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October 30, 2020

Mr. Brandon Smith
West Bay Development Group, LLC
8512 Canyon Road East, Suite 101
Puyallup, WA 98371

Subject: Phase II Environmental Site Assessment
Hardel Mutual Plywood Corporation
1210 West Bay Drive NW, Olympia, Washington

Dear Mr. Smith:

Per your request, PIONEER Technologies Corporation (PIONEER) has prepared the enclosed Phase II Environmental Site Assessment (Phase II ESA) Report for the Hardel Mutual Plywood Corporation property. If you have any questions or comments regarding the Phase II ESA Report, please do not hesitate to contact us at (360) 570-1700.

Respectfully,

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Enclosure:
Phase II Environmental Site Assessment Report

CC:
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Phase II Environmental Site Assessment Report

Hardel Mutual Plywood Corporation
1210 West Bay Drive NW
Olympia, Washington

Prepared for:

West Bay Development Group LLC
8512 Canyon Road East
Suite 101
Puyallup, Washington 98371

Prepared using the City of Olympia's United Stated Brownfield Assessment Grant Funds, Cooperative Agreement # BF01J66201

Prepared by:

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October 2020

Phase II Environmental Site Assessment Approval

This Phase II Environmental Site Assessment report has been approved by the following Project Team members:

Name and Role	Signature and Date
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Donald M. Brown USEPA Brownfields QA Reviewer	
Mike Reid City of Olympia Grantee Project Manager	Mike Reid 11/19/2020
Joel Hecker, LG PIONEER Project Manager	Joel W. Hecker 10/22/2020
Angela Noyan PIONEER QA Manager	Melissa C. Regan On behalf of Angela Noyan 10/22/2020

Executive Summary

PIONEER Technologies Corporation (PIONEER) prepared this Phase II Environmental Site Assessment (ESA) report for the Hardel Mutual Plywood Corporation property located at 1210 West Bay Drive NW, in Olympia, Thurston County, Washington (the Property). PIONEER personnel collected soil, groundwater, and methane soil vapor samples from the Property in June 2020. Soil and groundwater concentrations in samples collected during the Phase II ESA were compared to conservative Model Toxics Control Act screening levels (SLs), and the only SL exceedances were:

- A total petroleum hydrocarbon (TPH) in the diesel range (TPH-D) soil concentration in the B2 sample slightly exceeded the soil direct contact SL for commercial/industrial land use.
- Total carcinogenic polynuclear aromatic hydrocarbons (cPAHs) soil concentrations in the B1 and B7 samples, and the TPH in the heavy oil range (TPH-HO) soil concentration in the B3 sample, slightly exceeded the soil direct contact SLs for unrestricted land use.
- TPH-D, TPH in the gasoline range (TPH-G), benzene, ethylbenzene, acenaphthene, anthracene, fluorene, total naphthalenes, and silver soil concentrations in the B2 soil sample exceeded the respective soil-to-groundwater SLs.
- TPH-HO soil concentrations in the B1 and B3 samples slightly exceeded the soil-to-groundwater SL.
- The ethylene dibromide concentrations in the B3 and B6 samples, the tetrachloroethylene concentration in the B5 sample, and the arsenic concentration in the B6 sample slightly exceeded the respective groundwater SL.

Based on Phase II ESA results, no further action is recommended in American Society of Testing and Materials Designation (ASTM) E2993-16 with respect to a potential methane explosion hazard for future buildings. However, given the amount of wood debris in the subsurface, the relatively high methane concentration in B11, and the limited nature of this methane investigation, conducting additional methane investigations activities would be prudent.

This Phase II ESA was completed based on the recognized environmental conditions (RECs) and historical REC (HREC) identified in the Phase I ESA. Based on the Phase II ESA results, relatively minor amounts of residual soil and groundwater contamination remain beyond the extent of previous remedial activities that removed contamination associated with historical industrial activities (HREC1). The presence of fill material (REC1) may also be partially responsible for the identified soil and groundwater contamination. The migration of impacted groundwater from off-Property sources (REC2) is likely responsible for the groundwater SL exceedances in the B5 and B6 samples collected adjacent to the southern Property boundary. Off-shore sediment impact (REC3) was not evaluated as part of this Phase II ESA.

Based on the Phase II ESA results, additional work will be necessary to obtain a “No Further Action” determination from the Washington Department of Ecology. Additional soil and groundwater investigation activities are recommended based on the SL exceedances documented in this report. Additional methane investigations activities that are tailored to the final redevelopment plan are also recommended. Depending on future investigation results, remedial actions may be warranted for the Property.

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List of Acronyms

Acronym	Explanation
ASTM	American Society of Testing and Materials
bgs	Below Ground Surface
CAP	Cleanup Action Plan
City	City of Olympia
cPAHs	Carcinogenic Polynuclear Aromatic Hydrocarbons
CSM	Conceptual Site Model
Ecology	Washington Department of Ecology
EDB	Ethylene Dibromide
EPH	Extractable Petroleum Hydrocarbons
ESA	Environmental Site Assessment
Greylock	Greylock Consulting LLC
HDPE	High Density Polyethylene
HREC	Historical REC
MS	Matrix Spike
MSD	Matrix Spike Duplicate
MTCA	Model Toxics Control Act
MW	Monitoring Wells
NAPL	Non-Aqueous Phase Liquid
ng/kg	Nanograms per Kilogram
RPD	Relative Percent Difference
PAH	Polynuclear Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PCP	Pentachlorophenol
PID	Photoionization Detector
ppm	Parts per Million
PIONEER	PIONEER Technologies Corporation
Property	Hardel Mutual Plywood Corporation Property
Prospective Purchaser	West Bay Development Group LLC
PVC	Polyvinyl Chloride
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance / Quality Control
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
RI/FS	Remedial Investigation/Feasibility Study

Acronym	Explanation
RL	Reporting Limit
SAP	Sampling and Analysis Plan
SL	Screening Level
SMS	Washington State Sediment Management Standards
SVOC	Semi-Volatile Organic Compound
SVP	Soil Vapor Probe
TOC	Total Organic Carbon
TPH	Total Petroleum Hydrocarbon
TPH-D	TPH in the Diesel Range
TPH-G	TPH in the Gasoline Range
TPH-HO	TPH in the Heavy Oil Range
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VI	Vapor Intrusion
VOC	Volatile Organic Compound
WAC	Washington Administrative Code

SECTION 1: INTRODUCTION

PIONEER Technologies Corporation (PIONEER) prepared this Phase II Environmental Site Assessment (ESA) report for the Hardel Mutual Plywood Corporation property, located at 1210 West Bay Drive NW, in Olympia, Thurston County, Washington (the Property). The City of Olympia (City) is funding this Phase II ESA with its hazardous substances assessment grant (BF01J66201) funds on behalf of West Bay Development Group LLC (the prospective purchaser). The Property location is shown on Figure 1. The Phase II ESA was conducted in accordance with the United States Environmental Protection Agency (USEPA)-approved Quality Assurance Project Plan (QAPP; PIONEER 2020b) and Sampling and Analysis Plan (SAP), dated April 28, 2020 (PIONEER 2020c; see Appendix A) and the scope and limitations of American Society of Testing and Materials (ASTM) Designation E1903-11.

1.1 Property Description and Background

The Property consists of 19.28 acres of real property, 7.5 acres of which was concrete-, asphalt-, crushed concrete-, shrub-, and grass-covered land; the remainder of the Property consisted of intertidal and subtidal areas of Budd inlet. Budd Inlet, a portion of the Puget Sound, adjoins the Property to the east. The Property is located in a mixed-use commercial and residential area west of downtown Olympia. The current general Property features are depicted on Figure 2.

PIONEER conducted a Phase I ESA of the Property and prepared a Phase I ESA report in February 2020 (PIONEER 2020a). Based on PIONEER's review of historical information during the Phase I ESA, logging and lumber related businesses began operating on the Property prior to 1924. Between 1924 and 1951, the Property was occupied by the Henry McCleary Timber Company, Olympia Harbor Lumber Company, Olympia Towing, and West Side Log Dump. From 1951 through 1996 the Property was occupied by Hardel Mutual Plywood Corporation as a plywood manufacturing facility. Hardel Mutual Plywood Corporation ended operations after a fire in 1996 severely damaged buildings on the Property. All buildings were subsequently demolished. The Property has been vacant land since 2010.

1.2 Previous Investigations

A series of investigations beginning in 2004 confirmed the presence of contamination, including (1) total petroleum hydrocarbons (TPH) in the diesel range (TPH-D) and heavy oil range (TPH-HO) in soil and groundwater, (2) non-aqueous phase liquid (NAPL) on the western portion of the Property, (3) polynuclear aromatic hydrocarbons (PAHs) in soil (northern portion of the Property) and in groundwater (southern portion of the Property), and (4) dioxins/furans and phthalates in off-shore sediment (Stemen Environmental 2004). In 2007, the Washington Department of Ecology (Ecology) issued an Agreed Order for completion of a Remedial Investigation/Feasibility Study (RI/FS) and interim action (e.g., cleanup) on the Property (Ecology 2007). The RI was completed in 2007 and the FS was completed in 2009 in compliance with Ecology's Agreed Order (Greylock Consulting LLC [Greylock] 2007, 2009a). The interim action consisted of NAPL removal and excavation and off-Property disposal of TPH- and PAH-impacted soils at concentrations exceeding Model Toxics Control Act (MTCA) Cleanup Levels for Unrestricted Land

Use (Greylock 2009b). In 2010, approximately 23,331 tons of TPH- and PAH-impacted soil and debris was removed from three areas on the Property (Greylock 2010).

Between December 2010 and August 2011, four quarters of groundwater monitoring were completed on the Property to evaluate the effectiveness of the interim action cleanup. The results of the groundwater monitoring were compliant with MTCA Cleanup Levels for Unrestricted Land Use for TPH-D, TPH-HO, and PAHs (Greylock 2011). In 2012, Ecology issued the Final Cleanup Action Plan (CAP) (Ecology 2012a) and an Agreed Order Satisfaction letter (Ecology 2012b) stating that the Agreed Order had been satisfied. In the Final CAP, Ecology stated: "The interim action performed by Hardel completed all required cleanup of soil, groundwater and sediment at the Hardel Mutual Plywood Site."

Additionally, the Final CAP states: "Sediment containing phthalates and dioxins/furans are not associated with historic operations at this Site. Phthalates found in sediment [on] this Site are believed to have originated from residential neighborhoods to the West, having migrated by storm water, or from historic operations at the adjacent parcel to the South. Dioxins/furans were found at concentrations ranging from 18 to 41 nanograms per kilogram (ng/kg) in sediments at this Site. These dioxins/furans are believed to originate from an offsite source and are not known to have originated from historic operations on the uplands of this Site. There does not appear to be a direct linkage of dioxins/furans found in the intertidal sediment to the upland source area investigated in the remedial investigation of this Site. Dioxins/furans in sediments of Budd Inlet are believed to come from several upland sources including the former Cascade Pole facility."

The Agreed Order Satisfaction Letter reported that no additional remedial action was necessary at the Property unless new or different information become known (Ecology 2012b).

1.3 Phase I ESA RECs

PIONEER identified the following recognized environmental conditions (RECs) associated with the Property in the February 2020 Phase I ESA (PIONEER 2020a):

- REC1: Fill material from an unknown source was used to expand the upland portion of the Property at various times over the past 150 years. The potential for environmental impact associated with the unknown origin and content of the fill material represents a REC in connection with the Property.
- REC2: The potential exists for the migration of environmental impact on to the Property through groundwater or soil vapor from historical uses of the south-adjoining former BMT Northwest/Reliable Steel site between at least 1941 and 2009. Historical uses of the site included boat building, steel fabrication, and welding as well as the presence of several underground storage tanks (USTs). Contaminants found above MTCA Cleanup Levels for Unrestricted Land Use and/or Washington State Sediment Management Standards (SMS) included TPH in soil and sediment, metals (e.g., arsenic, cadmium, copper, lead, mercury, and zinc) in soil, groundwater, and sediment, PAHs in soil and sediment, polychlorinated biphenyls (PCBs) in soil, pentachlorophenol (PCP) in soil, and phthalates in sediment. No cleanup had been completed as of the publication date of this report.
- REC3: Off-shore sediment contains dioxins/furans and phthalates at concentrations exceeding allowable standards. Although Ecology has documented that historical uses of the Property

were not responsible for dioxins/furans and phthalates in off-shore sediment, Ecology continues to investigate dioxins/furans in Budd Inlet sediment and could hypothetically change its position in the future.[1]

- HREC1: Due to the remedial actions and the results of post-remedial groundwater monitoring, the historical soil and groundwater contamination associated with industrial activities was not identified as a REC, but rather a Historical REC (HREC) in connection with the Property. The proposed sampling plan will also confirm that remediated soil and groundwater meet MTCA Cleanup Levels for Unrestricted Land Use.

1.4 Purpose

The objectives of the Phase II ESA were as follows:

- Evaluate if upland contamination associated with REC1 and REC2 identified in the Phase I ESA is present.
- Confirm historical remedial actions (associated with the HREC) have removed soil contaminated at concentrations exceeding applicable regulatory standards.
- Assess whether any contaminants detected at the Property were present at concentrations exceeding applicable regulatory standards.
- Evaluate whether current environmental conditions warrant further investigation and/or remediation.
- Prepare a Phase II ESA report consistent with ASTM Designation E1903-11.

[1] This assessment focused only on the upland portion of the Property and did not address off-shore sediment concerns, due to Ecology's previous acknowledgement that off-site sources are responsible for sediment impact.

SECTION 2: CSM AND SCREENING LEVELS

2.1 Conceptual Site Model

A Conceptual Site Model (CSM) typically presents a conceptual understanding of how constituents at a given site can affect potential receptors via different exposure pathways. A complete exposure pathway includes a source of contamination, a transport mechanism, a potentially exposed human or ecological receptor, and a route of exposure (e.g., inhalation). A simplified CSM showing the key potential exposure pathways and samples being used to evaluate the potential exposure pathways was developed and is shown below. This simplified CSM was also used to develop the SAP and identify appropriate media-specific screening levels for the Phase II ESA.

Source of Concern	Primary Pathway	Secondary Pathway	Primary Receptors	Secondary Receptors	Primary Samples	Secondary Samples
Historic On-Property Operations and Fill Material	Direct Contact with Soil	Groundwater as Drinking Water	Future Residents/ Workers	Future Construction and Utility Workers	Soil Samples	Groundwater Samples
Migration from Off-Site Sources	Groundwater as Drinking Water	Vapor Intrusion	Future Residents/ Workers	Future Construction and Utility Workers	Groundwater Samples	None
Historic On-Site Operations and Fill Material and Migration from Off-Site Sources	Soil Migration to Groundwater to Surface Water	Groundwater Migration to Surface Water	Aquatic Receptors	Fish Consumption	Soil Samples	Groundwater Samples

Using the CSM, the MTCA pathways of potential concern at the Property are expected to be:

- The soil direct contact exposure pathway,
- The soil-to-groundwater transport pathway,
- The groundwater as drinking water exposure pathway,
- The groundwater-to-surface water transport pathway,
- The surface water and sediment exposure pathways, and
- The vapor intrusion (VI) pathway.

Due to (1) the current and anticipated future land use of the Property (i.e., mixed-use residential and commercial), (2) previously completed remedial actions, (3) the limited amount of volatile constituents during soil and groundwater sampling events, and (4) the current and anticipated future drinking water source for the Property and surrounding properties (i.e., City-provided water), potentially complete exposure pathways are limited. The primary exposure pathway of potential concern, and the only potentially complete exposure pathway for current receptors, is soil direct contact. The groundwater as drinking water exposure pathway (which relies on the associated soil-to-groundwater transport pathway) is an incomplete exposure pathway because groundwater at the Property and surrounding

properties is not a current or anticipated future source of drinking water.[2] The potential for unacceptable surface water and sediment exposures due to transport of groundwater to surface water is low. The VI pathway is incomplete for current receptors and is unlikely to be a concern for future receptors based on the limited amount of volatile constituents in soil and groundwater.

2.2 Identification of Applicable Screening Levels

Screening Levels (SLs) were developed for the constituents detected during the Phase II ESA in order evaluate Phase II ESA sampling results. SLs were developed for the following MTCA pathways of potential concern identified above.

2.2.1 Soil Direct Contact SLs

Soil direct contact SLs were calculated for an unrestricted land use scenario and a commercial/industrial land use scenario as presented in Appendix B. With the exception of TPH, the soil direct contact SLs for an unrestricted land use scenario were Standard Method B soil cleanup levels calculated in accordance with Washington Administrative Code (WAC) 173-340-740(3)(b)(iii)(B), subject to any necessary adjustments in WAC 173-340-740. With the exception of TPH, the soil direct contact SLs for a commercial/industrial land use scenario were Standard Method C soil cleanup levels calculated in accordance with WAC 173-340-745(5)(b)(iii)(B), subject to any necessary adjustments in WAC 173-340-745. The TPH soil direct contact SLs were values that Ecology calculated for default TPH compositions when developing Method A soil cleanup levels (Ecology 2001a, 2001b).

2.2.2 Soil-to-Groundwater SLs

Soil-to-groundwater SLs were calculated as presented in Appendix B. With the exception of TPH, the soil-to-groundwater SLs were calculated using the MTCA fixed parameter three-phase partitioning model in accordance with WAC 173-340-747(4), subject to (1) any necessary residual saturation adjustments required by WAC 173-340-747(10), and/or (2) any necessary adjustments in WAC 173-340-740. MTCA defaults in WAC 173-340-747(4) were used as the input parameters and groundwater SLs discussed in the next subsection were used as the target groundwater concentrations for the three-phase partitioning model calculations. The TPH soil-to-groundwater SLs were based on MTCA Method A soil cleanup levels, which in turn were based on the more stringent of the results from the four-phase partitioning model per WAC 173-340-747(6) and the residual soil saturation concentrations in Table 747-5 of MTCA regulations for default TPH compositions.

2.2.3 Groundwater SLs

Groundwater SLs were calculated in Appendix B based on the default assumptions that future residents might use shallow groundwater at the Property as a drinking water source and that constituents in groundwater might cause unacceptable impacts in downgradient surface water and sediment, even

[2] Although the depth to groundwater is generally around four feet below ground surface (bgs), potential direct contact with groundwater by future construction/utility workers is not a significant exposure pathway given the nature of these potential exposures.

though those scenarios are highly unlikely. The groundwater SLs were the more stringent of groundwater as drinking water SLs and surface water SLs. With the exception of TPH, the groundwater as drinking water SLs were Standard Method B groundwater cleanup levels calculated in accordance with WAC 173-340-720(4)(b)(i) and WAC 173-340-720(4)(b)(iii), subject to any necessary adjustments in WAC 173-340-720. The TPH groundwater as drinking water SLs were MTCA Method A groundwater cleanup levels, which were based on values calculated for default TPH compositions in accordance with WAC 173-340-720(4)(b)(iii). The surface water SLs were Standard Method B surface water cleanup levels calculated in accordance with WAC 173-340-730(3)(b)(i) and 173-340-730(3)(b)(iii), subject to any necessary adjustments in WAC 173-340-730.

SECTION 3: PHASE II ACTIVITIES

PIONEER advanced 12 direct push soil borings (B1 through B12), including 6 with temporary monitoring wells (MWs; B1 through B6), and two with soil vapor probes (SVPs; B10 and B11). Soil samples were collected from the soil borings and groundwater samples were collected from the temporary MWs for chemical analyses. Soil vapor samples were collected from the SVPs and analyzed for methane in the field. The soil boring, temporary MW, and SVP locations are shown on Figure 2. The rationales for sample locations, sample depths, and target constituents are described in the SAP (see Appendix A).

Procedures for the soil, groundwater, and soil vapor sampling, field quality assurance/quality control (QA/QC), and chemical analyses, are summarized in the following subsections. The Phase II activities were completed on June 3 and 4, 2020.

3.1 Soil Sampling

Soil borings were advanced to depths of up to 15 feet below ground surface (bgs) using hydraulically driven, direct-push, coring equipment. Soil samples were collected continuously at direct-push locations using a 4-foot long, (2.25-inch outer diameter) GeoProbe® Macro Sampler fitted with disposable acetate liners. PIONEER field personnel visually classified the soil samples in accordance with the ASTM Practice D2488 and screened soil for the presence of ionizable volatile organic compounds (VOCs) using a photoionization detector (PID) equipped with a 10.6 eV lamp. PID screening was conducted by collecting a soil sample from continuous intervals of no more than 2 feet, placing it into a sealable Ziploc® bag, inserting the tip of the PID into the headspace of the bag, and recording the screening result. The lower measurement limit of the PID was 0.1 part per million (ppm). The field screening results are provided on the soil boring logs in Appendix C.

PIONEER field personnel collected soil samples for VOC analysis in accordance with USEPA Method SW846-5035 by placing soil into new, unpreserved 40-milliliter (mL) vials, which were immediately preserved by the lab upon arrival. Soil samples for analyses of the other target constituents were collected by placing it into unpreserved, 4-ounce, glass jars. Pre-cleaned sample containers were supplied by the laboratory. Soil samples were collected and analyzed in general accordance with the USEPA-approved SAP and QAPP.

After soil and groundwater sampling activities were completed, soil cuttings were placed back into their respective borehole and the remaining annular space of the soil boring was backfilled with hydrated bentonite. The ground surface at the soil boring location was restored to match the surrounding conditions.

3.2 Groundwater Sampling

Groundwater was encountered at a depth of approximately 3 to 12 feet bgs in the soil borings. The average depth to groundwater was approximately 4 feet bgs. Temporary groundwater MWs were constructed in borings B1 through B6 with a 5-foot long, 1-inch diameter, 0.10-inch slotted polyvinyl

chloride (PVC) screen and associated sand prepack and PVC risers. The temporary wells were installed such that the screen intersected the depth where groundwater was encountered in a given boring.

After gauging the depth to water and total well depth, the temporary MWs were purged using a peristaltic pump at low flow rates. Purging was conducted for 15 minutes or until the groundwater appeared relatively free of suspended sediment, whichever occurred first. Following MW purging, the groundwater samples were collected in new, laboratory-supplied containers. Groundwater samples were collected and analyzed in general accordance with the USEPA-approved SAP and QAPP.

3.3 Soil Vapor Sampling for Methane

Groundwater was encountered at 4.5 feet and 3.5 feet bgs at the two SVP locations, B10 and B11, respectively. The SVPs were installed approximately one foot above groundwater to avoid drawing groundwater through the SVP. The SVPs were constructed by placing a six-inch long, 1-inch diameter, 0.10-inch slotted PVC screen in the open borehole. The screen was attached to ¼-inch high density polyethylene (HDPE) tubing which was fed to the ground surface. Sand was placed from the base of the screen to approximately six inches above the top of the screen, followed by hydrated bentonite to the ground surface.

After installation, at least three SVP volumes of air were purged from each SVP using a GEM2000 landfill gas monitor and the SVPs were sealed rubber caps over the night of June 3, 2020. On the morning of June 4, 2020, PIONEER's field representative used the GEM2000 to purge soil vapor for an additional 15 minutes, while documenting the concentrations of methane, oxygen, carbon dioxide, and differential pressure at each location. Atmospheric pressure was also recorded. Methane concentrations were evaluated in general accordance with the USEPA-approved SAP and ASTM Designation E2993-16, Standard Guide for Evaluating Potential Methane Hazards as a Result of Methane in the Vadose Zone.

3.4 Quality Assurance and Quality Control (QA/QC)

3.4.1 Field QA

New sampling equipment was used to minimize the potential for cross-contamination during sampling activities. For instance, PIONEER’s field representative wore a new pair of disposable nitrile sampling gloves during collection of each sample. New, disposable acetate liners were used for collection of each soil core, new T-core handles were used for collection of each soil sample for analysis of VOCs, and new disposable tubing was used for collection of each groundwater sample.

Direct-push soil sampling equipment was decontaminated before each use with a scrub brush and Alconox® cleaning solution, followed by a double rinse with distilled water. Other reused sampling equipment (e.g., stainless-steel trowel) were cleaned with water and Alconox® cleaning solution, followed by a double rinse with distilled water prior to each use.

Pre-cleaned, unpreserved sample containers were supplied by the laboratory. After sample collection, the containerized samples were kept cool (i.e., kept on ice) until delivery to the analytical laboratory. PIONEER’s field representative followed chain-of-custody procedures to document the sample handling

sequence. Field instrument calibration, sample handling and custody requirements, laboratory analytical methods, analysis reporting limits (RLs), QA/QC procedures, and reporting protocols were consistent with those described in the USEPA-approved QAPP applicable to this assessment.

3.4.2 Field QC

PIONEER field personnel collected a variety of field quality control (QC) samples consistent with the SAP and QAPP. Duplicate soil and groundwater samples were collected to evaluate matrix homogeneity and the precision of sampling activities. Sufficient volumes of soil and groundwater samples were collected to allow the laboratory to prepare and analyze matrix spike (MS) and matrix spike duplicate (MSD) samples to evaluate constituent recovery and precision in the sample matrix. A VOC trip blank sample was collected to evaluate the potential for cross-contamination during sample collection, transport, and storage.

3.5 Chemical Analyses

A total of 10 primary soil samples, 6 primary groundwater samples, and three field QC samples were submitted to Libby Environmental in Olympia, Washington for analyses of VOCs, TPH-gasoline (TPH-G), TPH-D, TPH-HO, extractable petroleum hydrocarbons (EPH), PAHs/semi-volatile organic compounds (SVOCs), Resource Conservation and Recovery Act (RCRA) metals (arsenic, barium, cadmium, total chromium, lead, mercury, selenium, and silver), and total organic carbon (TOC). Libby and/or their subcontracted laboratories used the following analytical methods to analyze the samples:

- VOCs - USEPA Method 8260D
- TPH-D and TPH-HO – Ecology Method NWTPH-Dx
- TPH-G – Ecology Method NWTPH-Gx
- EPH - Ecology Method NWEPH
- PAHs/SVOCs - USEPA Method 8270C
- Metals – USEPA Methods 200.8, 245.1, 6020, 7010, and 7471
- TOC – USEPA Method 9060

These target constituents were selected because they were representative chemical indicators of former on-site uses of the Property and/or uses of surrounding sites. Summaries of the soil and groundwater samples collected and analyzed at specific locations during this assessment are presented in Tables 1 and 2, respectively. The complete documentation for analytical methods, actual RLs, chains of custody is included in Appendix D.

3.6 Deviations

The Phase II ESA was completed in accordance with the SAP with the following exceptions:

- Due to shallow groundwater, no SVP was installed at B12. Groundwater was encountered at approximately 3.2 feet bgs at B12. Shallow groundwater was also encountered at B10 and B11. As a result, the SVPs were installed at 3.0 feet and 2.5 feet bgs, respectively.
- No equipment blanks were collected because dedicated sampling equipment (e.g. soil t-cores and groundwater tubing) was used for the collection of each sample.

- Soil borings B8 and B9 were proposed in locations adjacent to the highest remaining TPH-D and TPH-HO concentrations in soil. The locations were shifted in the field to the apparent edges of the remediation areas, which were slightly different than the remediation extent shown on Figure 2. The remediation extent shown on Figure 2 was georeferenced from Ecology's March 2012 Draft Cleanup Action Plan Fact Sheet and is therefore considered approximate.

These deviations did not impact the project objectives.

SECTION 4: SAMPLING RESULTS AND DISCUSSION

The surface and subsurface conditions encountered during soil boring activities, the subsurface methane results, and the results of chemical analyses, are described in the following subsections.

4.1 Surface and Subsurface Conditions

Soil samples were visually classified in general accordance with ASTM Practice D2488. Detailed descriptions of the soil conditions encountered at each boring are documented in the boring logs in Appendix C. The surface and subsurface conditions encountered are summarized below.

The surface materials at each of the soil borings advanced on the Property consisted of crushed concrete, sand fill, gravel, or asphalt. The surface materials were generally underlain by fill materials containing varying amounts of gravel, sand, clay, silt, brick, wood, metal, and concrete. The fill materials extended to the maximum explored depth of eight of the 11 borings (up to 15 feet bgs). Native silt and silty sand were present beneath the fill material in the remaining three borings. Groundwater was generally encountered at depths of approximately four feet bgs, but ranged between 3.2 feet bgs at B12 and 11.9 feet bgs at B1. Intervals of staining, odors, or PID values greater than one ppm that were observed during soil boring are shown in the table below. Unlisted soil borings did not exhibit soil with staining, odors, or PID values greater than one ppm. The boring logs in Appendix C provide PID values for each two-foot soil interval.

Boring ID	Staining Noted?	Staining Interval (in feet bgs)	Odor Noted?	Odor Interval (in feet bgs)	PID Value (if >1 ppm)	Elevated PID Value Depth (in feet bgs)
B1	No	N/A	No	N/A	1.7 ppm	5
B2	No	N/A	Hydrocarbon	2-4	13.2 ppm	3
B4	Yes	11-12	No	N/A	N/A	N/A
B8	No	N/A	No	N/A	27 ppm	8.5

Note: the elevated PID value at B8 was collected from a piece of solid wood and not from soil. The value is likely a result of organics or creosote treatment. No indication of contamination of the surrounding soil was noted.

Groundwater purged from the temporary MW at B1 exhibited a slight sheen. Groundwater purged from the temporary MW at B2 exhibited a hydrocarbon odor and sheen. Groundwater purged from the temporary MW at B3 exhibited a sulfur-like odor and no sheen. Groundwater purged from the temporary MWs at B4 through B6 did not exhibit an odor or sheen.

4.2 Methane Soil Vapor Results

The results of the methane sampling from the SVPs at B10 and B11 are documented below. Peak readings are those recorded at the beginning of SVP purging on June 4, 2020 and represent built up gasses within the capped SVP. Sustained readings are those recorded after 15 minutes of SVP purging on June 4, 2020. Atmospheric pressure at the time of sampling was 30.04 inches mercury.

SVP Boring ID	Methane (%)	Carbon Dioxide (%)	Oxygen (%)	Differential Pressure (inches mercury)	Differential Pressure (Pascals)
Sustained B10 Reading	0.9%	3.2%	17.2%	+0.03	+102
Peak B10 Reading	8.0%	3.3%	6.1%	+0.03	+102
Sustained B11 Reading	21.6%	5.7%	0.0%	+0.03	+102
Peak B11 Readings	23.0%	5.7%	0.0%	+0.03	+102

Based on the soil vapor methane concentrations and differential pressures during the Phase II ESA, no further action is recommended in ASTM Designation E2993-16 with respect to a potential methane explosion hazard for future buildings. However, given the amount of wood debris in the subsurface, the relatively high methane concentration in B11, and the limited nature of this methane investigation, conducting additional methane investigations activities that are tailored to the final redevelopment plan would be prudent.

4.3 Results of Chemical Analyses

Results of chemical analyses performed on soil and groundwater samples are summarized in the following paragraphs and are tabulated in Tables 1 and 2, respectively. Soil direct contact SL exceedances are shown on Figure 3 and groundwater-related exceedances (i.e., exceedances of soil-to-groundwater SLs and groundwater SLs) are shown on Figure 4. Laboratory analysis reports are included in Appendix D.

4.3.1 Soil Sampling Results

In general, there were few soil direct contact SL exceedances. Petroleum-related constituents exceeded soil direct contact SLs at four locations (B1, B2, B3, and B7). TPH-D soil concentrations in the B2 sample slightly exceeded the soil direct contact SL for commercial/industrial land use. Total carcinogenic PAHs (cPAHs) soil concentrations in the B1 and B7 samples, and the TPH-HO soil concentration in the B3 sample, slightly exceeded the soil direct contact SLs for unrestricted land use. There were no other soil direct contact SL exceedances.

In general, there were few soil-to-groundwater SL exceedances, especially considering the conservative nature of the soil-to-groundwater SLs. Most of the soil-to-groundwater SL exceedances were in the B2 sample. TPH-D, TPH-G, benzene, ethylbenzene, acenaphthene, anthracene, fluorene, total naphthalenes, and silver soil concentrations in the B2 sample exceeded the respective soil-to-groundwater SLs. TPH-HO soil concentrations in the B1 and B3 samples also slightly exceeded the soil-to-groundwater SL (which is based on the MTCA default residual saturation criterion). There were no other soil-to-groundwater SL exceedances.

4.3.2 Groundwater Sampling Results

In general, there were few groundwater SL exceedances. The only groundwater SL exceedances were ethylene dibromide (EDB) in the B3 and B6 samples, tetrachloroethylene in the B5 sample, and arsenic in the B6 sample. Furthermore, the EDB, tetrachlorethylene, and arsenic concentrations in the aforementioned samples only slightly exceeded the respective groundwater SLs.

4.4 Data Quality Review and Usability

A cursory review of the field QC and laboratory QC results was performed in order to determine if the overall data set was valid and of usable quality. The review of QC results and the associated data quality conclusions are summarized Appendix D. The results for the field and laboratory QC samples are also presented in Appendix D. The field QC and laboratory QC review determined that the overall data set is of usable quality and meets the Property-specific objectives.

SECTION 5: CONCLUSIONS AND RECOMMENDATIONS

PIONEER has performed a Phase II ESA at the Hardel Mutual Plywood Corporation property located at 1210 West Bay Drive NW, in Olympia, Thurston County, Washington (the Property) in conformance with the scope and limitations of the Standard Practice for ESAs: Phase II ESA Process (ASTM Designation E1903-11) and the objectives developed pursuant to Section 5.1 of ASTM Designation E1903-11 (see Section 1.4 of this report). Conclusions and recommendations are described in the following subsections.

5.1 Conclusions

Soil and groundwater concentrations in samples collected during the Phase II ESA were compared to conservative MTCA SLs (see Section 4.3), and the only SL exceedances were:

- A TPH-D soil concentration in the B2 sample slightly exceeded the soil direct contact SL for commercial/industrial land use.
- Total cPAHs soil concentrations in the B1 and B7 samples, and the TPH-HO soil concentration in the B3 sample, slightly exceeded the soil direct contact SLs for unrestricted land use.
- TPH-D, TPH-G, benzene, ethylbenzene, acenaphthene, anthracene, fluorene, total naphthalenes, and silver soil concentrations in the B2 soil sample exceeded the respective soil-to-groundwater SLs.
- TPH-HO soil concentrations in the B1 and B3 samples slightly exceeded the soil-to-groundwater SL.
- The EDB concentrations in the B3 and B6 samples, the tetrachloroethylene concentration in the B5 sample, and the arsenic concentration in the B6 sample slightly exceeded the respective groundwater SL. The groundwater SL exceedances in the B5 and B6 samples, located along the southern Property boundary, are likely associated with historical operations on the south-adjoining site.

Based on the soil vapor methane concentrations and differential pressures during the Phase II ESA, no further action is recommended in ASTM Designation E2993-16 with respect to a potential methane explosion hazard for future buildings. However, given the amount of wood debris in the subsurface, the relatively high methane concentration in B11, and the limited nature of this methane investigation, conducting additional methane investigations activities that are tailored to the final redevelopment plan would be prudent.

This Phase II ESA was completed based on the RECs and HREC identified in the Phase I ESA (see Section 1.3). Based on the findings of this Phase II ESA, relatively minor amounts of residual soil and groundwater contamination remain in the north-northeast upland portion of the Property, beyond the extent of previous remedial activities (see Figures 3 and 4). Portions of the Property were previously remediated to remove contamination associated with historical industrial activities (HREC1). The presence of fill material (REC1) may also be partially responsible for the identified soil and groundwater contamination. The migration of impacted groundwater from off-Property sources (REC2) is likely responsible for the EDB, tetrachloroethylene, and arsenic groundwater SL exceedances in the B5 and B6

samples collected adjacent to the southern Property boundary. Off-shore sediment impact (REC3) was not evaluated as part of this Phase II ESA.

The conclusions in this report are based on visual observations and chemical analysis results from samples collected from the area of investigation only. If additional surface, subsurface, or chemical analysis data become available after the date of issue of this report, the conclusions contained in this report may require modification after PIONEER has reviewed the additional information. This review by PIONEER of additional information would be conducted upon receipt of a request from the client.

5.2 Recommendations

Based on the Phase II ESA results, additional work will be necessary to obtain a "No Further Action" determination from Ecology. PIONEER recommends the following investigation activities to determine the MTCA path forward:

- Soil sampling to confirm and delineate petroleum-related soil exceedances at B2.
- Installing and sampling of permanent MWs to collect more representative groundwater samples to better assess the soil-to-groundwater SL and/or groundwater SL exceedances in direct-push groundwater samples at locations B1 through B3. TPH-G, TPH-D, TPH-HO, VOCs, PAHs, arsenic, and silver analyses are recommended.
- Conducting additional methane investigations activities that are tailored to the final redevelopment plan.

Depending on future investigation results, remedial actions to address soil and groundwater contamination and/or the potential explosion hazard associated with methane soil vapor concentrations may be warranted.

In the process of obtaining information in preparation of this report, procedures were followed that represent reasonable practices and principles in a manner consistent with that level of care and skill ordinarily exercised by members of this profession currently practicing under similar conditions.

SECTION 6: REFERENCES

Ecology. 2001a. Memorandum from Pete Kmet to Interested Persons with the subject of "Calculations for Table 740-1; Method A Soil Cleanup Levels for Unrestricted Land Uses", February 9.

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Greylock Consulting LLC. 2007. Remedial Investigation Report. Former Hardel Plywood Site. December.

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Greylock Consulting LLC. 2011. Post-Construction Groundwater Monitoring Summary of Four Quarters. Former Hardel Plywood Site. November.

Stemen Environmental, Inc. 2004. Phase II ESA Report, Former Hardel Mutual Plywood Waterfront Property. July.

PIONEER. 2020a. Phase I Environmental Site Assessment for the Hardel Mutual Plywood Corporation, Olympia, Washington. February.

PIONEER. 2020b. Quality Assurance Project Plan for the City of Olympia's Brownfield Assessment Grant. March.

PIONEER. 2020c. Sampling and Analysis Plan for the Hardel Mutual Plywood Corporation, Olympia, Washington. April.

SECTION 7: LIMITATIONS, EXPECTATIONS, AND RELIANCE

PIONEER prepared this report in general accordance with the guidelines set forth in the ASTM's Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process (Designation E1903-11). The findings and opinions presented in this report are subject to professional interpretation, and differing conclusions could be reached by other consultants. Compliance with the recommendations presented in this report does not ensure the elimination of hazards or the fulfillment of the client's obligations under local, state, or federal laws or any modifications of or changes to such laws. None of the work performed hereunder shall constitute or be represented as a legal opinion.

Locations identified for sampling were chosen based on a combination of historical Property usage patterns, and observations made during the Property reconnaissance process. Sample locations were selected to characterize worst-case or highest concentrations (as opposed to selecting samples for full spatial characterization) within the means and limitations of the scope of services. Furthermore, any sample collected for chemical testing may or may not be representative of a larger population. Although uncertainty is inherent due to the nature of sampling, professional judgment and additional assessment may reduce that uncertainty.

Data collected for investigations conducted during a Phase II ESA generally only represented the Property conditions at the time the data were collected. Subsequent Phase II assessors should evaluate whether data generated for this Phase II ESA are (1) appropriate for any subsequent use beyond the original purpose for which they were collected; or are (2) otherwise subject to lifetime limits imposed by other laws, regulations or regulatory policies.

"User" is defined in ASTM Designation E1903-11 as "the party seeking to use this practice to conduct a Phase II ESA. A user may include, without limitation, a potential purchaser of property, a potential tenant of property, an owner of property, a lender, an insurer, or a property manager."

ASTM Designation E1903-11 practice does not define whether or not (or to what extent) any person, other than the User, may use or rely upon a Phase II ESA prepared for the "User." Any party other than the "User" who seeks to use this Phase II ESA must understand the assumptions and limitations which were implied during the implementation of the Phase II ESA standard practice. All such assumptions and limitations must be understood by any party other than the "User," and evaluated independently before determining that this report is appropriate and meets the needs of that party.

Figures

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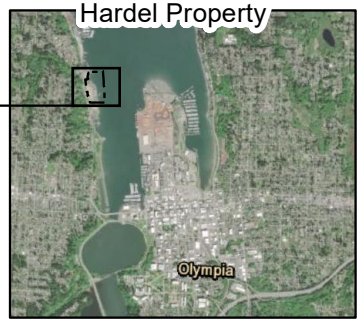
PIONEER TECHNOLOGIES CORPORATION

Property Location Map
Hardel Mutual Plywood Corporation
1210 West Bay Drive NW
Olympia, WA

Figure 1

Document Path: G:\Projects\Hardel\Maps\2020\Phase I ESA\Fig 1_Property Location_geo.mxd; Author: MK; Date Saved: 1/8/2020



Legend

Sample Location

- Soil Sample
- Soil Vapor Sample
- Soil and Groundwater Sample

Site Features

- Property Boundary
- Previous Soil Excavations (Ecology 2012a)
- Clean Crushed Concrete Cover (Ecology 2012a)
- Abandoned Railroad

Notes:
-Features shown are approximate.
-Locations of remedial excavations, and clean crushed concrete cover from Ecology's March 2012 Draft Cleanup Action Plan Fact Sheet.

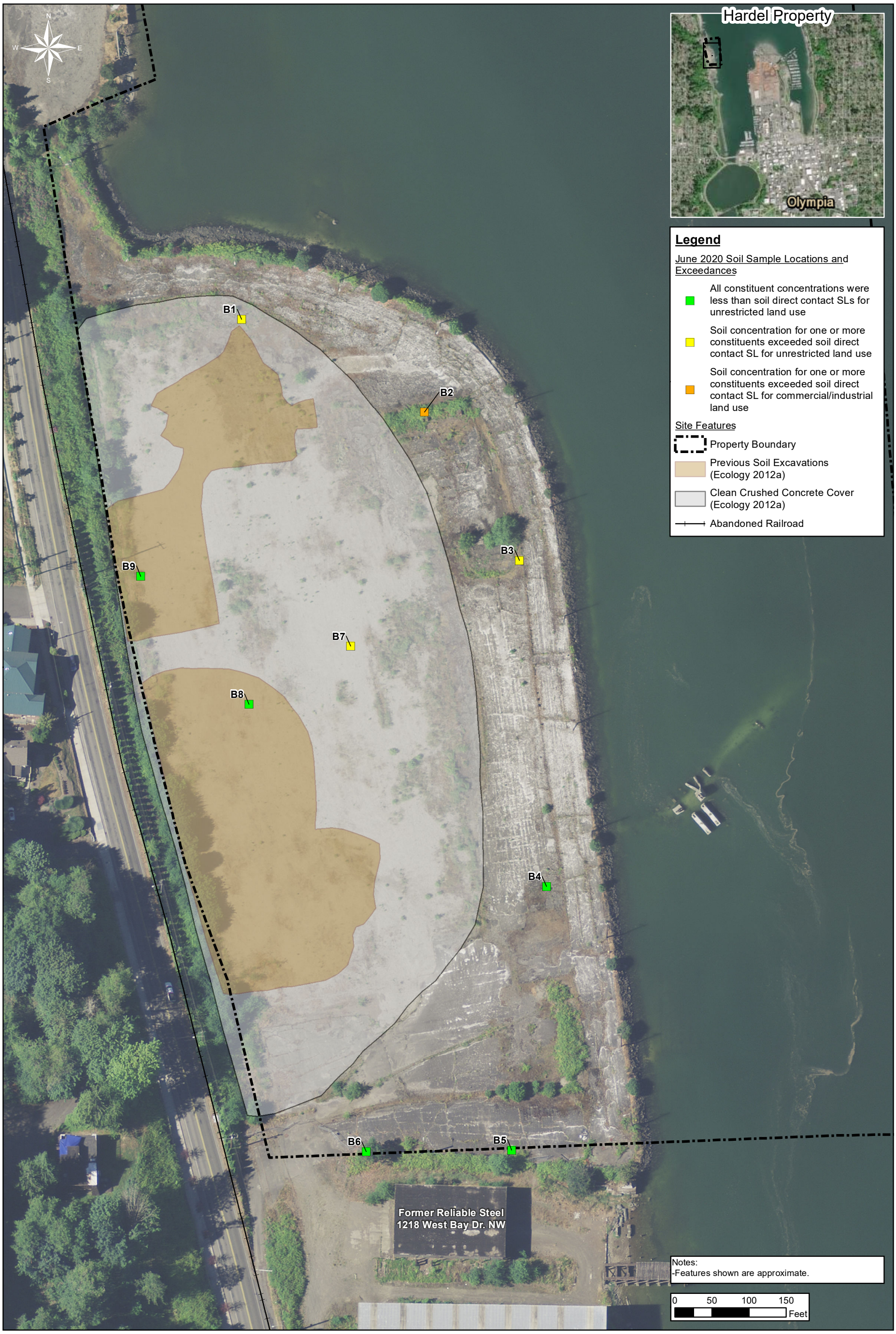
0 100 200 300 Feet

PIONEER TECHNOLOGIES CORPORATION

Property Features and Sampling Locations
Hardel Mutual Plywood Corporation
1210 West Bay Drive NW
Olympia, WA

Figure 2

Document Path: G:\Projects\City of Olympia\GIS\Maps\2020\Hardel - Phase 2 ESA\Fig 2_Features and Sample Locs.mxd; Author: MK; Date Saved: 10/22/2020

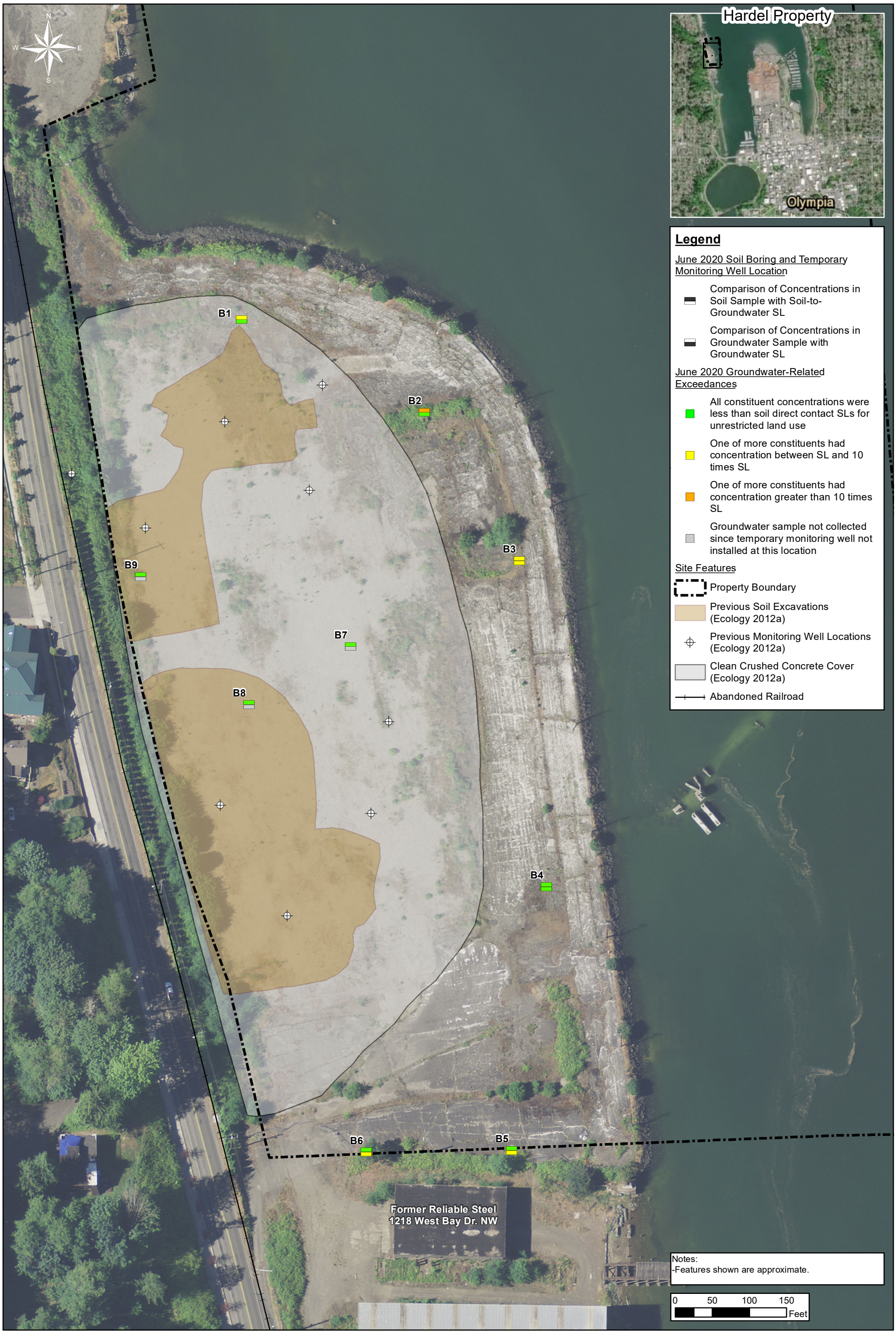


PIONEER TECHNOLOGIES CORPORATION

Summary of Soil Direct Contact Exceedances
Hardel Mutual Plywood Corporation
1210 West Bay Drive NW
Olympia, WA

Figure 3

Document Path: G:\Projects\City of Olympia\GIS\Maps\2020\Hardel - Phase 2 ESA\Fig 3_Soil Results and Samp Locs_11x17_portrait.mxd; Author: ; Date Saved: 10/22/2020



PIONEER TECHNOLOGIES CORPORATION

Summary of Groundwater-Related Exceedances
Hardel Mutual Plywood Corporation
1210 West Bay Drive NW
Olympia, WA

Figure 4

Document Path: G:\Projects\City of Olympia\GIS\Maps\2020\Hardel - Phase 2 ESA\Fig 4_GW Results and Samp Locs_11x17_portrait.mxd; Author: ; Date Saved: 10/22/2020

Tables

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Table 1: Summary of Soil Analytical Results

Constituent	Sample Location, Depth Interval (Feet bgs), and Sample Date										Soil Screening Levels[1]		
	B1	B2	B3	B4	B4	B5	B6	B7	B8	B9	Soil Direct Contact Screening Level for an Unrestricted Land Use Scenario (mg/kg)	Soil Direct Contact Screening Level for a Commercial/Industrial Land Use Scenario (mg/kg)	Soil-to-Groundwater-to Surface Water Screening Level (mg/kg)
	4'-5'	2'-4'	2'-3'	1'-3'	11'-12'	3'-4'	3'-4'	3'-5'	4'-5'	6'-7'			
	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020			
Total Petroleum Hydrocarbons (mg/kg)													
Diesel Range Organics (TPH-D)	50 U	**41,000**	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	3,000	39,000	2,000
Gasoline (TPH-G)	10 U	**190**	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	4,700	150,000	30
Heavy Fuel Oil (TPH-HO)	**2,600**	**1,500**	**3,300**	**550**	**420**	250 U	250 U	**430**	250 U	250 U	3,000	39,000	2,000
C8-C10 Aliphatic	NA	**52**	18.3 U	NA	NA	NA	NA	NA	NA	NA	No Value	No Value	No Value
C10-C12 Aliphatic	NA	**383**	9.16 U	NA	NA	NA	NA	NA	NA	NA	No Value	No Value	No Value
C12-C16 Aliphatic	NA	**1,880**	9.16 U	NA	NA	NA	NA	NA	NA	NA	No Value	No Value	No Value
C16-C21 Aliphatic	NA	**1,390**	**19**	NA	NA	NA	NA	NA	NA	NA	No Value	No Value	No Value
C21-C34 Aliphatic	NA	**1,180**	**527**	NA	NA	NA	NA	NA	NA	NA	No Value	No Value	No Value
C8-C10 Aromatic	NA	**23**	9.16 U	NA	NA	NA	NA	NA	NA	NA	No Value	No Value	No Value
C10-C12 Aromatic	NA	**73**	9.16 U	NA	NA	NA	NA	NA	NA	NA	No Value	No Value	No Value
C12-C16 Aromatic	NA	**540**	9.16 U	NA	NA	NA	NA	NA	NA	NA	No Value	No Value	No Value
C16-C21 Aromatic	NA	**958**	**30**	NA	NA	NA	NA	NA	NA	NA	No Value	No Value	No Value
C21-C34 Aromatic	NA	**316**	**470**	NA	NA	NA	NA	NA	NA	NA	No Value	No Value	No Value
VOCs (mg/kg)													
1,2,4-Trimethylbenzene	0.020 U	**10**	0.020 U	0.020 U	0.020 U	0.020 U	**0.036**	**0.17**	0.020 U	0.020 U	800	35,000	No Value
1,3,5-Trimethylbenzene	0.020 U	**3.6**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	**0.049**	0.020 U	0.020 U	800	35,000	No Value
Benzene	0.020 U	**0.34**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	18	2,400	0.020
Chloroethane	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U	No Value	No Value	No Value
Cumene	0.080 U	**0.56**	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	8,000	350,000	No Value
Ethylbenzene	0.030 U	**0.33**	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	8,000	350,000	**0.26**
Ethylene dibromide (EDB)	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.50	66	0.0050
n-Butylbenzene	0.020 U	**1.4**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	4,000	180,000	No Value
n-Propylbenzene	0.020 U	**0.95**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	8,000	350,000	No Value
p-Isopropyltoluene	0.020 U	**1.4**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	No Value	No Value	No Value
sec-Butylbenzene	0.020 U	**1.3**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	8,000	350,000	No Value
Tetrachloroethylene	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	480	21,000	0.029
Trichloroethylene	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	12	1,800	0.030
Xylenes, Total	0.030 U	**2.5**	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	16,000	700,000	14
1,1,1,2-Tetrachloroethane	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	Not Calculated	Not Calculated	Not Calculated
1,1,1-Trichloroethane	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	Not Calculated	Not Calculated	Not Calculated
1,1,2,2-Tetrachloroethane	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	Not Calculated	Not Calculated	Not Calculated
1,1,2-Trichloroethane	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	Not Calculated	Not Calculated	Not Calculated
1,1-Dichloroethane	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	Not Calculated	Not Calculated	Not Calculated
1,1-Dichloroethylene	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	Not Calculated	Not Calculated	Not Calculated
1,1-Dichloropropene	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	Not Calculated	Not Calculated	Not Calculated
1,2,3-Trichlorobenzene	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	Not Calculated	Not Calculated	Not Calculated
1,2,3-Trichloropropane	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	Not Calculated	Not Calculated	Not Calculated
1,2,4-Trichlorobenzene	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	Not Calculated	Not Calculated	Not Calculated
1,2-Cis-Dichloroethylene	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	Not Calculated	Not Calculated	Not Calculated
1,2-Dibromo-3-Chloropropane	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	Not Calculated	Not Calculated	Not Calculated
1,2-Dichlorobenzene	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	Not Calculated	Not Calculated	Not Calculated
1,2-Dichloroethane	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	Not Calculated	Not Calculated	Not Calculated
1,2-Dichloropropane	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	Not Calculated	Not Calculated	Not Calculated

Table 1: Summary of Soil Analytical Results

Constituent	Sample Location, Depth Interval (Feet bgs), and Sample Date										Soil Screening Levels[1]		
	B1	B2	B3	B4	B4	B5	B6	B7	B8	B9	Soil Direct Contact Screening Level for an Unrestricted Land Use Scenario (mg/kg)	Soil Direct Contact Screening Level for a Commercial/Industrial Land Use Scenario (mg/kg)	Soil-to-Groundwater-to Surface Water Screening Level (mg/kg)
	4'-5'	2'-4'	2'-3'	1'-3'	11'-12'	3'-4'	3'-4'	3'-5'	4'-5'	6'-7'			
	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020			
1,2-Trans-Dichloroethylene	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	Not Calculated	Not Calculated	Not Calculated
1,3-Cis-Dichloropropene	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	Not Calculated	Not Calculated	Not Calculated
1,3-Dichlorobenzene	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	Not Calculated	Not Calculated	Not Calculated
1,3-Dichloropropane	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	Not Calculated	Not Calculated	Not Calculated
1,3-Trans-Dichloropropene	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	Not Calculated	Not Calculated	Not Calculated
1,4-Dichlorobenzene	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	Not Calculated	Not Calculated	Not Calculated
2,2-Dichloropropane	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	Not Calculated	Not Calculated	Not Calculated
2-Chlorotoluene	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	Not Calculated	Not Calculated	Not Calculated
4-Chlorotoluene	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	Not Calculated	Not Calculated	Not Calculated
Bromobenzene	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	Not Calculated	Not Calculated	Not Calculated
Bromodichloromethane	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	Not Calculated	Not Calculated	Not Calculated
Bromoform	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	Not Calculated	Not Calculated	Not Calculated
Bromomethane	0.090 U	0.090 U	0.090 U	0.090 U	0.090 U	0.090 U	0.090 U	0.090 U	0.090 U	0.090 U	Not Calculated	Not Calculated	Not Calculated
Carbon Tetrachloride	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	Not Calculated	Not Calculated	Not Calculated
Chlorobenzene	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	Not Calculated	Not Calculated	Not Calculated
Chloroform	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	Not Calculated	Not Calculated	Not Calculated
Chloromethane	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U	Not Calculated	Not Calculated	Not Calculated
Dibromochloromethane	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	Not Calculated	Not Calculated	Not Calculated
Dichlorodifluoromethane (CFC-12)	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U	Not Calculated	Not Calculated	Not Calculated
Hexachlorobutadiene	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	Not Calculated	Not Calculated	Not Calculated
Methylene Bromide	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	Not Calculated	Not Calculated	Not Calculated
Methylene Chloride	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	Not Calculated	Not Calculated	Not Calculated
Methyl-t-butyl ether	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	Not Calculated	Not Calculated	Not Calculated
Styrene	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	Not Calculated	Not Calculated	Not Calculated
Tert-Butylbenzene	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	Not Calculated	Not Calculated	Not Calculated
Toluene	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	Not Calculated	Not Calculated	Not Calculated
Trichlorofluoromethane (CFC-11)	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	Not Calculated	Not Calculated	Not Calculated
Vinyl Chloride	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	Not Calculated	Not Calculated	Not Calculated
PAHs/SVOCs (mg/kg)													
3&4-Methylphenol coelution	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	No Value	No Value	No Value
Acenaphthene	0.046 U	**4.8**	0.041 U	0.038 U	**0.059**	0.054 U	0.058 U	0.058 U	0.044 U	0.038 U	4,800	210,000	**3.1**
Acenaphthylene	0.046 U	0.053 U	0.041 U	0.038 U	0.044 U	0.054 U	0.058 U	**0.16**	0.044 U	0.038 U	No Value	No Value	No Value
Anthracene	**0.089**	**1.5**	0.041 U	0.038 U	0.044 U	0.054 U	0.058 U	**0.28**	0.044 U	0.038 U	24,000	1,100,000	1.0
Benzo(ghi)perylene	**0.049**	0.053 U	0.041 U	0.038 U	0.044 U	0.054 U	**0.083**	**0.55**	0.044 U	0.038 U	No Value	No Value	No Value
Carbazole	NA	NA	NA	NA	NA	0.054 U	0.087 U	**0.099**	NA	NA	No Value	No Value	No Value
Fluoranthene	**0.67**	**0.92**	**0.35**	**0.076**	**0.15**	0.054 U	**0.080**	**0.24**	0.044 U	0.038 U	3,200	140,000	5.9
Fluorene	0.046 U	**6.1**	0.041 U	0.038 U	0.044 U	0.054 U	0.058 U	0.058 U	0.044 U	0.038 U	3,200	140,000	**1.6**
Naphthalenes, Total [2]	0.046 U	**53**	0.041 U	0.038 U	0.044 U	0.054 U	**0.52**	**0.17**	0.044 U	0.038 U	1,600	70,000	4.5
Phenanthrene	**0.069**	**17**	**0.083**	0.038 U	**0.062**	0.054 U	**0.077**	**0.13**	0.044 U	0.038 U	No Value	No Value	No Value
Phenol	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	24,000	1,100,000	43

Table 1: Summary of Soil Analytical Results

Constituent	Sample Location, Depth Interval (Feet bgs), and Sample Date										Soil Screening Levels[1]		
	B1	B2	B3	B4	B4	B5	B6	B7	B8	B9	Soil Direct Contact Screening Level for an Unrestricted Land Use Scenario (mg/kg)	Soil Direct Contact Screening Level for a Commercial/Industrial Land Use Scenario (mg/kg)	Soil-to-Groundwater-to Surface Water Screening Level (mg/kg)
	4'-5'	2'-4'	2'-3'	1'-3'	11'-12'	3'-4'	3'-4'	3'-5'	4'-5'	6'-7'			
	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020			
Pyrene	**0.93**	**1.7**	**0.35**	**0.073**	**0.12**	0.054 U	**0.076**	**0.28**	0.044 U	0.038 U	2,400	110,000	9.2
Total cPAHs TEF [3]	**0.22**	**0.050**	**0.15**	**0.076**	0.044 U	0.054 U	**0.055**	**0.56**	0.044 U	0.038 U	0.19	130	1.6
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	0.081 U	0.087 U	0.086 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
1,2-Dichlorobenzene	NA	NA	NA	NA	NA	0.081 U	0.087 U	0.086 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	0.081 U	0.087 U	0.086 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	0.081 U	0.087 U	0.086 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
2,4-Dichlorophenol	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
2,4-Dimethylphenol	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
2,4-Dinitrophenol	NA	NA	NA	NA	NA	0.57 U	0.61 U	0.61 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
2-Chloronaphthalene	NA	NA	NA	NA	NA	0.081 U	0.087 U	0.086 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
2-Chlorophenol	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
2-Nitroaniline	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
2-Nitrophenol	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
4,6-Dinitro-2-Methylphenol	NA	NA	NA	NA	NA	0.22 U	0.23 U	0.23 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	0.081 U	0.087 U	0.086 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
4-Chloro-3-Methylphenol	NA	NA	NA	NA	NA	0.22 U	0.23 U	0.23 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
4-Chloroaniline	NA	NA	NA	NA	NA	0.081 U	0.087 U	0.086 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
4-Chlorophenyl-Phenylether	NA	NA	NA	NA	NA	0.081 U	0.087 U	0.086 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
4-Nitrophenol	NA	NA	NA	NA	NA	0.54 U	0.58 U	0.58 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
Benzyl Alcohol	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
Bis(2-Chloroethoxy)Methane	NA	NA	NA	NA	NA	0.081 U	0.087 U	0.086 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
Bis(2-Chloroethyl)Ether	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
Bis(2-Ethylhexyl) Phthalate	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
Butyl benzyl phthalate	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
Dibenzofuran	NA	NA	NA	NA	NA	0.081 U	0.087 U	0.086 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
Dibutyl phthalate	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
Diethyl phthalate	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
Dimethyl phthalate	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
Di-N-Octyl Phthalate	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
Hexachlorobenzene	NA	NA	NA	NA	NA	0.081 U	0.087 U	0.086 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
Hexachlorobutadiene	NA	NA	NA	NA	NA	0.081 U	0.087 U	0.086 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
Hexachloroethane	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
Hexanedioic Acid, Bis(2-Ethylhexyl) Ester	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
Isophorone	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
Nitrobenzene	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
N-Nitrosodi-n-propylamine	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
o-Cresol	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated
Pentachlorophenol	NA	NA	NA	NA	NA	0.11 U	0.12 U	0.12 U	NA	NA	Not Calculated	Not Calculated	Not Calculated

Table 1: Summary of Soil Analytical Results

Constituent	Sample Location, Depth Interval (Feet bgs), and Sample Date										Soil Screening Levels[1]		
	B1	B2	B3	B4	B4	B5	B6	B7	B8	B9	Soil Direct Contact Screening Level for an Unrestricted Land Use Scenario (mg/kg)	Soil Direct Contact Screening Level for a Commercial/Industrial Land Use Scenario (mg/kg)	Soil-to-Groundwater-to Surface Water Screening Level (mg/kg)
	4'-5'	2'-4'	2'-3'	1'-3'	11'-12'	3'-4'	3'-4'	3'-5'	4'-5'	6'-7'			
	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020			
Metals (mg/kg)													
Arsenic	**6.5**	**10.0**	**7.3**	**8.0**	5.0 U	**7.0**	5.0 U	**8.2**	**9.2**	5.0 U	20	88	20
Barium	**87**	**294**	**57**	**72**	**42**	**88**	**120**	**103**	NA	NA	16,000	700,000	1,648
Cadmium	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	Not Calculated	Not Calculated	Not Calculated
Chromium	**14**	**37**	**12**	**14**	**24**	**23**	**13**	**20**	**10.5**	**6.7**	120,000	5,300,000	2,000
Lead	**38**	**16**	5.0 U	**10**	**9.2**	5.0 U	**7.2**	**11**	5.0 U	5.0 U	250	1,000	1,620
Mercury	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	Not Calculated	Not Calculated	Not Calculated
Selenium	**1.1**	**1.0**	**0.80**	**1.1**	**0.85**	**4.2**	**0.75**	**1.1**	NA	NA	400	18,000	5.2
Silver	**0.13**	**0.39**	0.084 U	0.082 U	0.086 U	0.090 U	0.091 U	0.098 U	NA	NA	400	18,000	**0.32**
Other (%)													
Total Organic Carbon	NA	NA	NA	**1.4**	NA	**0.077**	NA	**3.36**	NA	NA	No Value	No Value	No Value

Notes:

%: percent dry weight, feet bgs: feet below ground surface, mg/kg: milligrams per kilogram, NA: constituent not analyzed, No Value: a screening level cannot be calculated because no values exist in CLARC (Ecology 2020), Not calculated: screening level not calculated if constituent was not detected in any media (VOCs and SVOCs only), U: constituent not detected at shown reporting limit

Concentrations shown are the average of the duplicate samples, where applicable. If a constituent was detected in only one of the duplicate samples, the average of the laboratory reporting limit and the detected concentration is shown.

Bold compounds were detected at the shown concentration.

Highlighted concentrations exceed the soil direct contact screening level for unrestricted land use.

Highlighted concentrations exceed the soil direct contact screening level for commercial/industrial land use.

Highlighted concentrations exceed than the soil-to-groundwater screening level, but are less than ten times the screening level.

Highlighted concentrations are greater than ten times the soil-to-groundwater screening level.

[1] Screening Level derivations are provided in Appendix B.

[2] Total naphthalene concentrations were calculated by summing the concentrations of 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene. If one or more constituent was detected in the associated sample, the non-detect constituents were assumed to equal half of the laboratory reporting limit. If no constituents were detected in the associated sample, the maximum laboratory reporting limit for the associated individual constituents was shown.

[3] Total cPAH screening levels were based on the toxicity of benzo(a)pyrene in accordance with WAC 173-340-708(8). Total cPAH concentrations were calculated using MTCA toxicity equivalence factors (TEFs). If one or more cPAH was detected in the associated sample, the non-detect cPAH constituents were assumed to equal half of the laboratory reporting limit. If no cPAHs were detected in the associated sample, the maximum laboratory reporting limit for the associated individual cPAH constituents was shown.

Table 2: Summary of Groundwater Analytical Results

Constituent	Sample Location and Sample Date						Groundwater Screening Level[1] (ug/L)
	B1	B2	B3	B4	B5	B6	
	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	
Total Petroleum Hydrocarbons (ug/L)							
Diesel Range Organics (TPH-D)	200 U	200 U	200 U	200 U	200 U	200 U	500
Gasoline (TPH-G)	100 U	100 U	100 U	100 U	100 U	100 U	800
Heavy Fuel Oil (TPH-HO)	400 U	400 U	400 U	400 U	400 U	400 U	500
VOCs (ug/L)							
1,2,4-Trimethylbenzene	1.0 U	**3.2**	1.0 U	1.0 U	1.0 U	1.0 U	80
1,3,5-Trimethylbenzene	1.0 U	**1.1**	1.0 U	1.0 U	1.0 U	1.0 U	80
Benzene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.6
Chloroethane	2.0 U	**6.0**	2.0 U	2.0 U	2.0 U	2.0 U	No Value
Cumene	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	800
Ethylbenzene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	31
Ethylene dibromide (EDB)	0.010 U	0.010 U	**0.096**	0.010 U	0.010 U	**0.11**	0.050
n-Butylbenzene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	400
n-Propylbenzene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	800
p-Isopropyltoluene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	No Value
sec-Butylbenzene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	800
Tetrachloroethylene	1.0 U	1.0 U	1.0 U	1.0 U	**3.4**	1.0 U	2.9
Trichloroethylene	0.40 U	0.40 U	0.40 U	0.40 U	**0.55**	**0.51**	0.70
Xylenes, Total	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1,600
1,1,1,2-Tetrachloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
1,1,1-Trichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
1,1,2-Trichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
1,1-Dichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
1,1-Dichloroethylene	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	Not Calculated
1,1-Dichloropropene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
1,2,3-Trichlorobenzene	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	Not Calculated
1,2,3-Trichloropropane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
1,2,4-Trichlorobenzene	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	Not Calculated
1,2-Cis-Dichloroethylene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
1,2-Dibromo-3-Chloropropane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
1,2-Dichlorobenzene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
1,2-Dichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
1,2-Dichloropropane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
1,2-Trans-Dichloroethylene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
1,3-Cis-Dichloropropene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
1,3-Dichlorobenzene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
1,3-Dichloropropane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
1,3-Trans-Dichloropropene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
1,4-Dichlorobenzene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
2,2-Dichloropropane	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	Not Calculated
2-Chlorotoluene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
4-Chlorotoluene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
Bromobenzene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
Bromodichloromethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
Bromoform	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
Bromomethane	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	Not Calculated
Carbon Tetrachloride	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
Chlorobenzene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
Chloroform	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
Chloromethane	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	Not Calculated

Table 2: Summary of Groundwater Analytical Results

Constituent	Sample Location and Sample Date						Groundwater Screening Level[1] (ug/L)
	B1	B2	B3	B4	B5	B6	
	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	
Dibromochloromethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
Dichlorodifluoromethane (CFC-12)	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	Not Calculated
Hexachlorobutadiene	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	Not Calculated
Methylene Bromide	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
Methylene Chloride	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
Methyl-t-butyl ether	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	Not Calculated
Styrene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
Tert-Butylbenzene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
Toluene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	Not Calculated
Trichlorofluoromethane (CFC-11)	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	Not Calculated
Vinyl Chloride	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	Not Calculated
PAHs/SVOCs (ug/L)							
3&4-Methylphenol coelution	**1.5**	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	No Value
Acenaphthene	0.50 U	**0.70**	0.49 U	**1.2**	0.50 U	0.50 U	30
Acenaphthylene	0.50 U	0.50 U	0.49 U	0.50 U	0.50 U	0.50 U	No Value
Anthracene	0.50 U	0.50 U	0.49 U	0.50 U	0.50 U	0.50 U	100
Benzo(ghi)perylene	0.50 U	0.50 U	0.49 U	0.50 U	0.50 U	0.50 U	No Value
Carbazole	5.0 U	5.0 U	4.9 U	5.0 U	5.0 U	5.0 U	No Value
Fluoranthene	0.50 U	0.50 U	0.49 U	0.50 U	0.50 U	0.50 U	6.0
Fluorene	0.50 U	**0.73**	0.49 U	0.50 U	0.50 U	0.50 U	10.0
Naphthalenes, Total [2]	0.50 U	**12**	0.50 U	0.50 U	0.50 U	0.50 U	160
Phenanthrene	0.50 U	**0.88**	0.49 U	0.50 U	0.50 U	0.50 U	No Value
Phenol	**2.1**	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2,400
Pyrene	0.50 U	0.50 U	0.49 U	0.50 U	0.50 U	0.50 U	8.0
Total cPAHs TEF [3]	0.50 U	0.50 U	0.49 U	0.50 U	0.50 U	0.50 U	0.50
1,2,4-Trichlorobenzene	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
1,2-Dichlorobenzene	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
1,3-Dichlorobenzene	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
1,4-Dichlorobenzene	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
2,4,5-Trichlorophenol	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	Not Calculated
2,4,6-Trichlorophenol	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	Not Calculated
2,4-Dichlorophenol	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	Not Calculated
2,4-Dimethylphenol	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
2,4-Dinitrophenol	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	Not Calculated
2,4-Dinitrotoluene	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
2,6-Dinitrotoluene	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
2-Chloronaphthalene	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
2-Chlorophenol	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
2-Nitroaniline	5.0 U	5.0 U	4.9 U	5.0 U	5.0 U	5.0 U	Not Calculated
2-Nitrophenol	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	Not Calculated
4,6-Dinitro-2-Methylphenol	5.0 U	5.0 U	4.9 U	5.0 U	5.0 U	5.0 U	Not Calculated
4-Bromophenyl phenyl ether	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
4-Chloro-3-Methylphenol	5.0 U	5.0 U	4.9 U	5.0 U	5.0 U	5.0 U	Not Calculated
4-Chloroaniline	5.0 U	5.0 U	4.9 U	5.0 U	5.0 U	5.0 U	Not Calculated
4-Chlorophenyl-Phenylether	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
4-Nitrophenol	5.0 U	5.0 U	4.9 U	5.0 U	5.0 U	5.0 U	Not Calculated
Benzyl Alcohol	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
Bis(2-Chloroethoxy)Methane	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
Bis(2-Chloroethyl)Ether	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	Not Calculated
Bis(2-Ethylhexyl) Phthalate	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
Butyl benzyl phthalate	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated

Table 2: Summary of Groundwater Analytical Results

Constituent	Sample Location and Sample Date						Groundwater Screening Level[1] (ug/L)
	B1	B2	B3	B4	B5	B6	
	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	
Dibenzofuran	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
Dibutyl phthalate	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
Diethyl phthalate	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
Dimethyl phthalate	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
Di-N-Octyl Phthalate	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
Hexachlorobenzene	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
Hexachlorobutadiene	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
Hexachlorocyclopentadiene	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
Hexachloroethane	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
Hexanedioic Acid, Bis(2-Ethylhexyl) Ester	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
Isophorone	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
Nitrobenzene	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	Not Calculated
N-Nitrosodi-n-propylamine	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
o-Cresol	0.99 U	1.0 U	1.0 U	1.0 U	1.0 U	0.99 U	Not Calculated
Pentachlorophenol	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	Not Calculated
Metals (ug/L)							
Arsenic	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**9.8**	5.0
Barium	**125**	**56**	**178**	**65**	**8.9**	**9.4**	2,000
Cadmium	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	Not Calculated
Chromium	5.0 U	5.0 U	**11**	5.0 U	5.0 U	5.0 U	100
Lead	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	8.1
Mercury	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	Not Calculated
Selenium	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	50
Silver	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1.9

Notes:

No Value: a screening level cannot be calculated because no values exist in CLARC (Ecology 2020), Not Calculated: screening level not calculated if constituent was not detected in any media (VOCs and SVOCs only), ug/L: micrograms per liter, U: constituent not detected at the shown reporting limit

Concentrations shown are the average of the duplicate samples, where applicable. If a constituent was detected in only one of the duplicate samples, the average of the laboratory reporting limit and the detected concentration is shown.

Bold compounds were detected at the shown concentration.

Highlighted concentrations exceed than the groundwater as drinking water screening level, but are less than ten times the screening level.

Highlighted concentrations are greater than ten times the groundwater as drinking water screening level (no results are in this category).

[1] Screening level derivations are provided in Appendix B.

[2] Total naphthalene concentrations were calculated by summing the concentrations of 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene. If one or more constituent was detected in the associated sample, the non-detect constituents were assumed to equal half of the laboratory reporting limit. If no constituents were detected in the associated sample, the maximum laboratory reporting limit for the associated individual constituents was shown.

[3] Total cPAH concentrations were based on the toxicity of benzo(a)pyrene in accordance with WAC 173-340-708(8). Total cPAH concentrations were calculated using MTCA toxicity equivalence factors (TEFs). If one or more cPAH was detected in the associated sample, the non-detect cPAH constituents were assumed to equal half of the laboratory reporting limit. If no cPAHs were detected in the associated sample, the maximum laboratory reporting limit for the associated individual cPAH constituents was shown.

Appendix A

Sampling and Analysis Plan

Hardel Mutual Plywood Corporation
1210 West Bay Drive NW
Olympia, Washington

Prepared for:

West Bay Development Group LLC
8512 Canyon Road East
Suite 101
Puyallup, Washington 98371

Prepared using the City of Olympia's United Stated Brownfield Assessment Grant Funds, Cooperative Agreement # BF01J66201

Prepared by:

PIONEER TECHNOLOGIES CORPORATION

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April 2020

Sampling and Analysis Plan Approval

The Sampling and Analysis Plan for Hardel Mutual Plywood Corporation has been approved by the following Project Team members:

Name and Role	Signature and Date
Susan Morales USEPA Project Manager	May 6, 2020
Donald M. Brown USEPA Brownfields QA Manager	Raymond Wu 5/7/20 for Donald Brown
Mike Reid City of Olympia Grantee Project Manager	Mike Reid 4/30/20
Joel Hecker, LG PIONEER Project Manager	4/6/2020
Angela Noyan PIONEER QA Manager	4/6/2020

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Table 1 Proposed Sampling Design

List of Acronyms

Acronym	Explanation
bgs	Below Ground Surface
CAP	Cleanup Action Plan
City	City of Olympia
Ecology	Washington Department of Ecology
ESA	Environmental Site Assessment
Greylock	Greylock Consulting LLC
HREC	Historical REC
MTCA	Model Toxics Control Act
NAPL	Non-Aqueous Phase Liquid
PAH	Polynuclear Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PCP	Pentachlorophenol
PID	Photoionization Detector
PIONEER	PIONEER Technologies Corporation
Property	Hardel Mutual Plywood Corporation property
Prospective Purchaser	West Bay Development Group LLC
QAPP	Quality Assurance Project Plan
QC	Quality Control
RI/FS	Remedial Investigation/Feasibility Study
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
RL	Reporting Limit
SAP	Sampling and Analysis Plan
SMS	Washington State Sediment Management Standards
SVOC	Semi-Volatile Organic Compound
TOC	Total Organic Carbon
TPH	Total Petroleum Hydrocarbon
TPH-G	TPH in the gasoline range
TPH-D	TPH in the diesel range
TPH-HO	TPH in the heavy oil range
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound

SECTION 1: INTRODUCTION

PIONEER Technologies Corporation's (PIONEER's) project team prepared this Sampling and Analysis Plan (SAP) as a requirement of the United States Environmental Protection Agency (USEPA) brownfields grant program prior to using assessment grant funds for environmental assessment. The City of Olympia (City) intends to use its hazardous substances assessment grant (BF01J66201) funds on behalf of West Bay Development Group LLC (the prospective purchaser) to conduct an environmental assessment of the Hardel Mutual Plywood Corporation property, located at 1210 West Bay Drive NW, in Olympia, Thurston County, Washington (the Property). The general location of the Property is shown on Figure 1. The Property was determined to be eligible for the use of hazardous substance funds on February 20, 2020. The Quality Assurance Project Plan (QAPP) was submitted to USEPA and was approved on March 16, 2020.

The objective of the proposed environmental assessment is to evaluate current Property environmental conditions for the purpose of supporting environmental due diligence and liability management for a prospective purchase and redevelopment of the Property. Descriptions of the Property history and current environmental conditions; strategies and procedures for soil, groundwater, and soil vapor sampling; chemical analyses of collected soil, groundwater, and soil vapor samples; data evaluation and reporting; and the estimated project schedule are presented in the following sections.

SECTION 2: BACKGROUND INFORMATION

Summaries of the Property history, current Property conditions, and recognized environmental conditions (RECs) identified during a Phase I Environmental Site Assessment (ESA) of the Property completed on February 7, 2020 are presented in the following subsections. The Assessment Team's planned subsurface assessment activities to further evaluate the RECs are also summarized.

2.1 Property History

Logging and lumber related businesses began operating on the Property prior to 1924. Between 1924 and 1951, the Property was occupied by the Henry McCleary Timber Company, Olympia Harbor Lumber Company, Olympia Towing, and West Side Log Dump. From 1951 through 1996 the Property was occupied by Hardel Mutual Plywood Corporation as a plywood manufacturing facility. Hardel Mutual Plywood Corporation ended operations after a fire in 1996 severely damaged buildings on the Property. All buildings were subsequently demolished.

A series of investigations beginning in 2004 confirmed the presence of contamination, including (1) total petroleum hydrocarbons (TPH) in the diesel range (TPH-D) and heavy oil range (TPH-HO) in soil and groundwater, (2) non-aqueous phase liquid (NAPL) on the western portion of the Property, (3) polynuclear aromatic hydrocarbons (PAHs) in soil (northern portion of the Property) and in groundwater (southern portion of the Property), and (4) dioxins/furans and phthalates in off-shore sediment (Stemen Environmental 2004). In 2007, the Washington Department of Ecology (Ecology) issued an Agreed Order for completion of a Remedial Investigation/Feasibility Study (RI/FS) and interim action (e.g., cleanup) on the Property (Ecology 2007). The RI was completed in 2007 and the FS was completed in 2009 in compliance with Ecology's Agreed Order (Greylock Consulting LLC [Greylock] 2007, 2009a). The interim action consisted of NAPL removal and excavation and off-Property disposal of TPH- and PAH-impacted soils at concentrations exceeding Model Toxics Control Act (MTCA) Cleanup Levels for Unrestricted Land Use (Greylock 2009b). In 2010, approximately 23,331 tons of TPH- and PAH-impacted soil and debris was removed from three areas on the Property (Greylock 2010).

Between December 2010 and August 2011, four quarters of groundwater monitoring were completed on the Property to evaluate the effectiveness of the interim action cleanup. The results of the groundwater monitoring were compliant with MTCA Cleanup Levels for Unrestricted Land Use for TPH-D, TPH-HO, and PAHs (Greylock 2011). In 2012, Ecology issued the Final Cleanup Action Plan (CAP) (Ecology 2012a) and an Agreed Order Satisfaction letter (Ecology 2012b) stating that the Agreed Order had been satisfied. In the Final CAP, Ecology stated: "The interim action performed by Hardel completed all required cleanup of soil, groundwater and sediment at the Hardel Mutual Plywood Site."

Additionally, the Final CAP states: "Sediment containing phthalates and dioxins/furans are not associated with historic operations at this Site. Phthalates found in sediment [on] this Site are believed to have originated from residential neighborhoods to the West, having migrated by storm water, or from historic operations at the adjacent parcel to the South. Dioxins/furans were found at

concentrations ranging from 18 to 41 ng/kg in sediments at this Site. These dioxins/furans are believed to originate from an offsite source and are not known to have originated from historic operations on the uplands of this Site. There does not appear to be a direct linkage of dioxins/furans found in the intertidal sediment to the upland source area investigated in the remedial investigation of this Site. Dioxins/furans in sediments of Budd Inlet are believed to come from several upland sources including the former Cascade Pole facility."

The Agreed Order Satisfaction Letter reported that no additional remedial action was necessary at the Property unless new or different information become known (Ecology 2012b). The Property has been vacant land since the remedial activities were completed in 2010.

2.2 Current Conditions

As of the date of publication of this SAP, the western upland portion of the Property consists of vacant concrete-, asphalt-, crushed concrete-, shrub-, and grass-covered land; the remainder of the Property consists of intertidal and subtidal areas of Budd inlet. Budd Inlet adjoins the Property to the east. The Property was located in a mixed-use commercial and residential area west of downtown Olympia. The current Property features are shown on Figure 2.

2.3 Environmental Conditions

The following RECs associated with the Property were identified in the February 7, 2020 Phase I ESA for the Property (PIONEER 2020a):

- REC1: Fill material from an unknown source was used to expand the upland portion of the Property at various times over the past 150 years. The potential for environmental impact associated with the unknown origin and content of the fill material represents a REC in connection with the Property.
- REC2: The potential exists for the migration of environmental impact on to the Property through groundwater or soil vapor from historical uses of the south-adjoining former BMT Northwest/Reliable Steel site between at least 1941 and 2009. Historical uses of the site included boat building, steel fabrication, and welding as well as the presence of several underground storage tanks (USTs). Contaminants found above MTCA Cleanup Levels for Unrestricted Land Use and/or SMS included TPH in soil and sediment, metals (e.g., arsenic, cadmium, copper, lead, mercury, and zinc) in soil, groundwater, and sediment, PAHs in soil and sediment, polychlorinated biphenyls (PCBs) in soil, pentachlorophenol (PCP) in soil, and phthalates in sediment. No cleanup had been completed as of the publication date of this report.
- REC3: Off-shore sediment contains dioxins/furans and phthalates at concentrations exceeding Washington State Sediment Management Standards (SMS). Although Ecology has documented that historical uses of the Property were not responsible for dioxins/furans and phthalates in off-shore sediment, Ecology continues to investigate dioxins/furans in Budd Inlet sediment and could hypothetically change its position in the future.[1]

[1] The proposed assessment will focus on the upland portion of the Property and will not address this REC.

Due to the remedial actions and the results of post-remedial groundwater monitoring, the historical soil and groundwater contamination associated with industrial activities was not identified as a REC, but rather a Historical REC (HREC) in connection with the Property. The proposed sampling plan will also confirm that remediated soil and groundwater meet MTCA Cleanup Levels for Unrestricted Land Use.

2.4 Future Use of the Property

The anticipated future use of the Property will be used for mixed commercial and multi-family residential use.

2.5 Geologic Setting

The Property resides along Budd Inlet in Thurston County. Budd Inlet lies in the southern Puget lowlands which were subjected to multiple glaciations during the Pleistocene. Surface soils at the Property have been mapped as alluvium consisting of fine-grained flood plan deposits, marine alluvium, and artificial fill. Coastal bluffs to the west of the Property are comprised of glaciofluvial sands and gravels (Greylock 2007).

Upon review of boring logs, the subsurface of the Property consists of fill, marine sands, and varying amounts of wood from 0 to 25 feet below ground surface (bgs). In some areas poorly sorted gravel is present (Ecology 2012a).

Shallow groundwater at the site has been observed at depths ranging from 0.4 to 5 feet bgs. Although tidally influenced, the direction of groundwater flow at the Property is primarily towards Budd Inlet to the east (Ecology 2012a). At the northern portion of the site, the direction of groundwater flow is toward the east-northeast (Greylock 2011).

2.6 Susceptible Areas

Based on United States Fish and Wildlife National Wetland Inventory maps, the inter- and subtidal portion of the Property are designated as estuarine and marine wetland and estuarine and marine deep water. A small fringe along the northern and eastern boundary of the upland portion is designated as freshwater emergent wetland. West Bay Park is located approximately 1,100 feet to the south of the Property. The closest schools, Jefferson Middle School and Garfield Elementary School, are located approximately 1,300 feet to the west and southwest of the Property, respectively.

2.7 Conceptual Site Model

A simplified conceptual site model showing the possible pathways from sources through media and exposure scenarios to potential receptors is shown below.

Source of Concern	Primary Pathway	Secondary Pathway	Primary Receptors	Secondary Receptors	Primary Samples	Secondary Samples
Historic On-Site Operations and Fill Material	Direct Contact with Soil	Direct Contact with Groundwater	Future Residents/ Workers	Construction and Maintenance Workers	Soil Samples	Groundwater Samples
Migration from Off-Site Sources	Direct Contact with Groundwater	None	Future Residents/ Workers	Construction and Maintenance Workers	Groundwater Samples	None
Historic On-Site Operations and Fill Material and Migration from Off-Site Sources	Soil Migration to Groundwater to Surface Water	Groundwater Migration to Surface Water	Aquatic Receptors	Fish Consumption	Soil Samples	Groundwater Samples

2.8 Planned Site Assessment

The assessment activities described in this SAP are designed to evaluate the environmental conditions of the Property to support the following:

- Evaluate if upland contamination associated with REC1 and REC2 identified in the Phase I ESA is present.
- Confirm historical remedial actions (associated with the HREC) have removed soil contaminated at concentrations exceeding MTCA Method A/B Cleanup Levels for Unrestricted Land Use.
- If contamination is present, evaluate whether current environmental conditions warrant further investigation and/or remediation.

These Property assessment goals will be achieved through the following:

- Conducting limited subsurface activities to assess potential environmental impacts from historical use of the Property and surrounding sites, as identified during the Phase I ESA.
- If contamination is discovered, determine if regulated constituents are present at concentrations greater than MTCA Method A/B Cleanup Levels for Unrestricted Land Use.
- Generate sufficient data to determine if the future mixed commercial and multi-residential use could require remediation of soil, groundwater, and/or soil vapor (i.e., methane) to meet risk-based and regulatory goals.

This Phase II ESA includes spatial and temporal limitations. The spatial limit for this investigation consists of the Property boundary. The temporal limit is the season covered by the investigation since investigation results could vary based on seasonal weather changes. For the objectives of this Phase II ESA, temporal variation will not be assessed.

SECTION 3: SAMPLING PLAN

The sampling plan for the assessment activities is presented in this section. The sampling plan includes the following: 1) a summary of the planned soil, groundwater, and soil vapor sampling locations, 2) rationales for those locations, and 3) descriptions of procedures and methods for field sampling. A summary of the soil, groundwater, and soil vapor samples to be collected for this assessment is presented in Table 1 while sampling locations are shown on Figure 3.

3.1 Summary of Sampling Locations

PIONEER will advance 12 soil borings, including 6 with temporary monitoring wells and 3 with soil vapor probes, and will collect soil, groundwater, and soil vapor (methane only) samples, at the locations shown on Figure 3. The locations and number of sampling locations may change based on field conditions. Soil samples will be collected from each boring for visual classification, field screening, and potential laboratory analyses. PIONEER selected the sample locations to evaluate the RECs identified in the Phase I ESA and potential due care concerns related to the current and future planned uses of the Property. Specific sampling objectives and their respective sampling locations are discussed in the following paragraphs.

Soil borings B1 through B4 will be advanced along the edge of the Property's upland portion to characterize potential fill material (REC1). Each of the four borings will be advanced to a depth of 15 feet or five feet beyond the depth of first groundwater encountered, whichever is shallower, and will be converted to temporary monitoring wells. The temporary monitoring wells will assess remaining potential groundwater impact from historical operations (HREC). Soil samples will be retained from B1 and B3 only if evidence of fill material (e.g., debris) is present.

Soil borings B5 and B6 will be advanced along the southern perimeter of the Property to characterize potential fill material (REC1) and to assess potential migration of groundwater impact from the south-adjoining site (REC2). Both of the borings will be advanced to a depth of 15 feet or five feet beyond the depth of first groundwater encountered, whichever is shallower, and will be converted to temporary monitoring wells. Soil samples will be retained from B5 and B6 at the groundwater interface. A second soil sample will be retained from B5 and B6 only if evidence of fill material (e.g., debris) is present.

Soil borings B7 through B9 will be advanced to a depth of 10 feet bgs to assess potential remaining soil impact from historical operations (HREC). Soil boring B7 will be advanced in the center of former on-site operations. Soil boring B8 will be advanced adjacent to the reported location of the highest remaining TPH-D concentration in soil. Soil boring B9 will be advanced adjacent to the reported location of the highest remaining TPH-HO concentration in soil.

Soil vapor probes will be installed at sampling locations B10 through B12 to assess whether methane is a concern for future residential and commercial receptors. Subsurface methane may be present 1) in areas with significant quantities of fill material and wood debris, and 2) in areas with anoxic conditions in subsurface soil overlying shallow groundwater. These conditions suggest that it is possible that

methane could be present in the subsurface at the Property. The soil vapor probe locations on the Property were selected based on areas with previously identified wood debris. Soil samples will not be collected from these sample locations. Each of the three soil vapor probes will be installed two feet above the first encountered groundwater or at a maximum depth of six feet bgs, whichever is shallower. If groundwater is encountered at a depth less than four feet bgs, the soil vapor probes will not be installed.

3.2 Premobilization Coordination

Prior to beginning field work, the following will occur:

- Subcontracting with drillers and laboratories
- Completing required Health and Safety procedures for PIONEER and subcontractors
- Completing Public Utility Locate (i.e., 811)
- Obtain access agreement with Property owner
- Obtain sampling equipment and supplies

3.3 Sampling Procedures and Methods

Soil, groundwater, and soil vapor sampling, quality control (QC) sampling, and waste management procedures and methods are summarized in this subsection. Sampling activities will be conducted in accordance with the QAPP for the City, approved by USEPA, with subsequent updates as necessary (PIONEER 2020b).

3.3.1 Soil and Groundwater Sampling

PIONEER's field representative will collect soil and groundwater samples during sampling activities according to the methods described in SOP 1, Soil and Groundwater Sampling Using Direct-Push Methods, included in the QAPP. Details of sampling activities are described as follows:

- PIONEER's field representative will collect continuous soil samples from each boring, visually characterize them in the field, and note physical indicators of environmental contamination.
- PIONEER's field representative will field-screen the soil samples using a portable photoionization detector (PID) to identify the potential presence of volatile organic compounds (VOCs).
- PIONEER's field representative will collect soil samples for chemical analyses in accordance with the sampling design presented in Table 1.
- PIONEER's field representative will use the following criteria to determine one soil sample interval for chemical analyses in soil borings associated with the HREC. Where the PID results identify the potential presence of VOCs in a given boring, the interval with the highest reading will be selected for analyses. When there are no detectable PID results in a given boring, the following procedure and criteria will be used to determine the sample interval, in order of presentation:
    - If an interval has a specific odor that other intervals do not have, that interval will be selected for analysis.
    - If an interval has discoloration that does not appear to be the color of native soil, while other intervals appear to be the color of native soil, that interval will be selected for analysis.

    - In the absence of all indicators listed above within a given boring, the upper one-foot interval will be selected for analysis.
- For borings associated with REC1, PIONEER's field representative will collect a soil sample for analysis from a worst-case interval if signs of man-made impact (debris, obvious metals, other materials) are present in the boring in order to characterize fill material.
- For borings associated with REC2, PIONEER's field representative will collect a soil sample for analysis from a worst-case interval near the top of the groundwater interface.
- PIONEER's field representative will install and sample temporary, one-inch diameter, polyvinyl chloride (PVC) well assemblies fitted with five-foot long, pre-packed well screens in the open boreholes of B1 through B6 after soil samples are collected.
- PIONEER's field representative will collect the groundwater samples for chemical analyses from the temporary wells using a peristaltic pump at low-flow sampling rates, or a bailer. The sampling procedures will be consistent with those outlined in the QAPP.
- The driller will place purge water and soil cuttings generated back into their respective boreholes, fill the remaining space with hydrated bentonite, and restore the ground surface to match surrounding conditions.

The sample containers will be logged on the chain of custody, packaged for transportation, and transported to the laboratory for analysis.

3.3.2 Methane Soil Vapor Sampling

Methane will be evaluated at the Property using the guidance provided in ASTM E2993-16. Methane that is generated in the subsurface is typically positively pressurized which means that methane migration is predominantly driven by pressure driven flow, advection, and diffusion. This is different than typical vapor intrusion sites (e.g., dry cleaners) where movement of volatile organic compounds (VOCs), such as tetrachloroethylene, is driven by advection and diffusion. Consequently, one of the lines of evidence used in screening potential methane sites is whether or not positive pressure (with respect to atmospheric pressure) is present in the subsurface. Positive pressure indicates that methane gas (or other gas) is potentially being generated in the subsurface.

In addition, the concentrations of typical concern for methane are in the percent (volume/volume) versus parts per billion range for some VOCs. Consequently, the methods used to evaluate sites for methane are not as sensitive nor do they have to be as precise as typical vapor intrusion sites.

After installation, at least three volumes of air will be purged from each soil vapor probe using a GEM2000 landfill gas monitor. The soil vapor probes will be sealed with tape or rubber caps for at least four hours. After a minimum of four hours, PIONEER's field representative will use the GEM2000 to purge soil vapor for an additional 15 minutes, while documenting the concentrations of methane, oxygen, carbon dioxide, and differential pressure at each location. Atmospheric pressure will also be recorded. PIONEER will record the methane monitoring field data and conditions (e.g., personnel, weather, etc.) during the sampling event to assist with redevelopment planning.

3.3.3 Quality Assurance and Quality Control

PIONEER's field representative will minimize the potential for cross-contamination by using new, disposable, nitrile sampling gloves for collection of each sample; using new polyethylene and/or silicone sample tubing for collection of each groundwater and soil vapor sample; decontaminating soil sampling equipment before each use; and, calibrating field instruments in accordance with manufacturer's instructions.

PIONEER's field representative will collect field QC samples as described in SOP 6, Field Quality Control Samples, included in the project QAPP and as summarized in Table 1. The sample handling and custody requirements, laboratory analytical methods, target reporting limits (RLs), and reporting protocols will be consistent with those outlined in the project QAPP.

3.3.4 Waste Management

We will manage investigation derived wastes as described in SOP 12, Investigative Derived Wastes, included in the project QAPP. Purge water and soil cuttings will be placed back into their respective boreholes.

SECTION 4: ANALYSIS PLAN

The target constituents for the soil and groundwater samples were selected based on the project goals and the suspected historical chemical use at the Property and adjoining sites.[2] The specific constituents for each sampling location are presented in Table 1. The target constituents for the assessment will include VOCs, TPH-gasoline (TPH-G), TPH-D, TPH-HO, PAHs, semi-volatile organic compounds (SVOCs), Resource Conservation and Recovery Act (RCRA) metals (arsenic, barium, cadmium, total chromium, lead, mercury, selenium, and silver), hexavalent chromium, and total organic carbon (TOC). Laboratory analyses and field screening will be performed as described in the project QAPP. Samples will be submitted to Libby Environmental in Olympia, Washington for shipment to a subcontracted laboratory, per the QAPP, or analyzed using the following referenced methods:

- VOCs - USEPA Method 8260B
- TPH-G, TPH-D, and TPH-HO - Ecology Method NWTPH-HCID followed by Ecology Method NWTPH-Gx and Dx
- SVOCs/PAHs - USEPA Method 8270LVI
- Metals – USEPA Methods 6020, 7196, and 7470/7471
- TOC – USEPA Method 9060

Laboratory testing, analysis method target RLs, quality assurance/QC procedures, and reporting protocols used or performed by the laboratories will be consistent with those described in the project QAPP and the needs of the project. Laboratory analytical results will be compared to MTCA Method A/B Cleanup Levels for Unrestricted Land Use.

[2] Soil vapor will be analyzed in the field for methane. No additional soil vapor analyses is planned.

SECTION 5: DATA EVALUATION AND REPORTING

Data collected during this Property assessment will be evaluated as described in Section 4.0 – Data Verification/Validation and Usability of the project QAPP (PIONEER 2020b). Following data review, verification, and validation, PIONEER will prepare a Phase II ESA report summarizing the results. The report will include details of the activities performed, procedures followed, chemical analyses results, and recommendations. The reports will include a sampling location diagram, tabulated analytical results, soil boring logs, a copy of the laboratory analytical report for all samples collected, and a copy of the chain-of-custody records.

SECTION 6: ESTIMATED SCHEDULE

The environmental activities described in this SAP are to be implemented according to the schedule presented below. This schedule is in weeks relative to EPA approval of the SAP.

- Field Sampling: Week 4
- Laboratory Analyses: Week 5 through Week 6
- Data Evaluation and Reporting: Week 8 through Week 12

The Coronavirus Pandemic may delay this schedule.

SECTION 7: REFERENCES

Ecology. 2007. Hardel Mutual Plywood, Inc., Agreed Order for Remedial Investigation, Feasibility Study, and Interim Actions. April.

Ecology. 2012a. Final Cleanup Action Plan. Hardel Mutual Plywood. April.

Ecology. 2012b. Satisfaction of Agreed Order No. DE4108: Hardell Mutual Plywood. August.

Greylock Consulting LLC. 2007. Remedial Investigation Report. Former Hardel Plywood Site. December.

Greylock Consulting LLC. 2009a. Feasibility Study. Former Hardel Plywood Site. May.

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Greylock Consulting LLC. 2010. Interim Action Closure Report. Former Hardel Plywood Site. December.

Greylock Consulting LLC. 2011. Post-Construction Groundwater Monitoring Summary of Four Quarters. Former Hardel Plywood Site. November.

Stemen Environmental, Inc. 2004. Phase II ESA Report, Former Hardel Mutual Plywood Waterfront Property. July.

PIONEER. 2020a. Phase I Environmental Site Assessment for the Hardel Mutual Plywood Corporation, Olympia, Washington. February.

PIONEER. 2020b. Quality Assurance Project Plan for the City of Olympia's Brownfield Assessment Grant. March.

Figures

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PIONEER TECHNOLOGIES CORPORATION

Property Location Map
Hardel Mutual Plywood Corporation
Sampling and Analysis Plan
1210 West Bay Drive NW
Olympia, WA

Figure 1

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Legend

Reported Locations of Monitoring Wells (not located during Property Reconnaisance)

Cleanup Actions

Extent of Clean Crushed Concrete Cover

Extent of Remedial Excavations

Site Features

Abandoned Rail Spur

Parcel Boundary

Property Boundary

Notes:
-Features shown are approximate.
-Aerial photo obtained from Google Earth dated 7/21/2018.
-Locations of remedial excavations, clean crushed concrete cover, and monitoring wells obtained from Ecology's March 2012 Draft Cleanup Action Plan Fact Sheet.

0 100 200 300 Feet

PIONEER TECHNOLOGIES CORPORATION

Current Property Features Diagram
Hardel Mutual Plywood Corporation
Sampling and Analysis Plan
1210 West Bay Drive NW
Olympia, WA

Figure 2

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Legend

Proposed Sample Location

- Soil Sample
- Soil Vapor Sample
- Soil and Groundwater Sample

Cleanup Actions

- Extent of Clean Crushed Concrete Cover
- Extent of Remedial Excavations

Site Features

- Abandoned Rail Spur
- Parcel Boundary
- Property Boundary

Notes:
-Features shown are approximate.
-Aerial photo obtained from Google Earth dated 7/21/2018.
-Locations of remedial excavations, and clean crushed concrete cover from Ecology's March 2012 Draft Cleanup Action Plan Fact Sheet.

0 100 200 300 Feet

PIONEER TECHNOLOGIES CORPORATION

Proposed Sampling Location Diagram
Hardel Mutual Plywood Corporation
Sampling and Analysis Plan
1210 West Bay Drive NW
Olympia, WA

Figure 3

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Tables

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Table 1: Proposed Sampling Design

Boring ID	Boring Location Note[1]	Estimated Boring Depth (in feet bgs)	Media	Sample Purpose	Contingent Sample?	Constituents: VOCs	TPH-G, D, and HO (w/o SGC)[2]	PAHs	SVOCs	RCRA8 Metals[3,4]	Methane[5]	TOC[6]	Cr VI[6]
B1	Downgradient of historical operations	15	Soil	Characterize potential fill materials (e.g., debris), if encountered (REC1).	Yes	1	1	1		1		2	2
			GW	Characterize potential remaining impact from historical operations (HREC).	No	1	1		1	1			
B2	Downgradient of historical operations	15	Soil	Characterize fill materials (REC1).	No	1	1	1		1			
			GW	Characterize potential remaining impact from historical operations (HREC).	No	1	1		1	1			
B3	Downgradient of historical operations	15	Soil	Characterize potential fill materials (e.g., debris), if encountered (REC1).	Yes	1	1	1		1			
			GW	Characterize potential remaining impact from historical operations (HREC).	No	1	1		1	1			
B4	Downgradient of historical operations	15	Soil	Characterize fill materials (REC1).	No	1	1	1		1			
			GW	Characterize potential remaining impact from historical operations (HREC).	No	1	1		1	1			
B5	Adjacent to Reliable Steel	15	Soil	Characterize potential fill materials (e.g., debris), if encountered (REC1).	Yes	1	1	1		1			
				Characterize potential impacts from off-property at GW interface (REC2).	No	1	1		1	1			
			GW	Characterize potential impacts from off-property (REC2).	No	1	1		1	1			
B6	Adjacent to Reliable Steel	15	Soil	Characterize potential fill materials (e.g., debris), if encountered (REC1).	Yes	1	1	1		1			
				Characterize potential impacts from off-property at GW interface (REC2).	No	1	1		1	1			
			GW	Characterize potential impacts from off-property (REC2).	No	1	1		1	1			
B7	Center of former Site operations	10	Soil	Characterize potential remaining impact from historical operations (HREC).	No	1	1		1	1			
B8	Adjacent to highest remaining TPH-D in soil (at 4' depth)	10	Soil	Verify maximum remaining TPH-D concentration (HREC).	No	1	1	1					
B9	Adjacent to highest remaining TPH-HO in soil (at 6' depth)	10	Soil	Verify maximum remaining TPH-HO concentration (HREC).	No	1	1	1					
B10	Northern upland portion to evaluate methane buildup[5]	6	Vapor	Verify methane concentrations due to potential degradation of organic material in fill.	No						1		
B11	Central upland portion to evaluate methane buildup[5]	6	Vapor	Verify methane concentrations due to potential degradation of organic material in fill.	No						1		
B12	Southern upland portion to evaluate methane buildup[5]	6	Vapor	Verify methane concentrations due to potential degradation of organic material in fill.	No						1		
Field QC Samples[7]			Soil	Field duplicate	No	1	1		1	1			
			GW	Field duplicate	No	1	1		1	1			
			Soil	Equipment rinsate blank	No	1	1		1	1			
			GW	VOC trip blank	No	1							
					Sample Count	21	20	8	12	18	3	2	2

Table Notes:

bgs: below ground surface, VOCs: volatile organic compounds, TPH-D, G, and HO: total petroleum hydrocarbons in the gasoline, diesel, and heavy oil range, SGC: silica gel cleanup, PAHs: Polynuclear Aromatic Hydrocarbons, SVOCs: semi-volatile organic compounds, RCRA8 Metals: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver, TOC: total organic carbon, Cr VI: hexavalent chromium, GW: groundwater, QC: quality control.

[1] Boring locations will be adjusted as necessary in the field based on overhead power lines, underground utilities, etc.

[2] Volatile Petroleum Hydrocarbons (VPH) and Extractable Petroleum Hydrocarbons (EPH) will also be collected for each sample to potentially run on the most contaminated samples (if TPH contamination is encountered). This may be used to develop site-specific Method B TPH Cleanup Levels for Unrestricted land Use.

[3] All groundwater samples for metals analyses will be field filtered with a 0.45-micron filter.

[4] RCRA8 metals include arsenic, barium, cadmium, total chromium, lead, mercury, selenium, and silver.

[5] Methane will be evaluated in the field using a GEM 2000 Landfill Gas Monitor. Oxygen, carbon dioxide, and differential pressure will also be recorded. Samples will not be submitted to the laboratory.

[6] All soil samples will be held for possible TOC and Cr VI analyses. Two lithologically representative samples that do not have detections of organic compounds will be analyzed for TOC. If the maximum Cr concentration exceeds 48 mg/kg, the two samples with the highest Cr concentration will be analyzed for Cr VI.

[7] Frequency expectations for field QC samples will be one sample per 20 samples per matrix (except VOC trip blanks will be one sample per cooler). No aqueous equipment blank is needed as each sample will be collected with clean dedicated equipment.

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Appendix B

Table B-1: Calculation of Soil Direct Contact Screening Levels

Constituent	Unrestricted Land Use Scenario			Commercial/Industrial Land Use Scenario		
	Standard Method B Soil Value for Carcinogens [1] (mg/kg)	Standard Method B Soil Value for Non-carcinogens [1] (mg/kg)	Soil Direct Contact Screening Level for an Unrestricted Land Use Scenario [2] (mg/kg)	Standard Method C Soil Value for Carcinogens [1] (mg/kg)	Standard Method C Soil Value for Non-carcinogens [1] (mg/kg)	Soil Direct Contact Screening Level for a Commercial/Industrial Land Use Scenario [2] (mg/kg)
TPH						
TPH-D [4]	--	--	3,000	--	--	39,000
TPH-G [4]	--	--	4,700	--	--	150,000
TPH-HO [4]	--	--	3,000	--	--	39,000
VOCs						
1,2,4-Trimethylbenzene	--	800	800	--	35,000	35,000
1,3,5-Trimethylbenzene	--	800	800	--	35,000	35,000
Benzene	18	320	18	2,400	14,000	2,400
Chloroethane	--	--	No Value [3]	--	--	No Value [3]
Cumene	--	8,000	8,000	--	350,000	350,000
Ethylbenzene	--	8,000	8,000	--	350,000	350,000
Ethylene Dibromide (EDB)	0.50	720	0.50	66	32,000	66
n-Butylbenzene	--	4,000	4,000	--	180,000	180,000
n-Propylbenzene	--	8,000	8,000	--	350,000	350,000
p-isopropyltoluene	--	--	No Value [3]	--	--	No Value [3]
sec-Butylbenzene	--	8,000	8,000	--	350,000	350,000
Tetrachloroethylene	480	480	480	63,000	21,000	21,000
Trichloroethylene	12	40	12	2,900	1,800	1,800
Xylenes, Total	--	16,000	16,000	--	700,000	700,000
SVOCs/PAHs						
3&4 Methylphenol coelution	--	--	No Value [3]	--	--	No Value [3]
Acenaphthene	--	4,800	4,800	--	210,000	210,000
Acenaphthylene	--	--	No Value [3]	--	--	No Value [3]
Anthracene	--	24,000	24,000	--	1,100,000	1,100,000
Benzo(ghi)perylene	--	--	No Value [3]	--	--	No Value [3]
Carbazole	--	--	No Value [3]	--	--	No Value [3]
Fluoranthene	--	3,200	3,200	--	140,000	140,000
Fluorene	--	3,200	3,200	--	140,000	140,000
Naphthalenes, Total	--	1,600	1,600	--	70,000	70,000
Phenanthrene	--	--	No Value [3]	--	--	No Value [3]
Phenol	--	24,000	24,000	--	1,100,000	1,100,000
Pyrene	--	2,400	2,400	--	110,000	110,000
Total cPAHs TEF [5]	0.19	24	0.19	130	1,100	130
Metals						
Arsenic	0.67	24	20 [6]	88	1,100	88
Barium	--	16,000	16,000	--	700,000	700,000
Chromium (III)	--	120,000	120,000	--	5,300,000	5,300,000
Lead [7]	--	--	250	--	--	1,000
Selenium	--	400	400	--	18,000	18,000
Silver	--	400	400	--	18,000	18,000

Notes:

--: No value exists for this constituent in the CLARC database (Ecology 2020).

All values are presented as two significant figures in standard notation.

Screening levels are shown only if the constituent was detected in one or more media.

[1] Values from CLARC (Ecology 2020), unless otherwise noted.

[2] The screening level is the most stringent of the carcinogenic and non-carcinogenic values.

[3] A screening level cannot be calculated because no values exist in CLARC (Ecology 2020). In addition, in the case of alkylbenzenes and non-carcinogenic PAHs, the constituents are components of petroleum products that are already accounted for in the TPH cleanup levels (e.g., see footnote 14(a) to MTCA Table 830-1).

[4] Default TPH-D, TPH-G, and TPH-HO direct contact values for an unrestricted land use scenario (Ecology 2001a) and a commercial/industrial land use scenario (Ecology 2001b). Site-specific TPH screening levels may be calculated in the future.

[5] Total cPAH screening levels were based on the toxicity of benzo(a)pyrene in accordance with WAC 173-340-708(8). Total cPAH concentrations will be calculated using MTCA toxicity equivalence factors (TEFs).

[6] Adjusted to accepted soil background concentration of 20 mg/kg per WAC 173-340-740(5)(c) (see MTCA Table 740-1 footnote b).

[7] MTCA Method A soil cleanup levels for lead.

Table B-2: Calculation of Groundwater as Drinking Water Screening Levels

Constituent	MTCA Method A Groundwater Cleanup Level [1] (ug/L)	Standard Method B Groundwater Value for Carcinogens [1] (ug/L)	Standard Method B Groundwater Value for Non-Carcinogens [1] (ug/L)	Maximum Contaminant Level (MCL) [1] (ug/L)	Groundwater Screening Level [2] (ug/L)
TPH					
TPH-D	500	--	--	--	500
TPH-G	800 [3]	--	--	--	800
TPH-HO	500	--	--	--	500
VOCs					
1,2,4-Trimethylbenzene	--	--	80	--	80
1,3,5-Trimethylbenzene	--	--	80	--	80
Benzene	5.0	0.80	32	5.0	5.0 [4]
Chloroethane	--	--	--	--	No Value [5]
Cumene	--	--	800	--	800
Ethylbenzene	700	--	800	700	700
Ethylene Dibromide (EDB)	0.010	0.022	72	0.050	0.050 [4]
n-Butylbenzene	--	--	400	--	400
n-Propylbenzene	--	--	800	--	800
p-isopropyltoluene	--	--	--	--	No Value [5]
sec-Butylbenzene	--	--	800	--	800
Tetrachloroethylene	5.0	21	48	5.0	5.0
Trichloroethylene	5.0	0.54	4.0	5.0	4.0 [4]
Xylenes, Total	1,000	--	1,600	10,000	1,600
SVOCs/PAHs					
3&4 Methylphenol coelution	--	--	--	--	No Value [5]
Acenaphthene	--	--	960	--	960
Acenaphthylene	--	--	--	--	No Value [5]
Anthracene	--	--	4,800	--	4,800
Benzo(ghi)perylene	--	--	--	--	No Value [5]
Carbazole	--	--	--	--	No Value [5]
Fluoranthene	--	--	640	--	640
Fluorene	--	--	640	--	640
Naphthalenes, Total	160	--	160	--	160
Phenanthrene	--	--	--	--	No Value [5]
Phenol	--	--	2,400	--	2,400
Pyrene	--	--	480	--	480
Total cPAHs TEF [6]	0.10	0.023	4.8	0.20	0.50 [7]
Metals					
Arsenic	5.0	0.058	4.8	10.0	5.0 [8]
Barium	--	--	3,200	2,000	2,000
Chromium (total)	50	--	--	100	100
Lead	15	--	--	15	15
Selenium	--	--	80	50	50
Silver	--	--	80	--	80

Notes:

--: No value exists for this constituent in the CLARC database (Ecology 2020).

All values are presented as two significant figures in standard notation.

Screening levels are shown only if the constituent was detected in one or more media.

[1] Values from CLARC (Ecology 2020), unless otherwise noted.

[2] The screening level is the most stringent of the standard Method B groundwater value for carcinogens, the standard Method B groundwater value for non-carcinogens, and the MCL, unless otherwise noted. The MTCA Method A groundwater cleanup level was used if no other values were available. Site-specific TPH screening levels may be calculated in the future. Some screening levels may need to be adjusted up to the practical quantitation limit in accordance with WAC 173-340-720(7)(c).

[3] Because benzene is present in groundwater, the MTCA Method A groundwater cleanup level of 800 ug/L applies.

[4] In accordance with WAC 173-340-720(7)(b), the standard Method B value for carcinogens was adjusted upward towards the MCL by a maximum factor of ten (not to exceed the MCL).

[5] A screening level cannot be calculated because no values exist in CLARC (Ecology 2020). In addition, in the case of alkylbenzenes and non-carcinogenic PAHs, the constituents are components of petroleum products that are already accounted for in the TPH cleanup levels (e.g., see footnote 14(a) to MTCA Table 830-1).

[6] Total cPAH screening levels were based on the toxicity of benzo(a)pyrene in accordance with WAC 173-340-708(8). Total cPAH concentrations will be calculated using MTCA toxicity equivalence factors (TEFs).

[7] Adjusted up to the pratical quantification limit per WAC 173-340-720(7)(c).

[8] Adjusted to accepted groundwater background concentration of 5 ug/L per WAC 173-340-720(7)(c) (see MTCA Table 720-1 footnote b).

Table B-3: Calculation of Surface Water Screening Levels

Constituent	Standard Method B Surface Water Value for Carcinogens [1] (ug/L)	Standard Method B Surface Water Value for Non-Carcinogens [1] (ug/L)	Surface Water Value for Acute Marine Aquatic Life 173-201A WAC [1] (ug/L)	Surface Water Value for Acute Marine Aquatic Life CWA §304 [1] (ug/L)	Surface Water Value for Chronic Marine Aquatic Life 173-201A WAC [1] (ug/L)	Surface Water Value for Chronic Marine Aquatic Life CWA §304 [1] (ug/L)	Surface Water Value for Human Health in Marine Waters 173-201A WAC [1] (ug/L)	Surface Water Value for Human Health in Marine Waters 40 CFD 131.45 [1] (ug/L)	Surface Water Value for Human Health in Marine Waters CWA §304 [1] (ug/L)	Surface Water Screening Level [2] (ug/L)
TPH										
TPH-D	--	--	--	--	--	--	--	--	--	No Value [3]
TPH-G	--	--	--	--	--	--	--	--	--	No Value [3]
TPH-HO	--	--	--	--	--	--	--	--	--	No Value [3]
VOCs										
1,2,4-Trimethylbenzene	--	--	--	--	--	--	--	--	--	No Value [3]
1,3,5-Trimethylbenzene	--	--	--	--	--	--	--	--	--	No Value [3]
Benzene	23	2,000	--	--	--	--	1.6	--	16	1.6
Chloroethane	--	--	--	--	--	--	--	--	--	No Value [3]
Cumene	--	--	--	--	--	--	--	--	--	No Value [3]
Ethylbenzene	--	6,900	--	--	--	--	270	31	130	31
Ethylene dibromide (EDB)	--	--	--	--	--	--	--	--	--	No Value [3]
n-Butylbenzene	--	--	--	--	--	--	--	--	--	No Value [3]
n-Propylbenzene	--	--	--	--	--	--	--	--	--	No Value [3]
p-Isopropyltoluene	--	--	--	--	--	--	--	--	--	No Value [3]
sec-Butylbenzene	--	--	--	--	--	--	--	--	--	No Value [3]
Tetrachloroethylene	100	500	--	--	--	--	7.1	2.9	29	2.9
Trichloroethylene	4.9	120	--	--	--	--	0.86	0.70	7.0	0.70
Xylenes, Total	--	--	--	--	--	--	--	--	--	No Value [3]
SVOCs/PAHs										
3&4-Methylphenol coelution	--	--	--	--	--	--	--	--	--	No Value [3]
Acenaphthene	--	640	--	--	--	--	110	30	90	30
Acenaphthylene	--	--	--	--	--	--	--	--	--	No Value [3]
Anthracene	--	26,000	--	--	--	--	4,600	100	400	100
Benzo(ghi)perylene	--	--	--	--	--	--	--	--	--	No Value [3]
Carbazole	--	--	--	--	--	--	--	--	--	No Value [3]
Fluoranthene	--	90	--	--	--	--	16	6.0	20	6.0
Fluorene	--	3,500	--	--	--	--	610	10.0	70	10.0
Naphthalenes, Total	--	4,900	--	--	--	--	--	--	--	4,900
Phenanthrene	--	--	--	--	--	--	--	--	--	No Value [3]
Phenol	--	560,000	--	--	--	--	200,000	70,000	300,000	70,000
Pyrene	--	2,600	--	--	--	--	460	8.0	30	8.0
Total cPAHs TEF [4]	0.035	26	--	--	--	--	0.0021	0.000016	0.00013	0.50 [5]
Metals										
Arsenic	0.098	18	69	69	36	36	10.0	0.14	0.14	5.0 [6]
Barium	--	--	--	--	--	--	--	--	--	No Value [3]
Chromium (total)	--	240,000	--	--	--	--	--	--	--	240,000
Lead	--	--	210	210	8.1	8.1	--	--	--	8.1
Selenium	--	2,700	290	290	71	71	480	200	4,200	71
Silver	--	26,000	1.9	1.9	--	--	--	--	--	1.9

Notes:

--: No value exists for this constituent in the CLARC database (Ecology 2020).

All values are presented as two significant figures in standard notation.

Screening levels are shown only if the constituent was detected in one or more media.

[1] Values from CLARC (Ecology 2020), unless otherwise noted.

[2] The screening level is the most stringent of the standard Method B surface water value for carcinogens, the standard Method B surface water value for non-carcinogens, the 173-210A WAC and CWA §304 acute marine aquatic life values, the 173-210A WAC and CWA §304 chronic marine aquatic life values, and the 173-210A WAC, CWA §304, and 40 CFR 131.45 human health marine water values, unless otherwise noted. Some screening levels may need to be adjusted up to the practical quantitation limit in accordance with WAC 173-340-730(3)(c).

[3] A screening level cannot be calculated because no values exist in CLARC (Ecology 2020).

[4] Total cPAH screening levels were based on the toxicity of benzo(a)pyrene in accordance with WAC 173-340-708(8). Total cPAH concentrations will be calculated using MTCA toxicity equivalence factors (TEFs).

[5] Adjusted up to the pratical quantification limit per WAC 173-340-730(5)(c).

[6] Adjusted to accepted surface water background concentration of 5 ug/L per WAC 173-340-730(5)(c).

Table B-4: Calculation of Groundwater Screening Levels

Constituent	Groundwater as Drinking Water Screening Level [1] (ug/L)	Surface Water Screening Level [2] (ug/L)	Groundwater Screening Level [3] (ug/L)
TPH			
TPH-D	500	No Value	500
TPH-G	800	No Value	800
TPH-HO	500	No Value	500
VOCs			
1,2,4-Trimethylbenzene	80	No Value	80
1,3,5-Trimethylbenzene	80	No Value	80
Benzene	5.0	1.6	1.6
Chloroethane	No Value	No Value	No Value
Cumene	800	No Value	800
Ethylbenzene	700	31	31
Ethylene dibromide (EDB)	0.050	No Value	0.050
n-Butylbenzene	400	No Value	400
n-Propylbenzene	800	No Value	800
p-Isopropyltoluene	No Value	No Value	No Value
sec-Butylbenzene	800	No Value	800
Tetrachloroethylene	5.0	2.9	2.9
Trichloroethylene	4.0	0.70	0.70
Xylenes, Total	1,600	No Value	1,600
SVOCs/PAHs			
3&4-Methylphenol coelution	No Value	No Value	No Value
Acenaphthene	960	30	30
Acenaphthylene	No Value	No Value	No Value
Anthracene	4,800	100	100
Benzo(ghi)perylene	No Value	No Value	No Value
Carbazole	No Value	No Value	No Value
Fluoranthene	640	6.0	6.0
Fluorene	640	10.0	10.0
Naphthalenes, Total	160	4,900	160
Phenanthrene	No Value	No Value	No Value
Phenol	2,400	70,000	2,400
Pyrene	480	8.0	8.0
Total cPAHs TEF	0.50	0.50	0.50
Metals			
Arsenic	5.0	5.0	5.0
Barium	2,000	No Value	2,000
Chromium (total)	100	240,000	100
Lead	15	8.1	8.1
Selenium	50	71	50
Silver	80	1.9	1.9

Notes:

All values are presented as two significant figures in standard notation.

Screening levels are shown only if the constituent was detected in one or more media.

[1] See Table B-2 for calculation of groundwater as drinking water screening levels.

[2] See Table B-3 for calculation of surface water screening levels.

[3] The screening level is the most restrictive of the groundwater as drinking water and surface water screening levels.

Table B-5: Calculation of Soil-to-Groundwater Screening Levels

Constituent	Groundwater Screening Level [1] (ug/L)	Physiochemical Properties [2]				Soil-to-Groundwater Calculations		
		Henry's Law Constant (Hcc) (unitless)	Organic Carbon Partitioning Coefficient (Koc) (L/kg)	Aqueous Solubility (mg/L)	Distribution Coefficient (Kd) for Metals (L/kg)	Soil Concentration Protective of Groundwater Screening Level [3] (mg/kg)	Soil Saturation Concentration [4] (mg/kg)	Soil-to-Groundwater Screening Level [5] (mg/kg)
TPH								
TPH-D	500	--	--	--	Not applicable	1,000,000 [7]	2,000 [8]	2,000
TPH-G	800	--	--	--	Not applicable	30 [7]	1,000 [8]	30
TPH-HO	500	--	--	--	Not applicable	1,000,000 [7]	2,000 [8]	2,000
VOCs								
1,2,4-Trimethylbenzene	80	--	--	--	Not applicable	--	--	No Value [6]
1,3,5-Trimethylbenzene	80	0.11	--	--	Not applicable	--	--	No Value [6]
Benzene	1.6	0.13	62	1,750	Not applicable	0.0088	479	0.020 [9]
Chloroethane	No Value	--	--	--	Not applicable	--	--	No Value [6]
Cumene	800	0.26	--	--	Not applicable	--	--	No Value [6]
Ethylbenzene	31	0.16	204	169	Not applicable	0.26	71	0.26
Ethylene Dibromide (EDB)	0.050	0.015	66	--	Not applicable	0.00027	--	0.0050 [9]
n-Butylbenzene	400	0.24	--	--	Not applicable	--	--	No Value [6]
n-Propylbenzene	800	0.20	--	--	Not applicable	--	--	No Value [6]
p-isopropyltoluene	No Value	--	--	--	Not applicable	--	--	No Value [6]
sec-Butylbenzene	800	0.26	--	--	Not applicable	--	--	No Value [6]
Tetrachloroethylene	2.9	0.40	265	200	Not applicable	0.029	100	0.029
Trichloroethylene	0.70	0.24	94	1,100	Not applicable	0.0044	346	0.030 [9]
Xylenes, Total	1,600	0.14	233	171	Not applicable	14	76	14
SVOCs/PAHs								
3&4-Methylphenol coelution	No Value	--	--	--	Not applicable	--	--	No Value [6]
Acenaphthene	30	0.0021	4,898	4.2	Not applicable	3.1	22	3.1
Acenaphthylene	No Value	--	--	--	Not applicable	--	--	No Value [6]
Anthracene	100	0.00076	23,493	0.043	Not applicable	47	1.0	1.0
Benzo(ghi)perylene	No Value	--	--	--	Not applicable	--	--	No Value [6]
Carbazole	No Value	--	--	--	Not applicable	--	--	No Value [6]
Fluoranthene	6.0	0.00017	49,096	0.21	Not applicable	5.9	10	5.9
Fluorene	10.0	0.00086	7,707	2.0	Not applicable	1.6	16	1.6
Naphthalenes, Total	160	0.0082	1,191	31	Not applicable	4.5	43	4.5
Phenanthrene	No Value	--	--	--	Not applicable	--	--	No Value [6]
Phenol	2,400	0.0082	1,191	31	Not applicable	67	43	43
Pyrene	8.0	0.00011	67,992	0.14	Not applicable	11	9.2	9.2
Total cPAHs TEF [10]	0.50	0.0000064	969,000	0.0016	Not applicable	9.7	1.6	1.6
Metals								
Arsenic	5.0	0.0	Not applicable	Not applicable	29	2.9	Not applicable	20 [11]
Barium	2,000	0.0	Not applicable	Not applicable	41	1,648	Not applicable	1,648
Chromium (total)	100	0.0	Not applicable	Not applicable	1,000	2,000	Not applicable	2,000
Lead	8.1	0.0	Not applicable	Not applicable	10,000	1,620	Not applicable	1,620
Selenium	50	0.0	Not applicable	Not applicable	5.0	5.2	Not applicable	5.2
Silver	1.9	0.0	Not applicable	Not applicable	8.3	0.32	Not applicable	0.32

Notes:

--: No value exists for this constituent in the CLARC database (Ecology 2020) or no value can be calculated.

All screening levels are presented as two significant figures in standard notation.

Screening levels are shown only if the constituent was detected in one or more media.

(1) See Table B-4 for calculation of groundwater screening levels.

(2) Values from CLARC (Ecology 2020), unless otherwise noted. Henry's Law Constant values are for 13 degrees Celsius.

(3) Calculated in accordance with WAC 173-340-747(4) using MTCA default inputs, unless otherwise noted. Soil-to-groundwater screening levels (including site-specific TPH screening levels) may be calculated in the future using other allowed methods pursuant to WAC 173-340-747.

(4) Calculated by substituting aqueous solubility value for target groundwater concentration * dilution factor in MTCA Equation 747-1 (Ecology 2001a), unless otherwise noted.

(5) Most stringent of soil concentration protective of target groundwater concentration and soil saturation concentration. Some screening levels may need to be adjusted up to the practical quantitation limit in accordance with WAC 173-340-740(5)(c).

(6) A screening level cannot be calculated because the applicable inputs to perform the calculation do not exist in CLARC (Ecology 2020). In addition, in the case of alkylbenzenes and non-carcinogenic PAHs, the constituents are components of petroleum products that are already accounted for in the TPH cleanup levels (e.g., see footnote 14(a) to MTCA Table 830-1).

(7) Screening level in Ecology 2001a.

(8) Default residual soil saturation concentration in MTCA Table 747-5.

(9) Adjusted up to the pratical quantification limit per WAC 173-340-740(5)(c).

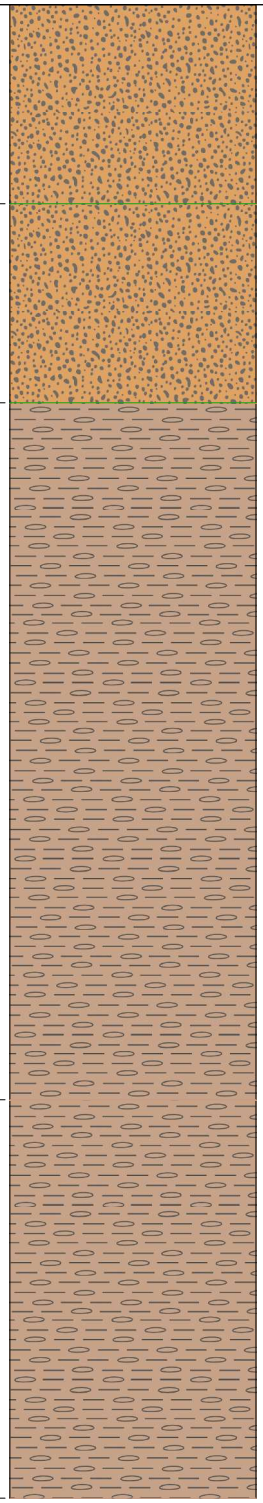
(10) Total cPAH screening levels were based on the toxicity of benzo(a)pyrene in accordance with WAC 173-340-708(8). Total cPAH concentrations will be calculated using MTCA toxicity equivalence factors (TEFs).

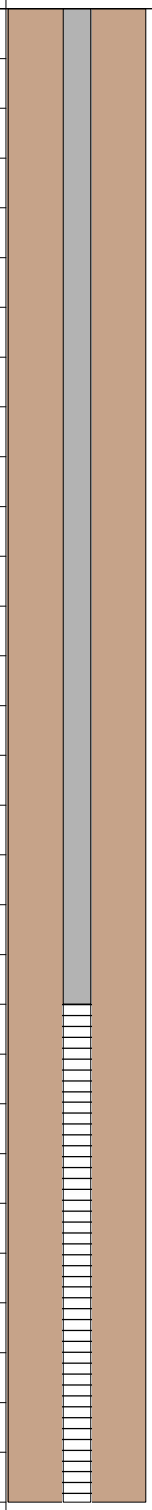
(11) Adjusted to accepted soil background concentration of 20 mg/kg per WAC 173-340-740(5)(c) (see MTCA Table 740-1 footnote b).

Appendix C

PROJECT: City of Olympia - Hardel				Log of Well No. B1	
BORING LOCATION: B1				GROUND SURFACE ELEVATION AND DATUM:	
DRILLING CONTRACTOR: ESN				DATE STARTED: 6/3/2020	DATE FINISHED: 6/3/2020
DRILLING METHOD: Geoprobe				TOTAL DEPTH (ft.): 15'	SCREEN INTERVAL (ft.): 10'-15'
DRILLING EQUIPMENT: Bobcat LAR				DEPTH TO WATER: FIRST: 11.94' COMPL.	CASING:
SAMPLING METHOD:				LOGGED BY: Melisa Kegans/Joel Hecker	
HAMMER WEIGHT:	DROP:			RESPONSIBLE PROFESSIONAL:	REG. NO.

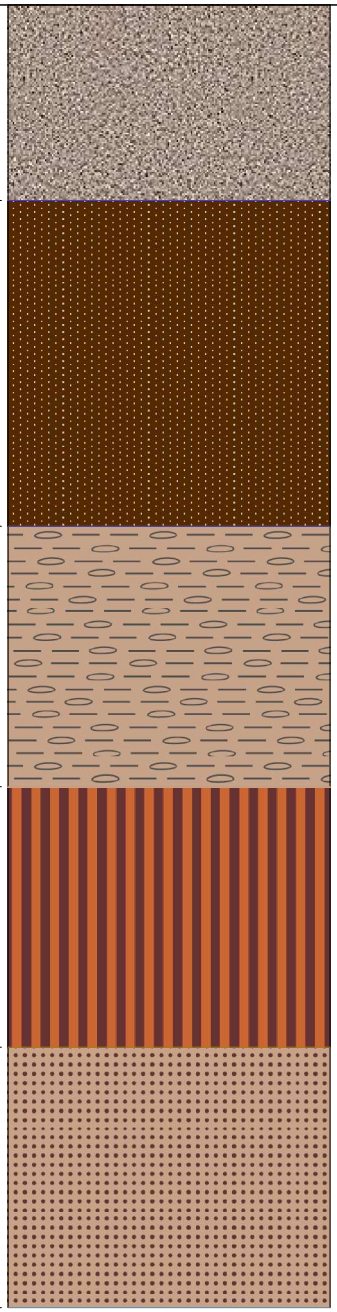
DEPTH (feet)	SAMPLES: Soil Sample Interval	SAMPLES: PID (ppm)	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0–2		0	FILL - F/C SAND with gravel, llight brown, moist	
2–4		0	FILL - GRAVEL with sand, gray, moist	
4–5		1.7		
5–11		0	FILL - SILTY SAND with gravel, dark gray, moist, decreasing gravel with depth, increasing moisture with depth	Soil Cuttings
11–15		0	FILL - SILTY GRAVEL with sand, gray, moist to wet	

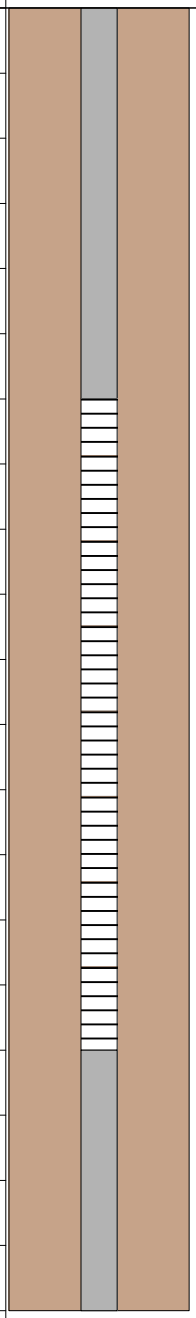




PROJECT: City of Olympia - Hardel				Log of Well No. B2	
BORING LOCATION: B2				GROUND SURFACE ELEVATION AND DATUM:	
DRILLING CONTRACTOR: ESN				DATE STARTED: 6/3/2020	DATE FINISHED: 6/3/2020
DRILLING METHOD: Geoprobe				TOTAL DEPTH (ft.): 10'	SCREEN INTERVAL (ft.): 10'-15'
DRILLING EQUIPMENT: Bobcat LAR				DEPTH TO WATER: FIRST: 3.73' COMPL.	CASING:
SAMPLING METHOD:				LOGGED BY: Melisa Kegans/Joel Hecker	
HAMMER WEIGHT:	DROP:			RESPONSIBLE PROFESSIONAL:	REG. NO.

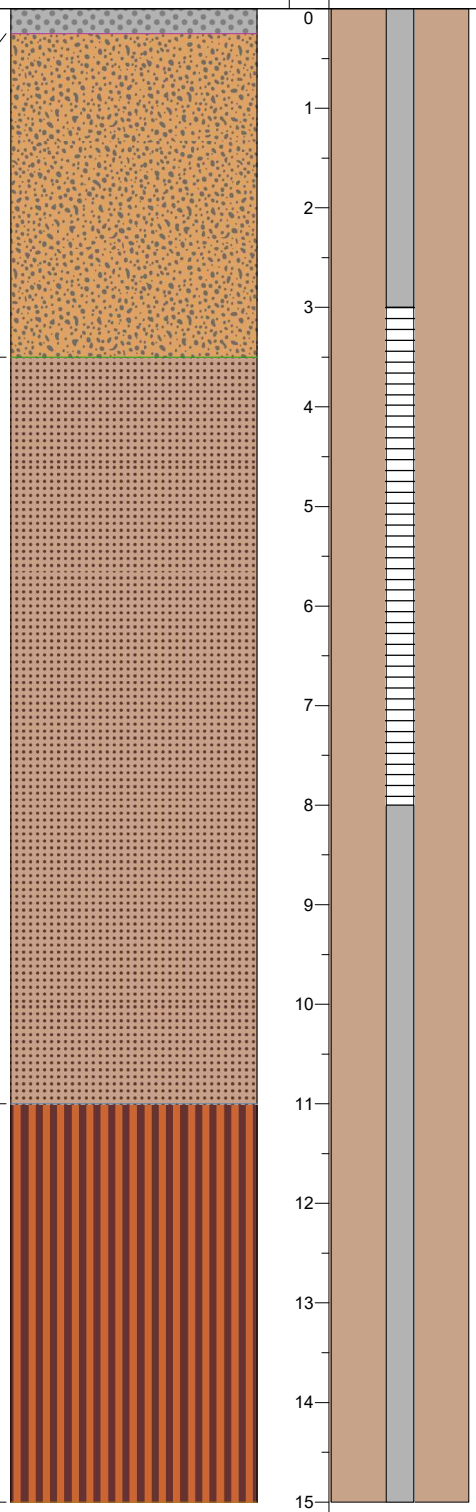
DEPTH (feet)	SAMPLES: Soil Sample Interval	SAMPLES: PID (ppm)	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0–1.5		0.8	FILL - F/C SAND with gravel, gray, moist	
1.5–4	2–4	13.2	FILL - CLAYEY SAND with trace wood and trace brick, gray-brown, moist	Hydrocarbon odor from 2' to 4'
4–6		0	FILL - SILTY GRAVEL with sand, gray-light brown, moist - wet	Soil Cuttings
6–8		0	FILL - WOOD	
8–10		0	SILT with sand and clay, dark brown, wet	





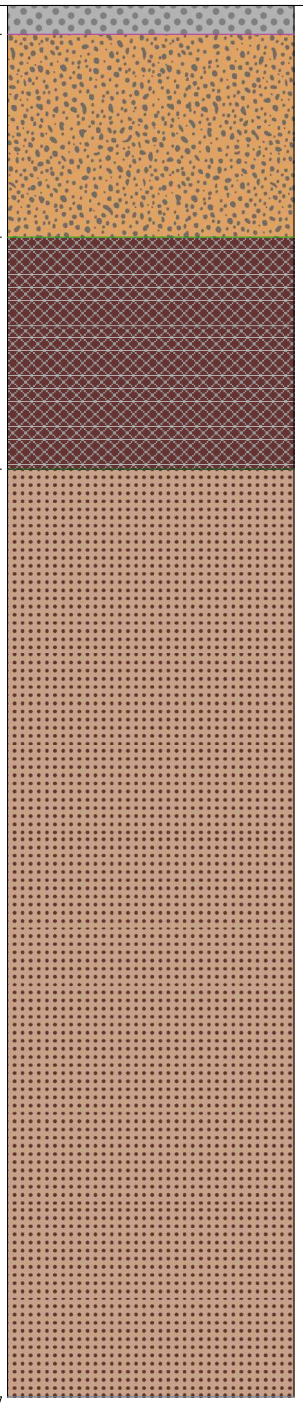
PROJECT: City of Olympia - Hardel				Log of Well No. B3	
BORING LOCATION: B3				GROUND SURFACE ELEVATION AND DATUM:	
DRILLING CONTRACTOR: ESN				DATE STARTED: 6/3/2020	DATE FINISHED: 6/3/2020
DRILLING METHOD: Geoprobe				TOTAL DEPTH (ft.): 15'	SCREEN INTERVAL (ft.): 10'-15'
DRILLING EQUIPMENT: Bobcat LAR				DEPTH TO WATER: FIRST: 3.25' COMPL.	CASING:
SAMPLING METHOD:				LOGGED BY: Melisa Kegans/Joel Hecker	
HAMMER WEIGHT:	DROP:			RESPONSIBLE PROFESSIONAL:	REG. NO.

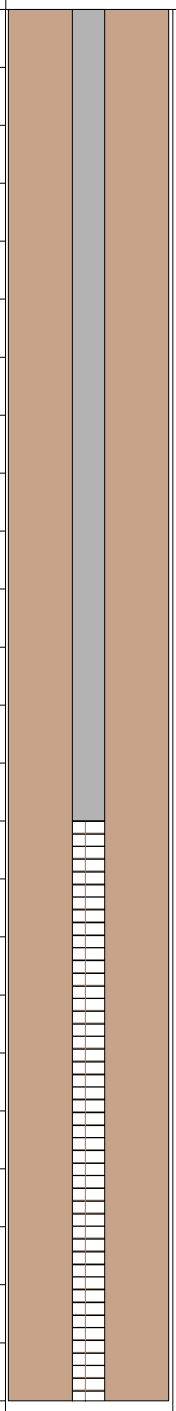
DEPTH (feet)	SAMPLES: Soil Sample Interval	SAMPLES: PID (ppm)	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0			CRUSHED CONCRETE	
1		0	FILL - F/C SAND with gravel, trace brick and concrete, light brown, moist to wet	
2				
3		0		
4				
5		0		
6				
7		0	FILL - SILT, trace wood, gray	Soil Cuttings
8				
9		0		
10				
11		0		
12				
13		0	WOOD	
14				
15		0		
16				



PROJECT: City of Olympia - Hardel				Log of Well No. B4	
BORING LOCATION: B4				GROUND SURFACE ELEVATION AND DATUM:	
DRILLING CONTRACTOR: ESN				DATE STARTED: 6/3/2020	DATE FINISHED: 6/3/2020
DRILLING METHOD: Geoprobe				TOTAL DEPTH (ft.): 12'	SCREEN INTERVAL (ft.): 7'-12'
DRILLING EQUIPMENT: Bobcat LAR				DEPTH TO WATER: FIRST: ~10' COMPL. 6.2'	CASING:
SAMPLING METHOD:				LOGGED BY: Melisa Kegans/Joel Hecker	
HAMMER WEIGHT:	DROP:			RESPONSIBLE PROFESSIONAL:	REG. NO.

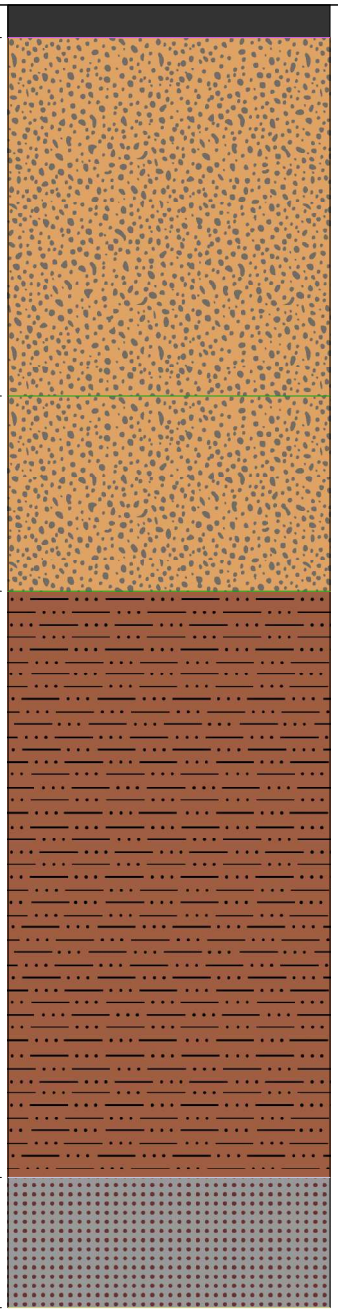
DEPTH (feet)	SAMPLES: Soil Sample Interval	SAMPLES: PID (ppm)	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0			GRAVEL	
1		0	FILL - F/C SAND with gravel, light brown, moist	
2				
3		0	FILL - CLAY and SILT, trace wood, brown to gray	
4				
5		0		
6				Soil Cuttings
7		0	Possible FILL - SILT, trace wood, gray, metal shards @ 8', increasing wood with depth, possible black staining 11'-12', potentially organics	
8				
9		0		
10				
11		0		
12			Refusal @ 12' - Concrete	
13				

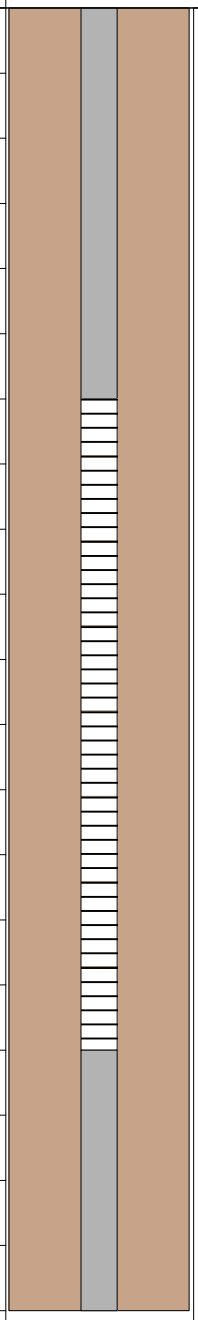




PROJECT: City of Olympia - Hardel	**Log of Well No. B5**
BORING LOCATION: B5	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: ESN	DATE STARTED: 6/3/2020 / DATE FINISHED: 6/3/2020
DRILLING METHOD: Geoprobe	TOTAL DEPTH (ft.): 10' / SCREEN INTERVAL (ft.): 3'-8'
DRILLING EQUIPMENT: Bobcat LAR	DEPTH TO WATER: FIRST: 4.7' / COMPL. / CASING:
SAMPLING METHOD:	LOGGED BY: Melisa Kegans/Joel Hecker
HAMMER WEIGHT: / DROP:	RESPONSIBLE PROFESSIONAL: / REG. NO.

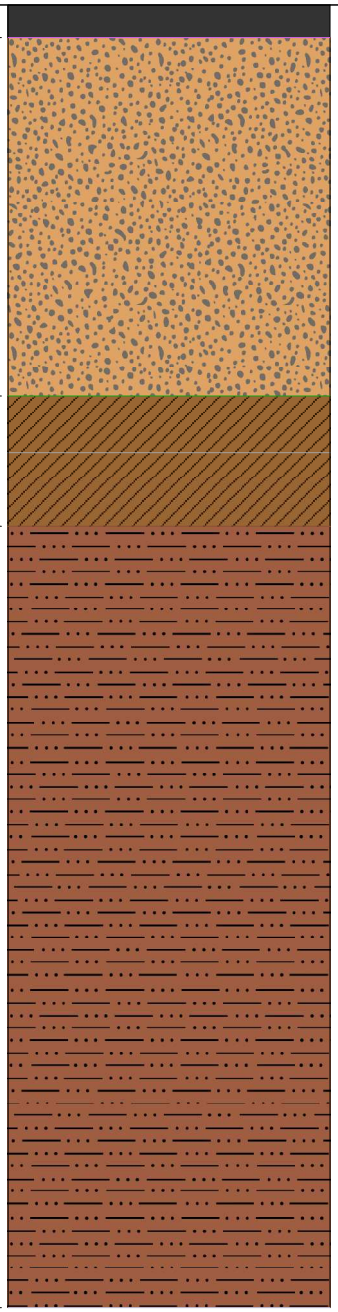
DEPTH (feet)	SAMPLES: Soil Sample Interval	SAMPLES: PID (ppm)	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0			ASPHALT	
1		0	FILL - F/C SAND with gravel, gray, moist	
2				
3		0	FILL - F/C SAND with gravel, trace brick, gray and brown, moist	
4				
5		0	FILL - SILTY SAND, gray, wet, trace shells	Soil Cuttings
6				
7		0		
8				
9		0	SILT, gray, wet	
10				
11				

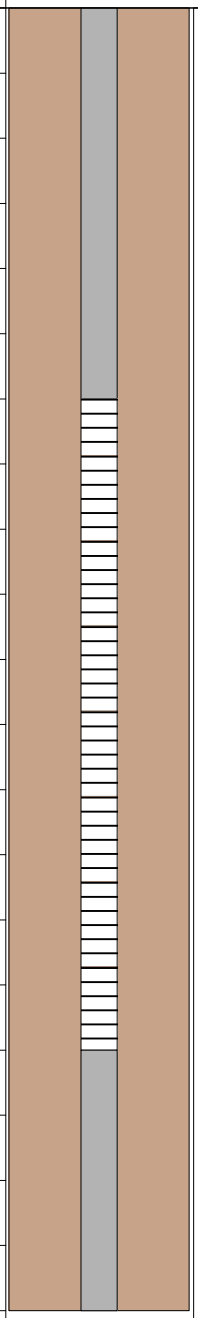




PROJECT: City of Olympia - Hardel	**Log of Well No. B6**
BORING LOCATION: B6	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: ESN	DATE STARTED: 6/3/2020 / DATE FINISHED: 6/3/2020
DRILLING METHOD: Geoprobe	TOTAL DEPTH (ft.): 10' / SCREEN INTERVAL (ft.): 3'-8'
DRILLING EQUIPMENT: Bobcat LAR	DEPTH TO WATER: FIRST: 4.3' COMPL. / CASING:
SAMPLING METHOD:	LOGGED BY: Melisa Kegans/Joel Hecker
HAMMER WEIGHT: / DROP:	RESPONSIBLE PROFESSIONAL: / REG. NO.

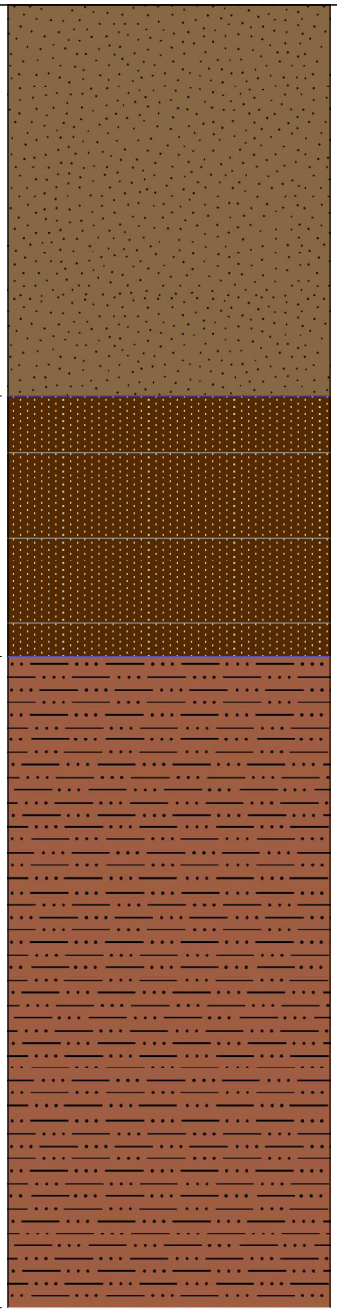
DEPTH (feet)	SAMPLES: Soil Sample Interval	SAMPLES: PID (ppm)	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0			ASPHALT	
1		0	FILL - F/C SAND with gravel, light brown, moist	
2				
3		0	FILL - CLAY with wood, brown	
4				
5		0	FILL - SILTY SAND, trace shells, gray, wet	Soil Cuttings
6				
7		0		
8				
9		0		
10				
11				

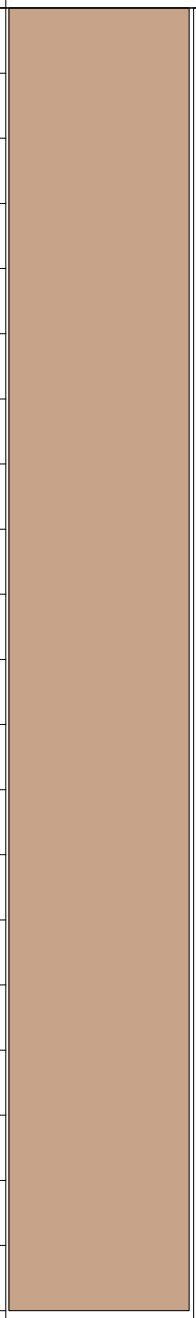




PROJECT: City of Olympia - Hardel				Log of Well No. B7	
BORING LOCATION: B7				GROUND SURFACE ELEVATION AND DATUM:	
DRILLING CONTRACTOR: ESN				DATE STARTED: 6/3/2020	DATE FINISHED: 6/3/2020
DRILLING METHOD: Geoprobe				TOTAL DEPTH (ft.): 10'	SCREEN INTERVAL (ft.):
DRILLING EQUIPMENT: Bobcat LAR				DEPTH TO WATER: FIRST: 6' COMPL.	CASING:
SAMPLING METHOD:				LOGGED BY: Melisa Kegans/Joel Hecker	
HAMMER WEIGHT:	DROP:			RESPONSIBLE PROFESSIONAL:	REG. NO.

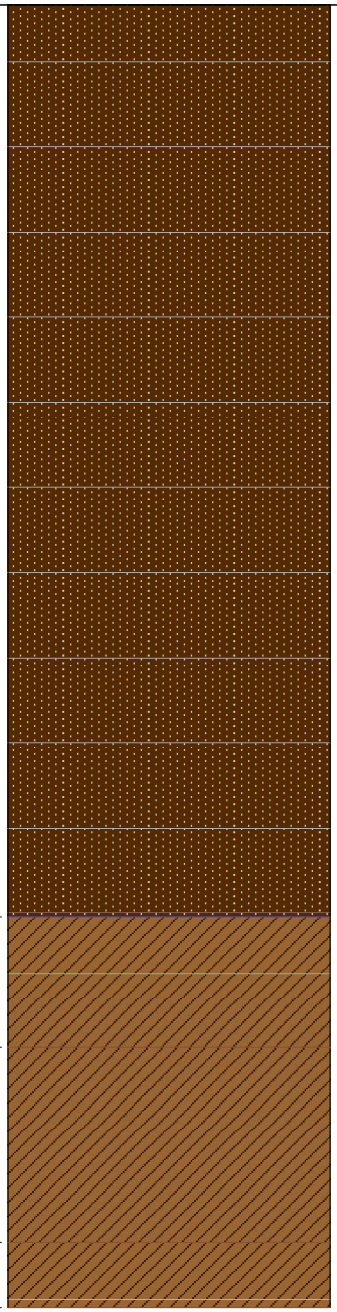
DEPTH (feet)	SAMPLES: Soil Sample Interval	SAMPLES: PID (ppm)	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0				
1		0	FILL - SAND with gravel, light brown, moist	
2				
3		0	FILL - CLAYEY SAND with wood and trace brick, brown, moist	
4				
5		0	FILL - SILTY SAND, dark brown, moist	Soil Cuttings
6				
7		0		
8				
9		0		
10				
11				

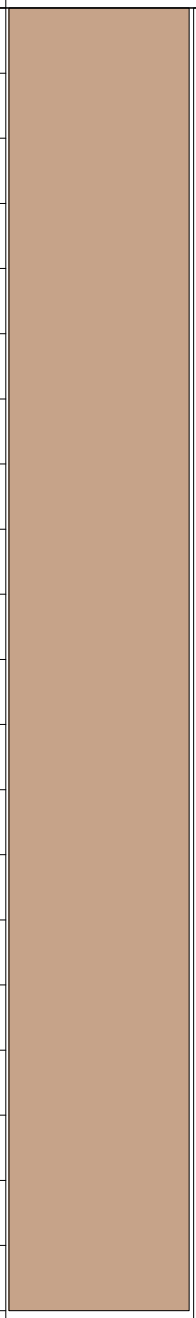




PROJECT: City of Olympia - Hardel				Log of Well No. B8	
BORING LOCATION: B8				GROUND SURFACE ELEVATION AND DATUM:	
DRILLING CONTRACTOR: ESN				DATE STARTED: 6/3/2020	DATE FINISHED: 6/3/2020
DRILLING METHOD: Geoprobe				TOTAL DEPTH (ft.): 10'	SCREEN INTERVAL (ft.):
DRILLING EQUIPMENT: Bobcat LAR				DEPTH TO WATER: FIRST: 4' COMPL.	CASING:
SAMPLING METHOD:				LOGGED BY: Melisa Kegans/Joel Hecker	
HAMMER WEIGHT:	DROP:			RESPONSIBLE PROFESSIONAL:	REG. NO.

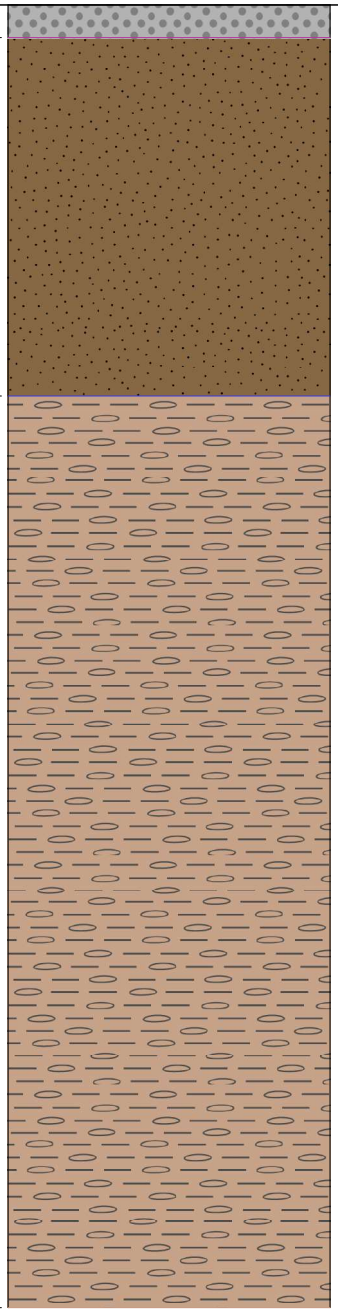
DEPTH (feet)	SAMPLES: Soil Sample Interval	SAMPLES: PID (ppm)	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0				
1		0		
2				
3		0	FILL - F/C SAND with increasing gravel at depth, brown, moist to wet	
4				
5		0		Soil Cuttings
6				
7		0	FILL - SILTY CLAY, gray-brown	
8			FILL - WOOD with silty clay, brown	
9		0		
10			FILL - SANDY CLAY with wood, brown	
11				

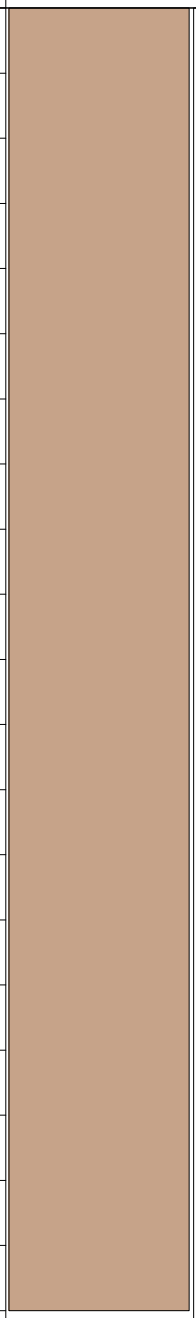




PROJECT: City of Olympia - Hardel				Log of Well No. B9	
BORING LOCATION: B9				GROUND SURFACE ELEVATION AND DATUM:	
DRILLING CONTRACTOR: ESN				DATE STARTED: 6/3/2020	DATE FINISHED: 6/3/2020
DRILLING METHOD: Geoprobe				TOTAL DEPTH (ft.): 10'	SCREEN INTERVAL (ft.):
DRILLING EQUIPMENT: Bobcat LAR				DEPTH TO WATER: FIRST: 3' COMPL.	CASING:
SAMPLING METHOD:				LOGGED BY: Melisa Kegans/Joel Hecker	
HAMMER WEIGHT:	DROP:			RESPONSIBLE PROFESSIONAL:	REG. NO.

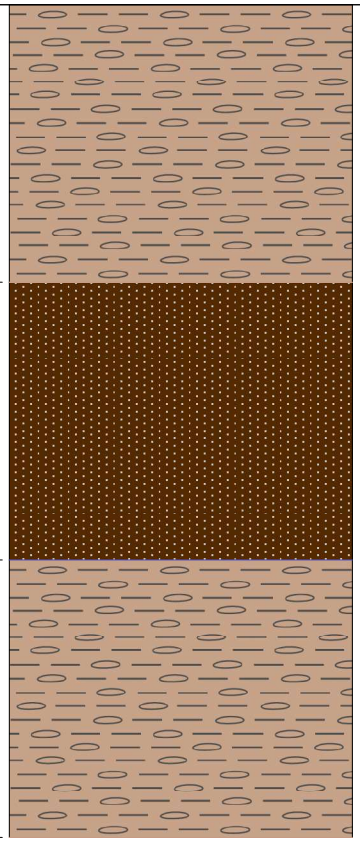
DEPTH (feet)	SAMPLES: Soil Sample Interval	SAMPLES: PID (ppm)	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0			GRAVEL	
1		0	FILL - F/C SAND, brown, moist	
2				
3		0		
4				
5		0		Soil Cuttings
6			Possible FILL - SILTY SAND with gravel, brown-gray, wet	
7		0		
8				
9		0		
10				
11				

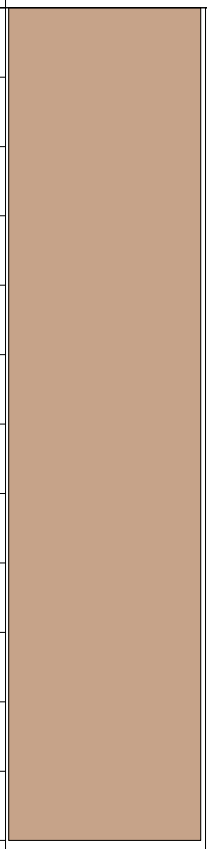




PROJECT: City of Olympia - Hardel	**Log of Well No. B10**
BORING LOCATION: B10	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: ESN	DATE STARTED: 6/3/2020 / DATE FINISHED: 6/3/2020
DRILLING METHOD: Geoprobe	TOTAL DEPTH (ft.): 6' / SCREEN INTERVAL (ft.):
DRILLING EQUIPMENT: Bobcat LAR	DEPTH TO WATER: FIRST: 4.5' / COMPL. / CASING:
SAMPLING METHOD:	LOGGED BY: Melisa Kegans/Joel Hecker
HAMMER WEIGHT: / DROP:	RESPONSIBLE PROFESSIONAL: / REG. NO.

DEPTH (feet)	SAMPLES: Soil Sample Interval	SAMPLES: PID (ppm)	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0–1		0.1	FILL - SILTY SAND with gravel, trace wood, brown, moist	Soil Cuttings
1–3		0.6	FILL - CLAYEY SAND with gravel, gray, moist	
3–6		0	SILTY SAND with gravel, gray, moist-wet	



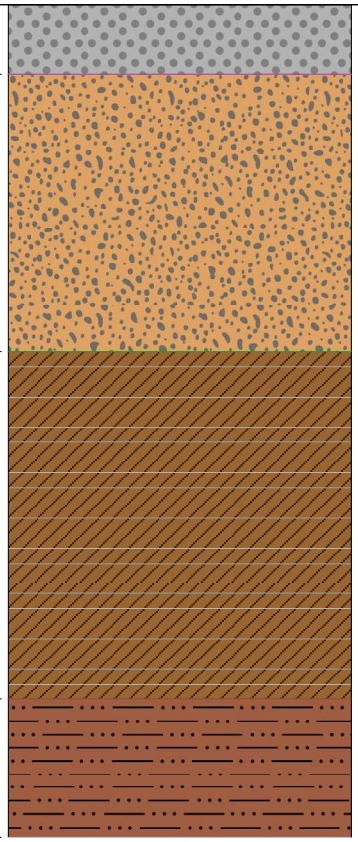


PROJECT: City of Olympia - Hardel	**Log of Well No. B11**
BORING LOCATION: B11	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: ESN	DATE STARTED: 6/3/2020 / DATE FINISHED: 6/3/2020
DRILLING METHOD: Geoprobe	TOTAL DEPTH (ft.): 6' / SCREEN INTERVAL (ft.):
DRILLING EQUIPMENT: Bobcat LAR	DEPTH TO WATER: FIRST: 3.5' / COMPL. / CASING:
SAMPLING METHOD:	LOGGED BY: Melisa Kegans/Joel Hecker
HAMMER WEIGHT: / DROP:	RESPONSIBLE PROFESSIONAL: / REG. NO.

DEPTH (feet)	SAMPLES: Soil Sample Interval	SAMPLES: PID (ppm)	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0				
1		0		
2				
3		0	FILL - SAND with gravel, brown, moist	Soil Cuttings
4				
5		0.1		
6				
7				

PROJECT: City of Olympia - Hardel	**Log of Well No. B12**
BORING LOCATION: B12	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: ESN	DATE STARTED: 6/3/2020 / DATE FINISHED: 6/3/2020
DRILLING METHOD: Geoprobe	TOTAL DEPTH (ft.): 6' / SCREEN INTERVAL (ft.):
DRILLING EQUIPMENT: Bobcat LAR	DEPTH TO WATER: FIRST: 3.22' / COMPL. / CASING:
SAMPLING METHOD:	LOGGED BY: Melisa Kegans/Joel Hecker
HAMMER WEIGHT: / DROP:	RESPONSIBLE PROFESSIONAL: / REG. NO.

DEPTH (feet)	SAMPLES: Soil Sample Interval	SAMPLES: PID (ppm)	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0			CRUSHED CONCRETE	
1		0	FILL - F/C SAND with gravel, gray, moist	
2				
3		0	FILL - CLAY with wood debris, brown	Soil Cuttings
4				
5		0	FILL - SILTY SAND, gray, wet	
6				
7				



Appendix D

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Data Quality Review

Phase II Environmental Site Assessment
Hardel Mutual Plywood Corporation
1210 West Bay Drive NW
Olympia, Washington

1. Precision

Precision was assessed via the relative percent difference (RPD) for field duplicates and matrix spike (MS)/matrix spike duplicate (MSD) pairs.[1]

The RPDs for the soil and groundwater field duplicates are presented in Table 1 and 2, respectively. The RPD of the results from analyses of target constituents in the field duplicate soil samples were within the project precision limits of 50%, with the exception of seven polynuclear aromatic hydrocarbons (PAHs) and chromium in the duplicate samples from B4. The RPDs for these seven PAHs and chromium ranged from 54.6% to 99.6% (see Table 1). Each of the PAHs that exceed RPD limits was detected in only one of the two duplicate samples, indicating heterogeneity in the sample matrix. Although the RPD indicates a lack of agreement between samples for PAHs and chromium, both duplicate samples had constituent concentrations that were less than applicable screening levels (SLs). Therefore, this lack of agreement does not affect the use of the data or the conclusions. The RPDs of the results from analyses of target constituents in the field duplicate groundwater samples were within the project precision limits of 35% (see Table 2).

MS/MSD RPD results were evaluated to determine the reproducibility (precision) of the analytical method. Reproducibility values were compared to control limits established and updated by the laboratory based on its historical operation. The analytical reports in Appendix D present all reported MS/MSD RPD values. With the exception of barium, silver, 1,1,-dichloroethene, 1,4-dichlorobenzene, 2-nitrophenol, 2,4-dinitrotoluene, 4,6-dinitro-2-methylphenol, hexachloroethane, hexachlorocyclopentadiene, extractable petroleum hydrocarbons (EPH), total organic carbon (TOC), and trichlorofluoromethane in soil, the MS/MSD RPD were within the acceptable ranges.[2] Only barium, silver, EPH, and TOC were detected in soil or groundwater samples. The MS/MSD RPDs outside of the acceptable range were likely a result of heterogeneity in the sample matrix. The methods were identified by the laboratory to be in control (e.g. acceptable range of precision) based on the laboratory control sample (LCS)/LCS duplicate (LCSD) results. Thus, further data qualification beyond what was reported by the laboratories was not necessary.

2. Accuracy

Accuracy was assessed by analysis of trip blanks and laboratory method blanks as well continuing calibration verification (CCV) and recoveries in LCS/LCSDs, MS/MSDs, and surrogates.[3,] Full laboratory QC information is provided in the analytical reports included in Appendix D.

No VOCs were measured at concentrations greater than laboratory RLs in the VOC trip blanks. Method blanks were performed for each constituent and analyzed daily to assess the effect of the laboratory environment on the analytical results. No constituents were detected in the analyzed method blanks.

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[1] The approved Quality Assurance Project Plan (QAPP) (PIONEER 2020a) specified expectations for field duplicate RPDs (50% for soil duplicates and 35% for groundwater duplicates).
[2] MS/MSD RPDs were evaluated based on control limits in the laboratory reports (rather than RPDs included in the QAPP).
[3] The approved QAPP (PIONEER 2020a) did not specify expectations for recoveries with blank spikes, matrix spikes, and surrogates; therefore, recoveries were evaluated based on control limits in the laboratory reports.

CCVs were evaluated to determine whether the instrument was within acceptable calibration throughout the period in which samples were analyzed (i.e., to verify that the initial calibration was applicable during the sample analyses).

- Slightly high CCV recoveries were noted for barium and silver in groundwater, which could result in slightly high biases of the data. Barium concentrations were significantly below the groundwater SL and silver was not detected in groundwater. Therefore, this QC result did not negatively affect sample results.
- Slightly low CCV recoveries were noted for 3&4-methylphenol, 4-nitrophenol, and cPAH compounds in groundwater. No groundwater SL exists for 3&4-methylphenol and 4-nitrophenol and cPAH compounds were not detected in groundwater.
- A low CCV recovery was noted for benzyl alcohol in groundwater. Benzyl alcohol was not detected in groundwater.

The LCS/LCSD is a sample matrix, free from constituents, spiked with verified known amounts of constituents or a material containing known and verified amounts of constituents. It is generally used to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The LCS and LCSD percent recovery results were within acceptable control limits, with the exception of silver in soil, which slightly exceeded the upper control limit (122% recovery versus 120% acceptable upper range). This may result in a slightly high bias. Silver did not exceed the most restrictive SL; therefore, the potential high bias did not affect project objectives.

The MS and MSD percent recovery results were evaluated to determine whether or not the sample matrix was interfering with the laboratory analyses. MS and MSD recoveries were compared to control limits established and updated by the laboratory based on its historical operation. Notes on the MS and MSD recoveries reported by the laboratories are provided below:

- The MS and MSD recoveries for 1,4-dichlorobenzene, 2-nitrophenol, 2,4-dinitrotoluene, 4,6-dinitro-2-methylphenol, barium, hexachlorocyclopentadiene, hexachloroethane, and silver in soil exceeded the acceptable recovery ranges, indicating a potentially high bias. None of the aforementioned constituents exceeed the most restrictive soil SL; therefore, these QC results did not negatively affect sample results.
- The MSD recoveries for trichlorofluoromethane and 1,1-dichloroethene in soil were less than the acceptable recovery ranges, indicating a potentially low bias. MS recoveries were within the acceptable range. Neither constituent was detected in soil. Even with the potentially low bias, the laboratory RL is significantly less than the most restrictive soil SL.
- The MS and MSD recoveries for TOC and the various ranges of EPH in soil were less than the acceptable recovery range, indicating potentially low biases. A duplicate analysis was performed with similar results indicating a possible matrix effect. No SL is available for TOC or EPH; therefore, this QC result did not negatively affect sample results.
- The MS and MSD recoveries for mercury in groundwater were below the acceptable recovery range, indicating a potentially low bias. Even with the potentially low bias, the laboratory RL is significantly less than the groundwater SL for mercury.
- The MSD recovery for 1,2,4-trimethylbenzene in groundwater was slightly greater than the acceptable recovery range, indicating a potentially high bias. MS recoveries were within the acceptable range. Even with the potential high bias, 1,2,4-trimethylbenzene was signifcantly less than the groundwter SL; therefore, this QC result did not negatively affect sample results.

Each sample analyzed for organic constituents contained surrogate spike compounds. The surrogate recovery percentage is used to determine if the analytical instruments are operating within acceptable control limits. Surrogate recoveries were compared to control limits established and updated by the laboratory based on its historical operation. Surrogate recoveries were within acceptable control limits.

3. Representativeness

Representativeness was assessed by evaluating the sample collection, handling, preservation, and analysis procedures. All samples were collected, handled, preserved, and analyzed in accordance with the Sampling and Analysis Plan (SAP, PIONEER 2020b)/QAPP (PIONEER 2020a), which was designed to obtain representative samples. The reported temperature range of the samples was acceptable (less than 6 degrees Celsius). All samples were hand-delivered on ice to the lab on the same day of collection. The lab subcontracted out multiple analyses. In those instances where analyses were subcontracted, samples were delivered on ice via express mail to the laboratory on the day following collection. Since the samples were collected in the summer, delivered on ice, and delivered promptly to the laboratories, no additional data qualification is necessary. In addition, all samples were extracted and analyzed within appropriate holding times listed in the QAPP.

4. Comparability

Comparability was assessed by comparing current sample collection and analysis procedures with historical procedures. The samples were collected and analyzed with standard procedures and are comparable with historical Property data as qualified by the laboratories.

5. Sensitivity

Sensitivity was assessed by comparing actual reporting limits (RLs) to applicable SLs for all analyzed constituents. Analytical methods and laboratories were selected to achieve low target reporting limits. Almost all of the actual RLs were less than the corresponding SLs for unrestricted land use. The only soil constituents with an actual RL exceeding a corresponding SL are provided in the table below:

Constituent	Soil RL (mg/kg)	Most stringent soil SL (mg/kg)
1,1,2,2-tetrachloroethane	0.030	0.0012
1,2,3-trichloropropane	0.030	0.0063
1,3-cis-dichloropropene	0.020	0.0023
dibromochloromethane	0.030	0.028
vinyl chloride	0.020	0.0017

The only groundwater constituents with an actual RL exceeding a corresponding SL are provided in the table below:

Constituent	Groundwater RL (ug/L)	Most stringent groundwater SL (ug/L)
1,1,2,2-tetrachloroethane	1.0	0.22
1,2-dibromo-3-chloropropane	1.0	0.20
1,2,3-trichloropropane	1.0	0.00038
1,3-cis-dichloropropene	1.0	0.44
hexachlorobutadiene	5.0	0.56

The actual RLs were reasonably sensitive for these few constituents with a RL exceeding the most stringent SL. In some cases, required dilutions were performed on several samples due to constituent concentrations or matrix interferences. Furthermore, SLs are required to be adjusted up to RLs per Model Toxics Control Act regulations. Therefore, the actual RLs were considered appropriate for the purposes of this investigation.

6. Completeness

Completeness was assessed by calculating the percentage of useable results to all results. A total of 2,063 sample analyses were performed. All of the analyte results are useable as qualified. Thus, the completeness of the analytical data is 100 percent.

7. Conclusions

This data is deemed acceptable for use as presented by the laboratory. No corrective action or additional data qualification is necessary.

References

PIONEER. 2020a. Quality Assurance Project Plan for the City of Olympia's Brownfield Assessment Grant. March.

PIONEER. 2020b. Sampling and Analysis Plan for the Hardel Mutual Plywood Corporation, Olympia, Washington. April.

Table 1: Relative Percent Difference of Soil Sample Field Duplicates

Consituent	Sample Location and Depth Interval (in feet bgs)	Primary Concentration (mg/kg)	Field Duplicate Concentration (mg/kg)	Relative Percent Difference
1,1,1,2-Tetrachloroethane	B1 (4'-5')	0.030 U	0.030 U	0.0%
1,1,1-Trichloroethane		0.020 U	0.020 U	0.0%
1,1,2,2-Tetrachloroethane		0.030 U	0.030 U	0.0%
1,1,2-Trichloroethane		0.030 U	0.030 U	0.0%
1,1-Dichloroethane		0.030 U	0.030 U	0.0%
1,1-Dichloroethene		0.050 U	0.050 U	0.0%
1,1-Dichloropropene		0.020 U	0.020 U	0.0%
1,2,3-Trichlorobenzene		0.10 U	0.10 U	0.0%
1,2,3-Trichloropropane		0.030 U	0.030 U	0.0%
1,2,4-Trichlorobenzene		0.050 U	0.050 U	0.0%
1,2,4-Trimethylbenzene		0.020 U	0.020 U	0.0%
1,2-Dibromo-3-Chloropropane		0.050 U	0.050 U	0.0%
1,2-Dichlorobenzene		0.030 U	0.030 U	0.0%
1,2-Dichloroethane		0.030 U	0.030 U	0.0%
1,2-Dichloropropane		0.020 U	0.020 U	0.0%
1,3,5-Trimethylbenzene		0.020 U	0.020 U	0.0%
1,3-Dichlorobenzene		0.030 U	0.030 U	0.0%
1,3-Dichloropropane		0.050 U	0.050 U	0.0%
1,4-Dichlorobenzene		0.030 U	0.030 U	0.0%
2,2-Dichloropropane		0.050 U	0.050 U	0.0%
2-Chlorotoluene		0.020 U	0.020 U	0.0%
4-Chlorotoluene		0.020 U	0.020 U	0.0%
Benzene		0.020 U	0.020 U	0.0%
Bromobenzene		0.030 U	0.030 U	0.0%
Bromoform		0.030 U	0.030 U	0.0%
Bromomethane		0.090 U	0.090 U	0.0%
Carbon Tetrachloride		0.030 U	0.030 U	0.0%
CFC-11		0.050 U	0.050 U	0.0%
CFC-12		0.060 U	0.060 U	0.0%
Chlorobenzene		0.020 U	0.020 U	0.0%
Chlorodibromomethane		0.030 U	0.030 U	0.0%
Chloroethane		0.060 U	0.060 U	0.0%
Chloroform		0.020 U	0.020 U	0.0%
Chloromethane		0.060 U	0.060 U	0.0%
Cis-1,2-Dichloroethene		0.020 U	0.020 U	0.0%
Cis-1,3-Dichloropropene		0.020 U	0.020 U	0.0%
Cumene		0.080 U	0.080 U	0.0%
Dibromomethane		0.040 U	0.040 U	0.0%
Dichlorobromomethane		0.020 U	0.020 U	0.0%
Ethylbenzene		0.030 U	0.030 U	0.0%
Ethylene dibromide		0.0050 U	0.0050 U	0.0%
Hexachlorobutadiene		0.10 U	0.10 U	0.0%
Methyl t-butyl ether		0.050 U	0.050 U	0.0%
Methylene Chloride		0.020 U	0.020 U	0.0%
Naphthalene		0.050 U	0.050 U	0.0%
n-Butylbenzene		0.020 U	0.020 U	0.0%
n-Propylbenzene		0.020 U	0.020 U	0.0%
p-Isopropyltoluene		0.020 U	0.020 U	0.0%
Sec-Butylbenzene		0.020 U	0.020 U	0.0%
Styrene		0.020 U	0.020 U	0.0%
Tert-Butylbenzene		0.020 U	0.020 U	0.0%

Table 1: Relative Percent Difference of Soil Sample Field Duplicates

Consituent	Sample Location and Depth Interval (in feet bgs)	Primary Concentration (mg/kg)	Field Duplicate Concentration (mg/kg)	Relative Percent Difference
Tetrachloroethene	B1 (4'-5')	0.020 U	0.020 U	0.0%
Toluene		0.030 U	0.030 U	0.0%
Total Xylenes		0.030 U	0.030 U	0.0%
Trans-1,2-Dichloroethene		0.020 U	0.020 U	0.0%
Trans-1,3-Dichloropropene		0.030 U	0.030 U	0.0%
Trichloroethene		0.030 U	0.030 U	0.0%
Vinyl Chloride		0.020 U	0.020 U	0.0%
TPH-G		10.0 U	10.0 U	0.0%
1,1,1,2-Tetrachloroethane	B4 (1'-3')	0.030 U	0.030 U	0.0%
1,1,1-Trichloroethane		0.020 U	0.020 U	0.0%
1,1,2,2-Tetrachloroethane		0.030 U	0.030 U	0.0%
1,1,2-Trichloroethane		0.030 U	0.030 U	0.0%
1,1-Dichloroethane		0.030 U	0.030 U	0.0%
1,1-Dichloroethene		0.050 U	0.050 U	0.0%
1,1-Dichloropropene		0.020 U	0.020 U	0.0%
1,2,3-Trichlorobenzene		0.10 U	0.10 U	0.0%
1,2,3-Trichloropropane		0.030 U	0.030 U	0.0%
1,2,4-Trichlorobenzene		0.050 U	0.050 U	0.0%
1,2,4-Trimethylbenzene		0.020 U	0.020 U	0.0%
1,2-Dibromo-3-Chloropropane		0.050 U	0.050 U	0.0%
1,2-Dichlorobenzene		0.030 U	0.030 U	0.0%
1,2-Dichloroethane		0.030 U	0.030 U	0.0%
1,2-Dichloropropane		0.020 U	0.020 U	0.0%
1,3,5-Trimethylbenzene		0.020 U	0.020 U	0.0%
1,3-Dichlorobenzene		0.030 U	0.030 U	0.0%
1,3-Dichloropropane		0.050 U	0.050 U	0.0%
1,4-Dichlorobenzene		0.030 U	0.030 U	0.0%
2,2-Dichloropropane		0.050 U	0.050 U	0.0%
2-Chlorotoluene		0.020 U	0.020 U	0.0%
4-Chlorotoluene		0.020 U	0.020 U	0.0%
Benzene		0.020 U	0.020 U	0.0%
Bromobenzene		0.030 U	0.030 U	0.0%
Bromoform		0.030 U	0.030 U	0.0%
Bromomethane		0.090 U	0.090 U	0.0%
Carbon Tetrachloride		0.030 U	0.030 U	0.0%
CFC-11		0.050 U	0.050 U	0.0%
CFC-12		0.060 U	0.060 U	0.0%
Chlorobenzene		0.020 U	0.020 U	0.0%
Chlorodibromomethane		0.030 U	0.030 U	0.0%
Chloroethane		0.060 U	0.060 U	0.0%
Chloroform		0.020 U	0.020 U	0.0%
Chloromethane		0.060 U	0.060 U	0.0%
Cis-1,2-Dichloroethene		0.020 U	0.020 U	0.0%
Cis-1,3-Dichloropropene		0.020 U	0.020 U	0.0%
Cumene		0.080 U	0.080 U	0.0%
Dibromomethane		0.040 U	0.040 U	0.0%
Dichlorobromomethane		0.020 U	0.020 U	0.0%
Ethylbenzene		0.030 U	0.030 U	0.0%
Ethylene dibromide		0.0050 U	0.0050 U	0.0%
Hexachlorobutadiene		0.10 U	0.10 U	0.0%
Methyl t-butyl ether		0.050 U	0.050 U	0.0%

Table 1: Relative Percent Difference of Soil Sample Field Duplicates

Consituent	Sample Location and Depth Interval (in feet bgs)	Primary Concentration (mg/kg)	Field Duplicate Concentration (mg/kg)	Relative Percent Difference
Methylene Chloride	B4 (1'-3')	0.020 U	0.020 U	0.0%
Naphthalene		0.050 U	0.050 U	0.0%
n-Butylbenzene		0.020 U	0.020 U	0.0%
n-Propylbenzene		0.020 U	0.020 U	0.0%
p-Isopropyltoluene		0.020 U	0.020 U	0.0%
Sec-Butylbenzene		0.020 U	0.020 U	0.0%
Styrene		0.020 U	0.020 U	0.0%
Tert-Butylbenzene		0.020 U	0.020 U	0.0%
Tetrachloroethene		0.020 U	0.020 U	0.0%
Toluene		0.030 U	0.030 U	0.0%
Total Xylenes		0.030 U	0.030 U	0.0%
Trans-1,2-Dichloroethene		0.020 U	0.020 U	0.0%
Trans-1,3-Dichloropropene		0.030 U	0.030 U	0.0%
Trichloroethene		0.030 U	0.030 U	0.0%
Vinyl Chloride		0.020 U	0.020 U	0.0%
1-Methylnaphthalene		0.038 U	0.038 U	0.5%
2-Methylnaphthalene		0.038 U	0.038 U	0.5%
Acenaphthene		0.038 U	0.038 U	0.5%
Acenaphthylene		0.038 U	0.038 U	0.5%
Anthracene		0.038 U	0.038 U	0.5%
Benz[a]anthracene		0.038 U	0.11	96.2%
Benzo(a)pyrene		0.038 U	0.068	56.5%
Benzo(b)fluoranthene		0.038 U	0.071	60.6%
Benzo(ghi)perylene		0.038 U	0.038 U	0.5%
Benzo(k)fluoranthene		0.038 U	0.067	54.6%
Chrysene		0.038 U	0.11	96.2%
Dibenzo(a,h)anthracene		0.038 U	0.038 U	0.5%
Fluoranthene		0.038 U	0.11	99.6%
Fluorene		0.038 U	0.038 U	0.5%
Indeno(1,2,3-cd)pyrene		0.038 U	0.038 U	0.5%
Naphthalene		0.038 U	0.038 U	0.5%
Phenanthrene		0.038 U	0.038 U	0.5%
Pyrene		0.038 U	0.11	94.8%
TPH-G		10.0 U	10.0 U	0.0%
TPH-D		50 U	50 U	0.0%
TPH-HO		450	560	21.8%
Arsenic		6.9	9.0	26.4%
Barium		80	64	22.9%
Cadmium		0.50 U	0.50 U	0.0%
Chromium		10.0	18	57.1%
Lead		12	8.2	37.6%
Mercury		0.50 U	0.50 U	0.0%
Selenium		1.3	0.93	31.5%
Silver		0.078 U	0.085 U	8.7%
TPH-D	B6 (3'-4')	50 U	50 U	0.0%
TPH-HO		250 U	250 U	0.0%
Arsenic	B8 (4'-5')	8.8	9.6	8.7%
Cadmium		0.50 U	0.50 U	0.0%
Chromium		10.0	11	9.5%
Lead		5.0 U	5.0 U	0.0%
Mercury		0.50 U	0.50 U	0.0%

Table 1: Relative Percent Difference of Soil Sample Field Duplicates

Consituent	Sample Location and Depth Interval (in feet bgs)	Primary Concentration (mg/kg)	Field Duplicate Concentration (mg/kg)	Relative Percent Difference
1,1,1,2-Tetrachloroethane	B9 (6'-7')	0.030 U	0.030 U	0.0%
1,1,1-Trichloroethane		0.020 U	0.020 U	0.0%
1,1,2,2-Tetrachloroethane		0.030 U	0.030 U	0.0%
1,1,2-Trichloroethane		0.030 U	0.030 U	0.0%
1,1-Dichloroethane		0.030 U	0.030 U	0.0%
1,1-Dichloroethene		0.050 U	0.050 U	0.0%
1,1-Dichloropropene		0.020 U	0.020 U	0.0%
1,2,3-Trichlorobenzene		0.10 U	0.10 U	0.0%
1,2,3-Trichloropropane		0.030 U	0.030 U	0.0%
1,2,4-Trichlorobenzene		0.050 U	0.050 U	0.0%
1,2,4-Trimethylbenzene		0.020 U	0.020 U	0.0%
1,2-Dibromo-3-Chloropropane		0.050 U	0.050 U	0.0%
1,2-Dichlorobenzene		0.030 U	0.030 U	0.0%
1,2-Dichloroethane		0.030 U	0.030 U	0.0%
1,2-Dichloropropane		0.020 U	0.020 U	0.0%
1,3,5-Trimethylbenzene		0.020 U	0.020 U	0.0%
1,3-Dichlorobenzene		0.030 U	0.030 U	0.0%
1,3-Dichloropropane		0.050 U	0.050 U	0.0%
1,4-Dichlorobenzene		0.030 U	0.030 U	0.0%
2,2-Dichloropropane		0.050 U	0.050 U	0.0%
2-Chlorotoluene		0.020 U	0.020 U	0.0%
4-Chlorotoluene		0.020 U	0.020 U	0.0%
Benzene		0.020 U	0.020 U	0.0%
Bromobenzene		0.030 U	0.030 U	0.0%
Bromoform		0.030 U	0.030 U	0.0%
Bromomethane		0.090 U	0.090 U	0.0%
Carbon Tetrachloride		0.030 U	0.030 U	0.0%
CFC-11		0.050 U	0.050 U	0.0%
CFC-12		0.060 U	0.060 U	0.0%
Chlorobenzene		0.020 U	0.020 U	0.0%
Chlorodibromomethane		0.030 U	0.030 U	0.0%
Chloroethane		0.060 U	0.060 U	0.0%
Chloroform		0.020 U	0.020 U	0.0%
Chloromethane		0.060 U	0.060 U	0.0%
Cis-1,2-Dichloroethene		0.020 U	0.020 U	0.0%
Cis-1,3-Dichloropropene		0.020 U	0.020 U	0.0%
Cumene		0.080 U	0.080 U	0.0%
Dibromomethane		0.040 U	0.040 U	0.0%
Dichlorobromomethane		0.020 U	0.020 U	0.0%
Ethylbenzene		0.030 U	0.030 U	0.0%
Ethylene dibromide		0.0050 U	0.0050 U	0.0%
Hexachlorobutadiene		0.10 U	0.10 U	0.0%
Methyl t-butyl ether		0.050 U	0.050 U	0.0%
Methylene Chloride		0.020 U	0.020 U	0.0%
Naphthalene		0.050 U	0.050 U	0.0%
n-Butylbenzene		0.020 U	0.020 U	0.0%
n-Propylbenzene		0.020 U	0.020 U	0.0%
p-Isopropyltoluene		0.020 U	0.020 U	0.0%
Sec-Butylbenzene		0.020 U	0.020 U	0.0%
Styrene		0.020 U	0.020 U	0.0%
Tert-Butylbenzene		0.020 U	0.020 U	0.0%

Table 1: Relative Percent Difference of Soil Sample Field Duplicates

Consituent	Sample Location and Depth Interval (in feet bgs)	Primary Concentration (mg/kg)	Field Duplicate Concentration (mg/kg)	Relative Percent Difference
Tetrachloroethene	B9 (6'-7')	0.020 U	0.020 U	0.0%
Toluene		0.030 U	0.030 U	0.0%
Total Xylenes		0.030 U	0.030 U	0.0%
Trans-1,2-Dichloroethene		0.020 U	0.020 U	0.0%
Trans-1,3-Dichloropropene		0.030 U	0.030 U	0.0%
Trichloroethene		0.030 U	0.030 U	0.0%
Vinyl Chloride		0.020 U	0.020 U	0.0%
TPH-G		10.0 U	10.0 U	0.0%

Notes:

bgs: below ground surface, mg/kg: milligrams per kilogram.

RPD exceeds allowable limit (50%) listed in the QAPP (PIONEER 2020a).

Non-detect values (U) are assumed to equal the full reporting limit for the RPD calculation.

Table 2: Relative Percent Difference of Groundwater Sample Field Duplicates

Consituent	Sample Location	Primary Concentration (ug/L)	Concentration (ug/L)	Relative Percent Difference
1,1,1,2-Tetrachloroethane	B4	1.0 U	1.0 U	0.0%
1,1,1-Trichloroethane		1.0 U	1.0 U	0.0%
1,1,2,2-Tetrachloroethane		1.0 U	1.0 U	0.0%
1,1,2-Trichloroethane		1.0 U	1.0 U	0.0%
1,1-Dichloroethane		1.0 U	1.0 U	0.0%
1,1-Dichloroethene		2.0 U	2.0 U	0.0%
1,1-Dichloropropene		1.0 U	1.0 U	0.0%
1,2,3-Trichlorobenzene		5.0 U	5.0 U	0.0%
1,2,3-Trichloropropane		1.0 U	1.0 U	0.0%
1,2,4-Trichlorobenzene		2.0 U	2.0 U	0.0%
1,2,4-Trimethylbenzene		1.0 U	1.0 U	0.0%
1,2-Dibromo-3-Chloropropane		1.0 U	1.0 U	0.0%
1,2-Dichlorobenzene		1.0 U	1.0 U	0.0%
1,2-Dichloroethane		1.0 U	1.0 U	0.0%
1,2-Dichloropropane		1.0 U	1.0 U	0.0%
1,3,5-Trimethylbenzene		1.0 U	1.0 U	0.0%
1,3-Dichlorobenzene		1.0 U	1.0 U	0.0%
1,3-Dichloropropane		1.0 U	1.0 U	0.0%
1,4-Dichlorobenzene		1.0 U	1.0 U	0.0%
2,2-Dichloropropane		2.0 U	2.0 U	0.0%
2-Chlorotoluene		1.0 U	1.0 U	0.0%
4-Chlorotoluene		1.0 U	1.0 U	0.0%
Benzene		1.0 U	1.0 U	0.0%
Bromobenzene		1.0 U	1.0 U	0.0%
Bromoform		1.0 U	1.0 U	0.0%
Bromomethane		2.0 U	2.0 U	0.0%
Carbon Tetrachloride		1.0 U	1.0 U	0.0%
CFC-11		2.0 U	2.0 U	0.0%
CFC-12		2.0 U	2.0 U	0.0%
Chlorobenzene		1.0 U	1.0 U	0.0%
Chlorodibromomethane		1.0 U	1.0 U	0.0%
Chloroethane		2.0 U	2.0 U	0.0%
Chloroform		1.0 U	1.0 U	0.0%
Chloromethane		2.0 U	2.0 U	0.0%
Cis-1,2-Dichloroethene		1.0 U	1.0 U	0.0%
Cis-1,3-Dichloropropene		1.0 U	1.0 U	0.0%
Cumene		4.0 U	4.0 U	0.0%
Dibromomethane		1.0 U	1.0 U	0.0%
Dichlorobromomethane		1.0 U	1.0 U	0.0%
Ethylbenzene		1.0 U	1.0 U	0.0%
Ethylene dibromide		0.010 U	0.010 U	0.0%
Hexachlorobutadiene		5.0 U	5.0 U	0.0%
Methyl t-butyl ether		5.0 U	5.0 U	0.0%
Methylene Chloride		1.0 U	1.0 U	0.0%
Naphthalene		5.0 U	5.0 U	0.0%
n-Butylbenzene		1.0 U	1.0 U	0.0%
n-Propylbenzene		1.0 U	1.0 U	0.0%
p-Isopropyltoluene		1.0 U	1.0 U	0.0%
Sec-Butylbenzene		1.0 U	1.0 U	0.0%
Styrene		1.0 U	1.0 U	0.0%
Tert-Butylbenzene		1.0 U	1.0 U	0.0%
Tetrachloroethene		1.0 U	1.0 U	0.0%
Toluene		1.0 U	1.0 U	0.0%

Table 2: Relative Percent Difference of Groundwater Sample Field Duplicates

Consituent	Sample Location	Primary Concentration (ug/L)	Concentration (ug/L)	Relative Percent Difference
Total Xylenes	B4	2.0 U	2.0 U	0.0%
Trans-1,2-Dichloroethene		1.0 U	1.0 U	0.0%
Trans-1,3-Dichloropropene		1.0 U	1.0 U	0.0%
Trichloroethene		0.40 U	0.40 U	0.0%
Vinyl Chloride		0.20 U	0.20 U	0.0%
TPH-G		100 U	100 U	0.0%
1,1,1,2-Tetrachloroethane	B6	1.0 U	1.0 U	0.0%
1,1,1-Trichloroethane		1.0 U	1.0 U	0.0%
1,1,2,2-Tetrachloroethane		1.0 U	1.0 U	0.0%
1,1,2-Trichloroethane		1.0 U	1.0 U	0.0%
1,1-Dichloroethane		1.0 U	1.0 U	0.0%
1,1-Dichloroethene		2.0 U	2.0 U	0.0%
1,1-Dichloropropene		1.0 U	1.0 U	0.0%
1,2,3-Trichlorobenzene		5.0 U	5.0 U	0.0%
1,2,3-Trichloropropane		1.0 U	1.0 U	0.0%
1,2,4-Trichlorobenzene		2.0 U	2.0 U	0.0%
1,2,4-Trimethylbenzene		1.0 U	1.0 U	0.0%
1,2-Dibromo-3-Chloropropane		1.0 U	1.0 U	0.0%
1,2-Dichlorobenzene		1.0 U	1.0 U	0.0%
1,2-Dichloroethane		1.0 U	1.0 U	0.0%
1,2-Dichloropropane		1.0 U	1.0 U	0.0%
1,3,5-Trimethylbenzene		1.0 U	1.0 U	0.0%
1,3-Dichlorobenzene		1.0 U	1.0 U	0.0%
1,3-Dichloropropane		1.0 U	1.0 U	0.0%
1,4-Dichlorobenzene		1.0 U	1.0 U	0.0%
2,2-Dichloropropane		2.0 U	2.0 U	0.0%
2-Chlorotoluene		1.0 U	1.0 U	0.0%
4-Chlorotoluene		1.0 U	1.0 U	0.0%
Benzene		1.0 U	1.0 U	0.0%
Bromobenzene		1.0 U	1.0 U	0.0%
Bromoform		1.0 U	1.0 U	0.0%
Bromomethane		2.0 U	2.0 U	0.0%
Carbon Tetrachloride		1.0 U	1.0 U	0.0%
CFC-11		2.0 U	2.0 U	0.0%
CFC-12		2.0 U	2.0 U	0.0%
Chlorobenzene		1.0 U	1.0 U	0.0%
Chlorodibromomethane		1.0 U	1.0 U	0.0%
Chloroethane		2.0 U	2.0 U	0.0%
Chloroform		1.0 U	1.0 U	0.0%
Chloromethane		2.0 U	2.0 U	0.0%
Cis-1,2-Dichloroethene		1.0 U	1.0 U	0.0%
Cis-1,3-Dichloropropene		1.0 U	1.0 U	0.0%
Cumene		4.0 U	4.0 U	0.0%
Dibromomethane		1.0 U	1.0 U	0.0%
Dichlorobromomethane		1.0 U	1.0 U	0.0%
Ethylbenzene		1.0 U	1.0 U	0.0%
Ethylene dibromide		0.13	0.096	30.1%
Hexachlorobutadiene		5.0 U	5.0 U	0.0%
Methyl t-butyl ether		5.0 U	5.0 U	0.0%
Methylene Chloride		1.0 U	1.0 U	0.0%
Naphthalene		5.0 U	5.0 U	0.0%
n-Butylbenzene		1.0 U	1.0 U	0.0%
n-Propylbenzene		1.0 U	1.0 U	0.0%

Table 2: Relative Percent Difference of Groundwater Sample Field Duplicates

Consituent	Sample Location	Primary Concentration (ug/L)	Concentration (ug/L)	Relative Percent Difference
p-Isopropyltoluene		1.0 U	1.0 U	0.0%
Sec-Butylbenzene		1.0 U	1.0 U	0.0%
Styrene		1.0 U	1.0 U	0.0%
Tert-Butylbenzene		1.0 U	1.0 U	0.0%
Tetrachloroethene		1.0 U	1.0 U	0.0%
Toluene		1.0 U	1.0 U	0.0%
Total Xylenes		2.0 U	2.0 U	0.0%
Trans-1,2-Dichloroethene		1.0 U	1.0 U	0.0%
Trans-1,3-Dichloropropene		1.0 U	1.0 U	0.0%
Trichloroethene		0.44	0.58	27.5%
Vinyl Chloride		0.20 U	0.20 U	0.0%
1,2,4-Trichlorobenzene		0.99 U	0.99 U	0.2%
1,2-Dichlorobenzene		0.99 U	0.99 U	0.2%
1,3-Dichlorobenzene		0.99 U	0.99 U	0.2%
1,4-Dichlorobenzene		0.99 U	0.99 U	0.2%
1-Methylnaphthalene		0.50 U	0.50 U	0.2%
2,4,5-Trichlorophenol		2.0 U	2.0 U	0.0%
2,4,6-Trichlorophenol		2.0 U	2.0 U	0.0%
2,4-Dichlorophenol		2.0 U	2.0 U	0.0%
2,4-Dimethylphenol		0.99 U	0.99 U	0.2%
2,4-Dinitrophenol		2.0 U	2.0 U	0.0%
2,4-Dinitrotoluene		0.99 U	0.99 U	0.2%
2,6-Dinitrotoluene		0.99 U	0.99 U	0.2%
2-Chloronaphthalene		0.99 U	0.99 U	0.2%
2-Chlorophenol		0.99 U	0.99 U	0.2%
2-Methylnaphthalene		0.50 U	0.50 U	0.2%
2-Nitroaniline	B6	5.0 U	5.0 U	0.2%
2-Nitrophenol		2.0 U	2.0 U	0.0%
3-Methylphenol and 4-Methylphenol co		0.99 U	0.99 U	0.2%
4,6-Dinitro-2-Methylphenol		5.0 U	5.0 U	0.2%
4-Bromophenyl phenyl ether		0.99 U	0.99 U	0.2%
4-Chloro-3-Methylphenol		5.0 U	5.0 U	0.2%
4-Chloroaniline		5.0 U	5.0 U	0.2%
4-Chlorophenyl-Phenylether		0.99 U	0.99 U	0.2%
4-Nitrophenol		5.0 U	5.0 U	0.2%
Acenaphthene		0.50 U	0.50 U	0.2%
Acenaphthylene		0.50 U	0.50 U	0.2%
Anthracene		0.50 U	0.50 U	0.2%
Benz[a]anthracene		0.50 U	0.50 U	0.2%
Benzo(a)pyrene		0.50 U	0.50 U	0.2%
Benzo(b)fluoranthene		0.50 U	0.50 U	0.2%
Benzo(ghi)perylene		0.50 U	0.50 U	0.2%
Benzo(k)fluoranthene		0.50 U	0.50 U	0.2%
Benzyl Alcohol		0.99 U	0.99 U	0.2%
Bis(2-Chloroethoxy)Methane		0.99 U	0.99 U	0.2%
Bis(2-Chloroethyl)Ether		2.0 U	2.0 U	0.0%
Bis(2-Ethylhexyl) Phthalate		0.99 U	0.99 U	0.2%
Butyl benzyl phthalate		0.99 U	0.99 U	0.2%
Carbazole		5.0 U	5.0 U	0.2%
Chrysene		0.50 U	0.50 U	0.2%
Dibenzo(a,h)anthracene		0.50 U	0.50 U	0.2%
Dibenzofuran		0.99 U	0.99 U	0.2%
Dibutyl phthalate		0.99 U	0.99 U	0.2%

Table 2: Relative Percent Difference of Groundwater Sample Field Duplicates

Consituent	Sample Location	Primary Concentration (ug/L)	Concentration (ug/L)	Relative Percent Difference
Diethyl phthalate	B6	0.99 U	0.99 U	0.2%
Dimethyl phthalate		0.99 U	0.99 U	0.2%
Di-N-Octyl Phthalate		0.99 U	0.99 U	0.2%
Fluoranthene		0.50 U	0.50 U	0.2%
Fluorene		0.50 U	0.50 U	0.2%
Hexachlorobenzene		0.99 U	0.99 U	0.2%
Hexachlorobutadiene		0.99 U	0.99 U	0.2%
Hexachlorocyclopentadiene		0.99 U	0.99 U	0.2%
Hexachloroethane		0.99 U	0.99 U	0.2%
Hexanedioic Acid, Bis(2-Ethylhexyl) Es		0.99 U	0.99 U	0.2%
Indeno(1,2,3-cd)pyrene		0.50 U	0.50 U	0.2%
Isophorone		0.99 U	0.99 U	0.2%
Naphthalene		0.50 U	0.50 U	0.2%
Nitrobenzene		2.0 U	2.0 U	0.0%
N-Nitrosodi-n-propylamine		0.99 U	0.99 U	0.2%
o-Cresol		0.99 U	0.99 U	0.2%
Pentachlorophenol		2.0 U	2.0 U	0.0%
Phenanthrene		0.50 U	0.50 U	0.2%
Phenol		2.0 U	2.0 U	0.0%
Pyrene		0.50 U	0.50 U	0.2%
Gasoline		100 U	100 U	0.0%
TPH-D		200 U	200 U	0.0%
TPH-HO		400 U	400 U	0.0%
Arsenic		11	8.5	25.6%
Barium		8.5	10	19.6%
Cadmium		0.50 U	0.50 U	0.0%
Chromium		5.0 U	5.0 U	0.0%
Lead		5.0 U	5.0 U	0.0%
Mercury		0.10 U	0.10 U	0.0%
Selenium		5.0 U	5.0 U	0.0%
Silver		0.25 U	0.25 U	0.0%

Notes:

ug/L: micrograms per liter.

Non-detect values (U) are assumed to equal the full reporting limit for the RPD calculation.

Libby Environmental, Inc.

3322 South Bay Road NE • Olympia, WA 98506-2957

July 8, 2020

Joel Hecker
Pioneer Technologies Corporation
5205 Corporate Center Ct SE, Suite C
Lacey, WA 98503

Dear Mr. Hecker:

Please find enclosed the analytical data report for the Hardel Site Project located in Olympia, Washington.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. The sample(s) will be disposed of within 30 days unless we are contacted to arrange long term storage.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Sherry L. Chilcutt
Senior Chemist
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@gmail.com

Libby Environmental, Inc.

Chain of Custody Record

www.LibbyEnvironmental.com

3322 South Bay Road NE
Olympia, WA 98506

Ph: 360-352-2110
Fax: 360-352-4154

Date: 06/07/2020 Page: 1 of 2

Client: Pioneer Technologies

Project Manager: Joel Hecker

Address: 5205 Corporate Center Court SE, Suite C

Project Name: Hardel Site

City: Lacey State: WA Zip: 98503

Location: 1210 West Bay Dr. City, State: Olympia WA

Phone: 360-828-3739 Fax:

Collector: SH / MK Date of Collection: 6/3

Client Project # Hardel Site

Email: heckerj@uspioneer.com

Sample Number	Depth	Time	Sample Type	Container Type	VOC 8260	PCE & Daughter Prod.	NWTPH-Gx	BTEX (8260) / (8021)	NWTPH-HCID	NWTPH-Dx / Dx	PCB 8082	MTCA 5 Metals	RCRA 8 Metals	c PAH 8270	PAH 8270	Semi Vol 8270	EPH			Field Notes
1 GW-B1-0603	10-15	1400	Grab	multiple	X		X			X			X			X				metals dissolved in field
2 GW-B2-0603	3-8	1300																		
3 GW-B3-0603	3-8	1210																		
4 GW-B4-0603	7-12	1110																		
5 GW-B5-0603	3-8	1000																		
6 GW-B6-0603	3-8	915																		
7 GW-B6-0603-01	3-8	915					X			X			X			X				
8 Trip Blank 0603	—	—			X															
9 S-B1-4-5-0603	4-5	1240			X		X			X			X		X					Sample potentially impacted
10 S-B2-2-4-0603	2-4	1230															X			Sample potentially impacted
11 S-B3-2-3-0603	2-3	1130															X			
12 S-B4-1-3-0603	1-3	1030																		Std TAT
13 S-B4-1-3-0603-01	1-3	1030																		Added 6-11-2020
14 S-B4-11-12-0603	11-12	1045			X										X					per Joel via email.
15 S-B5-3-4-0603	3-4	0920			X		X			X			X			X				
16 S-B6-3-4-0603	3-4	0845			X		X			X			X			X				
17 S-B7-3-5-0603	3-5	1600			X		X			X			X			X				

Relinquished by:	Date / Time	Received by:	Date / Time
[illegible]	6/3 1712	[illegible] Eley	6/3/20 1710 MK 1540
Relinquished by:	Date / Time	Received by:	Date / Time
Relinquished by:	Date / Time	Received by:	Date / Time

Sample Receipt

Good Condition?	(Y) N
Cooler Temp.	°C
Sample Temp.	°C
Total Number of Containers	

Remarks: need TPH-D, G, + HO

TAT: 24HR 48HR (5-DAY)

LEGAL ACTION CLAUSE: *In the event of default of payment and/or failure to pay, Client agrees to pay the costs of collection including court costs and reasonable attorney fees to be determined by a court of law.*

Distribution: White - Lab, Yellow - Originator

Libby Environmental, Inc.

Chain of Custody Record

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Olympia, WA 98506
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Fax: 360-352-4154

Date: 6/3 Page: 2 of 2

Client: Pioneer Technologies

Project Manager: Joel Hecker

Address:

Project Name: Hardel

City: State: Zip:

Location: City, State:

Phone: 360-828-3729 Fax:

Collector: Date of Collection: 6/3

Client Project #

Email: heckerj@uspioneer.com

	Sample Number	Depth	Time	Sample Type	Container Type	VOC 8260	PCE & Daughter Prod.	NWTPH-Gx	BTEX (8260) / (8021)	NWTPH-HCID	NWTPH-Dx / Dx	PCB 8082	MTCA 5 Metals	RCRA 8 Metals	c PAH 8270	PAH 8270	Semi Vol 8270	TOC			Field Notes
1	S-B8-4-5-0603	4-5	1620	Grab	multiple	X		X			X					X		⊗			Std TAT
2	S-B9-6-7-0603	6-7	1640	↓	↓	X		X			X					X					Added 6-11-2020
3																					per Joel via email
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					
16																					
17																					

Relinquished by:	Date / Time	Received by:	Date / Time
[signature]	6/3 1710	[signature] 6/3/20	6/3 1710
Relinquished by:	Date / Time	Received by:	Date / Time
Relinquished by:	Date / Time	Received by:	Date / Time

Sample Receipt

Good Condition?	(Y) N
Cooler Temp.	°C
Sample Temp.	°C
Total Number of Containers	

Remarks: need TPH-D, G, + HO

TAT: 24HR 48HR (5-DAY)

LEGAL ACTION CLAUSE: *In the event of default of payment and/or failure to pay, Client agrees to pay the costs of collection including court costs and reasonable attorney fees to be determined by a court of law.*

Distribution: White - Lab, Yellow - Originator

Libby Environmental, Inc.

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HARDEL SITE PROJECT
Pioneer Technologies
Olympia, Washington
Libby Project # L200603-7

Volatile Organic Compounds by EPA Method 8260D in Soil

Sample Description		Method Blank	S-B1-4-5-0603	S-B1-4-5-0603 Dup	S-B2-2-4-0603	S-B3-2-3-0603	S-B4-1-3-0603
Date Sampled	Reporting	N/A	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020
Date Analyzed	Limits	6/5/2020	6/5/2020	6/5/2020	6/5/2020	6/5/2020	6/5/2020
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Dichlorodifluoromethane	0.06	nd	nd	nd	nd	nd	nd
Chloromethane	0.06	nd	nd	nd	nd	nd	nd
Vinyl chloride	0.02	nd	nd	nd	nd	nd	nd
Bromomethane	0.09	nd	nd	nd	nd	nd	nd
Chloroethane	0.06	nd	nd	nd	nd	nd	nd
Trichlorofluoromethane	0.05	nd	nd	nd	nd	nd	nd
1,1-Dichloroethene	0.05	nd	nd	nd	nd	nd	nd
Methylene chloride	0.02	nd	nd	nd	nd	nd	nd
Methyl *tert*- Butyl Ether (MTBE)	0.05	nd	nd	nd	nd	nd	nd
trans -1,2-Dichloroethene	0.02	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.03	nd	nd	nd	nd	nd	nd
2,2-Dichloropropane	0.05	nd	nd	nd	nd	nd	nd
cis -1,2-Dichloroethene	0.02	nd	nd	nd	nd	nd	nd
Chloroform	0.02	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane (TCA)	0.02	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd	nd
1,1-Dichloropropene	0.02	nd	nd	nd	nd	nd	nd
Benzene	0.02	nd	nd	nd	0.34	nd	nd
1,2-Dichloroethane (EDC)	0.03	nd	nd	nd	nd	nd	nd
Trichloroethene (TCE)	0.03	nd	nd	nd	nd	nd	nd
1,2-Dichloropropane	0.02	nd	nd	nd	nd	nd	nd
Dibromomethane	0.04	nd	nd	nd	nd	nd	nd
Bromodichloromethane	0.02	nd	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	0.02	nd	nd	nd	nd	nd	nd
Toluene	0.03	nd	nd	nd	nd	nd	nd
Trans-1,3-Dichloropropene	0.03	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.03	nd	nd	nd	nd	nd	nd
Tetrachloroethene (PCE)	0.02	nd	nd	nd	nd	nd	nd
1,3-Dichloropropane	0.05	nd	nd	nd	nd	nd	nd
Dibromochloromethane	0.03	nd	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB) *	0.005	nd	nd	nd	nd	nd	nd
Chlorobenzene	0.02	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.03	nd	nd	nd	nd	nd	nd
Ethylbenzene	0.03	nd	nd	nd	0.33	nd	nd
Total Xylenes	0.03	nd	nd	nd	2.5	nd	nd
Styrene	0.02	nd	nd	nd	nd	nd	nd

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HARDEL SITE PROJECT
Pioneer Technologies
Olympia, Washington
Libby Project # L200603-7

Volatile Organic Compounds by EPA Method 8260D in Soil

Sample Description		Method Blank	S-B1-4-5-0603	S-B1-4-5-0603 Dup	S-B2-2-4-0603	S-B3-2-3-0603	S-B4-1-3-0603
Date Sampled	Reporting	N/A	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020
Date Analyzed	Limits	6/5/2020	6/5/2020	6/5/2020	6/5/2020	6/5/2020	6/5/2020
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Bromoform	0.03	nd	nd	nd	nd	nd	nd
Isopropylbenzene	0.08	nd	nd	nd	0.56	nd	nd
1,2,3-Trichloropropane	0.03	nd	nd	nd	nd	nd	nd
Bromobenzene	0.03	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.03	nd	nd	nd	nd	nd	nd
n-Propylbenzene	0.02	nd	nd	nd	0.95	nd	nd
2-Chlorotoluene	0.02	nd	nd	nd	nd	nd	nd
4-Chlorotoluene	0.02	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	nd	nd	3.6	nd	nd
tert-Butylbenzene	0.02	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.02	nd	nd	nd	10	nd	nd
sec-Butylbenzene	0.02	nd	nd	nd	1.3	nd	nd
1,3-Dichlorobenzene	0.03	nd	nd	nd	nd	nd	nd
p-Isopropyltoluene	0.02	nd	nd	nd	1.4	nd	nd
1,4-Dichlorobenzene	0.03	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.03	nd	nd	nd	nd	nd	nd
n-Butylbenzene	0.02	nd	nd	nd	1.4	nd	nd
1,2-Dibromo-3-Chloropropane	0.05	nd	nd	nd	nd	nd	nd
1,2,4-Trichlorolbenzene	0.05	nd	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	0.10	nd	nd	nd	nd	nd	nd
Naphthalene	0.05	nd	nd	nd	3.3	nd	nd
1,2,3-Trichlorobenzene	0.10	nd	nd	nd	nd	nd	nd
Surrogate Recovery							
Dibromofluoromethane		104	92	101	96	107	102
1,2-Dichloroethane-d4		110	81	107	113	110	91
Toluene-d8		103	101	102	102	100	103
4-Bromofluorobenzene		93	83	85	106	83	91

"nd" Indicates not detected at listed detection limit.
"int" Indicates that interference prevents determination.

* ANALYZED BY SIM
ACCEPTABLE RECOVERY LIMITS FOR SURROGATE 65% TO 135%

ANALYSES PERFORMED BY: Sherry Chilcutt

Libby Environmental, Inc.

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HARDEL SITE PROJECT
Pioneer Technologies
Olympia, Washington
Libby Project # L200603-7

Volatile Organic Compounds by EPA Method 8260D in Soil

Sample Description		S-B4-1-3-0603-01	S-B4-11-12-0603	S-B5-3-4-0603	S-B6-3-4-0603	S-B7-3-5-0603	S-B8-4-5-0603
Date Sampled	Reporting	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020
Date Analyzed	Limits	6/5/2020	6/5/2020	6/5/2020	6/5/2020	6/5/2020	6/5/2020
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Dichlorodifluoromethane	0.06	nd	nd	nd	nd	nd	nd
Chloromethane	0.06	nd	nd	nd	nd	nd	nd
Vinyl chloride	0.02	nd	nd	nd	nd	nd	nd
Bromomethane	0.09	nd	nd	nd	nd	nd	nd
Chloroethane	0.06	nd	nd	nd	nd	nd	nd
Trichlorofluoromethane	0.05	nd	nd	nd	nd	nd	nd
1,1-Dichloroethene	0.05	nd	nd	nd	nd	nd	nd
Methylene chloride	0.02	nd	nd	nd	nd	nd	nd
Methyl *tert*- Butyl Ether (MTBE)	0.05	nd	nd	nd	nd	nd	nd
trans -1,2-Dichloroethene	0.02	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.03	nd	nd	nd	nd	nd	nd
2,2-Dichloropropane	0.05	nd	nd	nd	nd	nd	nd
cis -1,2-Dichloroethene	0.02	nd	nd	nd	nd	nd	nd
Chloroform	0.02	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane (TCA)	0.02	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	0.03	nd	nd	nd	nd	nd	nd
1,1-Dichloropropene	0.02	nd	nd	nd	nd	nd	nd
Benzene	0.02	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane (EDC)	0.03	nd	nd	nd	nd	nd	nd
Trichloroethene (TCE)	0.03	nd	nd	nd	nd	nd	nd
1,2-Dichloropropane	0.02	nd	nd	nd	nd	nd	nd
Dibromomethane	0.04	nd	nd	nd	nd	nd	nd
Bromodichloromethane	0.02	nd	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	0.02	nd	nd	nd	nd	nd	nd
Toluene	0.03	nd	nd	nd	nd	nd	nd
Trans-1,3-Dichloropropene	0.03	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.03	nd	nd	nd	nd	nd	nd
Tetrachloroethene (PCE)	0.02	nd	nd	nd	nd	nd	nd
1,3-Dichloropropane	0.05	nd	nd	nd	nd	nd	nd
Dibromochloromethane	0.03	nd	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB) *	0.005	nd	nd	nd	nd	nd	nd
Chlorobenzene	0.02	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.03	nd	nd	nd	nd	nd	nd
Ethylbenzene	0.03	nd	nd	nd	nd	nd	nd
Total Xylenes	0.03	nd	nd	nd	nd	nd	nd
Styrene	0.02	nd	nd	nd	nd	nd	nd

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HARDEL SITE PROJECT
Pioneer Technologies
Olympia, Washington
Libby Project # L200603-7

Volatile Organic Compounds by EPA Method 8260D in Soil

Sample Description		S-B4-1-3-0603-01	S-B4-11-12-0603	S-B5-3-4-0603	S-B6-3-4-0603	S-B7-3-5-0603	S-B8-4-5-0603
Date Sampled	Reporting	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020
Date Analyzed	Limits	6/5/2020	6/5/2020	6/5/2020	6/5/2020	6/5/2020	6/5/2020
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Bromoform	0.03	nd	nd	nd	nd	nd	nd
Isopropylbenzene	0.08	nd	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	0.03	nd	nd	nd	nd	nd	nd
Bromobenzene	0.03	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.03	nd	nd	nd	nd	nd	nd
n-Propylbenzene	0.02	nd	nd	nd	nd	nd	nd
2-Chlorotoluene	0.02	nd	nd	nd	nd	nd	nd
4-Chlorotoluene	0.02	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	nd	nd	nd	0.049	nd
tert-Butylbenzene	0.02	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.02	nd	nd	nd	0.036	0.17	nd
sec-Butylbenzene	0.02	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.03	nd	nd	nd	nd	nd	nd
p-Isopropyltoluene	0.02	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.03	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.03	nd	nd	nd	nd	nd	nd
n-Butylbenzene	0.02	nd	nd	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	0.05	nd	nd	nd	nd	nd	nd
1,2,4-Trichlorolbenzene	0.05	nd	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	0.10	nd	nd	nd	nd	nd	nd
Naphthalene	0.05	nd	nd	nd	nd	0.27	nd
1,2,3-Trichlorobenzene	0.10	nd	nd	nd	nd	nd	nd
Surrogate Recovery							
Dibromofluoromethane		105	106	106	110	101	105
1,2-Dichloroethane-d4		98	104	95	112	88	98
Toluene-d8		102	103	101	102	103	100
4-Bromofluorobenzene		95	94	95	94	88	92

"nd" Indicates not detected at listed detection limit.
"int" Indicates that interference prevents determination.

* ANALYZED BY SIM
ACCEPTABLE RECOVERY LIMITS FOR SURROGATE 65% TO 135%

ANALYSES PERFORMED BY: Sherry Chilcutt

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HARDEL SITE PROJECT
Pioneer Technologies
Olympia, Washington
Libby Project # L200603-7

Volatile Organic Compounds by EPA Method 8260D in Soil

Sample Description		S-B9-6-7-0603	S-B9-6-7-0603 Dup
Date Sampled Date Analyzed	Reporting Limits (mg/kg)	6/3/2020 6/5/2020 (mg/kg)	6/3/2020 6/5/2020 (mg/kg)
Dichlorodifluoromethane	0.06	nd	nd
Chloromethane	0.06	nd	nd
Vinyl chloride	0.02	nd	nd
Bromomethane	0.09	nd	nd
Chloroethane	0.06	nd	nd
Trichlorofluoromethane	0.05	nd	nd
1,1-Dichloroethene	0.05	nd	nd
Methylene chloride	0.02	nd	nd
Methyl *tert*- Butyl Ether (MTBE)	0.05	nd	nd
trans -1,2-Dichloroethene	0.02	nd	nd
1,1-Dichloroethane	0.03	nd	nd
2,2-Dichloropropane	0.05	nd	nd
cis -1,2-Dichloroethene	0.02	nd	nd
Chloroform	0.02	nd	nd
1,1,1-Trichloroethane (TCA)	0.02	nd	nd
Carbon tetrachloride	0.03	nd	nd
1,1-Dichloropropene	0.02	nd	nd
Benzene	0.02	nd	nd
1,2-Dichloroethane (EDC)	0.03	nd	nd
Trichloroethene (TCE)	0.03	nd	nd
1,2-Dichloropropane	0.02	nd	nd
Dibromomethane	0.04	nd	nd
Bromodichloromethane	0.02	nd	nd
cis-1,3-Dichloropropene	0.02	nd	nd
Toluene	0.03	nd	nd
Trans-1,3-Dichloropropene	0.03	nd	nd
1,1,2-Trichloroethane	0.03	nd	nd
Tetrachloroethene (PCE)	0.02	nd	nd
1,3-Dichloropropane	0.05	nd	nd
Dibromochloromethane	0.03	nd	nd
1,2-Dibromoethane (EDB) *	0.005	nd	nd
Chlorobenzene	0.02	nd	nd
1,1,1,2-Tetrachloroethane	0.03	nd	nd
Ethylbenzene	0.03	nd	nd
Total Xylenes	0.03	nd	nd
Styrene	0.02	nd	nd

Libby Environmental, Inc.

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HARDEL SITE PROJECT
Pioneer Technologies
Olympia, Washington
Libby Project # L200603-7

Volatile Organic Compounds by EPA Method 8260D in Soil

Sample Description		S-B9-6-7-0603	S-B9-6-7-0603 Dup
Date Sampled	Reporting	6/3/2020	6/3/2020
Date Analyzed	Limits	6/5/2020	6/5/2020
	(mg/kg)	(mg/kg)	(mg/kg)
Bromoform	0.03	nd	nd
Isopropylbenzene	0.08	nd	nd
1,2,3-Trichloropropane	0.03	nd	nd
Bromobenzene	0.03	nd	nd
1,1,2,2-Tetrachloroethane	0.03	nd	nd
n-Propylbenzene	0.02	nd	nd
2-Chlorotoluene	0.02	nd	nd
4-Chlorotoluene	0.02	nd	nd
1,3,5-Trimethylbenzene	0.02	nd	nd
tert-Butylbenzene	0.02	nd	nd
1,2,4-Trimethylbenzene	0.02	nd	nd
sec-Butylbenzene	0.02	nd	nd
1,3-Dichlorobenzene	0.03	nd	nd
p-Isopropyltoluene	0.02	nd	nd
1,4-Dichlorobenzene	0.03	nd	nd
1,2-Dichlorobenzene	0.03	nd	nd
n-Butylbenzene	0.02	nd	nd
1,2-Dibromo-3-Chloropropane	0.05	nd	nd
1,2,4-Trichlorolbenzene	0.05	nd	nd
Hexachloro-1,3-butadiene	0.10	nd	nd
Naphthalene	0.05	nd	nd
1,2,3-Trichlorobenzene	0.10	nd	nd
Surrogate Recovery			
Dibromofluoromethane		103	102
1,2-Dichloroethane-d4		98	98
Toluene-d8		99	101
4-Bromofluorobenzene		86	84

"nd" Indicates not detected at listed detection limit.
"int" Indicates that interference prevents determination.

* ANALYZED BY SIM
ACCEPTABLE RECOVERY LIMITS FOR SURROGATE 65% TO 135%

ANALYSES PERFORMED BY: Sherry Chilcutt

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HARDEL SITE PROJECT
Pioneer Technologies
Olympia, Washington
Libby Project # L200603-7

Volatile Organic Compounds by EPA Method 8260D in Water

Sample Description		Method Blank	GW-B1-0603	GW-B2-0603	GW-B3-0603	GW-B4-0603	GW-B4-0603 Dup
Date Sampled	Reporting	N/A	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020
Date Analyzed	Limits	6/4/2020	6/4/2020	6/4/2020	6/4/2020	6/4/2020	6/4/2020
	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Dichlorodifluoromethane	2.0	nd	nd	nd	nd	nd	nd
Chloromethane	2.0	nd	nd	nd	nd	nd	nd
Vinyl chloride	0.2	nd	nd	nd	nd	nd	nd
Bromomethane	2.0	nd	nd	nd	nd	nd	nd
Chloroethane	2.0	nd	nd	6.0	nd	nd	nd
Trichlorofluoromethane	2.0	nd	nd	nd	nd	nd	nd
1,1-Dichloroethene	2.0	nd	nd	nd	nd	nd	nd
Methylene chloride	1.0	nd	nd	nd	nd	nd	nd
Methyl *tert*- Butyl Ether (MTBE)	5.0	nd	nd	nd	nd	nd	nd
trans -1,2-Dichloroethene	1.0	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	1.0	nd	nd	nd	nd	nd	nd
2,2-Dichloropropane	2.0	nd	nd	nd	nd	nd	nd
cis -1,2-Dichloroethene	1.0	nd	nd	nd	nd	nd	nd
Chloroform	1.0	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane (TCA)	1.0	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	1.0	nd	nd	nd	nd	nd	nd
1,1-Dichloropropene	1.0	nd	nd	nd	nd	nd	nd
Benzene	1.0	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane (EDC)	1.0	nd	nd	nd	nd	nd	nd
Trichloroethene (TCE)	0.4	nd	nd	nd	nd	nd	nd
1,2-Dichloropropane	1.0	nd	nd	nd	nd	nd	nd
Dibromomethane	1.0	nd	nd	nd	nd	nd	nd
Bromodichloromethane	1.0	nd	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	1.0	nd	nd	nd	nd	nd	nd
Toluene	1.0	nd	nd	nd	nd	nd	nd
Trans-1,3-Dichloropropene	1.0	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	1.0	nd	nd	nd	nd	nd	nd
Tetrachloroethene (PCE)	1.0	nd	nd	nd	nd	nd	nd
1,3-Dichloropropane	1.0	nd	nd	nd	nd	nd	nd
Dibromochloromethane	1.0	nd	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB) *	0.01	nd	nd	nd	0.096	nd	nd
Chlorobenzene	1.0	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	1.0	nd	nd	nd	nd	nd	nd
Ethylbenzene	1.0	nd	nd	nd	nd	nd	nd
Total Xylenes	2.0	nd	nd	nd	nd	nd	nd
Styrene	1.0	nd	nd	nd	nd	nd	nd

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Volatile Organic Compounds by EPA Method 8260D in Water

Sample Description		Method Blank	GW-B1-0603	GW-B2-0603	GW-B3-0603	GW-B4-0603	GW-B4-0603 Dup
Date Sampled	Reporting	N/A	6/3/2020	6/3/2020	6/3/2020	6/3/2020	6/3/2020
Date Analyzed	Limits	6/4/2020	6/4/2020	6/4/2020	6/4/2020	6/4/2020	6/4/2020
	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Bromoform	1.0	nd	nd	nd	nd	nd	nd
Isopropylbenzene	4.0	nd	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	1.0	nd	nd	nd	nd	nd	nd
Bromobenzene	1.0	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1.0	nd	nd	nd	nd	nd	nd
n-Propylbenzene	1.0	nd	nd	nd	nd	nd	nd
2-Chlorotoluene	1.0	nd	nd	nd	nd	nd	nd
4-Chlorotoluene	1.0	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	1.0	nd	nd	1.1	nd	nd	nd
tert-Butylbenzene	1.0	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	1.0	nd	nd	3.2	nd	nd	nd
sec-Butylbenzene	1.0	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	1.0	nd	nd	nd	nd	nd	nd
p-Isopropyltoluene	1.0	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	1.0	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	1.0	nd	nd	nd	nd	nd	nd
n-Butylbenzene	1.0	nd	nd	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	1.0	nd	nd	nd	nd	nd	nd
1,2,4-Trichlorolbenzene	2.0	nd	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	5.0	nd	nd	nd	nd	nd	nd
Naphthalene	5.0	nd	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	5.0	nd	nd	nd	nd	nd	nd
Surrogate Recovery							
Dibromofluoromethane		103	103	101	101	101	104
1,2-Dichloroethane-d4		102	106	95	93	95	101
Toluene-d8		101	101	96	101	102	100
4-Bromofluorobenzene		88	90	78	86	88	87

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HARDEL SITE PROJECT
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Libby Project # L200603-7

Volatile Organic Compounds by EPA Method 8260D in Water

Sample Description		GW-B5-0603	GW-B6-0603	GW-B6-0603-01	Trip Blank 0603
Date Sampled	Reporting	6/3/2020	6/3/2020	6/3/2020	6/3/2020
Date Analyzed	Limits	6/4/2020	6/4/2020	6/4/2020	6/4/2020
	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Dichlorodifluoromethane	2.0	nd	nd	nd	nd
Chloromethane	2.0	nd	nd	nd	nd
Vinyl chloride	0.2	nd	nd	nd	nd
Bromomethane	2.0	nd	nd	nd	nd
Chloroethane	2.0	nd	nd	nd	nd
Trichlorofluoromethane	2.0	nd	nd	nd	nd
1,1-Dichloroethene	2.0	nd	nd	nd	nd
Methylene chloride	1.0	nd	nd	nd	nd
Methyl *tert*- Butyl Ether (MTBE)	5.0	nd	nd	nd	nd
trans -1,2-Dichloroethene	1.0	nd	nd	nd	nd
1,1-Dichloroethane	1.0	nd	nd	nd	nd
2,2-Dichloropropane	2.0	nd	nd	nd	nd
cis -1,2-Dichloroethene	1.0	nd	nd	nd	nd
Chloroform	1.0	nd	nd	nd	nd
1,1,1-Trichloroethane (TCA)	1.0	nd	nd	nd	nd
Carbon tetrachloride	1.0	nd	nd	nd	nd
1,1-Dichloropropene	1.0	nd	nd	nd	nd
Benzene	1.0	nd	nd	nd	nd
1,2-Dichloroethane (EDC)	1.0	nd	nd	nd	nd
Trichloroethene (TCE)	0.4	0.55	0.44	0.58	nd
1,2-Dichloropropane	1.0	nd	nd	nd	nd
Dibromomethane	1.0	nd	nd	nd	nd
Bromodichloromethane	1.0	nd	nd	nd	nd
cis-1,3-Dichloropropene	1.0	nd	nd	nd	nd
Toluene	1.0	nd	nd	nd	nd
Trans-1,3-Dichloropropene	1.0	nd	nd	nd	nd
1,1,2-Trichloroethane	1.0	nd	nd	nd	nd
Tetrachloroethene (PCE)	1.0	3.4	nd	nd	nd
1,3-Dichloropropane	1.0	nd	nd	nd	nd
Dibromochloromethane	1.0	nd	nd	nd	nd
1,2-Dibromoethane (EDB) *	0.01	nd	0.13	0.096	nd
Chlorobenzene	1.0	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	1.0	nd	nd	nd	nd
Ethylbenzene	1.0	nd	nd	nd	nd
Total Xylenes	2.0	nd	nd	nd	nd
Styrene	1.0	nd	nd	nd	nd

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HARDEL SITE PROJECT
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Volatile Organic Compounds by EPA Method 8260D in Water

Sample Description		GW-B5-0603	GW-B6-0603	GW-B6-0603-01	Trip Blank 0603
Date Sampled	Reporting	6/3/2020	6/3/2020	6/3/2020	6/3/2020
Date Analyzed	Limits	6/4/2020	6/4/2020	6/4/2020	6/4/2020
	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Bromoform	1.0	nd	nd	nd	nd
Isopropylbenzene	4.0	nd	nd	nd	nd
1,2,3-Trichloropropane	1.0	nd	nd	nd	nd
Bromobenzene	1.0	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1.0	nd	nd	nd	nd
n-Propylbenzene	1.0	nd	nd	nd	nd
2-Chlorotoluene	1.0	nd	nd	nd	nd
4-Chlorotoluene	1.0	nd	nd	nd	nd
1,3,5-Trimethylbenzene	1.0	nd	nd	nd	nd
tert-Butylbenzene	1.0	nd	nd	nd	nd
1,2,4-Trimethylbenzene	1.0	nd	nd	nd	nd
sec-Butylbenzene	1.0	nd	nd	nd	nd
1,3-Dichlorobenzene	1.0	nd	nd	nd	nd
p-Isopropyltoluene	1.0	nd	nd	nd	nd
1,4-Dichlorobenzene	1.0	nd	nd	nd	nd
1,2-Dichlorobenzene	1.0	nd	nd	nd	nd
n-Butylbenzene	1.0	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	1.0	nd	nd	nd	nd
1,2,4-Trichlorolbenzene	2.0	nd	nd	nd	nd
Hexachloro-1,3-butadiene	5.0	nd	nd	nd	nd
Naphthalene	5.0	nd	nd	nd	nd
1,2,3-Trichlorobenzene	5.0	nd	nd	nd	nd
Surrogate Recovery					
Dibromofluoromethane		99	102	101	104
1,2-Dichloroethane-d4		90	104	94	103
Toluene-d8		104	104	105	94
4-Bromofluorobenzene		85	83	81	79

"nd" Indicates not detected at listed detection limit.
"int" Indicates that interference prevents determination.

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ACCEPTABLE RECOVERY LIMITS FOR SURROGATE 65% TO 135%

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HARDEL SITE PROJECT
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Gasoline by NWTPH-Gx in Soil

Sample Number	Date Analyzed	Surrogate Recovery (%)	Gasoline (mg/kg)
Method Blank	6/5/2020	103%	nd
S-B1-4-5-0603	6/5/2020	101%	nd
S-B1-4-5-0603 Dup	6/5/2020	102%	nd
S-B2-2-4-0603	6/5/2020	102%	190
S-B3-2-3-0603	6/5/2020	100%	nd
S-B4-1-3-0603	6/5/2020	103%	nd
S-B4-1-3-0603-01	6/5/2020	102%	nd
S-B4-11-12-0603	6/5/2020	103%	nd
S-B5-3-4-0603	6/5/2020	101%	nd
S-B6-3-4-0603	6/5/2020	102%	nd
S-B7-3-5-0603	6/5/2020	103%	nd
S-B8-4-5-0603	6/5/2020	100%	nd
S-B9-6-7-0603	6/5/2020	99%	nd
S-B9-6-7-0603 Dup	6/5/2020	101%	nd
Practical Quantitation Limit			10

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Toluene-d8): 65% TO 135%

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Gasoline by NWTPH-Gx in Water

Sample Number	Date Analyzed	Surrogate Recovery (%)	Gasoline (µg/L)
Method Blank	6/4/2020	101%	nd
GW-B1-0603	6/4/2020	101%	nd
GW-B2-0603	6/4/2020	96%	nd
GW-B3-0603	6/4/2020	101%	nd
GW-B4-0603	6/4/2020	102%	nd
GW-B4-0603 Dup	6/4/2020	100%	nd
GW-B5-0603	6/4/2020	104%	nd
GW-B6-0603	6/4/2020	104%	nd
GW-B6-0603-01	6/4/2020	105%	nd
Practical Quantitation Limit			100

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Toluene-d8): 65% TO 135%

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Diesel & Oil by NWTPH-Dx/Dx Extended in Soil

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Oil (mg/kg)
Method Blank	6/4/2020	118%	nd	nd
Method Blank	6/9/2020	124%	nd	nd
S-B1-4-5-0603	6/4/2020	119%	nd	2600
S-B2-2-4-0603	6/4/2020	int	41000	1500
S-B3-2-3-0603	6/4/2020	108%	nd	3300
S-B4-1-3-0603	6/9/2020	124%	nd	450
S-B4-1-3-0603 Dup	6/9/2020	123%	nd	640
S-B4-1-3-0603-01	6/9/2020	113%	nd	560
S-B4-11-12-0603	6/4/2020	106%	nd	420
S-B5-3-4-0603	6/4/2020	121%	nd	nd
S-B6-3-4-0603	6/4/2020	98%	nd	nd
S-B6-3-4-0603 Dup	6/4/2020	108%	nd	nd
S-B7-3-5-0603	6/4/2020	126%	nd	430
S-B8-4-5-0603	6/4/2020	123%	nd	nd
S-B9-6-7-0603	6/4/2020	112%	nd	nd
Practical Quantitation Limit			50	250

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

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Diesel & Oil by NWTPH-Dx/Dx Extended in Water

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (µg/L)	Oil (µg/L)
Method Blank	6/5/2020	97%	nd	nd
GW-B1-0603	6/5/2020	99%	nd	nd
GW-B2-0603	6/5/2020	90%	nd	nd
GW-B3-0603	6/5/2020	95%	nd	nd
GW-B4-0603	6/5/2020	112%	nd	nd
GW-B5-0603	6/5/2020	93%	nd	nd
GW-B6-0603	6/5/2020	101%	nd	nd
GW-B6-0603-01	6/5/2020	89%	nd	nd
GW-B6-0603-01 Dup	6/5/2020	103%	nd	nd
Practical Quantitation Limit			200	400

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

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Total Metals by EPA Method 7010 Series in Soil

Sample Number	Date Analyzed	Lead (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Arsenic (mg/kg)
Method Blank	6/9/2020	nd	nd	nd	nd
S-B1-4-5-0603	6/9/2020	38	nd	14	6.5
S-B2-2-4-0603	6/9/2020	16	nd	37	10
S-B3-2-3-0603	6/9/2020	nd	nd	12	7.3
S-B4-1-3-0603	6/9/2020	12	nd	10	6.9
S-B4-1-3-0603-01	6/9/2020	8.2	nd	18	9.0
S-B4-11-12-0603	6/9/2020	9.2	nd	24	nd
S-B5-3-4-0603	6/9/2020	nd	nd	23	7.0
S-B6-3-4-0603	6/9/2020	7.2	nd	13	nd
S-B7-3-5-0603	6/9/2020	11	nd	20	8.2
S-B8-4-5-0603	6/9/2020	nd	nd	10	8.8
S-B8-4-5-0603 Dup	6/9/2020	nd	nd	11	9.6
S-B9-6-7-0603	6/9/2020	nd	nd	6.7	nd
Practical Quantitation Limit		5.0	0.5	5.0	5.0

"nd" Indicates not detected at the listed detection limits.

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Total Mercury by EPA Method 7471 in Soil

Sample Number	Date Analyzed	Mercury (mg/kg)
Method Blank	6/9/2020	nd
S-B1-4-5-0603	6/9/2020	nd
S-B2-2-4-0603	6/9/2020	nd
S-B3-2-3-0603	6/9/2020	nd
S-B4-1-3-0603	6/9/2020	nd
S-B4-1-3-0603-01	6/9/2020	nd
S-B4-11-12-0603	6/9/2020	nd
S-B5-3-4-0603	6/9/2020	nd
S-B6-3-4-0603	6/9/2020	nd
S-B7-3-5-0603	6/9/2020	nd
S-B8-4-5-0603	6/9/2020	nd
S-B8-4-5-0603 Dup	6/9/2020	nd
S-B9-6-7-0603	6/9/2020	nd
Practical Quantitation Limit		0.5

"nd" Indicates not detected at the listed detection limits.

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Total Metals by EPA Method 7010 Series in Water

Sample Number	Date Analyzed	Lead (µg/L)	Cadmium (µg/L)	Chromium (µg/L)	Arsenic (µg/L)
Method Blank	6/9/2020	nd	nd	nd	nd
GW-B1-0603	6/9/2020	nd	nd	nd	nd
GW-B2-0603	6/9/2020	nd	nd	nd	nd
GW-B3-0603	6/9/2020	nd	nd	11	nd
GW-B4-0603	6/9/2020	nd	nd	nd	nd
GW-B5-0603	6/9/2020	nd	nd	nd	nd
GW-B6-0603	6/9/2020	nd	nd	nd	11
GW-B6-0603-01	6/9/2020	nd	nd	nd	9.9
GW-B6-0603-01 Dup	6/9/2020	nd	nd	nd	8.5
Practical Quantitation Limit		5.0	0.5	5.0	3.0

"nd" Indicates not detected at the listed detection limits.

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QA/QC Data - Volatile Organic Compounds by EPA 8260D in Soil

Matrix Spike Sample Identification: S-B9-6-7-0603

	Spiked Conc. (mg/kg)	MS Response (mg/kg)	MSD Response (mg/kg)	MS Recovery (%)	MSD Recovery (%)	RPD (%)	Limits Recovery (%)	Data Flag
Dichlorodifluoromethane	0.25	0.18	0.19	74	76	3.2	65-135	
Chloromethane	0.25	0.21	0.22	86	88	2.8	65-135	
Vinyl chloride	0.25	0.27	0.27	106	110	3.0	65-135	
Bromomethane	0.25	0.26	0.25	102	100	2.4	65-135	
Chloroethane	0.25	0.23	0.071	92	28	105.3	65-135	R, S
Trichlorofluoromethane	0.25	0.30	0.056	121	22	137.4	65-135	R, S
1,1-Dichloroethene	0.25	0.33	0.31	132	122	7.9	65-135	
Methylene chloride	0.25	0.33	0.32	131	129	1.2	65-135	
Methyl *tert*- Butyl Ether (MTBE)	0.25	0.25	0.32	99	129	26.7	65-135	
trans -1,2-Dichloroethene	0.25	0.32	0.32	129	128	0.9	65-135	
1,1-Dichloroethane	0.25	0.31	0.34	125	134	7.4	65-135	
2,2-Dichloropropane	0.25	0.32	0.34	128	135	4.9	65-135	
cis -1,2-Dichloroethene	0.25	0.22	0.24	86	98	12.2	65-135	
Chloroform	0.25	0.30	0.33	118	132	10.9	65-135	
1,1,1-Trichloroethane (TCA)	0.25	0.31	0.33	124	132	6.3	65-135	
Carbon tetrachloride	0.25	0.31	0.33	124	131	5.3	65-135	
1,1-Dichloropropene	0.25	0.22	0.24	86	95	9.3	65-135	
Benzene	0.25	0.26	0.29	105	117	10.8	65-135	
1,2-Dichloroethane (EDC)	0.25	0.21	0.27	84	109	25.7	65-135	
Trichloroethene (TCE)	0.25	0.24	0.26	95	104	9.3	65-135	
1,2-Dichloropropane	0.25	0.25	0.29	99	116	16.0	65-135	
Dibromomethane	0.25	0.18	0.23	71	92	26.0	65-135	
Bromodichloromethane	0.25	0.26	0.31	105	122	14.8	65-135	
cis-1,3-Dichloropropene	0.25	0.17	0.22	68	89	27.0	65-135	
Toluene	0.25	0.26	0.28	105	114	8.1	65-135	
Trans-1,3-Dichloropropene	0.25	0.17	0.20	68	79	15.8	65-135	
1,1,2-Trichloroethane	0.25	0.21	0.23	82	91	10.1	65-135	
Tetrachloroethene (PCE)	0.25	0.22	0.21	88	83	5.2	65-135	
1,3-Dichloropropane	0.25	0.17	0.20	68	80	15.6	65-135	
Dibromochloromethane	0.25	0.20	0.22	80	87	8.6	65-135	
1,2-Dibromoethane (EDB)	0.25	0.16	0.20	66	78	17.8	65-135	
Chlorobenzene	0.25	0.26	0.25	105	102	3.5	65-135	
Ethylbenzene	0.25	0.26	0.20	105	80	27.7	65-135	
1,1,1,2-Tetrachloroethane	0.25	0.30	0.29	120	118	2.4	65-135	
Total Xylenes	0.75	0.74	0.70	98	93	4.9	65-135	
Styrene	0.25	0.21	0.21	86	84	2.4	65-135	

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HARDEL SITE PROJECT
Pioneer Technologies
Olympia, Washington
Libby Project # L200603-7

QA/QC Data - Volatile Organic Compounds by EPA 8260D in Soil

Matrix Spike Sample Identification: S-B9-6-7-0603

	Spiked Conc. (mg/kg)	MS Response (mg/kg)	MSD Response (mg/kg)	MS Recovery (%)	MSD Recovery (%)	RPD (%)	Limits Recovery (%)	Data Flag
Bromoform	0.25	0.17	0.19	68	74	9.0	65-135	
Isopropylbenzene	0.25	0.25	0.23	99	92	8.0	65-135	
1,1,2,2-Tetrachloroethane	0.25	0.18	0.23	70	91	26.3	65-135	
Bromobenzene	0.25	0.19	0.22	76	88	15.2	65-135	
n-Propylbenzene	0.25	0.26	0.27	104	109	4.5	65-135	
1,2,3-Trichloropropane	0.25	0.20	0.22	78	88	12.5	65-135	
2-Chlorotoluene	0.25	0.24	0.26	96	102	6.9	65-135	
1,3,5-Trimethylbenzene	0.25	0.25	0.27	101	108	6.5	65-135	
4-Chlorotoluene	0.25	0.23	0.25	90	102	11.7	65-135	
tert-Butylbenzene	0.25	0.23	0.23	90	93	3.1	65-135	
1,2,4-Trimethylbenzene	0.25	0.25	0.27	99	107	8.2	65-135	
sec-Butylbenzene	0.25	0.25	0.26	102	104	2.7	65-135	
Isopropyltoluene	0.25	0.23	0.24	92	95	3.4	65-135	
1,3-Dichlorobenzene	0.25	0.21	0.24	84	94	11.2	65-135	
1,4-Dichlorobenzene	0.25	0.21	0.25	86	100	15.5	65-135	
n-Butylbenzene	0.25	0.25	0.26	102	104	2.7	65-135	
1,2-Dichlorobenzene	0.25	0.17	0.21	69	85	20.7	65-135	
1,2-Dibromo-3-Chloropropane	0.25	0.22	0.25	87	99	12.9	65-135	
1,2,4-Trichlorolbenzene	0.25	0.17	0.19	67	76	12.4	65-135	
Hexachloro-1,3-butadiene	0.25	0.25	0.23	98	92	5.9	65-135	
Naphthalene	0.25	0.17	0.17	70	67	4.1	65-135	
1,2,3-Trichlorobenzene	0.25	0.17	0.17	68	70	1.7	65-135	

Surrogate Recovery (%)	MS	MSD	
Dibromofluoromethane	100	103	65-135
1,2-Dichloroethane-d4	98	110	65-135
Toluene-d8	108	107	65-135
4-Bromofluorobenzene	109	95	65-135

ACCEPTABLE RPD IS 35%
"R" High relative percent difference observed.
"S" Spike recovery outside accepted recovery limits.

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HARDEL SITE PROJECT
Pioneer Technologies
Olympia, Washington
Libby Project # L200603-7

Laboratory Control Sample

	Spiked Conc. (mg/kg)	LCS Response (mg/kg)	LCS Recovery (%)	LCS Recovery Limits (%)	Data Flag
Dichlorodifluoromethane	0.25	0.21	85	80-120	
Chloromethane	0.25	0.29	116	80-120	
Vinyl chloride	0.25	0.21	82	80-120	
Bromomethane	0.25	0.25	100	80-120	
Chloroethane	0.25	0.21	82	80-120	
Trichlorofluoromethane	0.25	0.24	94	80-120	
1,1-Dichloroethene	0.25	0.24	97	80-120	
Methylene chloride	0.25	0.25	99	80-120	
Methyl *tert*- Butyl Ether (MTBE)	0.25	0.23	92	80-120	
trans -1,2-Dichloroethene	0.25	0.24	97	80-120	
1,1-Dichloroethane	0.25	0.23	91	80-120	
2,2-Dichloropropane	0.25	0.29	115	80-120	
cis -1,2-Dichloroethene	0.25	0.27	110	80-120	
Chloroform	0.25	0.27	106	80-120	
1,1,1-Trichloroethane (TCA)	0.25	0.28	110	80-120	
Carbon tetrachloride	0.25	0.28	110	80-120	
1,1-Dichloropropene	0.25	0.22	90	80-120	
Benzene	0.25	0.25	102	80-120	
1,2-Dichloroethane (EDC)	0.25	0.23	92	80-120	
Trichloroethene (TCE)	0.25	0.23	92	80-120	
1,2-Dichloropropane	0.25	0.24	98	80-120	
Dibromomethane	0.25	0.23	92	80-120	
Bromodichloromethane	0.25	0.26	105	80-120	
cis-1,3-Dichloropropene	0.25	0.22	86	80-120	
Toluene	0.25	0.25	100	80-120	
Trans-1,3-Dichloropropene	0.25	0.22	86	80-120	
1,1,2-Trichloroethane	0.25	0.26	102	80-120	
Tetrachloroethene (PCE)	0.25	0.21	85	80-120	
1,3-Dichloropropane	0.25	0.22	87	80-120	
Dibromochloromethane	0.25	0.24	95	80-120	
1,2-Dibromoethane (EDB)	0.25	0.222	89	80-120	
Chlorobenzene	0.25	0.25	98	80-120	
Ethylbenzene	0.25	0.24	95	80-120	
1,1,1,2-Tetrachloroethane	0.25	0.28	111	80-120	
Total Xylenes	0.75	0.71	95	80-120	
Styrene	0.25	0.22	88	80-120	

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Laboratory Control Sample

	Spiked Conc. (mg/kg)	LCS Response (mg/kg)	LCS Recovery (%)	LCS Recovery Limits (%)	Data Flag
Bromoform	0.25	0.23	93	80-120	
Isopropylbenzene	0.25	0.24	97	80-120	
1,1,2,2-Tetrachloroethane	0.25	0.25	101	80-120	
Bromobenzene	0.25	0.22	89	80-120	
n-Propylbenzene	0.25	0.26	103	80-120	
1,2,3-Trichloropropane	0.25	0.27	107	80-120	
2-Chlorotoluene	0.25	0.25	100	80-120	
1,3,5-Trimethylbenzene	0.25	0.29	114	80-120	
4-Chlorotoluene	0.25	0.28	112	80-120	
tert-Butylbenzene	0.25	0.24	98	80-120	
1,2,4-Trimethylbenzene	0.25	0.29	116	80-120	
sec-Butylbenzene	0.25	0.29	118	80-120	
Isopropyltoluene	0.25	0.30	120	80-120	
1,3-Dichlorobenzene	0.25	0.24	94	80-120	
1,4-Dichlorobenzene	0.25	0.24	94	80-120	
n-Butylbenzene	0.25	0.27	107	80-120	
1,2-Dichlorobenzene	0.25	0.23	91	80-120	
1,2-Dibromo-3-Chloropropane	0.25	0.21	84	80-120	
1,2,4-Trichlorolbenzene	0.25	0.25	101	80-120	
Hexachloro-1,3-butadiene	0.25	0.28	113	80-120	
Naphthalene	0.25	0.26	105	80-120	
1,2,3-Trichlorobenzene	0.25	0.23	92	80-120	

Surrogate Recovery		
Dibromofluoromethane	101	65-135
1,2-Dichloroethane-d4	96	65-135
Toluene-d8	107	65-135
4-Bromofluorobenzene	98	65-135

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CCV 6-4-2020

	Spiked Conc. (mg/kg)	CCV Response (mg/kg)	CCV Recovery (%)	CCV Recovery Limits (%)	Data Flag
Dichlorodifluoromethane	0.50	0.41	81	80-120	
Chloromethane	0.50	0.41	81	80-120	
Vinyl chloride	0.50	0.47	94	80-120	
Bromomethane	0.50	0.45	90	80-120	
Chloroethane	0.50	0.56	112	80-120	
Trichlorofluoromethane	0.50	0.58	116	80-120	
1,1-Dichloroethene	0.50	0.59	118	80-120	
Methylene chloride	0.50	0.53	106	80-120	
Methyl *tert*- Butyl Ether (MTBE)	0.50	0.42	84	80-120	
trans -1,2-Dichloroethene	0.50	0.46	93	80-120	
1,1-Dichloroethane	0.50	0.57	113	80-120	
2,2-Dichloropropane	0.50	0.56	111	80-120	
cis -1,2-Dichloroethene	0.50	0.44	88	80-120	
Chloroform	0.50	0.52	104	80-120	
1,1,1-Trichloroethane (TCA)	0.50	0.56	111	80-120	
Carbon tetrachloride	0.50	0.58	116	80-120	
1,1-Dichloropropene	0.50	0.48	95	80-120	
Benzene	0.50	0.52	103	80-120	
1,2-Dichloroethane (EDC)	0.50	0.45	91	80-120	
Trichloroethene (TCE)	0.50	0.47	94	80-120	
1,2-Dichloropropane	0.50	0.50	100	80-120	
Dibromomethane	0.50	0.42	84	80-120	
Bromodichloromethane	0.50	0.53	106	80-120	
cis-1,3-Dichloropropene	0.50	0.46	91	80-120	
Toluene	0.50	0.54	108	80-120	
Trans-1,3-Dichloropropene	0.50	0.42	83	80-120	
1,1,2-Trichloroethane	0.50	0.44	88	80-120	
Tetrachloroethene (PCE)	0.50	0.43	86	80-120	
1,3-Dichloropropane	0.50	0.42	84	80-120	
Dibromochloromethane	0.50	0.45	90	80-120	
1,2-Dibromoethane (EDB)	0.50	0.450	90	80-120	
Chlorobenzene	0.50	0.40	80	80-120	
Ethylbenzene	0.50	0.51	101	80-120	
1,1,1,2-Tetrachloroethane	0.50	0.53	105	80-120	
Total Xylenes	1.50	1.57	105	80-120	
Styrene	0.50	0.48	95	80-120	

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CCV 6-4-2020

	Spiked Conc. (mg/kg)	CCV Response (mg/kg)	CCV Recovery (%)	CCV Recovery Limits (%)	Data Flag
Bromoform	0.50	0.43	85	80-120	
Isopropylbenzene	0.50	0.53	106	80-120	
1,1,2,2-Tetrachloroethane	0.50	0.44	88	80-120	
Bromobenzene	0.50	0.42	84	80-120	
n-Propylbenzene	0.50	0.55	110	80-120	
1,2,3-Trichloropropane	0.50	0.55	109	80-120	
2-Chlorotoluene	0.50	0.52	104	80-120	
1,3,5-Trimethylbenzene	0.50	0.53	107	80-120	
4-Chlorotoluene	0.50	0.45	90	80-120	
tert-Butylbenzene	0.50	0.51	101	80-120	
1,2,4-Trimethylbenzene	0.50	0.53	106	80-120	
sec-Butylbenzene	0.50	0.57	114	80-120	
Isopropyltoluene	0.50	0.51	103	80-120	
1,3-Dichlorobenzene	0.50	0.46	93	80-120	
1,4-Dichlorobenzene	0.50	0.47	93	80-120	
n-Butylbenzene	0.50	0.55	110	80-120	
1,2-Dichlorobenzene	0.50	0.43	86	80-120	
1,2-Dibromo-3-Chloropropane	0.50	0.52	104	80-120	
1,2,4-Trichlorolbenzene	0.50	0.41	83	80-120	
Hexachloro-1,3-butadiene	0.50	0.49	99	80-120	
Naphthalene	0.50	0.48	95	80-120	
1,2,3-Trichlorobenzene	0.50	0.41	82	80-120	

Surrogate Recovery			
Dibromofluoromethane	97	65-135	
1,2-Dichloroethane-d4	101	65-135	
Toluene-d8	108	65-135	
4-Bromofluorobenzene	101	65-135	

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HARDEL SITE PROJECT
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QA/QC Data - Volatile Organic Compounds by EPA 8260D in Water

Matrix Spike Sample Identification: GW-B2-0603

	Spiked Conc. (µg/L)	MS Response (µg/L)	MSD Response (µg/L)	MS Recovery (%)	MSD Recovery (%)	RPD (%)	Limits Recovery (%)	Data Flag
Dichlorodifluoromethane	5.0	3.3	3.7	65	74	12.9	65-135	
Chloromethane	5.0	4.2	4.0	84	80	4.9	65-135	
Vinyl chloride	5.0	5.5	5.1	110	101	8.5	65-135	
Bromomethane	5.0	5.8	6.8	116	135	15.1	65-135	
Chloroethane	5.0	6.4	5.1	128	102	22.6	65-135	
Trichlorofluoromethane	5.0	6.2	6.4	124	128	3.2	65-135	
1,1-Dichloroethene	5.0	6.3	6.7	126	134	6.2	65-135	
Methylene chloride	5.0	5.9	6.4	118	128	8.1	65-135	
Methyl *tert*- Butyl Ether (MTBE)	5.0	5.7	4.8	113	96	16.3	65-135	
trans -1,2-Dichloroethene	5.0	5.9	6.7	118	134	12.7	65-135	
1,1-Dichloroethane	5.0	6.2	6.7	124	134	7.8	65-135	
2,2-Dichloropropane	5.0	5.6	5.3	112	106	5.5	65-135	
cis -1,2-Dichloroethene	5.0	4.1	4.1	82	82	0.0	65-135	
Chloroform	5.0	5.6	5.3	113	106	6.2	65-135	
1,1,1-Trichloroethane (TCA)	5.0	6.2	5.9	124	118	5.3	65-135	
Carbon tetrachloride	5.0	6.5	6.0	130	120	7.8	65-135	
1,1-Dichloropropene	5.0	4.4	4.3	89	86	3.2	65-135	
Benzene	5.0	5.2	5.1	104	102	1.9	65-135	
1,2-Dichloroethane (EDC)	5.0	4.9	4.3	99	86	13.9	65-135	
Trichloroethene (TCE)	5.0	4.7	4.6	94	92	2.2	65-135	
1,2-Dichloropropane	5.0	4.8	4.6	96	92	4.3	65-135	
Dibromomethane	5.0	4.1	3.6	82	72	13.0	65-135	
Bromodichloromethane	5.0	5.3	4.9	106	98	7.8	65-135	
cis-1,3-Dichloropropene	5.0	3.5	3.3	70	66	5.9	65-135	
Toluene	5.0	4.9	4.9	98	98	0.0	65-135	
Trans-1,3-Dichloropropene	5.0	3.6	3.3	72	65	9.6	65-135	
1,1,2-Trichloroethane	5.0	5.0	4.2	100	84	17.4	65-135	
Tetrachloroethene (PCE)	5.0	4.4	4.2	88	84	4.7	65-135	
1,3-Dichloropropane	5.0	4.2	3.6	84	72	15.4	65-135	
Dibromochloromethane	5.0	4.7	4.0	94	80	16.1	65-135	
1,2-Dibromoethane (EDB)	5.0	4.0	3.4	80	68	15.6	65-135	
Chlorobenzene	5.0	5.0	4.8	100	96	4.1	65-135	
Ethylbenzene	5.0	5.1	5.0	102	100	2.0	65-135	
1,1,1,2-Tetrachloroethane	5.0	5.8	5.5	116	110	5.3	65-135	
Total Xylenes	15.0	14.9	14.9	99	99	0.0	65-135	
Styrene	5.0	4.1	4.0	82	80	2.5	65-135	

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HARDEL SITE PROJECT
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QA/QC Data - Volatile Organic Compounds by EPA 8260D in Water

Matrix Spike Sample Identification: GW-B2-0603

	Spiked Conc. (µg/L)	MS Response (µg/L)	MSD Response (µg/L)	MS Recovery (%)	MSD Recovery (%)	RPD (%)	Limits Recovery (%)	Data Flag
Bromoform	5.0	4.1	3.5	82	70	15.8	65-135	
Isopropylbenzene	5.0	4.5	4.6	90	92	2.2	65-135	
1,1,2,2-Tetrachloroethane	5.0	5.4	4.8	108	96	11.8	65-135	
Bromobenzene	5.0	4.5	4.4	90	87	3.4	65-135	
n-Propylbenzene	5.0	6.1	6.1	122	122	0.0	65-135	
1,2,3-Trichloropropane	5.0	5.0	4.5	100	90	10.5	65-135	
2-Chlorotoluene	5.0	5.7	5.6	114	112	1.8	65-135	
1,3,5-Trimethylbenzene	5.0	5.7	6.0	114	120	5.1	65-135	
4-Chlorotoluene	5.0	5.0	4.9	100	98	2.0	65-135	
tert-Butylbenzene	5.0	5.0	5.1	100	102	2.0	65-135	
1,2,4-Trimethylbenzene	5.0	6.5	6.8	130	136	4.3	65-135	S
sec-Butylbenzene	5.0	5.8	6.2	116	124	6.3	65-135	
Isopropyltoluene	5.0	5.9	6.4	118	128	8.1	65-135	
1,3-Dichlorobenzene	5.0	4.9	4.9	98	98	0.0	65-135	
1,4-Dichlorobenzene	5.0	5.0	5.1	100	102	2.0	65-135	
n-Butylbenzene	5.0	6.3	6.5	126	130	3.1	65-135	
1,2-Dichlorobenzene	5.0	4.5	4.4	90	88	2.2	65-135	
1,2-Dibromo-3-Chloropropane	5.0	3.5	4.1	70	82	15.8	65-135	
1,2,4-Trichlorolbenzene	5.0	4.2	4.5	84	90	6.9	65-135	
Hexachloro-1,3-butadiene	5.0	4.7	5.1	94	102	8.2	65-135	
Naphthalene	5.0	5.5	5.8	110	117	6.0	65-135	
1,2,3-Trichlorobenzene	5.0	3.9	4.7	78	95	19.4	65-135	

Surrogate Recovery (%)	MS	MSD	
Dibromofluoromethane	102	99	65-135
1,2-Dichloroethane-d4	109	98	65-135
Toluene-d8	99	103	65-135
4-Bromofluorobenzene	85	86	65-135

"S" Spike recovery outside accepted recovery limits.
ACCEPTABLE RPD IS 35%

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HARDEL SITE PROJECT
Pioneer Technologies
Olympia, Washington
Libby Project # L200603-7

Laboratory Control Sample

	Spiked Conc. (µg/L)	LCS Response (µg/L)	LCS Recovery (%)	LCS Recovery Limits (%)	Data Flag
Dichlorodifluoromethane	5.0	4.2	84	80-120	
Chloromethane	5.0	4.2	84	80-120	
Vinyl chloride	5.0	5.0	100	80-120	
Bromomethane	5.0	4.9	98	80-120	
Chloroethane	5.0	5.9	118	80-120	
Trichlorofluoromethane	5.0	5.8	116	80-120	
1,1-Dichloroethene	5.0	5.9	118	80-120	
Methylene chloride	5.0	5.7	114	80-120	
Methyl *tert*- Butyl Ether (MTBE)	5.0	4.0	80	80-120	
trans -1,2-Dichloroethene	5.0	5.9	118	80-120	
1,1-Dichloroethane	5.0	5.3	106	80-120	
2,2-Dichloropropane	5.0	5.3	106	80-120	
cis -1,2-Dichloroethene	5.0	4.1	82	80-120	
Chloroform	5.0	4.9	98	80-120	
1,1,1-Trichloroethane (TCA)	5.0	5.3	106	80-120	
Carbon tetrachloride	5.0	5.7	114	80-120	
1,1-Dichloropropene	5.0	4.6	92	80-120	
Benzene	5.0	4.9	98	80-120	
1,2-Dichloroethane (EDC)	5.0	4.6	92	80-120	
Trichloroethene (TCE)	5.0	4.6	92	80-120	
1,2-Dichloropropane	5.0	4.4	88	80-120	
Dibromomethane	5.0	4.8	96	80-120	
Bromodichloromethane	5.0	4.6	92	80-120	
cis-1,3-Dichloropropene	5.0	5.2	104	80-120	
Toluene	5.0	4.9	98	80-120	
Trans-1,3-Dichloropropene	5.0	4.0	80	80-120	
1,1,2-Trichloroethane	5.0	4.2	84	80-120	
Tetrachloroethene (PCE)	5.0	5.0	100	80-120	
1,3-Dichloropropane	5.0	4.0	80	80-120	
Dibromochloromethane	5.0	4.4	88	80-120	
1,2-Dibromoethane (EDB)	5.0	4.7	94	80-120	
Chlorobenzene	5.0	5.2	104	80-120	
Ethylbenzene	5.0	5.3	106	80-120	
1,1,1,2-Tetrachloroethane	5.0	5.7	114	80-120	
Total Xylenes	15.0	15.9	106	80-120	
Styrene	5.0	4.6	92	80-120	

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Laboratory Control Sample

	Spiked Conc. (µg/L)	LCS Response (µg/L)	LCS Recovery (%)	LCS Recovery Limits (%)	Data Flag
Bromoform	5.0	4.0	80	80-120	
Isopropylbenzene	5.0	5.3	106	80-120	
1,1,2,2-Tetrachloroethane	5.0	4.7	94	80-120	
Bromobenzene	5.0	4.9	98	80-120	
n-Propylbenzene	5.0	6.0	120	80-120	
1,2,3-Trichloropropane	5.0	4.4	88	80-120	
2-Chlorotoluene	5.0	5.7	114	80-120	
1,3,5-Trimethylbenzene	5.0	5.9	118	80-120	
4-Chlorotoluene	5.0	5.5	110	80-120	
tert-Butylbenzene	5.0	5.5	110	80-120	
1,2,4-Trimethylbenzene	5.0	5.6	112	80-120	
sec-Butylbenzene	5.0	5.6	112	80-120	
Isopropyltoluene	5.0	5.6	112	80-120	
1,3-Dichlorobenzene	5.0	5.3	106	80-120	
1,4-Dichlorobenzene	5.0	5.5	110	80-120	
n-Butylbenzene	5.0	5.7	114	80-120	
1,2-Dichlorobenzene	5.0	5.0	100	80-120	
1,2-Dibromo-3-Chloropropane	5.0	4.4	88	80-120	
1,2,4-Trichlorolbenzene	5.0	5.0	100	80-120	
Hexachloro-1,3-butadiene	5.0	5.0	99	80-120	
Naphthalene	5.0	5.2	103	80-120	
1,2,3-Trichlorobenzene	5.0	5.4	108	80-120	

Surrogate Recovery		
Dibromofluoromethane	92	65-135
1,2-Dichloroethane-d4	100	65-135
Toluene-d8	101	65-135
4-Bromofluorobenzene	106	65-135

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CCV 6-4-2020

	Spiked Conc. (µg/L)	CCV Response (µg/L)	CCV Recovery (%)	CCV Recovery Limits (%)
Dichlorodifluoromethane	10.0	8.0	80	80-120
Chloromethane	10.0	8.0	80	80-120
SIM Vinyl chloride	10.0	8.1	81	80-120
Vinyl chloride	10.0	9.2	92	80-120
Bromomethane	10.0	11.2	112	80-120
Chloroethane	10.0	10.9	109	80-120
Trichlorofluoromethane	10.0	10.9	109	80-120
1,1-Dichloroethene	10.0	10.9	109	80-120
Methylene chloride	10.0	9.8	98	80-120
Methyl *tert*- Butyl Ether (MTBE)	10.0	8.8	88	80-120
trans -1,2-Dichloroethene	10.0	9.0	90	80-120
1,1-Dichloroethane	10.0	9.8	98	80-120
2,2-Dichloropropane	10.0	9.8	98	80-120
cis -1,2-Dichloroethene	10.0	8.2	82	80-120
Chloroform	10.0	9.2	92	80-120
1,1,1-Trichloroethane (TCA)	10.0	9.9	99	80-120
Carbon tetrachloride	10.0	10.4	104	80-120
1,1-Dichloropropene	10.0	9.0	90	80-120
Benzene	10.0	9.6	96	80-120
1,2-Dichloroethane (EDC)	10.0	8.7	87	80-120
SIM Trichloroethene (TCE)	10.0	9.5	95	80-120
Trichloroethene (TCE)	10.0	8.5	85	80-120
1,2-Dichloropropane	10.0	8.9	89	80-120
Dibromomethane	10.0	8.1	81	80-120
Bromodichloromethane	10.0	9.2	92	80-120
cis-1,3-Dichloropropene	10.0	8.1	81	80-120
Toluene	10.0	9.8	98	80-120
Trans-1,3-Dichloropropene	10.0	8.1	81	80-120
1,1,2-Trichloroethane	10.0	8.2	82	80-120
Tetrachloroethene (PCE)	10.0	9.2	92	80-120
1,3-Dichloropropane	10.0	8.1	81	80-120
Dibromochloromethane	10.0	8.7	87	80-120
SIM 1,2-Dibromoethane (EDB)	10.0	8.8	88	80-120
1,2-Dibromoethane (EDB)	10.0	8.1	81	80-120
Chlorobenzene	10.0	9.5	95	80-120
Ethylbenzene	10.0	9.8	98	80-120
1,1,1,2-Tetrachloroethane	10.0	10.3	103	80-120
Total Xylenes	30.0	30.2	101	80-120
Styrene	10.0	8.8	88	80-120

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CCV 6-4-2020

	Spiked Conc. (µg/L)	CCV Response (µg/L)	CCV Recovery (%)	CCV Recovery Limits (%)
Bromoform	10.0	8.1	81	80-120
Isopropylbenzene	10.0	9.8	98	80-120
1,1,2,2-Tetrachloroethane	10.0	10.1	101	80-120
Bromobenzene	10.0	10.5	105	80-120
n-Propylbenzene	10.0	11.3	113	80-120
1,2,3-Trichloropropane	10.0	9.7	97	80-120
2-Chlorotoluene	10.0	11.9	119	80-120
1,3,5-Trimethylbenzene	10.0	11.9	119	80-120
4-Chlorotoluene	10.0	11.8	118	80-120
tert-Butylbenzene	10.0	11.9	119	80-120
1,2,4-Trimethylbenzene	10.0	12.0	120	80-120
sec-Butylbenzene	10.0	11.1	111	80-120
Isopropyltoluene	10.0	11.8	118	80-120
1,3-Dichlorobenzene	10.0	11.0	110	80-120
1,4-Dichlorobenzene	10.0	11.0	110	80-120
n-Butylbenzene	10.0	11.9	119	80-120
1,2-Dichlorobenzene	10.0	10.1	101	80-120
1,2-Dibromo-3-Chloropropane	10.0	11.6	116	80-120
1,2,4-Trichlorolbenzene	10.0	8.9	89	80-120
Hexachloro-1,3-butadiene	10.0	10.8	108	80-120
Naphthalene	10.0	9.9	99	80-120
1,2,3-Trichlorobenzene	10.0	8.6	86	80-120

Surrogate Recovery		
Dibromofluoromethane	93	65-135
1,2-Dichloroethane-d4	90	65-135
Toluene-d8	106	65-135
4-Bromofluorobenzene	91	65-135

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QA/QC Gasoline by NWTPH-Gx in Soil

Sample Number	Date Analyzed	Gasoline (mg/kg)	Gasoline (% Recovery)	CCV Recovery Limits (%)
12.5 ppm LCS	6/5/2020	14	112%	70-130%
12.5 ppm LCSD	6/5/2020	13	104%	70-130%
RPD			7%	30%
Practical Quantitation Limit		10		

CCV Gasoline by NWTPH-Gx in Soil

Sample Number	Date Analyzed	Gasoline (mg/kg)	CCV (%)	CCV Recovery Limits (%)
50 ppm CCV	6/5/2020	40.5	81%	80-120%
Practical Quantitation Limit		10		

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QA/QC Gasoline by NWTPH-Gx in Water

Sample Number	Date Analyzed	Gasoline (µg/L)	Gasoline (% Recovery)	CCV Recovery Limits (%)
500 ppb LCS	6/4/2020	415	83%	70-130%
500 ppb LCSD	6/4/2020	429	86%	70-130%
RPD			4%	30%
Practical Quantitation Limit		100		

CCV Gasoline by NWTPH-Gx in Water

Sample Number	Date Analyzed	Gasoline (µg/L)	CCV (%)	CCV Recovery Limits (%)
1000 ppb CCV	6/4/2020	831	83%	80-120%
Practical Quantitation Limit		100		

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QA/QC Diesel by NWTPH-Dx in Soil

Sample Number	Date Analyzed	Diesel (mg/kg)	Diesel (% Recovery)	CCV Recovery Limits (%)
100 ppm LCS 060420	6/4/2020	89	89%	70-130%
100 ppm LCSD 060420	6/4/2020	86	86%	70-130%
RPD			3%	30%
100 ppm LCS 060920	6/9/2020	83	83%	70-130%
100 ppm LCSD 060920	6/9/2020	108	108%	70-130%
RPD			26%	30%
Practical Quantitation Limit		50		

CCV Diesel by NWTPH-Dx in Soil

Sample Number	Date Analyzed	Diesel (mg/kg)	CCV (%)	CCV Recovery Limits (%)
CCV Jamaica FID 1 500 ppm	6/4/2020	555	111%	85-115%
CCV Jamaica FID 2 500 ppm	6/4/2020	569	114%	85-115%
CCV Jamaica FID 1 500 ppm	6/9/2020	497	100%	85-115%
Practical Quantitation Limit		50		

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QA/QC Diesel by NWTPH-Dx in Water

Sample Number	Date Analyzed	Diesel (µg/L)	Diesel (% Recovery)	CCV Recovery Limits (%)
400 ppb LCS 060520	6/5/2020	367	92%	70-130%
400 ppb LCSD 060520	6/5/2020	405	101%	70-130%
RPD			9%	30%
Practical Quantitation Limit		50		

CCV Diesel by NWTPH-Dx in Water

Sample Number	Date Analyzed	Diesel (µg/L)	CCV (%)	CCV Recovery Limits (%)
CCV Elmer FID 1 500 ppm	6/5/2020	502	100%	85-115%
CCV Elmer FID 2 500 ppm	6/5/2020	545	109%	85-115%
Practical Quantitation Limit		50		

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QA/QC Total Metals by EPA Method 7010 Series in Soil

Sample Number	Date Analyzed	Lead (% Recovery)	Cadmium (% Recovery)	Chromium (% Recovery)	Arsenic (% Recovery)
LCS 060520	6/9/2020	115%	97%	117%	101%
L200604-5 MS	6/9/2020	115%	113%	104%	84%
L200604-5 MSD	6/9/2020	116%	116%	105%	91%
RPD	6/9/2020	1%	3%	1%	8%

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 75%-125%
ACCEPTABLE RPD IS 20%

QA/QC Total Metals by EPA Method 7010 Series in Soil

Sample Number	Date Analyzed	Lead (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Arsenic (mg/kg)
Spike Concentration		1.00	0.50	0.50	2.50
LCS 060520	6/9/2020	1.15	0.483	0.584	2.53
Spike Concentration		1.0	0.5	0.5	1.0
L200604-5 MS	6/9/2020	1.15	0.557	0.520	0.84
L200604-5 MSD	6/9/2020	1.16	0.580	0.525	0.91
RPD	6/9/2020	1%	4%	1%	8%

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 75%-125%
ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Dirk Peterson

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CCV Total Metals by EPA Method 7010 Series in Soil

Sample Number	Date Analyzed	Lead (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Arsenic (mg/kg)
Spike Concentration		2.5	0.5	0.5	10
CCV 6-9-20	6/9/2020	2.35	0.490	0.540	9.40
CCV Recovery %		94%	98%	108%	94%
CCB		nd	nd	nd	nd
CCV 6-9-20-B	6/9/2020	2.73	0.462	0.495	9.9
CCV Recovery %		109%	92%	99%	99%
CCB-B		nd	nd	nd	nd

CCV Recovery Limits %: 90-110%

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QA/QC Total Mercury by EPA Method 7471 in Soil

Sample Number	Date Analyzed	Mercury (% Recovery)
LCS 060520	6/9/2020	102%
L200604-5 MS	6/9/2020	90%
L200604-5 MSD	6/9/2020	90%
RPD	6/9/2020	0%

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 80%-120%
ACCEPTABLE RECOVERY LIMITS FOR LCS: 80%-120%
ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Dirk Peterson

QA/QC Total Mercury by EPA Method 7471 in Soil

Sample Number	Date Analyzed	Mercury (mg/kg)
Spike Concentration		2.00
LCS 060520	6/9/2020	2.04
L200604-5 MS	6/9/2020	1.79
L200604-5 MSD	6/9/2020	1.79
RPD	6/9/2020	0%

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 80%-120%
ACCEPTABLE RECOVERY LIMITS FOR LCS: 80%-120%
ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Dirk Peterson

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CCV Total Mercury by EPA Method 7471 in Soil

Sample Number	Date Analyzed	Mercury (mg/kg)
Spike Concentration		5.0
CCV 6-9-20	6/9/2020	4.67
CCV Recovery %		93%
CCB		nd
CCV 6-9-20-B	6/9/2020	4.67
CCV Recovery %		93%
CCB-B		nd

ACCEPTABLE RECOVERY LIMITS FOR CCV: 80%-120%

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QA/QC Total Metals by EPA Method 7010 Series in Water

Sample Number	Date Analyzed	Lead (% Recovery)	Cadmium (% Recovery)	Chromium (% Recovery)	Arsenic (% Recovery)
LCS 060920	6/9/2020	114%	94%	92%	106%
GW-B6-0603-01 MS	6/9/2020	106%	93%	107%	94%
GW-B6-0603-01 MSD	6/9/2020	110%	92%	105%	95%
RPD	6/9/2020	4%	1%	2%	1%

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 75%-125%
ACCEPTABLE RECOVERY LIMITS FOR LCS: 80%-120%
ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Dirk Peterson

QA/QC Total Metals by EPA Method 7010 Series in Water

Sample Number	Date Analyzed	Lead (µg/L)	Cadmium (µg/L)	Chromium (µg/L)	Arsenic (µg/L)
Spike Concentration		20	10	10	50
LCS 060920	6/9/2020	22.8	9.4	9.2	52.9
GW-B6-0603-01 MS	6/9/2020	21.2	9.3	10.7	46.9
GW-B6-0603-01 MSD	6/9/2020	21.9	9.2	10.5	47.4
RPD	6/9/2020	3%	1%	2%	1%

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 75%-125%
ACCEPTABLE RECOVERY LIMITS FOR LCS: 80%-120%
ACCEPTABLE RPD IS 20%

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CCV Total Metals by EPA Method 7010 Series in Water

Sample Number	Date Analyzed	Lead (µg/L)	Cadmium (µg/L)	Chromium (µg/L)	Arsenic (µg/L)
Spike Concentration		50	10	10	50
CCV 6-9-20	6/4/2020	52	9.7	10.6	204
CCV Recovery %		104%	97%	106%	102%
CCB		nd	nd	nd	nd

ACCEPTABLE RECOVERY LIMITS FOR CCV: 90%-110%

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HARDEL SITE PROJECT
Pioneer Technologies
Libby Project # L200603-7
Date Received 6/3/2020
Time Received 5:10 PM

Received By KE

Sample Receipt Checklist

Chain of Custody

1. Is the Chain of Custody complete?	☑ Yes	☐ No	
2. How was the sample delivered?	☑ Hand Delivered	☐ Picked Up	☐ Shipped

Log In

3. Cooler or Shipping Container is present.	☑ Yes	☐ No	☐ N/A
4. Cooler or Shipping Container is in good condition.	☑ Yes	☐ No	☐ N/A
5. Cooler or Shipping Container has Custody Seals present.	☐ Yes	☑ No	☐ N/A
6. Was an attempt made to cool the samples?	☑ Yes	☐ No	☐ N/A
7. Temperature of cooler (0°C to 8°C recommended)	0.9 °C		
8. Temperature of sample(s) (0°C to 8°C recommended)	1.8 °C		
9. Did all containers arrive in good condition (unbroken)?	☑ Yes	☐ No	
10. Is it clear what analyses were requested?	☑ Yes	☐ No	
11. Did container labels match Chain of Custody?	☑ Yes	☐ No	
12. Are matrices correctly identified on Chain of Custody?	☑ Yes	☐ No	
13. Are correct containers used for the analysis indicated?	☑ Yes	☐ No	
14. Is there sufficient sample volume for indicated analysis?	☑ Yes	☐ No	
15. Were all containers properly preserved per each analysis?	☑ Yes	☐ No	
16. Were VOA vials collected correctly (no headspace)?	☑ Yes	☐ No	☐ N/A
17. Were all holding times able to be met?	☑ Yes	☐ No	

Discrepancies/ Notes

18. Was client notified of all discrepancies?	☐ Yes	☐ No	☑ N/A

Person Notified: _____ Date: _____
By Whom: _____ Via: _____
Regarding: _____

19. Comments. _____

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Libby Environmental
Kodey Eley
3322 South Bay Road NE
Olympia, WA 98506

RE: Hardel Site
Work Order Number: 2006085

July 02, 2020

Attention Kodey Eley:

Fremont Analytical, Inc. received 18 sample(s) on 6/4/2020 for the analyses presented in the following report.

Extractable Petroleum Hydrocarbons by NWEPH
Mercury by EPA Method 245.1
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Semi-Volatile Organic Compounds by EPA Method 8270
Total Metals by EPA Method 200.8
Total Metals by EPA Method 6020B
Total Organic Carbon by EPA 9060

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005
ORELAP Certification: WA 100009-007 (NELAP Recognized)

Date: *07/02/2020*

CLIENT: Libby Environmental
Project: Hardel Site
Work Order: 2006085

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2006085-001	GW-B1-0603	06/03/2020 2:00 PM	06/04/2020 12:24 PM
2006085-002	GW-B2-0603	06/03/2020 1:00 PM	06/04/2020 12:24 PM
2006085-003	GW-B3-0603	06/03/2020 12:10 PM	06/04/2020 12:24 PM
2006085-004	GW-B4-0603	06/03/2020 11:10 AM	06/04/2020 12:24 PM
2006085-005	GW-B5-0603	06/03/2020 10:00 AM	06/04/2020 12:24 PM
2006085-006	GW-B6-0603	06/03/2020 9:15 AM	06/04/2020 12:24 PM
2006085-007	GW-B6-0603-01	06/03/2020 9:15 AM	06/04/2020 12:24 PM
2006085-008	S-B1-4-5-0603	06/03/2020 1:40 PM	06/04/2020 12:24 PM
2006085-009	S-B2-2-4-0603	06/03/2020 12:30 PM	06/04/2020 12:24 PM
2006085-010	S-B3-2-3-0603	06/03/2020 11:30 PM	06/04/2020 12:24 PM
2006085-011	S-B4-1-3-0603	06/03/2020 10:30 AM	06/04/2020 12:24 PM
2006085-012	S-B4-1-3-0603-01	06/03/2020 10:30 AM	06/04/2020 12:24 PM
2006085-013	S-B4-11-12-0603	06/03/2020 10:45 AM	06/04/2020 12:24 PM
2006085-014	S-B5-3-4-0603	06/03/2020 9:20 AM	06/04/2020 12:24 PM
2006085-015	S-B6-3-4-0603	06/03/2020 8:45 AM	06/04/2020 12:24 PM
2006085-016	S-B7-3-5-0603	06/03/2020 4:00 PM	06/04/2020 12:24 PM
2006085-017	S-B8-4-5-0603	06/03/2020 4:20 PM	06/04/2020 12:24 PM
2006085-018	S-B9-6-7-0603	06/03/2020 4:40 PM	06/04/2020 12:24 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **2006085**

Date: **7/2/2020**

CLIENT: Libby Environmental

Project: Hardel Site

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

7/2/2020: Revision 2 includes addition of Level 2b data package.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Project: Hardel Site
Lab ID: 2006085-001
Client Sample ID: GW-B1-0603

Collection Date: 6/3/2020 2:00:00 PM
Matrix: Water

Semi-Volatile Organic Compounds by EPA Method 8270 Batch ID: 28620 Analyst: SB

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Phenol	2.10	1.98		µg/L	1	6/15/2020 5:10:36 PM
2-Chlorophenol	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
1,3-Dichlorobenzene	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
1,4-Dichlorobenzene	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
1,2-Dichlorobenzene	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
Benzyl alcohol	ND	0.991	Q	µg/L	1	6/15/2020 5:10:36 PM
Bis(2-chloroethyl) ether	ND	1.98		µg/L	1	6/15/2020 5:10:36 PM
2-Methylphenol (o-cresol)	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
Hexachloroethane	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
N-Nitrosodi-n-propylamine	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
3&4-Methylphenol (m, p-cresol)	1.48	0.991	Q	µg/L	1	6/15/2020 5:10:36 PM
Nitrobenzene	ND	1.98		µg/L	1	6/15/2020 5:10:36 PM
Isophorone	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
2-Nitrophenol	ND	1.98		µg/L	1	6/15/2020 5:10:36 PM
2,4-Dimethylphenol	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
Bis(2-chloroethoxy)methane	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
2,4-Dichlorophenol	ND	1.98		µg/L	1	6/15/2020 5:10:36 PM
1,2,4-Trichlorobenzene	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
Naphthalene	ND	0.495		µg/L	1	6/15/2020 5:10:36 PM
4-Chloroaniline	ND	4.95		µg/L	1	6/15/2020 5:10:36 PM
Hexachlorobutadiene	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
4-Chloro-3-methylphenol	ND	4.95		µg/L	1	6/15/2020 5:10:36 PM
2-Methylnaphthalene	ND	0.495		µg/L	1	6/15/2020 5:10:36 PM
1-Methylnaphthalene	ND	0.495		µg/L	1	6/15/2020 5:10:36 PM
Hexachlorocyclopentadiene	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
2,4,6-Trichlorophenol	ND	1.98		µg/L	1	6/15/2020 5:10:36 PM
2,4,5-Trichlorophenol	ND	1.98		µg/L	1	6/15/2020 5:10:36 PM
2-Chloronaphthalene	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
2-Nitroaniline	ND	4.95		µg/L	1	6/15/2020 5:10:36 PM
Acenaphthene	ND	0.495		µg/L	1	6/15/2020 5:10:36 PM
Dimethylphthalate	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
2,6-Dinitrotoluene	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
Acenaphthylene	ND	0.495		µg/L	1	6/15/2020 5:10:36 PM
2,4-Dinitrophenol	ND	1.98		µg/L	1	6/15/2020 5:10:36 PM
Dibenzofuran	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
2,4-Dinitrotoluene	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
4-Nitrophenol	ND	4.95	Q*	µg/L	1	6/15/2020 5:10:36 PM
Fluorene	ND	0.495		µg/L	1	6/15/2020 5:10:36 PM
4-Chlorophenyl phenyl ether	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Collection Date: 6/3/2020 2:00:00 PM
Project: Hardel Site
Lab ID: 2006085-001
Matrix: Water
Client Sample ID: GW-B1-0603

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Semi-Volatile Organic Compounds by EPA Method 8270				Batch ID: 28620		Analyst: SB
Diethylphthalate	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
4,6-Dinitro-2-methylphenol	ND	4.95		µg/L	1	6/15/2020 5:10:36 PM
4-Bromophenyl phenyl ether	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
Hexachlorobenzene	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
Pentachlorophenol	ND	1.98		µg/L	1	6/15/2020 5:10:36 PM
Phenanthrene	ND	0.495		µg/L	1	6/15/2020 5:10:36 PM
Anthracene	ND	0.495		µg/L	1	6/15/2020 5:10:36 PM
Carbazole	ND	4.95		µg/L	1	6/15/2020 5:10:36 PM
Di-n-butyl phthalate	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
Fluoranthene	ND	0.495		µg/L	1	6/15/2020 5:10:36 PM
Pyrene	ND	0.495		µg/L	1	6/15/2020 5:10:36 PM
Benzyl Butylphthalate	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
bis(2-Ethylhexyl)adipate	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
Benz(a)anthracene	ND	0.495		µg/L	1	6/15/2020 5:10:36 PM
Chrysene	ND	0.495		µg/L	1	6/15/2020 5:10:36 PM
Bis(2-ethylhexyl) phthalate	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
Di-n-octyl phthalate	ND	0.991		µg/L	1	6/15/2020 5:10:36 PM
Benzo(b)fluoranthene	ND	0.495		µg/L	1	6/15/2020 5:10:36 PM
Benzo(k)fluoranthene	ND	0.495		µg/L	1	6/15/2020 5:10:36 PM
Benzo(a)pyrene	ND	0.495		µg/L	1	6/15/2020 5:10:36 PM
Indeno(1,2,3-cd)pyrene	ND	0.495		µg/L	1	6/15/2020 5:10:36 PM
Dibenz(a,h)anthracene	ND	0.495		µg/L	1	6/15/2020 5:10:36 PM
Benzo(g,h,i)perylene	ND	0.495		µg/L	1	6/15/2020 5:10:36 PM
Surr: 2,4,6-Tribromophenol	143	24.7 - 176		%Rec	1	6/15/2020 5:10:36 PM
Surr: 2-Fluorobiphenyl	121	54.8 - 148		%Rec	1	6/15/2020 5:10:36 PM
Surr: Nitrobenzene-d5	116	40.8 - 151		%Rec	1	6/15/2020 5:10:36 PM
Surr: Phenol-d6	38.3	5 - 116		%Rec	1	6/15/2020 5:10:36 PM
Surr: p-Terphenyl	60.3	51.7 - 162		%Rec	1	6/15/2020 5:10:36 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria
* - Flagged value is not within established control limits.

Mercury by EPA Method 245.1				Batch ID: 28625		Analyst: WF
Mercury	ND	0.100		µg/L	1	6/11/2020 5:56:41 PM
Total Metals by EPA Method 200.8				Batch ID: 28580		Analyst: CO
Barium	125	2.50		µg/L	1	6/8/2020 2:59:46 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Project: Hardel Site
Lab ID: 2006085-001
Client Sample ID: GW-B1-0603

Collection Date: 6/3/2020 2:00:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 200.8				Batch ID: 28580		Analyst: CO
Selenium	ND	5.00		µg/L	1	6/8/2020 2:59:46 PM
Silver	ND	0.250		µg/L	1	6/8/2020 2:59:46 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Collection Date: 6/3/2020 1:00:00 PM
Project: Hardel Site
Lab ID: 2006085-002
Matrix: Water
Client Sample ID: GW-B2-0603

Semi-Volatile Organic Compounds by EPA Method 8270 Batch ID: 28620 Analyst: SB

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Phenol	ND	2.00		µg/L	1	6/15/2020 5:55:37 PM
2-Chlorophenol	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
1,3-Dichlorobenzene	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
1,4-Dichlorobenzene	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
1,2-Dichlorobenzene	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
Benzyl alcohol	ND	0.998	Q	µg/L	1	6/15/2020 5:55:37 PM
Bis(2-chloroethyl) ether	ND	2.00		µg/L	1	6/15/2020 5:55:37 PM
2-Methylphenol (o-cresol)	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
Hexachloroethane	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
N-Nitrosodi-n-propylamine	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
3&4-Methylphenol (m, p-cresol)	ND	0.998	Q	µg/L	1	6/15/2020 5:55:37 PM
Nitrobenzene	ND	2.00		µg/L	1	6/15/2020 5:55:37 PM
Isophorone	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
2-Nitrophenol	ND	2.00		µg/L	1	6/15/2020 5:55:37 PM
2,4-Dimethylphenol	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
Bis(2-chloroethoxy)methane	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
2,4-Dichlorophenol	ND	2.00		µg/L	1	6/15/2020 5:55:37 PM
1,2,4-Trichlorobenzene	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
Naphthalene	1.28	0.499		µg/L	1	6/15/2020 5:55:37 PM
4-Chloroaniline	ND	4.99		µg/L	1	6/15/2020 5:55:37 PM
Hexachlorobutadiene	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
4-Chloro-3-methylphenol	ND	4.99		µg/L	1	6/15/2020 5:55:37 PM
2-Methylnaphthalene	4.60	0.499		µg/L	1	6/15/2020 5:55:37 PM
1-Methylnaphthalene	6.16	0.499		µg/L	1	6/15/2020 5:55:37 PM
Hexachlorocyclopentadiene	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
2,4,6-Trichlorophenol	ND	2.00		µg/L	1	6/15/2020 5:55:37 PM
2,4,5-Trichlorophenol	ND	2.00		µg/L	1	6/15/2020 5:55:37 PM
2-Chloronaphthalene	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
2-Nitroaniline	ND	4.99		µg/L	1	6/15/2020 5:55:37 PM
Acenaphthene	0.699	0.499		µg/L	1	6/15/2020 5:55:37 PM
Dimethylphthalate	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
2,6-Dinitrotoluene	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
Acenaphthylene	ND	0.499		µg/L	1	6/15/2020 5:55:37 PM
2,4-Dinitrophenol	ND	2.00		µg/L	1	6/15/2020 5:55:37 PM
Dibenzofuran	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
2,4-Dinitrotoluene	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
4-Nitrophenol	ND	4.99	Q*	µg/L	1	6/15/2020 5:55:37 PM
Fluorene	0.726	0.499		µg/L	1	6/15/2020 5:55:37 PM
4-Chlorophenyl phenyl ether	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Project: Hardel Site
Lab ID: 2006085-002
Client Sample ID: GW-B2-0603

Collection Date: 6/3/2020 1:00:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Semi-Volatile Organic Compounds by EPA Method 8270				Batch ID: 28620		Analyst: SB
Diethylphthalate	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
4,6-Dinitro-2-methylphenol	ND	4.99		µg/L	1	6/15/2020 5:55:37 PM
4-Bromophenyl phenyl ether	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
Hexachlorobenzene	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
Pentachlorophenol	ND	2.00		µg/L	1	6/15/2020 5:55:37 PM
Phenanthrene	0.880	0.499		µg/L	1	6/15/2020 5:55:37 PM
Anthracene	ND	0.499		µg/L	1	6/15/2020 5:55:37 PM
Carbazole	ND	4.99		µg/L	1	6/15/2020 5:55:37 PM
Di-n-butyl phthalate	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
Fluoranthene	ND	0.499		µg/L	1	6/15/2020 5:55:37 PM
Pyrene	ND	0.499		µg/L	1	6/15/2020 5:55:37 PM
Benzyl Butylphthalate	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
bis(2-Ethylhexyl)adipate	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
Benz(a)anthracene	ND	0.499		µg/L	1	6/15/2020 5:55:37 PM
Chrysene	ND	0.499		µg/L	1	6/15/2020 5:55:37 PM
Bis(2-ethylhexyl) phthalate	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
Di-n-octyl phthalate	ND	0.998		µg/L	1	6/15/2020 5:55:37 PM
Benzo(b)fluoranthene	ND	0.499		µg/L	1	6/15/2020 5:55:37 PM
Benzo(k)fluoranthene	ND	0.499		µg/L	1	6/15/2020 5:55:37 PM
Benzo(a)pyrene	ND	0.499		µg/L	1	6/15/2020 5:55:37 PM
Indeno(1,2,3-cd)pyrene	ND	0.499		µg/L	1	6/15/2020 5:55:37 PM
Dibenz(a,h)anthracene	ND	0.499		µg/L	1	6/15/2020 5:55:37 PM
Benzo(g,h,i)perylene	ND	0.499		µg/L	1	6/15/2020 5:55:37 PM
Surr: 2,4,6-Tribromophenol	147	24.7 - 176		%Rec	1	6/15/2020 5:55:37 PM
Surr: 2-Fluorobiphenyl	131	54.8 - 148		%Rec	1	6/15/2020 5:55:37 PM
Surr: Nitrobenzene-d5	122	40.8 - 151		%Rec	1	6/15/2020 5:55:37 PM
Surr: Phenol-d6	41.5	5 - 116		%Rec	1	6/15/2020 5:55:37 PM
Surr: p-Terphenyl	119	51.7 - 162		%Rec	1	6/15/2020 5:55:37 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria
* - Flagged value is not within established control limits.

Mercury by EPA Method 245.1				Batch ID: 28625		Analyst: WF
Mercury	ND	0.100		µg/L	1	6/11/2020 6:03:30 PM
Total Metals by EPA Method 200.8				Batch ID: 28580		Analyst: CO
Barium	56.4	2.50		µg/L	1	6/8/2020 3:10:55 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Project: Hardel Site
Lab ID: 2006085-002
Client Sample ID: GW-B2-0603

Collection Date: 6/3/2020 1:00:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 200.8				Batch ID: 28580		Analyst: CO
Selenium	ND	5.00		µg/L	1	6/8/2020 3:10:55 PM
Silver	ND	0.250		µg/L	1	6/9/2020 12:48:34 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Collection Date: 6/3/2020 12:10:00 PM
Project: Hardel Site
Lab ID: 2006085-003
Matrix: Water
Client Sample ID: GW-B3-0603

Semi-Volatile Organic Compounds by EPA Method 8270 Batch ID: 28620 Analyst: SB

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Phenol	ND	1.98		µg/L	1	6/15/2020 6:18:12 PM
2-Chlorophenol	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
1,3-Dichlorobenzene	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
1,4-Dichlorobenzene	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
1,2-Dichlorobenzene	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
Benzyl alcohol	ND	0.989	Q	µg/L	1	6/15/2020 6:18:12 PM
Bis(2-chloroethyl) ether	ND	1.98		µg/L	1	6/15/2020 6:18:12 PM
2-Methylphenol (o-cresol)	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
Hexachloroethane	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
N-Nitrosodi-n-propylamine	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
3&4-Methylphenol (m, p-cresol)	ND	0.989	Q	µg/L	1	6/15/2020 6:18:12 PM
Nitrobenzene	ND	1.98		µg/L	1	6/15/2020 6:18:12 PM
Isophorone	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
2-Nitrophenol	ND	1.98		µg/L	1	6/15/2020 6:18:12 PM
2,4-Dimethylphenol	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
Bis(2-chloroethoxy)methane	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
2,4-Dichlorophenol	ND	1.98		µg/L	1	6/15/2020 6:18:12 PM
1,2,4-Trichlorobenzene	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
Naphthalene	ND	0.494		µg/L	1	6/15/2020 6:18:12 PM
4-Chloroaniline	ND	4.94		µg/L	1	6/15/2020 6:18:12 PM
Hexachlorobutadiene	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
4-Chloro-3-methylphenol	ND	4.94		µg/L	1	6/15/2020 6:18:12 PM
2-Methylnaphthalene	ND	0.494		µg/L	1	6/15/2020 6:18:12 PM
1-Methylnaphthalene	ND	0.494		µg/L	1	6/15/2020 6:18:12 PM
Hexachlorocyclopentadiene	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
2,4,6-Trichlorophenol	ND	1.98		µg/L	1	6/15/2020 6:18:12 PM
2,4,5-Trichlorophenol	ND	1.98		µg/L	1	6/15/2020 6:18:12 PM
2-Chloronaphthalene	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
2-Nitroaniline	ND	4.94		µg/L	1	6/15/2020 6:18:12 PM
Acenaphthene	ND	0.494		µg/L	1	6/15/2020 6:18:12 PM
Dimethylphthalate	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
2,6-Dinitrotoluene	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
Acenaphthylene	ND	0.494		µg/L	1	6/15/2020 6:18:12 PM
2,4-Dinitrophenol	ND	1.98		µg/L	1	6/15/2020 6:18:12 PM
Dibenzofuran	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
2,4-Dinitrotoluene	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
4-Nitrophenol	ND	4.94	Q*	µg/L	1	6/15/2020 6:18:12 PM
Fluorene	ND	0.494		µg/L	1	6/15/2020 6:18:12 PM
4-Chlorophenyl phenyl ether	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Project: Hardel Site
Lab ID: 2006085-003
Client Sample ID: GW-B3-0603

Collection Date: 6/3/2020 12:10:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Semi-Volatile Organic Compounds by EPA Method 8270				Batch ID: 28620		Analyst: SB
Diethylphthalate	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
4,6-Dinitro-2-methylphenol	ND	4.94		µg/L	1	6/15/2020 6:18:12 PM
4-Bromophenyl phenyl ether	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
Hexachlorobenzene	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
Pentachlorophenol	ND	1.98		µg/L	1	6/15/2020 6:18:12 PM
Phenanthrene	ND	0.494		µg/L	1	6/15/2020 6:18:12 PM
Anthracene	ND	0.494		µg/L	1	6/15/2020 6:18:12 PM
Carbazole	ND	4.94		µg/L	1	6/15/2020 6:18:12 PM
Di-n-butyl phthalate	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
Fluoranthene	ND	0.494		µg/L	1	6/15/2020 6:18:12 PM
Pyrene	ND	0.494		µg/L	1	6/15/2020 6:18:12 PM
Benzyl Butylphthalate	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
bis(2-Ethylhexyl)adipate	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
Benz(a)anthracene	ND	0.494		µg/L	1	6/15/2020 6:18:12 PM
Chrysene	ND	0.494		µg/L	1	6/15/2020 6:18:12 PM
Bis(2-ethylhexyl) phthalate	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
Di-n-octyl phthalate	ND	0.989		µg/L	1	6/15/2020 6:18:12 PM
Benzo(b)fluoranthene	ND	0.494		µg/L	1	6/15/2020 6:18:12 PM
Benzo(k)fluoranthene	ND	0.494		µg/L	1	6/15/2020 6:18:12 PM
Benzo(a)pyrene	ND	0.494		µg/L	1	6/15/2020 6:18:12 PM
Indeno(1,2,3-cd)pyrene	ND	0.494		µg/L	1	6/15/2020 6:18:12 PM
Dibenz(a,h)anthracene	ND	0.494		µg/L	1	6/15/2020 6:18:12 PM
Benzo(g,h,i)perylene	ND	0.494		µg/L	1	6/15/2020 6:18:12 PM
Surr: 2,4,6-Tribromophenol	133	24.7 - 176		%Rec	1	6/15/2020 6:18:12 PM
Surr: 2-Fluorobiphenyl	106	54.8 - 148		%Rec	1	6/15/2020 6:18:12 PM
Surr: Nitrobenzene-d5	92.3	40.8 - 151		%Rec	1	6/15/2020 6:18:12 PM
Surr: Phenol-d6	32.6	5 - 116		%Rec	1	6/15/2020 6:18:12 PM
Surr: p-Terphenyl	131	51.7 - 162		%Rec	1	6/15/2020 6:18:12 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria
* - Flagged value is not within established control limits.

Mercury by EPA Method 245.1				Batch ID: 28625		Analyst: WF
Mercury	ND	0.100		µg/L	1	6/11/2020 6:05:11 PM
Total Metals by EPA Method 200.8				Batch ID: 28580		Analyst: CO
Barium	178	2.50		µg/L	1	6/8/2020 3:16:29 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Project: Hardel Site
Lab ID: 2006085-003
Client Sample ID: GW-B3-0603

Collection Date: 6/3/2020 12:10:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 200.8				Batch ID: 28580		Analyst: CO
Selenium	ND	5.00		µg/L	1	6/8/2020 3:16:29 PM
Silver	ND	0.250		µg/L	1	6/8/2020 3:16:29 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Collection Date: 6/3/2020 11:10:00 AM
Project: Hardel Site
Lab ID: 2006085-004
Matrix: Water
Client Sample ID: GW-B4-0603

Semi-Volatile Organic Compounds by EPA Method 8270 Batch ID: 28620 Analyst: SB

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Phenol	ND	2.00		µg/L	1	6/15/2020 6:40:42 PM
2-Chlorophenol	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
1,3-Dichlorobenzene	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
1,4-Dichlorobenzene	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
1,2-Dichlorobenzene	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
Benzyl alcohol	ND	0.999	Q	µg/L	1	6/15/2020 6:40:42 PM
Bis(2-chloroethyl) ether	ND	2.00		µg/L	1	6/15/2020 6:40:42 PM
2-Methylphenol (o-cresol)	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
Hexachloroethane	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
N-Nitrosodi-n-propylamine	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
3&4-Methylphenol (m, p-cresol)	ND	0.999	Q	µg/L	1	6/15/2020 6:40:42 PM
Nitrobenzene	ND	2.00		µg/L	1	6/15/2020 6:40:42 PM
Isophorone	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
2-Nitrophenol	ND	2.00		µg/L	1	6/15/2020 6:40:42 PM
2,4-Dimethylphenol	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
Bis(2-chloroethoxy)methane	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
2,4-Dichlorophenol	ND	2.00		µg/L	1	6/15/2020 6:40:42 PM
1,2,4-Trichlorobenzene	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
Naphthalene	ND	0.499		µg/L	1	6/15/2020 6:40:42 PM
4-Chloroaniline	ND	4.99		µg/L	1	6/15/2020 6:40:42 PM
Hexachlorobutadiene	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
4-Chloro-3-methylphenol	ND	4.99		µg/L	1	6/15/2020 6:40:42 PM
2-Methylnaphthalene	ND	0.499		µg/L	1	6/15/2020 6:40:42 PM
1-Methylnaphthalene	ND	0.499		µg/L	1	6/15/2020 6:40:42 PM
Hexachlorocyclopentadiene	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
2,4,6-Trichlorophenol	ND	2.00		µg/L	1	6/15/2020 6:40:42 PM
2,4,5-Trichlorophenol	ND	2.00		µg/L	1	6/15/2020 6:40:42 PM
2-Chloronaphthalene	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
2-Nitroaniline	ND	4.99		µg/L	1	6/15/2020 6:40:42 PM
Acenaphthene	1.22	0.499		µg/L	1	6/15/2020 6:40:42 PM
Dimethylphthalate	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
2,6-Dinitrotoluene	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
Acenaphthylene	ND	0.499		µg/L	1	6/15/2020 6:40:42 PM
2,4-Dinitrophenol	ND	2.00		µg/L	1	6/15/2020 6:40:42 PM
Dibenzofuran	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
2,4-Dinitrotoluene	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
4-Nitrophenol	ND	4.99	Q*	µg/L	1	6/15/2020 6:40:42 PM
Fluorene	ND	0.499		µg/L	1	6/15/2020 6:40:42 PM
4-Chlorophenyl phenyl ether	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Project: Hardel Site
Lab ID: 2006085-004
Client Sample ID: GW-B4-0603

Collection Date: 6/3/2020 11:10:00 AM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Semi-Volatile Organic Compounds by EPA Method 8270				Batch ID: 28620		Analyst: SB
Diethylphthalate	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
4,6-Dinitro-2-methylphenol	ND	4.99		µg/L	1	6/15/2020 6:40:42 PM
4-Bromophenyl phenyl ether	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
Hexachlorobenzene	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
Pentachlorophenol	ND	2.00		µg/L	1	6/15/2020 6:40:42 PM
Phenanthrene	ND	0.499		µg/L	1	6/15/2020 6:40:42 PM
Anthracene	ND	0.499		µg/L	1	6/15/2020 6:40:42 PM
Carbazole	ND	4.99		µg/L	1	6/15/2020 6:40:42 PM
Di-n-butyl phthalate	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
Fluoranthene	ND	0.499		µg/L	1	6/15/2020 6:40:42 PM
Pyrene	ND	0.499		µg/L	1	6/15/2020 6:40:42 PM
Benzyl Butylphthalate	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
bis(2-Ethylhexyl)adipate	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
Benz(a)anthracene	ND	0.499		µg/L	1	6/15/2020 6:40:42 PM
Chrysene	ND	0.499		µg/L	1	6/15/2020 6:40:42 PM
Bis(2-ethylhexyl) phthalate	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
Di-n-octyl phthalate	ND	0.999		µg/L	1	6/15/2020 6:40:42 PM
Benzo(b)fluoranthene	ND	0.499		µg/L	1	6/15/2020 6:40:42 PM
Benzo(k)fluoranthene	ND	0.499		µg/L	1	6/15/2020 6:40:42 PM
Benzo(a)pyrene	ND	0.499		µg/L	1	6/15/2020 6:40:42 PM
Indeno(1,2,3-cd)pyrene	ND	0.499		µg/L	1	6/15/2020 6:40:42 PM
Dibenz(a,h)anthracene	ND	0.499		µg/L	1	6/15/2020 6:40:42 PM
Benzo(g,h,i)perylene	ND	0.499		µg/L	1	6/15/2020 6:40:42 PM
Surr: 2,4,6-Tribromophenol	137	24.7 - 176		%Rec	1	6/15/2020 6:40:42 PM
Surr: 2-Fluorobiphenyl	130	54.8 - 148		%Rec	1	6/15/2020 6:40:42 PM
Surr: Nitrobenzene-d5	118	40.8 - 151		%Rec	1	6/15/2020 6:40:42 PM
Surr: Phenol-d6	39.8	5 - 116		%Rec	1	6/15/2020 6:40:42 PM
Surr: p-Terphenyl	145	51.7 - 162		%Rec	1	6/15/2020 6:40:42 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria
* - Flagged value is not within established control limits.

Mercury by EPA Method 245.1				Batch ID: 28625		Analyst: WF
Mercury	ND	0.100		µg/L	1	6/11/2020 6:06:52 PM
Total Metals by EPA Method 200.8				Batch ID: 28580		Analyst: CO
Barium	65.0	2.50		µg/L	1	6/8/2020 3:43:01 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Project: Hardel Site
Lab ID: 2006085-004
Client Sample ID: GW-B4-0603

Collection Date: 6/3/2020 11:10:00 AM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 200.8				Batch ID: 28580		Analyst: CO
Selenium	ND	5.00		µg/L	1	6/8/2020 3:43:01 PM
Silver	ND	0.250		µg/L	1	6/8/2020 3:43:01 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Collection Date: 6/3/2020 10:00:00 AM
Project: Hardel Site
Lab ID: 2006085-005
Matrix: Water
Client Sample ID: GW-B5-0603

Semi-Volatile Organic Compounds by EPA Method 8270 Batch ID: 28620 Analyst: SB

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Phenol	ND	2.00		µg/L	1	6/15/2020 7:03:09 PM
2-Chlorophenol	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
1,3-Dichlorobenzene	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
1,4-Dichlorobenzene	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
1,2-Dichlorobenzene	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
Benzyl alcohol	ND	0.999	Q	µg/L	1	6/15/2020 7:03:09 PM
Bis(2-chloroethyl) ether	ND	2.00		µg/L	1	6/15/2020 7:03:09 PM
2-Methylphenol (o-cresol)	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
Hexachloroethane	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
N-Nitrosodi-n-propylamine	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
3&4-Methylphenol (m, p-cresol)	ND	0.999	Q	µg/L	1	6/15/2020 7:03:09 PM
Nitrobenzene	ND	2.00		µg/L	1	6/15/2020 7:03:09 PM
Isophorone	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
2-Nitrophenol	ND	2.00		µg/L	1	6/15/2020 7:03:09 PM
2,4-Dimethylphenol	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
Bis(2-chloroethoxy)methane	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
2,4-Dichlorophenol	ND	2.00		µg/L	1	6/15/2020 7:03:09 PM
1,2,4-Trichlorobenzene	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
Naphthalene	ND	0.499		µg/L	1	6/15/2020 7:03:09 PM
4-Chloroaniline	ND	4.99		µg/L	1	6/15/2020 7:03:09 PM
Hexachlorobutadiene	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
4-Chloro-3-methylphenol	ND	4.99		µg/L	1	6/15/2020 7:03:09 PM
2-Methylnaphthalene	ND	0.499		µg/L	1	6/15/2020 7:03:09 PM
1-Methylnaphthalene	ND	0.499		µg/L	1	6/15/2020 7:03:09 PM
Hexachlorocyclopentadiene	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
2,4,6-Trichlorophenol	ND	2.00		µg/L	1	6/15/2020 7:03:09 PM
2,4,5-Trichlorophenol	ND	2.00		µg/L	1	6/15/2020 7:03:09 PM
2-Chloronaphthalene	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
2-Nitroaniline	ND	4.99		µg/L	1	6/15/2020 7:03:09 PM
Acenaphthene	ND	0.499		µg/L	1	6/15/2020 7:03:09 PM
Dimethylphthalate	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
2,6-Dinitrotoluene	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
Acenaphthylene	ND	0.499		µg/L	1	6/15/2020 7:03:09 PM
2,4-Dinitrophenol	ND	2.00		µg/L	1	6/15/2020 7:03:09 PM
Dibenzofuran	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
2,4-Dinitrotoluene	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
4-Nitrophenol	ND	4.99	Q*	µg/L	1	6/15/2020 7:03:09 PM
Fluorene	ND	0.499		µg/L	1	6/15/2020 7:03:09 PM
4-Chlorophenyl phenyl ether	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Project: Hardel Site
Lab ID: 2006085-005
Client Sample ID: GW-B5-0603

Collection Date: 6/3/2020 10:00:00 AM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Semi-Volatile Organic Compounds by EPA Method 8270				Batch ID: 28620		Analyst: SB
Diethylphthalate	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
4,6-Dinitro-2-methylphenol	ND	4.99		µg/L	1	6/15/2020 7:03:09 PM
4-Bromophenyl phenyl ether	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
Hexachlorobenzene	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
Pentachlorophenol	ND	2.00		µg/L	1	6/15/2020 7:03:09 PM
Phenanthrene	ND	0.499		µg/L	1	6/15/2020 7:03:09 PM
Anthracene	ND	0.499		µg/L	1	6/15/2020 7:03:09 PM
Carbazole	ND	4.99		µg/L	1	6/15/2020 7:03:09 PM
Di-n-butyl phthalate	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
Fluoranthene	ND	0.499		µg/L	1	6/15/2020 7:03:09 PM
Pyrene	ND	0.499		µg/L	1	6/15/2020 7:03:09 PM
Benzyl Butylphthalate	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
bis(2-Ethylhexyl)adipate	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
Benz(a)anthracene	ND	0.499		µg/L	1	6/15/2020 7:03:09 PM
Chrysene	ND	0.499		µg/L	1	6/15/2020 7:03:09 PM
Bis(2-ethylhexyl) phthalate	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
Di-n-octyl phthalate	ND	0.999		µg/L	1	6/15/2020 7:03:09 PM
Benzo(b)fluoranthene	ND	0.499		µg/L	1	6/15/2020 7:03:09 PM
Benzo(k)fluoranthene	ND	0.499		µg/L	1	6/15/2020 7:03:09 PM
Benzo(a)pyrene	ND	0.499		µg/L	1	6/15/2020 7:03:09 PM
Indeno(1,2,3-cd)pyrene	ND	0.499		µg/L	1	6/15/2020 7:03:09 PM
Dibenz(a,h)anthracene	ND	0.499		µg/L	1	6/15/2020 7:03:09 PM
Benzo(g,h,i)perylene	ND	0.499		µg/L	1	6/15/2020 7:03:09 PM
Surr: 2,4,6-Tribromophenol	139	24.7 - 176		%Rec	1	6/15/2020 7:03:09 PM
Surr: 2-Fluorobiphenyl	121	54.8 - 148		%Rec	1	6/15/2020 7:03:09 PM
Surr: Nitrobenzene-d5	105	40.8 - 151		%Rec	1	6/15/2020 7:03:09 PM
Surr: Phenol-d6	37.7	5 - 116		%Rec	1	6/15/2020 7:03:09 PM
Surr: p-Terphenyl	141	51.7 - 162		%Rec	1	6/15/2020 7:03:09 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria
* - Flagged value is not within established control limits.

Mercury by EPA Method 245.1				Batch ID: 28625		Analyst: WF
Mercury	ND	0.100		µg/L	1	6/11/2020 6:08:34 PM
Total Metals by EPA Method 200.8				Batch ID: 28580		Analyst: CO
Barium	8.87	2.50		µg/L	1	6/8/2020 3:48:35 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Project: Hardel Site
Lab ID: 2006085-005
Client Sample ID: GW-B5-0603

Collection Date: 6/3/2020 10:00:00 AM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 200.8				Batch ID: 28580		Analyst: CO
Selenium	ND	5.00		µg/L	1	6/8/2020 3:48:35 PM
Silver	ND	0.250		µg/L	1	6/8/2020 3:48:35 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Collection Date: 6/3/2020 9:15:00 AM
Project: Hardel Site
Lab ID: 2006085-006
Matrix: Water
Client Sample ID: GW-B6-0603

Semi-Volatile Organic Compounds by EPA Method 8270 Batch ID: 28620 Analyst: SB

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Phenol	ND	1.98		µg/L	1	6/15/2020 7:25:43 PM
2-Chlorophenol	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
1,3-Dichlorobenzene	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
1,4-Dichlorobenzene	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
1,2-Dichlorobenzene	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
Benzyl alcohol	ND	0.992	Q	µg/L	1	6/15/2020 7:25:43 PM
Bis(2-chloroethyl) ether	ND	1.98		µg/L	1	6/15/2020 7:25:43 PM
2-Methylphenol (o-cresol)	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
Hexachloroethane	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
N-Nitrosodi-n-propylamine	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
3&4-Methylphenol (m, p-cresol)	ND	0.992	Q	µg/L	1	6/15/2020 7:25:43 PM
Nitrobenzene	ND	1.98		µg/L	1	6/15/2020 7:25:43 PM
Isophorone	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
2-Nitrophenol	ND	1.98		µg/L	1	6/15/2020 7:25:43 PM
2,4-Dimethylphenol	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
Bis(2-chloroethoxy)methane	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
2,4-Dichlorophenol	ND	1.98		µg/L	1	6/15/2020 7:25:43 PM
1,2,4-Trichlorobenzene	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
Naphthalene	ND	0.496		µg/L	1	6/15/2020 7:25:43 PM
4-Chloroaniline	ND	4.96		µg/L	1	6/15/2020 7:25:43 PM
Hexachlorobutadiene	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
4-Chloro-3-methylphenol	ND	4.96		µg/L	1	6/15/2020 7:25:43 PM
2-Methylnaphthalene	ND	0.496		µg/L	1	6/15/2020 7:25:43 PM
1-Methylnaphthalene	ND	0.496		µg/L	1	6/15/2020 7:25:43 PM
Hexachlorocyclopentadiene	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
2,4,6-Trichlorophenol	ND	1.98		µg/L	1	6/15/2020 7:25:43 PM
2,4,5-Trichlorophenol	ND	1.98		µg/L	1	6/15/2020 7:25:43 PM
2-Chloronaphthalene	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
2-Nitroaniline	ND	4.96		µg/L	1	6/15/2020 7:25:43 PM
Acenaphthene	ND	0.496		µg/L	1	6/15/2020 7:25:43 PM
Dimethylphthalate	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
2,6-Dinitrotoluene	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
Acenaphthylene	ND	0.496		µg/L	1	6/15/2020 7:25:43 PM
2,4-Dinitrophenol	ND	1.98		µg/L	1	6/15/2020 7:25:43 PM
Dibenzofuran	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
2,4-Dinitrotoluene	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
4-Nitrophenol	ND	4.96	Q*	µg/L	1	6/15/2020 7:25:43 PM
Fluorene	ND	0.496		µg/L	1	6/15/2020 7:25:43 PM
4-Chlorophenyl phenyl ether	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Project: Hardel Site
Lab ID: 2006085-006
Client Sample ID: GW-B6-0603

Collection Date: 6/3/2020 9:15:00 AM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Semi-Volatile Organic Compounds by EPA Method 8270				Batch ID: 28620		Analyst: SB
Diethylphthalate	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
4,6-Dinitro-2-methylphenol	ND	4.96		µg/L	1	6/15/2020 7:25:43 PM
4-Bromophenyl phenyl ether	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
Hexachlorobenzene	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
Pentachlorophenol	ND	1.98		µg/L	1	6/15/2020 7:25:43 PM
Phenanthrene	ND	0.496		µg/L	1	6/15/2020 7:25:43 PM
Anthracene	ND	0.496		µg/L	1	6/15/2020 7:25:43 PM
Carbazole	ND	4.96		µg/L	1	6/15/2020 7:25:43 PM
Di-n-butyl phthalate	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
Fluoranthene	ND	0.496		µg/L	1	6/15/2020 7:25:43 PM
Pyrene	ND	0.496		µg/L	1	6/15/2020 7:25:43 PM
Benzyl Butylphthalate	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
bis(2-Ethylhexyl)adipate	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
Benz(a)anthracene	ND	0.496		µg/L	1	6/15/2020 7:25:43 PM
Chrysene	ND	0.496		µg/L	1	6/15/2020 7:25:43 PM
Bis(2-ethylhexyl) phthalate	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
Di-n-octyl phthalate	ND	0.992		µg/L	1	6/15/2020 7:25:43 PM
Benzo(b)fluoranthene	ND	0.496		µg/L	1	6/15/2020 7:25:43 PM
Benzo(k)fluoranthene	ND	0.496		µg/L	1	6/15/2020 7:25:43 PM
Benzo(a)pyrene	ND	0.496		µg/L	1	6/15/2020 7:25:43 PM
Indeno(1,2,3-cd)pyrene	ND	0.496		µg/L	1	6/15/2020 7:25:43 PM
Dibenz(a,h)anthracene	ND	0.496		µg/L	1	6/15/2020 7:25:43 PM
Benzo(g,h,i)perylene	ND	0.496		µg/L	1	6/15/2020 7:25:43 PM
Surr: 2,4,6-Tribromophenol	131	24.7 - 176		%Rec	1	6/15/2020 7:25:43 PM
Surr: 2-Fluorobiphenyl	111	54.8 - 148		%Rec	1	6/15/2020 7:25:43 PM
Surr: Nitrobenzene-d5	101	40.8 - 151		%Rec	1	6/15/2020 7:25:43 PM
Surr: Phenol-d6	35.1	5 - 116		%Rec	1	6/15/2020 7:25:43 PM
Surr: p-Terphenyl	134	51.7 - 162		%Rec	1	6/15/2020 7:25:43 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria
* - Flagged value is not within established control limits.

Mercury by EPA Method 245.1				Batch ID: 28625		Analyst: WF
Mercury	ND	0.100		µg/L	1	6/11/2020 6:15:10 PM
Total Metals by EPA Method 200.8				Batch ID: 28580		Analyst: CO
Barium	8.46	2.50		µg/L	1	6/8/2020 3:54:09 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Project: Hardel Site
Lab ID: 2006085-006
Client Sample ID: GW-B6-0603

Collection Date: 6/3/2020 9:15:00 AM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 200.8				Batch ID: 28580		Analyst: CO
Selenium	ND	5.00		µg/L	1	6/8/2020 3:54:09 PM
Silver	ND	0.250		µg/L	1	6/8/2020 3:54:09 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Collection Date: 6/3/2020 9:15:00 AM
Project: Hardel Site
Lab ID: 2006085-007
Matrix: Water
Client Sample ID: GW-B6-0603-01

Semi-Volatile Organic Compounds by EPA Method 8270 Batch ID: 28620 Analyst: SB

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Phenol	ND	1.98		µg/L	1	6/15/2020 7:48:16 PM
2-Chlorophenol	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
1,3-Dichlorobenzene	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
1,4-Dichlorobenzene	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
1,2-Dichlorobenzene	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
Benzyl alcohol	ND	0.990	Q	µg/L	1	6/15/2020 7:48:16 PM
Bis(2-chloroethyl) ether	ND	1.98		µg/L	1	6/15/2020 7:48:16 PM
2-Methylphenol (o-cresol)	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
Hexachloroethane	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
N-Nitrosodi-n-propylamine	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
3&4-Methylphenol (m, p-cresol)	ND	0.990	Q	µg/L	1	6/15/2020 7:48:16 PM
Nitrobenzene	ND	1.98		µg/L	1	6/15/2020 7:48:16 PM
Isophorone	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
2-Nitrophenol	ND	1.98		µg/L	1	6/15/2020 7:48:16 PM
2,4-Dimethylphenol	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
Bis(2-chloroethoxy)methane	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
2,4-Dichlorophenol	ND	1.98		µg/L	1	6/15/2020 7:48:16 PM
1,2,4-Trichlorobenzene	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
Naphthalene	ND	0.495		µg/L	1	6/15/2020 7:48:16 PM
4-Chloroaniline	ND	4.95		µg/L	1	6/15/2020 7:48:16 PM
Hexachlorobutadiene	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
4-Chloro-3-methylphenol	ND	4.95		µg/L	1	6/15/2020 7:48:16 PM
2-Methylnaphthalene	ND	0.495		µg/L	1	6/15/2020 7:48:16 PM
1-Methylnaphthalene	ND	0.495		µg/L	1	6/15/2020 7:48:16 PM
Hexachlorocyclopentadiene	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
2,4,6-Trichlorophenol	ND	1.98		µg/L	1	6/15/2020 7:48:16 PM
2,4,5-Trichlorophenol	ND	1.98		µg/L	1	6/15/2020 7:48:16 PM
2-Chloronaphthalene	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
2-Nitroaniline	ND	4.95		µg/L	1	6/15/2020 7:48:16 PM
Acenaphthene	ND	0.495		µg/L	1	6/15/2020 7:48:16 PM
Dimethylphthalate	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
2,6-Dinitrotoluene	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
Acenaphthylene	ND	0.495		µg/L	1	6/15/2020 7:48:16 PM
2,4-Dinitrophenol	ND	1.98		µg/L	1	6/15/2020 7:48:16 PM
Dibenzofuran	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
2,4-Dinitrotoluene	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
4-Nitrophenol	ND	4.95	Q*	µg/L	1	6/15/2020 7:48:16 PM
Fluorene	ND	0.495		µg/L	1	6/15/2020 7:48:16 PM
4-Chlorophenyl phenyl ether	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Project: Hardel Site
Lab ID: 2006085-007
Client Sample ID: GW-B6-0603-01

Collection Date: 6/3/2020 9:15:00 AM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Semi-Volatile Organic Compounds by EPA Method 8270				Batch ID: 28620		Analyst: SB
Diethylphthalate	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
4,6-Dinitro-2-methylphenol	ND	4.95		µg/L	1	6/15/2020 7:48:16 PM
4-Bromophenyl phenyl ether	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
Hexachlorobenzene	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
Pentachlorophenol	ND	1.98		µg/L	1	6/15/2020 7:48:16 PM
Phenanthrene	ND	0.495		µg/L	1	6/15/2020 7:48:16 PM
Anthracene	ND	0.495		µg/L	1	6/15/2020 7:48:16 PM
Carbazole	ND	4.95		µg/L	1	6/15/2020 7:48:16 PM
Di-n-butyl phthalate	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
Fluoranthene	ND	0.495		µg/L	1	6/15/2020 7:48:16 PM
Pyrene	ND	0.495		µg/L	1	6/15/2020 7:48:16 PM
Benzyl Butylphthalate	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
bis(2-Ethylhexyl)adipate	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
Benz(a)anthracene	ND	0.495		µg/L	1	6/15/2020 7:48:16 PM
Chrysene	ND	0.495		µg/L	1	6/15/2020 7:48:16 PM
Bis(2-ethylhexyl) phthalate	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
Di-n-octyl phthalate	ND	0.990		µg/L	1	6/15/2020 7:48:16 PM
Benzo(b)fluoranthene	ND	0.495		µg/L	1	6/15/2020 7:48:16 PM
Benzo(k)fluoranthene	ND	0.495		µg/L	1	6/15/2020 7:48:16 PM
Benzo(a)pyrene	ND	0.495		µg/L	1	6/15/2020 7:48:16 PM
Indeno(1,2,3-cd)pyrene	ND	0.495		µg/L	1	6/15/2020 7:48:16 PM
Dibenz(a,h)anthracene	ND	0.495		µg/L	1	6/15/2020 7:48:16 PM
Benzo(g,h,i)perylene	ND	0.495		µg/L	1	6/15/2020 7:48:16 PM
Surr: 2,4,6-Tribromophenol	141	24.7 - 176		%Rec	1	6/15/2020 7:48:16 PM
Surr: 2-Fluorobiphenyl	121	54.8 - 148		%Rec	1	6/15/2020 7:48:16 PM
Surr: Nitrobenzene-d5	117	40.8 - 151		%Rec	1	6/15/2020 7:48:16 PM
Surr: Phenol-d6	38.5	5 - 116		%Rec	1	6/15/2020 7:48:16 PM
Surr: p-Terphenyl	147	51.7 - 162		%Rec	1	6/15/2020 7:48:16 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria
* - Flagged value is not within established control limits.

Mercury by EPA Method 245.1				Batch ID: 28625		Analyst: WF
Mercury	ND	0.100		µg/L	1	6/11/2020 6:16:52 PM
Total Metals by EPA Method 200.8				Batch ID: 28580		Analyst: CO
Barium	10.3	2.50		µg/L	1	6/8/2020 3:59:43 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Project: Hardel Site
Lab ID: 2006085-007
Client Sample ID: GW-B6-0603-01

Collection Date: 6/3/2020 9:15:00 AM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 200.8				Batch ID: 28580		Analyst: CO
Selenium	ND	5.00		µg/L	1	6/8/2020 3:59:43 PM
Silver	ND	0.250		µg/L	1	6/8/2020 3:59:43 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Collection Date: 6/3/2020 1:40:00 PM
Project: Hardel Site
Lab ID: 2006085-008
Matrix: Soil
Client Sample ID: S-B1-4-5-0603

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 28581		Analyst: SB
Naphthalene	ND	45.5		µg/Kg-dry	1	6/8/2020 8:29:30 PM
2-Methylnaphthalene	ND	45.5		µg/Kg-dry	1	6/8/2020 8:29:30 PM
1-Methylnaphthalene	ND	45.5		µg/Kg-dry	1	6/8/2020 8:29:30 PM
Acenaphthylene	ND	45.5		µg/Kg-dry	1	6/8/2020 8:29:30 PM
Acenaphthene	ND	45.5		µg/Kg-dry	1	6/8/2020 8:29:30 PM
Fluorene	ND	45.5		µg/Kg-dry	1	6/8/2020 8:29:30 PM
Phenanthrene	69.2	45.5		µg/Kg-dry	1	6/8/2020 8:29:30 PM
Anthracene	89.4	45.5		µg/Kg-dry	1	6/8/2020 8:29:30 PM
Fluoranthene	665	45.5		µg/Kg-dry	1	6/8/2020 8:29:30 PM
Pyrene	927	45.5		µg/Kg-dry	1	6/8/2020 8:29:30 PM
Benz(a)anthracene	184	45.5		µg/Kg-dry	1	6/8/2020 8:29:30 PM
Chrysene	265	45.5		µg/Kg-dry	1	6/8/2020 8:29:30 PM
Benzo(b)fluoranthene	252	45.5		µg/Kg-dry	1	6/8/2020 8:29:30 PM
Benzo(k)fluoranthene	121	45.5		µg/Kg-dry	1	6/8/2020 8:29:30 PM
Benzo(a)pyrene	155	45.5		µg/Kg-dry	1	6/8/2020 8:29:30 PM
Indeno(1,2,3-cd)pyrene	61.8	45.5		µg/Kg-dry	1	6/8/2020 8:29:30 PM
Dibenz(a,h)anthracene	54.2	45.5		µg/Kg-dry	1	6/8/2020 8:29:30 PM
Benzo(g,h,i)perylene	48.5	45.5	Q	µg/Kg-dry	1	6/8/2020 8:29:30 PM
Surr: 2-Fluorobiphenyl	72.2	6.91 - 127		%Rec	1	6/8/2020 8:29:30 PM
Surr: Terphenyl-d14 (surr)	122	32.9 - 153		%Rec	1	6/8/2020 8:29:30 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Total Metals by EPA Method 6020B				Batch ID: 28586		Analyst: CO
Barium	86.8	0.426		mg/Kg-dry	1	6/10/2020 12:25:00 PM
Selenium	1.09	0.426		mg/Kg-dry	1	6/9/2020 5:47:03 PM
Silver	0.129	0.0851		mg/Kg-dry	1	6/9/2020 5:47:03 PM
Sample Moisture (Percent Moisture)				Batch ID: R59697		Analyst: SBM
Percent Moisture	12.4	0.500		wt%	1	6/9/2020 2:48:41 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Collection Date: 6/3/2020 12:30:00 PM
Project: Hardel Site
Lab ID: 2006085-009
Matrix: Soil
Client Sample ID: S-B2-2-4-0603

Extractable Petroleum Hydrocarbons by NWEPH

Batch ID: 28677 Analyst: DW

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Aliphatic Hydrocarbon (C8-C10)	52.3	24.2	*	mg/Kg-dry	1	6/23/2020 11:50:00 PM
Aliphatic Hydrocarbon (C10-C12)	383	12.1	*	mg/Kg-dry	1	6/23/2020 11:50:00 PM
Aliphatic Hydrocarbon (C12-C16)	1,880	60.4	D	mg/Kg-dry	5	6/24/2020 4:19:00 PM
Aliphatic Hydrocarbon (C16-C21)	1,390	60.4	D	mg/Kg-dry	5	6/24/2020 4:19:00 PM
Aliphatic Hydrocarbon (C21-C34)	1,180	60.4	D	mg/Kg-dry	5	6/24/2020 4:19:00 PM
Aromatic Hydrocarbon (C8-C10)	22.6	12.1	*Q	mg/Kg-dry	1	6/23/2020 4:28:00 PM
Aromatic Hydrocarbon (C10-C12)	72.9	12.1		mg/Kg-dry	1	6/23/2020 4:28:00 PM
Aromatic Hydrocarbon (C12-C16)	540	12.1		mg/Kg-dry	1	6/23/2020 4:28:00 PM
Aromatic Hydrocarbon (C16-C21)	958	12.1		mg/Kg-dry	1	6/23/2020 4:28:00 PM
Aromatic Hydrocarbon (C21-C34)	316	12.1		mg/Kg-dry	1	6/23/2020 4:28:00 PM
Surr: 1-Chlorooctadecane	70.1	60 - 140		%Rec	1	6/23/2020 11:50:00 PM
Surr: o-Terphenyl	72.6	60 - 140		%Rec	1	6/23/2020 4:28:00 PM

NOTES:
Q - Indicates a hydrocarbon range where the low calibration point read back at a level outside the acceptance criteria (+- 20%)
* - Flagged value is not within established control limits.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 28581 Analyst: SB

Naphthalene	3,640	53.2		µg/Kg-dry	1	6/8/2020 8:51:45 PM
2-Methylnaphthalene	22,500	532	D	µg/Kg-dry	10	6/9/2020 11:13:17 AM
1-Methylnaphthalene	26,400	532	D	µg/Kg-dry	10	6/9/2020 11:13:17 AM
Acenaphthylene	ND	53.2		µg/Kg-dry	1	6/8/2020 8:51:45 PM
Acenaphthene	4,810	53.2		µg/Kg-dry	1	6/8/2020 8:51:45 PM
Fluorene	6,100	53.2		µg/Kg-dry	1	6/8/2020 8:51:45 PM
Phenanthrene	16,900	532	D	µg/Kg-dry	10	6/9/2020 11:13:17 AM
Anthracene	1,450	53.2		µg/Kg-dry	1	6/8/2020 8:51:45 PM
Fluoranthene	918	53.2		µg/Kg-dry	1	6/8/2020 8:51:45 PM
Pyrene	1,650	53.2		µg/Kg-dry	1	6/8/2020 8:51:45 PM
Benz(a)anthracene	83.4	53.2		µg/Kg-dry	1	6/8/2020 8:51:45 PM
Chrysene	141	53.2		µg/Kg-dry	1	6/8/2020 8:51:45 PM
Benzo(b)fluoranthene	62.2	53.2		µg/Kg-dry	1	6/8/2020 8:51:45 PM
Benzo(k)fluoranthene	ND	53.2		µg/Kg-dry	1	6/8/2020 8:51:45 PM
Benzo(a)pyrene	ND	53.2		µg/Kg-dry	1	6/8/2020 8:51:45 PM
Indeno(1,2,3-cd)pyrene	ND	53.2		µg/Kg-dry	1	6/8/2020 8:51:45 PM
Dibenz(a,h)anthracene	ND	53.2		µg/Kg-dry	1	6/8/2020 8:51:45 PM
Benzo(g,h,i)perylene	ND	53.2	Q	µg/Kg-dry	1	6/8/2020 8:51:45 PM
Surr: 2-Fluorobiphenyl	103	6.91 - 127		%Rec	1	6/8/2020 8:51:45 PM
Surr: Terphenyl-d14 (surr)	113	32.9 - 153		%Rec	1	6/8/2020 8:51:45 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Collection Date: 6/3/2020 12:30:00 PM
Project: Hardel Site
Lab ID: 2006085-009
Matrix: Soil
Client Sample ID: S-B2-2-4-0603

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 28581		Analyst: SB

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Total Metals by EPA Method 6020B				Batch ID: 28586		Analyst: CO
Barium	294	5.42	D	mg/Kg-dry	10	6/10/2020 3:46:25 PM
Selenium	0.999	0.542		mg/Kg-dry	1	6/9/2020 5:52:36 PM
Silver	0.391	0.108		mg/Kg-dry	1	6/9/2020 5:52:36 PM
Sample Moisture (Percent Moisture)				Batch ID: R59697		Analyst: SBM
Percent Moisture	27.3	0.500		wt%	1	6/9/2020 2:48:41 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Collection Date: 6/3/2020 11:30:00 PM
Project: Hardel Site
Lab ID: 2006085-010
Matrix: Soil
Client Sample ID: S-B3-2-3-0603

Extractable Petroleum Hydrocarbons by NWEPH

Batch ID: 28677 Analyst: DW

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Aliphatic Hydrocarbon (C8-C10)	ND	18.3	*	mg/Kg-dry	1	6/24/2020 5:48:00 PM
Aliphatic Hydrocarbon (C10-C12)	ND	9.16	*	mg/Kg-dry	1	6/24/2020 5:48:00 PM
Aliphatic Hydrocarbon (C12-C16)	ND	9.16		mg/Kg-dry	1	6/24/2020 5:48:00 PM
Aliphatic Hydrocarbon (C16-C21)	19.4	9.16		mg/Kg-dry	1	6/24/2020 5:48:00 PM
Aliphatic Hydrocarbon (C21-C34)	527	9.16		mg/Kg-dry	1	6/24/2020 5:48:00 PM
Aromatic Hydrocarbon (C8-C10)	ND	9.16	*Q	mg/Kg-dry	1	6/23/2020 7:25:00 PM
Aromatic Hydrocarbon (C10-C12)	ND	9.16		mg/Kg-dry	1	6/23/2020 7:25:00 PM
Aromatic Hydrocarbon (C12-C16)	ND	9.16		mg/Kg-dry	1	6/23/2020 7:25:00 PM
Aromatic Hydrocarbon (C16-C21)	29.7	9.16		mg/Kg-dry	1	6/23/2020 7:25:00 PM
Aromatic Hydrocarbon (C21-C34)	470	9.16		mg/Kg-dry	1	6/23/2020 7:25:00 PM
Surr: 1-Chlorooctadecane	62.9	60 - 140		%Rec	1	6/24/2020 5:48:00 PM
Surr: o-Terphenyl	61.8	60 - 140		%Rec	1	6/23/2020 7:25:00 PM

NOTES:
Q - Indicates a hydrocarbon range where the low calibration point read back at a level outside the acceptance criteria (+/- 20%)
* - Flagged value is not within established control limits.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 28581 Analyst: SB

Naphthalene	ND	40.7		µg/Kg-dry	1	6/8/2020 9:13:55 PM
2-Methylnaphthalene	ND	40.7		µg/Kg-dry	1	6/8/2020 9:13:55 PM
1-Methylnaphthalene	ND	40.7		µg/Kg-dry	1	6/8/2020 9:13:55 PM
Acenaphthylene	ND	40.7		µg/Kg-dry	1	6/8/2020 9:13:55 PM
Acenaphthene	ND	40.7		µg/Kg-dry	1	6/8/2020 9:13:55 PM
Fluorene	ND	40.7		µg/Kg-dry	1	6/8/2020 9:13:55 PM
Phenanthrene	83.4	40.7		µg/Kg-dry	1	6/8/2020 9:13:55 PM
Anthracene	ND	40.7		µg/Kg-dry	1	6/8/2020 9:13:55 PM
Fluoranthene	349	40.7		µg/Kg-dry	1	6/8/2020 9:13:55 PM
Pyrene	353	40.7		µg/Kg-dry	1	6/8/2020 9:13:55 PM
Benz(a)anthracene	120	40.7		µg/Kg-dry	1	6/8/2020 9:13:55 PM
Chrysene	172	40.7		µg/Kg-dry	1	6/8/2020 9:13:55 PM
Benzo(b)fluoranthene	150	40.7		µg/Kg-dry	1	6/8/2020 9:13:55 PM
Benzo(k)fluoranthene	83.2	40.7		µg/Kg-dry	1	6/8/2020 9:13:55 PM
Benzo(a)pyrene	110	40.7		µg/Kg-dry	1	6/8/2020 9:13:55 PM
Indeno(1,2,3-cd)pyrene	ND	40.7		µg/Kg-dry	1	6/8/2020 9:13:55 PM
Dibenz(a,h)anthracene	45.5	40.7		µg/Kg-dry	1	6/8/2020 9:13:55 PM
Benzo(g,h,i)perylene	ND	40.7	Q	µg/Kg-dry	1	6/8/2020 9:13:55 PM
Surr: 2-Fluorobiphenyl	89.4	6.91 - 127		%Rec	1	6/8/2020 9:13:55 PM
Surr: Terphenyl-d14 (surr)	117	32.9 - 153		%Rec	1	6/8/2020 9:13:55 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Project: Hardel Site
Lab ID: 2006085-010
Client Sample ID: S-B3-2-3-0603

Collection Date: 6/3/2020 11:30:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 28581		Analyst: SB

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Total Metals by EPA Method 6020B				Batch ID: 28613		Analyst: CO
Barium	56.7	0.421		mg/Kg-dry	1	6/10/2020 4:23:55 PM
Selenium	0.799	0.421		mg/Kg-dry	1	6/10/2020 4:23:55 PM
Silver	ND	0.0842		mg/Kg-dry	1	6/10/2020 4:23:55 PM
Sample Moisture (Percent Moisture)				Batch ID: R59697		Analyst: SBM
Percent Moisture	7.24	0.500		wt%	1	6/9/2020 2:48:41 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Collection Date: 6/3/2020 10:30:00 AM
Project: Hardel Site
Lab ID: 2006085-011
Matrix: Soil
Client Sample ID: S-B4-1-3-0603

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 28581		Analyst: SB
Naphthalene	ND	38.2		µg/Kg-dry	1	6/8/2020 9:36:06 PM
2-Methylnaphthalene	ND	38.2		µg/Kg-dry	1	6/8/2020 9:36:06 PM
1-Methylnaphthalene	ND	38.2		µg/Kg-dry	1	6/8/2020 9:36:06 PM
Acenaphthylene	ND	38.2		µg/Kg-dry	1	6/8/2020 9:36:06 PM
Acenaphthene	ND	38.2		µg/Kg-dry	1	6/8/2020 9:36:06 PM
Fluorene	ND	38.2		µg/Kg-dry	1	6/8/2020 9:36:06 PM
Phenanthrene	ND	38.2		µg/Kg-dry	1	6/8/2020 9:36:06 PM
Anthracene	ND	38.2		µg/Kg-dry	1	6/8/2020 9:36:06 PM
Fluoranthene	ND	38.2		µg/Kg-dry	1	6/8/2020 9:36:06 PM
Pyrene	ND	38.2		µg/Kg-dry	1	6/8/2020 9:36:06 PM
Benz(a)anthracene	ND	38.2		µg/Kg-dry	1	6/8/2020 9:36:06 PM
Chrysene	ND	38.2		µg/Kg-dry	1	6/8/2020 9:36:06 PM
Benzo(b)fluoranthene	ND	38.2		µg/Kg-dry	1	6/8/2020 9:36:06 PM
Benzo(k)fluoranthene	ND	38.2		µg/Kg-dry	1	6/8/2020 9:36:06 PM
Benzo(a)pyrene	ND	38.2		µg/Kg-dry	1	6/8/2020 9:36:06 PM
Indeno(1,2,3-cd)pyrene	ND	38.2		µg/Kg-dry	1	6/8/2020 9:36:06 PM
Dibenz(a,h)anthracene	ND	38.2		µg/Kg-dry	1	6/8/2020 9:36:06 PM
Benzo(g,h,i)perylene	ND	38.2	Q	µg/Kg-dry	1	6/8/2020 9:36:06 PM
Surr: 2-Fluorobiphenyl	68.2	6.91 - 127		%Rec	1	6/8/2020 9:36:06 PM
Surr: Terphenyl-d14 (surr)	112	32.9 - 153		%Rec	1	6/8/2020 9:36:06 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Total Metals by EPA Method 6020B				Batch ID: 28613		Analyst: CO
Barium	80.3	0.390		mg/Kg-dry	1	6/10/2020 4:57:19 PM
Selenium	1.28	0.390		mg/Kg-dry	1	6/10/2020 4:57:19 PM
Silver	ND	0.0780		mg/Kg-dry	1	6/10/2020 4:57:19 PM
Sample Moisture (Percent Moisture)				Batch ID: R59697		Analyst: SBM
Percent Moisture	6.41	0.500		wt%	1	6/9/2020 2:48:41 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Collection Date: 6/3/2020 10:30:00 AM
Project: Hardel Site
Lab ID: 2006085-012
Matrix: Soil
Client Sample ID: S-B4-1-3-0603-01

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 28581		Analyst: SB
Naphthalene	ND	38.4		µg/Kg-dry	1	6/8/2020 9:58:21 PM
2-Methylnaphthalene	ND	38.4		µg/Kg-dry	1	6/8/2020 9:58:21 PM
1-Methylnaphthalene	ND	38.4		µg/Kg-dry	1	6/8/2020 9:58:21 PM
Acenaphthylene	ND	38.4		µg/Kg-dry	1	6/8/2020 9:58:21 PM
Acenaphthene	ND	38.4		µg/Kg-dry	1	6/8/2020 9:58:21 PM
Fluorene	ND	38.4		µg/Kg-dry	1	6/8/2020 9:58:21 PM
Phenanthrene	ND	38.4		µg/Kg-dry	1	6/8/2020 9:58:21 PM
Anthracene	ND	38.4		µg/Kg-dry	1	6/8/2020 9:58:21 PM
Fluoranthene	114	38.4		µg/Kg-dry	1	6/8/2020 9:58:21 PM
Pyrene	107	38.4		µg/Kg-dry	1	6/8/2020 9:58:21 PM
Benz(a)anthracene	109	38.4		µg/Kg-dry	1	6/8/2020 9:58:21 PM
Chrysene	109	38.4		µg/Kg-dry	1	6/8/2020 9:58:21 PM
Benzo(b)fluoranthene	71.4	38.4		µg/Kg-dry	1	6/8/2020 9:58:21 PM
Benzo(k)fluoranthene	66.9	38.4		µg/Kg-dry	1	6/8/2020 9:58:21 PM
Benzo(a)pyrene	68.3	38.4		µg/Kg-dry	1	6/8/2020 9:58:21 PM
Indeno(1,2,3-cd)pyrene	ND	38.4		µg/Kg-dry	1	6/8/2020 9:58:21 PM
Dibenz(a,h)anthracene	ND	38.4		µg/Kg-dry	1	6/8/2020 9:58:21 PM
Benzo(g,h,i)perylene	ND	38.4	Q	µg/Kg-dry	1	6/8/2020 9:58:21 PM
Surr: 2-Fluorobiphenyl	80.5	6.91 - 127		%Rec	1	6/8/2020 9:58:21 PM
Surr: Terphenyl-d14 (surr)	116	32.9 - 153		%Rec	1	6/8/2020 9:58:21 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Total Metals by EPA Method 6020B				Batch ID: 28613		Analyst: CO
Barium	63.8	0.425		mg/Kg-dry	1	6/10/2020 5:02:53 PM
Selenium	0.932	0.425		mg/Kg-dry	1	6/10/2020 5:02:53 PM
Silver	ND	0.0851		mg/Kg-dry	1	6/10/2020 5:02:53 PM
Sample Moisture (Percent Moisture)				Batch ID: R59697		Analyst: SBM
Percent Moisture	8.15	0.500		wt%	1	6/9/2020 2:48:41 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Collection Date: 6/3/2020 10:45:00 AM
Project: Hardel Site
Lab ID: 2006085-013
Matrix: Soil
Client Sample ID: S-B4-11-12-0603

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 28581		Analyst: SB
Naphthalene	ND	44.0		µg/Kg-dry	1	6/8/2020 10:20:31 PM
2-Methylnaphthalene	ND	44.0		µg/Kg-dry	1	6/8/2020 10:20:31 PM
1-Methylnaphthalene	ND	44.0		µg/Kg-dry	1	6/8/2020 10:20:31 PM
Acenaphthylene	ND	44.0		µg/Kg-dry	1	6/8/2020 10:20:31 PM
Acenaphthene	58.9	44.0		µg/Kg-dry	1	6/8/2020 10:20:31 PM
Fluorene	ND	44.0		µg/Kg-dry	1	6/8/2020 10:20:31 PM
Phenanthrene	61.7	44.0		µg/Kg-dry	1	6/8/2020 10:20:31 PM
Anthracene	ND	44.0		µg/Kg-dry	1	6/8/2020 10:20:31 PM
Fluoranthene	148	44.0		µg/Kg-dry	1	6/8/2020 10:20:31 PM
Pyrene	123	44.0		µg/Kg-dry	1	6/8/2020 10:20:31 PM
Benz(a)anthracene	ND	44.0		µg/Kg-dry	1	6/8/2020 10:20:31 PM
Chrysene	ND	44.0		µg/Kg-dry	1	6/8/2020 10:20:31 PM
Benzo(b)fluoranthene	ND	44.0		µg/Kg-dry	1	6/8/2020 10:20:31 PM
Benzo(k)fluoranthene	ND	44.0		µg/Kg-dry	1	6/8/2020 10:20:31 PM
Benzo(a)pyrene	ND	44.0		µg/Kg-dry	1	6/8/2020 10:20:31 PM
Indeno(1,2,3-cd)pyrene	ND	44.0		µg/Kg-dry	1	6/8/2020 10:20:31 PM
Dibenz(a,h)anthracene	ND	44.0		µg/Kg-dry	1	6/8/2020 10:20:31 PM
Benzo(g,h,i)perylene	ND	44.0	Q	µg/Kg-dry	1	6/8/2020 10:20:31 PM
Surr: 2-Fluorobiphenyl	58.3	6.91 - 127		%Rec	1	6/8/2020 10:20:31 PM
Surr: Terphenyl-d14 (surr)	116	32.9 - 153		%Rec	1	6/8/2020 10:20:31 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Total Metals by EPA Method 6020B				Batch ID: 28613		Analyst: CO
Barium	41.8	0.430		mg/Kg-dry	1	6/10/2020 5:19:37 PM
Selenium	0.846	0.430		mg/Kg-dry	1	6/10/2020 5:19:37 PM
Silver	ND	0.0860		mg/Kg-dry	1	6/10/2020 5:19:37 PM
Sample Moisture (Percent Moisture)				Batch ID: R59697		Analyst: SBM
Percent Moisture	15.1	0.500		wt%	1	6/9/2020 2:48:41 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Collection Date: 6/3/2020 9:20:00 AM
Project: Hardel Site
Lab ID: 2006085-014
Matrix: Soil
Client Sample ID: S-B5-3-4-0603

Semi-Volatile Organic Compounds by EPA Method 8270 Batch ID: 28605 Analyst: SB

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Phenol	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Bis(2-chloroethyl) ether	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
2-Chlorophenol	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
1,3-Dichlorobenzene	ND	81.3		µg/Kg-dry	1	6/12/2020 12:13:02 PM
1,4-Dichlorobenzene	ND	81.3		µg/Kg-dry	1	6/12/2020 12:13:02 PM
1,2-Dichlorobenzene	ND	81.3		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Benzyl alcohol	ND	108	Q	µg/Kg-dry	1	6/12/2020 12:13:02 PM
2-Methylphenol (o-cresol)	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Hexachloroethane	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
N-Nitrosodi-n-propylamine	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
3&4-Methylphenol (m, p-cresol)	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Nitrobenzene	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Isophorone	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
2-Nitrophenol	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
2,4-Dimethylphenol	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Bis(2-chloroethoxy)methane	ND	81.3		µg/Kg-dry	1	6/12/2020 12:13:02 PM
2,4-Dichlorophenol	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
1,2,4-Trichlorobenzene	ND	81.3		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Naphthalene	ND	54.2		µg/Kg-dry	1	6/12/2020 12:13:02 PM
4-Chloroaniline	ND	81.3		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Hexachlorobutadiene	ND	81.3		µg/Kg-dry	1	6/12/2020 12:13:02 PM
4-Chloro-3-methylphenol	ND	217		µg/Kg-dry	1	6/12/2020 12:13:02 PM
2-Methylnaphthalene	ND	54.2		µg/Kg-dry	1	6/12/2020 12:13:02 PM
1-Methylnaphthalene	ND	54.2		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Hexachlorocyclopentadiene	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
2,4,6-Trichlorophenol	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
2,4,5-Trichlorophenol	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
2-Chloronaphthalene	ND	81.3		µg/Kg-dry	1	6/12/2020 12:13:02 PM
2-Nitroaniline	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Acenaphthene	ND	54.2		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Dimethylphthalate	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
2,6-Dinitrotoluene	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Acenaphthylene	ND	54.2		µg/Kg-dry	1	6/12/2020 12:13:02 PM
2,4-Dinitrophenol	ND	569		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Dibenzofuran	ND	81.3		µg/Kg-dry	1	6/12/2020 12:13:02 PM
2,4-Dinitrotoluene	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
4-Nitrophenol	ND	542		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Fluorene	ND	54.2		µg/Kg-dry	1	6/12/2020 12:13:02 PM
4-Chlorophenyl phenyl ether	ND	81.3		µg/Kg-dry	1	6/12/2020 12:13:02 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Collection Date: 6/3/2020 9:20:00 AM
Project: Hardel Site
Lab ID: 2006085-014
Matrix: Soil
Client Sample ID: S-B5-3-4-0603

Semi-Volatile Organic Compounds by EPA Method 8270

Batch ID: 28605 Analyst: SB

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diethylphthalate	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
4,6-Dinitro-2-methylphenol	ND	217		µg/Kg-dry	1	6/12/2020 12:13:02 PM
4-Bromophenyl phenyl ether	ND	81.3		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Hexachlorobenzene	ND	81.3		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Pentachlorophenol	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Phenanthrene	ND	54.2		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Anthracene	ND	54.2		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Carbazole	ND	81.3		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Di-n-butylphthalate	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Fluoranthene	ND	54.2		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Pyrene	ND	54.2		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Butyl Benzylphthalate	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
bis(2-Ethylhexyl)adipate	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Benz(a)anthracene	ND	54.2		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Chrysene	ND	54.2		µg/Kg-dry	1	6/12/2020 12:13:02 PM
bis (2-Ethylhexyl) phthalate	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Di-n-octyl phthalate	ND	108		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Benzo(b)fluoranthene	ND	54.2		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Benzo(k)fluoranthene	ND	54.2		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Benzo(a)pyrene	ND	54.2		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Indeno(1,2,3-cd)pyrene	ND	54.2		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Dibenz(a,h)anthracene	ND	54.2		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Benzo(g,h,i)perylene	ND	54.2		µg/Kg-dry	1	6/12/2020 12:13:02 PM
Surr: 2,4,6-Tribromophenol	91.7	5 - 139		%Rec	1	6/12/2020 12:13:02 PM
Surr: 2-Fluorobiphenyl	72.1	5 - 131		%Rec	1	6/12/2020 12:13:02 PM
Surr: Nitrobenzene-d5	58.5	5 - 123		%Rec	1	6/12/2020 12:13:02 PM
Surr: Phenol-d6	78.3	5 - 129		%Rec	1	6/12/2020 12:13:02 PM
Surr: p-Terphenyl	109	13.8 - 140		%Rec	1	6/12/2020 12:13:02 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Total Metals by EPA Method 6020B

Batch ID: 28613 Analyst: CO

Barium	87.5	0.452		mg/Kg-dry	1	6/10/2020 5:25:11 PM
Selenium	1.23	0.452		mg/Kg-dry	1	6/10/2020 5:25:11 PM
Silver	ND	0.0904		mg/Kg-dry	1	6/10/2020 5:25:11 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Project: Hardel Site
Lab ID: 2006085-014
Client Sample ID: S-B5-3-4-0603

Collection Date: 6/3/2020 9:20:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R59697		Analyst: SBM
Percent Moisture	19.8	0.500		wt%	1	6/9/2020 2:48:41 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Collection Date: 6/3/2020 8:45:00 AM
Project: Hardel Site
Lab ID: 2006085-015
Matrix: Soil
Client Sample ID: S-B6-3-4-0603

Semi-Volatile Organic Compounds by EPA Method 8270 Batch ID: 28605 Analyst: SB

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Phenol	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Bis(2-chloroethyl) ether	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
2-Chlorophenol	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
1,3-Dichlorobenzene	ND	86.7		µg/Kg-dry	1	6/12/2020 12:35:24 PM
1,4-Dichlorobenzene	ND	86.7		µg/Kg-dry	1	6/12/2020 12:35:24 PM
1,2-Dichlorobenzene	ND	86.7		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Benzyl alcohol	ND	116	Q	µg/Kg-dry	1	6/12/2020 12:35:24 PM
2-Methylphenol (o-cresol)	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Hexachloroethane	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
N-Nitrosodi-n-propylamine	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
3&4-Methylphenol (m, p-cresol)	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Nitrobenzene	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Isophorone	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
2-Nitrophenol	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
2,4-Dimethylphenol	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Bis(2-chloroethoxy)methane	ND	86.7		µg/Kg-dry	1	6/12/2020 12:35:24 PM
2,4-Dichlorophenol	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
1,2,4-Trichlorobenzene	ND	86.7		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Naphthalene	316	57.8		µg/Kg-dry	1	6/12/2020 12:35:24 PM
4-Chloroaniline	ND	86.7		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Hexachlorobutadiene	ND	86.7		µg/Kg-dry	1	6/12/2020 12:35:24 PM
4-Chloro-3-methylphenol	ND	231		µg/Kg-dry	1	6/12/2020 12:35:24 PM
2-Methylnaphthalene	135	57.8		µg/Kg-dry	1	6/12/2020 12:35:24 PM
1-Methylnaphthalene	69.4	57.8		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Hexachlorocyclopentadiene	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
2,4,6-Trichlorophenol	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
2,4,5-Trichlorophenol	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
2-Chloronaphthalene	ND	86.7		µg/Kg-dry	1	6/12/2020 12:35:24 PM
2-Nitroaniline	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Acenaphthene	ND	57.8		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Dimethylphthalate	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
2,6-Dinitrotoluene	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Acenaphthylene	ND	57.8		µg/Kg-dry	1	6/12/2020 12:35:24 PM
2,4-Dinitrophenol	ND	607		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Dibenzofuran	ND	86.7		µg/Kg-dry	1	6/12/2020 12:35:24 PM
2,4-Dinitrotoluene	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
4-Nitrophenol	ND	578		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Fluorene	ND	57.8		µg/Kg-dry	1	6/12/2020 12:35:24 PM
4-Chlorophenyl phenyl ether	ND	86.7		µg/Kg-dry	1	6/12/2020 12:35:24 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Collection Date: 6/3/2020 8:45:00 AM
Project: Hardel Site
Lab ID: 2006085-015
Matrix: Soil
Client Sample ID: S-B6-3-4-0603

Semi-Volatile Organic Compounds by EPA Method 8270

Batch ID: 28605 Analyst: SB

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diethylphthalate	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
4,6-Dinitro-2-methylphenol	ND	231		µg/Kg-dry	1	6/12/2020 12:35:24 PM
4-Bromophenyl phenyl ether	ND	86.7		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Hexachlorobenzene	ND	86.7		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Pentachlorophenol	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Phenanthrene	77.3	57.8		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Anthracene	ND	57.8		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Carbazole	ND	86.7		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Di-n-butylphthalate	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Fluoranthene	80.1	57.8		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Pyrene	75.6	57.8		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Butyl Benzylphthalate	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
bis(2-Ethylhexyl)adipate	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Benz(a)anthracene	ND	57.8		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Chrysene	ND	57.8		µg/Kg-dry	1	6/12/2020 12:35:24 PM
bis (2-Ethylhexyl) phthalate	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Di-n-octyl phthalate	ND	116		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Benzo(b)fluoranthene	107	57.8		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Benzo(k)fluoranthene	ND	57.8		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Benzo(a)pyrene	ND	57.8		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Indeno(1,2,3-cd)pyrene	65.3	57.8		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Dibenz(a,h)anthracene	ND	57.8		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Benzo(g,h,i)perylene	82.8	57.8		µg/Kg-dry	1	6/12/2020 12:35:24 PM
Surr: 2,4,6-Tribromophenol	96.9	5 - 139		%Rec	1	6/12/2020 12:35:24 PM
Surr: 2-Fluorobiphenyl	74.8	5 - 131		%Rec	1	6/12/2020 12:35:24 PM
Surr: Nitrobenzene-d5	55.1	5 - 123		%Rec	1	6/12/2020 12:35:24 PM
Surr: Phenol-d6	65.3	5 - 129		%Rec	1	6/12/2020 12:35:24 PM
Surr: p-Terphenyl	119	13.8 - 140		%Rec	1	6/12/2020 12:35:24 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Total Metals by EPA Method 6020B

Batch ID: 28613 Analyst: CO

Barium	120	0.457		mg/Kg-dry	1	6/10/2020 5:30:45 PM
Selenium	0.750	0.457		mg/Kg-dry	1	6/10/2020 5:30:45 PM
Silver	ND	0.0913		mg/Kg-dry	1	6/10/2020 5:30:45 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Project: Hardel Site
Lab ID: 2006085-015
Client Sample ID: **S-B6-3-4-0603**

Collection Date: 6/3/2020 8:45:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R59697		Analyst: SBM
Percent Moisture	14.4	0.500		wt%	1	6/9/2020 2:48:41 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Collection Date: 6/3/2020 4:00:00 PM
Project: Hardel Site
Lab ID: 2006085-016
Matrix: Soil
Client Sample ID: S-B7-3-5-0603

Semi-Volatile Organic Compounds by EPA Method 8270 Batch ID: 28605 Analyst: SB

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Phenol	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Bis(2-chloroethyl) ether	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
2-Chlorophenol	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
1,3-Dichlorobenzene	ND	86.4		µg/Kg-dry	1	6/12/2020 2:04:57 PM
1,4-Dichlorobenzene	ND	86.4		µg/Kg-dry	1	6/12/2020 2:04:57 PM
1,2-Dichlorobenzene	ND	86.4		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Benzyl alcohol	ND	115	Q	µg/Kg-dry	1	6/12/2020 2:04:57 PM
2-Methylphenol (o-cresol)	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Hexachloroethane	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
N-Nitrosodi-n-propylamine	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
3&4-Methylphenol (m, p-cresol)	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Nitrobenzene	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Isophorone	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
2-Nitrophenol	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
2,4-Dimethylphenol	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Bis(2-chloroethoxy)methane	ND	86.4		µg/Kg-dry	1	6/12/2020 2:04:57 PM
2,4-Dichlorophenol	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
1,2,4-Trichlorobenzene	ND	86.4		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Naphthalene	111	57.6		µg/Kg-dry	1	6/12/2020 2:04:57 PM
4-Chloroaniline	ND	86.4		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Hexachlorobutadiene	ND	86.4		µg/Kg-dry	1	6/12/2020 2:04:57 PM
4-Chloro-3-methylphenol	ND	230		µg/Kg-dry	1	6/12/2020 2:04:57 PM
2-Methylnaphthalene	ND	57.6		µg/Kg-dry	1	6/12/2020 2:04:57 PM
1-Methylnaphthalene	ND	57.6		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Hexachlorocyclopentadiene	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
2,4,6-Trichlorophenol	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
2,4,5-Trichlorophenol	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
2-Chloronaphthalene	ND	86.4		µg/Kg-dry	1	6/12/2020 2:04:57 PM
2-Nitroaniline	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Acenaphthene	ND	57.6		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Dimethylphthalate	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
2,6-Dinitrotoluene	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Acenaphthylene	155	57.6		µg/Kg-dry	1	6/12/2020 2:04:57 PM
2,4-Dinitrophenol	ND	605		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Dibenzofuran	ND	86.4		µg/Kg-dry	1	6/12/2020 2:04:57 PM
2,4-Dinitrotoluene	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
4-Nitrophenol	ND	576		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Fluorene	ND	57.6		µg/Kg-dry	1	6/12/2020 2:04:57 PM
4-Chlorophenyl phenyl ether	ND	86.4		µg/Kg-dry	1	6/12/2020 2:04:57 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Collection Date: 6/3/2020 4:00:00 PM
Project: Hardel Site
Lab ID: 2006085-016
Matrix: Soil
Client Sample ID: S-B7-3-5-0603

Semi-Volatile Organic Compounds by EPA Method 8270

Batch ID: 28605 Analyst: SB

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diethylphthalate	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
4,6-Dinitro-2-methylphenol	ND	230		µg/Kg-dry	1	6/12/2020 2:04:57 PM
4-Bromophenyl phenyl ether	ND	86.4		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Hexachlorobenzene	ND	86.4		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Pentachlorophenol	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Phenanthrene	126	57.6		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Anthracene	282	57.6		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Carbazole	98.8	86.4		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Di-n-butylphthalate	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Fluoranthene	242	57.6		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Pyrene	283	57.6		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Butyl Benzylphthalate	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
bis(2-Ethylhexyl)adipate	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Benz(a)anthracene	180	57.6		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Chrysene	440	57.6		µg/Kg-dry	1	6/12/2020 2:04:57 PM
bis (2-Ethylhexyl) phthalate	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Di-n-octyl phthalate	ND	115		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Benzo(b)fluoranthene	487	57.6		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Benzo(k)fluoranthene	347	57.6		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Benzo(a)pyrene	396	57.6		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Indeno(1,2,3-cd)pyrene	398	57.6		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Dibenz(a,h)anthracene	168	57.6		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Benzo(g,h,i)perylene	546	57.6		µg/Kg-dry	1	6/12/2020 2:04:57 PM
Surr: 2,4,6-Tribromophenol	113	5 - 139		%Rec	1	6/12/2020 2:04:57 PM
Surr: 2-Fluorobiphenyl	78.7	5 - 131		%Rec	1	6/12/2020 2:04:57 PM
Surr: Nitrobenzene-d5	67.9	5 - 123		%Rec	1	6/12/2020 2:04:57 PM
Surr: Phenol-d6	83.7	5 - 129		%Rec	1	6/12/2020 2:04:57 PM
Surr: p-Terphenyl	117	13.8 - 140		%Rec	1	6/12/2020 2:04:57 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Total Metals by EPA Method 6020B

Batch ID: 28613 Analyst: CO

Barium	103	0.488		mg/Kg-dry	1	6/10/2020 5:36:19 PM
Selenium	1.08	0.488		mg/Kg-dry	1	6/10/2020 5:36:19 PM
Silver	ND	0.0976		mg/Kg-dry	1	6/10/2020 5:36:19 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Project: Hardel Site
Lab ID: 2006085-016
Client Sample ID: S-B7-3-5-0603

Collection Date: 6/3/2020 4:00:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R59697		Analyst: SBM
Percent Moisture	20.6	0.500		wt%	1	6/9/2020 2:48:41 PM
Total Organic Carbon by EPA 9060				Batch ID: 28695		Analyst: SS
Total Organic Carbon	3.36	0.0750		%-dry	1	6/18/2020 11:36:00 AM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Collection Date: 6/3/2020 4:20:00 PM
Project: Hardel Site
Lab ID: 2006085-017
Matrix: Soil
Client Sample ID: S-B8-4-5-0603

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 28595		Analyst: SB
Naphthalene	ND	43.8		µg/Kg-dry	1	6/11/2020 1:50:18 AM
2-Methylnaphthalene	ND	43.8		µg/Kg-dry	1	6/11/2020 1:50:18 AM
1-Methylnaphthalene	ND	43.8		µg/Kg-dry	1	6/11/2020 1:50:18 AM
Acenaphthylene	ND	43.8		µg/Kg-dry	1	6/11/2020 1:50:18 AM
Acenaphthene	ND	43.8		µg/Kg-dry	1	6/11/2020 1:50:18 AM
Fluorene	ND	43.8		µg/Kg-dry	1	6/11/2020 1:50:18 AM
Phenanthrene	ND	43.8		µg/Kg-dry	1	6/11/2020 1:50:18 AM
Anthracene	ND	43.8		µg/Kg-dry	1	6/11/2020 1:50:18 AM
Fluoranthene	ND	43.8		µg/Kg-dry	1	6/11/2020 1:50:18 AM
Pyrene	109	43.8		µg/Kg-dry	1	6/11/2020 1:50:18 AM
Benz(a)anthracene	ND	43.8		µg/Kg-dry	1	6/11/2020 1:50:18 AM
Chrysene	ND	43.8		µg/Kg-dry	1	6/11/2020 1:50:18 AM
Benzo(b)fluoranthene	ND	43.8		µg/Kg-dry	1	6/11/2020 1:50:18 AM
Benzo(k)fluoranthene	ND	43.8		µg/Kg-dry	1	6/11/2020 1:50:18 AM
Benzo(a)pyrene	ND	43.8		µg/Kg-dry	1	6/11/2020 1:50:18 AM
Indeno(1,2,3-cd)pyrene	ND	43.8		µg/Kg-dry	1	6/11/2020 1:50:18 AM
Dibenz(a,h)anthracene	ND	43.8		µg/Kg-dry	1	6/11/2020 1:50:18 AM
Benzo(g,h,i)perylene	ND	43.8		µg/Kg-dry	1	6/11/2020 1:50:18 AM
Surr: 2-Fluorobiphenyl	63.1	6.91 - 127		%Rec	1	6/11/2020 1:50:18 AM
Surr: Terphenyl-d14 (surr)	108	32.9 - 153		%Rec	1	6/11/2020 1:50:18 AM
Sample Moisture (Percent Moisture)				Batch ID: R59697		Analyst: SBM
Percent Moisture	11.6	0.500		wt%	1	6/9/2020 2:48:41 PM

Analytical Report

Work Order: **2006085**
Date Reported: **7/2/2020**

Client: Libby Environmental
Project: Hardel Site
Lab ID: 2006085-018
Client Sample ID: S-B9-6-7-0603

Collection Date: 6/3/2020 4:40:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 28595		Analyst: SB
Naphthalene	ND	38.2		µg/Kg-dry	1	6/11/2020 2:12:36 AM
2-Methylnaphthalene	ND	38.2		µg/Kg-dry	1	6/11/2020 2:12:36 AM
1-Methylnaphthalene	ND	38.2		µg/Kg-dry	1	6/11/2020 2:12:36 AM
Acenaphthylene	ND	38.2		µg/Kg-dry	1	6/11/2020 2:12:36 AM
Acenaphthene	ND	38.2		µg/Kg-dry	1	6/11/2020 2:12:36 AM
Fluorene	ND	38.2		µg/Kg-dry	1	6/11/2020 2:12:36 AM
Phenanthrene	ND	38.2		µg/Kg-dry	1	6/11/2020 2:12:36 AM
Anthracene	ND	38.2		µg/Kg-dry	1	6/11/2020 2:12:36 AM
Fluoranthene	ND	38.2		µg/Kg-dry	1	6/11/2020 2:12:36 AM
Pyrene	ND	38.2		µg/Kg-dry	1	6/11/2020 2:12:36 AM
Benz(a)anthracene	ND	38.2		µg/Kg-dry	1	6/11/2020 2:12:36 AM
Chrysene	ND	38.2		µg/Kg-dry	1	6/11/2020 2:12:36 AM
Benzo(b)fluoranthene	ND	38.2		µg/Kg-dry	1	6/11/2020 2:12:36 AM
Benzo(k)fluoranthene	ND	38.2		µg/Kg-dry	1	6/11/2020 2:12:36 AM
Benzo(a)pyrene	ND	38.2		µg/Kg-dry	1	6/11/2020 2:12:36 AM
Indeno(1,2,3-cd)pyrene	ND	38.2		µg/Kg-dry	1	6/11/2020 2:12:36 AM
Dibenz(a,h)anthracene	ND	38.2		µg/Kg-dry	1	6/11/2020 2:12:36 AM
Benzo(g,h,i)perylene	ND	38.2		µg/Kg-dry	1	6/11/2020 2:12:36 AM
Surr: 2-Fluorobiphenyl	59.0	6.91 - 127		%Rec	1	6/11/2020 2:12:36 AM
Surr: Terphenyl-d14 (surr)	100	32.9 - 153		%Rec	1	6/11/2020 2:12:36 AM
Sample Moisture (Percent Moisture)				Batch ID: R59697		Analyst: SBM
Percent Moisture	9.51	0.500		wt%	1	6/9/2020 2:48:41 PM

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Organic Carbon by EPA 9060

Sample ID: **CCV-28695A** SampType: **CCV** Units: **%-dry** Prep Date: **6/17/2020** RunNo: **59933**
Client ID: **CCV** Batch ID: **28695** Analysis Date: **6/17/2020** SeqNo: **1199575**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.06	0.0750	1.000	0	106	90	110				

Sample ID: **MB-28695** SampType: **MBLK** Units: **%-dry** Prep Date: **6/17/2020** RunNo: **59933**
Client ID: **MBLKS** Batch ID: **28695** Analysis Date: **6/17/2020** SeqNo: **1199576**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	ND	0.0750									

Sample ID: **LCS-28695** SampType: **LCS** Units: **%-dry** Prep Date: **6/17/2020** RunNo: **59933**
Client ID: **LCSS** Batch ID: **28695** Analysis Date: **6/17/2020** SeqNo: **1199577**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.07	0.0750	1.000	0	107	80	120				

Sample ID: **2006085-016ADUP** SampType: **DUP** Units: **%-dry** Prep Date: **6/17/2020** RunNo: **59933**
Client ID: **S-B7-3-5-0603** Batch ID: **28695** Analysis Date: **6/17/2020** SeqNo: **1199579**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.94	0.0750						3.363	53.9	20	R

NOTES:
R - High RPD due to suspected sample inhomogeneity. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample ID: **2006085-016AMS** SampType: **MS** Units: **%-dry** Prep Date: **6/17/2020** RunNo: **59933**
Client ID: **S-B7-3-5-0603** Batch ID: **28695** Analysis Date: **6/17/2020** SeqNo: **1199580**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	3.04	0.0750	1.000	3.363	-31.9	75	125				S

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Organic Carbon by EPA 9060

Sample ID: **2006085-016AMSD** SampType: **MSD** Units: **%-dry** Prep Date: **6/17/2020** RunNo: **59933**
Client ID: **S-B7-3-5-0603** Batch ID: **28695** Analysis Date: **6/17/2020** SeqNo: **1199581**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	3.36	0.0750	1.000	3.363	-0.700	75	125	3.044	9.75	20	S

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID: **CCV-28695B** SampType: **CCV** Units: **%-dry** Prep Date: **6/17/2020** RunNo: **59933**
Client ID: **CCV** Batch ID: **28695** Analysis Date: **6/17/2020** SeqNo: **1199585**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.05	0.0750	1.000	0	105	90	110				

Sample ID: **CCB-28695B** SampType: **CCB** Units: **%-dry** Prep Date: **6/17/2020** RunNo: **59933**
Client ID: **CCB** Batch ID: **28695** Analysis Date: **6/17/2020** SeqNo: **1199586**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	ND	0.0750									

Sample ID: **CCV-28695C** SampType: **CCV** Units: **%-dry** Prep Date: **6/18/2020** RunNo: **59933**
Client ID: **CCV** Batch ID: **28695** Analysis Date: **6/18/2020** SeqNo: **1199587**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.03	0.0750	1.000	0	103	90	110				

Sample ID: **CCB-28695C** SampType: **CCB** Units: **%-dry** Prep Date: **6/18/2020** RunNo: **59933**
Client ID: **CCB** Batch ID: **28695** Analysis Date: **6/18/2020** SeqNo: **1199588**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	ND	0.0750									

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Organic Carbon by EPA 9060

Sample ID: **CCV-28695D** SampType: **CCV** Units: **%-dry** Prep Date: **6/18/2020** RunNo: **59933**
Client ID: **CCV** Batch ID: **28695** Analysis Date: **6/18/2020** SeqNo: **1199590**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.06	0.0750	1.000	0	106	90	110				

Sample ID: **CCB-28695D** SampType: **CCB** Units: **%-dry** Prep Date: **6/18/2020** RunNo: **59933**
Client ID: **CCB** Batch ID: **28695** Analysis Date: **6/18/2020** SeqNo: **1199591**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	ND	0.0750									

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Metals by EPA Method 200.8

Sample ID: **ICB-28580** SampType: **ICB** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59671**
Client ID: **ICB** Batch ID: **28580** Analysis Date: **6/8/2020** SeqNo: **1193773**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	2.50									
Selenium	ND	5.00									
Silver	ND	0.250									

Sample ID: **ICV-28580** SampType: **ICV** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59671**
Client ID: **ICV** Batch ID: **28580** Analysis Date: **6/8/2020** SeqNo: **1193775**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	101	2.50	100.0	0	101	90	110				
Selenium	24.0	5.00	25.00	0	95.9	90	110				
Silver	5.32	0.250	5.000	0	106	90	110				

Sample ID: **CCV-28580A** SampType: **CCV** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59671**
Client ID: **CCV** Batch ID: **28580** Analysis Date: **6/8/2020** SeqNo: **1193776**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	97.4	2.50	100.0	0	97.4	85	115				
Selenium	24.9	5.00	25.00	0	99.5	85	115				
Silver	5.44	0.250	5.000	0	109	85	115				

Sample ID: **CCB-28580A** SampType: **CCB** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59671**
Client ID: **CCB** Batch ID: **28580** Analysis Date: **6/8/2020** SeqNo: **1193777**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	2.50									
Selenium	ND	5.00									
Silver	ND	0.250									

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Metals by EPA Method 200.8

Sample ID: **MB-28580** SampType: **MBLK** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59671**
Client ID: **MBLKW** Batch ID: **28580** Analysis Date: **6/8/2020** SeqNo: **1193778**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	2.50									
Selenium	ND	5.00									
Silver	ND	0.250									

Sample ID: **LCS-28580** SampType: **LCS** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59671**
Client ID: **LCSW** Batch ID: **28580** Analysis Date: **6/8/2020** SeqNo: **1193779**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	104	2.50	100.0	0	104	85	115				
Selenium	10.1	5.00	10.00	0	101	85	115				
Silver	5.49	0.250	5.000	0	110	85	115				

Sample ID: **2006087-001CDUP** SampType: **DUP** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59671**
Client ID: **BATCH** Batch ID: **28580** Analysis Date: **6/8/2020** SeqNo: **1193781**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	4.05	2.50						4.523	11.0	30	
Selenium	ND	5.00						0		30	
Silver	ND	0.250						0		30	

Sample ID: **2006087-001CMSD** SampType: **MSD** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59671**
Client ID: **BATCH** Batch ID: **28580** Analysis Date: **6/8/2020** SeqNo: **1193783**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	501	2.50	500.0	4.523	99.4	70	130	531.6	5.87	30	
Selenium	49.1	5.00	50.00	0	98.2	70	130	49.89	1.60	30	
Silver	26.1	0.250	25.00	0	104	70	130	29.78	13.3	30	

Date: *7/2/2020*

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Metals by EPA Method 200.8

Sample ID: **CCV-28580B** SampType: **CCV** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59671**
Client ID: **CCV** Batch ID: **28580** Analysis Date: **6/8/2020** SeqNo: **1193788**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	101	2.50	100.0	0	101	85	115				
Selenium	24.7	5.00	25.00	0	99.0	85	115				
Silver	5.66	0.250	5.000	0	113	85	115				

Sample ID: **CCB-28580B** SampType: **CCB** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59671**
Client ID: **CCB** Batch ID: **28580** Analysis Date: **6/8/2020** SeqNo: **1193789**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	2.50									
Selenium	ND	5.00									
Silver	ND	0.250									

Sample ID: **2006087-001CMS** SampType: **MS** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59671**
Client ID: **BATCH** Batch ID: **28580** Analysis Date: **6/8/2020** SeqNo: **1193898**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	532	2.50	500.0	4.523	105	70	130				
Selenium	49.9	5.00	50.00	0	99.8	70	130				

Sample ID: **CCV-28580C1** SampType: **CCV** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59671**
Client ID: **CCV** Batch ID: **28580** Analysis Date: **6/8/2020** SeqNo: **1193901**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	106	2.50	100.0	0	106	85	115				
Selenium	24.9	5.00	25.00	0	99.7	85	115				
Silver	6.23	0.250	5.000	0	125	85	115				S

NOTES:
S - Outlying spike recovery observed (high bias). Detections will be qualified with a Q.

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Metals by EPA Method 200.8

Sample ID: **CCB-28580C** SampType: **CCB** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59671**
Client ID: **CCB** Batch ID: **28580** Analysis Date: **6/8/2020** SeqNo: **1193903**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	2.50									
Selenium	ND	5.00									
Silver	ND	0.250									

Sample ID: **CCV-28580D** SampType: **CCV** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59671**
Client ID: **CCV** Batch ID: **28580** Analysis Date: **6/8/2020** SeqNo: **1193988**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	112	2.50	100.0	0	112	85	115				
Selenium	25.6	5.00	25.00	0	103	85	115				
Silver	6.43	0.250	5.000	0	129	85	115				S

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Sample ID: **CCB-28580D** SampType: **CCB** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59671**
Client ID: **CCB** Batch ID: **28580** Analysis Date: **6/8/2020** SeqNo: **1193989**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	2.50									
Selenium	ND	5.00									
Silver	ND	0.250									

Sample ID: **ICB-28580A** SampType: **ICB** Units: **µg/L** Prep Date: **6/9/2020** RunNo: **59671**
Client ID: **ICB** Batch ID: **28580** Analysis Date: **6/9/2020** SeqNo: **1194300**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	2.50									
Selenium	ND	5.00									
Silver	ND	0.250									

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Metals by EPA Method 200.8

Sample ID: **ICV-28580A** SampType: **ICV** Units: **µg/L** Prep Date: **6/9/2020** RunNo: **59671**
Client ID: **ICV** Batch ID: **28580** Analysis Date: **6/9/2020** SeqNo: **1194302**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	100	2.50	100.0	0	100	90	110				
Selenium	24.4	5.00	25.00	0	97.5	90	110				
Silver	4.97	0.250	5.000	0	99.5	90	110				

Sample ID: **2006087-001CMS** SampType: **MS** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59671**
Client ID: **BATCH** Batch ID: **28580** Analysis Date: **6/9/2020** SeqNo: **1194303**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	22.7	0.250	25.00	0	90.8	70	130				

Sample ID: **CCV-28580E** SampType: **CCV** Units: **µg/L** Prep Date: **6/9/2020** RunNo: **59671**
Client ID: **CCV** Batch ID: **28580** Analysis Date: **6/9/2020** SeqNo: **1194305**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	102	2.50	100.0	0	102	85	115				
Selenium	24.7	5.00	25.00	0	98.9	85	115				
Silver	4.80	0.250	5.000	0	96.0	85	115				

Sample ID: **CCB-28580E** SampType: **CCB** Units: **µg/L** Prep Date: **6/9/2020** RunNo: **59671**
Client ID: **CCB** Batch ID: **28580** Analysis Date: **6/9/2020** SeqNo: **1194306**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	2.50									
Selenium	ND	5.00									
Silver	ND	0.250									

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Mercury by EPA Method 245.1

Sample ID: **ICB-28625** SampType: **ICB** Units: **µg/L** Prep Date: **6/11/2020** RunNo: **59776**
Client ID: **ICB** Batch ID: **28625** Analysis Date: **6/11/2020** SeqNo: **1196238**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.100									

Sample ID: **ICV-28625** SampType: **ICV** Units: **µg/L** Prep Date: **6/11/2020** RunNo: **59776**
Client ID: **ICV** Batch ID: **28625** Analysis Date: **6/11/2020** SeqNo: **1196240**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	2.40	0.100	2.500	0	96.0	95	105				

Sample ID: **MB-28625** SampType: **MBLK** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59776**
Client ID: **MBLKW** Batch ID: **28625** Analysis Date: **6/11/2020** SeqNo: **1196241**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.100									

Sample ID: **LCS-28625** SampType: **LCS** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59776**
Client ID: **LCSW** Batch ID: **28625** Analysis Date: **6/11/2020** SeqNo: **1196242**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	2.26	0.100	2.500	0	90.4	85	115				

Sample ID: **2006085-001BDUP** SampType: **DUP** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59776**
Client ID: **GW-B1-0603** Batch ID: **28625** Analysis Date: **6/11/2020** SeqNo: **1196244**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.100						0		20	

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Mercury by EPA Method 245.1

Sample ID: **2006085-001BMS** SampType: **MS** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59776**
Client ID: **GW-B1-0603** Batch ID: **28625** Analysis Date: **6/11/2020** SeqNo: **1196245**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.17	0.100	2.500	0.05900	44.4	70	130				S

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID: **2006085-001BMSD** SampType: **MSD** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59776**
Client ID: **GW-B1-0603** Batch ID: **28625** Analysis Date: **6/11/2020** SeqNo: **1196246**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.15	0.100	2.500	0.05900	43.6	70	130	1.170	1.72	20	S

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID: **CCV-28625A** SampType: **CCV** Units: **µg/L** Prep Date: **6/11/2020** RunNo: **59776**
Client ID: **CCV** Batch ID: **28625** Analysis Date: **6/11/2020** SeqNo: **1196251**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	2.32	0.100	2.500	0	92.8	90	110				

Sample ID: **CCB-28625A** SampType: **CCB** Units: **µg/L** Prep Date: **6/11/2020** RunNo: **59776**
Client ID: **CCB** Batch ID: **28625** Analysis Date: **6/11/2020** SeqNo: **1196252**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.100									

Sample ID: **CCV-28625B** SampType: **CCV** Units: **µg/L** Prep Date: **6/11/2020** RunNo: **59776**
Client ID: **CCV** Batch ID: **28625** Analysis Date: **6/11/2020** SeqNo: **1196263**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	2.56	0.100	2.500	0	102	90	110				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Mercury by EPA Method 245.1

Sample ID: **CCB-28625B** SampType: **CCB** Units: **µg/L** Prep Date: **6/11/2020** RunNo: **59776**
Client ID: **CCB** Batch ID: **28625** Analysis Date: **6/11/2020** SeqNo: **1196264**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.100									

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Metals by EPA Method 6020B

Sample ID: **ICB-28586** SampType: **ICB** Units: **µg/L** Prep Date: **6/9/2020** RunNo: **59700**
Client ID: **ICB** Batch ID: **28586** Analysis Date: **6/9/2020** SeqNo: **1194518**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	5.00									
Selenium	ND	5.00									
Silver	ND	1.00									

Sample ID: **ICV-28586** SampType: **ICV** Units: **µg/L** Prep Date: **6/9/2020** RunNo: **59700**
Client ID: **ICV** Batch ID: **28586** Analysis Date: **6/9/2020** SeqNo: **1194520**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	100	5.00	100.0	0	100	90	110				
Selenium	24.4	5.00	25.00	0	97.5	90	110				
Silver	4.97	1.00	5.000	0	99.5	90	110				

Sample ID: **CCV-28586A** SampType: **CCV** Units: **µg/L** Prep Date: **6/9/2020** RunNo: **59700**
Client ID: **CCV** Batch ID: **28586** Analysis Date: **6/9/2020** SeqNo: **1194523**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	106	5.00	100.0	0	106	90	110				
Selenium	24.3	5.00	25.00	0	97.2	90	110				
Silver	4.98	1.00	5.000	0	99.7	90	110				

Sample ID: **CCB-28586A** SampType: **CCB** Units: **µg/L** Prep Date: **6/9/2020** RunNo: **59700**
Client ID: **CCB** Batch ID: **28586** Analysis Date: **6/9/2020** SeqNo: **1194525**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	5.00									
Selenium	ND	5.00									
Silver	ND	1.00									

Date: *7/2/2020*

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Metals by EPA Method 6020B

Sample ID: **MB-28586** SampType: **MBLK** Units: **mg/Kg** Prep Date: **6/8/2020** RunNo: **59700**
Client ID: **MBLKS** Batch ID: **28586** Analysis Date: **6/9/2020** SeqNo: **1194527**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	0.385									
Selenium	ND	0.385									
Silver	ND	0.0769									

Sample ID: **LCS-28586** SampType: **LCS** Units: **mg/Kg** Prep Date: **6/8/2020** RunNo: **59700**
Client ID: **LCSS** Batch ID: **28586** Analysis Date: **6/9/2020** SeqNo: **1194529**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	44.5	0.397	39.68	0	112	80	120				
Selenium	3.81	0.397	3.968	0	96.0	80	120				
Silver	10.2	0.0794	9.921	0	102	80	120				

Sample ID: **2006058-016ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **6/8/2020** RunNo: **59700**
Client ID: **BATCH** Batch ID: **28586** Analysis Date: **6/9/2020** SeqNo: **1194533**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	79.2	0.404						83.97	5.84	20	
Selenium	1.49	0.404						1.579	5.48	20	
Silver	ND	0.0809						0.1057	41.9	20	

Sample ID: **2006058-016AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **6/8/2020** RunNo: **59700**
Client ID: **BATCH** Batch ID: **28586** Analysis Date: **6/9/2020** SeqNo: **1194537**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	127	0.407	40.74	83.97	106	75	125				
Selenium	5.17	0.407	4.074	1.579	88.1	75	125				
Silver	8.79	0.0815	10.19	0.1057	85.2	75	125				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Metals by EPA Method 6020B

Sample ID: **2006058-016AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **6/8/2020** RunNo: **59700**
Client ID: **BATCH** Batch ID: **28586** Analysis Date: **6/9/2020** SeqNo: **1194539**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	126	0.426	42.64	83.97	97.7	75	125	127.0	1.07	20	
Selenium	5.77	0.426	4.264	1.579	98.3	75	125	5.169	11.0	20	
Silver	8.96	0.0853	10.66	0.1057	83.1	75	125	8.788	1.99	20	

Sample ID: **CCV-28586B** SampType: **CCV** Units: **µg/L** Prep Date: **6/9/2020** RunNo: **59700**
Client ID: **CCV** Batch ID: **28586** Analysis Date: **6/9/2020** SeqNo: **1194545**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	108	5.00	100.0	0	108	90	110				
Selenium	25.9	5.00	25.00	0	103	90	110				
Silver	5.10	1.00	5.000	0	102	90	110				

Sample ID: **CCB-28586B** SampType: **CCB** Units: **µg/L** Prep Date: **6/9/2020** RunNo: **59700**
Client ID: **CCB** Batch ID: **28586** Analysis Date: **6/9/2020** SeqNo: **1194546**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	5.00									
Selenium	ND	5.00									
Silver	ND	1.00									

Sample ID: **CCV-28586C** SampType: **CCV** Units: **µg/L** Prep Date: **6/9/2020** RunNo: **59700**
Client ID: **CCV** Batch ID: **28586** Analysis Date: **6/9/2020** SeqNo: **1194758**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	109	5.00	100.0	0	109	90	110				
Selenium	25.3	5.00	25.00	0	101	90	110				
Silver	5.42	1.00	5.000	0	108	90	110				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Metals by EPA Method 6020B

Sample ID: **CCB-28586C** SampType: **CCB** Units: **µg/L** Prep Date: **6/9/2020** RunNo: **59700**
Client ID: **CCB** Batch ID: **28586** Analysis Date: **6/9/2020** SeqNo: **1194759**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	5.00									
Selenium	ND	5.00									
Silver	ND	1.00									

Sample ID: **CCV-28586D** SampType: **CCV** Units: **µg/L** Prep Date: **6/9/2020** RunNo: **59700**
Client ID: **CCV** Batch ID: **28586** Analysis Date: **6/9/2020** SeqNo: **1194767**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	112	5.00	100.0	0	112	90	110				S
Selenium	24.7	5.00	25.00	0	98.7	90	110				
Silver	5.43	1.00	5.000	0	109	90	110				

Sample ID: **CCB-28586D** SampType: **CCB** Units: **µg/L** Prep Date: **6/9/2020** RunNo: **59700**
Client ID: **CCB** Batch ID: **28586** Analysis Date: **6/9/2020** SeqNo: **1194768**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	5.00									
Selenium	ND	5.00									
Silver	ND	1.00									

Sample ID: **ICB-28586A** SampType: **ICB** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59700**
Client ID: **ICB** Batch ID: **28586** Analysis Date: **6/10/2020** SeqNo: **1195074**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	5.00									
Selenium	ND	5.00									
Silver	ND	1.00									

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Metals by EPA Method 6020B

Sample ID: **ICB-28613** SampType: **ICB** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59768**
Client ID: **ICB** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1195992**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	5.00									
Selenium	ND	5.00									
Silver	ND	1.00									

Sample ID: **ICB-28613** SampType: **ICB** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59866**
Client ID: **ICB** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1198269**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	1.00									

Sample ID: **ICV-28586A** SampType: **ICV** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59700**
Client ID: **ICV** Batch ID: **28586** Analysis Date: **6/10/2020** SeqNo: **1195076**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	99.8	5.00	100.0	0	99.8	90	110				
Selenium	23.4	5.00	25.00	0	93.5	90	110				
Silver	5.06	1.00	5.000	0	101	90	110				

Sample ID: **ICV-28613** SampType: **ICV** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59768**
Client ID: **ICV** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1195994**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	99.8	5.00	100.0	0	99.8	90	110				
Selenium	23.4	5.00	25.00	0	93.5	90	110				
Silver	4.99	1.00	5.000	0	99.8	90	110				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Metals by EPA Method 6020B

Sample ID: **ICV-28613** SampType: **ICV** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59866**
Client ID: **ICV** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1198271**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	5.06	1.00	5.000	0	101	90	110				

Sample ID: **CCV-28586E** SampType: **CCV** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59700**
Client ID: **CCV** Batch ID: **28586** Analysis Date: **6/10/2020** SeqNo: **1195085**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	101	5.00	100.0	0	101	90	110				
Selenium	25.0	5.00	25.00	0	99.8	90	110				
Silver	5.16	1.00	5.000	0	103	90	110				

Sample ID: **CCB-28586E** SampType: **CCB** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59700**
Client ID: **CCB** Batch ID: **28586** Analysis Date: **6/10/2020** SeqNo: **1195086**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	5.00									
Selenium	ND	5.00									
Silver	ND	1.00									

Sample ID: **CCV-28586F** SampType: **CCV** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59700**
Client ID: **CCV** Batch ID: **28586** Analysis Date: **6/10/2020** SeqNo: **1195968**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	109	5.00	100.0	0	109	90	110				
Selenium	24.9	5.00	25.00	0	99.6	90	110				
Silver	6.18	1.00	5.000	0	124	90	110				S

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Metals by EPA Method 6020B

Sample ID: **CCB-28586F** SampType: **CCB** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59700**
Client ID: **CCB** Batch ID: **28586** Analysis Date: **6/10/2020** SeqNo: **1195969**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	5.00									
Selenium	ND	5.00									
Silver	ND	1.00									

Sample ID: **CCV-28586G** SampType: **CCV** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59700**
Client ID: **CCV** Batch ID: **28586** Analysis Date: **6/10/2020** SeqNo: **1195971**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	108	5.00	100.0	0	108	90	110				
Selenium	24.8	5.00	25.00	0	99.2	90	110				
Silver	5.96	1.00	5.000	0	119	90	110				S

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Sample ID: **CCV-28613A** SampType: **CCV** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59768**
Client ID: **CCV** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1195997**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	108	5.00	100.0	0	108	90	110				
Selenium	24.8	5.00	25.00	0	99.2	90	110				
Silver	5.09	1.00	5.000	0	102	90	110				

Sample ID: **CCV-28613A** SampType: **CCV** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59866**
Client ID: **CCV** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1198274**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	5.96	1.00	5.000	0	119	90	110				S

NOTES:
S - Outlying spike recovery observed (high bias). Detections will be qualified with a *.

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Metals by EPA Method 6020B

Sample ID: **CCB-28586G** SampType: **CCB** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59700**
Client ID: **CCB** Batch ID: **28586** Analysis Date: **6/10/2020** SeqNo: **1195972**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	5.00									
Selenium	ND	5.00									
Silver	ND	1.00									

Sample ID: **CCB-28613A** SampType: **CCB** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59768**
Client ID: **CCB** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1195998**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	5.00									
Selenium	ND	5.00									
Silver	ND	1.00									

Sample ID: **CCB-28613A** SampType: **CCB** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59866**
Client ID: **CCB** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1198275**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	1.00									

Sample ID: **MB-28613** SampType: **MBLK** Units: **mg/Kg** Prep Date: **6/10/2020** RunNo: **59768**
Client ID: **MBLKS** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1195999**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	0.370									
Selenium	ND	0.370									
Silver	ND	0.0741									

Date: *7/2/2020*

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Metals by EPA Method 6020B

Sample ID: **MB-28613** SampType: **MBLK** Units: **mg/Kg** Prep Date: **6/10/2020** RunNo: **59866**
Client ID: **MBLKS** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1198276**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	0.0741									

Sample ID: **LCS-28613** SampType: **LCS** Units: **mg/Kg** Prep Date: **6/10/2020** RunNo: **59768**
Client ID: **LCSS** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1196000**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	43.0	0.368	36.76	0	117	80	120				
Selenium	3.69	0.368	3.676	0	100	80	120				
Silver	8.07	0.0735	9.191	0	87.8	80	120				

Sample ID: **LCS-28613** SampType: **LCS** Units: **mg/Kg** Prep Date: **6/10/2020** RunNo: **59866**
Client ID: **LCSS** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1198277**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	11.2	0.0735	9.191	0	122	80	120				S

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Sample ID: **2006085-010ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **6/10/2020** RunNo: **59768**
Client ID: **S-B3-2-3-0603** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1196002**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	36.9	0.428						56.74	42.4	20	R
Selenium	0.724	0.428						0.7990	9.85	20	
Silver	ND	0.0856						0.2565	163	20	R

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Metals by EPA Method 6020B

Sample ID: **2006085-010ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **6/10/2020** RunNo: **59866**
Client ID: **S-B3-2-3-0603** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1198279**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	0.0856						0		20	

Sample ID: **2006085-010AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **6/10/2020** RunNo: **59768**
Client ID: **S-B3-2-3-0603** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1196004**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	110	0.415	41.46	56.74	129	75	125				S
Selenium	5.10	0.415	4.146	0.7990	104	75	125				
Silver	7.60	0.0829	10.37	0.2565	70.8	75	125				S

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID: **2006085-010AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **6/10/2020** RunNo: **59866**
Client ID: **S-B3-2-3-0603** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1198281**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	12.8	0.0829	10.37	0.07470	122	75	125				E

NOTES:
E - Estimated value. The amount exceeds the linear working range of the instrument.

Sample ID: **2006085-010AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **6/10/2020** RunNo: **59768**
Client ID: **S-B3-2-3-0603** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1196005**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	139	0.411	41.15	56.74	200	75	125	110.2	23.1	20	RS
Selenium	5.08	0.411	4.115	0.7990	104	75	125	5.097	0.347	20	
Silver	7.80	0.0823	10.29	0.2565	73.4	75	125	7.596	2.71	20	S

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.
R - High RPD observed. The method is in control as indicated by the LCS.

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Metals by EPA Method 6020B

Sample ID: **2006085-010AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **6/10/2020** RunNo: **59866**
Client ID: **S-B3-2-3-0603** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1198282**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	10.3	0.0823	10.29	0.07470	99.6	75	125	12.77	21.2	20	ER

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.
E - Estimated value. The amount exceeds the linear working range of the instrument.

Sample ID: **2006085-010APDS** SampType: **PDS** Units: **mg/Kg-dry** Prep Date: **6/10/2020** RunNo: **59768**
Client ID: **S-B3-2-3-0603** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1196006**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	248	0.421	50.0	135	113	75	125				
Silver	1.60	0.0842	2.11	0.256	63.8	75	125				S

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample ID: **CCV-28613B** SampType: **CCV** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59768**
Client ID: **CCV** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1196009**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	104	5.00	100.0	0	104	90	110				
Selenium	24.4	5.00	25.00	0	97.8	90	110				
Silver	5.15	1.00	5.000	0	103	90	110				

Sample ID: **CCV-28613B** SampType: **CCV** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59866**
Client ID: **CCV** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1198286**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	6.12	1.00	5.000	0	122	90	110				S

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Metals by EPA Method 6020B

Sample ID: **CCB-28613B** SampType: **CCB** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59768**
Client ID: **CCB** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1196010**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	5.00									
Selenium	ND	5.00									
Silver	ND	1.00									

Sample ID: **CCB-28613B** SampType: **CCB** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59866**
Client ID: **CCB** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1198287**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	1.00									

Sample ID: **CCV-28613C** SampType: **CCV** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59768**
Client ID: **CCV** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1196021**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	99.7	5.00	100.0	0	99.7	90	110				
Selenium	25.4	5.00	25.00	0	102	90	110				
Silver	4.77	1.00	5.000	0	95.3	90	110				

Sample ID: **CCB-28613C** SampType: **CCB** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59768**
Client ID: **CCB** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1196022**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	5.00									
Selenium	ND	5.00									
Silver	ND	1.00									

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Metals by EPA Method 6020B

Sample ID: **CCV-28613D** SampType: **CCV** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59768**
Client ID: **CCV** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1196030**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	103	5.00	100.0	0	103	90	110				
Selenium	25.3	5.00	25.00	0	101	90	110				
Silver	5.11	1.00	5.000	0	102	90	110				

Sample ID: **CCB-28613D** SampType: **CCB** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59768**
Client ID: **CCB** Batch ID: **28613** Analysis Date: **6/10/2020** SeqNo: **1196031**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	5.00									
Selenium	ND	5.00									
Silver	ND	1.00									

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **ARO-CCV-28677A** SampType: **CCV** Units: **mg/Kg** Prep Date: **6/23/2020** RunNo: **60093**
Client ID: **CCV** Batch ID: **28677** Analysis Date: **6/23/2020** SeqNo: **1203096**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	174	10.0	200.0	0	86.9	80	120				Q
Aromatic Hydrocarbon (C10-C12)	96.2	10.0	100.0	0	96.2	80	120				
Aromatic Hydrocarbon (C12-C16)	99.2	10.0	100.0	0	99.2	80	120				
Aromatic Hydrocarbon (C16-C21)	102	10.0	100.0	0	102	80	120				
Aromatic Hydrocarbon (C21-C34)	108	10.0	100.0	0	108	80	120				
Surr: 1-Chlorooctadecane	39.9		40.00		99.8	60	140				
Surr: o-Terphenyl	39.7		40.00		99.3	60	140				

NOTES:
Q - Indicates a hydrocarbon range where the low calibration point read back at a level outside the acceptance criteria (+- 20%)

Sample ID: **MB-28677** SampType: **MBLK** Units: **mg/Kg** Prep Date: **6/16/2020** RunNo: **60093**
Client ID: **MBLKS** Batch ID: **28677** Analysis Date: **6/23/2020** SeqNo: **1203100**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	ND	10.0									*Q
Aromatic Hydrocarbon (C10-C12)	ND	10.0									
Aromatic Hydrocarbon (C12-C16)	ND	10.0									
Aromatic Hydrocarbon (C16-C21)	ND	10.0									
Aromatic Hydrocarbon (C21-C34)	ND	10.0									
Surr: o-Terphenyl	79.8		100.0		79.8	60	140				

NOTES:
Q - Indicates a hydrocarbon range where the low calibration point read back at a level outside the acceptance criteria (+- 20%)
* - Flagged value is not within established control limits.

Sample ID: **LCS-28677** SampType: **LCS** Units: **mg/Kg** Prep Date: **6/16/2020** RunNo: **60093**
Client ID: **LCSS** Batch ID: **28677** Analysis Date: **6/23/2020** SeqNo: **1203099**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	89.4	10.0	250.0	0	35.7	70	130				SQ
Aromatic Hydrocarbon (C10-C12)	88.2	10.0	125.0	0	70.6	70	130				
Aromatic Hydrocarbon (C12-C16)	99.5	10.0	125.0	0	79.6	70	130				
Aromatic Hydrocarbon (C16-C21)	124	10.0	125.0	0	99.1	70	130				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **LCS-28677** SampType: **LCS** Units: **mg/Kg** Prep Date: **6/16/2020** RunNo: **60093**
Client ID: **LCSS** Batch ID: **28677** Analysis Date: **6/23/2020** SeqNo: **1203099**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C21-C34)	115	10.0	125.0	0	92.3	70	130				
Surr: o-Terphenyl	77.8		100.0		77.8	60	140				

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.
Q - Indicates a hydrocarbon range where the low calibration point read back at a level outside the acceptance criteria (+- 20%)

Sample ID: **2006085-009ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **6/16/2020** RunNo: **60093**
Client ID: **S-B2-2-4-0603** Batch ID: **28677** Analysis Date: **6/23/2020** SeqNo: **1203098**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	ND	12.2						22.57	140	25	R*Q
Aromatic Hydrocarbon (C10-C12)	53.0	12.2						72.88	31.7	25	R
Aromatic Hydrocarbon (C12-C16)	404	12.2						540.5	28.8	25	R
Aromatic Hydrocarbon (C16-C21)	751	12.2						957.6	24.1	25	
Aromatic Hydrocarbon (C21-C34)	179	12.2						315.9	55.6	25	R
Surr: o-Terphenyl	84.8		121.9		69.6	60	140		0		

NOTES:
R - High RPD due to suspected sample inhomogeneity.
Q - Indicates a hydrocarbon range where the low calibration point read back at a level outside the acceptance criteria (+- 20%)
* - Flagged value is not within established control limits.

Sample ID: **2006085-009AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **6/16/2020** RunNo: **60093**
Client ID: **S-B2-2-4-0603** Batch ID: **28677** Analysis Date: **6/23/2020** SeqNo: **1203101**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	120	11.6	290.0	22.57	33.7	70	130				SQ
Aromatic Hydrocarbon (C10-C12)	139	11.6	145.0	72.88	45.6	70	130				S
Aromatic Hydrocarbon (C12-C16)	507	11.6	145.0	540.5	-23.1	70	130				S
Aromatic Hydrocarbon (C16-C21)	833	11.6	145.0	957.6	-85.9	70	130				S
Aromatic Hydrocarbon (C21-C34)	298	11.6	145.0	315.9	-12.6	70	130				S
Surr: o-Terphenyl	76.7		116.0		66.1	60	140				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **2006085-009AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **6/16/2020** RunNo: **60093**
Client ID: **S-B2-2-4-0603** Batch ID: **28677** Analysis Date: **6/23/2020** SeqNo: **1203101**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.
S - Outlying spike recovery observed (low bias).
Q - Indicates a hydrocarbon range where the low calibration point read back at a level outside the acceptance criteria (+- 20%)

Sample ID: **2006085-009AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **6/16/2020** RunNo: **60093**
Client ID: **S-B2-2-4-0603** Batch ID: **28677** Analysis Date: **6/23/2020** SeqNo: **1203102**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	103	13.1	326.3	22.57	24.8	70	130	120.3	15.2	30	SQ
Aromatic Hydrocarbon (C10-C12)	91.5	13.1	163.2	72.88	11.4	70	130	139.0	41.2	30	RS
Aromatic Hydrocarbon (C12-C16)	235	13.1	163.2	540.5	-187	70	130	507.0	73.3	30	RS
Aromatic Hydrocarbon (C16-C21)	373	13.1	163.2	957.6	-358	70	130	833.0	76.2	30	RS
Aromatic Hydrocarbon (C21-C34)	218	13.1	163.2	315.9	-59.7	70	130	297.6	30.7	30	RS
Surr: o-Terphenyl	67.4		130.5		51.6	60	140		0		S

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.
R - High RPD due to suspected sample inhomogeneity.
Q - Indicates a hydrocarbon range where the low calibration point read back at a level outside the acceptance criteria (+- 20%)
S - Outlying surrogate recovery(ies) observed.

Sample ID: **ARO-CCV-28677B** SampType: **CCV** Units: **mg/Kg** Prep Date: **6/23/2020** RunNo: **60093**
Client ID: **CCV** Batch ID: **28677** Analysis Date: **6/23/2020** SeqNo: **1203097**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	163	10.0	200.0	0	81.6	80	120				Q
Aromatic Hydrocarbon (C10-C12)	94.0	10.0	100.0	0	94.0	80	120				
Aromatic Hydrocarbon (C12-C16)	95.6	10.0	100.0	0	95.6	80	120				
Aromatic Hydrocarbon (C16-C21)	99.3	10.0	100.0	0	99.3	80	120				
Aromatic Hydrocarbon (C21-C34)	110	10.0	100.0	0	110	80	120				
Surr: 1-Chlorooctadecane	35.0		40.00		87.4	60	140				
Surr: o-Terphenyl	35.6		40.00		89.0	60	140				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **ARO-CCV-28677B** SampType: **CCV** Units: **mg/Kg** Prep Date: **6/23/2020** RunNo: **60093**
Client ID: **CCV** Batch ID: **28677** Analysis Date: **6/23/2020** SeqNo: **1203097**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
Q - Indicates a hydrocarbon range where the low calibration point read back at a level outside the acceptance criteria (+- 20%)

Sample ID: **ALI-CCV-28677A** SampType: **CCV** Units: **mg/Kg** Prep Date: **6/23/2020** RunNo: **60093**
Client ID: **CCV** Batch ID: **28677** Analysis Date: **6/23/2020** SeqNo: **1203105**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	176	20.0	200.0	0	88.2	80	120				
Aliphatic Hydrocarbon (C10-C12)	90.7	10.0	100.0	0	90.7	80	120				
Aliphatic Hydrocarbon (C12-C16)	105	10.0	100.0	0	105	80	120				
Aliphatic Hydrocarbon (C16-C21)	84.4	10.0	100.0	0	84.4	80	120				
Aliphatic Hydrocarbon (C21-C34)	108	10.0	100.0	0	108	80	120				
Surr: 1-Chlorooctadecane	34.6		40.00		86.6	60	140				
Surr: o-Terphenyl	35.0		40.00		87.5	60	140				

Sample ID: **MB-28677** SampType: **MBLK** Units: **mg/Kg** Prep Date: **6/16/2020** RunNo: **60093**
Client ID: **MBLKS** Batch ID: **28677** Analysis Date: **6/23/2020** SeqNo: **1203109**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	ND	20.0									*
Aliphatic Hydrocarbon (C10-C12)	ND	10.0									*
Aliphatic Hydrocarbon (C12-C16)	ND	10.0									
Aliphatic Hydrocarbon (C16-C21)	ND	10.0									
Aliphatic Hydrocarbon (C21-C34)	ND	10.0									
Surr: 1-Chlorooctadecane	74.8		100.0		74.8	60	140				

NOTES:
* - Flagged value is not within established control limits.

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **LCS-28677** SampType: **LCS** Units: **mg/Kg** Prep Date: **6/16/2020** RunNo: **60093**
Client ID: **LCSS** Batch ID: **28677** Analysis Date: **6/23/2020** SeqNo: **1203108**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	74.7	20.0	250.0	0	29.9	70	130				S
Aliphatic Hydrocarbon (C10-C12)	65.7	10.0	125.0	0	52.5	70	130				S
Aliphatic Hydrocarbon (C12-C16)	110	10.0	125.0	0	88.1	70	130				
Aliphatic Hydrocarbon (C16-C21)	109	10.0	125.0	0	87.5	70	130				
Aliphatic Hydrocarbon (C21-C34)	147	10.0	125.0	0	117	70	130				
Surr: 1-Chlorooctadecane	78.0		100.0		78.0	60	140				

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.

Sample ID: **2006085-009ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **6/16/2020** RunNo: **60093**
Client ID: **S-B2-2-4-0603** Batch ID: **28677** Analysis Date: **6/24/2020** SeqNo: **1203107**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	27.9	24.4						52.32	61.0	25	R*
Aliphatic Hydrocarbon (C10-C12)	222	12.2						383.2	53.2	25	R*
Aliphatic Hydrocarbon (C12-C16)	1,250	12.2						1,902	41.2	25	RE
Aliphatic Hydrocarbon (C16-C21)	1,000	12.2						1,477	38.2	25	R
Aliphatic Hydrocarbon (C21-C34)	1,280	12.2						1,954	41.9	25	RE
Surr: 1-Chlorooctadecane	84.6		121.9		69.4	60	140		0		

NOTES:
R - High RPD due to high analyte concentration. In this range, high RPD's may be expected.
E - Estimated value. The amount exceeds the linear working range of the instrument.
* - Flagged value is not within established control limits.

Sample ID: **2006085-009AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **6/16/2020** RunNo: **60093**
Client ID: **S-B2-2-4-0603** Batch ID: **28677** Analysis Date: **6/24/2020** SeqNo: **1203110**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	115	23.2	290.0	52.32	21.7	70	130				S
Aliphatic Hydrocarbon (C10-C12)	355	11.6	145.0	383.2	-19.7	70	130				S
Aliphatic Hydrocarbon (C12-C16)	1,630	11.6	145.0	1,902	-190	70	130				SE
Aliphatic Hydrocarbon (C16-C21)	1,300	11.6	145.0	1,477	-120	70	130				SE

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **2006085-009AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **6/16/2020** RunNo: **60093**
Client ID: **S-B2-2-4-0603** Batch ID: **28677** Analysis Date: **6/24/2020** SeqNo: **1203110**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C21-C34)	1,190	11.6	145.0	1,954	-527	70	130				SE
Surr: 1-Chlorooctadecane	76.7		116.0		66.1	60	140				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.
E - Estimated value. The amount exceeds the linear working range of the instrument.

Sample ID: **ALI-CCV-28677B** SampType: **CCV** Units: **mg/Kg** Prep Date: **6/24/2020** RunNo: **60093**
Client ID: **CCV** Batch ID: **28677** Analysis Date: **6/24/2020** SeqNo: **1203106**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	183	20.0	200.0	0	91.5	80	120				
Aliphatic Hydrocarbon (C10-C12)	94.7	10.0	100.0	0	94.7	80	120				
Aliphatic Hydrocarbon (C12-C16)	103	10.0	100.0	0	103	80	120				
Aliphatic Hydrocarbon (C16-C21)	88.2	10.0	100.0	0	88.2	80	120				
Aliphatic Hydrocarbon (C21-C34)	115	10.0	100.0	0	115	80	120				
Surr: 1-Chlorooctadecane	35.4		40.00		88.6	60	140				
Surr: o-Terphenyl	35.5		40.00		88.6	60	140				

Sample ID: **ALI-CCV-28677C** SampType: **CCV** Units: **mg/Kg** Prep Date: **6/24/2020** RunNo: **60093**
Client ID: **CCV** Batch ID: **28677** Analysis Date: **6/24/2020** SeqNo: **1203230**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	194	20.0	200.0	0	96.8	80	120				
Aliphatic Hydrocarbon (C10-C12)	88.2	10.0	100.0	0	88.2	80	120				
Aliphatic Hydrocarbon (C12-C16)	93.1	10.0	100.0	0	93.1	80	120				
Aliphatic Hydrocarbon (C16-C21)	95.8	10.0	100.0	0	95.8	80	120				
Aliphatic Hydrocarbon (C21-C34)	110	10.0	100.0	0	110	80	120				
Surr: 1-Chlorooctadecane	36.9		40.00		92.3	60	140				
Surr: o-Terphenyl	37.4		40.00		93.4	60	140				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **2006085-009AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **6/16/2020** RunNo: **60093**
Client ID: **S-B2-2-4-0603** Batch ID: **28677** Analysis Date: **6/24/2020** SeqNo: **1203233**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	97.6	26.1	326.3	52.32	13.9	70	130	115.2	16.5	30	S
Aliphatic Hydrocarbon (C10-C12)	169	13.1	163.2	383.2	-131	70	130	354.5	70.7	30	RS
Aliphatic Hydrocarbon (C12-C16)	617	13.1	163.2	1,902	-788	70	130	1,627	90.0	30	RS
Aliphatic Hydrocarbon (C16-C21)	529	13.1	163.2	1,477	-581	70	130	1,303	84.5	30	RS
Aliphatic Hydrocarbon (C21-C34)	732	13.1	163.2	1,954	-749	70	130	1,189	47.6	30	RS
Surr: 1-Chlorooctadecane	75.4		130.5		57.7	60	140		0		S

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.
S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.
R - High RPD due to high analyte concentration. In this range, high RPD's may be expected.

Sample ID: **ALI-CCV-28677D** SampType: **CCV** Units: **mg/Kg** Prep Date: **6/24/2020** RunNo: **60093**
Client ID: **CCV** Batch ID: **28677** Analysis Date: **6/24/2020** SeqNo: **1203231**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	196	20.0	200.0	0	98.2	80	120				
Aliphatic Hydrocarbon (C10-C12)	100	10.0	100.0	0	100	80	120				
Aliphatic Hydrocarbon (C12-C16)	101	10.0	100.0	0	101	80	120				
Aliphatic Hydrocarbon (C16-C21)	101	10.0	100.0	0	101	80	120				
Aliphatic Hydrocarbon (C21-C34)	111	10.0	100.0	0	111	80	120				
Surr: 1-Chlorooctadecane	39.0		40.00		97.4	60	140				
Surr: o-Terphenyl	38.0		40.00		95.1	60	140				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **PAH ICB** SampType: **ICB** Units: **µg/L** Prep Date: **6/4/2020** RunNo: **59660**
Client ID: **ICB** Batch ID: **28581** Analysis Date: **6/4/2020** SeqNo: **1193487**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	652		500.0		130	50.4	142				
Surr: Terphenyl-d14 (surr)	634		500.0		127	48.8	157				

Sample ID: **PAH ICV** SampType: **ICV** Units: **µg/L** Prep Date: **6/4/2020** RunNo: **59660**
Client ID: **ICV** Batch ID: **28581** Analysis Date: **6/4/2020** SeqNo: **1193488**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	999	40.0	1,000	0	99.9	70	130				
2-Methylnaphthalene	1,010	40.0	1,000	0	101	70	130				
1-Methylnaphthalene	1,000	40.0	1,000	0	100	70	130				
Acenaphthylene	982	40.0	1,000	0	98.2	70	130				
Acenaphthene	996	40.0	1,000	0	99.6	70	130				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **PAH ICV** SampType: **ICV** Units: **µg/L** Prep Date: **6/4/2020** RunNo: **59660**
Client ID: **ICV** Batch ID: **28581** Analysis Date: **6/4/2020** SeqNo: **1193488**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	1,020	40.0	1,000	0	102	70	130				
Phenanthrene	1,050	40.0	1,000	0	105	70	130				
Anthracene	1,010	40.0	1,000	0	101	70	130				
Fluoranthene	992	40.0	1,000	0	99.2	70	130				
Pyrene	1,000	40.0	1,000	0	100	70	130				
Benz(a)anthracene	1,060	40.0	1,000	0	106	70	130				
Chrysene	1,060	40.0	1,000	0	106	70	130				
Benzo(b)fluoranthene	1,130	40.0	1,000	0	113	70	130				
Benzo(k)fluoranthene	1,030	40.0	1,000	0	103	70	130				
Benzo(a)pyrene	1,070	40.0	1,000	0	107	70	130				
Indeno(1,2,3-cd)pyrene	1,040	40.0	1,000	0	104	70	130				
Dibenz(a,h)anthracene	1,040	40.0	1,000	0	104	70	130				
Benzo(g,h,i)perylene	1,040	40.0	1,000	0	104	70	130				
Surr: 2-Fluorobiphenyl	682		500.0		136	69.5	150				
Surr: Terphenyl-d14 (surr)	694		500.0		139	71.6	145				

Sample ID: **CCV-28581** SampType: **CCV** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59681**
Client ID: **CCV** Batch ID: **28581** Analysis Date: **6/8/2020** SeqNo: **1193943**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	894	40.0	1,000	0	89.4	80	120				
2-Methylnaphthalene	892	40.0	1,000	0	89.2	80	120				
1-Methylnaphthalene	901	40.0	1,000	0	90.1	80	120				
Acenaphthylene	861	40.0	1,000	0	86.1	80	120				
Acenaphthene	874	40.0	1,000	0	87.4	80	120				
Fluorene	900	40.0	1,000	0	90.0	80	120				
Phenanthrene	947	40.0	1,000	0	94.7	80	120				
Anthracene	898	40.0	1,000	0	89.8	80	120				
Fluoranthene	906	40.0	1,000	0	90.6	80	120				
Pyrene	910	40.0	1,000	0	91.0	80	120				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **CCV-28581** SampType: **CCV** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59681**
Client ID: **CCV** Batch ID: **28581** Analysis Date: **6/8/2020** SeqNo: **1193943**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	958	40.0	1,000	0	95.8	80	120				
Chrysene	947	40.0	1,000	0	94.7	80	120				
Benzo(b)fluoranthene	927	40.0	1,000	0	92.7	80	120				
Benzo(k)fluoranthene	980	40.0	1,000	0	98.0	80	120				
Benzo(a)pyrene	925	40.0	1,000	0	92.5	80	120				
Indeno(1,2,3-cd)pyrene	979	40.0	1,000	0	97.9	80	120				
Dibenz(a,h)anthracene	1,010	40.0	1,000	0	101	80	120				
Benzo(g,h,i)perylene	945	40.0	1,000	0	94.5	80	120				
Surr: 2-Fluorobiphenyl	434		500.0		86.8	69.5	150				
Surr: Terphenyl-d14 (surr)	437		500.0		87.4	71.6	145				

Sample ID: **MB-28581** SampType: **MBLK** Units: **µg/Kg** Prep Date: **6/8/2020** RunNo: **59681**
Client ID: **MBLKS** Batch ID: **28581** Analysis Date: **6/8/2020** SeqNo: **1193944**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **MB-28581** SampType: **MBLK** Units: **µg/Kg** Prep Date: **6/8/2020** RunNo: **59681**
Client ID: **MBLKS** Batch ID: **28581** Analysis Date: **6/8/2020** SeqNo: **1193944**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	286		500.0		57.3	6.91	127				
Surr: Terphenyl-d14 (surr)	477		500.0		95.3	32.9	153				

Sample ID: **LCS-28581** SampType: **LCS** Units: **µg/Kg** Prep Date: **6/8/2020** RunNo: **59681**
Client ID: **LCSS** Batch ID: **28581** Analysis Date: **6/8/2020** SeqNo: **1193945**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	597	40.0	1,000	0	59.7	47.3	136				
2-Methylnaphthalene	615	40.0	1,000	0	61.5	48.6	142				
1-Methylnaphthalene	610	40.0	1,000	0	61.0	51	140				
Acenaphthylene	603	40.0	1,000	0	60.3	47.5	137				
Acenaphthene	615	40.0	1,000	0	61.5	49.1	138				
Fluorene	629	40.0	1,000	0	62.9	49.3	137				
Phenanthrene	650	40.0	1,000	0	65.0	45.5	139				
Anthracene	621	40.0	1,000	0	62.1	44	139				
Fluoranthene	632	40.0	1,000	0	63.2	48.7	144				
Pyrene	644	40.0	1,000	0	64.4	47.9	143				
Benz(a)anthracene	685	40.0	1,000	0	68.5	49.8	143				
Chrysene	665	40.0	1,000	0	66.5	47.1	144				
Benzo(b)fluoranthene	694	40.0	1,000	0	69.4	44.6	150				
Benzo(k)fluoranthene	656	40.0	1,000	0	65.6	47.5	148				
Benzo(a)pyrene	646	40.0	1,000	0	64.6	45	149				
Indeno(1,2,3-cd)pyrene	678	40.0	1,000	0	67.8	41.4	146				
Dibenz(a,h)anthracene	705	40.0	1,000	0	70.5	43.4	145				
Benzo(g,h,i)perylene	660	40.0	1,000	0	66.0	42.7	144				
Surr: 2-Fluorobiphenyl	347		500.0		69.3	6.91	127				
Surr: Terphenyl-d14 (surr)	421		500.0		84.1	32.9	153				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **LCS-28581**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **6/8/2020**	RunNo: **59681**
Client ID: **LCSS**	Batch ID: **28581**		Analysis Date: **6/8/2020**	SeqNo: **1193945**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: **2006084-005ADUP**	SampType: **DUP**	Units: **µg/Kg-dry**	Prep Date: **6/8/2020**	RunNo: **59681**
Client ID: **BATCH**	Batch ID: **28581**		Analysis Date: **6/8/2020**	SeqNo: **1194351**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	42.6						0		30	
2-Methylnaphthalene	ND	42.6						0		30	
1-Methylnaphthalene	ND	42.6						0		30	
Acenaphthylene	ND	42.6						0		30	
Acenaphthene	ND	42.6						0		30	
Fluorene	ND	42.6						0		30	
Phenanthrene	ND	42.6						0		30	
Anthracene	ND	42.6						0		30	
Fluoranthene	ND	42.6						0		30	
Pyrene	ND	42.6						0		30	
Benz(a)anthracene	ND	42.6						0		30	
Chrysene	ND	42.6						0		30	
Benzo(b)fluoranthene	ND	42.6						0		30	
Benzo(k)fluoranthene	ND	42.6						0		30	
Benzo(a)pyrene	ND	42.6						0		30	
Indeno(1,2,3-cd)pyrene	ND	42.6						0		30	
Dibenz(a,h)anthracene	ND	42.6						0		30	
Benzo(g,h,i)perylene	ND	42.6						0		30	
Surr: 2-Fluorobiphenyl	267		533.0		50.0	6.91	127		0		
Surr: Terphenyl-d14 (surr)	640		533.0		120	32.9	153		0		

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **2006084-005AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **6/8/2020** RunNo: **59681**
Client ID: **BATCH** Batch ID: **28581** Analysis Date: **6/8/2020** SeqNo: **1194353**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	764	43.5	1,086	0	70.3	33	123				
2-Methylnaphthalene	855	43.5	1,086	0	78.7	38.9	128				
1-Methylnaphthalene	849	43.5	1,086	0	78.1	36.2	129				
Acenaphthylene	867	43.5	1,086	0	79.8	39	132				
Acenaphthene	873	43.5	1,086	0	80.3	39.5	124				
Fluorene	907	43.5	1,086	0	83.5	38.5	128				
Phenanthrene	948	43.5	1,086	0	87.3	34.1	130				
Anthracene	917	43.5	1,086	0	84.4	38.8	128				
Fluoranthene	926	43.5	1,086	0	85.3	38.6	136				
Pyrene	935	43.5	1,086	0	86.0	37.8	134				
Benz(a)anthracene	1,020	43.5	1,086	0	94.2	35.9	142				
Chrysene	946	43.5	1,086	0	87.0	36.7	131				
Benzo(b)fluoranthene	993	43.5	1,086	0	91.4	35	141				
Benzo(k)fluoranthene	987	43.5	1,086	0	90.8	35.9	136				
Benzo(a)pyrene	1,000	43.5	1,086	0	92.5	31.2	142				
Indeno(1,2,3-cd)pyrene	981	43.5	1,086	0	90.3	29.1	133				
Dibenz(a,h)anthracene	1,020	43.5	1,086	0	93.9	31.3	132				
Benzo(g,h,i)perylene	926	43.5	1,086	0	85.3	30.2	128				
Surr: 2-Fluorobiphenyl	529		543.2		97.3	6.91	127				
Surr: Terphenyl-d14 (surr)	625		543.2		115	32.9	153				

Sample ID: **2006084-005AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **6/8/2020** RunNo: **59681**
Client ID: **BATCH** Batch ID: **28581** Analysis Date: **6/8/2020** SeqNo: **1194354**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	740	39.2	979.6	0	75.6	33	123	763.8	3.14	30	
2-Methylnaphthalene	798	39.2	979.6	0	81.5	38.9	128	855.2	6.91	30	
1-Methylnaphthalene	791	39.2	979.6	0	80.7	36.2	129	849.1	7.11	30	
Acenaphthylene	791	39.2	979.6	0	80.7	39	132	866.5	9.15	30	
Acenaphthene	798	39.2	979.6	0	81.5	39.5	124	872.5	8.88	30	

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **2006084-005AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **6/8/2020** RunNo: **59681**
Client ID: **BATCH** Batch ID: **28581** Analysis Date: **6/8/2020** SeqNo: **1194354**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	832	39.2	979.6	0	85.0	38.5	128	906.7	8.53	30	
Phenanthrene	871	39.2	979.6	0	88.9	34.1	130	948.0	8.43	30	
Anthracene	842	39.2	979.6	0	86.0	38.8	128	916.9	8.48	30	
Fluoranthene	846	39.2	979.6	0	86.4	38.6	136	926.5	9.07	30	
Pyrene	862	39.2	979.6	0	88.0	37.8	134	934.7	8.05	30	
Benz(a)anthracene	952	39.2	979.6	0	97.1	35.9	142	1,023	7.26	30	
Chrysene	892	39.2	979.6	0	91.1	36.7	131	945.8	5.81	30	
Benzo(b)fluoranthene	979	39.2	979.6	0	99.9	35	141	993.3	1.49	30	
Benzo(k)fluoranthene	859	39.2	979.6	0	87.7	35.9	136	986.7	13.8	30	
Benzo(a)pyrene	911	39.2	979.6	0	93.0	31.2	142	1,005	9.78	30	
Indeno(1,2,3-cd)pyrene	897	39.2	979.6	0	91.6	29.1	133	980.6	8.86	30	
Dibenz(a,h)anthracene	931	39.2	979.6	0	95.0	31.3	132	1,020	9.19	30	
Benzo(g,h,i)perylene	843	39.2	979.6	0	86.0	30.2	128	926.4	9.46	30	
Surr: 2-Fluorobiphenyl	438		489.8		89.5	6.91	127		0		
Surr: Terphenyl-d14 (surr)	577		489.8		118	32.9	153		0		

Sample ID: **QCS-28581A** SampType: **QCS** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59681**
Client ID: **BATCH** Batch ID: **28581** Analysis Date: **6/8/2020** SeqNo: **1194355**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	893	40.0	1,000	0	89.3	50	150				
2-Methylnaphthalene	900	40.0	1,000	0	90.0	50	150				
1-Methylnaphthalene	907	40.0	1,000	0	90.7	50	150				
Acenaphthylene	865	40.0	1,000	0	86.5	50	150				
Acenaphthene	877	40.0	1,000	0	87.7	50	150				
Fluorene	892	40.0	1,000	0	89.2	50	150				
Phenanthrene	933	40.0	1,000	0	93.3	50	150				
Anthracene	904	40.0	1,000	0	90.4	50	150				
Fluoranthene	909	40.0	1,000	0	90.9	50	150				
Pyrene	916	40.0	1,000	0	91.6	50	150				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **QCS-28581A** SampType: **QCS** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59681**
Client ID: **BATCH** Batch ID: **28581** Analysis Date: **6/8/2020** SeqNo: **1194355**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,010	40.0	1,000	0	101	50	150				
Chrysene	928	40.0	1,000	0	92.8	50	150				
Benzo(b)fluoranthene	935	40.0	1,000	0	93.5	50	150				
Benzo(k)fluoranthene	988	40.0	1,000	0	98.8	50	150				
Benzo(a)pyrene	981	40.0	1,000	0	98.1	50	150				
Indeno(1,2,3-cd)pyrene	954	40.0	1,000	0	95.4	50	150				
Dibenz(a,h)anthracene	992	40.0	1,000	0	99.2	50	150				
Benzo(g,h,i)perylene	894	40.0	1,000	0	89.4	50	150				
Surr: 2-Fluorobiphenyl	434		500.0		86.8	50	150				
Surr: Terphenyl-d14 (surr)	458		500.0		91.6	50	150				

Sample ID: **CCV-28581B** SampType: **CCV** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59681**
Client ID: **CCV** Batch ID: **28581** Analysis Date: **6/8/2020** SeqNo: **1194356**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	885	40.0	1,000	0	88.5	80	120				
2-Methylnaphthalene	898	40.0	1,000	0	89.8	80	120				
1-Methylnaphthalene	900	40.0	1,000	0	90.0	80	120				
Acenaphthylene	867	40.0	1,000	0	86.7	80	120				
Acenaphthene	869	40.0	1,000	0	86.9	80	120				
Fluorene	889	40.0	1,000	0	88.9	80	120				
Phenanthrene	923	40.0	1,000	0	92.3	80	120				
Anthracene	888	40.0	1,000	0	88.8	80	120				
Fluoranthene	904	40.0	1,000	0	90.4	80	120				
Pyrene	911	40.0	1,000	0	91.1	80	120				
Benz(a)anthracene	1,010	40.0	1,000	0	101	80	120				
Chrysene	924	40.0	1,000	0	92.4	80	120				
Benzo(b)fluoranthene	965	40.0	1,000	0	96.5	80	120				
Benzo(k)fluoranthene	955	40.0	1,000	0	95.5	80	120				
Benzo(a)pyrene	950	40.0	1,000	0	95.0	80	120				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **CCV-28581B** SampType: **CCV** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59681**
Client ID: **CCV** Batch ID: **28581** Analysis Date: **6/8/2020** SeqNo: **1194356**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene	956	40.0	1,000	0	95.6	80	120				
Dibenz(a,h)anthracene	998	40.0	1,000	0	99.8	80	120				
Benzo(g,h,i)perylene	893	40.0	1,000	0	89.3	80	120				
Surr: 2-Fluorobiphenyl	433		500.0		86.6	69.5	150				
Surr: Terphenyl-d14 (surr)	460		500.0		91.9	71.6	145				

Sample ID: **QCS-28581B** SampType: **QCS** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59681**
Client ID: **BATCH** Batch ID: **28581** Analysis Date: **6/8/2020** SeqNo: **1194370**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	889	40.0	1,000	0	88.9	50	150				
2-Methylnaphthalene	906	40.0	1,000	0	90.6	50	150				
1-Methylnaphthalene	912	40.0	1,000	0	91.2	50	150				
Acenaphthylene	894	40.0	1,000	0	89.4	50	150				
Acenaphthene	894	40.0	1,000	0	89.4	50	150				
Fluorene	914	40.0	1,000	0	91.4	50	150				
Phenanthrene	925	40.0	1,000	0	92.5	50	150				
Anthracene	914	40.0	1,000	0	91.4	50	150				
Fluoranthene	943	40.0	1,000	0	94.3	50	150				
Pyrene	947	40.0	1,000	0	94.7	50	150				
Benz(a)anthracene	984	40.0	1,000	0	98.4	50	150				
Chrysene	905	40.0	1,000	0	90.5	50	150				
Benzo(b)fluoranthene	798	40.0	1,000	0	79.8	50	150				
Benzo(k)fluoranthene	746	40.0	1,000	0	74.6	50	150				
Benzo(a)pyrene	688	40.0	1,000	0	68.8	50	150				
Indeno(1,2,3-cd)pyrene	573	40.0	1,000	0	57.3	50	150				
Dibenz(a,h)anthracene	628	40.0	1,000	0	62.8	50	150				
Benzo(g,h,i)perylene	452	40.0	1,000	0	45.2	50	150				S
Surr: 2-Fluorobiphenyl	440		500.0		87.9	50	150				
Surr: Terphenyl-d14 (surr)	473		500.0		94.6	50	150				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **QCS-28581B** SampType: **QCS** Units: **µg/L** Prep Date: **6/8/2020** RunNo: **59681**
Client ID: **BATCH** Batch ID: **28581** Analysis Date: **6/8/2020** SeqNo: **1194370**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a Q.

Sample ID: **CCV-28581C** SampType: **CCV** Units: **µg/L** Prep Date: **6/9/2020** RunNo: **59681**
Client ID: **CCV** Batch ID: **28581** Analysis Date: **6/9/2020** SeqNo: **1194371**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	894	40.0	1,000	0	89.4	80	120				
2-Methylnaphthalene	900	40.0	1,000	0	90.0	80	120				
1-Methylnaphthalene	908	40.0	1,000	0	90.8	80	120				
Acenaphthylene	871	40.0	1,000	0	87.1	80	120				
Acenaphthene	882	40.0	1,000	0	88.2	80	120				
Fluorene	895	40.0	1,000	0	89.5	80	120				
Phenanthrene	939	40.0	1,000	0	93.9	80	120				
Anthracene	879	40.0	1,000	0	87.9	80	120				
Fluoranthene	870	40.0	1,000	0	87.0	80	120				
Pyrene	866	40.0	1,000	0	86.6	80	120				
Benz(a)anthracene	593	40.0	1,000	0	59.3	80	120				S
Chrysene	930	40.0	1,000	0	93.0	80	120				
Benzo(b)fluoranthene	764	40.0	1,000	0	76.4	80	120				S
Benzo(k)fluoranthene	663	40.0	1,000	0	66.3	80	120				S
Benzo(a)pyrene	585	40.0	1,000	0	58.5	80	120				S
Indeno(1,2,3-cd)pyrene	605	40.0	1,000	0	60.5	80	120				SI
Dibenz(a,h)anthracene	599	40.0	1,000	0	59.9	80	120				SI
Benzo(g,h,i)perylene	616	40.0	1,000	0	61.6	80	120				SI
Surr: 2-Fluorobiphenyl	438		500.0		87.7	69.5	150				
Surr: Terphenyl-d14 (surr)	410		500.0		82.0	71.6	145				

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a Q.
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **QCS-28581C** SampType: **QCS** Units: **µg/L** Prep Date: **6/9/2020** RunNo: **59681**
Client ID: **BATCH** Batch ID: **28581** Analysis Date: **6/9/2020** SeqNo: **1194373**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	884	40.0	1,000	0	88.4	50	150				
2-Methylnaphthalene	890	40.0	1,000	0	89.0	50	150				
1-Methylnaphthalene	901	40.0	1,000	0	90.1	50	150				
Acenaphthylene	860	40.0	1,000	0	86.0	50	150				
Acenaphthene	874	40.0	1,000	0	87.4	50	150				
Fluorene	884	40.0	1,000	0	88.4	50	150				
Phenanthrene	923	40.0	1,000	0	92.3	50	150				
Anthracene	865	40.0	1,000	0	86.5	50	150				
Fluoranthene	866	40.0	1,000	0	86.6	50	150				
Pyrene	859	40.0	1,000	0	85.9	50	150				
Benz(a)anthracene	609	40.0	1,000	0	60.9	50	150				
Chrysene	911	40.0	1,000	0	91.1	50	150				
Benzo(b)fluoranthene	763	40.0	1,000	0	76.3	50	150				
Benzo(k)fluoranthene	680	40.0	1,000	0	68.0	50	150				
Benzo(a)pyrene	654	40.0	1,000	0	65.4	50	150				
Indeno(1,2,3-cd)pyrene	694	40.0	1,000	0	69.4	50	150				
Dibenz(a,h)anthracene	683	40.0	1,000	0	68.3	50	150				
Benzo(g,h,i)perylene	724	40.0	1,000	0	72.4	50	150				
Surr: 2-Fluorobiphenyl	434		500.0		86.9	50	150				
Surr: Terphenyl-d14 (surr)	415		500.0		82.9	50	150				

Sample ID: **PAH ICV** SampType: **ICV** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59735**
Client ID: **ICV** Batch ID: **28595** Analysis Date: **6/10/2020** SeqNo: **1195467**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	894	40.0	1,000	0	89.4	70	130				
2-Methylnaphthalene	893	40.0	1,000	0	89.3	70	130				
1-Methylnaphthalene	888	40.0	1,000	0	88.8	70	130				
Acenaphthylene	868	40.0	1,000	0	86.8	70	130				
Acenaphthene	885	40.0	1,000	0	88.5	70	130				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **PAH ICV** SampType: **ICV** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59735**
Client ID: **ICV** Batch ID: **28595** Analysis Date: **6/10/2020** SeqNo: **1195467**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	882	40.0	1,000	0	88.2	70	130				
Phenanthrene	888	40.0	1,000	0	88.8	70	130				
Anthracene	840	40.0	1,000	0	84.0	70	130				
Fluoranthene	822	40.0	1,000	0	82.2	70	130				
Pyrene	834	40.0	1,000	0	83.4	70	130				
Benz(a)anthracene	895	40.0	1,000	0	89.5	70	130				
Chrysene	974	40.0	1,000	0	97.4	70	130				
Benzo(b)fluoranthene	975	40.0	1,000	0	97.5	70	130				
Benzo(k)fluoranthene	929	40.0	1,000	0	92.9	70	130				
Benzo(a)pyrene	942	40.0	1,000	0	94.2	70	130				
Indeno(1,2,3-cd)pyrene	967	40.0	1,000	0	96.7	70	130				
Dibenz(a,h)anthracene	1,020	40.0	1,000	0	102	70	130				
Benzo(g,h,i)perylene	976	40.0	1,000	0	97.6	70	130				
Surr: 2-Fluorobiphenyl	557		500.0		111	69.5	150				
Surr: Terphenyl-d14 (surr)	517		500.0		103	71.6	145				

Sample ID: **PAH ICB** SampType: **ICB** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59735**
Client ID: **ICB** Batch ID: **28595** Analysis Date: **6/10/2020** SeqNo: **1195468**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **PAH ICB** SampType: **ICB** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59735**
Client ID: **ICB** Batch ID: **28595** Analysis Date: **6/10/2020** SeqNo: **1195468**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	81.5	40.0									
Dibenz(a,h)anthracene	103	40.0									
Benzo(g,h,i)perylene	68.2	40.0									
Surr: 2-Fluorobiphenyl	500		500.0		100	50.4	142				
Surr: Terphenyl-d14 (surr)	457		500.0		91.5	48.8	157				

Sample ID: **CCV-28595** SampType: **CCV** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59735**
Client ID: **CCV** Batch ID: **28595** Analysis Date: **6/10/2020** SeqNo: **1195469**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	947	40.0	1,000	0	94.7	80	120				
2-Methylnaphthalene	954	40.0	1,000	0	95.4	80	120				
1-Methylnaphthalene	967	40.0	1,000	0	96.7	80	120				
Acenaphthylene	934	40.0	1,000	0	93.4	80	120				
Acenaphthene	950	40.0	1,000	0	95.0	80	120				
Fluorene	959	40.0	1,000	0	95.9	80	120				
Phenanthrene	984	40.0	1,000	0	98.4	80	120				
Anthracene	935	40.0	1,000	0	93.5	80	120				
Fluoranthene	924	40.0	1,000	0	92.4	80	120				
Pyrene	936	40.0	1,000	0	93.6	80	120				
Benz(a)anthracene	1,020	40.0	1,000	0	102	80	120				
Chrysene	994	40.0	1,000	0	99.4	80	120				
Benzo(b)fluoranthene	1,080	40.0	1,000	0	108	80	120				
Benzo(k)fluoranthene	884	40.0	1,000	0	88.4	80	120				
Benzo(a)pyrene	1,010	40.0	1,000	0	101	80	120				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **CCV-28595** SampType: **CCV** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59735**
Client ID: **CCV** Batch ID: **28595** Analysis Date: **6/10/2020** SeqNo: **1195469**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene	1,010	40.0	1,000	0	101	80	120				
Dibenz(a,h)anthracene	1,110	40.0	1,000	0	111	80	120				
Benzo(g,h,i)perylene	1,010	40.0	1,000	0	101	80	120				
Surr: 2-Fluorobiphenyl	472		500.0		94.4	69.5	150				
Surr: Terphenyl-d14 (surr)	458		500.0		91.6	71.6	145				

Sample ID: **LCS-28595** SampType: **LCS** Units: **µg/Kg** Prep Date: **6/9/2020** RunNo: **59735**
Client ID: **LCSS** Batch ID: **28595** Analysis Date: **6/10/2020** SeqNo: **1195471**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	808	40.0	1,000	0	80.8	47.3	136				
2-Methylnaphthalene	819	40.0	1,000	0	81.9	48.6	142				
1-Methylnaphthalene	820	40.0	1,000	0	82.0	51	140				
Acenaphthylene	807	40.0	1,000	0	80.7	47.5	137				
Acenaphthene	828	40.0	1,000	0	82.8	49.1	138				
Fluorene	840	40.0	1,000	0	84.0	49.3	137				
Phenanthrene	856	40.0	1,000	0	85.6	45.5	139				
Anthracene	801	40.0	1,000	0	80.1	44	139				
Fluoranthene	797	40.0	1,000	0	79.7	48.7	144				
Pyrene	815	40.0	1,000	0	81.5	47.9	143				
Benz(a)anthracene	871	40.0	1,000	0	87.1	49.8	143				
Chrysene	861	40.0	1,000	0	86.1	47.1	144				
Benzo(b)fluoranthene	928	40.0	1,000	0	92.8	44.6	150				
Benzo(k)fluoranthene	819	40.0	1,000	0	81.9	47.5	148				
Benzo(a)pyrene	865	40.0	1,000	0	86.5	45	149				
Indeno(1,2,3-cd)pyrene	865	40.0	1,000	0	86.5	41.4	146				
Dibenz(a,h)anthracene	878	40.0	1,000	0	87.8	43.4	145				
Benzo(g,h,i)perylene	879	40.0	1,000	0	87.9	42.7	144				
Surr: 2-Fluorobiphenyl	504		500.0		101	6.91	127				
Surr: Terphenyl-d14 (surr)	599		500.0		120	32.9	153				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **LCS-28595**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **6/9/2020**	RunNo: **59735**
Client ID: **LCSS**	Batch ID: **28595**		Analysis Date: **6/10/2020**	SeqNo: **1195471**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: **2006123-002ADUP**	SampType: **DUP**	Units: **µg/Kg-dry**	Prep Date: **6/9/2020**	RunNo: **59735**
Client ID: **BATCH**	Batch ID: **28595**		Analysis Date: **6/11/2020**	SeqNo: **1195551**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	44.7						0		30	
2-Methylnaphthalene	ND	44.7						0		30	
1-Methylnaphthalene	ND	44.7						0		30	
Acenaphthylene	ND	44.7						0		30	
Acenaphthene	ND	44.7						0		30	
Fluorene	ND	44.7						0		30	
Phenanthrene	ND	44.7						0		30	
Anthracene	ND	44.7						0		30	
Fluoranthene	ND	44.7						0		30	
Pyrene	ND	44.7						0		30	
Benz(a)anthracene	ND	44.7						0		30	
Chrysene	ND	44.7						0		30	
Benzo(b)fluoranthene	ND	44.7						0		30	
Benzo(k)fluoranthene	ND	44.7						0		30	
Benzo(a)pyrene	ND	44.7						0		30	
Indeno(1,2,3-cd)pyrene	ND	44.7						0		30	
Dibenz(a,h)anthracene	ND	44.7						0		30	
Benzo(g,h,i)perylene	ND	44.7						0		30	
Surr: 2-Fluorobiphenyl	892		1,116		79.9	6.91	127		0		
Surr: Terphenyl-d14 (surr)	1,230		1,116		110	32.9	153		0		

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **2006123-002AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **6/9/2020** RunNo: **59735**
Client ID: **BATCH** Batch ID: **28595** Analysis Date: **6/11/2020** SeqNo: **1195552**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	814	45.1	1,129	0	72.1	33	123				
2-Methylnaphthalene	845	45.1	1,129	0	74.9	38.9	128				
1-Methylnaphthalene	853	45.1	1,129	0	75.5	36.2	129				
Acenaphthylene	858	45.1	1,129	0	76.0	39	132				
Acenaphthene	867	45.1	1,129	0	76.8	39.5	124				
Fluorene	874	45.1	1,129	0	77.4	38.5	128				
Phenanthrene	883	45.1	1,129	0	78.2	34.1	130				
Anthracene	856	45.1	1,129	0	75.8	38.8	128				
Fluoranthene	880	45.1	1,129	0	77.9	38.6	136				
Pyrene	894	45.1	1,129	8.740	78.4	37.8	134				
Benz(a)anthracene	1,050	45.1	1,129	0	93.1	35.9	142				
Chrysene	885	45.1	1,129	0	78.4	36.7	131				
Benzo(b)fluoranthene	1,130	45.1	1,129	0	99.9	35	141				
Benzo(k)fluoranthene	868	45.1	1,129	0	76.9	35.9	136				
Benzo(a)pyrene	985	45.1	1,129	0	87.3	31.2	142				
Indeno(1,2,3-cd)pyrene	932	45.1	1,129	0	82.5	29.1	133				
Dibenz(a,h)anthracene	922	45.1	1,129	0	81.7	31.3	132				
Benzo(g,h,i)perylene	1,030	45.1	1,129	0	90.8	30.2	128				
Surr: 2-Fluorobiphenyl	504		564.3		89.4	6.91	127				
Surr: Terphenyl-d14 (surr)	629		564.3		111	32.9	153				

Sample ID: **2006123-002AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **6/9/2020** RunNo: **59735**
Client ID: **BATCH** Batch ID: **28595** Analysis Date: **6/11/2020** SeqNo: **1195553**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	656	39.1	977.4	0	67.1	33	123	814.3	21.6	30	
2-Methylnaphthalene	698	39.1	977.4	0	71.4	38.9	128	845.3	19.1	30	
1-Methylnaphthalene	705	39.1	977.4	0	72.1	36.2	129	852.7	19.0	30	
Acenaphthylene	713	39.1	977.4	0	73.0	39	132	858.0	18.5	30	
Acenaphthene	723	39.1	977.4	0	74.0	39.5	124	866.7	18.1	30	

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **2006123-002AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **6/9/2020** RunNo: **59735**
Client ID: **BATCH** Batch ID: **28595** Analysis Date: **6/11/2020** SeqNo: **1195553**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	728	39.1	977.4	0	74.5	38.5	128	874.2	18.2	30	
Phenanthrene	742	39.1	977.4	0	75.9	34.1	130	882.9	17.4	30	
Anthracene	722	39.1	977.4	0	73.9	38.8	128	855.7	16.9	30	
Fluoranthene	727	39.1	977.4	0	74.4	38.6	136	879.5	18.9	30	
Pyrene	753	39.1	977.4	8.740	76.2	37.8	134	894.1	17.1	30	
Benz(a)anthracene	907	39.1	977.4	0	92.8	35.9	142	1,051	14.7	30	
Chrysene	737	39.1	977.4	0	75.4	36.7	131	884.5	18.2	30	
Benzo(b)fluoranthene	957	39.1	977.4	0	97.9	35	141	1,128	16.5	30	
Benzo(k)fluoranthene	780	39.1	977.4	0	79.9	35.9	136	868.2	10.6	30	
Benzo(a)pyrene	873	39.1	977.4	0	89.3	31.2	142	985.1	12.1	30	
Indeno(1,2,3-cd)pyrene	823	39.1	977.4	0	84.2	29.1	133	931.6	12.4	30	
Dibenz(a,h)anthracene	807	39.1	977.4	0	82.6	31.3	132	921.6	13.3	30	
Benzo(g,h,i)perylene	920	39.1	977.4	0	94.1	30.2	128	1,025	10.9	30	
Surr: 2-Fluorobiphenyl	424		488.7		86.7	6.91	127		0		
Surr: Terphenyl-d14 (surr)	523		488.7		107	32.9	153		0		

Sample ID: **MB-28595** SampType: **MBLK** Units: **µg/Kg** Prep Date: **6/9/2020** RunNo: **59735**
Client ID: **MBLKS** Batch ID: **28595** Analysis Date: **6/11/2020** SeqNo: **1195556**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **MB-28595** SampType: **MBLK** Units: **µg/Kg** Prep Date: **6/9/2020** RunNo: **59735**
Client ID: **MBLKS** Batch ID: **28595** Analysis Date: **6/11/2020** SeqNo: **1195556**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	902		1,000		90.2	6.91	127				
Surr: Terphenyl-d14 (surr)	1,280		1,000		128	32.9	153				

Sample ID: **QCS-28595** SampType: **QCS** Units: **µg/L** Prep Date: **6/11/2020** RunNo: **59735**
Client ID: **BATCH** Batch ID: **28595** Analysis Date: **6/11/2020** SeqNo: **1195559**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	958	40.0	1,000	0	95.8	50	150				
2-Methylnaphthalene	971	40.0	1,000	0	97.1	50	150				
1-Methylnaphthalene	992	40.0	1,000	0	99.2	50	150				
Acenaphthylene	974	40.0	1,000	0	97.4	50	150				
Acenaphthene	981	40.0	1,000	0	98.1	50	150				
Fluorene	988	40.0	1,000	0	98.8	50	150				
Phenanthrene	976	40.0	1,000	0	97.6	50	150				
Anthracene	952	40.0	1,000	0	95.2	50	150				
Fluoranthene	981	40.0	1,000	0	98.1	50	150				
Pyrene	993	40.0	1,000	0	99.3	50	150				
Benz(a)anthracene	1,210	40.0	1,000	0	121	50	150				
Chrysene	1,020	40.0	1,000	0	102	50	150				
Benzo(b)fluoranthene	1,110	40.0	1,000	0	111	50	150				
Benzo(k)fluoranthene	1,150	40.0	1,000	0	115	50	150				
Benzo(a)pyrene	1,130	40.0	1,000	0	113	50	150				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **QCS-28595** SampType: **QCS** Units: **µg/L** Prep Date: **6/11/2020** RunNo: **59735**
Client ID: **BATCH** Batch ID: **28595** Analysis Date: **6/11/2020** SeqNo: **1195559**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene	1,030	40.0	1,000	0	103	50	150				
Dibenz(a,h)anthracene	1,030	40.0	1,000	0	103	50	150				
Benzo(g,h,i)perylene	1,060	40.0	1,000	0	106	50	150				
Surr: 2-Fluorobiphenyl	484		500.0		96.8	50	150				
Surr: Terphenyl-d14 (surr)	475		500.0		95.0	50	150				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **CAL MIDPOINT** SampType: **CCV** Units: **µg/L** Prep Date: **6/3/2020** RunNo: **59807**
Client ID: **CCV** Batch ID: **28605** Analysis Date: **6/3/2020** SeqNo: **1196792**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	966	100	1,000	0	96.6	80	120				
Bis(2-chloroethyl) ether	959	100	1,000	0	95.9	80	120				
2-Chlorophenol	976	100	1,000	0	97.6	80	120				
1,3-Dichlorobenzene	1,010	75.0	1,000	0	101	80	120				
1,4-Dichlorobenzene	925	75.0	1,000	0	92.5	80	120				
1,2-Dichlorobenzene	945	75.0	1,000	0	94.5	80	120				
Benzyl alcohol	970	100	1,000	0	97.0	80	120				
2-Methylphenol (o-cresol)	1,010	100	1,000	0	101	80	120				
Hexachloroethane	1,070	100	1,000	0	107	80	120				
N-Nitrosodi-n-propylamine	978	100	1,000	0	97.8	80	120				
3&4-Methylphenol (m, p-cresol)	979	100	1,000	0	97.9	80	120				
Nitrobenzene	992	100	1,000	0	99.2	80	120				
Isophorone	981	100	1,000	0	98.1	80	120				
2-Nitrophenol	1,020	100	1,000	0	102	80	120				
2,4-Dimethylphenol	964	100	1,000	0	96.4	80	120				
Bis(2-chloroethoxy)methane	955	75.0	1,000	0	95.5	80	120				
2,4-Dichlorophenol	982	100	1,000	0	98.2	80	120				
1,2,4-Trichlorobenzene	971	75.0	1,000	0	97.1	80	120				
Naphthalene	1,030	50.0	1,000	0	103	80	120				
4-Chloroaniline	985	75.0	1,000	0	98.5	80	120				
Hexachlorobutadiene	1,020	75.0	1,000	0	102	80	120				
4-Chloro-3-methylphenol	950	200	1,000	0	95.0	80	120				
2-Methylnaphthalene	967	50.0	1,000	0	96.7	80	120				
1-Methylnaphthalene	967	50.0	1,000	0	96.7	80	120				
Hexachlorocyclopentadiene	965	100	1,000	0	96.5	80	120				
2,4,6-Trichlorophenol	1,050	100	1,000	0	105	80	120				
2,4,5-Trichlorophenol	952	100	1,000	0	95.2	80	120				
2-Chloronaphthalene	964	75.0	1,000	0	96.4	80	120				
2-Nitroaniline	990	100	1,000	0	99.0	80	120				
Acenaphthene	1,090	50.0	1,000	0	109	80	120				
Dimethylphthalate	977	100	1,000	0	97.7	80	120				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **CAL MIDPOINT** SampType: **CCV** Units: **µg/L** Prep Date: **6/3/2020** RunNo: **59807**
Client ID: **CCV** Batch ID: **28605** Analysis Date: **6/3/2020** SeqNo: **1196792**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,6-Dinitrotoluene	893	100	1,000	0	89.3	80	120				
Acenaphthylene	986	50.0	1,000	0	98.6	80	120				
2,4-Dinitrophenol	2,020	525	2,000	0	101	80	120				
Dibenzofuran	951	75.0	1,000	0	95.1	80	120				
2,4-Dinitrotoluene	1,000	100	1,000	0	100	80	120				
4-Nitrophenol	978	500	1,000	0	97.8	80	120				
Fluorene	1,010	50.0	1,000	0	101	80	120				
4-Chlorophenyl phenyl ether	871	75.0	1,000	0	87.1	80	120				
Diethylphthalate	1,010	100	1,000	0	101	80	120				
4,6-Dinitro-2-methylphenol	1,050	200	1,000	0	105	80	120				
4-Bromophenyl phenyl ether	1,020	75.0	1,000	0	102	80	120				
Hexachlorobenzene	1,000	75.0	1,000	0	100	80	120				
Pentachlorophenol	943	100	1,000	0	94.3	80	120				
Phenanthrene	968	50.0	1,000	0	96.8	80	120				
Anthracene	1,010	50.0	1,000	0	101	80	120				
Carbazole	981	75.0	1,000	0	98.1	80	120				
Di-n-butylphthalate	1,010	100	1,000	0	101	80	120				
Fluoranthene	1,010	50.0	1,000	0	101	80	120				
Pyrene	1,050	50.0	1,000	0	105	80	120				
Butyl Benzylphthalate	995	100	1,000	0	99.5	80	120				
bis(2-Ethylhexyl)adipate	985	100	1,000	0	98.5	80	120				
Benz(a)anthracene	989	50.0	1,000	0	98.9	80	120				
Chrysene	1,000	50.0	1,000	0	100	80	120				
bis (2-Ethylhexyl) phthalate	983	100	1,000	0	98.3	80	120				
Di-n-octyl phthalate	1,030	100	1,000	0	103	80	120				
Benzo(b)fluoranthene	1,010	50.0	1,000	0	101	80	120				
Benzo(k)fluoranthene	962	50.0	1,000	0	96.2	80	120				
Benzo(a)pyrene	1,010	50.0	1,000	0	101	80	120				
Indeno(1,2,3-cd)pyrene	986	50.0	1,000	0	98.6	80	120				
Dibenz(a,h)anthracene	1,020	50.0	1,000	0	102	80	120				
Benzo(g,h,i)perylene	1,000	50.0	1,000	0	100	80	120				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **CAL MIDPOINT** SampType: **CCV** Units: **µg/L** Prep Date: **6/3/2020** RunNo: **59807**
Client ID: **CCV** Batch ID: **28605** Analysis Date: **6/3/2020** SeqNo: **1196792**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	1,060		1,000		106	65.9	141				
Surr: 2-Fluorobiphenyl	485		500.0		97.1	73.1	130				
Surr: Nitrobenzene-d5	485		500.0		96.9	77.9	122				
Surr: Phenol-d6	884		1,000		88.4	78.9	117				
Surr: p-Terphenyl	494		500.0		98.9	71.7	131				

Sample ID: **SEMI ICB** SampType: **ICB** Units: **µg/L** Prep Date: **6/3/2020** RunNo: **59585**
Client ID: **ICB** Batch ID: **28605** Analysis Date: **6/3/2020** SeqNo: **1191657**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	ND	100									
Bis(2-chloroethyl) ether	ND	100									
2-Chlorophenol	ND	100									
1,3-Dichlorobenzene	ND	75.0									
1,4-Dichlorobenzene	ND	75.0									
1,2-Dichlorobenzene	ND	75.0									
Benzyl alcohol	ND	100									
2-Methylphenol (o-cresol)	ND	100									
Hexachloroethane	ND	100									
N-Nitrosodi-n-propylamine	ND	100									
3&4-Methylphenol (m, p-cresol)	ND	100									
Nitrobenzene	ND	100									
Isophorone	ND	100									
2-Nitrophenol	ND	100									
2,4-Dimethylphenol	ND	100									
Bis(2-chloroethoxy)methane	ND	75.0									
2,4-Dichlorophenol	ND	100									
1,2,4-Trichlorobenzene	ND	75.0									
Naphthalene	ND	50.0									
4-Chloroaniline	ND	75.0									

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **SEMI ICB**	SampType: **ICB**	Units: **µg/L**	Prep Date: **6/3/2020**	RunNo: **59585**
Client ID: **ICB**	Batch ID: **28605**		Analysis Date: **6/3/2020**	SeqNo: **1191657**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	ND	75.0									
4-Chloro-3-methylphenol	ND	200									
2-Methylnaphthalene	ND	50.0									
1-Methylnaphthalene	ND	50.0									
Hexachlorocyclopentadiene	ND	100									
2,4,6-Trichlorophenol	ND	100									
2,4,5-Trichlorophenol	ND	100									
2-Chloronaphthalene	ND	75.0									
2-Nitroaniline	ND	100									
Acenaphthene	ND	50.0									
Dimethylphthalate	ND	100									
2,6-Dinitrotoluene	ND	100									
Acenaphthylene	ND	50.0									
2,4-Dinitrophenol	ND	525									
Dibenzofuran	ND	75.0									
2,4-Dinitrotoluene	ND	100									
4-Nitrophenol	ND	500									
Fluorene	ND	50.0									
4-Chlorophenyl phenyl ether	ND	75.0									
Diethylphthalate	ND	100									
4,6-Dinitro-2-methylphenol	ND	200									
4-Bromophenyl phenyl ether	ND	75.0									
Hexachlorobenzene	ND	75.0									
Pentachlorophenol	ND	100									
Phenanthrene	ND	50.0									
Anthracene	ND	50.0									
Carbazole	ND	75.0									
Di-n-butylphthalate	ND	100									
Fluoranthene	ND	50.0									
Pyrene	ND	50.0									
Butyl Benzylphthalate	ND	100									

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **SEMI ICB** SampType: **ICB** Units: **µg/L** Prep Date: **6/3/2020** RunNo: **59585**
Client ID: **ICB** Batch ID: **28605** Analysis Date: **6/3/2020** SeqNo: **1191657**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
bis(2-Ethylhexyl)adipate	ND	100									
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
bis (2-Ethylhexyl) phthalate	ND	100									
Di-n-octyl phthalate	ND	100									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Benzo(g,h,i)perylene	ND	50.0									
Surr: 2,4,6-Tribromophenol	1,290		1,000		129	10	164				
Surr: 2-Fluorobiphenyl	658		500.0		132	15.1	147				
Surr: Nitrobenzene-d5	658		500.0		132	5	148				
Surr: Phenol-d6	1,230		1,000		123	12.1	141				
Surr: p-Terphenyl	707		500.0		141	20.8	159				

Sample ID: **SEMI ICV** SampType: **ICV** Units: **µg/L** Prep Date: **6/3/2020** RunNo: **59585**
Client ID: **ICV** Batch ID: **28605** Analysis Date: **6/3/2020** SeqNo: **1191658**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	983	100	1,000	0	98.3	70	130				
Bis(2-chloroethyl) ether	972	100	1,000	0	97.2	70	130				
2-Chlorophenol	988	100	1,000	0	98.8	70	130				
1,3-Dichlorobenzene	945	75.0	1,000	0	94.5	70	130				
1,4-Dichlorobenzene	908	75.0	1,000	0	90.8	70	130				
1,2-Dichlorobenzene	986	75.0	1,000	0	98.6	70	130				
Benzyl alcohol	1,080	100	1,000	0	108	70	130				
2-Methylphenol (o-cresol)	1,000	100	1,000	0	100	70	130				
Hexachloroethane	942	100	1,000	0	94.2	70	130				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **SEMI ICV** SampType: **ICV** Units: **µg/L** Prep Date: **6/3/2020** RunNo: **59585**
Client ID: **ICV** Batch ID: **28605** Analysis Date: **6/3/2020** SeqNo: **1191658**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
N-Nitrosodi-n-propylamine	1,040	100	1,000	0	104	70	130				
3&4-Methylphenol (m, p-cresol)	989	100	1,000	0	98.9	70	130				
Nitrobenzene	970	100	1,000	0	97.0	70	130				
Isophorone	997	100	1,000	0	99.7	70	130				
2-Nitrophenol	1,060	100	1,000	0	106	70	130				
2,4-Dimethylphenol	1,060	100	1,000	0	106	70	130				
Bis(2-chloroethoxy)methane	978	75.0	1,000	0	97.8	70	130				
2,4-Dichlorophenol	1,020	100	1,000	0	102	70	130				
1,2,4-Trichlorobenzene	968	75.0	1,000	0	96.8	70	130				
Naphthalene	1,030	50.0	1,000	0	103	70	130				
4-Chloroaniline	1,050	75.0	1,000	0	105	70	130				
Hexachlorobutadiene	1,010	75.0	1,000	0	101	70	130				
4-Chloro-3-methylphenol	1,030	200	1,000	0	103	70	130				
2-Methylnaphthalene	980	50.0	1,000	0	98.0	70	130				
1-Methylnaphthalene	1,020	50.0	1,000	0	102	70	130				
Hexachlorocyclopentadiene	1,100	100	1,000	0	110	70	130				
2,4,6-Trichlorophenol	1,010	100	1,000	0	101	70	130				
2,4,5-Trichlorophenol	1,010	100	1,000	0	101	70	130				
2-Chloronaphthalene	1,050	75.0	1,000	0	105	70	130				
2-Nitroaniline	1,050	100	1,000	0	105	70	130				
Acenaphthene	1,040	50.0	1,000	0	104	70	130				
Dimethylphthalate	1,070	100	1,000	0	107	70	130				
2,6-Dinitrotoluene	1,090	100	1,000	0	109	70	130				
Acenaphthylene	1,000	50.0	1,000	0	100	70	130				
2,4-Dinitrophenol	2,260	525	2,000	0	113	70	130				
Dibenzofuran	981	75.0	1,000	0	98.1	70	130				
2,4-Dinitrotoluene	1,060	100	1,000	0	106	70	130				
4-Nitrophenol	1,110	500	1,000	0	111	70	130				
Fluorene	1,030	50.0	1,000	0	103	70	130				
4-Chlorophenyl phenyl ether	1,040	75.0	1,000	0	104	70	130				
Diethylphthalate	1,030	100	1,000	0	103	70	130				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **SEMI ICV** SampType: **ICV** Units: **µg/L** Prep Date: **6/3/2020** RunNo: **59585**
Client ID: **ICV** Batch ID: **28605** Analysis Date: **6/3/2020** SeqNo: **1191658**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,6-Dinitro-2-methylphenol	1,040	200	1,000	0	104	70	130				
4-Bromophenyl phenyl ether	1,010	75.0	1,000	0	101	70	130				
Hexachlorobenzene	1,060	75.0	1,000	0	106	70	130				
Pentachlorophenol	996	100	1,000	0	99.6	70	130				
Phenanthrene	1,030	50.0	1,000	0	103	70	130				
Anthracene	1,050	50.0	1,000	0	105	70	130				
Carbazole	1,040	75.0	1,000	0	104	70	130				
Di-n-butylphthalate	1,030	100	1,000	0	103	70	130				
Fluoranthene	1,010	50.0	1,000	0	101	70	130				
Pyrene	1,000	50.0	1,000	0	100	70	130				
Butyl Benzylphthalate	1,020	100	1,000	0	102	70	130				
bis(2-Ethylhexyl)adipate	1,060	100	1,000	0	106	70	130				
Benz(a)anthracene	1,040	50.0	1,000	0	104	70	130				
Chrysene	1,010	50.0	1,000	0	101	70	130				
bis (2-Ethylhexyl) phthalate	1,050	100	1,000	0	105	70	130				
Di-n-octyl phthalate	1,050	100	1,000	0	105	70	130				
Benzo(b)fluoranthene	937	50.0	1,000	0	93.7	70	130				
Benzo(k)fluoranthene	1,170	50.0	1,000	0	117	70	130				
Benzo(a)pyrene	1,010	50.0	1,000	0	101	70	130				
Indeno(1,2,3-cd)pyrene	1,040	50.0	1,000	0	104	70	130				
Dibenz(a,h)anthracene	1,070	50.0	1,000	0	107	70	130				
Benzo(g,h,i)perylene	1,090	50.0	1,000	0	109	70	130				
Surr: 2,4,6-Tribromophenol	1,490		1,000		149	65.9	141				S
Surr: 2-Fluorobiphenyl	714		500.0		143	73.1	130				S
Surr: Nitrobenzene-d5	683		500.0		137	77.9	122				S
Surr: Phenol-d6	1,310		1,000		131	78.9	117				S
Surr: p-Terphenyl	732		500.0		146	71.7	131				S

NOTES:
S - Outlying surrogate recovery(ies) observed.

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **CCV-28605** SampType: **CCV** Units: **µg/L** Prep Date: **6/12/2020** RunNo: **59807**
Client ID: **CCV** Batch ID: **28605** Analysis Date: **6/12/2020** SeqNo: **1196781**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	914	100	1,000	0	91.4	80	120				
Bis(2-chloroethyl) ether	899	100	1,000	0	89.9	80	120				
2-Chlorophenol	879	100	1,000	0	87.9	80	120				
1,3-Dichlorobenzene	939	75.0	1,000	0	93.9	80	120				
1,4-Dichlorobenzene	936	75.0	1,000	0	93.6	80	120				
1,2-Dichlorobenzene	909	75.0	1,000	0	90.9	80	120				
Benzyl alcohol	713	100	1,000	0	71.3	80	120				S
2-Methylphenol (o-cresol)	871	100	1,000	0	87.1	80	120				
Hexachloroethane	1,000	100	1,000	0	100	80	120				
N-Nitrosodi-n-propylamine	944	100	1,000	0	94.4	80	120				
3&4-Methylphenol (m, p-cresol)	840	100	1,000	0	84.0	80	120				
Nitrobenzene	880	100	1,000	0	88.0	80	120				
Isophorone	879	100	1,000	0	87.9	80	120				
2-Nitrophenol	887	100	1,000	0	88.7	80	120				
2,4-Dimethylphenol	927	100	1,000	0	92.7	80	120				
Bis(2-chloroethoxy)methane	882	75.0	1,000	0	88.2	80	120				
2,4-Dichlorophenol	845	100	1,000	0	84.5	80	120				
1,2,4-Trichlorobenzene	970	75.0	1,000	0	97.0	80	120				
Naphthalene	881	50.0	1,000	0	88.1	80	120				
4-Chloroaniline	833	75.0	1,000	0	83.3	80	120				
Hexachlorobutadiene	880	75.0	1,000	0	88.0	80	120				
4-Chloro-3-methylphenol	920	200	1,000	0	92.0	80	120				
2-Methylnaphthalene	881	50.0	1,000	0	88.1	80	120				
1-Methylnaphthalene	920	50.0	1,000	0	92.0	80	120				
Hexachlorocyclopentadiene	966	100	1,000	0	96.6	80	120				
2,4,6-Trichlorophenol	900	100	1,000	0	90.0	80	120				
2,4,5-Trichlorophenol	877	100	1,000	0	87.7	80	120				
2-Chloronaphthalene	973	75.0	1,000	0	97.3	80	120				
2-Nitroaniline	894	100	1,000	0	89.4	80	120				
Acenaphthene	956	50.0	1,000	0	95.6	80	120				
Dimethylphthalate	883	100	1,000	0	88.3	80	120				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **CCV-28605** SampType: **CCV** Units: **µg/L** Prep Date: **6/12/2020** RunNo: **59807**
Client ID: **CCV** Batch ID: **28605** Analysis Date: **6/12/2020** SeqNo: **1196781**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,6-Dinitrotoluene	870	100	1,000	0	87.0	80	120				
Acenaphthylene	922	50.0	1,000	0	92.2	80	120				
2,4-Dinitrophenol	1,800	525	2,000	0	90.1	80	120				
Dibenzofuran	850	75.0	1,000	0	85.0	80	120				
2,4-Dinitrotoluene	854	100	1,000	0	85.4	80	120				
4-Nitrophenol	800	500	1,000	0	80.0	80	120				
Fluorene	890	50.0	1,000	0	89.0	80	120				
4-Chlorophenyl phenyl ether	823	75.0	1,000	0	82.3	80	120				
Diethylphthalate	893	100	1,000	0	89.3	80	120				
4,6-Dinitro-2-methylphenol	939	200	1,000	0	93.9	80	120				
4-Bromophenyl phenyl ether	905	75.0	1,000	0	90.5	80	120				
Hexachlorobenzene	884	75.0	1,000	0	88.4	80	120				
Pentachlorophenol	947	100	1,000	0	94.7	80	120				
Phenanthrene	934	50.0	1,000	0	93.4	80	120				
Anthracene	909	50.0	1,000	0	90.9	80	120				
Carbazole	909	75.0	1,000	0	90.9	80	120				
Di-n-butylphthalate	928	100	1,000	0	92.8	80	120				
Fluoranthene	952	50.0	1,000	0	95.2	80	120				
Pyrene	938	50.0	1,000	0	93.8	80	120				
Butyl Benzylphthalate	936	100	1,000	0	93.6	80	120				
bis(2-Ethylhexyl)adipate	942	100	1,000	0	94.2	80	120				
Benz(a)anthracene	922	50.0	1,000	0	92.2	80	120				
Chrysene	927	50.0	1,000	0	92.7	80	120				
bis (2-Ethylhexyl) phthalate	885	100	1,000	0	88.5	80	120				
Di-n-octyl phthalate	897	100	1,000	0	89.7	80	120				
Benzo(b)fluoranthene	980	50.0	1,000	0	98.0	80	120				
Benzo(k)fluoranthene	862	50.0	1,000	0	86.2	80	120				
Benzo(a)pyrene	925	50.0	1,000	0	92.5	80	120				
Indeno(1,2,3-cd)pyrene	959	50.0	1,000	0	95.9	80	120				
Dibenz(a,h)anthracene	1,040	50.0	1,000	0	104	80	120				
Benzo(g,h,i)perylene	943	50.0	1,000	0	94.3	80	120				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **CCV-28605** SampType: **CCV** Units: **µg/L** Prep Date: **6/12/2020** RunNo: **59807**
Client ID: **CCV** Batch ID: **28605** Analysis Date: **6/12/2020** SeqNo: **1196781**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	1,040		1,000		104	65.9	141				
Surr: 2-Fluorobiphenyl	486		500.0		97.1	73.1	130				
Surr: Nitrobenzene-d5	515		500.0		103	77.9	122				
Surr: Phenol-d6	968		1,000		96.8	78.9	117				
Surr: p-Terphenyl	483		500.0		96.5	71.7	131				

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a Q.
S - Outlying QC recoveries were observed. More than 80% of the target analytes were within method acceptance criteria.

Sample ID: **MB-28605** SampType: **MBLK** Units: **µg/Kg** Prep Date: **6/9/2020** RunNo: **59807**
Client ID: **MBLKS** Batch ID: **28605** Analysis Date: **6/12/2020** SeqNo: **1196782**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	ND	100									
Bis(2-chloroethyl) ether	ND	100									
2-Chlorophenol	ND	100									
1,3-Dichlorobenzene	ND	75.0									
1,4-Dichlorobenzene	ND	75.0									
1,2-Dichlorobenzene	ND	75.0									
Benzyl alcohol	ND	100									Q
2-Methylphenol (o-cresol)	ND	100									
Hexachloroethane	ND	100									
N-Nitrosodi-n-propylamine	ND	100									
3&4-Methylphenol (m, p-cresol)	ND	100									
Nitrobenzene	ND	100									
Isophorone	ND	100									
2-Nitrophenol	ND	100									
2,4-Dimethylphenol	ND	100									
Bis(2-chloroethoxy)methane	ND	75.0									
2,4-Dichlorophenol	ND	100									
1,2,4-Trichlorobenzene	ND	75.0									

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **MB-28605**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **6/9/2020**	RunNo: **59807**
Client ID: **MBLKS**	Batch ID: **28605**		Analysis Date: **6/12/2020**	SeqNo: **1196782**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	50.0									
4-Chloroaniline	ND	75.0									
Hexachlorobutadiene	ND	75.0									
4-Chloro-3-methylphenol	ND	200									
2-Methylnaphthalene	ND	50.0									
1-Methylnaphthalene	ND	50.0									
Hexachlorocyclopentadiene	ND	100									
2,4,6-Trichlorophenol	ND	100									
2,4,5-Trichlorophenol	ND	100									
2-Chloronaphthalene	ND	75.0									
2-Nitroaniline	ND	100									
Acenaphthene	ND	50.0									
Dimethylphthalate	ND	100									
2,6-Dinitrotoluene	ND	100									
Acenaphthylene	ND	50.0									
2,4-Dinitrophenol	ND	525									
Dibenzofuran	ND	75.0									
2,4-Dinitrotoluene	ND	100									
4-Nitrophenol	ND	500									
Fluorene	ND	50.0									
4-Chlorophenyl phenyl ether	ND	75.0									
Diethylphthalate	ND	100									
4,6-Dinitro-2-methylphenol	ND	200									
4-Bromophenyl phenyl ether	ND	75.0									
Hexachlorobenzene	ND	75.0									
Pentachlorophenol	ND	100									
Phenanthrene	ND	50.0									
Anthracene	ND	50.0									
Carbazole	ND	75.0									
Di-n-butylphthalate	ND	100									
Fluoranthene	ND	50.0									

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **MB-28605** SampType: **MBLK** Units: **µg/Kg** Prep Date: **6/9/2020** RunNo: **59807**
Client ID: **MBLKS** Batch ID: **28605** Analysis Date: **6/12/2020** SeqNo: **1196782**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pyrene	ND	50.0									
Butyl Benzylphthalate	ND	100									
bis(2-Ethylhexyl)adipate	ND	100									
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
bis (2-Ethylhexyl) phthalate	ND	100									
Di-n-octyl phthalate	ND	100									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Benzo(g,h,i)perylene	ND	50.0									
Surr: 2,4,6-Tribromophenol	693		1,000		69.3	5	139				
Surr: 2-Fluorobiphenyl	381		500.0		76.2	5	131				
Surr: Nitrobenzene-d5	205		500.0		41.0	5	123				
Surr: Phenol-d6	923		1,000		92.3	5	129				
Surr: p-Terphenyl	676		500.0		135	13.8	140				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample ID: **LCS-28605** SampType: **LCS** Units: **µg/Kg** Prep Date: **6/9/2020** RunNo: **59807**
Client ID: **LCSS** Batch ID: **28605** Analysis Date: **6/12/2020** SeqNo: **1196783**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	771	100	1,000	0	77.1	36	137				
Bis(2-chloroethyl) ether	737	100	1,000	0	73.7	39	132				
2-Chlorophenol	732	100	1,000	0	73.2	44.1	138				
1,3-Dichlorobenzene	675	75.0	1,000	0	67.5	43.9	123				
1,4-Dichlorobenzene	697	75.0	1,000	0	69.7	48	120				
1,2-Dichlorobenzene	698	75.0	1,000	0	69.8	44.9	124				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **LCS-28605** SampType: **LCS** Units: **µg/Kg** Prep Date: **6/9/2020** RunNo: **59807**
Client ID: **LCSS** Batch ID: **28605** Analysis Date: **6/12/2020** SeqNo: **1196783**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzyl alcohol	591	100	1,000	0	59.1	5	190				
2-Methylphenol (o-cresol)	746	100	1,000	0	74.6	39.8	136				
Hexachloroethane	704	100	1,000	0	70.4	37.2	129				
N-Nitrosodi-n-propylamine	815	100	1,000	0	81.5	37.6	146				
3&4-Methylphenol (m, p-cresol)	718	100	1,000	0	71.8	45.4	133				
Nitrobenzene	709	100	1,000	0	70.9	36.4	135				
Isophorone	779	100	1,000	0	77.9	42.2	138				
2-Nitrophenol	752	100	1,000	0	75.2	57.6	133				
2,4-Dimethylphenol	785	100	1,000	0	78.5	45.5	129				
Bis(2-chloroethoxy)methane	726	75.0	1,000	0	72.6	44.7	135				
2,4-Dichlorophenol	740	100	1,000	0	74.0	50.2	140				
1,2,4-Trichlorobenzene	773	75.0	1,000	0	77.3	47.6	136				
Naphthalene	790	50.0	1,000	0	79.0	48	138				
4-Chloroaniline	655	75.0	1,000	0	65.5	48.5	127				
Hexachlorobutadiene	730	75.0	1,000	0	73.0	44.6	137				
4-Chloro-3-methylphenol	705	200	1,000	0	70.5	44.1	149				
2-Methylnaphthalene	716	50.0	1,000	0	71.6	50.1	137				
1-Methylnaphthalene	728	50.0	1,000	0	72.8	53.8	129				
Hexachlorocyclopentadiene	719	100	1,000	0	71.9	6.89	161				
2,4,6-Trichlorophenol	593	100	1,000	0	59.3	48.1	137				
2,4,5-Trichlorophenol	760	100	1,000	0	76.0	45.8	146				
2-Chloronaphthalene	760	75.0	1,000	0	76.0	49.7	140				
2-Nitroaniline	711	100	1,000	0	71.1	46.3	141				
Acenaphthene	769	50.0	1,000	0	76.9	51.1	139				
Dimethylphthalate	769	100	1,000	0	76.9	56	129				
2,6-Dinitrotoluene	767	100	1,000	0	76.7	61	137				
Acenaphthylene	760	50.0	1,000	0	76.0	49.6	134				
2,4-Dinitrophenol	371	525	2,000	0	18.5	5	80.3				
Dibenzofuran	734	75.0	1,000	0	73.4	50.4	141				
2,4-Dinitrotoluene	789	100	1,000	0	78.9	61.8	134				
4-Nitrophenol	520	500	1,000	0	52.0	23	137				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **LCS-28605** SampType: **LCS** Units: **µg/Kg** Prep Date: **6/9/2020** RunNo: **59807**
Client ID: **LCSS** Batch ID: **28605** Analysis Date: **6/12/2020** SeqNo: **1196783**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	805	50.0	1,000	0	80.5	49.6	142				
4-Chlorophenyl phenyl ether	791	75.0	1,000	0	79.1	52.5	137				
Diethylphthalate	797	100	1,000	0	79.7	57.7	135				
4,6-Dinitro-2-methylphenol	323	200	1,000	0	32.3	5	103				
4-Bromophenyl phenyl ether	703	75.0	1,000	0	70.3	48.2	141				
Hexachlorobenzene	784	75.0	1,000	0	78.4	54.1	136				
Pentachlorophenol	180	100	1,000	0	18.0	5	140				
Phenanthrene	780	50.0	1,000	0	78.0	51.5	135				
Anthracene	805	50.0	1,000	0	80.5	46.6	137				
Carbazole	770	75.0	1,000	0	77.0	48.2	136				
Di-n-butylphthalate	785	100	1,000	0	78.5	58.6	131				
Fluoranthene	795	50.0	1,000	0	79.5	48.7	133				
Pyrene	814	50.0	1,000	0	81.4	48.8	134				
Butyl Benzylphthalate	768	100	1,000	0	76.8	49.4	147				
bis(2-Ethylhexyl)adipate	757	100	1,000	0	75.7	45.5	151				
Benz(a)anthracene	770	50.0	1,000	0	77.0	55.6	134				
Chrysene	794	50.0	1,000	0	79.4	47.4	144				
bis (2-Ethylhexyl) phthalate	716	100	1,000	0	71.6	49.4	152				
Di-n-octyl phthalate	752	100	1,000	0	75.2	45.5	148				
Benzo(b)fluoranthene	805	50.0	1,000	0	80.5	44.7	150				
Benzo(k)fluoranthene	894	50.0	1,000	0	89.4	44.3	143				
Benzo(a)pyrene	766	50.0	1,000	0	76.6	60.5	136				
Indeno(1,2,3-cd)pyrene	810	50.0	1,000	0	81.0	49.5	141				
Dibenz(a,h)anthracene	884	50.0	1,000	0	88.4	48.7	138				
Benzo(g,h,i)perylene	870	50.0	1,000	0	87.0	51.4	137				
Surr: 2,4,6-Tribromophenol	1,150		1,000		115	5	139				
Surr: 2-Fluorobiphenyl	492		500.0		98.5	5	131				
Surr: Nitrobenzene-d5	322		500.0		64.4	5	123				
Surr: Phenol-d6	938		1,000		93.8	5	129				
Surr: p-Terphenyl	687		500.0		137	13.8	140				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **2006085-015ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **6/9/2020** RunNo: **59807**
Client ID: **S-B6-3-4-0603** Batch ID: **28605** Analysis Date: **6/12/2020** SeqNo: **1196787**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	ND	116						0		50	
Bis(2-chloroethyl) ether	ND	116						0		50	
2-Chlorophenol	ND	116						0		50	
1,3-Dichlorobenzene	ND	87.1						0		50	
1,4-Dichlorobenzene	ND	87.1						0		50	
1,2-Dichlorobenzene	ND	87.1						0		50	
Benzyl alcohol	ND	116						0		50	Q
2-Methylphenol (o-cresol)	ND	116						0		50	
Hexachloroethane	ND	116						0		50	
N-Nitrosodi-n-propylamine	153	116						0	200	50	
3&4-Methylphenol (m, p-cresol)	ND	116						0		50	
Nitrobenzene	ND	116						0		50	
Isophorone	ND	116						0		50	
2-Nitrophenol	ND	116						0		50	
2,4-Dimethylphenol	ND	116						0		50	
Bis(2-chloroethoxy)methane	ND	87.1						0		50	
2,4-Dichlorophenol	ND	116						0		50	
1,2,4-Trichlorobenzene	ND	87.1						0		50	
Naphthalene	286	58.1						315.7	9.70	50	
4-Chloroaniline	ND	87.1						0		50	
Hexachlorobutadiene	ND	87.1						0		50	
4-Chloro-3-methylphenol	ND	232						0		50	
2-Methylnaphthalene	102	58.1						135.3	27.7	50	
1-Methylnaphthalene	75.2	58.1						69.43	8.04	50	
Hexachlorocyclopentadiene	ND	116						0		50	
2,4,6-Trichlorophenol	ND	116						0		50	
2,4,5-Trichlorophenol	ND	116						0		50	
2-Chloronaphthalene	ND	87.1						0		50	
2-Nitroaniline	ND	116						0		50	
Acenaphthene	ND	58.1						0		50	
Dimethylphthalate	ND	116						0		50	

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **2006085-015ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **6/9/2020** RunNo: **59807**
Client ID: **S-B6-3-4-0603** Batch ID: **28605** Analysis Date: **6/12/2020** SeqNo: **1196787**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,6-Dinitrotoluene	ND	116						0		50	
Acenaphthylene	ND	58.1						0		50	
2,4-Dinitrophenol	ND	610						0		50	
Dibenzofuran	ND	87.1						0		50	
2,4-Dinitrotoluene	ND	116						0		50	
4-Nitrophenol	ND	581						0		50	
Fluorene	ND	58.1						0		50	
4-Chlorophenyl phenyl ether	ND	87.1						0		50	
Diethylphthalate	ND	116						0		50	
4,6-Dinitro-2-methylphenol	ND	232						0		50	
4-Bromophenyl phenyl ether	ND	87.1						0		50	
Hexachlorobenzene	ND	87.1						0		50	
Pentachlorophenol	ND	116						0		50	
Phenanthrene	75.5	58.1						77.29	2.36	50	
Anthracene	ND	58.1						0		50	
Carbazole	ND	87.1						0		50	
Di-n-butylphthalate	ND	116						0		50	
Fluoranthene	88.0	58.1						80.13	9.34	50	
Pyrene	78.8	58.1						75.56	4.19	50	
Butyl Benzylphthalate	ND	116						0		50	
bis(2-Ethylhexyl)adipate	ND	116						0		50	
Benz(a)anthracene	ND	58.1						0		50	
Chrysene	71.7	58.1						0	200	50	
bis (2-Ethylhexyl) phthalate	ND	116						0		50	
Di-n-octyl phthalate	ND	116						0		50	
Benzo(b)fluoranthene	92.1	58.1						107.1	15.1	50	
Benzo(k)fluoranthene	ND	58.1						0		50	
Benzo(a)pyrene	ND	58.1						0		50	
Indeno(1,2,3-cd)pyrene	ND	58.1						65.26	24.9	50	
Dibenz(a,h)anthracene	ND	58.1						0		50	
Benzo(g,h,i)perylene	83.8	58.1						82.81	1.24	50	

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **2006085-015ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **6/9/2020** RunNo: **59807**
Client ID: **S-B6-3-4-0603** Batch ID: **28605** Analysis Date: **6/12/2020** SeqNo: **1196787**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	1,210		1,162		104	5	139		0		
Surr: 2-Fluorobiphenyl	541		580.9		93.1	5	131		0		
Surr: Nitrobenzene-d5	429		580.9		73.8	5	123		0		
Surr: Phenol-d6	891		1,162		76.7	5	129		0		
Surr: p-Terphenyl	654		580.9		113	13.8	140		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample ID: **2006085-015AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **6/9/2020** RunNo: **59807**
Client ID: **S-B6-3-4-0603** Batch ID: **28605** Analysis Date: **6/12/2020** SeqNo: **1196788**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	563	98.0	979.7	0	57.5	27	113				
Bis(2-chloroethyl) ether	586	98.0	979.7	0	59.8	19.7	113				
2-Chlorophenol	542	98.0	979.7	0	55.4	24.7	118				
1,3-Dichlorobenzene	474	73.5	979.7	0	48.4	20.6	99.9				
1,4-Dichlorobenzene	383	73.5	979.7	0	39.1	22.6	101				
1,2-Dichlorobenzene	451	73.5	979.7	0	46.0	26.2	103				
Benzyl alcohol	391	98.0	979.7	0	39.9	5	169				
2-Methylphenol (o-cresol)	587	98.0	979.7	0	59.9	23.3	122				
Hexachloroethane	441	98.0	979.7	0	45.0	16.9	100				
N-Nitrosodi-n-propylamine	627	98.0	979.7	0	64.0	25.6	131				
3&4-Methylphenol (m, p-cresol)	502	98.0	979.7	0	51.2	27.9	118				
Nitrobenzene	532	98.0	979.7	0	54.3	23	121				
Isophorone	603	98.0	979.7	0	61.5	26.8	128				
2-Nitrophenol	535	98.0	979.7	100.3	44.3	34.6	130				
2,4-Dimethylphenol	427	98.0	979.7	0	43.6	13.4	129				
Bis(2-chloroethoxy)methane	549	73.5	979.7	0	56.1	30.3	119				
2,4-Dichlorophenol	545	98.0	979.7	0	55.7	27	133				
1,2,4-Trichlorobenzene	544	73.5	979.7	0	55.6	32.1	120				
Naphthalene	630	49.0	979.7	315.7	32.1	24.7	126				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **2006085-015AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **6/9/2020** RunNo: **59807**
Client ID: **S-B6-3-4-0603** Batch ID: **28605** Analysis Date: **6/12/2020** SeqNo: **1196788**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Chloroaniline	438	73.5	979.7	0	44.8	10.9	114				
Hexachlorobutadiene	534	73.5	979.7	0	54.5	32.4	113				
4-Chloro-3-methylphenol	555	196	979.7	0	56.7	28.7	135				
2-Methylnaphthalene	601	49.0	979.7	135.3	47.5	31.1	125				
1-Methylnaphthalene	578	49.0	979.7	69.43	51.9	29.6	125				
Hexachlorocyclopentadiene	440	98.0	979.7	0	44.9	5	117				
2,4,6-Trichlorophenol	526	98.0	979.7	0	53.7	31	125				
2,4,5-Trichlorophenol	546	98.0	979.7	0	55.7	28.7	130				
2-Chloronaphthalene	585	73.5	979.7	0	59.8	37.2	121				
2-Nitroaniline	548	98.0	979.7	0	55.9	19.5	145				
Acenaphthene	588	49.0	979.7	0	60.1	34.2	128				
Dimethylphthalate	613	98.0	979.7	0	62.5	25.5	125				
2,6-Dinitrotoluene	666	98.0	979.7	0	68.0	41.4	127				
Acenaphthylene	604	49.0	979.7	0	61.6	34.5	121				
2,4-Dinitrophenol	148	514	1,959	0	7.55	5	74.3				
Dibenzofuran	565	73.5	979.7	0	57.6	30.8	128				
2,4-Dinitrotoluene	521	98.0	979.7	0	53.2	35.8	132				
4-Nitrophenol	407	490	979.7	0	41.6	5	152				
Fluorene	591	49.0	979.7	0	60.3	34.4	127				
4-Chlorophenyl phenyl ether	545	73.5	979.7	0	55.7	37.4	121				
Diethylphthalate	630	98.0	979.7	0	64.3	36	131				
4,6-Dinitro-2-methylphenol	215	196	979.7	0	22.0	5	109				
4-Bromophenyl phenyl ether	589	73.5	979.7	0	60.1	36.7	121				
Hexachlorobenzene	580	73.5	979.7	0	59.2	34.4	127				
Pentachlorophenol	441	98.0	979.7	0	45.1	5	149				
Phenanthrene	616	49.0	979.7	77.29	55.0	30.6	128				
Anthracene	621	49.0	979.7	28.09	60.5	30.5	124				
Carbazole	572	73.5	979.7	0	58.4	28.8	128				
Di-n-butylphthalate	640	98.0	979.7	0	65.3	36.1	132				
Fluoranthene	622	49.0	979.7	80.13	55.3	30.9	125				
Pyrene	623	49.0	979.7	75.56	55.9	31	125				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **2006085-015AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **6/9/2020** RunNo: **59807**
Client ID: **S-B6-3-4-0603** Batch ID: **28605** Analysis Date: **6/12/2020** SeqNo: **1196788**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Butyl Benzylphthalate	679	98.0	979.7	0	69.3	35.1	138				
bis(2-Ethylhexyl)adipate	679	98.0	979.7	0	69.3	36.5	136				
Benz(a)anthracene	614	49.0	979.7	0	62.7	18.4	142				
Chrysene	582	49.0	979.7	0	59.4	27.4	134				
bis (2-Ethylhexyl) phthalate	611	98.0	979.7	0	62.4	38.6	144				
Di-n-octyl phthalate	660	98.0	979.7	0	67.3	37.1	145				
Benzo(b)fluoranthene	655	49.0	979.7	107.1	55.9	33.5	134				
Benzo(k)fluoranthene	638	49.0	979.7	46.67	60.3	14	133				
Benzo(a)pyrene	584	49.0	979.7	0	59.6	28.9	142				
Indeno(1,2,3-cd)pyrene	605	49.0	979.7	65.26	55.1	25.6	130				
Dibenz(a,h)anthracene	684	49.0	979.7	0	69.8	27.9	126				
Benzo(g,h,i)perylene	633	49.0	979.7	82.81	56.1	23.9	125				
Surr: 2,4,6-Tribromophenol	928		979.7		94.7	5	139				
Surr: 2-Fluorobiphenyl	397		489.8		81.1	5	131				
Surr: Nitrobenzene-d5	333		489.8		67.9	5	123				
Surr: Phenol-d6	764		979.7		78.0	5	129				
Surr: p-Terphenyl	502		489.8		102	13.8	140				

Sample ID: **2006085-015AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **6/9/2020** RunNo: **59807**
Client ID: **S-B6-3-4-0603** Batch ID: **28605** Analysis Date: **6/12/2020** SeqNo: **1196789**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	637	107	1,074	0	59.3	27	113	563.4	12.3	50	
Bis(2-chloroethyl) ether	640	107	1,074	0	59.5	19.7	113	586.3	8.70	50	
2-Chlorophenol	619	107	1,074	0	57.6	24.7	118	542.3	13.2	50	
1,3-Dichlorobenzene	539	80.6	1,074	0	50.2	20.6	99.9	473.9	12.8	50	
1,4-Dichlorobenzene	530	80.6	1,074	0	49.4	22.6	101	383.1	32.2	50	R
1,2-Dichlorobenzene	573	80.6	1,074	0	53.3	26.2	103	450.9	23.8	50	
Benzyl alcohol	391	107	1,074	0	36.4	5	169	391.1	0.0911	50	
2-Methylphenol (o-cresol)	609	107	1,074	0	56.7	23.3	122	587.2	3.60	50	

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **2006085-015AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **6/9/2020** RunNo: **59807**
Client ID: **S-B6-3-4-0603** Batch ID: **28605** Analysis Date: **6/12/2020** SeqNo: **1196789**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachloroethane	566	107	1,074	0	52.7	16.9	100	441.3	24.7	50	R
N-Nitrosodi-n-propylamine	812	107	1,074	0	75.6	25.6	131	627.0	25.8	50	
3&4-Methylphenol (m, p-cresol)	605	107	1,074	0	56.3	27.9	118	502.0	18.5	50	
Nitrobenzene	590	107	1,074	0	54.9	23	121	531.8	10.3	50	
Isophorone	706	107	1,074	0	65.7	26.8	128	602.7	15.7	50	
2-Nitrophenol	664	107	1,074	100.3	52.5	34.6	130	534.6	21.6	50	R
2,4-Dimethylphenol	464	107	1,074	0	43.2	13.4	129	426.8	8.44	50	
Bis(2-chloroethoxy)methane	671	80.6	1,074	0	62.4	30.3	119	549.2	19.9	50	
2,4-Dichlorophenol	628	107	1,074	0	58.5	27	133	545.4	14.1	50	
1,2,4-Trichlorobenzene	719	80.6	1,074	0	66.9	32.1	120	544.3	27.6	50	
Naphthalene	820	53.7	1,074	315.7	46.9	24.7	126	629.9	26.2	50	
4-Chloroaniline	443	80.6	1,074	0	41.3	10.9	114	438.4	1.13	50	
Hexachlorobutadiene	615	80.6	1,074	0	57.2	32.4	113	534.1	14.0	50	
4-Chloro-3-methylphenol	671	215	1,074	0	62.5	28.7	135	555.5	18.9	50	
2-Methylnaphthalene	733	53.7	1,074	135.3	55.6	31.1	125	600.9	19.8	50	
1-Methylnaphthalene	704	53.7	1,074	69.43	59.1	29.6	125	577.6	19.7	50	
Hexachlorocyclopentadiene	550	107	1,074	0	51.2	5	117	439.6	22.3	50	R
2,4,6-Trichlorophenol	616	107	1,074	0	57.4	31	125	525.7	15.9	50	
2,4,5-Trichlorophenol	535	107	1,074	0	49.8	28.7	130	545.9	2.00	50	
2-Chloronaphthalene	684	80.6	1,074	0	63.7	37.2	121	585.5	15.5	50	
2-Nitroaniline	636	107	1,074	0	59.2	19.5	145	547.8	14.9	50	
Acenaphthene	671	53.7	1,074	0	62.4	34.2	128	588.4	13.1	50	
Dimethylphthalate	733	107	1,074	0	68.3	25.5	125	612.8	17.9	50	
2,6-Dinitrotoluene	759	107	1,074	0	70.7	41.4	127	666.0	13.1	50	
Acenaphthylene	723	53.7	1,074	0	67.3	34.5	121	604.0	18.0	50	
2,4-Dinitrophenol	676	564	2,148	0	31.5	5	74.3	147.9	128	50	
Dibenzofuran	713	80.6	1,074	0	66.4	30.8	128	564.6	23.2	50	
2,4-Dinitrotoluene	820	107	1,074	0	76.3	35.8	132	521.0	44.5	50	R
4-Nitrophenol	675	537	1,074	0	62.8	5	152	407.1	49.5	50	
Fluorene	757	53.7	1,074	0	70.5	34.4	127	591.2	24.6	50	
4-Chlorophenyl phenyl ether	703	80.6	1,074	0	65.4	37.4	121	545.5	25.2	50	

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **2006085-015AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **6/9/2020** RunNo: **59807**
Client ID: **S-B6-3-4-0603** Batch ID: **28605** Analysis Date: **6/12/2020** SeqNo: **1196789**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diethylphthalate	793	107	1,074	0	73.8	36	131	629.9	22.9	50	
4,6-Dinitro-2-methylphenol	707	215	1,074	0	65.8	5	109	215.3	107	50	R
4-Bromophenyl phenyl ether	759	80.6	1,074	0	70.7	36.7	121	589.1	25.2	50	
Hexachlorobenzene	758	80.6	1,074	0	70.6	34.4	127	580.4	26.6	50	
Pentachlorophenol	513	107	1,074	0	47.8	5	149	441.5	15.1	50	
Phenanthrene	794	53.7	1,074	77.29	66.8	30.6	128	616.1	25.3	50	
Anthracene	823	53.7	1,074	28.09	74.0	30.5	124	621.3	27.9	50	
Carbazole	806	80.6	1,074	0	75.0	28.8	128	571.7	34.0	50	
Di-n-butylphthalate	807	107	1,074	0	75.2	36.1	132	639.6	23.2	50	
Fluoranthene	846	53.7	1,074	80.13	71.3	30.9	125	622.3	30.5	50	
Pyrene	838	53.7	1,074	75.56	71.0	31	125	622.8	29.4	50	
Butyl Benzylphthalate	900	107	1,074	0	83.8	35.1	138	678.6	28.1	50	
bis(2-Ethylhexyl)adipate	948	107	1,074	0	88.2	36.5	136	679.3	33.0	50	
Benz(a)anthracene	795	53.7	1,074	0	74.0	18.4	142	614.1	25.7	50	
Chrysene	765	53.7	1,074	0	71.2	27.4	134	581.7	27.3	50	
bis (2-Ethylhexyl) phthalate	798	107	1,074	0	74.3	38.6	144	611.1	26.5	50	
Di-n-octyl phthalate	865	107	1,074	0	80.5	37.1	145	659.6	27.0	50	
Benzo(b)fluoranthene	811	53.7	1,074	107.1	65.5	33.5	134	654.6	21.3	50	
Benzo(k)fluoranthene	679	53.7	1,074	46.67	58.9	14	133	637.6	6.28	50	
Benzo(a)pyrene	758	53.7	1,074	0	70.6	28.9	142	584.2	25.9	50	
Indeno(1,2,3-cd)pyrene	673	53.7	1,074	65.26	56.6	25.6	130	605.3	10.6	50	
Dibenz(a,h)anthracene	785	53.7	1,074	0	73.1	27.9	126	684.1	13.8	50	
Benzo(g,h,i)perylene	713	53.7	1,074	82.81	58.7	23.9	125	632.6	12.0	50	
Surr: 2,4,6-Tribromophenol	1,150		1,074		107	5	139		0		
Surr: 2-Fluorobiphenyl	484		537.1		90.1	5	131		0		
Surr: Nitrobenzene-d5	436		537.1		81.2	5	123		0		
Surr: Phenol-d6	915		1,074		85.2	5	129		0		
Surr: p-Terphenyl	633		537.1		118	13.8	140		0		

NOTES:
R - High RPD observed, spike recovery is within range.

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **QCS-28605** SampType: **QCS** Units: **µg/L** Prep Date: **6/12/2020** RunNo: **59807**
Client ID: **BATCH** Batch ID: **28605** Analysis Date: **6/12/2020** SeqNo: **1196791**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	893	100	1,000	0	89.3	50	150				
Bis(2-chloroethyl) ether	969	100	1,000	0	96.9	50	150				
2-Chlorophenol	884	100	1,000	0	88.4	50	150				
1,3-Dichlorobenzene	932	75.0	1,000	0	93.2	50	150				
1,4-Dichlorobenzene	919	75.0	1,000	0	91.9	50	150				
1,2-Dichlorobenzene	854	75.0	1,000	0	85.4	50	150				
Benzyl alcohol	615	100	1,000	0	61.5	50	150				
2-Methylphenol (o-cresol)	974	100	1,000	0	97.4	50	150				
Hexachloroethane	969	100	1,000	0	96.9	50	150				
N-Nitrosodi-n-propylamine	950	100	1,000	0	95.0	50	150				
3&4-Methylphenol (m, p-cresol)	866	100	1,000	0	86.6	50	150				
Nitrobenzene	862	100	1,000	0	86.2	50	150				
Isophorone	922	100	1,000	0	92.2	50	150				
2-Nitrophenol	989	100	1,000	0	98.9	50	150				
2,4-Dimethylphenol	929	100	1,000	0	92.9	50	150				
Bis(2-chloroethoxy)methane	887	75.0	1,000	0	88.7	50	150				
2,4-Dichlorophenol	979	100	1,000	0	97.9	50	150				
1,2,4-Trichlorobenzene	891	75.0	1,000	0	89.1	50	150				
Naphthalene	892	50.0	1,000	0	89.2	50	150				
4-Chloroaniline	793	75.0	1,000	0	79.3	50	150				
Hexachlorobutadiene	897	75.0	1,000	0	89.7	50	150				
4-Chloro-3-methylphenol	904	200	1,000	0	90.4	50	150				
2-Methylnaphthalene	917	50.0	1,000	0	91.7	50	150				
1-Methylnaphthalene	924	50.0	1,000	0	92.4	50	150				
Hexachlorocyclopentadiene	692	100	1,000	0	69.2	50	150				
2,4,6-Trichlorophenol	870	100	1,000	0	87.0	50	150				
2,4,5-Trichlorophenol	917	100	1,000	0	91.7	50	150				
2-Chloronaphthalene	957	75.0	1,000	0	95.7	50	150				
2-Nitroaniline	939	100	1,000	0	93.9	50	150				
Acenaphthene	902	50.0	1,000	0	90.2	50	150				
Dimethylphthalate	969	100	1,000	0	96.9	50	150				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **QCS-28605** SampType: **QCS** Units: **µg/L** Prep Date: **6/12/2020** RunNo: **59807**
Client ID: **BATCH** Batch ID: **28605** Analysis Date: **6/12/2020** SeqNo: **1196791**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,6-Dinitrotoluene	878	100	1,000	0	87.8	50	150				
Acenaphthylene	917	50.0	1,000	0	91.7	50	150				
2,4-Dinitrophenol	1,020	525	2,000	0	51.2	50	150				
Dibenzofuran	867	75.0	1,000	0	86.7	50	150				
2,4-Dinitrotoluene	1,020	100	1,000	0	102	50	150				
4-Nitrophenol	735	500	1,000	0	73.5	50	150				
Fluorene	921	50.0	1,000	0	92.1	50	150				
4-Chlorophenyl phenyl ether	877	75.0	1,000	0	87.7	50	150				
Diethylphthalate	941	100	1,000	0	94.1	50	150				
4,6-Dinitro-2-methylphenol	680	200	1,000	0	68.0	50	150				
4-Bromophenyl phenyl ether	931	75.0	1,000	0	93.1	50	150				
Hexachlorobenzene	971	75.0	1,000	0	97.1	50	150				
Pentachlorophenol	907	100	1,000	0	90.7	50	150				
Phenanthrene	955	50.0	1,000	0	95.5	50	150				
Anthracene	930	50.0	1,000	0	93.0	50	150				
Carbazole	931	75.0	1,000	0	93.1	50	150				
Di-n-butylphthalate	958	100	1,000	0	95.8	50	150				
Fluoranthene	967	50.0	1,000	0	96.7	50	150				
Pyrene	986	50.0	1,000	0	98.6	50	150				
Butyl Benzylphthalate	981	100	1,000	0	98.1	50	150				
bis(2-Ethylhexyl)adipate	1,030	100	1,000	0	103	50	150				
Benz(a)anthracene	943	50.0	1,000	0	94.3	50	150				
Chrysene	969	50.0	1,000	0	96.9	50	150				
bis (2-Ethylhexyl) phthalate	978	100	1,000	0	97.8	50	150				
Di-n-octyl phthalate	1,030	100	1,000	0	103	50	150				
Benzo(b)fluoranthene	1,020	50.0	1,000	0	102	50	150				
Benzo(k)fluoranthene	935	50.0	1,000	0	93.5	50	150				
Benzo(a)pyrene	982	50.0	1,000	0	98.2	50	150				
Indeno(1,2,3-cd)pyrene	971	50.0	1,000	0	97.1	50	150				
Dibenz(a,h)anthracene	1,040	50.0	1,000	0	104	50	150				
Benzo(g,h,i)perylene	916	50.0	1,000	0	91.6	50	150				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **QCS-28605** SampType: **QCS** Units: **µg/L** Prep Date: **6/12/2020** RunNo: **59807**
Client ID: **BATCH** Batch ID: **28605** Analysis Date: **6/12/2020** SeqNo: **1196791**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	1,070		1,000		107	50	150				
Surr: 2-Fluorobiphenyl	433		500.0		86.6	50	150				
Surr: Nitrobenzene-d5	435		500.0		87.0	50	150				
Surr: Phenol-d6	914		1,000		91.4	50	150				
Surr: p-Terphenyl	463		500.0		92.5	50	150				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **CCV-28620** SampType: **CCV** Units: **µg/L** Prep Date: **6/15/2020** RunNo: **59939**
Client ID: **CCV** Batch ID: **28620** Analysis Date: **6/15/2020** SeqNo: **1199701**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	909	2.00	1,000	0	90.9	80	120				
2-Chlorophenol	880	1.00	1,000	0	88.0	80	120				
1,3-Dichlorobenzene	950	1.00	1,000	0	95.0	80	120				
1,4-Dichlorobenzene	858	1.00	1,000	0	85.8	80	120				
1,2-Dichlorobenzene	866	1.00	1,000	0	86.6	80	120				
Benzyl alcohol	315	1.00	1,000	0	31.5	80	120				S
Bis(2-chloroethyl) ether	920	2.00	1,000	0	92.0	80	120				
2-Methylphenol (o-cresol)	865	1.00	1,000	0	86.5	80	120				
Hexachloroethane	984	1.00	1,000	0	98.4	80	120				
N-Nitrosodi-n-propylamine	1,060	1.00	1,000	0	106	80	120				
3&4-Methylphenol (m, p-cresol)	769	1.00	1,000	0	76.9	80	120				S
Nitrobenzene	850	2.00	1,000	0	85.0	80	120				
Isophorone	882	1.00	1,000	0	88.2	80	120				
2-Nitrophenol	984	2.00	1,000	0	98.4	80	120				
2,4-Dimethylphenol	883	1.00	1,000	0	88.3	80	120				
Bis(2-chloroethoxy)methane	870	1.00	1,000	0	87.0	80	120				
2,4-Dichlorophenol	888	2.00	1,000	0	88.8	80	120				
1,2,4-Trichlorobenzene	904	1.00	1,000	0	90.4	80	120				
Naphthalene	917	0.500	1,000	0	91.7	80	120				
4-Chloroaniline	839	5.00	1,000	0	83.9	80	120				
Hexachlorobutadiene	894	1.00	1,000	0	89.4	80	120				
4-Chloro-3-methylphenol	925	5.00	1,000	0	92.5	80	120				
2-Methylnaphthalene	920	0.500	1,000	0	92.0	80	120				
1-Methylnaphthalene	896	0.500	1,000	0	89.6	80	120				
Hexachlorocyclopentadiene	1,010	1.00	1,000	0	101	80	120				
2,4,6-Trichlorophenol	842	2.00	1,000	0	84.2	80	120				
2,4,5-Trichlorophenol	862	2.00	1,000	0	86.2	80	120				
2-Chloronaphthalene	907	1.00	1,000	0	90.7	80	120				
2-Nitroaniline	911	5.00	1,000	0	91.1	80	120				
Acenaphthene	866	0.500	1,000	0	86.6	80	120				
Dimethylphthalate	994	1.00	1,000	0	99.4	80	120				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **CCV-28620** SampType: **CCV** Units: **µg/L** Prep Date: **6/15/2020** RunNo: **59939**
Client ID: **CCV** Batch ID: **28620** Analysis Date: **6/15/2020** SeqNo: **1199701**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,6-Dinitrotoluene	836	1.00	1,000	0	83.6	80	120				
Acenaphthylene	911	0.500	1,000	0	91.1	80	120				
2,4-Dinitrophenol	2,200	2.00	2,000	0	110	80	120				
Dibenzofuran	859	1.00	1,000	0	85.9	80	120				
2,4-Dinitrotoluene	914	1.00	1,000	0	91.4	80	120				
4-Nitrophenol	713	5.00	1,000	0	71.3	80	120				S
Fluorene	872	0.500	1,000	0	87.2	80	120				
4-Chlorophenyl phenyl ether	806	1.00	1,000	0	80.6	80	120				
Diethylphthalate	896	1.00	1,000	0	89.6	80	120				
4,6-Dinitro-2-methylphenol	1,150	5.00	1,000	0	115	80	120				
4-Bromophenyl phenyl ether	903	1.00	1,000	0	90.3	80	120				
Hexachlorobenzene	879	1.00	1,000	0	87.9	80	120				
Pentachlorophenol	836	2.00	1,000	0	83.6	80	120				
Phenanthrene	907	0.500	1,000	0	90.7	80	120				
Anthracene	938	0.500	1,000	0	93.8	80	120				
Carbazole	913	5.00	1,000	0	91.3	80	120				
Di-n-butyl phthalate	933	1.00	1,000	0	93.3	80	120				
Fluoranthene	934	0.500	1,000	0	93.4	80	120				
Pyrene	960	0.500	1,000	0	96.0	80	120				
Benzyl Butylphthalate	972	1.00	1,000	0	97.2	80	120				
bis(2-Ethylhexyl)adipate	1,020	1.00	1,000	0	102	80	120				
Benz(a)anthracene	900	0.500	1,000	0	90.0	80	120				
Chrysene	909	0.500	1,000	0	90.9	80	120				
Bis(2-ethylhexyl) phthalate	902	1.00	1,000	0	90.2	80	120				
Di-n-octyl phthalate	957	1.00	1,000	0	95.7	80	120				
Benzo(b)fluoranthene	865	0.500	1,000	0	86.5	80	120				
Benzo(k)fluoranthene	932	0.500	1,000	0	93.2	80	120				
Benzo(a)pyrene	962	0.500	1,000	0	96.2	80	120				
Indeno(1,2,3-cd)pyrene	941	0.500	1,000	0	94.1	80	120				
Dibenz(a,h)anthracene	1,000	0.500	1,000	0	100	80	120				
Benzo(g,h,i)perylene	861	0.500	1,000	0	86.1	80	120				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **CCV-28620** SampType: **CCV** Units: **µg/L** Prep Date: **6/15/2020** RunNo: **59939**
Client ID: **CCV** Batch ID: **28620** Analysis Date: **6/15/2020** SeqNo: **1199701**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	1,060		1,000		106	64.4	148				
Surr: 2-Fluorobiphenyl	475		500.0		94.9	83.8	122				
Surr: Nitrobenzene-d5	521		500.0		104	78.1	122				
Surr: Phenol-d6	930		1,000		93.0	72.7	127				
Surr: p-Terphenyl	465		500.0		92.9	77.2	127				

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a Q .
S - Outlying QC recoveries were observed. More than 80% of the target analytes were within method acceptance criteria.

Sample ID: **MB-28620** SampType: **MBLK** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59939**
Client ID: **MBLKW** Batch ID: **28620** Analysis Date: **6/15/2020** SeqNo: **1199702**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	ND	1.99									
2-Chlorophenol	ND	0.996									
1,3-Dichlorobenzene	ND	0.996									
1,4-Dichlorobenzene	ND	0.996									
1,2-Dichlorobenzene	ND	0.996									
Benzyl alcohol	ND	0.996									Q
Bis(2-chloroethyl) ether	ND	1.99									
2-Methylphenol (o-cresol)	ND	0.996									
Hexachloroethane	ND	0.996									
N-Nitrosodi-n-propylamine	ND	0.996									
3&4-Methylphenol (m, p-cresol)	ND	0.996									Q
Nitrobenzene	ND	1.99									
Isophorone	ND	0.996									
2-Nitrophenol	ND	1.99									
2,4-Dimethylphenol	ND	0.996									
Bis(2-chloroethoxy)methane	ND	0.996									
2,4-Dichlorophenol	ND	1.99									
1,2,4-Trichlorobenzene	ND	0.996									

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **MB-28620** SampType: **MBLK** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59939**
Client ID: **MBLKW** Batch ID: **28620** Analysis Date: **6/15/2020** SeqNo: **1199702**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	0.498									
4-Chloroaniline	ND	4.98									
Hexachlorobutadiene	ND	0.996									
4-Chloro-3-methylphenol	ND	4.98									
2-Methylnaphthalene	ND	0.498									
1-Methylnaphthalene	ND	0.498									
Hexachlorocyclopentadiene	ND	0.996									
2,4,6-Trichlorophenol	ND	1.99									
2,4,5-Trichlorophenol	ND	1.99									
2-Chloronaphthalene	ND	0.996									
2-Nitroaniline	ND	4.98									
Acenaphthene	ND	0.498									
Dimethylphthalate	ND	0.996									
2,6-Dinitrotoluene	ND	0.996									
Acenaphthylene	ND	0.498									
2,4-Dinitrophenol	ND	1.99									
Dibenzofuran	ND	0.996									
2,4-Dinitrotoluene	ND	0.996									
4-Nitrophenol	ND	4.98									Q*
Fluorene	ND	0.498									
4-Chlorophenyl phenyl ether	ND	0.996									
Diethylphthalate	ND	0.996									
4,6-Dinitro-2-methylphenol	ND	4.98									
4-Bromophenyl phenyl ether	ND	0.996									
Hexachlorobenzene	ND	0.996									
Pentachlorophenol	ND	1.99									
Phenanthrene	ND	0.498									
Anthracene	ND	0.498									
Carbazole	ND	4.98									
Di-n-butyl phthalate	ND	0.996									
Fluoranthene	ND	0.498									

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **MB-28620** SampType: **MBLK** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59939**
Client ID: **MBLKW** Batch ID: **28620** Analysis Date: **6/15/2020** SeqNo: **1199702**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pyrene	ND	0.498									
Benzyl Butylphthalate	ND	0.996									
bis(2-Ethylhexyl)adipate	ND	0.996									
Benz(a)anthracene	ND	0.498									
Chrysene	ND	0.498									
Bis(2-ethylhexyl) phthalate	ND	0.996									
Di-n-octyl phthalate	ND	0.996									
Benzo(b)fluoranthene	ND	0.498									
Benzo(k)fluoranthene	ND	0.498									
Benzo(a)pyrene	ND	0.498									
Indeno(1,2,3-cd)pyrene	ND	0.498									
Dibenz(a,h)anthracene	ND	0.498									
Benzo(g,h,i)perylene	ND	0.498									
Surr: 2,4,6-Tribromophenol	4.73		3.983		119	24.7	176				
Surr: 2-Fluorobiphenyl	2.25		1.991		113	54.8	148				
Surr: Nitrobenzene-d5	1.91		1.991		95.8	40.8	151				
Surr: Phenol-d6	1.32		3.983		33.1	5	116				
Surr: p-Terphenyl	2.85		1.991		143	51.7	162				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria
* - Flagged value is not within established control limits.

Sample ID: **LCS-28620** SampType: **LCS** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59939**
Client ID: **LCSW** Batch ID: **28620** Analysis Date: **6/15/2020** SeqNo: **1199703**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	1.06	1.98	3.969	0	26.7	13.5	49				
2-Chlorophenol	2.26	0.992	3.969	0	56.8	35.1	95.1				
1,3-Dichlorobenzene	2.56	0.992	3.969	0	64.6	44.7	96.2				
1,4-Dichlorobenzene	2.57	0.992	3.969	0	64.7	43.5	98.6				
1,2-Dichlorobenzene	2.62	0.992	3.969	0	65.9	45.1	101				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **LCS-28620** SampType: **LCS** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59939**
Client ID: **LCSW** Batch ID: **28620** Analysis Date: **6/15/2020** SeqNo: **1199703**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzyl alcohol	1.13	0.992	3.969	0	28.5	5	110				
Bis(2-chloroethyl) ether	3.01	1.98	3.969	0	75.7	39.6	122				
2-Methylphenol (o-cresol)	2.21	0.992	3.969	0	55.6	23.8	98.2				
Hexachloroethane	2.69	0.992	3.969	0	67.8	39	101				
N-Nitrosodi-n-propylamine	3.30	0.992	3.969	0	83.0	48.5	135				
3&4-Methylphenol (m, p-cresol)	1.90	0.992	3.969	0	47.8	21	87.2				
Nitrobenzene	2.86	1.98	3.969	0	72.1	47.7	123				
Isophorone	3.24	0.992	3.969	0	81.7	51.7	134				
2-Nitrophenol	2.87	1.98	3.969	0	72.3	38.5	124				
2,4-Dimethylphenol	2.99	0.992	3.969	0	75.3	39.2	114				
Bis(2-chloroethoxy)methane	3.04	0.992	3.969	0	76.5	49	128				
2,4-Dichlorophenol	2.77	1.98	3.969	0	69.7	38.3	124				
1,2,4-Trichlorobenzene	2.77	0.992	3.969	0	69.8	45	108				
Naphthalene	2.98	0.496	3.969	0	75.0	49.5	113				
4-Chloroaniline	2.49	4.96	3.969	0	62.6	35.7	117				
Hexachlorobutadiene	2.62	0.992	3.969	0	66.0	37	108				
4-Chloro-3-methylphenol	2.84	4.96	3.969	0	71.4	40.9	119				
2-Methylnaphthalene	3.04	0.496	3.969	0	76.5	49.1	118				
1-Methylnaphthalene	3.08	0.496	3.969	0	77.7	47.3	119				
Hexachlorocyclopentadiene	3.25	0.992	3.969	0	82.0	10.5	137				
2,4,6-Trichlorophenol	3.24	1.98	3.969	0	81.6	35.4	134				
2,4,5-Trichlorophenol	3.09	1.98	3.969	0	78.0	34.6	133				
2-Chloronaphthalene	3.21	0.992	3.969	0	80.9	50	119				
2-Nitroaniline	3.10	4.96	3.969	0	78.0	60.2	137				
Acenaphthene	3.31	0.496	3.969	0	83.4	48.7	127				
Dimethylphthalate	3.45	0.992	3.969	0	86.8	46.1	140				
2,6-Dinitrotoluene	3.52	0.992	3.969	0	88.6	61.9	136				
Acenaphthylene	3.28	0.496	3.969	0	82.6	50.1	124				
2,4-Dinitrophenol	5.61	1.98	7.937	0	70.7	5	120				
Dibenzofuran	3.16	0.992	3.969	0	79.7	52.9	129				
2,4-Dinitrotoluene	3.38	0.992	3.969	0	85.1	59.1	139				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **LCS-28620** SampType: **LCS** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59939**
Client ID: **LCSW** Batch ID: **28620** Analysis Date: **6/15/2020** SeqNo: **1199703**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Nitrophenol	0.979	4.96	3.969	0	24.7	48.3	123				S
Fluorene	3.55	0.496	3.969	0	89.6	53.6	132				
4-Chlorophenyl phenyl ether	3.25	0.992	3.969	0	81.9	50.2	131				
Diethylphthalate	3.57	0.992	3.969	0	90.0	57.4	139				
4,6-Dinitro-2-methylphenol	3.78	4.96	3.969	0	95.3	5	161				
4-Bromophenyl phenyl ether	3.45	0.992	3.969	0	86.9	46	136				
Hexachlorobenzene	3.56	0.992	3.969	0	89.7	42.1	138				
Pentachlorophenol	3.18	1.98	3.969	0	80.0	5	163				
Phenanthrene	3.48	0.496	3.969	0	87.7	56.8	130				
Anthracene	3.37	0.496	3.969	0	84.9	43.2	130				
Carbazole	3.64	4.96	3.969	0	91.8	53.2	141				
Di-n-butyl phthalate	3.55	0.992	3.969	0	89.5	53.1	155				
Fluoranthene	3.59	0.496	3.969	0	90.5	49.9	138				
Pyrene	3.61	0.496	3.969	0	91.0	48.5	139				
Benzyl Butylphthalate	3.71	0.992	3.969	0	93.4	52.7	157				
bis(2-Ethylhexyl)adipate	3.08	0.992	3.969	0	77.6	37.2	142				
Benz(a)anthracene	3.58	0.496	3.969	0	90.2	47.6	141				
Chrysene	3.46	0.496	3.969	0	87.2	52.5	135				
Bis(2-ethylhexyl) phthalate	2.61	0.992	3.969	0	65.9	43.2	136				
Di-n-octyl phthalate	2.70	0.992	3.969	0	68.1	30.9	146				
Benzo(b)fluoranthene	3.26	0.496	3.969	0	82.0	43.5	146				
Benzo(k)fluoranthene	3.31	0.496	3.969	0	83.3	47.8	132				
Benzo(a)pyrene	3.02	0.496	3.969	0	76.2	41.5	137				
Indeno(1,2,3-cd)pyrene	2.98	0.496	3.969	0	75.0	46.6	125				
Dibenz(a,h)anthracene	3.09	0.496	3.969	0	77.9	45.1	124				
Benzo(g,h,i)perylene	2.98	0.496	3.969	0	75.0	40	131				
Surr: 2,4,6-Tribromophenol	6.10		3.969		154	24.7	176				
Surr: 2-Fluorobiphenyl	2.62		1.984		132	54.8	148				
Surr: Nitrobenzene-d5	2.27		1.984		114	40.8	151				
Surr: Phenol-d6	1.36		3.969		34.3	5	116				
Surr: p-Terphenyl	3.04		1.984		153	51.7	162				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **LCS-28620** SampType: **LCS** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59939**
Client ID: **LCSW** Batch ID: **28620** Analysis Date: **6/15/2020** SeqNo: **1199703**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.

Sample ID: **LCSD-28620** SampType: **LCSD** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59939**
Client ID: **LCSW02** Batch ID: **28620** Analysis Date: **6/15/2020** SeqNo: **1199704**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	1.01	1.97	3.948	0	25.6	13.5	49	1.058	4.41	30	
2-Chlorophenol	2.36	0.987	3.948	0	59.7	35.1	95.1	2.256	4.46	30	
1,3-Dichlorobenzene	2.73	0.987	3.948	0	69.1	44.7	96.2	2.564	6.14	30	
1,4-Dichlorobenzene	2.49	0.987	3.948	0	63.1	43.5	98.6	2.567	3.04	30	
1,2-Dichlorobenzene	2.65	0.987	3.948	0	67.1	45.1	101	2.616	1.20	30	
Benzyl alcohol	1.36	0.987	3.948	0	34.4	5	110	1.132	18.1	30	
Bis(2-chloroethyl) ether	3.03	1.97	3.948	0	76.8	39.6	122	3.006	0.835	30	
2-Methylphenol (o-cresol)	2.06	0.987	3.948	0	52.3	23.8	98.2	2.207	6.70	30	
Hexachloroethane	2.80	0.987	3.948	0	71.0	39	101	2.690	4.09	30	
N-Nitrosodi-n-propylamine	3.19	0.987	3.948	0	80.9	48.5	135	3.295	3.10	30	
3&4-Methylphenol (m, p-cresol)	1.81	0.987	3.948	0	45.9	21	87.2	1.897	4.65	30	
Nitrobenzene	3.00	1.97	3.948	0	76.0	47.7	123	2.862	4.74	30	
Isophorone	3.20	0.987	3.948	0	81.1	51.7	134	3.241	1.21	30	
2-Nitrophenol	2.78	1.97	3.948	0	70.4	38.5	124	2.867	3.16	30	
2,4-Dimethylphenol	3.01	0.987	3.948	0	76.1	39.2	114	2.987	0.630	30	
Bis(2-chloroethoxy)methane	3.07	0.987	3.948	0	77.8	49	128	3.037	1.12	30	
2,4-Dichlorophenol	2.73	1.97	3.948	0	69.1	38.3	124	2.765	1.34	30	
1,2,4-Trichlorobenzene	2.74	0.987	3.948	0	69.3	45	108	2.769	1.21	30	
Naphthalene	2.98	0.493	3.948	0	75.5	49.5	113	2.976	0.135	30	
4-Chloroaniline	2.34	4.93	3.948	0	59.3	35.7	117	2.486	6.07	30	
Hexachlorobutadiene	2.56	0.987	3.948	0	64.7	37	108	2.621	2.53	30	
4-Chloro-3-methylphenol	2.92	4.93	3.948	0	74.0	40.9	119	2.836	2.98	30	
2-Methylnaphthalene	2.98	0.493	3.948	0	75.6	49.1	118	3.036	1.71	30	
1-Methylnaphthalene	2.89	0.493	3.948	0	73.1	47.3	119	3.083	6.55	30	

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **LCSD-28620** SampType: **LCSD** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59939**
Client ID: **LCSW02** Batch ID: **28620** Analysis Date: **6/15/2020** SeqNo: **1199704**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorocyclopentadiene	3.20	0.987	3.948	0	81.2	10.5	137	3.255	1.57	30	
2,4,6-Trichlorophenol	2.89	1.97	3.948	0	73.3	35.4	134	3.239	11.2	30	
2,4,5-Trichlorophenol	3.04	1.97	3.948	0	77.0	34.6	133	3.095	1.79	30	
2-Chloronaphthalene	3.12	0.987	3.948	0	78.9	50	119	3.209	2.95	30	
2-Nitroaniline	3.17	4.93	3.948	0	80.2	60.2	137	3.097	2.21	30	
Acenaphthene	3.19	0.493	3.948	0	80.8	48.7	127	3.310	3.67	30	
Dimethylphthalate	3.23	0.987	3.948	0	81.9	46.1	140	3.446	6.35	30	
2,6-Dinitrotoluene	3.17	0.987	3.948	0	80.3	61.9	136	3.516	10.3	30	
Acenaphthylene	3.11	0.493	3.948	0	78.8	50.1	124	3.277	5.16	30	
2,4-Dinitrophenol	3.89	1.97	7.896	0	49.3	5	120	5.614	36.2	30	
Dibenzofuran	3.01	0.987	3.948	0	76.2	52.9	129	3.163	4.97	30	
2,4-Dinitrotoluene	3.20	0.987	3.948	0	81.0	59.1	139	3.378	5.46	30	
4-Nitrophenol	0.808	4.93	3.948	0	20.5	48.3	123	0.9793	19.1	30	S
Fluorene	3.12	0.493	3.948	0	79.0	53.6	132	3.554	13.0	30	
4-Chlorophenyl phenyl ether	3.12	0.987	3.948	0	78.9	50.2	131	3.250	4.23	30	
Diethylphthalate	3.11	0.987	3.948	0	78.8	57.4	139	3.571	13.8	30	
4,6-Dinitro-2-methylphenol	3.10	4.93	3.948	0	78.4	5	161	3.782	20.0	30	
4-Bromophenyl phenyl ether	3.09	0.987	3.948	0	78.2	46	136	3.450	11.1	30	
Hexachlorobenzene	3.25	0.987	3.948	0	82.4	42.1	138	3.559	9.04	30	
Pentachlorophenol	2.69	1.97	3.948	0	68.2	5	163	3.177	16.5	30	
Phenanthrene	3.05	0.493	3.948	0	77.3	56.8	130	3.482	13.2	30	
Anthracene	2.90	0.493	3.948	0	73.5	43.2	130	3.368	14.9	30	
Carbazole	2.99	4.93	3.948	0	75.8	53.2	141	3.644	19.7	30	
Di-n-butyl phthalate	3.17	0.987	3.948	0	80.4	53.1	155	3.553	11.3	30	
Fluoranthene	3.10	0.493	3.948	0	78.6	49.9	138	3.593	14.6	30	
Pyrene	3.20	0.493	3.948	0	81.1	48.5	139	3.611	12.0	30	
Benzyl Butylphthalate	3.19	0.987	3.948	0	80.8	52.7	157	3.706	15.0	30	
bis(2-Ethylhexyl)adipate	2.48	0.987	3.948	0	62.7	37.2	142	3.078	21.7	30	
Benz(a)anthracene	3.04	0.493	3.948	0	77.1	47.6	141	3.579	16.2	30	
Chrysene	3.10	0.493	3.948	0	78.6	52.5	135	3.461	10.9	30	
Bis(2-ethylhexyl) phthalate	2.42	0.987	3.948	0	61.4	43.2	136	2.614	7.54	30	

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **LCSD-28620** SampType: **LCSD** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59939**
Client ID: **LCSW02** Batch ID: **28620** Analysis Date: **6/15/2020** SeqNo: **1199704**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Di-n-octyl phthalate	2.45	0.987	3.948	0	62.1	30.9	146	2.704	9.87	30	
Benzo(b)fluoranthene	2.95	0.493	3.948	0	74.7	43.5	146	3.256	9.90	30	
Benzo(k)fluoranthene	2.89	0.493	3.948	0	73.2	47.8	132	3.306	13.5	30	
Benzo(a)pyrene	2.75	0.493	3.948	0	69.5	41.5	137	3.025	9.69	30	
Indeno(1,2,3-cd)pyrene	2.85	0.493	3.948	0	72.3	46.6	125	2.977	4.23	30	
Dibenz(a,h)anthracene	2.83	0.493	3.948	0	71.7	45.1	124	3.090	8.80	30	
Benzo(g,h,i)perylene	2.73	0.493	3.948	0	69.0	40	131	2.976	8.79	30	
Surr: 2,4,6-Tribromophenol	4.72		3.948		120	24.7	176		0		
Surr: 2-Fluorobiphenyl	2.21		1.974		112	54.8	148		0		
Surr: Nitrobenzene-d5	2.13		1.974		108	40.8	151		0		
Surr: Phenol-d6	1.26		3.948		32.0	5	116		0		
Surr: p-Terphenyl	2.33		1.974		118	51.7	162		0		

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.

Sample ID: **2006085-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59939**
Client ID: **GW-B1-0603** Batch ID: **28620** Analysis Date: **6/15/2020** SeqNo: **1199706**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	2.46	2.10						2.104	15.8	50	
2-Chlorophenol	ND	1.05						0	0	50	
1,3-Dichlorobenzene	ND	1.05						0.1099	17.9	50	
1,4-Dichlorobenzene	ND	1.05						0	0	50	
1,2-Dichlorobenzene	ND	1.05						0	0	50	
Benzyl alcohol	ND	1.05						0	0	50	Q
Bis(2-chloroethyl) ether	ND	2.10						0	0	50	
2-Methylphenol (o-cresol)	ND	1.05						0	0	50	
Hexachloroethane	ND	1.05						0	0	50	
N-Nitrosodi-n-propylamine	ND	1.05						0	0	50	
3&4-Methylphenol (m, p-cresol)	1.63	1.05						1.475	10.1	50	Q
Nitrobenzene	ND	2.10						0	0	50	

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **2006085-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59939**
Client ID: **GW-B1-0603** Batch ID: **28620** Analysis Date: **6/15/2020** SeqNo: **1199706**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Isophorone	ND	1.05						0	0	50	
2-Nitrophenol	ND	2.10						0	0	50	
2,4-Dimethylphenol	ND	1.05						0	0	50	
Bis(2-chloroethoxy)methane	ND	1.05						0	0	50	
2,4-Dichlorophenol	ND	2.10						0.04215	63.7	50	
1,2,4-Trichlorobenzene	ND	1.05						0	0	50	
Naphthalene	ND	0.526						0	0	50	
4-Chloroaniline	ND	5.26						0	0	50	
Hexachlorobutadiene	ND	1.05						0	0	50	
4-Chloro-3-methylphenol	ND	5.26						0	0	50	
2-Methylnaphthalene	ND	0.526						0	0	50	
1-Methylnaphthalene	ND	0.526						0	0	50	
Hexachlorocyclopentadiene	ND	1.05						0	0	50	
2,4,6-Trichlorophenol	ND	2.10						0	0	50	
2,4,5-Trichlorophenol	ND	2.10						0	0	50	
2-Chloronaphthalene	ND	1.05						0	0	50	
2-Nitroaniline	ND	5.26						0.5666	35.6	50	
Acenaphthene	ND	0.526						0	0	50	
Dimethylphthalate	ND	1.05						0	0	50	
2,6-Dinitrotoluene	ND	1.05						0	0	50	
Acenaphthylene	ND	0.526						0	0	50	
2,4-Dinitrophenol	ND	2.10						0	0	50	
Dibenzofuran	ND	1.05						0	0	50	
2,4-Dinitrotoluene	ND	1.05						0	0	50	
4-Nitrophenol	ND	5.26						0	0	50	Q*
Fluorene	ND	0.526						0.2829	19.6	50	
4-Chlorophenyl phenyl ether	ND	1.05						0	0	50	
Diethylphthalate	ND	1.05						0.07966	27.1	50	
4,6-Dinitro-2-methylphenol	ND	5.26						0	0	50	
4-Bromophenyl phenyl ether	ND	1.05						0	0	50	
Hexachlorobenzene	ND	1.05						0	0	50	

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **2006085-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **6/10/2020** RunNo: **59939**
Client ID: **GW-B1-0603** Batch ID: **28620** Analysis Date: **6/15/2020** SeqNo: **1199706**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pentachlorophenol	ND	2.10						0	0	50	
Phenanthrene	ND	0.526						0.3668	17.2	50	
Anthracene	ND	0.526						0.03340	31.9	50	
Carbazole	ND	5.26						0	0	50	
Di-n-butyl phthalate	ND	1.05						0.09002	22.9	50	
Fluoranthene	ND	0.526						0	200	50	
Pyrene	ND	0.526						0.04992	9.14	50	
Benzyl Butylphthalate	ND	1.05						0	0	50	
bis(2-Ethylhexyl)adipate	ND	1.05						0	0	50	
Benz(a)anthracene	ND	0.526						0	0	50	
Chrysene	ND	0.526						0	0	50	
Bis(2-ethylhexyl) phthalate	ND	1.05						0.1236	77.0	50	
Di-n-octyl phthalate	ND	1.05						0	0	50	
Benzo(b)fluoranthene	ND	0.526						0	0	50	
Benzo(k)fluoranthene	ND	0.526						0	0	50	
Benzo(a)pyrene	ND	0.526						0	0	50	
Indeno(1,2,3-cd)pyrene	ND	0.526						0	0	50	
Dibenz(a,h)anthracene	ND	0.526						0	0	50	
Benzo(g,h,i)perylene	ND	0.526						0	0	50	
Surr: 2,4,6-Tribromophenol	5.61		4.210		133	24.7	176		0		
Surr: 2-Fluorobiphenyl	2.37		2.105		113	54.8	148		0		
Surr: Nitrobenzene-d5	2.55		2.105		121	40.8	151		0		
Surr: Phenol-d6	1.78		4.210		42.4	5	116		0		
Surr: p-Terphenyl	1.29		2.105		61.3	51.7	162		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria
* - Flagged value is not within established control limits.

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **QCS-28620** SampType: **QCS** Units: **µg/L** Prep Date: **6/15/2020** RunNo: **59939**
Client ID: **BATCH** Batch ID: **28620** Analysis Date: **6/15/2020** SeqNo: **1199713**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenol	925	2.00	1,000	0	92.5	50	150				
2-Chlorophenol	886	1.00	1,000	0	88.6	50	150				
1,3-Dichlorobenzene	858	1.00	1,000	0	85.8	50	150				
1,4-Dichlorobenzene	896	1.00	1,000	0	89.6	50	150				
1,2-Dichlorobenzene	868	1.00	1,000	0	86.8	50	150				
Benzyl alcohol	234	1.00	1,000	0	23.4	50	150				S
Bis(2-chloroethyl) ether	872	2.00	1,000	0	87.2	50	150				
2-Methylphenol (o-cresol)	973	1.00	1,000	0	97.3	50	150				
Hexachloroethane	993	1.00	1,000	0	99.3	50	150				
N-Nitrosodi-n-propylamine	932	1.00	1,000	0	93.2	50	150				
3&4-Methylphenol (m, p-cresol)	900	1.00	1,000	0	90.0	50	150				
Nitrobenzene	837	2.00	1,000	0	83.7	50	150				
Isophorone	901	1.00	1,000	0	90.1	50	150				
2-Nitrophenol	909	2.00	1,000	0	90.9	50	150				
2,4-Dimethylphenol	941	1.00	1,000	0	94.1	50	150				
Bis(2-chloroethoxy)methane	861	1.00	1,000	0	86.1	50	150				
2,4-Dichlorophenol	843	2.00	1,000	0	84.3	50	150				
1,2,4-Trichlorobenzene	904	1.00	1,000	0	90.4	50	150				
Naphthalene	871	0.500	1,000	0	87.1	50	150				
4-Chloroaniline	780	5.00	1,000	0	78.0	50	150				
Hexachlorobutadiene	848	1.00	1,000	0	84.8	50	150				
4-Chloro-3-methylphenol	884	5.00	1,000	0	88.4	50	150				
2-Methylnaphthalene	903	0.500	1,000	0	90.3	50	150				
1-Methylnaphthalene	909	0.500	1,000	0	90.9	50	150				
Hexachlorocyclopentadiene	1,030	1.00	1,000	0	103	50	150				
2,4,6-Trichlorophenol	857	2.00	1,000	0	85.7	50	150				
2,4,5-Trichlorophenol	853	2.00	1,000	0	85.3	50	150				
2-Chloronaphthalene	938	1.00	1,000	0	93.8	50	150				
2-Nitroaniline	928	5.00	1,000	0	92.8	50	150				
Acenaphthene	883	0.500	1,000	0	88.3	50	150				
Dimethylphthalate	911	1.00	1,000	0	91.1	50	150				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **QCS-28620** SampType: **QCS** Units: **µg/L** Prep Date: **6/15/2020** RunNo: **59939**
Client ID: **BATCH** Batch ID: **28620** Analysis Date: **6/15/2020** SeqNo: **1199713**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,6-Dinitrotoluene	951	1.00	1,000	0	95.1	50	150				
Acenaphthylene	899	0.500	1,000	0	89.9	50	150				
2,4-Dinitrophenol	2,010	2.00	2,000	0	101	50	150				
Dibenzofuran	840	1.00	1,000	0	84.0	50	150				
2,4-Dinitrotoluene	917	1.00	1,000	0	91.7	50	150				
4-Nitrophenol	690	5.00	1,000	0	69.0	50	150				
Fluorene	900	0.500	1,000	0	90.0	50	150				
4-Chlorophenyl phenyl ether	811	1.00	1,000	0	81.1	50	150				
Diethylphthalate	916	1.00	1,000	0	91.6	50	150				
4,6-Dinitro-2-methylphenol	988	5.00	1,000	0	98.8	50	150				
4-Bromophenyl phenyl ether	848	1.00	1,000	0	84.8	50	150				
Hexachlorobenzene	950	1.00	1,000	0	95.0	50	150				
Pentachlorophenol	946	2.00	1,000	0	94.6	50	150				
Phenanthrene	852	0.500	1,000	0	85.2	50	150				
Anthracene	911	0.500	1,000	0	91.1	50	150				
Carbazole	830	5.00	1,000	0	83.0	50	150				
Di-n-butyl phthalate	912	1.00	1,000	0	91.2	50	150				
Fluoranthene	937	0.500	1,000	0	93.7	50	150				
Pyrene	965	0.500	1,000	0	96.5	50	150				
Benzyl Butylphthalate	985	1.00	1,000	0	98.5	50	150				
bis(2-Ethylhexyl)adipate	949	1.00	1,000	0	94.9	50	150				
Benz(a)anthracene	968	0.500	1,000	0	96.8	50	150				
Chrysene	886	0.500	1,000	0	88.6	50	150				
Bis(2-ethylhexyl) phthalate	884	1.00	1,000	0	88.4	50	150				
Di-n-octyl phthalate	947	1.00	1,000	0	94.7	50	150				
Benzo(b)fluoranthene	941	0.500	1,000	0	94.1	50	150				
Benzo(k)fluoranthene	839	0.500	1,000	0	83.9	50	150				
Benzo(a)pyrene	880	0.500	1,000	0	88.0	50	150				
Indeno(1,2,3-cd)pyrene	895	0.500	1,000	0	89.5	50	150				
Dibenz(a,h)anthracene	967	0.500	1,000	0	96.7	50	150				
Benzo(g,h,i)perylene	861	0.500	1,000	0	86.1	50	150				

Work Order: 2006085
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Semi-Volatile Organic Compounds by EPA Method 8270

Sample ID: **QCS-28620** SampType: **QCS** Units: **µg/L** Prep Date: **6/15/2020** RunNo: **59939**
Client ID: **BATCH** Batch ID: **28620** Analysis Date: **6/15/2020** SeqNo: **1199713**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	1,110		1,000		111	50	150				
Surr: 2-Fluorobiphenyl	467		500.0		93.5	50	150				
Surr: Nitrobenzene-d5	526		500.0		105	50	150				
Surr: Phenol-d6	929		1,000		92.9	50	150				
Surr: p-Terphenyl	463		500.0		92.6	50	150				

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a Q.
S - Outlying QC recoveries were observed. More than 80% of the target analytes were within method acceptance criteria.

Sample Log-In Check List

Client Name:	**LIBBY**	Work Order Number:	**2006085**
Logged by:	**Carissa True**	Date Received:	**6/4/2020 12:24:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Present ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >2°C to 6°C *	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler 1	4.8
Cooler 2	2.3
Sample 1	3.6
Sample 2	2.9

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Libby Environmental, Inc.

Chain of Custody Record 2006085

www.LibbyEnvironmental.com

3322 South Bay Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Date: 6/4/20 Page: 1 of 2

Client: Libby Environmental
Address: See above
City: State: Zip:
Phone: Fax:
Client Project # L200603-7

Project Manager: Kodey Eley
Project Name: Hardel Site
Location: City, State: Olympia, Wa
Collector: SH/MK Date of Collection: 6/3/20
Email: libbyenv@gmail.com

Sample Number	Depth	Time	Sample Type	Container Type	VOC 8260	PCE & Daughter Prod.	NWTPH-Gx	BTEX (8260) / (8021)	NWTPH-HCID	NWTPH-Dx / Dx	PCB 8082	MTCA 5 Metals	RCRA 8 Metals	c PAH 8270	PAH 8270	Semi Vol 8270	Total Ba, Se, Ag Hg		Field Notes
1 GW-B1-0603	10-15	1400	Grab	Amber/Poly												X	X	X	
2 GW-B2-0603	3-8	1300														X	X	X	
3 GW-B3-0603	3-8	1210														X	X	X	
4 GW-B4-0603	7-12	1110														X	X	X	
5 GW-B5-0603	3-8	1000														X	X	X	
6 GW-B6-0603	3-8	915														X	X	X	
7 GW-B6-0603-01	3-8	915														X	X	X	
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			

Relinquished by:	Date / Time	Received by:	Date / Time
Kodey Eley	6/4/20	[signature]	6/4/20 1224
Relinquished by:	Date / Time	Received by:	Date / Time
Relinquished by:	Date / Time	Received by:	Date / Time

Sample Receipt

Good Condition?	Y	N
Cooler Temp.		°C
Sample Temp.		°C
Total Number of Containers		

Remarks: Standard TAT

TAT: 24HR 48HR 5-DAY

LEGAL ACTION CLAUSE: *In the event of default of payment and/or failure to pay, Client agrees to pay the costs of collection including court costs and reasonable attorney fees to be determined by a court of law.*

Distribution: White - Lab, Yellow - Originator

Libby Environmental, Inc.

Chain of Custody Record

2006085

www.LibbyEnvironmental.com

3322 South Bay Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Date: 6/4/20 Page: 2 of 2

Client: Libby Environmental
Address: See above
City: State: Zip:
Phone: Fax:
Client Project # L200603-7

Project Manager: Kodey Eley
Project Name: Hardel Site
Location: City, State: Olympia, Wa
Collector: SH/MK Date of Collection: 6/3/20
Email: libbyenv@gmail.com

	Sample Number	Depth	Time	Sample Type	Container Type	VOC 8260	PCE & Daughter Prod.	NWTPH-Gx	BTEX (8260) / (8021)	NWTPH-HCID	NWTPH-Dx / Dx	PCB 8082	MTCA 5 Metals	RCRA 8 Metals	c PAH 8270	PAH 8270	Semi Vol 8270	Total Ba, Se, Ag			Field Notes
1	S-B1-4-5-0603	4-5	1340	Soil	4oz											X		X			
2	S-B2-2-4-0603	2-4	1230													X		X			
3	S-B3-2-3-0603	2-3	1130													X		X			
4	S-B4-1-3-0603	1-3	1030													X		X			
5	S-B4-1-3-0603-01	1-3	1030													X		X			
6	S-B4-11-12-0603	11-12	1045													X		X			
7	S-B5-3-4-0603	3-4	920														X	X			
8	S-B6-3-4-0603	3-4	0845														X	X			
9	S-B7-3-5-0603	3-5	1600														X	X			
10	S-B8-4-5-0603	4-5	1620													X					
11	S-B9-6-7-0603	6-7	1640													X					
12																					
13																					
14																					
15																					
16																					
17																					

Relinquished by:	Date / Time	Received by:	Date / Time
Kodey Eley	6/4/20	[signature]	6/4/20 1224
Relinquished by:	Date / Time	Received by:	Date / Time
Relinquished by:	Date / Time	Received by:	Date / Time

Sample Receipt

Good Condition?	Y	N
Cooler Temp.		°C
Sample Temp.		°C
Total Number of Containers		

Remarks: Standard TAT

TAT: 24HR 48HR 5-DAY

LEGAL ACTION CLAUSE: *In the event of default of payment and/or failure to pay, Client agrees to pay the costs of collection including court costs and reasonable attorney fees to be determined by a court of law.*

Distribution: White - Lab, Yellow - Originator

Libby Environmental, Inc.

3322 South Bay Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Chain of Custody Record

2006085

www.LibbyEnvironmental.com

Date: 6/4/20 Page: 2 of 2

Client: Libby Environmental
Address: See above
City: State: Zip:
Phone: Fax:
Client Project # L200603-7

Project Manager: Kodey Eley
Project Name: Hardel Site
Location: City, State: Olympia, Wa
Collector: SH/MK Date of Collection: 6/3/20
Email: libbyenv@gmail.com

Add ons by cet 6/11 per S.C

	Sample Number	Depth	Time	Sample Type	Container Type	VOC 8260	PCE & Daughter Prod.	NWTPH-Gx	BTEX (8260) / (8021)	NWTPH-HCID	NWTPH-Dx / Dx	PCB 8082	MTCA 5 Metals	RCRA 8 Metals	c PAH 8270	PAH 8270	Semi Vol 8270	Total Ba, Se, Ag	EPH	TOC	Field Notes
1	S-B1-4-5-0603	4-5	1340	Soil	4oz											X		X			
2	S-B2-2-4-0603	2-4	1230													X		X	X		
3	S-B3-2-3-0603	2-3	1130													X		X	X		
4	S-B4-1-3-0603	1-3	1030													X		X			
5	S-B4-1-3-0603-01	1-3	1030													X		X			
6	S-B4-11-12-0603	11-12	1045													X		X			
7	S-B5-3-4-0603	3-4	920														X	X			
8	S-B6-3-4-0603	3-4	0845														X	X			
9	S-B7-3-5-0603	3-5	1600														X	X		X	
10	S-B8-4-5-0603	4-5	1620													X					
11	S-B9-6-7-0603	6-7	1640													X					
12																					
13																					
14																					
15																					
16																					
17																					

Relinquished by:	Date / Time	Received by:	Date / Time
Kodey Eley	6/4/20	[signature]	6/4/20 1224
Relinquished by:	Date / Time	Received by:	Date / Time
Relinquished by:	Date / Time	Received by:	Date / Time

Sample Receipt

Good Condition?	Y	N
Cooler Temp.		°C
Sample Temp.		°C
Total Number of Containers		

Remarks: Standard TAT

TAT: 24HR 48HR 5-DAY

LEGAL ACTION CLAUSE: In the event of default of payment and/or failure to pay, Client agrees to pay the costs of collection including court costs and reasonable attorney fees to be determined by a court of law.

Distribution: White - Lab, Yellow - Originator

Fremont Analytical, Inc 206.352.3790

DATA SET for Review -- Deliverable Requirements

Extractable Petroleum Hydrocarbons Analysis by NWTPH-EPH

Fremont Analytical Work Order No. 2006085

Libby Environmental

Project Name: Hardel Site

Project No. L200603-7

This Data contains the following:

- Analytical Sequence Summary for **Work Order 2006085**
- Calibration Information for **Work Order 2006085**

Injection Log

Directory: C:\GC20\DATA\2020\200623

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	100	062301.d	1.	CO	CCV O-EPH-S	23 Jun 2020 12:47
2	99	062302.d	1.	ARO-CCV-28677A	CCV O-EPH-W	23 Jun 2020 13:31
3	1	062303.d	1.	MB-28677	MBLK O-EPH-W	23 Jun 2020 14:15
4	8	062304.d	1.	2004010-020A	MBLK O-EPH-S	23 Jun 2020 14:59
5	2	062305.d	1.	LCS-28677	LCS O-EPH-S	23 Jun 2020 15:43
6	3	062306.d	1.	2006085-009A	SAMP O-EPH-S	23 Jun 2020 16:28
7	4	062307.d	1.	2006085-009ADUP	DUP O-EPH-S	23 Jun 2020 17:12
8	5	062308.d	1.	2006085-009AMS	MS O-EPH-S	23 Jun 2020 17:57
9	6	062309.d	1.	2006085-009AMSD	MSD O-EPH-S	23 Jun 2020 18:41
10	7	062310.d	1.	2006085-010A	SAMP O-EPH-S	23 Jun 2020 19:25
11	100	062311.d	1.	CO	CCV O-EPH-S	23 Jun 2020 20:10
12	99	062312.d	1.	ARO-CCV-28677B	CCV O-EPH-S	23 Jun 2020 20:54
13	98	062313.d	1.	ALI-CCV-28677A	CCV O-EPH-S	23 Jun 2020 21:38
14	9	062314.d	1.	MB-28677	MBLK O-EPH-S	23 Jun 2020 22:22
15	10	062315.d	1.	LCS-28677	LCS O-EPH-S	23 Jun 2020 23:06
16	11	062316.d	1.	2006085-009A	SAMP O-EPH-S	23 Jun 2020 23:50
17	12	062317.d	1.	2006085-009ADUP	DUP O-EPH-S	24 Jun 2020 00:34
18	13	062318.d	1.	2006085-009AMS	MS O-EPH-S	24 Jun 2020 01:18
19	14	062319.d	1.	2006085-009AMSD	MSD O-EPH-S	24 Jun 2020 02:02
20	15	062320.d	1.	2006085-010A	SAMP O-EPH-S	24 Jun 2020 02:45
21	100	062321.d	1.	CO	SAMP O-EPH-S	24 Jun 2020 03:29
22	98	062322.d	1.	ALI-CCV-28677B	CCV O-EPH-S	24 Jun 2020 04:12
23	100	062323.d	1.	CO	CCV O-EPH-S	24 Jun 2020 04:56
24	100	062324.d	1.	CO	CCV O-EPH-S	24 Jun 2020 05:40
25	100	062325.d	1.	CO	CCV O-EPH-S	24 Jun 2020 06:23
26	100	062326.d	1.	CO	CCV O-EPH-S	24 Jun 2020 07:07
27	100	062327.d	1.	CO	CCV O-EPH-S	24 Jun 2020 07:50
28	100	062328.d	1.	CO	CCV O-EPH-S	24 Jun 2020 08:34

Injection Log

Directory: C:\GC20\DATA\2020\200624

Line	Vial	FileName	Multiplier	SampleName	Misc Info		Injected
1	100	062401.d	1.	CO	CCV	O-EPH-S	24 Jun 2020 14:07
2	98	062402.d	1.	ALI-CCV-28677C	CCV	O-EPH-S	24 Jun 2020 14:51
3	10	062403.d	1.	LCS-28677	LCS	O-EPH-S	24 Jun 2020 15:35
4	17	062404.d	1.	2006085-009A 5X	SAMP	O-EPH-S	24 Jun 2020 16:19
5	14	062405.d	1.	2006085-009AMSD	MSD	O-EPH-S	24 Jun 2020 17:03
6	15	062406.d	1.	2006085-010A	SAMP	O-EPH-S	24 Jun 2020 17:48
7	100	062407.d	1.	CO	SAMP	O-EPH-S	24 Jun 2020 18:32
8	98	062408.d	1.	ALI-CCV-28677D	CCV	O-EPH-S	24 Jun 2020 19:17
9	100	062409.d	1.	CO	CCV	O-EPH-S	24 Jun 2020 20:01
10	100	062410.d	1.	CO	CCV	O-EPH-S	24 Jun 2020 20:45
11	100	062411.d	1.	CO	CCV	O-EPH-S	24 Jun 2020 21:29
12	100	062412.d	1.	CO	CCV	O-EPH-S	24 Jun 2020 22:13
13	100	062413.d	1.	CO	CCV	O-EPH-S	24 Jun 2020 22:57
14	100	062414.d	1.	CO	CCV	O-EPH-S	24 Jun 2020 23:41

Calibration

Calibration Report GC #20

Method : C:\GC20\METHODS\QUANT METHODS\AL190610.M (Chemstation Integrator)
Title :
Last Update : Mon Jun 10 12:42:03 2019
Response via : Initial Calibration

Calibration Files
1 =060504 2 =060505 3 =060506 4 =060507 5 =060508
6 =060509 7 =060510 8 =060511

		Compound	Fit	Constant	Linear	Quad	RSD/Cf
1)	S	1-Chlorooctadecane	Lin	1.3172 e2	1.1121 e3	-----	0.993
2)	S	o-Terphenyl	Lin	1.1104 e2	1.4341 e3	-----	0.993
3)	H	Aliphatic (C8-C10)	Lin	1.6534 e4	1.0326 e3	-----	1.000
4)	H	Aliphatic (C10-C12)	Lin	1.0119 e4	1.1024 e3	-----	1.000
5)	H	Aliphatic (C12-C16)	Lin	1.3575 e4	1.1519 e3	-----	0.999
6)	H	Aliphatic (C16-C21)	Lin	3.1285 e4	1.1564 e3	-----	0.998
7)	H	Aliphatic (C21-C34)	Lin	4.5832 e4	7.5359 e2	-----	0.992

AL190610.M Tue Jun 11 10:17:28 2019

Calibration Report GC #20

Method : C:\GC20\METHODS\QUANT METHODS\AR190610.M (Chemstation Integrator)
Title :
Last Update : Tue Jun 11 10:00:22 2019
Response via : Initial Calibration

Calibration Files
1 =060517 2 =060518 3 =060519 4 =060520 5 =060521
6 =060522 7 =060523 8 =060524

		Compound	Fit	Constant	Linear	Quad	RSD/Cf
1)	S	1-Chlorooctadecane	Lin	-3.5319 e2	1.0591 e3	-----	1.000
2)	S	o-Terphenyl	Lin	-4.9515	1.3716 e3	-----	1.000
3)	H	Aromatic (C8-C10)	Lin	4.3270 e4	1.2152 e3	-----	0.999
4)	H	Aromatic (C10-C12)	Lin	4.8603 e3	1.2048 e3	-----	0.999
5)	H	Aromatic (C12-C16)	Lin	8.5564 e3	1.2600 e3	-----	0.999
6)	H	Aromatic (C16-C21)	Lin	2.4940 e4	1.3162 e3	-----	0.998
7)	H	Aromatic (C21-C34)	Lin	3.4666 e4	9.1600 e2	-----	0.992

AR190610.M Tue Jun 11 10:16:05 2019

EPH Calibration

	Aliphatic	Aromatic
Date/Time: 6519 11:00	5,000 ppm (CAL): 21619	5,000 ppm (CAL): 21621
Analyst: DMW	10,000 ppm (SS): 21181	10,000 ppm (SS): 20860
Surrogate: 21708	Matrix: HEXANE 4292	Matrix: $MeCl_2$ 4336

	Spike Type	Spike Conc. (ppb)	Surr Conc. (ppb)	Spike (uL)	Surr (uL)	Remove (uL)	Final Vol. (uL)	Comments
1	Aliphatic	10	4	2	1	3	1000	
2		20	8	4	2	6	1000	
3		50	20	10	5	15	1000	
4		100	40	20	10	30	1000	
5		200	100	40	25	65	1000	
6		500	200	10	5	15	100*	*Use insert
7		1000	400	20	10	30	100*	*Use insert
8		2000	800	40	20	60	100*	*Use insert
9		ICB	40	-	10	10	1000	
10		ICV (100)	40	10 (SS)	10	20	1000	
11	Aromatic	10	4	2	1	3	1000	
12		20	8	4	2	6	1000	
13		50	20	10	5	15	1000	
14		100	40	20	10	30	1000	
15		200	100	40	25	65	1000	
16		500	200	10	5	15	100*	*Use insert
17		1000	400	20	10	30	100*	*Use insert
18		2000	800	40	20	60	100*	*Use insert
19		ICB	40	-	10	10	1000	
20		ICV (100)	40	10 (SS)	10	20	1000	

Response Factor Report GC #20

Method : C:\GC20\METHODS\QUANT METHODS\AR-RFCAL.M (Chemstation Integrator)
Title :
Last Update : Wed Jun 10 13:15:43 2020

Calibration Files
1 =060517.D 2 =060518.D 3 =060519.D
4 =060520.D 5 =060521.D 6 =060522.D

		Compound	1	2	3	4	5	6	Avg	%RSD
1)	S	1-Chlorooctadecane	1.017	1.090	0.991	0.992	1.011	1.085	1.038 E3	3.90
2)	S	o-Terphenyl	1.454	1.433	1.313	1.306	1.315	1.403	1.371 E3	4.13
3)	H	Aromatic (C8-C10)	3.700	2.162	1.542	1.409	1.291	1.202	1.725 E3	49.71
4)	H	Aromatic (C10-C12)	1.663	1.441	1.352	1.325	1.186	1.143	1.319 E3	12.88
5)	H	Aromatic (C12-C16)	2.025	1.643	1.440	1.491	1.320	1.226	1.462 E3	18.25
6)	H	Aromatic (C16-C21)	3.218	2.950	1.976	1.621	1.462	1.314	1.904 E3	40.07
7)	H	Aromatic (C21-C34)	3.583	2.906	1.796	1.435	1.299	0.997	1.733 E3	57.43

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

AR-RFCAL.M Thu Jul 02 13:49:47 2020

DATA SET for Review -- Deliverable Requirements

Mercury Analysis by EPA 245.1

Fremont Analytical Work Order No. 2006085

Libby Environmental

Project Name: Hardel Site

Project No. L200603-7

This Data contains the following:

- Analytical Sequence Summary for **Work Order 2006085**
- Calibration Information for **Work Order 2006085**

Calibration

Report Generated By Teledyne Leeman QuickTrace

Analyst: lab

Worksheet file: C:\Users\Public\Documents\Teledyne CETAC\QuickTrace\Worksheets\061120WATER C.wszf

Creation Date: 6/11/2020 5:30:37 PM

Comment:

Results

Sample Name		Type	Date/Time	Conc (ug/L)	µAbs	%RSD	Residual	Flags	% Recovery
Calibration Blank		STD	06/11/20 05:33:30 pm	0.000	-71	20.99			N/A
Replicates	-93.0	-64.5	-68.5	-59.2					
Standard #1 (0.1 ug/L)		STD	06/11/20 05:35:11 pm	0.100	2096	0.63	13.32%		N/A
Replicates	2111.4	2080.5	2090.3	2100.0					
Standard #2 (0.5 ug/L)		STD	06/11/20 05:36:53 pm	0.500	10899	0.37	14.74%		N/A
Replicates	10854.2	10875.3	10940.0	10925.0					
Standard #3 (1.0 ug/L)		STD	06/11/20 05:38:35 pm	1.000	21151	0.46	10.98%		N/A
Replicates	21029.9	21118.7	21197.0	21256.5					
Standard #4 (2.5 ug/L)		STD	06/11/20 05:41:57 pm	2.500	49151	0.41	2.97%		N/A
Replicates	48908.5	49087.3	49230.3	49378.3					
Standard #5 (5.0 ug/L)		STD	06/11/20 05:43:40 pm	5.000	94262	2.27	-1.33%		N/A
Replicates	91521.5	93729.0	95365.2	96431.7					

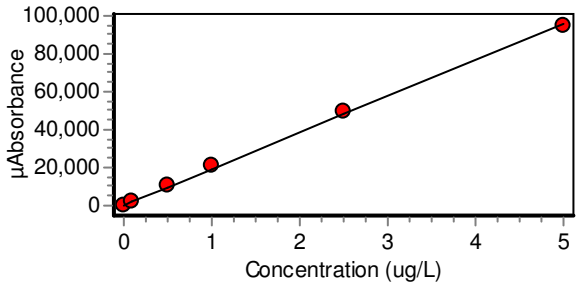
Calibration

Equation: Abs = 19121.661x + -71.310

R2: 0.99819 RSE: 13.24%

SEE: 1834.7130

Flags:



ICB		ICB	06/11/20 05:45:24 pm	-0.004	-157	7.96			N/A
Replicates	-155.0	-148.9	-165.1	-158.9					
ICV LL		CRDL	06/11/20 05:47:06 pm	0.109	2013	2.60			109.02
Replicates	2061.3	2050.5	1998.5	1943.2					
ICV		ICV	06/11/20 05:51:38 pm	2.400	45848	0.73			96.06
Replicates	45478.4	45700.1	45961.9	46251.9					
MB-28625		MB	06/11/20 05:53:19 pm	0.016	240	4.16		Z	N/A
Replicates	230.6	243.3	256.8	229.1					
LCS-28625		LCS	06/11/20 05:55:00 pm	2.260	43116	0.32			90.34
Replicates	42943.5	43096.8	43152.8	43272.0					
2006085-001B		UNK	06/11/20 05:56:41 pm	0.059	1047	4.01			N/A
Replicates	1107.9	1049.0	1027.0	1003.3					
2006085-001BDUP		UNK	06/11/20 05:58:23 pm	0.023	364	4.09			N/A
Replicates	344.0	385.1	356.4	370.9					

Sample Name					Type	Date/Time	Conc (ug/L)	µAbs	%RSD	Residual	Flags	% Recovery
2006085-001BMS					UNK	06/11/20 06:00:05 pm	1.170	22314	0.14			N/A
	Replicates	22357.9	22301.4	22311.9	22285.4							
2006085-001BMSD					UNK	06/11/20 06:01:48 pm	1.150	21871	0.09			N/A
	Replicates	21894.4	21880.5	21858.5	21849.3							
2006085-002B					UNK	06/11/20 06:03:30 pm	0.011	146	3.29			N/A
	Replicates	144.2	144.0	155.5	138.5							
2006085-003B					UNK	06/11/20 06:05:11 pm	0.032	533	3.51			N/A
	Replicates	536.7	555.6	504.4	535.4							
2006085-004B					UNK	06/11/20 06:06:52 pm	0.029	481	4.03			N/A
	Replicates	484.0	511.0	465.8	462.5							
2006085-005B					UNK	06/11/20 06:08:34 pm	0.029	483	1.82			N/A
	Replicates	492.4	478.9	470.9	490.4							
CCV					CCV	06/11/20 06:11:47 pm	2.320	44297	0.83			92.81
	Replicates	43851.0	44163.0	44490.2	44684.0							
CCB					CCB	06/11/20 06:13:28 pm	-0.001	-88	97.82			N/A
	Replicates	-83.8	-112.5	-77.7	-78.5							
2006085-006B					UNK	06/11/20 06:15:10 pm	0.035	588	2.22			N/A
	Replicates	572.6	584.2	585.9	607.7							
2006085-007B					UNK	06/11/20 06:16:52 pm	0.027	437	3.31			N/A
	Replicates	431.3	431.4	423.7	461.7							
2006094-001E					UNK	06/11/20 06:18:34 pm	0.036	616	1.98			N/A
	Replicates	600.8	613.7	617.2	633.9							
2006098-001A					UNK	06/11/20 06:20:16 pm	0.006	43	4.36			N/A
	Replicates	40.6	49.2	38.2	45.9							
2006102-001A					UNK	06/11/20 06:21:57 pm	0.034	578	1.97			N/A
	Replicates	583.4	588.8	559.5	579.3							
2006114-001A					UNK	06/11/20 06:23:39 pm	0.024	386	1.77			N/A
	Replicates	389.9	374.9	384.4	393.4							
2006114-002A					UNK	06/11/20 06:25:20 pm	0.028	457	5.21			N/A
	Replicates	450.3	480.5	477.0	421.3							
2006126-001A					UNK	06/11/20 06:27:02 pm	0.005	22	9.38			N/A
	Replicates	24.9	8.5	26.5	26.3							
2006126-002A					UNK	06/11/20 06:28:44 pm	0.003	-12	38.15			N/A
	Replicates	-26.2	-36.1	8.6	6.4							
2006169-001D					UNK	06/11/20 06:30:26 pm	0.023	371	8.29			N/A
	Replicates	422.9	355.3	338.3	367.3							
CCV					CCV	06/11/20 06:35:01 pm	2.560	48790	0.39			102.21
	Replicates	48542.2	48746.9	48879.9	48990.1							

Sample Name					Type	Date/Time	Conc (ug/L)	µAbs	%RSD	Residual	Flags	% Recovery
CCB					CCB	06/11/20 06:36:43 pm	0.013	167	30.72			N/A
	Replicates	63.8	171.9	201.2	232.4							

Fremont Analytical

Calibration Set

Tube Lot # 2070/4981

Analysis: Mercury Water Calibration

Date/Time: 06/11/20

Analyst: Wayne Francis

Matrix: Water

Analytical Run: 59776

Curve	Concentration	Suggested Spike Amount	Acutal Spike Amount, g	Spike Standard	Initial Volume	Used Vol.	Conc. Sulfuric Acid, mL	Conc. Nitric Acid, mL	Permanganate, mL	Persulfate, mL	Hydroxylamine, mL
Standard 0	0 µg/L	0 µL	0.0	CAL STOCK	50 mL		1.6	0.8	4.8	2.6	1.9
Standard 1	0.1 µg/L	50 µL	0.052		50 mL						
Standard 2	0.5 µg/L	250 µL	0.264		50 mL						
Standard 3	1 µg/L	500 µL	0.522		50 mL						
Standard 4	2.5 µg/L	1.25 mL	1.266		50 mL						
Standard 5	5 µg/L	2.5 mL	2.554		50 mL						
ICB	0 µg/L	0 µL			50 mL						
ICV LL	0.1 µg/L	50 µL			50 mL						
ICV	2.5 µg/L	1.25 mL	1.265	ICV STOCK	50 mL						

Wayne 6/11/20

	Recommended Volume	I.D #
Potassium Permanganate:	4.8 mL	3562/3881
Potassium Persulfate:	2.6 mL	3479/3778
Hydroxylamine Sulfate:	1.9 mL	3575/3895
Sulfuric Acid:	1.6 mL	2004/4831
Nitric Acid:	0.8 mL	2072/4983

Balance ID: 5

Standard 4 used for: All CCV's

CAL STOCK → 0.5 mL of 22604 / 50 mL Vf ⇒ 100 ppb
ICV STOCK → 0.5 mL of 23127 / 50 mL Vf ⇒ 100 ppb

Pipette #29

Signature: NM

DATA SET for Review -- Deliverable Requirements

PAH Analysis by EPA 8270 SIM

Fremont Analytical Work Order No. 2006085

Libby Environmental

Project Name: Hardel Site

Project No. L200603-7

This Data contains the following:

- Analytical Sequence Summary for **Work Order 2006085**
- Calibration Information for **Work Order 2006085**
- Tune Information for **Work Order 2006085**

Injection Log

Data Directory: D:\GC-21\Data\060820\

SampleName	MiscInfo	Vial	Multiplier	Injection Time
1) 060801.D				
CO		2	1.000	08 Jun 2020 07:47 am
2) 060802.D				
TUNE		1	1.000	08 Jun 2020 08:09 am
3) 060803.D				
CCV-		2	1.000	08 Jun 2020 08:31 am
4) 060804.D				
MB-28581		56	1.000	08 Jun 2020 01:02 pm
5) 060805.D				
LCS-28581		57	1.000	08 Jun 2020 01:24 pm
6) 060806.D				
2005095-006A		58	1.000	08 Jun 2020 01:46 pm
7) 060807.D				
2005114-007A		59	1.000	08 Jun 2020 02:09 pm
8) 060808.D				
2005114-011A		60	1.000	08 Jun 2020 02:31 pm
9) 060809.D				
2005114-012A		61	1.000	08 Jun 2020 02:54 pm
10) 060810.D				
2005160-002A		62	1.000	08 Jun 2020 03:16 pm
11) 060811.D				
2005192-041A		63	1.000	08 Jun 2020 03:38 pm
12) 060812.D				
2006084-005A		64	1.000	08 Jun 2020 04:01 pm
13) 060813.D				
2006084-005ADUP		65	1.000	08 Jun 2020 04:23 pm
14) 060814.D				
2006084-005AMS		66	1.000	08 Jun 2020 04:46 pm
15) 060815.D				
2006084-005AMSD		67	1.000	08 Jun 2020 05:08 pm
16) 060816.D				
QCS-28581A		2	1.000	08 Jun 2020 05:30 pm
17) 060817.D				
CCV-28581B		2	1.000	08 Jun 2020 05:53 pm
18) 060818.D				
2006076-001A		68	1.000	08 Jun 2020 06:15 pm
19) 060819.D				
2006076-002A		69	1.000	08 Jun 2020 06:37 pm
20) 060820.D				
2006084-001A		70	1.000	08 Jun 2020 07:00 pm
21) 060821.D				
2006084-002A		71	1.000	08 Jun 2020 07:22 pm

22) 060822.D
2006084-003A 72 1.000 08 Jun 2020 07:44 pm
---
23) 060823.D
2006084-004A 73 1.000 08 Jun 2020 08:07 pm
---
24) 060824.D
2006085-008A 74 1.000 08 Jun 2020 08:29 pm
---
25) 060825.D
2006085-009A 75 1.000 08 Jun 2020 08:51 pm
---
26) 060826.D
2006085-010A 76 1.000 08 Jun 2020 09:13 pm
---
27) 060827.D
2006085-011A 77 1.000 08 Jun 2020 09:36 pm
---
28) 060828.D
2006085-012A 78 1.000 08 Jun 2020 09:58 pm
---
29) 060829.D
2006085-013A 79 1.000 08 Jun 2020 10:20 pm
---
30) 060830.D
2006104-001A 80 1.000 08 Jun 2020 10:42 pm
---
31) 060831.D
QCS-28581B 2 1.000 08 Jun 2020 11:04 pm
---
32) 060901.D
CO 2 1.000 09 Jun 2020 08:37 am
---
33) 060902.D
TUNE 1 1.000 09 Jun 2020 08:59 am
---
34) 060903.D
CCV- 2 1.000 09 Jun 2020 09:21 am
---
35) 060904.D
SEMI CHECK NEW INT 4 1.000 09 Jun 2020 10:10 am
---
36) 060905.D
2006085-009A 10X 10 1.000 09 Jun 2020 11:13 am
---
37) 060912.D
QCS- 2 1.000 09 Jun 2020 01:59 pm

Injection Log

Data Directory: D:\GC-21\Data\061020\

SampleName	MiscInfo	Vial	Multiplier	Injection Time
1) 061050.D				
No data found			0.000	N/A
2) 061001.D				
PAH SIM WINDOW CHECK		2	1.000	10 Jun 2020 08:56 am
3) 061002.D				
PAH SIM		2	1.000	10 Jun 2020 09:23 am
4) 061003.D				
SEMI		2	1.000	10 Jun 2020 10:51 am
5) 061004.D				
TUNE		1	1.000	10 Jun 2020 11:13 am
6) 061005.D				
PAH 10		11	1.000	10 Jun 2020 11:36 am
7) 061006.D				
PAH 20		12	1.000	10 Jun 2020 11:58 am
8) 061007.D				
PAH 40		13	1.000	10 Jun 2020 12:21 pm
9) 061008.D				
PAH 100		14	1.000	10 Jun 2020 12:54 pm
10) 061009.D				
PAH 200		15	1.000	10 Jun 2020 01:17 pm
11) 061010.D				
PAH 400		16	1.000	10 Jun 2020 01:39 pm
12) 061011.D				
PAH 750		17	1.000	10 Jun 2020 02:02 pm
13) 061012.D				
PAH 1000		18	1.000	10 Jun 2020 02:25 pm
14) 061013.D				
PAH 2000		19	1.000	10 Jun 2020 02:47 pm
15) 061014.D				
PAH 5000		20	1.000	10 Jun 2020 03:10 pm
16) 061015.D				
PAH ICB		21	1.000	10 Jun 2020 03:33 pm
17) 061016.D				
PAH ICV		22	1.000	10 Jun 2020 03:55 pm
18) 061017.D				
PAH ICB		21	1.000	10 Jun 2020 04:18 pm
19) 061018.D				
CCV-28595		2	1.000	10 Jun 2020 04:41 pm
20) 061019.D				
MB-28595		76	1.000	10 Jun 2020 05:04 pm
21) 061020.D				
LCS-28595		77	1.000	10 Jun 2020 05:26 pm

22) 061021.D
2006123-010A 82 1.000 10 Jun 2020 05:49 pm
---
23) 061022.D
2006123-018A 90 1.000 10 Jun 2020 06:12 pm
---
24) 061023.D
2006123-001A 97 1.000 10 Jun 2020 06:34 pm
---
25) 061024.D
2006123-003A 78 1.000 10 Jun 2020 06:57 pm
---
26) 061025.D
2006123-006A 79 1.000 10 Jun 2020 07:20 pm
---
27) 061026.D
2006123-008A 80 1.000 10 Jun 2020 10:28 pm
---
28) 061027.D
2006123-009A 81 1.000 10 Jun 2020 10:51 pm
---
29) 061028.D
2006123-011A 83 1.000 10 Jun 2020 11:13 pm
---
30) 061029.D
2006123-012A 84 1.000 10 Jun 2020 11:36 pm
---
31) 061030.D
2006123-013A 85 1.000 10 Jun 2020 11:58 pm
---
32) 061031.D
2006123-014A 86 1.000 11 Jun 2020 12:20 am
---
33) 061032.D
2006123-015A 87 1.000 11 Jun 2020 12:43 am
---
34) 061033.D
2006123-016A 88 1.000 11 Jun 2020 01:05 am
---
35) 061034.D
2006123-017A 89 1.000 11 Jun 2020 01:27 am
---
36) 061035.D
2006085-017A 91 1.000 11 Jun 2020 01:50 am
---
37) 061036.D
2006085-018A 92 1.000 11 Jun 2020 02:12 am
---
38) 061037.D
2006123-002A 93 1.000 11 Jun 2020 02:34 am
---
39) 061038.D
2006123-002ADUP 94 1.000 11 Jun 2020 02:57 am
---
40) 061039.D
2006123-002AMS 95 1.000 11 Jun 2020 03:19 am
---
41) 061040.D
2006123-002AMSD 96 1.000 11 Jun 2020 03:42 am
---
42) 061041.D
2005309-017A 98 1.000 11 Jun 2020 04:04 am
---
43) 061042.D
2005309-022A 99 1.000 11 Jun 2020 04:26 am
---
44) 061043.D
MB-28595 76 1.000 11 Jun 2020 04:49 am
---
45) 061044.D

```
2006123-010A                                 82    1.000     11 Jun 2020  05:11 am
  ---------------------------------------------------------------------------------
46) 061045.D
2006123-018A                                 90    1.000     11 Jun 2020  05:33 am
  ---------------------------------------------------------------------------------
47) 061047.D
QCS-28595                                     2    1.000     11 Jun 2020  05:56 am
  ---------------------------------------------------------------------------------
48) 061048.D
TUNE                                          1    1.000     11 Jun 2020  06:18 am
  ---------------------------------------------------------------------------------
49) 061049.D
CCV-EXT-28585                                 3    1.000     11 Jun 2020  06:40 am
  ---------------------------------------------------------------------------------
```

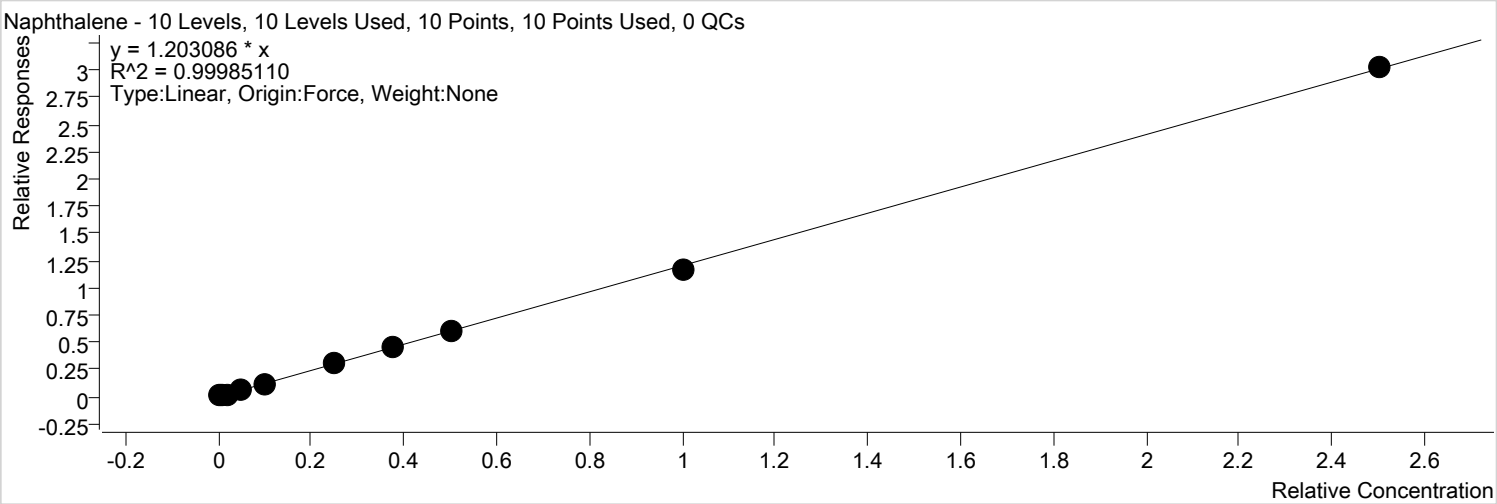
Calibration

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:37 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

Naphthalene



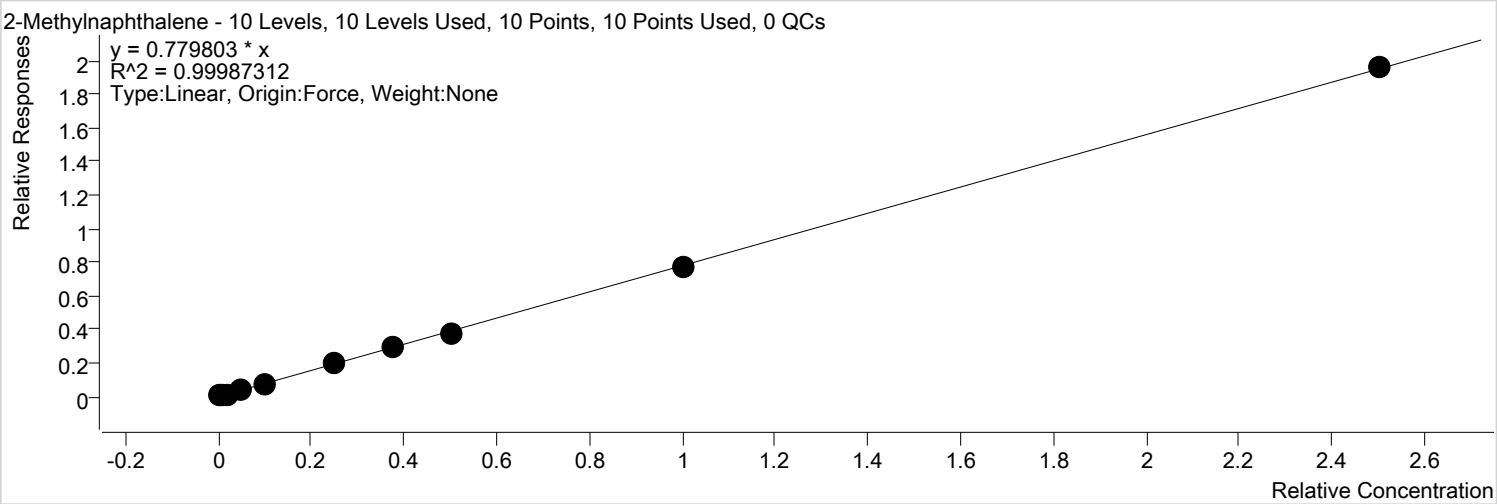
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	625	10.0000	1.5443
D:\GC-21\Data\060320\060332.D	Calibration	2	x	1108	20.0000	1.4010
D:\GC-21\Data\060320\060333.D	Calibration	3	x	2055	40.0000	1.2291
D:\GC-21\Data\060320\060334.D	Calibration	4	x	4916	100.0000	1.2198
D:\GC-21\Data\060320\060335.D	Calibration	5	x	10067	200.0000	1.2453
D:\GC-21\Data\060320\060336.D	Calibration	6	x	24980	500.0000	1.2121
D:\GC-21\Data\060320\060337.D	Calibration	7	x	36967	750.0000	1.1872
D:\GC-21\Data\060320\060338.D	Calibration	8	x	52707	1000.0000	1.2188
D:\GC-21\Data\060320\060339.D	Calibration	9	x	100421	2000.0000	1.1728
D:\GC-21\Data\060320\060340.D	Calibration	10	x	253311	5000.0000	1.2075

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

2-Methylnaphthalene



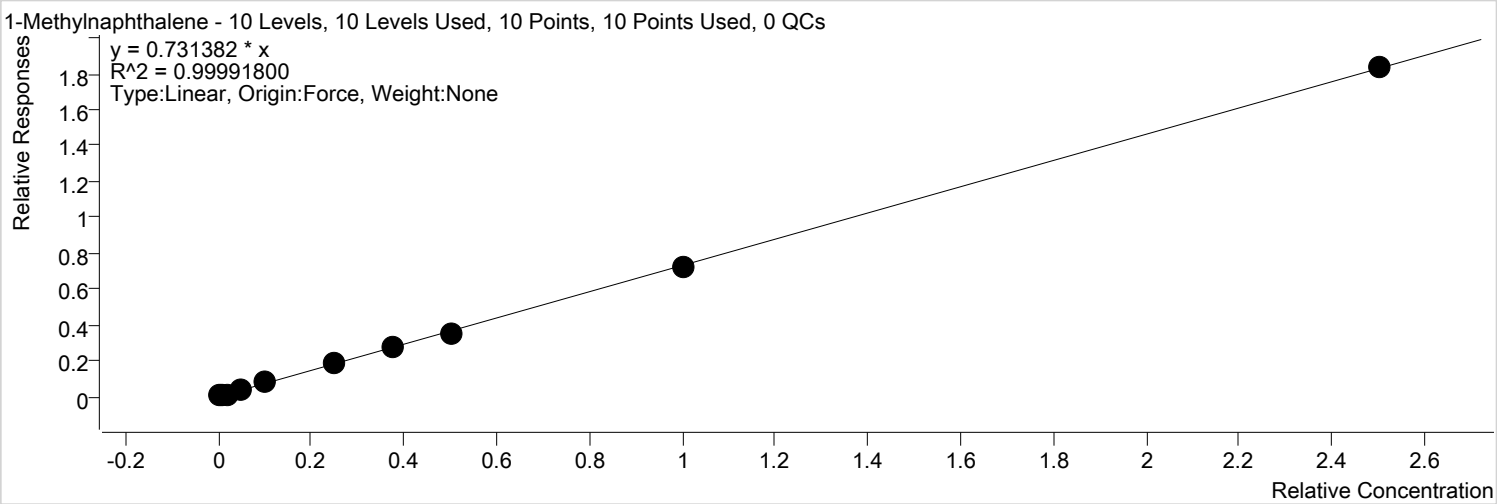
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	406	10.0000	1.0028
D:\GC-21\Data\060320\060332.D	Calibration	2	x	734	20.0000	0.9277
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1352	40.0000	0.8087
D:\GC-21\Data\060320\060334.D	Calibration	4	x	3211	100.0000	0.7966
D:\GC-21\Data\060320\060335.D	Calibration	5	x	6596	200.0000	0.8159
D:\GC-21\Data\060320\060336.D	Calibration	6	x	16410	500.0000	0.7962
D:\GC-21\Data\060320\060337.D	Calibration	7	x	24234	750.0000	0.7783
D:\GC-21\Data\060320\060338.D	Calibration	8	x	32844	1000.0000	0.7595
D:\GC-21\Data\060320\060339.D	Calibration	9	x	65489	2000.0000	0.7649
D:\GC-21\Data\060320\060340.D	Calibration	10	x	164220	5000.0000	0.7828

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

1-Methylnaphthalene

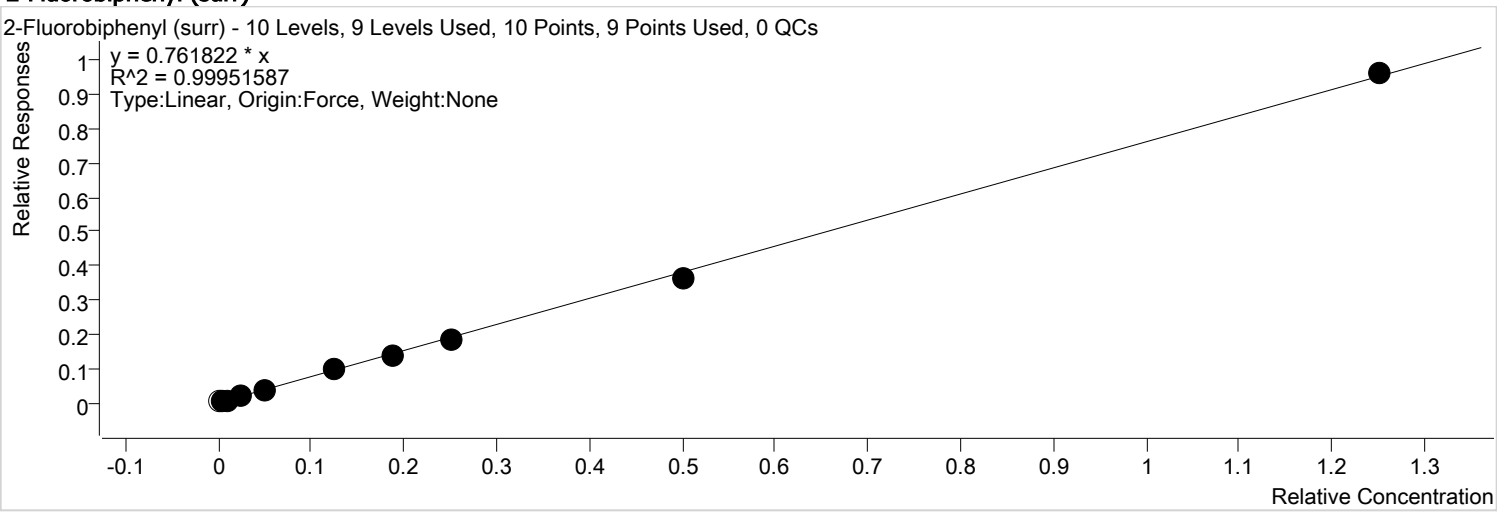


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	388	10.0000	0.9579
D:\GC-21\Data\060320\060332.D	Calibration	2	x	704	20.0000	0.8901
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1290	40.0000	0.7714
D:\GC-21\Data\060320\060334.D	Calibration	4	x	3048	100.0000	0.7564
D:\GC-21\Data\060320\060335.D	Calibration	5	x	6293	200.0000	0.7784
D:\GC-21\Data\060320\060336.D	Calibration	6	x	15532	500.0000	0.7536
D:\GC-21\Data\060320\060337.D	Calibration	7	x	22968	750.0000	0.7376
D:\GC-21\Data\060320\060338.D	Calibration	8	x	31053	1000.0000	0.7181
D:\GC-21\Data\060320\060339.D	Calibration	9	x	61729	2000.0000	0.7209
D:\GC-21\Data\060320\060340.D	Calibration	10	x	153799	5000.0000	0.7331

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

2-Fluorobiphenyl (surr)



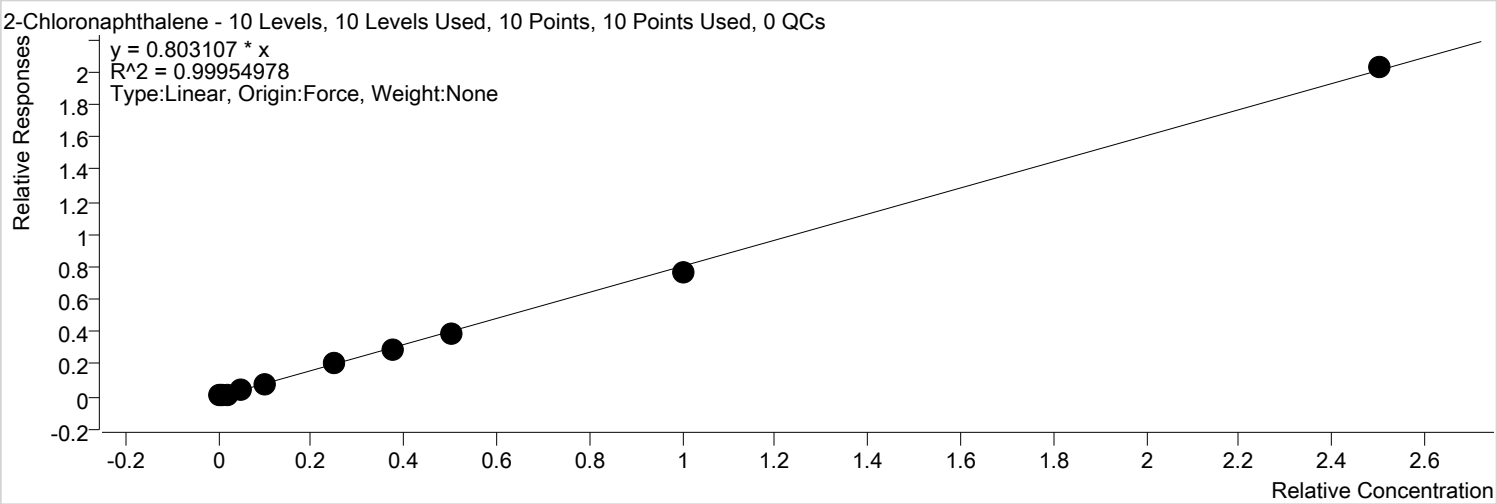
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1		199	5.0000	0.9837
D:\GC-21\Data\060320\060332.D	Calibration	2	x	356	10.0000	0.9005
D:\GC-21\Data\060320\060333.D	Calibration	3	x	658	20.0000	0.7874
D:\GC-21\Data\060320\060334.D	Calibration	4	x	1558	50.0000	0.7734
D:\GC-21\Data\060320\060335.D	Calibration	5	x	3189	100.0000	0.7891
D:\GC-21\Data\060320\060336.D	Calibration	6	x	7819	250.0000	0.7588
D:\GC-21\Data\060320\060337.D	Calibration	7	x	11578	375.0000	0.7437
D:\GC-21\Data\060320\060338.D	Calibration	8	x	15647	500.0000	0.7236
D:\GC-21\Data\060320\060339.D	Calibration	9	x	31416	1000.0000	0.7338
D:\GC-21\Data\060320\060340.D	Calibration	10	x	80580	2500.0000	0.7682

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

2-Chloronaphthalene



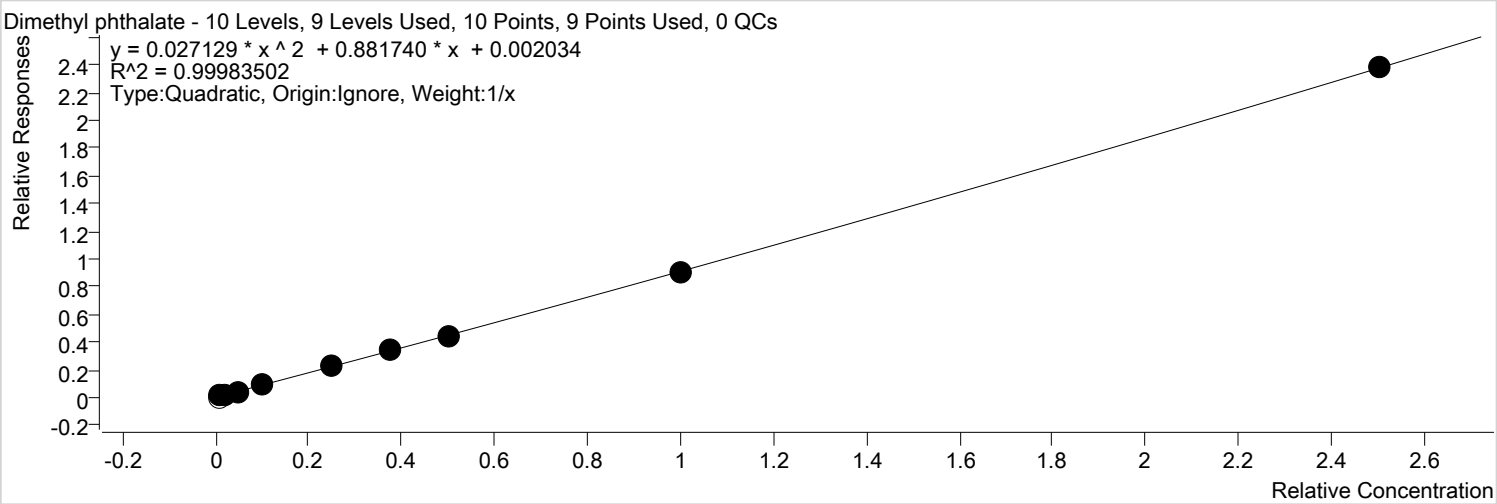
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	414	10.0000	1.0228
D:\GC-21\Data\060320\060332.D	Calibration	2	x	744	20.0000	0.9405
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1376	40.0000	0.8230
D:\GC-21\Data\060320\060334.D	Calibration	4	x	3261	100.0000	0.8091
D:\GC-21\Data\060320\060335.D	Calibration	5	x	6702	200.0000	0.8291
D:\GC-21\Data\060320\060336.D	Calibration	6	x	16506	500.0000	0.8009
D:\GC-21\Data\060320\060337.D	Calibration	7	x	24524	750.0000	0.7876
D:\GC-21\Data\060320\060338.D	Calibration	8	x	33036	1000.0000	0.7639
D:\GC-21\Data\060320\060339.D	Calibration	9	x	66227	2000.0000	0.7735
D:\GC-21\Data\060320\060340.D	Calibration	10	x	169870	5000.0000	0.8097

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

Dimethyl phthalate



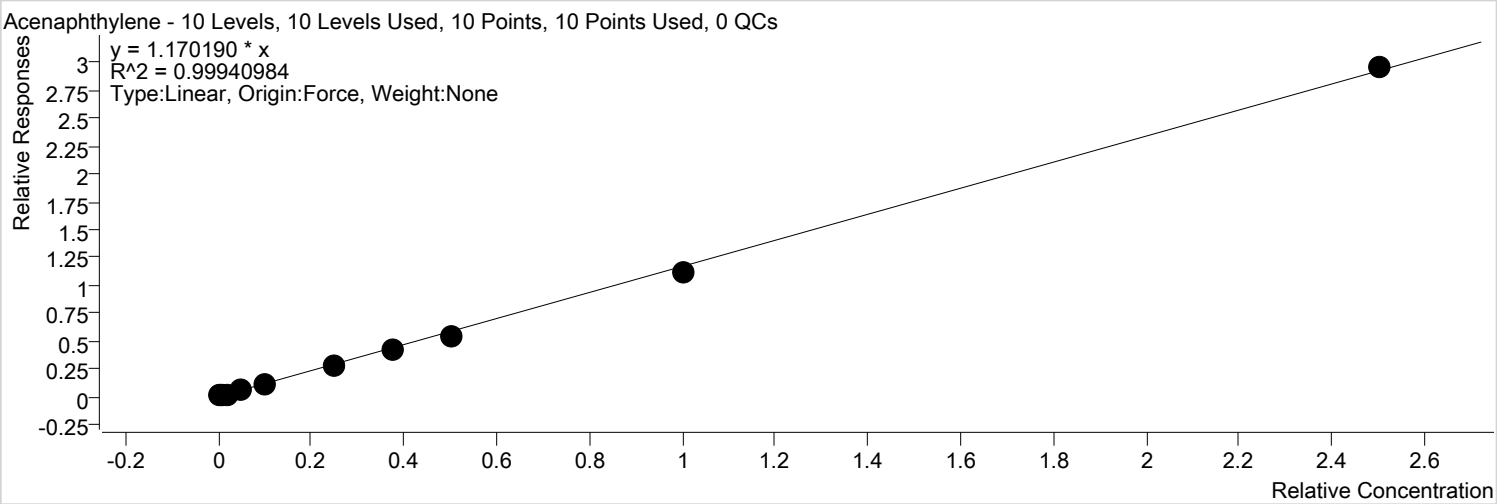
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1		481	10.0000	1.1896
D:\GC-21\Data\060320\060332.D	Calibration	2	x	860	20.0000	1.0867
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1562	40.0000	0.9343
D:\GC-21\Data\060320\060334.D	Calibration	4	x	3705	100.0000	0.9194
D:\GC-21\Data\060320\060335.D	Calibration	5	x	7655	200.0000	0.9470
D:\GC-21\Data\060320\060336.D	Calibration	6	x	19014	500.0000	0.9226
D:\GC-21\Data\060320\060337.D	Calibration	7	x	28179	750.0000	0.9049
D:\GC-21\Data\060320\060338.D	Calibration	8	x	38134	1000.0000	0.8818
D:\GC-21\Data\060320\060339.D	Calibration	9	x	77408	2000.0000	0.9041
D:\GC-21\Data\060320\060340.D	Calibration	10	x	199647	5000.0000	0.9517

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

Acenaphthylene

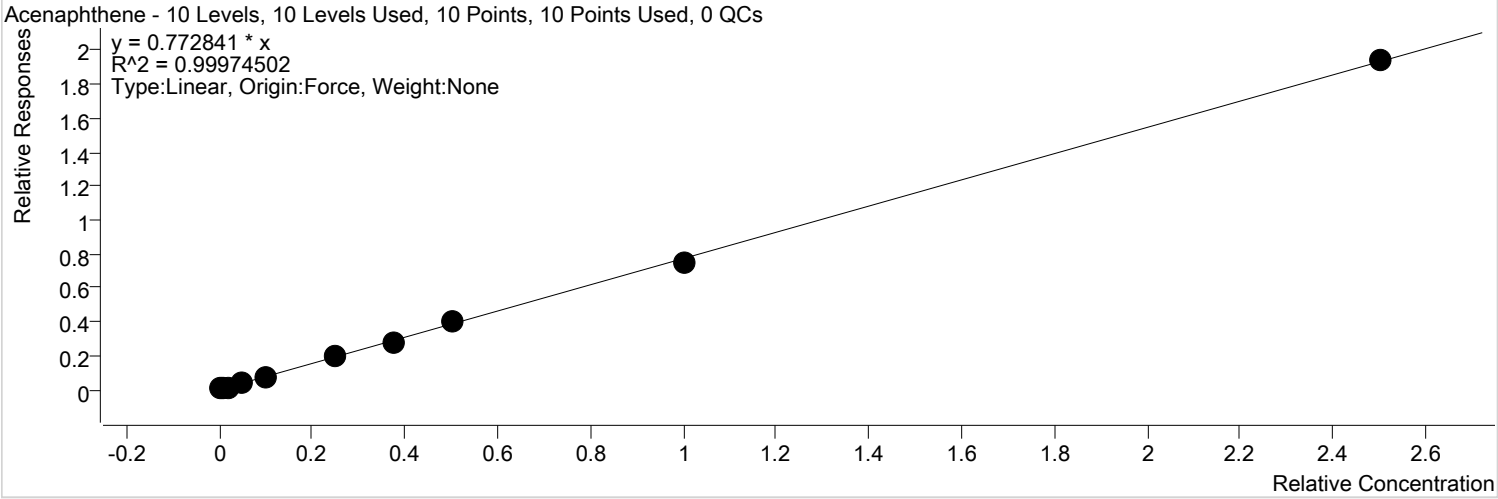


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	600	10.0000	1.4821
D:\GC-21\Data\060320\060332.D	Calibration	2	x	1057	20.0000	1.3356
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1942	40.0000	1.1614
D:\GC-21\Data\060320\060334.D	Calibration	4	x	4563	100.0000	1.1322
D:\GC-21\Data\060320\060335.D	Calibration	5	x	9438	200.0000	1.1675
D:\GC-21\Data\060320\060336.D	Calibration	6	x	23633	500.0000	1.1467
D:\GC-21\Data\060320\060337.D	Calibration	7	x	35388	750.0000	1.1365
D:\GC-21\Data\060320\060338.D	Calibration	8	x	47370	1000.0000	1.0954
D:\GC-21\Data\060320\060339.D	Calibration	9	x	96338	2000.0000	1.1251
D:\GC-21\Data\060320\060340.D	Calibration	10	x	247838	5000.0000	1.1814

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

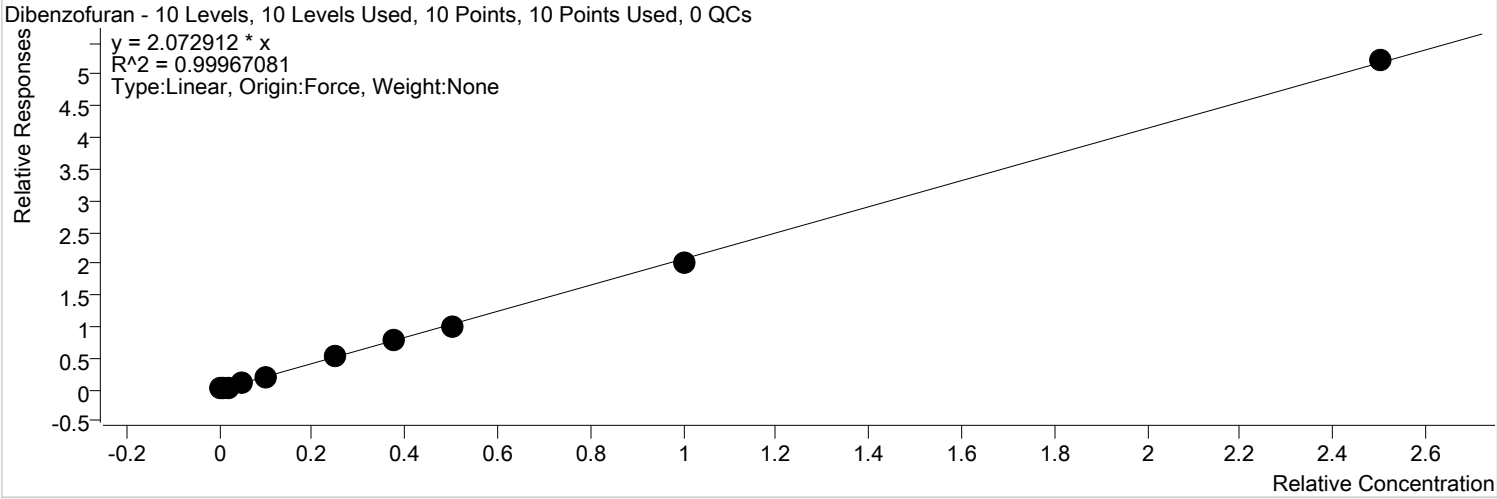
Acenaphthene



Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	398	10.0000	0.9830
D:\GC-21\Data\060320\060332.D	Calibration	2	x	722	20.0000	0.9125
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1322	40.0000	0.7906
D:\GC-21\Data\060320\060334.D	Calibration	4	x	3141	100.0000	0.7794
D:\GC-21\Data\060320\060335.D	Calibration	5	x	6444	200.0000	0.7971
D:\GC-21\Data\060320\060336.D	Calibration	6	x	15845	500.0000	0.7688
D:\GC-21\Data\060320\060337.D	Calibration	7	x	23455	750.0000	0.7532
D:\GC-21\Data\060320\060338.D	Calibration	8	x	34919	1000.0000	0.8075
D:\GC-21\Data\060320\060339.D	Calibration	9	x	64409	2000.0000	0.7522
D:\GC-21\Data\060320\060340.D	Calibration	10	x	162622	5000.0000	0.7752

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

Dibenzofuran

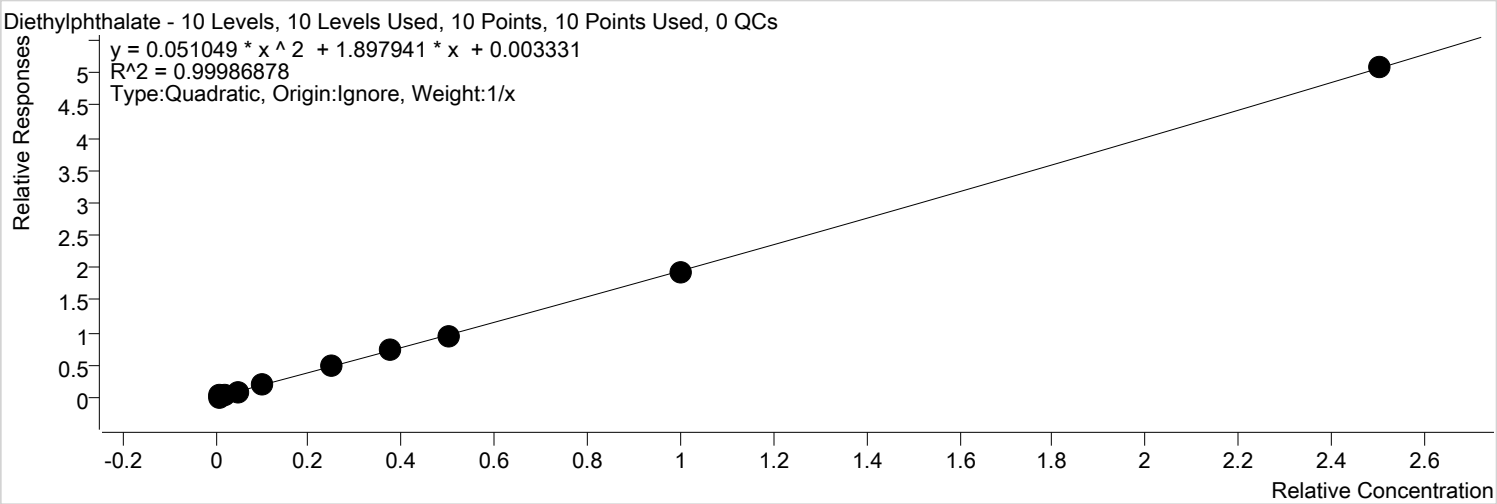


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	548	10.0000	2.6993
D:\GC-21\Data\060320\060332.D	Calibration	2	x	995	20.0000	2.5431
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1800	40.0000	2.1419
D:\GC-21\Data\060320\060334.D	Calibration	4	x	4255	100.0000	2.1250
D:\GC-21\Data\060320\060335.D	Calibration	5	x	8699	200.0000	2.1493
D:\GC-21\Data\060320\060336.D	Calibration	6	x	21606	500.0000	2.1039
D:\GC-21\Data\060320\060337.D	Calibration	7	x	32031	750.0000	2.0712
D:\GC-21\Data\060320\060338.D	Calibration	8	x	43294	1000.0000	2.0282
D:\GC-21\Data\060320\060339.D	Calibration	9	x	86556	2000.0000	1.9964
D:\GC-21\Data\060320\060340.D	Calibration	10	x	220001	5000.0000	2.0865

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

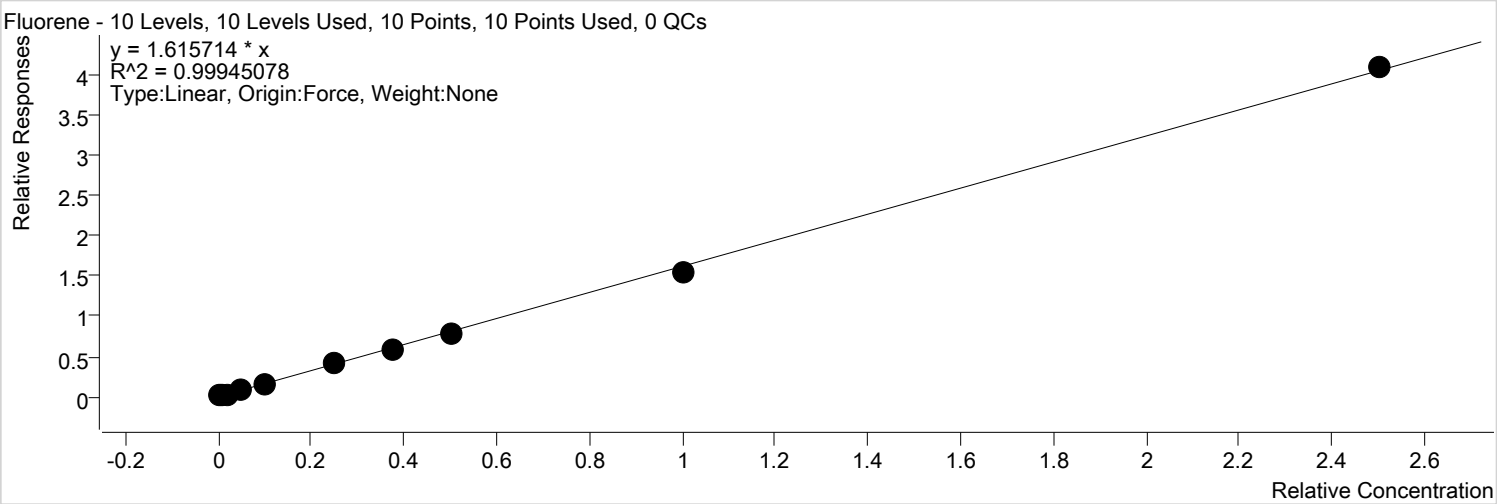
Diethylphthalate



Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	511	10.0000	2.5156
D:\GC-21\Data\060320\060332.D	Calibration	2	x	890	20.0000	2.2754
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1663	40.0000	1.9790
D:\GC-21\Data\060320\060334.D	Calibration	4	x	3919	100.0000	1.9568
D:\GC-21\Data\060320\060335.D	Calibration	5	x	8116	200.0000	2.0053
D:\GC-21\Data\060320\060336.D	Calibration	6	x	20292	500.0000	1.9760
D:\GC-21\Data\060320\060337.D	Calibration	7	x	30054	750.0000	1.9433
D:\GC-21\Data\060320\060338.D	Calibration	8	x	40930	1000.0000	1.9175
D:\GC-21\Data\060320\060339.D	Calibration	9	x	83433	2000.0000	1.9244
D:\GC-21\Data\060320\060340.D	Calibration	10	x	214133	5000.0000	2.0309

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

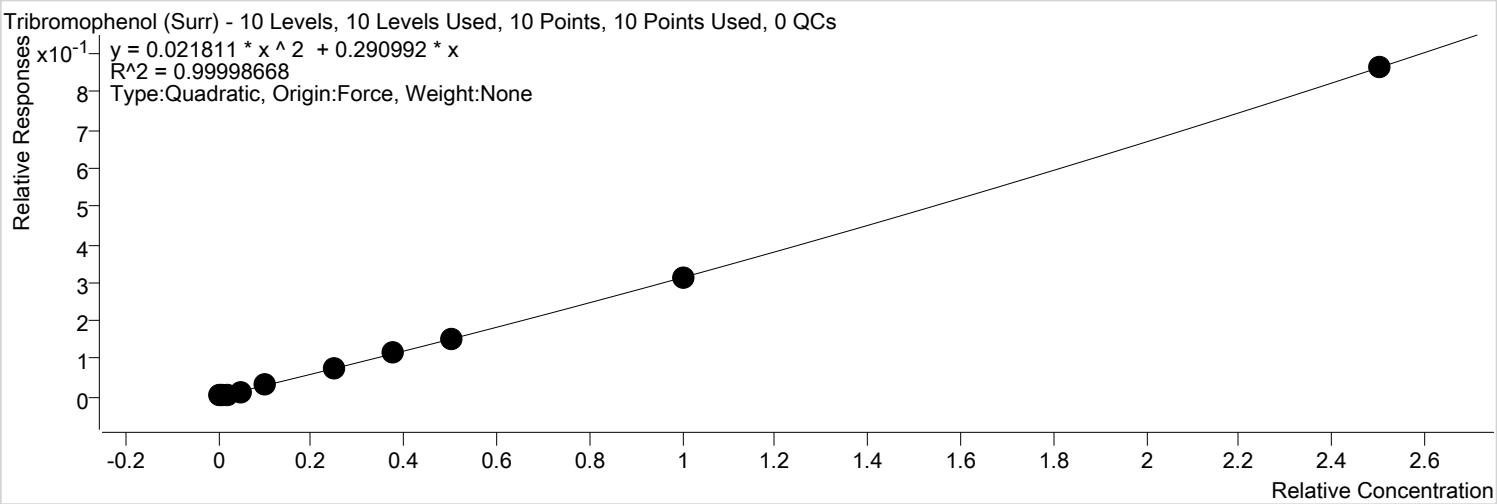
Fluorene



Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	413	10.0000	2.0351
D:\GC-21\Data\060320\060332.D	Calibration	2	x	746	20.0000	1.9084
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1347	40.0000	1.6031
D:\GC-21\Data\060320\060334.D	Calibration	4	x	3245	100.0000	1.6205
D:\GC-21\Data\060320\060335.D	Calibration	5	x	6666	200.0000	1.6472
D:\GC-21\Data\060320\060336.D	Calibration	6	x	16557	500.0000	1.6123
D:\GC-21\Data\060320\060337.D	Calibration	7	x	24632	750.0000	1.5928
D:\GC-21\Data\060320\060338.D	Calibration	8	x	33107	1000.0000	1.5510
D:\GC-21\Data\060320\060339.D	Calibration	9	x	66893	2000.0000	1.5429
D:\GC-21\Data\060320\060340.D	Calibration	10	x	171914	5000.0000	1.6305

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

Tribromophenol (Surr)



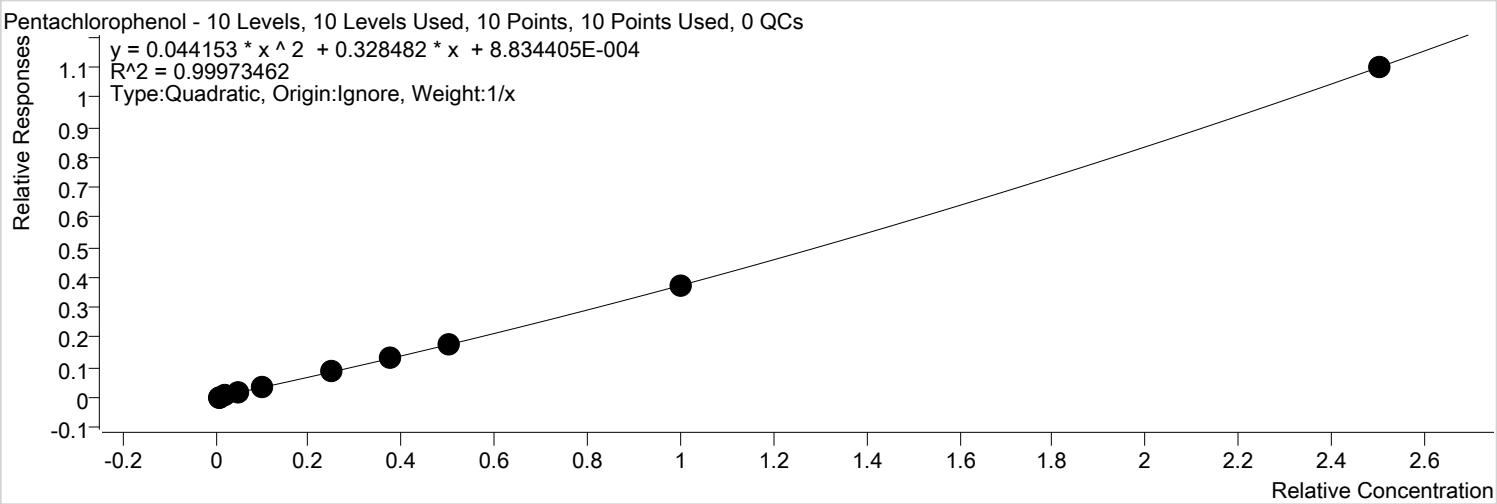
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	77	10.0000	0.3811
D:\GC-21\Data\060320\060332.D	Calibration	2	x	132	20.0000	0.3384
D:\GC-21\Data\060320\060333.D	Calibration	3	x	247	40.0000	0.2939
D:\GC-21\Data\060320\060334.D	Calibration	4	x	589	100.0000	0.2941
D:\GC-21\Data\060320\060335.D	Calibration	5	x	1207	200.0000	0.2983
D:\GC-21\Data\060320\060336.D	Calibration	6	x	3109	500.0000	0.3028
D:\GC-21\Data\060320\060337.D	Calibration	7	x	4691	750.0000	0.3033
D:\GC-21\Data\060320\060338.D	Calibration	8	x	6454	1000.0000	0.3023
D:\GC-21\Data\060320\060339.D	Calibration	9	x	13490	2000.0000	0.3111
D:\GC-21\Data\060320\060340.D	Calibration	10	x	36440	5000.0000	0.3456

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

Pentachlorophenol

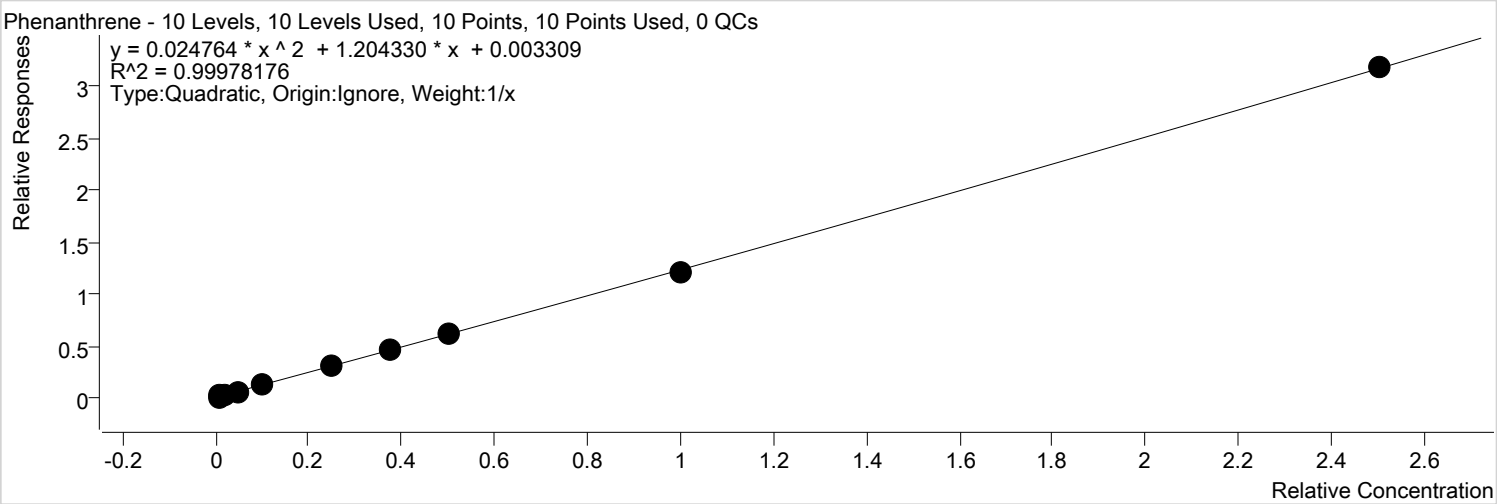


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	125	10.0000	0.6161
D:\GC-21\Data\060320\060332.D	Calibration	2	x	154	20.0000	0.3948
D:\GC-21\Data\060320\060333.D	Calibration	3	x	264	40.0000	0.3137
D:\GC-21\Data\060320\060334.D	Calibration	4	x	638	100.0000	0.3187
D:\GC-21\Data\060320\060335.D	Calibration	5	x	1355	200.0000	0.3347
D:\GC-21\Data\060320\060336.D	Calibration	6	x	3559	500.0000	0.3466
D:\GC-21\Data\060320\060337.D	Calibration	7	x	5420	750.0000	0.3505
D:\GC-21\Data\060320\060338.D	Calibration	8	x	7524	1000.0000	0.3525
D:\GC-21\Data\060320\060339.D	Calibration	9	x	16276	2000.0000	0.3754
D:\GC-21\Data\060320\060340.D	Calibration	10	x	46270	5000.0000	0.4388

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

Phenanthrene

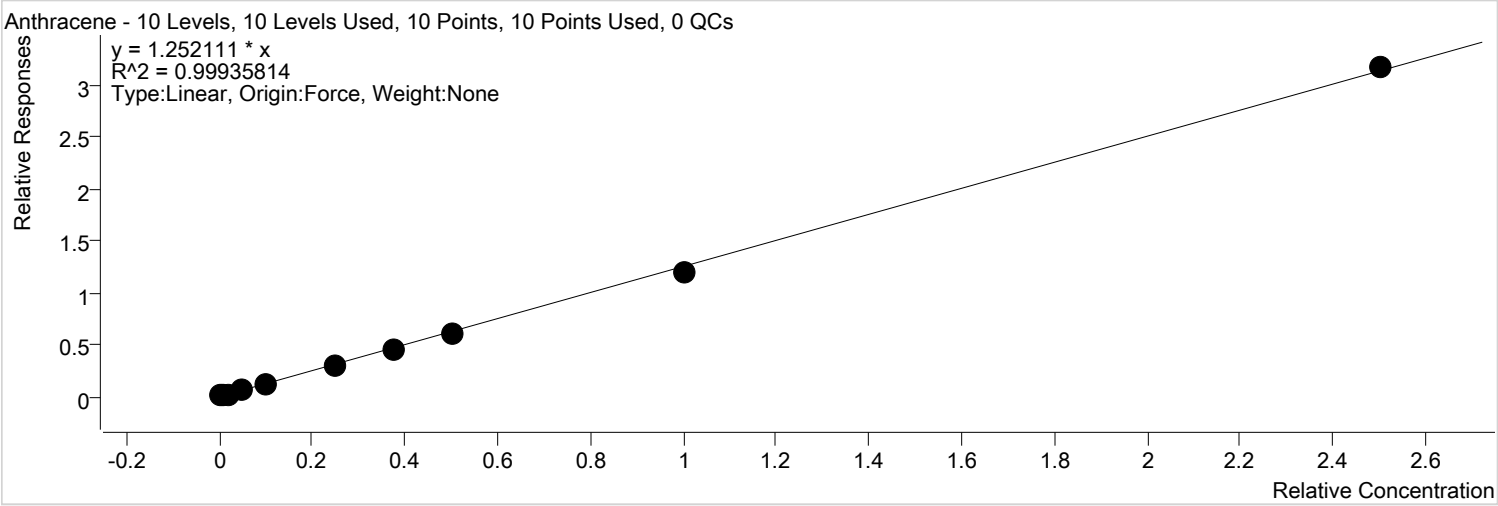


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	643	10.0000	1.7866
D:\GC-21\Data\060320\060332.D	Calibration	2	x	1104	20.0000	1.5983
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1964	40.0000	1.3126
D:\GC-21\Data\060320\060334.D	Calibration	4	x	4515	100.0000	1.2679
D:\GC-21\Data\060320\060335.D	Calibration	5	x	9260	200.0000	1.2966
D:\GC-21\Data\060320\060336.D	Calibration	6	x	23067	500.0000	1.2495
D:\GC-21\Data\060320\060337.D	Calibration	7	x	34037	750.0000	1.2435
D:\GC-21\Data\060320\060338.D	Calibration	8	x	46415	1000.0000	1.2214
D:\GC-21\Data\060320\060339.D	Calibration	9	x	94128	2000.0000	1.2056
D:\GC-21\Data\060320\060340.D	Calibration	10	x	243362	5000.0000	1.2711

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

Anthracene

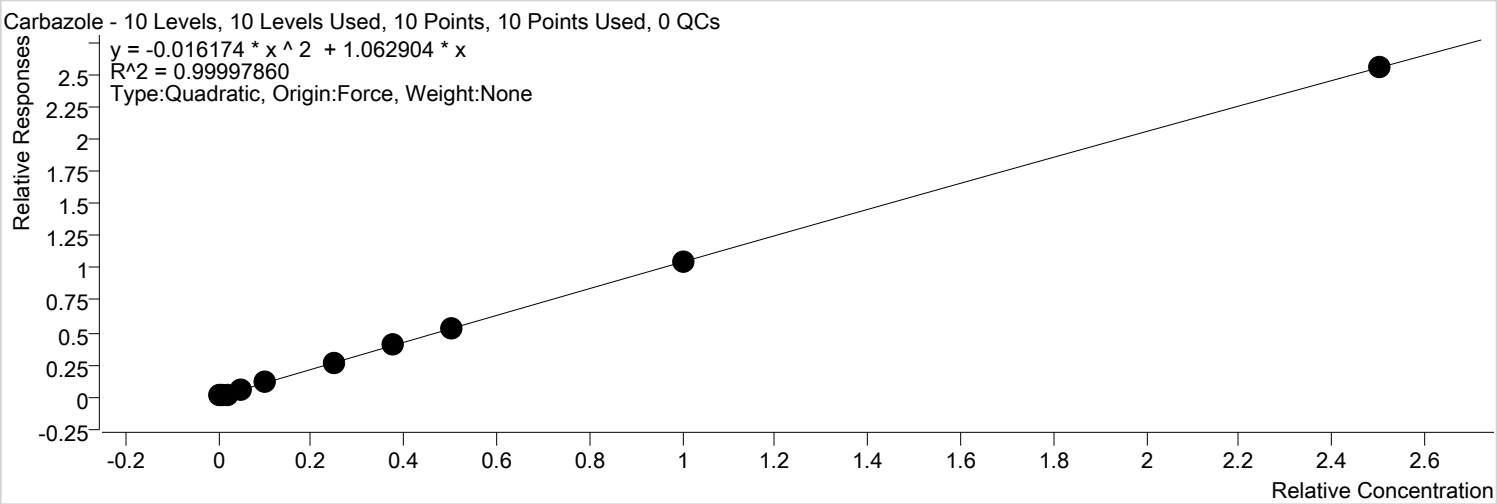


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	558	10.0000	1.5514
D:\GC-21\Data\060320\060332.D	Calibration	2	x	1002	20.0000	1.4501
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1871	40.0000	1.2501
D:\GC-21\Data\060320\060334.D	Calibration	4	x	4355	100.0000	1.2230
D:\GC-21\Data\060320\060335.D	Calibration	5	x	9046	200.0000	1.2666
D:\GC-21\Data\060320\060336.D	Calibration	6	x	22590	500.0000	1.2236
D:\GC-21\Data\060320\060337.D	Calibration	7	x	33791	750.0000	1.2345
D:\GC-21\Data\060320\060338.D	Calibration	8	x	45521	1000.0000	1.1979
D:\GC-21\Data\060320\060339.D	Calibration	9	x	93028	2000.0000	1.1915
D:\GC-21\Data\060320\060340.D	Calibration	10	x	242123	5000.0000	1.2646

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

Carbazole



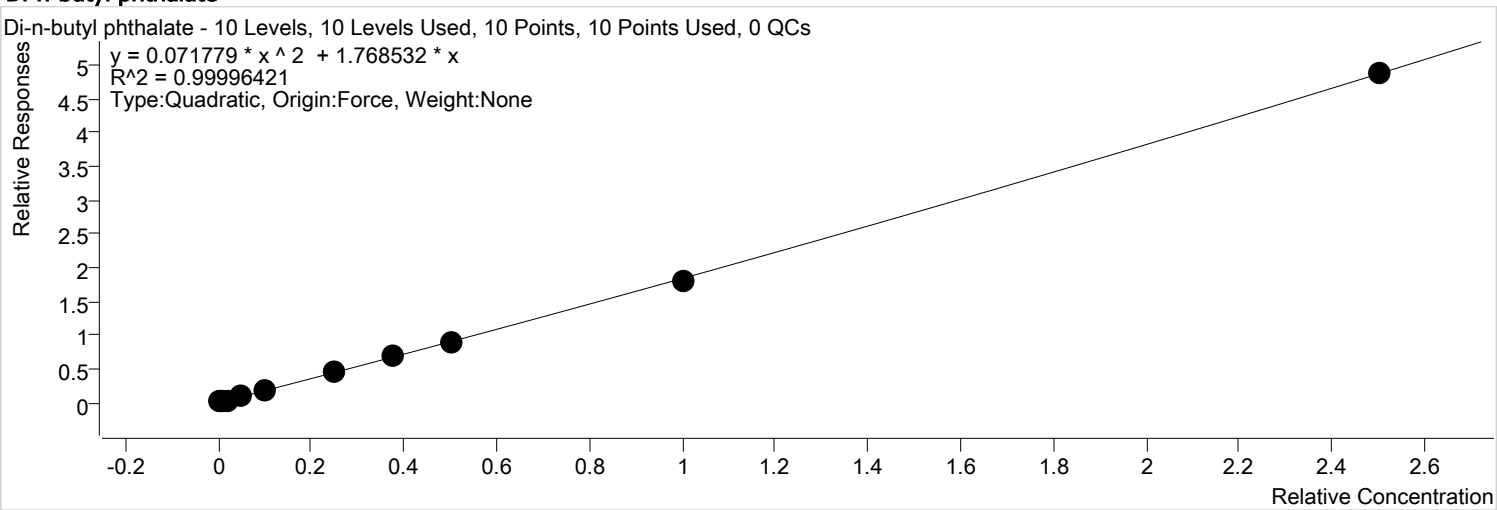
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	504	10.0000	1.4017
D:\GC-21\Data\060320\060332.D	Calibration	2	x	896	20.0000	1.2963
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1589	40.0000	1.0618
D:\GC-21\Data\060320\060334.D	Calibration	4	x	3749	100.0000	1.0528
D:\GC-21\Data\060320\060335.D	Calibration	5	x	7751	200.0000	1.0854
D:\GC-21\Data\060320\060336.D	Calibration	6	x	19738	500.0000	1.0692
D:\GC-21\Data\060320\060337.D	Calibration	7	x	29556	750.0000	1.0798
D:\GC-21\Data\060320\060338.D	Calibration	8	x	39938	1000.0000	1.0510
D:\GC-21\Data\060320\060339.D	Calibration	9	x	81359	2000.0000	1.0421
D:\GC-21\Data\060320\060340.D	Calibration	10	x	195804	5000.0000	1.0227

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

Di-n-butyl phthalate

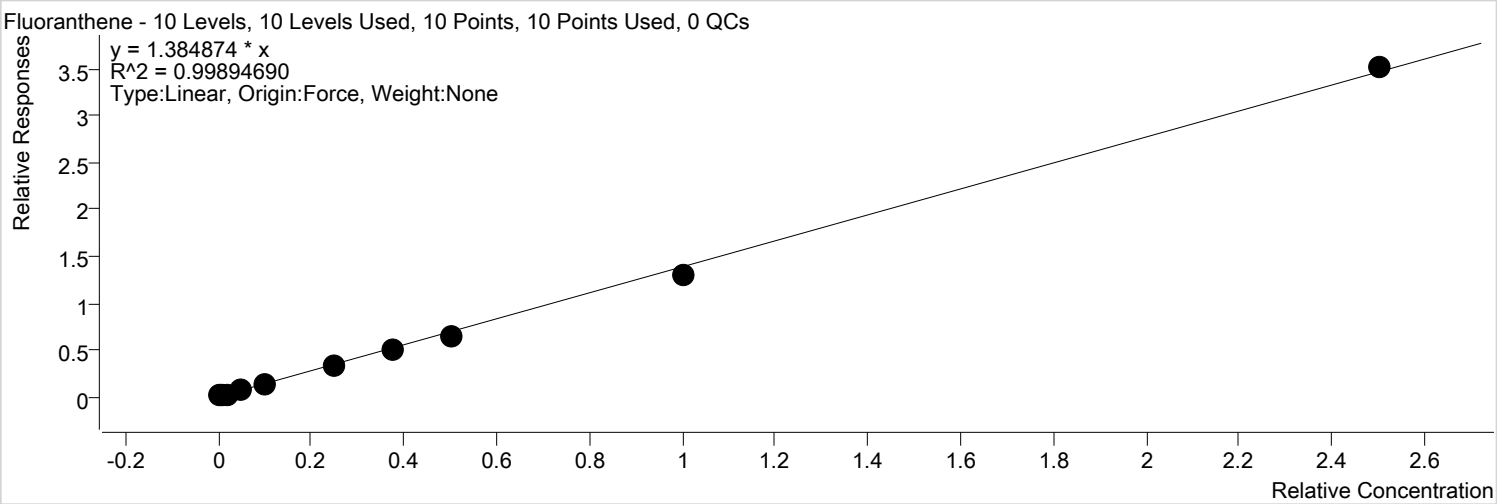


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	817	10.0000	2.2728
D:\GC-21\Data\060320\060332.D	Calibration	2	x	1434	20.0000	2.0753
D:\GC-21\Data\060320\060333.D	Calibration	3	x	2643	40.0000	1.7661
D:\GC-21\Data\060320\060334.D	Calibration	4	x	6292	100.0000	1.7670
D:\GC-21\Data\060320\060335.D	Calibration	5	x	13004	200.0000	1.8209
D:\GC-21\Data\060320\060336.D	Calibration	6	x	33568	500.0000	1.8183
D:\GC-21\Data\060320\060337.D	Calibration	7	x	50444	750.0000	1.8429
D:\GC-21\Data\060320\060338.D	Calibration	8	x	68972	1000.0000	1.8150
D:\GC-21\Data\060320\060339.D	Calibration	9	x	142375	2000.0000	1.8236
D:\GC-21\Data\060320\060340.D	Calibration	10	x	373104	5000.0000	1.9488

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

Fluoranthene



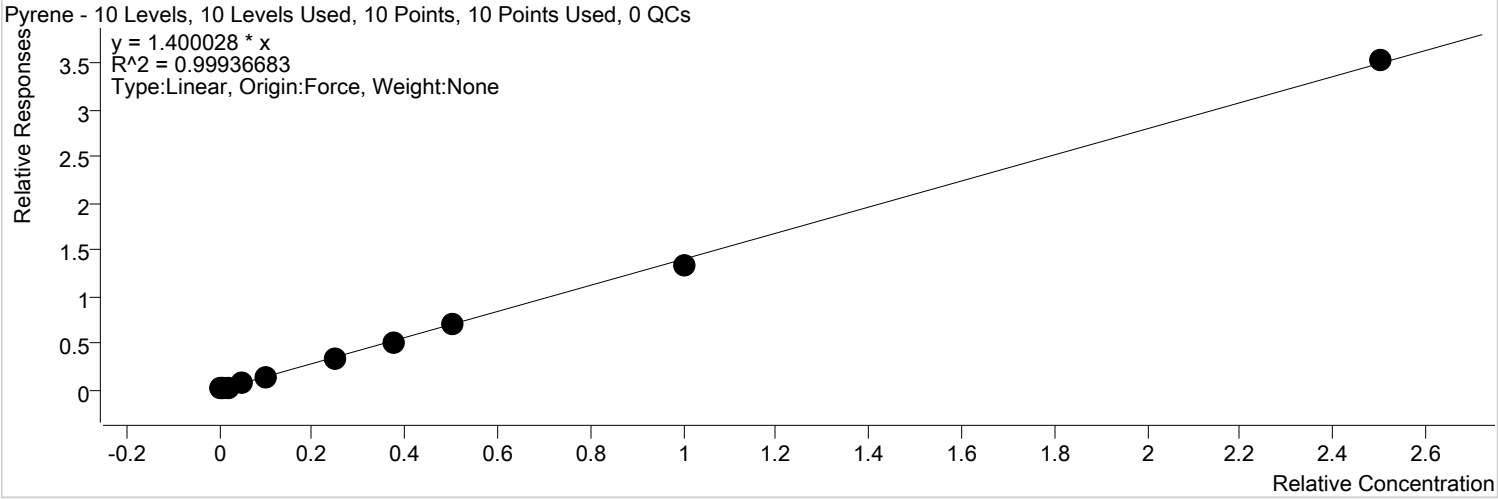
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	624	10.0000	1.7342
D:\GC-21\Data\060320\060332.D	Calibration	2	x	1093	20.0000	1.5818
D:\GC-21\Data\060320\060333.D	Calibration	3	x	2012	40.0000	1.3446
D:\GC-21\Data\060320\060334.D	Calibration	4	x	4760	100.0000	1.3368
D:\GC-21\Data\060320\060335.D	Calibration	5	x	9856	200.0000	1.3801
D:\GC-21\Data\060320\060336.D	Calibration	6	x	24856	500.0000	1.3464
D:\GC-21\Data\060320\060337.D	Calibration	7	x	36690	750.0000	1.3405
D:\GC-21\Data\060320\060338.D	Calibration	8	x	50004	1000.0000	1.3159
D:\GC-21\Data\060320\060339.D	Calibration	9	x	101377	2000.0000	1.2985
D:\GC-21\Data\060320\060340.D	Calibration	10	x	268588	5000.0000	1.4029

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

Pyrene

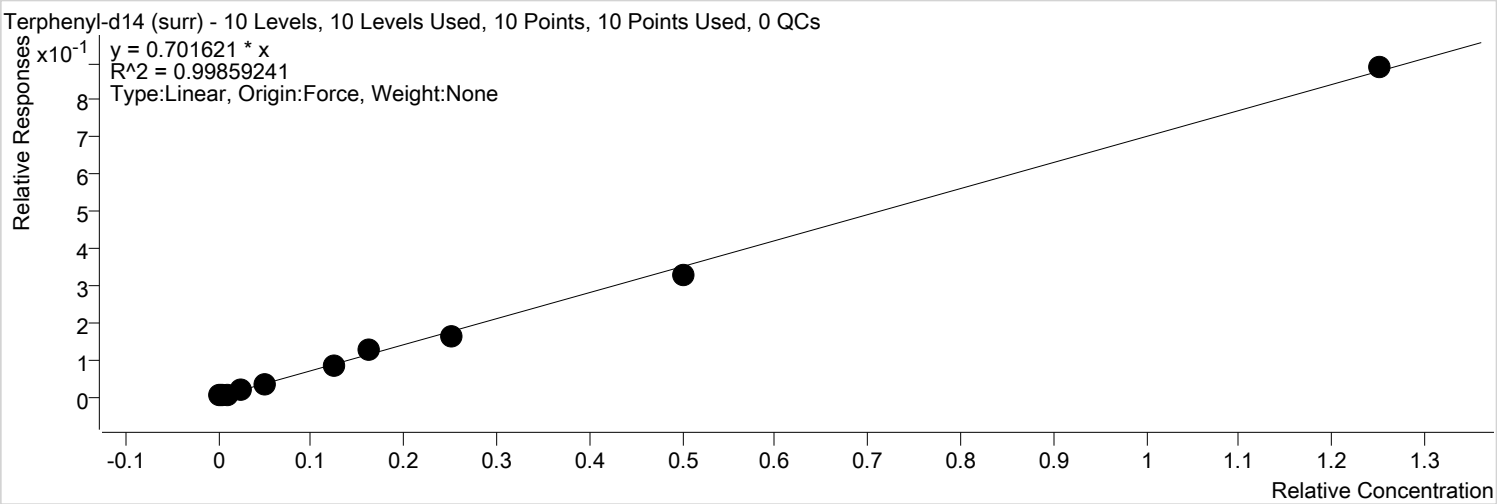


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	652	10.0000	1.8130
D:\GC-21\Data\060320\060332.D	Calibration	2	x	1123	20.0000	1.6252
D:\GC-21\Data\060320\060333.D	Calibration	3	x	2031	40.0000	1.3567
D:\GC-21\Data\060320\060334.D	Calibration	4	x	4819	100.0000	1.3533
D:\GC-21\Data\060320\060335.D	Calibration	5	x	9938	200.0000	1.3916
D:\GC-21\Data\060320\060336.D	Calibration	6	x	25105	500.0000	1.3598
D:\GC-21\Data\060320\060337.D	Calibration	7	x	37405	750.0000	1.3666
D:\GC-21\Data\060320\060338.D	Calibration	8	x	54315	1000.0000	1.4293
D:\GC-21\Data\060320\060339.D	Calibration	9	x	103570	2000.0000	1.3266
D:\GC-21\Data\060320\060340.D	Calibration	10	x	270298	5000.0000	1.4118

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

Terphenyl-d14 (surr)



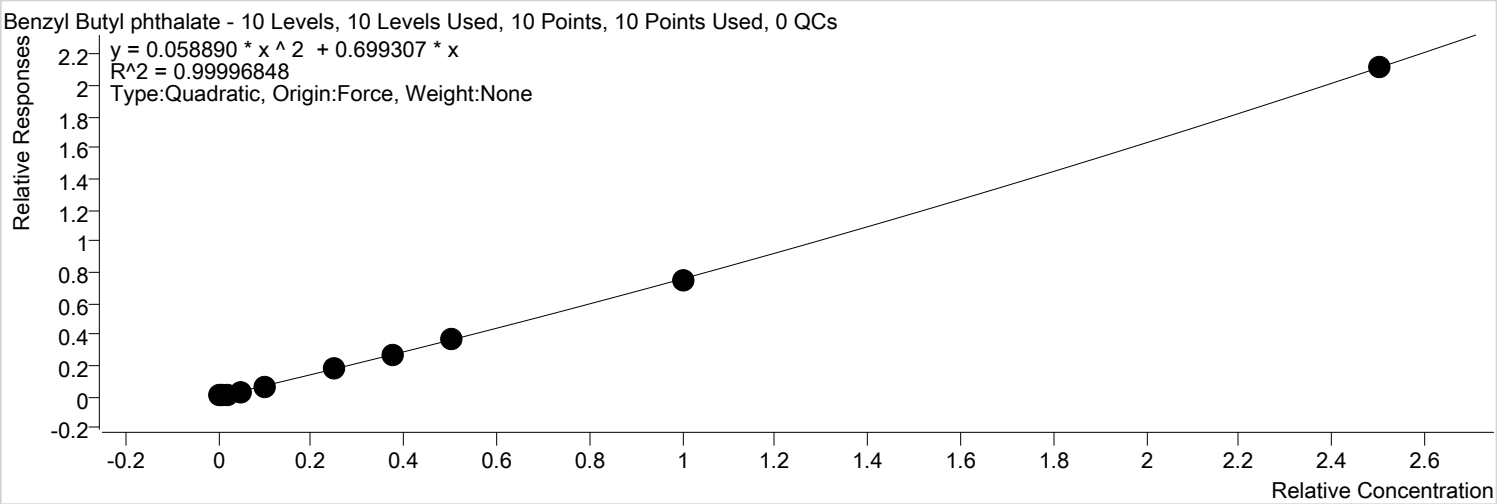
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	167	5.0000	0.9279
D:\GC-21\Data\060320\060332.D	Calibration	2	x	288	10.0000	0.8327
D:\GC-21\Data\060320\060333.D	Calibration	3	x	512	20.0000	0.6845
D:\GC-21\Data\060320\060334.D	Calibration	4	x	1220	50.0000	0.6854
D:\GC-21\Data\060320\060335.D	Calibration	5	x	2500	100.0000	0.7001
D:\GC-21\Data\060320\060336.D	Calibration	6	x	6250	250.0000	0.6771
D:\GC-21\Data\060320\060337.D	Calibration	7	x	9331	325.0000	0.7867
D:\GC-21\Data\060320\060338.D	Calibration	8	x	12636	500.0000	0.6650
D:\GC-21\Data\060320\060339.D	Calibration	9	x	25537	1000.0000	0.6542
D:\GC-21\Data\060320\060340.D	Calibration	10	x	67918	2500.0000	0.7095

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

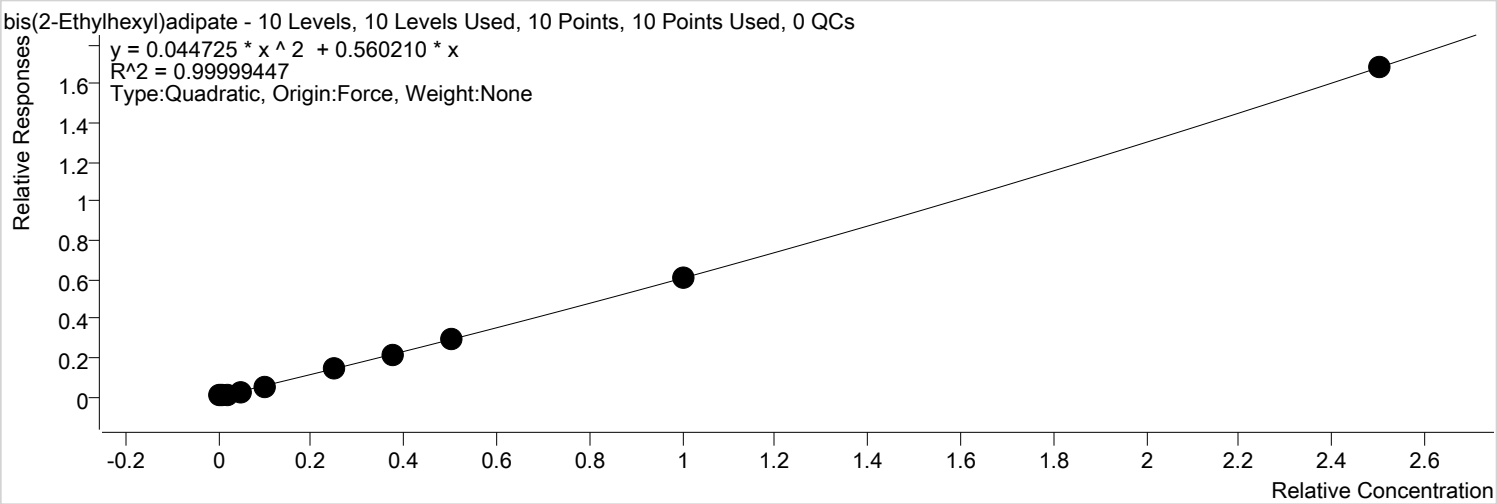
Benzyl Butyl phthalate



Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	347	10.0000	0.9643
D:\GC-21\Data\060320\060332.D	Calibration	2	x	588	20.0000	0.8515
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1027	40.0000	0.6861
D:\GC-21\Data\060320\060334.D	Calibration	4	x	2404	100.0000	0.6753
D:\GC-21\Data\060320\060335.D	Calibration	5	x	5059	200.0000	0.7084
D:\GC-21\Data\060320\060336.D	Calibration	6	x	13069	500.0000	0.7079
D:\GC-21\Data\060320\060337.D	Calibration	7	x	20254	750.0000	0.7400
D:\GC-21\Data\060320\060338.D	Calibration	8	x	28062	1000.0000	0.7385
D:\GC-21\Data\060320\060339.D	Calibration	9	x	58702	2000.0000	0.7519
D:\GC-21\Data\060320\060340.D	Calibration	10	x	162126	5000.0000	0.8468

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

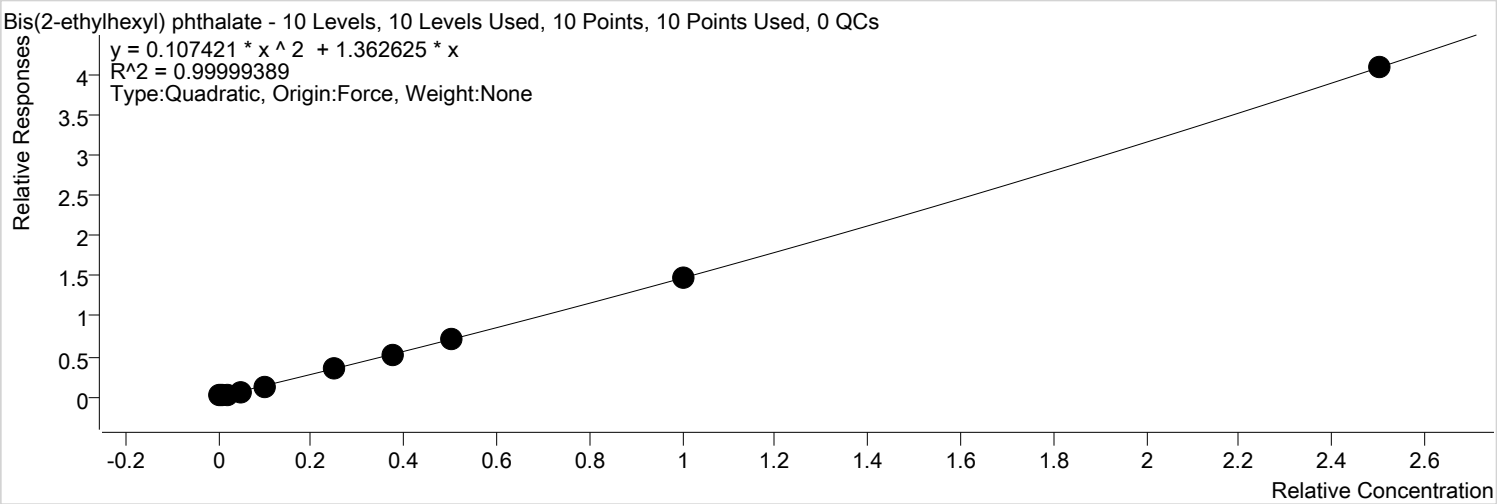
bis(2-Ethylhexyl)adipate



Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	264	10.0000	0.7338
D:\GC-21\Data\060320\060332.D	Calibration	2	x	459	20.0000	0.6639
D:\GC-21\Data\060320\060333.D	Calibration	3	x	764	40.0000	0.5107
D:\GC-21\Data\060320\060334.D	Calibration	4	x	1845	100.0000	0.5180
D:\GC-21\Data\060320\060335.D	Calibration	5	x	3936	200.0000	0.5511
D:\GC-21\Data\060320\060336.D	Calibration	6	x	10420	500.0000	0.5644
D:\GC-21\Data\060320\060337.D	Calibration	7	x	15829	750.0000	0.5783
D:\GC-21\Data\060320\060338.D	Calibration	8	x	22183	1000.0000	0.5837
D:\GC-21\Data\060320\060339.D	Calibration	9	x	47262	2000.0000	0.6053
D:\GC-21\Data\060320\060340.D	Calibration	10	x	128657	5000.0000	0.6720

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

Bis(2-ethylhexyl) phthalate



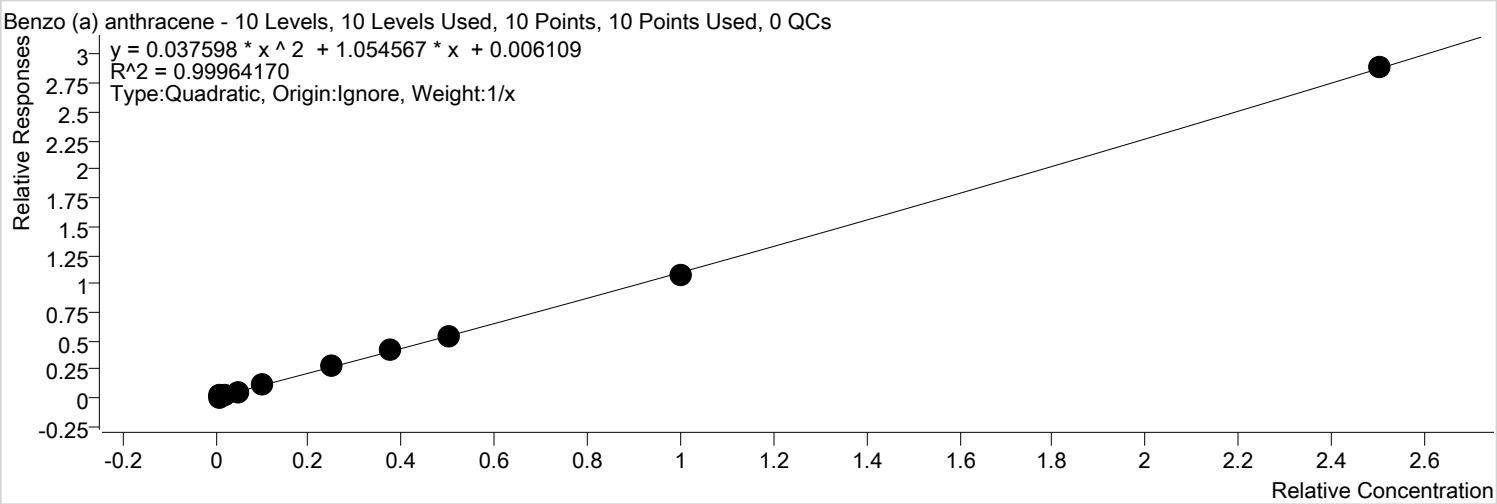
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	408	10.0000	1.4984
D:\GC-21\Data\060320\060332.D	Calibration	2	x	734	20.0000	1.4285
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1377	40.0000	1.2256
D:\GC-21\Data\060320\060334.D	Calibration	4	x	3385	100.0000	1.2682
D:\GC-21\Data\060320\060335.D	Calibration	5	x	7310	200.0000	1.3464
D:\GC-21\Data\060320\060336.D	Calibration	6	x	19337	500.0000	1.3711
D:\GC-21\Data\060320\060337.D	Calibration	7	x	29678	750.0000	1.4107
D:\GC-21\Data\060320\060338.D	Calibration	8	x	41574	1000.0000	1.4240
D:\GC-21\Data\060320\060339.D	Calibration	9	x	87241	2000.0000	1.4686
D:\GC-21\Data\060320\060340.D	Calibration	10	x	235986	5000.0000	1.6312

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

Benzo (a) anthracene



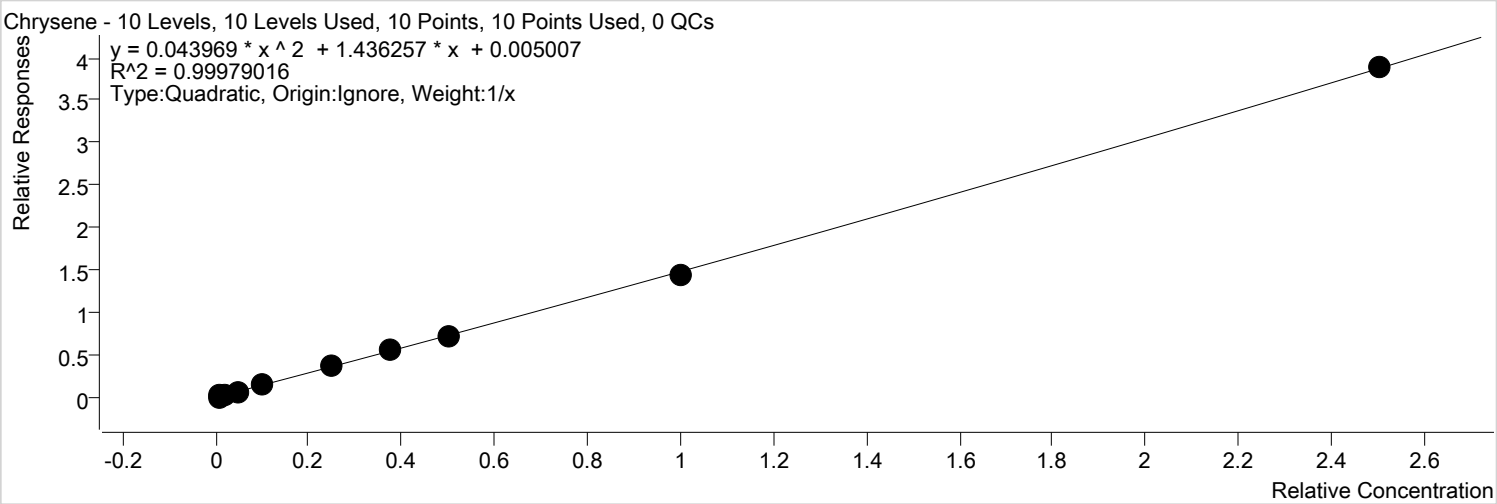
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	860	10.0000	2.3910
D:\GC-21\Data\060320\060332.D	Calibration	2	x	1131	20.0000	1.6368
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1881	40.0000	1.2568
D:\GC-21\Data\060320\060334.D	Calibration	4	x	4044	100.0000	1.1357
D:\GC-21\Data\060320\060335.D	Calibration	5	x	8123	200.0000	1.1374
D:\GC-21\Data\060320\060336.D	Calibration	6	x	20640	500.0000	1.1180
D:\GC-21\Data\060320\060337.D	Calibration	7	x	30548	750.0000	1.1160
D:\GC-21\Data\060320\060338.D	Calibration	8	x	41649	1000.0000	1.0960
D:\GC-21\Data\060320\060339.D	Calibration	9	x	83331	2000.0000	1.0673
D:\GC-21\Data\060320\060340.D	Calibration	10	x	221044	5000.0000	1.1545

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

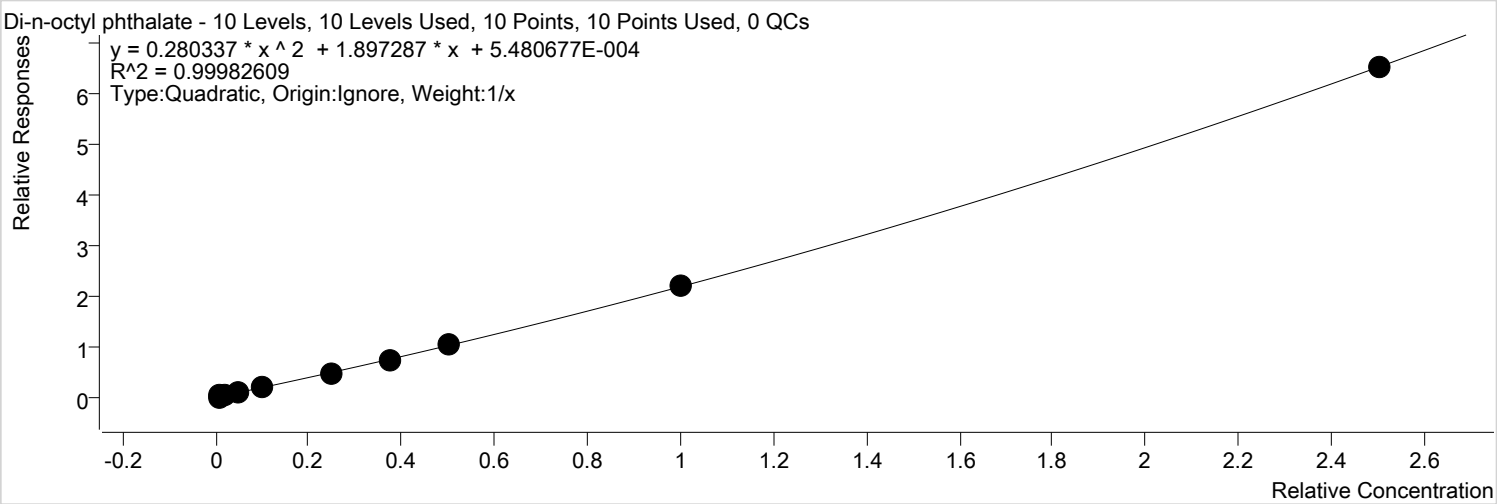
Chrysene



Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	672	10.0000	2.4669
D:\GC-21\Data\060320\060332.D	Calibration	2	x	978	20.0000	1.9043
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1817	40.0000	1.6174
D:\GC-21\Data\060320\060334.D	Calibration	4	x	4070	100.0000	1.5250
D:\GC-21\Data\060320\060335.D	Calibration	5	x	8384	200.0000	1.5442
D:\GC-21\Data\060320\060336.D	Calibration	6	x	21171	500.0000	1.5012
D:\GC-21\Data\060320\060337.D	Calibration	7	x	31543	750.0000	1.4994
D:\GC-21\Data\060320\060338.D	Calibration	8	x	42720	1000.0000	1.4633
D:\GC-21\Data\060320\060339.D	Calibration	9	x	86339	2000.0000	1.4534
D:\GC-21\Data\060320\060340.D	Calibration	10	x	224573	5000.0000	1.5523

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

Di-n-octyl phthalate

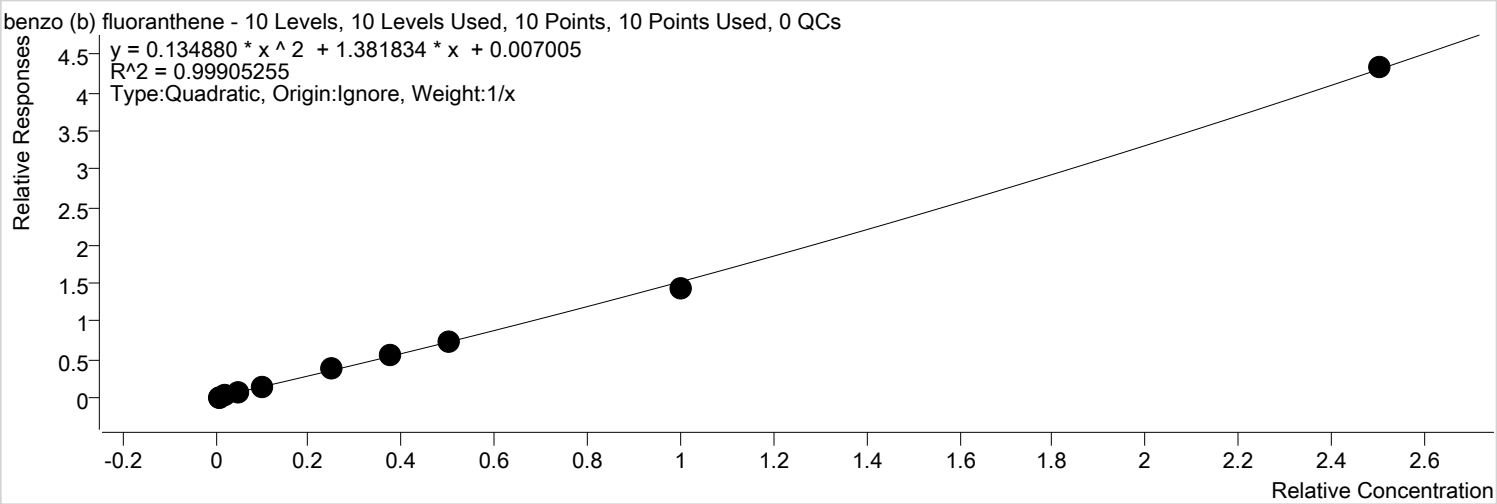


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	636	10.0000	2.3358
D:\GC-21\Data\060320\060332.D	Calibration	2	x	1057	20.0000	2.0574
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1933	40.0000	1.7210
D:\GC-21\Data\060320\060334.D	Calibration	4	x	4710	100.0000	1.7648
D:\GC-21\Data\060320\060335.D	Calibration	5	x	10097	200.0000	1.8597
D:\GC-21\Data\060320\060336.D	Calibration	6	x	27383	500.0000	1.9417
D:\GC-21\Data\060320\060337.D	Calibration	7	x	42111	750.0000	2.0017
D:\GC-21\Data\060320\060338.D	Calibration	8	x	59891	1000.0000	2.0514
D:\GC-21\Data\060320\060339.D	Calibration	9	x	131165	2000.0000	2.2080
D:\GC-21\Data\060320\060340.D	Calibration	10	x	375213	5000.0000	2.5936

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:38 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

benzo (b) fluoranthene

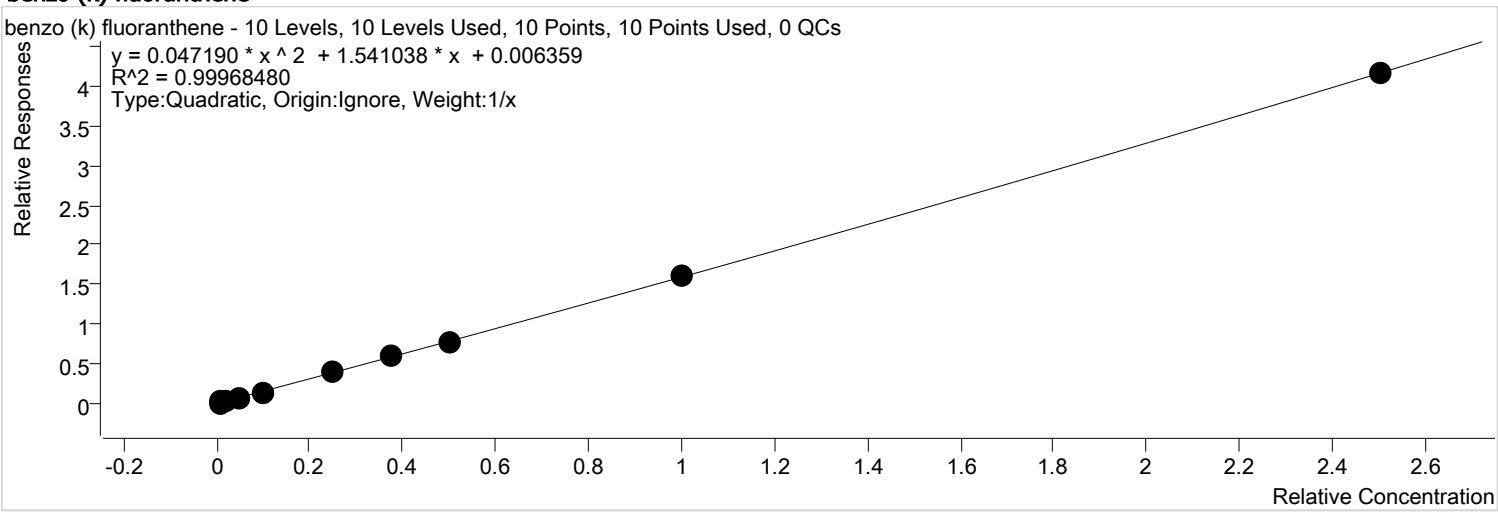


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	802	10.0000	2.9442
D:\GC-21\Data\060320\060332.D	Calibration	2	x	1003	20.0000	1.9531
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1709	40.0000	1.5214
D:\GC-21\Data\060320\060334.D	Calibration	4	x	4092	100.0000	1.5331
D:\GC-21\Data\060320\060335.D	Calibration	5	x	8521	200.0000	1.5695
D:\GC-21\Data\060320\060336.D	Calibration	6	x	21221	500.0000	1.5047
D:\GC-21\Data\060320\060337.D	Calibration	7	x	31898	750.0000	1.5162
D:\GC-21\Data\060320\060338.D	Calibration	8	x	43203	1000.0000	1.4798
D:\GC-21\Data\060320\060339.D	Calibration	9	x	85903	2000.0000	1.4460
D:\GC-21\Data\060320\060340.D	Calibration	10	x	250477	5000.0000	1.7314

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:39 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

benzo (k) fluoranthene

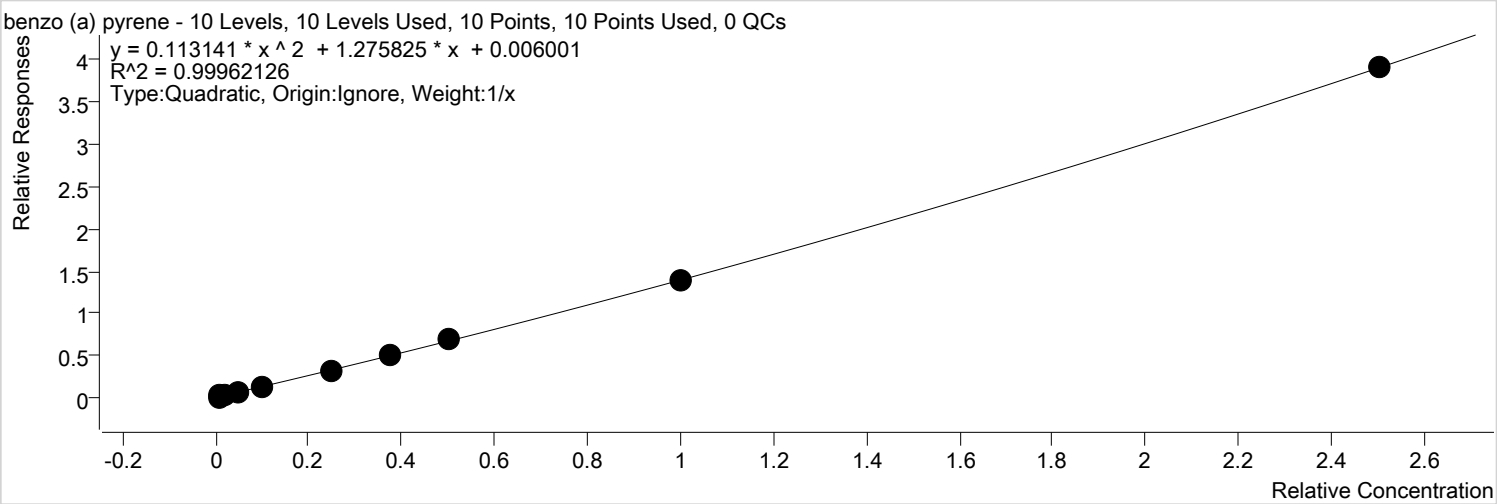


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	845	10.0000	3.1006
D:\GC-21\Data\060320\060332.D	Calibration	2	x	1129	20.0000	2.1985
D:\GC-21\Data\060320\060333.D	Calibration	3	x	2018	40.0000	1.7964
D:\GC-21\Data\060320\060334.D	Calibration	4	x	3866	100.0000	1.4485
D:\GC-21\Data\060320\060335.D	Calibration	5	x	8421	200.0000	1.5510
D:\GC-21\Data\060320\060336.D	Calibration	6	x	22232	500.0000	1.5764
D:\GC-21\Data\060320\060337.D	Calibration	7	x	33711	750.0000	1.6024
D:\GC-21\Data\060320\060338.D	Calibration	8	x	46047	1000.0000	1.5772
D:\GC-21\Data\060320\060339.D	Calibration	9	x	95526	2000.0000	1.6080
D:\GC-21\Data\060320\060340.D	Calibration	10	x	240009	5000.0000	1.6590

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:39 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

benzo (a) pyrene



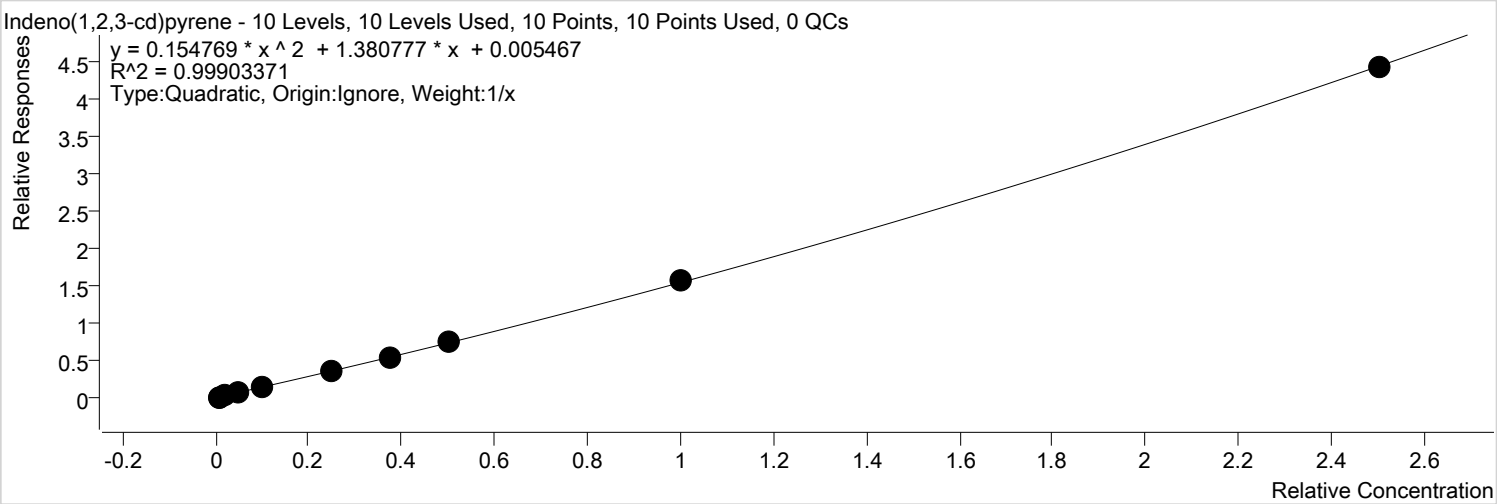
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	752	10.0000	2.7593
D:\GC-21\Data\060320\060332.D	Calibration	2	x	986	20.0000	1.9195
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1534	40.0000	1.3657
D:\GC-21\Data\060320\060334.D	Calibration	4	x	3406	100.0000	1.2763
D:\GC-21\Data\060320\060335.D	Calibration	5	x	7159	200.0000	1.3186
D:\GC-21\Data\060320\060336.D	Calibration	6	x	18522	500.0000	1.3133
D:\GC-21\Data\060320\060337.D	Calibration	7	x	29084	750.0000	1.3825
D:\GC-21\Data\060320\060338.D	Calibration	8	x	39961	1000.0000	1.3688
D:\GC-21\Data\060320\060339.D	Calibration	9	x	81827	2000.0000	1.3774
D:\GC-21\Data\060320\060340.D	Calibration	10	x	225985	5000.0000	1.5621

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:39 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

Indeno(1,2,3-cd)pyrene

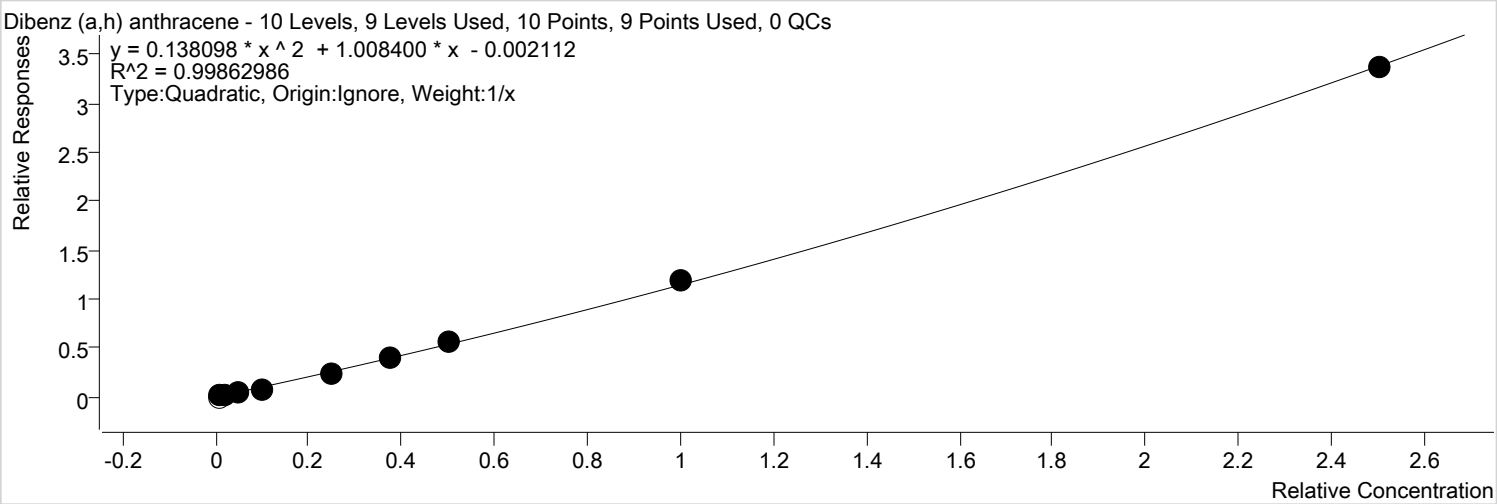


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	921	10.0000	3.1385
D:\GC-21\Data\060320\060332.D	Calibration	2	x	1091	20.0000	1.9501
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1622	40.0000	1.3214
D:\GC-21\Data\060320\060334.D	Calibration	4	x	3661	100.0000	1.2612
D:\GC-21\Data\060320\060335.D	Calibration	5	x	7886	200.0000	1.3184
D:\GC-21\Data\060320\060336.D	Calibration	6	x	21539	500.0000	1.3951
D:\GC-21\Data\060320\060337.D	Calibration	7	x	33775	750.0000	1.4595
D:\GC-21\Data\060320\060338.D	Calibration	8	x	48182	1000.0000	1.4927
D:\GC-21\Data\060320\060339.D	Calibration	9	x	104620	2000.0000	1.5851
D:\GC-21\Data\060320\060340.D	Calibration	10	x	290866	5000.0000	1.7625

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:39 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

Dibenz (a,h) anthracene

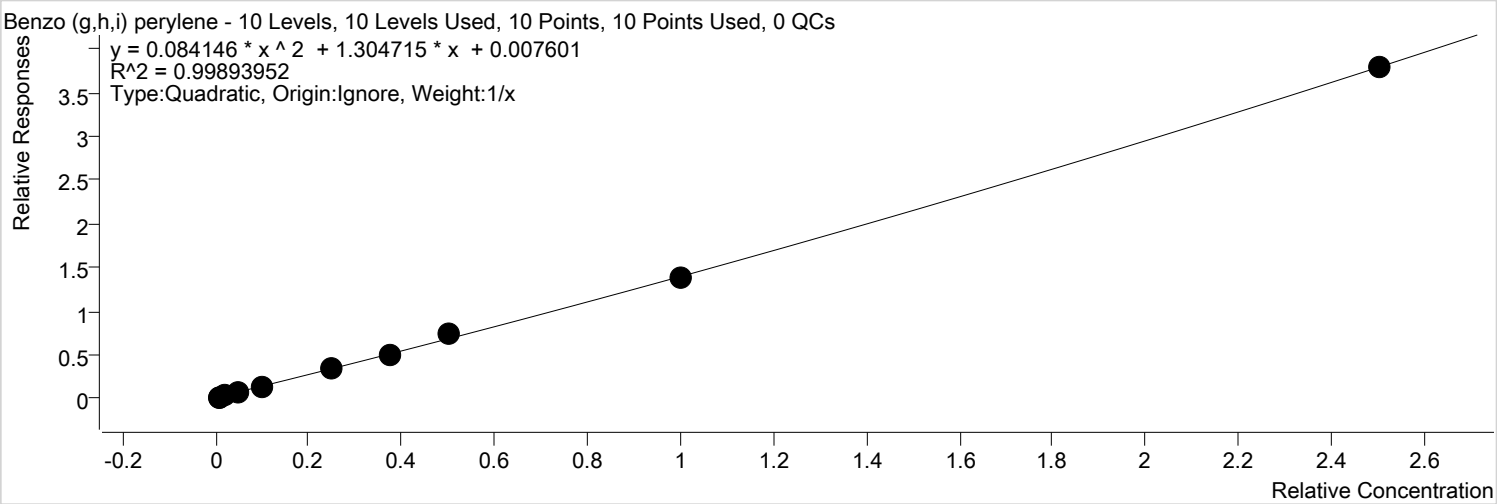


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1		0	10.0000	0.0000
D:\GC-21\Data\060320\060332.D	Calibration	2	x	681	20.0000	1.2165
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1031	40.0000	0.8394
D:\GC-21\Data\060320\060334.D	Calibration	4	x	2238	100.0000	0.7709
D:\GC-21\Data\060320\060335.D	Calibration	5	x	5081	200.0000	0.8494
D:\GC-21\Data\060320\060336.D	Calibration	6	x	15022	500.0000	0.9730
D:\GC-21\Data\060320\060337.D	Calibration	7	x	24194	750.0000	1.0455
D:\GC-21\Data\060320\060338.D	Calibration	8	x	36067	1000.0000	1.1174
D:\GC-21\Data\060320\060339.D	Calibration	9	x	77805	2000.0000	1.1788
D:\GC-21\Data\060320\060340.D	Calibration	10	x	222236	5000.0000	1.3467

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\PAH CAL.batch.bin		
Analysis Time	6/8/2020 10:54:41 AM	**Analyst Name**	FA\lab
Report Time	6/8/2020 10:58:39 AM	**Reporter Name**	lab
Last Calib Update	6/8/2020 10:54:04 AM	**Batch State**	Processed

Benzo (g,h,i) perylene



Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060331.D	Calibration	1	x	967	10.0000	3.2959
D:\GC-21\Data\060320\060332.D	Calibration	2	x	1168	20.0000	2.0882
D:\GC-21\Data\060320\060333.D	Calibration	3	x	1763	40.0000	1.4360
D:\GC-21\Data\060320\060334.D	Calibration	4	x	3736	100.0000	1.2871
D:\GC-21\Data\060320\060335.D	Calibration	5	x	7733	200.0000	1.2929
D:\GC-21\Data\060320\060336.D	Calibration	6	x	20253	500.0000	1.3119
D:\GC-21\Data\060320\060337.D	Calibration	7	x	30972	750.0000	1.3383
D:\GC-21\Data\060320\060338.D	Calibration	8	x	47083	1000.0000	1.4587
D:\GC-21\Data\060320\060339.D	Calibration	9	x	91866	2000.0000	1.3919
D:\GC-21\Data\060320\060340.D	Calibration	10	x	250194	5000.0000	1.5161

Semivolatile Calibration

Date: 05/26/2020

Analyst: Sam Bellman

MeCl2: 20831999

Intermediate / 23057

Cal		ICV	
8270 Megamix:	23298	8270 Megamix:	23297
2,4-DNP:	23446	2,4-DNP:	23305
Benzoic Acid:	23363	Benzoic Acid:	23362

8270 Surrogate: 23454 / ICB/ICV SURR 23712 IS 23709

	Spike Conc. (ppb)	BN/Acid Surr Conc. (ppb)	2° Spike (uL)	B/N Surr (uL)	Internal Standard (uL)	Remove (uL)	Final Vol. (mL)	Comments
61	10	10/5	1	--	10	11	1	
	20	20/10	2	--	10	12	1	
	40	40/20	4	--	10	14	1	
	100	100/50	10	--	10	20	1	
	200	200/100	20	--	10	30	1	
	500	500/250	~~40~~ 50	--	10	60	1	
	750	750/375	75 SM 5/26	--	10	85	1	
	1000	1000/500	100	--	10	110	1	
	2000	2000/1000	200	--	10	210	1	
	5000	5000/2500	500	--	10	510	1	
	ICB	1000/500		1	10	11	1	
72	ICV (1000 ppb)	1000/500	~~100~~ (2° SS) 1 1 1 1	-- 1	10	~~110~~ 14 SM 5/26	1	

	Mega Mix (uL)	2,4-DNP (uL)	Benzoic Acid (uL)	8270 Surr (uL)	Final Volume (mL)
2° Intermediate (cal)	100	100	100	100	10
2° Intermediate (SS)	50	50	50	50	5

Signature and Date: 5/26/2020

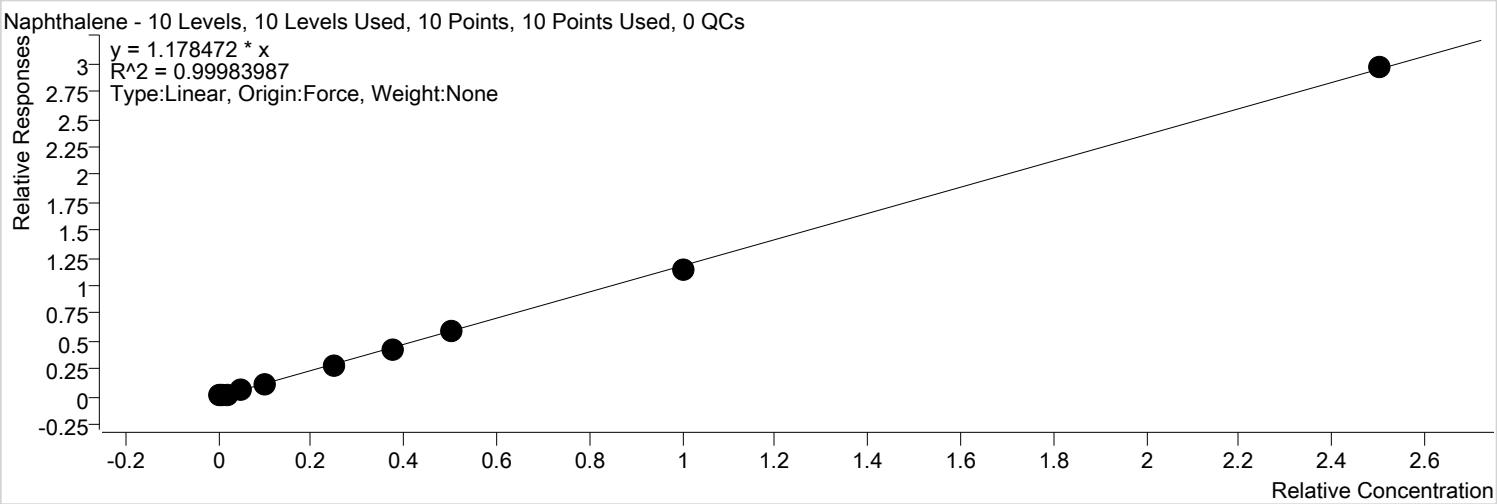
Signature: EM

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:10 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

Naphthalene



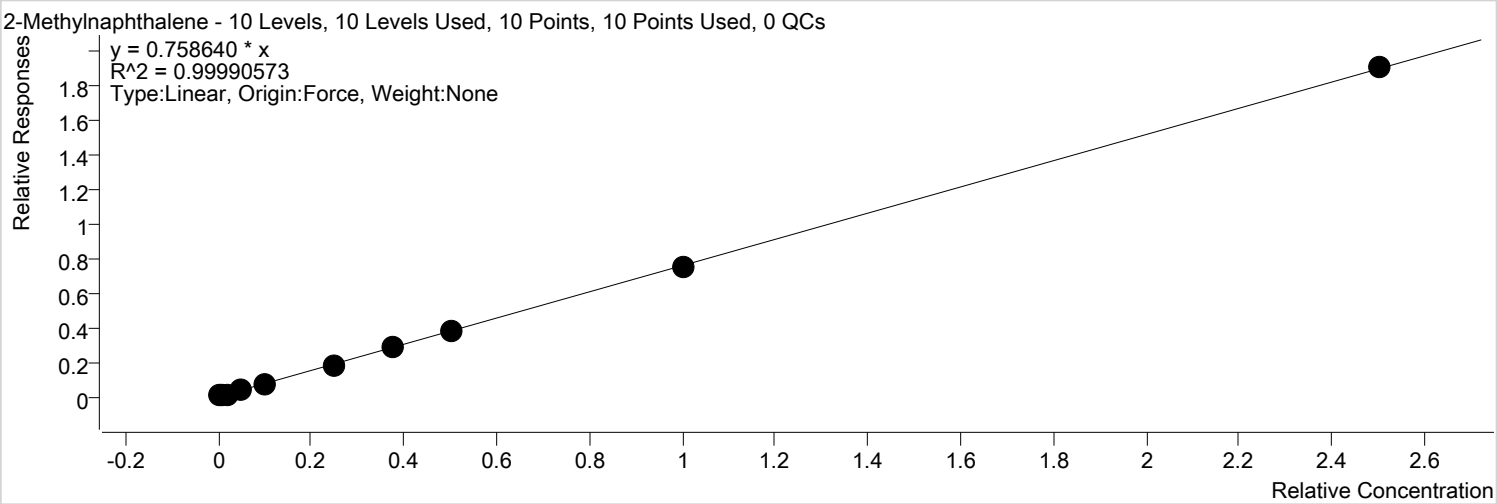
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	638	10.0000	1.3260
D:\GC-21\Data\061020\061006.D	Calibration	2	x	1214	20.0000	1.2985
D:\GC-21\Data\061020\061007.D	Calibration	3	x	2323	40.0000	1.2376
D:\GC-21\Data\061020\061008.D	Calibration	4	x	5525	100.0000	1.1504
D:\GC-21\Data\061020\061009.D	Calibration	5	x	11726	200.0000	1.1632
D:\GC-21\Data\061020\061010.D	Calibration	6	x	27183	500.0000	1.1207
D:\GC-21\Data\061020\061011.D	Calibration	7	x	41920	750.0000	1.1604
D:\GC-21\Data\061020\061012.D	Calibration	8	x	56639	1000.0000	1.1724
D:\GC-21\Data\061020\061013.D	Calibration	9	x	114022	2000.0000	1.1513
D:\GC-21\Data\061020\061014.D	Calibration	10	x	283981	5000.0000	1.1841

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

2-Methylnaphthalene



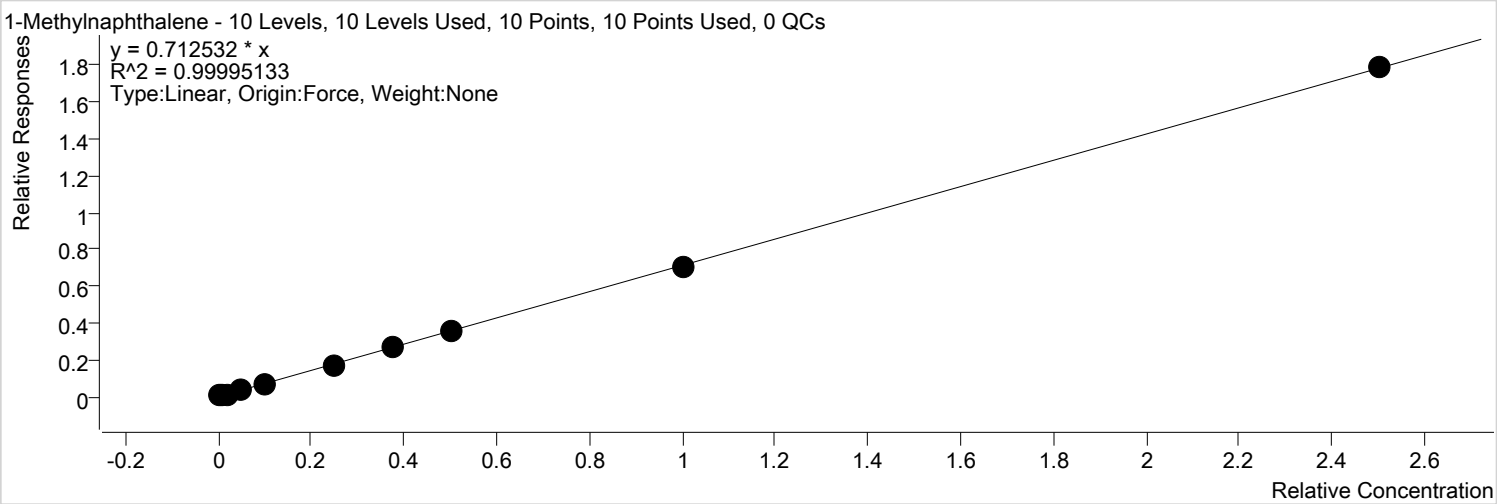
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	383	10.0000	0.7955
D:\GC-21\Data\061020\061006.D	Calibration	2	x	770	20.0000	0.8233
D:\GC-21\Data\061020\061007.D	Calibration	3	x	1480	40.0000	0.7882
D:\GC-21\Data\061020\061008.D	Calibration	4	x	3492	100.0000	0.7271
D:\GC-21\Data\061020\061009.D	Calibration	5	x	7531	200.0000	0.7471
D:\GC-21\Data\061020\061010.D	Calibration	6	x	17507	500.0000	0.7218
D:\GC-21\Data\061020\061011.D	Calibration	7	x	27068	750.0000	0.7493
D:\GC-21\Data\061020\061012.D	Calibration	8	x	36613	1000.0000	0.7579
D:\GC-21\Data\061020\061013.D	Calibration	9	x	73922	2000.0000	0.7464
D:\GC-21\Data\061020\061014.D	Calibration	10	x	182570	5000.0000	0.7612

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

1-Methylnaphthalene



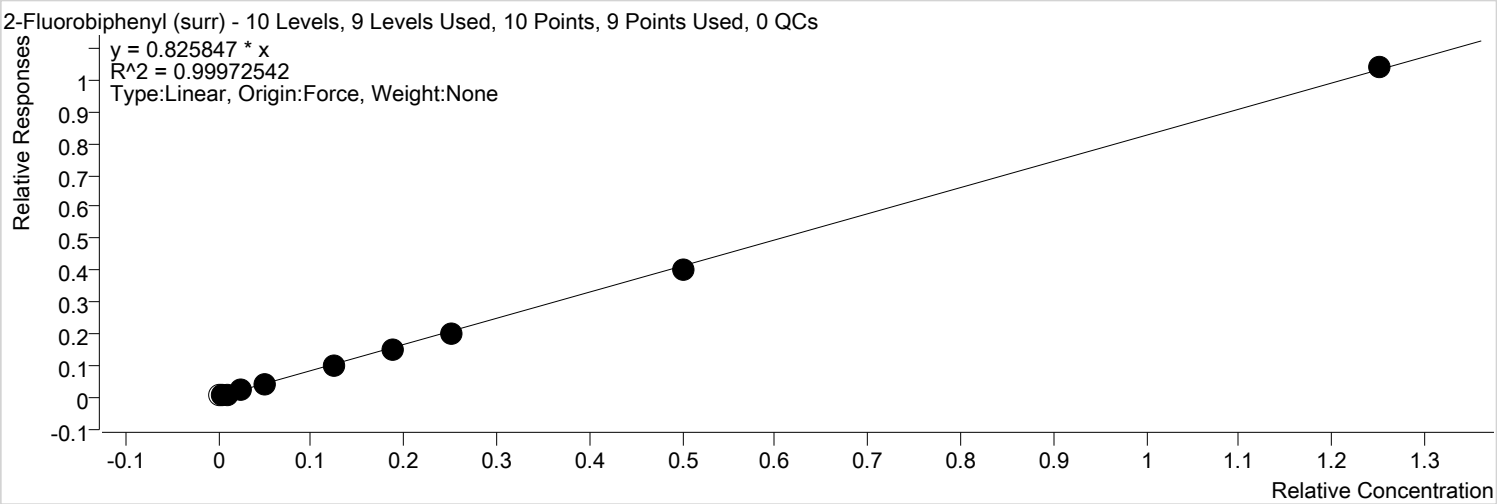
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	392	10.0000	0.8147
D:\GC-21\Data\061020\061006.D	Calibration	2	x	753	20.0000	0.8057
D:\GC-21\Data\061020\061007.D	Calibration	3	x	1446	40.0000	0.7700
D:\GC-21\Data\061020\061008.D	Calibration	4	x	3403	100.0000	0.7087
D:\GC-21\Data\061020\061009.D	Calibration	5	x	7259	200.0000	0.7201
D:\GC-21\Data\061020\061010.D	Calibration	6	x	16762	500.0000	0.6911
D:\GC-21\Data\061020\061011.D	Calibration	7	x	25843	750.0000	0.7154
D:\GC-21\Data\061020\061012.D	Calibration	8	x	34780	1000.0000	0.7199
D:\GC-21\Data\061020\061013.D	Calibration	9	x	69699	2000.0000	0.7037
D:\GC-21\Data\061020\061014.D	Calibration	10	x	171187	5000.0000	0.7138

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

2-Fluorobiphenyl (surr)



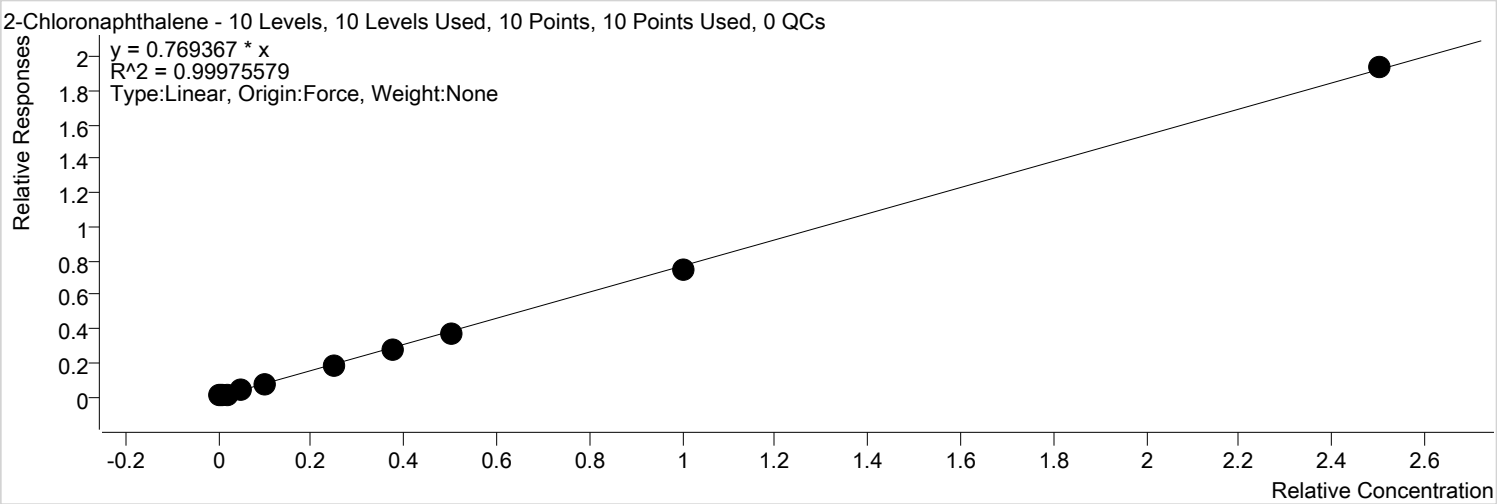
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1		207	5.0000	0.8600
D:\GC-21\Data\061020\061006.D	Calibration	2	x	416	10.0000	0.8900
D:\GC-21\Data\061020\061007.D	Calibration	3	x	833	20.0000	0.8871
D:\GC-21\Data\061020\061008.D	Calibration	4	x	1922	50.0000	0.8004
D:\GC-21\Data\061020\061009.D	Calibration	5	x	4073	100.0000	0.8082
D:\GC-21\Data\061020\061010.D	Calibration	6	x	9483	250.0000	0.7819
D:\GC-21\Data\061020\061011.D	Calibration	7	x	14573	375.0000	0.8068
D:\GC-21\Data\061020\061012.D	Calibration	8	x	19553	500.0000	0.8095
D:\GC-21\Data\061020\061013.D	Calibration	9	x	39733	1000.0000	0.8023
D:\GC-21\Data\061020\061014.D	Calibration	10	x	99670	2500.0000	0.8312

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

2-Chloronaphthalene

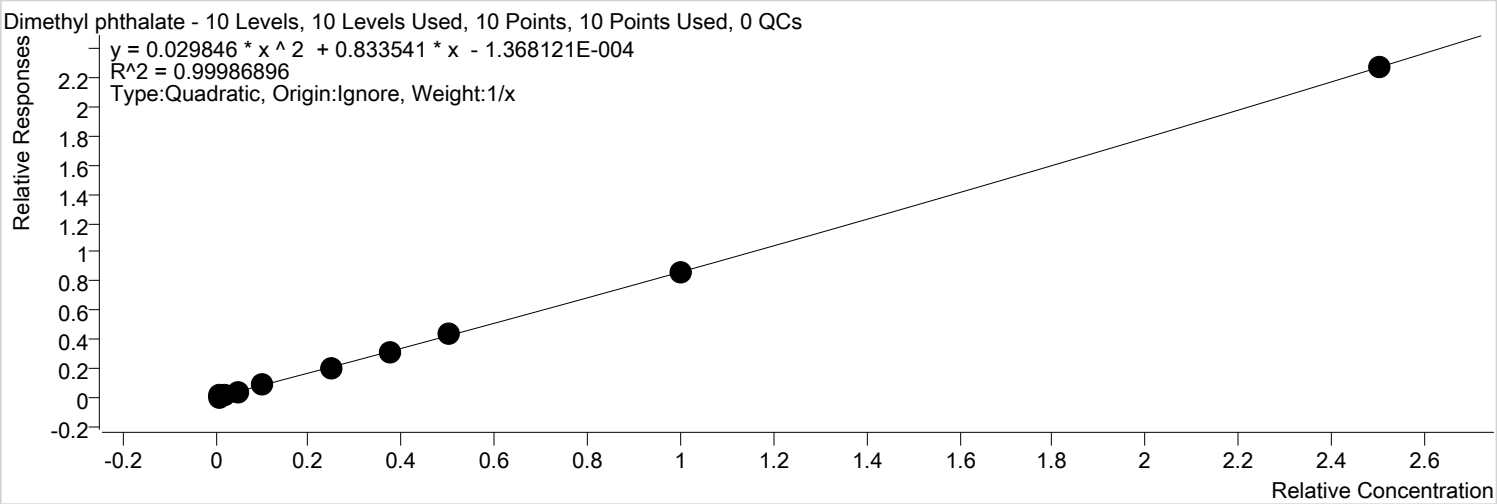


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	387	10.0000	0.8054
D:\GC-21\Data\061020\061006.D	Calibration	2	x	779	20.0000	0.8332
D:\GC-21\Data\061020\061007.D	Calibration	3	x	1507	40.0000	0.8029
D:\GC-21\Data\061020\061008.D	Calibration	4	x	3507	100.0000	0.7302
D:\GC-21\Data\061020\061009.D	Calibration	5	x	7519	200.0000	0.7459
D:\GC-21\Data\061020\061010.D	Calibration	6	x	17614	500.0000	0.7262
D:\GC-21\Data\061020\061011.D	Calibration	7	x	27256	750.0000	0.7545
D:\GC-21\Data\061020\061012.D	Calibration	8	x	36456	1000.0000	0.7546
D:\GC-21\Data\061020\061013.D	Calibration	9	x	74133	2000.0000	0.7485
D:\GC-21\Data\061020\061014.D	Calibration	10	x	185656	5000.0000	0.7741

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

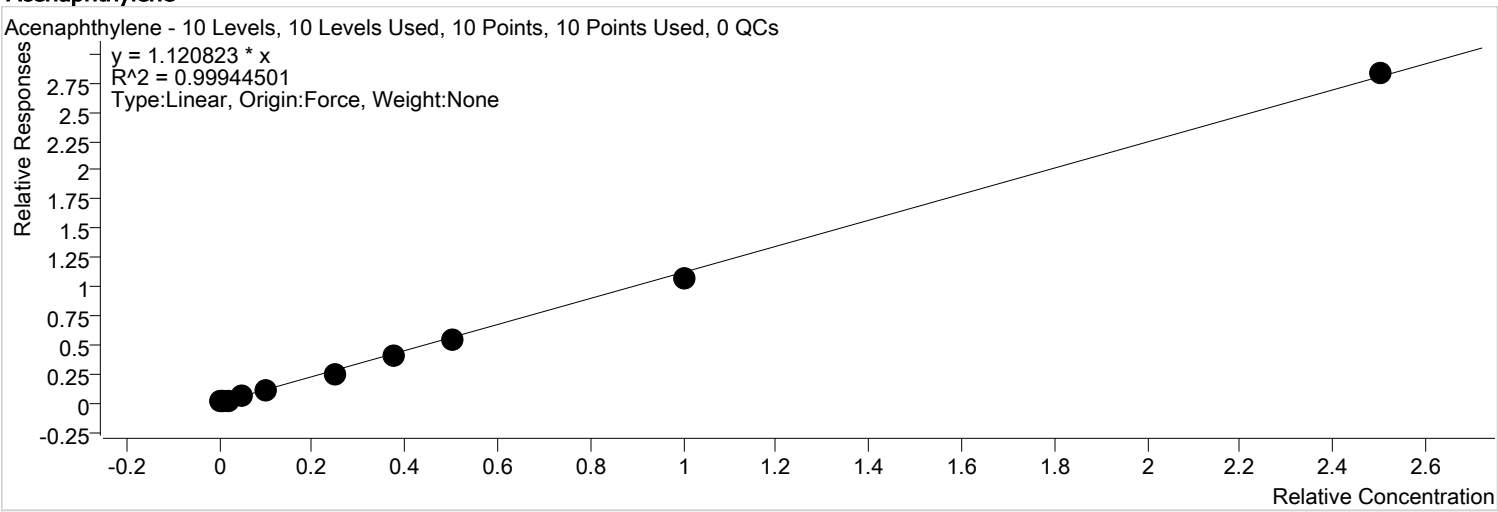
Dimethyl phthalate



Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	395	10.0000	0.8216
D:\GC-21\Data\061020\061006.D	Calibration	2	x	793	20.0000	0.8484
D:\GC-21\Data\061020\061007.D	Calibration	3	x	1585	40.0000	0.8441
D:\GC-21\Data\061020\061008.D	Calibration	4	x	3793	100.0000	0.7899
D:\GC-21\Data\061020\061009.D	Calibration	5	x	8307	200.0000	0.8241
D:\GC-21\Data\061020\061010.D	Calibration	6	x	19684	500.0000	0.8116
D:\GC-21\Data\061020\061011.D	Calibration	7	x	30694	750.0000	0.8497
D:\GC-21\Data\061020\061012.D	Calibration	8	x	41746	1000.0000	0.8641
D:\GC-21\Data\061020\061013.D	Calibration	9	x	85645	2000.0000	0.8647
D:\GC-21\Data\061020\061014.D	Calibration	10	x	217630	5000.0000	0.9074

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

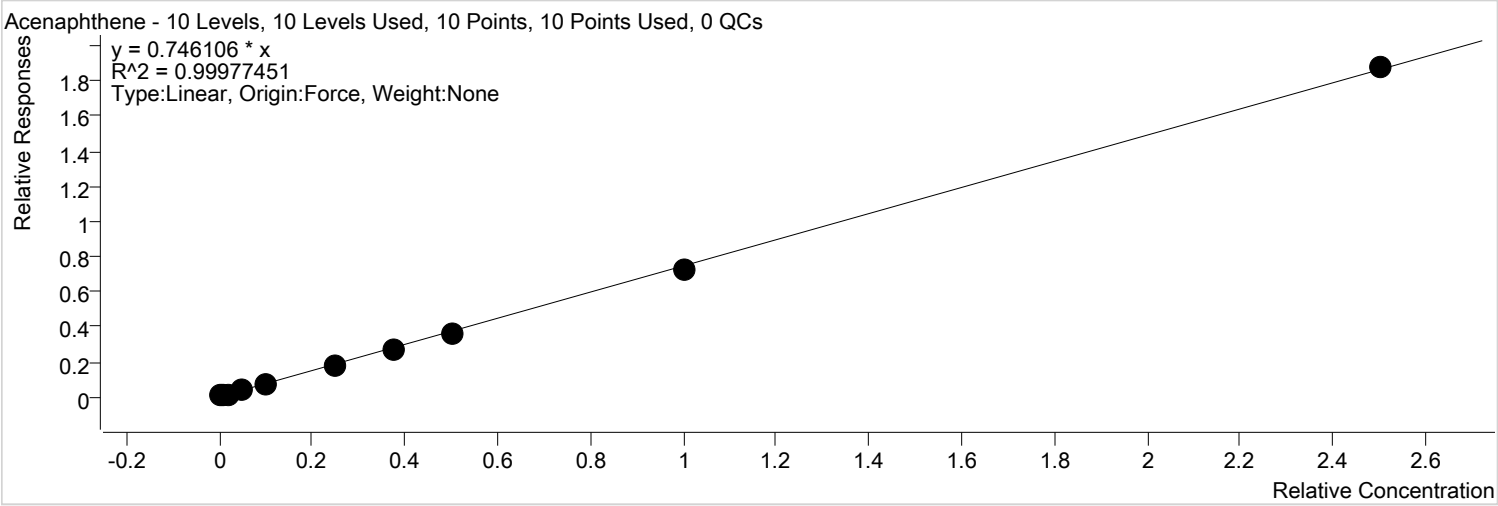
Acenaphthylene



Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	569	10.0000	1.1839
D:\GC-21\Data\061020\061006.D	Calibration	2	x	1073	20.0000	1.1475
D:\GC-21\Data\061020\061007.D	Calibration	3	x	2079	40.0000	1.1075
D:\GC-21\Data\061020\061008.D	Calibration	4	x	4935	100.0000	1.0276
D:\GC-21\Data\061020\061009.D	Calibration	5	x	10562	200.0000	1.0478
D:\GC-21\Data\061020\061010.D	Calibration	6	x	24765	500.0000	1.0210
D:\GC-21\Data\061020\061011.D	Calibration	7	x	38620	750.0000	1.0691
D:\GC-21\Data\061020\061012.D	Calibration	8	x	52373	1000.0000	1.0841
D:\GC-21\Data\061020\061013.D	Calibration	9	x	106889	2000.0000	1.0792
D:\GC-21\Data\061020\061014.D	Calibration	10	x	271313	5000.0000	1.1313

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

Acenaphthene

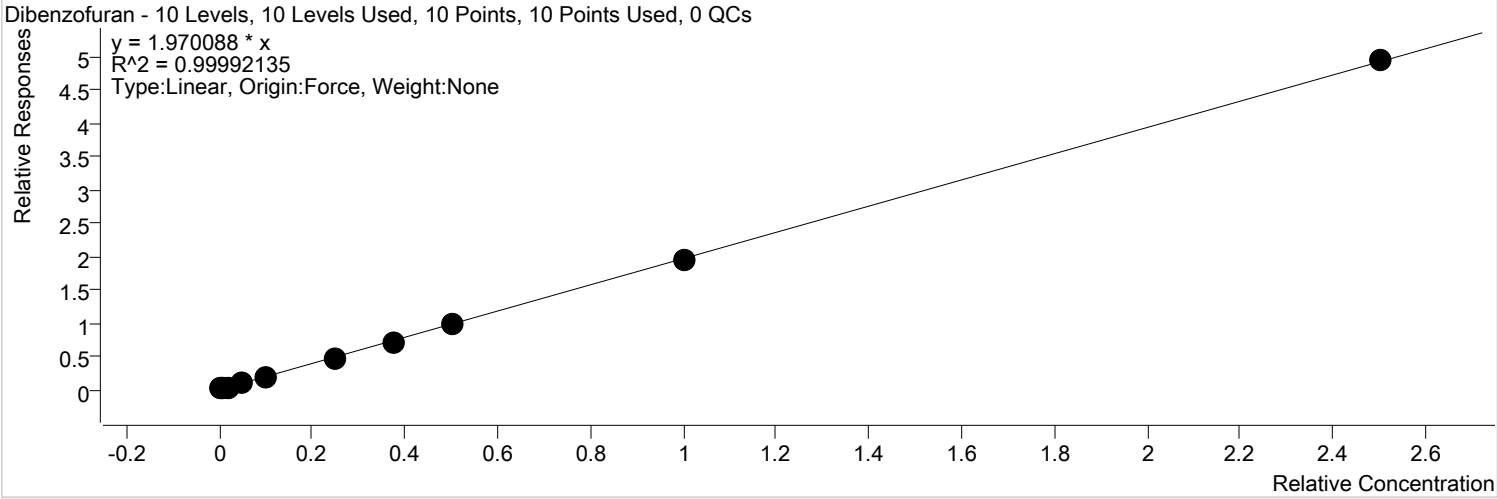


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	404	10.0000	0.8403
D:\GC-21\Data\061020\061006.D	Calibration	2	x	772	20.0000	0.8258
D:\GC-21\Data\061020\061007.D	Calibration	3	x	1487	40.0000	0.7922
D:\GC-21\Data\061020\061008.D	Calibration	4	x	3413	100.0000	0.7107
D:\GC-21\Data\061020\061009.D	Calibration	5	x	7396	200.0000	0.7337
D:\GC-21\Data\061020\061010.D	Calibration	6	x	17054	500.0000	0.7031
D:\GC-21\Data\061020\061011.D	Calibration	7	x	26565	750.0000	0.7354
D:\GC-21\Data\061020\061012.D	Calibration	8	x	35423	1000.0000	0.7332
D:\GC-21\Data\061020\061013.D	Calibration	9	x	71951	2000.0000	0.7265
D:\GC-21\Data\061020\061014.D	Calibration	10	x	179985	5000.0000	0.7505

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

Dibenzofuran

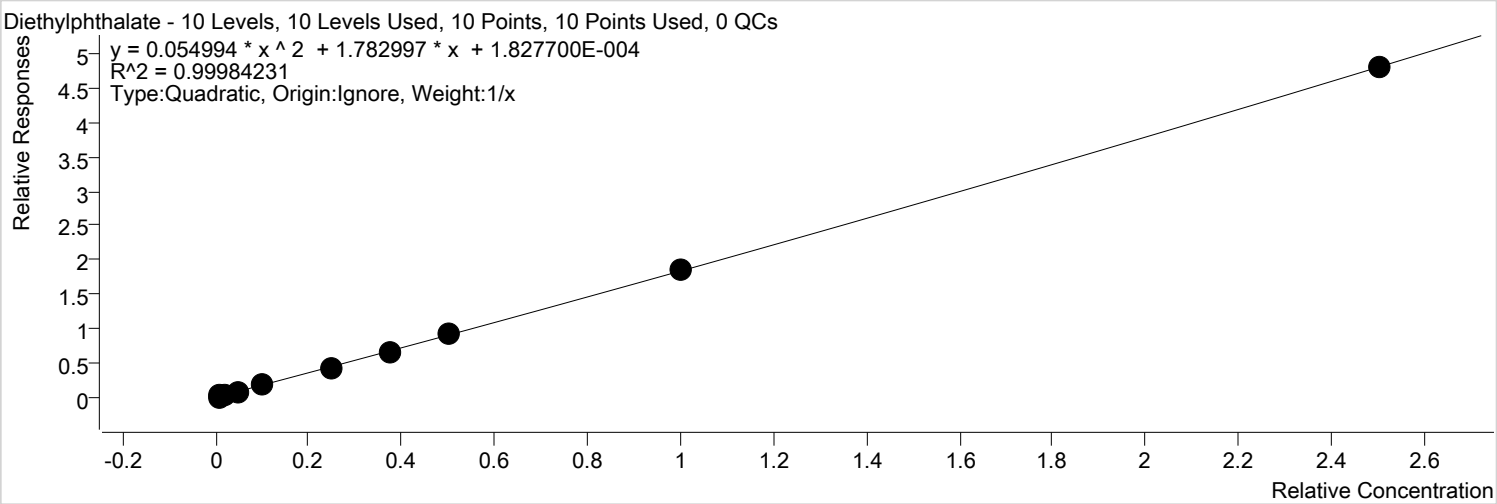


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	512	10.0000	2.1542
D:\GC-21\Data\061020\061006.D	Calibration	2	x	994	20.0000	2.1623
D:\GC-21\Data\061020\061007.D	Calibration	3	x	1932	40.0000	2.0604
D:\GC-21\Data\061020\061008.D	Calibration	4	x	4488	100.0000	1.8898
D:\GC-21\Data\061020\061009.D	Calibration	5	x	9738	200.0000	1.9450
D:\GC-21\Data\061020\061010.D	Calibration	6	x	22663	500.0000	1.8913
D:\GC-21\Data\061020\061011.D	Calibration	7	x	35069	750.0000	1.9322
D:\GC-21\Data\061020\061012.D	Calibration	8	x	47012	1000.0000	1.9550
D:\GC-21\Data\061020\061013.D	Calibration	9	x	95617	2000.0000	1.9434
D:\GC-21\Data\061020\061014.D	Calibration	10	x	237027	5000.0000	1.9767

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

Diethylphthalate

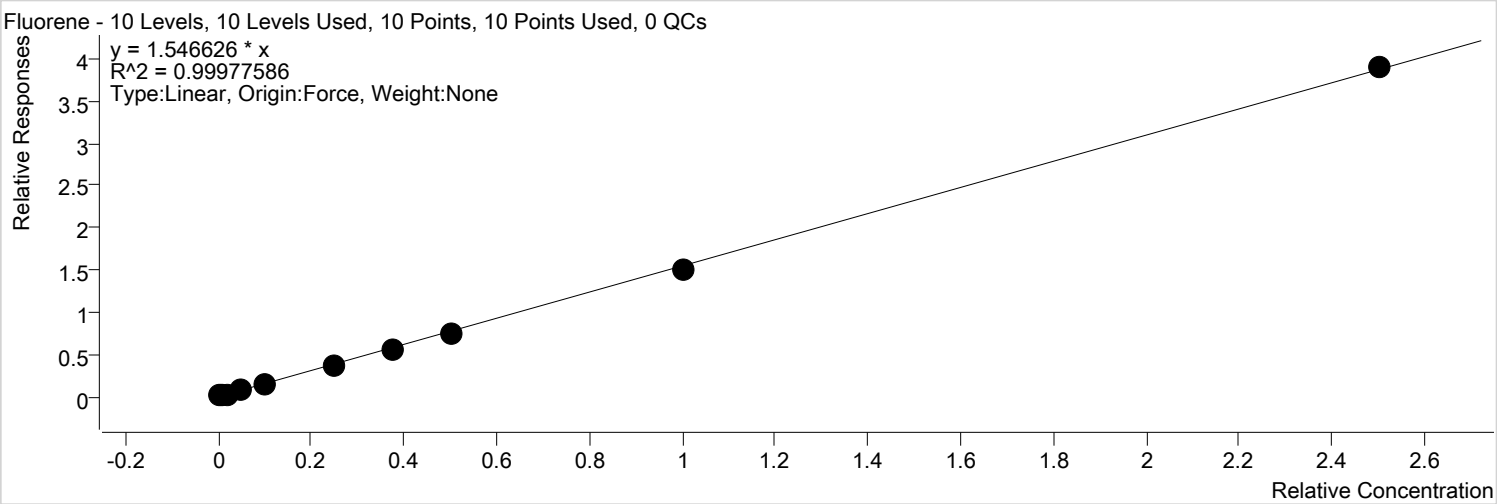


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	439	10.0000	1.8482
D:\GC-21\Data\061020\061006.D	Calibration	2	x	875	20.0000	1.9032
D:\GC-21\Data\061020\061007.D	Calibration	3	x	1712	40.0000	1.8252
D:\GC-21\Data\061020\061008.D	Calibration	4	x	4032	100.0000	1.6977
D:\GC-21\Data\061020\061009.D	Calibration	5	x	8729	200.0000	1.7434
D:\GC-21\Data\061020\061010.D	Calibration	6	x	20838	500.0000	1.7390
D:\GC-21\Data\061020\061011.D	Calibration	7	x	32553	750.0000	1.7935
D:\GC-21\Data\061020\061012.D	Calibration	8	x	44256	1000.0000	1.8404
D:\GC-21\Data\061020\061013.D	Calibration	9	x	91416	2000.0000	1.8580
D:\GC-21\Data\061020\061014.D	Calibration	10	x	229889	5000.0000	1.9171

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

Fluorene



Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	394	10.0000	1.6588
D:\GC-21\Data\061020\061006.D	Calibration	2	x	745	20.0000	1.6206
D:\GC-21\Data\061020\061007.D	Calibration	3	x	1496	40.0000	1.5956
D:\GC-21\Data\061020\061008.D	Calibration	4	x	3457	100.0000	1.4555
D:\GC-21\Data\061020\061009.D	Calibration	5	x	7404	200.0000	1.4787
D:\GC-21\Data\061020\061010.D	Calibration	6	x	17430	500.0000	1.4546
D:\GC-21\Data\061020\061011.D	Calibration	7	x	26937	750.0000	1.4841
D:\GC-21\Data\061020\061012.D	Calibration	8	x	36467	1000.0000	1.5165
D:\GC-21\Data\061020\061013.D	Calibration	9	x	74495	2000.0000	1.5141
D:\GC-21\Data\061020\061014.D	Calibration	10	x	186525	5000.0000	1.5555

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
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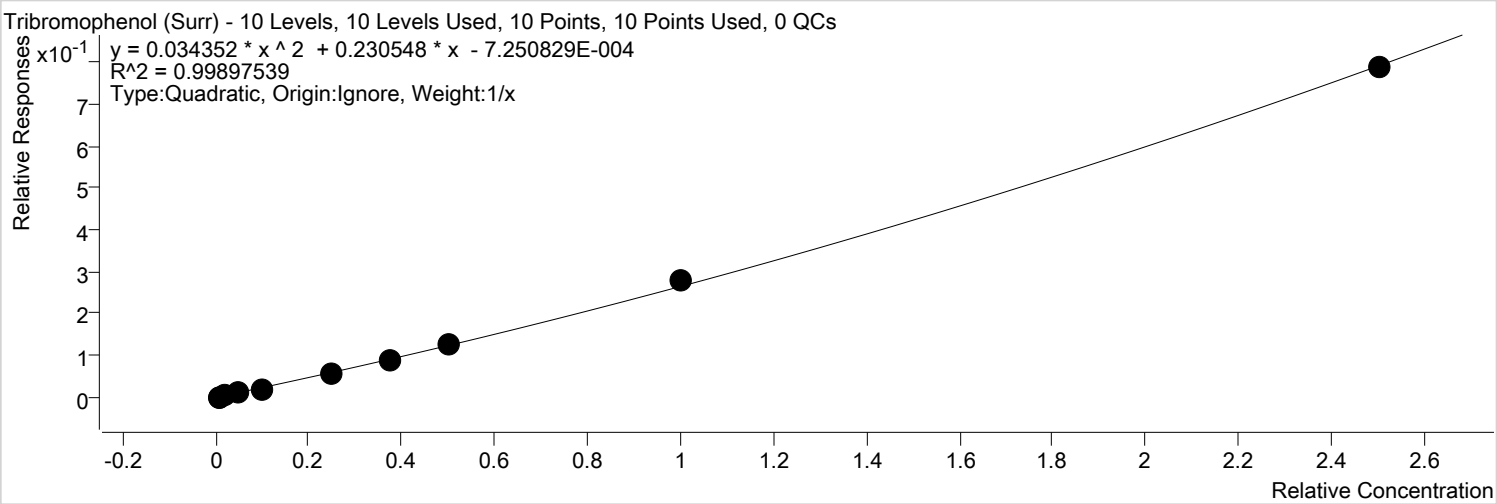
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

Tribromophenol (Surr)



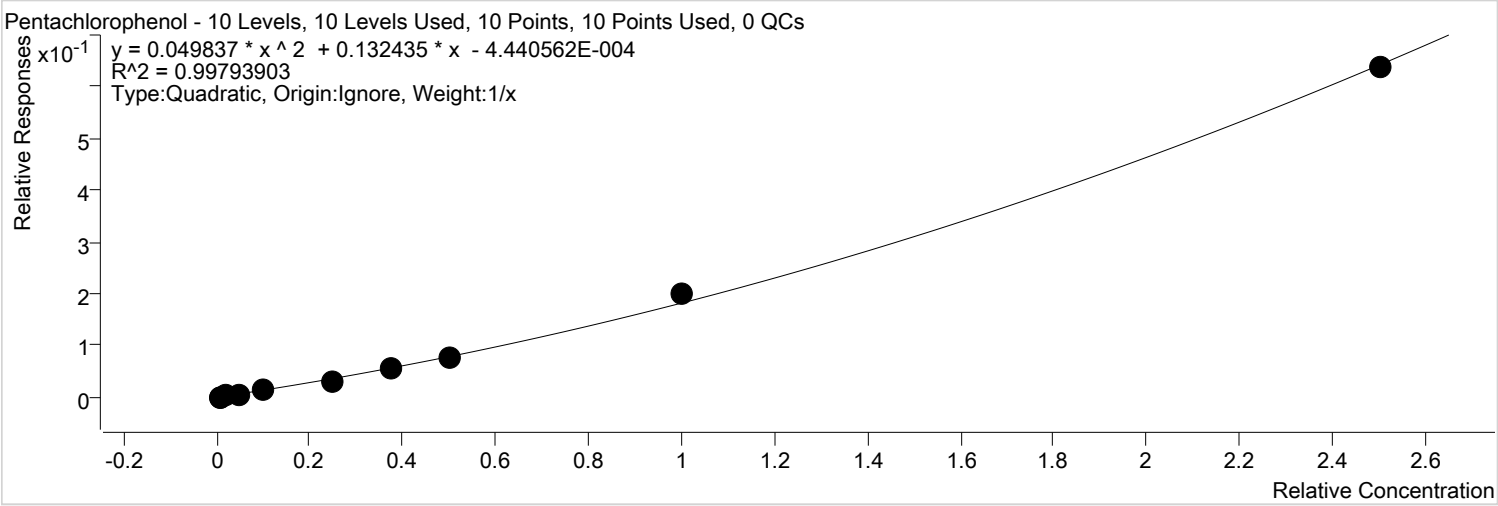
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	37	10.0000	0.1565
D:\GC-21\Data\061020\061006.D	Calibration	2	x	78	20.0000	0.1704
D:\GC-21\Data\061020\061007.D	Calibration	3	x	167	40.0000	0.1777
D:\GC-21\Data\061020\061008.D	Calibration	4	x	426	100.0000	0.1795
D:\GC-21\Data\061020\061009.D	Calibration	5	x	1034	200.0000	0.2064
D:\GC-21\Data\061020\061010.D	Calibration	6	x	2595	500.0000	0.2166
D:\GC-21\Data\061020\061011.D	Calibration	7	x	4389	750.0000	0.2418
D:\GC-21\Data\061020\061012.D	Calibration	8	x	5979	1000.0000	0.2487
D:\GC-21\Data\061020\061013.D	Calibration	9	x	13576	2000.0000	0.2759
D:\GC-21\Data\061020\061014.D	Calibration	10	x	37701	5000.0000	0.3144

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

Pentachlorophenol



Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	24	10.0000	0.1026
D:\GC-21\Data\061020\061006.D	Calibration	2	x	49	20.0000	0.1057
D:\GC-21\Data\061020\061007.D	Calibration	3	x	87	40.0000	0.0928
D:\GC-21\Data\061020\061008.D	Calibration	4	x	223	100.0000	0.0939
D:\GC-21\Data\061020\061009.D	Calibration	5	x	595	200.0000	0.1188
D:\GC-21\Data\061020\061010.D	Calibration	6	x	1500	500.0000	0.1252
D:\GC-21\Data\061020\061011.D	Calibration	7	x	2683	750.0000	0.1478
D:\GC-21\Data\061020\061012.D	Calibration	8	x	3641	1000.0000	0.1514
D:\GC-21\Data\061020\061013.D	Calibration	9	x	9730	2000.0000	0.1978
D:\GC-21\Data\061020\061014.D	Calibration	10	x	30550	5000.0000	0.2548

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
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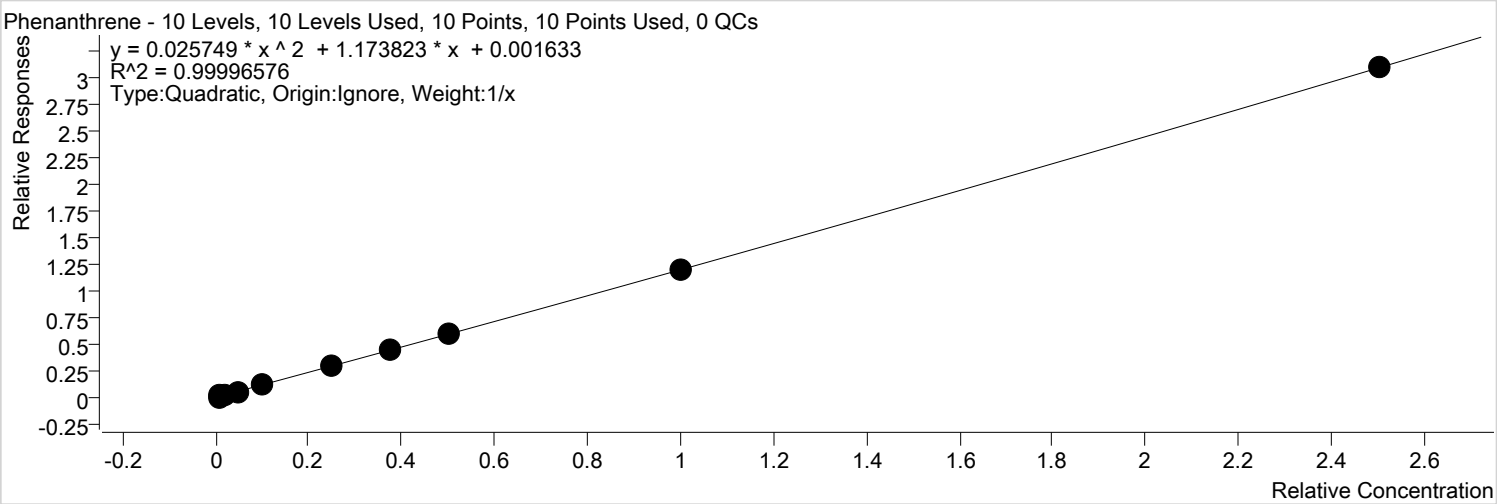
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

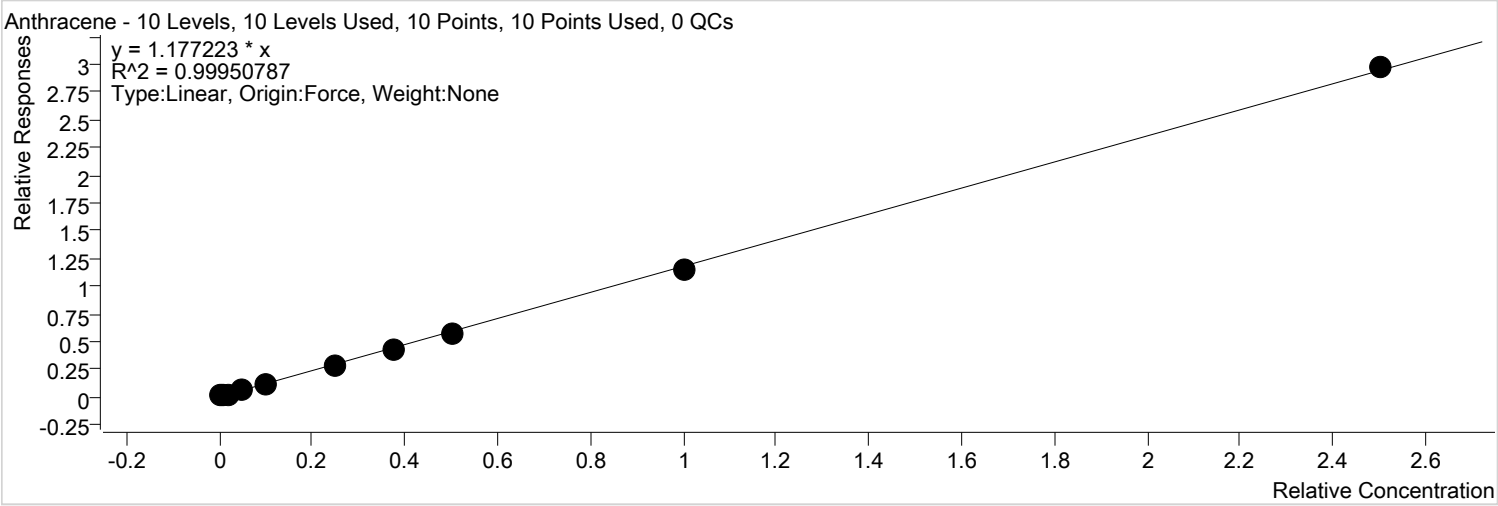
Phenanthrene



Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	572	10.0000	1.4692
D:\GC-21\Data\061020\061006.D	Calibration	2	x	967	20.0000	1.2828
D:\GC-21\Data\061020\061007.D	Calibration	3	x	2088	40.0000	1.3252
D:\GC-21\Data\061020\061008.D	Calibration	4	x	4794	100.0000	1.2171
D:\GC-21\Data\061020\061009.D	Calibration	5	x	9989	200.0000	1.2054
D:\GC-21\Data\061020\061010.D	Calibration	6	x	23611	500.0000	1.1844
D:\GC-21\Data\061020\061011.D	Calibration	7	x	36032	750.0000	1.1810
D:\GC-21\Data\061020\061012.D	Calibration	8	x	49268	1000.0000	1.1984
D:\GC-21\Data\061020\061013.D	Calibration	9	x	100676	2000.0000	1.1962
D:\GC-21\Data\061020\061014.D	Calibration	10	x	255138	5000.0000	1.2395

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

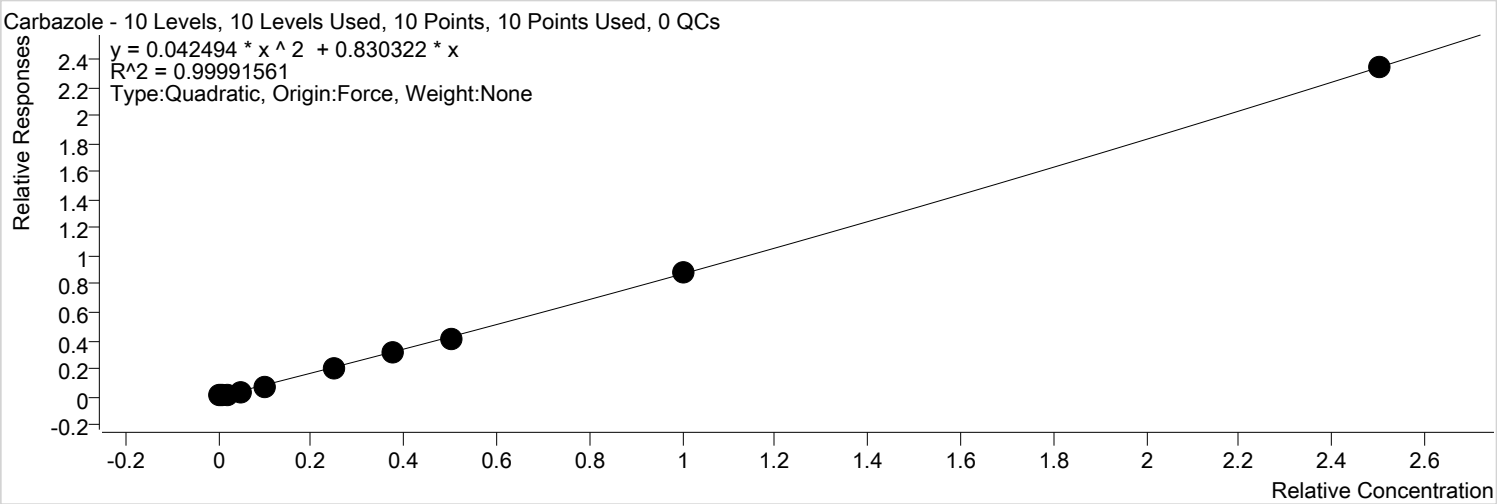
Anthracene



Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	485	10.0000	1.2460
D:\GC-21\Data\061020\061006.D	Calibration	2	x	972	20.0000	1.2890
D:\GC-21\Data\061020\061007.D	Calibration	3	x	1876	40.0000	1.1906
D:\GC-21\Data\061020\061008.D	Calibration	4	x	4221	100.0000	1.0717
D:\GC-21\Data\061020\061009.D	Calibration	5	x	9141	200.0000	1.1031
D:\GC-21\Data\061020\061010.D	Calibration	6	x	22225	500.0000	1.1149
D:\GC-21\Data\061020\061011.D	Calibration	7	x	34151	750.0000	1.1194
D:\GC-21\Data\061020\061012.D	Calibration	8	x	46071	1000.0000	1.1206
D:\GC-21\Data\061020\061013.D	Calibration	9	x	95869	2000.0000	1.1391
D:\GC-21\Data\061020\061014.D	Calibration	10	x	244477	5000.0000	1.1877

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

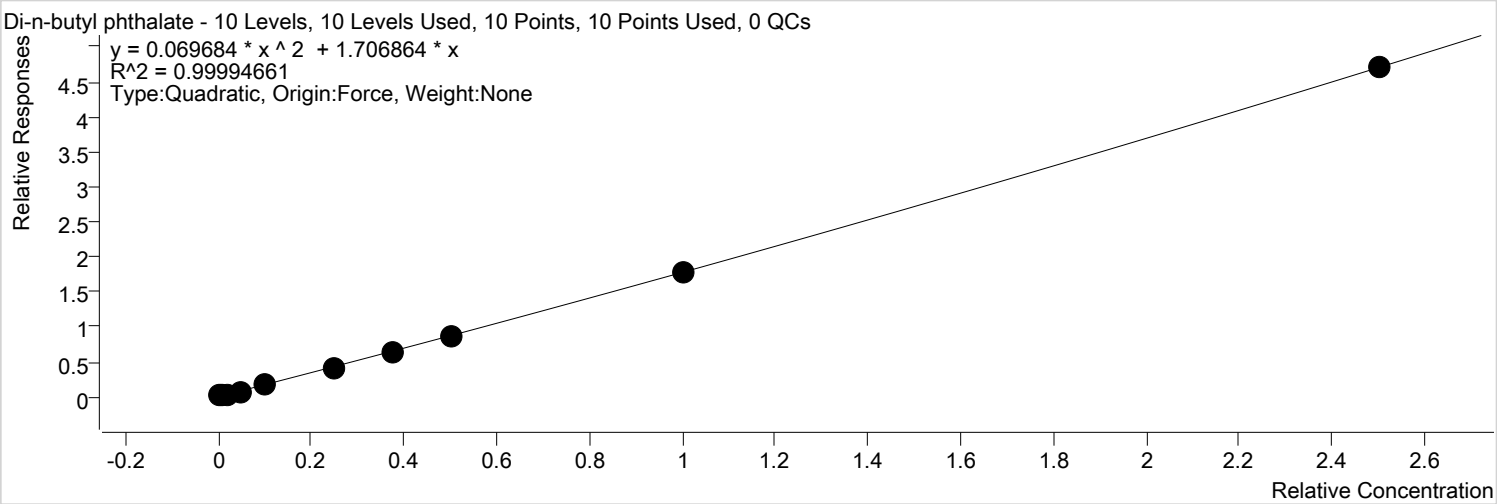
Carbazole



Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	349	10.0000	0.8966
D:\GC-21\Data\061020\061006.D	Calibration	2	x	662	20.0000	0.8776
D:\GC-21\Data\061020\061007.D	Calibration	3	x	1300	40.0000	0.8251
D:\GC-21\Data\061020\061008.D	Calibration	4	x	2991	100.0000	0.7595
D:\GC-21\Data\061020\061009.D	Calibration	5	x	6510	200.0000	0.7856
D:\GC-21\Data\061020\061010.D	Calibration	6	x	16087	500.0000	0.8070
D:\GC-21\Data\061020\061011.D	Calibration	7	x	25192	750.0000	0.8258
D:\GC-21\Data\061020\061012.D	Calibration	8	x	34409	1000.0000	0.8370
D:\GC-21\Data\061020\061013.D	Calibration	9	x	74571	2000.0000	0.8860
D:\GC-21\Data\061020\061014.D	Calibration	10	x	192658	5000.0000	0.9359

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

Di-n-butyl phthalate



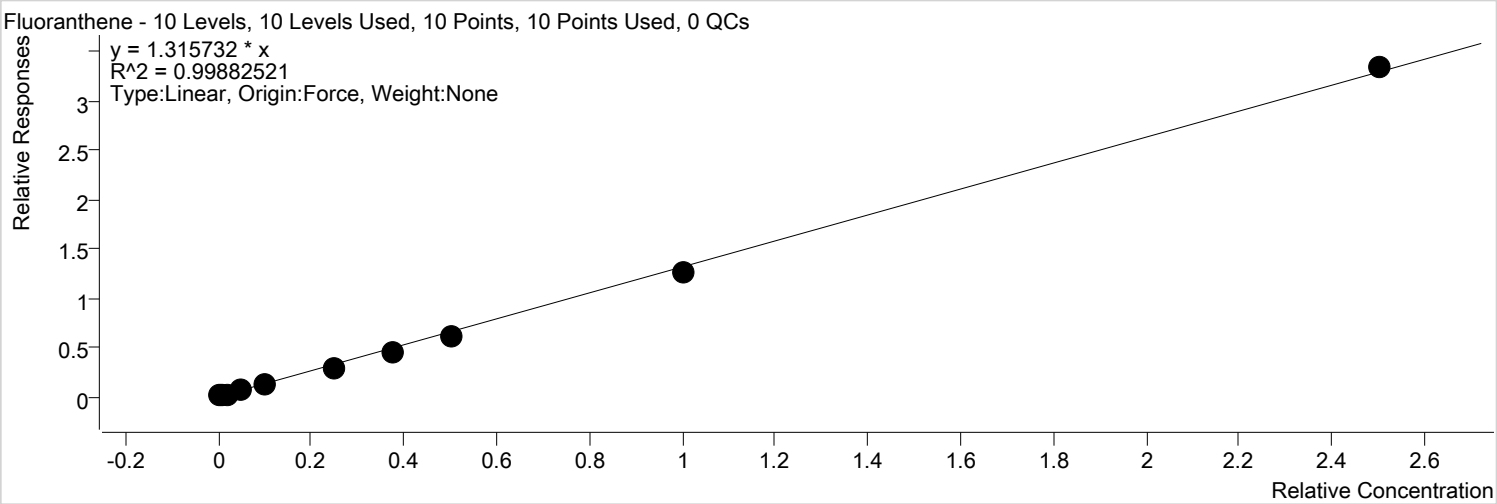
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	694	10.0000	1.7831
D:\GC-21\Data\061020\061006.D	Calibration	2	x	1328	20.0000	1.7616
D:\GC-21\Data\061020\061007.D	Calibration	3	x	2615	40.0000	1.6595
D:\GC-21\Data\061020\061008.D	Calibration	4	x	6070	100.0000	1.5412
D:\GC-21\Data\061020\061009.D	Calibration	5	x	13454	200.0000	1.6235
D:\GC-21\Data\061020\061010.D	Calibration	6	x	32880	500.0000	1.6494
D:\GC-21\Data\061020\061011.D	Calibration	7	x	51918	750.0000	1.7018
D:\GC-21\Data\061020\061012.D	Calibration	8	x	71205	1000.0000	1.7320
D:\GC-21\Data\061020\061013.D	Calibration	9	x	151089	2000.0000	1.7952
D:\GC-21\Data\061020\061014.D	Calibration	10	x	387020	5000.0000	1.8801

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

Fluoranthene



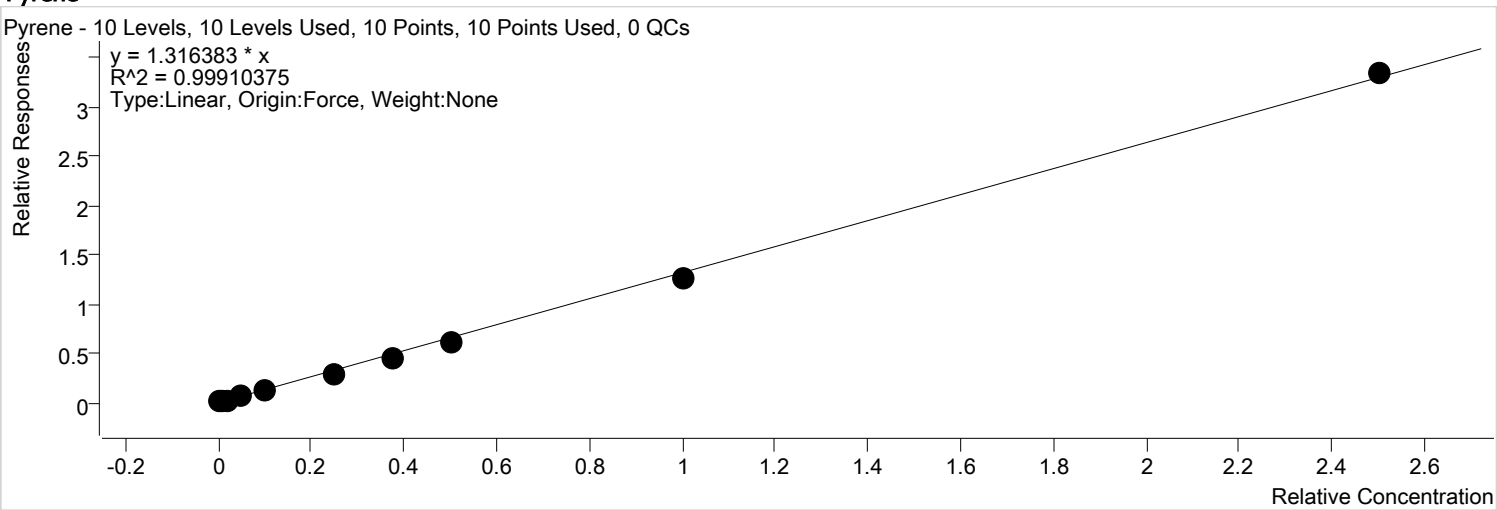
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	545	10.0000	1.3998
D:\GC-21\Data\061020\061006.D	Calibration	2	x	1014	20.0000	1.3457
D:\GC-21\Data\061020\061007.D	Calibration	3	x	1964	40.0000	1.2463
D:\GC-21\Data\061020\061008.D	Calibration	4	x	4619	100.0000	1.1728
D:\GC-21\Data\061020\061009.D	Calibration	5	x	9855	200.0000	1.1892
D:\GC-21\Data\061020\061010.D	Calibration	6	x	23468	500.0000	1.1772
D:\GC-21\Data\061020\061011.D	Calibration	7	x	36831	750.0000	1.2072
D:\GC-21\Data\061020\061012.D	Calibration	8	x	50038	1000.0000	1.2171
D:\GC-21\Data\061020\061013.D	Calibration	9	x	105582	2000.0000	1.2545
D:\GC-21\Data\061020\061014.D	Calibration	10	x	274509	5000.0000	1.3336

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

Pyrene

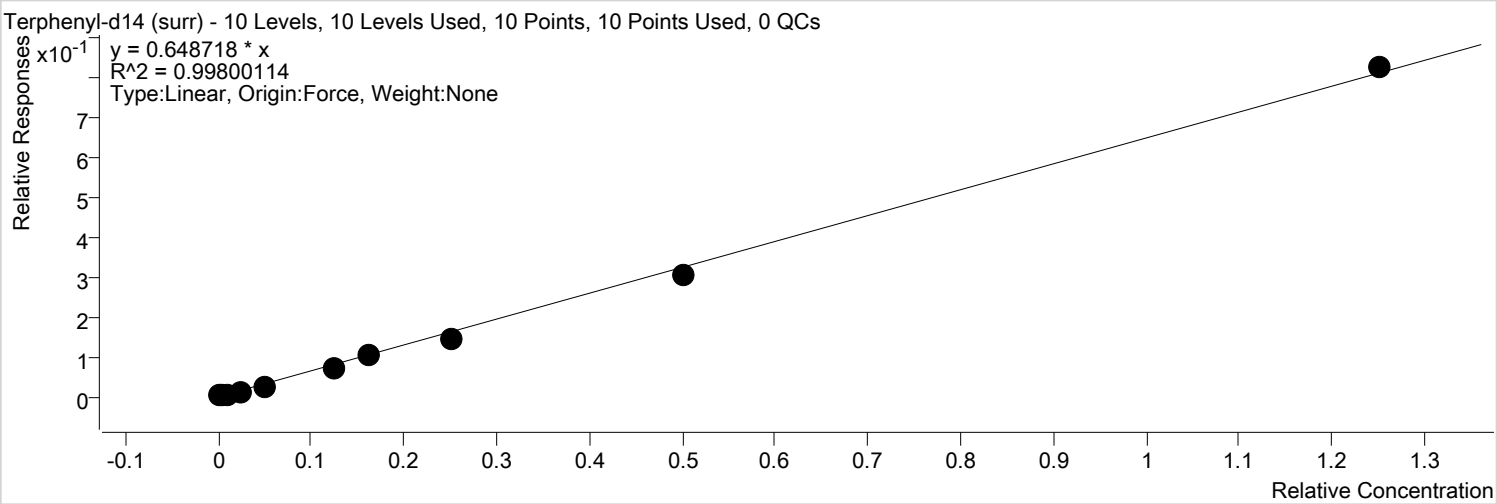


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	554	10.0000	1.4233
D:\GC-21\Data\061020\061006.D	Calibration	2	x	1008	20.0000	1.3378
D:\GC-21\Data\061020\061007.D	Calibration	3	x	1982	40.0000	1.2581
D:\GC-21\Data\061020\061008.D	Calibration	4	x	4622	100.0000	1.1736
D:\GC-21\Data\061020\061009.D	Calibration	5	x	10018	200.0000	1.2089
D:\GC-21\Data\061020\061010.D	Calibration	6	x	23616	500.0000	1.1846
D:\GC-21\Data\061020\061011.D	Calibration	7	x	37217	750.0000	1.2199
D:\GC-21\Data\061020\061012.D	Calibration	8	x	50255	1000.0000	1.2224
D:\GC-21\Data\061020\061013.D	Calibration	9	x	106718	2000.0000	1.2680
D:\GC-21\Data\061020\061014.D	Calibration	10	x	274105	5000.0000	1.3316

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

Terphenyl-d14 (surr)



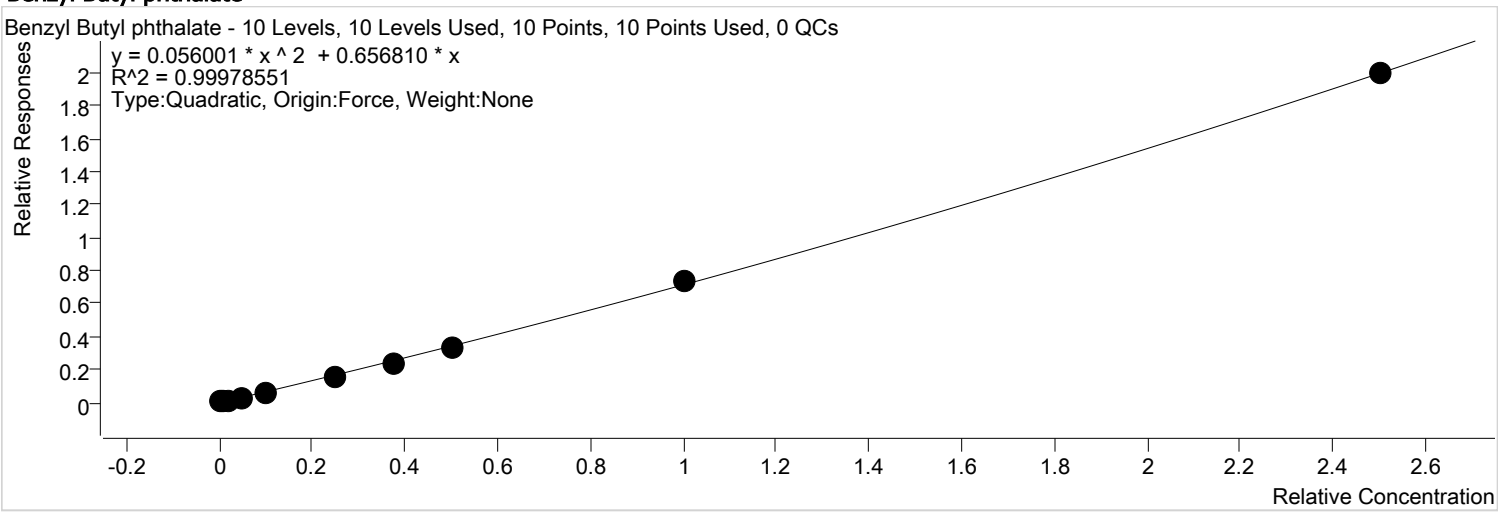
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	122	5.0000	0.6249
D:\GC-21\Data\061020\061006.D	Calibration	2	x	237	10.0000	0.6285
D:\GC-21\Data\061020\061007.D	Calibration	3	x	477	20.0000	0.6056
D:\GC-21\Data\061020\061008.D	Calibration	4	x	1045	50.0000	0.5306
D:\GC-21\Data\061020\061009.D	Calibration	5	x	2294	100.0000	0.5537
D:\GC-21\Data\061020\061010.D	Calibration	6	x	5544	250.0000	0.5562
D:\GC-21\Data\061020\061011.D	Calibration	7	x	8646	325.0000	0.6540
D:\GC-21\Data\061020\061012.D	Calibration	8	x	11786	500.0000	0.5733
D:\GC-21\Data\061020\061013.D	Calibration	9	x	25491	1000.0000	0.6058
D:\GC-21\Data\061020\061014.D	Calibration	10	x	67892	2500.0000	0.6596

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

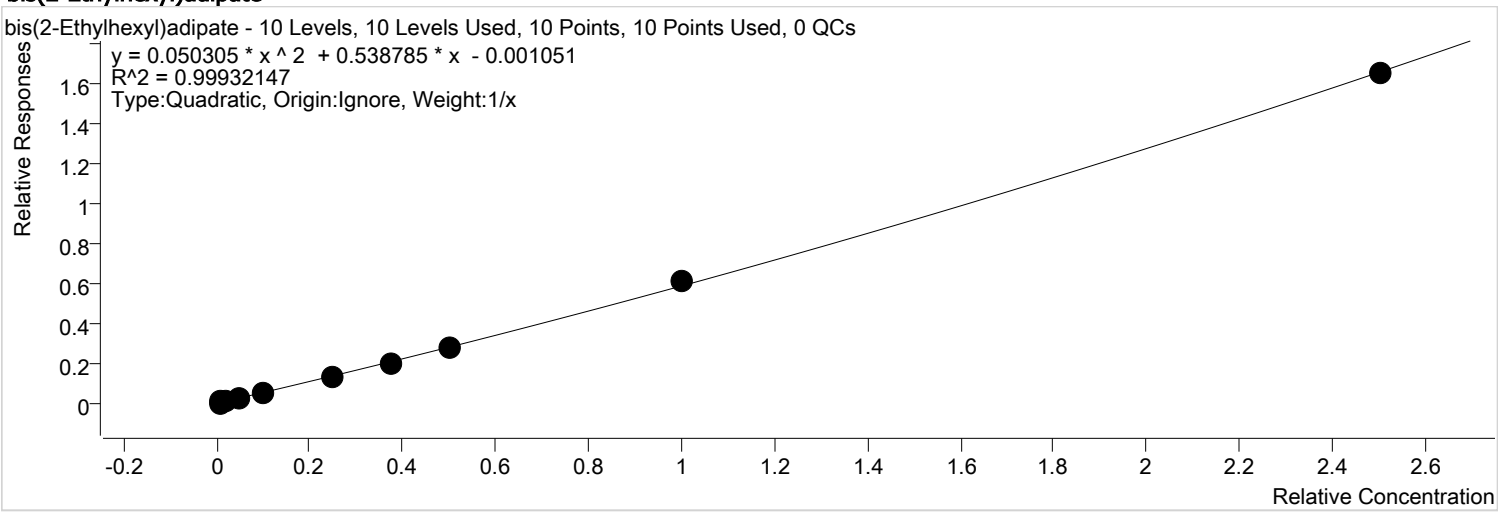
Benzyl Butyl phthalate



Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	234	10.0000	0.6021
D:\GC-21\Data\061020\061006.D	Calibration	2	x	440	20.0000	0.5842
D:\GC-21\Data\061020\061007.D	Calibration	3	x	963	40.0000	0.6114
D:\GC-21\Data\061020\061008.D	Calibration	4	x	2213	100.0000	0.5618
D:\GC-21\Data\061020\061009.D	Calibration	5	x	4911	200.0000	0.5927
D:\GC-21\Data\061020\061010.D	Calibration	6	x	12333	500.0000	0.6186
D:\GC-21\Data\061020\061011.D	Calibration	7	x	19643	750.0000	0.6438
D:\GC-21\Data\061020\061012.D	Calibration	8	x	27681	1000.0000	0.6733
D:\GC-21\Data\061020\061013.D	Calibration	9	x	61428	2000.0000	0.7299
D:\GC-21\Data\061020\061014.D	Calibration	10	x	163850	5000.0000	0.7960

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

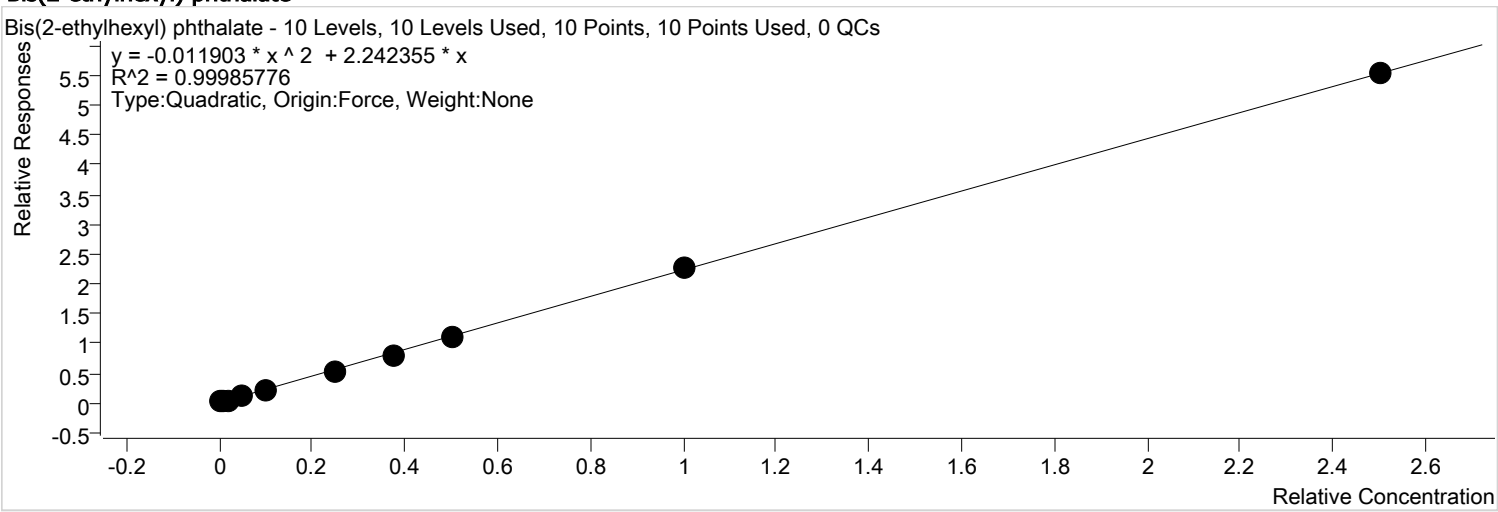
bis(2-Ethylhexyl)adipate



Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	131	10.0000	0.3357
D:\GC-21\Data\061020\061006.D	Calibration	2	x	401	20.0000	0.5322
D:\GC-21\Data\061020\061007.D	Calibration	3	x	783	40.0000	0.4967
D:\GC-21\Data\061020\061008.D	Calibration	4	x	1821	100.0000	0.4623
D:\GC-21\Data\061020\061009.D	Calibration	5	x	4065	200.0000	0.4906
D:\GC-21\Data\061020\061010.D	Calibration	6	x	10369	500.0000	0.5202
D:\GC-21\Data\061020\061011.D	Calibration	7	x	16642	750.0000	0.5455
D:\GC-21\Data\061020\061012.D	Calibration	8	x	23225	1000.0000	0.5649
D:\GC-21\Data\061020\061013.D	Calibration	9	x	51395	2000.0000	0.6107
D:\GC-21\Data\061020\061014.D	Calibration	10	x	136054	5000.0000	0.6610

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

Bis(2-ethylhexyl) phthalate



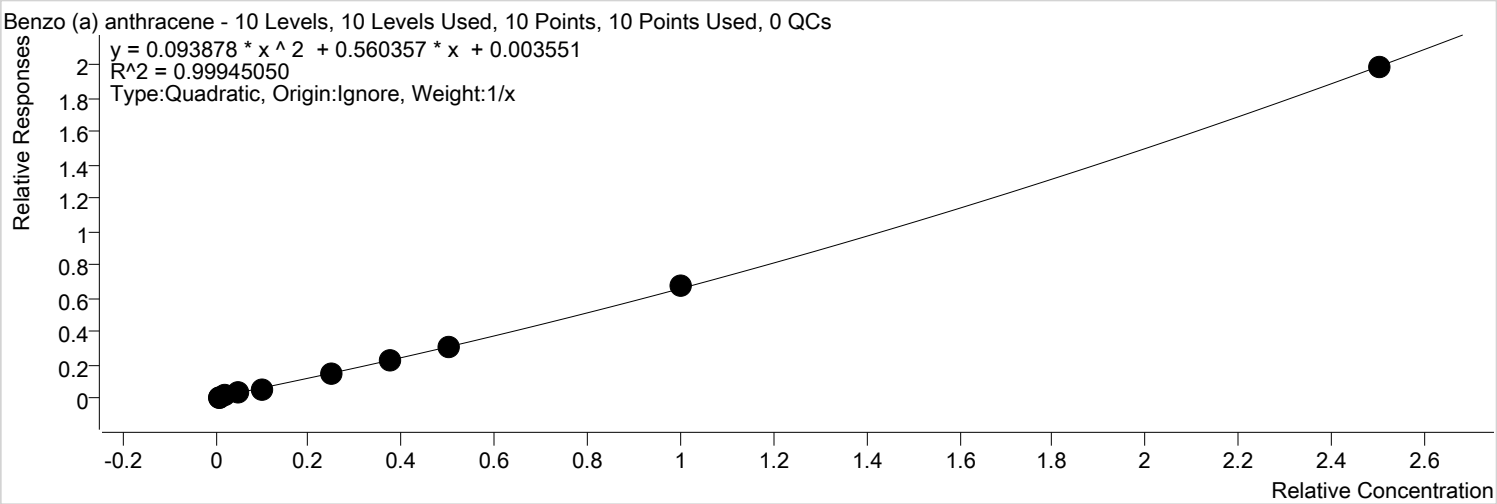
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	353	10.0000	2.1439
D:\GC-21\Data\061020\061006.D	Calibration	2	x	658	20.0000	2.1169
D:\GC-21\Data\061020\061007.D	Calibration	3	x	1388	40.0000	2.1037
D:\GC-21\Data\061020\061008.D	Calibration	4	x	3247	100.0000	1.9518
D:\GC-21\Data\061020\061009.D	Calibration	5	x	7362	200.0000	2.0877
D:\GC-21\Data\061020\061010.D	Calibration	6	x	18676	500.0000	2.1379
D:\GC-21\Data\061020\061011.D	Calibration	7	x	29805	750.0000	2.1398
D:\GC-21\Data\061020\061012.D	Calibration	8	x	41895	1000.0000	2.2270
D:\GC-21\Data\061020\061013.D	Calibration	9	x	92823	2000.0000	2.2664
D:\GC-21\Data\061020\061014.D	Calibration	10	x	243873	5000.0000	2.2108

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

Benzo (a) anthracene

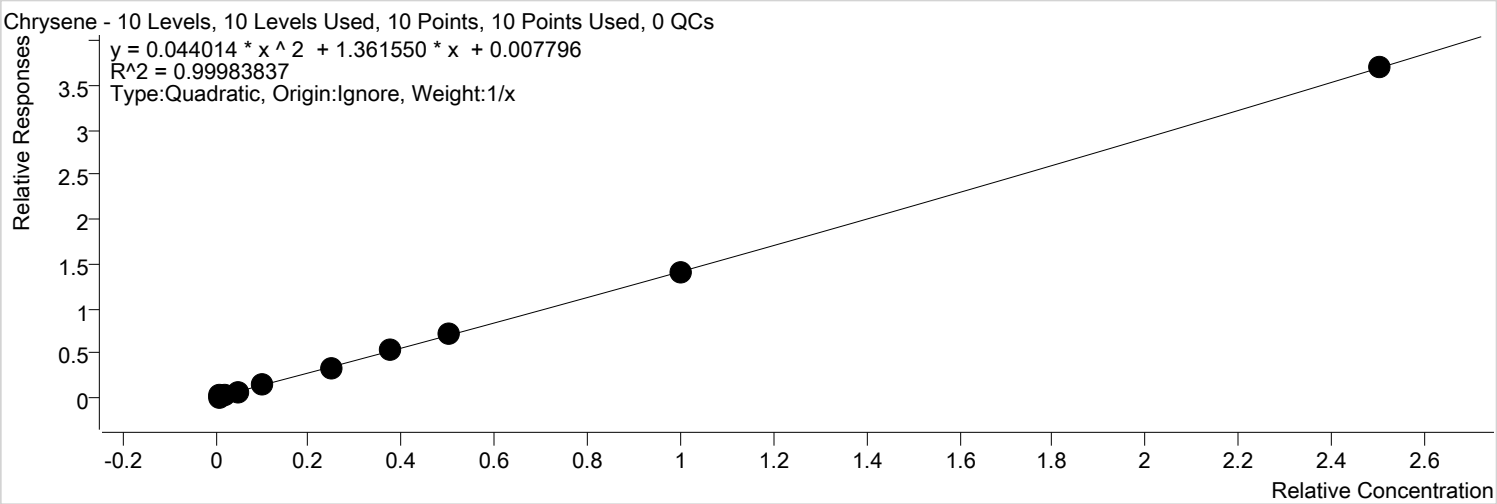


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	555	10.0000	1.4258
D:\GC-21\Data\061020\061006.D	Calibration	2	x	689	20.0000	0.9140
D:\GC-21\Data\061020\061007.D	Calibration	3	x	1119	40.0000	0.7102
D:\GC-21\Data\061020\061008.D	Calibration	4	x	2174	100.0000	0.5520
D:\GC-21\Data\061020\061009.D	Calibration	5	x	4790	200.0000	0.5780
D:\GC-21\Data\061020\061010.D	Calibration	6	x	11159	500.0000	0.5598
D:\GC-21\Data\061020\061011.D	Calibration	7	x	18521	750.0000	0.6071
D:\GC-21\Data\061020\061012.D	Calibration	8	x	25680	1000.0000	0.6246
D:\GC-21\Data\061020\061013.D	Calibration	9	x	56825	2000.0000	0.6752
D:\GC-21\Data\061020\061014.D	Calibration	10	x	163379	5000.0000	0.7937

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

Chrysene



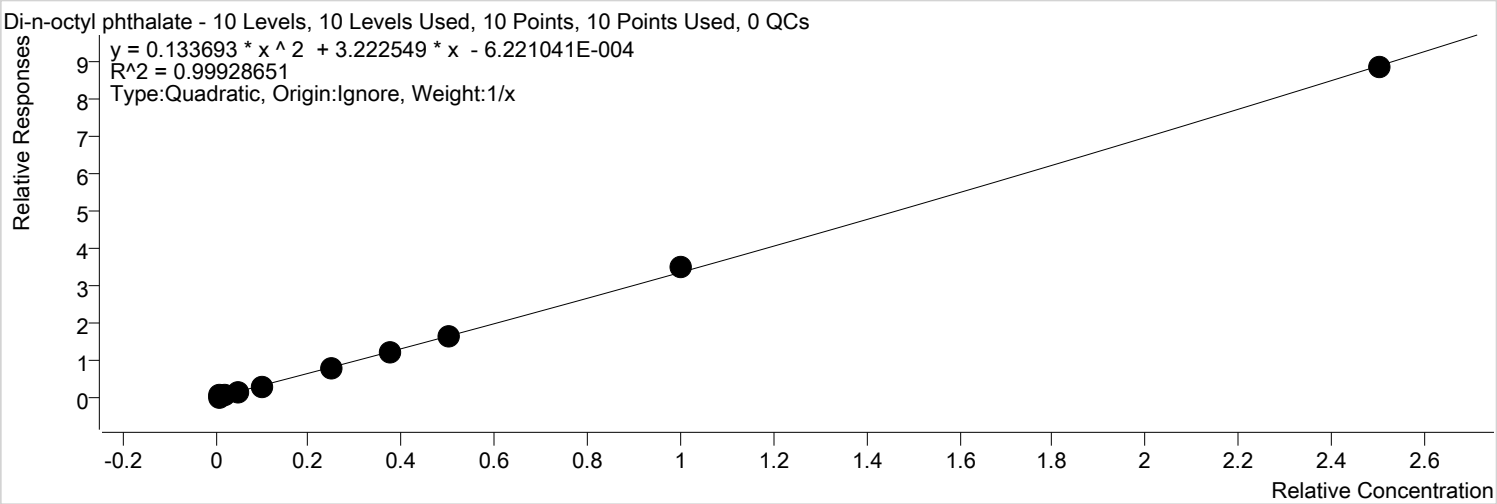
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	484	10.0000	2.9394
D:\GC-21\Data\061020\061006.D	Calibration	2	x	635	20.0000	2.0439
D:\GC-21\Data\061020\061007.D	Calibration	3	x	1199	40.0000	1.8174
D:\GC-21\Data\061020\061008.D	Calibration	4	x	2509	100.0000	1.5080
D:\GC-21\Data\061020\061009.D	Calibration	5	x	5205	200.0000	1.4761
D:\GC-21\Data\061020\061010.D	Calibration	6	x	11934	500.0000	1.3661
D:\GC-21\Data\061020\061011.D	Calibration	7	x	19904	750.0000	1.4290
D:\GC-21\Data\061020\061012.D	Calibration	8	x	26663	1000.0000	1.4173
D:\GC-21\Data\061020\061013.D	Calibration	9	x	57113	2000.0000	1.3945
D:\GC-21\Data\061020\061014.D	Calibration	10	x	162887	5000.0000	1.4766

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

Di-n-octyl phthalate



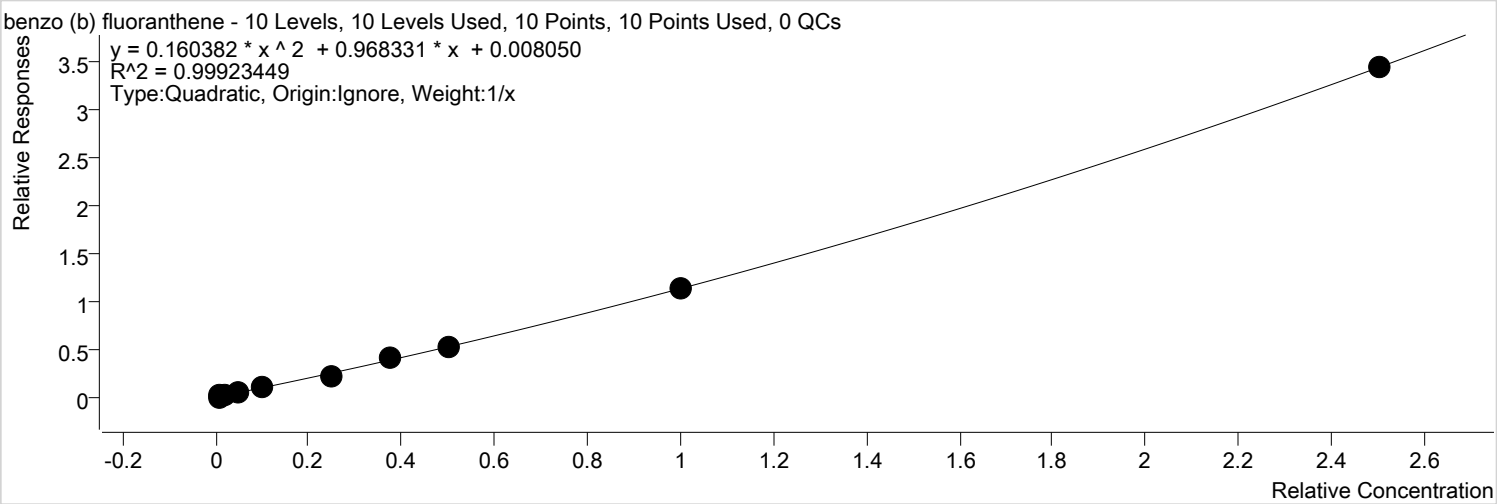
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	564	10.0000	3.4259
D:\GC-21\Data\061020\061006.D	Calibration	2	x	1090	20.0000	3.5090
D:\GC-21\Data\061020\061007.D	Calibration	3	x	2089	40.0000	3.1663
D:\GC-21\Data\061020\061008.D	Calibration	4	x	4763	100.0000	2.8624
D:\GC-21\Data\061020\061009.D	Calibration	5	x	10601	200.0000	3.0064
D:\GC-21\Data\061020\061010.D	Calibration	6	x	27424	500.0000	3.1392
D:\GC-21\Data\061020\061011.D	Calibration	7	x	44287	750.0000	3.1795
D:\GC-21\Data\061020\061012.D	Calibration	8	x	62250	1000.0000	3.3089
D:\GC-21\Data\061020\061013.D	Calibration	9	x	142948	2000.0000	3.4903
D:\GC-21\Data\061020\061014.D	Calibration	10	x	390256	5000.0000	3.5378

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

benzo (b) fluoranthene

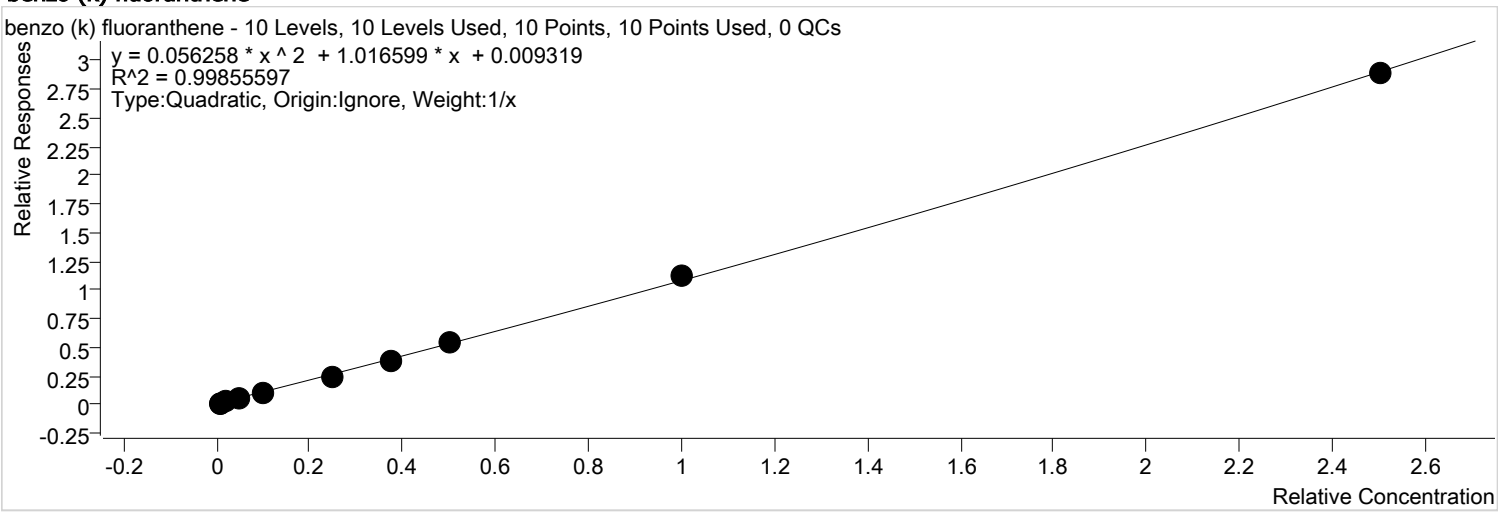


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	430	10.0000	2.6115
D:\GC-21\Data\061020\061006.D	Calibration	2	x	610	20.0000	1.9634
D:\GC-21\Data\061020\061007.D	Calibration	3	x	836	40.0000	1.2672
D:\GC-21\Data\061020\061008.D	Calibration	4	x	1725	100.0000	1.0368
D:\GC-21\Data\061020\061009.D	Calibration	5	x	3756	200.0000	1.0651
D:\GC-21\Data\061020\061010.D	Calibration	6	x	8271	500.0000	0.9468
D:\GC-21\Data\061020\061011.D	Calibration	7	x	15662	750.0000	1.1244
D:\GC-21\Data\061020\061012.D	Calibration	8	x	20169	1000.0000	1.0721
D:\GC-21\Data\061020\061013.D	Calibration	9	x	46513	2000.0000	1.1357
D:\GC-21\Data\061020\061014.D	Calibration	10	x	151309	5000.0000	1.3717

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

benzo (k) fluoranthene



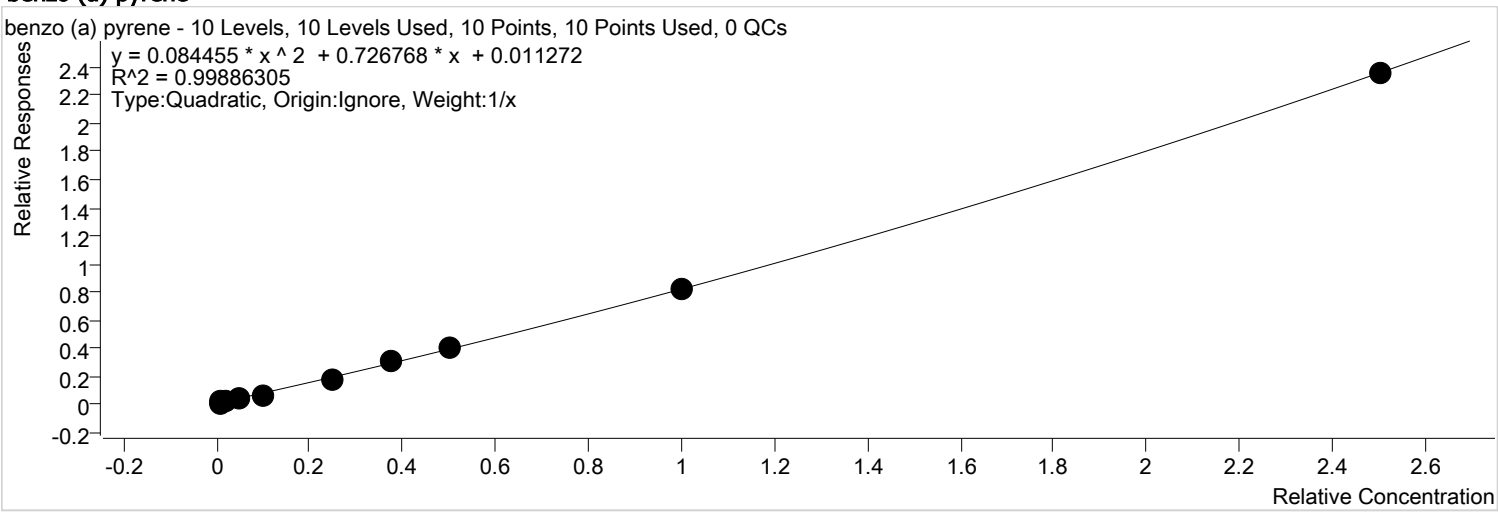
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	516	10.0000	3.1317
D:\GC-21\Data\061020\061006.D	Calibration	2	x	569	20.0000	1.8299
D:\GC-21\Data\061020\061007.D	Calibration	3	x	973	40.0000	1.4753
D:\GC-21\Data\061020\061008.D	Calibration	4	x	1955	100.0000	1.1749
D:\GC-21\Data\061020\061009.D	Calibration	5	x	3912	200.0000	1.1094
D:\GC-21\Data\061020\061010.D	Calibration	6	x	8099	500.0000	0.9271
D:\GC-21\Data\061020\061011.D	Calibration	7	x	14522	750.0000	1.0426
D:\GC-21\Data\061020\061012.D	Calibration	8	x	20761	1000.0000	1.1036
D:\GC-21\Data\061020\061013.D	Calibration	9	x	45970	2000.0000	1.1224
D:\GC-21\Data\061020\061014.D	Calibration	10	x	127385	5000.0000	1.1548

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

benzo (a) pyrene

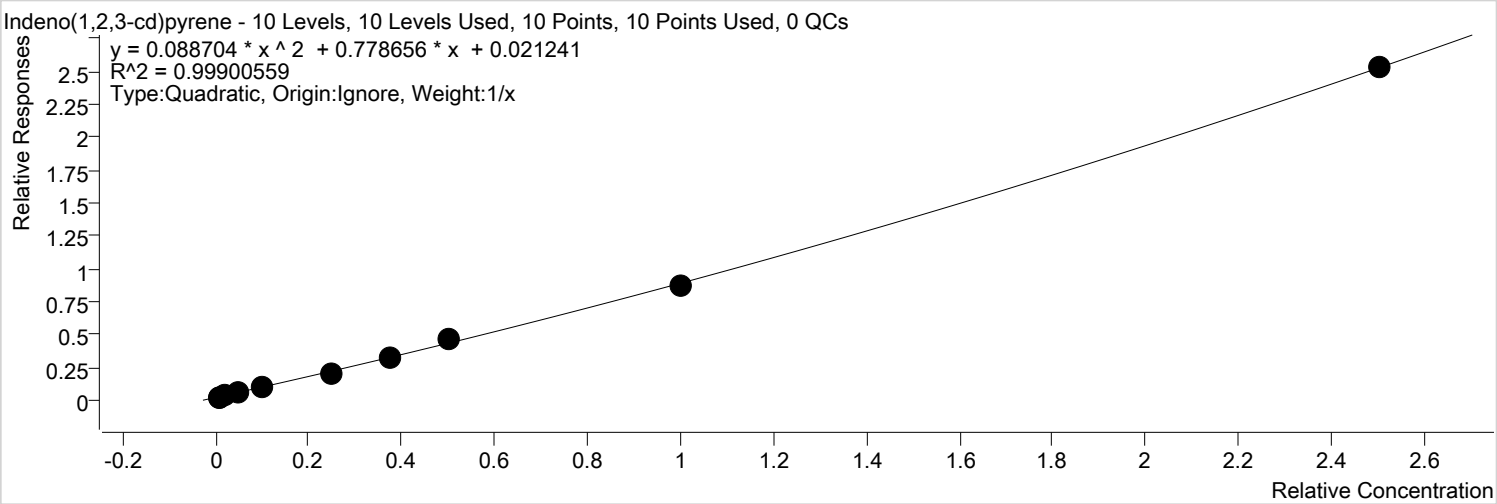


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	505	10.0000	3.0663
D:\GC-21\Data\061020\061006.D	Calibration	2	x	585	20.0000	1.8815
D:\GC-21\Data\061020\061007.D	Calibration	3	x	865	40.0000	1.3104
D:\GC-21\Data\061020\061008.D	Calibration	4	x	1565	100.0000	0.9406
D:\GC-21\Data\061020\061009.D	Calibration	5	x	2641	200.0000	0.7490
D:\GC-21\Data\061020\061010.D	Calibration	6	x	6186	500.0000	0.7081
D:\GC-21\Data\061020\061011.D	Calibration	7	x	11339	750.0000	0.8140
D:\GC-21\Data\061020\061012.D	Calibration	8	x	15635	1000.0000	0.8311
D:\GC-21\Data\061020\061013.D	Calibration	9	x	33983	2000.0000	0.8298
D:\GC-21\Data\061020\061014.D	Calibration	10	x	103702	5000.0000	0.9401

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

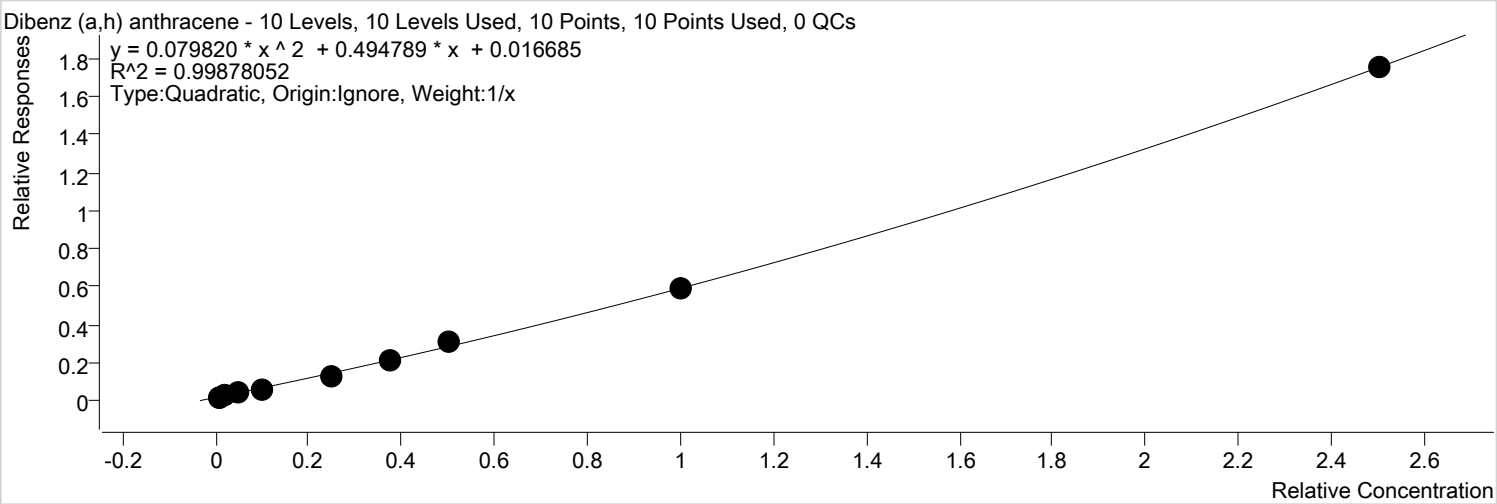
Indeno(1,2,3-cd)pyrene



Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	677	10.0000	5.2261
D:\GC-21\Data\061020\061006.D	Calibration	2	x	702	20.0000	2.8046
D:\GC-21\Data\061020\061007.D	Calibration	3	x	895	40.0000	1.7444
D:\GC-21\Data\061020\061008.D	Calibration	4	x	1570	100.0000	1.1825
D:\GC-21\Data\061020\061009.D	Calibration	5	x	2887	200.0000	1.0523
D:\GC-21\Data\061020\061010.D	Calibration	6	x	5519	500.0000	0.8074
D:\GC-21\Data\061020\061011.D	Calibration	7	x	10146	750.0000	0.8801
D:\GC-21\Data\061020\061012.D	Calibration	8	x	13867	1000.0000	0.9172
D:\GC-21\Data\061020\061013.D	Calibration	9	x	29179	2000.0000	0.8743
D:\GC-21\Data\061020\061014.D	Calibration	10	x	93264	5000.0000	1.0096

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

Dibenz (a,h) anthracene

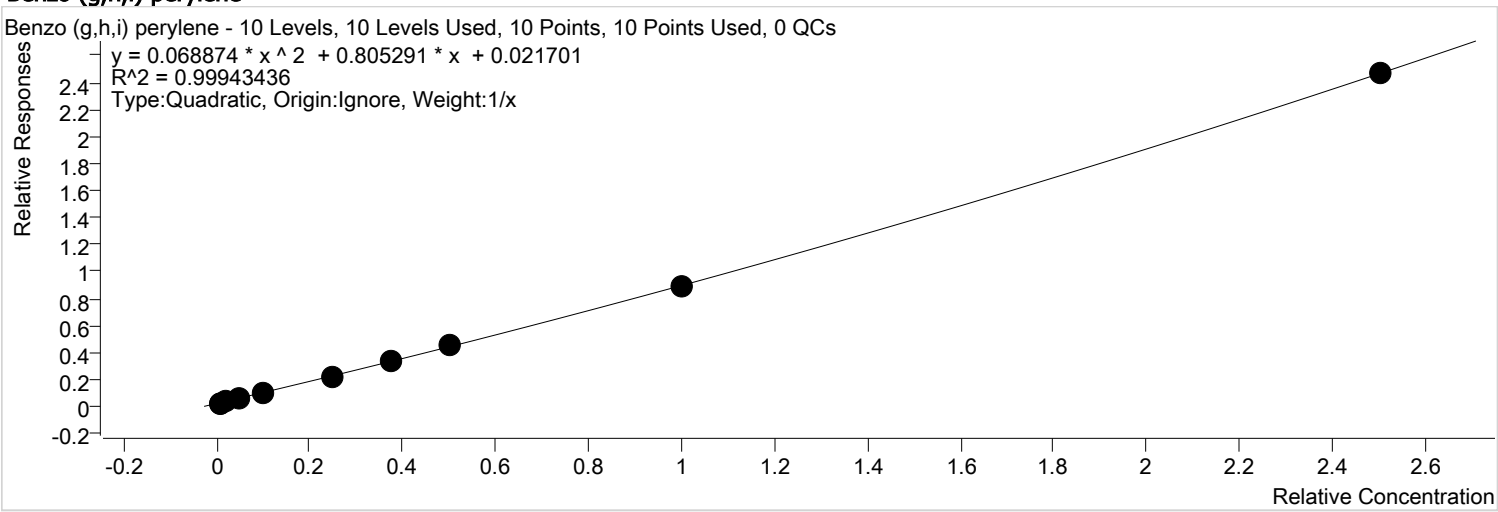


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	524	10.0000	4.0388
D:\GC-21\Data\061020\061006.D	Calibration	2	x	518	20.0000	2.0697
D:\GC-21\Data\061020\061007.D	Calibration	3	x	646	40.0000	1.2579
D:\GC-21\Data\061020\061008.D	Calibration	4	x	1138	100.0000	0.8567
D:\GC-21\Data\061020\061009.D	Calibration	5	x	1669	200.0000	0.6083
D:\GC-21\Data\061020\061010.D	Calibration	6	x	3649	500.0000	0.5339
D:\GC-21\Data\061020\061011.D	Calibration	7	x	6679	750.0000	0.5794
D:\GC-21\Data\061020\061012.D	Calibration	8	x	9188	1000.0000	0.6077
D:\GC-21\Data\061020\061013.D	Calibration	9	x	19603	2000.0000	0.5874
D:\GC-21\Data\061020\061014.D	Calibration	10	x	64701	5000.0000	0.7004

Agilent Technologies

Batch Path	D:\GC-21\Data\061020\QuantResults\pah sim windows.batch.bin		
Analysis Time	6/10/2020 6:40:51 PM	**Analyst Name**	FA\lab
Report Time	6/10/2020 6:41:11 PM	**Reporter Name**	lab
Last Calib Update	6/10/2020 3:55:11 PM	**Batch State**	Processed

Benzo (g,h,i) perylene



Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\061020\061005.D	Calibration	1	x	693	10.0000	5.3437
D:\GC-21\Data\061020\061006.D	Calibration	2	x	744	20.0000	2.9718
D:\GC-21\Data\061020\061007.D	Calibration	3	x	922	40.0000	1.7966
D:\GC-21\Data\061020\061008.D	Calibration	4	x	1515	100.0000	1.1412
D:\GC-21\Data\061020\061009.D	Calibration	5	x	2835	200.0000	1.0330
D:\GC-21\Data\061020\061010.D	Calibration	6	x	5869	500.0000	0.8586
D:\GC-21\Data\061020\061011.D	Calibration	7	x	10590	750.0000	0.9187
D:\GC-21\Data\061020\061012.D	Calibration	8	x	13727	1000.0000	0.9080
D:\GC-21\Data\061020\061013.D	Calibration	9	x	29763	2000.0000	0.8918
D:\GC-21\Data\061020\061014.D	Calibration	10	x	91056	5000.0000	0.9857

PAH Calibration

Date: 06/09/20 FMT: 23845

Analyst: Sam Beerman

MeCl2: 2083/4997

Cal	ICV
8270 Megamix: 23290	8270 Megamix: ~~23290~~ ~~83~~ 619 23297

8270 Surrogate: 23842

IS: 23710

Spike Conc. (ppb)	BN/Acid Surr Conc. (ppb)	2° Spike (uL)	B/N Surr (uL)	Internal Standard (uL)	Remove (uL)	Final Vol. (mL)	Comments
11 2	5/2.5	0.2		10	10.2	1	
12 10	10/5	1	--	10	11	1	
13 20	20/10	2	--	10	12	1	
14 40	40/20	4	--	10	14	1	
15 100	100/50	10	--	10	20	1	
16 200	200/100	20	--	10	30	1	
17 500	500/250	~~40~~ 50	--	10	60	1	
18 750	750/375	75	--	10	85	1	
19 1000	1000/500	100	--	10	110	1	
20 2000	2000/1000	200	--	10	210	1	
21 5000	5000/2500	500	--	10	510	1	
22 ICB	1000/500		1	10	11	1	
23 ICV (1000 ppb)	1000/500	~~100 (2~~° SS) 1 826/9	--	10	~~110~~ 11 826/9	1	

	Mega Mix (uL)	8270 Surr (uL)	Final Volume (mL)
2° Intermediate (cal)	100	100	10
2° Intermediate (SS)	50	50	5

Signature and Date: Sam Beerman 06/09/20

Signature: EM

700 Building Calibration Template - PAH v1.1

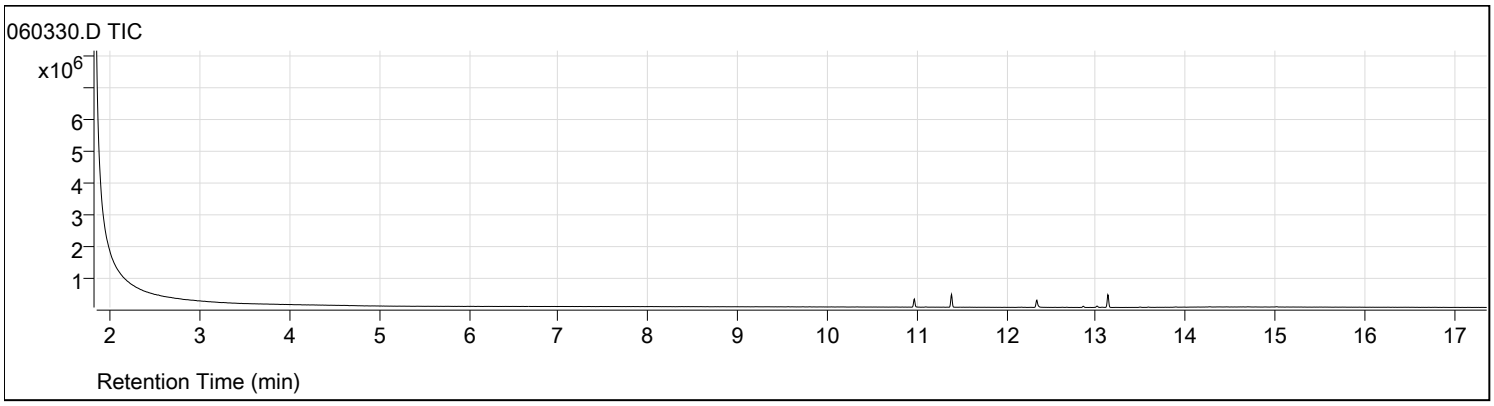
1 of 1

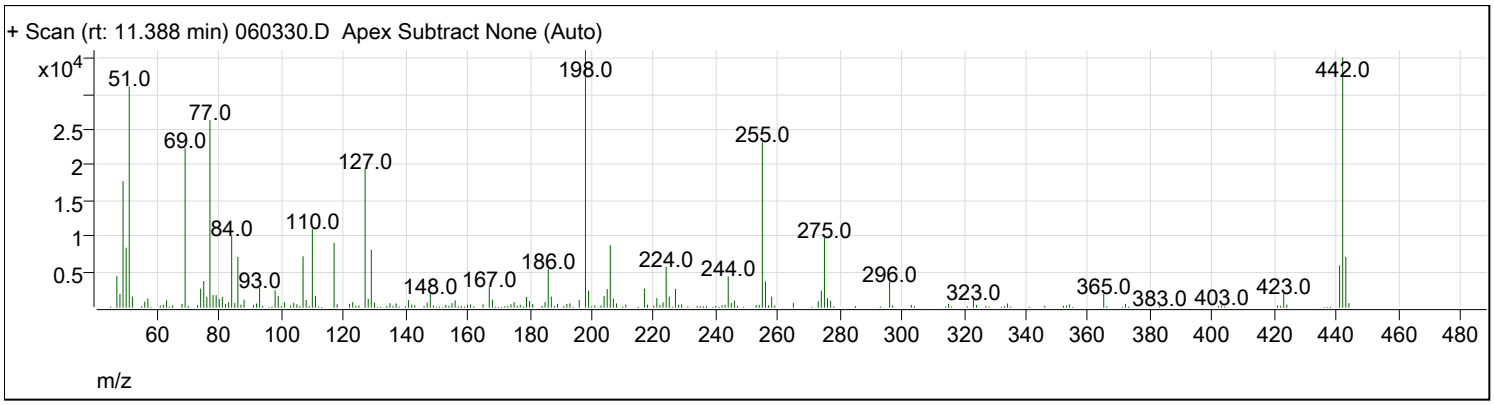
Official Approval: 11/14/2019

Tunes

Tune Evaluation Report

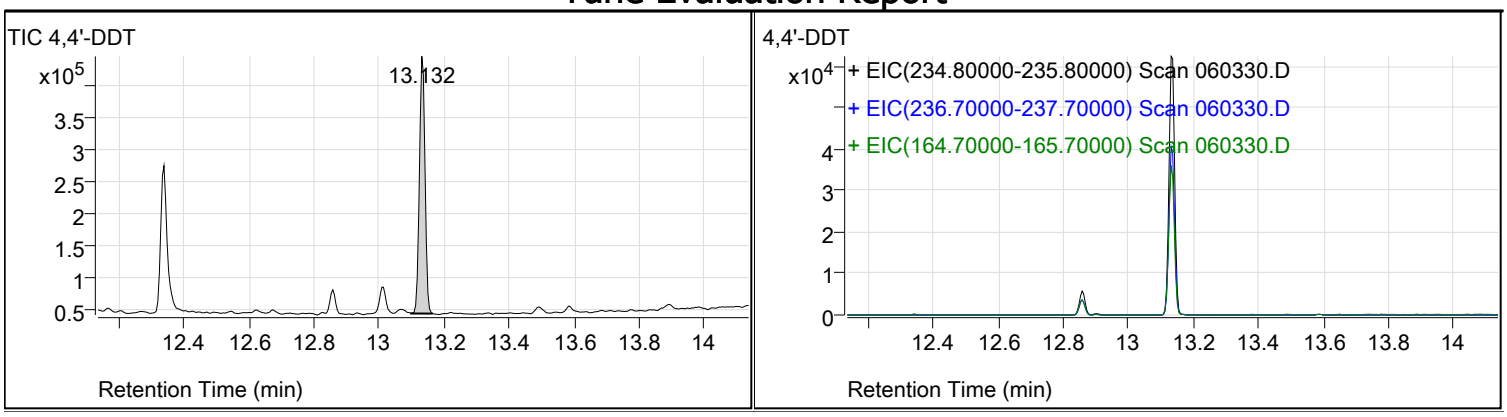
Data Path:	D:\GC-21\Data\060320\060330.D
Acq on:	6/3/2020 8:26:22 PM
Operator:	SNB
Sample:	TUNE
Inst Name:	GC-21
ALS Vial:	1
Method:	D:\MassHunter\Methods\Quant\DFTPPwBreak&TailingGC218270E.m

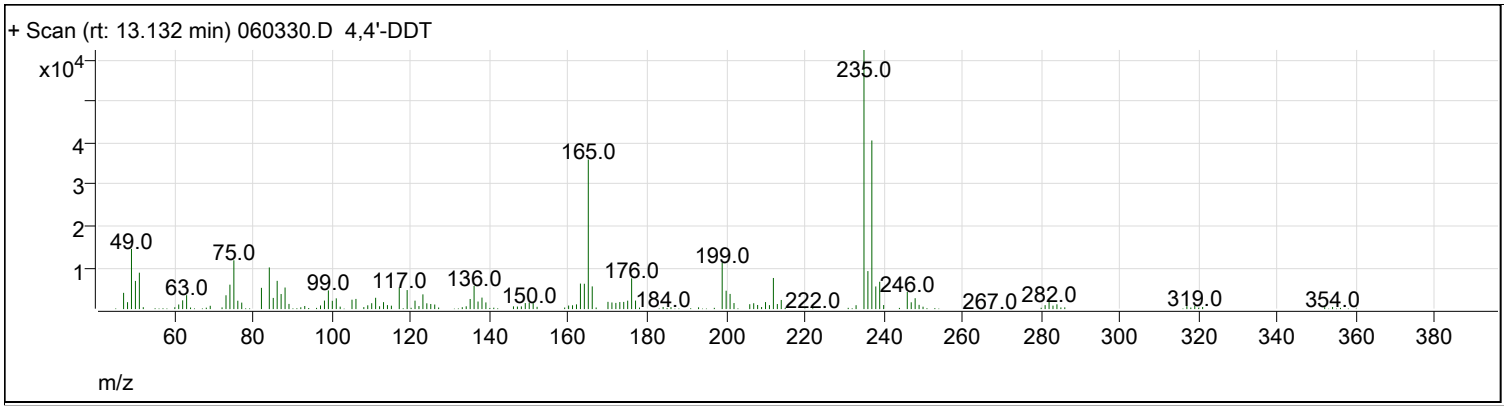


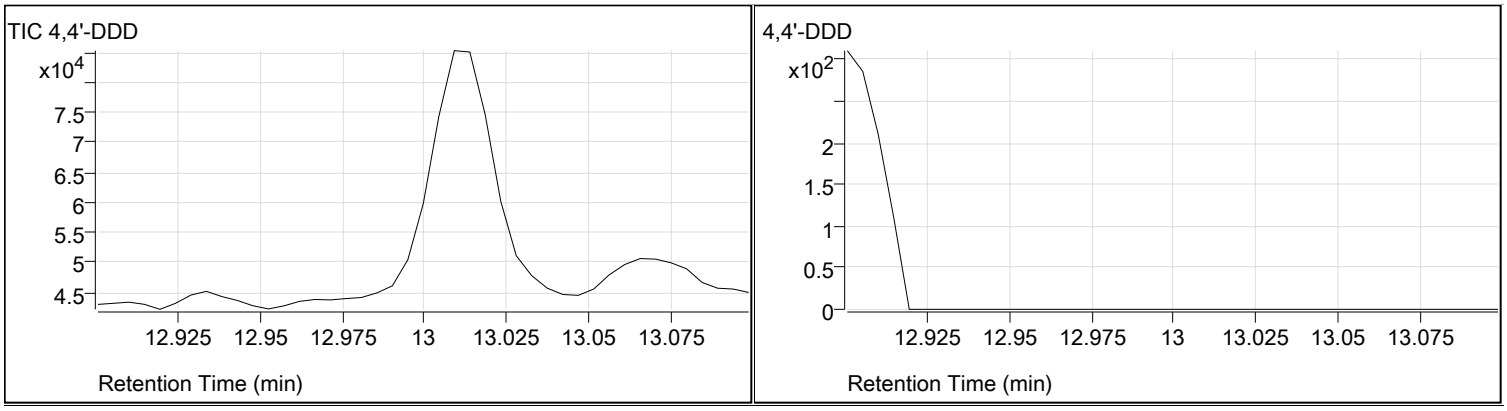


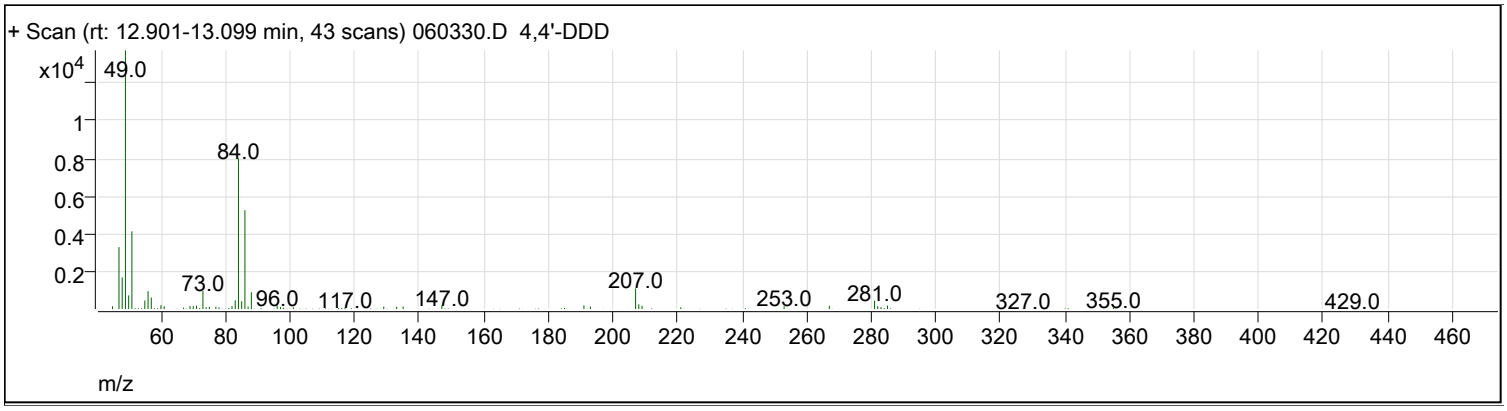
Target Mass	Rel. To Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Pass/Fail
68	69	0	2	2.4	536	Fail
70	69	0	2	1.1	250	Pass
197	198	0	2	0.0	0	Pass
198	198	100	100	100.0	36136	Pass
199	198	5	9	6.6	2393	Pass
365	198	1	100	5.3	1918	Pass
441	443	1E-10	150	82.9	5922	Pass
442	442	100	100	100.0	35144	Pass
443	442	15	24	20.3	7140	Pass
69	69	100	100	100.0	22392	Pass

Tune Evaluation Report



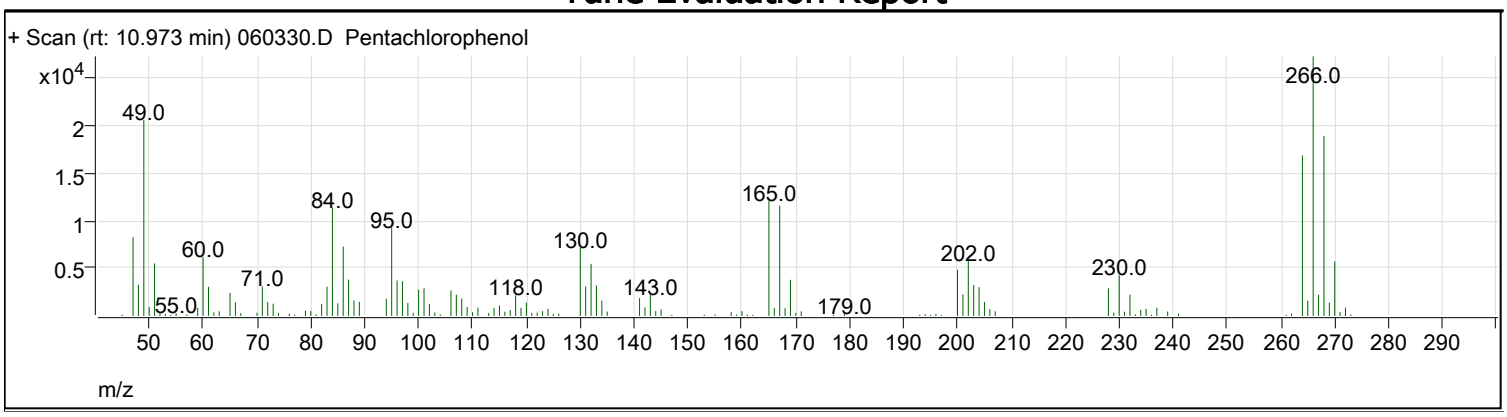


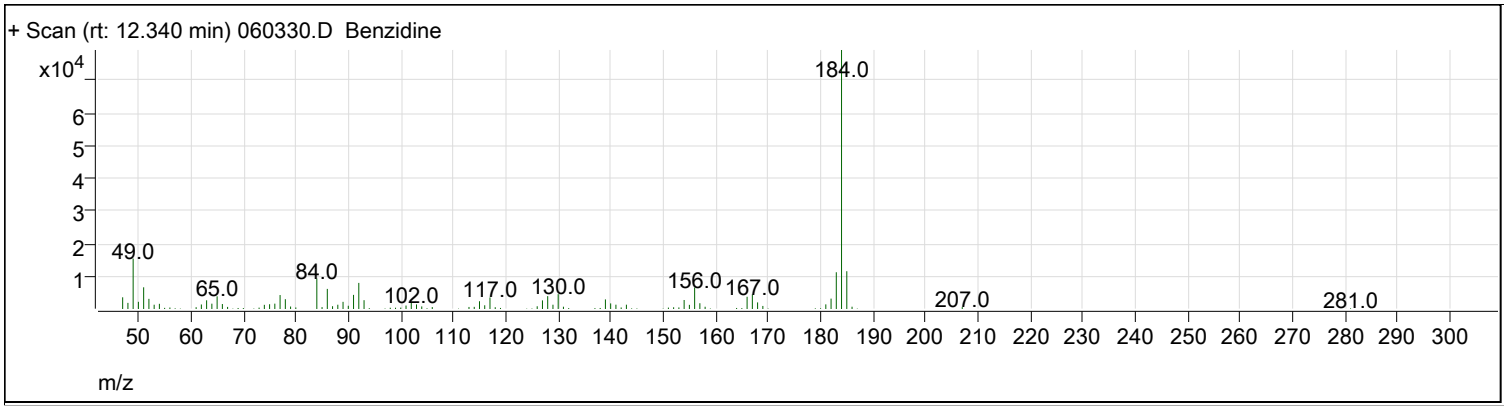




Compound Name	Expected RT	Observed RT	TIC Area	Breakdown %	Pass/Fail
4,4'-DDT	13.137	13.132	479583	0.0	Pass
4,4'-DDD	13.000	0.000	0		

Tune Evaluation Report

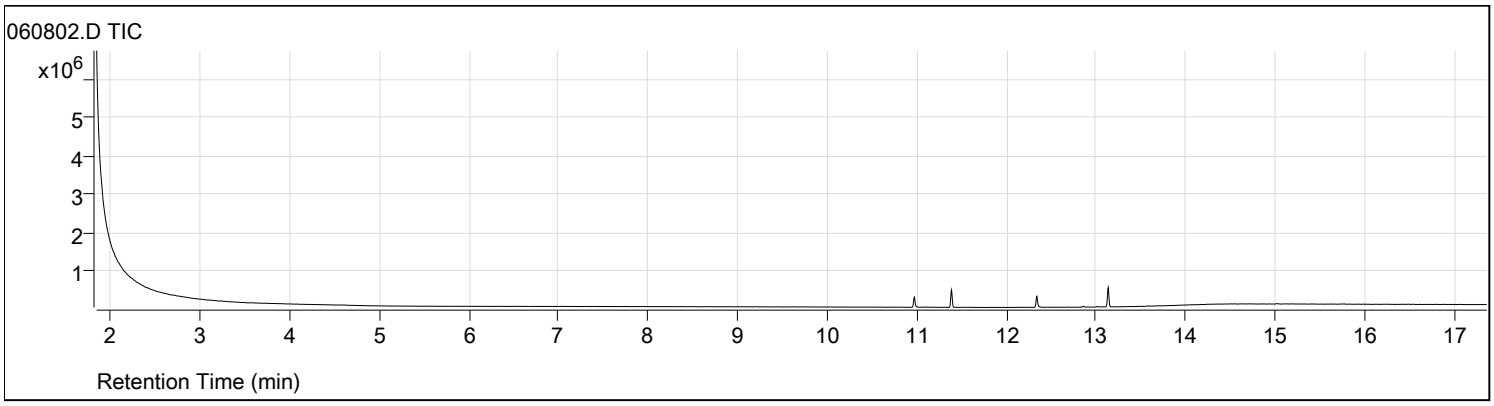


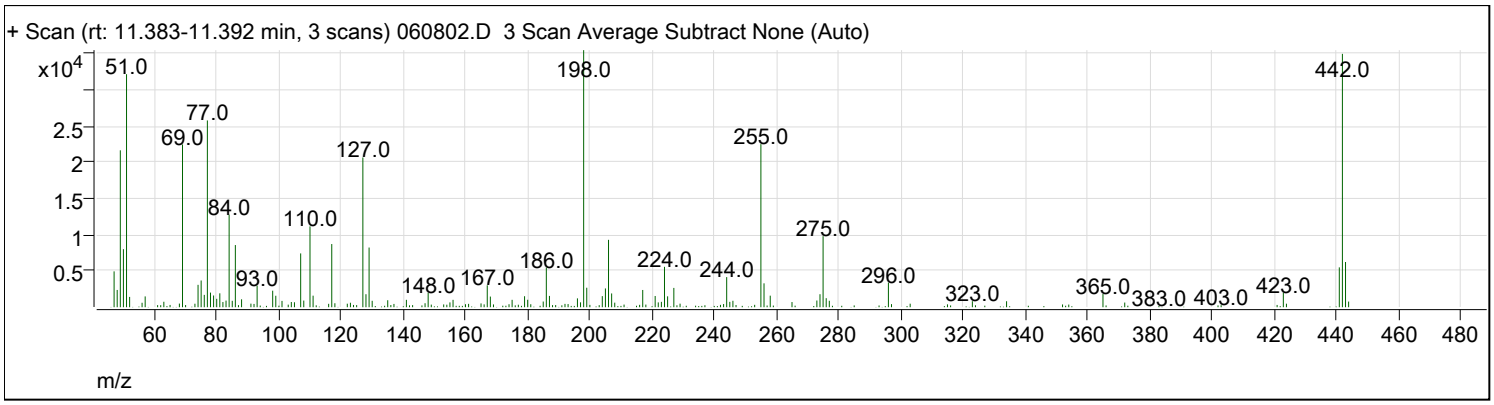


Compound Name	Expected RT	Observed RT	Tailing Factor	PGF	Pass/Fail
Pentachlorophenol	10.900	10.973	0.9	70.1	Pass
Benzidine	12.400	12.340	1.4	61.8	Pass

Tune Evaluation Report

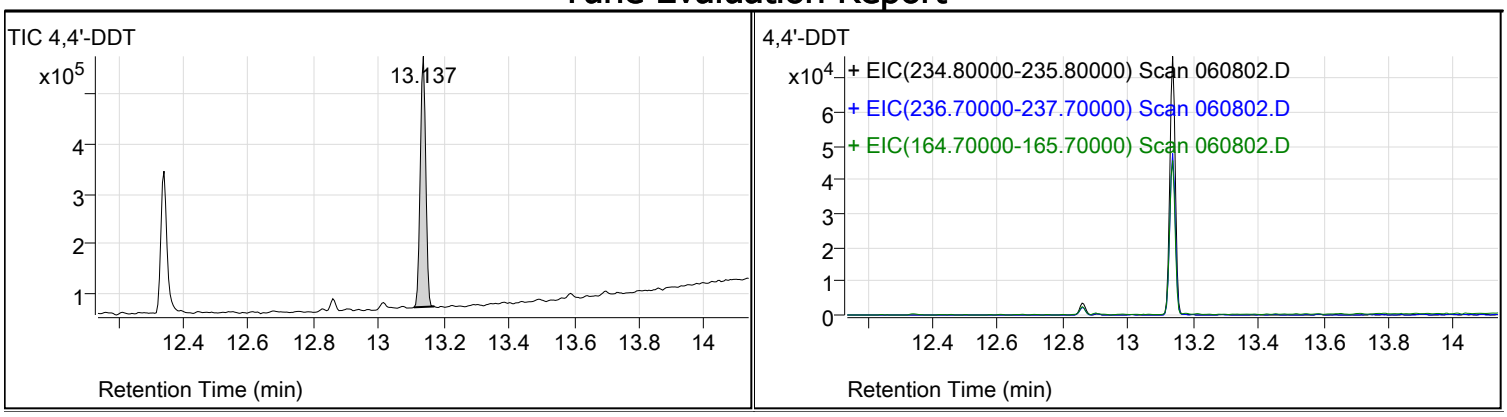
Data Path:	D:\GC-21\Data\060820\060802.D
Acq on:	6/8/2020 8:09:44 AM
Operator:	SNB
Sample:	TUNE
Inst Name:	GC-21
ALS Vial:	1
Method:	D:\MassHunter\Methods\Quant\DFTPPwBreak&TailingGC218270E.m

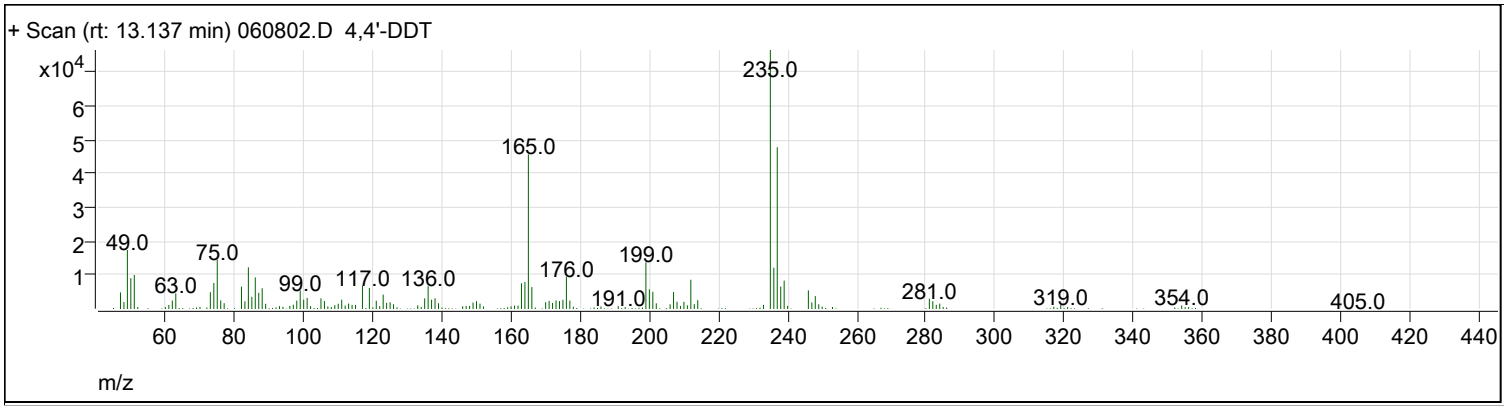


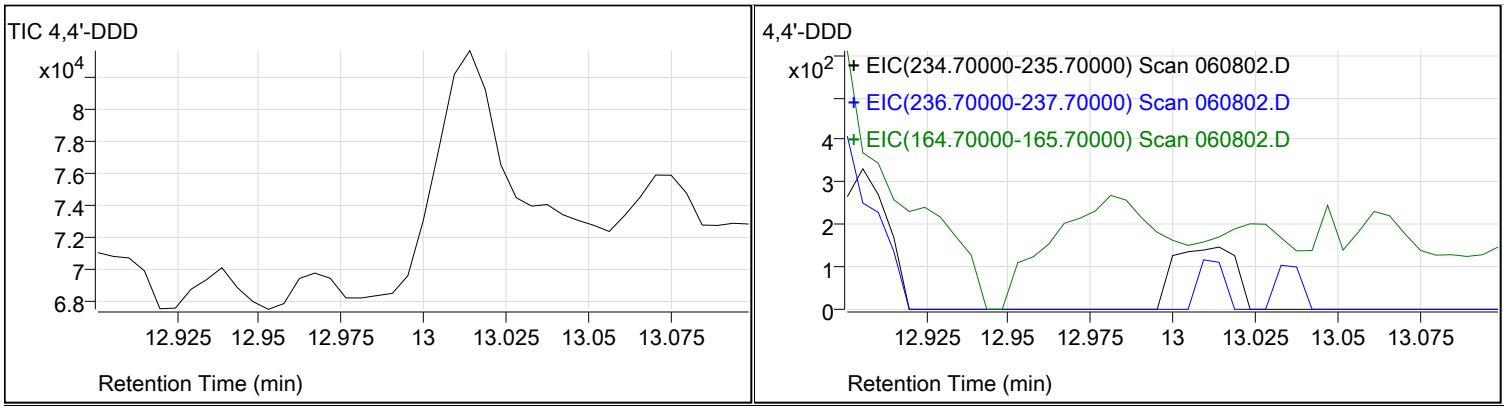


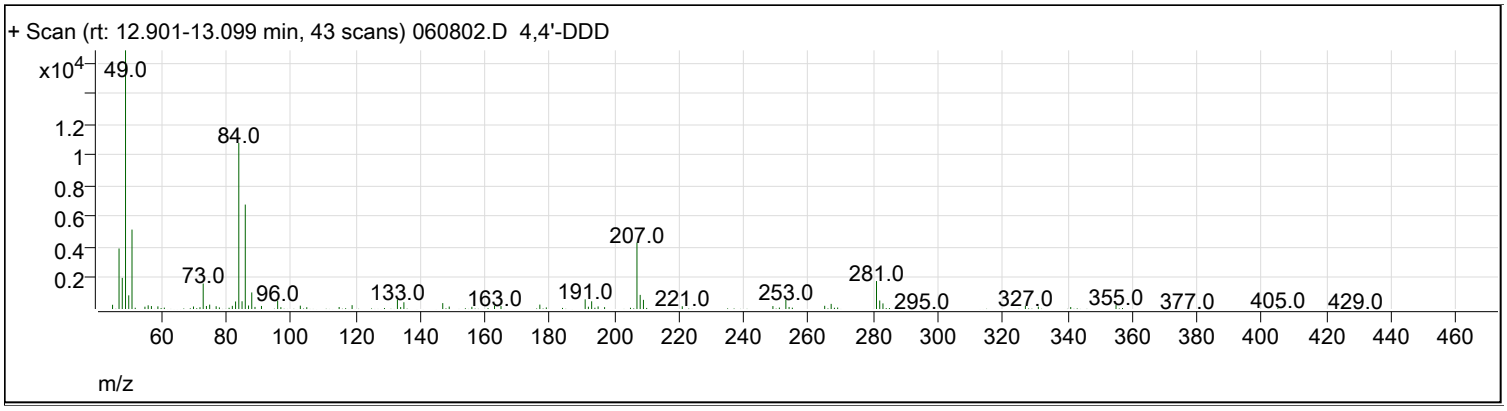
Target Mass	Rel. To Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Pass/Fail
68	69	0	2	2.2	501	Fail
70	69	0	2	1.3	299	Pass
197	198	0	2	1.9	672	Pass
198	198	100	100	100.0	35488	Pass
199	198	5	9	7.6	2690	Pass
365	198	1	100	5.1	1819	Pass
441	443	1E-10	150	88.1	5501	Pass
442	442	100	100	100.0	34976	Pass
443	442	15	24	17.8	6242	Pass
69	69	100	100	100.0	22461	Pass

Tune Evaluation Report



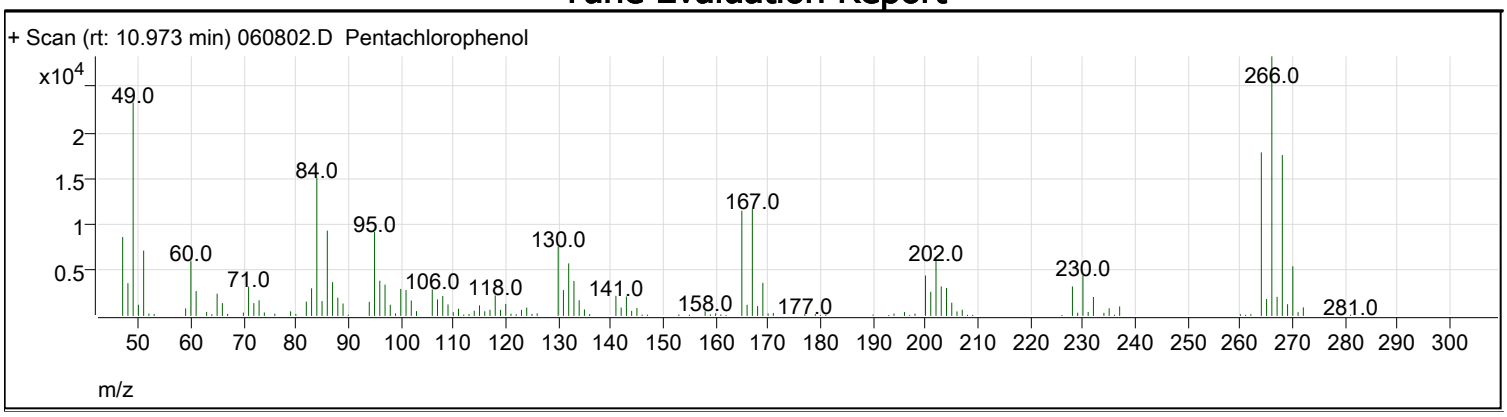


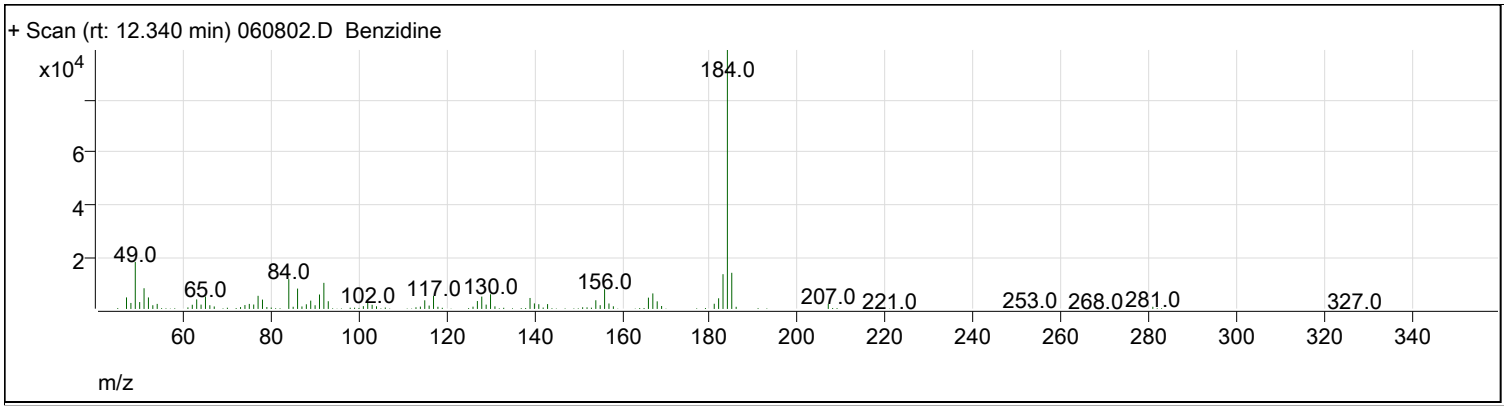




Compound Name	Expected RT	Observed RT	TIC Area	Breakdown %	Pass/Fail
4,4'-DDT	13.137	13.137	587854	0.0	Pass
4,4'-DDD	13.000	0.000	0		

Tune Evaluation Report

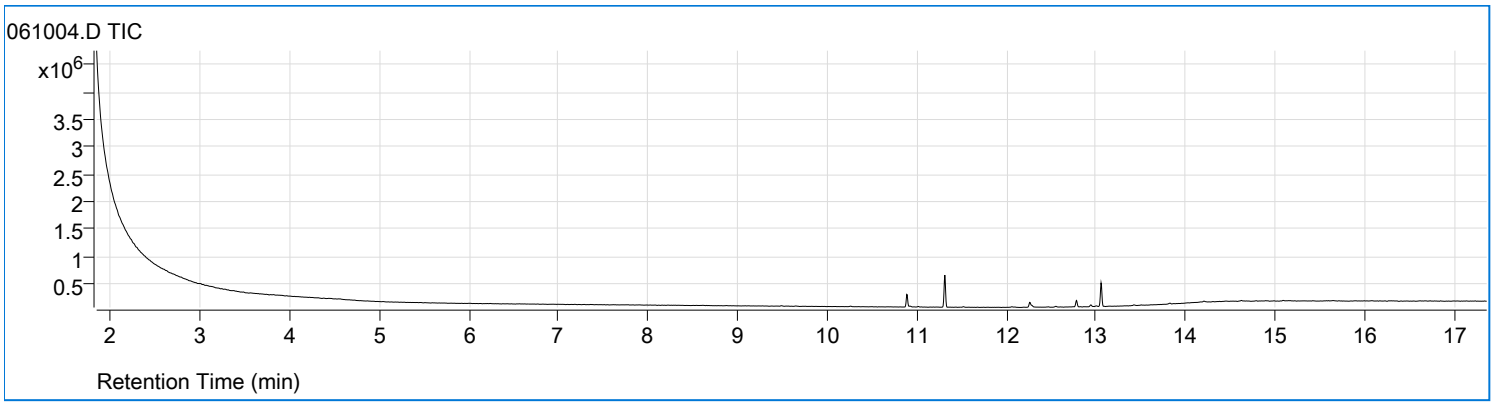


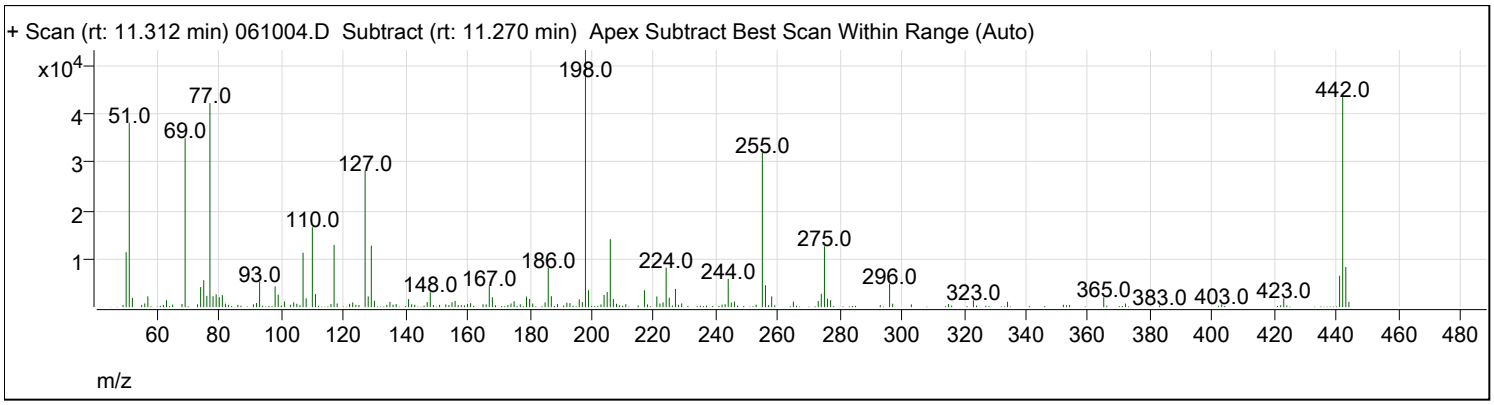


Compound Name	Expected RT	Observed RT	Tailing Factor	PGF	Pass/Fail
Pentachlorophenol	10.900	10.973	1.0	2.4	Pass
Benzidine	12.400	12.340	1.2	2.2	Pass

Tune Evaluation Report

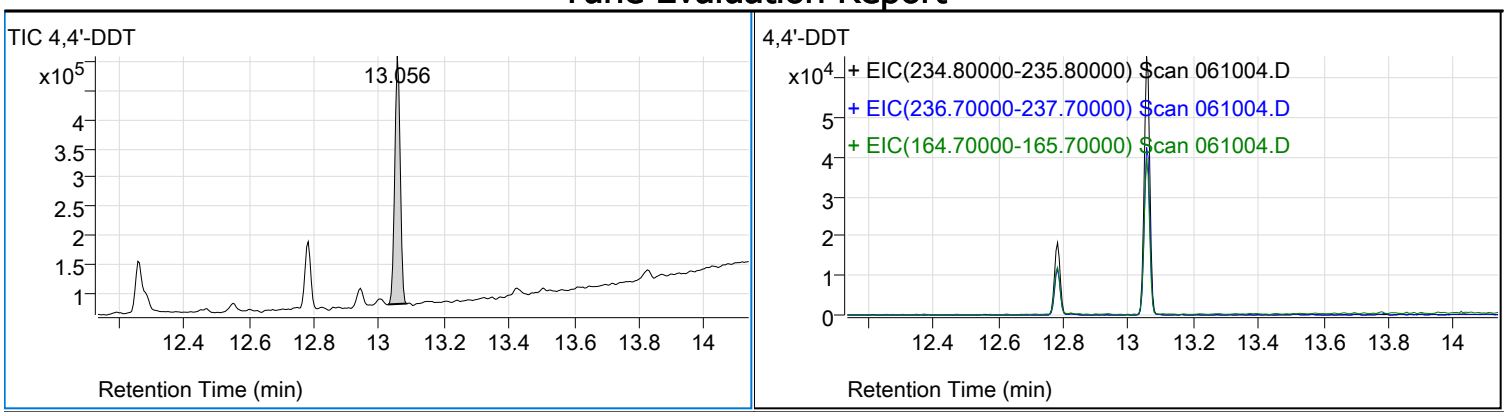
Data Path:	D:\GC-21\Data\061020\061004.D
Acq on:	6/10/2020 11:13:42 AM
Operator:	SNB
Sample:	TUNE
Inst Name:	GC-21
ALS Vial:	1
Method:	D:\MassHunter\Methods\Quant\DFTPPwBreak&TailingGC218270E.m

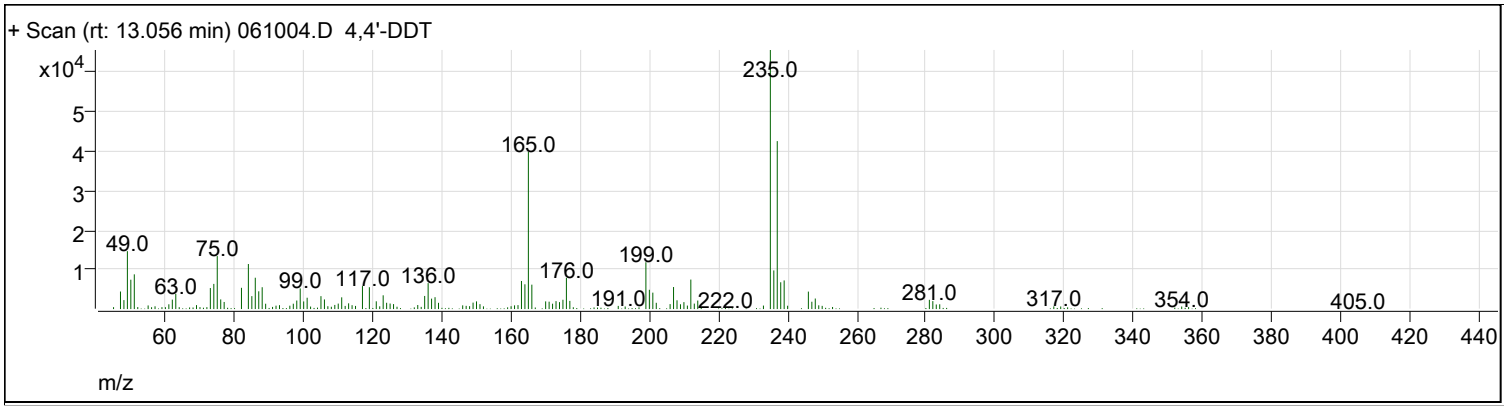


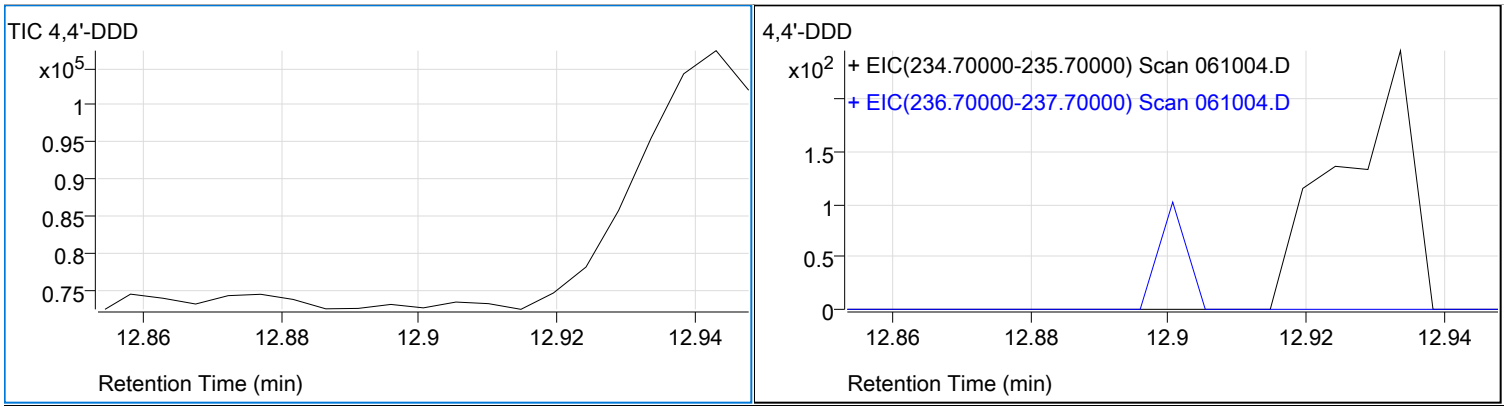


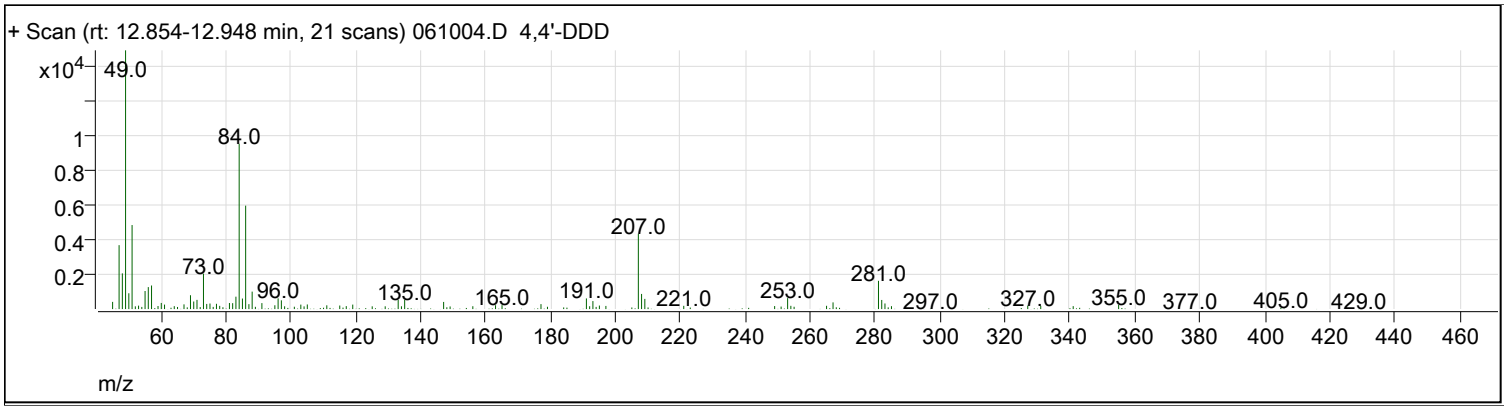
Target Mass	Rel. To Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Pass/Fail
68	69	0	2	1.9	664	Pass
70	69	0	2	0.5	185	Pass
197	198	0	2	2.0	1051	Pass
198	198	100	100	100.0	53232	Pass
199	198	5	9	6.6	3494	Pass
365	198	1	100	3.8	2034	Pass
441	443	1E-10	150	78.2	6504	Pass
442	442	100	100	100.0	43512	Pass
443	442	15	24	19.1	8313	Pass
69	69	100	100	100.0	34982	Pass

Tune Evaluation Report



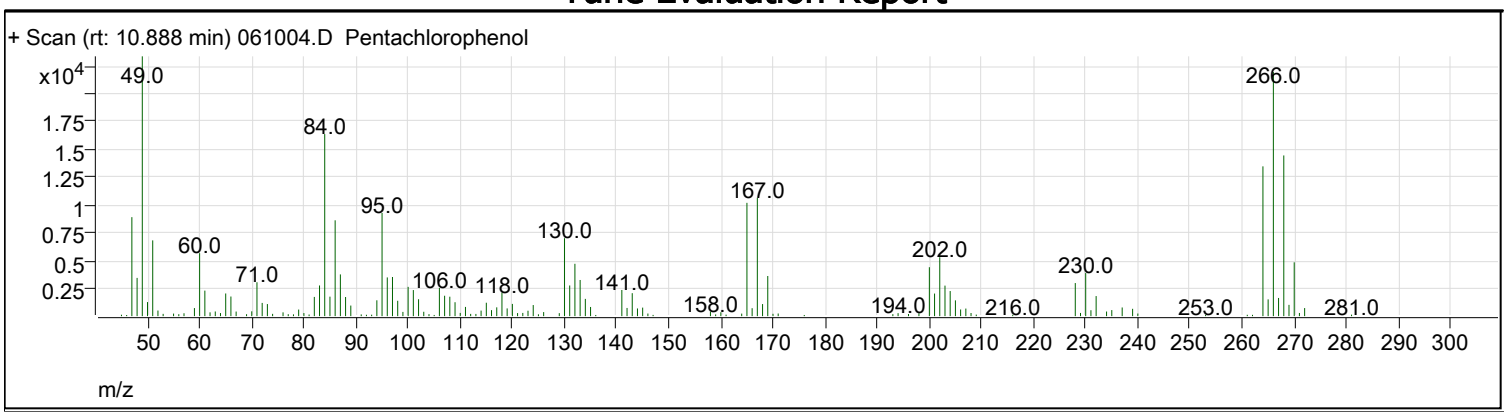


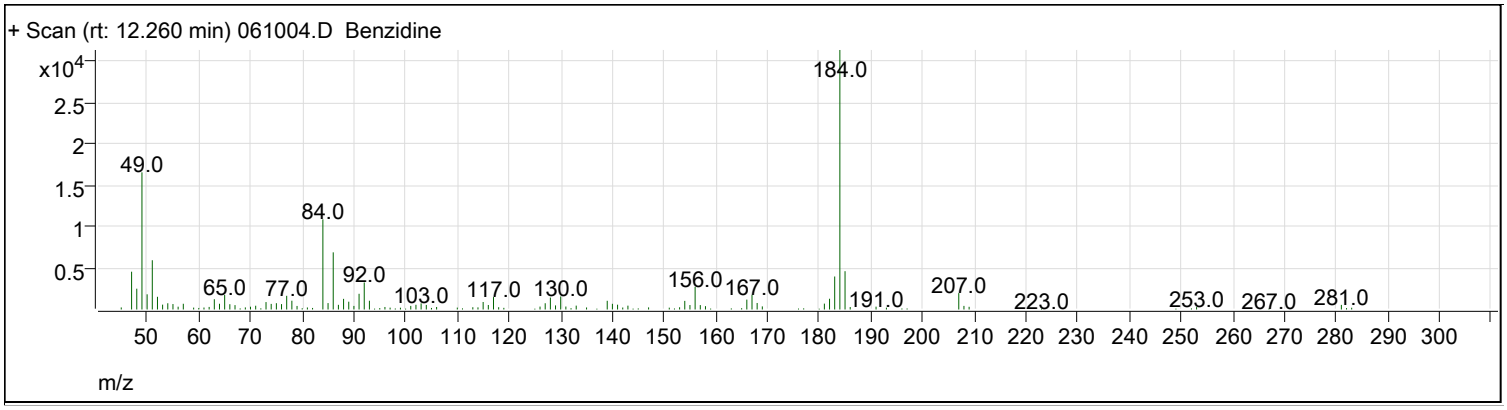




Compound Name	Expected RT	Observed RT	TIC Area	Breakdown %	Pass/Fail
4,4'-DDT	13.137	13.056	503120	0.0	Pass
4,4'-DDD	12.900	0.000	0		

Tune Evaluation Report





Compound Name	Expected RT	Observed RT	Tailing Factor	PGF	Pass/Fail
Pentachlorophenol	10.900	10.888	1.4	3.8	Pass
Benzidine	12.400	12.260	2.5	3.0	Fail

Fremont Analytical, Inc 206.352.3790

DATA SET for Review -- Deliverable Requirements

Semivolatiles Analysis by EPA 8270

Fremont Analytical Work Order No. 2006085

Libby Environmental

Project Name: Hardel Site

Project No. L200603-7

This Data contains the following:

- Analytical Sequence Summary for **Work Order 2006085**
- Calibration Information for **Work Order 2006085**
- Tune Information for **Work Order 2006085**

Injection Log

Data Directory: D:\GC-21\Data\061220\

SampleName	MiscInfo	Vial	Multiplier	Injection Time
1) 061201.D				
CO		2	1.000	12 Jun 2020 08:46 am
2) 061202.D				
TUNE		1	1.000	12 Jun 2020 09:57 am
3) 061203.D				
CCV-28605		2	1.000	12 Jun 2020 10:19 am
4) 061204.D				
CCV-28601		4	1.000	12 Jun 2020 10:44 am
5) 061205.D				
MB-28605		101	1.000	12 Jun 2020 11:05 am
6) 061206.D				
LCS-28605		102	1.000	12 Jun 2020 11:28 am
7) 061207.D				
2006077-001A		103	1.000	12 Jun 2020 11:50 am
8) 061208.D				
2006085-014A		104	1.000	12 Jun 2020 12:13 pm
9) 061209.D				
2006085-015A		105	1.000	12 Jun 2020 12:35 pm
10) 061210.D				
2006085-015ADUP		106	1.000	12 Jun 2020 12:57 pm
11) 061211.D				
2006085-015AMS		107	1.000	12 Jun 2020 01:20 pm
12) 061212.D				
2006085-015AMSD		108	1.000	12 Jun 2020 01:42 pm
13) 061213.D				
2006085-016A		109	1.000	12 Jun 2020 02:04 pm
14) 061214.D				
QCS-28605		2	1.000	12 Jun 2020 02:27 pm

Injection Log

Data Directory: D:\GC-21\Data\061520\

SampleName	MiscInfo	Vial	Multiplier	Injection Time
1) 061501.D				
CO		2	1.000	15 Jun 2020 09:33 am
2) 061502.D				
TUNE		1	1.000	15 Jun 2020 09:55 am
3) 061503.D				
CCV-CHECK		2	1.000	15 Jun 2020 10:18 am
4) 061504.D				
CCV-EXT-28620		3	1.000	15 Jun 2020 11:08 am
5) 061505.D				
MB-28620		11	1.000	15 Jun 2020 11:38 am
6) 061506.D				
LCS2-28620		27	1.000	15 Jun 2020 12:08 pm
7) 061507.D				
2004011-036A		22	1.000	15 Jun 2020 12:38 pm
8) 061508.D				
MDL 2 EXT-50 PPB		23	1.000	15 Jun 2020 01:08 pm
9) 061509.D				
MDL 2 EXT-100 PPB		24	1.000	15 Jun 2020 01:38 pm
10) 061510.D				
PAH CHECK		2	1.000	15 Jun 2020 02:09 pm
11) 061511.D				
MDL 2 EXT-500 PPB		25	1.000	15 Jun 2020 02:31 pm
12) 061512.D				
MDL 2 EXT-1000 PPB		26	1.000	15 Jun 2020 03:01 pm
13) 061513.D				
QCS-EXT-28620		3	1.000	15 Jun 2020 03:31 pm
14) 061514.D				
MB-28620		11	1.000	15 Jun 2020 04:02 pm
15) 061515.D				
LCS-28620		12	1.000	15 Jun 2020 04:25 pm
16) 061516.D				
LCSD-28620		13	1.000	15 Jun 2020 04:47 pm
17) 061517.D				
2006085-001A		14	1.000	15 Jun 2020 05:10 pm
18) 061518.D				
2006085-001ADUP		15	1.000	15 Jun 2020 05:33 pm
19) 061519.D				
2006085-002A		16	1.000	15 Jun 2020 05:55 pm
20) 061520.D				
2006085-003A		17	1.000	15 Jun 2020 06:18 pm
21) 061521.D				
2006085-004A		18	1.000	15 Jun 2020 06:40 pm

22) 061522.D
2006085-005A 19 1.000 15 Jun 2020 07:03 pm
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23) 061523.D
2006085-006A 20 1.000 15 Jun 2020 07:25 pm
---
24) 061524.D
2006085-007A 21 1.000 15 Jun 2020 07:48 pm
---
25) 061525.D
QCS-28620 2 1.000 15 Jun 2020 08:10 pm

Calibration

Initial Calibration Report

Agilent Technologies

Method Path	D:\GC-21\Methods\Quant Methods\SEMI
Method File	SEMI_060420.m
Batch Name	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin
Last Calib Update	6/4/2020 10:23:34 AM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\GC-21\Data\060320\060318.D	6/3/2020 3:55:09 PM	6/4/2020 10:23:34 AM
2	D:\GC-21\Data\060320\060319.D	6/3/2020 4:17:50 PM	6/4/2020 10:23:34 AM
3	D:\GC-21\Data\060320\060320.D	6/3/2020 4:40:31 PM	6/4/2020 10:23:34 AM
4	D:\GC-21\Data\060320\060321.D	6/3/2020 5:03:07 PM	6/4/2020 10:23:34 AM
5	D:\GC-21\Data\060320\060322.D	6/3/2020 5:25:43 PM	6/4/2020 10:23:34 AM
6	D:\GC-21\Data\060320\060323.D	6/3/2020 5:48:25 PM	6/4/2020 10:23:34 AM
7	D:\GC-21\Data\060320\060324.D	6/3/2020 6:11:02 PM	6/4/2020 10:23:34 AM
8	D:\GC-21\Data\060320\060325.D	6/3/2020 6:33:33 PM	6/4/2020 10:23:34 AM
9	D:\GC-21\Data\060320\060326.D	6/3/2020 6:56:06 PM	6/4/2020 10:23:34 AM
10	D:\GC-21\Data\060320\060327.D	6/3/2020 7:18:37 PM	6/4/2020 10:23:34 AM

	Compound	1	2	3	4	5	6	7	8	9	10	Avg RF	%RSD
I	1,4-Dichlorobenz-d4(IS)					---------- ISTD ----------							
T	Pyridine	1.6776	1.6942	1.4551	1.1705	1.1320	1.2763	1.0514	1.0521	0.9902	1.1792	1.2678	20.212
T	N-nitrosodimethylamine		2.2024	1.5336	1.1385	1.1523	1.0319	0.9646	1.0073	0.9661	1.0208	1.2241	33.240
S	2-Fluorophenol (surr)	1.0227	1.3043	1.4864	1.2149	1.3270	1.2656	1.1837	1.2009	1.2324	1.3109	1.2549	9.521
S	Phenol-d6 (surr)	2.3994	1.7390	1.8661	1.4247	1.6505	1.5761	1.5342	1.4365	1.6157	1.6372	1.6879	16.738
T	Phenol	1.9410	2.4983	1.6400	2.1319	1.9748	2.0646	2.0023	1.9385	2.0469	2.0943	2.0333	10.464
T	Aniline	2.5324	3.3691	2.2861	2.5059	2.2577	2.3372	2.2451	2.2336	2.1947	2.3408	2.4303	14.341
T	Bis(2-chloroethyl) ether	1.4112	1.8658	1.3242	1.4405	1.5887	1.4865	1.3375	1.3102	1.3498	1.4277	1.4542	11.539
T	2-Chlorophenol		2.4125	1.4333	1.6212	1.5841	1.4198	1.4073	1.4096	1.5050	1.5512	1.5938	19.910
T	1,3-Dichlorobenzene	1.1352	1.4170	1.9193	1.5556	1.5505	1.5861	1.5114	1.5820	1.5973	1.6408	1.5495	12.552
T	1,4-Dichlorobenzene	2.4568	2.1920	1.4206	1.6811	1.7519	1.8218	1.5540	1.5338	1.6087	1.6711	1.7692	18.082
T	Benzyl alcohol	1.4374	1.3147	0.9802	0.9947	0.9801	1.0103	0.8971	0.8867	0.9107	0.9850	1.0397	17.768
T	1,2-Dichlorobenzene	2.2105	1.3199	1.4510	1.3719	1.6364	1.5913	1.5039	1.4679	1.4886	1.5681	1.5609	15.862
T	2-Methylphenol (o-cresol)	2.2285	1.2737	1.1646	1.1217	1.1643	1.1898	1.1488	1.1809	1.1893	1.2869	1.2948	25.648
T	2,2'-oxybis(1-chloropropane)		0.6905	0.3262	0.4609	0.4408	0.4710	0.4796	0.4255	0.4576	0.4898	0.4713	20.245
T	3+4-Methylphenol	1.9830	2.0775	1.3994	1.5202	1.4567	1.5695	1.4950	1.4907	1.5774	1.6387	1.6208	14.001
T	N-Nitrosodipropylamine	4.4694	2.9535	1.7131	1.2314	1.3022	1.3445	1.2566	1.2569	1.3580	1.3890	1.8275	58.224
T	Hexachloroethane		1.0562	0.5466	0.7275	0.6845	0.7214	0.7099	0.7915	0.7476	0.7846	0.7522	17.911
S	Nitrobenzene-d5 (surr)		2.1491	2.8840	1.9533	1.7746	1.9407	1.6043	1.6148	1.6319	1.7466	1.9221	21.055
T	Nitrobenzene	2.7113	2.4041	1.8897	2.0510	2.0178	1.9906	1.9612	1.9276	1.9545	2.0115	2.0919	12.433
T	Isophorone	9.7067	5.6031	3.5863	3.7876	3.4461	3.3467	3.4258	3.2770	3.4036	3.4847	4.3068	46.836
T	2-Nitrophenol	0.2934	0.5644	0.4992	0.7107	0.6588	0.6991	0.6145	0.6710	0.6700	0.7845	0.6166	22.451
T	2,4-Dimethylphenol	1.6216	1.7644	1.7385	1.4096	1.5664	1.5540	1.5521	1.4665	1.5427	1.5965	1.5812	6.865
T	Benzoic Acid		0.0759	0.2213	0.4117	0.5578	0.6255	0.5938	0.6335	0.7350	0.9265	0.5312	48.880
T	Bis(2-chloroethoxy)methane	3.4324	2.5386	1.6907	2.0202	1.9042	1.9195	1.9456	1.7820	1.8852	1.9521	2.1071	24.533

T	2,4-Dichlorophenol	0.6114	0.7942	1.1168	1.0712	1.2495	1.1123	1.0540	1.0776	1.1128	1.1966	1.0396	18.462
T	1,2,4-Trichlorobenzene	1.1650	1.5393	0.9005	1.2759	1.2915	1.2340	1.2251	1.1700	1.2322	1.3046	1.2338	12.770
I	Naphthalene-d8 (IS)					---------- ISTD ----------							
T	Naphthalene	1.6247	1.1840	1.1767	0.9771	1.1098	1.1101	1.0924	1.1081	1.0551	1.0609	1.1499	15.403
T	4-Chloroanaline	0.6971	0.3185	0.4206	0.4264	0.4722	0.4435	0.4119	0.4117	0.4096	0.4125	0.4424	22.053
T	Hexachlorobutadiene	0.1479	0.2114	0.2085	0.1583	0.2308	0.2016	0.1929	0.2001	0.1892	0.1972	0.1938	12.629
T	4-Chloro-3-methylphenol	0.4057	0.3500	0.2899	0.3384	0.3712	0.3371	0.3125	0.3105	0.3411	0.3605	0.3417	9.715
T	2-Methylnaphthalene	1.0815	0.7518	0.6864	0.6916	0.7369	0.7134	0.7330	0.6990	0.7254	0.7041	0.7523	15.628
T	1-Methylnaphthalene	0.5503	0.8138	0.6745	0.6965	0.7085	0.6709	0.6572	0.6497	0.6807	0.6663	0.6768	9.531
T	Hexachlorocyclopentadiene		0.2241	0.1967	0.1528	0.1869	0.1502	0.1769	0.1621	0.1769	0.1929	0.1800	13.031
T	2,4,6-Trichlorophenol		0.1820	0.2589	0.2134	0.2180	0.1910	0.1770	0.2050	0.1948	0.2012	0.2046	11.933
T	2,4,5-Trichlorophenol		0.1539	0.2589	0.2246	0.2342	0.1916	0.2141	0.1965	0.2095	0.2112	0.2105	13.917
S	2-Fluorobiphenyl (surr)	0.2812	0.5698	0.5739	0.6986	0.6476	0.6920	0.6403	0.6299	0.6426	0.6462	0.6022	19.968
T	2-Chloronaphthalene	1.0499	0.6745	0.6382	0.6268	0.6926	0.6437	0.6024	0.5929	0.6229	0.6404	0.6784	19.734
T	2-Nitroanaline	0.3244	0.3041	0.3446	0.2578	0.2914	0.2524	0.2568	0.2606	0.2722	0.2884	0.2853	11.006
T	1,4-Dinitrobenzene		0.1117	0.0916	0.1144	0.1367	0.1524	0.1356	0.1492	0.1510	0.1677	0.1345	17.983
T	Dimethyl phthalate	0.9322	0.9095	0.8129	0.7357	0.7835	0.7924	0.7368	0.7254	0.7381	0.7653	0.7932	9.231
T	1,3-Dinitrobenzene		0.0827	0.1275	0.0815	0.1307	0.0981	0.1007	0.1053	0.1030	0.1157	0.1050	16.491
T	2,6-Dinitrotoluene		0.1462	0.1762	0.1726	0.1768	0.1532	0.1638	0.1431	0.1719	0.1738	0.1642	8.102
T	Acenaphthylene	1.4830	1.0346	1.0667	0.9468	1.0389	0.9984	0.9715	0.9687	0.9957	1.0139	1.0518	14.812
T	1,2-Dinitrobenzene			0.0346	0.0621	0.0648	0.0758	0.0710	0.0655	0.0757	0.0797	0.0662	21.429
T	3-Nitroaniline	0.2522	0.2066	0.1616	0.1405	0.1661	0.1538	0.1631	0.1638	0.1631	0.1597	0.1731	18.737
T	Acenaphthene	0.7837	0.9617	0.8462	0.7285	0.6721	0.7029	0.7043	0.7499	0.6779	0.6846	0.7512	12.192
I	Acenaphthene-d10 (IS)					---------- ISTD ----------							
T	2,4-Dinitrophenol			0.0160	0.0295	0.0776	0.0724	0.0773	0.0870	0.1019	0.1306	0.0740	49.806
T	4-Nitrophenol			0.1314	0.1084	0.1220	0.1937	0.1980	0.1981	0.2303	0.2663	0.1810	30.723
T	Dibenzofuran	2.2865	2.0475	1.5352	1.7854	1.8655	1.6720	1.7218	1.6561	1.6092	1.7667	1.7946	12.501
T	2,4-Dinitrotoluene	0.2798	0.3161	0.3639	0.3681	0.3680	0.3490	0.3826	0.3851	0.4073	0.4607	0.3681	13.278
T	2,3,4,6-Tetrachlorophenol		0.3217	0.3518	0.3139	0.3598	0.2854	0.3236	0.3070	0.3158	0.3566	0.3262	7.685
T	2,3,5,6-Tetrachlorophenol		0.3575	0.3442	0.2515	0.3598	0.2872	0.3328	0.3175	0.3241	0.3752	0.3278	11.837
T	Diethylphthalate	2.2830	1.7913	1.5593	1.6601	1.5926	1.5339	1.5108	1.5267	1.4986	1.6542	1.6610	14.219
T	4-Chlorophenyl phenyl ether	0.5933	0.9224	0.8590	0.7254	0.6498	0.6409	0.6611	0.5868	0.6242	0.6856	0.6949	16.111
T	Fluorene	2.2467	1.4717	1.2398	1.4773	1.4266	1.3860	1.3809	1.3425	1.2824	1.4145	1.4668	19.384
T	4-Nitroaniline		0.2777	0.3176	0.5104	0.4260	0.4358	0.4392	0.4264	0.3776	0.2727	0.3871	21.094
T	4,6-Dinitro-2-methylphenol			0.0778	0.0855	0.1178	0.1162	0.1207	0.1329	0.1373	0.1968	0.1231	29.583
T	Diphenylamine	1.4803	1.4173	1.2962	1.0147	1.1618	1.1438	1.1468	1.0864	1.1130	1.1916	1.2052	12.280
T	Azobenzene	3.0757	2.7930	2.3399	2.0442	2.1187	2.0990	2.1561	2.0276	2.0862	2.2549	2.2995	15.394
S	Tribromophenol (Surr)		0.1560	0.1080	0.1849	0.2243	0.2178	0.2242	0.2366	0.2234	0.2723	0.2053	23.731
T	4-Bromophenyl phenyl ether	0.4953	0.2561	0.5038	0.3946	0.4579	0.4167	0.4125	0.4128	0.4079	0.4418	0.4199	16.341
T	Hexachlorobenzene	0.3180	0.6884	0.5559	0.5837	0.5684	0.5661	0.5205	0.5082	0.5059	0.5408	0.5356	17.308
T	Pentachlorophenol		0.1628	0.1240	0.2346	0.2496	0.2737	0.2478	0.2361	0.2612	0.3026	0.2325	23.852

I	Phenanthrene-d10 (IS)	---------- ISTD ----------											
T	Phenanthrene	1.5782	1.2169	1.1819	1.1638	1.1614	1.1776	1.0733	1.0318	1.0357	1.1025	1.1723	13.340
T	Anthracene	1.5782	1.2227	1.0881	1.1086	1.1303	1.1389	1.0599	1.0827	1.0760	1.1269	1.1612	13.220
T	Carbazole	1.4991	1.3803	0.7995	0.9658	1.0448	1.0129	0.8752	0.9024	0.9071	0.8826	1.0270	22.428
T	Di-n-butyl phthalate	1.8004	1.9657	1.5189	1.4996	1.5812	1.4476	1.4144	1.4623	1.4679	1.5822	1.5740	11.177
T	Fluoranthene	1.7091	1.2237	1.0876	1.0363	1.1746	1.0777	1.1263	1.1142	1.1072	1.1741	1.1831	16.284
T	Pyrene	1.1217	1.4471	0.9933	1.1366	1.2070	1.1310	1.1151	1.1865	1.1150	1.1730	1.1626	9.937
S	p-Terphenyl	1.1732	0.7762	0.8714	0.8352	0.8636	0.8599	0.8572	0.8142	0.8052	0.8955	0.8752	12.630
T	Benzyl Butyl phthalate	0.7306	0.6875	0.5215	0.5919	0.5818	0.6156	0.6040	0.5917	0.5986	0.6644	0.6188	9.671
T	bis(2-Ethylhexyl)adipate	0.7304	0.4565	0.6155	0.5730	0.5201	0.5579	0.5337	0.5262	0.5424	0.6029	0.5659	12.940
T	Benzo (a) anthracene	1.4403	1.3604	1.1064	1.0084	0.9248	0.9798	0.9599	0.9254	0.9202	0.9615	1.0587	17.860
I	Chrysene-d12 (IS)	---------- ISTD ----------											
T	Bis(2-ethylhexyl) phthalate	2.6584	1.8496	1.1418	1.2510	1.2155	1.1304	1.1062	1.0750	1.0933	1.1821	1.3703	36.939
T	Chrysene	1.7589	1.3629	1.3101	1.3118	1.2710	1.1939	1.2332	1.1994	1.1629	1.1949	1.2999	13.357
T	Di-n-octyl phthalate	2.3397	1.5516	1.6102	1.5359	1.5607	1.6024	1.5872	1.7098	1.7241	1.9126	1.7134	14.454
T	benzo (b) fluoranthene	2.9506	1.5918	1.2912	1.0650	1.0420	1.1655	1.1219	1.1090	1.1110	1.2369	1.3685	42.263
T	benzo (k) fluoranthene	2.8516	2.0883	1.5894	1.4373	1.4344	1.3184	1.5257	1.2971	1.2910	1.2875	1.6121	30.857
T	benzo (a) pyrene	2.0944	1.2292	1.2195	1.2673	1.3247	1.0435	1.0704	1.1131	1.1000	1.1564	1.2619	24.264
I	Perylene-d12 (IS)	---------- ISTD ----------											
T	Indeno(1,2,3-cd)pyrene	1.1733	0.8638	0.7958	1.0224	1.1125	1.1520	1.1894	1.1610	1.2398	1.3689	1.1079	15.504
T	Dibenz (a,h) anthracene		0.1646	0.5199	0.7375	0.8651	0.7467	0.9025	0.9009	0.9300	1.1139	0.7646	36.353
T	Benzo (g,h,i) perylene	0.9777	0.8670	0.9366	0.9507	1.0755	1.0233	1.0765	1.0565	1.0659	1.1716	1.0201	8.624

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Compounds with Curve fitting not using Avg Response Factor:

	Compound	Curve Fit	Curve Fit Formula	Curve Fit R2
T	Pyridine	Quadratic	y = 0.058799 * x ^ 2 + 1.017250 * x + 0.005699	0.995944
T	N-nitrosodimethylamine	Quadratic	y = 0.026889 * x ^ 2 + 0.946165 * x + 0.012483	0.999557
S	2-Fluorophenol (surr)	Linear	y = 1.294438 * x	0.998963
S	Phenol-d6 (surr)	Linear	y = 1.625484 * x	0.999215
T	Phenol	Quadratic	y = 0.043296 * x ^ 2 + 1.986692 * x	0.999919
T	Aniline	Quadratic	y = 0.053129 * x ^ 2 + 2.197483 * x + 0.005313	0.999323
T	Bis(2-chloroethyl) ether	Quadratic	y = 0.029628 * x ^ 2 + 1.346751 * x + 0.002390	0.998503
T	2-Chlorophenol	Quadratic	y = 0.061156 * x ^ 2 + 1.398882 * x + 0.007683	0.999296
T	1,3-Dichlorobenzene	Quadratic	y = 0.033730 * x ^ 2 + 1.556764 * x	0.999957
T	1,4-Dichlorobenzene	Linear	y = 1.657741 * x	0.999284
T	Benzyl alcohol	Quadratic	y = 0.036148 * x ^ 2 + 0.889917 * x + 0.003394	0.999058
T	1,2-Dichlorobenzene	Linear	y = 1.553565 * x	0.999394
T	2-Methylphenol (o-cresol)	Quadratic	y = 0.063345 * x ^ 2 + 1.126990 * x + 0.003522	0.999658
T	2,2'-oxybis(1-chloropropane)	Quadratic	y = 0.019761 * x ^ 2 + 0.439407 * x + 0.001011	0.998391
T	3+4-Methylphenol	Quadratic	y = 0.061412 * x ^ 2 + 1.486934 * x + 0.002675	0.999593
T	N-Nitrosodipropylamine	Quadratic	y = 0.067126 * x ^ 2 + 1.222346 * x + 0.014686	0.998604
T	Hexachloroethane	Quadratic	y = 0.023286 * x ^ 2 + 0.726864 * x + 6.112337E-004	0.998622
S	Nitrobenzene-d5 (surr)	Quadratic	y = 0.093921 * x ^ 2 + 1.615993 * x + 0.006655	0.997171
T	Nitrobenzene	Quadratic	y = 0.033698 * x ^ 2 + 1.926883 * x	0.999976
T	Isophorone	Quadratic	y = 0.096170 * x ^ 2 + 3.239425 * x + 0.026177	0.999363
T	2-Nitrophenol	Quadratic	y = 0.060254 * x ^ 2 + 0.631348 * x - 0.001122	0.998931
T	2,4-Dimethylphenol	Quadratic	y = 0.038022 * x ^ 2 + 1.500172 * x + 0.001609	0.999629
T	Benzoic Acid	Quadratic	y = 0.068358 * x ^ 2 + 0.588839 * x - 0.012368	0.999596
T	Bis(2-chloroethoxy)methane	Quadratic	y = 0.047377 * x ^ 2 + 1.830138 * x + 0.006515	0.999297
T	2,4-Dichlorophenol	Quadratic	y = 0.047004 * x ^ 2 + 1.077116 * x - 0.001541	0.999184
T	1,2,4-Trichlorobenzene	Quadratic	y = 0.049128 * x ^ 2 + 1.181671 * x	0.999924
T	Naphthalene	Quadratic	y = -0.007920 * x ^ 2 + 1.079974 * x	0.999886
T	4-Chloroanaline	Quadratic	y = -0.002614 * x ^ 2 + 0.417729 * x + 6.651353E-004	0.998910
T	Hexachlorobutadiene	Quadratic	y = 2.204945E-004 * x ^ 2 + 0.195830 * x - 5.487966E-005	0.998422
T	4-Chloro-3-methylphenol	Quadratic	y = 0.017127 * x ^ 2 + 0.317746 * x + 4.027627E-004	0.998978
T	2-Methylnaphthalene	Quadratic	y = -0.009171 * x ^ 2 + 0.727347 * x	0.999917
T	1-Methylnaphthalene	Quadratic	y = -0.002688 * x ^ 2 + 0.673418 * x	0.999886
T	Hexachlorocyclopentadiene	Quadratic	y = 0.013046 * x ^ 2 + 0.160386 * x + 5.968139E-004	0.998740
T	2,4,6-Trichlorophenol	Quadratic	y = 0.003701 * x ^ 2 + 0.191582 * x + 5.219279E-004	0.998285
T	2,4,5-Trichlorophenol	Quadratic	y = 0.002571 * x ^ 2 + 0.204705 * x + 2.098610E-004	0.998411
S	2-Fluorobiphenyl (surr)	Quadratic	y = -0.006195 * x ^ 2 + 0.652985 * x - 6.318496E-004	0.999424
T	2-Chloronaphthalene	Quadratic	y = 0.013963 * x ^ 2 + 0.604467 * x + 0.001724	0.999325
T	2-Nitroanaline	Quadratic	y = 0.013112 * x ^ 2 + 0.255589 * x + 5.990773E-004	0.999395
T	1,4-Dinitrobenzene	Quadratic	y = 0.010525 * x ^ 2 + 0.141574 * x - 6.022889E-004	0.999194

T	Dimethyl phthalate	Quadratic	y = 0.011791 * x ^ 2 + 0.733635 * x + 0.001381	0.999587
T	1,3-Dinitrobenzene	Quadratic	y = 0.006294 * x ^ 2 + 0.099553 * x + 9.980415E-005	0.997367
T	2,6-Dinitrotoluene	Quadratic	y = 0.007100 * x ^ 2 + 0.156610 * x + 1.783658E-004	0.997764
T	Acenaphthylene	Quadratic	y = 0.017483 * x ^ 2 + 0.969929 * x + 0.001884	0.999799
T	1,2-Dinitrobenzene	Quadratic	y = 0.003552 * x ^ 2 + 0.071195 * x - 6.354522E-004	0.998658
T	3-Nitroaniline	Quadratic	y = -2.908526E-004 * x ^ 2 + 0.160746 * x + 3.193466E-004	0.999378
T	Acenaphthene	Linear	y = 0.686395 * x	0.999530
T	2,4-Dinitrophenol	Quadratic	y = 0.010576 * x ^ 2 + 0.078756 * x - 0.003091	0.998797
T	4-Nitrophenol	Quadratic	y = 0.030099 * x ^ 2 + 0.193417 * x - 0.002701	0.998053
T	Dibenzofuran	Linear	y = 1.741278 * x	0.998563
T	2,4-Dinitrotoluene	Quadratic	y = 0.038582 * x ^ 2 + 0.364999 * x - 3.972339E-004	0.999783
T	2,3,4,6-Tetrachlorophenol	Quadratic	y = 0.023134 * x ^ 2 + 0.297628 * x + 7.673635E-004	0.998913
T	2,3,5,6-Tetrachlorophenol	Quadratic	y = 0.029541 * x ^ 2 + 0.300464 * x + 5.461504E-004	0.998576
T	Diethylphthalate	Quadratic	y = 0.072520 * x ^ 2 + 1.465590 * x + 0.004116	0.999655
T	4-Chlorophenyl phenyl ether	Linear	y = 0.673624 * x	0.997863
T	Fluorene	Quadratic	y = 0.039867 * x ^ 2 + 1.305077 * x + 0.003655	0.998909
T	4-Nitroaniline	Quadratic	y = -0.076870 * x ^ 2 + 0.464536 * x - 0.001726	0.998919
T	4,6-Dinitro-2-methylphenol	Quadratic	y = 0.034926 * x ^ 2 + 0.109116 * x - 6.148887E-004	0.999291
T	Diphenylamine	Quadratic	y = 0.044612 * x ^ 2 + 1.079468 * x	0.999891
T	Azobenzene	Quadratic	y = 0.093121 * x ^ 2 + 2.015532 * x + 0.006132	0.999709
S	Tribromophenol (Surr)	Quadratic	y = 0.022923 * x ^ 2 + 0.214008 * x - 9.933265E-004	0.998674
T	4-Bromophenyl phenyl ether	Quadratic	y = 0.017975 * x ^ 2 + 0.396588 * x	0.999878
T	Hexachlorobenzene	Quadratic	y = 0.016110 * x ^ 2 + 0.499983 * x	0.999715
T	Pentachlorophenol	Quadratic	y = 0.024446 * x ^ 2 + 0.241098 * x - 0.001026	0.998611
T	Phenanthrene	Quadratic	y = 0.017535 * x ^ 2 + 1.051689 * x + 0.002876	0.998876
T	Anthracene	Quadratic	y = 0.026984 * x ^ 2 + 1.058892 * x	0.999921
T	Carbazole	Quadratic	y = -0.016934 * x ^ 2 + 0.922704 * x + 0.002882	0.998521
T	Di-n-butyl phthalate	Quadratic	y = 0.066731 * x ^ 2 + 1.411769 * x + 0.003336	0.999690
T	Fluoranthene	Quadratic	y = 0.036183 * x ^ 2 + 1.081563 * x + 0.002156	0.999680
T	Pyrene	Quadratic	y = 0.023568 * x ^ 2 + 1.113219 * x	0.999791
S	p-Terphenyl	Quadratic	y = 0.069827 * x ^ 2 + 0.803165 * x + 7.076872E-004	0.999191
T	Benzyl Butyl phthalate	Quadratic	y = 0.034538 * x ^ 2 + 0.576174 * x + 6.656123E-004	0.999664
T	bis(2-Ethylhexyl)adipate	Quadratic	y = 0.034105 * x ^ 2 + 0.515987 * x + 8.580964E-004	0.999531
T	Bis(2-ethylhexyl) phthalate	Quadratic	y = 0.049105 * x ^ 2 + 1.053680 * x + 0.007512	0.999431
T	Benzo (a) anthracene	Quadratic	y = 0.014397 * x ^ 2 + 0.921588 * x + 0.003338	0.999651
T	Chrysene	Quadratic	y = -6.669929E-005 * x ^ 2 + 1.190104 * x + 0.002816	0.999682
T	Di-n-octyl phthalate	Quadratic	y = 0.125403 * x ^ 2 + 1.599186 * x	0.999941
T	benzo (b) fluoranthene	Quadratic	y = 0.073744 * x ^ 2 + 1.048207 * x + 0.007302	0.999183
T	benzo (k) fluoranthene	Quadratic	y = -0.026074 * x ^ 2 + 1.345526 * x + 0.007155	0.998119
T	benzo (a) pyrene	Quadratic	y = 0.031754 * x ^ 2 + 1.073479 * x + 0.004438	0.998795
T	Indeno(1,2,3-cd)pyrene	Quadratic	y = 0.094896 * x ^ 2 + 1.134224 * x - 0.001845	0.999607
T	Dibenz (a,h) anthracene	Quadratic	y = 0.110977 * x ^ 2 + 0.837859 * x - 0.006276	0.999183

T	Benzo (g,h,i) perylene	Quadratic	y = 0.057960 * x ^ 2 + 1.025213 * x - 8.447227E-004	0.999766

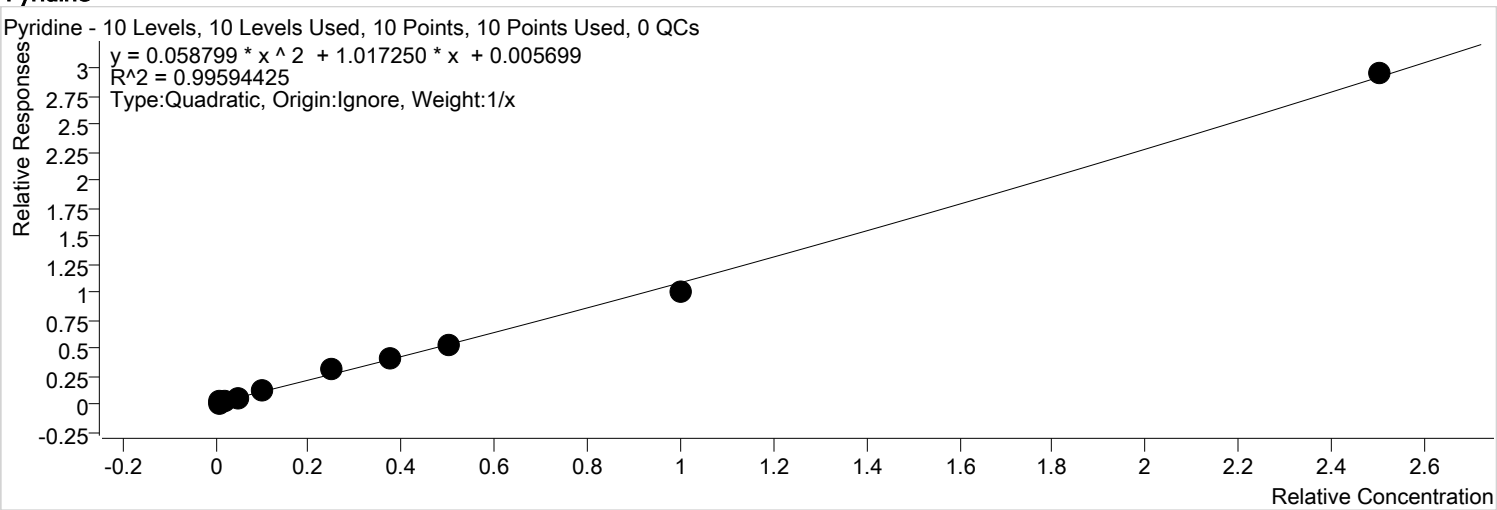
(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:42 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Pyridine



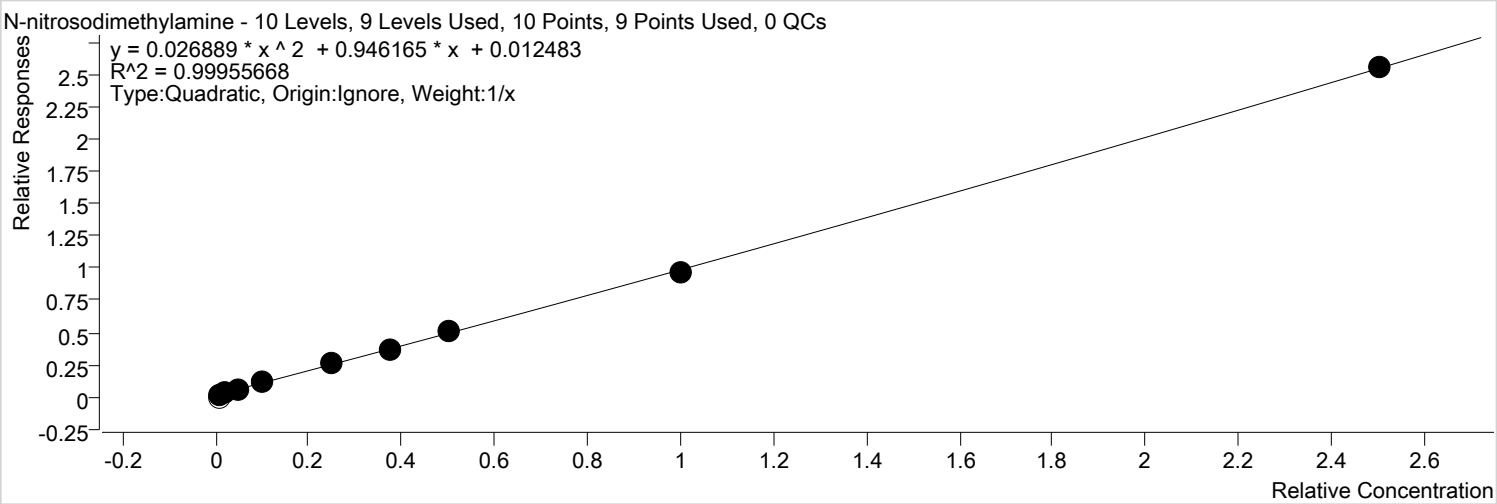
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	181	10.0000	1.6776
D:\GC-21\Data\060320\060319.D	Calibration	2	x	360	20.0000	1.6942
D:\GC-21\Data\060320\060320.D	Calibration	3	x	665	40.0000	1.4551
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1348	100.0000	1.1705
D:\GC-21\Data\060320\060322.D	Calibration	5	x	2633	200.0000	1.1320
D:\GC-21\Data\060320\060323.D	Calibration	6	x	7274	500.0000	1.2763
D:\GC-21\Data\060320\060324.D	Calibration	7	x	9661	750.0000	1.0514
D:\GC-21\Data\060320\060325.D	Calibration	8	x	12605	1000.0000	1.0521
D:\GC-21\Data\060320\060326.D	Calibration	9	x	23264	2000.0000	0.9902
D:\GC-21\Data\060320\060327.D	Calibration	10	x	66885	5000.0000	1.1792

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:43 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

N-nitrosodimethylamine



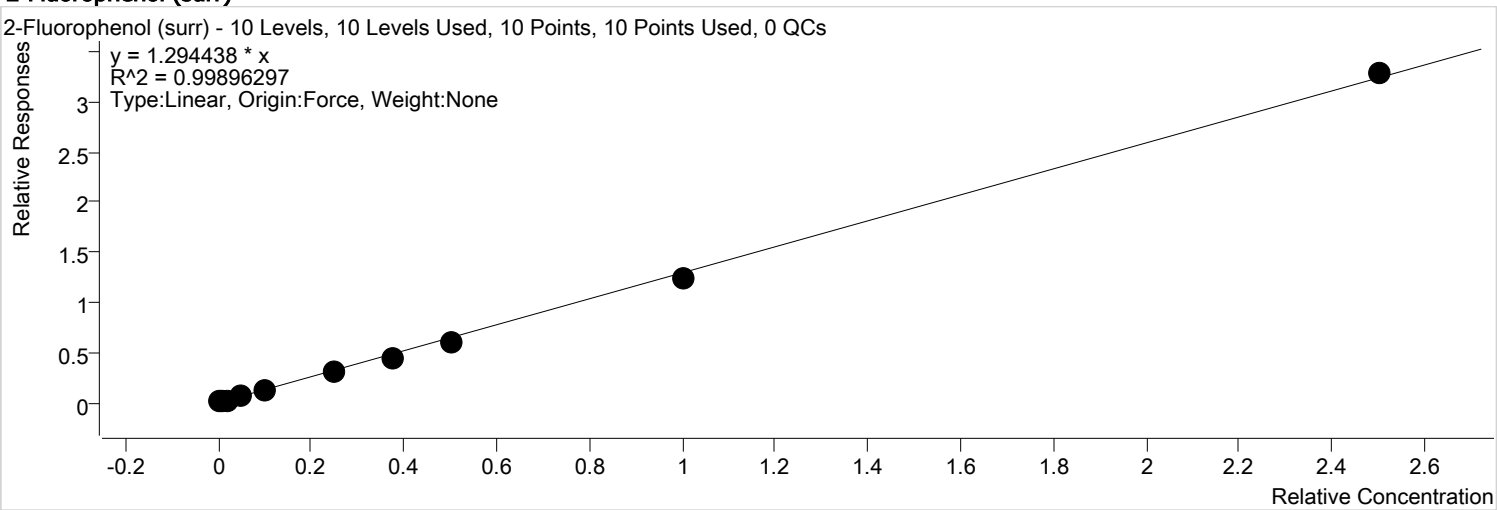
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1		0	10.0000	0.0000
D:\GC-21\Data\060320\060319.D	Calibration	2	x	468	20.0000	2.2024
D:\GC-21\Data\060320\060320.D	Calibration	3	x	701	40.0000	1.5336
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1312	100.0000	1.1385
D:\GC-21\Data\060320\060322.D	Calibration	5	x	2680	200.0000	1.1523
D:\GC-21\Data\060320\060323.D	Calibration	6	x	5881	500.0000	1.0319
D:\GC-21\Data\060320\060324.D	Calibration	7	x	8864	750.0000	0.9646
D:\GC-21\Data\060320\060325.D	Calibration	8	x	12068	1000.0000	1.0073
D:\GC-21\Data\060320\060326.D	Calibration	9	x	22696	2000.0000	0.9661
D:\GC-21\Data\060320\060327.D	Calibration	10	x	57900	5000.0000	1.0208

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:43 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

2-Fluorophenol (surr)



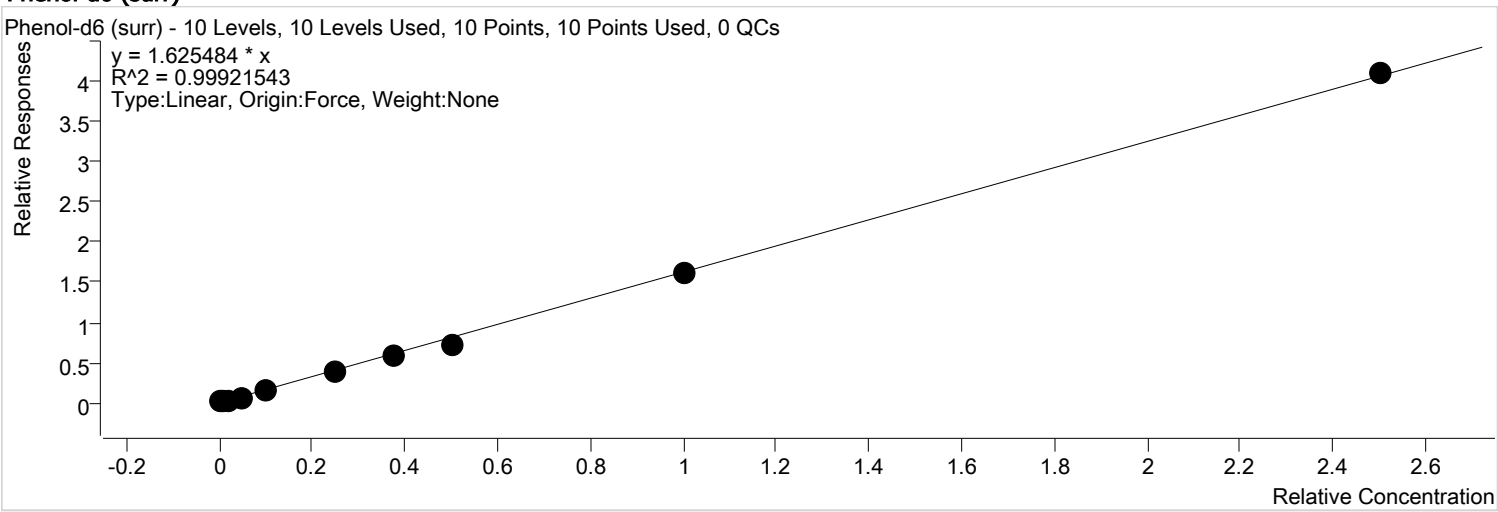
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	110	10.0000	1.0227
D:\GC-21\Data\060320\060319.D	Calibration	2	x	277	20.0000	1.3043
D:\GC-21\Data\060320\060320.D	Calibration	3	x	680	40.0000	1.4864
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1400	100.0000	1.2149
D:\GC-21\Data\060320\060322.D	Calibration	5	x	3086	200.0000	1.3270
D:\GC-21\Data\060320\060323.D	Calibration	6	x	7213	500.0000	1.2656
D:\GC-21\Data\060320\060324.D	Calibration	7	x	10876	750.0000	1.1837
D:\GC-21\Data\060320\060325.D	Calibration	8	x	14387	1000.0000	1.2009
D:\GC-21\Data\060320\060326.D	Calibration	9	x	28953	2000.0000	1.2324
D:\GC-21\Data\060320\060327.D	Calibration	10	x	74355	5000.0000	1.3109

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Phenol-d6 (surr)

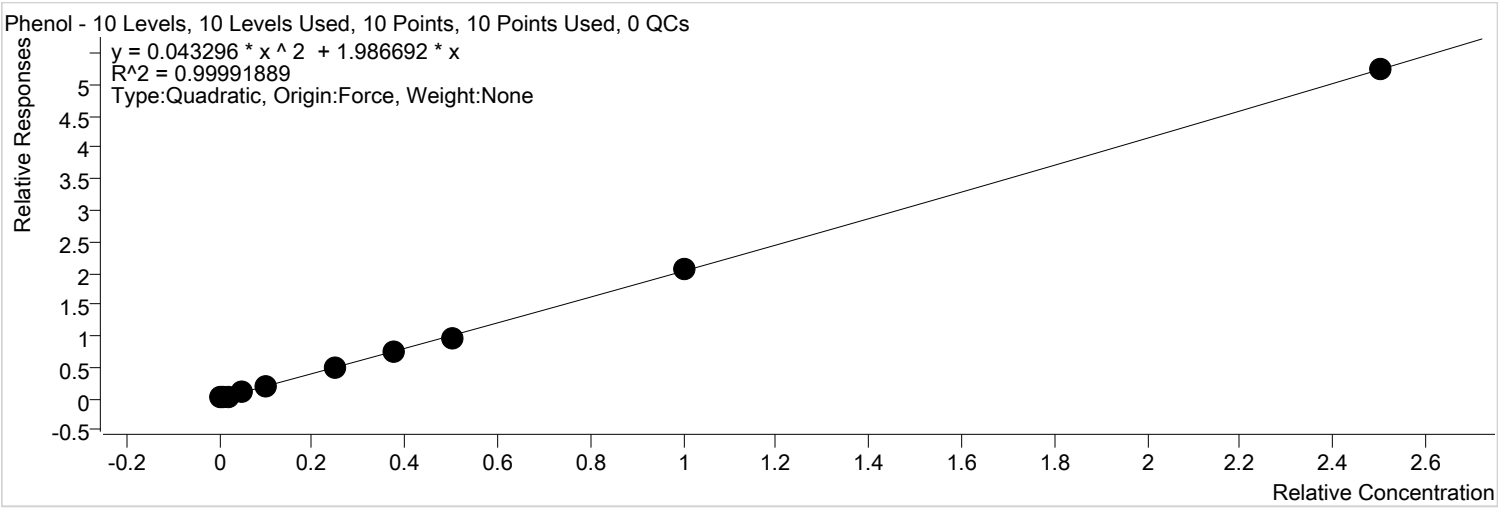


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	259	10.0000	2.3994
D:\GC-21\Data\060320\060319.D	Calibration	2	x	370	20.0000	1.7390
D:\GC-21\Data\060320\060320.D	Calibration	3	x	853	40.0000	1.8661
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1641	100.0000	1.4247
D:\GC-21\Data\060320\060322.D	Calibration	5	x	3838	200.0000	1.6505
D:\GC-21\Data\060320\060323.D	Calibration	6	x	8983	500.0000	1.5761
D:\GC-21\Data\060320\060324.D	Calibration	7	x	14097	750.0000	1.5342
D:\GC-21\Data\060320\060325.D	Calibration	8	x	17210	1000.0000	1.4365
D:\GC-21\Data\060320\060326.D	Calibration	9	x	37957	2000.0000	1.6157
D:\GC-21\Data\060320\060327.D	Calibration	10	x	92865	5000.0000	1.6372

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Phenol



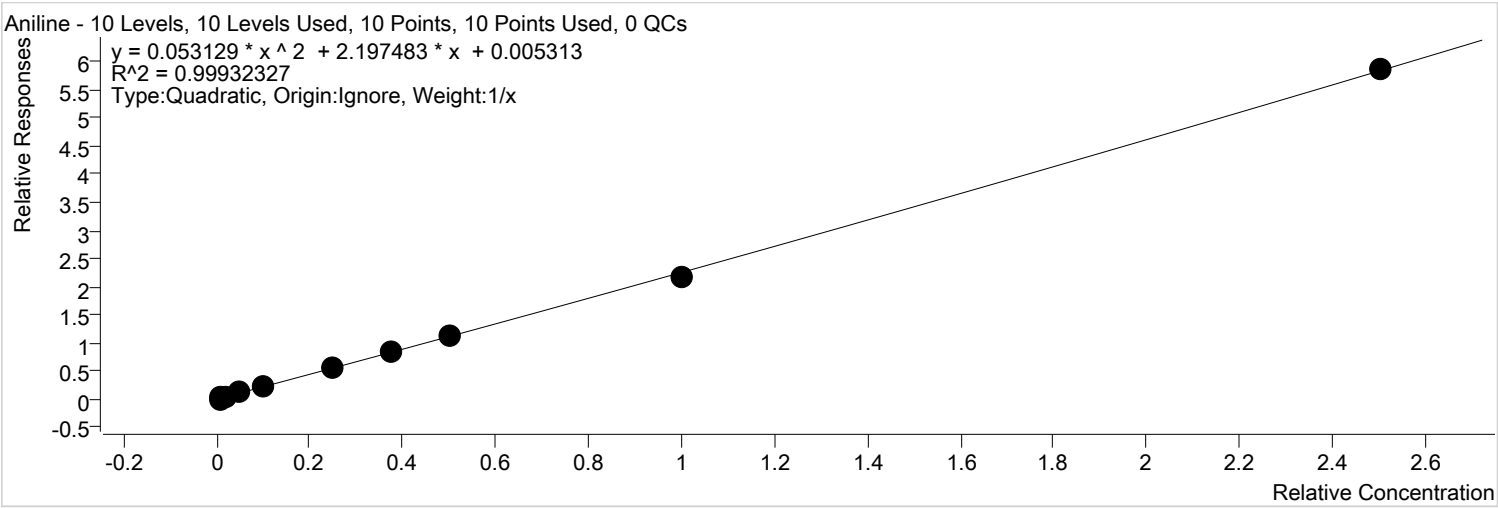
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	209	10.0000	1.9410
D:\GC-21\Data\060320\060319.D	Calibration	2	x	531	20.0000	2.4983
D:\GC-21\Data\060320\060320.D	Calibration	3	x	750	40.0000	1.6400
D:\GC-21\Data\060320\060321.D	Calibration	4	x	2456	100.0000	2.1319
D:\GC-21\Data\060320\060322.D	Calibration	5	x	4592	200.0000	1.9748
D:\GC-21\Data\060320\060323.D	Calibration	6	x	11768	500.0000	2.0646
D:\GC-21\Data\060320\060324.D	Calibration	7	x	18398	750.0000	2.0023
D:\GC-21\Data\060320\060325.D	Calibration	8	x	23225	1000.0000	1.9385
D:\GC-21\Data\060320\060326.D	Calibration	9	x	48089	2000.0000	2.0469
D:\GC-21\Data\060320\060327.D	Calibration	10	x	118796	5000.0000	2.0943

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Aniline

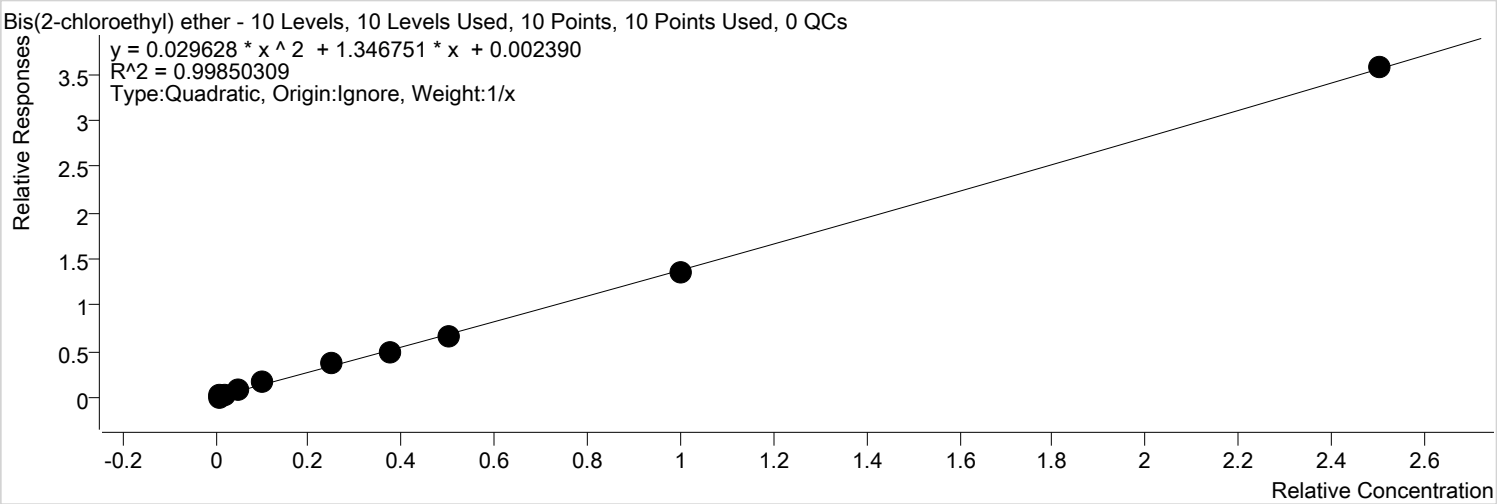


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	273	10.0000	2.5324
D:\GC-21\Data\060320\060319.D	Calibration	2	x	716	20.0000	3.3691
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1045	40.0000	2.2861
D:\GC-21\Data\060320\060321.D	Calibration	4	x	2887	100.0000	2.5059
D:\GC-21\Data\060320\060322.D	Calibration	5	x	5250	200.0000	2.2577
D:\GC-21\Data\060320\060323.D	Calibration	6	x	13322	500.0000	2.3372
D:\GC-21\Data\060320\060324.D	Calibration	7	x	20629	750.0000	2.2451
D:\GC-21\Data\060320\060325.D	Calibration	8	x	26760	1000.0000	2.2336
D:\GC-21\Data\060320\060326.D	Calibration	9	x	51562	2000.0000	2.1947
D:\GC-21\Data\060320\060327.D	Calibration	10	x	132778	5000.0000	2.3408

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Bis(2-chloroethyl) ether



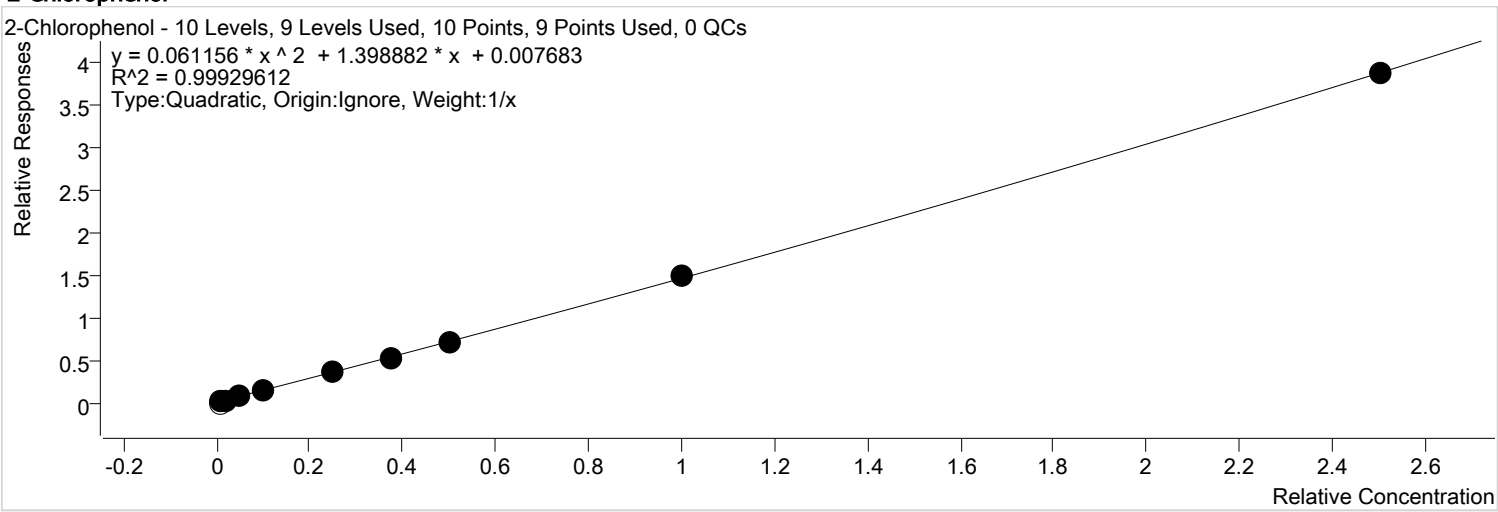
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	152	10.0000	1.4112
D:\GC-21\Data\060320\060319.D	Calibration	2	x	397	20.0000	1.8658
D:\GC-21\Data\060320\060320.D	Calibration	3	x	605	40.0000	1.3242
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1660	100.0000	1.4405
D:\GC-21\Data\060320\060322.D	Calibration	5	x	3695	200.0000	1.5887
D:\GC-21\Data\060320\060323.D	Calibration	6	x	8473	500.0000	1.4865
D:\GC-21\Data\060320\060324.D	Calibration	7	x	12290	750.0000	1.3375
D:\GC-21\Data\060320\060325.D	Calibration	8	x	15697	1000.0000	1.3102
D:\GC-21\Data\060320\060326.D	Calibration	9	x	31711	2000.0000	1.3498
D:\GC-21\Data\060320\060327.D	Calibration	10	x	80982	5000.0000	1.4277

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

2-Chlorophenol



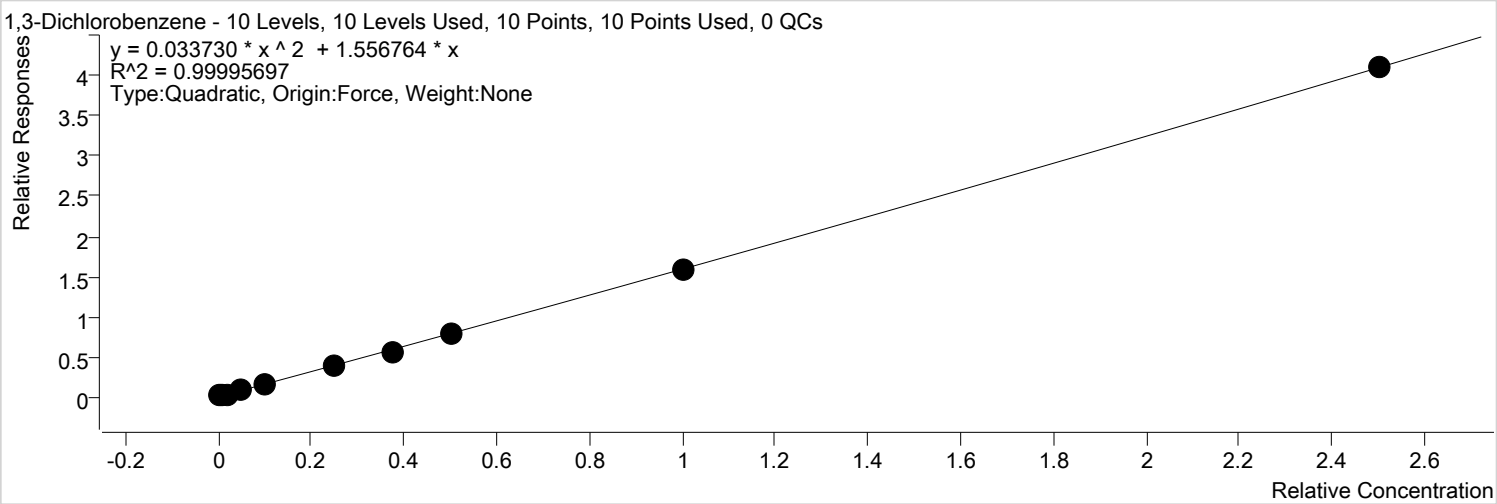
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1		0	10.0000	0.0000
D:\GC-21\Data\060320\060319.D	Calibration	2	x	513	20.0000	2.4125
D:\GC-21\Data\060320\060320.D	Calibration	3	x	655	40.0000	1.4333
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1868	100.0000	1.6212
D:\GC-21\Data\060320\060322.D	Calibration	5	x	3684	200.0000	1.5841
D:\GC-21\Data\060320\060323.D	Calibration	6	x	8093	500.0000	1.4198
D:\GC-21\Data\060320\060324.D	Calibration	7	x	12931	750.0000	1.4073
D:\GC-21\Data\060320\060325.D	Calibration	8	x	16889	1000.0000	1.4096
D:\GC-21\Data\060320\060326.D	Calibration	9	x	35357	2000.0000	1.5050
D:\GC-21\Data\060320\060327.D	Calibration	10	x	87986	5000.0000	1.5512

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

1,3-Dichlorobenzene



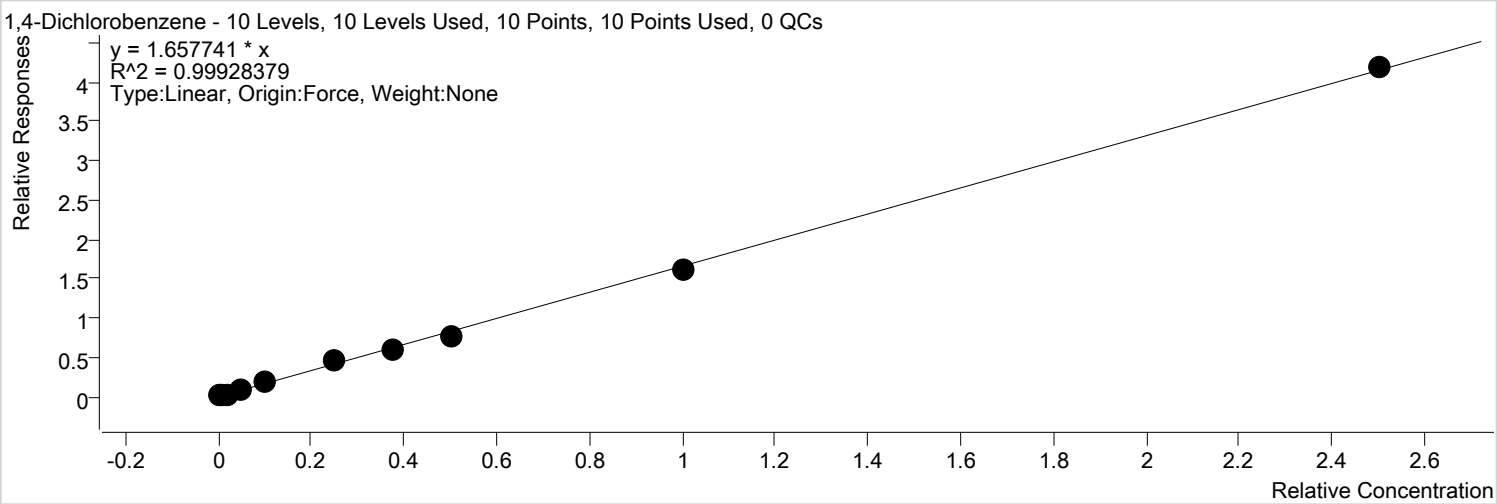
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	122	10.0000	1.1352
D:\GC-21\Data\060320\060319.D	Calibration	2	x	301	20.0000	1.4170
D:\GC-21\Data\060320\060320.D	Calibration	3	x	877	40.0000	1.9193
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1792	100.0000	1.5556
D:\GC-21\Data\060320\060322.D	Calibration	5	x	3606	200.0000	1.5505
D:\GC-21\Data\060320\060323.D	Calibration	6	x	9040	500.0000	1.5861
D:\GC-21\Data\060320\060324.D	Calibration	7	x	13887	750.0000	1.5114
D:\GC-21\Data\060320\060325.D	Calibration	8	x	18954	1000.0000	1.5820
D:\GC-21\Data\060320\060326.D	Calibration	9	x	37525	2000.0000	1.5973
D:\GC-21\Data\060320\060327.D	Calibration	10	x	93068	5000.0000	1.6408

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

1,4-Dichlorobenzene



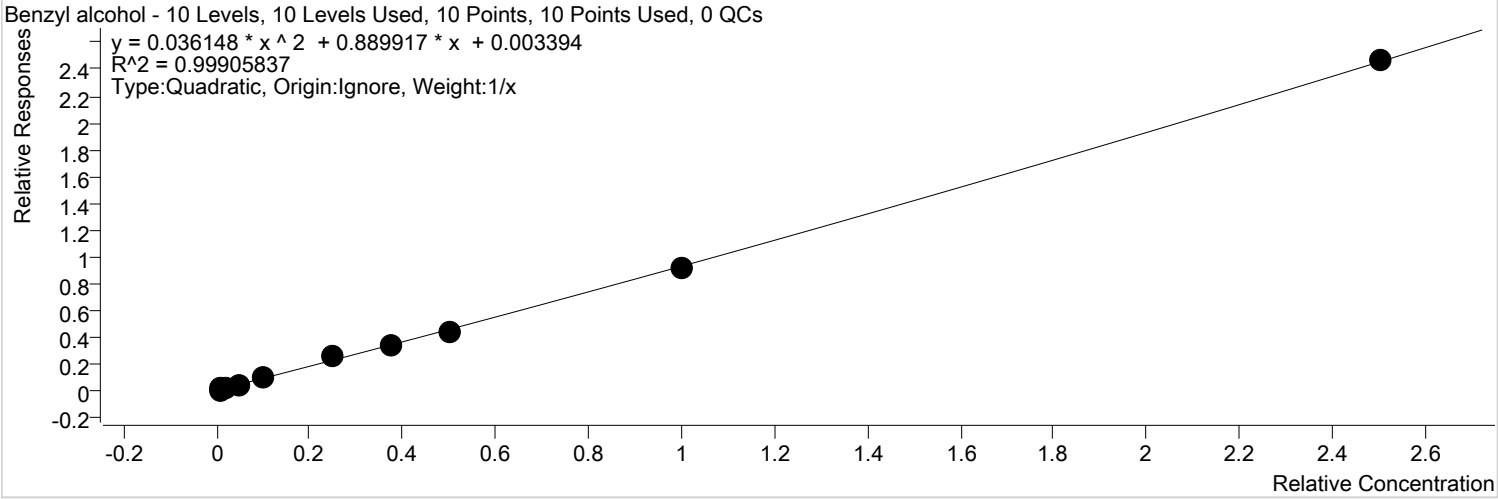
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	265	10.0000	2.4568
D:\GC-21\Data\060320\060319.D	Calibration	2	x	466	20.0000	2.1920
D:\GC-21\Data\060320\060320.D	Calibration	3	x	649	40.0000	1.4206
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1937	100.0000	1.6811
D:\GC-21\Data\060320\060322.D	Calibration	5	x	4074	200.0000	1.7519
D:\GC-21\Data\060320\060323.D	Calibration	6	x	10384	500.0000	1.8218
D:\GC-21\Data\060320\060324.D	Calibration	7	x	14279	750.0000	1.5540
D:\GC-21\Data\060320\060325.D	Calibration	8	x	18376	1000.0000	1.5338
D:\GC-21\Data\060320\060326.D	Calibration	9	x	37794	2000.0000	1.6087
D:\GC-21\Data\060320\060327.D	Calibration	10	x	94788	5000.0000	1.6711

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Benzyl alcohol



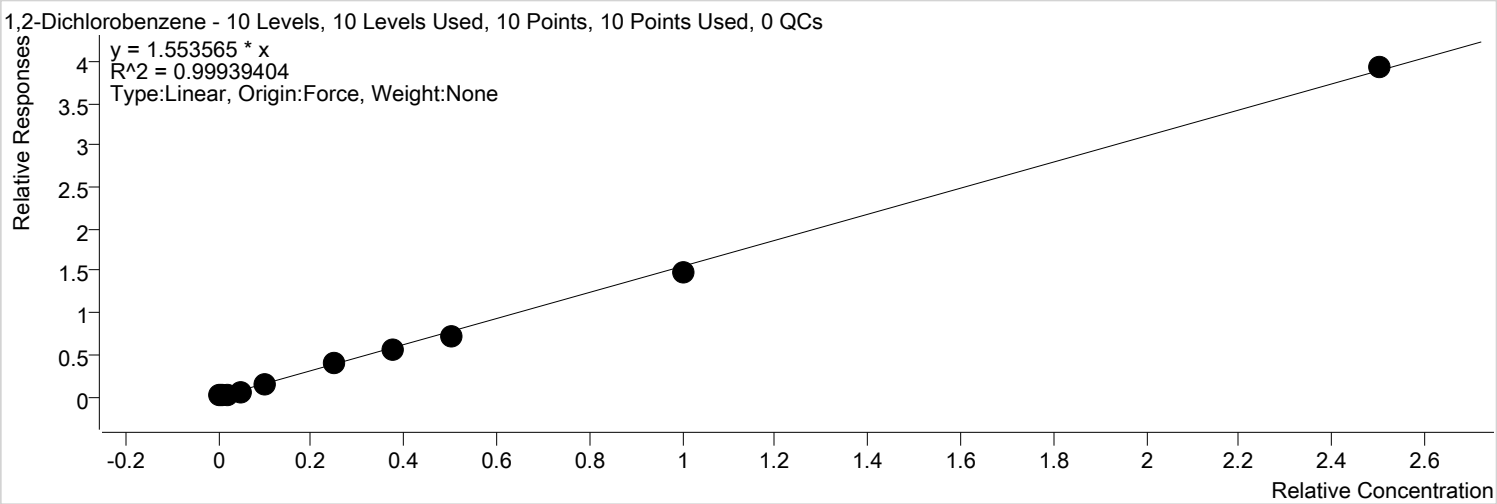
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	155	10.0000	1.4374
D:\GC-21\Data\060320\060319.D	Calibration	2	x	279	20.0000	1.3147
D:\GC-21\Data\060320\060320.D	Calibration	3	x	448	40.0000	0.9802
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1146	100.0000	0.9947
D:\GC-21\Data\060320\060322.D	Calibration	5	x	2279	200.0000	0.9801
D:\GC-21\Data\060320\060323.D	Calibration	6	x	5759	500.0000	1.0103
D:\GC-21\Data\060320\060324.D	Calibration	7	x	8243	750.0000	0.8971
D:\GC-21\Data\060320\060325.D	Calibration	8	x	10624	1000.0000	0.8867
D:\GC-21\Data\060320\060326.D	Calibration	9	x	21396	2000.0000	0.9107
D:\GC-21\Data\060320\060327.D	Calibration	10	x	55874	5000.0000	0.9850

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

1,2-Dichlorobenzene



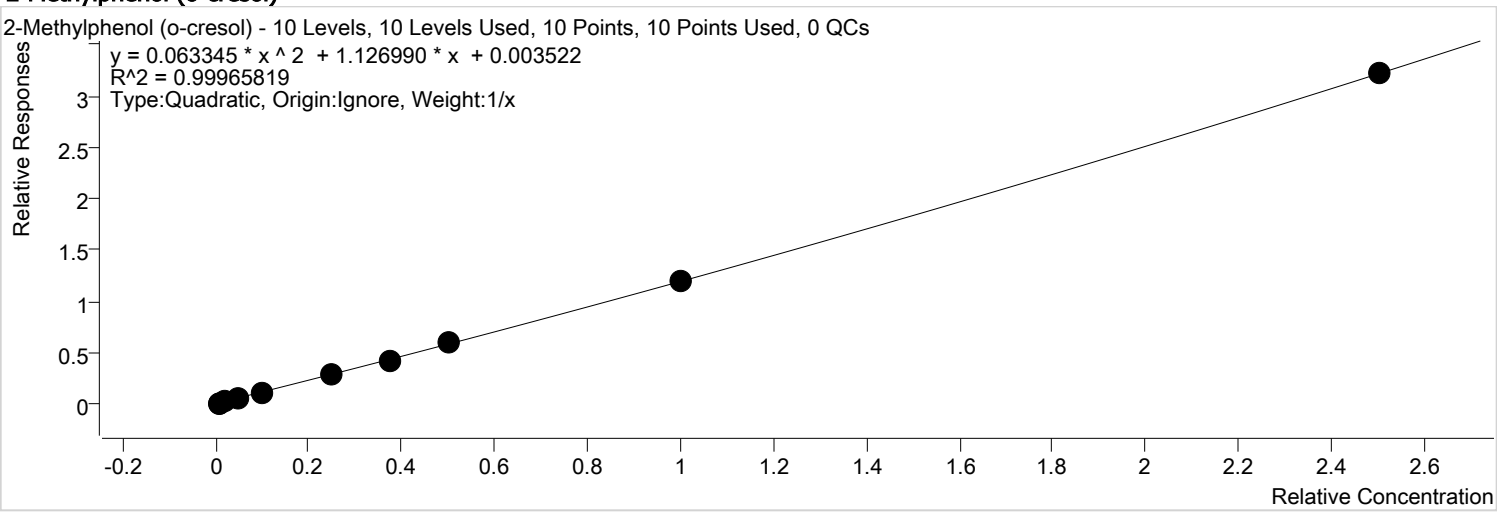
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	238	10.0000	2.2105
D:\GC-21\Data\060320\060319.D	Calibration	2	x	281	20.0000	1.3199
D:\GC-21\Data\060320\060320.D	Calibration	3	x	663	40.0000	1.4510
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1581	100.0000	1.3719
D:\GC-21\Data\060320\060322.D	Calibration	5	x	3805	200.0000	1.6364
D:\GC-21\Data\060320\060323.D	Calibration	6	x	9070	500.0000	1.5913
D:\GC-21\Data\060320\060324.D	Calibration	7	x	13819	750.0000	1.5039
D:\GC-21\Data\060320\060325.D	Calibration	8	x	17586	1000.0000	1.4679
D:\GC-21\Data\060320\060326.D	Calibration	9	x	34972	2000.0000	1.4886
D:\GC-21\Data\060320\060327.D	Calibration	10	x	88945	5000.0000	1.5681

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

2-Methylphenol (o-cresol)

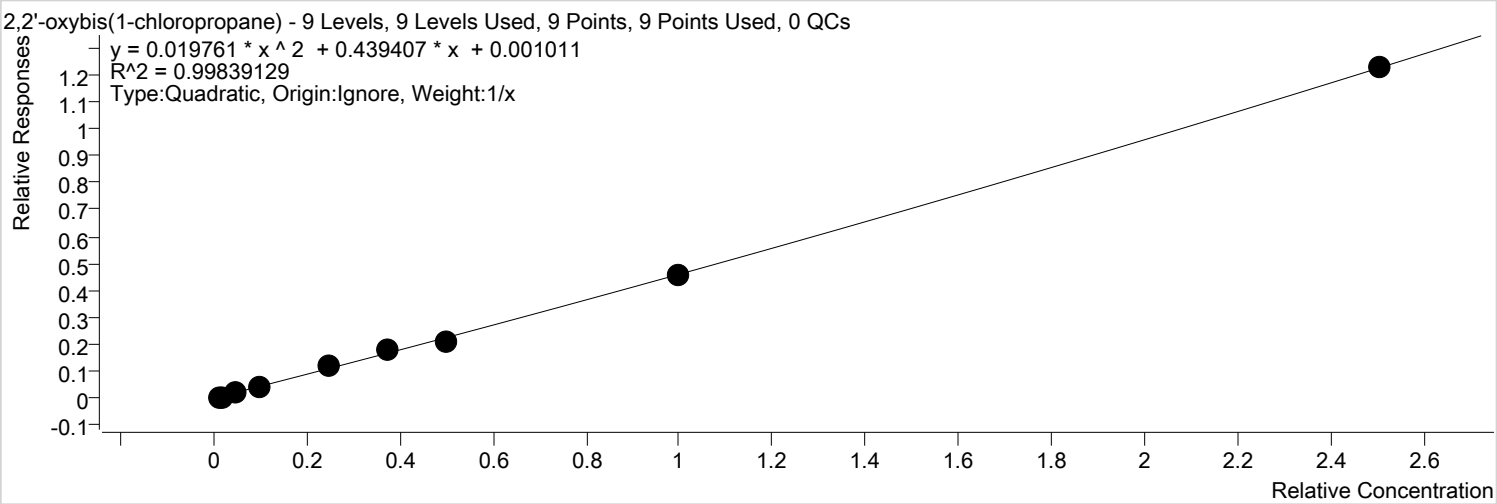


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	240	10.0000	2.2285
D:\GC-21\Data\060320\060319.D	Calibration	2	x	271	20.0000	1.2737
D:\GC-21\Data\060320\060320.D	Calibration	3	x	532	40.0000	1.1646
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1292	100.0000	1.1217
D:\GC-21\Data\060320\060322.D	Calibration	5	x	2708	200.0000	1.1643
D:\GC-21\Data\060320\060323.D	Calibration	6	x	6782	500.0000	1.1898
D:\GC-21\Data\060320\060324.D	Calibration	7	x	10556	750.0000	1.1488
D:\GC-21\Data\060320\060325.D	Calibration	8	x	14148	1000.0000	1.1809
D:\GC-21\Data\060320\060326.D	Calibration	9	x	27940	2000.0000	1.1893
D:\GC-21\Data\060320\060327.D	Calibration	10	x	72994	5000.0000	1.2869

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

2,2'-oxybis(1-chloropropane)



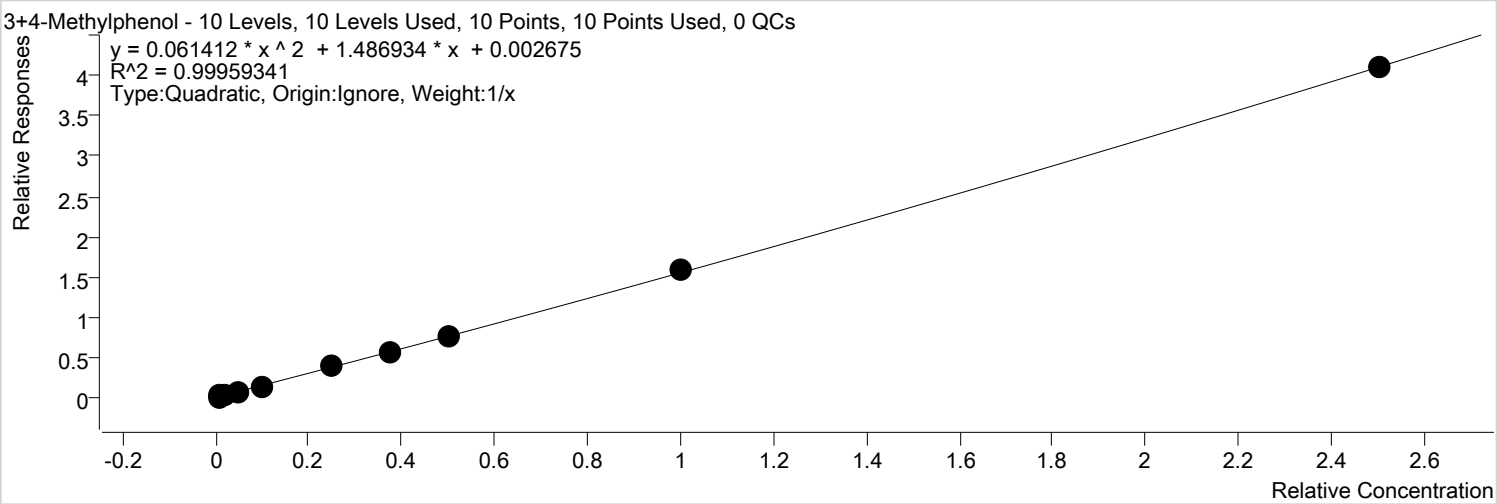
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060319.D	Calibration	2	x	147	20.0000	0.6905
D:\GC-21\Data\060320\060320.D	Calibration	3	x	149	40.0000	0.3262
D:\GC-21\Data\060320\060321.D	Calibration	4	x	531	100.0000	0.4609
D:\GC-21\Data\060320\060322.D	Calibration	5	x	1025	200.0000	0.4408
D:\GC-21\Data\060320\060323.D	Calibration	6	x	2685	500.0000	0.4710
D:\GC-21\Data\060320\060324.D	Calibration	7	x	4406	750.0000	0.4796
D:\GC-21\Data\060320\060325.D	Calibration	8	x	5097	1000.0000	0.4255
D:\GC-21\Data\060320\060326.D	Calibration	9	x	10750	2000.0000	0.4576
D:\GC-21\Data\060320\060327.D	Calibration	10	x	27782	5000.0000	0.4898

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

3+4-Methylphenol

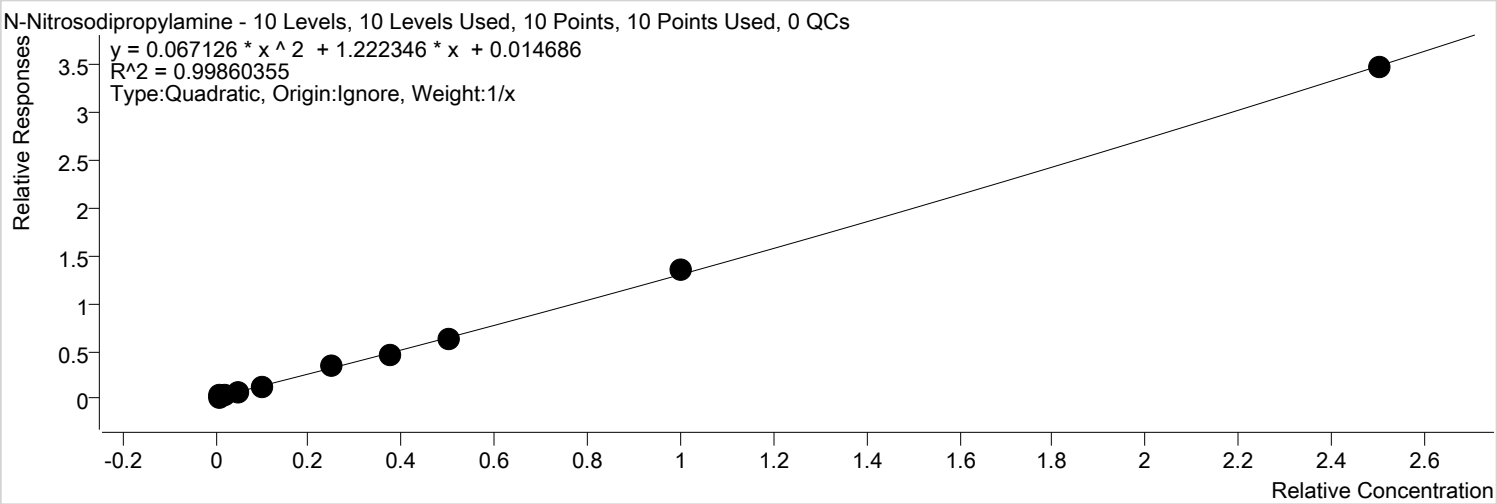


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	214	10.0000	1.9830
D:\GC-21\Data\060320\060319.D	Calibration	2	x	442	20.0000	2.0775
D:\GC-21\Data\060320\060320.D	Calibration	3	x	640	40.0000	1.3994
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1751	100.0000	1.5202
D:\GC-21\Data\060320\060322.D	Calibration	5	x	3388	200.0000	1.4567
D:\GC-21\Data\060320\060323.D	Calibration	6	x	8946	500.0000	1.5695
D:\GC-21\Data\060320\060324.D	Calibration	7	x	13737	750.0000	1.4950
D:\GC-21\Data\060320\060325.D	Calibration	8	x	17860	1000.0000	1.4907
D:\GC-21\Data\060320\060326.D	Calibration	9	x	37059	2000.0000	1.5774
D:\GC-21\Data\060320\060327.D	Calibration	10	x	92949	5000.0000	1.6387

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

N-Nitrosodipropylamine



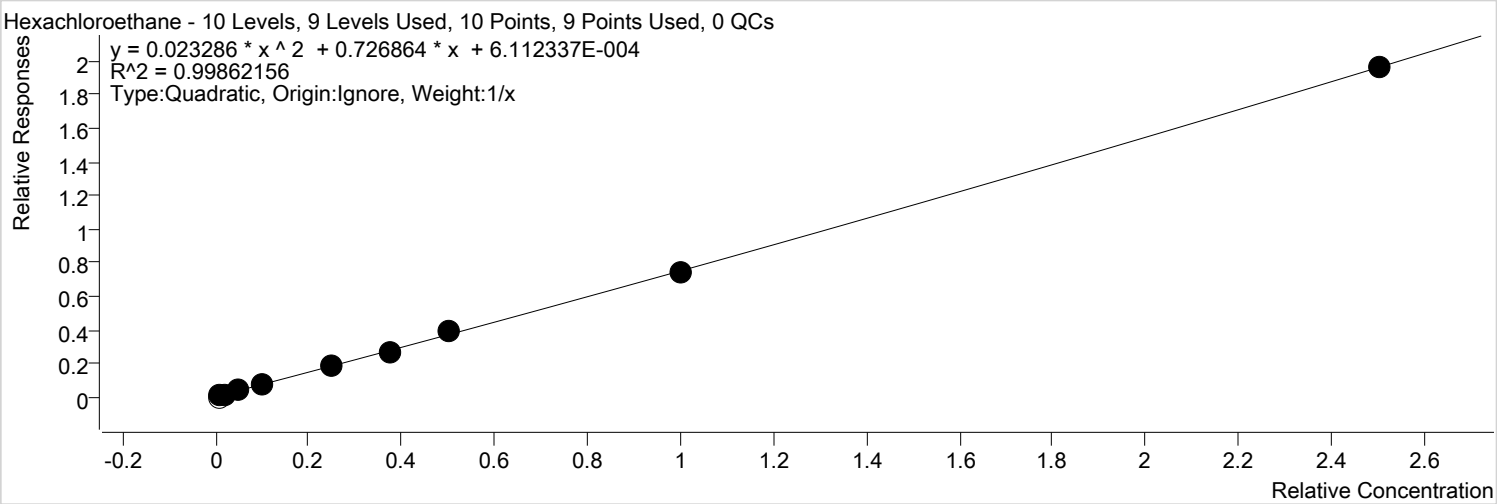
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	482	10.0000	4.4694
D:\GC-21\Data\060320\060319.D	Calibration	2	x	628	20.0000	2.9535
D:\GC-21\Data\060320\060320.D	Calibration	3	x	783	40.0000	1.7131
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1419	100.0000	1.2314
D:\GC-21\Data\060320\060322.D	Calibration	5	x	3028	200.0000	1.3022
D:\GC-21\Data\060320\060323.D	Calibration	6	x	7663	500.0000	1.3445
D:\GC-21\Data\060320\060324.D	Calibration	7	x	11547	750.0000	1.2566
D:\GC-21\Data\060320\060325.D	Calibration	8	x	15059	1000.0000	1.2569
D:\GC-21\Data\060320\060326.D	Calibration	9	x	31904	2000.0000	1.3580
D:\GC-21\Data\060320\060327.D	Calibration	10	x	78788	5000.0000	1.3890

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Hexachloroethane



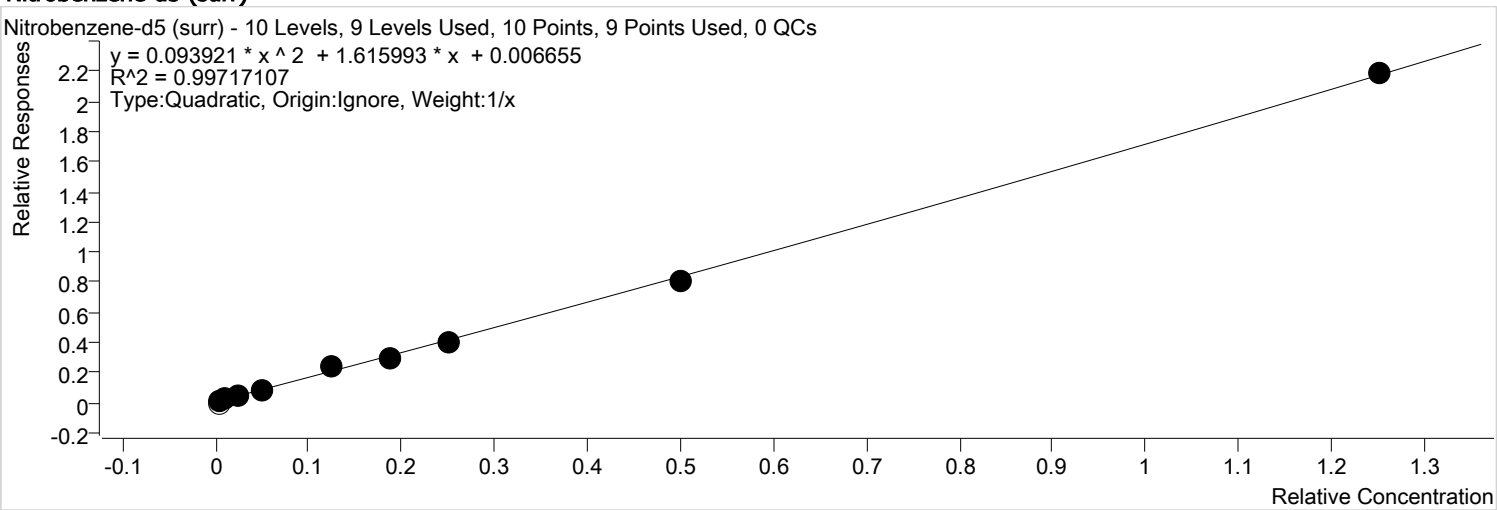
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1		0	10.0000	0.0000
D:\GC-21\Data\060320\060319.D	Calibration	2	x	224	20.0000	1.0562
D:\GC-21\Data\060320\060320.D	Calibration	3	x	250	40.0000	0.5466
D:\GC-21\Data\060320\060321.D	Calibration	4	x	838	100.0000	0.7275
D:\GC-21\Data\060320\060322.D	Calibration	5	x	1592	200.0000	0.6845
D:\GC-21\Data\060320\060323.D	Calibration	6	x	4112	500.0000	0.7214
D:\GC-21\Data\060320\060324.D	Calibration	7	x	6523	750.0000	0.7099
D:\GC-21\Data\060320\060325.D	Calibration	8	x	9483	1000.0000	0.7915
D:\GC-21\Data\060320\060326.D	Calibration	9	x	17564	2000.0000	0.7476
D:\GC-21\Data\060320\060327.D	Calibration	10	x	44505	5000.0000	0.7846

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Nitrobenzene-d5 (surr)

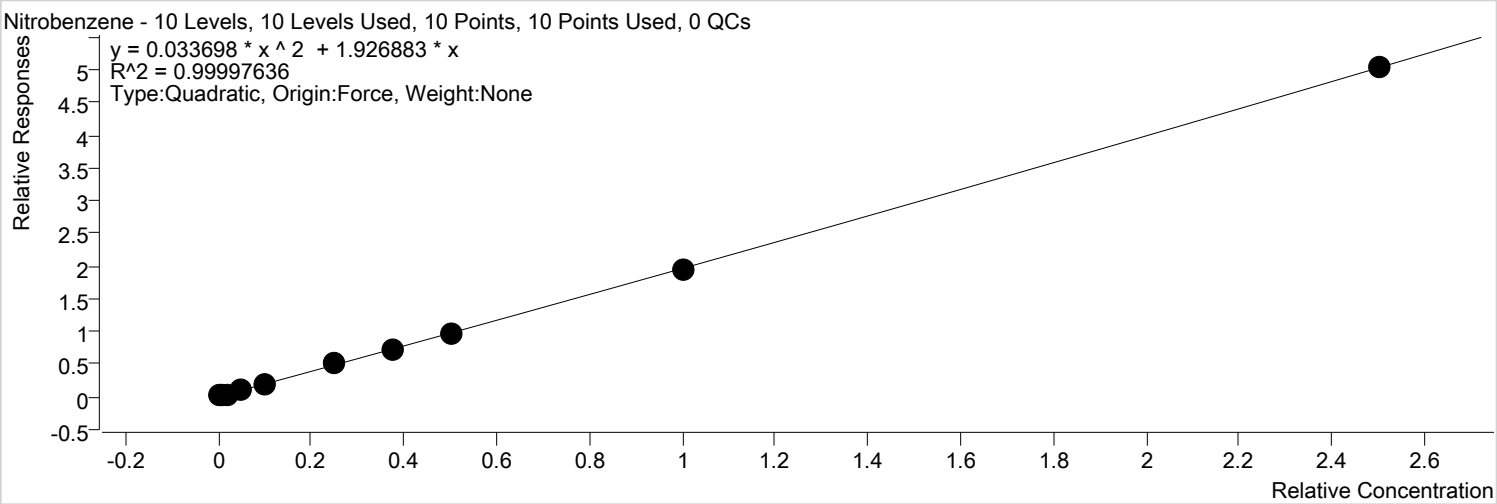


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1		0	5.0000	0.0000
D:\GC-21\Data\060320\060319.D	Calibration	2	x	228	10.0000	2.1491
D:\GC-21\Data\060320\060320.D	Calibration	3	x	659	20.0000	2.8840
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1125	50.0000	1.9533
D:\GC-21\Data\060320\060322.D	Calibration	5	x	2063	100.0000	1.7746
D:\GC-21\Data\060320\060323.D	Calibration	6	x	5531	250.0000	1.9407
D:\GC-21\Data\060320\060324.D	Calibration	7	x	7371	375.0000	1.6043
D:\GC-21\Data\060320\060325.D	Calibration	8	x	9673	500.0000	1.6148
D:\GC-21\Data\060320\060326.D	Calibration	9	x	19169	1000.0000	1.6319
D:\GC-21\Data\060320\060327.D	Calibration	10	x	49537	2500.0000	1.7466

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Nitrobenzene



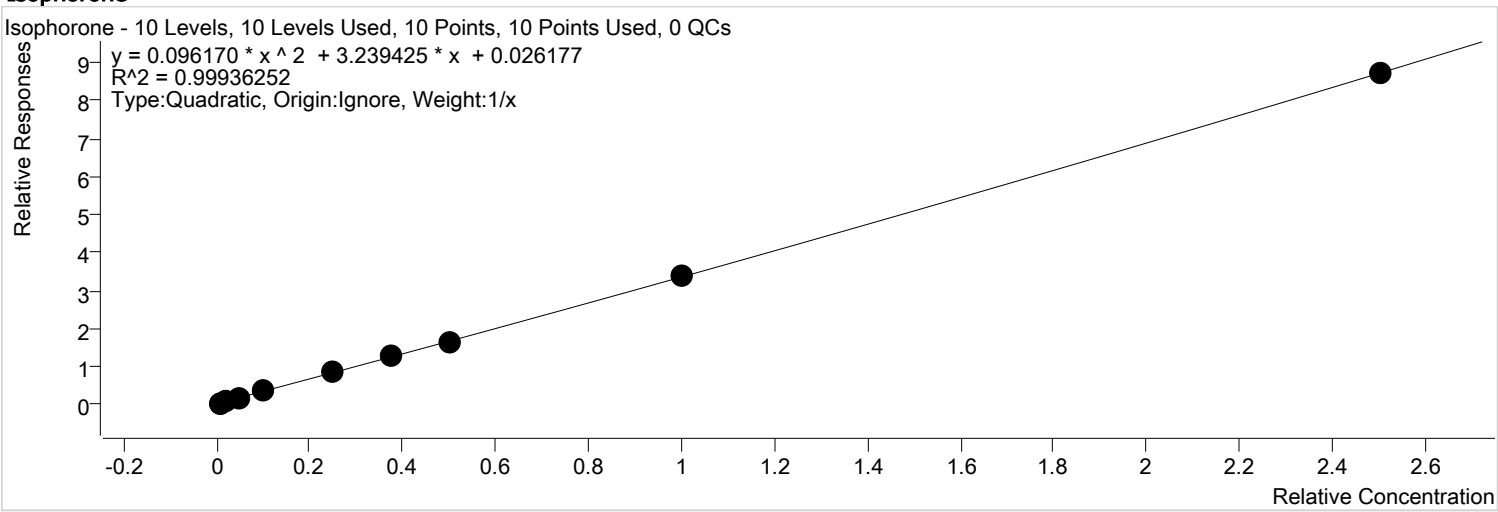
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	292	10.0000	2.7113
D:\GC-21\Data\060320\060319.D	Calibration	2	x	511	20.0000	2.4041
D:\GC-21\Data\060320\060320.D	Calibration	3	x	864	40.0000	1.8897
D:\GC-21\Data\060320\060321.D	Calibration	4	x	2363	100.0000	2.0510
D:\GC-21\Data\060320\060322.D	Calibration	5	x	4692	200.0000	2.0178
D:\GC-21\Data\060320\060323.D	Calibration	6	x	11346	500.0000	1.9906
D:\GC-21\Data\060320\060324.D	Calibration	7	x	18021	750.0000	1.9612
D:\GC-21\Data\060320\060325.D	Calibration	8	x	23094	1000.0000	1.9276
D:\GC-21\Data\060320\060326.D	Calibration	9	x	45917	2000.0000	1.9545
D:\GC-21\Data\060320\060327.D	Calibration	10	x	114098	5000.0000	2.0115

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Isophorone



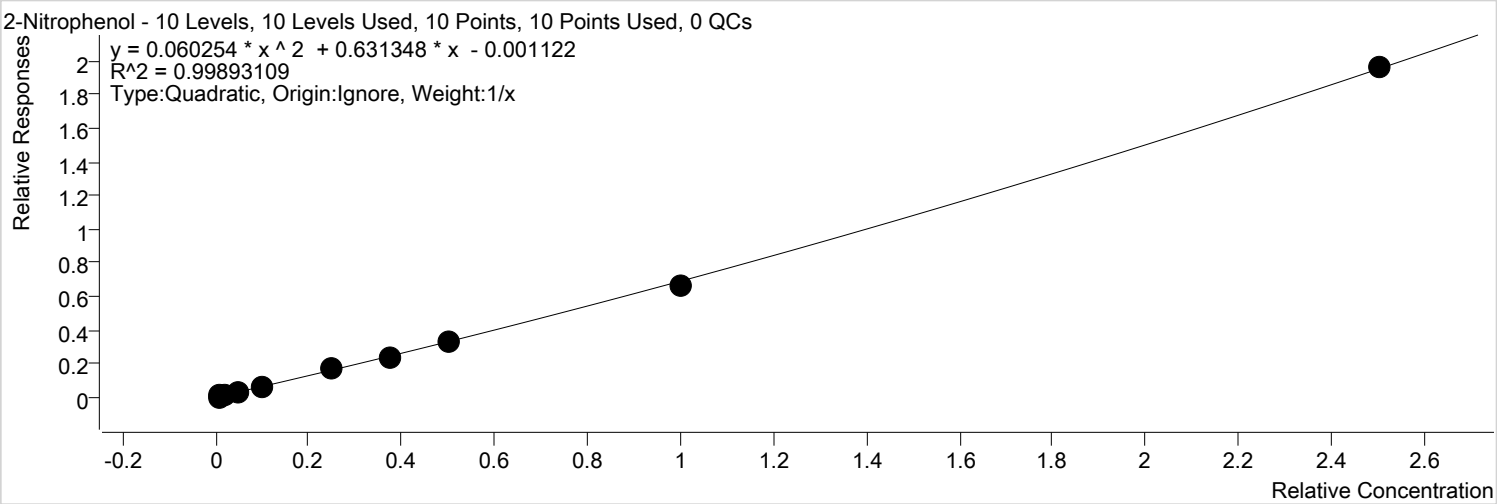
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	1047	10.0000	9.7067
D:\GC-21\Data\060320\060319.D	Calibration	2	x	1191	20.0000	5.6031
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1640	40.0000	3.5863
D:\GC-21\Data\060320\060321.D	Calibration	4	x	4364	100.0000	3.7876
D:\GC-21\Data\060320\060322.D	Calibration	5	x	8014	200.0000	3.4461
D:\GC-21\Data\060320\060323.D	Calibration	6	x	19075	500.0000	3.3467
D:\GC-21\Data\060320\060324.D	Calibration	7	x	31478	750.0000	3.4258
D:\GC-21\Data\060320\060325.D	Calibration	8	x	39261	1000.0000	3.2770
D:\GC-21\Data\060320\060326.D	Calibration	9	x	79961	2000.0000	3.4036
D:\GC-21\Data\060320\060327.D	Calibration	10	x	197662	5000.0000	3.4847

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

2-Nitrophenol



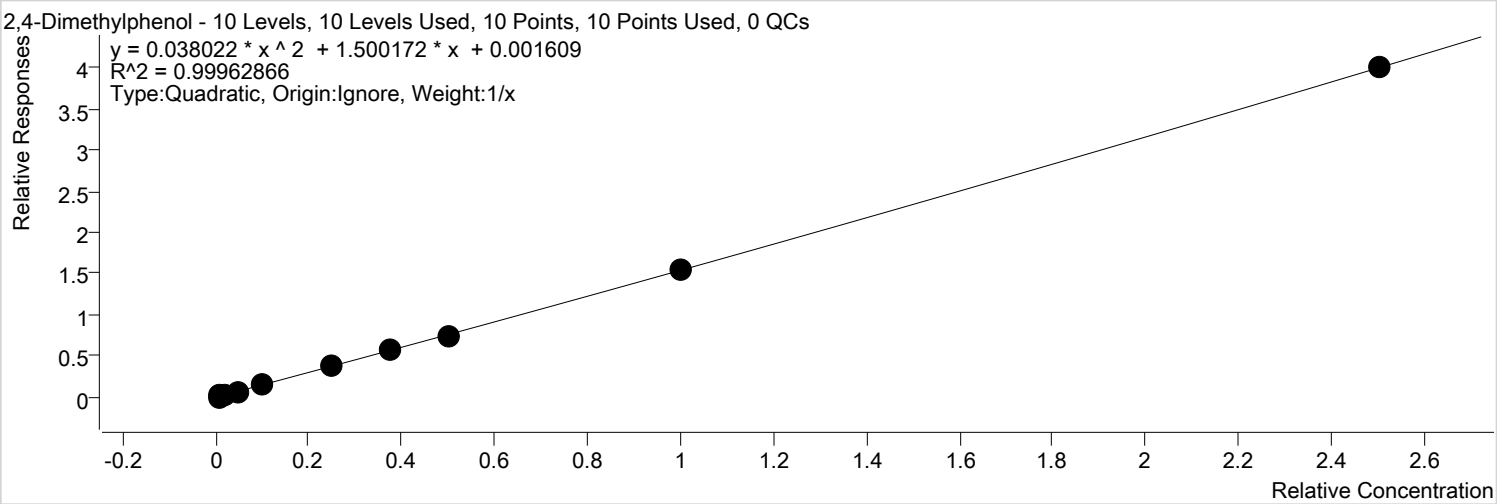
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	32	10.0000	0.2934
D:\GC-21\Data\060320\060319.D	Calibration	2	x	120	20.0000	0.5644
D:\GC-21\Data\060320\060320.D	Calibration	3	x	228	40.0000	0.4992
D:\GC-21\Data\060320\060321.D	Calibration	4	x	819	100.0000	0.7107
D:\GC-21\Data\060320\060322.D	Calibration	5	x	1532	200.0000	0.6588
D:\GC-21\Data\060320\060323.D	Calibration	6	x	3985	500.0000	0.6991
D:\GC-21\Data\060320\060324.D	Calibration	7	x	5646	750.0000	0.6145
D:\GC-21\Data\060320\060325.D	Calibration	8	x	8039	1000.0000	0.6710
D:\GC-21\Data\060320\060326.D	Calibration	9	x	15741	2000.0000	0.6700
D:\GC-21\Data\060320\060327.D	Calibration	10	x	44499	5000.0000	0.7845

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

2,4-Dimethylphenol



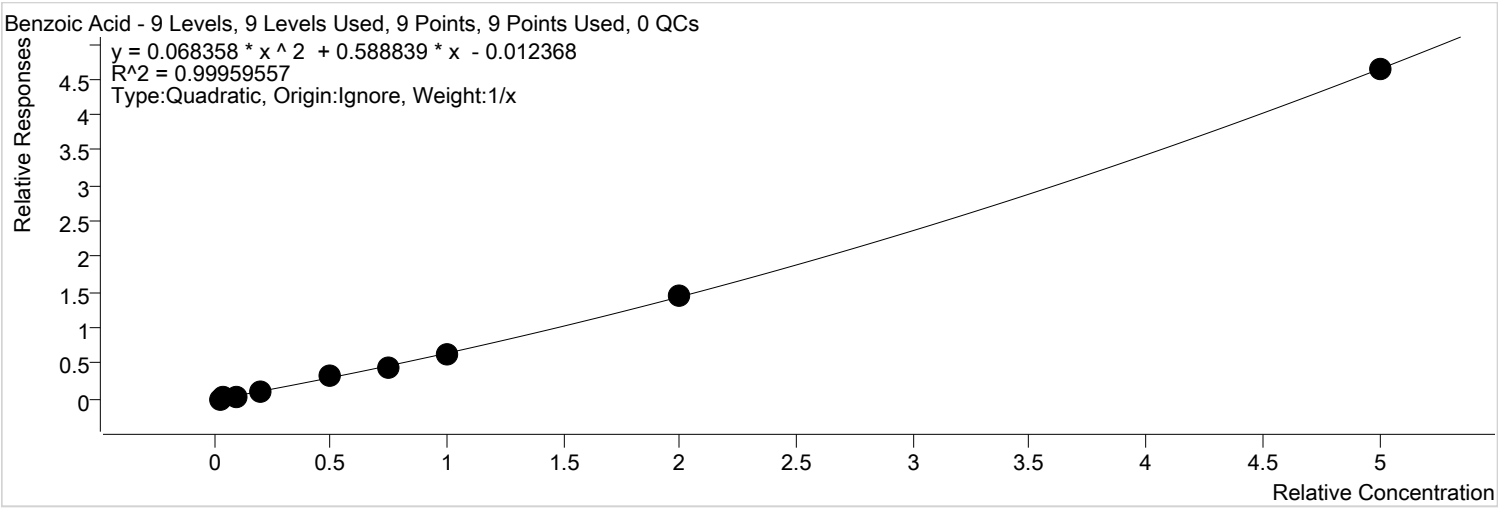
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	175	10.0000	1.6216
D:\GC-21\Data\060320\060319.D	Calibration	2	x	375	20.0000	1.7644
D:\GC-21\Data\060320\060320.D	Calibration	3	x	795	40.0000	1.7385
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1624	100.0000	1.4096
D:\GC-21\Data\060320\060322.D	Calibration	5	x	3643	200.0000	1.5664
D:\GC-21\Data\060320\060323.D	Calibration	6	x	8857	500.0000	1.5540
D:\GC-21\Data\060320\060324.D	Calibration	7	x	14261	750.0000	1.5521
D:\GC-21\Data\060320\060325.D	Calibration	8	x	17570	1000.0000	1.4665
D:\GC-21\Data\060320\060326.D	Calibration	9	x	36242	2000.0000	1.5427
D:\GC-21\Data\060320\060327.D	Calibration	10	x	90557	5000.0000	1.5965

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Benzoic Acid

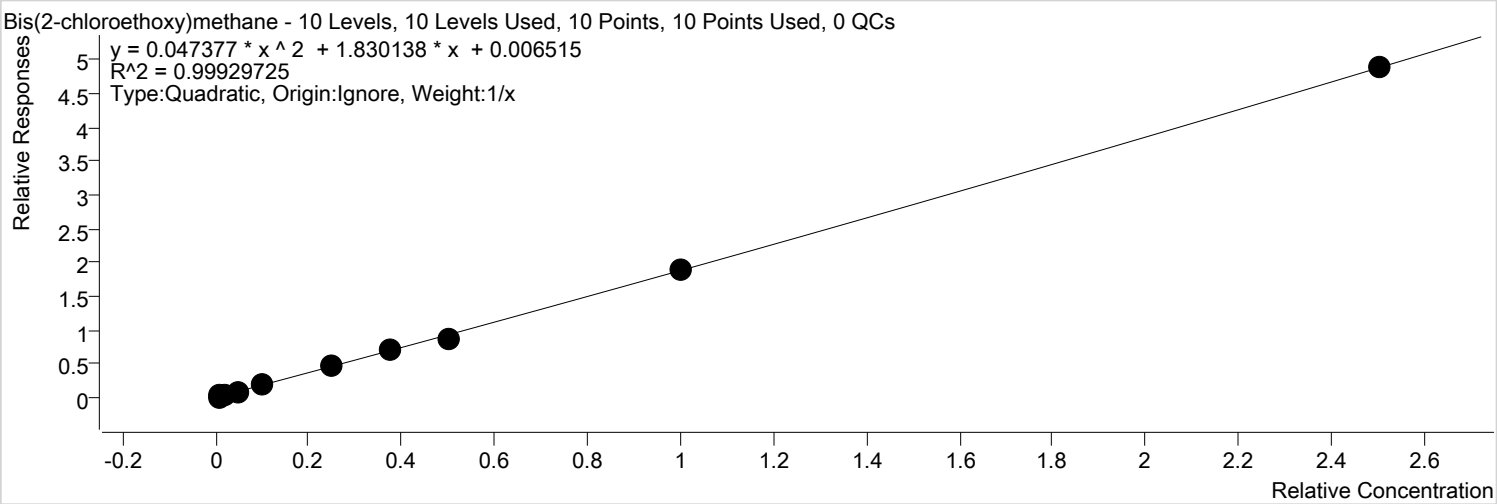


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060319.D	Calibration	2	x	32	40.0000	0.0759
D:\GC-21\Data\060320\060320.D	Calibration	3	x	202	80.0000	0.2213
D:\GC-21\Data\060320\060321.D	Calibration	4	x	949	200.0000	0.4117
D:\GC-21\Data\060320\060322.D	Calibration	5	x	2595	400.0000	0.5578
D:\GC-21\Data\060320\060323.D	Calibration	6	x	7130	1000.0000	0.6255
D:\GC-21\Data\060320\060324.D	Calibration	7	x	10913	1500.0000	0.5938
D:\GC-21\Data\060320\060325.D	Calibration	8	x	15179	2000.0000	0.6335
D:\GC-21\Data\060320\060326.D	Calibration	9	x	34536	4000.0000	0.7350
D:\GC-21\Data\060320\060327.D	Calibration	10	x	105107	10000.0000	0.9265

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Bis(2-chloroethoxy)methane



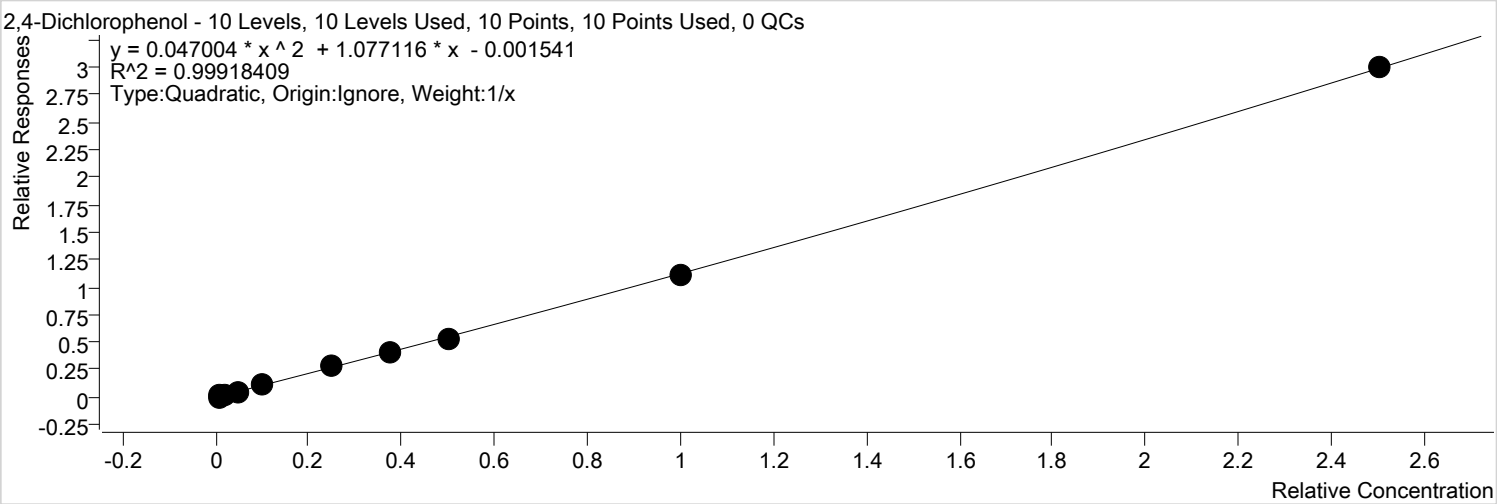
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	370	10.0000	3.4324
D:\GC-21\Data\060320\060319.D	Calibration	2	x	540	20.0000	2.5386
D:\GC-21\Data\060320\060320.D	Calibration	3	x	773	40.0000	1.6907
D:\GC-21\Data\060320\060321.D	Calibration	4	x	2327	100.0000	2.0202
D:\GC-21\Data\060320\060322.D	Calibration	5	x	4428	200.0000	1.9042
D:\GC-21\Data\060320\060323.D	Calibration	6	x	10941	500.0000	1.9195
D:\GC-21\Data\060320\060324.D	Calibration	7	x	17877	750.0000	1.9456
D:\GC-21\Data\060320\060325.D	Calibration	8	x	21350	1000.0000	1.7820
D:\GC-21\Data\060320\060326.D	Calibration	9	x	44290	2000.0000	1.8852
D:\GC-21\Data\060320\060327.D	Calibration	10	x	110726	5000.0000	1.9521

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

2,4-Dichlorophenol

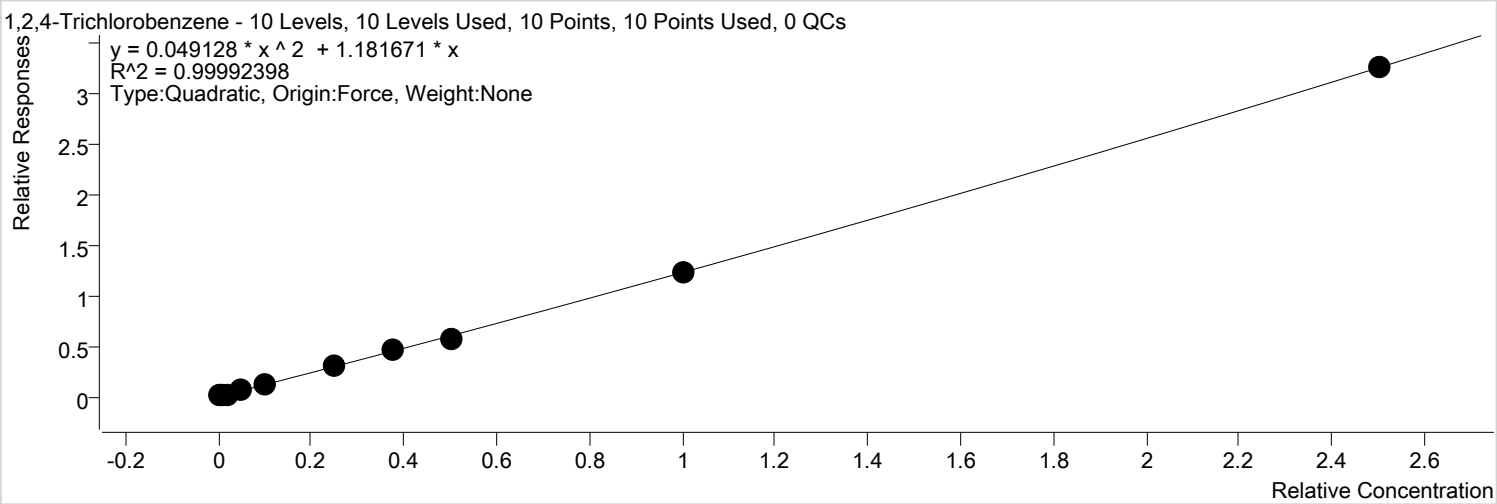


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	66	10.0000	0.6114
D:\GC-21\Data\060320\060319.D	Calibration	2	x	169	20.0000	0.7942
D:\GC-21\Data\060320\060320.D	Calibration	3	x	511	40.0000	1.1168
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1234	100.0000	1.0712
D:\GC-21\Data\060320\060322.D	Calibration	5	x	2906	200.0000	1.2495
D:\GC-21\Data\060320\060323.D	Calibration	6	x	6340	500.0000	1.1123
D:\GC-21\Data\060320\060324.D	Calibration	7	x	9684	750.0000	1.0540
D:\GC-21\Data\060320\060325.D	Calibration	8	x	12910	1000.0000	1.0776
D:\GC-21\Data\060320\060326.D	Calibration	9	x	26143	2000.0000	1.1128
D:\GC-21\Data\060320\060327.D	Calibration	10	x	67874	5000.0000	1.1966

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

1,2,4-Trichlorobenzene



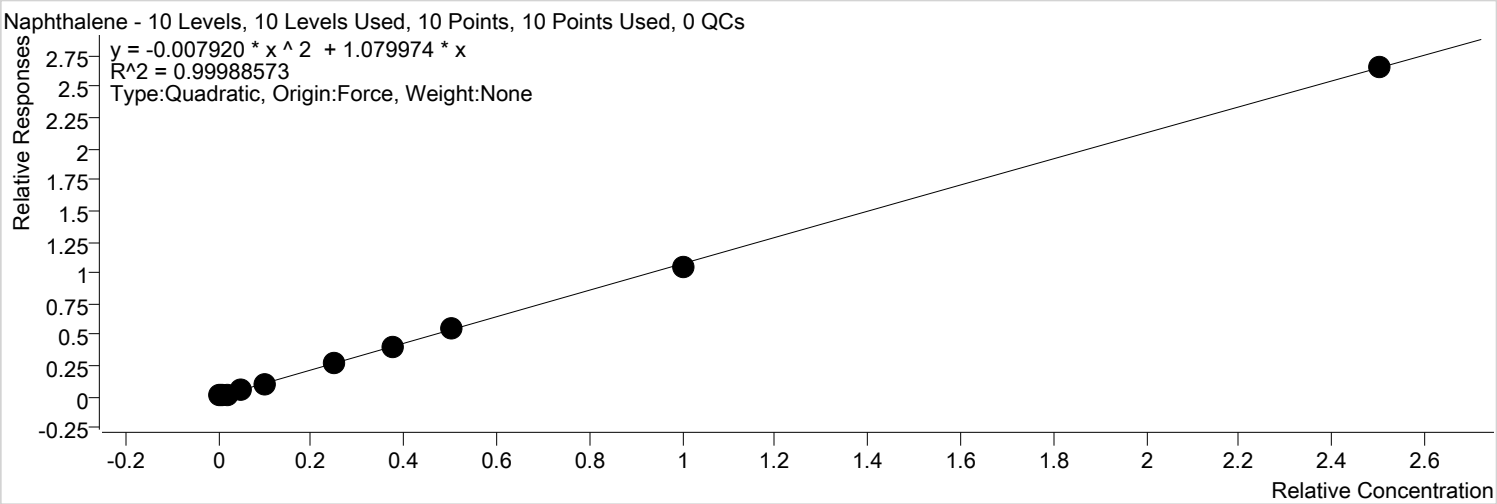
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	126	10.0000	1.1650
D:\GC-21\Data\060320\060319.D	Calibration	2	x	327	20.0000	1.5393
D:\GC-21\Data\060320\060320.D	Calibration	3	x	412	40.0000	0.9005
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1470	100.0000	1.2759
D:\GC-21\Data\060320\060322.D	Calibration	5	x	3003	200.0000	1.2915
D:\GC-21\Data\060320\060323.D	Calibration	6	x	7034	500.0000	1.2340
D:\GC-21\Data\060320\060324.D	Calibration	7	x	11257	750.0000	1.2251
D:\GC-21\Data\060320\060325.D	Calibration	8	x	14017	1000.0000	1.1700
D:\GC-21\Data\060320\060326.D	Calibration	9	x	28949	2000.0000	1.2322
D:\GC-21\Data\060320\060327.D	Calibration	10	x	73998	5000.0000	1.3046

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Naphthalene



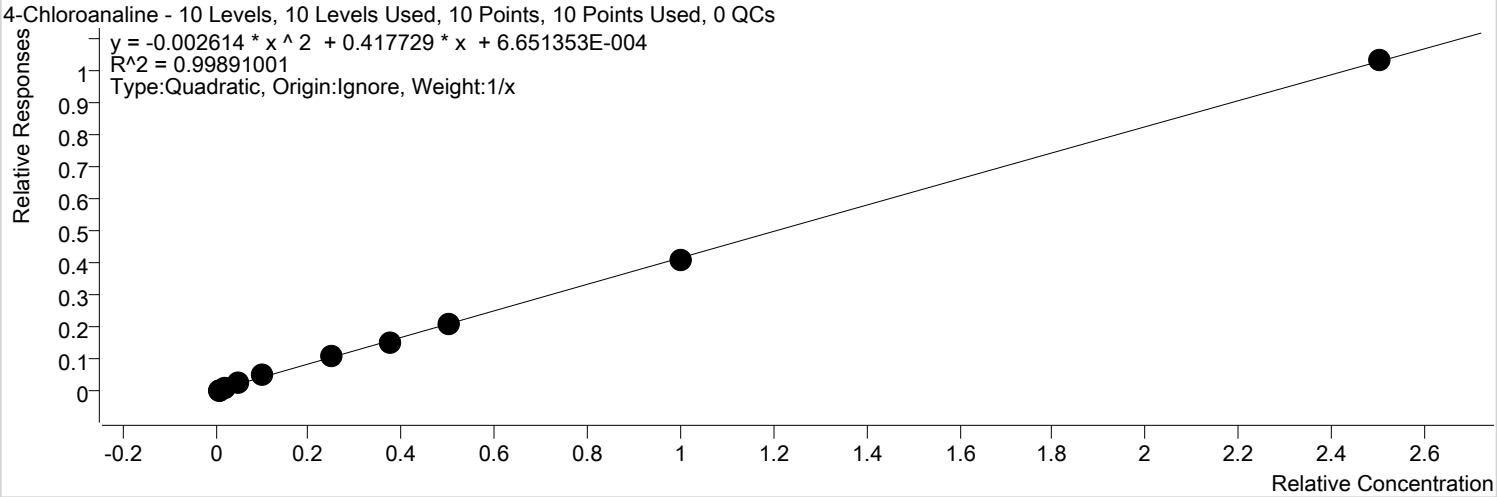
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	687	10.0000	1.6247
D:\GC-21\Data\060320\060319.D	Calibration	2	x	989	20.0000	1.1840
D:\GC-21\Data\060320\060320.D	Calibration	3	x	2059	40.0000	1.1767
D:\GC-21\Data\060320\060321.D	Calibration	4	x	4516	100.0000	0.9771
D:\GC-21\Data\060320\060322.D	Calibration	5	x	9741	200.0000	1.1098
D:\GC-21\Data\060320\060323.D	Calibration	6	x	24812	500.0000	1.1101
D:\GC-21\Data\060320\060324.D	Calibration	7	x	38414	750.0000	1.0924
D:\GC-21\Data\060320\060325.D	Calibration	8	x	51300	1000.0000	1.1081
D:\GC-21\Data\060320\060326.D	Calibration	9	x	97495	2000.0000	1.0551
D:\GC-21\Data\060320\060327.D	Calibration	10	x	242809	5000.0000	1.0609

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

4-Chloroanaline



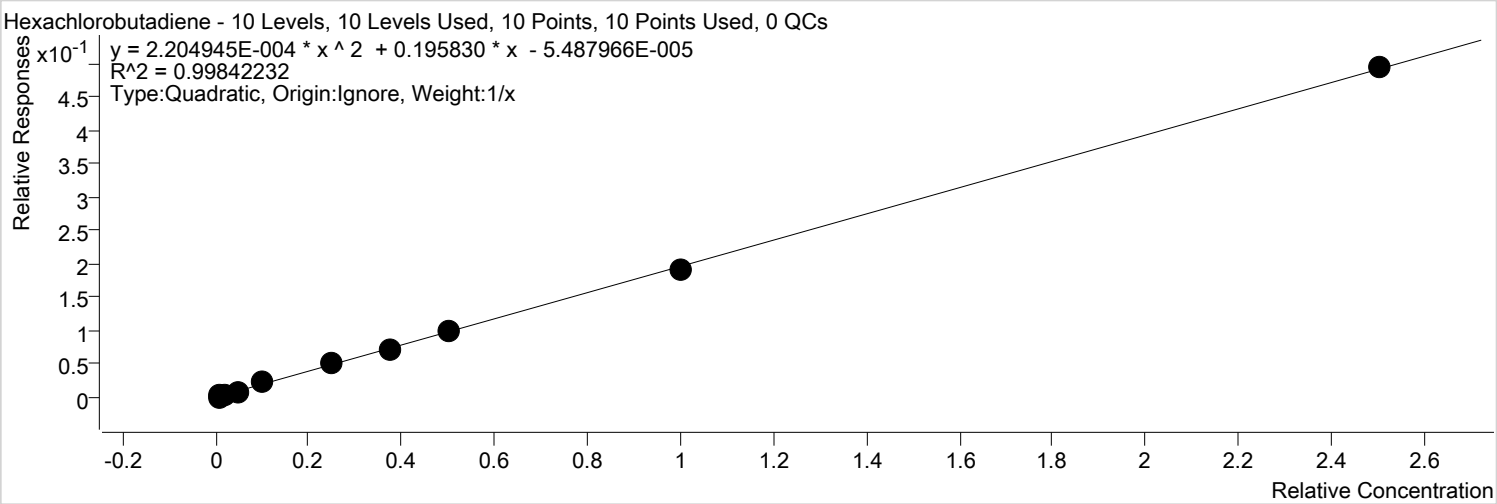
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	295	10.0000	0.6971
D:\GC-21\Data\060320\060319.D	Calibration	2	x	266	20.0000	0.3185
D:\GC-21\Data\060320\060320.D	Calibration	3	x	736	40.0000	0.4206
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1971	100.0000	0.4264
D:\GC-21\Data\060320\060322.D	Calibration	5	x	4144	200.0000	0.4722
D:\GC-21\Data\060320\060323.D	Calibration	6	x	9913	500.0000	0.4435
D:\GC-21\Data\060320\060324.D	Calibration	7	x	14486	750.0000	0.4119
D:\GC-21\Data\060320\060325.D	Calibration	8	x	19059	1000.0000	0.4117
D:\GC-21\Data\060320\060326.D	Calibration	9	x	37851	2000.0000	0.4096
D:\GC-21\Data\060320\060327.D	Calibration	10	x	94414	5000.0000	0.4125

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Hexachlorobutadiene



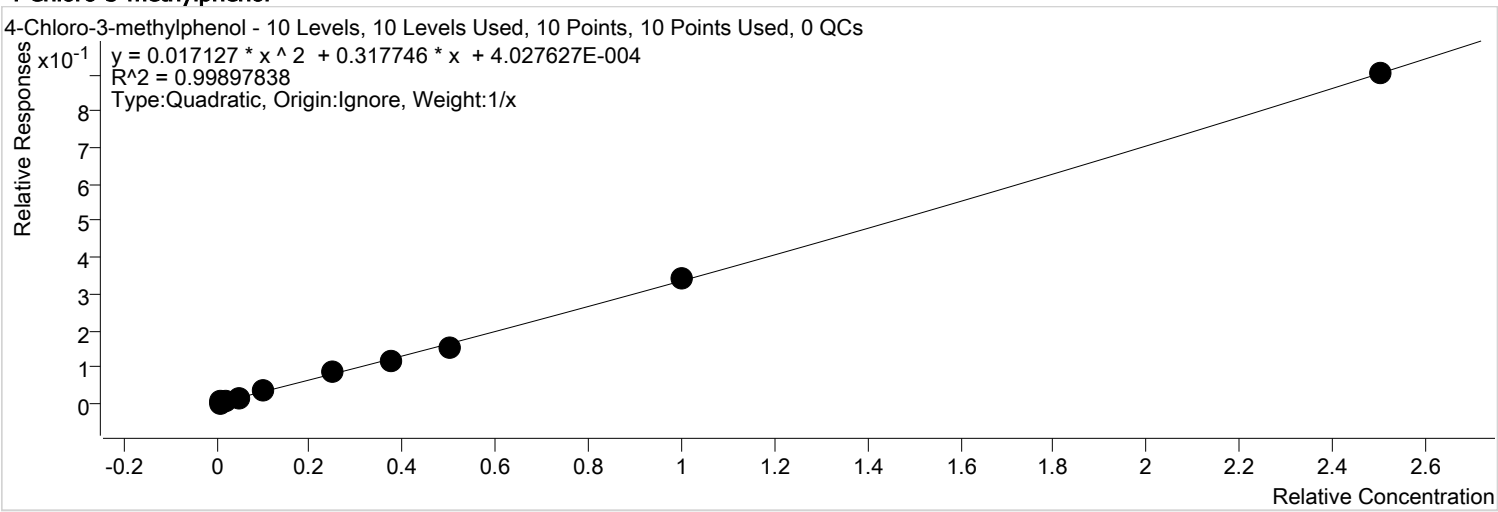
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	63	10.0000	0.1479
D:\GC-21\Data\060320\060319.D	Calibration	2	x	177	20.0000	0.2114
D:\GC-21\Data\060320\060320.D	Calibration	3	x	365	40.0000	0.2085
D:\GC-21\Data\060320\060321.D	Calibration	4	x	732	100.0000	0.1583
D:\GC-21\Data\060320\060322.D	Calibration	5	x	2026	200.0000	0.2308
D:\GC-21\Data\060320\060323.D	Calibration	6	x	4505	500.0000	0.2016
D:\GC-21\Data\060320\060324.D	Calibration	7	x	6783	750.0000	0.1929
D:\GC-21\Data\060320\060325.D	Calibration	8	x	9263	1000.0000	0.2001
D:\GC-21\Data\060320\060326.D	Calibration	9	x	17485	2000.0000	0.1892
D:\GC-21\Data\060320\060327.D	Calibration	10	x	45141	5000.0000	0.1972

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

4-Chloro-3-methylphenol



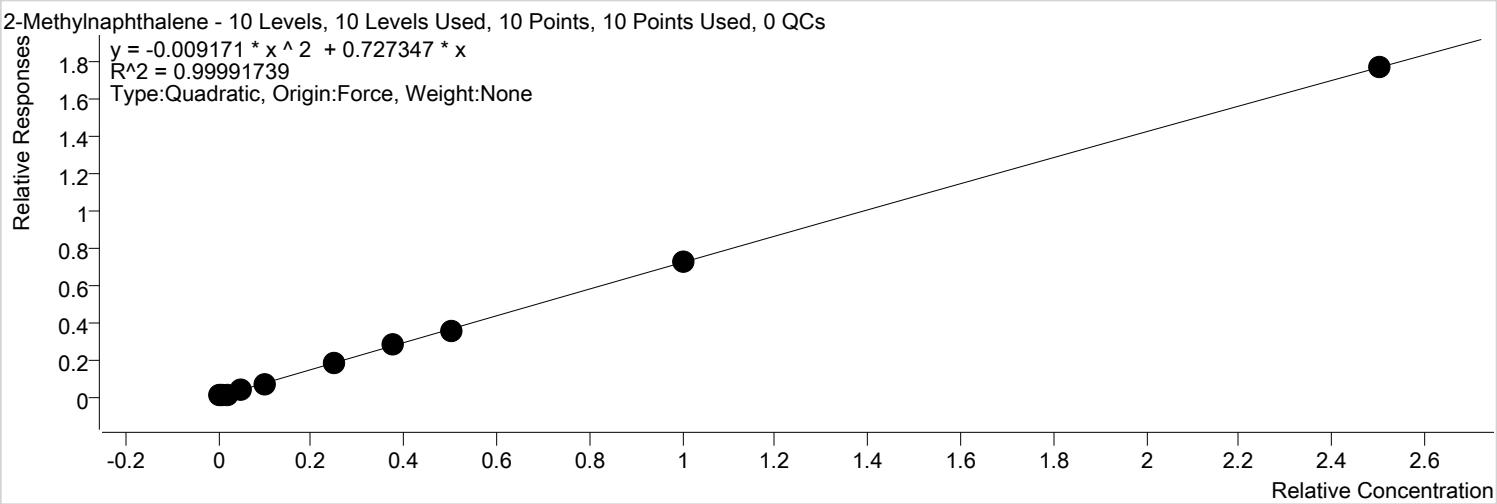
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	171	10.0000	0.4057
D:\GC-21\Data\060320\060319.D	Calibration	2	x	292	20.0000	0.3500
D:\GC-21\Data\060320\060320.D	Calibration	3	x	507	40.0000	0.2899
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1564	100.0000	0.3384
D:\GC-21\Data\060320\060322.D	Calibration	5	x	3258	200.0000	0.3712
D:\GC-21\Data\060320\060323.D	Calibration	6	x	7534	500.0000	0.3371
D:\GC-21\Data\060320\060324.D	Calibration	7	x	10989	750.0000	0.3125
D:\GC-21\Data\060320\060325.D	Calibration	8	x	14377	1000.0000	0.3105
D:\GC-21\Data\060320\060326.D	Calibration	9	x	31522	2000.0000	0.3411
D:\GC-21\Data\060320\060327.D	Calibration	10	x	82512	5000.0000	0.3605

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

2-Methylnaphthalene



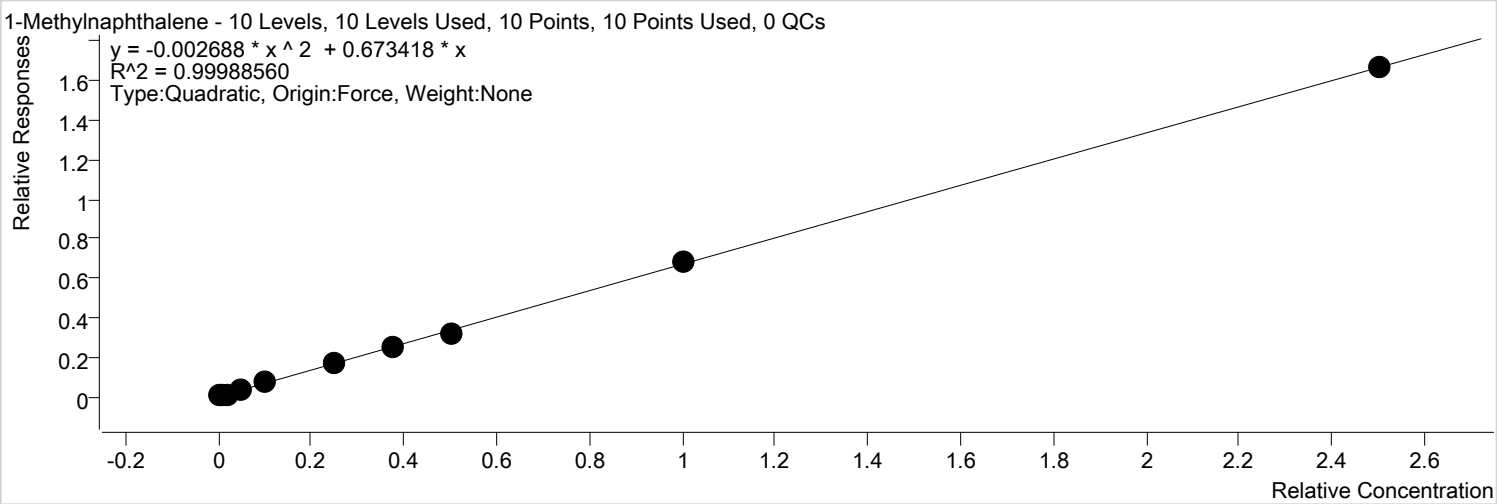
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	457	10.0000	1.0815
D:\GC-21\Data\060320\060319.D	Calibration	2	x	628	20.0000	0.7518
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1201	40.0000	0.6864
D:\GC-21\Data\060320\060321.D	Calibration	4	x	3197	100.0000	0.6916
D:\GC-21\Data\060320\060322.D	Calibration	5	x	6467	200.0000	0.7369
D:\GC-21\Data\060320\060323.D	Calibration	6	x	15944	500.0000	0.7134
D:\GC-21\Data\060320\060324.D	Calibration	7	x	25776	750.0000	0.7330
D:\GC-21\Data\060320\060325.D	Calibration	8	x	32360	1000.0000	0.6990
D:\GC-21\Data\060320\060326.D	Calibration	9	x	67026	2000.0000	0.7254
D:\GC-21\Data\060320\060327.D	Calibration	10	x	161153	5000.0000	0.7041

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

1-Methylnaphthalene



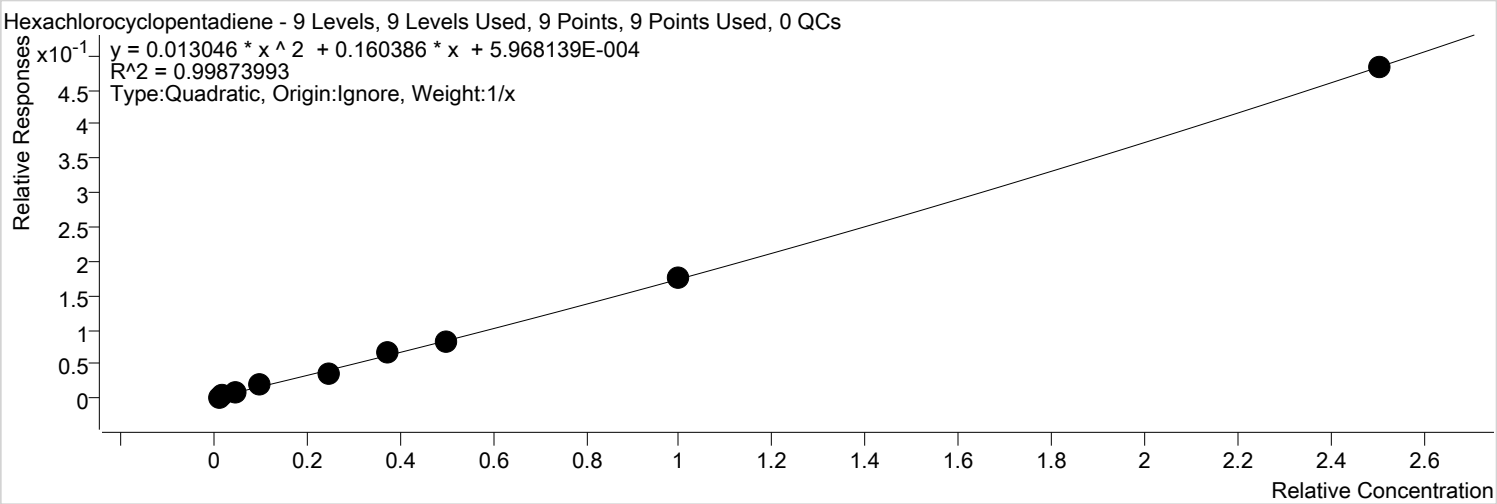
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	233	10.0000	0.5503
D:\GC-21\Data\060320\060319.D	Calibration	2	x	680	20.0000	0.8138
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1180	40.0000	0.6745
D:\GC-21\Data\060320\060321.D	Calibration	4	x	3219	100.0000	0.6965
D:\GC-21\Data\060320\060322.D	Calibration	5	x	6218	200.0000	0.7085
D:\GC-21\Data\060320\060323.D	Calibration	6	x	14994	500.0000	0.6709
D:\GC-21\Data\060320\060324.D	Calibration	7	x	23110	750.0000	0.6572
D:\GC-21\Data\060320\060325.D	Calibration	8	x	30080	1000.0000	0.6497
D:\GC-21\Data\060320\060326.D	Calibration	9	x	62900	2000.0000	0.6807
D:\GC-21\Data\060320\060327.D	Calibration	10	x	152492	5000.0000	0.6663

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Hexachlorocyclopentadiene



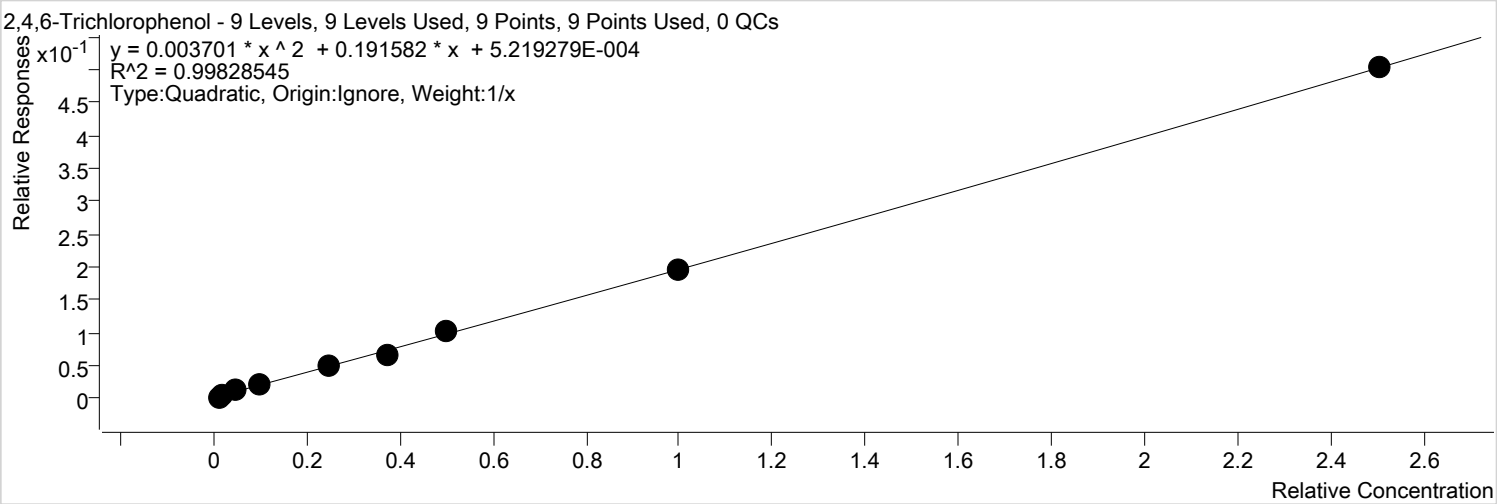
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060319.D	Calibration	2	x	187	20.0000	0.2241
D:\GC-21\Data\060320\060320.D	Calibration	3	x	344	40.0000	0.1967
D:\GC-21\Data\060320\060321.D	Calibration	4	x	706	100.0000	0.1528
D:\GC-21\Data\060320\060322.D	Calibration	5	x	1640	200.0000	0.1869
D:\GC-21\Data\060320\060323.D	Calibration	6	x	3358	500.0000	0.1502
D:\GC-21\Data\060320\060324.D	Calibration	7	x	6221	750.0000	0.1769
D:\GC-21\Data\060320\060325.D	Calibration	8	x	7504	1000.0000	0.1621
D:\GC-21\Data\060320\060326.D	Calibration	9	x	16348	2000.0000	0.1769
D:\GC-21\Data\060320\060327.D	Calibration	10	x	44155	5000.0000	0.1929

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

2,4,6-Trichlorophenol



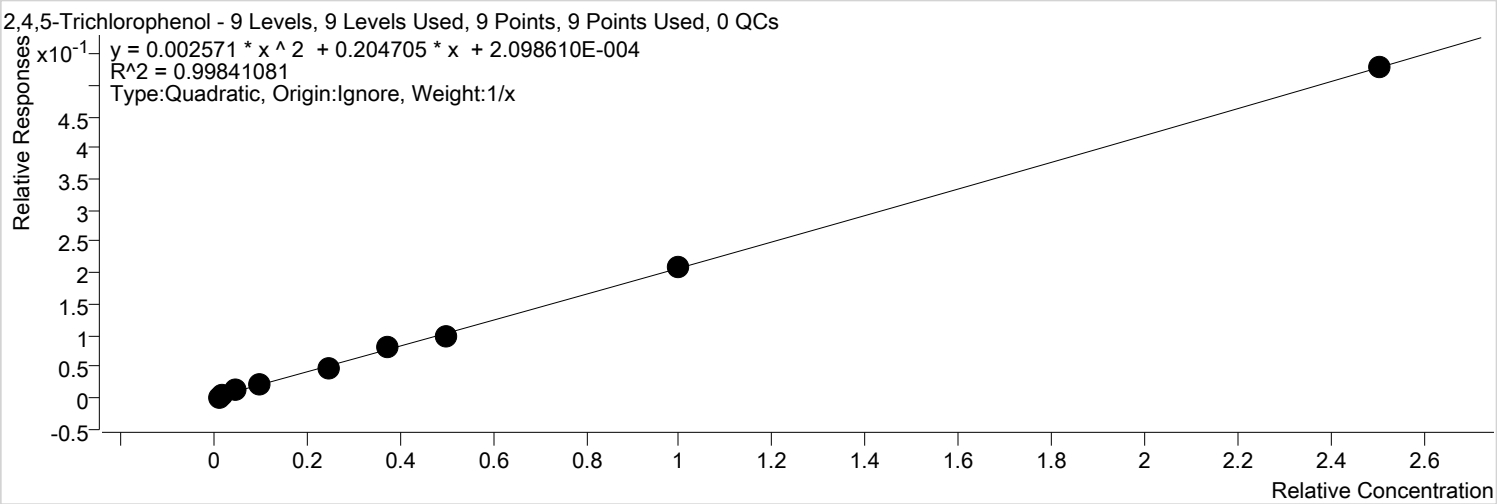
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060319.D	Calibration	2	x	152	20.0000	0.1820
D:\GC-21\Data\060320\060320.D	Calibration	3	x	453	40.0000	0.2589
D:\GC-21\Data\060320\060321.D	Calibration	4	x	986	100.0000	0.2134
D:\GC-21\Data\060320\060322.D	Calibration	5	x	1913	200.0000	0.2180
D:\GC-21\Data\060320\060323.D	Calibration	6	x	4269	500.0000	0.1910
D:\GC-21\Data\060320\060324.D	Calibration	7	x	6223	750.0000	0.1770
D:\GC-21\Data\060320\060325.D	Calibration	8	x	9491	1000.0000	0.2050
D:\GC-21\Data\060320\060326.D	Calibration	9	x	18000	2000.0000	0.1948
D:\GC-21\Data\060320\060327.D	Calibration	10	x	46042	5000.0000	0.2012

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

2,4,5-Trichlorophenol



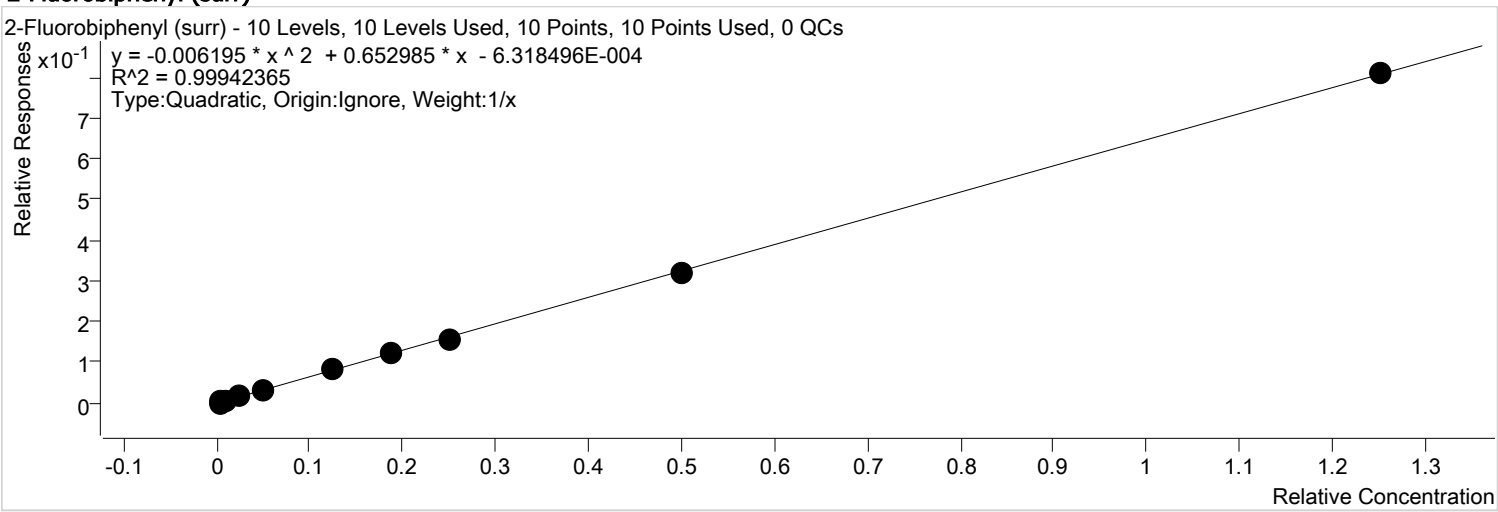
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060319.D	Calibration	2	x	129	20.0000	0.1539
D:\GC-21\Data\060320\060320.D	Calibration	3	x	453	40.0000	0.2589
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1038	100.0000	0.2246
D:\GC-21\Data\060320\060322.D	Calibration	5	x	2056	200.0000	0.2342
D:\GC-21\Data\060320\060323.D	Calibration	6	x	4283	500.0000	0.1916
D:\GC-21\Data\060320\060324.D	Calibration	7	x	7530	750.0000	0.2141
D:\GC-21\Data\060320\060325.D	Calibration	8	x	9099	1000.0000	0.1965
D:\GC-21\Data\060320\060326.D	Calibration	9	x	19356	2000.0000	0.2095
D:\GC-21\Data\060320\060327.D	Calibration	10	x	48339	5000.0000	0.2112

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

2-Fluorobiphenyl (surr)



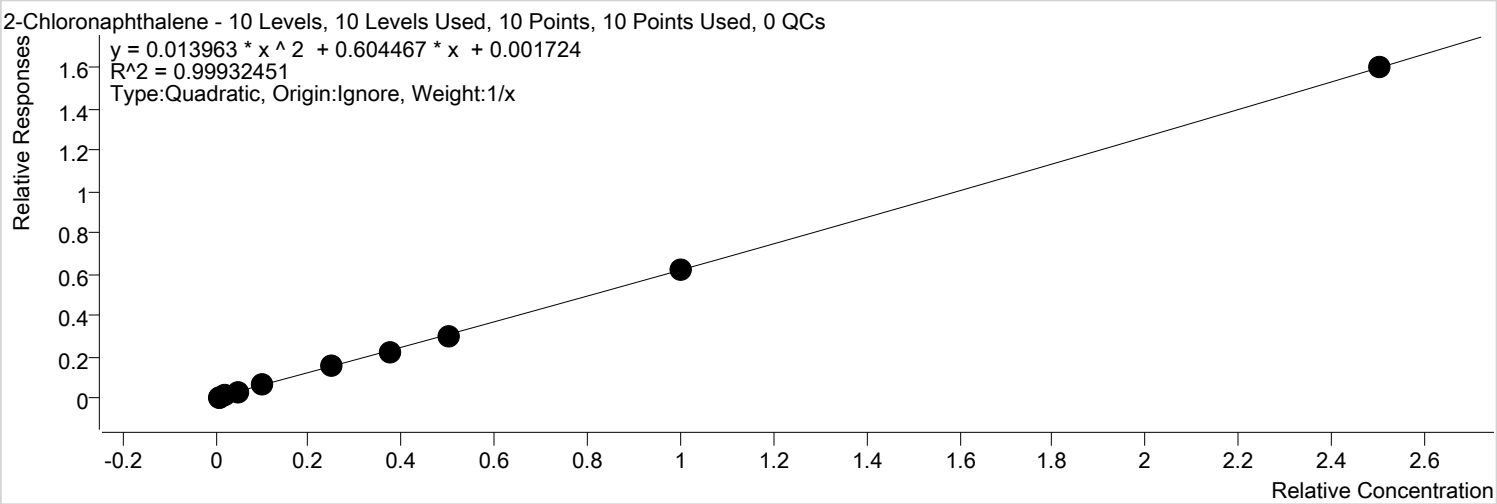
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	59	5.0000	0.2812
D:\GC-21\Data\060320\060319.D	Calibration	2	x	238	10.0000	0.5698
D:\GC-21\Data\060320\060320.D	Calibration	3	x	502	20.0000	0.5739
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1615	50.0000	0.6986
D:\GC-21\Data\060320\060322.D	Calibration	5	x	2842	100.0000	0.6476
D:\GC-21\Data\060320\060323.D	Calibration	6	x	7733	250.0000	0.6920
D:\GC-21\Data\060320\060324.D	Calibration	7	x	11257	375.0000	0.6403
D:\GC-21\Data\060320\060325.D	Calibration	8	x	14582	500.0000	0.6299
D:\GC-21\Data\060320\060326.D	Calibration	9	x	29688	1000.0000	0.6426
D:\GC-21\Data\060320\060327.D	Calibration	10	x	73942	2500.0000	0.6462

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

2-Chloronaphthalene



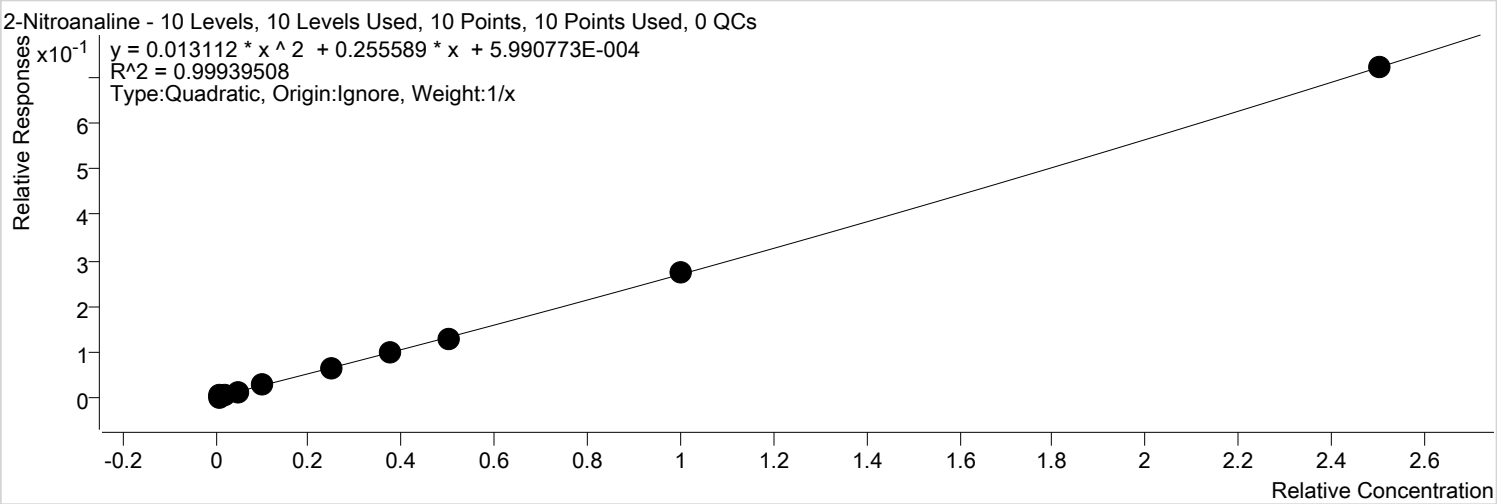
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	444	10.0000	1.0499
D:\GC-21\Data\060320\060319.D	Calibration	2	x	563	20.0000	0.6745
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1117	40.0000	0.6382
D:\GC-21\Data\060320\060321.D	Calibration	4	x	2897	100.0000	0.6268
D:\GC-21\Data\060320\060322.D	Calibration	5	x	6079	200.0000	0.6926
D:\GC-21\Data\060320\060323.D	Calibration	6	x	14387	500.0000	0.6437
D:\GC-21\Data\060320\060324.D	Calibration	7	x	21184	750.0000	0.6024
D:\GC-21\Data\060320\060325.D	Calibration	8	x	27449	1000.0000	0.5929
D:\GC-21\Data\060320\060326.D	Calibration	9	x	57554	2000.0000	0.6229
D:\GC-21\Data\060320\060327.D	Calibration	10	x	146564	5000.0000	0.6404

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

2-Nitroanaline



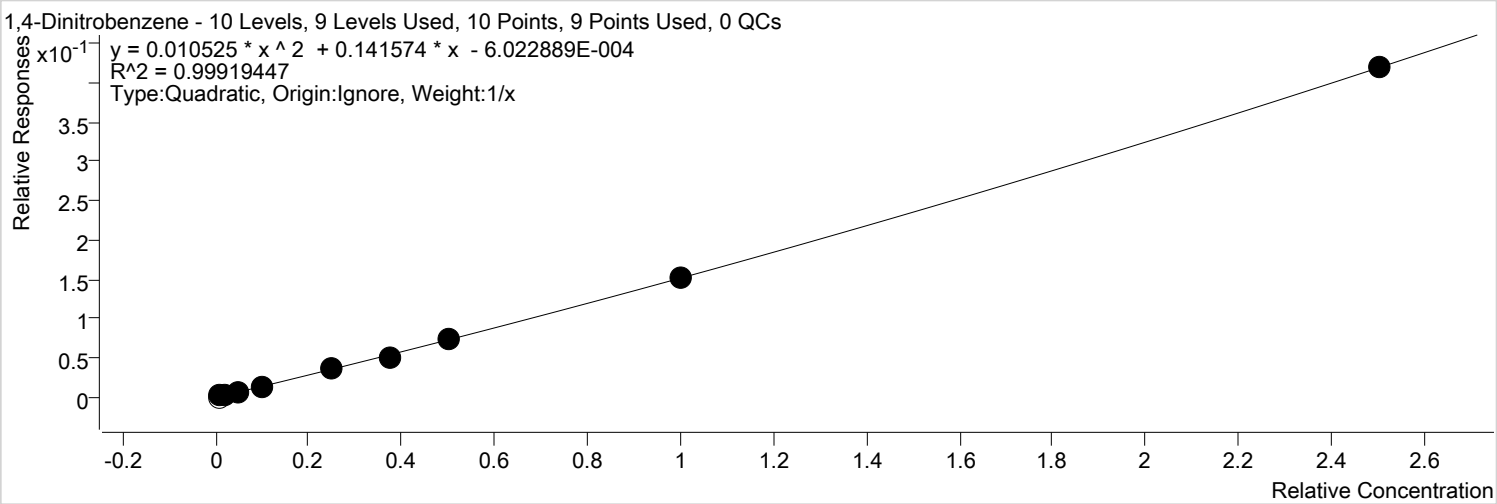
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	137	10.0000	0.3244
D:\GC-21\Data\060320\060319.D	Calibration	2	x	254	20.0000	0.3041
D:\GC-21\Data\060320\060320.D	Calibration	3	x	603	40.0000	0.3446
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1191	100.0000	0.2578
D:\GC-21\Data\060320\060322.D	Calibration	5	x	2557	200.0000	0.2914
D:\GC-21\Data\060320\060323.D	Calibration	6	x	5641	500.0000	0.2524
D:\GC-21\Data\060320\060324.D	Calibration	7	x	9030	750.0000	0.2568
D:\GC-21\Data\060320\060325.D	Calibration	8	x	12066	1000.0000	0.2606
D:\GC-21\Data\060320\060326.D	Calibration	9	x	25154	2000.0000	0.2722
D:\GC-21\Data\060320\060327.D	Calibration	10	x	66009	5000.0000	0.2884

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

1,4-Dinitrobenzene



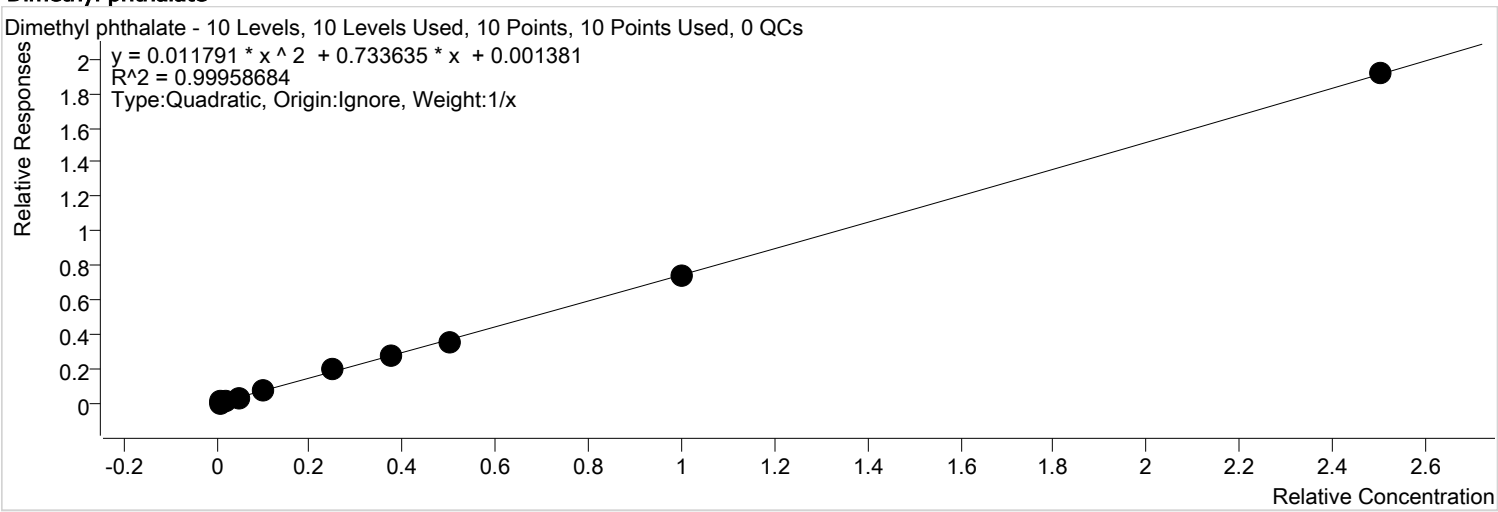
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1		32	10.0000	0.0756
D:\GC-21\Data\060320\060319.D	Calibration	2	x	93	20.0000	0.1117
D:\GC-21\Data\060320\060320.D	Calibration	3	x	160	40.0000	0.0916
D:\GC-21\Data\060320\060321.D	Calibration	4	x	529	100.0000	0.1144
D:\GC-21\Data\060320\060322.D	Calibration	5	x	1200	200.0000	0.1367
D:\GC-21\Data\060320\060323.D	Calibration	6	x	3406	500.0000	0.1524
D:\GC-21\Data\060320\060324.D	Calibration	7	x	4768	750.0000	0.1356
D:\GC-21\Data\060320\060325.D	Calibration	8	x	6910	1000.0000	0.1492
D:\GC-21\Data\060320\060326.D	Calibration	9	x	13949	2000.0000	0.1510
D:\GC-21\Data\060320\060327.D	Calibration	10	x	38375	5000.0000	0.1677

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Dimethyl phthalate

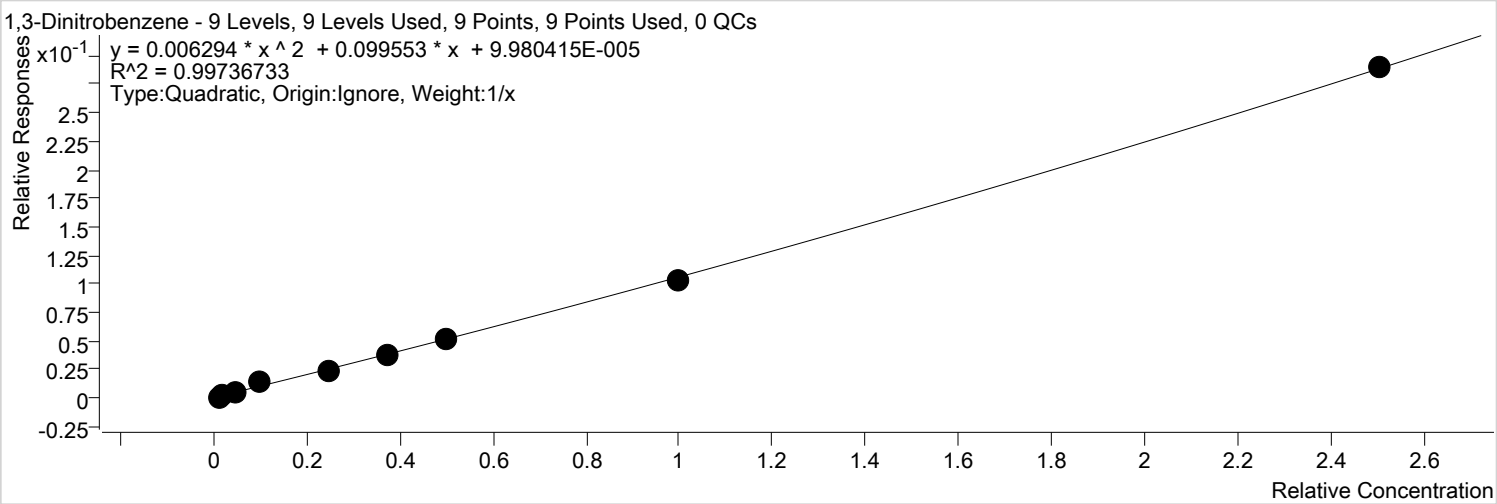


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	394	10.0000	0.9322
D:\GC-21\Data\060320\060319.D	Calibration	2	x	760	20.0000	0.9095
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1422	40.0000	0.8129
D:\GC-21\Data\060320\060321.D	Calibration	4	x	3400	100.0000	0.7357
D:\GC-21\Data\060320\060322.D	Calibration	5	x	6876	200.0000	0.7835
D:\GC-21\Data\060320\060323.D	Calibration	6	x	17710	500.0000	0.7924
D:\GC-21\Data\060320\060324.D	Calibration	7	x	25909	750.0000	0.7368
D:\GC-21\Data\060320\060325.D	Calibration	8	x	33583	1000.0000	0.7254
D:\GC-21\Data\060320\060326.D	Calibration	9	x	68205	2000.0000	0.7381
D:\GC-21\Data\060320\060327.D	Calibration	10	x	175151	5000.0000	0.7653

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

1,3-Dinitrobenzene

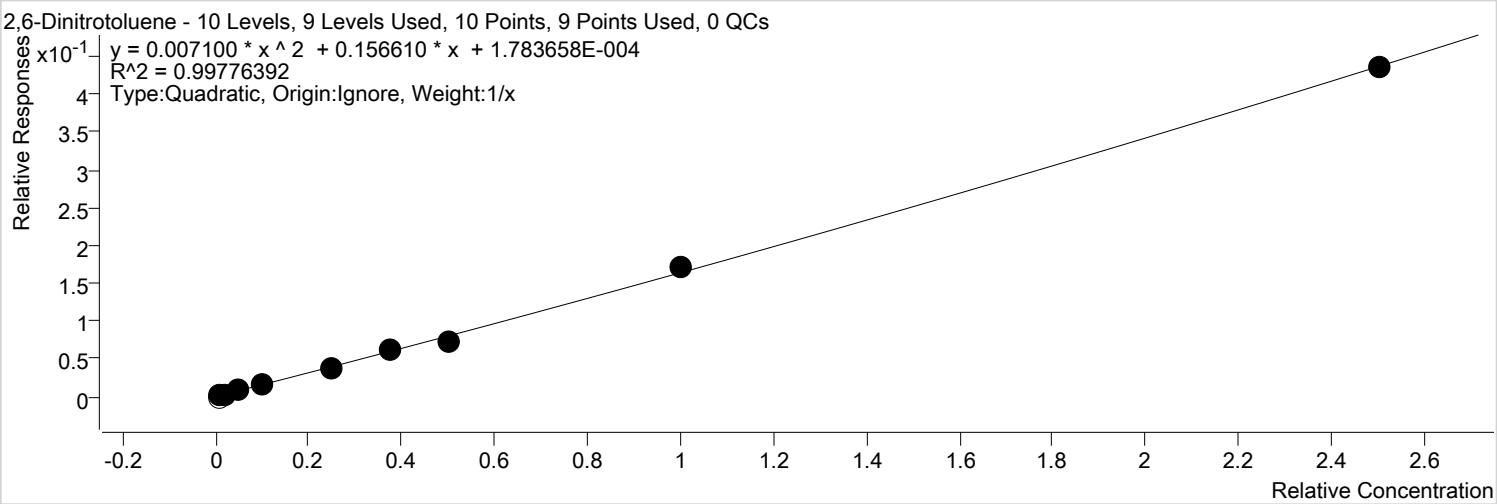


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060319.D	Calibration	2	x	69	20.0000	0.0827
D:\GC-21\Data\060320\060320.D	Calibration	3	x	223	40.0000	0.1275
D:\GC-21\Data\060320\060321.D	Calibration	4	x	377	100.0000	0.0815
D:\GC-21\Data\060320\060322.D	Calibration	5	x	1147	200.0000	0.1307
D:\GC-21\Data\060320\060323.D	Calibration	6	x	2193	500.0000	0.0981
D:\GC-21\Data\060320\060324.D	Calibration	7	x	3542	750.0000	0.1007
D:\GC-21\Data\060320\060325.D	Calibration	8	x	4877	1000.0000	0.1053
D:\GC-21\Data\060320\060326.D	Calibration	9	x	9517	2000.0000	0.1030
D:\GC-21\Data\060320\060327.D	Calibration	10	x	26486	5000.0000	0.1157

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

2,6-Dinitrotoluene



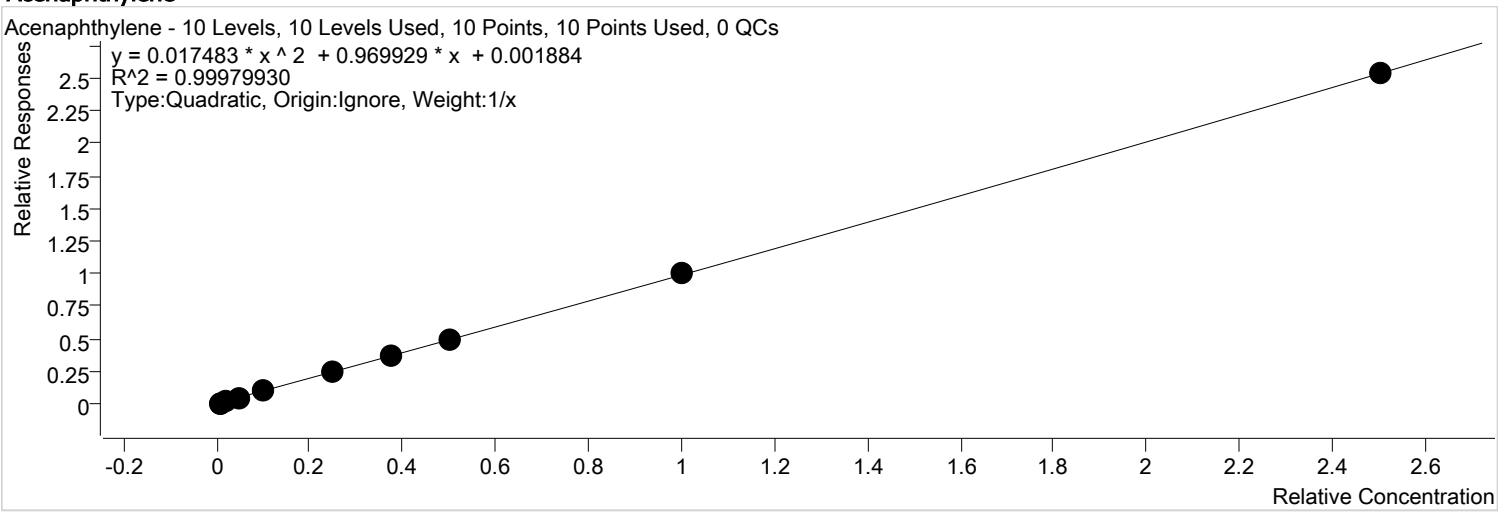
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1		0	10.0000	0.0000
D:\GC-21\Data\060320\060319.D	Calibration	2	x	122	20.0000	0.1462
D:\GC-21\Data\060320\060320.D	Calibration	3	x	308	40.0000	0.1762
D:\GC-21\Data\060320\060321.D	Calibration	4	x	798	100.0000	0.1726
D:\GC-21\Data\060320\060322.D	Calibration	5	x	1552	200.0000	0.1768
D:\GC-21\Data\060320\060323.D	Calibration	6	x	3424	500.0000	0.1532
D:\GC-21\Data\060320\060324.D	Calibration	7	x	5760	750.0000	0.1638
D:\GC-21\Data\060320\060325.D	Calibration	8	x	6626	1000.0000	0.1431
D:\GC-21\Data\060320\060326.D	Calibration	9	x	15880	2000.0000	0.1719
D:\GC-21\Data\060320\060327.D	Calibration	10	x	39774	5000.0000	0.1738

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Acenaphthylene

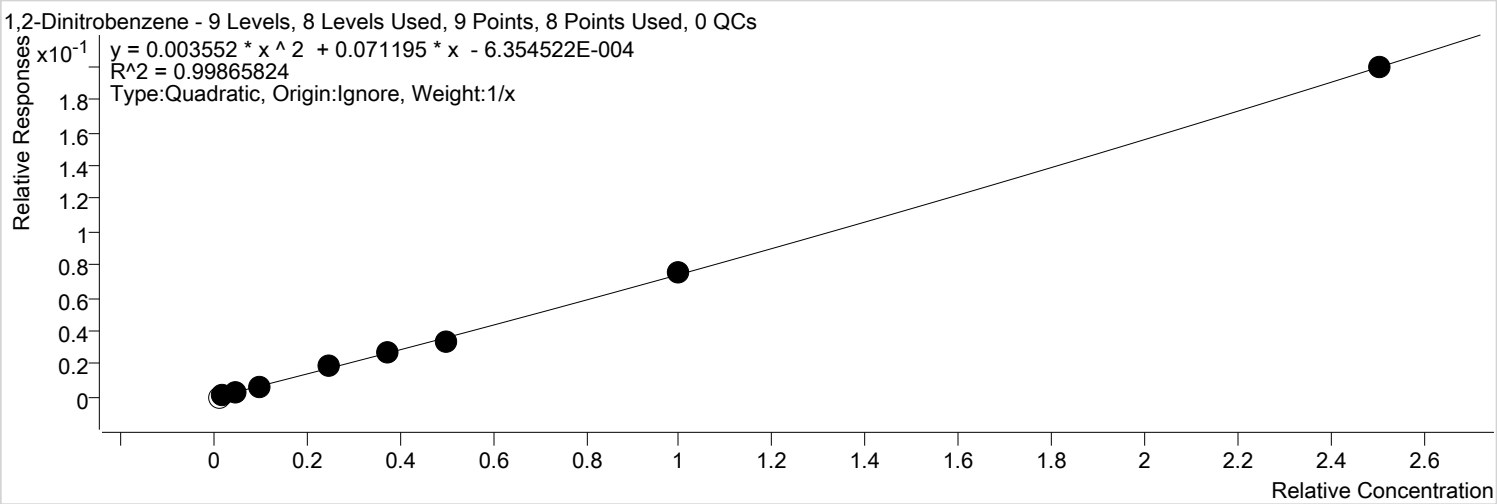


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	627	10.0000	1.4830
D:\GC-21\Data\060320\060319.D	Calibration	2	x	864	20.0000	1.0346
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1866	40.0000	1.0667
D:\GC-21\Data\060320\060321.D	Calibration	4	x	4376	100.0000	0.9468
D:\GC-21\Data\060320\060322.D	Calibration	5	x	9118	200.0000	1.0389
D:\GC-21\Data\060320\060323.D	Calibration	6	x	22315	500.0000	0.9984
D:\GC-21\Data\060320\060324.D	Calibration	7	x	34163	750.0000	0.9715
D:\GC-21\Data\060320\060325.D	Calibration	8	x	44849	1000.0000	0.9687
D:\GC-21\Data\060320\060326.D	Calibration	9	x	92005	2000.0000	0.9957
D:\GC-21\Data\060320\060327.D	Calibration	10	x	232054	5000.0000	1.0139

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

1,2-Dinitrobenzene



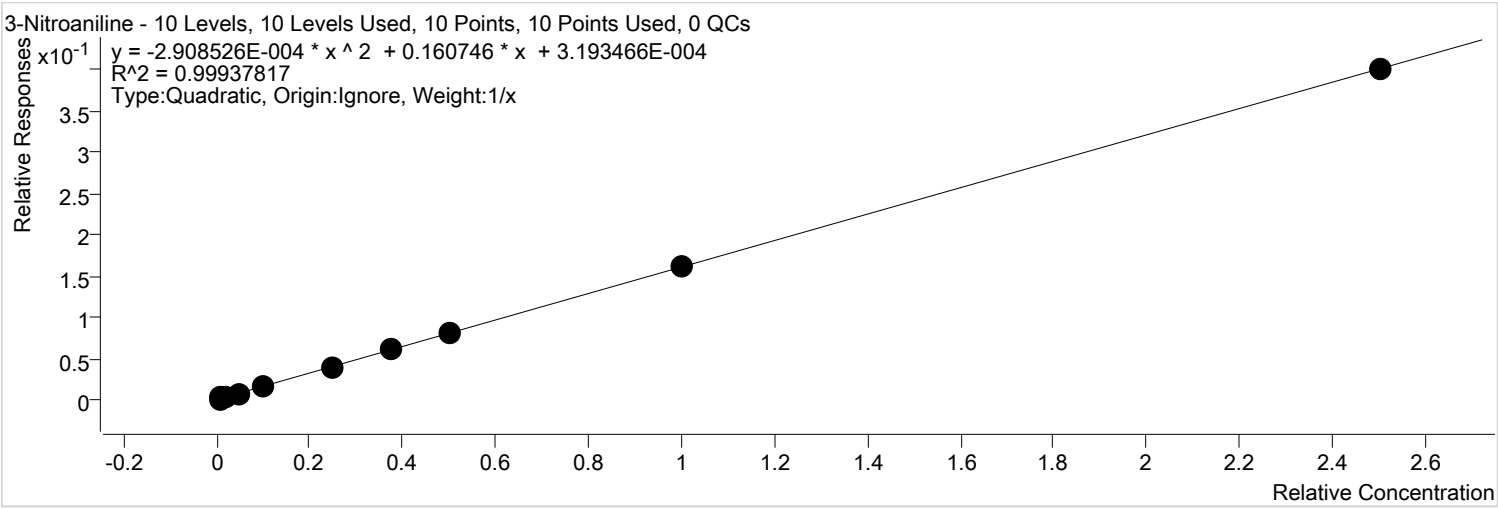
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060319.D	Calibration	2		0	20.0000	0.0000
D:\GC-21\Data\060320\060320.D	Calibration	3	x	61	40.0000	0.0346
D:\GC-21\Data\060320\060321.D	Calibration	4	x	287	100.0000	0.0621
D:\GC-21\Data\060320\060322.D	Calibration	5	x	569	200.0000	0.0648
D:\GC-21\Data\060320\060323.D	Calibration	6	x	1695	500.0000	0.0758
D:\GC-21\Data\060320\060324.D	Calibration	7	x	2496	750.0000	0.0710
D:\GC-21\Data\060320\060325.D	Calibration	8	x	3032	1000.0000	0.0655
D:\GC-21\Data\060320\060326.D	Calibration	9	x	6999	2000.0000	0.0757
D:\GC-21\Data\060320\060327.D	Calibration	10	x	18250	5000.0000	0.0797

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

3-Nitroaniline



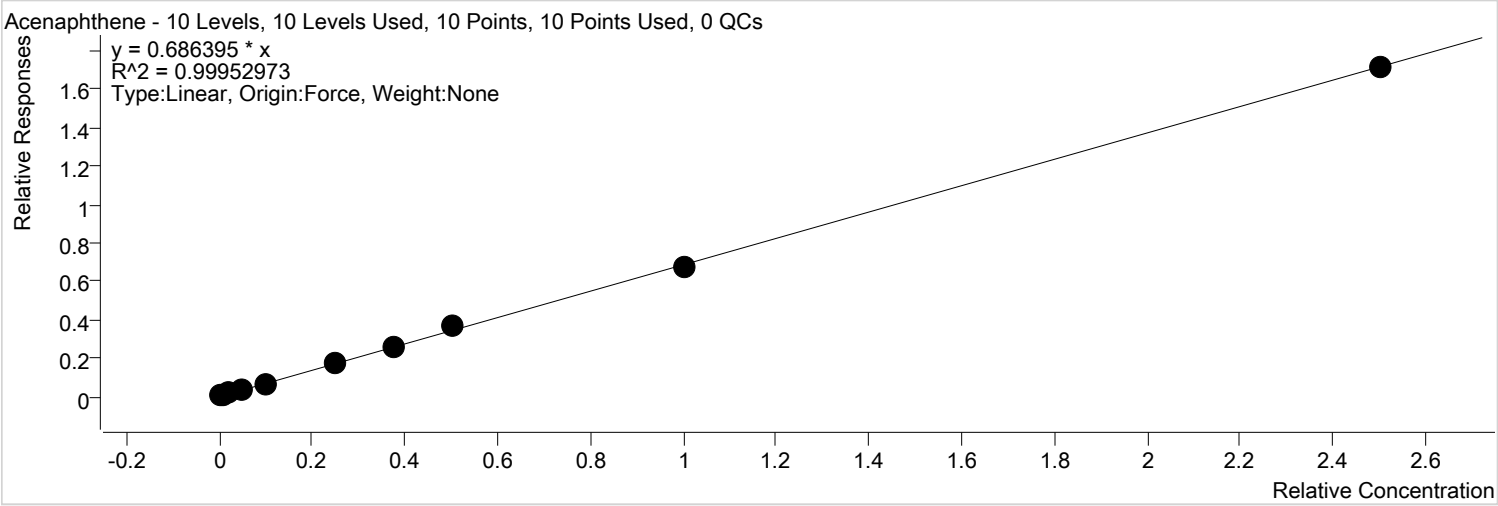
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	107	10.0000	0.2522
D:\GC-21\Data\060320\060319.D	Calibration	2	x	173	20.0000	0.2066
D:\GC-21\Data\060320\060320.D	Calibration	3	x	283	40.0000	0.1616
D:\GC-21\Data\060320\060321.D	Calibration	4	x	649	100.0000	0.1405
D:\GC-21\Data\060320\060322.D	Calibration	5	x	1458	200.0000	0.1661
D:\GC-21\Data\060320\060323.D	Calibration	6	x	3439	500.0000	0.1538
D:\GC-21\Data\060320\060324.D	Calibration	7	x	5736	750.0000	0.1631
D:\GC-21\Data\060320\060325.D	Calibration	8	x	7583	1000.0000	0.1638
D:\GC-21\Data\060320\060326.D	Calibration	9	x	15073	2000.0000	0.1631
D:\GC-21\Data\060320\060327.D	Calibration	10	x	36555	5000.0000	0.1597

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Acenaphthene



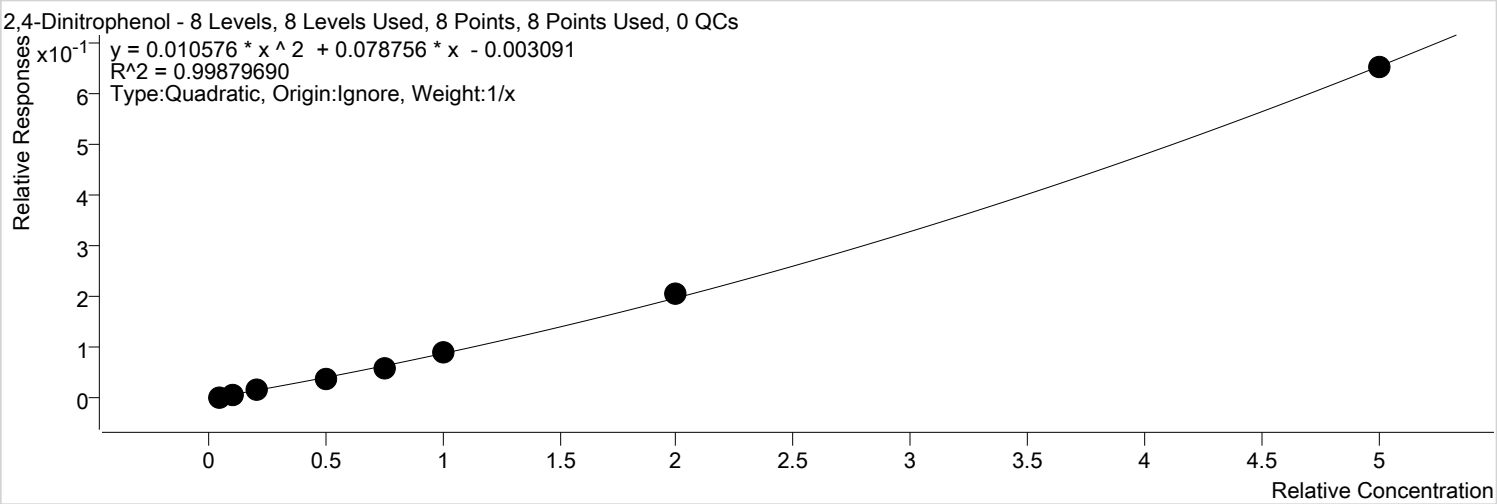
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	331	10.0000	0.7837
D:\GC-21\Data\060320\060319.D	Calibration	2	x	803	20.0000	0.9617
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1481	40.0000	0.8462
D:\GC-21\Data\060320\060321.D	Calibration	4	x	3367	100.0000	0.7285
D:\GC-21\Data\060320\060322.D	Calibration	5	x	5899	200.0000	0.6721
D:\GC-21\Data\060320\060323.D	Calibration	6	x	15711	500.0000	0.7029
D:\GC-21\Data\060320\060324.D	Calibration	7	x	24767	750.0000	0.7043
D:\GC-21\Data\060320\060325.D	Calibration	8	x	34718	1000.0000	0.7499
D:\GC-21\Data\060320\060326.D	Calibration	9	x	62637	2000.0000	0.6779
D:\GC-21\Data\060320\060327.D	Calibration	10	x	156692	5000.0000	0.6846

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

2,4-Dinitrophenol



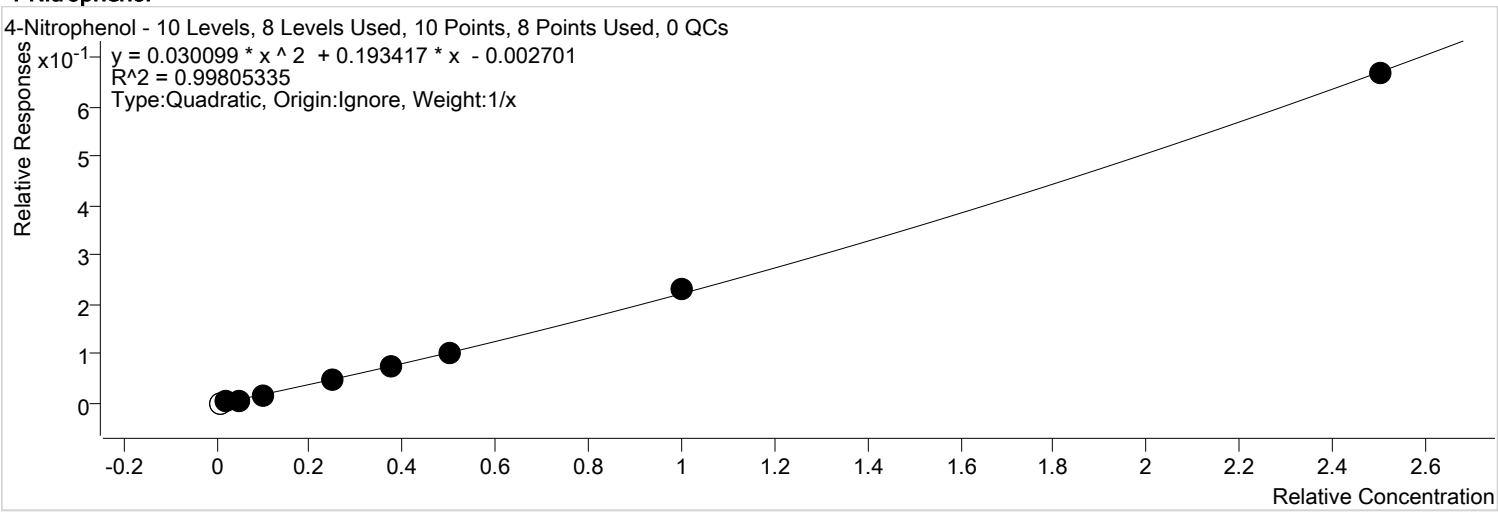
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060320.D	Calibration	3	x	30	80.0000	0.0160
D:\GC-21\Data\060320\060321.D	Calibration	4	x	137	200.0000	0.0295
D:\GC-21\Data\060320\060322.D	Calibration	5	x	710	400.0000	0.0776
D:\GC-21\Data\060320\060323.D	Calibration	6	x	1690	1000.0000	0.0724
D:\GC-21\Data\060320\060324.D	Calibration	7	x	2828	1500.0000	0.0773
D:\GC-21\Data\060320\060325.D	Calibration	8	x	4269	2000.0000	0.0870
D:\GC-21\Data\060320\060326.D	Calibration	9	x	10231	4000.0000	0.1019
D:\GC-21\Data\060320\060327.D	Calibration	10	x	30103	10000.0000	0.1306

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

4-Nitrophenol



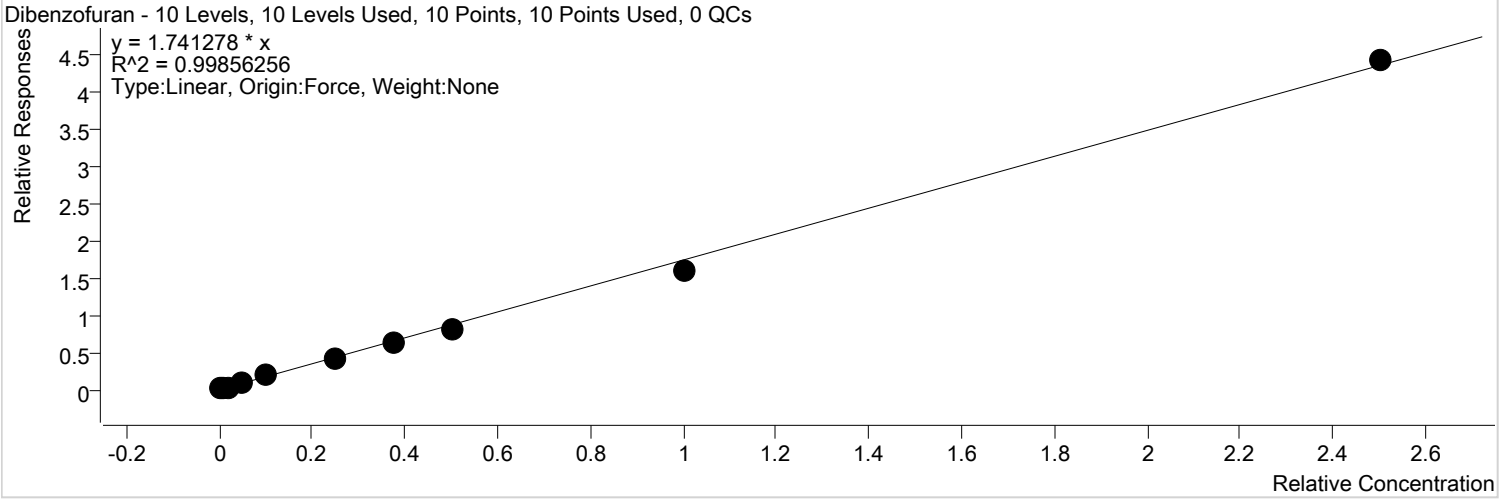
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1		0	10.0000	0.0000
D:\GC-21\Data\060320\060319.D	Calibration	2		0	20.0000	0.0000
D:\GC-21\Data\060320\060320.D	Calibration	3	x	123	40.0000	0.1314
D:\GC-21\Data\060320\060321.D	Calibration	4	x	253	100.0000	0.1084
D:\GC-21\Data\060320\060322.D	Calibration	5	x	558	200.0000	0.1220
D:\GC-21\Data\060320\060323.D	Calibration	6	x	2262	500.0000	0.1937
D:\GC-21\Data\060320\060324.D	Calibration	7	x	3621	750.0000	0.1980
D:\GC-21\Data\060320\060325.D	Calibration	8	x	4859	1000.0000	0.1981
D:\GC-21\Data\060320\060326.D	Calibration	9	x	11568	2000.0000	0.2303
D:\GC-21\Data\060320\060327.D	Calibration	10	x	30693	5000.0000	0.2663

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Dibenzofuran



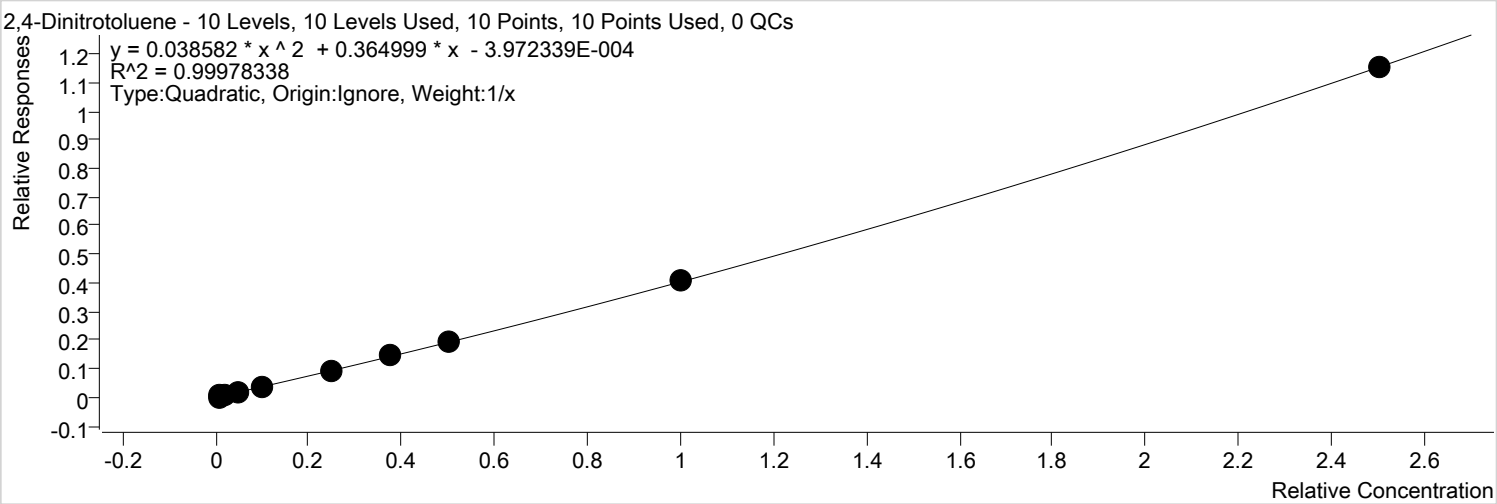
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	518	10.0000	2.2865
D:\GC-21\Data\060320\060319.D	Calibration	2	x	883	20.0000	2.0475
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1435	40.0000	1.5352
D:\GC-21\Data\060320\060321.D	Calibration	4	x	4166	100.0000	1.7854
D:\GC-21\Data\060320\060322.D	Calibration	5	x	8531	200.0000	1.8655
D:\GC-21\Data\060320\060323.D	Calibration	6	x	19525	500.0000	1.6720
D:\GC-21\Data\060320\060324.D	Calibration	7	x	31490	750.0000	1.7218
D:\GC-21\Data\060320\060325.D	Calibration	8	x	40613	1000.0000	1.6561
D:\GC-21\Data\060320\060326.D	Calibration	9	x	80815	2000.0000	1.6092
D:\GC-21\Data\060320\060327.D	Calibration	10	x	203635	5000.0000	1.7667

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

2,4-Dinitrotoluene



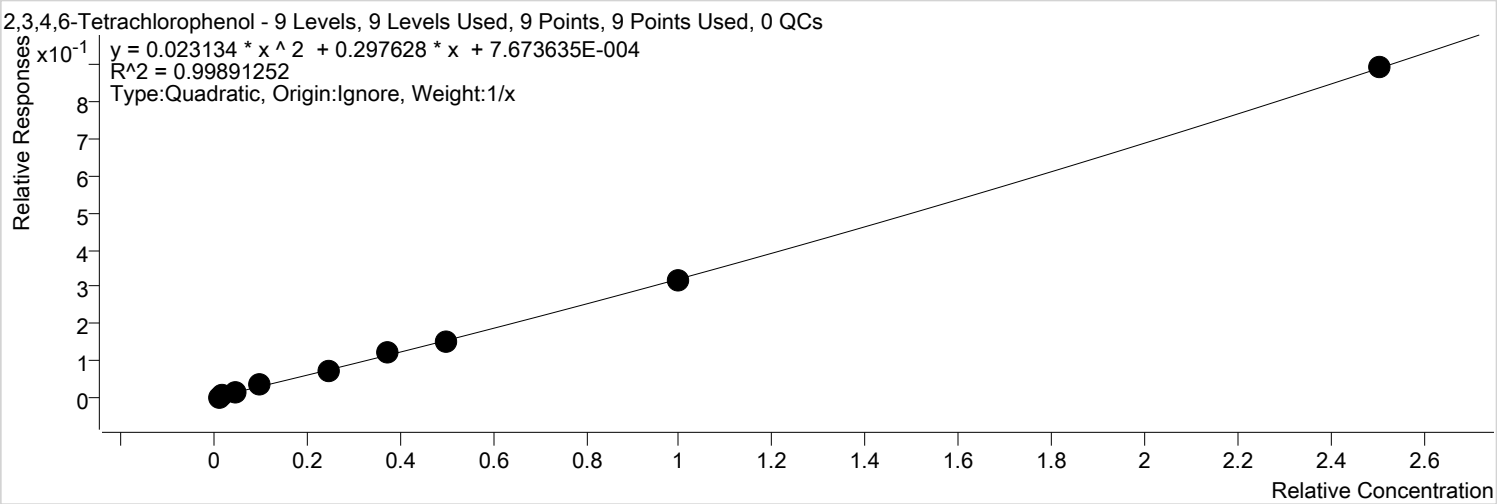
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	63	10.0000	0.2798
D:\GC-21\Data\060320\060319.D	Calibration	2	x	136	20.0000	0.3161
D:\GC-21\Data\060320\060320.D	Calibration	3	x	340	40.0000	0.3639
D:\GC-21\Data\060320\060321.D	Calibration	4	x	859	100.0000	0.3681
D:\GC-21\Data\060320\060322.D	Calibration	5	x	1683	200.0000	0.3680
D:\GC-21\Data\060320\060323.D	Calibration	6	x	4075	500.0000	0.3490
D:\GC-21\Data\060320\060324.D	Calibration	7	x	6997	750.0000	0.3826
D:\GC-21\Data\060320\060325.D	Calibration	8	x	9445	1000.0000	0.3851
D:\GC-21\Data\060320\060326.D	Calibration	9	x	20454	2000.0000	0.4073
D:\GC-21\Data\060320\060327.D	Calibration	10	x	53101	5000.0000	0.4607

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

2,3,4,6-Tetrachlorophenol

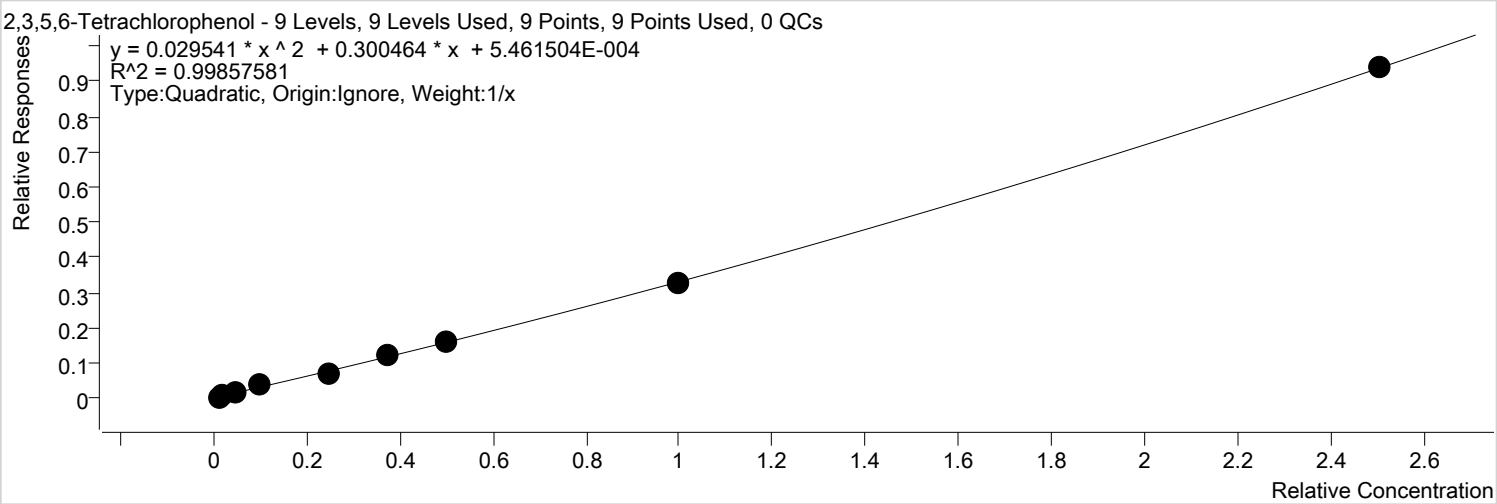


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060319.D	Calibration	2	x	139	20.0000	0.3217
D:\GC-21\Data\060320\060320.D	Calibration	3	x	329	40.0000	0.3518
D:\GC-21\Data\060320\060321.D	Calibration	4	x	732	100.0000	0.3139
D:\GC-21\Data\060320\060322.D	Calibration	5	x	1645	200.0000	0.3598
D:\GC-21\Data\060320\060323.D	Calibration	6	x	3333	500.0000	0.2854
D:\GC-21\Data\060320\060324.D	Calibration	7	x	5919	750.0000	0.3236
D:\GC-21\Data\060320\060325.D	Calibration	8	x	7529	1000.0000	0.3070
D:\GC-21\Data\060320\060326.D	Calibration	9	x	15862	2000.0000	0.3158
D:\GC-21\Data\060320\060327.D	Calibration	10	x	41103	5000.0000	0.3566

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

2,3,5,6-Tetrachlorophenol



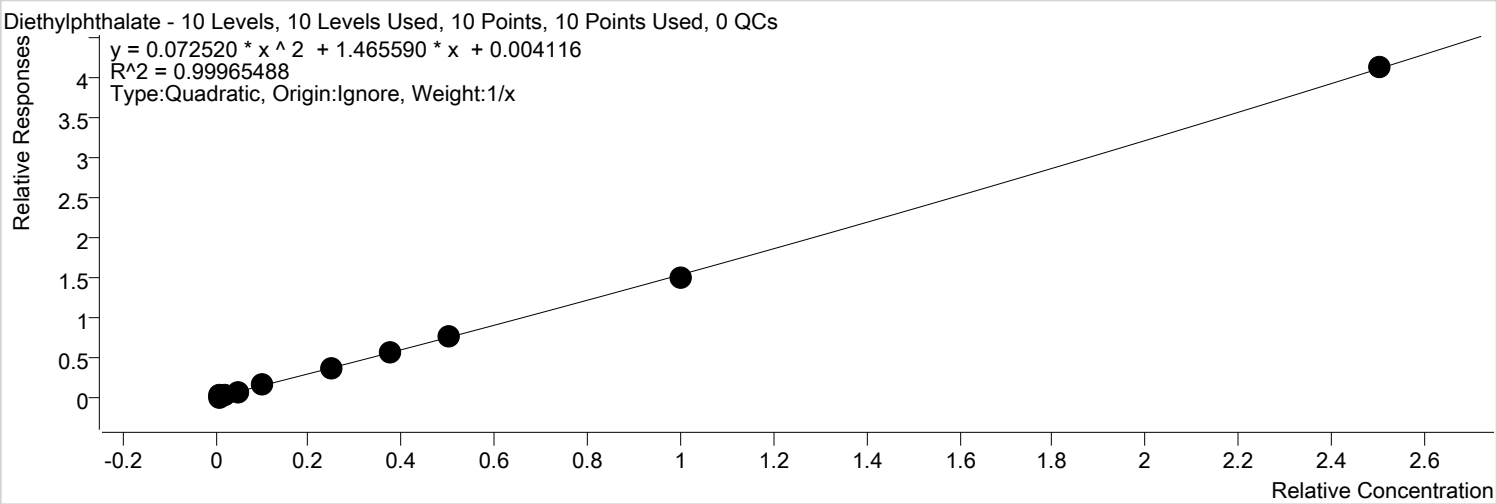
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060319.D	Calibration	2	x	154	20.0000	0.3575
D:\GC-21\Data\060320\060320.D	Calibration	3	x	322	40.0000	0.3442
D:\GC-21\Data\060320\060321.D	Calibration	4	x	587	100.0000	0.2515
D:\GC-21\Data\060320\060322.D	Calibration	5	x	1645	200.0000	0.3598
D:\GC-21\Data\060320\060323.D	Calibration	6	x	3354	500.0000	0.2872
D:\GC-21\Data\060320\060324.D	Calibration	7	x	6087	750.0000	0.3328
D:\GC-21\Data\060320\060325.D	Calibration	8	x	7787	1000.0000	0.3175
D:\GC-21\Data\060320\060326.D	Calibration	9	x	16276	2000.0000	0.3241
D:\GC-21\Data\060320\060327.D	Calibration	10	x	43251	5000.0000	0.3752

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

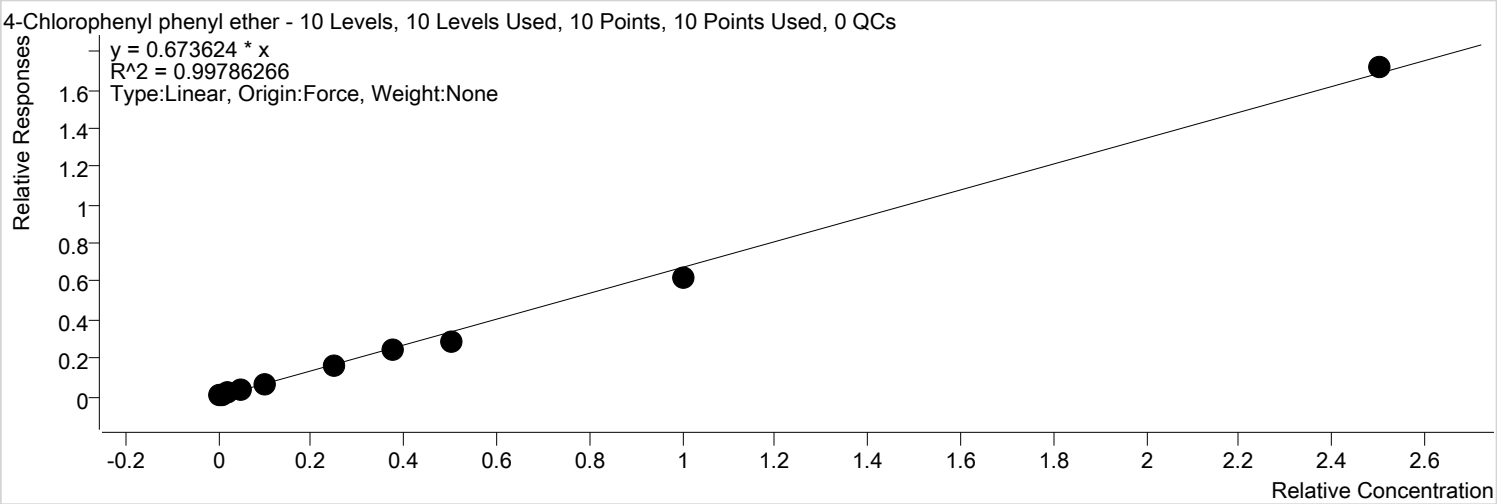
Diethylphthalate



Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	517	10.0000	2.2830
D:\GC-21\Data\060320\060319.D	Calibration	2	x	772	20.0000	1.7913
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1457	40.0000	1.5593
D:\GC-21\Data\060320\060321.D	Calibration	4	x	3874	100.0000	1.6601
D:\GC-21\Data\060320\060322.D	Calibration	5	x	7283	200.0000	1.5926
D:\GC-21\Data\060320\060323.D	Calibration	6	x	17912	500.0000	1.5339
D:\GC-21\Data\060320\060324.D	Calibration	7	x	27632	750.0000	1.5108
D:\GC-21\Data\060320\060325.D	Calibration	8	x	37439	1000.0000	1.5267
D:\GC-21\Data\060320\060326.D	Calibration	9	x	75261	2000.0000	1.4986
D:\GC-21\Data\060320\060327.D	Calibration	10	x	190663	5000.0000	1.6542

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

4-Chlorophenyl phenyl ether



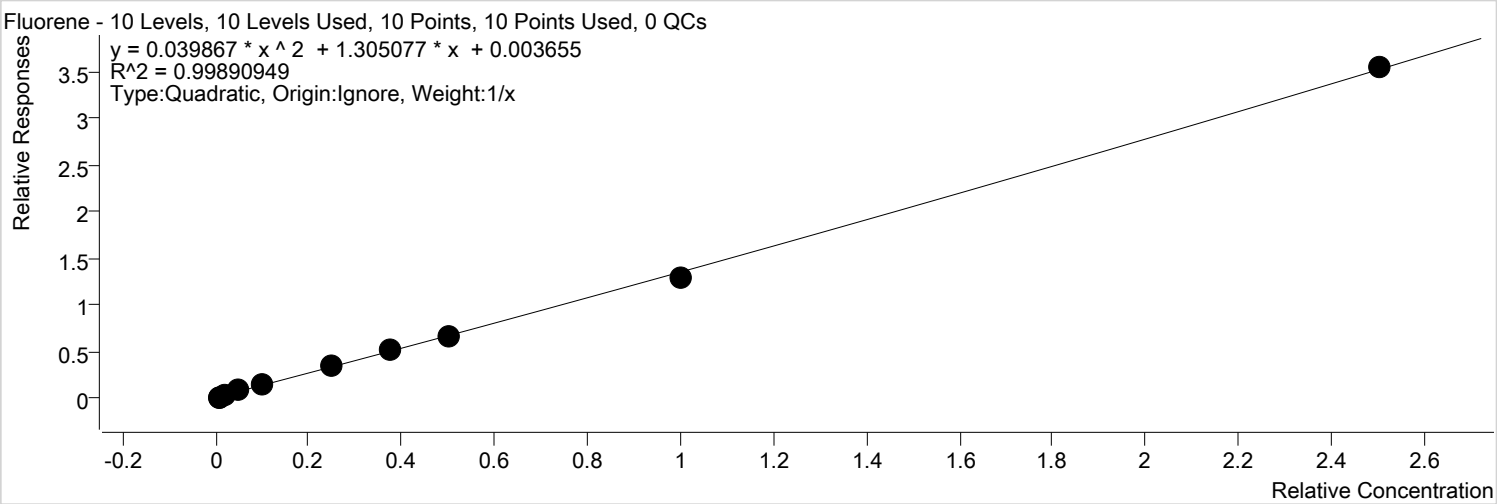
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	134	10.0000	0.5933
D:\GC-21\Data\060320\060319.D	Calibration	2	x	398	20.0000	0.9224
D:\GC-21\Data\060320\060320.D	Calibration	3	x	803	40.0000	0.8590
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1693	100.0000	0.7254
D:\GC-21\Data\060320\060322.D	Calibration	5	x	2971	200.0000	0.6498
D:\GC-21\Data\060320\060323.D	Calibration	6	x	7485	500.0000	0.6409
D:\GC-21\Data\060320\060324.D	Calibration	7	x	12091	750.0000	0.6611
D:\GC-21\Data\060320\060325.D	Calibration	8	x	14390	1000.0000	0.5868
D:\GC-21\Data\060320\060326.D	Calibration	9	x	31349	2000.0000	0.6242
D:\GC-21\Data\060320\060327.D	Calibration	10	x	79024	5000.0000	0.6856

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Fluorene



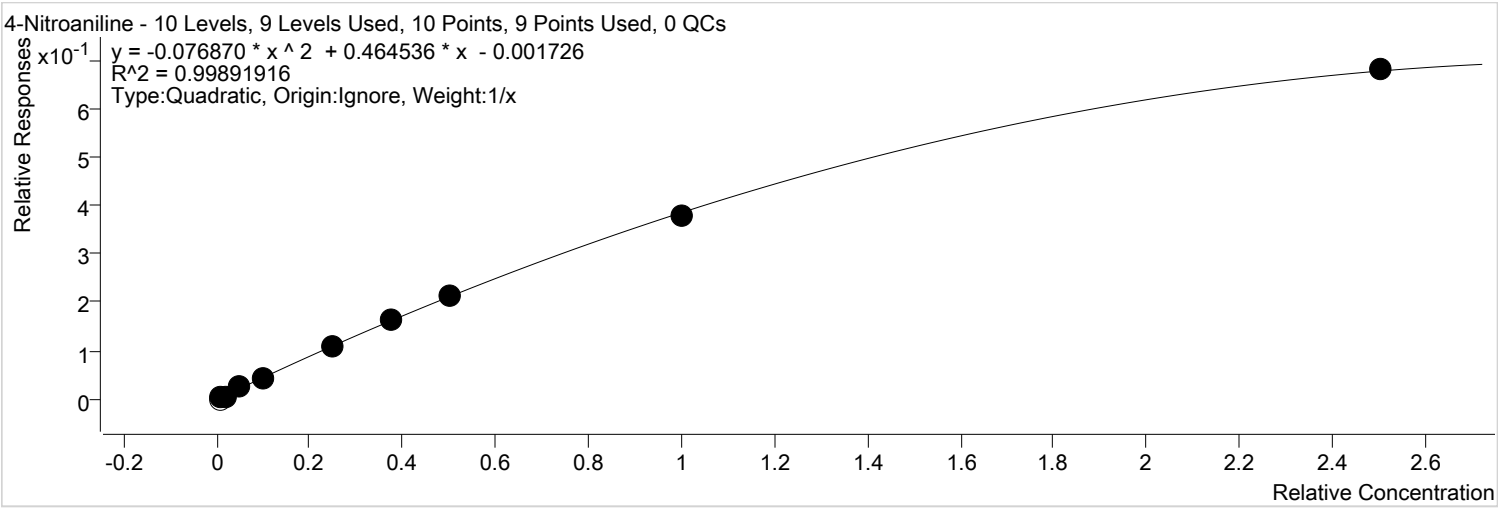
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	509	10.0000	2.2467
D:\GC-21\Data\060320\060319.D	Calibration	2	x	634	20.0000	1.4717
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1159	40.0000	1.2398
D:\GC-21\Data\060320\060321.D	Calibration	4	x	3447	100.0000	1.4773
D:\GC-21\Data\060320\060322.D	Calibration	5	x	6524	200.0000	1.4266
D:\GC-21\Data\060320\060323.D	Calibration	6	x	16186	500.0000	1.3860
D:\GC-21\Data\060320\060324.D	Calibration	7	x	25255	750.0000	1.3809
D:\GC-21\Data\060320\060325.D	Calibration	8	x	32922	1000.0000	1.3425
D:\GC-21\Data\060320\060326.D	Calibration	9	x	64406	2000.0000	1.2824
D:\GC-21\Data\060320\060327.D	Calibration	10	x	163038	5000.0000	1.4145

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

4-Nitroaniline



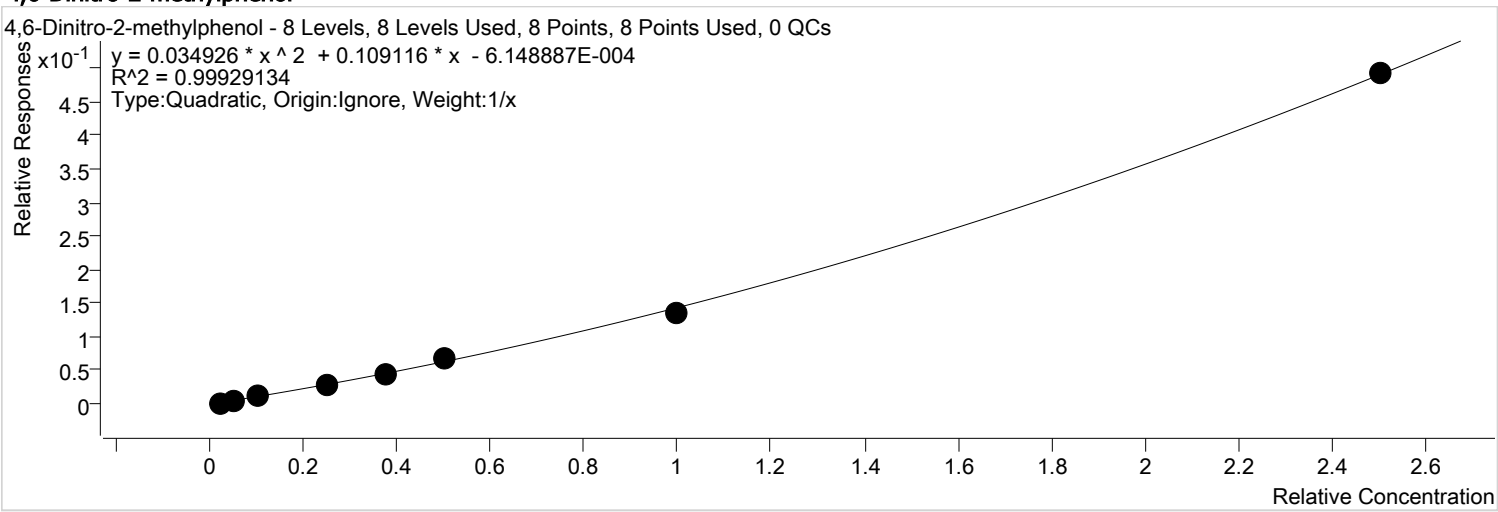
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1		0	10.0000	0.0000
D:\GC-21\Data\060320\060319.D	Calibration	2	x	120	20.0000	0.2777
D:\GC-21\Data\060320\060320.D	Calibration	3	x	297	40.0000	0.3176
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1191	100.0000	0.5104
D:\GC-21\Data\060320\060322.D	Calibration	5	x	1948	200.0000	0.4260
D:\GC-21\Data\060320\060323.D	Calibration	6	x	5089	500.0000	0.4358
D:\GC-21\Data\060320\060324.D	Calibration	7	x	8033	750.0000	0.4392
D:\GC-21\Data\060320\060325.D	Calibration	8	x	10456	1000.0000	0.4264
D:\GC-21\Data\060320\060326.D	Calibration	9	x	18964	2000.0000	0.3776
D:\GC-21\Data\060320\060327.D	Calibration	10	x	31431	5000.0000	0.2727

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

4,6-Dinitro-2-methylphenol



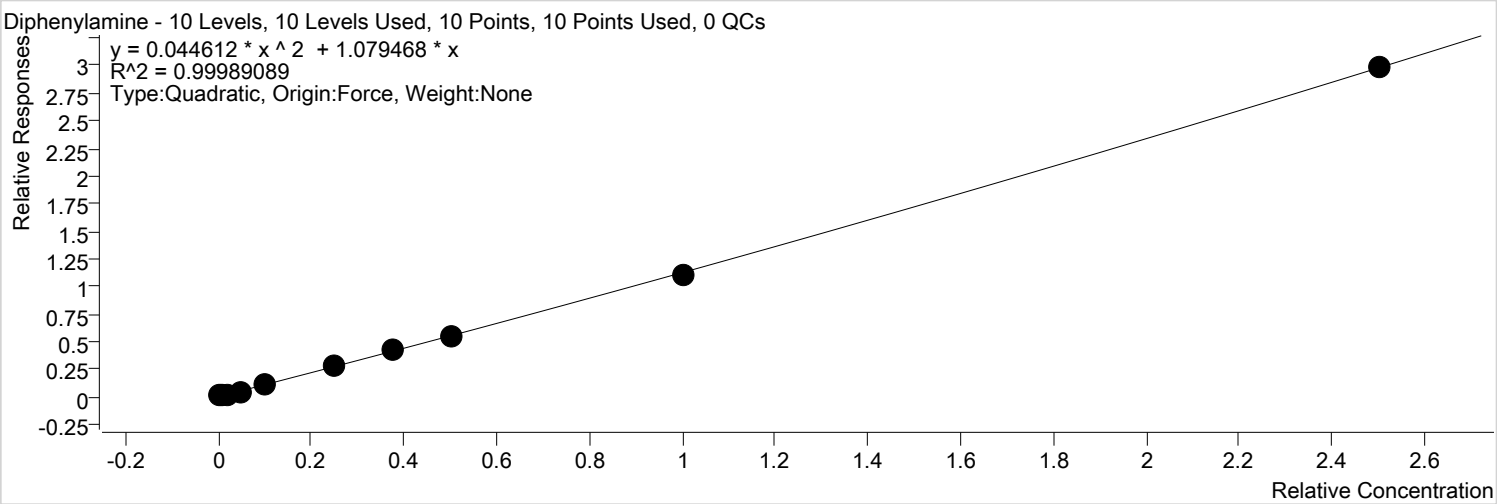
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060320.D	Calibration	3	x	73	40.0000	0.0778
D:\GC-21\Data\060320\060321.D	Calibration	4	x	199	100.0000	0.0855
D:\GC-21\Data\060320\060322.D	Calibration	5	x	539	200.0000	0.1178
D:\GC-21\Data\060320\060323.D	Calibration	6	x	1358	500.0000	0.1162
D:\GC-21\Data\060320\060324.D	Calibration	7	x	2207	750.0000	0.1207
D:\GC-21\Data\060320\060325.D	Calibration	8	x	3258	1000.0000	0.1329
D:\GC-21\Data\060320\060326.D	Calibration	9	x	6897	2000.0000	0.1373
D:\GC-21\Data\060320\060327.D	Calibration	10	x	22687	5000.0000	0.1968

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Diphenylamine



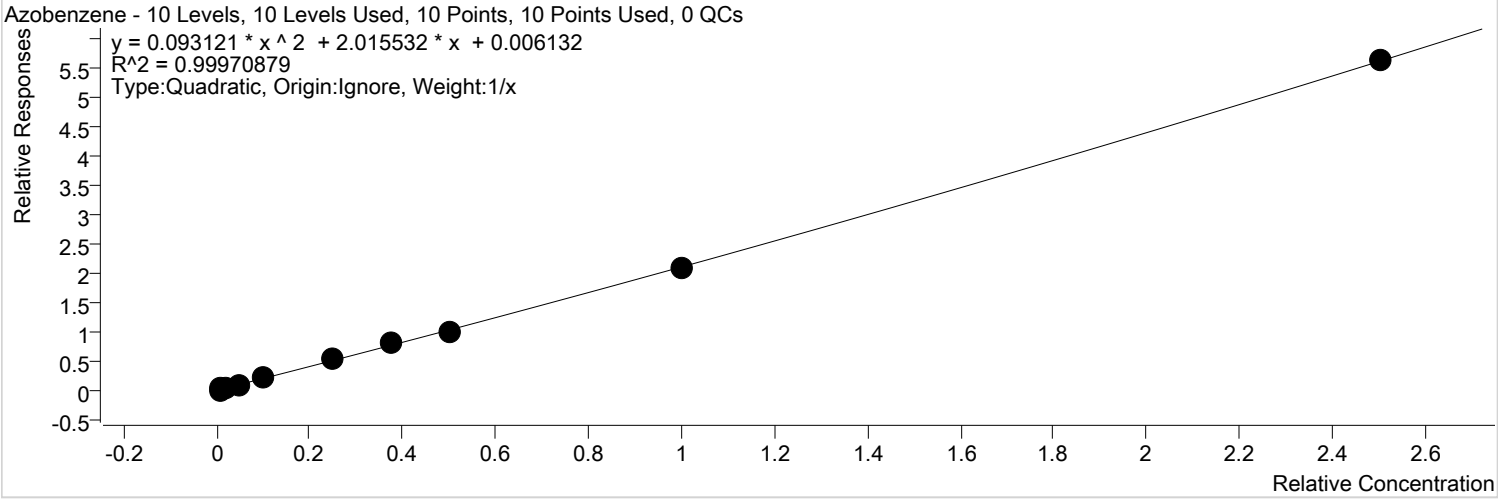
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	335	10.0000	1.4803
D:\GC-21\Data\060320\060319.D	Calibration	2	x	611	20.0000	1.4173
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1211	40.0000	1.2962
D:\GC-21\Data\060320\060321.D	Calibration	4	x	2368	100.0000	1.0147
D:\GC-21\Data\060320\060322.D	Calibration	5	x	5313	200.0000	1.1618
D:\GC-21\Data\060320\060323.D	Calibration	6	x	13357	500.0000	1.1438
D:\GC-21\Data\060320\060324.D	Calibration	7	x	20975	750.0000	1.1468
D:\GC-21\Data\060320\060325.D	Calibration	8	x	26642	1000.0000	1.0864
D:\GC-21\Data\060320\060326.D	Calibration	9	x	55894	2000.0000	1.1130
D:\GC-21\Data\060320\060327.D	Calibration	10	x	137344	5000.0000	1.1916

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Azobenzene



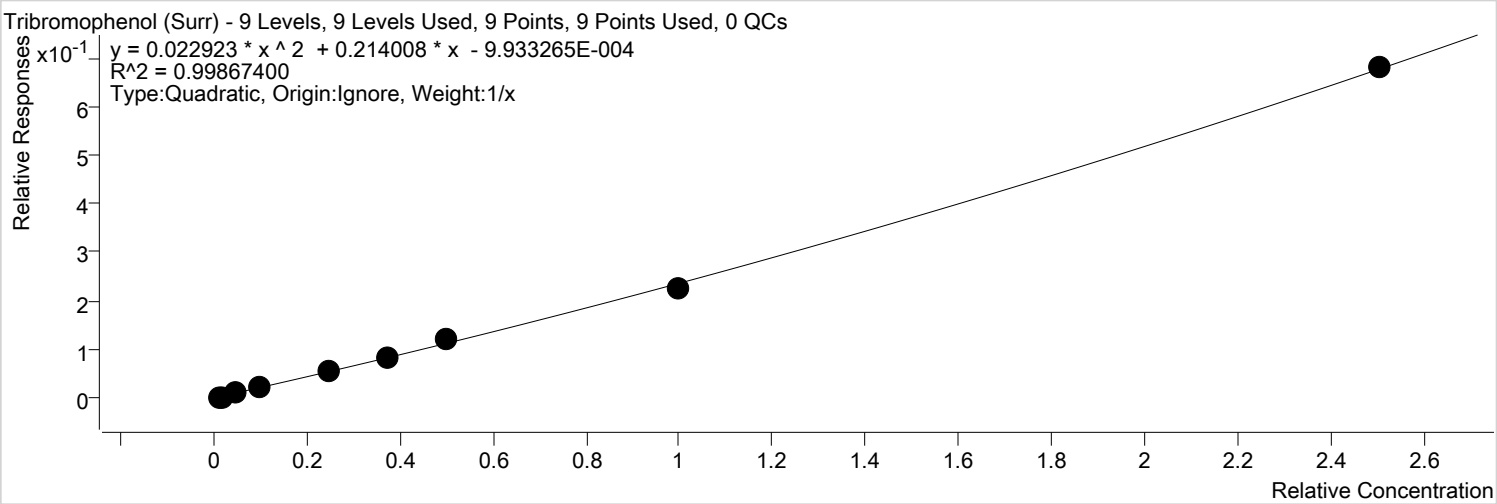
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	697	10.0000	3.0757
D:\GC-21\Data\060320\060319.D	Calibration	2	x	1204	20.0000	2.7930
D:\GC-21\Data\060320\060320.D	Calibration	3	x	2187	40.0000	2.3399
D:\GC-21\Data\060320\060321.D	Calibration	4	x	4770	100.0000	2.0442
D:\GC-21\Data\060320\060322.D	Calibration	5	x	9689	200.0000	2.1187
D:\GC-21\Data\060320\060323.D	Calibration	6	x	24511	500.0000	2.0990
D:\GC-21\Data\060320\060324.D	Calibration	7	x	39433	750.0000	2.1561
D:\GC-21\Data\060320\060325.D	Calibration	8	x	49724	1000.0000	2.0276
D:\GC-21\Data\060320\060326.D	Calibration	9	x	104771	2000.0000	2.0862
D:\GC-21\Data\060320\060327.D	Calibration	10	x	259894	5000.0000	2.2549

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Tribromophenol (Surr)

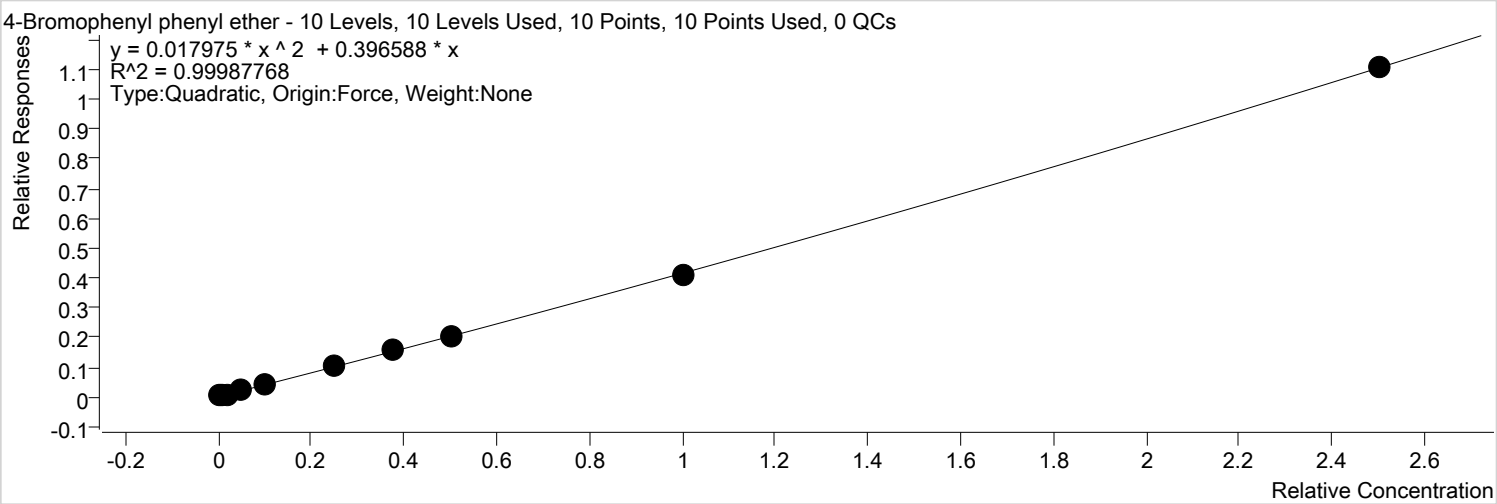


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060319.D	Calibration	2	x	67	20.0000	0.1560
D:\GC-21\Data\060320\060320.D	Calibration	3	x	101	40.0000	0.1080
D:\GC-21\Data\060320\060321.D	Calibration	4	x	432	100.0000	0.1849
D:\GC-21\Data\060320\060322.D	Calibration	5	x	1026	200.0000	0.2243
D:\GC-21\Data\060320\060323.D	Calibration	6	x	2543	500.0000	0.2178
D:\GC-21\Data\060320\060324.D	Calibration	7	x	4100	750.0000	0.2242
D:\GC-21\Data\060320\060325.D	Calibration	8	x	5802	1000.0000	0.2366
D:\GC-21\Data\060320\060326.D	Calibration	9	x	11218	2000.0000	0.2234
D:\GC-21\Data\060320\060327.D	Calibration	10	x	31382	5000.0000	0.2723

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

4-Bromophenyl phenyl ether



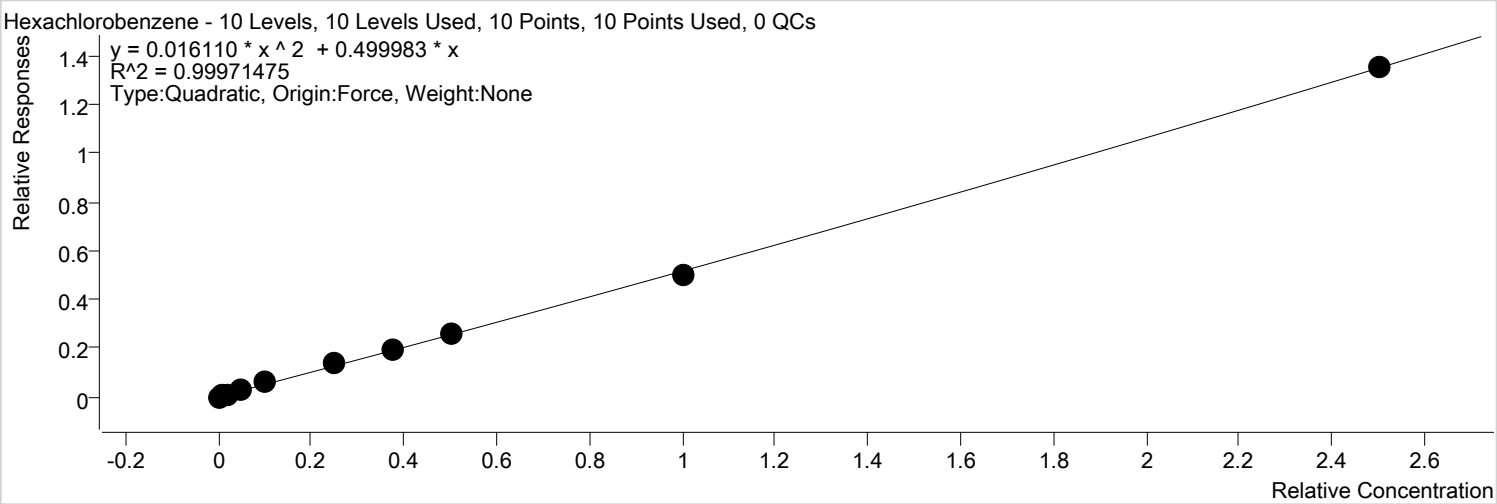
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	112	10.0000	0.4953
D:\GC-21\Data\060320\060319.D	Calibration	2	x	110	20.0000	0.2561
D:\GC-21\Data\060320\060320.D	Calibration	3	x	471	40.0000	0.5038
D:\GC-21\Data\060320\060321.D	Calibration	4	x	921	100.0000	0.3946
D:\GC-21\Data\060320\060322.D	Calibration	5	x	2094	200.0000	0.4579
D:\GC-21\Data\060320\060323.D	Calibration	6	x	4866	500.0000	0.4167
D:\GC-21\Data\060320\060324.D	Calibration	7	x	7544	750.0000	0.4125
D:\GC-21\Data\060320\060325.D	Calibration	8	x	10123	1000.0000	0.4128
D:\GC-21\Data\060320\060326.D	Calibration	9	x	20484	2000.0000	0.4079
D:\GC-21\Data\060320\060327.D	Calibration	10	x	50927	5000.0000	0.4418

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Hexachlorobenzene



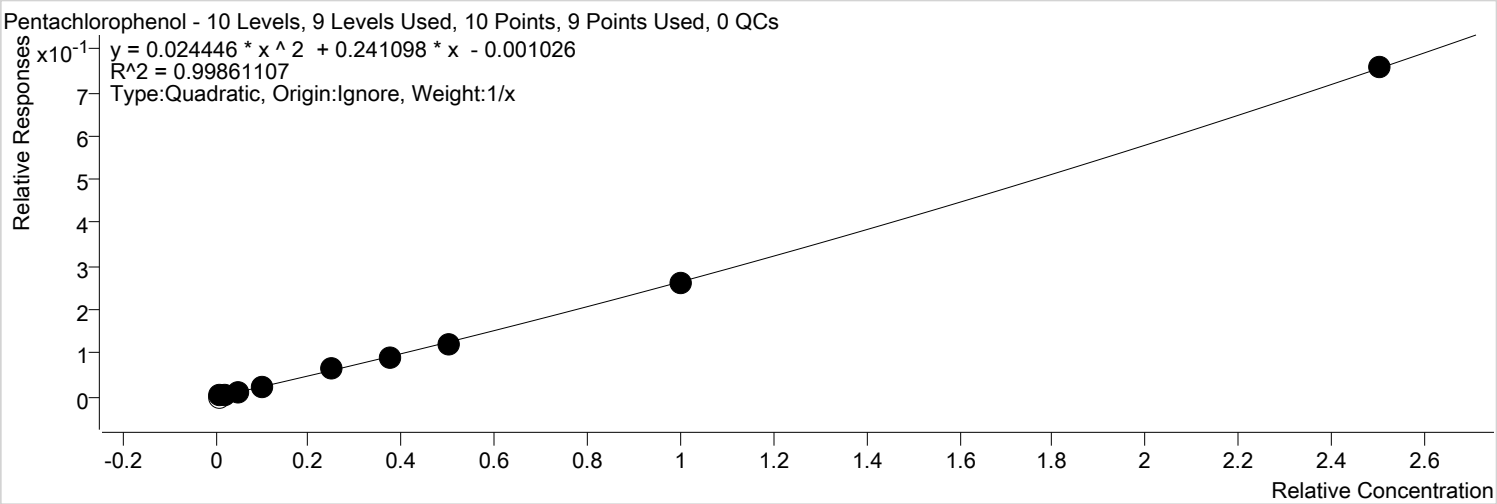
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	72	10.0000	0.3180
D:\GC-21\Data\060320\060319.D	Calibration	2	x	297	20.0000	0.6884
D:\GC-21\Data\060320\060320.D	Calibration	3	x	519	40.0000	0.5559
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1362	100.0000	0.5837
D:\GC-21\Data\060320\060322.D	Calibration	5	x	2599	200.0000	0.5684
D:\GC-21\Data\060320\060323.D	Calibration	6	x	6611	500.0000	0.5661
D:\GC-21\Data\060320\060324.D	Calibration	7	x	9520	750.0000	0.5205
D:\GC-21\Data\060320\060325.D	Calibration	8	x	12462	1000.0000	0.5082
D:\GC-21\Data\060320\060326.D	Calibration	9	x	25405	2000.0000	0.5059
D:\GC-21\Data\060320\060327.D	Calibration	10	x	62332	5000.0000	0.5408

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Pentachlorophenol



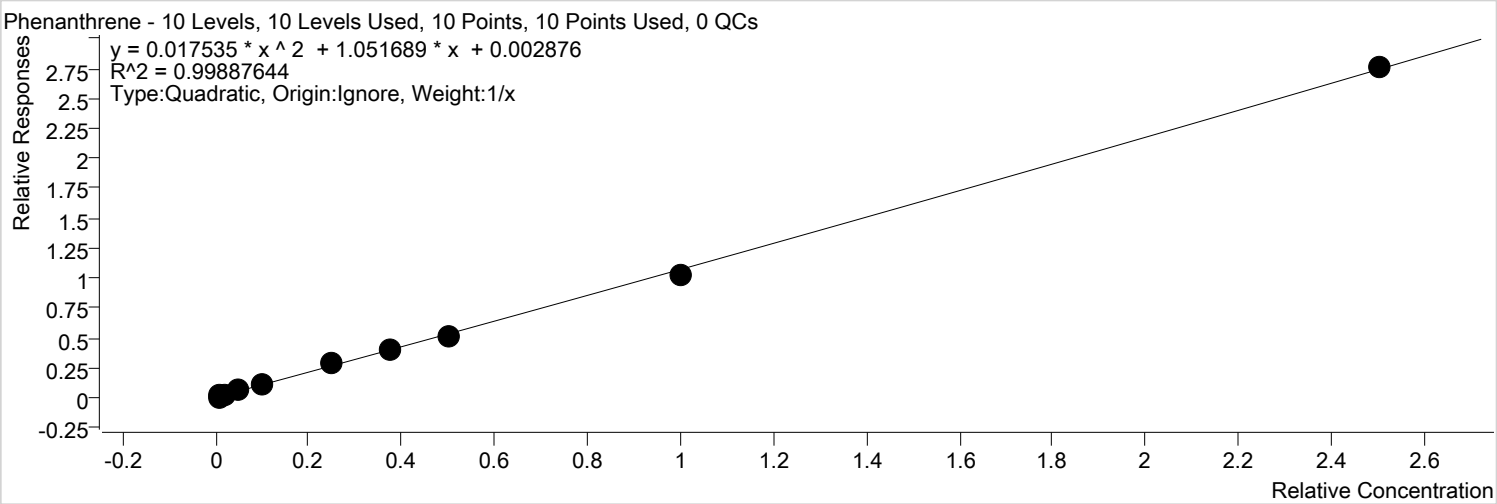
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1		0	10.0000	0.0000
D:\GC-21\Data\060320\060319.D	Calibration	2	x	70	20.0000	0.1628
D:\GC-21\Data\060320\060320.D	Calibration	3	x	116	40.0000	0.1240
D:\GC-21\Data\060320\060321.D	Calibration	4	x	547	100.0000	0.2346
D:\GC-21\Data\060320\060322.D	Calibration	5	x	1141	200.0000	0.2496
D:\GC-21\Data\060320\060323.D	Calibration	6	x	3197	500.0000	0.2737
D:\GC-21\Data\060320\060324.D	Calibration	7	x	4531	750.0000	0.2478
D:\GC-21\Data\060320\060325.D	Calibration	8	x	5790	1000.0000	0.2361
D:\GC-21\Data\060320\060326.D	Calibration	9	x	13116	2000.0000	0.2612
D:\GC-21\Data\060320\060327.D	Calibration	10	x	34879	5000.0000	0.3026

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Phenanthrene



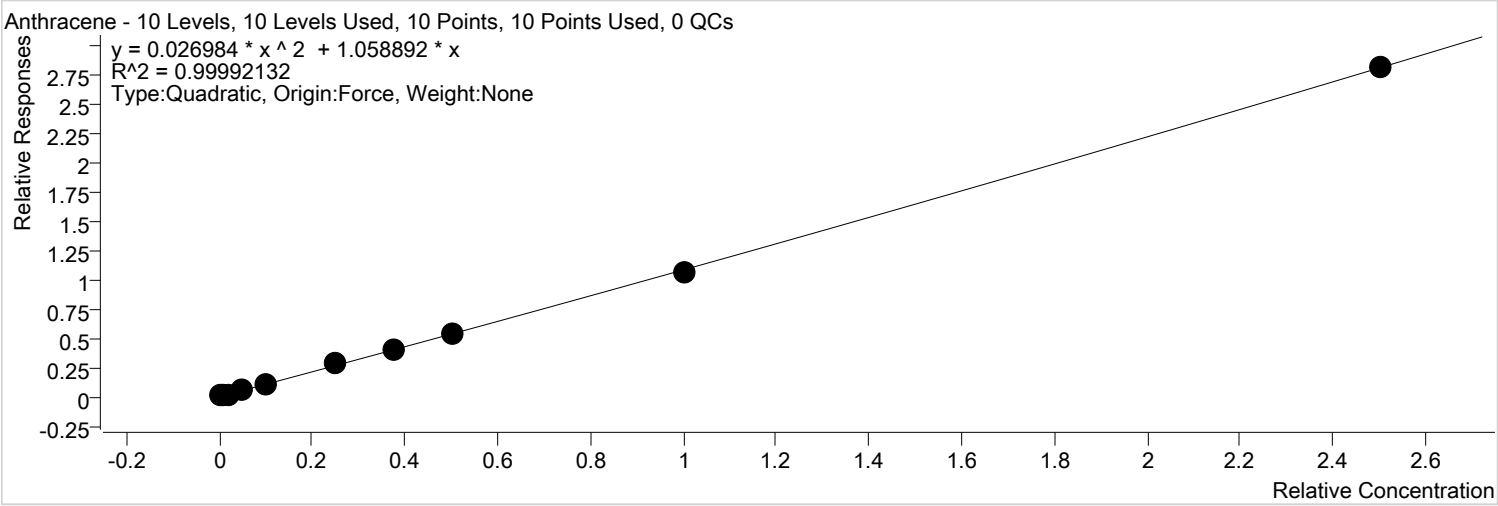
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	611	10.0000	1.5782
D:\GC-21\Data\060320\060319.D	Calibration	2	x	918	20.0000	1.2169
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1908	40.0000	1.1819
D:\GC-21\Data\060320\060321.D	Calibration	4	x	4717	100.0000	1.1638
D:\GC-21\Data\060320\060322.D	Calibration	5	x	9208	200.0000	1.1614
D:\GC-21\Data\060320\060323.D	Calibration	6	x	23872	500.0000	1.1776
D:\GC-21\Data\060320\060324.D	Calibration	7	x	34693	750.0000	1.0733
D:\GC-21\Data\060320\060325.D	Calibration	8	x	44090	1000.0000	1.0318
D:\GC-21\Data\060320\060326.D	Calibration	9	x	89923	2000.0000	1.0357
D:\GC-21\Data\060320\060327.D	Calibration	10	x	227978	5000.0000	1.1025

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Anthracene



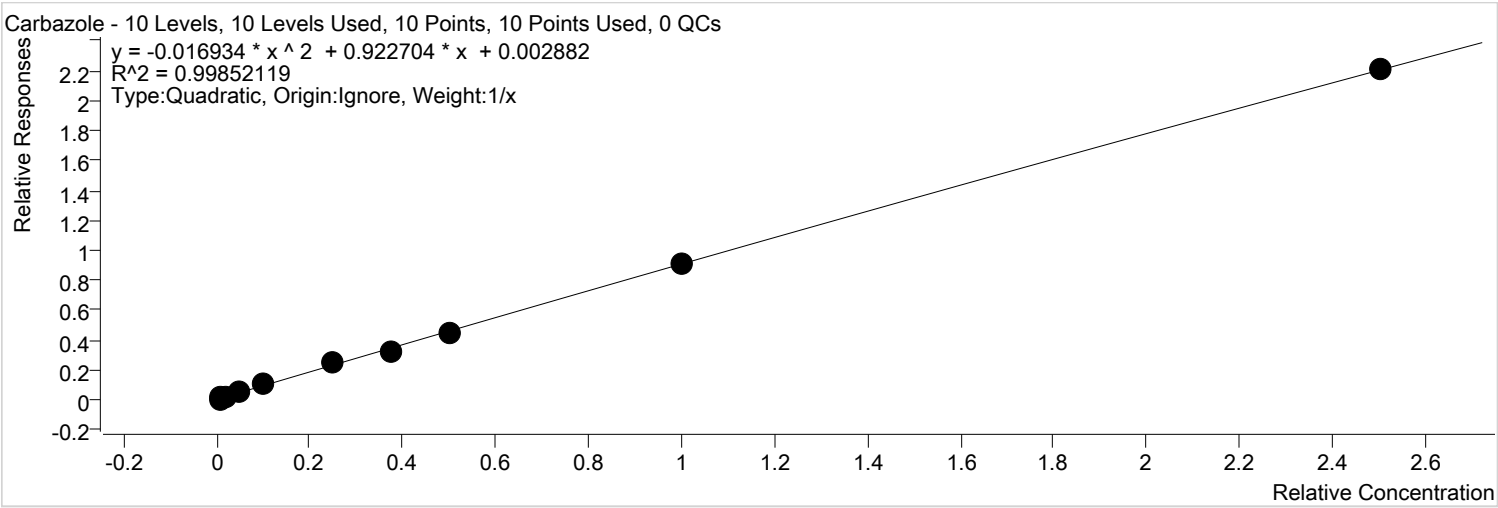
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	611	10.0000	1.5782
D:\GC-21\Data\060320\060319.D	Calibration	2	x	922	20.0000	1.2227
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1757	40.0000	1.0881
D:\GC-21\Data\060320\060321.D	Calibration	4	x	4493	100.0000	1.1086
D:\GC-21\Data\060320\060322.D	Calibration	5	x	8962	200.0000	1.1303
D:\GC-21\Data\060320\060323.D	Calibration	6	x	23088	500.0000	1.1389
D:\GC-21\Data\060320\060324.D	Calibration	7	x	34258	750.0000	1.0599
D:\GC-21\Data\060320\060325.D	Calibration	8	x	46263	1000.0000	1.0827
D:\GC-21\Data\060320\060326.D	Calibration	9	x	93427	2000.0000	1.0760
D:\GC-21\Data\060320\060327.D	Calibration	10	x	233021	5000.0000	1.1269

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Carbazole



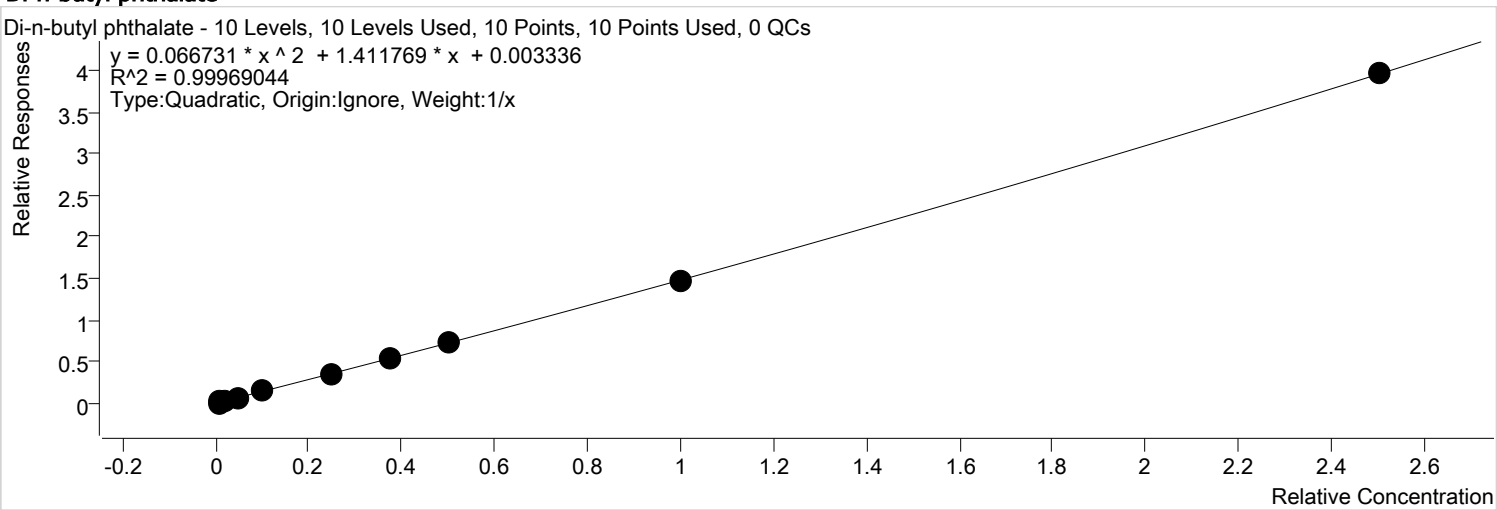
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	580	10.0000	1.4991
D:\GC-21\Data\060320\060319.D	Calibration	2	x	1041	20.0000	1.3803
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1291	40.0000	0.7995
D:\GC-21\Data\060320\060321.D	Calibration	4	x	3914	100.0000	0.9658
D:\GC-21\Data\060320\060322.D	Calibration	5	x	8283	200.0000	1.0448
D:\GC-21\Data\060320\060323.D	Calibration	6	x	20534	500.0000	1.0129
D:\GC-21\Data\060320\060324.D	Calibration	7	x	28291	750.0000	0.8752
D:\GC-21\Data\060320\060325.D	Calibration	8	x	38559	1000.0000	0.9024
D:\GC-21\Data\060320\060326.D	Calibration	9	x	78763	2000.0000	0.9071
D:\GC-21\Data\060320\060327.D	Calibration	10	x	182513	5000.0000	0.8826

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Di-n-butyl phthalate



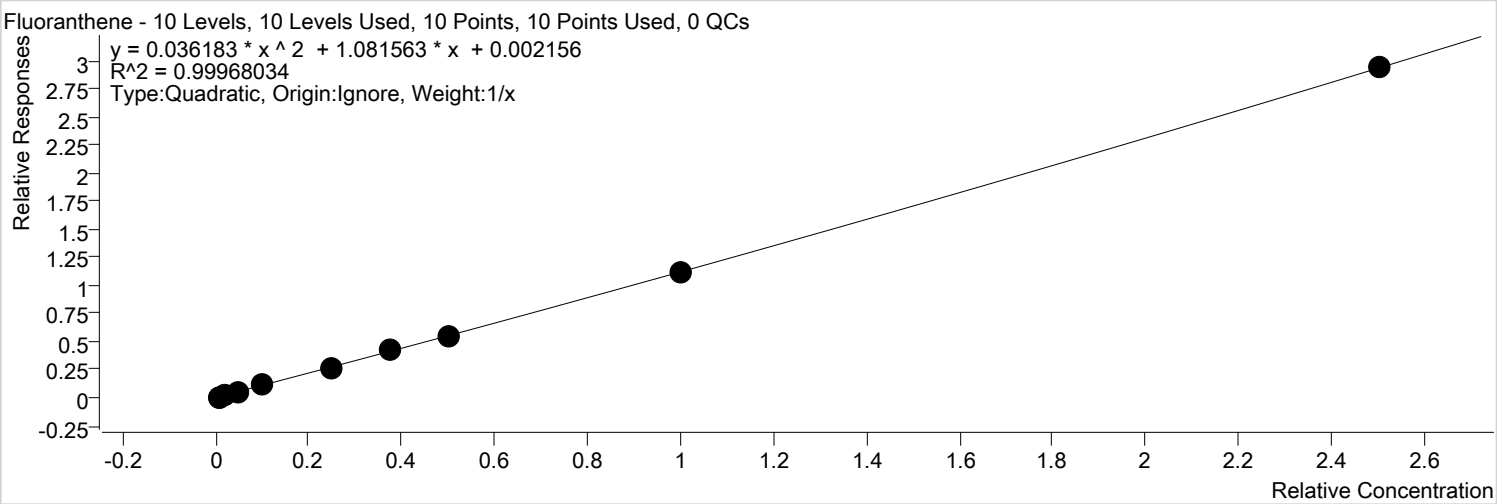
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	697	10.0000	1.8004
D:\GC-21\Data\060320\060319.D	Calibration	2	x	1482	20.0000	1.9657
D:\GC-21\Data\060320\060320.D	Calibration	3	x	2453	40.0000	1.5189
D:\GC-21\Data\060320\060321.D	Calibration	4	x	6077	100.0000	1.4996
D:\GC-21\Data\060320\060322.D	Calibration	5	x	12536	200.0000	1.5812
D:\GC-21\Data\060320\060323.D	Calibration	6	x	29346	500.0000	1.4476
D:\GC-21\Data\060320\060324.D	Calibration	7	x	45716	750.0000	1.4144
D:\GC-21\Data\060320\060325.D	Calibration	8	x	62483	1000.0000	1.4623
D:\GC-21\Data\060320\060326.D	Calibration	9	x	127446	2000.0000	1.4679
D:\GC-21\Data\060320\060327.D	Calibration	10	x	327178	5000.0000	1.5822

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:44 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Fluoranthene



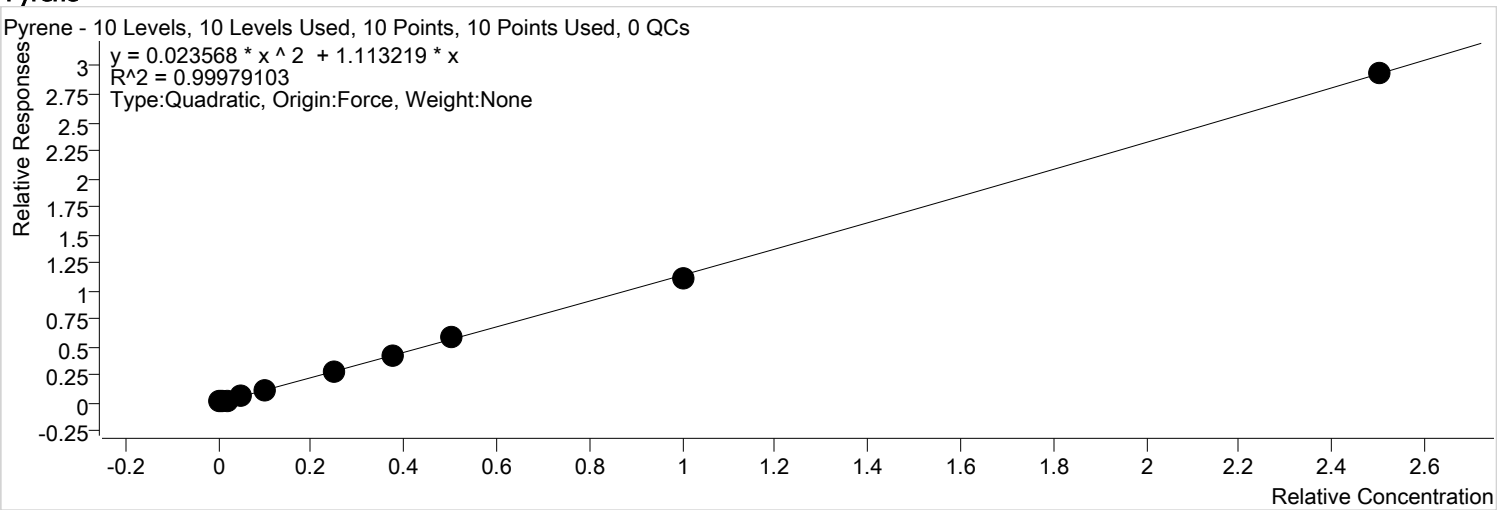
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	662	10.0000	1.7091
D:\GC-21\Data\060320\060319.D	Calibration	2	x	923	20.0000	1.2237
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1756	40.0000	1.0876
D:\GC-21\Data\060320\060321.D	Calibration	4	x	4200	100.0000	1.0363
D:\GC-21\Data\060320\060322.D	Calibration	5	x	9313	200.0000	1.1746
D:\GC-21\Data\060320\060323.D	Calibration	6	x	21847	500.0000	1.0777
D:\GC-21\Data\060320\060324.D	Calibration	7	x	36405	750.0000	1.1263
D:\GC-21\Data\060320\060325.D	Calibration	8	x	47609	1000.0000	1.1142
D:\GC-21\Data\060320\060326.D	Calibration	9	x	96129	2000.0000	1.1072
D:\GC-21\Data\060320\060327.D	Calibration	10	x	242789	5000.0000	1.1741

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:45 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Pyrene



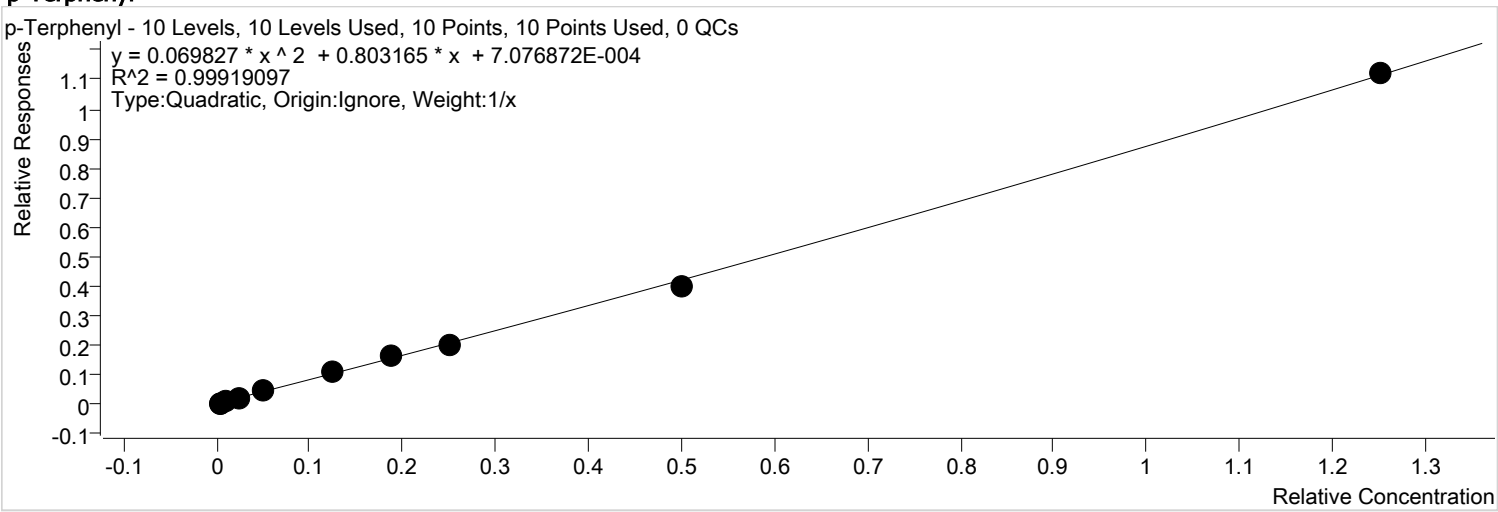
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	434	10.0000	1.1217
D:\GC-21\Data\060320\060319.D	Calibration	2	x	1091	20.0000	1.4471
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1604	40.0000	0.9933
D:\GC-21\Data\060320\060321.D	Calibration	4	x	4607	100.0000	1.1366
D:\GC-21\Data\060320\060322.D	Calibration	5	x	9569	200.0000	1.2070
D:\GC-21\Data\060320\060323.D	Calibration	6	x	22928	500.0000	1.1310
D:\GC-21\Data\060320\060324.D	Calibration	7	x	36042	750.0000	1.1151
D:\GC-21\Data\060320\060325.D	Calibration	8	x	50700	1000.0000	1.1865
D:\GC-21\Data\060320\060326.D	Calibration	9	x	96813	2000.0000	1.1150
D:\GC-21\Data\060320\060327.D	Calibration	10	x	242573	5000.0000	1.1730

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:45 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

p-Terphenyl



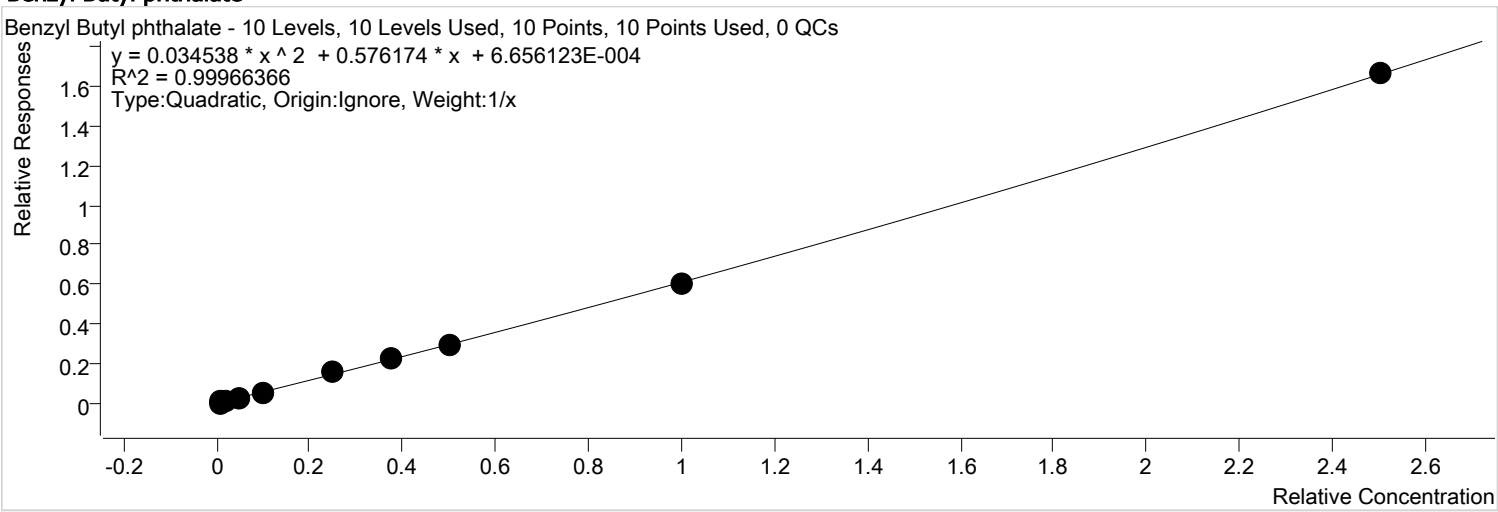
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	227	5.0000	1.1732
D:\GC-21\Data\060320\060319.D	Calibration	2	x	293	10.0000	0.7762
D:\GC-21\Data\060320\060320.D	Calibration	3	x	703	20.0000	0.8714
D:\GC-21\Data\060320\060321.D	Calibration	4	x	1692	50.0000	0.8352
D:\GC-21\Data\060320\060322.D	Calibration	5	x	3423	100.0000	0.8636
D:\GC-21\Data\060320\060323.D	Calibration	6	x	8716	250.0000	0.8599
D:\GC-21\Data\060320\060324.D	Calibration	7	x	13854	375.0000	0.8572
D:\GC-21\Data\060320\060325.D	Calibration	8	x	17395	500.0000	0.8142
D:\GC-21\Data\060320\060326.D	Calibration	9	x	34958	1000.0000	0.8052
D:\GC-21\Data\060320\060327.D	Calibration	10	x	92594	2500.0000	0.8955

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:45 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Benzyl Butyl phthalate



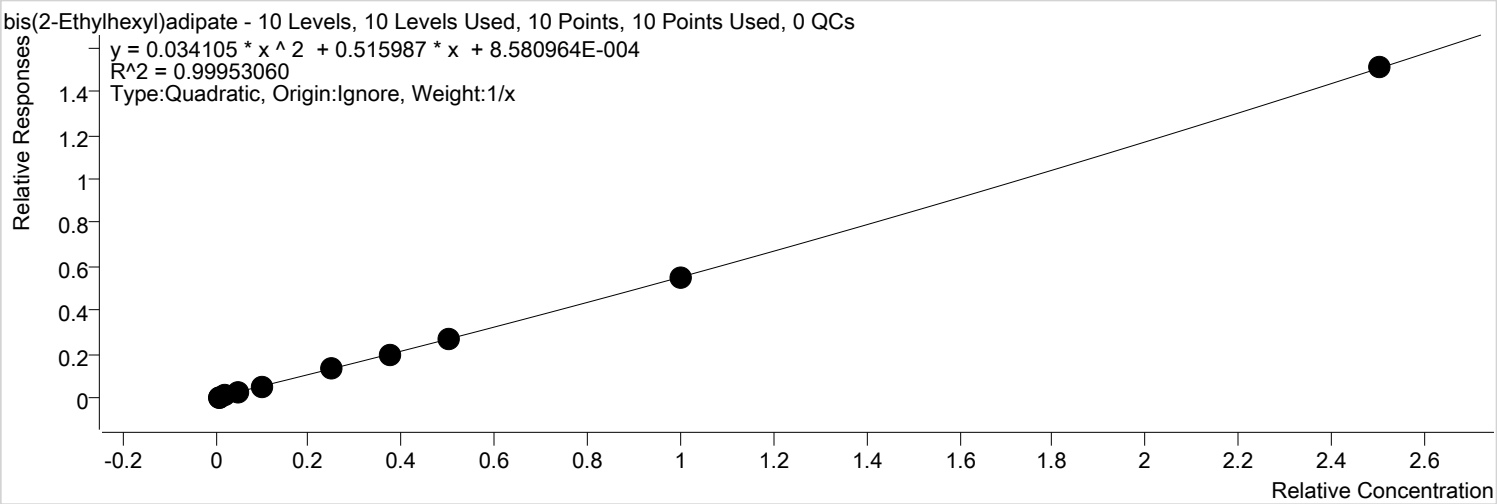
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	283	10.0000	0.7306
D:\GC-21\Data\060320\060319.D	Calibration	2	x	518	20.0000	0.6875
D:\GC-21\Data\060320\060320.D	Calibration	3	x	842	40.0000	0.5215
D:\GC-21\Data\060320\060321.D	Calibration	4	x	2399	100.0000	0.5919
D:\GC-21\Data\060320\060322.D	Calibration	5	x	4612	200.0000	0.5818
D:\GC-21\Data\060320\060323.D	Calibration	6	x	12479	500.0000	0.6156
D:\GC-21\Data\060320\060324.D	Calibration	7	x	19523	750.0000	0.6040
D:\GC-21\Data\060320\060325.D	Calibration	8	x	25283	1000.0000	0.5917
D:\GC-21\Data\060320\060326.D	Calibration	9	x	51975	2000.0000	0.5986
D:\GC-21\Data\060320\060327.D	Calibration	10	x	137388	5000.0000	0.6644

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:45 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

bis(2-Ethylhexyl)adipate



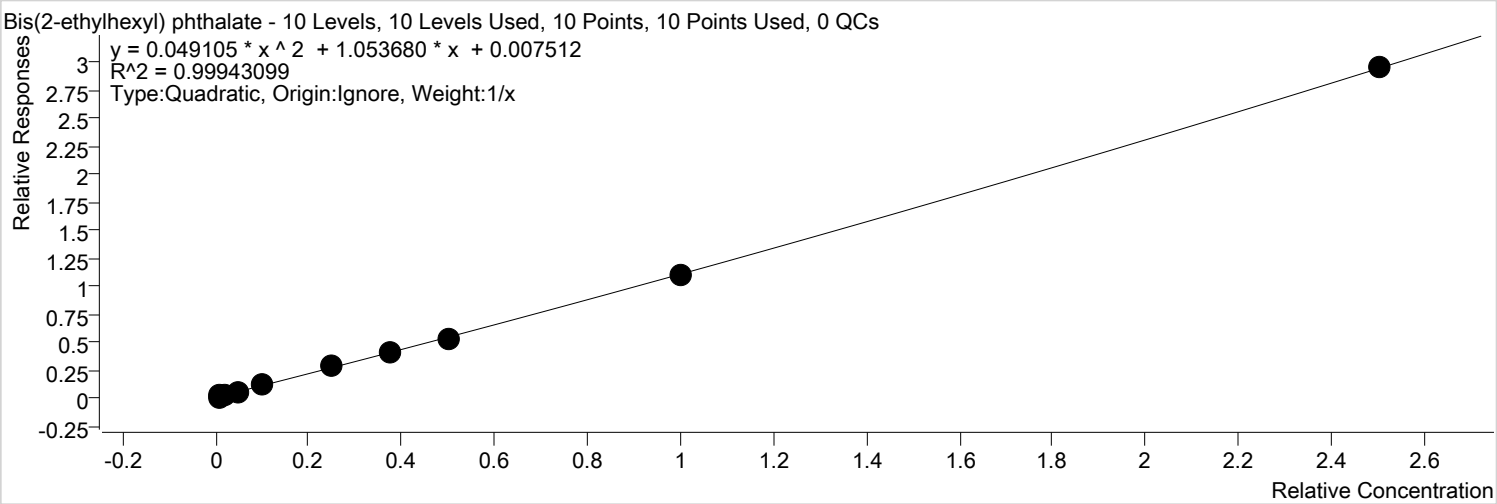
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	283	10.0000	0.7304
D:\GC-21\Data\060320\060319.D	Calibration	2	x	344	20.0000	0.4565
D:\GC-21\Data\060320\060320.D	Calibration	3	x	994	40.0000	0.6155
D:\GC-21\Data\060320\060321.D	Calibration	4	x	2322	100.0000	0.5730
D:\GC-21\Data\060320\060322.D	Calibration	5	x	4123	200.0000	0.5201
D:\GC-21\Data\060320\060323.D	Calibration	6	x	11309	500.0000	0.5579
D:\GC-21\Data\060320\060324.D	Calibration	7	x	17251	750.0000	0.5337
D:\GC-21\Data\060320\060325.D	Calibration	8	x	22486	1000.0000	0.5262
D:\GC-21\Data\060320\060326.D	Calibration	9	x	47091	2000.0000	0.5424
D:\GC-21\Data\060320\060327.D	Calibration	10	x	124682	5000.0000	0.6029

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:45 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Bis(2-ethylhexyl) phthalate



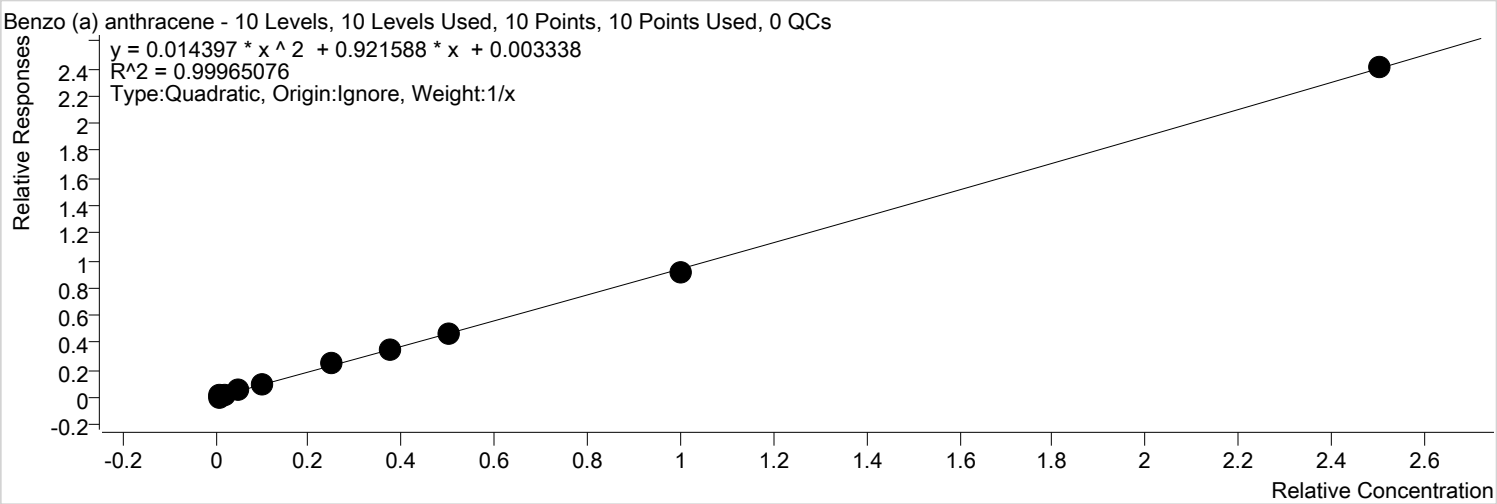
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	841	10.0000	2.6584
D:\GC-21\Data\060320\060319.D	Calibration	2	x	1122	20.0000	1.8496
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1489	40.0000	1.1418
D:\GC-21\Data\060320\060321.D	Calibration	4	x	4080	100.0000	1.2510
D:\GC-21\Data\060320\060322.D	Calibration	5	x	8047	200.0000	1.2155
D:\GC-21\Data\060320\060323.D	Calibration	6	x	19248	500.0000	1.1304
D:\GC-21\Data\060320\060324.D	Calibration	7	x	29583	750.0000	1.1062
D:\GC-21\Data\060320\060325.D	Calibration	8	x	37894	1000.0000	1.0750
D:\GC-21\Data\060320\060326.D	Calibration	9	x	78000	2000.0000	1.0933
D:\GC-21\Data\060320\060327.D	Calibration	10	x	206402	5000.0000	1.1821

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:45 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Benzo (a) anthracene



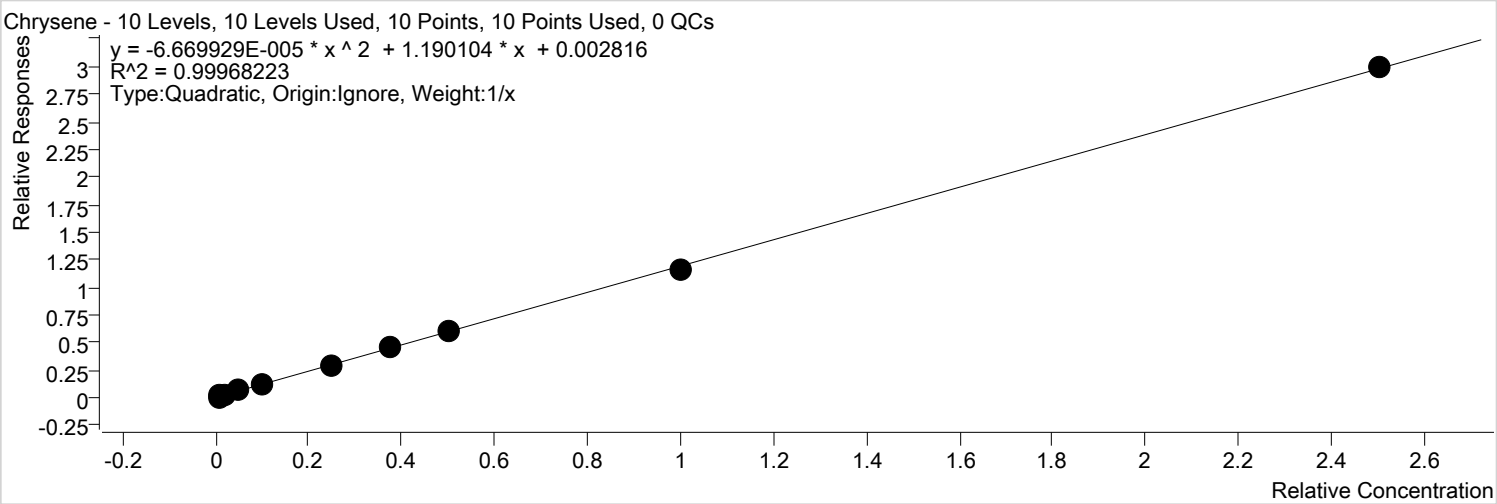
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	558	10.0000	1.4403
D:\GC-21\Data\060320\060319.D	Calibration	2	x	1026	20.0000	1.3604
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1786	40.0000	1.1064
D:\GC-21\Data\060320\060321.D	Calibration	4	x	4087	100.0000	1.0084
D:\GC-21\Data\060320\060322.D	Calibration	5	x	7332	200.0000	0.9248
D:\GC-21\Data\060320\060323.D	Calibration	6	x	19863	500.0000	0.9798
D:\GC-21\Data\060320\060324.D	Calibration	7	x	31028	750.0000	0.9599
D:\GC-21\Data\060320\060325.D	Calibration	8	x	39542	1000.0000	0.9254
D:\GC-21\Data\060320\060326.D	Calibration	9	x	79894	2000.0000	0.9202
D:\GC-21\Data\060320\060327.D	Calibration	10	x	198821	5000.0000	0.9615

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:45 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Chrysene



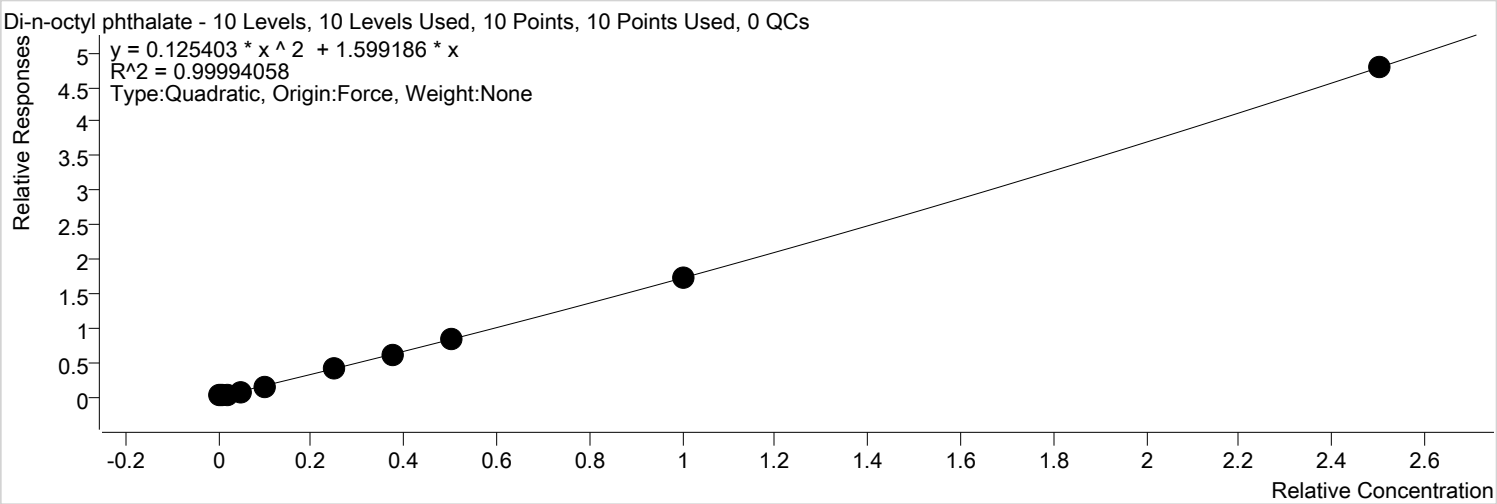
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	557	10.0000	1.7589
D:\GC-21\Data\060320\060319.D	Calibration	2	x	827	20.0000	1.3629
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1709	40.0000	1.3101
D:\GC-21\Data\060320\060321.D	Calibration	4	x	4278	100.0000	1.3118
D:\GC-21\Data\060320\060322.D	Calibration	5	x	8414	200.0000	1.2710
D:\GC-21\Data\060320\060323.D	Calibration	6	x	20328	500.0000	1.1939
D:\GC-21\Data\060320\060324.D	Calibration	7	x	32980	750.0000	1.2332
D:\GC-21\Data\060320\060325.D	Calibration	8	x	42278	1000.0000	1.1994
D:\GC-21\Data\060320\060326.D	Calibration	9	x	82968	2000.0000	1.1629
D:\GC-21\Data\060320\060327.D	Calibration	10	x	208631	5000.0000	1.1949

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:45 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Di-n-octyl phthalate



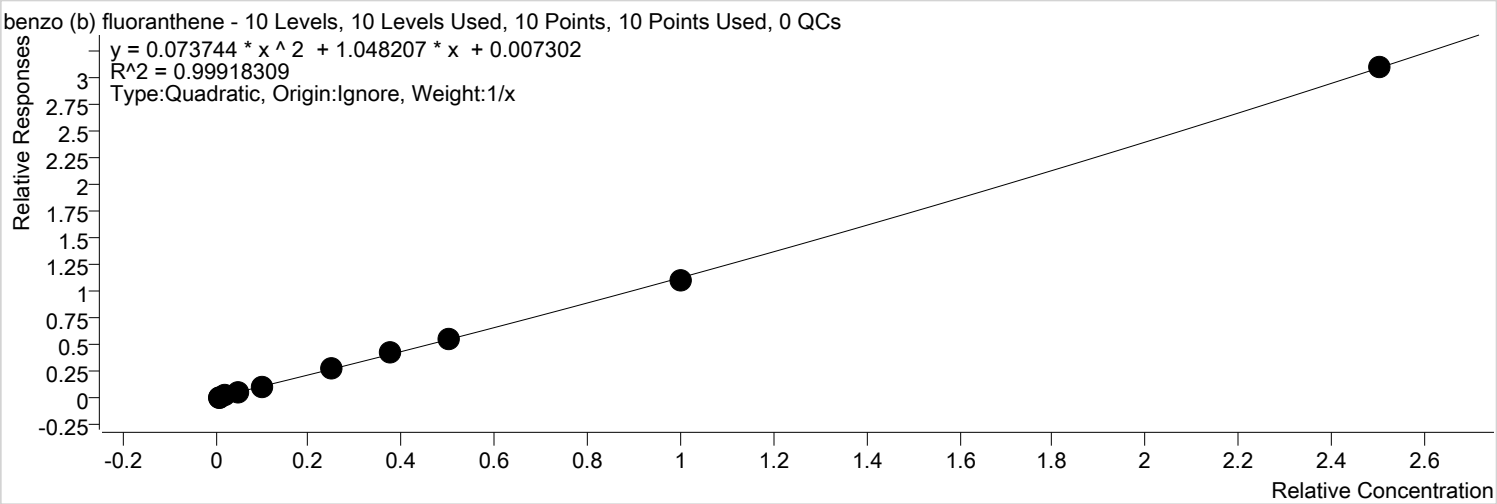
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	741	10.0000	2.3397
D:\GC-21\Data\060320\060319.D	Calibration	2	x	941	20.0000	1.5516
D:\GC-21\Data\060320\060320.D	Calibration	3	x	2100	40.0000	1.6102
D:\GC-21\Data\060320\060321.D	Calibration	4	x	5009	100.0000	1.5359
D:\GC-21\Data\060320\060322.D	Calibration	5	x	10332	200.0000	1.5607
D:\GC-21\Data\060320\060323.D	Calibration	6	x	27284	500.0000	1.6024
D:\GC-21\Data\060320\060324.D	Calibration	7	x	42446	750.0000	1.5872
D:\GC-21\Data\060320\060325.D	Calibration	8	x	60271	1000.0000	1.7098
D:\GC-21\Data\060320\060326.D	Calibration	9	x	123004	2000.0000	1.7241
D:\GC-21\Data\060320\060327.D	Calibration	10	x	333945	5000.0000	1.9126

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:45 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

benzo (b) fluoranthene

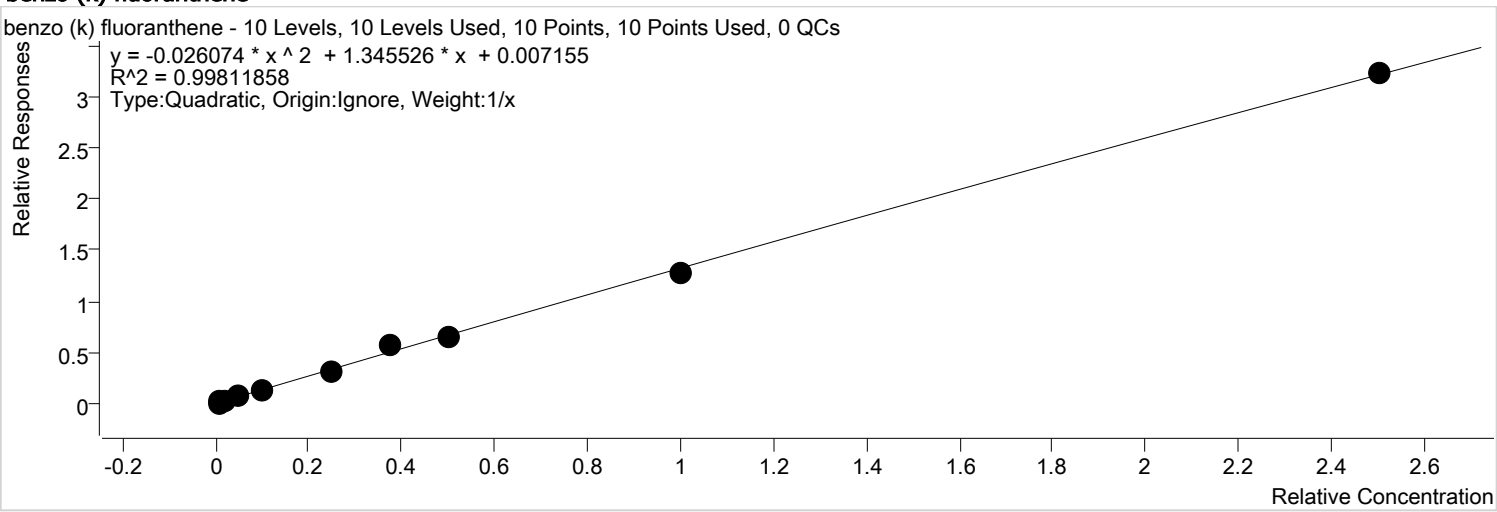


Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	934	10.0000	2.9506
D:\GC-21\Data\060320\060319.D	Calibration	2	x	966	20.0000	1.5918
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1684	40.0000	1.2912
D:\GC-21\Data\060320\060321.D	Calibration	4	x	3473	100.0000	1.0650
D:\GC-21\Data\060320\060322.D	Calibration	5	x	6899	200.0000	1.0420
D:\GC-21\Data\060320\060323.D	Calibration	6	x	19846	500.0000	1.1655
D:\GC-21\Data\060320\060324.D	Calibration	7	x	30002	750.0000	1.1219
D:\GC-21\Data\060320\060325.D	Calibration	8	x	39092	1000.0000	1.1090
D:\GC-21\Data\060320\060326.D	Calibration	9	x	79266	2000.0000	1.1110
D:\GC-21\Data\060320\060327.D	Calibration	10	x	215976	5000.0000	1.2369

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:45 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

benzo (k) fluoranthene



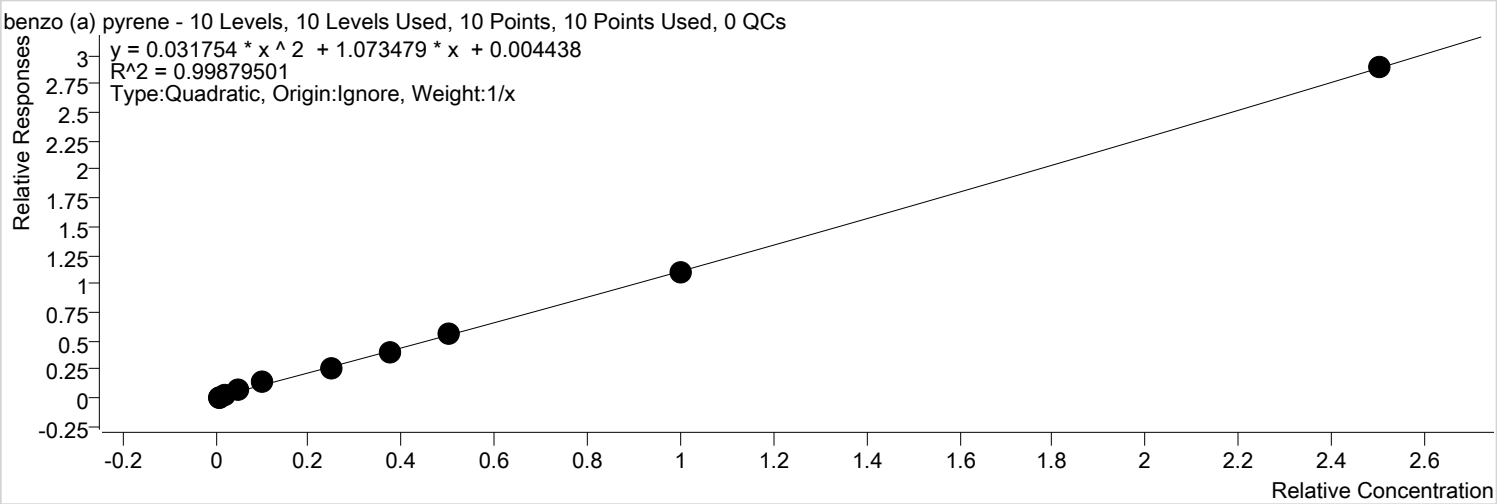
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	903	10.0000	2.8516
D:\GC-21\Data\060320\060319.D	Calibration	2	x	1267	20.0000	2.0883
D:\GC-21\Data\060320\060320.D	Calibration	3	x	2073	40.0000	1.5894
D:\GC-21\Data\060320\060321.D	Calibration	4	x	4687	100.0000	1.4373
D:\GC-21\Data\060320\060322.D	Calibration	5	x	9496	200.0000	1.4344
D:\GC-21\Data\060320\060323.D	Calibration	6	x	22448	500.0000	1.3184
D:\GC-21\Data\060320\060324.D	Calibration	7	x	40800	750.0000	1.5257
D:\GC-21\Data\060320\060325.D	Calibration	8	x	45724	1000.0000	1.2971
D:\GC-21\Data\060320\060326.D	Calibration	9	x	92105	2000.0000	1.2910
D:\GC-21\Data\060320\060327.D	Calibration	10	x	224810	5000.0000	1.2875

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:45 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

benzo (a) pyrene



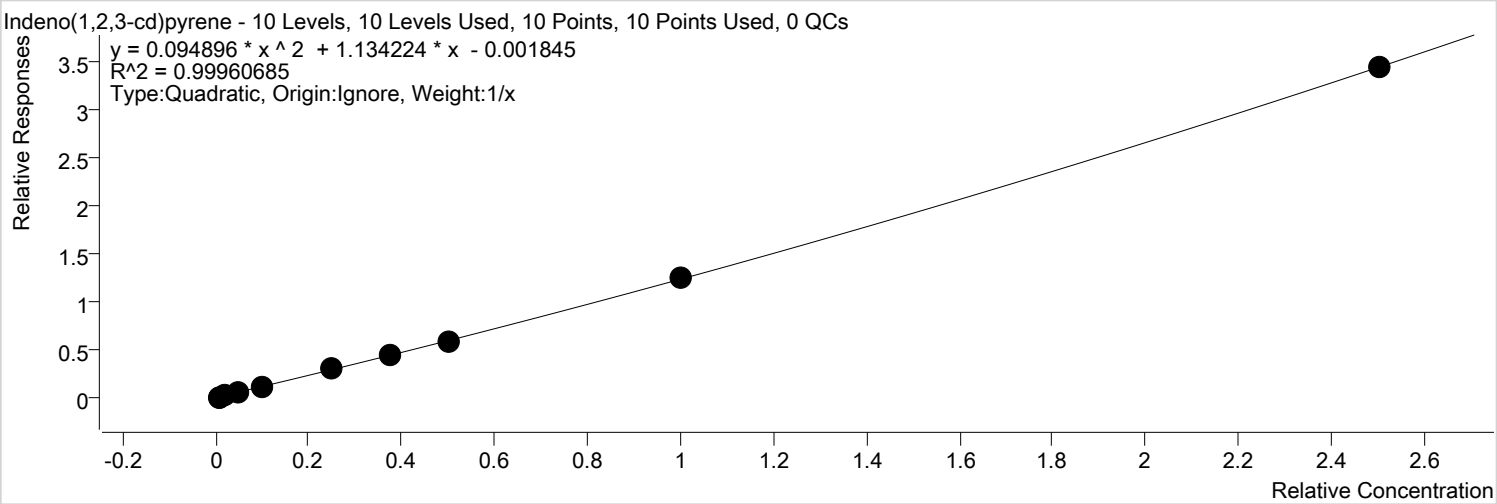
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	663	10.0000	2.0944
D:\GC-21\Data\060320\060319.D	Calibration	2	x	746	20.0000	1.2292
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1590	40.0000	1.2195
D:\GC-21\Data\060320\060321.D	Calibration	4	x	4133	100.0000	1.2673
D:\GC-21\Data\060320\060322.D	Calibration	5	x	8770	200.0000	1.3247
D:\GC-21\Data\060320\060323.D	Calibration	6	x	17768	500.0000	1.0435
D:\GC-21\Data\060320\060324.D	Calibration	7	x	28625	750.0000	1.0704
D:\GC-21\Data\060320\060325.D	Calibration	8	x	39236	1000.0000	1.1131
D:\GC-21\Data\060320\060326.D	Calibration	9	x	78482	2000.0000	1.1000
D:\GC-21\Data\060320\060327.D	Calibration	10	x	201911	5000.0000	1.1564

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:45 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Indeno(1,2,3-cd)pyrene



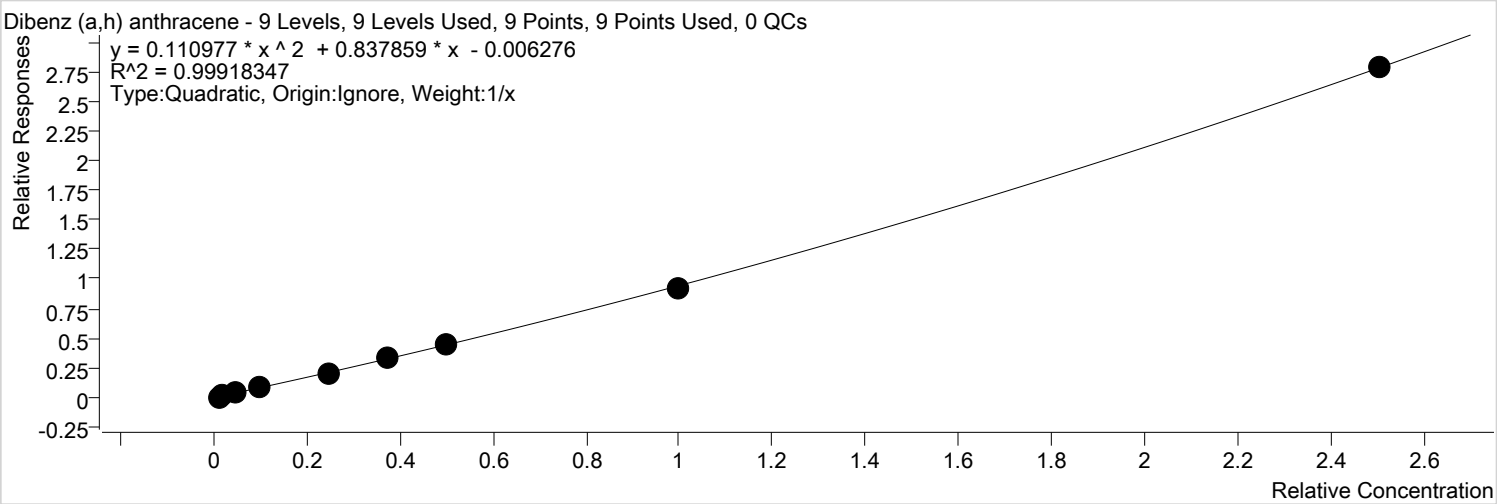
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	406	10.0000	1.1733
D:\GC-21\Data\060320\060319.D	Calibration	2	x	583	20.0000	0.8638
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1133	40.0000	0.7958
D:\GC-21\Data\060320\060321.D	Calibration	4	x	3676	100.0000	1.0224
D:\GC-21\Data\060320\060322.D	Calibration	5	x	7901	200.0000	1.1125
D:\GC-21\Data\060320\060323.D	Calibration	6	x	21760	500.0000	1.1520
D:\GC-21\Data\060320\060324.D	Calibration	7	x	34954	750.0000	1.1894
D:\GC-21\Data\060320\060325.D	Calibration	8	x	44893	1000.0000	1.1610
D:\GC-21\Data\060320\060326.D	Calibration	9	x	99570	2000.0000	1.2398
D:\GC-21\Data\060320\060327.D	Calibration	10	x	258009	5000.0000	1.3689

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:45 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Dibenz (a,h) anthracene



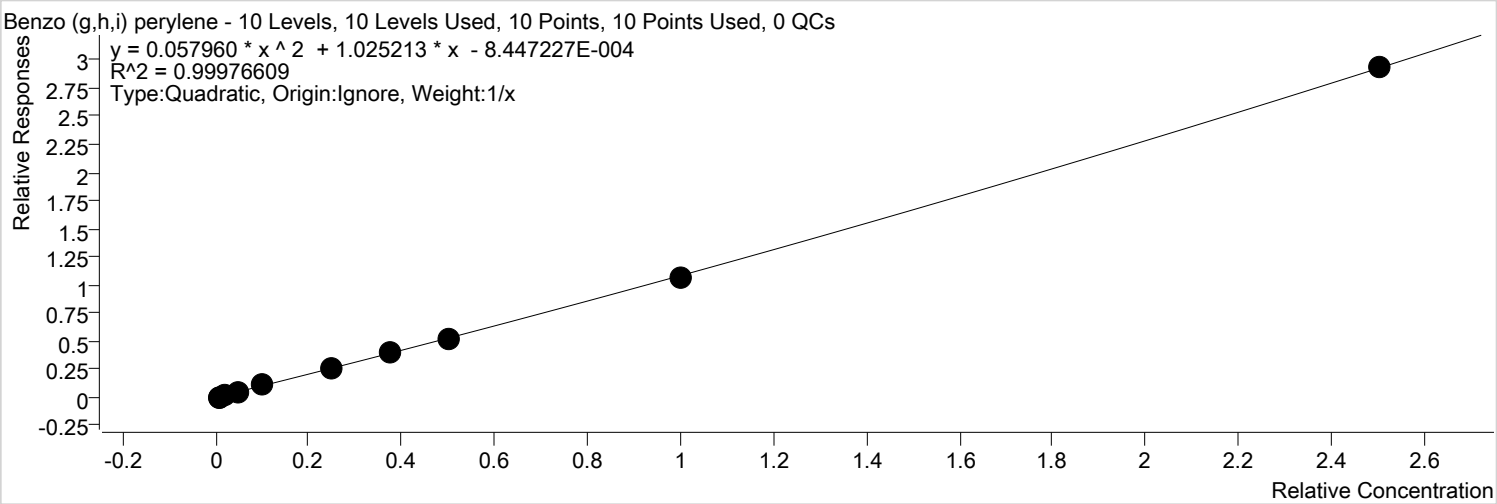
Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060319.D	Calibration	2	x	111	20.0000	0.1646
D:\GC-21\Data\060320\060320.D	Calibration	3	x	740	40.0000	0.5199
D:\GC-21\Data\060320\060321.D	Calibration	4	x	2652	100.0000	0.7375
D:\GC-21\Data\060320\060322.D	Calibration	5	x	6144	200.0000	0.8651
D:\GC-21\Data\060320\060323.D	Calibration	6	x	14104	500.0000	0.7467
D:\GC-21\Data\060320\060324.D	Calibration	7	x	26521	750.0000	0.9025
D:\GC-21\Data\060320\060325.D	Calibration	8	x	34835	1000.0000	0.9009
D:\GC-21\Data\060320\060326.D	Calibration	9	x	74688	2000.0000	0.9300
D:\GC-21\Data\060320\060327.D	Calibration	10	x	209949	5000.0000	1.1139

Calibration Report

Agilent Technologies

Batch Path	D:\GC-21\Data\060320\QuantResults\SEMI CAL.batch.bin		
Analysis Time	6/4/2020 10:24:14 AM	**Analyst Name**	FA\lab
Report Time	6/4/2020 10:26:45 AM	**Reporter Name**	lab
Last Calib Update	6/4/2020 10:23:34 AM	**Batch State**	Processed

Benzo (g,h,i) perylene



Calibration STD Path	Cal Type	Level	Enabled	Resp.	Exp. Conc	Resp. Factor
D:\GC-21\Data\060320\060318.D	Calibration	1	x	338	10.0000	0.9777
D:\GC-21\Data\060320\060319.D	Calibration	2	x	585	20.0000	0.8670
D:\GC-21\Data\060320\060320.D	Calibration	3	x	1334	40.0000	0.9366
D:\GC-21\Data\060320\060321.D	Calibration	4	x	3418	100.0000	0.9507
D:\GC-21\Data\060320\060322.D	Calibration	5	x	7638	200.0000	1.0755
D:\GC-21\Data\060320\060323.D	Calibration	6	x	19330	500.0000	1.0233
D:\GC-21\Data\060320\060324.D	Calibration	7	x	31635	750.0000	1.0765
D:\GC-21\Data\060320\060325.D	Calibration	8	x	40851	1000.0000	1.0565
D:\GC-21\Data\060320\060326.D	Calibration	9	x	85604	2000.0000	1.0659
D:\GC-21\Data\060320\060327.D	Calibration	10	x	220822	5000.0000	1.1716

Semivolatile Calibration

Date: 05/26/2020

Analyst: Sam Bellman

MeCl2: 20831999

Intermediate / 23057

Cal		ICV	
8270 Megamix:	23298	8270 Megamix:	23297
2,4-DNP:	23446	2,4-DNP:	23305
Benzoic Acid:	23363	Benzoic Acid:	23362

8270 Surrogate: 23454 / ICB/ICV SURR 23712 IS 23709

	Spike Conc. (ppb)	BN/Acid Surr Conc. (ppb)	2° Spike (uL)	B/N Surr (uL)	Internal Standard (uL)	Remove (uL)	Final Vol. (mL)	Comments
61	10	10/5	1	--	10	11	1	
	20	20/10	2	--	10	12	1	
	40	40/20	4	--	10	14	1	
	100	100/50	10	--	10	20	1	
	200	200/100	20	--	10	30	1	
	500	500/250	~~40~~ 50	--	10	60	1	
	750	750/375	75 SM 5/26	--	10	85	1	
	1000	1000/500	100	--	10	110	1	
	2000	2000/1000	200	--	10	210	1	
	5000	5000/2500	500	--	10	510	1	
	ICB	1000/500		1	10	11	1	
72	ICV (1000 ppb)	1000/500	~~100~~ (2° SS)	-- 1	10	~~110~~ 14	1	

SM 5/26

	Mega Mix (uL)	2,4-DNP (uL)	Benzoic Acid (uL)	8270 Surr (uL)	Final Volume (mL)
2° Intermediate (cal)	100	100	100	100	10
2° Intermediate (SS)	50	50	50	50	5

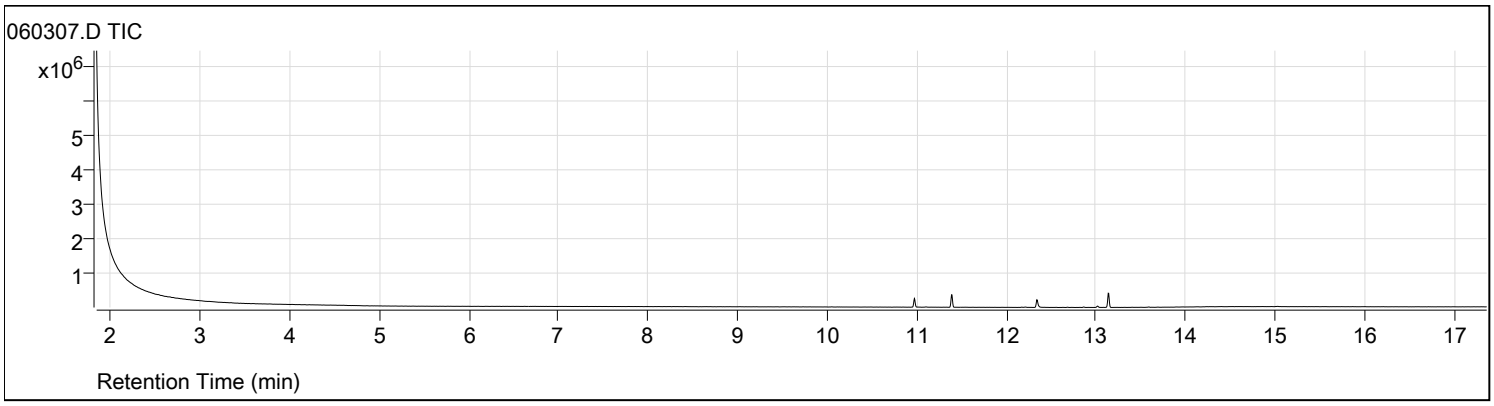
Signature and Date: Sam Bellman 5/26/2020

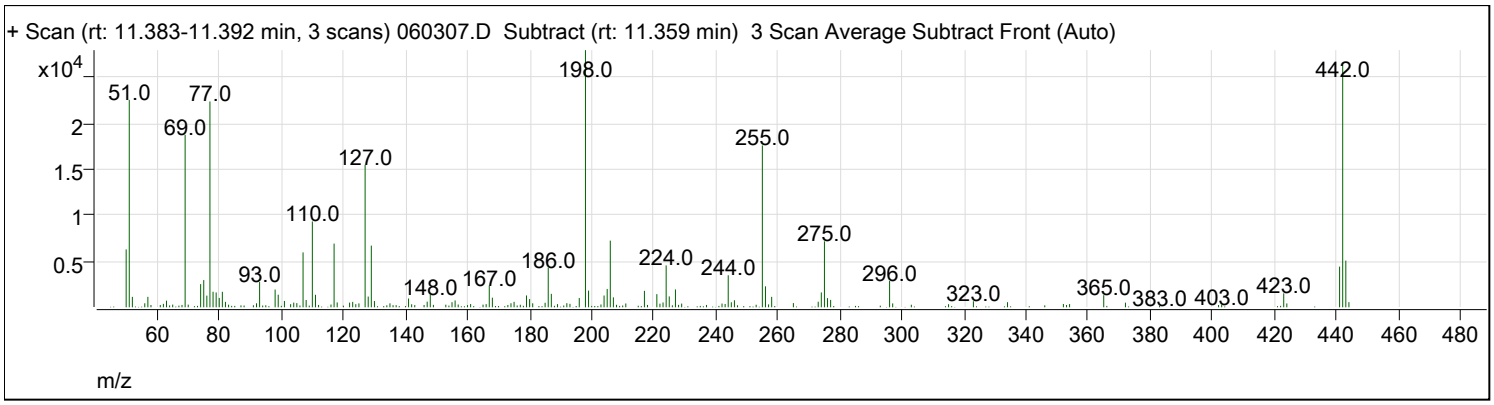
Signature: EM

Tunes

Tune Evaluation Report

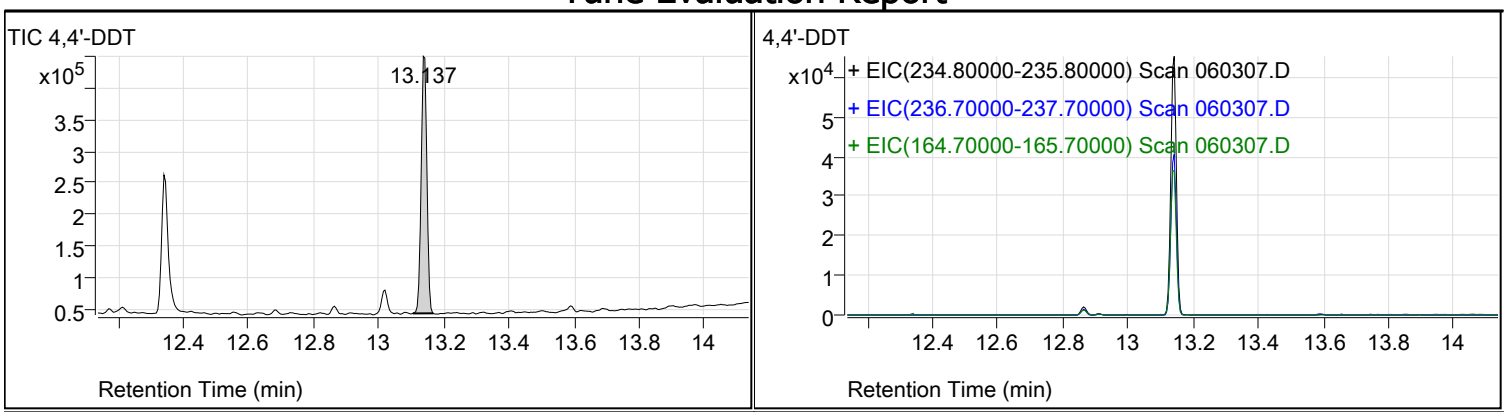
Data Path:	D:\GC-21\Data\060320\060307.D
Acq on:	6/3/2020 10:29:33 AM
Operator:	SNB
Sample:	TUNE
Inst Name:	GC-21
ALS Vial:	1
Method:	D:\MassHunter\Methods\Quant\DFTPPwBreak&TailingGC218270E.m

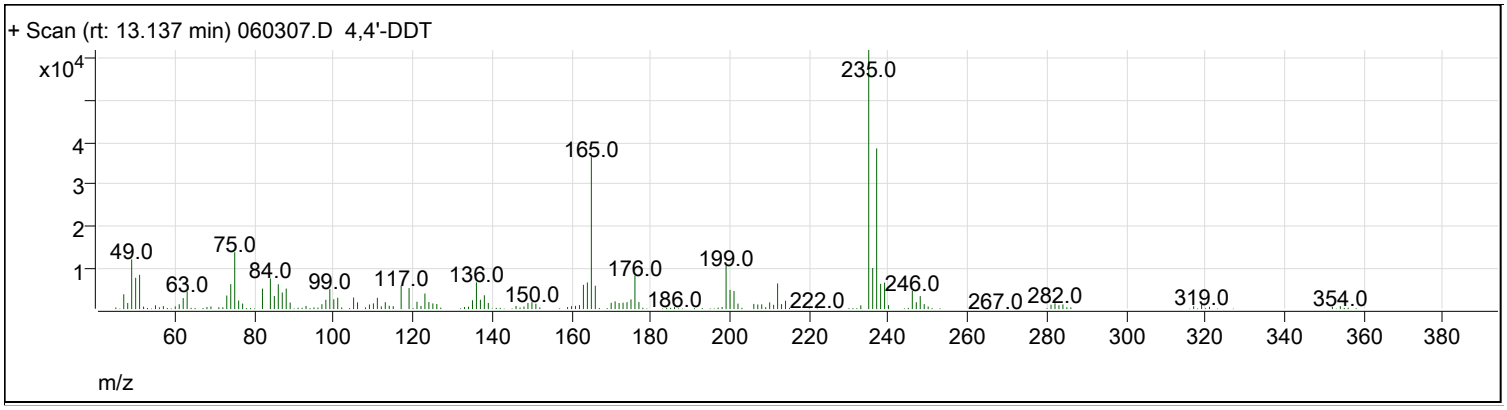


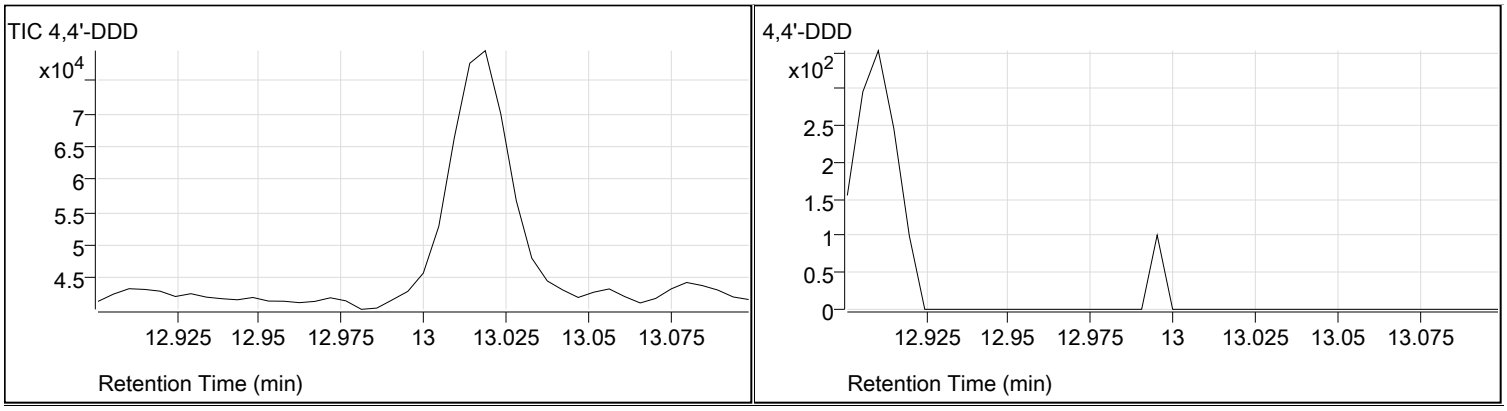


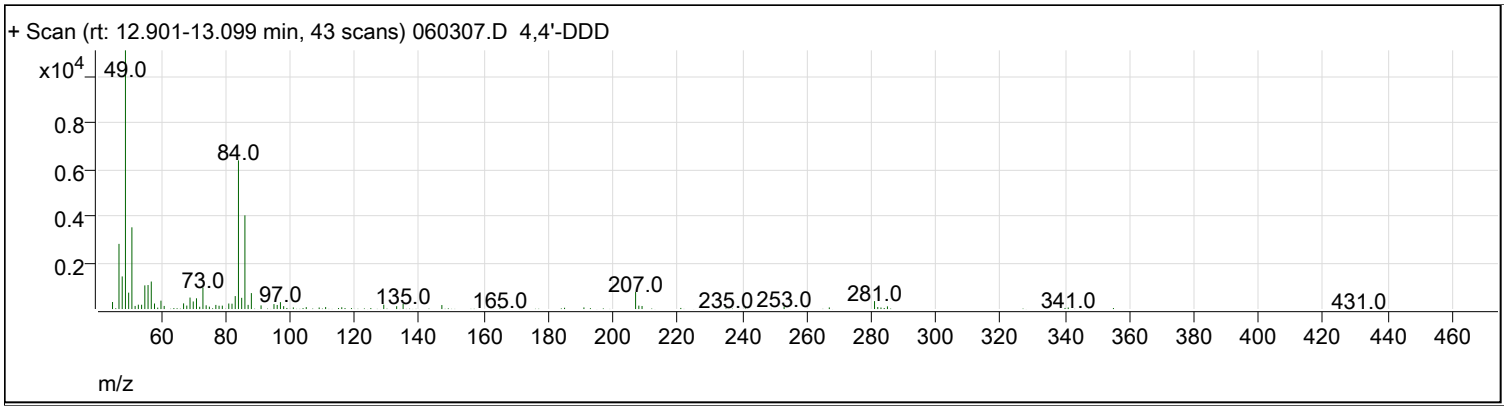
Target Mass	Rel. To Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Pass/Fail
68	69	0	2	1.4	255	Pass
70	69	0	2	1.5	286	Pass
197	198	0	2	0.0	0	Pass
198	198	100	100	100.0	27925	Pass
199	198	5	9	6.5	1812	Pass
365	198	1	100	4.7	1314	Pass
441	443	1E-10	150	87.1	4417	Pass
442	442	100	100	100.0	26549	Pass
443	442	15	24	19.1	5069	Pass
69	69	100	100	100.0	18724	Pass

Tune Evaluation Report



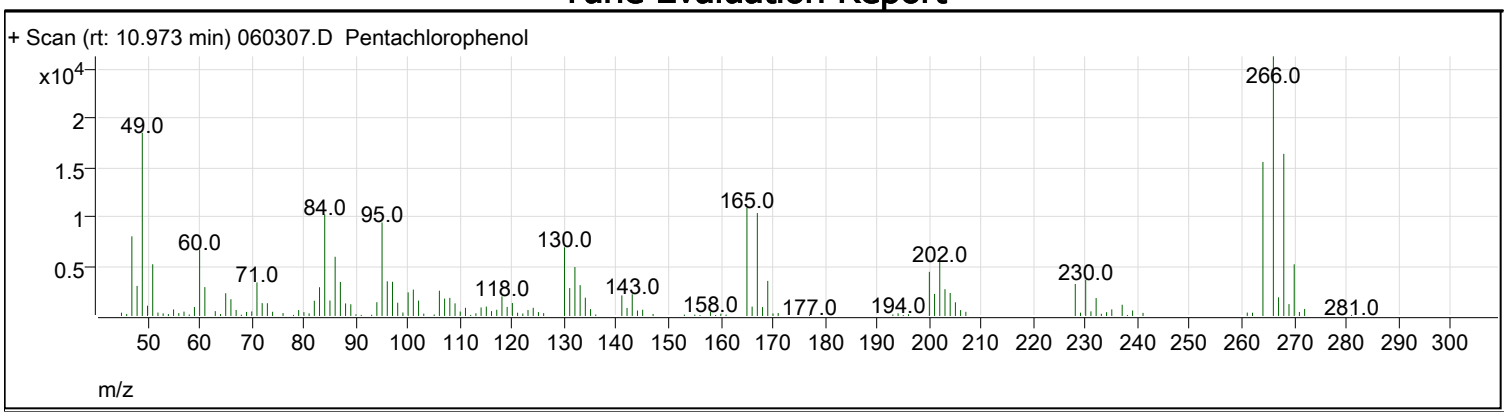


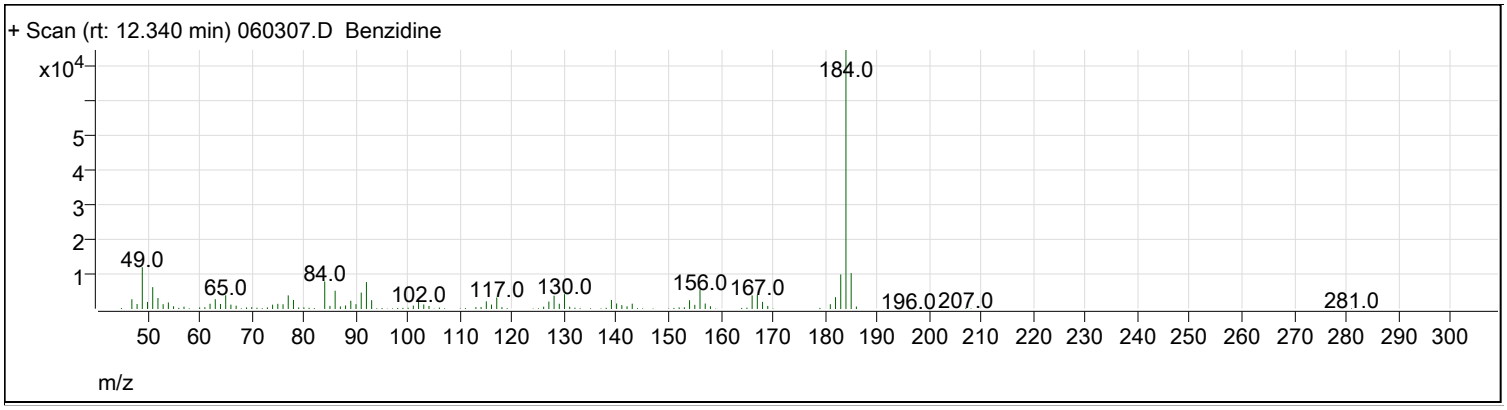




Compound Name	Expected RT	Observed RT	TIC Area	Breakdown %	Pass/Fail
4,4'-DDT	13.137	13.137	495796	0.0	Pass
4,4'-DDD	13.000	0.000	0		

Tune Evaluation Report

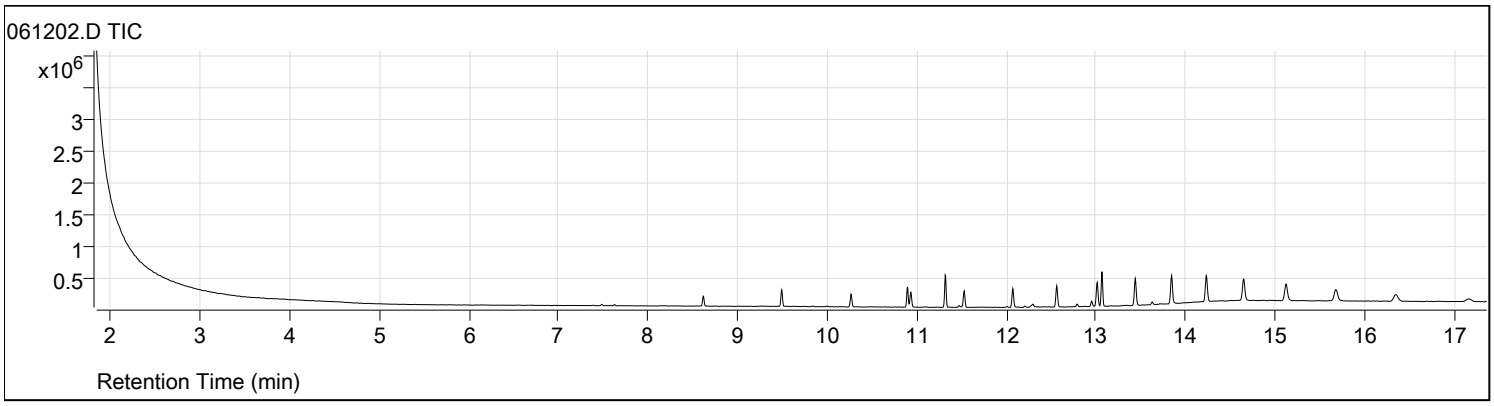


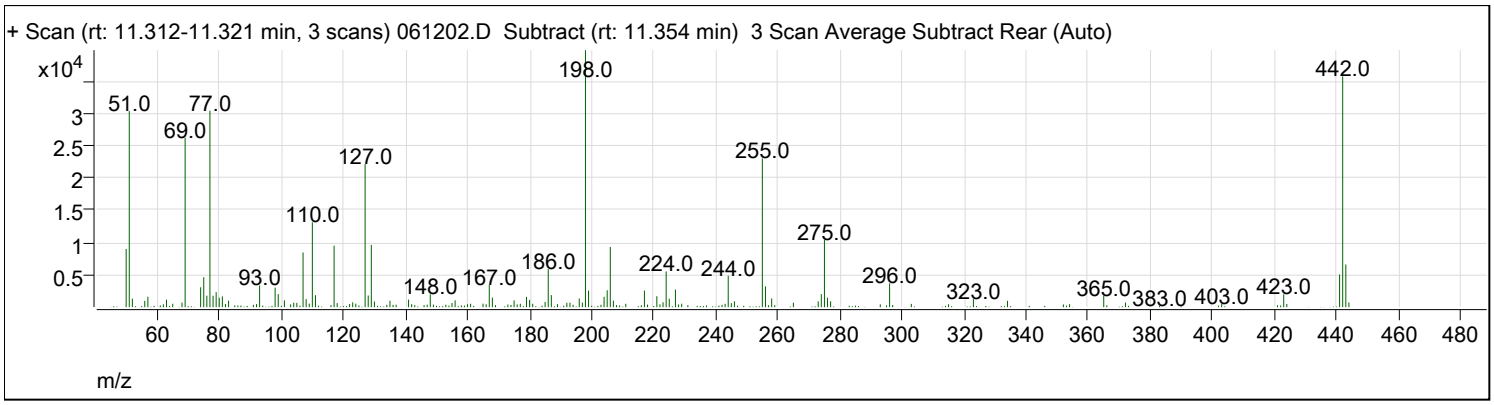


Compound Name	Expected RT	Observed RT	Tailing Factor	PGF	Pass/Fail
Pentachlorophenol	10.900	10.973	1.2	3.4	Pass
Benzidine	12.400	12.340	1.8	2.9	Pass

Tune Evaluation Report

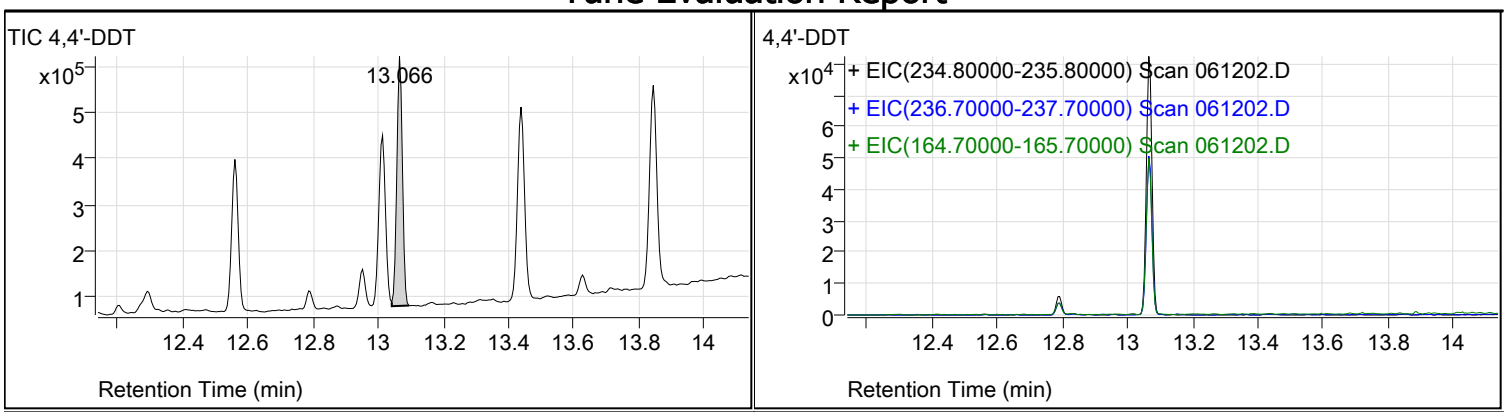
Data Path:	D:\GC-21\Data\061220\061202.D
Acq on:	6/12/2020 9:57:34 AM
Operator:	SNB
Sample:	TUNE
Inst Name:	GC-21
ALS Vial:	1
Method:	D:\MassHunter\Methods\Quant\DFTPPwBreak&TailingGC218270E.m

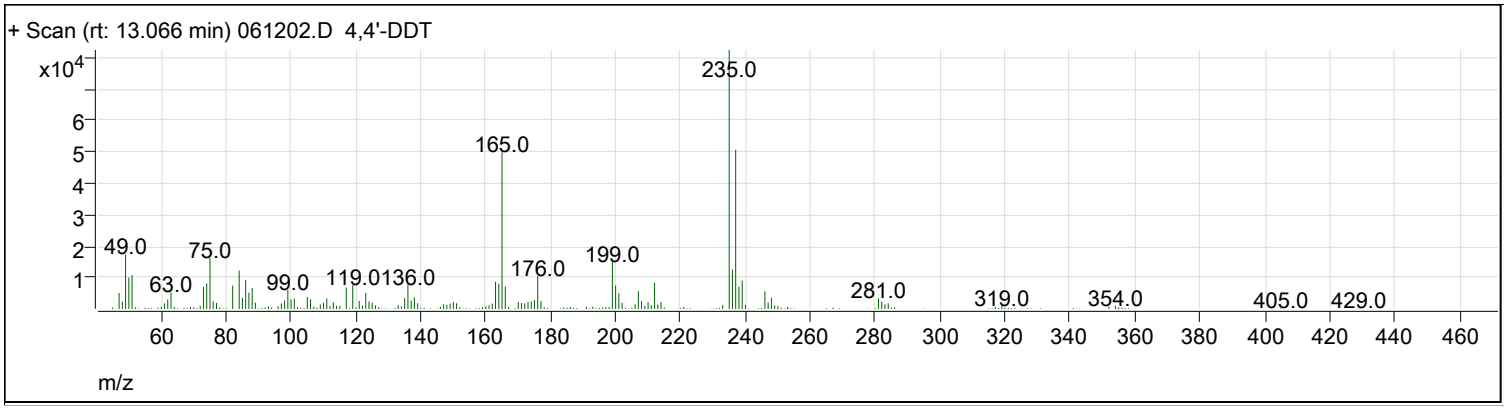


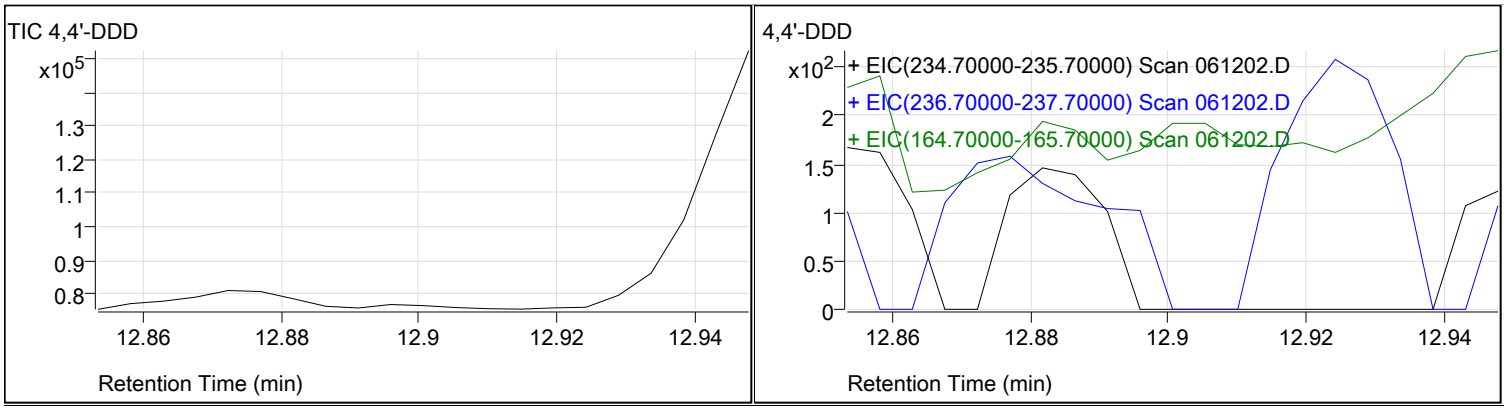


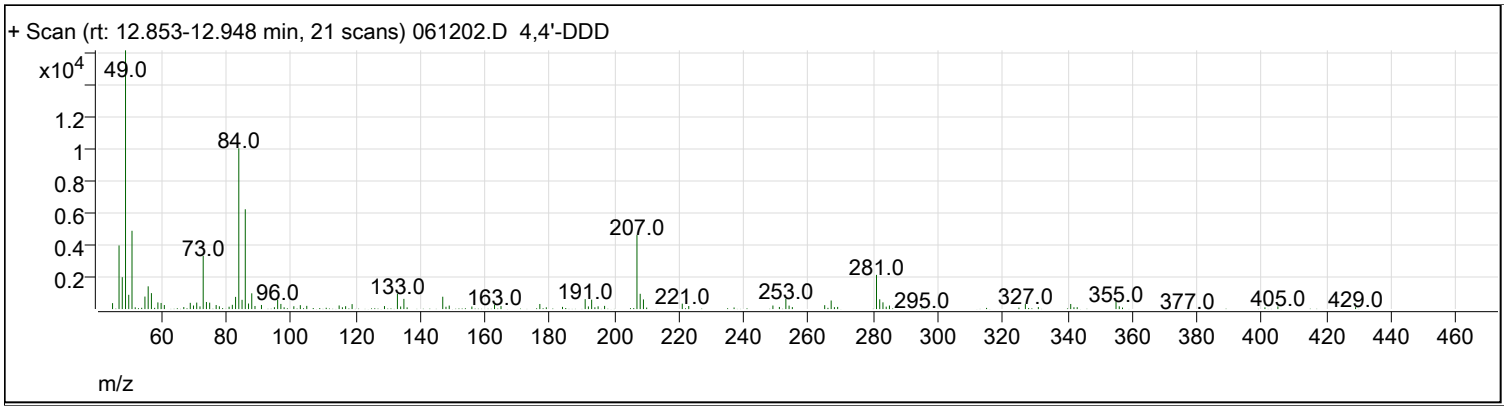
Target Mass	Rel. To Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Pass/Fail
68	69	0	2	2.7	713	Fail
70	69	0	2	0.6	154	Pass
197	198	0	2	1.8	708	Pass
198	198	100	100	100.0	39784	Pass
199	198	5	9	6.5	2569	Pass
365	198	1	100	4.5	1787	Pass
441	443	1E-10	150	76.6	5062	Pass
442	442	100	100	100.0	35723	Pass
443	442	15	24	18.5	6611	Pass
69	69	100	100	100.0	26213	Pass

Tune Evaluation Report



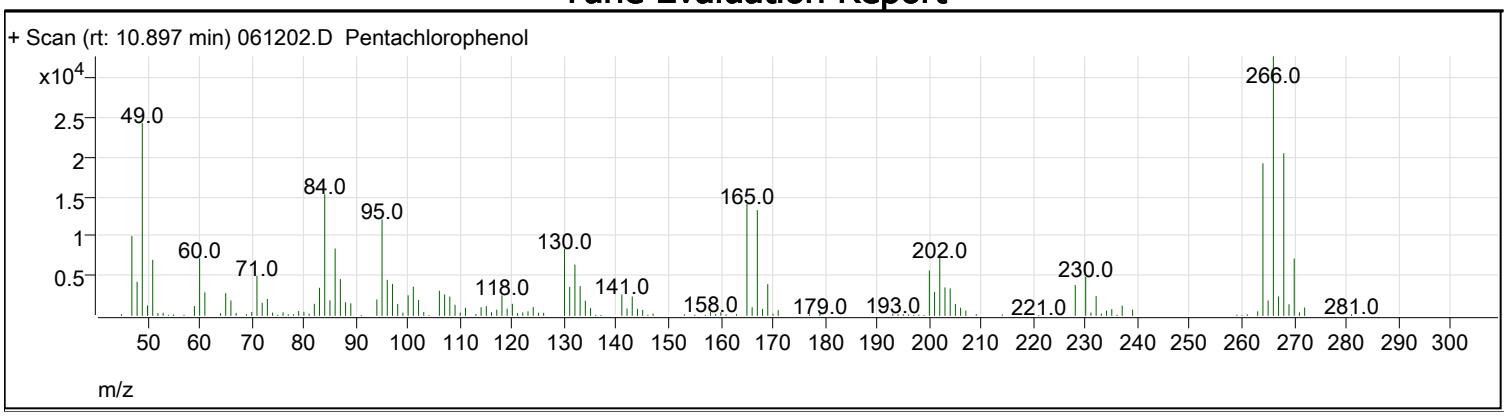


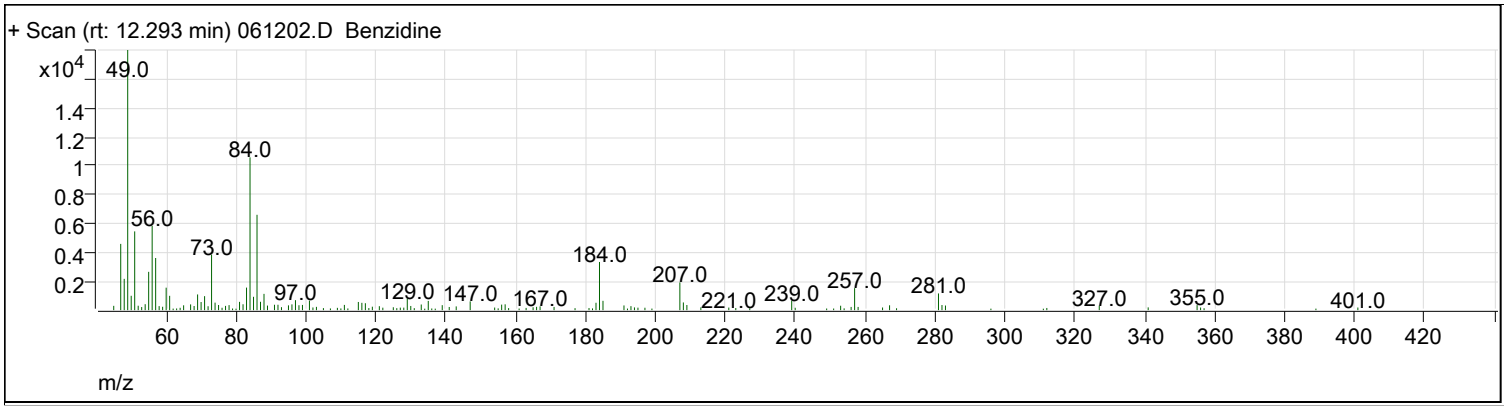




Compound Name	Expected RT	Observed RT	TIC Area	Breakdown %	Pass/Fail
4,4'-DDT	13.137	13.066	642047	0.0	Pass
4,4'-DDD	12.900	0.000	0		

Tune Evaluation Report

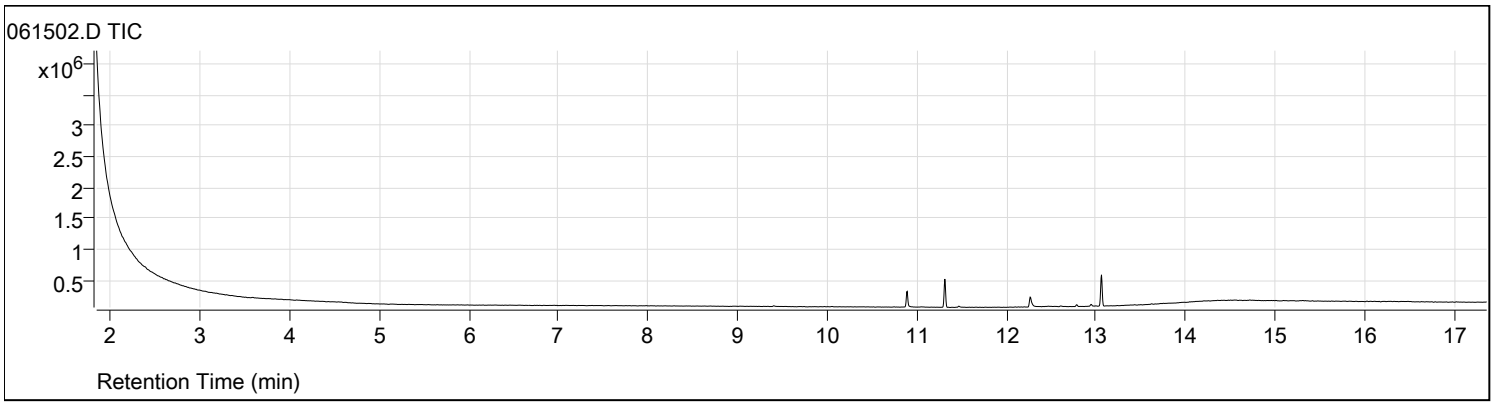


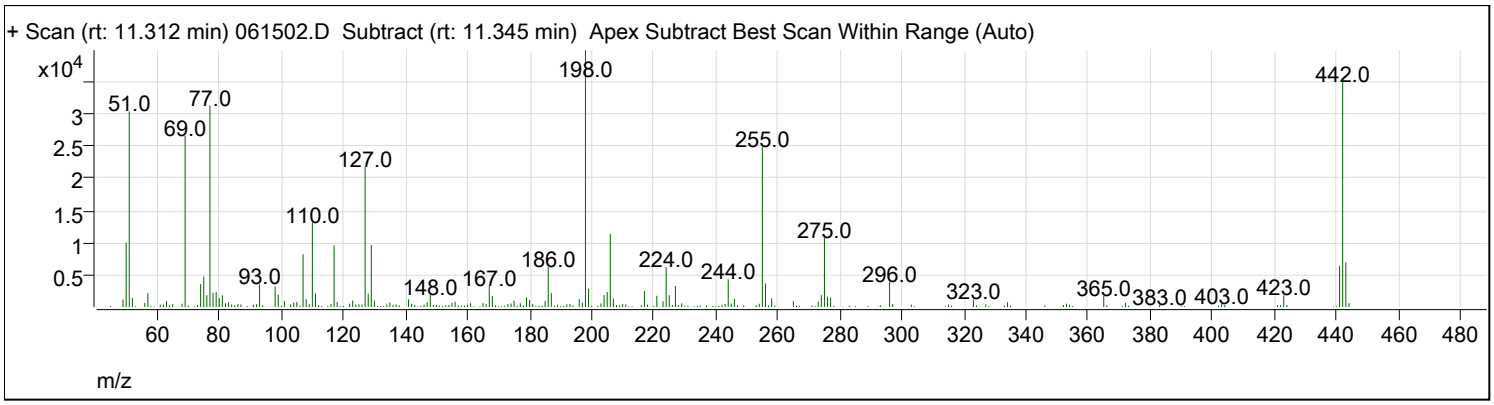


Compound Name	Expected RT	Observed RT	Tailing Factor	PGF	Pass/Fail
Pentachlorophenol	10.900	10.897	1.0	7.9	Pass
Benzidine	12.400	12.293	1.2	5.2	Pass

Tune Evaluation Report

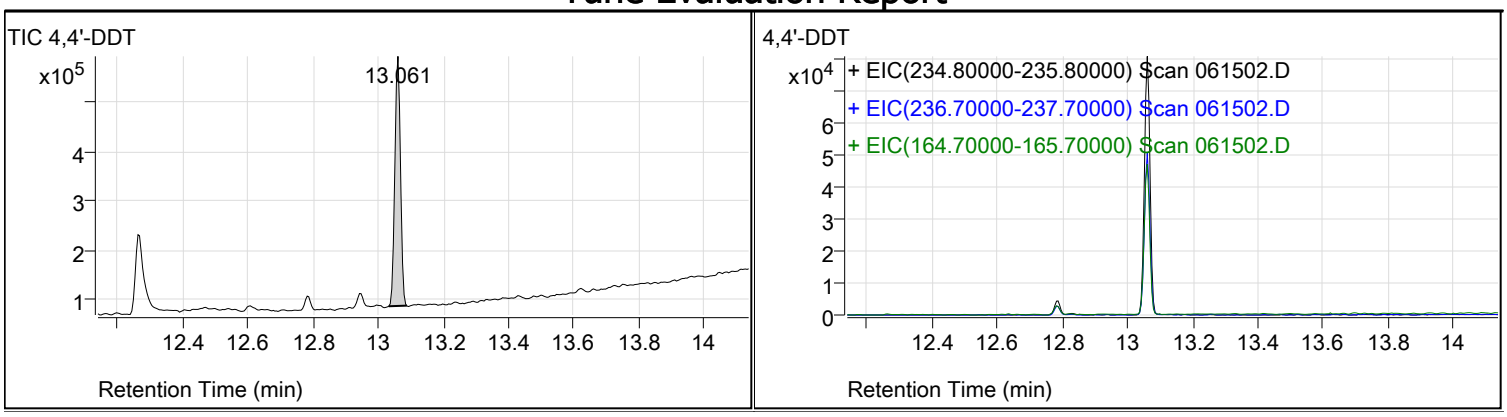
Data Path:	D:\GC-21\Data\061520\061502.D
Acq on:	6/15/2020 9:55:56 AM
Operator:	SNB
Sample:	TUNE
Inst Name:	GC-21
ALS Vial:	1
Method:	D:\MassHunter\Methods\Quant\DFTPPwBreak&TailingGC218270E.m

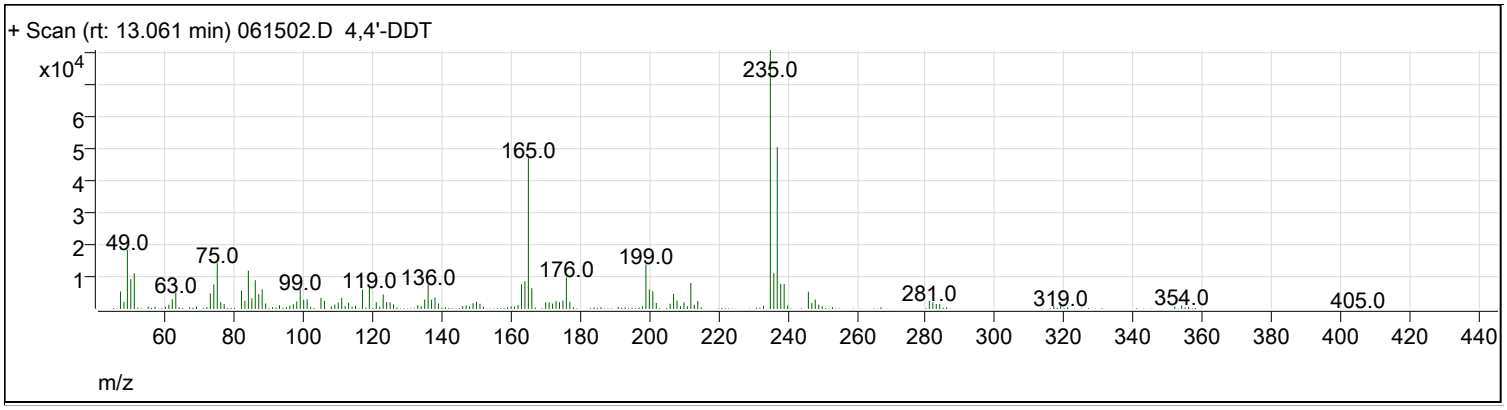


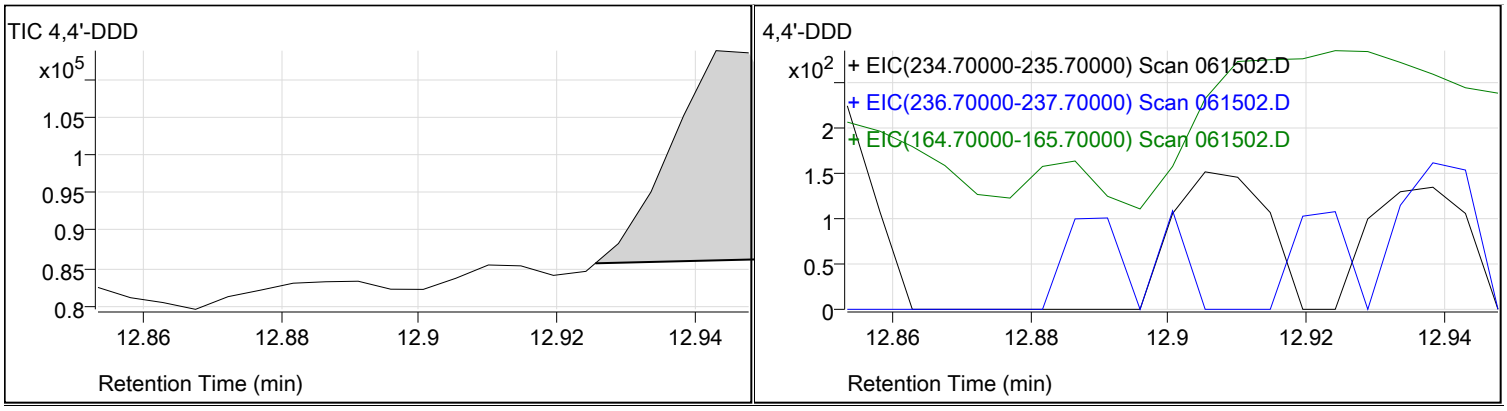


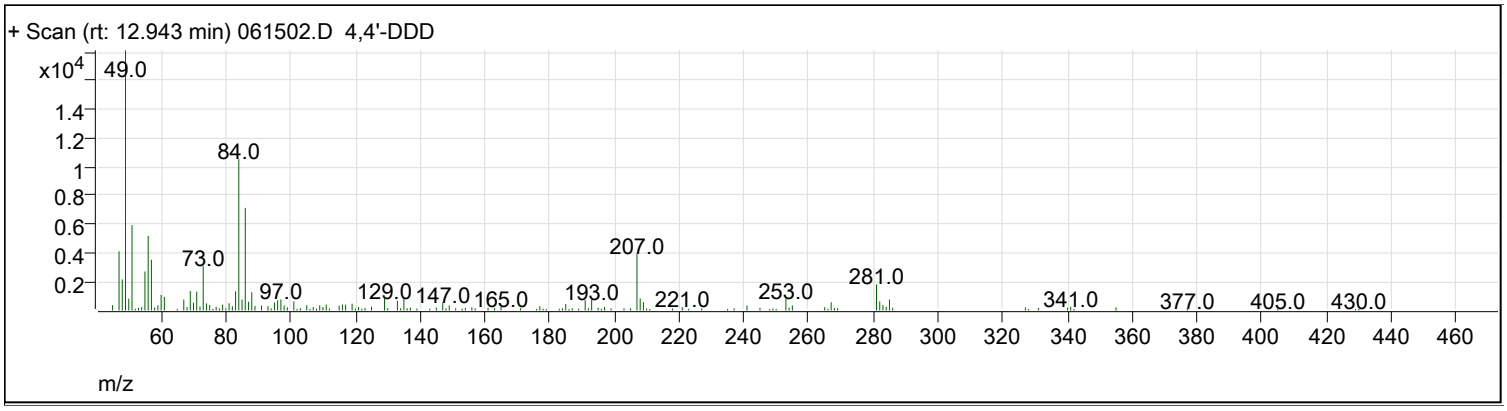
Target Mass	Rel. To Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Pass/Fail
68	69	0	2	1.9	510	Pass
70	69	0	2	0.9	228	Pass
197	198	0	2	1.8	704	Pass
198	198	100	100	100.0	39880	Pass
199	198	5	9	7.2	2855	Pass
365	198	1	100	4.3	1712	Pass
441	443	1E-10	150	92.3	6404	Pass
442	442	100	100	100.0	34888	Pass
443	442	15	24	19.9	6942	Pass
69	69	100	100	100.0	26598	Pass

Tune Evaluation Report



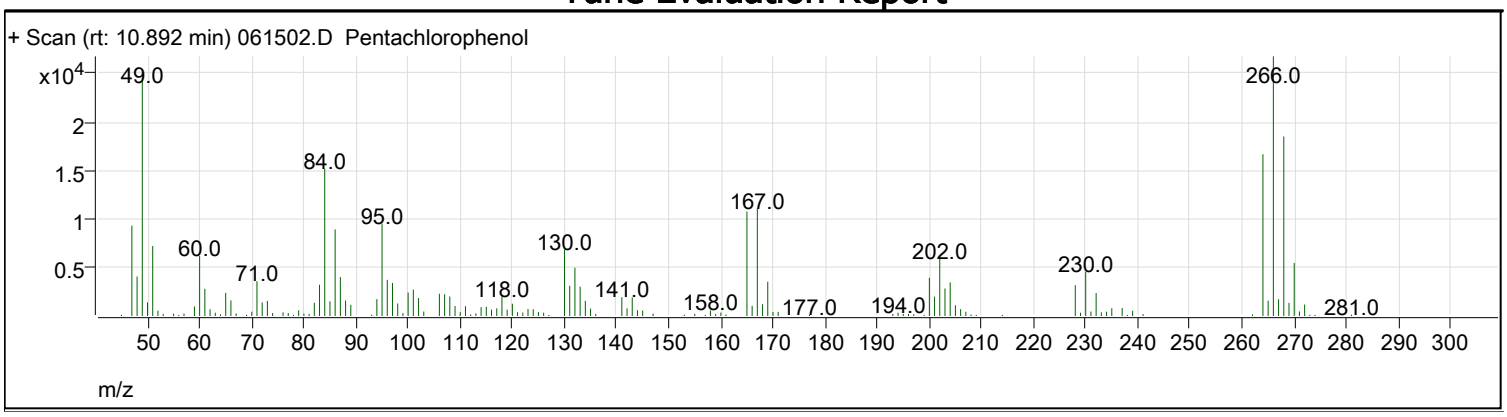


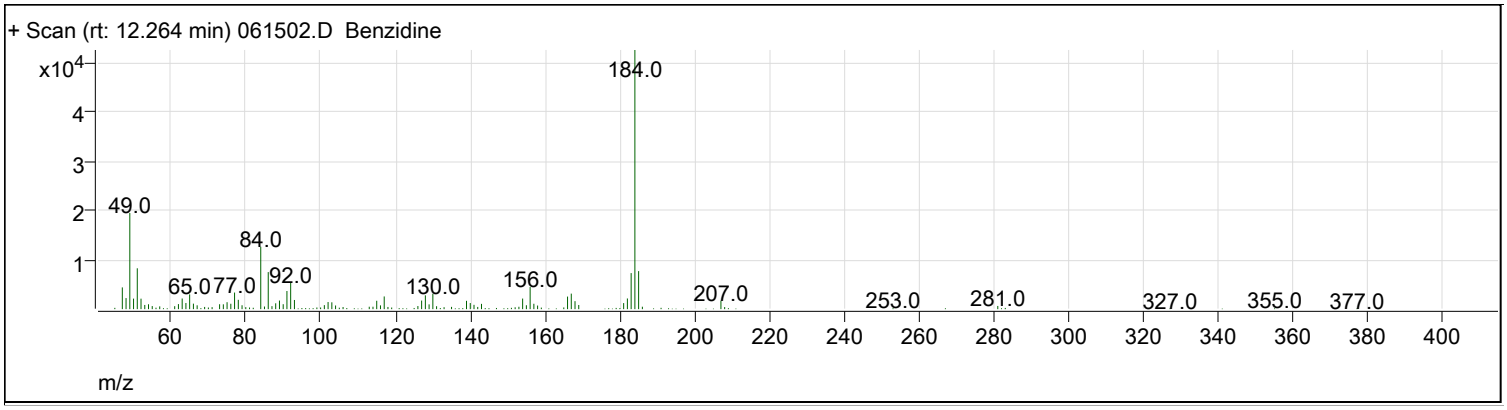




Compound Name	Expected RT	Observed RT	TIC Area	Breakdown %	Pass/Fail
4,4'-DDT	13.137	13.061	605045	5.3	Pass
4,4'-DDD	12.900	12.943	33942		

Tune Evaluation Report





Compound Name	Expected RT	Observed RT	Tailing Factor	PGF	Pass/Fail
Pentachlorophenol	10.900	10.892	1.0	5.5	Pass
Benzidine	12.400	12.264	2.6	4.1	Fail

DATA SET for Review -- Deliverable Requirements

Metals Analysis by EPA 200.8

Fremont Analytical Work Order No. 2006085

Libby Environmental

Project Name: Hardel Site

Project No. L200603-7

This Data contains the following:

- Analytical Sequence Summary for **Work Order 2006085**
- Calibration Information for **Work Order 2006085**
- Tune Information for **Work Order 2006085**

Dataset Report

User Name: lab
Computer Name: DT28
Dataset File Path: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\060820co\
Report Date/Time: Tuesday, June 09, 2020 10:27:26

The Dataset

Batch ID	Sample ID	Date and Time	Read Type	Samp. File Name	Description
	wash	08:48:24 Mon 08-J	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	wash	08:53:58 Mon 08-J	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	wash	08:59:34 Mon 08-J	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	wash	09:05:08 Mon 08-J	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	CAL BLK IS 22718	09:10:42 Mon 08-J	Blank	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	Standard 1	09:16:16 Mon 08-J	Standard #1	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	Standard 2	09:21:50 Mon 08-J	Standard #2	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	Standard 3	09:27:24 Mon 08-J	Standard #3	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	Standard 4	09:32:57 Mon 08-J	Standard #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	Standard 5	09:38:31 Mon 08-J	Standard #5	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	Standard 6	09:44:05 Mon 08-J	Standard #6	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	Standard 7	09:49:39 Mon 08-J	Standard #7	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	Standard 8	09:55:13 Mon 08-J	Standard #8	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	Standard 9	10:00:47 Mon 08-J	Standard #9	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	Standard 10	10:06:20 Mon 08-J	Standard #10	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	Standard 11	10:11:54 Mon 08-J	Standard #11	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	WASH	10:17:30 Mon 08-J	QC Std #1	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	ICB	10:23:04 Mon 08-J	QC Std #2	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	ICV LL	10:28:38 Mon 08-J	QC Std #3	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	ICV	10:35:17 Mon 08-J	QC Std #6	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	ICSA	10:59:25 Mon 08-J	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	ICSAB	11:04:58 Mon 08-J	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	wash	11:10:34 Mon 08-J	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	LCS-28562	11:16:08 Mon 08-J	Sample	C:\Users\Public\DocumLCS,M-6020-S	gistix\ICPMS\DataSet\June2020\0608
	2006001-002A 5X	11:21:42 Mon 08-J	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0608
	CCV	11:27:51 Mon 08-J	QC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	CCB	11:33:25 Mon 08-J	QC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	MB-28580	13:22:18 Mon 08-J	Sample	C:\Users\Public\DocumMBLK,M-200.8-T	gistix\ICPMS\DataSet\June2020\0608
	LCS-28580	13:27:52 Mon 08-J	Sample	C:\Users\Public\DocumLCS,M-200.8-T	gistix\ICPMS\DataSet\June2020\0608
	2006087-001C	13:33:26 Mon 08-J	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0608
	2006087-001CDUP	13:39:00 Mon 08-J	Sample	C:\Users\Public\DocumDUP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0608
	2006087-001CMS	13:44:34 Mon 08-J	Sample	C:\Users\Public\DocumMS,M-200.8-T	gistix\ICPMS\DataSet\June2020\0608
	2006087-001CMSD	13:50:08 Mon 08-J	Sample	C:\Users\Public\DocumMSD,M-200.8-T	gistix\ICPMS\DataSet\June2020\0608
	2006020-001A	13:55:42 Mon 08-J	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0608
	2006020-008A	14:01:15 Mon 08-J	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0608
	2006020-009A	14:06:49 Mon 08-J	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0608
	2006066-001A	14:12:23 Mon 08-J	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0608
	CCV	14:17:58 Mon 08-J	QC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	CCB	14:23:32 Mon 08-J	QC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	2006073-001D	14:31:57 Mon 08-J	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0608
	2006080-001A	14:37:31 Mon 08-J	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0608
	2006080-002A	14:43:05 Mon 08-J	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0608
	2006081-001A	14:48:38 Mon 08-J	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0608
	2006081-002A	14:54:12 Mon 08-J	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0608
	2006085-001B	14:59:46 Mon 08-J	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0608
	2006087-001CMS	15:05:20 Mon 08-J	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	2006085-002B	15:10:55 Mon 08-J	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0608
	2006085-003B	15:16:29 Mon 08-J	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0608
	CCV	15:22:04 Mon 08-J	QC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	
	CCV	15:31:22 Mon 08-J	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608	

CCB	15:36:56 Mon 08-JSample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608
2006085-004B	15:43:01 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0608
2006085-005B	15:48:35 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0608
2006085-006B	15:54:09 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0608
2006085-007B	15:59:43 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0608
2006091-001A	16:05:17 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0608
2006092-006A	16:10:51 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0608
2006080-001A 10X	16:16:25 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0608
2006080-002A 10X	16:21:59 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0608
CCV	16:27:33 Mon 08-JQC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608
CCB	16:33:07 Mon 08-JQC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608
MB-28579	16:38:59 Mon 08-JSample	C:\Users\Public\DocumMBLK,M-6020-S gistix\ICPMS\DataSet\June2020\0608
LCS-28579	16:44:33 Mon 08-JSample	C:\Users\Public\DocumLCS,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006047-001A	16:50:07 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006047-001ADUP	16:55:41 Mon 08-JSample	C:\Users\Public\DocumDUP,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006047-001ADIL	17:01:15 Mon 08-JSample	C:\Users\Public\DocumSD,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006047-001AMS	17:06:49 Mon 08-JSample	C:\Users\Public\DocumMS,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006047-001AMSD	17:11:40 Mon 08-JSample	C:\Users\Public\DocumMSD,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006047-001APDS	17:16:29 Mon 08-JSample	C:\Users\Public\DocumPDS,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006047-002A	17:21:18 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006047-003A	17:26:07 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0608
CCV	17:30:56 Mon 08-JQC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608
CCB	17:35:46 Mon 08-JQC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608
2006047-004A	17:40:36 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006047-005A	17:45:25 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006058-001A	17:50:14 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006058-002A	17:55:03 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006058-003A	17:59:51 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006058-004A	18:04:40 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006058-005A	18:09:29 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006058-006A	18:14:17 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006058-007A	18:19:06 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006058-008A	18:23:54 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0608
CCV	18:28:44 Mon 08-JQC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608
CCB	18:33:32 Mon 08-JQC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608
2006058-009A	18:38:22 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006058-010A	18:43:11 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006058-011A	18:47:59 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006058-012A	18:52:48 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006058-013A	18:57:36 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006058-014A	19:02:25 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0608
2006058-015A	19:07:13 Mon 08-JSample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0608
CCV	19:12:03 Mon 08-JQC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608
CCB	19:16:52 Mon 08-JQC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608
2%	19:21:41 Mon 08-JQC Std #7	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608
DI	19:26:30 Mon 08-JQC Std #8	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0608

Dataset Report

User Name: lab
Computer Name: DT28
Dataset File Path: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\060920CO\
Report Date/Time: Wednesday, June 10, 2020 08:00:13

The Dataset

Batch ID	Sample ID	Date and Time	Read Type	Samp. File Name	Description
	cone conditioning	08:57:26 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	cone conditioning	09:03:00 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	cone conditioning	09:08:34 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	cone conditioning	09:14:08 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	cone conditioning	09:19:42 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	hcl wash	09:25:18 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	hcl wash	09:30:51 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	wash	09:36:25 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	wash	09:41:59 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	CAL BLK IS 22718	09:47:33 Tue 09-Ju	Blank	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 1	09:53:07 Tue 09-Ju	Standard #1	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 2	09:58:40 Tue 09-Ju	Standard #2	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 3	10:04:14 Tue 09-Ju	Standard #3	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 4	10:09:47 Tue 09-Ju	Standard #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 5	10:15:21 Tue 09-Ju	Standard #5	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 6	10:20:54 Tue 09-Ju	Standard #6	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 7	10:26:27 Tue 09-Ju	Standard #7	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 8	10:32:01 Tue 09-Ju	Standard #8	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 9	10:37:34 Tue 09-Ju	Standard #9	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 10	10:43:07 Tue 09-Ju	Standard #10	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 11	10:48:41 Tue 09-Ju	Standard #11	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	WASH	10:54:16 Tue 09-Ju	QC Std #1	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	ICB	10:59:49 Tue 09-Ju	QC Std #2	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	ICV LL	11:05:24 Tue 09-Ju	QC Std #3	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	ICV	11:11:08 Tue 09-Ju	QC Std #6	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	ICSA	11:31:12 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	ICSAB	11:36:46 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	wash	11:42:20 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	2006047-001A 10X	12:15:14 Tue 09-Ju	Sample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0609	
	2006047-002A 10X	12:20:46 Tue 09-Ju	Sample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0609	
	2006047-003A 100X	12:26:20 Tue 09-Ju	Sample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0609	
	2006047-004A 10X	12:31:54 Tue 09-Ju	Sample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0609	
	2006058-005A 10X	12:37:27 Tue 09-Ju	Sample	C:\Users\Public\DocumSAMP,M-6020-S gistix\ICPMS\DataSet\June2020\0609	
	2006087-001CMS	12:43:00 Tue 09-Ju	Sample	C:\Users\Public\DocumMS,M-200.8-T gistix\ICPMS\DataSet\June2020\0609	
	2006085-002B	12:48:34 Tue 09-Ju	Sample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0609	
	CCV	12:54:08 Tue 09-Ju	QC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	CCB	13:01:50 Tue 09-Ju	QC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	MB1-28596	13:20:16 Tue 09-Ju	Sample	C:\Users\Public\DocumMBLK,M-TCLP gistix\ICPMS\DataSet\June2020\0609	
	LCS-28596	13:25:50 Tue 09-Ju	Sample	C:\Users\Public\DocumLCS,M-TCLP gistix\ICPMS\DataSet\June2020\0609	
	2006095-001A	13:31:24 Tue 09-Ju	Sample	C:\Users\Public\DocumSAMP,M-TCLP gistix\ICPMS\DataSet\June2020\0609	
	2006095-001ADUP	13:36:57 Tue 09-Ju	Sample	C:\Users\Public\DocumDUP,M-TCLP gistix\ICPMS\DataSet\June2020\0609	
	2006095-001AMS	13:42:31 Tue 09-Ju	Sample	C:\Users\Public\DocumMS,M-TCLP gistix\ICPMS\DataSet\June2020\0609	
	2006095-001AMSD	13:48:04 Tue 09-Ju	Sample	C:\Users\Public\DocumMSD,M-TCLP gistix\ICPMS\DataSet\June2020\0609	
	2006103-001A	13:53:38 Tue 09-Ju	Sample	C:\Users\Public\DocumSAMP,M-TCLP gistix\ICPMS\DataSet\June2020\0609	
	MB2-28596	13:59:11 Tue 09-Ju	Sample	C:\Users\Public\DocumMBLK,M-TCLP gistix\ICPMS\DataSet\June2020\0609	
	2006061-001C	14:04:45 Tue 09-Ju	Sample	C:\Users\Public\DocumSAMP,M-TCLP gistix\ICPMS\DataSet\June2020\0609	
	&SampID	14:10:18 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	CCV	14:15:52 Tue 09-Ju	QC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	CCB	14:22:05 Tue 09-Ju	QC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	MB-28586	14:37:40 Tue 09-Ju	Sample	C:\Users\Public\DocumMBLK,M-6020-S gistix\ICPMS\DataSet\June2020\0609	

LCS-28586	14:43:13 Tue 09-JıSample	C:\Users\Public\DocumLCS,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006058-016A	14:48:47 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006058-016ADUP	14:54:20 Tue 09-JıSample	C:\Users\Public\DocumDUP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006058-016ADIL	14:59:54 Tue 09-JıSample	C:\Users\Public\DocumSD,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006058-016AMS	15:05:28 Tue 09-JıSample	C:\Users\Public\DocumMS,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006058-016AMSD	15:11:02 Tue 09-JıSample	C:\Users\Public\DocumMSD,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006058-016APDS	15:16:36 Tue 09-JıSample	C:\Users\Public\DocumPDS,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006058-017A	15:22:10 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006062-002A	15:27:43 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
CCV	15:33:18 Tue 09-JıQC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
CCB	15:39:12 Tue 09-JıQC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
2006064-001A	15:44:46 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006064-004A	15:50:20 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006064-007A	15:55:54 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006064-010A	16:01:28 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006064-013A	16:07:02 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006064-016A	16:12:36 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006064-019A	16:18:10 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006064-022A	16:23:44 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006064-025A	16:29:17 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006064-028A	16:34:51 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
CCV	16:40:25 Tue 09-JıQC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
CCB	16:49:24 Tue 09-JıQC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
2006064-031A	17:19:12 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006064-034A	17:24:47 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006075-001A 10X	17:30:21 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006075-002A 10X	17:35:55 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006075-003A 10X	17:41:29 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006085-008A	17:47:03 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006085-009A	17:52:36 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
&SampID	17:58:11 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
MB-28597	18:03:46 Tue 09-JıSample	C:\Users\Public\DocumMBLK,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
LCS-28597	18:09:20 Tue 09-JıSample	C:\Users\Public\DocumLCS,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
CCV	18:14:55 Tue 09-JıQC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
CCB	18:20:29 Tue 09-JıQC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
2006062-002A 10X	18:26:04 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006119-001D	18:31:38 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006119-001DDUP	18:37:12 Tue 09-JıSample	C:\Users\Public\DocumDUP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006119-001DMS	18:42:46 Tue 09-JıSample	C:\Users\Public\DocumMS,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006119-001DMSD	18:48:20 Tue 09-JıSample	C:\Users\Public\DocumMSD,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006124-001D	18:53:54 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006124-002D	18:59:28 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006124-003D	19:05:02 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006090-001A	19:10:36 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006094-001E	19:16:10 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
CCV	19:21:45 Tue 09-JıQC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
CCB	19:27:19 Tue 09-JıQC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
2006098-001A	19:32:54 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006100-001A	19:38:28 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006101-001A	19:44:02 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006101-002A	19:49:36 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006107-001E	19:55:09 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006109-001A	20:00:43 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006109-002A	20:06:18 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006109-003A	20:11:52 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006109-004A	20:17:26 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006109-005A	20:22:59 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
CCV	20:28:34 Tue 09-JıQC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
CCB	20:34:08 Tue 09-JıQC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
2006111-001C	20:39:43 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609

2006121-001E	20:45:17 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
&SampID	20:50:52 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
MB-28598	20:56:26 Tue 09-JıSample	C:\Users\Public\DocumMBLK,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
LCS-28598	21:02:00 Tue 09-JıSample	C:\Users\Public\DocumLCS,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
2006070-001A	21:07:34 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
2006070-001ADUP	21:13:08 Tue 09-JıSample	C:\Users\Public\DocumDUP,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
2006070-001AMS	21:18:42 Tue 09-JıSample	C:\Users\Public\DocumMS,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
2006070-001AMSD	21:24:16 Tue 09-JıSample	C:\Users\Public\DocumMSD,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
2006114-001A	21:29:50 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
CCV	21:35:25 Tue 09-JıQC Std #4	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
CCB	21:40:59 Tue 09-JıQC Std #5	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
2006114-002A	21:46:34 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
2006120-001A	21:52:08 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
2006120-002A	21:57:42 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
2006126-001A	22:03:16 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
2006126-002A	22:08:50 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
2005353-003B	22:14:25 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
CCV	22:19:59 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
CCB	22:25:33 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
hcl wash	22:31:07 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
hcl wash	22:36:41 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
CCV	22:42:15 Tue 09-JıQC Std #4	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
CCB	22:47:49 Tue 09-JıQC Std #5	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
wash	22:53:23 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
wash	22:58:57 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
CAL BLK	23:04:30 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 1	23:10:04 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 2	23:15:38 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 3	23:21:11 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 4	23:26:45 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 5	23:32:18 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 6	23:37:52 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 7	23:43:25 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 8	23:48:59 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 9	23:54:32 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 10	00:00:06 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 11	00:05:39 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
WASH	00:11:14 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
ICB	00:16:47 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
ICV LL	00:22:22 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
ICV LL	00:27:56 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
ICV	00:33:30 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
ICV	00:39:04 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
wash	00:44:38 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
WASH	00:50:12 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
MB-28580	00:55:46 Wed 10-ıSample	C:\Users\Public\DocumMBLK,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
MB-28535	01:01:20 Wed 10-ıSample	C:\Users\Public\DocumMBLK,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
MB-28482	01:06:53 Wed 10-ıSample	C:\Users\Public\DocumMBLK,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
MB-28513	01:12:27 Wed 10-ıSample	C:\Users\Public\DocumMBLK,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
MB-28586	01:18:00 Wed 10-ıSample	C:\Users\Public\DocumMBLK,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
MB-28579	01:23:34 Wed 10-ıSample	C:\Users\Public\DocumMBLK,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
MB-28563	01:29:07 Wed 10-ıSample	C:\Users\Public\DocumMBLK,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
MB-28562	01:34:41 Wed 10-ıSample	C:\Users\Public\DocumMBLK,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
CCV	01:40:15 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
CCB	01:45:49 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
WASH	01:51:23 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
LOQ 1	01:56:57 Wed 10-ıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
LOQ 2	02:02:31 Wed 10-ıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
LOQ 3	02:08:04 Wed 10-ıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
LOQ 4	02:13:38 Wed 10-ıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609

wash	02:19:12 Wed 10-Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609
wash	02:24:46 Wed 10-Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609
LOQ 1	02:30:20 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0609
LOQ 2	02:35:54 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0609
LOQ 3	02:41:27 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0609
CCV	02:47:02 Wed 10-Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609
CCB	02:52:36 Wed 10-Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609
2%	02:58:09 Wed 10-QC Std #7	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609
DI	03:03:43 Wed 10-QC Std #8	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609

Calibration

18.1 Table 1: Calibration Standards

Element	Calibration Standard ug/L						
	Cal 1	**Cal 2**	**Cal 3**	**Cal 4**	**Cal 5**	**Cal 6**	**Cal 7**
Antimony	0.025	0.05	0.25	1.25	5.0	10.0	25.0
Arsenic	0.5	1.0	5.0	25.0	100.0	200.	500
Barium	0.5	1.0	5.0	25.0	100.0	200.	500
Beryllium	0.025	0.05	0.25	1.25	5.0	10.0	25.0
Cadmium	0.025	0.05	0.25	1.25	5.0	10.0	25.0
Chromium	0.5	1.0	5.0	25.0	100.0	200.0	500
Cobalt	0.5	1.0	5.0	25.0	100.0	200.0	500
Copper	0.5	1.0	5.0	25.0	100.0	200.0	500
Lead	0.25	0.5	2.5	12.5	50	100	250
Manganese	0.5	1.0	5.0	25.0	100.0	200.0	500
Molybdenum	0.5	1.0	5.0	25.0	100.0	200.0	500
Nickel	0.5	1.0	5.0	25.0	100.0	200.0	500
Selenium	0.05	0.1	0.5	2.5	10.0	20.0	50.0
Silver	0.025	0.05	0.25	1.25	5.0	10.0	25
Strontium	0.5	1.0	5.0	25.0	100.0	200.0	500
Thallium	0.0125	0.025	0.125	0.625	2.5	5.0	12.5
Tin	0.5	1.0	5.0	25.0	100.0	200.0	500
Titanium	0.5	1.0	5.0	25.0	100.0	200.0	500
Uranium	0.25	0.5	2.5	12.5	50	100	250
Vanadium	0.5	1.0	5.0	25.0	100.0	200.	500
Zinc	0.5	1.0	5.0	25.0	100.0	200.	500
Aluminum						50	100
Boron						25	50
Calcium						50	100
Iron						50	100
Magnesium						50	100
Phosphorous						50	100
Potassium						50	100
Sodium						50	100

Element					
		Cal 8	**Cal 9**	**Cal 10**	**Cal 11**
Aluminum	Al	500	1000	2500	5000
Boron	B	250	500	1250	2500
Calcium	Ca	500	1000	2500	5000
Iron	Fe	500	1000	2500	5000
Magnesium	Mg	500	1000	2500	5000
Phosphorous	P	500	1000	2500	5000
Potassium	K	500	1000	2500	5000
Sodium	Na	500	1000	2500	5000
Mercury	Hg	500	1000	2500	5000

Signature

Quantitative Analysis Calibration Report

File Name: 060820CO.cal
File Path: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\System\060820CO.cal
Calibration Type: External Calibration

Analyte	Mass	Curve Type	Slope	Intercept	Corr. Coeff.
Li	6.015	Linear Thru Zero	0.00	0.00	0.000000
Be	9.012	Linear Thru Zero	0.04	0.00	0.999967
B	11.009	Linear Thru Zero	0.05	0.00	0.999647
Na	22.990	Weighted Linear	0.00	0.00	0.998865
Mg	24.986	Weighted Linear	0.02	0.01	0.999641
Al	26.982	Linear Thru Zero	0.00	0.00	0.999834
K	38.964	Linear Thru Zero	0.00	0.00	0.999960
Fe	56.935	Linear Thru Zero	0.00	0.00	0.999827
Ca	43.956	Linear Thru Zero	0.01	0.00	0.999646
P	30.994	Linear Thru Zero	0.01	0.00	0.999256
Sc-5	44.956	Linear Thru Zero	0.00	0.00	0.000000
Ti	46.952	Linear Thru Zero	0.01	0.00	0.999932
V	50.944	Weighted Linear	0.13	-0.10	0.999989
Mn	54.938	Linear Thru Zero	0.16	0.00	0.999862
Be-2	9.012	Linear Thru Zero	0.03	0.00	0.999956
Co	58.933	Linear Thru Zero	0.12	0.00	0.999998
Ni	59.933	Linear Thru Zero	0.03	0.00	0.999920
Cr-1	51.941	Linear Thru Zero	0.11	0.00	0.999941
Cu	62.930	Linear Thru Zero	0.06	0.00	0.999992
Cu-2	64.928	Linear Thru Zero	0.03	0.00	0.999980
Zn	65.926	Linear Thru Zero	0.01	0.00	0.999900
As	74.922	Linear Thru Zero	0.01	0.00	0.999960
Se	81.917	Linear Thru Zero	0.00	0.00	0.999716
Kr	82.914	Linear Thru Zero	0.00	0.00	0.000000
Sr	87.906	Linear Thru Zero	0.18	0.00	0.999994
Mo	96.906	Linear Thru Zero	0.01	0.00	0.999919
Rh-3	102.905	Linear Thru Zero	0.00	0.00	0.000000
Ag	106.905	Linear Thru Zero	0.05	0.00	0.999919
Sb-1	120.904	Linear Thru Zero	0.05	0.00	0.999999
Ag-2	108.905	Linear Thru Zero	0.06	0.00	0.999909
Cd	110.904	Linear Thru Zero	0.02	0.00	0.999952
Sn	117.902	Linear Thru Zero	0.06	0.00	0.999998
In	114.904	Linear Thru Zero	0.00	0.00	0.000000
Sb	120.904	Weighted Linear	0.03	0.00	0.999530
Sb-1	122.904	Linear Thru Zero	0.02	0.00	0.999920
Ba	136.904	Linear Thru Zero	0.02	0.00	0.999950
Tb	158.925	Linear Thru Zero	0.00	0.00	0.000000
Ho	164.930	Linear Thru Zero	0.00	0.00	0.000000
Tl	204.975	Linear Thru Zero	0.10	0.00	0.999909
Pb	207.977	Weighted Linear	0.13	0.00	0.999298
U	238.050	Linear Thru Zero	0.13	0.00	0.999976
Li-1	6.015	Linear Thru Zero	0.00	0.00	0.000000
Be-1	9.012	Linear Thru Zero	0.04	0.00	0.999125
B-1	11.009	Linear Thru Zero	0.01	0.00	0.999590
Se-2	77.917	Linear Thru Zero	0.00	0.00	0.999579
Sb-3	120.904	Simple Linear	0.02	0.00	0.999987
Mo-1	97.906	Linear Thru Zero	0.03	0.00	0.999988
Rh-1	102.905	Linear Thru Zero	0.00	0.00	0.000000
Ag-1	106.905	Simple Linear	0.07	-0.00	0.999999
Na-1	22.990	Weighted Linear	0.01	0.01	0.999142
Ca-1	43.956	Linear Thru Zero	0.00	0.00	0.998986
Mg-1	23.985	Weighted Linear	0.00	0.00	0.998141
Al-1	26.982	Weighted Linear	0.00	-0.00	0.998101
Ba-1	137.905	Linear Thru Zero	0.04	0.00	0.999993
Cd-1	110.904	Linear Thru Zero	0.01	0.00	0.999954

K-1	38.964	Weighted Linear	0.00	-0.00	0.998268
Sc-6	44.956	Linear Thru Zero	0.00	0.00	0.000000
V-1	50.944	Linear Thru Zero	0.01	0.00	0.999979
Cr-2	51.941	Linear Thru Zero	0.02	0.00	0.999986
Fe-1	56.935	Weighted Linear	0.00	-0.00	0.999247
Ni-1	59.933	Linear Thru Zero	0.02	0.00	0.999992
Cu-1	62.930	Linear Thru Zero	0.04	0.00	0.999919
Zn-2	65.926	Linear Thru Zero	0.00	0.00	0.999867
As-3	74.922	Linear Thru Zero	0.00	0.00	0.999907
Rh-2	102.905	Linear Thru Zero	0.00	0.00	0.000000
In-1	114.904	Linear Thru Zero	0.00	0.00	0.000000
Tb-1	158.925	Linear Thru Zero	0.00	0.00	0.000000
Ho-1	164.930	Linear Thru Zero	0.00	0.00	0.000000
Pb-1	207.977	Linear Thru Zero	0.17	0.00	0.999999

Quantitative Analysis Calibration Report

File Name: 060920CO.cal
File Path: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\System\060920CO.cal
Calibration Type: External Calibration

Analyte	Mass	Curve Type	Slope	Intercept	Corr. Coeff.
Li	6.015	Linear Thru Zero	0.00	0.00	0.000000
Be	9.012	Linear Thru Zero	0.04	0.00	0.999903
B	11.009	Linear Thru Zero	0.05	0.00	0.999787
Na	22.990	Weighted Linear	0.00	0.01	0.999076
Mg	24.986	Weighted Linear	0.02	0.00	0.999762
Al	26.982	Weighted Linear	0.00	0.00	0.999742
K	38.964	Weighted Linear	0.00	0.00	0.999783
Fe	56.935	Weighted Linear	0.00	-0.00	0.999699
Ca	43.956	Linear Thru Zero	0.01	0.00	0.998525
P	30.994	Linear Thru Zero	0.01	0.00	0.999623
Sc-5	44.956	Linear Thru Zero	0.00	0.00	0.000000
Ti	46.952	Linear Thru Zero	0.01	0.00	0.999987
V	50.944	Weighted Linear	0.12	-0.00	0.999952
Mn	54.938	Linear Thru Zero	0.14	0.00	0.999993
Be-2	9.012	Linear Thru Zero	0.03	0.00	0.999924
Co	58.933	Linear Thru Zero	0.11	0.00	0.999973
Ni	59.933	Weighted Linear	0.03	0.00	0.998302
Cr-1	51.941	Linear Thru Zero	0.10	0.00	0.999981
Cu	62.930	Weighted Linear	0.06	0.00	0.999064
Cu-2	64.928	Weighted Linear	0.03	-0.00	0.998882
Zn	65.926	Weighted Linear	0.01	-0.01	0.999837
As	74.922	Linear Thru Zero	0.01	0.00	0.999980
Se	81.917	Linear Thru Zero	0.00	0.00	0.999772
Kr	82.914	Linear Thru Zero	0.00	0.00	0.000000
Sr	87.906	Linear Thru Zero	0.17	0.00	0.999990
Mo	96.906	Linear Thru Zero	0.01	0.00	0.999933
Rh-3	102.905	Linear Thru Zero	0.00	0.00	0.000000
Ag	106.905	Weighted Linear	0.06	-0.00	0.998301
Sb-1	120.904	Linear Thru Zero	0.05	0.00	0.999977
Ag-2	108.905	Linear Thru Zero	0.07	0.00	0.999712
Cd	110.904	Linear Thru Zero	0.02	0.00	0.999966
Sn	117.902	Linear Thru Zero	0.06	0.00	0.999943
In	114.904	Linear Thru Zero	0.00	0.00	0.000000
Sb	120.904	Simple Linear	0.04	0.00	0.999933
Sb-1	122.904	Linear Thru Zero	0.03	0.00	0.999658
Ba	136.904	Weighted Linear	0.02	0.00	0.998702
Tb	158.925	Linear Thru Zero	0.00	0.00	0.000000
Ho	164.930	Linear Thru Zero	0.00	0.00	0.000000
Tl	204.975	Linear Thru Zero	0.12	0.00	0.999634
Pb	207.977	Linear Thru Zero	0.16	0.00	0.999976
U	238.050	Weighted Linear	0.15	0.00	0.998286
Li-1	6.015	Linear Thru Zero	0.00	0.00	0.000000
Be-1	9.012	Linear Thru Zero	0.04	0.00	0.999348
B-1	11.009	Linear Thru Zero	0.01	0.00	0.999956
Se-2	77.917	Simple Linear	0.00	0.00	0.999976
Sb-3	120.904	Weighted Linear	0.01	0.00	0.999867
Mo-1	97.906	Linear Thru Zero	0.03	0.00	0.999979
Rh-1	102.905	Linear Thru Zero	0.00	0.00	0.000000
Ag-1	106.905	Weighted Linear	0.07	-0.00	0.999352
Na-1	22.990	Linear Thru Zero	0.00	0.00	0.999723
Ca-1	43.956	Linear Thru Zero	0.00	0.00	0.999729
Mg-1	23.985	Linear Thru Zero	0.00	0.00	0.999647
Al-1	26.982	Linear Thru Zero	0.00	0.00	0.999340
Ba-1	137.905	Simple Linear	0.03	0.00	0.999996
Cd-1	110.904	Weighted Linear	0.01	0.00	0.999953

K-1	38.964	Linear Thru Zero	0.00	0.00	0.999346
Sc-6	44.956	Linear Thru Zero	0.00	0.00	0.000000
V-1	50.944	Linear Thru Zero	0.01	0.00	0.999991
Cr-2	51.941	Linear Thru Zero	0.02	0.00	0.999986
Fe-1	56.935	Linear Thru Zero	0.00	0.00	0.999738
Ni-1	59.933	Linear Thru Zero	0.02	0.00	0.999976
Cu-1	62.930	Linear Thru Zero	0.04	0.00	0.999981
Zn-2	65.926	Simple Linear	0.00	-0.00	0.999953
As-3	74.922	Linear Thru Zero	0.00	0.00	0.999965
Rh-2	102.905	Linear Thru Zero	0.00	0.00	0.000000
In-1	114.904	Linear Thru Zero	0.00	0.00	0.000000
Tb-1	158.925	Linear Thru Zero	0.00	0.00	0.000000
Ho-1	164.930	Linear Thru Zero	0.00	0.00	0.000000
Pb-1	207.977	Linear Thru Zero	0.19	0.00	0.999998

Tunes

SmartTune Wizard - Summary

Optimization Summary

SmartTune file: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Wizard\SmartTune\FA_SmartTune Daily.swz

Start Time: 6/8/2020 8:36:55 AM
End Time: 6/8/2020 8:39:15 AM

Lab Performance Check - [Passed] Optimum value(s): N/A
Obtained Intensity (Be 9): 10974.28
Obtained Intensity (Mg 24): 50865.27
Obtained Intensity (In 115): 95901.72
Obtained Intensity (U 238): 71459.91
Obtained Intensity (Bkgd 220): 0.63
Obtained Formula (CeO 156 / Ce 140): 0.020 (=1475.94 / 74970.96)
Obtained Formula (Ce++ 70 / Ce 140): 0.025 (=1879.39 / 74970.96)
Obtained RSD (Be 9): 0.0156
Obtained RSD (Mg 24): 0.0112
Obtained RSD (In 115): 0.0107
Obtained RSD (U 238): 0.0139

SmartTune Wizard - Details

Optimization Details

SmartTune file: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Wizard\SmartTune\FA_SmartTune Daily.swz

Optimization Status

Start Time: 6/8/2020 8:36:55 AM

Lab Performance Check

Optimization Settings:

Method: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Method\FA_Daily Performance.mth.
Intensity Criterion: Be 9 > 2000
Intensity Criterion: Mg 24 > 15000
Intensity Criterion: In 115 > 40000
Intensity Criterion: U 238 > 30000
Intensity Criterion: Bkgd 220 <= 5
Formula Criterion: CeO 156 / Ce 140 <= 0.03
Formula Criterion: Ce++ 70 / Ce 140 <= 0.05
RSD Criterion: Be 9.0122 < 0.05
RSD Criterion: Mg 23.985 < 0.05
RSD Criterion: In 114.904 < 0.05
RSD Criterion: U 238.05 < 0.05

Optimization Results:

Initial Try

Obtained Intensity (Be 9): 10974.28
Obtained Intensity (Mg 24): 50865.27
Obtained Intensity (In 115): 95901.72
Obtained Intensity (U 238): 71459.91
Obtained Intensity (Bkgd 220): 0.63
Obtained Formula (CeO 156 / Ce 140): 0.020 (=1475.94 / 74970.96)
Obtained Formula (Ce++ 70 / Ce 140): 0.025 (=1879.39 / 74970.96)
Obtained RSD (Be 9): 0.0156
Obtained RSD (Mg 24): 0.0112
Obtained RSD (In 115): 0.0107
Obtained RSD (U 238): 0.0139

[Passed] Optimum value(s): N/A

End Time: 6/8/2020 8:39:15 AM

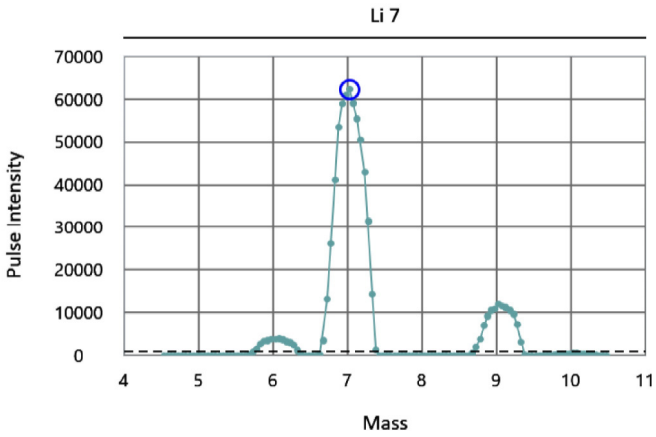
Mass Calibration and Resolution - [Passed] Optimum value(s): N/A

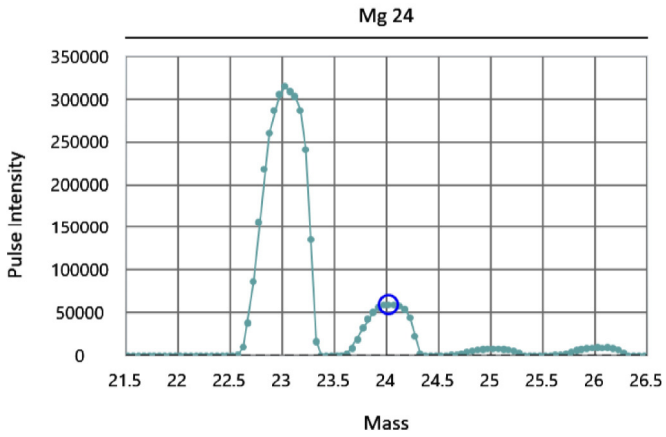
Target/Obtained mass (7.016/7.025), Target/Obtained resolution (0.7/0.700)
Target/Obtained mass (23.985/24.025), Target/Obtained resolution (0.7/0.694)
Target/Obtained mass (114.904/114.925), Target/Obtained resolution (0.7/0.694)
Target/Obtained mass (207.977/207.975), Target/Obtained resolution (0.7/0.699)
Target/Obtained mass (238.05/238.025), Target/Obtained resolution (0.7/0.703)

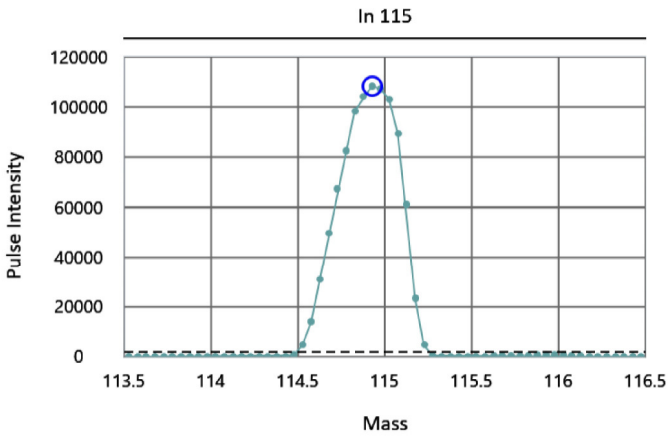
Acq. Date/Time: 6/8/2020 8:28:56 AM

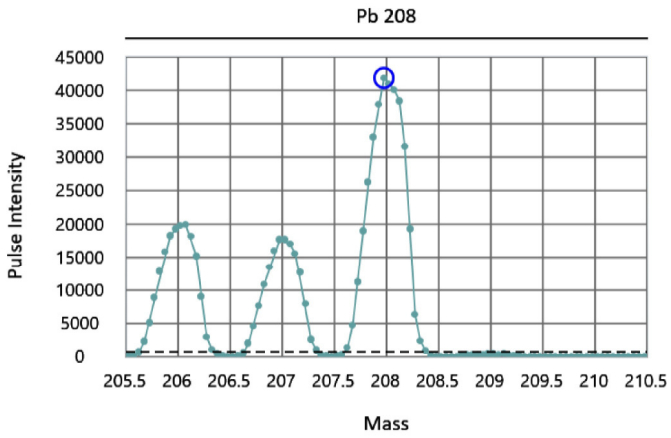
Sent to file: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\MassCal\Default.tun

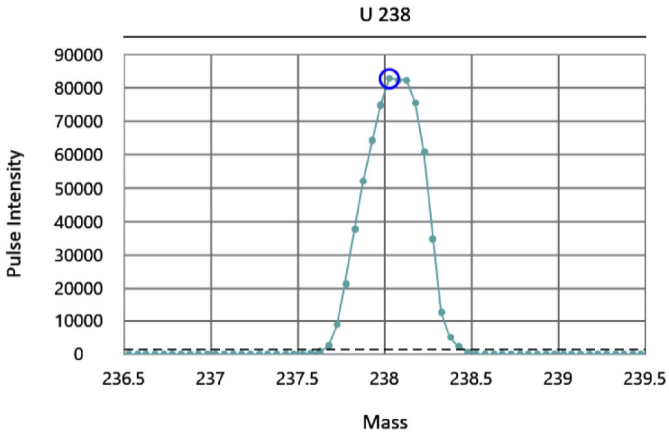
Analyte	Exact Mass	Meas. Mass	Mass DAC	Res DAC	Meas. Peak Width	Custom Res
Li	7.016	7.025	1318	2021	0.700	
Mg	23.985	24.025	4713	2021	0.694	
In	114.904	114.925	22858	2038	0.694	
Pb	207.977	207.975	41420	2060	0.699	
U	238.05	238.025	47420	2068	0.703	











SmartTune Wizard - Summary

Optimization Summary

SmartTune file: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Wizard\SmartTune\FA_SmartTune Daily.swz

Start Time: 6/9/2020 8:52:34 AM
End Time: 6/9/2020 8:54:54 AM

Lab Performance Check - [Passed] Optimum value(s): N/A
Obtained Intensity (Be 9): 11152.62
Obtained Intensity (Mg 24): 50193.30
Obtained Intensity (In 115): 97774.08
Obtained Intensity (U 238): 74514.19
Obtained Intensity (Bkgd 220): 0.73
Obtained Formula (CeO 156 / Ce 140): 0.019 (=1554.75 / 80645.55)
Obtained Formula (Ce++ 70 / Ce 140): 0.021 (=1668.96 / 80645.55)
Obtained RSD (Be 9): 0.0119
Obtained RSD (Mg 24): 0.0086
Obtained RSD (In 115): 0.0096
Obtained RSD (U 238): 0.0135

SmartTune Wizard - Details

Optimization Details

SmartTune file: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Wizard\SmartTune\FA_SmartTune Daily.swz

Optimization Status

Start Time: 6/9/2020 8:52:34 AM

Lab Performance Check

Optimization Settings:

Method: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Method\FA_Daily Performance.mth.
Intensity Criterion: Be 9 > 2000
Intensity Criterion: Mg 24 > 15000
Intensity Criterion: In 115 > 40000
Intensity Criterion: U 238 > 30000
Intensity Criterion: Bkgd 220 <= 5
Formula Criterion: CeO 156 / Ce 140 <= 0.03
Formula Criterion: Ce++ 70 / Ce 140 <= 0.05
RSD Criterion: Be 9.0122 < 0.05
RSD Criterion: Mg 23.985 < 0.05
RSD Criterion: In 114.904 < 0.05
RSD Criterion: U 238.05 < 0.05

Optimization Results:

Initial Try

Obtained Intensity (Be 9): 11152.62
Obtained Intensity (Mg 24): 50193.30
Obtained Intensity (In 115): 97774.08
Obtained Intensity (U 238): 74514.19
Obtained Intensity (Bkgd 220): 0.73
Obtained Formula (CeO 156 / Ce 140): 0.019 (=1554.75 / 80645.55)
Obtained Formula (Ce++ 70 / Ce 140): 0.021 (=1668.96 / 80645.55)
Obtained RSD (Be 9): 0.0119
Obtained RSD (Mg 24): 0.0086
Obtained RSD (In 115): 0.0096
Obtained RSD (U 238): 0.0135

[Passed] Optimum value(s): N/A

End Time: 6/9/2020 8:54:54 AM

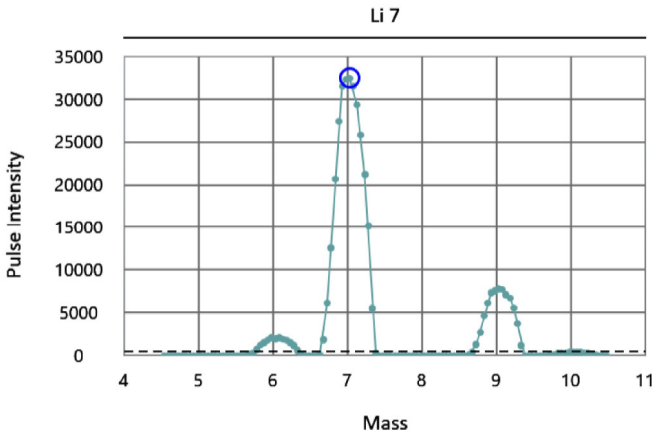
Mass Calibration and Resolution - [Passed] Optimum value(s): N/A

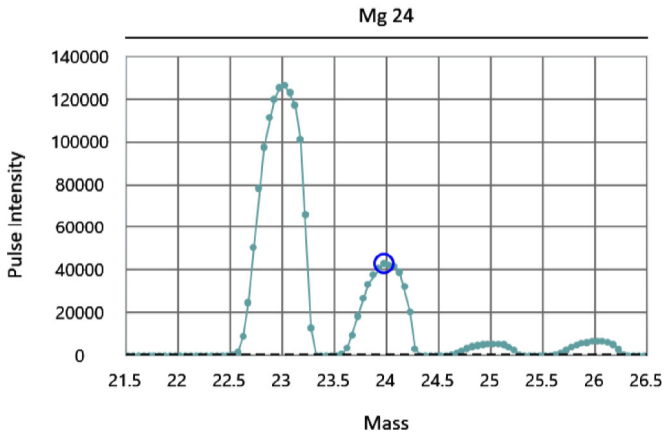
Target/Obtained mass (7.016/7.025), Target/Obtained resolution (0.7/0.695)
Target/Obtained mass (23.985/23.975), Target/Obtained resolution (0.7/0.689)
Target/Obtained mass (114.904/114.875), Target/Obtained resolution (0.7/0.703)
Target/Obtained mass (207.977/207.975), Target/Obtained resolution (0.7/0.698)
Target/Obtained mass (238.05/238.075), Target/Obtained resolution (0.7/0.716)

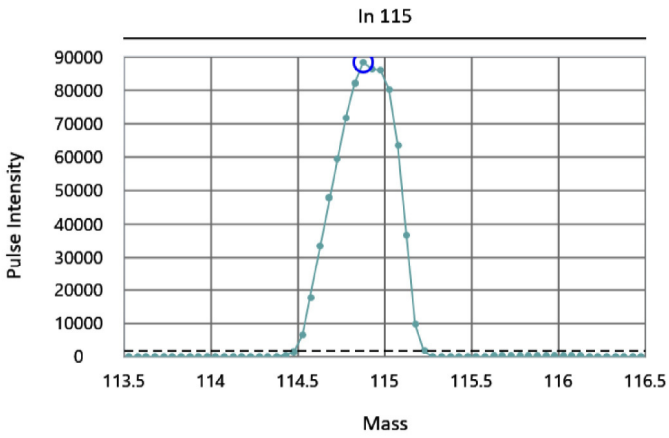
Acq. Date/Time: 6/9/2020 8:40:36 AM

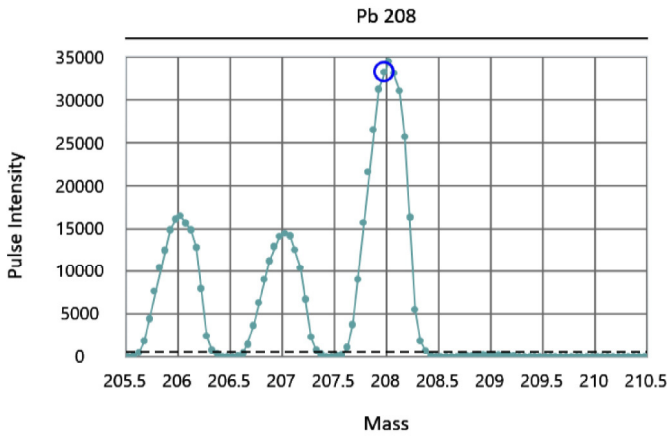
Sent to file: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\MassCal\Default.tun

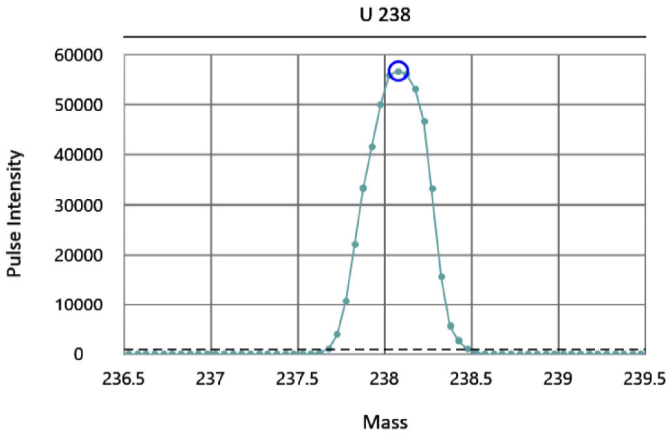
Analyte	Exact Mass	Meas. Mass	Mass DAC	Res DAC	Meas. Peak Width	Custom Res
Li	7.016	7.025	1319	2021	0.695	
Mg	23.985	23.975	4711	2021	0.689	
In	114.904	114.875	22852	2038	0.703	
Pb	207.977	207.975	41419	2060	0.698	
U	238.05	238.075	47424	2068	0.716	











DATA SET for Review -- Deliverable Requirements

Metals Analysis by EPA 6020

Fremont Analytical Work Order No. 2006085

Libby Environmental

Project Name: Hardel Site

Project No. L200603-7

This Data contains the following:

- Analytical Sequence Summary for **Work Order 2006085**
- Calibration Information for **Work Order 2006085**
- Tune Information for **Work Order 2006085**

Dataset Report

User Name: lab
Computer Name: DT28
Dataset File Path: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\060920CO\
Report Date/Time: Wednesday, June 10, 2020 08:00:13

The Dataset

Batch ID	Sample ID	Date and Time	Read Type	Samp. File Name	Description
	cone conditioning	08:57:26 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	cone conditioning	09:03:00 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	cone conditioning	09:08:34 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	cone conditioning	09:14:08 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	cone conditioning	09:19:42 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	hcl wash	09:25:18 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	hcl wash	09:30:51 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	wash	09:36:25 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	wash	09:41:59 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	CAL BLK IS 22718	09:47:33 Tue 09-Ju	Blank	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 1	09:53:07 Tue 09-Ju	Standard #1	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 2	09:58:40 Tue 09-Ju	Standard #2	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 3	10:04:14 Tue 09-Ju	Standard #3	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 4	10:09:47 Tue 09-Ju	Standard #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 5	10:15:21 Tue 09-Ju	Standard #5	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 6	10:20:54 Tue 09-Ju	Standard #6	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 7	10:26:27 Tue 09-Ju	Standard #7	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 8	10:32:01 Tue 09-Ju	Standard #8	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 9	10:37:34 Tue 09-Ju	Standard #9	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 10	10:43:07 Tue 09-Ju	Standard #10	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	Standard 11	10:48:41 Tue 09-Ju	Standard #11	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	WASH	10:54:16 Tue 09-Ju	QC Std #1	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	ICB	10:59:49 Tue 09-Ju	QC Std #2	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	ICV LL	11:05:24 Tue 09-Ju	QC Std #3	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	ICV	11:11:08 Tue 09-Ju	QC Std #6	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	ICSA	11:31:12 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	ICSAB	11:36:46 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	wash	11:42:20 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	2006047-001A 10X	12:15:14 Tue 09-Ju	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
	2006047-002A 10X	12:20:46 Tue 09-Ju	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
	2006047-003A 100X	12:26:20 Tue 09-Ju	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
	2006047-004A 10X	12:31:54 Tue 09-Ju	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
	2006058-005A 10X	12:37:27 Tue 09-Ju	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
	2006087-001CMS	12:43:00 Tue 09-Ju	Sample	C:\Users\Public\DocumMS,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
	2006085-002B	12:48:34 Tue 09-Ju	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
	CCV	12:54:08 Tue 09-Ju	QC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	CCB	13:01:50 Tue 09-Ju	QC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	MB1-28596	13:20:16 Tue 09-Ju	Sample	C:\Users\Public\DocumMBLK,M-TCLP	gistix\ICPMS\DataSet\June2020\0609
	LCS-28596	13:25:50 Tue 09-Ju	Sample	C:\Users\Public\DocumLCS,M-TCLP	gistix\ICPMS\DataSet\June2020\0609
	2006095-001A	13:31:24 Tue 09-Ju	Sample	C:\Users\Public\DocumSAMP,M-TCLP	gistix\ICPMS\DataSet\June2020\0609
	2006095-001ADUP	13:36:57 Tue 09-Ju	Sample	C:\Users\Public\DocumDUP,M-TCLP	gistix\ICPMS\DataSet\June2020\0609
	2006095-001AMS	13:42:31 Tue 09-Ju	Sample	C:\Users\Public\DocumMS,M-TCLP	gistix\ICPMS\DataSet\June2020\0609
	2006095-001AMSD	13:48:04 Tue 09-Ju	Sample	C:\Users\Public\DocumMSD,M-TCLP	gistix\ICPMS\DataSet\June2020\0609
	2006103-001A	13:53:38 Tue 09-Ju	Sample	C:\Users\Public\DocumSAMP,M-TCLP	gistix\ICPMS\DataSet\June2020\0609
	MB2-28596	13:59:11 Tue 09-Ju	Sample	C:\Users\Public\DocumMBLK,M-TCLP	gistix\ICPMS\DataSet\June2020\0609
	2006061-001C	14:04:45 Tue 09-Ju	Sample	C:\Users\Public\DocumSAMP,M-TCLP	gistix\ICPMS\DataSet\June2020\0609
	&SampID	14:10:18 Tue 09-Ju	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	CCV	14:15:52 Tue 09-Ju	QC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	CCB	14:22:05 Tue 09-Ju	QC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609	
	MB-28586	14:37:40 Tue 09-Ju	Sample	C:\Users\Public\DocumMBLK,M-6020-S	gistix\ICPMS\DataSet\June2020\0609

LCS-28586	14:43:13 Tue 09-JıSample	C:\Users\Public\DocumLCS,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006058-016A	14:48:47 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006058-016ADUP	14:54:20 Tue 09-JıSample	C:\Users\Public\DocumDUP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006058-016ADIL	14:59:54 Tue 09-JıSample	C:\Users\Public\DocumSD,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006058-016AMS	15:05:28 Tue 09-JıSample	C:\Users\Public\DocumMS,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006058-016AMSD	15:11:02 Tue 09-JıSample	C:\Users\Public\DocumMSD,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006058-016APDS	15:16:36 Tue 09-JıSample	C:\Users\Public\DocumPDS,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006058-017A	15:22:10 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006062-002A	15:27:43 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
CCV	15:33:18 Tue 09-JıQC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
CCB	15:39:12 Tue 09-JıQC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
2006064-001A	15:44:46 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006064-004A	15:50:20 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006064-007A	15:55:54 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006064-010A	16:01:28 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006064-013A	16:07:02 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006064-016A	16:12:36 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006064-019A	16:18:10 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006064-022A	16:23:44 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006064-025A	16:29:17 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006064-028A	16:34:51 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
CCV	16:40:25 Tue 09-JıQC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
CCB	16:49:24 Tue 09-JıQC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
2006064-031A	17:19:12 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006064-034A	17:24:47 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006075-001A 10X	17:30:21 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006075-002A 10X	17:35:55 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006075-003A 10X	17:41:29 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006085-008A	17:47:03 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006085-009A	17:52:36 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
&SampID	17:58:11 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
MB-28597	18:03:46 Tue 09-JıSample	C:\Users\Public\DocumMBLK,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
LCS-28597	18:09:20 Tue 09-JıSample	C:\Users\Public\DocumLCS,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
CCV	18:14:55 Tue 09-JıQC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
CCB	18:20:29 Tue 09-JıQC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
2006062-002A 10X	18:26:04 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
2006119-001D	18:31:38 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006119-001DDUP	18:37:12 Tue 09-JıSample	C:\Users\Public\DocumDUP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006119-001DMS	18:42:46 Tue 09-JıSample	C:\Users\Public\DocumMS,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006119-001DMSD	18:48:20 Tue 09-JıSample	C:\Users\Public\DocumMSD,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006124-001D	18:53:54 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006124-002D	18:59:28 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006124-003D	19:05:02 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006090-001A	19:10:36 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006094-001E	19:16:10 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
CCV	19:21:45 Tue 09-JıQC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
CCB	19:27:19 Tue 09-JıQC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
2006098-001A	19:32:54 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006100-001A	19:38:28 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006101-001A	19:44:02 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006101-002A	19:49:36 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006107-001E	19:55:09 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006109-001A	20:00:43 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006109-002A	20:06:18 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006109-003A	20:11:52 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006109-004A	20:17:26 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
2006109-005A	20:22:59 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
CCV	20:28:34 Tue 09-JıQC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
CCB	20:34:08 Tue 09-JıQC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix	\ICPMS\DataSet\June2020\0609
2006111-001C	20:39:43 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609

2006121-001E	20:45:17 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
&SampID	20:50:52 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
MB-28598	20:56:26 Tue 09-JıSample	C:\Users\Public\DocumMBLK,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
LCS-28598	21:02:00 Tue 09-JıSample	C:\Users\Public\DocumLCS,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
2006070-001A	21:07:34 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
2006070-001ADUP	21:13:08 Tue 09-JıSample	C:\Users\Public\DocumDUP,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
2006070-001AMS	21:18:42 Tue 09-JıSample	C:\Users\Public\DocumMS,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
2006070-001AMSD	21:24:16 Tue 09-JıSample	C:\Users\Public\DocumMSD,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
2006114-001A	21:29:50 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
CCV	21:35:25 Tue 09-JıQC Std #4	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
CCB	21:40:59 Tue 09-JıQC Std #5	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
2006114-002A	21:46:34 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
2006120-001A	21:52:08 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
2006120-002A	21:57:42 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
2006126-001A	22:03:16 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
2006126-002A	22:08:50 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0609
2005353-003B	22:14:25 Tue 09-JıSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
CCV	22:19:59 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
CCB	22:25:33 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
hcl wash	22:31:07 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
hcl wash	22:36:41 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
CCV	22:42:15 Tue 09-JıQC Std #4	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
CCB	22:47:49 Tue 09-JıQC Std #5	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
wash	22:53:23 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
wash	22:58:57 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
CAL BLK	23:04:30 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 1	23:10:04 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 2	23:15:38 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 3	23:21:11 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 4	23:26:45 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 5	23:32:18 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 6	23:37:52 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 7	23:43:25 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 8	23:48:59 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 9	23:54:32 Tue 09-JıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 10	00:00:06 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
HCl Standard 11	00:05:39 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
WASH	00:11:14 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
ICB	00:16:47 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
ICV LL	00:22:22 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
ICV LL	00:27:56 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
ICV	00:33:30 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
ICV	00:39:04 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
wash	00:44:38 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
WASH	00:50:12 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
MB-28580	00:55:46 Wed 10-ıSample	C:\Users\Public\DocumMBLK,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
MB-28535	01:01:20 Wed 10-ıSample	C:\Users\Public\DocumMBLK,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
MB-28482	01:06:53 Wed 10-ıSample	C:\Users\Public\DocumMBLK,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
MB-28513	01:12:27 Wed 10-ıSample	C:\Users\Public\DocumMBLK,M-200.8-T	gistix\ICPMS\DataSet\June2020\0609
MB-28586	01:18:00 Wed 10-ıSample	C:\Users\Public\DocumMBLK,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
MB-28579	01:23:34 Wed 10-ıSample	C:\Users\Public\DocumMBLK,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
MB-28563	01:29:07 Wed 10-ıSample	C:\Users\Public\DocumMBLK,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
MB-28562	01:34:41 Wed 10-ıSample	C:\Users\Public\DocumMBLK,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
CCV	01:40:15 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
CCB	01:45:49 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
WASH	01:51:23 Wed 10-ıSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0609
LOQ 1	01:56:57 Wed 10-ıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
LOQ 2	02:02:31 Wed 10-ıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
LOQ 3	02:08:04 Wed 10-ıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609
LOQ 4	02:13:38 Wed 10-ıSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0609

wash	02:19:12 Wed 10-Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609
wash	02:24:46 Wed 10-Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609
LOQ 1	02:30:20 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0609
LOQ 2	02:35:54 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0609
LOQ 3	02:41:27 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0609
CCV	02:47:02 Wed 10-Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609
CCB	02:52:36 Wed 10-Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609
2%	02:58:09 Wed 10-QC Std #7	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609
DI	03:03:43 Wed 10-QC Std #8	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0609

Dataset Report

User Name: lab
Computer Name: DT28
Dataset File Path: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061020co\
Report Date/Time: Thursday, June 11, 2020 11:44:43

The Dataset

Batch ID	Sample ID	Date and Time	Read Type	Samp. File Name	Description
	cone conditioning	08:48:38 Wed 10-	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	cone conditioning	08:54:11 Wed 10-	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	cone conditioning	08:59:45 Wed 10-	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	cone conditioning	09:05:19 Wed 10-	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	cone conditioning	09:13:40 Wed 10-	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	wash	09:19:13 Wed 10-	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	wash	09:24:47 Wed 10-	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	CAL BLK IS 22718	09:30:21 Wed 10-	Blank	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	CAL BLK IS 22718	09:59:39 Wed 10-	Blank	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	Standard 1	10:06:19 Wed 10-	Standard #1	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	Standard 2	10:11:53 Wed 10-	Standard #2	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	Standard 3	10:17:26 Wed 10-	Standard #3	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	Standard 4	10:23:00 Wed 10-	Standard #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	Standard 5	10:28:33 Wed 10-	Standard #5	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	Standard 6	10:34:07 Wed 10-	Standard #6	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	Standard 7	10:39:40 Wed 10-	Standard #7	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	Standard 8	10:45:13 Wed 10-	Standard #8	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	Standard 9	10:50:47 Wed 10-	Standard #9	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	Standard 10	10:56:21 Wed 10-	Standard #10	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	Standard 11	11:01:54 Wed 10-	Standard #11	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	WASH	11:07:29 Wed 10-	QC Std #1	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	ICB	11:13:03 Wed 10-	QC Std #2	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	ICV LL	11:18:37 Wed 10-	QC Std #3	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	ICV	11:24:12 Wed 10-	QC Std #6	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	ICSA	11:38:23 Wed 10-	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	ICSAB	11:43:57 Wed 10-	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	&SampID	11:49:31 Wed 10-	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	2006062-002A 10X	11:55:06 Wed 10-	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\061
	2006062-002A 10X	12:02:45 Wed 10-	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\061
	2006075-001A 100X	12:08:19 Wed 10-	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\061
	2006075-002A 1000X	12:13:52 Wed 10-	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\061
	2006075-003A 10000	12:19:26 Wed 10-	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\061
	2006085-008A	12:25:00 Wed 10-	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\061
	2006085-009A	12:30:34 Wed 10-	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\061
	CCV	12:36:08 Wed 10-	QC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	CCB	12:41:42 Wed 10-	QC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	2006124-001D 5X	12:47:33 Wed 10-	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\061
	2006124-002D 5X	12:53:07 Wed 10-	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\061
	2006124-003D 5X	12:58:41 Wed 10-	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\061
	2006098-001A 100X	13:04:15 Wed 10-	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\061
	2006098-001A 5X	13:09:49 Wed 10-	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\061
	2006109-003A	13:15:23 Wed 10-	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\061
	2006109-005A	13:20:56 Wed 10-	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\061
	2006121-001E	13:29:59 Wed 10-	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\061
	2006109-003A 5X	13:53:12 Wed 10-	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\061
	2006109-005A 5X	13:58:46 Wed 10-	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\061
	CCV	14:04:20 Wed 10-	QC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	CCB	14:09:55 Wed 10-	QC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061	
	MB-28612	14:18:19 Wed 10-	Sample	C:\Users\Public\DocumMBLK,M-200.8-D	gistix\ICPMS\DataSet\June2020\061
	LCS-28612	14:23:53 Wed 10-	Sample	C:\Users\Public\DocumLCS,M-200.8-D	gistix\ICPMS\DataSet\June2020\061

MB-28599FB	14:29:26 Wed 10-Sample	C:\Users\Public\DocumMBLK,M-200.8-D	gistix\ICPMS\DataSet\June2020\0610
2006124-001G	14:35:00 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-D	gistix\ICPMS\DataSet\June2020\0610
2006124-001GDUP	14:40:35 Wed 10-Sample	C:\Users\Public\DocumDUP,M-200.8-D	gistix\ICPMS\DataSet\June2020\0610
2006124-001GMS	14:46:09 Wed 10-Sample	C:\Users\Public\DocumMS,M-200.8-D	gistix\ICPMS\DataSet\June2020\0610
2006124-001GMSD	14:51:43 Wed 10-Sample	C:\Users\Public\DocumMSD,M-200.8-D	gistix\ICPMS\DataSet\June2020\0610
2006124-002G	14:57:17 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-D	gistix\ICPMS\DataSet\June2020\0610
2006124-003G	15:02:51 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-D	gistix\ICPMS\DataSet\June2020\0610
2006130-001D	15:08:24 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-D	gistix\ICPMS\DataSet\June2020\0610
CCV	15:13:59 Wed 10-QC Std #4	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0610
CCB	15:19:43 Wed 10-QC Std #5	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0610
2006124-001G 5X	15:29:43 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-D	gistix\ICPMS\DataSet\June2020\0610
2006124-002G 5X	15:35:17 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-D	gistix\ICPMS\DataSet\June2020\0610
2006124-003G 5X	15:40:51 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-D	gistix\ICPMS\DataSet\June2020\0610
2006085-009A 10X	15:46:25 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006121-001E 5X	15:51:59 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0610
CCV	15:57:35 Wed 10-QC Std #4	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0610
CCB	16:03:22 Wed 10-QC Std #5	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0610
MB-28613	16:12:47 Wed 10-Sample	C:\Users\Public\DocumMBLK,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
LCS-28613	16:18:21 Wed 10-Sample	C:\Users\Public\DocumLCS,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006085-010A	16:23:55 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006085-010ADUP	16:29:29 Wed 10-Sample	C:\Users\Public\DocumDUP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006085-010ADIL	16:35:03 Wed 10-Sample	C:\Users\Public\DocumSD,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006085-010AMS	16:40:37 Wed 10-Sample	C:\Users\Public\DocumMS,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006085-010AMSD	16:46:11 Wed 10-Sample	C:\Users\Public\DocumMSD,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006085-010APDS	16:51:45 Wed 10-Sample	C:\Users\Public\DocumPDS,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006085-011A	16:57:19 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006085-012A	17:02:53 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
CCV	17:08:28 Wed 10-QC Std #4	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0610
CCB	17:14:02 Wed 10-QC Std #5	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0610
2006085-013A	17:19:37 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006085-014A	17:25:11 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006085-015A	17:30:45 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006085-016A	17:36:19 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2005309-029A	17:41:53 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006115-001A	17:47:27 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006115-002A	17:53:01 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006115-003A	17:58:35 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006115-004A	18:04:09 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006115-005A	18:09:43 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
CCV	18:15:18 Wed 10-QC Std #4	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0610
CCB	18:20:52 Wed 10-QC Std #5	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0610
2006115-006A	18:26:27 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006115-007A	18:32:00 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006115-008A	18:37:34 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006115-009A	18:43:07 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006115-010A	18:48:41 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006125-001A	18:54:14 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
2006125-002A	18:59:48 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0610
&SampID	19:05:21 Wed 10-Sample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0610
wash	19:10:55 Wed 10-Sample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0610
wash	19:16:30 Wed 10-Sample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0610
CCV	19:22:04 Wed 10-QC Std #4	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0610
CCB	19:27:38 Wed 10-QC Std #5	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0610
MB-28616	19:33:12 Wed 10-Sample	C:\Users\Public\DocumMBLK,M-200.8-T	gistix\ICPMS\DataSet\June2020\0610
LCS-28616	19:38:46 Wed 10-Sample	C:\Users\Public\DocumLCS,M-200.8-T	gistix\ICPMS\DataSet\June2020\0610
2006130-001C	19:44:19 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0610
2006130-001CDUP	19:49:53 Wed 10-Sample	C:\Users\Public\DocumDUP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0610
2006130-001CMS	19:55:26 Wed 10-Sample	C:\Users\Public\DocumMS,M-200.8-T	gistix\ICPMS\DataSet\June2020\0610
2006130-001CMSD	20:01:00 Wed 10-Sample	C:\Users\Public\DocumMSD,M-200.8-T	gistix\ICPMS\DataSet\June2020\0610
2006127-001A	20:06:33 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0610

2006139-001A	20:12:07 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0610
2006139-002A	20:17:40 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0610
wash	20:23:15 Wed 10-Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0610
CCV	20:28:48 Wed 10-QC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0610
CCB	20:34:22 Wed 10-QC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0610
2006142-001A	20:39:56 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0610
2006142-002A	20:45:30 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0610
2006147-003A	20:51:03 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0610
2006147-004A	20:56:37 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0610
2006148-001A	21:02:10 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0610
2006149-001A	21:07:44 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0610
2006149-002A	21:13:17 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0610
2006150-001B	21:18:51 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0610
2006152-001A	21:24:24 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0610
2006153-001A	21:29:58 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0610
CCV	21:35:32 Wed 10-QC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0610
CCB	21:41:06 Wed 10-QC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0610
hcl wash	21:46:40 Wed 10-Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0610
WASH	21:52:14 Wed 10-Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0610
WASH	21:57:48 Wed 10-Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0610
2004009-030E	22:03:22 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0610
2004009-030E	22:08:55 Wed 10-Sample	C:\Users\Public\DocumSAMP,M-200.8-T gistix\ICPMS\DataSet\June2020\0610
CCV	22:14:29 Wed 10-QC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0610
CCB	22:20:03 Wed 10-QC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0610

Dataset Report

User Name: lab
Computer Name: DT28
Dataset File Path: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\061520co\
Report Date/Time: Tuesday, June 16, 2020 08:01:53

The Dataset

Batch ID	Sample ID	Date and Time	Read Type	Samp. File Name	Description
	WASH	08:59:04 Mon 15-J	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	WASH	09:04:38 Mon 15-J	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	CAL BLK IS 22718	09:10:12 Mon 15-J	Blank	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	Standard 1	09:15:46 Mon 15-J	Standard #1	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	Standard 2	09:21:20 Mon 15-J	Standard #2	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	Standard 3	09:26:54 Mon 15-J	Standard #3	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	Standard 4	09:32:28 Mon 15-J	Standard #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	Standard 5	09:38:02 Mon 15-J	Standard #5	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	Standard 6	09:43:35 Mon 15-J	Standard #6	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	Standard 7	09:49:09 Mon 15-J	Standard #7	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	Standard 8	09:54:43 Mon 15-J	Standard #8	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	Standard 9	10:00:17 Mon 15-J	Standard #9	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	Standard 10	10:05:51 Mon 15-J	Standard #10	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	Standard 11	10:11:25 Mon 15-J	Standard #11	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	WASH	10:17:00 Mon 15-J	QC Std #1	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	ICB	10:22:34 Mon 15-J	QC Std #2	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	ICV LL	10:28:09 Mon 15-J	QC Std #3	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	ICV	10:33:43 Mon 15-J	QC Std #6	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	ICV LL	10:53:06 Mon 15-J	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	ICSA	11:03:42 Mon 15-J	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	ICSAB	11:09:16 Mon 15-J	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	WASH	11:14:51 Mon 15-J	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	2006085-010A	11:20:25 Mon 15-J	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
	LCS-28638	11:25:59 Mon 15-J	Sample	C:\Users\Public\DocumLCS,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
	2006116-001A	11:31:33 Mon 15-J	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
	2006116-001AMS	11:37:07 Mon 15-J	Sample	C:\Users\Public\DocumMS,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
	2006116-001AMSD	11:42:41 Mon 15-J	Sample	C:\Users\Public\DocumMSD,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
	2006116-001APDS	11:58:06 Mon 15-J	Sample	C:\Users\Public\DocumPDS,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
	2006135-001A	12:03:40 Mon 15-J	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
	CCV	12:09:15 Mon 15-J	QC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	CCB	12:14:50 Mon 15-J	QC Std #5	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	2006136-002A	12:28:22 Mon 15-J	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
	2006138-001A	12:33:56 Mon 15-J	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
	2006183-001A	12:39:30 Mon 15-J	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
	2006175-001A	12:45:03 Mon 15-J	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
	2006175-002A	12:50:37 Mon 15-J	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
	2006175-003A	12:56:11 Mon 15-J	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
	2006175-004A	13:01:46 Mon 15-J	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
	2006116-003A	13:07:20 Mon 15-J	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
	2006175-001A 20X	13:12:54 Mon 15-J	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
	2006175-002A 20X	13:18:29 Mon 15-J	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
	CCV	13:24:04 Mon 15-J	QC Std #4	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	CCB	13:35:55 Mon 15-J	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	2006175-003A 20X	13:42:01 Mon 15-J	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
	2006175-004A 20X	13:47:35 Mon 15-J	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
	2006175-004A 10X	13:53:09 Mon 15-J	Sample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
	&SampID	13:58:44 Mon 15-J	Sample	C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\June2020\0615	
	MB-28659	14:04:19 Mon 15-J	Sample	C:\Users\Public\DocumMBLK,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
	LCS-28659	14:09:53 Mon 15-J	Sample	C:\Users\Public\DocumLCS,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
	2006230-001A	14:15:26 Mon 15-J	Sample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615

2006230-001ADUP	14:21:00 Mon 15-JSample	C:\Users\Public\DocumDUP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
2006230-001AMS	14:26:34 Mon 15-JSample	C:\Users\Public\DocumMS,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
2006230-001AMSD	14:32:08 Mon 15-JSample	C:\Users\Public\DocumMSD,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
CCV	14:37:43 Mon 15-JQC Std #4	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
CCB	14:43:48 Mon 15-JQC Std #5	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
CCV	14:49:45 Mon 15-JSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
CCB	14:55:24 Mon 15-JSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
CCV	15:06:03 Mon 15-JSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
CCB	15:12:02 Mon 15-JSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
MB-28660	15:21:18 Mon 15-JSample	C:\Users\Public\DocumMBLK,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
LCS-28660	15:26:52 Mon 15-JSample	C:\Users\Public\DocumLCS,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006167-001A	15:32:26 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006167-001ADUP	15:38:00 Mon 15-JSample	C:\Users\Public\DocumDUP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006167-001ADIL	15:43:34 Mon 15-JSample	C:\Users\Public\DocumSD,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006167-001AMS	15:49:08 Mon 15-JSample	C:\Users\Public\DocumMS,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006167-001AMSD	15:54:42 Mon 15-JSample	C:\Users\Public\DocumMSD,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006167-001APDS	16:00:16 Mon 15-JSample	C:\Users\Public\DocumPDS,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006232-001A	16:05:50 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
CCV	16:12:08 Mon 15-JQC Std #4	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
CCB	16:17:42 Mon 15-JQC Std #5	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
2006122-001A	16:26:28 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006122-002A	16:32:02 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006122-003A	16:37:36 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006177-001A	16:43:10 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006177-002A	16:48:43 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006177-003A	16:54:17 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006177-004A	16:59:51 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006177-005A	17:05:25 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
WASH	17:11:00 Mon 15-JSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
2006177-006A	17:15:50 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
CCV	17:20:40 Mon 15-JQC Std #4	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
CCB	17:25:29 Mon 15-JQC Std #5	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
2006177-007A	17:30:19 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006177-008A	17:35:08 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006177-009A	17:39:57 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006177-010A	17:44:46 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006177-011A	17:49:35 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006188-001A	17:54:24 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006198-001A	17:59:13 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006198-002A	18:04:02 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
2006241-001A	18:08:51 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-6020-S	gistix\ICPMS\DataSet\June2020\0615
WASH	18:13:41 Mon 15-JSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
CCV	18:18:30 Mon 15-JQC Std #4	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
CCB	18:23:19 Mon 15-JQC Std #5	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
MB-28645	18:28:09 Mon 15-JSample	C:\Users\Public\DocumMBLK,M-TCLP	gistix\ICPMS\DataSet\June2020\0615
LCS-28645	18:32:58 Mon 15-JSample	C:\Users\Public\DocumLCS,M-TCLP	gistix\ICPMS\DataSet\June2020\0615
2006129-001A	18:37:47 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-TCLP	gistix\ICPMS\DataSet\June2020\0615
2006129-001ADUP	18:42:36 Mon 15-JSample	C:\Users\Public\DocumDUP,M-TCLP	gistix\ICPMS\DataSet\June2020\0615
2006129-001AMS	18:47:25 Mon 15-JSample	C:\Users\Public\DocumMS,M-TCLP	gistix\ICPMS\DataSet\June2020\0615
2006129-001AMSD	18:52:14 Mon 15-JSample	C:\Users\Public\DocumMSD,M-TCLP	gistix\ICPMS\DataSet\June2020\0615
2006175-001A	18:57:03 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-TCLP	gistix\ICPMS\DataSet\June2020\0615
2006175-002A	19:01:52 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-TCLP	gistix\ICPMS\DataSet\June2020\0615
2006175-003A	19:06:41 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-TCLP	gistix\ICPMS\DataSet\June2020\0615
2006175-004A	19:11:30 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-TCLP	gistix\ICPMS\DataSet\June2020\0615
CCV	19:16:20 Mon 15-JQC Std #4	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
CCB	19:21:09 Mon 15-JQC Std #5	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
2006180-001A 10X	19:25:59 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-TCLP	gistix\ICPMS\DataSet\June2020\0615
2006180-001A	19:30:48 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-TCLP	gistix\ICPMS\DataSet\June2020\0615
MB2-28645	19:35:37 Mon 15-JSample	C:\Users\Public\DocumMBLK,M-TCLP	gistix\ICPMS\DataSet\June2020\0615
2006224-001A	19:40:27 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615

2006229-001A	19:45:16 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
2006229-002A	19:50:05 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
2006229-003A	19:54:54 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
2006229-004A	19:59:43 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
2006229-005A	20:04:32 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
2006229-006A	20:09:20 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
CCV	20:14:10 Mon 15-JQC Std #4	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
CCB	20:18:59 Mon 15-JQC Std #5	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
2006229-007A	20:23:48 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
2006229-008A	20:28:37 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
2006229-009A	20:33:26 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
2006229-010A	20:38:14 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
2006228-001A	20:43:48 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
2006228-002A	20:49:21 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
2006228-003A	20:54:55 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
2006228-004A	21:00:28 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
2006228-005A	21:06:02 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
2006228-006A	21:11:36 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
CCV	21:17:10 Mon 15-JQC Std #4	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
CCB	21:22:44 Mon 15-JQC Std #5	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
2006236-001A	21:28:18 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
2006237-001A	21:33:51 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-200.8-T	gistix\ICPMS\DataSet\June2020\0615
&SampID	21:39:26 Mon 15-JSample	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
MB-28658	21:45:00 Mon 15-JSample	C:\Users\Public\DocumMBLK,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0615
LCS-28658	21:50:34 Mon 15-JSample	C:\Users\Public\DocumLCS,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0615
2006156-001A	21:56:07 Mon 15-JSample	C:\Users\Public\DocumSAMP,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0615
2006156-001ADUP	22:01:41 Mon 15-JSample	C:\Users\Public\DocumDUP,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0615
2006156-001AMS	22:07:14 Mon 15-JSample	C:\Users\Public\DocumMS,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0615
2006156-001AMSD	22:12:48 Mon 15-JSample	C:\Users\Public\DocumMSD,M-200.8-DW	gistix\ICPMS\DataSet\June2020\0615
CCV	22:18:22 Mon 15-JQC Std #4	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
CCB	22:23:56 Mon 15-JQC Std #5	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
2%	22:29:30 Mon 15-JQC Std #7	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615
DI	22:35:04 Mon 15-JQC Std #8	C:\Users\Public\Documents\PerkinElmer Syn	gistix\ICPMS\DataSet\June2020\0615

Calibration

Table 1: Calibration Standards

Element	Calibration Standard ug/L						
	Cal 1	Cal 2	Cal 3	Cal 4	Cal 5	Cal 6	Cal 7
Antimony	0.025	0.05	0.25	1.25	5.0	10.0	25.0
Arsenic	0.5	1.0	5.0	25.0	100.0	200.	500
Barium	0.5	1.0	5.0	25.0	100.0	200.	500
Beryllium	0.025	0.05	0.25	1.25	5.0	10.0	25.0
Cadmium	0.025	0.05	0.25	1.25	5.0	10.0	25.0
Chromium	0.5	1.0	5.0	25.0	100.0	200.0	500
Cobalt	0.5	1.0	5.0	25.0	100.0	200.0	500
Copper	0.5	1.0	5.0	25.0	100.0	200.0	500
Lead	0.25	0.5	2.5	12.5	50	100	250
Manganese	0.5	1.0	5.0	25.0	100.0	200.0	500
Molybdenum	0.5	1.0	5.0	25.0	100.0	200.0	500
Nickel	0.5	1.0	5.0	25.0	100.0	200.0	500
Selenium	0.05	0.1	0.5	2.5	10.0	20.0	50.0
Silver	0.025	0.05	0.25	1.25	5.0	10.0	25
Strontium	0.5	1.0	5.0	25.0	100.0	200.0	500
Thallium	0.0125	0.025	0.125	0.625	2.5	5.0	12.5
Tin	0.5	1.0	5.0	25.0	100.0	200.0	500
Titanium	0.5	1.0	5.0	25.0	100.0	200.0	500
Uranium	0.25	0.5	2.5	12.5	50	100	250
Vanadium	0.5	1.0	5.0	25.0	100.0	200.	500
Zinc	0.5	1.0	5.0	25.0	100.0	200.	500
Aluminum						50	100
Boron						25	50
Calcium						50	100
Iron						50	100
Magnesium						50	100
Phosphorous						50	100
Potassium						50	100
Sodium						50	100

Element					
		Cal 8	Cal 9	Cal 10	Cal 11
Aluminum	Al	500	1000	2500	5000
Boron	B	250	500	1250	2500
Calcium	Ca	500	1000	2500	5000
Iron	Fe	500	1000	2500	5000
Magnesium	Mg	500	1000	2500	5000
Phosphorous	P	500	1000	2500	5000

Signature

Potassium	K	500	1000	2500	5000
Sodium	Na	500	1000	2500	5000
Mercury	Hg	500	1000	2500	5000

Signature

Quantitative Analysis Calibration Report

File Name: 060920CO.cal
File Path: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\System\060920CO.cal
Calibration Type: External Calibration

Analyte	Mass	Curve Type	Slope	Intercept	Corr. Coeff.
Li	6.015	Linear Thru Zero	0.00	0.00	0.000000
Be	9.012	Linear Thru Zero	0.04	0.00	0.999903
B	11.009	Linear Thru Zero	0.05	0.00	0.999787
Na	22.990	Weighted Linear	0.00	0.01	0.999076
Mg	24.986	Weighted Linear	0.02	0.00	0.999762
Al	26.982	Weighted Linear	0.00	0.00	0.999742
K	38.964	Weighted Linear	0.00	0.00	0.999783
Fe	56.935	Weighted Linear	0.00	-0.00	0.999699
Ca	43.956	Linear Thru Zero	0.01	0.00	0.998525
P	30.994	Linear Thru Zero	0.01	0.00	0.999623
Sc-5	44.956	Linear Thru Zero	0.00	0.00	0.000000
Ti	46.952	Linear Thru Zero	0.01	0.00	0.999987
V	50.944	Weighted Linear	0.12	-0.00	0.999952
Mn	54.938	Linear Thru Zero	0.14	0.00	0.999993
Be-2	9.012	Linear Thru Zero	0.03	0.00	0.999924
Co	58.933	Linear Thru Zero	0.11	0.00	0.999973
Ni	59.933	Weighted Linear	0.03	0.00	0.998302
Cr-1	51.941	Linear Thru Zero	0.10	0.00	0.999981
Cu	62.930	Weighted Linear	0.06	0.00	0.999064
Cu-2	64.928	Weighted Linear	0.03	-0.00	0.998882
Zn	65.926	Weighted Linear	0.01	-0.01	0.999837
As	74.922	Linear Thru Zero	0.01	0.00	0.999980
Se	81.917	Linear Thru Zero	0.00	0.00	0.999772
Kr	82.914	Linear Thru Zero	0.00	0.00	0.000000
Sr	87.906	Linear Thru Zero	0.17	0.00	0.999990
Mo	96.906	Linear Thru Zero	0.01	0.00	0.999933
Rh-3	102.905	Linear Thru Zero	0.00	0.00	0.000000
Ag	106.905	Weighted Linear	0.06	-0.00	0.998301
Sb-1	120.904	Linear Thru Zero	0.05	0.00	0.999977
Ag-2	108.905	Linear Thru Zero	0.07	0.00	0.999712
Cd	110.904	Linear Thru Zero	0.02	0.00	0.999966
Sn	117.902	Linear Thru Zero	0.06	0.00	0.999943
In	114.904	Linear Thru Zero	0.00	0.00	0.000000
Sb	120.904	Simple Linear	0.04	0.00	0.999933
Sb-1	122.904	Linear Thru Zero	0.03	0.00	0.999658
Ba	136.904	Weighted Linear	0.02	0.00	0.998702
Tb	158.925	Linear Thru Zero	0.00	0.00	0.000000
Ho	164.930	Linear Thru Zero	0.00	0.00	0.000000
Tl	204.975	Linear Thru Zero	0.12	0.00	0.999634
Pb	207.977	Linear Thru Zero	0.16	0.00	0.999976
U	238.050	Weighted Linear	0.15	0.00	0.998286
Li-1	6.015	Linear Thru Zero	0.00	0.00	0.000000
Be-1	9.012	Linear Thru Zero	0.04	0.00	0.999348
B-1	11.009	Linear Thru Zero	0.01	0.00	0.999956
Se-2	77.917	Simple Linear	0.00	0.00	0.999976
Sb-3	120.904	Weighted Linear	0.01	0.00	0.999867
Mo-1	97.906	Linear Thru Zero	0.03	0.00	0.999979
Rh-1	102.905	Linear Thru Zero	0.00	0.00	0.000000
Ag-1	106.905	Weighted Linear	0.07	-0.00	0.999352
Na-1	22.990	Linear Thru Zero	0.00	0.00	0.999723
Ca-1	43.956	Linear Thru Zero	0.00	0.00	0.999729
Mg-1	23.985	Linear Thru Zero	0.00	0.00	0.999647
Al-1	26.982	Linear Thru Zero	0.00	0.00	0.999340
Ba-1	137.905	Simple Linear	0.03	0.00	0.999996
Cd-1	110.904	Weighted Linear	0.01	0.00	0.999953

K-1	38.964	Linear Thru Zero	0.00	0.00	0.999346
Sc-6	44.956	Linear Thru Zero	0.00	0.00	0.000000
V-1	50.944	Linear Thru Zero	0.01	0.00	0.999991
Cr-2	51.941	Linear Thru Zero	0.02	0.00	0.999986
Fe-1	56.935	Linear Thru Zero	0.00	0.00	0.999738
Ni-1	59.933	Linear Thru Zero	0.02	0.00	0.999976
Cu-1	62.930	Linear Thru Zero	0.04	0.00	0.999981
Zn-2	65.926	Simple Linear	0.00	-0.00	0.999953
As-3	74.922	Linear Thru Zero	0.00	0.00	0.999965
Rh-2	102.905	Linear Thru Zero	0.00	0.00	0.000000
In-1	114.904	Linear Thru Zero	0.00	0.00	0.000000
Tb-1	158.925	Linear Thru Zero	0.00	0.00	0.000000
Ho-1	164.930	Linear Thru Zero	0.00	0.00	0.000000
Pb-1	207.977	Linear Thru Zero	0.19	0.00	0.999998

Quantitative Analysis Calibration Report

File Name: 061020CO.cal
File Path: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\System\061020CO.cal
Calibration Type: External Calibration

Analyte	Mass	Curve Type	Slope	Intercept	Corr. Coeff.
Li	6.015	Linear Thru Zero	0.00	0.00	0.000000
Be	9.012	Linear Thru Zero	0.04	0.00	0.999954
B	11.009	Linear Thru Zero	0.05	0.00	0.999795
Na	22.990	Linear Thru Zero	0.00	0.00	0.999796
Mg	24.986	Linear Thru Zero	0.02	0.00	0.999120
Al	26.982	Linear Thru Zero	0.00	0.00	0.999930
K	38.964	Linear Thru Zero	0.00	0.00	0.999716
Fe	56.935	Linear Thru Zero	0.00	0.00	0.999481
Ca	43.956	Linear Thru Zero	0.01	0.00	0.999520
P	30.994	Linear Thru Zero	0.01	0.00	0.999732
Sc-5	44.956	Linear Thru Zero	0.00	0.00	0.000000
Ti	46.952	Linear Thru Zero	0.01	0.00	0.999947
V	50.944	Linear Thru Zero	0.13	0.00	0.999979
Mn	54.938	Linear Thru Zero	0.15	0.00	1.000000
Be-2	9.012	Linear Thru Zero	0.03	0.00	0.999959
Co	58.933	Linear Thru Zero	0.11	0.00	0.999876
Ni	59.933	Linear Thru Zero	0.02	0.00	0.999900
Cr-1	51.941	Linear Thru Zero	0.11	0.00	0.999984
Cu	62.930	Linear Thru Zero	0.05	0.00	0.999975
Cu-2	64.928	Linear Thru Zero	0.03	0.00	0.999903
Zn	65.926	Linear Thru Zero	0.01	0.00	0.999972
As	74.922	Linear Thru Zero	0.01	0.00	0.999987
Se	81.917	Linear Thru Zero	0.00	0.00	0.999843
Kr	82.914	Linear Thru Zero	0.00	0.00	0.000000
Sr	87.906	Linear Thru Zero	0.18	0.00	0.999846
Mo	96.906	Linear Thru Zero	0.01	0.00	0.999987
Rh-3	102.905	Linear Thru Zero	0.00	0.00	0.000000
Ag	106.905	Linear Thru Zero	0.06	0.00	0.999547
Sb-1	120.904	Linear Thru Zero	0.05	0.00	0.999972
Ag-2	108.905	Linear Thru Zero	0.07	0.00	0.999490
Cd	110.904	Linear Thru Zero	0.02	0.00	0.999981
Sn	117.902	Linear Thru Zero	0.06	0.00	0.999997
In	114.904	Linear Thru Zero	0.00	0.00	0.000000
Sb	120.904	Weighted Linear	0.03	0.00	0.999739
Sb-1	122.904	Linear Thru Zero	0.02	0.00	0.999980
Ba	136.904	Linear Thru Zero	0.02	0.00	0.999794
Tb	158.925	Linear Thru Zero	0.00	0.00	0.000000
Ho	164.930	Linear Thru Zero	0.00	0.00	0.000000
Tl	204.975	Linear Thru Zero	0.09	0.00	0.999998
Pb	207.977	Linear Thru Zero	0.11	0.00	0.999810
U	238.050	Linear Thru Zero	0.11	0.00	0.999992
Li-1	6.015	Linear Thru Zero	0.00	0.00	0.000000
Be-1	9.012	Linear Thru Zero	0.03	0.00	0.999721
B-1	11.009	Linear Thru Zero	0.01	0.00	0.999872
Se-2	77.917	Simple Linear	0.00	-0.00	0.999957
Sb-3	120.904	Weighted Linear	0.02	0.00	0.999616
Mo-1	97.906	Linear Thru Zero	0.03	0.00	0.999975
Rh-1	102.905	Linear Thru Zero	0.00	0.00	0.000000
Ag-1	106.905	Simple Linear	0.07	-0.00	0.998151
Na-1	22.990	Linear Thru Zero	0.01	0.00	0.999977
Ca-1	43.956	Linear Thru Zero	0.00	0.00	0.999808
Mg-1	23.985	Linear Thru Zero	0.00	0.00	0.999804
Al-1	26.982	Linear Thru Zero	0.00	0.00	0.999913
Ba-1	137.905	Linear Thru Zero	0.04	0.00	0.999953
Cd-1	110.904	Linear Thru Zero	0.01	0.00	0.999851

K-1	38.964	Linear Thru Zero	0.00	0.00	0.999858
Sc-6	44.956	Linear Thru Zero	0.00	0.00	0.000000
V-1	50.944	Linear Thru Zero	0.01	0.00	0.999944
Cr-2	51.941	Linear Thru Zero	0.02	0.00	0.999935
Fe-1	56.935	Linear Thru Zero	0.00	0.00	0.999623
Ni-1	59.933	Linear Thru Zero	0.01	0.00	0.999950
Cu-1	62.930	Linear Thru Zero	0.04	0.00	0.999945
Zn-2	65.926	Simple Linear	0.00	0.00	0.999981
As-3	74.922	Linear Thru Zero	0.00	0.00	0.999928
Rh-2	102.905	Linear Thru Zero	0.00	0.00	0.000000
In-1	114.904	Linear Thru Zero	0.00	0.00	0.000000
Tb-1	158.925	Linear Thru Zero	0.00	0.00	0.000000
Ho-1	164.930	Linear Thru Zero	0.00	0.00	0.000000
Pb-1	207.977	Linear Thru Zero	0.17	0.00	0.999854

Quantitative Analysis Calibration Report

File Name: 061520CO.cal
File Path: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\System\061520CO.cal
Calibration Type: External Calibration

Analyte	Mass	Curve Type	Slope	Intercept	Corr. Coeff.
Li	6.015	Linear Thru Zero	0.00	0.00	0.000000
Be	9.012	Linear Thru Zero	0.03	0.00	0.999933
B	11.009	Linear Thru Zero	0.04	0.00	0.999807
Na	22.990	Linear Thru Zero	0.00	0.00	0.999915
Mg	24.986	Linear Thru Zero	0.02	0.00	0.999948
Al	26.982	Linear Thru Zero	0.00	0.00	0.999991
K	38.964	Linear Thru Zero	0.00	0.00	0.999634
Fe	56.935	Linear Thru Zero	0.00	0.00	0.999946
Ca	43.956	Linear Thru Zero	0.01	0.00	0.998886
P	30.994	Linear Thru Zero	0.01	0.00	0.999778
Sc-5	44.956	Linear Thru Zero	0.00	0.00	0.000000
Ti	46.952	Weighted Linear	0.01	0.00	0.998131
V	50.944	Weighted Linear	0.12	-0.02	0.999155
Mn	54.938	Linear Thru Zero	0.14	0.00	0.999992
Be-2	9.012	Linear Thru Zero	0.02	0.00	0.999949
Co	58.933	Linear Thru Zero	0.11	0.00	0.999992
Ni	59.933	Linear Thru Zero	0.02	0.00	0.999633
Cr-1	51.941	Linear Thru Zero	0.10	0.00	0.999983
Cu	62.930	Linear Thru Zero	0.05	0.00	0.999987
Cu-2	64.928	Linear Thru Zero	0.02	0.00	0.999878
Zn	65.926	Linear Thru Zero	0.01	0.00	0.999213
As	74.922	Linear Thru Zero	0.01	0.00	0.999321
Se	81.917	Linear Thru Zero	0.00	0.00	0.999953
Kr	82.914	Linear Thru Zero	0.00	0.00	0.000000
Sr	87.906	Linear Thru Zero	0.15	0.00	0.999975
Mo	96.906	Weighted Linear	0.01	0.00	0.999284
Rh-3	102.905	Linear Thru Zero	0.00	0.00	0.000000
Ag	106.905	Weighted Linear	0.06	-0.00	0.998471
Sb-1	120.904	Linear Thru Zero	0.05	0.00	0.999982
Ag-2	108.905	Weighted Linear	0.06	-0.00	0.998479
Cd	110.904	Linear Thru Zero	0.02	0.00	0.999994
Sn	117.902	Weighted Linear	0.05	0.00	0.999627
In	114.904	Linear Thru Zero	0.00	0.00	0.000000
Sb	120.904	Weighted Linear	0.03	0.00	0.999275
Sb-1	122.904	Linear Thru Zero	0.02	0.00	0.999983
Ba	136.904	Linear Thru Zero	0.01	0.00	0.999666
Tb	158.925	Linear Thru Zero	0.00	0.00	0.000000
Ho	164.930	Linear Thru Zero	0.00	0.00	0.000000
Tl	204.975	Linear Thru Zero	0.09	0.00	0.999999
Pb	207.977	Linear Thru Zero	0.10	0.00	0.999537
U	238.050	Linear Thru Zero	0.09	0.00	0.999973
Li-1	6.015	Linear Thru Zero	0.00	0.00	0.000000
Be-1	9.012	Linear Thru Zero	0.03	0.00	0.999976
B-1	11.009	Linear Thru Zero	0.01	0.00	0.999656
Se-2	77.917	Linear Thru Zero	0.00	0.00	0.999984
Sb-3	120.904	Weighted Linear	0.01	0.00	0.999790
Mo-1	97.906	Weighted Linear	0.03	-0.00	0.999433
Rh-1	102.905	Linear Thru Zero	0.00	0.00	0.000000
Ag-1	106.905	Linear Thru Zero	0.07	0.00	0.998450
Na-1	22.990	Linear Thru Zero	0.00	0.00	0.999619
Ca-1	43.956	Linear Thru Zero	0.00	0.00	0.999994
Mg-1	23.985	Linear Thru Zero	0.00	0.00	0.999920
Al-1	26.982	Linear Thru Zero	0.00	0.00	0.999980
Ba-1	137.905	Linear Thru Zero	0.04	0.00	0.999988
Cd-1	110.904	Linear Thru Zero	0.01	0.00	0.999998

K-1	38.964	Linear Thru Zero	0.00	0.00	0.999994
Sc-6	44.956	Linear Thru Zero	0.00	0.00	0.000000
V-1	50.944	Linear Thru Zero	0.01	0.00	0.999992
Cr-2	51.941	Weighted Linear	0.02	-0.00	0.999312
Fe-1	56.935	Linear Thru Zero	0.00	0.00	0.999980
Ni-1	59.933	Weighted Linear	0.01	0.00	0.999835
Cu-1	62.930	Linear Thru Zero	0.04	0.00	0.999992
Zn-2	65.926	Linear Thru Zero	0.00	0.00	0.999993
As-3	74.922	Linear Thru Zero	0.00	0.00	0.999993
Rh-2	102.905	Linear Thru Zero	0.00	0.00	0.000000
In-1	114.904	Linear Thru Zero	0.00	0.00	0.000000
Tb-1	158.925	Linear Thru Zero	0.00	0.00	0.000000
Ho-1	164.930	Linear Thru Zero	0.00	0.00	0.000000
Pb-1	207.977	Weighted Linear	0.15	0.00	0.999232

Tunes

SmartTune Wizard - Summary

Optimization Summary

SmartTune file: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Wizard\SmartTune\FA_SmartTune Daily.swz

Start Time: 6/9/2020 8:52:34 AM
End Time: 6/9/2020 8:54:54 AM

Lab Performance Check - [Passed] Optimum value(s): N/A
Obtained Intensity (Be 9): 11152.62
Obtained Intensity (Mg 24): 50193.30
Obtained Intensity (In 115): 97774.08
Obtained Intensity (U 238): 74514.19
Obtained Intensity (Bkgd 220): 0.73
Obtained Formula (CeO 156 / Ce 140): 0.019 (=1554.75 / 80645.55)
Obtained Formula (Ce++ 70 / Ce 140): 0.021 (=1668.96 / 80645.55)
Obtained RSD (Be 9): 0.0119
Obtained RSD (Mg 24): 0.0086
Obtained RSD (In 115): 0.0096
Obtained RSD (U 238): 0.0135

SmartTune Wizard - Details

Optimization Details

SmartTune file: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Wizard\SmartTune\FA_SmartTune Daily.swz

Optimization Status

Start Time: 6/9/2020 8:52:34 AM

Lab Performance Check

Optimization Settings:

Method: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Method\FA_Daily Performance.mth.
Intensity Criterion: Be 9 > 2000
Intensity Criterion: Mg 24 > 15000
Intensity Criterion: In 115 > 40000
Intensity Criterion: U 238 > 30000
Intensity Criterion: Bkgd 220 <= 5
Formula Criterion: CeO 156 / Ce 140 <= 0.03
Formula Criterion: Ce++ 70 / Ce 140 <= 0.05
RSD Criterion: Be 9.0122 < 0.05
RSD Criterion: Mg 23.985 < 0.05
RSD Criterion: In 114.904 < 0.05
RSD Criterion: U 238.05 < 0.05

Optimization Results:

Initial Try

Obtained Intensity (Be 9): 11152.62
Obtained Intensity (Mg 24): 50193.30
Obtained Intensity (In 115): 97774.08
Obtained Intensity (U 238): 74514.19
Obtained Intensity (Bkgd 220): 0.73
Obtained Formula (CeO 156 / Ce 140): 0.019 (=1554.75 / 80645.55)
Obtained Formula (Ce++ 70 / Ce 140): 0.021 (=1668.96 / 80645.55)
Obtained RSD (Be 9): 0.0119
Obtained RSD (Mg 24): 0.0086
Obtained RSD (In 115): 0.0096
Obtained RSD (U 238): 0.0135

[Passed] Optimum value(s): N/A

End Time: 6/9/2020 8:54:54 AM

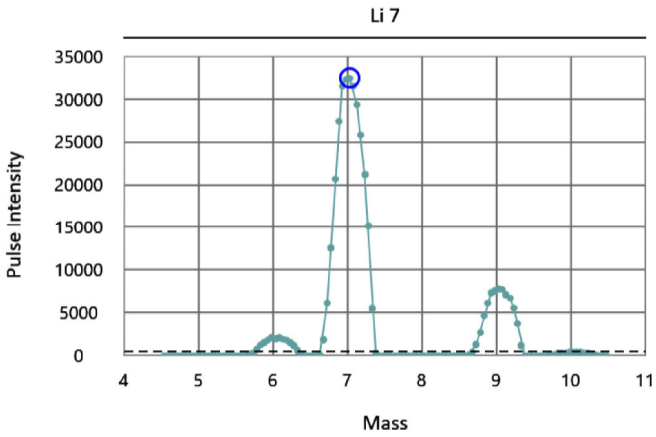
Mass Calibration and Resolution - [Passed] Optimum value(s): N/A

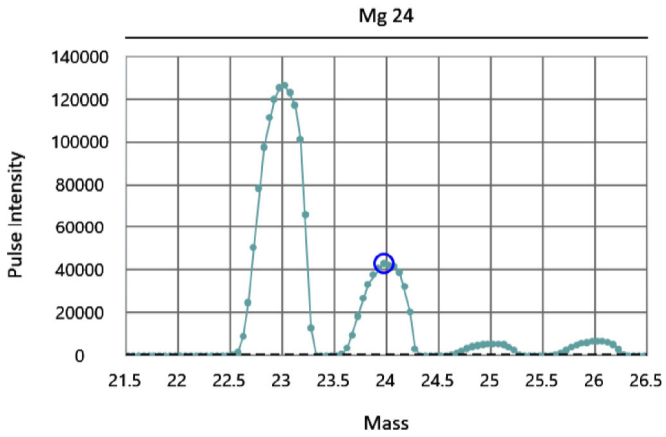
Target/Obtained mass (7.016/7.025), Target/Obtained resolution (0.7/0.695)
Target/Obtained mass (23.985/23.975), Target/Obtained resolution (0.7/0.689)
Target/Obtained mass (114.904/114.875), Target/Obtained resolution (0.7/0.703)
Target/Obtained mass (207.977/207.975), Target/Obtained resolution (0.7/0.698)
Target/Obtained mass (238.05/238.075), Target/Obtained resolution (0.7/0.716)

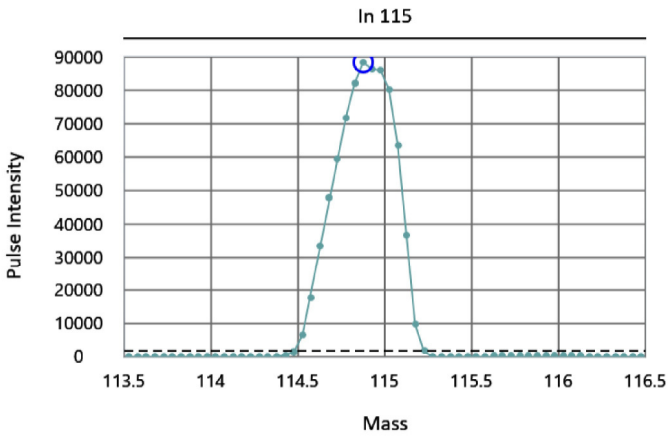
Acq. Date/Time: 6/9/2020 8:40:36 AM

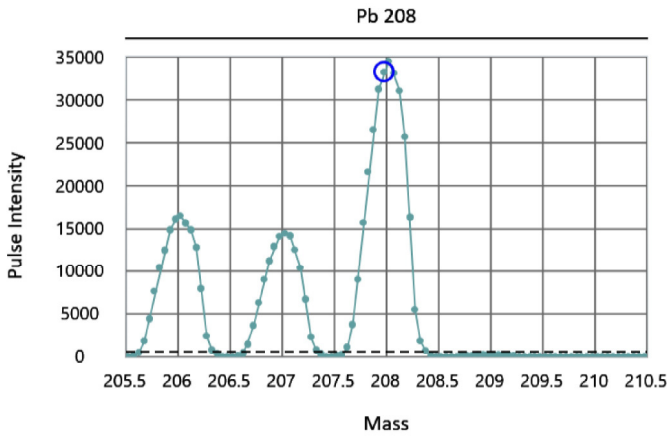
Sent to file: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\MassCal\Default.tun

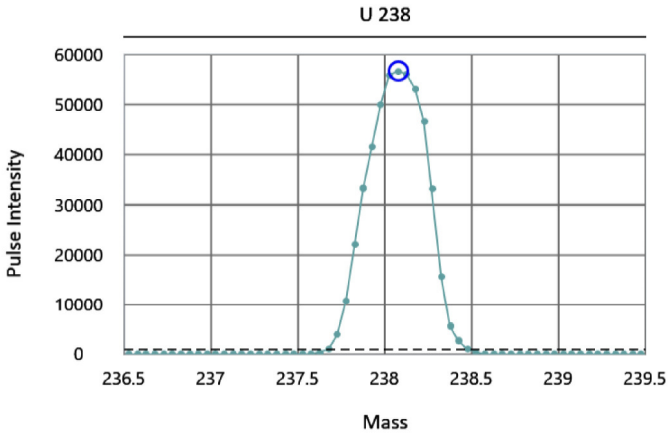
Analyte	Exact Mass	Meas. Mass	Mass DAC	Res DAC	Meas. Peak Width	Custom Res
Li	7.016	7.025	1319	2021	0.695	
Mg	23.985	23.975	4711	2021	0.689	
In	114.904	114.875	22852	2038	0.703	
Pb	207.977	207.975	41419	2060	0.698	
U	238.05	238.075	47424	2068	0.716	











SmartTune Wizard - Summary

Optimization Summary

SmartTune file: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Wizard\SmartTune\FA_SmartTune Daily.swz

Start Time: 6/10/2020 8:36:23 AM
End Time: 6/10/2020 8:38:42 AM

Lab Performance Check - [Passed] Optimum value(s): N/A
Obtained Intensity (Be 9): 9664.20
Obtained Intensity (Mg 24): 46962.07
Obtained Intensity (In 115): 96056.29
Obtained Intensity (U 238): 73555.10
Obtained Intensity (Bkgd 220): 0.00
Obtained Formula (CeO 156 / Ce 140): 0.025 (=1997.47 / 79067.82)
Obtained Formula (Ce++ 70 / Ce 140): 0.026 (=2045.35 / 79067.82)
Obtained RSD (Be 9): 0.0157
Obtained RSD (Mg 24): 0.0132
Obtained RSD (In 115): 0.0118
Obtained RSD (U 238): 0.0131

SmartTune Wizard - Details

Optimization Details

SmartTune file: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Wizard\SmartTune\FA_SmartTune Daily.swz

Optimization Status

Start Time: 6/10/2020 8:36:23 AM

Lab Performance Check

Optimization Settings:

Method: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Method\FA_Daily Performance.mth.
Intensity Criterion: Be 9 > 2000
Intensity Criterion: Mg 24 > 15000
Intensity Criterion: In 115 > 40000
Intensity Criterion: U 238 > 30000
Intensity Criterion: Bkgd 220 <= 5
Formula Criterion: CeO 156 / Ce 140 <= 0.03
Formula Criterion: Ce++ 70 / Ce 140 <= 0.05
RSD Criterion: Be 9.0122 < 0.05
RSD Criterion: Mg 23.985 < 0.05
RSD Criterion: In 114.904 < 0.05
RSD Criterion: U 238.05 < 0.05

Optimization Results:

Initial Try

Obtained Intensity (Be 9): 9664.20
Obtained Intensity (Mg 24): 46962.07
Obtained Intensity (In 115): 96056.29
Obtained Intensity (U 238): 73555.10
Obtained Intensity (Bkgd 220): 0.00
Obtained Formula (CeO 156 / Ce 140): 0.025 (=1997.47 / 79067.82)
Obtained Formula (Ce++ 70 / Ce 140): 0.026 (=2045.35 / 79067.82)
Obtained RSD (Be 9): 0.0157
Obtained RSD (Mg 24): 0.0132
Obtained RSD (In 115): 0.0118
Obtained RSD (U 238): 0.0131

[Passed] Optimum value(s): N/A

End Time: 6/10/2020 8:38:42 AM

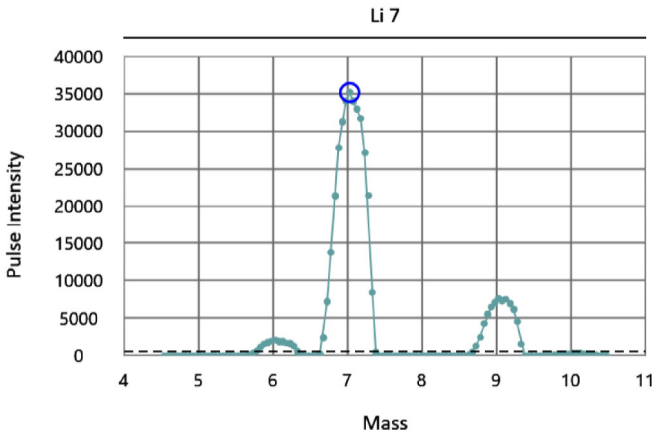
Mass Calibration and Resolution - [Passed] Optimum value(s): N/A

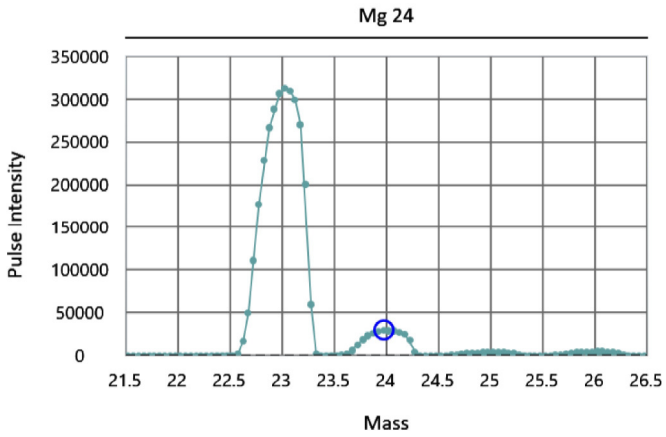
Target/Obtained mass (7.016/7.025), Target/Obtained resolution (0.7/0.706)
Target/Obtained mass (23.985/23.975), Target/Obtained resolution (0.7/0.703)
Target/Obtained mass (114.904/114.925), Target/Obtained resolution (0.7/0.702)
Target/Obtained mass (207.977/208.025), Target/Obtained resolution (0.7/0.703)
Target/Obtained mass (238.05/238.075), Target/Obtained resolution (0.7/0.695)

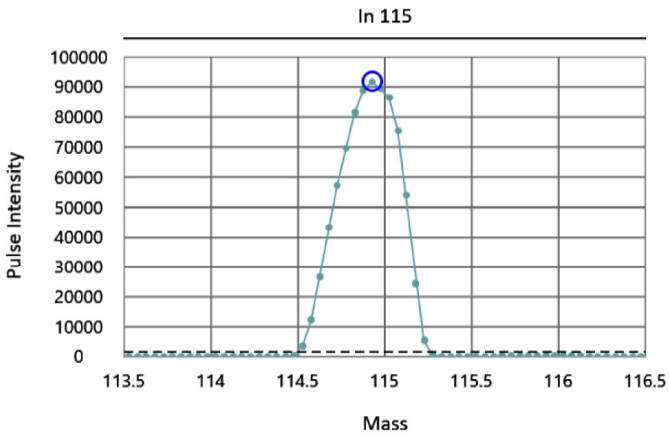
Acq. Date/Time: 6/10/2020 8:28:43 AM

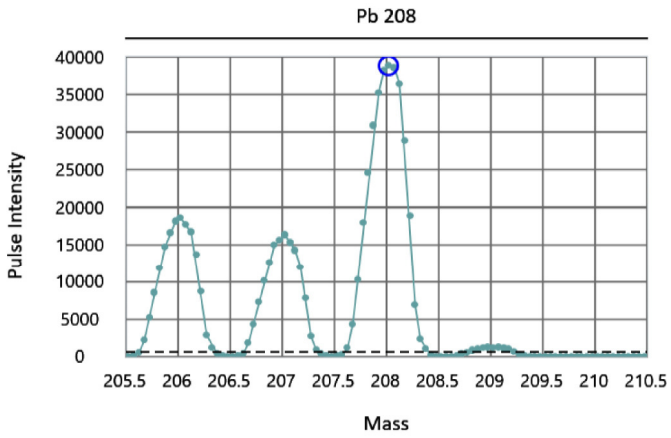
Sent to file: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\MassCal\Default.tun

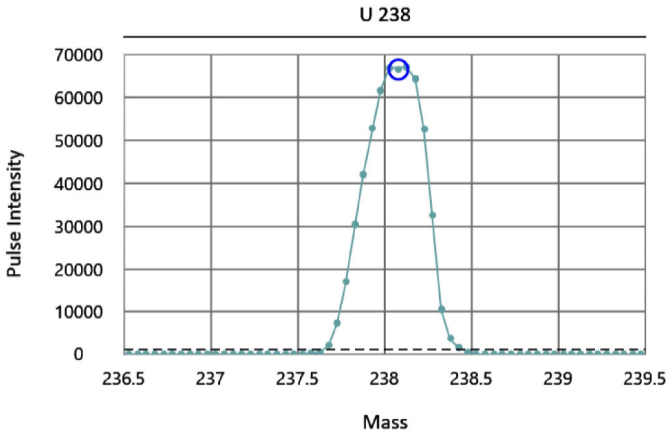
Analyte	Exact Mass	Meas. Mass	Mass DAC	Res DAC	Meas. Peak Width	Custom Res
Li	7.016	7.025	1320	2021	0.706	
Mg	23.985	23.975	4709	2021	0.703	
In	114.904	114.925	22856	2038	0.702	
Pb	207.977	208.025	41428	2060	0.703	
U	238.05	238.075	47428	2068	0.695	











SmartTune Wizard - Summary

Optimization Summary

SmartTune file: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Wizard\SmartTune\FA_SmartTune Daily.swz

Start Time: 6/15/2020 8:41:49 AM
End Time: 6/15/2020 8:44:09 AM

Lab Performance Check - [Passed] Optimum value(s): N/A
Obtained Intensity (Be 9): 13228.32
Obtained Intensity (Mg 24): 75689.60
Obtained Intensity (In 115): 129105.74
Obtained Intensity (U 238): 86956.20
Obtained Intensity (Bkgd 220): 0.20
Obtained Formula (CeO 156 / Ce 140): 0.029 (=3067.06 / 103983.44)
Obtained Formula (Ce++ 70 / Ce 140): 0.020 (=2053.08 / 103983.44)
Obtained RSD (Be 9): 0.0139
Obtained RSD (Mg 24): 0.0105
Obtained RSD (In 115): 0.0092
Obtained RSD (U 238): 0.0106

SmartTune Wizard - Details

Optimization Details

SmartTune file: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Wizard\SmartTune\FA_SmartTune Daily.swz

Optimization Status

Start Time: 6/15/2020 8:41:49 AM

Lab Performance Check

Optimization Settings:

Method: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Method\FA_Daily Performance.mth.
Intensity Criterion: Be 9 > 2000
Intensity Criterion: Mg 24 > 15000
Intensity Criterion: In 115 > 40000
Intensity Criterion: U 238 > 30000
Intensity Criterion: Bkgd 220 <= 5
Formula Criterion: CeO 156 / Ce 140 <= 0.03
Formula Criterion: Ce++ 70 / Ce 140 <= 0.05
RSD Criterion: Be 9.0122 < 0.05
RSD Criterion: Mg 23.985 < 0.05
RSD Criterion: In 114.904 < 0.05
RSD Criterion: U 238.05 < 0.05

Optimization Results:

Initial Try

Obtained Intensity (Be 9): 13228.32
Obtained Intensity (Mg 24): 75689.60
Obtained Intensity (In 115): 129105.74
Obtained Intensity (U 238): 86956.20
Obtained Intensity (Bkgd 220): 0.20
Obtained Formula (CeO 156 / Ce 140): 0.029 (=3067.06 / 103983.44)
Obtained Formula (Ce++ 70 / Ce 140): 0.020 (=2053.08 / 103983.44)
Obtained RSD (Be 9): 0.0139
Obtained RSD (Mg 24): 0.0105
Obtained RSD (In 115): 0.0092
Obtained RSD (U 238): 0.0106

[Passed] Optimum value(s): N/A

End Time: 6/15/2020 8:44:09 AM

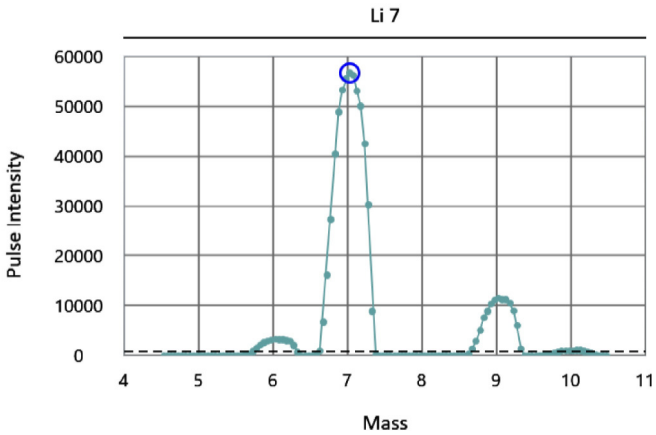
Mass Calibration and Resolution - [Passed] Optimum value(s): N/A

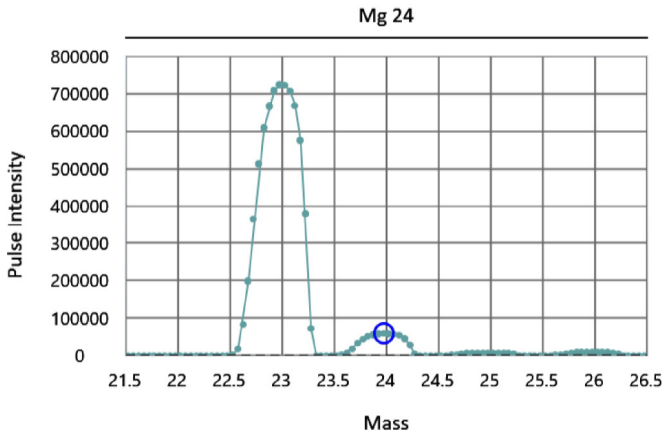
Target/Obtained mass (7.016/7.025), Target/Obtained resolution (0.7/0.719)
Target/Obtained mass (23.985/23.975), Target/Obtained resolution (0.7/0.709)
Target/Obtained mass (114.904/114.875), Target/Obtained resolution (0.7/0.709)
Target/Obtained mass (207.977/207.975), Target/Obtained resolution (0.7/0.707)
Target/Obtained mass (238.05/238.075), Target/Obtained resolution (0.7/0.698)

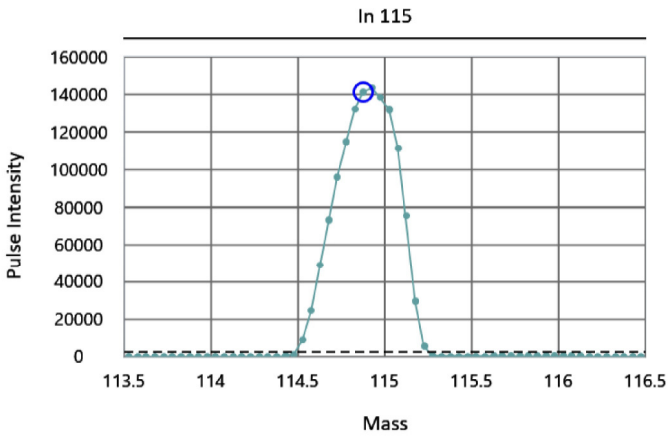
Acq. Date/Time: 6/15/2020 8:32:14 AM

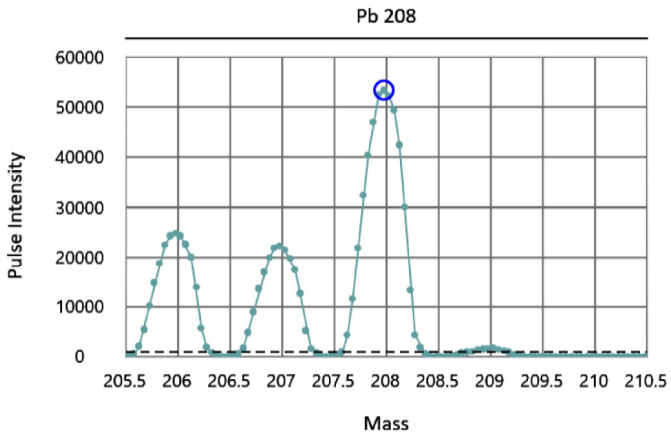
Sent to file: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\MassCal\Default.tun

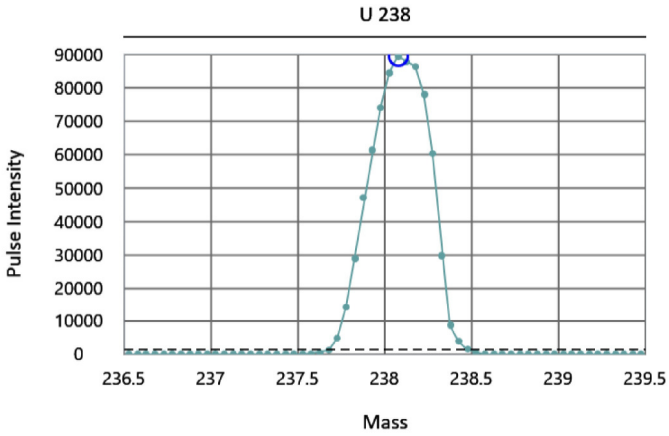
Analyte	Exact Mass	Meas. Mass	Mass DAC	Res DAC	Meas. Peak Width	Custom Res
Li	7.016	7.025	1323	2021	0.719	
Mg	23.985	23.975	4712	2021	0.709	
In	114.904	114.875	22848	2038	0.709	
Pb	207.977	207.975	41425	2060	0.707	
U	238.05	238.075	47422	2068	0.698	











Fremont Analytical, Inc 206.352.3790

DATA SET for Review -- Deliverable Requirements

Total Organic Carbon Analysis by EPA 9060

Fremont Analytical Work Order No. 2006085

Libby Environmental

Project Name: Hardel Site

Project No. L200603-7

This Data contains the following:

- Analytical Sequence Summary for **Work Order 2006085**
- Calibration Information for **Work Order 2006085**

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA
98103
USA

Date Prepared: 2020/06/18 By:

Date Approved: 2020/06/18 By: TOC

Sample Results Summary

Spl #	Sample ID	Num Rep	Act Rep	Method	Type	Customer ID	Mode	Avg. Area (cts)	Avg. Mass (mgC)	Avg. %Carbon	Avg. %SOM	Std. Dev	% RSD	Notes
1	CCV-28695A	3	4	TOC-S-9060S - Jul 23, 2019; 10-51-57 AM	Sample	00000000	TC	61273	1.057	1.057	1.822	1,369.71	2.24	Pass
2	CCB_MB-28695	3	4	TOC-S-9060S - Jul 23, 2019; 10-51-57 AM	Sample	00000000	TC	857	0.000	0.000	0.000	11.15	1.30	Pass
1	LCS-28695	3	4	TOC-S-9060S - Jul 23, 2019; 10-51-57 AM	Sample	00000000	TC	62191	1.074	1.074	1.852	1,395.56	2.24	Pass
2	2006085-016A	3	4	TOC-S-9060S - Jul 23, 2019; 10-51-57 AM	Sample	00000000	TC	325941	5.963	5.951	10.260	3,753.05	1.15	Pass
3	2006085-016ADUP	3	4	TOC-S-9060S - Jul 23, 2019; 10-51-57 AM	Sample	00000000	TC	109371	1.948	1.935	3.336	1,127.43	1.03	Pass
4	2006085-016AMS	3	4	TOC-S-9060S - Jul 23, 2019; 10-51-57 AM	Sample	00000000	TC	168167	3.038	3.044	5.249	1,106.85	0.66	Pass
5	2006085-016AMSD	3	4	TOC-S-9060S - Jul 23, 2019; 10-51-57 AM	Sample	00000000	TC	185494	3.359	3.356	5.786	1,412.96	0.76	Pass
6	MDL1	3	4	TOC-S-9060S - Jul 23, 2019; 10-51-57 AM	Sample	00000000	TC	5999	0.032	0.032	0.056	125.31	2.09	Pass
7	MDL2	3	4	TOC-S-9060S - Jul 23, 2019; 10-51-57 AM	Sample	00000000	TC	5341	0.020	0.020	0.035	77.40	1.45	Pass
8	MDL3	3	4	TOC-S-9060S - Jul 23, 2019; 10-51-57 AM	Sample	00000000	TC	5415	0.022	0.022	0.037	149.82	2.77	Pass
9	CCV-28695B	3	4	TOC-S-9060S - Jul 23, 2019; 10-51-57 AM	Sample	00000000	TC	60963	1.051	1.051	1.812	1,248.17	2.05	Pass
10	CCB-28695B	3	4	TOC-S-9060S - Jul 23, 2019; 10-51-57 AM	Sample	00000000	TC	744	0.000	0.000	0.000	32.51	4.37	Pass
1	CCV-28695C	3	4	TOC-S-9060S - Jul 23, 2019; 10-51-57 AM	Sample	00000000	TC	59981	1.033	1.033	1.781	1,375.46	2.29	Pass
2	CCB-28695C	3	4	TOC-S-9060S - Jul 23, 2019; 10-51-57 AM	Sample	00000000	TC	695	0.000	0.000	0.000	42.47	6.11	Pass
3	2006085-016A	3	4	TOC-S-9060S - Jul 23, 2019; 10-51-57 AM	Sample	00000000	TC	98594	1.749	3.363	5.798	1,975.40	2.00	Pass
4	CCV-28695D	3	4	TOC-S-9060S - Jul 23, 2019; 10-51-57 AM	Sample	00000000	TC	61609	1.063	1.063	1.833	1,348.57	2.19	Pass
5	CCB-28695D	3	4	TOC-S-9060S - Jul 23, 2019; 10-51-57 AM	Sample	00000000	TC	820	0.000	0.000	0.000	19.37	2.36	Pass

Fremont Analytical
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Seattle, WA
98103
USA

Date Prepared: 2020/06/18 **By:** TOC
Date Approved: 2020/06/18 **By:** TOC

Sample Results

Spl #: 1 **Sample ID :** CCV-28695A **Type :** Sample **Date:** 2020/06/17 **Status:** Pass
Method : TOC-S-9060S - Jul 23, 2019; 10-51-57 AM **Customer ID:** 00000000

Rep #	Time	TC Area (cts)	TC Mass (mgC)	TC %Carbon	TC %SOM	TOC Area (cts)	TOC Mass (mgC)	TOC %Carbon	TOC %SOM
1	10:56 am	46,033	0.774	0.774	1.335	-	-	-	-
2	11:00 am	59,743	1.029	1.029	1.773	-	-	-	-
3	11:05 am	61,689	1.065	1.065	1.836	-	-	-	-
4	11:09 am	62,386	1.078	1.078	1.858	-	-	-	-
	Avg.	61,273	1.057	1.057	1.822	-	-	-	-
	Std.Dev.	1,370							
	% RSD.	2.24							

Spl #: 2 **Sample ID :** CCB_MB-28695 **Type :** Sample **Date:** 2020/06/17 **Status:** Pass
Method : TOC-S-9060S - Jul 23, 2019; 10-51-57 AM **Customer ID:** 00000000

Rep #	Time	TC Area (cts)	TC Mass (mgC)	TC %Carbon	TC %SOM	TOC Area (cts)	TOC Mass (mgC)	TOC %Carbon	TOC %SOM
1	11:15 am	860	0.000	0.000	0.000	-	-	-	-
2	11:19 am	920	0.000	0.000	0.000	-	-	-	-
3	11:22 am	844	0.000	0.000	0.000	-	-	-	-
4	11:26 am	866	0.000	0.000	0.000	-	-	-	-
	Avg.	857	0.000	0.000	0.000	-	-	-	-
	Std.Dev.	11							
	% RSD.	1.30							

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Seattle, WA
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USA

Date Prepared: 2020/06/18 By:
Date Approved: 2020/06/18 By:

Spl #: 1 **Sample ID :** LCS-28695 **Type :** Sample **Date:** 2020/06/17 **Status:** Pass
Method : TOC-S-9060S - Jul 23, 2019; 10-51-57 AM **Customer ID:** 00000000

Rep #	Time	TC Area (cts)	TC Mass (mgC)	TC %Carbon	TC %SOM	TOC Area (cts)	TOC Mass (mgC)	TOC %Carbon	TOC %SOM
1	12:00 pm	45,415	0.763	0.763	1.316	-	-	-	-
2	12:04 pm	60,613	1.045	1.045	1.801	-	-	-	-
3	12:09 pm	62,701	1.083	1.083	1.868	-	-	-	-
4	12:13 pm	63,260	1.094	1.094	1.886	-	-	-	-
	Avg.	62,191	1.074	1.074	1.852	-	-	-	-
	Std.Dev.	1,396							
	% RSD.	2.24							

Spl #: 2 **Sample ID :** 2006085-016A **Type :** Sample **Date:** 2020/06/17 **Status:** Pass
Method : TOC-S-9060S - Jul 23, 2019; 10-51-57 AM **Customer ID:** 00000000

Rep #	Time	TC Area (cts)	TC Mass (mgC)	TC %Carbon	TC %SOM	TOC Area (cts)	TOC Mass (mgC)	TOC %Carbon	TOC %SOM
1	12:28 pm	296,380	5.415	5.404	9.317	-	-	-	-
2	12:33 pm	321,640	5.883	5.871	10.123	-	-	-	-
3	12:38 pm	327,628	5.994	5.982	10.314	-	-	-	-
4	12:43 pm	328,554	6.011	5.999	10.343	-	-	-	-
	Avg.	325,941	5.963	5.951	10.260	-	-	-	-
	Std.Dev.	3,753							
	% RSD.	1.15							

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3600 Fremont Ave N.
Seattle, WA
98103
USA

Date Prepared: 2020/06/18 By: TOC
Date Approved: 2020/06/18 By: TOC

Spl #: 3 **Sample ID :** 2006085-016ADUP **Type :** Sample **Date:** 2020/06/17 **Status:** Pass
Method : TOC-S-9060S - Jul 23, 2019; 10-51-57 AM **Customer ID:** 00000000

Rep #	Time	TC Area (cts)	TC Mass (mgC)	TC %Carbon	TC %SOM	TOC Area (cts)	TOC Mass (mgC)	TOC %Carbon	TOC %SOM
1	12:49 pm	95,910	1.699	1.687	2.909	-	-	-	-
2	12:54 pm	108,073	1.924	1.911	3.295	-	-	-	-
3	12:59 pm	109,940	1.959	1.945	3.354	-	-	-	-
4	1:03 pm	110,101	1.962	1.948	3.359	-	-	-	-
	Avg.	109,371	1.948	1.935	3.336	-	-	-	-
	Std.Dev.	1,127							
	% RSD.	1.03							

Spl #: 4 **Sample ID :** 2006085-016AMS **Type :** Sample **Date:** 2020/06/17 **Status:** Pass
Method : TOC-S-9060S - Jul 23, 2019; 10-51-57 AM **Customer ID:** 00000000

Rep #	Time	TC Area (cts)	TC Mass (mgC)	TC %Carbon	TC %SOM	TOC Area (cts)	TOC Mass (mgC)	TOC %Carbon	TOC %SOM
1	1:10 pm	153,490	2.766	2.772	4.779	-	-	-	-
2	1:15 pm	166,922	3.015	3.021	5.209	-	-	-	-
3	1:19 pm	168,540	3.045	3.051	5.261	-	-	-	-
4	1:24 pm	169,039	3.054	3.061	5.277	-	-	-	-
	Avg.	168,167	3.038	3.044	5.249	-	-	-	-
	Std.Dev.	1,107							
	% RSD.	0.66							

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Seattle, WA
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USA

Date Prepared: 2020/06/18 **By:** TOC
Date Approved: 2020/06/18 **By:** TOC

Spl #: 5 **Sample ID :** 2006085-016AMSD **Type :** Sample **Date:** 2020/06/17 **Status:** Pass
Method : TOC-S-9060S - Jul 23, 2019; 10-51-57 AM **Customer ID:** 00000000

Rep #	Time	TC Area (cts)	TC Mass (mgC)	TC %Carbon	TC %SOM	TOC Area (cts)	TOC Mass (mgC)	TOC %Carbon	TOC %SOM
1	2:31 pm	170,018	3.073	3.069	5.292	-	-	-	-
2	2:36 pm	183,918	3.330	3.327	5.736	-	-	-	-
3	2:40 pm	185,915	3.367	3.364	5.800	-	-	-	-
4	2:45 pm	186,648	3.381	3.377	5.823	-	-	-	-
	Avg.	185,494	3.359	3.356	5.786	-	-	-	-
	Std.Dev.	1,413							
	% RSD.	0.76							

Spl #: 6 **Sample ID :** MDL1 **Type :** Sample **Date:** 2020/06/17 **Status:** Pass
Method : TOC-S-9060S - Jul 23, 2019; 10-51-57 AM **Customer ID:** 00000000

Rep #	Time	TC Area (cts)	TC Mass (mgC)	TC %Carbon	TC %SOM	TOC Area (cts)	TOC Mass (mgC)	TOC %Carbon	TOC %SOM
1	2:51 pm	5,018	0.014	0.014	0.025	-	-	-	-
2	2:55 pm	5,960	0.032	0.032	0.055	-	-	-	-
3	2:59 pm	6,139	0.035	0.035	0.060	-	-	-	-
4	3:03 pm	5,897	0.031	0.031	0.053	-	-	-	-
	Avg.	5,999	0.032	0.032	0.056	-	-	-	-
	Std.Dev.	125							
	% RSD.	2.09							

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Seattle, WA
98103
USA

Date Prepared: 2020/06/18 **By:** TOC
Date Approved: 2020/06/18 **By:** TOC

Spl #: 7 **Sample ID :** MDL2 **Type :** Sample **Date:** 2020/06/17 **Status:** Pass
Method : TOC-S-9060S - Jul 23, 2019; 10-51-57 AM **Customer ID:** 00000000

Rep #	Time	TC Area (cts)	TC Mass (mgC)	TC %Carbon	TC %SOM	TOC Area (cts)	TOC Mass (mgC)	TOC %Carbon	TOC %SOM
1	3:10 pm	3,927	0.000	0.000	0.000	-	-	-	-
2	3:13 pm	5,259	0.019	0.019	0.032	-	-	-	-
3	3:17 pm	5,353	0.020	0.020	0.035	-	-	-	-
4	3:21 pm	5,412	0.022	0.022	0.037	-	-	-	-
	Avg.	5,341	0.020	0.020	0.035	-	-	-	-
	Std.Dev.	77							
	% RSD.	1.45							

Spl #: 8 **Sample ID :** MDL3 **Type :** Sample **Date:** 2020/06/17 **Status:** Pass
Method : TOC-S-9060S - Jul 23, 2019; 10-51-57 AM **Customer ID:** 00000000

Rep #	Time	TC Area (cts)	TC Mass (mgC)	TC %Carbon	TC %SOM	TOC Area (cts)	TOC Mass (mgC)	TOC %Carbon	TOC %SOM
1	3:28 pm	3,875	0.000	0.000	0.000	-	-	-	-
2	3:32 pm	5,242	0.018	0.018	0.032	-	-	-	-
3	3:35 pm	5,510	0.023	0.023	0.040	-	-	-	-
4	3:39 pm	5,492	0.023	0.023	0.040	-	-	-	-
	Avg.	5,415	0.022	0.022	0.037	-	-	-	-
	Std.Dev.	150							
	% RSD.	2.77							

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Seattle, WA
98103
USA

Date Prepared: 2020/06/18 **By:** TOC
Date Approved: 2020/06/18 **By:** TOC

Spl #: 9 **Sample ID :** CCV-28695B **Type :** Sample **Date:** 2020/06/17 **Status:** Pass
Method : TOC-S-9060S - Jul 23, 2019; 10-51-57 AM **Customer ID:** 00000000

Rep #	Time	TC Area (cts)	TC Mass (mgC)	TC %Carbon	TC %SOM	TOC Area (cts)	TOC Mass (mgC)	TOC %Carbon	TOC %SOM
1	3:47 pm	47,276	0.798	0.798	1.375	-	-	-	-
2	3:51 pm	59,522	1.024	1.024	1.766	-	-	-	-
3	3:56 pm	61,713	1.065	1.065	1.836	-	-	-	-
4	4:00 pm	61,654	1.064	1.064	1.834	-	-	-	-
	Avg.	60,963	1.051	1.051	1.812	-	-	-	-
	Std.Dev.	1,248							
	% RSD.	2.05							

Spl #: 10 **Sample ID :** CCB-28695B **Type :** Sample **Date:** 2020/06/17 **Status:** Pass
Method : TOC-S-9060S - Jul 23, 2019; 10-51-57 AM **Customer ID:** 00000000

Rep #	Time	TC Area (cts)	TC Mass (mgC)	TC %Carbon	TC %SOM	TOC Area (cts)	TOC Mass (mgC)	TOC %Carbon	TOC %SOM
1	4:07 pm	738	0.000	0.000	0.000	-	-	-	-
2	4:11 pm	933	0.000	0.000	0.000	-	-	-	-
3	4:14 pm	715	0.000	0.000	0.000	-	-	-	-
4	4:18 pm	779	0.000	0.000	0.000	-	-	-	-
	Avg.	744	0.000	0.000	0.000	-	-	-	-
	Std.Dev.	33							
	% RSD.	4.37							

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA
98103
USA

Date Prepared: 2020/06/18 **By:** TOC
Date Approved: 2020/06/18 **By:** TOC

Spl #: 1 **Sample ID :** CCV-28695C **Type :** Sample **Date:** 2020/06/18 **Status:** Pass
Method : TOC-S-9060S - Jul 23, 2019; 10-51-57 AM **Customer ID:** 00000000

Rep #	Time	TC Area (cts)	TC Mass (mgC)	TC %Carbon	TC %SOM	TOC Area (cts)	TOC Mass (mgC)	TOC %Carbon	TOC %SOM
1	10:44 am	45,354	0.762	0.762	1.314	-	-	-	-
2	10:48 am	58,401	1.004	1.004	1.730	-	-	-	-
3	10:52 am	60,634	1.045	1.045	1.802	-	-	-	-
4	10:57 am	60,908	1.050	1.050	1.811	-	-	-	-
	Avg.	59,981	1.033	1.033	1.781	-	-	-	-
	Std.Dev.	1,375							
	% RSD.	2.29							

Spl #: 2 **Sample ID :** CCB-28695C **Type :** Sample **Date:** 2020/06/18 **Status:** Pass
Method : TOC-S-9060S - Jul 23, 2019; 10-51-57 AM **Customer ID:** 00000000

Rep #	Time	TC Area (cts)	TC Mass (mgC)	TC %Carbon	TC %SOM	TOC Area (cts)	TOC Mass (mgC)	TOC %Carbon	TOC %SOM
1	11:03 am	682	0.000	0.000	0.000	-	-	-	-
2	11:07 am	812	0.000	0.000	0.000	-	-	-	-
3	11:10 am	661	0.000	0.000	0.000	-	-	-	-
4	11:15 am	743	0.000	0.000	0.000	-	-	-	-
	Avg.	695	0.000	0.000	0.000	-	-	-	-
	Std.Dev.	42							
	% RSD.	6.11							

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA
98103
USA

Date Prepared: 2020/06/18 **By:**

Date Approved: 2020/06/18 **By:** TOC

Spl #: 3 **Sample ID :** 2006085-016A **Type :** Sample **Date:** 2020/06/18 **Status:** Pass
Method : TOC-S-9060S - Jul 23, 2019; 10-51-57 AM **Customer ID:** 00000000

Rep #	Time	TC Area (cts)	TC Mass (mgC)	TC %Carbon	TC %SOM	TOC Area (cts)	TOC Mass (mgC)	TOC %Carbon	TOC %SOM
1	11:22 am	79,040	1.386	2.666	4.596	-	-	-	-
2	11:27 am	96,322	1.707	3.282	5.658	-	-	-	-
3	11:31 am	99,561	1.767	3.397	5.857	-	-	-	-
4	11:36 am	99,900	1.773	3.409	5.878	-	-	-	-
	Avg.	98,594	1.749	3.363	5.798	-	-	-	-
	Std.Dev.	1,975							
	% RSD.	2.00							

Spl #: 4 **Sample ID :** CCV-28695D **Type :** Sample **Date:** 2020/06/18 **Status:** Pass
Method : TOC-S-9060S - Jul 23, 2019; 10-51-57 AM **Customer ID:** 00000000

Rep #	Time	TC Area (cts)	TC Mass (mgC)	TC %Carbon	TC %SOM	TOC Area (cts)	TOC Mass (mgC)	TOC %Carbon	TOC %SOM
1	11:43 am	44,961	0.755	0.755	1.301	-	-	-	-
2	11:47 am	60,077	1.035	1.035	1.784	-	-	-	-
3	11:51 am	62,133	1.073	1.073	1.850	-	-	-	-
4	11:55 am	62,616	1.082	1.082	1.865	-	-	-	-
	Avg.	61,609	1.063	1.063	1.833	-	-	-	-
	Std.Dev.	1,349							
	% RSD.	2.19							

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA
98103
USA

Date Prepared: 2020/06/18 **By:**

Date Approved: 2020/06/18 **By:** TOC

Spl #: 5 **Sample ID :** CCB-28695D **Type :** Sample **Date:** 2020/06/18 **Status:** Pass

Method : TOC-S-9060S - Jul 23, 2019; 10-51-57 AM **Customer ID:** 00000000

Rep #	Time	TC Area (cts)	TC Mass (mgC)	TC %Carbon	TC %SOM	TOC Area (cts)	TOC Mass (mgC)	TOC %Carbon	TOC %SOM
1	12:02 pm	841	0.000	0.000	0.000	-	-	-	-
2	12:06 pm	803	0.000	0.000	0.000	-	-	-	-
3	12:11 pm	948	0.000	0.000	0.000	-	-	-	-
4	12:14 pm	816	0.000	0.000	0.000	-	-	-	-
	Avg.	820	0.000	0.000	0.000	-	-	-	-
	Std.Dev.	19							
	% RSD.	2.36							

Method Summary

Method Details

Method Name:	TOC-S-9060S - Jul 23, 2019; 10-51-57 AM
Date Created:	2019/07/23
Time Created:	10:51 am
Created By:	toc

Analysis Mode: Solids - TC

Sparging Mode:	n/a
Pre-Acid Volume (mL):	n/a
Sparge Time (mm:ss):	n/a

Volumes

Sample Volume (mL):	8.000

Other

SysPressure:	20.00

Times

React Time:	03:00
Detect Time:	07:00

Temp

React Temp:	910

Outlier Removal Criteria

Enabled:	Yes
Additional Replicates:	1
Max. % RSD.	2.00
Max. Std. Dev.	100

Calibration Summary

Calibration Mode

Primary Mode:	TC
User for ALL Modes:	Enabled

Calibration Pass/Fail Criteria

Parameter	Enabled	Low	High	Failure
RF (mgC/K-cts)	Yes	0.1000	0.3000	Continue
R2	Yes	0.950	1.000	Continue
Offset (area) (cts)	No	-	-	-
Offset (mass) (mgC)	No	-	-	-
QC Blank(cts)	No	-	-	-

Checks, QC's and Actions

Type	Target mgC	Tolerance (+/- %)	1st Failure	2nd Failure
CK Std	n/a	10,000.00	Re-run	Continue
QC #1	0.000	10,000.00	Re-run	Continue
QC #2	0.000	10,000.00	Re-run	Continue
QC #3	0.000	10,000.00	Re-run	Continue
QC #4	0.000	10,000.00	Re-run	Continue

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3600 Fremont Ave N.
Seattle, WA
98103
USA

Date Prepared: 2020/06/18 **By:** TOC

Date Approved: 2020/06/18 **By:** TOC

Calibration Details

Calibration Mode:	TC
Date Calibrated:	2020/05/21
Time Calibrated:	10:38 am
Calibrated By:	toc
RF (mgC/k-cts):	0.0185
R2:	0.9989
R:	0.9995
QC Blank(cts):	0
Offset (cts):	4250
Offset (mgC):	-0.079

Calibration Settings

EFC Enabled:	No
Total Flowrate w/EFC:	50 ml/min
Check Standards:	Subtract Offset
Samples:	Substract Offset
Regression type:	Unweighted Linear

Calibration

OI Analytical - TOC Reporter - P843732823 - Wet-Chemistry

File Edit View Reporting Tools Help

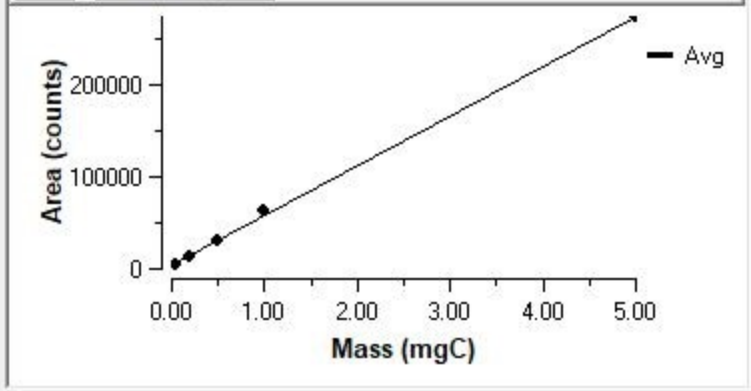
Cust. Info. | Company Info | Instruments | Quick View

Methods (Method Name sorted)

- NPOC LINEAR 20181213 - Dec 13, 2018; 06-55-51 PM
- NPOC LINEAR_20181219 - Dec 19, 2018; 11-42-43 AM
- NPOC LINEAR_ver3 - Mar 06, 2019; 02-51-30 PM
- TOC SOLIDS - Jan 30, 2019; 02-52-02 PM
- TOC SOLIDS (2) - Feb 14, 2019; 01-28-42 PM
- TOC SOLIDS (3) - Feb 27, 2019; 06-13-15 PM
- TOC-S 5mgC Top - Mar 08, 2019; 01-47-34 PM
- TOC-S SUCROSE CAL - Apr 29, 2019; 12-38-00 PM
- TOC-S SUCROSE CAL2 - May 09, 2019; 11-12-36 AM
- TOC-S-9060S - Jul 23, 2019; 10-51-57 AM
  - 07-24-2019 06:15 PM
  - 11-20-2019 02:39 PM
  - 12-10-2019 06:42 PM
  - 03-02-2020 04:24 PM
  - 03-16-2020 02:03 PM
  - 04-22-2020 01:38 PM
  - 04-24-2020 01:38 PM
  - 04-27-2020 01:31 PM
  - 05-20-2020 02:11 PM
    - 05-21-2020 10:36 AM
    - 05-21-2020 10:38 AM

Method Details | TIC | TOC | TC | POC

Calibration Curve



Calibration Details

Revision: 9-2020-05-21; 10:38 AM

Modified By: toc

Date Created: 2019-07-23; 10:51 AM

Last Modified: 2020-05-21; 10:38 AM

Reagent Blank(cts): 0

RF(mgC/k-cnt) 0.0185

R^2 : 0.9989

Offset Area (cts): 4250

Offset(mass) -0.08

Std #	Mass (mgC)	Volume(mL)	# Reps	Area (counts)	Std.Dev	%RSD	Date Analyzed
RW	0.000	0.000	0	0	0	0.00	2019-07-24; 01:45 PM
1	0.050	8.000	4	4881	153	3.13	2020-05-20; 10:10 AM
2	0.200	8.000	4	13627	223	1.63	2020-05-20; 10:31 AM
3	0.500	8.000	4	30108	632	2.10	2020-05-20; 10:54 AM
4	1.000	8.000	4	63711	1283	2.01	2020-05-20; 11:17 AM
5	5.000	8.000	4	273095	4348	1.59	2020-05-20; 11:42 AM
6	10.000	8.000	4	0	0	0.00	2020-05-20; 12:09 PM
7	15.000	8.000	4	0	0	0.00	2020-05-20; 01:23 PM
8	25.000	8.000	4	0	0	0.00	2020-05-20; 01:51 PM

Edit Calibration in Workspace

toc - Sr. User

Libby Environmental, Inc.

3322 South Bay Road NE • Olympia, WA 98506-2957

August 20, 2020

Joel Hecker
Pioneer Technologies Corporation
5205 Corporate Center Ct SE, Suite C
Lacey, WA 98503

Dear Mr. Hecker:

Please find enclosed the analytical data report for the Hardel Site Project located in Olympia, Washington.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. The sample(s) will be disposed of within 30 days unless we are contacted to arrange long term storage.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Sherry L. Chilcutt
Senior Chemist
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@gmail.com

Libby Environmental, Inc.

Chain of Custody Record

www.LibbyEnvironmental.com

3322 South Bay Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Date: 06/03/2020 Page: 1 of 2

Client: Pioneer Technologies
Project Manager: Joel Hecker
Address: 5205 Corporate Center Court SE, Suite C
Project Name: Hardel Site
City: Lacey State: WA Zip: 98503
Location: 1210 West Bay Dr. City, State: Olympia WA
Phone: 360-828-3739 Fax:
Collector: SH / MK Date of Collection: 6/3
Client Project # Hardel Site
Email: heckerj@uspioneer.com

Sample Number	Depth	Time	Sample Type	Container Type	VOC 8260	PCE & Daughter Prod.	NWTPH-Gx	BTEX (8260) / (8021)	NWTPH-HCID	NWTPH-Dx / Dx	PCB 8082	MTCA 5 Metals	RCRA 8 Metals	c PAH 8270	PAH 8270	Semi Vol 8270	EPA	TOC	Field Notes
1 GW-B1-0603	10-15	1400	Grab	multiple	X		X			X			X			X			metals dissolved
2 GW-B2-0603	3-8	1300																	in field
3 GW-B3-0603	3-8	1210																	
4 GW-B4-0603	7-12	1110																	
5 GW-B5-0603	3-8	1000																	
6 GW-B6-0603	3-8	915																	
7 GW-B6-0603-01	3-8	915					X			X			X			X			
8 Trip Blank 0603	—	—			X														
9 S-B1-4-5-0603	4-5	1340			X		X			X			X		X				Sample potentially impacted
10 S-B2-2-4-0603	2-4	1230															X		Sample potentially impacted
11 S-B3-2-3-0603	2-3	1130															X		
12 S-B4-1-3-0603	1-3	1030																X	Std TAT
13 S-B4-1-3-0603-01	1-3	1030																	Added 6-11-2020
14 S-B4-11-12-0603	11-12	1045			X										X				per Joel via email.
15 S-B5-3-4-0603	3-4	0920			X		X			X			X		[illegible]	X		X	TOC added per Joel
16 S-B6-3-4-0603	3-4	0845			X		X			X			X			X			email. 8-12-2020
17 S-B7-3-5-0603	3-5	1600			X		X			X			X			X			STD TAT

Relinquished by:	Date / Time	Received by:	Date / Time
[signature]	6/3 1712	[signature]	6/3/20 1710 MK

Sample Receipt

Good Condition?	Y N
Cooler Temp.	°C
Sample Temp.	°C
Total Number of Containers	

Remarks: need TPH-D, G, + HO

TAT: 24HR 48HR 5-DAY

LEGAL ACTION CLAUSE: *In the event of default of payment and/or failure to pay, Client agrees to pay the costs of collection including court costs and reasonable attorney fees to be determined by a court of law.*

Distribution: White - Lab, Yellow - Originator

Libby Environmental, Inc.

Chain of Custody Record

www.LibbyEnvironmental.com

3322 South Bay Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Date: 6/3 Page: 2 of 2

Client: Pioneer Technologies
Project Manager: Joel Hecker
Address:
Project Name: Hardel
City: State: Zip:
Location: City, State:
Phone: 360-828-3729 Fax:
Collector: Date of Collection: 6/3
Client Project #
Email: heckerj@uspioneer.com

	Sample Number	Depth	Time	Sample Type	Container Type	VOC 8260	PCE & Daughter Prod.	NWTPH-Gx	BTEX (8260) / (8021)	NWTPH-HCID	NWTPH-Dx / Dx	PCB 8082	MTCA 5 Metals	RCRA 8 Metals	c PAH 8270	PAH 8270	Semi Vol 8270	TOC			Field Notes
1	3-B8-4-5-0603	4-5	1620	Grab	multiple	X		X			X					X		(X)			Std TAT
2	5-B9-6-7-0603	6-7	1640	↓	↓	X		X			X					X					Added 6-11-2020
3																					per Joel via email
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					
16																					
17																					

Relinquished by:	Date / Time	Received by:	Date / Time
[signature]	6/3 1710	[signature]	6/3/20 1710
Relinquished by:	Date / Time	Received by:	Date / Time
Relinquished by:	Date / Time	Received by:	Date / Time

Sample Receipt

Good Condition?	(Y) N
Cooler Temp.	°C
Sample Temp.	°C
Total Number of Containers	

Remarks: need TPH-D, G, + HO

TAT: 24HR 48HR (5-DAY)

LEGAL ACTION CLAUSE: *In the event of default of payment and/or failure to pay, Client agrees to pay the costs of collection including court costs and reasonable attorney fees to be determined by a court of law.*

Distribution: White - Lab, Yellow - Originator

Libby Environmental, Inc.

3322 South Bay Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@gmail.com

HARDEL SITE PROJECT
Pioneer Technologies
Libby Project # L200603-7
Date Received 6/3/2020
Time Received 5:10 PM

Received By KE

Sample Receipt Checklist

Chain of Custody

1. Is the Chain of Custody complete?	☑ Yes	☐ No	
2. How was the sample delivered?	☑ Hand Delivered	☐ Picked Up	☐ Shipped

Log In

3. Cooler or Shipping Container is present.	☑ Yes	☐ No	☐ N/A
4. Cooler or Shipping Container is in good condition.	☑ Yes	☐ No	☐ N/A
5. Cooler or Shipping Container has Custody Seals present.	☐ Yes	☑ No	☐ N/A
6. Was an attempt made to cool the samples?	☑ Yes	☐ No	☐ N/A
7. Temperature of cooler (0°C to 8°C recommended)	0.9 °C		
8. Temperature of sample(s) (0°C to 8°C recommended)	1.8 °C		
9. Did all containers arrive in good condition (unbroken)?	☑ Yes	☐ No	
10. Is it clear what analyses were requested?	☑ Yes	☐ No	
11. Did container labels match Chain of Custody?	☑ Yes	☐ No	
12. Are matrices correctly identified on Chain of Custody?	☑ Yes	☐ No	
13. Are correct containers used for the analysis indicated?	☑ Yes	☐ No	
14. Is there sufficient sample volume for indicated analysis?	☑ Yes	☐ No	
15. Were all containers properly preserved per each analysis?	☑ Yes	☐ No	
16. Were VOA vials collected correctly (no headspace)?	☑ Yes	☐ No	☐ N/A
17. Were all holding times able to be met?	☑ Yes	☐ No	

Discrepancies/ Notes

18. Was client notified of all discrepancies?	☐ Yes	☐ No	☑ N/A

Person Notified: _____ Date: _____

By Whom: _____ Via: _____

Regarding: _____

19. Comments. _____

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Libby Environmental
Kodey Eley
3322 South Bay Road NE
Olympia, WA 98506

RE: Hardel Site
Work Order Number: 2008171

August 20, 2020

Attention Kodey Eley:

Fremont Analytical, Inc. received 2 sample(s) on 8/13/2020 for the analyses presented in the following report.

Total Organic Carbon by EPA 9060

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *08/20/2020*

CLIENT: Libby Environmental
Project: Hardel Site
Work Order: 2008171

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2008171-001	S-B4-1-3-0603	06/03/2020 10:30 AM	08/13/2020 9:36 AM
2008171-002	S-B5-3-4-0603	06/03/2020 9:20 AM	08/13/2020 9:36 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Original

Case Narrative

WO#: **2008171**

Date: **8/20/2020**

CLIENT: Libby Environmental

Project: Hardel Site

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **2008171**
Date Reported: **8/20/2020**

CLIENT: Libby Environmental
Project: Hardel Site

Lab ID: 2008171-001 **Collection Date:** 6/3/2020 10:30:00 AM
Client Sample ID: **S-B4-1-3-0603** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 29386		Analyst: SS
Total Organic Carbon	1.35	0.0750	H	%-dry	1	8/18/2020 11:39:00 AM

Lab ID: 2008171-002 **Collection Date:** 6/3/2020 9:20:00 AM
Client Sample ID: **S-B5-3-4-0603** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 29386		Analyst: SS
Total Organic Carbon	0.0770	0.0750	H	%-dry	1	8/18/2020 12:37:00 PM

Date: *8/20/2020*

Work Order: 2008171
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Organic Carbon by EPA 9060

Sample ID: **MB-29386** SampType: **MBLK** Units: **%-dry** Prep Date: **8/18/2020** RunNo: **61243**
Client ID: **MBLKS** Batch ID: **29386** Analysis Date: **8/18/2020** SeqNo: **1228555**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	ND	0.0750									

Sample ID: **LCS-29386** SampType: **LCS** Units: **%-dry** Prep Date: **8/18/2020** RunNo: **61243**
Client ID: **LCSS** Batch ID: **29386** Analysis Date: **8/18/2020** SeqNo: **1228556**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.03	0.0750	1.000	0	103	80	120				

Sample ID: **2008171-001ADUP** SampType: **DUP** Units: **%-dry** Prep Date: **8/18/2020** RunNo: **61243**
Client ID: **S-B4-1-3-0603** Batch ID: **29386** Analysis Date: **8/18/2020** SeqNo: **1228558**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	0.861	0.0750						1.352	44.4	20	RH

NOTES:
R - High RPD due to suspected sample inhomogeneity. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample ID: **2008171-001AMS** SampType: **MS** Units: **%-dry** Prep Date: **8/18/2020** RunNo: **61243**
Client ID: **S-B4-1-3-0603** Batch ID: **29386** Analysis Date: **8/18/2020** SeqNo: **1228559**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.91	0.0750	1.000	1.352	56.1	75	125				SH

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID: **2008171-001AMSD** SampType: **MSD** Units: **%-dry** Prep Date: **8/18/2020** RunNo: **61243**
Client ID: **S-B4-1-3-0603** Batch ID: **29386** Analysis Date: **8/18/2020** SeqNo: **1228560**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	2.04	0.0750	1.000	1.352	68.4	75	125	1.913	6.23	20	SH

Date: *8/20/2020*

Work Order: 2008171
CLIENT: Libby Environmental
Project: Hardel Site

QC SUMMARY REPORT

Total Organic Carbon by EPA 9060

Sample ID: **2008171-001AMSD** SampType: **MSD** Units: **%-dry** Prep Date: **8/18/2020** RunNo: **61243**

Client ID: **S-B4-1-3-0603** Batch ID: **29386** Analysis Date: **8/18/2020** SeqNo: **1228560**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample Log-In Check List

Client Name:	**LIBBY**	Work Order Number:	**2008171**
Logged by:	**Carissa True**	Date Received:	**8/13/2020 9:36:00 AM**

Chain of Custody

		Yes	No	Not Present
1.	Is Chain of Custody complete?	☑	☐	☐
2.	How was the sample delivered?	UPS		

Log In

		Yes	No	NA
3.	Coolers are present?	☑	☐	☐
4.	Shipping container/cooler in good condition?	☑	☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	☐	☐	Not Present ☑
6.	Was an attempt made to cool the samples?	☑	☐	☐
7.	Were all items received at a temperature of >2°C to 6°C *	☑	☐	☐
8.	Sample(s) in proper container(s)?	☑	☐	
9.	Sufficient sample volume for indicated test(s)?	☑	☐	
10.	Are samples properly preserved?	☑	☐	
11.	Was preservative added to bottles?	☐	☑	☐
12.	Is there headspace in the VOA vials?	☐	☐	☑
13.	Did all samples containers arrive in good condition(unbroken)?	☑	☐	
14.	Does paperwork match bottle labels?	☑	☐	
15.	Are matrices correctly identified on Chain of Custody?	☑	☐	
16.	Is it clear what analyses were requested?	☑	☐	
17.	Were all holding times able to be met?	☐	☑	

Special Handling (if applicable)

		Yes	No	NA
18.	Was client notified of all discrepancies with this order?	☑	☐	☐

Person Notified:	Melissa Harrington	Date:	8/13/2020
By Whom:	Carissa True	Via:	☑ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:	Hold time		
Client Instructions:	Proceed		

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler 1	2.8
Sample 1	5.1

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont

Libby Environmental, Inc.

Chain of Custody Record

2008171

www.LibbyEnvironmental.com

3322 South Bay Road NE
Olympia, WA 98506

Ph: 360-352-2110
Fax: 360-352-4154

Date: 8/12/2020 Page: 1 of 1

Client: Libby Environmental
Address: See Above
City: State: Zip:
Phone: Fax:
Client Project # L200603-7B

Project Manager: Kodey Eley
Project Name: Hardel Site
Location: City, State: Olympia, Wa
Collector: JH Date of Collection: 6/3/20
Email: libbyenv@gmail.com

Sample Number	Depth	Time	Sample Type	Container Type	VOC 8260	PCE & Daughter Prod.	NWTPH-Gx	BTEX (8260) / (8021)	NWTPH-HCID	NWTPH-Dx / Dx	PCB 8082	MTCA 5 Metals	RCRA 8 Metals	c PAH 8270	PAH 8270	Semi Vol 8270	TOC			Field Notes
1 S-B4-1-3-0603	1-3	1030	Soil	4oz													X			
2 S-B5-3-4-0603	3-4	0920	Soil	4oz													X			
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
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14																				
15																				
16																				
17																				

Relinquished by:	Date / Time	Received by:	Date / Time
Kodey Eley 8/12/2020	—	UPS 8/12/20	—
UPS	—	[signature] 8/13/20 @ 0941	

Sample Receipt

Good Condition?	Y	N
Cooler Temp.	°C	
Sample Temp.	°C	
Total Number of Containers		

Remarks:

TAT: 24HR 48HR 5-DAY

LEGAL ACTION CLAUSE: *In the event of default of payment and/or failure to pay, Client agrees to pay the costs of collection including court costs and reasonable attorney fees to be determined by a court of law.*

Distribution: White - Lab, Yellow - Originator