mL m
RT: 8.519 min Scan# 705
Delta R.T. -0.006 min
Lab File: WGA08.D
Acq: 10 Jul 2014 5:35 pm

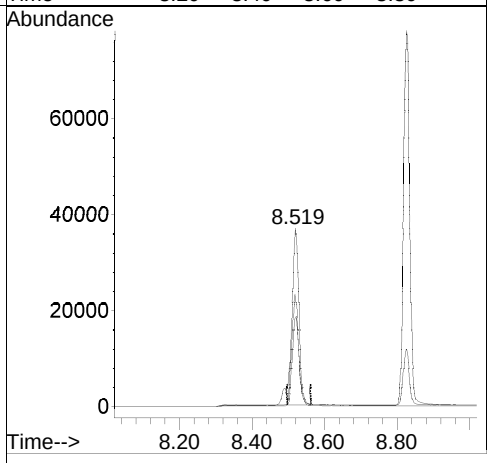
Tgt Ion: 82 Resp: 47995

Ion	Ratio	Lower	Upper
82	100		
128	50.3	35.4	75.4
54	63.1	35.4	75.4



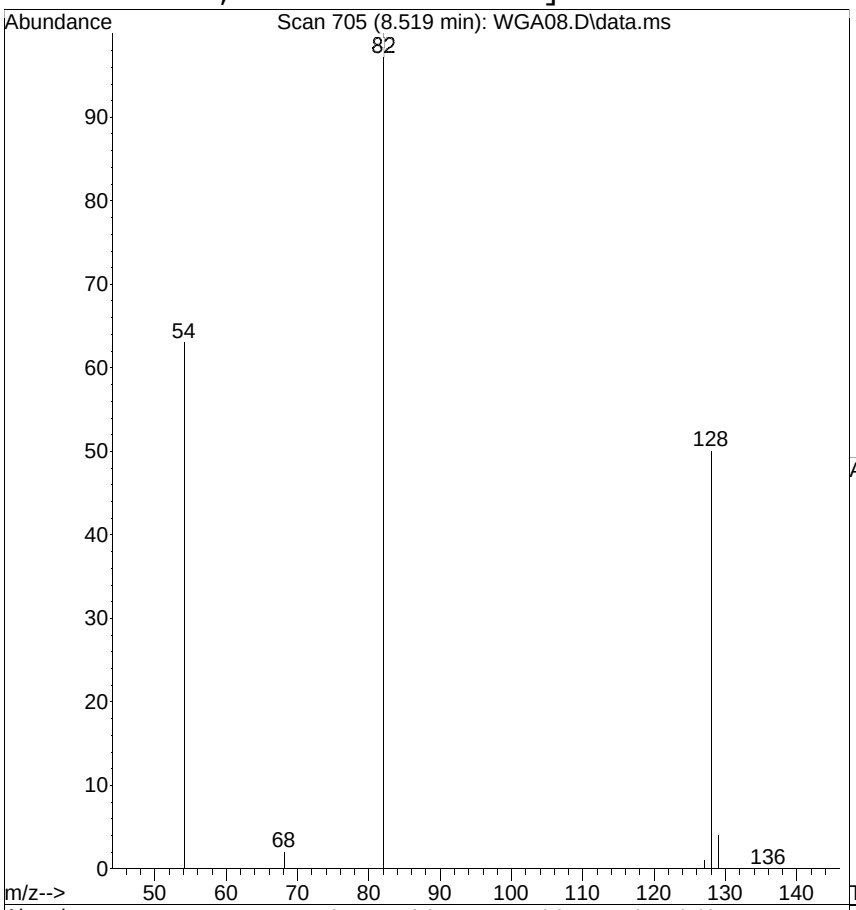
Ref





[Nitrobenzene-d5; before version]

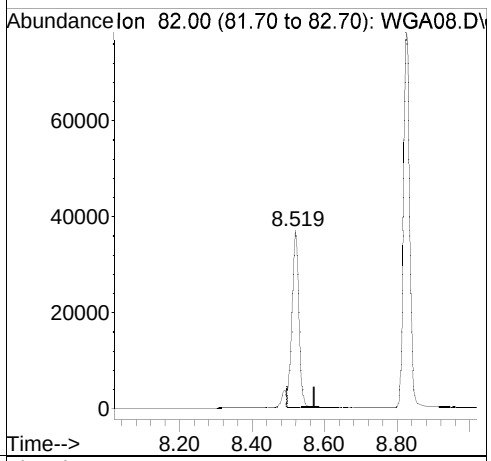
Raw



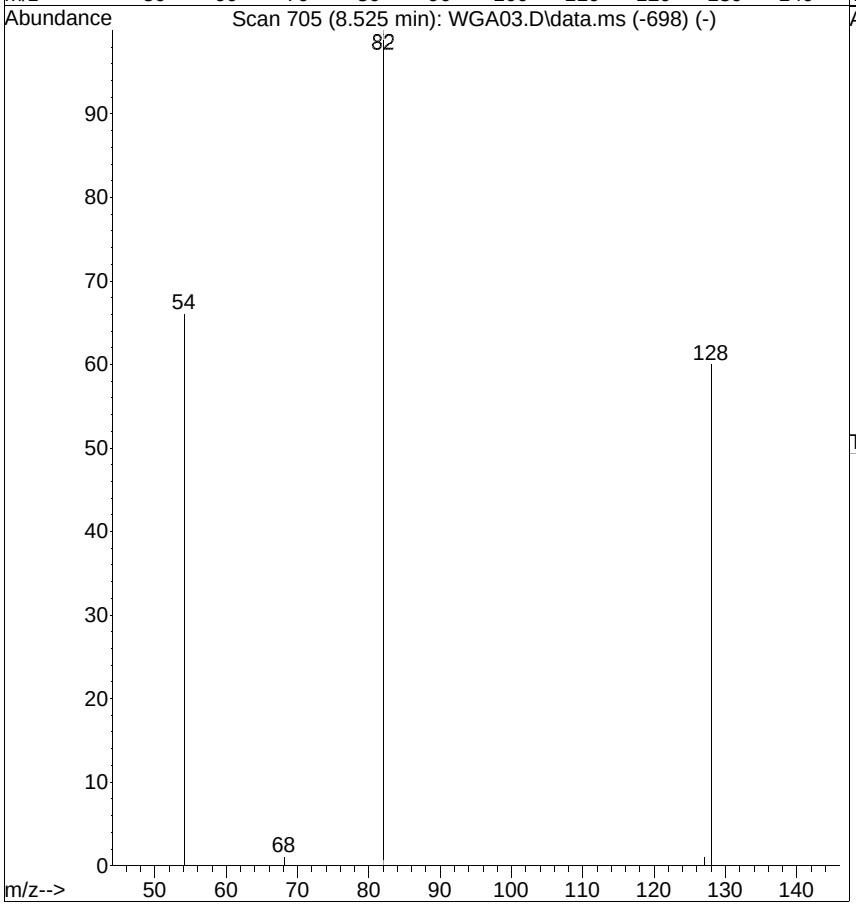
#4
Nitrobenzene-d5
Concen: 0.3403 ug/mL
RT: 8.519 min Scan# 705
Delta R.T. -0.006 min
Lab File: WGA08.D
Acq: 10 Jul 2014 5:35 pm

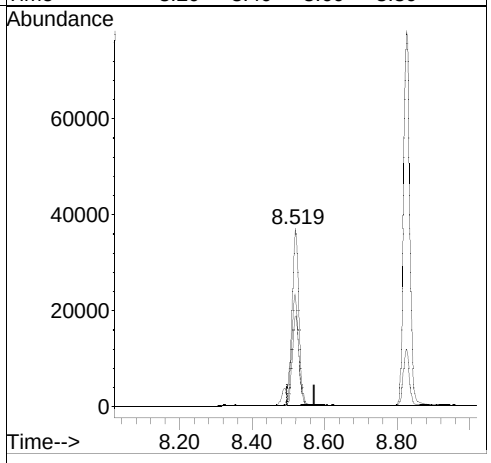
Tgt Ion: 82 Resp: 47786

Ion	Ratio	Lower	Upper
82	100		
128	50.3	35.4	75.4
54	63.1	35.4	75.4



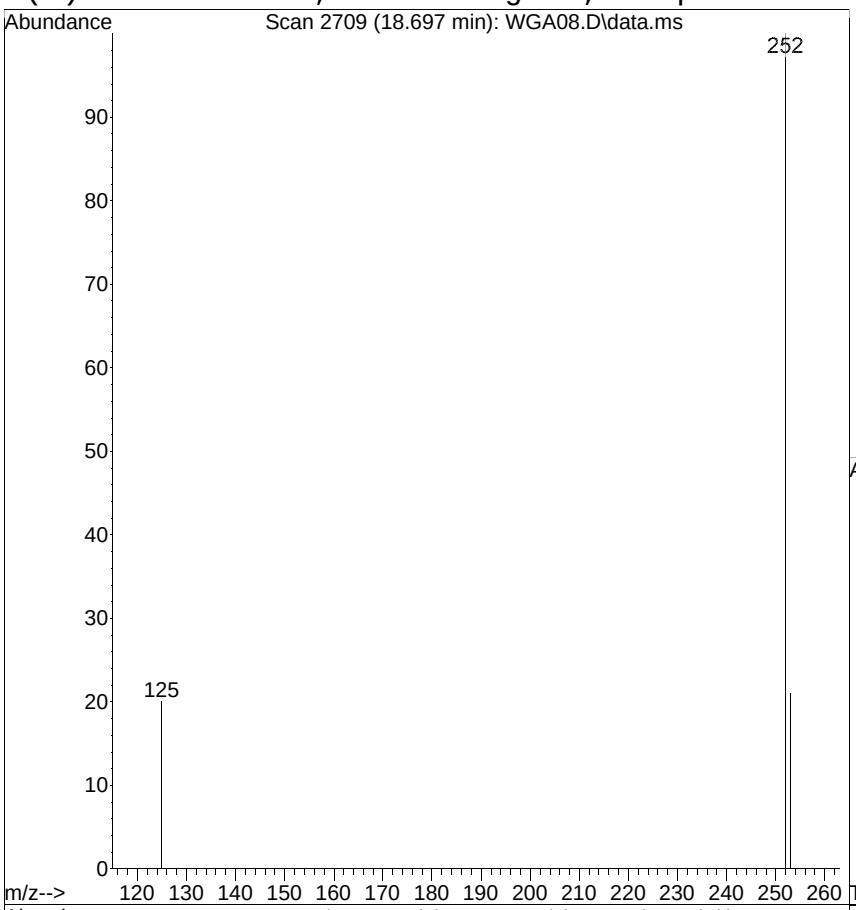
Ref





[Benzo(k)fluoranthene; 0.5000 ug/mL; response=63662; MI]

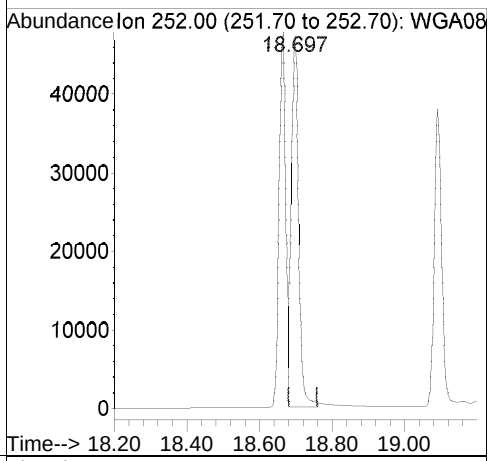
Raw



#25
Benzo(k)fluoranthene
Concen: 0.4464 ug/mL m
RT: 18.697 min Scan# 2709
Delta R.T. -0.006 min
Lab File: WGA08.D
Acq: 10 Jul 2014 5:35 pm

Tgt Ion:252 Resp: 63662

Ion	Ratio	Lower	Upper
252	100		
253	21.1	1.0	41.0
125	19.9	0.0	35.6



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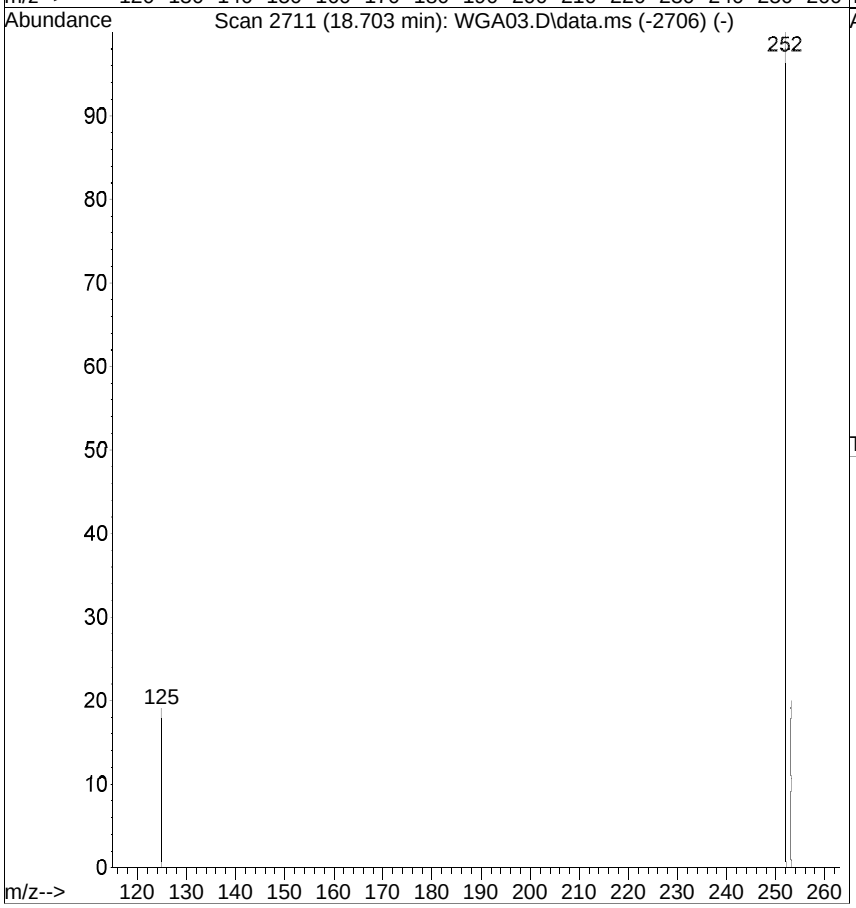
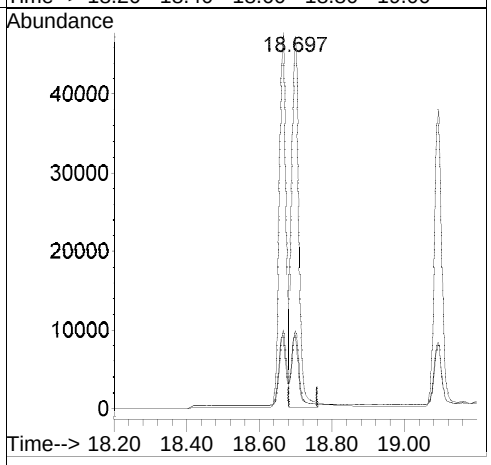
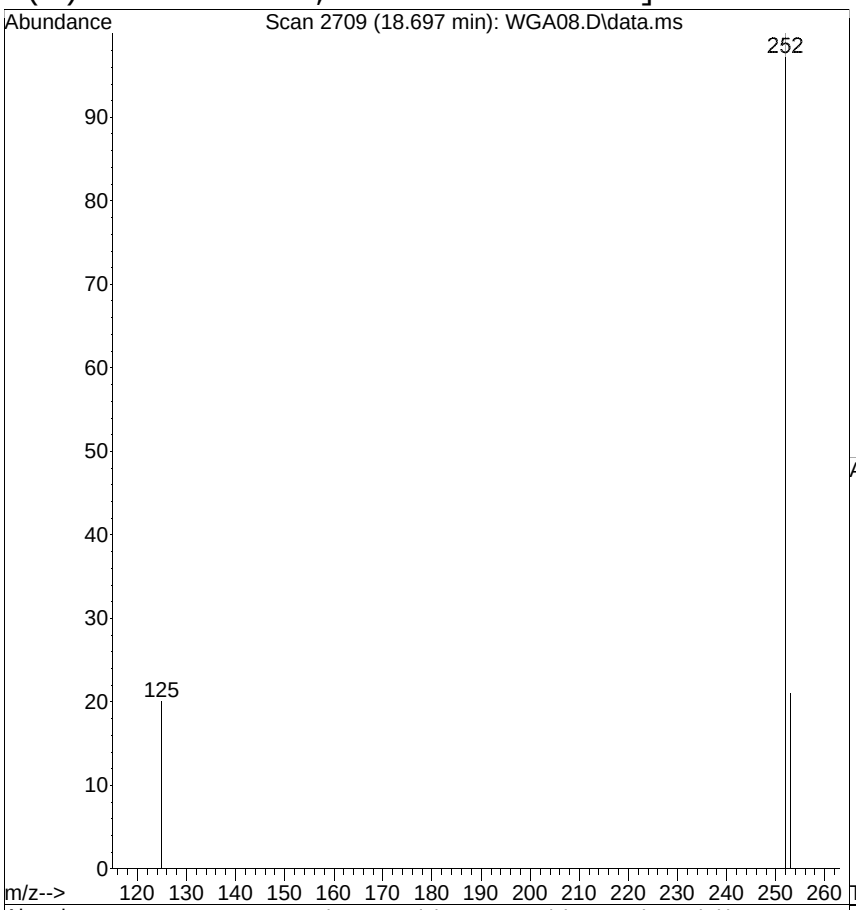




[Benzo(k)fluoranthene; before version]

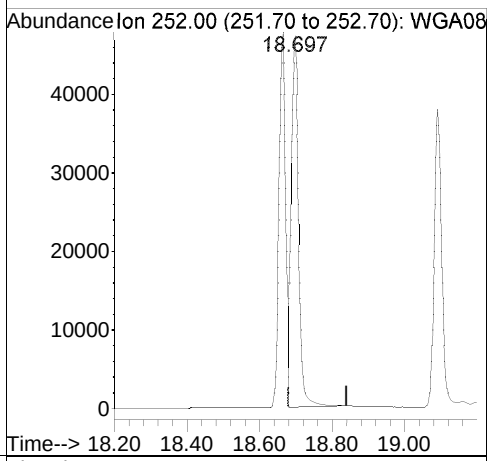
Raw



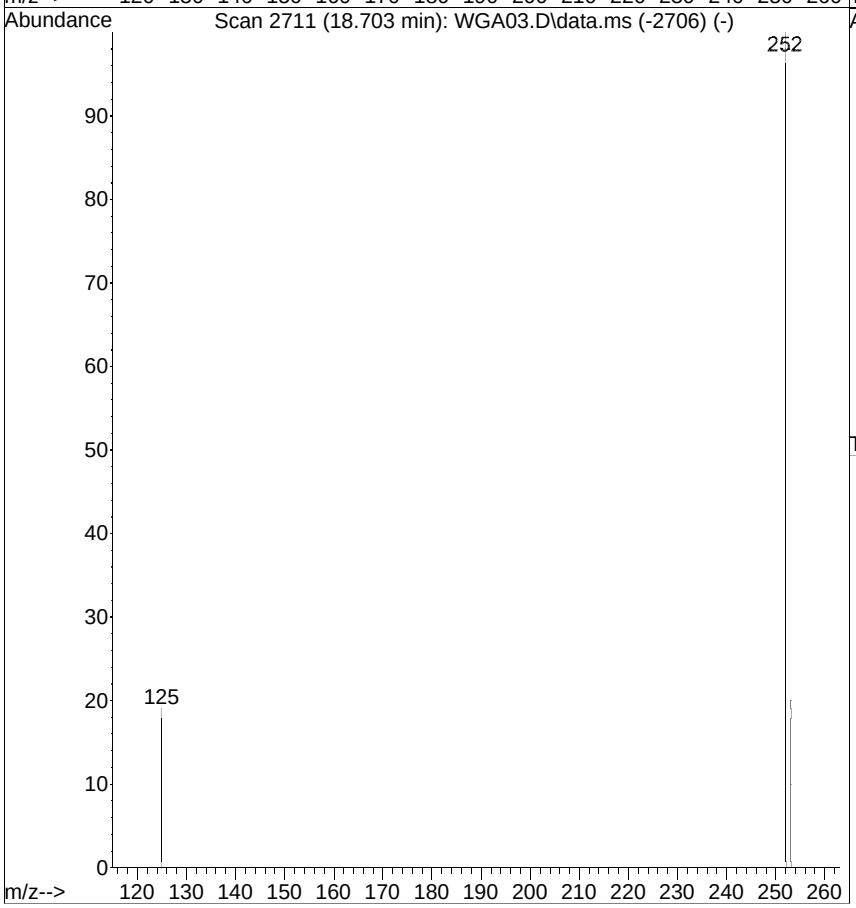
#25
Benzo(k)fluoranthene
Concen: 0.4498 ug/mL
RT: 18.697 min Scan# 2709
Delta R.T. -0.006 min
Lab File: WGA08.D
Acq: 10 Jul 2014 5:35 pm

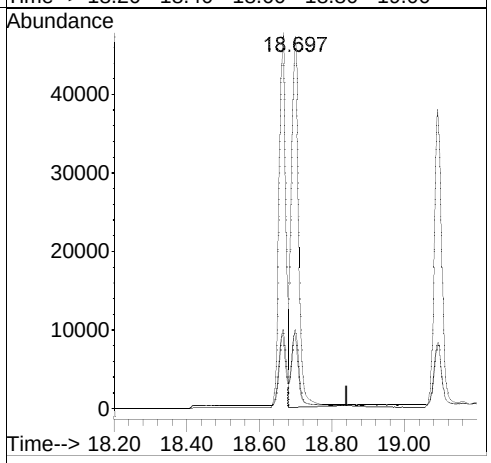
Tgt Ion:252 Resp: 64153

Ion	Ratio	Lower	Upper
252	100		
253	21.1	1.0	41.0
125	19.9	0.0	35.6



Ref

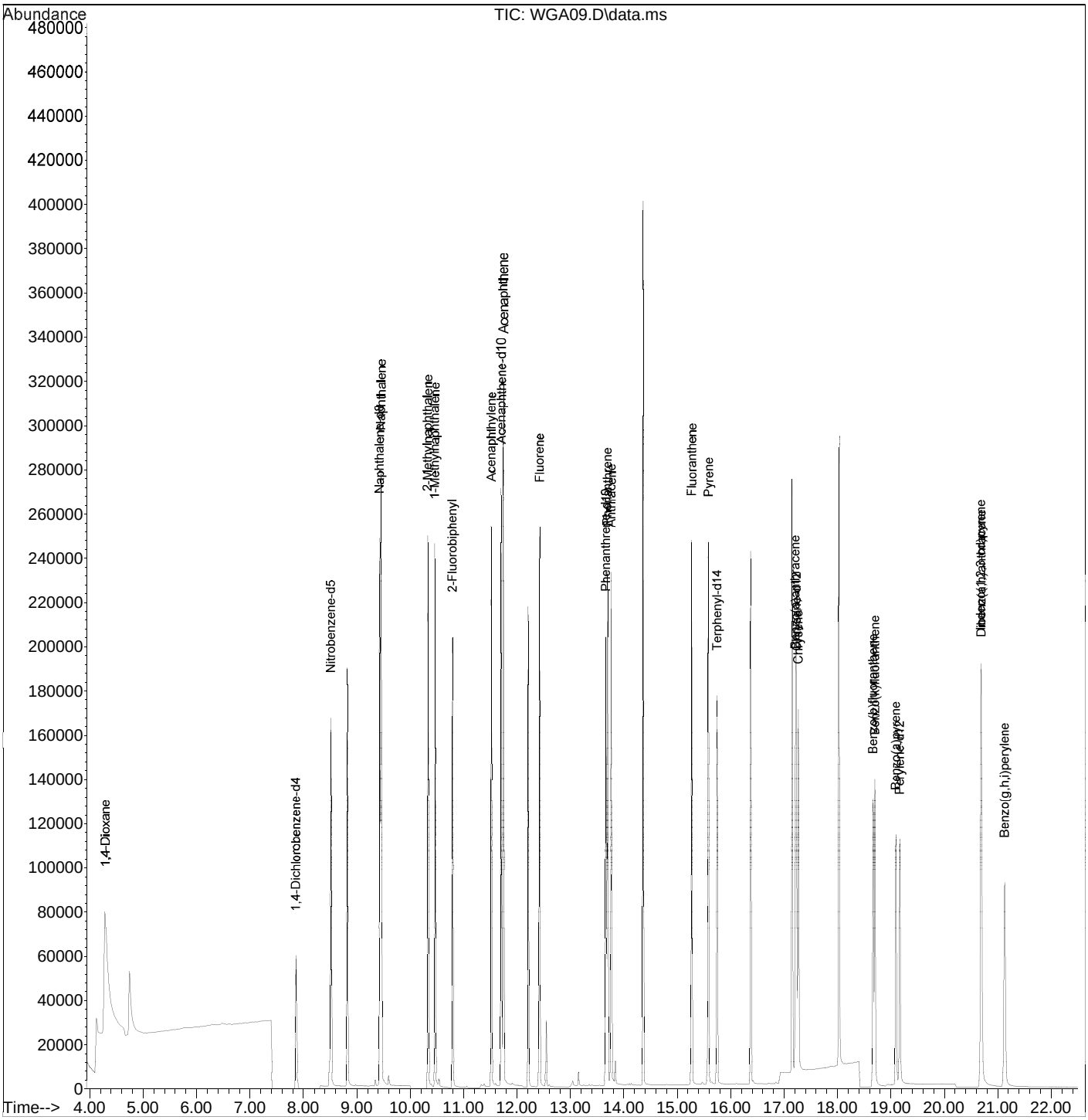




Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\071014\
Data File : WGA09.D
Acq On : 10 Jul 2014 6:08 pm
Operator :
Sample : ICAL,S25129
Misc : ICAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 11 10:29:20 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Thu Jul 10 15:38:18 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\071014\
Data File : WGA09.D
Acq On : 10 Jul 2014 6:08 pm
Operator :
Sample : ICAL,S25129
Misc : ICAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 11 10:29:20 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Thu Jul 10 15:38:18 2014
Response via : Initial Calibration

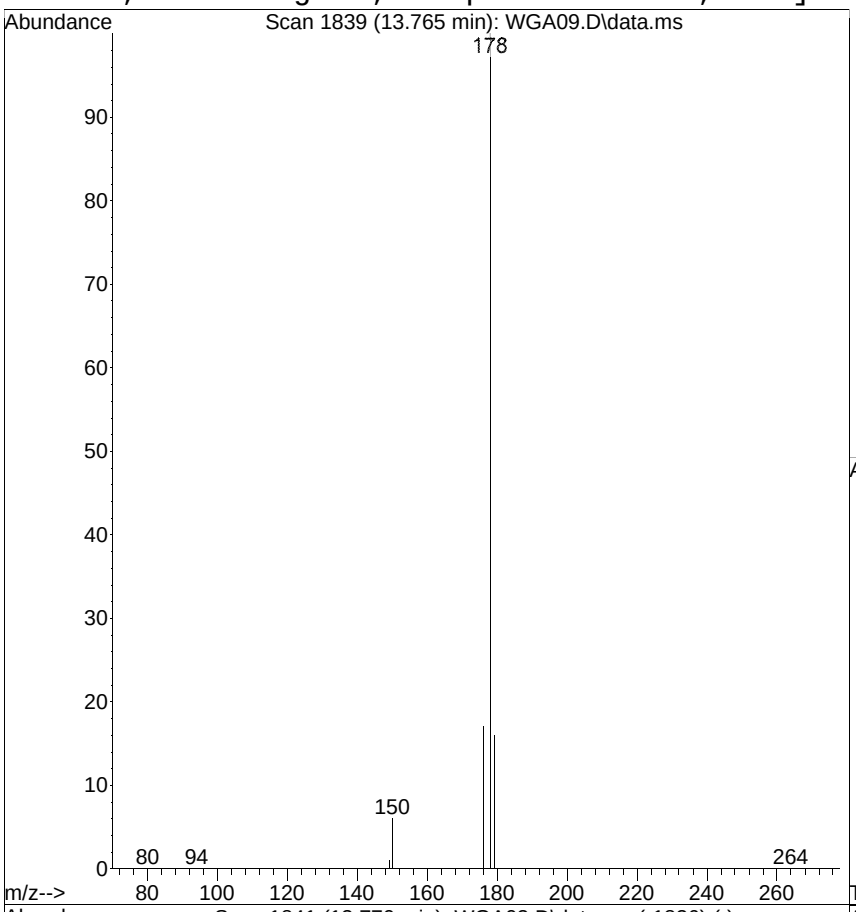
Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.864	152	61411	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.433	136	237683	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.705	164	124978	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.662	188	182537	1.0000	ug/mL	0.00
18) Chrysene-d12	17.230	240	142444	1.0000	ug/mL	0.00
23) Perylene-d12	19.163	264	111189	1.0000	ug/mL	0.00

Target Compounds						Qvalue
2) 1,4-Dioxane	4.293	88	168103m	15.3842	ug/mL	
4) Nitrobenzene-d5	8.519	82	98413	0.6952	ug/mL	93
5) Naphthalene	9.462	128	269372	1.1015	ug/mL	94
6) 2-Methylnaphthalene	10.335	142	156512	0.9157	ug/mL	96
7) 1-Methylnaphthalene	10.467	142	149432	0.8852	ug/mL	98
9) 2-Fluorobiphenyl	10.798	172	174983	0.9204	ug/mL	93
10) Acenaphthylene	11.519	152	215509	1.1965	ug/mL	95
11) Acenaphthene	11.746	154	131141	1.1411	ug/mL	97
12) Fluorene	12.424	166	151081	0.9576	ug/mL	93
14) _Pentachlorophenol	13.404	266	257	No Calib		
15) Phenanthrene	13.693	178	197329	1.0319	ug/mL	97
16) Anthracene	13.765	178	191520m	1.2288	ug/mL	
17) Fluoranthene	15.270	202	185902	0.9678	ug/mL	94
19) Pyrene	15.582	202	195994	1.3420	ug/mL	94
20) Terphenyl-d14	15.745	244	150790	1.0819	ug/mL	95
21) Benzo(a)anthracene	17.209	228	135860	1.1212	ug/mL	98
22) Chrysene	17.265	228	140436m	1.2612	ug/mL	
24) Benzo(b)fluoranthene	18.663	252	126163	1.0743	ug/mL	96
25) Benzo(k)fluoranthene	18.697	252	130550m	0.9179	ug/mL	
26) Benzo(a)pyrene	19.089	252	111029	1.0938	ug/mL	94
27) Indeno(1,2,3-cd)pyrene	20.681	276	133411	1.0571	ug/mL	72
28) Dibenz(a,h)anthracene	20.687	278	103094	1.3134	ug/mL	94
29) Benzo(g,h,i)perylene	21.124	276	118297	0.9893	ug/mL #	91

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

[Anthracene; 1.000 ug/mL; response=191520; MI]

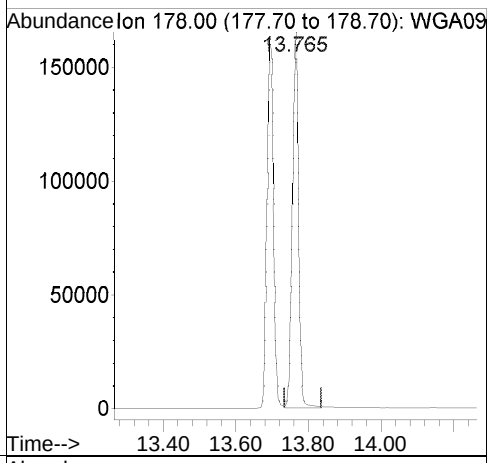
Raw



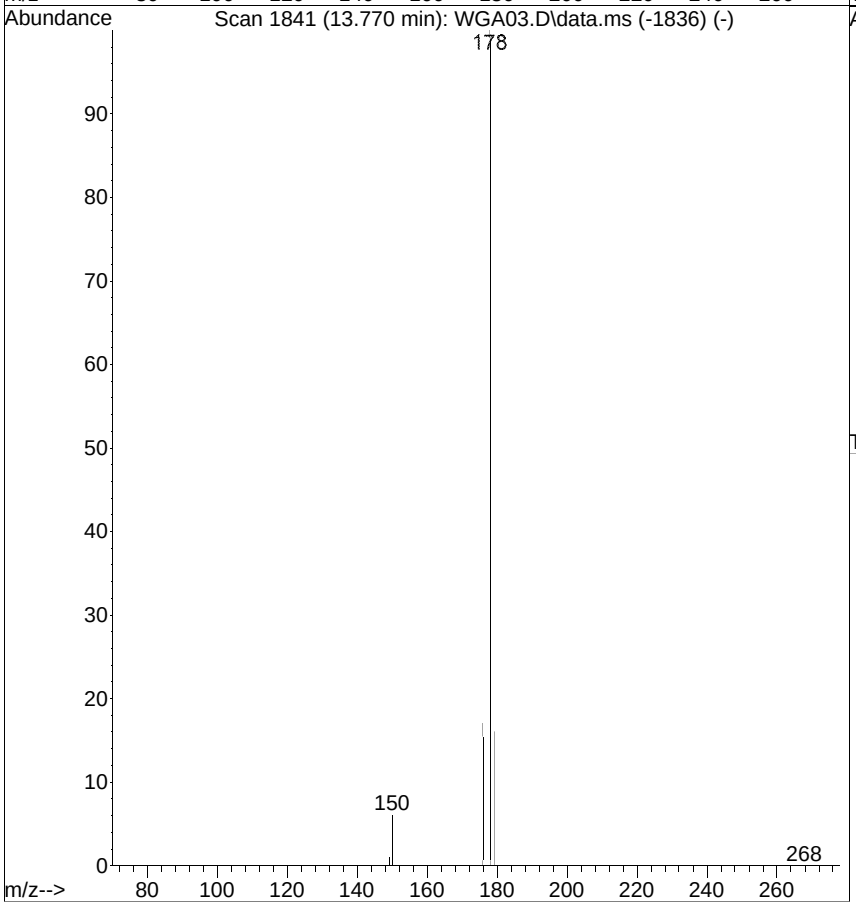
#16
Anthracene
Concen: 1.2288 ug/mL m
RT: 13.765 min Scan# 1839
Delta R.T. -0.006 min
Lab File: WGA09.D
Acq: 10 Jul 2014 6:08 pm

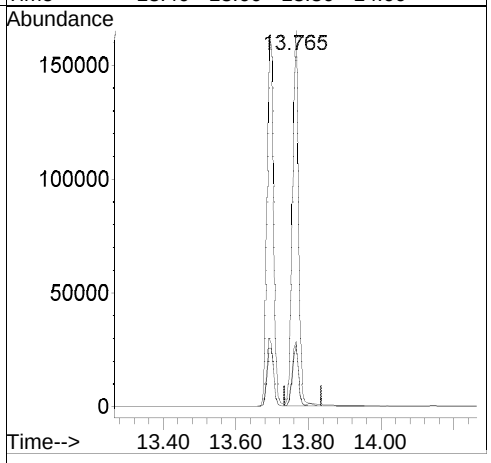
Tgt Ion:178 Resp: 191520

Ion	Ratio	Lower	Upper
178	100		
179	16.5	0.0	37.7
176	17.3	0.0	39.4



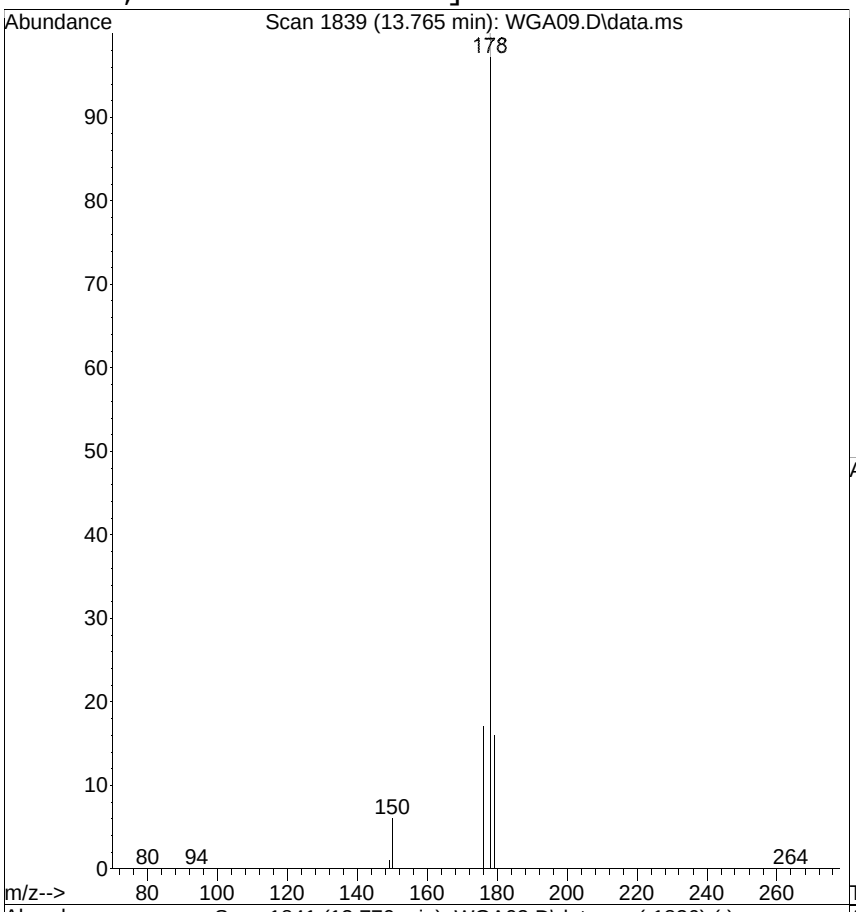
Ref





[Anthracene; before version]

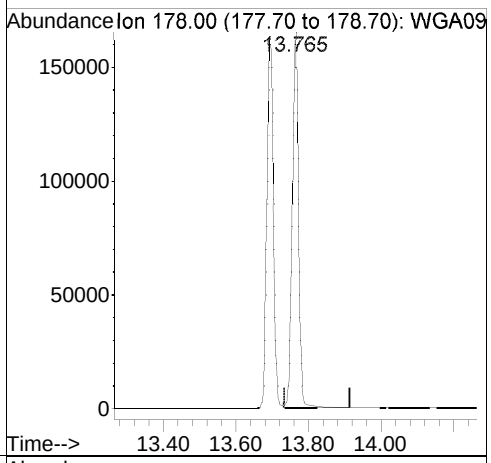
Raw



#16
Anthracene
Concen: 1.2344 ug/mL
RT: 13.765 min Scan# 1839
Delta R.T. -0.006 min
Lab File: WGA09.D
Acq: 10 Jul 2014 6:08 pm

Tgt Ion:178 Resp: 192395

Ion	Ratio	Lower	Upper
178	100		
179	16.5	0.0	37.7
176	17.3	0.0	39.4



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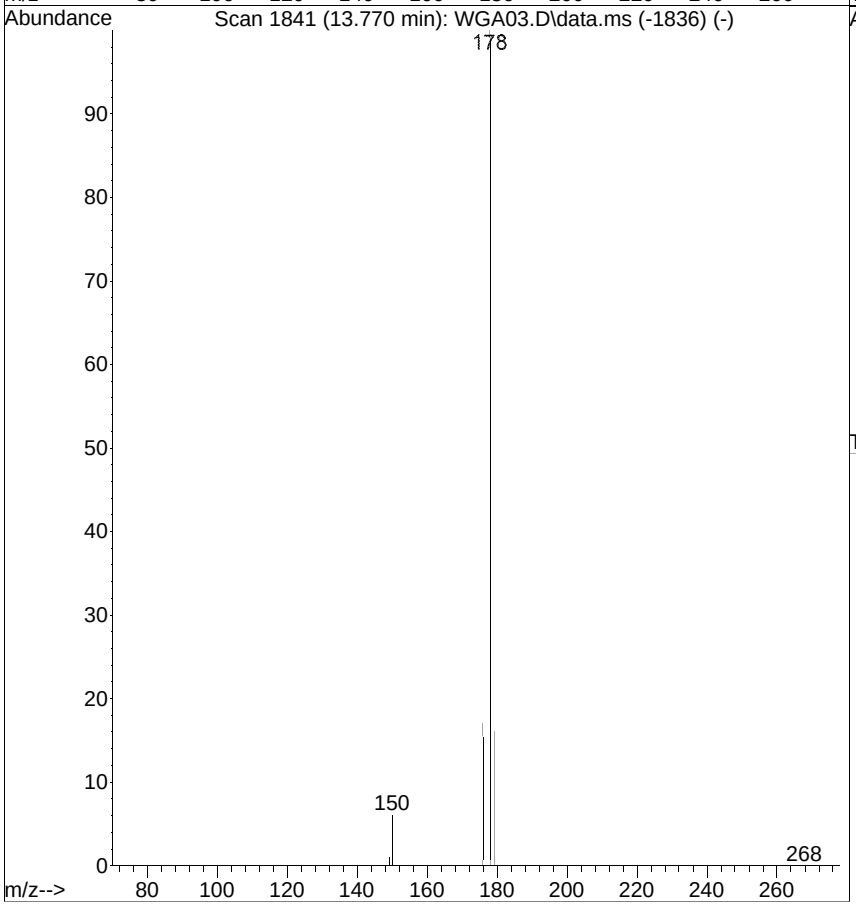
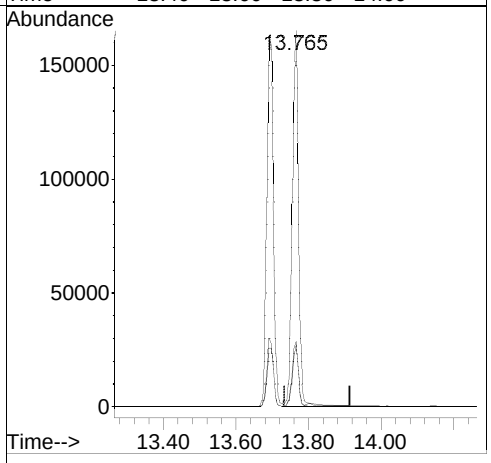
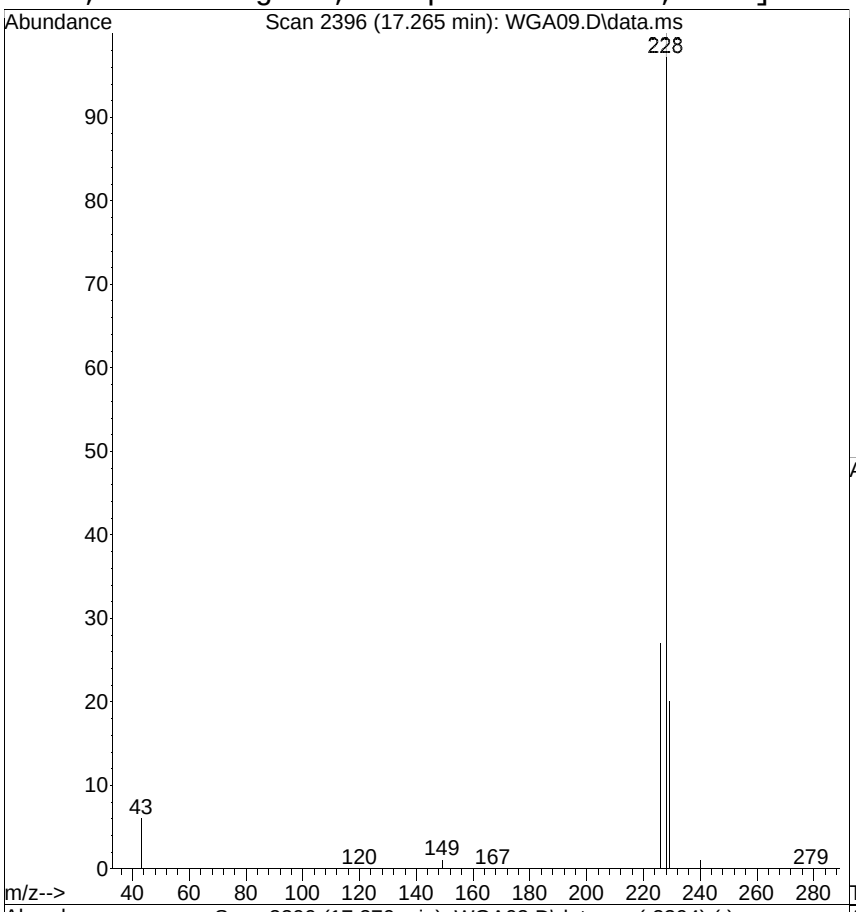




[Chrysene; 1.000 ug/mL; response=140436; MI]

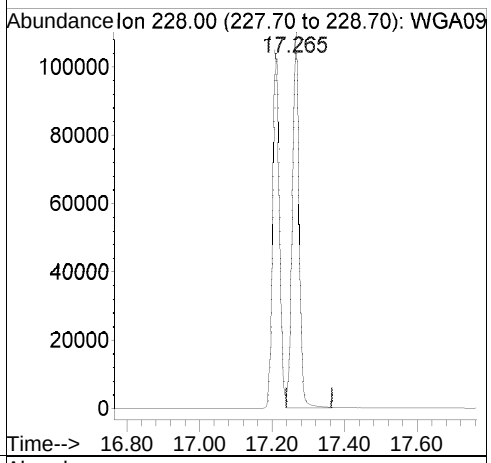
Raw



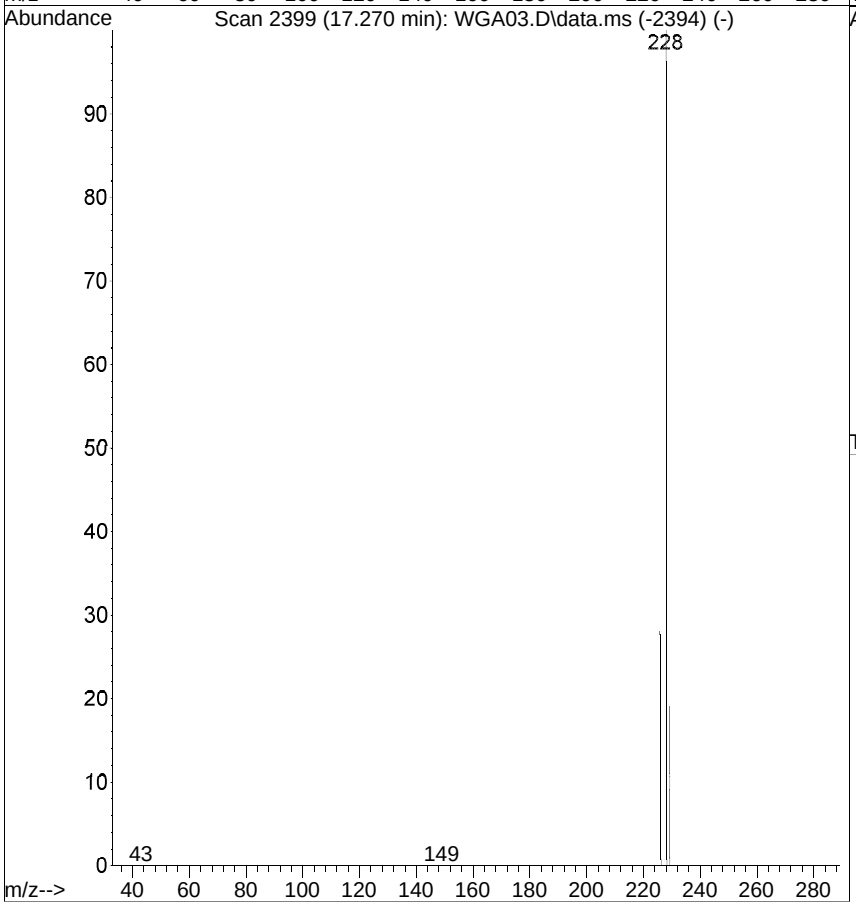
#22
Chrysene
Concen: 1.2612 ug/mL m
RT: 17.265 min Scan# 2396
Delta R.T. -0.005 min
Lab File: WGA09.D
Acq: 10 Jul 2014 6:08 pm

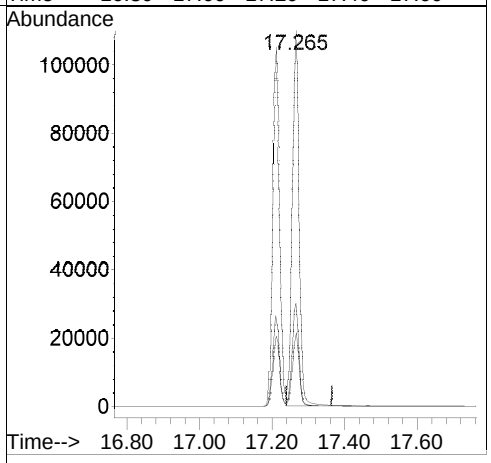
Tgt Ion:228 Resp: 140436

Ion	Ratio	Lower	Upper
228	100		
226	27.5	9.6	49.6
229	19.6	0.0	39.6



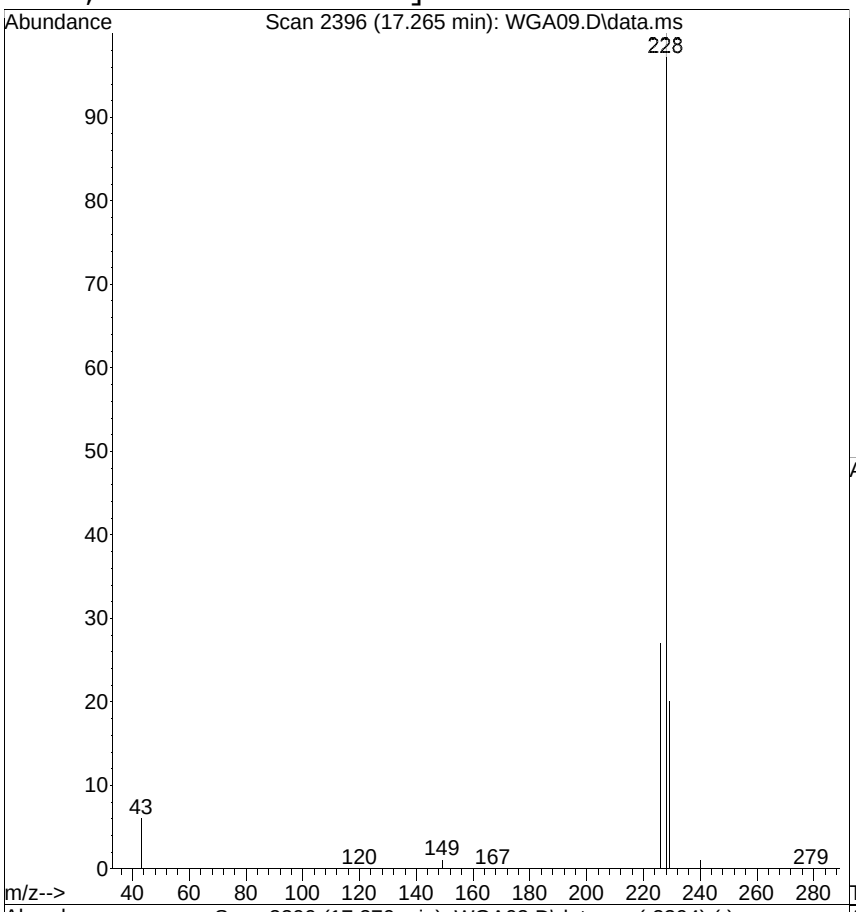
Ref





[Chrysene; before version]

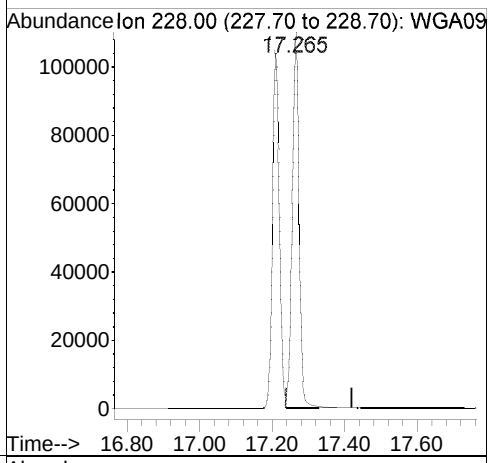
Raw



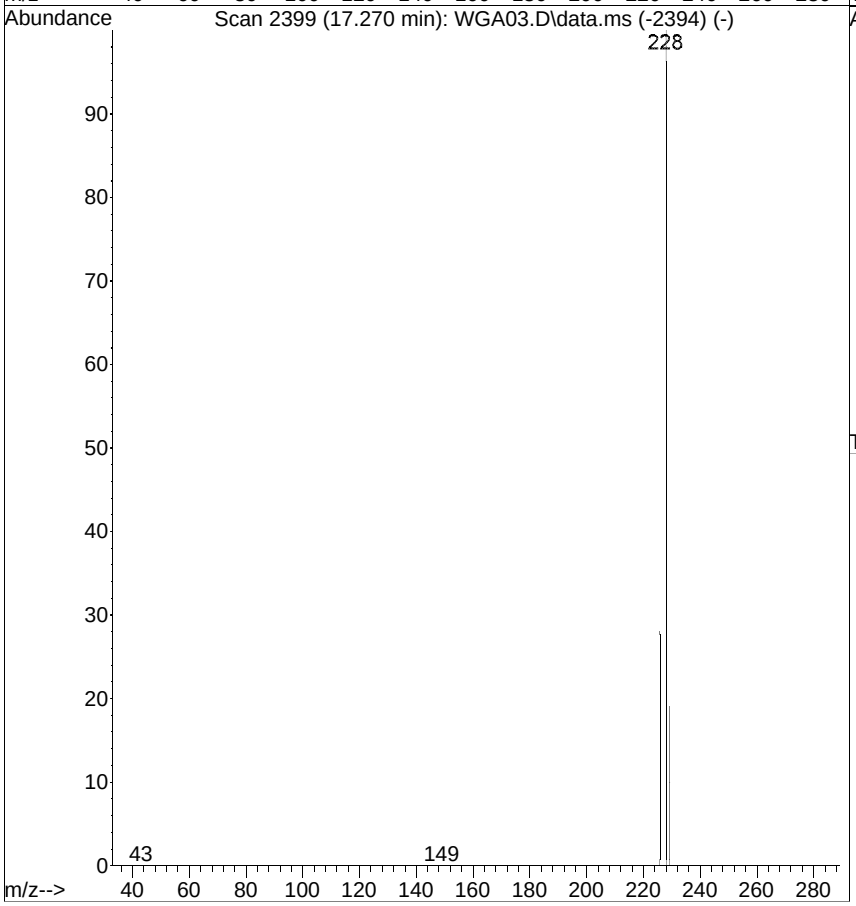
#22
Chrysene
Concen: 1.2615 ug/mL
RT: 17.265 min Scan# 2396
Delta R.T. -0.005 min
Lab File: WGA09.D
Acq: 10 Jul 2014 6:08 pm

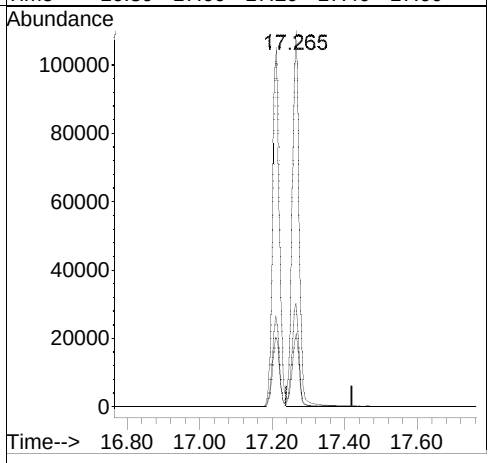
Tgt Ion:228 Resp: 140468

Ion	Ratio	Lower	Upper
228	100		
226	27.5	9.6	49.6
229	19.6	0.0	39.6



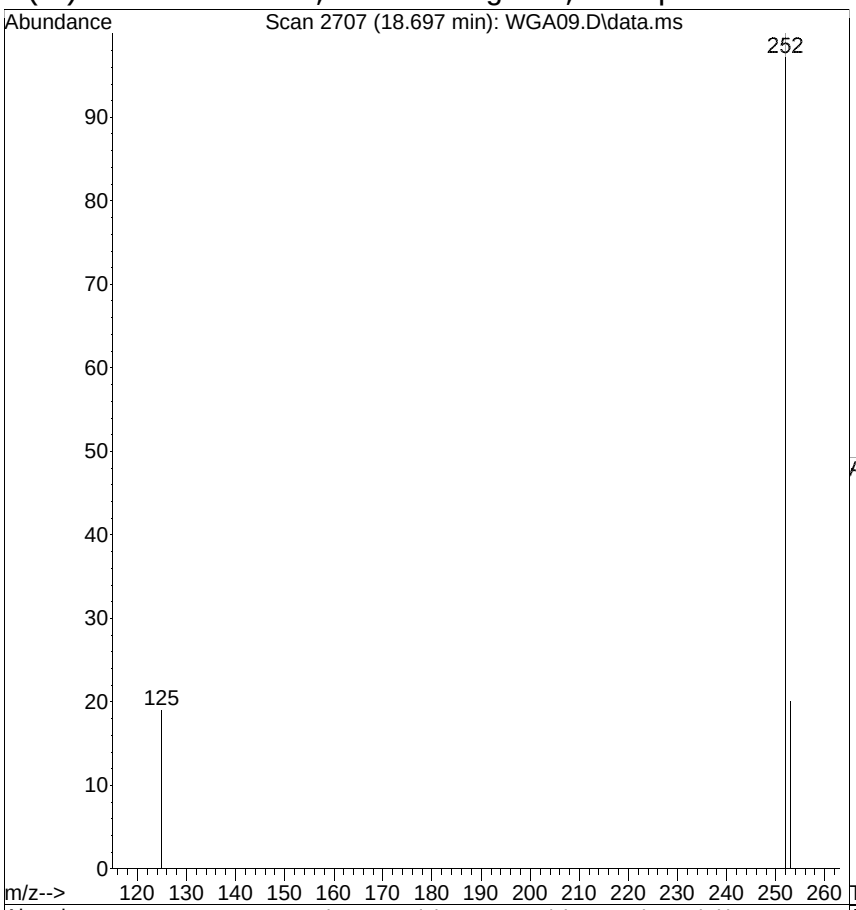
Ref





[Benzo(k)fluoranthene; 1.000 ug/mL; response=130550; MI]

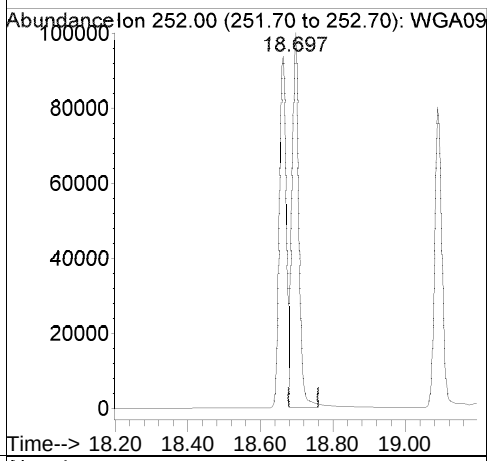
Raw



#25
Benzo(k)fluoranthene
Concen: 0.9179 ug/mL m
RT: 18.697 min Scan# 2707
Delta R.T. -0.007 min
Lab File: WGA09.D
Acq: 10 Jul 2014 6:08 pm

Tgt Ion:252 Resp: 130550

Ion	Ratio	Lower	Upper
252	100		
253	20.3	1.0	41.0
125	19.5	0.0	35.6



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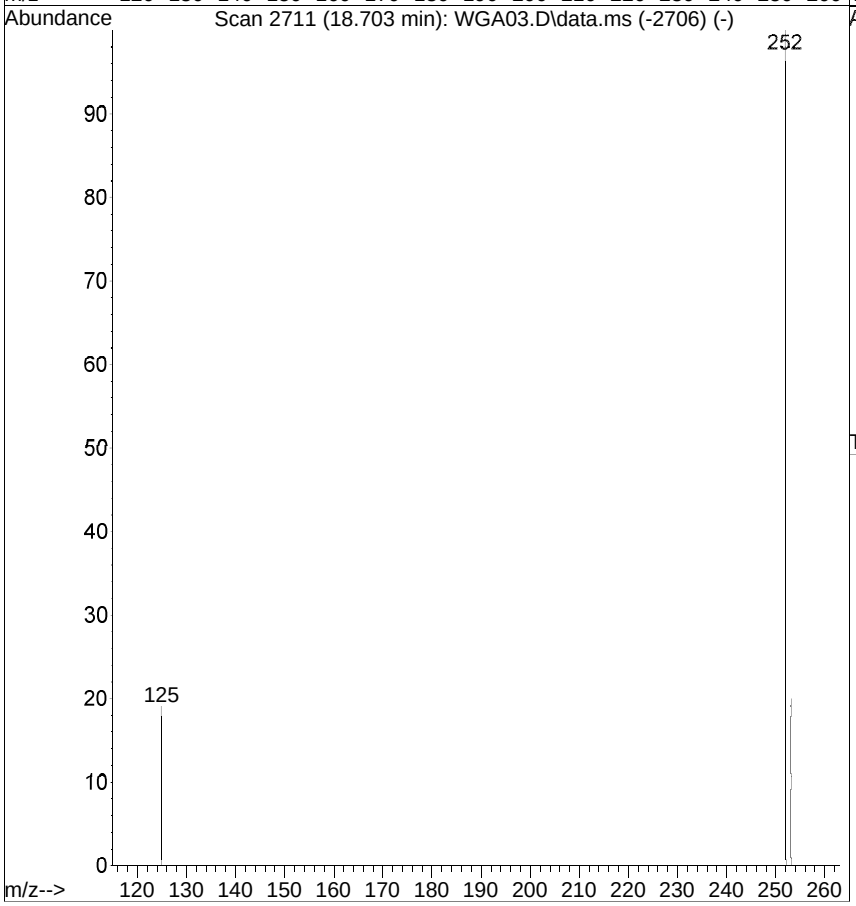
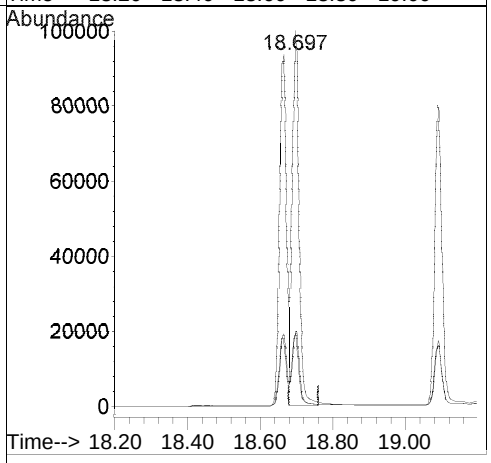
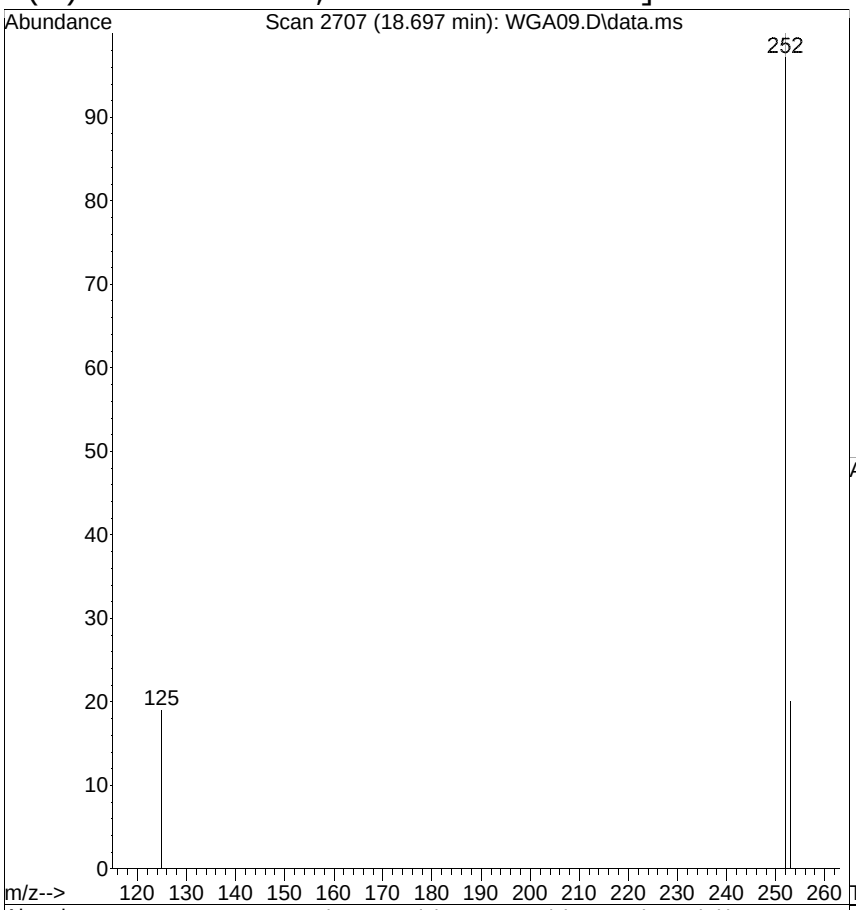




[Benzo(k)fluoranthene; before version]

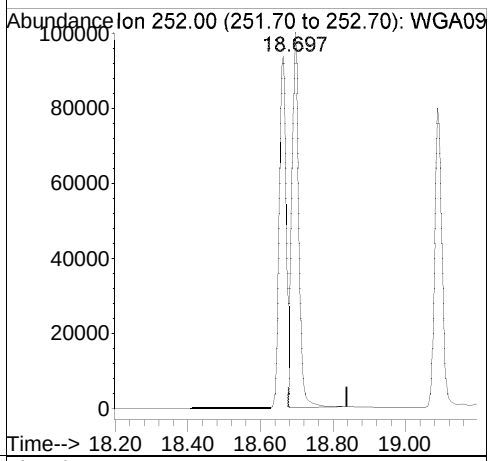
Raw



#25
Benzo(k)fluoranthene
Concen: 0.9263 ug/mL
RT: 18.697 min Scan# 2707
Delta R.T. -0.007 min
Lab File: WGA09.D
Acq: 10 Jul 2014 6:08 pm

Tgt Ion:252 Resp: 131736

Ion	Ratio	Lower	Upper
252	100		
253	20.3	1.0	41.0
125	19.5	0.0	35.6



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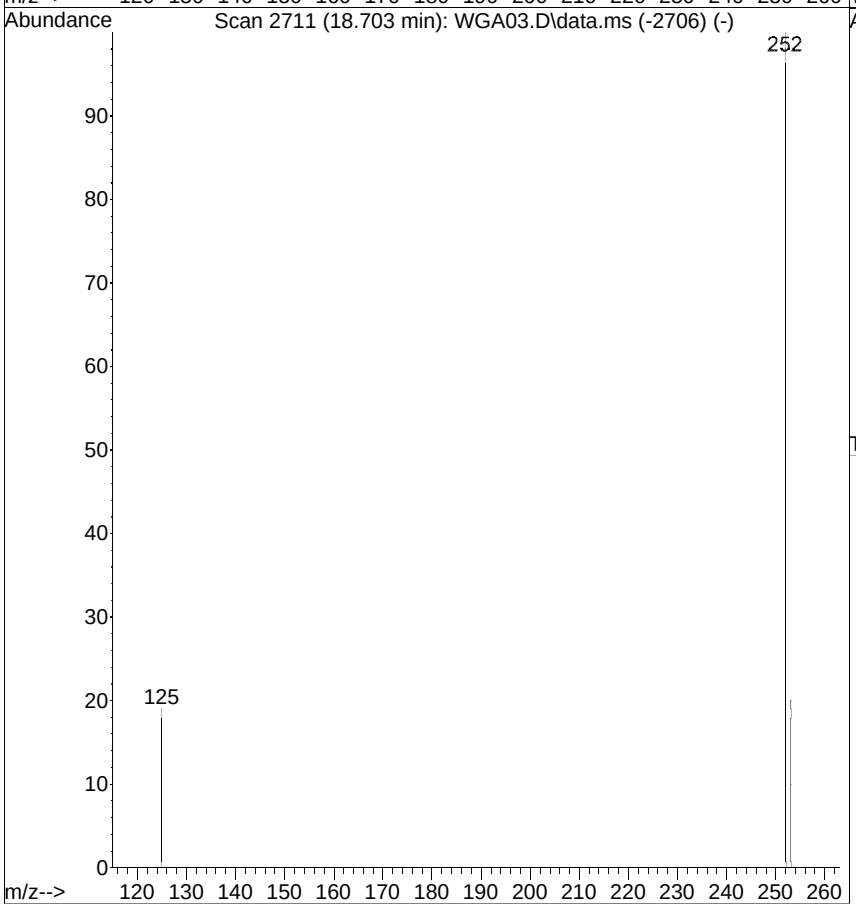
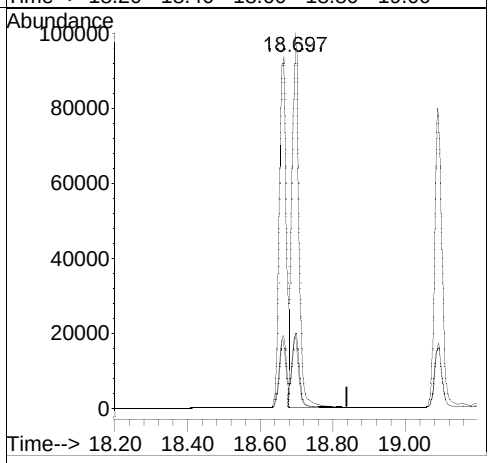
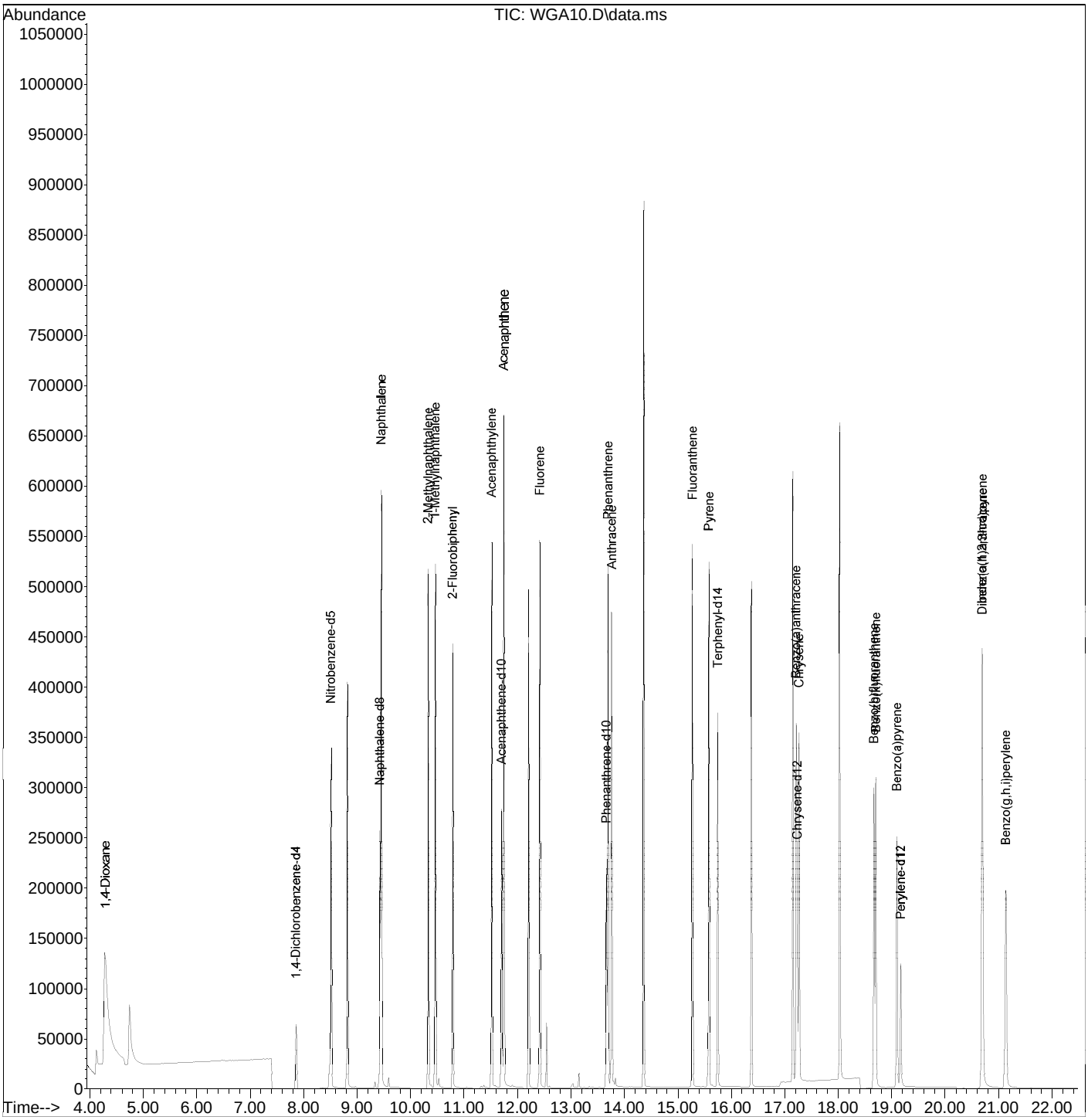




Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\071014\
Data File : WGA10.D
Acq On : 10 Jul 2014 6:41 pm
Operator :
Sample : ICAL,S25130
Misc : ICAL
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jul 11 10:28:49 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Thu Jul 10 15:38:18 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\071014\
Data File : WGA10.D
Acq On : 10 Jul 2014 6:41 pm
Operator :
Sample : ICAL,S25130
Misc : ICAL
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jul 11 10:28:49 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Thu Jul 10 15:38:18 2014
Response via : Initial Calibration

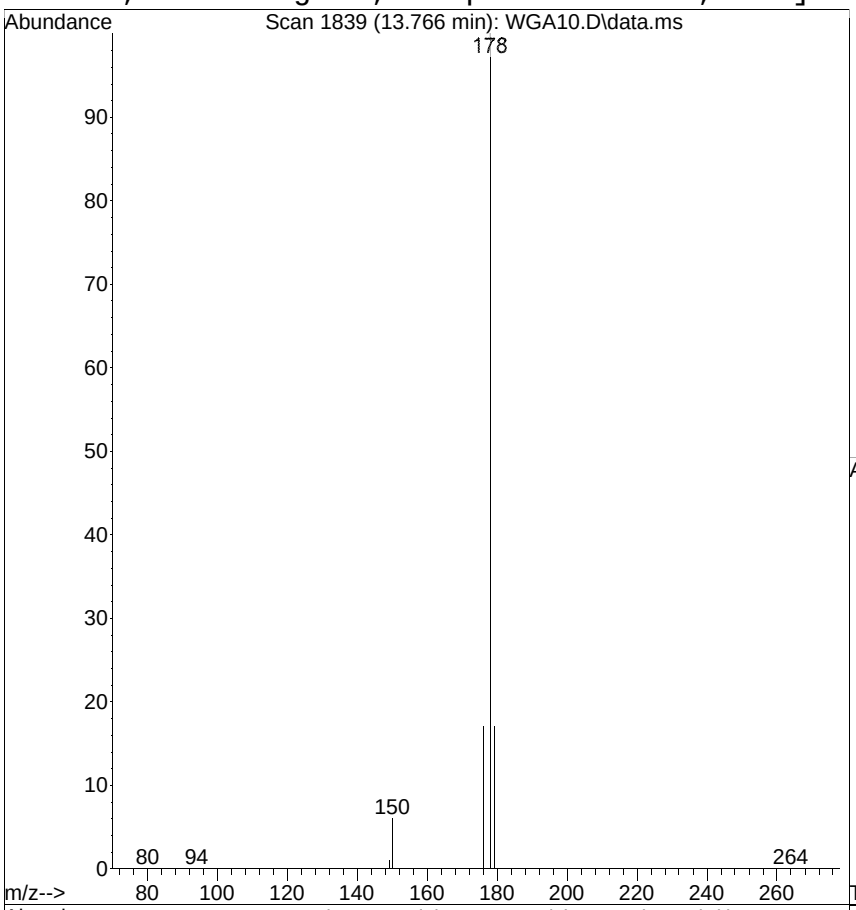
Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.860	152	64468	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.431	136	247538	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.705	164	130315	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.664	188	194161	1.0000	ug/mL	0.00
18) Chrysene-d12	17.231	240	155071	1.0000	ug/mL	0.00
23) Perylene-d12	19.165	264	118477	1.0000	ug/mL	0.00

Target Compounds						Qvalue
2) 1,4-Dioxane	4.294	88	344421m	30.0255	ug/mL	
4) Nitrobenzene-d5	8.516	82	204579	1.3876	ug/mL	93
5) Naphthalene	9.459	128	560502	2.2007	ug/mL	94
6) 2-Methylnaphthalene	10.335	142	327614	1.8405	ug/mL	100
7) 1-Methylnaphthalene	10.467	142	313317	1.7821	ug/mL	100
9) 2-Fluorobiphenyl	10.793	172	361107	1.8217	ug/mL	95
10) Acenaphthylene	11.519	152	464345	2.4724	ug/mL	95
11) Acenaphthene	11.745	154	276134	2.3043	ug/mL	97
12) Fluorene	12.418	166	314364	1.9110	ug/mL	98
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.694	178	419906	2.0644	ug/mL	97
16) Anthracene	13.766	178	413774m	2.4958	ug/mL	
17) Fluoranthene	15.271	202	403335	1.9740	ug/mL	95
19) Pyrene	15.584	202	421553	2.6515	ug/mL	94
20) Terphenyl-d14	15.746	244	328994	2.1682	ug/mL	93
21) Benzo(a)anthracene	17.211	228	296292	2.2461	ug/mL	97
22) Chrysene	17.266	228	302443m	2.4949	ug/mL	
24) Benzo(b)fluoranthene	18.662	252	281666	2.2509	ug/mL	94
25) Benzo(k)fluoranthene	18.699	252	283068m	1.8679	ug/mL	
26) Benzo(a)pyrene	19.092	252	243942	2.2553	ug/mL	94
27) Indeno(1,2,3-cd)pyrene	20.685	276	295773	2.0413	ug/mL	72
28) Dibenz(a,h)anthracene	20.688	278	230071	2.4981	ug/mL	94
29) Benzo(g,h,i)perylene	21.128	276	257288	2.0192	ug/mL #	92

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

[Anthracene; 2.000 ug/mL; response=413774; MI]

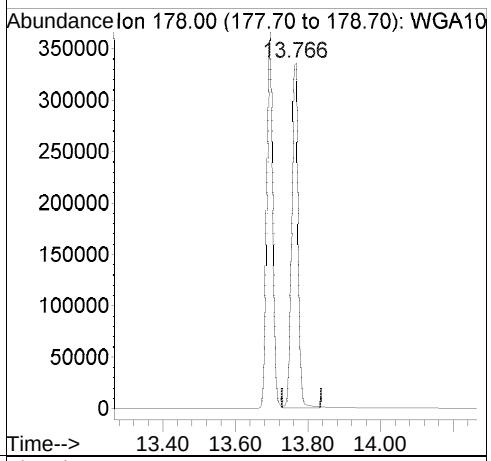
Raw



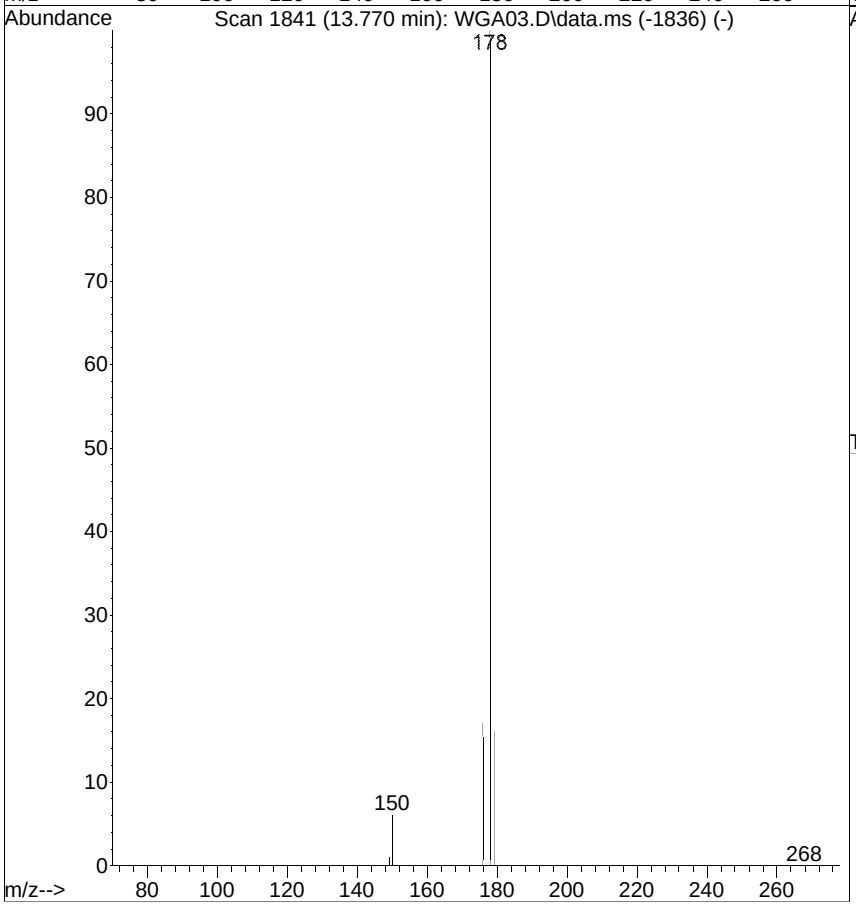
#16
Anthracene
Concen: 2.4958 ug/mL m
RT: 13.766 min Scan# 1839
Delta R.T. -0.005 min
Lab File: WGA10.D
Acq: 10 Jul 2014 6:41 pm

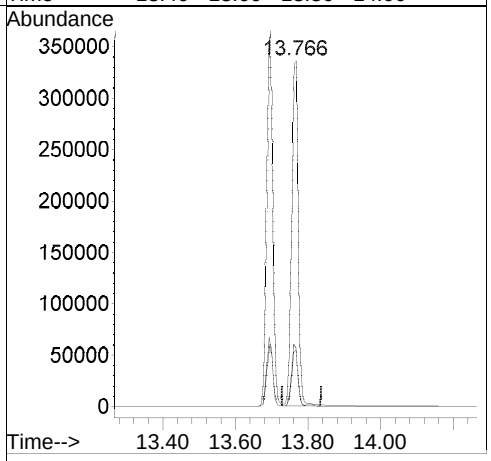
Tgt Ion:178 Resp: 413774

Ion	Ratio	Lower	Upper
178	100		
179	16.5	0.0	37.7
176	17.1	0.0	39.4



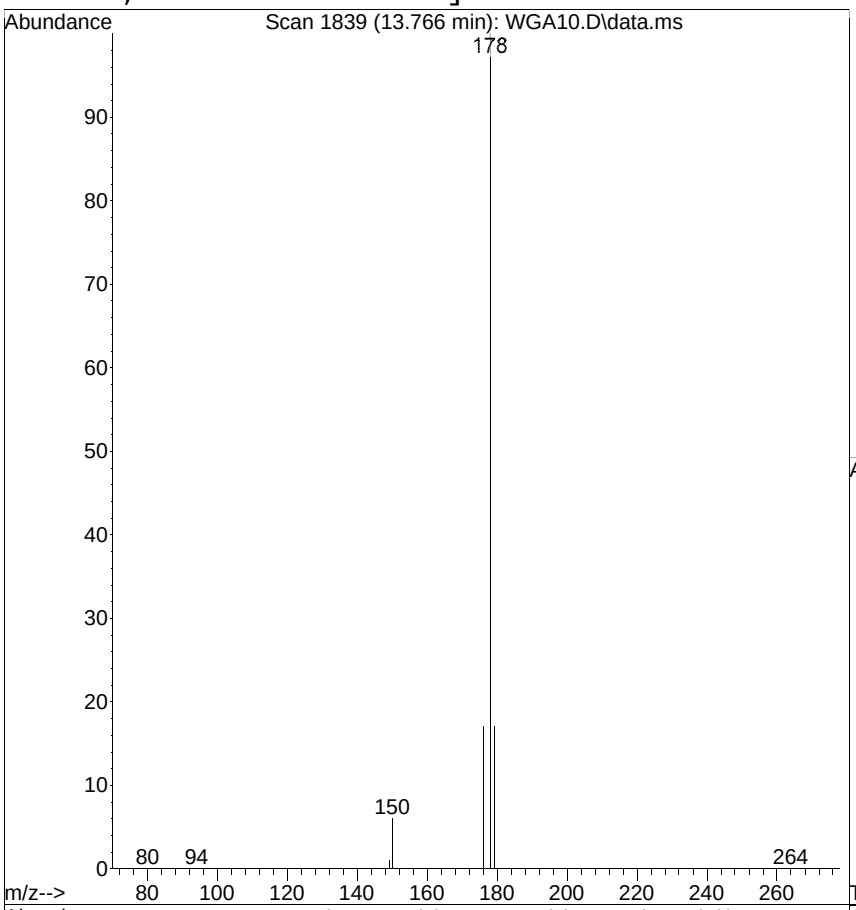
Ref





[Anthracene; before version]

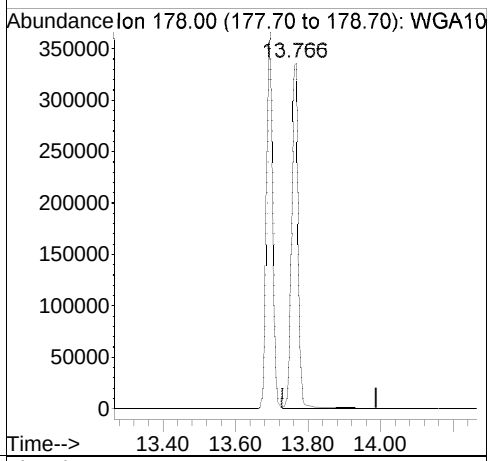
Raw



#16
Anthracene
Concen: 2.5193 ug/mL
RT: 13.766 min Scan# 1839
Delta R.T. -0.005 min
Lab File: WGA10.D
Acq: 10 Jul 2014 6:41 pm

Tgt Ion:178 Resp: 417679

Ion	Ratio	Lower	Upper
178	100		
179	16.5	0.0	37.7
176	17.1	0.0	39.4



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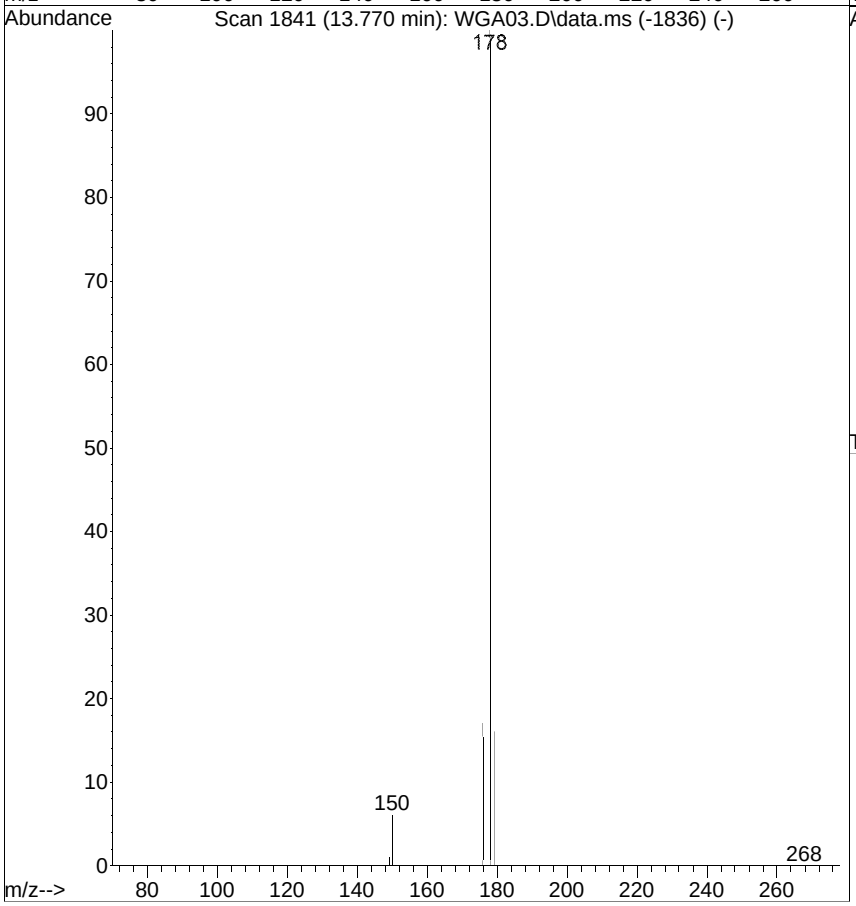
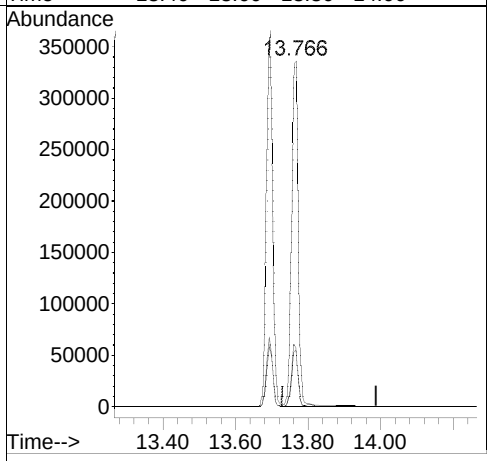
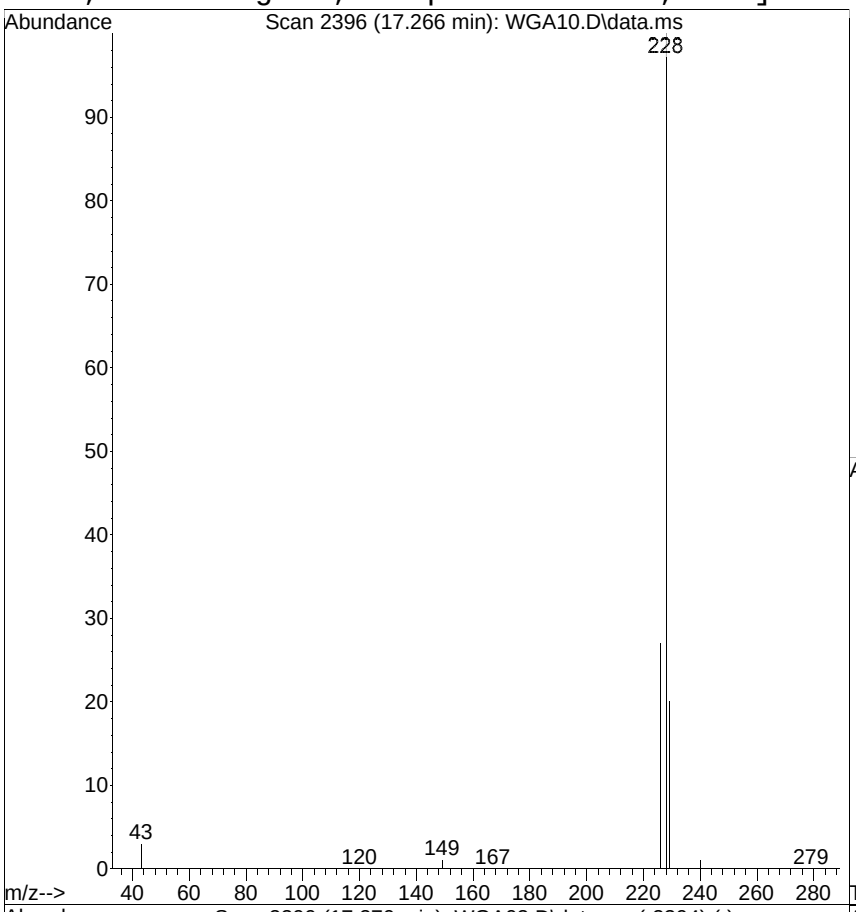




[Chrysene; 2.000 ug/mL; response=302443; MI]

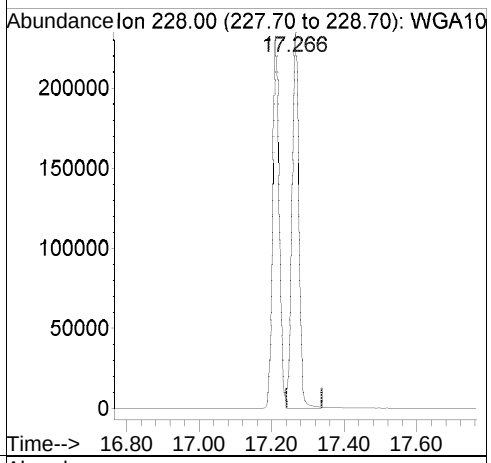
Raw



#22
Chrysene
Concen: 2.4949 ug/mL m
RT: 17.266 min Scan# 2396
Delta R.T. -0.004 min
Lab File: WGA10.D
Acq: 10 Jul 2014 6:41 pm

Tgt Ion:228 Resp: 302443

Ion	Ratio	Lower	Upper
228	100		
226	27.4	9.6	49.6
229	19.5	0.0	39.6



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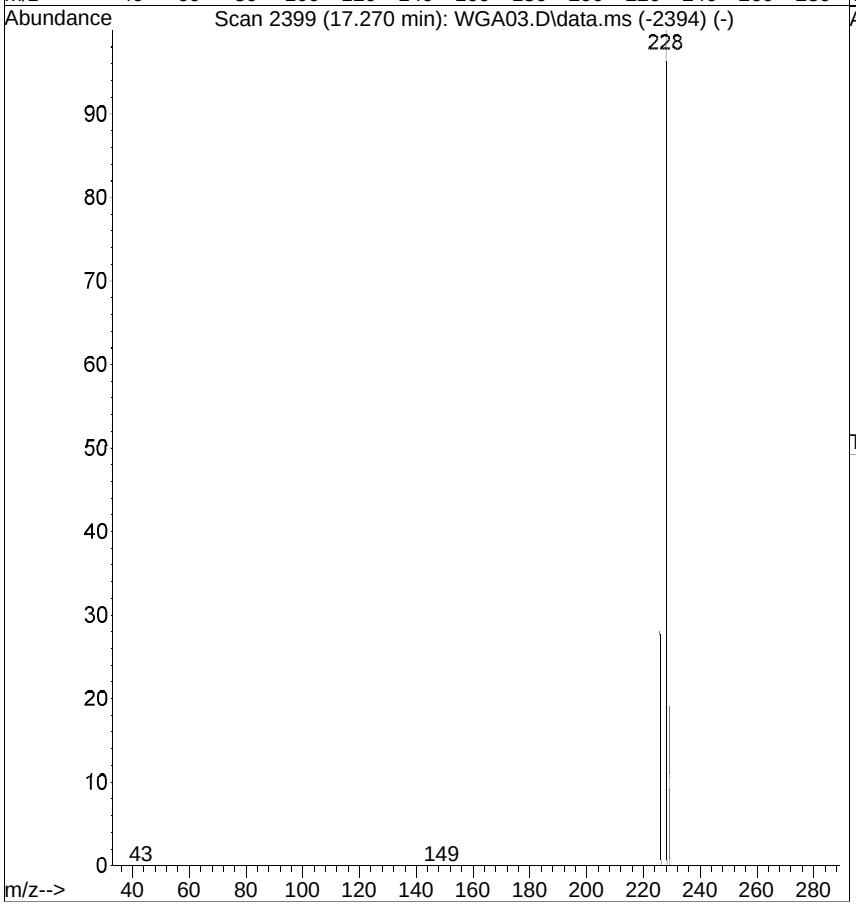
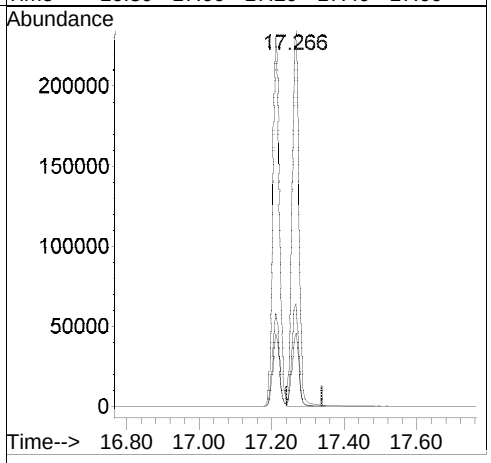
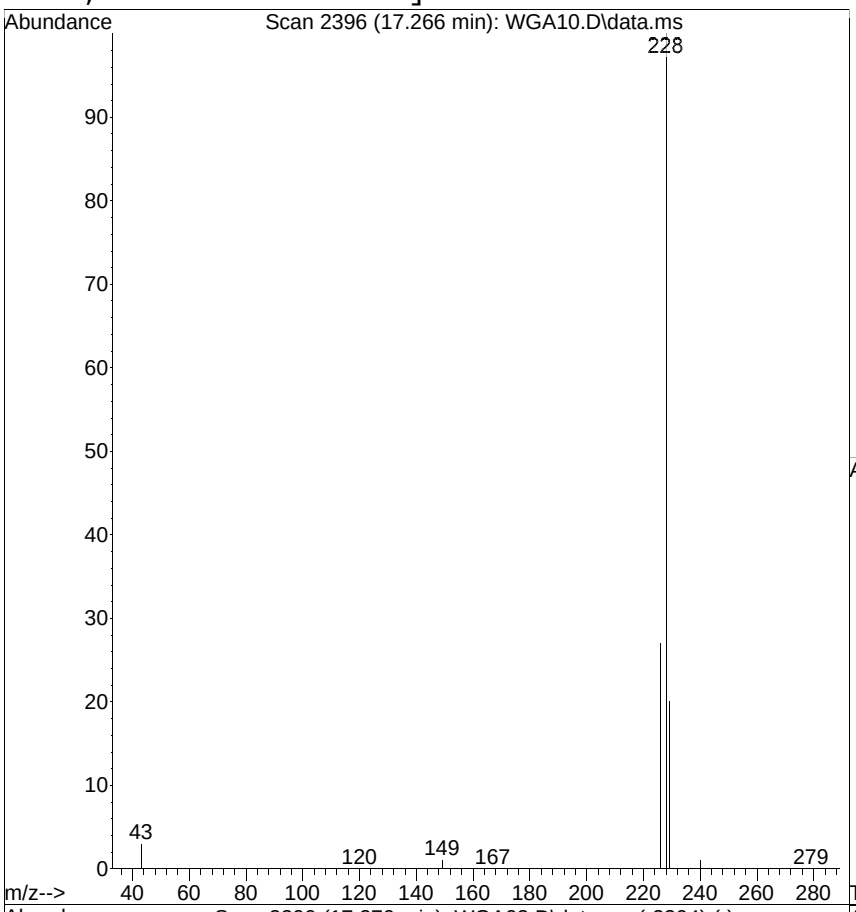




[Chrysene; before version]

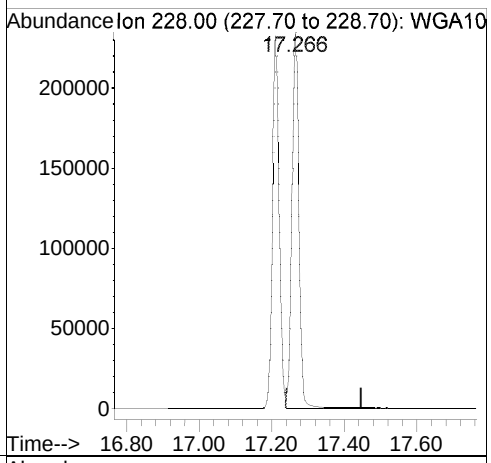
Raw



#22
Chrysene
Concen: 2.5091 ug/mL
RT: 17.266 min Scan# 2396
Delta R.T. -0.004 min
Lab File: WGA10.D
Acq: 10 Jul 2014 6:41 pm

Tgt Ion:228 Resp: 304167

Ion	Ratio	Lower	Upper
228	100		
226	27.4	9.6	49.6
229	19.5	0.0	39.6



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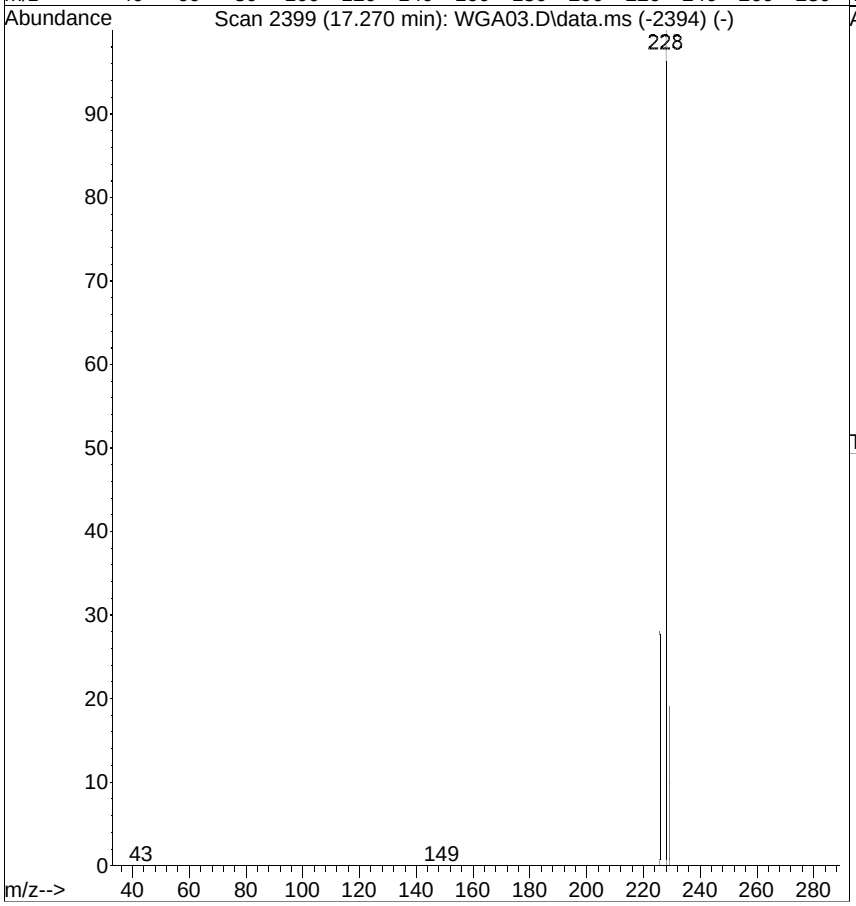
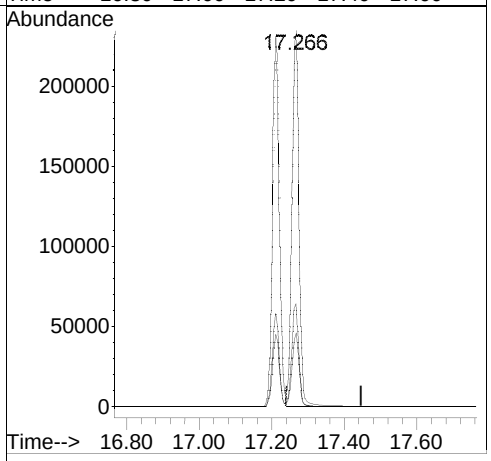
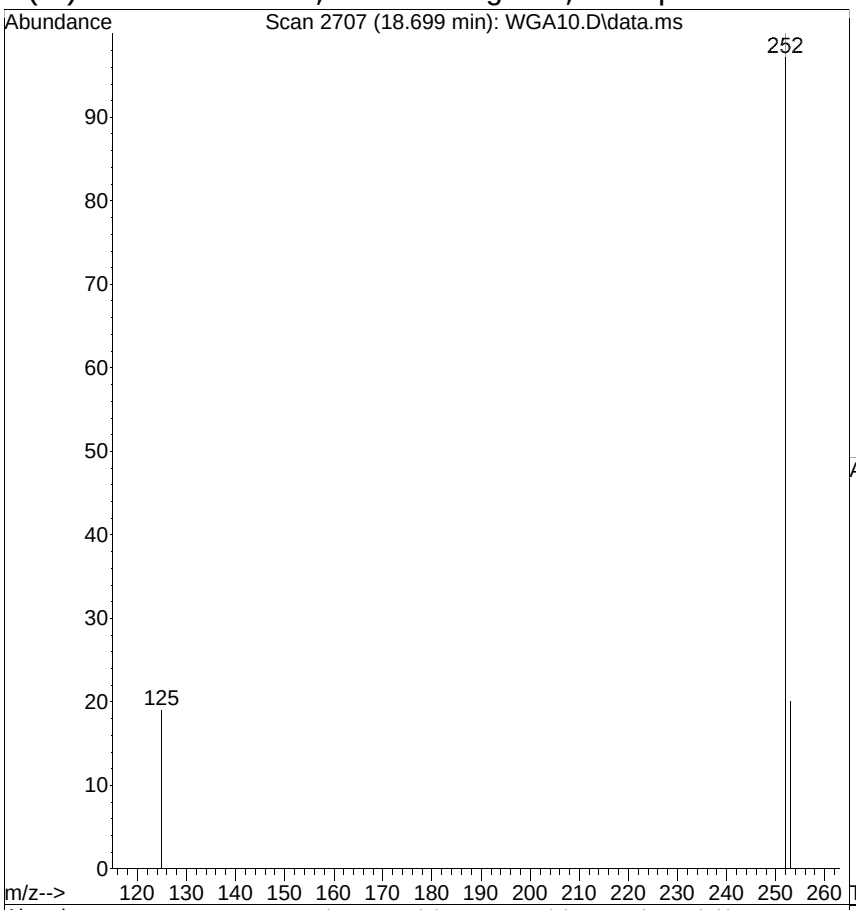




[Benzo(k)fluoranthene; 2.000 ug/mL; response=283068; MI]

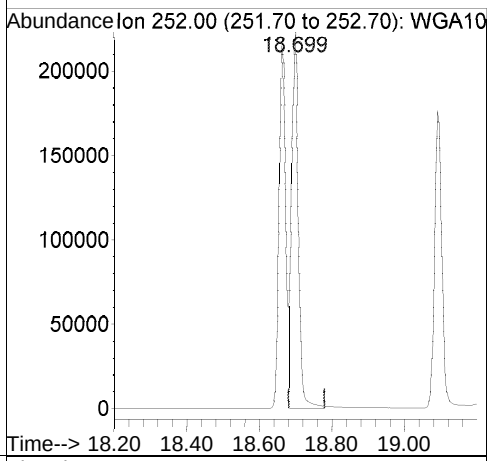
Raw



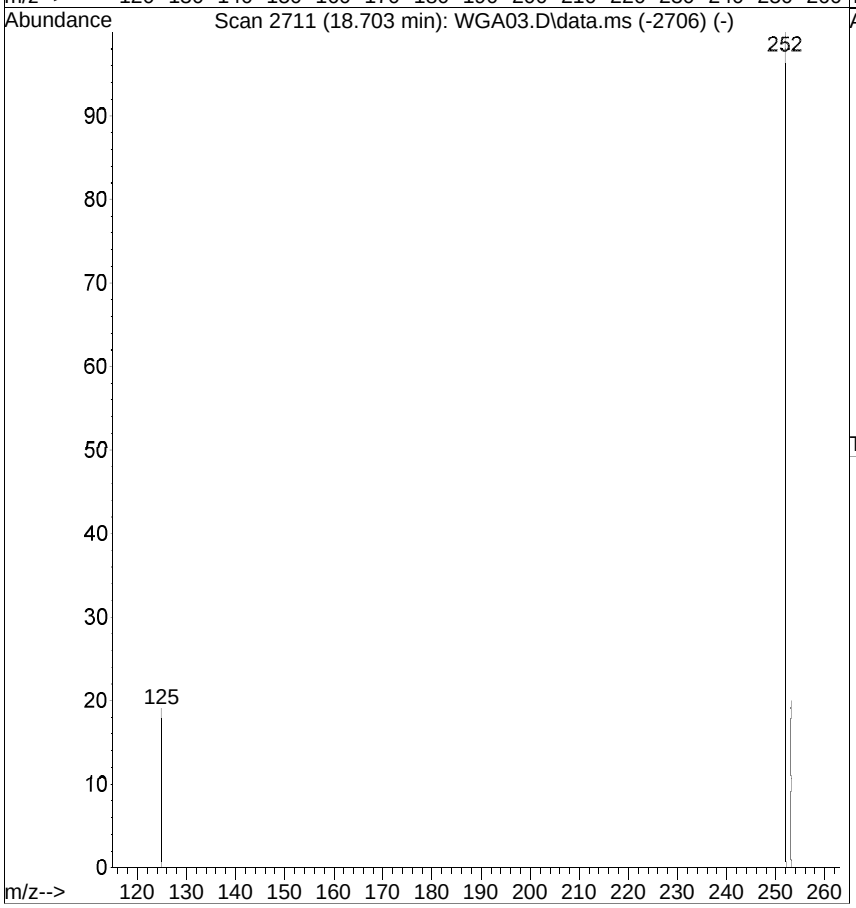
#25
Benzo(k)fluoranthene
Concen: 1.8679 ug/mL m
RT: 18.699 min Scan# 2707
Delta R.T. -0.004 min
Lab File: WGA10.D
Acq: 10 Jul 2014 6:41 pm

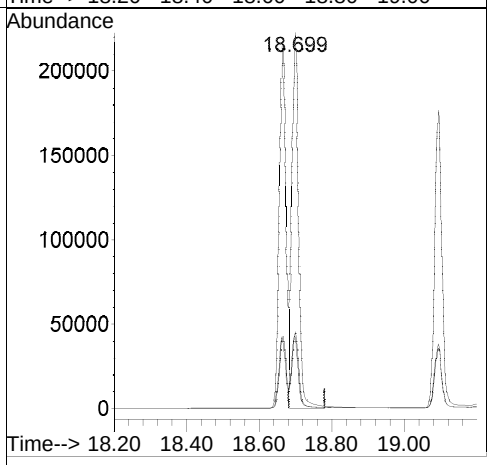
Tgt Ion:252 Resp: 283068

Ion	Ratio	Lower	Upper
252	100		
253	20.4	1.0	41.0
125	19.0	0.0	35.6



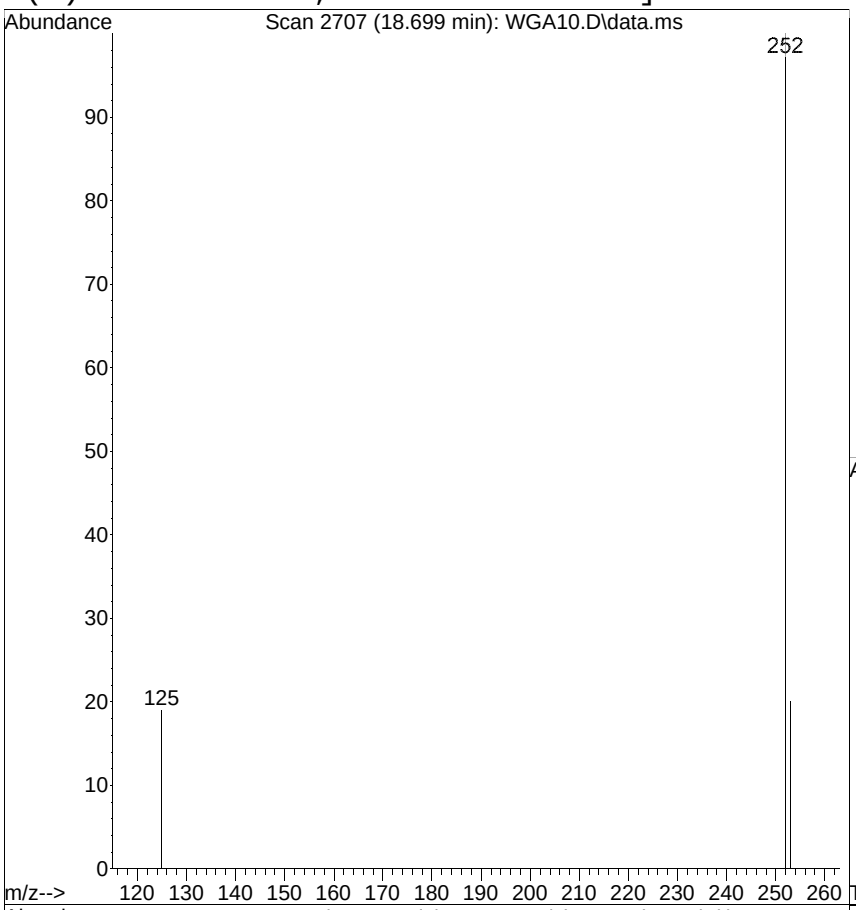
Ref





[Benzo(k)fluoranthene; before version]

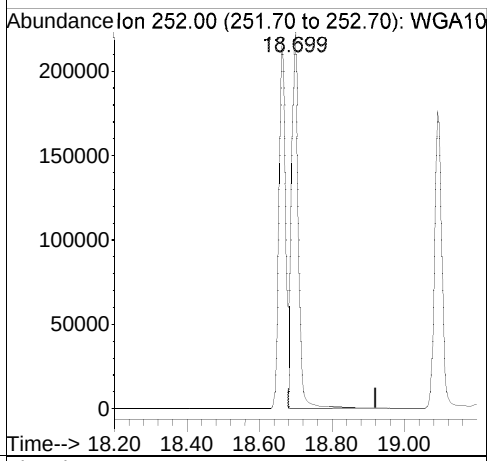
Raw



#25
Benzo(k)fluoranthene
Concen: 2.0409 ug/mL
RT: 18.699 min Scan# 2707
Delta R.T. -0.004 min
Lab File: WGA10.D
Acq: 10 Jul 2014 6:41 pm

Tgt Ion:252 Resp: 309281

Ion	Ratio	Lower	Upper
252	100		
253	20.4	1.0	41.0
125	19.0	0.0	35.6



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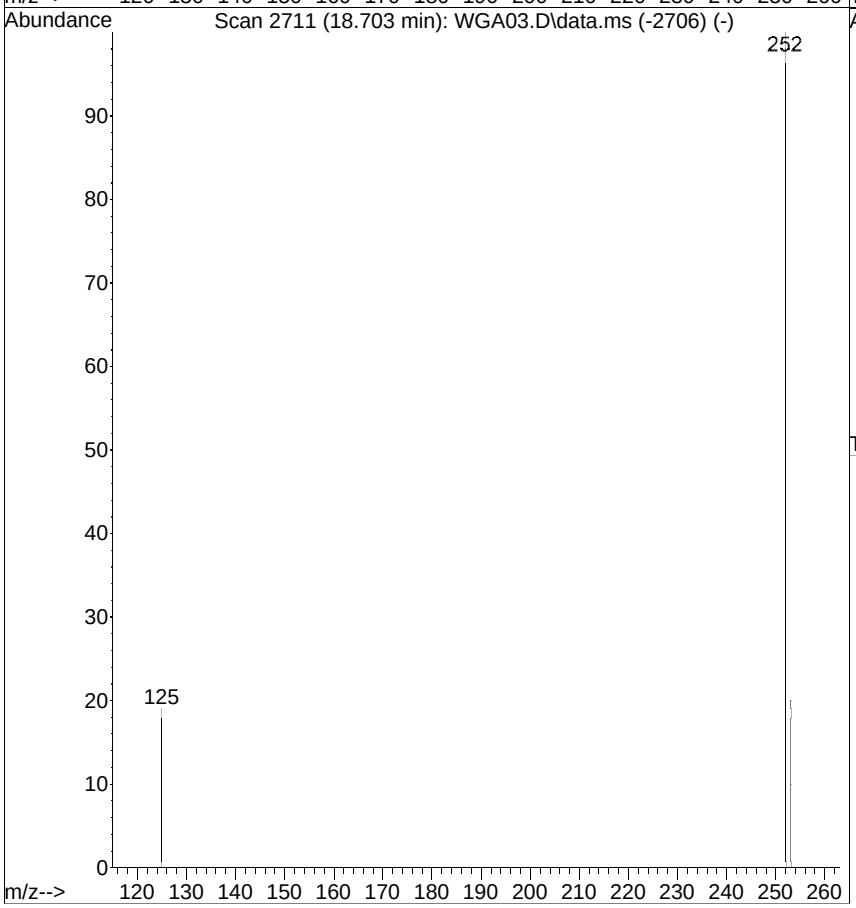
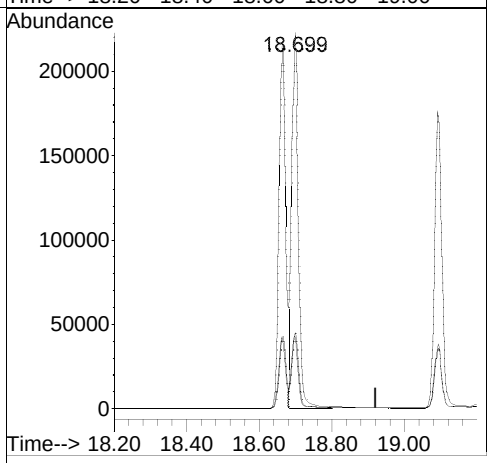
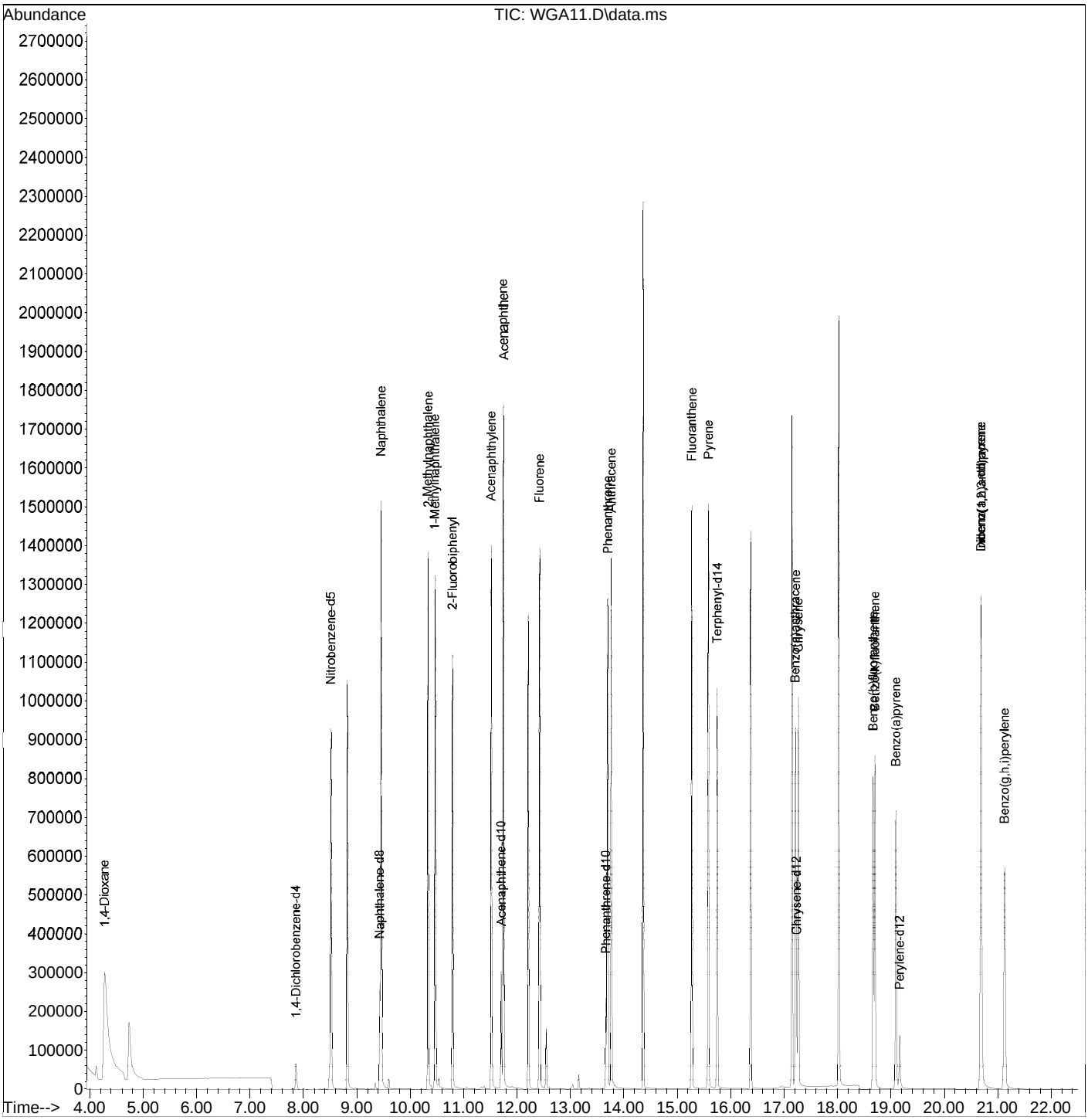




Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\071014\
Data File : WGA11.D
Acq On : 10 Jul 2014 7:14 pm
Operator :
Sample : ICAL,S25132
Misc : ICAL
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jul 11 10:27:19 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Thu Jul 10 15:38:18 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\071014\
Data File : WGA11.D
Acq On : 10 Jul 2014 7:14 pm
Operator :
Sample : ICAL,S25132
Misc : ICAL
ALS Vial : 11 Sample Multiplier: 1

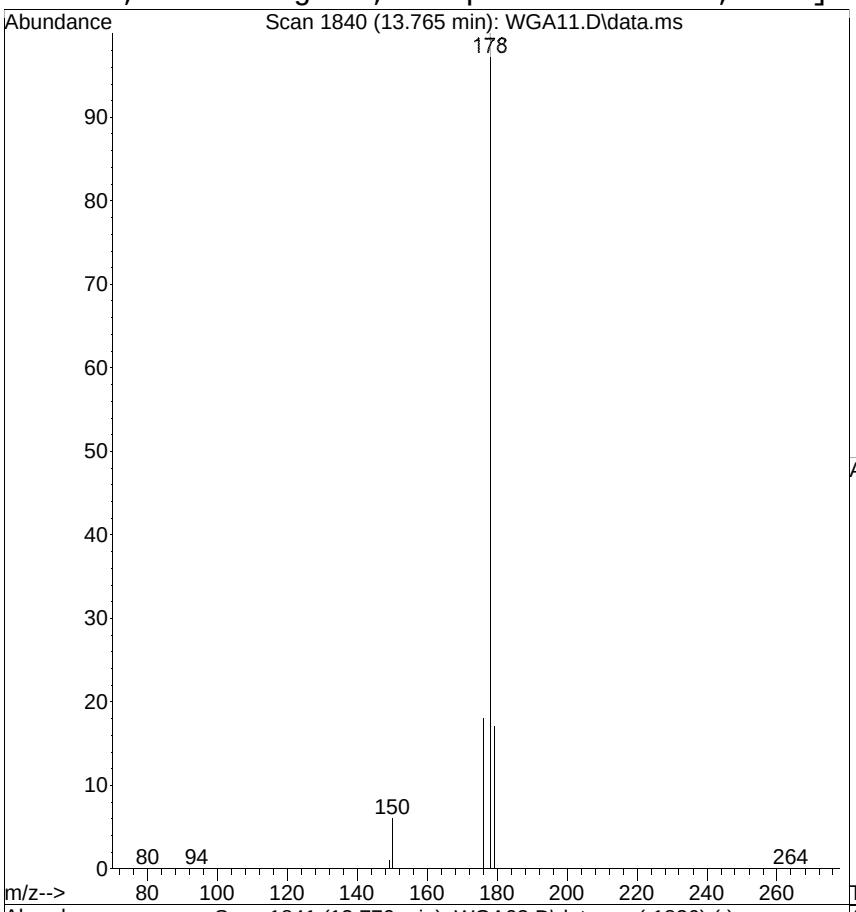
Quant Time: Jul 11 10:27:19 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Thu Jul 10 15:38:18 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.860	152	66131	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.430	136	261768	1.0000	ug/mL	-0.01
8) Acenaphthene-d10	11.706	164	138764	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.663	188	206953	1.0000	ug/mL	0.00
18) Chrysene-d12	17.230	240	170658	1.0000	ug/mL	0.00
23) Perylene-d12	19.160	264	131817	1.0000	ug/mL	0.00
Target Compounds						**Qvalue**
2) 1,4-Dioxane	4.281	88	878914m	74.6942	ug/mL	
4) Nitrobenzene-d5	8.519	82	551486	3.5373	ug/mL	95
5) Naphthalene	9.458	128	1457559	5.4118	ug/mL	95
6) 2-Methylnaphthalene	10.336	142	862705	4.5832	ug/mL	99
7) 1-Methylnaphthalene	10.468	142	822197	4.4224	ug/mL	99
9) 2-Fluorobiphenyl	10.794	172	939901	4.4529	ug/mL	96
10) Acenaphthylene	11.520	152	1223753	6.1191	ug/mL	95
11) Acenaphthene	11.746	154	731558	5.7332	ug/mL	98
12) Fluorene	12.424	166	825635	4.7134	ug/mL	93
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.699	178	1110475	5.1221	ug/mL	97
16) Anthracene	13.765	178	1115233m	6.3110	ug/mL	
17) Fluoranthene	15.271	202	1096896	5.0366	ug/mL	94
19) Pyrene	15.583	202	1152821	6.5887	ug/mL	94
20) Terphenyl-d14	15.746	244	893251	5.3493	ug/mL	97
21) Benzo(a)anthracene	17.210	228	814626	5.6114	ug/mL	98
22) Chrysene	17.265	228	819119m	6.1399	ug/mL	
24) Benzo(b)fluoranthene	18.664	252	775050	5.5670	ug/mL	97
25) Benzo(k)fluoranthene	18.697	252	791342m	4.6934	ug/mL	
26) Benzo(a)pyrene	19.090	252	697338	5.7945	ug/mL	95
27) Indeno(1,2,3-cd)pyrene	20.684	276	849306	4.5640	ug/mL	73
28) Dibenz(a,h)anthracene	20.684	278	660711	5.3512	ug/mL	93
29) Benzo(g,h,i)perylene	21.124	276	717322	5.0599	ug/mL #	92

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

[Anthracene; 5.000 ug/mL; response=1115233; MI]

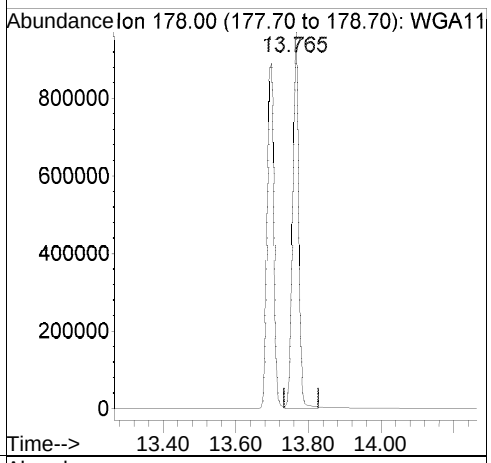
Raw



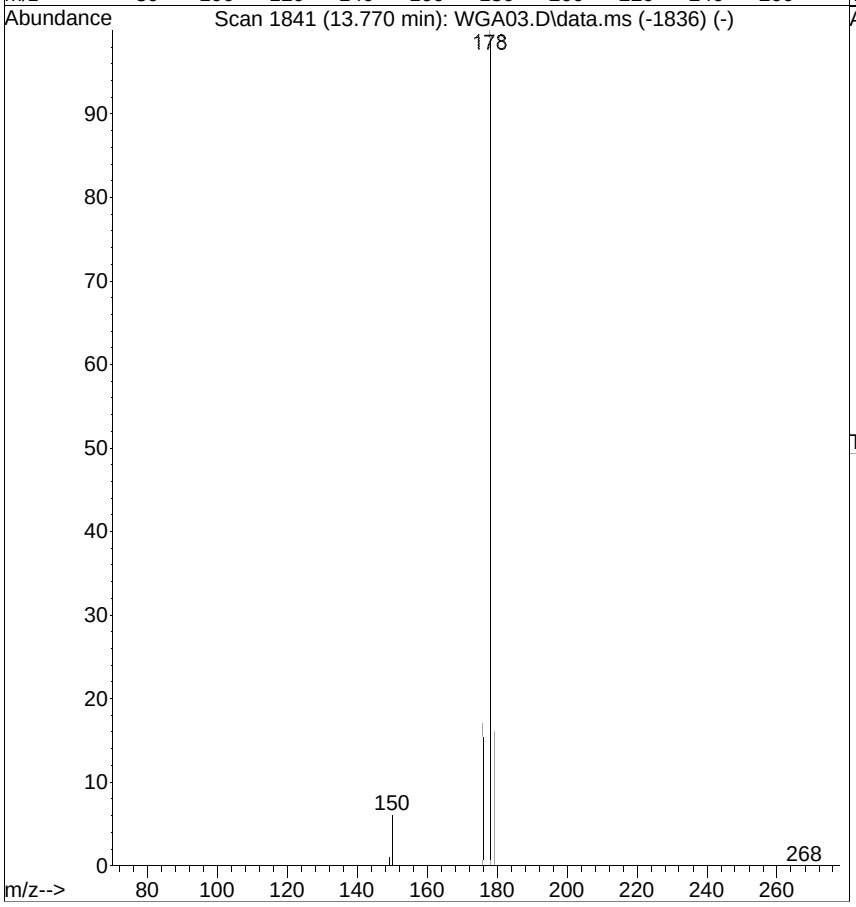
#16
Anthracene
Concen: 6.3110 ug/mL m
RT: 13.765 min Scan# 1840
Delta R.T. -0.006 min
Lab File: WGA11.D
Acq: 10 Jul 2014 7:14 pm

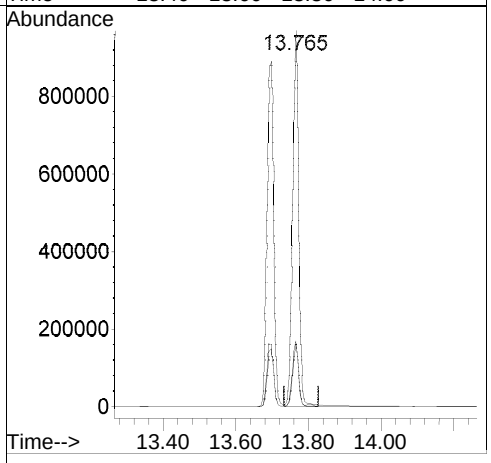
Tgt Ion:178 Resp: 1115233

Ion	Ratio	Lower	Upper
178	100		
179	16.7	0.0	37.7
176	17.5	0.0	39.4



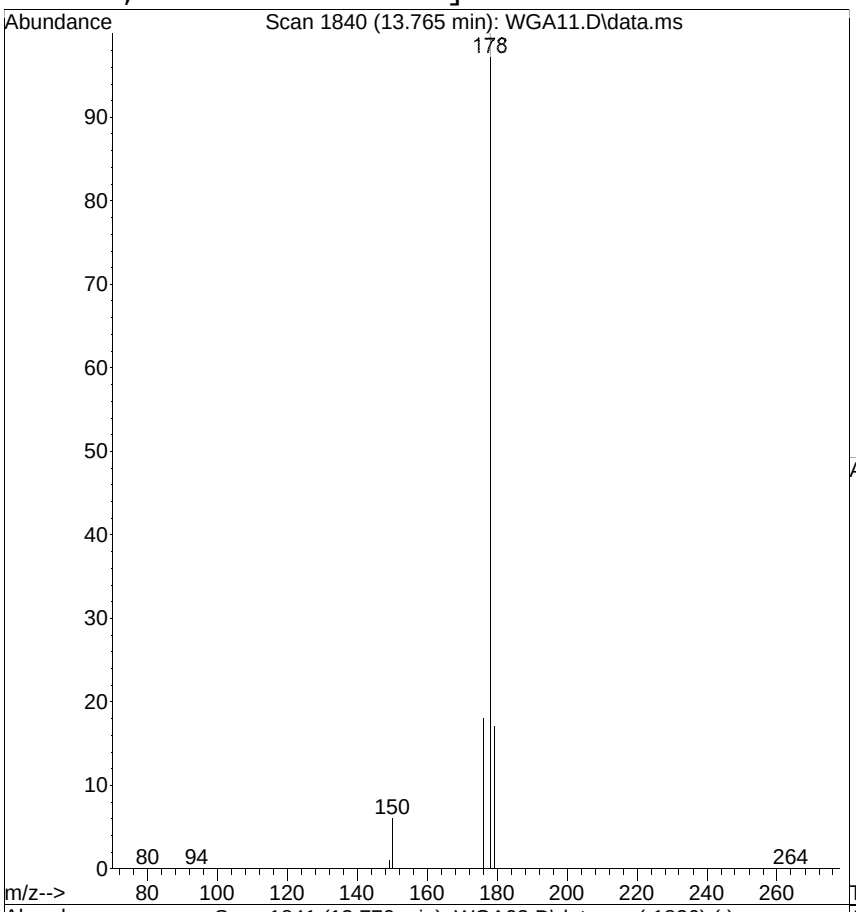
Ref





[Anthracene; before version]

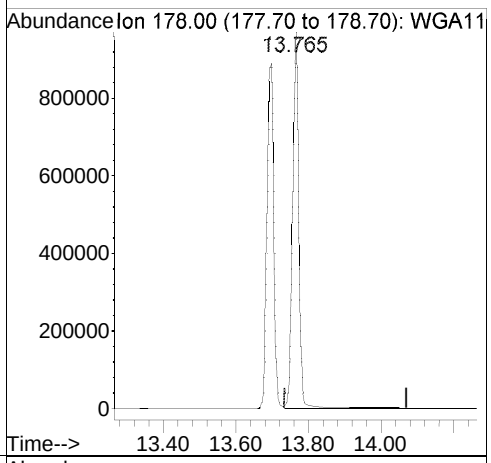
Raw



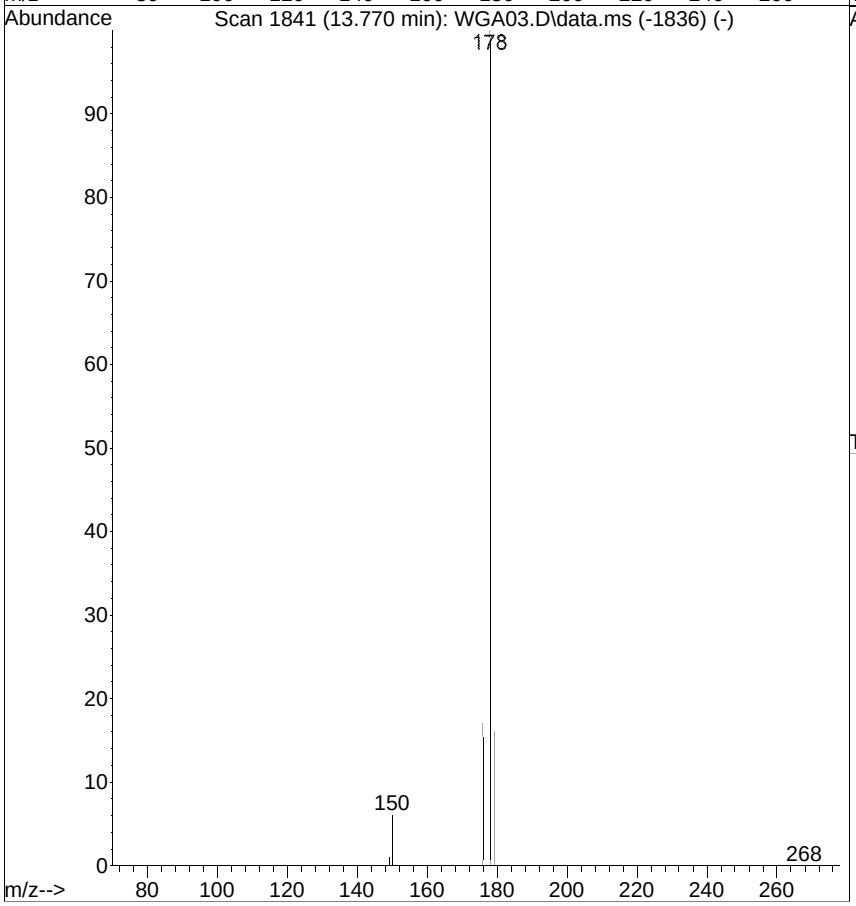
#16
Anthracene
Concen: 6.3855 ug/mL
RT: 13.765 min Scan# 1840
Delta R.T. -0.006 min
Lab File: WGA11.D
Acq: 10 Jul 2014 7:14 pm

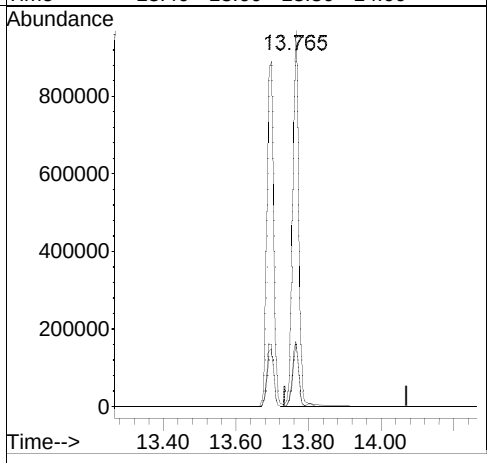
Tgt Ion:178 Resp: 1128402

Ion	Ratio	Lower	Upper
178	100		
179	16.7	0.0	37.7
176	17.5	0.0	39.4



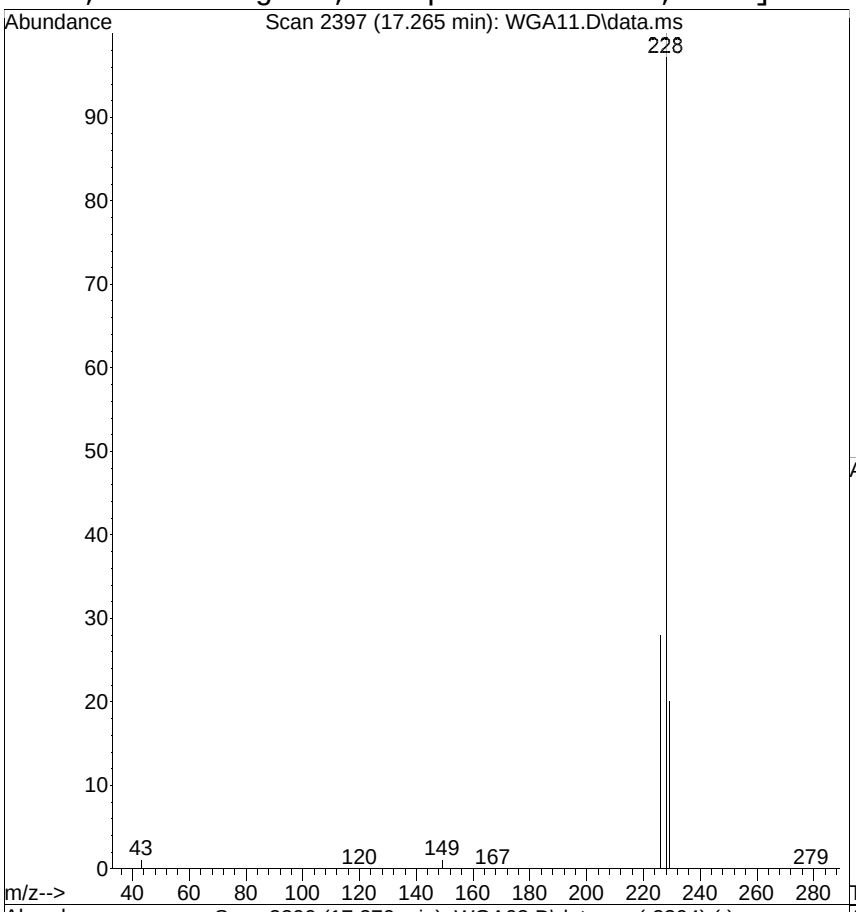
Ref





[Chrysene; 5.000 ug/mL; response=819119; MI]

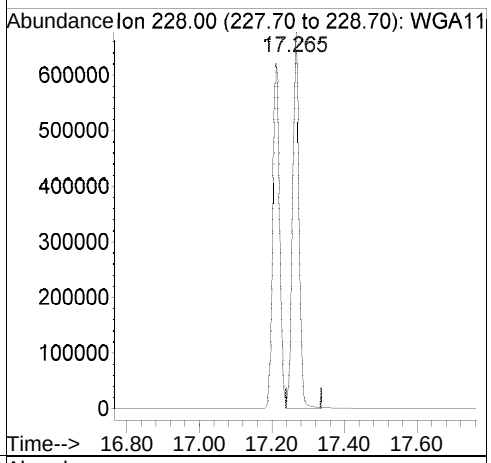
Raw



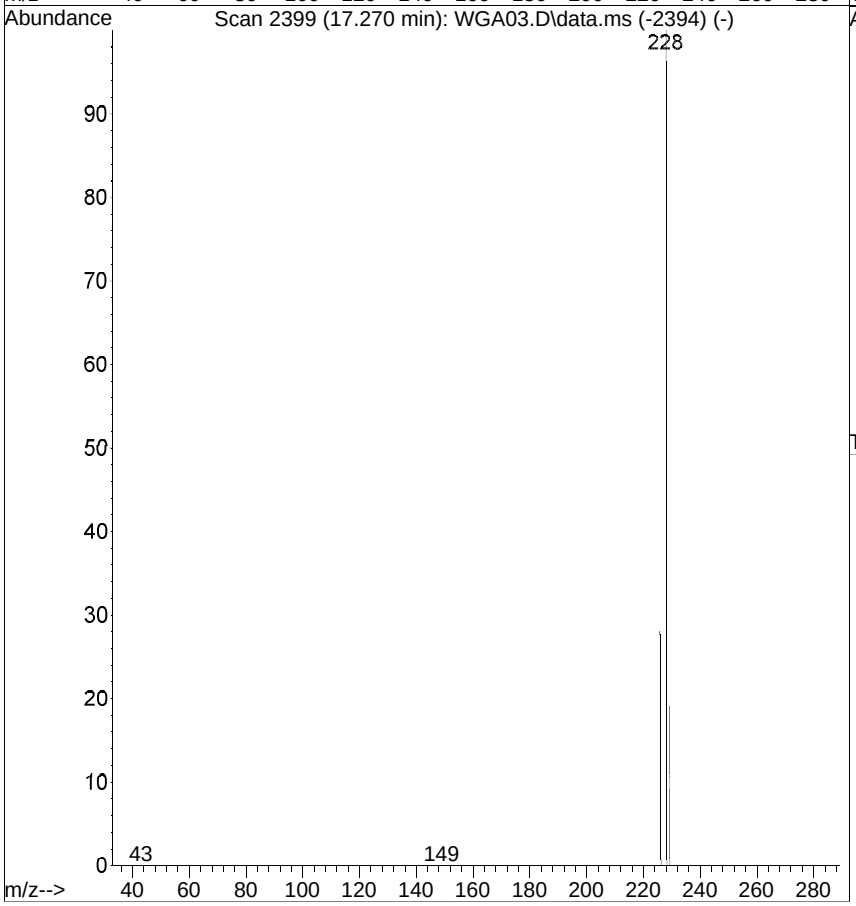
#22
Chrysene
Concen: 6.1399 ug/mL m
RT: 17.265 min Scan# 2397
Delta R.T. -0.005 min
Lab File: WGA11.D
Acq: 10 Jul 2014 7:14 pm

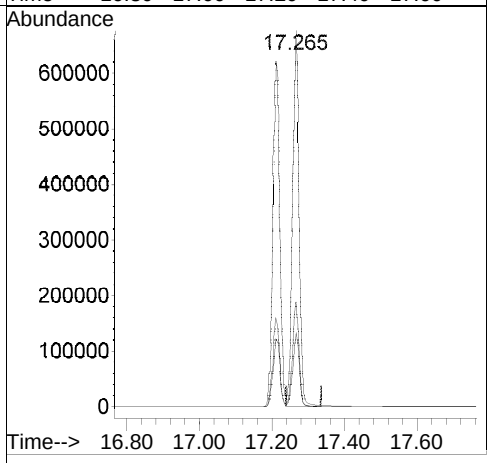
Tgt Ion:228 Resp: 819119

Ion	Ratio	Lower	Upper
228	100		
226	27.9	9.6	49.6
229	19.6	0.0	39.6



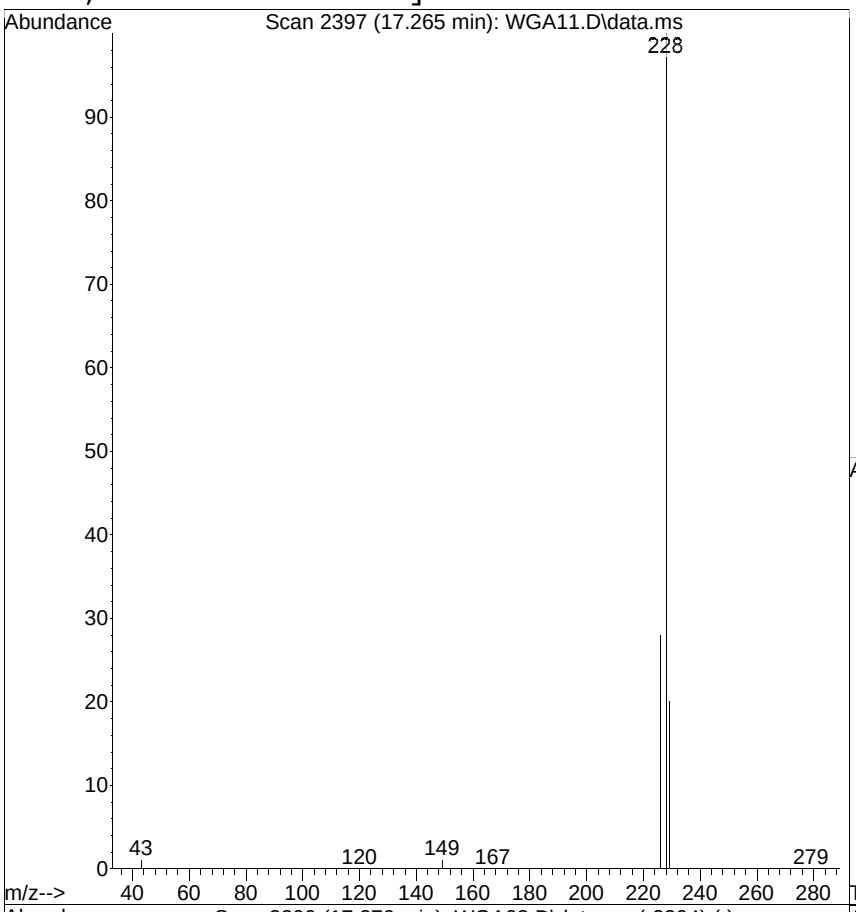
Ref





[Chrysene; before version]

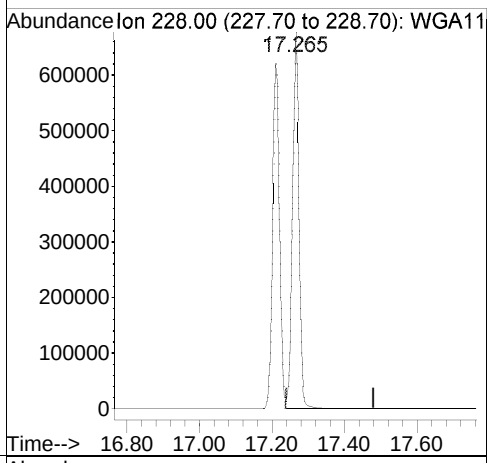
Raw



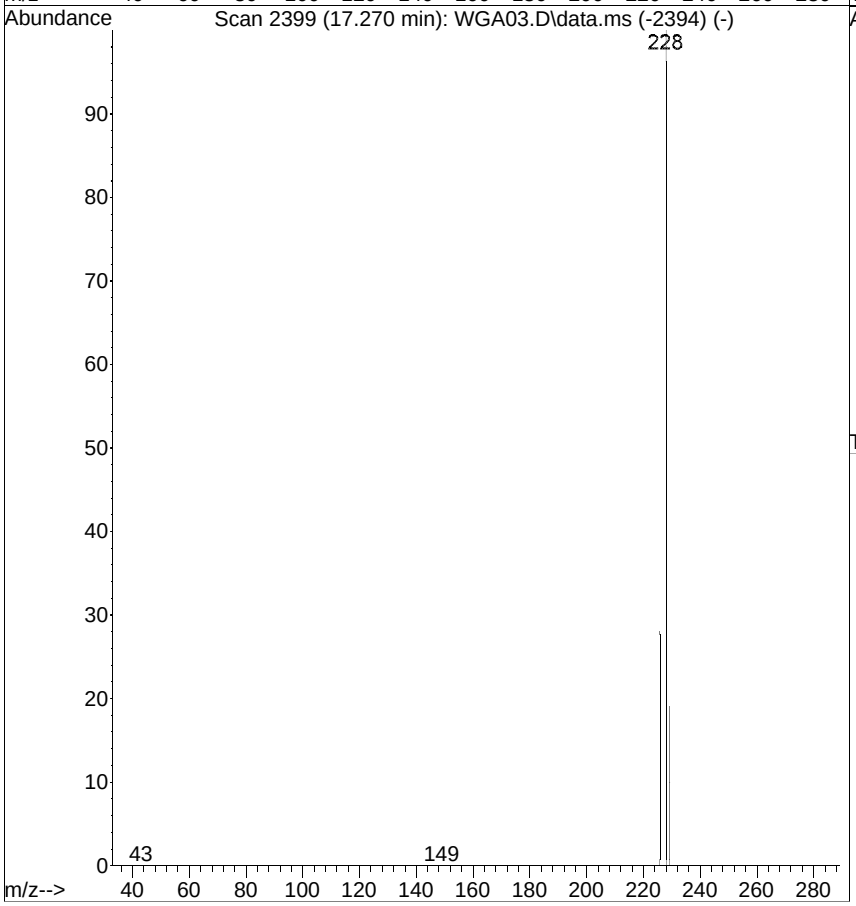
#22
Chrysene
Concen: 6.1562 ug/mL
RT: 17.265 min Scan# 2397
Delta R.T. -0.005 min
Lab File: WGA11.D
Acq: 10 Jul 2014 7:14 pm

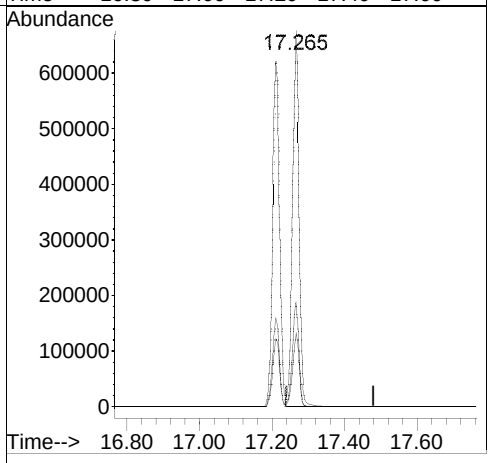
Tgt Ion:228 Resp: 821294

Ion	Ratio	Lower	Upper
228	100		
226	27.9	9.6	49.6
229	19.6	0.0	39.6



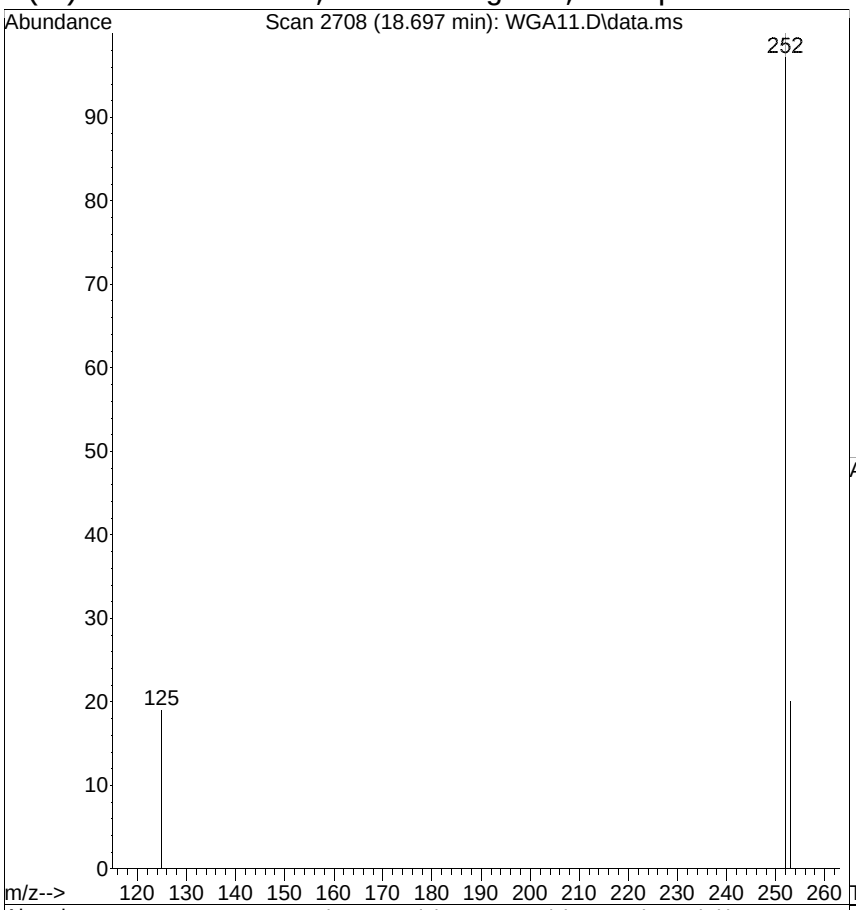
Ref





[Benzo(k)fluoranthene; 5.000 ug/mL; response=791342; MI]

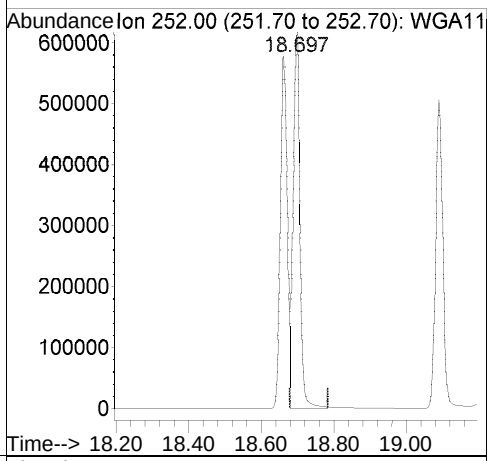
Raw



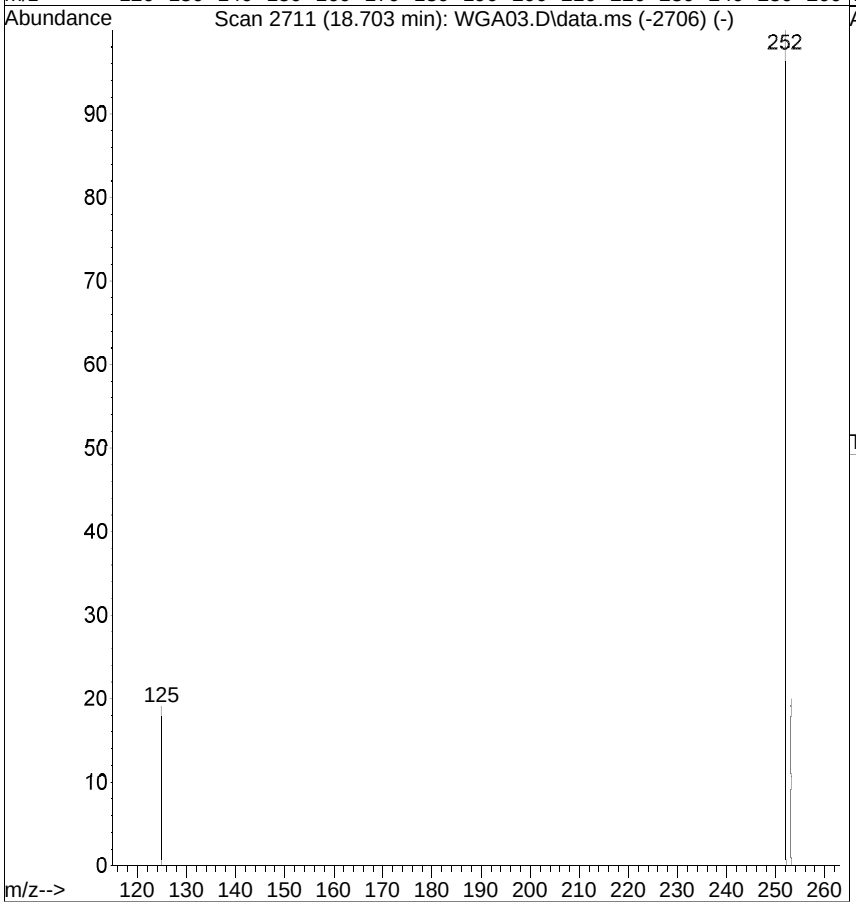
#25
Benzo(k)fluoranthene
Concen: 4.6934 ug/mL m
RT: 18.697 min Scan# 2708
Delta R.T. -0.006 min
Lab File: WGA11.D
Acq: 10 Jul 2014 7:14 pm

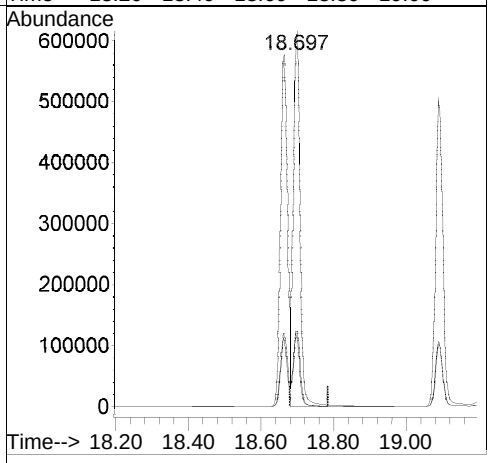
Tgt Ion:252 Resp: 791342

Ion	Ratio	Lower	Upper
252	100		
253	20.1	1.0	41.0
125	19.3	0.0	35.6



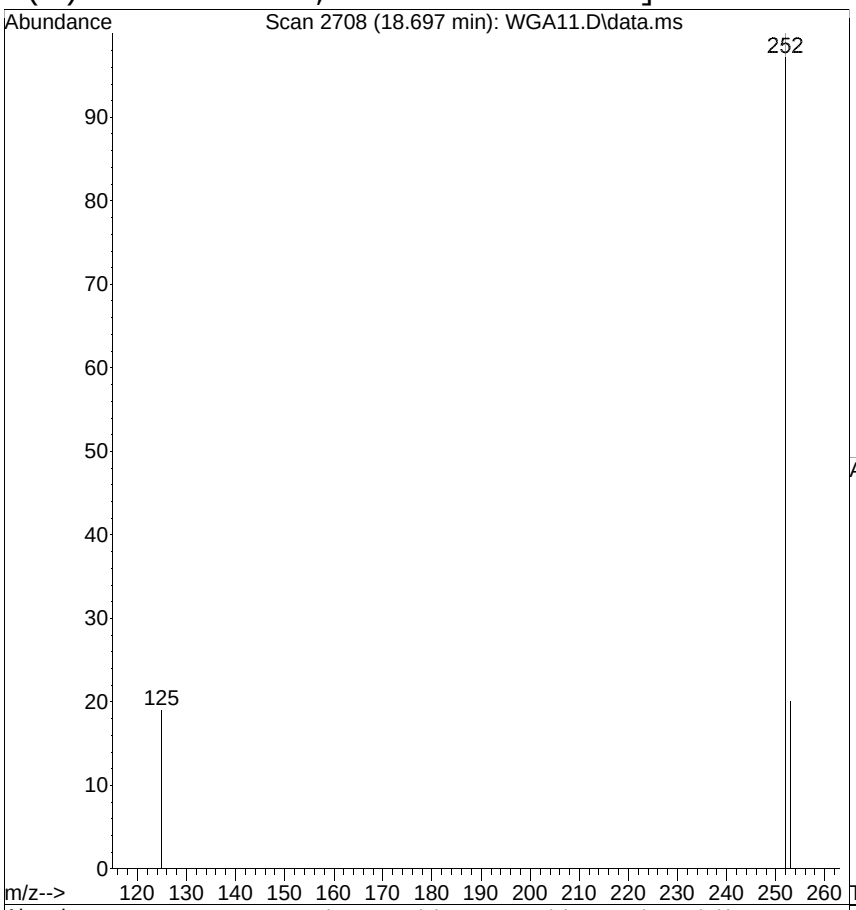
Ref





[Benzo(k)fluoranthene; before version]

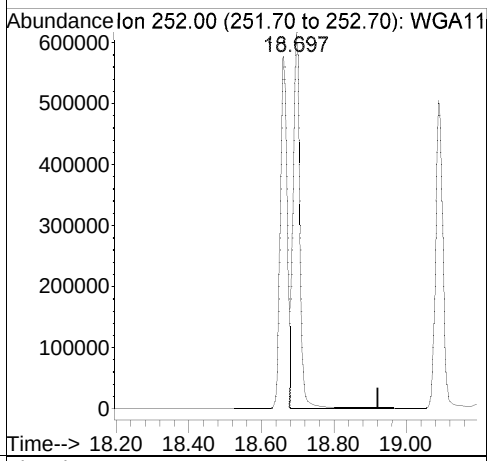
Raw



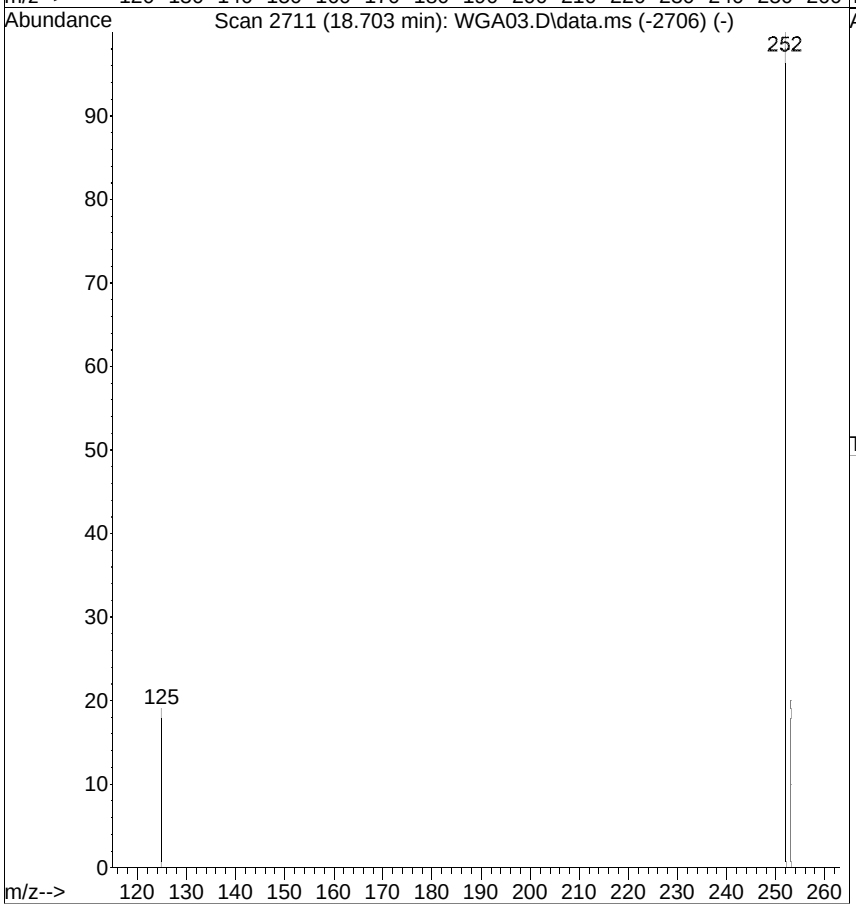
#25
Benzo(k)fluoranthene
Concen: 5.1106 ug/mL
RT: 18.697 min Scan# 2708
Delta R.T. -0.006 min
Lab File: WGA11.D
Acq: 10 Jul 2014 7:14 pm

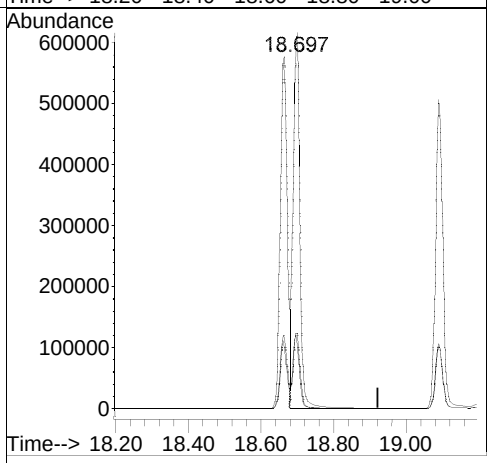
Tgt Ion:252 Resp: 861682

Ion	Ratio	Lower	Upper
252	100		
253	20.1	1.0	41.0
125	19.3	0.0	35.6



Ref

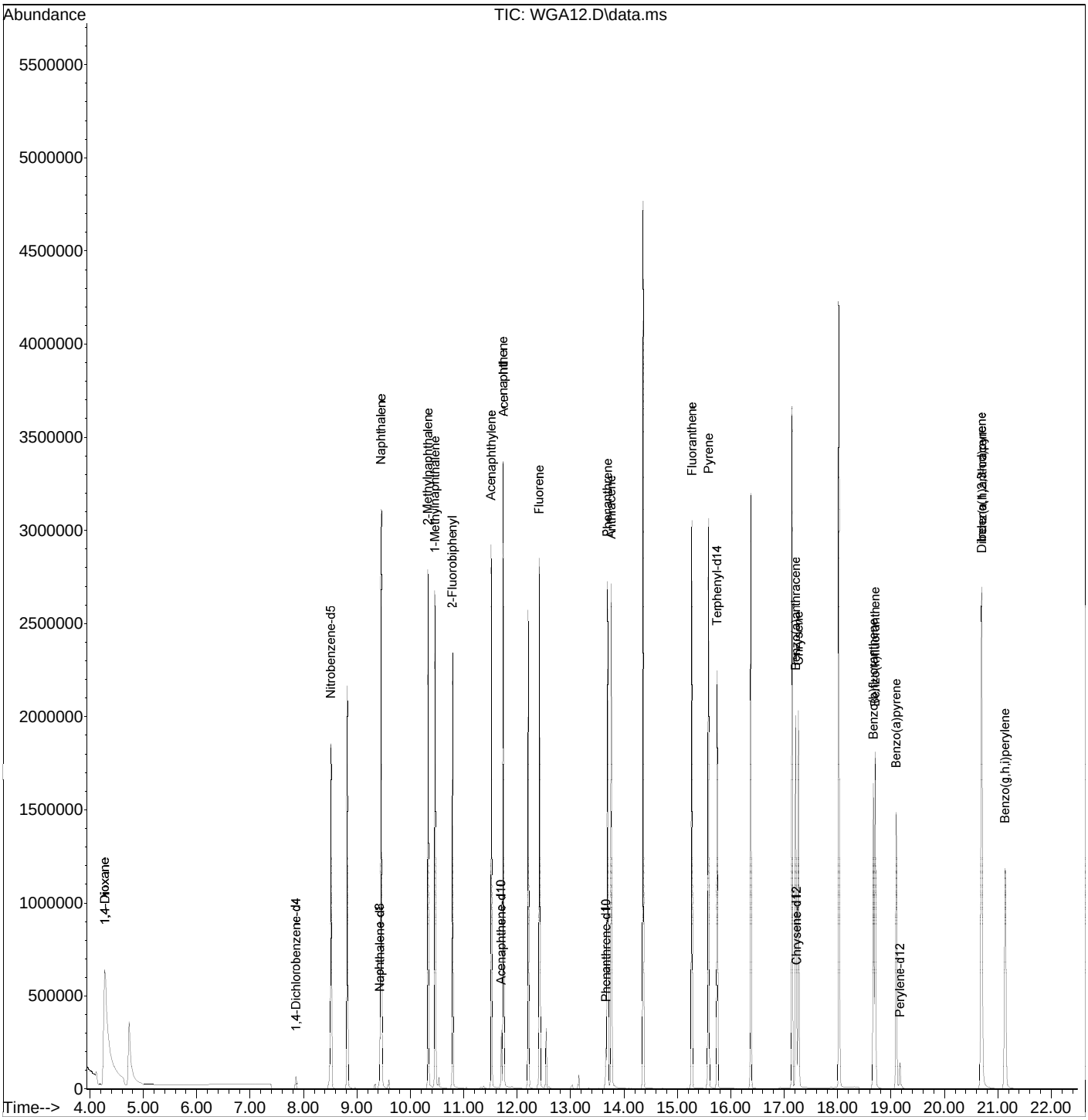




Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\071014\
Data File : WGA12.D
Acq On : 10 Jul 2014 7:47 pm
Operator :
Sample : ICAL,S25133
Misc : ICAL
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 11 10:28:10 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Thu Jul 10 15:38:18 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\071014\
Data File : WGA12.D
Acq On : 10 Jul 2014 7:47 pm
Operator :
Sample : ICAL,S25133
Misc : ICAL
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 11 10:28:10 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Thu Jul 10 15:38:18 2014
Response via : Initial Calibration

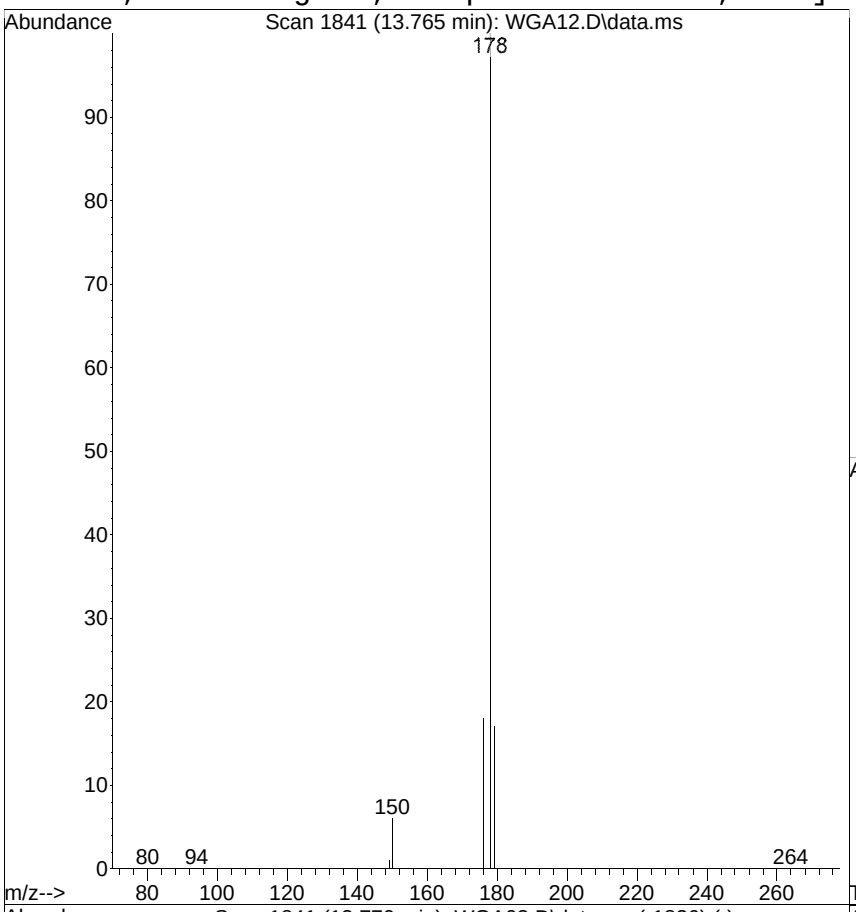
Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.859	152	70491	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.430	136	270049	1.0000	ug/mL	-0.01
8) Acenaphthene-d10	11.701	164	141872	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.663	188	213256	1.0000	ug/mL	0.00
18) Chrysene-d12	17.229	240	179508	1.0000	ug/mL	0.00
23) Perylene-d12	19.163	264	134967	1.0000	ug/mL	0.00

Target Compounds						Qvalue
2) 1,4-Dioxane	4.282	88	1897155	151.2567	ug/mL	96
4) Nitrobenzene-d5	8.519	82	1125686	6.9989	ug/mL	97
5) Naphthalene	9.458	128	3034685	10.9221	ug/mL	95
6) 2-Methylnaphthalene	10.335	142	1782481	9.1792	ug/mL	98
7) 1-Methylnaphthalene	10.467	142	1687579	8.7988	ug/mL	97
9) 2-Fluorobiphenyl	10.793	172	1939235	8.9861	ug/mL	96
10) Acenaphthylene	11.520	152	2526753	12.3577	ug/mL	96
11) Acenaphthene	11.746	154	1511768	11.5881	ug/mL	98
12) Fluorene	12.417	166	1714321	9.5724	ug/mL	98
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.693	178	2289707	10.2492	ug/mL	98
16) Anthracene	13.765	178	2351458m	12.9133	ug/mL	
17) Fluoranthene	15.270	202	2254194	10.0447	ug/mL	94
19) Pyrene	15.582	202	2348191	12.7589	ug/mL	95
20) Terphenyl-d14	15.745	244	1925998	10.9653	ug/mL	96
21) Benzo(a)anthracene	17.214	228	1717672	11.2485	ug/mL	98
22) Chrysene	17.265	228	1725701m	12.2976	ug/mL	
24) Benzo(b)fluoranthene	18.667	252	1619983	11.3644	ug/mL	95
25) Benzo(k)fluoranthene	18.700	252	1639510m	9.4969	ug/mL	
26) Benzo(a)pyrene	19.092	252	1462084	11.8656	ug/mL	94
27) Indeno(1,2,3-cd)pyrene	20.691	276	1815813	8.0867	ug/mL	70
28) Dibenz(a,h)anthracene	20.694	278	1410345	9.1343	ug/mL	95
29) Benzo(g,h,i)perylene	21.131	276	1528918	10.5330	ug/mL #	91

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

[Anthracene; 10.00 ug/mL; response=2351458; MI]

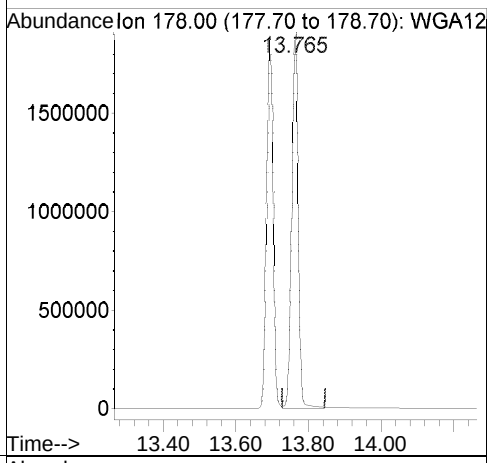
Raw



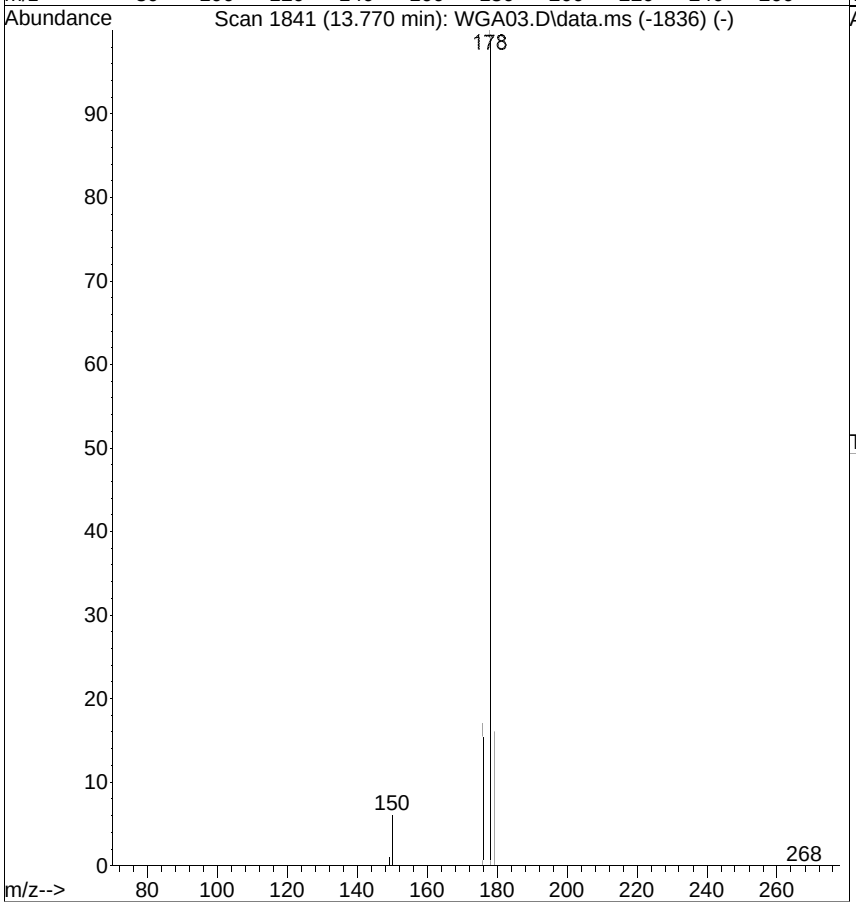
#16
Anthracene
Concen: 12.9133 ug/mL m
RT: 13.765 min Scan# 1841
Delta R.T. -0.006 min
Lab File: WGA12.D
Acq: 10 Jul 2014 7:47 pm

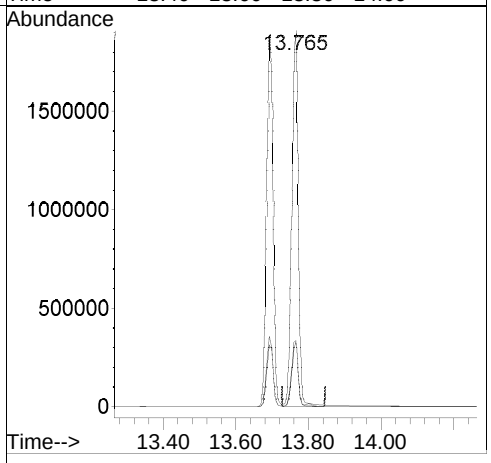
Tgt Ion:178 Resp: 2351458

Ion	Ratio	Lower	Upper
178	100		
179	17.4	0.0	37.7
176	17.7	0.0	39.4



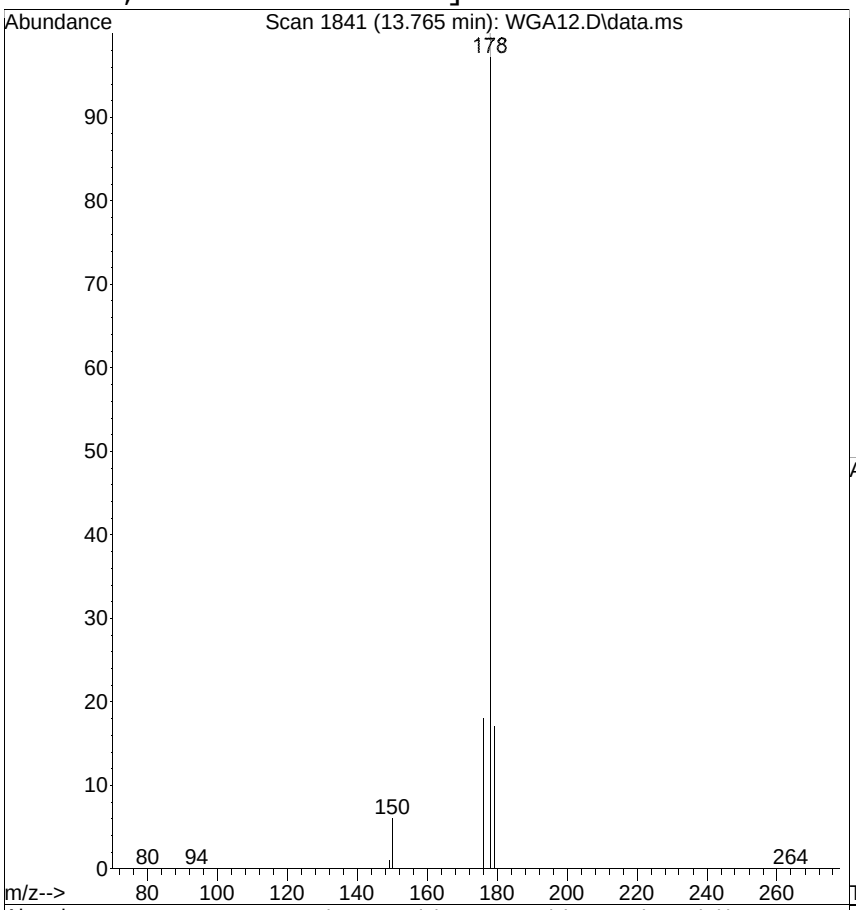
Ref





[Anthracene; before version]

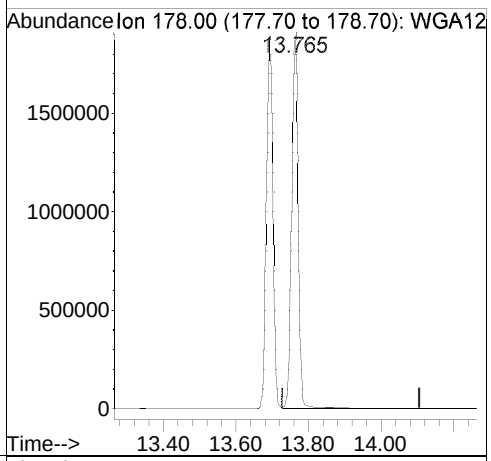
Raw



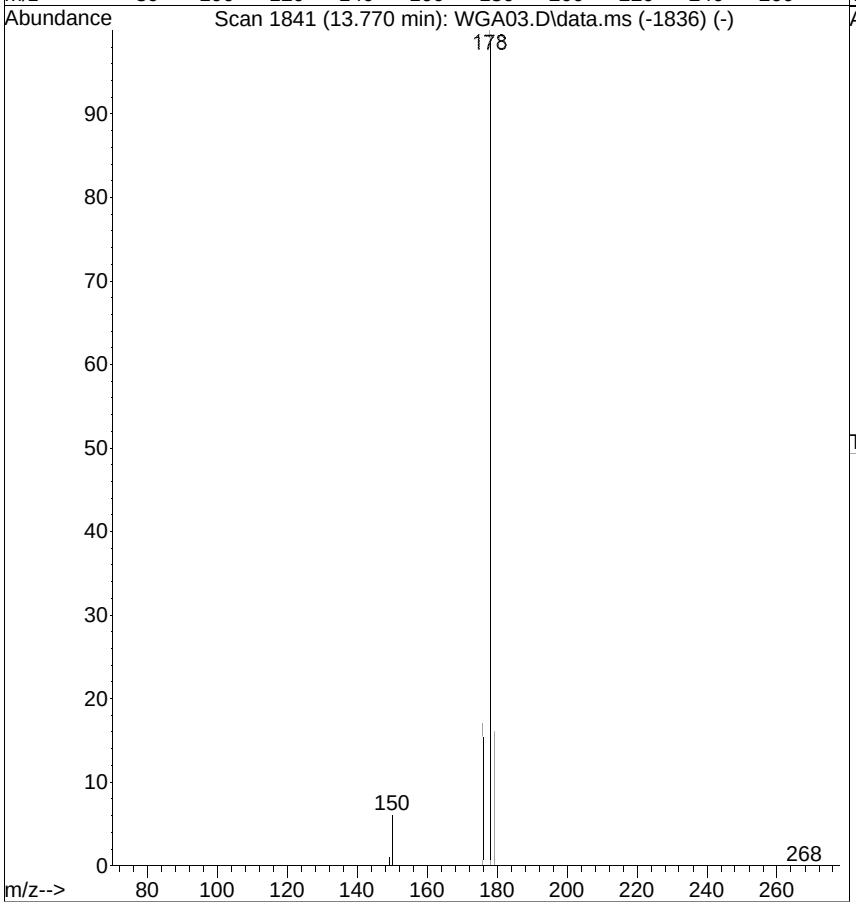
#16
Anthracene
Concen: 13.0143 ug/mL
RT: 13.765 min Scan# 1841
Delta R.T. -0.006 min
Lab File: WGA12.D
Acq: 10 Jul 2014 7:47 pm

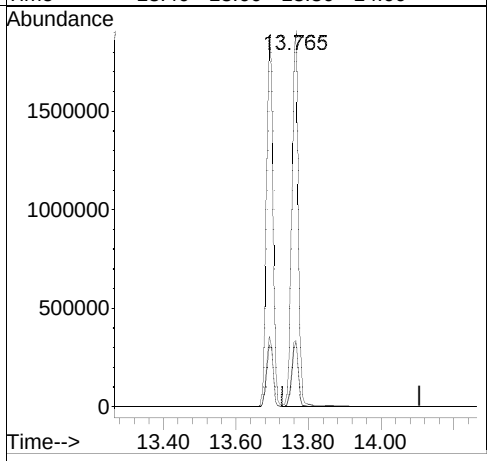
Tgt Ion:178 Resp: 2369850

Ion	Ratio	Lower	Upper
178	100		
179	17.4	0.0	37.7
176	17.7	0.0	39.4



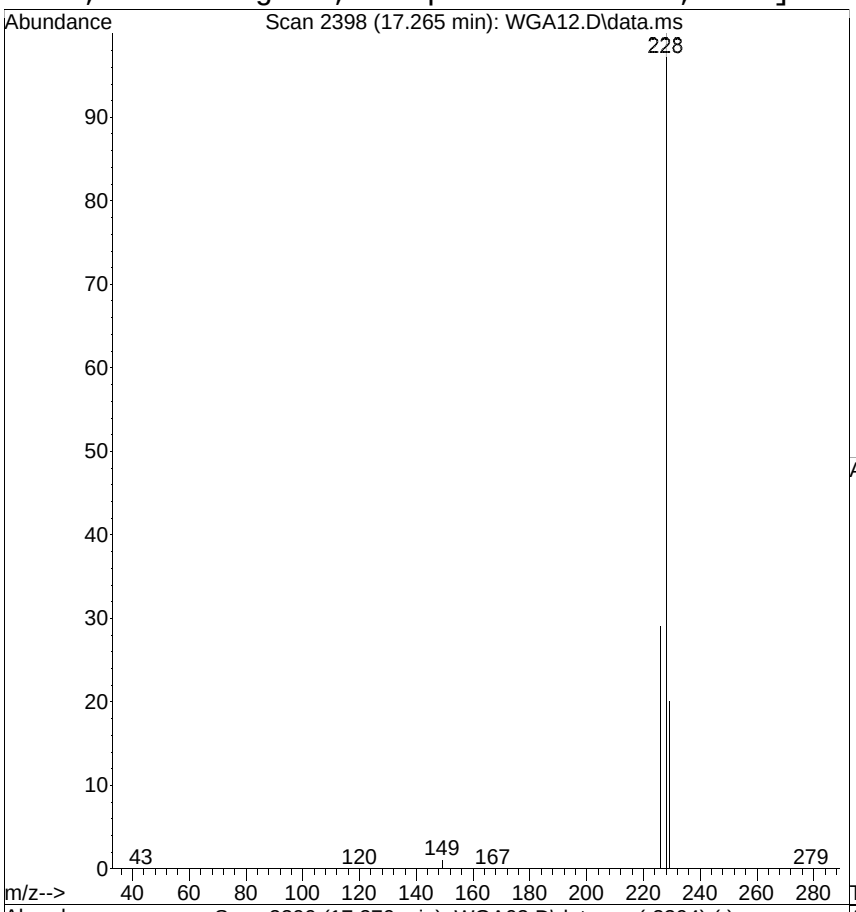
Ref





[Chrysene; 10.00 ug/mL; response=1725701; MI]

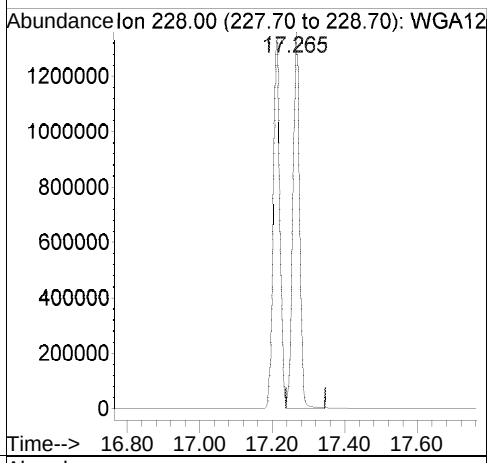
Raw



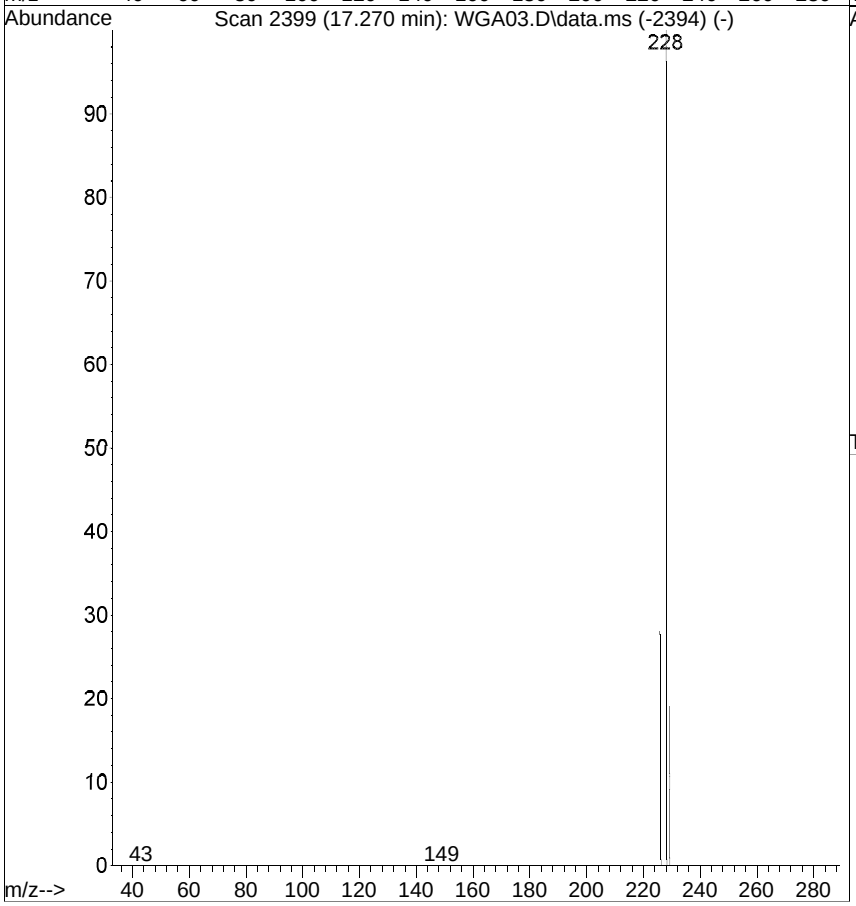
#22
Chrysene
Concen: 12.2976 ug/mL m
RT: 17.265 min Scan# 2398
Delta R.T. -0.006 min
Lab File: WGA12.D
Acq: 10 Jul 2014 7:47 pm

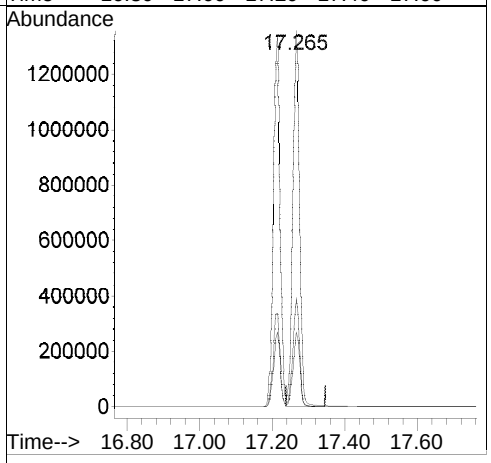
Tgt Ion:228 Resp: 1725701

Ion	Ratio	Lower	Upper
228	100		
226	28.9	9.6	49.6
229	19.9	0.0	39.6



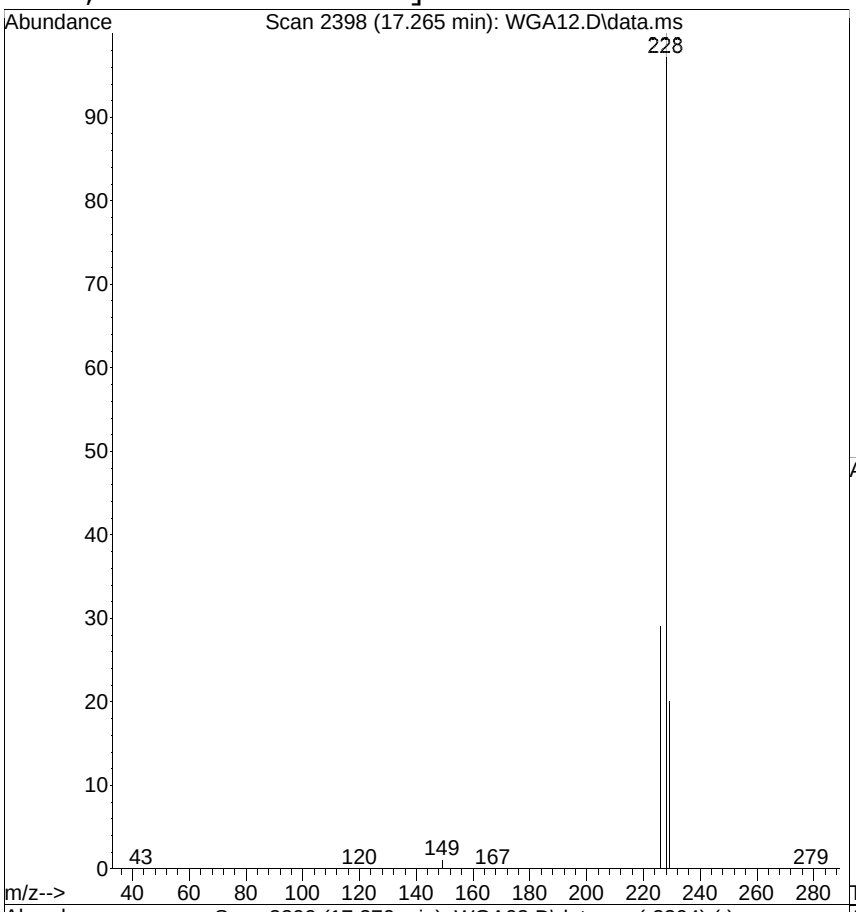
Ref





[Chrysene; before version]

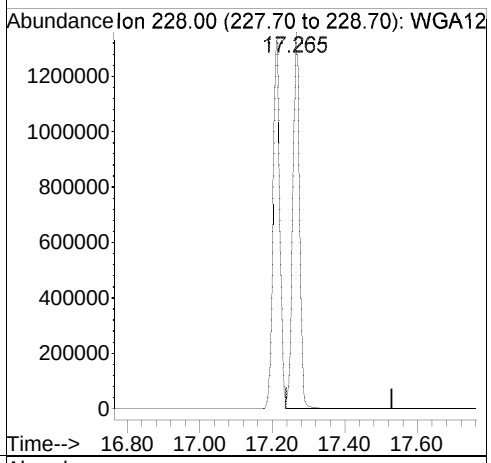
Raw



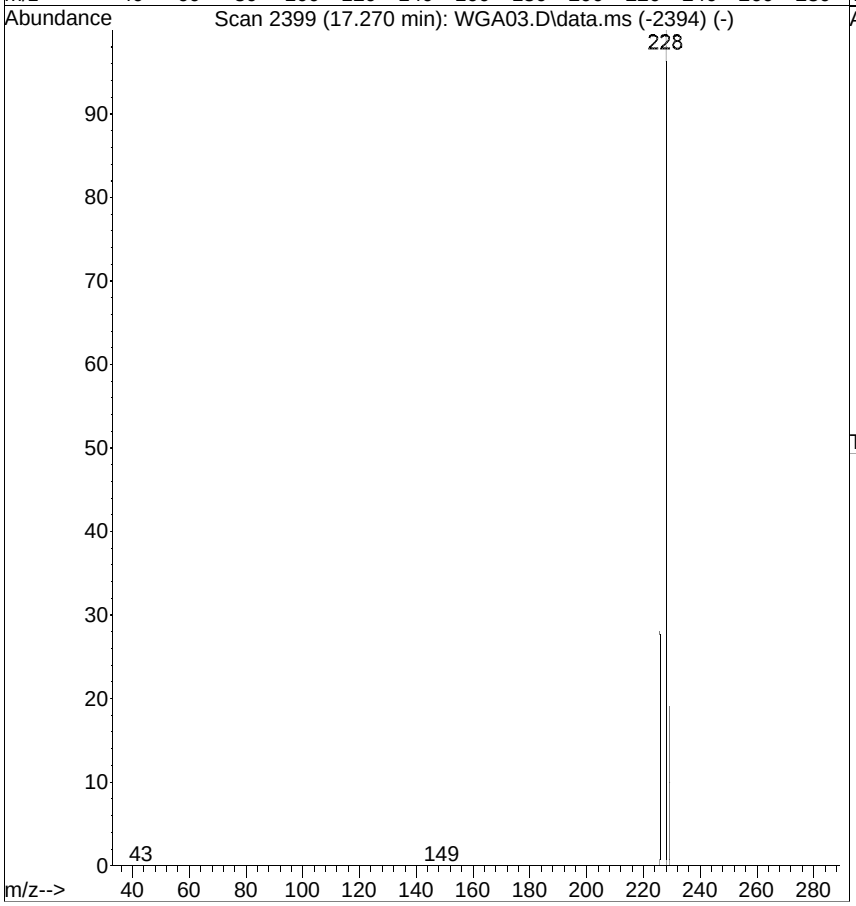
#22
Chrysene
Concen: 12.3384 ug/mL
RT: 17.265 min Scan# 2398
Delta R.T. -0.006 min
Lab File: WGA12.D
Acq: 10 Jul 2014 7:47 pm

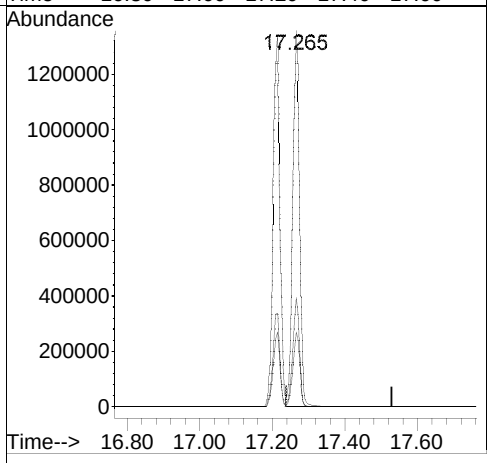
Tgt Ion:228 Resp: 1731424

Ion	Ratio	Lower	Upper
228	100		
226	28.9	9.6	49.6
229	19.9	0.0	39.6



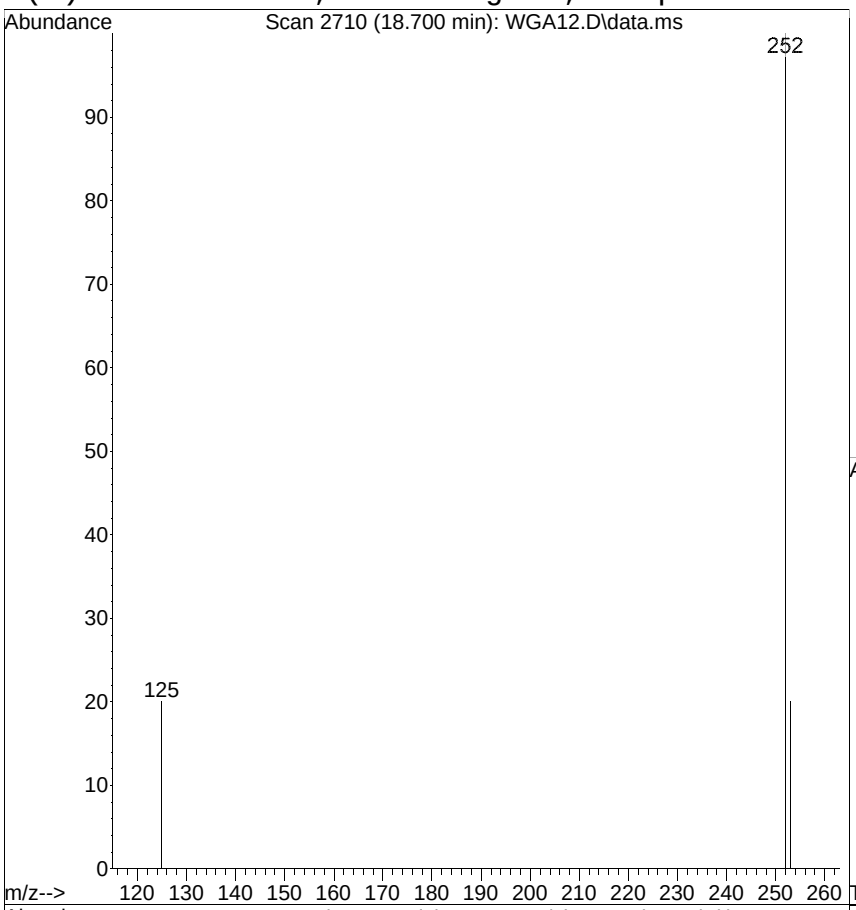
Ref





[Benzo(k)fluoranthene; 10.00 ug/mL; response=1639510; MI]

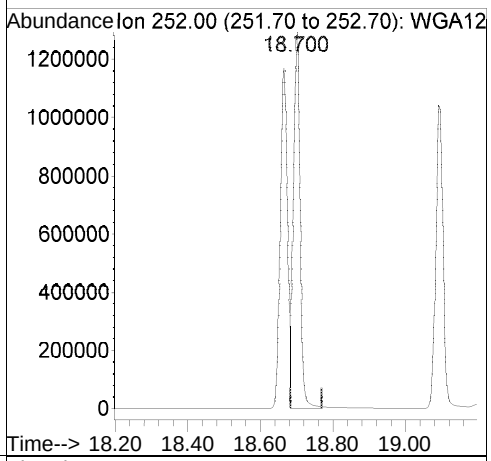
Raw



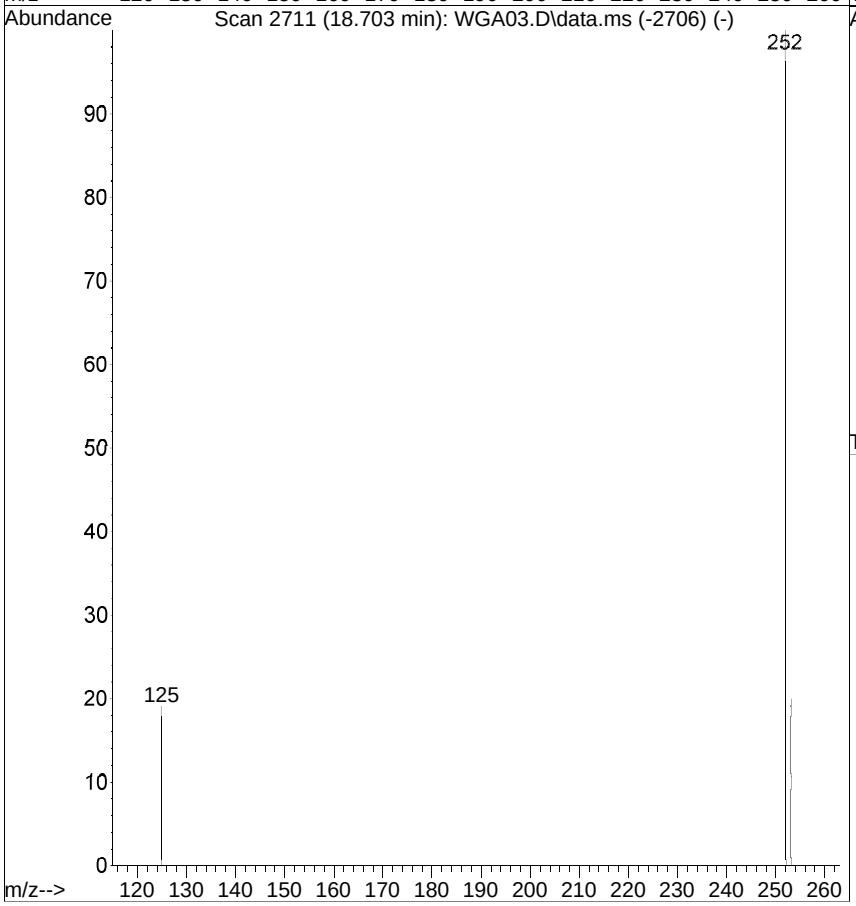
#25
Benzo(k)fluoranthene
Concen: 9.4969 ug/mL m
RT: 18.700 min Scan# 2710
Delta R.T. -0.003 min
Lab File: WGA12.D
Acq: 10 Jul 2014 7:47 pm

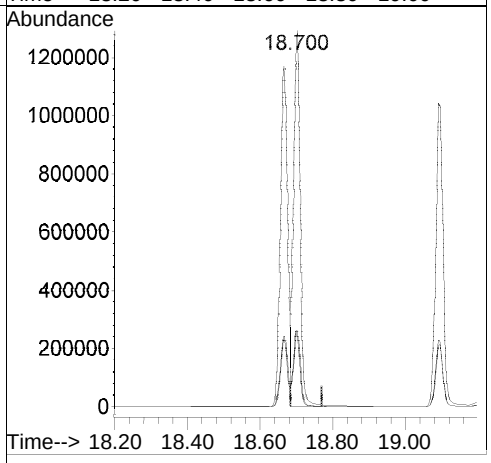
Tgt Ion:252 Resp: 1639510

Ion	Ratio	Lower	Upper
252	100		
253	20.3	1.0	41.0
125	20.2	0.0	35.6



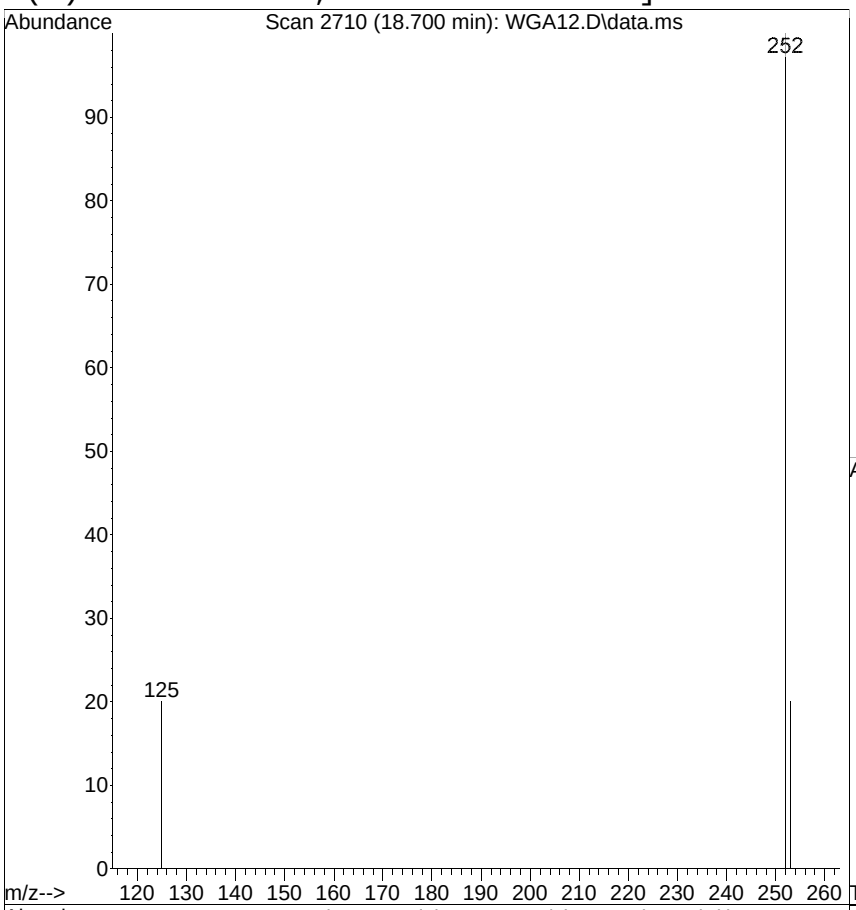
Ref





[Benzo(k)fluoranthene; before version]

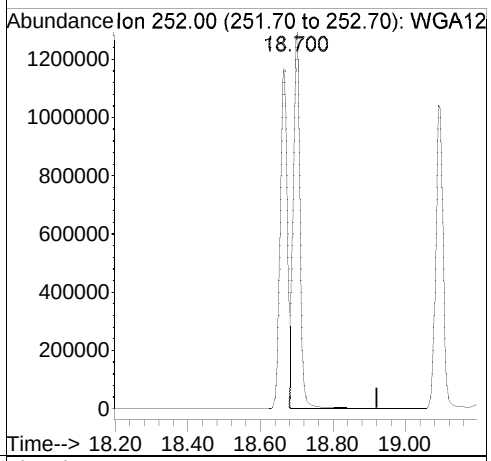
Raw



#25
Benzo(k)fluoranthene
Concen: 10.3496 ug/mL
RT: 18.700 min Scan# 2710
Delta R.T. -0.003 min
Lab File: WGA12.D
Acq: 10 Jul 2014 7:47 pm

Tgt Ion:252 Resp: 1786715

Ion	Ratio	Lower	Upper
252	100		
253	20.3	1.0	41.0
125	20.2	0.0	35.6



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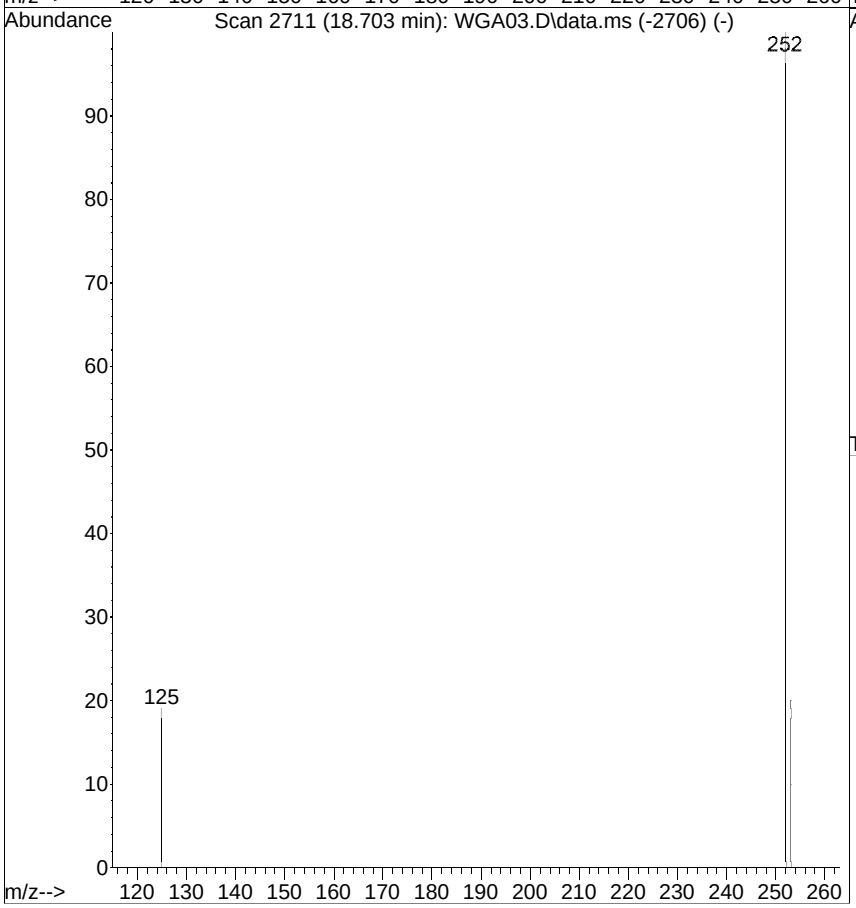
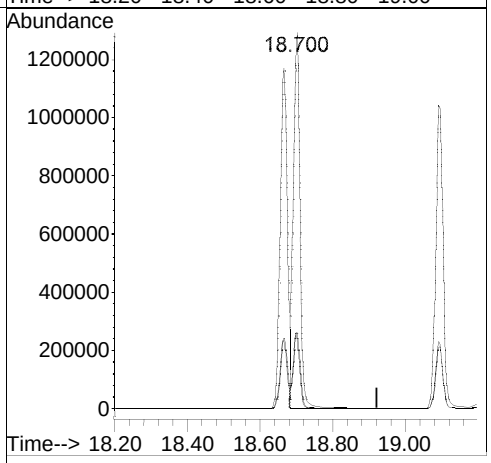
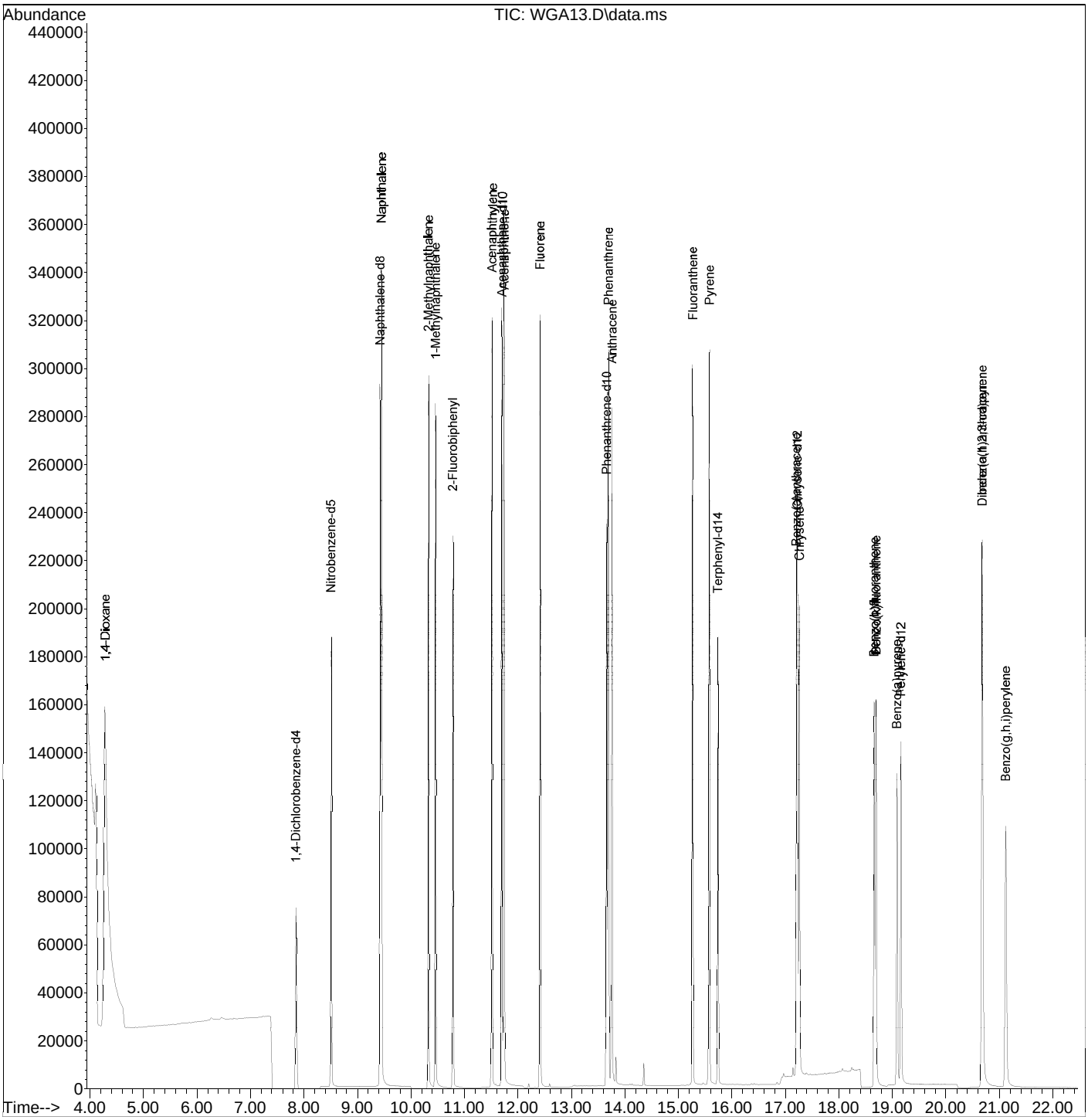




Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\071014\
Data File : WGA13.D
Acq On : 10 Jul 2014 8:21 pm
Operator :
Sample : ICV,S24935
Misc : ICV
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 11 10:36:40 2014
Quant Method : G:\msbna04\071014\4PAHSIM.m
Quant Title : MSBNA04 BNASIM
QLast Update : Fri Jul 11 10:35:40 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna04\071014\
Data File : WGA13.D
Acq On : 10 Jul 2014 8:21 pm
Operator :
Sample : ICV,S24935
Misc : ICV
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 11 10:36:40 2014
Quant Method : G:\msbna04\071014\4PAHSIM.m
Quant Title : MSBNA04 BNASIM
QLast Update : Fri Jul 11 10:35:40 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.859	152	75986	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.431	136	294386	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.705	164	153387	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.664	188	222279	1.0000	ug/mL	0.00
18) Chrysene-d12	17.225	240	175469	1.0000	ug/mL	0.00
23) Perylene-d12	19.156	264	137401	1.0000	ug/mL	0.00

Target Compounds						Qvalue
2) 1,4-Dioxane	4.292	88	414082m	10.2476	ug/mL	
4) Nitrobenzene-d5	8.517	82	109091	0.9070	ug/mL	94
5) Naphthalene	9.456	128	323134	0.9816	ug/mL	95
6) 2-Methylnaphthalene	10.334	142	187253	0.9849	ug/mL	99
7) 1-Methylnaphthalene	10.466	142	180025	0.9868	ug/mL	99
9) 2-Fluorobiphenyl	10.793	172	187944	0.8989	ug/mL	95
10) Acenaphthylene	11.519	152	276492	1.0547	ug/mL	95
11) Acenaphthene	11.745	154	159332	1.0055	ug/mL	97
12) Fluorene	12.419	166	179220	0.9943	ug/mL	96
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.694	178	240780	1.0164	ug/mL	96
16) Anthracene	13.760	178	232454	1.0051	ug/mL	96
17) Fluoranthene	15.265	202	227505	1.0065	ug/mL	92
19) Pyrene	15.577	202	232481	0.9940	ug/mL	94
20) Terphenyl-d14	15.740	244	163184	0.8905	ug/mL	98
21) Benzo(a)anthracene	17.205	228	169136	1.0248	ug/mL	98
22) Chrysene	17.260	228	170418	1.0101	ug/mL	98
24) Benzo(b)fluoranthene	18.656	252	153385	0.9970	ug/mL	95
25) Benzo(k)fluoranthene	18.692	252	153177	0.9587	ug/mL	97
26) Benzo(a)pyrene	19.083	252	131080	0.9585	ug/mL	95
27) Indeno(1,2,3-cd)pyrene	20.673	276	153986	0.9407	ug/mL	73
28) Dibenz(a,h)anthracene	20.677	278	125491	0.9949	ug/mL	94
29) Benzo(g,h,i)perylene	21.113	276	138081	0.9591	ug/mL #	92

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

Continuing Calibration Verification Raw Data

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA03 IDF : 1.0
Seqnum : 524334764003.1 File : vhk03 Time : 20-AUG-2014 12:08
Cal : 524271263002 Caldate : 07-JUL-2014
Standards: S25129

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.8756	0.8996	1.000	1.027	ug/mL	3	20	0.7000	
2-Methylnaphthalene	0.6544	0.6667	1.000	1.019	ug/mL	2	20	0.4000	
Acenaphthylene	1.5193	1.6168	1.000	1.064	ug/mL	6	20	0.9000	
Acenaphthene	0.9653	1.0104	1.000	1.047	ug/mL	5	20	0.9000	
Fluorene	1.1068	1.2189	1.000	1.101	ug/mL	10	20	0.9000	
Phenanthrene	0.9855	1.0332	1.000	1.048	ug/mL	5	20	0.7000	
Anthracene	0.9148	0.9824	1.000	1.074	ug/mL	7	20	0.7000	m
Fluoranthene	1.0745	1.1650	1.000	1.084	ug/mL	8	20	0.6000	
Pyrene	1.1316	1.2095	1.000	1.069	ug/mL	7	20	0.6000	
Benzo(a)anthracene	0.9777	1.0158	1.000	1.039	ug/mL	4	20	0.8000	
Chrysene	0.9868	1.0355	1.000	1.049	ug/mL	5	20	0.7000	
Benzo(b)fluoranthene	1.1465	1.1846	1.000	1.033	ug/mL	3	20	0.7000	
Benzo(k)fluoranthene	1.1308	1.1675	1.000	1.032	ug/mL	3	20	0.7000	m
Benzo(a)pyrene	1.0488	1.0789	1.000	1.029	ug/mL	3	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.0858	1.0904	1.000	1.004	ug/mL	0	20	0.5000	
Dibenz(a,h)anthracene	0.9183	0.9092	1.000	0.9902	ug/mL	-1	20	0.4000	
Benzo(g,h,i)perylene	0.9347	0.9537	1.000	1.020	ug/mL	2	20	0.5000	
Nitrobenzene-d5	0.3095	0.3271	1.000	1.057	ug/mL	6	20	0.0500	
2-Fluorobiphenyl	1.4420	1.4769	1.000	1.024	ug/mL	2	20	0.0500	
Terphenyl-d14	0.8442	0.8938	1.000	1.059	ug/mL	6	20	0.0500	

ISTD (ICAL vg723)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	32023	45383	41.72
Naphthalene-d8	113951	161602	41.82
Acenaphthene-d10	66733	93243	39.73
Phenanthrene-d10	117708	175224	48.86
Chrysene-d12	117775	177686	50.87
Perylene-d12	94243	144349	53.17

ISTD (ICAL vg723)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	7.34	7.31	-0.03
Naphthalene-d8	8.96	8.93	-0.03
Acenaphthene-d10	11.26	11.23	-0.03
Phenanthrene-d10	13.20	13.17	-0.03
Chrysene-d12	16.65	16.62	-0.03
Perylene-d12	18.37	18.35	-0.02

NPM 08/20/14 [1-Methylnaphthalene]: Corrected automatically drawn baseline. [general version]

NPM 08/20/14 [Anthracene]: Corrected automatically drawn baseline. [general version]

NPM 08/20/14 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline. [general version]

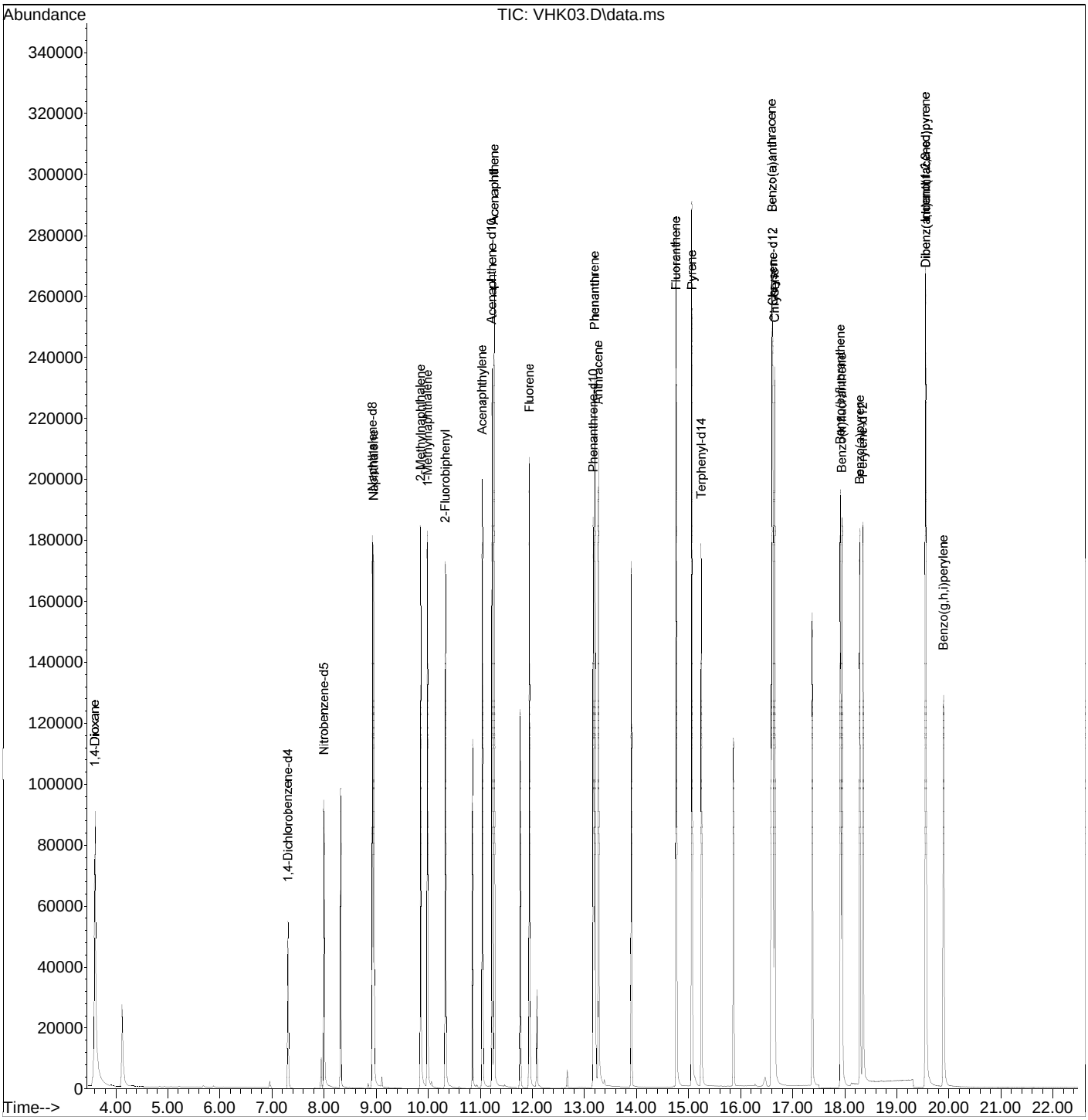
Analyst: KMH Date: 08/22/14 Reviewer: LW Date: 08/27/14

m=manual integration

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\082014\
Data File : VHK03.D
Acq On : 20 Aug 2014 12:08 pm
Operator :
Sample : CCV,S25129
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 20 12:52:14 2014
Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
Quant Title : MSBNA03 BNASIM
QLast Update : Wed Aug 13 14:15:06 2014
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\082014\
Data File : VHK03.D
Acq On : 20 Aug 2014 12:08 pm
Operator :
Sample : CCV,S25129
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 20 12:52:14 2014
Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
Quant Title : MSBNA03 BNASIM
QLast Update : Wed Aug 13 14:15:06 2014
Response via : Initial Calibration

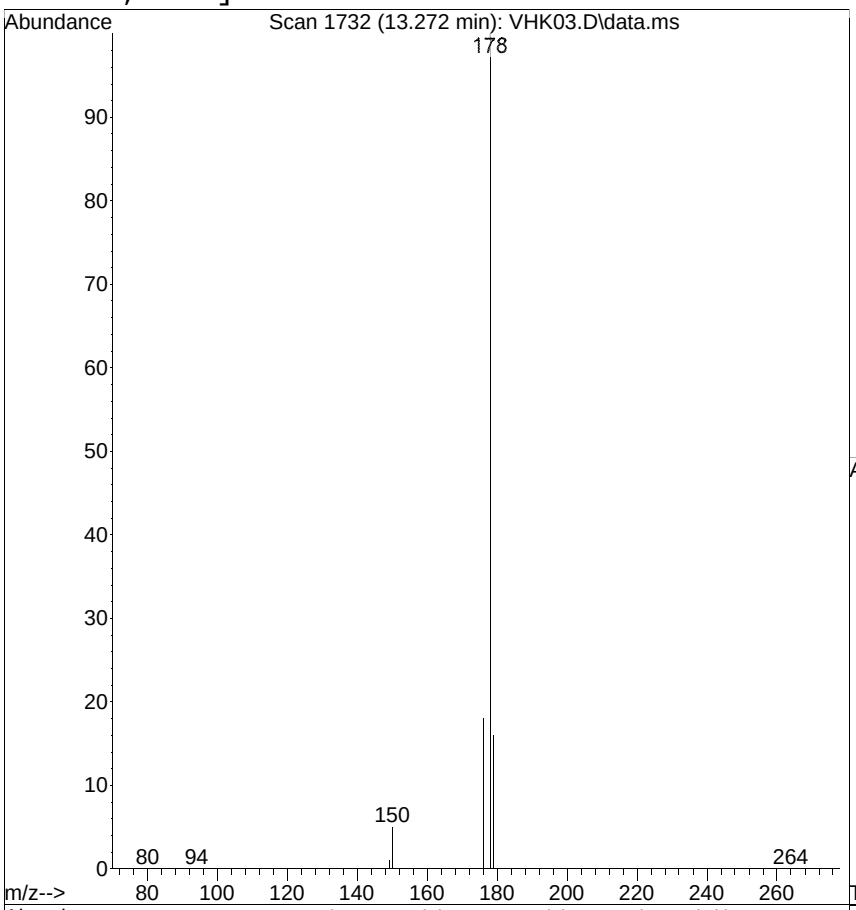
Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.311	152	45383	1.0000	ug/mL	0.00
3) Naphthalene-d8	8.932	136	161602	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.230	164	93243	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.172	188	175224	1.0000	ug/mL	0.00
18) Chrysene-d12	16.622	240	177686	1.0000	ug/mL	0.00
23) Perylene-d12	18.347	264	144349	1.0000	ug/mL	0.00

Target Compounds						Qvalue
2) 1,4-Dioxane	3.606	88	117609	5.1796	ug/mL	94
4) Nitrobenzene-d5	8.003	82	52853	1.0568	ug/mL	# 69
5) Naphthalene	8.960	128	145382	1.0274	ug/mL	99
6) 2-Methylnaphthalene	9.860	142	107738	1.0188	ug/mL	93
7) 1-Methylnaphthalene	9.991	142	101535m	1.0355	ug/mL	
9) 2-Fluorobiphenyl	10.336	172	137706	1.0241	ug/mL	99
10) Acenaphthylene	11.043	152	150753	1.0641	ug/mL	98
11) Acenaphthene	11.271	154	94211	1.0467	ug/mL	93
12) Fluorene	11.948	166	113653	1.1013	ug/mL	92
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.201	178	181035	1.0484	ug/mL	99
16) Anthracene	13.272	178	172139m	1.0738	ug/mL	
17) Fluoranthene	14.764	202	204143	1.0843	ug/mL	96
19) Pyrene	15.066	202	214908	1.0688	ug/mL	99
20) Terphenyl-d14	15.245	244	158807	1.0586	ug/mL	87
21) Benzo(a)anthracene	16.607	228	180491	1.0390	ug/mL	96
22) Chrysene	16.651	228	184002	1.0494	ug/mL	96
24) Benzo(b)fluoranthene	17.914	252	170993	1.0332	ug/mL	97
25) Benzo(k)fluoranthene	17.944	252	168529m	1.0324	ug/mL	
26) Benzo(a)pyrene	18.287	252	155736	1.0287	ug/mL	97
27) Indeno(1,2,3-cd)pyrene	19.551	276	157398	1.0042	ug/mL	# 46
28) Dibenz(a,h)anthracene	19.554	278	131248	0.9902	ug/mL	89
29) Benzo(g,h,i)perylene	19.894	276	137659	1.0202	ug/mL	# 92

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

[Anthracene; MI]

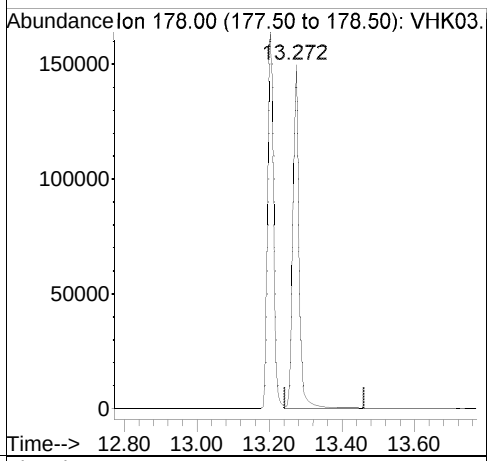
Raw



#16
Anthracene
Concen: 1.0738 ug/mL m
RT: 13.272 min Scan# 1732
Delta R.T. -0.001 min
Lab File: VHK03.D
Acq: 20 Aug 2014 12:08 pm

Tgt Ion:178 Resp: 172139

Ion	Ratio	Lower	Upper
178	100		
179	15.8	0.0	34.4
176	18.2	0.0	39.5



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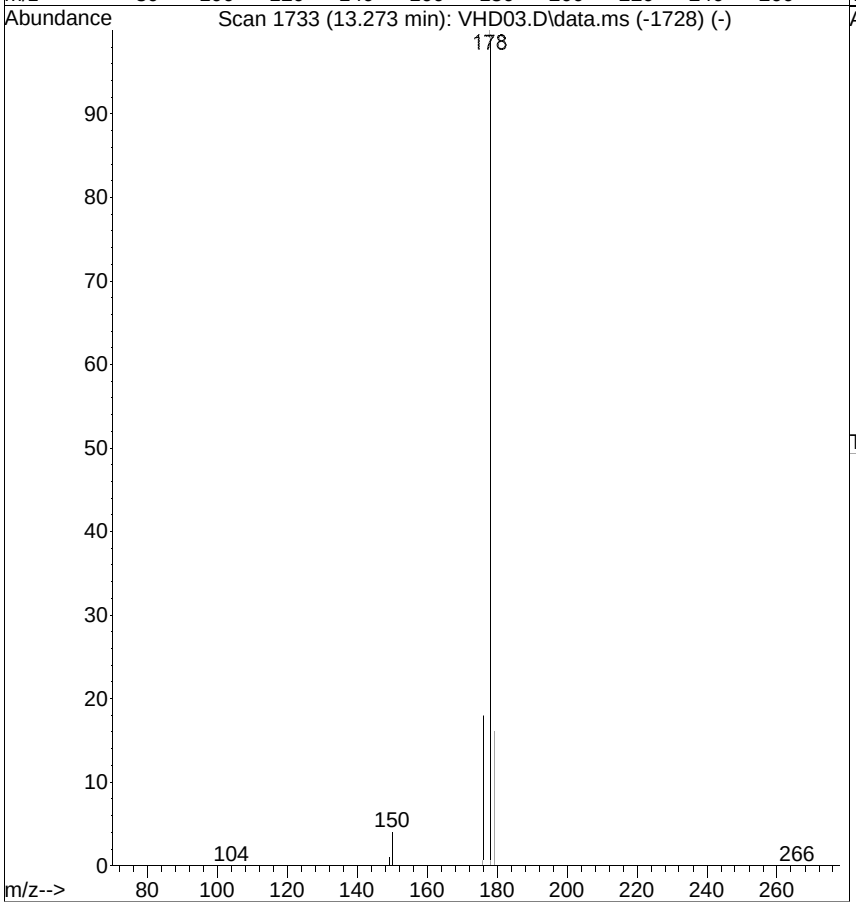
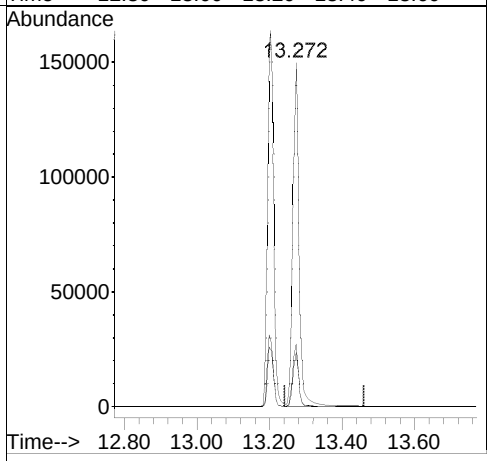
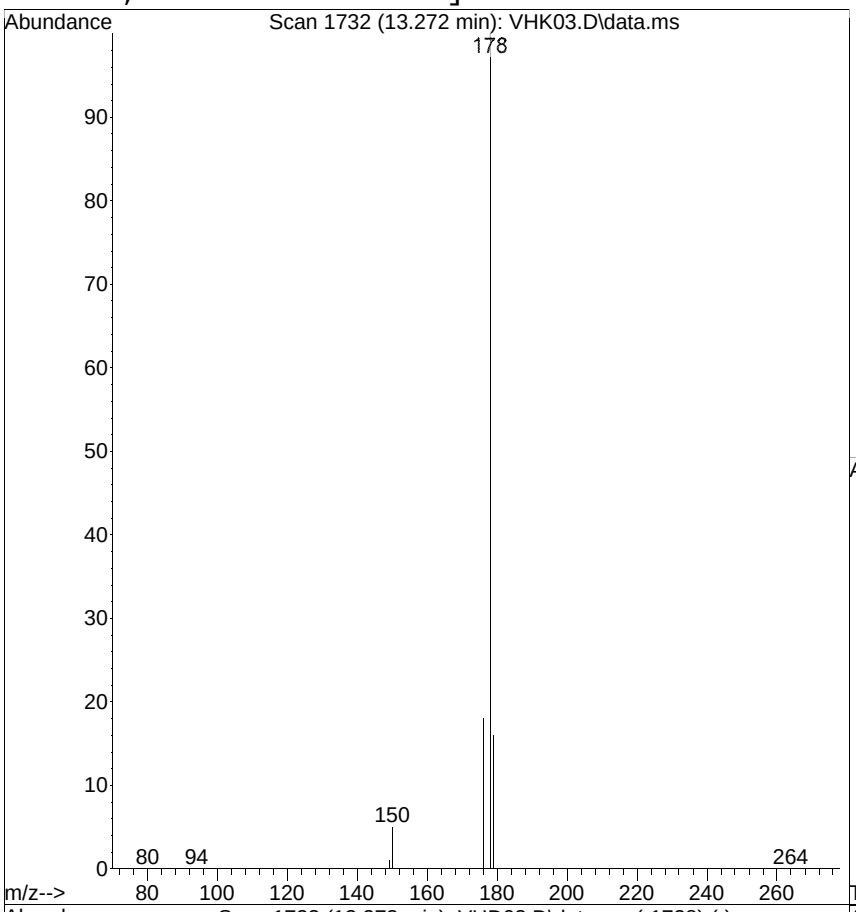




[Anthracene; before version]

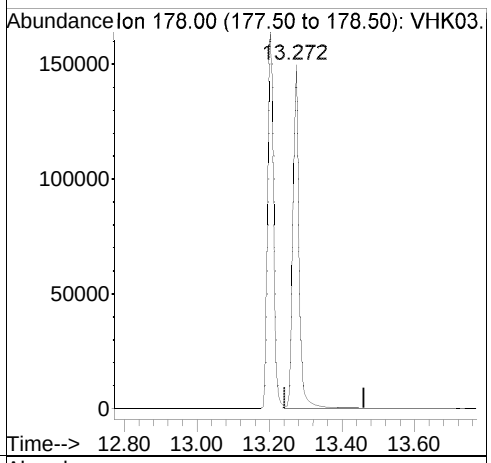
Raw



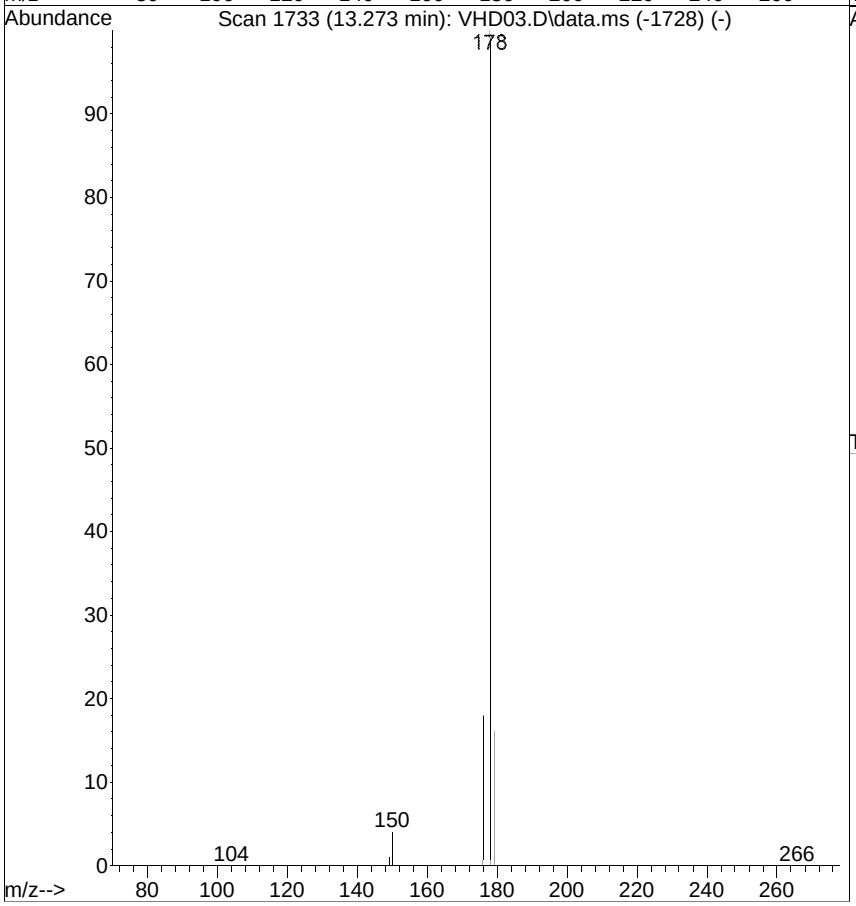
#16
Anthracene
Concen: 1.0646 ug/mL
RT: 13.272 min Scan# 1732
Delta R.T. -0.001 min
Lab File: VHK03.D
Acq: 20 Aug 2014 12:08 pm

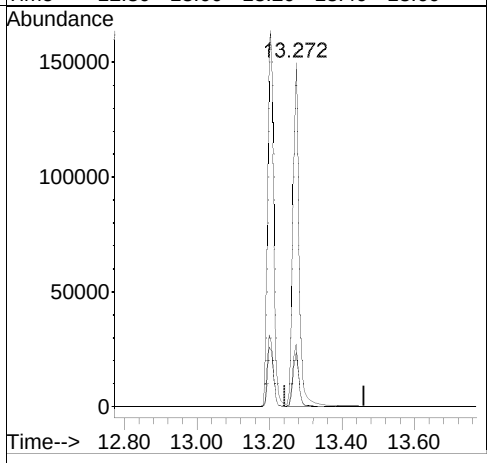
Tgt Ion:178 Resp: 170660

Ion	Ratio	Lower	Upper
178	100		
179	15.8	0.0	34.4
176	18.2	0.0	39.5



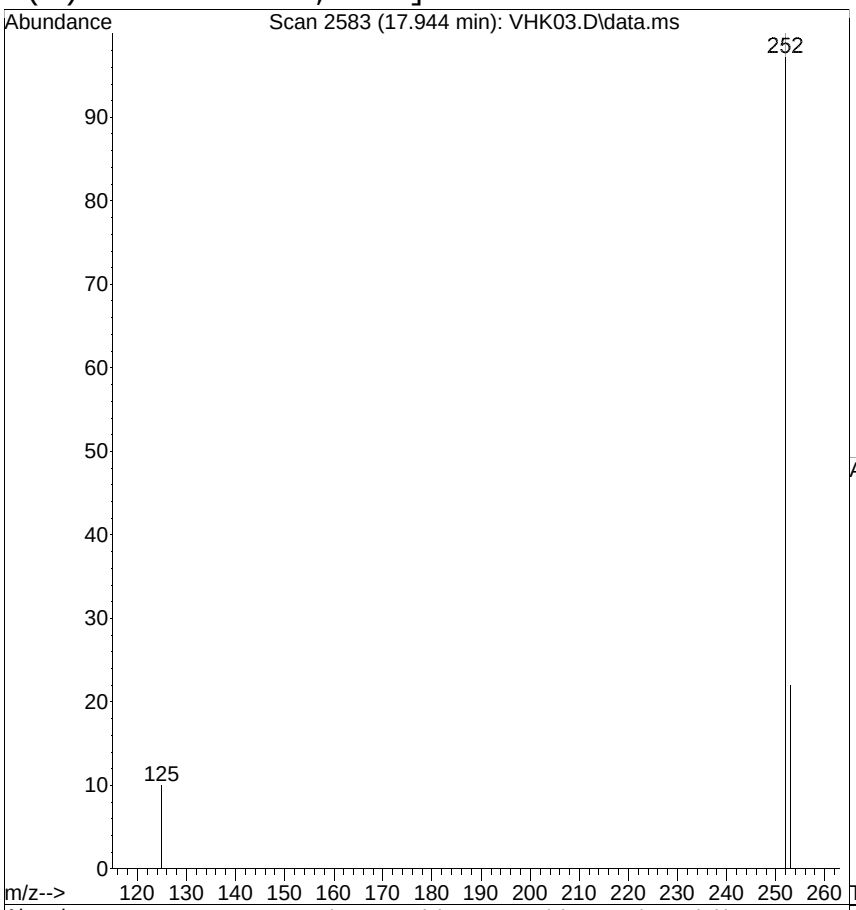
Ref





[Benzo(k)fluoranthene; MI]

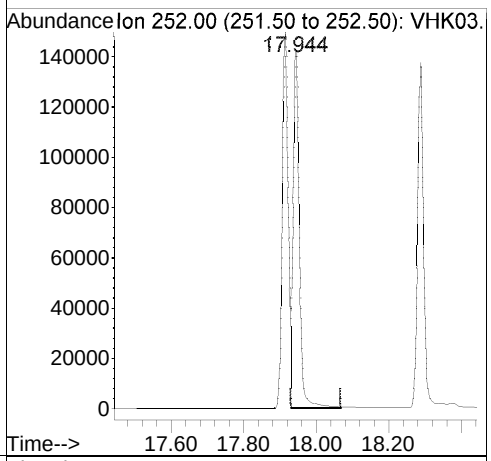
Raw



#25
Benzo(k)fluoranthene
Concen: 1.0324 ug/mL m
RT: 17.944 min Scan# 2583
Delta R.T. 0.004 min
Lab File: VHK03.D
Acq: 20 Aug 2014 12:08 pm

Tgt Ion:252 Resp: 168529

Ion	Ratio	Lower	Upper
252	100		
253	21.9	1.1	41.1
125	9.9	0.0	21.1



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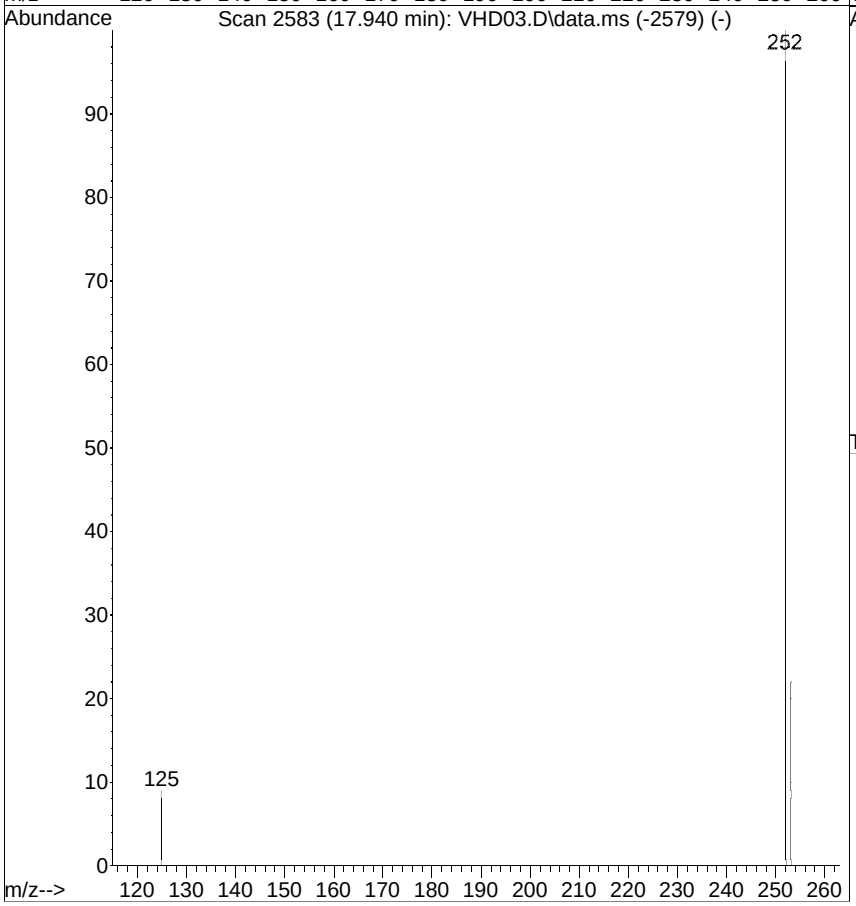
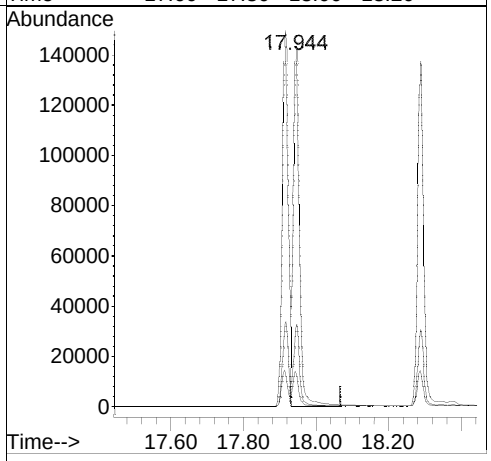
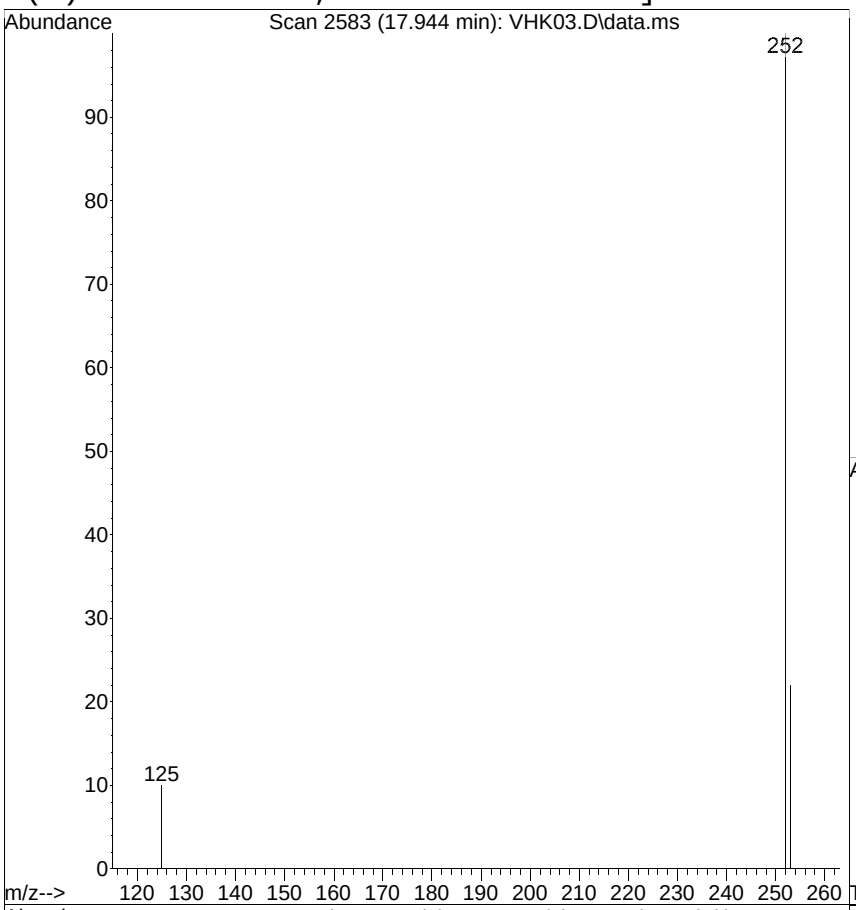




[Benzo(k)fluoranthene; before version]

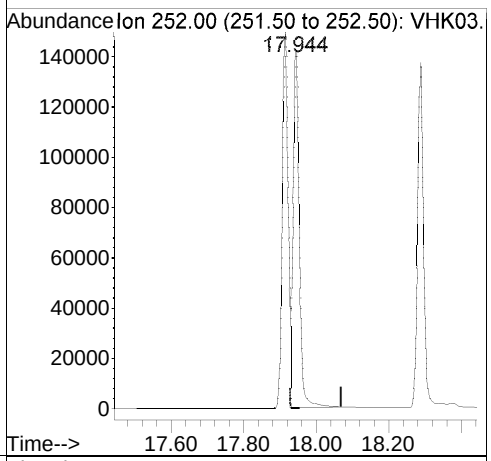
Raw



#25
Benzo(k)fluoranthene
Concen: 1.0224 ug/mL
RT: 17.944 min Scan# 2583
Delta R.T. 0.004 min
Lab File: VHK03.D
Acq: 20 Aug 2014 12:08 pm

Tgt Ion:252 Resp: 166891

Ion	Ratio	Lower	Upper
252	100		
253	21.9	1.1	41.1
125	9.9	0.0	21.1



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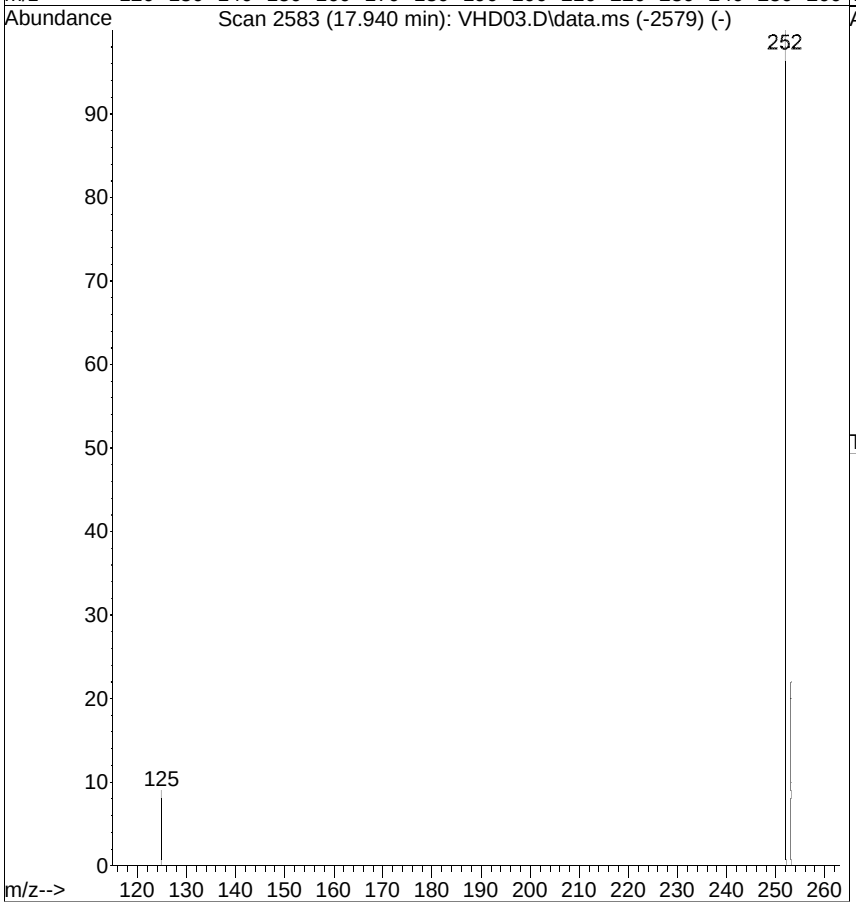
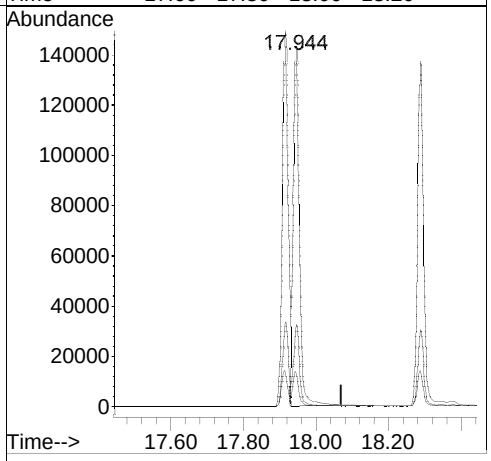




CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA04 Run Name : PAHDIOX IDF : 1.0
Seqnum : 534336091009.1 File : whl09 Time : 21-AUG-2014 12:14
Cal : 534275763001 Caldate : 10-JUL-2014
Standards: S25130

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	1.1183	1.0861	2.000	1.942	ug/mL	-3	20	0.7000	
2-Methylnaphthalene	0.6459	0.6642	2.000	2.057	ug/mL	3	20	0.4000	
Acenaphthylene	1.7091	1.6839	2.000	1.971	ug/mL	-1	20	0.9000	
Acenaphthene	1.0331	1.0498	2.000	2.032	ug/mL	2	20	0.9000	
Fluorene	1.1751	1.1919	2.000	2.029	ug/mL	1	20	0.9000	
Phenanthrene	1.0658	1.0954	2.000	2.056	ug/mL	3	20	0.7000	
Anthracene	1.0405	1.0680	2.000	2.053	ug/mL	3	20	0.7000	
Fluoranthene	1.0169	1.0637	2.000	2.092	ug/mL	5	20	0.6000	
Pyrene	1.3329	1.2978	2.000	1.947	ug/mL	-3	20	0.6000	
Benzo(a)anthracene	0.9406	0.9324	2.000	1.983	ug/mL	-1	20	0.8000	
Chrysene	0.9615	0.9884	2.000	2.056	ug/mL	3	20	0.7000	
Benzo(b)fluoranthene	1.1197	1.1395	2.000	2.035	ug/mL	2	20	0.7000	
Benzo(k)fluoranthene	1.1629	1.2810	2.000	2.203	ug/mL	10	20	0.7000	
Benzo(a)pyrene	0.9953	1.0342	2.000	2.078	ug/mL	4	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.1913	1.3256	2.000	2.225	ug/mL	11	20	0.5000	
Dibenz(a,h)anthracene	0.9180	1.0479	2.000	2.283	ug/mL	14	20	0.4000	
Benzo(g,h,i)perylene	1.0478	1.1724	2.000	2.238	ug/mL	12	20	0.5000	
Nitrobenzene-d5	0.4086	0.3603	2.000	1.764	ug/mL	-12	20	0.0500	
2-Fluorobiphenyl	1.3631	1.4462	2.000	2.122	ug/mL	6	20	0.0500	
Terphenyl-d14	1.0444	1.0094	2.000	1.933	ug/mL	-3	20	0.0500	

ISTD (ICAL wga09)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	61411	35015	-42.98
Naphthalene-d8	237683	130606	-45.05
Acenaphthene-d10	124978	72340	-42.12
Phenanthrene-d10	182537	110793	-39.30
Chrysene-d12	142444	98468	-30.87
Perylene-d12	111189	76969	-30.78

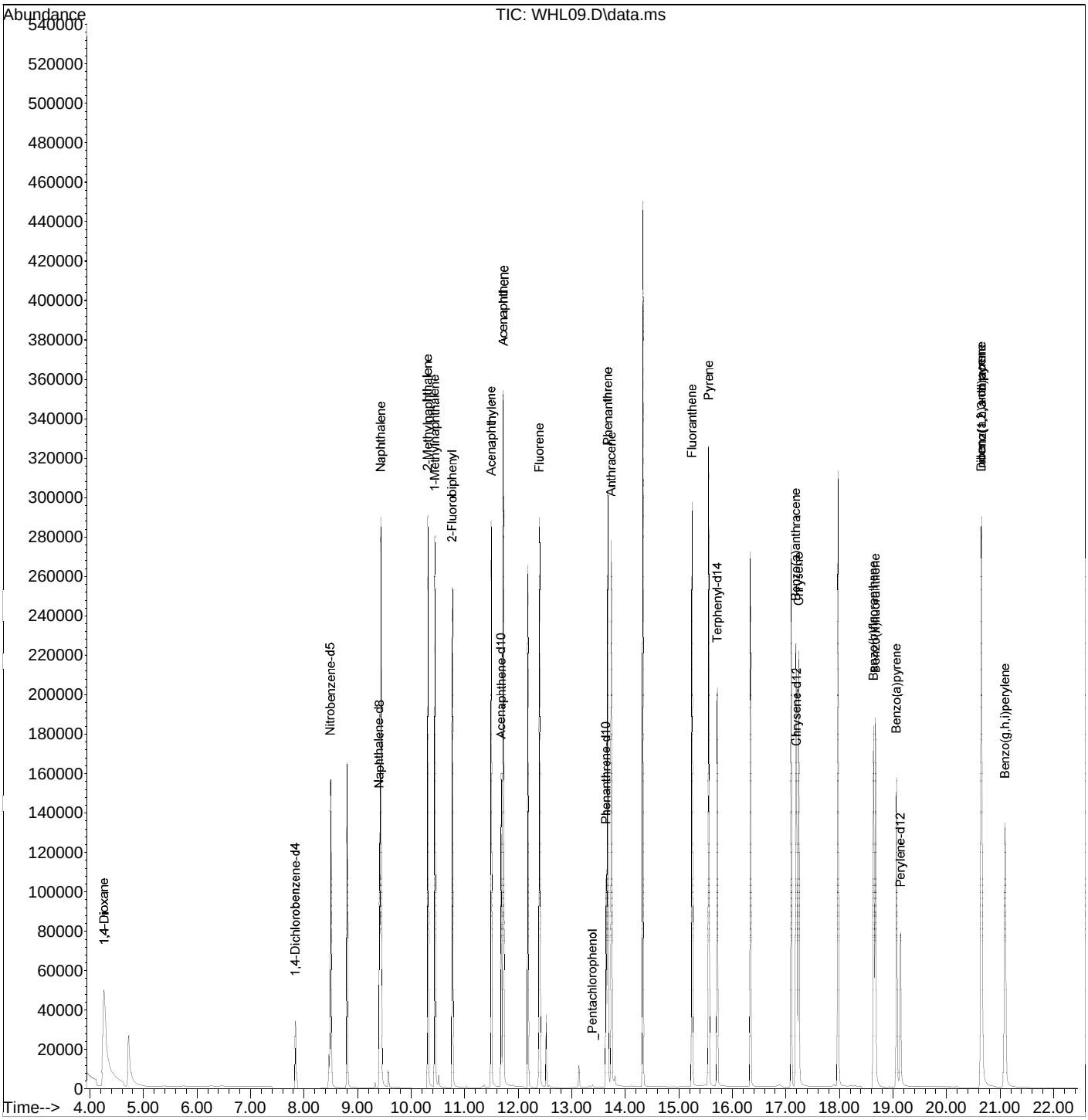
ISTD (ICAL wga09)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	7.86	7.84	-0.02
Naphthalene-d8	9.43	9.41	-0.02
Acenaphthene-d10	11.71	11.69	-0.02
Phenanthrene-d10	13.66	13.65	-0.01
Chrysene-d12	17.23	17.20	-0.03
Perylene-d12	19.16	19.14	-0.02

Analyst: KMH Date: 08/22/14 Reviewer: LW Date: 08/27/14

Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082114\
Data File : WHL09.D
Acq On : 21 Aug 2014 12:14 pm
Operator :
Sample : CCV,S25130
Misc : PAHDIOX
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 21 12:29:48 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Wed Aug 20 16:36:03 2014
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\082114\
Data File : WHL09.D
Acq On : 21 Aug 2014 12:14 pm
Operator :
Sample : CCV,S25130
Misc : PAHDIOX
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 21 12:29:48 2014
Quant Method : C:\msdchem\1\METHODS\4PAHSIM.M
Quant Title : MSBNA04 BNASIM
QLast Update : Wed Aug 20 16:36:03 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.844	152	35015	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.412	136	130606	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.687	164	72340	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.645	188	110793	1.0000	ug/mL	0.00
18) Chrysene-d12	17.200	240	98468	1.0000	ug/mL	-0.01
23) Perylene-d12	19.136	264	76969	1.0000	ug/mL	0.00

Target Compounds						Qvalue
2) 1,4-Dioxane	4.270	88	141598	7.6045	ug/mL	82
4) Nitrobenzene-d5	8.505	82	94126	1.7639	ug/mL	98
5) Naphthalene	9.441	128	283697	1.9424	ug/mL	94
6) 2-Methylnaphthalene	10.316	142	173509	2.0569	ug/mL	98
7) 1-Methylnaphthalene	10.448	142	165198	2.0411	ug/mL	97
9) 2-Fluorobiphenyl	10.775	172	209230	2.1218	ug/mL	94
10) Acenaphthylene	11.501	152	243624	1.9705	ug/mL	95
11) Acenaphthene	11.727	154	151885	2.0323	ug/mL	98
12) Fluorene	12.398	166	172441	2.0285	ug/mL	95
14) _Pentachlorophenol	13.386	266	627	3.6695	ug/mL	96
15) Phenanthrene	13.675	178	242726	2.0556	ug/mL	97
16) Anthracene	13.741	178	236662	2.0530	ug/mL	97
17) Fluoranthene	15.245	202	235703	2.0920	ug/mL	94
19) Pyrene	15.557	202	255587	1.9473	ug/mL	94
20) Terphenyl-d14	15.720	244	198794	1.9331	ug/mL	85
21) Benzo(a)anthracene	17.184	228	183630	1.9827	ug/mL	98
22) Chrysene	17.240	228	194656	2.0561	ug/mL	98
24) Benzo(b)fluoranthene	18.634	252	175417	2.0353	ug/mL	97
25) Benzo(k)fluoranthene	18.671	252	197192	2.2032	ug/mL	97
26) Benzo(a)pyrene	19.063	252	159196	2.0781	ug/mL	96
27) Indeno(1,2,3-cd)pyrene	20.646	276	204062	2.2254	ug/mL	96
28) Dibenz(a,h)anthracene	20.646	278	161318	2.2832	ug/mL	95
29) Benzo(g,h,i)perylene	21.086	276	180482	2.2379	ug/mL #	89

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

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 259835
ANALYTICAL REPORT
Metals

JM Waller Associates 11325 Random Hills Road Fairfax, VA 22030-6608	Project : N62473-11-D-2215 Location : BGMP-1R04 Level : IV Contract # : N62473-11-D-2215

Sample ID	Lab ID
04W07-081414	259835-001
04W06-081414	259835-002
04W15-081414	259835-003

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Tracy Babjar Date: 09/03/2014

Tracy Babjar
Project Manager
tracy.babjar@ctberk.com
(510) 204-2226

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
METALS (EPA 6010C AND EPA 7470A)

Laboratory number:	**259835**
Client:	**JM Waller Associates**
Project:	**N62473-11-D-2215**
Location:	**BGMP-1R04**
Request Date:	**08/14/14**
Samples Received:	**08/14/14**

This data package contains sample and QC results for three water samples, requested for the above referenced project on 08/14/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

All qualified data are compliant with appropriate corrective actions specified in Standard Operating Procedures. The Standard Operating Procedures are available upon request.

Manual integration documentation may be found in the "Case Narrative Addendum: Manual Integrations" sections.

Metals (EPA 6010C and EPA 7470A):
High recovery was observed for mercury in the BS for batch 214738; this analyte was not detected at or above the RL in the associated samples. High RPD was also observed for mercury in the BS/BSD for batch 214738; this analyte was not detected at or above the RL in the associated samples.

Copper was detected between the MDL and half the RL in the method blank for batch 214855; this analyte was not detected in samples at or above the LOD.

No other analytical problems were encountered.

Chain of Custody

CHAIN OF CUSTODY

Chain of Custody # _____

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

C&T LOGIN # 259835

Project No: N62473-11-D-2215
Project Name: BGMP-IRA
Project P. O. No: ATL14-001-01-004-CTL
EDD Format: Report Level ☐ II ☐ III ☑ IV
Turnaround Time: ☐ RUSH _____ ☑ Standard

Sampler: M. Wardell
Report To: Murray + H. Wolenberg
Company: M. Waller + ERRG
Telephone: 404-443-2733
Email:

Lab No.	Sample ID.	Sampling: Date Collected	Sampling: Time Collected	Matrix: Water	Matrix: Solid	# of Containers	Chemical Preservative: HCl	H2SO4	HNO3	NaOH	None	Metals - Field Filtered	Cr(VI)	SVOC	PAH
1	04W07-081414	8/14/14	0845	X		2			X			X	X		
2	04W06-081414	8/14/14	1040	X		4			X			X		X	X
3	04W15-081414	8/14/14	1345	X		1					X	X			

Notes:
04W15-081414 is Field Filtered in a 1L amber
FIX WITH NITRIC ACID UPON RECEIPT!

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:	DATE:	TIME:
M. Wardell	8/14/14	3:40p
[illegible]	8/14/14	2630

RECEIVED BY:	DATE:	TIME:
[illegible]	8/14/14	1540
FLOR [illegible]	8/14/14	1630

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 259835 [redacted] Date Received 8/14/14 Number of coolers 2
Client JM Waller + ERRG Project BGMP - IROH

Date Opened 8/14 By (print) GV (sign) [signature]
Date Logged in_____ By (print)_____ (sign)_____

1. Did cooler come with a shipping slip (airbill, etc)_____ YES ~~NO~~
   Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
   How many _____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO ~~N/A~~
3. Were custody papers dry and intact when received?_____ ~~YES~~ NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ ~~YES~~ NO
5. Is the project identifiable from custody papers? (If so fill out top of form)___ ~~YES~~ NO
6. Indicate the packing in cooler: (if other, describe)_____

☒ Bubble Wrap ☐ Foam blocks ☒ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C)_____

☐ Samples received on ice & cold without a temperature blank; temp taken with IR gun

☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present?_____ YES ~~NO~~
   If YES, what time were they transferred to freezer?_____
9. Did all bottles arrive unbroken/unopened?_____ ~~YES~~ NO
10. Are there any missing / extra samples? _____ YES ~~NO~~
11. Are samples in the appropriate containers for indicated tests? _____ ~~YES~~ NO
12. Are sample labels present, in good condition and complete? _____ ~~YES~~ NO
13. Do the sample labels agree with custody papers? _____ ~~YES~~ NO
14. Was sufficient amount of sample sent for tests requested? _____ ~~YES~~ NO
15. Are the samples appropriately preserved? _____ YES ~~NO~~ N/A
16. Did you check preservatives for all bottles for each sample? _____ ~~YES~~ NO N/A
17. Did you document your preservative check? _____ ~~YES~~ NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO ~~N/A~~
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO ~~N/A~~
20. Are bubbles > 6mm absent in VOA samples? _____ ~~YES~~ NO N/A
21. Was the client contacted concerning this sample delivery? _____ YES ~~NO~~
   If YES, Who was called?_____ By_____ Date:_____

COMMENTS
(15) Nitric Acid lot# 3390 added to -003 upon reciept; also added to -002 to pH<2

Rev 10, 10/11

Curtis & Tompkins Sample Preservation for 259835

Sample	pH: <2	>9	>12	Other
-001a	[ ]	[ ]	[ ]	_____
b	[X]	[ ]	[ ]	_____
-002a	[X]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
-003a	[X]	[ ]	[ ]	_____

Analyst: HV
Date: 8/14/14

Page 1 of 1

Results & QC Summary

Curtis & Tompkins, Ltd.

Dissolved Aluminum

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Aluminum	Sampled:	08/14/14
Matrix:	Filtrate	Received:	08/14/14
Units:	ug/L	Prepared:	08/27/14
Diln Fac:	1.000	Analyzed:	08/29/14
Batch#:	214855		

Field ID	Type	Lab ID	Result	LOQ	DL
04W07-081414	SAMPLE	259835-001	50 U	100	28
04W06-081414	SAMPLE	259835-002	50 U	100	28
04W15-081414	SAMPLE	259835-003	50 U	100	28
	BLANK	QC755360	50 U	100	28

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved Magnesium

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Magnesium	Sampled:	08/14/14
Matrix:	Filtrate	Received:	08/14/14
Units:	ug/L	Prepared:	08/27/14
Batch#:	214855	Analyzed:	08/29/14

Field ID	Type	Lab ID	Result	LOQ	DL	Diln Fac
04W07-081414	SAMPLE	259835-001	25,000	500	20	1.000
04W06-081414	SAMPLE	259835-002	620,000	20,000	2,000	100.0
04W15-081414	SAMPLE	259835-003	630,000	20,000	2,000	100.0
	BLANK	QC755360	160 U	500	20	1.000

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved Manganese

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Manganese	Sampled:	08/14/14
Matrix:	Filtrate	Received:	08/14/14
Units:	ug/L	Prepared:	08/27/14
Diln Fac:	1.000	Analyzed:	08/29/14
Batch#:	214855		

Field ID	Type	Lab ID	Result	LOQ	DL
04W07-081414	SAMPLE	259835-001	6.8	5.0	0.48
04W06-081414	SAMPLE	259835-002	3,700	5.0	0.48
04W15-081414	SAMPLE	259835-003	3,200	5.0	0.48
	BLANK	QC755360	1.3 U	5.0	0.48

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215		
Field ID:	04W07-081414	Diln Fac:	1.000
Lab ID:	259835-001	Sampled:	08/14/14
Matrix:	Filtrate	Received:	08/14/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Analysis
Antimony	2.5 U	10	0.65	214855	08/27/14	08/29/14	EPA 6010C
Arsenic	2.5 U	5.0	1.3	214855	08/27/14	08/29/14	EPA 6010C
Barium	39	5.0	1.0	214855	08/27/14	08/29/14	EPA 6010C
Beryllium	1.0 U	2.0	0.083	214855	08/27/14	08/29/14	EPA 6010C
Cadmium	1.3 U	5.0	0.58	214855	08/27/14	08/29/14	EPA 6010C
Chromium	1.3 U	5.0	0.57	214855	08/27/14	08/29/14	EPA 6010C
Cobalt	1.3 U	5.0	0.32	214855	08/27/14	08/29/14	EPA 6010C
Copper	2.5 U	5.0	0.99	214855	08/27/14	08/29/14	EPA 6010C
Lead	2.5 U	5.0	0.91	214855	08/27/14	08/29/14	EPA 6010C
Mercury	0.10 U	0.20	0.021	214738	08/25/14	08/25/14	EPA 7470A
Molybdenum	7.5	5.0	0.40	214855	08/27/14	08/29/14	EPA 6010C
Nickel	0.93 J	5.0	0.71	214855	08/27/14	08/29/14	EPA 6010C
Selenium	13	10	2.3	214855	08/27/14	08/29/14	EPA 6010C
Silver	2.5 U	5.0	0.66	214855	08/27/14	08/29/14	EPA 6010C
Thallium	5.0 U	10	2.0	214855	08/27/14	08/29/14	EPA 6010C
Vanadium	2.4 J	5.0	0.67	214855	08/27/14	08/29/14	EPA 6010C
Zinc	6.6 J	20	3.0	214855	08/27/14	08/29/14	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215		
Field ID:	04W06-081414	Diln Fac:	1.000
Lab ID:	259835-002	Sampled:	08/14/14
Matrix:	Filtrate	Received:	08/14/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Analysis
Antimony	2.5 U	10	0.65	214855	08/27/14	08/29/14	EPA 6010C
Arsenic	25	5.0	1.3	214855	08/27/14	08/29/14	EPA 6010C
Barium	400	5.0	1.0	214855	08/27/14	08/29/14	EPA 6010C
Beryllium	0.61 J	2.0	0.083	214855	08/27/14	08/29/14	EPA 6010C
Cadmium	1.3 U	5.0	0.58	214855	08/27/14	08/29/14	EPA 6010C
Chromium	7.3	5.0	0.57	214855	08/27/14	08/29/14	EPA 6010C
Cobalt	160	5.0	0.32	214855	08/27/14	08/29/14	EPA 6010C
Copper	2.5 U	5.0	0.99	214855	08/27/14	08/29/14	EPA 6010C
Lead	2.5 U	5.0	0.91	214855	08/27/14	08/29/14	EPA 6010C
Mercury	0.032 J	0.20	0.021	214738	08/25/14	08/25/14	EPA 7470A
Molybdenum	11	5.0	0.40	214855	08/27/14	08/29/14	EPA 6010C
Nickel	33	5.0	0.71	214855	08/27/14	08/29/14	EPA 6010C
Selenium	71	10	2.3	214855	08/27/14	08/29/14	EPA 6010C
Silver	2.3 J	5.0	0.66	214855	08/27/14	08/29/14	EPA 6010C
Thallium	5.0 U	10	2.0	214855	08/27/14	08/29/14	EPA 6010C
Vanadium	6.1	5.0	0.67	214855	08/27/14	08/29/14	EPA 6010C
Zinc	15 J	20	3.0	214855	08/27/14	08/29/14	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215		
Field ID:	04W15-081414	Diln Fac:	1.000
Lab ID:	259835-003	Sampled:	08/14/14
Matrix:	Filtrate	Received:	08/14/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Analysis
Antimony	2.5 U	10	0.65	214855	08/27/14	08/29/14	EPA 6010C
Arsenic	100	5.0	1.3	214855	08/27/14	08/29/14	EPA 6010C
Barium	230	5.0	1.0	214855	08/27/14	08/29/14	EPA 6010C
Beryllium	0.59 J	2.0	0.083	214855	08/27/14	08/29/14	EPA 6010C
Cadmium	1.3 U	5.0	0.58	214855	08/27/14	08/29/14	EPA 6010C
Chromium	8.9	5.0	0.57	214855	08/27/14	08/29/14	EPA 6010C
Cobalt	4.5 J	5.0	0.32	214855	08/27/14	08/29/14	EPA 6010C
Copper	2.5 U	5.0	0.99	214855	08/27/14	08/29/14	EPA 6010C
Lead	2.5 U	5.0	0.91	214855	08/27/14	08/29/14	EPA 6010C
Mercury	0.032 J	0.20	0.021	214738	08/25/14	08/25/14	EPA 7470A
Molybdenum	21	5.0	0.40	214855	08/27/14	08/29/14	EPA 6010C
Nickel	11	5.0	0.71	214855	08/27/14	08/29/14	EPA 6010C
Selenium	51	10	2.3	214855	08/27/14	08/29/14	EPA 6010C
Silver	2.5 U	5.0	0.66	214855	08/27/14	08/29/14	EPA 6010C
Thallium	5.0 U	10	2.0	214855	08/27/14	08/29/14	EPA 6010C
Vanadium	13	5.0	0.67	214855	08/27/14	08/29/14	EPA 6010C
Zinc	13 J	20	3.0	214855	08/27/14	08/29/14	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	214738
Lab ID:	QC754882	Prepared:	08/25/14
Matrix:	Water	Analyzed:	08/25/14
Units:	ug/L		

Result	LOQ	DL
0.10 U	0.20	0.021

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	214738
Matrix:	Water	Prepared:	08/25/14
Units:	ug/L	Analyzed:	08/25/14
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC754884	2.500	3.902	156 *	80-120		
BSD	QC754885	2.500	2.719	109	80-120	36 *	20

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	214738
Field ID:	ZZZZZZZZZZ	Sampled:	08/21/14
MSS Lab ID:	260118-001	Received:	08/22/14
Matrix:	Water	Prepared:	08/25/14
Units:	ug/L	Analyzed:	08/25/14
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC754886	0.07133	2.500	2.699	105	80-120		
MSD	QC754887		2.500	2.765	108	80-120	2	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Units:	ug/L
Field ID:	ZZZZZZZZZZ	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214738
MSS Lab ID:	260118-001	Sampled:	08/21/14
Lab ID:	QC754888	Received:	08/22/14
Matrix:	Water	Analyzed:	08/25/14

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
0.07133	0.2000	0.5000 U	1.000	NC	10

U= Not Detected at or above DL
NC= Not Calculated
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC755360	Batch#:	214855
Matrix:	Filtrate	Prepared:	08/27/14
Units:	ug/L	Analyzed:	08/29/14

Analyte	Result	LOQ	DL
Antimony	2.5 U	10	0.65
Arsenic	2.5 U	5.0	1.3
Barium	2.5 U	5.0	1.0
Beryllium	1.0 U	2.0	0.083
Cadmium	1.3 U	5.0	0.58
Chromium	1.3 U	5.0	0.57
Cobalt	1.3 U	5.0	0.32
Copper	1.1 J	5.0	0.99
Lead	2.5 U	5.0	0.91
Molybdenum	1.3 U	5.0	0.40
Nickel	2.5 U	5.0	0.71
Selenium	5.0 U	10	2.3
Silver	2.5 U	5.0	0.66
Thallium	5.0 U	10	2.0
Vanadium	2.5 U	5.0	0.67
Zinc	10 U	20	3.0

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Aluminum

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Aluminum	Batch#:	214855
Field ID:	04W08-081414	Sampled:	08/14/14
MSS Lab ID:	259841-001	Received:	08/14/14
Matrix:	Filtrate	Prepared:	08/27/14
Units:	ug/L	Analyzed:	08/29/14
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC755361		10,000	9,506	95	80-120		
BSD	QC755362		10,000	9,823	98	80-120	3	20
MS	QC755363	<27.57	10,000	9,585	96	80-120		
MSD	QC755364		10,000	10,290	103	80-120	7	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Magnesium

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Magnesium	Batch#:	214855
Field ID:	04W08-081414	Sampled:	08/14/14
MSS Lab ID:	259841-001	Received:	08/14/14
Matrix:	Filtrate	Prepared:	08/27/14
Units:	ug/L	Analyzed:	08/29/14
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC755361		10,000	9,409	94	80-120		
BSD	QC755362		10,000	9,642	96	80-120	2	20
MS	QC755363	61,650	10,000	68,250	66 NM	80-120		
MSD	QC755364		10,000	73,880	122 NM	80-120	8	20

NM= Not Meaningful: Sample concentration > 4X spike concentration
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Manganese

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Manganese	Batch#:	214855
Field ID:	04W08-081414	Sampled:	08/14/14
MSS Lab ID:	259841-001	Received:	08/14/14
Matrix:	Filtrate	Prepared:	08/27/14
Units:	ug/L	Analyzed:	08/29/14
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC755361		100.0	88.81	89	80-120		
BSD	QC755362		100.0	91.78	92	80-120	3	20
MS	QC755363	3.098	100.0	97.62	95	80-120		
MSD	QC755364		100.0	95.07	92	80-120	3	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Matrix:	Filtrate	Batch#:	214855
Units:	ug/L	Prepared:	08/27/14
Diln Fac:	1.000	Analyzed:	08/29/14

Type: BS Lab ID: QC755361

Analyte	Spiked	Result	%REC	Limits
Antimony	100.0	89.56	90	80-120
Arsenic	100.0	95.01	95	80-120
Barium	100.0	92.47	92	80-120
Beryllium	100.0	94.20	94	80-120
Cadmium	100.0	98.21	98	80-120
Chromium	100.0	92.26	92	80-120
Cobalt	100.0	91.77	92	80-120
Copper	100.0	91.42	91	80-120
Lead	100.0	90.41	90	80-120
Molybdenum	100.0	90.08	90	80-120
Nickel	100.0	92.40	92	80-120
Selenium	100.0	100.9	101	80-120
Silver	100.0	97.90	98	80-120
Thallium	50.00	47.10	94	80-120
Vanadium	100.0	98.69	99	80-120
Zinc	100.0	97.13	97	80-120

Type: BSD Lab ID: QC755362

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	93.23	93	80-120	4	20
Arsenic	100.0	99.61	100	80-120	5	20
Barium	100.0	95.03	95	80-120	3	20
Beryllium	100.0	98.17	98	80-120	4	20
Cadmium	100.0	103.7	104	80-120	5	20
Chromium	100.0	96.01	96	80-120	4	20
Cobalt	100.0	96.99	97	80-120	6	20
Copper	100.0	95.15	95	80-120	4	20
Lead	100.0	94.83	95	80-120	5	20
Molybdenum	100.0	94.94	95	80-120	5	20
Nickel	100.0	97.14	97	80-120	5	20
Selenium	100.0	105.8	106	80-120	5	20
Silver	100.0	101.0	101	80-120	3	20
Thallium	50.00	49.30	99	80-120	5	20
Vanadium	100.0	100.6	101	80-120	2	20
Zinc	100.0	103.6	104	80-120	6	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	04W08-081414	Batch#:	214855
MSS Lab ID:	259841-001	Sampled:	08/14/14
Matrix:	Filtrate	Received:	08/14/14
Units:	ug/L	Prepared:	08/27/14
Diln Fac:	1.000	Analyzed:	08/29/14

Type: MS Lab ID: QC755363

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<0.6500	100.0	88.79	89	80-120
Arsenic	1.619	100.0	109.0	107	80-120
Barium	17.33	100.0	112.8	95	80-120
Beryllium	0.1543	100.0	99.18	99	80-120
Cadmium	<0.5791	100.0	96.97	97	80-120
Chromium	13.51	100.0	109.7	96	80-120
Cobalt	<0.3220	100.0	95.95	96	80-120
Copper	<0.9890	100.0	93.18	93	80-120
Lead	<0.9081	100.0	89.90	90	80-120
Molybdenum	5.566	100.0	102.9	97	80-120
Nickel	1.626	100.0	95.70	94	80-120
Selenium	24.19	100.0	132.8	109	80-120
Silver	<0.6601	100.0	93.94	94	80-120
Thallium	<2.020	50.00	46.71	93	80-120
Vanadium	2.522	100.0	106.8	104	80-120
Zinc	6.875	100.0	109.8	103	80-120

Type: MSD Lab ID: QC755364

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	86.31	86	80-120	3	20
Arsenic	100.0	103.3	102	80-120	5	20
Barium	100.0	110.4	93	80-120	2	20
Beryllium	100.0	97.89	98	80-120	1	20
Cadmium	100.0	93.12	93	80-120	4	20
Chromium	100.0	106.7	93	80-120	3	20
Cobalt	100.0	92.45	92	80-120	4	20
Copper	100.0	90.46	90	80-120	3	20
Lead	100.0	87.20	87	80-120	3	20
Molybdenum	100.0	100.2	95	80-120	3	20
Nickel	100.0	92.84	91	80-120	3	20
Selenium	100.0	127.4	103	80-120	4	20
Silver	100.0	91.42	91	80-120	3	20
Thallium	50.00	44.49	89	80-120	5	20
Vanadium	100.0	103.6	101	80-120	3	20
Zinc	100.0	105.9	99	80-120	4	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Aluminum

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Aluminum	Units:	ug/L
Field ID:	04W08-081414	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214855
MSS Lab ID:	259841-001	Sampled:	08/14/14
Lab ID:	QC755365	Received:	08/14/14
Matrix:	Filtrate	Analyzed:	08/29/14

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
250.0 ND	100.0	250.0 U	500.0	NC	10

U= Not Detected at or above DL
NC= Not Calculated
ND= Not Detected at or above DL
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Magnesium

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Magnesium	Units:	ug/L
Field ID:	04W08-081414	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214855
MSS Lab ID:	259841-001	Sampled:	08/14/14
Lab ID:	QC755365	Received:	08/14/14
Matrix:	Filtrate	Analyzed:	08/29/14

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
61,650	500.0	62,770	1,000	2	10

LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Manganese

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Manganese	Units:	ug/L
Field ID:	04W08-081414	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214855
MSS Lab ID:	259841-001	Sampled:	08/14/14
Lab ID:	QC755365	Received:	08/14/14
Matrix:	Filtrate	Analyzed:	08/29/14

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
3.098	5.000	4.869 J	25.00	NC	10

J= Estimated value
NC= Not Calculated
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	04W08-081414	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214855
MSS Lab ID:	259841-001	Sampled:	08/14/14
Lab ID:	QC755365	Received:	08/14/14
Matrix:	Filtrate	Analyzed:	08/29/14
Units:	ug/L		

Analyte	MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
Antimony	12.50 ND	10.00	12.50 U	50.00	NC	10
Arsenic	1.619	5.000	12.50 U	25.00	NC	10
Barium	17.33	5.000	18.71 J	25.00	NC	10
Beryllium	0.1543	2.000	5.000 U	10.00	NC	10
Cadmium	6.250 ND	5.000	6.250 U	25.00	NC	10
Chromium	13.51	5.000	12.71 J	25.00	NC	10
Cobalt	6.250 ND	5.000	6.250 U	25.00	NC	10
Copper	12.50 ND	5.000	12.50 U	25.00	NC	10
Lead	12.50 ND	5.000	12.50 U	25.00	NC	10
Molybdenum	5.566	5.000	9.094 J	25.00	NC	10
Nickel	1.626	5.000	12.50 U	25.00	NC	10
Selenium	24.19	10.00	35.75 J	50.00	NC	10
Silver	12.50 ND	5.000	12.50 U	25.00	NC	10
Thallium	25.00 ND	10.00	25.00 U	50.00	NC	10
Vanadium	2.522	5.000	12.50 U	25.00	NC	10
Zinc	6.875	20.00	29.82 J	100.0	NC	10

J= Estimated value
U= Not Detected at or above DL
NC= Not Calculated
ND= Not Detected at or above DL
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Aluminum

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Aluminum	Units:	ug/L
Field ID:	04W08-081414	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	214855
MSS Lab ID:	259841-001	Sampled:	08/14/14
Lab ID:	QC755366	Received:	08/14/14
Matrix:	Filtrate	Analyzed:	08/29/14

MSS Result	Spiked	Result	%REC	Limits
<27.57	2,000	1,971	99	75-125

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Magnesium

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Magnesium	Units:	ug/L
Field ID:	04W08-081414	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	214855
MSS Lab ID:	259841-001	Sampled:	08/14/14
Lab ID:	QC755366	Received:	08/14/14
Matrix:	Filtrate	Analyzed:	08/29/14

MSS Result	Spiked	Result	%REC	Limits
61,650	20,000	78,160	83	75-125

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Manganese

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Manganese	Units:	ug/L
Field ID:	04W08-081414	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	214855
MSS Lab ID:	259841-001	Sampled:	08/14/14
Lab ID:	QC755366	Received:	08/14/14
Matrix:	Filtrate	Analyzed:	08/29/14

MSS Result	Spiked	Result	%REC	Limits
3.098	50.00	50.55	95	75-125

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	04W08-081414	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	214855
MSS Lab ID:	259841-001	Sampled:	08/14/14
Lab ID:	QC755366	Received:	08/14/14
Matrix:	Filtrate	Analyzed:	08/29/14
Units:	ug/L		

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<0.6500	500.0	444.4	89	75-125
Arsenic	1.619	100.0	101.8	100	75-125
Barium	17.33	2,000	1,939	96	75-125
Beryllium	0.1543	50.00	48.61	97	75-125
Cadmium	<0.5791	50.00	42.58	85	75-125
Chromium	13.51	200.0	203.1	95	75-125
Cobalt	<0.3220	500.0	453.7	91	75-125
Copper	<0.9890	250.0	230.6	92	75-125
Lead	<0.9081	100.0	88.24	88	75-125
Molybdenum	5.566	400.0	398.5	98	75-125
Nickel	1.626	500.0	454.1	90	75-125
Selenium	24.19	100.0	128.3	104	75-125
Silver	<0.6601	50.00	48.97	98	75-125
Thallium	<2.020	100.0	91.63	92	75-125
Vanadium	2.522	500.0	488.4	97	75-125
Zinc	6.875	500.0	488.8	96	75-125

REPORTING SUMMARY FOR 259835 METALS Filtrate
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	ALK	SBS	ASA	BAE	BED	CDR	CRO	COU	PBG	MGN	MNG	HOI	MOE	NIG	SEL	AGL	TL	VN	ZN
259835-001	MET54	08/25/14 13:09	1.0											+								
259835-001	MET08	08/29/14 13:57	100.0																			
259835-001	MET08	08/29/14 15:12	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
259835-002	MET54	08/25/14 13:10	1.0											+								
259835-002	MET08	08/29/14 14:02	100.0										+									
259835-002	MET08	08/29/14 15:17	1.0	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+
259835-003	MET54	08/25/14 13:11	1.0											+								
259835-003	MET08	08/29/14 14:07	100.0										+									
259835-003	MET08	08/29/14 15:26	1.0	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+
QC754882	MET54	08/25/14 12:49	1.0											+								
QC754883	MET54	08/25/14 12:50	1.0											+								
QC754884	MET54	08/25/14 12:51	1.0											+								
QC754884	MET54	08/25/14 12:57	1.0																			
QC754885	MET54	08/25/14 12:52	1.0											+								
QC754885	MET54	08/25/14 12:59	1.0																			
QC754886	MET54	08/25/14 13:00	1.0											+								
QC754887	MET54	08/25/14 13:01	1.0											+								
QC754888	MET54	08/25/14 13:04	5.0											+								
QC755360	MET08	08/29/14 13:08	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC755361	MET08	08/29/14 13:13	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC755362	MET08	08/29/14 13:17	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC755363	MET08	08/29/14 13:26	100.0																			
QC755363	MET08	08/29/14 14:55	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC755364	MET08	08/29/14 13:31	100.0																			
QC755364	MET08	08/29/14 14:59	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC755365	MET08	08/29/14 13:48	500.0																			
QC755365	MET08	08/29/14 15:03	5.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC755366	MET08	08/29/14 13:53	100.0																			
QC755366	MET08	08/29/14 15:08	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84347520

Instrument : MET08 Begun : 08/29/14 08:00
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				08/29/14 08:00	1.0		
002	met08_sn_6010	ICAL	L1			08/29/14 08:05	1.0	1	
003	met08_sn_6010	ICAL	L2			08/29/14 08:10	1.0	2	
004	met08_sn_6010	ICAL	L3			08/29/14 08:14	1.0	3	
005	met08_sn_6010	ICAL	L4			08/29/14 08:19	1.0	4	
006	met08_sn_6010	ICAL	L5			08/29/14 08:26	1.0	5	
007	met08_sn_6010	ICV				08/29/14 08:32	1.0	6	
008	met08_sn_6010	XCRI				08/29/14 08:40	1.0	7	
009	met08_sn_6010	CRI				08/29/14 08:56	1.0	7	
010	met08_sn_6010	ICB				08/29/14 09:00	1.0		
011	met08_sn_6010	ICSA				08/29/14 09:06	1.0	8	10:AL=510000
012	met08_sn_6010	ICSAB				08/29/14 09:21	1.0	9	5:AL=510000
013	met08_sn_6010	BLANK	QC755394	Soil	214862	08/29/14 09:28	1.0		
014	met08_sn_6010	BS	QC755395	Soil	214862	08/29/14 09:33	1.0		2:K=100000
015	met08_sn_6010	CCV				08/29/14 10:46	1.0	10	
016	met08_sn_6010	CCB				08/29/14 10:52	1.0		
017	met08_sn_6010	SER	QC755228	Water	214820	08/29/14 11:22	5.0		
018	met08_sn_6010	PDS	QC755229	Water	214820	08/29/14 11:27	1.0	11 12	
019	met08_sn_6010	X	RINSE			08/29/14 11:31	1.0		
020	met08_sn_6010	CCV				08/29/14 11:36	1.0	10	
021	met08_sn_6010	CCB				08/29/14 11:42	1.0		
022	met08_sn_6010	BLANK	QC755391	Water	214864	08/29/14 11:54	1.0		
023	met08_sn_6010	BS	QC755392	Water	214864	08/29/14 11:59	1.0		
024	met08_sn_6010	BSD	QC755393	Water	214864	08/29/14 12:03	1.0		
025	met08_sn_6010	SAMPLE	259836-001	Water	214864	08/29/14 12:07	1.0		
026	met08_sn_6010	SAMPLE	259836-002	Water	214864	08/29/14 12:12	1.0		
027	met08_sn_6010	CCV				08/29/14 12:17	1.0	10	
028	met08_sn_6010	CCB				08/29/14 12:24	1.0		
029	met08_sn_6010	BS	QC755178	Filtrate	214807	08/29/14 12:51	1.0		
030	met08_sn_6010	BSD	QC755179	Filtrate	214807	08/29/14 12:55	1.0		
031	met08_sn_6010	PDS	QC755183	Filtrate	214807	08/29/14 12:59	1.0	11 12 13	
032	met08_sn_6010	X	RINSE			08/29/14 13:03	1.0		
033	met08_sn_6010	BLANK	QC755360	Filtrate	214855	08/29/14 13:08	1.0		
034	met08_sn_6010	BS	QC755361	Filtrate	214855	08/29/14 13:13	1.0		
035	met08_sn_6010	BSD	QC755362	Filtrate	214855	08/29/14 13:17	1.0		
036	met08_sn_6010	MSS	259841-001	Filtrate	214855	08/29/14 13:21	100.0		
037	met08_sn_6010	MS	QC755363	Filtrate	214855	08/29/14 13:26	100.0		
038	met08_sn_6010	MSD	QC755364	Filtrate	214855	08/29/14 13:31	100.0		
039	met08_sn_6010	CCV				08/29/14 13:36	1.0	10	
040	met08_sn_6010	CCB				08/29/14 13:43	1.0		
041	met08_sn_6010	SER	QC755365	Filtrate	214855	08/29/14 13:48	500.0		
042	met08_sn_6010	PDS	QC755366	Filtrate	214855	08/29/14 13:53	100.0	11 12	
043	met08_sn_6010	SAMPLE	259835-001	Filtrate	214855	08/29/14 13:57	100.0		
044	met08_sn_6010	SAMPLE	259835-002	Filtrate	214855	08/29/14 14:02	100.0		
045	met08_sn_6010	SAMPLE	259835-003	Filtrate	214855	08/29/14 14:07	100.0		
046	met08_sn_6010	SAMPLE	259841-002	Filtrate	214855	08/29/14 14:13	100.0		
047	met08_sn_6010	SAMPLE	259841-003	Filtrate	214855	08/29/14 14:18	100.0		
048	met08_sn_6010	SAMPLE	259841-005	Filtrate	214855	08/29/14 14:23	100.0		
049	met08_sn_6010	SAMPLE	259841-007	Filtrate	214855	08/29/14 14:28	100.0		
050	met08_sn_6010	X	RINSE			08/29/14 14:33	1.0		
051	met08_sn_6010	CCV				08/29/14 14:38	1.0	10	
052	met08_sn_6010	CCB				08/29/14 14:44	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84347520

Instrument : MET08 Begun : 08/29/14 08:00
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	MSS	259841-001	Filtrate	214855	08/29/14 14:50	1.0		1:NA=240000
054	met08_sn_6010	MS	QC755363	Filtrate	214855	08/29/14 14:55	1.0		1:NA=240000
055	met08_sn_6010	MSD	QC755364	Filtrate	214855	08/29/14 14:59	1.0		1:NA=260000
056	met08_sn_6010	SER	QC755365	Filtrate	214855	08/29/14 15:03	5.0		
057	met08_sn_6010	PDS	QC755366	Filtrate	214855	08/29/14 15:08	1.0	11 12	1:NA=250000
058	met08_sn_6010	SAMPLE	259835-001	Filtrate	214855	08/29/14 15:12	1.0		
059	met08_sn_6010	SAMPLE	259835-002	Filtrate	214855	08/29/14 15:17	1.0		3:MG=610000
060	met08_sn_6010	SAMPLE	259835-003	Filtrate	214855	08/29/14 15:26	1.0		3:MG=640000
061	met08_sn_6010	SAMPLE	259841-002	Filtrate	214855	08/29/14 15:34	1.0		
062	met08_sn_6010	SAMPLE	259841-003	Filtrate	214855	08/29/14 15:39	1.0		
063	met08_sn_6010	CCV				08/29/14 15:45	1.0	10	
064	met08_sn_6010	CCB				08/29/14 15:51	1.0		
065	met08_sn_6010	SAMPLE	259841-005	Filtrate	214855	08/29/14 15:56	1.0		3:MG=560000
066	met08_sn_6010	SAMPLE	259841-005	Filtrate	214855	08/29/14 16:04	1.0		4:MG=610000
067	met08_sn_6010	SAMPLE	259841-007	Filtrate	214855	08/29/14 16:13	1.0		
068	met08_sn_6010	PDS	QC755183	Filtrate	214807	08/29/14 16:18	1.0	11 12 13	
069	met08_sn_6010	X	RINSE			08/29/14 16:22	1.0		
070	met08_sn_6010	BLANK	QC755278	Water	214834	08/29/14 16:27	1.0		
071	met08_sn_6010	BS	QC755279	Water	214834	08/29/14 16:32	1.0		
072	met08_sn_6010	BSD	QC755280	Water	214834	08/29/14 16:36	1.0		
073	met08_sn_6010	MSS	260128-003	Water	214834	08/29/14 16:40	1.0		
074	met08_sn_6010	MS	QC755281	Water	214834	08/29/14 16:45	1.0		
075	met08_sn_6010	CCV				08/29/14 16:49	1.0	10	
076	met08_sn_6010	CCB				08/29/14 16:56	1.0		
077	met08_sn_6010	MSD	QC755282	Water	214834	08/29/14 17:01	1.0		
078	met08_sn_6010	SER	QC755687	Water	214834	08/29/14 17:05	5.0		
079	met08_sn_6010	PDS	QC755688	Water	214834	08/29/14 17:10	1.0	11 12 13	
080	met08_sn_6010	MSS	260128-003	Water	214834	08/29/14 17:14	100.0		
081	met08_sn_6010	MS	QC755281	Water	214834	08/29/14 17:19	100.0		
082	met08_sn_6010	MSD	QC755282	Water	214834	08/29/14 17:24	100.0		
083	met08_sn_6010	SER	QC755687	Water	214834	08/29/14 17:29	500.0		
084	met08_sn_6010	PDS	QC755688	Water	214834	08/29/14 17:35	100.0	11 12 13	
085	met08_sn_6010	SAMPLE	259823-001	Water	214834	08/29/14 17:39	100.0		
086	met08_sn_6010	SAMPLE	259823-003	Water	214834	08/29/14 17:44	100.0		
087	met08_sn_6010	CCV				08/29/14 17:49	1.0	10	
088	met08_sn_6010	CCB				08/29/14 17:56	1.0		
089	met08_sn_6010	SAMPLE	259823-001	Water	214834	08/29/14 18:01	1.0		2:NA=170000
090	met08_sn_6010	SAMPLE	259823-003	Water	214834	08/29/14 18:06	1.0		1:NA=210000
091	met08_sn_6010	X	RINSE			08/29/14 18:11	1.0		
092	met08_sn_6010	SAMPLE	260128-001	Water	214834	08/29/14 18:16	1.0		
093	met08_sn_6010	SAMPLE	260128-002	Water	214834	08/29/14 18:21	1.0		
094	met08_sn_6010	SAMPLE	260156-001	Water	214834	08/29/14 18:26	100.0		
095	met08_sn_6010	SAMPLE	260156-002	Water	214834	08/29/14 18:31	100.0		
096	met08_sn_6010	SAMPLE	260156-003	Water	214834	08/29/14 18:36	100.0		
097	met08_sn_6010	SAMPLE	260156-004	Water	214834	08/29/14 18:41	100.0		
098	met08_sn_6010	SAMPLE	260156-005	Water	214834	08/29/14 18:46	100.0		
099	met08_sn_6010	CCV				08/29/14 18:51	1.0	10	
100	met08_sn_6010	CCB				08/29/14 18:58	1.0		
101	met08_sn_6010	SAMPLE	260156-006	Water	214834	08/29/14 19:03	100.0		
102	met08_sn_6010	SAMPLE	260156-009	Water	214834	08/29/14 19:08	100.0		
103	met08_sn_6010	X	RINSE			08/29/14 19:13	1.0		
104	met08_sn_6010	SAMPLE	259823-001	Filtrate	214807	08/29/14 19:18	1.0		2:NA=170000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84347520

Instrument : MET08 Begun : 08/29/14 08:00
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met08_sn_6010	SAMPLE	259823-003	Filtrate	214807	08/29/14 19:23	1.0		1:NA=200000
106	met08_sn_6010	SAMPLE	259865-003	Filtrate	214807	08/29/14 19:28	1.0		1:CA=270000
107	met08_sn_6010	SAMPLE	259918-001	Filtrate	214807	08/29/14 19:37	1.0		1:NA=230000
108	met08_sn_6010	SAMPLE	259918-003	Filtrate	214807	08/29/14 19:42	1.0		1:NA=200000
109	met08_sn_6010	SAMPLE	259968-001	Filtrate	214807	08/29/14 19:47	1.0		1:NA=190000
110	met08_sn_6010	SAMPLE	259968-003	Filtrate	214807	08/29/14 19:52	1.0		1:CA=130000
111	met08_sn_6010	CCV				08/29/14 19:58	1.0	10	
112	met08_sn_6010	CCB				08/29/14 20:04	1.0		
113	met08_sn_6010	SAMPLE	260003-001	Filtrate	214807	08/29/14 20:09	1.0		2:CA=410000
114	met08_sn_6010	SAMPLE	260003-003	Filtrate	214807	08/29/14 20:18	1.0		2:CA=400000
115	met08_sn_6010	SAMPLE	260053-001	Filtrate	214807	08/29/14 20:27	1.0		1:CA=290000
116	met08_sn_6010	SAMPLE	260131-001	Filtrate	214807	08/29/14 20:35	1.0		1:NA=570000
117	met08_sn_6010	X	RINSE			08/29/14 20:44	1.0		
118	met08_sn_6010	X	RINSE			08/29/14 20:49	1.0		
119	met08_sn_6010	BLANK	QC755529	Water	214896	08/29/14 20:54	1.0		
120	met08_sn_6010	BS	QC755530	Water	214896	08/29/14 20:59	1.0		
121	met08_sn_6010	BSD	QC755531	Water	214896	08/29/14 21:03	1.0		
122	met08_sn_6010	MSS	259865-001	Water	214896	08/29/14 21:07	1.0		1:CA=180000
123	met08_sn_6010	CCV				08/29/14 21:16	1.0	10	
124	met08_sn_6010	CCB				08/29/14 21:23	1.0		
125	met08_sn_6010	MS	QC755532	Water	214896	08/29/14 21:28	1.0		
126	met08_sn_6010	MSD	QC755533	Water	214896	08/29/14 21:35	1.0		
127	met08_sn_6010	SER	QC755534	Water	214896	08/29/14 21:43	5.0		
128	met08_sn_6010	PDS	QC755535	Water	214896	08/29/14 21:48	1.0	11 12 13	
129	met08_sn_6010	SAMPLE	259865-003	Water	214896	08/29/14 21:56	1.0		1:CA=290000
130	met08_sn_6010	SAMPLE	259918-001	Water	214896	08/29/14 22:04	1.0		1:NA=220000
131	met08_sn_6010	SAMPLE	259918-003	Water	214896	08/29/14 22:09	1.0		1:NA=220000
132	met08_sn_6010	SAMPLE	259968-001	Water	214896	08/29/14 22:15	1.0		1:NA=200000
133	met08_sn_6010	SAMPLE	259968-003	Water	214896	08/29/14 22:20	1.0		1:CA=130000
134	met08_sn_6010	SAMPLE	260003-001	Water	214896	08/29/14 22:25	1.0		2:CA=420000
135	met08_sn_6010	CCV				08/29/14 22:34	1.0	10	
136	met08_sn_6010	CCB				08/29/14 22:40	1.0		
137	met08_sn_6010	SAMPLE	260003-003	Water	214896	08/29/14 22:45	1.0		2:CA=480000
138	met08_sn_6010	SAMPLE	260009-004	Water	214896	08/29/14 22:54	1.0		3:CA=210000
139	met08_sn_6010	SAMPLE	260009-005	Water	214896	08/29/14 22:59	1.0		1:CA=120000
140	met08_sn_6010	SAMPLE	260009-006	Water	214896	08/29/14 23:04	1.0		1:CA=120000
141	met08_sn_6010	SAMPLE	260053-003	Water	214896	08/29/14 23:10	1.0		1:CA=590000
142	met08_sn_6010	SAMPLE	260131-001	Water	214896	08/29/14 23:18	1.0		1:NA=580000
143	met08_sn_6010	SAMPLE	260131-002	Water	214896	08/29/14 23:27	1.0		2:NA=650000
144	met08_sn_6010	SAMPLE	260295-001	Water	214896	08/29/14 23:35	10.0		
145	met08_sn_6010	X	RINSE			08/29/14 23:44	1.0		
146	met08_sn_6010	BLANK	QC755536	Filtrate	214897	08/29/14 23:49	1.0		
147	met08_sn_6010	CCV				08/29/14 23:54	1.0	10	
148	met08_sn_6010	CCB				08/30/14 00:01	1.0		
149	met08_sn_6010	BS	QC755537	Filtrate	214897	08/30/14 00:06	1.0		
150	met08_sn_6010	BSD	QC755538	Filtrate	214897	08/30/14 00:10	1.0		
151	met08_sn_6010	MSS	260009-002	Filtrate	214897	08/30/14 00:14	1.0		1:CA=140000
152	met08_sn_6010	MS	QC755539	Filtrate	214897	08/30/14 00:19	1.0		
153	met08_sn_6010	MSD	QC755540	Filtrate	214897	08/30/14 00:24	1.0		
154	met08_sn_6010	SER	QC755541	Filtrate	214897	08/30/14 00:28	5.0		
155	met08_sn_6010	PDS	QC755542	Filtrate	214897	08/30/14 00:33	1.0	11 12 13	1:CA=150000
156	met08_sn_6010	SAMPLE	259823-001	Filtrate	214897	08/30/14 00:37	1.0		2:NA=180000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84347520

Instrument : MET08 Begun : 08/29/14 08:00
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
157	met08_sn_6010	SAMPLE	259823-003	Filtrate	214897	08/30/14 00:42	1.0		1:NA=190000
158	met08_sn_6010	SAMPLE	260011-002	Filtrate	214897	08/30/14 00:48	1.0		2:CA=330000
159	met08_sn_6010	CCV				08/30/14 00:53	1.0	10	
160	met08_sn_6010	CCB				08/30/14 00:59	1.0		
161	met08_sn_6010	SAMPLE	260011-003	Filtrate	214897	08/30/14 01:05	1.0		2:CA=340000
162	met08_sn_6010	SAMPLE	260011-004	Filtrate	214897	08/30/14 01:10	1.0		3:CA=150000
163	met08_sn_6010	SAMPLE	260011-006	Filtrate	214897	08/30/14 01:15	1.0		3:MG=140000
164	met08_sn_6010	SAMPLE	260011-007	Filtrate	214897	08/30/14 01:20	1.0		
165	met08_sn_6010	X	RINSE			08/30/14 01:25	1.0		
166	met08_sn_6010	CCV				08/30/14 01:30	1.0	10	
167	met08_sn_6010	CCB				08/30/14 01:37	1.0		

VQ 09/02/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 167.

Standards used: 1=S25067 2=S25224 3=S25223 4=S25225 5=S25226 6=S25072 7=S25074 8=S25075 9=S25227 10=S25073 11=S24151 12=S24152 13=S25208

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 84347520

Date : 08/29/14 Reference : met08_sn_6010
Sequence : MET08 08/29/14 Analyzed : 08/29/14 08:05

#	Type	Sample ID	Y A
		ICAL STD	2681337
		LOWER LIMIT	804401
		UPPER LIMIT	3217604
010	ICB		2658064
011	ICSA		2197536
012	ICSAB		2237717
027	CCV		2606211
028	CCB		2506414
033	BLANK	QC755360	2671562
034	BS	QC755361	2791209
035	BSD	QC755362	2661726
036	MSS	259841-001	2702842
037	MS	QC755363	2674875
038	MSD	QC755364	2610839
039	CCV		2733599
040	CCB		2750982
041	SER	QC755365	2625412
042	PDS	QC755366	2691810
043	SAMPLE	259835-001	2721126
044	SAMPLE	259835-002	2643947
045	SAMPLE	259835-003	2608194
046	SAMPLE	259841-002	2775452
047	SAMPLE	259841-003	2671330
048	SAMPLE	259841-005	2509241
049	SAMPLE	259841-007	2617377
051	CCV		2706625
052	CCB		2691478
053	MSS	259841-001	2473249
054	MS	QC755363	2497902
055	MSD	QC755364	2497724
056	SER	QC755365	2546998
057	PDS	QC755366	2505965
058	SAMPLE	259835-001	2570921
059	SAMPLE	259835-002	1948915
060	SAMPLE	259835-003	1979770
061	SAMPLE	259841-002	2627311
062	SAMPLE	259841-003	2617011
063	CCV		2737009
064	CCB		2794490
065	SAMPLE	259841-005	2061876
066	SAMPLE	259841-005	2079477
067	SAMPLE	259841-007	2884138
075	CCV		2761272
076	CCB		2660589

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259835 METALS Filtrate: EPA 6010C

Inst : MET08
Calnum : 84347520001
Units : ug/L

Date : 29-AUG-2014 08:00
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	84347520002	L1	29-AUG-2014 08:05	S25067
L2	met08_sn_6010	84347520003	L2	29-AUG-2014 08:10	S25224
L3	met08_sn_6010	84347520004	L3	29-AUG-2014 08:14	S25223
L4	met08_sn_6010	84347520005	L4	29-AUG-2014 08:19	S25225
L5	met08_sn_6010	84347520006	L5	29-AUG-2014 08:26	S25226

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	29.930	30.294	32.662	32.634		LOR0	0.00000	0.03064		31.380	1.000	0.995	
Arsenic	A	19.960	18.021	19.492	19.179		LOR0	0.00000	0.05213		19.163	1.000	0.995	
Barium	A	442.84	418.97	441.69	423.11		LOR0	0.00000	0.00236		431.65	1.000	0.995	
Beryllium	A	4999.5	4981.8	5246.9			LOR0	0.00000	1.91E-4		5076.1	1.000	0.995	
Cadmium	A	224.40	215.74	229.33	217.57		LOR0	0.00000	0.00459		221.76	1.000	0.995	
Chromium	A	99.060	95.844	100.45	97.290		LOR0	0.00000	0.01028		98.161	1.000	0.995	
Cobalt	A	135.12	126.76	139.56	134.41		LOR0	0.00000	0.00744		133.96	1.000	0.995	
Copper	A	116.66	102.55	105.32	114.37		LOR0	0.00000	0.00875		109.72	1.000	0.995	
Lead	A	58.560	54.328	57.768	56.022		LOR0	0.00000	0.01784		56.670	1.000	0.995	
Manganese	A	1266.7	1212.5	1310.3	1198.3		LOR0	0.00000	8.34E-4		1246.9	1.000	0.995	
Molybdenum	A	37.560	36.518	38.266	37.482		LOR0	0.00000	0.02667		37.456	1.000	0.995	
Nickel	A	53.020	50.105	54.647	53.118		LOR0	0.00000	0.01882		52.722	1.000	0.995	
Selenium	A	27.050	26.453	28.837	28.435		LOR0	0.00000	0.03516		27.694	1.000	0.995	
Silver	A	664.24	726.00	771.66	756.01		LOR0	0.00000	0.00132		729.48	1.000	0.995	
Thallium	A	20.390	18.562	20.261	18.827		LOR0	0.00000	0.05307		19.510	1.000	0.995	
Vanadium	A	165.48	161.39	167.40	165.67		LOR0	0.00000	0.00604		164.98	1.000	0.995	
Zinc	A	69.940	69.543	75.105	73.074		LOR0	0.00000	0.01368		71.915	1.000	0.995	
Aluminum	R	0.5110		0.5959	0.5942	0.5600	LOR0	0.00000	1.78472		0.5653	1.000	0.995	
Magnesium	R	0.8145		0.7783	0.7231	0.7035	LOR0	0.00000	1.42109		0.7549	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-8	100.00	-7	1000.0	0	10000	0		
Arsenic	A	5.0000	4	100.00	-6	1000.0	2	10000	0		
Barium	A	5.0000	5	100.00	-1	1000.0	4	10000	0		
Beryllium	A	2.0000	-5	100.00	-5	1000.0	0				
Cadmium	A	5.0000	3	100.00	-1	1000.0	5	10000	0		
Chromium	A	5.0000	2	100.00	-2	1000.0	3	10000	0		
Cobalt	A	5.0000	0	100.00	-6	1000.0	4	10000	0		
Copper	A	5.0000	2	100.00	-10	1000.0	-8	10000	0		
Lead	A	5.0000	4	100.00	-3	1000.0	3	10000	0		
Manganese	A	5.0000	6	100.00	1	1000.0	9	10000	0		
Molybdenum	A	5.0000	0	100.00	-3	1000.0	2	10000	0		
Nickel	A	5.0000	0	100.00	-6	1000.0	3	10000	0		
Selenium	A	10.000	-5	100.00	-7	1000.0	1	10000	0		
Silver	A	5.0000	-12	100.00	-4	1000.0	2	2000.0	0		
Thallium	A	10.000	8	100.00	-1	1000.0	8	10000	0		
Vanadium	A	5.0000	0	100.00	-3	1000.0	1	10000	0		
Zinc	A	20.000	-4	100.00	-5	1000.0	3	10000	0		
Aluminum	R	100.00	-9			1000.0	6	10000	6	100000	0
Magnesium	R	200.00	16			1000.0	11	10000	3	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08
Calnum : 84347520001 Cal Date : 29-AUG-2014

ICV 84347520007 (29-AUG-2014) stds: S25072

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4980	ug/L	0	10	
Arsenic	A	5000	4983	ug/L	0	10	
Barium	A	5000	4906	ug/L	-2	10	
Beryllium	A	500.0	520.3	ug/L	4	10	
Cadmium	A	5000	5080	ug/L	2	10	
Chromium	A	5000	4979	ug/L	0	10	
Cobalt	A	5000	4954	ug/L	-1	10	
Copper	A	5000	4979	ug/L	0	10	
Lead	A	5000	4904	ug/L	-2	10	
Manganese	A	5000	4840	ug/L	-3	10	
Molybdenum	A	5000	5050	ug/L	1	10	
Nickel	A	5000	4928	ug/L	-1	10	
Selenium	A	5000	4915	ug/L	-2	10	
Silver	A	1000	974.6	ug/L	-3	10	
Thallium	A	5000	4878	ug/L	-2	10	
Vanadium	A	5000	4936	ug/L	-1	10	
Zinc	A	5000	4962	ug/L	-1	10	
Aluminum	R	20000	19950	ug/L	0	10	
Magnesium	R	20000	20270	ug/L	1	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520009.1 File : met08_sn_6010 Time : 29-AUG-2014 08:56
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25074

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	9.323	ug/L	-7	30	
Arsenic	A	5.000	5.318	ug/L	6	30	
Barium	A	5.000	5.434	ug/L	9	30	
Beryllium	A	2.000	2.090	ug/L	5	30	
Cadmium	A	5.000	5.455	ug/L	9	30	
Chromium	A	5.000	5.207	ug/L	4	30	
Cobalt	A	5.000	5.245	ug/L	5	30	
Copper	A	5.000	6.113	ug/L	**22**	30	!cri+
Lead	A	5.000	6.020	ug/L	20	30	
Manganese	A	5.000	5.643	ug/L	13	30	
Molybdenum	A	5.000	5.333	ug/L	7	30	
Nickel	A	5.000	4.901	ug/L	-2	30	
Selenium	A	10.00	8.874	ug/L	-11	30	
Silver	A	5.000	5.114	ug/L	2	30	
Thallium	A	10.00	11.28	ug/L	13	30	
Vanadium	A	5.000	5.043	ug/L	1	30	
Zinc	A	20.00	20.11	ug/L	1	30	
Aluminum	R	100.0	99.60	ug/L	0	30	
Magnesium	R	200.0	217.9	ug/L	9	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2566140	-4.30

!=warning +=high bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520010.1 File : met08_sn_6010 Time : 29-AUG-2014 09:00
Cal : 84347520001 Caldate : 29-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2658064	-0.87

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520011.1 File : met08_sn_6010 Time : 29-AUG-2014 09:06
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25075

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[0.3892]	10.00	ug/L	
Arsenic	A	[-0.1240]	5.000	ug/L	
Barium	A	[-0.4424]	5.000	ug/L	
Beryllium	A	[1.149]	2.000	ug/L	!a+
Cadmium	A	[2.744]	5.000	ug/L	!a+
Cobalt	A	[-0.7642]	5.000	ug/L	
Lead	A	[-3.146]	5.000	ug/L	!a-
Molybdenum	A	[-1.859]	5.000	ug/L	!a-
Selenium	A	[1.094]	10.00	ug/L	
Silver	A	[3.430]	5.000	ug/L	!a+
Thallium	A	[-1.295]	10.00	ug/L	
Zinc	A	[-8.034]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec
Chromium	A	20000	19500	ug/L	98
Copper	A	20000	21230	ug/L	106
Manganese	A	20000	18010	ug/L	90
Nickel	A	20000	17970	ug/L	90
Vanadium	A	20000	18600	ug/L	93
Aluminum	R	500000	514800	ug/L	103
Calcium	R	500000	489700	ug/L	98
Iron	R	200000	187200	ug/L	94
Magnesium	R	500000	508800	ug/L	102
Titanium	R	20000	21440	ug/L	107

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2197536	-18.04

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520012.1 File : met08_sn_6010 Time : 29-AUG-2014 09:21
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25227

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	493.6	ug/L	-1	20	
Arsenic	A	500.0	496.2	ug/L	-1	20	
Barium	A	500.0	538.3	ug/L	8	20	
Beryllium	A	500.0	535.3	ug/L	7	20	
Cadmium	A	1000	1036	ug/L	4	20	
Chromium	A	500.0	522.4	ug/L	4	20	
Cobalt	A	500.0	482.5	ug/L	-4	20	
Copper	A	500.0	574.4	ug/L	15	20	
Lead	A	1000	977.1	ug/L	-2	20	
Manganese	A	500.0	435.3	ug/L	-13	20	
Molybdenum	A	500.0	525.9	ug/L	5	20	
Nickel	A	1000	965.6	ug/L	-3	20	
Selenium	A	500.0	516.7	ug/L	3	20	
Silver	A	1000	1143	ug/L	14	20	
Thallium	A	500.0	454.0	ug/L	-9	20	
Vanadium	A	500.0	555.4	ug/L	11	20	
Zinc	A	1000	1024	ug/L	2	20	
Aluminum	R	500000	511300	ug/L	2		
Magnesium	R	500000	509800	ug/L	2		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2237717	-16.54

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520027.1 File : met08_sn_6010 Time : 29-AUG-2014 12:17
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.380	32.935	5000	5046	ug/L	1	10	
Arsenic	A	19.163	20.053	5000	5227	ug/L	5	10	
Barium	A	431.65	427.81	5000	5053	ug/L	1	10	
Beryllium	A	5076.1	5633.4	500.0	537.1	ug/L	7	10	
Cadmium	A	221.76	231.20	5000	5310	ug/L	6	10	
Chromium	A	98.161	100.60	5000	5169	ug/L	3	10	
Cobalt	A	133.96	138.90	5000	5156	ug/L	3	10	
Copper	A	109.72	113.27	5000	4956	ug/L	-1	10	
Lead	A	56.670	56.938	5000	5080	ug/L	2	10	
Manganese	A	1246.9	1196.0	5000	4986	ug/L	0	10	
Molybdenum	A	37.456	39.223	5000	5231	ug/L	5	10	
Nickel	A	52.722	54.285	5000	5108	ug/L	2	10	
Selenium	A	27.694	31.225	5000	5490	ug/L	10	10	
Silver	A	729.48	749.02	1000	986.8	ug/L	-1	10	
Thallium	A	19.510	19.094	5000	5067	ug/L	1	10	
Vanadium	A	164.98	167.84	5000	5065	ug/L	1	10	
Zinc	A	71.915	76.690	5000	5246	ug/L	5	10	
Aluminum	R	0.5653	0.5550	20000	19810	ug/L	-1	10	
Magnesium	R	0.7549	0.7274	20000	20670	ug/L	3	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2606211	-2.80

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520028.1 File : met08_sn_6010 Time : 29-AUG-2014 12:24
Cal : 84347520001 Caldate : 29-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2506414	-6.52

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520039.1 File : met08_sn_6010 Time : 29-AUG-2014 13:36
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.380	31.391	5000	4810	ug/L	-4	10	
Arsenic	A	19.163	18.138	5000	4728	ug/L	-5	10	
Barium	A	431.65	405.16	5000	4786	ug/L	-4	10	
Beryllium	A	5076.1	5264.5	500.0	501.9	ug/L	0	10	
Cadmium	A	221.76	214.80	5000	4934	ug/L	-1	10	
Chromium	A	98.161	95.052	5000	4883	ug/L	-2	10	
Cobalt	A	133.96	129.83	5000	4819	ug/L	-4	10	
Copper	A	109.72	114.04	5000	4990	ug/L	0	10	
Lead	A	56.670	53.757	5000	4796	ug/L	-4	10	
Manganese	A	1246.9	1101.3	5000	4591	ug/L	-8	10	
Molybdenum	A	37.456	37.343	5000	4980	ug/L	0	10	
Nickel	A	52.722	51.155	5000	4814	ug/L	-4	10	
Selenium	A	27.694	26.599	5000	4677	ug/L	-6	10	
Silver	A	729.48	722.76	1000	952.2	ug/L	-5	10	
Thallium	A	19.510	17.564	5000	4661	ug/L	-7	10	
Vanadium	A	164.98	161.03	5000	4859	ug/L	-3	10	
Zinc	A	71.915	70.448	5000	4819	ug/L	-4	10	
Aluminum	R	0.5653	0.5689	20000	20310	ug/L	2	10	
Magnesium	R	0.7549	0.6998	20000	19890	ug/L	-1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2733599	1.95

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520040.1 File : met08_sn_6010 Time : 29-AUG-2014 13:43
Cal : 84347520001 Caldate : 29-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2750982	2.60

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520051.1 File : met08_sn_6010 Time : 29-AUG-2014 14:38
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.380	31.597	5000	4841	ug/L	-3	10	
Arsenic	A	19.163	18.344	5000	4782	ug/L	-4	10	
Barium	A	431.65	399.71	5000	4721	ug/L	-6	10	
Beryllium	A	5076.1	5245.6	500.0	500.1	ug/L	0	10	
Cadmium	A	221.76	211.49	5000	4858	ug/L	-3	10	
Chromium	A	98.161	93.526	5000	4805	ug/L	-4	10	
Cobalt	A	133.96	128.18	5000	4757	ug/L	-5	10	
Copper	A	109.72	112.51	5000	4923	ug/L	-2	10	
Lead	A	56.670	52.869	5000	4717	ug/L	-6	10	
Manganese	A	1246.9	1100.2	5000	4587	ug/L	-8	10	
Molybdenum	A	37.456	36.755	5000	4902	ug/L	-2	10	
Nickel	A	52.722	50.344	5000	4738	ug/L	-5	10	
Selenium	A	27.694	26.711	5000	4696	ug/L	-6	10	
Silver	A	729.48	712.80	1000	939.0	ug/L	-6	10	
Thallium	A	19.510	17.692	5000	4695	ug/L	-6	10	
Vanadium	A	164.98	158.15	5000	4772	ug/L	-5	10	
Zinc	A	71.915	69.379	5000	4746	ug/L	-5	10	
Aluminum	R	0.5653	0.5531	20000	19740	ug/L	-1	10	
Magnesium	R	0.7549	0.6878	20000	19550	ug/L	-2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2706625	0.94

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520052.1 File : met08_sn_6010 Time : 29-AUG-2014 14:44
Cal : 84347520001 Caldate : 29-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2691478	0.38

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520063.1 File : met08_sn_6010 Time : 29-AUG-2014 15:45
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.380	31.590	5000	4840	ug/L	-3	10	
Arsenic	A	19.163	18.453	5000	4810	ug/L	-4	10	
Barium	A	431.65	411.46	5000	4860	ug/L	-3	10	
Beryllium	A	5076.1	5355.1	500.0	510.6	ug/L	2	10	
Cadmium	A	221.76	218.90	5000	5028	ug/L	1	10	
Chromium	A	98.161	96.778	5000	4972	ug/L	-1	10	
Cobalt	A	133.96	132.26	5000	4909	ug/L	-2	10	
Copper	A	109.72	111.66	5000	4885	ug/L	-2	10	
Lead	A	56.670	54.695	5000	4880	ug/L	-2	10	
Manganese	A	1246.9	1141.1	5000	4757	ug/L	-5	10	
Molybdenum	A	37.456	37.851	5000	5048	ug/L	1	10	
Nickel	A	52.722	52.153	5000	4908	ug/L	-2	10	
Selenium	A	27.694	27.127	5000	4769	ug/L	-5	10	
Silver	A	729.48	730.89	1000	962.9	ug/L	-4	10	
Thallium	A	19.510	18.064	5000	4794	ug/L	-4	10	
Vanadium	A	164.98	162.70	5000	4910	ug/L	-2	10	
Zinc	A	71.915	72.026	5000	4927	ug/L	-1	10	
Aluminum	R	0.5653	0.5922	20000	21140	ug/L	6	10	
Magnesium	R	0.7549	0.7545	20000	21440	ug/L	7	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2737009	2.08

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520064.1 File : met08_sn_6010 Time : 29-AUG-2014 15:51
Cal : 84347520001 Caldate : 29-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2794490	4.22

SAMPLE PREPARATION SUMMARY

Batch # : 214855
Started By : ARD
Method : METHOD
Spike #1 ID : S24678

Prep Date : 27-AUG-2014 13:45
Spike #2 ID : S24679

Analysis : ICAP
Finished By : ARD
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259835-001		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259835-002		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259835-003		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259841-001		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259841-002		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259841-003		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259841-005		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259841-007		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
QC755360	BLANK	Filtrate	50	50	1	1.0							
QC755361	BS	Filtrate	50	50	1	1.0		.5	.5				
QC755362	BSD	Filtrate	50	50	1	1.0		.5	.5				
QC755363	MS	Filtrate	50	50	1	1.0		.5	.5				
QC755364	MSD	Filtrate	50	50	1	1.0		.5	.5				
QC755365	SER	Filtrate	50	50	1	1.0							
QC755366	PDS	Filtrate	50	50	1	1.0							

Analyst: VQ Date: 09/02/14 Reviewer: PRW Date: 09/02/14

Water Digestion for ICP Curtis & Tompkins, Ltd.

LIMS Batch #: 214855
Digested by: ARD
Date Digested: 8.27.2014

Digestion Method
☐ EPA 3010a for ICP
☐ EPA 200.7
☒ Filtrate

BK3577
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Lvl.	Sample #	Container ID	Volume Sample(mL)	Final Volume (mL)	Filtered? (y/n)	ID ✓	Comments
	Blank		☒50 ☐___	☒50 ☐___	No	✓	QC755360
	BS *		☒50 ☐___	☒50 ☐___	↓	✓	361
	BSD *		☒50 ☐___	☒50 ☐___	↓	✓	↓ 362
	MS : 259835-00~~1~~ 541-001 * 8.21.14	D	☒50 ☐___	☒50 ☐___	↓	✓	
5	MSD ↓ *	↓	☒50 ☐___	☒50 ☐___	↓	✓	
IV	259835-001	B	☒50 ☐___	☒50 ☐___	↓	✓	
↓	↓ -002	A	☒50 ☐___	☒50 ☐___	↓	✓	
↓	↓ -003	↓	☒50 ☐___	☒50 ☐___	↓	✓	
III	259841-001	D	☒50 ☐___	☒50 ☐___	↓	✓	MSS
10	↓ -002	B	☒50 ☐___	☒50 ☐___	↓	✓	
↓	↓ -003	A	☒50 ☐___	☒50 ☐___	↓	✓	
↓	↓ -005	↓	☒50 ☐___	☒50 ☐___	↓	✓	
↓	↓ -007	E	☒50 ☐___	☒50 ☐___	↓	✓	
			☐ 50 ☐___	☐ 50 ☐___			
15			☐ 50 ☐___	☐ 50 ☐___			
			☐ 50 ☐___	☐ 50 ☐___			
			☐ 50 ☐___	☐ 50 ☐___			
			☐ 50 ☐___	☐ 50 ☐___			
			☐ 50 ☐___	☐ 50 ☐___			
20			☐ 50 ☐___	☐ 50 ☐___			
			☐ 50 ☐___	☐ 50 ☐___			
			☐ 50 ☐___	☐ 50 ☐___			
			☐ 50 ☐___	☐ 50 ☐___			
			☐ 50 ☐___	☐ 50 ☐___			
			☐ 50 ☐___	☐ 50 ☐___			

	Reagent ID or LIMS #	Initials / Date
Digestion tubes, lot #	Accuflow	ARD 8.27.2014
0.5 mL of spike solution (Std1) was added to all spikes	S24678 *	↓
0.5 mL of spike solution (Std2) was added to all spikes	S24679 *	↓
Digestion Temperature (°C), Block and Probe Location	— —	↓
Digestion begun at (time)	13:45	↓
o Conc. HNO3 or ☒ 1:1 HNO3	JTB-66236	↓
1:1 HCl	JTB-75649	↓
digestion ended at (time)	—	↓
o filtered thru' Whatman # 541	—	↓
Relinquished to ICP group	ICAP	↓

Prep Chemist / Date 8.27.2014 Continued from page Ø
Continued on page

Reviewed Online / See LIMS

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1074342040

Instrument : MET54 Begun : 08/25/14 12:40
Method : EPA 7470A SOP Version : hg_water_rv16

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met54	ICALBLK				08/25/14 12:40	1.0		
002	met54	ICAL	ICAL1			08/25/14 12:41	1.0	1	
003	met54	ICAL	ICAL2			08/25/14 12:42	1.0	1	
004	met54	ICAL	ICAL3			08/25/14 12:43	1.0	1	
005	met54	ICAL	ICAL4			08/25/14 12:44	1.0	1	
006	met54	ICAL	ICAL5			08/25/14 12:45	1.0	1	
007	met54	ICV				08/25/14 12:46	1.0	2	
008	met54	ICB				08/25/14 12:48	1.0		
009	met54	BLANK	QC754882	Water	214738	08/25/14 12:49	1.0		
010	met54	BLANK	QC754883	WET Leachate	214738	08/25/14 12:50	1.0		
011	met54	BS	QC754884	Water	214738	08/25/14 12:51	1.0		spk
012	met54	BSD	QC754885	Water	214738	08/25/14 12:52	1.0		spk
013	met54	MSS	260118-001	Water	214738	08/25/14 12:53	1.0		spk
014	met54	MSS	260118-001	Water	214738	08/25/14 12:56	1.0		spk
015	met54	BS	QC754884	Water	214738	08/25/14 12:57	1.0		spk
016	met54	BSD	QC754885	Water	214738	08/25/14 12:59	1.0		spk
017	met54	MS	QC754886	Water	214738	08/25/14 13:00	1.0		
018	met54	MSD	QC754887	Water	214738	08/25/14 13:01	1.0		
019	met54	CCV				08/25/14 13:02	1.0	3	
020	met54	CCB				08/25/14 13:03	1.0		
021	met54	SER	QC754888	Water	214738	08/25/14 13:04	5.0		
022	met54	SAMPLE	260118-003	Water	214738	08/25/14 13:05	1.0		spk
023	met54	SAMPLE	259823-001	Water	214738	08/25/14 13:07	1.0		spk
024	met54	SAMPLE	259823-003	Water	214738	08/25/14 13:08	1.0		spk
025	met54	SAMPLE	259835-001	Filtrate	214738	08/25/14 13:09	1.0		spk
026	met54	SAMPLE	259835-002	Filtrate	214738	08/25/14 13:10	1.0		spk
027	met54	SAMPLE	259835-003	Filtrate	214738	08/25/14 13:11	1.0		spk
028	met54	SAMPLE	260072-001	WET Leachate	214738	08/25/14 13:12	1.0		spk
029	met54	SAMPLE	260072-002	WET Leachate	214738	08/25/14 13:13	1.0		spk
030	met54	SAMPLE	260072-003	WET Leachate	214738	08/25/14 13:14	1.0		spk
031	met54	CCV				08/25/14 13:16	1.0	3	
032	met54	CCB				08/25/14 13:17	1.0		
033	met54	SAMPLE	260072-004	WET Leachate	214738	08/25/14 13:18	1.0		spk
034	met54	CCV				08/25/14 13:19	1.0	3	
035	met54	CCB				08/25/14 13:20	1.0		

NCD 08/25/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 35.

Standards used: 1=S25470 2=S25472 3=S25473

Flags used: spk=5% spike rule

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259835 METALS Filtrate: EPA 7470A

Inst : MET54
Calnum : 1074342040001
Units : ug/L

Date : 25-AUG-2014 12:40
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met54	1074342040002	ICAL1	25-AUG-2014 12:41	S25470 (500X)
L2	met54	1074342040003	ICAL2	25-AUG-2014 12:42	S25470 (200X)
L3	met54	1074342040004	ICAL3	25-AUG-2014 12:43	S25470 (50X)
L4	met54	1074342040005	ICAL4	25-AUG-2014 12:44	S25470 (20X)
L5	met54	1074342040006	ICAL5	25-AUG-2014 12:45	S25470 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0145	0.0162	0.0151	0.0154	0.0153	LIN0	-0.0006	65.3749		0.0153	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	-5	0.5000	6	2.0000	-2	5.0000	0	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259835 METALS Filtrate
EPA 7470A

Inst : MET54
Calnum : 1074342040001 Cal Date : 25-AUG-2014

ICV 1074342040007 (25-AUG-2014) stds: S25472

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.066	ug/L	1	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259835 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1074342040008.2 File : met54 Time : 25-AUG-2014 12:48
Cal : 1074342040001 Caldate : 25-AUG-2014

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1074342040019.2 File : met54 Time : 25-AUG-2014 13:02
Cal : 1074342040001 Caldate : 25-AUG-2014
Standards: S25473

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0153	0.0160	5.000	5.236	ug/L	5	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259835 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1074342040020.2 File : met54 Time : 25-AUG-2014 13:03
Cal : 1074342040001 Caldate : 25-AUG-2014

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1074342040031.2 File : met54 Time : 25-AUG-2014 13:16
Cal : 1074342040001 Caldate : 25-AUG-2014
Standards: S25473

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0153	0.0165	5.000	5.380	ug/L	8	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259835 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1074342040032.2 File : met54 Time : 25-AUG-2014 13:17
Cal : 1074342040001 Caldate : 25-AUG-2014

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 214738
Started By : NCD
Method : METHOD
Spike #1 ID : S25470

Prep Date : 25-AUG-2014 09:00

Analysis : HG
Finished By : NCD
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259823-001		Filtrate	50	50	1	1.0						(rebatched)	
259823-001		Water	50	50	1	1.0						TAL/HG	
259823-003		Filtrate	50	50	1	1.0						(rebatched)	
259823-003		Water	50	50	1	1.0						TAL/HG	
259835-001		Filtrate	50	50	1	1.0						T22/HG	
259835-002		Filtrate	50	50	1	1.0						T22/HG	
259835-003		Filtrate	50	50	1	1.0						T22/HG	
260072-001		WET Leachate	10	50	1	5.0						(rebatched)	
260072-002		WET Leachate	10	50	1	5.0						(rebatched)	
260072-003		WET Leachate	10	50	1	5.0						(rebatched)	
260072-004		WET Leachate	10	50	1	5.0						(rebatched)	
260118-001		Water	50	50	1	1.0						T22/HG-200	
260118-003		Water	50	50	1	1.0						T22/HG-200	
QC754882	BLANK	Water	50	50	1	1.0							
QC754883	BLANK	WET Leachate	10	50	1	5.0							
QC754884	BS	Water	50	50	1	1.0		1.25					
QC754885	BSD	Water	50	50	1	1.0		1.25					
QC754886	MS	Water	50	50	1	1.0		1.25					
QC754887	MSD	Water	50	50	1	1.0		1.25					
QC754888	SER	Water	50	50	1	1.0							

Analyst: NCD Date: 08/25/14 Reviewer: EAH Date: 08/25/14

Water Digestion for Mercury

Curtis & Tompkins, Ltd.

LIMS Batch #: 214738

Date Digested: 8/25/14

Digestion Method

☒ EPA 7470A/ EPA 245.1

☐ _____

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Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
BLK		☒ 50 ☐	☒ 50 ☐	NO	QC754882
BLK WET		☐ 50 ☒ 10	☒ 50 ☐		
BS		☒ 50 ☐	☒ 50 ☐		
BSD		☒ 50 ☐	☒ 50 ☐		
260114-001	A	☒ 50 ☐	☒ 50 ☐		
-001		☒ 50 ☐	☒ 50 ☐		
-001		☒ 50 ☐	☒ 50 ☐		
-003	B	☒ 50 ☐	☒ 50 ☐		
259823-001	T	☒ 50 ☐	☒ 50 ☐		
-003		☒ 50 ☐	☒ 50 ☐		
259835-001	B	☒ 50 ☐	☒ 50 ☐		
-002	A	☒ 50 ☐	☒ 50 ☐		verified pH<2
-003		☒ 50 ☐	☒ 50 ☐		
260072-001	A	☐ 50 ☒ 10	☒ 50 ☐		wet Leachate
-002	AB	☐ 50 ☒ 10	☒ 50 ☐		
-003	A	☐ 50 ☒ 10	☒ 50 ☐		
-004	B	☐ 50 ☒ 10	☒ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		

NW 8/25/14

	Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tube Lot #	EK1310	NW 8/25/14
1.25 mL of spike solution was added to all spikes	525470	
☒ CAL digested with this batch — ICAL Source LIMS S#	71	
ICV / CCV LIMS S#	71/73	
Digestion Temperature (°C), Block and Probe Location	95° B13	
Digestion Started at (time)	9:00	
concentrated H_2SO_4	2014020596	
concentrated HNO_3	66836	
5% $KMnO_4$	8/22/14	
5% $K_2S_2O_8$	8/7/14	
NaCl.hydroxylamine hydrochloride	8/22/14	
Stannous Chloride	8/22/14	
Digestion Completed at (time)	11:00	
☒ filtered thru' 0.45 um syringe filter (lot #)	3/045 10	

8/25/14

Prep Chemist / Date

Continued from page ____

Continued on page ____

Reviewed Online / See LIMS

Dilutions for 259835 METALS Filtrate
Curtis & Tompkins Laboratories

Type	Sample ID	IDFs
SAMPLE	259835-002	1X, 100X
SAMPLE	259835-003	1X, 100X
SER	QC754888	5X
SER	QC755365	5X

ICP Raw Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84347520

Instrument : MET08 Begun : 08/29/14 08:00
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				08/29/14 08:00	1.0		
002	met08_sn_6010	ICAL	L1			08/29/14 08:05	1.0	1	
003	met08_sn_6010	ICAL	L2			08/29/14 08:10	1.0	2	
004	met08_sn_6010	ICAL	L3			08/29/14 08:14	1.0	3	
005	met08_sn_6010	ICAL	L4			08/29/14 08:19	1.0	4	
006	met08_sn_6010	ICAL	L5			08/29/14 08:26	1.0	5	
007	met08_sn_6010	ICV				08/29/14 08:32	1.0	6	
008	met08_sn_6010	XCRI				08/29/14 08:40	1.0	7	
009	met08_sn_6010	CRI				08/29/14 08:56	1.0	7	
010	met08_sn_6010	ICB				08/29/14 09:00	1.0		
011	met08_sn_6010	ICSA				08/29/14 09:06	1.0	8	10:AL=510000
012	met08_sn_6010	ICSAB				08/29/14 09:21	1.0	9	5:AL=510000
013	met08_sn_6010	BLANK	QC755394	Soil	214862	08/29/14 09:28	1.0		
014	met08_sn_6010	BS	QC755395	Soil	214862	08/29/14 09:33	1.0		2:K=100000
015	met08_sn_6010	CCV				08/29/14 10:46	1.0	10	
016	met08_sn_6010	CCB				08/29/14 10:52	1.0		
017	met08_sn_6010	SER	QC755228	Water	214820	08/29/14 11:22	5.0		
018	met08_sn_6010	PDS	QC755229	Water	214820	08/29/14 11:27	1.0	11 12	
019	met08_sn_6010	X	RINSE			08/29/14 11:31	1.0		
020	met08_sn_6010	CCV				08/29/14 11:36	1.0	10	
021	met08_sn_6010	CCB				08/29/14 11:42	1.0		
022	met08_sn_6010	BLANK	QC755391	Water	214864	08/29/14 11:54	1.0		
023	met08_sn_6010	BS	QC755392	Water	214864	08/29/14 11:59	1.0		
024	met08_sn_6010	BSD	QC755393	Water	214864	08/29/14 12:03	1.0		
025	met08_sn_6010	SAMPLE	259836-001	Water	214864	08/29/14 12:07	1.0		
026	met08_sn_6010	SAMPLE	259836-002	Water	214864	08/29/14 12:12	1.0		
027	met08_sn_6010	CCV				08/29/14 12:17	1.0	10	
028	met08_sn_6010	CCB				08/29/14 12:24	1.0		
029	met08_sn_6010	BS	QC755178	Filtrate	214807	08/29/14 12:51	1.0		
030	met08_sn_6010	BSD	QC755179	Filtrate	214807	08/29/14 12:55	1.0		
031	met08_sn_6010	PDS	QC755183	Filtrate	214807	08/29/14 12:59	1.0	11 12 13	
032	met08_sn_6010	X	RINSE			08/29/14 13:03	1.0		
033	met08_sn_6010	BLANK	QC755360	Filtrate	214855	08/29/14 13:08	1.0		
034	met08_sn_6010	BS	QC755361	Filtrate	214855	08/29/14 13:13	1.0		
035	met08_sn_6010	BSD	QC755362	Filtrate	214855	08/29/14 13:17	1.0		
036	met08_sn_6010	MSS	259841-001	Filtrate	214855	08/29/14 13:21	100.0		
037	met08_sn_6010	MS	QC755363	Filtrate	214855	08/29/14 13:26	100.0		
038	met08_sn_6010	MSD	QC755364	Filtrate	214855	08/29/14 13:31	100.0		
039	met08_sn_6010	CCV				08/29/14 13:36	1.0	10	
040	met08_sn_6010	CCB				08/29/14 13:43	1.0		
041	met08_sn_6010	SER	QC755365	Filtrate	214855	08/29/14 13:48	500.0		
042	met08_sn_6010	PDS	QC755366	Filtrate	214855	08/29/14 13:53	100.0	11 12	
043	met08_sn_6010	SAMPLE	259835-001	Filtrate	214855	08/29/14 13:57	100.0		
044	met08_sn_6010	SAMPLE	259835-002	Filtrate	214855	08/29/14 14:02	100.0		
045	met08_sn_6010	SAMPLE	259835-003	Filtrate	214855	08/29/14 14:07	100.0		
046	met08_sn_6010	SAMPLE	259841-002	Filtrate	214855	08/29/14 14:13	100.0		
047	met08_sn_6010	SAMPLE	259841-003	Filtrate	214855	08/29/14 14:18	100.0		
048	met08_sn_6010	SAMPLE	259841-005	Filtrate	214855	08/29/14 14:23	100.0		
049	met08_sn_6010	SAMPLE	259841-007	Filtrate	214855	08/29/14 14:28	100.0		
050	met08_sn_6010	X	RINSE			08/29/14 14:33	1.0		
051	met08_sn_6010	CCV				08/29/14 14:38	1.0	10	
052	met08_sn_6010	CCB				08/29/14 14:44	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84347520

Instrument : MET08 Begun : 08/29/14 08:00
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	MSS	259841-001	Filtrate	214855	08/29/14 14:50	1.0		1:NA=240000
054	met08_sn_6010	MS	QC755363	Filtrate	214855	08/29/14 14:55	1.0		1:NA=240000
055	met08_sn_6010	MSD	QC755364	Filtrate	214855	08/29/14 14:59	1.0		1:NA=260000
056	met08_sn_6010	SER	QC755365	Filtrate	214855	08/29/14 15:03	5.0		
057	met08_sn_6010	PDS	QC755366	Filtrate	214855	08/29/14 15:08	1.0	11 12	1:NA=250000
058	met08_sn_6010	SAMPLE	259835-001	Filtrate	214855	08/29/14 15:12	1.0		
059	met08_sn_6010	SAMPLE	259835-002	Filtrate	214855	08/29/14 15:17	1.0		3:MG=610000
060	met08_sn_6010	SAMPLE	259835-003	Filtrate	214855	08/29/14 15:26	1.0		3:MG=640000
061	met08_sn_6010	SAMPLE	259841-002	Filtrate	214855	08/29/14 15:34	1.0		
062	met08_sn_6010	SAMPLE	259841-003	Filtrate	214855	08/29/14 15:39	1.0		
063	met08_sn_6010	CCV				08/29/14 15:45	1.0	10	
064	met08_sn_6010	CCB				08/29/14 15:51	1.0		
065	met08_sn_6010	SAMPLE	259841-005	Filtrate	214855	08/29/14 15:56	1.0		3:MG=560000
066	met08_sn_6010	SAMPLE	259841-005	Filtrate	214855	08/29/14 16:04	1.0		4:MG=610000
067	met08_sn_6010	SAMPLE	259841-007	Filtrate	214855	08/29/14 16:13	1.0		
068	met08_sn_6010	PDS	QC755183	Filtrate	214807	08/29/14 16:18	1.0	11 12 13	
069	met08_sn_6010	X	RINSE			08/29/14 16:22	1.0		
070	met08_sn_6010	BLANK	QC755278	Water	214834	08/29/14 16:27	1.0		
071	met08_sn_6010	BS	QC755279	Water	214834	08/29/14 16:32	1.0		
072	met08_sn_6010	BSD	QC755280	Water	214834	08/29/14 16:36	1.0		
073	met08_sn_6010	MSS	260128-003	Water	214834	08/29/14 16:40	1.0		
074	met08_sn_6010	MS	QC755281	Water	214834	08/29/14 16:45	1.0		
075	met08_sn_6010	CCV				08/29/14 16:49	1.0	10	
076	met08_sn_6010	CCB				08/29/14 16:56	1.0		
077	met08_sn_6010	MSD	QC755282	Water	214834	08/29/14 17:01	1.0		
078	met08_sn_6010	SER	QC755687	Water	214834	08/29/14 17:05	5.0		
079	met08_sn_6010	PDS	QC755688	Water	214834	08/29/14 17:10	1.0	11 12 13	
080	met08_sn_6010	MSS	260128-003	Water	214834	08/29/14 17:14	100.0		
081	met08_sn_6010	MS	QC755281	Water	214834	08/29/14 17:19	100.0		
082	met08_sn_6010	MSD	QC755282	Water	214834	08/29/14 17:24	100.0		
083	met08_sn_6010	SER	QC755687	Water	214834	08/29/14 17:29	500.0		
084	met08_sn_6010	PDS	QC755688	Water	214834	08/29/14 17:35	100.0	11 12 13	
085	met08_sn_6010	SAMPLE	259823-001	Water	214834	08/29/14 17:39	100.0		
086	met08_sn_6010	SAMPLE	259823-003	Water	214834	08/29/14 17:44	100.0		
087	met08_sn_6010	CCV				08/29/14 17:49	1.0	10	
088	met08_sn_6010	CCB				08/29/14 17:56	1.0		
089	met08_sn_6010	SAMPLE	259823-001	Water	214834	08/29/14 18:01	1.0		2:NA=170000
090	met08_sn_6010	SAMPLE	259823-003	Water	214834	08/29/14 18:06	1.0		1:NA=210000
091	met08_sn_6010	X	RINSE			08/29/14 18:11	1.0		
092	met08_sn_6010	SAMPLE	260128-001	Water	214834	08/29/14 18:16	1.0		
093	met08_sn_6010	SAMPLE	260128-002	Water	214834	08/29/14 18:21	1.0		
094	met08_sn_6010	SAMPLE	260156-001	Water	214834	08/29/14 18:26	100.0		
095	met08_sn_6010	SAMPLE	260156-002	Water	214834	08/29/14 18:31	100.0		
096	met08_sn_6010	SAMPLE	260156-003	Water	214834	08/29/14 18:36	100.0		
097	met08_sn_6010	SAMPLE	260156-004	Water	214834	08/29/14 18:41	100.0		
098	met08_sn_6010	SAMPLE	260156-005	Water	214834	08/29/14 18:46	100.0		
099	met08_sn_6010	CCV				08/29/14 18:51	1.0	10	
100	met08_sn_6010	CCB				08/29/14 18:58	1.0		
101	met08_sn_6010	SAMPLE	260156-006	Water	214834	08/29/14 19:03	100.0		
102	met08_sn_6010	SAMPLE	260156-009	Water	214834	08/29/14 19:08	100.0		
103	met08_sn_6010	X	RINSE			08/29/14 19:13	1.0		
104	met08_sn_6010	SAMPLE	259823-001	Filtrate	214807	08/29/14 19:18	1.0		2:NA=170000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84347520

Instrument : MET08 Begun : 08/29/14 08:00
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met08_sn_6010	SAMPLE	259823-003	Filtrate	214807	08/29/14 19:23	1.0		1:NA=200000
106	met08_sn_6010	SAMPLE	259865-003	Filtrate	214807	08/29/14 19:28	1.0		1:CA=270000
107	met08_sn_6010	SAMPLE	259918-001	Filtrate	214807	08/29/14 19:37	1.0		1:NA=230000
108	met08_sn_6010	SAMPLE	259918-003	Filtrate	214807	08/29/14 19:42	1.0		1:NA=200000
109	met08_sn_6010	SAMPLE	259968-001	Filtrate	214807	08/29/14 19:47	1.0		1:NA=190000
110	met08_sn_6010	SAMPLE	259968-003	Filtrate	214807	08/29/14 19:52	1.0		1:CA=130000
111	met08_sn_6010	CCV				08/29/14 19:58	1.0	10	
112	met08_sn_6010	CCB				08/29/14 20:04	1.0		
113	met08_sn_6010	SAMPLE	260003-001	Filtrate	214807	08/29/14 20:09	1.0		2:CA=410000
114	met08_sn_6010	SAMPLE	260003-003	Filtrate	214807	08/29/14 20:18	1.0		2:CA=400000
115	met08_sn_6010	SAMPLE	260053-001	Filtrate	214807	08/29/14 20:27	1.0		1:CA=290000
116	met08_sn_6010	SAMPLE	260131-001	Filtrate	214807	08/29/14 20:35	1.0		1:NA=570000
117	met08_sn_6010	X	RINSE			08/29/14 20:44	1.0		
118	met08_sn_6010	X	RINSE			08/29/14 20:49	1.0		
119	met08_sn_6010	BLANK	QC755529	Water	214896	08/29/14 20:54	1.0		
120	met08_sn_6010	BS	QC755530	Water	214896	08/29/14 20:59	1.0		
121	met08_sn_6010	BSD	QC755531	Water	214896	08/29/14 21:03	1.0		
122	met08_sn_6010	MSS	259865-001	Water	214896	08/29/14 21:07	1.0		1:CA=180000
123	met08_sn_6010	CCV				08/29/14 21:16	1.0	10	
124	met08_sn_6010	CCB				08/29/14 21:23	1.0		
125	met08_sn_6010	MS	QC755532	Water	214896	08/29/14 21:28	1.0		
126	met08_sn_6010	MSD	QC755533	Water	214896	08/29/14 21:35	1.0		
127	met08_sn_6010	SER	QC755534	Water	214896	08/29/14 21:43	5.0		
128	met08_sn_6010	PDS	QC755535	Water	214896	08/29/14 21:48	1.0	11 12 13	
129	met08_sn_6010	SAMPLE	259865-003	Water	214896	08/29/14 21:56	1.0		1:CA=290000
130	met08_sn_6010	SAMPLE	259918-001	Water	214896	08/29/14 22:04	1.0		1:NA=220000
131	met08_sn_6010	SAMPLE	259918-003	Water	214896	08/29/14 22:09	1.0		1:NA=220000
132	met08_sn_6010	SAMPLE	259968-001	Water	214896	08/29/14 22:15	1.0		1:NA=200000
133	met08_sn_6010	SAMPLE	259968-003	Water	214896	08/29/14 22:20	1.0		1:CA=130000
134	met08_sn_6010	SAMPLE	260003-001	Water	214896	08/29/14 22:25	1.0		2:CA=420000
135	met08_sn_6010	CCV				08/29/14 22:34	1.0	10	
136	met08_sn_6010	CCB				08/29/14 22:40	1.0		
137	met08_sn_6010	SAMPLE	260003-003	Water	214896	08/29/14 22:45	1.0		2:CA=480000
138	met08_sn_6010	SAMPLE	260009-004	Water	214896	08/29/14 22:54	1.0		3:CA=210000
139	met08_sn_6010	SAMPLE	260009-005	Water	214896	08/29/14 22:59	1.0		1:CA=120000
140	met08_sn_6010	SAMPLE	260009-006	Water	214896	08/29/14 23:04	1.0		1:CA=120000
141	met08_sn_6010	SAMPLE	260053-003	Water	214896	08/29/14 23:10	1.0		1:CA=590000
142	met08_sn_6010	SAMPLE	260131-001	Water	214896	08/29/14 23:18	1.0		1:NA=580000
143	met08_sn_6010	SAMPLE	260131-002	Water	214896	08/29/14 23:27	1.0		2:NA=650000
144	met08_sn_6010	SAMPLE	260295-001	Water	214896	08/29/14 23:35	10.0		
145	met08_sn_6010	X	RINSE			08/29/14 23:44	1.0		
146	met08_sn_6010	BLANK	QC755536	Filtrate	214897	08/29/14 23:49	1.0		
147	met08_sn_6010	CCV				08/29/14 23:54	1.0	10	
148	met08_sn_6010	CCB				08/30/14 00:01	1.0		
149	met08_sn_6010	BS	QC755537	Filtrate	214897	08/30/14 00:06	1.0		
150	met08_sn_6010	BSD	QC755538	Filtrate	214897	08/30/14 00:10	1.0		
151	met08_sn_6010	MSS	260009-002	Filtrate	214897	08/30/14 00:14	1.0		1:CA=140000
152	met08_sn_6010	MS	QC755539	Filtrate	214897	08/30/14 00:19	1.0		
153	met08_sn_6010	MSD	QC755540	Filtrate	214897	08/30/14 00:24	1.0		
154	met08_sn_6010	SER	QC755541	Filtrate	214897	08/30/14 00:28	5.0		
155	met08_sn_6010	PDS	QC755542	Filtrate	214897	08/30/14 00:33	1.0	11 12 13	1:CA=150000
156	met08_sn_6010	SAMPLE	259823-001	Filtrate	214897	08/30/14 00:37	1.0		2:NA=180000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84347520

Instrument : MET08 Begun : 08/29/14 08:00
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
157	met08_sn_6010	SAMPLE	259823-003	Filtrate	214897	08/30/14 00:42	1.0		1:NA=190000
158	met08_sn_6010	SAMPLE	260011-002	Filtrate	214897	08/30/14 00:48	1.0		2:CA=330000
159	met08_sn_6010	CCV				08/30/14 00:53	1.0	10	
160	met08_sn_6010	CCB				08/30/14 00:59	1.0		
161	met08_sn_6010	SAMPLE	260011-003	Filtrate	214897	08/30/14 01:05	1.0		2:CA=340000
162	met08_sn_6010	SAMPLE	260011-004	Filtrate	214897	08/30/14 01:10	1.0		3:CA=150000
163	met08_sn_6010	SAMPLE	260011-006	Filtrate	214897	08/30/14 01:15	1.0		3:MG=140000
164	met08_sn_6010	SAMPLE	260011-007	Filtrate	214897	08/30/14 01:20	1.0		
165	met08_sn_6010	X	RINSE			08/30/14 01:25	1.0		
166	met08_sn_6010	CCV				08/30/14 01:30	1.0	10	
167	met08_sn_6010	CCB				08/30/14 01:37	1.0		

VQ 09/02/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 167.

Standards used: 1=S25067 2=S25224 3=S25223 4=S25225 5=S25226 6=S25072 7=S25074 8=S25075 9=S25227 10=S25073 11=S24151 12=S24152 13=S25208

CURTIS & TOMPKINS SAMPLE USER REPORT FOR EPA 6010C

Inst : MET08 Lab ID : 259835-001 Client ID : 04W07-081414
Seqnum : 84347520058 Matrix : Filtrate Acct : JMW (TLB)
File : met08_sn_6010 Batch : 214855 Time : 29-AUG-2014 15:12
Cal : 84347520001 Caldate : 29-AUG-2014
IDF : 1.0 Units : ug/L

50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	Ch	Result	Conf	RPD	RL	Blank	Flags
Aluminum	R	ND			100		u
Antimony	A	ND			10		u
Arsenic	A	ND			5.0		u
Barium	A	39			5.0		u
Beryllium	A	ND			2.0		!<a+ u
Cadmium	A	ND			5.0		!<a+ u
Chromium	A	ND			5.0		u
Cobalt	A	ND			5.0		u
Copper	A	ND			5.0	1.1	!<cri+ u
Lead	A	ND			5.0		!<a- u
Magnesium	R	25000			500		u
Manganese	A	6.8			5.0		u
Molybdenum	A	7.5			5.0		!<a- u
Nickel	A	0.93 J			5.0		u
Selenium	A	13			10		u
Silver	A	ND			5.0		!<a+ u
Thallium	A	ND			10		u
Vanadium	A	2.4 J			5.0		u
Zinc	A	6.6 J			20		u

ISTD (ICAL 002)	Ch	ICAL Abund	SAMPLE Abund	%Drift
Yttrium	A	2681337	2570921	-4.12

!=warning +=high bias -=low bias <=opening a=ICSA u=use

Sequence No.: 41 **Autosampler Location: 40**
Sample ID: 259835-001,214855,1 **Date Collected: 8/29/2014 3:12:24 PM**
Analyst: MET08 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: 259835-001,214855,1

Analyte	Back Pressure	Flow
All	153.0 kPa	0.60 L/min

Mean Data: 259835-001,214855,1

Analyte	Mean Corrected Intensity	Conc.	Calib Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	2570920.8	95.8820	%	1.78030				1.86%
Y	96178.2	104.406	%	3.9651				3.80%
Ag 328.068†	-189.3	-0.249414	ug/L	0.4161236	-0.249414	ug/L	0.4161236	166.84%
Al 308.215 R†	9.9	17.6456	ug/L	17.30054	17.6456	ug/L	17.30054	98.04%
As 188.979†	16.6	0.864206	ug/L	0.5898792	0.864206	ug/L	0.5898792	68.26%
B 249.677†	127146.7	652.061	ug/L	7.0276	652.061	ug/L	7.0276	1.08%
Ba 233.527†	16500.5	38.9810	ug/L	0.72045	38.9810	ug/L	0.72045	1.85%
Be 313.107†	204.1	0.0389212	ug/L	0.01551716	0.0389212	ug/L	0.01551716	39.87%
Ca 315.887 R†	362116.0	72783.2	ug/L	4636.25	72783.2	ug/L	4636.25	6.37%
Cd 214.440†	-1805.9	-8.29613	ug/L	0.104530	-8.29613	ug/L	0.104530	1.26%
Co 228.616†	-8.0	-0.0580630	ug/L	0.04239898	-0.0580630	ug/L	0.04239898	73.02%
Cr 267.716†	22.1	0.226664	ug/L	0.0649017	0.226664	ug/L	0.0649017	28.63%
Cu 324.752†	-48.0	-0.420237	ug/L	0.9287844	-0.420237	ug/L	0.9287844	221.01%
Fe 238.204 R†	128.6	25.4258	ug/L	2.37909	25.4258	ug/L	2.37909	9.36%
K 766.490 R†	28671.9	4865.95	ug/L	163.654	4865.95	ug/L	163.654	3.36%
Mg 279.077 R†	17492.6	24858.6	ug/L	1137.96	24858.6	ug/L	1137.96	4.58%
Mn 257.610†	8183.0	6.82265	ug/L	0.153294	6.82265	ug/L	0.153294	2.25%
Mo 202.031†	280.9	7.49160	ug/L	0.160400	7.49160	ug/L	0.160400	2.14%
Na 589.592 R†	618286.9	59921.3	ug/L	2701.88	59921.3	ug/L	2701.88	4.51%
Ni 231.604†	49.2	0.926087	ug/L	0.0854502	0.926087	ug/L	0.0854502	9.23%
Pb 220.353†	-261.2	-4.66154	ug/L	0.128604	-4.66154	ug/L	0.128604	2.76%
Sb 206.836†	-95.1	-2.91401	ug/L	1.263882	-2.91401	ug/L	1.263882	43.37%
Se 196.026†	376.4	13.2358	ug/L	1.66067	13.2358	ug/L	1.66067	12.55%
Ti 334.940 R†	-31.5	-0.740769	ug/L	0.1854455	-0.740769	ug/L	0.1854455	25.03%
Tl 190.801†	-1.1	-0.0585532	ug/L	1.82538430	-0.0585532	ug/L	1.82538430	>999.9%
V 292.402†	404.8	2.44288	ug/L	0.059850	2.44288	ug/L	0.059850	2.45%
Zn 206.200†	481.0	6.58087	ug/L	0.205363	6.58087	ug/L	0.205363	3.12%
Sn 189.927†	69.3	3.23151	ug/L	0.458311	3.23151	ug/L	0.458311	14.18%
Sr 421.552 R	285477.4	630.562	ug/L	7.1010	630.562	ug/L	7.1010	1.13%

CURTIS & TOMPKINS SAMPLE USER REPORT FOR EPA 6010C

Inst : MET08 Lab ID : 259835-002 Client ID : 04W06-081414
Seqnum : 84347520044 Matrix : Filtrate Acct : JMW (TLB)
File : met08_sn_6010 Batch : 214855 Time : 29-AUG-2014 14:02
Cal : 84347520001 Caldate : 29-AUG-2014
IDF : 100.0 Units : ug/L

50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	Ch	Result	Conf	RPD	RL	Blank	Flags
Aluminum	R	ND			10000		
Antimony	A	ND			1000		
Arsenic	A	ND			500		
Barium	A	410 J			500		
Beryllium	A	ND			200		!<a+
Cadmium	A	ND			500		!<a+
Chromium	A	ND			500		
Cobalt	A	170 J			500		
Copper	A	ND			500	1.1	!<cri+
Lead	A	ND			500		!<a-
Magnesium	R	620000			20000		u
Manganese	A	3800			500		
Molybdenum	A	ND			500		!<a-
Nickel	A	ND			500		
Selenium	A	350 J			1000		
Silver	A	ND			500		!<a+
Thallium	A	ND			1000		
Vanadium	A	ND			500		
Zinc	A	ND			2000		

ISTD (ICAL 002)	Ch	ICAL Abund	SAMPLE Abund	%Drift
Yttrium	A	2681337	2643947	-1.39

!=warning +=high bias -=low bias <=opening a=ICSA u=use

Sequence No.: 27 **Autosampler Location: 20**
Sample ID: 259835-002,214855,100 **Date Collected: 8/29/2014 2:02:47 PM**
Analyst: MET08 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: 259835-002,214855,100

Analyte	Back Pressure	Flow
All	152.0 kPa	0.60 L/min

Mean Data: 259835-002,214855,100

Analyte	Mean Corrected Intensity	Conc.	Calib Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	2643946.8	98.6055	%	1.13100				1.15%
Y	95398.5	103.559	%	2.7862				2.69%
Ag 328.068†	-76.3	-0.100583	ug/L	0.3517160	-0.100583	ug/L	0.3517160	349.68%
Al 308.215 R†	9.4	16.7741	ug/L	6.65127	16.7741	ug/L	6.65127	39.65%
As 188.979†	6.1	0.318998	ug/L	0.2829304	0.318998	ug/L	0.2829304	88.69%
B 249.677†	8800.3	45.1315	ug/L	0.14913	45.1315	ug/L	0.14913	0.33%
Ba 233.527†	1721.3	4.06641	ug/L	0.037892	4.06641	ug/L	0.037892	0.93%
Be 313.107†	-216.1	-0.0412082	ug/L	0.01122685	-0.0412082	ug/L	0.01122685	27.24%
Ca 315.887 R†	10774.4	2165.60	ug/L	116.701	2165.60	ug/L	116.701	5.39%
Cd 214.440†	-37.7	-0.173217	ug/L	0.0147659	-0.173217	ug/L	0.0147659	8.52%
Co 228.616†	221.9	1.65005	ug/L	0.086624	1.65005	ug/L	0.086624	5.25%
Cr 267.716†	0.1	0.0011320	ug/L	0.19317865	0.0011320	ug/L	0.19317865	>999.9%
Cu 324.752†	-104.7	-0.916518	ug/L	0.4660859	-0.916518	ug/L	0.4660859	50.85%
Fe 238.204 R†	313.1	61.8846	ug/L	2.13915	61.8846	ug/L	2.13915	3.46%
K 766.490 R†	7949.9	1349.20	ug/L	85.813	1349.20	ug/L	85.813	6.36%
Mg 279.077 R†	4345.6	6175.46	ug/L	268.372	6175.46	ug/L	268.372	4.35%
Mn 257.610†	45013.7	37.5307	ug/L	0.72298	37.5307	ug/L	0.72298	1.93%
Mo 202.031†	6.6	0.174862	ug/L	0.2737296	0.174862	ug/L	0.2737296	156.54%
Na 589.592 R†	530807.9	51443.2	ug/L	1761.89	51443.2	ug/L	1761.89	3.42%
Ni 231.604†	28.0	0.526347	ug/L	0.0150540	0.526347	ug/L	0.0150540	2.86%
Pb 220.353†	-13.7	-0.245025	ug/L	0.1347237	-0.245025	ug/L	0.1347237	54.98%
Sb 206.836†	-25.4	-0.779054	ug/L	0.8182534	-0.779054	ug/L	0.8182534	105.03%
Se 196.026†	99.7	3.50453	ug/L	0.660557	3.50453	ug/L	0.660557	18.85%
Ti 334.940 R†	2.5	0.0586155	ug/L	0.10279738	0.0586155	ug/L	0.10279738	175.38%
Tl 190.801†	5.7	0.302248	ug/L	1.5349678	0.302248	ug/L	1.5349678	507.85%
V 292.402†	-10.6	-0.0640876	ug/L	0.17846333	-0.0640876	ug/L	0.17846333	278.47%
Zn 206.200†	-103.6	-1.41703	ug/L	0.072086	-1.41703	ug/L	0.072086	5.09%
Sn 189.927†	21.0	0.976962	ug/L	0.2230684	0.976962	ug/L	0.2230684	22.83%
Sr 421.552 R	17347.6	38.3219	ug/L	0.77013	38.3219	ug/L	0.77013	2.01%

CURTIS & TOMPKINS SAMPLE USER REPORT FOR EPA 6010C

Inst	: MET08	Lab ID	: 259835-002	Client ID	: 04W06-081414
Seqnum	: 84347520059	Matrix	: Filtrate	Acct	: JMW (TLB)
File	: met08_sn_6010	Batch	: 214855	Time	: 29-AUG-2014 15:17
Cal	: 84347520001	Caldate	: 29-AUG-2014		
IDF	: 1.0			Units	: ug/L

50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	Ch	Result	Conf	RPD	RL	Blank	Flags
Aluminum	R	ND			100		u
Antimony	A	ND			10		u
Arsenic	A	25			5.0		u
Barium	A	400			5.0		u
Beryllium	A	0.61 J			2.0		!<a+ u
Cadmium	A	ND			5.0		!<a+ u
Chromium	A	7.3			5.0		u
Cobalt	A	160			5.0		u
Copper	A	ND			5.0	1.1	!<cri+ u
Lead	A	ND			5.0		!<a- u
Magnesium	R	**610000 >LR**			500		>LR **b***
Manganese	A	3700			5.0		u
Molybdenum	A	11			5.0		!<a- u
Nickel	A	33			5.0		u
Selenium	A	71			10		u
Silver	A	2.3 J			5.0		!<a+ u
Thallium	A	ND			10		u
Vanadium	A	6.1			5.0		u
Zinc	A	15 J			20		u

ISTD (ICAL 002)	Ch	ICAL Abund	SAMPLE Abund	%Drift
Yttrium	A	2681337	1948915	-27.32

!=warning +=high bias -=low bias <=opening >LR=overrange a=ICSA b=noncompliant u=use

Sequence No.: 42
Sample ID: 259835-002,214855,1
Analyst: MET08
Initial Sample Wt:
Dilution:

Autosampler Location: 41
Date Collected: 8/29/2014 3:17:29 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 259835-002,214855,1

Analyte	Back Pressure	Flow
All	152.0 kPa	0.60 L/min

Mean Data: 259835-002,214855,1

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	1948914.6	72.6844	%	1.16825				1.61%
Y	81341.1	88.2993	%	1.80152				2.04%
Ag 328.068†	1729.9	2.27901	ug/L	0.477471	2.27901	ug/L	0.477471	20.95%
Al 308.215 R†	-3.5	-6.26645	ug/L	12.116216	-6.26645	ug/L	12.116216	193.35%
As 188.979†	471.5	24.5818	ug/L	1.05374	24.5818	ug/L	1.05374	4.29%
B 249.677†	788239.2	4042.42	ug/L	13.736	4042.42	ug/L	13.736	0.34%
Ba 233.527†	167891.9	396.630	ug/L	1.7068	396.630	ug/L	1.7068	0.43%
Be 313.107†	3195.6	0.609346	ug/L	0.0083186	0.609346	ug/L	0.0083186	1.37%
Ca 315.887 R†	1040655.3	209166	ug/L	7937.0	209166	ug/L	7937.0	3.79%
Cd 214.440†	-1971.8	-9.05795	ug/L	0.190395	-9.05795	ug/L	0.190395	2.10%
Co 228.616†	21710.6	161.462	ug/L	2.4080	161.462	ug/L	2.4080	1.49%
Cr 267.716†	709.2	7.28684	ug/L	0.089245	7.28684	ug/L	0.089245	1.22%
Cu 324.752†	-240.3	-2.10283	ug/L	0.192789	-2.10283	ug/L	0.192789	9.17%
Fe 238.204 R†	31059.8	6139.11	ug/L	131.136	6139.11	ug/L	131.136	2.14%
K 766.490 R†	1008914.0	171224	ug/L	2977.3	171224	ug/L	2977.3	1.74%
Mg 279.077 R†	426372.8	605915	ug/L	31288.6	605915	ug/L	31288.6	5.16%
Mn 257.610†	4456043.6	3715.28	ug/L	29.520	3715.28	ug/L	29.520	0.79%
Mo 202.031†	411.7	10.9810	ug/L	0.14098	10.9810	ug/L	0.14098	1.28%
Na 589.592 R†	Saturated3							
Ni 231.604†	1756.7	33.0614	ug/L	0.50493	33.0614	ug/L	0.50493	1.53%
Pb 220.353†	-478.8	-8.54319	ug/L	1.040915	-8.54319	ug/L	1.040915	12.18%
Sb 206.836†	-147.6	-4.52409	ug/L	0.508662	-4.52409	ug/L	0.508662	11.24%
Se 196.026†	2024.6	71.1909	ug/L	1.75036	71.1909	ug/L	1.75036	2.46%
Ti 334.940 R†	-50.9	-1.19527	ug/L	0.258289	-1.19527	ug/L	0.258289	21.61%
Tl 190.801†	-11.9	-0.630057	ug/L	1.9623933	-0.630057	ug/L	1.9623933	311.46%
V 292.402†	1015.2	6.12722	ug/L	0.063452	6.12722	ug/L	0.063452	1.04%
Zn 206.200†	1125.8	15.4025	ug/L	0.08250	15.4025	ug/L	0.08250	0.54%
Sn 189.927†	79.5	3.70798	ug/L	0.469458	3.70798	ug/L	0.469458	12.66%
Sr 421.552 R	1549300.5	3422.56	ug/L	4.295	3422.56	ug/L	4.295	0.13%

CURTIS & TOMPKINS SAMPLE USER REPORT FOR EPA 6010C

Inst : MET08 Lab ID : 259835-003 Client ID : 04W15-081414
Seqnum : 84347520045 Matrix : Filtrate Acct : JMW (TLB)
File : met08_sn_6010 Batch : 214855 Time : 29-AUG-2014 14:07
Cal : 84347520001 Caldate : 29-AUG-2014
IDF : 100.0 Units : ug/L

50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	Ch	Result	Conf	RPD	RL	Blank	Flags
Aluminum	R	ND			10000		
Antimony	A	ND			1000		
Arsenic	A	ND			500		
Barium	A	230 J			500		
Beryllium	A	ND			200		!<a+
Cadmium	A	ND			500		!<a+
Chromium	A	ND			500		
Cobalt	A	ND			500		
Copper	A	ND			500	1.1	!<cri+
Lead	A	ND			500		!<a-
Magnesium	R	630000			20000		u
Manganese	A	3200			500		
Molybdenum	A	ND			500		!<a-
Nickel	A	ND			500		
Selenium	A	ND			1000		
Silver	A	ND			500		!<a+
Thallium	A	ND			1000		
Vanadium	A	ND			500		
Zinc	A	ND			2000		

ISTD (ICAL 002)	Ch	ICAL Abund	SAMPLE Abund	%Drift
Yttrium	A	2681337	2608194	-2.73

!=warning +=high bias -=low bias <=opening a=ICSA u=use

Sequence No.: 28 **Autosampler Location: 21**
Sample ID: 259835-003,214855,100 **Date Collected: 8/29/2014 2:07:54 PM**
Analyst: MET08 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: 259835-003,214855,100

Analyte	Back Pressure	Flow
All	152.0 kPa	0.60 L/min

Mean Data: 259835-003,214855,100

Analyte	Mean Corrected Intensity	Conc.	Calib Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	2608194.4	97.2722	%	1.68047				1.73%
Y	94465.8	102.547	%	3.0652				2.99%
Ag 328.068†	112.0	0.147543	ug/L	0.4639787	0.147543	ug/L	0.4639787	314.47%
Al 308.215 R†	8.4	15.0580	ug/L	4.58574	15.0580	ug/L	4.58574	30.45%
As 188.979†	18.9	0.983126	ug/L	0.7800495	0.983126	ug/L	0.7800495	79.34%
B 249.677†	6517.8	33.4262	ug/L	0.64316	33.4262	ug/L	0.64316	1.92%
Ba 233.527†	963.9	2.27722	ug/L	0.040540	2.27722	ug/L	0.040540	1.78%
Be 313.107†	-93.2	-0.0177759	ug/L	0.02110295	-0.0177759	ug/L	0.02110295	118.72%
Ca 315.887 R†	10819.9	2174.73	ug/L	103.164	2174.73	ug/L	103.164	4.74%
Cd 214.440†	-41.6	-0.191153	ug/L	0.0401594	-0.191153	ug/L	0.0401594	21.01%
Co 228.616†	7.4	0.0548799	ug/L	0.06096805	0.0548799	ug/L	0.06096805	111.09%
Cr 267.716†	-14.3	-0.146944	ug/L	0.0631212	-0.146944	ug/L	0.0631212	42.96%
Cu 324.752†	-16.7	-0.146350	ug/L	0.4788959	-0.146350	ug/L	0.4788959	327.23%
Fe 238.204 R†	4643.4	917.788	ug/L	31.2666	917.788	ug/L	31.2666	3.41%
K 766.490 R†	6772.9	1149.43	ug/L	80.834	1149.43	ug/L	80.834	7.03%
Mg 279.077 R†	4459.2	6337.00	ug/L	287.027	6337.00	ug/L	287.027	4.53%
Mn 257.610†	37847.1	31.5555	ug/L	0.81051	31.5555	ug/L	0.81051	2.57%
Mo 202.031†	7.0	0.186279	ug/L	0.1157545	0.186279	ug/L	0.1157545	62.14%
Na 589.592 R†	458480.0	44433.6	ug/L	1451.95	44433.6	ug/L	1451.95	3.27%
Ni 231.604†	5.3	0.100671	ug/L	0.1040566	0.100671	ug/L	0.1040566	103.36%
Pb 220.353†	-18.2	-0.324124	ug/L	0.3910869	-0.324124	ug/L	0.3910869	120.66%
Sb 206.836†	-17.5	-0.536762	ug/L	1.0368016	-0.536762	ug/L	1.0368016	193.16%
Se 196.026†	59.8	2.10227	ug/L	2.351837	2.10227	ug/L	2.351837	111.87%
Ti 334.940 R†	3.5	0.0832738	ug/L	0.06453565	0.0832738	ug/L	0.06453565	77.50%
Tl 190.801†	-2.9	-0.153667	ug/L	0.2656922	-0.153667	ug/L	0.2656922	172.90%
V 292.402†	18.3	0.110493	ug/L	0.1925707	0.110493	ug/L	0.1925707	174.28%
Zn 206.200†	-102.4	-1.40130	ug/L	0.019450	-1.40130	ug/L	0.019450	1.39%
Sn 189.927†	5.7	0.264049	ug/L	0.1304663	0.264049	ug/L	0.1304663	49.41%
Sr 421.552 R	16979.9	37.5100	ug/L	0.21653	37.5100	ug/L	0.21653	0.58%

CURTIS & TOMPKINS SAMPLE USER REPORT FOR EPA 6010C

Inst : MET08 Lab ID : 259835-003 Client ID : 04W15-081414
Seqnum : 84347520060 Matrix : Filtrate Acct : JMW (TLB)
File : met08_sn_6010 Batch : 214855 Time : 29-AUG-2014 15:26
Cal : 84347520001 Caldate : 29-AUG-2014
IDF : 1.0 Units : ug/L

50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	Ch	Result	Conf	RPD	RL	Blank	Flags
Aluminum	R	ND			100		u
Antimony	A	ND			10		u
Arsenic	A	100			5.0		u
Barium	A	230			5.0		u
Beryllium	A	0.59 J			2.0		!<a+ u
Cadmium	A	ND			5.0		!<a+ u
Chromium	A	8.9			5.0		u
Cobalt	A	4.5 J			5.0		u
Copper	A	ND			5.0	1.1	!<cri+ u
Lead	A	ND			5.0		!<a- u
Magnesium	R	**640000 >LR**			500		>LR **b***
Manganese	A	3200			5.0		u
Molybdenum	A	21			5.0		!<a- u
Nickel	A	11			5.0		u
Selenium	A	51			10		u
Silver	A	ND			5.0		!<a+ u
Thallium	A	ND			10		u
Vanadium	A	13			5.0		u
Zinc	A	13 J			20		u

ISTD (ICAL 002)	Ch	ICAL Abund	SAMPLE Abund	%Drift
Yttrium	A	2681337	1979770	-26.16

!=warning +=high bias -=low bias <=opening >LR=overrange a=ICSA b=noncompliant u=use

Sequence No.: 43 **Autosampler Location: 42**
Sample ID: 259835-003,214855,1 **Date Collected: 8/29/2014 3:26:07 PM**
Analyst: MET08 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: 259835-003,214855,1

Analyte	Back Pressure	Flow
All	154.0 kPa	0.60 L/min

Mean Data: 259835-003,214855,1

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	1979770.2	73.8352	%	1.54253				2.09%
Y	82467.7	89.5222	%	3.89222				4.35%
Ag 328.068†	371.6	0.489592	ug/L	0.2069485	0.489592	ug/L	0.2069485	42.27%
Al 308.215 R†	-3.4	-6.13753	ug/L	9.808752	-6.13753	ug/L	9.808752	159.82%
As 188.979†	1925.9	100.402	ug/L	1.9901	100.402	ug/L	1.9901	1.98%
B 249.677†	612893.9	3143.18	ug/L	9.383	3143.18	ug/L	9.383	0.30%
Ba 233.527†	97145.8	229.499	ug/L	1.6037	229.499	ug/L	1.6037	0.70%
Be 313.107†	3099.7	0.591070	ug/L	0.0657279	0.591070	ug/L	0.0657279	11.12%
Ca 315.887 R†	1065595.4	214179	ug/L	11721.3	214179	ug/L	11721.3	5.47%
Cd 214.440†	-2051.7	-9.42500	ug/L	0.195936	-9.42500	ug/L	0.195936	2.08%
Co 228.616†	598.3	4.45308	ug/L	0.077606	4.45308	ug/L	0.077606	1.74%
Cr 267.716†	870.9	8.94858	ug/L	0.045840	8.94858	ug/L	0.045840	0.51%
Cu 324.752†	-454.7	-3.97882	ug/L	0.986976	-3.97882	ug/L	0.986976	24.81%
Fe 238.204 R†	456036.5	90137.7	ug/L	2985.82	90137.7	ug/L	2985.82	3.31%
K 766.490 R†	777526.4	131955	ug/L	5004.6	131955	ug/L	5004.6	3.79%
Mg 279.077 R†	449097.4	638209	ug/L	30348.5	638209	ug/L	30348.5	4.76%
Mn 257.610†	3812936.5	3179.08	ug/L	17.443	3179.08	ug/L	17.443	0.55%
Mo 202.031†	800.0	21.3399	ug/L	0.64912	21.3399	ug/L	0.64912	3.04%
Na 589.592 R†	Saturated3							
Ni 231.604†	587.0	11.0476	ug/L	0.21371	11.0476	ug/L	0.21371	1.93%
Pb 220.353†	-369.0	-6.58404	ug/L	0.921641	-6.58404	ug/L	0.921641	14.00%
Sb 206.836†	15.9	0.487324	ug/L	1.2798605	0.487324	ug/L	1.2798605	262.63%
Se 196.026†	1458.5	51.2845	ug/L	3.00039	51.2845	ug/L	3.00039	5.85%
Ti 334.940 R†	-82.5	-1.93903	ug/L	0.123638	-1.93903	ug/L	0.123638	6.38%
Tl 190.801†	-125.2	-6.64584	ug/L	0.392915	-6.64584	ug/L	0.392915	5.91%
V 292.402†	2227.3	13.4431	ug/L	0.10124	13.4431	ug/L	0.10124	0.75%
Zn 206.200†	930.2	12.7256	ug/L	0.13399	12.7256	ug/L	0.13399	1.05%
Sn 189.927†	11.8	0.548356	ug/L	0.1032303	0.548356	ug/L	0.1032303	18.83%
Sr 421.552 R	1586611.0	3505.00	ug/L	37.194	3505.00	ug/L	37.194	1.06%

CURTIS & TOMPKINS BLANK USER REPORT FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 Lab ID : QC755360
Seqnum : 84347520033.2 Matrix : Filtrate
File : met08_sn_6010 Batch : 214855 Time : 29-AUG-2014 13:08
Cal : 84347520001 Caldate : 29-AUG-2014
IDF : 1.0 Units : ug/L

50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	Ch	Result	Conf	RPD	RL	Flags
Aluminum	R	ND			100	u
Antimony	A	ND			10	u
Arsenic	A	ND			5.0	u
Barium	A	ND			5.0	u
Beryllium	A	ND			2.0	!<a+ u
Cadmium	A	ND			5.0	!<a+ u
Chromium	A	ND			5.0	u
Cobalt	A	ND			5.0	u
Copper	A	1.1 J			5.0	!<cri+ u
Lead	A	ND			5.0	!<a- u
Magnesium	R	ND			500	u
Manganese	A	ND			5.0	u
Molybdenum	A	ND			5.0	!<a- u
Nickel	A	ND			5.0	u
Selenium	A	ND			10	u
Silver	A	ND			5.0	!<a+ u
Thallium	A	ND			10	u
Vanadium	A	ND			5.0	u
Zinc	A	ND			20	u

ISTD (ICAL 002)	Ch	ICAL Abund	BLANK Abund	%Drift
Yttrium	A	2681337	2671562	-0.36

!=warning +=high bias -=low bias <=opening a=ICSA u=use

Sequence No.: 16
Sample ID: qc755360,214855,1
Analyst: MET08
Initial Sample Wt:
Dilution:

Autosampler Location: 11
Date Collected: 8/29/2014 1:08:24 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: qc755360,214855,1

Analyte	Back Pressure	Flow
All	152.0 kPa	0.60 L/min

Mean Data: qc755360,214855,1

Analyte	Mean Corrected Intensity	Conc.	Calib Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	2671561.7	99.6354	%	0.39870				0.40%
Y	95104.3	103.240	%	1.7546				1.70%
Ag 328.068†	-368.6	-0.485583	ug/L	0.2440351	-0.485583	ug/L	0.2440351	50.26%
Al 308.215 R†	15.4	27.5077	ug/L	17.89132	27.5077	ug/L	17.89132	65.04%
As 188.979†	6.5	0.340034	ug/L	0.6141730	0.340034	ug/L	0.6141730	180.62%
B 249.677†	2114.4	10.8433	ug/L	0.20428	10.8433	ug/L	0.20428	1.88%
Ba 233.527†	110.8	0.261790	ug/L	0.0266887	0.261790	ug/L	0.0266887	10.19%
Be 313.107†	-636.9	-0.121441	ug/L	0.0407860	-0.121441	ug/L	0.0407860	33.58%
Ca 315.887 R†	126.7	25.4567	ug/L	0.31326	25.4567	ug/L	0.31326	1.23%
Cd 214.440†	-17.6	-0.0809014	ug/L	0.01330018	-0.0809014	ug/L	0.01330018	16.44%
Co 228.616†	5.2	0.0381316	ug/L	0.02927533	0.0381316	ug/L	0.02927533	76.77%
Cr 267.716†	-17.3	-0.177372	ug/L	0.0135013	-0.177372	ug/L	0.0135013	7.61%
Cu 324.752†	124.2	1.08705	ug/L	1.094237	1.08705	ug/L	1.094237	100.66%
Fe 238.204 R†	-6.4	-1.26378	ug/L	0.407424	-1.26378	ug/L	0.407424	32.24%
K 766.490 R†	116.8	19.8307	ug/L	11.16779	19.8307	ug/L	11.16779	56.32%
Mg 279.077 R†	4.4	6.32180	ug/L	6.110568	6.32180	ug/L	6.110568	96.66%
Mn 257.610†	-262.2	-0.218608	ug/L	0.0068929	-0.218608	ug/L	0.0068929	3.15%
Mo 202.031†	4.8	0.127791	ug/L	0.2084847	0.127791	ug/L	0.2084847	163.15%
Na 589.592 R†	315.0	30.5235	ug/L	11.84520	30.5235	ug/L	11.84520	38.81%
Ni 231.604†	13.3	0.250107	ug/L	0.1322067	0.250107	ug/L	0.1322067	52.86%
Pb 220.353†	7.2	0.128589	ug/L	0.3034760	0.128589	ug/L	0.3034760	236.01%
Sb 206.836†	-43.9	-1.34427	ug/L	1.563733	-1.34427	ug/L	1.563733	116.33%
Se 196.026†	14.9	0.523077	ug/L	1.4064006	0.523077	ug/L	1.4064006	268.87%
Ti 334.940 R†	8.6	0.202078	ug/L	0.1912026	0.202078	ug/L	0.1912026	94.62%
Tl 190.801†	1.0	0.0516091	ug/L	0.64790853	0.0516091	ug/L	0.64790853	>999.9%
V 292.402†	29.4	0.177350	ug/L	0.3151235	0.177350	ug/L	0.3151235	177.68%
Zn 206.200†	-36.8	-0.503911	ug/L	0.0513975	-0.503911	ug/L	0.0513975	10.20%
Sn 189.927†	7.0	0.327851	ug/L	0.2298489	0.327851	ug/L	0.2298489	70.11%
Sr 421.552 R	188.2	0.415630	ug/L	0.1793201	0.415630	ug/L	0.1793201	43.14%

CURTIS & TOMPKINS SPIKE USER REPORT FOR 259835 METALS Filtrate
EPA 6010C

Type : BS
Inst : MET08
Seqnum : 84347520034.2
File : met08_sn_6010
IDF : 1.0
Lab ID : QC755361
Matrix : Filtrate
Batch : 214855
Time : 29-AUG-2014 13:13
Cal : 84347520001
Units : ug/L

Type : BSD
Inst : MET08
Seqnum : 84347520035.2
File : met08_sn_6010
IDF : 1.0
Lab ID : QC755362
Matrix : Filtrate
Batch : 214855
Time : 29-AUG-2014 13:17
Cal : 84347520001

BS: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF
BSD: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	Spiked	BS	Ch	%Rec	BSD	Ch	%Rec	Limits	RPD	Lim	Flags
Aluminum	10000	9506	R	95	9823	R	98	80-120	3	20	u
Antimony	100.0	89.56	A	90	93.23	A	93	80-120	4	20	u
Arsenic	100.0	95.01	A	95	99.61	A	100	80-120	5	20	u
Barium	100.0	92.47	A	92	95.03	A	95	80-120	3	20	u
Beryllium	100.0	94.20	A	94	98.17	A	98	80-120	4	20	!<a+ u
Cadmium	100.0	98.21	A	98	103.7	A	104	80-120	5	20	!<a+ u
Chromium	100.0	92.26	A	92	96.01	A	96	80-120	4	20	u
Cobalt	100.0	91.77	A	92	96.99	A	97	80-120	6	20	u
Copper	100.0	91.42	A	91	95.15	A	95	80-120	4	20	!<cri+ u
Lead	100.0	90.41	A	90	94.83	A	95	80-120	5	20	!<a- u
Magnesium	10000	9409	R	94	9642	R	96	80-120	2	20	u
Manganese	100.0	88.81	A	89	91.78	A	92	80-120	3	20	u
Molybdenum	100.0	90.08	A	90	94.94	A	95	80-120	5	20	!<a- u
Nickel	100.0	92.40	A	92	97.14	A	97	80-120	5	20	u
Selenium	100.0	100.9	A	101	105.8	A	106	80-120	5	20	u
Silver	100.0	97.90	A	98	101.0	A	101	80-120	3	20	!<a+ u
Thallium	50.00	47.10	A	94	49.30	A	99	80-120	5	20	u
Vanadium	100.0	98.69	A	99	100.6	A	101	80-120	2	20	u
Zinc	100.0	97.13	A	97	103.6	A	104	80-120	6	20	u

ISTD (ICAL 002)	Ch	ICAL Abund	BS Abund	%Drift
Yttrium	A	2681337	2791209	4.10

ISTD (ICAL 002)	Ch	ICAL Abund	BSD Abund	%Drift
Yttrium	A	2681337	2661726	-0.73

!=warning +=high bias -=low bias <=opening a=ICSA u=use

Sequence No.: 17
Sample ID: qc755361,214855,1
Analyst: MET08
Initial Sample Wt:
Dilution:

Autosampler Location: 12
Date Collected: 8/29/2014 1:13:24 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: qc755361,214855,1

Analyte	Back Pressure	Flow
All	152.0 kPa	0.60 L/min

Mean Data: qc755361,214855,1

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	2791208.5	104.098	%	3.3665				3.23%
Y	97966.8	106.347	%	1.1463				1.08%
Ag 328.068†	74313.6	97.9007	ug/L	2.10664	97.9007	ug/L	2.10664	2.15%
Al 308.215 R†	5326.1	9505.64	ug/L	100.308	9505.64	ug/L	100.308	1.06%
As 188.979†	1822.4	95.0105	ug/L	3.50877	95.0105	ug/L	3.50877	3.69%
B 249.677†	197897.3	1014.90	ug/L	19.383	1014.90	ug/L	19.383	1.91%
Ba 233.527†	39141.6	92.4687	ug/L	2.91944	92.4687	ug/L	2.91944	3.16%
Be 313.107†	494027.3	94.2031	ug/L	2.40533	94.2031	ug/L	2.40533	2.55%
Ca 315.887 R†	46526.1	9351.47	ug/L	57.123	9351.47	ug/L	57.123	0.61%
Cd 214.440†	21378.2	98.2083	ug/L	3.05656	98.2083	ug/L	3.05656	3.11%
Co 228.616†	12575.6	91.7740	ug/L	3.17208	91.7740	ug/L	3.17208	3.46%
Cr 267.716†	8979.2	92.2639	ug/L	3.29047	92.2639	ug/L	3.29047	3.57%
Cu 324.752†	10446.8	91.4156	ug/L	3.22508	91.4156	ug/L	3.22508	3.53%
Fe 238.204 R†	47707.5	9429.61	ug/L	43.229	9429.61	ug/L	43.229	0.46%
K 766.490 R†	53286.7	9043.37	ug/L	86.899	9043.37	ug/L	86.899	0.96%
Mg 279.077 R†	6620.9	9408.95	ug/L	95.916	9408.95	ug/L	95.916	1.02%
Mn 257.610†	106517.4	88.8103	ug/L	4.80573	88.8103	ug/L	4.80573	5.41%
Mo 202.031†	3377.2	90.0832	ug/L	4.08454	90.0832	ug/L	4.08454	4.53%
Na 589.592 R†	97975.8	9495.33	ug/L	39.229	9495.33	ug/L	39.229	0.41%
Ni 231.604†	4909.4	92.3976	ug/L	2.69414	92.3976	ug/L	2.69414	2.92%
Pb 220.353†	5066.4	90.4078	ug/L	2.95895	90.4078	ug/L	2.95895	3.27%
Sb 206.836†	2922.9	89.5641	ug/L	2.81123	89.5641	ug/L	2.81123	3.14%
Se 196.026†	2870.1	100.923	ug/L	3.6842	100.923	ug/L	3.6842	3.65%
Ti 334.940 R†	39183.6	920.921	ug/L	19.1185	920.921	ug/L	19.1185	2.08%
Tl 190.801†	887.5	47.1017	ug/L	2.49912	47.1017	ug/L	2.49912	5.31%
V 292.402†	16352.0	98.6928	ug/L	1.43554	98.6928	ug/L	1.43554	1.45%
Zn 206.200†	7099.7	97.1320	ug/L	3.26193	97.1320	ug/L	3.26193	3.36%
Sn 189.927†	19352.2	902.090	ug/L	39.4101	902.090	ug/L	39.4101	4.37%
Sr 421.552 R	34.4	-0.190857	ug/L	0.1653508	-0.190857	ug/L	0.1653508	86.64%

Sequence No.: 18
Sample ID: qc755362,214855,1
Analyst: MET08
Initial Sample Wt:
Dilution:

Autosampler Location: 13
Date Collected: 8/29/2014 1:17:29 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: qc755362,214855,1

Analyte	Back Pressure	Flow
All	153.0 kPa	0.60 L/min

Mean Data: qc755362,214855,1

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	2661725.5	99.2686	%	2.73956				2.76%
Y	97469.1	105.807	%	2.1708				2.05%
Ag 328.068†	76658.6	100.990	ug/L	1.9946	100.990	ug/L	1.9946	1.98%
Al 308.215 R†	5503.9	9822.93	ug/L	56.870	9822.93	ug/L	56.870	0.58%
As 188.979†	1910.7	99.6087	ug/L	2.28224	99.6087	ug/L	2.28224	2.29%
B 249.677†	206414.6	1058.58	ug/L	25.250	1058.58	ug/L	25.250	2.39%
Ba 233.527†	40225.3	95.0288	ug/L	2.98841	95.0288	ug/L	2.98841	3.14%
Be 313.107†	514841.4	98.1720	ug/L	2.61708	98.1720	ug/L	2.61708	2.67%
Ca 315.887 R†	47610.2	9569.38	ug/L	55.684	9569.38	ug/L	55.684	0.58%
Cd 214.440†	22581.7	103.737	ug/L	2.1853	103.737	ug/L	2.1853	2.11%
Co 228.616†	13292.0	96.9864	ug/L	2.28493	96.9864	ug/L	2.28493	2.36%
Cr 267.716†	9343.8	96.0103	ug/L	2.19169	96.0103	ug/L	2.19169	2.28%
Cu 324.752†	10873.0	95.1451	ug/L	1.74030	95.1451	ug/L	1.74030	1.83%
Fe 238.204 R†	48643.3	9614.57	ug/L	66.664	9614.57	ug/L	66.664	0.69%
K 766.490 R†	54598.8	9266.05	ug/L	78.967	9266.05	ug/L	78.967	0.85%
Mg 279.077 R†	6784.6	9641.59	ug/L	59.019	9641.59	ug/L	59.019	0.61%
Mn 257.610†	110073.5	91.7752	ug/L	4.29255	91.7752	ug/L	4.29255	4.68%
Mo 202.031†	3559.1	94.9356	ug/L	2.56834	94.9356	ug/L	2.56834	2.71%
Na 589.592 R†	100585.0	9748.20	ug/L	124.694	9748.20	ug/L	124.694	1.28%
Ni 231.604†	5161.6	97.1448	ug/L	1.87778	97.1448	ug/L	1.87778	1.93%
Pb 220.353†	5314.1	94.8275	ug/L	2.10624	94.8275	ug/L	2.10624	2.22%
Sb 206.836†	3042.4	93.2281	ug/L	3.05519	93.2281	ug/L	3.05519	3.28%
Se 196.026†	3008.7	105.798	ug/L	3.9257	105.798	ug/L	3.9257	3.71%
Ti 334.940 R†	41756.0	981.379	ug/L	41.9679	981.379	ug/L	41.9679	4.28%
Tl 190.801†	928.8	49.2954	ug/L	2.72427	49.2954	ug/L	2.72427	5.53%
V 292.402†	16661.7	100.562	ug/L	1.9063	100.562	ug/L	1.9063	1.90%
Zn 206.200†	7576.0	103.649	ug/L	2.5387	103.649	ug/L	2.5387	2.45%
Sn 189.927†	20378.4	949.925	ug/L	28.2203	949.925	ug/L	28.2203	2.97%
Sr 421.552 R	36.1	-0.204932	ug/L	0.1629029	-0.204932	ug/L	0.1629029	79.49%

CURTIS & TOMPKINS SPIKE USER REPORT FOR 259835 METALS Filtrate
EPA 6010C

Type : MSS	Type : MS	Type : MSD
Inst : MET08	Inst : MET08	Inst : MET08
Seqnum : 84347520053	Seqnum : 84347520054.3	Seqnum : 84347520055.3
File : met08_sn_6010	File : met08_sn_6010	File : met08_sn_6010
IDF : 1.0	IDF : 1.0	IDF : 1.0
Lab ID : 259841-001	Lab ID : QC755363	Lab ID : QC755364
Matrix : Filtrate	Matrix : Filtrate	Matrix : Filtrate
Batch : 214855	Batch : 214855	Batch : 214855
Time : 29-AUG-2014 14:50	Time : 29-AUG-2014 14:55	Time : 29-AUG-2014 14:59
Cal : 84347520001	Cal : 84347520001	Cal : 84347520001
Units : ug/L		

MSS: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF
MS: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF
MSD: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	MSS	Ch	Spiked	MS	Ch	%Rec	MSD	Ch	%Rec	Limits	RPD	Lim	Flags
Aluminum	ND	R	10000	9585	R	96	10290	R	103	80-120	7	20	u
Antimony	ND	A	100.0	88.79	A	89	86.31	A	86	80-120	3	20	u
Arsenic	1.619 J	A	100.0	109.0	A	107	103.3	A	102	80-120	5	20	u
Barium	17.33	A	100.0	112.8	A	95	110.4	A	93	80-120	2	20	u
Beryllium	0.1543 J	A	100.0	99.18	A	99	97.89	A	98	80-120	1	20	!<a+ u
Cadmium	ND	A	100.0	96.97	A	97	93.12	A	93	80-120	4	20	!<a+ u
Chromium	13.51	A	100.0	109.7	A	96	106.7	A	93	80-120	3	20	u
Cobalt	ND	A	100.0	95.95	A	96	92.45	A	92	80-120	4	20	u
Copper	ND	A	100.0	93.18	A	93	90.46	A	90	80-120	3	20	!<cri+ u
Lead	ND	A	100.0	89.90	A	90	87.20	A	87	80-120	3	20	!<a- u
Magnesium	61650	R	10000	68250	R	66	73880	R	122	80-120	8	20	: u
Manganese	3.098 J	A	100.0	97.62	A	95	95.07	A	92	80-120	3	20	u
Molybdenum	5.566	A	100.0	102.9	A	97	100.2	A	95	80-120	3	20	!<a- u
Nickel	1.626 J	A	100.0	95.70	A	94	92.84	A	91	80-120	3	20	u
Selenium	24.19	A	100.0	132.8	A	109	127.4	A	103	80-120	4	20	u
Silver	ND	A	100.0	93.94	A	94	91.42	A	91	80-120	3	20	!<a+ u
Thallium	ND	A	50.00	46.71	A	93	44.49	A	89	80-120	5	20	u
Vanadium	2.522 J	A	100.0	106.8	A	104	103.6	A	101	80-120	3	20	u
Zinc	6.875 J	A	100.0	109.8	A	103	105.9	A	99	80-120	4	20	u

ISTD (ICAL 002)	Ch	ICAL Abund	MS Abund	%Drift
Yttrium	A	2681337	2497902	-6.84

ISTD (ICAL 002)	Ch	ICAL Abund	MSD Abund	%Drift
Yttrium	A	2681337	2497724	-6.85

!=warning +=high bias -=low bias :=recovery not meaningful <=opening a=ICSA u=use

Sequence No.: 37
Sample ID: qc755363,214855,1
Analyst: MET08
Initial Sample Wt:
Dilution:

Autosampler Location: 36
Date Collected: 8/29/2014 2:55:02 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: qc755363,214855,1

Analyte	Back Pressure	Flow
All	153.0 kPa	0.60 L/min

Mean Data: qc755363,214855,1

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	2497902.4	93.1588	%	2.57475				2.76%
Y	91159.1	98.9571	%	0.49796				0.50%
Ag 328.068†	71306.7	93.9394	ug/L	2.53584	93.9394	ug/L	2.53584	2.70%
Al 308.215 R†	5370.5	9584.87	ug/L	87.165	9584.87	ug/L	87.165	0.91%
As 188.979†	2091.0	109.009	ug/L	1.3674	109.009	ug/L	1.3674	1.25%
B 249.677†	719703.2	3690.94	ug/L	102.946	3690.94	ug/L	102.946	2.79%
Ba 233.527†	47735.4	112.771	ug/L	3.5414	112.771	ug/L	3.5414	3.14%
Be 313.107†	520124.4	99.1793	ug/L	2.94480	99.1793	ug/L	2.94480	2.97%
Ca 315.887 R†	430786.0	86585.5	ug/L	1626.66	86585.5	ug/L	1626.66	1.88%
Cd 214.440†	21108.8	96.9703	ug/L	2.33975	96.9703	ug/L	2.33975	2.41%
Co 228.616†	13152.4	95.9465	ug/L	2.52414	95.9465	ug/L	2.52414	2.63%
Cr 267.716†	10674.3	109.682	ug/L	2.6946	109.682	ug/L	2.6946	2.46%
Cu 324.752†	10648.4	93.1792	ug/L	4.53602	93.1792	ug/L	4.53602	4.87%
Fe 238.204 R†	48675.8	9620.99	ug/L	24.194	9620.99	ug/L	24.194	0.25%
K 766.490 R†	98835.7	16773.6	ug/L	305.49	16773.6	ug/L	305.49	1.82%
Mg 279.077 R†	48028.3	68252.6	ug/L	209.52	68252.6	ug/L	209.52	0.31%
Mn 257.610†	117086.2	97.6221	ug/L	4.69565	97.6221	ug/L	4.69565	4.81%
Mo 202.031†	3858.0	102.909	ug/L	2.7658	102.909	ug/L	2.7658	2.69%
Na 589.592 R†	2433798.5	235872	ug/L	3522.4	235872	ug/L	3522.4	1.49%
Ni 231.604†	5085.1	95.7047	ug/L	1.98386	95.7047	ug/L	1.98386	2.07%
Pb 220.353†	5037.7	89.8952	ug/L	2.35415	89.8952	ug/L	2.35415	2.62%
Sb 206.836†	2897.6	88.7893	ug/L	2.80652	88.7893	ug/L	2.80652	3.16%
Se 196.026†	3778.0	132.849	ug/L	4.4672	132.849	ug/L	4.4672	3.36%
Ti 334.940 R†	41800.4	982.422	ug/L	32.2885	982.422	ug/L	32.2885	3.29%
Tl 190.801†	880.0	46.7080	ug/L	1.92001	46.7080	ug/L	1.92001	4.11%
V 292.402†	17699.7	106.827	ug/L	3.1102	106.827	ug/L	3.1102	2.91%
Zn 206.200†	8024.0	109.777	ug/L	2.9185	109.777	ug/L	2.9185	2.66%
Sn 189.927†	20801.8	969.660	ug/L	30.7792	969.660	ug/L	30.7792	3.17%
Sr 421.552 R	522864.9	1154.63	ug/L	13.953	1154.63	ug/L	13.953	1.21%

Sequence No.: 38
Sample ID: qc755364,214855,1
Analyst: MET08
Initial Sample Wt:
Dilution:

Autosampler Location: 37
Date Collected: 8/29/2014 2:59:08 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: qc755364,214855,1

Analyte	Back Pressure	Flow
All	151.0 kPa	0.60 L/min

Mean Data: qc755364,214855,1

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	2497723.8	93.1522	%	2.44709				2.63%
Y	90781.8	98.5475	%	1.60039				1.62%
Ag 328.068†	69392.0	91.4170	ug/L	1.03831	91.4170	ug/L	1.03831	1.14%
Al 308.215 R†	5765.3	10289.5	ug/L	37.53	10289.5	ug/L	37.53	0.36%
As 188.979†	1982.1	103.334	ug/L	1.8037	103.334	ug/L	1.8037	1.75%
B 249.677†	719578.2	3690.30	ug/L	61.546	3690.30	ug/L	61.546	1.67%
Ba 233.527†	46722.3	110.377	ug/L	2.8932	110.377	ug/L	2.8932	2.62%
Be 313.107†	513351.4	97.8879	ug/L	2.03528	97.8879	ug/L	2.03528	2.08%
Ca 315.887 R†	466807.6	93825.6	ug/L	1550.07	93825.6	ug/L	1550.07	1.65%
Cd 214.440†	20270.2	93.1182	ug/L	1.83300	93.1182	ug/L	1.83300	1.97%
Co 228.616†	12697.9	92.4503	ug/L	2.04391	92.4503	ug/L	2.04391	2.21%
Cr 267.716†	10380.5	106.662	ug/L	2.2451	106.662	ug/L	2.2451	2.10%
Cu 324.752†	10337.5	90.4587	ug/L	2.32098	90.4587	ug/L	2.32098	2.57%
Fe 238.204 R†	53931.0	10659.7	ug/L	39.54	10659.7	ug/L	39.54	0.37%
K 766.490 R†	95013.5	16124.9	ug/L	283.13	16124.9	ug/L	283.13	1.76%
Mg 279.077 R†	51991.5	73884.8	ug/L	421.11	73884.8	ug/L	421.11	0.57%
Mn 257.610†	114025.4	95.0701	ug/L	4.02855	95.0701	ug/L	4.02855	4.24%
Mo 202.031†	3757.1	100.216	ug/L	2.7517	100.216	ug/L	2.7517	2.75%
Na 589.592 R†	2693766.1	261066	ug/L	4400.4	261066	ug/L	4400.4	1.69%
Ni 231.604†	4933.0	92.8429	ug/L	1.71086	92.8429	ug/L	1.71086	1.84%
Pb 220.353†	4886.9	87.2045	ug/L	1.52117	87.2045	ug/L	1.52117	1.74%
Sb 206.836†	2816.6	86.3092	ug/L	4.35078	86.3092	ug/L	4.35078	5.04%
Se 196.026†	3622.5	127.381	ug/L	2.3487	127.381	ug/L	2.3487	1.84%
Ti 334.940 R†	44393.3	1043.36	ug/L	24.978	1043.36	ug/L	24.978	2.39%
Tl 190.801†	838.2	44.4862	ug/L	1.57087	44.4862	ug/L	1.57087	3.53%
V 292.402†	17169.3	103.626	ug/L	1.5149	103.626	ug/L	1.5149	1.46%
Zn 206.200†	7739.6	105.887	ug/L	2.1634	105.887	ug/L	2.1634	2.04%
Sn 189.927†	20090.7	936.515	ug/L	25.2493	936.515	ug/L	25.2493	2.70%
Sr 421.552 R	519035.6	1146.16	ug/L	9.563	1146.16	ug/L	9.563	0.83%

CURTIS & TOMPKINS SERIAL DILUTION FOR 259835 METALS Filtrate
EPA 6010C

Type : MSS
Inst : MET08
Seqnum : 84347520053
File : met08_sn_6010
IDF : 1.0
Lab ID : 259841-001
Matrix : Filtrate
Batch : 214855
Time : 29-AUG-2014 14:50
Cal : 84347520001
Units : ug/L

Type : SER
Inst : MET08
Seqnum : 84347520056.2
File : met08_sn_6010
IDF : 5.0
Lab ID : QC755365
Matrix : Filtrate
Batch : 214855
Time : 29-AUG-2014 15:03
Cal : 84347520001

MSS: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF
SER: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	MSS	Ch	RL	SER	Ch	RL	%D	Lim	Flags
Aluminum	ND	R	100.0	ND	R	500.0		10	u
Antimony	ND	A	10.00	ND	A	50.00		10	u
Arsenic	1.619 J	A	5.000	ND	A	25.00		10	u
Barium	17.33	A	5.000	18.71 J	A	25.00		10	u
Beryllium	0.1543 J	A	2.000	ND	A	10.00		10	!<a+ u
Cadmium	ND	A	5.000	ND	A	25.00		10	!<a+ u
Chromium	13.51	A	5.000	12.71 J	A	25.00		10	u
Cobalt	ND	A	5.000	ND	A	25.00		10	u
Copper	ND	A	5.000	ND	A	25.00		10	!<cri+ u
Lead	ND	A	5.000	ND	A	25.00		10	!<a- u
Magnesium	61650	R	500.0	62770	R	1000	2	10	u
Manganese	3.098 J	A	5.000	4.869 J	A	25.00		10	u
Molybdenum	5.566	A	5.000	9.094 J	A	25.00		10	!<a- u
Nickel	1.626 J	A	5.000	ND	A	25.00		10	u
Selenium	24.19	A	10.00	35.75 J	A	50.00		10	u
Silver	ND	A	5.000	ND	A	25.00		10	!<a+ u
Thallium	ND	A	10.00	ND	A	50.00		10	u
Vanadium	2.522 J	A	5.000	ND	A	25.00		10	u
Zinc	6.875 J	A	20.00	29.82 J	A	100.0		10	u

ISTD (ICAL 002)	Ch	ICAL Abund	SER Abund	%Drift
Yttrium	A	2681337	2546998	-5.01

!=warning +=high bias -=low bias <=opening a=ICSA u=use

Sequence No.: 39
Sample ID: qc755365,214855,5
Analyst: MET08
Initial Sample Wt:
Dilution:

Autosampler Location: 38
Date Collected: 8/29/2014 3:03:17 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: qc755365,214855,5

Analyte	Back Pressure	Flow
All	151.0 kPa	0.60 L/min

Mean Data: qc755365,214855,5

Analyte	Mean Corrected Intensity	Conc.	Calib Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	2546998.1	94.9899	%	0.43165				0.45%
Y	93598.0	101.605	%	1.4844				1.46%
Ag 328.068†	135.9	0.178993	ug/L	0.1912470	0.178993	ug/L	0.1912470	106.85%
Al 308.215 R†	13.1	23.3285	ug/L	7.65691	23.3285	ug/L	7.65691	32.82%
As 188.979†	5.3	0.275392	ug/L	0.1624230	0.275392	ug/L	0.1624230	58.98%
B 249.677†	112801.6	578.494	ug/L	2.1125	578.494	ug/L	2.1125	0.37%
Ba 233.527†	1584.3	3.74278	ug/L	0.044776	3.74278	ug/L	0.044776	1.20%
Be 313.107†	145.9	0.0278218	ug/L	0.01630132	0.0278218	ug/L	0.01630132	58.59%
Ca 315.887 R†	82811.2	16644.6	ug/L	677.78	16644.6	ug/L	677.78	4.07%
Cd 214.440†	-286.8	-1.31761	ug/L	0.010478	-1.31761	ug/L	0.010478	0.80%
Co 228.616†	8.1	0.0589850	ug/L	0.01509162	0.0589850	ug/L	0.01509162	25.59%
Cr 267.716†	247.5	2.54272	ug/L	0.060736	2.54272	ug/L	0.060736	2.39%
Cu 324.752†	-46.1	-0.403397	ug/L	1.1561829	-0.403397	ug/L	1.1561829	286.61%
Fe 238.204 R†	38.0	7.51609	ug/L	0.068938	7.51609	ug/L	0.068938	0.92%
K 766.490 R†	7110.4	1206.71	ug/L	52.681	1206.71	ug/L	52.681	4.37%
Mg 279.077 R†	8834.0	12553.9	ug/L	503.85	12553.9	ug/L	503.85	4.01%
Mn 257.610†	1167.9	0.973710	ug/L	0.0145497	0.973710	ug/L	0.0145497	1.49%
Mo 202.031†	68.2	1.81881	ug/L	0.263681	1.81881	ug/L	0.263681	14.50%
Na 589.592 R†	492297.0	47711.0	ug/L	1124.47	47711.0	ug/L	1124.47	2.36%
Ni 231.604†	-10.9	-0.204274	ug/L	0.1577504	-0.204274	ug/L	0.1577504	77.22%
Pb 220.353†	-93.2	-1.66234	ug/L	0.355738	-1.66234	ug/L	0.355738	21.40%
Sb 206.836†	-14.5	-0.444167	ug/L	0.2296185	-0.444167	ug/L	0.2296185	51.70%
Se 196.026†	203.3	7.15046	ug/L	1.389964	7.15046	ug/L	1.389964	19.44%
Ti 334.940 R†	32.1	0.754060	ug/L	0.1403597	0.754060	ug/L	0.1403597	18.61%
Tl 190.801†	1.9	0.101891	ug/L	1.1118387	0.101891	ug/L	1.1118387	>999.9%
V 292.402†	76.5	0.461546	ug/L	0.0467206	0.461546	ug/L	0.0467206	10.12%
Zn 206.200†	436.0	5.96435	ug/L	0.120342	5.96435	ug/L	0.120342	2.02%
Sn 189.927†	72.7	3.39030	ug/L	0.402131	3.39030	ug/L	0.402131	11.86%
Sr 421.552 R	111684.1	246.690	ug/L	4.3395	246.690	ug/L	4.3395	1.76%

CURTIS & TOMPKINS POST DIGEST SPIKE USER REPORT FOR 259835 METALS Filtrate
EPA 6010C

Type	: MSS	Type	: PDS
Inst	: MET08	Inst	: MET08
Seqnum	: 84347520053	Seqnum	: 84347520057.2
File	: met08_sn_6010	File	: met08_sn_6010
IDF	: 1.0	IDF	: 1.0
Lab ID	: 259841-001	Lab ID	: QC755366
Matrix	: Filtrate	Matrix	: Filtrate
Batch	: 214855	Batch	: 214855
Time	: 29-AUG-2014 14:50	Time	: 29-AUG-2014 15:08
Cal	: 84347520001	Cal	: 84347520001
Units	: ug/L		

MSS: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF
PDS: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

PDS standards: S24151 (100X), S24152 (100X)

Analyte	MSS	Ch	Spiked	PDS	Ch	%Rec	Limits	Flags
Aluminum	ND	R	2000	1971	R	99	75-125	u
Antimony	ND	A	500.0	444.4	A	89	75-125	u
Arsenic	1.619	A	100.0	101.8	A	100	75-125	u
Barium	17.33	A	2000	1939	A	96	75-125	u
Beryllium	0.1543	A	50.00	48.61	A	97	75-125	!<a+ u
Cadmium	ND	A	50.00	42.58	A	85	75-125	!<a+ u
Chromium	13.51	A	200.0	203.1	A	95	75-125	u
Cobalt	ND	A	500.0	453.7	A	91	75-125	u
Copper	ND	A	250.0	230.6	A	92	75-125	!<cri+ u
Lead	ND	A	100.0	88.24	A	88	75-125	!<a- u
Magnesium	61650	R	20000	78160	R	83	75-125	u
Manganese	3.098	A	50.00	50.55	A	95	75-125	u
Molybdenum	5.566	A	400.0	398.5	A	98	75-125	!<a- u
Nickel	1.626	A	500.0	454.1	A	90	75-125	u
Selenium	24.19	A	100.0	128.3	A	104	75-125	u
Silver	ND	A	50.00	48.97	A	98	75-125	!<a+ u
Thallium	ND	A	100.0	91.63	A	92	75-125	u
Vanadium	2.522	A	500.0	488.4	A	97	75-125	u
Zinc	6.875	A	500.0	488.8	A	96	75-125	u

ISTD (ICAL 002)	Ch	ICAL Abund	PDS Abund	%Drift
Yttrium	A	2681337	2505965	-6.54

!=warning +=high bias -=low bias <=opening a=ICSA u=use

Sequence No.: 40
Sample ID: qc755366,214855,1,s2415
Analyst: MET08
Initial Sample Wt:
Dilution:

Autosampler Location: 39
Date Collected: 8/29/2014 3:08:15 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: qc755366,214855,1,s2415

Analyte	Back Pressure	Flow
All	153.0 kPa	0.60 L/min

Mean Data: qc755366,214855,1,s2415

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	2505964.9	93.4595	%	2.30911				2.47%
Y	93015.0	100.972	%	1.2823				1.27%
Ag 328.068†	37170.0	48.9677	ug/L	0.95212	48.9677	ug/L	0.95212	1.94%
Al 308.215 R†	1104.5	1971.18	ug/L	43.678	1971.18	ug/L	43.678	2.22%
As 188.979†	1951.7	101.750	ug/L	0.8983	101.750	ug/L	0.8983	0.88%
B 249.677†	713842.5	3660.88	ug/L	73.544	3660.88	ug/L	73.544	2.01%
Ba 233.527†	820955.1	1939.44	ug/L	52.645	1939.44	ug/L	52.645	2.71%
Be 313.107†	254910.4	48.6073	ug/L	1.01890	48.6073	ug/L	1.01890	2.10%
Ca 315.887 R†	484297.8	97341.1	ug/L	1041.34	97341.1	ug/L	1041.34	1.07%
Cd 214.440†	9268.4	42.5774	ug/L	0.96169	42.5774	ug/L	0.96169	2.26%
Co 228.616†	61269.4	453.711	ug/L	11.8246	453.711	ug/L	11.8246	2.61%
Cr 267.716†	19767.5	203.117	ug/L	4.0534	203.117	ug/L	4.0534	2.00%
Cu 324.752†	26358.1	230.648	ug/L	4.1429	230.648	ug/L	4.1429	1.80%
Fe 238.204 R†	4921.6	972.772	ug/L	21.9140	972.772	ug/L	21.9140	2.25%
K 766.490 R†	94854.8	16098.0	ug/L	96.02	16098.0	ug/L	96.02	0.60%
Mg 279.077 R†	55002.3	78163.4	ug/L	1226.47	78163.4	ug/L	1226.47	1.57%
Mn 257.610†	60630.2	50.5512	ug/L	2.07272	50.5512	ug/L	2.07272	4.10%
Mo 202.031†	14940.2	398.516	ug/L	10.7660	398.516	ug/L	10.7660	2.70%
Na 589.592 R†	2598604.4	251844	ug/L	2521.0	251844	ug/L	2521.0	1.00%
Ni 231.604†	24126.3	454.073	ug/L	10.0330	454.073	ug/L	10.0330	2.21%
Pb 220.353†	4945.0	88.2420	ug/L	1.63060	88.2420	ug/L	1.63060	1.85%
Sb 206.836†	14501.9	444.376	ug/L	22.7552	444.376	ug/L	22.7552	5.12%
Se 196.026†	3650.0	128.348	ug/L	2.3630	128.348	ug/L	2.3630	1.84%
Ti 334.940 R†	43524.0	1022.93	ug/L	35.839	1022.93	ug/L	35.839	3.50%
Tl 190.801†	1726.4	91.6279	ug/L	1.68521	91.6279	ug/L	1.68521	1.84%
V 292.402†	80926.4	488.434	ug/L	7.3040	488.434	ug/L	7.3040	1.50%
Zn 206.200†	35729.8	488.825	ug/L	12.1804	488.825	ug/L	12.1804	2.49%
Sn 189.927†	20821.1	970.560	ug/L	26.6252	970.560	ug/L	26.6252	2.74%
Sr 421.552 R	537568.1	1187.10	ug/L	10.411	1187.10	ug/L	10.411	0.88%

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259835 METALS Filtrate: EPA 6010C

Inst : MET08
Calnum : 84347520001
Units : ug/L

Date : 29-AUG-2014 08:00
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	84347520002	L1	29-AUG-2014 08:05	S25067
L2	met08_sn_6010	84347520003	L2	29-AUG-2014 08:10	S25224
L3	met08_sn_6010	84347520004	L3	29-AUG-2014 08:14	S25223
L4	met08_sn_6010	84347520005	L4	29-AUG-2014 08:19	S25225
L5	met08_sn_6010	84347520006	L5	29-AUG-2014 08:26	S25226

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	29.930	30.294	32.662	32.634		LOR0	0.00000	0.03064		31.380	1.000	0.995	
Arsenic	A	19.960	18.021	19.492	19.179		LOR0	0.00000	0.05213		19.163	1.000	0.995	
Barium	A	442.84	418.97	441.69	423.11		LOR0	0.00000	0.00236		431.65	1.000	0.995	
Beryllium	A	4999.5	4981.8	5246.9			LOR0	0.00000	1.91E-4		5076.1	1.000	0.995	
Cadmium	A	224.40	215.74	229.33	217.57		LOR0	0.00000	0.00459		221.76	1.000	0.995	
Chromium	A	99.060	95.844	100.45	97.290		LOR0	0.00000	0.01028		98.161	1.000	0.995	
Cobalt	A	135.12	126.76	139.56	134.41		LOR0	0.00000	0.00744		133.96	1.000	0.995	
Copper	A	116.66	102.55	105.32	114.37		LOR0	0.00000	0.00875		109.72	1.000	0.995	
Lead	A	58.560	54.328	57.768	56.022		LOR0	0.00000	0.01784		56.670	1.000	0.995	
Manganese	A	1266.7	1212.5	1310.3	1198.3		LOR0	0.00000	8.34E-4		1246.9	1.000	0.995	
Molybdenum	A	37.560	36.518	38.266	37.482		LOR0	0.00000	0.02667		37.456	1.000	0.995	
Nickel	A	53.020	50.105	54.647	53.118		LOR0	0.00000	0.01882		52.722	1.000	0.995	
Selenium	A	27.050	26.453	28.837	28.435		LOR0	0.00000	0.03516		27.694	1.000	0.995	
Silver	A	664.24	726.00	771.66	756.01		LOR0	0.00000	0.00132		729.48	1.000	0.995	
Thallium	A	20.390	18.562	20.261	18.827		LOR0	0.00000	0.05307		19.510	1.000	0.995	
Vanadium	A	165.48	161.39	167.40	165.67		LOR0	0.00000	0.00604		164.98	1.000	0.995	
Zinc	A	69.940	69.543	75.105	73.074		LOR0	0.00000	0.01368		71.915	1.000	0.995	
Aluminum	R	0.5110		0.5959	0.5942	0.5600	LOR0	0.00000	1.78472		0.5653	1.000	0.995	
Magnesium	R	0.8145		0.7783	0.7231	0.7035	LOR0	0.00000	1.42109		0.7549	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-8	100.00	-7	1000.0	0	10000	0		
Arsenic	A	5.0000	4	100.00	-6	1000.0	2	10000	0		
Barium	A	5.0000	5	100.00	-1	1000.0	4	10000	0		
Beryllium	A	2.0000	-5	100.00	-5	1000.0	0				
Cadmium	A	5.0000	3	100.00	-1	1000.0	5	10000	0		
Chromium	A	5.0000	2	100.00	-2	1000.0	3	10000	0		
Cobalt	A	5.0000	0	100.00	-6	1000.0	4	10000	0		
Copper	A	5.0000	2	100.00	-10	1000.0	-8	10000	0		
Lead	A	5.0000	4	100.00	-3	1000.0	3	10000	0		
Manganese	A	5.0000	6	100.00	1	1000.0	9	10000	0		
Molybdenum	A	5.0000	0	100.00	-3	1000.0	2	10000	0		
Nickel	A	5.0000	0	100.00	-6	1000.0	3	10000	0		
Selenium	A	10.000	-5	100.00	-7	1000.0	1	10000	0		
Silver	A	5.0000	-12	100.00	-4	1000.0	2	2000.0	0		
Thallium	A	10.000	8	100.00	-1	1000.0	8	10000	0		
Vanadium	A	5.0000	0	100.00	-3	1000.0	1	10000	0		
Zinc	A	20.000	-4	100.00	-5	1000.0	3	10000	0		
Aluminum	R	100.00	-9			1000.0	6	10000	6	100000	0
Magnesium	R	200.00	16			1000.0	11	10000	3	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08
Calnum : 84347520001 Cal Date : 29-AUG-2014

ICV 84347520007 (29-AUG-2014) stds: S25072

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4980	ug/L	0	10	
Arsenic	A	5000	4983	ug/L	0	10	
Barium	A	5000	4906	ug/L	-2	10	
Beryllium	A	500.0	520.3	ug/L	4	10	
Cadmium	A	5000	5080	ug/L	2	10	
Chromium	A	5000	4979	ug/L	0	10	
Cobalt	A	5000	4954	ug/L	-1	10	
Copper	A	5000	4979	ug/L	0	10	
Lead	A	5000	4904	ug/L	-2	10	
Manganese	A	5000	4840	ug/L	-3	10	
Molybdenum	A	5000	5050	ug/L	1	10	
Nickel	A	5000	4928	ug/L	-1	10	
Selenium	A	5000	4915	ug/L	-2	10	
Silver	A	1000	974.6	ug/L	-3	10	
Thallium	A	5000	4878	ug/L	-2	10	
Vanadium	A	5000	4936	ug/L	-1	10	
Zinc	A	5000	4962	ug/L	-1	10	
Aluminum	R	20000	19950	ug/L	0	10	
Magnesium	R	20000	20270	ug/L	1	10	

Sequence No.: 1 **Autosampler Location: 1**
Sample ID: ICALBLK, **Date Collected: 8/29/2014 8:00:07 AM**
Analyst: **Data Type: Reprocessed on 8/29/2014 9:13:48 AM**
Logged In Analyst (Original) : Curtis and Tompkins
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: ICALBLK,

Analyte	Back Pressure	Flow
All	152.0 kPa	0.60 L/min

Mean Data: ICALBLK,

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Ag 328.068	-2136.6	125.31	5.86%	[0.00]	ug/L
Al 308.215 R	-106.8	2.59	2.42%	[0.00]	ug/L
As 188.979	31.6	3.59	11.35%	[0.00]	ug/L
B 249.677	-36.7	34.17	93.14%	[0.00]	ug/L
Ba 233.527	-78.8	8.12	10.30%	[0.00]	ug/L
Be 313.107	-1695.9	182.99	10.79%	[0.00]	ug/L
Ca 315.887 R	-44.1	9.36	21.25%	[0.00]	ug/L
Cd 214.440	39.3	4.00	10.18%	[0.00]	ug/L
Co 228.616	-154.1	4.54	2.94%	[0.00]	ug/L
Cr 267.716	-171.3	14.53	8.49%	[0.00]	ug/L
Cu 324.752	1057.3	120.39	11.39%	[0.00]	ug/L
Fe 238.204 R	126.0	2.87	2.28%	[0.00]	ug/L
K 766.490 R	2326.9	386.99	16.63%	[0.00]	ug/L
Mg 279.077 R	-6.6	2.08	31.46%	[0.00]	ug/L
Mn 257.610	1560.4	75.20	4.82%	[0.00]	ug/L
Mo 202.031	-11.9	3.89	32.54%	[0.00]	ug/L
Na 589.592 R	645.6	82.12	12.72%	[0.00]	ug/L
Ni 231.604	-302.8	4.76	1.57%	[0.00]	ug/L
Pb 220.353	84.0	10.49	12.49%	[0.00]	ug/L
Sb 206.836	-97.1	36.85	37.94%	[0.00]	ug/L
Se 196.026	29.3	15.17	51.76%	[0.00]	ug/L
Ti 334.940 R	48.9	8.90	18.18%	[0.00]	ug/L
Tl 190.801	4.4	24.38	548.74%	[0.00]	ug/L
V 292.402	-141.8	6.98	4.92%	[0.00]	ug/L
Zn 206.200	126.9	2.22	1.75%	[0.00]	ug/L
Sn 189.927	23.2	4.26	18.36%	[0.00]	ug/L
Sr 421.552 R	383.5	63.77	16.63%	[0.00]	ug/L

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: ICAL,L1,S25067,1 **Date Collected: 8/29/2014 8:05:04 AM**
Analyst: **Data Type: Reprocessed on 8/29/2014 9:14:01 AM**
Logged In Analyst (Original) : Curtis and Tompkins
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: ICAL,L1,S25067,1

Analyte	Back Pressure	Flow
All	152.0 kPa	0.60 L/min

Mean Data: ICAL,L1,S25067,1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Y 371.029	2681336.9	24380.68	0.91%	100.000	%
Y	92119.8	2938.52	3.19%	100.000	%
Ag 328.068†	3321.2	26.60	0.80%	[5]	ug/L
Al 308.215 R†	51.1	6.94	13.58%	[100]	ug/L
As 188.979†	99.8	16.11	16.14%	[5]	ug/L
B 249.677†	18841.1	360.71	1.91%	[100]	ug/L
Ba 233.527†	2214.2	20.24	0.91%	[5]	ug/L
Be 313.107†	9999.0	127.87	1.28%	[2]	ug/L
Ca 315.887 R†	1135.8	52.99	4.67%	[200]	ug/L
Cd 214.440†	1122.0	14.86	1.32%	[5]	ug/L
Co 228.616†	675.6	16.34	2.42%	[5]	ug/L
Cr 267.716†	495.3	16.73	3.38%	[5]	ug/L
Cu 324.752†	583.3	84.70	14.52%	[5]	ug/L
Fe 238.204 R†	600.8	21.05	3.50%	[100]	ug/L
K 766.490 R†	3082.1	145.94	4.74%	[500]	ug/L
Mg 279.077 R†	162.9	4.74	2.91%	[200]	ug/L
Mn 257.610†	6333.3	133.01	2.10%	[5]	ug/L
Mo 202.031†	187.8	6.18	3.29%	[5]	ug/L
Na 589.592 R†	6166.4	357.06	5.79%	[500]	ug/L
Ni 231.604†	265.1	1.11	0.42%	[5]	ug/L
Pb 220.353†	292.8	10.23	3.49%	[5]	ug/L
Sb 206.836†	299.3	28.72	9.60%	[10]	ug/L
Se 196.026†	270.5	74.76	27.64%	[10]	ug/L
Ti 334.940 R†	464.0	9.87	2.13%	[10]	ug/L
Tl 190.801†	203.9	12.13	5.95%	[10]	ug/L
V 292.402†	827.4	39.16	4.73%	[5]	ug/L
Zn 206.200†	1398.8	17.16	1.23%	[20]	ug/L
Sn 189.927†	875.6	1.27	0.14%	[40]	ug/L
Sr 421.552 R	2291.2	79.85	3.49%	[5]	ug/L

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Sequence No.: 3 **Autosampler Location: 3**
Sample ID: ICAL,L2,S25224,1 **Date Collected: 8/29/2014 8:10:05 AM**
Analyst: **Data Type: Reprocessed on 8/29/2014 9:14:03 AM**
Logged In Analyst (Original) : Curtis and Tompkins
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: ICAL,L2,S25224,1

Analyte	Back Pressure	Flow
All	153.0 kPa	0.60 L/min

Mean Data: ICAL,L2,S25224,1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Y 371.029	2753568.5	51779.57	1.88%	102.694	%
Y	95006.7	631.39	0.66%	103.134	%
Ag 328.068†	72599.7	801.93	1.10%	[100]	ug/L
As 188.979†	1802.1	30.47	1.69%	[100]	ug/L
Ba 233.527†	41896.8	985.54	2.35%	[100]	ug/L
Be 313.107†	498182.7	14745.92	2.96%	[100]	ug/L
Cd 214.440†	21574.2	396.92	1.84%	[100]	ug/L
Co 228.616†	12676.1	280.48	2.21%	[100]	ug/L
Cr 267.716†	9584.4	134.61	1.40%	[100]	ug/L
Cu 324.752†	10255.3	278.97	2.72%	[100]	ug/L
Mn 257.610†	121251.7	5035.29	4.15%	[100]	ug/L
Mo 202.031†	3651.8	64.79	1.77%	[100]	ug/L
Ni 231.604†	5010.5	77.52	1.55%	[100]	ug/L
Pb 220.353†	5432.8	109.24	2.01%	[100]	ug/L
Sb 206.836†	3029.4	55.33	1.83%	[100]	ug/L
Se 196.026†	2645.3	37.79	1.43%	[100]	ug/L
Ti 334.940 R†	4003.2	125.00	3.12%	[100]	ug/L
Tl 190.801†	1856.2	48.19	2.60%	[100]	ug/L
V 292.402†	16138.6	176.27	1.09%	[100]	ug/L
Zn 206.200†	6954.3	138.98	2.00%	[100]	ug/L
Sn 189.927†	2116.1	49.14	2.32%	[100]	ug/L
Sr 421.552 R	45716.0	689.49	1.51%	[100]	ug/L

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Sequence No.: 4 **Autosampler Location: 4**
Sample ID: ICAL,L3,S25223,1 **Date Collected: 8/29/2014 8:14:12 AM**
Analyst: **Data Type: Reprocessed on 8/29/2014 9:14:05 AM**
Logged In Analyst (Original) : Curtis and Tompkins
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: ICAL,L3,S25223,1

Analyte	Back Pressure	Flow
All	153.0 kPa	0.60 L/min

Mean Data: ICAL,L3,S25223,1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Y 371.029	2566454.0	18671.34	0.73%	95.7155	%
Y	93176.0	1980.41	2.13%	101.147	%
Ag 328.068†	771663.2	10167.02	1.32%	[1000]	ug/L
Al 308.215 R†	595.9	5.16	0.87%	[1000]	ug/L
As 188.979†	19492.1	120.92	0.62%	[1000]	ug/L
B 249.677†	195646.9	2764.49	1.41%	[1000]	ug/L
Ba 233.527†	441689.0	6951.22	1.57%	[1000]	ug/L
Be 313.107†	5246906.7	33348.54	0.64%	[1000]	ug/L
Ca 315.887 R†	5540.5	186.42	3.36%	[1000]	ug/L
Cd 214.440†	229332.4	3468.27	1.51%	[1000]	ug/L
Co 228.616†	139561.1	2248.38	1.61%	[1000]	ug/L
Cr 267.716†	100448.9	1187.18	1.18%	[1000]	ug/L
Cu 324.752†	105316.7	731.08	0.69%	[1000]	ug/L
Fe 238.204 R†	5545.4	139.85	2.52%	[1000]	ug/L
K 766.490 R†	5250.7	338.06	6.44%	[1000]	ug/L
Mg 279.077 R†	778.3	23.14	2.97%	[1000]	ug/L
Mn 257.610†	1310264.8	12449.36	0.95%	[1000]	ug/L
Mo 202.031†	38265.7	220.24	0.58%	[1000]	ug/L
Na 589.592 R†	11464.3	291.48	2.54%	[1000]	ug/L
Ni 231.604†	54646.8	711.82	1.30%	[1000]	ug/L
Pb 220.353†	57767.7	389.55	0.67%	[1000]	ug/L
Sb 206.836†	32661.8	188.38	0.58%	[1000]	ug/L
Se 196.026†	28836.6	295.42	1.02%	[1000]	ug/L
Ti 334.940 R†	45626.2	380.48	0.83%	[1000]	ug/L
Tl 190.801†	20261.3	174.27	0.86%	[1000]	ug/L
V 292.402†	167397.9	1918.75	1.15%	[1000]	ug/L
Zn 206.200†	75104.6	1090.45	1.45%	[1000]	ug/L
Sn 189.927†	22547.5	158.68	0.70%	[1000]	ug/L
Sr 421.552 R	465231.6	4579.06	0.98%	[1000]	ug/L

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: ICAL,L4,S25225,1 **Date Collected: 8/29/2014 8:19:22 AM**
Analyst: **Data Type: Reprocessed on 8/29/2014 9:14:07 AM**
Logged In Analyst (Original) : Curtis and Tompkins
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: ICAL,L4,S25225,1

Analyte	Back Pressure	Flow
All	153.0 kPa	0.60 L/min

Mean Data: ICAL,L4,S25225,1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Y 371.029	2578458.6	866.74	0.03%	96.1632	%
Y	92997.8	321.86	0.35%	100.953	%
Ag 328.068†	1512012.3	14265.96	0.94%	[2000]	ug/L
Al 308.215 R†	5941.5	92.24	1.55%	[10000]	ug/L
As 188.979†	191785.6	3326.53	1.73%	[10000]	ug/L
B 249.677†	1949859.8	22525.15	1.16%	[10000]	ug/L
Ba 233.527†	4231120.5	31290.84	0.74%	[10000]	ug/L
Be 313.107†	Saturated2				
Ca 315.887 R†	51549.6	653.42	1.27%	[10000]	ug/L
Cd 214.440†	2175663.5	17590.73	0.81%	[10000]	ug/L
Co 228.616†	1344144.3	11829.53	0.88%	[10000]	ug/L
Cr 267.716†	972897.3	11395.21	1.17%	[10000]	ug/L
Cu 324.752†	1143690.5	17513.37	1.53%	[10000]	ug/L
Fe 238.204 R†	51395.8	526.11	1.02%	[10000]	ug/L
K 766.490 R†	60044.4	801.05	1.33%	[10000]	ug/L
Mg 279.077 R†	7231.3	129.87	1.80%	[10000]	ug/L
Mn 257.610†	11982717.2	177749.97	1.48%	[10000]	ug/L
Mo 202.031†	374818.4	2695.34	0.72%	[10000]	ug/L
Na 589.592 R†	105611.9	1128.10	1.07%	[10000]	ug/L
Ni 231.604†	531181.9	4883.41	0.92%	[10000]	ug/L
Pb 220.353†	560223.6	4224.47	0.75%	[10000]	ug/L
Sb 206.836†	326341.8	4592.57	1.41%	[10000]	ug/L
Se 196.026†	284346.6	5147.26	1.81%	[10000]	ug/L
Ti 334.940 R†	425177.5	4238.43	1.00%	[10000]	ug/L
Tl 190.801†	188271.6	3184.20	1.69%	[10000]	ug/L
V 292.402†	1656688.8	17433.53	1.05%	[10000]	ug/L
Zn 206.200†	730735.0	7174.60	0.98%	[10000]	ug/L
Sn 189.927†	214417.4	3402.06	1.59%	[10000]	ug/L
Sr 421.552 R	4526276.1	27729.12	0.61%	[10000]	ug/L

Sequence No.: 6 **Autosampler Location: 6**
Sample ID: ICAL,L5,S25226,1 **Date Collected: 8/29/2014 8:26:12 AM**
Analyst: **Data Type: Reprocessed on 8/29/2014 9:14:08 AM**
Logged In Analyst (Original) : Curtis and Tompkins
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: ICAL,L5,S25226,1

Analyte	Back Pressure	Flow
All	153.0 kPa	0.60 L/min

Mean Data: ICAL,L5,S25226,1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Y 371.029	2566915.2	17613.39	0.69%	95.7327	%
Y	92350.3	534.57	0.58%	100.250	%
Al 308.215 R†	55996.9	175.21	0.31%	[100000]	ug/L
Ca 315.887 R†	497341.1	1073.24	0.22%	[100000]	ug/L
Fe 238.204 R†	505847.7	939.38	0.19%	[100000]	ug/L
K 766.490 R†	589128.9	567.55	0.10%	[100000]	ug/L
Mg 279.077 R†	70348.2	262.49	0.37%	[100000]	ug/L
Na 589.592 R†	1031572.7	17394.12	1.69%	[100000]	ug/L

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Ag 328.068	4	Lin Thru 0	0.0	759.1	0.00000	0.999964	
Al 308.215 R	4	Lin Thru 0	0.0	0.5603	0.00000	0.999982	
As 188.979	4	Lin Thru 0	0.0	19.18	0.00000	0.999999	
B 249.677	3	Lin Thru 0	0.0	195.0	0.00000	1.000000	
Ba 233.527	4	Lin Thru 0	0.0	423.3	0.00000	0.999991	
Be 313.107	3	Lin Thru 0	0.0	5244	0.00000	0.999987	
Ca 315.887 R	4	Lin Thru 0	0.0	4.975	0.00000	0.999993	
Cd 214.440	4	Lin Thru 0	0.0	217.7	0.00000	0.999986	
Co 228.616	4	Lin Thru 0	0.0	134.5	0.00000	0.999993	
Cr 267.716	4	Lin Thru 0	0.0	97.32	0.00000	0.999995	
Cu 324.752	4	Lin Thru 0	0.0	114.3	0.00000	0.999969	
Fe 238.204 R	4	Lin Thru 0	0.0	5.059	0.00000	0.999998	
K 766.490 R	4	Lin Thru 0	0.0	5.892	0.00000	0.999998	
Mg 279.077 R	4	Lin Thru 0	0.0	0.7037	0.00000	0.999996	
Mn 257.610	4	Lin Thru 0	0.0	1199	0.00000	0.999957	
Mo 202.031	4	Lin Thru 0	0.0	37.49	0.00000	0.999998	
Na 589.592 R	4	Lin Thru 0	0.0	10.32	0.00000	0.999996	
Ni 231.604	4	Lin Thru 0	0.0	53.13	0.00000	0.999996	
Pb 220.353	4	Lin Thru 0	0.0	56.04	0.00000	0.999995	
Sb 206.836	4	Lin Thru 0	0.0	32.63	0.00000	1.000000	
Se 196.026	4	Lin Thru 0	0.0	28.44	0.00000	0.999999	
Ti 334.940 R	4	Lin Thru 0	0.0	42.55	0.00000	0.999974	
Tl 190.801	4	Lin Thru 0	0.0	18.84	0.00000	0.999972	
V 292.402	4	Lin Thru 0	0.0	165.7	0.00000	0.999999	
Zn 206.200	4	Lin Thru 0	0.0	73.09	0.00000	0.999996	
Sn 189.927	4	Lin Thru 0	0.0	21.45	0.00000	0.999987	
Sr 421.552 R	4	Lin Thru 0	0.0	452.8	0.00000	0.999996	

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Sequence No.: 7 **Autosampler Location: 217**
Sample ID: s25072 **Date Collected: 8/29/2014 8:32:49 AM**
Analyst: **Data Type: Reprocessed on 8/29/2014 9:14:09 AM**
Logged In Analyst (Original) : Curtis and Tompkins
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: s25072

Analyte	Back Pressure	Flow
All	152.0 kPa	0.60 L/min

Mean Data: s25072

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	2592243.0	96.6773	%	0.44101				0.46%
Y	90757.1	98.5207	%	0.73393				0.74%
Ag 328.068†	739768.5	974.571	ug/L	3.2946	974.571	ug/L	3.2946	0.34%
QC value within limits for Ag 328.068 Recovery = 97.46%								
Al 308.215 R†	11178.2	19949.9	ug/L	94.02	19949.9	ug/L	94.02	0.47%
QC value within limits for Al 308.215 R Recovery = 99.75%								
As 188.979†	95575.6	4982.68	ug/L	45.758	4982.68	ug/L	45.758	0.92%
QC value within limits for As 188.979 Recovery = 99.65%								
B 249.677†	1006761.1	5163.09	ug/L	12.854	5163.09	ug/L	12.854	0.25%
QC value within limits for B 249.677 Recovery = 103.26%								
Ba 233.527†	2076572.6	4905.73	ug/L	9.395	4905.73	ug/L	9.395	0.19%
QC value within limits for Ba 233.527 Recovery = 98.11%								
Be 313.107†	2728542.2	520.289	ug/L	0.8593	520.289	ug/L	0.8593	0.17%
QC value within limits for Be 313.107 Recovery = 104.06%								
Ca 315.887 R†	102924.0	20687.1	ug/L	51.27	20687.1	ug/L	51.27	0.25%
QC value within limits for Ca 315.887 R Recovery = 103.44%								
Cd 214.440†	1105762.5	5079.70	ug/L	6.685	5079.70	ug/L	6.685	0.13%
QC value within limits for Cd 214.440 Recovery = 101.59%								
Co 228.616†	667397.1	4954.35	ug/L	5.390	4954.35	ug/L	5.390	0.11%
QC value within limits for Co 228.616 Recovery = 99.09%								
Cr 267.716†	484552.4	4978.92	ug/L	7.142	4978.92	ug/L	7.142	0.14%
QC value within limits for Cr 267.716 Recovery = 99.58%								
Cu 324.752†	568983.1	4978.93	ug/L	79.118	4978.93	ug/L	79.118	1.59%
QC value within limits for Cu 324.752 Recovery = 99.58%								
Fe 238.204 R†	101288.9	20020.2	ug/L	58.85	20020.2	ug/L	58.85	0.29%
QC value within limits for Fe 238.204 R Recovery = 100.10%								
K 766.490 R†	121288.6	20584.1	ug/L	102.99	20584.1	ug/L	102.99	0.50%
QC value within limits for K 766.490 R Recovery = 102.92%								
Mg 279.077 R†	14267.1	20274.9	ug/L	78.87	20274.9	ug/L	78.87	0.39%
QC value within limits for Mg 279.077 R Recovery = 101.37%								
Mn 257.610†	5804738.2	4839.77	ug/L	47.276	4839.77	ug/L	47.276	0.98%
QC value within limits for Mn 257.610 Recovery = 96.80%								
Mo 202.031†	189340.1	5050.48	ug/L	9.071	5050.48	ug/L	9.071	0.18%
QC value within limits for Mo 202.031 Recovery = 101.01%								
Na 589.592 R†	209893.3	20341.8	ug/L	439.03	20341.8	ug/L	439.03	2.16%
QC value within limits for Na 589.592 R Recovery = 101.71%								
Ni 231.604†	261829.0	4927.80	ug/L	3.680	4927.80	ug/L	3.680	0.07%
QC value within limits for Ni 231.604 Recovery = 98.56%								
Pb 220.353†	274792.4	4903.55	ug/L	1.375	4903.55	ug/L	1.375	0.03%
QC value within limits for Pb 220.353 Recovery = 98.07%								
Sb 206.836†	162532.2	4980.42	ug/L	51.758	4980.42	ug/L	51.758	1.04%
QC value within limits for Sb 206.836 Recovery = 99.61%								
Se 196.026†	139762.8	4914.57	ug/L	45.790	4914.57	ug/L	45.790	0.93%
QC value within limits for Se 196.026 Recovery = 98.29%								
Ti 334.940 R†	201947.5	4746.32	ug/L	60.501	4746.32	ug/L	60.501	1.27%
QC value less than the lower limit for Ti 334.940 R Recovery = 94.93%								
Tl 190.801†	91906.4	4877.91	ug/L	34.335	4877.91	ug/L	34.335	0.70%
QC value within limits for Tl 190.801 Recovery = 97.56%								
V 292.402†	817772.0	4935.69	ug/L	5.835	4935.69	ug/L	5.835	0.12%
QC value within limits for V 292.402 Recovery = 98.71%								
Zn 206.200†	362652.5	4961.50	ug/L	8.455	4961.50	ug/L	8.455	0.17%
QC value within limits for Zn 206.200 Recovery = 99.23%								
Sn 189.927†	103085.2	4805.24	ug/L	35.918	4805.24	ug/L	35.918	0.75%
QC value within limits for Sn 189.927 Recovery = 96.10%								
Sr 421.552 R	223227.9	491.642	ug/L	6.7652	491.642	ug/L	6.7652	1.38%
QC value within limits for Sr 421.552 R Recovery = 98.33%								

QC Failed. Continue with analysis.

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520009.1 File : met08_sn_6010 Time : 29-AUG-2014 08:56
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25074

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	9.323	ug/L	-7	30	
Arsenic	A	5.000	5.318	ug/L	6	30	
Barium	A	5.000	5.434	ug/L	9	30	
Beryllium	A	2.000	2.090	ug/L	5	30	
Cadmium	A	5.000	5.455	ug/L	9	30	
Chromium	A	5.000	5.207	ug/L	4	30	
Cobalt	A	5.000	5.245	ug/L	5	30	
Copper	A	5.000	6.113	ug/L	**22**	30	!cri+
Lead	A	5.000	6.020	ug/L	20	30	
Manganese	A	5.000	5.643	ug/L	13	30	
Molybdenum	A	5.000	5.333	ug/L	7	30	
Nickel	A	5.000	4.901	ug/L	-2	30	
Selenium	A	10.00	8.874	ug/L	-11	30	
Silver	A	5.000	5.114	ug/L	2	30	
Thallium	A	10.00	11.28	ug/L	13	30	
Vanadium	A	5.000	5.043	ug/L	1	30	
Zinc	A	20.00	20.11	ug/L	1	30	
Aluminum	R	100.0	99.60	ug/L	0	30	
Magnesium	R	200.0	217.9	ug/L	9	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2566140	-4.30

!=warning +=high bias

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Sequence No.: 8 **Autosampler Location: 7**
Sample ID: s25074 **Date Collected: 8/29/2014 8:56:25 AM**
Analyst: **Data Type: Reprocessed on 8/29/2014 9:14:12 AM**
Logged In Analyst (Original) : Curtis and Tompkins
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: s25074

Analyte	Back Pressure	Flow
All	153.0 kPa	0.60 L/min

Mean Data: s25074

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	2566139.5	95.7037	%	0.30122				0.31%
Y	93386.1	101.375	%	3.5681				3.52%
Ag 328.068†	3882.2	5.11437	ug/L	0.047995	5.11437	ug/L	0.047995	0.94%
QC value within limits for Ag 328.068 Recovery = 102.29%								
Al 308.215 R†	55.8	99.6038	ug/L	7.12910	99.6038	ug/L	7.12910	7.16%
QC value within limits for Al 308.215 R Recovery = 99.60%								
As 188.979†	102.0	5.31787	ug/L	0.740504	5.31787	ug/L	0.740504	13.92%
QC value within limits for As 188.979 Recovery = 106.36%								
B 249.677†	21971.6	112.680	ug/L	1.4733	112.680	ug/L	1.4733	1.31%
QC value within limits for B 249.677 Recovery = 112.68%								
Ba 233.527†	2300.3	5.43415	ug/L	0.051634	5.43415	ug/L	0.051634	0.95%
QC value within limits for Ba 233.527 Recovery = 108.68%								
Be 313.107†	10961.2	2.09013	ug/L	0.016629	2.09013	ug/L	0.016629	0.80%
QC value within limits for Be 313.107 Recovery = 104.51%								
Ca 315.887 R†	1041.9	209.408	ug/L	10.5199	209.408	ug/L	10.5199	5.02%
QC value within limits for Ca 315.887 R Recovery = 104.70%								
Cd 214.440†	1187.5	5.45497	ug/L	0.059832	5.45497	ug/L	0.059832	1.10%
QC value within limits for Cd 214.440 Recovery = 109.10%								
Co 228.616†	707.8	5.24476	ug/L	0.064201	5.24476	ug/L	0.064201	1.22%
QC value within limits for Co 228.616 Recovery = 104.90%								
Cr 267.716†	506.7	5.20698	ug/L	0.115954	5.20698	ug/L	0.115954	2.23%
QC value within limits for Cr 267.716 Recovery = 104.14%								
Cu 324.752†	698.6	6.11335	ug/L	0.927919	6.11335	ug/L	0.927919	15.18%
QC value greater than the upper limit for Cu 324.752 Recovery = 122.27%								
Fe 238.204 R†	515.6	101.920	ug/L	4.1573	101.920	ug/L	4.1573	4.08%
QC value within limits for Fe 238.204 R Recovery = 101.92%								
K 766.490 R†	3403.1	577.545	ug/L	41.3996	577.545	ug/L	41.3996	7.17%
QC value within limits for K 766.490 R Recovery = 115.51%								
Mg 279.077 R†	153.3	217.866	ug/L	13.0933	217.866	ug/L	13.0933	6.01%
QC value within limits for Mg 279.077 R Recovery = 108.93%								
Mn 257.610†	6768.1	5.64301	ug/L	0.066936	5.64301	ug/L	0.066936	1.19%
QC value within limits for Mn 257.610 Recovery = 112.86%								
Mo 202.031†	199.9	5.33252	ug/L	0.093725	5.33252	ug/L	0.093725	1.76%
QC value within limits for Mo 202.031 Recovery = 106.65%								
Na 589.592 R†	5305.6	514.191	ug/L	20.1853	514.191	ug/L	20.1853	3.93%
QC value within limits for Na 589.592 R Recovery = 102.84%								
Ni 231.604†	260.4	4.90068	ug/L	0.244618	4.90068	ug/L	0.244618	4.99%
QC value within limits for Ni 231.604 Recovery = 98.01%								
Pb 220.353†	337.4	6.02008	ug/L	0.093195	6.02008	ug/L	0.093195	1.55%
QC value greater than the upper limit for Pb 220.353 Recovery = 120.40%								
Sb 206.836†	304.2	9.32283	ug/L	0.749483	9.32283	ug/L	0.749483	8.04%
QC value within limits for Sb 206.836 Recovery = 93.23%								
Se 196.026†	252.4	8.87383	ug/L	1.108697	8.87383	ug/L	1.108697	12.49%
QC value within limits for Se 196.026 Recovery = 88.74%								
Ti 334.940 R†	435.4	10.2324	ug/L	0.14573	10.2324	ug/L	0.14573	1.42%
QC value within limits for Ti 334.940 R Recovery = 102.32%								
Tl 190.801†	212.4	11.2756	ug/L	0.67241	11.2756	ug/L	0.67241	5.96%
QC value within limits for Tl 190.801 Recovery = 112.76%								
V 292.402†	835.6	5.04315	ug/L	0.133156	5.04315	ug/L	0.133156	2.64%
QC value within limits for V 292.402 Recovery = 100.86%								
Zn 206.200†	1469.7	20.1070	ug/L	0.13066	20.1070	ug/L	0.13066	0.65%
QC value within limits for Zn 206.200 Recovery = 100.53%								
Sn 189.927†	904.9	42.1807	ug/L	0.35545	42.1807	ug/L	0.35545	0.84%
QC value within limits for Sn 189.927 Recovery = 105.45%								
Sr 421.552 R	2360.4	5.21053	ug/L	0.191113	5.21053	ug/L	0.191113	3.67%
QC value within limits for Sr 421.552 R Recovery = 104.21%								

QC Failed. Continue with analysis.

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520010.1 File : met08_sn_6010 Time : 29-AUG-2014 09:00
Cal : 84347520001 Caldate : 29-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2658064	-0.87

Sequence No.: 9 **Autosampler Location: 220**
Sample ID: ICB **Date Collected: 8/29/2014 9:00:55 AM**
Analyst: **Data Type: Reprocessed on 8/29/2014 9:14:14 AM**
Logged In Analyst (Original) : Curtis and Tompkins
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: ICB

Analyte	Back Pressure	Flow
All	153.0 kPa	0.60 L/min

Mean Data: ICB

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	2658063.7	99.1320	%	2.00591				2.02%
Y	94212.1	102.271	%	2.4775				2.42%
Ag 328.068†	-310.5	-0.409012	ug/L	0.3409903	-0.409012	ug/L	0.3409903	83.37%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 308.215 R†	2.4	4.21082	ug/L	5.898837	4.21082	ug/L	5.898837	140.09%
QC value within limits for Al 308.215 R Recovery = Not calculated								
As 188.979†	-11.1	-0.577162	ug/L	0.3607582	-0.577162	ug/L	0.3607582	62.51%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	1727.6	8.85982	ug/L	0.105298	8.85982	ug/L	0.105298	1.19%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	-22.5	-0.0531357	ug/L	0.03217741	-0.0531357	ug/L	0.03217741	60.56%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-268.1	-0.0511217	ug/L	0.02502046	-0.0511217	ug/L	0.02502046	48.94%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 315.887 R†	-17.0	-3.42390	ug/L	3.036369	-3.42390	ug/L	3.036369	88.68%
QC value within limits for Ca 315.887 R Recovery = Not calculated								
Cd 214.440†	-11.7	-0.0536245	ug/L	0.02896152	-0.0536245	ug/L	0.02896152	54.01%
QC value within limits for Cd 214.440 Recovery = Not calculated								
Co 228.616†	-9.7	-0.0728596	ug/L	0.02674795	-0.0728596	ug/L	0.02674795	36.71%
QC value within limits for Co 228.616 Recovery = Not calculated								
Cr 267.716†	-22.0	-0.225784	ug/L	0.0946889	-0.225784	ug/L	0.0946889	41.94%
QC value within limits for Cr 267.716 Recovery = Not calculated								
Cu 324.752†	-5.6	-0.0493199	ug/L	0.51745575	-0.0493199	ug/L	0.51745575	>999.9%
QC value within limits for Cu 324.752 Recovery = Not calculated								
Fe 238.204 R†	3.7	0.726578	ug/L	3.3166624	0.726578	ug/L	3.3166624	456.48%
QC value within limits for Fe 238.204 R Recovery = Not calculated								
K 766.490 R†	69.1	11.7350	ug/L	30.78118	11.7350	ug/L	30.78118	262.30%
QC value within limits for K 766.490 R Recovery = Not calculated								
Mg 279.077 R†	1.8	2.56999	ug/L	8.056721	2.56999	ug/L	8.056721	313.49%
QC value within limits for Mg 279.077 R Recovery = Not calculated								
Mn 257.610†	29.1	0.0242534	ug/L	0.05103340	0.0242534	ug/L	0.05103340	210.42%
QC value within limits for Mn 257.610 Recovery = Not calculated								
Mo 202.031†	-8.1	-0.215284	ug/L	0.2300461	-0.215284	ug/L	0.2300461	106.86%
QC value within limits for Mo 202.031 Recovery = Not calculated								
Na 589.592 R†	-26.3	-2.55339	ug/L	2.616306	-2.55339	ug/L	2.616306	102.46%
QC value within limits for Na 589.592 R Recovery = Not calculated								
Ni 231.604†	-1.9	-0.0350759	ug/L	0.15403084	-0.0350759	ug/L	0.15403084	439.14%
QC value within limits for Ni 231.604 Recovery = Not calculated								
Pb 220.353†	2.3	0.0415309	ug/L	0.18485225	0.0415309	ug/L	0.18485225	445.10%
QC value within limits for Pb 220.353 Recovery = Not calculated								
Sb 206.836†	-28.5	-0.874600	ug/L	0.5318005	-0.874600	ug/L	0.5318005	60.81%
QC value within limits for Sb 206.836 Recovery = Not calculated								
Se 196.026†	14.8	0.519466	ug/L	1.4105525	0.519466	ug/L	1.4105525	271.54%
QC value within limits for Se 196.026 Recovery = Not calculated								
Ti 334.940 R†	16.9	0.398082	ug/L	0.3614284	0.398082	ug/L	0.3614284	90.79%
QC value within limits for Ti 334.940 R Recovery = Not calculated								
Tl 190.801†	-7.3	-0.387946	ug/L	1.5446990	-0.387946	ug/L	1.5446990	398.17%
QC value within limits for Tl 190.801 Recovery = Not calculated								
V 292.402†	-7.8	-0.0471018	ug/L	0.34930905	-0.0471018	ug/L	0.34930905	741.60%
QC value within limits for V 292.402 Recovery = Not calculated								
Zn 206.200†	-76.7	-1.04998	ug/L	0.059095	-1.04998	ug/L	0.059095	5.63%
QC value within limits for Zn 206.200 Recovery = Not calculated								
Sn 189.927†	2.9	0.133878	ug/L	0.3151621	0.133878	ug/L	0.3151621	235.41%
QC value within limits for Sn 189.927 Recovery = Not calculated								
Sr 421.552 R	-33.1	-0.0732097	ug/L	0.05174039	-0.0732097	ug/L	0.05174039	70.67%
QC value within limits for Sr 421.552 R Recovery = Not calculated								

All analyte(s) passed QC.

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520011.1 File : met08_sn_6010 Time : 29-AUG-2014 09:06
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25075

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[0.3892]	10.00	ug/L	
Arsenic	A	[-0.1240]	5.000	ug/L	
Barium	A	[-0.4424]	5.000	ug/L	
Beryllium	A	[1.149]	2.000	ug/L	!a+
Cadmium	A	[2.744]	5.000	ug/L	!a+
Cobalt	A	[-0.7642]	5.000	ug/L	
Lead	A	[-3.146]	5.000	ug/L	!a-
Molybdenum	A	[-1.859]	5.000	ug/L	!a-
Selenium	A	[1.094]	10.00	ug/L	
Silver	A	[3.430]	5.000	ug/L	!a+
Thallium	A	[-1.295]	10.00	ug/L	
Zinc	A	[-8.034]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec
Chromium	A	20000	19500	ug/L	98
Copper	A	20000	21230	ug/L	106
Manganese	A	20000	18010	ug/L	90
Nickel	A	20000	17970	ug/L	90
Vanadium	A	20000	18600	ug/L	93
Aluminum	R	500000	514800	ug/L	103
Calcium	R	500000	489700	ug/L	98
Iron	R	200000	187200	ug/L	94
Magnesium	R	500000	508800	ug/L	102
Titanium	R	20000	21440	ug/L	107

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2197536	-18.04

!=warning +=high bias -=low bias a=ICSA

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Sequence No.: 10 **Autosampler Location: 9**
Sample ID: s25075 **Date Collected: 8/29/2014 9:06:04 AM**
Analyst: **Data Type: Reprocessed on 8/29/2014 9:14:16 AM**
Logged In Analyst (Original) : Curtis and Tompkins
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: s25075

Analyte	Back Pressure	Flow
All	152.0 kPa	0.60 L/min

Mean Data: s25075

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	2197535.7	81.9567	%	0.61449				0.75%
Y	84306.4	91.5182	%	1.01916				1.11%
Ag 328.068†	2603.5	3.42979	ug/L	0.204402	3.42979	ug/L	0.204402	5.96%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 308.215 R†	288472.5	514843	ug/L	2578.4	514843	ug/L	2578.4	0.50%
QC value within limits for Al 308.215 R Recovery = 102.97%								
As 188.979†	-2.4	-0.123961	ug/L	15.0018895	-0.123961	ug/L	15.0018895	>999.9%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	4059.7	20.8200	ug/L	5.96979	20.8200	ug/L	5.96979	28.67%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	-187.3	-0.442434	ug/L	0.4301084	-0.442434	ug/L	0.4301084	97.21%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	6023.6	1.14860	ug/L	0.119736	1.14860	ug/L	0.119736	10.42%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 315.887 R†	2436315.5	489685	ug/L	13164.8	489685	ug/L	13164.8	2.69%
QC value within limits for Ca 315.887 R Recovery = 97.94%								
Cd 214.440†	597.4	2.74443	ug/L	0.103550	2.74443	ug/L	0.103550	3.77%
QC value within limits for Cd 214.440 Recovery = Not calculated								
Co 228.616†	5373.8	-0.764179	ug/L	0.4477304	-0.764179	ug/L	0.4477304	58.59%
QC value within limits for Co 228.616 Recovery = Not calculated								
Cr 267.716†	1898237.0	19504.9	ug/L	107.50	19504.9	ug/L	107.50	0.55%
QC value within limits for Cr 267.716 Recovery = 97.52%								
Cu 324.752†	2426103.6	21229.8	ug/L	554.15	21229.8	ug/L	554.15	2.61%
QC value within limits for Cu 324.752 Recovery = 106.15%								
Fe 238.204 R†	947207.5	187220	ug/L	4777.0	187220	ug/L	4777.0	2.55%
QC value within limits for Fe 238.204 R Recovery = 93.61%								
K 766.490 R†	-520.5	-88.3362	ug/L	25.94060	-88.3362	ug/L	25.94060	29.37%
QC value within limits for K 766.490 R Recovery = Not calculated								
Mg 279.077 R†	358021.4	508782	ug/L	1184.0	508782	ug/L	1184.0	0.23%
QC value within limits for Mg 279.077 R Recovery = 101.76%								
Mn 257.610†	21606054.4	18014.3	ug/L	108.98	18014.3	ug/L	108.98	0.60%
QC value within limits for Mn 257.610 Recovery = 90.07%								
Mo 202.031†	-69.7	-1.85949	ug/L	1.627525	-1.85949	ug/L	1.627525	87.53%
QC value within limits for Mo 202.031 Recovery = Not calculated								
Na 589.592 R†	842.2	81.6209	ug/L	9.37047	81.6209	ug/L	9.37047	11.48%
QC value within limits for Na 589.592 R Recovery = Not calculated								
Ni 231.604†	954802.8	17970.0	ug/L	70.28	17970.0	ug/L	70.28	0.39%
QC value less than the lower limit for Ni 231.604 Recovery = 89.85%								
Pb 220.353†	-176.3	-3.14581	ug/L	4.296117	-3.14581	ug/L	4.296117	136.57%
QC value within limits for Pb 220.353 Recovery = Not calculated								
Sb 206.836†	12.7	0.389192	ug/L	10.2541440	0.389192	ug/L	10.2541440	>999.9%
QC value within limits for Sb 206.836 Recovery = Not calculated								
Se 196.026†	31.1	1.09402	ug/L	11.555577	1.09402	ug/L	11.555577	>999.9%
QC value within limits for Se 196.026 Recovery = Not calculated								
Ti 334.940 R†	912075.4	21436.2	ug/L	338.48	21436.2	ug/L	338.48	1.58%
QC value within limits for Ti 334.940 R Recovery = 107.18%								
Tl 190.801†	-24.4	-1.29493	ug/L	21.952081	-1.29493	ug/L	21.952081	>999.9%
QC value within limits for Tl 190.801 Recovery = Not calculated								
V 292.402†	3082176.6	18602.6	ug/L	65.23	18602.6	ug/L	65.23	0.35%
QC value within limits for V 292.402 Recovery = 93.01%								
Zn 206.200†	-587.2	-8.03367	ug/L	0.298342	-8.03367	ug/L	0.298342	3.71%
QC value within limits for Zn 206.200 Recovery = Not calculated								
Sn 189.927†	-429.5	-20.0218	ug/L	1.62811	-20.0218	ug/L	1.62811	8.13%
QC value within limits for Sn 189.927 Recovery = Not calculated								
Sr 421.552 R	1494.0	-2.62237	ug/L	0.043184	-2.62237	ug/L	0.043184	1.65%
QC value within limits for Sr 421.552 R Recovery = Not calculated								

QC Failed. Continue with analysis.

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520012.1 File : met08_sn_6010 Time : 29-AUG-2014 09:21
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25227

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	493.6	ug/L	-1	20	
Arsenic	A	500.0	496.2	ug/L	-1	20	
Barium	A	500.0	538.3	ug/L	8	20	
Beryllium	A	500.0	535.3	ug/L	7	20	
Cadmium	A	1000	1036	ug/L	4	20	
Chromium	A	500.0	522.4	ug/L	4	20	
Cobalt	A	500.0	482.5	ug/L	-4	20	
Copper	A	500.0	574.4	ug/L	15	20	
Lead	A	1000	977.1	ug/L	-2	20	
Manganese	A	500.0	435.3	ug/L	-13	20	
Molybdenum	A	500.0	525.9	ug/L	5	20	
Nickel	A	1000	965.6	ug/L	-3	20	
Selenium	A	500.0	516.7	ug/L	3	20	
Silver	A	1000	1143	ug/L	14	20	
Thallium	A	500.0	454.0	ug/L	-9	20	
Vanadium	A	500.0	555.4	ug/L	11	20	
Zinc	A	1000	1024	ug/L	2	20	
Aluminum	R	500000	511300	ug/L	2		
Magnesium	R	500000	509800	ug/L	2		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2237717	-16.54

==========

Sequence No.: 1
Sample ID: ICALBLK,
Analyst:
Initial Sample Wt:
Dilution:
User canceled analysis.

Autosampler Location: 1
Date Collected: 8/29/2014 9:20:31 AM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

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Sequence No.: 11
Sample ID: s25227
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 10
Date Collected: 8/29/2014 9:21:51 AM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: s25227

Analyte	Back Pressure	Flow
All	152.0 kPa	0.60 L/min

Mean Data: s25227

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	2237717.3	83.4553	%	1.25090				1.50%
Y	83908.8	91.0866	%	1.05672				1.16%
Ag 328.068†	867909.2	1143.38	ug/L	12.349	1143.38	ug/L	12.349	1.08%
QC value within limits for Ag 328.068 Recovery = 114.34%								
Al 308.215 R†	286474.4	511277	ug/L	2072.0	511277	ug/L	2072.0	0.41%
QC value within limits for Al 308.215 R Recovery = 102.26%								
As 188.979†	9518.8	496.247	ug/L	12.0196	496.247	ug/L	12.0196	2.42%
QC value within limits for As 188.979 Recovery = 99.25%								
B 249.677†	5691.1	29.1863	ug/L	9.27850	29.1863	ug/L	9.27850	31.79%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	227844.2	538.263	ug/L	7.4638	538.263	ug/L	7.4638	1.39%
QC value within limits for Ba 233.527 Recovery = 107.65%								
Be 313.107†	2807091.6	535.267	ug/L	6.6185	535.267	ug/L	6.6185	1.24%
QC value within limits for Be 313.107 Recovery = 107.05%								
Ca 315.887 R†	2529518.9	508419	ug/L	354.2	508419	ug/L	354.2	0.07%
QC value within limits for Ca 315.887 R Recovery = 101.68%								
Cd 214.440†	225535.6	1036.08	ug/L	11.447	1036.08	ug/L	11.447	1.10%
QC value within limits for Cd 214.440 Recovery = 103.61%								
Co 228.616†	70279.2	482.491	ug/L	7.4971	482.491	ug/L	7.4971	1.55%
QC value within limits for Co 228.616 Recovery = 96.50%								
Cr 267.716†	50837.3	522.368	ug/L	7.7577	522.368	ug/L	7.7577	1.49%
QC value within limits for Cr 267.716 Recovery = 104.47%								
Cu 324.752†	65645.8	574.438	ug/L	5.1019	574.438	ug/L	5.1019	0.89%
QC value within limits for Cu 324.752 Recovery = 114.89%								
Fe 238.204 R†	952091.2	188185	ug/L	485.0	188185	ug/L	485.0	0.26%
QC value within limits for Fe 238.204 R Recovery = 94.09%								
K 766.490 R†	100.7	17.0862	ug/L	16.10189	17.0862	ug/L	16.10189	94.24%
QC value within limits for K 766.490 R Recovery = Not calculated								
Mg 279.077 R†	358732.7	509792	ug/L	3177.2	509792	ug/L	3177.2	0.62%
QC value within limits for Mg 279.077 R Recovery = 101.96%								
Mn 257.610†	522096.5	435.305	ug/L	8.7347	435.305	ug/L	8.7347	2.01%
QC value within limits for Mn 257.610 Recovery = 87.06%								
Mo 202.031†	19715.5	525.893	ug/L	8.1459	525.893	ug/L	8.1459	1.55%
QC value within limits for Mo 202.031 Recovery = 105.18%								
Na 589.592 R†	683.7	66.2588	ug/L	11.95208	66.2588	ug/L	11.95208	18.04%
QC value within limits for Na 589.592 R Recovery = Not calculated								
Ni 231.604†	51302.9	965.556	ug/L	9.2288	965.556	ug/L	9.2288	0.96%
QC value within limits for Ni 231.604 Recovery = 96.56%								
Pb 220.353†	54758.7	977.146	ug/L	12.7553	977.146	ug/L	12.7553	1.31%
QC value within limits for Pb 220.353 Recovery = 97.71%								
Sb 206.836†	16107.4	493.572	ug/L	12.1477	493.572	ug/L	12.1477	2.46%
QC value within limits for Sb 206.836 Recovery = 98.71%								
Se 196.026†	14695.2	516.735	ug/L	22.1710	516.735	ug/L	22.1710	4.29%
QC value within limits for Se 196.026 Recovery = 103.35%								
Ti 334.940 R†	899530.4	21141.4	ug/L	501.46	21141.4	ug/L	501.46	2.37%
QC value within limits for Ti 334.940 R Recovery = Not calculated								
Tl 190.801†	8553.8	453.991	ug/L	8.0654	453.991	ug/L	8.0654	1.78%
QC value within limits for Tl 190.801 Recovery = 90.80%								
V 292.402†	92029.7	555.448	ug/L	3.9563	555.448	ug/L	3.9563	0.71%
QC value within limits for V 292.402 Recovery = 111.09%								
Zn 206.200†	74839.0	1023.88	ug/L	11.075	1023.88	ug/L	11.075	1.08%

```
   QC value within limits for Zn 206.200  Recovery = 102.39%
Sn 189.927†              -70.1    -3.26859 ug/L      5.386858    -3.26859 ug/L      5.386858 164.81%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552 R          219540.1     479.068 ug/L        6.0372     479.068 ug/L        6.0372   1.26%
   QC value within limits for Sr 421.552 R  Recovery = 95.81%
All analyte(s) passed QC.
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CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520027.1 File : met08_sn_6010 Time : 29-AUG-2014 12:17
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.380	32.935	5000	5046	ug/L	1	10	
Arsenic	A	19.163	20.053	5000	5227	ug/L	5	10	
Barium	A	431.65	427.81	5000	5053	ug/L	1	10	
Beryllium	A	5076.1	5633.4	500.0	537.1	ug/L	7	10	
Cadmium	A	221.76	231.20	5000	5310	ug/L	6	10	
Chromium	A	98.161	100.60	5000	5169	ug/L	3	10	
Cobalt	A	133.96	138.90	5000	5156	ug/L	3	10	
Copper	A	109.72	113.27	5000	4956	ug/L	-1	10	
Lead	A	56.670	56.938	5000	5080	ug/L	2	10	
Manganese	A	1246.9	1196.0	5000	4986	ug/L	0	10	
Molybdenum	A	37.456	39.223	5000	5231	ug/L	5	10	
Nickel	A	52.722	54.285	5000	5108	ug/L	2	10	
Selenium	A	27.694	31.225	5000	5490	ug/L	10	10	
Silver	A	729.48	749.02	1000	986.8	ug/L	-1	10	
Thallium	A	19.510	19.094	5000	5067	ug/L	1	10	
Vanadium	A	164.98	167.84	5000	5065	ug/L	1	10	
Zinc	A	71.915	76.690	5000	5246	ug/L	5	10	
Aluminum	R	0.5653	0.5550	20000	19810	ug/L	-1	10	
Magnesium	R	0.7549	0.7274	20000	20670	ug/L	3	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2606211	-2.80

Sequence No.: 17 **Autosampler Location: 217**
Sample ID: s25073 **Date Collected: 8/29/2014 12:17:37 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: s25073

Analyte	Back Pressure	Flow
All	153.0 kPa	0.60 L/min

Mean Data: s25073

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	2606211.2	97.1982	%	1.09815				1.13%
Y	93147.9	101.116	%	1.2159				1.20%
Ag 328.068†	749016.2	986.754	ug/L	7.7908	986.754	ug/L	7.7908	0.79%
QC value within limits for Ag 328.068 Recovery = 98.68%								
Al 308.215 R†	11100.2	19810.7	ug/L	160.05	19810.7	ug/L	160.05	0.81%
QC value within limits for Al 308.215 R Recovery = 99.05%								
As 188.979†	100263.1	5227.06	ug/L	36.778	5227.06	ug/L	36.778	0.70%
QC value within limits for As 188.979 Recovery = 104.54%								
B 249.677†	1015795.6	5209.43	ug/L	18.777	5209.43	ug/L	18.777	0.36%
QC value within limits for B 249.677 Recovery = 104.19%								
Ba 233.527†	2139058.8	5053.35	ug/L	33.533	5053.35	ug/L	33.533	0.66%
QC value within limits for Ba 233.527 Recovery = 101.07%								
Be 313.107†	2816695.1	537.098	ug/L	3.1035	537.098	ug/L	3.1035	0.58%
QC value within limits for Be 313.107 Recovery = 107.42%								
Ca 315.887 R†	103409.9	20784.8	ug/L	107.17	20784.8	ug/L	107.17	0.52%
QC value within limits for Ca 315.887 R Recovery = 103.92%								
Cd 214.440†	1155992.4	5310.45	ug/L	22.841	5310.45	ug/L	22.841	0.43%
QC value within limits for Cd 214.440 Recovery = 106.21%								
Co 228.616†	694487.2	5155.73	ug/L	28.154	5155.73	ug/L	28.154	0.55%
QC value within limits for Co 228.616 Recovery = 103.11%								
Cr 267.716†	503013.4	5168.61	ug/L	34.190	5168.61	ug/L	34.190	0.66%
QC value within limits for Cr 267.716 Recovery = 103.37%								
Cu 324.752†	566330.2	4955.71	ug/L	79.398	4955.71	ug/L	79.398	1.60%
QC value within limits for Cu 324.752 Recovery = 99.11%								
Fe 238.204 R†	100530.7	19870.4	ug/L	111.04	19870.4	ug/L	111.04	0.56%
QC value within limits for Fe 238.204 R Recovery = 99.35%								
K 766.490 R†	124024.9	21048.4	ug/L	54.30	21048.4	ug/L	54.30	0.26%
QC value within limits for K 766.490 R Recovery = 105.24%								
Mg 279.077 R†	14547.9	20673.9	ug/L	143.59	20673.9	ug/L	143.59	0.69%
QC value within limits for Mg 279.077 R Recovery = 103.37%								
Mn 257.610†	5980120.5	4986.00	ug/L	88.346	4986.00	ug/L	88.346	1.77%
QC value within limits for Mn 257.610 Recovery = 99.72%								
Mo 202.031†	196115.1	5231.20	ug/L	12.994	5231.20	ug/L	12.994	0.25%
QC value within limits for Mo 202.031 Recovery = 104.62%								
Na 589.592 R†	208751.1	20231.1	ug/L	319.94	20231.1	ug/L	319.94	1.58%
QC value within limits for Na 589.592 R Recovery = 101.16%								
Ni 231.604†	271422.6	5108.36	ug/L	20.551	5108.36	ug/L	20.551	0.40%
QC value within limits for Ni 231.604 Recovery = 102.17%								
Pb 220.353†	284692.3	5080.21	ug/L	18.999	5080.21	ug/L	18.999	0.37%
QC value within limits for Pb 220.353 Recovery = 101.60%								
Sb 206.836†	164677.0	5046.15	ug/L	27.894	5046.15	ug/L	27.894	0.55%
QC value within limits for Sb 206.836 Recovery = 100.92%								
Se 196.026†	156122.8	5489.85	ug/L	91.061	5489.85	ug/L	91.061	1.66%
QC value within limits for Se 196.026 Recovery = 109.80%								
Ti 334.940 R†	203916.9	4792.60	ug/L	98.607	4792.60	ug/L	98.607	2.06%
QC value within limits for Ti 334.940 R Recovery = 95.85%								
Tl 190.801†	95471.6	5067.14	ug/L	102.400	5067.14	ug/L	102.400	2.02%
QC value within limits for Tl 190.801 Recovery = 101.34%								
V 292.402†	839183.2	5064.91	ug/L	27.858	5064.91	ug/L	27.858	0.55%
QC value within limits for V 292.402 Recovery = 101.30%								
Zn 206.200†	383451.0	5246.05	ug/L	25.006	5246.05	ug/L	25.006	0.48%
QC value within limits for Zn 206.200 Recovery = 104.92%								
Sn 189.927†	106940.0	4984.93	ug/L	39.057	4984.93	ug/L	39.057	0.78%
QC value within limits for Sn 189.927 Recovery = 99.70%								
Sr 421.552 R	227018.1	500.000	ug/L	7.5502	500.000	ug/L	7.5502	1.51%
QC value within limits for Sr 421.552 R Recovery = 100.00%								

All analyte(s) passed QC.

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520028.1 File : met08_sn_6010 Time : 29-AUG-2014 12:24
Cal : 84347520001 Caldate : 29-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2506414	-6.52

Sequence No.: 18 **Autosampler Location: 220**
Sample ID: ccb **Date Collected: 8/29/2014 12:24:24 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: ccb

Analyte	Back Pressure	Flow
All	153.0 kPa	0.60 L/min

Mean Data: ccb

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Calib Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Y 371.029	2506414.4	93.4763	%	1.22309				1.31%
Y	88829.6	96.4283	%	4.03172				4.18%
Ag 328.068†	104.0	0.136982	ug/L	0.4081394	0.136982	ug/L	0.4081394	297.95%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 308.215 R†	-16.8	-30.0468	ug/L	12.56095	-30.0468	ug/L	12.56095	41.80%
QC value within limits for Al 308.215 R Recovery = Not calculated								
As 188.979†	10.5	0.548357	ug/L	1.1393875	0.548357	ug/L	1.1393875	207.78%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	3853.3	19.7611	ug/L	0.37291	19.7611	ug/L	0.37291	1.89%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	-12.9	-0.0305489	ug/L	0.01451445	-0.0305489	ug/L	0.01451445	47.51%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	34.6	0.0066032	ug/L	0.01674011	0.0066032	ug/L	0.01674011	253.52%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 315.887 R†	-26.9	-5.39727	ug/L	1.433204	-5.39727	ug/L	1.433204	26.55%
QC value within limits for Ca 315.887 R Recovery = Not calculated								
Cd 214.440†	-2.5	-0.0117036	ug/L	0.04362950	-0.0117036	ug/L	0.04362950	372.79%
QC value within limits for Cd 214.440 Recovery = Not calculated								
Co 228.616†	-9.0	-0.0682171	ug/L	0.04545038	-0.0682171	ug/L	0.04545038	66.63%
QC value within limits for Co 228.616 Recovery = Not calculated								
Cr 267.716†	-29.3	-0.301523	ug/L	0.1394775	-0.301523	ug/L	0.1394775	46.26%
QC value within limits for Cr 267.716 Recovery = Not calculated								
Cu 324.752†	52.3	0.457551	ug/L	0.6964821	0.457551	ug/L	0.6964821	152.22%
QC value within limits for Cu 324.752 Recovery = Not calculated								
Fe 238.204 R†	17.4	3.43037	ug/L	1.067477	3.43037	ug/L	1.067477	31.12%
QC value within limits for Fe 238.204 R Recovery = Not calculated								
K 766.490 R†	518.9	88.0628	ug/L	37.93708	88.0628	ug/L	37.93708	43.08%
QC value within limits for K 766.490 R Recovery = Not calculated								
Mg 279.077 R†	-3.0	-4.22780	ug/L	9.045335	-4.22780	ug/L	9.045335	213.95%
QC value within limits for Mg 279.077 R Recovery = Not calculated								
Mn 257.610†	39.3	0.0327774	ug/L	0.01001815	0.0327774	ug/L	0.01001815	30.56%
QC value within limits for Mn 257.610 Recovery = Not calculated								
Mo 202.031†	35.7	0.951188	ug/L	0.0998380	0.951188	ug/L	0.0998380	10.50%
QC value within limits for Mo 202.031 Recovery = Not calculated								
Na 589.592 R†	-330.1	-31.9911	ug/L	3.54491	-31.9911	ug/L	3.54491	11.08%
QC value within limits for Na 589.592 R Recovery = Not calculated								
Ni 231.604†	-24.1	-0.452656	ug/L	0.2462981	-0.452656	ug/L	0.2462981	54.41%
QC value within limits for Ni 231.604 Recovery = Not calculated								
Pb 220.353†	89.8	1.60198	ug/L	0.398532	1.60198	ug/L	0.398532	24.88%
QC value within limits for Pb 220.353 Recovery = Not calculated								
Sb 206.836†	-42.8	-1.31140	ug/L	0.497958	-1.31140	ug/L	0.497958	37.97%
QC value within limits for Sb 206.836 Recovery = Not calculated								
Se 196.026†	8.2	0.289269	ug/L	3.2631255	0.289269	ug/L	3.2631255	>999.9%
QC value within limits for Se 196.026 Recovery = Not calculated								
Ti 334.940 R†	20.8	0.489426	ug/L	0.3288299	0.489426	ug/L	0.3288299	67.19%
QC value within limits for Ti 334.940 R Recovery = Not calculated								
Tl 190.801†	-21.3	-1.13070	ug/L	0.889166	-1.13070	ug/L	0.889166	78.64%
QC value within limits for Tl 190.801 Recovery = Not calculated								
V 292.402†	-18.0	-0.108839	ug/L	0.2664353	-0.108839	ug/L	0.2664353	244.80%
QC value within limits for V 292.402 Recovery = Not calculated								
Zn 206.200†	-73.9	-1.01135	ug/L	0.046694	-1.01135	ug/L	0.046694	4.62%
QC value within limits for Zn 206.200 Recovery = Not calculated								
Sn 189.927†	49.5	2.30793	ug/L	0.290211	2.30793	ug/L	0.290211	12.57%
QC value within limits for Sn 189.927 Recovery = Not calculated								
Sr 421.552 R	-137.4	-0.303605	ug/L	0.1840393	-0.303605	ug/L	0.1840393	60.62%
QC value within limits for Sr 421.552 R Recovery = Not calculated								

All analyte(s) passed QC.

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520039.1 File : met08_sn_6010 Time : 29-AUG-2014 13:36
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.380	31.391	5000	4810	ug/L	-4	10	
Arsenic	A	19.163	18.138	5000	4728	ug/L	-5	10	
Barium	A	431.65	405.16	5000	4786	ug/L	-4	10	
Beryllium	A	5076.1	5264.5	500.0	501.9	ug/L	0	10	
Cadmium	A	221.76	214.80	5000	4934	ug/L	-1	10	
Chromium	A	98.161	95.052	5000	4883	ug/L	-2	10	
Cobalt	A	133.96	129.83	5000	4819	ug/L	-4	10	
Copper	A	109.72	114.04	5000	4990	ug/L	0	10	
Lead	A	56.670	53.757	5000	4796	ug/L	-4	10	
Manganese	A	1246.9	1101.3	5000	4591	ug/L	-8	10	
Molybdenum	A	37.456	37.343	5000	4980	ug/L	0	10	
Nickel	A	52.722	51.155	5000	4814	ug/L	-4	10	
Selenium	A	27.694	26.599	5000	4677	ug/L	-6	10	
Silver	A	729.48	722.76	1000	952.2	ug/L	-5	10	
Thallium	A	19.510	17.564	5000	4661	ug/L	-7	10	
Vanadium	A	164.98	161.03	5000	4859	ug/L	-3	10	
Zinc	A	71.915	70.448	5000	4819	ug/L	-4	10	
Aluminum	R	0.5653	0.5689	20000	20310	ug/L	2	10	
Magnesium	R	0.7549	0.6998	20000	19890	ug/L	-1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2733599	1.95

Sequence No.: 22 **Autosampler Location: 217**
Sample ID: s25073 **Date Collected: 8/29/2014 1:36:37 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: s25073

Analyte	Back Pressure	Flow
All	152.0 kPa	0.60 L/min

Mean Data: s25073

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	2733598.8	101.949	%	1.1326				1.11%
Y	94644.0	102.740	%	1.2322				1.20%
Ag 328.068†	722759.0	952.163	ug/L	12.6571	952.163	ug/L	12.6571	1.33%
QC value within limits for Ag 328.068 Recovery = 95.22%								
Al 308.215 R†	11378.7	20307.8	ug/L	317.76	20307.8	ug/L	317.76	1.56%
QC value within limits for Al 308.215 R Recovery = 101.54%								
As 188.979†	90690.3	4728.00	ug/L	38.883	4728.00	ug/L	38.883	0.82%
QC value within limits for As 188.979 Recovery = 94.56%								
B 249.677†	969602.9	4972.53	ug/L	63.153	4972.53	ug/L	63.153	1.27%
QC value within limits for B 249.677 Recovery = 99.45%								
Ba 233.527†	2025808.8	4785.80	ug/L	81.297	4785.80	ug/L	81.297	1.70%
QC value within limits for Ba 233.527 Recovery = 95.72%								
Be 313.107†	2632245.7	501.927	ug/L	4.8532	501.927	ug/L	4.8532	0.97%
QC value within limits for Be 313.107 Recovery = 100.39%								
Ca 315.887 R†	101807.4	20462.7	ug/L	274.06	20462.7	ug/L	274.06	1.34%
QC value within limits for Ca 315.887 R Recovery = 102.31%								
Cd 214.440†	1074024.0	4933.90	ug/L	65.428	4933.90	ug/L	65.428	1.33%
QC value within limits for Cd 214.440 Recovery = 98.68%								
Co 228.616†	649153.3	4818.72	ug/L	75.984	4818.72	ug/L	75.984	1.58%
QC value within limits for Co 228.616 Recovery = 96.37%								
Cr 267.716†	475260.1	4883.44	ug/L	69.668	4883.44	ug/L	69.668	1.43%
QC value within limits for Cr 267.716 Recovery = 97.67%								
Cu 324.752†	570216.5	4989.72	ug/L	83.076	4989.72	ug/L	83.076	1.66%
QC value within limits for Cu 324.752 Recovery = 99.79%								
Fe 238.204 R†	101222.6	20007.1	ug/L	268.58	20007.1	ug/L	268.58	1.34%
QC value within limits for Fe 238.204 R Recovery = 100.04%								
K 766.490 R†	118488.8	20108.9	ug/L	267.28	20108.9	ug/L	267.28	1.33%
QC value within limits for K 766.490 R Recovery = 100.54%								
Mg 279.077 R†	13995.9	19889.5	ug/L	324.26	19889.5	ug/L	324.26	1.63%
QC value within limits for Mg 279.077 R Recovery = 99.45%								
Mn 257.610†	5506703.2	4591.28	ug/L	92.599	4591.28	ug/L	92.599	2.02%
QC value within limits for Mn 257.610 Recovery = 91.83%								
Mo 202.031†	186713.7	4980.43	ug/L	59.178	4980.43	ug/L	59.178	1.19%
QC value within limits for Mo 202.031 Recovery = 99.61%								
Na 589.592 R†	208879.4	20243.5	ug/L	170.54	20243.5	ug/L	170.54	0.84%
QC value within limits for Na 589.592 R Recovery = 101.22%								
Ni 231.604†	255777.0	4813.90	ug/L	63.410	4813.90	ug/L	63.410	1.32%
QC value within limits for Ni 231.604 Recovery = 96.28%								
Pb 220.353†	268787.2	4796.39	ug/L	54.084	4796.39	ug/L	54.084	1.13%
QC value within limits for Pb 220.353 Recovery = 95.93%								
Sb 206.836†	156956.0	4809.55	ug/L	44.561	4809.55	ug/L	44.561	0.93%
QC value within limits for Sb 206.836 Recovery = 96.19%								
Se 196.026†	132994.5	4676.57	ug/L	46.026	4676.57	ug/L	46.026	0.98%
QC value within limits for Se 196.026 Recovery = 93.53%								
Ti 334.940 R†	200880.7	4721.24	ug/L	55.747	4721.24	ug/L	55.747	1.18%
QC value within limits for Ti 334.940 R Recovery = 94.42%								
Tl 190.801†	87820.4	4661.05	ug/L	51.348	4661.05	ug/L	51.348	1.10%
QC value within limits for Tl 190.801 Recovery = 93.22%								
V 292.402†	805130.0	4859.38	ug/L	65.893	4859.38	ug/L	65.893	1.36%
QC value within limits for V 292.402 Recovery = 97.19%								
Zn 206.200†	352238.8	4819.03	ug/L	70.683	4819.03	ug/L	70.683	1.47%
QC value within limits for Zn 206.200 Recovery = 96.38%								
Sn 189.927†	99028.0	4616.12	ug/L	25.718	4616.12	ug/L	25.718	0.56%
QC value within limits for Sn 189.927 Recovery = 92.32%								
Sr 421.552 R	224048.8	493.463	ug/L	4.6851	493.463	ug/L	4.6851	0.95%
QC value within limits for Sr 421.552 R Recovery = 98.69%								

All analyte(s) passed QC.

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520040.1 File : met08_sn_6010 Time : 29-AUG-2014 13:43
Cal : 84347520001 Caldate : 29-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2750982	2.60

Sequence No.: 23 **Autosampler Location: 220**
Sample ID: ccb **Date Collected: 8/29/2014 1:43:25 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: ccb

Analyte	Back Pressure	Flow
All	153.0 kPa	0.60 L/min

Mean Data: ccb

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	2750982.3	102.597	%	2.4911				2.43%
Y	95460.4	103.626	%	4.1008				3.96%
Ag 328.068†	-420.8	-0.554307	ug/L	0.4313497	-0.554307	ug/L	0.4313497	77.82%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 308.215 R†	6.1	10.8535	ug/L	6.15686	10.8535	ug/L	6.15686	56.73%
QC value within limits for Al 308.215 R Recovery = Not calculated								
As 188.979†	11.0	0.571153	ug/L	0.4838324	0.571153	ug/L	0.4838324	84.71%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	2738.1	14.0419	ug/L	0.62761	14.0419	ug/L	0.62761	4.47%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	34.9	0.0825274	ug/L	0.04234821	0.0825274	ug/L	0.04234821	51.31%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-451.2	-0.0860390	ug/L	0.03887749	-0.0860390	ug/L	0.03887749	45.19%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 315.887 R†	-22.6	-4.55053	ug/L	1.011020	-4.55053	ug/L	1.011020	22.22%
QC value within limits for Ca 315.887 R Recovery = Not calculated								
Cd 214.440†	14.9	0.0684333	ug/L	0.03076328	0.0684333	ug/L	0.03076328	44.95%
QC value within limits for Cd 214.440 Recovery = Not calculated								
Co 228.616†	22.6	0.167408	ug/L	0.0485229	0.167408	ug/L	0.0485229	28.98%
QC value within limits for Co 228.616 Recovery = Not calculated								
Cr 267.716†	0.9	0.0094797	ug/L	0.10808841	0.0094797	ug/L	0.10808841	>999.9%
QC value within limits for Cr 267.716 Recovery = Not calculated								
Cu 324.752†	-20.3	-0.177704	ug/L	1.5092989	-0.177704	ug/L	1.5092989	849.33%
QC value within limits for Cu 324.752 Recovery = Not calculated								
Fe 238.204 R†	-1.2	-0.243392	ug/L	0.2554320	-0.243392	ug/L	0.2554320	104.95%
QC value within limits for Fe 238.204 R Recovery = Not calculated								
K 766.490 R†	-146.7	-24.8969	ug/L	13.98094	-24.8969	ug/L	13.98094	56.16%
QC value within limits for K 766.490 R Recovery = Not calculated								
Mg 279.077 R†	1.7	2.41088	ug/L	6.979842	2.41088	ug/L	6.979842	289.51%
QC value within limits for Mg 279.077 R Recovery = Not calculated								
Mn 257.610†	3.2	0.0026968	ug/L	0.07106021	0.0026968	ug/L	0.07106021	>999.9%
QC value within limits for Mn 257.610 Recovery = Not calculated								
Mo 202.031†	18.3	0.488109	ug/L	0.1095783	0.488109	ug/L	0.1095783	22.45%
QC value within limits for Mo 202.031 Recovery = Not calculated								
Na 589.592 R†	-480.3	-46.5468	ug/L	14.62670	-46.5468	ug/L	14.62670	31.42%
QC value within limits for Na 589.592 R Recovery = Not calculated								
Ni 231.604†	13.7	0.257738	ug/L	0.3027609	0.257738	ug/L	0.3027609	117.47%
QC value within limits for Ni 231.604 Recovery = Not calculated								
Pb 220.353†	32.7	0.584223	ug/L	0.2741385	0.584223	ug/L	0.2741385	46.92%
QC value within limits for Pb 220.353 Recovery = Not calculated								
Sb 206.836†	-40.7	-1.24625	ug/L	0.712977	-1.24625	ug/L	0.712977	57.21%
QC value within limits for Sb 206.836 Recovery = Not calculated								
Se 196.026†	-20.3	-0.714113	ug/L	0.4445117	-0.714113	ug/L	0.4445117	62.25%
QC value within limits for Se 196.026 Recovery = Not calculated								
Ti 334.940 R†	8.0	0.188686	ug/L	0.0530791	0.188686	ug/L	0.0530791	28.13%
QC value within limits for Ti 334.940 R Recovery = Not calculated								
Tl 190.801†	-6.8	-0.363136	ug/L	1.0010247	-0.363136	ug/L	1.0010247	275.66%
QC value within limits for Tl 190.801 Recovery = Not calculated								
V 292.402†	23.0	0.138902	ug/L	0.2730196	0.138902	ug/L	0.2730196	196.56%
QC value within limits for V 292.402 Recovery = Not calculated								
Zn 206.200†	-71.8	-0.982983	ug/L	0.0867076	-0.982983	ug/L	0.0867076	8.82%
QC value within limits for Zn 206.200 Recovery = Not calculated								
Sn 189.927†	38.4	1.78917	ug/L	0.378723	1.78917	ug/L	0.378723	21.17%
QC value within limits for Sn 189.927 Recovery = Not calculated								
Sr 421.552 R	-43.8	-0.0966981	ug/L	0.13090242	-0.0966981	ug/L	0.13090242	135.37%
QC value within limits for Sr 421.552 R Recovery = Not calculated								

All analyte(s) passed QC.

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520051.1 File : met08_sn_6010 Time : 29-AUG-2014 14:38
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.380	31.597	5000	4841	ug/L	-3	10	
Arsenic	A	19.163	18.344	5000	4782	ug/L	-4	10	
Barium	A	431.65	399.71	5000	4721	ug/L	-6	10	
Beryllium	A	5076.1	5245.6	500.0	500.1	ug/L	0	10	
Cadmium	A	221.76	211.49	5000	4858	ug/L	-3	10	
Chromium	A	98.161	93.526	5000	4805	ug/L	-4	10	
Cobalt	A	133.96	128.18	5000	4757	ug/L	-5	10	
Copper	A	109.72	112.51	5000	4923	ug/L	-2	10	
Lead	A	56.670	52.869	5000	4717	ug/L	-6	10	
Manganese	A	1246.9	1100.2	5000	4587	ug/L	-8	10	
Molybdenum	A	37.456	36.755	5000	4902	ug/L	-2	10	
Nickel	A	52.722	50.344	5000	4738	ug/L	-5	10	
Selenium	A	27.694	26.711	5000	4696	ug/L	-6	10	
Silver	A	729.48	712.80	1000	939.0	ug/L	-6	10	
Thallium	A	19.510	17.692	5000	4695	ug/L	-6	10	
Vanadium	A	164.98	158.15	5000	4772	ug/L	-5	10	
Zinc	A	71.915	69.379	5000	4746	ug/L	-5	10	
Aluminum	R	0.5653	0.5531	20000	19740	ug/L	-1	10	
Magnesium	R	0.7549	0.6878	20000	19550	ug/L	-2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2706625	0.94

Sequence No.: 34 **Autosampler Location: 217**
Sample ID: s25073 **Date Collected: 8/29/2014 2:38:05 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: s25073

Analyte	Back Pressure	Flow
All	152.0 kPa	0.60 L/min

Mean Data: s25073

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	2706625.2	100.943	%	0.4941				0.49%
Y	94810.1	102.920	%	0.9477				0.92%
Ag 328.068†	712797.7	939.040	ug/L	16.0318	939.040	ug/L	16.0318	1.71%
QC value within limits for Ag 328.068 Recovery = 93.90%								
Al 308.215 R†	11062.7	19743.9	ug/L	124.06	19743.9	ug/L	124.06	0.63%
QC value within limits for Al 308.215 R Recovery = 98.72%								
As 188.979†	91718.6	4781.61	ug/L	36.371	4781.61	ug/L	36.371	0.76%
QC value within limits for As 188.979 Recovery = 95.63%								
B 249.677†	954714.9	4896.18	ug/L	87.538	4896.18	ug/L	87.538	1.79%
QC value within limits for B 249.677 Recovery = 97.92%								
Ba 233.527†	1998552.4	4721.41	ug/L	75.092	4721.41	ug/L	75.092	1.59%
QC value within limits for Ba 233.527 Recovery = 94.43%								
Be 313.107†	2622812.8	500.128	ug/L	5.6395	500.128	ug/L	5.6395	1.13%
QC value within limits for Be 313.107 Recovery = 100.03%								
Ca 315.887 R†	99857.9	20070.9	ug/L	109.39	20070.9	ug/L	109.39	0.55%
QC value within limits for Ca 315.887 R Recovery = 100.35%								
Cd 214.440†	1057462.8	4857.82	ug/L	80.292	4857.82	ug/L	80.292	1.65%
QC value within limits for Cd 214.440 Recovery = 97.16%								
Co 228.616†	640892.6	4757.34	ug/L	80.142	4757.34	ug/L	80.142	1.68%
QC value within limits for Co 228.616 Recovery = 95.15%								
Cr 267.716†	467629.1	4805.02	ug/L	80.133	4805.02	ug/L	80.133	1.67%
QC value within limits for Cr 267.716 Recovery = 96.10%								
Cu 324.752†	562561.8	4922.74	ug/L	66.126	4922.74	ug/L	66.126	1.34%
QC value within limits for Cu 324.752 Recovery = 98.45%								
Fe 238.204 R†	98998.5	19567.5	ug/L	58.30	19567.5	ug/L	58.30	0.30%
QC value within limits for Fe 238.204 R Recovery = 97.84%								
K 766.490 R†	117925.6	20013.3	ug/L	54.14	20013.3	ug/L	54.14	0.27%
QC value within limits for K 766.490 R Recovery = 100.07%								
Mg 279.077 R†	13756.4	19549.1	ug/L	126.86	19549.1	ug/L	126.86	0.65%
QC value within limits for Mg 279.077 R Recovery = 97.75%								
Mn 257.610†	5501131.1	4586.64	ug/L	94.314	4586.64	ug/L	94.314	2.06%
QC value within limits for Mn 257.610 Recovery = 91.73%								
Mo 202.031†	183774.3	4902.02	ug/L	65.069	4902.02	ug/L	65.069	1.33%
QC value within limits for Mo 202.031 Recovery = 98.04%								
Na 589.592 R†	206116.1	19975.7	ug/L	467.13	19975.7	ug/L	467.13	2.34%
QC value within limits for Na 589.592 R Recovery = 99.88%								
Ni 231.604†	251718.5	4737.51	ug/L	66.854	4737.51	ug/L	66.854	1.41%
QC value within limits for Ni 231.604 Recovery = 94.75%								
Pb 220.353†	264344.2	4717.11	ug/L	72.412	4717.11	ug/L	72.412	1.54%
QC value within limits for Pb 220.353 Recovery = 94.34%								
Sb 206.836†	157985.7	4841.10	ug/L	41.984	4841.10	ug/L	41.984	0.87%
QC value within limits for Sb 206.836 Recovery = 96.82%								
Se 196.026†	133553.6	4696.23	ug/L	38.801	4696.23	ug/L	38.801	0.83%
QC value within limits for Se 196.026 Recovery = 93.92%								
Ti 334.940 R†	199529.1	4689.47	ug/L	61.676	4689.47	ug/L	61.676	1.32%
QC value within limits for Ti 334.940 R Recovery = 93.79%								
Tl 190.801†	88460.2	4695.01	ug/L	52.515	4695.01	ug/L	52.515	1.12%
QC value within limits for Tl 190.801 Recovery = 93.90%								
V 292.402†	790732.5	4772.49	ug/L	63.664	4772.49	ug/L	63.664	1.33%
QC value within limits for V 292.402 Recovery = 95.45%								
Zn 206.200†	346892.8	4745.89	ug/L	84.926	4745.89	ug/L	84.926	1.79%
QC value within limits for Zn 206.200 Recovery = 94.92%								
Sn 189.927†	99433.5	4635.02	ug/L	34.909	4635.02	ug/L	34.909	0.75%
QC value within limits for Sn 189.927 Recovery = 92.70%								
Sr 421.552 R	227622.8	501.366	ug/L	10.4791	501.366	ug/L	10.4791	2.09%
QC value within limits for Sr 421.552 R Recovery = 100.27%								

All analyte(s) passed QC.

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520052.1 File : met08_sn_6010 Time : 29-AUG-2014 14:44
Cal : 84347520001 Caldate : 29-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2691478	0.38

Sequence No.: 35 **Autosampler Location: 220**
Sample ID: ccb **Date Collected: 8/29/2014 2:44:53 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: ccb

Analyte	Back Pressure	Flow
All	152.0 kPa	0.60 L/min

Mean Data: ccb

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Calib Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Y 371.029	2691477.8	100.378	%	1.0071				1.00%
Y	92663.3	100.590	%	1.9425				1.93%
Ag 328.068†	-483.6	-0.637095	ug/L	0.3502023	-0.637095	ug/L	0.3502023	54.97%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 308.215 R†	-2.3	-4.02680	ug/L	5.851041	-4.02680	ug/L	5.851041	145.30%
QC value within limits for Al 308.215 R Recovery = Not calculated								
As 188.979†	16.2	0.845340	ug/L	0.1918479	0.845340	ug/L	0.1918479	22.69%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	2382.4	12.2180	ug/L	0.42981	12.2180	ug/L	0.42981	3.52%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	27.7	0.0654305	ug/L	0.02254866	0.0654305	ug/L	0.02254866	34.46%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-612.6	-0.116804	ug/L	0.0118140	-0.116804	ug/L	0.0118140	10.11%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 315.887 R†	-31.9	-6.42067	ug/L	1.631469	-6.42067	ug/L	1.631469	25.41%
QC value within limits for Ca 315.887 R Recovery = Not calculated								
Cd 214.440†	19.5	0.0895463	ug/L	0.01089292	0.0895463	ug/L	0.01089292	12.16%
QC value within limits for Cd 214.440 Recovery = Not calculated								
Co 228.616†	13.7	0.101517	ug/L	0.1334619	0.101517	ug/L	0.1334619	131.47%
QC value within limits for Co 228.616 Recovery = Not calculated								
Cr 267.716†	4.4	0.0450670	ug/L	0.06470378	0.0450670	ug/L	0.06470378	143.57%
QC value within limits for Cr 267.716 Recovery = Not calculated								
Cu 324.752†	-41.7	-0.364646	ug/L	0.8304538	-0.364646	ug/L	0.8304538	227.74%
QC value within limits for Cu 324.752 Recovery = Not calculated								
Fe 238.204 R†	1.8	0.348806	ug/L	0.5774307	0.348806	ug/L	0.5774307	165.55%
QC value within limits for Fe 238.204 R Recovery = Not calculated								
K 766.490 R†	257.6	43.7157	ug/L	20.90633	43.7157	ug/L	20.90633	47.82%
QC value within limits for K 766.490 R Recovery = Not calculated								
Mg 279.077 R†	7.4	10.4880	ug/L	1.87733	10.4880	ug/L	1.87733	17.90%
QC value within limits for Mg 279.077 R Recovery = Not calculated								
Mn 257.610†	-1.1	-0.0008931	ug/L	0.00776052	-0.0008931	ug/L	0.00776052	868.91%
QC value within limits for Mn 257.610 Recovery = Not calculated								
Mo 202.031†	14.4	0.383286	ug/L	0.0934431	0.383286	ug/L	0.0934431	24.38%
QC value within limits for Mo 202.031 Recovery = Not calculated								
Na 589.592 R†	-556.8	-53.9631	ug/L	3.32021	-53.9631	ug/L	3.32021	6.15%
QC value within limits for Na 589.592 R Recovery = Not calculated								
Ni 231.604†	11.2	0.210580	ug/L	0.3364307	0.210580	ug/L	0.3364307	159.76%
QC value within limits for Ni 231.604 Recovery = Not calculated								
Pb 220.353†	28.0	0.498757	ug/L	0.3858145	0.498757	ug/L	0.3858145	77.36%
QC value within limits for Pb 220.353 Recovery = Not calculated								
Sb 206.836†	11.1	0.340266	ug/L	0.6283573	0.340266	ug/L	0.6283573	184.67%
QC value within limits for Sb 206.836 Recovery = Not calculated								
Se 196.026†	12.4	0.437598	ug/L	1.3178144	0.437598	ug/L	1.3178144	301.15%
QC value within limits for Se 196.026 Recovery = Not calculated								
Ti 334.940 R†	3.8	0.0900953	ug/L	0.06459468	0.0900953	ug/L	0.06459468	71.70%
QC value within limits for Ti 334.940 R Recovery = Not calculated								
Tl 190.801†	16.8	0.892362	ug/L	1.3034616	0.892362	ug/L	1.3034616	146.07%
QC value within limits for Tl 190.801 Recovery = Not calculated								
V 292.402†	24.0	0.144577	ug/L	0.0976062	0.144577	ug/L	0.0976062	67.51%
QC value within limits for V 292.402 Recovery = Not calculated								
Zn 206.200†	-73.9	-1.01140	ug/L	0.045749	-1.01140	ug/L	0.045749	4.52%
QC value within limits for Zn 206.200 Recovery = Not calculated								
Sn 189.927†	34.4	1.60209	ug/L	0.303443	1.60209	ug/L	0.303443	18.94%
QC value within limits for Sn 189.927 Recovery = Not calculated								
Sr 421.552 R	-7.3	-0.0161858	ug/L	0.10300592	-0.0161858	ug/L	0.10300592	636.40%
QC value within limits for Sr 421.552 R Recovery = Not calculated								

All analyte(s) passed QC.

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520063.1 File : met08_sn_6010 Time : 29-AUG-2014 15:45
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.380	31.590	5000	4840	ug/L	-3	10	
Arsenic	A	19.163	18.453	5000	4810	ug/L	-4	10	
Barium	A	431.65	411.46	5000	4860	ug/L	-3	10	
Beryllium	A	5076.1	5355.1	500.0	510.6	ug/L	2	10	
Cadmium	A	221.76	218.90	5000	5028	ug/L	1	10	
Chromium	A	98.161	96.778	5000	4972	ug/L	-1	10	
Cobalt	A	133.96	132.26	5000	4909	ug/L	-2	10	
Copper	A	109.72	111.66	5000	4885	ug/L	-2	10	
Lead	A	56.670	54.695	5000	4880	ug/L	-2	10	
Manganese	A	1246.9	1141.1	5000	4757	ug/L	-5	10	
Molybdenum	A	37.456	37.851	5000	5048	ug/L	1	10	
Nickel	A	52.722	52.153	5000	4908	ug/L	-2	10	
Selenium	A	27.694	27.127	5000	4769	ug/L	-5	10	
Silver	A	729.48	730.89	1000	962.9	ug/L	-4	10	
Thallium	A	19.510	18.064	5000	4794	ug/L	-4	10	
Vanadium	A	164.98	162.70	5000	4910	ug/L	-2	10	
Zinc	A	71.915	72.026	5000	4927	ug/L	-1	10	
Aluminum	R	0.5653	0.5922	20000	21140	ug/L	6	10	
Magnesium	R	0.7549	0.7545	20000	21440	ug/L	7	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2737009	2.08

Sequence No.: 46 **Autosampler Location: 217**
Sample ID: s25073 **Date Collected: 8/29/2014 3:45:04 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: s25073

Analyte	Back Pressure	Flow
All	154.0 kPa	0.60 L/min

Mean Data: s25073

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Calib Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Y 371.029	2737008.9	102.076	%	0.5375				0.53%
Y	92808.6	100.748	%	0.4278				0.42%
Ag 328.068†	730888.8	962.873	ug/L	6.9453	962.873	ug/L	6.9453	0.72%
QC value within limits for Ag 328.068 Recovery = 96.29%								
Al 308.215 R†	11843.4	21137.1	ug/L	174.07	21137.1	ug/L	174.07	0.82%
QC value within limits for Al 308.215 R Recovery = 105.69%								
As 188.979†	92263.0	4809.99	ug/L	36.431	4809.99	ug/L	36.431	0.76%
QC value within limits for As 188.979 Recovery = 96.20%								
B 249.677†	987966.1	5066.70	ug/L	43.716	5066.70	ug/L	43.716	0.86%
QC value within limits for B 249.677 Recovery = 101.33%								
Ba 233.527†	2057298.1	4860.19	ug/L	56.975	4860.19	ug/L	56.975	1.17%
QC value within limits for Ba 233.527 Recovery = 97.20%								
Be 313.107†	2677568.8	510.569	ug/L	4.8201	510.569	ug/L	4.8201	0.94%
QC value within limits for Be 313.107 Recovery = 102.11%								
Ca 315.887 R†	108378.0	21783.3	ug/L	115.88	21783.3	ug/L	115.88	0.53%
QC value within limits for Ca 315.887 R Recovery = 108.92%								
Cd 214.440†	1094511.0	5028.01	ug/L	38.900	5028.01	ug/L	38.900	0.77%
QC value within limits for Cd 214.440 Recovery = 100.56%								
Co 228.616†	661279.7	4908.64	ug/L	57.215	4908.64	ug/L	57.215	1.17%
QC value within limits for Co 228.616 Recovery = 98.17%								
Cr 267.716†	483889.4	4972.10	ug/L	56.631	4972.10	ug/L	56.631	1.14%
QC value within limits for Cr 267.716 Recovery = 99.44%								
Cu 324.752†	558285.3	4885.31	ug/L	89.183	4885.31	ug/L	89.183	1.83%
QC value within limits for Cu 324.752 Recovery = 97.71%								
Fe 238.204 R†	105115.2	20776.5	ug/L	107.70	20776.5	ug/L	107.70	0.52%
QC value within limits for Fe 238.204 R Recovery = 103.88%								
K 766.490 R†	123310.0	20927.1	ug/L	119.84	20927.1	ug/L	119.84	0.57%
QC value within limits for K 766.490 R Recovery = 104.64%								
Mg 279.077 R†	15090.1	21444.4	ug/L	57.61	21444.4	ug/L	57.61	0.27%
QC value within limits for Mg 279.077 R Recovery = 107.22%								
Mn 257.610†	5705658.6	4757.17	ug/L	93.124	4757.17	ug/L	93.124	1.96%
QC value within limits for Mn 257.610 Recovery = 95.14%								
Mo 202.031†	189252.8	5048.16	ug/L	32.217	5048.16	ug/L	32.217	0.64%
QC value within limits for Mo 202.031 Recovery = 100.96%								
Na 589.592 R†	223608.1	21671.0	ug/L	189.08	21671.0	ug/L	189.08	0.87%
QC value within limits for Na 589.592 R Recovery = 108.35%								
Ni 231.604†	260767.2	4907.82	ug/L	23.487	4907.82	ug/L	23.487	0.48%
QC value within limits for Ni 231.604 Recovery = 98.16%								
Pb 220.353†	273477.3	4880.08	ug/L	35.831	4880.08	ug/L	35.831	0.73%
QC value within limits for Pb 220.353 Recovery = 97.60%								
Sb 206.836†	157948.2	4839.96	ug/L	17.166	4839.96	ug/L	17.166	0.35%
QC value within limits for Sb 206.836 Recovery = 96.80%								
Se 196.026†	135635.1	4769.43	ug/L	50.667	4769.43	ug/L	50.667	1.06%
QC value within limits for Se 196.026 Recovery = 95.39%								
Ti 334.940 R†	206833.9	4861.16	ug/L	25.222	4861.16	ug/L	25.222	0.52%
QC value within limits for Ti 334.940 R Recovery = 97.22%								
Tl 190.801†	90321.8	4793.81	ug/L	60.198	4793.81	ug/L	60.198	1.26%
QC value within limits for Tl 190.801 Recovery = 95.88%								
V 292.402†	813475.6	4909.76	ug/L	36.064	4909.76	ug/L	36.064	0.73%
QC value within limits for V 292.402 Recovery = 98.20%								
Zn 206.200†	360128.1	4926.97	ug/L	50.173	4926.97	ug/L	50.173	1.02%
QC value within limits for Zn 206.200 Recovery = 98.54%								
Sn 189.927†	101130.8	4714.14	ug/L	48.285	4714.14	ug/L	48.285	1.02%
QC value within limits for Sn 189.927 Recovery = 94.28%								
Sr 421.552 R	227270.1	500.537	ug/L	3.7148	500.537	ug/L	3.7148	0.74%
QC value within limits for Sr 421.552 R Recovery = 100.11%								

All analyte(s) passed QC.

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259835 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520064.1 File : met08_sn_6010 Time : 29-AUG-2014 15:51
Cal : 84347520001 Caldate : 29-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2794490	4.22

Sequence No.: 47 **Autosampler Location: 220**
Sample ID: ccb **Date Collected: 8/29/2014 3:51:51 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: ccb

Analyte	Back Pressure	Flow
All	155.0 kPa	0.60 L/min

Mean Data: ccb

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y 371.029	2794489.8	104.220	%	1.1467				1.10%
Y	93695.2	101.710	%	2.4960				2.45%
Ag 328.068†	-387.0	-0.509874	ug/L	0.1125392	-0.509874	ug/L	0.1125392	22.07%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 308.215 R†	6.4	11.4476	ug/L	6.55954	11.4476	ug/L	6.55954	57.30%
QC value within limits for Al 308.215 R Recovery = Not calculated								
As 188.979†	-4.0	-0.207113	ug/L	0.5134278	-0.207113	ug/L	0.5134278	247.90%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	7202.0	36.9350	ug/L	0.57149	36.9350	ug/L	0.57149	1.55%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	48.3	0.114065	ug/L	0.0195779	0.114065	ug/L	0.0195779	17.16%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-604.6	-0.115293	ug/L	0.0235481	-0.115293	ug/L	0.0235481	20.42%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 315.887 R†	-12.1	-2.43974	ug/L	1.197288	-2.43974	ug/L	1.197288	49.07%
QC value within limits for Ca 315.887 R Recovery = Not calculated								
Cd 214.440†	25.0	0.114903	ug/L	0.0051560	0.114903	ug/L	0.0051560	4.49%
QC value within limits for Cd 214.440 Recovery = Not calculated								
Co 228.616†	12.8	0.0944096	ug/L	0.08274652	0.0944096	ug/L	0.08274652	87.65%
QC value within limits for Co 228.616 Recovery = Not calculated								
Cr 267.716†	5.1	0.0528905	ug/L	0.05068352	0.0528905	ug/L	0.05068352	95.83%
QC value within limits for Cr 267.716 Recovery = Not calculated								
Cu 324.752†	28.1	0.246114	ug/L	0.2277431	0.246114	ug/L	0.2277431	92.54%
QC value within limits for Cu 324.752 Recovery = Not calculated								
Fe 238.204 R†	3.5	0.691777	ug/L	1.1651518	0.691777	ug/L	1.1651518	168.43%
QC value within limits for Fe 238.204 R Recovery = Not calculated								
K 766.490 R†	454.7	77.1619	ug/L	41.58641	77.1619	ug/L	41.58641	53.89%
QC value within limits for K 766.490 R Recovery = Not calculated								
Mg 279.077 R†	5.1	7.20442	ug/L	1.724645	7.20442	ug/L	1.724645	23.94%
QC value within limits for Mg 279.077 R Recovery = Not calculated								
Mn 257.610†	8.3	0.0069464	ug/L	0.07305952	0.0069464	ug/L	0.07305952	>999.9%
QC value within limits for Mn 257.610 Recovery = Not calculated								
Mo 202.031†	16.7	0.446089	ug/L	0.1518074	0.446089	ug/L	0.1518074	34.03%
QC value within limits for Mo 202.031 Recovery = Not calculated								
Na 589.592 R†	2318.9	224.732	ug/L	13.3235	224.732	ug/L	13.3235	5.93%
QC value within limits for Na 589.592 R Recovery = Not calculated								
Ni 231.604†	19.7	0.370633	ug/L	0.0756046	0.370633	ug/L	0.0756046	20.40%
QC value within limits for Ni 231.604 Recovery = Not calculated								
Pb 220.353†	8.4	0.150379	ug/L	0.4500316	0.150379	ug/L	0.4500316	299.26%
QC value within limits for Pb 220.353 Recovery = Not calculated								
Sb 206.836†	16.8	0.514234	ug/L	0.6864175	0.514234	ug/L	0.6864175	133.48%
QC value within limits for Sb 206.836 Recovery = Not calculated								
Se 196.026†	-8.9	-0.311633	ug/L	1.0051894	-0.311633	ug/L	1.0051894	322.56%
QC value within limits for Se 196.026 Recovery = Not calculated								
Ti 334.940 R†	17.1	0.402908	ug/L	0.0591238	0.402908	ug/L	0.0591238	14.67%
QC value within limits for Ti 334.940 R Recovery = Not calculated								
Tl 190.801†	9.2	0.487953	ug/L	0.4707769	0.487953	ug/L	0.4707769	96.48%
QC value within limits for Tl 190.801 Recovery = Not calculated								
V 292.402†	-21.0	-0.126547	ug/L	0.2631813	-0.126547	ug/L	0.2631813	207.97%
QC value within limits for V 292.402 Recovery = Not calculated								
Zn 206.200†	-69.8	-0.955174	ug/L	0.0456418	-0.955174	ug/L	0.0456418	4.78%
QC value within limits for Zn 206.200 Recovery = Not calculated								
Sn 189.927†	17.7	0.825324	ug/L	0.5765082	0.825324	ug/L	0.5765082	69.85%
QC value within limits for Sn 189.927 Recovery = Not calculated								
Sr 421.552 R	-1.3	-0.0028788	ug/L	0.12562169	-0.0028788	ug/L	0.12562169	>999.9%
QC value within limits for Sr 421.552 R Recovery = Not calculated								

All analyte(s) passed QC.

Mercury Raw Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1074342040

Instrument : MET54 Begun : 08/25/14 12:40
Method : EPA 7470A SOP Version : hg_water_rv16

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met54	ICALBLK				08/25/14 12:40	1.0		
002	met54	ICAL	ICAL1			08/25/14 12:41	1.0	1	
003	met54	ICAL	ICAL2			08/25/14 12:42	1.0	1	
004	met54	ICAL	ICAL3			08/25/14 12:43	1.0	1	
005	met54	ICAL	ICAL4			08/25/14 12:44	1.0	1	
006	met54	ICAL	ICAL5			08/25/14 12:45	1.0	1	
007	met54	ICV				08/25/14 12:46	1.0	2	
008	met54	ICB				08/25/14 12:48	1.0		
009	met54	BLANK	QC754882	Water	214738	08/25/14 12:49	1.0		
010	met54	BLANK	QC754883	WET Leachate	214738	08/25/14 12:50	1.0		
011	met54	BS	QC754884	Water	214738	08/25/14 12:51	1.0		spk
012	met54	BSD	QC754885	Water	214738	08/25/14 12:52	1.0		spk
013	met54	MSS	260118-001	Water	214738	08/25/14 12:53	1.0		spk
014	met54	MSS	260118-001	Water	214738	08/25/14 12:56	1.0		spk
015	met54	BS	QC754884	Water	214738	08/25/14 12:57	1.0		spk
016	met54	BSD	QC754885	Water	214738	08/25/14 12:59	1.0		spk
017	met54	MS	QC754886	Water	214738	08/25/14 13:00	1.0		
018	met54	MSD	QC754887	Water	214738	08/25/14 13:01	1.0		
019	met54	CCV				08/25/14 13:02	1.0	3	
020	met54	CCB				08/25/14 13:03	1.0		
021	met54	SER	QC754888	Water	214738	08/25/14 13:04	5.0		
022	met54	SAMPLE	260118-003	Water	214738	08/25/14 13:05	1.0		spk
023	met54	SAMPLE	259823-001	Water	214738	08/25/14 13:07	1.0		spk
024	met54	SAMPLE	259823-003	Water	214738	08/25/14 13:08	1.0		spk
025	met54	SAMPLE	259835-001	Filtrate	214738	08/25/14 13:09	1.0		spk
026	met54	SAMPLE	259835-002	Filtrate	214738	08/25/14 13:10	1.0		spk
027	met54	SAMPLE	259835-003	Filtrate	214738	08/25/14 13:11	1.0		spk
028	met54	SAMPLE	260072-001	WET Leachate	214738	08/25/14 13:12	1.0		spk
029	met54	SAMPLE	260072-002	WET Leachate	214738	08/25/14 13:13	1.0		spk
030	met54	SAMPLE	260072-003	WET Leachate	214738	08/25/14 13:14	1.0		spk
031	met54	CCV				08/25/14 13:16	1.0	3	
032	met54	CCB				08/25/14 13:17	1.0		
033	met54	SAMPLE	260072-004	WET Leachate	214738	08/25/14 13:18	1.0		spk
034	met54	CCV				08/25/14 13:19	1.0	3	
035	met54	CCB				08/25/14 13:20	1.0		

NCD 08/25/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 35.

Standards used: 1=S25470 2=S25472 3=S25473

Flags used: spk=5% spike rule

CURTIS & TOMPKINS SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET54	Lab ID	: 259835-001	Client ID	: 04W07-081414
Seqnum	: 1074342040025	Matrix	: Filtrate	Acct	: JMW (TLB)
File	: met54	Batch	: 214738	Time	: 25-AUG-2014 13:09
Cal	: 1074342040001	Caldate	: 25-AUG-2014		
IDF	: 1.0			Units	: ug/L

50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	ND	0.20		u

5% spike rule

u=use

==========

Method Loaded
Method Name: MET54 **Method Last Saved: 8/25/2014 11:21:27 AM**
Method Description: MET 54

==========

Sequence No.: 24 **Autosampler Location: 22**
Sample ID: 259835-001,214728,1 **Date Collected: 8/25/2014 1:09:20 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 259835-001,214728,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.000	-0.000	0.0000	0.0031	0.0003	1:10:12 PM	Yes

CURTIS & TOMPKINS SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET54	Lab ID	: 259835-002	Client ID	: 04W06-081414
Seqnum	: 1074342040026	Matrix	: Filtrate	Acct	: JMW (TLB)
File	: met54	Batch	: 214738	Time	: 25-AUG-2014 13:10
Cal	: 1074342040001	Caldate	: 25-AUG-2014		
IDF	: 1.0			Units	: ug/L

50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.032 J	0.20		u

5% spike rule

u=use

==========

Method Loaded
Method Name: MET54 **Method Last Saved: 8/25/2014 11:21:27 AM**
Method Description: MET 54

==========

Sequence No.: 25 **Autosampler Location: 23**
Sample ID: 259835-002,214728,1 **Date Collected: 8/25/2014 1:10:33 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 259835-002,214728,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.029	0.029	0.0005	0.0048	0.0007	1:11:23 PM	Yes

CURTIS & TOMPKINS SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET54	Lab ID	: 259835-003	Client ID	: 04W15-081414
Seqnum	: 1074342040027	Matrix	: Filtrate	Acct	: JMW (TLB)
File	: met54	Batch	: 214738	Time	: 25-AUG-2014 13:11
Cal	: 1074342040001	Caldate	: 25-AUG-2014		
IDF	: 1.0			Units	: ug/L

50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.032 J	0.20		u

5% spike rule

u=use

==========

Method Loaded
Method Name: MET54 **Method Last Saved: 8/25/2014 11:21:27 AM**
Method Description: MET 54

==========

Sequence No.: 26 **Autosampler Location: 24**
Sample ID: 259835-003,214728,1 **Date Collected: 8/25/2014 1:11:38 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 259835-003,214728,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.034	0.034	0.0005	0.0053	0.0008	1:12:29 PM	Yes

CURTIS & TOMPKINS BLANK USER REPORT FOR 259835 METALS Filtrate
EPA 7470A

Inst : MET54 Lab ID : QC754882
Seqnum : 1074342040009.2 Matrix : Water
File : met54 Batch : 214738 Time : 25-AUG-2014 12:49
Cal : 1074342040001 Caldate : 25-AUG-2014
IDF : 1.0 Units : ug/L

50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	Result	RL	Flags
Mercury	ND	0.20	u

u=use

==========

Method Loaded
Method Name: MET54 **Method Last Saved: 8/25/2014 11:21:27 AM**
Method Description: MET 54

==========

Sequence No.: 9 **Autosampler Location: 11**
Sample ID: qc754882,214738,1 **Date Collected: 8/25/2014 12:49:18 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: qc754882,214738,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.016	-0.016	-0.0002	0.0002	0.0000	12:50:09 PM	Yes

CURTIS & TOMPKINS SPIKE USER REPORT FOR 259835 METALS Filtrate
EPA 7470A

Type : BS
Inst : MET54
Seqnum : 1074342040011.2
File : met54
IDF : 1.0
Lab ID : QC754884
Matrix : Water
Batch : 214738
Time : 25-AUG-2014 12:51
Cal : 1074342040001
Units : ug/L

Type : BSD
Inst : MET54
Seqnum : 1074342040012.2
File : met54
IDF : 1.0
Lab ID : QC754885
Matrix : Water
Batch : 214738
Time : 25-AUG-2014 12:52
Cal : 1074342040001

BS: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF
BSD: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	Spiked	BS	%Rec	BSD	%Rec	Limits	RPD	Lim	Flags
Mercury	2.500	3.902	**156***	2.719	109	80-120	**36***	20	u

5% spike rule

u=use

==========

Method Loaded
Method Name: MET54 **Method Last Saved: 8/25/2014 11:21:27 AM**
Method Description: MET 54

==========

Sequence No.: 11 **Autosampler Location: 13**
Sample ID: qc754884,214738,1 **Date Collected: 8/25/2014 12:51:31 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: qc754884,214738,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	3.901	3.901	0.0597	0.2743	0.0600	12:52:22 PM	Yes

==========

Method Loaded
Method Name: MET54 **Method Last Saved: 8/25/2014 11:21:27 AM**
Method Description: MET 54

==========

Sequence No.: 12 **Autosampler Location: 14**
Sample ID: qc754885,214738,1 **Date Collected: 8/25/2014 12:52:37 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: qc754885,214738,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.718	2.718	0.0416	0.1907	0.0419	12:53:28 PM	Yes

CURTIS & TOMPKINS SPIKE USER REPORT FOR 259835 METALS Filtrate
EPA 7470A

Type : MSS	Type : MS	Type : MSD
Inst : MET54	Inst : MET54	Inst : MET54
Seqnum : 1074342040013	Seqnum : 1074342040017.3	Seqnum : 1074342040018.3
File : met54	File : met54	File : met54
IDF : 1.0	IDF : 1.0	IDF : 1.0
Lab ID : 260118-001	Lab ID : QC754886	Lab ID : QC754887
Matrix : Water	Matrix : Water	Matrix : Water
Batch : 214738	Batch : 214738	Batch : 214738
Time : 25-AUG-2014 12:53	Time : 25-AUG-2014 13:00	Time : 25-AUG-2014 13:01
Cal : 1074342040001	Cal : 1074342040001	Cal : 1074342040001
Units : ug/L		

MSS: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF
MS: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF
MSD: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	MSS	Spiked	MS	%Rec	MSD	%Rec	Limits	RPD	Lim	Flags
Mercury	0.07133 J	2.500	2.699	105	2.765	108	80-120	2	20	u

u=use

==========

Method Loaded
Method Name: MET54 **Method Last Saved: 8/25/2014 11:21:27 AM**
Method Description: MET 54

==========

Sequence No.: 16 **Autosampler Location: 16**
Sample ID: qc754886,214738,1 **Date Collected: 8/25/2014 1:00:13 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: qc754886,214738,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.699	2.699	0.0413	0.1951	0.0416	1:01:04 PM	Yes

==========

Method Loaded
Method Name: MET54 **Method Last Saved: 8/25/2014 11:21:27 AM**
Method Description: MET 54

==========

Sequence No.: 17 **Autosampler Location: 17**
Sample ID: qc754887,214738,1 **Date Collected: 8/25/2014 1:01:19 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: qc754887,214738,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.764	2.764	0.0423	0.1949	0.0426	1:02:11 PM	Yes

CURTIS & TOMPKINS SERIAL DILUTION FOR 259835 METALS Filtrate
EPA 7470A

Type : MSS
Inst : MET54
Seqnum : 1074342040013
File : met54
IDF : 1.0
Lab ID : 260118-001
Matrix : Water
Batch : 214738
Time : 25-AUG-2014 12:53
Cal : 1074342040001
Units : ug/L

Type : SER
Inst : MET54
Seqnum : 1074342040021.2
File : met54
IDF : 5.0
Lab ID : QC754888
Matrix : Water
Batch : 214738
Time : 25-AUG-2014 13:04
Cal : 1074342040001

MSS: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF
SER: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	MSS	RL	SER	RL	%D	Lim	Flags
Mercury	0.07133 J	0.2000	ND	1.000		10	u

u=use

==========

Method Loaded
Method Name: MET54 **Method Last Saved: 8/25/2014 11:21:27 AM**
Method Description: MET 54

==========

Sequence No.: 20 **Autosampler Location: 18**
Sample ID: qc754888,214738,5 **Date Collected: 8/25/2014 1:04:47 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: qc754888,214738,5 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.005	-0.005	-0.0001	0.0011	0.0002	1:05:39 PM	Yes

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259835 METALS Filtrate: EPA 7470A

Inst : MET54
Calnum : 1074342040001
Units : ug/L

Date : 25-AUG-2014 12:40
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met54	1074342040002	ICAL1	25-AUG-2014 12:41	S25470 (500X)
L2	met54	1074342040003	ICAL2	25-AUG-2014 12:42	S25470 (200X)
L3	met54	1074342040004	ICAL3	25-AUG-2014 12:43	S25470 (50X)
L4	met54	1074342040005	ICAL4	25-AUG-2014 12:44	S25470 (20X)
L5	met54	1074342040006	ICAL5	25-AUG-2014 12:45	S25470 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0145	0.0162	0.0151	0.0154	0.0153	LIN0	-0.0006	65.3749		0.0153	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	-5	0.5000	6	2.0000	-2	5.0000	0	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259835 METALS Filtrate
EPA 7470A

Inst : MET54
Calnum : 1074342040001 Cal Date : 25-AUG-2014

ICV 1074342040007 (25-AUG-2014) stds: S25472

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.066	ug/L	1	10	

==========

Analysis Begun

Logged In Analyst: mercury **Technique: AA FIMS-MHS**
Spectrometer: FIMS-100, S/N B050-9550 **Autosampler: Cetac**

Sample Information File:
Batch ID:
Results Data Set: 082514
Results Library: C:\Users\Public\PerkinElmer\AA\Data\Results\Results.mdb

==========

Method Loaded
Method Name: MET54 **Method Last Saved: 8/25/2014 11:21:27 AM**
Method Description: MET 54

==========

Sequence No.: 1 **Autosampler Location: 1**
Sample ID: ICALBLK **Date Collected: 8/25/2014 12:40:14 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICALBLK **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.00]	0.0003	0.0013	0.0003	12:41:05 PM	Yes

Auto-zero performed.

==========

Method Loaded
Method Name: MET54 **Method Last Saved: 8/25/2014 11:21:27 AM**
Method Description: MET 54

==========

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: ICAL, ICAL1,S25470,500 **Date Collected: 8/25/2014 12:41:21 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL1,S25470,500 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.2]	0.0029	0.0139	0.0032	12:42:12 PM	Yes

Standard number 1 applied. [0.2]
Correlation Coef.: 1.000000 Slope: 0.01468 Intercept: 0.00000

==========

Method Loaded
Method Name: MET54 **Method Last Saved: 8/25/2014 11:21:27 AM**
Method Description: MET 54

==========

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: ICAL, ICAL2,S25470,200 **Date Collected: 8/25/2014 12:42:27 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL2,S25470,200 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.5]	0.0081	0.0379	0.0084	12:43:18 PM	Yes

Standard number 2 applied. [0.5]
Correlation Coef.: 0.999091 Slope: 0.01629 Intercept: -0.00012

==========

Method Loaded
Method Name: MET54 **Method Last Saved: 8/25/2014 11:21:27 AM**
Method Description: MET 54

==========

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: ICAL, ICAL3,S25470,50 **Date Collected: 8/25/2014 12:43:34 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL3,S25470,50 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[2.0]	0.0301	0.1393	0.0303	12:44:26 PM	Yes

Standard number 3 applied. [2.0]
Correlation Coef.: 0.999748 Slope: 0.01501 Intercept: 0.00015

==========

Method Loaded
Method Name: MET54 **Method Last Saved: 8/25/2014 11:21:27 AM**
Method Description: MET 54

==========

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: ICAL, ICAL4,S25470,20 **Date Collected: 8/25/2014 12:44:42 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL4,S25470,20 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[5.0]	0.0768	0.3581	0.0771	12:45:34 PM	Yes

Standard number 4 applied. [5.0]
Correlation Coef.: 0.999929 Slope: 0.01533 Intercept: -0.00002

==========

Method Loaded
Method Name: MET54 **Method Last Saved: 8/25/2014 11:21:27 AM**
Method Description: MET 54

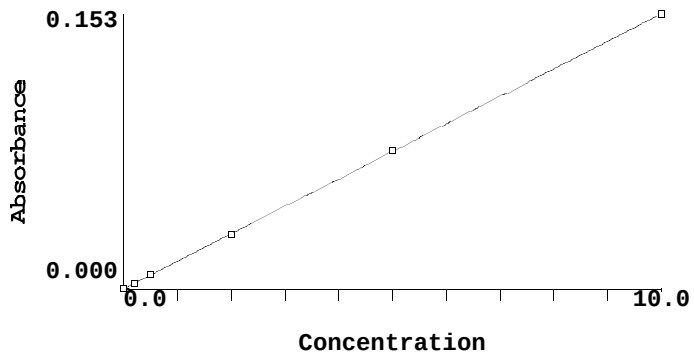
==========

Sequence No.: 6 **Autosampler Location: 6**
Sample ID: ICAL, ICAL5,S25470,10 **Date Collected: 8/25/2014 12:45:50 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL5,S25470,10 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[10.0]	0.1529	0.7113	0.1532	12:46:42 PM	Yes

Standard number 5 applied. [10.0]
Correlation Coef.: 0.999983 Slope: 0.01530 Intercept: 0.00001



Calibration data for Hg 253.7 **Equation: Linear, Calculated Intercept**

ID	Mean Signal (Abs)	Entered Conc. ug/L	Calculated Conc. ug/L	Standard Deviation	%RSD
ICALBLK	0.0000	0	-0.001	----	----
ICAL, ICAL1,S25470,500	0.0029	0.2	0.191	----	----
ICAL, ICAL2,S25470,200	0.0081	0.5	0.529	----	----
ICAL, ICAL3,S25470,50	0.0301	2.0	1.965	----	----
ICAL, ICAL4,S25470,20	0.0768	5.0	5.020	----	----
ICAL, ICAL5,S25470,10	0.1529	10.0	9.996	----	----

Correlation Coef.: 0.999983 Slope: 0.01530 Intercept: 0.00001

==========

Method Loaded
Method Name: MET54 **Method Last Saved: 8/25/2014 11:21:27 AM**
Method Description: MET 54

==========

Sequence No.: 7 **Autosampler Location: 8**
Sample ID: s25472 **Date Collected: 8/25/2014 12:46:58 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: s25472 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.065	5.065	0.0775	0.3614	0.0778	12:47:51 PM	Yes

QC value within limits for Hg 253.7 Recovery = 101.30%
All analyte(s) passed QC.

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259835 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1074342040008.2 File : met54 Time : 25-AUG-2014 12:48
Cal : 1074342040001 Caldate : 25-AUG-2014

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET54 **Method Last Saved: 8/25/2014 11:21:27 AM**
Method Description: MET 54

==========

Sequence No.: 8 **Autosampler Location: 9**
Sample ID: ICB **Date Collected: 8/25/2014 12:48:08 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.016	-0.016	-0.0002	-0.0009	0.0000	12:49:01 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1074342040019.2 File : met54 Time : 25-AUG-2014 13:02
Cal : 1074342040001 Caldate : 25-AUG-2014
Standards: S25473

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0153	0.0160	5.000	5.236	ug/L	5	20	

==========

Method Loaded
Method Name: MET54 **Method Last Saved: 8/25/2014 11:21:27 AM**
Method Description: MET 54

==========

Sequence No.: 18 **Autosampler Location: 7**
Sample ID: s25473 **Date Collected: 8/25/2014 1:02:27 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: s25473 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.236	5.236	0.0801	0.3763	0.0804	1:03:20 PM	Yes

QC value within limits for Hg 253.7 Recovery = 104.71%
All analyte(s) passed QC.

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259835 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1074342040020.2 File : met54 Time : 25-AUG-2014 13:03
Cal : 1074342040001 Caldate : 25-AUG-2014

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET54 **Method Last Saved: 8/25/2014 11:21:27 AM**
Method Description: MET 54

==========

Sequence No.: 19 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 8/25/2014 1:03:36 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.022	-0.022	-0.0003	-0.0044	-0.0001	1:04:29 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1074342040031.2 File : met54 Time : 25-AUG-2014 13:16
Cal : 1074342040001 Caldate : 25-AUG-2014
Standards: S25473

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0153	0.0165	5.000	5.380	ug/L	8	20	

==========

Method Loaded
Method Name: MET54 **Method Last Saved: 8/25/2014 11:21:27 AM**
Method Description: MET 54

==========

Sequence No.: 30 **Autosampler Location: 7**
Sample ID: s25473 **Date Collected: 8/25/2014 1:16:02 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: s25473 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.376	5.376	0.0823	0.3885	0.0825	1:16:55 PM	Yes

QC value within limits for Hg 253.7 Recovery = 107.53%
All analyte(s) passed QC.

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259835 METALS Filtrate
EPA 7470A

Inst : MET54 IDF : 1.0
Seqnum : 1074342040032.2 File : met54 Time : 25-AUG-2014 13:17
Cal : 1074342040001 Caldate : 25-AUG-2014

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET54 **Method Last Saved: 8/25/2014 11:21:27 AM**
Method Description: MET 54

==========

Sequence No.: 31 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 8/25/2014 1:17:11 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.007	0.007	0.0001	0.0034	0.0004	1:18:04 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 259835
ANALYTICAL REPORT
Hexavalent Chromium by Ion Chromatograph

JM Waller Associates 11325 Random Hills Road Fairfax, VA 22030-6608	Project : N62473-11-D-2215 Location : BGMP-1R04 Level : IV Contract # : N62473-11-D-2215

Sample ID	Lab ID
04W07-081414	259835-001

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Tracy Babjar Date: 09/03/2014

Tracy Babjar
Project Manager
tracy.babjar@ctberk.com
(510) 204-2226

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
HEXAVALENT CHROMIUM BY ION CHROMATOGRAPH (EPA 7199)

Laboratory number:	**259835**
Client:	**JM Waller Associates**
Project:	**N62473-11-D-2215**
Location:	**BGMP-1R04**
Request Date:	**08/14/14**
Samples Received:	**08/14/14**

This data package contains sample and QC results for one water sample, requested for the above referenced project on 08/14/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

All qualified data are compliant with appropriate corrective actions specified in Standard Operating Procedures. The Standard Operating Procedures are available upon request.

Manual integration documentation may be found in the "Case Narrative Addendum: Manual Integrations" sections.

Hexavalent Chromium by Ion Chromatograph (EPA 7199):
No analytical problems were encountered.

Chain of Custody

CHAIN OF CUSTODY

Chain of Custody # _____

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

C&T LOGIN # 259835

Project No: N62473-11-D-2215
Project Name: BGMP-IRP4
Project P. O. No: ATL14-001-01-004-CTL
EDD Format: Report Level ☐ II ☐ III ☑ IV
Turnaround Time: ☐ RUSH _____ ☑ Standard

Sampler: N. Wardell
Report To: Murray + H. Wolenberg
Company: N. Waller + ERRS
Telephone: 404-443-2733
Email:

Lab No.	Sample ID.	SAMPLING Date Collected	SAMPLING Time Collected	MATRIX Water	MATRIX Solid	# of Containers	CHEMICAL PRESERVATIVE HCl	H2SO4	HNO3	NaOH	None	ANALYTICAL REQUEST Metals - Field Filtered	Cr(VI)	SVOC	PAH
1	04W07-081414	8/14/14	0845	X		2			X			X	X		
2	04W06-081414	8/14/14	1040	X		4			X			X		X	X
3	04W15-081414	8/14/14	1345	X		1					X	X			

Notes:
04W15-081414 is Field Filtered in a 1L amber
FIX WITH NITRIC ACID UPON RECEIPT!

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:	DATE:	TIME:
N. Wardell	8/14/14	3:40p
[illegible]	8/14/14	2630
	DATE:	TIME:

RECEIVED BY:	DATE:	TIME:
[illegible]	8/14/14	1540
FLOR [illegible]	8/14/14	1630
	DATE:	TIME:

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 259835 [redacted] Date Received 8/14/14 Number of coolers 2
Client JM Waller + ERRG Project BGMP - IROH

Date Opened 8/14 By (print) GV (sign) [signature]
Date Logged in_____ By (print)_____ (sign)_____

1. Did cooler come with a shipping slip (airbill, etc)_____ YES ~~NO~~
   Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
   How many _____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO ~~N/A~~
3. Were custody papers dry and intact when received?_____ ~~YES~~ NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ ~~YES~~ NO
5. Is the project identifiable from custody papers? (If so fill out top of form)___ ~~YES~~ NO
6. Indicate the packing in cooler: (if other, describe)_____

☒ Bubble Wrap ☐ Foam blocks ☒ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C)_____

☐ Samples received on ice & cold without a temperature blank; temp taken with IR gun

☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present?_____ YES ~~NO~~
   If YES, what time were they transferred to freezer?_____
9. Did all bottles arrive unbroken/unopened?_____ ~~YES~~ NO
10. Are there any missing / extra samples? _____ YES ~~NO~~
11. Are samples in the appropriate containers for indicated tests? _____ ~~YES~~ NO
12. Are sample labels present, in good condition and complete? _____ ~~YES~~ NO
13. Do the sample labels agree with custody papers? _____ ~~YES~~ NO
14. Was sufficient amount of sample sent for tests requested? _____ ~~YES~~ NO
15. Are the samples appropriately preserved? _____ YES ~~NO~~ N/A
16. Did you check preservatives for all bottles for each sample? _____ ~~YES~~ NO N/A
17. Did you document your preservative check? _____ ~~YES~~ NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO ~~N/A~~
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO ~~N/A~~
20. Are bubbles > 6mm absent in VOA samples? _____ ~~YES~~ NO N/A
21. Was the client contacted concerning this sample delivery? _____ YES ~~NO~~
   If YES, Who was called?_____ By_____ Date:_____

COMMENTS
(15) Nitric Acid lot# 3390 added to -003 upon reciept; also added to -002 to pH<2

Rev 10, 10/11

Curtis & Tompkins Sample Preservation for 259835

Sample	pH: <2	>9	>12	Other
-001a	[ ]	[ ]	[ ]	_____
b	[X]	[ ]	[ ]	_____
-002a	[X]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
-003a	[X]	[ ]	[ ]	_____

Analyst: HV
Date: 8/14/14

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Results & QC Summary

Curtis & Tompkins, Ltd.

Hexavalent Chromium

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7199
Field ID:	04W07-081414	Batch#:	214416
Matrix:	Water	Sampled:	08/14/14 08:45
Units:	ug/L	Received:	08/14/14
Diln Fac:	1.000		

Type: SAMPLE Analyzed: 08/14/14 19:01
Lab ID: 259835-001

Analyte	Result	LOQ	DL
Hexavalent Chromium	0.20 U	0.50	0.080

Type: BLANK Analyzed: 08/14/14 17:37
Lab ID: QC753626

Analyte	Result	LOQ	DL
Hexavalent Chromium	0.20 U	0.50	0.080

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Hexavalent Chromium

Lab #:	259835	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7199
Field ID:	04W08-081414	Batch#:	214416
MSS Lab ID:	259841-001	Sampled:	08/14/14 09:02
Matrix:	Water	Received:	08/14/14
Units:	ug/L		

Type: LCS Diln Fac: 1.000
Lab ID: QC753627 Analyzed: 08/14/14 17:49

Analyte	Spiked	Result	%REC	Limits
Hexavalent Chromium	10.00	10.00	100	90-110

Type: MS Diln Fac: 2.000
Lab ID: QC753628 Analyzed: 08/14/14 19:37

Analyte	MSS Result	Spiked	Result	%REC	Limits
Hexavalent Chromium	9.235	20.00	28.78	98	90-110

Type: MSD Diln Fac: 2.000
Lab ID: QC753629 Analyzed: 08/14/14 19:49

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Hexavalent Chromium	20.00	29.00	99	90-110	1	20

Type: SDUP Diln Fac: 2.000
Lab ID: QC753630 Analyzed: 08/14/14 20:01

Analyte	MSS Result	Result	LOQ	RPD	Lim
Hexavalent Chromium	9.235	10.22	1.000	10	20

LOQ= Limit of Quantitation
RPD= Relative Percent Difference

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259835 7199 Water: EPA 7199

Inst : IC05 Name : IC05 CAL CR6 043
Calnum : 644062428001 Date : 12-FEB-2014 12:27
Units : ug/L X Axis : A Inj Vol : 1000 uL

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	043_15	644062428015	L2	12-FEB-2014 12:27	S23294 (20000X)
L2	043_16	644062428016	L3	12-FEB-2014 12:39	S23294 (10000X)
L3	043_17	644062428017	L4	12-FEB-2014 12:51	S23294 (2000X)
L4	043_18	644062428018	L5	12-FEB-2014 13:03	S23294 (1000X)
L5	043_19	644062428019	L6	12-FEB-2014 13:15	S23294 (200X)
L6	043_20	644062428020	L7	12-FEB-2014 13:27	S23294 (100X)

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Hexavalent Chromium	0.7358	0.8739	1.0956	1.0698	1.0803	1.0729	QUAD	-0.1470	1.09233	-0.00018	0.9880	1.000	0.998	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Hexavalent Chromium	0.5000	-6	1.0000	-7	5.0000	3	10.000	-1	50.000	0	100.00	0

VQ 02/12/14 : Integrated to match previous ICAL in multiple levels.

Analyst: VQ Date: 02/12/14 Reviewer: LW Date: 02/12/14

Instrument response = a0 + amount * a1 + amount^2 * a2 (invert equation before quantitating); QUAD=Quadratic regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259835 7199 Water
EPA 7199

Inst : IC05 Name : IC05 CAL CR6 043
Calnum : 644062428001 Cal Date : 12-FEB-2014

ICV 644062428022 (043_22 12-FEB-2014) stds: S23666 (50X)

Analyte	Spiked	Quant	Units	%D	Max	Flags
Hexavalent Chromium	20.00	19.04	ug/L	-5	10	

Analyst: VQ Date: 02/12/14 Reviewer: LW Date: 02/12/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 7199 Water
EPA 7199

Inst : IC05 Run Name : L IDF : 1.0
Seqnum : 644326000005 File : 226_5 Time : 14-AUG-2014 10:07
Cal : 644062428001 Caldate : 12-FEB-2014
Standards: S24414 (10000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Hexavalent Chromium	0.9880	1.0154	1.000	1.064	ug/L	6	10	

RDG 08/14/14 : Integrated to match integration of ICAL and CCV.

Analyst: RDG Date: 08/14/14 Reviewer: LW Date: 08/15/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 7199 Water
EPA 7199

Inst : IC05 Run Name : M IDF : 1.0
Seqnum : 644326000019 File : 226_19 Time : 14-AUG-2014 20:13
Cal : 644062428001 Caldate : 12-FEB-2014
Standards: S24414 (1000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Hexavalent Chromium	0.9880	1.0797	10.00	10.04	ug/L	0	10	

NJT 08/15/14 : Integrated to match integration of ICAL and CCV.

Analyst: NJT Date: 08/15/14 Reviewer: LW Date: 08/15/14

CURTIS & TOMPKINS BLANK USER REPORT FOR 259835 7199 Water
EPA 7199

Inst : IC05 Run Name : QC753626 IDF : 1.0
Seqnum : 644326000006.1 File : 226_6 Time : 14-AUG-2014 17:37
Cal : 644062428001 Caldate : 12-FEB-2014

Analyte	Quant	IQL	MDL	Units	Flags
Hexavalent Chromium	ND	0.5000	0.08023	ug/L	u

Analyst: RDG Date: 08/18/14 Reviewer: LW Date: 08/27/14

u=use

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259835 7199 Water
EPA 7199

Inst : IC05 IDF : 1.0
Seqnum : 644326000020 File : 226_20 Time : 14-AUG-2014 20:25
Cal : 644062428001 Caldate : 12-FEB-2014

Analyte	Quant	IQL	MDL	Units	Flags
Hexavalent Chromium	ND	0.5000	0.08023	ug/L	

NJT 08/15/14 : Integrated to match integration of ICAL and CCV.

Analyst: NJT Date: 08/15/14 Reviewer: LW Date: 08/15/14

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 644062428

Instrument : IC05 Begun : 02/12/14 08:28
Method : EPA 7199 SOP Version : cr6-ic_rv2

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	043_1	X	BLK			02/12/14 08:28	1.0		
002	043_2	X	BLK			02/12/14 08:39	1.0		
003	043_3	X	BLK			02/12/14 08:51	1.0		
004	043_4	X	BLK			02/12/14 09:03	1.0		
005	043_5	X	BLK			02/12/14 09:15	1.0		
006	043_6	X	BLK			02/12/14 09:27	1.0		
007	043_7	X	CCV			02/12/14 09:39	1.0	1	
008	043_8	X	BLK			02/12/14 10:06	1.0		
009	043_9	X	BLK			02/12/14 10:18	1.0		
010	043_10	X	BLK			02/12/14 10:30	1.0		
011	043_11	X	BLK			02/12/14 11:39	1.0		
012	043_12	X	BLK			02/12/14 11:51	1.0		
013	043_13	IB	ICALIB			02/12/14 12:03	1.0		
014	043_14	ICAL	L1			02/12/14 12:15	1.0	1	
015	043_15	ICAL	L2			02/12/14 12:27	1.0	1	
016	043_16	ICAL	L3			02/12/14 12:39	1.0	1	
017	043_17	ICAL	L4			02/12/14 12:51	1.0	1	
018	043_18	ICAL	L5			02/12/14 13:03	1.0	1	
019	043_19	ICAL	L6			02/12/14 13:15	1.0	1	
020	043_20	ICAL	L7			02/12/14 13:27	1.0	1	
021	043_21	ICB				02/12/14 13:51	1.0		
022	043_22	ICV				02/12/14 14:04	1.0	2	
023	043_23	CCB/MB	QC727837	Water	208005	02/12/14 14:19	1.0		
024	043_24	LCS	QC727838	Water	208005	02/12/14 14:31	1.0	2	
025	043_25	MSS	253315-001	Water	208005	02/12/14 17:20	1.0		
026	043_26	SAMPLE	253315-003	Water	208005	02/12/14 17:32	1.0		
027	043_27	MS	QC727839	Water	208005	02/12/14 17:44	1.01	2	
028	043_28	MSD	QC727840	Water	208005	02/12/14 17:56	1.01	2	
029	043_29	CCV	M		208005	02/12/14 18:08	1.0	1	
030	043_30	CCB			208005	02/12/14 18:20	1.0		

VQ 02/13/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 30.

LW 02/12/14 : Sequence reviewed through file 22

Analyst: VQ Date: 02/12/14 Reviewer: LW Date: 02/13/14

Standards used: 1=S23294 2=S23666

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 644326000

Instrument : IC05 Begun : 08/14/14 09:20
Method : EPA 7199 SOP Version : cr6-ic_rv2

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	226_1	X	BLK			08/14/14 09:20	1.0		
002	226_2	X	BLK			08/14/14 09:32	1.0		
003	226_3	X	BLK			08/14/14 09:44	1.0		
004	226_4	X	BLK			08/14/14 09:55	1.0		
005	226_5	CCV	L			08/14/14 10:07	1.0	1	
006	226_6	CCB/MB	QC753626	Water	214416	08/14/14 17:37	1.0		
007	226_7	LCS	QC753627	Water	214416	08/14/14 17:49	1.0	2	
008	226_8	MSS	259841-001	Water	214416	08/14/14 18:01	1.0		
009	226_9	X	BLK		214416	08/14/14 18:13	1.0		
010	226_10	SAMPLE	259841-002	Water	214416	08/14/14 18:26	1.0		
011	226_11	SAMPLE	259841-003	Water	214416	08/14/14 18:38	1.0		
012	226_12	SAMPLE	259841-007	Water	214416	08/14/14 18:49	1.0		
013	226_13	SAMPLE	259835-001	Water	214416	08/14/14 19:01	1.0		
014	226_14	SAMPLE	259841-008	Water	214416	08/14/14 19:13	1.0		
015	226_15	MSS	259841-001	Water	214416	08/14/14 19:25	2.0		
016	226_16	MS	QC753628	Water	214416	08/14/14 19:37	2.0	2	
017	226_17	MSD	QC753629	Water	214416	08/14/14 19:49	2.0	2	
018	226_18	SDUP	QC753630	Water	214416	08/14/14 20:01	2.0		
019	226_19	CCV	M		214416	08/14/14 20:13	1.0	1	
020	226_20	CCB			214416	08/14/14 20:25	1.0		
021	226_21	CCV	M		214416	08/14/14 20:37	1.0	1	
022	226_22	CCB			214416	08/14/14 20:49	1.0		

NJT 08/15/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 22.

Analyst: NJT Date: 08/15/14 Reviewer: LW Date: 08/15/14

Standards used: 1=S24414 2=S23666

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Curtis & Tompkins, Ltd. **Water Prep Log** Ion Chromatography

Analysis: ☐ Anions EPA 300 / EPA 9056
☐ Perchlorate (ClO_4) EPA 314
☒ Cr6+ EPA 7199

Batch#: 214416
Date Started: 8/14/14
Prep Chemist: RDC

BK 3586
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	Sample #	Container	☐ Conductivity ☒ pH	Estimated Dilution Factor	Filters Used	Comments
1	259835-001	RDC	9.5	1X	S	
2	259841-001	↓	↓	1X/2X	↓	MSS
3	-002	↓	↓	1X	↓	
4	-003	↓	↓	↓	↓	
5	-007	↓	↓	↓	↓	
6	-008	↓	↓	↓	↓	
7	Blank QC753626			↓	↓	
8	LCS 627			↓	↓	
9	MS 628			2X	↓	
10	MSD 629			↓	↓	
11	SDUP 630			↓	↓	
12						
13						
14						
15						
16						
17						
18						
19						
20						
						MJT 8/15/14

	Mfg & Lot # / Time / Program	Initials / Date
Eluent Reagent ID	ICOS Eluent 8/13/14 MJT	MJT 8/15/14
(LCS)BS/BSD Spiked with 0.05 mL of :	S23666	↓
MS/MSD Spiked with 0.05 mL of :	↓	
Filters Used: Ag: OnGuard II Ag	NA	
Na: OnGuard II Na	↓	
P: OnGuard II P		
RP: OnGuard II RP	↓	
S: 0.20um/(0.45um)	Sartorius #40082133	↓

MJT 8/15/14
Extraction Chemist / Date

Continued from page ___
Continued on page ___

8-15-14
Reviewed by / Date

Dilutions for 259835 7199 Water
Curtis & Tompkins Laboratories

Type	Sample ID	IDFs
MS	QC753628	2X
MSD	QC753629	2X
SDUP	QC753630	2X

For CCB (IC05_226_20):
Integrated to match integration of ICAL and CCV.

For SAMPLE 259835-001 (IC05_226_13):
Integrated to match integration of ICAL and CCV.

For CCV L (IC05_226_5):
Integrated to match integration of ICAL and CCV.

For CCV M (IC05_226_19):
Integrated to match integration of ICAL and CCV.

For LCS QC753627 (IC05_226_7):
Integrated to match integration of ICAL and CCV.

For MSD QC753629 (IC05_226_17):
Integrated to match integration of ICAL and CCV for spike & dup.

For SDUP QC753630 (IC05_226_18):
Integrated to match integration of ICAL and CCV.

For Calibration IC05 (644062428001):
Integrated to match previous ICAL in multiple levels.

For ICV (IC05_043_22):
Integrated to match integration of ICAL and CCV.

Sample Raw Data

CURTIS & TOMPKINS SAMPLE USER REPORT FOR EPA 7199

Inst	: IC05	Lab ID	: 259835-001	Client ID	: 04W07-081414
Seqnum	: 644326000013	Matrix	: Water	Acct	: JMW (TLB)
File	: 226_13	Batch	: 214416	Time	: 14-AUG-2014 19:01
Cal	: 644062428001	Caldate	: 12-FEB-2014		
IDF	: 1.0			Units	: ug/L
PDF	: 1.0				

Analyte	Result	RL	Blank	Flags
Hexavalent Chromium	ND	0.50		u

RDG 08/14/14 : Integrated to match integration of ICAL and CCV.

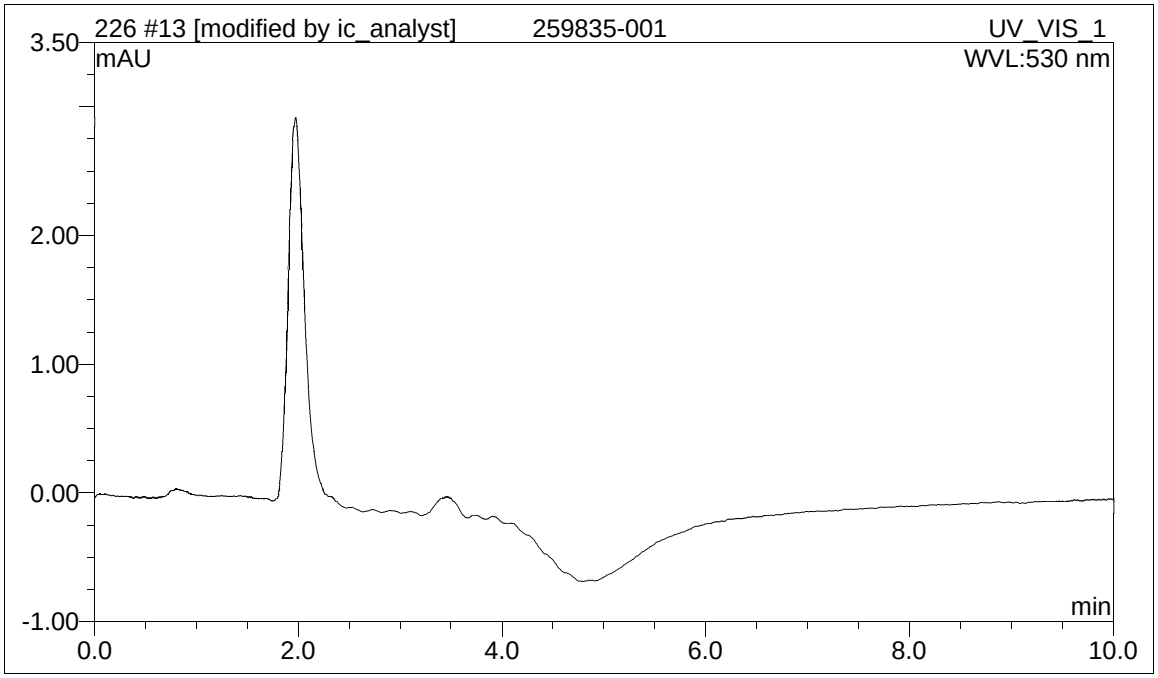
Analyst: NJT Date: 08/15/14 Reviewer: RDG Date: 08/18/14

u=use

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	259835-001		
Sample No.:	13	**Batch #:**	214416
Sequence Name:	226	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	8/14/2014 7:01 PM	**PDF:**	1.0000
System Operator:	IC		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
n.a.	CR6	n.a.	n.a.	n.a.	n.a.	



ANALYZED BY: _____

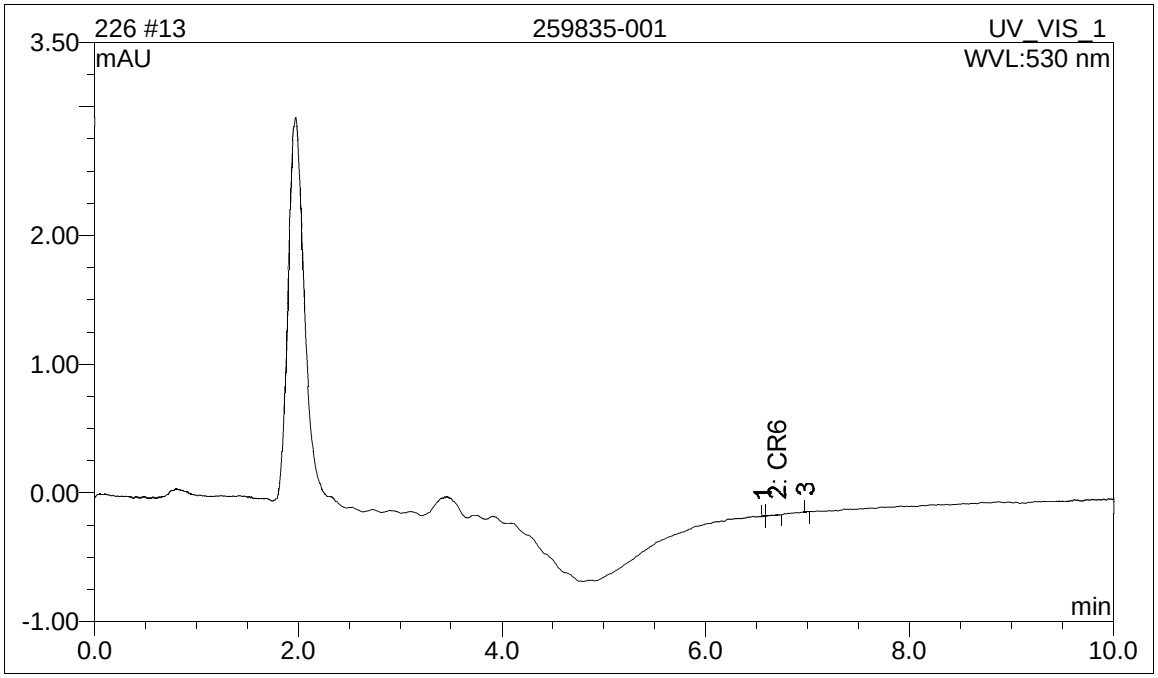
REVIEWED BY: _____

Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	259835-001		
Sample No.:	13	**Batch #:**	214416
Sequence Name:	226	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	8/14/2014 7:01 PM	**PDF:**	1.0000
System Operator:	IC		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
2	CR6	6.707	0.000588	0.1351	0.1351	



ANALYZED BY: REVIEWED BY:

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Curtis & Tompkins, Ltd.

QC Raw Data

CURTIS & TOMPKINS BLANK USER REPORT FOR 259835 7199 Water
EPA 7199

Inst : IC05 Lab ID : QC753626
Seqnum : 644326000006.1 Matrix : Water
File : 226_6 Batch : 214416 Time : 14-AUG-2014 17:37
Cal : 644062428001 Caldate : 12-FEB-2014
IDF : 1.0 Units : ug/L
PDF : 1.0

Analyte	Result	RL	Flags
Hexavalent Chromium	ND	0.50	u

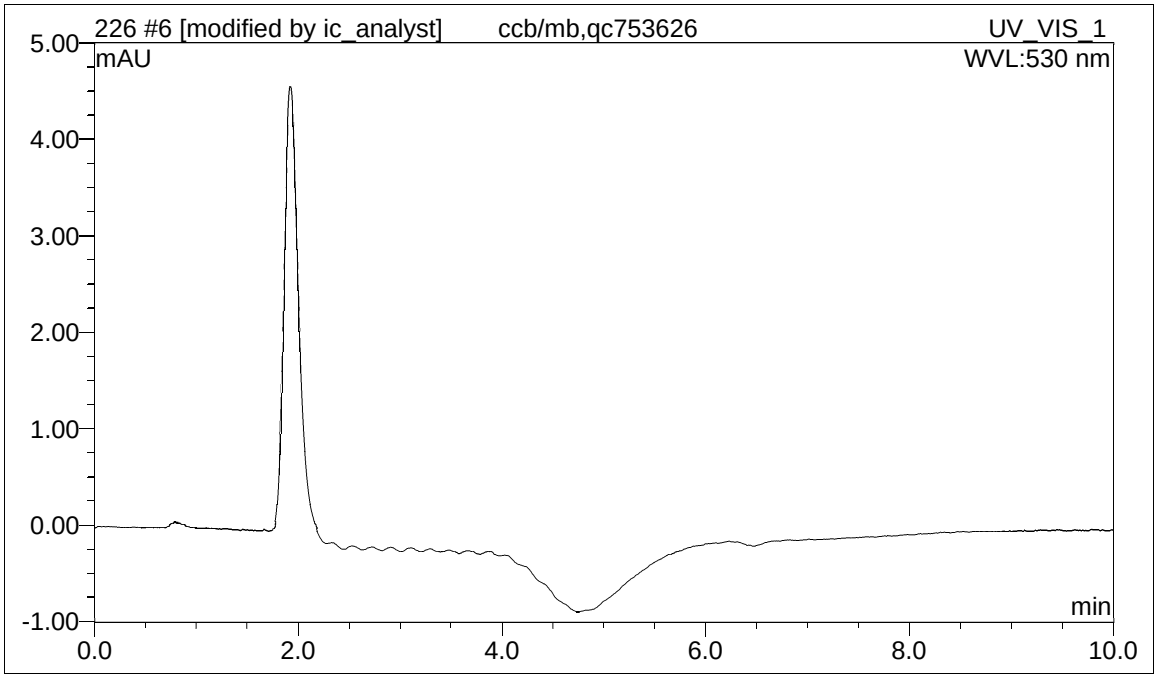
Analyst: RDG Date: 08/18/14 Reviewer: LW Date: 08/27/14

u=use

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	ccb/mb,qc753626		
Sample No.:	6	**Batch #:**	214416
Sequence Name:	226	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	8/14/2014 5:37 PM	**PDF:**	1.0000
System Operator:	IC		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
n.a.	CR6	n.a.	n.a.	n.a.	n.a.	



ANALYZED BY: REVIEWED BY:

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Curtis & Tompkins, Ltd.

CURTIS & TOMPKINS SPIKE USER REPORT FOR 259835 7199 Water
EPA 7199

Type : LCS
Inst : IC05
Seqnum : 644326000007.1
File : 226_7
IDF : 1.0
PDF : 1.0
Lab ID : QC753627
Matrix : Water
Batch : 214416
Time : 14-AUG-2014 17:49
Cal : 644062428001
Units : ug/L

Analyte	Spiked	LCS	%Rec	Limits	Flags
Hexavalent Chromium	10.00	10.00	100	90-110	u

RDG 08/14/14 : Integrated to match integration of ICAL and CCV. [general version]

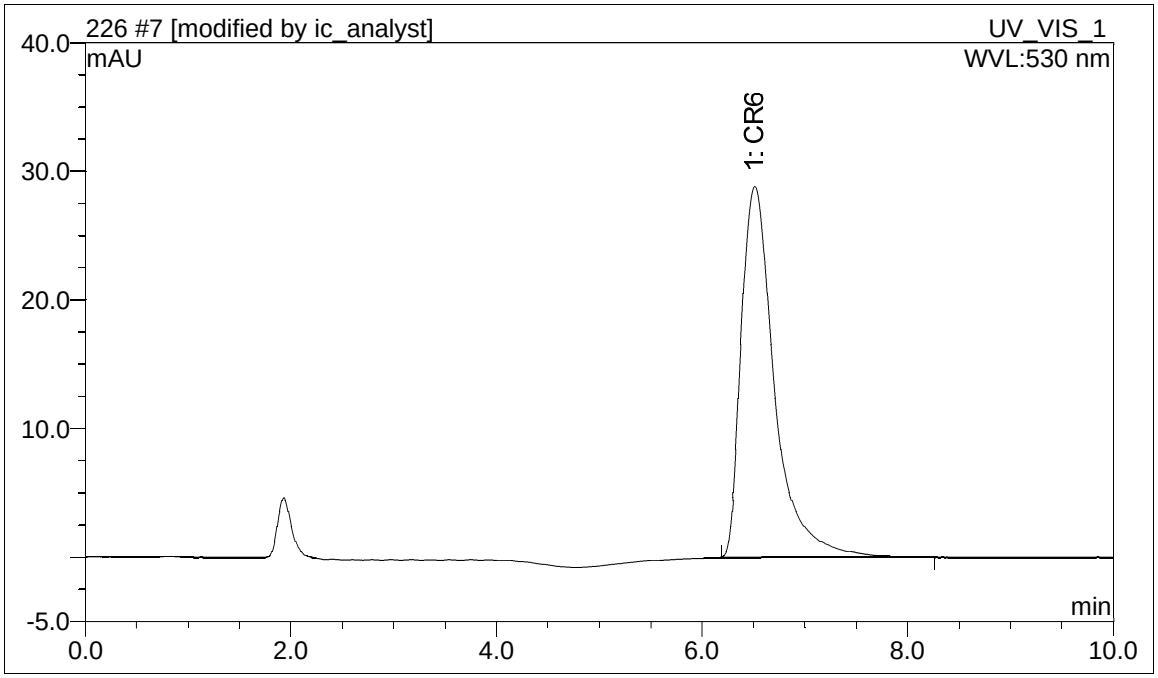
Analyst: RDG Date: 08/18/14 Reviewer: LW Date: 08/27/14

u=use

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	lcs,qc753627,s23666,100		
Sample No.:	7	**Batch #:**	214416
Sequence Name:	226	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	8/14/2014 5:49 PM	**PDF:**	1.0000
System Operator:	IC		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
1	CR6	6.513	10.761754	10.0032	10.0032	



ANALYZED BY: REVIEWED BY:

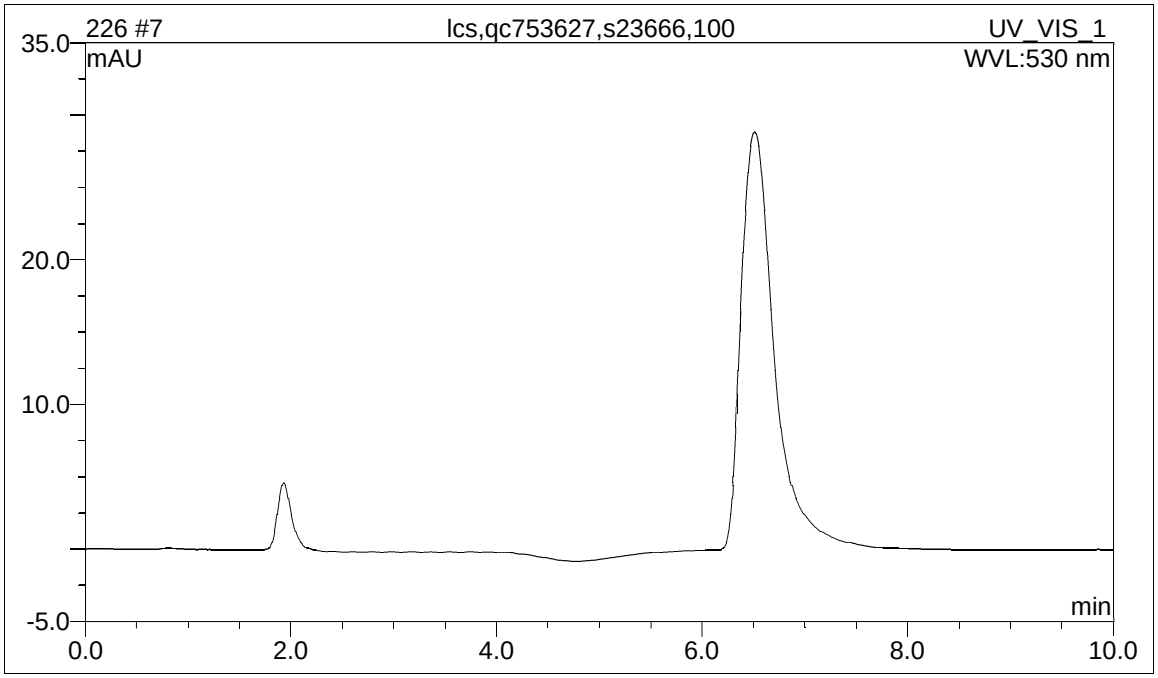
_____ _____

Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	lcs,qc753627,s23666,100		
Sample No.:	7	**Batch #:**	214416
Sequence Name:	226	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	8/14/2014 5:49 PM	**PDF:**	1.0000
System Operator:	IC		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
n.a.	CR6	n.a.	n.a.	n.a.	n.a.	



ANALYZED BY: REVIEWED BY:

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Curtis & Tompkins, Ltd.

CURTIS & TOMPKINS SPIKE USER REPORT FOR 259835 7199 Water
EPA 7199

Type	: MSS	Type	: MS	Type	: MSD
Inst	: IC05	Inst	: IC05	Inst	: IC05
Seqnum	: 644326000015	Seqnum	: 644326000016.1	Seqnum	: 644326000017.1
File	: 226_15	File	: 226_16	File	: 226_17
IDF	: 2.0	IDF	: 2.0	IDF	: 2.0
PDF	: 1.0	PDF	: 1.0	PDF	: 1.0
Lab ID	: 259841-001	Lab ID	: QC753628	Lab ID	: QC753629
Matrix	: Water	Matrix	: Water	Matrix	: Water
Batch	: 214416	Batch	: 214416	Batch	: 214416
Time	: 14-AUG-2014 19:25	Time	: 14-AUG-2014 19:37	Time	: 14-AUG-2014 19:49
Cal	: 644062428001	Cal	: 644062428001	Cal	: 644062428001
Units	: ug/L				

Analyte	MSS	Spiked	MS	%Rec	MSD	%Rec	Limits	RPD	Lim	Flags
Hexavalent Chromium	9.235	20.00	28.78	98	29.00	99	90-110	1	20	u

RDG 08/14/14 : Integrated to match integration of ICAL and CCV for spike & dup. [general version]

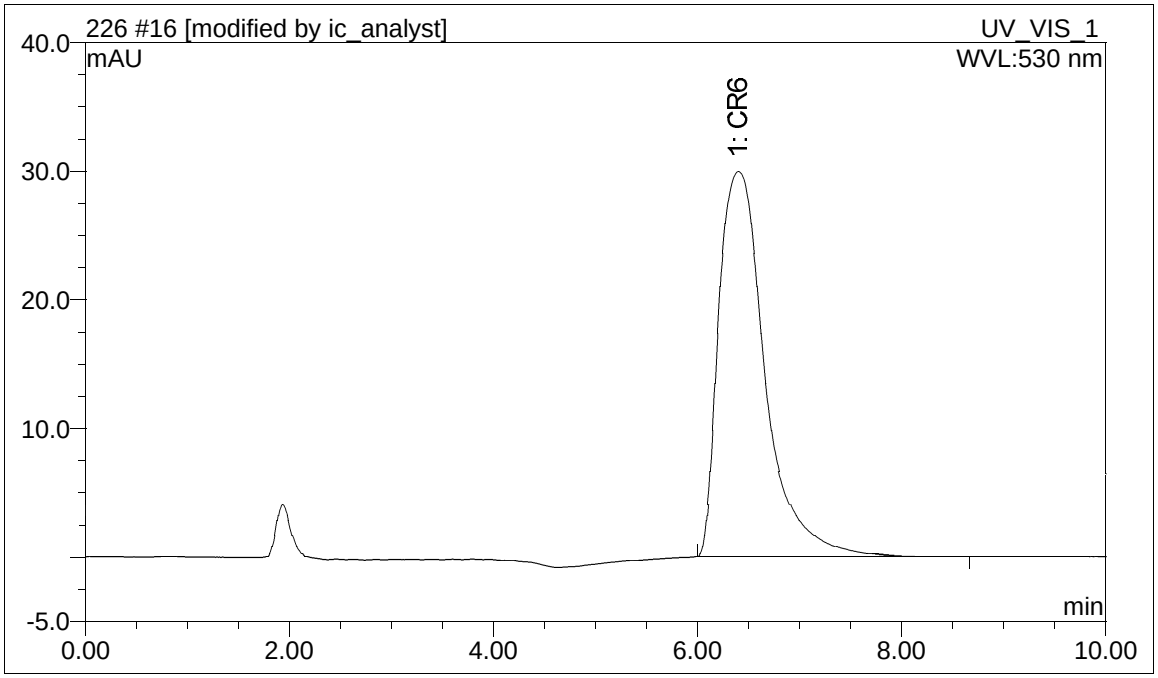
Analyst: RDG Date: 08/18/14 Reviewer: LW Date: 08/27/14

u=use

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	ms,qc753628,s23666,100		
Sample No.:	16	**Batch #:**	214416
Sequence Name:	226	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	2.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	8/14/2014 7:37 PM	**PDF:**	1.0000
System Operator:	IC		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
1	CR6	6.401	15.534101	14.3897	28.7794	



ANALYZED BY: REVIEWED BY:

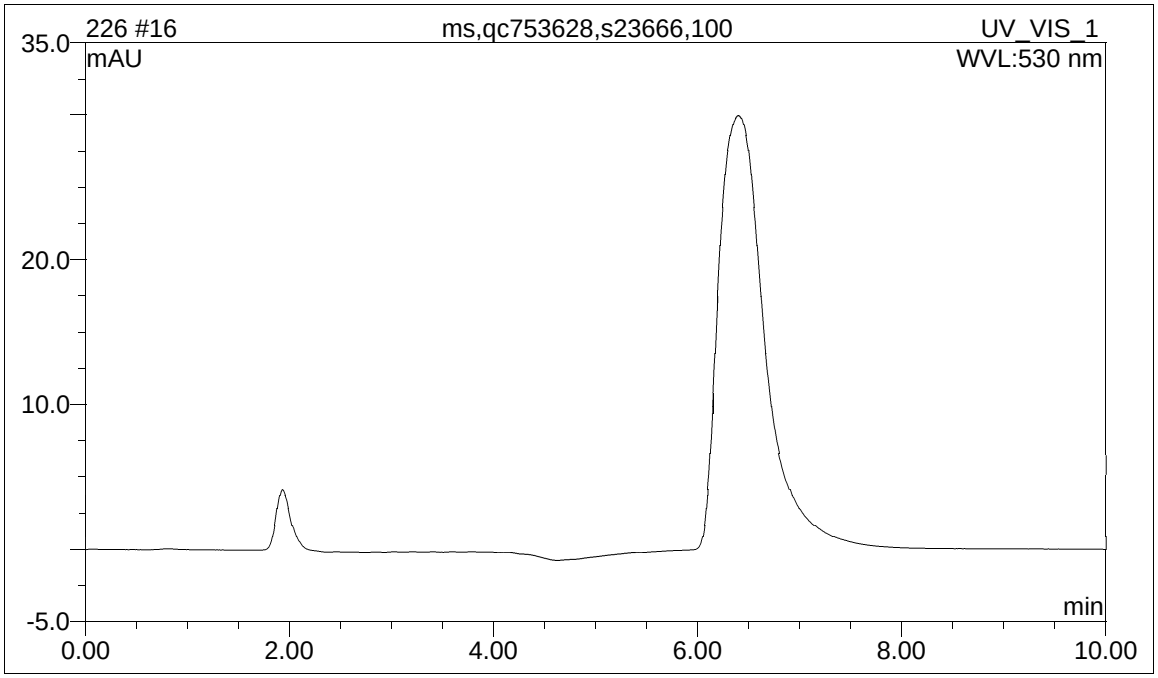
_____ _____

Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	ms,qc753628,s23666,100		
Sample No.:	16	**Batch #:**	214416
Sequence Name:	226	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	2.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	8/14/2014 7:37 PM	**PDF:**	1.0000
System Operator:	IC		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
n.a.	CR6	n.a.	n.a.	n.a.	n.a.	



ANALYZED BY: REVIEWED BY:

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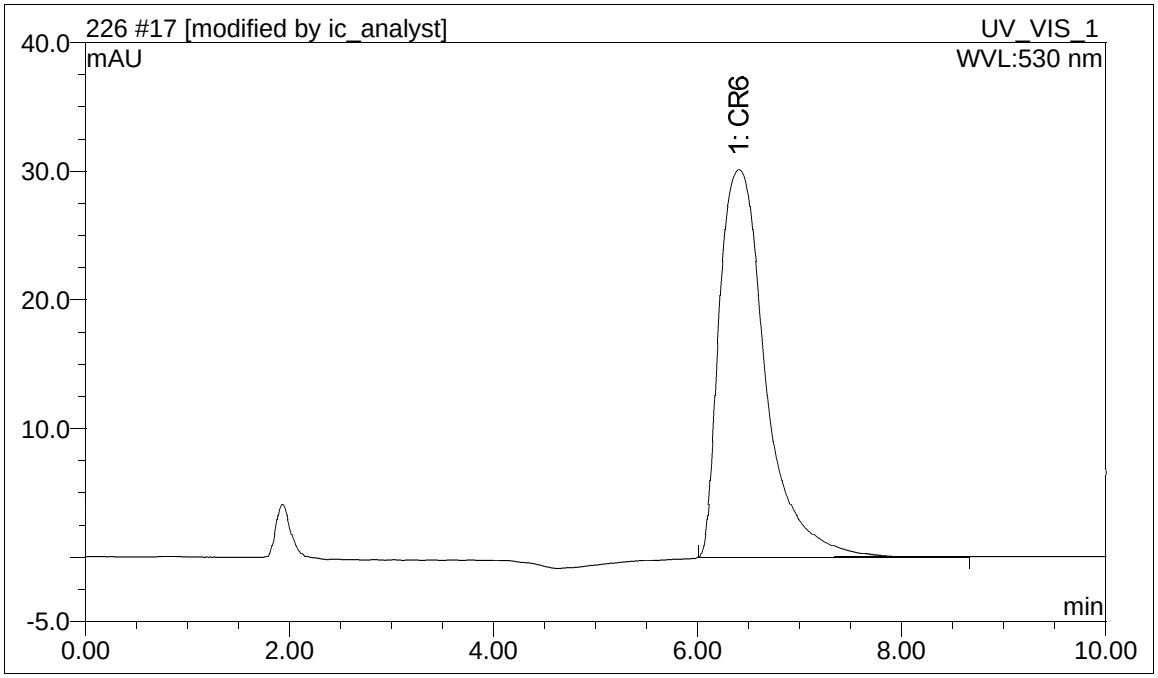
Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	msd,qc753629,s23666,100		
Sample No.:	17	**Batch #:**	214416
Sequence Name:	226	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	2.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	8/14/2014 7:49 PM	**PDF:**	1.0000
System Operator:	IC		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
1	CR6	6.414	15.654630	14.5006	29.0011	



ANALYZED BY: REVIEWED BY:

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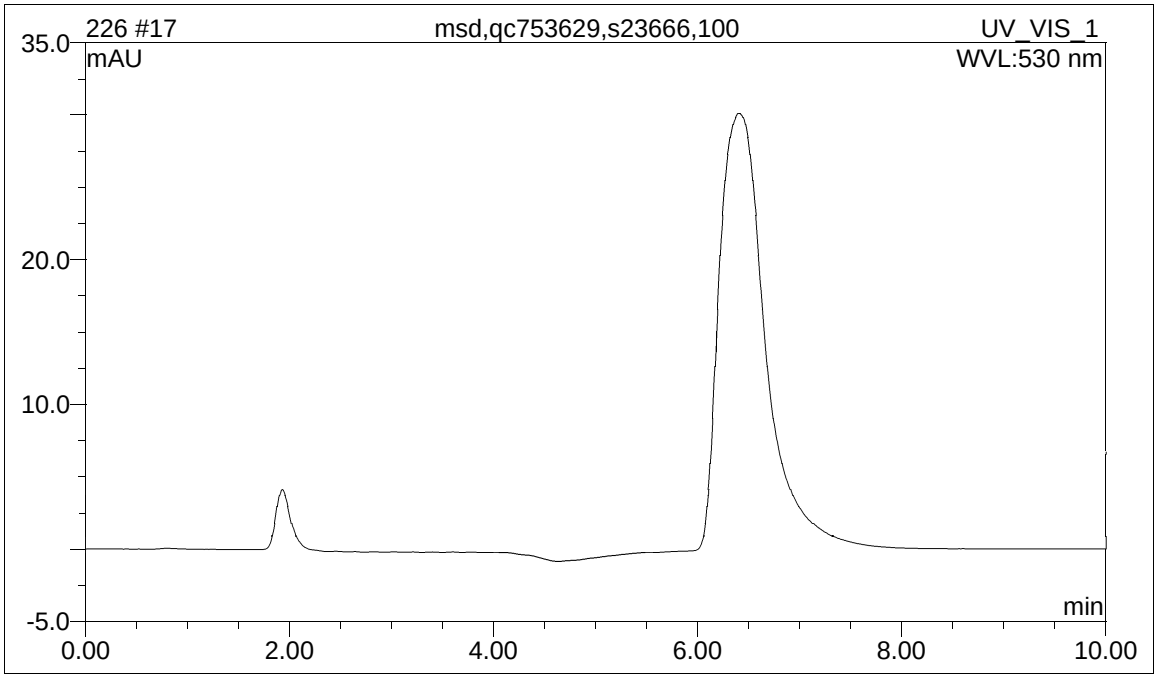
Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	msd,qc753629,s23666,100		
Sample No.:	17	**Batch #:**	214416
Sequence Name:	226	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	2.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	8/14/2014 7:49 PM	**PDF:**	1.0000
System Operator:	IC		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
n.a.	CR6	n.a.	n.a.	n.a.	n.a.	



ANALYZED BY: _____

REVIEWED BY: _____

Curtis & Tompkins, Ltd.

CURTIS & TOMPKINS SAMPLE DUPLICATE FOR 259835 7199 Water
EPA 7199

Type	: MSS	Type	: SDUP
Inst	: IC05	Inst	: IC05
Seqnum	: 644326000015	Seqnum	: 644326000018.1
File	: 226_15	File	: 226_18
IDF	: 2.0	IDF	: 2.0
PDF	: 1.0	PDF	: 1.0
Lab ID	: 259841-001	Lab ID	: QC753630
Matrix	: Water	Matrix	: Water
Batch	: 214416	Batch	: 214416
Time	: 14-AUG-2014 19:25	Time	: 14-AUG-2014 20:01
Cal	: 644062428001	Cal	: 644062428001
Units	: ug/L		

Analyte	MSS	RL	SDUP	RL	RPD	Lim	Flags
Hexavalent Chromium	9.235	1.000	10.22	1.000	10	20	u

RDG 08/14/14 : Integrated to match integration of ICAL and CCV. [general version]

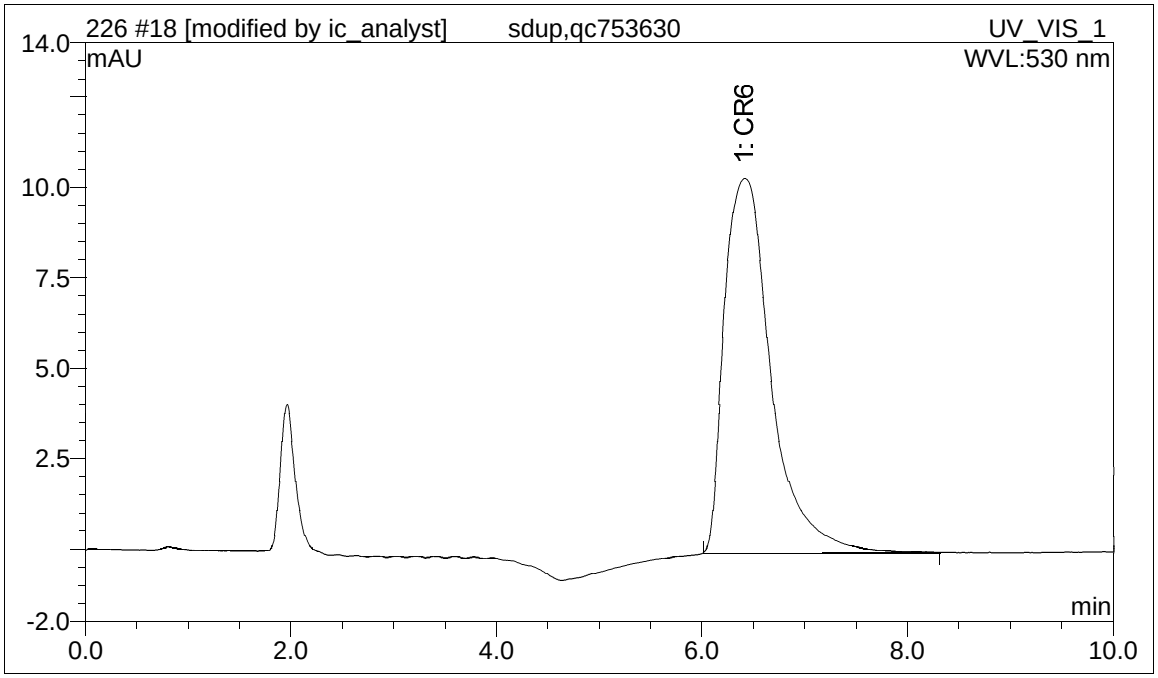
Analyst: RDG Date: 08/18/14 Reviewer: LW Date: 08/27/14

u=use

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	sdup,qc753630		
Sample No.:	18	**Batch #:**	214416
Sequence Name:	226	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	2.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	8/14/2014 8:01 PM	**PDF:**	1.0000
System Operator:	IC		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
1	CR6	6.414	5.428249	5.1083	10.2166	



ANALYZED BY: REVIEWED BY:

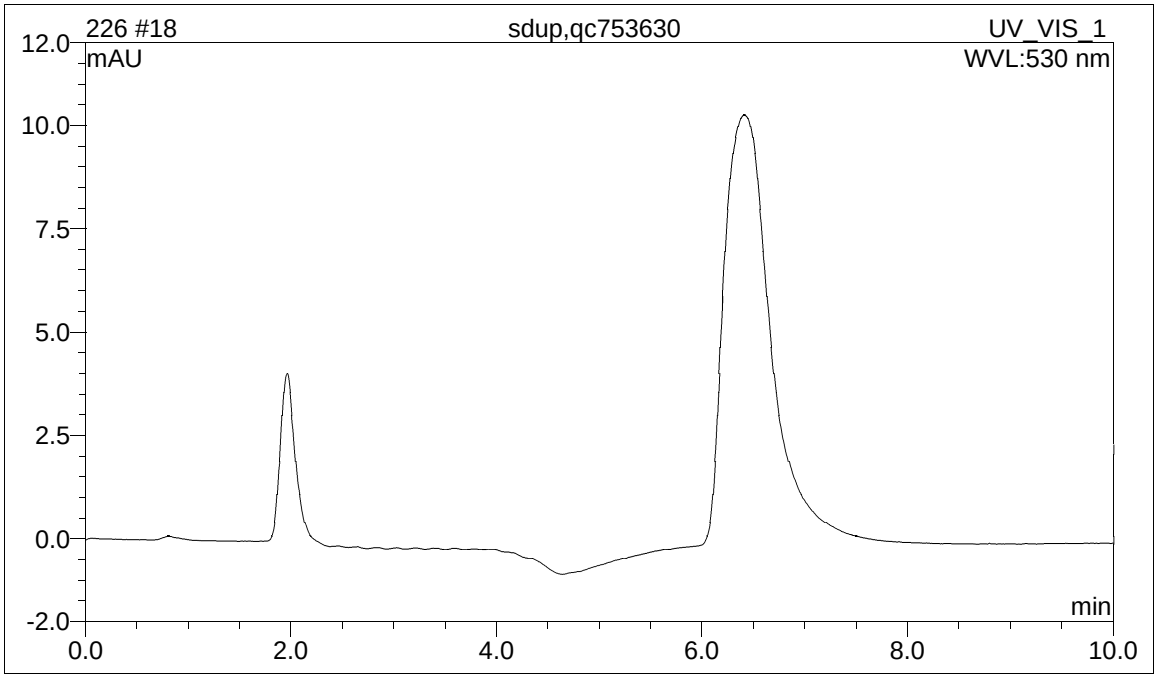
_____ _____

Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	sdup,qc753630		
Sample No.:	18	**Batch #:**	214416
Sequence Name:	226	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	2.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	8/14/2014 8:01 PM	**PDF:**	1.0000
System Operator:	IC		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
n.a.	CR6	n.a.	n.a.	n.a.	n.a.	



ANALYZED BY: REVIEWED BY:

_____ _____

Curtis & Tompkins, Ltd.

Initial Calibration Raw Data

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259835 7199 Water: EPA 7199

Inst : IC05 Name : IC05 CAL CR6 043
Calnum : 644062428001 Date : 12-FEB-2014 12:27
Units : ug/L X Axis : A Inj Vol : 1000 uL

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	043_15	644062428015	L2	12-FEB-2014 12:27	S23294 (20000X)
L2	043_16	644062428016	L3	12-FEB-2014 12:39	S23294 (10000X)
L3	043_17	644062428017	L4	12-FEB-2014 12:51	S23294 (2000X)
L4	043_18	644062428018	L5	12-FEB-2014 13:03	S23294 (1000X)
L5	043_19	644062428019	L6	12-FEB-2014 13:15	S23294 (200X)
L6	043_20	644062428020	L7	12-FEB-2014 13:27	S23294 (100X)

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Hexavalent Chromium	0.7358	0.8739	1.0956	1.0698	1.0803	1.0729	QUAD	-0.1470	1.09233	-0.00018	0.9880	1.000	0.998	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Hexavalent Chromium	0.5000	-6	1.0000	-7	5.0000	3	10.000	-1	50.000	0	100.00	0

VQ 02/12/14 : Integrated to match previous ICAL in multiple levels.

Analyst: VQ Date: 02/12/14 Reviewer: LW Date: 02/12/14

Instrument response = a0 + amount * a1 + amount^2 * a2 (invert equation before quantitating); QUAD=Quadratic regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259835 7199 Water
EPA 7199

Inst : IC05 Name : IC05 CAL CR6 043
Calnum : 644062428001 Cal Date : 12-FEB-2014

ICV 644062428022 (043_22 12-FEB-2014) stds: S23666 (50X)

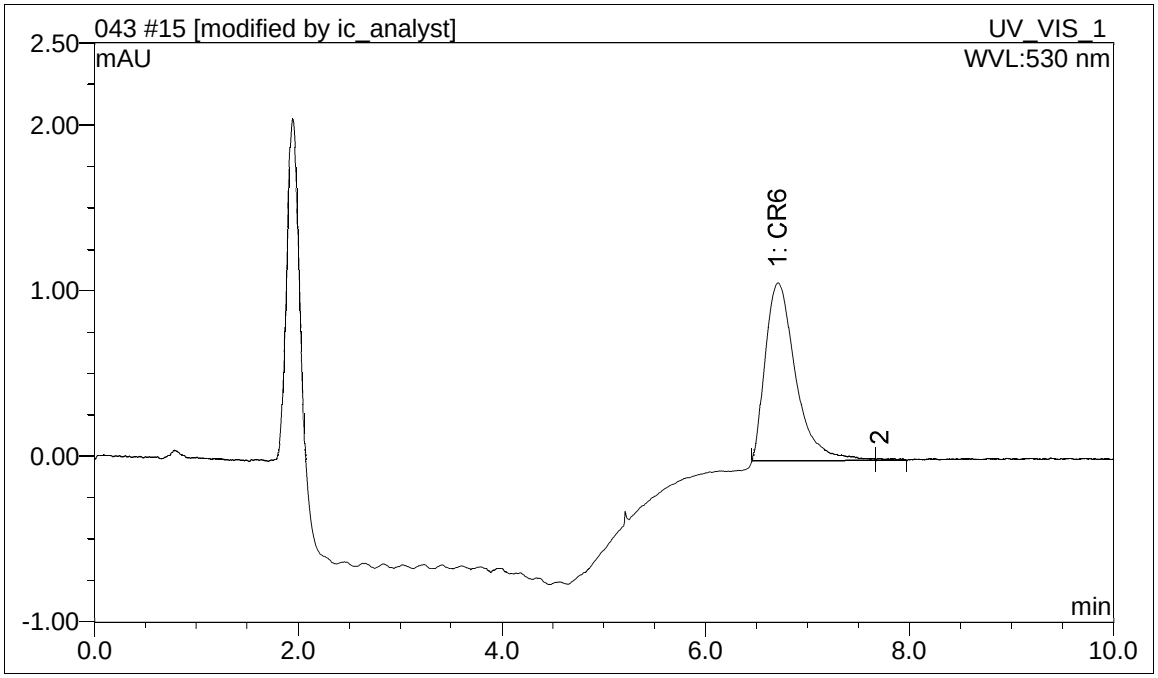
Analyte	Spiked	Quant	Units	%D	Max	Flags
Hexavalent Chromium	20.00	19.04	ug/L	-5	10	

Analyst: VQ Date: 02/12/14 Reviewer: LW Date: 02/12/14

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	ICAL,L2,S23294,20000		
Sample No.:	15	**Batch #:**	
Sequence Name:	043	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	2/12/2014 12:27 PM	**PDF:**	1.0000
System Operator:	VQ		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
1	CR6	6.707	0.367901	0.4714	0.4714	



ANALYZED BY: REVIEWED BY:

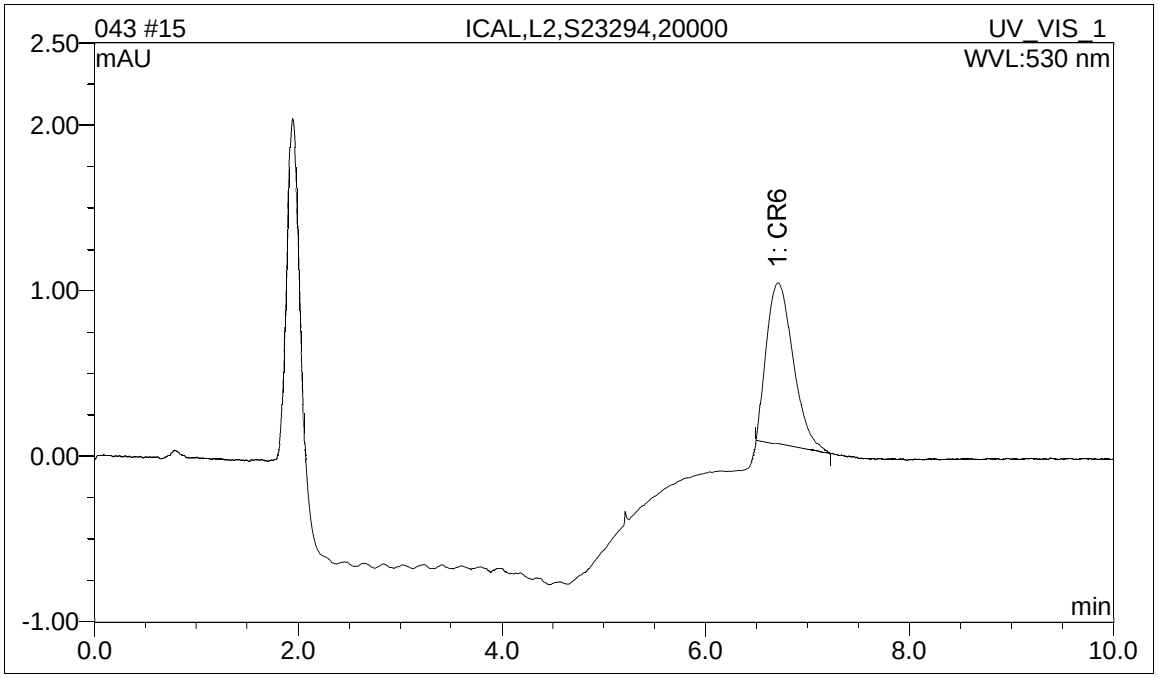
_____ _____

Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	ICAL,L2,S23294,20000		
Sample No.:	15	**Batch #:**	
Sequence Name:	043	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	2/12/2014 12:27 PM	**PDF:**	1.0000
System Operator:	VQ		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
1	CR6	6.707	0.294536	0.3851	0.3851	



ANALYZED BY: REVIEWED BY:

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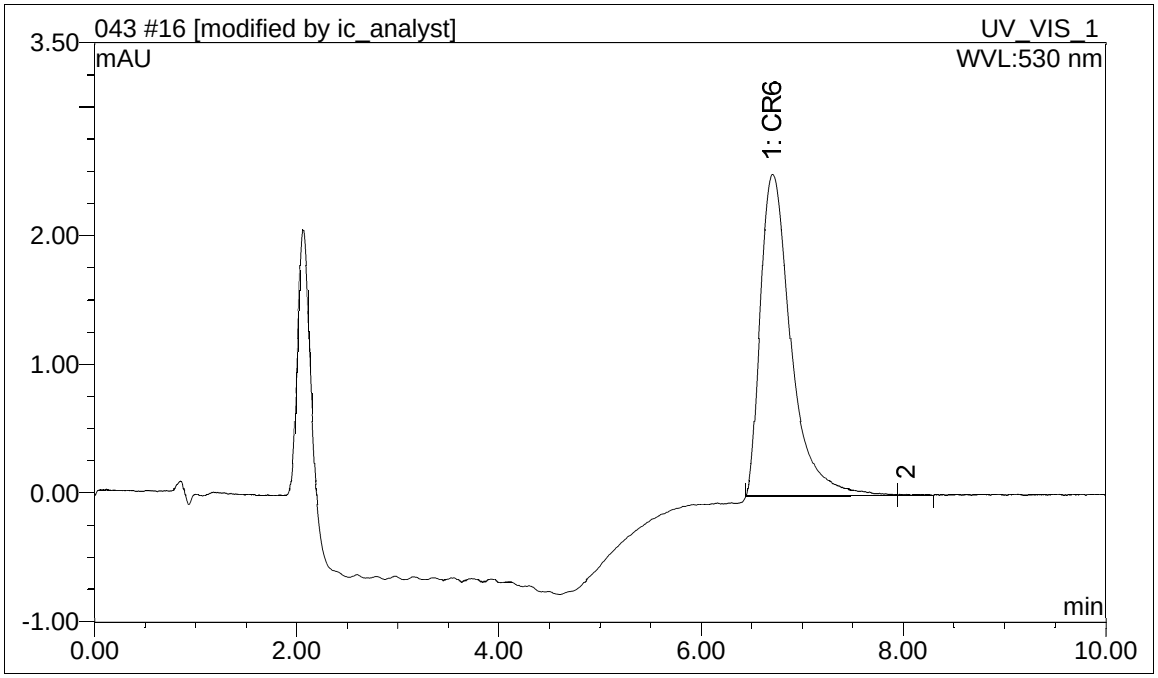
Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	ICAL,L3,S23294,10000		
Sample No.:	16	**Batch #:**	
Sequence Name:	043	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	2/12/2014 12:39 PM	**PDF:**	1.0000
System Operator:	VQ		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
1	CR6	6.707	0.873860	0.9347	0.9347	



ANALYZED BY: REVIEWED BY:

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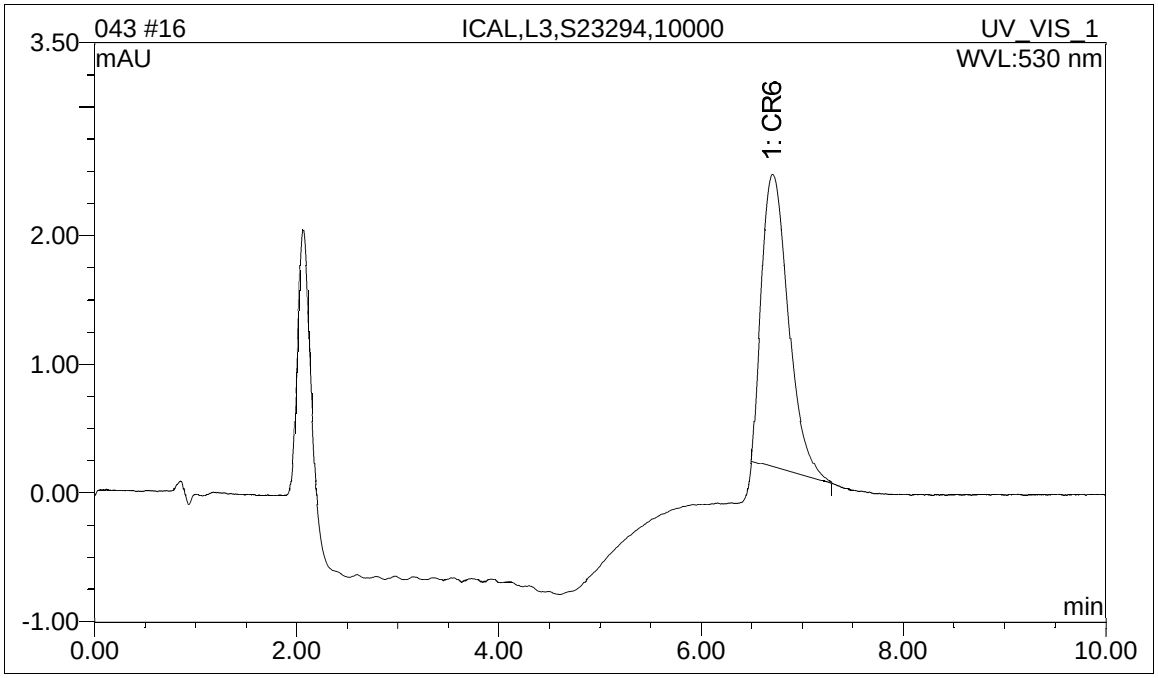
Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	ICAL,L3,S23294,10000		
Sample No.:	16	**Batch #:**	
Sequence Name:	043	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	2/12/2014 12:39 PM	**PDF:**	1.0000
System Operator:	VQ		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
1	CR6	6.707	0.699678	0.7374	0.7374	



ANALYZED BY: REVIEWED BY:

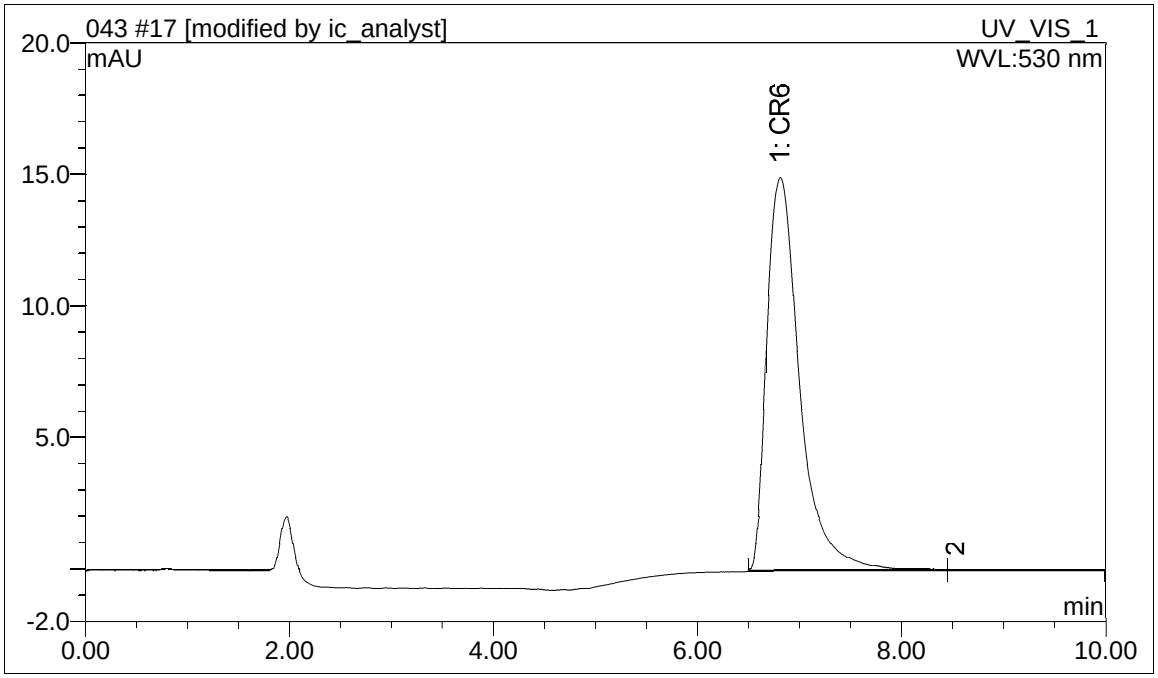
_____ _____

Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	ICAL,L4,S23294,2000		
Sample No.:	17	**Batch #:**	
Sequence Name:	043	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	2/12/2014 12:51 PM	**PDF:**	1.0000
System Operator:	VQ		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
1	CR6	6.814	5.477763	5.1537	5.1537	



ANALYZED BY: REVIEWED BY:

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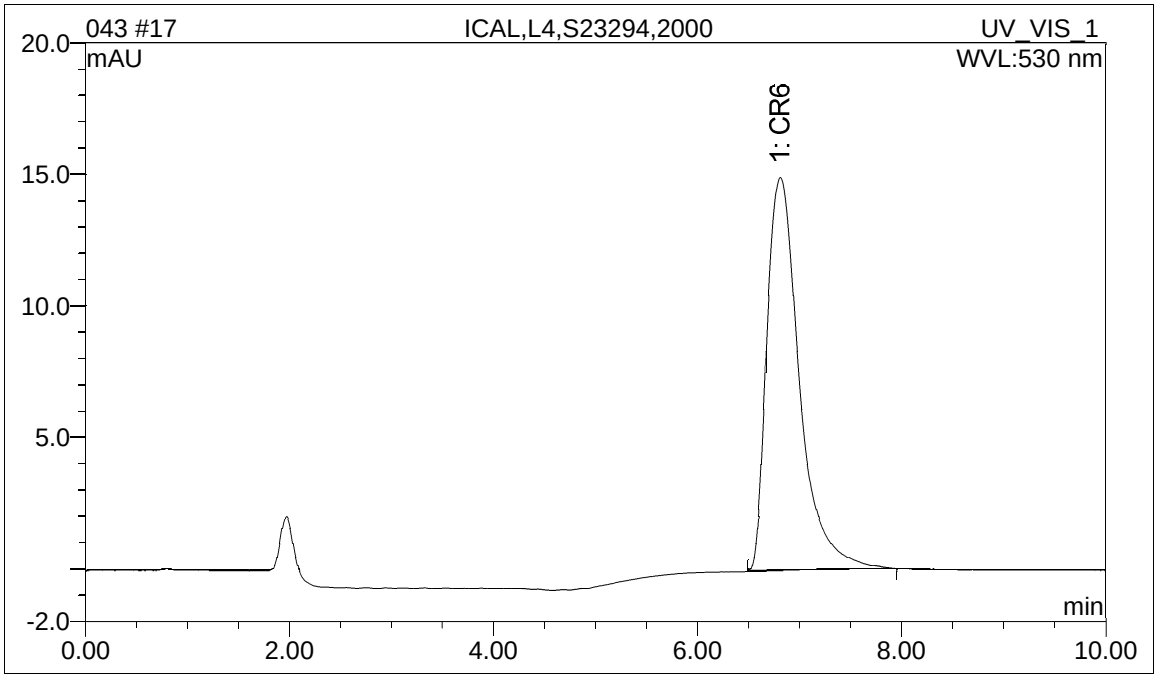
Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	ICAL,L4,S23294,2000		
Sample No.:	17	**Batch #:**	
Sequence Name:	043	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	2/12/2014 12:51 PM	**PDF:**	1.0000
System Operator:	VQ		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
1	CR6	6.814	5.405209	4.8447	4.8447	



ANALYZED BY: _____

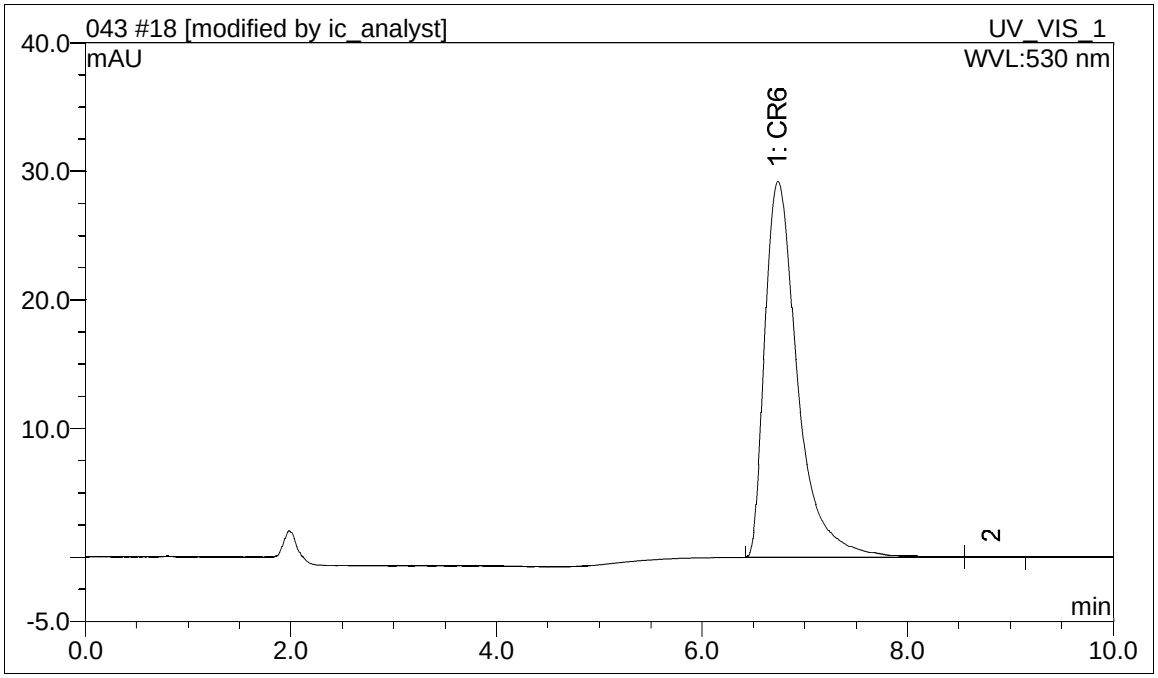
REVIEWED BY: _____

Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	ICAL,L5,S23294,1000		
Sample No.:	18	**Batch #:**	
Sequence Name:	043	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	2/12/2014 1:03 PM	**PDF:**	1.0000
System Operator:	VQ		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
1	CR6	6.740	10.698016	9.9446	9.9446	



ANALYZED BY: REVIEWED BY:

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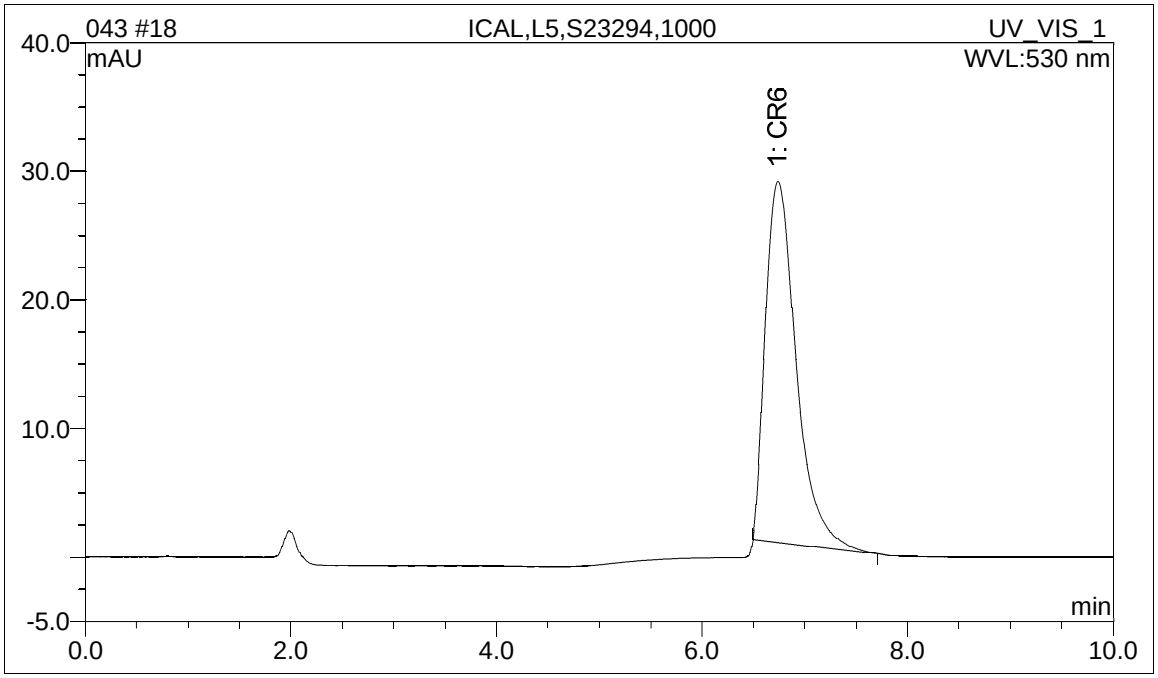
Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	ICAL,L5,S23294,1000		
Sample No.:	18	**Batch #:**	
Sequence Name:	043	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	2/12/2014 1:03 PM	**PDF:**	1.0000
System Operator:	VQ		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
1	CR6	6.740	9.554658	8.4906	8.4906	



ANALYZED BY: REVIEWED BY:

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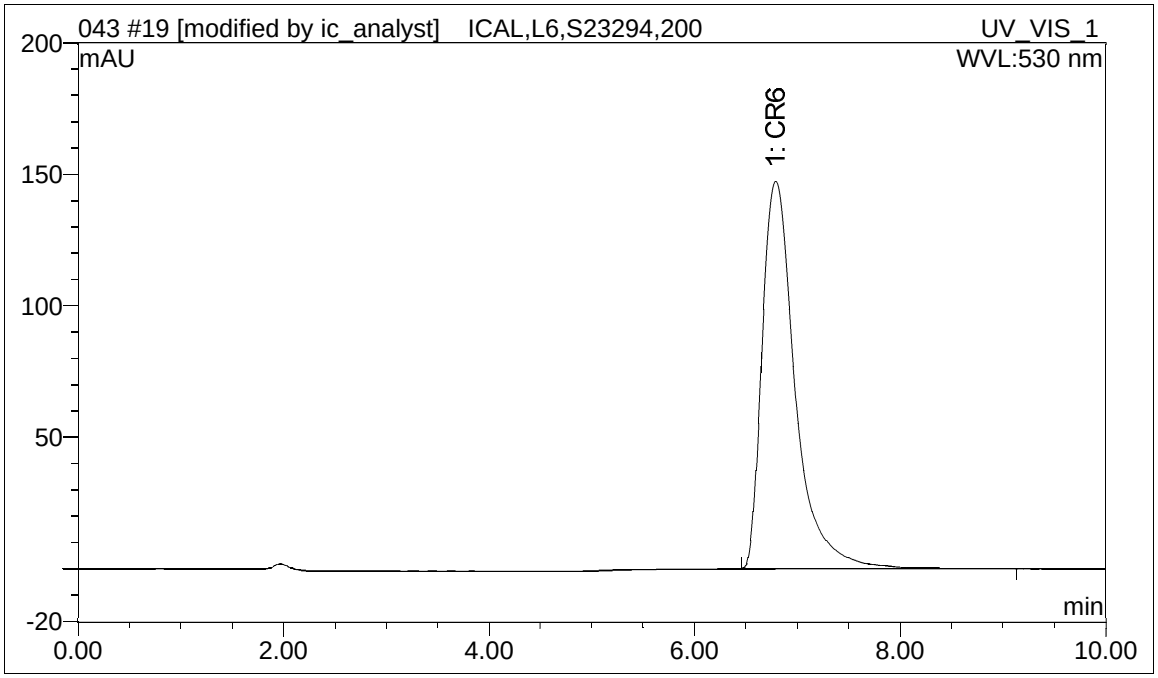
Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	ICAL,L6,S23294,200		
Sample No.:	19	**Batch #:**	
Sequence Name:	043	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	2/12/2014 1:15 PM	**PDF:**	1.0000
System Operator:	VQ		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
1	CR6	6.794	54.014427	49.9938	49.9938	



ANALYZED BY: REVIEWED BY:

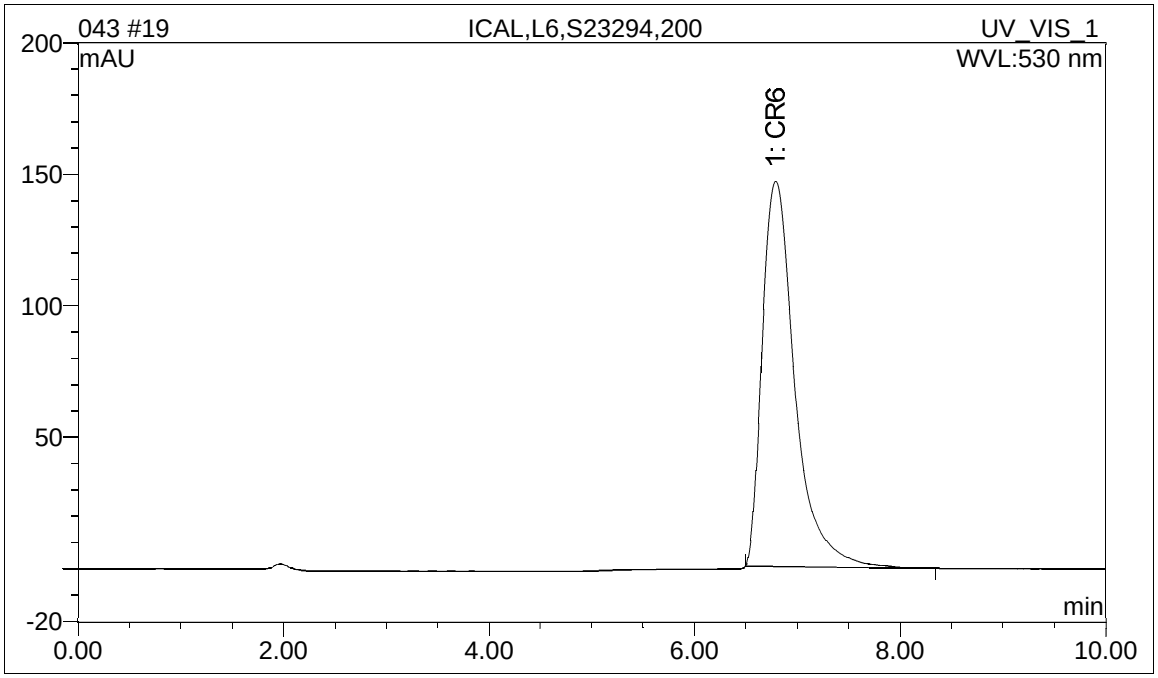
_____ _____

Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	ICAL,L6,S23294,200		
Sample No.:	19	**Batch #:**	
Sequence Name:	043	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	2/12/2014 1:15 PM	**PDF:**	1.0000
System Operator:	VQ		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
1	CR6	6.794	52.959041	48.0864	48.0864	



ANALYZED BY: REVIEWED BY:

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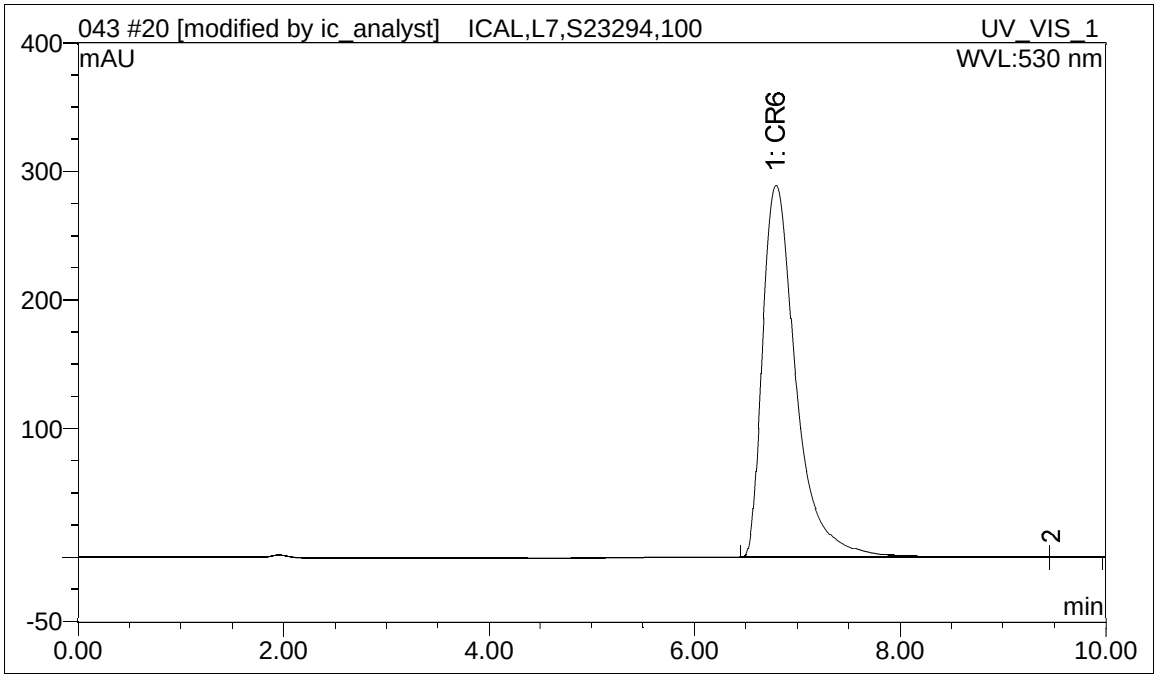
Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	ICAL,L7,S23294,100		
Sample No.:	20	**Batch #:**	
Sequence Name:	043	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	2/12/2014 1:27 PM	**PDF:**	1.0000
System Operator:	VQ		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
1	CR6	6.794	107.294827	100.0018	100.0018	



ANALYZED BY: REVIEWED BY:

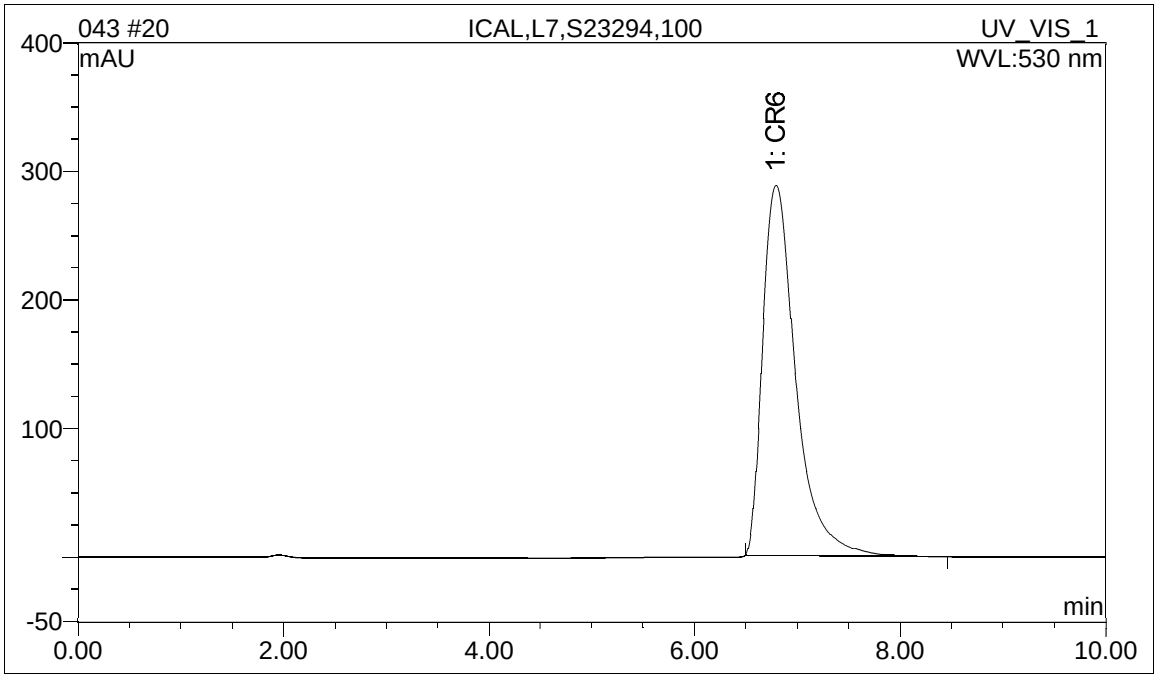
_____ _____

Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	ICAL,L7,S23294,100		
Sample No.:	20	**Batch #:**	
Sequence Name:	043	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	2/12/2014 1:27 PM	**PDF:**	1.0000
System Operator:	VQ		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
1	CR6	6.794	105.478402	100.2295	100.2295	



ANALYZED BY: REVIEWED BY:

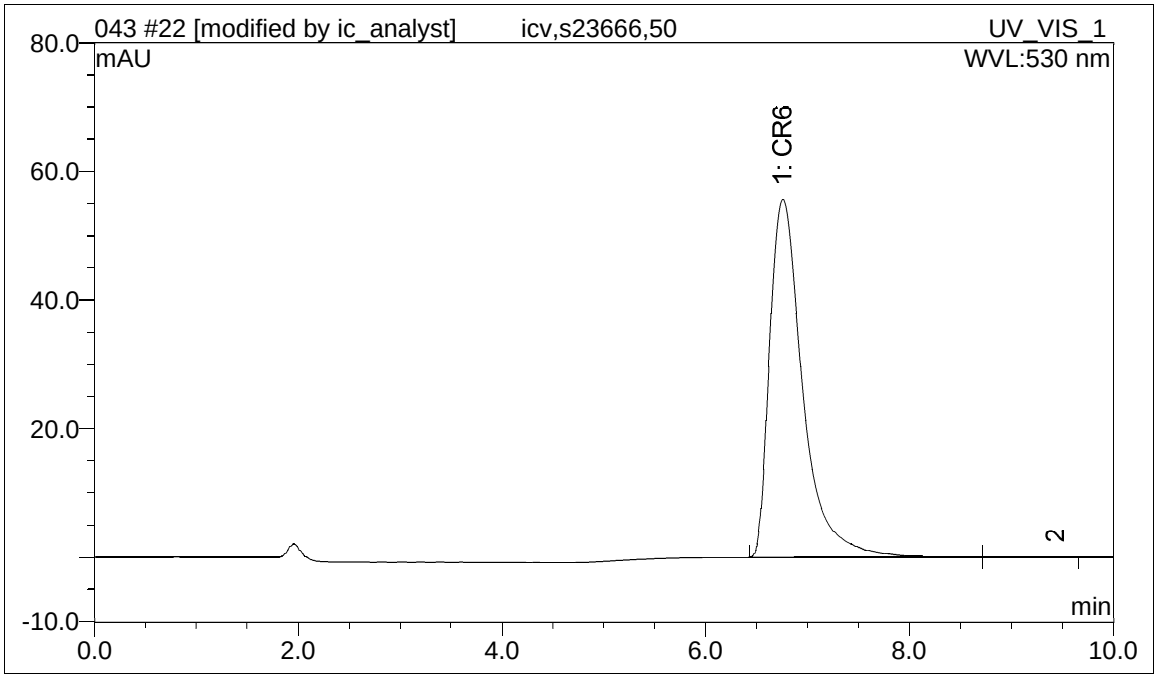
_____ _____

Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	icv,s23666,50		
Sample No.:	22	**Batch #:**	
Sequence Name:	043	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	2/12/2014 2:04 PM	**PDF:**	1.0000
System Operator:	VQ		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
1	CR6	6.760	20.586340	19.0404	19.0404	



ANALYZED BY: REVIEWED BY:

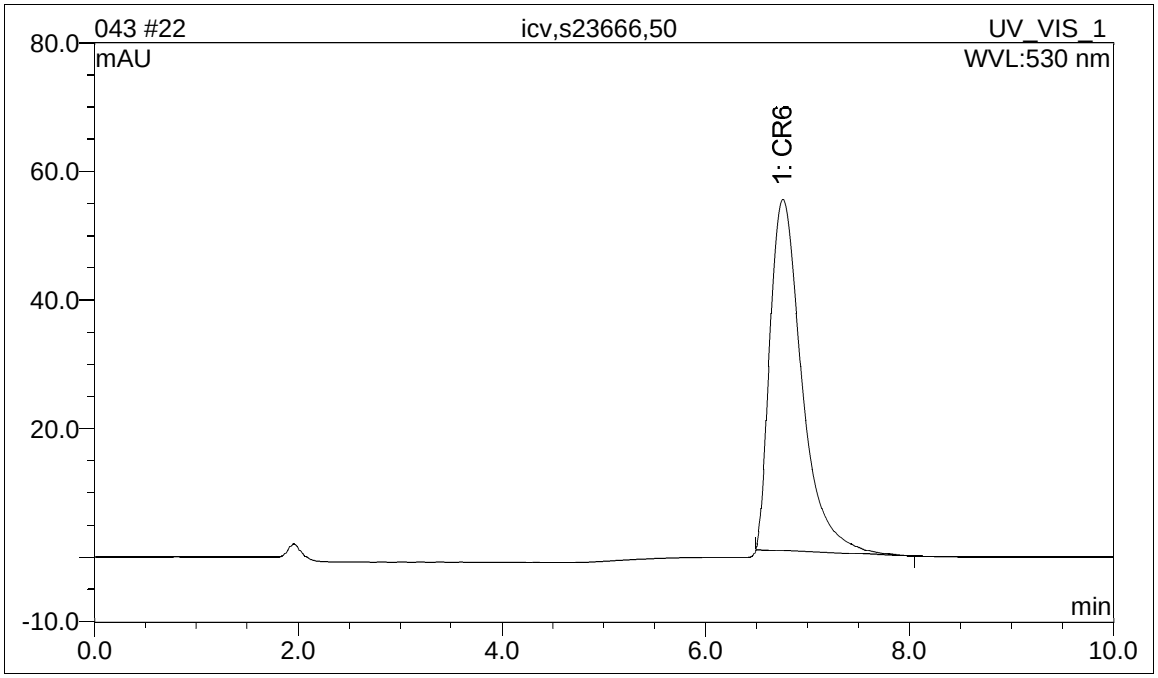
_____ _____

Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	icv,s23666,50		
Sample No.:	22	**Batch #:**	
Sequence Name:	043	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	2/12/2014 2:04 PM	**PDF:**	1.0000
System Operator:	VQ		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
1	CR6	6.760	19.360932	17.9117	17.9117	



ANALYZED BY: _____

REVIEWED BY: _____

Curtis & Tompkins, Ltd.

Continuing Calibration Verification Raw Data

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 7199 Water
EPA 7199

Inst : IC05 Run Name : L IDF : 1.0
Seqnum : 644326000005 File : 226_5 Time : 14-AUG-2014 10:07
Cal : 644062428001 Caldate : 12-FEB-2014
Standards: S24414 (10000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Hexavalent Chromium	0.9880	1.0154	1.000	1.064	ug/L	6	10	

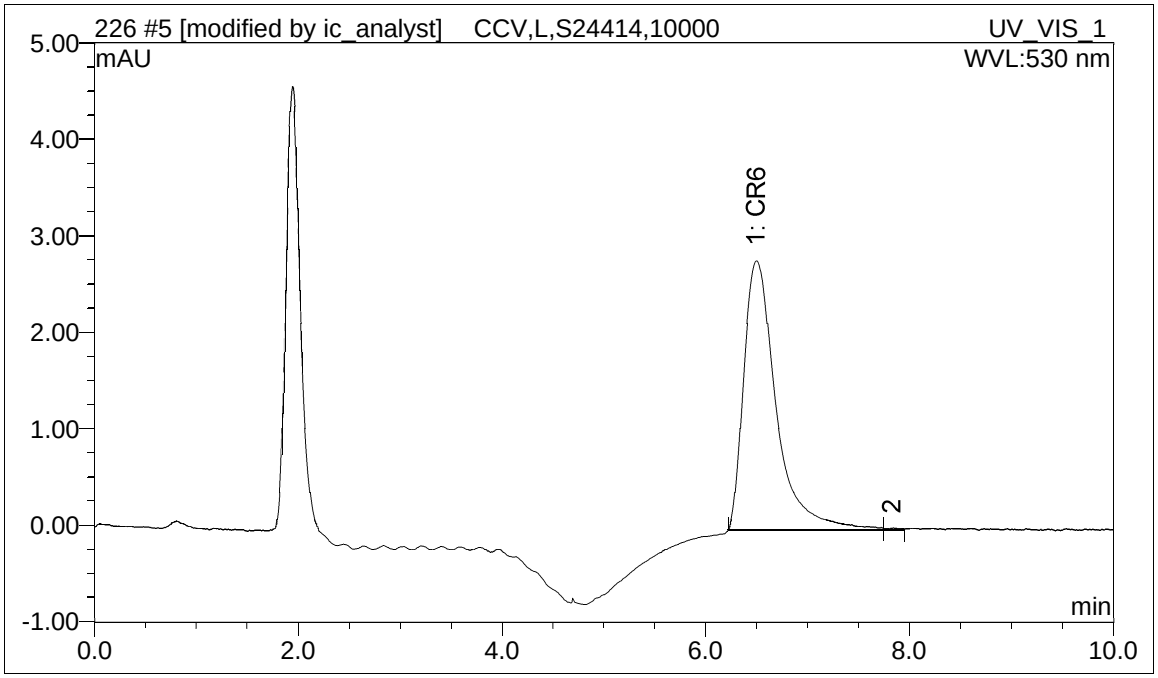
RDG 08/14/14 : Integrated to match integration of ICAL and CCV.

Analyst: RDG Date: 08/14/14 Reviewer: LW Date: 08/15/14

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	CCV,L,S24414,10000		
Sample No.:	5	**Batch #:**	
Sequence Name:	226	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	8/14/2014 10:07 AM	**PDF:**	1.0000
System Operator:	IC		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
1	CR6	6.500	1.015427	1.0644	1.0644	



ANALYZED BY: REVIEWED BY:

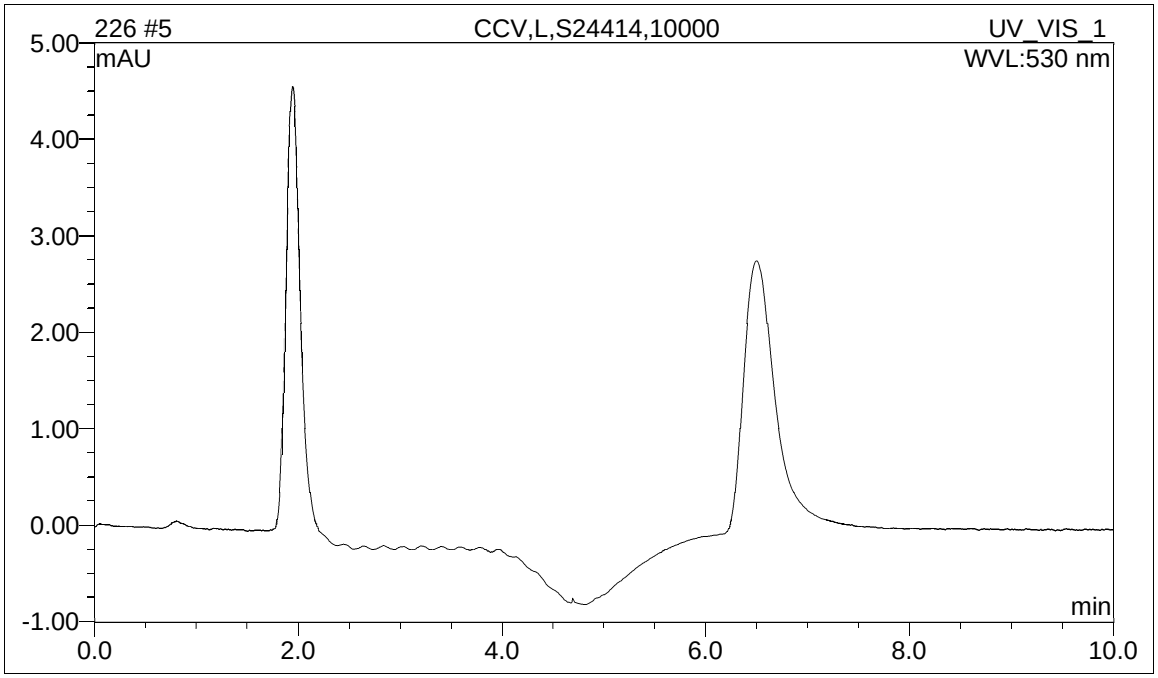
_____ _____

Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	CCV,L,S24414,10000		
Sample No.:	5	**Batch #:**	
Sequence Name:	226	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	8/14/2014 10:07 AM	**PDF:**	1.0000
System Operator:	IC		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
n.a.	CR6	n.a.	n.a.	n.a.	n.a.	



ANALYZED BY: _____

REVIEWED BY: _____

Curtis & Tompkins, Ltd.

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259835 7199 Water
EPA 7199

Inst : IC05 Run Name : M IDF : 1.0
Seqnum : 644326000019 File : 226_19 Time : 14-AUG-2014 20:13
Cal : 644062428001 Caldate : 12-FEB-2014
Standards: S24414 (1000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Hexavalent Chromium	0.9880	1.0797	10.00	10.04	ug/L	0	10	

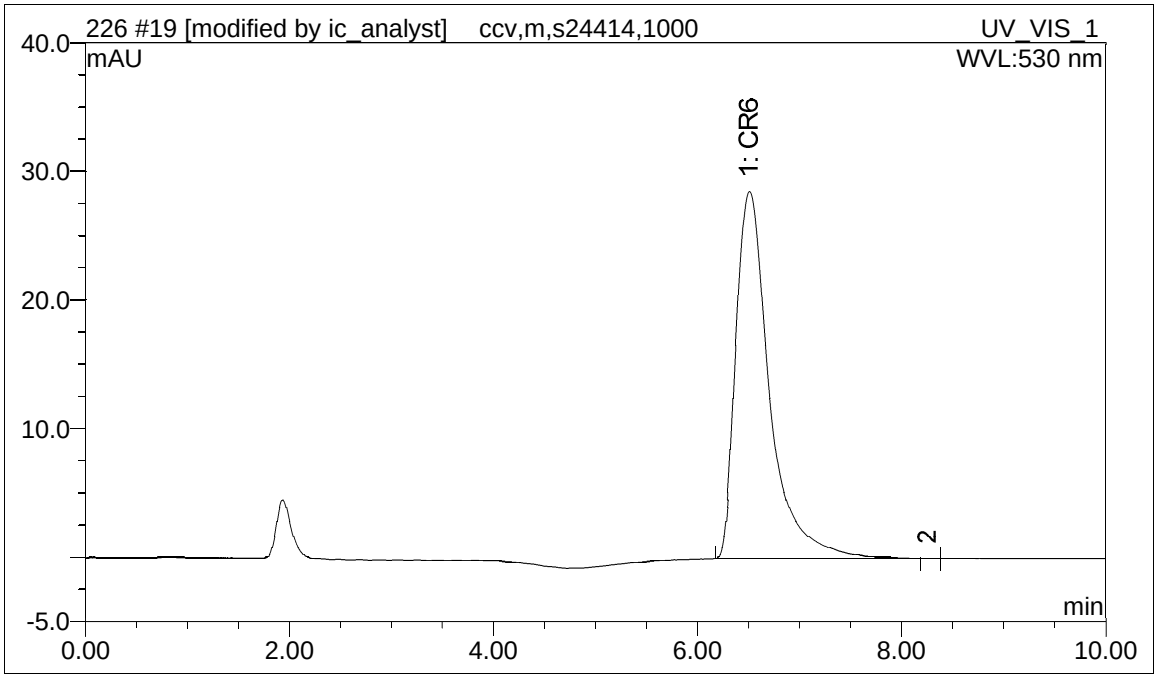
NJT 08/15/14 : Integrated to match integration of ICAL and CCV.

Analyst: NJT Date: 08/15/14 Reviewer: LW Date: 08/15/14

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	ccv,m,s24414,1000		
Sample No.:	19	**Batch #:**	214416
Sequence Name:	226	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	8/14/2014 8:13 PM	**PDF:**	1.0000
System Operator:	IC		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
1	CR6	6.507	10.796843	10.0354	10.0354	



ANALYZED BY: REVIEWED BY:

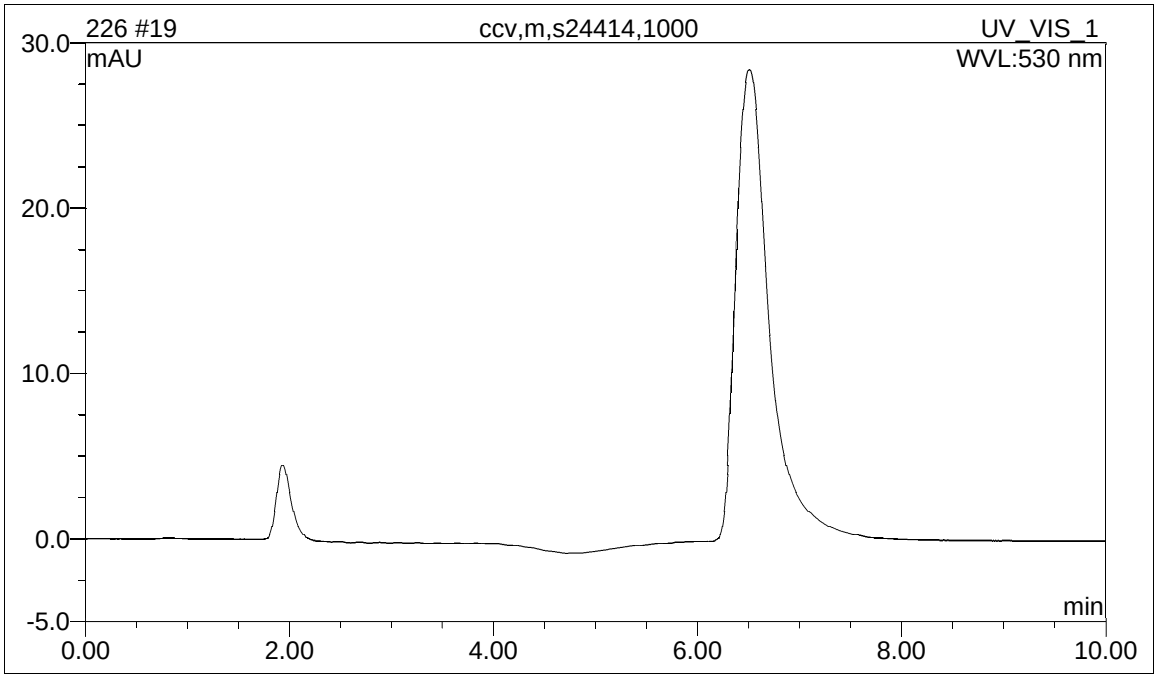
_____ _____

Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	ccv,m,s24414,1000		
Sample No.:	19	**Batch #:**	214416
Sequence Name:	226	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	8/14/2014 8:13 PM	**PDF:**	1.0000
System Operator:	IC		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
n.a.	CR6	n.a.	n.a.	n.a.	n.a.	



ANALYZED BY: _____

REVIEWED BY: _____

Curtis & Tompkins, Ltd.

CURTIS & TOMPKINS BLANK USER REPORT FOR 259835 7199 Water
EPA 7199

Inst : IC05 Run Name : QC753626 IDF : 1.0
Seqnum : 644326000006.1 File : 226_6 Time : 14-AUG-2014 17:37
Cal : 644062428001 Caldate : 12-FEB-2014

Analyte	Quant	IQL	MDL	Units	Flags
Hexavalent Chromium	ND	0.5000	0.08023	ug/L	u

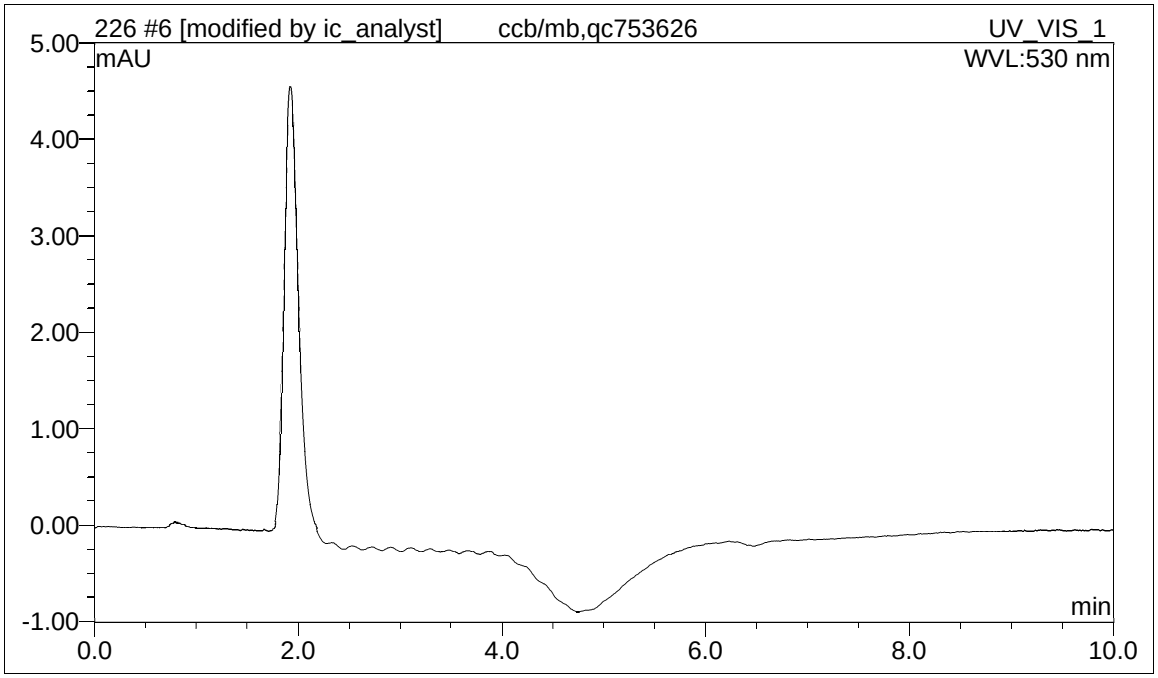
Analyst: RDG Date: 08/18/14 Reviewer: LW Date: 08/27/14

u=use

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	ccb/mb,qc753626		
Sample No.:	6	**Batch #:**	214416
Sequence Name:	226	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	8/14/2014 5:37 PM	**PDF:**	1.0000
System Operator:	IC		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
n.a.	CR6	n.a.	n.a.	n.a.	n.a.	



ANALYZED BY: REVIEWED BY:

_____ _____

Curtis & Tompkins, Ltd.

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259835 7199 Water
EPA 7199

Inst : IC05 IDF : 1.0
Seqnum : 644326000020 File : 226_20 Time : 14-AUG-2014 20:25
Cal : 644062428001 Caldate : 12-FEB-2014

Analyte	Quant	IQL	MDL	Units	Flags
Hexavalent Chromium	ND	0.5000	0.08023	ug/L	

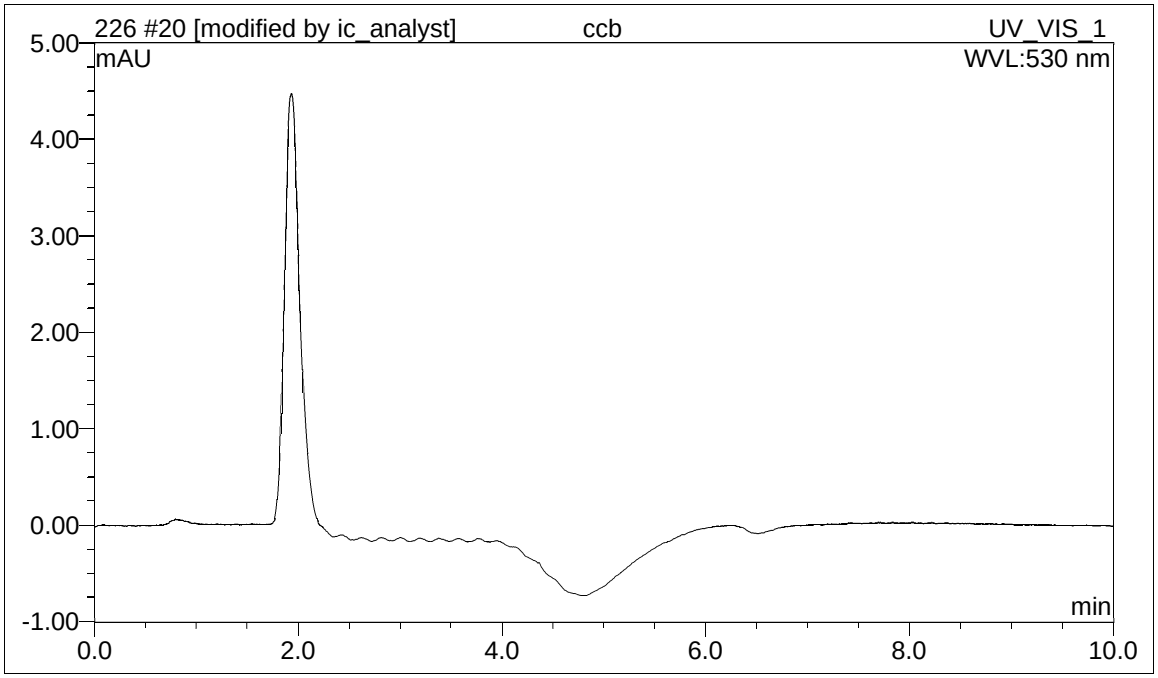
NJT 08/15/14 : Integrated to match integration of ICAL and CCV.

Analyst: NJT Date: 08/15/14 Reviewer: LW Date: 08/15/14

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	ccb		
Sample No.:	20	**Batch #:**	214416
Sequence Name:	226	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	8/14/2014 8:25 PM	**PDF:**	1.0000
System Operator:	IC		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
n.a.	CR6	n.a.	n.a.	n.a.	n.a.	



ANALYZED BY: _____

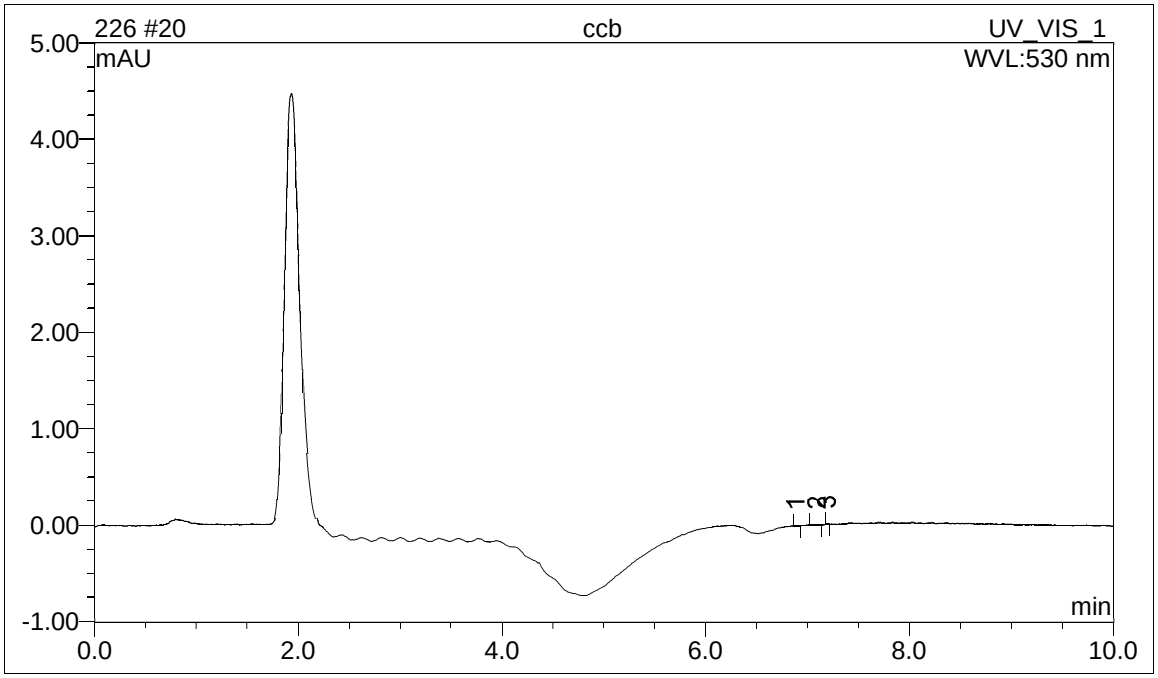
REVIEWED BY: _____

Curtis & Tompkins, Ltd.

HEXCHROME ANALYSIS REPORT DX320 - IC05 CR6

Sample Name:	ccb		
Sample No.:	20	**Batch #:**	214416
Sequence Name:	226	**Injection vol.:**	1000.0
Program Method:	HexChrom7199	**Dilution Factor:**	1.0000
Quantitation Method:	IC05-CR6_CAL	**Sample Wt.:**	1.0000
Date Time Collected:	8/14/2014 8:25 PM	**PDF:**	1.0000
System Operator:	IC		

Peak No.	Component Name	Ret.Time min	Area mAU*min	Raw Amount ug/L CR6	Amount ug/L CR6	Comment
n.a.	CR6	n.a.	n.a.	n.a.	n.a.	



ANALYZED BY: _____

REVIEWED BY: _____

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Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 259841
ANALYTICAL REPORT

JM Waller Associates 11325 Random Hills Road Fairfax, VA 22030-6608	Project : N62473-11-D-2215 Location : BGMP-1R04 Level : III Contract # : N62473-11-D-2215

Sample ID	Lab ID
04W08-081414	259841-001
04W09-081414	259841-002
04W909-081414	259841-003
TP-081414	259841-004
04W10-081414	259841-005
04W14-081414	259841-006
RB-081414	259841-007
SB-081414	259841-008

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Tracy Babjar Date: 09/03/2014

Tracy Babjar
Project Manager
tracy.babjar@ctberk.com
(510) 204-2226

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**259841**
Client:	**JM Waller Associates**
Project:	**N62473-11-D-2215**
Location:	**BGMP-1R04**
Request Date:	**08/14/14**
Samples Received:	**08/14/14**

This data package contains sample and QC results for eight water samples, requested for the above referenced project on 08/14/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

All qualified data are compliant with appropriate corrective actions specified in Standard Operating Procedures. The Standard Operating Procedures are available upon request.

Manual integration documentation may be found in the "Case Narrative Addendum: Manual Integrations" sections.

Volatile Organics by GC/MS (EPA 8260C):
Low response was observed for vinyl acetate in the ICV analyzed 06/25/14 20:28; affected data was qualified with "b".

High responses were observed for a number of analytes in the CCV analyzed 08/16/14 15:06; these analytes were not detected at or above the RL in the associated samples, and affected data was qualified with "b".

Low responses were observed for many analytes in the CCV analyzed 08/18/14 10:51; these analytes met minimum response criteria, and affected data was qualified with "b".

High recoveries were observed for many analytes in the MS/MSD of 04W19-081314 (lab # 259786-001); the BS/BSD were within limits, the associated RPDs were within limits, and these high recoveries were not associated with any reported results.

High surrogate recoveries were observed for 1,2-dichloroethane-d4 in the MS/MSD of 04W19-081314 (lab # 259786-001).

Methylene chloride was detected between the MDL and the RL in TP-081414 (lab # 259841-004); this analyte is a common laboratory contaminant.

TP-081414 (lab # 259841-004) was analyzed with more than 1 mL of headspace in the VOA vial.

No other analytical problems were encountered.

Semivolatile Organics by GC/MS (EPA 8270D):
Low recoveries were observed for 3,3'-dichlorobenzidine in the MS/MSD of

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**259841**
Client:	**JM Waller Associates**
Project:	**N62473-11-D-2215**
Location:	**BGMP-1R04**
Request Date:	**08/14/14**
Samples Received:	**08/14/14**

Semivolatile Organics by GC/MS (EPA 8270D):
04W19-081314 (lab # 259786-001); the LCS was within limits. High RPD was observed for hexachlorocyclopentadiene; this analyte was not detected at or above the RL in the associated sample.

Low recoveries were observed for hexachlorocyclopentadiene in the BS/BSD for batch 214595; the associated RPD was within limits. High RPD was observed for 4-chloroaniline; this analyte was not detected at or above the RL in the associated sample.

No other analytical problems were encountered.

Semivolatile Organics by GC/MS SIM (EPA 8270D-SIM):
No analytical problems were encountered.

Metals (EPA 6010C and EPA 7470A):
Copper was detected between the MDL and half the RL in the method blank for batch 214855; this analyte was not detected in samples at or above the LOD.

No other analytical problems were encountered.

Hexavalent Chromium by Ion Chromatograph (EPA 7199):
No analytical problems were encountered.

Chain of Custody

CHAIN OF CUSTODY

Page 1 of 1

Chain of Custody # _____

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

C&T LOGIN # 259841

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

Project No: N62473-11-D-2215
Sampler: M Mandell
Project Name: PGMP - 1EC4
Report To: T. Chuhay + H. Wallenberg
Project P. O. No: A214-001-01-004-CTL
Company: JM Waller + EERG
EDD Format: Report Level ☐ II ☑ III ☐ IV
Telephone: 404-443-2733
Turnaround Time: ☐ RUSH _____ ☑ Standard
Email:

Lab No.	Sample ID.	Sampling: Date Collected	Sampling: Time Collected	Matrix: Water	Matrix: Solid	# of Containers	Chemical Preservative: HCl	H2SO4	HNO3	NaOH	None	Metals - Field Filtered	Cr (VI)	VOC	SVOC	PAH
1	04W08-081414	8/14/14	0902	X		6			X			X	X			
2	04W09-081414	8/14/14	1030	X		2			X			X	X			
3	04W909-081414	8/14/14	1030	X		2			X			X	X			
4	TP-081414	8/14/14	1200	X		1	1							X		
5	04W10-081414	8/14/14	1210	X		4			X			X			X	X
6	04W14-081414	8/14/14	1200	X		3	X							X		
7	RB-081414	8/14/14	1510	X		8	X					X	X	X	X	X

Notes:
Run MS/MSD on 04W08-081414
RB-081414 for metals is field filtered in a 1L Amber
* Fix w/ Nitric Acid upon receipt!

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:	DATE	TIME
M Mandell	8/14/14	3:40p
[signature]	8/14/14	1633
	DATE:	TIME:

RECEIVED BY:	DATE	TIME
[signature]	8/14/14	1540
[signature]	8/14/14	1630
	DATE:	TIME:

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 259841 Date Received 8/14/14 Number of coolers 2
Client JM Waller + ERRG Project BGMP-IRON

Date Opened 8/14 By (print) KL (sign) [signature]
Date Logged in 8/14 By (print) MC (sign) [signature]

1. Did cooler come with a shipping slip (airbill, etc)_____ YES ~~NO~~
   Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
   How many _____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO ~~N/A~~
3. Were custody papers dry and intact when received? _____ ~~YES~~ NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ ~~YES~~ NO
5. Is the project identifiable from custody papers? (If so fill out top of form)___ ~~YES~~ NO
6. Indicate the packing in cooler: (if other, describe)_____

   ☒ Bubble Wrap ☐ Foam blocks ☒ Bags ☐ None
   ☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels
7. Temperature documentation: * Notify PM if temperature exceeds 6°C

   Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C)_____

   ☐ Samples received on ice & cold without a temperature blank; temp taken with IR gun

   ☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES ~~NO~~
   If YES, what time were they transferred to freezer?_____
9. Did all bottles arrive unbroken/unopened? _____ ~~YES~~ NO
10. Are there any missing / extra samples? _____ ~~YES~~ ~~NO~~ MC 8/14
11. Are samples in the appropriate containers for indicated tests? _____ ~~YES~~ NO
12. Are sample labels present, in good condition and complete? _____ ~~YES~~ NO
13. Do the sample labels agree with custody papers? _____ ~~YES~~ NO
14. Was sufficient amount of sample sent for tests requested? _____ ~~YES~~ NO
15. Are the samples appropriately preserved? _____ ~~YES~~ NO N/A
16. Did you check preservatives for all bottles for each sample? _____ ~~YES~~ NO N/A
17. Did you document your preservative check? _____ ~~YES~~ NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO ~~N/A~~
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO ~~N/A~~
20. Are bubbles > 6mm absent in VOA samples? _____ ~~YES~~ NO N/A
21. Was the client contacted concerning this sample delivery? _____ YES ~~NO~~
   If YES, Who was called?_____ By_____ Date:_____

COMMENTS
15.) Nitric Acid lot # 3390 added to RB-081414 upon reciept
10.) 1 extra sample, labled SB-081414 (sampled at 1450 08/14/14)

Rev 10, 10/11

Curtis & Tompkins Sample Preservation for 259841

Sample	pH: <2	>9	>12	Other
-001a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[X]	[ ]	[ ]	_____
e	[X]	[ ]	[ ]	_____
f	[X]	[ ]	[ ]	_____
-002a	[ ]	[ ]	[ ]	_____
b	[X]	[ ]	[ ]	_____
-003a	[ ]	[ ]	[ ]	_____
b	[X]	[ ]	[ ]	_____
-005a	[X]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
-007a	[ ]	[ ]	[ ]	_____
b	[ ]	[ ]	[ ]	_____
c	[ ]	[ ]	[ ]	_____
d	[ ]	[ ]	[ ]	_____
e	[X]	[ ]	[ ]	_____
f	[ ]	[ ]	[ ]	_____
g	[ ]	[ ]	[ ]	_____
h	[ ]	[ ]	[ ]	_____
i	[ ]	[ ]	[ ]	_____

Analyst: HV

Date: 8/14/14

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Curtis & Tompkins, Ltd.

Detections Summary for 259841

Results for any subcontracted analyses are not included in this summary.

Client : JM Waller Associates
Project : N62473-11-D-2215
Location : BGMP-1R04

Client Sample ID : 04W08-081414 Laboratory Sample ID : 259841-001

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Magnesium	62,000		500	20	ug/L	DISS.	1.000	EPA 6010C	METHOD
Manganese	3.1	J	5.0	0.48	ug/L	DISS.	1.000	EPA 6010C	METHOD
Arsenic	1.6	J	5.0	1.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Barium	17		5.0	1.0	ug/L	DISS.	1.000	EPA 6010C	METHOD
Beryllium	0.15	J	2.0	0.083	ug/L	DISS.	1.000	EPA 6010C	METHOD
Chromium	14		5.0	0.57	ug/L	DISS.	1.000	EPA 6010C	METHOD
Molybdenum	5.6		5.0	0.40	ug/L	DISS.	1.000	EPA 6010C	METHOD
Nickel	1.6	J	5.0	0.71	ug/L	DISS.	1.000	EPA 6010C	METHOD
Selenium	24		10	2.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Vanadium	2.5	J	5.0	0.67	ug/L	DISS.	1.000	EPA 6010C	METHOD
Zinc	6.9	J	20	3.0	ug/L	DISS.	1.000	EPA 6010C	METHOD
Hexavalent Chromium	9.2		1.0	0.16	ug/L	TOTAL	2.000	EPA 7199	METHOD

Client Sample ID : 04W09-081414 Laboratory Sample ID : 259841-002

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Magnesium	30,000		500	20	ug/L	DISS.	1.000	EPA 6010C	METHOD
Manganese	150		5.0	0.48	ug/L	DISS.	1.000	EPA 6010C	METHOD
Barium	16		5.0	1.0	ug/L	DISS.	1.000	EPA 6010C	METHOD
Chromium	1.9	J	5.0	0.57	ug/L	DISS.	1.000	EPA 6010C	METHOD
Molybdenum	4.9	J	5.0	0.40	ug/L	DISS.	1.000	EPA 6010C	METHOD
Nickel	1.2	J	5.0	0.71	ug/L	DISS.	1.000	EPA 6010C	METHOD
Selenium	14		10	2.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Vanadium	2.3	J	5.0	0.67	ug/L	DISS.	1.000	EPA 6010C	METHOD
Hexavalent Chromium	1.2		0.50	0.080	ug/L	TOTAL	1.000	EPA 7199	METHOD

Client Sample ID : 04W909-081414 Laboratory Sample ID : 259841-003

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Magnesium	30,000		500	20	ug/L	DISS.	1.000	EPA 6010C	METHOD
Manganese	120		5.0	0.48	ug/L	DISS.	1.000	EPA 6010C	METHOD
Barium	16		5.0	1.0	ug/L	DISS.	1.000	EPA 6010C	METHOD
Chromium	2.1	J	5.0	0.57	ug/L	DISS.	1.000	EPA 6010C	METHOD
Molybdenum	4.9	J	5.0	0.40	ug/L	DISS.	1.000	EPA 6010C	METHOD
Nickel	0.77	J	5.0	0.71	ug/L	DISS.	1.000	EPA 6010C	METHOD
Selenium	15		10	2.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Vanadium	2.2	J	5.0	0.67	ug/L	DISS.	1.000	EPA 6010C	METHOD
Hexavalent Chromium	1.3		0.50	0.080	ug/L	TOTAL	1.000	EPA 7199	METHOD

Curtis & Tompkins, Ltd.

Client Sample ID : TP-081414 Laboratory Sample ID : 259841-004

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Acetone	3.7	J	10	1.6	ug/L	As Recd	1.000	EPA 8260C	EPA 5030C
Methylene Chloride	1.0	J	10	0.2	ug/L	As Recd	1.000	EPA 8260C	EPA 5030C

Client Sample ID : 04W10-081414 Laboratory Sample ID : 259841-005

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Naphthalene	0.03	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
2-Methylnaphthalene	0.05	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Magnesium	570,000		20,000	2,000	ug/L	DISS.	100.0	EPA 6010C	METHOD
Manganese	2,200		5.0	0.48	ug/L	DISS.	1.000	EPA 6010C	METHOD
Antimony	0.85	J	10	0.65	ug/L	DISS.	1.000	EPA 6010C	METHOD
Arsenic	130		5.0	1.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Barium	350		5.0	1.0	ug/L	DISS.	1.000	EPA 6010C	METHOD
Beryllium	0.49	J	2.0	0.083	ug/L	DISS.	1.000	EPA 6010C	METHOD
Chromium	6.8		5.0	0.57	ug/L	DISS.	1.000	EPA 6010C	METHOD
Cobalt	3.1	J	5.0	0.32	ug/L	DISS.	1.000	EPA 6010C	METHOD
Molybdenum	4.8	J	5.0	0.40	ug/L	DISS.	1.000	EPA 6010C	METHOD
Nickel	5.0		5.0	0.71	ug/L	DISS.	1.000	EPA 6010C	METHOD
Selenium	42		10	2.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Vanadium	11		5.0	0.67	ug/L	DISS.	1.000	EPA 6010C	METHOD
Zinc	4.6	J	20	3.0	ug/L	DISS.	1.000	EPA 6010C	METHOD

Client Sample ID : 04W14-081414 Laboratory Sample ID : 259841-006

No Detections

Client Sample ID : RB-081414 Laboratory Sample ID : 259841-007

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
bis(2-Ethylhexyl)phthalate	4.0	J	9.6	1.6	ug/L	As Recd	1.000	EPA 8270D	EPA 3520C
Phenanthrene	0.03	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Fluoranthene	0.04	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Pyrene	0.03	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Benzo(a)anthracene	0.02	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Benzo(b)fluoranthene	0.02	J	0.1	0.02	ug/L	As Recd	1.000	EPA 8270D-SIM	EPA 3520C
Aluminum	29	J	100	28	ug/L	DISS.	1.000	EPA 6010C	METHOD
Magnesium	79	J	500	20	ug/L	DISS.	1.000	EPA 6010C	METHOD
Nickel	0.94	J	5.0	0.71	ug/L	DISS.	1.000	EPA 6010C	METHOD

Client Sample ID : SB-081414 Laboratory Sample ID : 259841-008

No Detections

J = Estimated value

Laboratory Job Number 259841

ANALYTICAL REPORT

Volatile Organics by GC/MS

Matrix: Water

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	TP-081414	Diln Fac:	1.000
Lab ID:	259841-004	Sampled:	08/14/14
Matrix:	Water	Received:	08/14/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
Freon 12	0.2 U	1.0	0.1	214459	08/16/14
Chloromethane	0.4 U	1.0	0.3	214459	08/16/14
Vinyl Chloride	0.2 U	0.5	0.1	214459	08/16/14
Bromomethane	0.4 U	1.0	0.2	214459	08/16/14
Chloroethane	0.4 U	1.0	0.3	214459	08/16/14
Trichlorofluoromethane	0.4 U	1.0	0.2	214459	08/16/14
Acetone	3.7 J	10	1.6	214459	08/16/14
Freon 113	0.2 U	2.0	0.1	214459	08/16/14
1,1-Dichloroethene	0.2 U	0.5	0.2	214459	08/16/14
Methylene Chloride	1.0 J	10	0.2	214459	08/16/14
Carbon Disulfide	0.2 U	0.5	0.1	214459	08/16/14
MTBE	0.2 U	0.5	0.1	214459	08/16/14
trans-1,2-Dichloroethene	0.2 U	0.5	0.2	214459	08/16/14
Vinyl Acetate	1.0 U	10	0.5	214489	08/18/14
1,1-Dichloroethane	0.2 U	0.5	0.2	214459	08/16/14
2-Butanone	2.0 U	10	0.4	214459	08/16/14
cis-1,2-Dichloroethene	0.2 U	0.5	0.1	214459	08/16/14
2,2-Dichloropropane	0.2 U	0.5	0.1	214459	08/16/14
Chloroform	0.2 U	0.5	0.1	214459	08/16/14
Bromochloromethane	0.2 U	0.5	0.1	214459	08/16/14
1,1,1-Trichloroethane	0.2 U	0.5	0.1	214459	08/16/14
1,1-Dichloropropene	0.2 U	0.5	0.1	214459	08/16/14
Carbon Tetrachloride	0.2 U	0.5	0.1	214459	08/16/14
1,2-Dichloroethane	0.2 U	0.5	0.1	214459	08/16/14
Benzene	0.2 U	0.5	0.1	214459	08/16/14
Trichloroethene	0.2 U	0.5	0.1	214459	08/16/14
1,2-Dichloropropane	0.2 U	0.5	0.1	214459	08/16/14
Bromodichloromethane	0.2 U	0.5	0.1	214459	08/16/14
Dibromomethane	0.2 U	0.5	0.1	214459	08/16/14
4-Methyl-2-Pentanone	2.0 U	10	0.7	214459	08/16/14
cis-1,3-Dichloropropene	0.2 U	0.5	0.1	214459	08/16/14
Toluene	0.2 U	0.5	0.1	214459	08/16/14
trans-1,3-Dichloropropene	0.2 U	0.5	0.1	214459	08/16/14
1,1,2-Trichloroethane	0.2 U	0.5	0.2	214459	08/16/14
2-Hexanone	0.4 U	10	0.2	214459	08/16/14
1,3-Dichloropropane	0.2 U	0.5	0.1	214459	08/16/14
Tetrachloroethene	0.2 U	0.5	0.1	214459	08/16/14
Dibromochloromethane	0.2 U	0.5	0.1	214459	08/16/14
1,2-Dibromoethane	0.2 U	0.5	0.1	214459	08/16/14
Chlorobenzene	0.2 U	0.5	0.1	214459	08/16/14
1,1,1,2-Tetrachloroethane	0.2 U	0.5	0.1	214459	08/16/14
Ethylbenzene	0.2 U	0.5	0.1	214459	08/16/14
m,p-Xylenes	0.2 U	0.5	0.1	214459	08/16/14
o-Xylene	0.2 U	0.5	0.1	214459	08/16/14
Styrene	0.2 U	0.5	0.1	214459	08/16/14
Bromoform	0.4 U	1.0	0.1	214459	08/16/14
Isopropylbenzene	0.2 U	0.5	0.1	214459	08/16/14
1,1,2,2-Tetrachloroethane	0.2 U	0.5	0.1	214459	08/16/14
1,2,3-Trichloropropane	0.2 U	0.5	0.2	214459	08/16/14
Propylbenzene	0.2 U	0.5	0.1	214459	08/16/14
Bromobenzene	0.2 U	0.5	0.1	214459	08/16/14
1,3,5-Trimethylbenzene	0.2 U	0.5	0.1	214459	08/16/14

*= Value outside of QC limits; see narrative
J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	TP-081414	Diln Fac:	1.000
Lab ID:	259841-004	Sampled:	08/14/14
Matrix:	Water	Received:	08/14/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
2-Chlorotoluene	0.2 U	0.5	0.1	214459	08/16/14
4-Chlorotoluene	0.2 U	0.5	0.1	214459	08/16/14
tert-Butylbenzene	0.2 U	0.5	0.1	214459	08/16/14
1,2,4-Trimethylbenzene	0.2 U	0.5	0.1	214459	08/16/14
sec-Butylbenzene	0.2 U	0.5	0.1	214459	08/16/14
para-Isopropyl Toluene	0.2 U	0.5	0.1	214459	08/16/14
1,3-Dichlorobenzene	0.2 U	0.5	0.1	214459	08/16/14
1,4-Dichlorobenzene	0.2 U	0.5	0.1	214459	08/16/14
n-Butylbenzene	0.2 U	0.5	0.1	214459	08/16/14
1,2-Dichlorobenzene	0.2 U	0.5	0.1	214459	08/16/14
1,2-Dibromo-3-Chloropropane	0.4 U	2.0	0.2	214459	08/16/14
1,2,4-Trichlorobenzene	0.4 U	0.5	0.1	214459	08/16/14
Hexachlorobutadiene	0.4 U	2.0	0.1	214459	08/16/14
Naphthalene	0.4 U	2.0	0.1	214459	08/16/14
1,2,3-Trichlorobenzene	0.4 U	0.5	0.1	214459	08/16/14

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	106	85-115	214459	08/16/14
Dibromofluoromethane	99	85-115	214489	08/18/14
1,2-Dichloroethane-d4	109	70-120	214459	08/16/14
1,2-Dichloroethane-d4	128 *	70-120	214489	08/18/14
Toluene-d8	102	85-120	214459	08/16/14
Toluene-d8	106	85-120	214489	08/18/14
Bromofluorobenzene	104	75-120	214459	08/16/14
Bromofluorobenzene	97	75-120	214489	08/18/14

*= Value outside of QC limits; see narrative
J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W14-081414	Diln Fac:	1.000
Lab ID:	259841-006	Sampled:	08/14/14
Matrix:	Water	Received:	08/14/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
Freon 12	0.2 U	1.0	0.1	214459	08/16/14
Chloromethane	0.4 U	1.0	0.3	214459	08/16/14
Vinyl Chloride	0.2 U	0.5	0.1	214459	08/16/14
Bromomethane	0.4 U	1.0	0.2	214459	08/16/14
Chloroethane	0.4 U	1.0	0.3	214459	08/16/14
Trichlorofluoromethane	0.4 U	1.0	0.2	214459	08/16/14
Acetone	2.0 U	10	1.6	214459	08/16/14
Freon 113	0.2 U	2.0	0.1	214459	08/16/14
1,1-Dichloroethene	0.2 U	0.5	0.2	214459	08/16/14
Methylene Chloride	0.2 U	10	0.2	214459	08/16/14
Carbon Disulfide	0.2 U	0.5	0.1	214459	08/16/14
MTBE	0.2 U	0.5	0.1	214459	08/16/14
trans-1,2-Dichloroethene	0.2 U	0.5	0.2	214459	08/16/14
Vinyl Acetate	1.0 U	10	0.5	214489	08/18/14
1,1-Dichloroethane	0.2 U	0.5	0.2	214459	08/16/14
2-Butanone	2.0 U	10	0.4	214459	08/16/14
cis-1,2-Dichloroethene	0.2 U	0.5	0.1	214459	08/16/14
2,2-Dichloropropane	0.2 U	0.5	0.1	214459	08/16/14
Chloroform	0.2 U	0.5	0.1	214459	08/16/14
Bromochloromethane	0.2 U	0.5	0.1	214459	08/16/14
1,1,1-Trichloroethane	0.2 U	0.5	0.1	214459	08/16/14
1,1-Dichloropropene	0.2 U	0.5	0.1	214459	08/16/14
Carbon Tetrachloride	0.2 U	0.5	0.1	214459	08/16/14
1,2-Dichloroethane	0.2 U	0.5	0.1	214459	08/16/14
Benzene	0.2 U	0.5	0.1	214459	08/16/14
Trichloroethene	0.2 U	0.5	0.1	214459	08/16/14
1,2-Dichloropropane	0.2 U	0.5	0.1	214459	08/16/14
Bromodichloromethane	0.2 U	0.5	0.1	214459	08/16/14
Dibromomethane	0.2 U	0.5	0.1	214459	08/16/14
4-Methyl-2-Pentanone	2.0 U	10	0.7	214459	08/16/14
cis-1,3-Dichloropropene	0.2 U	0.5	0.1	214459	08/16/14
Toluene	0.2 U	0.5	0.1	214459	08/16/14
trans-1,3-Dichloropropene	0.2 U	0.5	0.1	214459	08/16/14
1,1,2-Trichloroethane	0.2 U	0.5	0.2	214459	08/16/14
2-Hexanone	0.4 U	10	0.2	214459	08/16/14
1,3-Dichloropropane	0.2 U	0.5	0.1	214459	08/16/14
Tetrachloroethene	0.2 U	0.5	0.1	214459	08/16/14
Dibromochloromethane	0.2 U	0.5	0.1	214459	08/16/14
1,2-Dibromoethane	0.2 U	0.5	0.1	214459	08/16/14
Chlorobenzene	0.2 U	0.5	0.1	214459	08/16/14
1,1,1,2-Tetrachloroethane	0.2 U	0.5	0.1	214459	08/16/14
Ethylbenzene	0.2 U	0.5	0.1	214459	08/16/14
m,p-Xylenes	0.2 U	0.5	0.1	214459	08/16/14
o-Xylene	0.2 U	0.5	0.1	214459	08/16/14
Styrene	0.2 U	0.5	0.1	214459	08/16/14
Bromoform	0.4 U	1.0	0.1	214459	08/16/14
Isopropylbenzene	0.2 U	0.5	0.1	214459	08/16/14
1,1,2,2-Tetrachloroethane	0.2 U	0.5	0.1	214459	08/16/14
1,2,3-Trichloropropane	0.2 U	0.5	0.2	214459	08/16/14
Propylbenzene	0.2 U	0.5	0.1	214459	08/16/14
Bromobenzene	0.2 U	0.5	0.1	214459	08/16/14
1,3,5-Trimethylbenzene	0.2 U	0.5	0.1	214459	08/16/14
2-Chlorotoluene	0.2 U	0.5	0.1	214459	08/16/14

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W14-081414	Diln Fac:	1.000
Lab ID:	259841-006	Sampled:	08/14/14
Matrix:	Water	Received:	08/14/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
4-Chlorotoluene	0.2 U	0.5	0.1	214459	08/16/14
tert-Butylbenzene	0.2 U	0.5	0.1	214459	08/16/14
1,2,4-Trimethylbenzene	0.2 U	0.5	0.1	214459	08/16/14
sec-Butylbenzene	0.2 U	0.5	0.1	214459	08/16/14
para-Isopropyl Toluene	0.2 U	0.5	0.1	214459	08/16/14
1,3-Dichlorobenzene	0.2 U	0.5	0.1	214459	08/16/14
1,4-Dichlorobenzene	0.2 U	0.5	0.1	214459	08/16/14
n-Butylbenzene	0.2 U	0.5	0.1	214459	08/16/14
1,2-Dichlorobenzene	0.2 U	0.5	0.1	214459	08/16/14
1,2-Dibromo-3-Chloropropane	0.4 U	2.0	0.2	214459	08/16/14
1,2,4-Trichlorobenzene	0.4 U	0.5	0.1	214459	08/16/14
Hexachlorobutadiene	0.4 U	2.0	0.1	214459	08/16/14
Naphthalene	0.4 U	2.0	0.1	214459	08/16/14
1,2,3-Trichlorobenzene	0.4 U	0.5	0.1	214459	08/16/14

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	109	85-115	214459	08/16/14
Dibromofluoromethane	102	85-115	214489	08/18/14
1,2-Dichloroethane-d4	114	70-120	214459	08/16/14
1,2-Dichloroethane-d4	123 *	70-120	214489	08/18/14
Toluene-d8	102	85-120	214459	08/16/14
Toluene-d8	107	85-120	214489	08/18/14
Bromofluorobenzene	105	75-120	214459	08/16/14
Bromofluorobenzene	96	75-120	214489	08/18/14

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	RB-081414	Diln Fac:	1.000
Lab ID:	259841-007	Sampled:	08/14/14
Matrix:	Water	Received:	08/14/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
Freon 12	0.2 U	1.0	0.1	214459	08/16/14
Chloromethane	0.4 U	1.0	0.3	214459	08/16/14
Vinyl Chloride	0.2 U	0.5	0.1	214459	08/16/14
Bromomethane	0.4 U	1.0	0.2	214459	08/16/14
Chloroethane	0.4 U	1.0	0.3	214459	08/16/14
Trichlorofluoromethane	0.4 U	1.0	0.2	214459	08/16/14
Acetone	2.0 U	10	1.6	214459	08/16/14
Freon 113	0.2 U	2.0	0.1	214459	08/16/14
1,1-Dichloroethene	0.2 U	0.5	0.2	214459	08/16/14
Methylene Chloride	0.2 U	10	0.2	214459	08/16/14
Carbon Disulfide	0.2 U	0.5	0.1	214459	08/16/14
MTBE	0.2 U	0.5	0.1	214459	08/16/14
trans-1,2-Dichloroethene	0.2 U	0.5	0.2	214459	08/16/14
Vinyl Acetate	1.0 U	10	0.5	214489	08/18/14
1,1-Dichloroethane	0.2 U	0.5	0.2	214459	08/16/14
2-Butanone	2.0 U	10	0.4	214459	08/16/14
cis-1,2-Dichloroethene	0.2 U	0.5	0.1	214459	08/16/14
2,2-Dichloropropane	0.2 U	0.5	0.1	214459	08/16/14
Chloroform	0.2 U	0.5	0.1	214459	08/16/14
Bromochloromethane	0.2 U	0.5	0.1	214459	08/16/14
1,1,1-Trichloroethane	0.2 U	0.5	0.1	214459	08/16/14
1,1-Dichloropropene	0.2 U	0.5	0.1	214459	08/16/14
Carbon Tetrachloride	0.2 U	0.5	0.1	214459	08/16/14
1,2-Dichloroethane	0.2 U	0.5	0.1	214459	08/16/14
Benzene	0.2 U	0.5	0.1	214459	08/16/14
Trichloroethene	0.2 U	0.5	0.1	214459	08/16/14
1,2-Dichloropropane	0.2 U	0.5	0.1	214459	08/16/14
Bromodichloromethane	0.2 U	0.5	0.1	214459	08/16/14
Dibromomethane	0.2 U	0.5	0.1	214459	08/16/14
4-Methyl-2-Pentanone	2.0 U	10	0.7	214459	08/16/14
cis-1,3-Dichloropropene	0.2 U	0.5	0.1	214459	08/16/14
Toluene	0.2 U	0.5	0.1	214459	08/16/14
trans-1,3-Dichloropropene	0.2 U	0.5	0.1	214459	08/16/14
1,1,2-Trichloroethane	0.2 U	0.5	0.2	214459	08/16/14
2-Hexanone	0.4 U	10	0.2	214459	08/16/14
1,3-Dichloropropane	0.2 U	0.5	0.1	214459	08/16/14
Tetrachloroethene	0.2 U	0.5	0.1	214459	08/16/14
Dibromochloromethane	0.2 U	0.5	0.1	214459	08/16/14
1,2-Dibromoethane	0.2 U	0.5	0.1	214459	08/16/14
Chlorobenzene	0.2 U	0.5	0.1	214459	08/16/14
1,1,1,2-Tetrachloroethane	0.2 U	0.5	0.1	214459	08/16/14
Ethylbenzene	0.2 U	0.5	0.1	214459	08/16/14
m,p-Xylenes	0.2 U	0.5	0.1	214459	08/16/14
o-Xylene	0.2 U	0.5	0.1	214459	08/16/14
Styrene	0.2 U	0.5	0.1	214459	08/16/14
Bromoform	0.4 U	1.0	0.1	214459	08/16/14
Isopropylbenzene	0.2 U	0.5	0.1	214459	08/16/14
1,1,2,2-Tetrachloroethane	0.2 U	0.5	0.1	214459	08/16/14
1,2,3-Trichloropropane	0.2 U	0.5	0.2	214459	08/16/14
Propylbenzene	0.2 U	0.5	0.1	214459	08/16/14
Bromobenzene	0.2 U	0.5	0.1	214459	08/16/14
1,3,5-Trimethylbenzene	0.2 U	0.5	0.1	214459	08/16/14
2-Chlorotoluene	0.2 U	0.5	0.1	214459	08/16/14
4-Chlorotoluene	0.2 U	0.5	0.1	214459	08/16/14

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	RB-081414	Diln Fac:	1.000
Lab ID:	259841-007	Sampled:	08/14/14
Matrix:	Water	Received:	08/14/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Analyzed
tert-Butylbenzene	0.2 U	0.5	0.1	214459	08/16/14
1,2,4-Trimethylbenzene	0.2 U	0.5	0.1	214459	08/16/14
sec-Butylbenzene	0.2 U	0.5	0.1	214459	08/16/14
para-Isopropyl Toluene	0.2 U	0.5	0.1	214459	08/16/14
1,3-Dichlorobenzene	0.2 U	0.5	0.1	214459	08/16/14
1,4-Dichlorobenzene	0.2 U	0.5	0.1	214459	08/16/14
n-Butylbenzene	0.2 U	0.5	0.1	214459	08/16/14
1,2-Dichlorobenzene	0.2 U	0.5	0.1	214459	08/16/14
1,2-Dibromo-3-Chloropropane	0.4 U	2.0	0.2	214459	08/16/14
1,2,4-Trichlorobenzene	0.4 U	0.5	0.1	214459	08/16/14
Hexachlorobutadiene	0.4 U	2.0	0.1	214459	08/16/14
Naphthalene	0.4 U	2.0	0.1	214459	08/16/14
1,2,3-Trichlorobenzene	0.4 U	0.5	0.1	214459	08/16/14

Surrogate	%REC	Limits	Batch#	Analyzed
Dibromofluoromethane	107	85-115	214459	08/16/14
Dibromofluoromethane	101	85-115	214489	08/18/14
1,2-Dichloroethane-d4	109	70-120	214459	08/16/14
1,2-Dichloroethane-d4	118	70-120	214489	08/18/14
Toluene-d8	102	85-120	214459	08/16/14
Toluene-d8	109	85-120	214489	08/18/14
Bromofluorobenzene	104	75-120	214459	08/16/14
Bromofluorobenzene	96	75-120	214489	08/18/14

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214459
Units:	ug/L	Analyzed:	08/16/14
Diln Fac:	1.000		

Type: BS Lab ID: QC753800

Analyte	Spiked	Result	%REC	Limits
Freon 12	10.00	10.26	103	30-155
Chloromethane	10.00	10.15	102	40-125
Vinyl Chloride	10.00	9.627	96	50-145
Bromomethane	10.00	10.34	103	30-145
Chloroethane	10.00	9.123	91	60-135
Trichlorofluoromethane	10.00	10.84	108	60-145
Acetone	12.50	13.41	107	40-140
Freon 113	12.50	14.64	117	68-147
1,1-Dichloroethene	12.50	12.60	101	70-130
Methylene Chloride	12.50	13.14	105	55-140
Carbon Disulfide	12.50	12.12	97	35-160
MTBE	12.50	12.58	101	65-125
trans-1,2-Dichloroethene	12.50	13.21	106	60-140
Vinyl Acetate	12.50	16.19 b	130	67-209
1,1-Dichloroethane	12.50	12.97	104	70-135
2-Butanone	12.50	15.64 b	125	30-150
cis-1,2-Dichloroethene	12.50	13.50	108	70-125
2,2-Dichloropropane	12.50	14.95	120	70-135
Chloroform	12.50	13.51	108	65-135
Bromochloromethane	12.50	13.24	106	65-130
1,1,1-Trichloroethane	12.50	13.99	112	65-130
1,1-Dichloropropene	12.50	14.00	112	75-130
Carbon Tetrachloride	12.50	13.46	108	65-140
1,2-Dichloroethane	12.50	12.99	104	70-130
Benzene	12.50	13.17	105	80-120
Trichloroethene	12.50	13.30	106	70-125
1,2-Dichloropropane	12.50	12.38	99	75-125
Bromodichloromethane	12.50	12.66	101	75-120
Dibromomethane	12.50	13.48	108	75-125
4-Methyl-2-Pentanone	12.50	13.35	107	60-135
cis-1,3-Dichloropropene	12.50	13.79	110	70-130
Toluene	12.50	13.10	105	75-120
trans-1,3-Dichloropropene	12.50	12.35	99	55-140
1,1,2-Trichloroethane	12.50	13.28	106	75-125
2-Hexanone	12.50	14.54	116	55-130
1,3-Dichloropropane	12.50	13.01	104	75-125
Tetrachloroethene	12.50	13.20	106	45-150
Dibromochloromethane	12.50	12.35	99	60-135
1,2-Dibromoethane	12.50	13.28	106	80-120
Chlorobenzene	12.50	14.00	112	80-120
1,1,1,2-Tetrachloroethane	12.50	12.54	100	80-130
Ethylbenzene	12.50	13.62	109	75-125
m,p-Xylenes	25.00	26.69	107	75-130
o-Xylene	12.50	13.88	111	80-120
Styrene	12.50	13.73	110	65-135
Bromoform	12.50	12.32	99	70-130
Isopropylbenzene	12.50	14.27	114	75-125
1,1,2,2-Tetrachloroethane	12.50	14.24	114	65-130
1,2,3-Trichloropropane	12.50	13.65	109	75-125
Propylbenzene	12.50	14.03	112	70-130
Bromobenzene	12.50	13.17	105	75-125

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214459
Units:	ug/L	Analyzed:	08/16/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits
1,3,5-Trimethylbenzene	12.50	14.41	115	75-130
2-Chlorotoluene	12.50	14.55	116	75-125
4-Chlorotoluene	12.50	14.14	113	75-130
tert-Butylbenzene	12.50	14.22	114	70-130
1,2,4-Trimethylbenzene	12.50	13.89	111	75-130
sec-Butylbenzene	12.50	15.59 b	125	70-125
para-Isopropyl Toluene	12.50	14.34	115	75-130
1,3-Dichlorobenzene	12.50	13.98	112	75-125
1,4-Dichlorobenzene	12.50	13.65	109	75-125
n-Butylbenzene	12.50	15.12 b	121	70-135
1,2-Dichlorobenzene	12.50	13.74	110	70-120
1,2-Dibromo-3-Chloropropane	12.50	11.07	89	50-130
1,2,4-Trichlorobenzene	12.50	13.80	110	65-135
Hexachlorobutadiene	12.50	15.01	120	50-140
Naphthalene	12.50	13.08	105	55-140
1,2,3-Trichlorobenzene	12.50	13.78	110	55-140

Surrogate	%REC	Limits
Dibromofluoromethane	106	85-115
1,2-Dichloroethane-d4	107	70-120
Toluene-d8	102	85-120
Bromofluorobenzene	100	75-120

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214459
Units:	ug/L	Analyzed:	08/16/14
Diln Fac:	1.000		

Type: BSD Lab ID: QC753801

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	10.00	9.835	98	30-155	4	30
Chloromethane	10.00	9.524	95	40-125	6	30
Vinyl Chloride	10.00	9.198	92	50-145	5	30
Bromomethane	10.00	9.562	96	30-145	8	30
Chloroethane	10.00	8.409	84	60-135	8	30
Trichlorofluoromethane	10.00	10.29	103	60-145	5	30
Acetone	12.50	13.24	106	40-140	1	30
Freon 113	12.50	13.68	109	68-147	7	30
1,1-Dichloroethene	12.50	12.12	97	70-130	4	30
Methylene Chloride	12.50	12.84	103	55-140	2	30
Carbon Disulfide	12.50	11.56	92	35-160	5	30
MTBE	12.50	12.49	100	65-125	1	30
trans-1,2-Dichloroethene	12.50	12.58	101	60-140	5	30
Vinyl Acetate	12.50	18.14 b	145	67-209	11	30
1,1-Dichloroethane	12.50	12.21	98	70-135	6	30
2-Butanone	12.50	15.29 b	122	30-150	2	30
cis-1,2-Dichloroethene	12.50	12.87	103	70-125	5	30
2,2-Dichloropropane	12.50	14.03	112	70-135	6	30
Chloroform	12.50	12.96	104	65-135	4	30
Bromochloromethane	12.50	12.88	103	65-130	3	30
1,1,1-Trichloroethane	12.50	13.51	108	65-130	4	30
1,1-Dichloropropene	12.50	13.30	106	75-130	5	30
Carbon Tetrachloride	12.50	12.85	103	65-140	5	30
1,2-Dichloroethane	12.50	12.78	102	70-130	2	30
Benzene	12.50	12.65	101	80-120	4	30
Trichloroethene	12.50	12.55	100	70-125	6	30
1,2-Dichloropropane	12.50	12.18	97	75-125	2	30
Bromodichloromethane	12.50	12.54	100	75-120	1	30
Dibromomethane	12.50	13.59	109	75-125	1	30
4-Methyl-2-Pentanone	12.50	13.52	108	60-135	1	30
cis-1,3-Dichloropropene	12.50	13.48	108	70-130	2	30
Toluene	12.50	12.71	102	75-120	3	30
trans-1,3-Dichloropropene	12.50	12.18	97	55-140	1	30
1,1,2-Trichloroethane	12.50	13.10	105	75-125	1	30
2-Hexanone	12.50	14.18	113	55-130	2	30
1,3-Dichloropropane	12.50	12.87	103	75-125	1	30
Tetrachloroethene	12.50	12.32	99	45-150	7	30
Dibromochloromethane	12.50	12.08	97	60-135	2	30
1,2-Dibromoethane	12.50	13.20	106	80-120	1	30
Chlorobenzene	12.50	13.60	109	80-120	3	30
1,1,1,2-Tetrachloroethane	12.50	12.30	98	80-130	2	30
Ethylbenzene	12.50	13.01	104	75-125	5	30
m,p-Xylenes	25.00	25.31	101	75-130	5	30
o-Xylene	12.50	13.37	107	80-120	4	30
Styrene	12.50	13.06	105	65-135	5	30
Bromoform	12.50	12.52	100	70-130	2	30
Isopropylbenzene	12.50	13.93	111	75-125	2	30
1,1,2,2-Tetrachloroethane	12.50	14.56	117	65-130	2	30
1,2,3-Trichloropropane	12.50	13.88	111	75-125	2	30
Propylbenzene	12.50	13.53	108	70-130	4	30
Bromobenzene	12.50	12.74	102	75-125	3	30

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214459
Units:	ug/L	Analyzed:	08/16/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,3,5-Trimethylbenzene	12.50	14.09	113	75-130	2	30
2-Chlorotoluene	12.50	14.21	114	75-125	2	30
4-Chlorotoluene	12.50	13.61	109	75-130	4	30
tert-Butylbenzene	12.50	13.72	110	70-130	4	30
1,2,4-Trimethylbenzene	12.50	13.49	108	75-130	3	30
sec-Butylbenzene	12.50	15.01 b	120	70-125	4	30
para-Isopropyl Toluene	12.50	13.79	110	75-130	4	30
1,3-Dichlorobenzene	12.50	13.58	109	75-125	3	30
1,4-Dichlorobenzene	12.50	13.35	107	75-125	2	30
n-Butylbenzene	12.50	14.37 b	115	70-135	5	30
1,2-Dichlorobenzene	12.50	13.54	108	70-120	2	30
1,2-Dibromo-3-Chloropropane	12.50	11.88	95	50-130	7	30
1,2,4-Trichlorobenzene	12.50	13.31	106	65-135	4	30
Hexachlorobutadiene	12.50	14.28	114	50-140	5	30
Naphthalene	12.50	13.08	105	55-140	0	30
1,2,3-Trichlorobenzene	12.50	13.58	109	55-140	1	30

Surrogate	%REC	Limits
Dibromofluoromethane	105	85-115
1,2-Dichloroethane-d4	105	70-120
Toluene-d8	101	85-120
Bromofluorobenzene	100	75-120

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753802	Batch#:	214459
Matrix:	Water	Analyzed:	08/16/14
Units:	ug/L		

Analyte	Result	LOQ	DL
Freon 12	0.2 U	1.0	0.1
Chloromethane	0.4 U	1.0	0.3
Vinyl Chloride	0.2 U	0.5	0.1
Bromomethane	0.4 U	1.0	0.2
Chloroethane	0.4 U	1.0	0.3
Trichlorofluoromethane	0.4 U	1.0	0.2
Acetone	2.0 U	10	1.6
Freon 113	0.2 U	2.0	0.1
1,1-Dichloroethene	0.2 U	0.5	0.2
Methylene Chloride	0.2 U	10	0.2
Carbon Disulfide	0.2 U	0.5	0.1
MTBE	0.2 U	0.5	0.1
trans-1,2-Dichloroethene	0.2 U	0.5	0.2
Vinyl Acetate	2.0 U b	10	1.1
1,1-Dichloroethane	0.2 U	0.5	0.2
2-Butanone	2.0 U	10	0.4
cis-1,2-Dichloroethene	0.2 U	0.5	0.1
2,2-Dichloropropane	0.2 U	0.5	0.1
Chloroform	0.2 U	0.5	0.1
Bromochloromethane	0.2 U	0.5	0.1
1,1,1-Trichloroethane	0.2 U	0.5	0.1
1,1-Dichloropropene	0.2 U	0.5	0.1
Carbon Tetrachloride	0.2 U	0.5	0.1
1,2-Dichloroethane	0.2 U	0.5	0.1
Benzene	0.2 U	0.5	0.1
Trichloroethene	0.2 U	0.5	0.1
1,2-Dichloropropane	0.2 U	0.5	0.1
Bromodichloromethane	0.2 U	0.5	0.1
Dibromomethane	0.2 U	0.5	0.1
4-Methyl-2-Pentanone	2.0 U	10	0.7
cis-1,3-Dichloropropene	0.2 U	0.5	0.1
Toluene	0.2 U	0.5	0.1
trans-1,3-Dichloropropene	0.2 U	0.5	0.1
1,1,2-Trichloroethane	0.2 U	0.5	0.2
2-Hexanone	0.4 U	10	0.2
1,3-Dichloropropane	0.2 U	0.5	0.1
Tetrachloroethene	0.2 U	0.5	0.1
Dibromochloromethane	0.2 U	0.5	0.1
1,2-Dibromoethane	0.2 U	0.5	0.1
Chlorobenzene	0.2 U	0.5	0.1
1,1,1,2-Tetrachloroethane	0.2 U	0.5	0.1
Ethylbenzene	0.2 U	0.5	0.1
m,p-Xylenes	0.2 U	0.5	0.1
o-Xylene	0.2 U	0.5	0.1
Styrene	0.2 U	0.5	0.1
Bromoform	0.4 U	1.0	0.1
Isopropylbenzene	0.2 U	0.5	0.1
1,1,2,2-Tetrachloroethane	0.2 U	0.5	0.1
1,2,3-Trichloropropane	0.2 U	0.5	0.2
Propylbenzene	0.2 U	0.5	0.1
Bromobenzene	0.2 U	0.5	0.1
1,3,5-Trimethylbenzene	0.2 U	0.5	0.1

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753802	Batch#:	214459
Matrix:	Water	Analyzed:	08/16/14
Units:	ug/L		

Analyte	Result	LOQ	DL
2-Chlorotoluene	0.2 U	0.5	0.1
4-Chlorotoluene	0.2 U	0.5	0.1
tert-Butylbenzene	0.2 U	0.5	0.1
1,2,4-Trimethylbenzene	0.2 U	0.5	0.1
sec-Butylbenzene	0.2 U	0.5	0.1
para-Isopropyl Toluene	0.2 U	0.5	0.1
1,3-Dichlorobenzene	0.2 U	0.5	0.1
1,4-Dichlorobenzene	0.2 U	0.5	0.1
n-Butylbenzene	0.2 U	0.5	0.1
1,2-Dichlorobenzene	0.2 U	0.5	0.1
1,2-Dibromo-3-Chloropropane	0.4 U	2.0	0.2
1,2,4-Trichlorobenzene	0.4 U	0.5	0.1
Hexachlorobutadiene	0.4 U	2.0	0.1
Naphthalene	0.4 U	2.0	0.1
1,2,3-Trichlorobenzene	0.4 U	0.5	0.1

Surrogate	%REC	Limits
Dibromofluoromethane	107	85-115
1,2-Dichloroethane-d4	111	70-120
Toluene-d8	101	85-120
Bromofluorobenzene	104	75-120

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214489
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Type: BS Lab ID: QC753910

Analyte	Spiked	Result	%REC	Limits
Freon 12	20.00	15.01 b	75	30-155
Chloromethane	20.00	20.14	101	40-125
Vinyl Chloride	20.00	20.99	105	50-145
Bromomethane		NA		
Chloroethane	20.00	20.15	101	60-135
Trichlorofluoromethane	20.00	18.61	93	60-145
Acetone		NA		
Freon 113	25.00	20.98	84	68-147
1,1-Dichloroethene	25.00	20.73	83	70-130
Methylene Chloride	25.00	21.47	86	55-140
Carbon Disulfide	25.00	21.27	85	35-160
MTBE	25.00	18.65 b	75	65-125
trans-1,2-Dichloroethene	25.00	22.00	88	60-140
Vinyl Acetate	25.00	27.35	109	67-209
1,1-Dichloroethane	25.00	22.39	90	70-135
2-Butanone	25.00	22.40	90	30-150
cis-1,2-Dichloroethene	25.00	21.69	87	70-125
2,2-Dichloropropane	25.00	26.91	108	70-135
Chloroform	25.00	22.37	89	65-135
Bromochloromethane	25.00	22.50	90	65-130
1,1,1-Trichloroethane	25.00	24.81	99	65-130
1,1-Dichloropropene	25.00	24.84	99	75-130
Carbon Tetrachloride	25.00	26.17	105	65-140
1,2-Dichloroethane	25.00	26.63	107	70-130
Benzene	25.00	24.71	99	80-120
Trichloroethene	25.00	23.44	94	70-125
1,2-Dichloropropane	25.00	22.51	90	75-125
Bromodichloromethane	25.00	23.18	93	75-120
Dibromomethane	25.00	22.65	91	75-125
4-Methyl-2-Pentanone	25.00	20.25	81	60-135
cis-1,3-Dichloropropene	25.00	24.65	99	70-130
Toluene	25.00	23.66	95	75-120
trans-1,3-Dichloropropene	25.00	22.16	89	55-140
1,1,2-Trichloroethane	25.00	20.85	83	75-125
2-Hexanone	25.00	21.71	87	55-130
1,3-Dichloropropane	25.00	21.63	87	75-125
Tetrachloroethene	25.00	24.67	99	45-150
Dibromochloromethane	25.00	22.04	88	60-135
1,2-Dibromoethane	25.00	20.65	83	80-120
Chlorobenzene	25.00	24.11	96	80-120
1,1,1,2-Tetrachloroethane	25.00	23.10	92	80-130
Ethylbenzene	25.00	23.43	94	75-125
m,p-Xylenes	50.00	53.23	106	75-130
o-Xylene	25.00	24.56	98	80-120
Styrene	25.00	22.80	91	65-135
Bromoform	25.00	19.45 b	78	70-130
Isopropylbenzene	25.00	23.07	92	75-125
1,1,2,2-Tetrachloroethane	25.00	18.82 b	75	65-130
1,2,3-Trichloropropane	25.00	18.96 b	76	75-125
Propylbenzene	25.00	24.08	96	70-130

b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214489
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits
Bromobenzene	25.00	23.09	92	75-125
1,3,5-Trimethylbenzene	25.00	24.35	97	75-130
2-Chlorotoluene	25.00	25.01	100	75-125
4-Chlorotoluene	25.00	22.14	89	75-130
tert-Butylbenzene	25.00	23.06	92	70-130
1,2,4-Trimethylbenzene	25.00	21.54	86	75-130
sec-Butylbenzene	25.00	22.57	90	70-125
para-Isopropyl Toluene	25.00	22.52	90	75-130
1,3-Dichlorobenzene	25.00	22.98	92	75-125
1,4-Dichlorobenzene	25.00	22.76	91	75-125
n-Butylbenzene	25.00	22.62	90	70-135
1,2-Dichlorobenzene	25.00	22.37	89	70-120
1,2-Dibromo-3-Chloropropane	25.00	15.82 b	63	50-130
1,2,4-Trichlorobenzene		NA		
Hexachlorobutadiene	25.00	22.89	92	50-140
Naphthalene	25.00	16.87 b	67	55-140
1,2,3-Trichlorobenzene		NA		

Surrogate	%REC	Limits
Dibromofluoromethane	97	85-115
1,2-Dichloroethane-d4	117	70-120
Toluene-d8	104	85-120
Bromofluorobenzene	93	75-120

b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214489
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Type: BSD Lab ID: QC753911

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	20.00	15.49 b	77	30-155	3	30
Chloromethane	20.00	20.01	100	40-125	1	30
Vinyl Chloride	20.00	21.56	108	50-145	3	30
Bromomethane		NA				
Chloroethane	20.00	20.42	102	60-135	1	30
Trichlorofluoromethane	20.00	19.68	98	60-145	6	30
Acetone		NA				
Freon 113	25.00	21.80	87	68-147	4	30
1,1-Dichloroethene	25.00	21.79	87	70-130	5	30
Methylene Chloride	25.00	22.00	88	55-140	2	30
Carbon Disulfide	25.00	22.12	88	35-160	4	30
MTBE	25.00	19.82 b	79	65-125	6	30
trans-1,2-Dichloroethene	25.00	23.13	93	60-140	5	30
Vinyl Acetate	25.00	27.35	109	67-209	0	30
1,1-Dichloroethane	25.00	23.78	95	70-135	6	30
2-Butanone	25.00	23.16	93	30-150	3	30
cis-1,2-Dichloroethene	25.00	22.60	90	70-125	4	30
2,2-Dichloropropane	25.00	28.77	115	70-135	7	30
Chloroform	25.00	23.43	94	65-135	5	30
Bromochloromethane	25.00	23.90	96	65-130	6	30
1,1,1-Trichloroethane	25.00	26.29	105	65-130	6	30
1,1-Dichloropropene	25.00	27.09	108	75-130	9	30
Carbon Tetrachloride	25.00	28.02	112	65-140	7	30
1,2-Dichloroethane	25.00	27.74	111	70-130	4	30
Benzene	25.00	25.85	103	80-120	5	30
Trichloroethene	25.00	25.00	100	70-125	6	30
1,2-Dichloropropane	25.00	23.42	94	75-125	4	30
Bromodichloromethane	25.00	24.13	97	75-120	4	30
Dibromomethane	25.00	23.34	93	75-125	3	30
4-Methyl-2-Pentanone	25.00	21.17	85	60-135	4	30
cis-1,3-Dichloropropene	25.00	25.66	103	70-130	4	30
Toluene	25.00	24.22	97	75-120	2	30
trans-1,3-Dichloropropene	25.00	23.59	94	55-140	6	30
1,1,2-Trichloroethane	25.00	21.19	85	75-125	2	30
2-Hexanone	25.00	22.93	92	55-130	5	30
1,3-Dichloropropane	25.00	21.93	88	75-125	1	30
Tetrachloroethene	25.00	25.96	104	45-150	5	30
Dibromochloromethane	25.00	23.21	93	60-135	5	30
1,2-Dibromoethane	25.00	21.40	86	80-120	4	30
Chlorobenzene	25.00	25.60	102	80-120	6	30
1,1,1,2-Tetrachloroethane	25.00	24.51	98	80-130	6	30
Ethylbenzene	25.00	24.43	98	75-125	4	30
m,p-Xylenes	50.00	56.25	113	75-130	6	30
o-Xylene	25.00	26.56	106	80-120	8	30
Styrene	25.00	24.22	97	65-135	6	30
Bromoform	25.00	21.48 b	86	70-130	10	30
Isopropylbenzene	25.00	24.52	98	75-125	6	30
1,1,2,2-Tetrachloroethane	25.00	19.18 b	77	65-130	2	30
1,2,3-Trichloropropane	25.00	19.81 b	79	75-125	4	30
Propylbenzene	25.00	24.65	99	70-130	2	30

b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Matrix:	Water	Batch#:	214489
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Bromobenzene	25.00	24.37	97	75-125	5	30
1,3,5-Trimethylbenzene	25.00	25.61	102	75-130	5	30
2-Chlorotoluene	25.00	25.95	104	75-125	4	30
4-Chlorotoluene	25.00	23.50	94	75-130	6	30
tert-Butylbenzene	25.00	24.61	98	70-130	6	30
1,2,4-Trimethylbenzene	25.00	23.11	92	75-130	7	30
sec-Butylbenzene	25.00	24.48	98	70-125	8	30
para-Isopropyl Toluene	25.00	24.13	97	75-130	7	30
1,3-Dichlorobenzene	25.00	24.37	97	75-125	6	30
1,4-Dichlorobenzene	25.00	23.82	95	75-125	5	30
n-Butylbenzene	25.00	24.42	98	70-135	8	30
1,2-Dichlorobenzene	25.00	23.74	95	70-120	6	30
1,2-Dibromo-3-Chloropropane	25.00	16.58 b	66	50-130	5	30
1,2,4-Trichlorobenzene		NA				
Hexachlorobutadiene	25.00	25.78	103	50-140	12	30
Naphthalene	25.00	19.39 b	78	55-140	14	30
1,2,3-Trichlorobenzene		NA				

Surrogate	%REC	Limits
Dibromofluoromethane	97	85-115
1,2-Dichloroethane-d4	115	70-120
Toluene-d8	102	85-120
Bromofluorobenzene	92	75-120

b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753912	Batch#:	214489
Matrix:	Water	Analyzed:	08/18/14
Units:	ug/L		

Analyte	Result	LOQ	DL
Freon 12	0.4 U b	1.0	0.2
Chloromethane	0.4 U	1.0	0.2
Vinyl Chloride	0.2 U	0.5	0.1
Bromomethane	NA		
Chloroethane	0.7 U	1.0	0.2
Trichlorofluoromethane	0.4 U	1.0	0.2
Acetone	NA		
Freon 113	0.2 U	2.0	0.2
1,1-Dichloroethene	0.2 U	0.5	0.1
Methylene Chloride	0.2 U	10	0.1
Carbon Disulfide	0.2 U	0.5	0.1
MTBE	0.2 U b	0.5	0.1
trans-1,2-Dichloroethene	0.2 U	0.5	0.1
Vinyl Acetate	1.0 U	10	0.5
1,1-Dichloroethane	0.2 U	0.5	0.1
2-Butanone	1.0 U	10	0.3
cis-1,2-Dichloroethene	0.2 U	0.5	0.1
2,2-Dichloropropane	0.2 U	0.5	0.1
Chloroform	0.2 U	0.5	0.1
Bromochloromethane	0.2 U	0.5	0.2
1,1,1-Trichloroethane	0.2 U	0.5	0.1
1,1-Dichloropropene	0.2 U	0.5	0.1
Carbon Tetrachloride	0.2 U	0.5	0.1
1,2-Dichloroethane	0.2 U	0.5	0.1
Benzene	0.2 U	0.5	0.1
Trichloroethene	0.2 U	0.5	0.1
1,2-Dichloropropane	0.2 U	0.5	0.2
Bromodichloromethane	0.2 U	0.5	0.1
Dibromomethane	0.2 U	0.5	0.1
4-Methyl-2-Pentanone	1.0 U	10	0.2
cis-1,3-Dichloropropene	0.2 U	0.5	0.1
Toluene	0.2 U	0.5	0.1
trans-1,3-Dichloropropene	0.2 U	0.5	0.1
1,1,2-Trichloroethane	0.2 U	0.5	0.2
2-Hexanone	1.0 U	10	0.2
1,3-Dichloropropane	0.2 U	0.5	0.1
Tetrachloroethene	0.2 U	0.5	0.1
Dibromochloromethane	0.2 U	0.5	0.1
1,2-Dibromoethane	0.2 U	0.5	0.1
Chlorobenzene	0.2 U	0.5	0.1
1,1,1,2-Tetrachloroethane	0.2 U	0.5	0.1
Ethylbenzene	0.2 U	0.5	0.2
m,p-Xylenes	0.2 U	0.5	0.1
o-Xylene	0.2 U	0.5	0.1
Styrene	0.2 U	0.5	0.1
Bromoform	0.4 U b	1.0	0.1
Isopropylbenzene	0.2 U	0.5	0.1
1,1,2,2-Tetrachloroethane	0.2 U b	0.5	0.1
1,2,3-Trichloropropane	0.4 U b	0.5	0.1
Propylbenzene	0.2 U	0.5	0.1
Bromobenzene	0.2 U	0.5	0.1

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
NA= Not Analyzed
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753912	Batch#:	214489
Matrix:	Water	Analyzed:	08/18/14
Units:	ug/L		

Analyte	Result	LOQ	DL
1,3,5-Trimethylbenzene	0.2 U	0.5	0.1
2-Chlorotoluene	0.2 U	0.5	0.1
4-Chlorotoluene	0.2 U	0.5	0.2
tert-Butylbenzene	0.2 U	0.5	0.1
1,2,4-Trimethylbenzene	0.2 U	0.5	0.2
sec-Butylbenzene	0.2 U	0.5	0.1
para-Isopropyl Toluene	0.2 U	0.5	0.1
1,3-Dichlorobenzene	0.2 U	0.5	0.1
1,4-Dichlorobenzene	0.2 U	0.5	0.1
n-Butylbenzene	0.2 U	0.5	0.1
1,2-Dichlorobenzene	0.2 U	0.5	0.1
1,2-Dibromo-3-Chloropropane	1.2 U b	2.0	0.2
1,2,4-Trichlorobenzene	NA		
Hexachlorobutadiene	0.2 U	2.0	0.1
Naphthalene	1.0 U b	2.0	0.1
1,2,3-Trichlorobenzene	NA		

Surrogate	%REC	Limits
Dibromofluoromethane	98	85-115
1,2-Dichloroethane-d4	118	70-120
Toluene-d8	106	85-120
Bromofluorobenzene	95	75-120

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
NA= Not Analyzed
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W19-081314	Batch#:	214489
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Type: MS Lab ID: QC753972

Analyte	MSS Result	Spiked	Result	%REC	Limits
Freon 12	<0.1733	20.00	15.10 b	75	30-155
Chloromethane	<0.2133	20.00	22.44	112	40-125
Vinyl Chloride	<0.1202	20.00	23.32	117	50-145
Bromomethane			NA		
Chloroethane	<0.1670	20.00	22.66	113	60-135
Trichlorofluoromethane	<0.1840	20.00	17.41	87	60-145
Acetone			NA		
Freon 113	<0.1554	25.00	22.60	90	68-147
1,1-Dichloroethene	<0.1000	25.00	21.04	84	70-130
Methylene Chloride	<0.1458	25.00	23.36	93	55-140
Carbon Disulfide	<0.1000	25.00	22.38	90	35-160
MTBE	<0.1000	25.00	24.46 b	98	65-125
trans-1,2-Dichloroethene	<0.1000	25.00	22.66	91	60-140
Vinyl Acetate	<0.5118	25.00	35.69	143	67-209
1,1-Dichloroethane	<0.1000	25.00	24.92	100	70-135
2-Butanone	<0.2956	25.00	30.81	123	30-150
cis-1,2-Dichloroethene	<0.1000	25.00	22.96	92	70-125
2,2-Dichloropropane	<0.1000	25.00	26.36	105	70-135
Chloroform	<0.1000	25.00	24.11	96	65-135
Bromochloromethane	<0.1508	25.00	26.73	107	65-130
1,1,1-Trichloroethane	<0.1000	25.00	27.32	109	65-130
1,1-Dichloropropene	<0.1000	25.00	27.41	110	75-130
Carbon Tetrachloride	<0.1000	25.00	27.86	111	65-140
1,2-Dichloroethane	<0.1000	25.00	32.79	131 *	70-130
Benzene	<0.1000	25.00	26.87	107	80-120
Trichloroethene	<0.1000	25.00	24.82	99	70-125
1,2-Dichloropropane	<0.1501	25.00	26.38	106	75-125
Bromodichloromethane	<0.1000	25.00	26.28	105	75-120
Dibromomethane	<0.1000	25.00	28.84	115	75-125
4-Methyl-2-Pentanone	<0.1884	25.00	36.96	148 *	60-135
cis-1,3-Dichloropropene	<0.1000	25.00	29.51	118	70-130
Toluene	<0.1000	25.00	25.40	102	75-120
trans-1,3-Dichloropropene	<0.1000	25.00	27.56	110	55-140
1,1,2-Trichloroethane	<0.1596	25.00	26.81	107	75-125
2-Hexanone	<0.1592	25.00	37.49	150 *	55-130
1,3-Dichloropropane	<0.1000	25.00	27.81	111	75-125
Tetrachloroethene	<0.1000	25.00	25.39	102	45-150
Dibromochloromethane	<0.1000	25.00	27.31	109	60-135
1,2-Dibromoethane	<0.1000	25.00	26.19	105	80-120
Chlorobenzene	<0.1136	25.00	27.40	110	80-120
1,1,1,2-Tetrachloroethane	<0.1000	25.00	27.07	108	80-130
Ethylbenzene	<0.1561	25.00	25.38	102	75-125
m,p-Xylenes	<0.1000	50.00	58.03	116	75-130
o-Xylene	<0.09974	25.00	27.68	111	80-120
Styrene	<0.1000	25.00	24.78	99	65-135
Bromoform	<0.1000	25.00	25.81 b	103	70-130
Isopropylbenzene	<0.1000	25.00	23.80	95	75-125

*= Value outside of QC limits; see narrative
b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W19-081314	Batch#:	214489
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1,2,2-Tetrachloroethane	<0.1000	25.00	25.28 b	101	65-130
1,2,3-Trichloropropane	<0.1388	25.00	25.18 b	101	75-125
Propylbenzene	<0.1074	25.00	24.38	98	70-130
Bromobenzene	<0.1000	25.00	26.09	104	75-125
1,3,5-Trimethylbenzene	<0.1017	25.00	25.05	100	75-130
2-Chlorotoluene	<0.1027	25.00	25.69	103	75-125
4-Chlorotoluene	<0.1554	25.00	23.27	93	75-130
tert-Butylbenzene	<0.1000	25.00	23.43	94	70-130
1,2,4-Trimethylbenzene	<0.1598	25.00	23.20	93	75-130
sec-Butylbenzene	<0.1102	25.00	23.32	93	70-125
para-Isopropyl Toluene	<0.1014	25.00	23.32	93	75-130
1,3-Dichlorobenzene	<0.1000	25.00	24.99	100	75-125
1,4-Dichlorobenzene	<0.1000	25.00	25.82	103	75-125
n-Butylbenzene	<0.1011	25.00	22.69	91	70-135
1,2-Dichlorobenzene	<0.1000	25.00	25.48	102	70-120
1,2-Dibromo-3-Chloropropane	<0.1880	25.00	22.51 b	90	50-130
1,2,4-Trichlorobenzene		NA			
Hexachlorobutadiene	<0.1492	25.00	21.54	86	50-140
Naphthalene	<0.1000	25.00	22.48 b	90	55-140
1,2,3-Trichlorobenzene		NA			

Surrogate	%REC	Limits
Dibromofluoromethane	101	85-115
1,2-Dichloroethane-d4	132 *	70-120
Toluene-d8	104	85-120
Bromofluorobenzene	89	75-120

*= Value outside of QC limits; see narrative
b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W19-081314	Batch#:	214489
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Type: MSD Lab ID: QC753973

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	20.00	16.52 b	83	30-155	9	30
Chloromethane	20.00	24.16	121	40-125	7	30
Vinyl Chloride	20.00	25.51	128	50-145	9	30
Bromomethane		NA				
Chloroethane	20.00	24.98	125	60-135	10	30
Trichlorofluoromethane	20.00	20.33	102	60-145	15	30
Acetone		NA				
Freon 113	25.00	23.97	96	68-147	6	30
1,1-Dichloroethene	25.00	24.82	99	70-130	16	30
Methylene Chloride	25.00	27.49	110	55-140	16	30
Carbon Disulfide	25.00	25.58	102	35-160	13	30
MTBE	25.00	29.03 b	116	65-125	17	30
trans-1,2-Dichloroethene	25.00	27.04	108	60-140	18	30
Vinyl Acetate	25.00	40.08	160	67-209	12	30
1,1-Dichloroethane	25.00	29.74	119	70-135	18	30
2-Butanone	25.00	33.34	133	30-150	8	30
cis-1,2-Dichloroethene	25.00	26.83	107	70-125	16	30
2,2-Dichloropropane	25.00	30.16	121	70-135	13	30
Chloroform	25.00	28.47	114	65-135	17	30
Bromochloromethane	25.00	31.57	126	65-130	17	30
1,1,1-Trichloroethane	25.00	31.40	126	65-130	14	30
1,1-Dichloropropene	25.00	31.73	127	75-130	15	30
Carbon Tetrachloride	25.00	32.91	132	65-140	17	30
1,2-Dichloroethane	25.00	39.47	158 *	70-130	18	30
Benzene	25.00	31.73	127 *	80-120	17	30
Trichloroethene	25.00	29.61	118	70-125	18	30
1,2-Dichloropropane	25.00	30.95	124	75-125	16	30
Bromodichloromethane	25.00	30.22	121 *	75-120	14	30
Dibromomethane	25.00	33.28	133 *	75-125	14	30
4-Methyl-2-Pentanone	25.00	42.12	168 *	60-135	13	30
cis-1,3-Dichloropropene	25.00	33.63	135 *	70-130	13	30
Toluene	25.00	29.77	119	75-120	16	30
trans-1,3-Dichloropropene	25.00	32.45	130	55-140	16	30
1,1,2-Trichloroethane	25.00	30.89	124	75-125	14	30
2-Hexanone	25.00	44.39	178 *	55-130	17	30
1,3-Dichloropropane	25.00	32.28	129 *	75-125	15	30
Tetrachloroethene	25.00	30.25	121	45-150	17	30
Dibromochloromethane	25.00	31.62	126	60-135	15	30
1,2-Dibromoethane	25.00	29.98	120	80-120	13	30
Chlorobenzene	25.00	32.59	130 *	80-120	17	30
1,1,1,2-Tetrachloroethane	25.00	31.78	127	80-130	16	30
Ethylbenzene	25.00	29.67	119	75-125	16	30
m,p-Xylenes	50.00	67.93	136 *	75-130	16	30
o-Xylene	25.00	32.08	128 *	80-120	15	30
Styrene	25.00	28.91	116	65-135	15	30
Bromoform	25.00	30.39 b	122	70-130	16	30
Isopropylbenzene	25.00	28.16	113	75-125	17	30

*= Value outside of QC limits; see narrative
b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 5030C
Project#:	N62473-11-D-2215	Analysis:	EPA 8260C
Field ID:	04W19-081314	Batch#:	214489
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Analyzed:	08/18/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1,2,2-Tetrachloroethane	25.00	29.20 b	117	65-130	14	30
1,2,3-Trichloropropane	25.00	30.84 b	123	75-125	20	30
Propylbenzene	25.00	28.51	114	70-130	16	30
Bromobenzene	25.00	31.21	125	75-125	18	30
1,3,5-Trimethylbenzene	25.00	30.07	120	75-130	18	30
2-Chlorotoluene	25.00	31.11	124	75-125	19	30
4-Chlorotoluene	25.00	27.41	110	75-130	16	30
tert-Butylbenzene	25.00	28.03	112	70-130	18	30
1,2,4-Trimethylbenzene	25.00	27.43	110	75-130	17	30
sec-Butylbenzene	25.00	27.47	110	70-125	16	30
para-Isopropyl Toluene	25.00	27.06	108	75-130	15	30
1,3-Dichlorobenzene	25.00	30.19	121	75-125	19	30
1,4-Dichlorobenzene	25.00	30.33	121	75-125	16	30
n-Butylbenzene	25.00	26.68	107	70-135	16	30
1,2-Dichlorobenzene	25.00	30.51	122 *	70-120	18	30
1,2-Dibromo-3-Chloropropane	25.00	25.76 b	103	50-130	13	30
1,2,4-Trichlorobenzene		NA				
Hexachlorobutadiene	25.00	27.08	108	50-140	23	30
Naphthalene	25.00	28.10 b	112	55-140	22	30
1,2,3-Trichlorobenzene		NA				

Surrogate	%REC	Limits
Dibromofluoromethane	101	85-115
1,2-Dichloroethane-d4	132 *	70-120
Toluene-d8	104	85-120
Bromofluorobenzene	90	75-120

*= Value outside of QC limits; see narrative
b= See narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Initial & Continuing Calibration Data

CURTIS & TOMPKINS BFB TUNE FOR 259841 MSVOA Water
EPA 8260C

Inst : MSVOA08 Run Name : BFB IDF : 1.0
Seqnum : 474253910008 File : hfp08 Time : 25-JUN-2014 12:59

Standards: S24715

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	12264	24.56	
75	30% - 60% of mass 95	22536	45.13	
95		49936	100.00	
96	5% - 9% of mass 95	3172	6.35	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	33074	66.23	
175	5% - 9% of mass 174	2630	7.95	
176	> 95% and < 101% of mass 174	32085	97.01	
177	5% - 9% of mass 176	2187	6.82	

Analyst: DJA Date: 06/26/14 Reviewer: LW Date: 06/27/14

CURTIS & TOMPKINS BFB TUNE FOR 259841 MSVOA Water
EPA 8260C

Inst : MSVOA08 Run Name : BFB IDF : 1.0
Seqnum : 474329105002 File : hhg02 Time : 16-AUG-2014 13:32

Standards: S24715

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	8617	23.26	
75	30% - 60% of mass 95	16866	45.52	
95		37048	100.00	
96	5% - 9% of mass 95	2648	7.15	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	23941	64.62	
175	5% - 9% of mass 174	1608	6.72	
176	> 95% and < 101% of mass 174	22768	95.10	
177	5% - 9% of mass 176	1740	7.64	

Analyst: DJA Date: 08/18/14 Reviewer: LW Date: 08/18/14

CURTIS & TOMPKINS BFB TUNE FOR 259841 MSVOA Water
EPA 8260C

Inst : MSVOA09 Run Name : BFB IDF : 1.0
Seqnum : 484219504002 File : if102 Time : 01-JUN-2014 10:56

Standards: S24715

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	33405	17.61	
75	30% - 60% of mass 95	75090	39.58	
95		189738	100.00	
96	5% - 9% of mass 95	12482	6.58	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	124576	65.66	
175	5% - 9% of mass 174	9197	7.38	
176	> 95% and < 101% of mass 174	122314	98.18	
177	5% - 9% of mass 176	8150	6.66	

Analyst: TEW Date: 06/02/14 Reviewer: LW Date: 06/03/14

CURTIS & TOMPKINS BFB TUNE FOR 259841 MSVOA Water
EPA 8260C

Inst : MSVOA09 Run Name : BFB IDF : 1.0
Seqnum : 484221233003 File : if203 Time : 02-JUN-2014 16:07

Standards: S24715

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	49216	19.27	
75	30% - 60% of mass 95	107514	42.10	
95		255402	100.00	
96	5% - 9% of mass 95	17584	6.88	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	158248	61.96	
175	5% - 9% of mass 174	11490	7.26	
176	> 95% and < 101% of mass 174	154986	97.94	
177	5% - 9% of mass 176	9951	6.42	

Analyst: TEW Date: 06/02/14 Reviewer: LW Date: 06/03/14

CURTIS & TOMPKINS BFB TUNE FOR 259841 MSVOA Water
EPA 8260C

Inst : MSVOA09 Run Name : BFB IDF : 1.0
Seqnum : 484331713002 File : ihi02 Time : 18-AUG-2014 10:18

Standards: S24715

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	32453	25.84	
75	30% - 60% of mass 95	62077	49.43	
95		125573	100.00	
96	5% - 9% of mass 95	8877	7.07	
173	< 2% of mass 174	0	0.00	
174	> 50% and < 100% of mass 95	77002	61.32	
175	5% - 9% of mass 174	5487	7.13	
176	> 95% and < 101% of mass 174	75168	97.62	
177	5% - 9% of mass 176	4654	6.19	

Analyst: DJA Date: 08/18/14 Reviewer: LW Date: 08/19/14

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259841 MSVOA Water: EPA 8260C

Inst : MSVOA08 Name : 826GOX8
Calnum : 474253910001 Date : 25-JUN-2014 14:41 Type : WATER
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	hfp11	474253910011		25-JUN-2014 14:41	S23923 (2000000X), S24633 (2000000X), S24634 (2000000X), S23961 (1000000X), S24802 (5000X)
L2	hfp12	474253910012		25-JUN-2014 15:16	S23923 (1000000X), S24633 (1000000X), S24634 (1000000X), S23961 (500000X), S24802 (5000X)
L3	hfp13	474253910013		25-JUN-2014 15:51	S23923 (500000X), S24633 (250000X), S24634 (250000X), S23961 (250000X), S24802 (5000X)
L4	hfp14	474253910014		25-JUN-2014 16:25	S23923 (200000X), S24633 (100000X), S24634 (100000X), S23961 (100000X), S24802 (5000X)
L5	hfp15	474253910015		25-JUN-2014 17:00	S23923 (100000X), S24633 (50000X), S24634 (50000X), S23961 (50000X), S24802 (5000X)
L6	hfp16	474253910016		25-JUN-2014 17:35	S23923 (50000X), S24633 (25000X), S24634 (25000X), S23961 (25000X), S24802 (5000X)
L7	hfp17	474253910017		25-JUN-2014 18:09	S23923 (20000X), S24633 (10000X), S24634 (10000X), S23961 (10000X), S24802 (5000X)
L8	hfp18	474253910018		25-JUN-2014 18:44	S23923 (13330X), S24633 (6667X), S24634 (6667X), S23961 (6667X), S24802 (5000X)
L9	hfp19	474253910019		25-JUN-2014 19:19	S23923 (10000X), S24633 (5000X), S24634 (5000X), S23961 (5000X), S24802 (5000X)

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Freon 12		0.6474m	0.6457m	0.6131m	0.6202m	0.5440m	0.5896	0.5948	0.5887	AVRG		1.65166		0.6055	6	15	0.100	0.99	
Chloromethane	1.3194	1.2468	1.2408	1.2211	1.1748	1.1479	0.9956	0.9959	0.9170	AVRG		0.87726		1.1399	12	15	0.100	0.99	
Vinyl Chloride	0.8946	0.8785	0.8676m	0.8221	0.8016	0.8210	0.7456	0.7314	0.6815	AVRG		1.24244		0.8049	9	15	0.100	0.99	
Bromomethane		0.2877	0.3131	0.3186m	0.3482	0.3928	0.3950	0.4162	0.3970	AVRG		2.78887		0.3586	13	15	0.100	0.99	
Chloroethane		0.4689m	0.4528m	0.4470m	0.4341	0.4431	0.4011	0.4034	0.3785	AVRG		2.33301		0.4286	7	15	0.100	0.99	
Trichlorofluoromethane		0.6820	0.6652m	0.6268	0.6446	0.6012	0.5995	0.6069	0.5662	AVRG		1.60245		0.6240	6	15	0.100	0.99	
Acetone			0.1842m	0.1425	0.1529	0.1398	0.1598	0.1328	0.1617	AVRG		6.51866		0.1534	11	15	0.100	0.99	
Freon 113		0.4071	0.4642m	0.3250m	0.4674	0.3199m	0.4332m	0.4710	0.4514	AVRG		2.39589		0.4174	15	15	0.100	0.99	
1,1-Dichloroethene		0.6197	0.5891	0.5071	0.5686	0.5427	0.5307	0.5145	0.4947	AVRG		1.83186		0.5459	8	15	0.100	0.99	
Methylene Chloride		0.8157	0.7221	0.7256	0.7187	0.7204	0.6856	0.6480	0.6183	AVRG		1.41480		0.7068	8	15	0.100	0.99	
Carbon Disulfide		2.6969	2.3873	2.2269	2.3980	2.2822	2.0851	1.9477	1.8391	AVRG		0.44785		2.2329	12	15	0.100	0.99	
MTBE		1.4658	1.3953	1.3734	1.4375	1.3680	1.2935	1.2320	1.1769	AVRG		0.74471		1.3428	7	15	0.100	0.99	
trans-1,2-Dichloroethene		0.7317	0.6485	0.6544	0.6608	0.6474	0.6139	0.5863	0.5560	AVRG		1.56893		0.6374	8	15	0.100	0.99	
Vinyl Acetate	1.1460	1.0143	1.0905	1.0654	1.1096m	1.0606m				AVRG		0.92501		1.0811	4	15	0.05	0.99	
1,1-Dichloroethane		1.5024	1.4216	1.4307	1.4340	1.3596	1.2726	1.1682	1.0958	AVRG		0.74872		1.3356	11	15	0.200	0.99	
2-Butanone			0.2406	0.2195	0.2285	0.2212	0.2126	0.1899	0.1919	AVRG		4.65365		0.2149	9	15	0.100	0.99	
2,2-Dichloropropane		0.9247	0.7873	0.7361	0.7808	0.7502	0.7161	0.6851	0.6427	AVRG		1.32827		0.7529	11	15	0.05	0.99	
cis-1,2-Dichloroethene		0.7776	0.7503	0.7337	0.7342	0.7177	0.6786	0.6428	0.6155	AVRG		1.41582		0.7063	8	15	0.100	0.99	
Chloroform		1.2992	1.1407	1.1613	1.1555	1.1136	1.0445	0.9701	0.9136	AVRG		0.90925		1.0998	11	15	0.200	0.99	
Bromochloromethane		0.3244	0.3126	0.2985	0.3117	0.3116	0.3032	0.2901	0.2817	AVRG		3.28708		0.3042	5	15	0.05	0.99	
1,1,1-Trichloroethane		0.8080	0.7645	0.6998	0.7413	0.7242	0.6957	0.6854	0.6468	AVRG		1.38753		0.7207	7	15	0.100	0.99	
1,1-Dichloropropene		0.5173	0.5088	0.4463	0.4827	0.4673	0.4407	0.4295	0.4061	AVRG		2.16294		0.4623	8	15	0.05	0.99	
Carbon Tetrachloride		0.3814	0.3614	0.3181	0.3608	0.3472	0.3361	0.3439	0.3287	AVRG		2.88012		0.3472	6	15	0.100	0.99	
1,2-Dichloroethane		0.4736	0.4544	0.4463	0.4625	0.4411	0.4195	0.3999	0.3806	AVRG		2.30033		0.4347	7	15	0.100	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Benzene		1.6417	1.5712	1.5486	1.5263	1.4596	1.3051	1.2085	1.1259	AVRG		0.70256		1.4234	13	15	0.500	0.99	
Trichloroethene		0.3669	0.3694	0.3541	0.3658	0.3559	0.3505	0.3275	0.3360	AVRG		2.83077		0.3533	4	15	0.200	0.99	
1,2-Dichloropropane		0.4962	0.4949	0.4898	0.4899	0.4673	0.4334	0.4035	0.3786	AVRG		2.18958		0.4567	10	15	0.100	0.99	
Bromodichloromethane		0.5160	0.4911	0.4959	0.5006	0.4828	0.4621	0.4427	0.4233	AVRG		2.09725		0.4768	7	15	0.200	0.99	
Dibromomethane		0.2081	0.2097	0.2057	0.2119	0.2050	0.2015	0.1967	0.1918	AVRG		4.90693		0.2038	3	15	0.05	0.99	
4-Methyl-2-Pentanone			0.3004	0.3238	0.3195	0.3156	0.2974	0.2859	0.2813	AVRG		3.29589		0.3034	5	15	0.100	0.99	
cis-1,3-Dichloropropene		0.6280	0.6117	0.6205	0.6188	0.6026	0.5668	0.5317	0.5065	AVRG		1.70697		0.5858	8	15	0.200	0.99	
Toluene		1.1039	1.1013	1.0484	1.0637	1.0079	0.9443	0.9023	0.8520	AVRG		0.99703		1.0030	9	15	0.400	0.99	
trans-1,3-Dichloropropene		0.6190	0.5835	0.5883	0.6055	0.5848	0.5578	0.5258	0.5122	AVRG		1.74794		0.5721	7	15	0.100	0.99	
1,1,2-Trichloroethane		0.1980	0.1857	0.1802	0.1926	0.1837	0.1791	0.1764	0.1706	AVRG		5.45562		0.1833	5	15	0.100	0.99	
2-Hexanone			0.2523	0.2550	0.2610	0.2497	0.2493	0.2206	0.2233	AVRG		4.09083		0.2444	6	15	0.100	0.99	
1,3-Dichloropropane		0.6262	0.6098	0.6116	0.6320	0.6059	0.5733	0.5460	0.5206	AVRG		1.69295		0.5907	7	15	0.05	0.99	
Tetrachloroethene		0.3550	0.3429	0.2960	0.3250	0.3141	0.3168	0.3311	0.3246	AVRG		3.07020		0.3257	6	15	0.200	0.99	
Dibromochloromethane		0.3711	0.3359	0.3487	0.3710	0.3642	0.3622	0.3594	0.3535	AVRG		2.79158		0.3582	3	15	0.100	0.99	
1,2-Dibromoethane		0.3030	0.3192	0.3119	0.3318	0.3194	0.3114	0.3068	0.2957	AVRG		3.20108		0.3124	4	15	0.100	0.99	
Chlorobenzene		1.1321	1.1527	1.1178	1.1207	1.0651	0.9838	0.9287	0.8645	AVRG		0.95633		1.0457	10	15	0.500	0.99	
1,1,1,2-Tetrachloroethane		0.3590	0.3557	0.3612	0.3761	0.3593	0.3490	0.3378	0.3256	AVRG		2.83315		0.3530	4	15	0.05	0.99	
Ethylbenzene		2.0984	2.0048	1.9305	1.9340	1.7601	1.5414	1.4497		AVRG		0.55036		1.8170	13	15	0.100	0.99	
m,p-Xylenes	0.8761	0.7506	0.7201	0.7065m	0.7171m	0.6671m	0.6018m	0.5561m		AVRG		1.42974		0.6994	14	15	0.100	0.99	
o-Xylene		0.7322	0.7293	0.7282	0.7242	0.6960	0.6710	0.6454	0.6035	AVRG		1.44671		0.6912	7	15	0.300	0.99	
Styrene		1.2717	1.2462	1.2583	1.2498	1.1718	1.0752	0.9985	0.9216	AVRG		0.87022		1.1491	12	15	0.300	0.99	
Bromoform		0.1736	0.1756	0.1723	0.1825	0.1834	0.1854	0.1893	0.1906	AVRG		5.50697		0.1816	4	15	0.100	0.99	
Isopropylbenzene		3.9724	3.6415	3.5445	3.5397	3.2876	2.9503	2.8352	2.6354	AVRG		0.30295		3.3008	14	15	0.100	0.99	
1,1,2,2-Tetrachloroethane		0.8305	0.7578	0.7491	0.8108	0.7626	0.6866	0.7029	0.6196	AVRG		1.35138		0.7400	9	15	0.300	0.99	
1,2,3-Trichloropropane		0.1628	0.1768	0.1704	0.1785	0.1726	0.1675	0.1724	0.1729	AVRG		5.82290		0.1717	3	15	0.05	0.99	
Propylbenzene		4.8789	4.6047	4.3755	4.3775	3.9341	3.3880	3.1664	2.8620	QUAD	0.12772	0.20919	4.774E-4	3.9484	1.000	15	0.05	0.99	
Bromobenzene		0.8217	0.8242	0.8488	0.8508	0.8275	0.7974	0.7754	0.7441	AVRG		1.23268		0.8112	5	15	0.05	0.99	
1,3,5-Trimethylbenzene		3.0214	2.9611	2.8737	2.8774	2.6150	2.3163	2.2085	2.0063	AVRG		0.38315		2.6100	15	15	0.05	0.99	
2-Chlorotoluene		3.0886	3.1123	3.0882	3.0556	2.7853	2.4291	2.2711	2.0823	AVRG		0.36509		2.7391	15	15	0.05	0.99	
4-Chlorotoluene		2.9612	2.8636	2.7821	2.8035	2.6131	2.3460	2.2266	2.0954	AVRG		0.38663		2.5864	13	15	0.05	0.99	
tert-Butylbenzene		2.7837	2.5341	2.3986	2.4671	2.2869	2.1312	2.1279	1.9819	AVRG		0.42755		2.3389	11	15	0.05	0.99	
1,2,4-Trimethylbenzene		3.1366	2.9753	2.9295	2.9516	2.7062	2.4288	2.3084	2.1354	AVRG		0.37085		2.6965	14	15	0.05	0.99	
sec-Butylbenzene		3.9866	3.8745	3.4329	3.7000	3.2941	2.9994	3.0050	2.7604	AVRG		0.29572		3.3816	13	15	0.05	0.99	
para-Isopropyl Toluene		3.0288	2.8519	2.7189	2.8018	2.5829	2.3899	2.3761	2.1911	AVRG		0.38202		2.6177	11	15	0.05	0.99	
1,3-Dichlorobenzene		1.5268	1.5041	1.5082	1.5129	1.4382	1.3629	1.3405	1.2699	AVRG		0.69787		1.4329	7	15	0.600	0.99	
1,4-Dichlorobenzene		1.5565	1.4586	1.4654	1.4376	1.3920	1.3275	1.2894	1.2527	AVRG		0.71558		1.3975	7	15	0.500	0.99	
n-Butylbenzene		2.9724	2.6991	2.4476	2.5918	2.3197	2.0830	2.0897	1.9031	AVRG		0.41871		2.3883	15	15	0.05	0.99	
1,2-Dichlorobenzene		1.5091	1.4392	1.3999	1.4128	1.3656	1.2911	1.2675	1.2209	AVRG		0.73354		1.3633	7	15	0.400	0.99	
1,2-Dibromo-3-Chloropropane		0.1443	0.1114	0.1123	0.1160	0.1148	0.1091	0.1131	0.1110	AVRG		8.58337		0.1165	10	15	0.050	0.99	
1,2,4-Trichlorobenzene		0.7017	0.6379	0.6689	0.6762	0.6518	0.6426	0.6644	0.6597	AVRG		1.50851		0.6629	3	15	0.200	0.99	
Hexachlorobutadiene		0.2754	0.2626	0.2204	0.2455	0.2277	0.2373	0.2794	0.2795	AVRG		3.94527		0.2535	9	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene		1.6598	1.5074	1.5555	1.6165	1.6218	1.5232	1.5504	1.5295	AVRG		0.63674		1.5705	4	15	0.05	0.99	
1,2,3-Trichlorobenzene		0.6707	0.6108	0.6053	0.6064	0.6007	0.5938	0.6184	0.6179	AVRG		1.62472		0.6155	4	15	0.05	0.99	
Dibromofluoromethane	0.6044	0.6054	0.6067	0.6128	0.6044	0.6128	0.5990	0.5922	0.5763	AVRG		1.66235		0.6016	2	15	0.05	0.99	
1,2-Dichloroethane-d4	0.3281	0.3273	0.3323	0.3281	0.3209	0.3153	0.2870	0.2775	0.2631	AVRG		3.23785		0.3088	8	15	0.05	0.99	
Toluene-d8	1.2369	1.2517	1.2523	1.2441	1.2404	1.2418	1.2404	1.2551	1.2353	AVRG		0.80371		1.2442	1	15	0.05	0.99	
Bromofluorobenzene	1.1168	1.1206	1.1163	1.1291	1.1305	1.1246	1.1167	1.1241	1.1289	AVRG		0.89042		1.1231	1	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
Freon 12			1.0000	7	2.0000	7	5.0000	1	10.000	2	20.000	-10	50.000	-3	75.000	-2	100.00	-3
Chloromethane	0.5000	16	1.0000	9	2.0000	9	5.0000	7	10.000	3	20.000	1	50.000	-13	75.000	-13	100.00	-20
Vinyl Chloride	0.5000	11	1.0000	9	2.0000	8	5.0000	2	10.000	0	20.000	2	50.000	-7	75.000	-9	100.00	-15
Bromomethane			1.0000	-20	2.0000	-13	5.0000	-11	10.000	-3	20.000	10	50.000	10	75.000	16	100.00	11
Chloroethane			1.0000	9	2.0000	6	5.0000	4	10.000	1	20.000	3	50.000	-6	75.000	-6	100.00	-12
Trichlorofluoromethane			1.0000	9	2.0000	7	5.0000	0	10.000	3	20.000	-4	50.000	-4	75.000	-3	100.00	-9
Acetone					2.0000	20	5.0000	-7	10.000	0	20.000	-9	50.000	4	75.000	-13	100.00	5
Freon 113			0.5000	-2	2.0000	11	5.0000	**-22**	10.000	12	20.000	**-23**	50.000	4	75.000	13	100.00	8
1,1-Dichloroethene			0.5000	14	2.0000	8	5.0000	-7	10.000	4	20.000	-1	50.000	-3	75.000	-6	100.00	-9
Methylene Chloride			0.5000	15	2.0000	2	5.0000	3	10.000	2	20.000	2	50.000	-3	75.000	-8	100.00	-13
Carbon Disulfide			0.5000	**21**	2.0000	7	5.0000	0	10.000	7	20.000	2	50.000	-7	75.000	-13	100.00	-18
MTBE			0.5000	9	2.0000	4	5.0000	2	10.000	7	20.000	2	50.000	-4	75.000	-8	100.00	-12
trans-1,2-Dichloroethene			0.5000	15	2.0000	2	5.0000	3	10.000	4	20.000	2	50.000	-4	75.000	-8	100.00	-13
Vinyl Acetate	0.2500	6	0.5000	-6	2.0000	1	5.0000	-1	10.000	3	20.000	-2						
1,1-Dichloroethane			0.5000	12	2.0000	6	5.0000	7	10.000	7	20.000	2	50.000	-5	75.000	-13	100.00	-18
2-Butanone					2.0000	12	5.0000	2	10.000	6	20.000	3	50.000	-1	75.000	-12	100.00	-11
2,2-Dichloropropane			0.5000	**23**	2.0000	5	5.0000	-2	10.000	4	20.000	0	50.000	-5	75.000	-9	100.00	-15
cis-1,2-Dichloroethene			0.5000	10	2.0000	6	5.0000	4	10.000	4	20.000	2	50.000	-4	75.000	-9	100.00	-13
Chloroform			0.5000	18	2.0000	4	5.0000	6	10.000	5	20.000	1	50.000	-5	75.000	-12	100.00	-17
Bromochloromethane			0.5000	7	2.0000	3	5.0000	-2	10.000	2	20.000	2	50.000	0	75.000	-5	100.00	-7
1,1,1-Trichloroethane			0.5000	12	2.0000	6	5.0000	-3	10.000	3	20.000	0	50.000	-3	75.000	-5	100.00	-10
1,1-Dichloropropene			0.5000	12	2.0000	10	5.0000	-3	10.000	4	20.000	1	50.000	-5	75.000	-7	100.00	-12
Carbon Tetrachloride			0.5000	10	2.0000	4	5.0000	-8	10.000	4	20.000	0	50.000	-3	75.000	-1	100.00	-5
1,2-Dichloroethane			0.5000	9	2.0000	5	5.0000	3	10.000	6	20.000	1	50.000	-4	75.000	-8	100.00	-12
Benzene			0.5000	15	2.0000	10	5.0000	9	10.000	7	20.000	3	50.000	-8	75.000	-15	100.00	**-21**
Trichloroethene			0.5000	4	2.0000	5	5.0000	0	10.000	4	20.000	1	50.000	-1	75.000	-7	100.00	-5
1,2-Dichloropropane			0.5000	9	2.0000	8	5.0000	7	10.000	7	20.000	2	50.000	-5	75.000	-12	100.00	-17
Bromodichloromethane			0.5000	8	2.0000	3	5.0000	4	10.000	5	20.000	1	50.000	-3	75.000	-7	100.00	-11
Dibromomethane			0.5000	2	2.0000	3	5.0000	1	10.000	4	20.000	1	50.000	-1	75.000	-3	100.00	-6
4-Methyl-2-Pentanone					2.0000	-1	5.0000	7	10.000	5	20.000	4	50.000	-2	75.000	-6	100.00	-7
cis-1,3-Dichloropropene			0.5000	7	2.0000	4	5.0000	6	10.000	6	20.000	3	50.000	-3	75.000	-9	100.00	-14
Toluene			0.5000	10	2.0000	10	5.0000	5	10.000	6	20.000	0	50.000	-6	75.000	-10	100.00	-15
trans-1,3-Dichloropropene			0.5000	8	2.0000	2	5.0000	3	10.000	6	20.000	2	50.000	-3	75.000	-8	100.00	-10
1,1,2-Trichloroethane			0.5000	8	2.0000	1	5.0000	-2	10.000	5	20.000	0	50.000	-2	75.000	-4	100.00	-7
2-Hexanone					2.0000	3	5.0000	4	10.000	7	20.000	2	50.000	2	75.000	-10	100.00	-9
1,3-Dichloropropane			0.5000	6	2.0000	3	5.0000	4	10.000	7	20.000	3	50.000	-3	75.000	-8	100.00	-12
Tetrachloroethene			0.5000	9	2.0000	5	5.0000	-9	10.000	0	20.000	-4	50.000	-3	75.000	2	100.00	0
Dibromochloromethane			0.5000	4	2.0000	-6	5.0000	-3	10.000	4	20.000	2	50.000	1	75.000	0	100.00	-1
1,2-Dibromoethane			0.5000	-3	2.0000	2	5.0000	0	10.000	6	20.000	2	50.000	0	75.000	-2	100.00	-5
Chlorobenzene			0.5000	8	2.0000	10	5.0000	7	10.000	7	20.000	2	50.000	-6	75.000	-11	100.00	-17
1,1,1,2-Tetrachloroethane			0.5000	2	2.0000	1	5.0000	2	10.000	7	20.000	2	50.000	-1	75.000	-4	100.00	-8
Ethylbenzene			0.5000	15	2.0000	10	5.0000	6	10.000	6	20.000	-3	50.000	-15	75.000	-20		

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
m,p-Xylenes	0.5000	**25**	1.0000	7	4.0000	3	10.000	1	20.000	3	40.000	-5	100.00	-14	150.00	-20		
o-Xylene			0.5000	6	2.0000	6	5.0000	5	10.000	5	20.000	1	50.000	-3	75.000	-7	100.00	-13
Styrene			0.5000	11	2.0000	8	5.0000	9	10.000	9	20.000	2	50.000	-6	75.000	-13	100.00	-20
Bromoform			0.5000	-4	2.0000	-3	5.0000	-5	10.000	1	20.000	1	50.000	2	75.000	4	100.00	5
Isopropylbenzene			0.5000	20	2.0000	10	5.0000	7	10.000	7	20.000	0	50.000	-11	75.000	-14	100.00	-20
1,1,2,2-Tetrachloroethane			0.5000	12	2.0000	2	5.0000	1	10.000	10	20.000	3	50.000	-7	75.000	-5	100.00	-16
1,2,3-Trichloropropane			0.5000	-5	2.0000	3	5.0000	-1	10.000	4	20.000	1	50.000	-2	75.000	0	100.00	1
Propylbenzene			0.5000	**28**	2.0000	5	5.0000	-1	10.000	2	20.000	-2	50.000	-1	75.000	2	100.00	-1
Bromobenzene			0.5000	1	2.0000	2	5.0000	5	10.000	5	20.000	2	50.000	-2	75.000	-4	100.00	-8
1,3,5-Trimethylbenzene			0.5000	16	2.0000	13	5.0000	10	10.000	10	20.000	0	50.000	-11	75.000	-15	100.00	**-23**
2-Chlorotoluene			0.5000	13	2.0000	14	5.0000	13	10.000	12	20.000	2	50.000	-11	75.000	-17	100.00	**-24**
4-Chlorotoluene			0.5000	14	2.0000	11	5.0000	8	10.000	8	20.000	1	50.000	-9	75.000	-14	100.00	-19
tert-Butylbenzene			0.5000	19	2.0000	8	5.0000	3	10.000	5	20.000	-2	50.000	-9	75.000	-9	100.00	-15
1,2,4-Trimethylbenzene			0.5000	16	2.0000	10	5.0000	9	10.000	9	20.000	0	50.000	-10	75.000	-14	100.00	**-21**
sec-Butylbenzene			0.5000	18	2.0000	15	5.0000	2	10.000	9	20.000	-3	50.000	-11	75.000	-11	100.00	-18
para-Isopropyl Toluene			0.5000	16	2.0000	9	5.0000	4	10.000	7	20.000	-1	50.000	-9	75.000	-9	100.00	-16
1,3-Dichlorobenzene			0.5000	7	2.0000	5	5.0000	5	10.000	6	20.000	0	50.000	-5	75.000	-6	100.00	-11
1,4-Dichlorobenzene			0.5000	11	2.0000	4	5.0000	5	10.000	3	20.000	0	50.000	-5	75.000	-8	100.00	-10
n-Butylbenzene			0.5000	**24**	2.0000	13	5.0000	2	10.000	9	20.000	-3	50.000	-13	75.000	-13	100.00	-20
1,2-Dichlorobenzene			0.5000	11	2.0000	6	5.0000	3	10.000	4	20.000	0	50.000	-5	75.000	-7	100.00	-10
1,2-Dibromo-3-Chloropropane			0.5000	**24**	2.0000	-4	5.0000	-4	10.000	0	20.000	-1	50.000	-6	75.000	-3	100.00	-5
1,2,4-Trichlorobenzene			0.5000	6	2.0000	-4	5.0000	1	10.000	2	20.000	-2	50.000	-3	75.000	0	100.00	0
Hexachlorobutadiene			0.5000	9	2.0000	4	5.0000	-13	10.000	-3	20.000	-10	50.000	-6	75.000	10	100.00	10
Naphthalene			0.5000	6	2.0000	-4	5.0000	-1	10.000	3	20.000	3	50.000	-3	75.000	-1	100.00	-3
1,2,3-Trichlorobenzene			0.5000	9	2.0000	-1	5.0000	-2	10.000	-1	20.000	-2	50.000	-4	75.000	0	100.00	0
Dibromofluoromethane	50.000	0	50.000	1	50.000	1	50.000	2	50.000	0	50.000	2	50.000	0	50.000	-2	50.000	-4
1,2-Dichloroethane-d4	50.000	6	50.000	6	50.000	8	50.000	6	50.000	4	50.000	2	50.000	-7	50.000	-10	50.000	-15
Toluene-d8	50.000	-1	50.000	1	50.000	1	50.000	0	50.000	0	50.000	0	50.000	0	50.000	1	50.000	-1
Bromofluorobenzene	50.000	-1	50.000	0	50.000	-1	50.000	1	50.000	1	50.000	0	50.000	-1	50.000	0	50.000	1

DJA 06/26/14 [Freon 12]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [Chloroethane]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [Freon 113]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [Isopropanol]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [Vinyl Acetate]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [m,p-Xylenes]: Corrected fronting or tailing peak integration in multiple levels.

DJA 06/26/14 [Vinyl Chloride]: Corrected fronting or tailing peak integration in (hfp13).

DJA 06/26/14 [Trichlorofluoromethane]: Corrected fronting or tailing peak integration in (hfp13).

DJA 06/26/14 [Acetone]: Corrected fronting or tailing peak integration in (hfp13).

DJA 06/26/14 [tert-Butyl Alcohol (TBA)]: Corrected fronting or tailing peak integration in (hfp13).

DJA 06/26/14 [Bromomethane]: Corrected fronting or tailing peak integration in (hfp14).

Analyst: DJA Date: 06/26/14 Reviewer: LW Date: 06/27/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; QUAD=Quadratic regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259841 MSVOA Water
EPA 8260C

Inst : MSVOA08 Name : 826GOX8
Calnum : 474253910001 Cal Date : 25-JUN-2014 Type : WATER

ICV 474253910020 (hfp20 25-JUN-2014) stds: S24242 (10000X), S24802 (5000X)
ICV 474253910021 (hfp21 25-JUN-2014) stds: S24731 (10000X), S24892 (10000X), S24848 (10000X), S24802 (5000X)

Analyte	ICV Seqnum	Spiked	Quant	Units	%D	Max	Flags
Freon 12	474253910020	20.00	20.50	ug/L	2	20	m
Chloromethane	474253910020	20.00	18.24	ug/L	-9	20	m
Vinyl Chloride	474253910020	20.00	18.52	ug/L	-7	20	m
Bromomethane	474253910020	20.00	19.38	ug/L	-3	20	m
Chloroethane	474253910020	20.00	18.12	ug/L	-9	20	m
Trichlorofluoromethane	474253910020	20.00	20.25	ug/L	1	20	m
Acetone	474253910021	25.00	29.16	ug/L	17	20	
Freon 113	474253910021	25.00	24.60	ug/L	-2	20	m
1,1-Dichloroethene	474253910021	25.00	26.71	ug/L	7	20	
Methylene Chloride	474253910021	25.00	26.62	ug/L	6	20	
Carbon Disulfide	474253910021	25.00	25.50	ug/L	2	20	
MTBE	474253910021	25.00	25.13	ug/L	1	20	
trans-1,2-Dichloroethene	474253910021	25.00	26.40	ug/L	6	20	
Vinyl Acetate	474253910021	25.00	16.07	ug/L	**-36**	20	v- ***
1,1-Dichloroethane	474253910021	25.00	26.40	ug/L	6	20	
2-Butanone	474253910021	25.00	27.51	ug/L	10	20	
2,2-Dichloropropane	474253910021	25.00	25.73	ug/L	3	20	
cis-1,2-Dichloroethene	474253910021	25.00	26.69	ug/L	7	20	
Chloroform	474253910021	25.00	26.23	ug/L	5	20	
Bromochloromethane	474253910021	25.00	27.25	ug/L	9	20	
1,1,1-Trichloroethane	474253910021	25.00	27.45	ug/L	10	20	
1,1-Dichloropropene	474253910021	25.00	28.57	ug/L	14	20	
Carbon Tetrachloride	474253910021	25.00	28.23	ug/L	13	20	
1,2-Dichloroethane	474253910021	25.00	26.07	ug/L	4	20	
Benzene	474253910021	25.00	26.61	ug/L	6	20	
Trichloroethene	474253910021	25.00	28.87	ug/L	15	20	
1,2-Dichloropropane	474253910021	25.00	26.23	ug/L	5	20	
Bromodichloromethane	474253910021	25.00	26.37	ug/L	5	20	
Dibromomethane	474253910021	25.00	26.88	ug/L	8	20	
4-Methyl-2-Pentanone	474253910021	25.00	26.06	ug/L	4	20	
cis-1,3-Dichloropropene	474253910021	25.00	27.93	ug/L	12	20	
Toluene	474253910021	25.00	26.83	ug/L	7	20	
trans-1,3-Dichloropropene	474253910021	25.00	26.09	ug/L	4	20	
1,1,2-Trichloroethane	474253910021	25.00	26.29	ug/L	5	20	
2-Hexanone	474253910021	25.00	29.34	ug/L	17	20	
1,3-Dichloropropane	474253910021	25.00	26.48	ug/L	6	20	
Tetrachloroethene	474253910021	25.00	27.80	ug/L	11	20	
Dibromochloromethane	474253910021	25.00	27.07	ug/L	8	20	
1,2-Dibromoethane	474253910021	25.00	27.04	ug/L	8	20	
Chlorobenzene	474253910021	25.00	27.76	ug/L	11	20	
1,1,1,2-Tetrachloroethane	474253910021	25.00	27.12	ug/L	8	20	
Ethylbenzene	474253910021	25.00	25.71	ug/L	3	20	
m,p-Xylenes	474253910021	50.00	51.28	ug/L	3	20	
o-Xylene	474253910021	25.00	28.38	ug/L	14	20	
Styrene	474253910021	25.00	27.13	ug/L	9	20	
Bromoform	474253910021	25.00	27.40	ug/L	10	20	
Isopropylbenzene	474253910021	25.00	27.90	ug/L	12	20	

Analyte	ICV Seqnum	Spiked	Quant	Units	%D	Max	Flags
1,1,2,2-Tetrachloroethane	474253910021	25.00	24.73	ug/L	-1	20	
1,2,3-Trichloropropane	474253910021	25.00	26.43	ug/L	6	20	
Propylbenzene	474253910021	25.00	28.09	ug/L	12	20	
Bromobenzene	474253910021	25.00	27.41	ug/L	10	20	
1,3,5-Trimethylbenzene	474253910021	25.00	27.79	ug/L	11	20	
2-Chlorotoluene	474253910021	25.00	28.39	ug/L	14	20	
4-Chlorotoluene	474253910021	25.00	27.37	ug/L	9	20	
tert-Butylbenzene	474253910021	25.00	28.54	ug/L	14	20	
1,2,4-Trimethylbenzene	474253910021	25.00	26.78	ug/L	7	20	
sec-Butylbenzene	474253910021	25.00	28.54	ug/L	14	20	
para-Isopropyl Toluene	474253910021	25.00	27.47	ug/L	10	20	
1,3-Dichlorobenzene	474253910021	25.00	27.90	ug/L	12	20	
1,4-Dichlorobenzene	474253910021	25.00	26.78	ug/L	7	20	
n-Butylbenzene	474253910021	25.00	26.29	ug/L	5	20	
1,2-Dichlorobenzene	474253910021	25.00	27.65	ug/L	11	20	
1,2-Dibromo-3-Chloropropane	474253910021	25.00	24.97	ug/L	0	20	
1,2,4-Trichlorobenzene	474253910021	25.00	26.55	ug/L	6	20	
Hexachlorobutadiene	474253910021	25.00	26.33	ug/L	5	20	
Naphthalene	474253910021	25.00	27.23	ug/L	9	20	
1,2,3-Trichlorobenzene	474253910021	25.00	26.21	ug/L	5	20	

474253910020: Analyst: DJA Date: 06/26/14 Reviewer: LW Date: 06/27/14
474253910021: Analyst: DJA Date: 06/26/14 Reviewer: LW Date: 06/27/14

-=low bias m=manual integration v=ICV

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259841 MSVOA Water: EPA 8260C

Inst : MSVOA09 Name : 826GOX9W
Calnum : 484219504001 Date : 01-JUN-2014 12:39 Type : WATER
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	if105	484219504005	.25/.5PPB	01-JUN-2014 12:39	S24634 (2000000X), S24633 (2000000X), S23961 (1000000X), S24793 (5000X)
L2	if106	484219504006	0.5/1PPB	01-JUN-2014 13:11	S24634 (1000000X), S23491 (1000000X), S24633 (1000000X), S23961 (500000X), S24793 (5000X)
L3	if107	484219504007	2PPB	01-JUN-2014 13:44	S23491 (500000X), S24634 (250000X), S23961 (250000X), S24633 (250000X), S24793 (5000X)
L4	if108	484219504008	5PPB	01-JUN-2014 14:17	S23491 (200000X), S24634 (100000X), S23961 (100000X), S24633 (100000X), S24793 (5000X)
L5	if109	484219504009	10PPB	01-JUN-2014 14:50	S23491 (100000X), S24634 (50000X), S23961 (50000X), S24633 (50000X), S24793 (5000X)
L6	if110	484219504010	20PPB	01-JUN-2014 15:23	S23491 (50000X), S24634 (25000X), S23961 (25000X), S24633 (25000X), S24793 (5000X)
L7	if111	484219504011	50PPB	01-JUN-2014 15:56	S23491 (20000X), S24634 (10000X), S23961 (10000X), S24633 (10000X), S24793 (5000X)
L8	if112	484219504012	75PPB	01-JUN-2014 16:29	S23491 (13330X), S24634 (6667X), S23961 (6667X), S24633 (6667X), S24793 (5000X)
L9	if113	484219504013	100PPB	01-JUN-2014 17:02	S23491 (10000X), S24634 (5000X), S23961 (5000X), S24633 (5000X), S24793 (5000X)

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Freon 12		0.6323m	0.6058m	0.6189m	0.6757m	0.6244m	0.5997m	0.5861m	0.4995m	AVRG		1.65207		0.6053	8	15	0.100	0.99	
Chloromethane	0.7054	0.7158m	0.6612m	0.7054m	0.8254m	0.7413m	0.6768m	0.7114m	0.6536m	AVRG		1.40708		0.7107	7	15	0.100	0.99	
Vinyl Chloride	0.4272	0.4859m	0.4785	0.4722m	0.5838m	0.5094m	0.4852m	0.4757m	0.4096m	AVRG		2.07971		0.4808	10	15	0.100	0.99	
Bromomethane		0.0938	0.0934	0.0996	0.1296m	0.1625m	0.1792m	0.1949m	0.1787m	QUAD	2.12702	5.02235	0.017745	0.1415	0.997	15	0.100	0.99	
Chloroethane		0.2951m	0.2478m	0.2883	0.3447	0.2964m	0.2685m	0.2682m	0.2380m	AVRG		3.56016		0.2809	12	15	0.100	0.99	
Trichlorofluoromethane		0.6608	0.6728	0.6958	0.7955m	0.7397m	0.6991m	0.7039m	0.5933m	AVRG		1.43866		0.6951	8	15	0.100	0.99	
Acetone				0.1812	0.1529	0.1231	0.1142	0.1075	0.1066	QUAD	-3.7958	9.34871	0.039348	0.1309	1.000	15	0.100	0.99	
Freon 113		0.3898	0.3252	0.3623	0.4136	0.4062	0.4075	0.3968	0.3381	AVRG		2.63200		0.3799	9	15	0.100	0.99	
1,1-Dichloroethene		0.4994	0.4351	0.4260	0.4948	0.4470	0.4488	0.4290	0.3724	AVRG		2.25188		0.4441	9	15	0.100	0.99	
Methylene Chloride		0.6540	0.6105	0.6056	0.6628	0.6228	0.6301	0.6176	0.5489	AVRG		1.61547		0.6190	6	15	0.100	0.99	
Carbon Disulfide		1.8289	1.6980	1.7283	2.0348	1.8120	1.7849	1.7342	1.4724	AVRG		0.56764		1.7617	9	15	0.100	0.99	
MTBE		1.1046	1.1118	1.1679	1.2610	1.2510	1.2445	1.1925	1.1398	AVRG		0.84451		1.1841	5	15	0.100	0.99	
trans-1,2-Dichloroethene		0.5005	0.4861	0.5030	0.5825	0.5302	0.5093	0.5034	0.4389	AVRG		1.97342		0.5067	8	15	0.100	0.99	
Vinyl Acetate			0.9045	0.8226	1.0173	0.9371	0.9937	0.9424	0.9259	AVRG		1.06976		0.9348	7	15	0.05	0.99	
1,1-Dichloroethane		1.1193	1.0720	1.0922	1.2373	1.1476	1.1405	1.0858	0.9495	AVRG		0.90455		1.1055	7	15	0.200	0.99	
2-Butanone			0.1564	0.1594	0.1873	0.1796	0.1867	0.1830	0.1822	AVRG		5.66947		0.1764	7	15	0.100	0.99	
2,2-Dichloropropane		0.6370	0.6409	0.6408	0.7448	0.6931	0.6885	0.6611	0.5679	AVRG		1.51684		0.6593	8	15	0.05	0.99	
cis-1,2-Dichloroethene		0.6231	0.5616	0.5830	0.6527	0.6144	0.6124	0.5861	0.5233	AVRG		1.68188		0.5946	7	15	0.100	0.99	
Chloroform		1.1774	0.9745	0.9891	1.0809	1.0263	1.0083	0.9530	0.8473	AVRG		0.99295		1.0071	10	15	0.200	0.99	
Bromochloromethane		0.1950	0.2265	0.2346	0.2633	0.2635	0.2652	0.2549	0.2300	AVRG		4.13840		0.2416	10	15	0.05	0.99	
1,1,1-Trichloroethane		0.7016	0.6782	0.6641	0.7599	0.7119	0.6834	0.6574	0.5475	AVRG		1.48039		0.6755	9	15	0.100	0.99	
1,1-Dichloropropene		0.3975	0.3307	0.3386	0.3812	0.3572	0.3385	0.3354	0.2721	AVRG		2.90788		0.3439	11	15	0.05	0.99	
Carbon Tetrachloride		0.2890	0.2718	0.2740	0.3242	0.3025	0.3006	0.2988	0.2435	AVRG		3.47157		0.2881	9	15	0.100	0.99	
1,2-Dichloroethane		0.2649	0.2927	0.2828	0.3181	0.3176	0.3057	0.2910	0.2502	AVRG		3.44378		0.2904	8	15	0.100	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Benzene		1.1778	1.0763	1.0995	1.2381	1.2043	1.1356	1.0786	0.8789	AVRG		0.89998		1.1111	10	15	0.500	0.99	
Trichloroethene		0.3081	0.2580	0.2715	0.3019	0.2933	0.2811	0.2758	0.2303	AVRG		3.60324		0.2775	9	15	0.200	0.99	
1,2-Dichloropropane		0.3784	0.3358	0.3515	0.3897	0.3733	0.3631	0.3376	0.2939	AVRG		2.83386		0.3529	9	15	0.100	0.99	
Bromodichloromethane		0.3914	0.3773	0.3872	0.4255	0.4172	0.4042	0.3988	0.3455	AVRG		2.54196		0.3934	6	15	0.200	0.99	
Dibromomethane		0.1467	0.1569	0.1642	0.1868	0.1804	0.1779	0.1681	0.1509	AVRG		6.00607		0.1665	9	15	0.05	0.99	
4-Methyl-2-Pentanone			0.2258	0.2278	0.2386	0.2449	0.2385	0.2367	0.2177	AVRG		4.29405		0.2329	4	15	0.100	0.99	
cis-1,3-Dichloropropene		0.4474	0.4236	0.4532	0.4831	0.4824	0.4702	0.4466	0.3825	AVRG		2.22896		0.4486	7	15	0.200	0.99	
Toluene		0.7263	0.6797	0.6939	0.8024	0.7668	0.7189	0.7444	0.5749	AVRG		1.40172		0.7134	10	15	0.400	0.99	
trans-1,3-Dichloropropene		0.3993	0.3867	0.4012	0.4413	0.4328	0.4274	0.4413	0.3753	AVRG		2.42029		0.4132	6	15	0.100	0.99	
1,1,2-Trichloroethane		0.1426	0.1404	0.1429	0.1579	0.1566	0.1464	0.1540	0.1329	AVRG		6.81573		0.1467	6	15	0.100	0.99	
2-Hexanone			0.1429	0.1562	0.1852	0.1910	0.1829	0.1909	0.1657	AVRG		5.76244		0.1735	11	15	0.100	0.99	
1,3-Dichloropropane		0.4371	0.4444	0.4344	0.4800	0.4705	0.4403	0.4628	0.3859	AVRG		2.25008		0.4444	7	15	0.05	0.99	
Tetrachloroethene		0.2265	0.2033	0.2121	0.2544	0.2344	0.2238	0.2307	0.1903	AVRG		4.50596		0.2219	9	15	0.200	0.99	
Dibromochloromethane		0.2622	0.2458	0.2616	0.2919	0.3000	0.2942	0.3028	0.2592	AVRG		3.60744		0.2772	8	15	0.100	0.99	
1,2-Dibromoethane		0.2176	0.2422	0.2354	0.2556	0.2490	0.2521	0.2614	0.2292	AVRG		4.11824		0.2428	6	15	0.100	0.99	
Chlorobenzene		0.7333	0.6847	0.6958	0.7772	0.7717	0.7399	0.7321	0.5984	AVRG		1.39539		0.7166	8	15	0.500	0.99	
1,1,1,2-Tetrachloroethane		0.2558	0.2450	0.2476	0.2780	0.2772	0.2592	0.2561	0.2121	AVRG		3.93883		0.2539	8	15	0.05	0.99	
Ethylbenzene		1.3197	1.2404	1.2498	1.4399	1.3513	1.2179	1.1855	0.9551	AVRG		0.80324		1.2450	11	15	0.100	0.99	
m,p-Xylenes	0.3553	0.4203	0.4200	0.4341	0.4949	0.4559	0.4067	0.3638	0.2849	AVRG		2.47519		0.4040	15	15	0.100	0.99	
o-Xylene		0.4526	0.4422	0.4526	0.4835	0.4732	0.4766	0.4580	0.3670	AVRG		2.21866		0.4507	8	15	0.300	0.99	
Styrene		0.7639	0.7469	0.7682	0.8685	0.8405	0.8058	0.7597	0.6085	AVRG		1.29828		0.7703	10	15	0.300	0.99	
Bromoform		0.1411	0.1352	0.1341	0.1549	0.1596	0.1556	0.1638	0.1422	AVRG		6.74218		0.1483	8	15	0.100	0.99	
Isopropylbenzene		2.5188	2.4020	2.4437	2.8242	2.6021	2.4939	2.3936	1.9860	AVRG		0.40683		2.4580	10	15	0.100	0.99	
1,1,2,2-Tetrachloroethane		0.6160	0.6176	0.6380	0.6835	0.6871	0.6804	0.6794	0.6208	AVRG		1.53176		0.6528	5	15	0.300	0.99	
1,2,3-Trichloropropane		0.1239	0.1271	0.1341	0.1425	0.1407	0.1349	0.1294	0.1165	AVRG		7.62546		0.1311	7	15	0.05	0.99	
Propylbenzene		3.2443	2.8182	2.9542	3.3293	3.0242	2.9234	2.6221	2.1077	AVRG		0.34747		2.8779	13	15	0.05	0.99	
Bromobenzene		0.6415	0.6181	0.5908	0.6542	0.6358	0.6387	0.6132	0.5060	AVRG		1.63323		0.6123	8	15	0.05	0.99	
1,3,5-Trimethylbenzene		1.8585	1.7719	1.8543	2.0030	1.9273	1.8264	1.6085	1.3025	AVRG		0.56527		1.7691	12	15	0.05	0.99	
2-Chlorotoluene		2.2414	2.0030	2.0755	2.2360	2.1273	1.9583	1.7169	1.3664	AVRG		0.50875		1.9656	15	15	0.05	0.99	
4-Chlorotoluene		2.0173	1.8584	1.8182	2.0200	1.8763	1.8017	1.7382	1.4071	AVRG		0.55031		1.8171	11	15	0.05	0.99	
tert-Butylbenzene		1.6031	1.4630	1.5328	1.7644	1.5854	1.5969	1.5815	1.3152	AVRG		0.64297		1.5553	8	15	0.05	0.99	
1,2,4-Trimethylbenzene		1.7820	1.6856	1.7087	1.9203	1.8246	1.7722	1.7250	1.4462	AVRG		0.57701		1.7331	8	15	0.05	0.99	
sec-Butylbenzene		2.3272	2.1469	2.3154	2.6951	2.3734	2.4012	2.3075	1.8908	AVRG		0.43343		2.3072	10	15	0.05	0.99	
para-Isopropyl Toluene		1.5461	1.5468	1.5218	1.8117	1.6774	1.6952	1.6669	1.4186	AVRG		0.62091		1.6105	8	15	0.05	0.99	
1,3-Dichlorobenzene		1.0331	0.9538	0.9913	1.0478	1.0204	1.0190	1.0058	0.8457	AVRG		1.01050		0.9896	7	15	0.600	0.99	
1,4-Dichlorobenzene		0.9746	0.9220	0.9150	1.0161	0.9837	0.9641	0.9534	0.8180	AVRG		1.06005		0.9434	6	15	0.500	0.99	
n-Butylbenzene		1.2231	1.2233	1.3038	1.5370	1.4691	1.4989	1.4600	1.2690	AVRG		0.72832		1.3730	10	15	0.05	0.99	
1,2-Dichlorobenzene		0.9613	0.8956	0.9171	1.0128	1.0058	1.0057	1.0041	0.8708	AVRG		1.04261		0.9591	6	15	0.400	0.99	
1,2-Dibromo-3-Chloropropane		0.1057	0.0854	0.0804	0.0853	0.0837	0.0909	0.0949	0.0896	AVRG		11.1718		0.0895	9	15	0.050	0.99	
1,2,4-Trichlorobenzene		0.3012	0.2900	0.3449	0.3962	0.4127	0.4443	0.4541	0.4336	QUAD	1.16595	2.10373	0.003515	0.3846	0.999	15	0.200	0.99	
Hexachlorobutadiene		0.1554	0.1595	0.1745	0.2086	0.1814	0.1955	0.1988	0.1760	AVRG		5.51847		0.1812	10	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene			0.7032	0.7787	0.8891	0.9363	0.9621	0.9937	0.9173	AVRG		1.13260		0.8829	12	15	0.05	0.99	
1,2,3-Trichlorobenzene		0.2344	0.2815	0.3235	0.3585	0.3849	0.4229	0.4309	0.3924	QUAD	1.62687	2.04166	0.010458	0.3536	0.998	15	0.05	0.99	
Dibromofluoromethane	0.6715	0.6711	0.6713	0.6727	0.6713	0.6749	0.6610	0.6379	0.6429	AVRG		1.50640		0.6638	2	15	0.05	0.99	
1,2-Dichloroethane-d4	0.3119	0.3058	0.3010	0.2990	0.3020	0.3113	0.2896	0.2731	0.2676	AVRG		3.38164		0.2957	5	15	0.05	0.99	
Toluene-d8	1.3144	1.2743	1.2989	1.2859	1.3209	1.3100	1.2917	1.3129	1.2703	AVRG		0.77060		1.2977	1	15	0.05	0.99	
Bromofluorobenzene	1.1953	1.2077	1.2281	1.2149	1.1774	1.2017	1.2140	1.2285	1.2272	AVRG		0.82608		1.2105	1	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
Freon 12			1.0000	4	2.0000	0	5.0000	2	10.000	12	20.000	3	50.000	-1	75.000	-3	100.00	-17
Chloromethane	0.5000	-1	1.0000	1	2.0000	-7	5.0000	-1	10.000	16	20.000	4	50.000	-5	75.000	0	100.00	-8
Vinyl Chloride	0.5000	-11	1.0000	1	2.0000	0	5.0000	-2	10.000	**21**	20.000	6	50.000	1	75.000	-1	100.00	-15
Bromomethane			1.0000	**160**	2.0000	**53**	5.0000	-7	10.000	-13	20.000	-7	50.000	-3	75.000	6	100.00	-2
Chloroethane			1.0000	5	2.0000	-12	5.0000	3	10.000	**23**	20.000	6	50.000	-4	75.000	-5	100.00	-15
Trichlorofluoromethane			1.0000	-5	2.0000	-3	5.0000	0	10.000	14	20.000	6	50.000	1	75.000	1	100.00	-15
Acetone							5.0000	-6	10.000	6	20.000	-3	50.000	2	75.000	-1	100.00	0
Freon 113			0.5000	3	2.0000	-14	5.0000	-5	10.000	9	20.000	7	50.000	7	75.000	4	100.00	-11
1,1-Dichloroethene			0.5000	12	2.0000	-2	5.0000	-4	10.000	11	20.000	1	50.000	1	75.000	-3	100.00	-16
Methylene Chloride			0.5000	6	2.0000	-1	5.0000	-2	10.000	7	20.000	1	50.000	2	75.000	0	100.00	-11
Carbon Disulfide			0.5000	4	2.0000	-4	5.0000	-2	10.000	16	20.000	3	50.000	1	75.000	-2	100.00	-16
MTBE			0.5000	-7	2.0000	-6	5.0000	-1	10.000	6	20.000	6	50.000	5	75.000	1	100.00	-4
trans-1,2-Dichloroethene			0.5000	-1	2.0000	-4	5.0000	-1	10.000	15	20.000	5	50.000	0	75.000	-1	100.00	-13
Vinyl Acetate					2.0000	-3	5.0000	-12	10.000	9	20.000	0	50.000	6	75.000	1	100.00	-1
1,1-Dichloroethane			0.5000	1	2.0000	-3	5.0000	-1	10.000	12	20.000	4	50.000	3	75.000	-2	100.00	-14
2-Butanone					2.0000	-11	5.0000	-10	10.000	6	20.000	2	50.000	6	75.000	4	100.00	3
2,2-Dichloropropane			0.5000	-3	2.0000	-3	5.0000	-3	10.000	13	20.000	5	50.000	4	75.000	0	100.00	-14
cis-1,2-Dichloroethene			0.5000	5	2.0000	-6	5.0000	-2	10.000	10	20.000	3	50.000	3	75.000	-1	100.00	-12
Chloroform			0.5000	17	2.0000	-3	5.0000	-2	10.000	7	20.000	2	50.000	0	75.000	-5	100.00	-16
Bromochloromethane			0.5000	-19	2.0000	-6	5.0000	-3	10.000	9	20.000	9	50.000	10	75.000	5	100.00	-5
1,1,1-Trichloroethane			0.5000	4	2.0000	0	5.0000	-2	10.000	12	20.000	5	50.000	1	75.000	-3	100.00	-19
1,1-Dichloropropene			0.5000	16	2.0000	-4	5.0000	-2	10.000	11	20.000	4	50.000	-2	75.000	-2	100.00	**-21**
Carbon Tetrachloride			0.5000	0	2.0000	-6	5.0000	-5	10.000	13	20.000	5	50.000	4	75.000	4	100.00	-15
1,2-Dichloroethane			0.5000	-9	2.0000	1	5.0000	-3	10.000	10	20.000	9	50.000	5	75.000	0	100.00	-14
Benzene			0.5000	6	2.0000	-3	5.0000	-1	10.000	11	20.000	8	50.000	2	75.000	-3	100.00	**-21**
Trichloroethene			0.5000	11	2.0000	-7	5.0000	-2	10.000	9	20.000	6	50.000	1	75.000	-1	100.00	-17
1,2-Dichloropropane			0.5000	7	2.0000	-5	5.0000	0	10.000	10	20.000	6	50.000	3	75.000	-4	100.00	-17
Bromodichloromethane			0.5000	-1	2.0000	-4	5.0000	-2	10.000	8	20.000	6	50.000	3	75.000	1	100.00	-12
Dibromomethane			0.5000	-12	2.0000	-6	5.0000	-1	10.000	12	20.000	8	50.000	7	75.000	1	100.00	-9
4-Methyl-2-Pentanone					2.0000	-3	5.0000	-2	10.000	2	20.000	5	50.000	2	75.000	2	100.00	-7
cis-1,3-Dichloropropene			0.5000	0	2.0000	-6	5.0000	1	10.000	8	20.000	8	50.000	5	75.000	0	100.00	-15
Toluene			0.5000	2	2.0000	-5	5.0000	-3	10.000	12	20.000	7	50.000	1	75.000	4	100.00	-19
trans-1,3-Dichloropropene			0.5000	-3	2.0000	-6	5.0000	-3	10.000	7	20.000	5	50.000	3	75.000	7	100.00	-9
1,1,2-Trichloroethane			0.5000	-3	2.0000	-4	5.0000	-3	10.000	8	20.000	7	50.000	0	75.000	5	100.00	-9
2-Hexanone					2.0000	-18	5.0000	-10	10.000	7	20.000	10	50.000	5	75.000	10	100.00	-5
1,3-Dichloropropane			0.5000	-2	2.0000	0	5.0000	-2	10.000	8	20.000	6	50.000	-1	75.000	4	100.00	-13
Tetrachloroethene			0.5000	2	2.0000	-8	5.0000	-4	10.000	15	20.000	6	50.000	1	75.000	4	100.00	-14
Dibromochloromethane			0.5000	-5	2.0000	-11	5.0000	-6	10.000	5	20.000	8	50.000	6	75.000	9	100.00	-7
1,2-Dibromoethane			0.5000	-10	2.0000	0	5.0000	-3	10.000	5	20.000	3	50.000	4	75.000	8	100.00	-6
Chlorobenzene			0.5000	2	2.0000	-4	5.0000	-3	10.000	8	20.000	8	50.000	3	75.000	2	100.00	-17
1,1,1,2-Tetrachloroethane			0.5000	1	2.0000	-3	5.0000	-2	10.000	9	20.000	9	50.000	2	75.000	1	100.00	-16
Ethylbenzene			0.5000	6	2.0000	0	5.0000	0	10.000	16	20.000	9	50.000	-2	75.000	-5	100.00	**-23**

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
m,p-Xylenes	0.5000	-12	1.0000	4	4.0000	4	10.000	7	20.000	**23**	40.000	13	100.00	1	150.00	-10	200.00	**-29**
o-Xylene			0.5000	0	2.0000	-2	5.0000	0	10.000	7	20.000	5	50.000	6	75.000	2	100.00	-19
Styrene			0.5000	-1	2.0000	-3	5.0000	0	10.000	13	20.000	9	50.000	5	75.000	-1	100.00	**-21**
Bromoform			0.5000	-5	2.0000	-9	5.0000	-10	10.000	4	20.000	8	50.000	5	75.000	10	100.00	-4
Isopropylbenzene			0.5000	2	2.0000	-2	5.0000	-1	10.000	15	20.000	6	50.000	1	75.000	-3	100.00	-19
1,1,2,2-Tetrachloroethane			0.5000	-6	2.0000	-5	5.0000	-2	10.000	5	20.000	5	50.000	4	75.000	4	100.00	-5
1,2,3-Trichloropropane			0.5000	-6	2.0000	-3	5.0000	2	10.000	9	20.000	7	50.000	3	75.000	-1	100.00	-11
Propylbenzene			0.5000	13	2.0000	-2	5.0000	3	10.000	16	20.000	5	50.000	2	75.000	-9	100.00	**-27**
Bromobenzene			0.5000	5	2.0000	1	5.0000	-4	10.000	7	20.000	4	50.000	4	75.000	0	100.00	-17
1,3,5-Trimethylbenzene			0.5000	5	2.0000	0	5.0000	5	10.000	13	20.000	9	50.000	3	75.000	-9	100.00	**-26**
2-Chlorotoluene			0.5000	14	2.0000	2	5.0000	6	10.000	14	20.000	8	50.000	0	75.000	-13	100.00	**-30**
4-Chlorotoluene			0.5000	11	2.0000	2	5.0000	0	10.000	11	20.000	3	50.000	-1	75.000	-4	100.00	**-23**
tert-Butylbenzene			0.5000	3	2.0000	-6	5.0000	-1	10.000	13	20.000	2	50.000	3	75.000	2	100.00	-15
1,2,4-Trimethylbenzene			0.5000	3	2.0000	-3	5.0000	-1	10.000	11	20.000	5	50.000	2	75.000	0	100.00	-17
sec-Butylbenzene			0.5000	1	2.0000	-7	5.0000	0	10.000	17	20.000	3	50.000	4	75.000	0	100.00	-18
para-Isopropyl Toluene			0.5000	-4	2.0000	-4	5.0000	-6	10.000	12	20.000	4	50.000	5	75.000	3	100.00	-12
1,3-Dichlorobenzene			0.5000	4	2.0000	-4	5.0000	0	10.000	6	20.000	3	50.000	3	75.000	2	100.00	-15
1,4-Dichlorobenzene			0.5000	3	2.0000	-2	5.0000	-3	10.000	8	20.000	4	50.000	2	75.000	1	100.00	-13
n-Butylbenzene			0.5000	-11	2.0000	-11	5.0000	-5	10.000	12	20.000	7	50.000	9	75.000	6	100.00	-8
1,2-Dichlorobenzene			0.5000	0	2.0000	-7	5.0000	-4	10.000	6	20.000	5	50.000	5	75.000	5	100.00	-9
1,2-Dibromo-3-Chloropropane			0.5000	18	2.0000	-5	5.0000	-10	10.000	-5	20.000	-6	50.000	2	75.000	6	100.00	0
1,2,4-Trichlorobenzene			0.5000	**197**	2.0000	19	5.0000	-4	10.000	-4	20.000	-6	50.000	-1	75.000	3	100.00	-1
Hexachlorobutadiene			0.5000	-14	2.0000	-12	5.0000	-4	10.000	15	20.000	0	50.000	8	75.000	10	100.00	-3
Naphthalene					2.0000	-20	5.0000	-12	10.000	1	20.000	6	50.000	9	75.000	13	100.00	4
1,2,3-Trichlorobenzene			0.5000	**273**	2.0000	**39**	5.0000	-1	10.000	-9	20.000	-10	50.000	-1	75.000	5	100.00	-2
Dibromofluoromethane	50.000	1	50.000	1	50.000	1	50.000	1	50.000	1	50.000	2	50.000	0	50.000	-4	50.000	-3
1,2-Dichloroethane-d4	50.000	5	50.000	3	50.000	2	50.000	1	50.000	2	50.000	5	50.000	-2	50.000	-8	50.000	-10
Toluene-d8	50.000	1	50.000	-2	50.000	0	50.000	-1	50.000	2	50.000	1	50.000	0	50.000	1	50.000	-2
Bromofluorobenzene	50.000	-1	50.000	0	50.000	1	50.000	0	50.000	-3	50.000	-1	50.000	0	50.000	1	50.000	1

TEW 06/02/14 [Freon 12]: Corrected fronting or tailing peak integration in all levels.

TEW 06/02/14 [Chloromethane]: Corrected fronting or tailing peak integration in multiple levels.

TEW 06/02/14 [Vinyl Chloride]: Corrected fronting or tailing peak integration in multiple levels.

TEW 06/02/14 [Bromomethane]: Corrected fronting or tailing peak integration in all levels.

TEW 06/02/14 [Chloroethane]: Corrected fronting or tailing peak integration in all levels.

TEW 06/02/14 [Trichlorofluoromethane]: Corrected fronting or tailing peak integration in all levels.

TEW 06/02/14 [Tetramethyl THF]: Picked or reassigned peak1PPB (if106).

TEW 06/02/14 [Bromomethane]: Fails 8260C low point requant criteria due to high bias. OK to report ND samples, or hits >5. Will rerun hits <5PPB.

TEW 06/02/14 [1,2,4-Trichlorobenzene]: Fails 8260C low point requant criteria due to high bias. OK to report ND samples, or hits >2. Will rerun hits <2PPB.

TEW 06/02/14 [1,2,3-Trichlorobenzene]: Fails 8260C low point requant criteria due to high bias. OK to report ND samples, or hits >5. Will rerun hits <5PPB.

Analyst: TEW Date: 06/02/14 Reviewer: LW Date: 06/03/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; QUAD=Quadratic regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259841 MSVOA Water
EPA 8260C

Inst : MSVOA09 Name : 826GOX9W
Calnum : 484219504001 Cal Date : 01-JUN-2014 Type : WATER

ICV 484219504015 (if115 01-JUN-2014) stds: S24643 (10000X), S24731 (10000X), S24689 (10000X), S24793 (5000X)
ICV 484221233005 (if205 02-JUN-2014) stds: S19788 (50000X), S24793 (5000X)

Analyte	ICV Seqnum	Date	Spiked	Quant	Units	%D	Max	Flags
Freon 12	484221233005	02-JUN-2014	40.00	38.41	ug/L	-4	20	m
Chloromethane	484221233005	02-JUN-2014	40.00	38.84	ug/L	-3	20	m
Vinyl Chloride	484221233005	02-JUN-2014	40.00	46.48	ug/L	16	20	m
Bromomethane	484221233005	02-JUN-2014	40.00	33.81	ug/L	-15	20	m
Chloroethane	484221233005	02-JUN-2014	40.00	40.98	ug/L	2	20	m
Trichlorofluoromethane	484221233005	02-JUN-2014	40.00	41.13	ug/L	3	20	m
Acetone	484219504015	01-JUN-2014	25.00	22.87	ug/L	-9	20	
Freon 113	484219504015	01-JUN-2014	25.00	20.69	ug/L	-17	20	
1,1-Dichloroethene	484219504015	01-JUN-2014	25.00	22.75	ug/L	-9	20	
Methylene Chloride	484219504015	01-JUN-2014	25.00	23.51	ug/L	-6	20	
Carbon Disulfide	484219504015	01-JUN-2014	25.00	23.10	ug/L	-8	20	
MTBE	484219504015	01-JUN-2014	25.00	22.77	ug/L	-9	20	
trans-1,2-Dichloroethene	484219504015	01-JUN-2014	25.00	23.70	ug/L	-5	20	
Vinyl Acetate	484219504015	01-JUN-2014	25.00	28.95	ug/L	16	20	
1,1-Dichloroethane	484219504015	01-JUN-2014	25.00	21.55	ug/L	-14	20	
2-Butanone	484219504015	01-JUN-2014	25.00	25.56	ug/L	2	20	
2,2-Dichloropropane	484219504015	01-JUN-2014	25.00	20.30	ug/L	-19	20	
cis-1,2-Dichloroethene	484219504015	01-JUN-2014	25.00	23.84	ug/L	-5	20	
Chloroform	484219504015	01-JUN-2014	25.00	21.88	ug/L	-12	20	
Bromochloromethane	484219504015	01-JUN-2014	25.00	23.09	ug/L	-8	20	
1,1,1-Trichloroethane	484219504015	01-JUN-2014	25.00	21.94	ug/L	-12	20	
1,1-Dichloropropene	484219504015	01-JUN-2014	25.00	25.22	ug/L	1	20	
Carbon Tetrachloride	484219504015	01-JUN-2014	25.00	22.17	ug/L	-11	20	
1,2-Dichloroethane	484219504015	01-JUN-2014	25.00	25.12	ug/L	0	20	
Benzene	484219504015	01-JUN-2014	25.00	24.46	ug/L	-2	20	
Trichloroethene	484219504015	01-JUN-2014	25.00	23.76	ug/L	-5	20	
1,2-Dichloropropane	484219504015	01-JUN-2014	25.00	23.83	ug/L	-5	20	
Bromodichloromethane	484219504015	01-JUN-2014	25.00	23.37	ug/L	-7	20	
Dibromomethane	484219504015	01-JUN-2014	25.00	22.92	ug/L	-8	20	
4-Methyl-2-Pentanone	484219504015	01-JUN-2014	25.00	23.95	ug/L	-4	20	
cis-1,3-Dichloropropene	484219504015	01-JUN-2014	25.00	25.15	ug/L	1	20	
Toluene	484219504015	01-JUN-2014	25.00	23.45	ug/L	-6	20	
trans-1,3-Dichloropropene	484219504015	01-JUN-2014	25.00	23.68	ug/L	-5	20	
1,1,2-Trichloroethane	484219504015	01-JUN-2014	25.00	24.35	ug/L	-3	20	
2-Hexanone	484219504015	01-JUN-2014	25.00	25.43	ug/L	2	20	
1,3-Dichloropropane	484219504015	01-JUN-2014	25.00	24.33	ug/L	-3	20	
Tetrachloroethene	484219504015	01-JUN-2014	25.00	21.19	ug/L	-15	20	
Dibromochloromethane	484219504015	01-JUN-2014	25.00	24.03	ug/L	-4	20	
1,2-Dibromoethane	484219504015	01-JUN-2014	25.00	24.44	ug/L	-2	20	
Chlorobenzene	484219504015	01-JUN-2014	25.00	25.10	ug/L	0	20	
1,1,1,2-Tetrachloroethane	484219504015	01-JUN-2014	25.00	24.10	ug/L	-4	20	
Ethylbenzene	484219504015	01-JUN-2014	25.00	24.44	ug/L	-2	20	
m,p-Xylenes	484219504015	01-JUN-2014	50.00	51.55	ug/L	3	20	
o-Xylene	484219504015	01-JUN-2014	25.00	25.30	ug/L	1	20	
Styrene	484219504015	01-JUN-2014	25.00	24.83	ug/L	-1	20	
Bromoform	484219504015	01-JUN-2014	25.00	22.57	ug/L	-10	20	
Isopropylbenzene	484219504015	01-JUN-2014	25.00	25.52	ug/L	2	20	

Analyte	ICV Seqnum	Date	Spiked	Quant	Units	%D	Max	Flags
1,1,2,2-Tetrachloroethane	484219504015	01-JUN-2014	25.00	25.18	ug/L	1	20	
1,2,3-Trichloropropane	484219504015	01-JUN-2014	25.00	24.52	ug/L	-2	20	
Propylbenzene	484219504015	01-JUN-2014	25.00	25.60	ug/L	2	20	
Bromobenzene	484219504015	01-JUN-2014	25.00	24.20	ug/L	-3	20	
1,3,5-Trimethylbenzene	484219504015	01-JUN-2014	25.00	26.17	ug/L	5	20	
2-Chlorotoluene	484219504015	01-JUN-2014	25.00	26.35	ug/L	5	20	
4-Chlorotoluene	484219504015	01-JUN-2014	25.00	24.80	ug/L	-1	20	
tert-Butylbenzene	484219504015	01-JUN-2014	25.00	25.24	ug/L	1	20	
1,2,4-Trimethylbenzene	484219504015	01-JUN-2014	25.00	24.18	ug/L	-3	20	
sec-Butylbenzene	484219504015	01-JUN-2014	25.00	25.39	ug/L	2	20	
para-Isopropyl Toluene	484219504015	01-JUN-2014	25.00	22.99	ug/L	-8	20	
1,3-Dichlorobenzene	484219504015	01-JUN-2014	25.00	24.70	ug/L	-1	20	
1,4-Dichlorobenzene	484219504015	01-JUN-2014	25.00	23.60	ug/L	-6	20	
n-Butylbenzene	484219504015	01-JUN-2014	25.00	24.45	ug/L	-2	20	
1,2-Dichlorobenzene	484219504015	01-JUN-2014	25.00	25.01	ug/L	0	20	
1,2-Dibromo-3-Chloropropane	484219504015	01-JUN-2014	25.00	23.03	ug/L	-8	20	
1,2,4-Trichlorobenzene	484219504015	01-JUN-2014	25.00	22.50	ug/L	-10	20	
Hexachlorobutadiene	484219504015	01-JUN-2014	25.00	24.78	ug/L	-1	20	
Naphthalene	484219504015	01-JUN-2014	25.00	24.65	ug/L	-1	20	
1,2,3-Trichlorobenzene	484219504015	01-JUN-2014	25.00	21.10	ug/L	-16	20	

484219504015: Analyst: TEW Date: 06/02/14 Reviewer: LW Date: 06/03/14
484221233005: Analyst: TEW Date: 06/02/14 Reviewer: LW Date: 06/03/14

m=manual integration

CURTIS & TOMPKINS SPIKE USER REPORT FOR 259841 MSVOA Water
EPA 8260C

Inst : MSVOA08 Run Name : QC753800 IDF : 1.0
Seqnum : 474329105004.3 File : hhg04 Time : 16-AUG-2014 15:06
Cal : 474253910001 Caldate : 25-JUN-2014 Caltype : WATER
Standards: S25233 (20000X), S25398 (20000X), S25287 (20000X), S24467 (20000X), S25202 (5000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Freon 12	0.6055	0.6213	10.00	10.26	ug/L	3	20	0.1000	u
Chloromethane	1.1399	1.1573	10.00	10.15	ug/L	2	20	0.1000	u
Vinyl Chloride	0.8049	0.7749	10.00	9.627	ug/L	-4	20	0.1000	u
Bromomethane	0.3586	0.3708	10.00	10.34	ug/L	3	20	0.1000	u
Chloroethane	0.4286	0.3910	10.00	9.123	ug/L	-9	20	0.1000	u
Trichlorofluoromethane	0.6240	0.6764	10.00	10.84	ug/L	8	20	0.1000	u
Acetone	0.1534	0.1645	12.50	13.41	ug/L	7	20	0.1000	u
Freon 113	0.4174	0.4887	12.50	14.64	ug/L	17	20	0.1000	u
1,1-Dichloroethene	0.5459	0.5504	12.50	12.60	ug/L	1	20	0.1000	u
Methylene Chloride	0.7068	0.7428	12.50	13.14	ug/L	5	20	0.1000	u
Carbon Disulfide	2.2329	2.1651	12.50	12.12	ug/L	-3	20	0.1000	u
MTBE	1.3428	1.3512	12.50	12.58	ug/L	1	20	0.1000	u
trans-1,2-Dichloroethene	0.6374	0.6735	12.50	13.21	ug/L	6	20	0.1000	u
Vinyl Acetate	1.0811	1.4001	12.50	16.19	ug/L	**30**	20	0.0500	c+ u v- ***
1,1-Dichloroethane	1.3356	1.3861	12.50	12.97	ug/L	4	20	0.2000	u
2-Butanone	0.2149	0.2689	12.50	15.64	ug/L	**25**	20	0.1000	c+ u ***
cis-1,2-Dichloroethene	0.7063	0.7627	12.50	13.50	ug/L	8	20	0.1000	u
2,2-Dichloropropane	0.7529	0.9003	12.50	14.95	ug/L	20	20	0.0500	u
Chloroform	1.0998	1.1883	12.50	13.51	ug/L	8	20	0.2000	u
Bromochloromethane	0.3042	0.3223	12.50	13.24	ug/L	6	20	0.0500	u
1,1,1-Trichloroethane	0.7207	0.8066	12.50	13.99	ug/L	12	20	0.1000	u
1,1-Dichloropropene	0.4623	0.5180	12.50	14.00	ug/L	12	20	0.0500	u
Carbon Tetrachloride	0.3472	0.3738	12.50	13.46	ug/L	8	20	0.1000	u
1,2-Dichloroethane	0.4347	0.4517	12.50	12.99	ug/L	4	20	0.1000	u
Benzene	1.4234	1.4999	12.50	13.17	ug/L	5	20	0.5000	u
Trichloroethene	0.3533	0.3758	12.50	13.30	ug/L	6	20	0.2000	u
1,2-Dichloropropane	0.4567	0.4525	12.50	12.38	ug/L	-1	20	0.1000	u
Bromodichloromethane	0.4768	0.4830	12.50	12.66	ug/L	1	20	0.2000	u
Dibromomethane	0.2038	0.2197	12.50	13.48	ug/L	8	20	0.0500	u
4-Methyl-2-Pentanone	0.3034	0.3239	12.50	13.35	ug/L	7	20	0.1000	u
cis-1,3-Dichloropropene	0.5858	0.6461	12.50	13.79	ug/L	10	20	0.2000	u
Toluene	1.0030	1.0509	12.50	13.10	ug/L	5	20	0.4000	u
trans-1,3-Dichloropropene	0.5721	0.5654	12.50	12.35	ug/L	-1	20	0.1000	u
1,1,2-Trichloroethane	0.1833	0.1947	12.50	13.28	ug/L	6	20	0.1000	u
2-Hexanone	0.2444	0.2843	12.50	14.54	ug/L	16	20	0.1000	u
1,3-Dichloropropane	0.5907	0.6147	12.50	13.01	ug/L	4	20	0.0500	u
Tetrachloroethene	0.3257	0.3439	12.50	13.20	ug/L	6	20	0.2000	u
Dibromochloromethane	0.3582	0.3538	12.50	12.35	ug/L	-1	20	0.1000	u
1,2-Dibromoethane	0.3124	0.3319	12.50	13.28	ug/L	6	20	0.1000	u
Chlorobenzene	1.0457	1.1712	12.50	14.00	ug/L	12	20	0.5000	u
1,1,1,2-Tetrachloroethane	0.3530	0.3541	12.50	12.54	ug/L	0	20	0.0500	u
Ethylbenzene	1.8170	1.9802	12.50	13.62	ug/L	9	20	0.1000	u
m,p-Xylenes	0.6994	0.7466	25.00	26.69	ug/L	7	20	0.1000	u
o-Xylene	0.6912	0.7674	12.50	13.88	ug/L	11	20	0.3000	u
Styrene	1.1491	1.2623	12.50	13.73	ug/L	10	20	0.3000	u
Bromoform	0.1816	0.1790	12.50	12.32	ug/L	-1	20	0.1000	u
Isopropylbenzene	3.3008	3.7689	12.50	14.27	ug/L	14	20	0.1000	u

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
1,1,2,2-Tetrachloroethane	0.7400	0.8427	12.50	14.24	ug/L	14	20	0.3000	u
1,2,3-Trichloropropane	0.1717	0.1876	12.50	13.65	ug/L	9	20	0.0500	u
Propylbenzene	3.9484	4.6880	12.50	14.03	ug/L	12	20	0.0500	u
Bromobenzene	0.8112	0.8546	12.50	13.17	ug/L	5	20	0.0500	u
1,3,5-Trimethylbenzene	2.6100	3.0082	12.50	14.41	ug/L	15	20	0.0500	u
2-Chlorotoluene	2.7391	3.1886	12.50	14.55	ug/L	16	20	0.0500	u
4-Chlorotoluene	2.5864	2.9267	12.50	14.14	ug/L	13	20	0.0500	u
tert-Butylbenzene	2.3389	2.6614	12.50	14.22	ug/L	14	20	0.0500	u
1,2,4-Trimethylbenzene	2.6965	2.9971	12.50	13.89	ug/L	11	20	0.0500	u
sec-Butylbenzene	3.3816	4.2170	12.50	15.59	ug/L	**25**	20	0.0500	c+ u ***
para-Isopropyl Toluene	2.6177	3.0037	12.50	14.34	ug/L	15	20	0.0500	u
1,3-Dichlorobenzene	1.4329	1.6030	12.50	13.98	ug/L	12	20	0.6000	u
1,4-Dichlorobenzene	1.3975	1.5255	12.50	13.65	ug/L	9	20	0.5000	u
n-Butylbenzene	2.3883	2.8898	12.50	15.12	ug/L	**21**	20	0.0500	c+ u ***
1,2-Dichlorobenzene	1.3633	1.4988	12.50	13.74	ug/L	10	20	0.4000	u
1,2-Dibromo-3-Chloropropane	0.1165	0.1032	12.50	11.07	ug/L	-11	20	0.0500	u
1,2,4-Trichlorobenzene	0.6629	0.7321	12.50	13.80	ug/L	10	20	0.2000	u
Hexachlorobutadiene	0.2535	0.3044	12.50	15.01	ug/L	20	20	0.0500	u
Naphthalene	1.5705	1.6433	12.50	13.08	ug/L	5	20	0.0500	u
1,2,3-Trichlorobenzene	0.6155	0.6783	12.50	13.78	ug/L	10	20	0.0500	u
Dibromofluoromethane	0.6016	0.6354	50.00	52.81	ug/L	6	20	0.0500	u
1,2-Dichloroethane-d4	0.3088	0.3315	50.00	53.66	ug/L	7	20	0.0500	u
Toluene-d8	1.2442	1.2659	50.00	50.87	ug/L	2	20	0.0500	u
Bromofluorobenzene	1.1231	1.1247	50.00	50.07	ug/L	0	20	0.0500	u

ISTD (ICAL hfp17)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	1827854	1813160	-0.80	10.25	10.24	-0.01
1,4-Difluorobenzene	3226896	3264165	1.15	11.45	11.45	0.00
Chlorobenzene-d5	2647236	2748155	3.81	15.93	15.92	-0.01
1,4-Dichlorobenzene-d4	1290871	1372176	6.30	18.77	18.76	-0.01

Analyst: DJA Date: 08/19/14 Reviewer: LW Date: 08/27/14

+=high bias -=low bias c=CCV u=use v=ICV

CURTIS & TOMPKINS SPIKE USER REPORT FOR 259841 MSVOA Water
EPA 8260C

Inst : MSVOA09 Run Name : QC753910 IDF : 1.0
Seqnum : 484331713003.3 File : ihi03 Time : 18-AUG-2014 10:51
Cal : 484219504001 Caldate : 01-JUN-2014 Caltype : WATER
Standards: S25287 (10000X), S24467 (10000X), S25398 (10000X), S25233 (10000X), S25243 (5000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Freon 12	0.6053	0.4542	20.00	15.01	ug/L	**-25**	20	0.1000	c- u ***
Chloromethane	0.7107	0.7156	20.00	20.14	ug/L	1	20	0.1000	u
Vinyl Chloride	0.4808	0.5047	20.00	20.99	ug/L	5	20	0.1000	u
Bromomethane	0.1415	0.1979	20.00	22.29	ug/L	11	20	0.1000	?LOD u ***
Chloroethane	0.2809	0.2830	20.00	20.15	ug/L	1	20	0.1000	u
Trichlorofluoromethane	0.6951	0.6466	20.00	18.61	ug/L	-7	20	0.1000	u
Acetone	0.1309	0.1039	25.00	20.76	ug/L	-17	20	0.1000	?LOD u ***
Freon 113	0.3799	0.3188	25.00	20.98	ug/L	-16	20	0.1000	u
1,1-Dichloroethene	0.4441	0.3682	25.00	20.73	ug/L	-17	20	0.1000	u
Methylene Chloride	0.6190	0.5317	25.00	21.47	ug/L	-14	20	0.1000	u
Carbon Disulfide	1.7617	1.4989	25.00	21.27	ug/L	-15	20	0.1000	u
MTBE	1.1841	0.8831	25.00	18.65	ug/L	**-25**	20	0.1000	c- u ***
trans-1,2-Dichloroethene	0.5067	0.4459	25.00	22.00	ug/L	-12	20	0.1000	u
Vinyl Acetate	0.9348	1.0226	25.00	27.35	ug/L	9	20	0.0500	u
1,1-Dichloroethane	1.1055	0.9903	25.00	22.39	ug/L	-10	20	0.2000	u
2-Butanone	0.1764	0.1580	25.00	22.40	ug/L	-10	20	0.1000	u
cis-1,2-Dichloroethene	0.5946	0.5158	25.00	21.69	ug/L	-13	20	0.1000	u
2,2-Dichloropropane	0.6593	0.7097	25.00	26.91	ug/L	8	20	0.0500	u
Chloroform	1.0071	0.9011	25.00	22.37	ug/L	-11	20	0.2000	u
Bromochloromethane	0.2416	0.2174	25.00	22.50	ug/L	-10	20	0.0500	u
1,1,1-Trichloroethane	0.6755	0.6704	25.00	24.81	ug/L	-1	20	0.1000	u
1,1-Dichloropropene	0.3439	0.3417	25.00	24.84	ug/L	-1	20	0.0500	u
Carbon Tetrachloride	0.2881	0.3016	25.00	26.17	ug/L	5	20	0.1000	u
1,2-Dichloroethane	0.2904	0.3094	25.00	26.63	ug/L	7	20	0.1000	u
Benzene	1.1111	1.0981	25.00	24.71	ug/L	-1	20	0.5000	u
Trichloroethene	0.2775	0.2602	25.00	23.44	ug/L	-6	20	0.2000	u
1,2-Dichloropropane	0.3529	0.3178	25.00	22.51	ug/L	-10	20	0.1000	u
Bromodichloromethane	0.3934	0.3647	25.00	23.18	ug/L	-7	20	0.2000	u
Dibromomethane	0.1665	0.1508	25.00	22.65	ug/L	-9	20	0.0500	u
4-Methyl-2-Pentanone	0.2329	0.1886	25.00	20.25	ug/L	-19	20	0.1000	u
cis-1,3-Dichloropropene	0.4486	0.4423	25.00	24.65	ug/L	-1	20	0.2000	u
Toluene	0.7134	0.6751	25.00	23.66	ug/L	-5	20	0.4000	u
trans-1,3-Dichloropropene	0.4132	0.3662	25.00	22.16	ug/L	-11	20	0.1000	u
1,1,2-Trichloroethane	0.1467	0.1224	25.00	20.85	ug/L	-17	20	0.1000	u
2-Hexanone	0.1735	0.1507	25.00	21.71	ug/L	-13	20	0.1000	u
1,3-Dichloropropane	0.4444	0.3844	25.00	21.63	ug/L	-13	20	0.0500	u
Tetrachloroethene	0.2219	0.2190	25.00	24.67	ug/L	-1	20	0.2000	u
Dibromochloromethane	0.2772	0.2444	25.00	22.04	ug/L	-12	20	0.1000	u
1,2-Dibromoethane	0.2428	0.2005	25.00	20.65	ug/L	-17	20	0.1000	u
Chlorobenzene	0.7166	0.6911	25.00	24.11	ug/L	-4	20	0.5000	u
1,1,1,2-Tetrachloroethane	0.2539	0.2346	25.00	23.10	ug/L	-8	20	0.0500	u
Ethylbenzene	1.2450	1.1669	25.00	23.43	ug/L	-6	20	0.1000	u
m,p-Xylenes	0.4040	0.4301	50.00	53.23	ug/L	6	20	0.1000	u
o-Xylene	0.4507	0.4427	25.00	24.56	ug/L	-2	20	0.3000	u
Styrene	0.7703	0.7026	25.00	22.80	ug/L	-9	20	0.3000	u
Bromoform	0.1483	0.1154	25.00	19.45	ug/L	**-22**	20	0.1000	c- u ***
Isopropylbenzene	2.4580	2.2679	25.00	23.07	ug/L	-8	20	0.1000	u

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
1,1,2,2-Tetrachloroethane	0.6528	0.4914	25.00	18.82	ug/L	**-25**	20	0.3000	c- u ***
1,2,3-Trichloropropane	0.1311	0.0995	25.00	18.96	ug/L	**-24**	20	0.0500	c- u ***
Propylbenzene	2.8779	2.7721	25.00	24.08	ug/L	-4	20	0.0500	u
Bromobenzene	0.6123	0.5656	25.00	23.09	ug/L	-8	20	0.0500	u
1,3,5-Trimethylbenzene	1.7691	1.7229	25.00	24.35	ug/L	-3	20	0.0500	u
2-Chlorotoluene	1.9656	1.9660	25.00	25.01	ug/L	0	20	0.0500	u
4-Chlorotoluene	1.8171	1.6096	25.00	22.14	ug/L	-11	20	0.0500	u
tert-Butylbenzene	1.5553	1.4348	25.00	23.06	ug/L	-8	20	0.0500	u
1,2,4-Trimethylbenzene	1.7331	1.4933	25.00	21.54	ug/L	-14	20	0.0500	u
sec-Butylbenzene	2.3072	2.0830	25.00	22.57	ug/L	-10	20	0.0500	u
para-Isopropyl Toluene	1.6105	1.4505	25.00	22.52	ug/L	-10	20	0.0500	u
1,3-Dichlorobenzene	0.9896	0.9096	25.00	22.98	ug/L	-8	20	0.6000	u
1,4-Dichlorobenzene	0.9434	0.8590	25.00	22.76	ug/L	-9	20	0.5000	u
n-Butylbenzene	1.3730	1.2421	25.00	22.62	ug/L	-10	20	0.0500	u
1,2-Dichlorobenzene	0.9591	0.8584	25.00	22.37	ug/L	-11	20	0.4000	u
1,2-Dibromo-3-Chloropropane	0.0895	0.0567	25.00	15.82	ug/L	**-37**	20	0.0500	c- u ***
1,2,4-Trichlorobenzene	0.3846	0.3241	25.00	18.44	ug/L	**-26**	20	0.2000	?LOD c- u ***
Hexachlorobutadiene	0.1812	0.1659	25.00	22.89	ug/L	-8	20	0.0500	u
Naphthalene	0.8829	0.5957	25.00	16.87	ug/L	**-33**	20	0.0500	c- u ***
1,2,3-Trichlorobenzene	0.3536	0.2851	25.00	16.71	ug/L	**-33**	20	0.0500	?LOD c- u ***
Dibromofluoromethane	0.6638	0.6410	50.00	48.28	ug/L	-3	20	0.0500	u
1,2-Dichloroethane-d4	0.2957	0.3456	50.00	58.44	ug/L	17	20	0.0500	u
Toluene-d8	1.2977	1.3503	50.00	52.03	ug/L	4	20	0.0500	u
Bromofluorobenzene	1.2105	1.1234	50.00	46.40	ug/L	-7	20	0.0500	u

ISTD (ICAL if111)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	1556208	2041413	31.18	11.33	11.30	-0.03
1,4-Difluorobenzene	2890532	3514102	21.57	12.60	12.56	-0.04
Chlorobenzene-d5	2489780	2988264	20.02	16.88	16.86	-0.02
1,4-Dichlorobenzene-d4	1089495	1387557	27.36	19.33	19.30	-0.03

Analyst: DJA Date: 08/19/14 Reviewer: LW Date: 08/27/14

-=low bias ?LOD=no LOD c=CCV u=use

Logbooks & Sequences

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 474329105

Date : 08/16/14 Reference : hfp17
Sequence : MSVOA08 hhg Analyzed : 06/25/14 18:09

#	Type	Sample ID	PFLBZ	RT	14DFB	RT	CLBZD5	RT	DCBZ14D4	RT
		ICAL STD	1827854	10.25	3226896	11.45	2647236	15.93	1290871	18.77
		LOWER LIMIT	913927	9.75	1613448	10.95	1323618	15.43	645436	18.27
		UPPER LIMIT	3655708	10.75	6453792	11.95	5294472	16.43	2581742	19.27
003	CCV		1809353	10.23	3271745	11.45	2795004	15.92	1392686	18.76
004	CCV/BS	QC753800	1813160	10.24	3264165	11.45	2748155	15.92	1372176	18.76
005	BSD	QC753801	1831351	10.25	3290164	11.45	2785772	15.92	1370140	18.76
007	BLANK	QC753802	1805030	10.25	3282468	11.45	2766132	15.93	1306871	18.77
008	SAMPLE	259841-004	1821523	10.24	3333940	11.44	2774985	15.92	1299786	18.76
009	SAMPLE	259841-006	1722798	10.24	3149495	11.45	2680087	15.92	1259172	18.76
010	SAMPLE	259841-007	1790617	10.24	3248541	11.45	2736336	15.92	1285875	18.76
011	SAMPLE	259862-003	1746656	10.24	3175037	11.45	2651679	15.92	1249054	18.76
012	SAMPLE	259862-005	1725526	10.24	3125510	11.45	2649711	15.92	1231732	18.76
013	SAMPLE	259844-005	1743433	10.24	3190004	11.45	2692521	15.93	1244952	18.76
014	SAMPLE	259862-002	1710123	10.24	3146316	11.45	2664786	15.92	1235911	18.76
015	SAMPLE	259862-004	1817083	10.24	3274720	11.45	2767809	15.92	1281395	18.76
016	SAMPLE	259797-003	1734400	10.24	3187283	11.45	2688513	15.92	1262506	18.76
017	SAMPLE	259862-001	1748828	10.24	3212686	11.45	2697766	15.92	1237061	18.76
018	IB		1743804	10.24	3171939	11.44	2711117	15.92	1255233	18.76
019	IB		1711898	10.24	3164915	11.45	2665721	15.92	1231019	18.76
020	IB		1696167	10.24	3148622	11.45	2649806	15.92	1224598	18.76
021	IB		1688184	10.24	3145383	11.44	2628232	15.92	1203543	18.76

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 484331713

Date : 08/18/14 Reference : if111
Sequence : MSVOA09 ihi Analyzed : 06/01/14 15:56

#	Type	Sample ID	PFLBZ	RT	14DFB	RT	CLBZD5	RT	DCBZ14D4	RT
		ICAL STD	1556208	11.33	2890532	12.60	2489780	16.88	1089495	19.33
		LOWER LIMIT	778104	10.83	1445266	12.10	1244890	16.38	544748	18.83
		UPPER LIMIT	3112416	11.83	5781064	13.10	4979560	17.38	2178990	19.83
003	CCV/BS	QC753910	2041413	11.30	3514102	12.56	2988264	16.86	1387557	19.30
004	BSD	QC753911	2062799	11.30	3586347	12.57	3067249	16.86	1439155	19.31
007	BLANK	QC753912	1808863	11.32	3081606	12.59	2604539	16.87	1137500	19.33
008	SAMPLE	259786-002	1317484	11.32	2244611	12.59	1837590	16.87	766957	19.33
009	SAMPLE	259841-004	1752689	11.33	2971932	12.59	2471210	16.88	1071720	19.32
010	MSS	259786-001	1445927	11.33	2505680	12.59	2120860	16.88	922071	19.32
011	SAMPLE	259786-003	1629462	11.33	2807436	12.60	2372982	16.88	1050825	19.33
012	SAMPLE	259786-004	1599551	11.33	2774248	12.59	2378342	16.88	1029370	19.32
013	SAMPLE	259790-001	1562598	11.33	2714172	12.59	2267672	16.88	966986	19.33
014	SAMPLE	259790-002	1573029	11.33	2675142	12.59	2235790	16.88	975823	19.32
015	SAMPLE	259841-006	1570702	11.33	2709612	12.60	2313671	16.88	1000655	19.33
016	SAMPLE	259841-007	1510644	11.34	2629669	12.60	2222512	16.88	937062	19.33
017	MS	QC753972	1424090	11.33	2409722	12.59	2108192	16.88	1038456	19.32
018	MSD	QC753973	1328801	11.34	2236438	12.60	1953365	16.88	941655	19.33

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 474253910

Instrument : MSVOA08 Begun : 06/25/14 07:50
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	hfp01	X	LOW POINT			06/25/14 07:50	1.0	1	
002	hfp02	TUN	BFB			06/25/14 08:37	1.0	2	
003	hfp03	TUN	BFB			06/25/14 09:25	1.0	2	t
004	hfp04	TUN	BFB			06/25/14 09:58	1.0	2	t
005	hfp05	TUN	BFB			06/25/14 10:52	1.0	2	t
006	hfp06	TUN	BFB			06/25/14 11:49	1.0	2	
007	hfp07	TUN	BFB			06/25/14 12:28	1.0	2	
008	hfp08	TUN	BFB			06/25/14 12:59	1.0	2	
009	hfp09	X	IB			06/25/14 13:32	1.0	1	
010	hfp10	IB	CALIB			06/25/14 14:07	1.0	1	
011	hfp11	ICAL				06/25/14 14:41	1.0	3 4 5 6 1	
012	hfp12	ICAL				06/25/14 15:16	1.0	3 4 5 6 1	
013	hfp13	ICAL				06/25/14 15:51	1.0	3 4 5 6 1	
014	hfp14	ICAL				06/25/14 16:25	1.0	3 4 5 6 1	
015	hfp15	ICAL				06/25/14 17:00	1.0	3 4 5 6 1	
016	hfp16	ICAL				06/25/14 17:35	1.0	3 4 5 6 1	
017	hfp17	ICAL				06/25/14 18:09	1.0	3 4 5 6 1	
018	hfp18	ICAL				06/25/14 18:44	1.0	3 4 5 6 1	
019	hfp19	ICAL				06/25/14 19:19	1.0	3 4 5 6 1	
020	hfp20	ICV				06/25/14 19:53	1.0	7 1	
021	hfp21	ICV				06/25/14 20:28	1.0	8 9 10 1	
022	hfp22	X	IB			06/25/14 21:03	1.0	1	
023	hfp23	X	IB			06/25/14 21:38	1.0	1	
024	hfp24	X	IB			06/25/14 22:12	1.0	1	

DJA 06/26/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 24.

Analyst: DJA Date: 06/26/14 Reviewer: LW Date: 06/27/14

Standards used: 1=S24802 2=S24715 3=S23923 4=S24633 5=S24634 6=S23961 7=S24242 8=S24731 9=S24892 10=S24848

Flags used: t=tune failure

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 474329105

Instrument : MSVOA08 Begun : 08/16/14 13:05
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	hhg01	X	IB			08/16/14 13:05	1.0	1	
002	hhg02	TUN	BFB			08/16/14 13:32	1.0	2	
003	hhg03	CCV				08/16/14 14:31	1.0	3 4 5 6 1	cc-
004	hhg04	CCV/BS	QC753800	Water	214459	08/16/14 15:06	1.0	7 8 9 10 1	
005	hhg05	BSD	QC753801	Water	214459	08/16/14 15:41	1.0	7 8 9 10 1	
006	hhg06	X	IB			08/16/14 16:16	1.0	1	
007	hhg07	BLANK	QC753802	Water	214459	08/16/14 16:51	1.0	1	
008	hhg08	SAMPLE	259841-004	Water	214459	08/16/14 18:34	1.0	1	
009	hhg09	SAMPLE	259841-006	Water	214459	08/16/14 19:09	1.0	1	
010	hhg10	SAMPLE	259841-007	Water	214459	08/16/14 19:44	1.0	1	
011	hhg11	SAMPLE	259862-003	Water	214459	08/16/14 20:19	1.0	1	
012	hhg12	SAMPLE	259862-005	Water	214459	08/16/14 20:54	1.0	1	
013	hhg13	SAMPLE	259844-005	Water	214459	08/16/14 21:29	4.0	1	
014	hhg14	SAMPLE	259862-002	Water	214459	08/16/14 22:03	2.0	1	
015	hhg15	SAMPLE	259862-004	Water	214459	08/16/14 22:38	7.143	1	
016	hhg16	SAMPLE	259797-003	Water	214459	08/16/14 23:13	10.0	1	
017	hhg17	SAMPLE	259862-001	Water	214459	08/16/14 23:48	1.0	1	
018	hhg18	IB				08/17/14 00:22	1.0	1	
019	hhg19	IB				08/17/14 00:57	1.0	1	
020	hhg20	IB				08/17/14 01:32	1.0	1	
021	hhg21	IB				08/17/14 02:06	1.0	1	<<t

DJA 08/18/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 21.

DJA 08/18/14 : Matrix spikes were not performed for this analysis in batch 214459 due to insufficient sample amount.

Analyst: DJA Date: 08/18/14 Reviewer: LW Date: 08/18/14

Standards used: 1=S25202 2=S24715 3=S23923 4=S25335 5=S25373 6=S25156 7=S25233 8=S25398 9=S25287 10=S24467

Flags used: -=low bias <<t=out of clock cc=CCV CCC failure

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 484219504

Instrument : MSVOA09 Begun : 06/01/14 10:24
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	if101	X	IB			06/01/14 10:24	1.0	1	
002	if102	TUN	BFB			06/01/14 10:56	1.0	2	
003	if103	X	IB			06/01/14 11:20	1.0	1	
004	if104	IB	CALIB IB			06/01/14 11:52	1.0	1	
005	if105	ICAL	.25/.5PPB			06/01/14 12:39	1.0	3 4 5 1	
006	if106	ICAL	0.5/1PPB			06/01/14 13:11	1.0	3 6 4 5 1	
007	if107	ICAL	2PPB			06/01/14 13:44	1.0	6 3 5 4 1	
008	if108	ICAL	5PPB			06/01/14 14:17	1.0	6 3 5 4 1	
009	if109	ICAL	10PPB			06/01/14 14:50	1.0	6 3 5 4 1	
010	if110	ICAL	20PPB			06/01/14 15:23	1.0	6 3 5 4 1	
011	if111	ICAL	50PPB			06/01/14 15:56	1.0	6 3 5 4 1	
012	if112	ICAL	75PPB			06/01/14 16:29	1.0	6 3 5 4 1	
013	if113	ICAL	100PPB			06/01/14 17:02	1.0	6 3 5 4 1	
014	if114	ICV	GASES			06/01/14 17:35	1.0	7 1	
015	if115	ICV				06/01/14 18:08	1.0	8 9 10 1	
016	if116	X	IB			06/01/14 18:41	1.0	1	

TEW 06/02/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 16.

Analyst: TEW Date: 06/02/14 Reviewer: LW Date: 06/03/14

Standards used: 1=S24793 2=S24715 3=S24634 4=S24633 5=S23961 6=S23491 7=S24242 8=S24643 9=S24731 10=S24689

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 484221233

Instrument : MSVOA09 Begun : 06/02/14 15:13
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	if201	X	IB			06/02/14 15:13	1.0	1	
002	if202	TUN	BFB			06/02/14 15:52	1.0	2	t
003	if203	TUN	BFB			06/02/14 16:07	1.0	2	
004	if204	ICV	GASES			06/02/14 16:31	1.0	3 1	
005	if205	ICV	GASES			06/02/14 17:35	1.0	4 1	

TEW 06/02/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 5.

Analyst: TEW Date: 06/02/14 Reviewer: LW Date: 06/03/14

Standards used: 1=S24793 2=S24715 3=S24242 4=S19788

Flags used: t=tune failure

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 484331713

Instrument : MSVOA09 Begun : 08/18/14 08:33
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	ihi01	X	IB			08/18/14 08:33	1.0	1	
002	ihi02	TUN	BFB			08/18/14 10:18	1.0	2	
003	ihi03	CCV/BS	QC753910	Water	214489	08/18/14 10:51	1.0	3 4 5 6 1	
004	ihi04	BSD	QC753911	Water	214489	08/18/14 11:37	1.0	3 4 5 6 1	
005	ihi05	X	CCV			08/18/14 12:10	1.0	7 1	
006	ihi06	X	IB			08/18/14 12:42	1.0	1	
007	ihi07	BLANK	QC753912	Water	214489	08/18/14 13:15	1.0	1	
008	ihi08	SAMPLE	259786-002	Water	214489	08/18/14 13:48	1.0	1	headspace > 1 mL
009	ihi09	SAMPLE	259841-004	Water	214489	08/18/14 14:21	1.0	1	headspace > 1 mL
010	ihi10	MSS	259786-001	Water	214489	08/18/14 14:54	1.0	1	pH > 2
011	ihi11	SAMPLE	259786-003	Water	214489	08/18/14 15:27	1.0	1	pH > 2
012	ihi12	SAMPLE	259786-004	Water	214489	08/18/14 16:00	1.0	1	pH > 2
013	ihi13	SAMPLE	259790-001	Water	214489	08/18/14 16:33	1.0	1	
014	ihi14	SAMPLE	259790-002	Water	214489	08/18/14 17:06	1.0	1	
015	ihi15	SAMPLE	259841-006	Water	214489	08/18/14 17:39	1.0	1	
016	ihi16	SAMPLE	259841-007	Water	214489	08/18/14 18:11	1.0	1	
017	ihi17	MS	QC753972	Water	214489	08/18/14 18:44	1.0	3 4 5 6 1	
018	ihi18	MSD	QC753973	Water	214489	08/18/14 19:17	1.0	3 4 5 6 1	pH > 2
019	ihi19	X	IB			08/18/14 19:50	1.0	1	
020	ihi20	X	IB			08/18/14 20:22	1.0	1	

DJA 08/19/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 20.

Analyst: DJA Date: 08/19/14 Reviewer: LW Date: 08/19/14

Standards used: 1=S25243 2=S24715 3=S25287 4=S24467 5=S25398 6=S25233 7=S25399

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MSVOA WATER Prepsheet Curtis & Tompkins, Ltd.

Date: 8/16 **Batch #:** 21445-9

	Sample ID	Vial	pH <2	pH (if >2)	HS?	Dil'n flask	MS#	RR	DF	Comments	20 % ccv	hold	due	init date
1	~~2598332~~								~~1x~~					
2	2598445	E	✓			4	8		4x					
3	2598862-1	B	✓						1x	load lag +				
4	2		✓			5			2x					
5	3		✓						~~7.14x~~ 1x					
6	4		✓			6			7.14x					
7	5		✓						1x					
8	2597973	E	✓			7			10x					
9	2598841-4	A	✓						1x	TP?				
10	-6	B	✓											
11	-7	B	✓											
12														
13														
14														
15														
16														
17														
18														
19														
20														
21														
22														

MSVOA WATER Prepsheet Curtis & Tompkins, Ltd.

Date: 8/18/14 **Batch #:** 214489

	Sample ID	Vial	pH <2	pH (if >2)	HS?	Dil'n flask	MS#	RR	DF	Comments	20% ccv ?	hold	due	init date
1	259786-1	F		7			9	1	1X		X			bJA
2	-1MS	GHI		7		A2								
3	-1MSD	GHI		7		A2								
4	-2	A	✓		SNL					TB, only one vial given by client				
5	-3	C		7										
6	-4	C		7										
7	259790-1	C	✓											
8	-2	C	✓											
9	-3	—	—							only 1 vial given, no more sample left				
10	~~-4~~													
11	259841-4	A	✓		SNL					TB, only one vial given by client				
12	-6	C	✓											
13	-7	↓	✓					↓	↓		↓			
14														
15														
16														
17														
18														
19														
20														
21														
22														

Case Narrative Addendum: Manual Integrations for 259841 GC/MS VOA (Water)

For Calibration MSVOA09 (484219504001):
Bromomethane: Corrected fronting or tailing peak integration in all levels.
Chloroethane: Corrected fronting or tailing peak integration in all levels.
Chloromethane: Corrected fronting or tailing peak integration in multiple levels.
Trichlorofluoromethane: Corrected fronting or tailing peak integration in all levels.
Freon 12: Corrected fronting or tailing peak integration in all levels.
Tetramethyl THF: Picked or reassigned peak1PPB (if106).
Vinyl Chloride: Corrected fronting or tailing peak integration in multiple levels.

For ICV (MSVOA09 if115):
Ethanol: Corrected fronting or tailing peak integration.

For ICV GASES (MSVOA09 if205):
Bromomethane: Corrected fronting or tailing peak integration.
Chloroethane: Corrected fronting or tailing peak integration.
Chloromethane: Corrected fronting or tailing peak integration.
Trichlorofluoromethane: Corrected fronting or tailing peak integration.
Freon 12: Corrected fronting or tailing peak integration.
Vinyl Chloride: Corrected fronting or tailing peak integration.

For Calibration MSVOA08 (474253910001):
Acetone: Corrected fronting or tailing peak integration in (hfp13).
Bromomethane: Corrected fronting or tailing peak integration in (hfp14).
Chloroethane: Corrected fronting or tailing peak integration in multiple levels.
Trichlorofluoromethane: Corrected fronting or tailing peak integration in (hfp13).
Freon 113: Corrected fronting or tailing peak integration in multiple levels.
Freon 12: Corrected fronting or tailing peak integration in multiple levels.
Isopropanol: Corrected fronting or tailing peak integration in multiple levels.
tert-Butyl Alcohol (TBA): Corrected fronting or tailing peak integration in (hfp13).
Vinyl Acetate: Corrected fronting or tailing peak integration in multiple levels.
Vinyl Chloride: Corrected fronting or tailing peak integration in (hfp13).
m,p-Xylenes: Corrected fronting or tailing peak integration in multiple levels.

For ICV (MSVOA08 hfp20):
Bromomethane: Corrected fronting or tailing peak integration.
Chloroethane: Corrected fronting or tailing peak integration.
Chloromethane: Corrected fronting or tailing peak integration.
Trichlorofluoromethane: Corrected fronting or tailing peak integration.
Freon 12: Corrected fronting or tailing peak integration.
Vinyl Chloride: Corrected fronting or tailing peak integration.

For ICV (MSVOA08 hfp21):
Freon 113: Corrected fronting or tailing peak integration.
Iodomethane: Corrected fronting or tailing peak integration.
Isopropanol: Corrected fronting or tailing peak integration.

Laboratory Job Number 259841

ANALYTICAL REPORT

Semivolatile Organics by GC/MS

Matrix: Water

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W10-081414	Batch#:	214595
Lab ID:	259841-005	Sampled:	08/14/14
Matrix:	Water	Received:	08/14/14
Units:	ug/L	Prepared:	08/20/14
Diln Fac:	1.000	Analyzed:	08/22/14

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	2.4 U	9.4	2.2
Phenol	2.4 U	9.4	1.6
bis(2-Chloroethyl)ether	2.4 U	9.4	1.5
2-Chlorophenol	2.4 U	9.4	1.5
1,3-Dichlorobenzene	2.4 U	9.4	1.5
1,4-Dichlorobenzene	2.4 U	9.4	1.6
Benzyl alcohol	2.4 U	9.4	1.4
1,2-Dichlorobenzene	2.4 U	9.4	1.6
2-Methylphenol	2.4 U	9.4	1.4
bis(2-Chloroisopropyl) ether	4.7 U	9.4	2.6
4-Methylphenol	2.4 U	9.4	1.4
N-Nitroso-di-n-propylamine	2.4 U	9.4	1.9
Hexachloroethane	2.4 U	9.4	1.6
Nitrobenzene	2.4 U	9.4	1.5
Isophorone	2.4 U	9.4	1.8
2-Nitrophenol	4.7 U	19	2.4
2,4-Dimethylphenol	2.4 U	9.4	1.2
Benzoic acid	24 U	47	9.6
bis(2-Chloroethoxy)methane	2.4 U	9.4	1.2
2,4-Dichlorophenol	2.4 U	9.4	1.3
1,2,4-Trichlorobenzene	2.4 U	9.4	1.3
Naphthalene	2.4 U	9.4	1.4
4-Chloroaniline	2.4 U	9.4	1.2
Hexachlorobutadiene	2.4 U	9.4	1.3
4-Chloro-3-methylphenol	2.4 U	9.4	1.3
2-Methylnaphthalene	2.4 U	9.4	1.4
Hexachlorocyclopentadiene	4.7 U	19	1.6
2,4,6-Trichlorophenol	2.4 U	9.4	0.93
2,4,5-Trichlorophenol	2.4 U	9.4	0.89
2-Chloronaphthalene	2.4 U	9.4	1.5
2-Nitroaniline	2.4 U	19	1.7
Dimethylphthalate	2.4 U	9.4	1.5
Acenaphthylene	2.4 U	9.4	1.4
2,6-Dinitrotoluene	2.4 U	9.4	1.3
3-Nitroaniline	2.4 U	19	0.98
Acenaphthene	2.4 U	9.4	1.3
2,4-Dinitrophenol	4.7 U	19	2.0
4-Nitrophenol	2.4 U	19	1.1
Dibenzofuran	2.4 U	9.4	1.4
2,4-Dinitrotoluene	2.4 U	9.4	1.4
Diethylphthalate	2.4 U	9.4	1.5
Fluorene	2.4 U	9.4	1.5
4-Chlorophenyl-phenylether	2.4 U	9.4	1.3
4-Nitroaniline	2.4 U	19	1.1
4,6-Dinitro-2-methylphenol	4.7 U	19	1.6
N-Nitrosodiphenylamine	2.4 U	9.4	1.2
Azobenzene	2.4 U	9.4	1.5
4-Bromophenyl-phenylether	2.4 U	9.4	1.1
Hexachlorobenzene	2.4 U	9.4	1.2
Pentachlorophenol	2.4 U	19	1.2
Phenanthrene	2.4 U	9.4	1.2
Anthracene	2.4 U	9.4	1.3
Carbazole	2.4 U	9.4	1.9

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W10-081414	Batch#:	214595
Lab ID:	259841-005	Sampled:	08/14/14
Matrix:	Water	Received:	08/14/14
Units:	ug/L	Prepared:	08/20/14
Diln Fac:	1.000	Analyzed:	08/22/14

Analyte	Result	LOQ	DL
Di-n-butylphthalate	2.4 U	9.4	1.1
Fluoranthene	2.4 U	9.4	1.5
Pyrene	2.4 U	9.4	1.2
Butylbenzylphthalate	2.4 U	9.4	1.3
3,3'-Dichlorobenzidine	2.4 U	19	0.59
Benzo(a)anthracene	2.4 U	9.4	1.3
Chrysene	2.4 U	9.4	1.3
bis(2-Ethylhexyl)phthalate	2.4 U	9.4	1.6
Di-n-octylphthalate	2.4 U	9.4	1.2
Benzo(b)fluoranthene	2.4 U	9.4	1.3
Benzo(k)fluoranthene	2.4 U	9.4	1.4
Benzo(a)pyrene	2.4 U	9.4	1.1
Indeno(1,2,3-cd)pyrene	2.4 U	9.4	1.4
Dibenz(a,h)anthracene	2.4 U	9.4	1.3
Benzo(g,h,i)perylene	2.4 U	9.4	1.4

Surrogate	%REC	Limits
2-Fluorophenol	85	20-110
Phenol-d5	88	10-115
2,4,6-Tribromophenol	116	40-125
Nitrobenzene-d5	82	40-110
2-Fluorobiphenyl	85	50-110
Terphenyl-d14	59	50-135

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	RB-081414	Batch#:	214400
Lab ID:	259841-007	Sampled:	08/14/14
Matrix:	Water	Received:	08/14/14
Units:	ug/L	Prepared:	08/15/14
Diln Fac:	1.000	Analyzed:	08/18/14

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	2.4 U	9.6	2.2
Phenol	2.4 U	9.6	1.6
bis(2-Chloroethyl)ether	2.4 U	9.6	1.5
2-Chlorophenol	2.4 U	9.6	1.5
1,3-Dichlorobenzene	2.4 U	9.6	1.6
1,4-Dichlorobenzene	2.4 U	9.6	1.6
Benzyl alcohol	2.4 U	9.6	1.4
1,2-Dichlorobenzene	2.4 U	9.6	1.6
2-Methylphenol	2.4 U	9.6	1.4
bis(2-Chloroisopropyl) ether	4.8 U	9.6	2.6
4-Methylphenol	2.4 U	9.6	1.5
N-Nitroso-di-n-propylamine	2.4 U	9.6	1.9
Hexachloroethane	2.4 U	9.6	1.7
Nitrobenzene	2.4 U	9.6	1.6
Isophorone	2.4 U	9.6	1.8
2-Nitrophenol	4.8 U	19	2.5
2,4-Dimethylphenol	2.4 U	9.6	1.2
Benzoic acid	24 U	48	9.8
bis(2-Chloroethoxy)methane	2.4 U	9.6	1.2
2,4-Dichlorophenol	2.4 U	9.6	1.3
1,2,4-Trichlorobenzene	2.4 U	9.6	1.4
Naphthalene	2.4 U	9.6	1.4
4-Chloroaniline	2.4 U	9.6	1.2
Hexachlorobutadiene	2.4 U	9.6	1.3
4-Chloro-3-methylphenol	2.4 U	9.6	1.3
2-Methylnaphthalene	2.4 U	9.6	1.4
Hexachlorocyclopentadiene	4.8 U	19	1.7
2,4,6-Trichlorophenol	2.4 U	9.6	0.95
2,4,5-Trichlorophenol	2.4 U	9.6	0.91
2-Chloronaphthalene	2.4 U	9.6	1.5
2-Nitroaniline	2.4 U	19	1.7
Dimethylphthalate	2.4 U	9.6	1.5
Acenaphthylene	2.4 U	9.6	1.5
2,6-Dinitrotoluene	2.4 U	9.6	1.3
3-Nitroaniline	2.4 U	19	1.0
Acenaphthene	2.4 U	9.6	1.3
2,4-Dinitrophenol	4.8 U	19	2.0
4-Nitrophenol	2.4 U	19	1.1
Dibenzofuran	2.4 U	9.6	1.4
2,4-Dinitrotoluene	2.4 U	9.6	1.4
Diethylphthalate	2.4 U	9.6	1.6
Fluorene	2.4 U	9.6	1.5
4-Chlorophenyl-phenylether	2.4 U	9.6	1.3
4-Nitroaniline	2.4 U	19	1.1
4,6-Dinitro-2-methylphenol	4.8 U	19	1.6
N-Nitrosodiphenylamine	2.4 U	9.6	1.2
Azobenzene	2.4 U	9.6	1.5
4-Bromophenyl-phenylether	2.4 U	9.6	1.2
Hexachlorobenzene	2.4 U	9.6	1.2
Pentachlorophenol	2.4 U	19	1.2
Phenanthrene	2.4 U	9.6	1.3
Anthracene	2.4 U	9.6	1.3

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	RB-081414	Batch#:	214400
Lab ID:	259841-007	Sampled:	08/14/14
Matrix:	Water	Received:	08/14/14
Units:	ug/L	Prepared:	08/15/14
Diln Fac:	1.000	Analyzed:	08/18/14

Analyte	Result	LOQ	DL
Carbazole	2.4 U	9.6	2.0
Di-n-butylphthalate	2.4 U	9.6	1.1
Fluoranthene	2.4 U	9.6	1.5
Pyrene	2.4 U	9.6	1.2
Butylbenzylphthalate	2.4 U	9.6	1.3
3,3'-Dichlorobenzidine	2.4 U	19	0.60
Benzo(a)anthracene	2.4 U	9.6	1.3
Chrysene	2.4 U	9.6	1.4
bis(2-Ethylhexyl)phthalate	4.0 J	9.6	1.6
Di-n-octylphthalate	2.4 U	9.6	1.2
Benzo(b)fluoranthene	2.4 U	9.6	1.3
Benzo(k)fluoranthene	2.4 U	9.6	1.4
Benzo(a)pyrene	2.4 U	9.6	1.1
Indeno(1,2,3-cd)pyrene	2.4 U	9.6	1.4
Dibenz(a,h)anthracene	2.4 U	9.6	1.3
Benzo(g,h,i)perylene	2.4 U	9.6	1.4

Surrogate	%REC	Limits
2-Fluorophenol	91	20-110
Phenol-d5	91	10-115
2,4,6-Tribromophenol	106	40-125
Nitrobenzene-d5	90	40-110
2-Fluorobiphenyl	89	50-110
Terphenyl-d14	90	50-135

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753557	Batch#:	214400
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/15/14

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	5.0 U	10	1.5
Phenol	2.5 U	10	1.0
bis(2-Chloroethyl)ether	2.5 U	10	1.2
2-Chlorophenol	2.5 U	10	0.82
1,3-Dichlorobenzene	2.5 U	10	1.0
1,4-Dichlorobenzene	2.5 U	10	1.1
Benzyl alcohol	2.5 U	10	1.1
1,2-Dichlorobenzene	2.5 U	10	2.1
2-Methylphenol	2.5 U	10	2.2
bis(2-Chloroisopropyl) ether	2.5 U	10	1.4
4-Methylphenol	2.5 U	10	1.7
N-Nitroso-di-n-propylamine	2.5 U	10	1.2
Hexachloroethane	2.5 U	10	1.1
Nitrobenzene	2.5 U	10	1.2
Isophorone	2.5 U	10	1.3
2-Nitrophenol	5.0 U	20	2.6
2,4-Dimethylphenol	2.5 U	10	2.5
Benzoic acid	40 U	50	16
bis(2-Chloroethoxy)methane	2.5 U	10	1.1
2,4-Dichlorophenol	2.5 U	10	2.1
1,2,4-Trichlorobenzene	2.5 U	10	2.2
Naphthalene	2.5 U	10	1.9
4-Chloroaniline	5.0 U	10	2.1
Hexachlorobutadiene	2.5 U	10	2.4
4-Chloro-3-methylphenol	2.5 U	10	1.0
2-Methylnaphthalene	2.5 U	10	1.8
Hexachlorocyclopentadiene	2.5 U	20	0.68
2,4,6-Trichlorophenol	2.5 U	10	0.92
2,4,5-Trichlorophenol	2.5 U	10	0.85
2-Chloronaphthalene	2.5 U	10	1.8
2-Nitroaniline	2.5 U	20	1.2
Dimethylphthalate	2.5 U	10	2.0
Acenaphthylene	2.5 U	10	1.7
2,6-Dinitrotoluene	2.5 U	10	1.8
3-Nitroaniline	5.0 U	20	1.9
Acenaphthene	2.5 U	10	1.8
2,4-Dinitrophenol	18 U	20	2.6
4-Nitrophenol	5.0 U	20	1.8
Dibenzofuran	2.5 U	10	1.9
2,4-Dinitrotoluene	2.5 U	10	2.1
Diethylphthalate	2.5 U	10	1.0
Fluorene	2.5 U	10	1.8
4-Chlorophenyl-phenylether	2.5 U	10	1.6
4-Nitroaniline	5.0 U	20	2.4
4,6-Dinitro-2-methylphenol	5.0 U	20	1.2
N-Nitrosodiphenylamine	2.5 U	10	1.7
Azobenzene	2.5 U	10	1.2
4-Bromophenyl-phenylether	2.5 U	10	2.0
Hexachlorobenzene	2.5 U	10	2.0
Pentachlorophenol	5.0 U	20	1.9
Phenanthrene	2.5 U	10	1.9
Anthracene	2.5 U	10	1.8
Carbazole	2.5 U	10	2.3

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753557	Batch#:	214400
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/15/14

Analyte	Result	LOQ	DL
Di-n-butylphthalate	2.5 U	10	1.2
Fluoranthene	2.5 U	10	1.9
Pyrene	2.5 U	10	1.7
Butylbenzylphthalate	2.5 U	10	1.0
3,3'-Dichlorobenzidine	2.5 U	20	1.0
Benzo(a)anthracene	2.5 U	10	1.6
Chrysene	2.5 U	10	1.7
bis(2-Ethylhexyl)phthalate	2.5 U	10	1.8
Di-n-octylphthalate	2.5 U	10	1.8
Benzo(b)fluoranthene	2.5 U	10	1.7
Benzo(k)fluoranthene	2.5 U	10	2.0
Benzo(a)pyrene	2.5 U	10	1.6
Indeno(1,2,3-cd)pyrene	2.5 U	10	1.8
Dibenz(a,h)anthracene	2.5 U	10	1.8
Benzo(g,h,i)perylene	2.5 U	10	1.9

Surrogate	%REC	Limits
2-Fluorophenol	70	20-110
Phenol-d5	72	10-115
2,4,6-Tribromophenol	67	40-125
Nitrobenzene-d5	72	40-110
2-Fluorobiphenyl	73	50-110
Terphenyl-d14	80	50-135

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC753558	Batch#:	214400
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/16/14

Analyte	Spiked	Result	%REC	Limits
N-Nitrosodimethylamine	80.00	74.57	93	25-110
Phenol	80.00	70.79	88	0-115
bis(2-Chloroethyl)ether	80.00	70.53	88	35-110
2-Chlorophenol	80.00	71.45	89	35-105
1,3-Dichlorobenzene	80.00	58.32	73	30-100
1,4-Dichlorobenzene	80.00	58.90	74	30-100
Benzyl alcohol	80.00	74.06	93	30-110
1,2-Dichlorobenzene	80.00	61.61	77	35-100
2-Methylphenol	80.00	70.55	88	40-110
bis(2-Chloroisopropyl) ether	80.00	73.37	92	25-130
4-Methylphenol	80.00	67.33	84	30-110
N-Nitroso-di-n-propylamine	80.00	68.39	85	35-130
Hexachloroethane	80.00	51.19	64	30-100
Nitrobenzene	80.00	73.92	92	45-110
Isophorone	80.00	75.20	94	50-110
2-Nitrophenol	80.00	76.58	96	40-115
2,4-Dimethylphenol	80.00	56.05	70	30-110
Benzoic acid	120.0	40.38	34	0-125
bis(2-Chloroethoxy)methane	30.00	26.89	90	45-105
2,4-Dichlorophenol	80.00	71.93	90	50-105
1,2,4-Trichlorobenzene	80.00	62.94	79	35-105
Naphthalene	30.00	27.69	92	40-100
4-Chloroaniline	80.00	48.62	61	15-110
Hexachlorobutadiene	80.00	53.81	67	25-105
4-Chloro-3-methylphenol	80.00	69.11	86	45-110
2-Methylnaphthalene	30.00	27.21	91	45-105
Hexachlorocyclopentadiene	80.00	16.11	20	8-120
2,4,6-Trichlorophenol	80.00	76.63	96	50-115
2,4,5-Trichlorophenol	80.00	75.20	94	50-110
2-Chloronaphthalene	30.00	28.34	94	50-105
2-Nitroaniline	80.00	78.34	98	50-115
Dimethylphthalate	80.00	75.58	94	25-125
Acenaphthylene	30.00	30.75	103	50-105
2,6-Dinitrotoluene	80.00	78.27	98	50-115
3-Nitroaniline	80.00	75.56	94	20-125
Acenaphthene	30.00	30.59	102	45-110
2,4-Dinitrophenol	80.00	71.48	89	15-140
4-Nitrophenol	80.00	71.81	90	0-125

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC753558	Batch#:	214400
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/16/14

Analyte	Spiked	Result	%REC	Limits
Dibenzofuran	30.00	29.04	97	55-105
2,4-Dinitrotoluene	80.00	78.09	98	50-120
Diethylphthalate	30.00	29.86	100	40-120
Fluorene	30.00	29.70	99	50-110
4-Chlorophenyl-phenylether	30.00	29.23	97	50-110
4-Nitroaniline	80.00	75.57	94	35-120
4,6-Dinitro-2-methylphenol	80.00	86.81	109	40-130
N-Nitrosodiphenylamine	30.00	27.53	92	50-110
Azobenzene	30.00	27.69	92	55-115
4-Bromophenyl-phenylether	30.00	27.90	93	50-115
Hexachlorobenzene	80.00	63.36	79	50-110
Pentachlorophenol	80.00	74.05	93	40-115
Phenanthrene	30.00	30.09	100	50-115
Anthracene	30.00	29.82	99	55-110
Carbazole	80.00	69.60	87	50-115
Di-n-butylphthalate	30.00	29.05	97	55-115
Fluoranthene	30.00	30.11	100	55-115
Pyrene	30.00	31.69	106	50-130
Butylbenzylphthalate	30.00	29.21	97	45-115
3,3'-Dichlorobenzidine	80.00	56.69	71	20-110
Benzo(a)anthracene	30.00	29.86	100	55-110
Chrysene	30.00	30.63	102	55-110
bis(2-Ethylhexyl)phthalate	30.00	29.53	98	40-125
Di-n-octylphthalate	30.00	29.04	97	35-135
Benzo(b)fluoranthene	30.00	29.94	100	45-120
Benzo(k)fluoranthene	30.00	29.74	99	45-125
Benzo(a)pyrene	30.00	30.04	100	55-110
Indeno(1,2,3-cd)pyrene	30.00	29.96	100	45-125
Dibenz(a,h)anthracene	30.00	29.60	99	40-125
Benzo(g,h,i)perylene	30.00	31.02	103	40-125

Surrogate	%REC	Limits
2-Fluorophenol	87	20-110
Phenol-d5	91	10-115
2,4,6-Tribromophenol	85	40-125
Nitrobenzene-d5	92	40-110
2-Fluorobiphenyl	93	50-110
Terphenyl-d14	96	50-135

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W19-081314	Sampled:	08/13/14
MSS Lab ID:	259786-001	Received:	08/13/14
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/18/14
Batch#:	214400		

Type: MS Lab ID: QC753559

Analyte	MSS Result	Spiked	Result	%REC	Limits	Diln Fac
N-Nitrosodimethylamine	<2.167	75.47	63.53	84	25-110	1.000
Phenol	<1.569	75.47	72.37	96	0-115	1.000
bis(2-Chloroethyl)ether	<1.518	75.47	70.75	94	35-110	1.000
2-Chlorophenol	<1.507	75.47	70.97	94	35-105	1.000
1,3-Dichlorobenzene	<1.532	75.47	64.13	85	30-100	1.000
1,4-Dichlorobenzene	<1.555	75.47	64.12	85	30-100	1.000
Benzyl alcohol	<1.415	75.47	71.16	94	30-110	1.000
1,2-Dichlorobenzene	<1.588	75.47	64.64	86	35-100	1.000
2-Methylphenol	<1.370	75.47	71.04	94	40-110	1.000
bis(2-Chloroisopropyl) ether	<2.587	75.47	69.35	92	25-130	1.000
4-Methylphenol	<1.446	75.47	70.49	93	30-110	1.000
N-Nitroso-di-n-propylamine	<1.883	75.47	70.78	94	35-130	1.000
Hexachloroethane	<1.643	75.47	61.66	82	30-100	1.000
Nitrobenzene	<1.521	75.47	68.10	90	45-110	1.000
Isophorone	<1.772	75.47	71.67	95	50-110	2.000
2-Nitrophenol	<2.446	75.47	72.76	96	40-115	1.000
2,4-Dimethylphenol	<1.191	75.47	73.13	97	30-110	1.000
Benzoic acid	<9.577	113.2	124.8	110	0-125	2.000
bis(2-Chloroethoxy)methane	<1.176	28.30	27.06	96	45-105	1.000
2,4-Dichlorophenol	<1.264	75.47	68.81	91	50-105	1.000
1,2,4-Trichlorobenzene	<1.339	75.47	66.40	88	35-105	1.000
Naphthalene	<1.363	28.30	26.58	94	40-100	1.000
4-Chloroaniline	<1.189	75.47	48.30	64	15-110	2.000
Hexachlorobutadiene	<1.252	75.47	64.94	86	25-105	1.000
4-Chloro-3-methylphenol	<1.289	75.47	73.50	97	45-110	1.000
2-Methylnaphthalene	<1.385	28.30	26.94	95	45-105	1.000
Hexachlorocyclopentadiene	<1.642	75.47	23.79	32	8-120	1.000
2,4,6-Trichlorophenol	<0.9283	75.47	67.61	90	50-115	1.000
2,4,5-Trichlorophenol	<0.8912	75.47	71.64	95	50-110	1.000
2-Chloronaphthalene	<1.452	28.30	26.88	95	50-105	1.000
2-Nitroaniline	<1.688	75.47	73.80	98	50-115	1.000
Dimethylphthalate	<1.454	75.47	72.33	96	25-125	1.000
Acenaphthylene	<1.440	28.30	24.40	86	50-105	1.000
2,6-Dinitrotoluene	<1.310	75.47	74.02	98	50-115	1.000
3-Nitroaniline	<0.9824	75.47	58.12	77	20-125	1.000
Acenaphthene	<1.299	28.30	27.59	97	45-110	1.000
2,4-Dinitrophenol	<1.971	75.47	56.18	74	15-140	1.000
4-Nitrophenol	<1.111	75.47	77.50	103	0-125	1.000
Dibenzofuran	<1.387	28.30	28.29	100	55-105	1.000
2,4-Dinitrotoluene	<1.373	75.47	73.81	98	50-120	1.000
Diethylphthalate	<1.524	28.30	27.51	97	40-120	1.000
Fluorene	<1.452	28.30	27.64	98	50-110	1.000
4-Chlorophenyl-phenylether	<1.290	28.30	28.26	100	50-110	1.000
4-Nitroaniline	<1.115	75.47	63.57	84	35-120	1.000
4,6-Dinitro-2-methylphenol	<1.566	75.47	57.49	76	40-130	1.000
N-Nitrosodiphenylamine	<1.154	28.30	25.98	92	50-110	1.000
Azobenzene	<1.506	28.30	25.58	90	55-115	1.000
4-Bromophenyl-phenylether	<1.138	28.30	28.12	99	50-115	1.000

*= Value outside of QC limits; see narrative
NC= Not Calculated
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W19-081314	Sampled:	08/13/14
MSS Lab ID:	259786-001	Received:	08/13/14
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/18/14
Batch#:	214400		

Analyte	MSS Result	Spiked	Result	%REC	Limits	Diln Fac
Hexachlorobenzene	<1.160	75.47	72.35	96	50-110	1.000
Pentachlorophenol	<1.215	75.47	82.79	110	40-115	1.000
Phenanthrene	<1.231	28.30	28.24	100	50-115	1.000
Anthracene	<1.270	28.30	26.75	94	55-110	1.000
Carbazole	<1.938	75.47	73.17	97	50-115	1.000
Di-n-butylphthalate	<1.105	28.30	28.17	100	55-115	1.000
Fluoranthene	<1.481	28.30	28.21	100	55-115	1.000
Pyrene	<1.183	28.30	27.67	98	50-130	1.000
Butylbenzylphthalate	<1.293	28.30	27.99	99	45-115	1.000
3,3'-Dichlorobenzidine	<0.5913	75.47	0	0 *	20-110	1.000
Benzo(a)anthracene	<1.266	28.30	27.23	96	55-110	1.000
Chrysene	<1.341	28.30	27.23	96	55-110	1.000
bis(2-Ethylhexyl)phthalate	<1.610	28.30	30.89	109	40-125	1.000
Di-n-octylphthalate	<1.215	28.30	30.74	109	35-135	1.000
Benzo(b)fluoranthene	<1.302	28.30	29.70	105	45-120	1.000
Benzo(k)fluoranthene	<1.411	28.30	30.74	109	45-125	1.000
Benzo(a)pyrene	<1.064	28.30	27.03	96	55-110	1.000
Indeno(1,2,3-cd)pyrene	<1.354	28.30	30.74	109	45-125	1.000
Dibenz(a,h)anthracene	<1.282	28.30	30.77	109	40-125	1.000
Benzo(g,h,i)perylene	<1.418	28.30	30.88	109	40-125	1.000

Surrogate	%REC	Limits	Diln Fac
2-Fluorophenol	89	20-110	1.000
2-Fluorophenol	86	20-110	2.000
Phenol-d5	92	10-115	1.000
Phenol-d5	90	10-115	2.000
2,4,6-Tribromophenol	106	40-125	1.000
2,4,6-Tribromophenol	104	40-125	2.000
Nitrobenzene-d5	87	40-110	1.000
Nitrobenzene-d5	86	40-110	2.000
2-Fluorobiphenyl	84	50-110	1.000
2-Fluorobiphenyl	90	50-110	2.000
Terphenyl-d14	74	50-135	1.000
Terphenyl-d14	76	50-135	2.000

*= Value outside of QC limits; see narrative
NC= Not Calculated
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W19-081314	Sampled:	08/13/14
MSS Lab ID:	259786-001	Received:	08/13/14
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/18/14
Batch#:	214400		

Type: MSD Lab ID: QC753560

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Diln Fac
N-Nitrosodimethylamine	74.77	59.00	79	25-110	6	30	1.000
Phenol	74.77	68.56	92	0-115	4	30	1.000
bis(2-Chloroethyl)ether	74.77	65.77	88	35-110	6	30	1.000
2-Chlorophenol	74.77	65.47	88	35-105	7	30	1.000
1,3-Dichlorobenzene	74.77	57.44	77	30-100	10	30	1.000
1,4-Dichlorobenzene	74.77	57.58	77	30-100	10	30	1.000
Benzyl alcohol	74.77	64.87	87	30-110	8	30	1.000
1,2-Dichlorobenzene	74.77	58.11	78	35-100	10	30	1.000
2-Methylphenol	74.77	65.90	88	40-110	7	30	1.000
bis(2-Chloroisopropyl) ether	74.77	63.54	85	25-130	8	30	1.000
4-Methylphenol	74.77	63.85	85	30-110	9	30	1.000
N-Nitroso-di-n-propylamine	74.77	62.77	84	35-130	11	30	1.000
Hexachloroethane	74.77	54.52	73	30-100	11	30	1.000
Nitrobenzene	74.77	62.68	84	45-110	7	30	1.000
Isophorone	74.77	68.57	92	50-110	3	30	2.000
2-Nitrophenol	74.77	66.65	89	40-115	8	30	1.000
2,4-Dimethylphenol	74.77	67.77	91	30-110	7	30	1.000
Benzoic acid	112.1	117.5	105	0-125	5	30	2.000
bis(2-Chloroethoxy)methane	28.04	24.50	87	45-105	9	30	1.000
2,4-Dichlorophenol	74.77	63.63	85	50-105	7	30	1.000
1,2,4-Trichlorobenzene	74.77	59.48	80	35-105	10	30	1.000
Naphthalene	28.04	24.40	87	40-100	8	30	1.000
4-Chloroaniline	74.77	37.91	51	15-110	23	30	2.000
Hexachlorobutadiene	74.77	55.90	75	25-105	14	30	1.000
4-Chloro-3-methylphenol	74.77	67.38	90	45-110	8	30	1.000
2-Methylnaphthalene	28.04	24.33	87	45-105	9	30	1.000
Hexachlorocyclopentadiene	74.77	15.46	21	8-120	42 *	30	1.000
2,4,6-Trichlorophenol	74.77	62.15	83	50-115	7	30	1.000
2,4,5-Trichlorophenol	74.77	66.08	88	50-110	7	30	1.000
2-Chloronaphthalene	28.04	24.66	88	50-105	8	30	1.000
2-Nitroaniline	74.77	66.61	89	50-115	9	30	1.000
Dimethylphthalate	74.77	65.98	88	25-125	8	30	1.000
Acenaphthylene	28.04	23.79	85	50-105	2	30	1.000
2,6-Dinitrotoluene	74.77	67.44	90	50-115	8	30	1.000
3-Nitroaniline	74.77	55.20	74	20-125	4	30	1.000
Acenaphthene	28.04	24.81	88	45-110	10	30	1.000
2,4-Dinitrophenol	74.77	50.29	67	15-140	10	30	1.000
4-Nitrophenol	74.77	69.73	93	0-125	10	30	1.000
Dibenzofuran	28.04	25.78	92	55-105	8	30	1.000
2,4-Dinitrotoluene	74.77	67.02	90	50-120	9	30	1.000
Diethylphthalate	28.04	25.49	91	40-120	7	30	1.000
Fluorene	28.04	25.19	90	50-110	8	30	1.000
4-Chlorophenyl-phenylether	28.04	25.56	91	50-110	9	30	1.000
4-Nitroaniline	74.77	58.04	78	35-120	8	30	1.000
4,6-Dinitro-2-methylphenol	74.77	50.76	68	40-130	11	30	1.000
N-Nitrosodiphenylamine	28.04	23.60	84	50-110	9	30	1.000
Azobenzene	28.04	23.79	85	55-115	6	30	1.000
4-Bromophenyl-phenylether	28.04	25.32	90	50-115	10	30	1.000

*= Value outside of QC limits; see narrative
NC= Not Calculated
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Field ID:	04W19-081314	Sampled:	08/13/14
MSS Lab ID:	259786-001	Received:	08/13/14
Matrix:	Water	Prepared:	08/14/14
Units:	ug/L	Analyzed:	08/18/14
Batch#:	214400		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Diln Fac
Hexachlorobenzene	74.77	64.98	87	50-110	10	30	1.000
Pentachlorophenol	74.77	74.16	99	40-115	10	30	1.000
Phenanthrene	28.04	25.32	90	50-115	10	30	1.000
Anthracene	28.04	24.20	86	55-110	9	30	1.000
Carbazole	74.77	66.76	89	50-115	8	30	1.000
Di-n-butylphthalate	28.04	25.13	90	55-115	10	30	1.000
Fluoranthene	28.04	25.10	90	55-115	11	30	1.000
Pyrene	28.04	25.53	91	50-130	7	30	1.000
Butylbenzylphthalate	28.04	24.98	89	45-115	10	30	1.000
3,3'-Dichlorobenzidine	74.77	0	0 *	20-110	NC	30	1.000
Benzo(a)anthracene	28.04	24.29	87	55-110	10	30	1.000
Chrysene	28.04	24.30	87	55-110	10	30	1.000
bis(2-Ethylhexyl)phthalate	28.04	27.29	97	40-125	11	30	1.000
Di-n-octylphthalate	28.04	26.16	93	35-135	15	30	1.000
Benzo(b)fluoranthene	28.04	25.75	92	45-120	13	30	1.000
Benzo(k)fluoranthene	28.04	26.24	94	45-125	15	30	1.000
Benzo(a)pyrene	28.04	24.42	87	55-110	9	30	1.000
Indeno(1,2,3-cd)pyrene	28.04	26.48	94	45-125	14	30	1.000
Dibenz(a,h)anthracene	28.04	26.51	95	40-125	14	30	1.000
Benzo(g,h,i)perylene	28.04	26.82	96	40-125	13	30	1.000

Surrogate	%REC	Limits	Diln Fac
2-Fluorophenol	83	20-110	1.000
2-Fluorophenol	84	20-110	2.000
Phenol-d5	87	10-115	1.000
Phenol-d5	89	10-115	2.000
2,4,6-Tribromophenol	97	40-125	1.000
2,4,6-Tribromophenol	102	40-125	2.000
Nitrobenzene-d5	82	40-110	1.000
Nitrobenzene-d5	85	40-110	2.000
2-Fluorobiphenyl	80	50-110	1.000
2-Fluorobiphenyl	88	50-110	2.000
Terphenyl-d14	61	50-135	1.000
Terphenyl-d14	63	50-135	2.000

*= Value outside of QC limits; see narrative
NC= Not Calculated
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC754310	Batch#:	214595
Matrix:	Water	Prepared:	08/20/14
Units:	ug/L	Analyzed:	08/21/14

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	5.0 U	10	1.5
Phenol	2.5 U	10	1.0
bis(2-Chloroethyl)ether	2.5 U	10	1.2
2-Chlorophenol	2.5 U	10	0.82
1,3-Dichlorobenzene	2.5 U	10	1.0
1,4-Dichlorobenzene	2.5 U	10	1.1
Benzyl alcohol	2.5 U	10	1.1
1,2-Dichlorobenzene	2.5 U	10	2.1
2-Methylphenol	2.5 U	10	2.2
bis(2-Chloroisopropyl) ether	2.5 U	10	1.4
4-Methylphenol	2.5 U	10	1.7
N-Nitroso-di-n-propylamine	2.5 U	10	1.2
Hexachloroethane	2.5 U	10	1.1
Nitrobenzene	2.5 U	10	1.2
Isophorone	2.5 U	10	1.3
2-Nitrophenol	5.0 U	20	2.6
2,4-Dimethylphenol	2.5 U	10	2.5
Benzoic acid	40 U	50	16
bis(2-Chloroethoxy)methane	2.5 U	10	1.1
2,4-Dichlorophenol	2.5 U	10	2.1
1,2,4-Trichlorobenzene	2.5 U	10	2.2
Naphthalene	2.5 U	10	1.9
4-Chloroaniline	5.0 U	10	2.1
Hexachlorobutadiene	2.5 U	10	2.4
4-Chloro-3-methylphenol	2.5 U	10	1.0
2-Methylnaphthalene	2.5 U	10	1.8
Hexachlorocyclopentadiene	2.5 U	20	0.68
2,4,6-Trichlorophenol	2.5 U	10	0.92
2,4,5-Trichlorophenol	2.5 U	10	0.85
2-Chloronaphthalene	2.5 U	10	1.8
2-Nitroaniline	2.5 U	20	1.2
Dimethylphthalate	2.5 U	10	2.0
Acenaphthylene	2.5 U	10	1.7
2,6-Dinitrotoluene	2.5 U	10	1.8
3-Nitroaniline	5.0 U	20	1.9
Acenaphthene	2.5 U	10	1.8
2,4-Dinitrophenol	18 U	20	2.6
4-Nitrophenol	5.0 U	20	1.8
Dibenzofuran	2.5 U	10	1.9
2,4-Dinitrotoluene	2.5 U	10	2.1
Diethylphthalate	2.5 U	10	1.0
Fluorene	2.5 U	10	1.8
4-Chlorophenyl-phenylether	2.5 U	10	1.6
4-Nitroaniline	5.0 U	20	2.4
4,6-Dinitro-2-methylphenol	5.0 U	20	1.2
N-Nitrosodiphenylamine	2.5 U	10	1.7
Azobenzene	2.5 U	10	1.2
4-Bromophenyl-phenylether	2.5 U	10	2.0
Hexachlorobenzene	2.5 U	10	2.0
Pentachlorophenol	5.0 U	20	1.9
Phenanthrene	2.5 U	10	1.9
Anthracene	2.5 U	10	1.8
Carbazole	2.5 U	10	2.3

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC754310	Batch#:	214595
Matrix:	Water	Prepared:	08/20/14
Units:	ug/L	Analyzed:	08/21/14

Analyte	Result	LOQ	DL
Di-n-butylphthalate	2.5 U	10	1.2
Fluoranthene	2.5 U	10	1.9
Pyrene	2.5 U	10	1.7
Butylbenzylphthalate	2.5 U	10	1.0
3,3'-Dichlorobenzidine	2.5 U	20	1.0
Benzo(a)anthracene	2.5 U	10	1.6
Chrysene	2.5 U	10	1.7
bis(2-Ethylhexyl)phthalate	2.5 U	10	1.8
Di-n-octylphthalate	2.5 U	10	1.8
Benzo(b)fluoranthene	2.5 U	10	1.7
Benzo(k)fluoranthene	2.5 U	10	2.0
Benzo(a)pyrene	2.5 U	10	1.6
Indeno(1,2,3-cd)pyrene	2.5 U	10	1.8
Dibenz(a,h)anthracene	2.5 U	10	1.8
Benzo(g,h,i)perylene	2.5 U	10	1.9

Surrogate	%REC	Limits
2-Fluorophenol	86	20-110
Phenol-d5	89	10-115
2,4,6-Tribromophenol	73	40-125
Nitrobenzene-d5	90	40-110
2-Fluorobiphenyl	89	50-110
Terphenyl-d14	88	50-135

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Matrix:	Water	Batch#:	214595
Units:	ug/L	Prepared:	08/20/14
Diln Fac:	1.000	Analyzed:	08/21/14

Type: BS Lab ID: QC754311

Analyte	Spiked	Result	%REC	Limits
N-Nitrosodimethylamine	80.00	61.39	77	25-110
Phenol	80.00	62.93	79	0-115
bis(2-Chloroethyl)ether	80.00	60.61	76	35-110
2-Chlorophenol	80.00	63.91	80	35-105
1,3-Dichlorobenzene	80.00	52.58	66	30-100
1,4-Dichlorobenzene	80.00	53.33	67	30-100
Benzyl alcohol	80.00	66.57	83	30-110
1,2-Dichlorobenzene	80.00	55.21	69	35-100
2-Methylphenol	80.00	61.53	77	40-110
bis(2-Chloroisopropyl) ether	80.00	61.66	77	25-130
4-Methylphenol	80.00	59.47	74	30-110
N-Nitroso-di-n-propylamine	80.00	59.72	75	35-130
Hexachloroethane	80.00	46.90	59	30-100
Nitrobenzene	80.00	65.13	81	45-110
Isophorone	80.00	69.61	87	50-110
2-Nitrophenol	80.00	69.64	87	40-115
2,4-Dimethylphenol	80.00	47.42	59	30-110
Benzoic acid	120.0	55.15	46	0-125
bis(2-Chloroethoxy)methane	30.00	24.79	83	45-105
2,4-Dichlorophenol	80.00	65.28	82	50-105
1,2,4-Trichlorobenzene	80.00	55.41	69	35-105
Naphthalene	30.00	24.43	81	40-100
4-Chloroaniline	80.00	45.19	56	15-110
Hexachlorobutadiene	80.00	49.20	62	25-105
4-Chloro-3-methylphenol	80.00	66.04	83	45-110
2-Methylnaphthalene	30.00	25.15	84	45-105
Hexachlorocyclopentadiene	80.00	4.610	6 *	8-120
2,4,6-Trichlorophenol	80.00	66.95	84	50-115
2,4,5-Trichlorophenol	80.00	66.47	83	50-110
2-Chloronaphthalene	30.00	24.43	81	50-105
2-Nitroaniline	80.00	69.16	86	50-115
Dimethylphthalate	80.00	67.52	84	25-125
Acenaphthylene	30.00	29.84	99	50-105
2,6-Dinitrotoluene	80.00	69.63	87	50-115
3-Nitroaniline	80.00	64.91	81	20-125
Acenaphthene	30.00	26.61	89	45-110
2,4-Dinitrophenol	80.00	61.33	77	15-140
4-Nitrophenol	80.00	62.51	78	0-125
Dibenzofuran	30.00	25.97	87	55-105
2,4-Dinitrotoluene	80.00	68.60	86	50-120
Diethylphthalate	30.00	27.13	90	40-120
Fluorene	30.00	26.66	89	50-110
4-Chlorophenyl-phenylether	30.00	26.02	87	50-110
4-Nitroaniline	80.00	63.13	79	35-120
4,6-Dinitro-2-methylphenol	80.00	71.62	90	40-130
N-Nitrosodiphenylamine	30.00	24.15	81	50-110
Azobenzene	30.00	24.09	80	55-115
4-Bromophenyl-phenylether	30.00	25.22	84	50-115
Hexachlorobenzene	80.00	56.88	71	50-110
Pentachlorophenol	80.00	65.89	82	40-115
Phenanthrene	30.00	26.36	88	50-115

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Matrix:	Water	Batch#:	214595
Units:	ug/L	Prepared:	08/20/14
Diln Fac:	1.000	Analyzed:	08/21/14

Analyte	Spiked	Result	%REC	Limits
Anthracene	30.00	26.25	87	55-110
Carbazole	80.00	61.39	77	50-115
Di-n-butylphthalate	30.00	25.65	86	55-115
Fluoranthene	30.00	26.05	87	55-115
Pyrene	30.00	27.29	91	50-130
Butylbenzylphthalate	30.00	26.10	87	45-115
3,3'-Dichlorobenzidine	80.00	45.41	57	20-110
Benzo(a)anthracene	30.00	25.99	87	55-110
Chrysene	30.00	26.37	88	55-110
bis(2-Ethylhexyl)phthalate	30.00	29.67	99	40-125
Di-n-octylphthalate	30.00	25.66	86	35-135
Benzo(b)fluoranthene	30.00	26.81	89	45-120
Benzo(k)fluoranthene	30.00	24.62	82	45-125
Benzo(a)pyrene	30.00	27.64	92	55-110
Indeno(1,2,3-cd)pyrene	30.00	26.83	89	45-125
Dibenz(a,h)anthracene	30.00	26.04	87	40-125
Benzo(g,h,i)perylene	30.00	28.00	93	40-125

Surrogate	%REC	Limits
2-Fluorophenol	79	20-110
Phenol-d5	81	10-115
2,4,6-Tribromophenol	83	40-125
Nitrobenzene-d5	81	40-110
2-Fluorobiphenyl	82	50-110
Terphenyl-d14	84	50-135

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Matrix:	Water	Batch#:	214595
Units:	ug/L	Prepared:	08/20/14
Diln Fac:	1.000	Analyzed:	08/21/14

Type: BSD Lab ID: QC754312

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
N-Nitrosodimethylamine	80.00	60.49	76	25-110	1	30
Phenol	80.00	61.74	77	0-115	2	30
bis(2-Chloroethyl)ether	80.00	59.67	75	35-110	2	30
2-Chlorophenol	80.00	62.73	78	35-105	2	30
1,3-Dichlorobenzene	80.00	50.18	63	30-100	5	30
1,4-Dichlorobenzene	80.00	51.20	64	30-100	4	30
Benzyl alcohol	80.00	64.78	81	30-110	3	30
1,2-Dichlorobenzene	80.00	52.97	66	35-100	4	30
2-Methylphenol	80.00	59.94	75	40-110	3	30
bis(2-Chloroisopropyl) ether	80.00	61.03	76	25-130	1	30
4-Methylphenol	80.00	58.33	73	30-110	2	30
N-Nitroso-di-n-propylamine	80.00	58.71	73	35-130	2	30
Hexachloroethane	80.00	43.39	54	30-100	8	30
Nitrobenzene	80.00	65.07	81	45-110	0	30
Isophorone	80.00	68.97	86	50-110	1	30
2-Nitrophenol	80.00	69.49	87	40-115	0	30
2,4-Dimethylphenol	80.00	45.75	57	30-110	4	30
Benzoic acid	120.0	54.30	45	0-125	2	30
bis(2-Chloroethoxy)methane	30.00	24.51	82	45-105	1	30
2,4-Dichlorophenol	80.00	65.85	82	50-105	1	30
1,2,4-Trichlorobenzene	80.00	53.85	67	35-105	3	30
Naphthalene	30.00	24.24	81	40-100	1	30
4-Chloroaniline	80.00	62.32	78	15-110	32 *	30
Hexachlorobutadiene	80.00	46.23	58	25-105	6	30
4-Chloro-3-methylphenol	80.00	64.49	81	45-110	2	30
2-Methylnaphthalene	30.00	24.73	82	45-105	2	30
Hexachlorocyclopentadiene	80.00	3.652	5 *	8-120	23	30
2,4,6-Trichlorophenol	80.00	66.29	83	50-115	1	30
2,4,5-Trichlorophenol	80.00	65.57	82	50-110	1	30
2-Chloronaphthalene	30.00	23.92	80	50-105	2	30
2-Nitroaniline	80.00	68.21	85	50-115	1	30
Dimethylphthalate	80.00	66.36	83	25-125	2	30
Acenaphthylene	30.00	28.95	97	50-105	3	30
2,6-Dinitrotoluene	80.00	67.79	85	50-115	3	30
3-Nitroaniline	80.00	64.34	80	20-125	1	30
Acenaphthene	30.00	26.53	88	45-110	0	30
2,4-Dinitrophenol	80.00	63.57	79	15-140	4	30
4-Nitrophenol	80.00	60.98	76	0-125	2	30
Dibenzofuran	30.00	25.35	85	55-105	2	30
2,4-Dinitrotoluene	80.00	68.68	86	50-120	0	30
Diethylphthalate	30.00	26.96	90	40-120	1	30
Fluorene	30.00	26.04	87	50-110	2	30
4-Chlorophenyl-phenylether	30.00	26.02	87	50-110	0	30
4-Nitroaniline	80.00	62.67	78	35-120	1	30
4,6-Dinitro-2-methylphenol	80.00	72.24	90	40-130	1	30
N-Nitrosodiphenylamine	30.00	24.00	80	50-110	1	30
Azobenzene	30.00	23.87	80	55-115	1	30
4-Bromophenyl-phenylether	30.00	24.47	82	50-115	3	30
Hexachlorobenzene	80.00	57.19	71	50-110	1	30
Pentachlorophenol	80.00	66.01	83	40-115	0	30
Phenanthrene	30.00	25.99	87	50-115	1	30

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D
Matrix:	Water	Batch#:	214595
Units:	ug/L	Prepared:	08/20/14
Diln Fac:	1.000	Analyzed:	08/21/14

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Anthracene	30.00	26.01	87	55-110	1	30
Carbazole	80.00	64.78	81	50-115	5	30
Di-n-butylphthalate	30.00	25.34	84	55-115	1	30
Fluoranthene	30.00	26.01	87	55-115	0	30
Pyrene	30.00	27.06	90	50-130	1	30
Butylbenzylphthalate	30.00	25.34	84	45-115	3	30
3,3'-Dichlorobenzidine	80.00	44.80	56	20-110	1	30
Benzo(a)anthracene	30.00	25.66	86	55-110	1	30
Chrysene	30.00	26.10	87	55-110	1	30
bis(2-Ethylhexyl)phthalate	30.00	26.27	88	40-125	12	30
Di-n-octylphthalate	30.00	25.54	85	35-135	0	30
Benzo(b)fluoranthene	30.00	25.70	86	45-120	4	30
Benzo(k)fluoranthene	30.00	24.86	83	45-125	1	30
Benzo(a)pyrene	30.00	27.05	90	55-110	2	30
Indeno(1,2,3-cd)pyrene	30.00	25.89	86	45-125	4	30
Dibenz(a,h)anthracene	30.00	25.22	84	40-125	3	30
Benzo(g,h,i)perylene	30.00	26.68	89	40-125	5	30

Surrogate	%REC	Limits
2-Fluorophenol	77	20-110
Phenol-d5	79	10-115
2,4,6-Tribromophenol	79	40-125
Nitrobenzene-d5	80	40-110
2-Fluorobiphenyl	80	50-110
Terphenyl-d14	82	50-135

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Initial & Continuing Calibration Data

CURTIS & TOMPKINS DFTPP TUNE FOR 259841 MSBNA Water
EPA 8270D

Inst : MSBNA05 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 544327680005 File : xhf05 Time : 15-AUG-2014 16:14

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	179726	48.09	
68	< 2% of mass 69	0	0.00	
69		205592	100.00	
70	< 2% of mass 69	1070	0.52	
127	40% - 60% of mass 198	209002	55.92	
197	< 1% of mass 198	0	0.00	
198		373760	100.00	
199	5% - 9% of mass 198	25200	6.74	
275	10% - 30% of mass 198	92424	24.73	
365	> 1% of mass 198	9809	2.62	
441	Present, < mass 443	47026	82.11	
442	> 40% and < 100% of mass 198	295850	79.16	
443	17% - 23% of mass 442	57269	19.36	

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/19/14

PEM Report

File Name : G:\msbna05\081514\XHF05.D
Date Acquired : 15 Aug 2014 4:14 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA05 BNA DFTPP/PEM
Inst. Name : MSBNA05
AcquisitionMeth: DFTPP05.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	0.741	5.49	488314
Benzidine	0.497	7.37	2960445
4,4'-DDT		8.41	1496561
4,4'-DDE		7.60	3131
4,4'-DDD		8.02	50514

% Breakdown: 4,4'-DDT	LIMIT <=20%	3%	PASS
Tailing: Pentachlorophenol	8270C <5.0	0.7	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.5	PASS
	8270D <=2	0	PASS

Fri Aug 15 16:25:44 2014

CURTIS & TOMPKINS DFTPP TUNE FOR 259841 MSBNA Water
EPA 8270D

Inst : MSBNA05 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 544331768002 File : xhi02 Time : 18-AUG-2014 09:56

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	135175	44.05	
68	< 2% of mass 69	0	0.00	
69		155021	100.00	
70	< 2% of mass 69	789	0.51	
127	40% - 60% of mass 198	165013	53.78	
197	< 1% of mass 198	0	0.00	
198		306837	100.00	
199	5% - 9% of mass 198	20584	6.71	
275	10% - 30% of mass 198	75917	24.74	
365	> 1% of mass 198	8342	2.72	
441	Present, < mass 443	37109	81.94	
442	> 40% and < 100% of mass 198	235178	76.65	
443	17% - 23% of mass 442	45288	19.26	

Analyst: KMH Date: 08/18/14 Reviewer: LW Date: 08/19/14

PEM Report

File Name : G:\msbna05\081814\XHI02.D
Date Acquired : 18 Aug 2014 9:56 am
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA05 BNA DFTPP/PEM
Inst. Name : MSBNA05
AcquisitionMeth: DFTPP05.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	0.781	5.49	341285
Benzidine	0.837	7.36	2100944
4,4'-DDT		8.40	1123150
4,4'-DDE		7.60	5264
4,4'-DDD		8.02	22005

% Breakdown: 4,4'-DDT	LIMIT <=20%	2%	PASS
Tailing: Pentachlorophenol	8270C <5.0	0.8	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.8	PASS
	8270D <=2	1	PASS

Mon Aug 18 10:06:37 2014

CURTIS & TOMPKINS DFTPP TUNE FOR 259841 MSBNA Water
EPA 8270D

Inst : MSBNA05 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 544337710002 File : xhm02 Time : 22-AUG-2014 12:58

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	154284	44.54	
68	< 2% of mass 69	0	0.00	
69		178773	100.00	
70	< 2% of mass 69	970	0.54	
127	40% - 60% of mass 198	187989	54.27	
197	< 1% of mass 198	0	0.00	
198		346368	100.00	
199	5% - 9% of mass 198	23234	6.71	
275	10% - 30% of mass 198	86856	25.08	
365	> 1% of mass 198	9146	2.64	
441	Present, < mass 443	44384	81.91	
442	> 40% and < 100% of mass 198	275114	79.43	
443	17% - 23% of mass 442	54189	19.70	

Analyst: KMH Date: 08/26/14 Reviewer: LW Date: 08/27/14

PEM Report

File Name : G:\msbna05\082214\XHM02.D
Date Acquired : 22 Aug 2014 12:58 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA05 BNA DFTPP/PEM
Inst. Name : MSBNA05
AcquisitionMeth: DFTPP05.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	0.898	5.49	309688
Benzidine	0.548	7.37	2679767
4,4'-DDT		8.40	1298764
4,4'-DDE		7.60	5425
4,4'-DDD		8.03	30386

% Breakdown: 4,4'-DDT	LIMIT <=20%	3%	PASS
Tailing: Pentachlorophenol	8270C <5.0	0.9	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.5	PASS
	8270D <=2	1	PASS

Fri Aug 22 13:08:25 2014

CURTIS & TOMPKINS DFTPP TUNE FOR 259841 MSBNA Water
EPA 8270D

Inst : MSBNA09 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 584305789015 File : rgv15 Time : 31-JUL-2014 18:29

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	345531	38.25	
68	< 2% of mass 69	6827	1.83	
69		373297	100.00	
70	< 2% of mass 69	1830	0.49	
127	40% - 60% of mass 198	470485	52.08	
197	< 1% of mass 198	0	0.00	
198		903338	100.00	
199	5% - 9% of mass 198	61034	6.76	
275	10% - 30% of mass 198	259093	28.68	
365	> 1% of mass 198	32093	3.55	
441	Present, < mass 443	124642	74.41	
442	> 40% and < 100% of mass 198	878869	97.29	
443	17% - 23% of mass 442	167509	19.06	

Analyst: KMH Date: 08/01/14 Reviewer: LW Date: 08/06/14

PEM Report

File Name : G:\msbna09\073114\RGV15.D
Date Acquired : 31 Jul 2014 6:29 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA09 BNA DFTPP/PEM
Inst. Name : MSBNA09
AcquisitionMeth: DFTPP09.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	1.171	5.52	1361316
Benzidine	0.799	7.39	7972851
4,4'-DDT		8.43	4312502
4,4'-DDE		7.63	22871
4,4'-DDD		8.05	107140

% Breakdown: 4,4'-DDT	LIMIT <=20%	3%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.2	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.8	PASS
	8270D <=2	1	PASS

Thu Jul 31 18:46:48 2014

CURTIS & TOMPKINS DFTPP TUNE FOR 259841 MSBNA Water
EPA 8270D

Inst : MSBNA09 IDF : 1.0
Seqnum : 584327568016 File : rhf16 Time : 15-AUG-2014 17:08

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	252998	38.78	
68	< 2% of mass 69	0	0.00	
69		253312	100.00	
70	< 2% of mass 69	1324	0.52	
127	40% - 60% of mass 198	311018	47.67	
197	< 1% of mass 198	0	0.00	
198		652437	100.00	
199	5% - 9% of mass 198	44181	6.77	
275	10% - 30% of mass 198	183189	28.08	
365	> 1% of mass 198	19013	2.91	
441	Present, < mass 443	96514	80.88	
442	> 40% and < 100% of mass 198	632874	97.00	
443	17% - 23% of mass 442	119333	18.86	

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/18/14

PEM Report

File Name : G:\msbna09\081514\RHF16.D
Date Acquired : 15 Aug 2014 5:08 pm
Sample Name : TUN,S24893
Misc. Info :
Calib. Title : MSBNA09 BNA DFTPP/PEM
Inst. Name : MSBNA09
AcquisitionMeth: DFTPP09.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	1.174	5.51	818154
Benzidine	0.768	7.37	6075841
4,4'-DDT		8.40	2811794
4,4'-DDE		7.61	8007
4,4'-DDD		8.03	114715

% Breakdown: 4,4'-DDT	LIMIT <=20%	4%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.2	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.8	PASS
	8270D <=2	1	PASS

Fri Aug 15 17:19:15 2014

CURTIS & TOMPKINS DFTPP TUNE FOR 259841 MSBNA Water
EPA 8270D

Inst : MSBNA09 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 584329197003 File : rhg03 Time : 16-AUG-2014 15:34

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	246245	46.08	
68	< 2% of mass 69	0	0.00	
69		239253	100.00	
70	< 2% of mass 69	1182	0.49	
127	40% - 60% of mass 198	277354	51.90	
197	< 1% of mass 198	0	0.00	
198		534421	100.00	
199	5% - 9% of mass 198	35362	6.62	
275	10% - 30% of mass 198	140298	26.25	
365	> 1% of mass 198	13707	2.56	
441	Present, < mass 443	63037	79.20	
442	> 40% and < 100% of mass 198	412501	77.19	
443	17% - 23% of mass 442	79589	19.29	

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/18/14

PEM Report

File Name : G:\msbna09\081614\RHG03.D
Date Acquired : 16 Aug 2014 3:34 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA09 BNA DFTPP/PEM
Inst. Name : MSBNA09
AcquisitionMeth: DFTPP09.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	0.968	5.51	606175
Benzidine	1.032	7.37	4444278
4,4'-DDT		8.40	2351827
4,4'-DDE		7.60	6654
4,4'-DDD		8.02	51855

% Breakdown: 4,4'-DDT	LIMIT <=20%	2%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.0	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	1.0	PASS
	8270D <=2	1	PASS

Sat Aug 16 15:42:19 2014

CURTIS & TOMPKINS DFTPP TUNE FOR 259841 MSBNA Water
EPA 8270D

Inst : MSBNA09 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 584336313002 File : rhl02 Time : 21-AUG-2014 13:40

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	354721	42.89	
68	< 2% of mass 69	0	0.00	
69		346927	100.00	
70	< 2% of mass 69	1628	0.47	
127	40% - 60% of mass 198	397205	48.03	
197	< 1% of mass 198	0	0.00	
198		826986	100.00	
199	5% - 9% of mass 198	55477	6.71	
275	10% - 30% of mass 198	225344	27.25	
365	> 1% of mass 198	22336	2.70	
441	Present, < mass 443	104616	79.88	
442	> 40% and < 100% of mass 198	692565	83.75	
443	17% - 23% of mass 442	130973	18.91	

Analyst: KMH Date: 08/21/14 Reviewer: LW Date: 08/22/14

PEM Report

File Name : G:\msbna09\082114\RHL02.D
Date Acquired : 21 Aug 2014 1:40 pm
Sample Name : TUN,S24893
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA09 BNA DFTPP/PEM
Inst. Name : MSBNA09
AcquisitionMeth: DFTPP09.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	1.032	5.50	1060329
Benzidine	0.948	7.36	7264690
4,4'-DDT		8.39	3658830
4,4'-DDE		7.60	10599
4,4'-DDD		8.02	246695

% Breakdown: 4,4'-DDT	LIMIT <=20%	7%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.0	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.9	PASS
	8270D <=2	1	PASS

Thu Aug 21 14:14:22 2014

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259841 MSBNA Water: EPA 8270D

Inst : MSBNA05
Calnum : 544327680001
Units : ug/mL

Name : 6PTBNA5
Date : 15-AUG-2014 16:36
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	xhf06	544327680006	ICAL	15-AUG-2014 16:36	S25407
L2	xhf07	544327680007	ICAL	15-AUG-2014 17:13	S25408
L3	xhf08	544327680008	ICAL	15-AUG-2014 17:48	S25409
L4	xhf09	544327680009	ICAL	15-AUG-2014 18:27	S25410
L5	xhf10	544327680010	ICAL	15-AUG-2014 19:04	S25411
L6	xhf11	544327680011	ICAL	15-AUG-2014 19:42	S25412
L7	xhf12	544327680012	ICAL	15-AUG-2014 20:18	S25413
L8	xhf13	544327680013	ICAL	15-AUG-2014 20:53	S25414
L9	xhf14	544327680014	ICAL	15-AUG-2014 21:30	S25415

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
N-Nitrosodimethylamine		0.6584	0.6527	0.6697	0.6691	0.6674	0.6778	0.6768	0.6869	AVRG		1.49291		0.6698	2	15	0.05	0.99	
Phenol		1.6930	1.7068	1.6823	1.6949	1.6792	1.7013	1.6690	1.6900	AVRG		0.59187		1.6896	1	15	0.800	0.99	
bis(2-Chloroethyl)ether		1.2353	1.2616	1.2630	1.2613	1.2275	1.2307	1.2069m	1.1601	AVRG		0.81248		1.2308	3	15	0.700	0.99	
2-Chlorophenol		1.4242	1.4375	1.4412	1.4216	1.4009	1.4092	1.3792	1.3626	AVRG		0.70944		1.4096	2	15	0.800	0.99	
1,3-Dichlorobenzene		1.6369	1.6278	1.5962	1.5701	1.5284	1.4579	1.3705	1.3138	AVRG		0.66107		1.5127	8	15	0.05	0.99	
1,4-Dichlorobenzene		1.6795	1.6559	1.6455	1.5847	1.5172	1.4352	1.3066	1.2470	AVRG		0.66271		1.5089	11	15	0.05	0.99	
Benzyl alcohol		0.9166	0.9356	0.9403	0.9479	0.9278	0.9535	0.9417	0.9631	AVRG		1.06293		0.9408	2	15	0.05	0.99	
1,2-Dichlorobenzene		1.6105	1.5953	1.5956	1.5493	1.4798	1.4148	1.3108	1.2591	AVRG		0.67709		1.4769	9	15	0.05	0.99	
2-Methylphenol		1.1459	1.1695	1.1624	1.1603	1.1422	1.1371	1.0999	1.0949	AVRG		0.87795		1.1390	2	15	0.700	0.99	
bis(2-Chloroisopropyl) ether		1.7687	1.8134	1.8240	1.8521	1.8305	1.9045	1.9136	1.9333	AVRG		0.53908		1.8550	3	15	0.010	0.99	
4-Methylphenol		1.6678	1.6865	1.6765	1.6779	1.6483	1.7285			AVRG		0.59491		1.6809	2	15	0.600	0.99	
N-Nitroso-di-n-propylamine		0.7818	0.8217	0.8336	0.8449	0.8413	0.8673	0.8550	0.8794	AVRG		1.18959		0.8406	4	15	0.500	0.99	
Hexachloroethane		0.6649	0.6780	0.6714	0.6686	0.6544	0.6390	0.5963	0.5732	AVRG		1.55467		0.6432	6	15	0.300	0.99	
Nitrobenzene		0.4043	0.4149	0.4096	0.4117	0.4078	0.4082	0.4061	0.4034	AVRG		2.44946		0.4083	1	15	0.200	0.99	
Isophorone		0.7250	0.7364	0.7213	0.7306	0.7295				AVRG		1.37256		0.7286	1	15	0.400	0.99	
2-Nitrophenol			0.2059	0.2054	0.2075	0.2070	0.2076	0.2022	0.2023m	AVRG		4.86811		0.2054	1	15	0.100	0.99	
2,4-Dimethylphenol		0.3752	0.3758	0.3671	0.3602	0.3530	0.3511	0.3490	0.3440	AVRG		2.78216		0.3594	3	15	0.200	0.99	
bis(2-Chloroethoxy)methane			0.4322	0.4265	0.4290	0.4319	0.4322	0.4309	0.4269	AVRG		2.32588		0.4299	1	15	0.300	0.99	
Benzoic acid		0.2204	0.2380	0.2569	0.2735	0.2798	0.2869	0.2932	0.2930	AVRG		3.73541		0.2677	10	15	0.05	0.99	
2,4-Dichlorophenol		0.3243	0.3289	0.3205	0.3204	0.3096	0.2924	0.2749	0.2609	AVRG		3.28958		0.3040	8	15	0.200	0.99	
1,2,4-Trichlorobenzene		0.3475	0.3507	0.3439	0.3376	0.3202	0.3040	0.2788	0.2625	AVRG		3.14316		0.3182	10	15	0.05	0.99	
Naphthalene	1.1701	1.1563	1.1652	1.1483	1.1243	1.0947	1.0491	0.9953	0.9561	AVRG		0.91283		1.0955	7	15	0.700	0.99	
4-Chloroaniline		0.2791	0.4744	0.4878m	0.4761m	0.4668m				LINR	2.73506	1.96829		0.4369	0.991	15	0.010	0.99	
Hexachlorobutadiene		0.1861	0.1851	0.1802	0.1764	0.1677	0.1541	0.1412	0.1293	AVRG		6.06045		0.1650	13	15	0.010	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
4-Chloro-3-methylphenol		0.3350	0.3342	0.3263	0.3257	0.3200	0.3144	0.3095	0.3002	AVRG		3.11857		0.3207	4	15	0.200	0.99	
2-Methylnaphthalene	0.7681	0.7746	0.7882	0.7653	0.7631	0.7358	0.7148	0.6816	0.6650	AVRG		1.35207		0.7396	6	15	0.400	0.99	
Hexachlorocyclopentadiene			0.3501	0.3584	0.3459	0.3391	0.3299	0.3023	0.2845	AVRG		3.02990		0.3300	8	15	0.050	0.99	
2,4,6-Trichlorophenol		0.3820	0.3841	0.3863	0.3780	0.3701	0.3601	0.3419	0.3253	AVRG		2.73240		0.3660	6	15	0.200	0.99	
2,4,5-Trichlorophenol		0.4104	0.4227	0.4268	0.4112	0.3937m	0.3772m	0.3479m	0.3304m	AVRG		2.56386		0.3900	9	15	0.200	0.99	
2-Chloronaphthalene			1.2316	1.2419	1.2013	1.1712	1.1512	1.0917	1.0704	AVRG		0.85792		1.1656	6	15	0.800	0.99	
2-Nitroaniline			0.3819	0.3959	0.3958	0.4002	0.4130	0.4079	0.4108	AVRG		2.49517		0.4008	3	15	0.010	0.99	
Dimethylphthalate		1.3494	1.3492	1.3528	1.3146	1.2783	1.2414	1.1631	1.1181	AVRG		0.78687		1.2709	7	15	0.010	0.99	
2,6-Dinitrotoluene		0.3011	0.3141	0.3200	0.3141	0.3161	0.3177	0.3093	0.3060	AVRG		3.20205		0.3123	2	15	0.200	0.99	
Acenaphthylene	1.9997	2.0460	2.0201	2.0350	1.9794	1.9588	1.9089	1.8163	1.7568	AVRG		0.51366		1.9468	5	15	0.900	0.99	
3-Nitroaniline			0.2531	0.3247	0.3456m	0.3571	0.3818	0.3786	0.3862	AVRG		2.88434		0.3467	14	15	0.010	0.99	
Acenaphthene	1.2227	1.2776	1.2754	1.3155	1.2906	1.2110m	1.1695	1.1068	1.0571	AVRG		0.82370		1.2140	7	15	0.900	0.99	
2,4-Dinitrophenol			0.1153	0.1400	0.1524	0.1648	0.1817	0.1927	0.1965	LINR	10.9335	4.65510		0.1633	0.999	15	0.010	0.99	
4-Nitrophenol			0.1768	0.1869	0.1867	0.1883	0.1917	0.1898	0.1922m	AVRG		5.33366		0.1875	3	15	0.010	0.99	
Dibenzofuran			1.7194	1.7329	1.6765	1.6444	1.6305	1.4943	1.3652	AVRG		0.62150		1.6090	8	15	0.800	0.99	
2,4-Dinitrotoluene		0.3997	0.4159	0.4286	0.4217	0.4198	0.4231	0.4008	0.3744	AVRG		2.43602		0.4105	4	15	0.200	0.99	
Diethylphthalate			1.4916	1.4896	1.4486	1.4389	1.4175	1.3484	1.3114	AVRG		0.70379		1.4209	5	15	0.010	0.99	
Fluorene	1.4365	1.4825	1.4736	1.4756	1.4263	1.3823	1.3411	1.2448	1.2030	AVRG		0.72199		1.3851	7	15	0.900	0.99	
4-Chlorophenyl-phenylether			0.6580	0.6672	0.6415	0.6281	0.6104	0.5713	0.5382	AVRG		1.62238		0.6164	8	15	0.400	0.99	
4-Nitroaniline			0.3328	0.3303	0.3512	0.3610	0.3828	0.3794	0.3781	AVRG		2.78252		0.3594	6	15	0.010	0.99	
4,6-Dinitro-2-methylphenol			0.1154	0.1274	0.1340	0.1386	0.1453	0.1460	0.1462	AVRG		7.34603		0.1361	8	15	0.010	0.99	
N-Nitrosodiphenylamine			0.6116	0.6218	0.6245	0.6194	0.6055	0.5936	0.5746	AVRG		1.64669		0.6073	3	15	0.010	0.99	
Azobenzene			0.9106	0.9296	0.9396	0.9332	0.9496	0.9252	0.9014	AVRG		1.07873		0.9270	2	15	0.05	0.99	
4-Bromophenyl-phenylether			0.2249	0.2273	0.2259	0.2241	0.2215	0.2144	0.2069	AVRG		4.53072		0.2207	3	15	0.100	0.99	
Hexachlorobenzene		0.2342	0.2377	0.2363	0.2354	0.2243	0.2116	0.1967	0.1832	AVRG		4.54731		0.2199	9	15	0.100	0.99	
Pentachlorophenol			0.1437	0.1536	0.1590	0.1584	0.1552	0.1480	0.1402	AVRG		6.61644		0.1511	5	15	0.050	0.99	
Phenanthrene	1.2081	1.2072	1.2011	1.1922	1.1811	1.1468	1.1067	1.0515	1.0035	AVRG		0.87394		1.1442	7	15	0.700	0.99	
Anthracene	1.2360	1.2164	1.2275	1.2149	1.1999	1.1783	1.1248	1.0598	1.0165m	AVRG		0.85926		1.1638	7	15	0.700	0.99	
Carbazole		0.9208	0.9914	1.0388	1.0497	0.9756	0.9587	0.9127	0.8774	AVRG		1.03559		0.9656	6	15	0.010	0.99	
Di-n-butylphthalate			1.5200	1.5230	1.5144	1.4877	1.4501	1.3438	1.2806	AVRG		0.69173		1.4456	7	15	0.010	0.99	
Fluoranthene	1.2951	1.3110	1.3020	1.3065	1.3047	1.2837	1.2525	1.1844	1.1337	AVRG		0.79132		1.2637	5	15	0.600	0.99	
Pyrene	1.2384	1.2648	1.2864	1.3174	1.3293	1.3088	1.3095	1.2698	1.2409	AVRG		0.77820		1.2850	3	15	0.600	0.99	
Butylbenzylphthalate			0.6033	0.6242	0.6478	0.6457	0.6743	0.6719	0.6592	AVRG		1.54649		0.6466	4	15	0.010	0.99	
3,3'-Dichlorobenzidine			0.3028	0.3631	0.3918	0.4052	0.4131	0.3681	0.3432	AVRG		2.70560		0.3696	10	15	0.010	0.99	
Benzo(a)anthracene	1.1530	1.1224	1.1428	1.1526	1.1440	1.1366	1.1611	1.1502	1.1340	AVRG		0.87408		1.1441	1	15	0.800	0.99	
bis(2-Ethylhexyl)phthalate			0.8808	0.9182	0.9283	0.9190	0.8788	0.7271	0.6237	AVRG		1.19130		0.8394	14	15	0.010	0.99	
Chrysene	1.0372	1.0454	1.0616	1.0607	1.0723	1.0494	1.0767	1.0420	1.0378	AVRG		0.94905		1.0537	1	15	0.700	0.99	
Di-n-octylphthalate			1.6002	1.7003	1.7383	1.7461	1.8451	1.8267	1.8210	AVRG		0.57014		1.7540	5	15	0.010	0.99	
Benzo(b)fluoranthene	1.0125	1.0824	1.1371	1.1905	1.1980	1.2078	1.3259	1.3554	1.3549	AVRG		0.82838		1.2072	10	15	0.700	0.99	
Benzo(k)fluoranthene	0.9880	1.0469	1.0839	1.1359	1.1431	1.1316	1.1322	1.1041	1.1065m	AVRG		0.91164		1.0969	5	15	0.700	0.99	
Benzo(a)pyrene	0.9770	1.0509	1.1075	1.1661	1.1639	1.1750	1.2477	1.2348	1.2452	AVRG		0.86805		1.1520	8	15	0.700	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Indeno(1,2,3-cd)pyrene	1.0501	1.1365	1.1978	1.2791	1.3128	1.3283	1.4156	1.4204		AVRG		0.78890		1.2676	10	15	0.500	0.99	
Dibenz(a,h)anthracene	0.8725	0.9478	0.9976	1.0747	1.0978	1.1140	1.1952	1.2027	1.2223	AVRG		0.92549		1.0805	11	15	0.400	0.99	
Benzo(g,h,i)perylene	0.9248	0.9245	0.9495	1.0256	1.0783	1.0922	1.1690	1.1811	1.1840	AVRG		0.94449		1.0588	10	15	0.500	0.99	
2-Fluorophenol	1.3378	1.3172	1.3419	1.3515	1.3569	1.3341	1.3673	1.3609	1.3712	AVRG		0.74142		1.3488	1	15	0.05	0.99	
Phenol-d5	1.6604	1.6374	1.6656	1.6621	1.6766	1.6617	1.7113	1.7060	1.7100	AVRG		0.59638		1.6768	2	15	0.05	0.99	
Nitrobenzene-d5	0.4335	0.4299	0.4442	0.4444	0.4527	0.4490	0.4521	0.4606	0.4580	AVRG		2.23631		0.4472	2	15	0.05	0.99	
2-Fluorobiphenyl	1.5118	1.5322	1.5224	1.5224	1.4688	1.4054	1.3489	1.2626	1.2275	AVRG		0.70301		1.4224	8	15	0.05	0.99	
2,4,6-Tribromophenol	0.1555	0.1723	0.1872	0.1930	0.1900	0.1910	0.1940	0.1846	0.1811	AVRG		5.45930		0.1832	7	15	0.05	0.99	
Terphenyl-d14	0.8361	0.8491	0.8869	0.8989	0.9115	0.9025	0.9030	0.8692	0.8323	AVRG		1.14076		0.8766	4	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
N-Nitrosodimethylamine			10.000	-2	20.000	-3	32.000	0	40.000	0	50.000	0	80.000	1	100.00	1	120.00	3
Phenol			10.000	0	20.000	1	32.000	0	40.000	0	50.000	-1	80.000	1	100.00	-1	120.00	0
bis(2-Chloroethyl)ether			10.000	0	20.000	3	32.000	3	40.000	2	50.000	0	80.000	0	100.00	-2	120.00	-6
2-Chlorophenol			10.000	1	20.000	2	32.000	2	40.000	1	50.000	-1	80.000	0	100.00	-2	120.00	-3
1,3-Dichlorobenzene			10.000	8	20.000	8	32.000	6	40.000	4	50.000	1	80.000	-4	100.00	-9	120.00	-13
1,4-Dichlorobenzene			10.000	11	20.000	10	32.000	9	40.000	5	50.000	1	80.000	-5	100.00	-13	120.00	-17
Benzyl alcohol			10.000	-3	20.000	-1	32.000	0	40.000	1	50.000	-1	80.000	1	100.00	0	120.00	2
1,2-Dichlorobenzene			10.000	9	20.000	8	32.000	8	40.000	5	50.000	0	80.000	-4	100.00	-11	120.00	-15
2-Methylphenol			10.000	1	20.000	3	32.000	2	40.000	2	50.000	0	80.000	0	100.00	-3	120.00	-4
bis(2-Chloroisopropyl) ether			10.000	-5	20.000	-2	32.000	-2	40.000	0	50.000	-1	80.000	3	100.00	3	120.00	4
4-Methylphenol			10.000	-1	20.000	0	32.000	0	40.000	0	50.000	-2	80.000	3				
N-Nitroso-di-n-propylamine			10.000	-7	20.000	-2	32.000	-1	40.000	1	50.000	0	80.000	3	100.00	2	120.00	5
Hexachloroethane			10.000	3	20.000	5	32.000	4	40.000	4	50.000	2	80.000	-1	100.00	-7	120.00	-11
Nitrobenzene			10.000	-1	20.000	2	32.000	0	40.000	1	50.000	0	80.000	0	100.00	-1	120.00	-1
Isophorone			10.000	0	20.000	1	32.000	-1	40.000	0	50.000	0						
2-Nitrophenol					20.000	0	32.000	0	40.000	1	50.000	1	80.000	1	100.00	-2	120.00	-2
2,4-Dimethylphenol			10.000	4	20.000	5	32.000	2	40.000	0	50.000	-2	80.000	-2	100.00	-3	120.00	-4
bis(2-Chloroethoxy)methane					10.000	1	16.000	-1	20.000	0	25.000	0	40.000	1	50.000	0	60.000	-1
Benzoic acid			50.000	-18	60.000	-11	80.000	-4	90.000	2	100.00	5	120.00	7	130.00	10	140.00	9
2,4-Dichlorophenol			10.000	7	20.000	8	32.000	5	40.000	5	50.000	2	80.000	-4	100.00	-10	120.00	-14
1,2,4-Trichlorobenzene			10.000	9	20.000	10	32.000	8	40.000	6	50.000	1	80.000	-4	100.00	-12	120.00	-17
Naphthalene	2.0000	7	5.0000	6	10.000	6	16.000	5	20.000	3	25.000	0	40.000	-4	50.000	-9	60.000	-13
4-Chloroaniline			10.000	-18	20.000	7	32.000	5	40.000	1	50.000	-3						
Hexachlorobutadiene			10.000	13	20.000	12	32.000	9	40.000	7	50.000	2	80.000	-7	100.00	-14	120.00	**-22**
4-Chloro-3-methylphenol			10.000	4	20.000	4	32.000	2	40.000	2	50.000	0	80.000	-2	100.00	-3	120.00	-6
2-Methylnaphthalene	2.0000	4	5.0000	5	10.000	7	16.000	3	20.000	3	25.000	-1	40.000	-3	50.000	-8	60.000	-10
Hexachlorocyclopentadiene					20.000	6	32.000	9	40.000	5	50.000	3	80.000	0	100.00	-8	120.00	-14
2,4,6-Trichlorophenol			10.000	4	20.000	5	32.000	6	40.000	3	50.000	1	80.000	-2	100.00	-7	120.00	-11
2,4,5-Trichlorophenol			10.000	5	20.000	8	32.000	9	40.000	5	50.000	1	80.000	-3	100.00	-11	120.00	-15
2-Chloronaphthalene					10.000	6	16.000	7	20.000	3	25.000	0	40.000	-1	50.000	-6	60.000	-8
2-Nitroaniline					20.000	-5	32.000	-1	40.000	-1	50.000	0	80.000	3	100.00	2	120.00	2
Dimethylphthalate			10.000	6	20.000	6	32.000	6	40.000	3	50.000	1	80.000	-2	100.00	-8	120.00	-12
2,6-Dinitrotoluene			10.000	-4	20.000	1	32.000	2	40.000	1	50.000	1	80.000	2	100.00	-1	120.00	-2
Acenaphthylene	2.0000	3	5.0000	5	10.000	4	16.000	5	20.000	2	25.000	1	40.000	-2	50.000	-7	60.000	-10
3-Nitroaniline					20.000	**-27**	32.000	-6	40.000	0	50.000	3	80.000	10	100.00	9	120.00	11
Acenaphthene	2.0000	1	5.0000	5	10.000	5	16.000	8	20.000	6	25.000	0	40.000	-4	50.000	-9	60.000	-13
2,4-Dinitrophenol					20.000	8	32.000	-1	40.000	-2	50.000	-1	80.000	-2	100.00	1	120.00	1
4-Nitrophenol					20.000	-6	32.000	0	40.000	0	50.000	0	80.000	2	100.00	1	120.00	3
Dibenzofuran					10.000	7	16.000	8	20.000	4	25.000	2	40.000	1	50.000	-7	60.000	-15
2,4-Dinitrotoluene			10.000	-3	20.000	1	32.000	4	40.000	3	50.000	2	80.000	3	100.00	-2	120.00	-9
Diethylphthalate					10.000	5	16.000	5	20.000	2	25.000	1	40.000	0	50.000	-5	60.000	-8
Fluorene	2.0000	4	5.0000	7	10.000	6	16.000	7	20.000	3	25.000	0	40.000	-3	50.000	-10	60.000	-13

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
4-Chlorophenyl-phenylether					10.000	7	16.000	8	20.000	4	25.000	2	40.000	-1	50.000	-7	60.000	-13
4-Nitroaniline					20.000	-7	32.000	-8	40.000	-2	50.000	0	80.000	7	100.00	6	120.00	5
4,6-Dinitro-2-methylphenol					20.000	-15	32.000	-6	40.000	-2	50.000	2	80.000	7	100.00	7	120.00	7
N-Nitrosodiphenylamine					10.000	1	16.000	2	20.000	3	25.000	2	40.000	0	50.000	-2	60.000	-5
Azobenzene					10.000	-2	16.000	0	20.000	1	25.000	1	40.000	2	50.000	0	60.000	-3
4-Bromophenyl-phenylether					10.000	2	16.000	3	20.000	2	25.000	2	40.000	0	50.000	-3	60.000	-6
Hexachlorobenzene			10.000	6	20.000	8	32.000	7	40.000	7	50.000	2	80.000	-4	100.00	-11	120.00	-17
Pentachlorophenol					20.000	-5	32.000	2	40.000	5	50.000	5	80.000	3	100.00	-2	120.00	-7
Phenanthrene	2.0000	6	5.0000	5	10.000	5	16.000	4	20.000	3	25.000	0	40.000	-3	50.000	-8	60.000	-12
Anthracene	2.0000	6	5.0000	5	10.000	5	16.000	4	20.000	3	25.000	1	40.000	-3	50.000	-9	60.000	-13
Carbazole			10.000	-5	20.000	3	32.000	8	40.000	9	50.000	1	80.000	-1	100.00	-5	120.00	-9
Di-n-butylphthalate					10.000	5	16.000	5	20.000	5	25.000	3	40.000	0	50.000	-7	60.000	-11
Fluoranthene	2.0000	2	5.0000	4	10.000	3	16.000	3	20.000	3	25.000	2	40.000	-1	50.000	-6	60.000	-10
Pyrene	2.0000	-4	5.0000	-2	10.000	0	16.000	3	20.000	3	25.000	2	40.000	2	50.000	-1	60.000	-3
Butylbenzylphthalate					10.000	-7	16.000	-3	20.000	0	25.000	0	40.000	4	50.000	4	60.000	2
3,3'-Dichlorobenzidine					20.000	-18	32.000	-2	40.000	6	50.000	10	80.000	12	100.00	0	120.00	-7
Benzo(a)anthracene	2.0000	1	5.0000	-2	10.000	0	16.000	1	20.000	0	25.000	-1	40.000	1	50.000	1	60.000	-1
bis(2-Ethylhexyl)phthalate					10.000	5	16.000	9	20.000	11	25.000	9	40.000	5	50.000	-13	60.000	**-26**
Chrysene	2.0000	-2	5.0000	-1	10.000	1	16.000	1	20.000	2	25.000	0	40.000	2	50.000	-1	60.000	-2
Di-n-octylphthalate					10.000	-9	16.000	-3	20.000	-1	25.000	0	40.000	5	50.000	4	60.000	4
Benzo(b)fluoranthene	2.0000	-16	5.0000	-10	10.000	-6	16.000	-1	20.000	-1	25.000	0	40.000	10	50.000	12	60.000	12
Benzo(k)fluoranthene	2.0000	-10	5.0000	-5	10.000	-1	16.000	4	20.000	4	25.000	3	40.000	3	50.000	1	60.000	1
Benzo(a)pyrene	2.0000	-15	5.0000	-9	10.000	-4	16.000	1	20.000	1	25.000	2	40.000	8	50.000	7	60.000	8
Indeno(1,2,3-cd)pyrene	2.0000	-17	5.0000	-10	10.000	-6	16.000	1	20.000	4	25.000	5	40.000	12	50.000	12		
Dibenz(a,h)anthracene	2.0000	-19	5.0000	-12	10.000	-8	16.000	-1	20.000	2	25.000	3	40.000	11	50.000	11	60.000	13
Benzo(g,h,i)perylene	2.0000	-13	5.0000	-13	10.000	-10	16.000	-3	20.000	2	25.000	3	40.000	10	50.000	12	60.000	12
2-Fluorophenol	2.0000	-1	5.0000	-2	10.000	-1	16.000	0	20.000	1	25.000	-1	40.000	1	50.000	1	60.000	2
Phenol-d5	2.0000	-1	5.0000	-2	10.000	-1	16.000	-1	20.000	0	25.000	-1	40.000	2	50.000	2	60.000	2
Nitrobenzene-d5	2.0000	-3	5.0000	-4	10.000	-1	16.000	-1	20.000	1	25.000	0	40.000	1	50.000	3	60.000	2
2-Fluorobiphenyl	2.0000	6	5.0000	8	10.000	7	16.000	7	20.000	3	25.000	-1	40.000	-5	50.000	-11	60.000	-14
2,4,6-Tribromophenol	2.0000	-15	5.0000	-6	10.000	2	16.000	5	20.000	4	25.000	4	40.000	6	50.000	1	60.000	-1
Terphenyl-d14	2.0000	-5	5.0000	-3	10.000	1	16.000	3	20.000	4	25.000	3	40.000	3	50.000	-1	60.000	-5

KMH 08/16/14 [Aniline]: Picked or reassigned peak in all levels.

KMH 08/16/14 [2-Nitrophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [3-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [4-Chloroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [2,4,5-Trichlorophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [Acenaphthene]: Corrected automatically drawn baseline in ICAL (xhf11).

KMH 08/16/14 [Pyridine]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [bis(2-Chloroethyl)ether]: Corrected automatically drawn baseline in ICAL (xhf13).

KMH 08/16/14 [4-Methylphenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/16/14 [4-Nitrophenol]: Picked or reassigned peak in ICAL (xhf14).

KMH 08/16/14 [Anthracene]: Corrected automatically drawn baseline in ICAL (xhf14).

KMH 08/16/14 [Benzo(k)fluoranthene]: Picked or reassigned peak in ICAL (xhf14).

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/19/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; LINR=Linear regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259841 MSBNA Water
EPA 8270D

Inst : MSBNA05 Name : 6PTBNA5
Calnum : 544327680001 Cal Date : 15-AUG-2014

ICV 544327680015 (xhf15 15-AUG-2014) stds: S25418

Analyte	Spiked	Quant	Units	%D	Max	Flags
N-Nitrosodimethylamine	40.00	37.81	ug/mL	-5	20	
Phenol	40.00	37.82	ug/mL	-5	20	
bis(2-Chloroethyl)ether	40.00	38.43	ug/mL	-4	20	
2-Chlorophenol	40.00	38.18	ug/mL	-5	20	
1,3-Dichlorobenzene	40.00	38.79	ug/mL	-3	20	
1,4-Dichlorobenzene	40.00	39.02	ug/mL	-2	20	
Benzyl alcohol	40.00	37.97	ug/mL	-5	20	
1,2-Dichlorobenzene	40.00	38.80	ug/mL	-3	20	
2-Methylphenol	40.00	37.90	ug/mL	-5	20	
bis(2-Chloroisopropyl) ether	40.00	37.90	ug/mL	-5	20	
4-Methylphenol	40.00	33.62	ug/mL	-16	20	
N-Nitroso-di-n-propylamine	40.00	37.21	ug/mL	-7	20	
Hexachloroethane	40.00	38.46	ug/mL	-4	20	
Nitrobenzene	40.00	37.77	ug/mL	-6	20	
Isophorone	40.00	35.89	ug/mL	-10	20	
2-Nitrophenol	40.00	38.35	ug/mL	-4	20	
2,4-Dimethylphenol	40.00	38.51	ug/mL	-4	20	
bis(2-Chloroethoxy)methane	40.00	36.69	ug/mL	-8	20	
Benzoic acid	100.0	96.04	ug/mL	-4	20	
2,4-Dichlorophenol	40.00	39.07	ug/mL	-2	20	
1,2,4-Trichlorobenzene	40.00	38.91	ug/mL	-3	20	
Naphthalene	40.00	35.26	ug/mL	-12	20	
4-Chloroaniline	40.00	38.30	ug/mL	-4	20	
Hexachlorobutadiene	40.00	39.41	ug/mL	-1	20	
4-Chloro-3-methylphenol	40.00	37.64	ug/mL	-6	20	
2-Methylnaphthalene	40.00	36.56	ug/mL	-9	20	
Hexachlorocyclopentadiene	40.00	35.81	ug/mL	-10	20	
2,4,6-Trichlorophenol	40.00	37.22	ug/mL	-7	20	
2,4,5-Trichlorophenol	40.00	38.16	ug/mL	-5	20	m
2-Chloronaphthalene	40.00	35.99	ug/mL	-10	20	
2-Nitroaniline	40.00	37.48	ug/mL	-6	20	
Dimethylphthalate	40.00	38.49	ug/mL	-4	20	
2,6-Dinitrotoluene	40.00	38.38	ug/mL	-4	20	
Acenaphthylene	40.00	35.58	ug/mL	-11	20	
3-Nitroaniline	40.00	38.96	ug/mL	-3	20	
Acenaphthene	40.00	35.96	ug/mL	-10	20	
2,4-Dinitrophenol	40.00	38.44	ug/mL	-4	20	
4-Nitrophenol	40.00	37.46	ug/mL	-6	20	
Dibenzofuran	40.00	37.11	ug/mL	-7	20	
2,4-Dinitrotoluene	40.00	39.17	ug/mL	-2	20	
Diethylphthalate	40.00	35.10	ug/mL	-12	20	
Fluorene	40.00	35.26	ug/mL	-12	20	
4-Chlorophenyl-phenylether	40.00	35.97	ug/mL	-10	20	
4-Nitroaniline	40.00	37.23	ug/mL	-7	20	
4,6-Dinitro-2-methylphenol	40.00	37.16	ug/mL	-7	20	
N-Nitrosodiphenylamine	40.00	41.11	ug/mL	3	20	
Azobenzene	40.00	36.62	ug/mL	-8	20	
4-Bromophenyl-phenylether	40.00	35.88	ug/mL	-10	20	
Hexachlorobenzene	40.00	38.01	ug/mL	-5	20	

Analyte	Spiked	Quant	Units	%D	Max	Flags
Pentachlorophenol	40.00	36.42	ug/mL	-9	20	
Phenanthrene	40.00	34.71	ug/mL	-13	20	
Anthracene	40.00	35.37	ug/mL	-12	20	
Carbazole	40.00	41.57	ug/mL	4	20	
Di-n-butylphthalate	40.00	35.81	ug/mL	-10	20	
Fluoranthene	40.00	35.75	ug/mL	-11	20	
Pyrene	40.00	34.63	ug/mL	-13	20	
Butylbenzylphthalate	40.00	37.63	ug/mL	-6	20	
3,3'-Dichlorobenzidine	60.00	59.22	ug/mL	-1	20	
Benzo(a)anthracene	40.00	37.24	ug/mL	-7	20	
bis(2-Ethylhexyl)phthalate	40.00	39.51	ug/mL	-1	20	
Chrysene	40.00	35.31	ug/mL	-12	20	
Di-n-octylphthalate	40.00	37.37	ug/mL	-7	20	
Benzo(b)fluoranthene	40.00	39.18	ug/mL	-2	20	
Benzo(k)fluoranthene	40.00	40.20	ug/mL	0	20	
Benzo(a)pyrene	40.00	38.58	ug/mL	-4	20	
Indeno(1,2,3-cd)pyrene	40.00	39.56	ug/mL	-1	20	
Dibenz(a,h)anthracene	40.00	39.11	ug/mL	-2	20	
Benzo(g,h,i)perylene	40.00	38.86	ug/mL	-3	20	

Analyst: KMH Date: 08/16/14 Reviewer: LW Date: 08/19/14

m=manual integration

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259841 MSBNA Water: EPA 8270D

Inst : MSBNA09
Calnum : 584305789001
Units : ug/mL

Name : 6PTBNA9
Date : 31-JUL-2014 19:18
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	rgv16	584305789016	ICAL	31-JUL-2014 19:18	S24422
L2	rgv17	584305789017	ICAL	31-JUL-2014 19:47	S24424
L3	rgv18	584305789018	ICAL	31-JUL-2014 20:17	S24425
L4	rgv19	584305789019	ICAL	31-JUL-2014 20:47	S24427
L5	rgv20	584305789020	ICAL	31-JUL-2014 21:17	S24428
L6	rgv21	584305789021	ICAL	31-JUL-2014 21:47	S24429
L7	rgv22	584305789022	ICAL	31-JUL-2014 22:18	S24430
L8	rgv23	584305789023	ICAL	31-JUL-2014 22:48	S24431
L9	rgv24	584305789024	ICAL	31-JUL-2014 23:18	S24432

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
N-Nitrosodimethylamine		0.6914	0.7062	0.7007	0.6940	0.6725	0.6850	0.6819	0.6799	AVRG		1.45149		0.6889	2	15	0.05	0.99	
Phenol		1.7949	1.8023	1.7821	1.7353	1.6895	1.7229	1.7252	1.7515	AVRG		0.57127		1.7505	2	15	0.800	0.99	
bis(2-Chloroethyl)ether		1.4075	1.4036	1.3635	1.3501	1.2833	1.2794	1.2322	1.2695	AVRG		0.75549		1.3236	5	15	0.700	0.99	
2-Chlorophenol		1.5252	1.5553	1.5565	1.5171	1.4712	1.4674	1.4423	1.4243	AVRG		0.66894		1.4949	3	15	0.800	0.99	
1,3-Dichlorobenzene		1.6836	1.6923	1.6751	1.6451	1.5724	1.5313	1.4635	1.4190	AVRG		0.63080		1.5853	7	15	0.05	0.99	
1,4-Dichlorobenzene		1.7175	1.7260	1.7055	1.6600	1.5832	1.5430	1.4690	1.4208	AVRG		0.62379		1.6031	7	15	0.05	0.99	
Benzyl alcohol		0.8783	0.8970	0.9342	0.9213	0.9608	1.0349	1.0315	1.0526	AVRG		1.03753		0.9638	7	15	0.05	0.99	
1,2-Dichlorobenzene		1.5993	1.6039	1.5815	1.5474	1.4906	1.4410	1.3824	1.3423	AVRG		0.66731		1.4985	7	15	0.05	0.99	
2-Methylphenol		1.1171	1.1274	1.1118	1.0737	1.0832	1.1323	1.1342	1.1453	AVRG		0.89636		1.1156	2	15	0.700	0.99	
bis(2-Chloroisopropyl) ether		1.9727	1.9558	1.9040	1.8300	1.7737	1.7740	1.7754	1.7881	AVRG		0.54151		1.8467	5	15	0.010	0.99	
4-Methylphenol		1.6373	1.6384	1.6641	1.6442	1.6827	1.8013	1.8160	1.8706	AVRG		0.58162		1.7193	5	15	0.600	0.99	
N-Nitroso-di-n-propylamine		0.8428	0.9435	1.0001	0.9938	1.0010	1.0425	1.0284	1.0465	AVRG		1.01284		0.9873	7	15	0.500	0.99	
Hexachloroethane		0.6305	0.6461	0.6504	0.6384	0.6206	0.6148	0.5905	0.5843	AVRG		1.60785		0.6219	4	15	0.300	0.99	
Nitrobenzene		0.3688	0.3698	0.3745	0.3680	0.3528	0.3579	0.3478	0.3422	AVRG		2.77615		0.3602	3	15	0.200	0.99	
Isophorone		0.7212	0.7714	0.7920	0.7720	0.7313	0.7235	0.6973	0.6882	AVRG		1.35661		0.7371	5	15	0.400	0.99	
2-Nitrophenol			0.1920	0.2024	0.2063	0.2044	0.2117	0.2060	0.2004	AVRG		4.91861		0.2033	3	15	0.100	0.99	
2,4-Dimethylphenol		0.3502	0.3614	0.3938	0.3954	0.3748	0.3687	0.3520	0.3452	AVRG		2.71965		0.3677	5	15	0.200	0.99	
bis(2-Chloroethoxy)methane			0.4534	0.4786	0.4795	0.4612	0.4581	0.4414	0.4305	AVRG		2.18575		0.4575	4	15	0.300	0.99	
Benzoic acid		0.1993	0.2289	0.2591	0.2745	0.2684	0.2764	0.2780	0.2806	AVRG		3.87363		0.2582	11	15	0.05	0.99	
2,4-Dichlorophenol		0.3099	0.3220	0.3327	0.3328	0.3199	0.3147	0.2938	0.2838	AVRG		3.18777		0.3137	6	15	0.200	0.99	
1,2,4-Trichlorobenzene		0.3460	0.3520	0.3471	0.3375	0.3157	0.2983	0.2829	0.2702	AVRG		3.13757		0.3187	10	15	0.05	0.99	
Naphthalene	1.0603	1.1240	1.1396	1.1497	1.1258	1.0861	1.0761	1.0263	1.0125	AVRG		0.91832		1.0889	5	15	0.700	0.99	
4-Chloroaniline		0.4291	0.5232	0.5370	0.5333	0.5021m	0.4816m	0.4547m	0.4326	AVRG		2.05460		0.4867	9	15	0.010	0.99	
Hexachlorobutadiene		0.1897	0.1983	0.1954	0.1888	0.1744	0.1622	0.1554	0.1479	AVRG		5.66479		0.1765	11	15	0.010	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
4-Chloro-3-methylphenol		0.3495	0.3759	0.3870	0.3758	0.3585	0.3410	0.3230	0.3157	AVRG		2.83049		0.3533	7	15	0.200	0.99	
2-Methylnaphthalene	0.6790	0.7354	0.8185	0.8487	0.8356	0.7940	0.7702	0.7240	0.6978	AVRG		1.30374		0.7670	8	15	0.400	0.99	
Hexachlorocyclopentadiene			0.3628	0.3820	0.3910	0.3891	0.3910	0.3696	0.3516	AVRG		2.65445		0.3767	4	15	0.050	0.99	
2,4,6-Trichlorophenol		0.3702	0.3900	0.3946	0.3928	0.3896	0.3850	0.3751	0.3594	AVRG		2.61723		0.3821	3	15	0.200	0.99	
2,4,5-Trichlorophenol		0.3938	0.4222	0.4377	0.4348	0.4090	0.4100	0.3767m	0.3728	AVRG		2.45620		0.4071	6	15	0.200	0.99	
2-Chloronaphthalene			1.2135	1.2415	1.2276	1.1820	1.1969	1.1410	1.1148	AVRG		0.84162		1.1882	4	15	0.800	0.99	
2-Nitroaniline			0.3459	0.3605	0.3570	0.3516	0.3582	0.3490	0.3489	AVRG		2.83269		0.3530	2	15	0.010	0.99	
Dimethylphthalate		1.4357	1.4875	1.5029	1.4683	1.4179	1.4093	1.3182	1.2575	AVRG		0.70815		1.4121	6	15	0.010	0.99	
2,6-Dinitrotoluene		0.3140	0.3365	0.3492	0.3448	0.3440	0.3582	0.3461	0.3424	AVRG		2.92482		0.3419	4	15	0.200	0.99	
Acenaphthylene	1.6084	1.6989	1.7562	1.7792	1.7399	1.6886	1.6918	1.6354	1.5900	AVRG		0.59255		1.6876	4	15	0.900	0.99	
3-Nitroaniline			0.3513m	0.3755m	0.3801m	0.3815m	0.4011	0.3917	0.3896	AVRG		2.62094		0.3815	4	15	0.010	0.99	
Acenaphthene	1.1614	1.2447	1.2989	1.3096	1.3124	1.2524	1.2702	1.2282	1.2026	AVRG		0.79784		1.2534	4	15	0.900	0.99	
2,4-Dinitrophenol			0.1075	0.1355	0.1533m	0.1627m	0.1950m	0.1990m	0.2090m	LINR	12.9032	4.32381		0.1660	0.999	15	0.010	0.99	
4-Nitrophenol			0.1789m	0.1910m	0.1934m	0.1902m	0.1983	0.1938	0.1924	AVRG		5.23151		0.1911	3	15	0.010	0.99	
Dibenzofuran			1.7761	1.7981	1.7778	1.7325	1.7480	1.6956	1.6331	AVRG		0.57560		1.7373	3	15	0.800	0.99	
2,4-Dinitrotoluene		0.4297	0.4669	0.4928	0.4875	0.4806	0.4957	0.4746	0.4658	AVRG		2.10883		0.4742	4	15	0.200	0.99	
Diethylphthalate			1.5346	1.5774	1.5789	1.5402	1.5676	1.4907	1.4408	AVRG		0.65238		1.5329	3	15	0.010	0.99	
Fluorene	1.4029	1.4698	1.4874	1.5121	1.4829	1.4351	1.4335	1.3620	1.3259	AVRG		0.69704		1.4346	4	15	0.900	0.99	
4-Chlorophenyl-phenylether			0.7266	0.7476	0.7377	0.7257	0.7402	0.7091	0.6878	AVRG		1.37941		0.7249	3	15	0.400	0.99	
4-Nitroaniline			0.3768m	0.3971	0.3940	0.3921	0.4115	0.3986	0.3960	AVRG		2.53072		0.3951	3	15	0.010	0.99	
4,6-Dinitro-2-methylphenol			0.1203	0.1324	0.1431	0.1452	0.1565	0.1571	0.1610	AVRG		6.89283		0.1451	10	15	0.010	0.99	
N-Nitrosodiphenylamine			0.6099	0.6075	0.6153	0.5906	0.5980	0.5785	0.5820	AVRG		1.67390		0.5974	2	15	0.010	0.99	
Azobenzene			0.8263	0.8156	0.8188	0.7952	0.7896	0.7705	0.7757	AVRG		1.25187		0.7988	3	15	0.05	0.99	
4-Bromophenyl-phenylether			0.2467	0.2484	0.2529	0.2465	0.2497	0.2443	0.2463	AVRG		4.03511		0.2478	1	15	0.100	0.99	
Hexachlorobenzene		0.2744	0.2794	0.2797	0.2807	0.2686	0.2608	0.2507	0.2449	AVRG		3.73973		0.2674	5	15	0.100	0.99	
Pentachlorophenol			0.1520	0.1643	0.1742	0.1713	0.1779	0.1722	0.1747	AVRG		5.89909		0.1695	5	15	0.050	0.99	
Phenanthrene	1.1257	1.2289	1.2328	1.2329	1.2147	1.1617	1.1309	1.0744	1.0484	AVRG		0.86122		1.1611	6	15	0.700	0.99	
Anthracene	1.1163	1.1881	1.2121	1.2194	1.1959	1.1590	1.1147	1.0798m	1.0504	AVRG		0.87077		1.1484	5	15	0.700	0.99	
Carbazole		1.0130	1.1290	1.1193	1.1012	1.0359	0.9603	0.8887	0.8698	AVRG		0.98558		1.0146	10	15	0.010	0.99	
Di-n-butylphthalate			1.5949	1.5837	1.5815	1.4914	1.4069	1.3314	1.2868	AVRG		0.68116		1.4681	9	15	0.010	0.99	
Fluoranthene	1.2466	1.3764	1.3744	1.3861	1.3541	1.2644	1.2134	1.1548	1.1279	AVRG		0.78273		1.2776	8	15	0.600	0.99	
Pyrene	1.0705	1.2403	1.2712	1.2861	1.2697	1.2021	1.1804	1.1218	1.1187	AVRG		0.83638		1.1956	7	15	0.600	0.99	
Butylbenzylphthalate			0.5714	0.5901	0.5822	0.5623	0.5714	0.5514	0.5557	AVRG		1.75680		0.5692	2	15	0.010	0.99	
3,3'-Dichlorobenzidine			0.4289	0.4527	0.4639	0.4474	0.4333	0.4073	0.3928	AVRG		2.31307		0.4323	6	15	0.010	0.99	
Benzo(a)anthracene	1.0660	1.1287	1.1392	1.1627	1.1455	1.1191	1.1385	1.1132	1.1220	AVRG		0.88802		1.1261	2	15	0.800	0.99	
bis(2-Ethylhexyl)phthalate			0.8437	0.8679	0.8584	0.8240	0.7595	0.6940	0.6271	AVRG		1.27865		0.7821	12	15	0.010	0.99	
Chrysene	1.0039	1.0504	1.0893	1.1084	1.1131	1.0643	1.0814	1.0382	1.0530	AVRG		0.93731		1.0669	3	15	0.700	0.99	
Di-n-octylphthalate			1.4940	1.5597	1.5598	1.5231	1.5706	1.5559	1.5500	AVRG		0.64735		1.5448	2	15	0.010	0.99	
Benzo(b)fluoranthene	0.9916	1.0871	1.1600	1.1756	1.1816	1.1559	1.2252	1.1862	1.2768	AVRG		0.86207		1.1600	7	15	0.700	0.99	
Benzo(k)fluoranthene	0.9900	1.1041	1.1553	1.2287	1.2044	1.1555	1.1895	1.2014	1.1722	AVRG		0.86527		1.1557	6	15	0.700	0.99	
Benzo(a)pyrene	0.8192	0.9250	0.9765	1.0217	1.0207	0.9857	1.0411	1.0318	1.0461	AVRG		1.01490		0.9853	7	15	0.700	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Indeno(1,2,3-cd)pyrene	0.9412	1.0577	1.1284	1.1957	1.2067	1.1738	1.2069	1.2109	1.2328	AVRG		0.86923		1.1504	8	15	0.500	0.99	
Dibenz(a,h)anthracene	0.8363	0.9398	1.0131	1.0689	1.0750	1.0538	1.0925	1.0937	1.1175	AVRG		0.96871		1.0323	9	15	0.400	0.99	
Benzo(g,h,i)perylene	0.7966	0.8451	0.8928	0.9376	0.9559	0.9266	0.9628	0.9593	0.9672	AVRG		1.09171		0.9160	7	15	0.500	0.99	
2-Fluorophenol	1.3347	1.4475	1.4868	1.5063	1.4861	1.4485	1.5020	1.4901	1.4930	AVRG		0.68208		1.4661	4	15	0.05	0.99	
Phenol-d5	1.6070	1.7128	1.7315	1.7386	1.6936	1.6677	1.7342	1.7411	1.7664	AVRG		0.58468		1.7103	3	15	0.05	0.99	
Nitrobenzene-d5	0.3599	0.3882	0.3777	0.3952	0.3923	0.3846	0.3909	0.3870	0.3882	AVRG		2.59816		0.3849	3	15	0.05	0.99	
2-Fluorobiphenyl	1.3655	1.4485	1.5077	1.5205	1.4869	1.4289	1.4091	1.3532	1.2921	AVRG		0.70244		1.4236	5	15	0.05	0.99	
2,4,6-Tribromophenol	0.1537	0.1835	0.2001	0.2123	0.2198	0.2204	0.2463	0.2406	0.2452	AVRG		4.68243		0.2136	14	15	0.05	0.99	
Terphenyl-d14	0.8305	0.9362	0.9721	0.9975	0.9822	0.9426	0.9279	0.8872	0.8817	AVRG		1.07682		0.9287	6	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
N-Nitrosodimethylamine			10.000	0	20.000	3	32.000	2	40.000	1	50.000	-2	80.000	-1	100.00	-1	120.00	-1
Phenol			10.000	3	20.000	3	32.000	2	40.000	-1	50.000	-3	80.000	-2	100.00	-1	120.00	0
bis(2-Chloroethyl)ether			10.000	6	20.000	6	32.000	3	40.000	2	50.000	-3	80.000	-3	100.00	-7	120.00	-4
2-Chlorophenol			10.000	2	20.000	4	32.000	4	40.000	1	50.000	-2	80.000	-2	100.00	-4	120.00	-5
1,3-Dichlorobenzene			10.000	6	20.000	7	32.000	6	40.000	4	50.000	-1	80.000	-3	100.00	-8	120.00	-10
1,4-Dichlorobenzene			10.000	7	20.000	8	32.000	6	40.000	4	50.000	-1	80.000	-4	100.00	-8	120.00	-11
Benzyl alcohol			10.000	-9	20.000	-7	32.000	-3	40.000	-4	50.000	0	80.000	7	100.00	7	120.00	9
1,2-Dichlorobenzene			10.000	7	20.000	7	32.000	6	40.000	3	50.000	-1	80.000	-4	100.00	-8	120.00	-10
2-Methylphenol			10.000	0	20.000	1	32.000	0	40.000	-4	50.000	-3	80.000	1	100.00	2	120.00	3
bis(2-Chloroisopropyl) ether			10.000	7	20.000	6	32.000	3	40.000	-1	50.000	-4	80.000	-4	100.00	-4	120.00	-3
4-Methylphenol			10.000	-5	20.000	-5	32.000	-3	40.000	-4	50.000	-2	80.000	5	100.00	6	120.00	9
N-Nitroso-di-n-propylamine			10.000	-15	20.000	-4	32.000	1	40.000	1	50.000	1	80.000	6	100.00	4	120.00	6
Hexachloroethane			10.000	1	20.000	4	32.000	5	40.000	3	50.000	0	80.000	-1	100.00	-5	120.00	-6
Nitrobenzene			10.000	2	20.000	3	32.000	4	40.000	2	50.000	-2	80.000	-1	100.00	-3	120.00	-5
Isophorone			10.000	-2	20.000	5	32.000	7	40.000	5	50.000	-1	80.000	-2	100.00	-5	120.00	-7
2-Nitrophenol					20.000	-6	32.000	0	40.000	1	50.000	1	80.000	4	100.00	1	120.00	-1
2,4-Dimethylphenol			10.000	-5	20.000	-2	32.000	7	40.000	8	50.000	2	80.000	0	100.00	-4	120.00	-6
bis(2-Chloroethoxy)methane					10.000	-1	16.000	5	20.000	5	25.000	1	40.000	0	50.000	-4	60.000	-6
Benzoic acid			50.000	**-23**	60.000	-11	80.000	0	90.000	6	100.00	4	120.00	7	130.00	8	140.00	9
2,4-Dichlorophenol			10.000	-1	20.000	3	32.000	6	40.000	6	50.000	2	80.000	0	100.00	-6	120.00	-10
1,2,4-Trichlorobenzene			10.000	9	20.000	10	32.000	9	40.000	6	50.000	-1	80.000	-6	100.00	-11	120.00	-15
Naphthalene	2.0000	-3	5.0000	3	10.000	5	16.000	6	20.000	3	25.000	0	40.000	-1	50.000	-6	60.000	-7
4-Chloroaniline			10.000	-12	20.000	8	32.000	10	40.000	10	50.000	3	80.000	-1	100.00	-7	120.00	-11
Hexachlorobutadiene			10.000	7	20.000	12	32.000	11	40.000	7	50.000	-1	80.000	-8	100.00	-12	120.00	-16
4-Chloro-3-methylphenol			10.000	-1	20.000	6	32.000	10	40.000	6	50.000	1	80.000	-3	100.00	-9	120.00	-11
2-Methylnaphthalene	2.0000	-11	5.0000	-4	10.000	7	16.000	11	20.000	9	25.000	4	40.000	0	50.000	-6	60.000	-9
Hexachlorocyclopentadiene					20.000	-4	32.000	1	40.000	4	50.000	3	80.000	4	100.00	-2	120.00	-7
2,4,6-Trichlorophenol			10.000	-3	20.000	2	32.000	3	40.000	3	50.000	2	80.000	1	100.00	-2	120.00	-6
2,4,5-Trichlorophenol			10.000	-3	20.000	4	32.000	8	40.000	7	50.000	0	80.000	1	100.00	-7	120.00	-8
2-Chloronaphthalene					10.000	2	16.000	4	20.000	3	25.000	-1	40.000	1	50.000	-4	60.000	-6
2-Nitroaniline					20.000	-2	32.000	2	40.000	1	50.000	0	80.000	1	100.00	-1	120.00	-1
Dimethylphthalate			10.000	2	20.000	5	32.000	6	40.000	4	50.000	0	80.000	0	100.00	-7	120.00	-11
2,6-Dinitrotoluene			10.000	-8	20.000	-2	32.000	2	40.000	1	50.000	1	80.000	5	100.00	1	120.00	0
Acenaphthylene	2.0000	-5	5.0000	1	10.000	4	16.000	5	20.000	3	25.000	0	40.000	0	50.000	-3	60.000	-6
3-Nitroaniline					20.000	-8	32.000	-2	40.000	0	50.000	0	80.000	5	100.00	3	120.00	2
Acenaphthene	2.0000	-7	5.0000	-1	10.000	4	16.000	4	20.000	5	25.000	0	40.000	1	50.000	-2	60.000	-4
2,4-Dinitrophenol					20.000	11	32.000	-1	40.000	-1	50.000	-4	80.000	0	100.00	-1	120.00	1
4-Nitrophenol					20.000	-6	32.000	0	40.000	1	50.000	0	80.000	4	100.00	1	120.00	1
Dibenzofuran					10.000	2	16.000	3	20.000	2	25.000	0	40.000	1	50.000	-2	60.000	-6
2,4-Dinitrotoluene			10.000	-9	20.000	-2	32.000	4	40.000	3	50.000	1	80.000	5	100.00	0	120.00	-2
Diethylphthalate					10.000	0	16.000	3	20.000	3	25.000	0	40.000	2	50.000	-3	60.000	-6
Fluorene	2.0000	-2	5.0000	2	10.000	4	16.000	5	20.000	3	25.000	0	40.000	0	50.000	-5	60.000	-8

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
4-Chlorophenyl-phenylether					10.000	0	16.000	3	20.000	2	25.000	0	40.000	2	50.000	-2	60.000	-5
4-Nitroaniline					20.000	-5	32.000	0	40.000	0	50.000	-1	80.000	4	100.00	1	120.00	0
4,6-Dinitro-2-methylphenol					20.000	-17	32.000	-9	40.000	-1	50.000	0	80.000	8	100.00	8	120.00	11
N-Nitrosodiphenylamine					10.000	2	16.000	2	20.000	3	25.000	-1	40.000	0	50.000	-3	60.000	-3
Azobenzene					10.000	3	16.000	2	20.000	3	25.000	0	40.000	-1	50.000	-4	60.000	-3
4-Bromophenyl-phenylether					10.000	0	16.000	0	20.000	2	25.000	-1	40.000	1	50.000	-1	60.000	-1
Hexachlorobenzene			10.000	3	20.000	4	32.000	5	40.000	5	50.000	0	80.000	-2	100.00	-6	120.00	-8
Pentachlorophenol					20.000	-10	32.000	-3	40.000	3	50.000	1	80.000	5	100.00	2	120.00	3
Phenanthrene	2.0000	-3	5.0000	6	10.000	6	16.000	6	20.000	5	25.000	0	40.000	-3	50.000	-7	60.000	-10
Anthracene	2.0000	-3	5.0000	3	10.000	6	16.000	6	20.000	4	25.000	1	40.000	-3	50.000	-6	60.000	-9
Carbazole			10.000	0	20.000	11	32.000	10	40.000	9	50.000	2	80.000	-5	100.00	-12	120.00	-14
Di-n-butylphthalate					10.000	9	16.000	8	20.000	8	25.000	2	40.000	-4	50.000	-9	60.000	-12
Fluoranthene	2.0000	-2	5.0000	8	10.000	8	16.000	8	20.000	6	25.000	-1	40.000	-5	50.000	-10	60.000	-12
Pyrene	2.0000	-10	5.0000	4	10.000	6	16.000	8	20.000	6	25.000	1	40.000	-1	50.000	-6	60.000	-6
Butylbenzylphthalate					10.000	0	16.000	4	20.000	2	25.000	-1	40.000	0	50.000	-3	60.000	-2
3,3'-Dichlorobenzidine					20.000	-1	32.000	5	40.000	7	50.000	3	80.000	0	100.00	-6	120.00	-9
Benzo(a)anthracene	2.0000	-5	5.0000	0	10.000	1	16.000	3	20.000	2	25.000	-1	40.000	1	50.000	-1	60.000	0
bis(2-Ethylhexyl)phthalate					10.000	8	16.000	11	20.000	10	25.000	5	40.000	-3	50.000	-11	60.000	-20
Chrysene	2.0000	-6	5.0000	-2	10.000	2	16.000	4	20.000	4	25.000	0	40.000	1	50.000	-3	60.000	-1
Di-n-octylphthalate					10.000	-3	16.000	1	20.000	1	25.000	-1	40.000	2	50.000	1	60.000	0
Benzo(b)fluoranthene	2.0000	-15	5.0000	-6	10.000	0	16.000	1	20.000	2	25.000	0	40.000	6	50.000	2	60.000	10
Benzo(k)fluoranthene	2.0000	-14	5.0000	-4	10.000	0	16.000	6	20.000	4	25.000	0	40.000	3	50.000	4	60.000	1
Benzo(a)pyrene	2.0000	-17	5.0000	-6	10.000	-1	16.000	4	20.000	4	25.000	0	40.000	6	50.000	5	60.000	6
Indeno(1,2,3-cd)pyrene	2.0000	-18	5.0000	-8	10.000	-2	16.000	4	20.000	5	25.000	2	40.000	5	50.000	5	60.000	7
Dibenz(a,h)anthracene	2.0000	-19	5.0000	-9	10.000	-2	16.000	4	20.000	4	25.000	2	40.000	6	50.000	6	60.000	8
Benzo(g,h,i)perylene	2.0000	-13	5.0000	-8	10.000	-3	16.000	2	20.000	4	25.000	1	40.000	5	50.000	5	60.000	6
2-Fluorophenol	2.0000	-9	5.0000	-1	10.000	1	16.000	3	20.000	1	25.000	-1	40.000	2	50.000	2	60.000	2
Phenol-d5	2.0000	-6	5.0000	0	10.000	1	16.000	2	20.000	-1	25.000	-2	40.000	1	50.000	2	60.000	3
Nitrobenzene-d5	2.0000	-6	5.0000	1	10.000	-2	16.000	3	20.000	2	25.000	0	40.000	2	50.000	1	60.000	1
2-Fluorobiphenyl	2.0000	-4	5.0000	2	10.000	6	16.000	7	20.000	4	25.000	0	40.000	-1	50.000	-5	60.000	-9
2,4,6-Tribromophenol	2.0000	**-28**	5.0000	-14	10.000	-6	16.000	-1	20.000	3	25.000	3	40.000	15	50.000	13	60.000	15
Terphenyl-d14	2.0000	-11	5.0000	1	10.000	5	16.000	7	20.000	6	25.000	1	40.000	0	50.000	-4	60.000	-5

KMH 08/01/14 [Aniline]: Picked or reassigned peak in all levels.

KMH 08/01/14 [3-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [4-Nitrophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [4-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [3,3'-Dichlorobenzidine]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [2,4-Dinitrophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [4-Chloroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 08/01/14 [2,4,5-Trichlorophenol]: Corrected automatically drawn baseline in ICAL (rgv23).

KMH 08/01/14 [Anthracene]: Corrected automatically drawn baseline in ICAL (rgv23).

Analyst: KMH Date: 08/01/14 Reviewer: LW Date: 08/06/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; LINR=Linear regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259841 MSBNA Water
EPA 8270D

Inst : MSBNA09 Name : 6PTBNA9
Calnum : 584305789001 Cal Date : 31-JUL-2014

ICV 584305789025 (rgv25 31-JUL-2014) stds: S24471

Analyte	Spiked	Quant	Units	%D	Max	Flags
N-Nitrosodimethylamine	40.00	38.45	ug/mL	-4	20	
Phenol	40.00	38.19	ug/mL	-5	20	
bis(2-Chloroethyl)ether	40.00	39.29	ug/mL	-2	20	
2-Chlorophenol	40.00	38.81	ug/mL	-3	20	
1,3-Dichlorobenzene	40.00	39.49	ug/mL	-1	20	
1,4-Dichlorobenzene	40.00	39.00	ug/mL	-3	20	
Benzyl alcohol	40.00	40.12	ug/mL	0	20	
1,2-Dichlorobenzene	40.00	39.12	ug/mL	-2	20	
2-Methylphenol	40.00	39.22	ug/mL	-2	20	
bis(2-Chloroisopropyl) ether	40.00	39.13	ug/mL	-2	20	
4-Methylphenol	40.00	34.09	ug/mL	-15	20	
N-Nitroso-di-n-propylamine	40.00	39.44	ug/mL	-1	20	
Hexachloroethane	40.00	39.10	ug/mL	-2	20	
Nitrobenzene	40.00	39.53	ug/mL	-1	20	
Isophorone	40.00	40.94	ug/mL	2	20	
2-Nitrophenol	40.00	39.56	ug/mL	-1	20	
2,4-Dimethylphenol	40.00	41.81	ug/mL	5	20	
bis(2-Chloroethoxy)methane	40.00	39.42	ug/mL	-1	20	
Benzoic acid	100.0	105.4	ug/mL	5	20	
2,4-Dichlorophenol	40.00	39.98	ug/mL	0	20	
1,2,4-Trichlorobenzene	40.00	39.54	ug/mL	-1	20	
Naphthalene	40.00	38.13	ug/mL	-5	20	
4-Chloroaniline	40.00	42.00	ug/mL	5	20	
Hexachlorobutadiene	40.00	40.75	ug/mL	2	20	
4-Chloro-3-methylphenol	40.00	39.84	ug/mL	0	20	
2-Methylnaphthalene	40.00	40.39	ug/mL	1	20	
Hexachlorocyclopentadiene	40.00	36.71	ug/mL	-8	20	
2,4,6-Trichlorophenol	40.00	38.79	ug/mL	-3	20	
2,4,5-Trichlorophenol	40.00	40.19	ug/mL	0	20	
2-Chloronaphthalene	40.00	38.31	ug/mL	-4	20	
2-Nitroaniline	40.00	38.87	ug/mL	-3	20	
Dimethylphthalate	40.00	39.93	ug/mL	0	20	
2,6-Dinitrotoluene	40.00	40.44	ug/mL	1	20	
Acenaphthylene	40.00	43.26	ug/mL	8	20	
3-Nitroaniline	40.00	40.11	ug/mL	0	20	
Acenaphthene	40.00	35.94	ug/mL	-10	20	
2,4-Dinitrophenol	40.00	40.36	ug/mL	1	20	m
4-Nitrophenol	40.00	38.52	ug/mL	-4	20	m
Dibenzofuran	40.00	38.29	ug/mL	-4	20	
2,4-Dinitrotoluene	40.00	39.63	ug/mL	-1	20	
Diethylphthalate	40.00	37.90	ug/mL	-5	20	
Fluorene	40.00	37.80	ug/mL	-6	20	
4-Chlorophenyl-phenylether	40.00	38.25	ug/mL	-4	20	
4-Nitroaniline	40.00	38.21	ug/mL	-4	20	
4,6-Dinitro-2-methylphenol	40.00	38.45	ug/mL	-4	20	
N-Nitrosodiphenylamine	40.00	44.66	ug/mL	12	20	
Azobenzene	40.00	37.93	ug/mL	-5	20	
4-Bromophenyl-phenylether	40.00	38.36	ug/mL	-4	20	
Hexachlorobenzene	40.00	39.17	ug/mL	-2	20	

Analyte	Spiked	Quant	Units	%D	Max	Flags
Pentachlorophenol	40.00	37.41	ug/mL	-6	20	
Phenanthrene	40.00	37.26	ug/mL	-7	20	
Anthracene	40.00	38.70	ug/mL	-3	20	
Carbazole	40.00	40.93	ug/mL	2	20	
Di-n-butylphthalate	40.00	37.30	ug/mL	-7	20	
Fluoranthene	40.00	36.70	ug/mL	-8	20	
Pyrene	40.00	36.20	ug/mL	-9	20	
Butylbenzylphthalate	40.00	38.51	ug/mL	-4	20	
3,3'-Dichlorobenzidine	60.00	59.84	ug/mL	0	20	
Benzo(a)anthracene	40.00	39.04	ug/mL	-2	20	
bis(2-Ethylhexyl)phthalate	40.00	39.42	ug/mL	-1	20	
Chrysene	40.00	37.36	ug/mL	-7	20	
Di-n-octylphthalate	40.00	38.60	ug/mL	-3	20	
Benzo(b)fluoranthene	40.00	42.43	ug/mL	6	20	
Benzo(k)fluoranthene	40.00	38.95	ug/mL	-3	20	
Benzo(a)pyrene	40.00	44.62	ug/mL	12	20	
Indeno(1,2,3-cd)pyrene	40.00	39.27	ug/mL	-2	20	
Dibenz(a,h)anthracene	40.00	38.70	ug/mL	-3	20	
Benzo(g,h,i)perylene	40.00	38.80	ug/mL	-3	20	

Analyst: KMH Date: 08/01/14 Reviewer: LW Date: 08/06/14

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259841 MSBNA Water
EPA 8270D

Inst : MSBNA05 IDF : 1.0
Seqnum : 544331768003.1 File : xhi03 Time : 18-AUG-2014 10:19
Cal : 544327680001 Caldate : 15-AUG-2014
Standards: S25410

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
N-Nitrosodimethylamine	0.6698	0.6429	32.00	30.71	ug/mL	-4	20	0.0500	
Phenol	1.6896	1.6577	32.00	31.40	ug/mL	-2	20	0.8000	
bis(2-Chloroethyl)ether	1.2308	1.2426	32.00	32.31	ug/mL	1	20	0.7000	
2-Chlorophenol	1.4096	1.4377	32.00	32.64	ug/mL	2	20	0.8000	
1,3-Dichlorobenzene	1.5127	1.6011	32.00	33.87	ug/mL	6	20	0.0500	
1,4-Dichlorobenzene	1.5089	1.6570	32.00	35.14	ug/mL	10	20	0.0500	
Benzyl alcohol	0.9408	0.9453	32.00	32.15	ug/mL	0	20	0.0500	
1,2-Dichlorobenzene	1.4769	1.5915	32.00	34.48	ug/mL	8	20	0.0500	
2-Methylphenol	1.1390	1.1591	32.00	32.56	ug/mL	2	20	0.7000	
bis(2-Chloroisopropyl) ether	1.8550	1.7986	32.00	31.03	ug/mL	-3	20	0.0100	
4-Methylphenol	1.6809	1.6895	32.00	32.16	ug/mL	1	20	0.6000	
N-Nitroso-di-n-propylamine	0.8406	0.8526	32.00	32.45	ug/mL	1	20	0.5000	
Hexachloroethane	0.6432	0.6747	32.00	33.57	ug/mL	5	20	0.3000	
Nitrobenzene	0.4083	0.4008	32.00	31.42	ug/mL	-2	20	0.2000	
Isophorone	0.7286	0.7065	32.00	31.03	ug/mL	-3	20	0.4000	
2-Nitrophenol	0.2054	0.2050	32.00	31.94	ug/mL	0	20	0.1000	
2,4-Dimethylphenol	0.3594	0.3655	32.00	32.54	ug/mL	2	20	0.2000	
bis(2-Chloroethoxy)methane	0.4299	0.4298	16.00	15.99	ug/mL	0	20	0.3000	
Benzoic acid	0.2677	0.2659	80.00	79.45	ug/mL	-1	20	0.0500	
2,4-Dichlorophenol	0.3040	0.3254	32.00	34.25	ug/mL	7	20	0.2000	
1,2,4-Trichlorobenzene	0.3182	0.3456	32.00	34.76	ug/mL	9	20	0.0500	
Naphthalene	1.0955	1.1576	16.00	16.91	ug/mL	6	20	0.7000	
4-Chloroaniline	0.4369	0.4806	32.00	33.00	ug/mL	3	20	0.0100	
Hexachlorobutadiene	0.1650	0.1907	32.00	36.98	ug/mL	16	20	0.0100	
4-Chloro-3-methylphenol	0.3207	0.3325	32.00	33.18	ug/mL	4	20	0.2000	
2-Methylnaphthalene	0.7396	0.7811	16.00	16.90	ug/mL	6	20	0.4000	
Hexachlorocyclopentadiene	0.3300	0.3672	32.00	35.60	ug/mL	11	20	0.0500	
2,4,6-Trichlorophenol	0.3660	0.3936	32.00	34.42	ug/mL	8	20	0.2000	
2,4,5-Trichlorophenol	0.3900	0.4309	32.00	35.36	ug/mL	10	20	0.2000	
2-Chloronaphthalene	1.1656	1.2341	16.00	16.94	ug/mL	6	20	0.8000	
2-Nitroaniline	0.4008	0.3929	32.00	31.37	ug/mL	-2	20	0.0100	
Dimethylphthalate	1.2709	1.3734	32.00	34.58	ug/mL	8	20	0.0100	
2,6-Dinitrotoluene	0.3123	0.3207	32.00	32.86	ug/mL	3	20	0.2000	
Acenaphthylene	1.9468	2.0533	16.00	16.88	ug/mL	5	20	0.9000	
3-Nitroaniline	0.3467	0.3223	32.00	29.75	ug/mL	-7	20	0.0100	m
Acenaphthene	1.2140	1.3270	16.00	17.49	ug/mL	9	20	0.9000	
2,4-Dinitrophenol	0.1633	0.1533	32.00	33.77	ug/mL	6	20	0.0100	
4-Nitrophenol	0.1875	0.1810	32.00	30.90	ug/mL	-3	20	0.0100	
Dibenzofuran	1.6090	1.7735	16.00	17.64	ug/mL	10	20	0.8000	
2,4-Dinitrotoluene	0.4105	0.4325	32.00	33.71	ug/mL	5	20	0.2000	
Diethylphthalate	1.4209	1.5034	16.00	16.93	ug/mL	6	20	0.0100	
Fluorene	1.3851	1.4790	16.00	17.09	ug/mL	7	20	0.9000	
4-Chlorophenyl-phenylether	0.6164	0.6778	16.00	17.59	ug/mL	10	20	0.4000	
4-Nitroaniline	0.3594	0.3172	32.00	28.24	ug/mL	-12	20	0.0100	
4,6-Dinitro-2-methylphenol	0.1361	0.1391	32.00	32.69	ug/mL	2	20	0.0100	
N-Nitrosodiphenylamine	0.6073	0.6216	16.00	16.38	ug/mL	2	20	0.0100	
Azobenzene	0.9270	0.9137	16.00	15.77	ug/mL	-1	20	0.0500	
4-Bromophenyl-phenylether	0.2207	0.2322	16.00	16.83	ug/mL	5	20	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Hexachlorobenzene	0.2199	0.2493	32.00	36.28	ug/mL	13	20	0.1000	
Pentachlorophenol	0.1511	0.1684	32.00	35.65	ug/mL	11	20	0.0500	
Phenanthrene	1.1442	1.1982	16.00	16.76	ug/mL	5	20	0.7000	
Anthracene	1.1638	1.2315	16.00	16.93	ug/mL	6	20	0.7000	
Carbazole	0.9656	1.0501	32.00	34.80	ug/mL	9	20	0.0100	
Di-n-butylphthalate	1.4456	1.5063	16.00	16.67	ug/mL	4	20	0.0100	
Fluoranthene	1.2637	1.3359	16.00	16.91	ug/mL	6	20	0.6000	
Pyrene	1.2850	1.3166	16.00	16.39	ug/mL	2	20	0.6000	
Butylbenzylphthalate	0.6466	0.6125	16.00	15.16	ug/mL	-5	20	0.0100	
3,3'-Dichlorobenzidine	0.3696	0.3609	32.00	31.24	ug/mL	-2	20	0.0100	
Benzo(a)anthracene	1.1441	1.1545	16.00	16.15	ug/mL	1	20	0.8000	
bis(2-Ethylhexyl)phthalate	0.8394	0.8870	16.00	16.91	ug/mL	6	20	0.0100	
Chrysene	1.0537	1.0835	16.00	16.45	ug/mL	3	20	0.7000	
Di-n-octylphthalate	1.7540	1.6053	16.00	14.64	ug/mL	-8	20	0.0100	
Benzo(b)fluoranthene	1.2072	1.1893	16.00	15.76	ug/mL	-1	20	0.7000	
Benzo(k)fluoranthene	1.0969	1.1130	16.00	16.23	ug/mL	1	20	0.7000	
Benzo(a)pyrene	1.1520	1.1437	16.00	15.89	ug/mL	-1	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.2676	1.2613	16.00	15.92	ug/mL	0	20	0.5000	
Dibenz(a,h)anthracene	1.0805	1.0513	16.00	15.57	ug/mL	-3	20	0.4000	
Benzo(g,h,i)perylene	1.0588	1.0186	16.00	15.39	ug/mL	-4	20	0.5000	
2-Fluorophenol	1.3488	1.3309	16.00	15.79	ug/mL	-1	20	0.0500	
Phenol-d5	1.6768	1.6245	16.00	15.50	ug/mL	-3	20	0.0500	
Nitrobenzene-d5	0.4472	0.4417	16.00	15.80	ug/mL	-1	20	0.0500	
2-Fluorobiphenyl	1.4224	1.5442	16.00	17.37	ug/mL	9	20	0.0500	
2,4,6-Tribromophenol	0.1832	0.2102	16.00	18.36	ug/mL	15	20	0.0500	
Terphenyl-d14	0.8766	0.9159	16.00	16.72	ug/mL	4	20	0.0500	

ISTD (ICAL xhf11)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	1031318	785831	-23.80
Naphthalene-d8	3900538	3089728	-20.79
Acenaphthene-d10	2287286	1847064	-19.25
Phenanthrene-d10	3792150	3217279	-15.16
Chrysene-d12	4068719	3608754	-11.30
Perylene-d12	3663483	3274933	-10.61

ISTD (ICAL xhf11)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.04	6.04	0.00
Naphthalene-d8	7.55	7.55	0.00
Acenaphthene-d10	9.73	9.73	0.00
Phenanthrene-d10	11.60	11.60	0.00
Chrysene-d12	15.04	15.04	0.00
Perylene-d12	18.01	18.00	-0.01

KMH 08/18/14 [Aniline]: Picked or reassigned peak. [general version]

KMH 08/18/14 [3-Nitroaniline]: Corrected automatically drawn baseline. [general version]

Analyst: KMH Date: 08/19/14 Reviewer: LW Date: 08/21/14

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259841 MSBNA Water
EPA 8270D

Inst : MSBNA05 IDF : 1.0
Seqnum : 544337710003.1 File : xhm03 Time : 22-AUG-2014 13:21
Cal : 544327680001 Caldate : 15-AUG-2014
Standards: S25410

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
N-Nitrosodimethylamine	0.6698	0.6237	32.00	29.80	ug/mL	-7	20	0.0500	
Phenol	1.6896	1.6734	32.00	31.69	ug/mL	-1	20	0.8000	
bis(2-Chloroethyl)ether	1.2308	1.2209	32.00	31.74	ug/mL	-1	20	0.7000	
2-Chlorophenol	1.4096	1.4448	32.00	32.80	ug/mL	2	20	0.8000	
1,3-Dichlorobenzene	1.5127	1.5961	32.00	33.76	ug/mL	6	20	0.0500	
1,4-Dichlorobenzene	1.5089	1.6387	32.00	34.75	ug/mL	9	20	0.0500	
Benzyl alcohol	0.9408	0.9272	32.00	31.54	ug/mL	-1	20	0.0500	
1,2-Dichlorobenzene	1.4769	1.5861	32.00	34.37	ug/mL	7	20	0.0500	
2-Methylphenol	1.1390	1.1543	32.00	32.43	ug/mL	1	20	0.7000	
bis(2-Chloroisopropyl) ether	1.8550	1.7147	32.00	29.58	ug/mL	-8	20	0.0100	
4-Methylphenol	1.6809	1.6529	32.00	31.47	ug/mL	-2	20	0.6000	
N-Nitroso-di-n-propylamine	0.8406	0.8372	32.00	31.87	ug/mL	0	20	0.5000	
Hexachloroethane	0.6432	0.6638	32.00	33.03	ug/mL	3	20	0.3000	
Nitrobenzene	0.4083	0.3898	32.00	30.55	ug/mL	-5	20	0.2000	
Isophorone	0.7286	0.6823	32.00	29.97	ug/mL	-6	20	0.4000	
2-Nitrophenol	0.2054	0.2075	32.00	32.32	ug/mL	1	20	0.1000	
2,4-Dimethylphenol	0.3594	0.3552	32.00	31.62	ug/mL	-1	20	0.2000	
bis(2-Chloroethoxy)methane	0.4299	0.4127	16.00	15.36	ug/mL	-4	20	0.3000	
Benzoic acid	0.2677	0.2252	80.00	67.30	ug/mL	-16	20	0.0500	
2,4-Dichlorophenol	0.3040	0.3226	32.00	33.96	ug/mL	6	20	0.2000	
1,2,4-Trichlorobenzene	0.3182	0.3506	32.00	35.26	ug/mL	10	20	0.0500	
Naphthalene	1.0955	1.1515	16.00	16.82	ug/mL	5	20	0.7000	
4-Chloroaniline	0.4369	0.4679	32.00	32.21	ug/mL	1	20	0.0100	
Hexachlorobutadiene	0.1650	0.1865	32.00	36.18	ug/mL	13	20	0.0100	
4-Chloro-3-methylphenol	0.3207	0.3176	32.00	31.70	ug/mL	-1	20	0.2000	
2-Methylnaphthalene	0.7396	0.7702	16.00	16.66	ug/mL	4	20	0.4000	
Hexachlorocyclopentadiene	0.3300	0.3548	32.00	34.40	ug/mL	7	20	0.0500	
2,4,6-Trichlorophenol	0.3660	0.3983	32.00	34.82	ug/mL	9	20	0.2000	
2,4,5-Trichlorophenol	0.3900	0.4295	32.00	35.24	ug/mL	10	20	0.2000	
2-Chloronaphthalene	1.1656	1.2477	16.00	17.13	ug/mL	7	20	0.8000	
2-Nitroaniline	0.4008	0.3894	32.00	31.09	ug/mL	-3	20	0.0100	
Dimethylphthalate	1.2709	1.3786	32.00	34.71	ug/mL	8	20	0.0100	
2,6-Dinitrotoluene	0.3123	0.3278	32.00	33.59	ug/mL	5	20	0.2000	
Acenaphthylene	1.9468	2.0174	16.00	16.58	ug/mL	4	20	0.9000	
3-Nitroaniline	0.3467	0.3376	32.00	31.16	ug/mL	-3	20	0.0100	
Acenaphthene	1.2140	1.2997	16.00	17.13	ug/mL	7	20	0.9000	
2,4-Dinitrophenol	0.1633	0.1332	32.00	30.77	ug/mL	-4	20	0.0100	
4-Nitrophenol	0.1875	0.1889	32.00	32.24	ug/mL	1	20	0.0100	
Dibenzofuran	1.6090	1.7668	16.00	17.57	ug/mL	10	20	0.8000	
2,4-Dinitrotoluene	0.4105	0.4432	32.00	34.55	ug/mL	8	20	0.2000	
Diethylphthalate	1.4209	1.4989	16.00	16.88	ug/mL	5	20	0.0100	
Fluorene	1.3851	1.5029	16.00	17.36	ug/mL	9	20	0.9000	
4-Chlorophenyl-phenylether	0.6164	0.6805	16.00	17.66	ug/mL	10	20	0.4000	
4-Nitroaniline	0.3594	0.3461	32.00	30.82	ug/mL	-4	20	0.0100	
4,6-Dinitro-2-methylphenol	0.1361	0.1337	32.00	31.43	ug/mL	-2	20	0.0100	
N-Nitrosodiphenylamine	0.6073	0.6155	16.00	16.22	ug/mL	1	20	0.0100	
Azobenzene	0.9270	0.8623	16.00	14.88	ug/mL	-7	20	0.0500	
4-Bromophenyl-phenylether	0.2207	0.2292	16.00	16.61	ug/mL	4	20	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Hexachlorobenzene	0.2199	0.2488	32.00	36.21	ug/mL	13	20	0.1000	
Pentachlorophenol	0.1511	0.1598	32.00	33.83	ug/mL	6	20	0.0500	
Phenanthrene	1.1442	1.1958	16.00	16.72	ug/mL	5	20	0.7000	
Anthracene	1.1638	1.2162	16.00	16.72	ug/mL	5	20	0.7000	
Carbazole	0.9656	1.0615	32.00	35.18	ug/mL	10	20	0.0100	
Di-n-butylphthalate	1.4456	1.4827	16.00	16.41	ug/mL	3	20	0.0100	
Fluoranthene	1.2637	1.3255	16.00	16.78	ug/mL	5	20	0.6000	
Pyrene	1.2850	1.2987	16.00	16.17	ug/mL	1	20	0.6000	
Butylbenzylphthalate	0.6466	0.5988	16.00	14.82	ug/mL	-7	20	0.0100	
3,3'-Dichlorobenzidine	0.3696	0.3720	32.00	32.21	ug/mL	1	20	0.0100	
Benzo(a)anthracene	1.1441	1.1317	16.00	15.83	ug/mL	-1	20	0.8000	
bis(2-Ethylhexyl)phthalate	0.8394	0.8588	16.00	16.37	ug/mL	2	20	0.0100	
Chrysene	1.0537	1.0607	16.00	16.11	ug/mL	1	20	0.7000	
Di-n-octylphthalate	1.7540	1.5766	16.00	14.38	ug/mL	-10	20	0.0100	
Benzo(b)fluoranthene	1.2072	1.1684	16.00	15.49	ug/mL	-3	20	0.7000	
Benzo(k)fluoranthene	1.0969	1.1143	16.00	16.25	ug/mL	2	20	0.7000	
Benzo(a)pyrene	1.1520	1.1383	16.00	15.81	ug/mL	-1	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.2676	1.2661	16.00	15.98	ug/mL	0	20	0.5000	
Dibenz(a,h)anthracene	1.0805	1.0496	16.00	15.54	ug/mL	-3	20	0.4000	
Benzo(g,h,i)perylene	1.0588	0.9985	16.00	15.09	ug/mL	-6	20	0.5000	
2-Fluorophenol	1.3488	1.3117	16.00	15.56	ug/mL	-3	20	0.0500	
Phenol-d5	1.6768	1.6384	16.00	15.63	ug/mL	-2	20	0.0500	
Nitrobenzene-d5	0.4472	0.4317	16.00	15.45	ug/mL	-3	20	0.0500	
2-Fluorobiphenyl	1.4224	1.5512	16.00	17.45	ug/mL	9	20	0.0500	
2,4,6-Tribromophenol	0.1832	0.2197	16.00	19.19	ug/mL	20	20	0.0500	
Terphenyl-d14	0.8766	0.9028	16.00	16.48	ug/mL	3	20	0.0500	

ISTD (ICAL xhf11)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	1031318	819662	-20.52
Naphthalene-d8	3900538	3193615	-18.12
Acenaphthene-d10	2287286	1835047	-19.77
Phenanthrene-d10	3792150	3280267	-13.50
Chrysene-d12	4068719	3737425	-8.14
Perylene-d12	3663483	3429326	-6.39

ISTD (ICAL xhf11)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.04	6.04	0.00
Naphthalene-d8	7.55	7.55	0.00
Acenaphthene-d10	9.73	9.73	0.00
Phenanthrene-d10	11.60	11.60	0.00
Chrysene-d12	15.04	15.04	0.00
Perylene-d12	18.01	18.01	0.00

KMH 08/27/14 [Aniline]: Picked or reassigned peak. [general version]

Analyst: KMH Date: 08/26/14 Reviewer: LW Date: 08/27/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259841 MSBNA Water
EPA 8270D

Inst : MSBNA09 IDF : 1.0
Seqnum : 584327568017.1 File : rhf17 Time : 15-AUG-2014 17:54
Cal : 584305789001 Caldate : 31-JUL-2014
Standards: S24428

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
N-Nitrosodimethylamine	0.6889	0.6951	40.00	40.36	ug/mL	1	20	0.0500	
Phenol	1.7505	1.7467	40.00	39.91	ug/mL	0	20	0.8000	
bis(2-Chloroethyl)ether	1.3236	1.3344	40.00	40.32	ug/mL	1	20	0.7000	
2-Chlorophenol	1.4949	1.5367	40.00	41.12	ug/mL	3	20	0.8000	
1,3-Dichlorobenzene	1.5853	1.6224	40.00	40.94	ug/mL	2	20	0.0500	
1,4-Dichlorobenzene	1.6031	1.6516	40.00	41.21	ug/mL	3	20	0.0500	
Benzyl alcohol	0.9638	0.9576	40.00	39.74	ug/mL	-1	20	0.0500	
1,2-Dichlorobenzene	1.4985	1.5489	40.00	41.34	ug/mL	3	20	0.0500	
2-Methylphenol	1.1156	1.1518	40.00	41.30	ug/mL	3	20	0.7000	
bis(2-Chloroisopropyl) ether	1.8467	1.7483	40.00	37.87	ug/mL	-5	20	0.0100	
4-Methylphenol	1.7193	1.6906	40.00	39.33	ug/mL	-2	20	0.6000	
N-Nitroso-di-n-propylamine	0.9873	0.8967	40.00	36.33	ug/mL	-9	20	0.5000	
Hexachloroethane	0.6219	0.6028	40.00	38.77	ug/mL	-3	20	0.3000	
Nitrobenzene	0.3602	0.3652	40.00	40.56	ug/mL	1	20	0.2000	
Isophorone	0.7371	0.6807	40.00	36.94	ug/mL	-8	20	0.4000	
2-Nitrophenol	0.2033	0.2195	40.00	43.19	ug/mL	8	20	0.1000	
2,4-Dimethylphenol	0.3677	0.3712	40.00	40.38	ug/mL	1	20	0.2000	
bis(2-Chloroethoxy)methane	0.4575	0.4332	20.00	18.94	ug/mL	-5	20	0.3000	
Benzoic acid	0.2582	0.2257	90.00	78.68	ug/mL	-13	20	0.0500	
2,4-Dichlorophenol	0.3137	0.3342	40.00	42.61	ug/mL	7	20	0.2000	
1,2,4-Trichlorobenzene	0.3187	0.3473	40.00	43.58	ug/mL	9	20	0.0500	
Naphthalene	1.0889	1.1652	20.00	21.40	ug/mL	7	20	0.7000	
4-Chloroaniline	0.4867	0.4909	40.00	40.34	ug/mL	1	20	0.0100	
Hexachlorobutadiene	0.1765	0.1904	40.00	43.15	ug/mL	8	20	0.0100	
4-Chloro-3-methylphenol	0.3533	0.3475	40.00	39.35	ug/mL	-2	20	0.2000	
2-Methylnaphthalene	0.7670	0.8141	20.00	21.23	ug/mL	6	20	0.4000	
Hexachlorocyclopentadiene	0.3767	0.4150	40.00	44.06	ug/mL	10	20	0.0500	
2,4,6-Trichlorophenol	0.3821	0.4193	40.00	43.89	ug/mL	10	20	0.2000	
2,4,5-Trichlorophenol	0.4071	0.4470	40.00	43.92	ug/mL	10	20	0.2000	
2-Chloronaphthalene	1.1882	1.2739	20.00	21.44	ug/mL	7	20	0.8000	
2-Nitroaniline	0.3530	0.3455	40.00	39.15	ug/mL	-2	20	0.0100	
Dimethylphthalate	1.4121	1.4631	40.00	41.44	ug/mL	4	20	0.0100	
2,6-Dinitrotoluene	0.3419	0.3547	40.00	41.49	ug/mL	4	20	0.2000	
Acenaphthylene	1.6876	1.8053	20.00	21.39	ug/mL	7	20	0.9000	
3-Nitroaniline	0.3815	0.3770	40.00	39.52	ug/mL	-1	20	0.0100	m
Acenaphthene	1.2534	1.3489	20.00	21.52	ug/mL	8	20	0.9000	
2,4-Dinitrophenol	0.1660	0.1479	40.00	38.49	ug/mL	-4	20	0.0100	
4-Nitrophenol	0.1911	0.1769	40.00	37.01	ug/mL	-7	20	0.0100	
Dibenzofuran	1.7373	1.8507	20.00	21.31	ug/mL	7	20	0.8000	
2,4-Dinitrotoluene	0.4742	0.5003	40.00	42.20	ug/mL	6	20	0.2000	
Diethylphthalate	1.5329	1.5608	20.00	20.36	ug/mL	2	20	0.0100	
Fluorene	1.4346	1.5360	20.00	21.41	ug/mL	7	20	0.9000	
4-Chlorophenyl-phenylether	0.7249	0.7736	20.00	21.34	ug/mL	7	20	0.4000	
4-Nitroaniline	0.3951	0.3868	40.00	39.16	ug/mL	-2	20	0.0100	
4,6-Dinitro-2-methylphenol	0.1451	0.1430	40.00	39.43	ug/mL	-1	20	0.0100	
N-Nitrosodiphenylamine	0.5974	0.6325	20.00	21.17	ug/mL	6	20	0.0100	
Azobenzene	0.7988	0.7462	20.00	18.68	ug/mL	-7	20	0.0500	
4-Bromophenyl-phenylether	0.2478	0.2541	20.00	20.51	ug/mL	3	20	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Hexachlorobenzene	0.2674	0.2556	40.00	38.23	ug/mL	-4	20	0.1000	
Pentachlorophenol	0.1695	0.1648	40.00	38.89	ug/mL	-3	20	0.0500	
Phenanthrene	1.1611	1.2240	20.00	21.08	ug/mL	5	20	0.7000	
Anthracene	1.1484	1.2155	20.00	21.17	ug/mL	6	20	0.7000	
Carbazole	1.0146	1.0897	40.00	42.96	ug/mL	7	20	0.0100	
Di-n-butylphthalate	1.4681	1.5151	20.00	20.64	ug/mL	3	20	0.0100	
Fluoranthene	1.2776	1.4052	20.00	22.00	ug/mL	10	20	0.6000	
Pyrene	1.1956	1.3862	20.00	23.19	ug/mL	16	20	0.6000	
Butylbenzylphthalate	0.5692	0.5757	20.00	20.23	ug/mL	1	20	0.0100	
3,3'-Dichlorobenzidine	0.4323	0.4351	40.00	40.26	ug/mL	1	20	0.0100	
Benzo(a)anthracene	1.1261	1.1902	20.00	21.14	ug/mL	6	20	0.8000	
bis(2-Ethylhexyl)phthalate	0.7821	0.8309	20.00	21.25	ug/mL	6	20	0.0100	
Chrysene	1.0669	1.1374	20.00	21.32	ug/mL	7	20	0.7000	
Di-n-octylphthalate	1.5448	1.5520	20.00	20.09	ug/mL	0	20	0.0100	
Benzo(b)fluoranthene	1.1600	1.2215	20.00	21.06	ug/mL	5	20	0.7000	
Benzo(k)fluoranthene	1.1557	1.2643	20.00	21.88	ug/mL	9	20	0.7000	
Benzo(a)pyrene	0.9853	1.0544	20.00	21.40	ug/mL	7	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.1504	1.2442	20.00	21.63	ug/mL	8	20	0.5000	
Dibenz(a,h)anthracene	1.0323	1.1095	20.00	21.50	ug/mL	7	20	0.4000	
Benzo(g,h,i)perylene	0.9160	0.9959	20.00	21.74	ug/mL	9	20	0.5000	
2-Fluorophenol	1.4661	1.4414	20.00	19.66	ug/mL	-2	20	0.0500	
Phenol-d5	1.7103	1.7479	20.00	20.44	ug/mL	2	20	0.0500	
Nitrobenzene-d5	0.3849	0.3909	20.00	20.31	ug/mL	2	20	0.0500	
2-Fluorobiphenyl	1.4236	1.6082	20.00	22.59	ug/mL	13	20	0.0500	
2,4,6-Tribromophenol	0.2136	0.2075	20.00	19.43	ug/mL	-3	20	0.0500	
Terphenyl-d14	0.9287	1.0294	20.00	22.17	ug/mL	11	20	0.0500	

ISTD (ICAL rgv21)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	1195108	855247	-28.44
Naphthalene-d8	4635194	3260194	-29.66
Acenaphthene-d10	2989178	1945755	-34.91
Phenanthrene-d10	5453704	3599449	-34.00
Chrysene-d12	6186500	3912722	-36.75
Perylene-d12	5646577	3451428	-38.88

ISTD (ICAL rgv21)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.23	6.22	-0.01
Naphthalene-d8	7.72	7.72	0.00
Acenaphthene-d10	9.88	9.88	0.00
Phenanthrene-d10	11.73	11.73	0.00
Chrysene-d12	15.19	15.19	0.00
Perylene-d12	18.23	18.23	0.00

KMH 08/16/14 [Aniline]: Separated from coeluting peak. [general version]

KMH 08/16/14 [3-Nitroaniline]: Picked or reassigned peak. [general version]

Analyst: KMH Date: 08/19/14 Reviewer: LW Date: 08/27/14

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259841 MSBNA Water
EPA 8270D

Inst : MSBNA09 IDF : 1.0
Seqnum : 584329197004.1 File : rhg04 Time : 16-AUG-2014 15:50
Cal : 584305789001 Caldate : 31-JUL-2014
Standards: S24428

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
N-Nitrosodimethylamine	0.6889	0.7531	40.00	43.72	ug/mL	9	20	0.0500	
Phenol	1.7505	1.6900	40.00	38.62	ug/mL	-3	20	0.8000	
bis(2-Chloroethyl)ether	1.3236	1.2930	40.00	39.07	ug/mL	-2	20	0.7000	
2-Chlorophenol	1.4949	1.5186	40.00	40.64	ug/mL	2	20	0.8000	
1,3-Dichlorobenzene	1.5853	1.6216	40.00	40.92	ug/mL	2	20	0.0500	
1,4-Dichlorobenzene	1.6031	1.6359	40.00	40.82	ug/mL	2	20	0.0500	
Benzyl alcohol	0.9638	0.9003	40.00	37.36	ug/mL	-7	20	0.0500	
1,2-Dichlorobenzene	1.4985	1.5523	40.00	41.44	ug/mL	4	20	0.0500	
2-Methylphenol	1.1156	1.1070	40.00	39.69	ug/mL	-1	20	0.7000	
bis(2-Chloroisopropyl) ether	1.8467	1.8832	40.00	40.79	ug/mL	2	20	0.0100	
4-Methylphenol	1.7193	1.6379	40.00	38.11	ug/mL	-5	20	0.6000	
N-Nitroso-di-n-propylamine	0.9873	0.9095	40.00	36.85	ug/mL	-8	20	0.5000	
Hexachloroethane	0.6219	0.6099	40.00	39.22	ug/mL	-2	20	0.3000	
Nitrobenzene	0.3602	0.3576	40.00	39.71	ug/mL	-1	20	0.2000	
Isophorone	0.7371	0.6721	40.00	36.47	ug/mL	-9	20	0.4000	
2-Nitrophenol	0.2033	0.2046	40.00	40.26	ug/mL	1	20	0.1000	
2,4-Dimethylphenol	0.3677	0.3552	40.00	38.65	ug/mL	-3	20	0.2000	
bis(2-Chloroethoxy)methane	0.4575	0.4208	20.00	18.39	ug/mL	-8	20	0.3000	
Benzoic acid	0.2582	0.2205	90.00	76.86	ug/mL	-15	20	0.0500	
2,4-Dichlorophenol	0.3137	0.3170	40.00	40.42	ug/mL	1	20	0.2000	
1,2,4-Trichlorobenzene	0.3187	0.3321	40.00	41.68	ug/mL	4	20	0.0500	
Naphthalene	1.0889	1.1524	20.00	21.17	ug/mL	6	20	0.7000	
4-Chloroaniline	0.4867	0.4882	40.00	40.13	ug/mL	0	20	0.0100	
Hexachlorobutadiene	0.1765	0.1786	40.00	40.48	ug/mL	1	20	0.0100	
4-Chloro-3-methylphenol	0.3533	0.3399	40.00	38.48	ug/mL	-4	20	0.2000	
2-Methylnaphthalene	0.7670	0.7970	20.00	20.78	ug/mL	4	20	0.4000	
Hexachlorocyclopentadiene	0.3767	0.3844	40.00	40.82	ug/mL	2	20	0.0500	
2,4,6-Trichlorophenol	0.3821	0.4025	40.00	42.13	ug/mL	5	20	0.2000	
2,4,5-Trichlorophenol	0.4071	0.4345	40.00	42.69	ug/mL	7	20	0.2000	
2-Chloronaphthalene	1.1882	1.2733	20.00	21.43	ug/mL	7	20	0.8000	
2-Nitroaniline	0.3530	0.3565	40.00	40.40	ug/mL	1	20	0.0100	
Dimethylphthalate	1.4121	1.4436	40.00	40.89	ug/mL	2	20	0.0100	
2,6-Dinitrotoluene	0.3419	0.3467	40.00	40.56	ug/mL	1	20	0.2000	
Acenaphthylene	1.6876	1.8003	20.00	21.34	ug/mL	7	20	0.9000	
3-Nitroaniline	0.3815	0.3781	40.00	39.64	ug/mL	-1	20	0.0100	
Acenaphthene	1.2534	1.3542	20.00	21.61	ug/mL	8	20	0.9000	
2,4-Dinitrophenol	0.1660	0.1581	40.00	40.24	ug/mL	1	20	0.0100	
4-Nitrophenol	0.1911	0.1744	40.00	36.50	ug/mL	-9	20	0.0100	
Dibenzofuran	1.7373	1.8271	20.00	21.03	ug/mL	5	20	0.8000	
2,4-Dinitrotoluene	0.4742	0.4869	40.00	41.07	ug/mL	3	20	0.2000	
Diethylphthalate	1.5329	1.5352	20.00	20.03	ug/mL	0	20	0.0100	
Fluorene	1.4346	1.5229	20.00	21.23	ug/mL	6	20	0.9000	
4-Chlorophenyl-phenylether	0.7249	0.7500	20.00	20.69	ug/mL	3	20	0.4000	
4-Nitroaniline	0.3951	0.3931	40.00	39.79	ug/mL	-1	20	0.0100	m
4,6-Dinitro-2-methylphenol	0.1451	0.1502	40.00	41.42	ug/mL	4	20	0.0100	
N-Nitrosodiphenylamine	0.5974	0.6452	20.00	21.60	ug/mL	8	20	0.0100	
Azobenzene	0.7988	0.8011	20.00	20.06	ug/mL	0	20	0.0500	
4-Bromophenyl-phenylether	0.2478	0.2434	20.00	19.64	ug/mL	-2	20	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Hexachlorobenzene	0.2674	0.2421	40.00	36.21	ug/mL	-9	20	0.1000	
Pentachlorophenol	0.1695	0.1582	40.00	37.34	ug/mL	-7	20	0.0500	
Phenanthrene	1.1611	1.2666	20.00	21.82	ug/mL	9	20	0.7000	
Anthracene	1.1484	1.2580	20.00	21.91	ug/mL	10	20	0.7000	
Carbazole	1.0146	1.1480	40.00	45.26	ug/mL	13	20	0.0100	
Di-n-butylphthalate	1.4681	1.5496	20.00	21.11	ug/mL	6	20	0.0100	
Fluoranthene	1.2776	1.4034	20.00	21.97	ug/mL	10	20	0.6000	
Pyrene	1.1956	1.3890	20.00	23.23	ug/mL	16	20	0.6000	
Butylbenzylphthalate	0.5692	0.5798	20.00	20.37	ug/mL	2	20	0.0100	
3,3'-Dichlorobenzidine	0.4323	0.4155	40.00	38.44	ug/mL	-4	20	0.0100	
Benzo(a)anthracene	1.1261	1.1870	20.00	21.08	ug/mL	5	20	0.8000	
bis(2-Ethylhexyl)phthalate	0.7821	0.8236	20.00	21.06	ug/mL	5	20	0.0100	
Chrysene	1.0669	1.1457	20.00	21.48	ug/mL	7	20	0.7000	
Di-n-octylphthalate	1.5448	1.5529	20.00	20.11	ug/mL	1	20	0.0100	
Benzo(b)fluoranthene	1.1600	1.2279	20.00	21.17	ug/mL	6	20	0.7000	
Benzo(k)fluoranthene	1.1557	1.2433	20.00	21.52	ug/mL	8	20	0.7000	
Benzo(a)pyrene	0.9853	1.0428	20.00	21.17	ug/mL	6	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.1504	1.2151	20.00	21.12	ug/mL	6	20	0.5000	
Dibenz(a,h)anthracene	1.0323	1.0771	20.00	20.87	ug/mL	4	20	0.4000	
Benzo(g,h,i)perylene	0.9160	0.9777	20.00	21.35	ug/mL	7	20	0.5000	
2-Fluorophenol	1.4661	1.4076	20.00	19.20	ug/mL	-4	20	0.0500	
Phenol-d5	1.7103	1.6696	20.00	19.52	ug/mL	-2	20	0.0500	
Nitrobenzene-d5	0.3849	0.3842	20.00	19.96	ug/mL	0	20	0.0500	
2-Fluorobiphenyl	1.4236	1.5556	20.00	21.85	ug/mL	9	20	0.0500	
2,4,6-Tribromophenol	0.2136	0.1739	20.00	16.28	ug/mL	-19	20	0.0500	
Terphenyl-d14	0.9287	0.9926	20.00	21.38	ug/mL	7	20	0.0500	

ISTD (ICAL rgv21)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	1195108	751173	-37.15
Naphthalene-d8	4635194	2856508	-38.37
Acenaphthene-d10	2989178	1684963	-43.63
Phenanthrene-d10	5453704	2984285	-45.28
Chrysene-d12	6186500	3293422	-46.76
Perylene-d12	5646577	2841596	-49.68

ISTD (ICAL rgv21)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.23	6.22	-0.01
Naphthalene-d8	7.72	7.71	-0.01
Acenaphthene-d10	9.88	9.87	-0.01
Phenanthrene-d10	11.73	11.72	-0.01
Chrysene-d12	15.19	15.17	-0.02
Perylene-d12	18.23	18.21	-0.02

KMH 08/16/14 [Aniline]: Picked or reassigned peak. [general version]

KMH 08/16/14 [4-Nitroaniline]: Corrected automatically drawn baseline. [general version]

Analyst: KMH Date: 08/19/14 Reviewer: LW Date: 08/27/14

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259841 MSBNA Water
EPA 8270D

Inst : MSBNA09 IDF : 1.0
Seqnum : 584336313003.1 File : rhl03 Time : 21-AUG-2014 13:55
Cal : 584305789001 Caldate : 31-JUL-2014
Standards: S24428

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
N-Nitrosodimethylamine	0.6889	0.7185	40.00	41.72	ug/mL	4	20	0.0500	
Phenol	1.7505	1.7320	40.00	39.58	ug/mL	-1	20	0.8000	
bis(2-Chloroethyl)ether	1.3236	1.3003	40.00	39.30	ug/mL	-2	20	0.7000	
2-Chlorophenol	1.4949	1.5253	40.00	40.81	ug/mL	2	20	0.8000	
1,3-Dichlorobenzene	1.5853	1.6408	40.00	41.40	ug/mL	4	20	0.0500	
1,4-Dichlorobenzene	1.6031	1.6415	40.00	40.96	ug/mL	2	20	0.0500	
Benzyl alcohol	0.9638	0.9435	40.00	39.16	ug/mL	-2	20	0.0500	
1,2-Dichlorobenzene	1.4985	1.5398	40.00	41.10	ug/mL	3	20	0.0500	
2-Methylphenol	1.1156	1.1119	40.00	39.87	ug/mL	0	20	0.7000	
bis(2-Chloroisopropyl) ether	1.8467	1.8376	40.00	39.80	ug/mL	0	20	0.0100	
4-Methylphenol	1.7193	1.6807	40.00	39.10	ug/mL	-2	20	0.6000	
N-Nitroso-di-n-propylamine	0.9873	0.9595	40.00	38.87	ug/mL	-3	20	0.5000	
Hexachloroethane	0.6219	0.6059	40.00	38.97	ug/mL	-3	20	0.3000	
Nitrobenzene	0.3602	0.3709	40.00	41.19	ug/mL	3	20	0.2000	
Isophorone	0.7371	0.7420	40.00	40.27	ug/mL	1	20	0.4000	
2-Nitrophenol	0.2033	0.2246	40.00	44.19	ug/mL	10	20	0.1000	
2,4-Dimethylphenol	0.3677	0.3751	40.00	40.80	ug/mL	2	20	0.2000	
bis(2-Chloroethoxy)methane	0.4575	0.4562	20.00	19.94	ug/mL	0	20	0.3000	
Benzoic acid	0.2582	0.2216	90.00	77.24	ug/mL	-14	20	0.0500	
2,4-Dichlorophenol	0.3137	0.3374	40.00	43.02	ug/mL	8	20	0.2000	
1,2,4-Trichlorobenzene	0.3187	0.3377	40.00	42.38	ug/mL	6	20	0.0500	
Naphthalene	1.0889	1.1771	20.00	21.62	ug/mL	8	20	0.7000	
4-Chloroaniline	0.4867	0.5185	40.00	42.61	ug/mL	7	20	0.0100	
Hexachlorobutadiene	0.1765	0.1856	40.00	42.07	ug/mL	5	20	0.0100	
4-Chloro-3-methylphenol	0.3533	0.3715	40.00	42.07	ug/mL	5	20	0.2000	
2-Methylnaphthalene	0.7670	0.8551	20.00	22.30	ug/mL	11	20	0.4000	
Hexachlorocyclopentadiene	0.3767	0.3474	40.00	36.88	ug/mL	-8	20	0.0500	
2,4,6-Trichlorophenol	0.3821	0.4081	40.00	42.73	ug/mL	7	20	0.2000	
2,4,5-Trichlorophenol	0.4071	0.4466	40.00	43.88	ug/mL	10	20	0.2000	
2-Chloronaphthalene	1.1882	1.2636	20.00	21.27	ug/mL	6	20	0.8000	
2-Nitroaniline	0.3530	0.3755	40.00	42.55	ug/mL	6	20	0.0100	
Dimethylphthalate	1.4121	1.4962	40.00	42.38	ug/mL	6	20	0.0100	
2,6-Dinitrotoluene	0.3419	0.3627	40.00	42.43	ug/mL	6	20	0.2000	
Acenaphthylene	1.6876	1.8230	20.00	21.61	ug/mL	8	20	0.9000	
3-Nitroaniline	0.3815	0.3941	40.00	41.32	ug/mL	3	20	0.0100	
Acenaphthene	1.2534	1.3468	20.00	21.49	ug/mL	7	20	0.9000	
2,4-Dinitrophenol	0.1660	0.1331	40.00	35.93	ug/mL	-10	20	0.0100	
4-Nitrophenol	0.1911	0.1780	40.00	37.24	ug/mL	-7	20	0.0100	
Dibenzofuran	1.7373	1.8729	20.00	21.56	ug/mL	8	20	0.8000	
2,4-Dinitrotoluene	0.4742	0.5132	40.00	43.29	ug/mL	8	20	0.2000	
Diethylphthalate	1.5329	1.6040	20.00	20.93	ug/mL	5	20	0.0100	
Fluorene	1.4346	1.5696	20.00	21.88	ug/mL	9	20	0.9000	
4-Chlorophenyl-phenylether	0.7249	0.7815	20.00	21.56	ug/mL	8	20	0.4000	
4-Nitroaniline	0.3951	0.4009	40.00	40.58	ug/mL	1	20	0.0100	
4,6-Dinitro-2-methylphenol	0.1451	0.1378	40.00	38.00	ug/mL	-5	20	0.0100	
N-Nitrosodiphenylamine	0.5974	0.6363	20.00	21.30	ug/mL	7	20	0.0100	
Azobenzene	0.7988	0.7726	20.00	19.34	ug/mL	-3	20	0.0500	
4-Bromophenyl-phenylether	0.2478	0.2502	20.00	20.19	ug/mL	1	20	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Hexachlorobenzene	0.2674	0.2491	40.00	37.26	ug/mL	-7	20	0.1000	
Pentachlorophenol	0.1695	0.1642	40.00	38.74	ug/mL	-3	20	0.0500	
Phenanthrene	1.1611	1.2487	20.00	21.51	ug/mL	8	20	0.7000	
Anthracene	1.1484	1.2514	20.00	21.79	ug/mL	9	20	0.7000	
Carbazole	1.0146	1.1123	40.00	43.85	ug/mL	10	20	0.0100	
Di-n-butylphthalate	1.4681	1.5288	20.00	20.83	ug/mL	4	20	0.0100	
Fluoranthene	1.2776	1.3962	20.00	21.86	ug/mL	9	20	0.6000	
Pyrene	1.1956	1.3431	20.00	22.47	ug/mL	12	20	0.6000	
Butylbenzylphthalate	0.5692	0.5932	20.00	20.84	ug/mL	4	20	0.0100	
3,3'-Dichlorobenzidine	0.4323	0.4266	40.00	39.47	ug/mL	-1	20	0.0100	
Benzo(a)anthracene	1.1261	1.1796	20.00	20.95	ug/mL	5	20	0.8000	
bis(2-Ethylhexyl)phthalate	0.7821	0.8416	20.00	21.52	ug/mL	8	20	0.0100	
Chrysene	1.0669	1.1550	20.00	21.65	ug/mL	8	20	0.7000	
Di-n-octylphthalate	1.5448	1.6378	20.00	21.20	ug/mL	6	20	0.0100	
Benzo(b)fluoranthene	1.1600	1.2297	20.00	21.20	ug/mL	6	20	0.7000	
Benzo(k)fluoranthene	1.1557	1.2797	20.00	22.15	ug/mL	11	20	0.7000	
Benzo(a)pyrene	0.9853	1.0681	20.00	21.68	ug/mL	8	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.1504	1.2524	20.00	21.77	ug/mL	9	20	0.5000	
Dibenz(a,h)anthracene	1.0323	1.1196	20.00	21.69	ug/mL	8	20	0.4000	
Benzo(g,h,i)perylene	0.9160	0.9817	20.00	21.43	ug/mL	7	20	0.5000	
2-Fluorophenol	1.4661	1.4490	20.00	19.77	ug/mL	-1	20	0.0500	
Phenol-d5	1.7103	1.7276	20.00	20.20	ug/mL	1	20	0.0500	
Nitrobenzene-d5	0.3849	0.3887	20.00	20.20	ug/mL	1	20	0.0500	
2-Fluorobiphenyl	1.4236	1.5625	20.00	21.95	ug/mL	10	20	0.0500	
2,4,6-Tribromophenol	0.2136	0.2036	20.00	19.07	ug/mL	-5	20	0.0500	
Terphenyl-d14	0.9287	0.9933	20.00	21.39	ug/mL	7	20	0.0500	

ISTD (ICAL rgv21)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	1195108	1032764	-13.58
Naphthalene-d8	4635194	3857267	-16.78
Acenaphthene-d10	2989178	2470642	-17.35
Phenanthrene-d10	5453704	4608315	-15.50
Chrysene-d12	6186500	5098984	-17.58
Perylene-d12	5646577	4454688	-21.11

ISTD (ICAL rgv21)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.23	6.21	-0.02
Naphthalene-d8	7.72	7.70	-0.02
Acenaphthene-d10	9.88	9.86	-0.02
Phenanthrene-d10	11.73	11.72	-0.01
Chrysene-d12	15.19	15.17	-0.02
Perylene-d12	18.23	18.20	-0.03

KMH 08/21/14 [Aniline]: Picked or reassigned peak. [general version]

Analyst: KMH Date: 08/26/14 Reviewer: LW Date: 08/27/14

Logbooks & Sequences

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 544331768

Date : 08/18/14 Reference : xhf11
Sequence : MSBNA05 xhi Analyzed : 08/15/14 19:42

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	1031318	3900538	2287286	3792150	4068719	3663483
		LOWER LIMIT	515659	1950269	1143643	1896075	2034360	1831742
		UPPER LIMIT	2062636	7801076	4574572	7584300	8137438	7326966
003	CCV		785831	3089728	1847064	3217279	3608754	3274933
004	MSS	259786-001	825332	3051733	1822693	3215701	3693894	3086497
005	MS	QC753559	931325	3612362	2126360	3553080	3824626	3195644
006	MSD	QC753560	1044378	3990839	2312124	3825357	4050719	3454191
007	SAMPLE	259790-001	1021608	3705019	2176053	3575732	4108484	3487945
008	SAMPLE	259790-002	968752	3536635	2098336	3520029	4013900	3431927
009	SAMPLE	259786-004	1008726	3716251	2154652	3724240	4190056	3701051
010	SAMPLE	259786-003	975415	3538080	2079372	3536104	3927552	3448912
013	MS	QC753559	977805	3656375	2118926	3552235	3858328	3535451
014	MSD	QC753560	985425	3724467	2169541	3626741	3981865	3625418
015	SAMPLE	259652-008	952735	3477453	2033951	3451206	3968528	3373941
016	SAMPLE	259652-009	960643	3506252	2075413	3460927	3979882	3451597
017	SAMPLE	259652-005	943108	3438999	2004768	3450448	3920247	3380897
018	SAMPLE	259841-005	990369	3646639	2117918	3620048	4066790	3636547
019	SAMPLE	259841-007	1069952	3869011	2270393	3786496	4378356	3912380
020	SAMPLE	259835-002	1072837	3870233	2264630	3855453	4323156	3892616

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 544331768

Date : 08/18/14 Reference : xhf11
Sequence : MSBNA05 xhi Analyzed : 08/15/14 19:42

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	6.04	7.55	9.73	11.60	15.04	18.01
		LOWER LIMIT	5.54	7.05	9.23	11.10	14.54	17.51
		UPPER LIMIT	6.54	8.05	10.23	12.10	15.54	18.51
003	CCV		6.04	7.55	9.73	11.60	15.04	18.00

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 544331768

Date : 08/18/14
Sequence : MSBNA05 xhi

Reference : xhi03
Analyzed : 08/18/14 10:19

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	6.04	7.55	9.73	11.60	15.04	18.00
		LOWER LIMIT	5.54	7.05	9.23	11.10	14.54	17.50
		UPPER LIMIT	6.54	8.05	10.23	12.10	15.54	18.50
004	MSS	259786-001	6.04	7.54	9.73	11.59	15.04	18.00
005	MS	QC753559	6.04	7.55	9.73	11.60	15.05	18.02
006	MSD	QC753560	6.04	7.55	9.73	11.60	15.05	18.02
007	SAMPLE	259790-001	6.04	7.55	9.73	11.60	15.04	18.01
008	SAMPLE	259790-002	6.04	7.55	9.73	11.59	15.04	18.00
009	SAMPLE	259786-004	6.04	7.55	9.73	11.60	15.05	18.02
010	SAMPLE	259786-003	6.04	7.55	9.73	11.60	15.04	18.02
013	MS	QC753559	6.04	7.55	9.73	11.60	15.05	18.02
014	MSD	QC753560	6.04	7.55	9.73	11.60	15.05	18.02
015	SAMPLE	259652-008	6.04	7.55	9.73	11.60	15.04	18.02
016	SAMPLE	259652-009	6.04	7.55	9.73	11.60	15.04	18.02
017	SAMPLE	259652-005	6.04	7.55	9.73	11.60	15.04	18.03
018	SAMPLE	259841-005	6.04	7.55	9.73	11.60	15.05	18.04
019	SAMPLE	259841-007	6.04	7.55	9.73	11.60	15.04	18.02
020	SAMPLE	259835-002	6.04	7.55	9.73	11.60	15.05	18.04

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 544337710

Date : 08/22/14 Reference : xhf11
Sequence : MSBNA05 xhm Analyzed : 08/15/14 19:42

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	1031318	3900538	2287286	3792150	4068719	3663483
		LOWER LIMIT	515659	1950269	1143643	1896075	2034360	1831742
		UPPER LIMIT	2062636	7801076	4574572	7584300	8137438	7326966
003	CCV		819662	3193615	1835047	3280267	3737425	3429326
004	BS	QC754311	844316	3157071	1812139	3184675	3609410	3278694
005	BSD	QC754312	861765	3239690	1860620	3229106	3692194	3365258
007	SAMPLE	259835-002	953069	3557197	2076440	3651762	4176422	4019485
008	SAMPLE	259841-005	928643	3444660	2012460	3490847	4009714	3767470
012	SAMPLE	259882-002	967884	3521875	2089201	3669232	4246965	4048844
013	SAMPLE	259882-001	927629	3457800	1979679	3441248	3925823	3601964
014	SAMPLE	259882-001	948647	3346840	1908253	3347120	3844751	3599252

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 544337710

Date : 08/22/14 Reference : xhf11
Sequence : MSBNA05 xhm Analyzed : 08/15/14 19:42

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	6.04	7.55	9.73	11.60	15.04	18.01
		LOWER LIMIT	5.54	7.05	9.23	11.10	14.54	17.51
		UPPER LIMIT	6.54	8.05	10.23	12.10	15.54	18.51
003	CCV		6.04	7.55	9.73	11.60	15.04	18.01

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 544337710

Date : 08/22/14
Sequence : MSBNA05 xhm

Reference : xhm03
Analyzed : 08/22/14 13:21

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	6.04	7.55	9.73	11.60	15.04	18.01
		LOWER LIMIT	5.54	7.05	9.23	11.10	14.54	17.51
		UPPER LIMIT	6.54	8.05	10.23	12.10	15.54	18.51
004	BS	QC754311	6.04	7.55	9.73	11.60	15.04	18.01
005	BSD	QC754312	6.04	7.55	9.73	11.60	15.04	18.01
007	SAMPLE	259835-002	6.04	7.55	9.73	11.60	15.05	18.04
008	SAMPLE	259841-005	6.04	7.55	9.73	11.60	15.06	18.04
012	SAMPLE	259882-002	6.04	7.55	9.73	11.60	15.05	18.03
013	SAMPLE	259882-001	6.05	7.55	9.73	11.60	15.04	18.02
014	SAMPLE	259882-001	6.04	7.55	9.73	11.60	15.04	18.02

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584327568

Date : 08/15/14 Reference : rgv21
Sequence : MSBNA09 rhf Analyzed : 07/31/14 21:47

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	1195108	4635194	2989178	5453704	6186500	5646577
		LOWER LIMIT	597554	2317597	1494589	2726852	3093250	2823289
		UPPER LIMIT	2390216	9270388	5978356	10907408	12373000	11293154
017	CCV		855247	3260194	1945755	3599449	3912722	3451428
018	BLANK	QC753557	843977	3082205	1835995	3278404	4240906	3602404
019	LCS	QC753558	0 *	0 *	376164 *	0 *	0 *	0 *

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584327568

Date : 08/15/14 Reference : rgv21
Sequence : MSBNA09 rhf Analyzed : 07/31/14 21:47

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	6.23	7.72	9.88	11.73	15.19	18.23
		LOWER LIMIT	5.73	7.22	9.38	11.23	14.69	17.73
		UPPER LIMIT	6.73	8.22	10.38	12.23	15.69	18.73
017	CCV		6.22	7.72	9.88	11.73	15.19	18.23

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584327568

Date : 08/15/14
Sequence : MSBNA09 rhf

Reference : rhf17
Analyzed : 08/15/14 17:54

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	6.22	7.72	9.88	11.73	15.19	18.23
		LOWER LIMIT	5.72	7.22	9.38	11.23	14.69	17.73
		UPPER LIMIT	6.72	8.22	10.38	12.23	15.69	18.73
018	BLANK	QC753557	6.22	7.71	9.87	11.72	15.18	18.22
019	LCS	QC753558	0.00 *	0.00 *	9.56	0.00 *	0.00 *	0.00 *

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584329197

Date : 08/16/14 Reference : rgv21
Sequence : MSBNA09 rhg Analyzed : 07/31/14 21:47

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	1195108	4635194	2989178	5453704	6186500	5646577
		LOWER LIMIT	597554	2317597	1494589	2726852	3093250	2823289
		UPPER LIMIT	2390216	9270388	5978356	10907408	12373000	11293154
004	CCV		751173	2856508	1684963	2984285	3293422	2841596
005	LCS	QC753558	744245	2898829	1735950	3187454	3425564	3072752

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584329197

Date : 08/16/14 Reference : rgv21
Sequence : MSBNA09 rhg Analyzed : 07/31/14 21:47

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	6.23	7.72	9.88	11.73	15.19	18.23
		LOWER LIMIT	5.73	7.22	9.38	11.23	14.69	17.73
		UPPER LIMIT	6.73	8.22	10.38	12.23	15.69	18.73
004	CCV		6.22	7.71	9.87	11.72	15.17	18.21

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584329197

Date : 08/16/14
Sequence : MSBNA09 rhg

Reference : rhg04
Analyzed : 08/16/14 15:50

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	6.22	7.71	9.87	11.72	15.17	18.21
		LOWER LIMIT	5.72	7.21	9.37	11.22	14.67	17.71
		UPPER LIMIT	6.72	8.21	10.37	12.22	15.67	18.71
005	LCS	QC753558	6.22	7.71	9.88	11.73	15.18	18.22

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584336313

Date : 08/21/14 Reference : rgv21
Sequence : MSBNA09 rhl Analyzed : 07/31/14 21:47

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	1195108	4635194	2989178	5453704	6186500	5646577
		LOWER LIMIT	597554	2317597	1494589	2726852	3093250	2823289
		UPPER LIMIT	2390216	9270388	5978356	10907408	12373000	11293154
003	CCV		1032764	3857267	2470642	4608315	5098984	4454688
004	BLANK	QC754310	970897	3544000	2172084	3941018	5010181	4430666
005	BS	QC754311	970620	3749257	2432394	4557286	5020842	4556462
006	BSD	QC754312	986455	3730873	2432536	4563310	5042243	4529695
014	SAMPLE	259882-001	78844 *	5253260	2776947	5078585	4862783	1904607 *
015	SAMPLE	259882-002	960265	3517445	2280727	4257526	4250915	2447520 *

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584336313

Date : 08/21/14 Reference : rgv21
Sequence : MSBNA09 rhl Analyzed : 07/31/14 21:47

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	6.23	7.72	9.88	11.73	15.19	18.23
		LOWER LIMIT	5.73	7.22	9.38	11.23	14.69	17.73
		UPPER LIMIT	6.73	8.22	10.38	12.23	15.69	18.73
003	CCV		6.21	7.70	9.86	11.72	15.17	18.20

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 584336313

Date : 08/21/14
Sequence : MSBNA09 rhl

Reference : rhl03
Analyzed : 08/21/14 13:55

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	6.21	7.70	9.86	11.72	15.17	18.20
		LOWER LIMIT	5.71	7.20	9.36	11.22	14.67	17.70
		UPPER LIMIT	6.71	8.20	10.36	12.22	15.67	18.70
004	BLANK	QC754310	6.21	7.70	9.86	11.72	15.17	18.20
005	BS	QC754311	6.21	7.70	9.87	11.72	15.17	18.20
006	BSD	QC754312	6.21	7.70	9.87	11.72	15.17	18.20
014	SAMPLE	259882-001	6.23	7.73	9.87	11.72	15.16	18.18
015	SAMPLE	259882-002	6.21	7.70	9.86	11.72	15.16	18.18

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 544327680

Instrument : MSBNA05 Begun : 08/15/14 13:20
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	xhf01	IB	IB			08/15/14 13:20	1.0		?t
002	xhf02	TUN	DFTPP/PEM			08/15/14 13:47	1.0	1	
003	xhf03	CCV	RTCHECK			08/15/14 14:10	1.0	2	cc+
004	xhf04	CCV	RFCHECK			08/15/14 15:37	1.0	3	cc-
005	xhf05	TUN	DFTPP/PEM			08/15/14 16:14	1.0	1	
006	xhf06	ICAL	ICAL			08/15/14 16:36	1.0	4	
007	xhf07	ICAL	ICAL			08/15/14 17:13	1.0	5	
008	xhf08	ICAL	ICAL			08/15/14 17:48	1.0	3	
009	xhf09	ICAL	ICAL			08/15/14 18:27	1.0	6	
010	xhf10	ICAL	ICAL			08/15/14 19:04	1.0	7	
011	xhf11	ICAL	ICAL			08/15/14 19:42	1.0	8	
012	xhf12	ICAL	ICAL			08/15/14 20:18	1.0	9	
013	xhf13	ICAL	ICAL			08/15/14 20:53	1.0	10	
014	xhf14	ICAL	ICAL			08/15/14 21:30	1.0	11	
015	xhf15	ICV	ICV			08/15/14 22:08	1.0	12	

KMH 08/16/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 15.

Standards used: 1=S24893 2=S24428 3=S25409 4=S25407 5=S25408 6=S25410 7=S25411 8=S25412 9=S25413 10=S25414 11=S25415 12=S25418

Flags used: +=high bias -=low bias ?t=missing tune cc=CCV CCC failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 544331768

Instrument : MSBNA05 Begun : 08/18/14 09:28
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	xhi01	IB	IB			08/18/14 09:28	1.0		?t
002	xhi02	TUN	DFTPP/PEM			08/18/14 09:56	1.0	1	
003	xhi03	CCV				08/18/14 10:19	1.0	2	
004	xhi04	MSS	259786-001	Water	214400	08/18/14 11:57	1.0	3	
005	xhi05	MS	QC753559	Water	214400	08/18/14 12:35	1.0	3	3:BZACID=140
006	xhi06	MSD	QC753560	Water	214400	08/18/14 13:11	1.0	3	1:ISOP=70
007	xhi07	SAMPLE	259790-001	Water	214400	08/18/14 13:46	1.0	3	
008	xhi08	SAMPLE	259790-002	Water	214400	08/18/14 14:23	1.0	3	
009	xhi09	SAMPLE	259786-004	Water	214400	08/18/14 15:00	1.0	3	
010	xhi10	SAMPLE	259786-003	Water	214400	08/18/14 15:39	1.0	3	
011	xhi11	MS	QC753224	Soil	214312	08/18/14 16:19	1.0	3	1:ISOP=62
012	xhi12	MSD	QC753225	Soil	214312	08/18/14 16:58	1.0	3	1:ISOP=58
013	xhi13	MS	QC753559	Water	214400	08/18/14 17:37	2.0	3	
014	xhi14	MSD	QC753560	Water	214400	08/18/14 18:14	2.0	3	
015	xhi15	SAMPLE	259652-008	Soil	214312	08/18/14 18:52	10.0	3	
016	xhi16	SAMPLE	259652-009	Soil	214312	08/18/14 19:27	50.0	3	
017	xhi17	SAMPLE	259652-005	Soil	214312	08/18/14 20:04	7.0	3	
018	xhi18	SAMPLE	259841-005	Water	214400	08/18/14 20:41	1.0	3	
019	xhi19	SAMPLE	259841-007	Water	214400	08/18/14 21:18	1.0	3	
020	xhi20	SAMPLE	259835-002	Water	214400	08/18/14 21:54	1.0	3	

KMH 08/19/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 20.

Standards used: 1=S24893 2=S25410 3=S25005

Flags used: ?t=missing tune

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 544337710

Instrument : MSBNA05 Begun : 08/22/14 12:30
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	xhm01	IB	IB			08/22/14 12:30	1.0		?t
002	xhm02	TUN	DFTPP/PEM			08/22/14 12:58	1.0	1	
003	xhm03	CCV				08/22/14 13:21	1.0	2	
004	xhm04	BS	QC754311	Water	214595	08/22/14 14:00	2.0	3	
005	xhm05	BSD	QC754312	Water	214595	08/22/14 14:39	2.0	3	
006	xhm06	SAMPLE	259968-001	Water	214556	08/22/14 15:21	1.0	3	
007	xhm07	SAMPLE	259835-002	Water	214595	08/22/14 16:00	1.0	3	
008	xhm08	SAMPLE	259841-005	Water	214595	08/22/14 16:37	1.0	3	
009	xhm09	SAMPLE	259968-003	Water	214556	08/22/14 17:17	1.0	3	
010	xhm10	SAMPLE	260003-001	Water	214556	08/22/14 17:56	1.0	3	
011	xhm11	SAMPLE	260003-003	Water	214556	08/22/14 18:37	1.0	3	
012	xhm12	SAMPLE	259882-002	Water	214595	08/22/14 19:17	1.0	3	
013	xhm13	SAMPLE	259882-001	Water	214595	08/22/14 19:55	10.0	3	high NT
014	xhm14	SAMPLE	259882-001	Water	214595	08/22/14 20:37	25.0	3	high NT
015	xhm15	SAMPLE	260011-002	Water	214595	08/22/14 21:18	3.0	3	high NT
016	xhm16	SAMPLE	260011-003	Water	214595	08/22/14 21:59	3.0	3	high NT
017	xhm17	SAMPLE	260011-004	Water	214595	08/22/14 22:41	3.0	3	high NT
018	xhm18	SAMPLE	260011-006	Water	214595	08/22/14 23:25	3.0	3	high NT
019	xhm19	SAMPLE	260011-007	Water	214595	08/23/14 00:05	3.0	3	high NT

KMH 08/25/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 19.

Standards used: 1=S24893 2=S25410 3=S25005

Flags used: ?t=missing tune

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 584305789

Instrument : MSBNA09 Begun : 07/31/14 08:29
Method : EPA 8270C, EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	rgv01	X	IB			07/31/14 08:29	1.0		
002	rgv02	TUN	DFTPP/PEM			07/31/14 08:56	1.0	1	
003	rgv03	CCV	RTRFCHECK			07/31/14 09:12	1.0	2	cc+ cc-
004	rgv04	TUN	DFTPP/PEM			07/31/14 10:05	1.0	1	
005	rgv05	ICAL	ICAL			07/31/14 10:21	1.0	3	
006	rgv06	ICAL	ICAL			07/31/14 10:52	1.0	4	
007	rgv07	ICAL	ICAL			07/31/14 11:22	1.0	5	
008	rgv08	ICAL	ICAL			07/31/14 11:52	1.0	2	
009	rgv09	ICAL	ICAL			07/31/14 12:22	1.0	6	
010	rgv10	ICAL	ICAL			07/31/14 12:52	1.0	7	
012	rgv12	ICAL	ICAL			07/31/14 13:52	1.0	8	
013	rgv13	ICAL	ICAL			07/31/14 14:21	1.0	9	
014	rgv14	ICV	ICV			07/31/14 14:51	1.0	10	
015	rgv15	TUN	DFTPP/PEM			07/31/14 18:29	1.0	1	
016	rgv16	ICAL	ICAL			07/31/14 19:18	1.0	3	
017	rgv17	ICAL	ICAL			07/31/14 19:47	1.0	4	
018	rgv18	ICAL	ICAL			07/31/14 20:17	1.0	5	
019	rgv19	ICAL	ICAL			07/31/14 20:47	1.0	2	
020	rgv20	ICAL	ICAL			07/31/14 21:17	1.0	6	
021	rgv21	ICAL	ICAL			07/31/14 21:47	1.0	7	
022	rgv22	ICAL	ICAL			07/31/14 22:18	1.0	11	
023	rgv23	ICAL	ICAL			07/31/14 22:48	1.0	8	
024	rgv24	ICAL	ICAL			07/31/14 23:18	1.0	9	
025	rgv25	ICV	ICV			07/31/14 23:48	1.0	10	
026	rgv26	TUN	DFTPP/PEM			08/01/14 00:14	1.0	1	t
027	rgv27	ICAL	ICAL			08/01/14 00:26	1.0	12	t
028	rgv28	ICAL	ICAL			08/01/14 00:40	1.0	13	t
029	rgv29	ICAL	ICAL			08/01/14 00:54	1.0	14	t
030	rgv30	ICAL	ICAL			08/01/14 01:07	1.0	15	t
031	rgv31	ICAL	ICAL			08/01/14 01:21	1.0	16	t
032	rgv32	ICAL	ICAL			08/01/14 01:35	1.0	17	t
033	rgv33	ICAL	ICAL			08/01/14 01:48	1.0	18	t
034	rgv34	ICAL	ICAL			08/01/14 02:02	1.0	19	t
035	rgv35	ICV	ICV			08/01/14 02:16	1.0	20	t , 5:DNOP=120000

KMH 08/01/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 35.

LW 08/06/14 : Files 26-35 are a CPSC ICAL that ran blind and the tune failed.

Standards used: 1=S24893 2=S24427 3=S24422 4=S24424 5=S24425 6=S24428 7=S24429 8=S24431 9=S24432 10=S24471 11=S24430 12=S24549 13=S24550 14=S24551 15=S24552 16=S24553 17=S24554 18=S24555 19=S24556 20=S24557

Flags used: +=high bias -=low bias cc=CCV CCC failure t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 584327568

Instrument : MSBNA09 Begun : 08/15/14 11:28
Method : EPA 8270C, EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	rhf01	X	IB			08/15/14 11:28	1.0		
002	rhf02	TUN	DFTPP/PEM			08/15/14 11:42	1.0	1	
003	rhf03	CCV				08/15/14 11:54	1.0	2	
004	rhf04	SAMPLE	259333-001	Miscell.	214282	08/15/14 12:08	8.33	3	
005	rhf05	SAMPLE	259369-001	Miscell.	214282	08/15/14 12:22	33.30	3	
006	rhf06	SAMPLE	259378-001	Miscell.	214282	08/15/14 12:35	33.30	3	
007	rhf07	SAMPLE	259094-001	Miscell.	214282	08/15/14 12:49	1.0	3	1:DIDP=610
008	rhf08	SAMPLE	259099-001	Miscell.	214282	08/15/14 13:03	1.0	3	
009	rhf09	SAMPLE	259336-001	Miscell.	214282	08/15/14 13:17	1.0	3	
010	rhf10	SAMPLE	259365-001	Miscell.	214282	08/15/14 13:30	1.0	3	
011	rhf11	IB	IB			08/15/14 14:04	1.0		
012	rhf12	TUN	DFTPP/PEM			08/15/14 14:31	1.0	1	t
013	rhf13	TUN	DFTPP/PEM			08/15/14 15:10	1.0	1	
014	rhf14	CCV				08/15/14 15:25	1.0	4	cc+ cc-
015	rhf15	IB	IB			08/15/14 16:42	1.0		
016	rhf16	TUN				08/15/14 17:08	1.0	1	
017	rhf17	CCV				08/15/14 17:54	1.0	4	
018	rhf18	BLANK	QC753557	Water	214400	08/15/14 18:29	1.0	3	
019	rhf19	LCS	QC753558	Water	214400	08/15/14 18:59	1.0	3	1:NO2ANIL4=370

KMH 08/16/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 19.

Standards used: 1=S24893 2=S24552 3=S25005 4=S24428

Flags used: +=high bias -=low bias cc=CCV CCC failure t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 584329197

Instrument : MSBNA09 Begun : 08/16/14 14:37
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	rhg01	X	IB			08/16/14 14:37	1.0		
002	rhg02	X	IB			08/16/14 15:07	1.0		
003	rhg03	TUN	DFTPP/PEM			08/16/14 15:34	1.0	1	
004	rhg04	CCV				08/16/14 15:50	1.0	2	
005	rhg05	LCS	QC753558	Water	214400	08/16/14 16:20	1.0	3	
006	rhg06	MSS	259786-001	Water	214400	08/16/14 16:50	1.0	3	

KMH 08/18/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 6.

Standards used: 1=S24893 2=S24428 3=S25005

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 584336313

Instrument : MSBNA09 Begun : 08/21/14 13:13
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	rhl01	X	IB			08/21/14 13:13	1.0		
002	rhl02	TUN	DFTPP/PEM			08/21/14 13:40	1.0	1	
003	rhl03	CCV				08/21/14 13:55	1.0	2	
004	rhl04	BLANK	QC754310	Water	214595	08/21/14 14:45	1.0	3	
005	rhl05	BS	QC754311	Water	214595	08/21/14 15:14	1.0	3	
006	rhl06	BSD	QC754312	Water	214595	08/21/14 15:44	1.0	3	
007	rhl07	BLANK	QC754161	Water	214556	08/21/14 16:14	1.0	3	
008	rhl08	BS	QC754162	Water	214556	08/21/14 16:43	1.0	3	
009	rhl09	BSD	QC754163	Water	214556	08/21/14 17:13	1.0	3	
010	rhl10	SAMPLE	259865-001	Water	214556	08/21/14 17:43	1.0	3	
011	rhl11	SAMPLE	259865-003	Water	214556	08/21/14 18:12	1.0	3	
012	rhl12	SAMPLE	259918-001	Water	214556	08/21/14 18:42	1.0	3	
013	rhl13	SAMPLE	259918-003	Water	214556	08/21/14 19:12	1.0	3	
014	rhl14	SAMPLE	259882-001	Water	214595	08/21/14 19:42	1.0	3	1:BIS2CIE=230
015	rhl15	SAMPLE	259882-002	Water	214595	08/21/14 20:11	1.0	3	

KMH 08/22/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 15.

Standards used: 1=S24893 2=S24428 3=S25005

SAMPLE PREPARATION SUMMARY

Batch # : 214400
Started By : AVW
Method : 3520C
Spike #1 ID : S24866

Prep Date : 14-AUG-2014 14:20
SOP Version : 8270_3520_rv20
Spike #2 ID : S25396

Analysis : 8270-1
Finished By : AVW
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259779-001		Water	1060	1	1	0.0009434	7	.4				8270-1	
259779-002		Water	1060	1	1	0.0009434	7	.4				8270-1	
259779-003		Water	1040	1	1	0.0009615	7	.4				8270-1	See comment 1 below
259786-001		Water	1060	1	1	0.0009434	7	.4				8270-1	mss
259786-003		Water	1040	1	1	0.0009615	7	.4				8270-1	
259786-004		Water	1060	1	1	0.0009434	7	.4				8270-1	
259790-001		Water	1000	1	1	0.001	5	.4				8270-1	
259790-002		Water	1060	1	1	0.0009434	5	.4				8270-1	
259798-001		Water	1020	1	1	0.0009804	7	.4				625	
259798-002		Water	900	1	1	0.001111	7	.4				625	
259798-003		Water	1010	1	1	0.0009901	7	.4				625	
259824-001		Water	1040	1	1	0.0009615	5	.4				625	Prepped 15-AUG-2014 13:20
259835-002		Water	1000	1	1	0.001	7	.4				(rebatched)	Prepped 15-AUG-2014 13:20
259841-005		Water	1040	1	1	0.0009615	7	.4				(rebatched)	Prepped 15-AUG-2014 13:20
259841-007		Water	1040	1	1	0.0009615	5	.4				8270-1	Prepped 15-AUG-2014 13:20
259859-002		Water	550	1	1	0.001818	7	.4				625	See comment 2 below
QC753557	BLANK	Water	1000	1	1	0.001		.4				8270-1	
QC753558	LCS	Water	1000	1	1	0.001		.4	1			8270-1	
QC753559	MS	Water	1060	1	1	0.0009434		.4	1			8270-1	259786-001
QC753560	MSD	Water	1070	1	1	0.0009346		.4	1			8270-1	259786-001

Comment 1: transferred to new L/L extractor
Comment 2: Prepped 15-AUG-2014 13:20; sediment layer; decanted

LW 08/18/14 : Reviewed for 259859

Analyst: KMH Date: 08/18/14 Reviewer: LW Date: 08/19/14

BNA (8270 & 625) Water Prep Log **Curtis & Tompkins, Ltd.**

Page 1 **BK 3598**

LIMS Batch No: 214400
LIMS Analysis: 8270
Date Extracted: 8/14/14

Extraction Method:
☒ EPA 3520c cont. L/L
☐ _____

	Sample #	Container ID	Volume of Sample (mL)	Sample pH	Final Volume (mL)	Confirmed pH ≤2	Comments
	259786-001	S	1060	☑7 ☐	☑ 1.0 ☐	☑ ≤2	MSS
	259779-001	K	1060	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	2	L	1060	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	3	N	1040	☑7 ☐	☑ 1.0 ☐	☑ ≤2	transferred to new 4L
5	259786-003	H	1040	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	4	L	1060	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	259798-001	D	1020	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	2	G	900	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	MB 2C753557	NA	1000	☐7 ☐ NA	☑ 1.0 ☐	☑ ≤2	
10	BS 8	L	1000	☐7 ☐	☑ 1.0 ☐	☑ ≤2	
	MS 9	V	1060	☑7 ☐	☑ 1.0 ☐	☑ ≤2	259786-001
	MSD 60	W	1070	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	259790-001	G	1000	☐7 ☑ 5	☑ 1.0 ☐	☑ ≤2	
	2	I	1060	☐7 ☑ 5	☑ 1.0 ☐	☑ ≤2	
15	259798-003	D	1010	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	259824-001	I	1040	☐7 ☑ 5	☑ 1.0 ☐	☑ ≤2	*A/O @1320 on 8/15/14 by TPR
	259841-005	B	1040	☑7 ☐	☑ 1.0 ☐	☑ ≤2	
	7	F	1040	☑7 ☑ 5 TPR 8/15/14	☑ 1.0 ☐	☑ ≤2	
	259835-002	D	1000	☑7 ☑ 4 TPR 8/15/14	☑ 1.0 ☐	☑ ≤2	
20	259859-~~003~~ 002 TPR 8/15/14	H	550	☑7 ☐	☑ 1.0 ☐	☑ ≤2	Aliased 259859-002 *sediment layer; decanted
				☐7 ☐	☐ 1.0 ☐	☐ ≤2	
				☐7 ☐	☐ 1.0 ☐	☐ ≤2	
				☐7 ☐	☐ 1.0 ☐	☐ ≤2	
				☐7 ☐	☐ 1.0 ☐	☐ ≤2	

	Lot# / LIMS # / Time	Date/ Initials
1.0 mL of surrogate solution was added to all samples	524866 B	AVW 8/14/14
0.4 mL of matrix spiking solution was added to all spikes	525396 C	
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	FS 140656	
Cont. L/L extracted with 450mL of CH_2Cl_2	EM 54153	
Extraction Start Time:	1420 / 1320*	
Extraction End Time:	0820 / 750	ER 8-15-14
pH of all samples adjusted to pH ≥ 11 with 10 N NaOH	NA	AVW 8/15/14
Extraction Start Time:		
Extraction End Time:		
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EM WL-23 I	
Concentrated to final volume at temperature (degrees C)	70	
Relinquished to BNA department	✓	

8/14/14
Extraction Chemist **Date**

Contined from Page ____
Continued on Page ____

8/18/14
Reviewed by **Date**

SAMPLE PREPARATION SUMMARY

Batch # : 214595
Started By : CPK
Method : 3520C
Spike #1 ID : S24866

Prep Date : 20-AUG-2014 12:20
SOP Version : 8270_3520_rv20
Spike #2 ID : S25396

Analysis : 8270-1
Finished By : AVW
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259835-002		Water	1060	1	1	0.0009434	7	.4				8270-1	Prepped 21-AUG-2014 12:06
259841-005		Water	1060	1	1	0.0009434	7	.4				8270-1	
259882-001		Water	1000	1	1	0.001	11	.4				8270-1	
259882-002		Water	1000	1	1	0.001	7	.4				8270-1	
260011-002		Water	1060	1	1	0.0009434	7	.4				8270-1	Prepped 21-AUG-2014 12:06
260011-003		Water	1060	1	1	0.0009434	7	.4				8270-1	Prepped 21-AUG-2014 12:06
260011-004		Water	1070	1	1	0.0009346	7	.4				8270-1	Prepped 21-AUG-2014 12:06
260011-006		Water	1060	1	1	0.0009434	7	.4				8270-1	Prepped 21-AUG-2014 12:06
260011-007		Water	1060	1	1	0.0009434	7	.4				8270-1	Prepped 21-AUG-2014 12:06
QC754310	BLANK	Water	1000	1	1	0.001		.4				8270-1	
QC754311	BS	Water	1000	1	1	0.001		.4	1			8270-1	
QC754312	BSD	Water	1000	1	1	0.001		.4	1			8270-1	

KMH 08/25/14 : Matrix spikes were not performed for this analysis in batch 214595 due to insufficient sample amount.

Analyst: KMH Date: 08/25/14 Reviewer: LW Date: 08/25/14

BNA (8270 & 625) Water Prep Log **Curtis & Tompkins, Ltd.**

LIMS Batch No: 214595
LIMS Analysis: 8270
Date Extracted: 8/20/14

Extraction Method:
☒ EPA 3520c cont. L/L
☐ _____

Sample #	Container ID	Volume of Sample (mL)	Sample pH	Final Volume (mL)	Confirmed pH ≤2	Comments
259882-001	M	1000	☐7 ☑11	☑1.0 ☐	☑≤2	
2	K	1000	☑7 ☐	☑1.0 ☐	☐≤2	
MB QC754310	MA	1000	☐7 ☐NA	☑1.0 ☐	☑≤2	
BS		1000	☐7 ☑	☑1.0 ☐	☑≤2	
BSD 2		1000	☐7 ☑	☑1.0 ☐	☐≤2	
259835-002	B	1060	☑7 ☐	☑1.0 ☐	☑≤2	a/o @ 1206 8/21/14 CPK
259841-005	D	1060	☑7 ☐	☑1.0 ☐	☑≤2	
260011-002	J	1060	☑7 ☐	☑1.0 ☐	☑≤2	
-003	D	1060	☑7 ☐	☑1.0 ☐	☑≤2	
-004	L	1070	☑7 ☐	☑1.0 ☐	☑≤2	
-006		1060	☑7 ☐	☑1.0 ☐	☑≤2	
-007		1060	☑7 ☐	☑1.0 ☐	☑≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	NDM 8/22/14

	Lot# / LIMS # / Time	Date/ Initials
0.4 mL of surrogate solution was added to all samples	S24866A	ARL 82014
1.0 mL of matrix spiking solution was added to all spikes	S25396B	
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	PS14D656	
Cont. L/L extracted with 450mL of CH_2Cl_2	EM54153	
Extraction Start Time:	1220/1206	
Extraction End Time:	0642/0625	AUW 8/21/14
pH of all samples adjusted to pH ≥ 11 with 10 N NaOH	NA	AUW 8/21/14
Extraction Start Time:		
Extraction End Time:		
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EMWL231	
Concentrated to final volume at temperature (degrees C)	70	
Relinquished to BNA department	✓	

82014
Extraction Chemist **Date**

Contined from Page _____
Continued on Page _____

8/22/14
Reviewed by **Date**

Dilutions for 259841 MSBNA Water
Curtis & Tompkins Laboratories

Type	Sample ID	IDFs
MS	QC753559	1X, 2X
MSD	QC753560	1X, 2X

Case Narrative Addendum: Manual Integrations for 259841 MSBNA (Water)

For CCV (MSBNA09 rhl03):
Aniline: Picked or reassigned peak.

For CCV (MSBNA05 xhi03):
Aniline: Picked or reassigned peak.
3-Nitroaniline: Corrected automatically drawn baseline.

For CCV (MSBNA09 rhf17):
Aniline: Separated from coeluting peak.
3-Nitroaniline: Picked or reassigned peak.

For CCV (MSBNA09 rhg04):
Aniline: Picked or reassigned peak.
4-Nitroaniline: Corrected automatically drawn baseline.

For CCV (MSBNA05 xhm03):
Aniline: Picked or reassigned peak.

For SAMPLE 259841-005 (MSBNA05 xhm08):
Nitrobenzene-d5: Picked or reassigned peak.
2-Fluorophenol: Picked or reassigned peak.

For SAMPLE 259841-007 (MSBNA05 xhi19):
Nitrobenzene-d5: Picked or reassigned peak.

For LCS QC753558 (MSBNA09 rhg05):
Aniline: Picked or reassigned peak.

For MSD QC753560 (MSBNA05 xhi14):
Aniline: Picked or reassigned peak for spike & dup.

For MSD QC753560 (MSBNA05 xhi06):
Resorcinol: Picked or reassigned peak for spike & dup.
Acenaphthene: Corrected automatically drawn baseline for dup.
Aniline: Picked or reassigned peak for spike & dup.
2-Fluorophenol: Picked or reassigned peak for spike.

For BSD QC754312 (MSBNA09 rhl06):
Aniline: Picked or reassigned peak for spike & dup.
3-Nitroaniline: Picked or reassigned peak for dup.

For Calibration MSBNA09 (584305789001):
Aniline: Picked or reassigned peak in all levels.
Anthracene: Corrected automatically drawn baseline in ICAL (rgv23).
4-Chloroaniline: Corrected automatically drawn baseline in multiple levels.
3,3'-Dichlorobenzidine: Corrected automatically drawn baseline in multiple levels.
2,4-Dinitrophenol: Corrected automatically drawn baseline in multiple levels.
3-Nitroaniline: Corrected automatically drawn baseline in multiple levels.
4-Nitroaniline: Corrected automatically drawn baseline in multiple levels.
4-Nitrophenol: Corrected automatically drawn baseline in multiple levels.
2,4,5-Trichlorophenol: Corrected automatically drawn baseline in ICAL (rgv23).

For ICV (MSBNA09 rgv25):

Aniline: Picked or reassigned peak.
2,4-Dinitrophenol: Corrected automatically drawn baseline.
4-Nitrophenol: Corrected automatically drawn baseline.

For Calibration MSBNA05 (544327680001):
Acenaphthene: Corrected automatically drawn baseline in ICAL (xhf11).
Aniline: Picked or reassigned peak in all levels.
Anthracene: Corrected automatically drawn baseline in ICAL (xhf14).
bis(2-Chloroethyl)ether: Corrected automatically drawn baseline in ICAL (xhf13).
Benzo(k)fluoranthene: Picked or reassigned peak in ICAL (xhf14).
4-Chloroaniline: Corrected automatically drawn baseline in multiple levels.
4-Methylphenol: Corrected automatically drawn baseline in multiple levels.
3-Nitroaniline: Corrected automatically drawn baseline in multiple levels.
2-Nitrophenol: Corrected automatically drawn baseline in multiple levels.
4-Nitrophenol: Picked or reassigned peak in ICAL (xhf14).
Pyridine: Corrected automatically drawn baseline in multiple levels.
2,4,5-Trichlorophenol: Corrected automatically drawn baseline in multiple levels.

For ICV (MSBNA05 xhf15):
Aniline: Picked or reassigned peak.
Nitrobenzene-d5: Corrected automatically drawn baseline.
2,4,5-Trichlorophenol: Corrected automatically drawn baseline.

Laboratory Job Number 259841

ANALYTICAL REPORT

Semivolatile Organics by GC/MS SIM

Matrix: Water

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Field ID:	04W10-081414	Batch#:	214554
Lab ID:	259841-005	Sampled:	08/14/14
Matrix:	Water	Received:	08/14/14
Units:	ug/L	Prepared:	08/19/14
Diln Fac:	1.000	Analyzed:	08/20/14

Analyte	Result	LOQ	DL
Naphthalene	0.03 J	0.1	0.02
2-Methylnaphthalene	0.05 J	0.1	0.02
Acenaphthylene	0.04 U	0.1	0.02
Acenaphthene	0.04 U	0.1	0.02
Fluorene	0.04 U	0.1	0.02
Phenanthrene	0.04 U	0.1	0.02
Anthracene	0.04 U	0.1	0.02
Fluoranthene	0.04 U	0.1	0.02
Pyrene	0.04 U	0.1	0.02
Benzo(a)anthracene	0.04 U	0.1	0.02
Chrysene	0.04 U	0.1	0.02
Benzo(b)fluoranthene	0.04 U	0.1	0.02
Benzo(k)fluoranthene	0.04 U	0.1	0.02
Benzo(a)pyrene	0.04 U	0.1	0.02
Indeno(1,2,3-cd)pyrene	0.04 U	0.1	0.02
Dibenz(a,h)anthracene	0.04 U	0.1	0.02
Benzo(g,h,i)perylene	0.04 U	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	94	40-110
2-Fluorobiphenyl	82	50-110
Terphenyl-d14	77	50-135

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Field ID:	RB-081414	Batch#:	214554
Lab ID:	259841-007	Sampled:	08/14/14
Matrix:	Water	Received:	08/14/14
Units:	ug/L	Prepared:	08/19/14
Diln Fac:	1.000	Analyzed:	08/21/14

Analyte	Result	LOQ	DL
Naphthalene	0.04 U	0.1	0.02
2-Methylnaphthalene	0.04 U	0.1	0.02
Acenaphthylene	0.04 U	0.1	0.02
Acenaphthene	0.04 U	0.1	0.02
Fluorene	0.04 U	0.1	0.02
Phenanthrene	0.03 J	0.1	0.02
Anthracene	0.04 U	0.1	0.02
Fluoranthene	0.04 J	0.1	0.02
Pyrene	0.03 J	0.1	0.02
Benzo(a)anthracene	0.02 J	0.1	0.02
Chrysene	0.04 U	0.1	0.02
Benzo(b)fluoranthene	0.02 J	0.1	0.02
Benzo(k)fluoranthene	0.04 U	0.1	0.02
Benzo(a)pyrene	0.04 U	0.1	0.02
Indeno(1,2,3-cd)pyrene	0.04 U	0.1	0.02
Dibenz(a,h)anthracene	0.04 U	0.1	0.02
Benzo(g,h,i)perylene	0.04 U	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	57	40-110
2-Fluorobiphenyl	67	50-110
Terphenyl-d14	75	50-135

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC754152	Batch#:	214554
Matrix:	Water	Prepared:	08/19/14
Units:	ug/L	Analyzed:	08/20/14

Analyte	Result	LOQ	DL
Naphthalene	0.04 U	0.1	0.02
2-Methylnaphthalene	0.04 U	0.1	0.02
Acenaphthylene	0.04 U	0.1	0.02
Acenaphthene	0.04 U	0.1	0.02
Fluorene	0.04 U	0.1	0.02
Phenanthrene	0.04 U	0.1	0.02
Anthracene	0.04 U	0.1	0.02
Fluoranthene	0.04 U	0.1	0.02
Pyrene	0.04 U	0.1	0.02
Benzo(a)anthracene	0.04 U	0.1	0.02
Chrysene	0.04 U	0.1	0.02
Benzo(b)fluoranthene	0.04 U	0.1	0.02
Benzo(k)fluoranthene	0.04 U	0.1	0.02
Benzo(a)pyrene	0.04 U	0.1	0.02
Indeno(1,2,3-cd)pyrene	0.04 U	0.1	0.02
Dibenz(a,h)anthracene	0.04 U	0.1	0.02
Benzo(g,h,i)perylene	0.04 U	0.1	0.02

Surrogate	%REC	Limits
Nitrobenzene-d5	79	40-110
2-Fluorobiphenyl	84	50-110
Terphenyl-d14	93	50-135

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC754153	Batch#:	214554
Matrix:	Water	Prepared:	08/19/14
Units:	ug/L	Analyzed:	08/20/14

Analyte	Spiked	Result	%REC	Limits
Naphthalene	1.000	0.7952	80	40-100
2-Methylnaphthalene	1.000	0.7797	78	45-105
Acenaphthylene	1.000	0.8075	81	50-105
Acenaphthene	1.000	0.8164	82	45-110
Fluorene	1.000	0.8879	89	50-110
Phenanthrene	1.000	0.8270	83	50-115
Anthracene	1.000	0.7890	79	55-110
Fluoranthene	1.000	0.8629	86	55-115
Pyrene	1.000	0.8313	83	50-130
Benzo(a)anthracene	1.000	0.7752	78	55-110
Chrysene	1.000	0.7475	75	55-110
Benzo(b)fluoranthene	1.000	0.7937	79	45-120
Benzo(k)fluoranthene	1.000	0.8476	85	45-125
Benzo(a)pyrene	1.000	0.7250	73	55-110
Indeno(1,2,3-cd)pyrene	1.000	0.7197	72	45-125
Dibenz(a,h)anthracene	1.000	0.6440	64	40-125
Benzo(g,h,i)perylene	1.000	0.7680	77	40-125

Surrogate	%REC	Limits
Nitrobenzene-d5	74	40-110
2-Fluorobiphenyl	75	50-110
Terphenyl-d14	77	50-135

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	EPA 3520C
Project#:	N62473-11-D-2215	Analysis:	EPA 8270D-SIM
Field ID:	04W19-081314	Batch#:	214554
MSS Lab ID:	259786-001	Sampled:	08/13/14
Matrix:	Water	Received:	08/13/14
Units:	ug/L	Prepared:	08/19/14
Diln Fac:	1.000	Analyzed:	08/21/14

Type: MS Lab ID: QC754154

Analyte	MSS Result	Spiked	Result	%REC	Limits
Naphthalene	0.04452	0.9804	0.7061	67	40-100
2-Methylnaphthalene	0.01971	0.9804	0.7444	74	45-105
Acenaphthylene	0.03000	0.9804	0.6895	67	50-105
Acenaphthene	0.02875	0.9804	0.7104	70	45-110
Fluorene	0.06202	0.9804	0.7785	73	50-110
Phenanthrene	0.3788	0.9804	0.9321	56	50-115
Anthracene	0.03625	0.9804	0.6713	65	55-110
Fluoranthene	0.2172	0.9804	0.9452	74	55-115
Pyrene	0.2482	0.9804	0.8555	62	50-130
Benzo(a)anthracene	0.02058	0.9804	0.7438	74	55-110
Chrysene	<0.01923	0.9804	0.6598	67	55-110
Benzo(b)fluoranthene	0.02913	0.9804	0.7215	71	45-120
Benzo(k)fluoranthene	<0.01923	0.9804	0.6952	71	45-125
Benzo(a)pyrene	<0.01923	0.9804	0.6713	68	55-110
Indeno(1,2,3-cd)pyrene	<0.01923	0.9804	0.6884	70	45-125
Dibenz(a,h)anthracene	<0.01923	0.9804	0.6256	64	40-125
Benzo(g,h,i)perylene	<0.01923	0.9804	0.6921	71	40-125

Surrogate	%REC	Limits
Nitrobenzene-d5	64	40-110
2-Fluorobiphenyl	67	50-110
Terphenyl-d14	67	50-135

Type: MSD Lab ID: QC754155

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Naphthalene	0.9615	0.7287	71	40-100	5	30
2-Methylnaphthalene	0.9615	0.7515	76	45-105	3	30
Acenaphthylene	0.9615	0.7292	73	50-105	7	30
Acenaphthene	0.9615	0.7146	71	45-110	2	30
Fluorene	0.9615	0.7910	76	50-110	3	30
Phenanthrene	0.9615	0.9637	61	50-115	5	30
Anthracene	0.9615	0.6571	65	55-110	0	30
Fluoranthene	0.9615	0.9528	77	55-115	2	30
Pyrene	0.9615	0.9069	69	50-130	7	30
Benzo(a)anthracene	0.9615	0.7621	77	55-110	4	30
Chrysene	0.9615	0.6889	72	55-110	6	30
Benzo(b)fluoranthene	0.9615	0.7534	75	45-120	6	30
Benzo(k)fluoranthene	0.9615	0.6856	71	45-125	1	30
Benzo(a)pyrene	0.9615	0.6942	72	55-110	5	30
Indeno(1,2,3-cd)pyrene	0.9615	0.6869	71	45-125	2	30
Dibenz(a,h)anthracene	0.9615	0.6377	66	40-125	4	30
Benzo(g,h,i)perylene	0.9615	0.6857	71	40-125	1	30

Surrogate	%REC	Limits
Nitrobenzene-d5	71	40-110
2-Fluorobiphenyl	71	50-110
Terphenyl-d14	67	50-135

RPD= Relative Percent Difference

Initial & Continuing Calibration Data

CURTIS & TOMPKINS DFTPP TUNE FOR 259841 MSSIM Water
EPA 8270D

Inst : MSBNA03 Run Name : DFTPP IDF : 1.0
Seqnum : 524271263019 File : vg719 Time : 07-JUL-2014 20:11

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	167466	40.80	
68	< 2% of mass 69	0	0.00	
69		229696	100.00	
70	< 2% of mass 69	0	0.00	
127	40% - 60% of mass 198	211157	51.45	
197	< 1% of mass 198	0	0.00	
198		410410	100.00	
199	5% - 9% of mass 198	28728	7.00	
275	10% - 30% of mass 198	111824	27.25	
365	> 1% of mass 198	12139	2.96	
441	Present, < mass 443	47200	79.54	
442	> 40% and < 100% of mass 198	301248	73.40	
443	17% - 23% of mass 442	59344	19.70	

Analyst: KMH Date: 07/08/14 Reviewer: LW Date: 07/08/14

CURTIS & TOMPKINS DFTPP TUNE FOR 259841 MSSIM Water
EPA 8270D

Inst : MSBNA03 Run Name : DFTPP IDF : 1.0
Seqnum : 524334764002 File : vhk02 Time : 20-AUG-2014 11:50

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	217216	45.86	
68	< 2% of mass 69	0	0.00	
69		280405	100.00	
70	< 2% of mass 69	1313	0.47	
127	40% - 60% of mass 198	255616	53.96	
197	< 1% of mass 198	0	0.00	
198		473685	100.00	
199	5% - 9% of mass 198	34349	7.25	
275	10% - 30% of mass 198	136781	28.88	
365	> 1% of mass 198	16091	3.40	
441	Present, < mass 443	69117	82.62	
442	> 40% and < 100% of mass 198	411584	86.89	
443	17% - 23% of mass 442	83656	20.33	

NPM: 08/20/14 KMH: 08/20/14 LW: 08/27/14

CURTIS & TOMPKINS DFTPP TUNE FOR 259841 MSSIM Water
EPA 8270D

Inst : MSBNA04 Run Name : DFTPP IDF : 1.0
Seqnum : 534275763005 File : wga05 Time : 10-JUL-2014 15:44

Standards: S24369

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	97047	55.72	
68	< 2% of mass 69	0	0.00	
69		109917	100.00	
70	< 2% of mass 69	587	0.53	
127	40% - 60% of mass 198	94581	54.30	
197	< 1% of mass 198	0	0.00	
198		174173	100.00	
199	5% - 9% of mass 198	11550	6.63	
275	10% - 30% of mass 198	31925	18.33	
365	> 1% of mass 198	3062	1.76	
441	Present, < mass 443	12761	75.92	
442	> 40% and < 100% of mass 198	86725	49.79	
443	17% - 23% of mass 442	16808	19.38	

Analyst: KMH Date: 07/11/14 Reviewer: LW Date: 07/11/14

CURTIS & TOMPKINS DFTPP TUNE FOR 259841 MSSIM Water
EPA 8270D

Inst : MSBNA04 Run Name : DFTPP IDF : 1.0
Seqnum : 534336091008 File : whl08 Time : 21-AUG-2014 11:54

Standards: S24893

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	94709	52.13	
68	< 2% of mass 69	0	0.00	
69		97984	100.00	
70	< 2% of mass 69	449	0.46	
127	40% - 60% of mass 198	102296	56.31	
197	< 1% of mass 198	0	0.00	
198		181674	100.00	
199	5% - 9% of mass 198	11869	6.53	
275	10% - 30% of mass 198	36189	19.92	
365	> 1% of mass 198	4461	2.46	
441	Present, < mass 443	11663	76.32	
442	> 40% and < 100% of mass 198	79681	43.86	
443	17% - 23% of mass 442	15282	19.18	

Analyst: KMH Date: 08/21/14 Reviewer: LW Date: 08/21/14

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259841 MSSIM Water: EPA 8270D-SIM

Inst : MSBNA03
Calnum : 524271263002
Units : ug/mL

Name : 3PAHSIM
Date : 07-JUL-2014 20:28
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	vg720	524271263020	ICAL	07-JUL-2014 20:28	S25125
L2	vg721	524271263021	ICAL	07-JUL-2014 21:02	S25126
L3	vg722	524271263022	ICAL	07-JUL-2014 21:35	S25128
L4	vg723	524271263023	ICAL	07-JUL-2014 22:10	S25129
L5	vg724	524271263024	ICAL	07-JUL-2014 22:42	S25130
L6	vg725	524271263025	ICAL	07-JUL-2014 23:17	S25132
L7	vg726	524271263026	ICAL	07-JUL-2014 23:50	S25133

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene	0.9269	0.9450	0.9456	0.9215	0.8641	0.7909	0.7353	AVRG		1.14205		0.8756	9	15	0.700	0.99	
2-Methylnaphthalene	0.6999	0.7117	0.7127	0.6848	0.6403	0.5856	0.5454	AVRG		1.52820		0.6544	10	15	0.400	0.99	
Acenaphthylene	1.4572	1.5302	1.6252	1.6440	1.5910	1.4308	1.3569	AVRG		0.65819		1.5193	7	15	0.900	0.99	
Acenaphthene	0.9776	1.0118	1.0260	1.0039	0.9750	0.8954	0.8673	AVRG		1.03596		0.9653	6	15	0.900	0.99	
Fluorene	1.1867	1.1884	1.2006	1.1526	1.1030	0.9696	0.9466	AVRG		0.90352		1.1068	10	15	0.900	0.99	
Phenanthrene	1.0278	1.0639	1.0687	1.0432	1.0003	0.8879	0.8064	AVRG		1.01475		0.9855	10	15	0.700	0.99	
Anthracene	0.8909	0.9428	0.9867	0.9817	0.9713	0.8559	0.7747	AVRG		1.09308		0.9148	9	15	0.700	0.99	
Fluoranthene	1.0752	1.1145	1.1427	1.1685	1.1174	0.9990	0.9038	AVRG		0.93071		1.0745	9	15	0.600	0.99	
Pyrene	1.1224	1.1145	1.1827	1.1919	1.1719	1.0950	1.0428	AVRG		0.88370		1.1316	5	15	0.600	0.99	
Benzo(a)anthracene	0.9824	0.9124	1.0147	1.0467	1.0332	0.9519	0.9022	AVRG		1.02286		0.9777	6	15	0.800	0.99	
Chrysene	0.9844	1.0148	1.0467	1.0458	1.0200	0.9309	0.8647	AVRG		1.01342		0.9868	7	15	0.700	0.99	
Benzo(b)fluoranthene	1.1501	1.1770	1.2366	1.2309	1.1924	1.0493	0.9891	AVRG		0.87223		1.1465	8	15	0.700	0.99	
Benzo(k)fluoranthene	1.1396m	1.1541	1.1739	1.1550	1.2286	1.1068	0.9578	AVRG		0.88431		1.1308	7	15	0.700	0.99	
Benzo(a)pyrene	0.9810	0.9929	1.0925	1.1248	1.1050	1.0470	0.9981	AVRG		0.95351		1.0488	6	15	0.700	0.99	
Indeno(1,2,3-cd)pyrene	1.0215	1.0659	1.1123	1.1362	1.1396	1.0726	1.0529	AVRG		0.92094		1.0858	4	15	0.500	0.99	
Dibenz(a,h)anthracene	0.8632m	0.8991m	0.9347	0.9443	0.9590	0.9178	0.9098	AVRG		1.08901		0.9183	3	15	0.400	0.99	
Benzo(g,h,i)perylene	0.9184	0.9425	0.9674	0.9716	0.9658	0.8998	0.8777	AVRG		1.06982		0.9347	4	15	0.500	0.99	
Nitrobenzene-d5	0.2863	0.2921	0.3064m	0.3210m	0.3233	0.3184	0.3189	AVRG		3.23110		0.3095	5	15	0.05	0.99	
2-Fluorobiphenyl	1.5822	1.6124	1.5918	1.5204	1.4105	1.2350	1.1419	AVRG		0.69347		1.4420	13	15	0.05	0.99	
Terphenyl-d14	0.8319	0.8606	0.8639	0.8767	0.8685	0.8153	0.7927	AVRG		1.18450		0.8442	4	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	6	0.2000	8	0.5000	8	1.0000	5	2.0000	-1	5.0000	-10	10.000	-16
2-Methylnaphthalene	0.1000	7	0.2000	9	0.5000	9	1.0000	5	2.0000	-2	5.0000	-11	10.000	-17
Acenaphthylene	0.1000	-4	0.2000	1	0.5000	7	1.0000	8	2.0000	5	5.0000	-6	10.000	-11
Acenaphthene	0.1000	1	0.2000	5	0.5000	6	1.0000	4	2.0000	1	5.0000	-7	10.000	-10
Fluorene	0.1000	7	0.2000	7	0.5000	8	1.0000	4	2.0000	0	5.0000	-12	10.000	-14
Phenanthrene	0.1000	4	0.2000	8	0.5000	8	1.0000	6	2.0000	2	5.0000	-10	10.000	-18
Anthracene	0.1000	-3	0.2000	3	0.5000	8	1.0000	7	2.0000	6	5.0000	-6	10.000	-15
Fluoranthene	0.1000	0	0.2000	4	0.5000	6	1.0000	9	2.0000	4	5.0000	-7	10.000	-16
Pyrene	0.1000	-1	0.2000	-2	0.5000	5	1.0000	5	2.0000	4	5.0000	-3	10.000	-8
Benzo(a)anthracene	0.1000	0	0.2000	-7	0.5000	4	1.0000	7	2.0000	6	5.0000	-3	10.000	-8
Chrysene	0.1000	0	0.2000	3	0.5000	6	1.0000	6	2.0000	3	5.0000	-6	10.000	-12
Benzo(b)fluoranthene	0.1000	0	0.2000	3	0.5000	8	1.0000	7	2.0000	4	5.0000	-8	10.000	-14
Benzo(k)fluoranthene	0.1000	1	0.2000	2	0.5000	4	1.0000	2	2.0000	9	5.0000	-2	10.000	-15
Benzo(a)pyrene	0.1000	-6	0.2000	-5	0.5000	4	1.0000	7	2.0000	5	5.0000	0	10.000	-5
Indeno(1,2,3-cd)pyrene	0.1000	-6	0.2000	-2	0.5000	2	1.0000	5	2.0000	5	5.0000	-1	10.000	-3
Dibenz(a,h)anthracene	0.1000	-6	0.2000	-2	0.5000	2	1.0000	3	2.0000	4	5.0000	0	10.000	-1
Benzo(g,h,i)perylene	0.1000	-2	0.2000	1	0.5000	3	1.0000	4	2.0000	3	5.0000	-4	10.000	-6
Nitrobenzene-d5	0.1000	-8	0.2000	-6	0.5000	-1	1.0000	4	2.0000	4	5.0000	3	10.000	3
2-Fluorobiphenyl	0.1000	10	0.2000	12	0.5000	10	1.0000	5	2.0000	-2	5.0000	-14	10.000	**-21**
Terphenyl-d14	0.1000	-1	0.2000	2	0.5000	2	1.0000	4	2.0000	3	5.0000	-3	10.000	-6

KMH 07/08/14 [1,4-Dioxane]: Corrected automatically drawn baseline in multiple levels.

KMH 07/08/14 [Dibenz(a,h)anthracene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/08/14 [Nitrobenzene-d5]: Corrected automatically drawn baseline in multiple levels.

KMH 07/08/14 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline in ICAL (vg720).

Analyst: KMH Date: 07/08/14 Reviewer: LW Date: 07/08/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259841 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA03 Name : 3PAHSIM
Calnum : 524271263002 Cal Date : 07-JUL-2014

ICV 524271263027 (vg727 08-JUL-2014) stds: S25107

Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	1.023	ug/mL	2	20	
2-Methylnaphthalene	1.000	1.037	ug/mL	4	20	
Acenaphthylene	1.000	1.092	ug/mL	9	20	
Acenaphthene	1.000	1.035	ug/mL	3	20	
Fluorene	1.000	1.086	ug/mL	9	20	
Phenanthrene	1.000	1.029	ug/mL	3	20	
Anthracene	1.000	0.9769	ug/mL	-2	20	
Fluoranthene	1.000	1.063	ug/mL	6	20	
Pyrene	1.000	0.9847	ug/mL	-2	20	
Benzo(a)anthracene	1.000	1.013	ug/mL	1	20	
Chrysene	1.000	0.9865	ug/mL	-1	20	
Benzo(b)fluoranthene	1.000	1.061	ug/mL	6	20	
Benzo(k)fluoranthene	1.000	1.029	ug/mL	3	20	
Benzo(a)pyrene	1.000	1.062	ug/mL	6	20	
Indeno(1,2,3-cd)pyrene	1.000	1.023	ug/mL	2	20	
Dibenz(a,h)anthracene	1.000	1.029	ug/mL	3	20	
Benzo(g,h,i)perylene	1.000	1.041	ug/mL	4	20	

Analyst: KMH Date: 07/08/14 Reviewer: LW Date: 07/08/14

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259841 MSSIM Water: EPA 8270D-SIM

Inst : MSBNA04
Calnum : 534275763001
Units : ug/mL

Name : 4PAHSIM
Date : 10-JUL-2014 16:29
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	wga06	534275763006	ICAL	10-JUL-2014 16:29	S25125
L2	wga07	534275763007	ICAL	10-JUL-2014 17:02	S25126
L3	wga08	534275763008	ICAL	10-JUL-2014 17:35	S25128
L4	wga09	534275763009	ICAL	10-JUL-2014 18:08	S25129
L5	wga10	534275763010	ICAL	10-JUL-2014 18:41	S25130
L6	wga11	534275763011	ICAL	10-JUL-2014 19:14	S25132
L7	wga12	534275763012	ICAL	10-JUL-2014 19:47	S25133

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene	1.0858	1.1077	1.1314	1.1333	1.1322	1.1136	1.1238	AVRG		0.89425		1.1183	2	15	0.700	0.99	
2-Methylnaphthalene	0.6104	0.6255	0.6457	0.6585	0.6617	0.6591	0.6601	AVRG		1.54832		0.6459	3	15	0.400	0.99	
Acenaphthylene	1.5803	1.6305	1.7018	1.7244	1.7816	1.7638	1.7810	AVRG		0.58512		1.7091	5	15	0.900	0.99	
Acenaphthene	0.9777	0.9929	1.0324	1.0493	1.0595	1.0544	1.0656	AVRG		0.96795		1.0331	3	15	0.900	0.99	
Fluorene	1.1010	1.1343	1.1773	1.2089	1.2062	1.1900	1.2084	AVRG		0.85096		1.1751	4	15	0.900	0.99	
Phenanthrene	1.0262	1.0403	1.0846	1.0810	1.0813	1.0732	1.0737	AVRG		0.93829		1.0658	2	15	0.700	0.99	
Anthracene	0.9565	0.9849	1.0468	1.0492m	1.0655m	1.0778m	1.1026m	AVRG		0.96110		1.0405	5	15	0.700	0.99	
Fluoranthene	0.9537	0.9695	1.0213	1.0184	1.0387	1.0600	1.0570	AVRG		0.98335		1.0169	4	15	0.600	0.99	
Pyrene	1.2804	1.3046	1.3510	1.3759	1.3592	1.3510	1.3081	AVRG		0.75024		1.3329	3	15	0.600	0.99	
Benzo(a)anthracene	0.9224	0.9077	0.9333	0.9538	0.9553	0.9547	0.9569	AVRG		1.06317		0.9406	2	15	0.800	0.99	
Chrysene	0.9309	0.9496	0.9674	0.9859m	0.9752m	0.9600m	0.9614m	AVRG		1.04007		0.9615	2	15	0.700	0.99	
Benzo(b)fluoranthene	0.9949	1.0334	1.1103	1.1347	1.1887	1.1759	1.2003	AVRG		0.89306		1.1197	7	15	0.700	0.99	
Benzo(k)fluoranthene	1.0985m	1.1154m	1.1419m	1.1741m	1.1946m	1.2007m	1.2147m	AVRG		0.85995		1.1629	4	15	0.700	0.99	
Benzo(a)pyrene	0.9139	0.9149	0.9689	0.9986	1.0295	1.0580	1.0833	AVRG		1.00473		0.9953	7	15	0.700	0.99	
Indeno(1,2,3-cd)pyrene	1.0481m	1.0698	1.1392	1.1999	1.2482	1.2886	1.3454	AVRG		0.83940		1.1913	9	15	0.500	0.99	
Dibenz(a,h)anthracene	0.7856m	0.8212m	0.8734	0.9272	0.9710	1.0025	1.0450	AVRG		1.08936		0.9180	10	15	0.400	0.99	
Benzo(g,h,i)perylene	0.9629m	0.9796m	1.0212	1.0639	1.0858	1.0884	1.1328	AVRG		0.95438		1.0478	6	15	0.500	0.99	
Nitrobenzene-d5	0.3832m	0.4042m	0.4071m	0.4141	0.4132	0.4214	0.4168	AVRG		2.44752		0.4086	3	15	0.05	0.99	
2-Fluorobiphenyl	1.3147	1.3456	1.3745	1.4001	1.3855	1.3547	1.3669	AVRG		0.73360		1.3631	2	15	0.05	0.99	
Terphenyl-d14	1.0057	1.0202	1.0457	1.0586	1.0608	1.0468	1.0729	AVRG		0.95750		1.0444	2	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	-3	0.2000	-1	0.5000	1	1.0000	1	2.0000	1	5.0000	0	10.000	0
2-Methylnaphthalene	0.1000	-5	0.2000	-3	0.5000	0	1.0000	2	2.0000	2	5.0000	2	10.000	2
Acenaphthylene	0.1000	-8	0.2000	-5	0.5000	0	1.0000	1	2.0000	4	5.0000	3	10.000	4
Acenaphthene	0.1000	-5	0.2000	-4	0.5000	0	1.0000	2	2.0000	3	5.0000	2	10.000	3
Fluorene	0.1000	-6	0.2000	-3	0.5000	0	1.0000	3	2.0000	3	5.0000	1	10.000	3
Phenanthrene	0.1000	-4	0.2000	-2	0.5000	2	1.0000	1	2.0000	1	5.0000	1	10.000	1
Anthracene	0.1000	-8	0.2000	-5	0.5000	1	1.0000	1	2.0000	2	5.0000	4	10.000	6
Fluoranthene	0.1000	-6	0.2000	-5	0.5000	0	1.0000	0	2.0000	2	5.0000	4	10.000	4
Pyrene	0.1000	-4	0.2000	-2	0.5000	1	1.0000	3	2.0000	2	5.0000	1	10.000	-2
Benzo(a)anthracene	0.1000	-2	0.2000	-3	0.5000	-1	1.0000	1	2.0000	2	5.0000	1	10.000	2
Chrysene	0.1000	-3	0.2000	-1	0.5000	1	1.0000	3	2.0000	1	5.0000	0	10.000	0
Benzo(b)fluoranthene	0.1000	-11	0.2000	-8	0.5000	-1	1.0000	1	2.0000	6	5.0000	5	10.000	7
Benzo(k)fluoranthene	0.1000	-6	0.2000	-4	0.5000	-2	1.0000	1	2.0000	3	5.0000	3	10.000	4
Benzo(a)pyrene	0.1000	-8	0.2000	-8	0.5000	-3	1.0000	0	2.0000	3	5.0000	6	10.000	9
Indeno(1,2,3-cd)pyrene	0.1000	-12	0.2000	-10	0.5000	-4	1.0000	1	2.0000	5	5.0000	8	10.000	13
Dibenz(a,h)anthracene	0.1000	-14	0.2000	-11	0.5000	-5	1.0000	1	2.0000	6	5.0000	9	10.000	14
Benzo(g,h,i)perylene	0.1000	-8	0.2000	-7	0.5000	-3	1.0000	2	2.0000	4	5.0000	4	10.000	8
Nitrobenzene-d5	0.1000	-6	0.2000	-1	0.5000	0	1.0000	1	2.0000	1	5.0000	3	10.000	2
2-Fluorobiphenyl	0.1000	-4	0.2000	-1	0.5000	1	1.0000	3	2.0000	2	5.0000	-1	10.000	0
Terphenyl-d14	0.1000	-4	0.2000	-2	0.5000	0	1.0000	1	2.0000	2	5.0000	0	10.000	3

KMH 07/11/14 [1,4-Dioxane]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Anthracene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Chrysene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline in all levels.

KMH 07/11/14 [Nitrobenzene-d5]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Indeno(1,2,3-cd)pyrene]: Corrected automatically drawn baseline in ICAL (wga06).

KMH 07/11/14 [Dibenz(a,h)anthracene]: Corrected automatically drawn baseline in multiple levels.

KMH 07/11/14 [Benzo(g,h,i)perylene]: Corrected automatically drawn baseline in multiple levels.

Analyst: KMH Date: 07/11/14 Reviewer: LW Date: 07/11/14

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259841 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA04 Name : 4PAHSIM
Calnum : 534275763001 Cal Date : 10-JUL-2014

ICV 534275763013 (wga13 10-JUL-2014) stds: S24935

Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	0.9816	ug/mL	-2	20	
2-Methylnaphthalene	1.000	0.9849	ug/mL	-2	20	
Acenaphthylene	1.000	1.055	ug/mL	5	20	
Acenaphthene	1.000	1.006	ug/mL	1	20	
Fluorene	1.000	0.9943	ug/mL	-1	20	
Phenanthrene	1.000	1.016	ug/mL	2	20	
Anthracene	1.000	1.005	ug/mL	1	20	
Fluoranthene	1.000	1.007	ug/mL	1	20	
Pyrene	1.000	0.9940	ug/mL	-1	20	
Benzo(a)anthracene	1.000	1.025	ug/mL	2	20	
Chrysene	1.000	1.010	ug/mL	1	20	
Benzo(b)fluoranthene	1.000	0.9970	ug/mL	0	20	
Benzo(k)fluoranthene	1.000	0.9587	ug/mL	-4	20	
Benzo(a)pyrene	1.000	0.9585	ug/mL	-4	20	
Indeno(1,2,3-cd)pyrene	1.000	0.9407	ug/mL	-6	20	
Dibenz(a,h)anthracene	1.000	0.9949	ug/mL	-1	20	
Benzo(g,h,i)perylene	1.000	0.9591	ug/mL	-4	20	

Analyst: KMH Date: 07/11/14 Reviewer: LW Date: 07/11/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259841 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA03 IDF : 1.0
Seqnum : 524334764003.1 File : vhk03 Time : 20-AUG-2014 12:08
Cal : 524271263002 Caldate : 07-JUL-2014
Standards: S25129

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.8756	0.8996	1.000	1.027	ug/mL	3	20	0.7000	
2-Methylnaphthalene	0.6544	0.6667	1.000	1.019	ug/mL	2	20	0.4000	
Acenaphthylene	1.5193	1.6168	1.000	1.064	ug/mL	6	20	0.9000	
Acenaphthene	0.9653	1.0104	1.000	1.047	ug/mL	5	20	0.9000	
Fluorene	1.1068	1.2189	1.000	1.101	ug/mL	10	20	0.9000	
Phenanthrene	0.9855	1.0332	1.000	1.048	ug/mL	5	20	0.7000	
Anthracene	0.9148	0.9824	1.000	1.074	ug/mL	7	20	0.7000	m
Fluoranthene	1.0745	1.1650	1.000	1.084	ug/mL	8	20	0.6000	
Pyrene	1.1316	1.2095	1.000	1.069	ug/mL	7	20	0.6000	
Benzo(a)anthracene	0.9777	1.0158	1.000	1.039	ug/mL	4	20	0.8000	
Chrysene	0.9868	1.0355	1.000	1.049	ug/mL	5	20	0.7000	
Benzo(b)fluoranthene	1.1465	1.1846	1.000	1.033	ug/mL	3	20	0.7000	
Benzo(k)fluoranthene	1.1308	1.1675	1.000	1.032	ug/mL	3	20	0.7000	m
Benzo(a)pyrene	1.0488	1.0789	1.000	1.029	ug/mL	3	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.0858	1.0904	1.000	1.004	ug/mL	0	20	0.5000	
Dibenz(a,h)anthracene	0.9183	0.9092	1.000	0.9902	ug/mL	-1	20	0.4000	
Benzo(g,h,i)perylene	0.9347	0.9537	1.000	1.020	ug/mL	2	20	0.5000	
Nitrobenzene-d5	0.3095	0.3271	1.000	1.057	ug/mL	6	20	0.0500	
2-Fluorobiphenyl	1.4420	1.4769	1.000	1.024	ug/mL	2	20	0.0500	
Terphenyl-d14	0.8442	0.8938	1.000	1.059	ug/mL	6	20	0.0500	

ISTD (ICAL vg723)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	32023	45383	41.72
Naphthalene-d8	113951	161602	41.82
Acenaphthene-d10	66733	93243	39.73
Phenanthrene-d10	117708	175224	48.86
Chrysene-d12	117775	177686	50.87
Perylene-d12	94243	144349	53.17

ISTD (ICAL vg723)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	7.34	7.31	-0.03
Naphthalene-d8	8.96	8.93	-0.03
Acenaphthene-d10	11.26	11.23	-0.03
Phenanthrene-d10	13.20	13.17	-0.03
Chrysene-d12	16.65	16.62	-0.03
Perylene-d12	18.37	18.35	-0.02

NPM 08/20/14 [1-Methylnaphthalene]: Corrected automatically drawn baseline. [general version]

NPM 08/20/14 [Anthracene]: Corrected automatically drawn baseline. [general version]

NPM 08/20/14 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline. [general version]

Analyst: KMH Date: 08/22/14 Reviewer: LW Date: 08/27/14

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259841 MSSIM Water
EPA 8270D-SIM

Inst : MSBNA04 Run Name : PAHDIOX IDF : 1.0
Seqnum : 534336091009.1 File : whl09 Time : 21-AUG-2014 12:14
Cal : 534275763001 Caldate : 10-JUL-2014
Standards: S25130

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	1.1183	1.0861	2.000	1.942	ug/mL	-3	20	0.7000	
2-Methylnaphthalene	0.6459	0.6642	2.000	2.057	ug/mL	3	20	0.4000	
Acenaphthylene	1.7091	1.6839	2.000	1.971	ug/mL	-1	20	0.9000	
Acenaphthene	1.0331	1.0498	2.000	2.032	ug/mL	2	20	0.9000	
Fluorene	1.1751	1.1919	2.000	2.029	ug/mL	1	20	0.9000	
Phenanthrene	1.0658	1.0954	2.000	2.056	ug/mL	3	20	0.7000	
Anthracene	1.0405	1.0680	2.000	2.053	ug/mL	3	20	0.7000	
Fluoranthene	1.0169	1.0637	2.000	2.092	ug/mL	5	20	0.6000	
Pyrene	1.3329	1.2978	2.000	1.947	ug/mL	-3	20	0.6000	
Benzo(a)anthracene	0.9406	0.9324	2.000	1.983	ug/mL	-1	20	0.8000	
Chrysene	0.9615	0.9884	2.000	2.056	ug/mL	3	20	0.7000	
Benzo(b)fluoranthene	1.1197	1.1395	2.000	2.035	ug/mL	2	20	0.7000	
Benzo(k)fluoranthene	1.1629	1.2810	2.000	2.203	ug/mL	10	20	0.7000	
Benzo(a)pyrene	0.9953	1.0342	2.000	2.078	ug/mL	4	20	0.7000	
Indeno(1,2,3-cd)pyrene	1.1913	1.3256	2.000	2.225	ug/mL	11	20	0.5000	
Dibenz(a,h)anthracene	0.9180	1.0479	2.000	2.283	ug/mL	14	20	0.4000	
Benzo(g,h,i)perylene	1.0478	1.1724	2.000	2.238	ug/mL	12	20	0.5000	
Nitrobenzene-d5	0.4086	0.3603	2.000	1.764	ug/mL	-12	20	0.0500	
2-Fluorobiphenyl	1.3631	1.4462	2.000	2.122	ug/mL	6	20	0.0500	
Terphenyl-d14	1.0444	1.0094	2.000	1.933	ug/mL	-3	20	0.0500	

ISTD (ICAL wga09)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	61411	35015	-42.98
Naphthalene-d8	237683	130606	-45.05
Acenaphthene-d10	124978	72340	-42.12
Phenanthrene-d10	182537	110793	-39.30
Chrysene-d12	142444	98468	-30.87
Perylene-d12	111189	76969	-30.78

ISTD (ICAL wga09)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	7.86	7.84	-0.02
Naphthalene-d8	9.43	9.41	-0.02
Acenaphthene-d10	11.71	11.69	-0.02
Phenanthrene-d10	13.66	13.65	-0.01
Chrysene-d12	17.23	17.20	-0.03
Perylene-d12	19.16	19.14	-0.02

Analyst: KMH Date: 08/22/14 Reviewer: LW Date: 08/27/14

Logbooks & Sequences

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 524334764

Date : 08/20/14 Reference : vg723
Sequence : MSBNA03 vhk Analyzed : 07/07/14 22:10

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	32023	113951	66733	117708	117775	94243
		LOWER LIMIT	16012	56976	33367	58854	58888	47122
		UPPER LIMIT	64046	227902	133466	235416	235550	188486
003	CCV		45383	161602	93243	175224	177686	144349
004	BLANK	QC754152	40074	144978	90135	169104	169862	131364
005	LCS	QC754153	40800	147837	87175	166901	171626	137851
006	SAMPLE	259841-005	38262	134783	80787	121279	106048	100216
007	SAMPLE	259835-002	33709	118975	70908	111991	99911	85941
008	MSS	259786-001	32484	116704	71225	124686	112256	102731
009	MS	QC754154	33637	119459	71821	129585	113679	106422
010	MSD	QC754155	31453	113275	67791	121054	107085	99825
011	SAMPLE	259786-003	33291	119260	73578	125808	116559	105831
012	SAMPLE	259786-004	33357	118616	71977	119452	108650	102469
013	SAMPLE	259790-001	31962	118955	73275	136976	131601	112052

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 524334764

Date : 08/20/14 Reference : vg723
Sequence : MSBNA03 vhk Analyzed : 07/07/14 22:10

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	7.34	8.96	11.26	13.20	16.65	18.37
		LOWER LIMIT	6.84	8.46	10.76	12.70	16.15	17.87
		UPPER LIMIT	7.84	9.46	11.76	13.70	17.15	18.87
003	CCV		7.31	8.93	11.23	13.17	16.62	18.35

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 524334764

Date : 08/20/14
Sequence : MSBNA03 vhk

Reference : vhk03
Analyzed : 08/20/14 12:08

#	Type	Sample ID	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT	DCBZ14D4 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	8.93	11.23	13.17	16.62	18.35	7.31
		LOWER LIMIT	8.43	10.73	12.67	16.12	17.85	6.81
		UPPER LIMIT	9.43	11.73	13.67	17.12	18.85	7.81
004	BLANK	QC754152	8.93	11.23	13.17	16.62	18.35	7.31
005	LCS	QC754153	8.93	11.23	13.18	16.62	18.35	7.31
006	SAMPLE	259841-005	8.93	11.23	13.18	16.63	18.36	7.31
007	SAMPLE	259835-002	8.93	11.23	13.18	16.63	18.36	7.31
008	MSS	259786-001	8.93	11.24	13.18	16.63	18.36	7.31
009	MS	QC754154	8.94	11.23	13.18	16.63	18.35	7.31
010	MSD	QC754155	8.94	11.23	13.18	16.63	18.35	7.31
011	SAMPLE	259786-003	8.93	11.23	13.18	16.63	18.35	7.31
012	SAMPLE	259786-004	8.93	11.23	13.18	16.63	18.36	7.31
013	SAMPLE	259790-001	8.93	11.23	13.18	16.62	18.35	7.31

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 534336091

Date : 08/21/14 Reference : wga09
Sequence : MSBNA04 whl Analyzed : 07/10/14 18:08

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	61411	237683	124978	182537	142444	111189
		LOWER LIMIT	30706	118842	62489	91269	71222	55595
		UPPER LIMIT	122822	475366	249956	365074	284888	222378
009	CCV	PAHDIOX	35015	130606	72340	110793	98468	76969
011	MS	QC754154	40133	158623	96950	170711	153825	127803
012	MSD	QC754155	46019	179158	103599	183574	161608	133091
013	SAMPLE	259835-002	47345	179122	107103	191047	173301	130136
014	SAMPLE	259841-007	28041 *	110847 *	69801	117081	93223	78792
015	SAMPLE	259882-001	9148 *	195725	111255	183963	162293	69481
016	SAMPLE	259882-002	48643	180183	104930	174666	153308	115706
026	SAMPLE	259841-007	47986	183106	110529	187043	155984	110179

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 534336091

Date : 08/21/14 Reference : wga09
Sequence : MSBNA04 whl Analyzed : 07/10/14 18:08

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	7.86	9.43	11.71	13.66	17.23	19.16
		LOWER LIMIT	7.36	8.93	11.21	13.16	16.73	18.66
		UPPER LIMIT	8.36	9.93	12.21	14.16	17.73	19.66
009	CCV	PAHDIOX	7.84	9.41	11.69	13.65	17.20	19.14

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 534336091

Date : 08/21/14 Reference : whl09
Sequence : MSBNA04 whl Analyzed : 08/21/14 12:14

#	Type	Sample ID	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	9.41	11.69	13.65	17.20	19.14
		LOWER LIMIT	8.91	11.19	13.15	16.70	18.64
		UPPER LIMIT	9.91	12.19	14.15	17.70	19.64
011	MS	QC754154	9.42	11.69	13.65	17.21	19.15
012	MSD	QC754155	9.42	11.69	13.65	17.21	19.15
013	SAMPLE	259835-002	9.41	11.69	13.65	17.22	19.16
014	SAMPLE	259841-007	9.42	11.69	13.64	17.20	19.14
015	SAMPLE	259882-001	9.47	11.69	13.66	17.22	19.15
016	SAMPLE	259882-002	9.42	11.69	13.65	17.22	19.15
026	SAMPLE	259841-007	9.41	11.68	13.65	17.21	19.14

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 524271263

Instrument : MSBNA03 Begun : 07/07/14 09:03
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vg701	IB	IB			07/07/14 09:03	1.0		?t
002	vg702	TUN	DFTPP			07/07/14 09:28	1.0	1	
003	vg703	CCV	PAHDIOX			07/07/14 09:47	1.0	2	
004	vg704	SAMPLE	258690-001	Soil	212952	07/07/14 10:20	2.0	3	
005	vg705	SAMPLE	258434-007	Soil	212801	07/07/14 10:54	5.0	3	
006	vg706	SAMPLE	258434-008	Soil	212801	07/07/14 11:27	5.0	3	
007	vg707	IB	IB			07/07/14 12:53	1.0		
008	vg708	TUN	DFTPP			07/07/14 13:19	1.0	1	
009	vg709	ICAL	ICAL			07/07/14 13:38	1.0	4	
010	vg710	ICAL	ICAL			07/07/14 14:10	1.0	5	
011	vg711	ICAL	ICAL			07/07/14 14:43	1.0	6	
012	vg712	ICAL	ICAL			07/07/14 15:15	1.0	7	
013	vg713	ICAL	ICAL			07/07/14 15:47	1.0	8	
014	vg714	ICAL	ICAL			07/07/14 16:19	1.0	9	
015	vg715	ICAL	ICAL			07/07/14 16:51	1.0	10	
016	vg716	ICV	ICV			07/07/14 17:23	1.0	2	
017	vg717	TUN	DFTPP			07/07/14 17:48	1.0	1	t
018	vg718	CCV	PAHDIOX			07/07/14 18:06	1.0	6	t
019	vg719	TUN	DFTPP			07/07/14 20:11	1.0	1	
020	vg720	ICAL	ICAL			07/07/14 20:28	1.0	11	
021	vg721	ICAL	ICAL			07/07/14 21:02	1.0	12	
022	vg722	ICAL	ICAL			07/07/14 21:35	1.0	13	
023	vg723	ICAL	ICAL			07/07/14 22:10	1.0	14	
024	vg724	ICAL	ICAL			07/07/14 22:42	1.0	15	
025	vg725	ICAL	ICAL			07/07/14 23:17	1.0	16	
026	vg726	ICAL	ICAL			07/07/14 23:50	1.0	17	
027	vg727	ICV	ICV			07/08/14 00:22	1.0	2	
028	vg728	CHECK	ICV			07/08/14 00:56	1.0	18	
029	vg729	CHECK	ICV			07/08/14 01:28	1.0	19	

KMH 07/08/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 29.

KMH 07/07/14 : maintenance done after run 6

Standards used: 1=S24893 2=S25107 3=S24600 4=S24925 5=S24927 6=S24928 7=S24929 8=S24931 9=S24933 10=S24934 11=S25125 12=S25126 13=S25128 14=S25129 15=S25130 16=S25132 17=S25133 18=S24935 19=S25080

Flags used: ?t=missing tune t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 524334764

Instrument : MSBNA03 Begun : 08/20/14 11:24
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vhk01	IB	IB			08/20/14 11:24	1.0		?t
002	vhk02	TUN	DFTPP			08/20/14 11:50	1.0	1	
003	vhk03	CCV				08/20/14 12:08	1.0	2	
004	vhk04	BLANK	QC754152	Water	214554	08/20/14 12:43	1.0	3	
005	vhk05	LCS	QC754153	Water	214554	08/20/14 13:15	1.0	3	
006	vhk06	SAMPLE	259841-005	Water	214554	08/20/14 13:48	1.0	3	
007	vhk07	SAMPLE	259835-002	Water	214554	08/20/14 14:23	1.0	3	
008	vhk08	MSS	259786-001	Water	214554	08/20/14 14:56	1.0	3	
009	vhk09	MS	QC754154	Water	214554	08/20/14 15:29	1.0	3	
010	vhk10	MSD	QC754155	Water	214554	08/20/14 16:02	1.0	3	
011	vhk11	SAMPLE	259786-003	Water	214554	08/20/14 16:34	1.0	3	
012	vhk12	SAMPLE	259786-004	Water	214554	08/20/14 17:06	1.0	3	
013	vhk13	SAMPLE	259790-001	Water	214554	08/20/14 17:38	1.0	3	

KMH 08/21/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 13.

Standards used: 1=S24893 2=S25129 3=S24915

Flags used: ?t=missing tune

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 534275763

Instrument : MSBNA04 Begun : 07/10/14 12:03
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	wga01	TUN	DFTPP			07/10/14 12:03	1.0	1	
002	wga02	CCV	RTCHECK			07/10/14 12:32	1.0	2	2:ANTH=2.4
003	wga03	CCV	RTCHECK			07/10/14 13:14	1.0	2	2:ANTH=2.5
004	wga04	TUN	DFTPP			07/10/14 14:05	1.0	1	
005	wga05	TUN	DFTPP			07/10/14 15:44	1.0	1	
006	wga06	ICAL	ICAL			07/10/14 16:29	1.0	3	
007	wga07	ICAL	ICAL			07/10/14 17:02	1.0	4	
008	wga08	ICAL	ICAL			07/10/14 17:35	1.0	5	
009	wga09	ICAL	ICAL			07/10/14 18:08	1.0	6	
010	wga10	ICAL	ICAL			07/10/14 18:41	1.0	2	
011	wga11	ICAL	ICAL			07/10/14 19:14	1.0	7	
012	wga12	ICAL	ICAL			07/10/14 19:47	1.0	8	
013	wga13	ICV	ICV			07/10/14 20:21	1.0	9	

KMH 07/11/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 13.

Standards used: 1=S24369 2=S25130 3=S25125 4=S25126 5=S25128 6=S25129 7=S25132 8=S25133 9=S24935

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 534336091

Instrument : MSBNA04 Begun : 08/21/14 09:31
Method : EPA 8270D, EPA 8270D-SIM SOP Version : 8270-SIM_OBPA_rv1, bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	whl01	IB	IB			08/21/14 09:31	1.0		?t
002	whl02	TUN	DFTPP			08/21/14 09:57	1.0	1	t
003	whl03	TUN	DFTPP			08/21/14 10:14	1.0	1	t
004	whl04	TUN	DFTPP			08/21/14 10:30	1.0	1	t
005	whl05	TUN	DFTPP			08/21/14 10:48	1.0	1	t
006	whl06	TUN	DFTPP			08/21/14 11:04	1.0	1	
007	whl07	CCV	PAHDIOX			08/21/14 11:24	1.0	2	
008	whl08	TUN	DFTPP			08/21/14 11:54	1.0	1	
009	whl09	CCV	PAHDIOX			08/21/14 12:14	1.0	2	
010	whl10	BLANK	QC754284	Soil	214589	08/21/14 12:46	1.0	3	
011	whl11	MS	QC754154	Water	214554	08/21/14 13:18	1.0	3	
012	whl12	MSD	QC754155	Water	214554	08/21/14 13:49	1.0	3	
013	whl13	SAMPLE	259835-002	Water	214554	08/21/14 14:21	1.0	3	
014	whl14	SAMPLE	259841-007	Water	214554	08/21/14 14:53	1.0	3	
015	whl15	SAMPLE	259882-001	Water	214554	08/21/14 15:25	1.0	3	
016	whl16	SAMPLE	259882-002	Water	214554	08/21/14 15:57	1.0	3	
017	whl17	SAMPLE	259781-001	Soil	214589	08/21/14 16:29	2.0	3	
018	whl18	SAMPLE	259781-002	Soil	214589	08/21/14 17:01	1.0	3	
019	whl19	SAMPLE	259818-002	Soil	214589	08/21/14 17:33	1.0	3	
020	whl20	SAMPLE	259924-003	Soil	214589	08/21/14 18:05	1.0	3	
021	whl21	SAMPLE	259826-001	Soil	214589	08/21/14 18:37	1.0	3	
022	whl22	SAMPLE	259924-001	Soil	214589	08/21/14 19:09	1.0	3	
023	whl23	SAMPLE	259924-002	Soil	214589	08/21/14 19:43	1.0	3	
024	whl24	SAMPLE	259868-001	Soil	214589	08/21/14 20:17	1.0	3	
025	whl25	SAMPLE	259866-001	Soil	214589	08/21/14 20:50	1.0	3	
026	whl26	SAMPLE	259841-007	Water	214554	08/21/14 21:22	1.0	3	
027	whl27	SAMPLE	259983-020	Soil	214589	08/21/14 21:54	1.0	3	

KMH 08/21/14 : adjusted tune after runs 3, 4, 5 & 7

KMH 08/22/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 27.

Standards used: 1=S24893 2=S25130 3=S24915

Flags used: ?t=missing tune t=tune failure

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SAMPLE PREPARATION SUMMARY

Batch # : 214554 Analysis : 8270-SIM
Started By : ARG Prep Date : 19-AUG-2014 14:25 Finished By : CPK
Method : 3520C SOP Version : 8270-SIM_3520_rv5 Units : mL
Spike #1 ID : S24814 Spike #2 ID : S24884

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259786-001		Water	1040	1	1	0.0009615	7	1				8270-SIM	
259786-003		Water	1020	1	1	0.0009804	7	1				8270-SIM	
259786-004		Water	1040	1	1	0.0009615	7	1				8270-SIM	
259790-001		Water	1000	1	1	0.001	7	1				8270-SIM	
259790-002		Water	1060	1	1	0.0009434	7	1				8270-SIM	
259835-002		Water	1020	1	1	0.0009804	7	1				8270-SIM	
259841-005		Water	1020	1	1	0.0009804	7	1				8270-SIM	
259841-007		Water	1040	1	1	0.0009615	7	1				8270-SIM	
259882-001		Water	1020	1	1	0.0009804	11	1				8270-SIM	
259882-002		Water	1020	1	1	0.0009804	7	1				8270-SIM	
QC754152	BLANK	Water	1000	1	1	0.001		1				8270-SIM	
QC754153	LCS	Water	1000	1	1	0.001		1	1			8270-SIM	
QC754154	MS	Water	1020	1	1	0.0009804		1	1			8270-SIM	
QC754155	MSD	Water	1040	1	1	0.0009615		1	1			8270-SIM	

Analyst: KMH Date: 08/21/14 Reviewer: LW Date: 08/21/14

BNA (8270 & 625) Water Prep Log **Curtis & Tompkins, Ltd.**

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LIMS Batch No: 214554 Extraction Method:
LIMS Analysis: SIM ☒ EPA 3520c cont. L/L
Date Extracted: 8/9/14 ☐

Sample #	Container ID	Volume of Sample (mL)	Sample pH	Final Volume (mL)	Confirmed pH <2	Comments
259786-001	Z	1040	☒7 ☐	☒1.0 ☐	☒≤2	MSS
259786-003	I	1020	☒7 ☐	☒1.0 ☐	☒≤2	
4	G	1040	☒7 ☐	☒1.0 ☐	☒≤2	
259790-001	H	1000	☒7 ☐	☒1.0 ☐	☒≤2	
2	H	1060	☒7 ☐	☒1.0 ☐	☒≤2	
259835-002	C	1020	☒7 ☐	☒1.0 ☐	☒≤2	
259841-005	C	1020	☒7 ☐	☒1.0 ☐	☒≤2	
7	G	1040	☒7 ☐	☒1.0 ☐	☒≤2	
259882-001	K	1020	☐7 ☒11	☒1.0 ☐	☒≤2	
2	M	1020	☒7 ☐	☒1.0 ☐	☒≤2	
MB 254152	MA	1000	☐7 ☒NA	☒1.0 ☐	☒≤2	
LCS 3		1000	☐7 ☒	☒1.0 ☐	☒≤2	
MS 4	Y	1020	☒7 ☐	☒1.0 ☐	☒≤2	
MSD 5	AB	1040	☒7 ☐	☒1.0 ☐	☒≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	
			☐7 ☐	☐1.0 ☐	☐≤2	

	Lot# / LIMS # / Time	Date/ Initials
1.0 mL of surrogate solution was added to all samples	524814A	AR 8/9/14
1.0 mL of matrix spiking solution was added to all spikes	524884B	
pH of all samples adjusted to pH ≤ 2 with H_2SO_4	FS140656	
Cont. L/L extracted with 450mL of CH_2Cl_2	EM54153	
Extraction Start Time:	1425	
Extraction End Time:	830	CPK 8/20/14
pH of all samples adjusted to pH ≥ 11 with 10 N NaOH	NA	CPK 8/20/14
Extraction Start Time:		
Extraction End Time:		
Extracts filtered through baked, CH2Cl2-rinsed granular Na2SO4	EMWL23I	
Concentrated to final volume at temperature (degrees C)	70	
Relinquished to BNA department		

8/9/14
Extraction Chemist **Date**

Contined from Page
Continued on Page

8/20/14
Reviewed by **Date**

Case Narrative Addendum: Manual Integrations for 259841 MSSIM (Water)

For CCV (MSBNA03 vhk03):
Anthracene: Corrected automatically drawn baseline.
Benzo(k)fluoranthene: Corrected automatically drawn baseline.
1-Methylnaphthalene: Corrected automatically drawn baseline.

For SAMPLE 259841-005 (MSBNA03 vhk06):
2-Methylnaphthalene: Corrected automatically drawn baseline.
Nitrobenzene-d5: Corrected automatically drawn baseline.

For SAMPLE 259841-007 (MSBNA04 whl26):
Benzo(b)fluoranthene: Corrected automatically drawn baseline.
Indeno(1,2,3-cd)pyrene: Picked or reassigned peak.

For MSD QC754155 (MSBNA04 whl12):
1,4-Dioxane: Corrected automatically drawn baseline for spike & dup.
Fluorene: Corrected automatically drawn baseline for spike.
Nitrobenzene-d5: Corrected automatically drawn baseline for dup.

For Calibration MSBNA03 (524271263002):
Benzo(k)fluoranthene: Corrected automatically drawn baseline in ICAL (vg720).
Dibenz(a,h)anthracene: Corrected automatically drawn baseline in multiple levels.
1,4-Dioxane: Corrected automatically drawn baseline in multiple levels.
Nitrobenzene-d5: Corrected automatically drawn baseline in multiple levels.

For Calibration MSBNA04 (534275763001):
Anthracene: Corrected automatically drawn baseline in multiple levels.
Benzo(g,h,i)perylene: Corrected automatically drawn baseline in multiple levels.
Benzo(k)fluoranthene: Corrected automatically drawn baseline in all levels.
Chrysene: Corrected automatically drawn baseline in multiple levels.
Dibenz(a,h)anthracene: Corrected automatically drawn baseline in multiple levels.
1,4-Dioxane: Corrected automatically drawn baseline in multiple levels.
Indeno(1,2,3-cd)pyrene: Corrected automatically drawn baseline in ICAL (wga06).
Nitrobenzene-d5: Corrected automatically drawn baseline in multiple levels.

For ICV (MSBNA04 wga13):
1,4-Dioxane: Corrected automatically drawn baseline.

Laboratory Job Number 259841

ANALYTICAL REPORT

Metals

Matrix: Filtrate

Curtis & Tompkins, Ltd.

Dissolved Aluminum

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Aluminum	Sampled:	08/14/14
Matrix:	Filtrate	Received:	08/14/14
Units:	ug/L	Prepared:	08/27/14
Diln Fac:	1.000	Analyzed:	08/29/14
Batch#:	214855		

Field ID	Type	Lab ID	Result	LOQ	DL
04W08-081414	SAMPLE	259841-001	50 U	100	28
04W09-081414	SAMPLE	259841-002	50 U	100	28
04W909-081414	SAMPLE	259841-003	50 U	100	28
04W10-081414	SAMPLE	259841-005	50 U	100	28
RB-081414	SAMPLE	259841-007	29 J	100	28
	BLANK	QC755360	50 U	100	28

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved Magnesium

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Magnesium	Sampled:	08/14/14
Matrix:	Filtrate	Received:	08/14/14
Units:	ug/L	Prepared:	08/27/14
Batch#:	214855	Analyzed:	08/29/14

Field ID	Type	Lab ID	Result	LOQ	DL	Diln Fac
04W08-081414	SAMPLE	259841-001	62,000	500	20	1.000
04W09-081414	SAMPLE	259841-002	30,000	500	20	1.000
04W909-081414	SAMPLE	259841-003	30,000	500	20	1.000
04W10-081414	SAMPLE	259841-005	570,000	20,000	2,000	100.0
RB-081414	SAMPLE	259841-007	79 J	500	20	1.000
	BLANK	QC755360	160 U	500	20	1.000

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved Manganese

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Manganese	Sampled:	08/14/14
Matrix:	Filtrate	Received:	08/14/14
Units:	ug/L	Prepared:	08/27/14
Diln Fac:	1.000	Analyzed:	08/29/14
Batch#:	214855		

Field ID	Type	Lab ID	Result	LOQ	DL
04W08-081414	SAMPLE	259841-001	3.1 J	5.0	0.48
04W09-081414	SAMPLE	259841-002	150	5.0	0.48
04W909-081414	SAMPLE	259841-003	120	5.0	0.48
04W10-081414	SAMPLE	259841-005	2,200	5.0	0.48
RB-081414	SAMPLE	259841-007	1.3 U	5.0	0.48
	BLANK	QC755360	1.3 U	5.0	0.48

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

40.0

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215		
Field ID:	04W08-081414	Diln Fac:	1.000
Lab ID:	259841-001	Sampled:	08/14/14
Matrix:	Filtrate	Received:	08/14/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Analysis
Antimony	2.5 U	10	0.65	214855	08/27/14	08/29/14	EPA 6010C
Arsenic	1.6 J	5.0	1.3	214855	08/27/14	08/29/14	EPA 6010C
Barium	17	5.0	1.0	214855	08/27/14	08/29/14	EPA 6010C
Beryllium	0.15 J	2.0	0.083	214855	08/27/14	08/29/14	EPA 6010C
Cadmium	1.3 U	5.0	0.58	214855	08/27/14	08/29/14	EPA 6010C
Chromium	14	5.0	0.57	214855	08/27/14	08/29/14	EPA 6010C
Cobalt	1.3 U	5.0	0.32	214855	08/27/14	08/29/14	EPA 6010C
Copper	2.5 U	5.0	0.99	214855	08/27/14	08/29/14	EPA 6010C
Lead	2.5 U	5.0	0.91	214855	08/27/14	08/29/14	EPA 6010C
Mercury	0.10 U	0.20	0.040	214628	08/21/14	08/21/14	EPA 7470A
Molybdenum	5.6	5.0	0.40	214855	08/27/14	08/29/14	EPA 6010C
Nickel	1.6 J	5.0	0.71	214855	08/27/14	08/29/14	EPA 6010C
Selenium	24	10	2.3	214855	08/27/14	08/29/14	EPA 6010C
Silver	2.5 U	5.0	0.66	214855	08/27/14	08/29/14	EPA 6010C
Thallium	5.0 U	10	2.0	214855	08/27/14	08/29/14	EPA 6010C
Vanadium	2.5 J	5.0	0.67	214855	08/27/14	08/29/14	EPA 6010C
Zinc	6.9 J	20	3.0	214855	08/27/14	08/29/14	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215		
Field ID:	04W09-081414	Diln Fac:	1.000
Lab ID:	259841-002	Sampled:	08/14/14
Matrix:	Filtrate	Received:	08/14/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Analysis
Antimony	2.5 U	10	0.65	214855	08/27/14	08/29/14	EPA 6010C
Arsenic	2.5 U	5.0	1.3	214855	08/27/14	08/29/14	EPA 6010C
Barium	16	5.0	1.0	214855	08/27/14	08/29/14	EPA 6010C
Beryllium	1.0 U	2.0	0.083	214855	08/27/14	08/29/14	EPA 6010C
Cadmium	1.3 U	5.0	0.58	214855	08/27/14	08/29/14	EPA 6010C
Chromium	1.9 J	5.0	0.57	214855	08/27/14	08/29/14	EPA 6010C
Cobalt	1.3 U	5.0	0.32	214855	08/27/14	08/29/14	EPA 6010C
Copper	2.5 U	5.0	0.99	214855	08/27/14	08/29/14	EPA 6010C
Lead	2.5 U	5.0	0.91	214855	08/27/14	08/29/14	EPA 6010C
Mercury	0.10 U	0.20	0.040	214628	08/21/14	08/21/14	EPA 7470A
Molybdenum	4.9 J	5.0	0.40	214855	08/27/14	08/29/14	EPA 6010C
Nickel	1.2 J	5.0	0.71	214855	08/27/14	08/29/14	EPA 6010C
Selenium	14	10	2.3	214855	08/27/14	08/29/14	EPA 6010C
Silver	2.5 U	5.0	0.66	214855	08/27/14	08/29/14	EPA 6010C
Thallium	5.0 U	10	2.0	214855	08/27/14	08/29/14	EPA 6010C
Vanadium	2.3 J	5.0	0.67	214855	08/27/14	08/29/14	EPA 6010C
Zinc	10 U	20	3.0	214855	08/27/14	08/29/14	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215		
Field ID:	04W909-081414	Diln Fac:	1.000
Lab ID:	259841-003	Sampled:	08/14/14
Matrix:	Filtrate	Received:	08/14/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Analysis
Antimony	2.5 U	10	0.65	214855	08/27/14	08/29/14	EPA 6010C
Arsenic	2.5 U	5.0	1.3	214855	08/27/14	08/29/14	EPA 6010C
Barium	16	5.0	1.0	214855	08/27/14	08/29/14	EPA 6010C
Beryllium	1.0 U	2.0	0.083	214855	08/27/14	08/29/14	EPA 6010C
Cadmium	1.3 U	5.0	0.58	214855	08/27/14	08/29/14	EPA 6010C
Chromium	2.1 J	5.0	0.57	214855	08/27/14	08/29/14	EPA 6010C
Cobalt	1.3 U	5.0	0.32	214855	08/27/14	08/29/14	EPA 6010C
Copper	2.5 U	5.0	0.99	214855	08/27/14	08/29/14	EPA 6010C
Lead	2.5 U	5.0	0.91	214855	08/27/14	08/29/14	EPA 6010C
Mercury	0.10 U	0.20	0.040	214628	08/21/14	08/21/14	EPA 7470A
Molybdenum	4.9 J	5.0	0.40	214855	08/27/14	08/29/14	EPA 6010C
Nickel	0.77 J	5.0	0.71	214855	08/27/14	08/29/14	EPA 6010C
Selenium	15	10	2.3	214855	08/27/14	08/29/14	EPA 6010C
Silver	2.5 U	5.0	0.66	214855	08/27/14	08/29/14	EPA 6010C
Thallium	5.0 U	10	2.0	214855	08/27/14	08/29/14	EPA 6010C
Vanadium	2.2 J	5.0	0.67	214855	08/27/14	08/29/14	EPA 6010C
Zinc	10 U	20	3.0	214855	08/27/14	08/29/14	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215		
Field ID:	04W10-081414	Diln Fac:	1.000
Lab ID:	259841-005	Sampled:	08/14/14
Matrix:	Filtrate	Received:	08/14/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Analysis
Antimony	0.85 J	10	0.65	214855	08/27/14	08/29/14	EPA 6010C
Arsenic	130	5.0	1.3	214855	08/27/14	08/29/14	EPA 6010C
Barium	350	5.0	1.0	214855	08/27/14	08/29/14	EPA 6010C
Beryllium	0.49 J	2.0	0.083	214855	08/27/14	08/29/14	EPA 6010C
Cadmium	1.3 U	5.0	0.58	214855	08/27/14	08/29/14	EPA 6010C
Chromium	6.8	5.0	0.57	214855	08/27/14	08/29/14	EPA 6010C
Cobalt	3.1 J	5.0	0.32	214855	08/27/14	08/29/14	EPA 6010C
Copper	2.5 U	5.0	0.99	214855	08/27/14	08/29/14	EPA 6010C
Lead	2.5 U	5.0	0.91	214855	08/27/14	08/29/14	EPA 6010C
Mercury	0.10 U	0.20	0.040	214628	08/21/14	08/21/14	EPA 7470A
Molybdenum	4.8 J	5.0	0.40	214855	08/27/14	08/29/14	EPA 6010C
Nickel	5.0	5.0	0.71	214855	08/27/14	08/29/14	EPA 6010C
Selenium	42	10	2.3	214855	08/27/14	08/29/14	EPA 6010C
Silver	2.5 U	5.0	0.66	214855	08/27/14	08/29/14	EPA 6010C
Thallium	5.0 U	10	2.0	214855	08/27/14	08/29/14	EPA 6010C
Vanadium	11	5.0	0.67	214855	08/27/14	08/29/14	EPA 6010C
Zinc	4.6 J	20	3.0	214855	08/27/14	08/29/14	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215		
Field ID:	RB-081414	Diln Fac:	1.000
Lab ID:	259841-007	Sampled:	08/14/14
Matrix:	Filtrate	Received:	08/14/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Analysis
Antimony	2.5 U	10	0.65	214855	08/27/14	08/29/14	EPA 6010C
Arsenic	2.5 U	5.0	1.3	214855	08/27/14	08/29/14	EPA 6010C
Barium	2.5 U	5.0	1.0	214855	08/27/14	08/29/14	EPA 6010C
Beryllium	1.0 U	2.0	0.083	214855	08/27/14	08/29/14	EPA 6010C
Cadmium	1.3 U	5.0	0.58	214855	08/27/14	08/29/14	EPA 6010C
Chromium	1.3 U	5.0	0.57	214855	08/27/14	08/29/14	EPA 6010C
Cobalt	1.3 U	5.0	0.32	214855	08/27/14	08/29/14	EPA 6010C
Copper	2.5 U	5.0	0.99	214855	08/27/14	08/29/14	EPA 6010C
Lead	2.5 U	5.0	0.91	214855	08/27/14	08/29/14	EPA 6010C
Mercury	0.10 U	0.20	0.040	214628	08/21/14	08/21/14	EPA 7470A
Molybdenum	1.3 U	5.0	0.40	214855	08/27/14	08/29/14	EPA 6010C
Nickel	0.94 J	5.0	0.71	214855	08/27/14	08/29/14	EPA 6010C
Selenium	5.0 U	10	2.3	214855	08/27/14	08/29/14	EPA 6010C
Silver	2.5 U	5.0	0.66	214855	08/27/14	08/29/14	EPA 6010C
Thallium	5.0 U	10	2.0	214855	08/27/14	08/29/14	EPA 6010C
Vanadium	2.5 U	5.0	0.67	214855	08/27/14	08/29/14	EPA 6010C
Zinc	10 U	20	3.0	214855	08/27/14	08/29/14	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	214628
Lab ID:	QC754453	Prepared:	08/21/14
Matrix:	Water	Analyzed:	08/21/14
Units:	ug/L		

Result	LOQ	DL
0.10 U	0.20	0.040

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	214628
Matrix:	Water	Prepared:	08/21/14
Units:	ug/L	Analyzed:	08/21/14
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC754454	2.500	2.358	94	80-120		
BSD	QC754455	2.500	2.350	94	80-120	0	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	214628
Field ID:	04W08-081414	Sampled:	08/14/14
MSS Lab ID:	259841-001	Received:	08/14/14
Matrix:	Filtrate	Prepared:	08/21/14
Units:	ug/L	Analyzed:	08/21/14
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC754456	<0.04000	2.500	2.155	86	80-120		
MSD	QC754457		2.500	2.180	87	80-120	1	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Units:	ug/L
Field ID:	04W08-081414	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214628
MSS Lab ID:	259841-001	Sampled:	08/14/14
Lab ID:	QC754458	Received:	08/14/14
Matrix:	Filtrate	Analyzed:	08/21/14

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
0.5000 ND	0.2000	0.5000 U	1.000	NC	10

U= Not Detected at or above DL
NC= Not Calculated
ND= Not Detected at or above DL
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC755360	Batch#:	214855
Matrix:	Filtrate	Prepared:	08/27/14
Units:	ug/L	Analyzed:	08/29/14

Analyte	Result	LOQ	DL
Antimony	2.5 U	10	0.65
Arsenic	2.5 U	5.0	1.3
Barium	2.5 U	5.0	1.0
Beryllium	1.0 U	2.0	0.083
Cadmium	1.3 U	5.0	0.58
Chromium	1.3 U	5.0	0.57
Cobalt	1.3 U	5.0	0.32
Copper	1.1 J	5.0	0.99
Lead	2.5 U	5.0	0.91
Molybdenum	1.3 U	5.0	0.40
Nickel	2.5 U	5.0	0.71
Selenium	5.0 U	10	2.3
Silver	2.5 U	5.0	0.66
Thallium	5.0 U	10	2.0
Vanadium	2.5 U	5.0	0.67
Zinc	10 U	20	3.0

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Aluminum

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Aluminum	Batch#:	214855
Field ID:	04W08-081414	Sampled:	08/14/14
MSS Lab ID:	259841-001	Received:	08/14/14
Matrix:	Filtrate	Prepared:	08/27/14
Units:	ug/L	Analyzed:	08/29/14
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC755361		10,000	9,506	95	80-120		
BSD	QC755362		10,000	9,823	98	80-120	3	20
MS	QC755363	<27.57	10,000	9,585	96	80-120		
MSD	QC755364		10,000	10,290	103	80-120	7	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Magnesium

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Magnesium	Batch#:	214855
Field ID:	04W08-081414	Sampled:	08/14/14
MSS Lab ID:	259841-001	Received:	08/14/14
Matrix:	Filtrate	Prepared:	08/27/14
Units:	ug/L	Analyzed:	08/29/14
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC755361		10,000	9,409	94	80-120		
BSD	QC755362		10,000	9,642	96	80-120	2	20
MS	QC755363	61,650	10,000	68,250	66 NM	80-120		
MSD	QC755364		10,000	73,880	122 NM	80-120	8	20

NM= Not Meaningful: Sample concentration > 4X spike concentration
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Manganese

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Manganese	Batch#:	214855
Field ID:	04W08-081414	Sampled:	08/14/14
MSS Lab ID:	259841-001	Received:	08/14/14
Matrix:	Filtrate	Prepared:	08/27/14
Units:	ug/L	Analyzed:	08/29/14
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC755361		100.0	88.81	89	80-120		
BSD	QC755362		100.0	91.78	92	80-120	3	20
MS	QC755363	3.098	100.0	97.62	95	80-120		
MSD	QC755364		100.0	95.07	92	80-120	3	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Matrix:	Filtrate	Batch#:	214855
Units:	ug/L	Prepared:	08/27/14
Diln Fac:	1.000	Analyzed:	08/29/14

Type: BS Lab ID: QC755361

Analyte	Spiked	Result	%REC	Limits
Antimony	100.0	89.56	90	80-120
Arsenic	100.0	95.01	95	80-120
Barium	100.0	92.47	92	80-120
Beryllium	100.0	94.20	94	80-120
Cadmium	100.0	98.21	98	80-120
Chromium	100.0	92.26	92	80-120
Cobalt	100.0	91.77	92	80-120
Copper	100.0	91.42	91	80-120
Lead	100.0	90.41	90	80-120
Molybdenum	100.0	90.08	90	80-120
Nickel	100.0	92.40	92	80-120
Selenium	100.0	100.9	101	80-120
Silver	100.0	97.90	98	80-120
Thallium	50.00	47.10	94	80-120
Vanadium	100.0	98.69	99	80-120
Zinc	100.0	97.13	97	80-120

Type: BSD Lab ID: QC755362

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	93.23	93	80-120	4	20
Arsenic	100.0	99.61	100	80-120	5	20
Barium	100.0	95.03	95	80-120	3	20
Beryllium	100.0	98.17	98	80-120	4	20
Cadmium	100.0	103.7	104	80-120	5	20
Chromium	100.0	96.01	96	80-120	4	20
Cobalt	100.0	96.99	97	80-120	6	20
Copper	100.0	95.15	95	80-120	4	20
Lead	100.0	94.83	95	80-120	5	20
Molybdenum	100.0	94.94	95	80-120	5	20
Nickel	100.0	97.14	97	80-120	5	20
Selenium	100.0	105.8	106	80-120	5	20
Silver	100.0	101.0	101	80-120	3	20
Thallium	50.00	49.30	99	80-120	5	20
Vanadium	100.0	100.6	101	80-120	2	20
Zinc	100.0	103.6	104	80-120	6	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	04W08-081414	Batch#:	214855
MSS Lab ID:	259841-001	Sampled:	08/14/14
Matrix:	Filtrate	Received:	08/14/14
Units:	ug/L	Prepared:	08/27/14
Diln Fac:	1.000	Analyzed:	08/29/14

Type: MS Lab ID: QC755363

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<0.6500	100.0	88.79	89	80-120
Arsenic	1.619	100.0	109.0	107	80-120
Barium	17.33	100.0	112.8	95	80-120
Beryllium	0.1543	100.0	99.18	99	80-120
Cadmium	<0.5791	100.0	96.97	97	80-120
Chromium	13.51	100.0	109.7	96	80-120
Cobalt	<0.3220	100.0	95.95	96	80-120
Copper	<0.9890	100.0	93.18	93	80-120
Lead	<0.9081	100.0	89.90	90	80-120
Molybdenum	5.566	100.0	102.9	97	80-120
Nickel	1.626	100.0	95.70	94	80-120
Selenium	24.19	100.0	132.8	109	80-120
Silver	<0.6601	100.0	93.94	94	80-120
Thallium	<2.020	50.00	46.71	93	80-120
Vanadium	2.522	100.0	106.8	104	80-120
Zinc	6.875	100.0	109.8	103	80-120

Type: MSD Lab ID: QC755364

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	86.31	86	80-120	3	20
Arsenic	100.0	103.3	102	80-120	5	20
Barium	100.0	110.4	93	80-120	2	20
Beryllium	100.0	97.89	98	80-120	1	20
Cadmium	100.0	93.12	93	80-120	4	20
Chromium	100.0	106.7	93	80-120	3	20
Cobalt	100.0	92.45	92	80-120	4	20
Copper	100.0	90.46	90	80-120	3	20
Lead	100.0	87.20	87	80-120	3	20
Molybdenum	100.0	100.2	95	80-120	3	20
Nickel	100.0	92.84	91	80-120	3	20
Selenium	100.0	127.4	103	80-120	4	20
Silver	100.0	91.42	91	80-120	3	20
Thallium	50.00	44.49	89	80-120	5	20
Vanadium	100.0	103.6	101	80-120	3	20
Zinc	100.0	105.9	99	80-120	4	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Aluminum

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Aluminum	Units:	ug/L
Field ID:	04W08-081414	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214855
MSS Lab ID:	259841-001	Sampled:	08/14/14
Lab ID:	QC755365	Received:	08/14/14
Matrix:	Filtrate	Analyzed:	08/29/14

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
250.0 ND	100.0	250.0 U	500.0	NC	10

U= Not Detected at or above DL
NC= Not Calculated
ND= Not Detected at or above DL
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Magnesium

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Magnesium	Units:	ug/L
Field ID:	04W08-081414	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214855
MSS Lab ID:	259841-001	Sampled:	08/14/14
Lab ID:	QC755365	Received:	08/14/14
Matrix:	Filtrate	Analyzed:	08/29/14

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
61,650	500.0	62,770	1,000	2	10

LOQ= Limit of Quantitation

48.0

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Manganese

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Manganese	Units:	ug/L
Field ID:	04W08-081414	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214855
MSS Lab ID:	259841-001	Sampled:	08/14/14
Lab ID:	QC755365	Received:	08/14/14
Matrix:	Filtrate	Analyzed:	08/29/14

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
3.098	5.000	4.869 J	25.00	NC	10

J= Estimated value
NC= Not Calculated
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	04W08-081414	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214855
MSS Lab ID:	259841-001	Sampled:	08/14/14
Lab ID:	QC755365	Received:	08/14/14
Matrix:	Filtrate	Analyzed:	08/29/14
Units:	ug/L		

Analyte	MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
Antimony	12.50 ND	10.00	12.50 U	50.00	NC	10
Arsenic	1.619	5.000	12.50 U	25.00	NC	10
Barium	17.33	5.000	18.71 J	25.00	NC	10
Beryllium	0.1543	2.000	5.000 U	10.00	NC	10
Cadmium	6.250 ND	5.000	6.250 U	25.00	NC	10
Chromium	13.51	5.000	12.71 J	25.00	NC	10
Cobalt	6.250 ND	5.000	6.250 U	25.00	NC	10
Copper	12.50 ND	5.000	12.50 U	25.00	NC	10
Lead	12.50 ND	5.000	12.50 U	25.00	NC	10
Molybdenum	5.566	5.000	9.094 J	25.00	NC	10
Nickel	1.626	5.000	12.50 U	25.00	NC	10
Selenium	24.19	10.00	35.75 J	50.00	NC	10
Silver	12.50 ND	5.000	12.50 U	25.00	NC	10
Thallium	25.00 ND	10.00	25.00 U	50.00	NC	10
Vanadium	2.522	5.000	12.50 U	25.00	NC	10
Zinc	6.875	20.00	29.82 J	100.0	NC	10

J= Estimated value
U= Not Detected at or above DL
NC= Not Calculated
ND= Not Detected at or above DL
LOQ= Limit of Quantitation

50.0

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Aluminum

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Aluminum	Units:	ug/L
Field ID:	04W08-081414	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	214855
MSS Lab ID:	259841-001	Sampled:	08/14/14
Lab ID:	QC755366	Received:	08/14/14
Matrix:	Filtrate	Analyzed:	08/29/14

MSS Result	Spiked	Result	%REC	Limits
<27.57	2,000	1,971	99	75-125

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Magnesium

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Magnesium	Units:	ug/L
Field ID:	04W08-081414	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	214855
MSS Lab ID:	259841-001	Sampled:	08/14/14
Lab ID:	QC755366	Received:	08/14/14
Matrix:	Filtrate	Analyzed:	08/29/14

MSS Result	Spiked	Result	%REC	Limits
61,650	20,000	78,160	83	75-125

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Manganese

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Manganese	Units:	ug/L
Field ID:	04W08-081414	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	214855
MSS Lab ID:	259841-001	Sampled:	08/14/14
Lab ID:	QC755366	Received:	08/14/14
Matrix:	Filtrate	Analyzed:	08/29/14

MSS Result	Spiked	Result	%REC	Limits
3.098	50.00	50.55	95	75-125

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	04W08-081414	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	214855
MSS Lab ID:	259841-001	Sampled:	08/14/14
Lab ID:	QC755366	Received:	08/14/14
Matrix:	Filtrate	Analyzed:	08/29/14
Units:	ug/L		

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<0.6500	500.0	444.4	89	75-125
Arsenic	1.619	100.0	101.8	100	75-125
Barium	17.33	2,000	1,939	96	75-125
Beryllium	0.1543	50.00	48.61	97	75-125
Cadmium	<0.5791	50.00	42.58	85	75-125
Chromium	13.51	200.0	203.1	95	75-125
Cobalt	<0.3220	500.0	453.7	91	75-125
Copper	<0.9890	250.0	230.6	92	75-125
Lead	<0.9081	100.0	88.24	88	75-125
Molybdenum	5.566	400.0	398.5	98	75-125
Nickel	1.626	500.0	454.1	90	75-125
Selenium	24.19	100.0	128.3	104	75-125
Silver	<0.6601	50.00	48.97	98	75-125
Thallium	<2.020	100.0	91.63	92	75-125
Vanadium	2.522	500.0	488.4	97	75-125
Zinc	6.875	500.0	488.8	96	75-125

REPORTING SUMMARY FOR 259841 METALS Filtrate
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	ALK	SB	ASA	BA	BE	CD	CR	CO	CU	PB	MG	MN	HG	MO	NI	SE	AG	TL	VN	ZN
259841-001	MET44	08/21/14 15:13	1.0																				
259841-001	MET44	08/21/14 16:20	1.0																				
259841-001	MET44	08/21/14 17:01	1.0													+							
259841-001	MET08	08/26/14 12:04	1.0																				
259841-001	MET08	08/29/14 13:21	100.0																				
259841-001	MET08	08/29/14 14:50	1.0	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
259841-002	MET44	08/21/14 15:17	1.0																				
259841-002	MET44	08/21/14 16:28	1.0																				
259841-002	MET44	08/21/14 17:08	1.0													+							
259841-002	MET08	08/29/14 14:13	100.0																				
259841-002	MET08	08/29/14 15:34	1.0	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
259841-003	MET44	08/21/14 15:19	1.0																				
259841-003	MET44	08/21/14 17:12	1.0													+							
259841-003	MET08	08/29/14 14:18	100.0																				
259841-003	MET08	08/29/14 15:39	1.0	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
259841-005	MET44	08/21/14 15:20	1.0																				
259841-005	MET44	08/21/14 17:13	1.0													+							
259841-005	MET08	08/29/14 14:23	100.0											+									
259841-005	MET08	08/29/14 15:56	1.0																				
259841-005	MET08	08/29/14 16:04	1.0	+	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+
259841-007	MET44	08/21/14 17:14	1.0													+							
259841-007	MET08	08/29/14 14:28	100.0																				
259841-007	MET08	08/29/14 16:13	1.0	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC754453	MET44	08/21/14 15:09	1.0																				
QC754453	MET44	08/21/14 16:17	1.0																				
QC754453	MET44	08/21/14 16:57	1.0													+							
QC754454	MET44	08/21/14 15:10	1.0																				
QC754454	MET44	08/21/14 16:18	1.0																				
QC754454	MET44	08/21/14 16:58	1.0													+							
QC754455	MET44	08/21/14 15:11	1.0																				
QC754455	MET44	08/21/14 16:19	1.0																				
QC754455	MET44	08/21/14 17:00	1.0													+							
QC754456	MET44	08/21/14 15:14	1.0																				
QC754456	MET44	08/21/14 16:21	1.0																				
QC754456	MET44	08/21/14 17:02	1.0													+							
QC754457	MET44	08/21/14 15:15	1.0																				
QC754457	MET44	08/21/14 16:23	1.0																				
QC754457	MET44	08/21/14 17:03	1.0													+							
QC754458	MET44	08/21/14 15:16	5.0																				
QC754458	MET44	08/21/14 16:24	5.0																				
QC754458	MET44	08/21/14 17:04	5.0													+							
QC754924	MET08	08/26/14 11:24	1.0																				

REPORTING SUMMARY FOR 259841 METALS Filtrate
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	ALBS	ASAB	BEDC	CRCO	CUPB	MGNG	HGMO	NSIE	ASGL	TLVN	ZN
QC754925	MET08	08/26/14 11:29	1.0											
QC754926	MET08	08/26/14 11:33	1.0											
QC755360	MET08	08/29/14 13:08	1.0	+	+	+	+	+	+	+	+	+	+	+
QC755361	MET08	08/29/14 13:13	1.0	+	+	+	+	+	+	+	+	+	+	+
QC755362	MET08	08/29/14 13:17	1.0	+	+	+	+	+	+	+	+	+	+	+
QC755363	MET08	08/29/14 13:26	100.0											
QC755363	MET08	08/29/14 14:55	1.0	+	+	+	+	+	+	+	+	+	+	+
QC755364	MET08	08/29/14 13:31	100.0											
QC755364	MET08	08/29/14 14:59	1.0	+	+	+	+	+	+	+	+	+	+	+
QC755365	MET08	08/29/14 13:48	500.0											
QC755365	MET08	08/29/14 15:03	5.0	+	+	+	+	+	+	+	+	+	+	+
QC755366	MET08	08/29/14 13:53	100.0											
QC755366	MET08	08/29/14 15:08	1.0	+	+	+	+	+	+	+	+	+	+	+

ICP Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84347520

Instrument : MET08 Begun : 08/29/14 08:00
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				08/29/14 08:00	1.0		
002	met08_sn_6010	ICAL	L1			08/29/14 08:05	1.0	1	
003	met08_sn_6010	ICAL	L2			08/29/14 08:10	1.0	2	
004	met08_sn_6010	ICAL	L3			08/29/14 08:14	1.0	3	
005	met08_sn_6010	ICAL	L4			08/29/14 08:19	1.0	4	
006	met08_sn_6010	ICAL	L5			08/29/14 08:26	1.0	5	
007	met08_sn_6010	ICV				08/29/14 08:32	1.0	6	
008	met08_sn_6010	XCRI				08/29/14 08:40	1.0	7	
009	met08_sn_6010	CRI				08/29/14 08:56	1.0	7	
010	met08_sn_6010	ICB				08/29/14 09:00	1.0		
011	met08_sn_6010	ICSA				08/29/14 09:06	1.0	8	10:AL=510000
012	met08_sn_6010	ICSAB				08/29/14 09:21	1.0	9	5:AL=510000
013	met08_sn_6010	BLANK	QC755394	Soil	214862	08/29/14 09:28	1.0		
014	met08_sn_6010	BS	QC755395	Soil	214862	08/29/14 09:33	1.0		2:K=100000
015	met08_sn_6010	CCV				08/29/14 10:46	1.0	10	
016	met08_sn_6010	CCB				08/29/14 10:52	1.0		
017	met08_sn_6010	SER	QC755228	Water	214820	08/29/14 11:22	5.0		
018	met08_sn_6010	PDS	QC755229	Water	214820	08/29/14 11:27	1.0	11 12	
019	met08_sn_6010	X	RINSE			08/29/14 11:31	1.0		
020	met08_sn_6010	CCV				08/29/14 11:36	1.0	10	
021	met08_sn_6010	CCB				08/29/14 11:42	1.0		
022	met08_sn_6010	BLANK	QC755391	Water	214864	08/29/14 11:54	1.0		
023	met08_sn_6010	BS	QC755392	Water	214864	08/29/14 11:59	1.0		
024	met08_sn_6010	BSD	QC755393	Water	214864	08/29/14 12:03	1.0		
025	met08_sn_6010	SAMPLE	259836-001	Water	214864	08/29/14 12:07	1.0		
026	met08_sn_6010	SAMPLE	259836-002	Water	214864	08/29/14 12:12	1.0		
027	met08_sn_6010	CCV				08/29/14 12:17	1.0	10	
028	met08_sn_6010	CCB				08/29/14 12:24	1.0		
029	met08_sn_6010	BS	QC755178	Filtrate	214807	08/29/14 12:51	1.0		
030	met08_sn_6010	BSD	QC755179	Filtrate	214807	08/29/14 12:55	1.0		
031	met08_sn_6010	PDS	QC755183	Filtrate	214807	08/29/14 12:59	1.0	11 12 13	
032	met08_sn_6010	X	RINSE			08/29/14 13:03	1.0		
033	met08_sn_6010	BLANK	QC755360	Filtrate	214855	08/29/14 13:08	1.0		
034	met08_sn_6010	BS	QC755361	Filtrate	214855	08/29/14 13:13	1.0		
035	met08_sn_6010	BSD	QC755362	Filtrate	214855	08/29/14 13:17	1.0		
036	met08_sn_6010	MSS	259841-001	Filtrate	214855	08/29/14 13:21	100.0		
037	met08_sn_6010	MS	QC755363	Filtrate	214855	08/29/14 13:26	100.0		
038	met08_sn_6010	MSD	QC755364	Filtrate	214855	08/29/14 13:31	100.0		
039	met08_sn_6010	CCV				08/29/14 13:36	1.0	10	
040	met08_sn_6010	CCB				08/29/14 13:43	1.0		
041	met08_sn_6010	SER	QC755365	Filtrate	214855	08/29/14 13:48	500.0		
042	met08_sn_6010	PDS	QC755366	Filtrate	214855	08/29/14 13:53	100.0	11 12	
043	met08_sn_6010	SAMPLE	259835-001	Filtrate	214855	08/29/14 13:57	100.0		
044	met08_sn_6010	SAMPLE	259835-002	Filtrate	214855	08/29/14 14:02	100.0		
045	met08_sn_6010	SAMPLE	259835-003	Filtrate	214855	08/29/14 14:07	100.0		
046	met08_sn_6010	SAMPLE	259841-002	Filtrate	214855	08/29/14 14:13	100.0		
047	met08_sn_6010	SAMPLE	259841-003	Filtrate	214855	08/29/14 14:18	100.0		
048	met08_sn_6010	SAMPLE	259841-005	Filtrate	214855	08/29/14 14:23	100.0		
049	met08_sn_6010	SAMPLE	259841-007	Filtrate	214855	08/29/14 14:28	100.0		
050	met08_sn_6010	X	RINSE			08/29/14 14:33	1.0		
051	met08_sn_6010	CCV				08/29/14 14:38	1.0	10	
052	met08_sn_6010	CCB				08/29/14 14:44	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84347520

Instrument : MET08 Begun : 08/29/14 08:00
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	MSS	259841-001	Filtrate	214855	08/29/14 14:50	1.0		1:NA=240000
054	met08_sn_6010	MS	QC755363	Filtrate	214855	08/29/14 14:55	1.0		1:NA=240000
055	met08_sn_6010	MSD	QC755364	Filtrate	214855	08/29/14 14:59	1.0		1:NA=260000
056	met08_sn_6010	SER	QC755365	Filtrate	214855	08/29/14 15:03	5.0		
057	met08_sn_6010	PDS	QC755366	Filtrate	214855	08/29/14 15:08	1.0	11 12	1:NA=250000
058	met08_sn_6010	SAMPLE	259835-001	Filtrate	214855	08/29/14 15:12	1.0		
059	met08_sn_6010	SAMPLE	259835-002	Filtrate	214855	08/29/14 15:17	1.0		3:MG=610000
060	met08_sn_6010	SAMPLE	259835-003	Filtrate	214855	08/29/14 15:26	1.0		3:MG=640000
061	met08_sn_6010	SAMPLE	259841-002	Filtrate	214855	08/29/14 15:34	1.0		
062	met08_sn_6010	SAMPLE	259841-003	Filtrate	214855	08/29/14 15:39	1.0		
063	met08_sn_6010	CCV				08/29/14 15:45	1.0	10	
064	met08_sn_6010	CCB				08/29/14 15:51	1.0		
065	met08_sn_6010	SAMPLE	259841-005	Filtrate	214855	08/29/14 15:56	1.0		3:MG=560000
066	met08_sn_6010	SAMPLE	259841-005	Filtrate	214855	08/29/14 16:04	1.0		4:MG=610000
067	met08_sn_6010	SAMPLE	259841-007	Filtrate	214855	08/29/14 16:13	1.0		
068	met08_sn_6010	PDS	QC755183	Filtrate	214807	08/29/14 16:18	1.0	11 12 13	
069	met08_sn_6010	X	RINSE			08/29/14 16:22	1.0		
070	met08_sn_6010	BLANK	QC755278	Water	214834	08/29/14 16:27	1.0		
071	met08_sn_6010	BS	QC755279	Water	214834	08/29/14 16:32	1.0		
072	met08_sn_6010	BSD	QC755280	Water	214834	08/29/14 16:36	1.0		
073	met08_sn_6010	MSS	260128-003	Water	214834	08/29/14 16:40	1.0		
074	met08_sn_6010	MS	QC755281	Water	214834	08/29/14 16:45	1.0		
075	met08_sn_6010	CCV				08/29/14 16:49	1.0	10	
076	met08_sn_6010	CCB				08/29/14 16:56	1.0		
077	met08_sn_6010	MSD	QC755282	Water	214834	08/29/14 17:01	1.0		
078	met08_sn_6010	SER	QC755687	Water	214834	08/29/14 17:05	5.0		
079	met08_sn_6010	PDS	QC755688	Water	214834	08/29/14 17:10	1.0	11 12 13	
080	met08_sn_6010	MSS	260128-003	Water	214834	08/29/14 17:14	100.0		
081	met08_sn_6010	MS	QC755281	Water	214834	08/29/14 17:19	100.0		
082	met08_sn_6010	MSD	QC755282	Water	214834	08/29/14 17:24	100.0		
083	met08_sn_6010	SER	QC755687	Water	214834	08/29/14 17:29	500.0		
084	met08_sn_6010	PDS	QC755688	Water	214834	08/29/14 17:35	100.0	11 12 13	
085	met08_sn_6010	SAMPLE	259823-001	Water	214834	08/29/14 17:39	100.0		
086	met08_sn_6010	SAMPLE	259823-003	Water	214834	08/29/14 17:44	100.0		
087	met08_sn_6010	CCV				08/29/14 17:49	1.0	10	
088	met08_sn_6010	CCB				08/29/14 17:56	1.0		
089	met08_sn_6010	SAMPLE	259823-001	Water	214834	08/29/14 18:01	1.0		2:NA=170000
090	met08_sn_6010	SAMPLE	259823-003	Water	214834	08/29/14 18:06	1.0		1:NA=210000
091	met08_sn_6010	X	RINSE			08/29/14 18:11	1.0		
092	met08_sn_6010	SAMPLE	260128-001	Water	214834	08/29/14 18:16	1.0		
093	met08_sn_6010	SAMPLE	260128-002	Water	214834	08/29/14 18:21	1.0		
094	met08_sn_6010	SAMPLE	260156-001	Water	214834	08/29/14 18:26	100.0		
095	met08_sn_6010	SAMPLE	260156-002	Water	214834	08/29/14 18:31	100.0		
096	met08_sn_6010	SAMPLE	260156-003	Water	214834	08/29/14 18:36	100.0		
097	met08_sn_6010	SAMPLE	260156-004	Water	214834	08/29/14 18:41	100.0		
098	met08_sn_6010	SAMPLE	260156-005	Water	214834	08/29/14 18:46	100.0		
099	met08_sn_6010	CCV				08/29/14 18:51	1.0	10	
100	met08_sn_6010	CCB				08/29/14 18:58	1.0		
101	met08_sn_6010	SAMPLE	260156-006	Water	214834	08/29/14 19:03	100.0		
102	met08_sn_6010	SAMPLE	260156-009	Water	214834	08/29/14 19:08	100.0		
103	met08_sn_6010	X	RINSE			08/29/14 19:13	1.0		
104	met08_sn_6010	SAMPLE	259823-001	Filtrate	214807	08/29/14 19:18	1.0		2:NA=170000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84347520

Instrument : MET08 Begun : 08/29/14 08:00
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met08_sn_6010	SAMPLE	259823-003	Filtrate	214807	08/29/14 19:23	1.0		1:NA=200000
106	met08_sn_6010	SAMPLE	259865-003	Filtrate	214807	08/29/14 19:28	1.0		1:CA=270000
107	met08_sn_6010	SAMPLE	259918-001	Filtrate	214807	08/29/14 19:37	1.0		1:NA=230000
108	met08_sn_6010	SAMPLE	259918-003	Filtrate	214807	08/29/14 19:42	1.0		1:NA=200000
109	met08_sn_6010	SAMPLE	259968-001	Filtrate	214807	08/29/14 19:47	1.0		1:NA=190000
110	met08_sn_6010	SAMPLE	259968-003	Filtrate	214807	08/29/14 19:52	1.0		1:CA=130000
111	met08_sn_6010	CCV				08/29/14 19:58	1.0	10	
112	met08_sn_6010	CCB				08/29/14 20:04	1.0		
113	met08_sn_6010	SAMPLE	260003-001	Filtrate	214807	08/29/14 20:09	1.0		2:CA=410000
114	met08_sn_6010	SAMPLE	260003-003	Filtrate	214807	08/29/14 20:18	1.0		2:CA=400000
115	met08_sn_6010	SAMPLE	260053-001	Filtrate	214807	08/29/14 20:27	1.0		1:CA=290000
116	met08_sn_6010	SAMPLE	260131-001	Filtrate	214807	08/29/14 20:35	1.0		1:NA=570000
117	met08_sn_6010	X	RINSE			08/29/14 20:44	1.0		
118	met08_sn_6010	X	RINSE			08/29/14 20:49	1.0		
119	met08_sn_6010	BLANK	QC755529	Water	214896	08/29/14 20:54	1.0		
120	met08_sn_6010	BS	QC755530	Water	214896	08/29/14 20:59	1.0		
121	met08_sn_6010	BSD	QC755531	Water	214896	08/29/14 21:03	1.0		
122	met08_sn_6010	MSS	259865-001	Water	214896	08/29/14 21:07	1.0		1:CA=180000
123	met08_sn_6010	CCV				08/29/14 21:16	1.0	10	
124	met08_sn_6010	CCB				08/29/14 21:23	1.0		
125	met08_sn_6010	MS	QC755532	Water	214896	08/29/14 21:28	1.0		
126	met08_sn_6010	MSD	QC755533	Water	214896	08/29/14 21:35	1.0		
127	met08_sn_6010	SER	QC755534	Water	214896	08/29/14 21:43	5.0		
128	met08_sn_6010	PDS	QC755535	Water	214896	08/29/14 21:48	1.0	11 12 13	
129	met08_sn_6010	SAMPLE	259865-003	Water	214896	08/29/14 21:56	1.0		1:CA=290000
130	met08_sn_6010	SAMPLE	259918-001	Water	214896	08/29/14 22:04	1.0		1:NA=220000
131	met08_sn_6010	SAMPLE	259918-003	Water	214896	08/29/14 22:09	1.0		1:NA=220000
132	met08_sn_6010	SAMPLE	259968-001	Water	214896	08/29/14 22:15	1.0		1:NA=200000
133	met08_sn_6010	SAMPLE	259968-003	Water	214896	08/29/14 22:20	1.0		1:CA=130000
134	met08_sn_6010	SAMPLE	260003-001	Water	214896	08/29/14 22:25	1.0		2:CA=420000
135	met08_sn_6010	CCV				08/29/14 22:34	1.0	10	
136	met08_sn_6010	CCB				08/29/14 22:40	1.0		
137	met08_sn_6010	SAMPLE	260003-003	Water	214896	08/29/14 22:45	1.0		2:CA=480000
138	met08_sn_6010	SAMPLE	260009-004	Water	214896	08/29/14 22:54	1.0		3:CA=210000
139	met08_sn_6010	SAMPLE	260009-005	Water	214896	08/29/14 22:59	1.0		1:CA=120000
140	met08_sn_6010	SAMPLE	260009-006	Water	214896	08/29/14 23:04	1.0		1:CA=120000
141	met08_sn_6010	SAMPLE	260053-003	Water	214896	08/29/14 23:10	1.0		1:CA=590000
142	met08_sn_6010	SAMPLE	260131-001	Water	214896	08/29/14 23:18	1.0		1:NA=580000
143	met08_sn_6010	SAMPLE	260131-002	Water	214896	08/29/14 23:27	1.0		2:NA=650000
144	met08_sn_6010	SAMPLE	260295-001	Water	214896	08/29/14 23:35	10.0		
145	met08_sn_6010	X	RINSE			08/29/14 23:44	1.0		
146	met08_sn_6010	BLANK	QC755536	Filtrate	214897	08/29/14 23:49	1.0		
147	met08_sn_6010	CCV				08/29/14 23:54	1.0	10	
148	met08_sn_6010	CCB				08/30/14 00:01	1.0		
149	met08_sn_6010	BS	QC755537	Filtrate	214897	08/30/14 00:06	1.0		
150	met08_sn_6010	BSD	QC755538	Filtrate	214897	08/30/14 00:10	1.0		
151	met08_sn_6010	MSS	260009-002	Filtrate	214897	08/30/14 00:14	1.0		1:CA=140000
152	met08_sn_6010	MS	QC755539	Filtrate	214897	08/30/14 00:19	1.0		
153	met08_sn_6010	MSD	QC755540	Filtrate	214897	08/30/14 00:24	1.0		
154	met08_sn_6010	SER	QC755541	Filtrate	214897	08/30/14 00:28	5.0		
155	met08_sn_6010	PDS	QC755542	Filtrate	214897	08/30/14 00:33	1.0	11 12 13	1:CA=150000
156	met08_sn_6010	SAMPLE	259823-001	Filtrate	214897	08/30/14 00:37	1.0		2:NA=180000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84347520

Instrument : MET08 Begun : 08/29/14 08:00
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
157	met08_sn_6010	SAMPLE	259823-003	Filtrate	214897	08/30/14 00:42	1.0		1:NA=190000
158	met08_sn_6010	SAMPLE	260011-002	Filtrate	214897	08/30/14 00:48	1.0		2:CA=330000
159	met08_sn_6010	CCV				08/30/14 00:53	1.0	10	
160	met08_sn_6010	CCB				08/30/14 00:59	1.0		
161	met08_sn_6010	SAMPLE	260011-003	Filtrate	214897	08/30/14 01:05	1.0		2:CA=340000
162	met08_sn_6010	SAMPLE	260011-004	Filtrate	214897	08/30/14 01:10	1.0		3:CA=150000
163	met08_sn_6010	SAMPLE	260011-006	Filtrate	214897	08/30/14 01:15	1.0		3:MG=140000
164	met08_sn_6010	SAMPLE	260011-007	Filtrate	214897	08/30/14 01:20	1.0		
165	met08_sn_6010	X	RINSE			08/30/14 01:25	1.0		
166	met08_sn_6010	CCV				08/30/14 01:30	1.0	10	
167	met08_sn_6010	CCB				08/30/14 01:37	1.0		

VQ 09/02/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 167.

Standards used: 1=S25067 2=S25224 3=S25223 4=S25225 5=S25226 6=S25072 7=S25074 8=S25075 9=S25227 10=S25073 11=S24151 12=S24152 13=S25208

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 84347520

Date : 08/29/14 Reference : met08_sn_6010
Sequence : MET08 08/29/14 Analyzed : 08/29/14 08:05

#	Type	Sample ID	Y A
		ICAL STD	2681337
		LOWER LIMIT	804401
		UPPER LIMIT	3217604
010	ICB		2658064
011	ICSA		2197536
012	ICSAB		2237717
027	CCV		2606211
028	CCB		2506414
033	BLANK	QC755360	2671562
034	BS	QC755361	2791209
035	BSD	QC755362	2661726
036	MSS	259841-001	2702842
037	MS	QC755363	2674875
038	MSD	QC755364	2610839
039	CCV		2733599
040	CCB		2750982
041	SER	QC755365	2625412
042	PDS	QC755366	2691810
043	SAMPLE	259835-001	2721126
044	SAMPLE	259835-002	2643947
045	SAMPLE	259835-003	2608194
046	SAMPLE	259841-002	2775452
047	SAMPLE	259841-003	2671330
048	SAMPLE	259841-005	2509241
049	SAMPLE	259841-007	2617377
051	CCV		2706625
052	CCB		2691478
053	MSS	259841-001	2473249
054	MS	QC755363	2497902
055	MSD	QC755364	2497724
056	SER	QC755365	2546998
057	PDS	QC755366	2505965
058	SAMPLE	259835-001	2570921
059	SAMPLE	259835-002	1948915
060	SAMPLE	259835-003	1979770
061	SAMPLE	259841-002	2627311
062	SAMPLE	259841-003	2617011
063	CCV		2737009
064	CCB		2794490
065	SAMPLE	259841-005	2061876
066	SAMPLE	259841-005	2079477
067	SAMPLE	259841-007	2884138
075	CCV		2761272
076	CCB		2660589

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259841 METALS Filtrate: EPA 6010C

Inst : MET08
Calnum : 84347520001
Units : ug/L

Date : 29-AUG-2014 08:00
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	84347520002	L1	29-AUG-2014 08:05	S25067
L2	met08_sn_6010	84347520003	L2	29-AUG-2014 08:10	S25224
L3	met08_sn_6010	84347520004	L3	29-AUG-2014 08:14	S25223
L4	met08_sn_6010	84347520005	L4	29-AUG-2014 08:19	S25225
L5	met08_sn_6010	84347520006	L5	29-AUG-2014 08:26	S25226

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	29.930	30.294	32.662	32.634		LOR0	0.00000	0.03064		31.380	1.000	0.995	
Arsenic	A	19.960	18.021	19.492	19.179		LOR0	0.00000	0.05213		19.163	1.000	0.995	
Barium	A	442.84	418.97	441.69	423.11		LOR0	0.00000	0.00236		431.65	1.000	0.995	
Beryllium	A	4999.5	4981.8	5246.9			LOR0	0.00000	1.91E-4		5076.1	1.000	0.995	
Cadmium	A	224.40	215.74	229.33	217.57		LOR0	0.00000	0.00459		221.76	1.000	0.995	
Chromium	A	99.060	95.844	100.45	97.290		LOR0	0.00000	0.01028		98.161	1.000	0.995	
Cobalt	A	135.12	126.76	139.56	134.41		LOR0	0.00000	0.00744		133.96	1.000	0.995	
Copper	A	116.66	102.55	105.32	114.37		LOR0	0.00000	0.00875		109.72	1.000	0.995	
Lead	A	58.560	54.328	57.768	56.022		LOR0	0.00000	0.01784		56.670	1.000	0.995	
Manganese	A	1266.7	1212.5	1310.3	1198.3		LOR0	0.00000	8.34E-4		1246.9	1.000	0.995	
Molybdenum	A	37.560	36.518	38.266	37.482		LOR0	0.00000	0.02667		37.456	1.000	0.995	
Nickel	A	53.020	50.105	54.647	53.118		LOR0	0.00000	0.01882		52.722	1.000	0.995	
Selenium	A	27.050	26.453	28.837	28.435		LOR0	0.00000	0.03516		27.694	1.000	0.995	
Silver	A	664.24	726.00	771.66	756.01		LOR0	0.00000	0.00132		729.48	1.000	0.995	
Thallium	A	20.390	18.562	20.261	18.827		LOR0	0.00000	0.05307		19.510	1.000	0.995	
Vanadium	A	165.48	161.39	167.40	165.67		LOR0	0.00000	0.00604		164.98	1.000	0.995	
Zinc	A	69.940	69.543	75.105	73.074		LOR0	0.00000	0.01368		71.915	1.000	0.995	
Aluminum	R	0.5110		0.5959	0.5942	0.5600	LOR0	0.00000	1.78472		0.5653	1.000	0.995	
Magnesium	R	0.8145		0.7783	0.7231	0.7035	LOR0	0.00000	1.42109		0.7549	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-8	100.00	-7	1000.0	0	10000	0		
Arsenic	A	5.0000	4	100.00	-6	1000.0	2	10000	0		
Barium	A	5.0000	5	100.00	-1	1000.0	4	10000	0		
Beryllium	A	2.0000	-5	100.00	-5	1000.0	0				
Cadmium	A	5.0000	3	100.00	-1	1000.0	5	10000	0		
Chromium	A	5.0000	2	100.00	-2	1000.0	3	10000	0		
Cobalt	A	5.0000	0	100.00	-6	1000.0	4	10000	0		
Copper	A	5.0000	2	100.00	-10	1000.0	-8	10000	0		
Lead	A	5.0000	4	100.00	-3	1000.0	3	10000	0		
Manganese	A	5.0000	6	100.00	1	1000.0	9	10000	0		
Molybdenum	A	5.0000	0	100.00	-3	1000.0	2	10000	0		
Nickel	A	5.0000	0	100.00	-6	1000.0	3	10000	0		
Selenium	A	10.000	-5	100.00	-7	1000.0	1	10000	0		
Silver	A	5.0000	-12	100.00	-4	1000.0	2	2000.0	0		
Thallium	A	10.000	8	100.00	-1	1000.0	8	10000	0		
Vanadium	A	5.0000	0	100.00	-3	1000.0	1	10000	0		
Zinc	A	20.000	-4	100.00	-5	1000.0	3	10000	0		
Aluminum	R	100.00	-9			1000.0	6	10000	6	100000	0
Magnesium	R	200.00	16			1000.0	11	10000	3	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259841 METALS Filtrate
EPA 6010C

Inst : MET08
Calnum : 84347520001 Cal Date : 29-AUG-2014

ICV 84347520007 (29-AUG-2014) stds: S25072

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4980	ug/L	0	10	
Arsenic	A	5000	4983	ug/L	0	10	
Barium	A	5000	4906	ug/L	-2	10	
Beryllium	A	500.0	520.3	ug/L	4	10	
Cadmium	A	5000	5080	ug/L	2	10	
Chromium	A	5000	4979	ug/L	0	10	
Cobalt	A	5000	4954	ug/L	-1	10	
Copper	A	5000	4979	ug/L	0	10	
Lead	A	5000	4904	ug/L	-2	10	
Manganese	A	5000	4840	ug/L	-3	10	
Molybdenum	A	5000	5050	ug/L	1	10	
Nickel	A	5000	4928	ug/L	-1	10	
Selenium	A	5000	4915	ug/L	-2	10	
Silver	A	1000	974.6	ug/L	-3	10	
Thallium	A	5000	4878	ug/L	-2	10	
Vanadium	A	5000	4936	ug/L	-1	10	
Zinc	A	5000	4962	ug/L	-1	10	
Aluminum	R	20000	19950	ug/L	0	10	
Magnesium	R	20000	20270	ug/L	1	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 259841 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520009.1 File : met08_sn_6010 Time : 29-AUG-2014 08:56
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25074

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	9.323	ug/L	-7	30	
Arsenic	A	5.000	5.318	ug/L	6	30	
Barium	A	5.000	5.434	ug/L	9	30	
Beryllium	A	2.000	2.090	ug/L	5	30	
Cadmium	A	5.000	5.455	ug/L	9	30	
Chromium	A	5.000	5.207	ug/L	4	30	
Cobalt	A	5.000	5.245	ug/L	5	30	
Copper	A	5.000	6.113	ug/L	**22**	30	!cri+
Lead	A	5.000	6.020	ug/L	20	30	
Manganese	A	5.000	5.643	ug/L	13	30	
Molybdenum	A	5.000	5.333	ug/L	7	30	
Nickel	A	5.000	4.901	ug/L	-2	30	
Selenium	A	10.00	8.874	ug/L	-11	30	
Silver	A	5.000	5.114	ug/L	2	30	
Thallium	A	10.00	11.28	ug/L	13	30	
Vanadium	A	5.000	5.043	ug/L	1	30	
Zinc	A	20.00	20.11	ug/L	1	30	
Aluminum	R	100.0	99.60	ug/L	0	30	
Magnesium	R	200.0	217.9	ug/L	9	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2566140	-4.30

!=warning +=high bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259841 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520010.1 File : met08_sn_6010 Time : 29-AUG-2014 09:00
Cal : 84347520001 Caldate : 29-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2658064	-0.87

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 259841 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520011.1 File : met08_sn_6010 Time : 29-AUG-2014 09:06
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25075

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[0.3892]	10.00	ug/L	
Arsenic	A	[-0.1240]	5.000	ug/L	
Barium	A	[-0.4424]	5.000	ug/L	
Beryllium	A	[1.149]	2.000	ug/L	!a+
Cadmium	A	[2.744]	5.000	ug/L	!a+
Cobalt	A	[-0.7642]	5.000	ug/L	
Lead	A	[-3.146]	5.000	ug/L	!a-
Molybdenum	A	[-1.859]	5.000	ug/L	!a-
Selenium	A	[1.094]	10.00	ug/L	
Silver	A	[3.430]	5.000	ug/L	!a+
Thallium	A	[-1.295]	10.00	ug/L	
Zinc	A	[-8.034]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec
Chromium	A	20000	19500	ug/L	98
Copper	A	20000	21230	ug/L	106
Manganese	A	20000	18010	ug/L	90
Nickel	A	20000	17970	ug/L	90
Vanadium	A	20000	18600	ug/L	93
Aluminum	R	500000	514800	ug/L	103
Calcium	R	500000	489700	ug/L	98
Iron	R	200000	187200	ug/L	94
Magnesium	R	500000	508800	ug/L	102
Titanium	R	20000	21440	ug/L	107

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2197536	-18.04

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 259841 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520012.1 File : met08_sn_6010 Time : 29-AUG-2014 09:21
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25227

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	493.6	ug/L	-1	20	
Arsenic	A	500.0	496.2	ug/L	-1	20	
Barium	A	500.0	538.3	ug/L	8	20	
Beryllium	A	500.0	535.3	ug/L	7	20	
Cadmium	A	1000	1036	ug/L	4	20	
Chromium	A	500.0	522.4	ug/L	4	20	
Cobalt	A	500.0	482.5	ug/L	-4	20	
Copper	A	500.0	574.4	ug/L	15	20	
Lead	A	1000	977.1	ug/L	-2	20	
Manganese	A	500.0	435.3	ug/L	-13	20	
Molybdenum	A	500.0	525.9	ug/L	5	20	
Nickel	A	1000	965.6	ug/L	-3	20	
Selenium	A	500.0	516.7	ug/L	3	20	
Silver	A	1000	1143	ug/L	14	20	
Thallium	A	500.0	454.0	ug/L	-9	20	
Vanadium	A	500.0	555.4	ug/L	11	20	
Zinc	A	1000	1024	ug/L	2	20	
Aluminum	R	500000	511300	ug/L	2		
Magnesium	R	500000	509800	ug/L	2		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2237717	-16.54

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259841 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520027.1 File : met08_sn_6010 Time : 29-AUG-2014 12:17
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.380	32.935	5000	5046	ug/L	1	10	
Arsenic	A	19.163	20.053	5000	5227	ug/L	5	10	
Barium	A	431.65	427.81	5000	5053	ug/L	1	10	
Beryllium	A	5076.1	5633.4	500.0	537.1	ug/L	7	10	
Cadmium	A	221.76	231.20	5000	5310	ug/L	6	10	
Chromium	A	98.161	100.60	5000	5169	ug/L	3	10	
Cobalt	A	133.96	138.90	5000	5156	ug/L	3	10	
Copper	A	109.72	113.27	5000	4956	ug/L	-1	10	
Lead	A	56.670	56.938	5000	5080	ug/L	2	10	
Manganese	A	1246.9	1196.0	5000	4986	ug/L	0	10	
Molybdenum	A	37.456	39.223	5000	5231	ug/L	5	10	
Nickel	A	52.722	54.285	5000	5108	ug/L	2	10	
Selenium	A	27.694	31.225	5000	5490	ug/L	10	10	
Silver	A	729.48	749.02	1000	986.8	ug/L	-1	10	
Thallium	A	19.510	19.094	5000	5067	ug/L	1	10	
Vanadium	A	164.98	167.84	5000	5065	ug/L	1	10	
Zinc	A	71.915	76.690	5000	5246	ug/L	5	10	
Aluminum	R	0.5653	0.5550	20000	19810	ug/L	-1	10	
Magnesium	R	0.7549	0.7274	20000	20670	ug/L	3	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2606211	-2.80

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259841 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520028.1 File : met08_sn_6010 Time : 29-AUG-2014 12:24
Cal : 84347520001 Caldate : 29-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2506414	-6.52

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259841 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520039.1 File : met08_sn_6010 Time : 29-AUG-2014 13:36
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.380	31.391	5000	4810	ug/L	-4	10	
Arsenic	A	19.163	18.138	5000	4728	ug/L	-5	10	
Barium	A	431.65	405.16	5000	4786	ug/L	-4	10	
Beryllium	A	5076.1	5264.5	500.0	501.9	ug/L	0	10	
Cadmium	A	221.76	214.80	5000	4934	ug/L	-1	10	
Chromium	A	98.161	95.052	5000	4883	ug/L	-2	10	
Cobalt	A	133.96	129.83	5000	4819	ug/L	-4	10	
Copper	A	109.72	114.04	5000	4990	ug/L	0	10	
Lead	A	56.670	53.757	5000	4796	ug/L	-4	10	
Manganese	A	1246.9	1101.3	5000	4591	ug/L	-8	10	
Molybdenum	A	37.456	37.343	5000	4980	ug/L	0	10	
Nickel	A	52.722	51.155	5000	4814	ug/L	-4	10	
Selenium	A	27.694	26.599	5000	4677	ug/L	-6	10	
Silver	A	729.48	722.76	1000	952.2	ug/L	-5	10	
Thallium	A	19.510	17.564	5000	4661	ug/L	-7	10	
Vanadium	A	164.98	161.03	5000	4859	ug/L	-3	10	
Zinc	A	71.915	70.448	5000	4819	ug/L	-4	10	
Aluminum	R	0.5653	0.5689	20000	20310	ug/L	2	10	
Magnesium	R	0.7549	0.6998	20000	19890	ug/L	-1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2733599	1.95

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259841 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520040.1 File : met08_sn_6010 Time : 29-AUG-2014 13:43
Cal : 84347520001 Caldate : 29-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2750982	2.60

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259841 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520051.1 File : met08_sn_6010 Time : 29-AUG-2014 14:38
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.380	31.597	5000	4841	ug/L	-3	10	
Arsenic	A	19.163	18.344	5000	4782	ug/L	-4	10	
Barium	A	431.65	399.71	5000	4721	ug/L	-6	10	
Beryllium	A	5076.1	5245.6	500.0	500.1	ug/L	0	10	
Cadmium	A	221.76	211.49	5000	4858	ug/L	-3	10	
Chromium	A	98.161	93.526	5000	4805	ug/L	-4	10	
Cobalt	A	133.96	128.18	5000	4757	ug/L	-5	10	
Copper	A	109.72	112.51	5000	4923	ug/L	-2	10	
Lead	A	56.670	52.869	5000	4717	ug/L	-6	10	
Manganese	A	1246.9	1100.2	5000	4587	ug/L	-8	10	
Molybdenum	A	37.456	36.755	5000	4902	ug/L	-2	10	
Nickel	A	52.722	50.344	5000	4738	ug/L	-5	10	
Selenium	A	27.694	26.711	5000	4696	ug/L	-6	10	
Silver	A	729.48	712.80	1000	939.0	ug/L	-6	10	
Thallium	A	19.510	17.692	5000	4695	ug/L	-6	10	
Vanadium	A	164.98	158.15	5000	4772	ug/L	-5	10	
Zinc	A	71.915	69.379	5000	4746	ug/L	-5	10	
Aluminum	R	0.5653	0.5531	20000	19740	ug/L	-1	10	
Magnesium	R	0.7549	0.6878	20000	19550	ug/L	-2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2706625	0.94

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259841 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520052.1 File : met08_sn_6010 Time : 29-AUG-2014 14:44
Cal : 84347520001 Caldate : 29-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2691478	0.38

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259841 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520063.1 File : met08_sn_6010 Time : 29-AUG-2014 15:45
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.380	31.590	5000	4840	ug/L	-3	10	
Arsenic	A	19.163	18.453	5000	4810	ug/L	-4	10	
Barium	A	431.65	411.46	5000	4860	ug/L	-3	10	
Beryllium	A	5076.1	5355.1	500.0	510.6	ug/L	2	10	
Cadmium	A	221.76	218.90	5000	5028	ug/L	1	10	
Chromium	A	98.161	96.778	5000	4972	ug/L	-1	10	
Cobalt	A	133.96	132.26	5000	4909	ug/L	-2	10	
Copper	A	109.72	111.66	5000	4885	ug/L	-2	10	
Lead	A	56.670	54.695	5000	4880	ug/L	-2	10	
Manganese	A	1246.9	1141.1	5000	4757	ug/L	-5	10	
Molybdenum	A	37.456	37.851	5000	5048	ug/L	1	10	
Nickel	A	52.722	52.153	5000	4908	ug/L	-2	10	
Selenium	A	27.694	27.127	5000	4769	ug/L	-5	10	
Silver	A	729.48	730.89	1000	962.9	ug/L	-4	10	
Thallium	A	19.510	18.064	5000	4794	ug/L	-4	10	
Vanadium	A	164.98	162.70	5000	4910	ug/L	-2	10	
Zinc	A	71.915	72.026	5000	4927	ug/L	-1	10	
Aluminum	R	0.5653	0.5922	20000	21140	ug/L	6	10	
Magnesium	R	0.7549	0.7545	20000	21440	ug/L	7	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2737009	2.08

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259841 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520064.1 File : met08_sn_6010 Time : 29-AUG-2014 15:51
Cal : 84347520001 Caldate : 29-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2794490	4.22

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259841 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520075.1 File : met08_sn_6010 Time : 29-AUG-2014 16:49
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.380	32.468	5000	4974	ug/L	-1	10	
Arsenic	A	19.163	19.022	5000	4958	ug/L	-1	10	
Barium	A	431.65	411.50	5000	4861	ug/L	-3	10	
Beryllium	A	5076.1	5411.3	500.0	515.9	ug/L	3	10	
Cadmium	A	221.76	220.05	5000	5054	ug/L	1	10	
Chromium	A	98.161	97.070	5000	4987	ug/L	0	10	
Cobalt	A	133.96	132.90	5000	4933	ug/L	-1	10	
Copper	A	109.72	113.19	5000	4952	ug/L	-1	10	
Lead	A	56.670	54.952	5000	4903	ug/L	-2	10	
Manganese	A	1246.9	1147.8	5000	4785	ug/L	-4	10	
Molybdenum	A	37.456	37.994	5000	5067	ug/L	1	10	
Nickel	A	52.722	52.184	5000	4911	ug/L	-2	10	
Selenium	A	27.694	27.836	5000	4894	ug/L	-2	10	
Silver	A	729.48	730.17	1000	961.9	ug/L	-4	10	
Thallium	A	19.510	18.312	5000	4859	ug/L	-3	10	
Vanadium	A	164.98	162.90	5000	4916	ug/L	-2	10	
Zinc	A	71.915	72.486	5000	4958	ug/L	-1	10	
Aluminum	R	0.5653	0.5669	20000	20240	ug/L	1	10	
Magnesium	R	0.7549	0.7164	20000	20360	ug/L	2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2761272	2.98

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259841 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520076.1 File : met08_sn_6010 Time : 29-AUG-2014 16:56
Cal : 84347520001 Caldate : 29-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2660589	-0.77

SAMPLE PREPARATION SUMMARY

Batch # : 214855
Started By : ARD
Method : METHOD
Spike #1 ID : S24678

Prep Date : 27-AUG-2014 13:45
Spike #2 ID : S24679

Analysis : ICAP
Finished By : ARD
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259835-001		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259835-002		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259835-003		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259841-001		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259841-002		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259841-003		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259841-005		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259841-007		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
QC755360	BLANK	Filtrate	50	50	1	1.0							
QC755361	BS	Filtrate	50	50	1	1.0		.5	.5				
QC755362	BSD	Filtrate	50	50	1	1.0		.5	.5				
QC755363	MS	Filtrate	50	50	1	1.0		.5	.5				
QC755364	MSD	Filtrate	50	50	1	1.0		.5	.5				
QC755365	SER	Filtrate	50	50	1	1.0							
QC755366	PDS	Filtrate	50	50	1	1.0							

Analyst: VQ Date: 09/02/14 Reviewer: PRW Date: 09/02/14

Water Digestion for ICP Curtis & Tompkins, Ltd.

LIMS Batch #: 214855
Digested by: ARD
Date Digested: 8.27.2014

Digestion Method
☐ EPA 3010a for ICP
☐ EPA 200.7
☒ Filtrate

BK3577
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Lvl.	Sample #	Container ID	Volume Sample(mL)	Final Volume (mL)	Filtered? (y/n)	ID ✓	Comments
	Blank		☒50 ☐___	☒50 ☐___	No	✓	QC755360
	BS *		☒50 ☐___	☒50 ☐___	↓	✓	361
	BSD *		☒50 ☐___	☒50 ☐___	↓	✓	362
	MS : 259835-001 *	D	☒50 ☐___	☒50 ☐___	↓	✓	
5	MSD ↓ *	↓	☒50 ☐___	☒50 ☐___	↓	✓	
IV	259835-001	B	☒50 ☐___	☒50 ☐___	↓	✓	
↓	↓ -002	A	☒50 ☐___	☒50 ☐___	↓	✓	
↓	↓ -003	↓	☒50 ☐___	☒50 ☐___	↓	✓	
III	259841-001	D	☒50 ☐___	☒50 ☐___	↓	✓	MSS
10	↓ -002	B	☒50 ☐___	☒50 ☐___	↓	✓	
↓	↓ -003	A	☒50 ☐___	☒50 ☐___	↓	✓	
↓	↓ -005	↓	☒50 ☐___	☒50 ☐___	↓	✓	
↓	↓ -007	E	☒50 ☐___	☒50 ☐___	↓	✓	
			☐ 50 ☐___	☐ 50 ☐___			
15			☐ 50 ☐___	☐ 50 ☐___			
			☐ 50 ☐___	☐ 50 ☐___			
			☐ 50 ☐___	☐ 50 ☐___			
			☐ 50 ☐___	☐ 50 ☐___			
			☐ 50 ☐___	☐ 50 ☐___			
20			☐ 50 ☐___	☐ 50 ☐___			
			☐ 50 ☐___	☐ 50 ☐___			
			☐ 50 ☐___	☐ 50 ☐___			
			☐ 50 ☐___	☐ 50 ☐___			
			☐ 50 ☐___	☐ 50 ☐___			
			☐ 50 ☐___	☐ 50 ☐___			

	Reagent ID or LIMS #	Initials / Date
Digestion tubes, lot #	Accuflow	ARD 8.27.2014
0.5 mL of spike solution (Std1) was added to all spikes	S24678 *	↓
0.5 mL of spike solution (Std2) was added to all spikes	S24679 *	↓
Digestion Temperature (°C), Block and Probe Location	— —	↓
Digestion begun at (time)	13:45	↓
o Conc. HNO3 or ☒ 1:1 HNO3	JTB-66236	↓
1:1 HCl	JTB-75649	↓
digestion ended at (time)	—	↓
o filtered thru' Whatman # 541	—	↓
Relinquished to ICP group	ICAP	↓

8.27.2014
Prep Chemist / Date

Continued from page Ø
Continued on page

Reviewed Online / See LIMS

Mercury Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1064336528

Instrument : MET44 Begun : 08/21/14 16:48
Method : EPA 7470A SOP Version : hg_water_rv16

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met44	ICALBLK				08/21/14 16:48	1.0		
002	met44	ICAL	ICAL1			08/21/14 16:49	1.0	1	
003	met44	ICAL	ICAL2			08/21/14 16:50	1.0	1	
004	met44	ICAL	ICAL3			08/21/14 16:51	1.0	1	
005	met44	ICAL	ICAL4			08/21/14 16:52	1.0	1	
006	met44	ICAL	ICAL5			08/21/14 16:54	1.0	1	
007	met44	ICV				08/21/14 16:55	1.0	2	
008	met44	ICB				08/21/14 16:56	1.0		
009	met44	BLANK	QC754453	Water	214628	08/21/14 16:57	1.0		
010	met44	BS	QC754454	Water	214628	08/21/14 16:58	1.0		
011	met44	BSD	QC754455	Water	214628	08/21/14 17:00	1.0		
012	met44	MSS	259841-001	Filtrate	214628	08/21/14 17:01	1.0		
013	met44	MS	QC754456	Filtrate	214628	08/21/14 17:02	1.0		
014	met44	MSD	QC754457	Filtrate	214628	08/21/14 17:03	1.0		
015	met44	SER	QC754458	Filtrate	214628	08/21/14 17:04	5.0		
016	met44	SAMPLE	260018-001	Water	214628	08/21/14 17:06	1.0		
017	met44	SAMPLE	259966-001	Water	214628	08/21/14 17:07	1.0		
018	met44	SAMPLE	259841-002	Filtrate	214628	08/21/14 17:08	1.0		
019	met44	CCV				08/21/14 17:09	1.0	3	
020	met44	CCB				08/21/14 17:11	1.0		
021	met44	SAMPLE	259841-003	Filtrate	214628	08/21/14 17:12	1.0		
022	met44	SAMPLE	259841-005	Filtrate	214628	08/21/14 17:13	1.0		
023	met44	SAMPLE	259841-007	Filtrate	214628	08/21/14 17:14	1.0		
024	met44	CCV				08/21/14 17:15	1.0	3	
025	met44	CCB				08/21/14 17:17	1.0		

NCD 08/22/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 25.

Standards used: 1=S25459 2=S25461 3=S25462

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259841 METALS Filtrate: EPA 7470A

Inst : MET44
Calnum : 1064336528001
Units : ug/L

Date : 21-AUG-2014 16:48
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met44	1064336528002	ICAL1	21-AUG-2014 16:49	S25459 (500X)
L2	met44	1064336528003	ICAL2	21-AUG-2014 16:50	S25459 (200X)
L3	met44	1064336528004	ICAL3	21-AUG-2014 16:51	S25459 (50X)
L4	met44	1064336528005	ICAL4	21-AUG-2014 16:52	S25459 (20X)
L5	met44	1064336528006	ICAL5	21-AUG-2014 16:54	S25459 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	-0.009	0.0040	0.0097	0.0113	0.0115	LIN0	0.24844	84.7327		0.0056	0.999	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	**-48**	0.5000	-16	2.0000	-5	5.0000	0	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259841 METALS Filtrate
EPA 7470A

Inst : MET44
Calnum : 1064336528001 Cal Date : 21-AUG-2014

ICV 1064336528007 (21-AUG-2014) stds: S25461

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.171	ug/L	3	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259841 METALS Filtrate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1064336528008.1 File : met44 Time : 21-AUG-2014 16:56
Cal : 1064336528001 Caldate : 21-AUG-2014

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259841 METALS Filtrate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1064336528019.1 File : met44 Time : 21-AUG-2014 17:09
Cal : 1064336528001 Caldate : 21-AUG-2014
Standards: S25462

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0056	0.0111	5.000	4.960	ug/L	-1	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259841 METALS Filtrate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1064336528020.1 File : met44 Time : 21-AUG-2014 17:11
Cal : 1064336528001 Caldate : 21-AUG-2014

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259841 METALS Filtrate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1064336528024.1 File : met44 Time : 21-AUG-2014 17:15
Cal : 1064336528001 Caldate : 21-AUG-2014
Standards: S25462

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0056	0.0112	5.000	4.977	ug/L	0	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259841 METALS Filtrate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1064336528025.1 File : met44 Time : 21-AUG-2014 17:17
Cal : 1064336528001 Caldate : 21-AUG-2014

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 214628
Started By : NCD
Method : METHOD
Spike #1 ID : S25459

Prep Date : 21-AUG-2014 10:00

Analysis : HG
Finished By : NCD
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259841-001		Filtrate	50	50	1	1.0						T22/HG	
259841-002		Filtrate	50	50	1	1.0						T22/HG	
259841-003		Filtrate	50	50	1	1.0						T22/HG	
259841-005		Filtrate	50	50	1	1.0						T22/HG	
259841-007		Filtrate	50	50	1	1.0						T22/HG	
259966-001		Water	50	50	1	1.0						T22/HG	
260018-001		Water	50	50	1	1.0						T22/HG	
QC754453	BLANK	Water	50	50	1	1.0							
QC754454	BS	Water	50	50	1	1.0		1.25					
QC754455	BSD	Water	50	50	1	1.0		1.25					
QC754456	MS	Filtrate	50	50	1	1.0		1.25					
QC754457	MSD	Filtrate	50	50	1	1.0		1.25					
QC754458	SER	Filtrate	50	50	1	1.0							

Analyst: NCD Date: 08/21/14 Reviewer: PRW Date: 08/21/14

Water Digestion for Mercury Curtis & Tompkins, Ltd.

LIMS Batch #: 2146258
Date Digested: 8/21/2014

Digestion Method
☑ EPA 7470A/ EPA 245.1
☐ _____

BK3567
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Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
BLK		☑ 50 ☐	☑ 50 ☐	N	QC 754455
BS		☑ 50 ☐	☑ 50 ☐		54
BSD		☑ 50 ☐	☑ 50 ☐		55
259841-001 MS	A	☑ 50 ☐	☑ 50 ☐		
-001 MSD		☑ 50 ☐	☑ 50 ☐		
-001		☑ 50 ☐	☑ 50 ☐		
-002	F	☑ 50 ☐	☑ 50 ☐		
-003		☑ 50 ☐	☑ 50 ☐		
-005		☑ 50 ☐	☑ 50 ☐		
-007	E	☑ 50 ☐	☑ 50 ☐		verified pH<2
260018-001	G	☑ 50 ☐	☑ 50 ☐		
259966-001	G	☑ 50 ☐	☑ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		

8/21/14

	Reagent ID / LIMS# / Time	Initials / Date
Digestion Tube Lot #	~~525457~~ EK13130	8/21/14
1.25 mL of spike solution was added to all spikes	525459	
☑ CAL digested with this batch — ICAL Source LIMS S#	60	
ICV / CCV LIMS S#	61/62	
Digestion Temperature (°C), Block and Probe Location	98° | A9	
Digestion Started at (time)	10:00	
concentrated H_2SO_4	20140205 96	
concentrated HNO_3	66256	
5% $KMnO_4$	8/14/14	
5% $K_2S_2O_8$	8/7/14 8/21/2014	
NaCl.hydroxylamine hydrochloride	~~8/15/14~~ 7/31/14	
Stannous Chloride	8/15/14	
Digestion Completed at (time)	12:00	
☐ filtered thru' 0.45 um syringe filter (lot #)		

8/21/14

Prep Chemist / Date

Continued from page ____

Continued on page ____

Reviewed Online / See LIMS

Dilutions for 259841 METALS Filtrate
Curtis & Tompkins Laboratories

Type	Sample ID	IDFs
SAMPLE	259841-005	1X, 100X
SER	QC754458	5X
SER	QC755365	5X

Laboratory Job Number 259841

ANALYTICAL REPORT

Hexavalent Chromium by Ion Chromatograph

Matrix: Water

Curtis & Tompkins, Ltd.

Hexavalent Chromium

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7199
Matrix:	Water	Batch#:	214416
Units:	ug/L	Received:	08/14/14

Field ID:	04W08-081414	Diln Fac:	2.000
Type:	SAMPLE	Sampled:	08/14/14 09:02
Lab ID:	259841-001	Analyzed:	08/14/14 19:25

Analyte	Result	LOQ	DL
Hexavalent Chromium	9.2	1.0	0.16

Field ID:	04W09-081414	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	08/14/14 10:30
Lab ID:	259841-002	Analyzed:	08/14/14 18:26

Analyte	Result	LOQ	DL
Hexavalent Chromium	1.2	0.50	0.080

Field ID:	04W909-081414	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	08/14/14 10:30
Lab ID:	259841-003	Analyzed:	08/14/14 18:38

Analyte	Result	LOQ	DL
Hexavalent Chromium	1.3	0.50	0.080

Field ID:	RB-081414	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	08/14/14 15:10
Lab ID:	259841-007	Analyzed:	08/14/14 18:49

Analyte	Result	LOQ	DL
Hexavalent Chromium	0.20 U	0.50	0.080

Field ID:	SB-081414	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	08/14/14 14:50
Lab ID:	259841-008	Analyzed:	08/14/14 19:13

Analyte	Result	LOQ	DL
Hexavalent Chromium	0.20 U	0.50	0.080

Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753626	Analyzed:	08/14/14 17:37

Analyte	Result	LOQ	DL
Hexavalent Chromium	0.20 U	0.50	0.080

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Hexavalent Chromium

Lab #:	259841	Location:	BGMP-1R04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7199
Field ID:	04W08-081414	Batch#:	214416
MSS Lab ID:	259841-001	Sampled:	08/14/14 09:02
Matrix:	Water	Received:	08/14/14
Units:	ug/L		

Type: LCS
Lab ID: QC753627
Diln Fac: 1.000
Analyzed: 08/14/14 17:49

Analyte	Spiked	Result	%REC	Limits
Hexavalent Chromium	10.00	10.00	100	90-110

Type: MS
Lab ID: QC753628
Diln Fac: 2.000
Analyzed: 08/14/14 19:37

Analyte	MSS Result	Spiked	Result	%REC	Limits
Hexavalent Chromium	9.235	20.00	28.78	98	90-110

Type: MSD
Lab ID: QC753629
Diln Fac: 2.000
Analyzed: 08/14/14 19:49

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Hexavalent Chromium	20.00	29.00	99	90-110	1	20

Type: SDUP
Lab ID: QC753630
Diln Fac: 2.000
Analyzed: 08/14/14 20:01

Analyte	MSS Result	Result	LOQ	RPD	Lim
Hexavalent Chromium	9.235	10.22	1.000	10	20

LOQ= Limit of Quantitation
RPD= Relative Percent Difference

Initial & Continuing Calibration Data

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259841 7199 Water: EPA 7199

Inst : IC05 Name : IC05 CAL CR6 043
Calnum : 644062428001 Date : 12-FEB-2014 12:27
Units : ug/L X Axis : A Inj Vol : 1000 uL

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	043_15	644062428015	L2	12-FEB-2014 12:27	S23294 (20000X)
L2	043_16	644062428016	L3	12-FEB-2014 12:39	S23294 (10000X)
L3	043_17	644062428017	L4	12-FEB-2014 12:51	S23294 (2000X)
L4	043_18	644062428018	L5	12-FEB-2014 13:03	S23294 (1000X)
L5	043_19	644062428019	L6	12-FEB-2014 13:15	S23294 (200X)
L6	043_20	644062428020	L7	12-FEB-2014 13:27	S23294 (100X)

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Hexavalent Chromium	0.7358	0.8739	1.0956	1.0698	1.0803	1.0729	QUAD	-0.1470	1.09233	-0.00018	0.9880	1.000	0.998	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Hexavalent Chromium	0.5000	-6	1.0000	-7	5.0000	3	10.000	-1	50.000	0	100.00	0

VQ 02/12/14 : Integrated to match previous ICAL in multiple levels.

Analyst: VQ Date: 02/12/14 Reviewer: LW Date: 02/12/14

Instrument response = a0 + amount * a1 + amount^2 * a2 (invert equation before quantitating); QUAD=Quadratic regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259841 7199 Water
EPA 7199

Inst : IC05 Name : IC05 CAL CR6 043
Calnum : 644062428001 Cal Date : 12-FEB-2014

ICV 644062428022 (043_22 12-FEB-2014) stds: S23666 (50X)

Analyte	Spiked	Quant	Units	%D	Max	Flags
Hexavalent Chromium	20.00	19.04	ug/L	-5	10	

Analyst: VQ Date: 02/12/14 Reviewer: LW Date: 02/12/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259841 7199 Water
EPA 7199

Inst : IC05 Run Name : L IDF : 1.0
Seqnum : 644326000005 File : 226_5 Time : 14-AUG-2014 10:07
Cal : 644062428001 Caldate : 12-FEB-2014
Standards: S24414 (10000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Hexavalent Chromium	0.9880	1.0154	1.000	1.064	ug/L	6	10	

RDG 08/14/14 : Integrated to match integration of ICAL and CCV.

Analyst: RDG Date: 08/14/14 Reviewer: LW Date: 08/15/14

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259841 7199 Water
EPA 7199

Inst : IC05 Run Name : M IDF : 1.0
Seqnum : 644326000019 File : 226_19 Time : 14-AUG-2014 20:13
Cal : 644062428001 Caldate : 12-FEB-2014
Standards: S24414 (1000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Hexavalent Chromium	0.9880	1.0797	10.00	10.04	ug/L	0	10	

NJT 08/15/14 : Integrated to match integration of ICAL and CCV.

Analyst: NJT Date: 08/15/14 Reviewer: LW Date: 08/15/14

CURTIS & TOMPKINS BLANK USER REPORT FOR 259841 7199 Water
EPA 7199

Inst : IC05 Run Name : QC753626 IDF : 1.0
Seqnum : 644326000006.2 File : 226_6 Time : 14-AUG-2014 17:37
Cal : 644062428001 Caldate : 12-FEB-2014

Analyte	Quant	IQL	MDL	Units	Flags
Hexavalent Chromium	ND	0.5000	0.08023	ug/L	u

Analyst: RDG Date: 08/18/14 Reviewer: LW Date: 08/27/14

u=use

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259841 7199 Water
EPA 7199

Inst : IC05 IDF : 1.0
Seqnum : 644326000020 File : 226_20 Time : 14-AUG-2014 20:25
Cal : 644062428001 Caldate : 12-FEB-2014

Analyte	Quant	IQL	MDL	Units	Flags
Hexavalent Chromium	ND	0.5000	0.08023	ug/L	

NJT 08/15/14 : Integrated to match integration of ICAL and CCV.

Analyst: NJT Date: 08/15/14 Reviewer: LW Date: 08/15/14

Logbooks & Sequences

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 644062428

Instrument : IC05 Begun : 02/12/14 08:28
Method : EPA 7199 SOP Version : cr6-ic_rv2

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	043_1	X	BLK			02/12/14 08:28	1.0		
002	043_2	X	BLK			02/12/14 08:39	1.0		
003	043_3	X	BLK			02/12/14 08:51	1.0		
004	043_4	X	BLK			02/12/14 09:03	1.0		
005	043_5	X	BLK			02/12/14 09:15	1.0		
006	043_6	X	BLK			02/12/14 09:27	1.0		
007	043_7	X	CCV			02/12/14 09:39	1.0	1	
008	043_8	X	BLK			02/12/14 10:06	1.0		
009	043_9	X	BLK			02/12/14 10:18	1.0		
010	043_10	X	BLK			02/12/14 10:30	1.0		
011	043_11	X	BLK			02/12/14 11:39	1.0		
012	043_12	X	BLK			02/12/14 11:51	1.0		
013	043_13	IB	ICALIB			02/12/14 12:03	1.0		
014	043_14	ICAL	L1			02/12/14 12:15	1.0	1	
015	043_15	ICAL	L2			02/12/14 12:27	1.0	1	
016	043_16	ICAL	L3			02/12/14 12:39	1.0	1	
017	043_17	ICAL	L4			02/12/14 12:51	1.0	1	
018	043_18	ICAL	L5			02/12/14 13:03	1.0	1	
019	043_19	ICAL	L6			02/12/14 13:15	1.0	1	
020	043_20	ICAL	L7			02/12/14 13:27	1.0	1	
021	043_21	ICB				02/12/14 13:51	1.0		
022	043_22	ICV				02/12/14 14:04	1.0	2	
023	043_23	CCB/MB	QC727837	Water	208005	02/12/14 14:19	1.0		
024	043_24	LCS	QC727838	Water	208005	02/12/14 14:31	1.0	2	
025	043_25	MSS	253315-001	Water	208005	02/12/14 17:20	1.0		
026	043_26	SAMPLE	253315-003	Water	208005	02/12/14 17:32	1.0		
027	043_27	MS	QC727839	Water	208005	02/12/14 17:44	1.01	2	
028	043_28	MSD	QC727840	Water	208005	02/12/14 17:56	1.01	2	
029	043_29	CCV	M		208005	02/12/14 18:08	1.0	1	
030	043_30	CCB			208005	02/12/14 18:20	1.0		

VQ 02/13/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 30.

LW 02/12/14 : Sequence reviewed through file 22

Analyst: VQ Date: 02/12/14 Reviewer: LW Date: 02/13/14

Standards used: 1=S23294 2=S23666

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CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 644326000

Instrument : IC05 Begun : 08/14/14 09:20
Method : EPA 7199 SOP Version : cr6-ic_rv2

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	226_1	X	BLK			08/14/14 09:20	1.0		
002	226_2	X	BLK			08/14/14 09:32	1.0		
003	226_3	X	BLK			08/14/14 09:44	1.0		
004	226_4	X	BLK			08/14/14 09:55	1.0		
005	226_5	CCV	L			08/14/14 10:07	1.0	1	
006	226_6	CCB/MB	QC753626	Water	214416	08/14/14 17:37	1.0		
007	226_7	LCS	QC753627	Water	214416	08/14/14 17:49	1.0	2	
008	226_8	MSS	259841-001	Water	214416	08/14/14 18:01	1.0		
009	226_9	X	BLK		214416	08/14/14 18:13	1.0		
010	226_10	SAMPLE	259841-002	Water	214416	08/14/14 18:26	1.0		
011	226_11	SAMPLE	259841-003	Water	214416	08/14/14 18:38	1.0		
012	226_12	SAMPLE	259841-007	Water	214416	08/14/14 18:49	1.0		
013	226_13	SAMPLE	259835-001	Water	214416	08/14/14 19:01	1.0		
014	226_14	SAMPLE	259841-008	Water	214416	08/14/14 19:13	1.0		
015	226_15	MSS	259841-001	Water	214416	08/14/14 19:25	2.0		
016	226_16	MS	QC753628	Water	214416	08/14/14 19:37	2.0	2	
017	226_17	MSD	QC753629	Water	214416	08/14/14 19:49	2.0	2	
018	226_18	SDUP	QC753630	Water	214416	08/14/14 20:01	2.0		
019	226_19	CCV	M		214416	08/14/14 20:13	1.0	1	
020	226_20	CCB			214416	08/14/14 20:25	1.0		
021	226_21	CCV	M		214416	08/14/14 20:37	1.0	1	
022	226_22	CCB			214416	08/14/14 20:49	1.0		

NJT 08/15/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 22.

Analyst: NJT Date: 08/15/14 Reviewer: LW Date: 08/15/14

Standards used: 1=S24414 2=S23666

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Curtis & Tompkins, Ltd. **Water Prep Log** Ion Chromatography

Analysis: ☐ Anions EPA 300 / EPA 9056
☐ Perchlorate (ClO_4) EPA 314
☒ Cr6+ EPA 7199

Batch#: 214416
Date Started: 8/14/14
Prep Chemist: RDC

BK 3586
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	Sample #	Container	☐ Conductivity ☒ pH	Estimated Dilution Factor	Filters Used	Comments
1	259835-001	RDC	9.5	1X	S	
2	259841-001	↓	↓	1X/2X	↓	MSS
3	-002	↓	↓	1X	↓	
4	-003	↓	↓	↓	↓	
5	-007	↓	↓	↓	↓	
6	-008	↓	↓	↓	↓	
7	Blank QC753626			↓	↓	
8	LCS 627			↓	↓	
9	MS 628			2X	↓	
10	MSD 629			↓	↓	
11	SDUP 630			↓	↓	
12						
13						
14						
15						
16						
17						
18						
19						
20						
						MJT 8/15/14

	Mfg & Lot # / Time / Program	Initials / Date
Eluent Reagent ID	ICOS Eluent 8/13/14 MJT	MJT 8/15/14
(LCS)BS/BSD Spiked with 0.05 mL of :	S23666	↓
MS/MSD Spiked with 0.05 mL of :	↓	
Filters Used: Ag: OnGuard II Ag	NA	
Na: OnGuard II Na	↓	
P: OnGuard II P		
RP: OnGuard II RP	↓	
S: 0.20um/(0.45um)	Sartorius #40082133	↓

MJT 8/15/14
Extraction Chemist / Date

Continued from page ___
Continued on page ___

8-15-14
Reviewed by / Date

Dilutions for 259841 7199 Water
Curtis & Tompkins Laboratories

Type	Sample ID	IDFs
SAMPLE	259841-001	2X
MS	QC753628	2X
MSD	QC753629	2X
SDUP	QC753630	2X

Case Narrative Addendum: Manual Integrations for 259841 Hexavalent Chromium (Water)

For CCB (IC05_226_20):
Integrated to match integration of ICAL and CCV.

For MSS 259841-001 (IC05_226_15):
Integrated to match integration of ICAL and CCV.

For SAMPLE 259841-002 (IC05_226_10):
Integrated to match integration of ICAL and CCV.

For SAMPLE 259841-003 (IC05_226_11):
Integrated to match integration of ICAL and CCV.

For SAMPLE 259841-008 (IC05_226_14):
Integrated to match integration of ICAL and CCV.

For CCV L (IC05_226_5):
Integrated to match integration of ICAL and CCV.

For CCV M (IC05_226_19):
Integrated to match integration of ICAL and CCV.

For LCS QC753627 (IC05_226_7):
Integrated to match integration of ICAL and CCV.

For MSD QC753629 (IC05_226_17):
Integrated to match integration of ICAL and CCV for spike & dup.

For SDUP QC753630 (IC05_226_18):
Integrated to match integration of ICAL and CCV.

For Calibration IC05 (644062428001):
Integrated to match previous ICAL in multiple levels.

For ICV (IC05_043_22):
Integrated to match integration of ICAL and CCV.

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 259885
ANALYTICAL REPORT

JM Waller Associates 11325 Random Hills Road Fairfax, VA 22030-6608	Project : N62473-11-D-2215 Location : BGMP-IR04 Level : III Contract # : N62473-11-D-2215

Sample ID	Lab ID
04W11-081514	259885-001
04W12-081514	259885-002
04W23-081514	259885-003
RB-081514	259885-004

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Tracy Babjar Date: 09/03/2014

Tracy Babjar
Project Manager
tracy.babjar@ctberk.com
(510) 204-2226

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**259885**
Client:	**JM Waller Associates**
Project:	**N62473-11-D-2215**
Location:	**BGMP-IR04**
Request Date:	**08/15/14**
Samples Received:	**08/15/14**

This data package contains sample and QC results for four water samples, requested for the above referenced project on 08/15/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

All qualified data are compliant with appropriate corrective actions specified in Standard Operating Procedures. The Standard Operating Procedures are available upon request.

Manual integration documentation may be found in the "Case Narrative Addendum: Manual Integrations" sections.

Metals (EPA 6010C and EPA 7470A):
High responses were observed for manganese and thallium in the CCV analyzed 08/28/14 19:43.

No other analytical problems were encountered.

Chain of Custody

CHAIN OF CUSTODY

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

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Chain of Custody #

C&T LOGIN # 259885

Project No: NG2473-11-D-2215
Project Name: SGMP-1604
Project P. O. No: ATL14-001-01-004-CTL
EDD Format: Report Level ☐ II ☑ III ☐ IV
Turnaround Time: ☐ RUSH ☑ Standard

Sampler: M. Mandell
Report To: T. Chinnay + H. Wollenburg
Company: JM Walter + ERRS
Telephone: 404-443-2777
Email:

Lab No.	Sample ID.	Sampling: Date Collected	Sampling: Time Collected	Matrix: Water	Matrix: Solid	# of Containers	Chemical Preservative: HCl	H2SO4	HNO3	NaOH	None	Metals - Field Filtered	~~Mercury~~ (SL)	VOC (SL)	SVOC (SL)	PAH (SL)	PCB (SL)	TPH-D/MO (SL)
1	04W11-081514	8/15/14	0925	X		1			X			X						
2	04W12-081514	↓	1035	X		1			X			X						
3	04W23-081514		1205	X		1			X			X						
4	RB-081514	↓	1230	X		2			X			X						

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:	DATE	TIME
M. Mandell	8/15/14	1510
Ron #209	8/15	1600

RECEIVED BY:	DATE	TIME
Ron #209	8/15	1510
	8/15/14	1600

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 259885 Date Received 8/15/14 Number of coolers 2
Client JM Waller + ERRG Project BGMP-1R04

Date Opened 8/15 By (print) [illegible] (sign) [illegible]
Date Logged in 8/15 By (print) MC (sign) [illegible]

1. Did cooler come with a shipping slip (airbill, etc) _____ YES ~~NO~~
   Shipping info _____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
   How many _____ Name _____ Date _____
2B. Were custody seals intact upon arrival? _____ YES NO ~~N/A~~
3. Were custody papers dry and intact when received? _____ ~~YES~~ NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ ~~YES~~ NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ___ ~~YES~~ NO
6. Indicate the packing in cooler: (if other, describe) _____

   ☒ Bubble Wrap ☒ Foam blocks ☒ Bags ☐ None
   ☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

   Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) _____

   ☐ Samples received on ice & cold without a temperature blank; temp taken with IR gun

   ☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES ~~NO~~
   If YES, what time were they transferred to freezer? _____
9. Did all bottles arrive unbroken/unopened? _____ ~~YES~~ NO
10. Are there any missing / extra samples? _____ ~~YES~~ ~~NO~~
11. Are samples in the appropriate containers for indicated tests? _____ ~~YES~~ NO
12. Are sample labels present, in good condition and complete? _____ ~~YES~~ NO
13. Do the sample labels agree with custody papers? _____ ~~YES~~ NO
14. Was sufficient amount of sample sent for tests requested? _____ ~~YES~~ NO
15. Are the samples appropriately preserved? _____ ~~YES~~ NO N/A
16. Did you check preservatives for all bottles for each sample? _____ ~~YES~~ NO N/A
17. Did you document your preservative check? _____ ~~YES~~ NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO ~~N/A~~
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO ~~N/A~~
20. Are bubbles > 6mm absent in VOA samples? _____ YES NO ~~N/A~~
21. Was the client contacted concerning this sample delivery? _____ YES ~~NO~~
   If YES, Who was called? _____ By _____ Date: _____

COMMENTS

Rev 10, 10/11

Curtis & Tompkins Sample Preservation for 259885

Sample	pH: <2	>9	>12	Other
-001a	[✓]	[ ]	[ ]	_____
-002a	[✓]	[ ]	[ ]	_____
-003a	[✓]	[ ]	[ ]	_____
-004a	[✓]	[ ]	[ ]	_____
b	[✓]	[ ]	[ ]	_____

Analyst: YV
Date: 8/15/14

Page 1 of 1

Curtis & Tompkins, Ltd.

Detections Summary for 259885

Results for any subcontracted analyses are not included in this summary.

Client : JM Waller Associates
Project : N62473-11-D-2215
Location : BGMP-IR04

Client Sample ID : 04W11-081514 Laboratory Sample ID : 259885-001

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Magnesium	530,000		20,000	2,000	ug/L	DISS.	100.0	EPA 6010C	METHOD
Manganese	4,700		5.0	0.48	ug/L	DISS.	1.000	EPA 6010C	METHOD
Arsenic	96		5.0	1.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Barium	130		5.0	1.0	ug/L	DISS.	1.000	EPA 6010C	METHOD
Beryllium	0.61	J	2.0	0.083	ug/L	DISS.	1.000	EPA 6010C	METHOD
Chromium	8.4		5.0	0.57	ug/L	DISS.	1.000	EPA 6010C	METHOD
Cobalt	2.5	J	5.0	0.32	ug/L	DISS.	1.000	EPA 6010C	METHOD
Molybdenum	20		5.0	0.40	ug/L	DISS.	1.000	EPA 6010C	METHOD
Nickel	9.5		5.0	0.71	ug/L	DISS.	1.000	EPA 6010C	METHOD
Selenium	74		10	2.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Silver	2.0	J	5.0	0.66	ug/L	DISS.	1.000	EPA 6010C	METHOD
Vanadium	8.4		5.0	0.67	ug/L	DISS.	1.000	EPA 6010C	METHOD
Zinc	9.6	J	20	3.0	ug/L	DISS.	1.000	EPA 6010C	METHOD

Client Sample ID : 04W12-081514 Laboratory Sample ID : 259885-002

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Aluminum	37	J	100	28	ug/L	DISS.	1.000	EPA 6010C	METHOD
Magnesium	650,000		20,000	2,000	ug/L	DISS.	100.0	EPA 6010C	METHOD
Manganese	1,500		5.0	0.48	ug/L	DISS.	1.000	EPA 6010C	METHOD
Arsenic	30		5.0	1.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Barium	170		5.0	1.0	ug/L	DISS.	1.000	EPA 6010C	METHOD
Beryllium	0.69	J	2.0	0.083	ug/L	DISS.	1.000	EPA 6010C	METHOD
Chromium	6.6		5.0	0.57	ug/L	DISS.	1.000	EPA 6010C	METHOD
Cobalt	2.6	J	5.0	0.32	ug/L	DISS.	1.000	EPA 6010C	METHOD
Molybdenum	11		5.0	0.40	ug/L	DISS.	1.000	EPA 6010C	METHOD
Nickel	7.6		5.0	0.71	ug/L	DISS.	1.000	EPA 6010C	METHOD
Selenium	76		10	2.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Silver	2.0	J	5.0	0.66	ug/L	DISS.	1.000	EPA 6010C	METHOD
Vanadium	5.0	J	5.0	0.67	ug/L	DISS.	1.000	EPA 6010C	METHOD
Zinc	6.4	J	20	3.0	ug/L	DISS.	1.000	EPA 6010C	METHOD

Curtis & Tompkins, Ltd.

Client Sample ID : 04W23-081514 Laboratory Sample ID : 259885-003

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Magnesium	250,000		20,000	2,000	ug/L	DISS.	100.0	EPA 6010C	METHOD
Manganese	590		5.0	0.48	ug/L	DISS.	1.000	EPA 6010C	METHOD
Arsenic	4.0	J	5.0	1.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Barium	200		5.0	1.0	ug/L	DISS.	1.000	EPA 6010C	METHOD
Beryllium	0.59	J	2.0	0.083	ug/L	DISS.	1.000	EPA 6010C	METHOD
Chromium	3.8	J	5.0	0.57	ug/L	DISS.	1.000	EPA 6010C	METHOD
Molybdenum	9.5		5.0	0.40	ug/L	DISS.	1.000	EPA 6010C	METHOD
Selenium	180		10	2.3	ug/L	DISS.	1.000	EPA 6010C	METHOD
Silver	2.0	J	5.0	0.66	ug/L	DISS.	1.000	EPA 6010C	METHOD
Vanadium	5.4		5.0	0.67	ug/L	DISS.	1.000	EPA 6010C	METHOD
Zinc	6.2	J	20	3.0	ug/L	DISS.	1.000	EPA 6010C	METHOD

Client Sample ID : RB-081514 Laboratory Sample ID : 259885-004

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Magnesium	100	J	500	20	ug/L	DISS.	1.000	EPA 6010C	METHOD
Selenium	4.1	J	10	2.3	ug/L	DISS.	1.000	EPA 6010C	METHOD

J = Estimated value

Laboratory Job Number 259885

ANALYTICAL REPORT

Metals

Matrix: Filtrate

Curtis & Tompkins, Ltd.

Dissolved Aluminum

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Aluminum	Sampled:	08/15/14
Matrix:	Filtrate	Received:	08/15/14
Units:	ug/L	Prepared:	08/26/14
Diln Fac:	1.000	Analyzed:	08/28/14
Batch#:	214807		

Field ID	Type	Lab ID	Result	LOQ	DL
04W11-081514	SAMPLE	259885-001	50 U	100	28
04W12-081514	SAMPLE	259885-002	37 J	100	28
04W23-081514	SAMPLE	259885-003	50 U	100	28
RB-081514	SAMPLE	259885-004	50 U	100	28
	BLANK	QC755177	50 U	100	28

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved Magnesium

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Magnesium	Sampled:	08/15/14
Matrix:	Filtrate	Received:	08/15/14
Units:	ug/L	Prepared:	08/26/14
Batch#:	214807	Analyzed:	08/28/14

Field ID	Type	Lab ID	Result		LOQ	DL	Diln Fac
04W11-081514	SAMPLE	259885-001	530,000		20,000	2,000	100.0
04W12-081514	SAMPLE	259885-002	650,000		20,000	2,000	100.0
04W23-081514	SAMPLE	259885-003	250,000		20,000	2,000	100.0
RB-081514	SAMPLE	259885-004	100	J	500	20	1.000
	BLANK	QC755177	160	U	500	20	1.000

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved Manganese

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Manganese	Sampled:	08/15/14
Matrix:	Filtrate	Received:	08/15/14
Units:	ug/L	Prepared:	08/26/14
Diln Fac:	1.000	Analyzed:	08/28/14
Batch#:	214807		

Field ID	Type	Lab ID	Result	LOQ	DL
04W11-081514	SAMPLE	259885-001	4,700	5.0	0.48
04W12-081514	SAMPLE	259885-002	1,500	5.0	0.48
04W23-081514	SAMPLE	259885-003	590	5.0	0.48
RB-081514	SAMPLE	259885-004	1.3 U	5.0	0.48
	BLANK	QC755177	1.3 U	5.0	0.48

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215		
Field ID:	04W11-081514	Diln Fac:	1.000
Lab ID:	259885-001	Sampled:	08/15/14
Matrix:	Filtrate	Received:	08/15/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Analysis
Antimony	2.5 U	10	0.65	214807	08/26/14	08/28/14	EPA 6010C
Arsenic	96	5.0	1.3	214807	08/26/14	08/28/14	EPA 6010C
Barium	130	5.0	1.0	214807	08/26/14	08/28/14	EPA 6010C
Beryllium	0.61 J	2.0	0.083	214807	08/26/14	08/28/14	EPA 6010C
Cadmium	1.3 U	5.0	0.58	214807	08/26/14	08/28/14	EPA 6010C
Chromium	8.4	5.0	0.57	214807	08/26/14	08/28/14	EPA 6010C
Cobalt	2.5 J	5.0	0.32	214807	08/26/14	08/28/14	EPA 6010C
Copper	2.5 U	5.0	0.99	214807	08/26/14	08/28/14	EPA 6010C
Lead	2.5 U	5.0	0.91	214807	08/26/14	08/28/14	EPA 6010C
Mercury	0.10 U	0.20	0.040	214672	08/22/14	08/22/14	EPA 7470A
Molybdenum	20	5.0	0.40	214807	08/26/14	08/28/14	EPA 6010C
Nickel	9.5	5.0	0.71	214807	08/26/14	08/28/14	EPA 6010C
Selenium	74	10	2.3	214807	08/26/14	08/28/14	EPA 6010C
Silver	2.0 J	5.0	0.66	214807	08/26/14	08/28/14	EPA 6010C
Thallium	5.0 U	10	2.0	214807	08/26/14	08/28/14	EPA 6010C
Vanadium	8.4	5.0	0.67	214807	08/26/14	08/28/14	EPA 6010C
Zinc	9.6 J	20	3.0	214807	08/26/14	08/28/14	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215		
Field ID:	04W12-081514	Diln Fac:	1.000
Lab ID:	259885-002	Sampled:	08/15/14
Matrix:	Filtrate	Received:	08/15/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Analysis
Antimony	2.5 U	10	0.65	214807	08/26/14	08/28/14	EPA 6010C
Arsenic	30	5.0	1.3	214807	08/26/14	08/28/14	EPA 6010C
Barium	170	5.0	1.0	214807	08/26/14	08/28/14	EPA 6010C
Beryllium	0.69 J	2.0	0.083	214807	08/26/14	08/28/14	EPA 6010C
Cadmium	1.3 U	5.0	0.58	214807	08/26/14	08/28/14	EPA 6010C
Chromium	6.6	5.0	0.57	214807	08/26/14	08/28/14	EPA 6010C
Cobalt	2.6 J	5.0	0.32	214807	08/26/14	08/28/14	EPA 6010C
Copper	2.5 U	5.0	0.99	214807	08/26/14	08/28/14	EPA 6010C
Lead	2.5 U	5.0	0.91	214807	08/26/14	08/28/14	EPA 6010C
Mercury	0.10 U	0.20	0.040	214672	08/22/14	08/22/14	EPA 7470A
Molybdenum	11	5.0	0.40	214807	08/26/14	08/28/14	EPA 6010C
Nickel	7.6	5.0	0.71	214807	08/26/14	08/28/14	EPA 6010C
Selenium	76	10	2.3	214807	08/26/14	08/28/14	EPA 6010C
Silver	2.0 J	5.0	0.66	214807	08/26/14	08/28/14	EPA 6010C
Thallium	5.0 U	10	2.0	214807	08/26/14	08/28/14	EPA 6010C
Vanadium	5.0 J	5.0	0.67	214807	08/26/14	08/28/14	EPA 6010C
Zinc	6.4 J	20	3.0	214807	08/26/14	08/28/14	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215		
Field ID:	04W23-081514	Diln Fac:	1.000
Lab ID:	259885-003	Sampled:	08/15/14
Matrix:	Filtrate	Received:	08/15/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Analysis
Antimony	2.5 U	10	0.65	214807	08/26/14	08/28/14	EPA 6010C
Arsenic	4.0 J	5.0	1.3	214807	08/26/14	08/28/14	EPA 6010C
Barium	200	5.0	1.0	214807	08/26/14	08/28/14	EPA 6010C
Beryllium	0.59 J	2.0	0.083	214807	08/26/14	08/28/14	EPA 6010C
Cadmium	1.3 U	5.0	0.58	214807	08/26/14	08/28/14	EPA 6010C
Chromium	3.8 J	5.0	0.57	214807	08/26/14	08/28/14	EPA 6010C
Cobalt	1.3 U	5.0	0.32	214807	08/26/14	08/28/14	EPA 6010C
Copper	2.5 U	5.0	0.99	214807	08/26/14	08/28/14	EPA 6010C
Lead	2.5 U	5.0	0.91	214807	08/26/14	08/28/14	EPA 6010C
Mercury	0.10 U	0.20	0.040	214672	08/22/14	08/22/14	EPA 7470A
Molybdenum	9.5	5.0	0.40	214807	08/26/14	08/28/14	EPA 6010C
Nickel	2.5 U	5.0	0.71	214807	08/26/14	08/28/14	EPA 6010C
Selenium	180	10	2.3	214807	08/26/14	08/28/14	EPA 6010C
Silver	2.0 J	5.0	0.66	214807	08/26/14	08/28/14	EPA 6010C
Thallium	5.0 U	10	2.0	214807	08/26/14	08/28/14	EPA 6010C
Vanadium	5.4	5.0	0.67	214807	08/26/14	08/28/14	EPA 6010C
Zinc	6.2 J	20	3.0	214807	08/26/14	08/28/14	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Dissolved California Title 22 Metals

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215		
Field ID:	RB-081514	Diln Fac:	1.000
Lab ID:	259885-004	Sampled:	08/15/14
Matrix:	Filtrate	Received:	08/15/14
Units:	ug/L		

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Analysis
Antimony	2.5 U	10	0.65	214807	08/26/14	08/28/14	EPA 6010C
Arsenic	2.5 U	5.0	1.3	214807	08/26/14	08/28/14	EPA 6010C
Barium	2.5 U	5.0	1.0	214807	08/26/14	08/28/14	EPA 6010C
Beryllium	1.0 U	2.0	0.083	214807	08/26/14	08/28/14	EPA 6010C
Cadmium	1.3 U	5.0	0.58	214807	08/26/14	08/28/14	EPA 6010C
Chromium	1.3 U	5.0	0.57	214807	08/26/14	08/28/14	EPA 6010C
Cobalt	1.3 U	5.0	0.32	214807	08/26/14	08/28/14	EPA 6010C
Copper	2.5 U	5.0	0.99	214807	08/26/14	08/28/14	EPA 6010C
Lead	2.5 U	5.0	0.91	214807	08/26/14	08/28/14	EPA 6010C
Mercury	0.10 U	0.20	0.040	214672	08/22/14	08/22/14	EPA 7470A
Molybdenum	1.3 U	5.0	0.40	214807	08/26/14	08/28/14	EPA 6010C
Nickel	2.5 U	5.0	0.71	214807	08/26/14	08/28/14	EPA 6010C
Selenium	4.1 J	10	2.3	214807	08/26/14	08/28/14	EPA 6010C
Silver	2.5 U	5.0	0.66	214807	08/26/14	08/28/14	EPA 6010C
Thallium	5.0 U	10	2.0	214807	08/26/14	08/28/14	EPA 6010C
Vanadium	2.5 U	5.0	0.67	214807	08/26/14	08/28/14	EPA 6010C
Zinc	10 U	20	3.0	214807	08/26/14	08/28/14	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	214672
Lab ID:	QC754624	Prepared:	08/22/14
Matrix:	Water	Analyzed:	08/22/14
Units:	ug/L		

Result	LOQ	DL
0.10 U	0.20	0.040

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	214672
Matrix:	Water	Prepared:	08/22/14
Units:	ug/L	Analyzed:	08/22/14
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC754625	2.500	2.634	105	80-120		
BSD	QC754626	2.500	2.612	104	80-120	1	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	214672
Field ID:	UST993-L-WC-081514	Sampled:	08/15/14
MSS Lab ID:	259882-001	Received:	08/15/14
Matrix:	Filtrate	Prepared:	08/22/14
Units:	ug/L	Analyzed:	08/22/14
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC754627	<0.04000	2.500	2.387	95	80-120		
MSD	QC754628		2.500	2.402	96	80-120	1	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 7470A
Analyte:	Mercury	Units:	ug/L
Field ID:	UST993-L-WC-081514	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214672
MSS Lab ID:	259882-001	Sampled:	08/15/14
Lab ID:	QC754629	Received:	08/15/14
Matrix:	Filtrate	Analyzed:	08/22/14

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
0.5000 ND	0.2000	0.5000 U	1.000	NC	10

U= Not Detected at or above DL
NC= Not Calculated
ND= Not Detected at or above DL
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC755177	Batch#:	214807
Matrix:	Filtrate	Prepared:	08/26/14
Units:	ug/L	Analyzed:	08/28/14

Analyte	Result	LOQ	DL
Antimony	2.5 U	10	0.65
Arsenic	2.5 U	5.0	1.3
Barium	2.5 U	5.0	1.0
Beryllium	1.0 U	2.0	0.083
Cadmium	1.3 U	5.0	0.58
Chromium	1.3 U	5.0	0.57
Cobalt	1.3 U	5.0	0.32
Copper	2.5 U	5.0	0.99
Lead	2.5 U	5.0	0.91
Molybdenum	1.3 U	5.0	0.40
Nickel	2.5 U	5.0	0.71
Selenium	5.0 U	10	2.3
Silver	2.5 U	5.0	0.66
Thallium	5.0 U	10	2.0
Vanadium	2.5 U	5.0	0.67
Zinc	10 U	20	3.0

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Aluminum

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Aluminum	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	214807
MSS Lab ID:	259774-001	Sampled:	08/12/14
Matrix:	Filtrate	Received:	08/13/14
Units:	ug/L	Prepared:	08/26/14

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
BS	QC755178		10,000	9,265	93	80-120			08/29/14
BSD	QC755179		10,000	9,746	97	80-120	5	20	08/29/14
MS	QC755180	<27.57	10,000	9,389	94	80-120			08/28/14
MSD	QC755181		10,000	8,575	86	80-120	9	20	08/28/14

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Magnesium

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Magnesium	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	214807
MSS Lab ID:	259774-001	Sampled:	08/12/14
Matrix:	Filtrate	Received:	08/13/14
Units:	ug/L	Prepared:	08/26/14

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
BS	QC755178		10,000	9,383	94	80-120			08/29/14
BSD	QC755179		10,000	9,782	98	80-120	4	20	08/29/14
MS	QC755180	101.7	10,000	9,724	96	80-120			08/28/14
MSD	QC755181		10,000	9,103	90	80-120	7	20	08/28/14

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Manganese

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Manganese	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	214807
MSS Lab ID:	259774-001	Sampled:	08/12/14
Matrix:	Filtrate	Received:	08/13/14
Units:	ug/L	Prepared:	08/26/14

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
BS	QC755178		100.0	92.22	92	80-120			08/29/14
BSD	QC755179		100.0	93.31	93	80-120	1	20	08/29/14
MS	QC755180	1.245	100.0	100.2	99	80-120			08/28/14
MSD	QC755181		100.0	97.32	96	80-120	3	20	08/28/14

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Matrix:	Filtrate	Batch#:	214807
Units:	ug/L	Prepared:	08/26/14
Diln Fac:	1.000	Analyzed:	08/29/14

Type: BS Lab ID: QC755178

Analyte	Spiked	Result	%REC	Limits
Antimony	100.0	91.69	92	80-120
Arsenic	100.0	94.03	94	80-120
Barium	100.0	95.42	95	80-120
Beryllium	100.0	95.35	95	80-120
Cadmium	100.0	98.65	99	80-120
Chromium	100.0	94.84	95	80-120
Cobalt	100.0	94.45	94	80-120
Copper	100.0	91.93	92	80-120
Lead	100.0	92.35	92	80-120
Molybdenum	100.0	90.50	90	80-120
Nickel	100.0	94.64	95	80-120
Selenium	100.0	99.81	100	80-120
Silver	100.0	90.16	90	80-120
Thallium	50.00	47.39	95	80-120
Vanadium	100.0	98.95	99	80-120
Zinc	100.0	98.88	99	80-120

Type: BSD Lab ID: QC755179

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	93.04	93	80-120	1	20
Arsenic	100.0	96.16	96	80-120	2	20
Barium	100.0	97.32	97	80-120	2	20
Beryllium	100.0	97.98	98	80-120	3	20
Cadmium	100.0	101.6	102	80-120	3	20
Chromium	100.0	97.27	97	80-120	3	20
Cobalt	100.0	96.79	97	80-120	2	20
Copper	100.0	94.48	94	80-120	3	20
Lead	100.0	95.28	95	80-120	3	20
Molybdenum	100.0	94.10	94	80-120	4	20
Nickel	100.0	97.28	97	80-120	3	20
Selenium	100.0	100.8	101	80-120	1	20
Silver	100.0	91.71	92	80-120	2	20
Thallium	50.00	49.33	99	80-120	4	20
Vanadium	100.0	101.6	102	80-120	3	20
Zinc	100.0	102.0	102	80-120	3	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	ZZZZZZZZZZ	Batch#:	214807
MSS Lab ID:	259774-001	Sampled:	08/12/14
Matrix:	Filtrate	Received:	08/13/14
Units:	ug/L	Prepared:	08/26/14
Diln Fac:	1.000	Analyzed:	08/28/14

Type: MS Lab ID: QC755180

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<0.6500	100.0	81.74	82	80-120
Arsenic	2.000	100.0	103.3	101	80-120
Barium	7.668	100.0	105.8	98	80-120
Beryllium	<0.08263	100.0	97.23	97	80-120
Cadmium	<0.5791	100.0	103.4	103	80-120
Chromium	<0.5731	100.0	97.37	97	80-120
Cobalt	<0.3220	100.0	100.7	101	80-120
Copper	<0.9890	100.0	94.96	95	80-120
Lead	<0.9081	100.0	95.93	96	80-120
Molybdenum	6.450	100.0	102.1	96	80-120
Nickel	<0.7145	100.0	100.0	100	80-120
Selenium	<2.339	100.0	108.5	108	80-120
Silver	<0.6601	100.0	89.46	89	80-120
Thallium	<2.020	50.00	49.62	99	80-120
Vanadium	<0.6657	100.0	102.6	103	80-120
Zinc	<3.028	100.0	112.5	113	80-120

Type: MSD Lab ID: QC755181

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	81.59	82	80-120	0	20
Arsenic	100.0	100.9	99	80-120	2	20
Barium	100.0	102.1	94	80-120	4	20
Beryllium	100.0	92.90	93	80-120	5	20
Cadmium	100.0	99.77	100	80-120	4	20
Chromium	100.0	92.86	93	80-120	5	20
Cobalt	100.0	97.29	97	80-120	3	20
Copper	100.0	91.38	91	80-120	4	20
Lead	100.0	92.43	92	80-120	4	20
Molybdenum	100.0	98.57	92	80-120	3	20
Nickel	100.0	96.10	96	80-120	4	20
Selenium	100.0	104.3	104	80-120	4	20
Silver	100.0	85.94	86	80-120	4	20
Thallium	50.00	48.71	97	80-120	2	20
Vanadium	100.0	97.68	98	80-120	5	20
Zinc	100.0	109.1	109	80-120	3	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Aluminum

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Aluminum	Units:	ug/L
Field ID:	ZZZZZZZZZZ	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214807
MSS Lab ID:	259774-001	Sampled:	08/12/14
Lab ID:	QC755182	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/28/14

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
250.0 ND	100.0	250.0 U	500.0	NC	10

U= Not Detected at or above DL
NC= Not Calculated
ND= Not Detected at or above DL
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Magnesium

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Magnesium	Units:	ug/L
Field ID:	ZZZZZZZZZZ	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214807
MSS Lab ID:	259774-001	Sampled:	08/12/14
Lab ID:	QC755182	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/28/14

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
101.7	500.0	140.3 J	1,000	NC	10

J= Estimated value
NC= Not Calculated
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Manganese

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Manganese	Units:	ug/L
Field ID:	ZZZZZZZZZZ	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214807
MSS Lab ID:	259774-001	Sampled:	08/12/14
Lab ID:	QC755182	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/28/14

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
1.245	5.000	6.250 U	25.00	NC	10

U= Not Detected at or above DL
NC= Not Calculated
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	ZZZZZZZZZZ	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	214807
MSS Lab ID:	259774-001	Sampled:	08/12/14
Lab ID:	QC755182	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/28/14
Units:	ug/L		

Analyte	MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
Antimony	12.50 ND	10.00	12.50 U	50.00	NC	10
Arsenic	2.000	5.000	12.50 U	25.00	NC	10
Barium	7.668	5.000	7.533 J	25.00	NC	10
Beryllium	5.000 ND	2.000	5.000 U	10.00	NC	10
Cadmium	6.250 ND	5.000	6.250 U	25.00	NC	10
Chromium	6.250 ND	5.000	6.250 U	25.00	NC	10
Cobalt	6.250 ND	5.000	6.250 U	25.00	NC	10
Copper	12.50 ND	5.000	12.50 U	25.00	NC	10
Lead	12.50 ND	5.000	12.50 U	25.00	NC	10
Molybdenum	6.450	5.000	7.526 J	25.00	NC	10
Nickel	12.50 ND	5.000	12.50 U	25.00	NC	10
Selenium	25.00 ND	10.00	25.00 U	50.00	NC	10
Silver	12.50 ND	5.000	12.50 U	25.00	NC	10
Thallium	25.00 ND	10.00	25.00 U	50.00	NC	10
Vanadium	12.50 ND	5.000	12.50 U	25.00	NC	10
Zinc	50.00 ND	20.00	50.00 U	100.0	NC	10

J= Estimated value
U= Not Detected at or above DL
NC= Not Calculated
ND= Not Detected at or above DL
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Aluminum

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Aluminum	Units:	ug/L
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	214807
MSS Lab ID:	259774-001	Sampled:	08/12/14
Lab ID:	QC755183	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/29/14

MSS Result	Spiked	Result	%REC	Limits
<27.57	2,000	2,064	103	75-125

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Magnesium

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Magnesium	Units:	ug/L
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	214807
MSS Lab ID:	259774-001	Sampled:	08/12/14
Lab ID:	QC755183	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/29/14

MSS Result	Spiked	Result	%REC	Limits
101.7	20,000	20,500	102	75-125

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved Manganese

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Analyte:	Manganese	Units:	ug/L
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	214807
MSS Lab ID:	259774-001	Sampled:	08/12/14
Lab ID:	QC755183	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/29/14

MSS Result	Spiked	Result	%REC	Limits
1.245	50.00	53.66	105	75-125

Curtis & Tompkins, Ltd.

Batch QC Report

Dissolved California Title 22 Metals

Lab #:	259885	Location:	BGMP-IR04
Client:	JM Waller Associates	Prep:	METHOD
Project#:	N62473-11-D-2215	Analysis:	EPA 6010C
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	214807
MSS Lab ID:	259774-001	Sampled:	08/12/14
Lab ID:	QC755183	Received:	08/13/14
Matrix:	Filtrate	Analyzed:	08/29/14
Units:	ug/L		

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<0.6500	500.0	463.6	93	75-125
Arsenic	2.000	100.0	105.0	103	75-125
Barium	7.668	2,000	1,960	98	75-125
Beryllium	<0.08263	50.00	51.66	103	75-125
Cadmium	<0.5791	50.00	51.16	102	75-125
Chromium	<0.5731	200.0	202.3	101	75-125
Cobalt	<0.3220	500.0	508.5	102	75-125
Copper	<0.9890	250.0	247.0	99	75-125
Lead	<0.9081	100.0	97.16	97	75-125
Molybdenum	6.450	400.0	410.6	101	75-125
Nickel	<0.7145	500.0	515.2	103	75-125
Selenium	<2.339	100.0	115.9	116	75-125
Silver	<0.6601	50.00	50.79	102	75-125
Thallium	<2.020	100.0	101.0	101	75-125
Vanadium	<0.6657	500.0	514.6	103	75-125
Zinc	<3.028	500.0	566.5	113	75-125

REPORTING SUMMARY FOR 259885 METALS Filtrate
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	ALK	SB	ASA	BA	BE	CD	CR	CO	CU	PB	MG	MN	HG	MO	NI	SE	AG	TL	VL	ZN
259885-001	MET44	08/22/14 14:46	1.0													+							
259885-001	MET08	08/28/14 20:23	100.0											+									
259885-001	MET08	08/28/14 22:17	1.0	+	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+
259885-002	MET44	08/22/14 14:48	1.0													+							
259885-002	MET08	08/28/14 20:28	100.0											+									
259885-002	MET08	08/28/14 22:25	1.0	+	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+
259885-003	MET44	08/22/14 14:51	1.0													+							
259885-003	MET08	08/28/14 20:33	100.0											+									
259885-003	MET08	08/28/14 22:33	1.0	+	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+
259885-004	MET44	08/22/14 14:52	1.0													+							
259885-004	MET08	08/28/14 20:38	100.0																				
259885-004	MET08	08/28/14 22:42	1.0	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC754624	MET44	08/22/14 14:37	1.0																				
QC754624	MET44	08/22/14 14:58	1.0													+							
QC754625	MET44	08/22/14 14:38	1.0													+							
QC754626	MET44	08/22/14 14:39	1.0													+							
QC754627	MET44	08/22/14 14:41	1.0													+							
QC754628	MET44	08/22/14 14:43	1.0													+							
QC754629	MET44	08/22/14 14:44	5.0													+							
QC755177	MET08	08/28/14 19:55	1.0	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC755178	MET08	08/28/14 20:00	1.0																				
QC755178	MET08	08/29/14 12:51	1.0	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC755179	MET08	08/28/14 20:04	1.0																				
QC755179	MET08	08/29/14 12:55	1.0	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC755180	MET08	08/28/14 21:59	1.0	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC755181	MET08	08/28/14 22:04	1.0	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC755182	MET08	08/28/14 20:13	500.0																				
QC755182	MET08	08/28/14 22:08	5.0	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC755183	MET08	08/28/14 20:19	100.0																				
QC755183	MET08	08/28/14 22:13	1.0																				
QC755183	MET08	08/29/14 12:59	1.0																				
QC755183	MET08	08/29/14 16:18	1.0	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+

ICP Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84346056

Instrument : MET08 Begun : 08/28/14 07:36
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				08/28/14 07:36	1.0		
002	met08_sn_6010	ICAL	L1			08/28/14 07:41	1.0	1	
003	met08_sn_6010	ICAL	L2			08/28/14 07:46	1.0	2	
004	met08_sn_6010	ICAL	L3			08/28/14 07:51	1.0	3	
005	met08_sn_6010	ICAL	L4			08/28/14 07:56	1.0	4	
006	met08_sn_6010	ICAL	L5			08/28/14 08:03	1.0	5	
007	met08_sn_6010	XICV				08/28/14 08:09	1.0	6	
008	met08_sn_6010	ICV				08/28/14 08:15	1.0	6	
009	met08_sn_6010	CRI				08/28/14 08:21	1.0	7	
010	met08_sn_6010	ICB				08/28/14 08:33	1.0		
011	met08_sn_6010	ICSA				08/28/14 08:38	1.0	8	10:AL=550000
012	met08_sn_6010	ICSAB				08/28/14 09:37	1.0	9	5:MG=510000
013	met08_sn_6010	BLANK	QC755439	Water	214873	08/28/14 09:44	1.0		
014	met08_sn_6010	BS	QC755440	Water	214873	08/28/14 09:49	1.0		
015	met08_sn_6010	BSD	QC755441	Water	214873	08/28/14 09:53	1.0		
016	met08_sn_6010	MSS	260281-001	Water	214873	08/28/14 09:57	1.0		
017	met08_sn_6010	MS	QC755442	Water	214873	08/28/14 10:02	1.0		
018	met08_sn_6010	MSD	QC755443	Water	214873	08/28/14 10:06	1.0		
019	met08_sn_6010	X	RINSE			08/28/14 10:10	1.0		
020	met08_sn_6010	BLANK	QC755455	Water	214877	08/28/14 10:15	1.0		
021	met08_sn_6010	BLANK	QC755456	Water	214877	08/28/14 10:20	1.0		
022	met08_sn_6010	BS	QC755457	Water	214877	08/28/14 10:25	1.0		
023	met08_sn_6010	CCV				08/28/14 10:29	1.0	10	
024	met08_sn_6010	CCB				08/28/14 10:36	1.0		
025	met08_sn_6010	BSD	QC755458	Water	214877	08/28/14 10:41	1.0		
026	met08_sn_6010	SAMPLE	259887-001	Water	214877	08/28/14 10:45	1.0		
027	met08_sn_6010	SAMPLE	260094-001	Water	214877	08/28/14 10:50	1.0		4:PB=230000
028	met08_sn_6010	X	RINSE			08/28/14 10:59	1.0		
029	met08_sn_6010	SAMPLE	260094-001	Water	214877	08/28/14 11:10	100.0		
030	met08_sn_6010	X	RINSE			08/28/14 11:15	1.0		
031	met08_sn_6010	CCV				08/28/14 11:20	1.0	10	
032	met08_sn_6010	XCCB				08/28/14 11:26	1.0		
033	met08_sn_6010	CCB				08/28/14 11:30	1.0		
034	met08_sn_6010	BLANK	QC755439	Water	214873	08/28/14 11:38	1.0		
035	met08_sn_6010	BS	QC755440	Water	214873	08/28/14 11:43	1.0		
036	met08_sn_6010	BSD	QC755441	Water	214873	08/28/14 11:47	1.0		
037	met08_sn_6010	MSS	260281-001	Water	214873	08/28/14 12:02	1.0		
038	met08_sn_6010	MS	QC755442	Water	214873	08/28/14 12:07	1.0		
039	met08_sn_6010	MSD	QC755443	Water	214873	08/28/14 12:12	1.0		
040	met08_sn_6010	X	RINSE			08/28/14 12:16	1.0		
041	met08_sn_6010	CCV				08/28/14 12:21	1.0	10	
042	met08_sn_6010	CCB				08/28/14 12:27	1.0		
043	met08_sn_6010	BLANK	QC755449	Wipe	214875	08/28/14 12:32	1.0		
044	met08_sn_6010	BS	QC755450	Wipe	214875	08/28/14 12:38	1.0		4:K=100000
045	met08_sn_6010	BSD	QC755451	Wipe	214875	08/28/14 12:45	1.0		5:NA=110000
046	met08_sn_6010	SAMPLE	260078-001	Wipe	214875	08/28/14 12:53	1.0		
047	met08_sn_6010	SAMPLE	260080-001	Wipe	214875	08/28/14 12:58	1.0		
048	met08_sn_6010	SAMPLE	260082-001	Wipe	214875	08/28/14 13:03	1.0		
049	met08_sn_6010	SAMPLE	260084-001	Wipe	214875	08/28/14 13:08	1.0		
050	met08_sn_6010	SAMPLE	260087-001	Wipe	214875	08/28/14 13:13	1.0		
051	met08_sn_6010	SAMPLE	260094-001	Wipe	214875	08/28/14 13:18	1.0		
052	met08_sn_6010	SAMPLE	260095-001	Wipe	214875	08/28/14 13:23	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84346056

Instrument : MET08 Begun : 08/28/14 07:36
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	CCV				08/28/14 13:28	1.0	10	
054	met08_sn_6010	CCB				08/28/14 13:35	1.0		
055	met08_sn_6010	SAMPLE	260096-001	Wipe	214875	08/28/14 13:40	1.0		
056	met08_sn_6010	SAMPLE	260097-001	Wipe	214875	08/28/14 13:45	1.0		
057	met08_sn_6010	X	RINSE			08/28/14 13:50	1.0		
058	met08_sn_6010	BLANK	QC755432	TCLP Leachate	214872	08/28/14 13:55	10.0		1:NA=150000
059	met08_sn_6010	BS	QC755433	TCLP Leachate	214872	08/28/14 14:00	5.0		
060	met08_sn_6010	BSD	QC755434	TCLP Leachate	214872	08/28/14 14:04	5.0		
061	met08_sn_6010	MSS	260237-001	TCLP Leachate	214872	08/28/14 14:08	10.0		1:NA=170000
062	met08_sn_6010	MS	QC755435	TCLP Leachate	214872	08/28/14 14:13	10.0		
063	met08_sn_6010	MSD	QC755436	TCLP Leachate	214872	08/28/14 14:18	10.0		
064	met08_sn_6010	SER	QC755437	TCLP Leachate	214872	08/28/14 14:22	50.0		
065	met08_sn_6010	CCV				08/28/14 14:27	1.0	10	
066	met08_sn_6010	CCB				08/28/14 14:34	1.0		
067	met08_sn_6010	PDS	QC755438	TCLP Leachate	214872	08/28/14 14:39	10.0	11 12	
068	met08_sn_6010	CCV				08/28/14 14:43	1.0	10	
069	met08_sn_6010	CCB				08/28/14 14:50	1.0		
070	met08_sn_6010	SER	QC755130	Water	214786	08/28/14 16:02	500.0		
071	met08_sn_6010	PDS	QC755131	Water	214786	08/28/14 16:07	100.0	13 14	
072	met08_sn_6010	X	RINSE			08/28/14 16:11	1.0		
073	met08_sn_6010	SER	QC755576	Soil	214823	08/28/14 16:16	5.0		
074	met08_sn_6010	PDS	QC755577	Soil	214823	08/28/14 16:20	1.0	11 12	2:FE=310000
075	met08_sn_6010	SAMPLE	260062-001	Soil	214823	08/28/14 16:23	1.0		6:FE=1100000
076	met08_sn_6010	X	RINSE			08/28/14 16:30	1.0		
077	met08_sn_6010	SAMPLE	260030-001	Miscell.	214753	08/28/14 16:35	1.0		
078	met08_sn_6010	SAMPLE	260030-002	Miscell.	214753	08/28/14 16:40	1.0		1:MG=4000000
079	met08_sn_6010	X	RINSE			08/28/14 16:44	1.0		
080	met08_sn_6010	CCV				08/28/14 16:49	1.0	10	
081	met08_sn_6010	CCB				08/28/14 16:56	1.0		
082	met08_sn_6010	SAMPLE	260030-002	Miscell.	214753	08/28/14 17:07	1.0		1:MG=3900000
083	met08_sn_6010	SER	QC755130	Water	214786	08/28/14 17:12	5.0		
084	met08_sn_6010	X	RINSE			08/28/14 17:17	1.0		
085	met08_sn_6010	PDS	QC755131	Water	214786	08/28/14 17:22	1.0	13 14	
086	met08_sn_6010	X	RINSE			08/28/14 17:30	1.0		
087	met08_sn_6010	BS	QC755224	Water	214820	08/28/14 17:34	1.0		
088	met08_sn_6010	BSD	QC755225	Water	214820	08/28/14 17:39	1.0		
089	met08_sn_6010	MSS	259774-001	Water	214820	08/28/14 17:43	100.0		
090	met08_sn_6010	MS	QC755226	Water	214820	08/28/14 17:48	100.0		
091	met08_sn_6010	MSD	QC755227	Water	214820	08/28/14 17:53	100.0		
092	met08_sn_6010	CCV				08/28/14 17:58	1.0	10	
093	met08_sn_6010	CCB				08/28/14 18:05	1.0		
094	met08_sn_6010	SER	QC755228	Water	214820	08/28/14 18:10	500.0		
095	met08_sn_6010	PDS	QC755229	Water	214820	08/28/14 18:15	100.0	13 14	
096	met08_sn_6010	MS	QC755226	Water	214820	08/28/14 18:19	1.0		1:NA=220000
097	met08_sn_6010	MSD	QC755227	Water	214820	08/28/14 18:23	1.0		1:NA=210000
098	met08_sn_6010	SER	QC755228	Water	214820	08/28/14 18:27	5.0		
099	met08_sn_6010	MSS	259786-001	Filtrate	214656	08/28/14 18:32	1.0		3:MG=640000
100	met08_sn_6010	X	RINSE			08/28/14 18:40	1.0		
101	met08_sn_6010	PDS	QC755229	Water	214820	08/28/14 18:45	1.0	13 14	1:NA=230000
102	met08_sn_6010	X	RINSE			08/28/14 18:49	1.0		
103	met08_sn_6010	?SAMPLE	260193-022		214872	08/28/14 18:54	10.0		
104	met08_sn_6010	CCV				08/28/14 18:59	1.0	10	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84346056

Instrument : MET08 Begun : 08/28/14 07:36
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met08_sn_6010	CCB				08/28/14 19:06	1.0		
106	met08_sn_6010	?SAMPLE	260193-023		214872	08/28/14 19:11	10.0		
107	met08_sn_6010	?SAMPLE	260193-024		214872	08/28/14 19:16	10.0		
108	met08_sn_6010	?SAMPLE	260193-025		214872	08/28/14 19:21	10.0		
109	met08_sn_6010	SAMPLE	260406-003	TCLP Leachate	214872	08/28/14 19:26	10.0		1:NA=170000
110	met08_sn_6010	X	RINSE			08/28/14 19:33	1.0		
111	met08_sn_6010	X	RINSE			08/28/14 19:38	1.0		
112	met08_sn_6010	CCV				08/28/14 19:43	1.0	10	
113	met08_sn_6010	CCB				08/28/14 19:50	1.0		
114	met08_sn_6010	BLANK	QC755177	Filtrate	214807	08/28/14 19:55	1.0		
115	met08_sn_6010	BS	QC755178	Filtrate	214807	08/28/14 20:00	1.0		
116	met08_sn_6010	BSD	QC755179	Filtrate	214807	08/28/14 20:04	1.0		
117	met08_sn_6010	MSS	259774-001	Filtrate	214807	08/28/14 20:08	100.0		
118	met08_sn_6010	SER	QC755182	Filtrate	214807	08/28/14 20:13	500.0		
119	met08_sn_6010	PDS	QC755183	Filtrate	214807	08/28/14 20:19	100.0	13 14 15	
120	met08_sn_6010	SAMPLE	259885-001	Filtrate	214807	08/28/14 20:23	100.0		
121	met08_sn_6010	SAMPLE	259885-002	Filtrate	214807	08/28/14 20:28	100.0		
122	met08_sn_6010	SAMPLE	259885-003	Filtrate	214807	08/28/14 20:33	100.0		
123	met08_sn_6010	SAMPLE	259885-004	Filtrate	214807	08/28/14 20:38	100.0		
124	met08_sn_6010	CCV				08/28/14 20:43	1.0	10	
125	met08_sn_6010	CCB				08/28/14 20:50	1.0		
126	met08_sn_6010	X	RINSE			08/28/14 20:55	1.0		
127	met08_sn_6010	BLANK	QC755195	Filtrate	214811	08/28/14 21:00	1.0		
128	met08_sn_6010	BS	QC755196	Filtrate	214811	08/28/14 21:05	1.0		
129	met08_sn_6010	BSD	QC755197	Filtrate	214811	08/28/14 21:09	1.0		
130	met08_sn_6010	MSS	259882-001	Filtrate	214811	08/28/14 21:13	100.0		
131	met08_sn_6010	SER	QC755200	Filtrate	214811	08/28/14 21:18	500.0		
132	met08_sn_6010	PDS	QC755201	Filtrate	214811	08/28/14 21:23	100.0	13 14	
133	met08_sn_6010	SAMPLE	259882-002	Filtrate	214811	08/28/14 21:28	100.0		
134	met08_sn_6010	X	RINSE			08/28/14 21:33	1.0		
135	met08_sn_6010	X	RINSE			08/28/14 21:38	1.0		
136	met08_sn_6010	CCV				08/28/14 21:42	1.0	10	
137	met08_sn_6010	CCB				08/28/14 21:49	1.0		
138	met08_sn_6010	MSS	259774-001	Filtrate	214807	08/28/14 21:54	1.0		1:NA=210000
139	met08_sn_6010	MS	QC755180	Filtrate	214807	08/28/14 21:59	1.0		1:NA=220000
140	met08_sn_6010	MSD	QC755181	Filtrate	214807	08/28/14 22:04	1.0		1:NA=200000
141	met08_sn_6010	SER	QC755182	Filtrate	214807	08/28/14 22:08	5.0		
142	met08_sn_6010	PDS	QC755183	Filtrate	214807	08/28/14 22:13	1.0	13 14 15	
143	met08_sn_6010	SAMPLE	259885-001	Filtrate	214807	08/28/14 22:17	1.0		3:MG=480000
144	met08_sn_6010	SAMPLE	259885-002	Filtrate	214807	08/28/14 22:25	1.0		3:MG=560000
145	met08_sn_6010	SAMPLE	259885-003	Filtrate	214807	08/28/14 22:33	1.0		2:MG=220000
146	met08_sn_6010	SAMPLE	259885-004	Filtrate	214807	08/28/14 22:42	1.0		
147	met08_sn_6010	MSS	259882-001	Filtrate	214811	08/28/14 22:47	1.0		1:NA=370000
148	met08_sn_6010	CCV				08/28/14 22:52	1.0	10	
149	met08_sn_6010	CCB				08/28/14 22:59	1.0		
150	met08_sn_6010	MS	QC755198	Filtrate	214811	08/28/14 23:04	1.0		1:NA=340000
151	met08_sn_6010	MSD	QC755199	Filtrate	214811	08/28/14 23:08	1.0		1:NA=330000
152	met08_sn_6010	SER	QC755200	Filtrate	214811	08/28/14 23:12	5.0		
153	met08_sn_6010	PDS	QC755201	Filtrate	214811	08/28/14 23:17	1.0	13 14	
154	met08_sn_6010	SAMPLE	259882-002	Filtrate	214811	08/28/14 23:21	1.0		3:MG=520000
155	met08_sn_6010	X	RINSE			08/28/14 23:30	1.0		
156	met08_sn_6010	SAMPLE	259823-001	Filtrate	214807	08/28/14 23:35	1.0		2:NA=190000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84346056

Instrument : MET08 Begun : 08/28/14 07:36
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
157	met08_sn_6010	SAMPLE	259823-003	Filtrate	214807	08/28/14 23:40	1.0		1:NA=200000
158	met08_sn_6010	SAMPLE	259865-001	Filtrate	214807	08/28/14 23:45	1.0		1:CA=150000
159	met08_sn_6010	SAMPLE	259865-003	Filtrate	214807	08/28/14 23:54	1.0		1:CA=260000
160	met08_sn_6010	CCV				08/29/14 00:02	1.0	10	
161	met08_sn_6010	CCB				08/29/14 00:09	1.0		
162	met08_sn_6010	SAMPLE	259918-001	Filtrate	214807	08/29/14 00:14	1.0		1:NA=250000
163	met08_sn_6010	SAMPLE	259918-003	Filtrate	214807	08/29/14 00:19	1.0		1:NA=210000
164	met08_sn_6010	SAMPLE	259968-001	Filtrate	214807	08/29/14 00:24	1.0		1:NA=200000
165	met08_sn_6010	SAMPLE	259968-003	Filtrate	214807	08/29/14 00:30	1.0		1:CA=130000
166	met08_sn_6010	SAMPLE	260003-001	Filtrate	214807	08/29/14 00:35	1.0		2:CA=400000
167	met08_sn_6010	SAMPLE	260003-003	Filtrate	214807	08/29/14 00:44	1.0		2:CA=410000
168	met08_sn_6010	SAMPLE	260053-001	Filtrate	214807	08/29/14 00:52	1.0		1:CA=270000
169	met08_sn_6010	SAMPLE	260053-003	Filtrate	214807	08/29/14 01:01	1.0		1:CA=570000
170	met08_sn_6010	SAMPLE	260131-001	Filtrate	214807	08/29/14 01:10	1.0		1:NA=570000
171	met08_sn_6010	SAMPLE	260131-002	Filtrate	214807	08/29/14 01:18	1.0		2:NA=680000
172	met08_sn_6010	CCV				08/29/14 01:27	1.0	10	
173	met08_sn_6010	CCB				08/29/14 01:34	1.0		

VQ 08/29/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 173.

Standards used: 1=S25067 2=S25224 3=S25223 4=S25225 5=S25226 6=S25072 7=S25074 8=S25075 9=S25227 10=S25073 11=S24153 12=S24154 13=S24151 14=S24152 15=S25208

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 84346056

Date : 08/28/14 Reference : met08_sn_6010
Sequence : MET08 08/28/14 Analyzed : 08/28/14 07:41

#	Type	Sample ID	Y A
		ICAL STD	2660482
		LOWER LIMIT	798145
		UPPER LIMIT	3192579
010	ICB		2647435
011	ICSA		2315037
012	ICSAB		2277833
092	CCV		2496198
093	CCB		2530112
099	MSS	259786-001	1938127
104	CCV		2518656
105	CCB		2558283
112	CCV		2432691
113	CCB		2494403
114	BLANK	QC755177	2626466
115	BS	QC755178	2538411
116	BSD	QC755179	2543528
118	SER	QC755182	2511182
119	PDS	QC755183	2501691
120	SAMPLE	259885-001	2389652
121	SAMPLE	259885-002	2442875
122	SAMPLE	259885-003	2565924
123	SAMPLE	259885-004	2553814
124	CCV		2549816
125	CCB		2585942
130	MSS	259882-001	2600443
133	SAMPLE	259882-002	2484202
136	CCV		2595346
137	CCB		2602344
139	MS	QC755180	2530799
140	MSD	QC755181	2444335
141	SER	QC755182	2521130
142	PDS	QC755183	2566882
143	SAMPLE	259885-001	2000641
144	SAMPLE	259885-002	1984122
145	SAMPLE	259885-003	2097593
146	SAMPLE	259885-004	2638719
147	MSS	259882-001	2417395
148	CCV		2636290
149	CCB		2489781
154	SAMPLE	259882-002	1996031
160	CCV		2660754
161	CCB		2535236

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259885 METALS Filtrate: EPA 6010C

Inst : MET08
Calnum : 84346056001
Units : ug/L

Date : 28-AUG-2014 07:36
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	84346056002	L1	28-AUG-2014 07:41	S25067
L2	met08_sn_6010	84346056003	L2	28-AUG-2014 07:46	S25224
L3	met08_sn_6010	84346056004	L3	28-AUG-2014 07:51	S25223
L4	met08_sn_6010	84346056005	L4	28-AUG-2014 07:56	S25225
L5	met08_sn_6010	84346056006	L5	28-AUG-2014 08:03	S25226

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	31.260	30.268	32.425	31.590		LOR0	0.00000	0.03165		31.386	1.000	0.995	
Arsenic	A	21.560	17.716	19.243	18.603		LOR0	0.00000	0.05374		19.281	1.000	0.995	
Barium	A	421.46	400.15	427.95	398.65		LOR0	0.00000	0.00251		412.05	1.000	0.995	
Beryllium	A	4943.4	4739.2	5202.7			LOR0	0.00000	1.92E-4		4961.8	1.000	0.995	
Cadmium	A	221.80	215.81	231.27	216.47		LOR0	0.00000	0.00462		221.34	1.000	0.995	
Chromium	A	95.320	91.923	97.395	92.984		LOR0	0.00000	0.01075		94.405	1.000	0.995	
Cobalt	A	130.74	122.79	136.19	129.16		LOR0	0.00000	0.00774		129.72	1.000	0.995	
Copper	A	105.22	111.48	115.51	117.52		LOR0	0.00000	0.00851		112.43	1.000	0.995	
Lead	A	56.120	53.948	58.274	55.233		LOR0	0.00000	0.01810		55.894	1.000	0.995	
Manganese	A	1162.3	1123.6	1236.0	1083.5		LOR0	0.00000	9.22E-4		1151.4	1.000	0.995	
Molybdenum	A	35.740	35.550	37.671	35.977		LOR0	0.00000	0.02778		36.235	1.000	0.995	
Nickel	A	50.020	49.222	53.947	51.485		LOR0	0.00000	0.01941		51.168	1.000	0.995	
Selenium	A	25.640	26.111	28.282	27.360		LOR0	0.00000	0.03654		26.848	1.000	0.995	
Silver	A	720.64	703.91	757.95	724.81		LOR0	0.00000	0.00137		726.83	0.999	0.995	
Thallium	A	17.350	17.755	19.423	17.556		LOR0	0.00000	0.05690		18.021	1.000	0.995	
Vanadium	A	152.98	155.92	164.81	160.18		LOR0	0.00000	0.00624		158.47	1.000	0.995	
Zinc	A	74.740	70.291	75.315	72.108		LOR0	0.00000	0.01386		73.113	1.000	0.995	
Aluminum	R	0.5620		0.6195	0.6034	0.5735	LOR0	0.00000	1.74263		0.5896	1.000	0.995	
Magnesium	R	0.7675		0.8002	0.7578	0.7148	LOR0	0.00000	1.39822		0.7601	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-1	100.00	-4	1000.0	3	10000	0		
Arsenic	A	5.0000	16	100.00	-5	1000.0	3	10000	0		
Barium	A	5.0000	6	100.00	0	1000.0	7	10000	0		
Beryllium	A	2.0000	-5	100.00	-9	1000.0	0				
Cadmium	A	5.0000	2	100.00	0	1000.0	7	10000	0		
Chromium	A	5.0000	2	100.00	-1	1000.0	5	10000	0		
Cobalt	A	5.0000	1	100.00	-5	1000.0	5	10000	0		
Copper	A	5.0000	-10	100.00	-5	1000.0	-2	10000	0		
Lead	A	5.0000	2	100.00	-2	1000.0	5	10000	0		
Manganese	A	5.0000	7	100.00	4	1000.0	14	10000	0		
Molybdenum	A	5.0000	-1	100.00	-1	1000.0	5	10000	0		
Nickel	A	5.0000	-3	100.00	-4	1000.0	5	10000	0		
Selenium	A	10.000	-6	100.00	-5	1000.0	3	10000	0		
Silver	A	5.0000	-1	100.00	-4	1000.0	4	2000.0	-1		
Thallium	A	10.000	-1	100.00	1	1000.0	11	10000	0		
Vanadium	A	5.0000	-5	100.00	-3	1000.0	3	10000	0		
Zinc	A	20.000	4	100.00	-3	1000.0	4	10000	0		
Aluminum	R	100.00	-2			1000.0	8	10000	5	100000	0
Magnesium	R	200.00	7			1000.0	12	10000	6	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08
Calnum : 84346056001 Cal Date : 28-AUG-2014

ICV 84346056008 (28-AUG-2014) stds: S25072

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	5049	ug/L	1	10	
Arsenic	A	5000	5007	ug/L	0	10	
Barium	A	5000	4918	ug/L	-2	10	
Beryllium	A	500.0	500.4	ug/L	0	10	
Cadmium	A	5000	5017	ug/L	0	10	
Chromium	A	5000	4969	ug/L	-1	10	
Cobalt	A	5000	4953	ug/L	-1	10	
Copper	A	5000	5001	ug/L	0	10	
Lead	A	5000	4893	ug/L	-2	10	
Manganese	A	5000	4944	ug/L	-1	10	
Molybdenum	A	5000	5057	ug/L	1	10	
Nickel	A	5000	4917	ug/L	-2	10	
Selenium	A	5000	4975	ug/L	-1	10	
Silver	A	1000	972.8	ug/L	-3	10	
Thallium	A	5000	4938	ug/L	-1	10	
Vanadium	A	5000	4889	ug/L	-2	10	
Zinc	A	5000	4948	ug/L	-1	10	
Aluminum	R	20000	20030	ug/L	0	10	
Magnesium	R	20000	20200	ug/L	1	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056009.1 File : met08_sn_6010 Time : 28-AUG-2014 08:21
Cal : 84346056001 Caldate : 28-AUG-2014
Standards: S25074

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	11.82	ug/L	18	30	
Arsenic	A	5.000	6.343	ug/L	**27**	30	!cri+
Barium	A	5.000	5.664	ug/L	13	30	
Beryllium	A	2.000	1.938	ug/L	-3	30	
Cadmium	A	5.000	5.568	ug/L	11	30	
Chromium	A	5.000	5.435	ug/L	9	30	
Cobalt	A	5.000	5.311	ug/L	6	30	
Copper	A	5.000	5.098	ug/L	2	30	
Lead	A	5.000	5.984	ug/L	20	30	
Manganese	A	5.000	5.955	ug/L	19	30	
Molybdenum	A	5.000	5.938	ug/L	19	30	
Nickel	A	5.000	5.356	ug/L	7	30	
Selenium	A	10.00	12.95	ug/L	**30**	30	!cri+
Silver	A	5.000	4.883	ug/L	-2	30	
Thallium	A	10.00	10.86	ug/L	9	30	
Vanadium	A	5.000	5.333	ug/L	7	30	
Zinc	A	20.00	21.18	ug/L	6	30	
Aluminum	R	100.0	110.5	ug/L	10	30	
Magnesium	R	200.0	224.6	ug/L	12	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2708093	1.79

!=warning +=high bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056010.3 File : met08_sn_6010 Time : 28-AUG-2014 08:33
Cal : 84346056001 Caldate : 28-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2647435	-0.49

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056011.3 File : met08_sn_6010 Time : 28-AUG-2014 08:38
Cal : 84346056001 Caldate : 28-AUG-2014
Standards: S25075

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[1.704]	10.00	ug/L	
Arsenic	A	[2.591]	5.000	ug/L	!a+
Barium	A	[0.4457]	5.000	ug/L	
Beryllium	A	[0.6101]	2.000	ug/L	
Cadmium	A	[2.122]	5.000	ug/L	!a+
Cobalt	A	[-2.145]	5.000	ug/L	!a-
Lead	A	[-3.840]	5.000	ug/L	!a-
Molybdenum	A	[-3.364]	5.000	ug/L	!a-
Selenium	A	[0.6504]	10.00	ug/L	
Silver	A	[2.046]	5.000	ug/L	
Thallium	A	[2.871]	10.00	ug/L	
Zinc	A	[-8.130]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec
Chromium	A	20000	19060	ug/L	95
Copper	A	20000	21390	ug/L	107
Manganese	A	20000	18090	ug/L	90
Nickel	A	20000	17740	ug/L	89
Vanadium	A	20000	18150	ug/L	91
Aluminum	R	500000	553500	ug/L	111
Calcium	R	500000	526200	ug/L	105
Iron	R	200000	206300	ug/L	103
Magnesium	R	500000	524300	ug/L	105
Titanium	R	20000	21750	ug/L	109

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2315037	-12.98

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056012.3 File : met08_sn_6010 Time : 28-AUG-2014 09:37
Cal : 84346056001 Caldate : 28-AUG-2014
Standards: S25227

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	478.7	ug/L	-4	20	
Arsenic	A	500.0	496.7	ug/L	-1	20	
Barium	A	500.0	544.3	ug/L	9	20	
Beryllium	A	500.0	515.2	ug/L	3	20	
Cadmium	A	1000	1033	ug/L	3	20	
Chromium	A	500.0	520.8	ug/L	4	20	
Cobalt	A	500.0	483.3	ug/L	-3	20	
Copper	A	500.0	576.2	ug/L	15	20	
Lead	A	1000	971.0	ug/L	-3	20	
Manganese	A	500.0	445.0	ug/L	-11	20	
Molybdenum	A	500.0	521.9	ug/L	4	20	
Nickel	A	1000	971.9	ug/L	-3	20	
Selenium	A	500.0	490.4	ug/L	-2	20	
Silver	A	1000	1148	ug/L	15	20	
Thallium	A	500.0	485.5	ug/L	-3	20	
Vanadium	A	500.0	552.7	ug/L	11	20	
Zinc	A	1000	1030	ug/L	3	20	
Aluminum	R	500000	507500	ug/L	2		
Magnesium	R	500000	508000	ug/L	2		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2277833	-14.38

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056112.1 File : met08_sn_6010 Time : 28-AUG-2014 19:43
Cal : 84346056001 Caldate : 28-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.386	34.304	5000	5428	ug/L	9	10	
Arsenic	A	19.281	20.441	5000	5492	ug/L	10	10	
Barium	A	412.05	432.08	5000	5415	ug/L	8	10	
Beryllium	A	4961.8	5701.9	500.0	548.5	ug/L	10	10	
Cadmium	A	221.34	235.69	5000	5440	ug/L	9	10	
Chromium	A	94.405	101.32	5000	5446	ug/L	9	10	
Cobalt	A	129.72	140.88	5000	5441	ug/L	9	10	
Copper	A	112.43	115.70	5000	4924	ug/L	-2	10	
Lead	A	55.894	58.439	5000	5287	ug/L	6	10	
Manganese	A	1151.4	1223.1	5000	5636	ug/L	**13**	10	c+ ***
Molybdenum	A	36.235	39.334	5000	5464	ug/L	9	10	
Nickel	A	51.168	55.011	5000	5340	ug/L	7	10	
Selenium	A	26.848	29.806	5000	5445	ug/L	9	10	
Silver	A	726.83	769.76	1000	1052	ug/L	5	10	
Thallium	A	18.021	19.637	5000	5587	ug/L	**12**	10	c+ ***
Vanadium	A	158.47	168.58	5000	5261	ug/L	5	10	
Zinc	A	73.113	78.112	5000	5414	ug/L	8	10	
Aluminum	R	0.5896	0.5711	20000	19910	ug/L	0	10	
Magnesium	R	0.7601	0.7404	20000	20710	ug/L	4	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2432691	-8.56

+=high bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056113.1 File : met08_sn_6010 Time : 28-AUG-2014 19:50
Cal : 84346056001 Caldate : 28-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2494403	-6.24

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056124.1 File : met08_sn_6010 Time : 28-AUG-2014 20:43
Cal : 84346056001 Caldate : 28-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.386	33.273	5000	5265	ug/L	5	10	
Arsenic	A	19.281	19.780	5000	5314	ug/L	6	10	
Barium	A	412.05	421.68	5000	5285	ug/L	6	10	
Beryllium	A	4961.8	5563.0	500.0	535.1	ug/L	7	10	
Cadmium	A	221.34	233.27	5000	5384	ug/L	8	10	
Chromium	A	94.405	99.160	5000	5330	ug/L	7	10	
Cobalt	A	129.72	137.97	5000	5329	ug/L	7	10	
Copper	A	112.43	118.07	5000	5024	ug/L	0	10	
Lead	A	55.894	57.840	5000	5233	ug/L	5	10	
Manganese	A	1151.4	1172.5	5000	5403	ug/L	8	10	
Molybdenum	A	36.235	38.753	5000	5383	ug/L	8	10	
Nickel	A	51.168	54.189	5000	5260	ug/L	5	10	
Selenium	A	26.848	29.068	5000	5310	ug/L	6	10	
Silver	A	726.83	752.19	1000	1028	ug/L	3	10	
Thallium	A	18.021	18.786	5000	5345	ug/L	7	10	
Vanadium	A	158.47	166.35	5000	5191	ug/L	4	10	
Zinc	A	73.113	77.092	5000	5343	ug/L	7	10	
Aluminum	R	0.5896	0.5515	20000	19220	ug/L	-4	10	
Magnesium	R	0.7601	0.7286	20000	20370	ug/L	2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2549816	-4.16

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056125.1 File : met08_sn_6010 Time : 28-AUG-2014 20:50
Cal : 84346056001 Caldate : 28-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2585942	-2.80

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056136.1 File : met08_sn_6010 Time : 28-AUG-2014 21:42
Cal : 84346056001 Caldate : 28-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.386	32.490	5000	5141	ug/L	3	10	
Arsenic	A	19.281	19.045	5000	5117	ug/L	2	10	
Barium	A	412.05	410.05	5000	5139	ug/L	3	10	
Beryllium	A	4961.8	5355.4	500.0	515.1	ug/L	3	10	
Cadmium	A	221.34	225.34	5000	5201	ug/L	4	10	
Chromium	A	94.405	96.064	5000	5163	ug/L	3	10	
Cobalt	A	129.72	133.10	5000	5140	ug/L	3	10	
Copper	A	112.43	119.03	5000	5065	ug/L	1	10	
Lead	A	55.894	56.016	5000	5068	ug/L	1	10	
Manganese	A	1151.4	1131.2	5000	5213	ug/L	4	10	
Molybdenum	A	36.235	37.819	5000	5253	ug/L	5	10	
Nickel	A	51.168	52.349	5000	5082	ug/L	2	10	
Selenium	A	26.848	27.894	5000	5096	ug/L	2	10	
Silver	A	726.83	732.15	1000	1001	ug/L	0	10	
Thallium	A	18.021	18.159	5000	5166	ug/L	3	10	
Vanadium	A	158.47	162.79	5000	5080	ug/L	2	10	
Zinc	A	73.113	73.951	5000	5126	ug/L	3	10	
Aluminum	R	0.5896	0.5706	20000	19890	ug/L	-1	10	
Magnesium	R	0.7601	0.7336	20000	20520	ug/L	3	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2595346	-2.45

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056137.1 File : met08_sn_6010 Time : 28-AUG-2014 21:49
Cal : 84346056001 Caldate : 28-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2602344	-2.19

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056148.1 File : met08_sn_6010 Time : 28-AUG-2014 22:52
Cal : 84346056001 Caldate : 28-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.386	31.875	5000	5044	ug/L	1	10	
Arsenic	A	19.281	18.812	5000	5055	ug/L	1	10	
Barium	A	412.05	410.56	5000	5146	ug/L	3	10	
Beryllium	A	4961.8	5381.1	500.0	517.6	ug/L	4	10	
Cadmium	A	221.34	228.29	5000	5269	ug/L	5	10	
Chromium	A	94.405	96.597	5000	5192	ug/L	4	10	
Cobalt	A	129.72	134.66	5000	5201	ug/L	4	10	
Copper	A	112.43	119.16	5000	5070	ug/L	1	10	
Lead	A	55.894	56.711	5000	5131	ug/L	3	10	
Manganese	A	1151.4	1131.5	5000	5214	ug/L	4	10	
Molybdenum	A	36.235	38.060	5000	5287	ug/L	6	10	
Nickel	A	51.168	52.855	5000	5131	ug/L	3	10	
Selenium	A	26.848	27.853	5000	5088	ug/L	2	10	
Silver	A	726.83	734.36	1000	1004	ug/L	0	10	
Thallium	A	18.021	17.921	5000	5099	ug/L	2	10	
Vanadium	A	158.47	162.28	5000	5064	ug/L	1	10	
Zinc	A	73.113	75.461	5000	5230	ug/L	5	10	
Aluminum	R	0.5896	0.5516	20000	19230	ug/L	-4	10	
Magnesium	R	0.7601	0.7062	20000	19750	ug/L	-1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2636290	-0.91

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84346056149.1 File : met08_sn_6010 Time : 28-AUG-2014 22:59
Cal : 84346056001 Caldate : 28-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2660482	2489781	-6.42

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84347520

Instrument : MET08 Begun : 08/29/14 08:00
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010	ICALBLK				08/29/14 08:00	1.0		
002	met08_sn_6010	ICAL	L1			08/29/14 08:05	1.0	1	
003	met08_sn_6010	ICAL	L2			08/29/14 08:10	1.0	2	
004	met08_sn_6010	ICAL	L3			08/29/14 08:14	1.0	3	
005	met08_sn_6010	ICAL	L4			08/29/14 08:19	1.0	4	
006	met08_sn_6010	ICAL	L5			08/29/14 08:26	1.0	5	
007	met08_sn_6010	ICV				08/29/14 08:32	1.0	6	
008	met08_sn_6010	XCRI				08/29/14 08:40	1.0	7	
009	met08_sn_6010	CRI				08/29/14 08:56	1.0	7	
010	met08_sn_6010	ICB				08/29/14 09:00	1.0		
011	met08_sn_6010	ICSA				08/29/14 09:06	1.0	8	10:AL=510000
012	met08_sn_6010	ICSAB				08/29/14 09:21	1.0	9	5:AL=510000
013	met08_sn_6010	BLANK	QC755394	Soil	214862	08/29/14 09:28	1.0		
014	met08_sn_6010	BS	QC755395	Soil	214862	08/29/14 09:33	1.0		2:K=100000
015	met08_sn_6010	CCV				08/29/14 10:46	1.0	10	
016	met08_sn_6010	CCB				08/29/14 10:52	1.0		
017	met08_sn_6010	SER	QC755228	Water	214820	08/29/14 11:22	5.0		
018	met08_sn_6010	PDS	QC755229	Water	214820	08/29/14 11:27	1.0	11 12	
019	met08_sn_6010	X	RINSE			08/29/14 11:31	1.0		
020	met08_sn_6010	CCV				08/29/14 11:36	1.0	10	
021	met08_sn_6010	CCB				08/29/14 11:42	1.0		
022	met08_sn_6010	BLANK	QC755391	Water	214864	08/29/14 11:54	1.0		
023	met08_sn_6010	BS	QC755392	Water	214864	08/29/14 11:59	1.0		
024	met08_sn_6010	BSD	QC755393	Water	214864	08/29/14 12:03	1.0		
025	met08_sn_6010	SAMPLE	259836-001	Water	214864	08/29/14 12:07	1.0		
026	met08_sn_6010	SAMPLE	259836-002	Water	214864	08/29/14 12:12	1.0		
027	met08_sn_6010	CCV				08/29/14 12:17	1.0	10	
028	met08_sn_6010	CCB				08/29/14 12:24	1.0		
029	met08_sn_6010	BS	QC755178	Filtrate	214807	08/29/14 12:51	1.0		
030	met08_sn_6010	BSD	QC755179	Filtrate	214807	08/29/14 12:55	1.0		
031	met08_sn_6010	PDS	QC755183	Filtrate	214807	08/29/14 12:59	1.0	11 12 13	
032	met08_sn_6010	X	RINSE			08/29/14 13:03	1.0		
033	met08_sn_6010	BLANK	QC755360	Filtrate	214855	08/29/14 13:08	1.0		
034	met08_sn_6010	BS	QC755361	Filtrate	214855	08/29/14 13:13	1.0		
035	met08_sn_6010	BSD	QC755362	Filtrate	214855	08/29/14 13:17	1.0		
036	met08_sn_6010	MSS	259841-001	Filtrate	214855	08/29/14 13:21	100.0		
037	met08_sn_6010	MS	QC755363	Filtrate	214855	08/29/14 13:26	100.0		
038	met08_sn_6010	MSD	QC755364	Filtrate	214855	08/29/14 13:31	100.0		
039	met08_sn_6010	CCV				08/29/14 13:36	1.0	10	
040	met08_sn_6010	CCB				08/29/14 13:43	1.0		
041	met08_sn_6010	SER	QC755365	Filtrate	214855	08/29/14 13:48	500.0		
042	met08_sn_6010	PDS	QC755366	Filtrate	214855	08/29/14 13:53	100.0	11 12	
043	met08_sn_6010	SAMPLE	259835-001	Filtrate	214855	08/29/14 13:57	100.0		
044	met08_sn_6010	SAMPLE	259835-002	Filtrate	214855	08/29/14 14:02	100.0		
045	met08_sn_6010	SAMPLE	259835-003	Filtrate	214855	08/29/14 14:07	100.0		
046	met08_sn_6010	SAMPLE	259841-002	Filtrate	214855	08/29/14 14:13	100.0		
047	met08_sn_6010	SAMPLE	259841-003	Filtrate	214855	08/29/14 14:18	100.0		
048	met08_sn_6010	SAMPLE	259841-005	Filtrate	214855	08/29/14 14:23	100.0		
049	met08_sn_6010	SAMPLE	259841-007	Filtrate	214855	08/29/14 14:28	100.0		
050	met08_sn_6010	X	RINSE			08/29/14 14:33	1.0		
051	met08_sn_6010	CCV				08/29/14 14:38	1.0	10	
052	met08_sn_6010	CCB				08/29/14 14:44	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84347520

Instrument : MET08 Begun : 08/29/14 08:00
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010	MSS	259841-001	Filtrate	214855	08/29/14 14:50	1.0		1:NA=240000
054	met08_sn_6010	MS	QC755363	Filtrate	214855	08/29/14 14:55	1.0		1:NA=240000
055	met08_sn_6010	MSD	QC755364	Filtrate	214855	08/29/14 14:59	1.0		1:NA=260000
056	met08_sn_6010	SER	QC755365	Filtrate	214855	08/29/14 15:03	5.0		
057	met08_sn_6010	PDS	QC755366	Filtrate	214855	08/29/14 15:08	1.0	11 12	1:NA=250000
058	met08_sn_6010	SAMPLE	259835-001	Filtrate	214855	08/29/14 15:12	1.0		
059	met08_sn_6010	SAMPLE	259835-002	Filtrate	214855	08/29/14 15:17	1.0		3:MG=610000
060	met08_sn_6010	SAMPLE	259835-003	Filtrate	214855	08/29/14 15:26	1.0		3:MG=640000
061	met08_sn_6010	SAMPLE	259841-002	Filtrate	214855	08/29/14 15:34	1.0		
062	met08_sn_6010	SAMPLE	259841-003	Filtrate	214855	08/29/14 15:39	1.0		
063	met08_sn_6010	CCV				08/29/14 15:45	1.0	10	
064	met08_sn_6010	CCB				08/29/14 15:51	1.0		
065	met08_sn_6010	SAMPLE	259841-005	Filtrate	214855	08/29/14 15:56	1.0		3:MG=560000
066	met08_sn_6010	SAMPLE	259841-005	Filtrate	214855	08/29/14 16:04	1.0		4:MG=610000
067	met08_sn_6010	SAMPLE	259841-007	Filtrate	214855	08/29/14 16:13	1.0		
068	met08_sn_6010	PDS	QC755183	Filtrate	214807	08/29/14 16:18	1.0	11 12 13	
069	met08_sn_6010	X	RINSE			08/29/14 16:22	1.0		
070	met08_sn_6010	BLANK	QC755278	Water	214834	08/29/14 16:27	1.0		
071	met08_sn_6010	BS	QC755279	Water	214834	08/29/14 16:32	1.0		
072	met08_sn_6010	BSD	QC755280	Water	214834	08/29/14 16:36	1.0		
073	met08_sn_6010	MSS	260128-003	Water	214834	08/29/14 16:40	1.0		
074	met08_sn_6010	MS	QC755281	Water	214834	08/29/14 16:45	1.0		
075	met08_sn_6010	CCV				08/29/14 16:49	1.0	10	
076	met08_sn_6010	CCB				08/29/14 16:56	1.0		
077	met08_sn_6010	MSD	QC755282	Water	214834	08/29/14 17:01	1.0		
078	met08_sn_6010	SER	QC755687	Water	214834	08/29/14 17:05	5.0		
079	met08_sn_6010	PDS	QC755688	Water	214834	08/29/14 17:10	1.0	11 12 13	
080	met08_sn_6010	MSS	260128-003	Water	214834	08/29/14 17:14	100.0		
081	met08_sn_6010	MS	QC755281	Water	214834	08/29/14 17:19	100.0		
082	met08_sn_6010	MSD	QC755282	Water	214834	08/29/14 17:24	100.0		
083	met08_sn_6010	SER	QC755687	Water	214834	08/29/14 17:29	500.0		
084	met08_sn_6010	PDS	QC755688	Water	214834	08/29/14 17:35	100.0	11 12 13	
085	met08_sn_6010	SAMPLE	259823-001	Water	214834	08/29/14 17:39	100.0		
086	met08_sn_6010	SAMPLE	259823-003	Water	214834	08/29/14 17:44	100.0		
087	met08_sn_6010	CCV				08/29/14 17:49	1.0	10	
088	met08_sn_6010	CCB				08/29/14 17:56	1.0		
089	met08_sn_6010	SAMPLE	259823-001	Water	214834	08/29/14 18:01	1.0		2:NA=170000
090	met08_sn_6010	SAMPLE	259823-003	Water	214834	08/29/14 18:06	1.0		1:NA=210000
091	met08_sn_6010	X	RINSE			08/29/14 18:11	1.0		
092	met08_sn_6010	SAMPLE	260128-001	Water	214834	08/29/14 18:16	1.0		
093	met08_sn_6010	SAMPLE	260128-002	Water	214834	08/29/14 18:21	1.0		
094	met08_sn_6010	SAMPLE	260156-001	Water	214834	08/29/14 18:26	100.0		
095	met08_sn_6010	SAMPLE	260156-002	Water	214834	08/29/14 18:31	100.0		
096	met08_sn_6010	SAMPLE	260156-003	Water	214834	08/29/14 18:36	100.0		
097	met08_sn_6010	SAMPLE	260156-004	Water	214834	08/29/14 18:41	100.0		
098	met08_sn_6010	SAMPLE	260156-005	Water	214834	08/29/14 18:46	100.0		
099	met08_sn_6010	CCV				08/29/14 18:51	1.0	10	
100	met08_sn_6010	CCB				08/29/14 18:58	1.0		
101	met08_sn_6010	SAMPLE	260156-006	Water	214834	08/29/14 19:03	100.0		
102	met08_sn_6010	SAMPLE	260156-009	Water	214834	08/29/14 19:08	100.0		
103	met08_sn_6010	X	RINSE			08/29/14 19:13	1.0		
104	met08_sn_6010	SAMPLE	259823-001	Filtrate	214807	08/29/14 19:18	1.0		2:NA=170000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84347520

Instrument : MET08 Begun : 08/29/14 08:00
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met08_sn_6010	SAMPLE	259823-003	Filtrate	214807	08/29/14 19:23	1.0		1:NA=200000
106	met08_sn_6010	SAMPLE	259865-003	Filtrate	214807	08/29/14 19:28	1.0		1:CA=270000
107	met08_sn_6010	SAMPLE	259918-001	Filtrate	214807	08/29/14 19:37	1.0		1:NA=230000
108	met08_sn_6010	SAMPLE	259918-003	Filtrate	214807	08/29/14 19:42	1.0		1:NA=200000
109	met08_sn_6010	SAMPLE	259968-001	Filtrate	214807	08/29/14 19:47	1.0		1:NA=190000
110	met08_sn_6010	SAMPLE	259968-003	Filtrate	214807	08/29/14 19:52	1.0		1:CA=130000
111	met08_sn_6010	CCV				08/29/14 19:58	1.0	10	
112	met08_sn_6010	CCB				08/29/14 20:04	1.0		
113	met08_sn_6010	SAMPLE	260003-001	Filtrate	214807	08/29/14 20:09	1.0		2:CA=410000
114	met08_sn_6010	SAMPLE	260003-003	Filtrate	214807	08/29/14 20:18	1.0		2:CA=400000
115	met08_sn_6010	SAMPLE	260053-001	Filtrate	214807	08/29/14 20:27	1.0		1:CA=290000
116	met08_sn_6010	SAMPLE	260131-001	Filtrate	214807	08/29/14 20:35	1.0		1:NA=570000
117	met08_sn_6010	X	RINSE			08/29/14 20:44	1.0		
118	met08_sn_6010	X	RINSE			08/29/14 20:49	1.0		
119	met08_sn_6010	BLANK	QC755529	Water	214896	08/29/14 20:54	1.0		
120	met08_sn_6010	BS	QC755530	Water	214896	08/29/14 20:59	1.0		
121	met08_sn_6010	BSD	QC755531	Water	214896	08/29/14 21:03	1.0		
122	met08_sn_6010	MSS	259865-001	Water	214896	08/29/14 21:07	1.0		1:CA=180000
123	met08_sn_6010	CCV				08/29/14 21:16	1.0	10	
124	met08_sn_6010	CCB				08/29/14 21:23	1.0		
125	met08_sn_6010	MS	QC755532	Water	214896	08/29/14 21:28	1.0		
126	met08_sn_6010	MSD	QC755533	Water	214896	08/29/14 21:35	1.0		
127	met08_sn_6010	SER	QC755534	Water	214896	08/29/14 21:43	5.0		
128	met08_sn_6010	PDS	QC755535	Water	214896	08/29/14 21:48	1.0	11 12 13	
129	met08_sn_6010	SAMPLE	259865-003	Water	214896	08/29/14 21:56	1.0		1:CA=290000
130	met08_sn_6010	SAMPLE	259918-001	Water	214896	08/29/14 22:04	1.0		1:NA=220000
131	met08_sn_6010	SAMPLE	259918-003	Water	214896	08/29/14 22:09	1.0		1:NA=220000
132	met08_sn_6010	SAMPLE	259968-001	Water	214896	08/29/14 22:15	1.0		1:NA=200000
133	met08_sn_6010	SAMPLE	259968-003	Water	214896	08/29/14 22:20	1.0		1:CA=130000
134	met08_sn_6010	SAMPLE	260003-001	Water	214896	08/29/14 22:25	1.0		2:CA=420000
135	met08_sn_6010	CCV				08/29/14 22:34	1.0	10	
136	met08_sn_6010	CCB				08/29/14 22:40	1.0		
137	met08_sn_6010	SAMPLE	260003-003	Water	214896	08/29/14 22:45	1.0		2:CA=480000
138	met08_sn_6010	SAMPLE	260009-004	Water	214896	08/29/14 22:54	1.0		3:CA=210000
139	met08_sn_6010	SAMPLE	260009-005	Water	214896	08/29/14 22:59	1.0		1:CA=120000
140	met08_sn_6010	SAMPLE	260009-006	Water	214896	08/29/14 23:04	1.0		1:CA=120000
141	met08_sn_6010	SAMPLE	260053-003	Water	214896	08/29/14 23:10	1.0		1:CA=590000
142	met08_sn_6010	SAMPLE	260131-001	Water	214896	08/29/14 23:18	1.0		1:NA=580000
143	met08_sn_6010	SAMPLE	260131-002	Water	214896	08/29/14 23:27	1.0		2:NA=650000
144	met08_sn_6010	SAMPLE	260295-001	Water	214896	08/29/14 23:35	10.0		
145	met08_sn_6010	X	RINSE			08/29/14 23:44	1.0		
146	met08_sn_6010	BLANK	QC755536	Filtrate	214897	08/29/14 23:49	1.0		
147	met08_sn_6010	CCV				08/29/14 23:54	1.0	10	
148	met08_sn_6010	CCB				08/30/14 00:01	1.0		
149	met08_sn_6010	BS	QC755537	Filtrate	214897	08/30/14 00:06	1.0		
150	met08_sn_6010	BSD	QC755538	Filtrate	214897	08/30/14 00:10	1.0		
151	met08_sn_6010	MSS	260009-002	Filtrate	214897	08/30/14 00:14	1.0		1:CA=140000
152	met08_sn_6010	MS	QC755539	Filtrate	214897	08/30/14 00:19	1.0		
153	met08_sn_6010	MSD	QC755540	Filtrate	214897	08/30/14 00:24	1.0		
154	met08_sn_6010	SER	QC755541	Filtrate	214897	08/30/14 00:28	5.0		
155	met08_sn_6010	PDS	QC755542	Filtrate	214897	08/30/14 00:33	1.0	11 12 13	1:CA=150000
156	met08_sn_6010	SAMPLE	259823-001	Filtrate	214897	08/30/14 00:37	1.0		2:NA=180000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 84347520

Instrument : MET08 Begun : 08/29/14 08:00
Method : EPA 6010C SOP Version : icp metals_rv9

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
157	met08_sn_6010	SAMPLE	259823-003	Filtrate	214897	08/30/14 00:42	1.0		1:NA=190000
158	met08_sn_6010	SAMPLE	260011-002	Filtrate	214897	08/30/14 00:48	1.0		2:CA=330000
159	met08_sn_6010	CCV				08/30/14 00:53	1.0	10	
160	met08_sn_6010	CCB				08/30/14 00:59	1.0		
161	met08_sn_6010	SAMPLE	260011-003	Filtrate	214897	08/30/14 01:05	1.0		2:CA=340000
162	met08_sn_6010	SAMPLE	260011-004	Filtrate	214897	08/30/14 01:10	1.0		3:CA=150000
163	met08_sn_6010	SAMPLE	260011-006	Filtrate	214897	08/30/14 01:15	1.0		3:MG=140000
164	met08_sn_6010	SAMPLE	260011-007	Filtrate	214897	08/30/14 01:20	1.0		
165	met08_sn_6010	X	RINSE			08/30/14 01:25	1.0		
166	met08_sn_6010	CCV				08/30/14 01:30	1.0	10	
167	met08_sn_6010	CCB				08/30/14 01:37	1.0		

VQ 09/02/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 167.

Standards used: 1=S25067 2=S25224 3=S25223 4=S25225 5=S25226 6=S25072 7=S25074 8=S25075 9=S25227 10=S25073 11=S24151 12=S24152 13=S25208

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 84347520

Date : 08/29/14 Reference : met08_sn_6010
Sequence : MET08 08/29/14 Analyzed : 08/29/14 08:05

#	Type	Sample ID	Y A
		ICAL STD	2681337
		LOWER LIMIT	804401
		UPPER LIMIT	3217604
010	ICB		2658064
011	ICSA		2197536
012	ICSAB		2237717
027	CCV		2606211
028	CCB		2506414
029	BS	QC755178	2745579
030	BSD	QC755179	2766545
031	PDS	QC755183	2542434
036	MSS	259841-001	2702842
039	CCV		2733599
040	CCB		2750982
043	SAMPLE	259835-001	2721126
044	SAMPLE	259835-002	2643947
045	SAMPLE	259835-003	2608194
046	SAMPLE	259841-002	2775452
047	SAMPLE	259841-003	2671330
048	SAMPLE	259841-005	2509241
049	SAMPLE	259841-007	2617377
051	CCV		2706625
052	CCB		2691478
053	MSS	259841-001	2473249
058	SAMPLE	259835-001	2570921
059	SAMPLE	259835-002	1948915
060	SAMPLE	259835-003	1979770
061	SAMPLE	259841-002	2627311
062	SAMPLE	259841-003	2617011
063	CCV		2737009
064	CCB		2794490
065	SAMPLE	259841-005	2061876
066	SAMPLE	259841-005	2079477
067	SAMPLE	259841-007	2884138
068	PDS	QC755183	2576229
075	CCV		2761272
076	CCB		2660589

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259885 METALS Filtrate: EPA 6010C

Inst : MET08
Calnum : 84347520001
Units : ug/L

Date : 29-AUG-2014 08:00
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010	84347520002	L1	29-AUG-2014 08:05	S25067
L2	met08_sn_6010	84347520003	L2	29-AUG-2014 08:10	S25224
L3	met08_sn_6010	84347520004	L3	29-AUG-2014 08:14	S25223
L4	met08_sn_6010	84347520005	L4	29-AUG-2014 08:19	S25225
L5	met08_sn_6010	84347520006	L5	29-AUG-2014 08:26	S25226

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	29.930	30.294	32.662	32.634		LOR0	0.00000	0.03064		31.380	1.000	0.995	
Arsenic	A	19.960	18.021	19.492	19.179		LOR0	0.00000	0.05213		19.163	1.000	0.995	
Barium	A	442.84	418.97	441.69	423.11		LOR0	0.00000	0.00236		431.65	1.000	0.995	
Beryllium	A	4999.5	4981.8	5246.9			LOR0	0.00000	1.91E-4		5076.1	1.000	0.995	
Cadmium	A	224.40	215.74	229.33	217.57		LOR0	0.00000	0.00459		221.76	1.000	0.995	
Chromium	A	99.060	95.844	100.45	97.290		LOR0	0.00000	0.01028		98.161	1.000	0.995	
Cobalt	A	135.12	126.76	139.56	134.41		LOR0	0.00000	0.00744		133.96	1.000	0.995	
Copper	A	116.66	102.55	105.32	114.37		LOR0	0.00000	0.00875		109.72	1.000	0.995	
Lead	A	58.560	54.328	57.768	56.022		LOR0	0.00000	0.01784		56.670	1.000	0.995	
Manganese	A	1266.7	1212.5	1310.3	1198.3		LOR0	0.00000	8.34E-4		1246.9	1.000	0.995	
Molybdenum	A	37.560	36.518	38.266	37.482		LOR0	0.00000	0.02667		37.456	1.000	0.995	
Nickel	A	53.020	50.105	54.647	53.118		LOR0	0.00000	0.01882		52.722	1.000	0.995	
Selenium	A	27.050	26.453	28.837	28.435		LOR0	0.00000	0.03516		27.694	1.000	0.995	
Silver	A	664.24	726.00	771.66	756.01		LOR0	0.00000	0.00132		729.48	1.000	0.995	
Thallium	A	20.390	18.562	20.261	18.827		LOR0	0.00000	0.05307		19.510	1.000	0.995	
Vanadium	A	165.48	161.39	167.40	165.67		LOR0	0.00000	0.00604		164.98	1.000	0.995	
Zinc	A	69.940	69.543	75.105	73.074		LOR0	0.00000	0.01368		71.915	1.000	0.995	
Aluminum	R	0.5110		0.5959	0.5942	0.5600	LOR0	0.00000	1.78472		0.5653	1.000	0.995	
Magnesium	R	0.8145		0.7783	0.7231	0.7035	LOR0	0.00000	1.42109		0.7549	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-8	100.00	-7	1000.0	0	10000	0		
Arsenic	A	5.0000	4	100.00	-6	1000.0	2	10000	0		
Barium	A	5.0000	5	100.00	-1	1000.0	4	10000	0		
Beryllium	A	2.0000	-5	100.00	-5	1000.0	0				
Cadmium	A	5.0000	3	100.00	-1	1000.0	5	10000	0		
Chromium	A	5.0000	2	100.00	-2	1000.0	3	10000	0		
Cobalt	A	5.0000	0	100.00	-6	1000.0	4	10000	0		
Copper	A	5.0000	2	100.00	-10	1000.0	-8	10000	0		
Lead	A	5.0000	4	100.00	-3	1000.0	3	10000	0		
Manganese	A	5.0000	6	100.00	1	1000.0	9	10000	0		
Molybdenum	A	5.0000	0	100.00	-3	1000.0	2	10000	0		
Nickel	A	5.0000	0	100.00	-6	1000.0	3	10000	0		
Selenium	A	10.000	-5	100.00	-7	1000.0	1	10000	0		
Silver	A	5.0000	-12	100.00	-4	1000.0	2	2000.0	0		
Thallium	A	10.000	8	100.00	-1	1000.0	8	10000	0		
Vanadium	A	5.0000	0	100.00	-3	1000.0	1	10000	0		
Zinc	A	20.000	-4	100.00	-5	1000.0	3	10000	0		
Aluminum	R	100.00	-9			1000.0	6	10000	6	100000	0
Magnesium	R	200.00	16			1000.0	11	10000	3	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08
Calnum : 84347520001 Cal Date : 29-AUG-2014

ICV 84347520007 (29-AUG-2014) stds: S25072

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4980	ug/L	0	10	
Arsenic	A	5000	4983	ug/L	0	10	
Barium	A	5000	4906	ug/L	-2	10	
Beryllium	A	500.0	520.3	ug/L	4	10	
Cadmium	A	5000	5080	ug/L	2	10	
Chromium	A	5000	4979	ug/L	0	10	
Cobalt	A	5000	4954	ug/L	-1	10	
Copper	A	5000	4979	ug/L	0	10	
Lead	A	5000	4904	ug/L	-2	10	
Manganese	A	5000	4840	ug/L	-3	10	
Molybdenum	A	5000	5050	ug/L	1	10	
Nickel	A	5000	4928	ug/L	-1	10	
Selenium	A	5000	4915	ug/L	-2	10	
Silver	A	1000	974.6	ug/L	-3	10	
Thallium	A	5000	4878	ug/L	-2	10	
Vanadium	A	5000	4936	ug/L	-1	10	
Zinc	A	5000	4962	ug/L	-1	10	
Aluminum	R	20000	19950	ug/L	0	10	
Magnesium	R	20000	20270	ug/L	1	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520009.1 File : met08_sn_6010 Time : 29-AUG-2014 08:56
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25074

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	9.323	ug/L	-7	30	
Arsenic	A	5.000	5.318	ug/L	6	30	
Barium	A	5.000	5.434	ug/L	9	30	
Beryllium	A	2.000	2.090	ug/L	5	30	
Cadmium	A	5.000	5.455	ug/L	9	30	
Chromium	A	5.000	5.207	ug/L	4	30	
Cobalt	A	5.000	5.245	ug/L	5	30	
Copper	A	5.000	6.113	ug/L	**22**	30	!cri+
Lead	A	5.000	6.020	ug/L	20	30	
Manganese	A	5.000	5.643	ug/L	13	30	
Molybdenum	A	5.000	5.333	ug/L	7	30	
Nickel	A	5.000	4.901	ug/L	-2	30	
Selenium	A	10.00	8.874	ug/L	-11	30	
Silver	A	5.000	5.114	ug/L	2	30	
Thallium	A	10.00	11.28	ug/L	13	30	
Vanadium	A	5.000	5.043	ug/L	1	30	
Zinc	A	20.00	20.11	ug/L	1	30	
Aluminum	R	100.0	99.60	ug/L	0	30	
Magnesium	R	200.0	217.9	ug/L	9	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2566140	-4.30

!=warning +=high bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520010.1 File : met08_sn_6010 Time : 29-AUG-2014 09:00
Cal : 84347520001 Caldate : 29-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2658064	-0.87

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520011.1 File : met08_sn_6010 Time : 29-AUG-2014 09:06
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25075

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[0.3892]	10.00	ug/L	
Arsenic	A	[-0.1240]	5.000	ug/L	
Barium	A	[-0.4424]	5.000	ug/L	
Beryllium	A	[1.149]	2.000	ug/L	!a+
Cadmium	A	[2.744]	5.000	ug/L	!a+
Cobalt	A	[-0.7642]	5.000	ug/L	
Lead	A	[-3.146]	5.000	ug/L	!a-
Molybdenum	A	[-1.859]	5.000	ug/L	!a-
Selenium	A	[1.094]	10.00	ug/L	
Silver	A	[3.430]	5.000	ug/L	!a+
Thallium	A	[-1.295]	10.00	ug/L	
Zinc	A	[-8.034]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec
Chromium	A	20000	19500	ug/L	98
Copper	A	20000	21230	ug/L	106
Manganese	A	20000	18010	ug/L	90
Nickel	A	20000	17970	ug/L	90
Vanadium	A	20000	18600	ug/L	93
Aluminum	R	500000	514800	ug/L	103
Calcium	R	500000	489700	ug/L	98
Iron	R	200000	187200	ug/L	94
Magnesium	R	500000	508800	ug/L	102
Titanium	R	20000	21440	ug/L	107

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2197536	-18.04

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520012.1 File : met08_sn_6010 Time : 29-AUG-2014 09:21
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25227

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	493.6	ug/L	-1	20	
Arsenic	A	500.0	496.2	ug/L	-1	20	
Barium	A	500.0	538.3	ug/L	8	20	
Beryllium	A	500.0	535.3	ug/L	7	20	
Cadmium	A	1000	1036	ug/L	4	20	
Chromium	A	500.0	522.4	ug/L	4	20	
Cobalt	A	500.0	482.5	ug/L	-4	20	
Copper	A	500.0	574.4	ug/L	15	20	
Lead	A	1000	977.1	ug/L	-2	20	
Manganese	A	500.0	435.3	ug/L	-13	20	
Molybdenum	A	500.0	525.9	ug/L	5	20	
Nickel	A	1000	965.6	ug/L	-3	20	
Selenium	A	500.0	516.7	ug/L	3	20	
Silver	A	1000	1143	ug/L	14	20	
Thallium	A	500.0	454.0	ug/L	-9	20	
Vanadium	A	500.0	555.4	ug/L	11	20	
Zinc	A	1000	1024	ug/L	2	20	
Aluminum	R	500000	511300	ug/L	2		
Magnesium	R	500000	509800	ug/L	2		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2237717	-16.54

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520027.1 File : met08_sn_6010 Time : 29-AUG-2014 12:17
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.380	32.935	5000	5046	ug/L	1	10	
Arsenic	A	19.163	20.053	5000	5227	ug/L	5	10	
Barium	A	431.65	427.81	5000	5053	ug/L	1	10	
Beryllium	A	5076.1	5633.4	500.0	537.1	ug/L	7	10	
Cadmium	A	221.76	231.20	5000	5310	ug/L	6	10	
Chromium	A	98.161	100.60	5000	5169	ug/L	3	10	
Cobalt	A	133.96	138.90	5000	5156	ug/L	3	10	
Copper	A	109.72	113.27	5000	4956	ug/L	-1	10	
Lead	A	56.670	56.938	5000	5080	ug/L	2	10	
Manganese	A	1246.9	1196.0	5000	4986	ug/L	0	10	
Molybdenum	A	37.456	39.223	5000	5231	ug/L	5	10	
Nickel	A	52.722	54.285	5000	5108	ug/L	2	10	
Selenium	A	27.694	31.225	5000	5490	ug/L	10	10	
Silver	A	729.48	749.02	1000	986.8	ug/L	-1	10	
Thallium	A	19.510	19.094	5000	5067	ug/L	1	10	
Vanadium	A	164.98	167.84	5000	5065	ug/L	1	10	
Zinc	A	71.915	76.690	5000	5246	ug/L	5	10	
Aluminum	R	0.5653	0.5550	20000	19810	ug/L	-1	10	
Magnesium	R	0.7549	0.7274	20000	20670	ug/L	3	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2606211	-2.80

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520028.1 File : met08_sn_6010 Time : 29-AUG-2014 12:24
Cal : 84347520001 Caldate : 29-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2506414	-6.52

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520039.1 File : met08_sn_6010 Time : 29-AUG-2014 13:36
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.380	31.391	5000	4810	ug/L	-4	10	
Arsenic	A	19.163	18.138	5000	4728	ug/L	-5	10	
Barium	A	431.65	405.16	5000	4786	ug/L	-4	10	
Beryllium	A	5076.1	5264.5	500.0	501.9	ug/L	0	10	
Cadmium	A	221.76	214.80	5000	4934	ug/L	-1	10	
Chromium	A	98.161	95.052	5000	4883	ug/L	-2	10	
Cobalt	A	133.96	129.83	5000	4819	ug/L	-4	10	
Copper	A	109.72	114.04	5000	4990	ug/L	0	10	
Lead	A	56.670	53.757	5000	4796	ug/L	-4	10	
Manganese	A	1246.9	1101.3	5000	4591	ug/L	-8	10	
Molybdenum	A	37.456	37.343	5000	4980	ug/L	0	10	
Nickel	A	52.722	51.155	5000	4814	ug/L	-4	10	
Selenium	A	27.694	26.599	5000	4677	ug/L	-6	10	
Silver	A	729.48	722.76	1000	952.2	ug/L	-5	10	
Thallium	A	19.510	17.564	5000	4661	ug/L	-7	10	
Vanadium	A	164.98	161.03	5000	4859	ug/L	-3	10	
Zinc	A	71.915	70.448	5000	4819	ug/L	-4	10	
Aluminum	R	0.5653	0.5689	20000	20310	ug/L	2	10	
Magnesium	R	0.7549	0.6998	20000	19890	ug/L	-1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2733599	1.95

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520040.1 File : met08_sn_6010 Time : 29-AUG-2014 13:43
Cal : 84347520001 Caldate : 29-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2750982	2.60

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520063.1 File : met08_sn_6010 Time : 29-AUG-2014 15:45
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.380	31.590	5000	4840	ug/L	-3	10	
Arsenic	A	19.163	18.453	5000	4810	ug/L	-4	10	
Barium	A	431.65	411.46	5000	4860	ug/L	-3	10	
Beryllium	A	5076.1	5355.1	500.0	510.6	ug/L	2	10	
Cadmium	A	221.76	218.90	5000	5028	ug/L	1	10	
Chromium	A	98.161	96.778	5000	4972	ug/L	-1	10	
Cobalt	A	133.96	132.26	5000	4909	ug/L	-2	10	
Copper	A	109.72	111.66	5000	4885	ug/L	-2	10	
Lead	A	56.670	54.695	5000	4880	ug/L	-2	10	
Manganese	A	1246.9	1141.1	5000	4757	ug/L	-5	10	
Molybdenum	A	37.456	37.851	5000	5048	ug/L	1	10	
Nickel	A	52.722	52.153	5000	4908	ug/L	-2	10	
Selenium	A	27.694	27.127	5000	4769	ug/L	-5	10	
Silver	A	729.48	730.89	1000	962.9	ug/L	-4	10	
Thallium	A	19.510	18.064	5000	4794	ug/L	-4	10	
Vanadium	A	164.98	162.70	5000	4910	ug/L	-2	10	
Zinc	A	71.915	72.026	5000	4927	ug/L	-1	10	
Aluminum	R	0.5653	0.5922	20000	21140	ug/L	6	10	
Magnesium	R	0.7549	0.7545	20000	21440	ug/L	7	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2737009	2.08

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520064.1 File : met08_sn_6010 Time : 29-AUG-2014 15:51
Cal : 84347520001 Caldate : 29-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2794490	4.22

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520075.1 File : met08_sn_6010 Time : 29-AUG-2014 16:49
Cal : 84347520001 Caldate : 29-AUG-2014
Standards: S25073

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	31.380	32.468	5000	4974	ug/L	-1	10	
Arsenic	A	19.163	19.022	5000	4958	ug/L	-1	10	
Barium	A	431.65	411.50	5000	4861	ug/L	-3	10	
Beryllium	A	5076.1	5411.3	500.0	515.9	ug/L	3	10	
Cadmium	A	221.76	220.05	5000	5054	ug/L	1	10	
Chromium	A	98.161	97.070	5000	4987	ug/L	0	10	
Cobalt	A	133.96	132.90	5000	4933	ug/L	-1	10	
Copper	A	109.72	113.19	5000	4952	ug/L	-1	10	
Lead	A	56.670	54.952	5000	4903	ug/L	-2	10	
Manganese	A	1246.9	1147.8	5000	4785	ug/L	-4	10	
Molybdenum	A	37.456	37.994	5000	5067	ug/L	1	10	
Nickel	A	52.722	52.184	5000	4911	ug/L	-2	10	
Selenium	A	27.694	27.836	5000	4894	ug/L	-2	10	
Silver	A	729.48	730.17	1000	961.9	ug/L	-4	10	
Thallium	A	19.510	18.312	5000	4859	ug/L	-3	10	
Vanadium	A	164.98	162.90	5000	4916	ug/L	-2	10	
Zinc	A	71.915	72.486	5000	4958	ug/L	-1	10	
Aluminum	R	0.5653	0.5669	20000	20240	ug/L	1	10	
Magnesium	R	0.7549	0.7164	20000	20360	ug/L	2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2761272	2.98

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259885 METALS Filtrate
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 84347520076.1 File : met08_sn_6010 Time : 29-AUG-2014 16:56
Cal : 84347520001 Caldate : 29-AUG-2014

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	2.500	ug/L	
Arsenic	A	ND	5.000	2.500	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	1.000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	1.250	ug/L	
Cobalt	A	ND	5.000	1.250	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	1.250	ug/L	
Molybdenum	A	ND	5.000	1.250	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	2.500	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Aluminum	R	ND	100.0	50.00	ug/L	
Magnesium	R	ND	200.0	160.0	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	2681337	2660589	-0.77

SAMPLE PREPARATION SUMMARY

Batch # : 214807
Started By : ARD
Method : METHOD
Spike #1 ID : S24678

Prep Date : 26-AUG-2014 15:00
Spike #2 ID : S24679

Analysis : ICAP
Finished By : ARD
Units : mL
Spike #3 ID : S25208

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259774-001		Filtrate	50	50	1	1.0						TAL/ICP	
259823-001		Filtrate	50	50	1	1.0						TAL/ICP	
259823-003		Filtrate	50	50	1	1.0						TAL/ICP	
259865-001		Filtrate	50	50	1	1.0						TAL/ICP	
259865-003		Filtrate	50	50	1	1.0						TAL/ICP	
259885-001		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259885-002		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259885-003		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259885-004		Filtrate	50	50	1	1.0						AL, MG, MN, T22/ICP	
259918-001		Filtrate	50	50	1	1.0						TAL/ICP	
259918-003		Filtrate	50	50	1	1.0						TAL/ICP	
259968-001		Filtrate	50	50	1	1.0						TAL/ICP	
259968-003		Filtrate	50	50	1	1.0						TAL/ICP	
260003-001		Filtrate	50	50	1	1.0						TAL/ICP	
260003-003		Filtrate	50	50	1	1.0						TAL/ICP	
260053-001		Filtrate	50	50	1	1.0						TAL/ICP	
260053-003		Filtrate	50	50	1	1.0						TAL/ICP	
260131-001		Filtrate	50	50	1	1.0						TAL/ICP	
260131-002		Filtrate	50	50	1	1.0						TAL/ICP	
QC755177	BLANK	Filtrate	50	50	1	1.0							
QC755178	BS	Filtrate	50	50	1	1.0		.5	.5	.1			
QC755179	BSD	Filtrate	50	50	1	1.0		.5	.5	.1			
QC755180	MS	Filtrate	50	50	1	1.0		.5	.5	.1			
QC755181	MSD	Filtrate	50	50	1	1.0		.5	.5	.1			
QC755182	SER	Filtrate	50	50	1	1.0							
QC755183	PDS	Filtrate	50	50	1	1.0							

Analyst: VQ Date: 08/29/14 Reviewer: PRW Date: 09/02/14

Water Digestion for ICP

Curtis & Tompkins, Ltd.

LIMS Batch #: 214807
Digested by: ARD
Date Digested: 8.26.2014

Digestion Method
☐ EPA 3010a for ICP
☐ EPA 200.7
☒ Filtrate

BK3577
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Lvl.	Sample #	Container ID	Volume Sample(mL)	Final Volume (mL)	Filtered? (y/n)	ID ✓	Comments
	Blank		☑50 ☐	☑50 ☐	No	✓	QC755177
	BS *		☑50 ☐	☑50 ☐	↓	✓	↓ 178
	BSD *		☑50 ☐	☑50 ☐		✓	↓ 179
	MS 259774-001 *	BE	☑50 ☐	☑50 ☐		✓	
5	MSD ↓ *	↓	☑50 ☐	☑50 ☐		✓	
III	259774-001	↓	☑50 ☐	☑50 ☐		✓	
	259823-001	U	☑50 ☐	☑50 ☐		✓	
	↓ -003	↓	☑50 ☐	☑50 ☐		✓	
	259865-001	T	☑50 ☐	☑50 ☐		✓	
10	↓ -003	↓	☑50 ☐	☑50 ☐		✓	
	~~259882-001~~ 260131-001	F	☑50 ☐	☑50 ☐		✓	260131-001
	~~↓ ARD 8.26.14 -002~~ ↓ -002	L	☑50 ☐	☑50 ☐		✓	↓ -002
	259885-001	A	☑50 ☐	☑50 ☐		✓	
	↓ -002	↓	☑50 ☐	☑50 ☐		✓	
15	↓ -003	↓	☑50 ☐	☑50 ☐		✓	
	↓ -004	↓	☑50 ☐	☑50 ☐		✓	
	259918-001	T	☑50 ☐	☑50 ☐		✓	
	↓ -003	↓	☑50 ☐	☑50 ☐		✓	
	259968-001	T	☑50 ☐	☑50 ☐		✓	
20	↓ -003	↓	☑50 ☐	☑50 ☐		✓	
	260003-001	T	☑50 ☐	☑50 ☐		✓	
	↓ -003	↓	☑50 ☐	☑50 ☐		✓	
	2590053-001	S	☑50 ☐	☑50 ☐		✓	
↓	↓ -003	↓	☑50 ☐	☑50 ☐	↓	✓	
			☐ 50 ☐	☐ 50 ☐			

* 0.1 S25208 for Sr

	Reagent ID or LIMS #	Initials / Date
Digestion tubes, lot #	Accuflow	8.26.2014
0.5 mL of spike solution (Std1) was added to all spikes	~~S252~~ ARD 8.26.14 S24678*	↓
0.5 mL of spike solution (Std2) was added to all spikes	S24679 *	
Digestion Temperature (°C), Block and Probe Location	— —	
Digestion begun at (time)	15:00	
o Conc. HNO3 or ~~o~~ 1:1 HNO3	JTB-66236	
1:1 HCl	JTB-75649	
digestion ended at (time)	—	
o filtered thru' Whatman # 541	—	
Relinquished to ICP group	ICAP	↓

8.26.14
Prep Chemist / Date

Continued from page Ø
Continued on page

Reviewed Online / See LIMS

Mercury Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1064337826

Instrument : MET44 Begun : 08/22/14 14:26
Method : EPA 7470A SOP Version : hg_water_rv16

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met44	X				08/22/14 14:26	1.0		
002	met44	ICALBLK				08/22/14 14:27	1.0		
003	met44	ICAL	ICAL1			08/22/14 14:28	1.0	1	
004	met44	ICAL	ICAL2			08/22/14 14:29	1.0	1	
005	met44	ICAL	ICAL3			08/22/14 14:31	1.0	1	
006	met44	ICAL	ICAL4			08/22/14 14:32	1.0	1	
007	met44	ICAL	ICAL5			08/22/14 14:33	1.0	1	
008	met44	ICV				08/22/14 14:34	1.0	2	
009	met44	ICB				08/22/14 14:35	1.0		
010	met44	BLANK	QC754624	Water	214672	08/22/14 14:37	1.0		
011	met44	BS	QC754625	Water	214672	08/22/14 14:38	1.0		
012	met44	BSD	QC754626	Water	214672	08/22/14 14:39	1.0		
013	met44	MSS	259882-001	Filtrate	214672	08/22/14 14:40	1.0		
014	met44	MS	QC754627	Filtrate	214672	08/22/14 14:41	1.0		
015	met44	MSD	QC754628	Filtrate	214672	08/22/14 14:43	1.0		
016	met44	SER	QC754629	Filtrate	214672	08/22/14 14:44	5.0		
017	met44	SAMPLE	259882-002	Filtrate	214672	08/22/14 14:45	1.0		
018	met44	SAMPLE	259885-001	Filtrate	214672	08/22/14 14:46	1.0		
019	met44	SAMPLE	259885-002	Filtrate	214672	08/22/14 14:48	1.0		
020	met44	CCV				08/22/14 14:49	1.0	3	
021	met44	CCB				08/22/14 14:50	1.0		
022	met44	SAMPLE	259885-003	Filtrate	214672	08/22/14 14:51	1.0		
023	met44	SAMPLE	259885-004	Filtrate	214672	08/22/14 14:52	1.0		
024	met44	SAMPLE	260032-001	Water	214672	08/22/14 14:54	1.0		
025	met44	SAMPLE	260032-002	Water	214672	08/22/14 14:55	1.0		
026	met44	SAMPLE	260074-001	Water	214672	08/22/14 14:56	1.0		1:HG=100
027	met44	BLANK	QC754624	Water	214672	08/22/14 14:58	1.0		
028	met44	CCV				08/22/14 14:59	1.0	3	
029	met44	CCB				08/22/14 15:00	1.0		
030	met44	SAMPLE	260074-001	Water	214672	08/22/14 15:03	100.0		
031	met44	CCV				08/22/14 15:05	1.0	3	
032	met44	CCB				08/22/14 15:06	1.0		

NCD 08/22/14 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 32.

Standards used: 1=S25465 2=S25467 3=S25468

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 259885 METALS Filtrate: EPA 7470A

Inst : MET44
Calnum : 1064337826001
Units : ug/L

Date : 22-AUG-2014 14:27
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met44	1064337826003	ICAL1	22-AUG-2014 14:28	S25465 (500X)
L2	met44	1064337826004	ICAL2	22-AUG-2014 14:29	S25465 (200X)
L3	met44	1064337826005	ICAL3	22-AUG-2014 14:31	S25465 (50X)
L4	met44	1064337826006	ICAL4	22-AUG-2014 14:32	S25465 (20X)
L5	met44	1064337826007	ICAL5	22-AUG-2014 14:33	S25465 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0145	0.0144	0.0130	0.0132	0.0134	LIN0	0.00385	74.9338		0.0137	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	11	0.5000	9	2.0000	-3	5.0000	-1	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 259885 METALS Filtrate
EPA 7470A

Inst : MET44
Calnum : 1064337826001 Cal Date : 22-AUG-2014

ICV 1064337826008 (22-AUG-2014) stds: S25467

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	4.860	ug/L	-3	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259885 METALS Filtrate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1064337826009.1 File : met44 Time : 22-AUG-2014 14:35
Cal : 1064337826001 Caldate : 22-AUG-2014

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259885 METALS Filtrate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1064337826020.1 File : met44 Time : 22-AUG-2014 14:49
Cal : 1064337826001 Caldate : 22-AUG-2014
Standards: S25468

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0137	0.0138	5.000	5.167	ug/L	3	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259885 METALS Filtrate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1064337826021.1 File : met44 Time : 22-AUG-2014 14:50
Cal : 1064337826001 Caldate : 22-AUG-2014

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 259885 METALS Filtrate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1064337826028.1 File : met44 Time : 22-AUG-2014 14:59
Cal : 1064337826001 Caldate : 22-AUG-2014
Standards: S25468

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0137	0.0141	5.000	5.287	ug/L	6	20	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 259885 METALS Filtrate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1064337826029.1 File : met44 Time : 22-AUG-2014 15:00
Cal : 1064337826001 Caldate : 22-AUG-2014

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 214672
Started By : NCD
Method : METHOD
Spike #1 ID : S25465

Prep Date : 22-AUG-2014 09:46

Analysis : HG
Finished By : NCD
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
259882-001		Filtrate	50	50	1	1.0						T22/HG	
259882-002		Filtrate	50	50	1	1.0						T22/HG	
259885-001		Filtrate	50	50	1	1.0						T22/HG	
259885-002		Filtrate	50	50	1	1.0						T22/HG	
259885-003		Filtrate	50	50	1	1.0						T22/HG	
259885-004		Filtrate	50	50	1	1.0						T22/HG	
260032-001		Water	50	50	1	1.0						HG-200	
260032-002		Water	50	50	1	1.0						HG-200	
260074-001		Water	50	50	1	1.0						T22/HG-200	
QC754624	BLANK	Water	50	50	1	1.0							
QC754625	BS	Water	50	50	1	1.0		1.25					
QC754626	BSD	Water	50	50	1	1.0		1.25					
QC754627	MS	Filtrate	50	50	1	1.0		1.25					
QC754628	MSD	Filtrate	50	50	1	1.0		1.25					
QC754629	SER	Filtrate	50	50	1	1.0							

Analyst: NCD Date: 08/22/14 Reviewer: EAH Date: 08/26/14

Water Digestion for Mercury

Curtis & Tompkins, Ltd.

LIMS Batch #: 214672

Date Digested: 8/22/14

Digestion Method

☒ EPA 7470A/ EPA 245.1

☐ _____

BK3567

Page 90

Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
BLK		☑ 50 ☐	☑ 50 ☐	NO	QC754624
BS		☑ 50 ☐	☑ 50 ☐		25
BSD		☑ 50 ☐	☑ 50 ☐		26
259882-001	J	☑ 50 ☐	☑ 50 ☐		MS reviewed pH<2
-001		☑ 50 ☐	☑ 50 ☐		MSD
-001		☑ 50 ☐	☑ 50 ☐		
-002		☑ 50 ☐	☑ 50 ☐		
259885-001	A	☑ 50 ☐	☑ 50 ☐		
-002		☑ 50 ☐	☑ 50 ☐		
-003		☑ 50 ☐	☑ 50 ☐		
-004		☑ 50 ☐	☑ 50 ☐		
260074-001	D	☑ 50 ☐	☑ 50 ☐		
260032-001	A	☑ 50 ☐	☑ 50 ☐		
-002		☑ 50 ☐	☑ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		
		☐ 50 ☐	☐ 50 ☐		

	Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tube Lot #	EU3130	WM 8/22/14
1.25 mL of spike solution was added to all spikes	S23465	
☑ CAL digested with this batch — ICAL Source LIMS S#	66	
ICV / CCV LIMS S#	67/68	
Digestion Temperature (°C), Block and Probe Location	90 | A11	
Digestion Started at (time)	9:46	
concentrated H_2SO_4	2014020596	
concentrated HNO_3	66236	
5% $KMnO_4$	8/22/14	
5% $K_2S_2O_8$	8/22/14	
NaCl.hydroxylamine hydrochloride	8/22/14	
Stannous Chloride	8/22/14	
Digestion Completed at (time)	11:48	
☐ filtered thru' 0.45 um syringe filter (lot #)	—	

8/22/14

Prep Chemist / Date

Continued from page ____

Continued on page ____

Reviewed Online / See LIMS

Dilutions for 259885 METALS Filtrate
Curtis & Tompkins Laboratories

Type	Sample ID	IDFs
SAMPLE	259885-001	1X, 100X
SAMPLE	259885-002	1X, 100X
SAMPLE	259885-003	1X, 100X
SER	QC754629	5X
SER	QC755182	5X

Appendix E. Data Validation Reports

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

J.M. Waller Associates, Inc.
11325 Random Hills Road, Suite 210
Fairfax, VA 22030
Attn: Mr. Michael Profit

September 22, 2014

SUBJECT: Mare Island, BGMP-DRMO South, Data Validation

Dear Mr. Profit,

Enclosed are the final validation reports for the fraction listed below. These SDGs were received on September 4, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #32600:

SDG #	Fraction
259751, 259825	Total Dissolved Solids

The data validation was performed under EPA Level III & IV guidelines. The analyses were validated using the following documents, as applicable to each method:

- Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California, July 2014, and Addendum 1, August 2014
- U.S. Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5.0, July 2013
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink
Project Manager/Chemist

27 pages-DL

Attachment 1

EDD/NIRIS

LDC #32600 (JM Waller Assoc.-Fairfax, VA / Mare Island, BGMP-DRMO SOUTH)

PO #ATL-14-080614-LDC

LDC	SDG#	DATE REC'D	(3) DATE DUE	TDS (2540C)																																	
Matrix:	/Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	259751	09/04/14	09/25/14	3	0																																
B	259825	09/04/14	09/25/14	1	0																																
Total	T/CR			4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4

Shaded cells indicate Level IV validation (all other cells are Level III validation). These sample counts do not inclute MS/MSD, and DUPs

32600ST_BGMP_DRMO_SOUTH.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-DRMO SOUTH
Collection Date:	August 12, 2014
LDC Report Date:	September 16, 2014
Matrix:	Water
Parameters:	Total Dissolved Solids
Validation Level:	EPA Level III
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259751

Sample Identification

901W56081214
RB081214
SB081214

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Standard Method SM2540C for Total Dissolved Solids.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Initial Calibration

All criteria for the initial calibration were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total dissolved solids were found in the preparation blanks.

Sample RB081214 was identified as an equipment rinsate. No total dissolved solids were found.

Sample SB081214 was identified as a source blank. No total dissolved solids were found.

V. Matrix Spike/Matrix Spike Duplicates

A matrix spike (MS) analysis was not required by the method.

VI. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Sample Result Verification

Raw data were not reviewed for this SDG.

IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

X. Field Duplicates

Samples 01W56081214 (from SDG 259825) and 901W56081214 were identified as field duplicates. No total dissolved solids were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)
	901W56081214	01W56081214	
Total dissolved solids	10900	11300	4 (≤25)

Mare Island, BGMP-DRMO SOUTH
Total Dissolved Solids - Data Qualification Summary - SDG 259751

No Sample Data Qualified in this SDG

Mare Island, BGMP-DRMO SOUTH
Total Dissolved Solids - Laboratory Blank Data Qualification Summary - SDG 259751

No Sample Data Qualified in this SDG

Mare Island, BGMP-DRMO SOUTH
Total Dissolved Solids - Field Blank Data Qualification Summary - SDG 259751

No Sample Data Qualified in this SDG

LDC #: 32600A6

SDG #: 259751

Laboratory: Curtis & Tompkins, LTD.

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 9/9/14

Page: 1 of 1

Reviewer: JD

2nd Reviewer: [illegible]

METHOD: Total Dissolved Solids (SM2540C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 08/12/14
II	Initial calibration	A	Balance ✓
III.	Calibration verification	A	↓
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	N	CS
VI.	Duplicates	N	
VII.	Laboratory control samples	A	LCS
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	FD=1, 01W56081214 (SDG: 259825))
XI	Field blanks	ND	RB=2 (Rinse Blank), Source Blank=3

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: Waters

1	901W56081214	11		21		31	
2	RB081214	12		22		32	
3	SB081214	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC# 32600A6

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: JD
2nd Reviewer: CL

Inorganics: Method See Cover

Analyte	Concentration (mg/L)		RPD (≤25)
	1	01W56081214 (SDG:259825)	
TDS	10900	11300	4

\\LDCFILESERVER\Validation\FIELD DUPLICATES\FD_inorganic\32600A6.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-DRMO SOUTH
Collection Date:	August 12, 2014
LDC Report Date:	September 16, 2014
Matrix:	Water
Parameters:	Total Dissolved Solids
Validation Level:	EPA Level IV
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259825

Sample Identification

01W56081214

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Standard Method SM2540C for Total Dissolved Solids.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Initial Calibration

All criteria for the initial calibration were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total dissolved solids were found in the preparation blanks.

Sample RB081214 (from SDG 259751) was identified as a rinsate blank. No total dissolved solids were found.

V. Matrix Spike/Matrix Spike Duplicates

A matrix spike (MS) analysis was not required by the method.

VI. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Sample Result Verification

All sample result verifications were acceptable.

IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

X. Field Duplicates

Samples 901W56081214 (from SDG 259751) and 01W56081214 were identified as field duplicates. No total dissolved solids were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)
	01W56081214	901W56081214	
Total dissolved solids	10900	11300	4 (≤25)

Mare Island, BGMP-DRMO SOUTH
Total Dissolved Solids - Data Qualification Summary - SDG 259825

No Sample Data Qualified in this SDG

Mare Island, BGMP-DRMO SOUTH
Total Dissolved Solids - Laboratory Blank Data Qualification Summary - SDG 259825

No Sample Data Qualified in this SDG

Mare Island, BGMP-DRMO SOUTH
Total Dissolved Solids - Field Blank Data Qualification Summary - SDG 259825

No Sample Data Qualified in this SDG

LDC #: 32600B6

SDG #: 259825

Laboratory: Curtis & Tompkins, LTD.

VALIDATION COMPLETENESS WORKSHEET

Level IV

Date: 9/9/14

Page: 1 of 1

Reviewer: 3D

2nd Reviewer: AL

METHOD: Total Dissolved Solids (SM2540C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 8/12/14
II	Initial calibration	A	Balance ✓
III.	Calibration verification	A	↓
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	N	CS
VI.	Duplicates	N	
VII.	Laboratory control samples	A	LCS
VIII.	Sample result verification	A	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	FD = (1, 901W56081214 (SDG: 259751))
XI.	Field blanks	ND	Rinse Blank = RB081214 (SDG: 259751)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: Waters

1	01W56081214	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 32600B6

VALIDATION FINDINGS CHECKLIST

Reviewer: SD
2nd Reviewer: [illegible]

Method: Inorganics (EPA Method See Cover)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients ≥ 0.995?			✓	
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?			✓	
Were titrant checks performed as required? (Level IV only)			✓	
Were balance checks performed as required? (Level IV only)	✓			
III. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
IV. Matrix spike/Matrix spike duplicates and Duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.			✓	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of ≤ CRDL(≤ 2X CRDL for soil) was used for samples that were ≤ 5X the CRDL, including when only one of the duplicate sample values were ≤ 5X the CRDL.			✓	
V. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
VI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

LDC #: 32600B6

VALIDATION FINDINGS CHECKLIST

Reviewer: 3rd
2nd Reviewer: 2

Validation Area	Yes	No	NA	Findings/Comments
VII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
VIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
IX. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
X. Field blanks				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.		✓		

LDC# 32600B6

VALIDATION FINDINGS WORKSHEET

Field Duplicates

Reviewer: JD

2nd Reviewer: CA

Inorganics: Method See Cover

Analyte	Concentration (mg/L)		RPD (≤25)
	901W56081214 (SDG: 259751)	1	
TDS	10900	11300	4

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LDC #: 32600B6

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Page: 1 of 1
Reviewer: JD
2nd Reviewer: a

METHOD: Inorganics, Method See Cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample concentration
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated %R / RPD	Reported %R / RPD	Acceptable (Y/N)
LCS	Laboratory control sample	TDS	84 mg/L	104 mg/L	81%R	81%R	
N	Matrix spike sample		(SSR-SR)				
N	Duplicate sample						

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

TOTCLC.6

LDC #: 32600B6

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: 3D
2nd reviewer: [illegible]

METHOD: Inorganics, Method See Cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments?
Y N N/A Are all detection limits below the CRQL?

Compound (analyte) results for TDS (1) reported with a positive detect were recalculated and verified using the following equation:

Concentration = Constant Mass - Inital mass

Recalculation: 66.6229g - 66.5665g = 0.0564 g/5ml (3D)

0.0564 g/5ml (3D) (200(5ml)/1L) = 11.28 g/L (3D)

11.28 g/L (1000mg/g) = 11,300 mg/L

Constant Mass = 66.6229g
In. Mass = 66.5665g
In Vol = 5ml

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
	1	TDS	11300	11300	Y

Note:

RECALC.6

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

J.M. Waller Associates, Inc.
11325 Random Hills Road, Suite 210
Fairfax, VA 22030
Attn: Mr. Michael Profit

September 22, 2014

SUBJECT: Mare Island, BGMP-IR04, Data Validation

Dear Mr. Profit,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on September 2, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #32575:

SDG #	Fraction
259790, 259786	Volatiles, Semivolatiles, Polynuclear Aromatic Hydrocarbons, Dissolved Metals, Total Petroleum Hydrocarbons as Diesel

The data validation was performed under EPA Level III guidelines. The analyses were validated using the following documents, as applicable to each method:

- Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California, July 2014, and Addendum 1, August 2014
- U.S. Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5.0, July 2013
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink
Project Manager/Chemist

608 pages-EM

Attachment 1

EDD/NIRIS

LDC #32575 (JM Waller Assoc.-Fairfax, VA / Mare Island, BGMP-IR04)

PO #ATL-14-080614-LDC

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260C)		SVOA (8270D)		PAHs (8270D -SIM)		Diss. Metals (SW846)		TPH-D (8015D)																									
Matrix:	/Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	259790	09/02/14	09/23/14	3	0	2	0	2	0	2	0	2	0																								
B	259786	09/02/14	09/23/14	4	0	3	0	3	0	4	0	3	0																								
Total	T/CR			7	0	5	0	5	0	6	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28

Shaded cells indicate Level IV validation (all other cells are Level III validation). These sample counts do not inclute MS/MSD, and DUPs

32575ST_BGMP-IR04.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-IR04
Collection Date:	August 13, 2014
LDC Report Date:	September 17, 2014
Matrix:	Water
Parameters:	Volatiles
Validation Level:	EPA Level III
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259790

Sample Identification

RB-081314
SB-081314
TB-2-081314

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260C for Volatiles.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. Cooler temperatures were not reported by the laboratory. The samples were received the same day they were collected and did not have sufficient time to cool down. No data was qualified based on the cooler temperature.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/15/14 (HHF04)	Bromomethane 2-Butanone sec-Butylbenzene	28 21 23	All samples in SDG 259790	J (all detects) UJ (all non-detects)	A
8/15/14 (HHF04)	Vinyl acetate	29	TB-2-081314 214432MB	J (all detects) UJ (all non-detects)	A

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
6/25/14	Vinyl acetate	36	All samples in SDG 259790	J (all detects) UJ (all non-detects)	A

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Sample TB-2-081314 was identified as a trip blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB-2-081314	8/13/14	Acetone	2.3 ug/L	RB-081314 SB-081314

Sample RB-081314 was identified as a rinsate blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
RB-081314	8/13/14	Methylene chloride	0.3 ug/L	No associated samples in this SDG

Sample SB-081314 was identified as a source blank. No volatile contaminants were found.

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
SB-081314	1,2-Dichloroethane-d4	121 (70-120)	Vinyl acetate	J (all detects)	A

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were not within QC limits. Since there were no associated samples, no data were qualified.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

Mare Island, BGMP-IR04
Volatiles - Data Qualification Summary - SDG 259790

SDG	Sample	Compound	Flag	A or P	Reason
259790	RB-081314 SB-081314 TB-2-081314	Bromomethane 2-Butanone sec-Butylbenzene	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
259790	TB-2-081314	Vinyl acetate	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
259790	RB-081314 SB-081314 TB-2-081314	Vinyl acetate	J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)
259790	SB-081314	Vinyl acetate	J (all detects)	A	Surrogate spikes (%R)

Mare Island, BGMP-IR04
Volatiles - Laboratory Blank Data Qualification Summary - SDG 259790

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Volatiles - Field Blank Data Qualification Summary - SDG 259790

No Sample Data Qualified in this SDG

LDC #: 32575A1 **VALIDATION COMPLETENESS WORKSHEET** Date: 9/9/14

SDG #: 259790 Level III Page: 1 of 1

Laboratory: Curtis & Tompkins, LTD. Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 8/13/14 cooler temp not recorded rec'd same day (text)
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 15, r²
IV.	Continuing calibration/ICV	SW	CCV/ICV ≤ 20
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	SW	04W19-081314 no assoc'd/no qual
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	~~ERB~~ = 1 SB = 2* TB = 3

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; * ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	RB-081314	11	214432MB	21		31	
2	SB-081314	12	214489MB	22		32	
3	TB-2-081314	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl choride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

LDC #: 32575A1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Y N N/A Were percent differences (%D) ≤20 % and relative response factors (RRF) within the method criteria?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤20.0%)	Finding RRF (Limit)	Associated Samples	Qualifications
	6/25/14	HFP21 (ICV)	HH	36		All	J/UJ/A
	8/15/14	HHF04	B	28		All	
			M	21			
			~~EEE~~	23			
			HH	29		3, 214432MB	

CONCAL.1SC

LDC #: 32575A1

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)
Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L **Associated sample units:** ug/L
Sampling date: 8/13/14
Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: ~~FRB~~ Associated Samples: ~~2~~ None

Compound	Blank ID	Sample Identification								
	1									
Methylene chloride	0.3									
Acetone										
Chloroform										

Blank units: ug/L **Associated sample units:** ug/L
Sampling date: 8/13/14
Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: Associated Samples: 1,2

Compound	Blank ID	Sample Identification								
	3									
Methylene chloride										
Acetone	2.3									
Chloroform										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 32575B1

VALIDATION FINDINGS WORKSHEET
Surrogate Spikes

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all surrogate %R within QC limits?

(Y) N N/A If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R out of outside of criteria?

#	Date	Sample ID	Surrogate	%Recovery (Limits)	Qualifications
		2	DCE	121 (70-120)	Juts/A (HH only)
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
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				( )	

(TOL) = Toluene-d8 (DCE) = 1,2-Dichloroethane-d4
(BFB) = Bromofluorobenzene (DFM) = Dibromofluoromethane

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-IR04
Collection Date:	August 13, 2014
LDC Report Date:	September 17, 2014
Matrix:	Water
Parameters:	Semivolatiles
Validation Level:	EPA Level III
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259790

Sample Identification

RB-081314
SB-081314

Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270D for Semivolatiles.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. Cooler temperatures were not reported by the laboratory. The samples were received the same day they were collected and did not have sufficient time to cool down. No data was qualified based on the cooler temperature.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the validation criteria of less than or equal to 20.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

Sample RB-081314 was identified as a rinsate blank. No semivolatile contaminants were found.

Sample SB-081314 was identified as a source blank. No semivolatile contaminants were found.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were not within QC limits. Since there were no associated samples, no data were qualified.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

Mare Island, BGMP-IR04
Semivolatiles - Data Qualification Summary - SDG 259790

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 259790

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Semivolatiles - Field Blank Data Qualification Summary - SDG 259790

No Sample Data Qualified in this SDG

LDC #: 32575A2a

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 9/9/14

SDG #: 259790

Page: 1 of 1

Laboratory: Curtis & Tompkins, LTD.

Reviewer:

2nd Reviewer:

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 8/13/14 cooler temp not recorded rec'd same day (text)
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 15, 1r
IV.	Continuing calibration/ICV	A	CCV/IV ≤ 20
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	04W19-081314 no assoc'd/no qual
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	~~FRB~~ RB=1 SB=2

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

W

1	RB-081314	11	214400MB	21		31	
2	SB-081314	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-IR04
Collection Date:	August 13, 2014
LDC Report Date:	September 17, 2014
Matrix:	Water
Parameters:	Polynuclear Aromatic Hydrocarbons
Validation Level:	EPA Level III
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259790

Sample Identification

RB-081314
SB-081314

Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA SW 846 Method 8270D using Selected Ion Monitoring (SIM) for Polynuclear Aromatic Hydrocarbons.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. Cooler temperatures were not reported by the laboratory. The samples were received the same day they were collected and did not have sufficient time to cool down. No data was qualified based on the cooler temperature.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals. All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No polynuclear aromatic hydrocarbon contaminants were found in the method blanks.

Sample RB-081314 was identified as a rinsate blank. No polynuclear aromatic hydrocarbon contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
RB-081314	8/13/14	Phenanthrene Fluoranthene Pyrene	0.03 ug/L 0.02 ug/L 0.02 ug/L	No associated samples in this SDG

Sample SB-081314 was identified as a source blank. No polynuclear aromatic hydrocarbon contaminants were found.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

Mare Island, BGMP-IR04
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 259790

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 259790

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG 259790

No Sample Data Qualified in this SDG

LDC #: 32575A2b

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 9/9/14

SDG #: 259790

Page: 1 of 1

Laboratory: Curtis & Tompkins, LTD.

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 8/13/14 cooler temp not recorded rec'd same day (text)
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 15
IV.	Continuing calibration/ICV	A	CCV/ICV ≤ 20
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	04W19-081314
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	~~FB~~ N = 1 SB = 2 *

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

* ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples:

1	RB-081314	11	214J4MB	21		31	
2	SB-081314	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU.Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV.Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW.Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.

LDC #: 32575A2b

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: M
2nd Reviewer: Oz

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?
Blank units: ug/L **Associated sample units:**
Sampling date: 8/13/14
Field blank type: (circle one) Field Blank / Rinsate / Other: ERB Associated Samples: NA

Compound	Blank ID	Sample Identification								
	1									
UU	0.03									
YY	0.02									
ZZ	0.02									

Blank units: **Associated sample units:**
Sampling date:
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples:

Compound	Blank ID	Sample Identification								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-IR04
Collection Date:	August 13, 2014
LDC Report Date:	September 17, 2014
Matrix:	Water
Parameters:	Dissolved Metals
Validation Level:	EPA Level III
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259790

Sample Identification

RB-081314
SB-081314

Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010C and 7470A for Dissolved Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. ICPMS Tune

ICP-MS was not utilized in this SDG.

III. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Mercury Cobalt Molybdenum Nickel	0.14 ug/L 0.33 ug/L 0.43 ug/L 1.0 ug/L	All samples in SDG 259790

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RB-081314	Nickel	1.1 ug/L	1.1U ug/L
SB-081314	Nickel	0.98 ug/L	0.98U ug/L

Sample RB-081314 was identified as a rinsate blank. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
RB-081314	8/13/14	Magnesium Manganese Nickel	150 ug/L 0.91 ug/L 1.1 ug/L	No associated samples in this SDG

Sample SB-081314 was identified as a source blank. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
SB-081314	8/13/14	Magnesium Manganese Arsenic Nickel Zinc	38 ug/L 0.49 ug/L 1.4 ug/L 0.98 ug/L 6.3 ug/L	RB-081314

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RB-081314	Magnesium Manganese Nickel	150 ug/L 0.91 ug/L 1.1 ug/L	150U ug/L 0.91U ug/L 1.1U ug/L

V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Analyte	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
LCS/D (All samples in SDG 259790)	Mercury	137 (80-120)	134 (80-120)	-	J (all detects)	P

IX. Internal Standards (ICP-MS)

ICP-MS was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

Raw data were not reviewed for this SDG.

XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

Mare Island, BGMP-IR04
Dissolved Metals - Data Qualification Summary - SDG 259790

SDG	Sample	Analyte	Flag	A or P	Reason
259790	RB-081314 SB-081314	Mercury	J (all detects)	P	Laboratory control samples (%R)

Mare Island, BGMP-IR04
Dissolved Metals - Laboratory Blank Data Qualification Summary - SDG 259790

SDG	Sample	Analyte	Modified Final Concentration	A or P
259790	RB-081314	Nickel	1.1U ug/L	A
259790	SB-081314	Nickel	0.98U ug/L	A

Mare Island, BGMP-IR04
Dissolved Metals - Field Blank Data Qualification Summary - SDG 259790

SDG	Sample	Analyte	Modified Final Concentration	A or P
259790	RB-081314	Magnesium Manganese Nickel	150U ug/L 0.91U ug/L 1.1U ug/L	A

LDC #: 32575A4

SDG #: 259790

Laboratory: Curtis & Tompkins, LTD.

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 9/8/14

Page: 1 of 1

Reviewer: SD

2nd Reviewer: CL

METHOD: Dissolved Metals (EPA SW 846 Method 6010C/~~7000~~ 7470A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 08/13/14
II.	ICP/MS Tune	N	Not Utilized
III.	Calibration	A	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	A	
VI.	Matrix Spike Analysis	SW	MS/D = 04W19-081314 MS/D (SDG: 259783)
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	SD ~~A~~ SW	LCS/D
IX.	Internal Standard (ICP-MS)	N	Not Utilized
X.	ICP Serial Dilution	A	04W19-081314 (SDG: 259783)
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	N	
XIV.	Field Blanks	SW	RB = 1 (Rinse Blank), Source Blank = 2

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: Waters

1	RB-081314	11		21		31	
2	SB-081314	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 32575A4

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Reviewer: SD
2nd reviewer: CL

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-2	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
Analysis Method		
ICP		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,

Comments: Mercury by CVAA if performed

LDC #: 32575A4

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Page: 1 of 1
Reviewer: JD
2nd Reviewer: a

METHOD: Trace metals (EPA SW 846 Method 6010B/6020/7000) Soil preparation factor applied: _____
Sample Concentration units, unless otherwise noted: ug/L Associated Samples: All

					Sample Identification										
Analyte	**Maximum PB[a] (mg/Kg)**	**Maximum PB[a] (ug/L)**	**Maximum ICB/CCB[a] (ug/L)**	**Action Level**	**1**	**2**									
Hg		0.14		0.7											
Co		0.33		1.65											
Mo		0.43		2.15											
Ni		1.0 a ~~1.0~~		5 ~~8~~	1.1	0.98									

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 32575A4

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: SD
2nd Reviewer: a

See Cover

METHOD: Trace Metals (EPA Method ~~200.7/200.8~~)

Blank units: ug/L **Associated sample units:** ug/L
Sampling date: 08/13/14 Soil factor applied _____
Field blank type: (circle one) Field Blank / Rinsate / Other: Rinse Blank Associated Samples: None

Analyte	Blank ID	Sample Identification											
	1	Action Limit	No Qual										
Mg	150	750											
Mn	0.91	4.55											
Ni	1.1	5.5											

Blank units: ug/L **Associated sample units:** ug/L
Sampling date: 08/13/14 Soil factor applied _____
Field blank type: (circle one) Field Blank / Rinsate / Other: Source Blank Associated Samples: 1

Analyte	Blank ID	Sample Identification											
	2	Action Limit	1										
Mg	38	190	150										
Mn	0.49	2.45	0.91										
As	1.4	7											
Ni	0.98	4.9	1.1										
Zn	6.3	31.5											

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

LDC #: 32575A4

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: JD
2nd Reviewer: CR

METHOD: Trace metals (EPA SW 846 Method 6010/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y N N/A Were matrix spike percent recoveries (%R) within the control limits of 80-120? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

Y N N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for samples?

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
	04W19-081314 MS/D (SDG: 259783)	W	Hg	67	55		All	No Qual ~~J/UJ/A~~ (different matrix)
			Pb		75			J/UJ/A
			Tl	75	79			J/UJ/A
			~~Se~~	~~153~~	~~156~~ CR			~~J/UJ/A~~ a

Comments: 5/6: Mg, Mn, Ba >4X

LDC #: 32575A4

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: JD
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW 846 Method 6010B/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a laboratory control sample (LCS) analyzed for each matrix in this SDG?

Y N N/A Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	LCS/LCSD ID	Matrix	Analyte	LCS %R (limits)	LCSD %R (limits)	RPD (limits)	Associated Samples	Qualifications
	LCS/D	W	Hg	137 (80-120)	134 (80-120)		All	Jdet/P

Comments:

32575B4LCS.wpd

LDC Report# 32575A8

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-IR04
Collection Date:	August 13, 2014
LDC Report Date:	September 17, 2014
Matrix:	Water
Parameters:	Total Petroleum Hydrocarbons as Diesel
Validation Level:	EPA Level III
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259790

Sample Identification

RB-081314
SB-081314

Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015D for Total Petroleum Hydrocarbons (TPH) as Diesel.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. Cooler temperatures were not reported by the laboratory. The samples were received the same day they were collected and did not have sufficient time to cool down. No data was qualified based on the cooler temperature.

II. Initial Calibration

Initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0%.

III. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

Sample RB-081314 was identified as a rinsate blank. No total petroleum hydrocarbons as diesel contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
RB-081314	8/13/14	TPH as diesel (C10-C24)	35 ug/L	No associated samples in this SDG

Sample SB-081314 was identified as a source blank. No total petroleum hydrocarbons as diesel contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
SB-081314	8/13/14	TPH as diesel (C10-C24)	45 ug/L	RB-081314

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RB-081314	TPH as diesel (C10-C24)	35 ug/L	35U ug/L

V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

IX. Compound Quantitation

Raw data were not reviewed for this SDG.

X. System Performance

Raw data were not reviewed for this SDG.

XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XII. Field Duplicates

No field duplicates were identified in this SDG.

Mare Island, BGMP-IR04
Total Petroleum Hydrocarbons as Diesel - Data Qualification Summary - SDG 259790

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Total Petroleum Hydrocarbons as Diesel - Laboratory Blank Data Qualification Summary - SDG 259790

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Total Petroleum Hydrocarbons as Diesel - Field Blank Data Qualification Summary - SDG 259790

SDG	Sample	Compound	Modified Final Concentration	A or P
259790	RB-081314	TPH as diesel (C10-C24)	35U ug/L	A

LDC #: 32575A8

VALIDATION COMPLETENESS WORKSHEET

Date: 9/9/14

SDG #: 259790

Level III

Page: 1 of 1

Laboratory: Curtis & Tompkins, LTD.

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC TPH as ~~Extractables~~ Diesel (EPA SW 846 Method 8015D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 8/13/14 aq by temp not recorded rec'd same day (text)
II	Initial calibration	A	RSD ≤ 20
III.	Calibration verification/ICV	A	CCV/ICV ≤ 20
IV.	Blanks	A	
V	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	A	04W19-081314
VII.	Laboratory control samples	A	LCS
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	SW	~~ERB~~ RB = 1 SB = 2

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	RB-081314 W	11	214402MB	21		31	
2	SB-081314 ↓	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 32575A8

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC

Y N N/A Field blanks were identified in this SDG.
Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L **Associated sample units:**
Sampling date: 8/13/14
Field blank type: (circle one) Field Blank / Rinsate / Other: ~~ERB~~ Associated Samples: NA

Compound	Blank ID	Sample Identification								
	1									
Diesel C10-C24	35									

Blank units: ug/L **Associated sample units:** ug/L
Sampling date: 8/13/14
Field blank type: (circle one) Field Blank / Rinsate / Other: SB Associated Samples: 1

Compound	Blank ID	Sample Identification								
	2	1								
Diesel C10-C24	45	35/U								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with compound concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-IR04
Collection Date:	August 13, 2014
LDC Report Date:	September 17, 2014
Matrix:	Water
Parameters:	Volatiles
Validation Level:	EPA Level III
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259786

Sample Identification

04W19-081314
TB-081314
04W18-081314
04W17-081314
04W19-081314MS
04W19-081314MSD

Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260C for Volatiles.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

All samples were received in good condition with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
TB-081314	All TCL compounds	A headspace of >1 ml was apparent in the sample containers.	There should be no headspace in the sample containers.	J (all detects) UJ (all non-detects)	A

The chain-of-custodies were reviewed for documentation of cooler temperatures. Cooler temperatures were not reported by the laboratory. The samples were received the same day they were collected and did not have sufficient time to cool down. No data was qualified based on the cooler temperature.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/15/14	Bromomethane 2-Butanone sec-Butylbenzene	28 21 23	All samples in SDG 259786	J (all detects) UJ (all non-detects)	A

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
6/25/14	Vinyl acetate	36	All samples in SDG 259786	J (all detects) UJ (all non-detects)	A

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Sample TB-081314 was identified as a trip blank. No volatile contaminants were found.

Sample RB-081314 (from SDG 259790) was identified as a rinsate blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
RB-081314	8/13/14	Methylene chloride	0.3 ug/L	04W19-081314 04W18-081314 04W17-081314

Sample SB-081314 was identified as a source blank. No volatile contaminants were found.

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
04W19-081314	1,2-Dichloroethane-d4 1,2-Dichloroethane-d4	122 (70-120) 131 (70-120)	All TCL compounds	J (all detects)	A
TB-081314	1,2-Dichloroethane-d4	132 (70-120)	Vinyl acetate	J (all detects)	A
04W18-081314	1,2-Dichloroethane-d4	125 (70-120)	Vinyl acetate	J (all detects)	A
04W17-081314	1,2-Dichloroethane-d4	122 (70-120)	Vinyl acetate	J (all detects)	A

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
04W19-081314MS/MSD (04W19-081314)	4-Methyl-2-pentanone 2-Hexanone 1,1,2,2-Tetrachloroethane 1,2,3-Trichloropropane	159 (60-135) 161 (55-130) 134 (65-130) 127 (75-125)	154 (60-135) 156 (55-130) - -	- - - -	J (all detects) J (all detects) J (all detects) J (all detects)	A

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

Mare Island, BGMP-IR04
Volatiles - Data Qualification Summary - SDG 259786

SDG	Sample	Compound	Flag	A or P	Reason
259786	TB-081314	All TCL compounds	J (all detects) UJ (all non-detects)	A	Sample condition (headspace)
259786	04W19-081314 TB-081314 04W18-081314 04W17-081314	Bromomethane 2-Butanone sec-Butylbenzene	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
259786	04W19-081314 TB-081314 04W18-081314 04W17-081314	Vinyl acetate	J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)
259786	04W19-081314	All TCL compounds	J (all detects)	A	Surrogate spikes (%R)
259786	TB-081314 04W18-081314 04W17-081314	Vinyl acetate	J (all detects)	A	Surrogate spikes (%R)
259786	04W19-081314	4-Methyl-2-pentanone 2-Hexanone 1,1,2,2-Tetrachloroethane 1,2,3-Trichloropropane	J (all detects) J (all detects) J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicate (%R)

Mare Island, BGMP-IR04
Volatiles - Laboratory Blank Data Qualification Summary - SDG 259786

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Volatiles - Field Blank Data Qualification Summary - SDG 259786

No Sample Data Qualified in this SDG

LDC #: 32575B1

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 9/9/14

SDG #: 259786

Page: 1 of 1

Laboratory: Curtis & Tompkins, LTD.

Reviewer:

2nd Reviewer:

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 8/13/14 cooler temp not recorded rec'd same day (text)
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 15, r2
IV.	Continuing calibration/ICV	SW	CCV/ICV ≤ 20
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	TB = 2 ~~ERB~~ RB-081314 (259790)

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

* ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples:

W

1	04W19-081314	11	214432MB	21		31	
2	TB-081314	12	214489MB	22		32	
3	04W18-081314	13		23		33	
4	04W17-081314	14		24		34	
5	04W19-081314MS	15		25		35	
6	04W19-081314MSD	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl choride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

LDC #: 32575B1

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Page: 1 of 1
Reviewer: a
2nd Reviewer: a

All circled dates have exceeded the technical holding times.
Y N (N/A) Were all cooler temperatures within validation criteria?
(Y) N N/A Were air bubbles > 1/4 inch or was headspace present in the vials?

METHOD : GC/MS VOA (EPA SW 846 Method 8260C)

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
2	W		headspace >	1 mL			J/UJ/A

TECHNICAL HOLDING TIME CRITERIA

Water unpreserved: Aromatic within 7 days, non-aromatic within 14 days of sample collection.
Water preserved: Within 14 days of sample collection.
Soil: Within 14 days of sample collection.

LDC #: 32515B1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Y N N/A Were percent differences (%D) ≤20 % and relative response factors (RRF) within the method criteria?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤20.0%)	Finding RRF (Limit)	Associated Samples	Qualifications
	6/25/14	HFP21	HH	36		All	J/UJ/A
		(1CV)					
	8/15/14	HHF04	B	28		All	
			M	21			
			EEE	23			

LDC #: 32575B1

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: M
2nd Reviewer: a

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)
Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?
Blank units: ug/L **Associated sample units:** ug/L
Sampling date: 8/13/14
Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: ~~FRB~~ Associated Samples: 1, 3, 4

Compound	Blank ID	Sample Identification								
	RB-081314									
Methylene chloride	0.3									
Acetone										
Chloroform										

Blank units: **Associated sample units:**
Sampling date:
Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: Associated Samples:

Compound	Blank ID	Sample Identification								
Methylene chloride										
Acetone										
Chloroform										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 32575B1

VALIDATION FINDINGS WORKSHEET
Surrogate Spikes

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all surrogate %R within QC limits?

(Y) N N/A If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R out of outside of criteria?

#	Date	Sample ID	Surrogate	%Recovery (Limits)	Qualifications
		1	DCE	122 (70-120)	Jdets/A (AA)
			↓	131 ( )	↓
				( )	
		2		132 ( )	(HH)
				( )	↓
		3		125 ( )	
				( )	
		4	↓	122 ( )	↓
				( )	
				( )	
				( )	
				( )	
				( )	
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				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

(TOL) = Toluene-d8
(BFB) = Bromofluorobenzene
(DCE) = 1,2-Dichloroethane-d4
(DFM) = Dibromofluoromethane

SUR.1SC

LDC #: 35575B1

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: M
2nd Reviewer: CL

METHOD : GC/MS VOA (EPA SW 846 Method 8260C)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

Y N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y N N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		5/6	Y	159 (60-135)	154 (60-135)	( )	1	J all +/A
			Z	161 (55-130)	156 (55-130)	( )		
			BB	134 (65-130)	( )	( )		
			XX	127 (75-125)	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-IR04
Collection Date:	August 13, 2014
LDC Report Date:	September 17, 2014
Matrix:	Water
Parameters:	Semivolatiles
Validation Level:	EPA Level III
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259786

Sample Identification

04W19-081314
04W18-081314
04W17-081314
04W19-081314MS
04W19-081314MSD

Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270D for Semivolatiles.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. Cooler temperatures were not reported by the laboratory. The samples were received the same day they were collected and did not have sufficient time to cool down. No data was qualified based on the cooler temperature.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the validation criteria of less than or equal to 20.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

Sample RB-081314 (from SDG 259790) was identified as a rinsate blank. No semivolatile contaminants were found.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
04W19-081314MS/MSD (04W19-081314)	3,3'-Dichlorobenzidine	0 (20-110)	0 (20-110)	-	J (all detects) R (all non-detects)	A
04W19-081314MS/MSD (04W19-081314)	Hexachlorocyclopentadiene	-	-	42 (≤30)	J (all detects)	A

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

Mare Island, BGMP-IR04
Semivolatiles - Data Qualification Summary - SDG 259786

SDG	Sample	Compound	Flag	A or P	Reason
259786	04W19-081314	3,3'-Dichlorobenzidine	J (all detects) R (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R)
259786	04W19-081314	Hexachlorocyclopentadiene	J (all detects)	A	Matrix spike/Matrix spike duplicate(RPD)

Mare Island, BGMP-IR04
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 259786

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Semivolatiles - Field Blank Data Qualification Summary - SDG 259786

No Sample Data Qualified in this SDG

LDC #: 32575B2a **VALIDATION COMPLETENESS WORKSHEET** Date: 9/9/14

SDG #: 259786 Level III Page: 1 of 1

Laboratory: Curtis & Tompkins, LTD. Reviewer: n

2nd Reviewer: a

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 8/13/14 cooler temp not recorded rec'd same day (text)
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 15, r²
IV.	Continuing calibration/ICV	A	CCV/ICV ≤ 20
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	~~ERB~~ RB = RB-081314 (259790)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	04W19-081314	11	214400UB	21		31	
2	04W18-081314	12		22		32	
3	04W17-081314	13		23		33	
4	04W19-081314MS	14		24		34	
5	04W19-081314MSD	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU.Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV.Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW.Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.

LDC #: 32575B20

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer:
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

Y N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y N N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		4/5	BBB	0 (20-110)	0 (20-110)	( )	1	J/R/A
			X	( )	( )	42 (≤30)		J/UL/A
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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LDC Report# 32575B2b

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-IR04
Collection Date:	August 13, 2014
LDC Report Date:	September 17, 2014
Matrix:	Water
Parameters:	Polynuclear Aromatic Hydrocarbons
Validation Level:	EPA Level III
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259786

Sample Identification

04W19-081314
04W18-081314
04W17-081314
04W19-081314MS
04W19-081314MSD

Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA SW 846 Method 8270D using Selected Ion Monitoring (SIM) for Polynuclear Aromatic Hydrocarbons.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. Cooler temperatures were not reported by the laboratory. The samples were received the same day they were collected and did not have sufficient time to cool down. No data was qualified based on the cooler temperature.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals. All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No polynuclear aromatic hydrocarbon contaminants were found in the method blanks.

Sample RB-081314 (from SDG 259790) was identified as a rinsate blank. No polynuclear aromatic hydrocarbon contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
RB-081314	8/13/14	Phenanthrene Fluoranthene Pyrene	0.03 ug/L 0.02 ug/L 0.02 ug/L	All samples in SDG 259786

Sample SB-081314 was identified as a source blank. No polynuclear aromatic hydrocarbon contaminants were found.

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

Mare Island, BGMP-IR04
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 259786

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 259786

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG 259786

No Sample Data Qualified in this SDG

LDC #: 32575B2b

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 9/9/14

SDG #: 259786

Page: 1 of 1

Laboratory: Curtis & Tompkins, LTD.

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 8/13/14 cooler temp not recorded Rec'd same day (text)
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 15
IV.	Continuing calibration/ICV	A	CCV/ICV ≤ 20
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	~~EQB~~ RB = RB-081314 (259790)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: W

1	04W19-081314	11	214514MB	21		31	
2	04W18-081314	12		22		32	
3	04W17-081314	13		23		33	
4	04W19-081314MS	14		24		34	
5	04W19-081314MSD	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

LDC #: 32575B2b

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?
Blank units: ug/L **Associated sample units:**
Sampling date: 8/13/14
Field blank type: (circle one) Field Blank / Rinsate / Other: ~~ER~~ B Associated Samples: All

Compound	Blank ID	Sample Identification								
	RB-081314									
UU	0.03									
YY	0.02									
ZZ	0.02									

Blank units: **Associated sample units:**
Sampling date:
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples:

Compound	Blank ID	Sample Identification								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

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Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-IR04
Collection Date:	August 13, 2014
LDC Report Date:	September 17, 2014
Matrix:	Water
Parameters:	Dissolved Metals
Validation Level:	EPA Level III
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259786

Sample Identification

04W19-081314
04W18-081314
04W17-081314
04W16-081314
04W19-081314MS
04W19-081314MSD

Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010C and 7470A for Dissolved Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. ICPMS Tune

ICP-MS was not utilized in this SDG.

III. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Mercury Cobalt Molybdenum Nickel	0.14 ug/L 0.33 ug/L 0.43 ug/L 1.0 ug/L	All samples in SDG 259786

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
04W18-081314	Cobalt Nickel	1.3 ug/L 2.7 ug/L	1.3U ug/L 2.7U ug/L
04W17-081314	Cobalt Nickel	1.3 ug/L 1.2 ug/L	1.3U ug/L 1.2U ug/L
04W16-081314	Cobalt Nickel	1.6 ug/L 2.1 ug/L	1.6U ug/L 2.1U ug/L

Sample RB-081314 (from SDG 259790) was identified as a rinsate blank. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
RB-081314	8/13/14	Magnesium Manganese Nickel	150 ug/L 0.91 ug/L 1.1 ug/L	All samples in SDG 259786

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
04W18-081314	Nickel	2.7 ug/L	2.7U ug/L
04W17-081314	Nickel	1.2 ug/L	1.2U ug/L
04W16-081314	Nickel	2.1 ug/L	2.1U ug/L

V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
04W19-081314MS/MSD (All samples in SDG 259786)	Mercury Lead Thallium	67 (80-120) - 75 (80-120)	55 (80-120) 75 (80-120) 79 (80-120)	- - -	J (all detects) UJ (all non-detects)	A

For 04W19-081314MS/MSD, no data were qualified for Magnesium, Manganese, and Barium percent recoveries outside the QC limits since the parent sample results were greater than 4X the spike concentration.

VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Analyte	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
LCS/D (All samples in SDG 259786)	Mercury	137 (80-120)	134 (80-120)	-	J (all detects)	P

IX. Internal Standards (ICP-MS)

ICP-MS was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

Raw data were not reviewed for this SDG.

XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

Mare Island, BGMP-IR04
Dissolved Metals - Data Qualification Summary - SDG 259786

SDG	Sample	Analyte	Flag	A or P	Reason
259786	04W19-081314 04W18-081314 04W17-081314 04W16-081314	Mercury Lead Thallium	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R)
259786	04W19-081314 04W18-081314 04W17-081314 04W16-081314	Mercury	J (all detects)	P	Laboratory control samples (%R)

Mare Island, BGMP-IR04
Dissolved Metals - Laboratory Blank Data Qualification Summary - SDG 259786

SDG	Sample	Analyte	Modified Final Concentration	A or P
259786	04W18-081314	Cobalt Nickel	1.3U ug/L 2.7U ug/L	A
259786	04W17-081314	Cobalt Nickel	1.3U ug/L 1.2U ug/L	A
259786	04W16-081314	Cobalt Nickel	1.6U ug/L 2.1U ug/L	A

Mare Island, BGMP-IR04
Dissolved Metals - Field Blank Data Qualification Summary - SDG 259786

SDG	Sample	Analyte	Modified Final Concentration	A or P
259786	04W18-081314	Nickel	2.7U ug/L	A
259786	04W17-081314	Nickel	1.2U ug/L	A
259786	04W16-081314	Nickel	2.1U ug/L	A

LDC #: 32575B4

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 9/8/14

SDG #: 259786

Page: 1 of 1

Laboratory: Curtis & Tompkins, LTD.

Reviewer: SD

2nd Reviewer: CL

METHOD: Dissolved Metals (EPA SW 846 Method 6010C/~~7000~~ 7470A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 08/13/14
II.	ICP/MS Tune	N	Not Utilized
III.	Calibration	A	
IV.	Blanks	SD ~~A~~ SW	
V.	ICP Interference Check Sample (ICS) Analysis	A	
VI.	Matrix Spike Analysis	SW	MS/D = (5, 6)
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	SW	LCS/D
IX.	Internal Standard (ICP-MS)	N	Not Utilized
X.	ICP Serial Dilution	A	
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	N	
XIV.	Field Blanks	~~X~~ SW SD	Rinse Blank = RB-081314 (SDG: 259790)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: Waters

1	04W19-081314	11		21		31	
2	04W18-081314	12		22		32	
3	04W17-081314	13		23		33	
4	04W16-081314	14		24		34	
5	04W19-081314MS	15		25		35	
6	04W19-081314MSD	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: ~~32565L4~~ 3257584

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Page: 1 of 1
Reviewer: [illegible]
2nd reviewer: [illegible]

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-4	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
QC 56	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
Analysis Method		
ICP		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___

Comments: Mercury by CVAA if performed

LDC #: 32575B4

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Page: 1 of 1
Reviewer: JD
2nd Reviewer: [illegible]

METHOD: Trace metals (EPA SW 846 Method 6010B/6020/7000) Soil preparation factor applied:_____
Sample Concentration units, unless otherwise noted: ug/L Associated Samples: All

					Sample Identification										
Analyte	**Maximum PB[a] (mg/Kg)**	**Maximum PB[a] (ug/L)**	**Maximum ICB/CCB[a] (ug/L)**	**Action Level**	**2**	3	4								
Hg		0.14		0.7											
Co		0.33		1.65	1.3	1.3	1.6								
Mo		0.43		2.15											
Ni		1.0		5	2.7	1.2	2.1								

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 32575B4

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: SD
2nd Reviewer: CR

See Cover

METHOD: Trace Metals (EPA Method ~~200.7/200~~.8)

Blank units: ug/L **Associated sample units:** ug/L
Sampling date: 08/13/14 Soil factor applied _____
Field blank type: (circle one) Field Blank / Rinsate / Other: Rinse Blank Associated Samples: All

Analyte	Blank ID	Sample Identification										
	RB-081314 (SDG: 259790)	Action Limit	2	3	4							
Mg	150	750										
Mn	0.91	4.55										
Ni	1.1	5.5	2.7	1.2	2.1							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

LDC #: 32575B4

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: SD
2nd Reviewer: [illegible]

METHOD: Trace metals (EPA SW 846 Method 6010/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y N N/A Were matrix spike percent recoveries (%R) within the control limits of ~~75-125~~? 80-120 If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

Y N N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for samples?

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
	5/6	W	Hg	67	55		All	J/UJ/A
			Pb		75			J/UJ/A
			Tl	75	79			J/UJ/A

Comments: 5/6: Mg, Mn, Ba >4X

LDC #: 32575B4

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: JD
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW 846 Method 6010B/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a laboratory control sample (LCS) analyzed for each matrix in this SDG?

Y N N/A Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	LCS/LCSD ID	Matrix	Analyte	LCS %R (limits)	LCSD %R (limits)	RPD (limits)	Associated Samples	Qualifications
	LCS/D	W	Hg	137 (80-120)	134 (80-120)		All	Jdet/P

Comments:

32575B4LCS.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-IR04
Collection Date:	August 13, 2014
LDC Report Date:	September 17, 2014
Matrix:	Water
Parameters:	Total Petroleum Hydrocarbons as Diesel
Validation Level:	EPA Level III
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259786

Sample Identification

04W19-081314
04W18-081314
04W17-081314
04W19-081314MS
04W19-081314MSD

Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015D for Total Petroleum Hydrocarbons (TPH) as Diesel.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. Cooler temperatures were not reported by the laboratory. The samples were received the same day they were collected and did not have sufficient time to cool down. No data was qualified based on the cooler temperature.

II. Initial Calibration

Initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0%.

III. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

Sample RB-081314 (from SDG 259790) was identified as a rinsate blank. No total petroleum hydrocarbons as diesel contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
RB-081314	8/13/14	TPH as diesel (C10-C24)	35 ug/L	All samples in SDG 259786

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

IX. Compound Quantitation

Raw data were not reviewed for this SDG.

X. System Performance

Raw data were not reviewed for this SDG.

XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XII. Field Duplicates

No field duplicates were identified in this SDG.

Mare Island, BGMP-IR04
Total Petroleum Hydrocarbons as Diesel - Data Qualification Summary - SDG 259786

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Total Petroleum Hydrocarbons as Diesel - Laboratory Blank Data Qualification Summary - SDG 259786

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Total Petroleum Hydrocarbons as Diesel - Field Blank Data Qualification Summary - SDG 259786

No Sample Data Qualified in this SDG

LDC #: 32575B8

SDG #: 259786

Laboratory: Curtis & Tompkins, LTD.

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 9/9/14

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC TPH as Extractables (EPA SW 846 Method 8015D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 8/13/14 cooler temp not recorded rec'd same day (text)
II	Initial calibration	A	RSD ≤ 20
III.	Calibration verification/ICV	A	CCV/ICV ≤ 20
IV.	Blanks	A	
V	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	LCS
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	SW	~~ERB~~ RB-081314 (259790)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: W

1	04W19-081314	11	214402MB	21		31	
2	04W18-081314	12		22		32	
3	04W17-081314	13		23		33	
4	04W19-081314MS	14		24		34	
5	04W19-081314MSD	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 32575B8

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: 2
2nd Reviewer: 2

METHOD: GC
Y N N/A Field blanks were identified in this SDG.
Y N N/A Were target compounds detected in the field blanks?
Blank units: ug/L **Associated sample units:** ug/L
Sampling date: 8/13/14
Field blank type: (circle one) Field Blank / Rinsate / Other: ~~ERB~~ Associated Samples: All >5X

Compound	Blank ID	Sample Identification								
	RB-081314									
Diesel C10-C24	35									

Blank units: **Associated sample units:**
Sampling date:
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples:

Compound	Blank ID	Sample Identification								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with compound concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

J.M. Waller Associates, Inc.
11325 Random Hills Road, Suite 210
Fairfax, VA 22030
Attn: Mr. Michael Profit

September 23, 2014

SUBJECT: Mare Island, BGMP-IR04, Data Validation

Dear Mr. Profit,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on September 3, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #32595:

SDG #	Fraction
259835, 259841 259885	Volatiles, Semivolatiles, Polynuclear Aromatic Hydrocarbons, Dissolved Metals, Hexavalent Chromium

The data validation was performed under EPA Level III & IV guidelines. The analyses were validated using the following documents, as applicable to each method:

- Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California, July 2014, and Addendum 1, August 2014
- U.S. Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5.0, July 2013
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink
Project Manager/Chemist

106 pages-EM

Attachment 1

Level III EDD/NIRIS

LDC #32602 (Sovereign Consulting, Inc., Mansfield, MA / NAVSTA Newport-McAllister)

LDC	SDG#	DATE REC'D	(3) DATE DUE	Metals (200.8/ 245.7)																																	
Matrix:	Water/Sediment			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	23899/24904	09/03/14	09/24/14	23	0																																
Total	A/PG			23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23

Shaded cells indicate Level IV validation (all other cells are Level II validation). These sample counts do not include MS, MSD, or DUP's.

32602ST.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-IR04
Collection Date:	August 14, 2014
LDC Report Date:	September 19, 2014
Matrix:	Water
Parameters:	Semivolatiles
Validation Level:	EPA Level IV
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259835

Sample Identification

04W06-081414

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270D for Semivolatiles.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. Curtis & Tompkins indicated the cooler temperature was not recorded. Since the samples were received the same day they were collected, no data was qualified based on the lack cooler temperature.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the validation criteria of less than or equal to 20.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

Sample RB-081414 (from SDG 259841) was identified as a rinsate blank. No semivolatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
RB-081414	8/14/14	Bis(2-ethylhexyl)phthalate	4.0 ug/L	All samples in SDG 259835

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
214595BS/D (All samples in SDG 259835)	Hexachlorocyclopentadiene	6 (8-120)	5 (8-120)	-	J (all detects) R (all non-detects)	P
214595BS/D (All samples in SDG 259835)	4-Chloroaniline	-	-	32 (≤30)	J (all detects) UJ (all non-detects)	P

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation

All compound quantitations were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

Mare Island, BGMP-IR04
Semivolatiles - Data Qualification Summary - SDG 259835

SDG	Sample	Compound	Flag	A or P	Reason
259835	04W06-081414	Hexachlorocyclopentadiene	J (all detects) R (all non-detects)	P	Laboratory control samples (%R)
259835	04W06-081414	4-Chloroaniline	J (all detects) UJ (all non-detects)	P	Laboratory control samples (RPD)

Mare Island, BGMP-IR04
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 259835

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Semivolatiles - Field Blank Data Qualification Summary - SDG 259835

No Sample Data Qualified in this SDG

LDC #: 32595A2a **VALIDATION COMPLETENESS WORKSHEET** Date: 9/9/14

SDG #: 259835 Level IV Page: 1 of 1

Laboratory: Curtis & Tompkins, LTD. Reviewer: N

2nd Reviewer: CR

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 8/14/14 water temp not recorded rec'd same day (text)
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 15, r2
IV.	Continuing calibration/ICV	A	CCV/ICV ≤ 20
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	client
VIII.	Laboratory control samples	SW	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/RL/LOQ/LODs	A	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	~~FB~~ N = RB-081414 (259841)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	04W06-081414 W	11	214595MB	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

LDC #: 32595X29

VALIDATION FINDINGS CHECKLIST

Reviewer: [illegible]
2nd Reviewer: [illegible]

Method: Semivolatiles (EPA SW 846 Method 8270D)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.			✓	
II. GC/MS Instrument performance check				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 15% and relative response factors (RRF) within the method criteria?	✓			
Was a curve fit used for evaluation?	✓			
Did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) ≥ 0.05?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		✓		
Was a MS/MSD analyzed every 20 samples of each matrix?		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?		✓		

LDC #: 32595A29

VALIDATION FINDINGS CHECKLIST

Reviewer: [illegible]
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds from the associated calibration standard?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?			✓	
Did compound spectra meet specified EPA "Functional Guidelines" criteria?			✓	
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/RLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?			✓	
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?			✓	
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	
XVII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.	✓			

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU.Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV.Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW.Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.

LDC #: 32595A2a

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer:
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?
Blank units: ug/L **Associated sample units:** ug/L
Sampling date: 8/14/14
Field blank type: (circle one) Field Blank / Rinsate / Other: ERB Associated Samples: All

Compound	Blank ID	Sample Identification								
	RB-081414									
EEE	4.0									

Blank units: **Associated sample units:**
Sampling date:
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples:

Compound	Blank ID	Sample Identification								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

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LDC #: 32595A29

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Reviewer: M
2nd Reviewer: OR

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y N N/A Was a LCS required?
Y N N/A Were the LCS/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		214595BS/D	X	6 (8-120)	5 (8-120)	( )	1, 214595MB	J/R/P
			T	( )	( )	32 (≤30)		J/UJ/P
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		

Privileged and Confidential

LDC #: 32595A2a

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: x
2nd Reviewer: 02

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs,

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard
X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (40 std)	Recalculated RRF (40 std)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	ICAL	7/31/14	Phenol (1st internal standard)	1.7353	1.7353	1.7505	1.7505	2	2
			Naphthalene (2nd internal standard)	1.1258	1.1258	1.0889	1.0889	5	5
			Fluorene (3rd internal standard)	1.4829	1.4829	1.4346	1.4346	4	4
			Pentachlorophenol (4th internal standard)	0.1742	0.1742	0.1695	0.1695	5	5
			Bis(2-ethylhexyl)phthalate (5th internal standard)	0.8584	0.8584	0.7821	0.7821	12	12
			Benzo(a)pyrene (6th internal standard)	1.0207	1.0207	0.9853	0.9853	7	7
2	ICAL	8/15/14	Phenol (1st internal standard)	1.6949	1.6949	1.6896	1.6896	1	1
			Naphthalene (2nd internal standard)	1.1243	1.1243	1.0955	1.0955	7	7
			Fluorene (3rd internal standard)	1.4263	1.4263	1.3851	1.3851	7	7
			Pentachlorophenol (4th internal standard)	0.1590	0.1590	0.1511	0.1511	5	5
			Bis(2-ethylhexyl)phthalate (5th internal standard)	0.9283	0.9283	0.8394	0.8394	14	14
			Benzo(a)pyrene (6th internal standard)	1.1639	1.1639	1.1520	1.1520	8	8
3			Phenol (1st internal standard)						
			Naphthalene (2nd internal standard)						
			Fluorene (3rd internal standard)						
			Pentachlorophenol (4th internal standard)						
			Bis(2-ethylhexyl)phthalate (5th internal standard)						
			Benzo(a)pyrene (6th internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 32595A2A

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	XHN03	8/22/14	Phenol (1st internal standard)	1.6896	1.6734	1.6734	1	1
			Naphthalene (2nd internal standard)	1.0955	1.1515	1.1515	5	5
			Fluorene (3rd internal standard)	1.3851	1.5029	1.5029	9	9
			Pentachlorophenol (4th internal standard)	0.1511	0.1598	0.1598	6	6
			Bis(2-ethylhexyl)phthalate (5th internal standard)	0.8394	0.8588	0.8588	2	2
			Benzo(a)pyrene (6th internal standard)	1.1520	1.1383	1.1383	1	1
2	RH103	8/21/14	Phenol (1st internal standard)	1.7505	1.7320	1.7320	1	1
			Naphthalene (2nd internal standard)	1.0889	1.1771	1.1771	8	8
			Fluorene (3rd internal standard)	1.4346	1.5696	1.5696	9	9
			Pentachlorophenol (4th internal standard)	0.1695	0.1642	0.1642	3	3
			Bis(2-ethylhexyl)phthalate (5th internal standard)	0.7821	0.8416	0.8416	8	8
			Benzo(a)pyrene (6th internal standard)	0.9853	1.0681	1.0681	8	8
3			Phenol (1st internal standard)					
			Naphthalene (2nd internal standard)					
			Fluorene (3rd internal standard)					
			Pentachlorophenol (4th internal standard)					
			Bis(2-ethylhexyl)phthalate (5th internal standard)					
			Benzo(a)pyrene (6th internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 32595L2A

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: n
2nd reviewer: 02

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270D)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5	40	28.1965	70	70	0
2-Fluorobiphenyl		29.5309	74	74	
Terphenyl-d14		21.9487	55	55	
Phenol-d5		30.1301	75	75	
2-Fluorophenol		29.0311	73	73	
2,4,6-Tribromophenol		40.7303	102	102	
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

LDC #: 32595A2a

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA Where: SSC = Spike concentration
SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC) LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: 214595BS/b

Compound	Spike Added (ug/L)		Spike Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
Phenol	80	80	62.93	61.74	79	79	77	77	2	2
N-Nitroso-di-n-propylamine	↓	↓	59.72	58.71	75	75	73	73	2	2
4-Chloro-3-methylphenol	↓	↓	66.04	64.49	83	83	81	81	2	2
Acenaphthene	30	30	26.61	26.53	89	89	88	88	0	0
Pentachlorophenol	80	80	65.89	66.01	82	82	83	83	0	0
Pyrene	30	30	27.29	27.06	91	91	90	90	1	1

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 32595A29

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: [illegible]
2nd reviewer: [illegible]

METHOD: GC/MS SVOA (EPA SW 846 Method 8270D)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
V_o	=	Volume or weight of sample extract in milliliters (ml) or grams (g).
V_i	=	Volume of extract injected in microliters (ul)
V_t	=	Volume of the concentrated extract in microliters (ul)
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.
2.0	=	Factor of 2 to account for GPC cleanup

Example:

Sample I.D. 1, NO:

Conc. = ( )( )( )( )( )
( )( )( )( )( )

=

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-IR04
Collection Date:	August 14, 2014
LDC Report Date:	September 19, 2014
Matrix:	Water
Parameters:	Polynuclear Aromatic Hydrocarbons
Validation Level:	EPA Level IV
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259835

Sample Identification

04W06-081414

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA SW 846 Method 8270D using Selected Ion Monitoring (SIM) for Polynuclear Aromatic Hydrocarbons.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. Curtis & Tompkins indicated the cooler temperature was not recorded. Since the samples were received the same day they were collected, no data was qualified based on the lack cooler temperature.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals. All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No polynuclear aromatic hydrocarbon contaminants were found in the method blanks.

Sample RB-081414 (from SDG 259841) was identified as a rinsate blank. No polynuclear aromatic hydrocarbon contaminants with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
RB-081414	8/14/14	Phenanthrene Fluoranthene Pyrene Benzo(a)anthracene Benzo(b)fluoranthene	0.03 ug/L 0.04 ug/L 0.03 ug/L 0.02 ug/L 0.02 ug/L	All samples in SDG 259835

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
04W06-081414	Phenanthrene	0.03 ug/L	0.03U ug/L

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation

All compound quantitations were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

Mare Island, BGMP-IR04
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 259835

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 259835

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG 259835

SDG	Sample	Compound	Modified Final Concentration	A or P
259835	04W06-081414	Phenanthrene	0.03U ug/L	A

LDC #: 32595A2b

VALIDATION COMPLETENESS WORKSHEET

Level IV

Date: 9/9/14

SDG #: 259835

Page: 1 of 1

Laboratory: Curtis & Tompkins, LTD.

Reviewer: A

2nd Reviewer: CK

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 8/14/14 cooler temp not recorded rec'd same day (text)
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 15
IV.	Continuing calibration/ICV	A	CCV/ICV ≤ 20
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	04W19-081314
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/RL/LOQ/LODs	A	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	~~EB~~ RB-081414 (259841)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: W

1	04W06-081414	11	214554MB	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

LDC #: 32595126

VALIDATION FINDINGS CHECKLIST

Reviewer: [illegible]
2nd Reviewer: [illegible]

Method: Semivolatiles (EPA SW 846 Method 8270D)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.			✓	
II. GC/MS Instrument performance check				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 15% and relative response factors (RRF) within the method criteria?	✓			
Was a curve fit used for evaluation?		✓		
Did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) ≥ 0.05?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			

LDC #: 72395A26

VALIDATION FINDINGS CHECKLIST

Reviewer: M
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds from the associated calibration standard?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/RLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?			✓	
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	
XVII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.	✓			

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU.Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV.Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW.Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.

LDC #: 32575A2b

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?
Blank units: ug/L **Associated sample units:**
Sampling date: 8/14/14
Field blank type: (circle one) Field Blank / Rinsate / Other: ERB Associated Samples: All

Compound	Blank ID	Sample Identification								
	RB-081414	1								
UU	0.03	0.03/U								
YY	0.04									
ZZ	0.03									
CCC	0.02									
GGG	0.02									

Blank units: **Associated sample units:**
Sampling date:
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples:

Compound	Blank ID	Sample Identification								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

Privileged and Confidential

LDC #: 23595A26

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs,

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard
X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (1.0 std)	Recalculated RRF (1.0 std)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	10AL-V	7/7/14	Naphthalene (1st internal standard)	0.9215	0.9215	0.8756	0.8756	9	9
			Fluorene (2nd internal standard)	1.1526	1.1526	1.1068	1.1068	10	10
			Phenanthrene (3rd internal standard)	1.0432	1.0432	0.9855	0.9855	10	10
			Chrysene (4th internal standard)	1.0458	1.0458	0.9868	0.9868	7	7
			Benzo(a)pyrene (5th internal standard)	1.1248	1.1248	1.0488	1.0488	6	6
2	10AL-W	7/10/14	Naphthalene (1st internal standard)	1.1333	1.1333	1.1183	1.1183	2	2
			Fluorene (2nd internal standard)	1.2089	1.2089	1.1751	1.1752	4	4
			Phenanthrene (3rd internal standard)	1.0810	1.0810	1.0658	1.0658	2	2
			Chrysene (4th internal standard)	0.9859	0.9859	0.9615	0.9615	2	2
			Benzo(a)pyrene (5th internal standard)	0.9986	0.9986	0.9953	0.9953	7	7
3			Naphthalene (1st internal standard)						
			Fluorene (2nd internal standard)						
			Phenanthrene (3rd internal standard)						
			Chrysene (4th internal standard)						
			Benzo(a)pyrene (5th internal standard)						
4			Naphthalene (1st internal standard)						
			Fluorene (2nd internal standard)						
			Phenanthrene (3rd internal standard)						
			Chrysene (4th internal standard)						
			Benzo(a)pyrene (5th internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 32595A26

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: M
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = $(A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	VH K03	8/20/14	Naphthalene (1st internal standard)	0.8756	0.8996	0.8996	3	3
			Fluorene (2nd internal standard)	1.1068	1.2189	1.2189	10	10
			Phenanthrene (3rd internal standard)	0.9955	1.0332	1.0332	5	5
			Chrysene (4th internal standard)	0.9868	1.0355	1.0355	5	5
			Benzo(a)pyrene (6th internal standard)	1.0488	1.0789	1.0789	3	3
2	WH109	8/21/14	Naphthalene (1st internal standard)	1.1183	1.0861	1.0861	3	3
			Fluorene (2nd internal standard)	1.1751	1.1919	1.1919	1	1
			Phenanthrene (3rd internal standard)	1.0658	1.0954	1.0954	3	3
			Chrysene (4th internal standard)	0.9615	0.9884	0.9884	3	3
			Benzo(a)pyrene (6th internal standard)	0.9953	1.0342	1.0342	4	4
3			Naphthalene (1st internal standard)					
			Fluorene (2nd internal standard)					
			Phenanthrene (3rd internal standard)					
			Chrysene (4th internal standard)					
			Benzo(a)pyrene (6th internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 32595\26

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: [illegible]
2nd reviewer: [illegible]

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270D)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5	1.0	0.7742	77	77	0
2-Fluorobiphenyl	↓	0.8011	80	80	↓
Terphenyl-d14	↓	0.7644	76	76	↓
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

LDC #: 32595A26

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA Where: SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentation

RPD = I MSC - MSC I * 2/(MSC + MSDC) MSC = Matrix spike concentration MSDC = Matrix spike duplicate concentration

MS/MSD samples: 04W19-081314

Compound	Spike Added (ug/L)		Sample Concentration (ug/L)	Spiked Sample Concentration (ug/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
Phenol											
N-Nitroso-di-n-propylamine											
4-Chloro-3-methylphenol											
Acenaphthene	0.9804	0.9615	0.02875	0.7104	0.7146	70	70	71	71	2	1
Pentachlorophenol											
Pyrene	0.9804	0.9615	0.2482	0.8555	0.9069	62	62	69	69	7	6

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 32597A26

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: M

2nd Reviewer: CR

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA

Where: SSC = Spike concentration
SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC)

LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: 214554LCS

Compound	Spike Added (ug/L)		Spike Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
Phenol										
N-Nitroso-di-n-propylamine										
4-Chloro-3-methylphenol										
Acenaphthene	1.0		0.8164		82	82				
Pentachlorophenol										
Pyrene	1.0		0.8313		83	83				

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 32595A26

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: [illegible]
2nd reviewer: [illegible]

METHOD: GC/MS SVOA (EPA SW 846 Method 8270D)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
V_o	=	Volume or weight of sample extract in milliliters (ml) or grams (g).
V_i	=	Volume of extract injected in microliters (ul)
V_t	=	Volume of the concentrated extract in microliters (ul)
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.
2.0	=	Factor of 2 to account for GPC cleanup

Example:

Sample I.D. 1, UU:

Conc. = $\frac{(7046)(1.0)(1000)(\quad)(\quad)}{(191047)(1.0658)(1020)(\quad)(\quad)}$

= 0.03 ug/L

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-IR04
Collection Date:	August 14, 2014
LDC Report Date:	September 22, 2014
Matrix:	Water
Parameters:	Dissolved Metals
Validation Level:	EPA Level IV
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259835

Sample Identification

04W07-081414
04W06-081414
04W15-081414

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010C and 7470A for Dissolved Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. ICPMS Tune

ICP-MS was not utilized in this SDG.

III. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Copper	1.1 ug/L	All samples in SDG 259835

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

Sample RB-081414 (from SDG 259841) was identified as a rinsate blank. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
RB-081414	8/14/14	Aluminum Magnesium Nickel	29 ug/L 79 ug/L 0.94 ug/L	All samples in SDG 259835

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
04W07-081414	Nickel	0.93 ug/L	0.93U ug/L

V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. For 0408-081414MS/MSD, no data were qualified for Magnesium percent recoveries outside the QC limits since the parent sample results were greater than 4X the spike concentration.

VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Analyte	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
LCS/D (All samples in SDG 259835)	Mercury	156 (80-120)	-	36 (≤20)	J (all detects) UJ (all non-detects)	P

IX. Internal Standards (ICP-MS)

ICP-MS was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications were acceptable.

XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

Mare Island, BGMP-IR04
Dissolved Metals - Data Qualification Summary - SDG 259835

SDG	Sample	Analyte	Flag	A or P	Reason
259835	04W07-081414 04W06-081414 04W15-081414	Mercury	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R)(RPD)

Mare Island, BGMP-IR04
Dissolved Metals - Laboratory Blank Data Qualification Summary - SDG 259835

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Dissolved Metals - Field Blank Data Qualification Summary - SDG 259835

SDG	Sample	Analyte	Modified Final Concentration	A or P
259835	04W07-081414	Nickel	0.93U ug/L	A

LDC #: 32595A4

SDG #: 259835

Laboratory: Curtis & Tompkins, LTD.

VALIDATION COMPLETENESS WORKSHEET

Level IV

7470A ~~7040A~~ JD

Date: 9/9/14

Page: 1 of 1

Reviewer: JD

2nd Reviewer: OL

METHOD: Dissolved Metals (EPA SW 846 Method 6010C/~~7000~~)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 08/14/14
II.	ICP/MS Tune	N	Not Utilized
III.	Calibration	A	
IV.	Blanks	A	
V.	ICP Interference Check Sample (ICS) Analysis	A	
VI.	Matrix Spike Analysis	A	MS/D = 0408-081414 MS/D (SDG: 259841) Mg?
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	SW	LCS/D
IX.	Internal Standard (ICP-MS)	N	Not Utilized
X.	ICP Serial Dilution	A	SER = 0408-081414 (SDG: 259841)
XI.	Sample Result Verification	A	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	N	
XIV.	Field Blanks	SW	RB-081414 (SDG: 259841) = Rinse Blank

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: Waters

1	04W07-081414	11		21		31	
2	04W06-081414	12		22		32	
3	04W15-081414	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 32595A4

VALIDATION FINDINGS CHECKLIST

Reviewer: 3D
2nd Reviewer: CL

Method: Metals (EPA SW 846 Method 6010/7000/6020)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. ICP/MS Tune				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?			✓	
Were %RSD of isotopes in the tuning solution ≤5%?			✓	
III. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were all initial calibration correlation coefficients ≥ 0.995?	✓			
IV. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
V. ICP Interference Check Sample				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the ~~75-125~~ 80-120 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL(+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were ≤ 5X the RL.	✓			
VII. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?		✓		

LDC #: 32595A4

VALIDATION FINDINGS CHECKLIST

Reviewer: SS
2nd Reviewer: CN

Validation Area	Yes	No	NA	Findings/Comments
VIII. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?			✓	
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
IX. ICP Serial Dilution				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL(ICP/MS)?	✓			
Were all percent differences (%Ds) < 10%?	✓			
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.		✓		
X. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XI. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XII. Field duplicates				
Field duplicate pairs were identified in this SDG.			✓	
Target analytes were detected in the field duplicates.			✓	
XIII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			

LDC #: 32895A4

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Page: 1 of __
Reviewer: JO
2nd reviewer: OL

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-3	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___

Analysis Method		
ICP		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___

Comments: Mercury by CVAA if performed

LDC #32595A4

PB/ICB/CCB QUALIFIED SAMPLES

Reviewer: JD

2nd Reviewer: a

METHOD: Trace metals (EPA SW 846 Method 6010B/6020/7000) Soil preparation factor applied:_____

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: All

					Sample Identification										
Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/l)	Maximum ICB/CCB[a] (ug/l)	Action Level	No Qual										
Cu		1.1		5.5											

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 32595A4

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: SO
2nd Reviewer: a

METHOD: Trace Metals (See Cover)

Blank units: ug/L **Associated sample units:** ug/L
Sampling date: 08/14/14 Soil factor applied _____
Field blank type: (circle one) Field Blank / Rinsate / Other: Rinse Blank Associated Samples: All

Analyte	Blank ID	Sample Identification											
	RB-081414 (SDG: 259841)	Action Limit	1										
Al	29	145											
Mg	79	395											
Ni	0.94	4.7	0.93										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

LDC #: 32595A4

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: JO
2nd Reviewer: G

METHOD: Trace Metals (EPA SW 846 Method 6010B/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a laboratory control sample (LCS) analyzed for each matrix in this SDG?

Y N N/A Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	LCS/LCSD ID	Matrix	Analyte	LCS %R (limits)	LCSD %R (limits)	RPD (limits)	Associated Samples	Qualifications
	LCS/D	W	Hg	156 (80-120)		36 (≤20)	All	J/UJ/P

Comments:

LDC #: 32551A4

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Page: 1 of 1
Reviewer: JO
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

%R = Found / True x 100 Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
ICV 8:32	ICP (Initial calibration)	Ca	5080 ug/L	5000 ug/L	102 %R	102 %R	Y
	ICP/MS (Initial calibration)						
ICV 12:46	CVAA (Initial calibration)	Hg	5.065 ug/L	5 ug/L	101 %R	101 %R	Y
CCV 14:38	ICP (Continuing calibration)	Pb	4717 ug/L	5000 ug/L	94 %R	94 %R	Y
	ICP/MS (Continuing calibration)						
CCV 13:02	CVAA (Continuing calibration)	Hg	5.236 ug/L	5 ug/L	105 %R	105 %R	Y
	GFAA (Initial calibration)						
	GFAA (Continuing calibation)						

Comments:

CALCLC.4SW

LDC #: 52595A4

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Page: 1 of 1
Reviewer: JSD
2nd Reviewer: 9

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample concentration
D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$\%D = \frac{|I-SDR|}{I} \times 100$ Where, I = Initial Sample Result (mg/L)
SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
ICS 9:21	ICP interference check	Cr	522 ug/L	500 ug/L	104%R	104%R	Y
LCS 13:13	Laboratory control sample	Sb	89.56 ug/L	100 ug/L	90%R	90%R	↓
MS ~~13:13~~ 14:55	Matrix spike	As	(SSR-SR) 107.38 ug/L	100 ug/L	107%R	107%R	Y
MSD ~~13:14~~ 14:59	Duplicate	Be	97.89 ug/L	99.18 ug/L	1%RPD	1%RPD	Y
SER 15:03	ICP serial dilution	Mg	62770 ug/L	61646 ug/L	2%D	2%D	Y

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 32595A4

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: SD
2nd reviewer: OL

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for (1) Ba were recalculated and verified using the followi equation:

Concentration = (RD)(FV)(Dil) / (In. Vol.)

Recalculation: $\frac{(38.98\ ug/L)(50\ ml)(1)}{(50\ ml)} = 39\ ug/$

RD = Raw data concentration — RD = 38.98 ug/L
FV = Final volume (ml) — FV = 50ml
In. Vol. = Initial volume (ml) or weight (G) — InV = 50ml
Dil = Dilution factor — Dil = 1

#	Sample ID	Analyte	Reported Concentration (ug/L)	Calculated Concentration (ug/L)	Acceptable (Y/N)
	1	Ba	39	39	Y
	2	Mo	11	11	Y
	3	Se	51	51	Y

Note:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-IR04
Collection Date:	August 14, 2014
LDC Report Date:	September 22, 2014
Matrix:	Water
Parameters:	Hexavalent Chromium
Validation Level:	EPA Level IV
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259835

Sample Identification

04W07-081414

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7199 for Hexavalent Chromium.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Initial Calibration

All criteria for the initial calibration were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No hexavalent chromium was found in the initial, continuing and preparation blanks.

Sample RB-081414 (from SDG 259841) was identified as a rinsate blank. No hexavalent chromium was found.

V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Sample Result Verification

All sample result verifications were acceptable.

IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

X. Field Duplicates

No field duplicates were identified in this SDG.

Mare Island, BGMP-IR04
Hexavalent Chromium - Data Qualification Summary - SDG 259835

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Hexavalent Chromium - Laboratory Blank Data Qualification Summary - SDG 259835

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Hexavalent Chromium - Field Blank Data Qualification Summary - SDG 259835

No Sample Data Qualified in this SDG

LDC #: 32595A6

SDG #: 259835

Laboratory: Curtis & Tompkins, LTD.

VALIDATION COMPLETENESS WORKSHEET

Level IV

Date: 9/8/14

Page: 1 of 1

Reviewer: SD

2nd Reviewer: CR

METHOD: Hexavalent Chromium (EPA SW846 Method 7199)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 08/14/14
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	A	MS/D= 04W08-081414 MS/D (SDG:259841)
VI.	Duplicates	A	D-D = 04W08-081414 Dup (SDG:259841)
VII.	Laboratory control samples	A	LCS
VIII.	Sample result verification	A	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI	Field blanks	ND	~~RB~~ = ~~RB~~-081414 (SDG:259841) (Rinse Blank)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: Waters

1	04W07-081414	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 32595A0

VALIDATION FINDINGS CHECKLIST

Reviewer: JD
2nd Reviewer: OR

Method: Inorganics (EPA Method See Cover)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients ≥ 0.995?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required? (Level IV only)			✓	
Were balance checks performed as required? (Level IV only)			✓	
III. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
IV. Matrix spike/Matrix spike duplicates and Duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the ~~75-125~~ 90-110 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of ≤ CRDL(≤ 2X CRDL for soil) was used for samples that were ≤ 5X the CRDL, including when only one of the duplicate sample values were ≤ 5X the CRDL.	✓			
V. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
VI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

LDC #: 32595AC

VALIDATION FINDINGS CHECKLIST

Reviewer: SB
2nd Reviewer: OC

Validation Area	Yes	No	NA	Findings/Comments
VII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
VIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
IX. Field duplicates				
Field duplicate pairs were identified in this SDG.			✓	
Target analytes were detected in the field duplicates.			✓	
X. Field blanks				
Field blanks were identified in this SDG.	✓		NA	
Target analytes were detected in the field blanks.		✓	NA	

LDC #: 32595A6

Validation Findings Worksheet
Initial and Continuing Calibration Calculation Verification

Page: 1 of 1
Reviewer: JD
2nd Reviewer: CL

Method: Inorganics, Method See Cover

The correlation coefficient (r) for the calibration of Cr^{+6} was recalculated. Calibration date: 2/12/2014

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{\text{Found} \times 100}{\text{True}}$$

Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution
True = concentration of each analyte in the ICV or CCV source

Type of analysis	Analyte	Standard	Conc. (mg/L)	Area	Recalculated r or r^2	Reported r or r^2	Acceptable (Y/N)
Initial calibration	Cr^{+6}	s1	0.5	0.367901	0.99999	1.00000	Y
		s2	1	0.9347			
		s3	5	5.1537			
		s4	10	10.698016			
		s5	50	54.014427			
		s6	100	107.294827			
ICV 14:04 Calibration verification	Cr^{+6}	Found 19.24 ug/L	True 20 ug/L		96%R	95%R	
CCV 10:07 Calibration verification	Cr^{+6}	1.043 ug/L	1 ug/L		104%R	106%R	
Calibration verification							

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 3259SA6

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Page: 1 of 1
Reviewer: JD
2nd Reviewer: [illegible]

METHOD: Inorganics, Method See Cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$$\%R = \frac{Found}{True} \times 100$$

Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample concentration
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated %R / RPD	Reported %R / RPD	Acceptable (Y/N)
LCS 17:59	Laboratory control sample	Cr^{+6}	10.1 ug/L	10 ug/L	101%R	100%R	Y
MS 19:37	Matrix spike sample	↓	(SSR-SR) 19.78 ug/L	20 ug/L	99%R	98%R	↓
Dup 20:01	Duplicate sample	↓	10.29 ug/L	9.3 ug/L	10%RPD	10%RPD	↓

Comments:

TOTCLC.6

LDC #: 32595A6

VALIDATION FINDINGS WORKSHEET

Sample Calculation Verification

Page: 1 of 1
Reviewer: JD
2nd reviewer: CA

METHOD: Inorganics, Method See Cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments?
Y N N/A Are all detection limits below the CRQL?

Compound (analyte) results for (1) Cr^{+6} reported with a positive detect were recalculated and verified using the following equation:

Concentration = Recalculation:

ND

#	Sample ID	Analyte	Reported Concentration (ug/L)	Calculated Concentration (ug/L)	Acceptable (Y/N)
	1	Cr^{+6}	ND	ND	Y

Note:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-IR04
Collection Date:	August 14, 2014
LDC Report Date:	September 19, 2014
Matrix:	Water
Parameters:	Volatiles
Validation Level:	EPA Level III
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259841

Sample Identification

TP-081414
04W14-081414
RB-081414

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260C for Volatiles.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

All samples were received in good condition with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
TP-081414	All TCL compounds	A headspace of >1 ml was apparent in the sample containers.	There should be no headspace in the sample containers.	J (all detects) UJ (all non-detects)	A

The chain-of-custodies were reviewed for documentation of cooler temperatures. Curtis & Tompkins indicated the cooler temperature was not recorded. Since the samples were received the same day they were collected, no data was qualified based on the lack cooler temperature.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/16/14	2-Butanone sec-Butylbenzene n-Butylbenzene	25 25 21	All samples in SDG 259841	J (all detects) UJ (all non-detects)	A

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Sample TP-081414 was identified as a trip blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TP-081414	8/14/14	Methylene chloride Acetone	1.0 ug/L 3.7 ug/L	04W14-081414 RB-081414

Sample RB-081414 was identified as a rinsate blank. No volatile contaminants were found.

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
TP-081414	1,2-Dichloroethane-d4	128 (70-120)	Vinyl acetate	J (all detects)	A
04W14-081414	1,2-Dichloroethane-d4	123 (70-120)	Vinyl acetate	J (all detects)	A

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were not within QC limits. Since there were no associated samples, no data were qualified.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

Mare Island, BGMP-IR04
Volatiles - Data Qualification Summary - SDG 259841

SDG	Sample	Compound	Flag	A or P	Reason
259841	TP-081414	All TCL compounds	J (all detects) UJ (all non-detects)	A	Sample condition (headspace)
259841	TP-081414 04W14-081414 RB-081414	2-Butanone sec-Butylbenzene n-Butylbenzene	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

Mare Island, BGMP-IR04
Volatiles - Laboratory Blank Data Qualification Summary - SDG 259841

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Volatiles - Field Blank Data Qualification Summary - SDG 259841

No Sample Data Qualified in this SDG

LDC #: 32595B1

SDG #: 259841

Laboratory: Curtis & Tompkins, LTD.

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 9/9/14

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 8/14/14 water temp not recorded rec'd same day (text)
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 15, r²
IV.	Continuing calibration/ICV	SW	CCV/ICV ≤ 20
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	SW	04W19-081314 no MS or MSD / no qual
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	TB = 1 ER = 3 +

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: W

1	TP-081414	11	214459MB	21		31	
2	04W14-081414	12	214489MB	22		32	
3	RB-081414	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl choride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

LDC #: 32595B1

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Reviewer: [illegible]
2nd Reviewer: [illegible]

All circled dates have exceeded the technical holding times.
Y N N/A Were all cooler temperatures within validation criteria?
Y N N/A Were air bubbles > 1/4 inch or was headspace present in the vials?

METHOD : GC/MS VOA (EPA SW 846 Method 8260C)

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
1	W	headspace > 1mL					J/UJ/A

TECHNICAL HOLDING TIME CRITERIA

Water unpreserved:	Aromatic within 7 days, non-aromatic within 14 days of sample collection.
Water preserved:	Within 14 days of sample collection.
Soil:	Within 14 days of sample collection.

LDC #: 32595B1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Y N N/A Were percent differences (%D) ≤20 % and relative response factors (RRF) within the method criteria?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤20.0%)	Finding RRF (Limit)	Associated Samples	Qualifications
	8/16/14	HHG04	M	25		All	J/UJ/A
			~~EEE~~	25			↓
			III	21			↓

CONCAL.1SC

LDC #: 32595B1

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer:
2nd Reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)
Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?
Blank units: ug/L **Associated sample units:** ug/L
Sampling date: 8/14/14
Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: Associated Samples: 2,3

Compound	Blank ID	Sample Identification								
	1									
Methylene chloride	1.0									
Acetone	3.7									
Chloroform										

Blank units: **Associated sample units:**
Sampling date:
Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: Associated Samples:

Compound	Blank ID	Sample Identification								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 32595B1

VALIDATION FINDINGS WORKSHEET
Surrogate Spikes

Page: 1 of 1
Reviewer: SC
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all surrogate %R within QC limits?

(Y) N N/A If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R out of outside of criteria?

#	Date	Sample ID	Surrogate	%Recovery (Limits)	Qualifications
		1	DCE	128 (70-120)	J detects/A (HH)
			↓	( )	↓
		2	↓	123 ( )	↓
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
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				( )	
				( )	

(TOL) = Toluene-d8
(BFB) = Bromofluorobenzene
(DCE) = 1,2-Dichloroethane-d4
(DFM) = Dibromofluoromethane

SUR.1SC

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-IR04
Collection Date:	August 14, 2014
LDC Report Date:	September 19, 2014
Matrix:	Water
Parameters:	Semivolatiles
Validation Level:	EPA Level III
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259841

Sample Identification

04W10-081414
RB-081414

Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270D for Semivolatiles.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. Curtis & Tompkins indicated the cooler temperature was not recorded. Since the samples were received the same day they were collected, no data was qualified based on the lack cooler temperature.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the validation criteria of less than or equal to 20.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

Sample RB-081414 was identified as a rinsate blank. No semivolatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
RB-081414	8/14/14	Bis(2-ethylhexyl)phthalate	4.0 ug/L	04W10-081414

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were not within QC limits. Since there were no associated samples, no data were qualified.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
214595BS/D (04W10-081414 214595MB)	Hexachlorocyclopentadiene	6 (8-120)	5 (8-120)	-	J (all detects) R (all non-detects)	P
214595BS/D (04W10-081414 214595MB)	4-Chloroaniline	-	-	32 (≤30)	J (all detects) UJ (all non-detects)	P

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

Mare Island, BGMP-IR04
Semivolatiles - Data Qualification Summary - SDG 259841

SDG	Sample	Compound	Flag	A or P	Reason
259841	04W10-081414	Hexachlorocyclopentadiene	J (all detects) R (all non-detects)	P	Laboratory control samples (%R)
259841	04W10-081414	4-Chloroaniline	J (all detects) UJ (all non-detects)	P	Laboratory control samples (RPD)

Mare Island, BGMP-IR04
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 259841

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Semivolatiles - Field Blank Data Qualification Summary - SDG 259841

No Sample Data Qualified in this SDG

LDC #: 32595B2a

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 9/9/14

SDG #: 259841

Page: 1 of 1

Laboratory: Curtis & Tompkins, LTD.

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 8/14/14 cooler temp not recorded (text) rec'd same day
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 15, r²
IV.	Continuing calibration/ICV	A	CCV/ICV ≤ 20
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	04W19-081314 no assoc'd /no qual
VIII.	Laboratory control samples	SW	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	EB = 2

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

W

1 [1]	04W10-081414	11 [1]	214595MB	21		31	
2 [2]	RB-081414	12 [2]	214400MB	22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU.Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV.Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW.Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.

LDC #: 32595B2a

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: M
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?
Blank units: ug/L **Associated sample units:** ug/L
Sampling date: 8/14/14
Field blank type: (circle one) Field Blank / Rinsate / Other: ER Associated Samples: 1

Compound	Blank ID	Sample Identification								
	2									
EEE	4.0									

Blank units: **Associated sample units:**
Sampling date:
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples:

Compound	Blank ID	Sample Identification								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

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LDC #: 32595B29

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Reviewer: M
2nd Reviewer: G

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a LCS required?

Y N N/A Were the LCS/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		214595BS/D	X	6 (8-120)	5 (8-120)	( )	1, 214595MB	J/R/P
			T	( )	( )	32 (≤30)		J/UJ/P
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		

Privileged and Confidential

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-IR04
Collection Date:	August 14, 2014
LDC Report Date:	September 19, 2014
Matrix:	Water
Parameters:	Polynuclear Aromatic Hydrocarbons
Validation Level:	EPA Level III
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259841

Sample Identification

04W10-081414
RB-081414

Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA SW 846 Method 8270D using Selected Ion Monitoring (SIM) for Polynuclear Aromatic Hydrocarbons.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. Curtis & Tompkins indicated the cooler temperature was not recorded. Since the samples were received the same day they were collected, no data was qualified based on the lack cooler temperature.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals. All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No polynuclear aromatic hydrocarbon contaminants were found in the method blanks.

Sample RB-081414 was identified as a rinsate blank. No polynuclear aromatic hydrocarbon contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
RB-081414	8/14/14	Phenanthrene Fluoranthene Pyrene Benzo(a)anthracene Benzo(b)fluoranthene	0.03 ug/L 0.04 ug/L 0.03 ug/L 0.02 ug/L 0.02 ug/L	04W10-081414

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

Mare Island, BGMP-IR04
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 259841

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 259841

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG 259841

No Sample Data Qualified in this SDG

LDC #: 32595B2b **VALIDATION COMPLETENESS WORKSHEET** Date: 9/9/14

SDG #: 259841 Level III Page: 1 of 1

Laboratory: Curtis & Tompkins, LTD. Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 8/14/14 cooler temp not recorded rec'd same day (text)
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 15
IV.	Continuing calibration/ICV	A	CCV/ICV ≤ 20
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	04W19-081314
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	ER = 2

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: W

1	04W10-081414	11	214554MB	21		31	
2	RB-081414	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU.Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV.Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW.Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.

LDC #: 32575B2b

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: n
2nd Reviewer: cn

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?
Blank units: ug/L **Associated sample units:** ug/L
Sampling date: 8/14/14
Field blank type: (circle one) Field Blank / Rinsate / Other: ER Associated Samples: 1

Compound	Blank ID	Sample Identification								
	2									
UU	0.03									
YY	0.04									
ZZ	0.03									
CCC	0.02									
GGG	0.02									

Blank units: _____ **Associated sample units:** _____
Sampling date: _____
Field blank type: (circle one) Field Blank / Rinsate / Other: _____ Associated Samples: _____

Compound	Blank ID	Sample Identification								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

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Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-IR04
Collection Date:	August 14, 2014
LDC Report Date:	September 22, 2014
Matrix:	Water
Parameters:	Dissolved Metals
Validation Level:	EPA Level III
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259841

Sample Identification

04W08-081414
04W09-081414
04W909-081414
04W10-081414
RB-081414
04W08-081414MS
04W08-081414MSD

Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010C and 7470A for Dissolved Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. ICPMS Tune

ICP-MS was not utilized in this SDG.

III. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Copper	1.1 ug/L	All samples in SDG 259841

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

Sample RB-081414 was identified as a rinsate blank. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
RB-081414	8/14/14	Aluminum Magnesium Nickel	29 ug/L 79 ug/L 0.94 ug/L	04W08-081414 04W09-081414 04W909-081414 04W10-081414

Sample SB-081314 (from SDG 259790) was identified as a source blank. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
SB-081314	8/13/14	Magnesium Manganese Arsenic Nickel Zinc	38 ug/L 0.49 ug/L 1.4 ug/L 0.98 ug/L 6.3 ug/L	RB-081414

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
04W08-081414	Nickel	1.6 ug/L	1.6U ug/L
04W09-081414	Nickel	1.2 ug/L	1.2U ug/L
04W909-081414	Nickel	0.77 ug/L	0.77U ug/L
RB-081414	Magnesium Nickel	79 ug/L 0.94 ug/L	79U ug/L 0.94U ug/L

V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. For 0408-081414MS/MSD, no data were qualified for Magnesium percent recoveries outside the QC limits since the parent sample results were greater than 4X the spike concentration.

VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Internal Standards (ICP-MS)

ICP-MS was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

Raw data were not reviewed for this SDG.

XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

Samples 04W09-081414 and 04W909-081414 were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/Kg)		RPD (Limits)
	04W09-081414	04W909-081414	
Barium	16	16	0 (≤25)
Chromium	1.9	2.1	10 (≤25)
Magnesium	30000	30000	0 (≤25)
Manganese	150	120	22 (≤25)
Molybdenum	4.9	4.9	0 (≤25)
Nickel	1.2	0.77	44 (≤25)
Selenium	14	15	7 (≤25)
Vanadium	2.3	2.2	4 (≤25)

Mare Island, BGMP-IR04
Dissolved Metals - Data Qualification Summary - SDG 259841

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Dissolved Metals - Laboratory Blank Data Qualification Summary - SDG 259841

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Dissolved Metals - Field Blank Data Qualification Summary - SDG 259841

SDG	Sample	Analyte	Modified Final Concentration	A or P
259841	04W08-081414	Nickel	1.6U ug/L	A
259841	04W09-081414	Nickel	1.2U ug/L	A
259841	04W909-081414	Nickel	0.77U ug/L	A
259841	RB-081414	Magnesium Nickel	79U ug/L 0.94U ug/L	A

LDC #: 32595B4

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 9/8/14

SDG #: 259841

Page: 1 of 1

Laboratory: Curtis & Tompkins, LTD.

Reviewer: SD

2nd Reviewer: CL

METHOD: Dissolved Metals (EPA SW 846 Method 6010C/~~7000~~ 7420A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 08/14/14
II.	ICP/MS Tune	A	Not Utilized
III.	Calibration	A	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	A	
VI.	Matrix Spike Analysis	A	MS/D = (6,7) Mg 74x
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	LCS/D
IX.	Internal Standard (ICP-MS)	N	Not Utilized
X.	ICP Serial Dilution	A	
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	SW	FD = (2,3)
XIV.	Field Blanks	SW	RB = 5 SB = SB-081314 (SDG: 259740)

Rinse Blank

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: Waters

1	04W08-081414	11		21		31	
2	04W09-081414	12		22		32	
3	04W909-081414	13		23		33	
4	04W10-081414	14		24		34	
5	RB-081414	15		25		35	
6	04W08-081414MS	16		26		36	
7	04W08-081414MSD	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 32595B4

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Page: 1 of 1
Reviewer: SD
2nd reviewer: CR

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-4,5	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
QC:6-7	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
Analysis Method		
ICP		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___

Comments: Mercury by CVAA if performed

LDC # 32595B4

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Page: 1 of 1
Reviewer: SO
2nd Reviewer: 2

METHOD: Trace metals (EPA SW 846 Method 6010B/6020/7000) Soil preparation factor applied:_____
Sample Concentration units, unless otherwise noted: ug/L Associated Samples: All

					Sample Identification										
Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Level	No Qual										
Cu		1.1		5.5											

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 32595B4

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: JD
2nd Reviewer:

METHOD: Trace Metals (See Cover)

Blank units: ug/L **Associated sample units:** ug/L
Sampling date: 08/14/14 Soil factor applied
Field blank type: (circle one) Field Blank / Rinsate / Other: Rinse Blank Associated Samples: 1-4

Analyte	Blank ID	Sample Identification											
	5	Action Limit	1	2	3								
Al	29	145											
Mg	79	395											
Ni	0.94	4.7	1.6	1.2	0.77								

Blank units: ug/L **Associated sample units:** ug/L
Sampling date: 08/13/14 Soil factor applied
Field blank type: (circle one) Field Blank / Rinsate / Other: Source Blank Associated Samples: 5

Analyte	Blank ID	Sample Identification											
	SB-081314 (SDG: 259790)	Action Limit	5										
Mg	38	190	79										
Mn	0.49	2.45											
As	1.4	7											
Ni	0.98	4.9	0.94										
Zn	6.3	31.5											

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

LDC#: 32595B4

VALIDATION FINDINGS WORKSHEET

Field Duplicates

Reviewer: SD
2nd Reviewer: [illegible]

METHOD: Metals (EPA Method 6010B/7000)

Y N NA Were field duplicate pairs identified in this SDG?
Y N NA Were target analytes detected in the field duplicate pairs?

Analyte	Concentration (ug/L)		RPD (≤25)
Barium	16	16	0
Chromium	1.9	2.1	10
Magnesium	30000	30000	0
Manganese	150	120	22
Molybdenum	4.9	4.9	0
Nickel	1.2	0.77	44
Selenium	14	15	7
Vanadium	2.3	2.2	4

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-IR04
Collection Date:	August 14, 2014
LDC Report Date:	September 22, 2014
Matrix:	Water
Parameters:	Hexavalent Chromium
Validation Level:	EPA Level III
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259841

Sample Identification

04W08-081414
04W09-081414
04W909-081414
RB-081414
SB-081414
04W08-081414MS
04W08-081414MSD
04W08-081414DUP

Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7199 for Hexavalent Chromium.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Initial Calibration

All criteria for the initial calibration were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No hexavalent chromium was found in the preparation blanks.

Sample RB-081414 was identified as a rinsate blank. No hexavalent chromium was found.

Sample SB-081414 was identified as a source blank. No hexavalent chromium was found.

V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Sample Result Verification

Raw data were not reviewed for this SDG.

IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

X. Field Duplicates

Samples 04W09-081414 and 04W909-081414 were identified as field duplicates. No hexavalent chromium was detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)
	04W09-081414	04W909-081414	
Hexavalent chromium	1.2	1.3	8 (≤25)

Mare Island, BGMP-IR04
Hexavalent Chromium - Data Qualification Summary - SDG 259841

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Hexavalent Chromium - Laboratory Blank Data Qualification Summary - SDG 259841

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Hexavalent Chromium - Field Blank Data Qualification Summary - SDG 259841

No Sample Data Qualified in this SDG

LDC #: 32595B6

SDG #: 259841

Laboratory: Curtis & Tompkins, LTD.

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 9/8/14

Page: 1 of 1

Reviewer: JD

2nd Reviewer: OR

METHOD: Hexavalent Chromium (EPA SW846 Method 7199)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 08/14/14
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	A	MS/D = (6, 7)
VI.	Duplicates	A	Dup
VII.	Laboratory control samples	A	LCS
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	FD = (2, 3)
XI.	Field blanks	ND	Rinse Blank = 4 Source Blank = 5

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: Water

1	04W08-081414	11		21		31	
2	04W09-081414	12		22		32	
3	04W909-081414	13		23		33	
4	RB-081414	14		24		34	
5	SB-081414	15		25		35	
6	04W08-081414MS	16		26		36	
7	04W08-081414MSD	17		27		37	
8	04W08-081414DUP	18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC# 32595B6

VALIDATION FINDINGS WORKSHEET

Field Duplicates

Reviewer: JD

2nd Reviewer: CR

Inorganics: Method See Cover

Analyte	Concentration (mg/L)		RPD (≤25)
	2	3	
Hexavalent Chromium	1.2	1.3	8

\\LDCFILESERVER\Validation\FIELD DUPLICATES\FD_inorganic\32595B6.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Mare Island, BGMP-IR04
Collection Date:	August 15, 2014
LDC Report Date:	September 22, 2014
Matrix:	Water
Parameters:	Dissolved Metals
Validation Level:	EPA Level III
Laboratory:	Curtis & Tompkins, Ltd.
Sample Delivery Group (SDG):	259885

Sample Identification

04W11-081514
04W12-081514
04W23-081514
RB-081514

Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010C and 7470A for Dissolved Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc.

This review follows The Final Sampling and Analysis Plan for Basewide Groundwater Sampling, Well Installation, and Well Abandonment at Former Mare Island Naval Shipyard, Vallejo, California (July 2014) and Addendum 1 (August 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. ICPMS Tune

ICP-MS was not utilized in this SDG.

III. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the initial, continuing and preparation blanks.

Sample RB-081514 was identified as a rinsate blank. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
RB-081514	8/15/14	Magnesium Selenium	100 ug/L 4.1 ug/L	04W11-081514 04W12-081514 04W23-081514

Sample SB-081314 (from SDG 259790) was identified as a source blank. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
SB-081314	8/13/14	Magnesium Manganese Arsenic Nickel Zinc	38 ug/L 0.49 ug/L 1.4 ug/L 0.98 ug/L 6.3 ug/L	RB-081514

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RB-081514	Magnesium	100 ug/L	100U ug/L

V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Internal Standards (ICP-MS)

ICP-MS was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not performed for this SDG.

XI. Sample Result Verification

Raw data were not reviewed for this SDG.

XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

No field blanks were identified in this SDG.

Mare Island, BGMP-IR04
Dissolved Metals - Data Qualification Summary - SDG 259885

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Dissolved Metals - Laboratory Blank Data Qualification Summary - SDG 259885

No Sample Data Qualified in this SDG

Mare Island, BGMP-IR04
Dissolved Metals - Field Blank Data Qualification Summary - SDG 259885

SDG	Sample	Analyte	Modified Final Concentration	A or P
259885	RB-081514	Magnesium	100U ug/L	A

LDC #: 32595C4

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 9/8/14

SDG #: 259885

Page: 1 of 1

Laboratory: Curtis & Tompkins, LTD.

Reviewer: SD

2nd Reviewer: CL

METHOD: Dissolved Metals (EPA SW 846 Method 6010C/~~7000~~ 7470A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 8/15/14
II.	ICP/MS Tune	N	Not Utilized
III.	Calibration	A	
IV.	Blanks	A	
V.	ICP Interference Check Sample (ICS) Analysis	A	
VI.	Matrix Spike Analysis	N	CS
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	LCS/D
IX.	Internal Standard (ICP-MS)	N	Not Utilized
X.	ICP Serial Dilution	N	
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	N	
XIV.	Field Blanks	SW	RB=4 SB=SB-081314 (SDG: 259790)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: water

1	04W11-081514	11		21		31	
2	04W12-081514	12		22		32	
3	04W23-081514	13		23		33	
4	RB-081514	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 325954

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Reviewer: JD
2nd reviewer: OL

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-4	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
Analysis Method		
ICP		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___

Comments: Mercury by CVAA if performed

LDC #: 32595C4

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: SD
2nd Reviewer: [illegible]

METHOD: Trace Metals (See Cover)

Blank units: ug/L **Associated sample units:** ug/L
Sampling date: 8/15/14 Soil factor applied _____
Field blank type: (circle one) Field Blank / Rinsate / Other: Rinse Blank Associated Samples: 1-3

Analyte	Blank ID	Sample Identification											
	4	Action Limit	No Qual.										
Mg	100	500											
Se	4.1	20.5											

Blank units: ug/L **Associated sample units:** ug/L
Sampling date: 08/13/14 Soil factor applied _____
Field blank type: (circle one) Field Blank / Rinsate / Other: Source Blank Associated Samples: 4

Analyte	Blank ID	Sample Identification											
	SB-081314 (SDG: 259790)	Action Limit	4										
Mg	38	190	100										
Mn	0.49	2.45											
As	1.4	7											
Ni	0.98	4.9											
Zn	6.3	31.5											

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".