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November 12, 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 – 2018 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 2018 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 Complex:
    - 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, which was 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 Complex – 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; annual post-remediation monitoring has been conducted since from 2014. In addition, based on communications with EPA, multiple rounds of indoor air sampling were conducted in 2016, 2017, and 2018 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 2018 activities is provided below with details of the specific projects included in individual project reports provided as attachments to this letter.

## 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 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 –2018

Woodard & Curran performed the following monitoring activities between July and September 2018:

- Visual inspections of encapsulated surfaces were conducted at each of the six areas of long term monitoring in 2018;
- Surface wipe sampling of encapsulated surfaces was conducted on the encapsulated surfaces within the pedestrian tunnel at the north end of the Southwest Concourse and on interior and exterior encapsulated surfaces within the Sylvan Complex; and
- Indoor air samples were collected from the elevator lobbies of the Dubois Library and from interior areas of previous PCB remediation activities in the three buildings within the Sylvan Complex.

## RESULTS

A summary of the results of the 2018 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 2018 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. Based on information provided by UMass, no work or maintenance activities were conducted in the subject areas with the exception of repairs made to the epoxy coating at one roof line joint at Field House within the Orchard Hill Complex.

The results from the indoor air sampling at the Dubois Library and the Sylvan Complex indicated that the average concentrations of PCBs were either below or slightly above the site-specific calculated exposure levels for the different spaces.

### Corrective Measures

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

- Sylvan Complex –UMass continues to evaluate 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 long-term monitoring as per the applicable MMIPs for each area to include annual visual inspections and indoor air sampling (where applicable) and bi-annual surface wipe sampling.

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

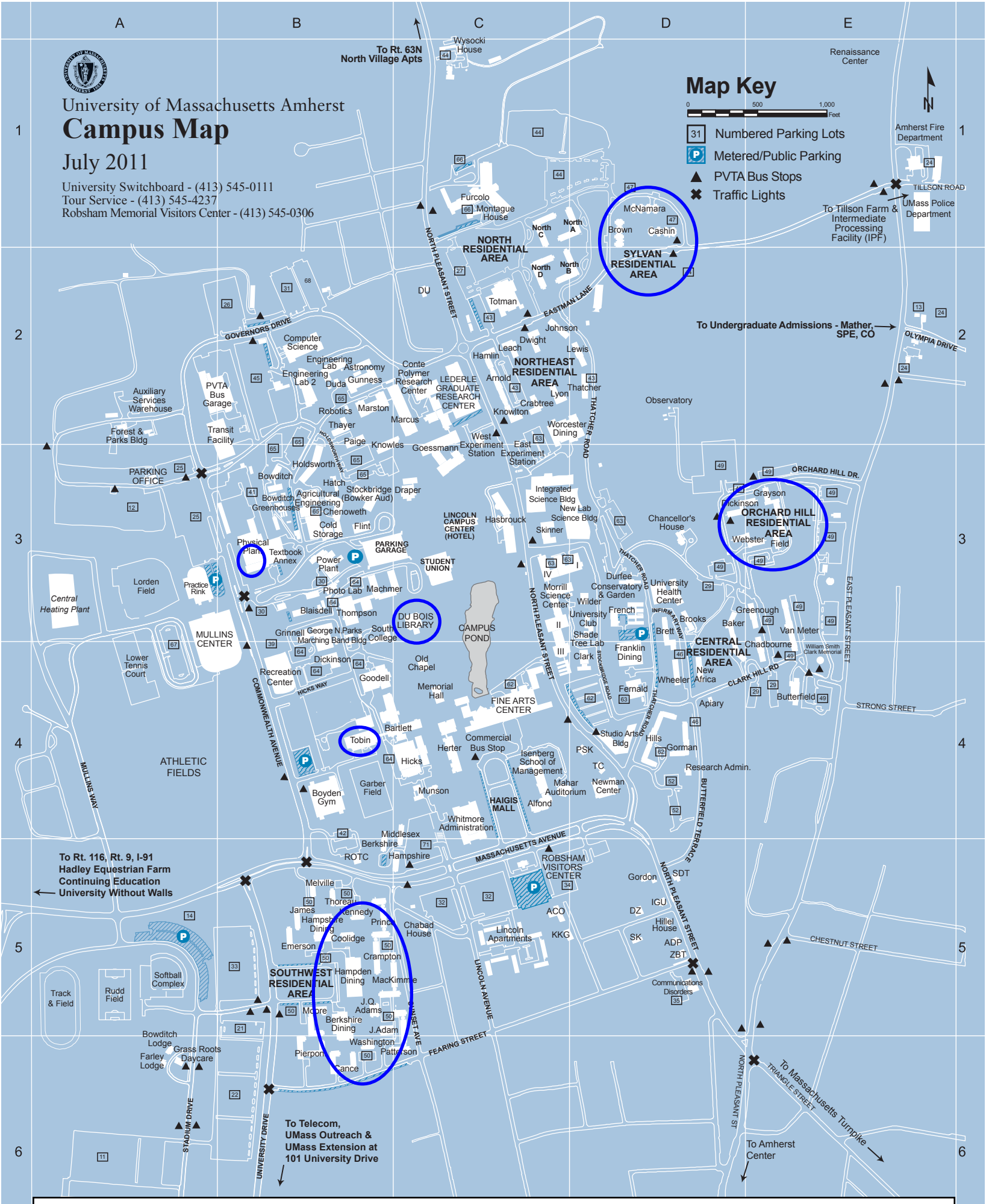



**Figure 1 Site Location Map**

# 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 parts per million (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 is 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 depicting 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 µg/100 $cm^2$) 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 µg/100 $cm^2$).

**Monitoring and Maintenance Implementation Plan**

The Monitoring and Maintenance Implementation Plan (MMIP) was submitted to the United Stated Environmental Protection Agency (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). 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 2017 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 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 some flaking and peeling of the Sikagard 670W clear coating applied to a limited portion of the concrete on the northern retaining wall. Based on the observed flaking and peeling, in 2017 UMass applied two coats of Sikagard 62 epoxy coating to the accessible portion of the northern retaining wall where the clear coating had been observed to be flaking and peeling during previous events.

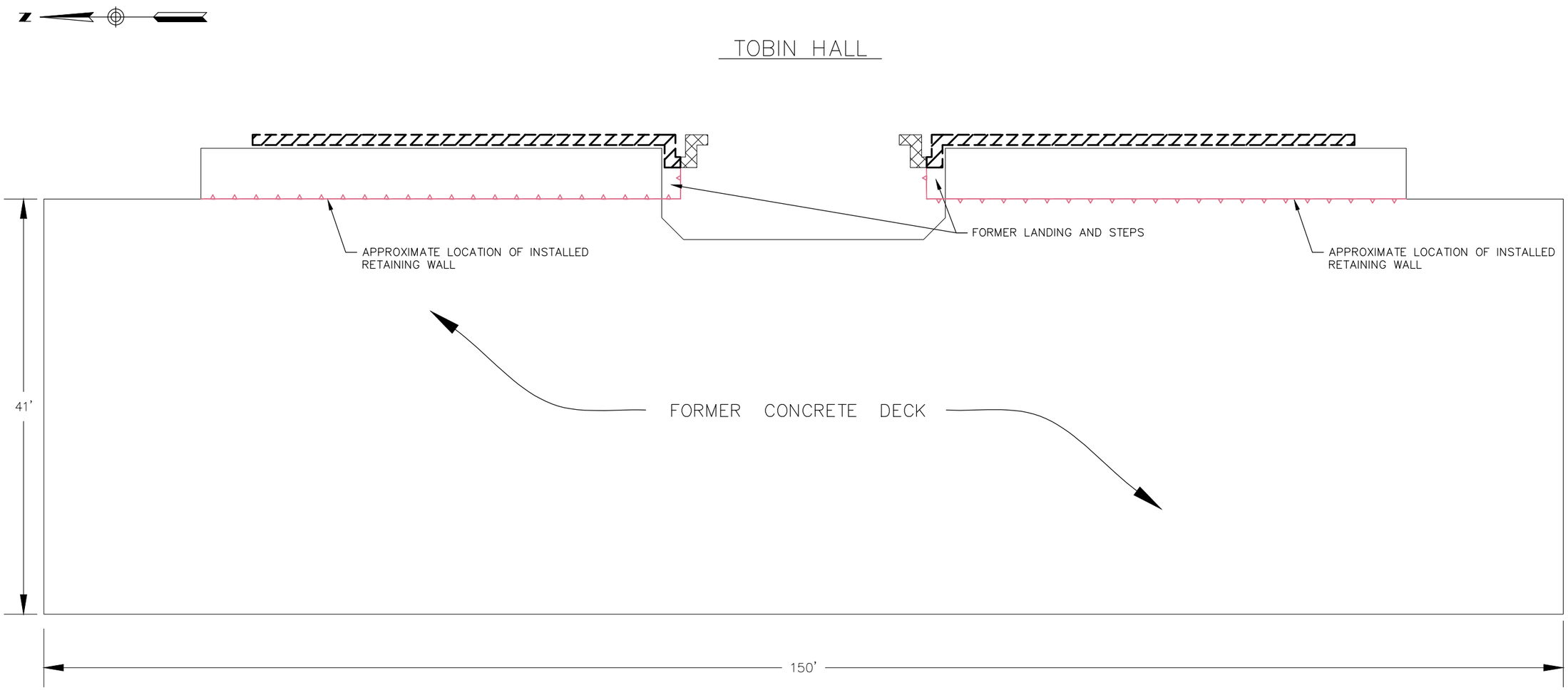
Wipe samples collected on an annual basis between 2012 and 2017 from encapsulated surfaces, including the epoxy coated surfaces applied in 2017 indicated that PCBs were non-detect (< 0.20 µg/100$cm^2$).

**Monitoring Activities – August 2018**

Results of visual inspections indicated that the epoxy coatings on accessible portions of the retaining walls were in good physical condition.

**Next Monitoring Event**

The next monitoring event is scheduled for July 2019 to include annual visual inspections and wipe sampling of the encapsulated surfaces.




LEGEND

AREA OF TOBIN HALL CONCRETE ENCAPSULATION CURRENTLY INACCESSIBLE DUE TO INSTALLATION OF RETAINING WALL AND PLANTING BED (ENCAPSULATION APPLIED TO A DISTANCE OF 6" ABOVE AND BELOW THE FORMER CAULKED JOINT).

AREA OF TOBIN HALL CONCRETE ENCAPSULATION TO A DISTANCE OF 6" ABOVE AND 6" BELOW CAULKED JOINT CURRENTLY ACCESSIBLE AT LOCATIONS ABOVE THE FORMER JOINT.

16' 12' 8' 4' 0 12' 24'

BAR SCALE
3/32" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

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ENCAPSULATED BUILDING SURFACES

DESIGNED BY: GJF
DRAWN BY: PF
CHECKED BY: JAH
225996-LTM-TOBIN-FIGURE*.dwg

UNIVERSITY OF MASSACHUSETTS AMHERST, MASSACHUSETTS

2018 Long Term Monitoring Report

JOB NO: 225695
DATE: DECEMBER 2016
SCALE: AS NOTED

Figure 1-1

\\woodardcurran.net\shared\Projects\225695 UMass Amherst - Long Term Monitoring\wip\Drawings\2016\225996-ltm-tobin-Figure 1-REV1.dwg

# 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, MacKimmie House/Stonewall Center, and Patterson House

**Summary of Remedial Areas**

*In-Place Management*: Residual PCBs at concentrations > 1 part per million (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 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. These surfaces include the concrete and granite materials on the east sides of the Patterson and MacKimmie Houses encapsulated in 2017; and
    - 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), in July and August 2011 (areas included in the PCB Remediation Plan Amendment), and in June 2017 (Patterson and MacKimmie Houses). A summary of analytical results from the baseline sampling is as follows:

- Sikagard 62 Epoxy Encapsulated Surfaces – 69 of 71 samples were 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 $cm^2$; 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 $cm^2$).
- Encapsulated Concrete Building Foundations (July/August 2011 and June 2017) – 6 of 7 samples collected at grade (both epoxy and clear coated surfaces) were reported as non-detect and one sample reported at a concentration of 4 µg/100 $cm^2$; however, materials in this area were recoated and results from the follow-up wipe samples indicated PCBs were non-detect (< 1.0 µg/100 $cm^2$).

**Monitoring and Maintenance Implementation Plan**

The Monitoring and Maintenance Implementation Plan (MMIP) was submitted to the United States Environmental Protection Agency (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 69 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 2017**

Long term monitoring was conducted on an annual basis from 2012 through 2017. Results of the monitoring were presented to EPA in the annual monitoring reports and are summarized below.

*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. In 2017, UMass re-applied epoxy to surfaces observed to have been damaged during previous monitoring. Visual inspections conducted during the 2017 monitoring event confirmed the application of the epoxy coatings to the previously reported damaged areas and one additional small area was observed to be damaged in the Berkshire Plaza (< 1 square foot).
- 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. Following the 2015 monitoring event, the collection of surface wipe samples was transitioned to a bi-annual event. 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 µg/100 $cm^2$ during each event. However, epoxy wipe sample results from the Washington Plaza stairs indicated that the concentrations of PCBs were > 1 µg/100 $cm^2$ during the 2012, 2013, and 2015 monitoring events with reported PCB concentrations of 1.4, 2.4, and 4.6 µg/100 $cm^2$, respectively (PCBs were reported at a concentration of 0.24 µg/100 $cm^2$ 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 indicted that PCBs were non-detect (< 0.20 µg/100 $cm^2$). Based on these results, an additional coating of Sikagard 62 was applied to the subject surfaces in 2017. Analytical results from the wipe sample collected from the applied epoxy coating reported PCBs at a concentration of 0.51 ug/100$cm^2$.
- 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 µg/100 $cm^2$) or < 1 µg/100$cm^2$ in all samples collected through the 2017 event, including multiple samples collected from the areas of isolated 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

results indicated that PCBs were non-detect (< 0.20 µg/100 $cm^2$) to 0.56 ug/100$cm^2$ in the samples collected from the adjacent concrete and present at concentrations of 1.6, 1.9, 1.98, 2.7, and 13.4 µg/100 $cm^2$ in the samples collected from the surface of the caulked joint.

**Monitoring Activities – 2018**

The 2018 monitoring event was conducted on July 10, 2018 and included visual inspections of the liquid coatings and the collection of a wipe samples from the pedestrian tunnel surfaces. A summary of the results is as follows:

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

- Sikagard 62 Epoxy: The coatings were observed to be in good physical condition. Consistent with the 2017 monitoring event, one small area in the Berkshire Plaza was noted to be damaged. 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.

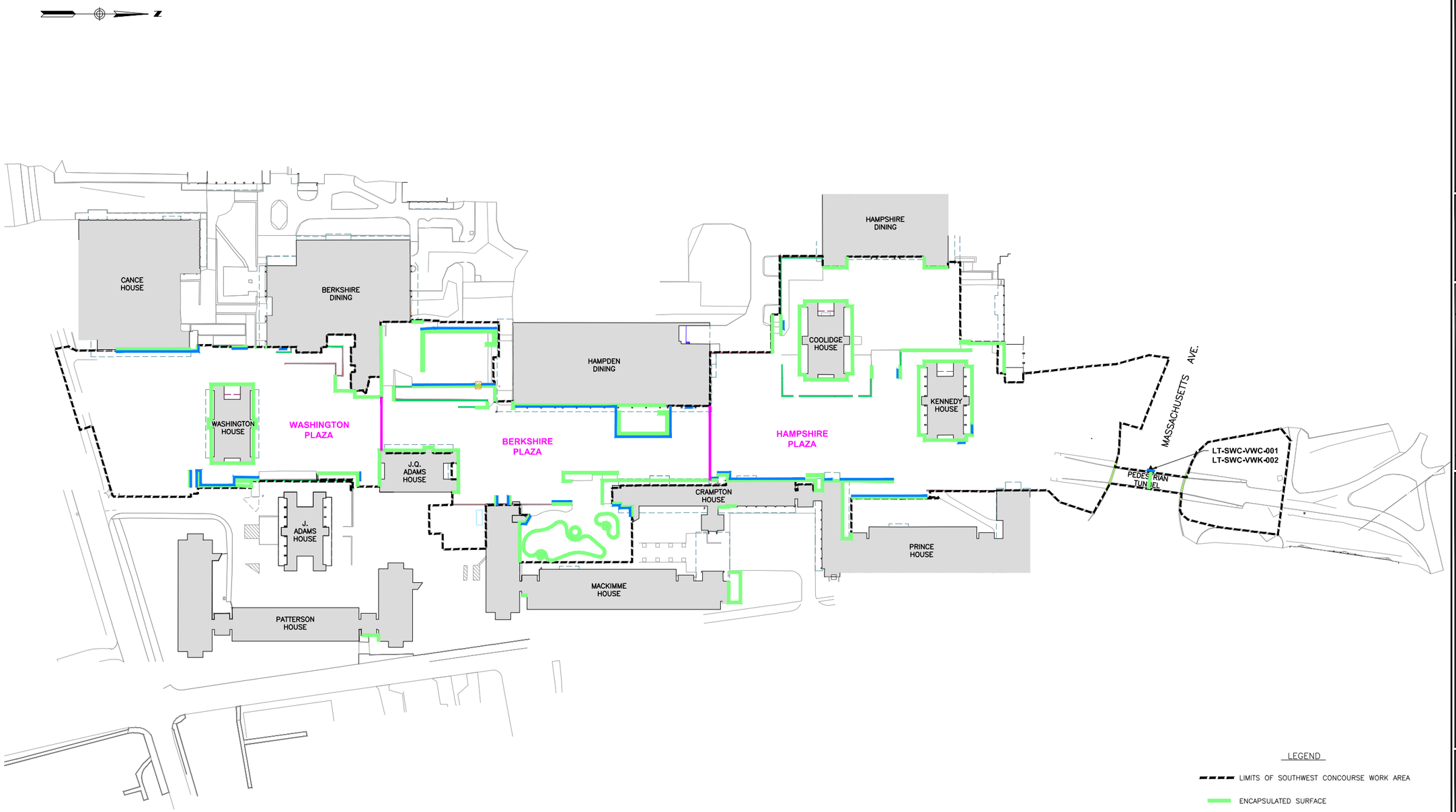
*Wipe Samples:* Wipe samples were collected from the surface of the caulked joint and the surrounding concrete in the pedestrian tunnel. Analytical results from both samples reported PCBs as non-detect (< 0.20 ug/100$cm^2$). For the adjacent concrete surfaces, the non-detect result is consistent with the results prior to 2017 indicating that the 2017 result may not be representative of current site conditions. For the expansion joint caulking, the reported non-detect result is lower than previous sampling events. Given these results the wipe sampling of these surfaces will be incorporated into the bi-annual sampling program for SWC with the next sampling scheduled to be conducted in 2019. The locations of the wipe samples are depicted on Figure 2-1.

**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 were reported as non-detect on the surface of the coating over the caulked joint and on the surrounding concrete. This area will be transitioned back to a bi-annual frequency for wipe sampling.

**Next Monitoring Event**

The next monitoring event will be performed during the Summer of 2019 and will include visual inspections and wipe sampling of coated surfaces in accordance with the MMIP.




LEGEND

- LIMITS OF SOUTHWEST CONCOURSE WORK AREA
- ENCAPSULATED SURFACE
- OBSERVED IN 2017 AND 2018 LOCATION OF SIKAGARD 62 LIQUID EPOXY DAMAGE
- CONCRETE SURFACES WITH OBSERVED ISOLATED OR LIMITED AREAS OF DETERIORATION OF SIKAGARD 670W CLEAR ACRYLIC COATING; DETERIORATION WAS NOT OBSERVED OVER THE ENTIRE AREA IDENTIFIED AND HAS REMAINED RELATIVELY CONSISTENT SINCE 2012.
- LT-SWC-VWC-001 ▲ VERIFICATION WIPE SAMPLE LOCATION AND IDENTIFIER

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SCALE IN FEET

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| REV | DESCRIPTION | DATE |
|---|---|---|
| | | |

DESIGNED BY: GSR
DRAWN BY: FF
CHECKED BY: JAH
225695-2018-Figure-2-1.dwg

# AREAS OF ENCAPSULATED SURFACES

UNIVERSITY OF MASSACHUSETTS
AMHERST, MASSACHUSETTS

2018 SOUTHWEST CONCOURSE PCB
MMIP REPORT

JOB NO.: 225695.02
DATE: NOVEMBER 2018
SCALE: AS NOTED
SHEET: 1 OF 1

FIGURE 2-1

\\Woodardcurran.net\shared\Projects\225695 UMass Amherst - Long Term Monitoring\wip\Drawings\2018\225695-2018-Figure-2-1.dwg, Oct 25, 2018 - 2:59pm

# 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**

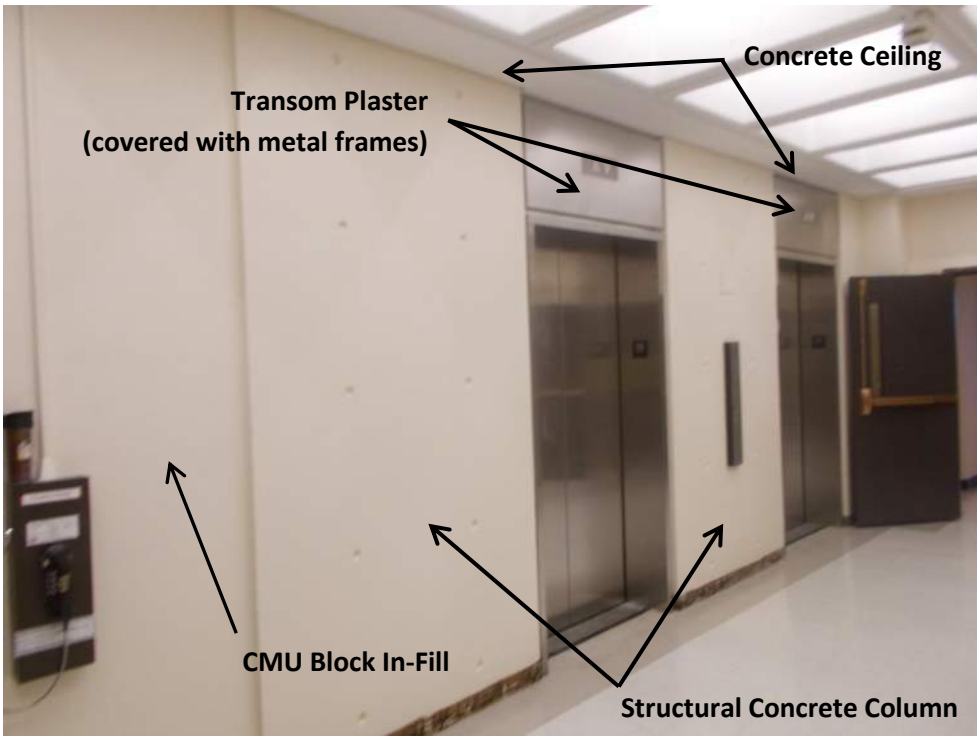
**Location:** W.E.B Dubois Library

**Summary of Remedial Areas**

*In-Place Management*: Residual PCBs at concentrations > 1 part per million (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.



**Attachment 3 – Dubois Library**
**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 µg/100 $cm^2$) 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 µg/100 $cm^2$ with a reported concentration of 0.72 µg/100 $cm^2$.
- 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 µg/100 $cm^2$).
- 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 µg/100$cm^2$). 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 µg/100$cm^2$ in this sample.

*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 Monitoring and Maintenance Implementation Plan (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 MMIP was submitted to the United States Environmental Protection Agency (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 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 µg/m$^3$.

**Previous Monitoring Activities**

*Visual Inspections and Surface Wipes*

Visual inspections of the encapsulated materials conducted between 2013 and 2017 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 collected during previous events indicated that PCBs were either non-detect or present at concentrations < 1 µg/100 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) and then on an annual basis in 2016 and 2017. 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 (500 to 1,180 ng/m$^3$). Analytical results for samples collected since 2016 (three most recent events) are summarized on Table 3-1.

**2018 Monitoring Activities**

*Visual Inspections*

Visual inspections of encapsulated surfaces were conducted during the annual monitoring event on July 10, 2018. Coatings were observed to be in good physical condition with no signs of wear or damage.

*Indoor Air Sampling*

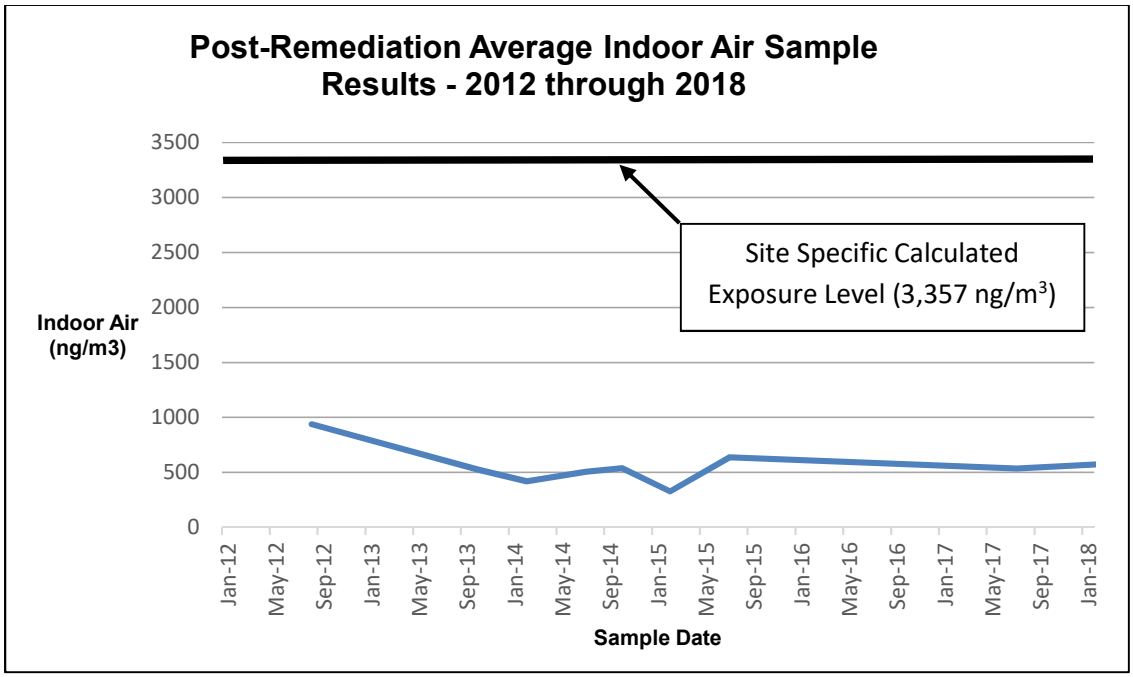
Four indoor air samples were collected on July 10, 2018 from the 4$^{th}$, 13$^{th}$, 19$^{th}$ and 23$^{rd}$ floors. Analytical results indicated that PCBs were reported at concentrations ranging from 511 to 688 ng/m$^3$ with an average PCB concentration of 602 ng/m$^3$. Analytical results from the indoor sampling events are summarized on Table 3-1. As indicated on the table, these results were relatively consistent with previous sampling activities over the last several years of monitoring.

For comparison purposes, a site-specific exposure level for PCBs in indoor air was calculated in accordance with EPA's "Exposure Levels for Evaluating Polychlorinated Biphenyls (PCBs) in Indoor School Air". This calculation provides a target level to maintain an overall PCB exposure below the oral reference dose of 20 ng PCB/kg body weight per day.

The resulting calculation provide exposure levels which may be used to guide thoughtful evaluation of indoor air quality (per EPA guidance [*July 28, 2015 PCBs in Building Materials – Q&A*], these exposure levels should not be interpreted nor applied as "not-to-exceed criteria"; Isolated or infrequent indoor air PCB measurements that exceed the exposure levels would not signal unsafe exposure to PCBs).

Within the elevator lobbies, it was assumed that students could be present for approximately 250 days per year with a frequency of 0.8 hours in the lobby (assuming 10 elevator trips were day and 5 minutes in the lobby per trip, for 50 minutes per day) Using EPA's PCB Exposure Estimation Tool (v1.2), a site-specific PCB indoor air exposure level was calculated using the above frequency and duration assumptions. For both school and non-school exposures, EPA PCB background concentrations for dust, soil, indoor air, and outdoor air were used. The calculated exposure level was 3,357 ng/m$^3$.

A graph of the average indoor air concentrations detected during the post-remediation sampling events is depicted below. As indicated below, all levels (average and maximum) are well below the calculated exposure level.




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 2018 monitoring activities, no corrective actions are proposed at this time.

**Next Monitoring Event**

The next monitoring event is scheduled for July/August 2019 to include visual inspections, surface wipe sampling, and indoor air sampling.

**Table 3-1**
**Summary of Indoor Air Sample Results - Dubois Library**
**UMass Amherst**

| Floor | Air Sample | PCB Concentration (ng/cartridge) | Flow Rate (L/Minute) | Duration (minutes) | PCB Concentration ($ng/m^3$) |
|---|---|---|---|---|---|
| **Project Specific Exposure Level: 3,357 $ng/m^3$** | | | | | |
| **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 |
| **Post PCB Remediation Indoor Air Samples July 10, 2018** | | | | | |
| 4 | DL-4E-IAS-005 | 475 | 2.65 | 367 | 511 J |
| 13 | DL-13E-IAS-004 | 538 | 2.65 | 371 | 573 J |
| 19 | DL-19E-IAS-002 | 637 | 2.64 | 371 | 688 J |
| 23 | DL-23E-IAS-001 | 643 | 2.68 | 400 | 635 J |

Notes:
Project Specific Exposure Level calculated using EPA's PCB Exposure Estimation Tool (v1.2).
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.
$ng/m^3$ = nanograms 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 Complex

**Building:** Webster, Field, and Grayson Houses

**Summary of Remedial Areas**

*In-Place Management:* Residual PCBs > 1 part per million (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).

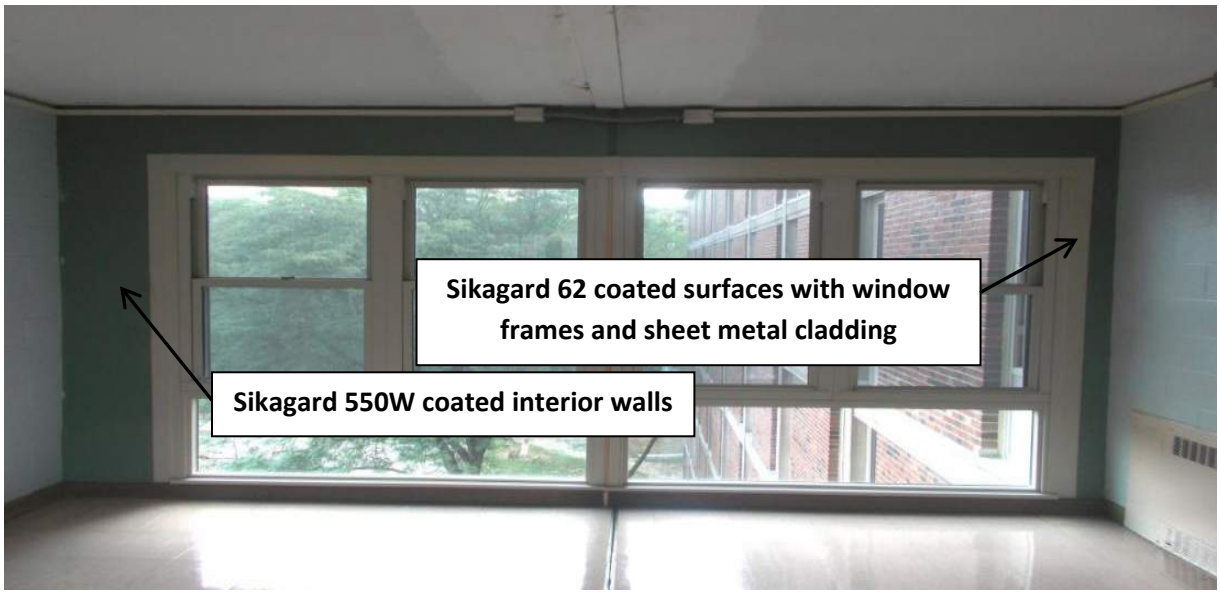
Locations of Typical Parapet Masonry Joints

- 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).

- 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**

<u>*Baseline Verification Data Summary:*</u> 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 indicated that PCBs were non-detect (24 samples at < 0.20 µg/100cm$^2$) or < 1 µg/100cm$^2$ (2 samples with total PCBs reported at concentrations of 0.44 and 0.90 µg/100cm$^2$).

- 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 µg/100cm$^2$).
    - Sikagard 550W Elastomeric Coated Materials – In August 2012, one verification wipe sample was collected from encapsulated materials above the 6$^{th}$ floor elevator hall windows. Analytical results indicated that PCBs were non-detect (< 0.20 µg/100cm$^2$).
- 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 µg/100 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 µg/100cm$^2$).
- 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 µg/100cm$^2$).
- 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 µg/100cm$^2$).

**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 µg/100 cm$^2$) in the six samples.
    - Sikagard 550W Elastomeric Coated Materials – Six initial baseline wipe samples were collected in November 2011. Analytical results reported PCBs as non-detect (< 0.20 µg/100 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 µg/100 cm$^2$) in the three samples.

**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 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 2017**

Long term monitoring activities conducted between 2012 and 2017 were reported in the annual long-term monitoring reports and are summarized below:

<u>Field and Grayson</u>

- 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 2018 monitoring activities below).
- 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 in 2014, 2015, and 2017 from coated surfaces at the exterior spandrel beams at both

buildings. Analytical results were non-detect (< 0.20 µg/100cm$^2$) in 5 of the 6 samples with PCBs reported at a concentration of 0.25 ug/100cm$^2$ in the sample collected from the Grayson House in 2017.

- Elevator Hall CMU Block Walls – Coated CMU block materials within the elevator lobby areas of both buildings 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 6$^{th}$ 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, 2015, and 2017. Analytical results indicated that PCBs were non-detect (< 0.20 µg/100cm$^2$).
- 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.

<u>Webster House</u>

- Northwest Building Elevation – During visual inspections conducted from 2012 through 2017 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. Analytical results from wipe samples collected from these surfaces reported PCBs as non-detect (< 0.20 µg/100cm$^2$).

<u>2016 Indoor Air Sampling</u>

- 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/m$^3$. 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.

**2018 Monitoring Activities**

The 2018 monitoring event included visual inspections of encapsulated surfaces and secondary physical barriers.

- 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. In July 2018, the additional epoxy coatings were applied to the single joint at the roofline of Field House where damage had been noted during previous inspections.
    - 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.
    - 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.

  - 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 - 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.

**Corrective Actions**

Based on the results of the 2018 monitoring event, no corrective actions are required at this time.

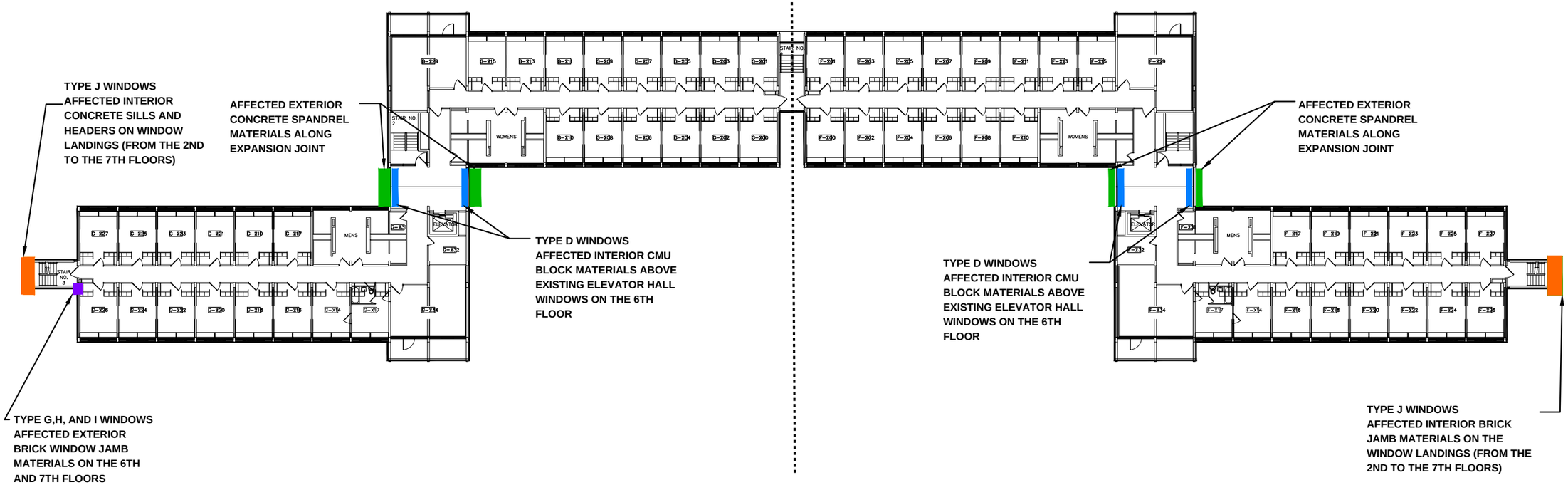
**Next Monitoring Event**

The next monitoring event will be conducted in 2019 and will include visual inspections and wipe sampling of encapsulated surfaces and secondary physical barriers in accordance with the long-term monitoring plans.

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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DRAWN BY: PF
CHECKED BY: GJF
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UMASS GRAYSON & FIELD HOUSE
AMHERST, MASSACHUSETTS

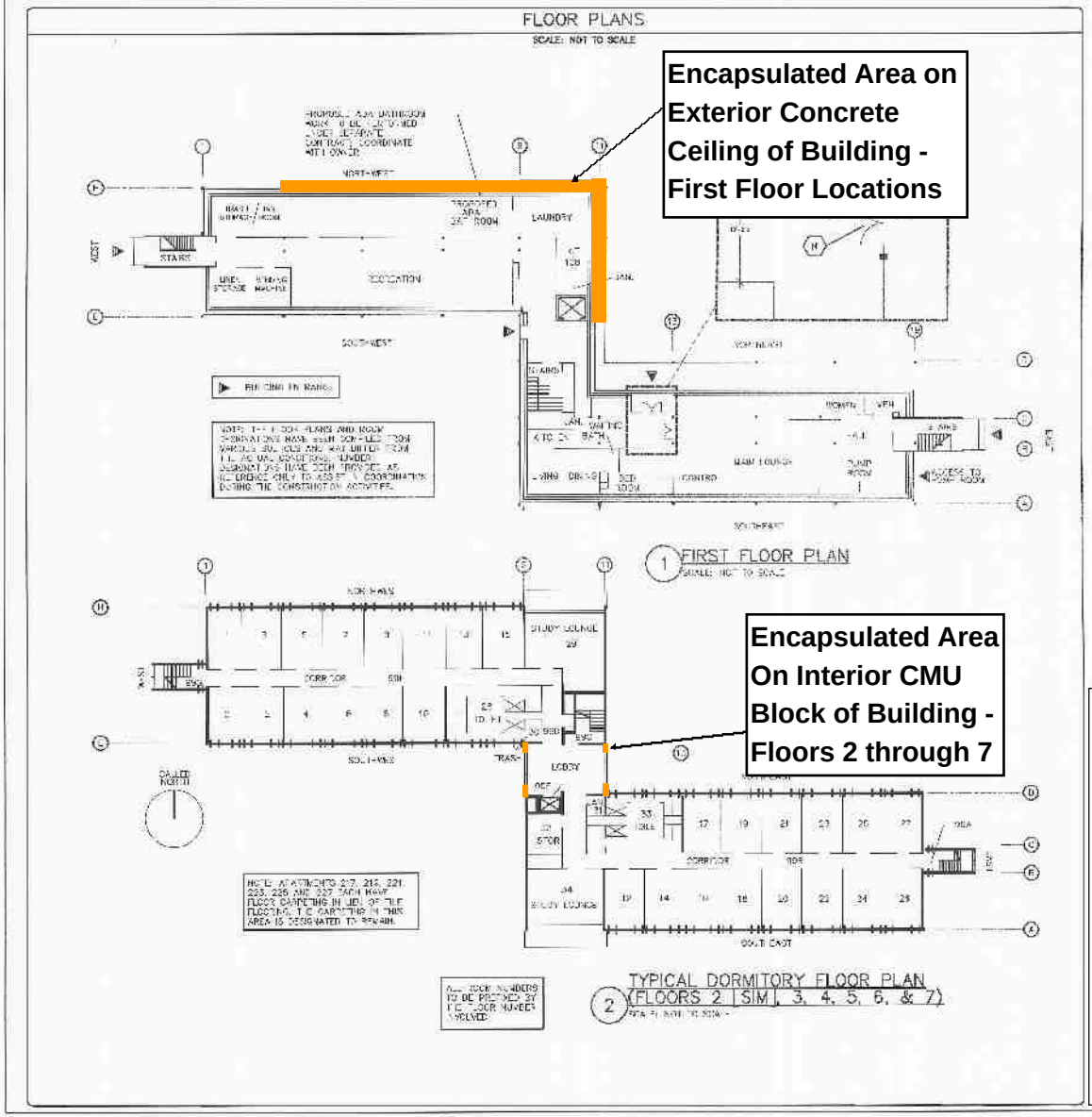
Long Term Monitoring and Maintenance Report

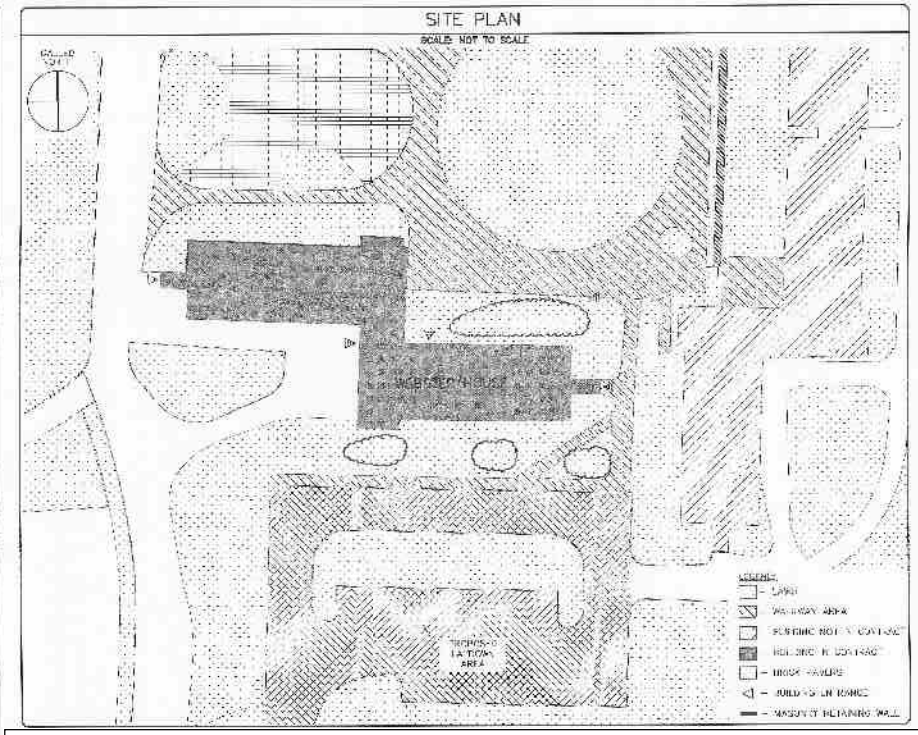
JOB NO: 224824.00
DATE: NOVEMBER 2013
SCALE: NONE

Figure 4-1

# Figure 4-2 Encapsulated Building Surfaces
# Webster House

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**
**UMass Amherst**

**Location:** Sylvan Complex

**Building:** Brown, Cashin, McNamara

**Summary of Remedial Areas**

*In-Place Management*: Residual PCBs at concentrations > 1 part per million (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 linear feet [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 square feet [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.

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

Typical Interior Encapsulated Surfaces
(Concrete Walls and Ceiling)

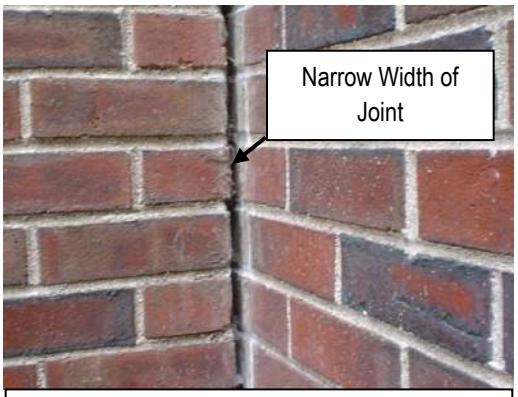
Typical Vertical and Horizontal Control Joints
(New Caulking and Clear Coating Visible)

*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 µg/100cm$^2$ total PCBs (95% of the samples); and
    - 4 samples > 1 µg/100cm$^2$ at 1,2, 1.3, 2.4, and 4.8 µg/100cm$^2$ (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 µg/100cm$^2$ total PCBs (60% of the samples); and
    - 15 samples > 1 µg/100cm$^2$; 12 of the 15 samples were collected from McNamara (up to 250 µg/100cm$^2$), 1 at Brown (1.2 µg/100cm$^2$); and 2 at Cashin (1.15 and 3.5 µg/100cm$^2$).
- 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 µg/100cm$^2$ 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 µg/100cm$^2$ total PCBs (80% of the samples);
    - 9 samples > 1 µg/100cm$^2$; 8 of the 9 samples were collected from McNamara (up to 2.3 µg/100cm$^2$) and 1 at Brown (1.8 µg/100cm$^2$); and

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

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.



Typical Vertical Control Joint

**Monitoring and Maintenance Implementation Plan**

The Monitoring and Maintenance Implementation Plan (MMIP) was submitted to the United Stated Environmental Protection Agency (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" above ground surfaces [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 µg/100cm$^2$), 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.

- 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" ags) given their inaccessibility and the low likelihood that these surfaces will be contacted by occupants or building users.

In 2016, at the request of the EPA, a round of indoor air sampling was conducted to evaluate indoor air conditions in the renovation areas of the three buildings. Based on the results of that sampling, additional indoor air sampling was included in the 2017 and 2018 monitoring activities.

**Previous Monitoring Events – 2014 through 2017**

Visual inspection and wipe sampling of encapsulated surfaces was conducted in accordance with the MMIP as described above on an annual basis in 2014, 2015, 2016, and 2017. Indoor air sampling was conducted during four events distributed to evaluate indoor air conditions during periods of varying ambient conditions in 2016 and 2017. Results of the monitoring activities are summarized below:

*Visual Inspection:* Results of the visual inspections indicated that the encapsulating barriers (caulking within exterior control joints and liquid coatings applied over interior and exterior areas with residual PCBs) were in good physical condition with no damage or evidence of deterioration observed.

*Wipe Samples:* Wipe samples were collected from interior and exterior coated masonry surfaces as described above. 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. Analytical results were as follows:
    - Horizontal Control Joints – From 2014 to 2017, PCBs were reported as either non-detect or present at concentrations < 1 µg/100cm$^2$ (6 samples with PCB reported at concentrations up to 0.58 µg/100cm$^2$). These results were consistent with the baseline data.
    - Vertical Control Joints – From 2014 to 2017, analytical results reported PCBs as either non-detect or present at concentrations ranging from 0.23 to 3.4 µg/100cm$^2$ (13 samples). These results were 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 (9 samples at < 0.20 µg/100cm$^2$) or present at concentrations of 0.21, 0.75, and 1.27 µg/100cm$^2$.
- 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 (16 samples at < 0.20 µg/100cm$^2$) or present at concentrations ranging from 0.38 to 0.81 µg/100cm$^2$ (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 from 13 to 77 µg/100 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 µg/100cm$^2$ 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 µg/100cm$^2$. 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.

Indoor Air Sampling

Indoor air samples were collected during six events in 2016 and 2017. The events were conducted to evaluate indoor air conditions during periods of normal occupancy and periods when the building was not occupied as well as periods of varying ambient outdoor conditions (e.g., warmer summer months, cooler fall/spring months, and colder winter months). Analytical results for the samples collected indicated:

- On average, the higher PCB concentrations were detected when the building was unoccupied and during the warmer ambient temperatures (June and August events)
- Average PCB concentrations in indoor air during the seasonal events were:
    - 813 ng/m$^3$ during the warmer temperatures, unoccupied conditions (Summer)
    - 384 ng/m$^3$ during the cooler temperatures, occupied conditions (Spring/Fall)
    - 273 ng/m$^3$ during the colder temperatures, occupied conditions (Winter)

During the Summer months the building is unoccupied and typically closed-up with minimum usage (e.g., building doors and windows typically closed and students and staff either not present or in the buildings at a reduced frequency).

Based on these results, additional indoor air monitoring was conducted in 2018 under different seasonal and occupancy conditions to continue to evaluate these conditions.

**Inspection and Wipe Sampling Activities – 2018**

The 2018 monitoring event included visual inspections and wipe sampling of encapsulated surfaces on September 13, 2018. 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/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 20$^{th}$ and a follow-up round of sampling was conducted on August 10$^{th}$. A summary of the analytical results is presented in Table 5-1 and is as follows:

- On September 13th, 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 that PCBs were non-detect (< 0.20 ug/100cm$^2$) in the 24 samples collected.
- Conclusions/Next Steps – The results of the 2018 visual inspections and sampling event were consistent with the baseline and previous monitoring events. Based on these results, and consistent with the 2017 long-term monitoring report, wipe sampling will be conducted on a bi-annual basis at the Sylvan area. In addition, UMass EH&S will continue to coordinate with Residential Life and Facilities and Maintenance personnel to assess a product application for secondary physical barriers over the high occupancy caulking at 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 September 13, 2018. 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 µg/100cm$^2$). These results are consistent with the baseline monitoring event and the results of previous long-term monitoring events.
- 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 µg/100cm$^2$).

**Indoor Air Sample Collection**

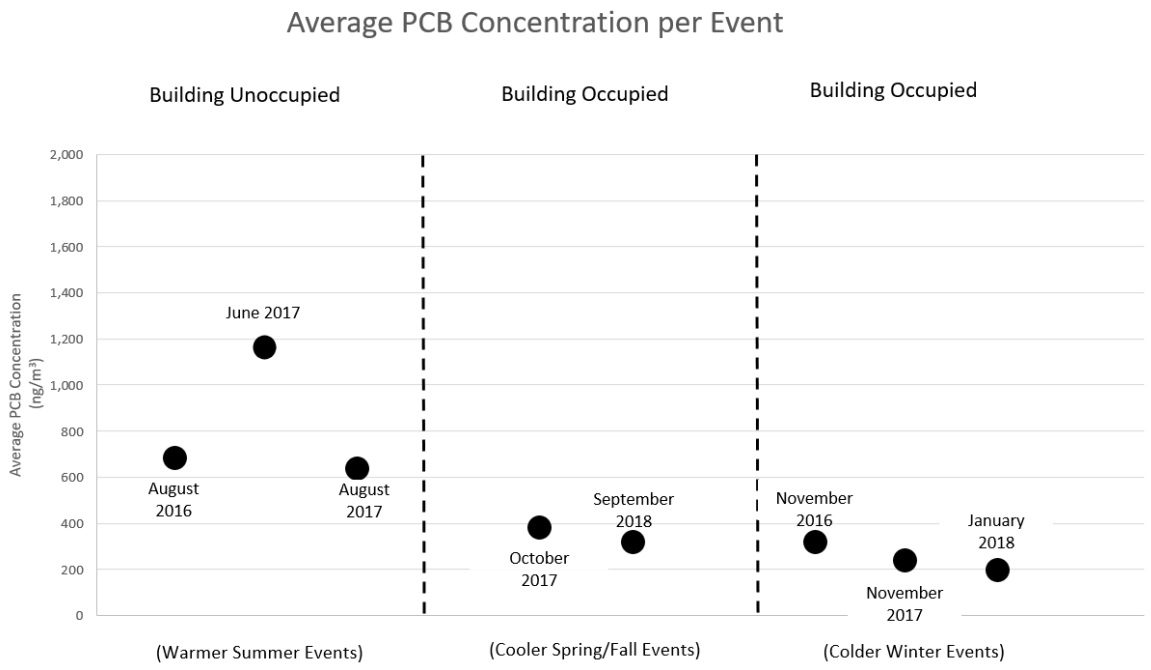
As proposed in the 2017 long term monitoring report, two rounds of indoor air sampling were conducted in 2018. The first event was conducted on January 30, 2018 to provide additional data during an occupied period of colder ambient temperatures. The second event was conducted on September 13, 2018 following the return of students to evaluate conditions while the building was occupied and during cooler ambient temperatures. Prior to students returning in the Fall, UMass conducted ventilation of all three buildings using the building's system and supplemented with fans.

Consistent with previous sampling events, indoor air 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 Chromotographic/Multi-Detector Detection.

Observations made during both sampling events indicated that the building doors and windows were closed during sample collection as were the majority of interior partition doors in the sample areas. Based on information provided by UMass, no major renovation or maintenance activities had occurred prior to the sampling events. Analytical results from the two sampling events are summarized in Table 5-2 (along with the previous data) and indicated the following:

- Occupied Conditions with Colder Ambient Temperatures – January 30, 2018: Three samples were collected and submitted for laboratory analysis. Analytical results reported PCBs at concentrations of 42, 219, and 326 ng/m$^3$. Each of these results were lower than previous sampling events in the same spaces.
- Occupied Conditions with Cooler Ambient Temperatures – September 13, 2018: Three samples were collected and submitted for laboratory analysis. Analytical results reported PCBs at concentrations of 226, 321, and 404 ng/m$^3$. These results were slightly lower than previous samples collected from the same spaces during cooler ambient periods and below those collected during the warmer summer months in 2016 and 2017.

These results were also consistent with the site model developed after the 2016 sampling event which indicated that indoor air concentrations of PCBs are lower when the buildings are occupied by students with ventilation and air flow in a more typical state (the buildings are closed during the summer months with little air flow/turn over). A graph depicting the variation in average PCB concentrations between the occupied and unoccupied conditions as well as periods of different ambient temperatures is presented below.




As discussed in the previous reports, information regarding the different receptor groups in the specific spaces within the building (including assumed duration and frequency of use) was obtained from UMass Residential Life and EH&S personnel. Three types of spaces were identified based on similar locations and construction (e.g., ADA restrooms, common areas) and the assumed occupancy and use of the spaces (e.g., transitory use in common areas, staffing in the Service Desk area). The three types/categories of spaces were:

- 1st Floor and Lower Level Common Spaces – these spaces include transitory areas and rooms in the buildings that are used for study and group meetings.
- Cashin Service Desk – this first floor space is staffed on a routine basis.
- ADA Restrooms – these spaces were separated from the other areas based on the unique construction and limited duration/frequency of use.

For comparison purposes, Woodard & Curran calculated site-specific exposure levels for each of the three types of spaces in accordance with EPA's "Exposure Levels for Evaluating Polychlorinated Biphenyls (PCBs) in Indoor School Air". EPA has calculated exposure levels intended to maintain an overall PCB exposure below the oral reference dose (RfD) of 20 ng PCB/kg body weight per day. The resulting calculations provide exposure levels which may be used to guide thoughtful evaluation of indoor air quality (per EPA guidance [*July 28, 2015 PCBs in Building Materials – Q&A*], these exposure levels should not be interpreted nor applied as "not-to-exceed criteria"; Isolated or infrequent indoor air PCB measurements that exceed the exposure levels would not signal unsafe exposure to PCBs).

At the Sylvan Complex, students could be present for approximately 210 days per year (based on a 30-week academic year and 7 days per week). Staff at the Cashin Service Desk could also be present for approximately 210 days per year (based on working 5 days per week over 42 weeks per year and are not present during the summer

months). The frequency per day was estimated at: 8 hours for the Service Desk worker; 2 hours for common area/meeting room/lounge use by a student; and 0.4 hours (5 minutes, 5 times a day) for ADA restroom use.

Using EPA's PCB Exposure Estimation Tool (v1.2), a site-specific PCB indoor air exposure level was calculated using the above frequency and duration assumptions. For both school and non-school exposures, EPA PCB background concentrations for dust, soil, indoor air, and outdoor air were used. The calculated exposure level in indoor air for the three types of spaces are provided on the table below, as well as the maximum and average PCB concentration detected in each type of space under occupied building conditions.

**Exposure Level for Evaluating PCBs in School Indoor Air (ng/m$^3$)**

| Area/Space | Calculated Exposure Level | Average PCB Concentration | Maximum PCB Concentration |
|---|---|---|---|
| First and Lower Level Common and Meeting Areas | 1,662 | 242 | 453 |
| ADA Restrooms | 7,943 | 278 | 321 |
| Cashin Service Desk | 422 | 467 | 617 |

**Conclusions/Next Steps**

Wipe Sampling Results

The 2018 results are consistent with the baseline monitoring and previous long-term monitoring activities. Based on these results, and consistent with the 2017 long-term monitoring report, wipe sampling will be conducted on a bi-annual basis at the Sylvan Complex with the next scheduled wipe sampling event to be conducted in 2020.

Indoor Air Sampling

Based on the reported concentrations of PCBs in indoor air, continued air monitoring is proposed to be conducted in 2019 during the September timeframe after students return for the fall semester (occupied conditions, cooler temperatures representing Fall-Spring). UMass EHS will continue to coordinate with Residential Life to ventilate the three buildings prior to students returning for the fall semester.

A summary of the planned sampling program is presented below for each of the three types of spaces.

- ADA Restrooms (1 sample) – 1 sample will be collected from either the Brown or McNamara ADA Restrooms.
- First Floor and Lower Level Study and Meeting Areas (2 samples) – 1 sample will be collected from either the Lower Level hallway area or the study area room and 1 sample will be collected from the 1st Floor Study/Lounge area
- Cashin Service Desk(1 samples) – 1 sample will be collected from the Cashin Service desk .

Table 5-1
Summary of Long Term Monitoring Wipe Sampling Results - Sylvan Complex

UMass Amherst

| Surface | | Sample Date | Sample ID | Total PCBs (ug/wipe) |
|---|---|---|---|---|
| **Exterior Control Joints - Adjacent Brick Materials** | | | | |
| Vertical Joints | McNamara | 7/22/2014 | LTM-MR-VWBV-200 | 1.75 |
| | | | LTM-MR-VWBV-202 | 0.69 |
| | | | LTM-MR-VWBV-204 | 3.3 |
| | | | LTM-MR-VWBV-206 | 2.4 |
| | | 7/21/2015 | LTM-MR-VWBV-300 | 0.36 J |
| | | | LTM-MR-VWBV-303 | <0.20 |
| | | | LTM-MR-VWBV-306 | 0.95 J |
| | | | LTM-MR-VWBV-309 | 3.4 J |
| | | 8/18/2016 | LTM-MRV-VBC-423 | <0.20 |
| | | | LTM-MRV-VBC-424 | <0.20 |
| | | | LTM-MRV-VBC-425 | <0.20 |
| | | | LTM-MRV-VBC-426 | <0.20 |
| | | 8/10/2017 | LT-MR-VWB-500 | 0.68 |
| | | | LT-MR-VWB-502 | < 0.20 |
| | | | LT-MR-VWB-503 | < 0.20 |
| | | 9/13/2018 | LT-MR-VWV-601 | < 0.20 |
| | | | LT-MR-VWV-603 | < 0.20 |
| | | | LT-MR-VWV-605 | < 0.20 |
| | | | LT-MR-VWV-607 | < 0.20 |
| | Brown | 7/22/2014 | LTM-BR-VWBV-208 | <0.20 |
| | | | LTM-BR-VWBV-210 | <0.20 |
| | | | LTM-BR-VWBV-212 | <0.20 |
| | | | LTM-BR-VWBV-214 | 1.2 |
| | | 7/21/2015 | LTM-BR-VWB-316 | <0.20 |
| | | | LTM-BR-VWB-318 | <0.20 |
| | | | LTM-BR-VWB-320 | <0.20 |
| | | | LTM-BR-VWB-322 | 0.24 J |
| | | 8/18/2016 | LTM-BRV-VBC-431 | <0.20 |
| | | | LTM-BRV-VBC-432 | <0.20 |
| | | | LTM-BRV-VBC-433 | <0.20 |
| | | | LTM-BRV-VBC-434 | <0.20 |
| | | 8/10/2017 | LT-BR-VWB-506 | < 0.20 |
| | | | LT-BR-VWB-508 | < 0.20 |
| | | | LT-BR-VWB-509 | < 0.20 |
| | | 9/13/2018 | LT-BR-VWV-609 | < 0.20 |
| | | | LT-BR-VWV-611 | < 0.20 |
| | | | LT-BR-VWV-613 | < 0.20 |
| | | | LT-BR-VWV-615 | < 0.20 |

Table 5-1
Summary of Long Term Monitoring Wipe Sampling Results - Sylvan Complex

UMass Amherst

| Surface | | Sample Date | Sample ID | Total PCBs (ug/wipe) |
|---|---|---|---|---|
| Vertical Joints (con't) | Cashin | 7/22/2014 | LTM-CR-VWBV-216 | 0.23 J |
| | | | LTM-CR-VWBV-218 | 0.9 |
| | | | LTM-CR-VWBV-220 | <0.20 UJ |
| | | | LTM-CR-VWBV-222 | 0.33 |
| | | 7/21/2015 | LTM-CR-VWB-324 | <0.20 |
| | | | LTM-CR-VWB-326 | <0.20 |
| | | | LTM-CR-VWB-328 | <0.20 |
| | | | LTM-CR-VWB-330 | <0.20 |
| | | 8/18/2016 | LTM-CRV-VWB-413 | <0.20 |
| | | | LTM-CRV-VWB-414 | <0.20 |
| | | | LTM-CRV-VWB-415 | <0.20 |
| | | | LTM-CRV-VWB-416 | <0.20 |
| | | 8/10/2017 | LT-CR-VWB-504 | < 0.20 |
| | | 9/13/2018 | LT-CR-VWV-617 | < 0.20 |
| | | | LT-CR-VWV-619 | < 0.20 |
| | | | LT-CR-VWV-621 | < 0.20 |
| | | | LT-CR-VWV-623 | < 0.20 |
| Horizontal Joints | McNamara | 7/22/2014 | LTM-MR-VWBH-201 | 0.5 |
| | | | LTM-MR-VWBH-203 | 0.58 |
| | | | LTM-MR-VWBH-205 | 0.51 |
| | | | LTM-MR-VWBH-207 | 0.5 |
| | | 7/21/2015 | LTM-MR-VWBH-302 | <0.20 |
| | | | LTM-MR-VWBH-305 | <0.20 |
| | | | LTM-MR-VWBH-308 | <0.20 |
| | | | LTM-MR-VWBH-311 | 0.25 |
| | | 8/18/2016 | LTM-MRH-VBC-418 | <0.20 |
| | | | LTM-MRH-VBC-419 | <0.20 |
| | | | LTM-MRH-VBC-421 | <0.20 |
| | | | LTM-MRH-VBC-422 | <0.20 |
| | | 8/10/2017 | LT-MR-VWB-501 | < 0.20 |
| | | 9/13/2018 | LT-MR-VWH-602 | < 0.20 |
| | | | LT-MR-VWH-604 | < 0.20 |
| | | | LT-MR-VWH-606 | < 0.20 |
| | | | LT-MR-VWH-608 | < 0.20 |
| | Brown | 7/22/2014 | LTM-BR-VWBH-209 | <0.20 |
| | | | LTM-BR-VWBH-211 | <0.20 |
| | | | LTM-BR-VWBH-213 | <0.20 |
| | | | LTM-BR-VWBH-215 | <0.20 |
| | | 7/21/2015 | LTM-BR-VWB-317 | <0.20 |
| | | | LTM-BR-VWB-319 | <0.20 |
| | | | LTM-BR-VWB-321 | <0.20 |
| | | | LTM-BR-VWB-323 | <0.20 |

Table 5-1
Summary of Long Term Monitoring Wipe Sampling Results - Sylvan Complex

UMass Amherst

| Surface | | Sample Date | Sample ID | Total PCBs (ug/wipe) |
|---|---|---|---|---|
| Horizontal Joints (con't) | Brown (con't) | 8/18/2016 | LTM-BRH-VBC-427 | <0.20 |
| | | | LTM-BRH-VBC-428 | <0.20 |
| | | | LTM-BRH-VBC-429 | <0.20 |
| | | | LTM-BRH-VBC-430 | <0.20 |
| | | 8/10/2017 | LT-BR-VWB-507 | < 0.20 |
| | | 9/13/2018 | LT-BR-VWH-610 | < 0.20 |
| | | | LT-BR-VWH-612 | < 0.20 |
| | | | LT-BR-VWH-614 | < 0.20 |
| | | | LT-BR-VWH-616 | < 0.20 |
| | Cashin | 7/22/2014 | LTM-CR-VWBH-217 | <0.20 |
| | | | LTM-CR-VWBH-219 | 0.54 |
| | | | LTM-CR-VWBH-221 | <0.20 |
| | | | LTM-CR-VWBH-223 | <0.20 |
| | | 7/21/2015 | LTM-CR-VWB-325 | <0.20 |
| | | | LTM-CR-VWB-327 | <0.20 |
| | | | LTM-CR-VWB-329 | <0.20 |
| | | | LTM-CR-VWB-331 | <0.20 |
| | | 8/18/2016 | LTM-CRH-VWB-409 | <0.20 |
| | | | LTM-CRH-VWB-410 | <0.20 |
| | | | LTM-CRH-VWB-411 | <0.20 |
| | | | LTM-CRH-VWB-412 | <0.20 |
| | | 8/10/2017 | LT-CR-VWB-505 | < 0.20 |
| | | 9/13/2018 | LT-CR-VWH-618 | < 0.20 |
| | | | LT-CR-VWH-620 | < 0.20 |
| | | | LT-CR-VWH-622 | < 0.20 |
| | | | LT-CR-VWH-624 | < 0.20 |
| **Interior Renovation Areas** | | | | |
| Encapsulated Ceiling | Cashin | 7/22/2014 | LTM-CRI-VWC-232 | <0.20 |
| | | 7/22/2014 | LTM-CRI-VWC-233 | <0.20 |
| | | 7/21/2015 | LTM-CRI-VWC-333 | <0.20 |
| | | 7/21/2015 | LTM-CRI-VWC-334 | <0.20 |
| | | 8/18/2016 | LTM-CRI-VWC-404 | <0.20 |
| | | 8/18/2016 | LTM-CRI-VWC-405 | <0.20 |
| | | 6/20/2017 | LTM-CRI-VWC-531 | <0.20 |
| | | 6/20/2017 | LTM-CRI-VWC-532 | <0.20 |
| | | 9/13/2018 | LTM-CR-VWC-625 | < 0.20 |
| | | 9/13/2018 | LTM-CR-VWC-626 | < 0.20 |
| | McNamara | 7/22/2014 | LTM-MRI-VWC-244 | 0.42 J |
| | | 7/22/2014 | LTM-MRI-VWC-245 | 0.81 |
| | | 7/21/2015 | LTM-MRI-VWC-335 | 0.66 |
| | | 7/21/2015 | LTM-MRI-VWCX-336 | 0.38 |
| | | 8/18/2016 | LTM-MRI-VWC-401 | <0.20 |
| | | 8/18/2016 | LTM-MRI-VWC-403 | 0.76 |
| | | 6/20/2017 | LTM-MRI-VWC-525 | <0.20 |
| | | 6/20/2017 | LTM-MRI-VWC-526 | <0.20 |
| | | 9/13/2018 | LTM-MR-VWC-627 | < 0.20 |
| | | 9/13/2018 | LTM-MR-VWC-628 | < 0.20 |

Table 5-1
Summary of Long Term Monitoring Wipe Sampling Results - Sylvan Complex

UMass Amherst

| Surface | | Sample Date | Sample ID | Total PCBs (ug/wipe) |
|---|---|---|---|---|
| Encapsulated Ceiling (con't) | 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 |
| | | 9/13/2018 | LTM-BR-VWC-631 | < 0.20 |
| Encapsulated Wall | McNamara | 7/22/2014 | LTM-MRI-VWC-242 | 0.75 |
| | | 7/22/2014 | LTM-MRI-VWC-243 | <0.20 |
| | | 7/21/2015 | LTM-MRI-VWC-338 | 1.27 |
| | | 7/21/2015 | LTM-MRI-VWC-339 | <0.20 |
| | | 8/18/2016 | LTM-MRI-VWC-400 | <0.20 |
| | | 8/18/2016 | LTM-MRI-VWC-402 | <0.20 |
| | | 6/20/2017 | LTM-MRI-VWW-527 | <0.20 |
| | | 6/20/2017 | LTM-MRI-VWW-528 | <0.20 |
| | | 9/13/2018 | LTM-MR-VWW-629 | < 0.20 |
| | | 9/13/2018 | LTM-MR-VWW-630 | < 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-VWW-530 | <0.20 |
| | | 9/13/2018 | LTM-BR-VWW-632 | < 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

Table 5-2
Summary of Indoor Air Sampling Results - 2016 to 2018
Sylvan Complex

| Area | Location | Condition/Timing | Air Sample ID | Sample Date | Notes | Total PCB Concentration ($ng/m^3$) | Site-Specific Exposure Level ($ng/m^3$) |
|---|---|---|---|---|---|---|---|
| Cashin Service Desk | | Building Unoccupied - Warmer Ambient Temperatures (Summer) | LT-CR-IAS-003 | 8/18/2016 | 91.3 degrees | 1,055 | 422 $ng/m^3$ |
| | | | 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 | |
| | | | LT-CR-IAS-301 | 9/13/2018 | 75.5 degrees | 404 | |
| | | Building Occupied - Colder Ambient Temperatures (Late Fall - Winter) | CR-IAS-005 | 11/21/2016 | 36 degrees | 520 | |
| | | | LT-CR-IAS-201 | 1/30/2018 | 37.4 degrees | 326 | |
| ADA Restroom Areas | McNamara - ADA Restroom 115 | Building Unoccupied - Warmer Ambient Temperatures (Summer) | LT-MR-IAS-002 | 8/18/2016 | 91.3 degrees | 768 | 7,943 $ng/m^3$ |
| | | | 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) | LT-BR-IAS-303 | 9/13/2018 | 75.5 degrees | 321 | |
| | | Building Occupied - Colder Ambient Temperatures (Late Fall - Winter) | LT-BR-IAS-111 | 11/21/2017 | 59.0 degrees | 212 | |
| First Floor and Lower Level Common Areas | 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 | 1,662 $ng/m^3$ |
| | | Building Occupied - Colder Ambient Temperatures (Late Fall - Winter) | LT-MR-IAS-202 | 1/30/2018 | 37.4 degrees | 219 | |
| | Brown 1st Floor Study/Lounge - Room 111 | 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 | |
| | McNamara Lower Level Study Area - Hallway | Building Unoccupied - Warmer Ambient Temperatures (Summer) | LT-MR-IAS-001 | 8/18/2016 | 91.3 degrees | 548 | |
| | | | 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 | |
| | | | LT-MR-IAS-302 | 9/13/2018 | 75.5 degrees | 226 | |
| | | 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 | |
| | | | LT-MR-IAS-203 | 1/30/2018 | 37.4 degrees | 42 | |

Notes:

1. Site Specific Exposure level calculated in accordance with EPA's Exposure Levels for Evaluating Polychlorinated Biphenyls in Indoor School Air.
2. Air samples collected in accordance with USEPA Compendium Method TO-10A and submitted for laboratory analysis of PCBs homologs.
3. Total PCB concentration is the total PCB homologs reported by the lab (ng/cartridge) per corrected sample volume ($m^3$/cartridge).
4. Temperature is daily high temperature taken from the UMass Amherst Computer Science Weather Station website.

# 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 µg/100 $cm^2$).

**Monitoring and Maintenance Implementation Plan**

The Monitoring and Maintenance Implementation Plan (MMIP) was submitted to the United Stated Environmental Protection Agency (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 2018**

On July 10, 2018, 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.

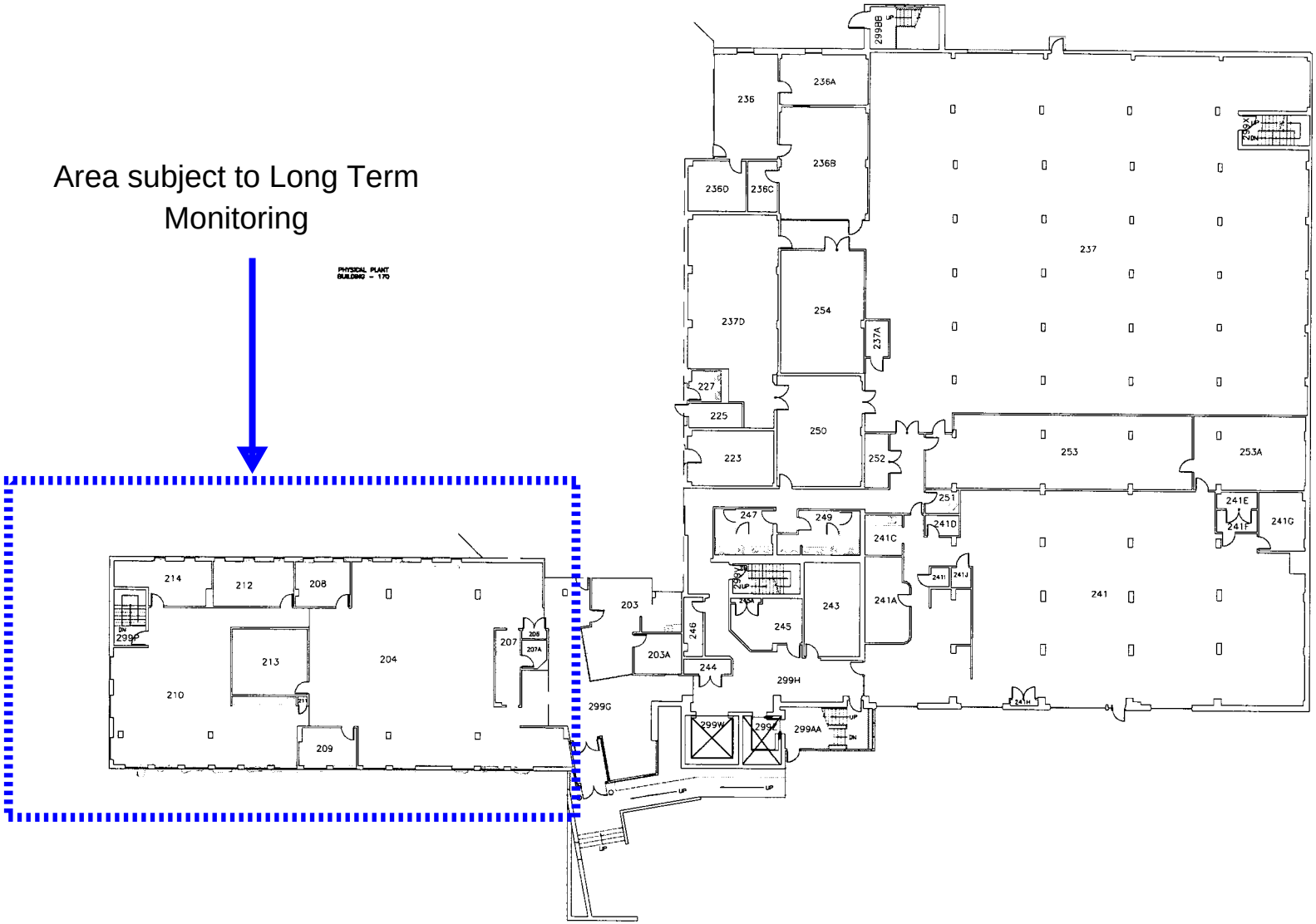
**Next Monitoring Event**

The next monitoring event will be conducted in July 2019 as part of the campus-wide long-term monitoring program.

# ATTACHMENT A

# Attachment A Second Floor Physical Plant

Area subject to Long Term Monitoring




**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

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

July 16, 2018

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

Project Location: Amherst, MA
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 18G0349

Enclosed are results of analyses for samples received by the laboratory on July 11, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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: 7/16/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

**ANALYTICAL SUMMARY**

WORK ORDER NUMBER: 18G0349

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-VWK-001 | 18G0349-01 | Wipe | | SW-846 8082A | |
| LT-SWC-VWC-002 | 18G0349-02 | Wipe | | SW-846 8082A | |

con-test® ANALYTICAL LABORATORY

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

**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.

Lisa A. Worthington
Project Manager

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA
Sample Description:
Work Order: 18G0349
Date Received: 7/11/2018
**Field Sample #: LT-SWC-VWK-001**
Sampled: 7/10/2018 13:00
**Sample ID: 18G0349-01**
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 | 7/12/18 | 7/13/18 16:46 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 7/12/18 | 7/13/18 16:46 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 7/12/18 | 7/13/18 16:46 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 7/12/18 | 7/13/18 16:46 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 7/12/18 | 7/13/18 16:46 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 7/12/18 | 7/13/18 16:46 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 7/12/18 | 7/13/18 16:46 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 7/12/18 | 7/13/18 16:46 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 7/12/18 | 7/13/18 16:46 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 75.8 | 30-150 | | 7/13/18 16:46 |
| Decachlorobiphenyl [2] | 78.2 | 30-150 | | 7/13/18 16:46 |
| Tetrachloro-m-xylene [1] | 79.5 | 30-150 | | 7/13/18 16:46 |
| Tetrachloro-m-xylene [2] | 81.3 | 30-150 | | 7/13/18 16:46 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA
Sample Description:
Work Order: 18G0349
Date Received: 7/11/2018
**Field Sample #: LT-SWC-VWC-002**
Sampled: 7/10/2018 13:05
**Sample ID: 18G0349-02**
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 | 7/12/18 | 7/13/18 17:04 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 7/12/18 | 7/13/18 17:04 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 7/12/18 | 7/13/18 17:04 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 7/12/18 | 7/13/18 17:04 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 7/12/18 | 7/13/18 17:04 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 7/12/18 | 7/13/18 17:04 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 7/12/18 | 7/13/18 17:04 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 7/12/18 | 7/13/18 17:04 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 7/12/18 | 7/13/18 17:04 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 76.1 | 30-150 | | 7/13/18 17:04 |
| Decachlorobiphenyl [2] | 78.1 | 30-150 | | 7/13/18 17:04 |
| Tetrachloro-m-xylene [1] | 79.5 | 30-150 | | 7/13/18 17:04 |
| Tetrachloro-m-xylene [2] | 81.8 | 30-150 | | 7/13/18 17:04 |

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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 |
|---|---|---|---|---|
| 18G0349-01 [LT-SWC-VWK-001] | B207715 | 1.00 | 10.0 | 07/12/18 |
| 18G0349-02 [LT-SWC-VWC-002] | B207715 | 1.00 | 10.0 | 07/12/18 |

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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 B207715 - SW-846 3540C** | | | | | | | | | | |
| **Blank (B207715-BLK1)** | | | | Prepared: 07/12/18 Analyzed: 07/13/18 | | | | | | |
| 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 | *1.58* | | µg/Wipe | 2.00 | | 79.2 | 30-150 | | | |
| Surrogate: Decachlorobiphenyl [2C] | *1.63* | | µg/Wipe | 2.00 | | 81.3 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene | *1.65* | | µg/Wipe | 2.00 | | 82.6 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene [2C] | *1.69* | | µg/Wipe | 2.00 | | 84.4 | 30-150 | | | |
| **LCS (B207715-BS1)** | | | | Prepared: 07/12/18 Analyzed: 07/13/18 | | | | | | |
| Aroclor-1016 | 0.49 | 0.20 | µg/Wipe | 0.500 | | 98.5 | 40-140 | | | |
| Aroclor-1016 [2C] | 0.48 | 0.20 | µg/Wipe | 0.500 | | 96.0 | 40-140 | | | |
| Aroclor-1260 | 0.45 | 0.20 | µg/Wipe | 0.500 | | 89.6 | 40-140 | | | |
| Aroclor-1260 [2C] | 0.44 | 0.20 | µg/Wipe | 0.500 | | 88.4 | 40-140 | | | |
| Surrogate: Decachlorobiphenyl | *1.57* | | µg/Wipe | 2.00 | | 78.6 | 30-150 | | | |
| Surrogate: Decachlorobiphenyl [2C] | *1.62* | | µg/Wipe | 2.00 | | 80.9 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene | *1.62* | | µg/Wipe | 2.00 | | 80.8 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene [2C] | *1.64* | | µg/Wipe | 2.00 | | 82.2 | 30-150 | | | |
| **LCS Dup (B207715-BSD1)** | | | | Prepared: 07/12/18 Analyzed: 07/13/18 | | | | | | |
| Aroclor-1016 | 0.47 | 0.20 | µg/Wipe | 0.500 | | 93.2 | 40-140 | 5.50 | 30 | |
| Aroclor-1016 [2C] | 0.47 | 0.20 | µg/Wipe | 0.500 | | 93.9 | 40-140 | 2.26 | 30 | |
| Aroclor-1260 | 0.43 | 0.20 | µg/Wipe | 0.500 | | 86.6 | 40-140 | 3.45 | 30 | |
| Aroclor-1260 [2C] | 0.42 | 0.20 | µg/Wipe | 0.500 | | 84.2 | 40-140 | 4.78 | 30 | |
| Surrogate: Decachlorobiphenyl | *1.54* | | µg/Wipe | 2.00 | | 77.0 | 30-150 | | | |
| Surrogate: Decachlorobiphenyl [2C] | *1.59* | | µg/Wipe | 2.00 | | 79.7 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene | *1.56* | | µg/Wipe | 2.00 | | 77.8 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene [2C] | *1.58* | | µg/Wipe | 2.00 | | 79.1 | 30-150 | | | |

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# IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

*SW-846 8082A*

**LCS**

Lab Sample ID: B207715-BS1 Date(s) Analyzed: 07/13/2018 07/13/2018

Instrument ID (1): ECD3 Instrument ID (2): ECD3

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 | 0.49 | |
| | 2 | 0.000 | 0.000 | 0.000 | 0.48 | 2.1 |
| Aroclor-1260 | 1 | 0.000 | 0.000 | 0.000 | 0.45 | |
| | 2 | 0.000 | 0.000 | 0.000 | 0.44 | 2.3 |

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# IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

*SW-846 8082A*

**LCS Dup**

Lab Sample ID: B207715-BSD1 Date(s) Analyzed: 07/13/2018 07/13/2018

Instrument ID (1): ECD3 Instrument ID (2): ECD3

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 | 0.47 | 0.0 |
| Aroclor-1260 | 1 | 0.000 | 0.000 | 0.000 | 0.43 | |
| | 2 | 0.000 | 0.000 | 0.000 | 0.42 | 2.4 |

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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 is at the level of quantitation (LOQ) |
| DL | Detection Limit is the lower limit of detection determined by the MDL study |
| 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 |
|---|---|
| ***SW-846 8082A in Soil*** | |
| Aroclor-1016 | CT,NH,NY,ME,NC,VA |
| Aroclor-1016 [2C] | CT,NH,NY,ME,NC,VA |
| Aroclor-1221 | CT,NH,NY,ME,NC,VA |
| Aroclor-1221 [2C] | CT,NH,NY,ME,NC,VA |
| Aroclor-1232 | CT,NH,NY,ME,NC,VA |
| Aroclor-1232 [2C] | CT,NH,NY,ME,NC,VA |
| Aroclor-1242 | CT,NH,NY,ME,NC,VA |
| Aroclor-1242 [2C] | CT,NH,NY,ME,NC,VA |
| Aroclor-1248 | CT,NH,NY,ME,NC,VA |
| Aroclor-1248 [2C] | CT,NH,NY,ME,NC,VA |
| Aroclor-1254 | CT,NH,NY,ME,NC,VA |
| Aroclor-1254 [2C] | CT,NH,NY,ME,NC,VA |
| Aroclor-1260 | CT,NH,NY,ME,NC,VA |
| Aroclor-1260 [2C] | CT,NH,NY,ME,NC,VA |
| Aroclor-1262 | NY,NC,VA |
| Aroclor-1262 [2C] | NY,NC,VA |
| Aroclor-1268 | NY,NC,VA |
| Aroclor-1268 [2C] | NY,NC,VA |

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

| Code | Description | Number | Expires |
|---|---|---|---|
| AIHA | AIHA-LAP, LLC - ISO17025:2005 | 100033 | 03/1/2020 |
| MA | Massachusetts DEP | M-MA100 | 06/30/2019 |
| CT | Connecticut Department of Publilc Health | PH-0567 | 09/30/2019 |
| NY | New York State Department of Health | 10899 NELAP | 04/1/2019 |
| NH-S | New Hampshire Environmental Lab | 2516 NELAP | 02/5/2019 |
| RI | Rhode Island Department of Health | LAO00112 | 12/30/2018 |
| NC | North Carolina Div. of Water Quality | 652 | 12/31/2018 |
| NJ | New Jersey DEP | MA007 NELAP | 06/30/2019 |
| FL | Florida Department of Health | E871027 NELAP | 06/30/2019 |
| VT | Vermont Department of Health Lead Laboratory | LL015036 | 07/30/2019 |
| ME | State of Maine | 2011028 | 06/9/2019 |
| VA | Commonwealth of Virginia | 460217 | 12/14/2018 |
| NH-P | New Hampshire Environmental Lab | 2557 NELAP | 09/6/2018 |
| VT-DW | Vermont Department of Health Drinking Water | VT-255716 | 06/12/2019 |
| NC-DW | North Carolina Department of Health | 25703 | 07/31/2018 |

con-test ANALYTICAL LABORATORY

MEK

1860349

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

http://www.contestlabs.com

Doc # 381 Rev 1_03242017

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028



**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: gfranklin@woodardcurran.com
Fax To #:

Company Name: Woodard & Curran
Address: 213 Court St, Middletown CT
Phone: 203 271 0379
Project Name: Umass LTM
Project Location: Amherst MA
Project Number: 225695
Project Manager: George Franklin
Con-Test Quote Name/Number:
Invoice Recipient: SAME
Sampled By: Greg Reynolds

ANALYSIS REQUESTED

| Con-Test Work Order# | Client Sample ID / Description | Beginning Date/Time | Ending Date/Time | Composite | Grab | [1]Matrix Code | Conc Code | PCBs | | | | | | | | | | | | # of Containers | [2] Preservation Code | [3] Container Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 1 | | | | | | | | | | | | | | |
| | | | | | | | | 0 | | | | | | | | | | | | | | |
| | | | | | | | | G | | | | | | | | | | | | | | |
| 01 | LT-SWC-VWK-001 | 7/10/18 | 1300 | | X | O | | X | | | | | | | | | | | | | | |
| 02 | LT-SWC-VWC-002 | 7/10/18 | 1305 | | X | O | | X | | | | | | | | | | | | | | |

**Dissolved Metals Samples**
○ Field Filtered
○ Lab to Filter

**Orthophosphate Samples**
○ 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)

Comments:
RL ≤ 1mg/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) | Date/Time: |
|---|---|
| [signature] | 7/11/18 1010 |
| Received by: (signature) | Date/Time: |
| Tom Mair | 7/11/18 1010 |
| Relinquished by: (signature) | Date/Time: |
| Tom Mair | 7/11/18 1600 |
| Received by: (signature) | Date/Time: |
| Kim Kings 5.8 | 7/11/18 1600 |
| Relinquished by: (signature) | Date/Time: |
| | |
| Received by: (signature) | Date/Time: |
| | |

**Detection Limit Requirements**
MA
CT
Other

**Special Requirements**
☐ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required
PWSID #

con-test ANALYTICAL LABORATORY
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NELAC and AIHA-LAP, LLC Accredited

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

**Other**
☐ Chromatogram
☐ AIHA-LAP,LLC

**PCB ONLY**
☒ Soxhlet
☐ Non Soxhlet



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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** W+C

**Received By** SE Date 7/11/18 Time 1600

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 # 8 Actual Temp - 5.8
By Blank # ____ Actual Temp - ____

Was Custody Seal Intact? N/A Were Samples Tampered with? N/A
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? F Who was notified? ____
Are there Rushes? F Who was notified? ____
Are there Short Holds? F Who was notified? ____
Is there enough Volume? T
Is there Headspace where applicable? N/A MS/MSD? F
Proper Media/Containers Used? T Is splitting samples required? F
Were trip blanks received? F On COC? F
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 | 2 |
| 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:**

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

July 20, 2018

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

Project Location: Amherst, MA
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 18G0358

Enclosed are results of analyses for samples received by the laboratory on July 11, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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: 7/20/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

**ANALYTICAL SUMMARY**

WORK ORDER NUMBER: 18G0358

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 |
|---|---|---|---|---|---|
| DL-23E-IAS-001 | 18G0358-01 | Air | | TO-10A/EPA 680 Modified | |
| DL-19E-IAS-002 | 18G0358-02 | Air | | TO-10A/EPA 680 Modified | |
| DL-19D-IAS-003 | 18G0358-03 | Air | | TO-10A/EPA 680 Modified | |
| DL-13E-IAS-004 | 18G0358-04 | Air | | TO-10A/EPA 680 Modified | |
| DL-4E-IAS-005 | 18G0358-05 | Air | | TO-10A/EPA 680 Modified | |
| DL-Ambient-006 | 18G0358-06 | Air | | TO-10A/EPA 680 Modified | |

con-test® ANALYTICAL LABORATORY

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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. Reported result is estimated.

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

**Decachlorobiphenyl**
S025418-CCV2

**Monochlorobiphenyls**
18G0358-01[DL-23E-IAS-001], 18G0358-02[DL-19E-IAS-002], 18G0358-03[DL-19D-IAS-003], 18G0358-04[DL-13E-IAS-004], 18G0358-05[DL-4E-IAS-005], 18G0358-06[DL-Ambient-006], B207592-BS1, B207592-BSD1, S025153-CCV1, S025418-CCV1, S025418-CCV2

**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**
18G0358-01[DL-23E-IAS-001], 18G0358-02[DL-19E-IAS-002], 18G0358-03[DL-19D-IAS-003], 18G0358-04[DL-13E-IAS-004], 18G0358-05[DL-4E-IAS-005], 18G0358-06[DL-Ambient-006]

**Monochlorobiphenyls**
B207592-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. Kopyscinski
Laboratory Director

con-test® ANALYTICAL LABORATORY

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

**ANALYTICAL RESULTS**

Project Location: Amherst, MA
Date Received: 7/11/2018
**Field Sample #: DL-23E-IAS-001**
**Sample ID: 18G0358-01**
Sample Matrix: Air
Sampled: 7/10/2018 16:00

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:
Air Volume L: 1018.4

**Work Order: 18G0358**

**TO-10A/EPA 680 Modified**

| Analyte | Total µg Results | Total µg RL | Flag/Qual | ug/m3 Results | ug/m3 RL | Dilution | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Monochlorobiphenyls | 0.050 | 0.0010 | V-06 | 0.049 | 0.00098 | 1 | 7/17/18 20:33 | IMR |
| Dichlorobiphenyls | 0.047 | 0.0010 | | 0.046 | 0.00098 | 1 | 7/17/18 20:33 | IMR |
| Trichlorobiphenyls | 0.10 | 0.0020 | | 0.10 | 0.002 | 1 | 7/17/18 20:33 | IMR |
| Tetrachlorobiphenyls | 0.20 | 0.0020 | | 0.20 | 0.002 | 1 | 7/17/18 20:33 | IMR |
| Pentachlorobiphenyls | 0.18 | 0.0020 | | 0.17 | 0.002 | 1 | 7/17/18 20:33 | IMR |
| Hexachlorobiphenyls | 0.055 | 0.0020 | | 0.054 | 0.002 | 1 | 7/17/18 20:33 | IMR |
| Heptachlorobiphenyls | 0.011 | 0.0030 | | 0.011 | 0.0029 | 1 | 7/17/18 20:33 | IMR |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0029 | 1 | 7/17/18 20:33 | IMR |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0049 | 1 | 7/17/18 20:33 | IMR |
| Decachlorobiphenyl | ND | 0.0050 | V-20 | ND | 0.0049 | 1 | 7/17/18 20:33 | IMR |
| Total Polychlorinated biphenyls | 0.65 | | | 0.64 | | 1 | 7/17/18 20:33 | IMR |

| Surrogates | % Recovery | % REC Limits | |
|---|---|---|---|
| Tetrachloro-m-xylene | 60.5 | 50-125 | 7/17/18 20:33 |

con-test® ANALYTICAL LABORATORY

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**ANALYTICAL RESULTS**

Project Location: Amherst, MA
Date Received: 7/11/2018
**Field Sample #: DL-19E-IAS-002**
**Sample ID: 18G0358-02**
Sample Matrix: Air
Sampled: 7/10/2018 16:05

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:
Air Volume L: 977.59

**Work Order: 18G0358**

**TO-10A/EPA 680 Modified**

| Analyte | Total µg Results | Total µg RL | Flag/Qual | ug/m3 Results | ug/m3 RL | Dilution | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Monochlorobiphenyls | 0.043 | 0.0010 | V-06 | 0.044 | 0.001 | 1 | 7/17/18 21:10 | IMR |
| Dichlorobiphenyls | 0.042 | 0.0010 | | 0.043 | 0.001 | 1 | 7/17/18 21:10 | IMR |
| Trichlorobiphenyls | 0.11 | 0.0020 | | 0.11 | 0.002 | 1 | 7/17/18 21:10 | IMR |
| Tetrachlorobiphenyls | 0.20 | 0.0020 | | 0.21 | 0.002 | 1 | 7/17/18 21:10 | IMR |
| Pentachlorobiphenyls | 0.18 | 0.0020 | | 0.19 | 0.002 | 1 | 7/17/18 21:10 | IMR |
| Hexachlorobiphenyls | 0.053 | 0.0020 | | 0.055 | 0.002 | 1 | 7/17/18 21:10 | IMR |
| Heptachlorobiphenyls | 0.0094 | 0.0030 | | 0.0096 | 0.0031 | 1 | 7/17/18 21:10 | IMR |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0031 | 1 | 7/17/18 21:10 | IMR |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0051 | 1 | 7/17/18 21:10 | IMR |
| Decachlorobiphenyl | ND | 0.0050 | V-20 | ND | 0.0051 | 1 | 7/17/18 21:10 | IMR |
| Total Polychlorinated biphenyls | 0.64 | | | 0.66 | | 1 | 7/17/18 21:10 | IMR |

| Surrogates | % Recovery | % REC Limits | |
|---|---|---|---|
| Tetrachloro-m-xylene | 62.2 | 50-125 | 7/17/18 21:10 |

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**ANALYTICAL RESULTS**

Project Location: Amherst, MA
Date Received: 7/11/2018
**Field Sample #: DL-19D-IAS-003**
**Sample ID: 18G0358-03**
Sample Matrix: Air
Sampled: 7/10/2018 16:05

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:
Air Volume L: 983.15

**Work Order: 18G0358**

**TO-10A/EPA 680 Modified**

| Analyte | Total µg Results | Total µg RL | Flag/Qual | ug/m3 Results | ug/m3 RL | Dilution | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Monochlorobiphenyls | 0.038 | 0.0010 | V-06 | 0.039 | 0.001 | 1 | 7/17/18 21:48 | IMR |
| Dichlorobiphenyls | 0.038 | 0.0010 | | 0.038 | 0.001 | 1 | 7/17/18 21:48 | IMR |
| Trichlorobiphenyls | 0.10 | 0.0020 | | 0.10 | 0.002 | 1 | 7/17/18 21:48 | IMR |
| Tetrachlorobiphenyls | 0.19 | 0.0020 | | 0.19 | 0.002 | 1 | 7/17/18 21:48 | IMR |
| Pentachlorobiphenyls | 0.18 | 0.0020 | | 0.18 | 0.002 | 1 | 7/17/18 21:48 | IMR |
| Hexachlorobiphenyls | 0.045 | 0.0020 | | 0.046 | 0.002 | 1 | 7/17/18 21:48 | IMR |
| Heptachlorobiphenyls | 0.0068 | 0.0030 | | 0.0069 | 0.0031 | 1 | 7/17/18 21:48 | IMR |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0031 | 1 | 7/17/18 21:48 | IMR |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0051 | 1 | 7/17/18 21:48 | IMR |
| Decachlorobiphenyl | ND | 0.0050 | V-20 | ND | 0.0051 | 1 | 7/17/18 21:48 | IMR |
| Total Polychlorinated biphenyls | 0.60 | | | 0.61 | | 1 | 7/17/18 21:48 | IMR |

| Surrogates | % Recovery | % REC Limits | |
|---|---|---|---|
| Tetrachloro-m-xylene | 69.6 | 50-125 | 7/17/18 21:48 |

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**ANALYTICAL RESULTS**

Project Location: Amherst, MA
Date Received: 7/11/2018
**Field Sample #: DL-13E-IAS-004**
**Sample ID: 18G0358-04**
Sample Matrix: Air
Sampled: 7/10/2018 16:11

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:
Air Volume L: 983.39

**Work Order: 18G0358**

**TO-10A/EPA 680 Modified**

| Analyte | Total µg Results | Total µg RL | Flag/Qual | ug/m3 Results | ug/m3 RL | Dilution | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Monochlorobiphenyls | 0.017 | 0.0010 | V-06 | 0.018 | 0.001 | 1 | 7/17/18 22:25 | IMR |
| Dichlorobiphenyls | 0.015 | 0.0010 | | 0.015 | 0.001 | 1 | 7/17/18 22:25 | IMR |
| Trichlorobiphenyls | 0.063 | 0.0020 | | 0.064 | 0.002 | 1 | 7/17/18 22:25 | IMR |
| Tetrachlorobiphenyls | 0.19 | 0.0020 | | 0.19 | 0.002 | 1 | 7/17/18 22:25 | IMR |
| Pentachlorobiphenyls | 0.19 | 0.0020 | | 0.19 | 0.002 | 1 | 7/17/18 22:25 | IMR |
| Hexachlorobiphenyls | 0.053 | 0.0020 | | 0.054 | 0.002 | 1 | 7/17/18 22:25 | IMR |
| Heptachlorobiphenyls | 0.0097 | 0.0030 | | 0.0099 | 0.0031 | 1 | 7/17/18 22:25 | IMR |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0031 | 1 | 7/17/18 22:25 | IMR |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0051 | 1 | 7/17/18 22:25 | IMR |
| Decachlorobiphenyl | ND | 0.0050 | V-20 | ND | 0.0051 | 1 | 7/17/18 22:25 | IMR |
| Total Polychlorinated biphenyls | 0.54 | | | 0.55 | | 1 | 7/17/18 22:25 | IMR |

| Surrogates | % Recovery | % REC Limits | |
|---|---|---|---|
| Tetrachloro-m-xylene | 66.8 | 50-125 | 7/17/18 22:25 |

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**ANALYTICAL RESULTS**

Project Location: Amherst, MA
Date Received: 7/11/2018
**Field Sample #: DL-4E-IAS-005**
**Sample ID: 18G0358-05**
Sample Matrix: Air
Sampled: 7/10/2018 16:16

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:
Air Volume L: 970.72

**Work Order: 18G0358**

**TO-10A/EPA 680 Modified**

| Analyte | Total µg Results | Total µg RL | Flag/Qual | ug/m3 Results | ug/m3 RL | Dilution | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Monochlorobiphenyls | 0.030 | 0.0010 | V-06 | 0.031 | 0.001 | 1 | 7/17/18 23:03 | IMR |
| Dichlorobiphenyls | 0.032 | 0.0010 | | 0.033 | 0.001 | 1 | 7/17/18 23:03 | IMR |
| Trichlorobiphenyls | 0.064 | 0.0020 | | 0.066 | 0.0021 | 1 | 7/17/18 23:03 | IMR |
| Tetrachlorobiphenyls | 0.15 | 0.0020 | | 0.15 | 0.0021 | 1 | 7/17/18 23:03 | IMR |
| Pentachlorobiphenyls | 0.14 | 0.0020 | | 0.14 | 0.0021 | 1 | 7/17/18 23:03 | IMR |
| Hexachlorobiphenyls | 0.049 | 0.0020 | | 0.051 | 0.0021 | 1 | 7/17/18 23:03 | IMR |
| Heptachlorobiphenyls | 0.0099 | 0.0030 | | 0.010 | 0.0031 | 1 | 7/17/18 23:03 | IMR |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0031 | 1 | 7/17/18 23:03 | IMR |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0052 | 1 | 7/17/18 23:03 | IMR |
| Decachlorobiphenyl | ND | 0.0050 | V-20 | ND | 0.0052 | 1 | 7/17/18 23:03 | IMR |
| Total Polychlorinated biphenyls | 0.47 | | | 0.49 | | 1 | 7/17/18 23:03 | IMR |

| Surrogates | % Recovery | % REC Limits | |
|---|---|---|---|
| Tetrachloro-m-xylene | 68.1 | 50-125 | 7/17/18 23:03 |

con-test® ANALYTICAL LABORATORY

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**ANALYTICAL RESULTS**

Project Location: Amherst, MA
Date Received: 7/11/2018
**Field Sample #: DL-Ambient-006**
**Sample ID: 18G0358-06**
Sample Matrix: Air
Sampled: 7/10/2018 16:20

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:
Air Volume L: 956.51

**Work Order: 18G0358**

**TO-10A/EPA 680 Modified**

| Analyte | Total µg Results | Total µg RL | Flag/Qual | ug/m3 Results | ug/m3 RL | Dilution | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Monochlorobiphenyls | 0.0013 | 0.0010 | V-06 | 0.0014 | 0.001 | 1 | 7/17/18 23:40 | IMR |
| Dichlorobiphenyls | ND | 0.0010 | | ND | 0.001 | 1 | 7/17/18 23:40 | IMR |
| Trichlorobiphenyls | ND | 0.0020 | | ND | 0.0021 | 1 | 7/17/18 23:40 | IMR |
| Tetrachlorobiphenyls | 0.0021 | 0.0020 | | 0.0022 | 0.0021 | 1 | 7/17/18 23:40 | IMR |
| Pentachlorobiphenyls | 0.0027 | 0.0020 | | 0.0028 | 0.0021 | 1 | 7/17/18 23:40 | IMR |
| Hexachlorobiphenyls | 0.0020 | 0.0020 | | 0.0021 | 0.0021 | 1 | 7/17/18 23:40 | IMR |
| Heptachlorobiphenyls | ND | 0.0030 | | ND | 0.0031 | 1 | 7/17/18 23:40 | IMR |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0031 | 1 | 7/17/18 23:40 | IMR |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0052 | 1 | 7/17/18 23:40 | IMR |
| Decachlorobiphenyl | ND | 0.0050 | V-20 | ND | 0.0052 | 1 | 7/17/18 23:40 | IMR |
| Total Polychlorinated biphenyls | 0.0081 | | | 0.0085 | | 1 | 7/17/18 23:40 | IMR |

| Surrogates | % Recovery | % REC Limits | |
|---|---|---|---|
| Tetrachloro-m-xylene | 74.9 | 50-125 | 7/17/18 23:40 |

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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 |
|---|---|---|---|---|
| 18G0358-01 [DL-23E-IAS-001] | B207592 | 1.00 | 1.00 | 07/11/18 |
| 18G0358-02 [DL-19E-IAS-002] | B207592 | 1.00 | 1.00 | 07/11/18 |
| 18G0358-03 [DL-19D-IAS-003] | B207592 | 1.00 | 1.00 | 07/11/18 |
| 18G0358-04 [DL-13E-IAS-004] | B207592 | 1.00 | 1.00 | 07/11/18 |
| 18G0358-05 [DL-4E-IAS-005] | B207592 | 1.00 | 1.00 | 07/11/18 |
| 18G0358-06 [DL-Ambient-006] | B207592 | 1.00 | 1.00 | 07/11/18 |

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**QUALITY CONTROL**

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

| Analyte | Total µg Results | Total µg RL | ug/m3 Results | ug/m3 RL | Spike Level Total µg | Source Result | %REC | %REC Limits | RPD | RPD Limit | Flag/Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B207592 - SW-846 3540C** | | | | | | | | | | | |
| **Blank (B207592-BLK1)** | | | | | Prepared: 07/11/18 Analyzed: 07/12/18 | | | | | | |
| Monochlorobiphenyls | ND | 0.0010 | | | | | | | | | V-20 |
| Dichlorobiphenyls | ND | 0.0010 | | | | | | | | | |
| Trichlorobiphenyls | ND | 0.0020 | | | | | | | | | |
| 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* | *0.177* | | | | *0.200* | | *88.6* | *50-125* | | | |
| **LCS (B207592-BS1)** | | | | | Prepared: 07/11/18 Analyzed: 07/12/18 | | | | | | |
| Monochlorobiphenyls | 0.21 | 0.0010 | | | 0.200 | | 103 | 40-140 | | | V-06 |
| Dichlorobiphenyls | 0.22 | 0.0010 | | | 0.200 | | 109 | 40-140 | | | |
| Trichlorobiphenyls | 0.20 | 0.0020 | | | 0.200 | | 101 | 40-140 | | | |
| Tetrachlorobiphenyls | 0.41 | 0.0020 | | | 0.400 | | 104 | 40-140 | | | |
| Pentachlorobiphenyls | 0.44 | 0.0020 | | | 0.400 | | 111 | 40-140 | | | |
| Hexachlorobiphenyls | 0.44 | 0.0020 | | | 0.400 | | 110 | 40-140 | | | |
| Heptachlorobiphenyls | 0.65 | 0.0030 | | | 0.600 | | 108 | 40-140 | | | |
| Octachlorobiphenyls | 0.61 | 0.0030 | | | 0.600 | | 101 | 40-140 | | | |
| Nonachlorobiphenyls | 1.1 | 0.0050 | | | 1.00 | | 108 | 40-140 | | | |
| Decachlorobiphenyl | 1.1 | 0.0050 | | | 1.00 | | 108 | 40-140 | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.206* | | | | *0.200* | | *103* | *50-125* | | | |
| **LCS Dup (B207592-BSD1)** | | | | | Prepared: 07/11/18 Analyzed: 07/12/18 | | | | | | |
| Monochlorobiphenyls | 0.17 | 0.0010 | | | 0.200 | | 82.7 | 40-140 | 21.5 | 50 | V-06 |
| Dichlorobiphenyls | 0.18 | 0.0010 | | | 0.200 | | 89.0 | 40-140 | 20.6 | 50 | |
| Trichlorobiphenyls | 0.17 | 0.0020 | | | 0.200 | | 83.7 | 40-140 | 19.2 | 50 | |
| Tetrachlorobiphenyls | 0.34 | 0.0020 | | | 0.400 | | 85.6 | 40-140 | 19.1 | 50 | |
| Pentachlorobiphenyls | 0.38 | 0.0020 | | | 0.400 | | 94.4 | 40-140 | 16.0 | 50 | |
| Hexachlorobiphenyls | 0.37 | 0.0020 | | | 0.400 | | 92.3 | 40-140 | 18.0 | 50 | |
| Heptachlorobiphenyls | 0.54 | 0.0030 | | | 0.600 | | 89.7 | 40-140 | 18.1 | 50 | |
| Octachlorobiphenyls | 0.51 | 0.0030 | | | 0.600 | | 84.9 | 40-140 | 17.7 | 50 | |
| Nonachlorobiphenyls | 0.90 | 0.0050 | | | 1.00 | | 90.5 | 40-140 | 17.5 | 50 | |
| Decachlorobiphenyl | 0.90 | 0.0050 | | | 1.00 | | 90.1 | 40-140 | 18.2 | 50 | |
| *Surrogate: Tetrachloro-m-xylene* | *0.167* | | | | *0.200* | | *83.5* | *50-125* | | | |

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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 is at the level of quantitation (LOQ) |
| DL | Detection Limit is the lower limit of detection determined by the MDL study |
| 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. Reported result is estimated. |
| 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 |
|---|---|---|---|---|---|---|---|---|---|
| **LCS (B207592-BS1 )** | | | Lab File ID: F0712004.D | | | Analyzed: 07/12/18 11:48 | | | |
| Phenanthrene-d10 | 1149163 | 19.471 | 1216483 | 19.472 | 94 | 50 - 200 | -0.0010 | +/-0.50 | |
| Chrysene-d12 | 695962 | 26.91 | 700835 | 26.904 | 99 | 50 - 200 | 0.0060 | +/-0.50 | |
| **LCS Dup (B207592-BSD1 )** | | | Lab File ID: F0712005.D | | | Analyzed: 07/12/18 12:26 | | | |
| Phenanthrene-d10 | 1350972 | 19.471 | 1216483 | 19.472 | 111 | 50 - 200 | -0.0010 | +/-0.50 | |
| Chrysene-d12 | 835561 | 26.904 | 700835 | 26.904 | 119 | 50 - 200 | 0.0000 | +/-0.50 | |
| **Blank (B207592-BLK1 )** | | | Lab File ID: F0712006.D | | | Analyzed: 07/12/18 13:03 | | | |
| Phenanthrene-d10 | 1445199 | 19.471 | 1216483 | 19.472 | 119 | 50 - 200 | -0.0010 | +/-0.50 | |
| Chrysene-d12 | 876386 | 26.903 | 700835 | 26.904 | 125 | 50 - 200 | -0.0010 | +/-0.50 | |

**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 |
|---|---|---|---|---|---|---|---|---|---|
| **DL-23E-IAS-001 (18G0358-01 )** | | | Lab File ID: F0717018.D | | | Analyzed: 07/17/18 20:33 | | | |
| Phenanthrene-d10 | 1376206 | 20.909 | 930424 | 20.908 | 148 | 50 - 200 | 0.0010 | +/-0.50 | |
| Chrysene-d12 | 1233366 | 28.897 | 734956 | 28.897 | 168 | 50 - 200 | 0.0000 | +/-0.50 | |
| **DL-19E-IAS-002 (18G0358-02 )** | | | Lab File ID: F0717019.D | | | Analyzed: 07/17/18 21:10 | | | |
| Phenanthrene-d10 | 1548518 | 20.908 | 930424 | 20.908 | 166 | 50 - 200 | 0.0000 | +/-0.50 | |
| Chrysene-d12 | 1388046 | 28.897 | 734956 | 28.897 | 189 | 50 - 200 | 0.0000 | +/-0.50 | |
| **DL-19D-IAS-003 (18G0358-03 )** | | | Lab File ID: F0717020.D | | | Analyzed: 07/17/18 21:48 | | | |
| Phenanthrene-d10 | 1530967 | 20.908 | 930424 | 20.908 | 165 | 50 - 200 | 0.0000 | +/-0.50 | |
| Chrysene-d12 | 1398397 | 28.897 | 734956 | 28.897 | 190 | 50 - 200 | 0.0000 | +/-0.50 | |
| **DL-13E-IAS-004 (18G0358-04 )** | | | Lab File ID: F0717021.D | | | Analyzed: 07/17/18 22:25 | | | |
| Phenanthrene-d10 | 1409815 | 20.908 | 930424 | 20.908 | 152 | 50 - 200 | 0.0000 | +/-0.50 | |
| Chrysene-d12 | 1243469 | 28.897 | 734956 | 28.897 | 169 | 50 - 200 | 0.0000 | +/-0.50 | |
| **DL-4E-IAS-005 (18G0358-05 )** | | | Lab File ID: F0717022.D | | | Analyzed: 07/17/18 23:03 | | | |
| Phenanthrene-d10 | 1438791 | 20.908 | 930424 | 20.908 | 155 | 50 - 200 | 0.0000 | +/-0.50 | |
| Chrysene-d12 | 1320675 | 28.897 | 734956 | 28.897 | 180 | 50 - 200 | 0.0000 | +/-0.50 | |
| **DL-Ambient-006 (18G0358-06 )** | | | Lab File ID: F0717023.D | | | Analyzed: 07/17/18 23:40 | | | |
| Phenanthrene-d10 | 1523783 | 20.908 | 930424 | 20.908 | 164 | 50 - 200 | 0.0000 | +/-0.50 | |
| Chrysene-d12 | 1339991 | 28.897 | 734956 | 28.897 | 182 | 50 - 200 | 0.0000 | +/-0.50 | |

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**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

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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 | 03/1/2020 |
| MA | Massachusetts DEP | M-MA100 | 06/30/2019 |
| CT | Connecticut Department of Publilc Health | PH-0567 | 09/30/2019 |
| NY | New York State Department of Health | 10899 NELAP | 04/1/2019 |
| NH-S | New Hampshire Environmental Lab | 2516 NELAP | 02/5/2019 |
| RI | Rhode Island Department of Health | LAO00112 | 12/30/2018 |
| NC | North Carolina Div. of Water Quality | 652 | 12/31/2018 |
| NJ | New Jersey DEP | MA007 NELAP | 06/30/2019 |
| FL | Florida Department of Health | E871027 NELAP | 06/30/2019 |
| VT | Vermont Department of Health Lead Laboratory | LL015036 | 07/30/2019 |
| ME | State of Maine | 2011028 | 06/9/2019 |
| VA | Commonwealth of Virginia | 460217 | 12/14/2018 |
| NH-P | New Hampshire Environmental Lab | 2557 NELAP | 09/6/2018 |
| VT-DW | Vermont Department of Health Drinking Water | VT-255716 | 06/12/2019 |
| NC-DW | North Carolina Department of Health | 25703 | 07/31/2018 |

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186-0358

http://www.contestlabs.com

Doc #378 Rev 1_03242017

CHAIN OF CUSTODY RECORD (AIR)

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

| | |
|---|---|
| Company Name: | Woodard & Curran |
| Address: | 213 Court St |
| Phone: | 203 271 0379 |
| Project Name: | UMass Dubois |
| Project Location: | Amherst, MA |
| Project Number: | 225695 |
| Project Manager: | George Franklin |
| Con-Test Quote Name/Number: | |
| Invoice Recipient: | SAME |
| Sampled By: | Greg Reynolds |

**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: gfranklin@woodardcurran.com
Fax To #:

**ANALYSIS REQUESTED**

Please fill out completely, sign, date and retain the yellow copy for your records

Summa canisters and flow controllers must be returned within 15 days of receipt or rental fees will apply

For summa canister and flow controller information please refer to Con-Test's Air Media Agreement

| Lab Use: Con-Test Work Order# | Client Use: Client Sample ID / Description | Collection Data: Beginning Date/Time | Collection Data: Ending Date/Time | Duration: Total Minutes Sampled | Flow Rate (☐ m³/min ☒ L/min) | Matrix: Code | Volume (☐ Liters ☐ m³) | PCBs | | | | Initial Pressure (" Hg) | Final Pressure (" Hg) | Lab Receipt Pressure (" Hg) | Summa Can ID | Flow Controller ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | DL-23E-IAS-001 | 7/10/18 | 940 1600 | 380 | 2.68 | Puff | | X | | | | | | | | |
| 02 | DL-19E-IAS-002 | ↓ | 954 1605 | 371 | 2.635 | ↓ | | X | | | | | | | | |
| 03 | DL-19D-IAS-003 | | 954 1605 | 371 | 2.65 | | | X | | | | | | | | |
| 04 | DL-19E-IAS-004 | | 1002 1611 | 369 | 2.665 | | | X | | | | | | | | |
| 05 | DL-4E-IAS-005 | | 1009 1616 | 367 | 2.645 | | | X | | | | | | | | |
| 06 | DL-Ambient-006 | | 1017 1620 | 363 | 2.635 | | | X | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

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: |
|---|---|
| [signature] | 7/11/18 1010 |
| Received by: (signature) Tom Mai | Date/Time: 7/11/18 1010 |
| Relinquished by: (signature) Tom Mai | Date/Time: 7/11/18 1600 |
| Received by: (signature) Sam Zinzi 3.6 | Date/Time: 7/11/18 1600 |
| Relinquished by: (signature) | Date/Time: |
| Received by: (signature) | Date/Time: |

**Detection Limit Requirements**
MA
CT
Other:

**Special Requirements**
☒ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ Other

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NELAC and AIHA-LAP, LLC Accredited

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

**Other**
☐ Chromatogram
☐ AIHA-LAP, LLC

**PCB ONLY**
☒ Soxhlet
☐ Non Soxhlet

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F: 413-525-6405
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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: W+C

Received By: SE | Date: 7/11/18 | Time: 1600

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 #: 8 | Actual Temp - 3.6 | By Blank #: | Actual Temp -

Was Custody Seal Intact? N/A | Were Samples Tampered with? N/A

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? 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? F | Who was notified? N/A

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 | 6 | | | | Tedlar | | | |

| Can #'s | | | | | Reg #'s | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| **Unused Media** | | | | | **Pufs/TO-17's** | | | | |
| | | | | | 070618-01 | 070618-06 | | | |
| | | | | | 070618-02 | | | | |
| | | | | | 070618-03 | | | | |
| | | | | | 070618-04 | | | | |
| | | | | | 070618-05 | | | | |

**Comments:**

**DUBOIS LIBRARY**
**PROJECT SUMMARY**

**ConTest Analytical Laboratory Job Number: 18G0358**

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 3.6 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 monochlorobiphenyls: "Continuing calibration did not meet method specifications and was biased on the high side for this compound." Therefore, the detected monochlorobiphenyls result in all samples is qualified as estimated, J+ with a high bias. According to the laboratory case narrative for decachlorobiphenyls: "Continuing calibration did not meet method specifications and was biased on the high side." Since the affected compound was not detected in the associated samples, 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 sample/laboratory control sample duplicate (LCS/LCSD) met acceptance criteria. No qualifications were applied.

PCB homolog field duplicate samples DL-19E-IAS-002 (18G0358-02)/DL-19D-IAS-003 (18G0358-03) met relative percent difference (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: 10/19/2018



Project # 225695

## SYLVAN INDOOR AIR SEPTEMBER 2018 - PROJECT SUMMARY

**Con-Test Analytical Laboratory Job Number: 18I0641**

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 2.9 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 monochlorobiphenyls: "Continuing calibration did not meet method specifications and was biased on the high side." Since the affected compound was not detected in the associated samples, 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 compounds. 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 sample/laboratory control sample duplicate (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.

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

Gloria J. Switalski:
President

Date: 10/19/2018



Project # 225695

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

September 21, 2018

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

Project Location: Amherst, MA
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 18I0641

Enclosed are results of analyses for samples received by the laboratory on September 14, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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: 9/21/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

**ANALYTICAL SUMMARY**

WORK ORDER NUMBER: 18I0641

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 |
|---|---|---|---|---|---|
| LTM-CR-IAS-301 | 18I0641-01 | Air | | TO-10A/EPA 680 Modified | |
| LTM-MR-IAS-302 | 18I0641-02 | Air | | TO-10A/EPA 680 Modified | |
| LTM-BR-IAS-303 | 18I0641-03 | Air | | TO-10A/EPA 680 Modified | |
| LTM-AMB-304 | 18I0641-04 | 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.

REVISION: 9/21/2018

For method 680 - Air Volumes corrected for sample -04

**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.

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

**Monochlorobiphenyls**

B212694-BS1, B212694-BSD1, S027491-CCV2

**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**

18I0641-01[LTM-CR-IAS-301], 18I0641-02[LTM-MR-IAS-302], 18I0641-03[LTM-BR-IAS-303], 18I0641-04[LTM-AMB-304], B212694-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

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**ANALYTICAL RESULTS**

Project Location: Amherst, MA
Date Received: 9/14/2018
**Field Sample #: LTM-CR-IAS-301**
**Sample ID: 18I0641-01**
Sample Matrix: Air
Sampled: 9/13/2018 13:35

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:
Air Volume L: 938.88

**Work Order: 18I0641**

**TO-10A/EPA 680 Modified**

| Analyte | Total µg Results | Total µg RL | Flag/Qual | ug/m3 Results | ug/m3 RL | Dilution | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Monochlorobiphenyls | ND | 0.0010 | V-20 | ND | 0.0011 | 1 | 9/20/18 22:43 | IMR |
| Dichlorobiphenyls | 0.0020 | 0.0010 | | 0.0021 | 0.0011 | 1 | 9/20/18 22:43 | IMR |
| Trichlorobiphenyls | 0.020 | 0.0020 | | 0.021 | 0.0021 | 1 | 9/20/18 22:43 | IMR |
| Tetrachlorobiphenyls | 0.13 | 0.0020 | | 0.14 | 0.0021 | 1 | 9/20/18 22:43 | IMR |
| Pentachlorobiphenyls | 0.16 | 0.0020 | | 0.18 | 0.0021 | 1 | 9/20/18 22:43 | IMR |
| Hexachlorobiphenyls | 0.045 | 0.0020 | | 0.047 | 0.0021 | 1 | 9/20/18 22:43 | IMR |
| Heptachlorobiphenyls | 0.0087 | 0.0030 | | 0.0093 | 0.0032 | 1 | 9/20/18 22:43 | IMR |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0032 | 1 | 9/20/18 22:43 | IMR |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0053 | 1 | 9/20/18 22:43 | IMR |
| Decachlorobiphenyl | ND | 0.0050 | | ND | 0.0053 | 1 | 9/20/18 22:43 | IMR |
| Total Polychlorinated biphenyls | 0.37 | | | 0.40 | | 1 | 9/20/18 22:43 | IMR |

| Surrogates | % Recovery | % REC Limits | |
|---|---|---|---|
| Tetrachloro-m-xylene | 87.8 | 50-125 | 9/20/18 22:43 |

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**ANALYTICAL RESULTS**

Project Location: Amherst, MA
Date Received: 9/14/2018
**Field Sample #: LTM-MR-IAS-302**
**Sample ID: 18I0641-02**
Sample Matrix: Air
Sampled: 9/13/2018 13:50

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:
Air Volume L: 951.19

**Work Order: 18I0641**

**TO-10A/EPA 680 Modified**

| Analyte | Total µg Results | Total µg RL | Flag/Qual | ug/m3 Results | ug/m3 RL | Dilution | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Monochlorobiphenyls | ND | 0.0010 | V-20 | ND | 0.0011 | 1 | 9/20/18 23:20 | IMR |
| Dichlorobiphenyls | 0.0081 | 0.0010 | | 0.0085 | 0.0011 | 1 | 9/20/18 23:20 | IMR |
| Trichlorobiphenyls | 0.026 | 0.0020 | | 0.027 | 0.0021 | 1 | 9/20/18 23:20 | IMR |
| Tetrachlorobiphenyls | 0.070 | 0.0020 | | 0.074 | 0.0021 | 1 | 9/20/18 23:20 | IMR |
| Pentachlorobiphenyls | 0.074 | 0.0020 | | 0.078 | 0.0021 | 1 | 9/20/18 23:20 | IMR |
| Hexachlorobiphenyls | 0.024 | 0.0020 | | 0.025 | 0.0021 | 1 | 9/20/18 23:20 | IMR |
| Heptachlorobiphenyls | 0.0064 | 0.0030 | | 0.0067 | 0.0032 | 1 | 9/20/18 23:20 | IMR |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0032 | 1 | 9/20/18 23:20 | IMR |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0053 | 1 | 9/20/18 23:20 | IMR |
| Decachlorobiphenyl | ND | 0.0050 | | ND | 0.0053 | 1 | 9/20/18 23:20 | IMR |
| Total Polychlorinated biphenyls | 0.21 | | | 0.22 | | 1 | 9/20/18 23:20 | IMR |

| Surrogates | % Recovery | % REC Limits | |
|---|---|---|---|
| Tetrachloro-m-xylene | 98.1 | 50-125 | 9/20/18 23:20 |

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**ANALYTICAL RESULTS**

Project Location: Amherst, MA
Date Received: 9/14/2018
**Field Sample #: LTM-BR-IAS-303**
**Sample ID: 18I0641-03**
Sample Matrix: Air
Sampled: 9/13/2018 14:00

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:
Air Volume L: 954.894

**Work Order: 18I0641**

**TO-10A/EPA 680 Modified**

| Analyte | Total µg Results | Total µg RL | Flag/Qual | ug/m3 Results | ug/m3 RL | Dilution | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Monochlorobiphenyls | ND | 0.0010 | V-20 | ND | 0.001 | 1 | 9/20/18 23:58 | IMR |
| Dichlorobiphenyls | 0.016 | 0.0010 | | 0.016 | 0.001 | 1 | 9/20/18 23:58 | IMR |
| Trichlorobiphenyls | 0.028 | 0.0020 | | 0.030 | 0.0021 | 1 | 9/20/18 23:58 | IMR |
| Tetrachlorobiphenyls | 0.11 | 0.0020 | | 0.11 | 0.0021 | 1 | 9/20/18 23:58 | IMR |
| Pentachlorobiphenyls | 0.12 | 0.0020 | | 0.13 | 0.0021 | 1 | 9/20/18 23:58 | IMR |
| Hexachlorobiphenyls | 0.027 | 0.0020 | | 0.028 | 0.0021 | 1 | 9/20/18 23:58 | IMR |
| Heptachlorobiphenyls | ND | 0.0030 | | ND | 0.0031 | 1 | 9/20/18 23:58 | IMR |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0031 | 1 | 9/20/18 23:58 | IMR |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0052 | 1 | 9/20/18 23:58 | IMR |
| Decachlorobiphenyl | ND | 0.0050 | | ND | 0.0052 | 1 | 9/20/18 23:58 | IMR |
| Total Polychlorinated biphenyls | 0.30 | | | 0.31 | | 1 | 9/20/18 23:58 | IMR |

| Surrogates | % Recovery | % REC Limits | |
|---|---|---|---|
| Tetrachloro-m-xylene | 74.1 | 50-125 | 9/20/18 23:58 |

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**ANALYTICAL RESULTS**

Project Location: Amherst, MA
Date Received: 9/14/2018
**Field Sample #: LTM-AMB-304**
**Sample ID: 18I0641-04**
Sample Matrix: Air
Sampled: 9/13/2018 13:25

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:
Air Volume L: 951.48

**Work Order: 18I0641**

**TO-10A/EPA 680 Modified**

| Analyte | Total µg Results | Total µg RL | Flag/Qual | ug/m3 Results | ug/m3 RL | Dilution | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Monochlorobiphenyls | ND | 0.0010 | V-20 | ND | 0.0011 | 1 | 9/21/18 0:35 | IMR |
| Dichlorobiphenyls | ND | 0.0010 | | ND | 0.0011 | 1 | 9/21/18 0:35 | IMR |
| Trichlorobiphenyls | ND | 0.0020 | | ND | 0.0021 | 1 | 9/21/18 0:35 | IMR |
| Tetrachlorobiphenyls | ND | 0.0020 | | ND | 0.0021 | 1 | 9/21/18 0:35 | IMR |
| Pentachlorobiphenyls | ND | 0.0020 | | ND | 0.0021 | 1 | 9/21/18 0:35 | IMR |
| Hexachlorobiphenyls | ND | 0.0020 | | ND | 0.0021 | 1 | 9/21/18 0:35 | IMR |
| Heptachlorobiphenyls | ND | 0.0030 | | ND | 0.0032 | 1 | 9/21/18 0:35 | IMR |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0032 | 1 | 9/21/18 0:35 | IMR |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0053 | 1 | 9/21/18 0:35 | IMR |
| Decachlorobiphenyl | ND | 0.0050 | | ND | 0.0053 | 1 | 9/21/18 0:35 | IMR |
| Total Polychlorinated biphenyls | 0.0 | | | 0 | | 1 | 9/21/18 0:35 | IMR |

| Surrogates | % Recovery | % REC Limits | |
|---|---|---|---|
| Tetrachloro-m-xylene | 103 | 50-125 | 9/21/18 0:35 |

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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 |
|---|---|---|---|---|
| 18I0641-01 [LTM-CR-IAS-301] | B212694 | 1.00 | 1.00 | 09/18/18 |
| 18I0641-02 [LTM-MR-IAS-302] | B212694 | 1.00 | 1.00 | 09/18/18 |
| 18I0641-03 [LTM-BR-IAS-303] | B212694 | 1.00 | 1.00 | 09/18/18 |
| 18I0641-04 [LTM-AMB-304] | B212694 | 1.00 | 1.00 | 09/18/18 |

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**QUALITY CONTROL**

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

| Analyte | Total µg Results | Total µg RL | ug/m3 Results | ug/m3 RL | Spike Level Total µg | Source Result | %REC | %REC Limits | RPD | RPD Limit | Flag/Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B212694 - SW-846 3540C** | | | | | | | | | | | |
| **Blank (B212694-BLK1)** | | | | | Prepared: 09/18/18 Analyzed: 09/20/18 | | | | | | |
| Monochlorobiphenyls | ND | 0.0010 | | | | | | | | | V-20 |
| Dichlorobiphenyls | ND | 0.0010 | | | | | | | | | |
| Trichlorobiphenyls | ND | 0.0020 | | | | | | | | | |
| 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* | *0.183* | | | | *0.200* | | *91.6* | *50-125* | | | |
| **LCS (B212694-BS1)** | | | | | Prepared: 09/18/18 Analyzed: 09/20/18 | | | | | | |
| Monochlorobiphenyls | 0.18 | 0.0010 | | | 0.200 | | 89.3 | 40-140 | | | V-06 |
| Dichlorobiphenyls | 0.17 | 0.0010 | | | 0.200 | | 87.2 | 40-140 | | | |
| Trichlorobiphenyls | 0.18 | 0.0020 | | | 0.200 | | 88.9 | 40-140 | | | |
| Tetrachlorobiphenyls | 0.38 | 0.0020 | | | 0.400 | | 96.1 | 40-140 | | | |
| Pentachlorobiphenyls | 0.40 | 0.0020 | | | 0.400 | | 100 | 40-140 | | | |
| Hexachlorobiphenyls | 0.41 | 0.0020 | | | 0.400 | | 101 | 40-140 | | | |
| Heptachlorobiphenyls | 0.60 | 0.0030 | | | 0.600 | | 99.3 | 40-140 | | | |
| Octachlorobiphenyls | 0.60 | 0.0030 | | | 0.600 | | 100 | 40-140 | | | |
| Nonachlorobiphenyls | 1.0 | 0.0050 | | | 1.00 | | 102 | 40-140 | | | |
| Decachlorobiphenyl | 1.0 | 0.0050 | | | 1.00 | | 103 | 40-140 | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.186* | | | | *0.200* | | *92.9* | *50-125* | | | |
| **LCS Dup (B212694-BSD1)** | | | | | Prepared: 09/18/18 Analyzed: 09/20/18 | | | | | | |
| Monochlorobiphenyls | 0.18 | 0.0010 | | | 0.200 | | 88.0 | 40-140 | 1.42 | 50 | V-06 |
| Dichlorobiphenyls | 0.15 | 0.0010 | | | 0.200 | | 76.7 | 40-140 | 12.8 | 50 | |
| Trichlorobiphenyls | 0.16 | 0.0020 | | | 0.200 | | 78.7 | 40-140 | 12.2 | 50 | |
| Tetrachlorobiphenyls | 0.34 | 0.0020 | | | 0.400 | | 85.6 | 40-140 | 11.5 | 50 | |
| Pentachlorobiphenyls | 0.35 | 0.0020 | | | 0.400 | | 88.3 | 40-140 | 12.9 | 50 | |
| Hexachlorobiphenyls | 0.33 | 0.0020 | | | 0.400 | | 83.0 | 40-140 | 19.9 | 50 | |
| Heptachlorobiphenyls | 0.49 | 0.0030 | | | 0.600 | | 81.5 | 40-140 | 19.7 | 50 | |
| Octachlorobiphenyls | 0.49 | 0.0030 | | | 0.600 | | 81.8 | 40-140 | 20.0 | 50 | |
| Nonachlorobiphenyls | 0.83 | 0.0050 | | | 1.00 | | 83.4 | 40-140 | 20.2 | 50 | |
| Decachlorobiphenyl | 0.85 | 0.0050 | | | 1.00 | | 84.6 | 40-140 | 19.4 | 50 | |
| *Surrogate: Tetrachloro-m-xylene* | *0.163* | | | | *0.200* | | *81.7* | *50-125* | | | |

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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 is at the level of quantitation (LOQ) |
| DL | Detection Limit is the lower limit of detection determined by the MDL study |
| 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. |
| 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 |
|---|---|---|---|---|---|---|---|---|---|
| **LCS (B212694-BS1 )** | | | Lab File ID: F0920015.D | | | Analyzed: 09/20/18 19:36 | | | |
| Phenanthrene-d10 | 2037355 | 18.756 | 2090077 | 18.75 | 97 | 50 - 200 | 0.0060 | +/-0.50 | |
| Chrysene-d12 | 2190248 | 25.949 | 2359174 | 25.949 | 93 | 50 - 200 | 0.0000 | +/-0.50 | |
| **LCS Dup (B212694-BSD1 )** | | | Lab File ID: F0920016.D | | | Analyzed: 09/20/18 20:13 | | | |
| Phenanthrene-d10 | 1850221 | 18.75 | 2090077 | 18.75 | 89 | 50 - 200 | 0.0000 | +/-0.50 | |
| Chrysene-d12 | 2137716 | 25.949 | 2359174 | 25.949 | 91 | 50 - 200 | 0.0000 | +/-0.50 | |
| **Blank (B212694-BLK1 )** | | | Lab File ID: F0920017.D | | | Analyzed: 09/20/18 20:51 | | | |
| Phenanthrene-d10 | 1906513 | 18.75 | 2090077 | 18.75 | 91 | 50 - 200 | 0.0000 | +/-0.50 | |
| Chrysene-d12 | 2050506 | 25.949 | 2359174 | 25.949 | 87 | 50 - 200 | 0.0000 | +/-0.50 | |
| **LTM-CR-IAS-301 (18I0641-01 )** | | | Lab File ID: F0920020.D | | | Analyzed: 09/20/18 22:43 | | | |
| Phenanthrene-d10 | 1493580 | 18.749 | 2090077 | 18.75 | 71 | 50 - 200 | -0.0010 | +/-0.50 | |
| Chrysene-d12 | 1633344 | 25.949 | 2359174 | 25.949 | 69 | 50 - 200 | 0.0000 | +/-0.50 | |
| **LTM-MR-IAS-302 (18I0641-02 )** | | | Lab File ID: F0920021.D | | | Analyzed: 09/20/18 23:20 | | | |
| Phenanthrene-d10 | 1781835 | 18.75 | 2090077 | 18.75 | 85 | 50 - 200 | 0.0000 | +/-0.50 | |
| Chrysene-d12 | 2027999 | 25.948 | 2359174 | 25.949 | 86 | 50 - 200 | -0.0010 | +/-0.50 | |
| **LTM-BR-IAS-303 (18I0641-03 )** | | | Lab File ID: F0920022.D | | | Analyzed: 09/20/18 23:58 | | | |
| Phenanthrene-d10 | 2541806 | 18.75 | 2090077 | 18.75 | 122 | 50 - 200 | 0.0000 | +/-0.50 | |
| Chrysene-d12 | 1993683 | 25.948 | 2359174 | 25.949 | 85 | 50 - 200 | -0.0010 | +/-0.50 | |
| **LTM-AMB-304 (18I0641-04 )** | | | Lab File ID: F0920023.D | | | Analyzed: 09/21/18 00:35 | | | |
| Phenanthrene-d10 | 1733446 | 18.749 | 2090077 | 18.75 | 83 | 50 - 200 | -0.0010 | +/-0.50 | |
| Chrysene-d12 | 2094729 | 25.948 | 2359174 | 25.949 | 89 | 50 - 200 | -0.0010 | +/-0.50 | |

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**CONTINUING CALIBRATION CHECK**

| | | | | RESPONSE FACTOR | | | % DIFF / DRIFT | |
|---|---|---|---|---|---|---|---|---|
| COMPOUND | TYPE | 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 |
|---|---|

**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 | 03/1/2020 |
| MA | Massachusetts DEP | M-MA100 | 06/30/2019 |
| CT | Connecticut Department of Publilc Health | PH-0567 | 09/30/2019 |
| NY | New York State Department of Health | 10899 NELAP | 04/1/2019 |
| NH-S | New Hampshire Environmental Lab | 2516 NELAP | 02/5/2019 |
| RI | Rhode Island Department of Health | LAO00112 | 12/30/2018 |
| NC | North Carolina Div. of Water Quality | 652 | 12/31/2018 |
| NJ | New Jersey DEP | MA007 NELAP | 06/30/2019 |
| FL | Florida Department of Health | E871027 NELAP | 06/30/2019 |
| VT | Vermont Department of Health Lead Laboratory | LL015036 | 07/30/2019 |
| ME | State of Maine | 2011028 | 06/9/2019 |
| VA | Commonwealth of Virginia | 460217 | 12/14/2018 |
| NH-P | New Hampshire Environmental Lab | 2557 NELAP | 09/6/2019 |
| VT-DW | Vermont Department of Health Drinking Water | VT-255716 | 06/12/2019 |
| NC-DW | North Carolina Department of Health | 25703 | 07/31/2019 |

18I0641

con-test ANALYTICAL LABORATORY

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http://www.contestlabs.com

CHAIN OF CUSTODY RECORD

Doc # 3B1 Rev 1_03242017

39 Spruce Street
East Longmeadow, MA 01028



Company Name: Woodard & Curran
Address: 213 Court St Middletown CT
Phone: 203 271 0379
Project Name: Lutrey Woodard & Curran
Project Location: Amherst MA
Project Number: 225695
Project Manager: E Jeff Havel
Con-Test Quote Name/Number:
Invoice Recipient: George Franklin
Sampled By: Greg Reynolds

Requested Turnaround Time
7-Day ☐ 10-Day ☐
Due Date: 5 day

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

Data Delivery
Format: PDF ☒ EXCEL ☒
Other:
CLP Like Data Pkg Required ☐
Email To: jhavel, gfranklin
Fax To #: greynolds

ANALYSIS REQUESTED

| Con-Test Work Order# | Client Sample ID / Description | Beginning Date/Time | Ending Date/Time | Composite | Grab | Matrix Code | Conc Code | # of Containers / Preservation Code / Container Code | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | I | I | O | | | | | | | |
| 1 | LTM-CR-IAS-301 | 9/13/18 | 735/735 | Air Sample | | A | U | X | | | 76.8 | 78.0 | 30.14 | 30.11 | 2.608 | | |
| 2 | LTM-MR-IAS-302 | | 745/1340 | | | | | | | | 77.1 | 77.8 | 30.17 | 30.13 | 2.606 | | |
| 3 | LTM-BR-IAS-303 | | 754/1400 | | | | | | | | 76.4 | 77.4 | 30.18 | 30.14 | 2.609 | | |
| 4 | LTM-Amb-304 | | 725/1325 | | | | | | | | 70.2 | 79.9 | 30.14 | 30.15 | 2.643 | | |

Start temp, Finish temp, Start pressure, Finish pressure, Pump rate (L/min)

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ 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)

[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)
Puf Cartridge

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

| | | |
|---|---|---|
| Relinquished by: (signature) | Date/Time: 9/14 1340 | |
| Received by: (signature) | Date/Time: 9/14/18 1340 | |
| Relinquished by: (signature) | Date/Time: 9/14/18 1835 | |
| Received by: (signature) | Date/Time: 9-14-18 19:35 2.9 | |
| Relinquished by: (signature) | Date/Time: | |
| Received by: (signature) | Date/Time: | |

Detection Limit Requirements
MA
CT
Other:

Special Requirements
☐ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required
PWSID #

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

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

PCB ONLY
☒ Soxhlet
☐ Non Soxhlet



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I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® 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: ESO | Date: 9-14-18 | Time: 19:45

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 #: 577 | Actual Temp - 2.9 | 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 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 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 | 4 | Low vol | | | Tedlar | | | |

| Can #'s | | | | | Reg #'s | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| **Unused Media** | | | | | **Pufs/TO-17's** | | | | |
| | | | | | 090418-01 | | | | |
| | | | | | 090418-02 | | | | |
| | | | | | 090418-03 | | | | |
| | | | | | 090418-04 | | | | |
| | | | | | | | | | |

**Comments:**

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

September 24, 2018

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

Project Location: Amherst, MA
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 18I0643

Enclosed are results of analyses for samples received by the laboratory on September 14, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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: 9/24/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

**ANALYTICAL SUMMARY**

WORK ORDER NUMBER: 18I0643

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 |
|---|---|---|---|---|---|
| LTM-CR-VWC-625 | 18I0643-01 | Wipe | | SW-846 8082A | |
| LTM-CR-VWC-626 | 18I0643-02 | Wipe | | SW-846 8082A | |
| LTM-MR-VWC-627 | 18I0643-03 | Wipe | | SW-846 8082A | |
| LTM-MR-VWC-628 | 18I0643-04 | Wipe | | SW-846 8082A | |
| LTM-MR-VWW-629 | 18I0643-05 | Wipe | | SW-846 8082A | |
| LTM-MR-VWW-630 | 18I0643-06 | Wipe | | SW-846 8082A | |
| LTM-BR-VWC-631 | 18I0643-07 | Wipe | | SW-846 8082A | |
| LTM-BR-VWW-632 | 18I0643-08 | Wipe | | SW-846 8082A | |
| LTM-BR-VWW-632D | 18I0643-09 | Wipe | | SW-846 8082A | |

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

**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.

Tod E. Kopyscinski
Laboratory Director

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA
Sample Description:
Work Order: 18I0643
Date Received: 9/14/2018
**Field Sample #: LTM-CR-VWC-625**
Sampled: 9/13/2018 00:00
**Sample ID: 18I0643-01**
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 | 9/19/18 | 9/22/18 13:18 | JMB |
| Aroclor-1221 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:18 | JMB |
| Aroclor-1232 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:18 | JMB |
| Aroclor-1242 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:18 | JMB |
| Aroclor-1248 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:18 | JMB |
| Aroclor-1254 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:18 | JMB |
| Aroclor-1260 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:18 | JMB |
| Aroclor-1262 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:18 | JMB |
| Aroclor-1268 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:18 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 43.8 | 30-150 | | 9/22/18 13:18 |
| Decachlorobiphenyl [2] | 76.0 | 30-150 | | 9/22/18 13:18 |
| Tetrachloro-m-xylene [1] | 62.9 | 30-150 | | 9/22/18 13:18 |
| Tetrachloro-m-xylene [2] | 80.1 | 30-150 | | 9/22/18 13:18 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA
Sample Description:
Work Order: 18I0643
Date Received: 9/14/2018
**Field Sample #: LTM-CR-VWC-626**
Sampled: 9/13/2018 00:00
**Sample ID: 18I0643-02**
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 | 9/19/18 | 9/22/18 13:36 | JMB |
| Aroclor-1221 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:36 | JMB |
| Aroclor-1232 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:36 | JMB |
| Aroclor-1242 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:36 | JMB |
| Aroclor-1248 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:36 | JMB |
| Aroclor-1254 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:36 | JMB |
| Aroclor-1260 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:36 | JMB |
| Aroclor-1262 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:36 | JMB |
| Aroclor-1268 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:36 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 43.1 | 30-150 | | 9/22/18 13:36 |
| Decachlorobiphenyl [2] | 80.8 | 30-150 | | 9/22/18 13:36 |
| Tetrachloro-m-xylene [1] | 63.4 | 30-150 | | 9/22/18 13:36 |
| Tetrachloro-m-xylene [2] | 84.8 | 30-150 | | 9/22/18 13:36 |

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

Project Location: Amherst, MA
Sample Description:
Work Order: 18I0643
Date Received: 9/14/2018
**Field Sample #: LTM-MR-VWC-627**
Sampled: 9/13/2018 00:00
**Sample ID: 18I0643-03**
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 | 9/19/18 | 9/22/18 13:54 | JMB |
| Aroclor-1221 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:54 | JMB |
| Aroclor-1232 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:54 | JMB |
| Aroclor-1242 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:54 | JMB |
| Aroclor-1248 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:54 | JMB |
| Aroclor-1254 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:54 | JMB |
| Aroclor-1260 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:54 | JMB |
| Aroclor-1262 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:54 | JMB |
| Aroclor-1268 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:54 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 40.0 | 30-150 | | 9/22/18 13:54 |
| Decachlorobiphenyl [2] | 75.6 | 30-150 | | 9/22/18 13:54 |
| Tetrachloro-m-xylene [1] | 58.4 | 30-150 | | 9/22/18 13:54 |
| Tetrachloro-m-xylene [2] | 79.3 | 30-150 | | 9/22/18 13:54 |

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Project Location: Amherst, MA
Sample Description:
Work Order: 18I0643
Date Received: 9/14/2018
**Field Sample #: LTM-MR-VWC-628**
Sampled: 9/13/2018 00:00
**Sample ID: 18I0643-04**
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 | 9/19/18 | 9/22/18 14:12 | JMB |
| Aroclor-1221 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:12 | JMB |
| Aroclor-1232 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:12 | JMB |
| Aroclor-1242 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:12 | JMB |
| Aroclor-1248 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:12 | JMB |
| Aroclor-1254 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:12 | JMB |
| Aroclor-1260 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:12 | JMB |
| Aroclor-1262 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:12 | JMB |
| Aroclor-1268 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:12 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 43.4 | 30-150 | | 9/22/18 14:12 |
| Decachlorobiphenyl [2] | 83.8 | 30-150 | | 9/22/18 14:12 |
| Tetrachloro-m-xylene [1] | 58.6 | 30-150 | | 9/22/18 14:12 |
| Tetrachloro-m-xylene [2] | 86.2 | 30-150 | | 9/22/18 14:12 |

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Project Location: Amherst, MA
Sample Description:
Work Order: 18I0643
Date Received: 9/14/2018
**Field Sample #: LTM-MR-VWW-629**
Sampled: 9/13/2018 00:00
**Sample ID: 18I0643-05**
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 | 9/19/18 | 9/22/18 14:31 | JMB |
| Aroclor-1221 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:31 | JMB |
| Aroclor-1232 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:31 | JMB |
| Aroclor-1242 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:31 | JMB |
| Aroclor-1248 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:31 | JMB |
| Aroclor-1254 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:31 | JMB |
| Aroclor-1260 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:31 | JMB |
| Aroclor-1262 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:31 | JMB |
| Aroclor-1268 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:31 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 40.6 | 30-150 | | 9/22/18 14:31 |
| Decachlorobiphenyl [2] | 79.5 | 30-150 | | 9/22/18 14:31 |
| Tetrachloro-m-xylene [1] | 60.2 | 30-150 | | 9/22/18 14:31 |
| Tetrachloro-m-xylene [2] | 84.7 | 30-150 | | 9/22/18 14:31 |

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

Project Location: Amherst, MA
Sample Description:
Work Order: 18I0643
Date Received: 9/14/2018
**Field Sample #: LTM-MR-VWW-630**
Sampled: 9/13/2018 00:00
**Sample ID: 18I0643-06**
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 | 9/19/18 | 9/22/18 14:49 | JMB |
| Aroclor-1221 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:49 | JMB |
| Aroclor-1232 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:49 | JMB |
| Aroclor-1242 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:49 | JMB |
| Aroclor-1248 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:49 | JMB |
| Aroclor-1254 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:49 | JMB |
| Aroclor-1260 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:49 | JMB |
| Aroclor-1262 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:49 | JMB |
| Aroclor-1268 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 14:49 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 43.1 | 30-150 | | 9/22/18 14:49 |
| Decachlorobiphenyl [2] | 82.5 | 30-150 | | 9/22/18 14:49 |
| Tetrachloro-m-xylene [1] | 60.0 | 30-150 | | 9/22/18 14:49 |
| Tetrachloro-m-xylene [2] | 88.8 | 30-150 | | 9/22/18 14:49 |

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Project Location: Amherst, MA
Sample Description:
Work Order: 18I0643
Date Received: 9/14/2018
**Field Sample #: LTM-BR-VWC-631**
Sampled: 9/13/2018 00:00
**Sample ID: 18I0643-07**
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 | 9/19/18 | 9/22/18 15:07 | JMB |
| Aroclor-1221 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:07 | JMB |
| Aroclor-1232 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:07 | JMB |
| Aroclor-1242 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:07 | JMB |
| Aroclor-1248 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:07 | JMB |
| Aroclor-1254 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:07 | JMB |
| Aroclor-1260 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:07 | JMB |
| Aroclor-1262 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:07 | JMB |
| Aroclor-1268 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:07 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 45.5 | 30-150 | | 9/22/18 15:07 |
| Decachlorobiphenyl [2] | 82.6 | 30-150 | | 9/22/18 15:07 |
| Tetrachloro-m-xylene [1] | 53.7 | 30-150 | | 9/22/18 15:07 |
| Tetrachloro-m-xylene [2] | 84.8 | 30-150 | | 9/22/18 15:07 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA
Sample Description:
Work Order: 18I0643
Date Received: 9/14/2018
**Field Sample #: LTM-BR-VWW-632**
Sampled: 9/13/2018 00:00
**Sample ID: 18I0643-08**
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 | 9/19/18 | 9/22/18 15:25 | JMB |
| Aroclor-1221 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:25 | JMB |
| Aroclor-1232 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:25 | JMB |
| Aroclor-1242 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:25 | JMB |
| Aroclor-1248 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:25 | JMB |
| Aroclor-1254 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:25 | JMB |
| Aroclor-1260 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:25 | JMB |
| Aroclor-1262 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:25 | JMB |
| Aroclor-1268 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:25 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 51.3 | 30-150 | | 9/22/18 15:25 |
| Decachlorobiphenyl [2] | 81.4 | 30-150 | | 9/22/18 15:25 |
| Tetrachloro-m-xylene [1] | 51.7 | 30-150 | | 9/22/18 15:25 |
| Tetrachloro-m-xylene [2] | 84.1 | 30-150 | | 9/22/18 15:25 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA
Sample Description:
Work Order: 18I0643
Date Received: 9/14/2018
**Field Sample #: LTM-BR-VWW-632D**
Sampled: 9/13/2018 00:00
**Sample ID: 18I0643-09**
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 | 9/19/18 | 9/22/18 15:43 | JMB |
| Aroclor-1221 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:43 | JMB |
| Aroclor-1232 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:43 | JMB |
| Aroclor-1242 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:43 | JMB |
| Aroclor-1248 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:43 | JMB |
| Aroclor-1254 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:43 | JMB |
| Aroclor-1260 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:43 | JMB |
| Aroclor-1262 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:43 | JMB |
| Aroclor-1268 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 15:43 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 52.2 | 30-150 | | 9/22/18 15:43 |
| Decachlorobiphenyl [2] | 81.0 | 30-150 | | 9/22/18 15:43 |
| Tetrachloro-m-xylene [1] | 49.9 | 30-150 | | 9/22/18 15:43 |
| Tetrachloro-m-xylene [2] | 84.8 | 30-150 | | 9/22/18 15:43 |

con-test® ANALYTICAL LABORATORY

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 |
|---|---|---|---|---|
| 18I0643-01 [LTM-CR-VWC-625] | B212794 | 1.00 | 10.0 | 09/19/18 |
| 18I0643-02 [LTM-CR-VWC-626] | B212794 | 1.00 | 10.0 | 09/19/18 |
| 18I0643-03 [LTM-MR-VWC-627] | B212794 | 1.00 | 10.0 | 09/19/18 |
| 18I0643-04 [LTM-MR-VWC-628] | B212794 | 1.00 | 10.0 | 09/19/18 |
| 18I0643-05 [LTM-MR-VWW-629] | B212794 | 1.00 | 10.0 | 09/19/18 |
| 18I0643-06 [LTM-MR-VWW-630] | B212794 | 1.00 | 10.0 | 09/19/18 |
| 18I0643-07 [LTM-BR-VWC-631] | B212794 | 1.00 | 10.0 | 09/19/18 |
| 18I0643-08 [LTM-BR-VWW-632] | B212794 | 1.00 | 10.0 | 09/19/18 |
| 18I0643-09 [LTM-BR-VWW-632D] | B212794 | 1.00 | 10.0 | 09/19/18 |

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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 B212794 - SW-846 3540C** | | | | | | | | | | |
| **Blank (B212794-BLK1)** | | | | Prepared: 09/19/18 Analyzed: 09/22/18 | | | | | | |
| 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 | *1.22* | | µg/Wipe | 2.00 | | 61.2 | 30-150 | | | |
| Surrogate: Decachlorobiphenyl [2C] | *1.59* | | µg/Wipe | 2.00 | | 79.7 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene | *1.42* | | µg/Wipe | 2.00 | | 71.0 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene [2C] | *1.55* | | µg/Wipe | 2.00 | | 77.4 | 30-150 | | | |
| **LCS (B212794-BS1)** | | | | Prepared: 09/19/18 Analyzed: 09/22/18 | | | | | | |
| Aroclor-1016 | 0.57 | 0.20 | µg/Wipe | 0.500 | | 114 | 40-140 | | | |
| Aroclor-1016 [2C] | 0.51 | 0.20 | µg/Wipe | 0.500 | | 101 | 40-140 | | | |
| Aroclor-1260 | 0.42 | 0.20 | µg/Wipe | 0.500 | | 84.3 | 40-140 | | | |
| Aroclor-1260 [2C] | 0.47 | 0.20 | µg/Wipe | 0.500 | | 93.9 | 40-140 | | | |
| Surrogate: Decachlorobiphenyl | *1.21* | | µg/Wipe | 2.00 | | 60.5 | 30-150 | | | |
| Surrogate: Decachlorobiphenyl [2C] | *1.62* | | µg/Wipe | 2.00 | | 80.9 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene | *1.54* | | µg/Wipe | 2.00 | | 76.9 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene [2C] | *1.71* | | µg/Wipe | 2.00 | | 85.6 | 30-150 | | | |
| **LCS Dup (B212794-BSD1)** | | | | Prepared: 09/19/18 Analyzed: 09/22/18 | | | | | | |
| Aroclor-1016 | 0.55 | 0.20 | µg/Wipe | 0.500 | | 110 | 40-140 | 2.86 | 30 | |
| Aroclor-1016 [2C] | 0.52 | 0.20 | µg/Wipe | 0.500 | | 104 | 40-140 | 2.73 | 30 | |
| Aroclor-1260 | 0.41 | 0.20 | µg/Wipe | 0.500 | | 82.1 | 40-140 | 2.69 | 30 | |
| Aroclor-1260 [2C] | 0.48 | 0.20 | µg/Wipe | 0.500 | | 96.0 | 40-140 | 2.23 | 30 | |
| Surrogate: Decachlorobiphenyl | *1.17* | | µg/Wipe | 2.00 | | 58.4 | 30-150 | | | |
| Surrogate: Decachlorobiphenyl [2C] | *1.63* | | µg/Wipe | 2.00 | | 81.6 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene | *1.52* | | µg/Wipe | 2.00 | | 75.9 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene [2C] | *1.73* | | µg/Wipe | 2.00 | | 86.7 | 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 is at the level of quantitation (LOQ) |
| DL | Detection Limit is the lower limit of detection determined by the MDL study |
| 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 | 03/1/2020 |
| MA | Massachusetts DEP | M-MA100 | 06/30/2019 |
| CT | Connecticut Department of Publilc Health | PH-0567 | 09/30/2019 |
| NY | New York State Department of Health | 10899 NELAP | 04/1/2019 |
| NH-S | New Hampshire Environmental Lab | 2516 NELAP | 02/5/2019 |
| RI | Rhode Island Department of Health | LAO00112 | 12/30/2018 |
| NC | North Carolina Div. of Water Quality | 652 | 12/31/2018 |
| NJ | New Jersey DEP | MA007 NELAP | 06/30/2019 |
| FL | Florida Department of Health | E871027 NELAP | 06/30/2019 |
| VT | Vermont Department of Health Lead Laboratory | LL015036 | 07/30/2019 |
| ME | State of Maine | 2011028 | 06/9/2019 |
| VA | Commonwealth of Virginia | 460217 | 12/14/2018 |
| NH-P | New Hampshire Environmental Lab | 2557 NELAP | 09/6/2019 |
| VT-DW | Vermont Department of Health Drinking Water | VT-255716 | 06/12/2019 |
| NC-DW | North Carolina Department of Health | 25703 | 07/31/2019 |

MEK

con-test ANALYTICAL LABORATORY

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

18I0643

http://www.contestlabs.com

Doc # 381 Rev 1_03242017

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028



| | |
|---|---|
| Company Name: | Woodard & Curran |
| Address: | 213 Court St Middletown, CT |
| Phone: | 203 271 0379 |
| Project Name: | Umass-Sylvan |
| Project Location: | Amherst MA |
| Project Number: | 225695 |
| Project Manager: | ~~Eric~~ Jeff Hamel |
| Con-Test Quote Name/Number: | |
| Invoice Recipient: | George Franklin |
| Sampled By: | Greg Reynolds |

**Requested Turnaround Time**
7-Day ☐ 10-Day ☐
Due Date: 5-day

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

**Data Delivery**
Format: PDF ☒ EXCEL ☒
Other:
CLP Like Data Pkg Required: ☐
Email To: gfranklin jhamel
Fax To #: greynolds

ANALYSIS REQUESTED

| Con-Test Work Order# | Client Sample ID / Description | Beginning Date/Time | Ending Date/Time | Composite | Grab | [1]Matrix Code | Conc Code | PCBs |
|---|---|---|---|---|---|---|---|---|
| 1 | LTM-CR-VWC-625 | 9/13/18 | | | | | | X |
| 2 | LTM-CR-VWC-626 | | | | | | | |
| 3 | LTM-MR-VWC-627 | | | | | | | |
| 4 | LTM-MR-VWC-628 | | | | | | | |
| 5 | LTM-MR-VWW-629 | | | | | | | |
| 6 | LTM-MR-VWW-630 | | | | | | | |
| 7 | LTM-BR-VWC-631 | | | | | | | |
| 8 | LTM-BR-VWW-632 | | | | | | | |

| | I | I | G |
|---|---|---|---|
| # of Containers | | | |
| [2] Preservation Code | | | |
| [3] Container Code | | | |

**Dissolved Metals Samples**
○ Field Filtered
○ Lab to Filter

**Orthophosphate Samples**
○ 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)

[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)

Comments: Interior Surfaces

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: 9/14 1340 |
| Received by: (signature) | Date/Time: 9/14/18 1340 |
| Relinquished by: (signature) | Date/Time: 9/14/18 1935 |
| Received by: (signature) | Date/Time: 9:14-18 19:35 |
| Relinquished by: (signature) | Date/Time: |
| Received by: (signature) | Date/Time: |

**Detection Limit Requirements**
MA
CT
Other:

**Special Requirements**
☐ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required
PWSID #

con-test ANALYTICAL LABORATORY
www.contestlabs.com
NELAC and AIHA-LAP, LLC Accredited

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

**Other**
☐ Chromatogram
☐ *AIHA-LAP,LLC*

**PCB ONLY**
☒ Soxhlet
☐ Non Soxhlet



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I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

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** ESD Date 9-14-18 Time 19:35

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

By Gun # 537 Actual Temp - 3.0

Were samples within Temperature? 2-6°C T 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 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? F Who was notified? ____

Are there Rushes? F Who was notified? ____

Are there Short Holds? F Who was notified? ____

Is there enough Volume? T

Is there Headspace where applicable? F MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? P

Were trip blanks received? F On COC? P

Do all samples have the proper pH? NA 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 | 9 |
| 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:**

- Sample CTM-BR-LWW-6320 (9-13-18) Not on COC.

## Meghan Kelley

**From:** George Franklin
**Sent:** Monday, September 17, 2018 10:26 AM
**To:** Meghan Kelley
**Subject:** RE: Amherst

That is a duplicate sample, please analyze it as well.

Thank you,

George

-----Original Message-----
From: Meghan Kelley <mkelley@contestlabs.com>
Sent: Monday, September 17, 2018 9:52 AM
To: George Franklin <gfranklin@woodardcurran.com>
Subject: Amherst

Hi George,

We received sample CTM-BR-VWW-632D but it's not listed on the COC. Should we run?

-Meghan

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

September 24, 2018

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

Project Location: Amherst, MA
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 18I0642

Enclosed are results of analyses for samples received by the laboratory on September 14, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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: 9/24/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

**ANALYTICAL SUMMARY**

WORK ORDER NUMBER: 18I0642

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 |
|---|---|---|---|---|---|
| LTM-MR-VWV-601 | 18I0642-01 | Wipe | | SW-846 8082A | |
| LTM-MR-VWH-602 | 18I0642-02 | Wipe | | SW-846 8082A | |
| LTM-MR-VWV-603 | 18I0642-03 | Wipe | | SW-846 8082A | |
| LTM-MR-VWH-604 | 18I0642-04 | Wipe | | SW-846 8082A | |
| LTM-MR-VWV-605 | 18I0642-05 | Wipe | | SW-846 8082A | |
| LTM-MR-VWH-606 | 18I0642-06 | Wipe | | SW-846 8082A | |
| LTM-MR-VWV-607 | 18I0642-07 | Wipe | | SW-846 8082A | |
| LTM-MR-VWH-608 | 18I0642-08 | Wipe | | SW-846 8082A | |
| LTM-BR-VWV-609 | 18I0642-09 | Wipe | | SW-846 8082A | |
| LTM-BR-VWH-610 | 18I0642-10 | Wipe | | SW-846 8082A | |
| LTM-BR-VWH-611 | 18I0642-11 | Wipe | | SW-846 8082A | |
| LTM-BR-VWH-612 | 18I0642-12 | Wipe | | SW-846 8082A | |
| LTM-BR-VWV-613 | 18I0642-13 | Wipe | | SW-846 8082A | |
| LTM-BR-VWH-614 | 18I0642-14 | Wipe | | SW-846 8082A | |
| LTM-BR-VWV-615 | 18I0642-15 | Wipe | | SW-846 8082A | |
| LTM-BR-VWH-616 | 18I0642-16 | Wipe | | SW-846 8082A | |
| LTM-CR-VWV-617 | 18I0642-17 | Wipe | | SW-846 8082A | |
| LTM-CR-VWH-618 | 18I0642-18 | Wipe | | SW-846 8082A | |
| LTM-CR-VWV-619 | 18I0642-19 | Wipe | | SW-846 8082A | |
| LTM-CR-VWH-620 | 18I0642-20 | Wipe | | SW-846 8082A | |
| LTM-CR-VWV-621 | 18I0642-21 | Wipe | | SW-846 8082A | |
| LTM-CR-VWH-622 | 18I0642-22 | Wipe | | SW-846 8082A | |
| LTM-CR-VWV-623 | 18I0642-23 | Wipe | | SW-846 8082A | |
| LTM-CR-VWH-624 | 18I0642-24 | Wipe | | SW-846 8082A | |

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

**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.

Tod E. Kopyscinski
Laboratory Director

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-MR-VWV-601**
Sampled: 9/13/2018 10:30
**Sample ID: 18I0642-01**
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 | 9/19/18 | 9/21/18 16:48 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 16:48 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 16:48 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 16:48 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 16:48 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 16:48 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 16:48 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 16:48 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 16:48 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 79.7 | 30-150 | | 9/21/18 16:48 |
| Decachlorobiphenyl [2] | 86.6 | 30-150 | | 9/21/18 16:48 |
| Tetrachloro-m-xylene [1] | 81.1 | 30-150 | | 9/21/18 16:48 |
| Tetrachloro-m-xylene [2] | 76.8 | 30-150 | | 9/21/18 16:48 |

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Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-MR-VWH-602**
Sampled: 9/13/2018 10:35
**Sample ID: 18I0642-02**
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 | 9/19/18 | 9/21/18 17:06 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:06 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:06 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:06 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:06 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:06 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:06 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:06 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:06 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 90.6 | 30-150 | | 9/21/18 17:06 |
| Decachlorobiphenyl [2] | 100 | 30-150 | | 9/21/18 17:06 |
| Tetrachloro-m-xylene [1] | 89.4 | 30-150 | | 9/21/18 17:06 |
| Tetrachloro-m-xylene [2] | 85.9 | 30-150 | | 9/21/18 17:06 |

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Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-MR-VWV-603**
Sampled: 9/13/2018 10:40
**Sample ID: 18I0642-03**
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 | 9/19/18 | 9/21/18 17:40 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:40 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:40 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:40 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:40 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:40 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:40 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:40 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:40 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 86.4 | 30-150 | | 9/21/18 17:40 |
| Decachlorobiphenyl [2] | 97.6 | 30-150 | | 9/21/18 17:40 |
| Tetrachloro-m-xylene [1] | 86.1 | 30-150 | | 9/21/18 17:40 |
| Tetrachloro-m-xylene [2] | 84.0 | 30-150 | | 9/21/18 17:40 |

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Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-MR-VWH-604**
Sampled: 9/13/2018 10:45
**Sample ID: 18I0642-04**
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 | 9/19/18 | 9/21/18 17:58 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:58 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:58 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:58 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:58 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:58 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:58 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:58 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 17:58 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 75.9 | 30-150 | | 9/21/18 17:58 |
| Decachlorobiphenyl [2] | 84.7 | 30-150 | | 9/21/18 17:58 |
| Tetrachloro-m-xylene [1] | 77.6 | 30-150 | | 9/21/18 17:58 |
| Tetrachloro-m-xylene [2] | 76.7 | 30-150 | | 9/21/18 17:58 |

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Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-MR-VWV-605**
Sampled: 9/13/2018 10:50
**Sample ID: 18I0642-05**
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 | 9/19/18 | 9/21/18 18:15 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:15 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:15 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:15 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:15 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:15 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:15 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:15 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:15 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 84.3 | 30-150 | | 9/21/18 18:15 |
| Decachlorobiphenyl [2] | 94.9 | 30-150 | | 9/21/18 18:15 |
| Tetrachloro-m-xylene [1] | 85.2 | 30-150 | | 9/21/18 18:15 |
| Tetrachloro-m-xylene [2] | 83.8 | 30-150 | | 9/21/18 18:15 |

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Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-MR-VWH-606**
Sampled: 9/13/2018 10:55
**Sample ID: 18I0642-06**
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 | 9/19/18 | 9/21/18 18:32 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:32 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:32 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:32 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:32 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:32 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:32 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:32 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:32 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 80.7 | 30-150 | | 9/21/18 18:32 |
| Decachlorobiphenyl [2] | 90.7 | 30-150 | | 9/21/18 18:32 |
| Tetrachloro-m-xylene [1] | 78.0 | 30-150 | | 9/21/18 18:32 |
| Tetrachloro-m-xylene [2] | 76.7 | 30-150 | | 9/21/18 18:32 |

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Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-MR-VWV-607**
Sampled: 9/13/2018 11:00
**Sample ID: 18I0642-07**
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 | 9/19/18 | 9/21/18 18:49 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:49 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:49 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:49 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:49 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:49 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:49 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:49 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 18:49 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 81.2 | 30-150 | | 9/21/18 18:49 |
| Decachlorobiphenyl [2] | 92.2 | 30-150 | | 9/21/18 18:49 |
| Tetrachloro-m-xylene [1] | 81.7 | 30-150 | | 9/21/18 18:49 |
| Tetrachloro-m-xylene [2] | 80.1 | 30-150 | | 9/21/18 18:49 |

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Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-MR-VWH-608**
Sampled: 9/13/2018 11:05
**Sample ID: 18I0642-08**
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 | 9/19/18 | 9/21/18 19:07 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:07 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:07 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:07 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:07 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:07 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:07 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:07 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:07 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 89.6 | 30-150 | | 9/21/18 19:07 |
| Decachlorobiphenyl [2] | 103 | 30-150 | | 9/21/18 19:07 |
| Tetrachloro-m-xylene [1] | 84.7 | 30-150 | | 9/21/18 19:07 |
| Tetrachloro-m-xylene [2] | 83.9 | 30-150 | | 9/21/18 19:07 |

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Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-BR-VWV-609**
Sampled: 9/13/2018 11:10
**Sample ID: 18I0642-09**
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 | 9/19/18 | 9/21/18 19:24 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:24 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:24 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:24 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:24 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:24 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:24 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:24 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:24 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 85.2 | 30-150 | | 9/21/18 19:24 |
| Decachlorobiphenyl [2] | 97.9 | 30-150 | | 9/21/18 19:24 |
| Tetrachloro-m-xylene [1] | 87.9 | 30-150 | | 9/21/18 19:24 |
| Tetrachloro-m-xylene [2] | 86.9 | 30-150 | | 9/21/18 19:24 |

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Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-BR-VWH-610**
Sampled: 9/13/2018 11:15
**Sample ID: 18I0642-10**
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 | 9/19/18 | 9/21/18 19:41 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:41 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:41 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:41 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:41 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:41 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:41 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:41 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 19:41 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 73.7 | 30-150 | | 9/21/18 19:41 |
| Decachlorobiphenyl [2] | 83.5 | 30-150 | | 9/21/18 19:41 |
| Tetrachloro-m-xylene [1] | 76.2 | 30-150 | | 9/21/18 19:41 |
| Tetrachloro-m-xylene [2] | 76.1 | 30-150 | | 9/21/18 19:41 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-BR-VWH-611**
Sampled: 9/13/2018 11:20
**Sample ID: 18I0642-11**
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 | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 20:45 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 20:45 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 20:45 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 20:45 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 20:45 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 20:45 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 20:45 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 20:45 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 20:45 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 84.9 | 30-150 | | 9/21/18 20:45 |
| Decachlorobiphenyl [2] | 97.7 | 30-150 | | 9/21/18 20:45 |
| Tetrachloro-m-xylene [1] | 79.6 | 30-150 | | 9/21/18 20:45 |
| Tetrachloro-m-xylene [2] | 78.9 | 30-150 | | 9/21/18 20:45 |

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

Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-BR-VWH-612**
Sampled: 9/13/2018 11:25
**Sample ID: 18I0642-12**
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 | 9/19/18 | 9/21/18 21:02 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:02 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:02 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:02 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:02 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:02 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:02 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:02 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:02 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 80.1 | 30-150 | | 9/21/18 21:02 |
| Decachlorobiphenyl [2] | 92.5 | 30-150 | | 9/21/18 21:02 |
| Tetrachloro-m-xylene [1] | 75.2 | 30-150 | | 9/21/18 21:02 |
| Tetrachloro-m-xylene [2] | 75.6 | 30-150 | | 9/21/18 21:02 |

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Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-BR-VWV-613**
Sampled: 9/13/2018 11:30
**Sample ID: 18I0642-13**
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 | 9/19/18 | 9/21/18 21:19 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:19 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:19 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:19 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:19 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:19 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:19 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:19 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:19 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 85.0 | 30-150 | | 9/21/18 21:19 |
| Decachlorobiphenyl [2] | 98.2 | 30-150 | | 9/21/18 21:19 |
| Tetrachloro-m-xylene [1] | 78.6 | 30-150 | | 9/21/18 21:19 |
| Tetrachloro-m-xylene [2] | 78.1 | 30-150 | | 9/21/18 21:19 |

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Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-BR-VWH-614**
Sampled: 9/13/2018 11:35
**Sample ID: 18I0642-14**
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 | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:37 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:37 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:37 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:37 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:37 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:37 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:37 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:37 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:37 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 73.3 | 30-150 | | 9/21/18 21:37 |
| Decachlorobiphenyl [2] | 84.0 | 30-150 | | 9/21/18 21:37 |
| Tetrachloro-m-xylene [1] | 75.8 | 30-150 | | 9/21/18 21:37 |
| Tetrachloro-m-xylene [2] | 76.1 | 30-150 | | 9/21/18 21:37 |

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Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-BR-VWV-615**
Sampled: 9/13/2018 11:40
**Sample ID: 18I0642-15**
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 | 9/19/18 | 9/21/18 21:54 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:54 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:54 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:54 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:54 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:54 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:54 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:54 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 21:54 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 68.0 | 30-150 | | 9/21/18 21:54 |
| Decachlorobiphenyl [2] | 77.8 | 30-150 | | 9/21/18 21:54 |
| Tetrachloro-m-xylene [1] | 69.7 | 30-150 | | 9/21/18 21:54 |
| Tetrachloro-m-xylene [2] | 69.2 | 30-150 | | 9/21/18 21:54 |

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Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-BR-VWH-616**
Sampled: 9/13/2018 11:45
**Sample ID: 18I0642-16**
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 | 9/19/18 | 9/21/18 22:11 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:11 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:11 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:11 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:11 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:11 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:11 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:11 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:11 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 88.4 | 30-150 | | 9/21/18 22:11 |
| Decachlorobiphenyl [2] | 101 | 30-150 | | 9/21/18 22:11 |
| Tetrachloro-m-xylene [1] | 84.4 | 30-150 | | 9/21/18 22:11 |
| Tetrachloro-m-xylene [2] | 84.0 | 30-150 | | 9/21/18 22:11 |

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

Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-CR-VWV-617**
Sampled: 9/13/2018 11:50
**Sample ID: 18I0642-17**
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 | 9/19/18 | 9/21/18 22:28 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:28 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:28 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:28 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:28 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:28 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:28 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:28 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:28 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 91.4 | 30-150 | | 9/21/18 22:28 |
| Decachlorobiphenyl [2] | 105 | 30-150 | | 9/21/18 22:28 |
| Tetrachloro-m-xylene [1] | 84.5 | 30-150 | | 9/21/18 22:28 |
| Tetrachloro-m-xylene [2] | 82.9 | 30-150 | | 9/21/18 22:28 |

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

Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-CR-VWH-618**
Sampled: 9/13/2018 11:55
**Sample ID: 18I0642-18**
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 | 9/19/18 | 9/21/18 22:46 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:46 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:46 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:46 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:46 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:46 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:46 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:46 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 22:46 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 73.0 | 30-150 | | 9/21/18 22:46 |
| Decachlorobiphenyl [2] | 83.8 | 30-150 | | 9/21/18 22:46 |
| Tetrachloro-m-xylene [1] | 77.9 | 30-150 | | 9/21/18 22:46 |
| Tetrachloro-m-xylene [2] | 77.4 | 30-150 | | 9/21/18 22:46 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-CR-VWV-619**
Sampled: 9/13/2018 12:00
**Sample ID: 18I0642-19**
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 | 9/19/18 | 9/21/18 23:03 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 23:03 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 23:03 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 23:03 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 23:03 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 23:03 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 23:03 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 23:03 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 23:03 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 69.2 | 30-150 | | 9/21/18 23:03 |
| Decachlorobiphenyl [2] | 80.2 | 30-150 | | 9/21/18 23:03 |
| Tetrachloro-m-xylene [1] | 71.7 | 30-150 | | 9/21/18 23:03 |
| Tetrachloro-m-xylene [2] | 71.7 | 30-150 | | 9/21/18 23:03 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-CR-VWH-620**
Sampled: 9/13/2018 12:05
**Sample ID: 18I0642-20**
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 | 9/19/18 | 9/21/18 23:20 | JMB |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 23:20 | JMB |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 23:20 | JMB |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 23:20 | JMB |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 23:20 | JMB |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 23:20 | JMB |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 23:20 | JMB |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 23:20 | JMB |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/21/18 23:20 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 66.0 | 30-150 | | 9/21/18 23:20 |
| Decachlorobiphenyl [2] | 76.1 | 30-150 | | 9/21/18 23:20 |
| Tetrachloro-m-xylene [1] | 66.7 | 30-150 | | 9/21/18 23:20 |
| Tetrachloro-m-xylene [2] | 67.5 | 30-150 | | 9/21/18 23:20 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-CR-VWV-621**
Sampled: 9/13/2018 12:10
**Sample ID: 18I0642-21**
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 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:05 | JMB |
| Aroclor-1221 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:05 | JMB |
| Aroclor-1232 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:05 | JMB |
| Aroclor-1242 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:05 | JMB |
| Aroclor-1248 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:05 | JMB |
| Aroclor-1254 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:05 | JMB |
| Aroclor-1260 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:05 | JMB |
| Aroclor-1262 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:05 | JMB |
| Aroclor-1268 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:05 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 55.4 | 30-150 | | 9/22/18 12:05 |
| Decachlorobiphenyl [2] | 78.4 | 30-150 | | 9/22/18 12:05 |
| Tetrachloro-m-xylene [1] | 76.4 | 30-150 | | 9/22/18 12:05 |
| Tetrachloro-m-xylene [2] | 87.5 | 30-150 | | 9/22/18 12:05 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-CR-VWH-622**
Sampled: 9/13/2018 12:15
**Sample ID: 18I0642-22**
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 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:23 | JMB |
| Aroclor-1221 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:23 | JMB |
| Aroclor-1232 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:23 | JMB |
| Aroclor-1242 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:23 | JMB |
| Aroclor-1248 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:23 | JMB |
| Aroclor-1254 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:23 | JMB |
| Aroclor-1260 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:23 | JMB |
| Aroclor-1262 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:23 | JMB |
| Aroclor-1268 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:23 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 46.1 | 30-150 | | 9/22/18 12:23 |
| Decachlorobiphenyl [2] | 68.2 | 30-150 | | 9/22/18 12:23 |
| Tetrachloro-m-xylene [1] | 64.3 | 30-150 | | 9/22/18 12:23 |
| Tetrachloro-m-xylene [2] | 74.8 | 30-150 | | 9/22/18 12:23 |

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

Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-CR-VWV-623**
Sampled: 9/13/2018 12:20
**Sample ID: 18I0642-23**
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 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:41 | JMB |
| Aroclor-1221 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:41 | JMB |
| Aroclor-1232 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:41 | JMB |
| Aroclor-1242 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:41 | JMB |
| Aroclor-1248 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:41 | JMB |
| Aroclor-1254 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:41 | JMB |
| Aroclor-1260 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:41 | JMB |
| Aroclor-1262 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:41 | JMB |
| Aroclor-1268 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 12:41 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 51.3 | 30-150 | | 9/22/18 12:41 |
| Decachlorobiphenyl [2] | 79.1 | 30-150 | | 9/22/18 12:41 |
| Tetrachloro-m-xylene [1] | 70.8 | 30-150 | | 9/22/18 12:41 |
| Tetrachloro-m-xylene [2] | 85.4 | 30-150 | | 9/22/18 12:41 |

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Project Location: Amherst, MA
Sample Description:
Work Order: 18I0642
Date Received: 9/14/2018
**Field Sample #: LTM-CR-VWH-624**
Sampled: 9/13/2018 12:25
**Sample ID: 18I0642-24**
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 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:00 | JMB |
| Aroclor-1221 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:00 | JMB |
| Aroclor-1232 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:00 | JMB |
| Aroclor-1242 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:00 | JMB |
| Aroclor-1248 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:00 | JMB |
| Aroclor-1254 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:00 | JMB |
| Aroclor-1260 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:00 | JMB |
| Aroclor-1262 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:00 | JMB |
| Aroclor-1268 [2] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 9/19/18 | 9/22/18 13:00 | JMB |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Decachlorobiphenyl [1] | 46.2 | 30-150 | | 9/22/18 13:00 |
| Decachlorobiphenyl [2] | 75.8 | 30-150 | | 9/22/18 13:00 |
| Tetrachloro-m-xylene [1] | 68.4 | 30-150 | | 9/22/18 13:00 |
| Tetrachloro-m-xylene [2] | 83.2 | 30-150 | | 9/22/18 13:00 |

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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 |
|---|---|---|---|---|
| 18I0642-21 [LTM-CR-VWV-621] | B212794 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-22 [LTM-CR-VWH-622] | B212794 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-23 [LTM-CR-VWV-623] | B212794 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-24 [LTM-CR-VWH-624] | B212794 | 1.00 | 10.0 | 09/19/18 |

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

| Lab Number [Field ID] | Batch | Initial [Wipe] | Final [mL] | Date |
|---|---|---|---|---|
| 18I0642-01 [LTM-MR-VWV-601] | B212795 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-02 [LTM-MR-VWH-602] | B212795 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-03 [LTM-MR-VWV-603] | B212795 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-04 [LTM-MR-VWH-604] | B212795 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-05 [LTM-MR-VWV-605] | B212795 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-06 [LTM-MR-VWH-606] | B212795 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-07 [LTM-MR-VWV-607] | B212795 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-08 [LTM-MR-VWH-608] | B212795 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-09 [LTM-BR-VWV-609] | B212795 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-10 [LTM-BR-VWH-610] | B212795 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-11 [LTM-BR-VWH-611] | B212795 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-12 [LTM-BR-VWH-612] | B212795 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-13 [LTM-BR-VWV-613] | B212795 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-14 [LTM-BR-VWH-614] | B212795 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-15 [LTM-BR-VWV-615] | B212795 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-16 [LTM-BR-VWH-616] | B212795 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-17 [LTM-CR-VWV-617] | B212795 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-18 [LTM-CR-VWH-618] | B212795 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-19 [LTM-CR-VWV-619] | B212795 | 1.00 | 10.0 | 09/19/18 |
| 18I0642-20 [LTM-CR-VWH-620] | B212795 | 1.00 | 10.0 | 09/19/18 |

con-test® ANALYTICAL LABORATORY

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 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B212794 - SW-846 3540C** | | | | | | | | | | |
| **Blank (B212794-BLK1)** | | | | Prepared: 09/19/18 Analyzed: 09/22/18 | | | | | | |
| 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 | *1.22* | | µg/Wipe | 2.00 | | 61.2 | 30-150 | | | |
| Surrogate: Decachlorobiphenyl [2C] | *1.59* | | µg/Wipe | 2.00 | | 79.7 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene | *1.42* | | µg/Wipe | 2.00 | | 71.0 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene [2C] | *1.55* | | µg/Wipe | 2.00 | | 77.4 | 30-150 | | | |
| **LCS (B212794-BS1)** | | | | Prepared: 09/19/18 Analyzed: 09/22/18 | | | | | | |
| Aroclor-1016 | 0.57 | 0.20 | µg/Wipe | 0.500 | | 114 | 40-140 | | | |
| Aroclor-1016 [2C] | 0.51 | 0.20 | µg/Wipe | 0.500 | | 101 | 40-140 | | | |
| Aroclor-1260 | 0.42 | 0.20 | µg/Wipe | 0.500 | | 84.3 | 40-140 | | | |
| Aroclor-1260 [2C] | 0.47 | 0.20 | µg/Wipe | 0.500 | | 93.9 | 40-140 | | | |
| Surrogate: Decachlorobiphenyl | *1.21* | | µg/Wipe | 2.00 | | 60.5 | 30-150 | | | |
| Surrogate: Decachlorobiphenyl [2C] | *1.62* | | µg/Wipe | 2.00 | | 80.9 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene | *1.54* | | µg/Wipe | 2.00 | | 76.9 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene [2C] | *1.71* | | µg/Wipe | 2.00 | | 85.6 | 30-150 | | | |
| **LCS Dup (B212794-BSD1)** | | | | Prepared: 09/19/18 Analyzed: 09/22/18 | | | | | | |
| Aroclor-1016 | 0.55 | 0.20 | µg/Wipe | 0.500 | | 110 | 40-140 | 2.86 | 30 | |
| Aroclor-1016 [2C] | 0.52 | 0.20 | µg/Wipe | 0.500 | | 104 | 40-140 | 2.73 | 30 | |
| Aroclor-1260 | 0.41 | 0.20 | µg/Wipe | 0.500 | | 82.1 | 40-140 | 2.69 | 30 | |
| Aroclor-1260 [2C] | 0.48 | 0.20 | µg/Wipe | 0.500 | | 96.0 | 40-140 | 2.23 | 30 | |
| Surrogate: Decachlorobiphenyl | *1.17* | | µg/Wipe | 2.00 | | 58.4 | 30-150 | | | |
| Surrogate: Decachlorobiphenyl [2C] | *1.63* | | µg/Wipe | 2.00 | | 81.6 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene | *1.52* | | µg/Wipe | 2.00 | | 75.9 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene [2C] | *1.73* | | µg/Wipe | 2.00 | | 86.7 | 30-150 | | | |

con-test® ANALYTICAL LABORATORY

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 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B212795 - SW-846 3540C** | | | | | | | | | | |
| **Blank (B212795-BLK1)** | | | | Prepared: 09/19/18 Analyzed: 09/21/18 | | | | | | |
| 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 | *1.50* | | µg/Wipe | 2.00 | | 75.1 | 30-150 | | | |
| Surrogate: Decachlorobiphenyl [2C] | *1.61* | | µg/Wipe | 2.00 | | 80.6 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene | *1.62* | | µg/Wipe | 2.00 | | 80.9 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene [2C] | *1.56* | | µg/Wipe | 2.00 | | 78.1 | 30-150 | | | |
| **LCS (B212795-BS1)** | | | | Prepared: 09/19/18 Analyzed: 09/21/18 | | | | | | |
| Aroclor-1016 | 0.46 | 0.20 | µg/Wipe | 0.500 | | 92.7 | 40-140 | | | |
| Aroclor-1016 [2C] | 0.45 | 0.20 | µg/Wipe | 0.500 | | 90.6 | 40-140 | | | |
| Aroclor-1260 | 0.39 | 0.20 | µg/Wipe | 0.500 | | 77.3 | 40-140 | | | |
| Aroclor-1260 [2C] | 0.38 | 0.20 | µg/Wipe | 0.500 | | 76.3 | 40-140 | | | |
| Surrogate: Decachlorobiphenyl | *1.54* | | µg/Wipe | 2.00 | | 77.0 | 30-150 | | | |
| Surrogate: Decachlorobiphenyl [2C] | *1.63* | | µg/Wipe | 2.00 | | 81.6 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene | *1.52* | | µg/Wipe | 2.00 | | 76.2 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene [2C] | *1.47* | | µg/Wipe | 2.00 | | 73.3 | 30-150 | | | |
| **LCS Dup (B212795-BSD1)** | | | | Prepared: 09/19/18 Analyzed: 09/21/18 | | | | | | |
| Aroclor-1016 | 0.46 | 0.20 | µg/Wipe | 0.500 | | 92.1 | 40-140 | 0.606 | 30 | |
| Aroclor-1016 [2C] | 0.43 | 0.20 | µg/Wipe | 0.500 | | 85.9 | 40-140 | 5.36 | 30 | |
| Aroclor-1260 | 0.42 | 0.20 | µg/Wipe | 0.500 | | 84.1 | 40-140 | 8.41 | 30 | |
| Aroclor-1260 [2C] | 0.39 | 0.20 | µg/Wipe | 0.500 | | 78.2 | 40-140 | 2.40 | 30 | |
| Surrogate: Decachlorobiphenyl | *1.57* | | µg/Wipe | 2.00 | | 78.6 | 30-150 | | | |
| Surrogate: Decachlorobiphenyl [2C] | *1.74* | | µg/Wipe | 2.00 | | 86.9 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene | *1.61* | | µg/Wipe | 2.00 | | 80.5 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene [2C] | *1.55* | | µg/Wipe | 2.00 | | 77.5 | 30-150 | | | |

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# IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

*SW-846 8082A*

**LCS**

Lab Sample ID: B212794-BS1 Date(s) Analyzed: 09/22/2018 09/22/2018

Instrument ID (1): ECD3 Instrument ID (2): ECD3

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 | 0.57 | |
| | 2 | 0.000 | 0.000 | 0.000 | 0.51 | 11.1 |
| Aroclor-1260 | 1 | 0.000 | 0.000 | 0.000 | 0.42 | |
| | 2 | 0.000 | 0.000 | 0.000 | 0.47 | 11.2 |

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# IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

*SW-846 8082A*

**LCS Dup**

Lab Sample ID: B212794-BSD1 Date(s) Analyzed: 09/22/2018 09/22/2018

Instrument ID (1): ECD3 Instrument ID (2): ECD3

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 | 0.55 | |
| | 2 | 0.000 | 0.000 | 0.000 | 0.52 | 5.6 |
| Aroclor-1260 | 1 | 0.000 | 0.000 | 0.000 | 0.41 | |
| | 2 | 0.000 | 0.000 | 0.000 | 0.48 | 15.7 |

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# IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

*SW-846 8082A*

LCS

Lab Sample ID: B212795-BS1

Date(s) Analyzed: 09/21/2018 09/21/2018

Instrument ID (1): ECD10

Instrument ID (2): ECD10

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 | 0.38 | 2.6 |

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# IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

*SW-846 8082A*

**LCS Dup**

Lab Sample ID: B212795-BSD1 Date(s) Analyzed: 09/21/2018 09/21/2018

Instrument ID (1): ECD10 Instrument ID (2): ECD10

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 | 0.43 | 6.7 |
| Aroclor-1260 | 1 | 0.000 | 0.000 | 0.000 | 0.42 | |
| | 2 | 0.000 | 0.000 | 0.000 | 0.39 | 7.4 |

con-test® ANALYTICAL LABORATORY

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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 is at the level of quantitation (LOQ) |
| DL | Detection Limit is the lower limit of detection determined by the MDL study |
| 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 |
|---|---|
| ***SW-846 8082A in Soil*** | |
| Aroclor-1016 | CT,NH,NY,ME,NC,VA |
| Aroclor-1016 [2C] | CT,NH,NY,ME,NC,VA |
| Aroclor-1221 | CT,NH,NY,ME,NC,VA |
| Aroclor-1221 [2C] | CT,NH,NY,ME,NC,VA |
| Aroclor-1232 | CT,NH,NY,ME,NC,VA |
| Aroclor-1232 [2C] | CT,NH,NY,ME,NC,VA |
| Aroclor-1242 | CT,NH,NY,ME,NC,VA |
| Aroclor-1242 [2C] | CT,NH,NY,ME,NC,VA |
| Aroclor-1248 | CT,NH,NY,ME,NC,VA |
| Aroclor-1248 [2C] | CT,NH,NY,ME,NC,VA |
| Aroclor-1254 | CT,NH,NY,ME,NC,VA |
| Aroclor-1254 [2C] | CT,NH,NY,ME,NC,VA |
| Aroclor-1260 | CT,NH,NY,ME,NC,VA |
| Aroclor-1260 [2C] | CT,NH,NY,ME,NC,VA |
| Aroclor-1262 | NY,NC,VA |
| Aroclor-1262 [2C] | NY,NC,VA |
| Aroclor-1268 | NY,NC,VA |
| Aroclor-1268 [2C] | NY,NC,VA |

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

| Code | Description | Number | Expires |
|---|---|---|---|
| AIHA | AIHA-LAP, LLC - ISO17025:2005 | 100033 | 03/1/2020 |
| MA | Massachusetts DEP | M-MA100 | 06/30/2019 |
| CT | Connecticut Department of Publilc Health | PH-0567 | 09/30/2019 |
| NY | New York State Department of Health | 10899 NELAP | 04/1/2019 |
| NH-S | New Hampshire Environmental Lab | 2516 NELAP | 02/5/2019 |
| RI | Rhode Island Department of Health | LAO00112 | 12/30/2018 |
| NC | North Carolina Div. of Water Quality | 652 | 12/31/2018 |
| NJ | New Jersey DEP | MA007 NELAP | 06/30/2019 |
| FL | Florida Department of Health | E871027 NELAP | 06/30/2019 |
| VT | Vermont Department of Health Lead Laboratory | LL015036 | 07/30/2019 |
| ME | State of Maine | 2011028 | 06/9/2019 |
| VA | Commonwealth of Virginia | 460217 | 12/14/2018 |
| NH-P | New Hampshire Environmental Lab | 2557 NELAP | 09/6/2019 |
| VT-DW | Vermont Department of Health Drinking Water | VT-255716 | 06/12/2019 |
| NC-DW | North Carolina Department of Health | 25703 | 07/31/2019 |

con-test ANALYTICAL LABORATORY

MBK 18I0642

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028



| | |
|---|---|
| Company Name: | Woodard & Curran |
| Address: | 213 Court St Middletown CT |
| Phone: | 203-271-0379 |
| Project Name: | Umass-Sylvan |
| Project Location: | Amherst, MA |
| Project Number: | 225695 |
| Project Manager: | Jeff Hamel |
| Con-Test Quote Name/Number: | |
| Invoice Recipient: | George Franklin |
| Sampled By: | Greg Reynolds |

**Requested Turnaround Time**: 7-Day ☐ 10-Day ☐ Due Date: 5 day

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

**Data Delivery**: Format: PDF ☒ EXCEL ☒ Other: jhamel@ CLP Like Data Pkg Required: ☐ Email To: gfranklin@woodard Fax To #: greynolds curran.com

ANALYSIS REQUESTED

| Con-Test Work Order# | Client Sample ID / Description | Beginning Date/Time | Ending Date/Time | Composite | Grab | Matrix Code | Conc Code | PCBs (I G) |
|---|---|---|---|---|---|---|---|---|
| 1 | LTM-MR-VWV-601 | 9/13/18 | 1030 | | X | O | C | X |
| 2 | LTM-MR-VWH-602 | | 1035 | | | | | |
| 3 | LTM-MR-VWV-603 | | 1040 | | | | | |
| 4 | LTM-MR-VWH-604 | | 1045 | | | | | |
| 5 | LTM-MR-VWV-605 | | 1050 | | | | | |
| 6 | LTM-MR-VWH-606 | | 1055 | | | | | |
| 7 | LTM-MR-VWV-607 | | 1100 | | | | | |
| 8 | LTM-MR-VWH-608 | | 1105 | | | | | |
| 9 | LTM-BR-VWV-609 | | 1110 | | | | | |
| 10 | LTM-BR-VWH-610 | | 1115 | | | | | |

Comments: Exterior Wipes

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

**Dissolved Metals Samples**: ○ Field Filtered ○ Lab to Filter

**Orthophosphate Samples**: ○ 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)

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

| | | |
|---|---|---|
| Relinquished by: (signature) | Date/Time: 9/14 1340 | |
| Received by: (signature) | Date/Time: 9/14/18 1340 | |
| Relinquished by: (signature) | Date/Time: 9/14/18 1835 | |
| Received by: (signature) | Date/Time: 9-14-18 19:35 | |
| Relinquished by: (signature) | Date/Time: | |
| Received by: (signature) | Date/Time: | |

**Detection Limit Requirements**: MA; CT; Other

**Special Requirements**: ☐ MA MCP Required; MCP Certification Form Required; ☐ CT RCP Required; RCP Certification Form Required; ☐ MA State DW Required; PWSID #

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NELAC and AIHA-LAP, LLC Accredited

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

**Other**: ☐ Chromatogram ☐ *AIHA-LAP, LLC*

**PCB ONLY**: ☒ Soxhlet ☐ Non Soxhlet



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MEK

18E0642

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Doc # 381 Rev 1_03242017

**con-test** ANALYTICAL LABORATORY

Phone: 413-525-2332
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Email: info@contestlabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028



**Requested Turnaround Time**
7-Day ☐ 10-Day ☐
Due Date: 5-day

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

**Data Delivery**
Format: PDF ☒ EXCEL ☒
Other:
CLP Like Data Pkg Required: ☐
Email To: Jhamel@franklin greyholds
Fax To #:

Company Name: Woodard & Curran
Address: 213 Court St Middletown CT
Phone: 203 271 0379
Project Name: Umass - Sylvan
Project Location: Amherst MA
Project Number: 225695
Project Manager: Jeff Hamel
Con-Test Quote Name/Number:
Invoice Recipient: George Franklin
Sampled By:

ANALYSIS REQUESTED

| Con-Test Work Order# | Client Sample ID / Description | Beginning Date/Time | Ending Date/Time | Composite | Grab | Matrix Code | Conc Code | PCBs | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | LTM-BR-VWV-611 | 9/13/18 | 1120 | | X | O | C | X | | | | | | | | | | | |
| 12 | LTM-BR-VWH-612 | | 1125 | | | | | | | | | | | | | | | | |
| 13 | LTM-BR-VWV-613 | | 1130 | | | | | | | | | | | | | | | | |
| 14 | LTM-BR-VWH-614 | | 1135 | | | | | | | | | | | | | | | | |
| 15 | LTM-BR-VWV-615 | | 1140 | | | | | | | | | | | | | | | | |
| 16 | LTM-BR-VWH-616 | | 1145 | | | | | | | | | | | | | | | | |
| 17 | LTM-CR-VWV-617 | | 1150 | | | | | | | | | | | | | | | | |
| 18 | LTM-CR-VWH-618 | | 1155 | | | | | | | | | | | | | | | | |
| 19 | LTM-CR-VWV-619 | | 1200 | | | | | | | | | | | | | | | | |
| 20 | LTM-CR-VWH-620 | | 1205 | | | | | | | | | | | | | | | | |

Comments: Exterior wipes

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**

| | Date/Time |
|---|---|
| Relinquished by: (signature) | 9/14 1340 |
| Received by: (signature) | 9/14/18 1340 |
| Relinquished by: (signature) | 9/14/18 1835 |
| Received by: (signature) | 3.0 9.14.18 18:35 |
| Relinquished by: (signature) | |
| Received by: (signature) | |

**Detection Limit Requirements**
MA
CT
Other

**Special Requirements**
☐ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required
PWSID #

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

**Other**
☐ Chromatogram
☐ *AIHA-LAP,LLC*

**PCB ONLY**
☒ Soxhlet
☐ Non Soxhlet

| | |
|---|---|
| # of Containers | |
| [2] Preservation Code | |
| [3] Container Code | |

**Dissolved Metals Samples**
○ Field Filtered
○ Lab to Filter

**Orthophosphate Samples**
○ 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)

[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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Email: info@contestlabs.com

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CHAIN OF CUSTODY RECORD

Doc # 381 Rev 1_03242017

39 Spruce Street
East Longmeadow, MA 01028



| | |
|---|---|
| Company Name: | Woodard & Curran |
| Address: | 213 Court St, Middletown, CT |
| Phone: | 203 271 0379 |
| Project Name: | Umass- Sylvan |
| Project Location: | Amherst, MA |
| Project Number: | 225695 |
| Project Manager: | Jeff Hamel |
| Con-Test Quote Name/Number: | |
| Invoice Recipient: | George Franklin |
| Sampled By: | |

**Requested Turnaround Time**
7-Day ☐ 10-Day ☐
Due Date: 5-day

**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 #:

**ANALYSIS REQUESTED**

| Con-Test Work Order# | Client Sample ID / Description | Beginning Date/Time | Ending Date/Time | Composite | Grab | [1]Matrix Code | Conc Code | PCBs | # of Containers / [2] Preservation Code / [3] Container Code |
|---|---|---|---|---|---|---|---|---|---|
| 21 | LTM-CR-VWV-621 | 9/13/18 | 1210 | | X | O | C | X | |
| 22 | LTM-CR-VWH-622 | ↓ | 1215 | | ↓ | ↓ | ↓ | ↓ | |
| 23 | LTM-CR-VWV-623 | | 1220 | | | | | | |
| 24 | LTM-CR-VWH-624 | ↓ | 1225 | | ↓ | ↓ | ↓ | ↓ | |

Comments: Exterior Wipes

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**

**Dissolved Metals Samples**
○ Field Filtered
○ Lab to Filter

**Orthophosphate Samples**
○ Field Filtered
○ Lab to Filter

[1] **Matrix Codes:**
GW = Ground Water
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A = Air
S = Soil
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[2] **Preservation Codes:**
I = Iced
H = HCL
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[3] **Container Codes:**
A = Amber Glass
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V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

| Relinquished by: (signature) | Date/Time: |
|---|---|
| [signature] | 9/14 1340 |
| Received by: (signature) [signature] | Date/Time: 9/14/18 1340 |
| Relinquished by: (signature) [signature] | Date/Time: 9/14/18 1835 |
| Received by: (signature) [signature] 9.14.18 | Date/Time: 19:35 |
| Relinquished by: (signature) | Date/Time: |
| Received by: (signature) | Date/Time: |

**Detection Limit Requirements**
MA
CT
Other:

**Special Requirements**
☐ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required
PWSID #

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

**Other**
☐ Chromatogram
☐ *AIHA-LAP,LLC*

**PCB ONLY**
☒ Soxhlet
☐ Non Soxhlet



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I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

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** ESD Date 9-14-18 Time 1935

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 # 559 Actual Temp - 3.0
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 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? F Who was notified? ____

Are there Rushes? F Who was notified? ____

Are there Short Holds? F Who was notified? ____

Is there enough Volume? T

Is there Headspace where applicable? F MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? NA 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 | 24 |
| 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:**

## UMASS SYLVAN INDOOR AIR - PROJECT SUMMARY

**Con-Test Analytical Laboratory Job Number: 18A1050**

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 10.6 degrees Celsius. Since the samples were received at the laboratory on the same day they were collected, no qualifications were applied.

**PCBs:**

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

The PCB homolog surrogate met acceptance criteria with the following exception:

| LAB ID | SAMPLE ID | TCX (%) | CONTROL LIMITS | QUALIFIER |
|---|---|---|---|---|
| 18A1050-01 | LT-CR-IAS-201 | 47.1 | 50-125% | J-/UJ |

TCX = tetrachloro-m-xylene

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 sample/laboratory control sample duplicate (LCS/LCSD) met percent recovery (40-140%) and relative percent difference (RPD) (≤50) acceptance criteria. No qualifications were applied.

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

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

Gloria J. Switalski:
President

Date: 2/14/2018



Project # 225695.05

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

February 13, 2018

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

Project Location: Sylvan - Amherst , MA
Client Job Number:
Project Number: 225695.05
Laboratory Work Order Number: 18A1050

Enclosed are results of analyses for samples received by the laboratory on January 30, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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: 2/13/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695.05

**ANALYTICAL SUMMARY**

WORK ORDER NUMBER: 18A1050

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

PROJECT LOCATION: Sylvan - Amherst , MA

| FIELD SAMPLE # | LAB ID: | MATRIX | SAMPLE DESCRIPTION | TEST | SUB LAB |
|---|---|---|---|---|---|
| LT-CR-IAS-201 | 18A1050-01 | Air | | TO-10A/EPA 680 Modified | |
| LT-MR-IAS-202 | 18A1050-02 | Air | | TO-10A/EPA 680 Modified | |
| LT-MR-IAS-203 | 18A1050-03 | Air | | TO-10A/EPA 680 Modified | |
| LT-MR-IAS-204 | 18A1050-04 | 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:**

**S-20**

Surrogate recovery is outside of control limits. Sample media does not allow for re-extraction.

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

**Tetrachloro-m-xylene**
18A1050-01[LT-CR-IAS-201]

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

con-test® ANALYTICAL LABORATORY

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

**ANALYTICAL RESULTS**

Project Location: Sylvan - Amherst , MA
Date Received: 1/30/2018
**Field Sample #: LT-CR-IAS-201**
**Sample ID: 18A1050-01**
Sample Matrix: Air
Sampled: 1/30/2018 14:20

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:
Air Volume L: 945

**Work Order: 18A1050**

**TO-10A/EPA 680 Modified**

| Analyte | Total µg Results | Total µg RL | Flag/Qual | ug/m3 Results | ug/m3 RL | Dilution | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Monochlorobiphenyls | ND | 0.0010 | | ND | 0.0011 | 1 | 2/2/18 17:22 | CJM |
| Dichlorobiphenyls | 0.0081 | 0.0010 | | 0.0086 | 0.0011 | 1 | 2/2/18 17:22 | CJM |
| Trichlorobiphenyls | 0.030 | 0.0020 | | 0.032 | 0.0021 | 1 | 2/2/18 17:22 | CJM |
| Tetrachlorobiphenyls | 0.12 | 0.0020 | | 0.12 | 0.0021 | 1 | 2/2/18 17:22 | CJM |
| Pentachlorobiphenyls | 0.13 | 0.0020 | | 0.13 | 0.0021 | 1 | 2/2/18 17:22 | CJM |
| Hexachlorobiphenyls | 0.017 | 0.0020 | | 0.018 | 0.0021 | 1 | 2/2/18 17:22 | CJM |
| Heptachlorobiphenyls | ND | 0.0030 | | ND | 0.0032 | 1 | 2/2/18 17:22 | CJM |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0032 | 1 | 2/2/18 17:22 | CJM |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0053 | 1 | 2/2/18 17:22 | CJM |
| Decachlorobiphenyl | ND | 0.0050 | | ND | 0.0053 | 1 | 2/2/18 17:22 | CJM |
| Total Polychlorinated biphenyls | 0.30 | | | 0.32 | | 1 | 2/2/18 17:22 | CJM |

| Surrogates | % Recovery | | % REC Limits | |
|---|---|---|---|---|
| Tetrachloro-m-xylene | 47.1* | S-20 | 50-125 | 2/2/18 17:22 |

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**ANALYTICAL RESULTS**

Project Location: Sylvan - Amherst , MA
Date Received: 1/30/2018
**Field Sample #: LT-MR-IAS-202**
**Sample ID: 18A1050-02**
Sample Matrix: Air
Sampled: 1/30/2018 14:36

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:
Air Volume L: 943.2

**Work Order: 18A1050**

**TO-10A/EPA 680 Modified**

| Analyte | Total µg Results | Total µg RL | Flag/Qual | ug/m3 Results | ug/m3 RL | Dilution | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Monochlorobiphenyls | ND | 0.0010 | | ND | 0.0011 | 1 | 2/2/18 17:59 | CJM |
| Dichlorobiphenyls | 0.0023 | 0.0010 | | 0.0024 | 0.0011 | 1 | 2/2/18 17:59 | CJM |
| Trichlorobiphenyls | 0.028 | 0.0020 | | 0.030 | 0.0021 | 1 | 2/2/18 17:59 | CJM |
| Tetrachlorobiphenyls | 0.069 | 0.0020 | | 0.073 | 0.0021 | 1 | 2/2/18 17:59 | CJM |
| Pentachlorobiphenyls | 0.087 | 0.0020 | | 0.092 | 0.0021 | 1 | 2/2/18 17:59 | CJM |
| Hexachlorobiphenyls | 0.018 | 0.0020 | | 0.019 | 0.0021 | 1 | 2/2/18 17:59 | CJM |
| Heptachlorobiphenyls | ND | 0.0030 | | ND | 0.0032 | 1 | 2/2/18 17:59 | CJM |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0032 | 1 | 2/2/18 17:59 | CJM |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0053 | 1 | 2/2/18 17:59 | CJM |
| Decachlorobiphenyl | ND | 0.0050 | | ND | 0.0053 | 1 | 2/2/18 17:59 | CJM |
| Total Polychlorinated biphenyls | 0.20 | | | 0.22 | | 1 | 2/2/18 17:59 | CJM |

| Surrogates | % Recovery | % REC Limits | |
|---|---|---|---|
| Tetrachloro-m-xylene | 57.5 | 50-125 | 2/2/18 17:59 |

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**ANALYTICAL RESULTS**

Project Location: Sylvan - Amherst , MA
Date Received: 1/30/2018
**Field Sample #: LT-MR-IAS-203**
**Sample ID: 18A1050-03**
Sample Matrix: Air
Sampled: 1/30/2018 14:49

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:
Air Volume L: 936

**Work Order: 18A1050**

**TO-10A/EPA 680 Modified**

| Analyte | Total µg Results | Total µg RL | Flag/Qual | ug/m3 Results | ug/m3 RL | Dilution | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Monochlorobiphenyls | ND | 0.0010 | | ND | 0.0011 | 1 | 2/2/18 18:36 | CJM |
| Dichlorobiphenyls | 0.0015 | 0.0010 | | 0.0016 | 0.0011 | 1 | 2/2/18 18:36 | CJM |
| Trichlorobiphenyls | 0.0072 | 0.0020 | | 0.0077 | 0.0021 | 1 | 2/2/18 18:36 | CJM |
| Tetrachlorobiphenyls | 0.011 | 0.0020 | | 0.012 | 0.0021 | 1 | 2/2/18 18:36 | CJM |
| Pentachlorobiphenyls | 0.012 | 0.0020 | | 0.012 | 0.0021 | 1 | 2/2/18 18:36 | CJM |
| Hexachlorobiphenyls | 0.0068 | 0.0020 | | 0.0073 | 0.0021 | 1 | 2/2/18 18:36 | CJM |
| Heptachlorobiphenyls | ND | 0.0030 | | ND | 0.0032 | 1 | 2/2/18 18:36 | CJM |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0032 | 1 | 2/2/18 18:36 | CJM |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0053 | 1 | 2/2/18 18:36 | CJM |
| Decachlorobiphenyl | ND | 0.0050 | | ND | 0.0053 | 1 | 2/2/18 18:36 | CJM |
| Total Polychlorinated biphenyls | 0.038 | | | 0.041 | | 1 | 2/2/18 18:36 | CJM |

| Surrogates | % Recovery | % REC Limits | |
|---|---|---|---|
| Tetrachloro-m-xylene | 58.0 | 50-125 | 2/2/18 18:36 |

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**ANALYTICAL RESULTS**

Project Location: Sylvan - Amherst , MA
Date Received: 1/30/2018
**Field Sample #: LT-MR-IAS-204**
**Sample ID: 18A1050-04**
Sample Matrix: Air
Sampled: 1/30/2018 14:51

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:
Air Volume L: 923.4

**Work Order: 18A1050**

**TO-10A/EPA 680 Modified**

| Analyte | Total µg Results | Total µg RL | Flag/Qual | ug/m3 Results | ug/m3 RL | Dilution | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Monochlorobiphenyls | ND | 0.0010 | | ND | 0.0011 | 1 | 2/2/18 19:14 | CJM |
| Dichlorobiphenyls | 0.0016 | 0.0010 | | 0.0017 | 0.0011 | 1 | 2/2/18 19:14 | CJM |
| Trichlorobiphenyls | 0.0081 | 0.0020 | | 0.0088 | 0.0022 | 1 | 2/2/18 19:14 | CJM |
| Tetrachlorobiphenyls | 0.011 | 0.0020 | | 0.012 | 0.0022 | 1 | 2/2/18 19:14 | CJM |
| Pentachlorobiphenyls | 0.012 | 0.0020 | | 0.013 | 0.0022 | 1 | 2/2/18 19:14 | CJM |
| Hexachlorobiphenyls | 0.0081 | 0.0020 | | 0.0088 | 0.0022 | 1 | 2/2/18 19:14 | CJM |
| Heptachlorobiphenyls | ND | 0.0030 | | ND | 0.0032 | 1 | 2/2/18 19:14 | CJM |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0032 | 1 | 2/2/18 19:14 | CJM |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0054 | 1 | 2/2/18 19:14 | CJM |
| Decachlorobiphenyl | ND | 0.0050 | | ND | 0.0054 | 1 | 2/2/18 19:14 | CJM |
| Total Polychlorinated biphenyls | 0.041 | | | 0.044 | | 1 | 2/2/18 19:14 | CJM |

| Surrogates | % Recovery | % REC Limits | |
|---|---|---|---|
| Tetrachloro-m-xylene | 56.3 | 50-125 | 2/2/18 19:14 |

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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 |
|---|---|---|---|---|
| 18A1050-01 [LT-CR-IAS-201] | B195832 | 1.00 | 1.00 | 01/31/18 |
| 18A1050-02 [LT-MR-IAS-202] | B195832 | 1.00 | 1.00 | 01/31/18 |
| 18A1050-03 [LT-MR-IAS-203] | B195832 | 1.00 | 1.00 | 01/31/18 |
| 18A1050-04 [LT-MR-IAS-204] | B195832 | 1.00 | 1.00 | 01/31/18 |

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**QUALITY CONTROL**

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

| Analyte | Total µg Results | Total µg RL | ug/m3 Results | ug/m3 RL | Spike Level Total µg | Source Result | %REC | %REC Limits | RPD | RPD Limit | Flag/Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B195832 - SW-846 3540C** | | | | | | | | | | | |
| **Blank (B195832-BLK1)** | | | | | Prepared: 01/31/18 Analyzed: 02/02/18 | | | | | | |
| Monochlorobiphenyls | ND | 0.0010 | | | | | | | | | |
| Dichlorobiphenyls | ND | 0.0010 | | | | | | | | | |
| Trichlorobiphenyls | ND | 0.0020 | | | | | | | | | |
| 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* | *0.129* | | | | *0.200* | | *64.3* | *50-125* | | | |
| **LCS (B195832-BS1)** | | | | | Prepared: 01/31/18 Analyzed: 02/02/18 | | | | | | |
| Monochlorobiphenyls | 0.12 | 0.0010 | | | 0.200 | | 59.0 | 40-140 | | | |
| Dichlorobiphenyls | 0.13 | 0.0010 | | | 0.200 | | 66.4 | 40-140 | | | |
| Trichlorobiphenyls | 0.13 | 0.0020 | | | 0.200 | | 65.9 | 40-140 | | | |
| Tetrachlorobiphenyls | 0.28 | 0.0020 | | | 0.400 | | 68.9 | 40-140 | | | |
| Pentachlorobiphenyls | 0.30 | 0.0020 | | | 0.400 | | 75.7 | 40-140 | | | |
| Hexachlorobiphenyls | 0.30 | 0.0020 | | | 0.400 | | 76.0 | 40-140 | | | |
| Heptachlorobiphenyls | 0.44 | 0.0030 | | | 0.600 | | 73.5 | 40-140 | | | |
| Octachlorobiphenyls | 0.43 | 0.0030 | | | 0.600 | | 72.3 | 40-140 | | | |
| Nonachlorobiphenyls | 0.73 | 0.0050 | | | 1.00 | | 72.6 | 40-140 | | | |
| Decachlorobiphenyl | 0.72 | 0.0050 | | | 1.00 | | 71.8 | 40-140 | | | |
| *Surrogate: Tetrachloro-m-xylene* | *0.118* | | | | *0.200* | | *58.8* | *50-125* | | | |
| **LCS Dup (B195832-BSD1)** | | | | | Prepared: 01/31/18 Analyzed: 02/02/18 | | | | | | |
| Monochlorobiphenyls | 0.13 | 0.0010 | | | 0.200 | | 65.7 | 40-140 | 10.7 | 50 | |
| Dichlorobiphenyls | 0.15 | 0.0010 | | | 0.200 | | 73.7 | 40-140 | 10.5 | 50 | |
| Trichlorobiphenyls | 0.15 | 0.0020 | | | 0.200 | | 73.3 | 40-140 | 10.7 | 50 | |
| Tetrachlorobiphenyls | 0.31 | 0.0020 | | | 0.400 | | 77.0 | 40-140 | 11.1 | 50 | |
| Pentachlorobiphenyls | 0.32 | 0.0020 | | | 0.400 | | 81.2 | 40-140 | 7.06 | 50 | |
| Hexachlorobiphenyls | 0.34 | 0.0020 | | | 0.400 | | 85.9 | 40-140 | 12.3 | 50 | |
| Heptachlorobiphenyls | 0.50 | 0.0030 | | | 0.600 | | 84.0 | 40-140 | 13.3 | 50 | |
| Octachlorobiphenyls | 0.48 | 0.0030 | | | 0.600 | | 80.2 | 40-140 | 10.4 | 50 | |
| Nonachlorobiphenyls | 0.81 | 0.0050 | | | 1.00 | | 81.1 | 40-140 | 11.0 | 50 | |
| Decachlorobiphenyl | 0.80 | 0.0050 | | | 1.00 | | 79.6 | 40-140 | 10.3 | 50 | |
| *Surrogate: Tetrachloro-m-xylene* | *0.119* | | | | *0.200* | | *59.4* | *50-125* | | | |

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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 is at the level of quantitation (LOQ) |
| DL | Detection Limit is the lower limit of detection determined by the MDL study |
| 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-20 | Surrogate recovery is outside of control limits. Sample media does not allow for re-extraction. |

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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-CR-IAS-201 (18A1050-01 )** | | | Lab File ID: F0202011.D | | | Analyzed: 02/02/18 17:22 | | | |
| Phenanthrene-d10 | 1509710 | 19.974 | | | | 50 - 200 | 19.9740 | +/-0.50 | |
| Chrysene-d12 | 998643 | 27.606 | | | | 50 - 200 | 27.6060 | +/-0.50 | |
| **LT-MR-IAS-202 (18A1050-02 )** | | | Lab File ID: F0202012.D | | | Analyzed: 02/02/18 17:59 | | | |
| Phenanthrene-d10 | 1426667 | 19.974 | | | | 50 - 200 | 19.9740 | +/-0.50 | |
| Chrysene-d12 | 939959 | 27.605 | | | | 50 - 200 | 27.6050 | +/-0.50 | |
| **LT-MR-IAS-203 (18A1050-03 )** | | | Lab File ID: F0202013.D | | | Analyzed: 02/02/18 18:36 | | | |
| Phenanthrene-d10 | 1165513 | 19.97 | | | | 50 - 200 | 19.9700 | +/-0.50 | |
| Chrysene-d12 | 798990 | 27.605 | | | | 50 - 200 | 27.6050 | +/-0.50 | |
| **LT-MR-IAS-204 (18A1050-04 )** | | | Lab File ID: F0202014.D | | | Analyzed: 02/02/18 19:14 | | | |
| Phenanthrene-d10 | 1433835 | 19.974 | | | | 50 - 200 | 19.9740 | +/-0.50 | |
| Chrysene-d12 | 916585 | 27.606 | | | | 50 - 200 | 27.6060 | +/-0.50 | |

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**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 |
|---|---|

**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 | 03/1/2018 |
| MA | Massachusetts DEP | M-MA100 | 06/30/2018 |
| CT | Connecticut Department of Publilc 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 | 02/5/2019 |
| RI | Rhode Island Department of Health | LAO00112 | 12/30/2018 |
| NC | North Carolina Div. of Water Quality | 652 | 12/31/2018 |
| 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 | 12/14/2018 |
| 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 |

18A1050

**con-test** ANALYTICAL LABORATORY

Phone: 413-525-2332
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Email: info@contestlabs.com

http://www.contestlabs.com

Doc #378 Rev 1_03242017

# CHAIN OF CUSTODY RECORD (AIR)

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

**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 #:

Company Name: Woodard & Curran
Address: 213 Court Street, Middletown, CT
Phone:
Project Name: Sylvan
Project Location: Amherst MA
Project Number: 225695.05
Project Manager: George Franklin
Con-Test Quote Name/Number:
Invoice Recipient: George Franklin, Greg Reynolds
Sampled By: Greg Reynolds

**ANALYSIS REQUESTED**

| Lab Use: Con-Test Work Order# | Client Use: Client Sample ID / Description | Collection Data: Beginning Date/Time | Collection Data: Ending Date/Time | Duration: Total Minutes Sampled | Flow Rate: m³/min ☐ L/min ☒ | Matrix: Code | Volume: Liters ☐ m³ ☐ | Total PCBs 8082 | | | | | Initial Pressure " Hg | Final Pressure | Lab Receipt Pressure | Summa Can ID | Flow Controller ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | LT-CR-IAS-201 | 820 1/30/18 | 1420 1/30/18 | 360 | 2.625 | 8 | | X | | | | | | | | | |
| 02 | LT-MR-IAS-202 | 836 1/30/18 | 1436 1/30/18 | ↓ | 2.62 | ↓ | | X | | | | | | | | | |
| 03 | LT-MR-IAS-203 | 849 1/30/18 | 1449 1/30/18 | | 2.60 | | | X | | | | | | | | | |
| 04 | LT-MR-IAS-204 | 851 1/30/18 | 1451 1/30/18 | | 2.565 | | | X | | | | | | | | | |

Please fill out completely, sign, date and retain the yellow copy for your records

Summa canisters and flow controllers must be returned within 15 days of receipt or rental fees will apply

For summa canister and flow controller information please refer to Con-Test's Air Media Agreement

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 Puff

| Relinquished by: (signature) | Date/Time: 1/30/18 1554 |
|---|---|
| Received by: (signature) | Date/Time: 1-30-18 15:54 |
| Relinquished by: (signature) | Date/Time: |
| Received by: (signature) | Date/Time: |
| Relinquished by: (signature) | Date/Time: |
| Received by: (signature) | Date/Time: |

**Detection Limit Requirements**
MA
CT
Other:

**Special Requirements**
☒ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ Other

con-test ANALYTICAL LABORATORY www.contestlabs.com

NELAC and AIHA-LAP, LLC Accredited

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

**Other**
☐ Chromatogram
☐ *AIHA-LAP,LLC*

**PCB ONLY**
☒ Soxhlet
☐ Non Soxhlet



Table of Contents

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

con-test® 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: ESD | Date: 1-30-18 | Time: 15:54

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: F | By Gun #: 5M | Actual Temp - 10.6 | 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 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 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 | 4 | LOW VOL | | | Tedlar | | | |

| Can #'s | | | | | Reg #'s | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| **Unused Media** | | | | | **Pufs/TO-17's** | | | | |
| | | | | | 012518-01 | | | | |
| | | | | | 012518-02 | | | | |
| | | | | | 012518-03 | | | | |
| | | | | | 012518-04 | | | | |
| | | | | | | | | | |

**Comments:**

Direct from Sampling.

## Meghan Kelley

**From:** George Franklin
**Sent:** Thursday, February 01, 2018 4:07 PM
**To:** Meghan Kelley
**Subject:** FW: Con-Test Analytical Laboratory Amherst, MA: 225695.05
**Attachments:** 18A1050_01 01 31 18 0945.PDF

Turn around time on these samples should be standard 10 day not the 7 shown on log in.

Thank you,

George

-----Original Message-----
From: Do Not Reply_reports@contestlabs.com [mailto:reports@contestlabs.com]
Sent: Wednesday, January 31, 2018 10:00 AM
To: George Franklin <gfranklin@woodardcurran.com>
Subject: Con-Test Analytical Laboratory Amherst, MA: 225695.05

This is an automated message from the Element DataSystem® LIMS at Con-Test Analytical Laboratory. If you have any questions about this email or if this email has been sent to you in error, please contact:

Con-Test Analytical Laboratory
39 Spruce Street
East Longmeadow, MA 01028
413.525.2332 Phone
413.525.6405 Fax

Submitting Client: Woodard & Curran - CT Project Name: Amherst, MA

We value your feedback.

Con-Test is committed to quality and continuously improving deliverables and services to our clients. Please go online and complete the short survey regarding your experience with Con-Test using the following link:

http://survey.constantcontact.com/survey/a07ed4edh3zis9aj7h5/start

Each entry will be entered for a $100 gift card in a monthly drawing.