



January 8, 2018

Ms. Kimberly Tisa, PCB Coordinator
U.S. Environmental Protection Agency Region 1
5 Post Office Square – Suite 100
Boston, Massachusetts 02109-3912

Re: Long-Term Monitoring and Maintenance Implementation – 2017 Monitoring Results
University of Massachusetts, Amherst, Massachusetts

Dear Ms. Tisa:

On behalf of the University of Massachusetts, this report has been prepared and is being submitted to document the results from the 2017 long term monitoring activities conducted at the following buildings on the University of Massachusetts Amherst Campus:

- Tobin Hall Deck – The Monitoring and Maintenance Implementation Plan (MMIP) was submitted on March 13, 2012 in accordance with Condition 8 of the United States Environmental Protection Agency's (EPA) PCB Risk-Based Decontamination and Disposal Approval dated February 28, 2012; modifications were made to the long-term monitoring requirements following the 2015 event and communications with EPA to include annual visual inspections and bi-annual wipe testing of encapsulated surfaces.
- Southwest Concourse – The MMIP was submitted on December 29, 2010 in accordance with Condition 13 of the EPA's Southwest Residential Area Concourse PCB Cleanup and Disposal Approval dated August 30, 2010; monitoring activities were also conducted at those areas described in the PCB Remediation Plan Amendment dated May 9, 2011; following the 2015 monitoring event and communications with EPA, modifications were made to the long-term monitoring requirements to include visual inspections on an annual basis and wipe testing of encapsulated surfaces on a bi-annual basis.
- Dubois Library Elevator Lobbies – The MMIP was submitted on March 29, 2013 in accordance with Condition 12 of the EPA's Dubois Library PCB Cleanup and Disposal Approval dated April 8, 2010; following the 2015 monitoring event and communications with EPA, modifications to the long-term monitoring were made to include visual inspections and indoor air sampling on an annual basis and wipe testing of encapsulated surfaces on a bi-annual basis.
- Orchard Hill Residential:
 - Webster House – The MMIP was submitted on January 5, 2012 in accordance with Condition 16 of the EPA's PCB Decontamination and Disposal Approval dated July 4, 2011; following completion of the 2015 monitoring event and communications with EPA, the long-term monitoring program was modified to include annual visual inspections and bi-annual wipe testing of encapsulated surfaces as well as a single round of post-abatement indoor air sampling to confirm site conditions conducted in 2016.
 - Field and Grayson Houses – The MMIP was submitted on January 13, 2014 in accordance with Condition 17 of the EPA's April 30, 2012 PCB Decontamination and Disposal Approval for the window/door replacement project; monitoring activities were also conducted in accordance with the MMIP for the work completed on the exterior joints submitted on April 24, 2012 as part of the PCB Remediation Plan/Close Out Document for Field and Grayson House; following completion of the 2015 monitoring event and communications with EPA, the long term monitoring program was modified to include annual visual inspections and bi-annual wipe testing of encapsulated surfaces as well as a single round of post-abatement indoor air sampling to confirm site conditions which was conducted in 2016.



- Sylvan Residential – The MMIP was submitted on February 20, 2014 as part of the remediation completion reporting for the exterior and interior renovations conducted at each of the three buildings within the Sylvan Complex (Brown, Cashin, and McNamara). An EPA Approval has not been issued for this work as of the date of this letter; post-remediation monitoring has been conducted in 2014, 2015, 2016, and 2017 as described in this report. In addition, based on communications with EPA, multiple rounds of indoor air sampling were conducted in 2016 and 2017 to confirm post-abatement site conditions.
- Physical Plant Second Floor – The MMIP was submitted on December 16, 2013 in accordance with Condition 15 of EPA's October 19, 2012 PCB Decontamination and Disposal Approval for the replacement of windows in Room 230A within the Physical Plant building. Long-term monitoring activities include visual inspections to be conducted on an annual basis.

As previously discussed, the activities conducted in support of the monitoring and maintenance activities for these projects are being submitted under a single cover to streamline reporting and review of these activities. The locations of these areas are depicted on Figure 1.

An overall summary of the 2017 activities is provided below with details of the specific projects included in individual project reports provided as attachments to this letter. Of note, the 2017 event included the surface wipe sampling tasks at each of the respective buildings.

MONITORING AND MAINTENANCE IMPLEMENTATION PLAN

For each of the projects included in this report, certain building materials formerly in direct contact with or adjacent to former PCB caulking were encapsulated using liquid coatings and/or physical barriers (e.g., sheet metal cladding) as a risk-based management approach under 40 CFR 761.61(c) where it was determined that physical removal was an infeasible remedial approach. This included both porous masonry and concrete surfaces in former direct contact with the caulking as well as a limited extent of masonry and concrete beyond the former joints.

Components of each MMIP, including subsequent revisions based on the monitoring results and maintenance activities completed to date, include the following:

- Visual inspections of the encapsulated surfaces will be performed to look for signs of encapsulant deterioration, breakages, wear, and/or signs of weathering or disturbance of the replacement caulking or other secondary physical barriers.
- Surface wipe samples of the encapsulated surfaces will be collected using a hexane-soaked wipe following the standard wipe test procedures described in 40 CFR 761.123.
- Indoor air monitoring will be conducted in accordance with US EPA Compendium Method TO-10A "Determination of Pesticides and Polychlorinated Biphenyls in Ambient Air Using Low Volume Polyurethane Foam (PUF) Sampling Followed by Gas Chromatographic/Multi-Detector Detections (GC/MD)".
- Monitoring results will be compared to the evaluation criteria to determine the need and type of corrective actions.
- A monitoring report will be prepared and submitted to EPA to document the results of the visual inspections and sampling activities, as well as to provide any recommendations for corrective measures based on the results of the visual inspections or laboratory analytical results. The report will also include a statement on the continued effectiveness of the encapsulants and/or secondary physical barriers; and will include any proposed modifications to the MMIP.

MONITORING ACTIVITIES –2017

Woodard & Curran performed the following monitoring activities during 2017:



- Tobin Hall Deck – A visual inspection of the encapsulated concrete pillar surfaces was performed following re-application of Sikagard 62 epoxy, and 2 wipe samples were collected from the encapsulated surfaces;
- Southwest Concourse – A visual inspection of encapsulated exterior concrete building walls, retaining walls, and concrete within the pedestrian tunnel was conducted following repairs to isolated areas of epoxy coating and wipe samples were collected in accordance with the MMIP;
- Dubois Library – A visual inspection of encapsulated interior concrete building walls, ceiling, and CMU block in-fills in the elevator lobbies was conducted and five indoor air samples and seven wipe samples were collected in the lobbies;
- Orchard Hill Residential – Visual inspections and surface wipe samples of encapsulated surfaces were conducted at Webster, Grayson, and Field Houses including interior elevator lobby walls, interior stairwell materials, exterior concrete spandrels, and concrete parapet walls in accordance with the respective MMIPs;
- Sylvan Residential – For all three buildings, visual inspections of encapsulated brick and replacement caulking associated with the exterior control joints, interior encapsulated walls, and interior encapsulated ceilings were conducted and surface wipe samples were collected from interior and exterior surfaces in accordance with the MMIP. In addition, indoor air samples were collected during four sampling events to evaluate potential variations in indoor air PCB concentrations; and
- Physical Plant – Visual inspection of interior gypsum wallboard at the window surrounds was performed as per the MMIP.

RESULTS

A summary of the results of the 2017 monitoring activities for each building is included in Attachments 1 through 6 to this letter. Complete analytical laboratory reports, along with data validation summaries, are provided in Attachment 7.

The 2017 inspection and sampling results indicate that the liquid coatings and secondary barriers continue to be effective containment barriers to residual concentrations of PCBs in the masonry and concrete.

The results from the indoor air sampling at the Dubois Library and the Sylvan complex indicated that the concentrations of PCBs were within the range of site-specific Target Indoor Air Concentrations (TIAC) calculated for the different spaces.

Maintenance Activities

Based on the results of the annual monitoring the following maintenance activities are proposed to be conducted and are currently being planned by EH&S in coordination with UMass Facilities and Maintenance and/or Residential Life:

- Southwest Concourse – Repairs and/or additional coatings are to be applied to one area of damaged epoxy within the concourse and to the coat of elastomeric acrylic paint over the pedestrian tunnel joint. UMass will continue monitoring areas of flaking or peeling in the clear coating as part of the bi-annual monitoring.

Corrective Measures

Based on the results of the annual monitoring, the following corrective measures are proposed to be conducted:

- Sylvan Complex – As described in previous reports, UMass is evaluating the application of secondary barrier systems over those vertical control joints considered to be in the high occupancy area as defined specific to this project (< 8' 8" above ground surface) at the McNamara building. At

this time, the final product has not been determined however, it is anticipated that it will a pre-formed silicone barrier material or similar barrier material designed to span the control joint.



Continued Monitoring

It is proposed to continue the campus wide monitoring on an annual or biannual basis as per the applicable MMIPs for each area with modification to include bi-annual wipe sampling at the Sylvan complex beginning in 2018.

In addition, based on the results of indoor air sampling at the Sylvan complex, it is proposed that two additional rounds of indoor air sampling be conducted in 2018 to increase the data set for indoor air concentrations during periods of cool and cold ambient temperatures in some spaces.

If you have any comments, questions, or require further information, please do not hesitate to e-mail or call me at the number listed above.

Sincerely,

WOODARD & CURRAN INC.

George J. Franklin, CHMM
Technical Manager

Jeffrey A. Hamel, LSP, LEP
Senior Principal

cc: Terri Wolejko, UMass EH&S

Enclosures: Figure 1 – Site Location Map
Attachment 1 – Tobin Hall Deck
Attachment 2 – Southwest Concourse
Attachment 3 – Dubois Library Elevator Lobbies
Attachment 4 – Orchard Hill Residential Complex
Attachment 5 – Sylvan Residential Complex
Attachment 6 – Physical Plant
Attachment 7 – Data Validation Summary and Analytical Laboratory Reports



University of Massachusetts Amherst Campus Map

July 2011

University Switchboard - (413) 545-0111

Tour Service - (413) 545-4237

Robsham Memorial Visitors Center - (413) 545-0306

Map Key

- 31 Numbered Parking Lots
- P Metered/Public Parking
- ▲ PVTA Bus Stops
- ✕ Traffic Lights

Figure 1 Site Location Map



Attachment 1 – Tobin Hall Deck

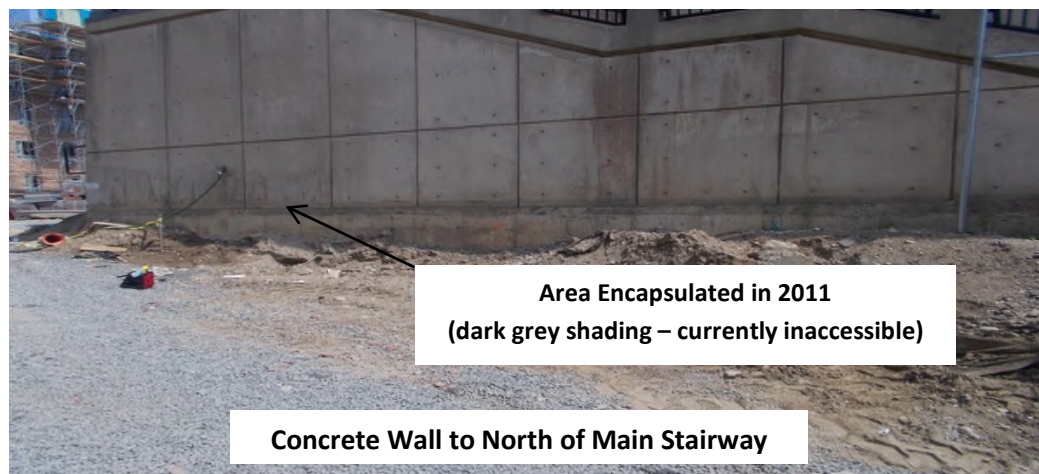
**Attachment 1 – Tobin Hall
Long-Term Maintenance and Monitoring Program
In-Place Management of PCB Impacted Materials
UMass Amherst**

Location: Tobin Hall

Summary of Remedial Areas

In-Place Management: Residual PCBs on a building wall are being managed in-place following removal of concrete decking on the west side of Tobin Hall in 2011 and concrete stairs/landing in 2012. Concrete materials that contain PCBs at concentrations > 1 ppm remain beneath a liquid encapsulating coating (residual PCB concentration in concrete reported at a concentration of 2.37 ppm). The encapsulation extends to a distance of six inches above and six inches below the former caulked joint along approximately 80 linear feet (l.f.) of the Tobin Hall building wall and along approximately seven l.f. of the concrete façade/pillar at the north and south ends of the stairway landing. Materials were encapsulated with two coats of clear Sikagard 670W acrylic coating or two coats of Sikagard 62 liquid epoxy coating (south end of the stairwell landing only). The locations of the encapsulated surfaces are depicted on Figure 1-1. In 2013, as part of the Commonwealth Honors College construction project, a four foot high retaining wall was installed over the majority of the encapsulated surfaces. As a result, the remaining exposed encapsulated concrete surface was limited to a total of approximately 3.5 square feet of concrete at the northern and southern ends of the stair landing (i.e., seven feet of former joint to a distance of six inches above the former joints).

Photos depicted the encapsulated surfaces are presented below.



Northern Side of Stair Landing

Attachment 1 – Tobin Hall
Long-Term Maintenance and Monitoring Program
In-Place Management of PCB Impacted Materials
UMass Amherst

Baseline Verification Data Summary: Two initial baseline wipe samples were collected in August 2011 from the building wall encapsulated with Sikagard 670W clear acrylic coating as part of the decking removal project. Analytical results reported PCBs as non-detect ($< 0.20 \mu\text{g}/100 \text{ cm}^2$) in both samples. One baseline wipe sample was collected from the epoxy coated concrete surfaces as part of the stair landing removal project in 2012. Analytical results reported PCBs as non-detect ($< 0.20 \mu\text{g}/100 \text{ cm}^2$).

Monitoring and Maintenance Implementation Plan

The Monitoring and Maintenance Implementation Plan (MMIP) was submitted to EPA in March 2012 and modified following the 2015 monitoring event and subsequent email communications with EPA. Beginning with the 2016 monitoring event, long term monitoring includes annual visual inspections and bi-annual wipe sampling of the accessible encapsulated surfaces (one from the northern portion of the wall and one from the southern portion of the wall). The locations will be randomly selected using a number representing the length of the individual joints in feet. Wipe samples will be collected using a hexane-soaked wipe following the standard wipe test procedures described in 40 CFR 761.123 over a 100-square centimeter surface area.

Monitoring Activities – Previous Events

Between 2012 and 2016 annual visual inspections of encapsulated surfaces indicated that the coatings on accessible portions of the encapsulated surfaces remained in good physical condition with the exception of a small, isolated area of limited epoxy coating deterioration directly adjacent to a hose connection on the northern retaining wall (the area was subsequently covered in 2013 with the installation of a four foot high retaining wall) and limited flaking and peeling of the Sikagard 670W clear coating applied to a limited portion of the concrete on the northern retaining wall.

Wipe samples collected on an annual basis between 2012 and 2016 from encapsulated surfaces, including the limited flaking and peeling clear coating on the northern retaining wall, indicated that PCBs were non-detect ($< 0.20 \mu\text{g}/100 \text{ cm}^2$). Based on the observed flaking and peeling, UMass indicated in the 2016 report that a replacement coating would be applied to the concrete surfaces on the northern retaining wall.

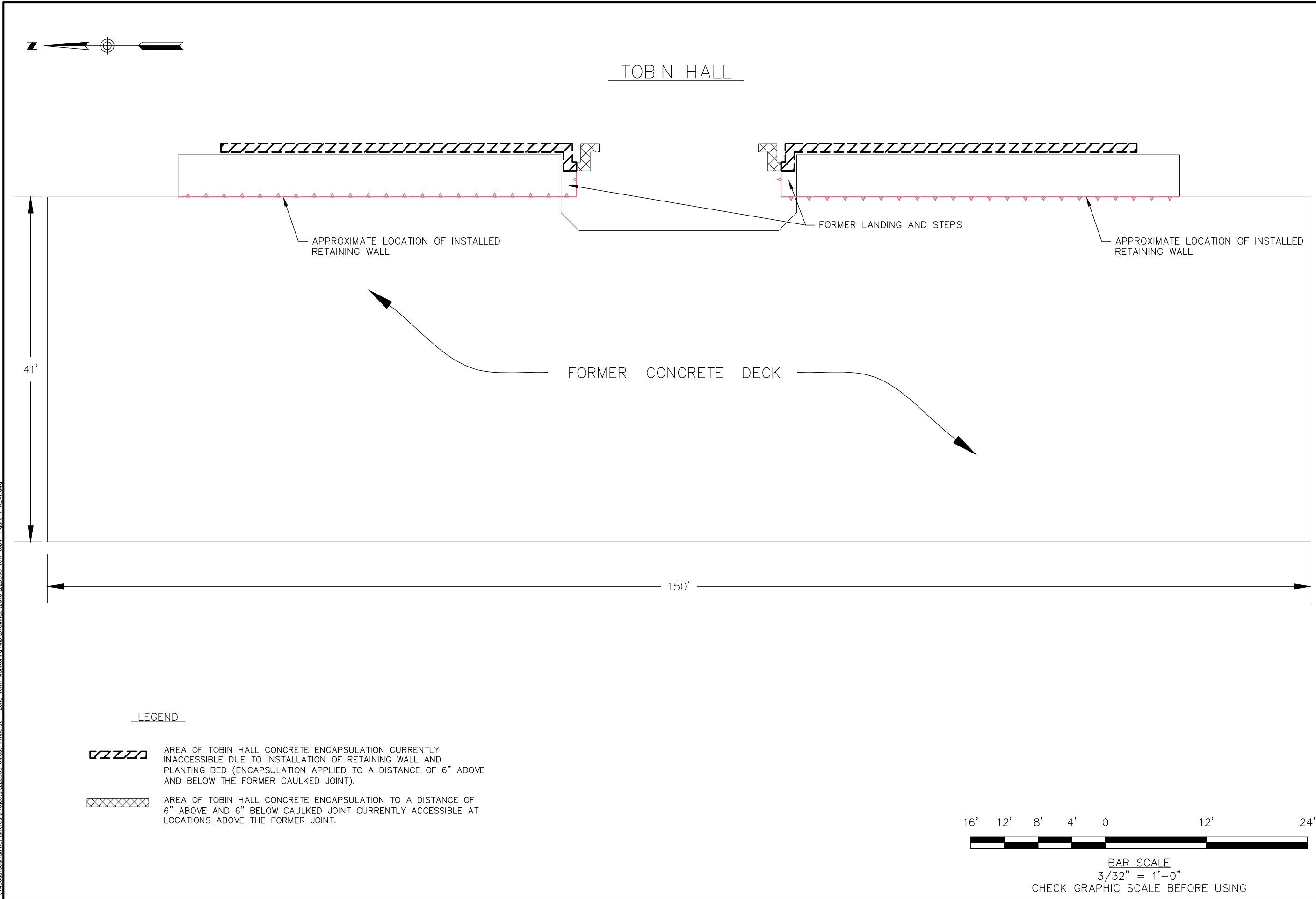
Monitoring Activities – August 2017


Consistent with the 2016 report, UMass staff applied two coats of Sikagard 62 liquid epoxy coating to the surfaces of the building wall previously coated with Sikagard 670W (northern retaining wall). Following the application, the accessible coatings were inspected for proper application on August 10, 2017. The coatings were observed to be in good condition. One wipe sample was collected from the epoxy coated surfaces of each retaining wall. Analytical results from both samples (LT-TH-VWC-008 and LT-TH-VWC-009) indicated that PCBs were non-detect ($< 0.20 \mu\text{g}/100 \text{ cm}^2$).

Next Monitoring Event

The next monitoring event is scheduled for July 2018 to include annual visual inspections of the encapsulated surfaces. The next bi-annual wipe sampling will be conducted in 2019.

\\woodardcurran.net\shared\Projects\225695 UMass Amherst - Long Term Monitoring\Drawings\2016\225696-LTM-tobin-Figure 1-REV1.dwg



 <p>40 Shattuck Road, Suite 110 Andover, Massachusetts 01810 866.702.6371 www.woodardcurran.com</p> <p>COMMITMENT & INTEGRITY DRIVE RESULTS</p>	
ENCAPSULATED BUILDING SURFACES	
DESIGNED BY: GJF	CHECKED BY: JAH
DRAWN BY: PF	225996-LTM-TOBIN-FIGURE*.dwg
UNIVERSITY OF MASSACHUSETTS AMHERST, MASSACHUSETTS	
2017 Long Term Monitoring Report	
JOB NO: 225695	
DATE: DECEMBER 2016	
SCALE: AS NOTED	
Figure 1-1	



Attachment 2 – Southwest Concourse

**Attachment 2 – Southwest Concourse Area
Long-Term Maintenance and Monitoring Program
In-Place Management of PCB Impacted Materials
UMass Amherst**

Location: Southwest Concourse Area

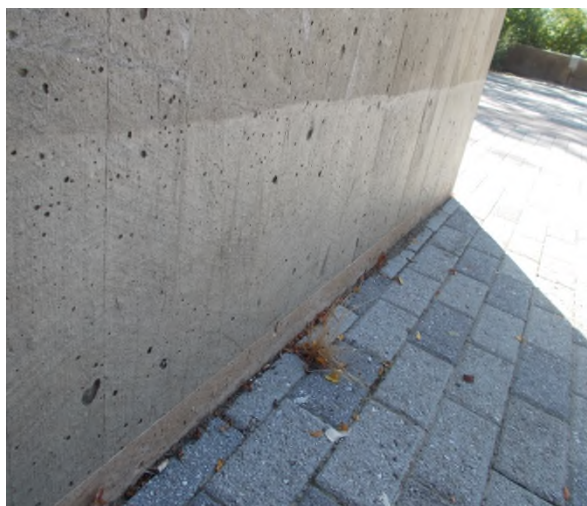
Areas: Hampshire Plaza, Berkshire Plaza, Washington Plaza, MacKimme House/Stonewall Center

Summary of Remedial Areas

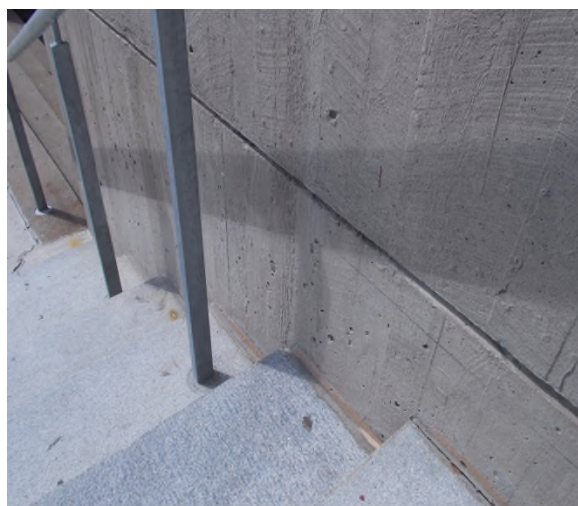
In-Place Management: Residual PCBs at concentrations > 1 ppm on exterior building walls and retaining walls are being managed in place following removal of caulking, soils, and concrete decking along retaining walls and ground level structures throughout the Southwest Concourse Area as follows:

- Retaining Walls and Ground Level Structures (maximum residual PCB concentrations in concrete was 292 parts per million [ppm]):
 - Planned Sub-grade areas – Concrete materials formerly in direct contact with the caulked joint, to a minimum distance of 12 inches below the caulked joint, and to a distance equivalent to the planned final finished grade above the caulked joint (if the final grade was above the former caulked joint) were encapsulated with two coats of tan Sikagard 62 colored epoxy.
 - Planned Above-grade areas – Concrete materials to a minimum distance of 12 inches above the caulked joint or planned finished grade were encapsulated with two coats of clear Sikagard 670W acrylic coating.
- Concrete Ceiling of Pedestrian Tunnel (maximum residual PCB concentration in masonry was 309 ppm) – Concrete materials formerly in direct contact with the caulking and to a lateral distance of 12 inches from the caulked joint were encapsulated with two coats of tan Sikagard 62 epoxy coating. Following application of the epoxy, a new bead of caulking was installed within the joint and a final top coat of a white elastomeric acrylic coating was applied to the entire tunnel ceiling.

The locations of the encapsulated surfaces are depicted on Figure 2-1 and typical applications are shown in the photos below.



Typical Retaining Wall Application



**Typical Stair Application
(shadow from railing visible as dark area)**

**Attachment 2 – Southwest Concourse Area
Long-Term Maintenance and Monitoring Program
In-Place Management of PCB Impacted Materials
UMass Amherst**

Baseline Verification Data Summary: Initial baseline wipe samples were collected in July and August 2010 (majority of the Southwest Concourse Area) and in July and August 2011 (areas included in the PCB Remediation Plan Amendment). A summary of analytical results from the baseline sampling is as follows:

- Sikagard 62 Epoxy Encapsulated Surfaces – 67 of 69 samples reported as non-detect (the two samples of former direct contact materials in the pedestrian tunnel reported PCBs at concentrations of 7.16 and 24 µg/100 cm²; however, these areas were subsequently covered with a new bead of caulking and a final acrylic coating).
- Sikagard 670W Acrylic Coating Encapsulated Surfaces – 64 of 64 samples collected from above grade locations were reported as non-detect (< 1.0 µg/100 cm²).
- Encapsulated Concrete Building Foundations (July and August 2011) – 6 of 7 samples collected at grade (both epoxy and clear coated surfaces) reported as non-detect and one sample reported at a concentration of 4 µg/100 cm²; however, materials in this area were recoated and results from the follow-up wipe samples indicated PCBs were non-detect (< 1.0 µg/100 cm²).

Monitoring and Maintenance Implementation Plan

The Monitoring and Maintenance Implementation Plan (MMIP) was submitted to EPA in December 2010 with a final response to comments on the plan submitted in January 2011. Revisions to the plan were implemented following the 2015 monitoring event and subsequent communications with EPA. The MMIP includes visual inspections of encapsulated surfaces on an annual basis with wipe sampling conducted on a bi-annual basis. A summary of the inspection and monitoring requirements is provided below.

Long term monitoring wipe sampling for each of the encapsulated surfaces will be conducted using a hexane-soaked wipe following the standard wipe test procedures described in 40 CFR 761.123. Samples will be collected on a bi-annual basis as follows:

- Concrete Structures (retaining walls and ground surface structures):
 - Sub-grade areas (Sikagard 62 epoxy) – Given the inaccessibility to these areas and that all 67 baseline wipe samples were non-detect for PCBs, no long term monitoring samples were proposed from these areas. However, due to modifications to the final site grade during construction, areas encapsulated with the Sikagard 62 liquid epoxy coating remain visible above grade over select portions of the Southwest Concourse. As such, both visual inspections of the epoxy coating and collection of verification wipe samples are being conducted similar to the planned above grade areas (eight wipe samples); and
 - Above-grade areas (Sikagard 670W acrylic) – Nine wipe samples from randomly selected locations throughout the concourse area are to be collected. One sample will be collected from each type of concrete structure (retaining walls, building walls, walls along stairs) within each of the three major subdivisions of the concourse area (Hampshire Plaza, Berkshire Plaza, and Washington Plaza).
- Concrete Ceiling of the Pedestrian Tunnel – Two wipe samples will be collected from materials within the tunnel as follows:
 - One sample from the new caulking; and
 - One sample from the adjacent coated concrete.

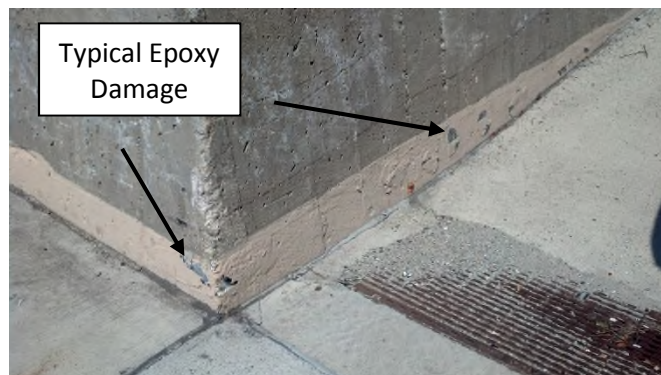
Previous Monitoring Activities – 2012 through 2016

Long term monitoring was conducted on an annual basis from 2012 through 2016. Results of the monitoring were presented to EPA in the annual monitoring reports and are summarized below.

**Attachment 2 – Southwest Concourse Area
Long-Term Maintenance and Monitoring Program
In-Place Management of PCB Impacted Materials
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Visual Inspection: Results of the visual inspections were as follows:

- Sikagard 62 Liquid Epoxy: The visual inspections found no evidence of significant peeling, breakage, or brittleness of the coating. Overall, areas of flaking and peeling were observed in isolation locations and remained generally consistent between inspections with some additional areas observed periodically. Based on these results, UMass indicated in the 2016 report that additional coating of epoxy would be applied to these areas in 2017.



- Sikagard 670W: Visual inspection of the clear acrylic coating indicated that the coating remains in good condition over the majority of the encapsulated surfaces. Some areas of flaking and peeling were observed but in general they were limited to isolated areas typically 4 to 6 inches in size (some areas were observed up to 1 foot in size). The areas of flaking and peeling remained relatively consistent between sampling events indicating that the issues may have been present at the time of application and not indicative of long term wear of the coatings.
- Concrete Ceiling of Pedestrian Tunnel: Visual inspection indicated that the coatings and caulking installed within the joint were in good condition. No deterioration was observed.

Wipe Samples: Wipe samples were collected from concrete surfaces coated with the Sikagard 62 liquid epoxy coating and the Sikagard 670W clear acrylic coating in the Southwest Concourse area and from concrete coated with the Sikagard 62 liquid epoxy coating, caulking, and a final elastomeric acrylic coating in the pedestrian tunnel. Wipe samples were collected from coated surfaces including select locations with observed flaking and peeling of the clear acrylic coating. A summary of the samples collected is as follows:

- Sikagard 62 Liquid Epoxy: A total of eight wipe samples were collected from representative locations within each of the three main plazas in the Southwest Concourse area during each monitoring event. Wipe samples were collected from concrete retaining walls (2 samples), building walls (3 samples), and concrete along stairs (3 samples). Overall, analytical results indicated that PCBs were either non-detect or present at concentrations $< 1 \mu\text{g}/100 \text{ cm}^2$ during each event. However, epoxy wipe sample results from the Washington Plaza stairs indicated that the concentrations of PCBs were $> 1 \mu\text{g}/100 \text{ cm}^2$ during the 2012, 2013, and 2015 monitoring events with reported PCB concentrations of 1.4, 2.4, and 4.6 $\mu\text{g}/100 \text{ cm}^2$, respectively (PCBs were reported at a concentration of 0.24 $\mu\text{g}/100 \text{ cm}^2$ in 2014). Based on the PCB concentrations reported in the wipe samples, a follow-up wipe sample was collected on August 18, 2016 from another set of epoxy coated stairs within the Washington Plaza to determine whether or not the PCB concentrations were representative of conditions on epoxy coated concrete on stairs throughout the Plaza or limited to the single set of stairs previously monitored. Analytical results from this sample indicated that PCBs were non-detect ($< 0.20 \mu\text{g}/100 \text{ cm}^2$; wipe sample LTM-SWC-VWC-500). Based on these results, the area was designated for an additional coating of liquid epoxy prior to the 2017 event.
- Sikagard 670W: One wipe sample was collected from each of the three main divisions of concrete surfaces in each of the three plazas within the Southwest Concourse area for a total of nine samples collected during each monitoring event. Analytical results indicated that PCBs were either non-detect ($< 0.20 \mu\text{g}/100 \text{ cm}^2$) or $< 1 \mu\text{g}/100 \text{ cm}^2$ in all samples collected through the 2016 event, including multiple samples collected from the areas of observed flaking and peeling.
- Concrete Ceiling of Pedestrian Tunnel: During each monitoring event, one wipe sample was collected from the caulked joint and one wipe sample was collected from coated concrete adjacent to the joint. Analytical

**Attachment 2 – Southwest Concourse Area
Long-Term Maintenance and Monitoring Program
In-Place Management of PCB Impacted Materials
UMass Amherst**

results indicated that PCBs were non-detect ($< 0.20 \mu\text{g}/100 \text{ cm}^2$) in the samples collected from the adjacent concrete and present at concentrations of 1.6, 1.9, 1.98, and $2.7 \mu\text{g}/100 \text{ cm}^2$ in the samples collected from the surface of the caulked joint.

The results of monitoring through 2015 were used to support the transition to a bi-annual wipe sampling frequency throughout the Southwest Concourse.

Monitoring Activities – 2017

The 2017 monitoring event was conducted on August 10, 2017 and included visual inspections of the liquid coatings (including those applied to damaged surfaces prior to the event) and the collection of a wipe samples from coated masonry surfaces. A summary of the results is as follows:

Visual Inspection: Results of the visual inspections are as follows:

- Sikagard 62 Epoxy: The areas previously identified for additional epoxy coating (due to damage or wipe sampling results [Washington Plaza stair]) were observed to be coated with the exception of one small area in Berkshire Plaza. No additional areas of damage were observed during the inspection.
- Sikagard 670W Acrylic: Visual inspection of the clear acrylic coating indicated that the coating remains in good condition over the majority of the encapsulated surfaces with some areas of observed flaking and peeling generally consistent with previous observations. The locations in which isolated flaking and peeling were observed are depicted on Figure 2-1.
- Concrete Ceiling of Pedestrian Tunnel: Visual inspection indicated that the coatings and caulking installed within the joint were in good condition. No deterioration was observed.

Wipe Samples: Wipe samples were collected from representative locations of the coated concrete surfaces in the concourse and the pedestrian tunnel. The locations of the wipe samples are depicted on Figure 2-1. Analytical results are presented on Table 2-1 and as summarized as follows:

- Sikagard 62 Epoxy – Analytical results from the 8 wipe samples collected reported PCBs as either non-detect (6 samples at $< 0.20 \mu\text{g}/100\text{cm}^2$) or at concentrations $< 1 \mu\text{g}/100\text{cm}^2$ (0.28 and $0.51 \mu\text{g}/100\text{cm}^2$).
- Sikagard 670W Acrylic – Analytical results from the 9 wipe samples collected reported PCBs as either non-detect (6 samples at $< 0.20 \mu\text{g}/100\text{cm}^2$) or at concentrations $< 1 \mu\text{g}/100\text{cm}^2$ (0.32 , 0.35 , and $0.46 \mu\text{g}/100\text{cm}^2$).
- Concrete Ceiling of Pedestrian Tunnel – Analytical results indicated that PCBs were present at a concentration of $0.56 \mu\text{g}/100\text{cm}^2$ in the sample collected from the encapsulated concrete adjacent to the caulked joint. Analytical results from the coated caulking reported PCBs at a concentration of $13.4 \mu\text{g}/100\text{cm}^2$.

Conclusions/Next Steps

Based on these results, the liquid coatings applied to concrete surfaces within the Southwest Concourse continue to be effective in encapsulating residual PCBs in masonry. The one area of damaged epoxy coating in Berkshire plaza will be repaired/reapplied by UMass during routine maintenance activities. Within the pedestrian tunnel, PCBs continue to be detected on the surface of the coating over the caulked joint. This joint is not readily accessible for direct contact based on the location along the ceiling and walls of the tunnel which are separated from the walking area by an area of decorative stone approximately four feet wide. Given the consistent results and limited accessibility, this area will continue to be monitored/sampled; however, the frequency will return to annual for the two wipe samples.

**Attachment 2 – Southwest Concourse Area
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Next Monitoring Event

The next monitoring event will be performed during the Summer of 2018 and will include visual inspections of coated surfaces in accordance with the MMIP, inspections of the repair coatings, and the collection of wipe samples from the pedestrian tunnel.

Table 2-1
Summary of Long Term Monitoring Wipe Sampling Results - Southwest Concourse
UMass Amherst

Coating/Area	Surface	Previous Sampling Events			2017 Wipe Samples		
		Sample Date	Sample ID	Total PCBs (ug/100cm ²)	Sample Date	Sample ID	Total PCBs (ug/100cm ²)
Southwest Concourse - Epoxy Coatings							
Washington Plaza	Building Wall	8/20/2012	LTM-SWC-VWC-017	0.24	8/10/2017	LT-SWC-VWC-026	< 0.20
		10/10/2013	LTM-SWC-VWC-028	< 0.20			
		7/22/2014	LTM-SWC-VWC-266	<0.20			
		7/21/2015	LTM-SWC-VWC-364	< 0.20			
	Retaining Wall	Epoxy coatings on retaining walls in Washington Plaza are all below grade					
	Stairs	8/15/2012	LTM-SWC-VWC-020	1.4	8/10/2017	LT-SWC-VWC-029	0.51
		10/10/2013	LTM-SWC-VWC-027	2.4			
		7/22/2014	LTM-SWC-VWC-267	0.24			
		7/21/2015	LTM-SWC-VWC-366	4.6			
		8/18/2016	LTM-SWC-VWC-500	< 0.20			
Berkshire Plaza	Building Wall	8/15/2012	LTM-SWC-VWC-015	< 0.20	8/10/2017	LT-SWC-VWC-018	< 0.20
		10/10/2013	LTM-SWC-VWC-033	< 0.20			
		7/22/2014	LTM-SWC-VWC-262	<0.20			
		7/21/2015	LTM-SWC-VWC-355	< 0.20			
	Retaining Wall	8/15/2012	LTM-SWC-VWC-012	< 0.20	8/10/2017	LT-SWC-VWC-019	< 0.20
		10/30/2013	LTM-SWC-VWC-046	< 0.20			
		7/22/2014	LTM-SWC-VWC-260	<0.20			
		7/21/2015	LTM-SWC-VWC-356	< 0.20			
	Stairs	8/15/2012	LTM-SWC-VWC-013	< 0.20	8/10/2017	LT-SWC-VWC-023	< 0.20
		10/10/2013	LTM-SWC-VWC-035	< 0.20			
		7/22/2014	LTM-SWC-VWC-264	<0.20			
		7/21/2015	LTM-SWC-VWC-361	< 0.20			
Hampshire Plaza	Building Wall	8/15/2012	LTM-SWC-VWC-005	< 0.20	8/10/2017	LT-SWC-VWC-012	< 0.20
		10/10/2013	LTM-SWC-VWC-040	< 0.20			
		7/22/2014	LTM-SWC-VWC-255	<0.20			
		7/21/2015	LTM-SWC-VWC-349	< 0.20			
	Retaining Wall	8/15/2012	LTM-SWC-VWC-007	< 0.20	8/10/2017	LT-SWC-VWC-015	< 0.20
		10/10/2013	LTM-SWC-VWC-041	0.46			
		7/22/2014	LTM-SWC-VWC-254	<0.20			
		7/21/2015	LTM-SWC-VWC-351	< 0.20			
	Stairs	8/15/2012	LTM-SWC-VWC-009	<0.20	8/10/2017	LT-SWC-VWC-017	0.28
		10/10/2013	LTM-SWC-VWC-038	< 0.20			
		7/22/2014	LTM-SWC-VWC-252	<0.20			
		7/21/2015	LTM-SWC-VWC-354	< 0.20			
Southwest Concourse - Acrylic Coatings							
Washington Plaza	Building Wall	8/15/2012	LTM-SWC-VWC-018	< 0.20	8/10/2017	LT-SWC-VWC-027	< 0.20
		10/10/2013	LTM-SWC-VWC-031	< 0.20			
		7/22/2014	LTM-SWC-VWC-268	<0.20			
		7/21/2015	LTM-SWC-VWC-363	< 0.20			
	Retaining Wall	8/15/2012	LTM-SWC-VWC-019	< 0.20	8/10/2017	LT-SWC-VWC-028	< 0.20
		10/10/2013	LTM-SWC-VWC-029	< 0.20			
		7/22/2014	LTM-SWC-VWC-269	<0.20			
		7/21/2015	LTM-SWC-VWC-365	< 0.20			
	Stairs	8/15/2012	LTM-SWC-VWC-021	< 0.20	8/10/2017	LT-SWC-VWC-024	< 0.20
		10/10/2013	LTM-SWC-VWC-030	< 0.20			
		7/22/2014	LTM-SWC-VWC-265	<0.20			
		7/21/2015	LTM-SWC-VWC-362	< 0.20			

Table 2-1
Summary of Long Term Monitoring Wipe Sampling Results - Southwest Concourse
UMass Amherst

Coating/Area	Surface	Previous Sampling Events			2017 Wipe Samples		
		Sample Date	Sample ID	Total PCBs (ug/100cm ²)	Sample Date	Sample ID	Total PCBs (ug/100cm ²)
Berkshire Plaza	Building Wall	8/15/2012	LTM-SWC-VWC-016	< 0.20	8/10/2017	LT-SWC-VWC-020	0.35
		10/10/2013	LTM-SWC-VWC-036	0.34			
		7/22/2014	LTM-SWC-VWC-258	<0.20			
		7/21/2015	LTM-SWC-VWC-358	< 0.20			
	Retaining Wall	8/15/2012	LTM-SWC-VWC-011	< 0.20	8/10/2017	LT-SWC-VWC-021	< 0.20
		10/10/2013	LTM-SWC-VWC-037	< 0.20			
		7/22/2014	LTM-SWC-VWC-259	<0.20			
		7/21/2015	LTM-SWC-VWC-357	< 0.20			
	Stairs	8/15/2012	LTM-SWC-VWC-014	< 0.20	8/10/2017	LT-SWC-VWC-022	< 0.20
		10/10/2013	LTM-SWC-VWC-032	< 0.20			
		7/22/2014	LTM-SWC-VWC-263	<0.20			
		7/21/2015	LTM-SWC-VWC-360	< 0.20			
Hampshire Plaza	Building Wall	8/15/2012	LTM-SWC-VWC-006	< 0.20	8/10/2017	LT-SWC-VWC-014	0.46
		10/10/2013	LTM-SWC-VWC-039	< 0.20			
		7/22/2014	LTM-SWC-VWC-256	<0.20			
		7/21/2015	LTM-SWC-VWC-352	< 0.20			
	Retaining Wall	8/15/2012	LTM-SWC-VWC-008	< 0.20	8/10/2017	LT-SWC-VWC-013	< 0.20
		10/10/2013	LTM-SWC-VWC-042	< 0.20			
		7/22/2014	LTM-SWC-VWC-253	<0.20			
		7/21/2015	LTM-SWC-VWC-350	< 0.20			
	Stairs	8/15/2012	LTM-SWC-VWC-010	< 0.20	8/10/2017	LT-SWC-VWC-016	0.32
		10/10/2013	LTM-SWC-VWC-045	< 0.20			
		7/22/2014	LTM-SWC-VWC-257	<0.20			
		7/21/2015	LTM-SWC-VWC-353	< 0.20			
Southwest Concourse - Pedestrian Tunnel							
Sika 550W White	Expansion Joint Caulking	8/15/2012	LTM-SWC-VWC-022	1.6	8/10/2017	LT-SWC-VWC-011	13.4
		10/10/2013	LTM-SWC-VWC-043	2.7			
		7/22/2014	LTM-SWC-VWC-250	1.9			
		7/21/2015	LTM-SWC-VWC-348	1.98			
	Adjacent Concrete	8/15/2012	LTM-SWC-VWC-023	< 0.20	8/10/2017	LT-SWC-VWC-010	0.56
		10/10/2013	LTM-SWC-VWC-044	< 0.20			
		7/22/2014	LTM-SWC-VWC-251	<0.20			
		7/21/15	LTM-SWC-VWC-347	< 0.20			

Notes:

Samples submitted for PCB analysis via USEPA method 8082 with Soxhlet Extraction (3540C).
Wipe samples collected in accordance with the standard wipe test method of 40 CFR 761.123.

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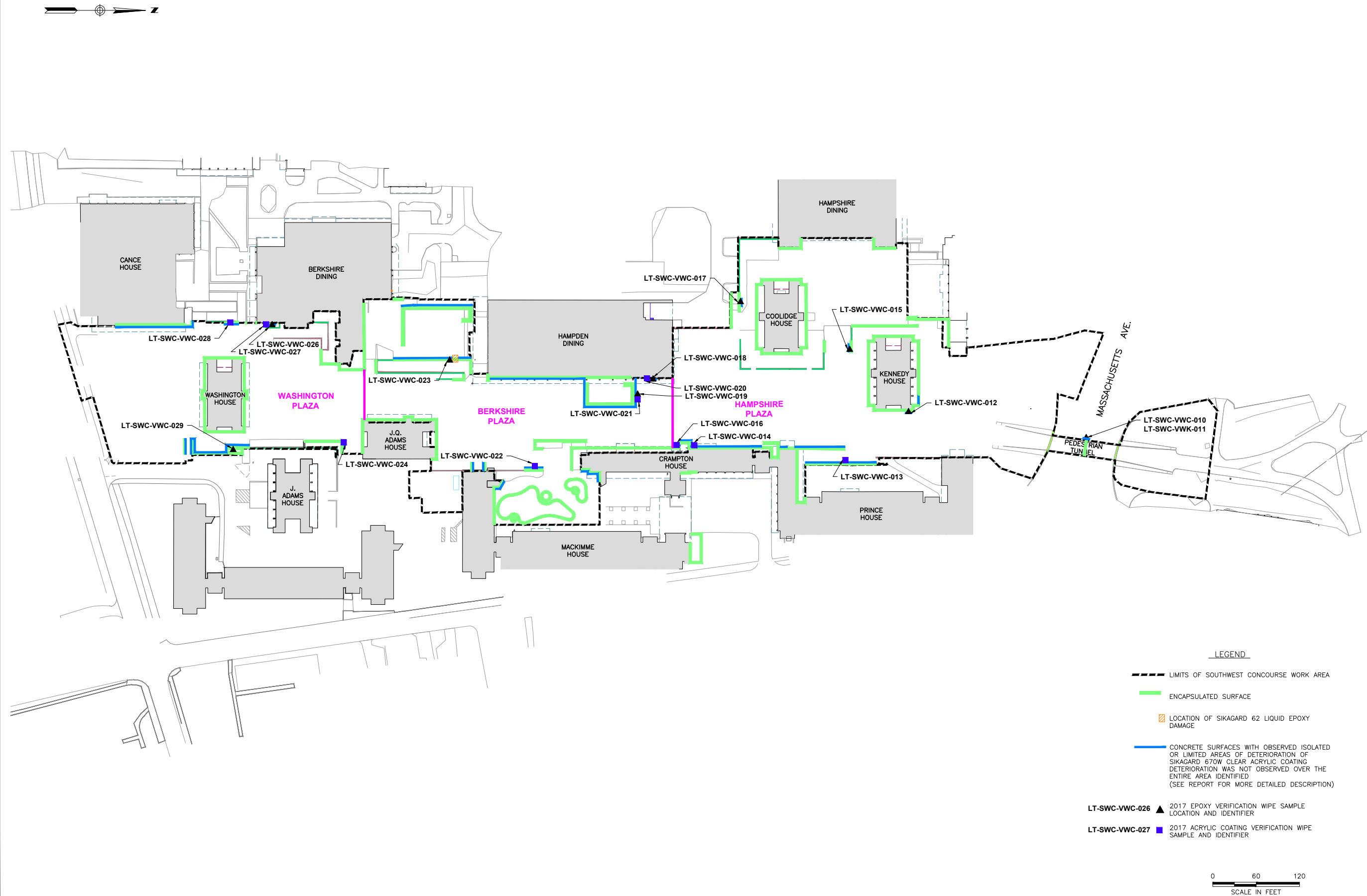
AREAS OF ENCAPSULATED SURFACES AND OBSERVED DETERIORATION

UNIVERSITY OF MASSACHUSETTS
AMHERST, MASSACHUSETTS

2017 SOUTHWEST CONCOURSE PCB
MMIP REPORT

JOB NO.: 225695.02
DATE: DECEMBER 2017
SCALE: AS NOTED
SHEET: 1 OF 1

FIGURE 2-1



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Attachment 3 – Dubois Library Elevator Lobbies

**Attachment 3 – Dubois Library
Long-Term Maintenance and Monitoring Program
In-Place Management of PCB Impacted Materials
UMass Amherst**

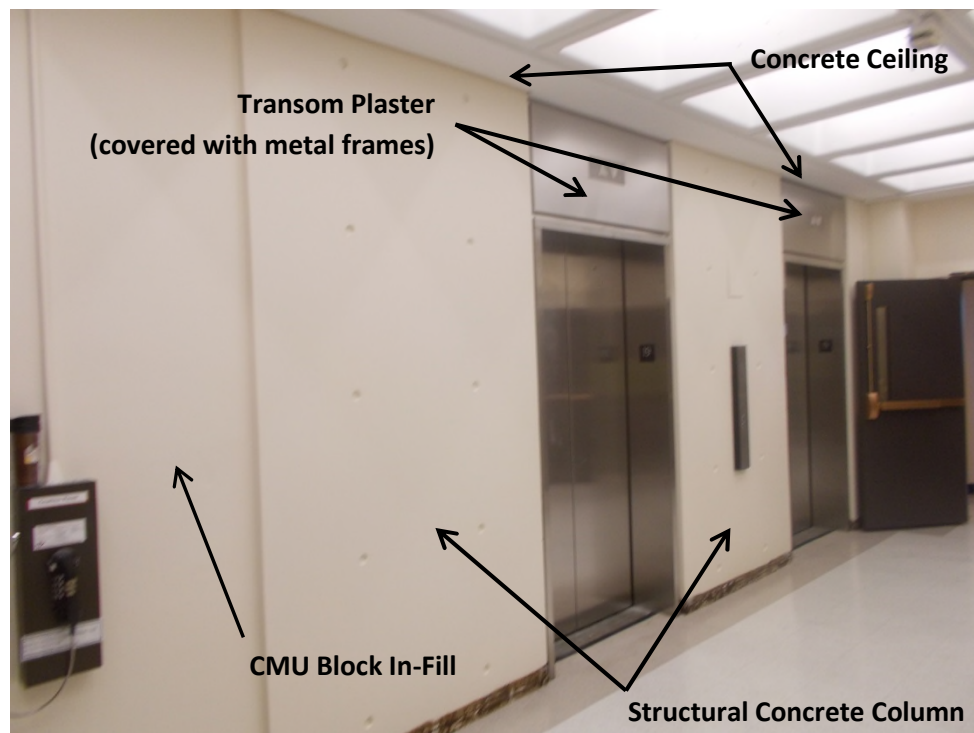
Location: W.E.B Dubois Library

Summary of Remedial Areas

In-Place Management: Residual PCBs at concentrations > 1 ppm are being managed in place following abatement activities at the following locations located within the elevator lobbies:

- CMU Block In-Fill Materials – All CMU block in-fill materials were encapsulated with Sika 550W acrylic coating followed by a final coat of interior latex paint.
- Transom Plaster – Plaster materials throughout the elevator lobbies were encapsulated with Sika 550W acrylic coating followed by a final coat of interior latex paint. Metal cladding was installed over the encapsulated transom plaster materials in accordance with the project specifications.
- Concrete Ceiling – Concrete materials formerly in direct contact with the caulking and out to the corner of the concrete ceiling (or within 12 inches of the caulked joint) were encapsulated with Sika 550W acrylic coating followed by a final coat of interior latex paint. All remaining elevator lobby ceiling materials beyond the corner were covered with latex paint.
- Structural Concrete Columns – Concrete materials formerly in direct contact with the caulking and out to the first 90-degree angle (or within approximately 2 inches of the caulked joint) were encapsulated with Sika 550W acrylic coating followed by a final coat of interior latex paint. Portions of the elevator door recesses were also covered with metal frames associated with the new elevator doors. All materials on the face of the structural concrete column beyond the corner were encapsulated with latex paint.

The encapsulated surfaces associated with the elevator lobby abatement activities are shown in the photo below.



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Long-Term Maintenance and Monitoring Program
In-Place Management of PCB Impacted Materials
UMass Amherst**

Baseline Verification Wipe Data Summary: Initial baseline wipes were collected on August 28, 2012. A summary of analytical results from the baseline sampling is as follows:

- CMU Block In-Fill materials: Three verification wipes samples were collected from CMU block in-fill surfaces following the application of the Sika 550W acrylic coating followed by a latex coating. Analytical results reported PCBs as non-detect ($< 0.20 \mu\text{g}/100 \text{ cm}^2$) in the three wipes samples.
- Transom Plaster: One verification wipe sample was collected from transom plaster surfaces following the application of the Sika 550W acrylic coating followed by a latex coating. Analytical results indicated that PCBs were present below $1 \mu\text{g}/100 \text{ cm}^2$ with a reported concentration of $0.72 \mu\text{g}/100 \text{ cm}^2$.
- Concrete Ceiling: One verification wipe sample was collected from concrete ceiling surfaces following the application of the Sika 550W acrylic coating followed by a latex coating. Analytical results reported PCBs as non-detect ($< 0.20 \mu\text{g}/100 \text{ cm}^2$).
- Structural Concrete Columns – Three wipe samples were collected from encapsulated structural concrete materials following the application of the Sika 550W acrylic coating followed by a latex coating. Two wipe samples were collected from the parallel face of the structural concrete (facing the lobby) at a distance of 10 inches from the former caulked joint. Analytical results from these two samples indicated that PCBs were non-detected ($< 0.20 \mu\text{g}/100 \text{ cm}^2$). One sample was collected at a distance of two inches from the former caulked joint along the perpendicular face of the structural concrete (i.e., within the elevator recess). Analytical results indicated that PCBs were present at a concentration of $4.6 \mu\text{g}/100 \text{ cm}^2$ in this sample (sample DL-4E0-VWC-100 collected from the fourth floor).

Indoor Air Sampling Data Summary: Indoor air samples were collected on August 28, 2012 as part of the initial post-remediation sampling. Analytical results indicated that PCBs were present at concentrations of 690, 977, and 1,146 ng/m^3 in the three samples collected. These results were within the range of EPA's published guidance for indoor air levels for schools and a risk-based project specific action level prepared for the transitory nature of the elevator lobby.

As part of the development of the MMIP and to gain an understanding of indoor air levels in the different floors of the library as well as over the different seasons to assess variations over time, an expanded indoor air sampling program, which including the collection of samples from nine lobby areas, was developed and implemented on October 16, 2012.

Monitoring and Maintenance Implementation Plan

The Monitoring and Maintenance Implementation Plan (MMIP) was submitted to EPA in March 2013 and included visual inspections of encapsulated surfaces, verification wipe sampling, and continued indoor air sampling. Following the 2015 monitoring event, the plan was modified to include annual visual inspections and indoor air sampling and bi-annual surface wipe sampling. A summary of the inspection and monitoring requirements is as follows:

Long-term Monitoring Wipe Sampling: Wipe samples of the encapsulated surfaces will be collected using a hexane-soaked wipe following the standard wipe test procedures described in 40 CFR 761.123. A total of seven samples will be collected on a bi-annual basis from randomly selected locations as follows:

- CMU Block In-Fill Materials – Three wipe samples will be collected from encapsulated masonry block in-fills on three randomly selected floors. The location of the wipe sample on the in-fill will be randomly selected using a random number generator based on the total height and width of the in-fill;
- Structural Concrete/Lobby Walls – Three wipe samples will be collected from structural concrete/lobby wall materials on three randomly selected floors. The location of each wipe sample will be selected as follows:
 - The associated elevator shaft and location along the former joint will be randomly selected; and
 - One wipe sample will be collected at a distance of 1.5 inches from the former caulked joint (i.e., within the return of the elevator door recess, prior to the first 90-degree angle). Two wipe samples will be collected at a distance of 10 inches from the former joint (the higher number of samples is based on the

**Attachment 3 – Dubois Library
Long-Term Maintenance and Monitoring Program
In-Place Management of PCB Impacted Materials
UMass Amherst**

higher likelihood of direct contact with the lobby walls compared to the relatively small [1.5-inch-wide] elevator door recess).

- Ceiling – One wipe sample will be collected from ceiling materials on a randomly selected floor.
- Transom Plaster – The final construction included the installation of sheet metal cladding over the existing transom plaster. No verification wipe samples will be collected due to the lack of direct contact exposure pathway to the transom plaster.

Indoor Air Sampling: Based on the results of indoor air monitoring through October 2015, which indicated that PCB concentrations were not dependent on seasonal variations of the ventilation system and the decreasing indoor air concentrations, the frequency of indoor air sampling was modified in 2016 to include one round of sampling per year.

Indoor air samples are to be collected over a minimum of six hours in accordance with the US EPA Compendium Method TO-10A “Determination of Pesticides and Polychlorinated Biphenyls in Ambient Air Using Low Volume Polyurethane Foam (PUF) Sampling Followed by Gas Chromatographic/Multi-Detector Detection (GC/MD)”. Samples will be submitted to a certified analytical laboratory for PCB Homolog Analysis via US EPA Method 680A with a laboratory reporting limit of $< 0.10 \mu\text{g}/\text{m}^3$.

Previous Monitoring Activities

Visual Inspections and Surface Wipes

Visual inspections and wipe sampling of the encapsulated materials was conducted on an annual basis between 2013 and 2016 in accordance with the MMIP. During that time visual inspections indicated that the coatings remained in good physical condition with no observed damage other than slight wearing of the outer latex paint layer. Results of verification wipe samples indicated that PCBs were either non-detect or present at concentrations $< 1 \mu\text{g}/100 \text{ cm}^2$ in all samples.

Previous Monitoring Activities – Indoor Air

Indoor air sampling was conducted at a minimum of twice per year from 2013 through 2015 (to evaluate potential seasonal fluctuations). Based on those results, which indicated relatively consistent results across sampling event, the MMIP was modified to include the collection of one round of indoor air sampling in 2016. Analytical results were relatively consistent across all events with the maximum and average concentrations consistently within or slightly below the concentration range identified for continued monitoring.

2017 Monitoring Activities

Visual Inspections and Surface Wipe Sampling

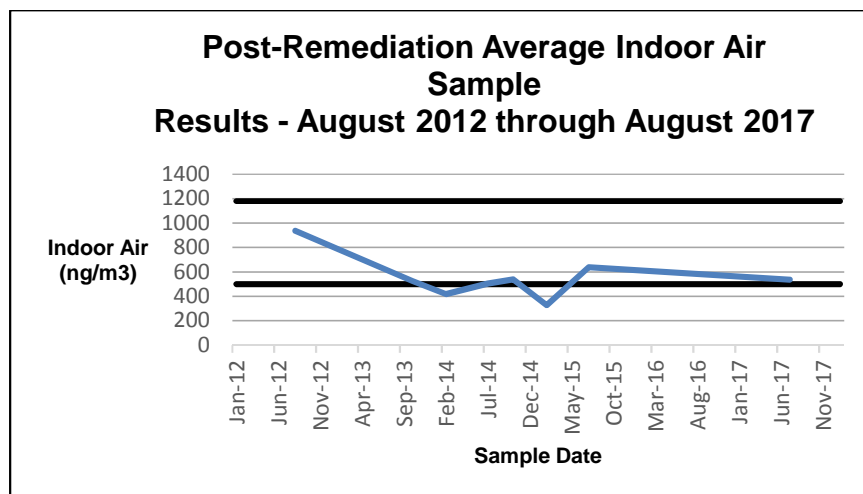
Visual inspections of encapsulated surfaces were conducted during the annual monitoring event. Coatings were observed to be in good physical condition with no signs of wear or damage. Surface wipe samples were collected in accordance with the MMIP from encapsulated CMU block, structural concrete, and the ceiling. Analytical results from the seven samples collected indicated that PCBs were non-detect ($< 0.20 \mu\text{g}/100\text{cm}^2$). A summary of the wipe sampling results for samples collected overtime is presented on Table 3-1.

Monitoring Activities – Indoor Air

Four indoor air samples were collected on July 3, 2017 from the 4th, 13th, 19th and 23rd floors. Analytical results indicated that PCBs were reported at concentrations ranging from 32 to 763 ng/m^3 with an average PCB concentration of 0.536 $\mu\text{g}/\text{m}^3$. Analytical results from the indoor sampling events are summarized on Table 3-2.

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Long-Term Maintenance and Monitoring Program
In-Place Management of PCB Impacted Materials
UMass Amherst**

These results were relatively consistent with previous sampling activities with the maximum and average concentrations continuing to be within the 500 to 1,180 ng/m³ continued monitoring range. A graph of the average indoor air concentrations detected during the post-remediation sampling events is depicted below.



As shown on the graph, the highest readings were observed immediately after the remediation activities and since that time, levels have stabilized to near the lower of the target levels.

Corrective Actions

Based on the 2017 monitoring activities, no corrective actions are proposed at this time.

Next Monitoring Event

The next monitoring event is scheduled for July/August 2018 to include visual inspections and indoor air sampling.

Table 3-1
Summary of Long Term Monitoring Wipe Sampling Results - Dubois Library
UMass Amherst

Coating/Area	Surface	2013 Wipe Samples			2014 Wipe Samples			2015 Wipe Samples			2017 Wipe Samples		
		Sample Date	Sample ID	Total PCBs (ug/100 cm ²)	Sample Date	Sample ID	Total PCBs (ug/100 cm ²)	Sample Date	Sample ID	Total PCBs (ug/100 cm ²)	Sample Date	Sample ID	Total PCBs (ug/100 cm ²)
Sikagard 55W and Acrylic Latex Paint	CMU Block In-Fill	10/11/2013	DL-23E0-VWC-146	< 0.20	7/22/2014	LTM-DL-VWC-237	<0.20	7/21/2015	LTM-DL-VWC-243	<0.20	7/3/2017	LTM-DL-VWC-250	<0.20
		10/11/2013	DL-19E0-VWC-149	< 0.20	7/22/2014	LTM-DL-VWC-238	<0.20	7/21/2015	LTM-DL-VWC-244	<0.20	7/3/2017	LTM-DL-VWC-253	<0.20
		10/11/2013	DL-10E0-VWC-151	0.49	7/22/2014	LTM-DL-VWC-239	<0.20	7/21/2015	LTM-DL-VWC-247	<0.20	7/3/2017	LTM-DL-VWC-255	<0.20
	Structural Concrete Lobby Walls	10/11/2013	DL-4E0-VWC-152	0.49	7/22/2014	LTM-DL-VWC-234	0.31	7/21/2015	LTM-DL-VWC-242	<0.20	7/3/2017	LTM-DL-VWC-251	<0.20
		10/11/2013	DL-16E5-VWC-150	< 0.20	7/22/2014	LTM-DL-VWC-235	<0.20	7/21/2015	LTM-DL-VWC-245	<0.20	7/3/2017	LTM-DL-VWC-254	<0.20
		10/11/2013	DL-21E3-VWC-147	< 0.20	7/22/2014	LTM-DL-VWC-236	<0.20	7/21/2015	LTM-DL-VWC-246	<0.20	7/3/2017	LTM-DL-VWC-256	<0.20
	Ceiling	10/11/2013	DL-20E3-VWC-148	< 0.20	7/22/2014	LTM-DL-VWC-240	0.97	7/21/2015	LTM-DL-VWC-249	<0.20	7/3/2017	LTM-DL-VWC-252	<0.20

Notes:

Samples submitted for PCB analysis via USEPA method 8082 with Soxhlet Extraction (3540C).

Wipe samples collected in accordance with the standard wipe test method of 40 CFR 761.123.

Table 3-2
Summary of Indoor Air Sample Results - Dubois Library
UMass Amherst

Floor	Air Sample	PCB Concentration (µg/cartridge)	Flow Rate (L/Minute)	Duration (minutes)	PCB Concentration (µg/m ³)
Project Specific Risk-Based Action Level: 1.18 µg/m³					
Lobby Floor	Pre PCB Remediation Indoor Air Samples				
	January 15, 2010				
4	DL-4E-IAS-088	198	2.58	121	629
15	DL-15E-IAS-085	146	2.6	127	442
18	DL-18E-IAS-082	193	2.57	128	580
	Post PCB Remediation Indoor Air Samples				
	August 28, 2012				
4	DL-4E-IAS-108	410	2.6	240	690
15	DL-15E-IAS-109	680	2.6	240	1146
18	DL-18E-IAS-110	580	2.6	240	977
	Post PCB Remediation Indoor Air Samples				
	October 16, 2012				
4	DL-4E-IAS-113	340	2.6406	241	542
5	DL-5E-IAS-114	210	2.6517	242	332
8	DL-8E-IAS-115	250	2.6589	242	394
13	DL-13E-IAS-116	52	2.6451	244	82
15	DL-15E-IAS-117	53	2.637	244	84
18	DL-18E-IAS-118	310	2.6225	246	488
19	DL-19E-IAS-119	100	2.6826	246	154
23	DL-23E-IAS-120	260	2.6605	248	400
26	DL-26E-IAS-121	9.1	2.6456	250	14
	Post PCB Remediation Indoor Air Samples				
	April 5, 2013				
4	DL-4E-IAS-124	210	2.62	245	327
5	DL-5E-IAS-125	110	2.62	245	171
8	DL-8E-IAS-126	130	2.62	241	206
13	DL-13E-IAS-127	230	2.62	242	362
15	DL-15E-IAS-128	130	2.62	243	204
18	DL-18E-IAS-129	140	2.62	243	220
19	DL-19E-IAS-130	260	2.62	244	406
23	DL-23E-IAS-131	150	2.62	246	232
26	DL-26E-IAS-132	100	2.62	248	154

Table 3-2
Summary of Indoor Air Sample Results - Dubois Library
UMass Amherst

Floor	Air Sample	PCB Concentration (µg/cartridge)	Flow Rate (L/Minute)	Duration (minutes)	PCB Concentration (µg/m ³)
Project Specific Risk-Based Action Level: 1.18 µg/m³					
Post PCB Remediation Indoor Air Samples					
October 11, 2013					
4	DL-4E-IAS-135	330	2.63	240	529
5	DL-5E-IAS-136	120	2.63	241	191
8	DL-8E-IAS-137	220	2.64	240	351
13	DL-13E-IAS-138	500	2.62	240	803
15	DL-15E-IAS-139	300	2.63	241	478
18	DL-18E-IAS-145	310	2.63	240	496
19	DL-19E-IAS-140	600	2.64	240	959
23	DL-23E-IAS-141	350	2.62	242	559
26	DL-26E-IAS-142	230	2.65	242	362
Post PCB Remediation Indoor Air Samples					
February 24, 2014					
4	DL-4E-IAS-147	200	2.57	242	325
13	DL-13E-IAS-148	320	2.60	243	513
19	DL-19E-IAS-149	320	2.56	240	526
23	DL-23E-IAS-150	190	2.59	240	309
Post PCB Remediation Indoor Air Samples					
July 22, 2014					
4	DL-4E-IAS-201	240	2.62	240	391
13	DL-13E-IAS-203	320	2.67	243	506
19	DL-19E-IAS-204	370	2.71	244	575
23	DL-23E-IAS-205	360	2.76	243	552
Post PCB Remediation Indoor Air Samples					
October 10, 2014					
4	DL-4E-IAS-201	300	2.56	240	496
13	DL-13E-IAS-203	370	2.69	240	586
19	DL-19E-IAS-204	390	2.61	240	636
23	DL-23E-IAS-205	270	2.62	240	436
Post PCB Remediation Indoor Air Samples					
February 19, 2015					
4	DL-4E-IAS-213	180	2.93	240	259
13	DL-13E-IAS-214	250	2.73	240	389
19	DL-19E-IAS-216	300	2.85	240	449
23	DL-23E-IAS-217	140	2.82	240	212

Table 3-2
Summary of Indoor Air Sample Results - Dubois Library
UMass Amherst

Floor	Air Sample	PCB Concentration (µg/cartridge)	Flow Rate (L/Minute)	Duration (minutes)	PCB Concentration (µg/m ³)
Project Specific Risk-Based Action Level: 1.18 µg/m³					
Post PCB Remediation Indoor Air Samples					
July 21, 2015					
4	DL-4E-IAS-219	230	2.68	240	373
13	DL-13E-IAS-220	420	2.71	240	680
19	DL-19E-IAS-221	520	2.73	240	834
23	DL-23E-IAS-223	410	2.71	240	664
Post PCB Remediation Indoor Air Samples					
October 14, 2015					
4	DL-4E-IAS-225	200	2.59	240	328
13	DL-13E-IAS-226	310	2.57	240	519
19	DL-19E-IAS-228	360	2.70	240	573
23	DL-23E-IAS-229	250	2.58	242	414
Post PCB Remediation Indoor Air Samples					
August 3, 2016					
4	DL-4E-IAS-231	350	2.63	360	373 J/UJ
8	DL-8E-IAS-232	320	2.65	360	340 J/UJ
19	DL-19E-IAS-234	520	2.63	360	554 J/UJ
20	DL-20E-IAS-235	440	2.62	360	473 J/UJ
Post PCB Remediation Indoor Air Samples					
July 3, 2017					
4	DL-4E-IAS-241	310	2.67	360	340 J/UJ
13	DL-13E-IAS-239	290	2.62	360	320 J/UJ
19	DL-19E-IAS-238	700	2.65	360	763 J/UJ
23	DL-23E-IAS-237	660	2.66	360	719 J/UJ

Notes:
 Project Specific Risk-based Action Level as specified in the *Risk-Based Disposal and Cleanup PCB Remediation Plan* for the Dubois Library dated March 2010.
 Air samples collected in accordance with USEPA Compendium Method TO-10A "Determination of Pesticides and Polychlorinated Biphenyls In Ambient Air Using Low Volume Polyurethane Foam (PUF) Sampling Followed by Gas Chromatographic/Multi-Detector Detection (GC/MD)" and submitted for laboratory analysis of PCBs homologs.
 µg/m³ = micrograms per cubic meter
 J/UJ = Analytical results qualified as estimated based on external data validation of individual homolog groups.



Attachment 4 – Orchard Hill Residential Complex

**Attachment 4 – Orchard Hill Area
Long-Term Maintenance and Monitoring Program
In-Place Management of PCB Impacted Materials
UMass Amherst**


Location: Orchard Hill Residential Area

Building: Webster, Field, and Grayson Houses

Summary of Remedial Areas

In-Place Management: Residual PCBs > 1 ppm are being managed in place following abatement activities in the following locations:

Field and Grayson Houses

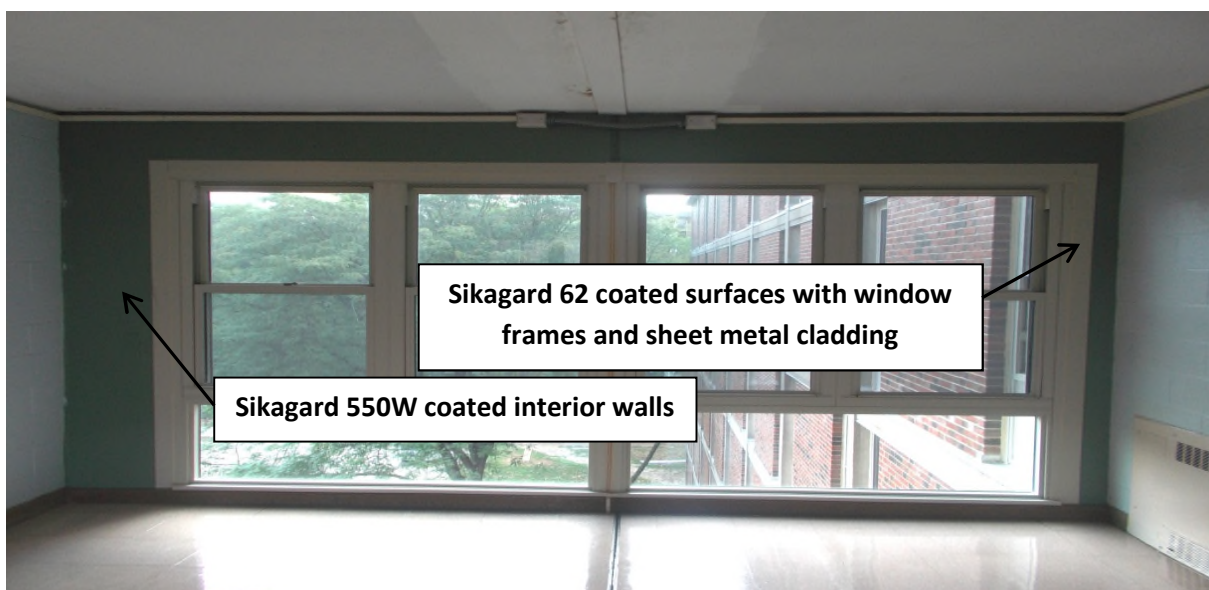
- Exterior Parapet Masonry Joints (2010): Following replacement of caulking along masonry joints at the upper parapet walls of the Field and Grayson Houses, two coats of Sikagard 62 liquid epoxy coating were applied to concrete materials formerly in direct contact with and to a distance of 6 inches from the joints in either direction (see the photograph to the right).
- 
- Locations of Typical Parapet Masonry Joints
- Elevator Hall CMU Block Walls (2012 and 2013): PCBs are being managed in place at > 1 ppm at the 6th floor elevator lobby of both Field and Grayson Houses following the removal of caulked joints around Type D windows (see Figure 4-1).
 - CMU block materials formerly in direct contact with the caulked joint (i.e., header surfaces) are encapsulated with two coats of Sikagard 62 epoxy coating and the replacement window frames/sheet metal flashing; and
 - CMU block materials above the upper horizontal joints to the first 90-degree angle (i.e., to the ceiling at a distance of approximately 15 inches) are encapsulated with two coats of Sikagard 550W elastomeric acrylic coating. (Note: Sikagard 550W was applied to the CMU block walls of all elevator lobbies as part of the renovation project).
 - Concrete Spandrel Beams (2012 and 2013): Exterior concrete spandrel beam materials on the north and south elevations (located in line with the Elevator Hall Windows) formerly in direct contact with the concrete expansion joint caulking and to a distance of three inches in either direction have been encapsulated using two coats of Sikagard 62 epoxy coating (see Figure 4-1).
 - Grayson House Exterior Narrow Stairwell Window Jambs (2012): Brick materials on the jambs of the northern stairwell west elevation narrow stairwell windows on the sixth and seventh floors formerly in direct contact with the exterior perimeter window caulking and to the end of the window recess (the first 90-degree angle) have been encapsulated using two coats of Sikagard 62 epoxy coating and the replacement window frames/sheet metal flashing (see Figure 4-1).
 - Grayson House Interior Stairwell Concrete Sills (2012): Concrete window sill and header materials at the northern stairwell landings from the second through seventh floors formerly in direct contact with the interior perimeter window caulking and to the first 90-degree angle (approximately two inches) have been encapsulated using two coats of Sikagard 62 epoxy coating and the replacement window frames (see Figure 4-1).

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- Field House Interior Stairwell Brick Jambs (2012): Brick window jamb materials at the southern stairwell landings from the second floor through seventh floors formerly in direct contact with the interior perimeter window caulking and to a distance of two inches (i.e., the extent of the replacement window frames) have been encapsulated using two coats of Sikagard 62 epoxy coating and the replacement window frames (see Figure 4-1).

Webster House

- Elevator Lobby Interior Walls – Concrete materials formerly in direct contact with caulking and to a distance of four inches from the caulked joint were encapsulated with two coats of grey Sikagard 62 epoxy coating and subsequently covered by the newly installed metal window frames and sheet metal cladding. Remaining interior wall materials to the first 90-degree angle were encapsulated with two coats of green Sikagard 550W acrylic coating (see photograph below).
- Northwest Elevation Exterior Concrete Ceiling – Materials formerly in direct contact with caulking along 100 linear feet (l.f.) of ribbon type windows on the northwest building elevation were encapsulated with two coats of grey Sikagard 62 epoxy coating and subsequently covered by the newly installed metal window frames (see Figure 4-2).



Webster House Elevator Lobby Walls

Baseline Verification Data Summary: A summary of the initial wipe sampling results for the encapsulated areas is presented below.

Field and Grayson Houses

- Exterior Parapet Masonry Joints: Initial wipe samples of the exterior joints were collected in August 2010 following application of the Sikagard 62 epoxy. Analytical results from the 26 wipe samples collected

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indicated that PCBs were non-detect (24 samples at $< 0.20 \mu\text{g}/100\text{cm}^2$) or $< 1 \mu\text{g}/100\text{cm}^2$ (2 samples with total PCBs reported at concentrations of 0.44 and $0.90 \mu\text{g}/100\text{cm}^2$).

- Elevator Hall CMU Block Walls:
 - Sikagard 62 Epoxy Coated Materials – In July 2012, prior to installation of the window frames and sheet metal cladding, one verification wipe sample was collected from the encapsulated surfaces. Analytical results reported PCBs as non-detect ($< 0.20 \mu\text{g}/100\text{cm}^2$).
 - Sikagard 550W Elastomeric Coated Materials – In August 2012, one verification wipe sample was collected from encapsulated materials above the 6th floor elevator hall windows. Analytical results indicated that PCBs were non-detect ($< 0.20 \mu\text{g}/100\text{cm}^2$).
- Concrete Spandrel Beams – Following application of the liquid coatings in August 2012 and July 2013, four verification wipe samples were collected from encapsulated surfaces of the concrete spandrel beams. Analytical results reported PCBs as non-detect ($< 0.20 \mu\text{g}/100 \text{ cm}^2$) in the four samples.
- Grayson House Exterior Narrow Stairwell Window Jambs – In July 2013, prior to installation of the window frames, one verification wipe sample was collected from the encapsulated surfaces. Analytical results reported PCBs as non-detect ($< 0.20 \mu\text{g}/100\text{cm}^2$).
- Grayson House Interior Stairwell Concrete Sills - In July 2012, prior to installation of the window frames, one verification wipe sample was collected from the encapsulated surfaces. Analytical results reported PCBs as non-detect ($< 0.20 \mu\text{g}/100\text{cm}^2$).
- Field House Interior Stairwell Brick Jambs - In July 2012, prior to installation of the window frames, one verification wipe sample was collected from the encapsulated surfaces. Analytical results reported PCBs as non-detect ($< 0.20 \mu\text{g}/100\text{cm}^2$).

Webster House

- Elevator Hall Interior Walls:
 - Sikagard 62 Epoxy Coated Materials – In July 2011, prior to installation of the window frames and sheet metal cladding, six verification wipe samples were collected from encapsulated surfaces. Analytical results reported PCBs as non-detect ($< 0.20 \mu\text{g}/100 \text{ cm}^2$) in the six samples collected.
 - Sikagard 550W Elastomeric Coated Materials – Six initial baseline wipe samples were collected in November 2011. Analytical results reported PCBs as non-detect ($< 0.20 \mu\text{g}/100 \text{ cm}^2$) in all six samples.
- Northwest Elevation Exterior Concrete Ceiling Direct Contact Materials: Prior to installation of the sheet metal cladding, three verification wipe samples were collected from encapsulated surfaces. Analytical results reported PCBs as non-detect ($< 0.20 \mu\text{g}/100 \text{ cm}^2$) in the three samples collected.

Monitoring and Maintenance Implementation Plan

The Monitoring and Maintenance Implementation Plans (MMIP) for the three buildings were submitted to EPA in January 2012 (Webster House) and January 2014 (Field and Grayson Houses) and included visual inspections and verification wipe sampling of encapsulated surfaces.

Based on the baseline sample results (majority were non-detect for PCBs) and some encapsulated areas subsequently covered by window frames and sheet metal cladding, wipe sampling was limited to accessible surfaces. Following the 2015 monitoring event and subsequent communications with EPA, the monitoring plan was

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modified to include annual visual inspections and bi-annual wipe sampling of accessible encapsulated surfaces. A summary of the monitoring plans is provided below:

Field and Grayson Houses

- Visual inspection of masonry joints along the roof lines from the ground. Due to the limited accessibility to these areas, wipe samples are not included in the long-term monitoring. In areas where damage or deterioration of the encapsulant or caulking is observed, recommendations for corrective actions will be proposed.
- Visual inspections of the other encapsulated surfaces will be conducted to look for signs of encapsulant deterioration and/or signs of weathering or disturbance of metal window frames and sheet metal barriers.
- Two surface wipe samples of the encapsulated concrete spandrel materials on the exterior side of the Elevator Hall Windows (Type D) will be collected on a bi-annual basis to evaluate the concentration of PCBs present at the surface. The wipe samples will be collected from a randomly selected portion of the joints between the first and second floors due to access limitations (a lift would be required and limited area of accessibility by building users) to higher locations.
- One surface wipe sample of the encapsulated interior CMU block walls on the sixth floor of the Grayson and Field Houses elevator hall areas not located beneath the Type D window frames will be collected on a bi-annual basis from a randomly selected location to evaluate the concentration of PCBs present at the surface.
- No surface wipe samples will be collected from encapsulated surfaces formerly in direct contact with caulking at the Type G, H, and I Narrow Stairwell Windows or the Type J Stairwell Windows, as all encapsulated surfaces at these window types are located under the replacement window frames or sheet metal cladding. Direct contact access to these surfaces is prohibited by a secondary barrier (i.e., new windows and/or metal cladding installed over the encapsulant).

Webster House

Based on the baseline sample results (all non-detect for PCBs) and encapsulated areas subsequently covered by window frames and sheet metal cladding associated with the new window installation, the only accessible coating is in areas at the interior CMU block walls in the elevator lobbies. A total of three surface wipe samples of these encapsulated (Sikagard 550W) interior CMU block walls will be collected from randomly selected locations on a bi-annual basis.

Previous Monitoring Activities – 2012 through 2016

Long term monitoring activities conducted between 2012 and 2016 were reported in the annual long-term monitoring reports and are summarized below:

Field and Grayson

- Exterior Parapet Masonry Joints – Coated concrete surfaces surrounding the exterior parapet masonry joints were inspected for damage. The visual inspection found no evidence of deterioration of the coating with the exception of the single joint identified at the roofline of Field House in 2013. This area was designated to be repaired when maintenance activities were to be conducted in this area (see Corrective Actions at end of this report).

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- Concrete Spandrel Beams – In 2014, 2015, and 2016 coated concrete surfaces surrounding exterior spandrel beams were inspected for damage. The visual inspection found no evidence of deterioration of the coating. One surface wipe sample was collected in 2014 and 2015 from coated surfaces at the exterior spandrel beams at both buildings. Analytical results were non-detect ($< 0.20 \mu\text{g}/100\text{cm}^2$) for the four samples.
- Elevator Hall CMU Block Walls – Coated CMU block materials within the elevator lobby areas were inspected. In 2014 a limited amount of the coating was observed to be damaged on the surfaces of the south wall of the Grayson House 6th floor elevator lobby. This area was repaired as part of standard maintenance activities within the building. One wipe sample was collected from the encapsulated surfaces in 2014 and in 2015. Analytical results indicated that PCBs were non-detect ($< 0.20 \mu\text{g}/100\text{cm}^2$).
- Stairwell Materials – Visual inspection of the windows and sheet metal cladding was conducted at the exterior narrow stairwell window jambs of the Grayson House and on the interior stairwell window concrete sills and brick jambs of both buildings. No damage to the materials was observed.

Webster House

- Northwest Building Elevation – During visual inspections conducted from 2012 through 2016 no signs of damage were observed to the sheet metal cladding and window frames on the northwest building elevation.
- Elevator Hall CMU Block Walls – Coated CMU block materials within the elevator lobby areas were inspected. No signs of deterioration or damage were observed. Wipe sample were collected from these surfaces during the 2012 through 2015 monitoring events. Analytical results from all samples indicated that PCBs were non-detect ($< 0.20 \mu\text{g}/100\text{cm}^2$).

2016 Indoor Air Sampling

- Indoor Air Sampling – Two indoor air samples were collected from the elevator lobby areas at Webster and Grayson Houses. Samples were collected over a minimum of six hours in accordance with EPA Compendium Method TO-10A Determination of Pesticides and Polychlorinated Biphenyls in Ambient Air Using Low Volume Polyurethane Foam (PUF) Sampling. Analytical results indicated that PCBs were present at concentrations below EPA's published exposure levels for the evaluation of PCBs in indoor school air (July 2015) with reported concentrations of 36 and 38 ng/m³. Given the transitory nature of the elevator lobbies and the anticipated limited duration a typical occupant would be present in these buildings (no more than four years to coincide with a typical undergraduate degree program), the application of the published levels is believed to be a conservative protective measure. As such, no additional indoor air sampling was proposed to be conducted within these spaces.

2017 Monitoring Activities

The 2017 monitoring event included visual inspections of encapsulated surfaces and secondary physical barriers and wipe sampling.

- Field and Grayson Houses:
 - Exterior Parapet Masonry Joints – Coated concrete surfaces surrounding the exterior parapet masonry joints were inspected for damage. The visual inspection found no evidence of deterioration of the coating with the exception of the single joint previously identified at the roofline of Field House.

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- Concrete Spandrel Beams – Coated concrete surfaces surrounding exterior spandrel beams were inspected for damage. The visual inspection found no evidence of deterioration of the coating. One surface wipe sample was collected from coated surfaces at the exterior spandrel beams at both buildings. Analytical results indicated that PCBs were non-detect ($< 0.20 \mu\text{g}/100\text{cm}^2$) in the sample collected from Field House and present at a concentration of $0.25 \mu\text{g}/100\text{cm}^2$ in the sample collected from Grayson House.
- Elevator Hall CMU Block Walls – Coated CMU block materials within the elevator lobby areas were inspected. The visual inspection found no evidence of deterioration of the coatings. One wipe sample was collected from the encapsulated surfaces within Grayson House and reported as non-detect ($< 0.20 \mu\text{g}/100\text{cm}^2$) for PCBs.
- Stairwell Materials – Visual inspection of the windows and sheet metal cladding was conducted at the exterior narrow stairwell window jambs of the Grayson House and on the interior stairwell window concrete sills and brick jambs of both buildings. No damage to the materials was observed.
- A summary of the analytical results is presented on Table 4-1.
- Webster House - No signs of damage were observed to the sheet metal cladding and window frames on the northwest building elevation. Sheet metal cladding and liquid coatings in the elevator lobby areas were observed to be in good condition with no signs of wear or damage. Analytical results from the three wipe samples collected from coated CMU block walls reported PCBs as non-detect ($< 0.20 \mu\text{g}/100\text{cm}^2$) as summarized on Table 4-1.

Corrective Actions

Based on the results of the 2017 monitoring event, no corrective actions are required at this time. As previously reported, repairs to the epoxy coating along the roof line parapet wall joint at Field House will be conducted when other maintenance activities are scheduled for that area.

Next Monitoring Event

The next monitoring event will be conducted in 2018 and will include visual inspections of encapsulated surfaces and secondary physical barriers in accordance with the long-term monitoring plans.

Table 4-1
Summary of Long Term Monitoring Wipe Sampling Results - Orchard Hill
UMass Amherst

Coating/Area	Surface	Building	Sample Date	Sample ID	Total PCBs (ug/100cm ²)
Sikagard 62 Epoxy	Exterior Spandrel Beams	Field House	7/22/2014	LTM-FH-VWC-228	<0.20
			7/21/2015	LTM-FH-VWC-345	<0.20
			8/10/2017	LT-FH-VWC-006	< 0.20
		Grayson House	7/22/2014	LTM-GH-VWC-230	<0.20
			7/21/2015	LTM-GH-VWC-344	<0.20
			8/10/2017	LT-GH-VWC-005	0.25
Sika 550W	Interior CMU Block Walls	Webster House	8/9/2012	LTM-WH-VWC-001	< 0.20
			8/9/2012	LTM-WH-VWC-002	< 0.20
			8/9/2012	LTM-WH-VWC-003	< 0.20
			9/3/2013	LTWH-VWC-001	< 0.20
			9/3/2013	LTWH-VWC-002	< 0.20
			9/3/2013	LTWH-VWC-003	< 0.20
			7/22/2014	LTM-WH-VWC-225	<0.20
			7/22/2014	LTM-WH-VWC-226	<0.20
			7/22/2014	LTM-WH-VWC-227	<0.20
			7/21/2015	LTM-WH-VWC-341	<0.20
			7/21/2015	LTM-WH-VWC-342	<0.20
			7/21/2015	LTM-WH-VWC-343	<0.20
			8/10/2017	LT-WH-VWC-001	<0.20
			8/10/2017	LT-WH-VWC-002	<0.20
			8/10/2017	LT-WH-VWC-003	<0.20
		Field House	7/22/2014	LTM-FH-VWC-229	<0.20
		Grayson House	7/21/2015	LTM-GH-VWC-346	<0.20
			8/10/2017	LT-GH-VWC-007	< 0.20

Notes:

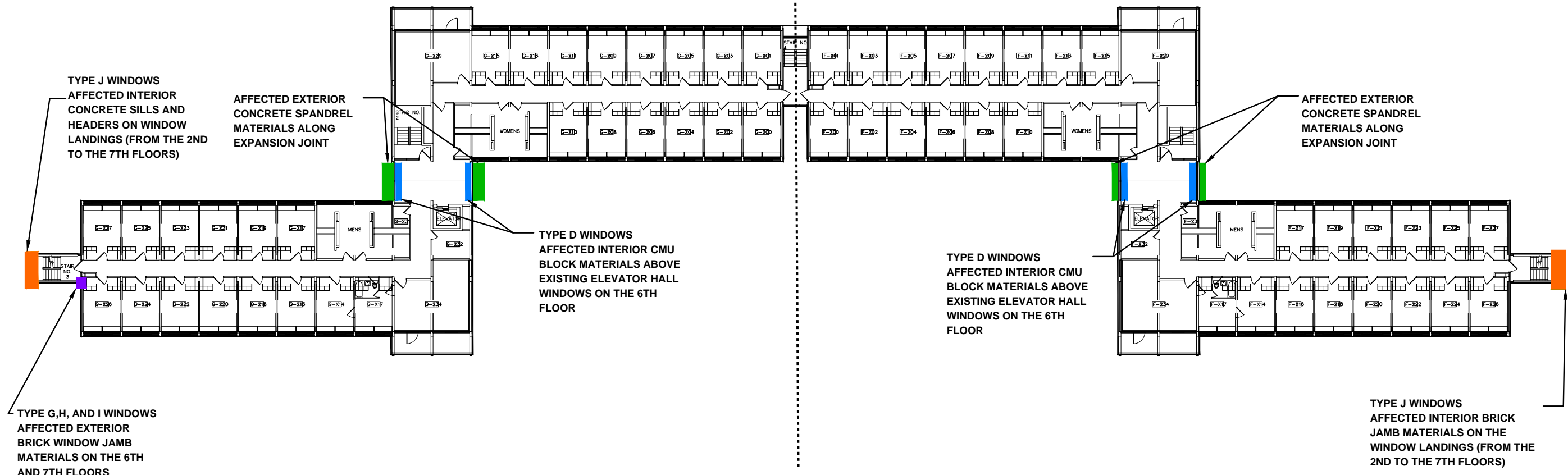
Samples submitted for PCB analysis via USEPA method 8082 with Soxhlet Extraction (3540C).

Wipe samples collected in accordance with the standard wipe test method of 40 CFR 761.123.

ENCAPSULATED BUILDING SURFACES


Grayson House

Field House



- Notes:
- 1. Original design drawings by CBI Consulting, Inc. modified to show encapsulated building surfaces.
 - 2. This drawing depicts the typical building layout for the second through seventh floors of the Grayson and Field Houses.

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DESIGNED BY: GJF
DRAWN BY: PF

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224824-UMA-GRAYSON-U2-1*.dwg

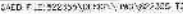
UMASS GRAYSON & FIELD HOUSE
AMHERST, MASSACHUSETTS

Long Term Monitoring and Maintenance
Report

JOB NO: 224824.00
DATE: NOVEMBER 2013
SCALE: NONE

Figure 4-1

Drawing details taken from Webster House Window Replacement drawing D-A-333-10-001711-01-T2 dated February 3, 2011 by Gale Associates, Inc. of Weymouth, Massachusetts.





Attachment 5 – Sylvan Residential Complex

**Attachment 5 – Sylvan Residential Complex
Long-Term Maintenance and Monitoring Program
In-Place Management of PCB Impacted Materials
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Location: Sylvan Residential Area

Building: Brown, Cashin, McNamara

Summary of Remedial Areas

In-Place Management: Residual PCBs at concentrations > 1 ppm are being managed in place at interior and exterior locations on the three buildings within the Sylvan complex. A summary of the locations is as follows:

- Exterior Locations – along horizontal and vertical expansion joints in both high occupancy areas (i.e., within 8'8" of the ground surface) and low occupancy areas (i.e., > 8'8" from the ground surface):
 - Exterior Brick Within the Return of Horizontal and Vertical Control Joints (20,690 l.f.) – Brick materials located within the return of the horizontal and vertical control joints were encapsulated with up to three coats of Sikagard 62 liquid epoxy coating and subsequently covered with replacement caulking.
 - Exterior Brick Adjacent to Horizontal Control Joints in High Occupancy Areas (860 l.f.) – One full row of brick above and three full rows of brick below horizontal control joints within 8' 8" of the ground surface were encapsulated with up to three coats of Sikagard 670W clear acrylic coating.
 - Exterior Brick Adjacent to Vertical Control Joints in High and Low Occupancy Areas (5,690 l.f.) – One full row of brick on either side of the vertical control joints were coated with up to three coats of Sikagard 670W clear acrylic coating.
- Interior Locations – along former caulked joints and adjacent building materials as follows:
 - Interior Concrete Columns/Walls (352 s.f.) – Select interior concrete columns and walls at the Brown and McNamara buildings were coated with liquid coatings as part of the ADA restroom upgrades in these buildings and interior renovations to the lower level common areas at McNamara. Materials formerly in direct contact with the removed source materials were coated with two coats of Sikagard 62 liquid epoxy coating. Materials containing PCBs > 1 ppm away from the former source materials were coated with a minimum of two coats of Sikagard 670W acrylic, and/or Sikagard 550W elastomeric paint.
 - Interior Concrete Ceilings (835 s.f.) – Concrete ceilings outside the ADA Restroom upgrades at Brown and McNamara and the ceiling within the first floor common area (now the first floor office space) at Cashin were coated with liquid coatings. Materials formerly in direct contact with the source materials were coated with two coats of Sikagard 62 liquid epoxy coatings. Materials containing PCBs > 1 ppm away from the former source materials were coated with a minimum of two coats of Sikagard 670W acrylic and/or Sikagard 550W elastomeric paint.

Photographs of typical coating application areas are provided below.

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Typical Interior Encapsulated Surfaces
(Concrete Walls and Ceiling)



Typical Vertical and Horizontal Control Joints
(New Caulking and Clear Coating Visible)

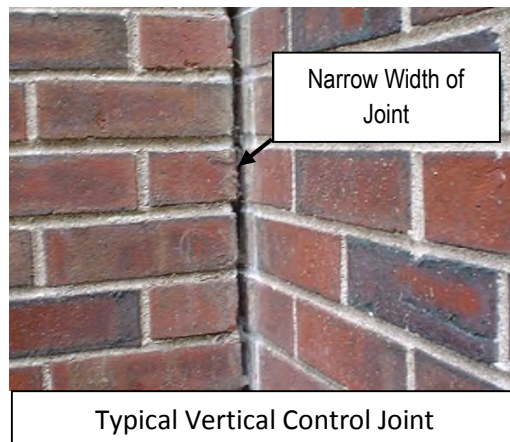
Baseline Verification Data Summary: Following remediation activities, baseline verification wipe samples were collected from encapsulated surfaces as follows:

- Exterior - former direct contact areas:
 - Horizontal control joints on the building's façade:
 - 83 wipe samples collected;
 - Of which 79 samples were reported as $< 1 \mu\text{g}/100\text{cm}^2$ total PCBs (95% of the samples); and
 - 4 samples $> 1 \mu\text{g}/100\text{cm}^2$ at 1.2, 1.3, 2.4, and $4.8 \mu\text{g}/100\text{cm}^2$ (3 at McNamara and 1 at Cashin; none at Brown).
 - Vertical control joints on the building's façade:
 - 38 wipe samples collected;
 - Of which 23 samples were reported as $< 1 \mu\text{g}/100\text{cm}^2$ total PCBs (60% of the samples); and
 - 15 samples $> 1 \mu\text{g}/100\text{cm}^2$; 12 of the 15 samples were collected from McNamara (up to $250 \mu\text{g}/100\text{cm}^2$), 1 at Brown ($1.2 \mu\text{g}/100\text{cm}^2$); and 2 at Cashin (1.15 and $3.5 \mu\text{g}/100\text{cm}^2$).
- Exterior - areas away from the former caulked joints:
 - Horizontal control joints on the building's façade in high occupancy areas:
 - 19 wipe samples collected; and
 - All 19 samples were reported as $< 1 \mu\text{g}/100\text{cm}^2$ total PCBs (100% of the samples).
 - Vertical control joints on the building's façade:
 - 44 wipe samples collected;
 - Of which 35 samples were reported as $< 1 \mu\text{g}/100\text{cm}^2$ total PCBs (80% of the samples);
 - 9 samples $> 1 \mu\text{g}/100\text{cm}^2$; 8 of the 9 samples were collected from McNamara (up to $2.3 \mu\text{g}/100\text{cm}^2$) and 1 at Brown ($1.8 \mu\text{g}/100\text{cm}^2$);

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- All baseline verification wipe samples from the interior encapsulated areas were below the target level of $1 \mu\text{g}/100\text{cm}^2$ with the exception of three samples from McNamara (1.3, 1.5, and $1.6 \mu\text{g}/100\text{cm}^2$).

As indicated above, most locations met the target levels (with some minor areas slightly above the target level) with the exception of the vertical control joints at McNamara. As data was reviewed during the McNamara exterior renovation project, additional measures were conducted including additional coats of epoxy and more frequent inspections. Given the limited size of the joints, observations indicated some of the backing material deep within the return of the narrow joint could not be removed without substantial damage to the brick façade; residual PCBs in this material may be affecting the epoxy wipe results; however, this material was subsequently covered by the epoxy, new backing material, and new caulking.



Monitoring and Maintenance Implementation Plan

The Monitoring and Maintenance Implementation Plan (MMIP) was submitted to EPA in February 2014 and included visual inspections and wipe sampling.

Visual inspections will be conducted at representative areas of each of the types of encapsulated surfaces to confirm the presence of the encapsulating coatings/barriers. Surface wipe samples will be collected from select encapsulated surfaces to aid in determining the effectiveness of the encapsulants over time.

Encapsulated surfaces associated with the following locations have been selected for sampling as part of the long-term monitoring plan:

- Areas Adjacent to Exterior Façade Horizontal Control Joints in High Occupancy Areas ($< 8' - 8''$ ags) (860 l.f.) – 1 sample per building façade (total of 12 samples proposed; 4 per building);
- Areas Adjacent to Exterior Façade Vertical Control Joints in High Occupancy Areas ($< 8' - 8''$ ags) (878 l.f.) – 1 sample per building façade (total of 12 samples proposed; 4 per building);
- Interior Concrete Columns/Walls (Brown and McNamara) (352 s.f.) – 1 sample per work area (total of 3 samples proposed; 1 at Brown and 2 at McNamara); and
- Interior Concrete Ceilings (Brown, McNamara, and Cashin) (835 s.f.) – a total of five samples to be collected with a minimum of 1 sample per work area (1 at Brown; 2 at McNamara; and 2 at Cashin).

In summary, a total of 32 surface wipe samples will be collected from representative locations of the encapsulated surfaces. Where applicable, sample locations will be biased towards locations selected during baseline sampling activities.

Based on the criteria presented above, the rationale for excluding the remaining encapsulated surfaces from the sampling program is summarized below:

- Former Direct Contact Surfaces – no samples are to be collected from surfaces in former direct contact with caulking based on the baseline epoxy wipe sample results and given that each of these surfaces are located beneath a secondary physical barrier (e.g., new caulking, drywall, etc.). The one exception to this condition is that given the baseline results from the exterior façade vertical joints at McNamara (12 samples with reported PCB concentrations $> 1 \mu\text{g}/100\text{cm}^2$), wipe samples were collected in 2014 and 2015 from the caulking at four locations from McNamara. The sampling demonstrated PCB concentrations consistent with the baseline monitoring data.

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- Low-Occupancy Areas – as described above, no samples are to be collected from exterior surfaces in low-occupancy areas (i.e., surfaces at heights greater than 8'-8" above ground surfaces) given their inaccessibility and the low likelihood that these surfaces will be contacted by occupants or building users.

Monitoring Activities –2014, 2015, and 2016

Visual inspection and wipe sampling of encapsulated surfaces was conducted in accordance with the MMIP as described above on July 22, 2014 (with follow up wipe sampling done on August 20, 2014), July 21, 2015, and November 21, 2016. Results of the monitoring activities are summarized below:

Visual Inspection: Results of the visual inspections are as follows:

- Exterior Expansion Joint Caulking: Visual inspection of the caulking within the horizontal and vertical controls joints indicated that the caulking was in good physical condition with no damaged or missing sections observed.
- Exterior Brick Surfaces: Visual inspection of the Sikagard 670W clear acrylic coating applied along the exterior horizontal and vertical controls joints indicated that the coating remains in good condition over the encapsulated surfaces.
- Interior Concrete Columns/Walls: Visual inspection indicated that coatings installed to masonry materials were in good condition. No deterioration was observed.
- Interior Concrete Ceilings: Visual inspection indicated that coatings installed to masonry materials were in good condition. No deterioration was observed.

Wipe Samples: Wipe samples were collected from coated masonry surfaces as described above. Analytical results are presented in Table 5-1. A summary of the results is as follows:

- Sikagard 670W Clear Acrylic Coating: Wipe samples were collected from brick along horizontal and vertical control joints within high occupancy areas at the three buildings. A total of 24 samples were collected during each event (12 along vertical joints and 12 along horizontal joints) as follows:
 - Horizontal Control Joints – PCBs were reported as either non-detect (30 samples at $< 0.20 \mu\text{g}/100\text{cm}^2$) or present at concentrations $< 1 \mu\text{g}/100\text{cm}^2$ (6 samples with PCB reported at concentrations up to $0.58 \mu\text{g}/100\text{cm}^2$). These results are consistent with the baseline data;
 - Vertical Control Joints – PCBs were reported as non-detect (24 samples at $< 0.20 \mu\text{g}/100\text{cm}^2$ – including all samples collected in 2016) or at concentrations ranging from 0.23 to $3.4 \mu\text{g}/100\text{cm}^2$ (12 samples). These results are consistent with the baseline data;
- Interior Concrete Columns/Walls: Three wipe samples were collected during each event from interior concrete columns/walls encapsulated with Sikagard 550W elastomeric coating (the final coating applied to interior concrete columns and walls). Analytical results were consistent with the baseline data with PCBs reported as either non-detect (6 samples at $< 0.20 \mu\text{g}/100\text{cm}^2$) or present at concentrations of 0.21, 0.75, and $1.27 \mu\text{g}/100\text{cm}^2$.
- Interior Concrete Ceiling: Five wipe samples were collected during each event from interior concrete ceiling surfaces encapsulated with interior acrylic paint (the final coating applied over Sikagard 62 liquid epoxy and/or Sikagard 670w clear acrylic). Analytical results indicated that PCBs were either non-detect (10 samples at $< 0.20 \mu\text{g}/100\text{cm}^2$) or present at concentrations ranging from 0.38 to $0.81 \mu\text{g}/100\text{cm}^2$ (5 samples – all collected from McNamara). These results are consistent with the baseline data.
- Replacement Caulking – McNamara Vertical Control Joints: Four wipe samples (1 per elevation) were collected from the surface of the replacement caulking on the McNamara vertical control joints in 2014 and 2015. Analytical results indicated that PCBs were present in the wipe samples at concentrations ranging

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from 13 to 77 $\mu\text{g}/100\text{ cm}^2$. These results were consistent with the verification/baseline monitoring wipes collected at the completion of the project where analytical results had indicated that PCBs were present at a maximum concentration of 250 $\mu\text{g}/100\text{cm}^2$ on the surface of the liquid epoxy coating.

In addition to the hexane wipes, four saline wipes were collected during each event from the locations co-located with the hexane wipe samples to evaluate alternative wipe sampling procedures to assess “surface” concentrations of PCBs to determine if the hexane was “extracting” or “pulling” the PCBs from within the porous caulking. Analytical results from the saline wipes indicated that PCBs were present at concentrations ranging from 0.28 to 7.6 $\mu\text{g}/100\text{cm}^2$. Based on these results, the hexane wipes may not be truly representative of surficial PCBs that could be available for direct contact and/or leaching through normal anticipated pathways (e.g., incidental contact, rain water, etc.).

Based on these results, UMass evaluated products to apply as secondary physical barriers over the lower portions of the vertical joints at McNamara. Additional information is provided in the Corrective Action portion of this report.

Monitoring Activities – 2017

The 2017 monitoring event included visual inspections and wipe sampling of encapsulated surfaces in accordance with the MMIP and the collection of indoor air samples to continue the monitoring of PCBs in indoor air as described in the 2016 report.

Visual inspections and surface wipe samples were conducted on June 20th with a follow-up sampling event conducted on August 10th. Indoor air samples were collected on June 20th with follow-up sampling conducted on August 10th, October 5th, and November 21st to assess different building and seasonal conditions. A summary of the results is presented below.

Visual Inspection

Results of the visual inspections are as follows:

- Exterior Expansion Joint Caulking: Visual inspection of the caulking within the horizontal and vertical controls joints indicated that the caulking was in good physical condition with no damaged or missing sections observed.
- Exterior Brick Surfaces: Visual inspection of the Sikagard 670W clear acrylic coating applied along the exterior horizontal and vertical controls joints indicated that the coating remains in good condition over the majority of encapsulated surfaces with isolated areas of flaking and peeling consistent with observations at other areas on the campus.
- Interior Concrete Columns/Walls: Visual inspection indicated that coatings installed to masonry materials were in good condition. No deterioration was observed.
- Interior Concrete Ceilings: Visual inspection indicated that coatings installed to masonry materials were in good condition. No deterioration was observed.

Wipe Samples – Exterior Masonry Joints

Wipe samples were collected from exterior brick surfaces coated with Sikagard 670W clear acrylic coating as described above on June 20th and a follow-up round of sampling was conducted on August 10th. A summary of the analytical results is presented in Table 5-1 and is as follows:

- On June 20th, 24 wipe samples (12 along vertical joints and 12 along horizontal joints) were collected from brick along horizontal and vertical control joints within high occupancy areas at the three buildings and submitted for PCB analysis. Analytical results indicated the following:

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- Vertical Control Joints – PCBs were reported in all 12 samples at concentrations ranging from 1.37 to 99 $\mu\text{g}/100\text{cm}^2$.
- Horizontal Control Joints – PCBs were reported in 9 samples as either non-detect (2 of the samples) or at concentrations $< 1 \mu\text{g}/100\text{cm}^2$ (7 samples with an average reported concentration of $0.53 \mu\text{g}/100\text{cm}^2$). Analytical results from the remaining 3 samples reported PCBs at concentrations of 3.9, 5, and $7.3 \mu\text{g}/100\text{cm}^2$.
- Given the inconsistent and higher concentrations reported for the wipe samples collected in June, a comparison was made between these results to those from baseline and the three previous long-term monitoring events. As described above, results from the previous activities were consistently reported as non-detect or $< 1 \mu\text{g}/100\text{cm}^2$ with only 14 of the previous 135 samples containing PCBs $> 1 \mu\text{g}/100\text{cm}^2$ (max of $3.4 \mu\text{g}/100\text{cm}^2$). Based on this inconsistency between previous events and the June sampling results, an additional 10 samples were collected on August 20th. The 10 samples were distributed between vertical (7 locations) and horizontal (3 locations) joints. Of the 10 samples, 7 were collected at a distance of approximately 5 feet from the original sample locations and 3 were collected from different locations on the same building elevations. The revised distribution of the samples was intended to provide information as to whether or not the samples collected in June were representative of current conditions (7 samples close to the previous ones) and/or if the elevated PCB concentrations were present in areas not evaluated (3 samples).

Analytical results from the 10 samples indicated that PCBs were non-detect in 9 of the samples and present at a concentration of $0.68 \mu\text{g}/100\text{cm}^2$ in the 10th sample. The results from the follow-up wipe sampling were consistent with the baseline data and the three previous rounds of long term monitoring data.

In addition to the follow-up wipe samples and data validation, the lab was contacted to specifically re-review the sample analyses from June and Woodard & Curran reviewed field methods, sample jars, and other circumstances during the sampling event. The results of these additional review steps did not identify any conditions that would suggest a quality control or assurance issue with the June sampling event.

Based on the totality of the available data (surface wipe samples collected over multiple years as summarized above) including the follow-up wipe samples collected in August, the June results are not considered to be representative of current conditions at the buildings.

- **Conclusions/Next Steps** – Based on the visual inspections and annual wipe data collected from 2014 through 2017, the long-term monitoring program is proposed to be revised to a bi-annual surface wipe sampling program while still maintaining the annual visual inspections. The transition to bi-annual wipe sampling is consistent with the timing implemented at the other long-term monitoring programs on the UMass campus. Under this approach, the 2018 long term monitoring event will include visual inspections and the collection of bi-annual wipe samples (to stagger the sampling with the other areas on the UMass campus where bi-annual wipe samples will be collected in 2019). In addition, UMass EH&S will continue to coordinate with Residential Life and Facilities and Maintenance personnel to obtain the product and schedule the application of secondary physical barriers over the vertical joints at McNamara.

Wipe Samples – Interior Concrete Surfaces

Wipe samples were collected from interior concrete columns/walls and ceilings at the three buildings on June 20, 2017. A summary of the analytical results for each is presented below:

- Interior Concrete Columns/Walls: Three wipe samples were collected from interior concrete columns/walls encapsulated with Sikagard 550W elastomeric coating (the final coating applied to interior concrete columns and walls). Analytical results from the three samples indicated that PCBs were non-detect ($< 0.20 \mu\text{g}/100\text{cm}^2$). These results are consistent with the baseline monitoring event and the results of previous long-term monitoring events.

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- Interior Concrete Ceiling: Five wipe samples were collected from interior concrete ceiling surfaces encapsulated with interior acrylic paint (the final coating applied over Sikagard 62 liquid epoxy and/or Sikagard 670w clear acrylic). Analytical results indicated that PCBs were non-detect in the 5 samples collected ($< 0.20 \mu\text{g}/100\text{cm}^2$).
- These results are consistent with the baseline monitoring and previous long-term monitoring activities conducted through 2016. Based on these results and consistent with other long-term monitoring programs on the UMass campus, it is proposed that the long-term monitoring program be modified to include annual visual inspections with bi-annual surface wipe sampling of encapsulated surfaces starting in 2018. Under this approach, the 2018 long term monitoring event will include visual inspections and the collection of bi-annual wipe samples.

Indoor Air Sample Collection

As proposed in the 2016 long term monitoring report, an indoor air sampling event was conducted in the spring/early summer of 2017 in the four building areas previously sampled in August 2016. On June 20, 2017, four indoor air samples were collected from these locations. Samples were collected over a minimum of six hours in accordance with EPA Compendium Method TO-10A Determination of Pesticides and Polychlorinated Biphenyls in Ambient Air Using Low Volume Polyurethane Foam (PUF) Sampling. Samples were submitted to ConTest Analytical Laboratory for PCB homolog analysis via Gas Chromatographic/Multi-Detector Detection. Observations made during the sampling event indicated that the building doors and windows were closed as were the majority of interior partition doors in the sample areas. The buildings were not being used during the sampling event (students had left for summer break) and based on information provided by UMass, no major renovation or maintenance activities had occurred prior to the event. Analytical results indicated that PCBs were present at concentrations ranging from $762 \text{ ng}/\text{m}^3$ to $1,749 \text{ ng}/\text{m}^3$ with an average reported concentration of $1,160 \text{ ng}/\text{m}^3$.

Based on the detected PCB concentrations reported in the samples, UMass conducted ventilation of all three buildings in early August to increase air exchanges and prepare for the arrival of students for the fall semester. Doors and windows on the floors were opened prior to ventilation and kept open throughout the ventilation, which was conducted using the building's system and supplemented with fans.

On August 10, 2017, five indoor air samples were collected to evaluate conditions after the building ventilation. Samples were collected from each of the 4 locations evaluated during the June sampling event and one sample was collected from an additional room in the McNamara Lower Level study area. Observations made during the sampling event with regard to building condition and use were consistent with the June sampling event (buildings primarily closed up and unoccupied). Analytical results from this second event indicated that PCBs were present at concentrations ranging from $204 \text{ ng}/\text{m}^3$ to $1,054 \text{ ng}/\text{m}^3$ with an average reported concentration of $637 \text{ ng}/\text{m}^3$.

Overall, the reported concentrations of PCBs decreased in each of the areas monitored during both events by approximately 47% in first floor common spaces (Cashin Service Desk), by 18% and 22% in the ADA restrooms, and by 56% in the lower level study and meeting areas. The decrease in results indicated that the ventilation was effective in reducing the concentrations of PCBs in indoor air prior to students returning for the fall semester.

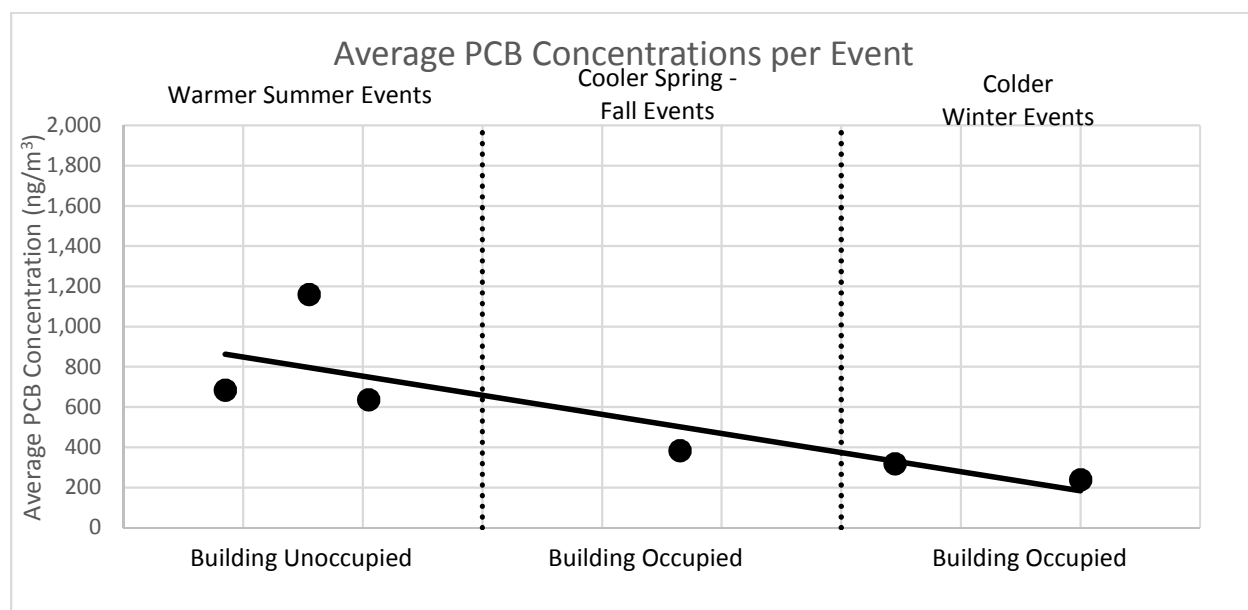
Following return of the students and during cooler ambient conditions (representing early fall and late spring), 5 indoor air samples were collected on October 5, 2017. Samples were collected from the Cashin Service Desk and the McNamara Lower Level study area to provide data regarding potential variations due to occupancy and seasonal conditions and from three additional spaces (1st floor study/lounge areas in McNamara and Brown and an additional space in the lower level study area of McNamara) to evaluate the different types of spaces on these floors. Analytical results indicated that PCBs were present at concentrations ranging from $223 \text{ ng}/\text{m}^3$ to $617 \text{ ng}/\text{m}^3$ with an average reported concentration of $384 \text{ ng}/\text{m}^3$.

These results were consistent with the site model developed after the 2016 sampling event which indicated that indoor air concentrations of PCBs may be elevated during the warmer summer months when the buildings are unoccupied with little air flow/turn over but decrease during the school year due to seasonal and building variations.

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On November 21, 2017, another 4 indoor air samples were collected to provide additional indoor air data during occupied conditions and to evaluate changes due to seasonal variations. Sample locations were selected to provide data from each of the three categories of spaces during the various building conditions (see Table 5-2 for specific locations). A 5th sample was planned to be collected during this event from the Cashin Service Desk area; however, an equipment failure prevented the collection of the sample. Analytical results from the four samples indicated that PCBs were present at concentrations of 166, 212, 226, and 353 ng/m³ with an average reported concentration of 239 ng/m³.

These results were consistent with the results from the November 2016 and October 2017 sampling events indicating that the concentrations of PCBs during cooler/colder temperature conditions remain well below those observed during the warmer summer months when the building is closed up and unoccupied. A graph depicting the variation in average PCB concentrations between the periods of warmer ambient temperatures and the cooler/colder conditions is presented below.



Site Specific Target Indoor Air Levels

In parallel with the indoor air sampling conducted after the initial 2017 sampling event, risk-based exposure levels were developed for the different receptor groups and types of spaces sampled within the building. Three types of spaces were identified based on similar locations and construction (e.g., ADA restrooms, first floor common areas) and the assumed occupancy and use of the spaces as provided by UMass (e.g., transitory use in common areas, staffing in the Service Desk area). The three types/categories of spaces were:

- 1st Floor Common Spaces – these spaces include areas such as the Cashin Service Desk, main lobby areas, and the 1st floor study/lounge areas.
- ADA Restrooms – these spaces were separated from the other 1st floor common areas based on the unique construction and limited duration/frequency of use.
- Lower Level Study and Meeting Areas – these spaces include transitory areas in the lower levels of the buildings that are used for study and group meetings such as the renovated spaces in McNamara.

Risk-based indoor air concentrations for each type of space were derived using published EPA indoor air levels and standard EPA risk assessment methodology. A range of Target Indoor Air Concentrations (TIAC) for different spaces was calculated based on certain assumptions about how often and how long a student or worker spent in a specific area (e.g., how many hours per day, days per year, and total years). These factors were combined to calculate an Exposure Factor which was used in conjunction with toxicity information and a set point of departure for risk to

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calculate the TIAC. The TIAC's calculated for each space are presented on Table 5-2. Equations and input assumptions are provided in Attachment A.

As shown on Table 5-2, the reported PCB concentrations for each of type of space indicates that PCB concentrations were well below the calculated ranges for transitory users in the first-floor common areas, the ADA restrooms, and the lower level study and meeting areas. In the Cashin Service Desk area, where the TIAC range is driven by the presence of workers in the space, the reported PCB concentrations were within the calculated range of 365 to 1,825 ng/m³ during each sampling event. An evaluation of the data set from this area indicates that the concentrations of PCBs vary seasonally with an average concentration of 1,242 ng/m³ during the three events conducted in the warmer summer months and concentrations of 617 ng/m³ and 520 ng/m³ in the cooler and colder ambient periods, respectively.

Conclusions/Next Steps

Analytical results from the indoor air sampling events conducted in 2016 and 2017 indicate that PCB concentrations are below target ranges for the common areas and restrooms and within the target range for the Cashin Service Desk during each of the five sampling events. Results also indicate that PCB concentrations are generally higher during the summer months when ambient temperatures are highest and when the buildings are typically closed-up with minimal usage (e.g., building perimeter and partition doors and windows typically closed and students and staff either not present or in the buildings at a reduced frequency). During periods of cooler ambient temperature, which coincides with normal building occupancy and space use, PCB concentrations were observed to have decreased from the summer levels.

Based on the reported concentrations of PCBs in indoor air, continued air monitoring is proposed for 2018 to increase the data set with respect to the samples in the various types of spaces during the periods of cooler and colder ambient temperatures. Specifically, two additional rounds of indoor air sampling are proposed to be conducted in 2018, one in early fall following the return of students (September) to evaluate conditions during cooler ambient temperatures and one during the late fall/winter to provide additional data during the colder periods. A summary of the planned sampling program is presented below for each of the three types of spaces.

- First Floor Common Areas (3 samples) – 1 sample will be collected from the Cashin Service desk during each of the two events to increase the overall data set for this area and 1 sample will be collected from the McNamara 1st Floor Study/Lounge area in the late fall/winter sample event to obtain data for this space during the colder ambient conditions.
- ADA Restrooms (1 sample) – 1 sample will be collected from the Brown ADA Restroom during the early fall event to evaluate conditions during periods of cooler ambient temperatures.
- Lower Level Study and Meeting Areas (2 samples) – 1 sample will be collected from hallway area during the early fall event and 1 sample will be collected from the study area room during the late fall/winter event to increase the overall data set for these spaces during cool and colder ambient conditions.

The indoor air sampling described above is intended to increase the overall data set during 2018 to support the transition into a long-term monitoring program. If the data collected in 2018 remains consistent with data previously collected, it is anticipated that a long-term annual sampling program would be implemented in 2019.

Finally, UMass EHS will coordinate with Residential Life to ventilate the three buildings in August prior to students returning for the fall semester.

Table 5-1 Summary of Long Term Monitoring Wipe Sampling Results - Sylvan Complex																	
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Coating/Area	Surface	2014 Verification Wipes			2015 Verification Wipes			2016 Verification Wipes			June 2017 Verification Wipes			August 2017 Follow-Up Verification Wipes			
		Sample Date	Sample ID	Total PCBs (ug/wipe)	Sample Date	Sample ID	Total PCBs (ug/wipe)	Sample Date	Sample ID	Total PCBs (ug/wipe)	Sample Date	Sample ID	Total PCBs (ug/wipe)	Sample Date	Sample ID	Total PCBs (ug/wipe)	
Exterior Control Joints - Adjacent Brick Materials																	
High Occupancy Areas	Vertical Joints	McNamara	7/22/2014	LTM-MR-VWBV-200	1.75	7/21/2015	LTM-MR-VWBV-300	0.36 J	8/18/2016	LTM-MRV-VBC-423	<0.20	6/20/2017	LTM-MR-VWV-501	29	8/10/2017	LT-MR-VWB-500	0.68
			7/22/2014	LTM-MR-VWBV-202	0.69	7/21/2015	LTM-MR-VWBV-303	<0.20	8/18/2016	LTM-MRV-VBC-424	<0.20	6/20/2017	LTM-MR-VWV-502	6.4	8/10/20107	LT-MR-VWB-502	< 0.20
			7/22/2014	LTM-MR-VWBV-204	3.3	7/21/2015	LTM-MR-VWBV-306	0.95 J	8/18/2016	LTM-MRV-VBC-425	<0.20	6/20/2017	LTM-MR-VWV-503	13	8/10/2017	LT-MR-VWB-503	< 0.20
			7/22/2014	LTM-MR-VWBV-206	2.4	7/21/2015	LTM-MR-VWBV-309	3.4 J	8/18/2016	LTM-MRV-VBC-426	<0.20	6/20/2017	LTM-MR-VWV-504	6.4			
		Brown	7/22/2014	LTM-BR-VWBV-208	<0.20	7/21/2015	LTM-BR-VWB-316	<0.20	8/18/2016	LTM-BRV-VBC-431	<0.20	6/20/2017	LTM-BR-VWV-509	55	8/10/2017	LT-BR-VWB-506	< 0.20
			7/22/2014	LTM-BR-VWBV-210	<0.20	7/21/2015	LTM-BR-VWB-318	<0.20	8/18/2016	LTM-BRV-VBC-432	<0.20	6/20/2017	LTM-BR-VWV-510	99			
			7/22/2014	LTM-BR-VWBV-212	<0.20	7/21/2015	LTM-BR-VWB-320	<0.20	8/18/2016	LTM-BRV-VBC-433	<0.20	6/20/2017	LTM-BR-VWV-511	18	8/10/2017	LT-BR-VWB-508	< 0.20
			7/22/2014	LTM-BR-VWBV-214	1.2	7/21/2015	LTM-BR-VWB-322	0.24 J	8/18/2016	LTM-BRV-VBC-434	<0.20	6/20/2017	LTM-BR-VWV-512	12	8/10/2017	LT-BR-VWB-509	< 0.20
		Cashin	7/22/2014	LTM-CR-VWBV-216	0.23 J	7/21/2015	LTM-CR-VWB-324	<0.20	8/18/2016	LTM-CRV-VWB-413	<0.20	6/20/2017	LTM-CR-VWV-505	1.4			
			7/22/2014	LTM-CR-VWBV-218	0.9	7/21/2015	LTM-CR-VWB-326	<0.20	8/18/2016	LTM-CRV-VWB-414	<0.20	6/20/2017	LTM-CR-VWV-506	3			
			7/22/2014	LTM-CR-VWBV-220	<0.20 UJ	7/21/2015	LTM-CR-VWB-328	<0.20	8/18/2016	LTM-CRV-VWB-415	<0.20	6/20/2017	LTM-CR-VWV-507	13	8/10/2017	LT-CR-VWB-504	< 0.20
			7/22/2014	LTM-CR-VWBV-222	0.33	7/21/2015	LTM-CR-VWB-330	<0.20	8/18/2016	LTM-CRV-VWB-416	<0.20	6/20/2017	LTM-CR-VWV-508	1.37			
	Horizontal Joints	McNamara	7/22/2014	LTM-MR-VWBH-201	0.5	7/21/2015	LTM-MR-VWBH-302	<0.20	8/18/2016	LTM-MRH-VBC-418	<0.20	6/20/2017	LTM-MR-VWH-513	0.26			
			7/22/2014	LTM-MR-VWBH-203	0.58	7/21/2015	LTM-MR-VWBH-305	<0.20	8/18/2016	LTM-MRH-VBC-419	<0.20	6/20/2017	LTM-MR-VWH-514	7.3	8/10/2017	LT-MR-VWB-501	< 0.20
			7/22/2014	LTM-MR-VWBH-205	0.51	7/21/2015	LTM-MR-VWBH-308	<0.20	8/18/2016	LTM-MRH-VBC-421	<0.20	6/20/2017	LTM-MR-VWH-515	0.79			
			7/22/2014	LTM-MR-VWBH-207	0.5	7/21/2015	LTM-MR-VWBH-311	0.25	8/18/2016	LTM-MRH-VBC-422	<0.20	6/20/2017	LTM-MR-VWH-516	0.8			
		Brown	7/22/2014	LTM-BR-VWBH-209	<0.20	7/21/2015	LTM-BR-VWB-317	<0.20	8/18/2016	LTM-BRH-VBC-427	<0.20	6/20/2017	LTM-BR-VWH-521	0.67			
			7/22/2014	LTM-BR-VWBH-211	<0.20	7/21/2015	LTM-BR-VWB-319	<0.20	8/18/2016	LTM-BRH-VBC-428	<0.20	6/20/2017	LTM-BR-VWH-522	5	8/10/2017	LT-BR-VWB-507	< 0.20
			7/22/2014	LTM-BR-VWBH-213	<0.20	7/21/2015	LTM-BR-VWB-321	<0.20	8/18/2016	LTM-BRH-VBC-429	<0.20	6/20/2017	LTM-BR-VWH-523	0.44			
			7/22/2014	LTM-BR-VWBH-215	<0.20	7/21/2015	LTM-BR-VWB-323	<0.20	8/18/2016	LTM-BRH-VBC-430	<0.20	6/20/2017	LTM-BR-VWH-524	3.9			
		Cashin	7/22/2014	LTM-CR-VWBH-217	<0.20	7/21/2015	LTM-CR-VWB-325	<0.20	8/18/2016	LTM-CRH-VWB-409	<0.20	6/20/2017	LTM-MR-VWH-517	<0.20			
			7/22/2014	LTM-CR-VWBH-219	0.54	7/21/2015	LTM-CR-VWB-327	<0.20	8/18/2016	LTM-CRH-VWB-410	<0.20	6/20/2017	LTM-MR-VWH-518	0.31			
			7/22/2014	LTM-CR-VWBH-221	<0.20	7/21/2015	LTM-CR-VWB-329	<0.20	8/18/2016	LTM-CRH-VWB-411	<0.20	6/20/2017	LTM-MR-VWH-519	0.45	8/10/2017	LT-CR-VWB-505	< 0.20
			7/22/2014	LTM-CR-VWBH-223	<0.20	7/21/2015	LTM-CR-VWB-331	<0.20	8/18/2016	LTM-CRH-VWB-412	<0.20	6/20/2017	LTM-MR-VWH-520	<0.20			
Interior Renovation Areas																	
Encapsulated Ceiling	Ceiling	Cashin	7/22/2014	LTM-CRI-VWC-232	<0.20	7/21/2015	LTM-CRI-VWC-333	<0.20	8/18/2016	LTM-CRI-VWC-404	<0.20	6/20/2017	LTM-CRI-VWC-531	<0.20			
			7/22/2014	LTM-CRI-VWC-233	<0.20	7/21/2015	LTM-CRI-VWC-334	<0.20	8/18/2016	LTM-CRI-VWC-405	<0.20	6/20/2017	LTM-CRI-VWC-532	<0.20			
		McNamara	7/22/2014	LTM-MRI-VWC-244	0.42 J	7/21/2015	LTM-MRI-VWC-335	0.66	8/18/2016	LTM-MRI-VWC-401	<0.20	6/20/2017	LTM-MRI-VWC-525	<0.20			
			7/22/2014	LTM-MRI-VWC-245	0.81	7/21/2015	LTM-MRI-VWCX-336	0.38	8/18/2016	LTM-MRI-VWC-403	0.76	6/20/2017	LTM-MRI-VWC-526	<0.20			
		Brown	7/22/2014	LTM-BRI-VWC-247	<0.20	7/21/2015	LTM-BRI-VWC-337	<0.20	8/18/2016	LTM-BRI-VWC-407	<0.20	6/20/2017	LTM-BRI-VWC-529	<0.20			
Encapsulated Walls	Wall	McNamara	7/22/2014	LTM-MRI-VWC-242	0.75	7/21/2015	LTM-MRI-VWC-338	1.27	8/18/2016	LTM-MRI-VWC-400	<0.20	6/20/2017	LTM-MRI-VWV-527	<0.20			
			7/22/2014	LTM-MRI-VWC-243	<0.20	7/21/2015	LTM-MRI-VWC-339	<0.20	8/18/2016	LTM-MRI-VWC-402	<0.20	6/20/2017	LTM-MRI-VWV-528	<0.20			
		Brown	7/22/2014	LTM-BRI-VWC-246	<0.20	7/21/2015	LTM-BRI-VWC-340	0.21	8/18/2016	LTM-BRI-VWC-406	<0.20	6/20/2017	LTM-BRI-VWV-530	<0.20			

Notes:
Samples submitted for PCB analysis via USEPA method 8082 with Soxhlet Extraction (3540C).
Wipe samples collected in accordance with the standard wipe test method of 40 CFR 761.123.
J/UJ = Analytical results qualified as estimated based on data validation. See Attachment 6 for additional information.

Table 5-2
Summary of Indoor Air Sampling Results - 2016 and 2017
Sylvan Complex

Area	Location	Condition/Timing	Air Sample ID	Sample Date	Notes	Total PCB Concentration (ng/m³)	Target Indoor Air Level (ng/m³)
First Floor Common Areas	Cashin - Service Desk	Building Unoccupied - Warmer Ambient Temperatures (Summer)	LT-CR-IAS-003	8/18/2016	91.3 degrees	1,055	Workers at Service Desk: 365 to 1,825 ng/m³
			LTM-MR-IAS-005	6/20/2017	84.1 degrees	1,749	
			LT-CR-IAS-100	8/10/2017	89.5 degrees; post-ventilation	922	
		Building Occupied - Cooler Ambient Temperatures (Fall - Spring)	LT-CR-IAS-109	10/5/2017	79.5 degrees	617	
			To Be Collected Spring 2018				
		Building Occupied - Colder Ambient Temperatures (Late Fall - Winter)	CR-IAS-005	11/21/2016	36 degrees	520	
	To Be Collected Late Fall/Winter 2018						
	McNamara 1st Floor Study/Lounge - Room 113	Building Occupied - Cooler Ambient Temperatures (Fall - Spring)	LT-MR-IAS-107	10/5/2017	79.5 degrees	453	Transitory Users: 1,460 to 4,865 ng/m³
			To Be Collected Late Fall/Winter 2018				
		Building Occupied - Cooler Ambient Temperatures (Fall - Spring)	LT-BR-IAS-108	10/5/2017	79.5 degrees	389	
Building Occupied - Colder Ambient Temperatures (Late Fall - Winter)			LTM-BR-IAS-112	11/21/2017	59.0 degrees	226	
	ADA Restroom Areas	McNamara - ADA Restroom 115	Building Unoccupied - Warmer Ambient Temperatures (Summer)	LT-MR-IAS-002	8/18/2016	91.3 degrees	768
LTM-MR-IAS-003				6/20/2017	84.1 degrees	852	
LT-MR-IAS-101				8/10/2017	89.5 degrees; post-ventilation	667	
Building Occupied - Colder Ambient Temperatures (Late Fall - Winter)			MR-IAS-004	11/21/2016	36 degrees	302	
		Brown - ADA Restroom 113	Building Unoccupied - Warmer Ambient Temperatures (Summer)	LT-BR-IAS-004	8/18/2016	91.3 degrees	367
LTM-BR-IAS-004				6/20/2017	84.1 degrees	1,278	
LT-BR-IAS-104			8/10/2017	89.5 degrees; post-ventilation	1,054		
Building Occupied - Cooler Ambient Temperatures (Fall - Spring)			To Be Collected Spring 2018				
Building Occupied - Colder Ambient Temperatures (Late Fall - Winter)	LT-BR-IAS-111	11/21/2017	59.0 degrees	212			
Lower Level Study and Meeting Areas	McNamara Lower Level Study Area - Hallway	Building Unoccupied - Warmer Ambient Temperatures (Summer)	LT-MR-IAS-001	8/18/2016	91.3 degrees	548	Transitory Users: 1,460 - 4,865 ng/m³
			LTM-MR-IAS-002	6/20/2017	84.1 degrees	762	
			LT-MR-IAS-102	8/10/2017	89.5 degrees; post-ventilation	337	
		Building Occupied - Cooler Ambient Temperatures (Fall - Spring)	LT-MR-IAS-106	10/5/2017	79.5 degrees	237	
			To Be Collected Spring 2018				
		Building Occupied - Colder Ambient Temperatures (Late Fall - Winter)	MR-IAS-003	11/21/2016	36 degrees	132	
	LTM-MR-IAS-114		11/21/2017	59.0 degrees	353		
	McNamara Lower Level Study Area - Room	Building Unoccupied - Warmer Ambient Temperatures (Summer)	LT-MR-IAS-103	8/10/2017	89.5 degrees; post-ventilation	204	
		Building Occupied - Cooler Ambient Temperatures (Fall - Spring)	LT-MR-IAS-105	10/5/2017	79.5 degrees	223	
		Building Occupied - Colder Ambient Temperatures (Late Fall - Winter)	LT-MR-IAS-113	11/21/2017	59.0 degrees	166	
To Be Collected Late Fall/Winter 2018							

Notes:

1. Air samples collected in accordance with USEPA Compendium Method TO-10A and submitted for laboratory analysis of PCBs homologs.
2. Total PCB concentration is the total PCB homologs reported by the lab (ng/cartridge) per corrected sample volume (m³/cartridge).
3. Temperature is daily high temperature taken from the UMass Amherst Computer Science Weather Station website.

**Attachment 5 – Sylvan Residential Complex
Long-Term Maintenance and Monitoring Program
In-Place Management of PCB Impacted Materials
UMass Amherst**

ATTACHMENT A

Lower Threshold/Action Levels - July 2015 EPA Levels for Q&A Document

Exposure Levels for Evaluating PCBs in Indoor School Air (ng/m ³)*						
Assuming that PCB exposures through pathways other than school indoor air are equal to average background PCB exposures for those pathways, these indoor school-air concentrations should keep total PCB exposure below the oral reference dose of 20 ng PCB/kg-day.						
Age 1 to <2 yr	Age 2 to <3 yr	Age 3 to <6 yr	Age 6 to <12 yr Elementary School	Age 12 to <15 yr Middle School	Age 15 to <19 yr High School	Age 19+ yr Adult
100	100	200	300	500	600	500
* Note: These exposure levels were derived to serve as health protective values intended for evaluation purposes. These levels should not be interpreted nor applied as "bright line" or "not-to-exceed" criteria. For further explanation, see Q&A #26 & #27. Exposure levels have been revised to reflect more recent data on dietary exposure and have been rounded to the nearest hundred ng/m ³ .						

Risk-Based Site Specific Action Level Calculations

Calculation of Risk-Based Air Concentrations for PCBs			
HI = Ca * EXP / RfC Ca-nc = HI * RfC / EXP ILCR = Ca * EXP * UR * C1 Ca-c = ILCR / (EXP * UR * C1) EXP = (EF * ED * ET) / (C2 * C3 * AP c/nc)			
Term Definition	Value		Basis
	mg/m3	ug/m3	
Ca-nc = Noncancer-based concentration in air (mg/m3)	1E-03	1E+00	Calculated
Ca-c = Cancer-based concentration in air, student (mg/m3)	5E-03	5E+00	Calculated
HI = Target Noncancer Hazard (unitless)	1		Target
ILCR = Target Incremental Lifetime Cancer Risk (unitless)	1.00E-06		Target
EF = exposure frequency, facility worker (days/year)	210		Based on 30 weeks per school year; assumed in study area 7 days per week
ED = exposure duration, facility worker (years)	3		Cashin and Brown Multi-year residences
ET = exposure time, worker (hours / day)	2		Assumes 2 hrs per day each day
APnc = averaging period, worker (years)	3		equal to ED
APc = averaging period (years)	70		EPA default
C1 = units conversion factor, 1000 ug / 1 mg	1000		standard
C2 = units conversion factor, 24 hours/day	24		standard
C3 = units conversion factor, days/year	365		standard
RfC = Reference Concentration, mg/m3 (EPA IRIS)	0.00007		IRIS - back calculated from Ref Dose
UR = Inhalation Unit Risk, risk per ug/m3	1.00E-04		IRIS
EXP = Exposure factor, noncancer (unitless)	0.05		Calculated
EXP = Exposure factor, cancer (unitless)	0.002		Calculated

Target Risk-Based Indoor Air Levels - Cashin Office Setting

	ng/m3	ng/m3
Non cancer Derivations	1E+03	1460
Cancer Derivations	5E+03	4867

Lower Threshold/Action Levels - July 2015 EPA Levels for Q&A Document

Exposure Levels for Evaluating PCBs in Indoor School Air (ng/m ³)*						
Assuming that PCB exposures through pathways other than school indoor air are equal to average background PCB exposures for those pathways, these indoor school-air concentrations should keep total PCB exposure below the oral reference dose of 20 ng PCB/kg-day.						
Age 1 to <2 yr	Age 2 to <3 yr	Age 3 to <6 yr	Age 6 to <12 yr Elementary School	Age 12 to <15 yr Middle School	Age 15 to <19 yr High School	Age 19+ yr Adult
100	100	200	300	500	600	500
* Note: These exposure levels were derived to serve as health protective values intended for evaluation purposes. These levels should not be interpreted nor applied as "bright line" or "not-to-exceed" criteria. For further explanation, see Q&A #26 & #27. Exposure levels have been revised to reflect more recent data on dietary exposure and have been rounded to the nearest hundred ng/m ³ .						

Risk-Based Site Specific Action Level Calculations

Calculation of Risk-Based Air Concentrations for PCBs			
HI = Ca * EXP / RfC Ca-nc = HI * RfC / EXP ILCR = Ca * EXP * UR * C1 Ca-c = ILCR / (EXP * UR * C1) EXP = (EF * ED * ET) / (C2 * C3 * AP c/nc)			
Term Definition	Value		Basis
	mg/m3	ug/m3	
Ca-nc = Noncancer-based concentration in air (mg/m3)	4E-04	4E-01	Calculated
Ca-c = Cancer-based concentration in air, student (mg/m3)	2E-03	2E+00	Calculated
HI = Target Noncancer Hazard (unitless)	1		Target
ILCR = Target Incremental Lifetime Cancer Risk (unitless)	1.00E-06		Target
EF = exposure frequency, facility worker (days/year)	210		Per discussion with worker in office on 11/21/16; 42 weeks per year; 5 day per week; 8 hrs per day
ED = exposure duration, facility worker (years)	2		EPA default
ET = exposure time, worker (hours / day)	8		Duration per day per office worker on 11/21/16
APnc = averaging period, worker (years)	2		equal to ED
APc = averaging period (years)	70		EPA default
C1 = units conversion factor, 1000 ug / 1 mg	1000		standard
C2 = units conversion factor, 24 hours/day	24		standard
C3 = units conversion factor, days/year	365		standard
RfC = Reference Concentration, mg/m3 (EPA IRIS)	0.00007		IRIS - back calculated from Ref Dose
UR = Inhalation Unit Risk, risk per ug/m3	1.00E-04		IRIS
EXP = Exposure factor, noncancer (unitless)	0.19		Calculated
EXP = Exposure factor, cancer (unitless)	0.005		Calculated

Target Risk-Based Indoor Air Levels - Cashin Office Setting

	ng/m3	ng/m3
Non cancer Derivations	4E+02	365
Cancer Derivations	2E+03	1825

Lower Threshold/Action Levels - July 2015 EPA Levels for Q&A Document

Exposure Levels for Evaluating PCBs in Indoor School Air (ng/m ³)*						
Assuming that PCB exposures through pathways other than school indoor air are equal to average background PCB exposures for those pathways, these indoor school-air concentrations should keep total PCB exposure below the oral reference dose of 20 ng PCB/kg-day.						
Age 1 to <2 yr	Age 2 to <3 yr	Age 3 to <6 yr	Age 6 to <12 yr Elementary School	Age 12 to <15 yr Middle School	Age 15 to <19 yr High School	Age 19+ yr Adult
100	100	200	300	500	600	500
* Note: These exposure levels were derived to serve as health protective values intended for evaluation purposes. These levels should not be interpreted nor applied as "bright line" or "not-to-exceed" criteria. For further explanation, see Q&A #26 & #27. Exposure levels have been revised to reflect more recent data on dietary exposure and have been rounded to the nearest hundred ng/m ³ .						

Risk-Based Site Specific Action Level Calculations

Calculation of Risk-Based Air Concentrations for PCBs			
HI = Ca * EXP / RfC Ca-nc = HI * RfC / EXP ILCR = Ca * EXP * UR * C1 Ca -c = ILCR / (EXP * UR * C1) EXP = (EF * ED * ET) / (C2 * C3 * AP c/nc)			
	Value		Basis
Term Definition	mg/m3	ug/m3	
Ca-nc = Noncancer-based concentration in air (mg/m3)	7E-03	7E+00	Calculated
Ca-c = Cancer-based concentration in air, student (mg/m3)	2E-02	2E+01	Calculated
HI = Target Noncancer Hazard (unitless)	1		Target
ILCR = Target Incremental Lifetime Cancer Risk (unitless)	1.00E-06		Target
EF = exposure frequency, facility worker (days/year)	210		Based on 30 weeks per school year;
ED = exposure duration, facility worker (years)	3		Cashin and Brown Multi-year residences
ET = exposure time, worker (hours / day)	0.417		Assumed duration of 5 minutes per trip; assumed 5 trips to restroom per day
APnc = averaging period, worker (years)	3		equal to ED
APc = averaging period (years)	70		EPA default
C1 = units conversion factor, 1000 ug / 1 mg	1000		standard
C2 = units conversion factor, 24 hours/day	24		standard
C3 = units conversion factor, days/year	365		standard
RfC = Reference Concentration, mg/m3 (EPA IRIS)	0.00007		IRIS- back calculated from Ref Dose
UR = Inhalation Unit Risk, risk per ug/m3	1.00E-04		IRIS
EXP = Exposure factor, noncancer (unitless)	0.01		Calculated
EXP = Exposure factor, cancer (unitless)	0.000		Calculated

Target Risk-Based Indoor Air Levels - ADA Restrooms

	ng/m3	ng/m3
Non cancer Derivations	7E+03	7002
Cancer Derivations	2E+04	23341

Lower Threshold/Action Levels - July 2015 EPA Levels for Q&A Document

Exposure Levels for Evaluating PCBs in Indoor School Air (ng/m ³)*						
Assuming that PCB exposures through pathways other than school indoor air are equal to average background PCB exposures for those pathways, these indoor school-air concentrations should keep total PCB exposure below the oral reference dose of 20 ng PCB/kg-day.						
Age 1 to <2 yr	Age 2 to <3 yr	Age 3 to <6 yr	Age 6 to <12 yr Elementary School	Age 12 to <15 yr Middle School	Age 15 to <19 yr High School	Age 19+ yr Adult
100	100	200	300	500	600	500
* Note: These exposure levels were derived to serve as health protective values intended for evaluation purposes. These levels should not be interpreted nor applied as "bright line" or "not-to-exceed" criteria. For further explanation, see Q&A #26 & #27. Exposure levels have been revised to reflect more recent data on dietary exposure and have been rounded to the nearest hundred ng/m ³ .						

Risk-Based Site Specific Action Level Calculations

Calculation of Risk-Based Air Concentrations for PCBs		
$HI = Ca * EXP / RfC$ $Ca_{-nc} = HI * RfC / EXP$ $ILCR = Ca * EXP * UR * C1$ $Ca_{-c} = ILCR / (EXP * UR * C1)$ $EXP = (EF * ED * ET) / (C2 * C3 * AP_{c/nc})$		
	Value	
Term Definition	mg/m3	ug/m3
Ca-nc = Noncancer-based concentration in air (mg/m3)	1E-03	1E+00
Ca-c = Cancer-based concentration in air, student (mg/m3)	5E-03	5E+00
HI = Target Noncancer Hazard (unitless)	1	
ILCR = Target Incremental Lifetime Cancer Risk (unitless)	1.00E-06	
EF = exposure frequency, facility worker (days/year)	210	
ED = exposure duration, facility worker (years)	3	
ET = exposure time, worker (hours / day)	2	
APnc = averaging period, worker (years)	3	
APc = averaging period (years)	70	
C1 = units conversion factor, 1000 ug / 1 mg	1000	
C2 = units conversion factor, 24 hours/day	24	
C3 = units conversion factor, days/year	365	
RfC = Reference Concentration, mg/m3 (EPA IRIS)	0.00007	
UR = Inhalation Unit Risk, risk per ug/m3	1.00E-04	
EXP = Exposure factor, noncancer (unitless)	0.05	
EXP = Exposure factor, cancer (unitless)	0.002	

Target Risk-Based Indoor Air Levels -
McNamara Lower Level

	ng/m3	ng/m3
Non cancer Derivations	1E+03	1460
Cancer Derivations	5E+03	4867



Attachment 6 – Physical Plant

**Attachment 6 – Physical Plant
Long-Term Maintenance and Monitoring Program
In-Place Management of PCB Impacted Materials
UMass Amherst**

Location: Physical Plant Room 230A

Summary of Remedial Areas

In-Place Management: Residual PCBs on interior CMU block walls are being managed in place following a window replacement project conducted on the second floor of the Physical Plant in 2012 and 2013. The replacement project was conducted in the area formerly designated as Room 230A and currently identified as Rooms 204, 209, 210, 208, 212, and 214. The locations of the remediation and in-place management are depicted on Attachment A. Two coats of Sikagard 62 liquid epoxy coating were applied to CMU block materials to a distance of six inches from the former joints. The materials were then covered by the gypsum wall board finish materials and replacement frames.



Typical Area of In-Place Management

Post Abatement Wipe Sampling Data Summary: Five wipe samples were collected from the encapsulated masonry block surrounds following completion of the remediation activities. Analytical results from the five samples indicated that PCBs were non-detect ($< 2 \mu\text{g}/100 \text{ cm}^2$).

Monitoring and Maintenance Implementation Plan

The Monitoring and Maintenance Implementation Plan (MMIP) was submitted to EPA on December 16, 2013 as part of the Final Completion Report. Due to the inaccessibility of the encapsulated CMU block, long term monitoring activities include visual inspections of the replacement window frames and gypsum wall board materials installed over the underlying CMU block. Visual inspections are conducted on an annual basis.

Monitoring Activities – July 2017

On July 3, 2017, Woodard & Curran personnel performed the visual inspections of the interior finish materials for signs of damage or deterioration. The replacement window frames and gypsum wall board materials were observed to be in good condition with no signs of damage or wear.

Next Monitoring Event

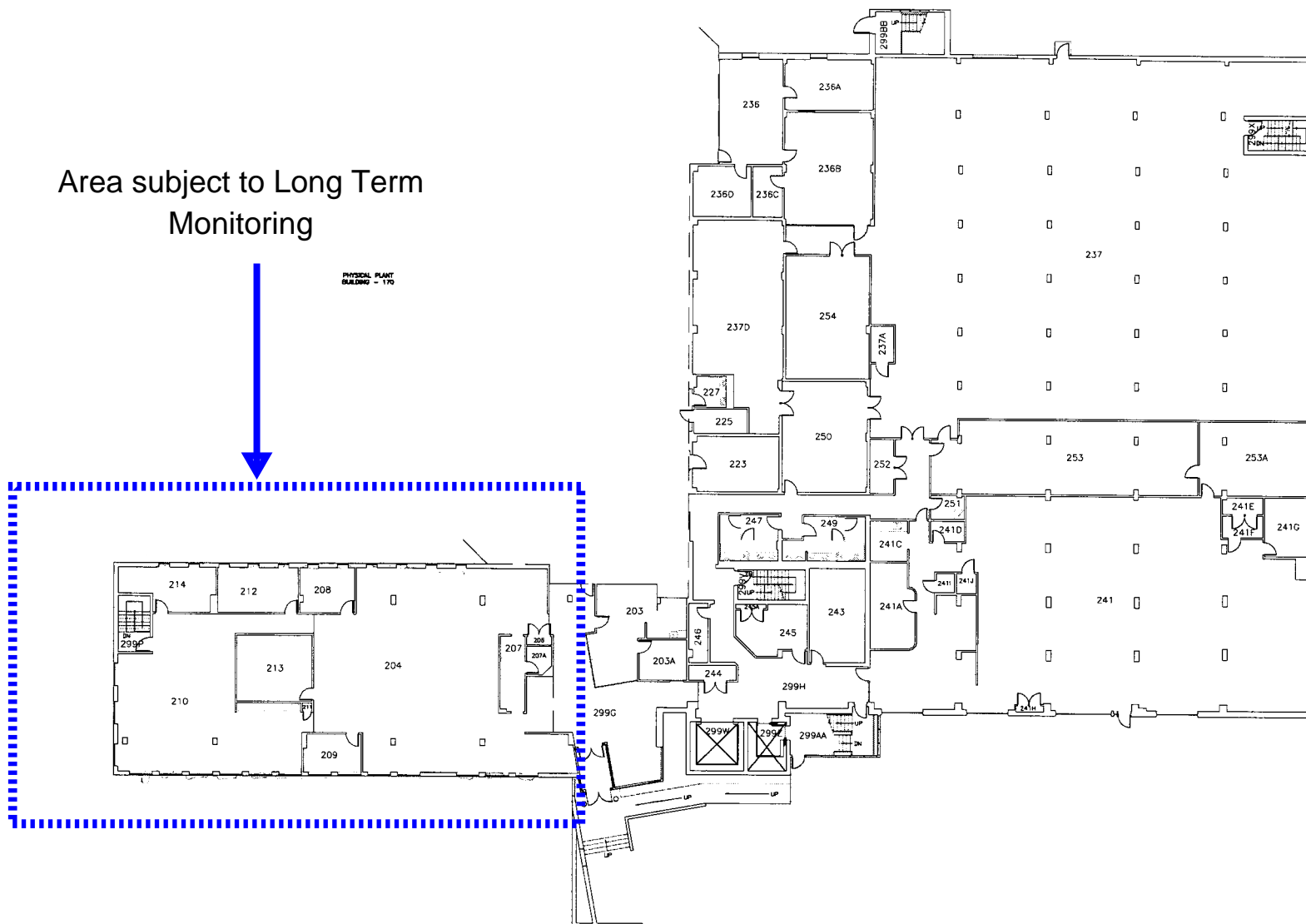
The next monitoring event will be conducted in July 2018 as part of the campus-wide long-term monitoring program.

**Attachment 6 – Physical Plant
Long-Term Maintenance and Monitoring Program
In-Place Management of PCB Impacted Materials
UMass Amherst**

ATTACHMENT A

Attachment A Second Floor Physical Plant

Area subject to Long Term Monitoring

PHYSICAL PLANT
FILE DMS2 = 125

**PHYSICAL PLANT BUILDING ADDITION
SECOND FLOOR PLAN**

Facilities Planning
University of Massachusetts Amherst

Issue Date: 08/23/06

Revision Date: 07/13

Building No: 398

398-02

NOT TO SCALE





Attachment 7 – Data Validation Summary and Analytical Laboratory Reports

**DUBOIS LIBRARY 2017
PROJECT SUMMARY**

ConTest Analytical Laboratory Job Numbers: 17G0122 & 17G0123

The data validation was conducted in accordance with "USEPA National Functional Guidelines for Organic Superfund Methods Data Review" January 2017; "USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review" January 2017; "EPA New England Environmental Data Review Supplement for Regional Data Review Elements" April 2013; and the referenced methods.

The criteria detailed below were used to qualify the data. Raw data were not used to verify the results reported by the laboratory.

Samples were received at 2.4 and 22.5 degrees Celsius. Since the samples in SDG 17G0123 were received above the National Functional Guidelines criteria of ≤ 6 degrees Celsius, all detected and non-detected results were qualified as estimated, J or UJ with a low bias.

PCBs:

All polychlorinated biphenyl compound (PCB) and PCB homolog samples were extracted and analyzed within technical holding times stated in the National Functional Guidelines. No qualifications were applied.

All PCB and PCB homolog surrogates met acceptance criteria. No qualifications were applied.

The PCB and PCB homolog method blanks were non-detect (ND) for all target analytes. No qualifications were applied.

No PCB and PCB homolog field blank samples were submitted with these analytical packages. No qualifications were applied.

No PCB and PCB homolog matrix spike/matrix spike duplicate (MS/MSD) was performed on a sample from these analytical packages since these were wipe and air samples. No qualifications were applied.

The PCB and PCB homolog laboratory control samples/laboratory control sample duplicates (LCS/LCSD) met acceptance criteria. No qualifications were applied.

PCB field duplicate samples LTM-DL-VWC-256 (17G0122-07)/LTM-DL-VWC-Dup (17G0122-08) met relative percent difference (RPD) acceptance criteria. No qualifications were applied.

PCB homolog field duplicate samples DL-13E-IAS-239 (17G0123-03)/DL-13E-IAS-240 (17G0123-04) met RPD acceptance criteria. No qualifications were applied.

Data Check, Inc.
P.O. Box 29
81 Meaderboro Road
New Durham, NH 03855

Gloria J. Switalski:
President



Date:

7/22/2017

**SYLVAN AREA 2017 MONITORING
PROJECT SUMMARY**

ConTest Analytical Laboratory Job Numbers: 17F1187, 17F1188, & 17F1200

The data validation was conducted in accordance with "USEPA National Functional Guidelines for Organic Superfund Methods Data Review" January 2017; "USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review" January 2017; "EPA New England Environmental Data Review Supplement for Regional Data Review Elements" April 2013; and the referenced methods.

The criteria detailed below were used to qualify the data. Raw data were not used to verify the results reported by the laboratory.

Samples were received at 2.9 degrees Celsius. No qualifications were applied.

PCBs:

All polychlorinated biphenyl compound (PCB) and PCB homolog samples were extracted and analyzed within technical holding times stated in the National Functional Guidelines. No qualifications were applied.

All PCB and PCB homolog surrogates met acceptance criteria or were diluted out. No qualifications were applied.

The PCB and PCB homolog method blanks were non-detect (ND) for all target analytes. No qualifications were applied.

No PCB and PCB homolog field blank samples were submitted with these analytical packages. No qualifications were applied.

No PCB and PCB homolog matrix spike/matrix spike duplicate (MS/MSD) was performed on a sample from these analytical packages since these were wipe and air samples. No qualifications were applied.

The PCB and PCB homolog laboratory control samples/laboratory control sample duplicates (LCS/LCSD) met acceptance criteria. No qualifications were applied.

PCB field duplicate samples LTM-BR-VWV-512 (17F1188-12)/LTM-BR-VWV-512D (17F1188-26) and LTM-MR-VWV-516 (17F1188-16)/LTM-MR-VWV-516D (17F1188-25) met relative percent difference (RPD) acceptance criteria. No qualifications were applied.

PCB homolog field duplicate samples LTM-CR-IAS-005 (17F1200-05)/LTM-CR-IAS-006 (17F1200-06) met RPD acceptance criteria. No qualifications were applied.

Some samples were analyzed at a dilution due to the high concentration of PCBs. Reporting limits are elevated in these samples as a result of the dilutions performed.

Data Check, Inc.
P.O. Box 29
81 Meaderboro Road
New Durham, NH 03855

Gloria J. Switalski:
President



Date: 7/29/2017

**SYLVAN COMPLEX
PROJECT SUMMARY**

ConTest Analytical Laboratory Job Number: 17H0682

The data validation was conducted in accordance with "USEPA National Functional Guidelines for Organic Superfund Methods Data Review" January 2017; "EPA New England Environmental Data Review Supplement for Regional Data Review Elements" April 2013; and the referenced method.

The criteria detailed below were used to qualify the data. Raw data were not used to verify the results reported by the laboratory.

Samples were received at 5.8 degrees Celsius. No qualifications were applied.

PCBs:

All polychlorinated biphenyl compound (PCB) homolog samples were extracted and analyzed within technical holding times. No qualifications were applied.

All PCB homolog surrogates met acceptance criteria. No qualifications were applied.

The PCB homolog method blank was non-detect (ND) for all target analytes. No qualifications were applied.

No PCB homolog field blank samples were submitted with this analytical package. No qualifications were applied.

No PCB homolog matrix spike/matrix spike duplicate (MS/MSD) was performed on a sample from this analytical package since these were air samples. No qualifications were applied.

The PCB homolog laboratory control samples/laboratory control sample duplicates (LCS/LCSD) met acceptance criteria. No qualifications were applied.

No PCB homolog field duplicate samples were submitted with this analytical package. No qualifications were applied.

According to the case narrative, for monochlorobiphenyls and heptachlorobiphenyls; "Continuing calibration did not meet method specifications and was biased on the high side for this compound." Therefore, the monochlorobiphenyls, heptachlorobiphenyls, and total polychlorinated biphenyls results in all samples are qualified as estimated, J or UJ.

Data Check, Inc.
P.O. Box 29
81 Meaderboro Road
New Durham, NH 03855

Gloria J. Switalski:
President



Date: 8/05/2017

UMASS SYLVAN COMPLEX - PROJECT SUMMARY

Con-Test Analytical Laboratory Job Numbers: 17J0480 and 17K1207

The data validation was conducted in accordance with "USEPA National Functional Guidelines for Organic Superfund Methods Data Review" January 2017; "EPA New England Environmental Data Review Supplement For Regional Data Review Elements and Superfund Specific Guidance/Procedures" April 2013; and the referenced method.

The criteria detailed below were used to qualify the data. Raw data were not used to verify the results reported by the laboratory.

Samples were received at 2.4 and 3.1 degrees Celsius. No qualifications were applied.

PCBs:

All polychlorinated biphenyl (PCB) homolog samples were extracted and analyzed within technical holding times. No qualifications were applied.

According to the laboratory case narrative for decachlorobiphenyl in SDG 17K1207: "Continuing calibration did not meet method specifications and was biased on the high side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the high side." Since the affected compound was not detected in the associated samples, no qualifications were applied. The laboratory "V-20" flag was removed by the validator.

All PCB homolog surrogates met acceptance criteria. No qualifications were applied.

The PCB homolog method blank was non-detect (ND) for all target analytes. No qualifications were applied.

No PCB homolog field blank samples were submitted with these analytical packages. No qualifications were applied.

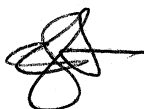
No PCB homolog matrix spike/matrix spike duplicate (MS/MSD) was performed on a sample from these analytical packages since these were air samples. No qualifications were applied.

The PCB homolog laboratory control sample/laboratory control sample duplicate (LCS/LCSD) met acceptance criteria. No qualifications were applied.

No PCB homolog field duplicate samples were submitted with these analytical packages. No qualifications were applied.

Data Check, Inc.
P.O. Box 29
81 Meaderboro Road
New Durham, NH 03855

Gloria J. Switalski:
President



Date: 12/13/2017

June 28, 2017

George Franklin
Woodard & Curran - CT
213 Court Street., 4th Floor
Middletown, CT 06457

Project Location: UMASS Sylvan- Amherst, MA
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 17F1187

Enclosed are results of analyses for samples received by the laboratory on June 21, 2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Meghan E. Kelley". The signature is written in a cursive, flowing style. The first name "Meghan" is written in a larger, more prominent script, followed by "E." and "Kelley". The signature is set against a light gray rectangular background.

Meghan E. Kelley
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Woodard & Curran - CT
213 Court Street., 4th Floor
Middletown, CT 06457
ATTN: George Franklin

REPORT DATE: 6/28/2017

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 17F1187

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: UMASS Sylvan- Amherst, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LTM-MRI-VWC-525	17F1187-01	Wipe		SW-846 8082A	
LTM-MRI-VWC-526	17F1187-02	Wipe		SW-846 8082A	
LTM-MRI-VWW-527	17F1187-03	Wipe		SW-846 8082A	
LTM-MRI-VWW-528	17F1187-04	Wipe		SW-846 8082A	
LTM-BRI-VWC-529	17F1187-05	Wipe		SW-846 8082A	
LTM-BRI-VWW-530	17F1187-06	Wipe		SW-846 8082A	
LTM-CRI-VWC-531	17F1187-07	Wipe		SW-846 8082A	
LTM-CRI-VWC-532	17F1187-08	Wipe		SW-846 8082A	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink, appearing to read "Lisa Worthington", is written over a light pink rectangular background.

Lisa A. Worthington
Project Manager

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1187

Date Received: 6/21/2017

Field Sample #: LTM-MRI-VWC-525

Sampled: 6/20/2017 14:16

Sample ID: 17F1187-01

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:03	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:03	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:03	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:03	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:03	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:03	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:03	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:03	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:03	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	84.3	30-150							
Decachlorobiphenyl [2]	91.0	30-150							
Tetrachloro-m-xylene [1]	89.7	30-150							
Tetrachloro-m-xylene [2]	102	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1187

Date Received: 6/21/2017

Field Sample #: LTM-MRI-VWC-526

Sampled: 6/20/2017 14:18

Sample ID: 17F1187-02

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:15	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:15	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:15	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:15	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:15	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:15	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:15	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:15	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:15	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	85.8	30-150						6/27/17 18:15	
Decachlorobiphenyl [2]	93.0	30-150						6/27/17 18:15	
Tetrachloro-m-xylene [1]	90.9	30-150						6/27/17 18:15	
Tetrachloro-m-xylene [2]	104	30-150						6/27/17 18:15	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1187

Date Received: 6/21/2017

Field Sample #: LTM-MRI-VWW-527

Sampled: 6/20/2017 14:15

Sample ID: 17F1187-03

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:28	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:28	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:28	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:28	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:28	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:28	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:28	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:28	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:28	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	86.4	30-150						6/27/17 18:28	
Decachlorobiphenyl [2]	93.2	30-150						6/27/17 18:28	
Tetrachloro-m-xylene [1]	90.3	30-150						6/27/17 18:28	
Tetrachloro-m-xylene [2]	104	30-150						6/27/17 18:28	

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Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1187

Date Received: 6/21/2017

Field Sample #: LTM-MRI-VWW-528

Sampled: 6/20/2017 14:10

Sample ID: 17F1187-04

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:40	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:40	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:40	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:40	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:40	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:40	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:40	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:40	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:40	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	86.4	30-150							
Decachlorobiphenyl [2]	93.1	30-150							
Tetrachloro-m-xylene [1]	90.7	30-150							
Tetrachloro-m-xylene [2]	102	30-150							

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Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1187

Date Received: 6/21/2017

Field Sample #: LTM-BRI-VWC-529

Sampled: 6/20/2017 14:48

Sample ID: 17F1187-05

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:53	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:53	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:53	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:53	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:53	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:53	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:53	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:53	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:53	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	89.1	30-150							
Decachlorobiphenyl [2]	94.0	30-150							
Tetrachloro-m-xylene [1]	90.9	30-150							
Tetrachloro-m-xylene [2]	105	30-150							

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Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1187

Date Received: 6/21/2017

Field Sample #: LTM-BRI-VWW-530

Sampled: 6/20/2017 14:50

Sample ID: 17F1187-06

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:05	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:05	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:05	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:05	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:05	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:05	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:05	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:05	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:05	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	85.8	30-150							
Decachlorobiphenyl [2]	92.5	30-150							
Tetrachloro-m-xylene [1]	88.4	30-150							
Tetrachloro-m-xylene [2]	101	30-150							

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Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1187

Date Received: 6/21/2017

Field Sample #: LTM-CRI-VWC-531

Sampled: 6/20/2017 14:20

Sample ID: 17F1187-07

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:18	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:18	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:18	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:18	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:18	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:18	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:18	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:18	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:18	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	82.9	30-150							
Decachlorobiphenyl [2]	91.5	30-150							
Tetrachloro-m-xylene [1]	86.8	30-150							
Tetrachloro-m-xylene [2]	99.7	30-150							

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Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1187

Date Received: 6/21/2017

Field Sample #: LTM-CRI-VWC-532

Sampled: 6/20/2017 14:22

Sample ID: 17F1187-08

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:30	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:30	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:30	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:30	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:30	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:30	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:30	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:30	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:30	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	78.9	30-150							
Decachlorobiphenyl [2]	90.0	30-150							
Tetrachloro-m-xylene [1]	85.0	30-150							
Tetrachloro-m-xylene [2]	98.2	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332**Sample Extraction Data****Prep Method: SW-846 3540C-SW-846 8082A**

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
17F1187-01 [LTM-MRI-VWC-525]	B179938	1.00	10.0	06/22/17
17F1187-02 [LTM-MRI-VWC-526]	B179938	1.00	10.0	06/22/17
17F1187-03 [LTM-MRI-VWW-527]	B179938	1.00	10.0	06/22/17
17F1187-04 [LTM-MRI-VWW-528]	B179938	1.00	10.0	06/22/17
17F1187-05 [LTM-BRI-VWC-529]	B179938	1.00	10.0	06/22/17
17F1187-06 [LTM-BRI-VWW-530]	B179938	1.00	10.0	06/22/17
17F1187-07 [LTM-CRI-VWC-531]	B179938	1.00	10.0	06/22/17
17F1187-08 [LTM-CRI-VWC-532]	B179938	1.00	10.0	06/22/17

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B179938 - SW-846 3540C
Blank (B179938-BLK1)

Prepared: 06/22/17 Analyzed: 06/26/17

Aroclor-1016	ND	0.20	µg/Wipe							
Aroclor-1016 [2C]	ND	0.20	µg/Wipe							
Aroclor-1221	ND	0.20	µg/Wipe							
Aroclor-1221 [2C]	ND	0.20	µg/Wipe							
Aroclor-1232	ND	0.20	µg/Wipe							
Aroclor-1232 [2C]	ND	0.20	µg/Wipe							
Aroclor-1242	ND	0.20	µg/Wipe							
Aroclor-1242 [2C]	ND	0.20	µg/Wipe							
Aroclor-1248	ND	0.20	µg/Wipe							
Aroclor-1248 [2C]	ND	0.20	µg/Wipe							
Aroclor-1254	ND	0.20	µg/Wipe							
Aroclor-1254 [2C]	ND	0.20	µg/Wipe							
Aroclor-1260	ND	0.20	µg/Wipe							
Aroclor-1260 [2C]	ND	0.20	µg/Wipe							
Aroclor-1262	ND	0.20	µg/Wipe							
Aroclor-1262 [2C]	ND	0.20	µg/Wipe							
Aroclor-1268	ND	0.20	µg/Wipe							
Aroclor-1268 [2C]	ND	0.20	µg/Wipe							
Surrogate: Decachlorobiphenyl	1.65		µg/Wipe	2.00		82.5	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.78		µg/Wipe	2.00		89.2	30-150			
Surrogate: Tetrachloro-m-xylene	1.54		µg/Wipe	2.00		77.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.86		µg/Wipe	2.00		93.1	30-150			

LCS (B179938-BS1)

Prepared: 06/22/17 Analyzed: 06/26/17

Aroclor-1016	0.47	0.20	µg/Wipe	0.500		93.5	40-140			
Aroclor-1016 [2C]	0.48	0.20	µg/Wipe	0.500		95.8	40-140			
Aroclor-1260	0.43	0.20	µg/Wipe	0.500		85.9	40-140			
Aroclor-1260 [2C]	0.42	0.20	µg/Wipe	0.500		84.5	40-140			
Surrogate: Decachlorobiphenyl	1.67		µg/Wipe	2.00		83.7	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.86		µg/Wipe	2.00		92.9	30-150			
Surrogate: Tetrachloro-m-xylene	1.62		µg/Wipe	2.00		81.1	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.93		µg/Wipe	2.00		96.4	30-150			

LCS Dup (B179938-BSD1)

Prepared: 06/22/17 Analyzed: 06/26/17

Aroclor-1016	0.50	0.20	µg/Wipe	0.500		99.3	40-140	6.00	30	
Aroclor-1016 [2C]	0.50	0.20	µg/Wipe	0.500		101	40-140	4.99	30	
Aroclor-1260	0.42	0.20	µg/Wipe	0.500		84.3	40-140	1.83	30	
Aroclor-1260 [2C]	0.42	0.20	µg/Wipe	0.500		83.1	40-140	1.65	30	
Surrogate: Decachlorobiphenyl	1.60		µg/Wipe	2.00		79.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.81		µg/Wipe	2.00		90.4	30-150			
Surrogate: Tetrachloro-m-xylene	1.64		µg/Wipe	2.00		82.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.91		µg/Wipe	2.00		95.6	30-150			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit
DL	Method Detection Limit
MCL	Maximum Contaminant Level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
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No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2018
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2018
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2018
RI	Rhode Island Department of Health	LAO00112	12/30/2017
NC	North Carolina Div. of Water Quality	652	12/31/2017
NJ	New Jersey DEP	MA007 NELAP	06/30/2018
FL	Florida Department of Health	E871027 NELAP	06/30/2018
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2017
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2017
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2017
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2018

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.contestlabs.com



con-test
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client Woodard & Curran
Received By JM Date 6/21/17 Time 1700
How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____
Direct From Sample _____ Ambient _____ Melted Ice _____
Were samples within Temperature? 2-6°C T By Gun # 2 Actual Temp - 2.9
By Blank # _____ Actual Temp - _____
Was Custody Seal Intact? N/A Were Samples Tampered with? F
Was COC Relinquished? T Does Chain Agree With Samples? T
Are there broken/leaking/loose caps on any samples? F
Is COC in ink/ Legible? T Were samples received within holding time? T
Did COC include all Client? T Analysis? T Sampler Name? T
pertinent Information? Project? T ID's? T Collection Dates/Times? T
Are Sample labels filled out and legible? T
Are there Lab to Filters? N/A Who was notified? _____
Are there Rushes? N/A Who was notified? _____
Are there Short Holds? N/A Who was notified? _____
Is there enough Volume? T
Is there Headspace where applicable? N/A MS/MSD? N/A
Proper Media/Containers Used? T Is splitting samples required? N/A
Were trip blanks received? N/A On COC? N/A
Do All Samples Have the proper pH? N/A Acid _____ Base _____

Vials	#	Containers:	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic	16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic	8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic	4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint	2oz Amb/Clear
DI-		Other Plastic		Other Glass	Encore
Thiosulfate-		SOC Kit		Plastic Bag	Frozen:
Sulfuric-		Perchlorate		Ziplock	

Unused Media

Vials	#	Containers:	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic	16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic	8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic	4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint	2oz Amb/Clear
DI-		Other Plastic		Other Glass	Encore
Thiosulfate-		SOC Kit		Plastic Bag	Frozen:
Sulfuric-		Perchlorate		Ziplock	

Comments:

June 28, 2017

George Franklin
Woodard & Curran - CT
213 Court Street., 4th Floor
Middletown, CT 06457

Project Location: UMASS Sylvan- Amherst, MA
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 17F1188

Enclosed are results of analyses for samples received by the laboratory on June 21, 2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Meghan E. Kelley". The signature is written in a cursive style with a large, flowing "M" and a long, sweeping "y" at the end.

Meghan E. Kelley
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Woodard & Curran - CT
213 Court Street., 4th Floor
Middletown, CT 06457
ATTN: George Franklin

REPORT DATE: 6/28/2017

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 17F1188

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: UMASS Sylvan- Amherst, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LTM-MR-VWV-501	17F1188-01	Wipe		SW-846 8082A	
LTM-MR-VWV-502	17F1188-02	Wipe		SW-846 8082A	
LTM-MR-VWV-503	17F1188-03	Wipe		SW-846 8082A	
LTM-MR-VWV-504	17F1188-04	Wipe		SW-846 8082A	
LTM-CR-VWV-505	17F1188-05	Wipe		SW-846 8082A	
LTM-CR-VWV-506	17F1188-06	Wipe		SW-846 8082A	
LTM-CR-VWV-507	17F1188-07	Wipe		SW-846 8082A	
LTM-CR-VWV-508	17F1188-08	Wipe		SW-846 8082A	
LTM-BR-VWV-509	17F1188-09	Wipe		SW-846 8082A	
LTM-BR-VWV-510	17F1188-10	Wipe		SW-846 8082A	
LTM-BR-VWV-511	17F1188-11	Wipe		SW-846 8082A	
LTM-BR-VWV-512	17F1188-12	Wipe		SW-846 8082A	
LTM-MR-VWH-513	17F1188-13	Wipe		SW-846 8082A	
LTM-MR-VWH-514	17F1188-14	Wipe		SW-846 8082A	
LTM-MR-VWH-515	17F1188-15	Wipe		SW-846 8082A	
LTM-MR-VWH-516	17F1188-16	Wipe		SW-846 8082A	
LTM-CR-VWH-517	17F1188-17	Wipe		SW-846 8082A	
LTM-CR-VWH-518	17F1188-18	Wipe		SW-846 8082A	
LTM-CR-VWH-519	17F1188-19	Wipe		SW-846 8082A	
LTM-CR-VWH-520	17F1188-20	Wipe		SW-846 8082A	
LTM-BR-VWH-521	17F1188-21	Wipe		SW-846 8082A	
LTM-BR-VWH-522	17F1188-22	Wipe		SW-846 8082A	
LTM-BR-VWH-523	17F1188-23	Wipe		SW-846 8082A	
LTM-BR-VWH-524	17F1188-24	Wipe		SW-846 8082A	
LTM-MR-VWH-516D	17F1188-25	Wipe		SW-846 8082A	
LTM-BR-VWV-512D	17F1188-26	Wipe		SW-846 8082A	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 8082A**Qualifications:****S-01**

The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

Analyte & Samples(s) Qualified:**Decachlorobiphenyl**

17F1188-09[LTM-BR-VWV-509], 17F1188-10[LTM-BR-VWV-510]

Decachlorobiphenyl [2C]

17F1188-09[LTM-BR-VWV-509], 17F1188-10[LTM-BR-VWV-510]

Tetrachloro-m-xylene

17F1188-09[LTM-BR-VWV-509], 17F1188-10[LTM-BR-VWV-510]

Tetrachloro-m-xylene [2C]

17F1188-09[LTM-BR-VWV-509], 17F1188-10[LTM-BR-VWV-510]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Lisa A. Worthington
Project Manager

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-MR-VWV-501

Sampled: 6/20/2017 10:35

Sample ID: 17F1188-01

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	4.0	µg/Wipe	20		SW-846 8082A	6/22/17	6/28/17 9:41	KAL
Aroclor-1221 [1]	ND	4.0	µg/Wipe	20		SW-846 8082A	6/22/17	6/28/17 9:41	KAL
Aroclor-1232 [1]	ND	4.0	µg/Wipe	20		SW-846 8082A	6/22/17	6/28/17 9:41	KAL
Aroclor-1242 [1]	ND	4.0	µg/Wipe	20		SW-846 8082A	6/22/17	6/28/17 9:41	KAL
Aroclor-1248 [1]	ND	4.0	µg/Wipe	20		SW-846 8082A	6/22/17	6/28/17 9:41	KAL
Aroclor-1254 [2]	29	4.0	µg/Wipe	20		SW-846 8082A	6/22/17	6/28/17 9:41	KAL
Aroclor-1260 [1]	ND	4.0	µg/Wipe	20		SW-846 8082A	6/22/17	6/28/17 9:41	KAL
Aroclor-1262 [2]	ND	4.0	µg/Wipe	20		SW-846 8082A	6/22/17	6/28/17 9:41	KAL
Aroclor-1268 [2]	ND	4.0	µg/Wipe	20		SW-846 8082A	6/22/17	6/28/17 9:41	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	102	30-150							
Decachlorobiphenyl [2]	107	30-150							
Tetrachloro-m-xylene [1]	97.5	30-150							
Tetrachloro-m-xylene [2]	107	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-MR-VWV-502

Sampled: 6/20/2017 10:22

Sample ID: 17F1188-02

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 9:54	KAL
Aroclor-1221 [1]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 9:54	KAL
Aroclor-1232 [1]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 9:54	KAL
Aroclor-1242 [1]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 9:54	KAL
Aroclor-1248 [1]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 9:54	KAL
Aroclor-1254 [2]	6.4	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 9:54	KAL
Aroclor-1260 [1]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 9:54	KAL
Aroclor-1262 [2]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 9:54	KAL
Aroclor-1268 [2]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 9:54	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	96.5	30-150						6/28/17 9:54	
Decachlorobiphenyl [2]	95.0	30-150						6/28/17 9:54	
Tetrachloro-m-xylene [1]	96.4	30-150						6/28/17 9:54	
Tetrachloro-m-xylene [2]	95.8	30-150						6/28/17 9:54	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-MR-VWV-503

Sampled: 6/20/2017 10:51

Sample ID: 17F1188-03

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 10:07	KAL
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 10:07	KAL
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 10:07	KAL
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 10:07	KAL
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 10:07	KAL
Aroclor-1254 [2]	13	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 10:07	KAL
Aroclor-1260 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 10:07	KAL
Aroclor-1262 [2]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 10:07	KAL
Aroclor-1268 [2]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 10:07	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	99.3	30-150							
Decachlorobiphenyl [2]	100	30-150							
Tetrachloro-m-xylene [1]	95.7	30-150							
Tetrachloro-m-xylene [2]	99.0	30-150							

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Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-MR-VWV-504

Sampled: 6/20/2017 10:44

Sample ID: 17F1188-04

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 10:19	KAL
Aroclor-1221 [1]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 10:19	KAL
Aroclor-1232 [1]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 10:19	KAL
Aroclor-1242 [1]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 10:19	KAL
Aroclor-1248 [1]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 10:19	KAL
Aroclor-1254 [1]	6.5	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 10:19	KAL
Aroclor-1260 [1]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 10:19	KAL
Aroclor-1262 [2]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 10:19	KAL
Aroclor-1268 [2]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 10:19	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	98.0	30-150							
Decachlorobiphenyl [2]	94.9	30-150							
Tetrachloro-m-xylene [1]	98.7	30-150							
Tetrachloro-m-xylene [2]	97.5	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-CR-VWV-505

Sampled: 6/20/2017 10:57

Sample ID: 17F1188-05

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:58	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:58	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:58	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:58	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:58	KAL
Aroclor-1254 [2]	1.4	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:58	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:58	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:58	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 18:58	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	92.4	30-150							
Decachlorobiphenyl [2]	87.9	30-150							
Tetrachloro-m-xylene [1]	90.1	30-150							
Tetrachloro-m-xylene [2]	83.2	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-CR-VWV-506

Sampled: 6/20/2017 11:05

Sample ID: 17F1188-06

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.40	µg/Wipe	2		SW-846 8082A	6/22/17	6/28/17 10:32	KAL
Aroclor-1221 [1]	ND	0.40	µg/Wipe	2		SW-846 8082A	6/22/17	6/28/17 10:32	KAL
Aroclor-1232 [1]	ND	0.40	µg/Wipe	2		SW-846 8082A	6/22/17	6/28/17 10:32	KAL
Aroclor-1242 [1]	ND	0.40	µg/Wipe	2		SW-846 8082A	6/22/17	6/28/17 10:32	KAL
Aroclor-1248 [1]	ND	0.40	µg/Wipe	2		SW-846 8082A	6/22/17	6/28/17 10:32	KAL
Aroclor-1254 [1]	3.0	0.40	µg/Wipe	2		SW-846 8082A	6/22/17	6/28/17 10:32	KAL
Aroclor-1260 [1]	ND	0.40	µg/Wipe	2		SW-846 8082A	6/22/17	6/28/17 10:32	KAL
Aroclor-1262 [2]	ND	0.40	µg/Wipe	2		SW-846 8082A	6/22/17	6/28/17 10:32	KAL
Aroclor-1268 [2]	ND	0.40	µg/Wipe	2		SW-846 8082A	6/22/17	6/28/17 10:32	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	97.9	30-150							
Decachlorobiphenyl [2]	92.3	30-150							
Tetrachloro-m-xylene [1]	100	30-150							
Tetrachloro-m-xylene [2]	93.3	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-CR-VWV-507

Sampled: 6/20/2017 11:11

Sample ID: 17F1188-07

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 10:45	KAL
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 10:45	KAL
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 10:45	KAL
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 10:45	KAL
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 10:45	KAL
Aroclor-1254 [1]	13	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 10:45	KAL
Aroclor-1260 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 10:45	KAL
Aroclor-1262 [2]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 10:45	KAL
Aroclor-1268 [2]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 10:45	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	93.7	30-150						6/28/17 10:45	
Decachlorobiphenyl [2]	94.3	30-150						6/28/17 10:45	
Tetrachloro-m-xylene [1]	92.4	30-150						6/28/17 10:45	
Tetrachloro-m-xylene [2]	96.9	30-150						6/28/17 10:45	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-CR-VWV-508

Sampled: 6/20/2017 11:18

Sample ID: 17F1188-08

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:36	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:36	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:36	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:36	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:36	KAL
Aroclor-1254 [1]	1.1	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:36	KAL
Aroclor-1260 [2]	0.27	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:36	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:36	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 19:36	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	93.7	30-150							
Decachlorobiphenyl [2]	88.7	30-150							
Tetrachloro-m-xylene [1]	88.7	30-150							
Tetrachloro-m-xylene [2]	81.0	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-BR-VWV-509

Sampled: 6/20/2017 11:25

Sample ID: 17F1188-09

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	10	µg/Wipe	50		SW-846 8082A	6/22/17	6/28/17 10:57	KAL
Aroclor-1221 [1]	ND	10	µg/Wipe	50		SW-846 8082A	6/22/17	6/28/17 10:57	KAL
Aroclor-1232 [1]	ND	10	µg/Wipe	50		SW-846 8082A	6/22/17	6/28/17 10:57	KAL
Aroclor-1242 [1]	ND	10	µg/Wipe	50		SW-846 8082A	6/22/17	6/28/17 10:57	KAL
Aroclor-1248 [1]	ND	10	µg/Wipe	50		SW-846 8082A	6/22/17	6/28/17 10:57	KAL
Aroclor-1254 [1]	55	10	µg/Wipe	50		SW-846 8082A	6/22/17	6/28/17 10:57	KAL
Aroclor-1260 [1]	ND	10	µg/Wipe	50		SW-846 8082A	6/22/17	6/28/17 10:57	KAL
Aroclor-1262 [2]	ND	10	µg/Wipe	50		SW-846 8082A	6/22/17	6/28/17 10:57	KAL
Aroclor-1268 [2]	ND	10	µg/Wipe	50		SW-846 8082A	6/22/17	6/28/17 10:57	KAL
Surrogates	% Recovery	Recovery Limits			Flag/Qual				
Decachlorobiphenyl [1]	*	30-150			S-01			6/28/17 10:57	
Decachlorobiphenyl [2]	*	30-150			S-01			6/28/17 10:57	
Tetrachloro-m-xylene [1]	*	30-150			S-01			6/28/17 10:57	
Tetrachloro-m-xylene [2]	*	30-150			S-01			6/28/17 10:57	

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Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-BR-VWV-510

Sampled: 6/20/2017 11:33

Sample ID: 17F1188-10

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	10	µg/Wipe	50		SW-846 8082A	6/22/17	6/28/17 11:10	KAL
Aroclor-1221 [1]	ND	10	µg/Wipe	50		SW-846 8082A	6/22/17	6/28/17 11:10	KAL
Aroclor-1232 [1]	ND	10	µg/Wipe	50		SW-846 8082A	6/22/17	6/28/17 11:10	KAL
Aroclor-1242 [1]	ND	10	µg/Wipe	50		SW-846 8082A	6/22/17	6/28/17 11:10	KAL
Aroclor-1248 [1]	ND	10	µg/Wipe	50		SW-846 8082A	6/22/17	6/28/17 11:10	KAL
Aroclor-1254 [1]	99	10	µg/Wipe	50		SW-846 8082A	6/22/17	6/28/17 11:10	KAL
Aroclor-1260 [1]	ND	10	µg/Wipe	50		SW-846 8082A	6/22/17	6/28/17 11:10	KAL
Aroclor-1262 [2]	ND	10	µg/Wipe	50		SW-846 8082A	6/22/17	6/28/17 11:10	KAL
Aroclor-1268 [2]	ND	10	µg/Wipe	50		SW-846 8082A	6/22/17	6/28/17 11:10	KAL
Surrogates	% Recovery	Recovery Limits			Flag/Qual				
Decachlorobiphenyl [1]	*	30-150			S-01			6/28/17 11:10	
Decachlorobiphenyl [2]	*	30-150			S-01			6/28/17 11:10	
Tetrachloro-m-xylene [1]	*	30-150			S-01			6/28/17 11:10	
Tetrachloro-m-xylene [2]	*	30-150			S-01			6/28/17 11:10	

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Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-BR-VWV-511

Sampled: 6/20/2017 11:40

Sample ID: 17F1188-11

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 11:22	KAL
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 11:22	KAL
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 11:22	KAL
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 11:22	KAL
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 11:22	KAL
Aroclor-1254 [1]	18	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 11:22	KAL
Aroclor-1260 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 11:22	KAL
Aroclor-1262 [2]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 11:22	KAL
Aroclor-1268 [2]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 11:22	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	100	30-150						6/28/17 11:22	
Decachlorobiphenyl [2]	103	30-150						6/28/17 11:22	
Tetrachloro-m-xylene [1]	102	30-150						6/28/17 11:22	
Tetrachloro-m-xylene [2]	104	30-150						6/28/17 11:22	

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Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-BR-VWV-512

Sampled: 6/20/2017 11:49

Sample ID: 17F1188-12

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 11:35	KAL
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 11:35	KAL
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 11:35	KAL
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 11:35	KAL
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 11:35	KAL
Aroclor-1254 [2]	12	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 11:35	KAL
Aroclor-1260 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 11:35	KAL
Aroclor-1262 [2]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 11:35	KAL
Aroclor-1268 [2]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 11:35	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	97.2	30-150						6/28/17 11:35	
Decachlorobiphenyl [2]	99.6	30-150						6/28/17 11:35	
Tetrachloro-m-xylene [1]	95.9	30-150						6/28/17 11:35	
Tetrachloro-m-xylene [2]	98.8	30-150						6/28/17 11:35	

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Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-MR-VWH-513

Sampled: 6/20/2017 10:41

Sample ID: 17F1188-13

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:09	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:09	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:09	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:09	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:09	KAL
Aroclor-1254 [2]	0.26	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:09	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:09	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:09	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:09	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	96.1	30-150							
Decachlorobiphenyl [2]	90.6	30-150							
Tetrachloro-m-xylene [1]	95.9	30-150							
Tetrachloro-m-xylene [2]	87.8	30-150							

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Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-MR-VWH-514

Sampled: 6/20/2017 10:28

Sample ID: 17F1188-14

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 11:48	KAL
Aroclor-1221 [1]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 11:48	KAL
Aroclor-1232 [1]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 11:48	KAL
Aroclor-1242 [1]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 11:48	KAL
Aroclor-1248 [1]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 11:48	KAL
Aroclor-1254 [2]	7.3	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 11:48	KAL
Aroclor-1260 [1]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 11:48	KAL
Aroclor-1262 [2]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 11:48	KAL
Aroclor-1268 [2]	ND	1.0	µg/Wipe	5		SW-846 8082A	6/22/17	6/28/17 11:48	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	102	30-150						6/28/17 11:48	
Decachlorobiphenyl [2]	101	30-150						6/28/17 11:48	
Tetrachloro-m-xylene [1]	102	30-150						6/28/17 11:48	
Tetrachloro-m-xylene [2]	101	30-150						6/28/17 11:48	

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Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-MR-VWH-515

Sampled: 6/20/2017 10:54

Sample ID: 17F1188-15

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:35	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:35	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:35	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:35	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:35	KAL
Aroclor-1254 [2]	0.79	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:35	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:35	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:35	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:35	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	95.1	30-150							
Decachlorobiphenyl [2]	89.5	30-150							
Tetrachloro-m-xylene [1]	91.5	30-150							
Tetrachloro-m-xylene [2]	83.0	30-150							

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Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-MR-VWH-516

Sampled: 6/20/2017 10:47

Sample ID: 17F1188-16

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:47	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:47	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:47	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:47	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:47	KAL
Aroclor-1254 [2]	0.80	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:47	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:47	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:47	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 21:47	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	95.9	30-150							
Decachlorobiphenyl [2]	90.7	30-150							
Tetrachloro-m-xylene [1]	97.5	30-150							
Tetrachloro-m-xylene [2]	89.0	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-CR-VWH-517

Sampled: 6/20/2017 11:01

Sample ID: 17F1188-17

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:00	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:00	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:00	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:00	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:00	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:00	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:00	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:00	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:00	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	96.5	30-150							
Decachlorobiphenyl [2]	91.0	30-150							
Tetrachloro-m-xylene [1]	95.9	30-150							
Tetrachloro-m-xylene [2]	86.8	30-150							

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Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-CR-VWH-518

Sampled: 6/20/2017 11:09

Sample ID: 17F1188-18

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:12	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:12	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:12	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:12	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:12	KAL
Aroclor-1254 [2]	0.31	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:12	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:12	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:12	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:12	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	96.9	30-150							
Decachlorobiphenyl [2]	90.9	30-150							
Tetrachloro-m-xylene [1]	96.4	30-150							
Tetrachloro-m-xylene [2]	86.7	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-CR-VWH-519

Sampled: 6/20/2017 11:14

Sample ID: 17F1188-19

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:25	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:25	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:25	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:25	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:25	KAL
Aroclor-1254 [2]	0.45	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:25	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:25	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:25	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:25	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	95.3	30-150							
Decachlorobiphenyl [2]	89.9	30-150							
Tetrachloro-m-xylene [1]	92.3	30-150							
Tetrachloro-m-xylene [2]	82.9	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-CR-VWH-520

Sampled: 6/20/2017 11:21

Sample ID: 17F1188-20

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:38	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:38	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:38	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:38	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:38	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:38	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:38	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:38	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/27/17 22:38	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	92.6	30-150							
Decachlorobiphenyl [2]	87.2	30-150							
Tetrachloro-m-xylene [1]	91.5	30-150							
Tetrachloro-m-xylene [2]	83.2	30-150							

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Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-BR-VWH-521

Sampled: 6/20/2017 11:29

Sample ID: 17F1188-21

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 6:38	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 6:38	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 6:38	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 6:38	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 6:38	KAL
Aroclor-1254 [2]	0.67	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 6:38	KAL
Aroclor-1260 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 6:38	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 6:38	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 6:38	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	92.2	30-150						6/28/17 6:38	
Decachlorobiphenyl [2]	90.5	30-150						6/28/17 6:38	
Tetrachloro-m-xylene [1]	80.6	30-150						6/28/17 6:38	
Tetrachloro-m-xylene [2]	81.0	30-150						6/28/17 6:38	

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Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-BR-VWH-522

Sampled: 6/20/2017 11:37

Sample ID: 17F1188-22

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.80	µg/Wipe	4		SW-846 8082A	6/22/17	6/28/17 13:01	KAL
Aroclor-1221 [1]	ND	0.80	µg/Wipe	4		SW-846 8082A	6/22/17	6/28/17 13:01	KAL
Aroclor-1232 [1]	ND	0.80	µg/Wipe	4		SW-846 8082A	6/22/17	6/28/17 13:01	KAL
Aroclor-1242 [1]	ND	0.80	µg/Wipe	4		SW-846 8082A	6/22/17	6/28/17 13:01	KAL
Aroclor-1248 [1]	ND	0.80	µg/Wipe	4		SW-846 8082A	6/22/17	6/28/17 13:01	KAL
Aroclor-1254 [2]	5.0	0.80	µg/Wipe	4		SW-846 8082A	6/22/17	6/28/17 13:01	KAL
Aroclor-1260 [1]	ND	0.80	µg/Wipe	4		SW-846 8082A	6/22/17	6/28/17 13:01	KAL
Aroclor-1262 [1]	ND	0.80	µg/Wipe	4		SW-846 8082A	6/22/17	6/28/17 13:01	KAL
Aroclor-1268 [1]	ND	0.80	µg/Wipe	4		SW-846 8082A	6/22/17	6/28/17 13:01	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	90.2	30-150							
Decachlorobiphenyl [2]	84.2	30-150							
Tetrachloro-m-xylene [1]	73.1	30-150							
Tetrachloro-m-xylene [2]	75.8	30-150							

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Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-BR-VWH-523

Sampled: 6/20/2017 11:44

Sample ID: 17F1188-23

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 7:02	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 7:02	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 7:02	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 7:02	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 7:02	KAL
Aroclor-1254 [2]	0.44	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 7:02	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 7:02	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 7:02	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 7:02	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	88.5	30-150						6/28/17 7:02	
Decachlorobiphenyl [2]	81.9	30-150						6/28/17 7:02	
Tetrachloro-m-xylene [1]	76.6	30-150						6/28/17 7:02	
Tetrachloro-m-xylene [2]	77.2	30-150						6/28/17 7:02	

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Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-BR-VWH-524

Sampled: 6/20/2017 11:53

Sample ID: 17F1188-24

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.80	µg/Wipe	4		SW-846 8082A	6/22/17	6/28/17 13:13	KAL
Aroclor-1221 [1]	ND	0.80	µg/Wipe	4		SW-846 8082A	6/22/17	6/28/17 13:13	KAL
Aroclor-1232 [1]	ND	0.80	µg/Wipe	4		SW-846 8082A	6/22/17	6/28/17 13:13	KAL
Aroclor-1242 [1]	ND	0.80	µg/Wipe	4		SW-846 8082A	6/22/17	6/28/17 13:13	KAL
Aroclor-1248 [1]	ND	0.80	µg/Wipe	4		SW-846 8082A	6/22/17	6/28/17 13:13	KAL
Aroclor-1254 [2]	3.9	0.80	µg/Wipe	4		SW-846 8082A	6/22/17	6/28/17 13:13	KAL
Aroclor-1260 [1]	ND	0.80	µg/Wipe	4		SW-846 8082A	6/22/17	6/28/17 13:13	KAL
Aroclor-1262 [1]	ND	0.80	µg/Wipe	4		SW-846 8082A	6/22/17	6/28/17 13:13	KAL
Aroclor-1268 [1]	ND	0.80	µg/Wipe	4		SW-846 8082A	6/22/17	6/28/17 13:13	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	97.5	30-150							
Decachlorobiphenyl [2]	91.5	30-150							
Tetrachloro-m-xylene [1]	82.1	30-150							
Tetrachloro-m-xylene [2]	84.7	30-150							

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Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-MR-VWH-516D

Sampled: 6/20/2017 10:47

Sample ID: 17F1188-25

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 7:26	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 7:26	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 7:26	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 7:26	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 7:26	KAL
Aroclor-1254 [2]	0.57	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 7:26	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 7:26	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 7:26	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/22/17	6/28/17 7:26	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	83.3	30-150						6/28/17 7:26	
Decachlorobiphenyl [2]	80.2	30-150						6/28/17 7:26	
Tetrachloro-m-xylene [1]	72.4	30-150						6/28/17 7:26	
Tetrachloro-m-xylene [2]	72.9	30-150						6/28/17 7:26	

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Project Location: UMASS Sylvan- Amherst, MA

Sample Description:

Work Order: 17F1188

Date Received: 6/21/2017

Field Sample #: LTM-BR-VWV-512D

Sampled: 6/20/2017 11:49

Sample ID: 17F1188-26

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 13:25	KAL
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 13:25	KAL
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 13:25	KAL
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 13:25	KAL
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 13:25	KAL
Aroclor-1254 [2]	17	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 13:25	KAL
Aroclor-1260 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 13:25	KAL
Aroclor-1262 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 13:25	KAL
Aroclor-1268 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	6/22/17	6/28/17 13:25	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	94.9	30-150						6/28/17 13:25	
Decachlorobiphenyl [2]	89.1	30-150						6/28/17 13:25	
Tetrachloro-m-xylene [1]	76.0	30-150						6/28/17 13:25	
Tetrachloro-m-xylene [2]	80.6	30-150						6/28/17 13:25	

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Sample Extraction Data**Prep Method: SW-846 3540C-SW-846 8082A**

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
17F1188-21 [LTM-BR-VWH-521]	B179878	1.00	10.0	06/22/17
17F1188-22 [LTM-BR-VWH-522]	B179878	1.00	10.0	06/22/17
17F1188-23 [LTM-BR-VWH-523]	B179878	1.00	10.0	06/22/17
17F1188-24 [LTM-BR-VWH-524]	B179878	1.00	10.0	06/22/17
17F1188-25 [LTM-MR-VWH-516D]	B179878	1.00	10.0	06/22/17
17F1188-26 [LTM-BR-VWV-512D]	B179878	1.00	10.0	06/22/17

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
17F1188-01 [LTM-MR-VWV-501]	B179937	1.00	10.0	06/22/17
17F1188-02 [LTM-MR-VWV-502]	B179937	1.00	10.0	06/22/17
17F1188-03 [LTM-MR-VWV-503]	B179937	1.00	10.0	06/22/17
17F1188-04 [LTM-MR-VWV-504]	B179937	1.00	10.0	06/22/17
17F1188-05 [LTM-CR-VWV-505]	B179937	1.00	10.0	06/22/17
17F1188-06 [LTM-CR-VWV-506]	B179937	1.00	10.0	06/22/17
17F1188-07 [LTM-CR-VWV-507]	B179937	1.00	10.0	06/22/17
17F1188-08 [LTM-CR-VWV-508]	B179937	1.00	10.0	06/22/17
17F1188-09 [LTM-BR-VWV-509]	B179937	1.00	10.0	06/22/17
17F1188-10 [LTM-BR-VWV-510]	B179937	1.00	10.0	06/22/17
17F1188-11 [LTM-BR-VWV-511]	B179937	1.00	10.0	06/22/17
17F1188-12 [LTM-BR-VWV-512]	B179937	1.00	10.0	06/22/17
17F1188-13 [LTM-MR-VWH-513]	B179937	1.00	10.0	06/22/17
17F1188-14 [LTM-MR-VWH-514]	B179937	1.00	10.0	06/22/17
17F1188-15 [LTM-MR-VWH-515]	B179937	1.00	10.0	06/22/17
17F1188-16 [LTM-MR-VWH-516]	B179937	1.00	10.0	06/22/17
17F1188-17 [LTM-CR-VWH-517]	B179937	1.00	10.0	06/22/17
17F1188-18 [LTM-CR-VWH-518]	B179937	1.00	10.0	06/22/17
17F1188-19 [LTM-CR-VWH-519]	B179937	1.00	10.0	06/22/17
17F1188-20 [LTM-CR-VWH-520]	B179937	1.00	10.0	06/22/17

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B179878 - SW-846 3540C
Blank (B179878-BLK1)

Prepared: 06/22/17 Analyzed: 06/28/17

Aroclor-1016	ND	0.20	µg/Wipe							
Aroclor-1016 [2C]	ND	0.20	µg/Wipe							
Aroclor-1221	ND	0.20	µg/Wipe							
Aroclor-1221 [2C]	ND	0.20	µg/Wipe							
Aroclor-1232	ND	0.20	µg/Wipe							
Aroclor-1232 [2C]	ND	0.20	µg/Wipe							
Aroclor-1242	ND	0.20	µg/Wipe							
Aroclor-1242 [2C]	ND	0.20	µg/Wipe							
Aroclor-1248	ND	0.20	µg/Wipe							
Aroclor-1248 [2C]	ND	0.20	µg/Wipe							
Aroclor-1254	ND	0.20	µg/Wipe							
Aroclor-1254 [2C]	ND	0.20	µg/Wipe							
Aroclor-1260	ND	0.20	µg/Wipe							
Aroclor-1260 [2C]	ND	0.20	µg/Wipe							
Aroclor-1262	ND	0.20	µg/Wipe							
Aroclor-1262 [2C]	ND	0.20	µg/Wipe							
Aroclor-1268	ND	0.20	µg/Wipe							
Aroclor-1268 [2C]	ND	0.20	µg/Wipe							
Surrogate: Decachlorobiphenyl	1.89		µg/Wipe	2.00		94.7	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.80		µg/Wipe	2.00		90.1	30-150			
Surrogate: Tetrachloro-m-xylene	1.58		µg/Wipe	2.00		79.1	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.59		µg/Wipe	2.00		79.5	30-150			

LCS (B179878-BS1)

Prepared: 06/22/17 Analyzed: 06/28/17

Aroclor-1016	0.47	0.20	µg/Wipe	0.500		93.5	40-140			
Aroclor-1016 [2C]	0.46	0.20	µg/Wipe	0.500		91.6	40-140			
Aroclor-1260	0.40	0.20	µg/Wipe	0.500		79.1	40-140			
Aroclor-1260 [2C]	0.41	0.20	µg/Wipe	0.500		82.4	40-140			
Surrogate: Decachlorobiphenyl	1.89		µg/Wipe	2.00		94.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.80		µg/Wipe	2.00		89.9	30-150			
Surrogate: Tetrachloro-m-xylene	1.61		µg/Wipe	2.00		80.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.62		µg/Wipe	2.00		80.8	30-150			

LCS Dup (B179878-BSD1)

Prepared: 06/22/17 Analyzed: 06/28/17

Aroclor-1016	0.44	0.20	µg/Wipe	0.500		88.9	40-140	5.02	30	
Aroclor-1016 [2C]	0.45	0.20	µg/Wipe	0.500		90.3	40-140	1.41	30	
Aroclor-1260	0.39	0.20	µg/Wipe	0.500		77.1	40-140	2.61	30	
Aroclor-1260 [2C]	0.40	0.20	µg/Wipe	0.500		80.1	40-140	2.87	30	
Surrogate: Decachlorobiphenyl	1.86		µg/Wipe	2.00		93.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.76		µg/Wipe	2.00		87.9	30-150			
Surrogate: Tetrachloro-m-xylene	1.58		µg/Wipe	2.00		78.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.59		µg/Wipe	2.00		79.4	30-150			

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QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B179937 - SW-846 3540C
Blank (B179937-BLK1)

Prepared: 06/22/17 Analyzed: 06/27/17

Aroclor-1016	ND	0.20	µg/Wipe							
Aroclor-1016 [2C]	ND	0.20	µg/Wipe							
Aroclor-1221	ND	0.20	µg/Wipe							
Aroclor-1221 [2C]	ND	0.20	µg/Wipe							
Aroclor-1232	ND	0.20	µg/Wipe							
Aroclor-1232 [2C]	ND	0.20	µg/Wipe							
Aroclor-1242	ND	0.20	µg/Wipe							
Aroclor-1242 [2C]	ND	0.20	µg/Wipe							
Aroclor-1248	ND	0.20	µg/Wipe							
Aroclor-1248 [2C]	ND	0.20	µg/Wipe							
Aroclor-1254	ND	0.20	µg/Wipe							
Aroclor-1254 [2C]	ND	0.20	µg/Wipe							
Aroclor-1260	ND	0.20	µg/Wipe							
Aroclor-1260 [2C]	ND	0.20	µg/Wipe							
Aroclor-1262	ND	0.20	µg/Wipe							
Aroclor-1262 [2C]	ND	0.20	µg/Wipe							
Aroclor-1268	ND	0.20	µg/Wipe							
Aroclor-1268 [2C]	ND	0.20	µg/Wipe							
Surrogate: Decachlorobiphenyl	1.82		µg/Wipe	2.00		90.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.75		µg/Wipe	2.00		87.5	30-150			
Surrogate: Tetrachloro-m-xylene	1.75		µg/Wipe	2.00		87.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.62		µg/Wipe	2.00		81.1	30-150			

LCS (B179937-BS1)

Prepared: 06/22/17 Analyzed: 06/27/17

Aroclor-1016	0.48	0.20	µg/Wipe	0.500		96.4	40-140			
Aroclor-1016 [2C]	0.47	0.20	µg/Wipe	0.500		94.3	40-140			
Aroclor-1260	0.41	0.20	µg/Wipe	0.500		82.1	40-140			
Aroclor-1260 [2C]	0.40	0.20	µg/Wipe	0.500		80.9	40-140			
Surrogate: Decachlorobiphenyl	1.73		µg/Wipe	2.00		86.5	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.66		µg/Wipe	2.00		83.0	30-150			
Surrogate: Tetrachloro-m-xylene	1.73		µg/Wipe	2.00		86.3	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.60		µg/Wipe	2.00		79.9	30-150			

LCS Dup (B179937-BSD1)

Prepared: 06/22/17 Analyzed: 06/27/17

Aroclor-1016	0.56	0.20	µg/Wipe	0.500		111	40-140	14.2	30	
Aroclor-1016 [2C]	0.50	0.20	µg/Wipe	0.500		99.2	40-140	5.05	30	
Aroclor-1260	0.43	0.20	µg/Wipe	0.500		86.8	40-140	5.59	30	
Aroclor-1260 [2C]	0.43	0.20	µg/Wipe	0.500		86.5	40-140	6.65	30	
Surrogate: Decachlorobiphenyl	1.79		µg/Wipe	2.00		89.6	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.71		µg/Wipe	2.00		85.6	30-150			
Surrogate: Tetrachloro-m-xylene	1.79		µg/Wipe	2.00		89.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.66		µg/Wipe	2.00		82.8	30-150			

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES****LTM-MR-VWV-501***SW-846 8082A*Lab Sample ID: 17F1188-01 Date(s) Analyzed: 06/28/2017 06/28/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	29	
	2	0.000	0.000	0.000	29	0.0

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-MR-VWV-502**Lab Sample ID: 17F1188-02 Date(s) Analyzed: 06/28/2017 06/28/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	6.3	
	2	0.000	0.000	0.000	6.4	1.6

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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-MR-VWV-503**Lab Sample ID: 17F1188-03 Date(s) Analyzed: 06/28/2017 06/28/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	13	
	2	0.000	0.000	0.000	13	0.0

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-MR-VWV-504**Lab Sample ID: 17F1188-04 Date(s) Analyzed: 06/28/2017 06/28/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	6.5	
	2	0.000	0.000	0.000	6.4	1.6

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-CR-VWV-505**Lab Sample ID: 17F1188-05 Date(s) Analyzed: 06/27/2017 06/27/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	1.4	
	2	0.000	0.000	0.000	1.4	0.0

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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-CR-VWV-506**Lab Sample ID: 17F1188-06 Date(s) Analyzed: 06/28/2017 06/28/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	3.0	
	2	0.000	0.000	0.000	2.9	3.4

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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-CR-VWV-507**Lab Sample ID: 17F1188-07 Date(s) Analyzed: 06/28/2017 06/28/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	13	
	2	0.000	0.000	0.000	13	0.0

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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-CR-VWV-508**Lab Sample ID: 17F1188-08 Date(s) Analyzed: 06/27/2017 06/27/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	1.1	
	2	0.000	0.000	0.000	1.1	0.0
Aroclor-1260	1	0.000	0.000	0.000	0.23	
	2	0.000	0.000	0.000	0.27	16.0

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-BR-VWV-509**Lab Sample ID: 17F1188-09 Date(s) Analyzed: 06/28/2017 06/28/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	55	
	2	0.000	0.000	0.000	53	3.7

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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-BR-VWV-510**Lab Sample ID: 17F1188-10 Date(s) Analyzed: 06/28/2017 06/28/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	99	
	2	0.000	0.000	0.000	92	7.3

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES****LTM-BR-VWV-511***SW-846 8082A*Lab Sample ID: 17F1188-11 Date(s) Analyzed: 06/28/2017 06/28/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	18	
	2	0.000	0.000	0.000	17	5.7

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-BR-VWV-512**Lab Sample ID: 17F1188-12 Date(s) Analyzed: 06/28/2017 06/28/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	12	
	2	0.000	0.000	0.000	12	0.0

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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-MR-VWH-513**Lab Sample ID: 17F1188-13 Date(s) Analyzed: 06/27/2017 06/27/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	0.22	
	2	0.000	0.000	0.000	0.26	16.7

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-MR-VWH-514**Lab Sample ID: 17F1188-14 Date(s) Analyzed: 06/28/2017 06/28/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	7.2	
	2	0.000	0.000	0.000	7.3	1.4

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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-MR-VWH-515**Lab Sample ID: 17F1188-15 Date(s) Analyzed: 06/27/2017 06/27/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	0.77	
	2	0.000	0.000	0.000	0.79	2.6

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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-MR-VWH-516**Lab Sample ID: 17F1188-16 Date(s) Analyzed: 06/27/2017 06/27/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	0.71	
	2	0.000	0.000	0.000	0.80	11.9

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-CR-VWH-518**Lab Sample ID: 17F1188-18 Date(s) Analyzed: 06/27/2017 06/27/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	0.29	
	2	0.000	0.000	0.000	0.31	6.7

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-CR-VWH-519**Lab Sample ID: 17F1188-19 Date(s) Analyzed: 06/27/2017 06/27/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	0.44	
	2	0.000	0.000	0.000	0.45	2.3

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-BR-VWH-521**Lab Sample ID: 17F1188-21 Date(s) Analyzed: 06/28/2017 06/28/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	0.60	
	2	0.000	0.000	0.000	0.67	9.4

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-BR-VWH-522**Lab Sample ID: 17F1188-22 Date(s) Analyzed: 06/28/2017 06/28/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	4.6	
	2	0.000	0.000	0.000	5.0	8.3

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-BR-VWH-523**Lab Sample ID: 17F1188-23 Date(s) Analyzed: 06/28/2017 06/28/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	0.40	
	2	0.000	0.000	0.000	0.44	9.5

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-BR-VWH-524**Lab Sample ID: 17F1188-24 Date(s) Analyzed: 06/28/2017 06/28/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	3.7	
	2	0.000	0.000	0.000	3.9	2.6

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-MR-VWH-516D**Lab Sample ID: 17F1188-25 Date(s) Analyzed: 06/28/2017 06/28/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	0.48	
	2	0.000	0.000	0.000	0.57	17.1

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LTM-BR-VWV-512D**Lab Sample ID: 17F1188-26 Date(s) Analyzed: 06/28/2017 06/28/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	15	
	2	0.000	0.000	0.000	17	12.5

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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LCS**Lab Sample ID: B179878-BS1 Date(s) Analyzed: 06/28/2017 06/28/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.47	
	2	0.000	0.000	0.000	0.46	2.2
Aroclor-1260	1	0.000	0.000	0.000	0.40	
	2	0.000	0.000	0.000	0.41	2.5

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LCS Dup**Lab Sample ID: B179878-BSD1 Date(s) Analyzed: 06/28/2017 06/28/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.44	
	2	0.000	0.000	0.000	0.45	0.0
Aroclor-1260	1	0.000	0.000	0.000	0.39	
	2	0.000	0.000	0.000	0.40	2.5

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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LCS**Lab Sample ID: B179937-BS1 Date(s) Analyzed: 06/27/2017 06/27/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.48	
	2	0.000	0.000	0.000	0.47	2.1
Aroclor-1260	1	0.000	0.000	0.000	0.41	
	2	0.000	0.000	0.000	0.40	2.5

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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LCS Dup**Lab Sample ID: B179937-BSD1 Date(s) Analyzed: 06/27/2017 06/27/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.56	
	2	0.000	0.000	0.000	0.50	11.3
Aroclor-1260	1	0.000	0.000	0.000	0.43	
	2	0.000	0.000	0.000	0.43	0.0

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332**FLAG/QUALIFIER SUMMARY**

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit
DL	Method Detection Limit
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
S-01	The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

CERTIFICATIONS**Certified Analyses included in this Report**

Analyte	Certifications
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No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2018
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2018
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2018
RI	Rhode Island Department of Health	LAO00112	12/30/2017
NC	North Carolina Div. of Water Quality	652	12/31/2017
NJ	New Jersey DEP	MA007 NELAP	06/30/2018
FL	Florida Department of Health	E871027 NELAP	06/30/2018
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2017
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2017
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2017
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2018

Company Name		Address		Phone		Project Name		Project Location		Project Number		Project Manager		Con-Test Quote Name/Number		Invoice Recipient		Sampled By	
213 Contest St, Middleboro, MA		213 Contest St, Middleboro, MA		508-945-1234		Yves Sullivan		Amherst, MA		225695		George Franklin						Greg Reynolds	
Con-Test Work Order #		Client Sample ID / Description		Beginning Date/Time		Ending Date/Time		Composite		Grab		Matrix Code		Conc Code					
1		LTM-MR-VWV-501		6/20/17		1035		X		X		0		U					
2		LTM-MR-VWV-502		6/20/17		1022		X		X		1							
3		LTM-MR-VWV-503		6/20/17		1051		X		X		1							
4		LTM-MR-VWV-504		6/20/17		1044		X		X		1							
5		LTM-CR-VWV-505		6/20/17		1057		X		X		1							
6		LTM-CR-VWV-506		6/20/17		1105		X		X		1							
7		LTM-CR-VWV-507		6/20/17		1111		X		X		1							
8		LTM-CR-VWV-508		6/20/17		1118		X		X		1							
9		LTM-BK-VWV-509		6/20/17		1125		X		X		1							
10		LTM-BR-VWV-510		6/20/17		1133		X		X		1							
<p>Comments: RA \leq 1 mg/wipe</p>																			
<p>Please use the following codes to indicate possible sample concentration within the Conc Code column above:</p> <p>H - High; M - Medium; L - Low; C - Clean; U - Unknown</p>																			
<p>Relinquished by: (signature) <i>[Signature]</i> Date/Time: 6/21/17 1200</p> <p>Received by: (signature) <i>[Signature]</i> Date/Time: 6/21/17 1200</p> <p>Relinquished by: (signature) <i>[Signature]</i> Date/Time: 6/21/17 1700</p> <p>Received by: (signature) <i>[Signature]</i> Date/Time: 6/21/17 1700</p> <p>Relinquished by: (signature) <i>[Signature]</i> Date/Time: 6/21/17 1700</p> <p>Received by: (signature) <i>[Signature]</i> Date/Time: 6/21/17 1700</p>																			
<p>Project Entity: <input type="checkbox"/> Government <input type="checkbox"/> Federal <input type="checkbox"/> City <input type="checkbox"/> Municipality <input type="checkbox"/> 21 J <input type="checkbox"/> Brownfield <input type="checkbox"/> MWRA <input type="checkbox"/> School <input type="checkbox"/> MBTA <input type="checkbox"/> WRTA <input type="checkbox"/> Other <input type="checkbox"/> Chromatogram <input type="checkbox"/> AIHA-LAP, LLC</p>																			
<p>NECAC and AIHA-LAP, LLC Accredited</p>																			
<p>con-test ANALYTICAL LABORATORY www.contestlabs.com</p>																			
<p>3 Container Codes: A = Amber Glass G = Glass P = Plastic ST = Sterile V = Vial S = Summa Canister T = Tedlar Bag O = Other (please define)</p>																			
<p>2 Preservation Codes: I = Iced H = HCL M = Methanol N = Nitric Acid S = Sulfuric Acid B = Sodium Bisulfate X = Sodium Hydroxide T = Sodium Thiosulfate O = Other (please define)</p>																			
<p>1 Matrix Codes: GW = Ground Water WW = Waste Water DW = Drinking Water A = Air S = Soil SL = Sludge SOL = Solid O = Other (please define)</p>																			
<p>On-site Samples: <input type="radio"/> Field Filtered <input type="radio"/> Lab to Filter</p>																			
<p>On-site Samples: <input type="radio"/> Field Filtered <input type="radio"/> Lab to Filter</p>																			
<p>3 Container Code: <input type="radio"/> Field Filtered <input type="radio"/> Lab to Filter</p>																			
<p>2 Preservation Code: <input type="radio"/> Field Filtered <input type="radio"/> Lab to Filter</p>																			
<p># of Containers: <input type="radio"/> Field Filtered <input type="radio"/> Lab to Filter</p>																			

17F1188



Phone: 413-525-2332

Fax: 413-525-6405

Email: info@contestlabs.com

Company Name: Woodward & Curran
 Address: 213 Court St, Middlebury CT

Project Name: Sylvan, Mass
 Project Location: Amherst, MA

Project Number: 22-5695

Project Manager: George Franklin

Con-Test Quote Name/Number: 1

Invoice Recipient: George Franklin

Sampled By: Greg Reynolds

http://www.contestlabs.com

CHAIN OF CUSTODY RECORD

Doc # 381 Rev 1_03242017

39 Spruce Street
 East Longmeadow, MA 01028

Page 2 of 3

Requested Turnaround Time: ☒ 7-Day ☐ 10-Day ☐

Due Date: _____

Rush Approval Required: ☐ 1-Day ☐ 3-Day ☐ 2-Day ☐ 4-Day ☐

Data Delivery: ☒ EXCEL ☐

Format: PDF ☒ EXCEL ☐

Other: _____

CLP Like Data Pkg Required: ☐

Email To: George Franklin

Fax To #: _____

Con-Test Work Order #	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	Matrix Code	Conc Code
11	LTM-BR-VWV-511	6/20/17	1140		X	0	Y
12	LTM-BR-VWV-512		1149		X		
13	LTM-MR-VWH-513		1041		X		
14	LTM-MR-VWH-514		1028		X		
15	LTM-MR-VWH-515		654		X		
16	LTM-MR-VWH-516		1047		X		
17	LTM-CR-VWH-517		1101		X		
18	LTM-CR-VWH-518		1109		X		
19	LTM-CR-VWH-519		1114		X		
20	LTM-CR-VWH-520		1121		X		

Comments:

RC ≤ 1ug/wipe

Please use the following codes to indicate possible sample concentration within the Conc Code column above:

H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature) [Signature] Date/Time: _____

Received by: (signature) [Signature] Date/Time: 6/21/17 1200

Relinquished by: (signature) [Signature] Date/Time: 6/21/17 1700

Received by: (signature) [Signature] Date/Time: 6/21/17 1700

Relinquished by: (signature) [Signature] Date/Time: _____

Received by: (signature) _____ Date/Time: _____

Detection Limit Requirements: ☐ MA ☐ MCP Required

MCP Certification Form Required: ☐ CT RCP Required

RCP Certification Form Required: ☐ MA State DW Required

PWSID #: _____



Project Entity: ☐ Government ☐ Municipality ☐ MWRA ☐ WRTA ☐ Other

☐ Federal ☐ 21 J ☐ School ☐ MBTA

☐ City ☐ Brownfield

Chromatogram ☐ AIHA-LAP, LLC

PCB ONLY: ☒ Soxhlet ☐ Non Soxhlet



Phone: 413-525-2332

Fax: 413-525-6405

Email: info@contestlabs.com

Company Name: Woodward & Curran
 Address: 213 Con-Test, Middlebury, CT

Project Name: 8 Sullivan Mass
 Project Location: Amherst, MA

Project Number: 225495

Project Manager: Greg Reynolds

Con-Test Quote Name/Number: 1

Invoice Recipient: Greg Reynolds

Sampled By: Greg Reynolds

Con-Test Work Order # 21

Client Sample ID / Description LTM-BR-VWH-521

22

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Requested Turnaround Time
 7-Day ☒ 10-Day ☐
 Due Date: _____

Rush Approval Required
 1-Day ☐ 3-Day ☐
 2-Day ☐ 4-Day ☐
 Data Delivery
 Format: PDF ☒ EXCEL ☒
 Other: _____

CLP Like Data Pkg Required: ☐
 Email To: _____
 Fax To #: _____

Beginning Date/Time	Ending Date/Time	Composite	Grab	Matrix Code	Conc Code
6/20/17 1129	1129		X	0	U
1137	1137		X	1	
1144	1144		X	2	
1153	1153		X	3	
1047	1047		X	4	
1149	1149		X	5	

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
 H - High; M - Medium; L - Low; C - Clean; U - Unknown

Detection Limit Requirements
 MA ☐ MA MCP Required
 MCP Certification Form Required
 CT ☐ CT RCP Required
 RCP Certification Form Required
 Other ☐ MA State DWM Required
 PWSID # _____

Project Entity
☐ Government ☐ Municipality ☐ MWRA ☐ WRTA
☐ Federal ☐ 21 J ☐ School ☐ Other
☐ City ☐ Brownfield ☐ MBTA

Relinquished by: (signature) _____ Date/Time: _____
 Received by: (signature) _____ Date/Time: _____
 Relinquished by: (signature) _____ Date/Time: _____
 Received by: (signature) _____ Date/Time: _____
 Relinquished by: (signature) _____ Date/Time: _____
 Received by: (signature) _____ Date/Time: _____

Comments:

RC ≤ 1mg/wipe

# of Containers	Preservation Code	Container Code	Analysis Requested
1			
2			
3			
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6			
7			
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49			
50			

ANALYSIS REQUESTED
 Field Filtered ☐
 Lab to Filter ☐
 Field Filtered ☐
 Lab to Filter ☐

1 Matrix Codes:
 GW = Ground Water
 WW = Waste Water
 DW = Drinking Water
 A = Air
 S = Soil
 SL = Sludge
 SOL = Solid
 O = Other (please define) Wipe

2 Preservation Codes:
 I = Iced
 H = HCL
 M = Methanol
 N = Nitric Acid
 S = Sulfuric Acid
 B = Sodium Bisulfate
 X = Sodium Hydroxide
 T = Sodium Thiosulfate
 O = Other (please define) Hexane

3 Container Codes:
 A = Amber Glass
 G = Glass
 P = Plastic
 ST = Sterile
 V = Vial
 S = Summa Canister
 T = Tedlar Bag
 O = Other (please define)

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PCB ONLY
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☐ Non Soxhlet

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
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ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement

will be brought to the attention of the Client - State True or False

Client Woodard & Curran
Received By SM Date 6/21/17 Time 1700

How were the samples received? In Cooler T No Cooler On Ice T No Ice
Direct From Sample Ambient Melted Ice

Were samples within Temperature? 2-6°C T By Gun # 2 Actual Temp - 2-9
By Blank # Actual Temp -

Was Custody Seal Intact? N/A Were Samples Tampered with? F
Was COC Relinquished? T Does Chain Agree With Samples? T
Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T
Did COC include all pertinent Information? Client? T Analysis? T Sampler Name? T
Project? T ID's? T Collection Dates/Times? T
Are Sample labels filled out and legible? T
Are there Lab to Filters? N/A Who was notified?
Are there Rushes? N/A Who was notified?
Are there Short Holds? N/A Who was notified?
Is there enough Volume? T
Is there Headspace where applicable? N/A MS/MSD? N/A
Proper Media/Containers Used? T Is splitting samples required? N/A
Were trip blanks received? N/A On COC? N/A
Do All Samples Have the proper pH? N/A Acid Base

Vials	#	Containers:	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic	16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic	8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic	4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint	2oz Amb/Clear
DI-		Other Plastic		Other Glass	Encore
Thiosulfate-		SOC Kit		Plastic Bag	Frozen:
Sulfuric-		Perchlorate		Ziplock	

Unused Media

Vials	#	Containers:	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic	16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic	8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic	4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint	2oz Amb/Clear
DI-		Other Plastic		Other Glass	Encore
Thiosulfate-		SOC Kit		Plastic Bag	Frozen:
Sulfuric-		Perchlorate		Ziplock	

Comments:

July 6, 2017

George Franklin
Woodard & Curran - CT
213 Court Street., 4th Floor
Middletown, CT 06457

Project Location: UMass Sylvan-Amherst, MA
Client Job Number:
Project Number: 228838.03
Laboratory Work Order Number: 17F1200

Enclosed are results of analyses for samples received by the laboratory on June 21, 2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Meghan E. Kelley". The signature is written in a cursive, flowing style.

Meghan E. Kelley
Project Manager

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PCB Homologues by GC/MS with Soxhlet Extraction	12
B180130	12
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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332Woodard & Curran - CT
213 Court Street., 4th Floor
Middletown, CT 06457
ATTN: George Franklin

REPORT DATE: 7/6/2017

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 228838.03

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 17F1200

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: UMass Sylvan-Amherst, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LTM-Ambient-001	17F1200-01	Ambient Air		TO-10A/EPA 680 Modified	
LTM-MR-IAS-002	17F1200-02	Indoor air		TO-10A/EPA 680 Modified	
LTM-MR-IAS-003	17F1200-03	Indoor air		TO-10A/EPA 680 Modified	
LTM-BR-IAS-004	17F1200-04	Indoor air		TO-10A/EPA 680 Modified	
LTM-CR-IAS-005	17F1200-05	Indoor air		TO-10A/EPA 680 Modified	
LTM-CR-IAS-006	17F1200-06	Indoor air		TO-10A/EPA 680 Modified	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

TO-10A/EPA 680 Modified**Qualifications:****V-06**

Continuing calibration did not meet method specifications and was biased on the high side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the high side.

Analyte & Samples(s) Qualified:**Monochlorobiphenyls**

17F1200-03[LTM-MR-IAS-003], 17F1200-05[LTM-CR-IAS-005], 17F1200-06[LTM-CR-IAS-006]

V-20

Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:**Monochlorobiphenyls**

17F1200-01[LTM-Ambient-001], 17F1200-02[LTM-MR-IAS-002], 17F1200-04[LTM-BR-IAS-004]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Lisa A. Worthington
Project Manager

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

ANALYTICAL RESULTS

Project Location: UMass Sylvan-Amherst, MA

Date Received: 6/21/2017

Field Sample #: LTM-Ambient-001

Sample ID: 17F1200-01

Sample Matrix: Ambient Air

Sampled: 6/20/2017 08:15

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Air Volume L: 943.2

Work Order: 17F1200

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	ND	0.0010	V-20	ND	0.0011	1	6/29/17	4:45	CJM
Dichlorobiphenyls	ND	0.0010		ND	0.0011	1	6/29/17	4:45	CJM
Trichlorobiphenyls	ND	0.0010		ND	0.0011	1	6/29/17	4:45	CJM
Tetrachlorobiphenyls	ND	0.0020		ND	0.0021	1	6/29/17	4:45	CJM
Pentachlorobiphenyls	0.0026	0.0020		0.0028	0.0021	1	6/29/17	4:45	CJM
Hexachlorobiphenyls	ND	0.0020		ND	0.0021	1	6/29/17	4:45	CJM
Heptachlorobiphenyls	ND	0.0030		ND	0.0032	1	6/29/17	4:45	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0032	1	6/29/17	4:45	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0053	1	6/29/17	4:45	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0053	1	6/29/17	4:45	CJM
Total Polychlorinated biphenyls	0.0026			0.0028		1	6/29/17	4:45	CJM
Surrogates	% Recovery			% REC Limits					
Tetrachloro-m-xylene	112			50-125			6/29/17	4:45	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

ANALYTICAL RESULTS

Project Location: UMass Sylvan-Amherst, MA

Date Received: 6/21/2017

Field Sample #: LTM-MR-IAS-002

Sample ID: 17F1200-02

Sample Matrix: Indoor air

Sampled: 6/20/2017 08:35

Sample Description/Location:

Sub Description/Location:

Work Order: 17F1200

Flow Controller ID:

Sample Type:

Air Volume L: 964.8

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	ND	0.0010	V-20	ND	0.001	1	6/29/17	5:22	CJM
Dichlorobiphenyls	0.012	0.0010		0.013	0.001	1	6/29/17	5:22	CJM
Trichlorobiphenyls	0.067	0.0010		0.069	0.001	1	6/29/17	5:22	CJM
Tetrachlorobiphenyls	0.23	0.0020		0.24	0.0021	1	6/29/17	5:22	CJM
Pentachlorobiphenyls	0.30	0.0020		0.31	0.0021	1	6/29/17	5:22	CJM
Hexachlorobiphenyls	0.081	0.0020		0.084	0.0021	1	6/29/17	5:22	CJM
Heptachlorobiphenyls	0.017	0.0030		0.018	0.0031	1	6/29/17	5:22	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0031	1	6/29/17	5:22	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0052	1	6/29/17	5:22	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0052	1	6/29/17	5:22	CJM
Total Polychlorinated biphenyls	0.71			0.74		1	6/29/17	5:22	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	109	50-125	6/29/17 5:22

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

ANALYTICAL RESULTS

Project Location: UMass Sylvan-Amherst, MA

Date Received: 6/21/2017

Field Sample #: LTM-MR-IAS-003

Sample ID: 17F1200-03

Sample Matrix: Indoor air

Sampled: 6/20/2017 08:40

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Air Volume L: 950.4

Work Order: 17F1200

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	0.0031	0.0010	V-06	0.0033	0.0011	1	6/29/17	5:59	CJM
Dichlorobiphenyls	0.069	0.0010		0.072	0.0011	1	6/29/17	5:59	CJM
Trichlorobiphenyls	0.15	0.0010		0.16	0.0011	1	6/29/17	5:59	CJM
Tetrachlorobiphenyls	0.24	0.0020		0.25	0.0021	1	6/29/17	5:59	CJM
Pentachlorobiphenyls	0.23	0.0020		0.24	0.0021	1	6/29/17	5:59	CJM
Hexachlorobiphenyls	0.077	0.0020		0.081	0.0021	1	6/29/17	5:59	CJM
Heptachlorobiphenyls	0.017	0.0030		0.018	0.0032	1	6/29/17	5:59	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0032	1	6/29/17	5:59	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0053	1	6/29/17	5:59	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0053	1	6/29/17	5:59	CJM
Total Polychlorinated biphenyls	0.78			0.82		1	6/29/17	5:59	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	90.5	50-125	6/29/17 5:59

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

ANALYTICAL RESULTS

Project Location: UMass Sylvan-Amherst, MA

Date Received: 6/21/2017

Field Sample #: LTM-BR-IAS-004

Sample ID: 17F1200-04

Sample Matrix: Indoor air

Sampled: 6/20/2017 08:47

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Air Volume L: 975.6

Work Order: 17F1200

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	ND	0.0010	V-20	ND	0.001	1	6/29/17	6:37	CJM
Dichlorobiphenyls	0.019	0.0010		0.020	0.001	1	6/29/17	6:37	CJM
Trichlorobiphenyls	0.11	0.0010		0.11	0.001	1	6/29/17	6:37	CJM
Tetrachlorobiphenyls	0.40	0.0020		0.41	0.0021	1	6/29/17	6:37	CJM
Pentachlorobiphenyls	0.51	0.0020		0.52	0.0021	1	6/29/17	6:37	CJM
Hexachlorobiphenyls	0.12	0.0020		0.12	0.0021	1	6/29/17	6:37	CJM
Heptachlorobiphenyls	0.018	0.0030		0.019	0.0031	1	6/29/17	6:37	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0031	1	6/29/17	6:37	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0051	1	6/29/17	6:37	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0051	1	6/29/17	6:37	CJM
Total Polychlorinated biphenyls	1.2			1.2		1	6/29/17	6:37	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	101	50-125	6/29/17 6:37

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

ANALYTICAL RESULTS

Project Location: UMass Sylvan-Amherst, MA

Date Received: 6/21/2017

Field Sample #: LTM-CR-IAS-005

Sample ID: 17F1200-05

Sample Matrix: Indoor air

Sampled: 6/20/2017 08:56

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Air Volume L: 950.4

Work Order: 17F1200

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	0.0032	0.0010	V-06	0.0034	0.0011	1	6/29/17	7:14	CJM
Dichlorobiphenyls	0.051	0.0010		0.054	0.0011	1	6/29/17	7:14	CJM
Trichlorobiphenyls	0.14	0.0010		0.14	0.0011	1	6/29/17	7:14	CJM
Tetrachlorobiphenyls	0.55	0.0020		0.58	0.0021	1	6/29/17	7:14	CJM
Pentachlorobiphenyls	0.72	0.0020		0.76	0.0021	1	6/29/17	7:14	CJM
Hexachlorobiphenyls	0.13	0.0020		0.14	0.0021	1	6/29/17	7:14	CJM
Heptachlorobiphenyls	0.011	0.0030		0.011	0.0032	1	6/29/17	7:14	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0032	1	6/29/17	7:14	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0053	1	6/29/17	7:14	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0053	1	6/29/17	7:14	CJM
Total Polychlorinated biphenyls	1.6			1.7		1	6/29/17	7:14	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	98.7	50-125	6/29/17 7:14

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ANALYTICAL RESULTS

Project Location: UMass Sylvan-Amherst, MA

Date Received: 6/21/2017

Field Sample #: LTM-CR-IAS-006

Sample ID: 17F1200-06

Sample Matrix: Indoor air

Sampled: 6/20/2017 08:56

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Air Volume L: 946.8

Work Order: 17F1200

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	0.0024	0.0010	V-06	0.0025	0.0011	1	6/29/17	7:52	CJM
Dichlorobiphenyls	0.041	0.0010		0.044	0.0011	1	6/29/17	7:52	CJM
Trichlorobiphenyls	0.11	0.0010		0.12	0.0011	1	6/29/17	7:52	CJM
Tetrachlorobiphenyls	0.45	0.0020		0.47	0.0021	1	6/29/17	7:52	CJM
Pentachlorobiphenyls	0.58	0.0020		0.62	0.0021	1	6/29/17	7:52	CJM
Hexachlorobiphenyls	0.11	0.0020		0.11	0.0021	1	6/29/17	7:52	CJM
Heptachlorobiphenyls	0.0097	0.0030		0.010	0.0032	1	6/29/17	7:52	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0032	1	6/29/17	7:52	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0053	1	6/29/17	7:52	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0053	1	6/29/17	7:52	CJM
Total Polychlorinated biphenyls	1.3			1.4		1	6/29/17	7:52	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	88.1	50-125	6/29/17 7:52

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Sample Extraction Data

Prep Method: SW-846 3540C-TO-10A/EPA 680 Modified

Lab Number [Field ID]	Batch	Initial [Cartridge	Final [mL]	Date
17F1200-01 [LTM-Ambient-001]	B180130	1.00	1.00	06/26/17
17F1200-02 [LTM-MR-IAS-002]	B180130	1.00	1.00	06/26/17
17F1200-03 [LTM-MR-IAS-003]	B180130	1.00	1.00	06/26/17
17F1200-04 [LTM-BR-IAS-004]	B180130	1.00	1.00	06/26/17
17F1200-05 [LTM-CR-IAS-005]	B180130	1.00	1.00	06/26/17
17F1200-06 [LTM-CR-IAS-006]	B180130	1.00	1.00	06/26/17

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QUALITY CONTROL

PCB Homologues by GC/MS with Soxhlet Extraction - Quality Control

Analyte	Total µg		ug/m3		Spike Level	Source	%REC	%REC	RPD	RPD	Flag/Qual
	Results	RL	Results	RL	Total µg	Result	%REC	Limits	RPD	Limit	

Batch B180130 - SW-846 3540C

Blank (B180130-BLK1)

Prepared: 06/26/17 Analyzed: 06/28/17

Monochlorobiphenyls	ND	0.0010
Dichlorobiphenyls	ND	0.0010
Trichlorobiphenyls	ND	0.0010
Tetrachlorobiphenyls	ND	0.0020
Pentachlorobiphenyls	ND	0.0020
Hexachlorobiphenyls	ND	0.0020
Heptachlorobiphenyls	ND	0.0030
Octachlorobiphenyls	ND	0.0030
Nonachlorobiphenyls	ND	0.0050
Decachlorobiphenyl	ND	0.0050
Total Polychlorinated biphenyls	0.0	

Surrogate: Tetrachloro-m-xylene 0.168 0.200 83.8 50-125

LCS (B180130-BS1)

Prepared: 06/26/17 Analyzed: 06/28/17

Monochlorobiphenyls	0.14	0.0010	0.200	67.5	40-140
Dichlorobiphenyls	0.13	0.0010	0.200	63.4	40-140
Trichlorobiphenyls	0.12	0.0010	0.200	62.4	40-140
Tetrachlorobiphenyls	0.26	0.0020	0.400	65.2	40-140
Pentachlorobiphenyls	0.28	0.0020	0.400	69.0	40-140
Hexachlorobiphenyls	0.28	0.0020	0.400	69.7	40-140
Heptachlorobiphenyls	0.42	0.0030	0.600	69.8	40-140
Octachlorobiphenyls	0.42	0.0030	0.600	70.5	40-140
Nonachlorobiphenyls	0.83	0.0050	1.00	82.7	40-140
Decachlorobiphenyl	0.76	0.0050	1.00	76.5	40-140

Surrogate: Tetrachloro-m-xylene 0.203 0.200 101 50-125

LCS Dup (B180130-BSD1)

Prepared: 06/26/17 Analyzed: 06/28/17

Monochlorobiphenyls	0.16	0.0010	0.200	79.2	40-140	15.9	50
Dichlorobiphenyls	0.14	0.0010	0.200	71.6	40-140	12.0	50
Trichlorobiphenyls	0.14	0.0010	0.200	68.8	40-140	9.70	50
Tetrachlorobiphenyls	0.29	0.0020	0.400	72.5	40-140	10.6	50
Pentachlorobiphenyls	0.30	0.0020	0.400	74.9	40-140	8.21	50
Hexachlorobiphenyls	0.31	0.0020	0.400	77.6	40-140	10.8	50
Heptachlorobiphenyls	0.47	0.0030	0.600	77.9	40-140	11.0	50
Octachlorobiphenyls	0.47	0.0030	0.600	77.9	40-140	9.99	50
Nonachlorobiphenyls	0.90	0.0050	1.00	90.4	40-140	8.87	50
Decachlorobiphenyl	0.83	0.0050	1.00	83.3	40-140	8.49	50

Surrogate: Tetrachloro-m-xylene 0.212 0.200 106 50-125

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332**FLAG/QUALIFIER SUMMARY**

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit
DL	Method Detection Limit
MCL	Maximum Contaminant Level
Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.	
No results have been blank subtracted unless specified in the case narrative section.	
V-06	Continuing calibration did not meet method specifications and was biased on the high side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the high side.
V-20	Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
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TO-10A/EPA 680 Modified in Air

Total Polychlorinated biphenyls AIHA

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2018
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2018
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2018
RI	Rhode Island Department of Health	LAO00112	12/30/2017
NC	North Carolina Div. of Water Quality	652	12/31/2017
NJ	New Jersey DEP	MA007 NELAP	06/30/2018
FL	Florida Department of Health	E871027 NELAP	06/30/2018
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2018
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2017
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2017
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2018
NC-DW	North Carolina Department of Health	25703	07/31/2018



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ANALYTICAL LABORATORY

Doc# 278 Rev 6 2017

Air Media Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client		Received By		Date	Time
Woodard & Curran		JM		6/21/17	1700
How Were the samples received?	In Cooler	In Box	Ambient	On Ice	No Ice
	T			T	
Were samples within Temperature Compliance?	Within 2-6°C		By Gun #	2	Actual Temp - 2.9
	T		By Blank #		Actual Temp -
Was Custody Seal In tact?	N/A		Were Samples Tampered with?	F	
Was COC Relinquished?	T		Does Chain Agree With Samples?	T	
Are there any loose caps/valves on any samples?	T		Were samples received within holding time?	T	
Is COC in ink/ Legible?	T		Analysis?	T	Sampler Name?
Did COC Include all Pertinent Information?	Client?	Project?	ID's?	T	Collection Dates/Times?
	T	T			T
Are Sample Labels filled out and legible?	T		Who was notified?		
Are there Rushes?	N/A				
Samples are received within holding time?	T				
Proper Media Used?	T		Individually Certified Cans?	N/A	
Are there Trip Blanks?	N/A		Is there enough Volume?	T	

Containers:	#	Size	Regulator	Duration	Accessories:			
Summa Cans					Nut/Ferrule		IC Train	
Tedlar Bags					Tubing			
TO-17 Tubes					T-Connector		Shipping Charges	
Radiello					Syringe			
Pufs/TO-11s	C	low	volume		Tedlar			

[illegible]**Comments:**

July 11, 2017

George Franklin
Woodard & Curran - CT
213 Court Street., 4th Floor
Middletown, CT 06457

Project Location: LGRC-UMASS
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 17G0121

Enclosed are results of analyses for samples received by the laboratory on July 6, 2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Meghan E. Kelley". The signature is written in a cursive, flowing style.

Meghan E. Kelley
Project Manager

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Woodard & Curran - CT
213 Court Street., 4th Floor
Middletown, CT 06457
ATTN: George Franklin

REPORT DATE: 7/11/2017

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 17G0121

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: LGRC-UMASS

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LGRC-VWP-018	17G0121-01	Wipe		SW-846 8082A	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink, appearing to read "Tod Kopyscinski". The signature is fluid and cursive, with a large, stylized "T" and "K".

Tod E. Kopyscinski
Laboratory Director

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: LGRC-UMASS

Sample Description:

Work Order: 17G0121

Date Received: 7/6/2017

Field Sample #: LGRC-VWP-018

Sampled: 6/3/2017 10:45

Sample ID: 17G0121-01

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/6/17	7/8/17 18:08	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/6/17	7/8/17 18:08	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/6/17	7/8/17 18:08	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/6/17	7/8/17 18:08	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/6/17	7/8/17 18:08	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/6/17	7/8/17 18:08	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/6/17	7/8/17 18:08	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/6/17	7/8/17 18:08	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/6/17	7/8/17 18:08	TG
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	95.6	30-150						7/8/17 18:08	
Decachlorobiphenyl [2]	94.3	30-150						7/8/17 18:08	
Tetrachloro-m-xylene [1]	79.6	30-150						7/8/17 18:08	
Tetrachloro-m-xylene [2]	84.6	30-150						7/8/17 18:08	

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Sample Extraction Data

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
17G0121-01 [LGRC-VWP-018]	B181010	1.00	10.0	07/06/17

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B181010 - SW-846 3540C
Blank (B181010-BLK1)

Prepared: 07/06/17 Analyzed: 07/08/17

Aroclor-1016	ND	0.20	µg/Wipe							
Aroclor-1016 [2C]	ND	0.20	µg/Wipe							
Aroclor-1221	ND	0.20	µg/Wipe							
Aroclor-1221 [2C]	ND	0.20	µg/Wipe							
Aroclor-1232	ND	0.20	µg/Wipe							
Aroclor-1232 [2C]	ND	0.20	µg/Wipe							
Aroclor-1242	ND	0.20	µg/Wipe							
Aroclor-1242 [2C]	ND	0.20	µg/Wipe							
Aroclor-1248	ND	0.20	µg/Wipe							
Aroclor-1248 [2C]	ND	0.20	µg/Wipe							
Aroclor-1254	ND	0.20	µg/Wipe							
Aroclor-1254 [2C]	ND	0.20	µg/Wipe							
Aroclor-1260	ND	0.20	µg/Wipe							
Aroclor-1260 [2C]	ND	0.20	µg/Wipe							
Aroclor-1262	ND	0.20	µg/Wipe							
Aroclor-1262 [2C]	ND	0.20	µg/Wipe							
Aroclor-1268	ND	0.20	µg/Wipe							
Aroclor-1268 [2C]	ND	0.20	µg/Wipe							
Surrogate: Decachlorobiphenyl	1.81		µg/Wipe	2.00		90.3	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.78		µg/Wipe	2.00		89.0	30-150			
Surrogate: Tetrachloro-m-xylene	1.34		µg/Wipe	2.00		67.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.44		µg/Wipe	2.00		72.2	30-150			

LCS (B181010-BS1)

Prepared: 07/06/17 Analyzed: 07/08/17

Aroclor-1016	0.45	0.20	µg/Wipe	0.500		89.1	40-140			
Aroclor-1016 [2C]	0.43	0.20	µg/Wipe	0.500		86.6	40-140			
Aroclor-1260	0.39	0.20	µg/Wipe	0.500		77.2	40-140			
Aroclor-1260 [2C]	0.41	0.20	µg/Wipe	0.500		81.3	40-140			
Surrogate: Decachlorobiphenyl	1.77		µg/Wipe	2.00		88.5	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.78		µg/Wipe	2.00		89.2	30-150			
Surrogate: Tetrachloro-m-xylene	1.19		µg/Wipe	2.00		59.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.30		µg/Wipe	2.00		65.0	30-150			

LCS Dup (B181010-BSD1)

Prepared: 07/06/17 Analyzed: 07/08/17

Aroclor-1016	0.46	0.20	µg/Wipe	0.500		91.1	40-140	2.18	30	
Aroclor-1016 [2C]	0.45	0.20	µg/Wipe	0.500		89.5	40-140	3.28	30	
Aroclor-1260	0.39	0.20	µg/Wipe	0.500		78.0	40-140	1.00	30	
Aroclor-1260 [2C]	0.43	0.20	µg/Wipe	0.500		85.9	40-140	5.48	30	
Surrogate: Decachlorobiphenyl	1.78		µg/Wipe	2.00		89.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.80		µg/Wipe	2.00		90.0	30-150			
Surrogate: Tetrachloro-m-xylene	1.29		µg/Wipe	2.00		64.3	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.39		µg/Wipe	2.00		69.5	30-150			

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B181010-BS1 Date(s) Analyzed: 07/08/2017 07/08/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.45	
	2	0.000	0.000	0.000	0.43	4.6
Aroclor-1260	1	0.000	0.000	0.000	0.39	
	2	0.000	0.000	0.000	0.41	5.0

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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LCS Dup**Lab Sample ID: B181010-BSD1 Date(s) Analyzed: 07/08/2017 07/08/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.46	
	2	0.000	0.000	0.000	0.45	2.2
Aroclor-1260	1	0.000	0.000	0.000	0.39	
	2	0.000	0.000	0.000	0.43	9.8

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit
DL	Method Detection Limit
MCL	Maximum Contaminant Level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

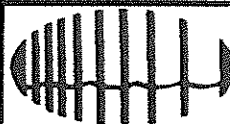
Analyte	Certifications
---------	----------------

No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2018
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2018
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2018
RI	Rhode Island Department of Health	LAO00112	12/30/2017
NC	North Carolina Div. of Water Quality	652	12/31/2017
NJ	New Jersey DEP	MA007 NELAP	06/30/2018
FL	Florida Department of Health	E871027 NELAP	06/30/2018
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2018
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2017
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2017
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2018
NC-DW	North Carolina Department of Health	25703	07/31/2018

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East Longmeadow, MA. 01028
P: 413-525-2332
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ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client Woodard + Curran
Received By SM Date 7/6/17 Time 1702

How were the samples received? In Cooler T No Cooler On Ice T No Ice
Direct from Sampling Ambient Melted Ice

Were samples within Temperature? 2-6°C T By Gun # 2 Actual Temp - 2.4
By Blahk # Actual Temp -

Was Custody Seal Intact? N/A Were Samples Tapered with? F
Was COC Relinquished? Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T
Did COC include all pertinent Information? Client T Analysis T Sampler Name T
Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T
Are there Lab to Filters? N/A Who was notified?
Are there Rushes? N/A Who was notified?
Are there Short Holds? N/A Who was notified?

Is there enough Volume? T
Is there Headspace where applicable? N/A MS/MSD? N/A
Proper Media/Containers Used? T Is splitting samples required? N/A
Were trip blanks received? N/A On COC? N/A
Do all samples have the proper pH? N/A Acid Base

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear
DI-		Other Plastic		Other Glass		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Unused Media

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear
DI-		Other Plastic		Other Glass		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Comments:

July 13, 2017

George Franklin
Woodard & Curran - CT
213 Court Street., 4th Floor
Middletown, CT 06457

Project Location: Umass Amherst - Dubois Library
Client Job Number:
Project Number: 115695
Laboratory Work Order Number: 17G0122

Enclosed are results of analyses for samples received by the laboratory on July 6, 2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Meghan E. Kelley". The signature is written in a cursive style with a large, stylized 'M' and 'K'.

Meghan E. Kelley
Project Manager

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Woodard & Curran - CT
213 Court Street., 4th Floor
Middletown, CT 06457
ATTN: George Franklin

REPORT DATE: 7/13/2017

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 115695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 17G0122

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Umass Amherst - Dubois Library

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LTM-DL-VWC-250	17G0122-01	Wipe		SW-846 8082A	
LTM-DL-VWC-251	17G0122-02	Wipe		SW-846 8082A	
LTM-DL-VWC-252	17G0122-03	Wipe		SW-846 8082A	
LTM-DL-VWC-253	17G0122-04	Wipe		SW-846 8082A	
LTM-DL-VWC-254	17G0122-05	Wipe		SW-846 8082A	
LTM-DL-VWC-255	17G0122-06	Wipe		SW-846 8082A	
LTM-DL-VWC-256	17G0122-07	Wipe		SW-846 8082A	
LTM-DL-VWC-Dup	17G0122-08	Wipe		SW-846 8082A	

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 8082A

Qualifications:

H-03

Sample received after recommended holding time was exceeded.

Analyte & Samples(s) Qualified:

17G0122-01[LTM-DL-VWC-250], 17G0122-02[LTM-DL-VWC-251], 17G0122-03[LTM-DL-VWC-252], 17G0122-04[LTM-DL-VWC-253],
17G0122-05[LTM-DL-VWC-254], 17G0122-06[LTM-DL-VWC-255], 17G0122-07[LTM-DL-VWC-256], 17G0122-08[LTM-DL-VWC-Dup]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink, appearing to read "Tod Kopyscinski", with a stylized, cursive script.

Tod E. Kopyscinski
Laboratory Director

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Umass Amherst - Dubois Library

Sample Description:

Work Order: 17G0122

Date Received: 7/6/2017

Field Sample #: LTM-DL-VWC-250

Sampled: 6/3/2017 10:45

Sample ID: 17G0122-01

Sample Matrix: Wipe

Sample Flags: H-03

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:05	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:05	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:05	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:05	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:05	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:05	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:05	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:05	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:05	TG
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	81.5	30-150							
Decachlorobiphenyl [2]	89.1	30-150							
Tetrachloro-m-xylene [1]	87.8	30-150							
Tetrachloro-m-xylene [2]	97.3	30-150							

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Project Location: Umass Amherst - Dubois Library

Sample Description:

Work Order: 17G0122

Date Received: 7/6/2017

Field Sample #: LTM-DL-VWC-251

Sampled: 6/3/2017 10:50

Sample ID: 17G0122-02

Sample Matrix: Wipe

Sample Flags: H-03

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:17	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:17	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:17	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:17	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:17	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:17	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:17	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:17	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:17	TG
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	74.5	30-150						7/13/17 12:17	
Decachlorobiphenyl [2]	80.0	30-150						7/13/17 12:17	
Tetrachloro-m-xylene [1]	83.7	30-150						7/13/17 12:17	
Tetrachloro-m-xylene [2]	91.5	30-150						7/13/17 12:17	

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Project Location: Umass Amherst - Dubois Library

Sample Description:

Work Order: 17G0122

Date Received: 7/6/2017

Field Sample #: LTM-DL-VWC-252

Sampled: 6/3/2017 10:55

Sample ID: 17G0122-03

Sample Matrix: Wipe

Sample Flags: H-03

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:30	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:30	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:30	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:30	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:30	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:30	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:30	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:30	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:30	TG
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	80.6	30-150							
Decachlorobiphenyl [2]	87.1	30-150							
Tetrachloro-m-xylene [1]	84.3	30-150							
Tetrachloro-m-xylene [2]	93.8	30-150							

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Project Location: Umass Amherst - Dubois Library

Sample Description:

Work Order: 17G0122

Date Received: 7/6/2017

Field Sample #: LTM-DL-VWC-253

Sampled: 6/3/2017 11:00

Sample ID: 17G0122-04

Sample Matrix: Wipe

Sample Flags: H-03

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:42	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:42	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:42	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:42	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:42	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:42	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:42	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:42	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:42	TG
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	76.6	30-150							
Decachlorobiphenyl [2]	82.7	30-150							
Tetrachloro-m-xylene [1]	84.8	30-150							
Tetrachloro-m-xylene [2]	93.7	30-150							

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Project Location: Umass Amherst - Dubois Library

Sample Description:

Work Order: 17G0122

Date Received: 7/6/2017

Field Sample #: LTM-DL-VWC-254

Sampled: 6/3/2017 11:05

Sample ID: 17G0122-05

Sample Matrix: Wipe

Sample Flags: H-03

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:56	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:56	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:56	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:56	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:56	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:56	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:56	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:56	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 12:56	TG
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	78.8	30-150							
Decachlorobiphenyl [2]	85.0	30-150							
Tetrachloro-m-xylene [1]	84.7	30-150							
Tetrachloro-m-xylene [2]	92.9	30-150							

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Project Location: Umass Amherst - Dubois Library

Sample Description:

Work Order: 17G0122

Date Received: 7/6/2017

Field Sample #: LTM-DL-VWC-255

Sampled: 6/3/2017 11:10

Sample ID: 17G0122-06

Sample Matrix: Wipe

Sample Flags: H-03

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:08	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:08	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:08	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:08	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:08	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:08	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:08	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:08	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:08	TG
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	77.1	30-150							
Decachlorobiphenyl [2]	81.7	30-150							
Tetrachloro-m-xylene [1]	84.6	30-150							
Tetrachloro-m-xylene [2]	91.1	30-150							

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Project Location: Umass Amherst - Dubois Library

Sample Description:

Work Order: 17G0122

Date Received: 7/6/2017

Field Sample #: LTM-DL-VWC-256

Sampled: 6/3/2017 11:15

Sample ID: 17G0122-07

Sample Matrix: Wipe

Sample Flags: H-03

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:21	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:21	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:21	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:21	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:21	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:21	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:21	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:21	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:21	TG
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	76.4	30-150							
Decachlorobiphenyl [2]	82.2	30-150							
Tetrachloro-m-xylene [1]	83.7	30-150							
Tetrachloro-m-xylene [2]	90.0	30-150							

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Project Location: Umass Amherst - Dubois Library

Sample Description:

Work Order: 17G0122

Date Received: 7/6/2017

Field Sample #: LTM-DL-VWC-Dup

Sampled: 6/3/2017 11:15

Sample ID: 17G0122-08

Sample Matrix: Wipe

Sample Flags: H-03

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:33	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:33	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:33	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:33	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:33	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:33	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:33	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:33	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/11/17	7/13/17 13:33	TG
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	78.0	30-150							
Decachlorobiphenyl [2]	84.0	30-150							
Tetrachloro-m-xylene [1]	82.1	30-150							
Tetrachloro-m-xylene [2]	89.9	30-150							

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Sample Extraction Data

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
17G0122-01 [LTM-DL-VWC-250]	B181355	1.00	10.0	07/11/17
17G0122-02 [LTM-DL-VWC-251]	B181355	1.00	10.0	07/11/17
17G0122-03 [LTM-DL-VWC-252]	B181355	1.00	10.0	07/11/17
17G0122-04 [LTM-DL-VWC-253]	B181355	1.00	10.0	07/11/17
17G0122-05 [LTM-DL-VWC-254]	B181355	1.00	10.0	07/11/17
17G0122-06 [LTM-DL-VWC-255]	B181355	1.00	10.0	07/11/17
17G0122-07 [LTM-DL-VWC-256]	B181355	1.00	10.0	07/11/17
17G0122-08 [LTM-DL-VWC-Dup]	B181355	1.00	10.0	07/11/17

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QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B181355 - SW-846 3540C
Blank (B181355-BLK1)

Prepared: 07/11/17 Analyzed: 07/13/17

Aroclor-1016	ND	0.20	µg/Wipe							
Aroclor-1016 [2C]	ND	0.20	µg/Wipe							
Aroclor-1221	ND	0.20	µg/Wipe							
Aroclor-1221 [2C]	ND	0.20	µg/Wipe							
Aroclor-1232	ND	0.20	µg/Wipe							
Aroclor-1232 [2C]	ND	0.20	µg/Wipe							
Aroclor-1242	ND	0.20	µg/Wipe							
Aroclor-1242 [2C]	ND	0.20	µg/Wipe							
Aroclor-1248	ND	0.20	µg/Wipe							
Aroclor-1248 [2C]	ND	0.20	µg/Wipe							
Aroclor-1254	ND	0.20	µg/Wipe							
Aroclor-1254 [2C]	ND	0.20	µg/Wipe							
Aroclor-1260	ND	0.20	µg/Wipe							
Aroclor-1260 [2C]	ND	0.20	µg/Wipe							
Aroclor-1262	ND	0.20	µg/Wipe							
Aroclor-1262 [2C]	ND	0.20	µg/Wipe							
Aroclor-1268	ND	0.20	µg/Wipe							
Aroclor-1268 [2C]	ND	0.20	µg/Wipe							
Surrogate: Decachlorobiphenyl	1.67		µg/Wipe	2.00		83.7	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.72		µg/Wipe	2.00		86.0	30-150			
Surrogate: Tetrachloro-m-xylene	1.57		µg/Wipe	2.00		78.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.83		µg/Wipe	2.00		91.4	30-150			

LCS (B181355-BS1)

Prepared: 07/11/17 Analyzed: 07/13/17

Aroclor-1016	0.53	0.20	µg/Wipe	0.500		106	40-140			
Aroclor-1016 [2C]	0.54	0.20	µg/Wipe	0.500		108	40-140			
Aroclor-1260	0.42	0.20	µg/Wipe	0.500		84.6	40-140			
Aroclor-1260 [2C]	0.41	0.20	µg/Wipe	0.500		82.6	40-140			
Surrogate: Decachlorobiphenyl	1.51		µg/Wipe	2.00		75.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.60		µg/Wipe	2.00		80.1	30-150			
Surrogate: Tetrachloro-m-xylene	1.57		µg/Wipe	2.00		78.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.76		µg/Wipe	2.00		88.2	30-150			

LCS Dup (B181355-BSD1)

Prepared: 07/11/17 Analyzed: 07/13/17

Aroclor-1016	0.54	0.20	µg/Wipe	0.500		107	40-140	1.25	30	
Aroclor-1016 [2C]	0.55	0.20	µg/Wipe	0.500		110	40-140	1.87	30	
Aroclor-1260	0.45	0.20	µg/Wipe	0.500		89.1	40-140	5.18	30	
Aroclor-1260 [2C]	0.43	0.20	µg/Wipe	0.500		85.9	40-140	3.83	30	
Surrogate: Decachlorobiphenyl	1.62		µg/Wipe	2.00		81.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.69		µg/Wipe	2.00		84.7	30-150			
Surrogate: Tetrachloro-m-xylene	1.66		µg/Wipe	2.00		82.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.85		µg/Wipe	2.00		92.6	30-150			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit
DL	Method Detection Limit
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
H-03	Sample received after recommended holding time was exceeded.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
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No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2018
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2018
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2018
RI	Rhode Island Department of Health	LAO00112	12/30/2017
NC	North Carolina Div. of Water Quality	652	12/31/2017
NJ	New Jersey DEP	MA007 NELAP	06/30/2018
FL	Florida Department of Health	E871027 NELAP	06/30/2018
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2018
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2017
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2017
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2018
NC-DW	North Carolina Department of Health	25703	07/31/2018

39 Spruce St.
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F: 413-525-6405
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ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client Woodard + Curran
Received By SM Date 7/6/17 Time 1702

How were the samples received? In Cooler T No Cooler On Ice T No Ice
Direct from Sampling Ambient Melted Ice

Were samples within Temperature? 2-6°C T By Gun # 2 Actual Temp - 2.4
By Blark # Actual Temp -

Was Custody Seal Intact? N/A Were Samples Tapered with? F
Was COC Relinquished? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T
Did COC include all Client T Analysis T Sampler Name T
pertinent Information? Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T
Are there Lab to Filters? N/A Who was notified?
Are there Rushes? N/A Who was notified?
Are there Short Holds? N/A Who was notified?

Is there enough Volume? T
Is there Headspace where applicable? N/A MS/MSD? N/A
Proper Media/Containers Used? T Is splitting samples required? N/A
Were trip blanks received? N/A On COC? N/A
Do all samples have the proper pH? N/A Acid Base

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear
DI-		Other Plastic		Other Glass		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Unused Media

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear
DI-		Other Plastic		Other Glass		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Comments:

July 20, 2017

George Franklin
Woodard & Curran - CT
213 Court Street., 4th Floor
Middletown, CT 06457

Project Location: Umass Amherst, Dubois Library
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 17G0123

Enclosed are results of analyses for samples received by the laboratory on July 6, 2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Meghan E. Kelley". The signature is written in a cursive, flowing style.

Meghan E. Kelley
Project Manager

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Woodard & Curran - CT
213 Court Street., 4th Floor
Middletown, CT 06457
ATTN: George Franklin

REPORT DATE: 7/20/2017

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 17G0123

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Umass Amherst, Dubois Library

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
DL-23E-IAS-237	17G0123-01	Air		TO-10A/EPA 680 Modified	
DL-19E-IAS-238	17G0123-02	Air		TO-10A/EPA 680 Modified	
DL-13E-IAS-239	17G0123-03	Air		TO-10A/EPA 680 Modified	
DL-13E-IAS-240	17G0123-04	Air		TO-10A/EPA 680 Modified	
DL-4E-IAS-241	17G0123-05	Air		TO-10A/EPA 680 Modified	
DL-Amb-IAS-242	17G0123-06	Air		TO-10A/EPA 680 Modified	
063017-07 Unused Media	17G0123-07	Air		-	
063017-08 Unused Media	17G0123-08	Air		-	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

REVISED REPORT - 7/20/2017 - Date sampled revised and H flag removed.

Login**Qualifications:****T-09**

Sample was received above the maximum temperature of 6 °C.

Analyte & Samples(s) Qualified:

17G0123-01[DL-23E-IAS-237], 17G0123-02[DL-19E-IAS-238], 17G0123-03[DL-13E-IAS-239], 17G0123-04[DL-13E-IAS-240], 17G0123-05[DL-4E-IAS-241],
17G0123-06[DL-Amb-IAS-242]

TO-10A/EPA 680 Modified**Qualifications:****V-06**

Continuing calibration did not meet method specifications and was biased on the high side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the high side.

Analyte & Samples(s) Qualified:**Monochlorobiphenyls**

17G0123-01[DL-23E-IAS-237], 17G0123-02[DL-19E-IAS-238], 17G0123-03[DL-13E-IAS-239], 17G0123-04[DL-13E-IAS-240], 17G0123-05[DL-4E-IAS-241],
B181027-BS1, B181027-BSD1

V-20

Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:**Monochlorobiphenyls**

17G0123-06[DL-Amb-IAS-242], B181027-BLK1

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Lisa A. Worthington
Project Manager

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

ANALYTICAL RESULTS

Project Location: Umass Amherst, Dubois Library

Date Received: 7/6/2017

Field Sample #: DL-23E-IAS-237

Sample ID: 17G0123-01

Sample Matrix: Air

Sampled: 7/3/2017 09:04

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Work Order: 17G0123

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	Dilution	Date/Time		Analyst
	Results	RL			Analyzed		
Monochlorobiphenyls	0.052	0.0010	V-06	1	7/15/17 21:30		CJM
Dichlorobiphenyls	0.036	0.0010		1	7/15/17 21:30		CJM
Trichlorobiphenyls	0.12	0.0010		1	7/15/17 21:30		CJM
Tetrachlorobiphenyls	0.20	0.0020		1	7/15/17 21:30		CJM
Pentachlorobiphenyls	0.20	0.0020		1	7/15/17 21:30		CJM
Hexachlorobiphenyls	0.054	0.0020		1	7/15/17 21:30		CJM
Heptachlorobiphenyls	0.011	0.0030		1	7/15/17 21:30		CJM
Octachlorobiphenyls	ND	0.0030		1	7/15/17 21:30		CJM
Nonachlorobiphenyls	ND	0.0050		1	7/15/17 21:30		CJM
Decachlorobiphenyl	ND	0.0050		1	7/15/17 21:30		CJM
Total Polychlorinated biphenyls	0.66			1	7/15/17 21:30		CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	95.0	50-125	7/15/17 21:30

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ANALYTICAL RESULTS

Project Location: Umass Amherst, Dubois Library

Date Received: 7/6/2017

Field Sample #: DL-19E-IAS-238

Sample ID: 17G0123-02

Sample Matrix: Air

Sampled: 7/3/2017 09:12

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Work Order: 17G0123

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	Dilution	Date/Time		Analyst
	Results	RL			Analyzed		
Monochlorobiphenyls	0.042	0.0010	V-06	1	7/15/17 22:08		CJM
Dichlorobiphenyls	0.042	0.0010		1	7/15/17 22:08		CJM
Trichlorobiphenyls	0.12	0.0010		1	7/15/17 22:08		CJM
Tetrachlorobiphenyls	0.21	0.0020		1	7/15/17 22:08		CJM
Pentachlorobiphenyls	0.23	0.0020		1	7/15/17 22:08		CJM
Hexachlorobiphenyls	0.053	0.0020		1	7/15/17 22:08		CJM
Heptachlorobiphenyls	0.0061	0.0030		1	7/15/17 22:08		CJM
Octachlorobiphenyls	ND	0.0030		1	7/15/17 22:08		CJM
Nonachlorobiphenyls	ND	0.0050		1	7/15/17 22:08		CJM
Decachlorobiphenyl	ND	0.0050		1	7/15/17 22:08		CJM
Total Polychlorinated biphenyls	0.70			1	7/15/17 22:08		CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	76.7	50-125	7/15/17 22:08

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ANALYTICAL RESULTS

Project Location: Umass Amherst, Dubois Library

Date Received: 7/6/2017

Field Sample #: DL-13E-IAS-239

Sample ID: 17G0123-03

Sample Matrix: Air

Sampled: 7/3/2017 09:20

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Work Order: 17G0123

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	Dilution	Date/Time		Analyst
	Results	RL			Analyzed		
Monochlorobiphenyls	0.014	0.0010	V-06	1	7/15/17 22:45		CJM
Dichlorobiphenyls	0.015	0.0010		1	7/15/17 22:45		CJM
Trichlorobiphenyls	0.039	0.0010		1	7/15/17 22:45		CJM
Tetrachlorobiphenyls	0.090	0.0020		1	7/15/17 22:45		CJM
Pentachlorobiphenyls	0.092	0.0020		1	7/15/17 22:45		CJM
Hexachlorobiphenyls	0.032	0.0020		1	7/15/17 22:45		CJM
Heptachlorobiphenyls	0.0080	0.0030		1	7/15/17 22:45		CJM
Octachlorobiphenyls	ND	0.0030		1	7/15/17 22:45		CJM
Nonachlorobiphenyls	ND	0.0050		1	7/15/17 22:45		CJM
Decachlorobiphenyl	ND	0.0050		1	7/15/17 22:45		CJM
Total Polychlorinated biphenyls	0.29			1	7/15/17 22:45		CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	86.2	50-125	7/15/17 22:45

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ANALYTICAL RESULTS

Project Location: Umass Amherst, Dubois Library

Date Received: 7/6/2017

Field Sample #: DL-13E-IAS-240

Sample ID: 17G0123-04

Sample Matrix: Air

Sampled: 7/3/2017 09:20

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Work Order: 17G0123

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	Dilution	Date/Time		Analyst
	Results	RL			Analyzed		
Monochlorobiphenyls	0.013	0.0010	V-06	1	7/15/17 23:23		CJM
Dichlorobiphenyls	0.012	0.0010		1	7/15/17 23:23		CJM
Trichlorobiphenyls	0.038	0.0010		1	7/15/17 23:23		CJM
Tetrachlorobiphenyls	0.089	0.0020		1	7/15/17 23:23		CJM
Pentachlorobiphenyls	0.089	0.0020		1	7/15/17 23:23		CJM
Hexachlorobiphenyls	0.031	0.0020		1	7/15/17 23:23		CJM
Heptachlorobiphenyls	0.0075	0.0030		1	7/15/17 23:23		CJM
Octachlorobiphenyls	ND	0.0030		1	7/15/17 23:23		CJM
Nonachlorobiphenyls	ND	0.0050		1	7/15/17 23:23		CJM
Decachlorobiphenyl	ND	0.0050		1	7/15/17 23:23		CJM
Total Polychlorinated biphenyls	0.28			1	7/15/17 23:23		CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	86.7	50-125	7/15/17 23:23

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

ANALYTICAL RESULTS

Project Location: Umass Amherst, Dubois Library

Date Received: 7/6/2017

Field Sample #: DL-4E-IAS-241

Sample ID: 17G0123-05

Sample Matrix: Air

Sampled: 7/3/2017 09:28

Sample Description/Location:

Sub Description/Location:

Work Order: 17G0123

Flow Controller ID:

Sample Type:

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	Dilution	Date/Time		Analyst
	Results	RL			Analyzed		
Monochlorobiphenyls	0.019	0.0010	V-06	1	7/16/17 0:00		CJM
Dichlorobiphenyls	0.019	0.0010		1	7/16/17 0:00		CJM
Trichlorobiphenyls	0.046	0.0010		1	7/16/17 0:00		CJM
Tetrachlorobiphenyls	0.089	0.0020		1	7/16/17 0:00		CJM
Pentachlorobiphenyls	0.096	0.0020		1	7/16/17 0:00		CJM
Hexachlorobiphenyls	0.034	0.0020		1	7/16/17 0:00		CJM
Heptachlorobiphenyls	0.0067	0.0030		1	7/16/17 0:00		CJM
Octachlorobiphenyls	ND	0.0030		1	7/16/17 0:00		CJM
Nonachlorobiphenyls	ND	0.0050		1	7/16/17 0:00		CJM
Decachlorobiphenyl	ND	0.0050		1	7/16/17 0:00		CJM
Total Polychlorinated biphenyls	0.31			1	7/16/17 0:00		CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	76.5	50-125	7/16/17 0:00

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ANALYTICAL RESULTS

Project Location: Umass Amherst, Dubois Library

Date Received: 7/6/2017

Field Sample #: DL-Amb-IAS-242

Sample ID: 17G0123-06

Sample Matrix: Air

Sampled: 7/3/2017 09:37

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Work Order: 17G0123

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	Dilution	Date/Time		Analyst
	Results	RL			Analyzed		
Monochlorobiphenyls	ND	0.0010	V-20	1	7/16/17 0:37		CJM
Dichlorobiphenyls	ND	0.0010		1	7/16/17 0:37		CJM
Trichlorobiphenyls	ND	0.0010		1	7/16/17 0:37		CJM
Tetrachlorobiphenyls	ND	0.0020		1	7/16/17 0:37		CJM
Pentachlorobiphenyls	ND	0.0020		1	7/16/17 0:37		CJM
Hexachlorobiphenyls	ND	0.0020		1	7/16/17 0:37		CJM
Heptachlorobiphenyls	ND	0.0030		1	7/16/17 0:37		CJM
Octachlorobiphenyls	ND	0.0030		1	7/16/17 0:37		CJM
Nonachlorobiphenyls	ND	0.0050		1	7/16/17 0:37		CJM
Decachlorobiphenyl	ND	0.0050		1	7/16/17 0:37		CJM
Total Polychlorinated biphenyls	0.0			1	7/16/17 0:37		CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	87.7	50-125	7/16/17 0:37

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: SW-846 3540C-TO-10A/EPA 680 Modified

Lab Number [Field ID]	Batch	Initial [Cartridge	Final [mL]	Date
17G0123-01 [DL-23E-IAS-237]	B181027	1.00	1.00	07/06/17
17G0123-02 [DL-19E-IAS-238]	B181027	1.00	1.00	07/06/17
17G0123-03 [DL-13E-IAS-239]	B181027	1.00	1.00	07/06/17
17G0123-04 [DL-13E-IAS-240]	B181027	1.00	1.00	07/06/17
17G0123-05 [DL-4E-IAS-241]	B181027	1.00	1.00	07/06/17
17G0123-06 [DL-Amb-IAS-242]	B181027	1.00	1.00	07/06/17

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QUALITY CONTROL
PCB Homologues by GC/MS with Soxhlet Extraction - Quality Control

Analyte	Total µg		ug/m3		Spike Level	Source	%REC	%REC	RPD	RPD	Flag/Qual
	Results	RL	Results	RL	Total µg	Result	%REC	Limits	RPD	Limit	
Batch B181027 - SW-846 3540C											
Blank (B181027-BLK1)					Prepared: 07/06/17 Analyzed: 07/15/17						
Monochlorobiphenyls	ND	0.0010									V-20
Dichlorobiphenyls	ND	0.0010									
Trichlorobiphenyls	ND	0.0010									
Tetrachlorobiphenyls	ND	0.0020									
Pentachlorobiphenyls	ND	0.0020									
Hexachlorobiphenyls	ND	0.0020									
Heptachlorobiphenyls	ND	0.0030									
Octachlorobiphenyls	ND	0.0030									
Nonachlorobiphenyls	ND	0.0050									
Decachlorobiphenyl	ND	0.0050									
Total Polychlorinated biphenyls	0.0										
Surrogate: Tetrachloro-m-xylene	0.186				0.200		93.2	50-125			
LCS (B181027-BS1)					Prepared: 07/06/17 Analyzed: 07/15/17						
Monochlorobiphenyls	0.21	0.0010			0.200		103	40-140			V-06
Dichlorobiphenyls	0.21	0.0010			0.200		105	40-140			
Trichlorobiphenyls	0.19	0.0010			0.200		95.0	40-140			
Tetrachlorobiphenyls	0.39	0.0020			0.400		97.8	40-140			
Pentachlorobiphenyls	0.39	0.0020			0.400		97.4	40-140			
Hexachlorobiphenyls	0.41	0.0020			0.400		102	40-140			
Heptachlorobiphenyls	0.60	0.0030			0.600		101	40-140			
Octachlorobiphenyls	0.60	0.0030			0.600		99.5	40-140			
Nonachlorobiphenyls	0.99	0.0050			1.00		99.1	40-140			
Decachlorobiphenyl	1.0	0.0050			1.00		101	40-140			
Surrogate: Tetrachloro-m-xylene	0.220				0.200		110	50-125			
LCS Dup (B181027-BSD1)					Prepared: 07/06/17 Analyzed: 07/15/17						
Monochlorobiphenyls	0.20	0.0010			0.200		99.5	40-140	3.54	50	V-06
Dichlorobiphenyls	0.20	0.0010			0.200		102	40-140	2.52	50	
Trichlorobiphenyls	0.19	0.0010			0.200		93.8	40-140	1.26	50	
Tetrachlorobiphenyls	0.39	0.0020			0.400		97.2	40-140	0.582	50	
Pentachlorobiphenyls	0.39	0.0020			0.400		98.5	40-140	1.11	50	
Hexachlorobiphenyls	0.41	0.0020			0.400		103	40-140	0.964	50	
Heptachlorobiphenyls	0.61	0.0030			0.600		101	40-140	0.536	50	
Octachlorobiphenyls	0.61	0.0030			0.600		102	40-140	2.38	50	
Nonachlorobiphenyls	1.0	0.0050			1.00		102	40-140	2.87	50	
Decachlorobiphenyl	1.0	0.0050			1.00		103	40-140	2.37	50	
Surrogate: Tetrachloro-m-xylene	0.212				0.200		106	50-125			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332**FLAG/QUALIFIER SUMMARY**

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit
DL	Method Detection Limit
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
T-09	Sample was received above the maximum temperature of 6 °C.
V-06	Continuing calibration did not meet method specifications and was biased on the high side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the high side.
V-20	Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
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TO-10A/EPA 680 Modified in Air

Total Polychlorinated biphenyls AIHA

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2018
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2018
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2018
RI	Rhode Island Department of Health	LAO00112	12/30/2017
NC	North Carolina Div. of Water Quality	652	12/31/2017
NJ	New Jersey DEP	MA007 NELAP	06/30/2018
FL	Florida Department of Health	E871027 NELAP	06/30/2018
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2018
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2017
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2017
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2018
NC-DW	North Carolina Department of Health	25703	07/31/2018

39 Spruce St.
East Longmeadow, MA. 01028
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ANALYTICAL LABORATORY

Doc# 278 Rev 6 2017

Air Media Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False

Statement will be brought to the attention of the Client - State True or False

Client Woodard & Curran
 Received By JM Date 7/6/17 Time 1702
 How Were the samples received? In Cooler T On Ice T No Ice T
 In Box T Ambient T Melted Ice T
 Were samples within Temperature Compliance? 2-6°C F By Gun # 2 Actual Temp - 22.5
 By Blank # N/A Actual Temp -
 Was Custody Seal Intact? N/A Were Samples Tampered with? F
 Was COC Relinquished? T Does Chain Agree With Samples? T
 Are there any loose caps/valves on any samples? F
 Is COC in ink/ Legible? T
 Did COC Include all Pertinent Information? T Client? T Analysis? T Sampler Name? T
 Project? T ID's? T Collection Dates/Times? T
 Are Sample Labels filled out and legible? T
 Are there Rushes? N/A Who was notified?
 Samples are received within holding time? T
 Proper Media Used? T Individually Certified Cans? N/A
 Are there Trip Blanks? N/A Is there enough Volume? T

Containers:	#	Size	Regulator	Duration	Accessories:		
Summa Cans					Nut/Ferrule		IC Train
Tedlar Bags					Tubing		
TO-17 Tubes					T-Connector		Shipping Charges
Radiello					Syringe		
Pufs/TO-11s	6	low-volume			Tedlar		

Can #'s	Reg #'s
063017-01, 02, 03, 04, 05, 06	
Unused Media	Pufs/TO-17's
063017-07, 08	

Comments:

August 22, 2017

George Franklin
Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810

Project Location: Amherst, MA
Client Job Number:
Project Number: 225695.05
Laboratory Work Order Number: 17H0682

Enclosed are results of analyses for samples received by the laboratory on August 11, 2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Meghan E. Kelley". The signature is written in a cursive style with a large, flowing "M" and a long, sweeping "y" at the end.

Meghan E. Kelley
Project Manager

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Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: George Franklin

REPORT DATE: 8/22/2017

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695.05

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 17H0682

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Amherst, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LT-CR-IAS-100	17H0682-01	Air		TO-10A/EPA 680 Modified	
LT-MR-IAS-101	17H0682-02	Air		TO-10A/EPA 680 Modified	
LT-MR-IAS-102	17H0682-03	Air		TO-10A/EPA 680 Modified	
LT-MR-IAS-103	17H0682-04	Air		TO-10A/EPA 680 Modified	
LT-BR-IAS-104	17H0682-05	Air		TO-10A/EPA 680 Modified	
LT-AMB-IAS-105	17H0682-06	Air		TO-10A/EPA 680 Modified	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

TO-10A/EPA 680 Modified**Qualifications:****V-06**

Continuing calibration did not meet method specifications and was biased on the high side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the high side.

Analyte & Samples(s) Qualified:**Heptachlorobiphenyls**

17H0682-01[LT-CR-IAS-100], 17H0682-02[LT-MR-IAS-101], 17H0682-03[LT-MR-IAS-102], 17H0682-04[LT-MR-IAS-103], 17H0682-05[LT-BR-IAS-104]

Monochlorobiphenyls

17H0682-01[LT-CR-IAS-100]

V-20

Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:**Heptachlorobiphenyls**

17H0682-06[LT-AMB-IAS-105]

Monochlorobiphenyls

17H0682-02[LT-MR-IAS-101], 17H0682-03[LT-MR-IAS-102], 17H0682-04[LT-MR-IAS-103], 17H0682-05[LT-BR-IAS-104], 17H0682-06[LT-AMB-IAS-105]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Lisa A. Worthington
Project Manager

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

ANALYTICAL RESULTS

Project Location: Amherst, MA
Date Received: 8/11/2017
Field Sample #: LT-CR-IAS-100
Sample ID: 17H0682-01
Sample Matrix: Air
Sampled: 8/10/2017 15:30

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 910

Work Order: 17H0682

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		Analyst
	Results	RL		Results	RL		Analyzed		
Monochlorobiphenyls	0.0018	0.0010	V-06	0.002	0.0011	1	8/15/17	16:41	CJM
Dichlorobiphenyls	0.030	0.0010		0.033	0.0011	1	8/15/17	16:41	CJM
Trichlorobiphenyls	0.071	0.0010		0.079	0.0011	1	8/15/17	16:41	CJM
Tetrachlorobiphenyls	0.28	0.0020		0.30	0.0022	1	8/15/17	16:41	CJM
Pentachlorobiphenyls	0.35	0.0020		0.39	0.0022	1	8/15/17	16:41	CJM
Hexachlorobiphenyls	0.070	0.0020		0.076	0.0022	1	8/15/17	16:41	CJM
Heptachlorobiphenyls	0.0059	0.0030	V-06	0.0065	0.0033	1	8/15/17	16:41	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0033	1	8/15/17	16:41	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0055	1	8/15/17	16:41	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0055	1	8/15/17	16:41	CJM
Total Polychlorinated biphenyls	0.81			0.89		1	8/15/17	16:41	CJM
Surrogates	% Recovery			% REC Limits					
Tetrachloro-m-xylene	79.3			50-125			8/15/17	16:41	

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ANALYTICAL RESULTS

Project Location: Amherst, MA

Date Received: 8/11/2017

Field Sample #: LT-MR-IAS-101

Sample ID: 17H0682-02

Sample Matrix: Air

Sampled: 8/10/2017 15:50

Sample Description/Location:

Sub Description/Location:

Work Order: 17H0682

Flow Controller ID:

Sample Type:

Air Volume L: 965.7

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		Analyst
	Results	RL		Results	RL		Analyzed		
Monochlorobiphenyls	ND	0.0010	V-20	ND	0.001	1	8/15/17 17:19	CJM	
Dichlorobiphenyls	0.021	0.0010		0.021	0.001	1	8/15/17 17:19	CJM	
Trichlorobiphenyls	0.079	0.0010		0.081	0.001	1	8/15/17 17:19	CJM	
Tetrachlorobiphenyls	0.20	0.0020		0.20	0.0021	1	8/15/17 17:19	CJM	
Pentachlorobiphenyls	0.25	0.0020		0.25	0.0021	1	8/15/17 17:19	CJM	
Hexachlorobiphenyls	0.076	0.0020		0.078	0.0021	1	8/15/17 17:19	CJM	
Heptachlorobiphenyls	0.014	0.0030	V-06	0.015	0.0031	1	8/15/17 17:19	CJM	
Octachlorobiphenyls	ND	0.0030		ND	0.0031	1	8/15/17 17:19	CJM	
Nonachlorobiphenyls	ND	0.0050		ND	0.0052	1	8/15/17 17:19	CJM	
Decachlorobiphenyl	ND	0.0050		ND	0.0052	1	8/15/17 17:19	CJM	
Total Polychlorinated biphenyls	0.63			0.65		1	8/15/17 17:19	CJM	

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	76.2	50-125	8/15/17 17:19

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

ANALYTICAL RESULTS

Project Location: Amherst, MA

Date Received: 8/11/2017

Field Sample #: LT-MR-IAS-102

Sample ID: 17H0682-03

Sample Matrix: Air

Sampled: 8/10/2017 16:08

Sample Description/Location:

Sub Description/Location:

Work Order: 17H0682

Flow Controller ID:

Sample Type:

Air Volume L: 996.4

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		Analyst
	Results	RL		Results	RL		Analyzed		
Monochlorobiphenyls	ND	0.0010	V-20	ND	0.001	1	8/15/17 17:56	CJM	
Dichlorobiphenyls	0.0093	0.0010		0.0093	0.001	1	8/15/17 17:56	CJM	
Trichlorobiphenyls	0.037	0.0010		0.037	0.001	1	8/15/17 17:56	CJM	
Tetrachlorobiphenyls	0.10	0.0020		0.10	0.002	1	8/15/17 17:56	CJM	
Pentachlorobiphenyls	0.12	0.0020		0.12	0.002	1	8/15/17 17:56	CJM	
Hexachlorobiphenyls	0.054	0.0020		0.054	0.002	1	8/15/17 17:56	CJM	
Heptachlorobiphenyls	0.013	0.0030	V-06	0.013	0.003	1	8/15/17 17:56	CJM	
Octachlorobiphenyls	ND	0.0030		ND	0.003	1	8/15/17 17:56	CJM	
Nonachlorobiphenyls	ND	0.0050		ND	0.005	1	8/15/17 17:56	CJM	
Decachlorobiphenyl	ND	0.0050		ND	0.005	1	8/15/17 17:56	CJM	
Total Polychlorinated biphenyls	0.33			0.34		1	8/15/17 17:56	CJM	

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	75.5	50-125	8/15/17 17:56

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

ANALYTICAL RESULTS

Project Location: Amherst, MA

Date Received: 8/11/2017

Field Sample #: LT-MR-IAS-103

Sample ID: 17H0682-04

Sample Matrix: Air

Sampled: 8/10/2017 16:15

Sample Description/Location:

Sub Description/Location:

Work Order: 17H0682

Flow Controller ID:

Sample Type:

Air Volume L: 992.2

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	ND	0.0010	V-20	ND	0.001	1	8/15/17	18:34	CJM
Dichlorobiphenyls	0.0059	0.0010		0.006	0.001	1	8/15/17	18:34	CJM
Trichlorobiphenyls	0.025	0.0010		0.025	0.001	1	8/15/17	18:34	CJM
Tetrachlorobiphenyls	0.054	0.0020		0.054	0.002	1	8/15/17	18:34	CJM
Pentachlorobiphenyls	0.067	0.0020		0.068	0.002	1	8/15/17	18:34	CJM
Hexachlorobiphenyls	0.039	0.0020		0.040	0.002	1	8/15/17	18:34	CJM
Heptachlorobiphenyls	0.011	0.0030	V-06	0.011	0.003	1	8/15/17	18:34	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.003	1	8/15/17	18:34	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.005	1	8/15/17	18:34	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.005	1	8/15/17	18:34	CJM
Total Polychlorinated biphenyls	0.20			0.20		1	8/15/17	18:34	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	72.9	50-125	8/15/17 18:34

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ANALYTICAL RESULTS

Project Location: Amherst, MA

Date Received: 8/11/2017

Field Sample #: LT-BR-IAS-104

Sample ID: 17H0682-05

Sample Matrix: Air

Sampled: 8/10/2017 16:20

Sample Description/Location:

Sub Description/Location:

Work Order: 17H0682

Flow Controller ID:

Sample Type:

Air Volume L: 954.2

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		Analyst
	Results	RL		Results	RL		Analyzed		
Monochlorobiphenyls	ND	0.0010	V-20	ND	0.001	1	8/15/17 19:11	CJM	
Dichlorobiphenyls	0.020	0.0010		0.021	0.001	1	8/15/17 19:11	CJM	
Trichlorobiphenyls	0.10	0.0010		0.11	0.001	1	8/15/17 19:11	CJM	
Tetrachlorobiphenyls	0.36	0.0020		0.38	0.0021	1	8/15/17 19:11	CJM	
Pentachlorobiphenyls	0.41	0.0020		0.43	0.0021	1	8/15/17 19:11	CJM	
Hexachlorobiphenyls	0.085	0.0020		0.089	0.0021	1	8/15/17 19:11	CJM	
Heptachlorobiphenyls	0.012	0.0030	V-06	0.013	0.0031	1	8/15/17 19:11	CJM	
Octachlorobiphenyls	ND	0.0030		ND	0.0031	1	8/15/17 19:11	CJM	
Nonachlorobiphenyls	ND	0.0050		ND	0.0052	1	8/15/17 19:11	CJM	
Decachlorobiphenyl	ND	0.0050		ND	0.0052	1	8/15/17 19:11	CJM	
Total Polychlorinated biphenyls	0.99			1.0		1	8/15/17 19:11	CJM	

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	74.5	50-125	8/15/17 19:11

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

ANALYTICAL RESULTS

Project Location: Amherst, MA

Date Received: 8/11/2017

Field Sample #: LT-AMB-IAS-105

Sample ID: 17H0682-06

Sample Matrix: Air

Sampled: 8/10/2017 16:47

Sample Description/Location:

Sub Description/Location:

Work Order: 17H0682

Flow Controller ID:

Sample Type:

Air Volume L: 1066.5

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		Analyst
	Results	RL		Results	RL		Analyzed		
Monochlorobiphenyls	ND	0.0010	V-20	ND	0.00094	1	8/15/17 19:48	CJM	
Dichlorobiphenyls	ND	0.0010		ND	0.00094	1	8/15/17 19:48	CJM	
Trichlorobiphenyls	ND	0.0010		ND	0.00094	1	8/15/17 19:48	CJM	
Tetrachlorobiphenyls	ND	0.0020		ND	0.0019	1	8/15/17 19:48	CJM	
Pentachlorobiphenyls	ND	0.0020		ND	0.0019	1	8/15/17 19:48	CJM	
Hexachlorobiphenyls	ND	0.0020		ND	0.0019	1	8/15/17 19:48	CJM	
Heptachlorobiphenyls	ND	0.0030	V-20	ND	0.0028	1	8/15/17 19:48	CJM	
Octachlorobiphenyls	ND	0.0030		ND	0.0028	1	8/15/17 19:48	CJM	
Nonachlorobiphenyls	ND	0.0050		ND	0.0047	1	8/15/17 19:48	CJM	
Decachlorobiphenyl	ND	0.0050		ND	0.0047	1	8/15/17 19:48	CJM	
Total Polychlorinated biphenyls	0.0			0		1	8/15/17 19:48	CJM	

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	74.2	50-125	8/15/17 19:48

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332**Sample Extraction Data****Prep Method: SW-846 3540C-TO-10A/EPA 680 Modified**

Lab Number [Field ID]	Batch	Initial [Cartridge	Final [mL]	Date
17H0682-01 [LT-CR-IAS-100]	B183918	1.00	1.00	08/11/17
17H0682-02 [LT-MR-IAS-101]	B183918	1.00	1.00	08/11/17
17H0682-03 [LT-MR-IAS-102]	B183918	1.00	1.00	08/11/17
17H0682-04 [LT-MR-IAS-103]	B183918	1.00	1.00	08/11/17
17H0682-05 [LT-BR-IAS-104]	B183918	1.00	1.00	08/11/17
17H0682-06 [LT-AMB-IAS-105]	B183918	1.00	1.00	08/11/17

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
PCB Homologues by GC/MS with Soxhlet Extraction - Quality Control

Analyte	Total µg		ug/m3		Spike Level	Source	%REC	%REC	RPD	RPD	Flag/Qual
	Results	RL	Results	RL	Total µg	Result	%REC	Limits	RPD	Limit	

Batch B183918 - SW-846 3540C
Blank (B183918-BLK1)

Prepared: 08/11/17 Analyzed: 08/14/17

Monochlorobiphenyls	ND	0.0010
Dichlorobiphenyls	ND	0.0010
Trichlorobiphenyls	ND	0.0010
Tetrachlorobiphenyls	ND	0.0020
Pentachlorobiphenyls	ND	0.0020
Hexachlorobiphenyls	ND	0.0020
Heptachlorobiphenyls	ND	0.0030
Octachlorobiphenyls	ND	0.0030
Nonachlorobiphenyls	ND	0.0050
Decachlorobiphenyl	ND	0.0050
Total Polychlorinated biphenyls	0.0	

Surrogate: Tetrachloro-m-xylene 0.132 0.200 66.0 50-125

LCS (B183918-BS1)

Prepared: 08/11/17 Analyzed: 08/14/17

Monochlorobiphenyls	0.14	0.0010	0.200	70.3	40-140
Dichlorobiphenyls	0.14	0.0010	0.200	67.8	40-140
Trichlorobiphenyls	0.13	0.0010	0.200	64.9	40-140
Tetrachlorobiphenyls	0.27	0.0020	0.400	68.3	40-140
Pentachlorobiphenyls	0.29	0.0020	0.400	71.9	40-140
Hexachlorobiphenyls	0.33	0.0020	0.400	82.6	40-140
Heptachlorobiphenyls	0.49	0.0030	0.600	81.7	40-140
Octachlorobiphenyls	0.48	0.0030	0.600	79.9	40-140
Nonachlorobiphenyls	0.80	0.0050	1.00	79.8	40-140
Decachlorobiphenyl	0.80	0.0050	1.00	80.3	40-140

Surrogate: Tetrachloro-m-xylene 0.139 0.200 69.3 50-125

LCS Dup (B183918-BSD1)

Prepared: 08/11/17 Analyzed: 08/14/17

Monochlorobiphenyls	0.16	0.0010	0.200	81.6	40-140	14.8	50
Dichlorobiphenyls	0.13	0.0010	0.200	65.7	40-140	3.28	50
Trichlorobiphenyls	0.11	0.0010	0.200	54.3	40-140	17.8	50
Tetrachlorobiphenyls	0.23	0.0020	0.400	56.3	40-140	19.3	50
Pentachlorobiphenyls	0.21	0.0020	0.400	53.0	40-140	30.3	50
Hexachlorobiphenyls	0.26	0.0020	0.400	64.0	40-140	25.3	50
Heptachlorobiphenyls	0.38	0.0030	0.600	62.8	40-140	26.2	50
Octachlorobiphenyls	0.36	0.0030	0.600	59.4	40-140	29.4	50
Nonachlorobiphenyls	0.58	0.0050	1.00	57.7	40-140	32.1	50
Decachlorobiphenyl	0.57	0.0050	1.00	57.3	40-140	33.5	50

Surrogate: Tetrachloro-m-xylene 0.137 0.200 68.3 50-125

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332**FLAG/QUALIFIER SUMMARY**

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit
DL	Method Detection Limit
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
V-06	Continuing calibration did not meet method specifications and was biased on the high side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the high side.
V-20	Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
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TO-10A/EPA 680 Modified in Air

Total Polychlorinated biphenyls AIHA

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2018
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2018
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2018
RI	Rhode Island Department of Health	LAO00112	12/30/2017
NC	North Carolina Div. of Water Quality	652	12/31/2017
NJ	New Jersey DEP	MA007 NELAP	06/30/2018
FL	Florida Department of Health	E871027 NELAP	06/30/2018
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2018
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2017
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2017
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2018
NC-DW	North Carolina Department of Health	25703	07/31/2018



Phone: 413-525-2332

Fax: 413-525-6405

Email: info@contestlabs.com

Company Name:

Address: ANDOVER MA

Phone: 978 482 7867

Project Name:

UMASS LT Mon

Project Location: ANDOVER MA

Project Number: 225695.05

Project Manager: JEFF HAMEL

Con-Test Quote Name/Number:

Invoice Recipient: G. FRANKLIN

Sampled By: G. FRANKLIN

CHAIN OF CUSTODY RECORD (AIR)

Requested Turnaround Time	
7-Day <input type="checkbox"/>	10-Day <input type="checkbox"/>
Due Date:	
Rush Approval Required	
1-Day <input type="checkbox"/>	3-Day <input type="checkbox"/>
2-Day <input type="checkbox"/>	4-Day <input type="checkbox"/>
Data Delivery	
Format: PDF <input checked="" type="checkbox"/>	EXCEL <input type="checkbox"/>
Other:	
CLP Like Data Pkg Required: <input type="checkbox"/>	
Email To: gfranklin	
Fax To #:	

Lab Use	Client Use	Collection Data		Duration	Flow Rate	Matrix	Volume
		Beginning Date/Time	Ending Date/Time				
1	LT-CR-IAS-100	8/10/17 0926	8/10/17 1530	364	2.50	0	910
2	LT-MC-IAS-101	8/10/17 0937	8/10/17 1500	371	2.61	0	965.7
3	LT-MC-IAS-102	8/10/17 0952	8/10/17 1600	376	2.65	0	996.4
4	LT-MC-IAS-103	8/10/17 1002	8/10/17 1615	373	2.66	0	992.2
5	LT-MC-IAS-104	8/10/17 1013	8/10/17 1620	367	2.60	0	954.2
6	LT-MC-IAS-105	8/10/17 1022	8/10/17 1647	385	2.77	0	1066.5

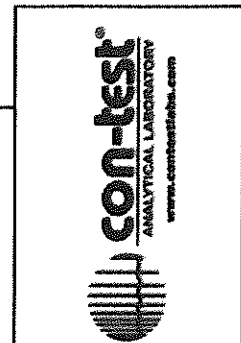
Comments: PCBs via USEPA METHOD TO-15A A-AL-200
via USEPA METHOD 680A R.L. <0.10 ug/m³ (at 1022)

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Matrix Codes:

SG = SOIL GAS
IA = INDOOR AIR
AMB = AMBIENT
SS = SUB SLAB
D = DUP
BL = BLANK
O = Other

Relinquished by: (signature)	Date/Time: 8/11/17 1026
Received by: (signature)	Date/Time: 8/11/17 1026
Relinquished by: (signature)	Date/Time: 8/11/17 1740
Received by: (signature)	Date/Time: 8/11/17 1740
Relinquished by: (signature)	Date/Time: 8/11/17 1740
Received by: (signature)	Date/Time: 8/11/17 1740



Project Entity		Municipality		MWRA		Other	
<input type="checkbox"/> Government	<input type="checkbox"/> Federal	<input type="checkbox"/> City	<input type="checkbox"/> 21 J	<input type="checkbox"/> Brownfield	<input type="checkbox"/> School	<input type="checkbox"/> MBTA	<input type="checkbox"/> WRTA
Chromatogram		Chromatogram		Chromatogram		Chromatogram	
AIHA-LAP, LLC		AIHA-LAP, LLC		AIHA-LAP, LLC		AIHA-LAP, LLC	
PCB ONLY		PCB ONLY		PCB ONLY		PCB ONLY	
<input type="checkbox"/> Soxhlet		<input type="checkbox"/> Soxhlet		<input type="checkbox"/> Soxhlet		<input type="checkbox"/> Soxhlet	
<input type="checkbox"/> Non Soxhlet		<input type="checkbox"/> Non Soxhlet		<input type="checkbox"/> Non Soxhlet		<input type="checkbox"/> Non Soxhlet	

August 21, 2017

George Franklin
Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810

Project Location: Amherst, MA
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 17H0683

Enclosed are results of analyses for samples received by the laboratory on August 11, 2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Meghan E. Kelley". The signature is written in a cursive style with a large, flowing "M" and a long, sweeping "y" at the end.

Meghan E. Kelley
Project Manager

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Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: George Franklin

REPORT DATE: 8/21/2017

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 17H0683

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Amherst, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LT-WH-VWC-001	17H0683-01	Wipe		SW-846 8082A	
LT-WH-VWC-002	17H0683-02	Wipe		SW-846 8082A	
LT-WH-VWC-003	17H0683-03	Wipe		SW-846 8082A	
LT-WH-VWCD-004	17H0683-04	Wipe		SW-846 8082A	
LT-GH-VWC-005	17H0683-05	Wipe		SW-846 8082A	
LT-FH-VWC-006	17H0683-06	Wipe		SW-846 8082A	
LT-GH-VWC-007	17H0683-07	Wipe		SW-846 8082A	

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 8082A

Qualifications:

V-06

Continuing calibration did not meet method specifications and was biased on the high side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the high side.

Analyte & Samples(s) Qualified:

Aroclor-1260

B184288-BS1, B184288-BSD1

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink, appearing to read "Tod Kopyscinski", written in a cursive style.

Tod E. Kopyscinski
Laboratory Director

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA

Sample Description:

Work Order: 17H0683

Date Received: 8/11/2017

Field Sample #: LT-WH-VWC-001

Sampled: 8/10/2017 11:02

Sample ID: 17H0683-01

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:28	KAL
Aroclor-1221 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:28	KAL
Aroclor-1232 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:28	KAL
Aroclor-1242 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:28	KAL
Aroclor-1248 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:28	KAL
Aroclor-1254 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:28	KAL
Aroclor-1260 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:28	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:28	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:28	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	119	30-150						8/19/17 16:28	
Decachlorobiphenyl [2]	104	30-150						8/19/17 16:28	
Tetrachloro-m-xylene [1]	98.5	30-150						8/19/17 16:28	
Tetrachloro-m-xylene [2]	97.9	30-150						8/19/17 16:28	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA

Sample Description:

Work Order: 17H0683

Date Received: 8/11/2017

Field Sample #: LT-WH-VWC-002

Sampled: 8/10/2017 11:06

Sample ID: 17H0683-02

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:40	KAL
Aroclor-1221 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:40	KAL
Aroclor-1232 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:40	KAL
Aroclor-1242 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:40	KAL
Aroclor-1248 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:40	KAL
Aroclor-1254 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:40	KAL
Aroclor-1260 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:40	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:40	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:40	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	114	30-150						8/19/17 16:40	
Decachlorobiphenyl [2]	99.5	30-150						8/19/17 16:40	
Tetrachloro-m-xylene [1]	100	30-150						8/19/17 16:40	
Tetrachloro-m-xylene [2]	99.4	30-150						8/19/17 16:40	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA

Sample Description:

Work Order: 17H0683

Date Received: 8/11/2017

Field Sample #: LT-WH-VWC-003

Sampled: 8/10/2017 11:13

Sample ID: 17H0683-03

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:53	KAL
Aroclor-1221 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:53	KAL
Aroclor-1232 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:53	KAL
Aroclor-1242 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:53	KAL
Aroclor-1248 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:53	KAL
Aroclor-1254 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:53	KAL
Aroclor-1260 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:53	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:53	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 16:53	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	120	30-150							
Decachlorobiphenyl [2]	105	30-150							
Tetrachloro-m-xylene [1]	103	30-150							
Tetrachloro-m-xylene [2]	102	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA

Sample Description:

Work Order: 17H0683

Date Received: 8/11/2017

Field Sample #: LT-WH-VWCD-004

Sampled: 8/10/2017 11:13

Sample ID: 17H0683-04

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:06	KAL
Aroclor-1221 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:06	KAL
Aroclor-1232 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:06	KAL
Aroclor-1242 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:06	KAL
Aroclor-1248 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:06	KAL
Aroclor-1254 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:06	KAL
Aroclor-1260 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:06	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:06	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:06	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	117	30-150							
Decachlorobiphenyl [2]	102	30-150							
Tetrachloro-m-xylene [1]	97.9	30-150							
Tetrachloro-m-xylene [2]	96.9	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA

Sample Description:

Work Order: 17H0683

Date Received: 8/11/2017

Field Sample #: LT-GH-VWC-005

Sampled: 8/10/2017 11:32

Sample ID: 17H0683-05

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 15:31	PJG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 15:31	PJG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 15:31	PJG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 15:31	PJG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 15:31	PJG
Aroclor-1254 [2]	0.25	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 15:31	PJG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 15:31	PJG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 15:31	PJG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 15:31	PJG
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	94.0	30-150						8/20/17 15:31	
Decachlorobiphenyl [2]	92.4	30-150						8/20/17 15:31	
Tetrachloro-m-xylene [1]	88.6	30-150						8/20/17 15:31	
Tetrachloro-m-xylene [2]	84.1	30-150						8/20/17 15:31	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA

Sample Description:

Work Order: 17H0683

Date Received: 8/11/2017

Field Sample #: LT-FH-VWC-006

Sampled: 8/10/2017 11:50

Sample ID: 17H0683-06

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:32	KAL
Aroclor-1221 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:32	KAL
Aroclor-1232 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:32	KAL
Aroclor-1242 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:32	KAL
Aroclor-1248 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:32	KAL
Aroclor-1254 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:32	KAL
Aroclor-1260 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:32	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:32	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:32	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	123	30-150						8/19/17 17:32	
Decachlorobiphenyl [2]	107	30-150						8/19/17 17:32	
Tetrachloro-m-xylene [1]	102	30-150						8/19/17 17:32	
Tetrachloro-m-xylene [2]	101	30-150						8/19/17 17:32	

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0683

Date Received: 8/11/2017

Field Sample #: LT-GH-VWC-007

Sampled: 8/10/2017 11:55

Sample ID: 17H0683-07

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:45	KAL
Aroclor-1221 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:45	KAL
Aroclor-1232 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:45	KAL
Aroclor-1242 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:45	KAL
Aroclor-1248 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:45	KAL
Aroclor-1254 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:45	KAL
Aroclor-1260 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:45	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:45	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 17:45	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	120	30-150							
Decachlorobiphenyl [2]	105	30-150							
Tetrachloro-m-xylene [1]	101	30-150							
Tetrachloro-m-xylene [2]	100	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332**Sample Extraction Data****Prep Method: SW-846 3540C-SW-846 8082A**

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
17H0683-01 [LT-WH-VWC-001]	B184288	1.00	10.0	08/16/17
17H0683-02 [LT-WH-VWC-002]	B184288	1.00	10.0	08/16/17
17H0683-03 [LT-WH-VWC-003]	B184288	1.00	10.0	08/16/17
17H0683-04 [LT-WH-VWCD-004]	B184288	1.00	10.0	08/16/17
17H0683-05 [LT-GH-VWC-005]	B184288	1.00	10.0	08/16/17
17H0683-06 [LT-FH-VWC-006]	B184288	1.00	10.0	08/16/17
17H0683-07 [LT-GH-VWC-007]	B184288	1.00	10.0	08/16/17

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QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B184288 - SW-846 3540C
Blank (B184288-BLK1)

Prepared: 08/16/17 Analyzed: 08/19/17

Aroclor-1016	ND	0.20	µg/Wipe							
Aroclor-1016 [2C]	ND	0.20	µg/Wipe							
Aroclor-1221	ND	0.20	µg/Wipe							
Aroclor-1221 [2C]	ND	0.20	µg/Wipe							
Aroclor-1232	ND	0.20	µg/Wipe							
Aroclor-1232 [2C]	ND	0.20	µg/Wipe							
Aroclor-1242	ND	0.20	µg/Wipe							
Aroclor-1242 [2C]	ND	0.20	µg/Wipe							
Aroclor-1248	ND	0.20	µg/Wipe							
Aroclor-1248 [2C]	ND	0.20	µg/Wipe							
Aroclor-1254	ND	0.20	µg/Wipe							
Aroclor-1254 [2C]	ND	0.20	µg/Wipe							
Aroclor-1260	ND	0.20	µg/Wipe							
Aroclor-1260 [2C]	ND	0.20	µg/Wipe							
Aroclor-1262	ND	0.20	µg/Wipe							
Aroclor-1262 [2C]	ND	0.20	µg/Wipe							
Aroclor-1268	ND	0.20	µg/Wipe							
Aroclor-1268 [2C]	ND	0.20	µg/Wipe							
Surrogate: Decachlorobiphenyl	2.36		µg/Wipe	2.00		118	30-150			
Surrogate: Decachlorobiphenyl [2C]	2.06		µg/Wipe	2.00		103	30-150			
Surrogate: Tetrachloro-m-xylene	1.91		µg/Wipe	2.00		95.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.92		µg/Wipe	2.00		96.0	30-150			

LCS (B184288-BS1)

Prepared: 08/16/17 Analyzed: 08/19/17

Aroclor-1016	0.53	0.20	µg/Wipe	0.500		105	40-140			
Aroclor-1016 [2C]	0.56	0.20	µg/Wipe	0.500		113	40-140			
Aroclor-1260	0.49	0.20	µg/Wipe	0.500		98.6	40-140			V-06
Aroclor-1260 [2C]	0.50	0.20	µg/Wipe	0.500		100	40-140			
Surrogate: Decachlorobiphenyl	2.40		µg/Wipe	2.00		120	30-150			
Surrogate: Decachlorobiphenyl [2C]	2.11		µg/Wipe	2.00		105	30-150			
Surrogate: Tetrachloro-m-xylene	1.93		µg/Wipe	2.00		96.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.92		µg/Wipe	2.00		96.2	30-150			

LCS Dup (B184288-BSD1)

Prepared: 08/16/17 Analyzed: 08/19/17

Aroclor-1016	0.55	0.20	µg/Wipe	0.500		111	40-140	5.03	30	
Aroclor-1016 [2C]	0.58	0.20	µg/Wipe	0.500		117	40-140	3.42	30	
Aroclor-1260	0.49	0.20	µg/Wipe	0.500		98.5	40-140	0.128	30	V-06
Aroclor-1260 [2C]	0.50	0.20	µg/Wipe	0.500		99.2	40-140	0.767	30	
Surrogate: Decachlorobiphenyl	2.39		µg/Wipe	2.00		119	30-150			
Surrogate: Decachlorobiphenyl [2C]	2.09		µg/Wipe	2.00		104	30-150			
Surrogate: Tetrachloro-m-xylene	1.95		µg/Wipe	2.00		97.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.94		µg/Wipe	2.00		96.9	30-150			

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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A*

LT-GH-VWC-005

Lab Sample ID: 17H0683-05 Date(s) Analyzed: 08/20/2017 08/20/2017
Instrument ID (1): _____ Instrument ID (2): _____
GC Column (1): _____ ID: _____ (mm) GC Column (2): _____ ID: _____ (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	0.24	
	2	0.000	0.000	0.000	0.25	4.1

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit
DL	Method Detection Limit
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
V-06	Continuing calibration did not meet method specifications and was biased on the high side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the high side.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
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No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2018
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2018
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2018
RI	Rhode Island Department of Health	LAO00112	12/30/2017
NC	North Carolina Div. of Water Quality	652	12/31/2017
NJ	New Jersey DEP	MA007 NELAP	06/30/2018
FL	Florida Department of Health	E871027 NELAP	06/30/2018
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2018
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2017
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2017
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2018
NC-DW	North Carolina Department of Health	25703	07/31/2018

Company Name: **Woodsboro : Curran**Address: **ANDOVER MA**Phone: **778 402 7867**Project Name: **UMASS LT Mon**Project Location: **AMHERST MA**Project Number: **225695.05**Project Manager: **JEFF HAMEL**

Con-Test Quote Name/Number:

Invoice Recipient: **G. FRANKLIN**Sampled By: **G. FRANKLIN**

Requested Turnaround Time
 7-Day ☐ 10-Day ☐
 Due Date: **5 DAY STD**

Rush Approval Required
 1-Day ☐ 3-Day ☐
 2-Day ☐ 4-Day ☐
 Data Delivery
 Format: PDF ☒ EXCEL ☐
 Other:

CLP Like Data Pkg Required: ☐
 Email To: **Jhanel Gbent**
 Fax To #:

Con-Test Work Order #	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	Matrix Code	Conc Code
1	LT-WH-VWC-001	8/10/17 1102	1102		X	O	U
2	LT-WH-VWC-002	8/10/17 1106	1106		X	O	U
3	LT-WH-VWC-003	8/10/17 1113	1113		X	O	U
4	LT-WH-VWLD-004	8/10/17 1113	1113		X	O	U
5	LT-GH-VWC-005	8/10/17 1132	1132		X	O	U
6	LT-FH-VWC-006	8/10/17 1150	1150		X	O	U
7	LT-GH-VWC-007	8/10/17 1155	1155		X	O	U

Comments: **PCSS VIA USEPA 8062 v1 Soxhlet Extraction - (3540C)**Please use the following codes to indicate possible sample concentration within the Conc Code column above:
 H - High; M - Medium; L - Low; C - Clean; U - Unknown

Requisitioned by (Signature)	Date/Time	Detection Limit Requirements	Special Requirements
<i>[Signature]</i>	8/14/17 1030	MA	MA MCP Required <input type="checkbox"/>
Received by (Signature)	Date/Time		MCP Certification Form Required <input type="checkbox"/>
<i>[Signature]</i>	8/14/17 1030		CT RCP Required <input type="checkbox"/>
Requisitioned by (Signature)	Date/Time		RCP Certification Form Required <input type="checkbox"/>
<i>[Signature]</i>	8/14/17 1740		
Received by (Signature)	Date/Time		MA State DOW Required <input type="checkbox"/>
<i>[Signature]</i>	8/14/17 1740		
Requisitioned by (Signature)	Date/Time		PWSID #
<i>[Signature]</i>	8/14/17 1740		
Received by (Signature)	Date/Time		
<i>[Signature]</i>	8/14/17 1740		



Project Entity	Government	Federal	City	Municipality	21 J	Brownfield	MWRA	School	MBTA	WRTA	Chromatogram	AIHA-LAP, LLC
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NELAP and AIHA-LAP, LLC Accredited

Other

☐ Soxhlet
☐ Non Soxhlet

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East Longmeadow, MA. 01028
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ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False

Statement will be brought to the attention of the Client - State True or False

Client Woodard & Curran

Received By JM Date 8/11/17 Time 1740

How were the samples received? In Cooler T No Cooler On Ice T No Ice

Direct from Sampling Ambient Melted Ice

Were samples within Temperature? 2-6°C T By Gun # 7 Actual Temp - 3.1

By Blank # Actual Temp -

Was Custody Seal Intact? N/A Were Samples Tampered with? F

Was COC Relinquished? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Analysis T Sampler Name T

Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? N/A Who was notified?

Are there Rushes? N/A Who was notified?

Are there Short Holds? N/A Who was notified?

Is there enough Volume? T

Is there Headspace where applicable? N/A MS/MSD? N/A

Proper Media/Containers Used? T Is splitting samples required? N/A

Were trip blanks received? N/A On COC? N/A

Do all samples have the proper pH? N/A Acid Base

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	7
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

August 21, 2017

Jeff Hamel
Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810

Project Location: Amherst, MA
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 17H0686

Enclosed are results of analyses for samples received by the laboratory on August 11, 2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Meghan E. Kelley". The signature is written in a cursive style with a large, flowing "M" and a long, sweeping underline.

Meghan E. Kelley
Project Manager

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Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: Jeff Hamel

REPORT DATE: 8/21/2017

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 17H0686

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Amherst, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LT-SWC-VWC-013	17H0686-01	Wipe		SW-846 8082A	
LT-SWC-VWC-014	17H0686-02	Wipe		SW-846 8082A	
LT-SWC-VWC-016	17H0686-03	Wipe		SW-846 8082A	
LT-SWC-VWC-020	17H0686-04	Wipe		SW-846 8082A	
LT-SWC-VWC-021	17H0686-05	Wipe		SW-846 8082A	
LT-SWC-VWC-022	17H0686-06	Wipe		SW-846 8082A	
LT-SWC-VWC-024	17H0686-07	Wipe		SW-846 8082A	
LT-SWC-VWC-025	17H0686-08	Wipe		SW-846 8082A	
LT-SWC-VWC-027	17H0686-09	Wipe		SW-846 8082A	
LT-SWC-VWC-028	17H0686-10	Wipe		SW-846 8082A	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink, appearing to read "Lisa Worthington", is written over a light pink rectangular background.

Lisa A. Worthington
Project Manager

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA

Sample Description:

Work Order: 17H0686

Date Received: 8/11/2017

Field Sample #: LT-SWC-VWC-013

Sampled: 8/10/2017 13:15

Sample ID: 17H0686-01

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:13	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:13	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:13	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:13	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:13	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:13	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:13	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:13	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:13	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	104	30-150							
Decachlorobiphenyl [2]	90.7	30-150							
Tetrachloro-m-xylene [1]	95.0	30-150							
Tetrachloro-m-xylene [2]	93.3	30-150							

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0686

Date Received: 8/11/2017

Field Sample #: LT-SWC-VWC-014

Sampled: 8/10/2017 13:38

Sample ID: 17H0686-02

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:26	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:26	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:26	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:26	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:26	KAL
Aroclor-1254 [2]	0.46	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:26	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:26	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:26	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:26	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	106	30-150						8/19/17 10:26	
Decachlorobiphenyl [2]	92.2	30-150						8/19/17 10:26	
Tetrachloro-m-xylene [1]	93.7	30-150						8/19/17 10:26	
Tetrachloro-m-xylene [2]	92.3	30-150						8/19/17 10:26	

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0686

Date Received: 8/11/2017

Field Sample #: LT-SWC-VWC-016

Sampled: 8/10/2017 13:45

Sample ID: 17H0686-03

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:39	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:39	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:39	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:39	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:39	KAL
Aroclor-1254 [2]	0.32	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:39	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:39	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:39	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:39	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	110	30-150							
Decachlorobiphenyl [2]	95.4	30-150							
Tetrachloro-m-xylene [1]	91.4	30-150							
Tetrachloro-m-xylene [2]	91.0	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA

Sample Description:

Work Order: 17H0686

Date Received: 8/11/2017

Field Sample #: LT-SWC-VWC-020

Sampled: 8/10/2017 14:04

Sample ID: 17H0686-04

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:52	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:52	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:52	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:52	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:52	KAL
Aroclor-1254 [2]	0.35	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:52	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:52	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:52	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 10:52	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	109	30-150							
Decachlorobiphenyl [2]	96.0	30-150							
Tetrachloro-m-xylene [1]	93.5	30-150							
Tetrachloro-m-xylene [2]	92.9	30-150							

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0686

Date Received: 8/11/2017

Field Sample #: LT-SWC-VWC-021

Sampled: 8/10/2017 14:05

Sample ID: 17H0686-05

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:05	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:05	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:05	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:05	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:05	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:05	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:05	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:05	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:05	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	91.7	30-150							
Decachlorobiphenyl [2]	81.1	30-150							
Tetrachloro-m-xylene [1]	80.1	30-150							
Tetrachloro-m-xylene [2]	81.3	30-150							

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0686

Date Received: 8/11/2017

Field Sample #: LT-SWC-VWC-022

Sampled: 8/10/2017 14:07

Sample ID: 17H0686-06

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:18	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:18	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:18	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:18	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:18	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:18	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:18	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:18	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:18	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	127	30-150							
Decachlorobiphenyl [2]	112	30-150							
Tetrachloro-m-xylene [1]	106	30-150							
Tetrachloro-m-xylene [2]	106	30-150							

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0686

Date Received: 8/11/2017

Field Sample #: LT-SWC-VWC-024

Sampled: 8/10/2017 14:10

Sample ID: 17H0686-07

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:31	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:31	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:31	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:31	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:31	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:31	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:31	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:31	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:31	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	108	30-150							
Decachlorobiphenyl [2]	95.6	30-150							
Tetrachloro-m-xylene [1]	93.3	30-150							
Tetrachloro-m-xylene [2]	94.3	30-150							

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0686

Date Received: 8/11/2017

Field Sample #: LT-SWC-VWC-025

Sampled: 8/10/2017 14:10

Sample ID: 17H0686-08

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:44	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:44	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:44	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:44	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:44	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:44	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:44	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:44	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:44	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	125	30-150							
Decachlorobiphenyl [2]	110	30-150							
Tetrachloro-m-xylene [1]	109	30-150							
Tetrachloro-m-xylene [2]	109	30-150							

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0686

Date Received: 8/11/2017

Field Sample #: LT-SWC-VWC-027

Sampled: 8/10/2017 14:12

Sample ID: 17H0686-09

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:56	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:56	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:56	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:56	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:56	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:56	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:56	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:56	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 11:56	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	111	30-150							
Decachlorobiphenyl [2]	98.6	30-150							
Tetrachloro-m-xylene [1]	97.5	30-150							
Tetrachloro-m-xylene [2]	98.5	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA

Sample Description:

Work Order: 17H0686

Date Received: 8/11/2017

Field Sample #: LT-SWC-VWC-028

Sampled: 8/10/2017 14:17

Sample ID: 17H0686-10

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 12:09	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 12:09	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 12:09	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 12:09	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 12:09	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 12:09	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 12:09	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 12:09	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 12:09	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	112	30-150						8/19/17 12:09	
Decachlorobiphenyl [2]	99.9	30-150						8/19/17 12:09	
Tetrachloro-m-xylene [1]	98.5	30-150						8/19/17 12:09	
Tetrachloro-m-xylene [2]	99.4	30-150						8/19/17 12:09	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332**Sample Extraction Data****Prep Method: SW-846 3540C-SW-846 8082A**

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
17H0686-01 [LT-SWC-VWC-013]	B184287	1.00	10.0	08/16/17
17H0686-02 [LT-SWC-VWC-014]	B184287	1.00	10.0	08/16/17
17H0686-03 [LT-SWC-VWC-016]	B184287	1.00	10.0	08/16/17
17H0686-04 [LT-SWC-VWC-020]	B184287	1.00	10.0	08/16/17
17H0686-05 [LT-SWC-VWC-021]	B184287	1.00	10.0	08/16/17
17H0686-06 [LT-SWC-VWC-022]	B184287	1.00	10.0	08/16/17
17H0686-07 [LT-SWC-VWC-024]	B184287	1.00	10.0	08/16/17
17H0686-08 [LT-SWC-VWC-025]	B184287	1.00	10.0	08/16/17
17H0686-09 [LT-SWC-VWC-027]	B184287	1.00	10.0	08/16/17
17H0686-10 [LT-SWC-VWC-028]	B184287	1.00	10.0	08/16/17

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B184287 - SW-846 3540C
Blank (B184287-BLK1)

Prepared: 08/16/17 Analyzed: 08/19/17

Aroclor-1016	ND	0.20	µg/Wipe							
Aroclor-1016 [2C]	ND	0.20	µg/Wipe							
Aroclor-1221	ND	0.20	µg/Wipe							
Aroclor-1221 [2C]	ND	0.20	µg/Wipe							
Aroclor-1232	ND	0.20	µg/Wipe							
Aroclor-1232 [2C]	ND	0.20	µg/Wipe							
Aroclor-1242	ND	0.20	µg/Wipe							
Aroclor-1242 [2C]	ND	0.20	µg/Wipe							
Aroclor-1248	ND	0.20	µg/Wipe							
Aroclor-1248 [2C]	ND	0.20	µg/Wipe							
Aroclor-1254	ND	0.20	µg/Wipe							
Aroclor-1254 [2C]	ND	0.20	µg/Wipe							
Aroclor-1260	ND	0.20	µg/Wipe							
Aroclor-1260 [2C]	ND	0.20	µg/Wipe							
Aroclor-1262	ND	0.20	µg/Wipe							
Aroclor-1262 [2C]	ND	0.20	µg/Wipe							
Aroclor-1268	ND	0.20	µg/Wipe							
Aroclor-1268 [2C]	ND	0.20	µg/Wipe							
Surrogate: Decachlorobiphenyl	2.00		µg/Wipe	2.00		99.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.72		µg/Wipe	2.00		85.8	30-150			
Surrogate: Tetrachloro-m-xylene	1.71		µg/Wipe	2.00		85.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.68		µg/Wipe	2.00		83.8	30-150			

LCS (B184287-BS1)

Prepared: 08/16/17 Analyzed: 08/19/17

Aroclor-1016	0.50	0.20	µg/Wipe	0.500		100	40-140			
Aroclor-1016 [2C]	0.53	0.20	µg/Wipe	0.500		106	40-140			
Aroclor-1260	0.44	0.20	µg/Wipe	0.500		88.9	40-140			
Aroclor-1260 [2C]	0.45	0.20	µg/Wipe	0.500		89.3	40-140			
Surrogate: Decachlorobiphenyl	2.15		µg/Wipe	2.00		107	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.85		µg/Wipe	2.00		92.4	30-150			
Surrogate: Tetrachloro-m-xylene	1.90		µg/Wipe	2.00		94.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.87		µg/Wipe	2.00		93.7	30-150			

LCS Dup (B184287-BSD1)

Prepared: 08/16/17 Analyzed: 08/19/17

Aroclor-1016	0.52	0.20	µg/Wipe	0.500		105	40-140	4.54	30	
Aroclor-1016 [2C]	0.57	0.20	µg/Wipe	0.500		113	40-140	6.47	30	
Aroclor-1260	0.47	0.20	µg/Wipe	0.500		93.9	40-140	5.49	30	
Aroclor-1260 [2C]	0.47	0.20	µg/Wipe	0.500		94.4	40-140	5.62	30	
Surrogate: Decachlorobiphenyl	2.27		µg/Wipe	2.00		113	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.95		µg/Wipe	2.00		97.4	30-150			
Surrogate: Tetrachloro-m-xylene	1.95		µg/Wipe	2.00		97.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.91		µg/Wipe	2.00		95.4	30-150			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES****LT-SWC-VWC-014***SW-846 8082A*

Lab Sample ID: 17H0686-02 Date(s) Analyzed: 08/19/2017 08/19/2017
Instrument ID (1): _____ Instrument ID (2): _____
GC Column (1): _____ ID: _____ (mm) GC Column (2): _____ ID: _____ (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	0.40	
	2	0.000	0.000	0.000	0.46	14.0

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LT-SWC-VWC-016**Lab Sample ID: 17H0686-03 Date(s) Analyzed: 08/19/2017 08/19/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	0.30	
	2	0.000	0.000	0.000	0.32	6.5

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LT-SWC-VWC-020**Lab Sample ID: 17H0686-04 Date(s) Analyzed: 08/19/2017 08/19/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	0.27	
	2	0.000	0.000	0.000	0.35	25.8

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit
DL	Method Detection Limit
MCL	Maximum Contaminant Level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
---------	----------------

No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2018
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2018
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2018
RI	Rhode Island Department of Health	LAO00112	12/30/2017
NC	North Carolina Div. of Water Quality	652	12/31/2017
NJ	New Jersey DEP	MA007 NELAP	06/30/2018
FL	Florida Department of Health	E871027 NELAP	06/30/2018
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2018
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2017
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2017
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2018
NC-DW	North Carolina Department of Health	25703	07/31/2018



Company Name: **AMERICAN MA**
Address: **WOODARD & CURRAN**

Phone: **978 482 7867**

Project Name: **UMMS LT Mon**

Project Location: **AMHERST**

Project Number: **225695**

Project Manager: **Jeff Hanel**

Con-Test Quote Name/Number:

Invoice Recipient: **G Franklin**

Sampled By: **G Franklin**

Requested Turnaround Time
7-Day ☐ 10-Day ☐
Due Date: **5/17**

Rush Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐
Data Delivery
Format: PDF ☐ EXCEL ☐
Other: ☐

CLP Like Data Pkg Required: ☐
Email To: **JHanel**
Fax To #:

Con-Test Work Order #	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	Matrix Code	Conc Code
1	LT-SWC-VWC-013	8/10/17	1325	X	X	0	0
2	LT-SWC-VWC-014	8/10/17	1338	X	X	0	0
3	LT-SWC-VWC-016	8/10/17	1345	X	X	0	0
4	LT-SWC-VWC-020	8/10/17	1404	X	X	0	0
5	LT-SWC-VWC-021	8/10/17	1405	X	X	0	0
6	LT-SWC-VWC-022	8/10/17	1407	X	X	0	0
7	LT-SWC-VWC-024	8/10/17	1410	X	X	0	0
8	LT-SWC-VWC-025	8/10/17	1410	X	X	0	0
9	LT-SWC-VWC-027	8/10/17	1412	X	X	0	0
10	LT-SWC-VWC-028	8/10/17	1417	X	X	0	0

Comments:

PCBS VIA USEPA 8082 WITH Soxhlet Extraction (350C)

Please use the following codes to indicate possible sample concentration within the Conc Code column above:

H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature) Jeff Hanel	Date/Time: 8/10/17 1030	 www.contestlabs.com	NELAP and AIHA-LAP, LLC Accredited		
Received by: (signature) Jeff Hanel	Date/Time: 8/10/17 1030				
Relinquished by: (signature) Jeff Hanel	Date/Time: 8/10/17 1740				
Received by: (signature) Jeff Hanel	Date/Time: 8/10/17 1740				
Relinquished by: (signature) Jeff Hanel	Date/Time: 8/10/17 1740	Project Entity <input type="checkbox"/> Government <input type="checkbox"/> Federal <input type="checkbox"/> City	Municipality <input type="checkbox"/> 21 J <input type="checkbox"/> Brownfield	MWRA <input type="checkbox"/> School <input type="checkbox"/> MBTA	Other <input type="checkbox"/> Chromatogram <input type="checkbox"/> AIHA-LAP, LLC

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F: 413-525-6405
www.contestlabs.com



con-test®
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False

Statement will be brought to the attention of the Client - State True or False

Client Woodard & Curran

Received By JM Date 8/11/17 Time 1740

How were the samples received? In Cooler T No Cooler On Ice T No Ice
Direct from Sampling Ambient Melted Ice

Were samples within Temperature? 2-6°C T By Gun # 7 Actual Temp - 3.1
By Blank # Actual Temp -

Was Custody Seal Intact? N/A Were Samples Tampered with? F
Was COC Relinquished? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T
Did COC include all pertinent Information? Client T Analysis T Sampler Name T
Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? N/A Who was notified?
Are there Rushes? N/A Who was notified?
Are there Short Holds? N/A Who was notified?

Is there enough Volume? T

Is there Headspace where applicable? N/A MS/MSD? N/A
Proper Media/Containers Used? T Is splitting samples required? N/A
Were trip blanks received? N/A On COC? N/A

Do all samples have the proper pH? N/A Acid Base

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear
DI-		Other Plastic		Other Glass		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Unused Media

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear
DI-		Other Plastic		Other Glass		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Comments:

August 21, 2017

Jeff Hamel
Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810

Project Location: Amherst, MA
Client Job Number:
Project Number: 225695.05
Laboratory Work Order Number: 17H0688

Enclosed are results of analyses for samples received by the laboratory on August 11, 2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Meghan E. Kelley". The signature is written in a cursive style with a large, flowing "M" and "K".

Meghan E. Kelley
Project Manager

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Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: Jeff Hamel

REPORT DATE: 8/21/2017

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695.05

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 17H0688

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Amherst, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LT-TH-VWC-009	17H0688-01	Wipe		SW-846 8082A	
LT-TH-VWC-008	17H0688-02	Wipe		SW-846 8082A	
LT-SWC-VWC-010	17H0688-03	Wipe		SW-846 8082A	
LT-SWC-VWK-011	17H0688-04	Wipe		SW-846 8082A	
LT-SWC-VWC-012	17H0688-05	Wipe		SW-846 8082A	
LT-SWC-VWC-015	17H0688-06	Wipe		SW-846 8082A	
LT-SWC-VWC-017	17H0688-07	Wipe		SW-846 8082A	
LT-SWC-VWC-018	17H0688-08	Wipe		SW-846 8082A	
LT-SWC-VWC-019	17H0688-09	Wipe		SW-846 8082A	
LT-SWC-VWC-023	17H0688-10	Wipe		SW-846 8082A	
LT-SWC-VWC-026	17H0688-11	Wipe		SW-846 8082A	
LT-SWC-VWC-029	17H0688-12	Wipe		SW-846 8082A	

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 8082A

Qualifications:

V-06

Continuing calibration did not meet method specifications and was biased on the high side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the high side.

Analyte & Samples(s) Qualified:

Aroclor-1260

B184288-BS1, B184288-BSD1

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink, appearing to read "Tod Kopyscinski", written in a cursive style.

Tod E. Kopyscinski
Laboratory Director

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA

Sample Description:

Work Order: 17H0688

Date Received: 8/11/2017

Field Sample #: LT-TH-VWC-009

Sampled: 8/10/2017 13:05

Sample ID: 17H0688-01

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 18:37	KAL
Aroclor-1221 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 18:37	KAL
Aroclor-1232 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 18:37	KAL
Aroclor-1242 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 18:37	KAL
Aroclor-1248 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 18:37	KAL
Aroclor-1254 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 18:37	KAL
Aroclor-1260 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 18:37	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 18:37	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 18:37	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	126	30-150							
Decachlorobiphenyl [2]	108	30-150							
Tetrachloro-m-xylene [1]	106	30-150							
Tetrachloro-m-xylene [2]	104	30-150							

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0688

Date Received: 8/11/2017

Field Sample #: LT-TH-VWC-008

Sampled: 8/10/2017 13:09

Sample ID: 17H0688-02

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 18:50	KAL
Aroclor-1221 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 18:50	KAL
Aroclor-1232 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 18:50	KAL
Aroclor-1242 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 18:50	KAL
Aroclor-1248 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 18:50	KAL
Aroclor-1254 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 18:50	KAL
Aroclor-1260 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 18:50	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 18:50	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 18:50	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	127	30-150							
Decachlorobiphenyl [2]	108	30-150							
Tetrachloro-m-xylene [1]	107	30-150							
Tetrachloro-m-xylene [2]	104	30-150							

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0688

Date Received: 8/11/2017

Field Sample #: LT-SWC-VWC-010

Sampled: 8/10/2017 13:22

Sample ID: 17H0688-03

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 15:43	PJG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 15:43	PJG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 15:43	PJG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 15:43	PJG
Aroclor-1248 [2]	0.22	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 15:43	PJG
Aroclor-1254 [1]	0.34	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 15:43	PJG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 15:43	PJG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 15:43	PJG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 15:43	PJG
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	96.9	30-150						8/20/17 15:43	
Decachlorobiphenyl [2]	96.0	30-150						8/20/17 15:43	
Tetrachloro-m-xylene [1]	93.2	30-150						8/20/17 15:43	
Tetrachloro-m-xylene [2]	88.9	30-150						8/20/17 15:43	

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0688

Date Received: 8/11/2017

Field Sample #: LT-SWC-VWK-011

Sampled: 8/10/2017 13:23

Sample ID: 17H0688-04

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	8/16/17	8/20/17 15:56	PJG
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	8/16/17	8/20/17 15:56	PJG
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	8/16/17	8/20/17 15:56	PJG
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	8/16/17	8/20/17 15:56	PJG
Aroclor-1248 [2]	4.8	2.0	µg/Wipe	10		SW-846 8082A	8/16/17	8/20/17 15:56	PJG
Aroclor-1254 [2]	8.6	2.0	µg/Wipe	10		SW-846 8082A	8/16/17	8/20/17 15:56	PJG
Aroclor-1260 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	8/16/17	8/20/17 15:56	PJG
Aroclor-1262 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	8/16/17	8/20/17 15:56	PJG
Aroclor-1268 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	8/16/17	8/20/17 15:56	PJG
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	98.7	30-150							
Decachlorobiphenyl [2]	103	30-150							
Tetrachloro-m-xylene [1]	89.0	30-150							
Tetrachloro-m-xylene [2]	89.3	30-150							

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0688

Date Received: 8/11/2017

Field Sample #: LT-SWC-VWC-012

Sampled: 8/10/2017 13:29

Sample ID: 17H0688-05

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 19:29	KAL
Aroclor-1221 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 19:29	KAL
Aroclor-1232 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 19:29	KAL
Aroclor-1242 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 19:29	KAL
Aroclor-1248 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 19:29	KAL
Aroclor-1254 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 19:29	KAL
Aroclor-1260 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 19:29	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 19:29	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 19:29	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	120	30-150							
Decachlorobiphenyl [2]	102	30-150							
Tetrachloro-m-xylene [1]	99.9	30-150							
Tetrachloro-m-xylene [2]	97.9	30-150							

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0688

Date Received: 8/11/2017

Field Sample #: LT-SWC-VWC-015

Sampled: 8/10/2017 13:40

Sample ID: 17H0688-06

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 19:42	KAL
Aroclor-1221 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 19:42	KAL
Aroclor-1232 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 19:42	KAL
Aroclor-1242 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 19:42	KAL
Aroclor-1248 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 19:42	KAL
Aroclor-1254 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 19:42	KAL
Aroclor-1260 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 19:42	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 19:42	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 19:42	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	129	30-150							
Decachlorobiphenyl [2]	109	30-150							
Tetrachloro-m-xylene [1]	107	30-150							
Tetrachloro-m-xylene [2]	104	30-150							

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0688

Date Received: 8/11/2017

Field Sample #: LT-SWC-VWC-017

Sampled: 8/10/2017 13:50

Sample ID: 17H0688-07

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 16:09	PJG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 16:09	PJG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 16:09	PJG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 16:09	PJG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 16:09	PJG
Aroclor-1254 [2]	0.28	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 16:09	PJG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 16:09	PJG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 16:09	PJG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 16:09	PJG
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	98.6	30-150						8/20/17 16:09	
Decachlorobiphenyl [2]	96.7	30-150						8/20/17 16:09	
Tetrachloro-m-xylene [1]	93.5	30-150						8/20/17 16:09	
Tetrachloro-m-xylene [2]	89.4	30-150						8/20/17 16:09	

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0688

Date Received: 8/11/2017

Field Sample #: LT-SWC-VWC-018

Sampled: 8/10/2017 14:00

Sample ID: 17H0688-08

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:08	KAL
Aroclor-1221 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:08	KAL
Aroclor-1232 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:08	KAL
Aroclor-1242 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:08	KAL
Aroclor-1248 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:08	KAL
Aroclor-1254 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:08	KAL
Aroclor-1260 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:08	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:08	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:08	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	119	30-150							
Decachlorobiphenyl [2]	101	30-150							
Tetrachloro-m-xylene [1]	101	30-150							
Tetrachloro-m-xylene [2]	98.5	30-150							

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0688

Date Received: 8/11/2017

Field Sample #: LT-SWC-VWC-019

Sampled: 8/10/2017 14:12

Sample ID: 17H0688-09

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:22	KAL
Aroclor-1221 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:22	KAL
Aroclor-1232 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:22	KAL
Aroclor-1242 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:22	KAL
Aroclor-1248 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:22	KAL
Aroclor-1254 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:22	KAL
Aroclor-1260 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:22	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:22	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:22	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	104	30-150							
Decachlorobiphenyl [2]	89.2	30-150							
Tetrachloro-m-xylene [1]	89.1	30-150							
Tetrachloro-m-xylene [2]	86.9	30-150							

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0688

Date Received: 8/11/2017

Field Sample #: LT-SWC-VWC-023

Sampled: 8/10/2017 14:09

Sample ID: 17H0688-10

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:35	KAL
Aroclor-1221 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:35	KAL
Aroclor-1232 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:35	KAL
Aroclor-1242 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:35	KAL
Aroclor-1248 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:35	KAL
Aroclor-1254 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:35	KAL
Aroclor-1260 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:35	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:35	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:35	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	114	30-150							
Decachlorobiphenyl [2]	96.2	30-150							
Tetrachloro-m-xylene [1]	94.9	30-150							
Tetrachloro-m-xylene [2]	91.3	30-150							

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0688

Date Received: 8/11/2017

Field Sample #: LT-SWC-VWC-026

Sampled: 8/10/2017 14:10

Sample ID: 17H0688-11

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:48	KAL
Aroclor-1221 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:48	KAL
Aroclor-1232 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:48	KAL
Aroclor-1242 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:48	KAL
Aroclor-1248 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:48	KAL
Aroclor-1254 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:48	KAL
Aroclor-1260 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:48	KAL
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:48	KAL
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 20:48	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	126	30-150							
Decachlorobiphenyl [2]	105	30-150							
Tetrachloro-m-xylene [1]	104	30-150							
Tetrachloro-m-xylene [2]	100	30-150							

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0688

Date Received: 8/11/2017

Field Sample #: LT-SWC-VWC-029

Sampled: 8/10/2017 14:15

Sample ID: 17H0688-12

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 16:22	PJG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 16:22	PJG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 16:22	PJG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 16:22	PJG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 16:22	PJG
Aroclor-1254 [1]	0.51	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 16:22	PJG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 16:22	PJG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 16:22	PJG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/20/17 16:22	PJG
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	100	30-150						8/20/17 16:22	
Decachlorobiphenyl [2]	98.3	30-150						8/20/17 16:22	
Tetrachloro-m-xylene [1]	90.3	30-150						8/20/17 16:22	
Tetrachloro-m-xylene [2]	86.1	30-150						8/20/17 16:22	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332**Sample Extraction Data****Prep Method: SW-846 3540C-SW-846 8082A**

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
17H0688-01 [LT-TH-VWC-009]	B184288	1.00	10.0	08/16/17
17H0688-02 [LT-TH-VWC-008]	B184288	1.00	10.0	08/16/17
17H0688-03 [LT-SWC-VWC-010]	B184288	1.00	10.0	08/16/17
17H0688-04 [LT-SWC-VWK-011]	B184288	1.00	10.0	08/16/17
17H0688-05 [LT-SWC-VWC-012]	B184288	1.00	10.0	08/16/17
17H0688-06 [LT-SWC-VWC-015]	B184288	1.00	10.0	08/16/17
17H0688-07 [LT-SWC-VWC-017]	B184288	1.00	10.0	08/16/17
17H0688-08 [LT-SWC-VWC-018]	B184288	1.00	10.0	08/16/17
17H0688-09 [LT-SWC-VWC-019]	B184288	1.00	10.0	08/16/17
17H0688-10 [LT-SWC-VWC-023]	B184288	1.00	10.0	08/16/17
17H0688-11 [LT-SWC-VWC-026]	B184288	1.00	10.0	08/16/17
17H0688-12 [LT-SWC-VWC-029]	B184288	1.00	10.0	08/16/17

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QUALITY CONTROL

Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B184288 - SW-846 3540C										
Blank (B184288-BLK1)										
Prepared: 08/16/17 Analyzed: 08/19/17										
Aroclor-1016	ND	0.20	µg/Wipe							
Aroclor-1016 [2C]	ND	0.20	µg/Wipe							
Aroclor-1221	ND	0.20	µg/Wipe							
Aroclor-1221 [2C]	ND	0.20	µg/Wipe							
Aroclor-1232	ND	0.20	µg/Wipe							
Aroclor-1232 [2C]	ND	0.20	µg/Wipe							
Aroclor-1242	ND	0.20	µg/Wipe							
Aroclor-1242 [2C]	ND	0.20	µg/Wipe							
Aroclor-1248	ND	0.20	µg/Wipe							
Aroclor-1248 [2C]	ND	0.20	µg/Wipe							
Aroclor-1254	ND	0.20	µg/Wipe							
Aroclor-1254 [2C]	ND	0.20	µg/Wipe							
Aroclor-1260	ND	0.20	µg/Wipe							
Aroclor-1260 [2C]	ND	0.20	µg/Wipe							
Aroclor-1262	ND	0.20	µg/Wipe							
Aroclor-1262 [2C]	ND	0.20	µg/Wipe							
Aroclor-1268	ND	0.20	µg/Wipe							
Aroclor-1268 [2C]	ND	0.20	µg/Wipe							
Surrogate: Decachlorobiphenyl	2.36		µg/Wipe	2.00		118	30-150			
Surrogate: Decachlorobiphenyl [2C]	2.06		µg/Wipe	2.00		103	30-150			
Surrogate: Tetrachloro-m-xylene	1.91		µg/Wipe	2.00		95.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.92		µg/Wipe	2.00		96.0	30-150			
LCS (B184288-BS1)										
Prepared: 08/16/17 Analyzed: 08/19/17										
Aroclor-1016	0.53	0.20	µg/Wipe	0.500		105	40-140			
Aroclor-1016 [2C]	0.56	0.20	µg/Wipe	0.500		113	40-140			
Aroclor-1260	0.49	0.20	µg/Wipe	0.500		98.6	40-140			V-06
Aroclor-1260 [2C]	0.50	0.20	µg/Wipe	0.500		100	40-140			
Surrogate: Decachlorobiphenyl	2.40		µg/Wipe	2.00		120	30-150			
Surrogate: Decachlorobiphenyl [2C]	2.11		µg/Wipe	2.00		105	30-150			
Surrogate: Tetrachloro-m-xylene	1.93		µg/Wipe	2.00		96.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.92		µg/Wipe	2.00		96.2	30-150			
LCS Dup (B184288-BSD1)										
Prepared: 08/16/17 Analyzed: 08/19/17										
Aroclor-1016	0.55	0.20	µg/Wipe	0.500		111	40-140	5.03	30	
Aroclor-1016 [2C]	0.58	0.20	µg/Wipe	0.500		117	40-140	3.42	30	
Aroclor-1260	0.49	0.20	µg/Wipe	0.500		98.5	40-140	0.128	30	V-06
Aroclor-1260 [2C]	0.50	0.20	µg/Wipe	0.500		99.2	40-140	0.767	30	
Surrogate: Decachlorobiphenyl	2.39		µg/Wipe	2.00		119	30-150			
Surrogate: Decachlorobiphenyl [2C]	2.09		µg/Wipe	2.00		104	30-150			
Surrogate: Tetrachloro-m-xylene	1.95		µg/Wipe	2.00		97.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.94		µg/Wipe	2.00		96.9	30-150			

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A*

LT-SWC-VWC-010

Lab Sample ID: 17H0688-03 Date(s) Analyzed: 08/20/2017 08/20/2017
Instrument ID (1): _____ Instrument ID (2): _____
GC Column (1): _____ ID: _____ (mm) GC Column (2): _____ ID: _____ (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	0.34	
	2	0.000	0.000	0.000	0.31	9.2

IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LT-SWC-VWK-011

Lab Sample ID: 17H0688-04 Date(s) Analyzed: 08/20/2017 08/20/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1248	1	0.000	0.000	0.000	3.4	
	2	0.000	0.000	0.000	4.8	34.1
Aroclor-1254	1	0.000	0.000	0.000	8.3	
	2	0.000	0.000	0.000	8.6	3.6

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LT-SWC-VWC-017**Lab Sample ID: 17H0688-07 Date(s) Analyzed: 08/20/2017 08/20/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	0.26	
	2	0.000	0.000	0.000	0.28	7.4

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LT-SWC-VWC-029**Lab Sample ID: 17H0688-12 Date(s) Analyzed: 08/20/2017 08/20/2017

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	0.51	
	2	0.000	0.000	0.000	0.50	2.0

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit
DL	Method Detection Limit
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
V-06	Continuing calibration did not meet method specifications and was biased on the high side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the high side.

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
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No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2018
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2018
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2018
RI	Rhode Island Department of Health	LAO00112	12/30/2017
NC	North Carolina Div. of Water Quality	652	12/31/2017
NJ	New Jersey DEP	MA007 NELAP	06/30/2018
FL	Florida Department of Health	E871027 NELAP	06/30/2018
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2018
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2017
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2017
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2018
NC-DW	North Carolina Department of Health	25703	07/31/2018



Phone: 413-525-2332

Fax: 413-525-6405

Email: info@con-testlabs.com

Company Name: Worcester MAAddress: 978 482 7867Project Name: UMASS LYMANProject Location: AMHERSTProject Number: 225695.05Project Manager: Jeff HumeiCon-Test Quote Name/Number: 6. FranklinInvoice Recipient: 6. FranklinSampled By: 6. Franklin

Requested Turnaround Time:
 7-Day ☐ 10-Day ☐
 Due Date: 5/04/17

Rush Approval Required:
 1-Day ☐ 3-Day ☐
 2-Day ☐ 4-Day ☐

Data Delivery:
 Format: PDF ☒ EXCEL ☐
 Other: _____

CLP Like Data Pkg Required: ☐
 Email To: Worcester@con-testlabs.com
 Fax To #: _____

Con-Test Work Order #	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	Matrix Code	Conc Code
1	LT-TM-VWC-009	8/10/17	1305		X	0	0
2	LT-TM-VWC-002	8/10/17	1309		X	0	0
3	LT-SUC-VWC-010	8/10/17	1322		X	0	0
4	LT-SUC-VWC-011	8/10/17	1323		X	0	0
5	LT-SUC-VWC-012	8/10/17	1329		X	0	0
6	LT-SUC-VWC-015	8/10/17	1340		X	0	0
7	LT-SUC-VWC-017	8/10/17	1350		X	0	0
8	LT-SUC-VWC-018	8/10/17	1400		X	0	0
9	LT-SUC-VWC-019	8/10/17	1412		X	0	0
10	LT-SUC-VWC-023	8/10/17	1409		X	0	0

Comments:

PCBs via USEPA 8062 w/ Soxhlet Extraction (354x)

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
 H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature) [Signature] Date/Time: 8/10/17 1030

Received by: (signature) [Signature] Date/Time: 1030

Relinquished by: (signature) [Signature] Date/Time: 1740

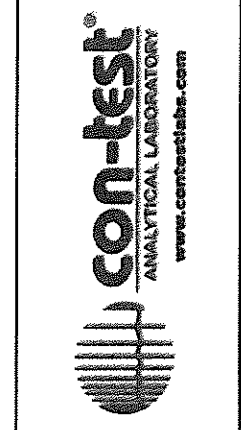
Received by: (signature) [Signature] Date/Time: 1740

Relinquished by: (signature) [Signature] Date/Time: 1740

Received by: (signature) [Signature] Date/Time: 1740

Special Requirements:

MA MCP Required ☐
 MCP Certification Form Required ☐
 CT RCP Required ☐
 RCP Certification Form Required ☐
 MA State DW Required ☐
 PWSID # _____



Project Entity:

Government ☐ Federal ☐ City ☐
 Municipality ☐ 21 J ☐ Brownfield ☐
 MWRA ☐ School ☐ MBTA ☐
 WRTA ☐ Chromatogram ☐ AIHA-LAP, LLC ☐

Other: _____

PCB ONLY

☐ Soxhlet☐ Non Soxhlet

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.contestlabs.com



con-test®
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False

Statement will be brought to the attention of the Client - State True or False

Client Woodard & Curran

Received By JM Date 8/11/17 Time 1740

How were the samples received? In Cooler T No Cooler On Ice T No Ice

Direct from Sampling Ambient Melted Ice

Were samples within Temperature? 2-6°C T By Gun # 7 Actual Temp - 3.1

By Blank # Actual Temp -

Was Custody Seal Intact? N/A Were Samples Tampered with? F

Was COC Relinquished? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Analysis T Sampler Name T

Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? N/A Who was notified?

Are there Rushes? N/A Who was notified?

Are there Short Holds? N/A Who was notified?

Is there enough Volume? T

Is there Headspace where applicable? N/A MS/MSD? N/A

Proper Media/Containers Used? T Is splitting samples required? N/A

Were trip blanks received? N/A On COC? N/A

Do all samples have the proper pH? N/A Acid Base

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear
DI-		Other Plastic		Other Glass		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Unused Media

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear
DI-		Other Plastic		Other Glass		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Comments:

August 21, 2017

Jeff Hamel
Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810

Project Location: Amherst, MA
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 17H0694

Enclosed are results of analyses for samples received by the laboratory on August 11, 2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Meghan E. Kelley". The signature is written in a cursive style with a large, flowing "M" and a long, sweeping "y" at the end.

Meghan E. Kelley
Project Manager

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Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: Jeff Hamel

REPORT DATE: 8/21/2017

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 17H0694

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Amherst, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LT-MR-VWB-500	17H0694-01	Wipe		SW-846 8082A	
LT-MR-VWB-501	17H0694-02	Wipe		SW-846 8082A	
LT-MR-VWB-502	17H0694-03	Wipe		SW-846 8082A	
LT-MR-VWB-503	17H0694-04	Wipe		SW-846 8082A	
LT-CR-VWB-504	17H0694-05	Wipe		SW-846 8082A	
LT-CR-VWB-505	17H0694-06	Wipe		SW-846 8082A	
LT-BR-VWB-506	17H0694-07	Wipe		SW-846 8082A	
LT-BR-VWB-507	17H0694-08	Wipe		SW-846 8082A	
LT-BR-VWB-508	17H0694-09	Wipe		SW-846 8082A	
LT-BR-VWB-509	17H0694-10	Wipe		SW-846 8082A	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink, appearing to read "Lisa Worthington", is written over a light pink rectangular background.

Lisa A. Worthington
Project Manager

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA

Sample Description:

Work Order: 17H0694

Date Received: 8/11/2017

Field Sample #: LT-MR-VWB-500

Sampled: 8/10/2017 15:59

Sample ID: 17H0694-01

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:01	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:01	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:01	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:01	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:01	KAL
Aroclor-1254 [2]	0.68	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:01	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:01	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:01	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:01	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	115	30-150							
Decachlorobiphenyl [2]	103	30-150							
Tetrachloro-m-xylene [1]	96.6	30-150							
Tetrachloro-m-xylene [2]	98.8	30-150							

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0694

Date Received: 8/11/2017

Field Sample #: LT-MR-VWB-501

Sampled: 8/10/2017 16:03

Sample ID: 17H0694-02

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:14	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:14	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:14	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:14	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:14	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:14	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:14	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:14	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:14	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	115	30-150						8/19/17 13:14	
Decachlorobiphenyl [2]	103	30-150						8/19/17 13:14	
Tetrachloro-m-xylene [1]	98.8	30-150						8/19/17 13:14	
Tetrachloro-m-xylene [2]	101	30-150						8/19/17 13:14	

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0694

Date Received: 8/11/2017

Field Sample #: LT-MR-VWB-502

Sampled: 8/10/2017 16:05

Sample ID: 17H0694-03

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:27	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:27	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:27	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:27	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:27	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:27	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:27	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:27	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:27	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	117	30-150							
Decachlorobiphenyl [2]	104	30-150							
Tetrachloro-m-xylene [1]	98.2	30-150							
Tetrachloro-m-xylene [2]	100	30-150							

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0694

Date Received: 8/11/2017

Field Sample #: LT-MR-VWB-503

Sampled: 8/10/2017 16:09

Sample ID: 17H0694-04

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:40	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:40	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:40	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:40	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:40	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:40	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:40	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:40	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:40	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	117	30-150							
Decachlorobiphenyl [2]	104	30-150							
Tetrachloro-m-xylene [1]	101	30-150							
Tetrachloro-m-xylene [2]	104	30-150							

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0694

Date Received: 8/11/2017

Field Sample #: LT-CR-VWB-504

Sampled: 8/10/2017 16:15

Sample ID: 17H0694-05

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:53	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:53	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:53	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:53	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:53	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:53	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:53	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:53	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 13:53	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	112	30-150							
Decachlorobiphenyl [2]	99.9	30-150							
Tetrachloro-m-xylene [1]	98.0	30-150							
Tetrachloro-m-xylene [2]	99.8	30-150							

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0694

Date Received: 8/11/2017

Field Sample #: LT-CR-VWB-505

Sampled: 8/10/2017 16:19

Sample ID: 17H0694-06

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:06	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:06	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:06	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:06	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:06	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:06	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:06	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:06	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:06	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	123	30-150						8/19/17 14:06	
Decachlorobiphenyl [2]	110	30-150						8/19/17 14:06	
Tetrachloro-m-xylene [1]	110	30-150						8/19/17 14:06	
Tetrachloro-m-xylene [2]	112	30-150						8/19/17 14:06	

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Project Location: Amherst, MA

Sample Description:

Work Order: 17H0694

Date Received: 8/11/2017

Field Sample #: LT-BR-VWB-506

Sampled: 8/10/2017 16:24

Sample ID: 17H0694-07

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:18	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:18	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:18	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:18	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:18	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:18	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:18	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:18	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:18	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	117	30-150							
Decachlorobiphenyl [2]	104	30-150							
Tetrachloro-m-xylene [1]	101	30-150							
Tetrachloro-m-xylene [2]	102	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA

Sample Description:

Work Order: 17H0694

Date Received: 8/11/2017

Field Sample #: LT-BR-VWB-507

Sampled: 8/10/2017 16:27

Sample ID: 17H0694-08

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:31	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:31	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:31	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:31	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:31	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:31	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:31	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:31	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:31	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	105	30-150							
Decachlorobiphenyl [2]	93.5	30-150							
Tetrachloro-m-xylene [1]	97.0	30-150							
Tetrachloro-m-xylene [2]	99.5	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA

Sample Description:

Work Order: 17H0694

Date Received: 8/11/2017

Field Sample #: LT-BR-VWB-508

Sampled: 8/10/2017 16:35

Sample ID: 17H0694-09

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:44	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:44	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:44	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:44	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:44	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:44	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:44	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:44	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:44	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	117	30-150							
Decachlorobiphenyl [2]	104	30-150							
Tetrachloro-m-xylene [1]	99.5	30-150							
Tetrachloro-m-xylene [2]	101	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA

Sample Description:

Work Order: 17H0694

Date Received: 8/11/2017

Field Sample #: LT-BR-VWB-509

Sampled: 8/10/2017 16:39

Sample ID: 17H0694-10

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:57	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:57	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:57	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:57	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:57	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:57	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:57	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:57	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/16/17	8/19/17 14:57	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	121	30-150							
Decachlorobiphenyl [2]	107	30-150							
Tetrachloro-m-xylene [1]	104	30-150							
Tetrachloro-m-xylene [2]	105	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332**Sample Extraction Data****Prep Method: SW-846 3540C-SW-846 8082A**

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
17H0694-01 [LT-MR-VWB-500]	B184287	1.00	10.0	08/16/17
17H0694-02 [LT-MR-VWB-501]	B184287	1.00	10.0	08/16/17
17H0694-03 [LT-MR-VWB-502]	B184287	1.00	10.0	08/16/17
17H0694-04 [LT-MR-VWB-503]	B184287	1.00	10.0	08/16/17
17H0694-05 [LT-CR-VWB-504]	B184287	1.00	10.0	08/16/17
17H0694-06 [LT-CR-VWB-505]	B184287	1.00	10.0	08/16/17
17H0694-07 [LT-BR-VWB-506]	B184287	1.00	10.0	08/16/17
17H0694-08 [LT-BR-VWB-507]	B184287	1.00	10.0	08/16/17
17H0694-09 [LT-BR-VWB-508]	B184287	1.00	10.0	08/16/17
17H0694-10 [LT-BR-VWB-509]	B184287	1.00	10.0	08/16/17

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B184287 - SW-846 3540C
Blank (B184287-BLK1)

Prepared: 08/16/17 Analyzed: 08/19/17

Aroclor-1016	ND	0.20	µg/Wipe							
Aroclor-1016 [2C]	ND	0.20	µg/Wipe							
Aroclor-1221	ND	0.20	µg/Wipe							
Aroclor-1221 [2C]	ND	0.20	µg/Wipe							
Aroclor-1232	ND	0.20	µg/Wipe							
Aroclor-1232 [2C]	ND	0.20	µg/Wipe							
Aroclor-1242	ND	0.20	µg/Wipe							
Aroclor-1242 [2C]	ND	0.20	µg/Wipe							
Aroclor-1248	ND	0.20	µg/Wipe							
Aroclor-1248 [2C]	ND	0.20	µg/Wipe							
Aroclor-1254	ND	0.20	µg/Wipe							
Aroclor-1254 [2C]	ND	0.20	µg/Wipe							
Aroclor-1260	ND	0.20	µg/Wipe							
Aroclor-1260 [2C]	ND	0.20	µg/Wipe							
Aroclor-1262	ND	0.20	µg/Wipe							
Aroclor-1262 [2C]	ND	0.20	µg/Wipe							
Aroclor-1268	ND	0.20	µg/Wipe							
Aroclor-1268 [2C]	ND	0.20	µg/Wipe							
Surrogate: Decachlorobiphenyl	2.00		µg/Wipe	2.00		99.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.72		µg/Wipe	2.00		85.8	30-150			
Surrogate: Tetrachloro-m-xylene	1.71		µg/Wipe	2.00		85.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.68		µg/Wipe	2.00		83.8	30-150			

LCS (B184287-BS1)

Prepared: 08/16/17 Analyzed: 08/19/17

Aroclor-1016	0.50	0.20	µg/Wipe	0.500		100	40-140			
Aroclor-1016 [2C]	0.53	0.20	µg/Wipe	0.500		106	40-140			
Aroclor-1260	0.44	0.20	µg/Wipe	0.500		88.9	40-140			
Aroclor-1260 [2C]	0.45	0.20	µg/Wipe	0.500		89.3	40-140			
Surrogate: Decachlorobiphenyl	2.15		µg/Wipe	2.00		107	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.85		µg/Wipe	2.00		92.4	30-150			
Surrogate: Tetrachloro-m-xylene	1.90		µg/Wipe	2.00		94.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.87		µg/Wipe	2.00		93.7	30-150			

LCS Dup (B184287-BSD1)

Prepared: 08/16/17 Analyzed: 08/19/17

Aroclor-1016	0.52	0.20	µg/Wipe	0.500		105	40-140	4.54	30	
Aroclor-1016 [2C]	0.57	0.20	µg/Wipe	0.500		113	40-140	6.47	30	
Aroclor-1260	0.47	0.20	µg/Wipe	0.500		93.9	40-140	5.49	30	
Aroclor-1260 [2C]	0.47	0.20	µg/Wipe	0.500		94.4	40-140	5.62	30	
Surrogate: Decachlorobiphenyl	2.27		µg/Wipe	2.00		113	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.95		µg/Wipe	2.00		97.4	30-150			
Surrogate: Tetrachloro-m-xylene	1.95		µg/Wipe	2.00		97.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.91		µg/Wipe	2.00		95.4	30-150			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LT-MR-VWB-500**

Lab Sample ID: 17H0694-01 Date(s) Analyzed: 08/19/2017 08/19/2017
Instrument ID (1): _____ Instrument ID (2): _____
GC Column (1): _____ ID: _____ (mm) GC Column (2): _____ ID: _____ (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	0.53	
	2	0.000	0.000	0.000	0.68	24.8

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit
DL	Method Detection Limit
MCL	Maximum Contaminant Level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
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No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2018
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2018
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2018
RI	Rhode Island Department of Health	LAO00112	12/30/2017
NC	North Carolina Div. of Water Quality	652	12/31/2017
NJ	New Jersey DEP	MA007 NELAP	06/30/2018
FL	Florida Department of Health	E871027 NELAP	06/30/2018
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2018
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2017
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2017
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2018
NC-DW	North Carolina Department of Health	25703	07/31/2018

Company Name: **AMERICAN MA**Address: **278 482 7867**Project Name: **UMASS LT/MW**Project Location: **AMHERST MA**Project Number: **225655**Project Manager: **JEFF HAMEL**

Con-Test Quote Name/Number:

Invoice Recipient: **GEORGE FRANKLIN**Sampled By: **GEORGE FRANKLIN**

Client Sample ID / Description

Beginning Date/Time

Ending Date/Time

Composite

Grab

Matrix Code

Conc Code

Requested Turnaround Time

Due Date: **5 DAY**

Rush Approval Required

Data Delivery

Format: **PDF** ☒ EXCEL

Other:

CLP Like Data Pkg Required: ☐Email To: **jeff@con-test.com**

Fax To #:

ANALYSIS REQUESTED

1 Matrix Codes:

GW = Ground Water

WW = Waste Water

DW = Drinking Water

A = Air

S = Soil

SL = Sludge

SOL = Solid

O = Other (please define)

2 Preservation Codes:

I = Iced

H = HCL

M = Methanol

N = Nitric Acid

S = Sulfuric Acid

B = Sodium Bisulfate

X = Sodium Hydroxide

T = Sodium Thiosulfate

O = Other (please define)

3 Container Codes:

A = Amber Glass

G = Glass

P = Plastic

ST = Sterile

V = Vial

S = Summa Canister

T = Tedlar Bag

O = Other (please define)

PCB ONLY

Soxhlet

Non Soxhlet

con-test ANALYTICAL LABORATORY

www.contestlabs.com

RELAC and AHA-LAP, LLC Accredited

Project Entity

Government

Federal

City

Municipality

21 J

Brownfield

MWRA

School

MBTA

WRTA

Chromatogram

AIIA-LAP, LLC

Please use the following codes to indicate possible sample concentration within the Conc Code column above:

H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature)

Date/Time: **8/17 1030**

Received by: (signature)

Date/Time: **8/17 1030**

Relinquished by: (signature)

Date/Time: **8/17 1700**

Received by: (signature)

Date/Time: **8/17 1740**

Relinquished by: (signature)

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Date/Time: **8/17 1740**

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.contestlabs.com



con-test
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False

Statement will be brought to the attention of the Client - State True or False

Client Woodard & Curran
Received By JM Date 8/11/17 Time 1740

How were the samples received? In Cooler T No Cooler On Ice T No Ice
Direct from Sampling Ambient Melted Ice

Were samples within Temperature? 2-6°C T By Gun # 7 Actual Temp - 3.1
By Blank # Actual Temp -

Was Custody Seal Intact? N/A Were Samples Tampered with? F
Was COC Relinquished? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T
Did COC include all Client T Analysis T Sampler Name T
pertinent Information? Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? N/A Who was notified?
Are there Rushes? N/A Who was notified?
Are there Short Holds? N/A Who was notified?

Is there enough Volume? T

Is there Headspace where applicable? N/A MS/MSD? N/A
Proper Media/Containers Used? T Is splitting samples required? N/A
Were trip blanks received? N/A On COC? N/A

Do all samples have the proper pH? N/A Acid Base

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	10
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

October 19, 2017

George Franklin
Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810

Project Location: UMASS-Sylvan Complex
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 17J0480

Enclosed are results of analyses for samples received by the laboratory on October 10, 2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Meghan E. Kelley". The signature is written in a cursive style with a large, flowing "M" and a long, sweeping "y" at the end.

Meghan E. Kelley
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: George Franklin

REPORT DATE: 10/19/2017

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 17J0480

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: UMASS-Sylvan Complex

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LT-MR-IAS-105	17J0480-01	Indoor air		TO-10A/EPA 680 Modified	
LT-MR-IAS-106	17J0480-02	Indoor air		TO-10A/EPA 680 Modified	
LT-MR-IAS-107	17J0480-03	Indoor air		TO-10A/EPA 680 Modified	
LT-BR-IAS-108	17J0480-04	Indoor air		TO-10A/EPA 680 Modified	
LT-CR-IAS-109	17J0480-05	Indoor air		TO-10A/EPA 680 Modified	
LT-AMB-IAS-110	17J0480-06	Indoor air		TO-10A/EPA 680 Modified	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink, appearing to read "Lisa Worthington", is written over a light pink rectangular background.

Lisa A. Worthington
Project Manager

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

ANALYTICAL RESULTS

Project Location: UMASS-Sylvan Complex

Date Received: 10/10/2017

Field Sample #: LT-MR-IAS-105

Sample ID: 17J0480-01

Sample Matrix: Indoor air

Sampled: 10/5/2017 14:30

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Air Volume L: 918.0

Work Order: 17J0480

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		Analyst
	Results	RL		Results	RL		Analyzed		
Monochlorobiphenyls	ND	0.0010		ND	0.0011	1	10/17/17	17:26	CJM
Dichlorobiphenyls	0.0063	0.0010		0.0069	0.0011	1	10/17/17	17:26	CJM
Trichlorobiphenyls	0.024	0.0010		0.027	0.0011	1	10/17/17	17:26	CJM
Tetrachlorobiphenyls	0.054	0.0020		0.059	0.0022	1	10/17/17	17:26	CJM
Pentachlorobiphenyls	0.067	0.0020		0.073	0.0022	1	10/17/17	17:26	CJM
Hexachlorobiphenyls	0.034	0.0020		0.037	0.0022	1	10/17/17	17:26	CJM
Heptachlorobiphenyls	0.011	0.0030		0.012	0.0033	1	10/17/17	17:26	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0033	1	10/17/17	17:26	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0054	1	10/17/17	17:26	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0054	1	10/17/17	17:26	CJM
Total Polychlorinated biphenyls	0.20			0.21		1	10/17/17	17:26	CJM
Surrogates	% Recovery			% REC Limits					
Tetrachloro-m-xylene	63.0			50-125			10/17/17	17:26	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

ANALYTICAL RESULTS

Project Location: UMASS-Sylvan Complex

Date Received: 10/10/2017

Field Sample #: LT-MR-IAS-106

Sample ID: 17J0480-02

Sample Matrix: Indoor air

Sampled: 10/5/2017 14:38

Sample Description/Location:

Sub Description/Location:

Work Order: 17J0480

Flow Controller ID:

Sample Type:

Air Volume L: 819.7

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	ND	0.0010		ND	0.0012	1	10/17/17	18:03	CJM
Dichlorobiphenyls	0.010	0.0010		0.013	0.0012	1	10/17/17	18:03	CJM
Trichlorobiphenyls	0.030	0.0010		0.037	0.0012	1	10/17/17	18:03	CJM
Tetrachlorobiphenyls	0.060	0.0020		0.073	0.0024	1	10/17/17	18:03	CJM
Pentachlorobiphenyls	0.060	0.0020		0.073	0.0024	1	10/17/17	18:03	CJM
Hexachlorobiphenyls	0.023	0.0020		0.028	0.0024	1	10/17/17	18:03	CJM
Heptachlorobiphenyls	0.0042	0.0030		0.0051	0.0037	1	10/17/17	18:03	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0037	1	10/17/17	18:03	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0061	1	10/17/17	18:03	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0061	1	10/17/17	18:03	CJM
Total Polychlorinated biphenyls	0.19			0.23		1	10/17/17	18:03	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	66.7	50-125	10/17/17 18:03

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

ANALYTICAL RESULTS

Project Location: UMASS-Sylvan Complex

Date Received: 10/10/2017

Field Sample #: LT-MR-IAS-107

Sample ID: 17J0480-03

Sample Matrix: Indoor air

Sampled: 10/5/2017 14:48

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Air Volume L: 921.06

Work Order: 17J0480

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	ND	0.0010		ND	0.0011	1	10/17/17	18:41	CJM
Dichlorobiphenyls	0.011	0.0010		0.012	0.0011	1	10/17/17	18:41	CJM
Trichlorobiphenyls	0.054	0.0010		0.059	0.0011	1	10/17/17	18:41	CJM
Tetrachlorobiphenyls	0.12	0.0020		0.13	0.0022	1	10/17/17	18:41	CJM
Pentachlorobiphenyls	0.16	0.0020		0.18	0.0022	1	10/17/17	18:41	CJM
Hexachlorobiphenyls	0.053	0.0020		0.058	0.0022	1	10/17/17	18:41	CJM
Heptachlorobiphenyls	0.010	0.0030		0.011	0.0033	1	10/17/17	18:41	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0033	1	10/17/17	18:41	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0054	1	10/17/17	18:41	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0054	1	10/17/17	18:41	CJM
Total Polychlorinated biphenyls	0.41			0.45		1	10/17/17	18:41	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	62.1	50-125	10/17/17 18:41

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

ANALYTICAL RESULTS

Project Location: UMASS-Sylvan Complex

Date Received: 10/10/2017

Field Sample #: LT-BR-IAS-108

Sample ID: 17J0480-04

Sample Matrix: Indoor air

Sampled: 10/5/2017 14:59

Sample Description/Location:

Sub Description/Location:

Work Order: 17J0480

Flow Controller ID:

Sample Type:

Air Volume L: 887.9

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	ND	0.0010		ND	0.0011	1	10/17/17	19:18	CJM
Dichlorobiphenyls	0.0021	0.0010		0.0024	0.0011	1	10/17/17	19:18	CJM
Trichlorobiphenyls	0.028	0.0010		0.032	0.0011	1	10/17/17	19:18	CJM
Tetrachlorobiphenyls	0.11	0.0020		0.12	0.0023	1	10/17/17	19:18	CJM
Pentachlorobiphenyls	0.14	0.0020		0.16	0.0023	1	10/17/17	19:18	CJM
Hexachlorobiphenyls	0.049	0.0020		0.056	0.0023	1	10/17/17	19:18	CJM
Heptachlorobiphenyls	0.012	0.0030		0.014	0.0034	1	10/17/17	19:18	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0034	1	10/17/17	19:18	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0056	1	10/17/17	19:18	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0056	1	10/17/17	19:18	CJM
Total Polychlorinated biphenyls	0.34			0.38		1	10/17/17	19:18	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	76.1	50-125	10/17/17 19:18

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

ANALYTICAL RESULTS

Project Location: UMASS-Sylvan Complex

Date Received: 10/10/2017

Field Sample #: LT-CR-IAS-109

Sample ID: 17J0480-05

Sample Matrix: Indoor air

Sampled: 10/5/2017 15:06

Sample Description/Location:

Sub Description/Location:

Work Order: 17J0480

Flow Controller ID:

Sample Type:

Air Volume L: 925.6

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		Analyst
	Results	RL		Results	RL		Analyzed		
Monochlorobiphenyls	ND	0.0010		ND	0.0011	1	10/17/17	19:55	CJM
Dichlorobiphenyls	0.016	0.0010		0.017	0.0011	1	10/17/17	19:55	CJM
Trichlorobiphenyls	0.051	0.0010		0.056	0.0011	1	10/17/17	19:55	CJM
Tetrachlorobiphenyls	0.20	0.0020		0.21	0.0022	1	10/17/17	19:55	CJM
Pentachlorobiphenyls	0.25	0.0020		0.27	0.0022	1	10/17/17	19:55	CJM
Hexachlorobiphenyls	0.045	0.0020		0.049	0.0022	1	10/17/17	19:55	CJM
Heptachlorobiphenyls	0.0034	0.0030		0.0037	0.0032	1	10/17/17	19:55	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0032	1	10/17/17	19:55	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0054	1	10/17/17	19:55	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0054	1	10/17/17	19:55	CJM
Total Polychlorinated biphenyls	0.56			0.61		1	10/17/17	19:55	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	63.6	50-125	10/17/17 19:55

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

ANALYTICAL RESULTS

Project Location: UMASS-Sylvan Complex

Date Received: 10/10/2017

Field Sample #: LT-AMB-IAS-110

Sample ID: 17J0480-06

Sample Matrix: Indoor air

Sampled: 10/5/2017 15:14

Sample Description/Location:

Sub Description/Location:

Work Order: 17J0480

Flow Controller ID:

Sample Type:

Air Volume L: 918.9

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	ND	0.0010		ND	0.0011	1	10/17/17	20:33	CJM
Dichlorobiphenyls	ND	0.0010		ND	0.0011	1	10/17/17	20:33	CJM
Trichlorobiphenyls	ND	0.0010		ND	0.0011	1	10/17/17	20:33	CJM
Tetrachlorobiphenyls	ND	0.0020		ND	0.0022	1	10/17/17	20:33	CJM
Pentachlorobiphenyls	ND	0.0020		ND	0.0022	1	10/17/17	20:33	CJM
Hexachlorobiphenyls	ND	0.0020		ND	0.0022	1	10/17/17	20:33	CJM
Heptachlorobiphenyls	ND	0.0030		ND	0.0033	1	10/17/17	20:33	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0033	1	10/17/17	20:33	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0054	1	10/17/17	20:33	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0054	1	10/17/17	20:33	CJM
Total Polychlorinated biphenyls	0.0			0		1	10/17/17	20:33	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	69.5	50-125	10/17/17 20:33

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: SW-846 3540C-TO-10A/EPA 680 Modified

Lab Number [Field ID]	Batch	Initial [Cartridge	Final [mL]	Date
17J0480-01 [LT-MR-IAS-105]	B188316	1.00	1.00	10/12/17
17J0480-02 [LT-MR-IAS-106]	B188316	1.00	1.00	10/12/17
17J0480-03 [LT-MR-IAS-107]	B188316	1.00	1.00	10/12/17
17J0480-04 [LT-BR-IAS-108]	B188316	1.00	1.00	10/12/17
17J0480-05 [LT-CR-IAS-109]	B188316	1.00	1.00	10/12/17
17J0480-06 [LT-AMB-IAS-110]	B188316	1.00	1.00	10/12/17

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
PCB Homologues by GC/MS with Soxhlet Extraction - Quality Control

Analyte	Total µg		ug/m3		Spike Level	Source	%REC	%REC	RPD	RPD	Flag/Qual
	Results	RL	Results	RL	Total µg	Result	%REC	Limits	RPD	Limit	

Batch B188316 - SW-846 3540C
Blank (B188316-BLK1)

Prepared: 10/12/17 Analyzed: 10/17/17

Monochlorobiphenyls	ND	0.0010
Dichlorobiphenyls	ND	0.0010
Trichlorobiphenyls	ND	0.0010
Tetrachlorobiphenyls	ND	0.0020
Pentachlorobiphenyls	ND	0.0020
Hexachlorobiphenyls	ND	0.0020
Heptachlorobiphenyls	ND	0.0030
Octachlorobiphenyls	ND	0.0030
Nonachlorobiphenyls	ND	0.0050
Decachlorobiphenyl	ND	0.0050
Total Polychlorinated biphenyls	0.0	

Surrogate: Tetrachloro-m-xylene 0.157 0.200 78.4 50-125

LCS (B188316-BS1)

Prepared: 10/12/17 Analyzed: 10/17/17

Monochlorobiphenyls	0.14	0.0010	0.200	72.4	40-140
Dichlorobiphenyls	0.14	0.0010	0.200	68.6	40-140
Trichlorobiphenyls	0.13	0.0010	0.200	63.7	40-140
Tetrachlorobiphenyls	0.26	0.0020	0.400	65.2	40-140
Pentachlorobiphenyls	0.28	0.0020	0.400	69.9	40-140
Hexachlorobiphenyls	0.31	0.0020	0.400	76.8	40-140
Heptachlorobiphenyls	0.46	0.0030	0.600	76.4	40-140
Octachlorobiphenyls	0.46	0.0030	0.600	77.4	40-140
Nonachlorobiphenyls	0.82	0.0050	1.00	82.4	40-140
Decachlorobiphenyl	0.72	0.0050	1.00	72.2	40-140

Surrogate: Tetrachloro-m-xylene 0.158 0.200 79.0 50-125

LCS Dup (B188316-BSD1)

Prepared: 10/12/17 Analyzed: 10/17/17

Monochlorobiphenyls	0.18	0.0010	0.200	91.6	40-140	23.5	50
Dichlorobiphenyls	0.17	0.0010	0.200	85.3	40-140	21.7	50
Trichlorobiphenyls	0.16	0.0010	0.200	79.4	40-140	21.9	50
Tetrachlorobiphenyls	0.32	0.0020	0.400	81.1	40-140	21.8	50
Pentachlorobiphenyls	0.35	0.0020	0.400	86.9	40-140	21.7	50
Hexachlorobiphenyls	0.37	0.0020	0.400	93.7	40-140	19.8	50
Heptachlorobiphenyls	0.56	0.0030	0.600	92.6	40-140	19.1	50
Octachlorobiphenyls	0.56	0.0030	0.600	93.8	40-140	19.2	50
Nonachlorobiphenyls	1.0	0.0050	1.00	102	40-140	21.2	50
Decachlorobiphenyl	0.88	0.0050	1.00	88.2	40-140	20.0	50

Surrogate: Tetrachloro-m-xylene 0.174 0.200 87.1 50-125

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit
DL	Method Detection Limit
MCL	Maximum Contaminant Level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

INTERNAL STANDARD AREA AND RT SUMMARY

TO-10A/EPA 680 Modified

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LT-MR-IAS-105 (17J0480-01)			Lab File ID: F1017008.D			Analyzed: 10/17/17 17:26			
Phenanthrene-d10	1236813	20.411				50 - 200	20.4110	+/-0.50	
Chrysene-d12	822684	28.225				50 - 200	28.2250	+/-0.50	
LT-MR-IAS-106 (17J0480-02)			Lab File ID: F1017009.D			Analyzed: 10/17/17 18:03			
Phenanthrene-d10	1256022	20.411				50 - 200	20.4110	+/-0.50	
Chrysene-d12	838142	28.226				50 - 200	28.2260	+/-0.50	
LT-MR-IAS-107 (17J0480-03)			Lab File ID: F1017010.D			Analyzed: 10/17/17 18:41			
Phenanthrene-d10	1223062	20.411				50 - 200	20.4110	+/-0.50	
Chrysene-d12	808910	28.221				50 - 200	28.2210	+/-0.50	
LT-BR-IAS-108 (17J0480-04)			Lab File ID: F1017011.D			Analyzed: 10/17/17 19:18			
Phenanthrene-d10	1234959	20.411				50 - 200	20.4110	+/-0.50	
Chrysene-d12	843626	28.225				50 - 200	28.2250	+/-0.50	
LT-CR-IAS-109 (17J0480-05)			Lab File ID: F1017012.D			Analyzed: 10/17/17 19:55			
Phenanthrene-d10	1278712	20.41				50 - 200	20.4100	+/-0.50	
Chrysene-d12	858091	28.225				50 - 200	28.2250	+/-0.50	
LT-AMB-IAS-110 (17J0480-06)			Lab File ID: F1017013.D			Analyzed: 10/17/17 20:33			
Phenanthrene-d10	1236591	20.411				50 - 200	20.4110	+/-0.50	
Chrysene-d12	852441	28.221				50 - 200	28.2210	+/-0.50	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CONTINUING CALIBRATION CHECK

COMPOUND	TYPE			RESPONSE FACTOR			% DIFF / DRIFT	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
---------	----------------

TO-10A/EPA 680 Modified in Air

Total Polychlorinated biphenyls AIHA

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2018
CT	Connecticut Department of Public Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2018
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2018
RI	Rhode Island Department of Health	LAO00112	12/30/2017
NC	North Carolina Div. of Water Quality	652	12/31/2017
NJ	New Jersey DEP	MA007 NELAP	06/30/2018
FL	Florida Department of Health	E871027 NELAP	06/30/2018
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2018
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2017
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2018
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2018
NC-DW	North Carolina Department of Health	25703	07/31/2018

[illegible]

December 8, 2017

George Franklin
Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810

Project Location: Sylvan Complex-UMASS Amherst
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 17K1207

Enclosed are results of analyses for samples received by the laboratory on November 21, 2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Meghan E. Kelley". The signature is written in a cursive style with a large, flowing "M" and a long, sweeping "y" at the end.

Meghan E. Kelley
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: George Franklin

REPORT DATE: 12/8/2017

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 17K1207

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sylvan Complex-UMASS Amherst

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LT-BR-IAS-111	17K1207-01	Indoor air		TO-10A/EPA 680 Modified	
LT-BR-IAS-112	17K1207-02	Indoor air		TO-10A/EPA 680 Modified	
LT-MR-IAS-113	17K1207-03	Indoor air		TO-10A/EPA 680 Modified	
LT-MR-IAS-114	17K1207-04	Indoor air		TO-10A/EPA 680 Modified	
LT-AMB-IAS-115	17K1207-05	Indoor air		TO-10A/EPA 680 Modified	

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

TO-10A/EPA 680 Modified

Qualifications:

V-06

Continuing calibration did not meet method specifications and was biased on the high side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the high side.

Analyte & Samples(s) Qualified:

Decachlorobiphenyl

B191706-BS1, B191706-BSD1

V-20

Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

Decachlorobiphenyl

17K1207-01[LT-BR-IAS-111], 17K1207-02[LT-BR-IAS-112], 17K1207-03[LT-MR-IAS-113], 17K1207-04[LT-MR-IAS-114], 17K1207-05[LT-AMB-IAS-115], B191706-BLK1

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Tod E. Kopycinski
Laboratory Director

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

ANALYTICAL RESULTS

Project Location: Sylvan Complex-UMASS Amher

Sample Description/Location:

Work Order: 17K1207

Date Received: 11/21/2017

Sub Description/Location:

Field Sample #: LT-BR-IAS-111

Sample ID: 17K1207-01

Sample Matrix: Indoor air

Flow Controller ID:

Sampled: 11/20/2017 14:37

Sample Type:

Air Volume L: 904.9

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	ND	0.0010		ND	0.0011	1	11/30/17	15:17	CJM
Dichlorobiphenyls	0.0025	0.0010		0.0028	0.0011	1	11/30/17	15:17	CJM
Trichlorobiphenyls	0.022	0.0010		0.025	0.0011	1	11/30/17	15:17	CJM
Tetrachlorobiphenyls	0.078	0.0020		0.086	0.0022	1	11/30/17	15:17	CJM
Pentachlorobiphenyls	0.080	0.0020		0.088	0.0022	1	11/30/17	15:17	CJM
Hexachlorobiphenyls	0.011	0.0020		0.012	0.0022	1	11/30/17	15:17	CJM
Heptachlorobiphenyls	ND	0.0030		ND	0.0033	1	11/30/17	15:17	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0033	1	11/30/17	15:17	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0055	1	11/30/17	15:17	CJM
Decachlorobiphenyl	ND	0.0050	V-20	ND	0.0055	1	11/30/17	15:17	CJM
Total Polychlorinated biphenyls	0.19			0.21		1	11/30/17	15:17	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	83.2	50-125	11/30/17 15:17

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ANALYTICAL RESULTS

Project Location: Sylvan Complex-UMASS Amher

Date Received: 11/21/2017

Field Sample #: LT-BR-IAS-112

Sample ID: 17K1207-02

Sample Matrix: Indoor air

Sampled: 11/20/2017 14:49

Sample Description/Location:

Sub Description/Location:

Work Order: 17K1207

Flow Controller ID:

Sample Type:

Air Volume L: 889.6

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	ND	0.0010		ND	0.0011	1	11/30/17	15:54	CJM
Dichlorobiphenyls	0.0029	0.0010		0.0032	0.0011	1	11/30/17	15:54	CJM
Trichlorobiphenyls	0.019	0.0010		0.022	0.0011	1	11/30/17	15:54	CJM
Tetrachlorobiphenyls	0.082	0.0020		0.093	0.0022	1	11/30/17	15:54	CJM
Pentachlorobiphenyls	0.079	0.0020		0.088	0.0022	1	11/30/17	15:54	CJM
Hexachlorobiphenyls	0.014	0.0020		0.016	0.0022	1	11/30/17	15:54	CJM
Heptachlorobiphenyls	ND	0.0030		ND	0.0034	1	11/30/17	15:54	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0034	1	11/30/17	15:54	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0056	1	11/30/17	15:54	CJM
Decachlorobiphenyl	ND	0.0050	V-20	ND	0.0056	1	11/30/17	15:54	CJM
Total Polychlorinated biphenyls	0.20			0.22		1	11/30/17	15:54	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	72.6	50-125	11/30/17 15:54

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ANALYTICAL RESULTS

Project Location: Sylvan Complex-UMASS Amher

Date Received: 11/21/2017

Field Sample #: LT-MR-IAS-113

Sample ID: 17K1207-03

Sample Matrix: Indoor air

Sampled: 11/20/2017 13:02

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Air Volume L: 914.774

Work Order: 17K1207

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	ND	0.0010		ND	0.0011	1	11/30/17	16:31	CJM
Dichlorobiphenyls	0.0055	0.0010		0.006	0.0011	1	11/30/17	16:31	CJM
Trichlorobiphenyls	0.023	0.0010		0.025	0.0011	1	11/30/17	16:31	CJM
Tetrachlorobiphenyls	0.049	0.0020		0.053	0.0022	1	11/30/17	16:31	CJM
Pentachlorobiphenyls	0.047	0.0020		0.052	0.0022	1	11/30/17	16:31	CJM
Hexachlorobiphenyls	0.022	0.0020		0.025	0.0022	1	11/30/17	16:31	CJM
Heptachlorobiphenyls	0.0042	0.0030		0.0046	0.0033	1	11/30/17	16:31	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0033	1	11/30/17	16:31	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0055	1	11/30/17	16:31	CJM
Decachlorobiphenyl	ND	0.0050	V-20	ND	0.0055	1	11/30/17	16:31	CJM
Total Polychlorinated biphenyls	0.15			0.16		1	11/30/17	16:31	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	80.1	50-125	11/30/17 16:31

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ANALYTICAL RESULTS

Project Location: Sylvan Complex-UMASS Amher

Date Received: 11/21/2017

Field Sample #: LT-MR-IAS-114

Sample ID: 17K1207-04

Sample Matrix: Indoor air

Sampled: 11/20/2017 13:10

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Air Volume L: 891.18

Work Order: 17K1207

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	ND	0.0010		ND	0.0011	1	11/30/17	17:09	CJM
Dichlorobiphenyls	0.0044	0.0010		0.0049	0.0011	1	11/30/17	17:09	CJM
Trichlorobiphenyls	0.041	0.0010		0.047	0.0011	1	11/30/17	17:09	CJM
Tetrachlorobiphenyls	0.099	0.0020		0.11	0.0022	1	11/30/17	17:09	CJM
Pentachlorobiphenyls	0.13	0.0020		0.14	0.0022	1	11/30/17	17:09	CJM
Hexachlorobiphenyls	0.034	0.0020		0.038	0.0022	1	11/30/17	17:09	CJM
Heptachlorobiphenyls	0.0063	0.0030		0.007	0.0034	1	11/30/17	17:09	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0034	1	11/30/17	17:09	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0056	1	11/30/17	17:09	CJM
Decachlorobiphenyl	ND	0.0050	V-20	ND	0.0056	1	11/30/17	17:09	CJM
Total Polychlorinated biphenyls	0.31			0.35		1	11/30/17	17:09	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	83.3	50-125	11/30/17 17:09

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ANALYTICAL RESULTS

Project Location: Sylvan Complex-UMASS Amher

Sample Description/Location:

Work Order: 17K1207

Date Received: 11/21/2017

Sub Description/Location:

Field Sample #: LT-AMB-IAS-115

Sample ID: 17K1207-05

Sample Matrix: Indoor air

Flow Controller ID:

Sampled: 11/20/2017 15:18

Sample Type:

Air Volume L: 947.3

TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	ND	0.0010		ND	0.0011	1	11/30/17	17:46	CJM
Dichlorobiphenyls	ND	0.0010		ND	0.0011	1	11/30/17	17:46	CJM
Trichlorobiphenyls	ND	0.0010		ND	0.0011	1	11/30/17	17:46	CJM
Tetrachlorobiphenyls	ND	0.0020		ND	0.0021	1	11/30/17	17:46	CJM
Pentachlorobiphenyls	ND	0.0020		ND	0.0021	1	11/30/17	17:46	CJM
Hexachlorobiphenyls	ND	0.0020		ND	0.0021	1	11/30/17	17:46	CJM
Heptachlorobiphenyls	ND	0.0030		ND	0.0032	1	11/30/17	17:46	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0032	1	11/30/17	17:46	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0053	1	11/30/17	17:46	CJM
Decachlorobiphenyl	ND	0.0050	V-20	ND	0.0053	1	11/30/17	17:46	CJM
Total Polychlorinated biphenyls	0.0			0		1	11/30/17	17:46	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	83.3	50-125	11/30/17 17:46

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Sample Extraction Data

Prep Method: SW-846 3540C-TO-10A/EPA 680 Modified

Lab Number [Field ID]	Batch	Initial [Cartridge	Final [mL]	Date
17K1207-01 [LT-BR-IAS-111]	B191706	1.00	1.00	11/27/17
17K1207-02 [LT-BR-IAS-112]	B191706	1.00	1.00	11/27/17
17K1207-03 [LT-MR-IAS-113]	B191706	1.00	1.00	11/27/17
17K1207-04 [LT-MR-IAS-114]	B191706	1.00	1.00	11/27/17
17K1207-05 [LT-AMB-IAS-115]	B191706	1.00	1.00	11/27/17

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
PCB Homologues by GC/MS with Soxhlet Extraction - Quality Control

Analyte	Total µg		ug/m3		Spike Level	Source	%REC	%REC	RPD	RPD	Flag/Qual
	Results	RL	Results	RL	Total µg	Result	%REC	Limits	RPD	Limit	
Batch B191706 - SW-846 3540C											
Blank (B191706-BLK1)					Prepared: 11/27/17 Analyzed: 11/30/17						
Monochlorobiphenyls	ND	0.0010									
Dichlorobiphenyls	ND	0.0010									
Trichlorobiphenyls	ND	0.0010									
Tetrachlorobiphenyls	ND	0.0020									
Pentachlorobiphenyls	ND	0.0020									
Hexachlorobiphenyls	ND	0.0020									
Heptachlorobiphenyls	ND	0.0030									
Octachlorobiphenyls	ND	0.0030									
Nonachlorobiphenyls	ND	0.0050									
Decachlorobiphenyl	ND	0.0050									V-20
Total Polychlorinated biphenyls	0.0										
Surrogate: Tetrachloro-m-xylene	0.155				0.200		77.7	50-125			
LCS (B191706-BS1)					Prepared: 11/27/17 Analyzed: 11/30/17						
Monochlorobiphenyls	0.16	0.0010			0.200		77.7	40-140			
Dichlorobiphenyls	0.16	0.0010			0.200		81.5	40-140			
Trichlorobiphenyls	0.15	0.0010			0.200		76.5	40-140			
Tetrachlorobiphenyls	0.32	0.0020			0.400		79.5	40-140			
Pentachlorobiphenyls	0.34	0.0020			0.400		85.0	40-140			
Hexachlorobiphenyls	0.35	0.0020			0.400		86.9	40-140			
Heptachlorobiphenyls	0.51	0.0030			0.600		84.7	40-140			
Octachlorobiphenyls	0.52	0.0030			0.600		85.9	40-140			
Nonachlorobiphenyls	0.90	0.0050			1.00		89.6	40-140			
Decachlorobiphenyl	0.91	0.0050			1.00		90.9	40-140			V-06
Surrogate: Tetrachloro-m-xylene	0.159				0.200		79.4	50-125			
LCS Dup (B191706-BSD1)					Prepared: 11/27/17 Analyzed: 11/30/17						
Monochlorobiphenyls	0.14	0.0010			0.200		72.2	40-140	7.33	50	
Dichlorobiphenyls	0.15	0.0010			0.200		77.1	40-140	5.62	50	
Trichlorobiphenyls	0.15	0.0010			0.200		74.4	40-140	2.78	50	
Tetrachlorobiphenyls	0.31	0.0020			0.400		78.1	40-140	1.75	50	
Pentachlorobiphenyls	0.35	0.0020			0.400		88.7	40-140	4.22	50	
Hexachlorobiphenyls	0.36	0.0020			0.400		90.3	40-140	3.85	50	
Heptachlorobiphenyls	0.54	0.0030			0.600		90.1	40-140	6.12	50	
Octachlorobiphenyls	0.56	0.0030			0.600		93.9	40-140	8.93	50	
Nonachlorobiphenyls	0.99	0.0050			1.00		98.9	40-140	9.90	50	
Decachlorobiphenyl	1.0	0.0050			1.00		103	40-140	12.3	50	V-06
Surrogate: Tetrachloro-m-xylene	0.155				0.200		77.6	50-125			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332**FLAG/QUALIFIER SUMMARY**

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit
DL	Method Detection Limit
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
V-06	Continuing calibration did not meet method specifications and was biased on the high side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the high side.
V-20	Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

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INTERNAL STANDARD AREA AND RT SUMMARY

TO-10A/EPA 680 Modified

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LT-BR-IAS-111 (17K1207-01)			Lab File ID: F1128088.D			Analyzed: 11/30/17 15:17			
Phenanthrene-d10	1204945	20.312				50 - 200	20.3120	+/-0.50	
Chrysene-d12	794371	28.081				50 - 200	28.0810	+/-0.50	
LT-BR-IAS-112 (17K1207-02)			Lab File ID: F1128089.D			Analyzed: 11/30/17 15:54			
Phenanthrene-d10	1242611	20.312				50 - 200	20.3120	+/-0.50	
Chrysene-d12	873074	28.085				50 - 200	28.0850	+/-0.50	
LT-MR-IAS-113 (17K1207-03)			Lab File ID: F1128090.D			Analyzed: 11/30/17 16:31			
Phenanthrene-d10	1183537	20.312				50 - 200	20.3120	+/-0.50	
Chrysene-d12	797562	28.081				50 - 200	28.0810	+/-0.50	
LT-MR-IAS-114 (17K1207-04)			Lab File ID: F1128091.D			Analyzed: 11/30/17 17:09			
Phenanthrene-d10	914342	20.312				50 - 200	20.3120	+/-0.50	
Chrysene-d12	587953	28.081				50 - 200	28.0810	+/-0.50	
LT-AMB-IAS-115 (17K1207-05)			Lab File ID: F1128092.D			Analyzed: 11/30/17 17:46			
Phenanthrene-d10	1146208	20.312				50 - 200	20.3120	+/-0.50	
Chrysene-d12	747755	28.081				50 - 200	28.0810	+/-0.50	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CONTINUING CALIBRATION CHECK

COMPOUND	TYPE			RESPONSE FACTOR			% DIFF / DRIFT	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
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No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2018
CT	Connecticut Department of Public Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2018
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2018
RI	Rhode Island Department of Health	LAO00112	12/30/2017
NC	North Carolina Div. of Water Quality	652	12/31/2017
NJ	New Jersey DEP	MA007 NELAP	06/30/2018
FL	Florida Department of Health	E871027 NELAP	06/30/2018
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2018
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2017
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2018
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2018
NC-DW	North Carolina Department of Health	25703	07/31/2018



CHAIN OF CUSTODY RECORD (AIR)

Requested Turnaround Time	
7-Day <input type="checkbox"/>	10-Day <input type="checkbox"/>
Due Date: 10-01-17	
Risk Approval Required	
1-Day <input type="checkbox"/>	3-Day <input type="checkbox"/>
2-Day <input type="checkbox"/>	4-Day <input type="checkbox"/>
Data Delivery	
Format: PDF <input checked="" type="checkbox"/>	EXCEL <input type="checkbox"/>
Other: <input type="checkbox"/>	
CLP Like Data Pkg Required: <input type="checkbox"/>	
Email To: Jeff Seeger, Andrew	
Fax To #:	

Lab Use	Client Use	Collection Data	Duration	Flow Rate	Matrix	Volume
Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	m ³ /min L/min	Code	Liters m ³
	LT-BR-IAS-110	11-20-17 0813	11-20-17 1437	2.514	1A	904.9
1	LT-BR-IAS-111	11-20-17 0837	11-20-17 1449	2.471	1A	889.6
2	LT-BR-IAS-112	11-20-17 0849	11-20-17 1302	2.534	1A	947.7
3	LT-MR-IAS-113	11-20-17 0901	11-20-17 1310	2.476	1A	896.8
4	LT-MR-IAS-114	11-20-17 0910	11-20-17 1513	2.632	1A	947.3
5	LT-AMB-IAS-115	11-20-17 0919				

Comments:

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Matrix Codes:

SG = SOIL GAS
IA = INDOOR AIR
AMB = AMBIENT
SS = SUB SLAB
D = DUP
BL = BLANK
O = Other

Relinquished by: (signature)	Date/Time: 11/21/17 1:30		Please use the following codes to indicate possible sample concentration within the Conc Code column above: H - High; M - Medium; L - Low; C - Clean; U - Unknown
Received by: (signature)	Date/Time: 11/21/17 1:30		
Relinquished by: (signature)	Date/Time: 11/21/17 19:00		
Received by: (signature)	Date/Time: 11/21/17 19:00		
Relinquished by: (signature)	Date/Time: 11/21/17 19:00		

Relinquished by: (signature)	Date/Time: 11/21/17 19:00	Project Entity	Government <input type="checkbox"/>	Federal <input type="checkbox"/>	City <input type="checkbox"/>	Municipality <input type="checkbox"/>	21 J <input type="checkbox"/>	Brownfield <input type="checkbox"/>	MWRA <input type="checkbox"/>	School <input type="checkbox"/>	MBTA <input type="checkbox"/>	WRTA <input type="checkbox"/>	Chromatogram <input type="checkbox"/>	AIHA-LAP, LLC <input type="checkbox"/>	Other <input type="checkbox"/>	PCB ONLY <input type="checkbox"/>	Soxhlet <input type="checkbox"/>	Non Soxhlet <input type="checkbox"/>
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39 Spruce St.
East Longmeadow, MA. 01028
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ANALYTICAL LABORATORY

Doc# 278 Rev 6 2017

Air Media Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False

Statement will be brought to the attention of the Client - State True or False

Client Woodard & Curran

Received By KAP Date 11/21/17 Time 1900

How were the samples received? In Cooler T On Ice T No Ice

In Box Ambient Melted Ice

Were samples within Temperature Compliance? 2-6°C T By Gun # 1 Actual Temp - 2.4

By Blank # Actual Temp -

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished? T Does Chain Agree With Samples? T

Are there any loose caps/valves on any samples? F

Is COC in ink/ Legible? T

Did COC Include all Client T Analysis T Sampler Name T

Pertinent Information? Project T ID's T Collection Dates/Times T

Are Sample Labels filled out and legible? T

Are there Rushes? F Who was notified?

Samples are received within holding time? T

Proper Media Used? T Individually Certified Cans? F

Are there Trip Blanks? F Is there enough Volume? T

Containers:	#	Size	Regulator	Duration	Accessories:		
Summa Cans					Nut/Ferrule		IC Train
Tedlar Bags					Tubing		
TO-17 Tubes					T-Connector		Shipping Charges
Radiello					Syringe		
Pufs/TO-11s	<u>6</u>				Tedlar		

Can #'s					Reg #'s				
Unused Media					Pufs/TO-17's				
					<u>111617-06</u>	<u>111617-05</u>			
					<u>111617-01</u>				
					<u>111617-02</u>				
					<u>111617-03</u>				
					<u>111617-04</u>				

Comments: