



December 29, 2016

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 – 2016 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 2016 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 under 40 CFR 761.61 (a) and (c) and 761.79 (h) dated August 30, 2010; monitoring activities were also conducted at those areas described in the PCB Remediation Plan Amendment dated May 9, 2011; following the 2015 monitoring event and communications with EPA, modifications were made to the long term monitoring requirements to include visual inspections on an annual basis and wipe testing of encapsulated surfaces on a bi-annual basis.
- Dubois Library Elevator Lobbies – The MMIP was submitted on March 29, 2013 in accordance with Condition 12 of the EPA's Dubois Library PCB Cleanup and Disposal Approval dated April 8, 2010; following the 2015 monitoring event and communications with EPA, modifications to the long term monitoring were made to include visual inspections and indoor air sampling on an annual basis and wipe testing of encapsulated surfaces on a bi-annual basis.
- Orchard Hill Residential:
  - Webster House – The MMIP was submitted on January 5, 2012 in accordance with Condition 16 of the EPA's PCB Decontamination and Disposal Approval dated July 4, 2011; following completion of the 2015 monitoring event and communications with EPA, the long term monitoring program was modified to include annual visual inspections and bi-annual wipe testing of encapsulated surfaces as well as a single round of post-abatement indoor air sampling to confirm site conditions.
  - 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 by ATC Associates, Inc.; 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.

- **Sylvan Residential** – The MMIP was submitted on February 20, 2014 as part of the remediation completion reporting for the exterior and interior renovations conducted at each of the three buildings within the Sylvan Complex (Brown, Cashin, and McNamara). An EPA Approval has not been issued for this work as of the date of this letter, three rounds of post-remediation monitoring have been conducted (2014, 2015, and 2016) as described in this report. In addition, based on communications with EPA, indoor air sampling was conducted in 2016 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 under 40 CFR 761.61(c) and 761.79(h) for the replacement of windows in Room 230A within the Physical Plant building. Long term monitoring which includes visual inspection of interior finish gypsum wall board surrounds was conducted in March by UMass.

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 2016 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 the evaluation criteria to determine the need and type of corrective actions.
- A monitoring report will be prepared and submitted to EPA to document the results of the visual inspections and sampling activities, as well as to provide any recommendations for corrective measures based on the results of the visual inspections or laboratory analytical results. The report will also include a statement on the continued effectiveness of the encapsulants and/or secondary physical barriers; and will include any proposed modifications to the MMIP.



## MONITORING ACTIVITIES –2016

Woodard & Curran performed the following monitoring activities during 2016:

- Tobin Hall Deck – A visual inspection of the encapsulated concrete pillar surfaces was performed;
- Southwest Concourse – A visual inspection of encapsulated exterior concrete building walls, retaining walls, and concrete within the pedestrian tunnel was conducted and 2 wipe samples were collected from stairs in the Washington Plaza;
- Dubois Library – A visual inspection of encapsulated interior concrete building walls, ceiling, and CMU block in-fills in the elevator lobbies was conducted and five indoor air samples were collected in the lobbies;
- Orchard Hill Residential – Visual inspections of encapsulated surfaces were conducted at Webster, Grayson, and Field Houses including interior elevator lobby walls, interior stairwell materials, exterior concrete spandrels, and concrete parapet walls in accordance with the respective MMIPs. In addition, post-abatement indoor air samples were collected from the elevator lobbies;
- Sylvan Residential – For all three buildings, visual inspections of encapsulated brick and replacement caulking associated with the exterior control joints, interior encapsulated walls, and interior encapsulated ceilings were conducted. A total of 32 wipe samples were collected from the encapsulated interior and exterior surfaces as part of the long term monitoring. In addition, two round of indoor air samples were collected from interior spaces as part of post-abatement monitoring to confirm site conditions; and
- Physical Plant – Visual inspection of interior gypsum wallboard at the window surrounds was performed by UMass EH&S personnel.

## RESULTS

A summary of the results of the 2016 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 2016 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. As described in Attachments 1 and 2, relatively minor flaking and peeling were observed in the clear acrylic coatings applied to select concrete surfaces at the Tobin Hall Deck and in the Southwest Concourse Area.

The results from the indoor air sampling at the Dubois Library and the post-abatement sampling at Orchard Hill and Sylvan complexes (as requested by EPA) indicated that the concentrations of PCBs during normal occupancy conditions were below or near the 500 ng/m<sup>3</sup> EPA target level for 19+ age students and adults.

### Maintenance Activities

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

- Tobin Hall – the small area of flaking and peeling acrylic coating on the northern column is planned to be replaced with two coats of Sikagard 62 liquid epoxy to match the southern column.
- Southwest Concourse – an isolated area of damaged epoxy is planned to be patched with Sikagard 62 liquid epoxy to match the existing coatings. With regard to the areas where the clear coating was observed to be flaking and peeling, UMass is still monitoring results of the bi-annual monitoring to determine if additional coatings will be required.



### Corrective Measures

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

- Sylvan Complex – As described in the 2015 annual report, UMass is evaluating the application of secondary barrier systems over those vertical control joints considered to be in the high occupancy area as defined specific to this project (< 8' 8" above ground surface) at the McNamara building. At this time, the final product has not been determined however, it is anticipated that it will be a pre-formed silicone barrier material or similar barrier material designed to span the control joint. Since the submittal of the 2015 report, EH&S and Residential Life personnel have met to discuss and plan the application; however, a final product and schedule for installation have not been selected.

### Continued Monitoring

It is proposed to continue the campus wide monitoring on an annual or biannual basis as per the 2015 report and follow up email communications from EPA on May 18, 2016 (and subsequent response on August 9, 2016).

In addition, based on the results of indoor air sampling at the Sylvan complex, it is proposed that an additional round of indoor air sampling be conducted in 2017 to monitor conditions/evaluated potential seasonal variations in the first floor office space of Cashin, the Brown and McNamara ADA restrooms, and the McNamara lower level study area.

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

Sincerely,

WOODARD & CURRAN INC.

George J. Franklin, CHMM  
Technical Manager

Jeffrey A. Hamel, LSP, LEP  
Senior Principal

cc: Terri Wolejko, UMass EH&S

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





# University of Massachusetts Amherst Campus Map

July 2011

University Switchboard - (413) 545-0111

Tour Service - (413) 545-4237

Robsham Memorial Visitors Center - (413) 545-0306

## Map Key

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

0 500 1,000 Feet

Figure 1 Site Location Map



## **Attachment 1 – Tobin Hall Deck**

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

**Location:** Tobin Hall

**Summary of Remedial Areas**

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

Photos 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 ( $< 0.20 \mu\text{g}/100 \text{ cm}^2$ ) in both samples. One baseline wipe sample was collected from the epoxy coated concrete surfaces as part of the stair landing removal project in 2012. Analytical results reported PCBs as non-detect ( $< 0.20 \mu\text{g}/100 \text{ cm}^2$ ).

### **Monitoring and Maintenance Implementation Plan**

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

### **Monitoring Activities – Previous Events**

Between 2012 and 2015 annual visual inspections of encapsulated surfaces indicated that the coatings on accessible portions of the encapsulated surfaces remained in good physical condition with the exception of a small, isolated area of limited epoxy coating deterioration directly adjacent to a hose connection on the northern retaining wall (the areas was subsequently covered in 2013 with the installation of a four foot high retaining wall) and limited flaking and peeling of the Sikagard 670W clear coating applied to a limited portion of the concrete on the northern retaining wall.

Wipe samples collected on an annual basis between 2012 and 2015 from encapsulated surfaces, including the limited flaking and peeling clear coating on the northern retaining wall, indicated that PCBs were non-detect ( $< 0.20 \mu\text{g}/100\text{cm}^2$ ).

### **Monitoring Activities – July 2016**

On July 21, 2015, accessible coatings applied to concrete materials were inspected for signs of deterioration or damage. The epoxy coating on the southern façade area was observed to be in good condition with no signs of damage or wear. The Sikagard 670W clear coat encapsulant on the northern façade was found to be flaking and peeling in select sections of the concrete as observed during previous inspections.

### **Maintenance Activities**

As communicated in the 2015 monitoring report, the clear acrylic coating on the northern façade will be replaced with two coats of Sikagard 62 liquid epoxy coating to match the southern concrete column. UMass EH&S is currently coordinating the application with facilities and maintenance department personnel.

### **Next Monitoring Event**

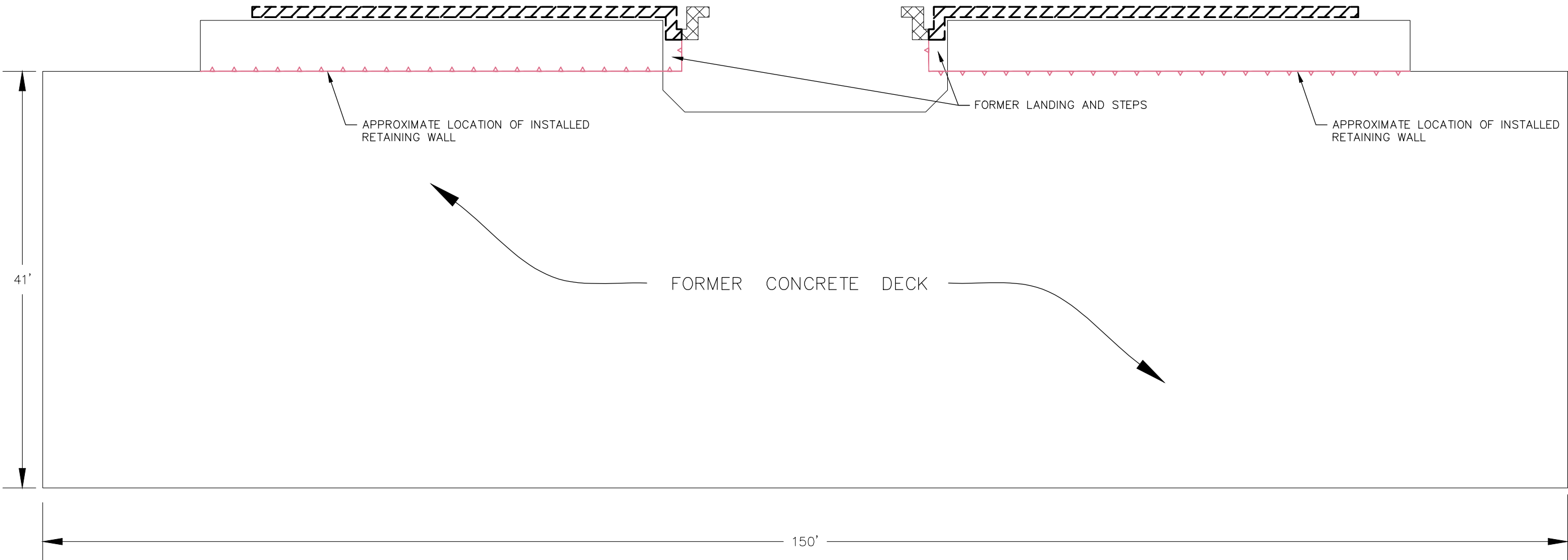
The next scheduled monitoring event is July 2017 to include visual inspections and wipe sampling from accessible encapsulated surfaces.



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



# TOBIN HALL



## 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.



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

## ENCAPSULATED BUILDING SURFACES

UNIVERSITY OF MASSACHUSETTS  
AMHERST, MASSACHUSETTS

2016 TOBIN HALL PCB MMIP REPORT

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

Figure 1-1



40 Shattuck Road, Suite 110  
Andover, Massachusetts 01810  
866.702.6371 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS



## **Attachment 2 – Southwest Concourse**

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

**Location:** Southwest Concourse Area

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

**Summary of Remedial Areas**

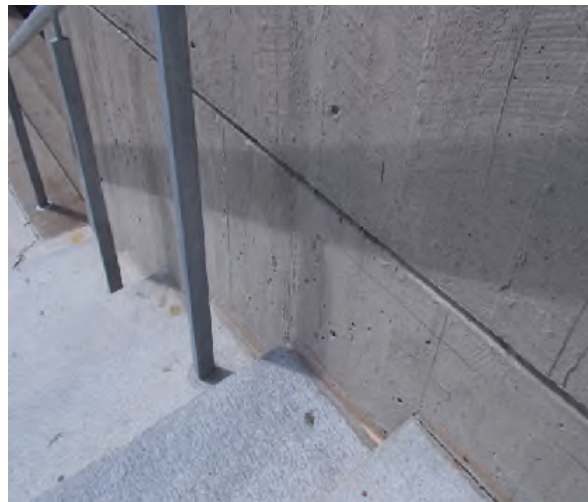
*In-Place Management:* Residual PCBs at concentrations > 1 ppm on exterior building walls and retaining walls are being managed in place following removal of caulking, soils, and concrete decking along retaining walls and ground level structures throughout the Southwest Concourse Area as follows:

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

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



**Typical Retaining Wall Application**



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

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

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

- Sikagard 62 Epoxy Encapsulated Surfaces – 67 of 69 samples reported as non-detect (the two samples of former direct contact materials in the pedestrian tunnel reported PCBs at concentrations of 7.16 and 24 µg/100 cm<sup>2</sup>; however, these areas were subsequently covered with a new bead of caulking and a final acrylic coat).
- 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<sup>2</sup>).
- Encapsulated Concrete Building Foundations (July and August 2011) – 6 of 7 samples collected at grade (both epoxy and clear coated surfaces) reported as non-detect and one sample reported at a concentration of 4 µg/100 cm<sup>2</sup>; 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<sup>2</sup>).

**Monitoring and Maintenance Implementation Plan**

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

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

- Concrete Structures (retaining walls and ground surface structures):
  - Sub-grade areas (Sikagard 62 epoxy) – Given the inaccessibility to these areas and that all 67 baseline wipe samples were non-detect for PCBs, no long term monitoring samples were proposed from these areas. However, due to modifications to the final site grade during construction, areas encapsulated with the Sikagard 62 liquid epoxy coating remain visible above grade over select portions of the Southwest Concourse. As such, both visual inspections of the epoxy coating and collection of verification wipe samples have been added to the program 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.

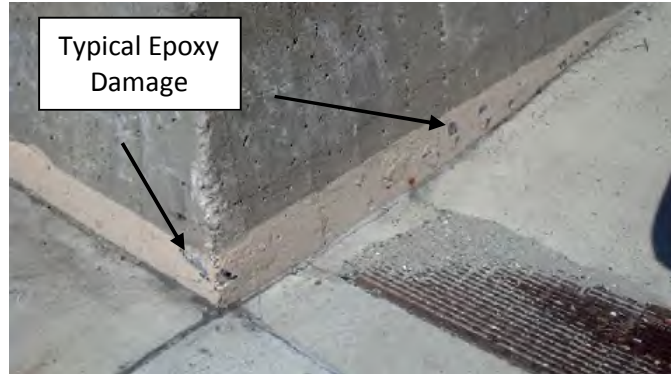
**Previous Monitoring Activities – 2012 through 2015**

Long term monitoring was conducted on an annual basis from 2012 through 2015. Results of the monitoring were presented to EPA in the annual monitoring reports and are summarized below.

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

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

- Sikagard 62 Liquid Epoxy: The visual inspections conducted 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.
- Sikagard 670W: Visual inspection of the clear acrylic coating indicated that the coating remains in good condition over the majority of the encapsulated surfaces. Some areas of flaking and peeling were observed but in general they were limited to isolated areas typically 4 to 6 inches in size (some areas were observed up to 1 foot in size). The areas of flaking and peeling remained relatively consistent between sampling events indicating that the issues may have been present at the time of application and not indicative of long term wear of the coatings.
- Concrete Ceiling of Pedestrian Tunnel: Visual inspection indicated that the coatings and caulking installed within the joint were in good condition. No deterioration was observed.



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

- Sikagard 62 Liquid Epoxy: A total of eight wipe samples were collected from representative locations within each of the three main plazas in the Southwest Concourse area during each monitoring event. Wipe samples were collected from concrete retaining walls (2 samples), building walls (3 samples), and concrete along stairs (3 samples). Overall, analytical results indicated that PCBs were either non-detect or present at concentrations  $< 1 \mu\text{g}/100 \text{ cm}^2$  during each event. However, epoxy wipe sample results from the Washington Plaza stairs indicated that the concentrations of PCBs were  $> 1 \mu\text{g}/100 \text{ cm}^2$  during the 2012, 2013, and 2015 monitoring events with reported PCB concentrations of 1.4, 2.4, and 4.6  $\mu\text{g}/100 \text{ cm}^2$ , respectively (PCBs were reported at a concentration of 0.24  $\mu\text{g}/100 \text{ cm}^2$  in 2014).
- 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 non-detect ( $< 0.20 \mu\text{g}/100 \text{ cm}^2$ ) in all samples collected to date.
- 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 ( $< 0.20 \mu\text{g}/100 \text{ cm}^2$ ) in the samples collected from the adjacent concrete and present at concentrations  $> 1 \mu\text{g}/100 \text{ cm}^2$  in the samples collected from the surface of the caulking each year.



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

Based on these results, the liquid coatings applied to concrete surfaces in the Southwest Concourse and the pedestrian tunnel continue to be effective in encapsulating residual PCBs in masonry. These results were used to support the transition to a bi-annual wipe sampling frequency throughout the Southwest Concourse with the exception of the epoxy coated stairs within the Washington Plaza where wipe samples were collected in 2016 due to previous reported PCB concentrations.

**Monitoring Activities – 2016**

The 2016 monitoring event was conducted on August 3, 2016 and included visual inspections of the liquid coatings and the collection of a wipe sample from the epoxy coating stairs within the Washington Plaza due to the results of epoxy wipe samples collected during previous monitoring events. A summary of the results is as follows:

Visual Inspection: Results of the visual inspections indicated that the epoxy and acrylic coatings remained in good physical condition with limited areas of damage, flaking, or peeling consistent with previous inspection activities. Within the Washington Plaza, the three areas of epoxy coated concrete associated with stairs (including one wall along a former stair way that is no longer present) were observed to be in good physical condition with no observed areas of flaking, peeling, or other physical damage to the coatings. Along the center stair, where previous results indicated PCBs > 1 µg/100 cm<sup>2</sup>, there was approximately 75 square feet of epoxy coated concrete visible above the top of the stairs.

Wipe Samples: Analytical results from the wipe sample collected from the epoxy coated stairs in Washington Plaza indicated that PCBs were present at a concentration of 11 µg/100 cm<sup>2</sup> (wipe sample LTM-SWC-VWC-367). This result is higher than those reported in 2015 when PCBs were reported at a concentration of 4.6 µg/100 cm<sup>2</sup>. Based on the increased concentration reported in the wipe sample, 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 increased PCB concentrations were representative of conditions on epoxy coated concrete on stairs throughout the Plaza or limited to the single set of stairs previously monitored. Analytical results from this sample indicated that PCBs were non-detect (< 0.20 µg/100 cm<sup>2</sup>; wipe sample LTM-SWC-VWC-500).

Based on these results, the reported concentration of PCBs at 11 µg/100 cm<sup>2</sup> are considered to be representative of the concrete along the one set of stairs in the center of the Washington Plaza.

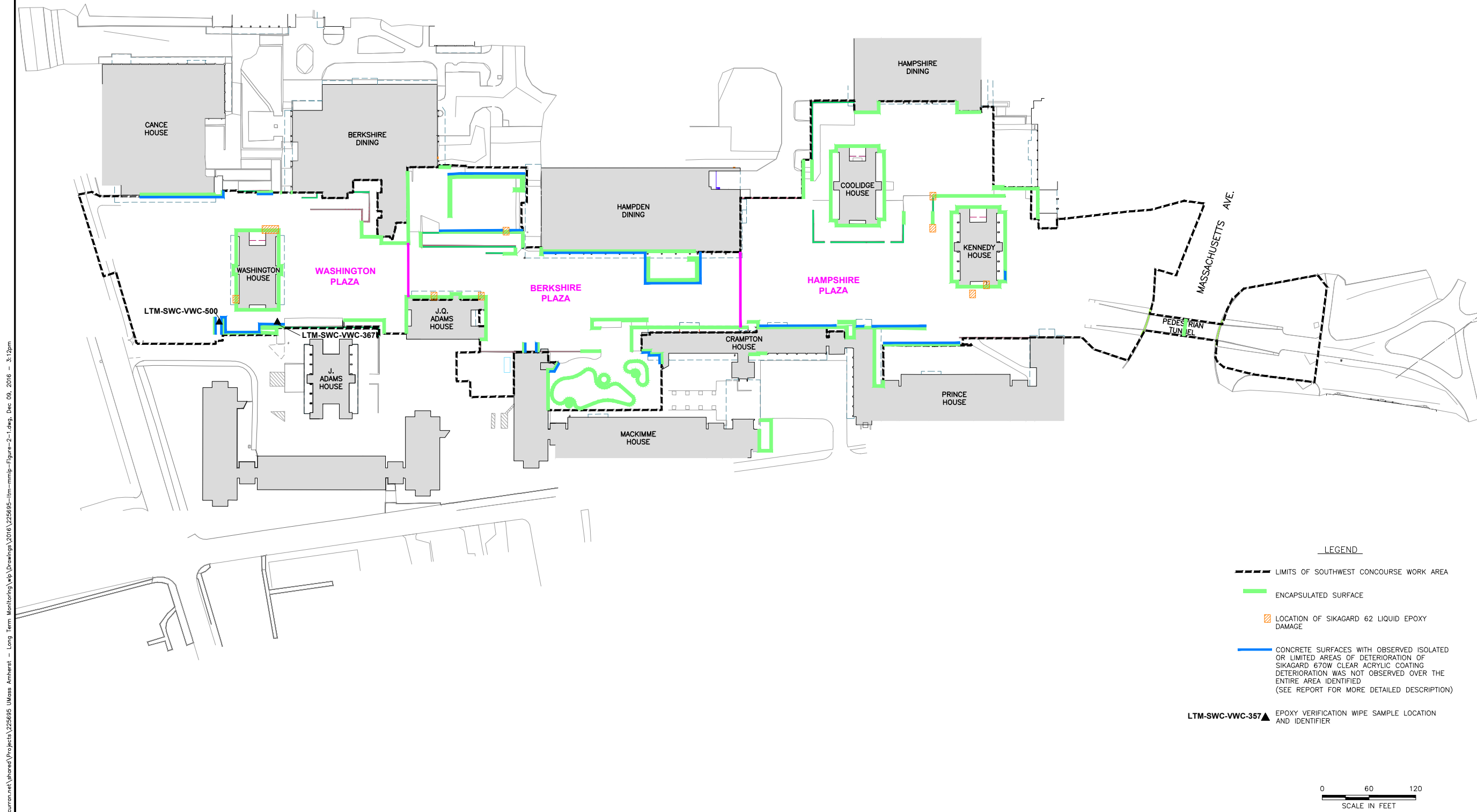
**Maintenance Activities**

In 2016 representatives from UMass Environmental Health and Safety began coordination with the facilities and maintenance department and residential life staff to schedule the reapplication/repairs to the isolated areas of damaged epoxy. In addition, an additional epoxy coat will be applied to the epoxy coated concrete along the center stair within the Washington Plaza that have demonstrated PCB concentrations in surface wipe samples > 1 µg/100 cm<sup>2</sup> over time (approximately 75 square feet of coating). These repairs are anticipated to be conducted in 2017 with visual confirmation of the application conducted as part of the annual inspection.

With regard to the observed flaking and peeling of the clear acrylic coating on some above grade areas, UMass is still evaluating options for different coatings that could be used on these masonry surfaces. Given the minimal additional flaking and peeling observed between 2012 and 2016, it is believed that these areas observed to date are due to conditions at the time of application and not weathering of the coating over time. Based on the limited additional flaking and peeling over time and the results of the wipe testing described above (all results non-detect or < 1 µg/100cm<sup>2</sup>), these areas will continue to be included for monitoring as the coating evaluation continues.

**Next Monitoring Event**

The next monitoring event will be performed during the Summer of 2017 and will include visual inspections and bi-annual wipe sampling of coated surfaces in accordance with the MMIP.





## **Attachment 3 – Dubois Library Elevator Lobbies**

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

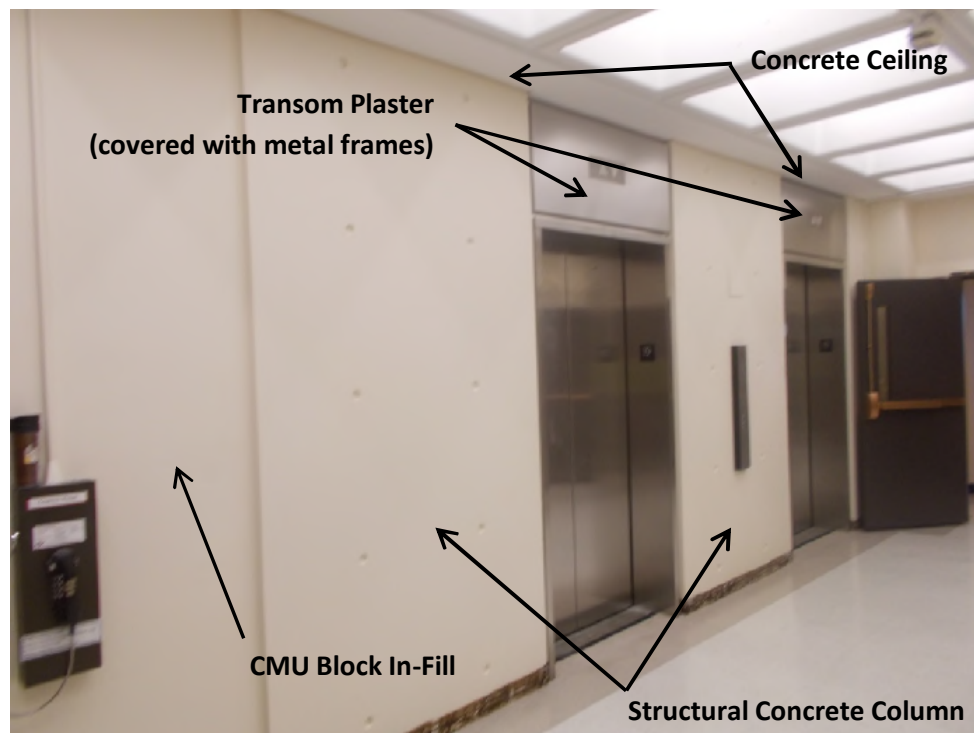
**Location:** W.E.B Dubois Library

**Summary of Remedial Areas**

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

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

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



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

Indoor Air Sampling Data Summary: Indoor air samples were collected on August 28, 2012 as part of the initial post-remediation sampling. Analytical results indicated that PCBs were present at concentrations of 0.690, 0.977, and  $1.146 \mu\text{g}/\text{m}^3$  in the three samples collected. As described in the MMIP, these results were above EPA's published guidance for indoor air levels for schools; however, the results were below the risk-based project specific action level of  $1.180 \mu\text{g}/\text{m}^3$ .

As part of the development of the MMIP and to gain an understanding of indoor air levels in the different floors of the library as well as over the different seasons to assess variations over time, an expanded indoor air sampling program, which including the collection of samples from nine lobby areas, was developed and implemented on October 16, 2012. Results from the expanded round of sampling indicated that PCBs were present at concentrations up to  $0.542 \mu\text{g}/\text{m}^3$ .

### **Monitoring and Maintenance Implementation Plan**

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

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

- CMU Block In-Fill Materials – Three wipe samples will be collected from encapsulated masonry block in-fills on three randomly selected floors. The location of the wipe sample on the in-fill will be randomly selected using a random number generator based on the total height and width of the in-fill;
- Structural Concrete/Lobby Walls – Three wipe samples will be collected from structural concrete/lobby wall materials on three randomly selected floors. The location of each wipe sample will be selected as follows:
  - The associated elevator shaft and location along the former joint will be randomly selected; and



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Long-Term Maintenance and Monitoring Program  
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- 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 average concentrations dropped below EPA's published guidance for indoor air levels for schools of  $0.500 \mu\text{g}/\text{m}^3$  on several occasions, the frequency of indoor air sampling was modified in 2016 to include one round of sampling per year.

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

#### **Previous Monitoring Activities – Visual Inspections and Surface Wipes**

Visual inspections and wipe sampling of the encapsulated materials was conducted on an annual basis between 2013 and 2015 in accordance with the MMIP. During that time visual inspections indicated that the coatings remained in good physical condition with no observed damage other than slight wearing of the outer latex paint layer. Results of verification wipe samples indicated that PCBs were either non-detect or present at concentrations  $< 1 \mu\text{g}/100 \text{ cm}^2$  in all samples.

#### **Previous Monitoring Activities – Indoor Air**

Indoor air sampling was conducted at a minimum of twice per year from 2013 through 2015 to evaluate potential seasonal fluctuations on indoor air PCB concentrations during these three seasonal and ventilation system configurations/conditions:

1. Colder temperatures with the ventilation system dampers generally in a more closed configuration to provide less outside make-up air (Winter/early Spring);
2. Warmer temperatures with the ventilation system dampers generally in a more closed configuration to provide less outside make-up air (Summer); and
3. Moderate temperatures with the ventilation system dampers generally fluctuating between open and closed due to temperatures (Spring and Fall).

Results from those sampling events indicated that the average concentration of PCBs in indoor air samples were either below or slightly above the EPA's published guidance for indoor air levels for schools of  $0.500 \mu\text{g}/\text{m}^3$  for students ages 19 plus and adults (average concentrations ranged from 0.25 in April 2013 to 0.638 in July 2015). Based on these results, the sampling frequency was modified to include one round of indoor air samples collected during the summer.

#### **Monitoring Activities – Visual Inspections 2016**

Visual inspections of encapsulated surfaces were conducted during the annual indoor air sampling event. Coatings were observed to be in good physical condition with no signs of wear or damage.

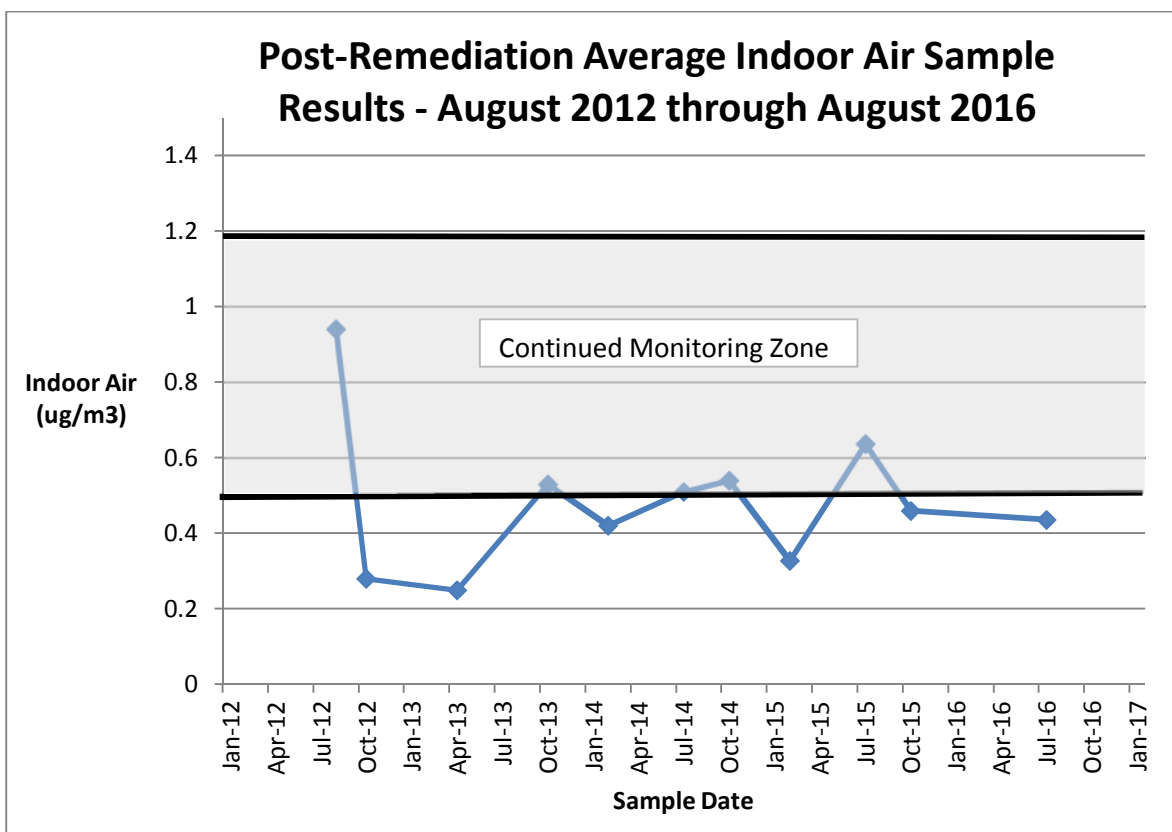
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**Monitoring Activities – Indoor Air – August 2016**

Four indoor air samples were collected on August 3, 2016 from the 4<sup>th</sup>, 8<sup>th</sup>, 13<sup>th</sup>, and 20<sup>th</sup> floors. The sample locations were modified from the 2014 and 2015 sampling events due to ongoing maintenance activities on the 13<sup>th</sup> and 23<sup>rd</sup> floors (the maintenance did not disturb the encapsulated materials); thereby maintaining the collection of two samples per ventilation zone. Analytical results indicated that PCBs were reported at concentrations ranging from 0.340 to 0.554  $\mu\text{g}/\text{m}^3$  with an average PCB concentration of 0.435  $\mu\text{g}/\text{m}^3$ . Results from the sampling are summarized on Table 3-1, along with all previous indoor air sample results.

These results were relatively consistent with previous sampling activities with the maximum and average concentrations continuing to be within or slightly below the 0.500 to 1.18  $\mu\text{g}/\text{m}^3$  continued monitoring range.

A graph of the average indoor air concentrations detected during the post-remediation sampling events is depicted below. 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 2016 monitoring activities, no corrective actions are proposed at this time.

**Next Monitoring Event**

The next monitoring event is scheduled for July/August 2017 to include visual inspections and surface wipe sampling of encapsulated surfaces and indoor air sampling.

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

Floor	Air Sample	PCB Concentration (µg/cartridge)	Flow Rate (L/Minute)	Duration (minutes)	PCB Concentration (µg/m <sup>3</sup> )
<b>Project Specific Risk-Based Action Level: 1.18 µg/m<sup>3</sup></b>					
Lobby Floor	<b>Pre PCB Remediation Indoor Air Samples</b> <b>January 15, 2010</b>				
4	DL-4E-IAS-088	0.198	2.58	121	0.629
15	DL-15E-IAS-085	0.146	2.6	127	0.442
18	DL-18E-IAS-082	0.193	2.57	128	0.580
Blank	N/A	N/A	N/A	N/A	N/A
QA/QC Sample - Field Duplicate					
18	N/A	N/A	N/A	N/A	N/A
<b>Post PCB Remediation Indoor Air Samples</b> <b>August 28, 2012</b>					
4	DL-4E-IAS-108	0.41	2.6	240	0.690
15	DL-15E-IAS-109	0.68	2.6	240	1.146
18	DL-18E-IAS-110	0.58	2.6	240	0.977
Blank	DL-OUT-IAS-112	< 0.005	2.6	250	< 0.005
QA/QC Sample - Field Duplicate					
18	DL-18ED-IAS-111	0.56	2.6	240	0.928
<b>Post PCB Remediation Indoor Air Samples</b> <b>October 16, 2012</b>					
4	DL-4E-IAS-113	0.34	2.6406	241	0.542
5	DL-5E-IAS-114	0.21	2.6517	242	0.332
8	DL-8E-IAS-115	0.25	2.6589	242	0.394
13	DL-13E-IAS-116	0.052	2.6451	244	0.082
15	DL-15E-IAS-117	0.053	2.637	244	0.084
18	DL-18E-IAS-118	0.31	2.6225	246	0.488
19	DL-19E-IAS-119	0.1	2.6826	246	0.154
23	DL-23E-IAS-120	0.26	2.6605	248	0.4
26	DL-26E-IAS-121	0.0091	2.6456	250	0.014
Blank	DL-OUT-IAS-122	0.0	2.6591	240	-
QA/QC Sample - Field Duplicate					
13	DL-13ED-IAS-123	0.37	2.6404	244	0.583
<b>Post PCB Remediation Indoor Air Samples</b> <b>April 5, 2013</b>					
4	DL-4E-IAS-124	0.21	2.62	245	0.327
5	DL-5E-IAS-125	0.11	2.62	245	0.171
8	DL-8E-IAS-126	0.13	2.62	241	0.206
13	DL-13E-IAS-127	0.23	2.62	242	0.362
15	DL-15E-IAS-128	0.13	2.62	243	0.204
18	DL-18E-IAS-129	0.14	2.62	243	0.220
19	DL-19E-IAS-130	0.26	2.62	244	0.406
23	DL-23E-IAS-131	0.15	2.62	246	0.232
26	DL-26E-IAS-132	0.1	2.62	248	0.154
Blank	DL-OUT-IAS-134	0	2.62	243	0
QA/QC Sample - Field Duplicate					
4	DL-4ED-IAS-133	0.2	2.62	242	0.315

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

Floor	Air Sample	PCB Concentration (µg/cartridge)	Flow Rate (L/Minute)	Duration (minutes)	PCB Concentration (µg/m <sup>3</sup> )
<b>Project Specific Risk-Based Action Level: 1.18 µg/m<sup>3</sup></b>					
<b>Post PCB Remediation Indoor Air Samples</b>					
<b>October 11, 2013</b>					
4	DL-4E-IAS-135	0.33	2.63	240	0.529
5	DL-5E-IAS-136	0.12	2.63	241	0.191
8	DL-8E-IAS-137	0.22	2.64	240	0.351
13	DL-13E-IAS-138	0.50	2.62	240	0.803
15	DL-15E-IAS-139	0.30	2.63	241	0.478
18	DL-18E-IAS-145	0.31	2.63	240	0.496
19	DL-19E-IAS-140	0.60	2.64	240	0.959
23	DL-23E-IAS-141	0.35	2.62	242	0.559
26	DL-26E-IAS-142	0.23	2.65	242	0.362
Blank	DL-OUT-IAS-144	0.00	2.60	240	<0.0081
QA/QC Sample - Field Duplicate					
4	DL-4ED-IAS-143	0.21	2.63	241	0.335
<b>Post PCB Remediation Indoor Air Samples</b>					
<b>February 24, 2014</b>					
4	DL-4E-IAS-147	0.2	2.57	242	0.325
13	DL-13E-IAS-148	0.32	2.60	243	0.513
19	DL-19E-IAS-149	0.32	2.56	240	0.526
23	DL-23E-IAS-150	0.19	2.59	240	0.309
QA/QC Sample - Field Duplicate					
23	DL-4ED-IAS-151	0.36	2.55	240	0.36
<b>Post PCB Remediation Indoor Air Samples</b>					
<b>July 22, 2014</b>					
4	DL-4E-IAS-201	0.24	2.62	240	0.391
13	DL-13E-IAS-203	0.32	2.67	243	0.506
19	DL-19E-IAS-204	0.37	2.71	244	0.575
23	DL-23E-IAS-205	0.36	2.76	243	0.552
QA/QC Sample - Field Duplicate					
4	DL-4ED-IAS-202	0.26	2.74	242	0.40
<b>Post PCB Remediation Indoor Air Samples</b>					
<b>October 10, 2014</b>					
4	DL-4E-IAS-201	0.3	2.56	240	0.496
13	DL-13E-IAS-203	0.37	2.69	240	0.586
19	DL-19E-IAS-204	0.39	2.61	240	0.636
23	DL-23E-IAS-205	0.27	2.62	240	0.436
QA/QC Sample - Field Duplicate					
4	DL-4ED-IAS-202	0.38	2.64	240	0.614
<b>Post PCB Remediation Indoor Air Samples</b>					
<b>February 19, 2015</b>					
4	DL-4E-IAS-213	0.18	2.93	240	0.259
13	DL-13E-IAS-214	0.25	2.73	240	0.389
19	DL-19E-IAS-216	0.3	2.85	240	0.449
23	DL-23E-IAS-217	0.14	2.82	240	0.212
QA/QC Sample - Field Duplicate					
13	DL-13ED-IAS-205	0.28	2.82	241	0.419

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

Floor	Air Sample	PCB Concentration (µg/cartridge)	Flow Rate (L/Minute)	Duration (minutes)	PCB Concentration (µg/m <sup>3</sup> )
<b>Project Specific Risk-Based Action Level: 1.18 µg/m<sup>3</sup></b>					
<b>Post PCB Remediation Indoor Air Samples</b>					
<b>July 21, 2015</b>					
4	DL-4E-IAS-219	0.23	2.68	240	0.373
13	DL-13E-IAS-220	0.42	2.71	240	0.680
19	DL-19E-IAS-221	0.52	2.73	240	0.834
23	DL-23E-IAS-223	0.41	2.71	240	0.664
QA/QC Sample - Field Duplicate					
13	DL-13ED-IAS-222	0.41	2.72	241	0.661
<b>Post PCB Remediation Indoor Air Samples</b>					
<b>October 14, 2015</b>					
4	DL-4E-IAS-225	0.2	2.59	240	0.328 UJ
13	DL-13E-IAS-226	0.31	2.57	240	0.519 UJ
19	DL-19E-IAS-228	0.36	2.70	240	0.573 UJ
23	DL-23E-IAS-229	0.25	2.58	242	0.414 UJ
QA/QC Sample - Field Duplicate					
13	DL-13ED-IAS-222	0.31	2.66	240	0.504 UJ
<b>Post PCB Remediation Indoor Air Samples</b>					
<b>August 3, 2016</b>					
4	DL-4E-IAS-231	0.35	2.63	360	0.373 J/UJ
8	DL-8E-IAS-232	0.32	2.65	360	0.340 J/UJ
19	DL-19E-IAS-234	0.52	2.63	360	0.554 J/UJ
20	DL-20E-IAS-235	0.44	2.62	360	0.473 J/UJ
QA/QC Sample - Field Duplicate					
8	DL-8E-IAS-233	0.31	2.68	360	0.324 J/UJ

**Notes:**

Project Specific Risk-based Action Level as specified in the *Risk-Based Disposal and Cleanup PCB Remediation Plan* for the Dubois Library dated March 2010.

Air samples collected in accordance with USEPA Compendium Method TO-10A "Determination of Pesticides and Polychlorinated Biphenyls In Ambient Air Using Low Volume Polyurethane Foam (PUF) Sampling Followed by Gas Chromatographic/Multi-Detector Detection (GC/MD)" and submitted for laboratory analysis of PCBs homologs.

µg/m<sup>3</sup> = micrograms per cubic meter

J/UJ = Analytical results qualified as estimated based on external data validation of individual homolog groups.





## **Attachment 4 – Orchard Hill Residential Complex**

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


**Location:** Orchard Hill Residential Area

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

**Summary of Remedial Areas**

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

**Field and Grayson Houses**

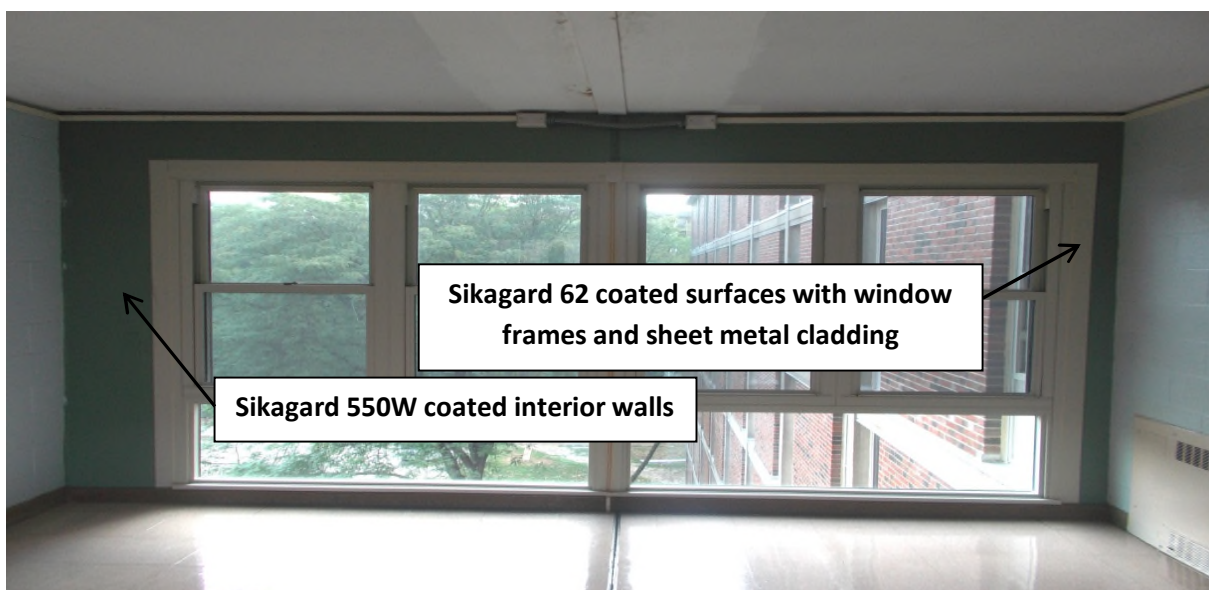
- Exterior Parapet Masonry Joints (2010): Following replacement of caulking along masonry joints at the upper parapet walls of the Field and Grayson Houses, two coats of Sikagard 62 liquid epoxy coating were applied to concrete materials formerly in direct contact with and to a distance of 6 inches from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

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

**Webster House**

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



**Webster House Elevator Lobby Walls**

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

**Field and Grayson Houses**

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

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

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

#### **Webster House**

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

#### **Monitoring and Maintenance Implementation Plan**

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

Based on the baseline sample results (majority were non-detect for PCBs) and some encapsulated areas subsequently covered by window frames and sheet metal cladding, wipe sampling was limited to accessible

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

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 to no 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 2015**

Long term monitoring activities conducted between 2012 and 2015 were reported in the annual long term monitoring reports and are summarized below:

Field and Grayson

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



**Attachment 4 – Orchard Hill Area  
Long-Term Maintenance and Monitoring Program  
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- Concrete Spandrel Beams – In 2014 and 2015, 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 each year from coated surfaces at the exterior spandrel beams at both buildings. Analytical results were non-detect ( $< 0.20 \mu\text{g}/100\text{cm}^2$ ) for the four samples.
- Elevator Hall CMU Block Walls – Coated CMU block materials within the elevator lobby areas were inspected. In 2014 a limited amount of the coating was observed to be missing on the surfaces of the south wall of the Grayson House 6<sup>th</sup> floor elevator lobby. This area was designated to be repaired when maintenance activities were to be conducted in this area (see Corrective Actions at end of this report). One wipe sample was collected from the encapsulated surfaces each year. Analytical results from both samples (2014 and 2015) indicated that PCBs were non-detect ( $< 0.20 \mu\text{g}/100\text{cm}^2$ ).
- Stairwell Materials – Visual inspection of the windows and sheet metal cladding was conducted at the exterior narrow stairwell window jambs of the Grayson House and on the interior stairwell window concrete sills and brick jambs of both buildings. No damage to the materials was observed.

Webster House

- Northwest Building Elevation – During visual inspections conducted from 2012 through 2015 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. Three wipe sample were collected from the encapsulated surfaces each year. Analytical results from all samples indicated that PCBs were non-detect ( $< 0.20 \mu\text{g}/100\text{cm}^2$ ).

**2016 Monitoring Activities**

The 2016 monitoring event included visual inspections of encapsulated surfaces and secondary physical barriers and a one-time collection of indoor air samples to evaluate post-remediation conditions in the elevator lobby areas (EPA requested activity).

- Visual Inspections – Results of visual inspection indicated that the encapsulated coatings and secondary physical barriers were in good physical condition with no signs of deterioration consistent with previous inspection events. As documented in previous reports, concrete along one roof line joint was observed to be damaged.
- Indoor Air Sampling – Two indoor air samples were collected from the elevator lobby areas. Samples were collected over a minimum of six hours in accordance with EPA Compendium Method TO-10A Determination of Pesticides and Polychlorinated Biphenyls in Ambient Air Using Low Volume Polyurethane Foam (PUF) Sampling. Samples were submitted to ConTest Analytical Laboratory for PCB homolog analysis via Gas Chromatographic/Multi-Detector Detection. 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<sup>3</sup>. 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 is proposed to be conducted within these spaces.

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The complete analytical laboratory reports are provided in Attachment A and a summary of the results is presented on Table 4-1.

**Corrective Actions**

Based on the visual inspections, touch-up paint will be applied to the damaged coating on the south wall of the Grayson House 6<sup>th</sup> floor elevator lobby and the epoxy coating on one exterior parapet wall masonry joint needs to be repaired. These activities will be performed as part of standard maintenance activities when conducted in these areas.

**Next Monitoring Event**

Based on the results of visual inspections and indoor air sampling, the next monitoring event will be conducted in 2017 and will include visual inspections of encapsulated surfaces and secondary physical barriers and the collection of wipe samples from accessible encapsulated surfaces in accordance with the long term monitoring plans.

**Table 4-1  
PCB Air Sampling Data**

**Orchard Hill Area**

Location	Air Sample ID	Sample Date	PCB Concentration (ng/cartridge)	Flow Rate (L/Minute)	Duration (minutes)	Corrected Sample Volume (m <sup>3</sup> )	Total PCB Concentration (ng/m <sup>3</sup> )
Webster - 2nd Floor Lobby	LT-WH-IAS-005	8/18/2016	34	2.79	360	0.89	38
Grayson - 6th Floor Lobby	LT-GH-IAS-006	8/18/2016	32	2.79	360	0.90	36

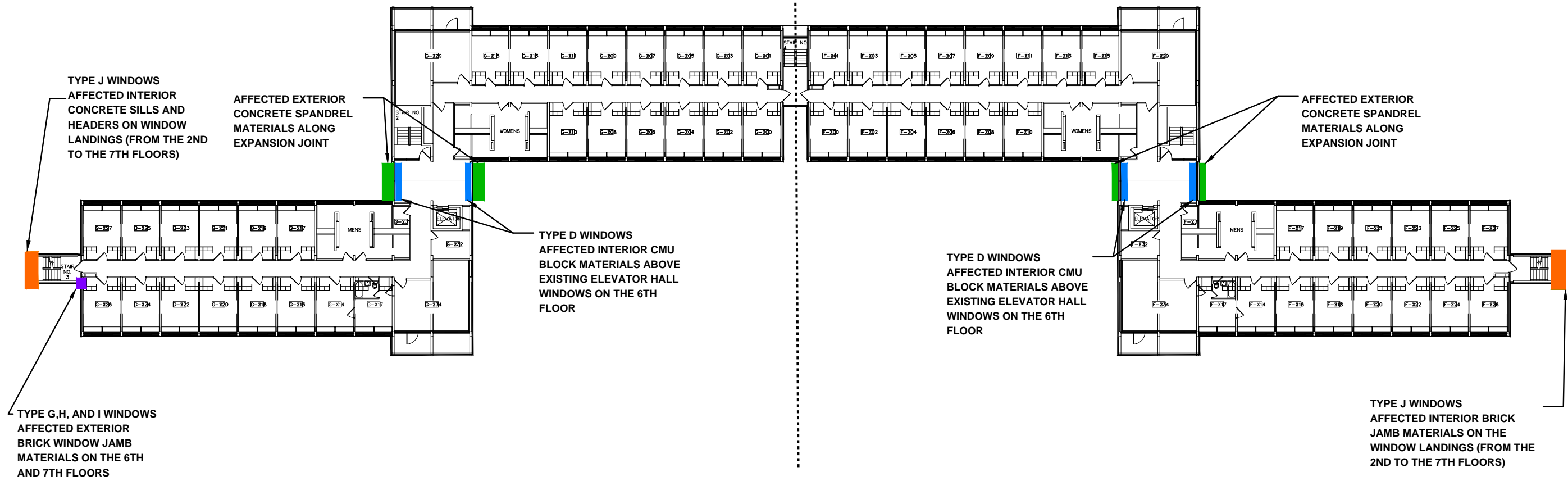
Notes:

1. Air samples collected in accordance with USEPA Compendium Method TO-10A and submitted for laboratory analysis of PCBs homologs.
2. The flow rate displayed is the average flow rate as measured at the beginning and end of the sampling period; target flow of  $\geq 2.60$  L/minute.
3. Sample volume is corrected to standard temperature and pressure in accordance with Section 13.1.7 of Method TO-10A.
4. Total PCB concentration is the total PCB homologs reported by the lab (ng/cartridge) per corrected sample volume (m<sup>3</sup>/cartridge).

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

UMASS GRAYSON & FIELD HOUSE  
AMHERST, MASSACHUSETTS

Long Term Monitoring and Maintenance  
Report

JOB NO: 224824.00  
DATE: NOVEMBER 2013  
SCALE: NONE

Figure 4-1

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





## **Attachment 5 – Sylvan Residential Complex**

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

**Location:** Sylvan Residential Area

**Building:** Brown, Cashin, McNamara

**Summary of Remedial Areas**

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

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

Photographs of typical coating application areas are provided below.



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Typical Interior Encapsulated Surfaces  
(Concrete Walls and Ceiling)



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

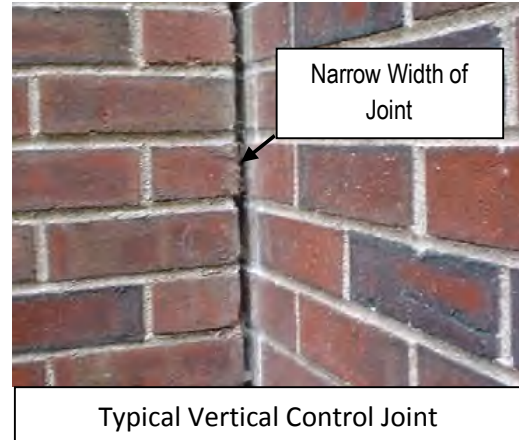
Baseline Verification Data Summary: Following remediation activities, baseline verification wipe samples were collected from encapsulated surfaces as follows:

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

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

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



**Monitoring and Maintenance Implementation Plan**

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

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

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

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

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

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

- Former Direct Contact Surfaces – no samples are proposed 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 ug/100cm<sup>2</sup>), wipe samples are proposed to be collected from the caulking at the same 4 locations described above for the wipe samples to be collected from adjacent brick surfaces. This was proposed to be conducted during the first year of monitoring with the

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results and recommendations provided in the first year report. In addition to the hexane saturated gauze samples of the caulking, at each location a wipe sample will also be collected using a saline saturated gauze pad.

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

**Monitoring Activities –2014 and 2015**

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

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

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

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

- Sikagard 670W Clear Acrylic Coating: Wipe samples were collected from brick along horizontal and vertical control joints within high occupancy areas at the three buildings. A total of 24 samples were collected during each event (12 along vertical joints and 12 along horizontal joints) as follows:
  - Horizontal Control Joints – PCBs were reported as either non-detect (18 samples at  $< 0.20 \mu\text{g}/100\text{cm}^2$ ) or present at concentrations  $< 1 \mu\text{g}/100\text{cm}^2$  (6 samples with PCB reported at concentrations up to  $0.58 \mu\text{g}/100\text{cm}^2$ ). These results are consistent with the baseline data;
  - Vertical Control Joints – PCBs were reported as non-detect (12 samples at  $< 0.20 \mu\text{g}/100\text{cm}^2$ ) or at concentrations ranging from 0.23 to  $3.4 \mu\text{g}/100\text{cm}^2$  (12 samples). These results are consistent with the baseline data;
- Interior Concrete Columns/Walls: Three wipe samples were collected during each event from interior concrete columns/walls encapsulated with Sikagard 550W elastomeric coating (the final coating applied to interior concrete columns and walls). Analytical results were consistent with the baseline data with PCBs reported as either non-detect (3 samples at  $< 0.20 \mu\text{g}/100\text{cm}^2$ ) or present at concentrations of 0.21, 0.75, and  $1.27 \mu\text{g}/100\text{cm}^2$ .
- Interior Concrete Ceiling: Five wipe samples were collected during each event from interior concrete ceiling surfaces encapsulated with interior acrylic paint (the final coating applied over Sikagard 62 liquid epoxy and/or Sikagard 670w clear acrylic). Analytical results indicated that PCBs were either non-detect (6

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samples at  $< 0.20 \mu\text{g}/100\text{cm}^2$ ) or present at concentrations of ranging from 0.38 to  $0.81 \mu\text{g}/100\text{cm}^2$ . 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 each year. Analytical results indicated that PCBs were present in the wipe samples at concentrations ranging from 13 to  $77 \mu\text{g}/100 \text{ cm}^2$ . These results were consistent with the verification/baseline monitoring wipes collected at the completion of the project where analytical results had indicated that PCBs were present at a maximum concentration of  $250 \mu\text{g}/100\text{cm}^2$  on the surface of the liquid epoxy coating.

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

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

#### **Monitoring Activities – 2016**

The 2016 monitoring event included visual inspections and wipe sampling of encapsulated surfaces in accordance with the MMIP and the collection of indoor air samples to evaluate post-remediation conditions in the Brown and McNamara ADA restrooms, the McNamara Lower level study area, and the Cashin Residential Service Desk office space (indoor air sampling was requested by EPA).

Woodard & Curran conducted the visual inspection, wipe sampling, and a round of indoor air sampling on August 18, 2016 with a second round of indoor air samples collected from select areas on November 21, 2016. 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 encapsulated surfaces.
- Interior Concrete Columns/Walls: Visual inspection indicated that coatings installed to masonry materials were in good condition. No deterioration was observed.
- Interior Concrete Ceilings: Visual inspection indicated that coatings installed to masonry materials were in good condition. No deterioration was observed.

##### Wipe Samples

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

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- Sikagard 670W Clear Acrylic Coating: Wipe samples were collected from brick along horizontal and vertical control joints within high occupancy areas at the three buildings. A total of 24 samples were collected (12 along vertical joints and 12 along horizontal joints) as follows:
  - Vertical Control Joints -- PCBs were reported as non-detect ( $< 0.20 \mu\text{g}/100\text{cm}^2$ ) in the 12 samples collected. These results are consistent with the baseline data and the 2014 and 2015 monitoring results (results for McNamara were lower than results from previous events where PCBs  $> 1 \mu\text{g}/100 \text{ cm}^2$  were reported);
  - Horizontal Control Joints – PCBs were reported as non-detect ( $< 0.20 \mu\text{g}/100\text{cm}^2$ ) in the 12 samples collected. These results are consistent with the baseline data and the 2014 and 2015 monitoring results;
- Interior Concrete Columns/Walls: Three wipe samples were collected from interior concrete columns/walls encapsulated with Sikagard 550W elastomeric coating (the final coating applied to interior concrete columns and walls). Analytical results from the three samples indicated that PCBs were non-detect ( $< 0.20 \mu\text{g}/100\text{cm}^2$ ). These results are consistent with the baseline monitoring event and the results of the 2014 and 2015 monitoring.
- 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 either non-detect (4 samples at  $< 0.20 \mu\text{g}/100\text{cm}^2$ ) or present at a concentration of  $0.76 \mu\text{g}/100\text{cm}^2$ . These results are consistent with the baseline monitoring event and the 2014 and 2015 long term monitoring results.

As per the 2015 report, based on the planned installation of secondary physical barriers over the lower portions of the vertical control joints at the McNamara building and the consistent results in 2014 and 2015, additional wipe samples directly from the surface of the replacement caulking were not collected in 2016.

Indoor Air Sample Collection

Indoor air samples were collected from the following locations to confirm site conditions after the interior PCB remediation activities had been completed: Brown ADA restroom, McNamara ADA restroom, McNamara Lower Level Study Area, and Cashin Service Desk area. The initial round of air samples was collected from each of the above areas on August 18, 2016.

Samples were collected over a minimum of six hours in accordance with EPA Compendium Method TO-10A Determination of Pesticides and Polychlorinated Biphenyls in Ambient Air Using Low Volume Polyurethane Foam (PUF) Sampling. Samples were submitted to ConTest Analytical Laboratory for PCB homolog analysis via Gas Chromatographic/Multi-Detector Detection.

Field observations made during the sampling event as well as discussions with residential life personnel indicated that the three buildings were unoccupied during the summer months with the exception of workers conducting cleaning, maintenance, or repair activities. It was also noted that windows and doors were shut throughout most of the former renovation areas.

Analytical results indicated that PCB concentrations were reported above the EPA's published levels for the evaluation of PCBs in indoor school air for 19+ students and adults ( $500 \text{ ng}/\text{m}^3$ ) in three of the four areas with reported concentrations of 367, 548, 768, and  $1,055 \text{ ng}/\text{m}^3$ .

Based on these analytical results, a second set of indoor air samples was collected on November 18, 2016 from the McNamara ADA restroom, the McNamara lower level study area, and the Cashin Service Desk area (the three areas with reported concentrations  $> 500 \text{ ng}/\text{m}^3$ ). Samples were collected in November to evaluate PCB concentrations during a more normal occupancy condition and be more representative of potential occupant exposures.

Analytical results from this second round of sampling indicated that the concentrations of PCBs decreased in each area between the two events with reported concentrations of 132, 302, and  $520 \text{ ng}/\text{m}^3$  in the three areas sampled (a

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second sample was not collected from the Brown ADA restroom area based on the results from the August sampling event). This represents a decrease in indoor air levels of 59% to 76% with all levels below or close to the target level of 500 ng/m<sup>3</sup>. This target level is considered to be a conservative level because of the anticipated short duration of occupancy for students within the buildings (assumed to be a maximum of four years to correspond to the typical undergraduate degree program), the transitory nature of the ADA restrooms and McNamara lower level study area, and the typical duration of the Cashin Service desk clerk over the past several years (maximum duration of 1 year for the past five clerks).

A summary of the analytical results from each event, along with input data, is provided on Table 5-2 and the complete analytical laboratory reports are included in Attachment 7.

**Corrective Actions**

As described in the 2015 Annual Report, UMass is evaluating products to apply as secondary physical barriers over the lower portions of the 30 control joints at the McNamara building. Currently UMass EH&S is coordinating with Residential Life and Facilities and Maintenance personnel to obtain the product and schedule the application. Following application, four wipe samples will be collected from the surface of the physical barrier (one per elevation). It is anticipated that after the initial wipe sampling, future long term monitoring will be limited to visual inspections to confirm the barrier is still in place. Details on the product selected, the application, and the results of the wipe samples will be provided upon selection/implementation.

Based on the reported concentrations of PCBs in indoor air, continued air monitoring is proposed for 2017. Based on the observed variations in concentrations between occupancy conditions of the building, the next event will be conducted in the spring/early summer of 2017 when the buildings are in use and samples will be collected from the four areas sampled in August 2016.

**Proposed Monitoring Frequency**

No modifications to the monitoring frequency are proposed at this time with the exception of the proposed collection of indoor air samples as described above. Visual inspections and wipe sampling will be conducted at the same time as the indoor air sampling.

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

Coating/Area	Surface		2014 Verification Wipes			2015 Verification Wipes			2016 Verification Wipes		
			Sample Date	Sample ID	Total PCBs (ug/wipe)	Sample Date	Sample ID	Total PCBs (ug/wipe)	Sample Date	Sample ID	Total PCBs (ug/wipe)
Exterior Control Joints - Adjacent Brick Materials											
High Occupancy Areas	Vertical Joints	McNamara	7/22/2014	LTM-MR-VWBV-200	1.75	7/21/2015	LTM-MR-VWBV-300	0.36 J	8/18/2016	LTM-MRV-VBC-423	<0.20
			7/22/2014	LTM-MR-VWBV-202	0.69	7/21/2015	LTM-MR-VWBV-303	<0.20	8/18/2016	LTM-MRV-VBC-424	<0.20
			7/22/2014	LTM-MR-VWBV-204	3.3	7/21/2015	LTM-MR-VWBV-306	0.95 J	8/18/2016	LTM-MRV-VBC-425	<0.20
			7/22/2014	LTM-MR-VWBV-206	2.4	7/21/2015	LTM-MR-VWBV-309	3.4 J	8/18/2016	LTM-MRV-VBC-426	<0.20
		Brown	7/22/2014	LTM-BR-VWBV-208	<0.20	7/21/2015	LTM-BR-VWB-316	<0.20	8/18/2016	LTM-BRV-VBC-431	<0.20
			7/22/2014	LTM-BR-VWBV-210	<0.20	7/21/2015	LTM-BR-VWB-318	<0.20	8/18/2016	LTM-BRV-VBC-432	<0.20
			7/22/2014	LTM-BR-VWBV-212	<0.20	7/21/2015	LTM-BR-VWB-320	<0.20	8/18/2016	LTM-BRV-VBC-433	<0.20
			7/22/2014	LTM-BR-VWBV-214	1.2	7/21/2015	LTM-BR-VWB-322	0.24 J	8/18/2016	LTM-BRV-VBC-434	<0.20
		Cashin	7/22/2014	LTM-CR-VWBV-216	0.23 J	7/21/2015	LTM-CR-VWB-324	<0.20	8/18/2016	LTM-CRV-VWB-413	<0.20
			7/22/2014	LTM-CR-VWBV-218	0.9	7/21/2015	LTM-CR-VWB-326	<0.20	8/18/2016	LTM-CRV-VWB-414	<0.20
			7/22/2014	LTM-CR-VWBV-220	<0.20 UJ	7/21/2015	LTM-CR-VWB-328	<0.20	8/18/2016	LTM-CRV-VWB-415	<0.20
			7/22/2014	LTM-CR-VWBV-222	0.33	7/21/2015	LTM-CR-VWB-330	<0.20	8/18/2016	LTM-CRV-VWB-416	<0.20
	Horizontal Joints	McNamara	7/22/2014	LTM-MR-VWBH-201	0.5	7/21/2015	LTM-MR-VWBH-302	<0.20	8/18/2016	LTM-MRH-VBC-418	<0.20
			7/22/2014	LTM-MR-VWBH-203	0.58	7/21/2015	LTM-MR-VWBH-305	<0.20	8/18/2016	LTM-MRH-VBC-419	<0.20
			7/22/2014	LTM-MR-VWBH-205	0.51	7/21/2015	LTM-MR-VWBH-308	<0.20	8/18/2016	LTM-MRH-VBC-421	<0.20
			7/22/2014	LTM-MR-VWBH-207	0.5	7/21/2015	LTM-MR-VWBH-311	0.25	8/18/2016	LTM-MRH-VBC-422	<0.20
		Brown	7/22/2014	LTM-BR-VWBH-209	<0.20	7/21/2015	LTM-BR-VWB-317	<0.20	8/18/2016	LTM-BRH-VBC-427	<0.20
			7/22/2014	LTM-BR-VWBH-211	<0.20	7/21/2015	LTM-BR-VWB-319	<0.20	8/18/2016	LTM-BRH-VBC-428	<0.20
			7/22/2014	LTM-BR-VWBH-213	<0.20	7/21/2015	LTM-BR-VWB-321	<0.20	8/18/2016	LTM-BRH-VBC-429	<0.20
			7/22/2014	LTM-BR-VWBH-215	<0.20	7/21/2015	LTM-BR-VWB-323	<0.20	8/18/2016	LTM-BRH-VBC-430	<0.20
		Cashin	7/22/2014	LTM-CR-VWBH-217	<0.20	7/21/2015	LTM-CR-VWB-325	<0.20	8/18/2016	LTM-CRH-VWB-409	<0.20
			7/22/2014	LTM-CR-VWBH-219	0.54	7/21/2015	LTM-CR-VWB-327	<0.20	8/18/2016	LTM-CRH-VWB-410	<0.20
			7/22/2014	LTM-CR-VWBH-221	<0.20	7/21/2015	LTM-CR-VWB-329	<0.20	8/18/2016	LTM-CRH-VWB-411	<0.20
			7/22/2014	LTM-CR-VWBH-223	<0.20	7/21/2015	LTM-CR-VWB-331	<0.20	8/18/2016	LTM-CRH-VWB-412	<0.20
Exterior Control Joints - Former Direct Contact Area											
High Occupancy Areas - McNamara	Surface of Replacement Caulking - Hexane Wipes		7/22/2014	LTM-MR-VWKH-273	30	7/21/2015	LTM-MR-VWKV-301	30	N/A	N/A	N/A
			7/22/2014	LTM-MR-VWKH-275	15	7/21/2015	LTM-MR-VWKV-304	60	N/A	N/A	N/A
			7/22/2014	LTM-MR-VWKH-277	13	7/21/2015	LTM-MR-VWKV-307	39	N/A	N/A	N/A
			7/22/2014	LTM-MR-VWKH-279	53	7/21/2015	LTM-MR-VWKV-310	77	N/A	N/A	N/A
	Surface of Replacement Caulking - Saline Wipes		8/19/2014	LTM-MR-VWKS-280	1.0	7/21/2015	LTM-MR-VWKV-312	1.92 J	N/A	N/A	N/A
			8/19/2014	LTM-MR-VWKS-281	0.88	7/21/2015	LTM-MR-VWKV-313	1.6	N/A	N/A	N/A
			8/19/2014	LTM-MR-VWKS-282	1.4	7/21/2015	LTM-MR-VWKV-314	7.6	N/A	N/A	N/A
			8/19/2014	LTM-MR-VWKS-283	0.28	7/21/2015	LTM-MR-VWKV-315	7.3	N/A	N/A	N/A
Interior Renovation Areas											
Encapsulated Ceiling	Ceiling	Cashin	7/22/2014	LTM-CRI-VWC-232	<0.20	7/21/2015	LTM-CRI-VWC-333	<0.20	8/18/2016	LTM-CRI-VWC-404	<0.20
			7/22/2014	LTM-CRI-VWC-233	<0.20	7/21/2015	LTM-CRI-VWC-334	<0.20	8/18/2016	LTM-CRI-VWC-405	<0.20
		McNamara	7/22/2014	LTM-MRI-VWC-244	0.42 J	7/21/2015	LTM-MRI-VWC-335	0.66	8/18/2016	LTM-MRI-VWC-401	<0.20
			7/22/2014	LTM-MRI-VWC-245	0.81	7/21/2015	LTM-MRI-VWCX-336	0.38	8/18/2016	LTM-MRI-VWC-403	0.76
		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
Encapsulated Walls	Wall	McNamara	7/22/2014	LTM-MRI-VWC-242	0.75	7/21/2015	LTM-MRI-VWC-338	1.27	8/18/2016	LTM-MRI-VWC-400	<0.20
			7/22/2014	LTM-MRI-VWC-243	<0.20	7/21/2015	LTM-MRI-VWC-339	<0.20	8/18/2016	LTM-MRI-VWC-402	<0.20
		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

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



**Table 5-2**  
**PCB Air Sampling Data - Sylvan Complex**

**UMass Amherst**

Location	Air Sample ID	Sample Date	PCB Concentration (ng/cartridge)	Flow Rate (L/Minute)	Duration (minutes)	Corrected Sample Volume (m <sup>3</sup> )	Total PCB Concentration (ng/m <sup>3</sup> )
McNamara - Lower Level Study Area	LT-MR-IAS-001	8/18/2016	560	2.72	398	1.02	548
	MR-IAS-003	11/21/2016	140	2.97	360	1.06	132
McNamara - ADA Restroom 115	LT-MR-IAS-002	8/18/2016	770	2.81	382	1.00	768
	MR-IAS-004	11/21/2016	320	3.00	360	1.06	302
Cashin - Service Desk	LT-CR-IAS-003	8/18/2016	1,000	2.66	383	0.95	1055
	CR-IAS-005	11/21/2016	500	2.73	360	0.96	520
Brown - ADA Restroom 113	LT-BR-IAS-004	8/18/2016	350	2.77	379	0.95	367

Notes:

1. Air samples collected in accordance with USEPA Compendium Method TO-10A and submitted for laboratory analysis of PCBs homologs.
2. The flow rate displayed is the average flow rate as measured at the beginning and end of the sampling period; target flow of 2.60 L/minute.
3. Sample volume is corrected to standard temperature and pressure in accordance with Section 13.1.7 of Method TO-10A.
4. Total PCB concentration is the total PCB homologs reported by the lab (ng/cartridge) per corrected sample volume (m<sup>3</sup>/cartridge).





## **Attachment 6 – Physical Plant**

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

**Location:** Physical Plant Room 230A

**Summary of Remedial Areas**

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



**Typical Area of In-Place Management**

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

**Monitoring and Maintenance Implementation Plan**

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

**Monitoring Activities – March 2016**

On March 11, 2016, UMass EH&S 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**

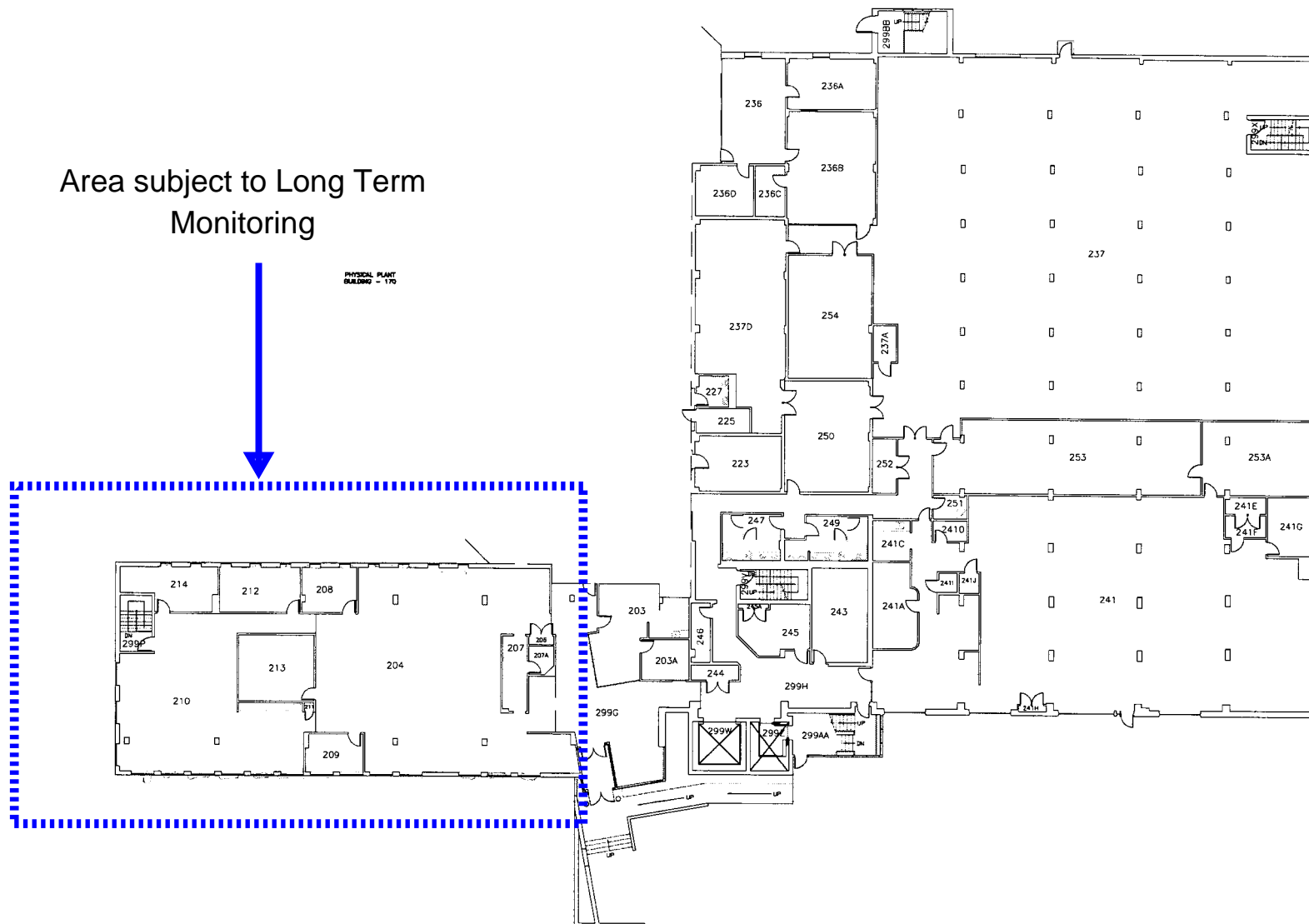
The next monitoring event will be conducted in July 2017 as part of the campus-wide long term monitoring program.

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

**ATTACHMENT A**

# Attachment A Second Floor Physical Plant

## Area subject to Long Term Monitoring



**PHYSICAL PLANT 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**

August 9, 2016

George Franklin  
Woodard & Curran - CT  
1520 Highland Avenue  
Cheshire, CT 06410

Project Location: Amherst, MA  
Client Job Number:  
Project Number: 225695  
Laboratory Work Order Number: 16H0205

Enclosed are results of analyses for samples received by the laboratory on August 4, 2016. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Meghan E. Kelley  
Project Manager

## Table of Contents

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QC Data	7
Polychlorinated Biphenyls with 3540 Soxhlet Extraction	7
B155252	7
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Flag/Qualifier Summary	11
Certifications	12
Chain of Custody/Sample Receipt	13



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

Woodard & Curran - CT  
1520 Highland Avenue  
Cheshire, CT 06410  
ATTN: George Franklin

REPORT DATE: 8/9/2016

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

#### ANALYTICAL SUMMARY

---

WORK ORDER NUMBER: 16H0205

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-SWC-VWC-367	16H0205-01	Wipe		SW-846 8082A	



#### CASE NARRATIVE SUMMARY

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

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

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

A handwritten signature in black ink, reading "Lisa Worthington", is displayed on a light pink rectangular background.

Lisa A. Worthington  
Project Manager



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

Project Location: Amherst, MA

Sample Description:

Work Order: 16H0205

Date Received: 8/4/2016

Field Sample #: LTM-SWC-VWC-367

Sampled: 8/3/2016 11:08

Sample ID: 16H0205-01

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	2.0	µg/Wipe	10		SW-846 8082A	8/4/16	8/9/16 8:56	KAL
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	8/4/16	8/9/16 8:56	KAL
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	8/4/16	8/9/16 8:56	KAL
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	8/4/16	8/9/16 8:56	KAL
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	8/4/16	8/9/16 8:56	KAL
Aroclor-1254 [2]	11	2.0	µg/Wipe	10		SW-846 8082A	8/4/16	8/9/16 8:56	KAL
Aroclor-1260 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	8/4/16	8/9/16 8:56	KAL
Aroclor-1262 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	8/4/16	8/9/16 8:56	KAL
Aroclor-1268 [1]	ND	2.0	µg/Wipe	10		SW-846 8082A	8/4/16	8/9/16 8:56	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	91.5	30-150						8/9/16 8:56	
Decachlorobiphenyl [2]	96.1	30-150						8/9/16 8:56	
Tetrachloro-m-xylene [1]	80.8	30-150						8/9/16 8:56	
Tetrachloro-m-xylene [2]	86.8	30-150						8/9/16 8:56	

**Sample Extraction Data**

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

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
16H0205-01 [LTM-SWC-VWC-367]	B155252	1.00	10.0	08/04/16

---

**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 B155252 - SW-846 3540C**
**Blank (B155252-BLK1)**

Prepared: 08/04/16 Analyzed: 08/05/16

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	1.61		µg/Wipe	2.00		80.6	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.68		µg/Wipe	2.00		83.9	30-150			
Surrogate: Tetrachloro-m-xylene	1.54		µg/Wipe	2.00		77.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.52		µg/Wipe	2.00		76.1	30-150			

**LCS (B155252-BS1)**

Prepared: 08/04/16 Analyzed: 08/05/16

Aroclor-1016	0.48	0.20	µg/Wipe	0.500		95.8	40-140			
Aroclor-1016 [2C]	0.47	0.20	µg/Wipe	0.500		93.9	40-140			
Aroclor-1260	0.48	0.20	µg/Wipe	0.500		95.1	40-140			
Aroclor-1260 [2C]	0.48	0.20	µg/Wipe	0.500		95.5	40-140			
Surrogate: Decachlorobiphenyl	1.76		µg/Wipe	2.00		87.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.81		µg/Wipe	2.00		90.7	30-150			
Surrogate: Tetrachloro-m-xylene	1.63		µg/Wipe	2.00		81.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.60		µg/Wipe	2.00		79.9	30-150			

**LCS Dup (B155252-BSD1)**

Prepared: 08/04/16 Analyzed: 08/05/16

Aroclor-1016	0.47	0.20	µg/Wipe	0.500		94.5	40-140	1.33	30	
Aroclor-1016 [2C]	0.46	0.20	µg/Wipe	0.500		91.4	40-140	2.74	30	
Aroclor-1260	0.47	0.20	µg/Wipe	0.500		93.4	40-140	1.79	30	
Aroclor-1260 [2C]	0.46	0.20	µg/Wipe	0.500		92.4	40-140	3.27	30	
Surrogate: Decachlorobiphenyl	1.70		µg/Wipe	2.00		84.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.76		µg/Wipe	2.00		88.0	30-150			
Surrogate: Tetrachloro-m-xylene	1.60		µg/Wipe	2.00		80.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.58		µg/Wipe	2.00		79.0	30-150			

**IDENTIFICATION SUMMARY  
FOR SINGLE COMPONENT ANALYTES****LTM-SWC-VWC-367***SW-846 8082A*

Lab Sample ID: 16H0205-01 Date(s) Analyzed: 08/09/2016 08/09/2016  
Instrument ID (1): \_\_\_\_\_ Instrument ID (2): \_\_\_\_\_  
GC Column (1): \_\_\_\_\_ ID: \_\_\_\_\_ (mm) GC Column (2): \_\_\_\_\_ ID: \_\_\_\_\_ (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%D
			FROM	TO		
Aroclor-1254	1	0.00	0.00	0.00	8.3	
	2	0.00	0.00	0.00	11	28.2

**IDENTIFICATION SUMMARY  
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LCS**Lab Sample ID: B155252-BS1 Date(s) Analyzed: 08/05/2016 08/05/2016

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%D
			FROM	TO		
Aroclor-1016	1	0.00	0.00	0.00	0.48	
	2	0.00	0.00	0.00	0.47	2
Aroclor-1260	1	0.00	0.00	0.00	0.48	
	2	0.00	0.00	0.00	0.48	1

**IDENTIFICATION SUMMARY  
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LCS Dup**Lab Sample ID: B155252-BSD1 Date(s) Analyzed: 08/05/2016 08/05/2016

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%D
			FROM	TO		
Aroclor-1016	1	0.00	0.00	0.00	0.47	
	2	0.00	0.00	0.00	0.46	3
Aroclor-1260	1	0.00	0.00	0.00	0.47	
	2	0.00	0.00	0.00	0.46	2

**FLAG/QUALIFIER SUMMARY**

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

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

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



**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	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2017
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2017
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2017
RI	Rhode Island Department of Health	LAO00112	12/30/2016
NC	North Carolina Div. of Water Quality	652	12/31/2016
NJ	New Jersey DEP	MA007 NELAP	06/30/2017
FL	Florida Department of Health	E871027 NELAP	06/30/2017
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2017
ME	State of Maine	2011028	06/9/2017
VA	Commonwealth of Virginia	460217	12/14/2016
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2016



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

## CHAIN OF CUSTODY RECORD

39 Spruce Street  
East Longmeadow, MA 01028

Page 1 of 1

Company Name: Woodard & Curran

Telephone: \_\_\_\_\_

Address: 1520 Highland Ave

Project # 225695

Cheshire, CT 06410

Client PO# \_\_\_\_\_

Attention: George Franklin

Project Location: Amherst, MA

Sampled By: Greg Reynolds

Project Proposal Provided? (for billing purposes)  
☐ Yes ☐ No

DATA DELIVERY (check all that apply)

☐ FAX ☐ EMAIL ☐ WEBSITE

Fax # \_\_\_\_\_

Email: gfranklin@woodardcurran.com

Format: ☒ PDF ☒ XCEL ☐ GIS

☐ OTHER \_\_\_\_\_

☐ "Enhanced Data Package"

Matrix Code

Grab

Composite

Conc Data

Collection

Beginning Date/Time

Ending Date/Time

1108

Client Sample ID / Description

LTN-SWC-VWC-367

Con-Test Lab ID (laboratory use only)

01

Comments:

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in Matrix/Conc. Code Box:

Relinquished by: (signature)

Date/Time

Turnaround <sup>††</sup>

☒ 7-Day

☐ 10-Day

☐ Other

RUSH <sup>†</sup>

☐ 24-Hr ☐ 48-Hr

☐ 72-Hr ☐ 14-Day

<sup>†</sup> Require lab approval

Relinquished by: (signature)

Date/Time

11:15

Relinquished by: (signature)

Date/Time

3:10

Relinquished by: (signature)

Date/Time

1510

Detection Limit Requirements

Massachusetts:

Connecticut:

Other:

Is your project MCP or RCP?

☐ MCP Form Required

☐ RCP Form Required

☐ MA State DW Form Required

PWSID # \_\_\_\_\_

Accredited

NELAC & AIHA-LAP, LLC

WBE/DBE Certified

PLEASE BE CAREFUL NOT TO CONTAMINATE THIS DOCUMENT

IF THIS FORM IS NOT FILLED OUT COMPLETELY OR

IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED BY OUR CLIENT.

TURNAROUND TIME STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN.

## Sample Receipt Checklist

CLIENT NAME: Woodard & Curran RECEIVED BY: EB DATE: 8/4/16

1) Was the chain(s) of custody relinquished and signed? Yes ☒ No ☐ No COC Incl.

2) Does the chain agree with the samples? Yes ☒ No ☐  
If not, explain:

3) Are all the samples in good condition? Yes ☒ No ☐  
If not, explain:

4) How were the samples received:

On Ice ☒ Direct from Sampling ☐ Ambient ☐ In Cooler(s) ☒

Were the samples received in Temperature Compliance of (2-6°C)? Yes ☒ No ☐ N/A ☐

Temperature °C by Temp blank  Temperature °C by Temp gun 5.9

5) Are there Dissolved samples for the lab to filter? Yes ☐ No ☒

Who was notified  Date  Time

6) Are there any RUSH or SHORT HOLDING TIME samples? Yes ☐ No ☒

Who was notified  Date  Time

7) Location where samples are stored:

Log In

Permission to subcontract samples? Yes No  
(Walk-in clients only) if not already approved  
Client Signature:

8) Do all samples have the proper Acid pH: Yes ☐ No ☐ N/A ☒

9) Do all samples have the proper Base pH: Yes ☐ No ☐ N/A ☒

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes ☐ N/A ☒

### Containers received at Con-Test

	# of containers		# of containers
1 Liter Amber		16 oz amber	
500 mL Amber		8 oz amber/clear jar	
250 mL Amber (8oz amber)		4 oz amber/clear jar	<input checked="" type="checkbox"/>
1 Liter Plastic		2 oz amber/clear jar	
500 mL Plastic		Plastic Bag / Ziploc	
250 mL plastic		SOC Kit	
40 mL Vial - type listed below		Perchlorate Kit	
Colisure / bacteria bottle		Flashpoint bottle	
Dissolved Oxygen bottle		Other glass jar	
Encore		Other	

40 mL vials: # HCl  # Methanol

Doc# 277 # Bisulfate  # DI Water

Rev. 4 August 2013 # Thiosulfate  Unpreserved

Time and Date Frozen:

Login Sample Receipt Checklist

(Rejection Criteria Listing - Using Sample Acceptance Policy)

Any False statement will be brought to the attention of Client

Question	Answer (True/False)	Comment
	T/F/NA	
1) The cooler's custody seal, if present, is intact.	N/A	
2) The cooler or samples do not appear to have been compromised or tampered with.	T	
3) Samples were received on ice.	T	
4) Cooler Temperature is acceptable.	T	
5) Cooler Temperature is recorded.	T	5.9 with gun
6) COC is filled out in ink and legible.	T	
7) COC is filled out with all pertinent information.	T	
8) Field Sampler's name present on COC.	T	
9) There are no discrepancies between the sample IDs on the container and the COC.	T	
10) Samples are received within Holding Time.	T	
11) Sample containers have legible labels.	T	
12) Containers are not broken or leaking.	T	
13) Air Cassettes are not broken/open.	N/A	
14) Sample collection date/times are provided.	T	
15) Appropriate sample containers are used.	T	
16) Proper collection media used.	T	
17) No headspace sample bottles are completely filled.	N/A	
18) There is sufficient volume for all requested analyses, including any requested MS/MSDs.	T	
19) Trip blanks provided if applicable.	N/A	
20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.	T	
21) Samples do not require splitting or compositing.	T	

August 25, 2016

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

Project Location: UMass SWC  
Client Job Number:  
Project Number: 225695  
Laboratory Work Order Number: 16H1041

Enclosed are results of analyses for samples received by the laboratory on August 19, 2016. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Meghan E. Kelley  
Project Manager

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---

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

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

REPORT DATE: 8/25/2016

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

#### ANALYTICAL SUMMARY

---

WORK ORDER NUMBER: 16H1041

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

PROJECT LOCATION: UMass SWC

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LT-SWC-VWC-500	16H1041-01	Wipe		SW-846 8082A	

**CASE NARRATIVE SUMMARY**

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

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

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

A handwritten signature in black ink, appearing to read "Tod Kopycinski". The signature is fluid and cursive, with the first name "Tod" being more prominent.

Tod E. Kopycinski  
Laboratory Director



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

Project Location: UMass SWC

Sample Description:

Work Order: 16H1041

Date Received: 8/19/2016

Field Sample #: LT-SWC-VWC-500

Sampled: 8/18/2016 17:03

Sample ID: 16H1041-01

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:17	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:17	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:17	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:17	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:17	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:17	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:17	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:17	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:17	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	84.2	30-150						8/24/16 15:17	
Decachlorobiphenyl [2]	84.6	30-150						8/24/16 15:17	
Tetrachloro-m-xylene [1]	78.3	30-150						8/24/16 15:17	
Tetrachloro-m-xylene [2]	77.3	30-150						8/24/16 15:17	

---

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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
16H1041-01 [LT-SWC-VWC-500]	B156616	1.00	10.0	08/22/16

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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 B156616 - SW-846 3540C

## Blank (B156616-BLK1)

Prepared: 08/22/16 Analyzed: 08/24/16

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	1.90		µg/Wipe	2.00		95.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.91		µg/Wipe	2.00		95.5	30-150			
Surrogate: Tetrachloro-m-xylene	1.70		µg/Wipe	2.00		85.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.73		µg/Wipe	2.00		86.4	30-150			

## LCS (B156616-BS1)

Prepared: 08/22/16 Analyzed: 08/24/16

Aroclor-1016	0.55	0.20	µg/Wipe	0.500		109	40-140			
Aroclor-1016 [2C]	0.49	0.20	µg/Wipe	0.500		97.4	40-140			
Aroclor-1260	0.42	0.20	µg/Wipe	0.500		83.0	40-140			
Aroclor-1260 [2C]	0.40	0.20	µg/Wipe	0.500		79.9	40-140			
Surrogate: Decachlorobiphenyl	1.80		µg/Wipe	2.00		89.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.81		µg/Wipe	2.00		90.5	30-150			
Surrogate: Tetrachloro-m-xylene	1.57		µg/Wipe	2.00		78.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.60		µg/Wipe	2.00		80.0	30-150			

## LCS Dup (B156616-BSD1)

Prepared: 08/22/16 Analyzed: 08/24/16

Aroclor-1016	0.53	0.20	µg/Wipe	0.500		106	40-140	3.39	30	
Aroclor-1016 [2C]	0.48	0.20	µg/Wipe	0.500		96.7	40-140	0.738	30	
Aroclor-1260	0.41	0.20	µg/Wipe	0.500		81.4	40-140	1.92	30	
Aroclor-1260 [2C]	0.39	0.20	µg/Wipe	0.500		77.8	40-140	2.65	30	
Surrogate: Decachlorobiphenyl	1.73		µg/Wipe	2.00		86.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.72		µg/Wipe	2.00		86.1	30-150			
Surrogate: Tetrachloro-m-xylene	1.51		µg/Wipe	2.00		75.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.52		µg/Wipe	2.00		76.2	30-150			

# IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B156616-BS1 Date(s) Analyzed: 08/24/2016 08/24/2016

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%D
			FROM	TO		
Aroclor-1016	1	0.00	0.00	0.00	0.55	
	2	0.00	0.00	0.00	0.49	11
Aroclor-1260	1	0.00	0.00	0.00	0.42	
	2	0.00	0.00	0.00	0.40	4

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# IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

*SW-846 8082A*

LCS Dup

Lab Sample ID: B156616-BSD1 Date(s) Analyzed: 08/24/2016 08/24/2016

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%D
			FROM	TO		
Aroclor-1016	1	0.00	0.00	0.00	0.53	
	2	0.00	0.00	0.00	0.48	10
Aroclor-1260	1	0.00	0.00	0.00	0.41	
	2	0.00	0.00	0.00	0.39	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
DL	Method Detection Limit
MCL	Maximum Contaminant Level
<p>Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.</p> <p>No results have been blank subtracted unless specified in the case narrative section.</p>	

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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	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2017
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2017
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2017
RI	Rhode Island Department of Health	LAO00112	12/30/2016
NC	North Carolina Div. of Water Quality	652	12/31/2016
NJ	New Jersey DEP	MA007 NELAP	06/30/2017
FL	Florida Department of Health	E871027 NELAP	06/30/2017
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2017
ME	State of Maine	2011028	06/9/2017
VA	Commonwealth of Virginia	460217	12/14/2016
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2016



39 Spruce Street  
East longmeadow, MA 01028

Page of

ANALYTICAL LABORATORY

Email: [info@contestlabs.com](mailto:info@contestlabs.com)  
[www.contestlabs.com](http://www.contestlabs.com)

Company Name: Woods; (w)

Telephone: 978 482 7867

Address: 40 SHATTUCK RD

Project # 225695

Attention: GEORGE FRANKLIN  
Aston MA

Client PO#

Project Location: UMass S.W.C.  
Sampled By: GEORGE FRA...

Fax # \_\_\_\_\_  
Email: Franklin@broadband.com

Project Proposal Provided? (for billing purposes)  
☐ yes ☐ no

[illegible]

Comments: CBS V. A USEPA 2002 w/ Soxhlet Extraction (2590C)

Relinquished by (signature)	8/19/16	Date/Time: 000
Received by (signature)	8/19/16	Date/Time: 1000
Relinquished by (signature)	8/19/16	Date/Time: 1300
Received by (signature)	8-19-16	Date/Time: 1300

Page 12 of

Turnaround <sup>††</sup>

☐ 7-Day

☐ 10-Day

☒ Other STAT

RUSH <sup>†</sup> 5:0

☐ 24-Hr ☐ 48-Hr

☐ 72-Hr ☐ 14-Day

<sup>††</sup> Require lab approval

Detection Limit Requirements	
Massachusetts:	
Connecticut:	
Other:	

Is your project MCP or RCP ?

☐ MCP Form Required  
☐ RCP Form Required  
☐ MA State DW Form Required

NELAC  
 ACCREDITED IN ACCORDANCE WITH  
 NELAP

Page 12 of 14

14 **TURNAROUND TIME STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS CORRECT. TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED.** *8-19-16 1735*

LESS THERE ARE QUESTIONS ON YOUR CHAIN. IF  
ANSWERED BY YOUR CLIENT PLEASE  
8/19/16 1735

**COMPLETELY OR  
THIS DOCUMENT**

**IF THIS FORM IS NOT FILLED OUT CAREFULLY, IT MAY BE CAREFUL NOT TO CONTAMINATE**

CHAIN, IF  
PLEASE  
1735

ON YOUR C 19/16

QUESTIONS  
OUR CLIENT

THERE ARE  
COVERED BY 2.

PT UNLESS  
S ARE ANSW

EXAMPLE RECEIVED QUESTION: *Handwritten signature*

735

19-16

TS AT 9:00 AM  
ND TIME WILL  
8

NO TIME STAR  
TURNAROUND

URNAROUND  
CORRECT.

14



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



Page 1 of 2

## Sample Receipt Checklist

CLIENT NAME: Woodard & Curran RECEIVED BY: JM DATE: 8/19/16

1) Was the chain(s) of custody relinquished and signed? Yes ☒ No ☐ No COC Incl.

2) Does the chain agree with the samples? Yes ☒ No ☐

If not, explain:

3) Are all the samples in good condition? Yes ☒ No ☐

If not, explain:

4) How were the samples received:

On Ice ☒ Direct from Sampling ☐ Ambient ☐ In Cooler(s) ☒

Were the samples received in Temperature Compliance of (2-6°C)? Yes ☒ No ☐ N/A ☐

Temperature °C by Temp blank  Temperature °C by Temp gun 2.8

5) Are there Dissolved samples for the lab to filter? Yes ☐ No ☒

Who was notified  Date  Time

6) Are there any RUSH or SHORT HOLDING TIME samples? Yes ☐ No ☒

Who was notified  Date  Time

7) Location where samples are stored:

Log-In

Permission to subcontract samples? Yes ☐ No ☒

(Walk-in clients only) if not already approved

Client Signature:

8) Do all samples have the proper Acid pH: Yes ☐ No ☐ N/A ☒

9) Do all samples have the proper Base pH: Yes ☐ No ☐ N/A ☒

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes ☐ N/A ☒

## Containers received at Con-Test

	# of containers		# of containers
1 Liter Amber		16 oz amber	
500 mL Amber		8 oz amber/clear jar	
250 mL Amber (8oz amber)		4 oz amber/clear jar	1
1 Liter Plastic		2 oz amber/clear jar	
500 mL Plastic		Plastic Bag / Ziploc	
250 mL plastic		SOC Kit	
40 mL Vial - type listed below		Perchlorate Kit	
Calisure / bacteria bottle		Flashpoint bottle	
Dissolved Oxygen bottle		Other glass jar	
Encore		Other	

40 mL vials: # HCl  # Methanol

Doc# 277 # Bisulfate  # DI Water

Rev. 4 August 2013 # Thiosulfate  Unpreserved

Time and Date Frozen:

Login Sample Receipt Checklist

(Rejection Criteria Listing - Using Sample Acceptance Policy)

Any False statement will be brought to the attention of Client

Question	Answer (True/False)	Comment
	T/F/NA	
1) The cooler's custody seal, if present, is intact.	N/A	
2) The cooler or samples do not appear to have been compromised or tampered with.	T	
3) Samples were received on ice.	T	
4) Cooler Temperature is acceptable.	T	
5) Cooler Temperature is recorded.	T	
6) COC is filled out in ink and legible.	T	
7) COC is filled out with all pertinent information.	T	
8) Field Sampler's name present on COC.	T	
9) There are no discrepancies between the sample IDs on the container and the COC.	T	
10) Samples are received within Holding Time.	T	
11) Sample containers have legible labels.	T	
12) Containers are not broken or leaking.	T	
13) Air Cassettes are not broken/open.	N/A	
14) Sample collection date/times are provided.	T	
15) Appropriate sample containers are used.	T	
16) Proper collection media used.	T	
17) No headspace sample bottles are completely filled.	N/A	
18) There is sufficient volume for all requested analyses, including any requested MS/MSDs.	T	
19) Trip blanks provided if applicable.	N/A	
20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.	N/A	
21) Samples do not require splitting or compositing.	T	

Doc #277 Rev. 4 August 2013

Who notified of False statements?

Log-In Technician Initials:

JM

Date/Time:

Date/Time:

8/19/16 1735

August 15, 2016

George Franklin  
Woodard & Curran - CT  
1520 Highland Avenue  
Cheshire, CT 06410

Project Location: Dubois Library- Amherst, MA  
Client Job Number:  
Project Number: 225695  
Laboratory Work Order Number: 16H0200

Enclosed are results of analyses for samples received by the laboratory on August 4, 2016. 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  
1520 Highland Avenue  
Cheshire, CT 06410  
ATTN: George Franklin

REPORT DATE: 8/15/2016

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

#### ANALYTICAL SUMMARY

WORK ORDER NUMBER: 16H0200

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

PROJECT LOCATION: Dubois Library- Amherst, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
DL-Amb-IAS-230	16H0200-01	Ambient Air		TO-10A/EPA 680 Modified	
DL-4E-IAS-231	16H0200-02	Indoor air		TO-10A/EPA 680 Modified	
DL-8E-IAS-232	16H0200-03	Indoor air		TO-10A/EPA 680 Modified	
DL-8E-IAS-233	16H0200-04	Indoor air		TO-10A/EPA 680 Modified	
DL-19-IAS-234	16H0200-05	Indoor air		TO-10A/EPA 680 Modified	
DL-20-IAS-235	16H0200-06	Indoor air		TO-10A/EPA 680 Modified	

**CASE NARRATIVE SUMMARY**

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

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

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

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

16H0200-01[DL-Amb-IAS-230], 16H0200-02[DL-4E-IAS-231], 16H0200-03[DL-8E-IAS-232], 16H0200-04[DL-8E-IAS-233], 16H0200-05[DL-19-IAS-234], 16H0200-06[DL-20-IAS-235]

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

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

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

B155354-BS1, B155354-BSD1

**Monochlorobiphenyls**

16H0200-02[DL-4E-IAS-231], 16H0200-03[DL-8E-IAS-232], 16H0200-04[DL-8E-IAS-233], 16H0200-05[DL-19-IAS-234], 16H0200-06[DL-20-IAS-235], B155354-BS1, B155354-BSD1

**V-20**

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

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

16H0200-01[DL-Amb-IAS-230], 16H0200-02[DL-4E-IAS-231], 16H0200-03[DL-8E-IAS-232], 16H0200-04[DL-8E-IAS-233], 16H0200-05[DL-19-IAS-234], 16H0200-06[DL-20-IAS-235], B155354-BLK1

**Monochlorobiphenyls**

16H0200-01[DL-Amb-IAS-230], B155354-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

## ANALYTICAL RESULTS

Project Location: Dubois Library- Amherst, MA

Date Received: 8/4/2016

Field Sample #: DL-Amb-IAS-230

Sample ID: 16H0200-01

Sample Matrix: Ambient Air

Sampled: 8/3/2016 15:09

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Air Volume L: 939.6

Work Order: 16H0200

## TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		Analyst
	Results	RL		Results	RL		Analyzed		
Monochlorobiphenyls	ND	0.0010	V-20	ND	0.0011	1	8/10/16	23:41	CJM
Dichlorobiphenyls	ND	0.0010		ND	0.0011	1	8/10/16	23:41	CJM
Trichlorobiphenyls	ND	0.0010		ND	0.0011	1	8/10/16	23:41	CJM
Tetrachlorobiphenyls	ND	0.0020		ND	0.0021	1	8/10/16	23:41	CJM
Pentachlorobiphenyls	ND	0.0020		ND	0.0021	1	8/10/16	23:41	CJM
Hexachlorobiphenyls	ND	0.0020		ND	0.0021	1	8/10/16	23:41	CJM
Heptachlorobiphenyls	ND	0.0030		ND	0.0032	1	8/10/16	23:41	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0032	1	8/10/16	23:41	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0053	1	8/10/16	23:41	CJM
Decachlorobiphenyl	ND	0.0050	V-20	ND	0.0053	1	8/10/16	23:41	CJM
Total Polychlorinated biphenyls	0.0			0		1	8/10/16	23:41	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	88.4	50-125	8/10/16 23:41

## ANALYTICAL RESULTS

Project Location: Dubois Library- Amherst, MA

Date Received: 8/4/2016

Field Sample #: DL-4E-IAS-231

Sample ID: 16H0200-02

Sample Matrix: Indoor air

Sampled: 8/3/2016 15:25

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Air Volume L: 945

Work Order: 16H0200

## TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		Analyst
	Results	RL		Results	RL		Analyzed		
Monochlorobiphenyls	0.028	0.0010	V-06	0.030	0.0011	1	8/11/16	0:19	CJM
Dichlorobiphenyls	0.020	0.0010		0.021	0.0011	1	8/11/16	0:19	CJM
Trichlorobiphenyls	0.050	0.0010		0.053	0.0011	1	8/11/16	0:19	CJM
Tetrachlorobiphenyls	0.11	0.0020		0.11	0.0021	1	8/11/16	0:19	CJM
Pentachlorobiphenyls	0.096	0.0020		0.10	0.0021	1	8/11/16	0:19	CJM
Hexachlorobiphenyls	0.039	0.0020		0.041	0.0021	1	8/11/16	0:19	CJM
Heptachlorobiphenyls	0.0093	0.0030		0.0098	0.0032	1	8/11/16	0:19	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0032	1	8/11/16	0:19	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0053	1	8/11/16	0:19	CJM
Decachlorobiphenyl	ND	0.0050	V-20	ND	0.0053	1	8/11/16	0:19	CJM
Total Polychlorinated biphenyls	0.35			0.37		1	8/11/16	0:19	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	81.8	50-125	8/11/16 0:19



## ANALYTICAL RESULTS

Project Location: Dubois Library- Amherst, MA

Date Received: 8/4/2016

Field Sample #: DL-8E-IAS-232

Sample ID: 16H0200-03

Sample Matrix: Indoor air

Sampled: 8/3/2016 15:39

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Air Volume L: 952.2

Work Order: 16H0200

## TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		Analyst
	Results	RL		Results	RL		Analyzed		
Monochlorobiphenyls	0.027	0.0010	V-06	0.028	0.0011	1	8/11/16	0:57	CJM
Dichlorobiphenyls	0.022	0.0010		0.023	0.0011	1	8/11/16	0:57	CJM
Trichlorobiphenyls	0.051	0.0010		0.053	0.0011	1	8/11/16	0:57	CJM
Tetrachlorobiphenyls	0.099	0.0020		0.10	0.0021	1	8/11/16	0:57	CJM
Pentachlorobiphenyls	0.085	0.0020		0.089	0.0021	1	8/11/16	0:57	CJM
Hexachlorobiphenyls	0.029	0.0020		0.030	0.0021	1	8/11/16	0:57	CJM
Heptachlorobiphenyls	0.0059	0.0030		0.0062	0.0032	1	8/11/16	0:57	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0032	1	8/11/16	0:57	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0053	1	8/11/16	0:57	CJM
Decachlorobiphenyl	ND	0.0050	V-20	ND	0.0053	1	8/11/16	0:57	CJM
Total Polychlorinated biphenyls	0.32			0.33		1	8/11/16	0:57	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	72.6	50-125	8/11/16 0:57

## ANALYTICAL RESULTS

Project Location: Dubois Library- Amherst, MA

Date Received: 8/4/2016

Field Sample #: DL-8E-IAS-233

Sample ID: 16H0200-04

Sample Matrix: Indoor air

Sampled: 8/3/2016 15:40

Sample Description/Location:

Sub Description/Location:

Work Order: 16H0200

Flow Controller ID:

Sample Type:

Air Volume L: 965.88

## TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	0.029	0.0010	V-06	0.030	0.001	1	8/11/16	1:35	CJM
Dichlorobiphenyls	0.023	0.0010		0.024	0.001	1	8/11/16	1:35	CJM
Trichlorobiphenyls	0.050	0.0010		0.051	0.001	1	8/11/16	1:35	CJM
Tetrachlorobiphenyls	0.096	0.0020		0.099	0.0021	1	8/11/16	1:35	CJM
Pentachlorobiphenyls	0.076	0.0020		0.078	0.0021	1	8/11/16	1:35	CJM
Hexachlorobiphenyls	0.028	0.0020		0.029	0.0021	1	8/11/16	1:35	CJM
Heptachlorobiphenyls	0.0059	0.0030		0.0061	0.0031	1	8/11/16	1:35	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0031	1	8/11/16	1:35	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0052	1	8/11/16	1:35	CJM
Decachlorobiphenyl	ND	0.0050	V-20	ND	0.0052	1	8/11/16	1:35	CJM
Total Polychlorinated biphenyls	0.31			0.32		1	8/11/16	1:35	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	74.0	50-125	8/11/16 1:35

# ANALYTICAL RESULTS

Project Location: Dubois Library- Amherst, MA

Date Received: 8/4/2016

Field Sample #: DL-19-IAS-234

Sample ID: 16H0200-05

Sample Matrix: Indoor air

Sampled: 8/3/2016 15:47

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Air Volume L: 947.52

Work Order: 16H0200

## TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	0.051	0.0010	V-06	0.054	0.0011	1	8/11/16	2:13	CJM
Dichlorobiphenyls	0.029	0.0010		0.031	0.0011	1	8/11/16	2:13	CJM
Trichlorobiphenyls	0.088	0.0010		0.093	0.0011	1	8/11/16	2:13	CJM
Tetrachlorobiphenyls	0.16	0.0020		0.17	0.0021	1	8/11/16	2:13	CJM
Pentachlorobiphenyls	0.14	0.0020		0.15	0.0021	1	8/11/16	2:13	CJM
Hexachlorobiphenyls	0.043	0.0020	V-20	0.045	0.0021	1	8/11/16	2:13	CJM
Heptachlorobiphenyls	0.0074	0.0030		0.0078	0.0032	1	8/11/16	2:13	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0032	1	8/11/16	2:13	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0053	1	8/11/16	2:13	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0053	1	8/11/16	2:13	CJM
Total Polychlorinated biphenyls	0.52			0.55		1	8/11/16	2:13	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	72.9	50-125	8/11/16 2:13

# ANALYTICAL RESULTS

Project Location: Dubois Library- Amherst, MA

Date Received: 8/4/2016

Field Sample #: DL-20-IAS-235

Sample ID: 16H0200-06

Sample Matrix: Indoor air

Sampled: 8/3/2016 15:55

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Air Volume L: 943.2

Work Order: 16H0200

## TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	0.057	0.0010	V-06	0.061	0.0011	1	8/11/16	2:50	CJM
Dichlorobiphenyls	0.030	0.0010		0.032	0.0011	1	8/11/16	2:50	CJM
Trichlorobiphenyls	0.081	0.0010		0.085	0.0011	1	8/11/16	2:50	CJM
Tetrachlorobiphenyls	0.13	0.0020		0.14	0.0021	1	8/11/16	2:50	CJM
Pentachlorobiphenyls	0.098	0.0020		0.10	0.0021	1	8/11/16	2:50	CJM
Hexachlorobiphenyls	0.037	0.0020		0.039	0.0021	1	8/11/16	2:50	CJM
Heptachlorobiphenyls	0.0078	0.0030	V-20	0.0082	0.0032	1	8/11/16	2:50	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0032	1	8/11/16	2:50	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0053	1	8/11/16	2:50	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0053	1	8/11/16	2:50	CJM
Total Polychlorinated biphenyls	0.44			0.47		1	8/11/16	2:50	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	71.3	50-125	8/11/16 2:50

**Sample Extraction Data**

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

Lab Number [Field ID]	Batch	Initial [Cartridge	Final [mL]	Date
16H0200-01 [DL-Amb-IAS-230]	B155354	1.00	1.00	08/05/16
16H0200-02 [DL-4E-IAS-231]	B155354	1.00	1.00	08/05/16
16H0200-03 [DL-8E-IAS-232]	B155354	1.00	1.00	08/05/16
16H0200-04 [DL-8E-IAS-233]	B155354	1.00	1.00	08/05/16
16H0200-05 [DL-19-IAS-234]	B155354	1.00	1.00	08/05/16
16H0200-06 [DL-20-IAS-235]	B155354	1.00	1.00	08/05/16

# QUALITY CONTROL

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

Analyte	Total µg		ug/m3		Spike Level	Source	%REC	%REC	RPD	RPD	Flag/Qual
	Results	RL	Results	RL	Total µg	Result	%REC	Limits	RPD	Limit	
Batch B155354 - SW-846 3540C											
Blank (B155354-BLK1)					Prepared: 08/05/16 Analyzed: 08/10/16						
Monochlorobiphenyls	ND	0.0010									V-20
Dichlorobiphenyls	ND	0.0010									
Trichlorobiphenyls	ND	0.0010									
Tetrachlorobiphenyls	ND	0.0020									
Pentachlorobiphenyls	ND	0.0020									
Hexachlorobiphenyls	ND	0.0020									
Heptachlorobiphenyls	ND	0.0030									
Octachlorobiphenyls	ND	0.0030									
Nonachlorobiphenyls	ND	0.0050									
Decachlorobiphenyl	ND	0.0050									V-20
Total Polychlorinated biphenyls	0.0										
Surrogate: Tetrachloro-m-xylene	0.136				0.200		67.9	50-125			
LCS (B155354-BS1)					Prepared: 08/05/16 Analyzed: 08/10/16						
Monochlorobiphenyls	0.12	0.0010			0.200		58.6	40-140			V-06
Dichlorobiphenyls	0.10	0.0010			0.200		51.9	40-140			
Trichlorobiphenyls	0.10	0.0010			0.200		50.1	40-140			
Tetrachlorobiphenyls	0.22	0.0020			0.400		54.9	40-140			
Pentachlorobiphenyls	0.22	0.0020			0.400		55.8	40-140			
Hexachlorobiphenyls	0.22	0.0020			0.400		55.9	40-140			
Heptachlorobiphenyls	0.34	0.0030			0.600		56.6	40-140			
Octachlorobiphenyls	0.36	0.0030			0.600		60.2	40-140			
Nonachlorobiphenyls	0.61	0.0050			1.00		60.7	40-140			
Decachlorobiphenyl	0.69	0.0050			1.00		69.4	40-140			V-06
Surrogate: Tetrachloro-m-xylene	0.127				0.200		63.6	50-125			
LCS Dup (B155354-BSD1)					Prepared: 08/05/16 Analyzed: 08/10/16						
Monochlorobiphenyls	0.16	0.0010			0.200		79.1	40-140	29.8	50	V-06
Dichlorobiphenyls	0.14	0.0010			0.200		69.9	40-140	29.6	50	
Trichlorobiphenyls	0.14	0.0010			0.200		67.7	40-140	29.8	50	
Tetrachlorobiphenyls	0.30	0.0020			0.400		74.5	40-140	30.3	50	
Pentachlorobiphenyls	0.30	0.0020			0.400		74.8	40-140	29.1	50	
Hexachlorobiphenyls	0.31	0.0020			0.400		76.3	40-140	31.0	50	
Heptachlorobiphenyls	0.46	0.0030			0.600		76.4	40-140	29.9	50	
Octachlorobiphenyls	0.49	0.0030			0.600		81.0	40-140	29.5	50	
Nonachlorobiphenyls	0.83	0.0050			1.00		82.6	40-140	30.5	50	
Decachlorobiphenyl	0.95	0.0050			1.00		94.9	40-140	31.1	50	V-06
Surrogate: Tetrachloro-m-xylene	0.156				0.200		78.0	50-125			

**FLAG/QUALIFIER SUMMARY**

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

**CERTIFICATIONS****Certified Analyses included in this Report**

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

Total Polychlorinated biphenyls	AIHA
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The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2017
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2017
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2017
RI	Rhode Island Department of Health	LAO00112	12/30/2016
NC	North Carolina Div. of Water Quality	652	12/31/2016
NJ	New Jersey DEP	MA007 NELAP	06/30/2017
FL	Florida Department of Health	E871027 NELAP	06/30/2017
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2017
ME	State of Maine	2011028	06/9/2017
VA	Commonwealth of Virginia	460217	12/14/2016
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2016





Phone: 413-525-2332

Fax: 413-525-6405

Email: info@contestlabs.com

Company Name: Woodard & Curran

Address: 1520 Highland Ave, Chelsea, CT

Phone:

Project Name: DuBois Library

Project Location: Amherst, MA

Project Number: 225645

Project Manager: George Franklin

Con-Test Bid:

Invoice Recipient:

Sampled By: Greg Reynolds

Lab Use	Con-Test Work Order #	Client Sample ID / Description	Collection Data		Duration	Flow Rate		Matrix	Volume	Pressure		Summa Can ID	Flow Controller ID
			Beginning Date/Time	Ending Date/Time		Total Minutes Sampled	m <sup>3</sup> /min L/min			Initial Pressure	Final Pressure		
01		DL-Amb-1A5-230	8/13/16 9:09	8/13/16 9:09	360	2.610	AMB	IA		30.24	30.24	1	
02		DL-4E-1A5-231	8/13/16 9:25	8/13/16 9:25	1	2.625	IA	IA		30.24	30.24	2	
03		DL-8E-1A5-232	8/13/16 9:39	8/13/16 9:39	1	2.645	IA	IA		30.24	30.24	3	
04		DL-8E-1A5-233	8/13/16 9:40	8/13/16 9:40	1	2.683	IA	IA		30.24	30.24	4	
05		DL-19-1A5-234	8/13/16 9:47	8/13/16 9:47	1	2.632	IA	IA		30.24	30.24	5	
06		DL-20-1A5-235	8/13/16 9:55	8/13/16 9:55	1	2.620	IA	IA		30.24	30.24	6	

Comments:

RL ≤ 0.10 mg/m<sup>3</sup>

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:

Relinquished by: (signature)	Date/Time:	Special Requirements	
		Detection Limit Requirements	Enhanced Data Package Required
Relinquished by: (signature)	8-4-16 11:15	MA	MA MCP Required
Relinquished by: (signature)	8-4-16 3:10	CT	CT RCP Required
Received by: (signature)	8/14/16 11:20	Other	Enhanced Data Package Required
Relinquished by: (signature)			

NEIAC and AIHA LAP - LIC Accredited

TURNAROUND TIME (BUSINESS DAYS) STARTS AT 9:00 AM THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON THIS CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME CANNOT START UNTIL ALL QUESTIONS HAVE BEEN ANSWERED.

PLEASE BE CAREFUL NOT TO CONTAMINATE THIS DOCUMENT



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

## AIR Only Receipt Checklist

CLIENT NAME Woodward & Curran RECEIVED BY: RLF DATE: 8/4/16

1) Was the chain(s) of custody relinquished and signed? Yes ☒ No ☐

2) Does the chain agree with the samples? Yes ☒ No ☐

If not, explain:

3) Are all the samples in good condition? Yes ☒ No ☐

If not, explain:

4) Are there any samples "On Hold"? Yes ☐ No ☒ Stored where:

5) Are there any RUSH or SHORT HOLDING TIME samples? Yes ☐ No ☒

Who was notified \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

6) Location where samples are stored:

Walkin

Permission to subcontract samples? Yes No  
(Walk-in clients only) if not already approved  
Client Signature: \_\_\_\_\_

7) Number of cans Individually Certified or Batch Certified? none

### Containers received at Con-Test

	# of Containers	Types (Size, Duration)
Summa Cans (TO-14/TO-15/APH)		
Tedlar Bags		
TO-17 Tubes		
Regulators		
Restrictors		
Hg/Hopcalite Tube (NIOSH 6009)		
(TO-4A/ TO-10A/TO-13) PUFs	6	low vol.
PCB Florisil Tubes (NIOSH 5503)		
Air cassette		
PM 2.5/PM 10		
TO-11A Cartridges		
Other		

Unused Summas/PUF Media:

Unused Regulators:

1) Was all media (used & unused) checked into the WASP?

2) Were all returned summa cans, Restrictors & Regulators and PUF's documented as returned in the Air Lab Inbound/Outbound Excel Spreadsheet?

Laboratory Comments:									
		080116-01	080116-03	080116-05					
		080116-02	080116-04	080116-06					

**Login Sample Receipt Checklist****(Rejection Criteria Listing - Using Sample Acceptance Policy)****Any False statement will be brought to the attention of Client**

<u>Question</u>	<u>Answer (True/False)</u>		<u>Comment</u>
	<u>T/F/NA</u>		
1) The coolers'/boxes' custody seal, if present, is intact.	NA		
2) The cooler or samples do not appear to have been compromised or tampered with.	T		
3) Samples were received on ice.	T		ice had melted
4) Cooler Temperature is acceptable.	F		↓
5) Cooler Temperature is recorded.	T		
6) COC is filled out in ink and legible.	T		
7) COC is filled out with all pertinent information.	T		
8) Field Sampler's name present on COC.	T		
9) Samples are received within Holding Time.	T		
10) Sample containers have legible labels.	T		
11) Containers/media are not broken or leaking and valves and caps are closed tightly.	T		
12) Sample collection date/times are provided.	T		
13) Appropriate sample/media containers are used.	T		
14) There is sufficient volume for all requested analyses, including any requested MS/MSDs.	T		
15) Trip blanks provided if applicable.	T		

PLF 8/4/16 1510

August 25, 2016

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

Project Location: UMass Brown  
Client Job Number:  
Project Number: 225695  
Laboratory Work Order Number: 16H1019

Enclosed are results of analyses for samples received by the laboratory on August 19, 2016. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Meghan E. Kelley  
Project Manager

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

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

REPORT DATE: 8/25/2016

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

**ANALYTICAL SUMMARY**

---

WORK ORDER NUMBER: 16H1019

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

PROJECT LOCATION: UMass Brown

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LTM-BRH-VBC-427	16H1019-01	Wipe		SW-846 8082A	
LTM-BRH-VBC-428	16H1019-02	Wipe		SW-846 8082A	
LTM-BRH-VBC-429	16H1019-03	Wipe		SW-846 8082A	
LTM-BRH-VBC-430	16H1019-04	Wipe		SW-846 8082A	
LTM-BRV-VBC-431	16H1019-05	Wipe		SW-846 8082A	
LTM-BRV-VBC-432	16H1019-06	Wipe		SW-846 8082A	
LTM-BRV-VBC-433	16H1019-07	Wipe		SW-846 8082A	
LTM-BRV-VBC-434	16H1019-08	Wipe		SW-846 8082A	

**CASE NARRATIVE SUMMARY**

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

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

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

A handwritten signature in black ink, reading "Tod Kopycinski". The signature is written in a cursive, flowing style.

Tod E. Kopycinski  
Laboratory Director

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

Project Location: UMass Brown

Sample Description:

Work Order: 16H1019

Date Received: 8/19/2016

Field Sample #: LTM-BRH-VBC-427

Sampled: 8/18/2016 14:28

Sample ID: 16H1019-01

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:12	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:12	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:12	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:12	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:12	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:12	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:12	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:12	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:12	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	87.9	30-150						8/24/16 11:12	
Decachlorobiphenyl [2]	88.6	30-150						8/24/16 11:12	
Tetrachloro-m-xylene [1]	77.8	30-150						8/24/16 11:12	
Tetrachloro-m-xylene [2]	79.4	30-150						8/24/16 11:12	



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

Project Location: UMass Brown

Sample Description:

Work Order: 16H1019

Date Received: 8/19/2016

Field Sample #: LTM-BRH-VBC-428

Sampled: 8/18/2016 14:38

Sample ID: 16H1019-02

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:25	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:25	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:25	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:25	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:25	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:25	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:25	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:25	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:25	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	85.1	30-150						8/24/16 11:25	
Decachlorobiphenyl [2]	85.3	30-150						8/24/16 11:25	
Tetrachloro-m-xylene [1]	77.5	30-150						8/24/16 11:25	
Tetrachloro-m-xylene [2]	78.5	30-150						8/24/16 11:25	

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

Project Location: UMass Brown

Sample Description:

Work Order: 16H1019

Date Received: 8/19/2016

Field Sample #: LTM-BRH-VBC-429

Sampled: 8/18/2016 14:42

Sample ID: 16H1019-03

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:37	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:37	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:37	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:37	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:37	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:37	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:37	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:37	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:37	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	85.3	30-150							
Decachlorobiphenyl [2]	85.9	30-150							
Tetrachloro-m-xylene [1]	76.2	30-150							
Tetrachloro-m-xylene [2]	76.8	30-150							

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Project Location: UMass Brown

Sample Description:

Work Order: 16H1019

Date Received: 8/19/2016

Field Sample #: LTM-BRH-VBC-430

Sampled: 8/18/2016 14:20

Sample ID: 16H1019-04

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:49	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:49	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:49	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:49	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:49	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:49	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:49	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:49	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 11:49	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	80.5	30-150							
Decachlorobiphenyl [2]	79.9	30-150							
Tetrachloro-m-xylene [1]	74.3	30-150							
Tetrachloro-m-xylene [2]	74.9	30-150							

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

Project Location: UMass Brown

Sample Description:

Work Order: 16H1019

Date Received: 8/19/2016

Field Sample #: LTM-BRV-VBC-431

Sampled: 8/18/2016 14:29

Sample ID: 16H1019-05

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:01	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:01	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:01	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:01	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:01	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:01	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:01	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:01	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:01	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	89.1	30-150						8/24/16 12:01	
Decachlorobiphenyl [2]	88.9	30-150						8/24/16 12:01	
Tetrachloro-m-xylene [1]	78.6	30-150						8/24/16 12:01	
Tetrachloro-m-xylene [2]	78.9	30-150						8/24/16 12:01	

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

Project Location: UMass Brown

Sample Description:

Work Order: 16H1019

Date Received: 8/19/2016

Field Sample #: LTM-BRV-VBC-432

Sampled: 8/18/2016 14:39

Sample ID: 16H1019-06

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:14	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:14	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:14	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:14	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:14	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:14	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:14	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:14	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:14	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	86.8	30-150							
Decachlorobiphenyl [2]	86.6	30-150							
Tetrachloro-m-xylene [1]	77.0	30-150							
Tetrachloro-m-xylene [2]	77.3	30-150							

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

Project Location: UMass Brown

Sample Description:

Work Order: 16H1019

Date Received: 8/19/2016

Field Sample #: LTM-BRV-VBC-433

Sampled: 8/18/2016 14:43

Sample ID: 16H1019-07

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:26	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:26	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:26	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:26	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:26	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:26	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:26	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:26	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:26	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	86.0	30-150						8/24/16 12:26	
Decachlorobiphenyl [2]	85.7	30-150						8/24/16 12:26	
Tetrachloro-m-xylene [1]	77.0	30-150						8/24/16 12:26	
Tetrachloro-m-xylene [2]	77.3	30-150						8/24/16 12:26	

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

Project Location: UMass Brown

Sample Description:

Work Order: 16H1019

Date Received: 8/19/2016

Field Sample #: LTM-BRV-VBC-434

Sampled: 8/18/2016 14:22

Sample ID: 16H1019-08

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:38	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:38	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:38	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:38	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:38	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:38	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:38	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:38	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 12:38	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	95.5	30-150						8/24/16 12:38	
Decachlorobiphenyl [2]	95.5	30-150						8/24/16 12:38	
Tetrachloro-m-xylene [1]	86.8	30-150						8/24/16 12:38	
Tetrachloro-m-xylene [2]	87.2	30-150						8/24/16 12:38	

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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
16H1019-01 [LTM-BRH-VBC-427]	B156616	1.00	10.0	08/22/16
16H1019-02 [LTM-BRH-VBC-428]	B156616	1.00	10.0	08/22/16
16H1019-03 [LTM-BRH-VBC-429]	B156616	1.00	10.0	08/22/16
16H1019-04 [LTM-BRH-VBC-430]	B156616	1.00	10.0	08/22/16
16H1019-05 [LTM-BRV-VBC-431]	B156616	1.00	10.0	08/22/16
16H1019-06 [LTM-BRV-VBC-432]	B156616	1.00	10.0	08/22/16
16H1019-07 [LTM-BRV-VBC-433]	B156616	1.00	10.0	08/22/16
16H1019-08 [LTM-BRV-VBC-434]	B156616	1.00	10.0	08/22/16



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

## QUALITY CONTROL

## Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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## Batch B156616 - SW-846 3540C

## Blank (B156616-BLK1)

Prepared: 08/22/16 Analyzed: 08/24/16

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	1.90		µg/Wipe	2.00		95.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.91		µg/Wipe	2.00		95.5	30-150			
Surrogate: Tetrachloro-m-xylene	1.70		µg/Wipe	2.00		85.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.73		µg/Wipe	2.00		86.4	30-150			

## LCS (B156616-BS1)

Prepared: 08/22/16 Analyzed: 08/24/16

Aroclor-1016	0.55	0.20	µg/Wipe	0.500		109	40-140			
Aroclor-1016 [2C]	0.49	0.20	µg/Wipe	0.500		97.4	40-140			
Aroclor-1260	0.42	0.20	µg/Wipe	0.500		83.0	40-140			
Aroclor-1260 [2C]	0.40	0.20	µg/Wipe	0.500		79.9	40-140			
Surrogate: Decachlorobiphenyl	1.80		µg/Wipe	2.00		89.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.81		µg/Wipe	2.00		90.5	30-150			
Surrogate: Tetrachloro-m-xylene	1.57		µg/Wipe	2.00		78.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.60		µg/Wipe	2.00		80.0	30-150			

## LCS Dup (B156616-BSD1)

Prepared: 08/22/16 Analyzed: 08/24/16

Aroclor-1016	0.53	0.20	µg/Wipe	0.500		106	40-140	3.39	30	
Aroclor-1016 [2C]	0.48	0.20	µg/Wipe	0.500		96.7	40-140	0.738	30	
Aroclor-1260	0.41	0.20	µg/Wipe	0.500		81.4	40-140	1.92	30	
Aroclor-1260 [2C]	0.39	0.20	µg/Wipe	0.500		77.8	40-140	2.65	30	
Surrogate: Decachlorobiphenyl	1.73		µg/Wipe	2.00		86.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.72		µg/Wipe	2.00		86.1	30-150			
Surrogate: Tetrachloro-m-xylene	1.51		µg/Wipe	2.00		75.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.52		µg/Wipe	2.00		76.2	30-150			

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# IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

*SW-846 8082A*

LCS

Lab Sample ID: B156616-BS1 Date(s) Analyzed: 08/24/2016 08/24/2016

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%D
			FROM	TO		
Aroclor-1016	1	0.00	0.00	0.00	0.55	
	2	0.00	0.00	0.00	0.49	11
Aroclor-1260	1	0.00	0.00	0.00	0.42	
	2	0.00	0.00	0.00	0.40	4

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# IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

*SW-846 8082A*

LCS Dup

Lab Sample ID: B156616-BSD1 Date(s) Analyzed: 08/24/2016 08/24/2016

Instrument ID (1): \_\_\_\_\_ Instrument ID (2): \_\_\_\_\_

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%D
			FROM	TO		
Aroclor-1016	1	0.00	0.00	0.00	0.53	
	2	0.00	0.00	0.00	0.48	10
Aroclor-1260	1	0.00	0.00	0.00	0.41	
	2	0.00	0.00	0.00	0.39	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
DL	Method Detection Limit
MCL	Maximum Contaminant Level

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

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

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# CERTIFICATIONS

## Certified Analyses included in this Report

Analyte	Certifications
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## No certified Analyses included in this Report

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

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2017
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2017
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2017
RI	Rhode Island Department of Health	LAO00112	12/30/2016
NC	North Carolina Div. of Water Quality	652	12/31/2016
NJ	New Jersey DEP	MA007 NELAP	06/30/2017
FL	Florida Department of Health	E871027 NELAP	06/30/2017
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2017
ME	State of Maine	2011028	06/9/2017
VA	Commonwealth of Virginia	460217	12/14/2016
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2016



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



Page 1 of 2

## Sample Receipt Checklist

CLIENT NAME: Woodard & Curran RECEIVED BY: JM DATE: 8/19/16

1) Was the chain(s) of custody relinquished and signed? Yes ☒ No ☐ No COC Incl.

2) Does the chain agree with the samples? Yes ☒ No ☐

If not, explain:

3) Are all the samples in good condition? Yes ☒ No ☐

If not, explain:

4) How were the samples received:

On Ice ☒ Direct from Sampling ☐ Ambient ☐ In Cooler(s) ☒

Were the samples received in Temperature Compliance of (2-6°C)? Yes ☒ No ☐ N/A ☐

Temperature °C by Temp blank  Temperature °C by Temp gun 3.5

5) Are there Dissolved samples for the lab to filter? Yes ☐ No ☒

Who was notified  Date  Time

6) Are there any RUSH or SHORT HOLDING TIME samples? Yes ☐ No ☒

Who was notified  Date  Time

7) Location where samples are stored:

Log-In

Permission to subcontract samples? Yes ☐ No ☒  
(Walk-in clients only) if not already approved  
Client Signature:

8) Do all samples have the proper Acid pH: Yes ☐ No ☐ N/A ☒

9) Do all samples have the proper Base pH: Yes ☐ No ☐ N/A ☒

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes ☐ N/A ☒

## Containers received at Con-Test

	# of containers		# of containers
1 Liter Amber		16 oz amber	
500 mL Amber		8 oz amber/clear jar	
250 mL Amber (8oz amber)		4 oz amber/clear jar	<u>8</u>
1 Liter Plastic		2 oz amber/clear jar	
500 mL Plastic		Plastic Bag / Ziploc	
250 mL plastic		SOC Kit	
40 mL Vial - type listed below		Perchlorate Kit	
Colisure / bacteria bottle		Flashpoint bottle	
Dissolved Oxygen bottle		Other glass jar	
Encore		Other	

40 mL vials: # HCl <input type="text"/>	# Methanol <input type="text"/>	Time and Date Frozen: <input type="text"/>
Doc# 277 # Bisulfate <input type="text"/>	# DI Water <input type="text"/>	
Rev. 4 August 2013 # Thiosulfate <input type="text"/>	Unpreserved <input type="text"/>	

Login Sample Receipt Checklist

(Rejection Criteria Listing - Using Sample Acceptance Policy)

Any False statement will be brought to the attention of Client

Question	Answer (True/False)	Comment
	T/F/NA	
1) The cooler's custody seal, if present, is intact.	N/A	
2) The cooler or samples do not appear to have been compromised or tampered with.	T	
3) Samples were received on ice.	T	
4) Cooler Temperature is acceptable.	T	
5) Cooler Temperature is recorded.	T	
6) COC is filled out in ink and legible.	T	
7) COC is filled out with all pertinent information.	T	
8) Field Sampler's name present on COC.	T	
9) There are no discrepancies between the sample IDs on the container and the COC.	T	
10) Samples are received within Holding Time.	T	
11) Sample containers have legible labels.	T	
12) Containers are not broken or leaking.	T	
13) Air Cassettes are not broken/open.	N/A	
14) Sample collection date/times are provided.	T	
15) Appropriate sample containers are used.	T	
16) Proper collection media used.	T	
17) No headspace sample bottles are completely filled.	N/A	
18) There is sufficient volume for all requested analyses, including any requested MS/MSDs.	T	
19) Trip blanks provided if applicable.	N/A	
20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.	N/A	
21) Samples do not require splitting or compositing.	T	

Doc #277 Rev. 4 August 2013      Who notified of False statements?  
 Log-In Technician Initials: JM

Date/Time: 8/19/16 1740  
 Date/Time:



August 25, 2016

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

Project Location: UMass Sylvan-Cashin  
Client Job Number:  
Project Number: 225695  
Laboratory Work Order Number: 16H1020

Enclosed are results of analyses for samples received by the laboratory on August 19, 2016. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Meghan E. Kelley  
Project Manager

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

REPORT DATE: 8/25/2016

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

**ANALYTICAL SUMMARY**

---

WORK ORDER NUMBER: 16H1020

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

PROJECT LOCATION: UMass Sylvan-Cashin

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LTM-CRH-VWB-409	16H1020-01	Wipe		SW-846 8082A	
LTM-CRH-VWB-410	16H1020-02	Wipe		SW-846 8082A	
LTM-CRH-VWB-411	16H1020-03	Wipe		SW-846 8082A	
LTM-CRH-VWB-412	16H1020-04	Wipe		SW-846 8082A	
LTM-CRV-VWB-413	16H1020-05	Wipe		SW-846 8082A	
LTM-CRV-VWB-414	16H1020-06	Wipe		SW-846 8082A	
LTM-CRV-VWB-415	16H1020-07	Wipe		SW-846 8082A	
LTM-CRV-VWB-416	16H1020-08	Wipe		SW-846 8082A	
LTM-CRV-VWBD-417	16H1020-09	Wipe		SW-846 8082A	

**CASE NARRATIVE SUMMARY**

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

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

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

A handwritten signature in black ink, reading "Tod Kopycinski". The signature is written in a cursive, flowing style.

Tod E. Kopycinski  
Laboratory Director

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

Project Location: UMass Sylvan-Cashin

Sample Description:

Work Order: 16H1020

Date Received: 8/19/2016

Field Sample #: LTM-CRH-VWB-409

Sampled: 8/18/2016 13:05

Sample ID: 16H1020-01

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:27	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:27	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:27	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:27	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:27	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:27	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:27	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:27	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:27	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	88.0	30-150						8/24/16 13:27	
Decachlorobiphenyl [2]	88.2	30-150						8/24/16 13:27	
Tetrachloro-m-xylene [1]	80.6	30-150						8/24/16 13:27	
Tetrachloro-m-xylene [2]	80.1	30-150						8/24/16 13:27	

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Project Location: UMass Sylvan-Cashin

Sample Description:

Work Order: 16H1020

Date Received: 8/19/2016

Field Sample #: LTM-CRH-VWB-410

Sampled: 8/18/2016 13:10

Sample ID: 16H1020-02

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:39	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:39	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:39	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:39	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:39	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:39	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:39	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:39	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:39	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	85.1	30-150							
Decachlorobiphenyl [2]	85.3	30-150							
Tetrachloro-m-xylene [1]	77.1	30-150							
Tetrachloro-m-xylene [2]	76.7	30-150							

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Project Location: UMass Sylvan-Cashin

Sample Description:

Work Order: 16H1020

Date Received: 8/19/2016

Field Sample #: LTM-CRH-VWB-411

Sampled: 8/18/2016 13:15

Sample ID: 16H1020-03

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:51	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:51	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:51	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:51	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:51	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:51	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:51	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:51	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:51	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	85.5	30-150							
Decachlorobiphenyl [2]	85.2	30-150							
Tetrachloro-m-xylene [1]	77.5	30-150							
Tetrachloro-m-xylene [2]	76.4	30-150							

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Project Location: UMass Sylvan-Cashin

Sample Description:

Work Order: 16H1020

Date Received: 8/19/2016

Field Sample #: LTM-CRH-VWB-412

Sampled: 8/18/2016 13:22

Sample ID: 16H1020-04

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:04	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:04	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:04	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:04	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:04	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:04	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:04	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:04	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:04	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	83.5	30-150						8/24/16 14:04	
Decachlorobiphenyl [2]	83.2	30-150						8/24/16 14:04	
Tetrachloro-m-xylene [1]	76.3	30-150						8/24/16 14:04	
Tetrachloro-m-xylene [2]	75.3	30-150						8/24/16 14:04	



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Project Location: UMass Sylvan-Cashin

Sample Description:

Work Order: 16H1020

Date Received: 8/19/2016

Field Sample #: LTM-CRV-VWB-413

Sampled: 8/18/2016 13:07

Sample ID: 16H1020-05

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:16	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:16	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:16	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:16	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:16	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:16	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:16	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:16	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:16	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	88.8	30-150						8/24/16 14:16	
Decachlorobiphenyl [2]	88.9	30-150						8/24/16 14:16	
Tetrachloro-m-xylene [1]	80.2	30-150						8/24/16 14:16	
Tetrachloro-m-xylene [2]	79.2	30-150						8/24/16 14:16	

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Project Location: UMass Sylvan-Cashin

Sample Description:

Work Order: 16H1020

Date Received: 8/19/2016

Field Sample #: LTM-CRV-VWB-414

Sampled: 8/18/2016 13:11

Sample ID: 16H1020-06

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:28	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:28	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:28	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:28	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:28	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:28	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:28	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:28	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:28	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	84.0	30-150							
Decachlorobiphenyl [2]	83.4	30-150							
Tetrachloro-m-xylene [1]	78.2	30-150							
Tetrachloro-m-xylene [2]	77.5	30-150							

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

Project Location: UMass Sylvan-Cashin

Sample Description:

Work Order: 16H1020

Date Received: 8/19/2016

Field Sample #: LTM-CRV-VWB-415

Sampled: 8/18/2016 13:16

Sample ID: 16H1020-07

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:40	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:40	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:40	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:40	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:40	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:40	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:40	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:40	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:40	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	89.1	30-150						8/24/16 14:40	
Decachlorobiphenyl [2]	89.3	30-150						8/24/16 14:40	
Tetrachloro-m-xylene [1]	80.7	30-150						8/24/16 14:40	
Tetrachloro-m-xylene [2]	79.6	30-150						8/24/16 14:40	

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Project Location: UMass Sylvan-Cashin

Sample Description:

Work Order: 16H1020

Date Received: 8/19/2016

Field Sample #: LTM-CRV-VWB-416

Sampled: 8/18/2016 13:24

Sample ID: 16H1020-08

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:52	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:52	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:52	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:52	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:52	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:52	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:52	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:52	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:52	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	84.7	30-150							
Decachlorobiphenyl [2]	84.3	30-150							
Tetrachloro-m-xylene [1]	76.8	30-150							
Tetrachloro-m-xylene [2]	75.6	30-150							

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Project Location: UMass Sylvan-Cashin

Sample Description:

Work Order: 16H1020

Date Received: 8/19/2016

Field Sample #: LTM-CRV-VWBD-417

Sampled: 8/18/2016 13:24

Sample ID: 16H1020-09

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:05	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:05	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:05	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:05	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:05	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:05	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:05	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:05	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:05	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	88.3	30-150						8/24/16 15:05	
Decachlorobiphenyl [2]	88.1	30-150						8/24/16 15:05	
Tetrachloro-m-xylene [1]	80.5	30-150						8/24/16 15:05	
Tetrachloro-m-xylene [2]	79.5	30-150						8/24/16 15:05	

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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
16H1020-01 [LTM-CRH-VWB-409]	B156616	1.00	10.0	08/22/16
16H1020-02 [LTM-CRH-VWB-410]	B156616	1.00	10.0	08/22/16
16H1020-03 [LTM-CRH-VWB-411]	B156616	1.00	10.0	08/22/16
16H1020-04 [LTM-CRH-VWB-412]	B156616	1.00	10.0	08/22/16
16H1020-05 [LTM-CRV-VWB-413]	B156616	1.00	10.0	08/22/16
16H1020-06 [LTM-CRV-VWB-414]	B156616	1.00	10.0	08/22/16
16H1020-07 [LTM-CRV-VWB-415]	B156616	1.00	10.0	08/22/16
16H1020-08 [LTM-CRV-VWB-416]	B156616	1.00	10.0	08/22/16
16H1020-09 [LTM-CRV-VWBD-417]	B156616	1.00	10.0	08/22/16

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**QUALITY CONTROL**
**Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B156616 - SW-846 3540C**
**Blank (B156616-BLK1)**

Prepared: 08/22/16 Analyzed: 08/24/16

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	1.90		µg/Wipe	2.00		95.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.91		µg/Wipe	2.00		95.5	30-150			
Surrogate: Tetrachloro-m-xylene	1.70		µg/Wipe	2.00		85.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.73		µg/Wipe	2.00		86.4	30-150			

**LCS (B156616-BS1)**

Prepared: 08/22/16 Analyzed: 08/24/16

Aroclor-1016	0.55	0.20	µg/Wipe	0.500		109	40-140			
Aroclor-1016 [2C]	0.49	0.20	µg/Wipe	0.500		97.4	40-140			
Aroclor-1260	0.42	0.20	µg/Wipe	0.500		83.0	40-140			
Aroclor-1260 [2C]	0.40	0.20	µg/Wipe	0.500		79.9	40-140			
Surrogate: Decachlorobiphenyl	1.80		µg/Wipe	2.00		89.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.81		µg/Wipe	2.00		90.5	30-150			
Surrogate: Tetrachloro-m-xylene	1.57		µg/Wipe	2.00		78.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.60		µg/Wipe	2.00		80.0	30-150			

**LCS Dup (B156616-BSD1)**

Prepared: 08/22/16 Analyzed: 08/24/16

Aroclor-1016	0.53	0.20	µg/Wipe	0.500		106	40-140	3.39	30	
Aroclor-1016 [2C]	0.48	0.20	µg/Wipe	0.500		96.7	40-140	0.738	30	
Aroclor-1260	0.41	0.20	µg/Wipe	0.500		81.4	40-140	1.92	30	
Aroclor-1260 [2C]	0.39	0.20	µg/Wipe	0.500		77.8	40-140	2.65	30	
Surrogate: Decachlorobiphenyl	1.73		µg/Wipe	2.00		86.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.72		µg/Wipe	2.00		86.1	30-150			
Surrogate: Tetrachloro-m-xylene	1.51		µg/Wipe	2.00		75.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.52		µg/Wipe	2.00		76.2	30-150			

**IDENTIFICATION SUMMARY  
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LCS**Lab Sample ID: B156616-BS1 Date(s) Analyzed: 08/24/2016 08/24/2016

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%D
			FROM	TO		
Aroclor-1016	1	0.00	0.00	0.00	0.55	
	2	0.00	0.00	0.00	0.49	11
Aroclor-1260	1	0.00	0.00	0.00	0.42	
	2	0.00	0.00	0.00	0.40	4



**IDENTIFICATION SUMMARY  
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LCS Dup**Lab Sample ID: B156616-BSD1 Date(s) Analyzed: 08/24/2016 08/24/2016

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%D
			FROM	TO		
Aroclor-1016	1	0.00	0.00	0.00	0.53	
	2	0.00	0.00	0.00	0.48	10
Aroclor-1260	1	0.00	0.00	0.00	0.41	
	2	0.00	0.00	0.00	0.39	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
DL	Method Detection Limit
MCL	Maximum Contaminant Level

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

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

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# CERTIFICATIONS

## Certified Analyses included in this Report

Analyte	Certifications
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## No certified Analyses included in this Report

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

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2017
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2017
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2017
RI	Rhode Island Department of Health	LAO00112	12/30/2016
NC	North Carolina Div. of Water Quality	652	12/31/2016
NJ	New Jersey DEP	MA007 NELAP	06/30/2017
FL	Florida Department of Health	E871027 NELAP	06/30/2017
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2017
ME	State of Maine	2011028	06/9/2017
VA	Commonwealth of Virginia	460217	12/14/2016
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2016

**CHAIN C CUSTODY RECORD**

39 Spruce Street  
East longmeadow, MA 01028

Company Name: Wessex

Address: 40 SHATTUCK RD

Attention: GEORGE FRANKLIN

Project Location: UMASS SYLVAN-CASHIN

Sampled By: GEORGE FRANKLIN

Telephone: 978 482-7867

Project # 225995

Client PO#

DATA DELIVERY (check all that apply)

☐ FAX ☒ EMAIL ☐ WEBSITE

Fax #

Email: George.Franklin@wessex.com

Format: ☒ PDF ☐ EXCEL ☐ OGIS

Project Proposal Provided? (for billing purposes)

☐ yes ☐ no proposal date

Con-Test Lab ID (laboratory use only)	Client Sample ID / Description	Collection			"Enhanced Data Package"		
		Beginning Date/Time	Ending Date/Time	Composite	Grab	Matrix Code	Conc Code
01	LTM-CR17-VWB-409	8/10/16	1305		X	0	0
02	LTM-CR17-VWB-410	8/10/16	1310		X	0	0
03	LTM-CR17-VWB-411	8/10/16	1315		X	0	0
04	LTM-CR17-VWB-412	8/10/16	1322		X	0	0
05	LTM-CR17-VWB-413	8/10/16	1307		X	0	0
06	LTM-CR17-VWB-414	8/10/16	1311		X	0	0
07	LTM-CR17-VWB-415	8/10/16	1316		X	0	0
08	LTM-CR17-VWB-416	8/10/16	1324		X	0	0
09	LTM-CR17-VWB-417	8/10/16	1324		X	0	0

Comments: PCBS VIA USEPA 8082 w/ SUMMER EXTRACTION (3540C)

Relinquished by: (signature) <u>George Franklin</u>	Date/Time: <u>8/19/16 1:00</u>
Received by: (signature) <u>George Franklin</u>	Date/Time: <u>8/19/16 1:00</u>
Relinquished by: (signature) <u>George Franklin</u>	Date/Time: <u>8/19/16 1:00</u>
Received by: (signature) <u>George Franklin</u>	Date/Time: <u>8/19/16 1:00</u>

Turnaround <sup>TT</sup>	<input type="checkbox"/> 7-Day
	<input type="checkbox"/> 10-Day
	<input checked="" type="checkbox"/> Other <u>5-DAY</u>
	<input type="checkbox"/> RUSH <u>1500</u>
	<input type="checkbox"/> 24-Hr <input type="checkbox"/> 48-Hr
	<input type="checkbox"/> 72-Hr <input type="checkbox"/> 14-Day
	<input type="checkbox"/> Require lab approval

Detection Limit Requirements	Massachusetts:
	Connecticut:
	Other:

Is your project MCP or RCP?	<input type="checkbox"/> MCP Analytical Certification Form Required
	<input type="checkbox"/> RCP Analysis Certification Form Required
	<input type="checkbox"/> MA State DW Form Required PWSID #

TURNAROUND TIME (business days) STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED.

0-19-16 1740

8/19/16 1740

NEELAC & AIHA Certified  
WBE/DBE Certified

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



Page 1 of 2

## Sample Receipt Checklist

CLIENT NAME: Woodward & Curran RECEIVED BY: JM DATE: 8/19/16

1) Was the chain(s) of custody relinquished and signed? Yes ☒ No ☐ No COC Incl.

2) Does the chain agree with the samples? Yes ☒ No ☐

If not, explain:

3) Are all the samples in good condition? Yes ☒ No ☐

If not, explain:

4) How were the samples received:

On Ice ☒ Direct from Sampling ☐ Ambient ☐ In Cooler(s) ☒

Were the samples received in Temperature Compliance of (2-6°C)? Yes ☒ No ☐ N/A ☐

Temperature °C by Temp blank  Temperature °C by Temp gun 3.5

5) Are there Dissolved samples for the lab to filter? Yes ☐ No ☒

Who was notified  Date  Time

6) Are there any RUSH or SHORT HOLDING TIME samples? Yes ☐ No ☒

Who was notified  Date  Time

7) Location where samples are stored:

Log-In

Permission to subcontract samples? Yes ☐ No ☒

(Walk-in clients only) if not already approved

Client Signature:

8) Do all samples have the proper Acid pH: Yes ☐ No ☐ N/A ☒

9) Do all samples have the proper Base pH: Yes ☐ No ☐ N/A ☒

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes ☐ N/A ☒

## Containers received at Con-Test

	# of containers		# of containers
1 Liter Amber		16 oz amber	
500 mL Amber		8 oz amber/clear jar	
250 mL Amber (8oz amber)		4 oz amber/clear jar	9
1 Liter Plastic		2 oz amber/clear jar	
500 mL Plastic		Plastic Bag / Ziploc	
250 mL plastic		SOC Kit	
40 mL Vial - type listed below		Perchlorate Kit	
Colisure / bacteria bottle		Flashpoint bottle	
Dissolved Oxygen bottle		Other glass jar	
Encore		Other	

40 mL vials: # HCl  # Methanol

Doc# 277 # Bisulfate  # DI Water

Rev. 4 August 2013 # Thiosulfate  Unpreserved

Time and Date Frozen:

**Login Sample Receipt Checklist****(Rejection Criteria Listing - Using Sample Acceptance Policy)****Any False statement will be brought to the attention of Client**

<u>Question</u>	<u>Answer (True/False)</u>	<u>Comment</u>
	T/F/NA	
1) The cooler's custody seal, if present, is intact.	N/A	
2) The cooler or samples do not appear to have been compromised or tampered with.	T	
3) Samples were received on ice.	T	
4) Cooler Temperature is acceptable.	T	
5) Cooler Temperature is recorded.	T	
6) COC is filled out in ink and legible.	T	
7) COC is filled out with all pertinent information.	T	
8) Field Sampler's name present on COC.	T	
9) There are no discrepancies between the sample IDs on the container and the COC.	T	
10) Samples are received within Holding Time.	T	
11) Sample containers have legible labels.	T	
12) Containers are not broken or leaking.	T	
13) Air Cassettes are not broken/open.	N/A	
14) Sample collection date/times are provided.	T	
15) Appropriate sample containers are used.	T	
16) Proper collection media used.	T	
17) No headspace sample bottles are completely filled.	N/A	
18) There is sufficient volume for all requested analyses, including any requested MS/MSDs.	T	
19) Trip blanks provided if applicable.	N/A	
20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.	N/A	
21) Samples do not require splitting or compositing.	T	

Doc #277 Rev. 4 August 2013

Who notified of False statements?

Log-In Technician Initials: JM

Date/Time:

Date/Time: 8/19/16 1740

August 25, 2016

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

Project Location: UMass  
Client Job Number:  
Project Number: 225695  
Laboratory Work Order Number: 16H1039

Enclosed are results of analyses for samples received by the laboratory on August 19, 2016. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Meghan E. Kelley  
Project Manager

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

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

REPORT DATE: 8/25/2016

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

**ANALYTICAL SUMMARY**

---

WORK ORDER NUMBER: 16H1039

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

PROJECT LOCATION: UMass

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LTM-MRI-VWC-400	16H1039-01	Wipe		SW-846 8082A	
LTM-MRI-VWC-401	16H1039-02	Wipe		SW-846 8082A	
LTM-MRI-VWC-402	16H1039-03	Wipe		SW-846 8082A	
LTM-MRI-VWC-403	16H1039-04	Wipe		SW-846 8082A	
LTM-CRI-VWC-404	16H1039-05	Wipe		SW-846 8082A	
LTM-CRI-VWC-405	16H1039-06	Wipe		SW-846 8082A	
LTM-BRI-VWC-406	16H1039-07	Wipe		SW-846 8082A	
LTM-BRI-VWC-407	16H1039-08	Wipe		SW-846 8082A	
LTM-BRI-VWCD-408	16H1039-09	Wipe		SW-846 8082A	

**CASE NARRATIVE SUMMARY**

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

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

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

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

Tod E. Kopycinski  
Laboratory Director

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

Project Location: UMass

Sample Description:

Work Order: 16H1039

Date Received: 8/19/2016

Field Sample #: LTM-MRI-VWC-400

Sampled: 8/18/2016 12:16

Sample ID: 16H1039-01

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:53	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:53	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:53	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:53	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:53	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:53	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:53	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:53	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 13:53	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	83.4	30-150							
Decachlorobiphenyl [2]	91.2	30-150							
Tetrachloro-m-xylene [1]	72.8	30-150							
Tetrachloro-m-xylene [2]	79.7	30-150							

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Project Location: UMass

Sample Description:

Work Order: 16H1039

Date Received: 8/19/2016

Field Sample #: LTM-MRI-VWC-401

Sampled: 8/18/2016 12:18

Sample ID: 16H1039-02

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:06	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:06	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:06	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:06	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:06	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:06	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:06	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:06	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:06	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	85.7	30-150							
Decachlorobiphenyl [2]	93.8	30-150							
Tetrachloro-m-xylene [1]	75.6	30-150							
Tetrachloro-m-xylene [2]	82.4	30-150							

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Project Location: UMass

Sample Description:

Work Order: 16H1039

Date Received: 8/19/2016

Field Sample #: LTM-MRI-VWC-402

Sampled: 8/18/2016 12:08

Sample ID: 16H1039-03

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:18	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:18	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:18	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:18	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:18	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:18	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:18	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:18	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:18	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	84.2	30-150						8/24/16 14:18	
Decachlorobiphenyl [2]	92.0	30-150						8/24/16 14:18	
Tetrachloro-m-xylene [1]	74.5	30-150						8/24/16 14:18	
Tetrachloro-m-xylene [2]	81.5	30-150						8/24/16 14:18	

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Project Location: UMass

Sample Description:

Work Order: 16H1039

Date Received: 8/19/2016

Field Sample #: LTM-MRI-VWC-403

Sampled: 8/18/2016 12:10

Sample ID: 16H1039-04

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:31	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:31	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:31	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:31	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:31	KAL
Aroclor-1254 [2]	0.76	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:31	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:31	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:31	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:31	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	82.7	30-150						8/24/16 14:31	
Decachlorobiphenyl [2]	90.8	30-150						8/24/16 14:31	
Tetrachloro-m-xylene [1]	74.6	30-150						8/24/16 14:31	
Tetrachloro-m-xylene [2]	81.9	30-150						8/24/16 14:31	

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

Project Location: UMass

Sample Description:

Work Order: 16H1039

Date Received: 8/19/2016

Field Sample #: LTM-CRI-VWC-404

Sampled: 8/18/2016 11:50

Sample ID: 16H1039-05

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:44	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:44	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:44	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:44	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:44	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:44	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:44	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:44	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:44	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	72.5	30-150						8/24/16 14:44	
Decachlorobiphenyl [2]	79.6	30-150						8/24/16 14:44	
Tetrachloro-m-xylene [1]	66.1	30-150						8/24/16 14:44	
Tetrachloro-m-xylene [2]	73.3	30-150						8/24/16 14:44	

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Project Location: UMass

Sample Description:

Work Order: 16H1039

Date Received: 8/19/2016

Field Sample #: LTM-CRI-VWC-405

Sampled: 8/18/2016 11:56

Sample ID: 16H1039-06

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:57	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:57	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:57	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:57	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:57	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:57	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:57	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:57	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 14:57	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	74.6	30-150							
Decachlorobiphenyl [2]	82.1	30-150							
Tetrachloro-m-xylene [1]	69.8	30-150							
Tetrachloro-m-xylene [2]	77.8	30-150							



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

Project Location: UMass

Sample Description:

Work Order: 16H1039

Date Received: 8/19/2016

Field Sample #: LTM-BRI-VWC-406

Sampled: 8/18/2016 12:04

Sample ID: 16H1039-07

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:09	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:09	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:09	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:09	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:09	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:09	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:09	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:09	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:09	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	72.7	30-150						8/24/16 15:09	
Decachlorobiphenyl [2]	80.0	30-150						8/24/16 15:09	
Tetrachloro-m-xylene [1]	69.2	30-150						8/24/16 15:09	
Tetrachloro-m-xylene [2]	76.9	30-150						8/24/16 15:09	

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

Project Location: UMass

Sample Description:

Work Order: 16H1039

Date Received: 8/19/2016

Field Sample #: LTM-BRI-VWC-407

Sampled: 8/18/2016 12:02

Sample ID: 16H1039-08

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:22	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:22	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:22	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:22	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:22	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:22	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:22	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:22	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:22	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	79.2	30-150							
Decachlorobiphenyl [2]	86.9	30-150							
Tetrachloro-m-xylene [1]	75.8	30-150							
Tetrachloro-m-xylene [2]	83.4	30-150							

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

Project Location: UMass

Sample Description:

Work Order: 16H1039

Date Received: 8/19/2016

Field Sample #: LTM-BRI-VWCD-408

Sampled: 8/18/2016 12:04

Sample ID: 16H1039-09

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:35	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:35	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:35	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:35	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:35	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:35	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:35	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:35	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 15:35	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	84.3	30-150							
Decachlorobiphenyl [2]	92.6	30-150							
Tetrachloro-m-xylene [1]	77.0	30-150							
Tetrachloro-m-xylene [2]	84.4	30-150							

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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
16H1039-01 [LTM-MRI-VWC-400]	B156618	1.00	10.0	08/22/16
16H1039-02 [LTM-MRI-VWC-401]	B156618	1.00	10.0	08/22/16
16H1039-03 [LTM-MRI-VWC-402]	B156618	1.00	10.0	08/22/16
16H1039-04 [LTM-MRI-VWC-403]	B156618	1.00	10.0	08/22/16
16H1039-05 [LTM-CRI-VWC-404]	B156618	1.00	10.0	08/22/16
16H1039-06 [LTM-CRI-VWC-405]	B156618	1.00	10.0	08/22/16
16H1039-07 [LTM-BRI-VWC-406]	B156618	1.00	10.0	08/22/16
16H1039-08 [LTM-BRI-VWC-407]	B156618	1.00	10.0	08/22/16
16H1039-09 [LTM-BRI-VWCD-408]	B156618	1.00	10.0	08/22/16

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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 B156618 - SW-846 3540C**
**Blank (B156618-BLK1)**

Prepared: 08/22/16 Analyzed: 08/24/16

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	1.70		µg/Wipe	2.00		84.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.85		µg/Wipe	2.00		92.3	30-150			
Surrogate: Tetrachloro-m-xylene	1.52		µg/Wipe	2.00		76.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.67		µg/Wipe	2.00		83.4	30-150			

**LCS (B156618-BS1)**

Prepared: 08/22/16 Analyzed: 08/24/16

Aroclor-1016	0.46	0.20	µg/Wipe	0.500		92.8	40-140			
Aroclor-1016 [2C]	0.47	0.20	µg/Wipe	0.500		93.9	40-140			
Aroclor-1260	0.45	0.20	µg/Wipe	0.500		90.0	40-140			
Aroclor-1260 [2C]	0.45	0.20	µg/Wipe	0.500		89.2	40-140			
Surrogate: Decachlorobiphenyl	1.68		µg/Wipe	2.00		84.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.82		µg/Wipe	2.00		91.1	30-150			
Surrogate: Tetrachloro-m-xylene	1.47		µg/Wipe	2.00		73.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.59		µg/Wipe	2.00		79.5	30-150			

**LCS Dup (B156618-BSD1)**

Prepared: 08/22/16 Analyzed: 08/24/16

Aroclor-1016	0.40	0.20	µg/Wipe	0.500		79.2	40-140	15.8	30	
Aroclor-1016 [2C]	0.42	0.20	µg/Wipe	0.500		83.2	40-140	12.1	30	
Aroclor-1260	0.38	0.20	µg/Wipe	0.500		75.5	40-140	17.5	30	
Aroclor-1260 [2C]	0.39	0.20	µg/Wipe	0.500		77.4	40-140	14.1	30	
Surrogate: Decachlorobiphenyl	1.40		µg/Wipe	2.00		69.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.53		µg/Wipe	2.00		76.4	30-150			
Surrogate: Tetrachloro-m-xylene	1.26		µg/Wipe	2.00		63.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.39		µg/Wipe	2.00		69.5	30-150			

**IDENTIFICATION SUMMARY  
FOR SINGLE COMPONENT ANALYTES****LTM-MRI-VWC-403***SW-846 8082A*Lab Sample ID: 16H1039-04 Date(s) Analyzed: 08/24/2016 08/24/2016

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%D
			FROM	TO		
Aroclor-1254	1	0.00	0.00	0.00	0.73	
	2	0.00	0.00	0.00	0.76	3.5

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# IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

*SW-846 8082A*

LCS

Lab Sample ID: B156618-BS1 Date(s) Analyzed: 08/24/2016 08/24/2016

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%D
			FROM	TO		
Aroclor-1016	1	0.00	0.00	0.00	0.46	
	2	0.00	0.00	0.00	0.47	1
Aroclor-1260	1	0.00	0.00	0.00	0.45	
	2	0.00	0.00	0.00	0.45	0

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**IDENTIFICATION SUMMARY  
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LCS Dup**Lab Sample ID: B156618-BSD1 Date(s) Analyzed: 08/24/2016 08/24/2016

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%D
			FROM	TO		
Aroclor-1016	1	0.00	0.00	0.00	0.40	
	2	0.00	0.00	0.00	0.42	6
Aroclor-1260	1	0.00	0.00	0.00	0.38	
	2	0.00	0.00	0.00	0.39	3



---

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**FLAG/QUALIFIER SUMMARY**

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

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

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

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# CERTIFICATIONS

## Certified Analyses included in this Report

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

## No certified Analyses included in this Report

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

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2017
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2017
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2017
RI	Rhode Island Department of Health	LAO00112	12/30/2016
NC	North Carolina Div. of Water Quality	652	12/31/2016
NJ	New Jersey DEP	MA007 NELAP	06/30/2017
FL	Florida Department of Health	E871027 NELAP	06/30/2017
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2017
ME	State of Maine	2011028	06/9/2017
VA	Commonwealth of Virginia	460217	12/14/2016
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2016

## CHAIN OF CUSTODY RECORD

39 Spruce Street  
East Longmeadow, MA 01028

Page 1 of 1


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

Company Name: WOODWARD : CORP

Telephone: 978 482 7867

Address: 40 SHATTUCK RD

Project # 225695

Attention: GEORGE FRANKLIN

Client PO#

Project Location: UMass

 DATA DELIVERY (check all that apply)  
☐ FAX ☒ EMAIL ☐ WEBSITE

Sampled By: GEORGE FRANKLIN

Fax #

Email: gfranklin@umass.edu

 Format: ☒ PDF ☐ EXCEL ☐ OGIS  
☐ OTHER

 Project Proposal Provided? (for billing purposes)  
☐ Yes ☐ No

Con-Test Lab ID (laboratory use only)	Client Sample ID / Description	Collection		Matrix Code	"Enhanced Data Package"		Date Code
		Beginning Date/Time	Ending Date/Time		Composite	Grab	
01	LTM-MRI-VWC-400	8/15/16	1216	0	X	0	0
02	LTM-MRI-VWC-401	8/18/16	1218	0	X	0	0
03	LTM-MRI-VWC-402	8/18/16	1208	0	X	0	0
04	LTM-MRI-VWC-403	8/18/16	1210	0	X	0	0
05	LTM-CRI-VWC-404	8/15/16	1150	0	X	0	0
06	LTM-CRI-VWC-405	8/15/16	1156	0	X	0	0
07	LTM-BRI-VWC-406	8/15/16	1204	0	X	0	0
08	LTM-BRI-VWC-407	8/15/16	1202	0	X	0	0
09	LTM-BRI-VWC-408	8/15/16	1204	0	X	0	0

Comments: PCBs via USEPA 8032 -1 Soxhlet Extraction (85400)

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in Matrix/Conc. Code Box:

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

## Detection Limit Requirements

Massachusetts:

Turnaround

7-Day

10-Day

Other STD

RUSH 15 DAY

24-Hr

48-Hr

72-Hr

14-Day

Require lab approval

Other:

## Is your project MCP or RCP?

- ☐ MCP Analytical Certification Form Required
- ☐ RCP Analysis Certification Form Required
- ☐ MA State DW Form Required PWSID #

NELAC & AIHA Certified  
WBE/DBE Certified

TURNAROUND TIME (business days) STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED. 8/19/16 3.5 1740

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



Page 1 of 2

### Sample Receipt Checklist

CLIENT NAME: Woodard & Curran RECEIVED BY: JM DATE: 8/19/16

1) Was the chain(s) of custody relinquished and signed? Yes ☒ No ☐ No COC Incl.

2) Does the chain agree with the samples? Yes ☒ No ☐

If not, explain:

3) Are all the samples in good condition? Yes ☒ No ☐

If not, explain:

4) How were the samples received:

On Ice ☒ Direct from Sampling ☐ Ambient ☐ In Cooler(s) ☒

Were the samples received in Temperature Compliance of (2-6°C)? Yes ☒ No ☐ N/A ☐

Temperature °C by Temp blank  Temperature °C by Temp gun 3.5

5) Are there Dissolved samples for the lab to filter? Yes ☐ No ☒

Who was notified  Date  Time

6) Are there any RUSH or SHORT HOLDING TIME samples? Yes ☐ No ☒

Who was notified  Date  Time

7) Location where samples are stored:

Log-In

Permission to subcontract samples? Yes ☐ No ☒  
(Walk-in clients only) if not already approved  
Client Signature:

8) Do all samples have the proper Acid pH: Yes ☐ No ☐ N/A ☒

9) Do all samples have the proper Base pH: Yes ☐ No ☐ N/A ☒

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes ☐ N/A ☒

### Containers received at Con-Test

	# of containers			# of containers
1 Liter Amber			16 oz amber	
500 mL Amber			8 oz amber/clear jar	
250 mL Amber (8oz amber)			4 oz amber/clear jar	4
1 Liter Plastic			2 oz amber/clear jar	
500 mL Plastic			Plastic Bag / Ziploc	
250 mL plastic			SOC Kit	
40 mL Vial - type listed below			Perchlorate Kit	
Colisure / bacteria bottle			Flashpoint bottle	
Dissolved Oxygen bottle			Other glass jar	
Encore			Other	

40 mL vials: # HCl  # Methanol

Time and Date Frozen:

Doc# 277 # Bisulfate  # DI Water

Rev. 4 August 2013 # Thiosulfate  Unpreserved

Login Sample Receipt Checklist

(Rejection Criteria Listing - Using Sample Acceptance Policy)

Any False statement will be brought to the attention of Client

Question	Answer (True/False)	Comment
	T/F/NA	
1) The cooler's custody seal, if present, is intact.	N/A	
2) The cooler or samples do not appear to have been compromised or tampered with.	T	
3) Samples were received on ice.	T	
4) Cooler Temperature is acceptable.	T	
5) Cooler Temperature is recorded.	T	
6) COC is filled out in ink and legible.	T	
7) COC is filled out with all pertinent information.	T	
8) Field Sampler's name present on COC.	T	
9) There are no discrepancies between the sample IDs on the container and the COC.	T	
10) Samples are received within Holding Time.	T	
11) Sample containers have legible labels.	T	
12) Containers are not broken or leaking.	T	
13) Air Cassettes are not broken/open.	N/A	
14) Sample collection date/times are provided.	T	
15) Appropriate sample containers are used.	T	
16) Proper collection media used.	T	
17) No headspace sample bottles are completely filled.	N/A	
18) There is sufficient volume for all requested analyses, including any requested MS/MSDs.	T	
19) Trip blanks provided if applicable.	N/A	
20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.	N/A	
21) Samples do not require splitting or compositing.	T	

Doc #277 Rev. 4 August 2013

Who notified of False statements?

Log-In Technician Initials:

JM

Date/Time:

Date/Time:

8/19/16 1740

August 25, 2016

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

Project Location: UMASS-McNamara  
Client Job Number:  
Project Number: 225695  
Laboratory Work Order Number: 16H1040

Enclosed are results of analyses for samples received by the laboratory on August 19, 2016. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Meghan E. Kelley  
Project Manager

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

REPORT DATE: 8/25/2016

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

**ANALYTICAL SUMMARY**

---

WORK ORDER NUMBER: 16H1040

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

PROJECT LOCATION: UMASS-McNamara

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LTM-MRH-VBC-418	16H1040-01	Wipe		SW-846 8082A	
LTM-MRH-VBC-419	16H1040-02	Wipe		SW-846 8082A	
LTM-MRH-VBCD-420	16H1040-03	Wipe		SW-846 8082A	
LTM-MRH-VBC-421	16H1040-04	Wipe		SW-846 8082A	
LTM-MRH-VBC-422	16H1040-05	Wipe		SW-846 8082A	
LTM-MRV-VBC-423	16H1040-06	Wipe		SW-846 8082A	
LTM-MRV-VBC-424	16H1040-07	Wipe		SW-846 8082A	
LTM-MRV-VBC-425	16H1040-08	Wipe		SW-846 8082A	
LTM-MRV-VBC-426	16H1040-09	Wipe		SW-846 8082A	



**CASE NARRATIVE SUMMARY**

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

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

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

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

Tod E. Kopyscinski  
Laboratory Director

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

Project Location: UMASS-McNamara

Sample Description:

Work Order: 16H1040

Date Received: 8/19/2016

Field Sample #: LTM-MRH-VBC-418

Sampled: 8/18/2016 14:04

Sample ID: 16H1040-01

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:26	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:26	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:26	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:26	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:26	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:26	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:26	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:26	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:26	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	86.5	30-150						8/24/16 16:26	
Decachlorobiphenyl [2]	95.1	30-150						8/24/16 16:26	
Tetrachloro-m-xylene [1]	78.9	30-150						8/24/16 16:26	
Tetrachloro-m-xylene [2]	85.9	30-150						8/24/16 16:26	

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Project Location: UMASS-McNamara

Sample Description:

Work Order: 16H1040

Date Received: 8/19/2016

Field Sample #: LTM-MRH-VBC-419

Sampled: 8/18/2016 13:48

Sample ID: 16H1040-02

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:39	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:39	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:39	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:39	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:39	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:39	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:39	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:39	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:39	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	83.6	30-150							
Decachlorobiphenyl [2]	91.9	30-150							
Tetrachloro-m-xylene [1]	76.0	30-150							
Tetrachloro-m-xylene [2]	83.4	30-150							

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

Project Location: UMASS-McNamara

Sample Description:

Work Order: 16H1040

Date Received: 8/19/2016

Field Sample #: LTM-MRH-VBCD-420

Sampled: 8/18/2016 13:48

Sample ID: 16H1040-03

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:51	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:51	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:51	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:51	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:51	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:51	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:51	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:51	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 16:51	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	80.9	30-150							
Decachlorobiphenyl [2]	88.8	30-150							
Tetrachloro-m-xylene [1]	72.9	30-150							
Tetrachloro-m-xylene [2]	80.1	30-150							

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

Project Location: UMASS-McNamara

Sample Description:

Work Order: 16H1040

Date Received: 8/19/2016

Field Sample #: LTM-MRH-VBC-421

Sampled: 8/18/2016 13:54

Sample ID: 16H1040-04

Sample Matrix: Wipe

### Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:04	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:04	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:04	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:04	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:04	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:04	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:04	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:04	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:04	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	82.4	30-150							
Decachlorobiphenyl [2]	90.3	30-150							
Tetrachloro-m-xylene [1]	75.4	30-150							
Tetrachloro-m-xylene [2]	82.8	30-150							

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

Project Location: UMASS-McNamara

Sample Description:

Work Order: 16H1040

Date Received: 8/19/2016

Field Sample #: LTM-MRH-VBC-422

Sampled: 8/18/2016 13:59

Sample ID: 16H1040-05

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:17	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:17	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:17	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:17	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:17	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:17	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:17	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:17	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:17	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	86.6	30-150						8/24/16 17:17	
Decachlorobiphenyl [2]	94.8	30-150						8/24/16 17:17	
Tetrachloro-m-xylene [1]	81.9	30-150						8/24/16 17:17	
Tetrachloro-m-xylene [2]	89.7	30-150						8/24/16 17:17	

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

Project Location: UMASS-McNamara

Sample Description:

Work Order: 16H1040

Date Received: 8/19/2016

Field Sample #: LTM-MRV-VBC-423

Sampled: 8/18/2016 14:05

Sample ID: 16H1040-06

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:29	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:29	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:29	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:29	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:29	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:29	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:29	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:29	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:29	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	79.8	30-150						8/24/16 17:29	
Decachlorobiphenyl [2]	87.6	30-150						8/24/16 17:29	
Tetrachloro-m-xylene [1]	72.0	30-150						8/24/16 17:29	
Tetrachloro-m-xylene [2]	79.0	30-150						8/24/16 17:29	

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

Project Location: UMASS-McNamara

Sample Description:

Work Order: 16H1040

Date Received: 8/19/2016

Field Sample #: LTM-MRV-VBC-424

Sampled: 8/18/2016 13:50

Sample ID: 16H1040-07

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:42	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:42	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:42	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:42	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:42	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:42	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:42	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:42	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:42	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	80.5	30-150						8/24/16 17:42	
Decachlorobiphenyl [2]	88.3	30-150						8/24/16 17:42	
Tetrachloro-m-xylene [1]	78.1	30-150						8/24/16 17:42	
Tetrachloro-m-xylene [2]	85.7	30-150						8/24/16 17:42	



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Project Location: UMASS-McNamara

Sample Description:

Work Order: 16H1040

Date Received: 8/19/2016

Field Sample #: LTM-MRV-VBC-425

Sampled: 8/18/2016 13:56

Sample ID: 16H1040-08

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:55	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:55	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:55	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:55	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:55	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:55	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:55	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:55	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 17:55	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	78.4	30-150						8/24/16 17:55	
Decachlorobiphenyl [2]	86.2	30-150						8/24/16 17:55	
Tetrachloro-m-xylene [1]	75.9	30-150						8/24/16 17:55	
Tetrachloro-m-xylene [2]	83.8	30-150						8/24/16 17:55	

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

Project Location: UMASS-McNamara

Sample Description:

Work Order: 16H1040

Date Received: 8/19/2016

Field Sample #: LTM-MRV-VBC-426

Sampled: 8/18/2016 14:00

Sample ID: 16H1040-09

Sample Matrix: Wipe

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 18:08	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 18:08	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 18:08	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 18:08	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 18:08	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 18:08	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 18:08	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 18:08	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	8/22/16	8/24/16 18:08	KAL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	76.4	30-150							
Decachlorobiphenyl [2]	84.0	30-150							
Tetrachloro-m-xylene [1]	73.2	30-150							
Tetrachloro-m-xylene [2]	81.4	30-150							

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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
16H1040-01 [LTM-MRH-VBC-418]	B156618	1.00	10.0	08/22/16
16H1040-02 [LTM-MRH-VBC-419]	B156618	1.00	10.0	08/22/16
16H1040-03 [LTM-MRH-VBCD-420]	B156618	1.00	10.0	08/22/16
16H1040-04 [LTM-MRH-VBC-421]	B156618	1.00	10.0	08/22/16
16H1040-05 [LTM-MRH-VBC-422]	B156618	1.00	10.0	08/22/16
16H1040-06 [LTM-MRV-VBC-423]	B156618	1.00	10.0	08/22/16
16H1040-07 [LTM-MRV-VBC-424]	B156618	1.00	10.0	08/22/16
16H1040-08 [LTM-MRV-VBC-425]	B156618	1.00	10.0	08/22/16
16H1040-09 [LTM-MRV-VBC-426]	B156618	1.00	10.0	08/22/16

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

**QUALITY CONTROL**
**Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B156618 - SW-846 3540C**
**Blank (B156618-BLK1)**

Prepared: 08/22/16 Analyzed: 08/24/16

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	1.70		µg/Wipe	2.00		84.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.85		µg/Wipe	2.00		92.3	30-150			
Surrogate: Tetrachloro-m-xylene	1.52		µg/Wipe	2.00		76.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.67		µg/Wipe	2.00		83.4	30-150			

**LCS (B156618-BS1)**

Prepared: 08/22/16 Analyzed: 08/24/16

Aroclor-1016	0.46	0.20	µg/Wipe	0.500		92.8	40-140			
Aroclor-1016 [2C]	0.47	0.20	µg/Wipe	0.500		93.9	40-140			
Aroclor-1260	0.45	0.20	µg/Wipe	0.500		90.0	40-140			
Aroclor-1260 [2C]	0.45	0.20	µg/Wipe	0.500		89.2	40-140			
Surrogate: Decachlorobiphenyl	1.68		µg/Wipe	2.00		84.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.82		µg/Wipe	2.00		91.1	30-150			
Surrogate: Tetrachloro-m-xylene	1.47		µg/Wipe	2.00		73.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.59		µg/Wipe	2.00		79.5	30-150			

**LCS Dup (B156618-BSD1)**

Prepared: 08/22/16 Analyzed: 08/24/16

Aroclor-1016	0.40	0.20	µg/Wipe	0.500		79.2	40-140	15.8	30	
Aroclor-1016 [2C]	0.42	0.20	µg/Wipe	0.500		83.2	40-140	12.1	30	
Aroclor-1260	0.38	0.20	µg/Wipe	0.500		75.5	40-140	17.5	30	
Aroclor-1260 [2C]	0.39	0.20	µg/Wipe	0.500		77.4	40-140	14.1	30	
Surrogate: Decachlorobiphenyl	1.40		µg/Wipe	2.00		69.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.53		µg/Wipe	2.00		76.4	30-150			
Surrogate: Tetrachloro-m-xylene	1.26		µg/Wipe	2.00		63.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.39		µg/Wipe	2.00		69.5	30-150			

**IDENTIFICATION SUMMARY  
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LCS**Lab Sample ID: B156618-BS1 Date(s) Analyzed: 08/24/2016 08/24/2016

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%D
			FROM	TO		
Aroclor-1016	1	0.00	0.00	0.00	0.46	
	2	0.00	0.00	0.00	0.47	1
Aroclor-1260	1	0.00	0.00	0.00	0.45	
	2	0.00	0.00	0.00	0.45	0

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

# IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

*SW-846 8082A*

LCS Dup

Lab Sample ID: B156618-BSD1 Date(s) Analyzed: 08/24/2016 08/24/2016

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%D
			FROM	TO		
Aroclor-1016	1	0.00	0.00	0.00	0.40	
	2	0.00	0.00	0.00	0.42	6
Aroclor-1260	1	0.00	0.00	0.00	0.38	
	2	0.00	0.00	0.00	0.39	3

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

**FLAG/QUALIFIER SUMMARY**

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

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

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

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

# CERTIFICATIONS

## Certified Analyses included in this Report

Analyte	Certifications
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## No certified Analyses included in this Report

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

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2017
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2017
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2017
RI	Rhode Island Department of Health	LAO00112	12/30/2016
NC	North Carolina Div. of Water Quality	652	12/31/2016
NJ	New Jersey DEP	MA007 NELAP	06/30/2017
FL	Florida Department of Health	E871027 NELAP	06/30/2017
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2017
ME	State of Maine	2011028	06/9/2017
VA	Commonwealth of Virginia	460217	12/14/2016
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2016





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



Page 1 of 2

## Sample Receipt Checklist

CLIENT NAME: Woodard & Curran RECEIVED BY: JM DATE: 8/19/16

1) Was the chain(s) of custody relinquished and signed? Yes ☒ No ☐ No COC Incl.

2) Does the chain agree with the samples? Yes ☒ No ☐

If not, explain:

3) Are all the samples in good condition? Yes ☒ No ☐

If not, explain:

4) How were the samples received:

On Ice ☒ Direct from Sampling ☐ Ambient ☐ In Cooler(s) ☒

Were the samples received in Temperature Compliance of (2-6°C)? Yes ☒ No ☐ N/A ☐

Temperature °C by Temp blank  Temperature °C by Temp gun 3.5

5) Are there Dissolved samples for the lab to filter? Yes ☐ No ☒

Who was notified  Date  Time

6) Are there any RUSH or SHORT HOLDING TIME samples? Yes ☐ No ☒

Who was notified  Date  Time

7) Location where samples are stored:

Log-In

Permission to subcontract samples? Yes ☐ No ☒  
(Walk-in clients only) if not already approved  
Client Signature:

8) Do all samples have the proper Acid pH: Yes ☐ No ☐ N/A ☒

9) Do all samples have the proper Base pH: Yes ☐ No ☐ N/A ☒

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes ☐ N/A ☒

## Containers received at Con-Test

	# of containers		# of containers
1 Liter Amber		16 oz amber	
500 mL Amber		8 oz amber/clear jar	
250 mL Amber (8oz amber)		4 oz amber/clear jar	9
1 Liter Plastic		2 oz amber/clear jar	
500 mL Plastic		Plastic Bag / Ziploc	
250 mL plastic		SOC Kit	
40 mL Vial - type listed below		Perchlorate Kit	
Colisure / bacteria bottle		Flashpoint bottle	
Dissolved Oxygen bottle		Other glass jar	
Encore		Other	

40 mL vials: # HCl <input type="text"/> # Methanol <input type="text"/>		Time and Date Frozen: <input type="text"/>
# Bisulfate <input type="text"/> # DI Water <input type="text"/>		
# Thiosulfate <input type="text"/> Unpreserved <input type="text"/>		

Doc# 277

Rev. 4 August 2013

Login Sample Receipt Checklist

(Rejection Criteria Listing - Using Sample Acceptance Policy)

Any False statement will be brought to the attention of Client

Question	Answer (True/False)	Comment
	T/F/NA	
1) The cooler's custody seal, if present, is intact.	N/A	
2) The cooler or samples do not appear to have been compromised or tampered with.	T	
3) Samples were received on ice.	T	
4) Cooler Temperature is acceptable.	T	
5) Cooler Temperature is recorded.	T	
6) COC is filled out in ink and legible.	T	
7) COC is filled out with all pertinent information.	T	
8) Field Sampler's name present on COC.	T	
9) There are no discrepancies between the sample IDs on the container and the COC.	T	
10) Samples are received within Holding Time.	T	
11) Sample containers have legible labels.	T	
12) Containers are not broken or leaking.	T	
13) Air Cassettes are not broken/open.	N/A	
14) Sample collection date/times are provided.	T	
15) Appropriate sample containers are used.	T	
16) Proper collection media used.	T	
17) No headspace sample bottles are completely filled.	N/A	
18) There is sufficient volume for all requested analyses, including any requested MS/MSDs.	T	
19) Trip blanks provided if applicable.	N/A	
20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.	N/A	
21) Samples do not require splitting or compositing.	N/A	

Doc #277 Rev. 4 August 2013

Who notified of False statements?

Log-In Technician Initials:

JM

Date/Time:

Date/Time:

8/19/16 1740

August 29, 2016

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

Project Location: Sylvan and Orchard Hill  
Client Job Number:  
Project Number: 225695  
Laboratory Work Order Number: 16H1053

Enclosed are results of analyses for samples received by the laboratory on August 19, 2016. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Meghan E. Kelley  
Project Manager

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---

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

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

REPORT DATE: 8/29/2016

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

**ANALYTICAL SUMMARY**

---

WORK ORDER NUMBER: 16H1053

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

PROJECT LOCATION: Sylvan and Orchard Hill

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LT-MR-IAS-001	16H1053-01	Indoor air		TO-10A/EPA 680 Modified	
LT-MR-IAS-002	16H1053-02	Indoor air		TO-10A/EPA 680 Modified	
LT-CR-IAS-003	16H1053-03	Indoor air		TO-10A/EPA 680 Modified	
LT-BR-IAS-004	16H1053-04	Indoor air		TO-10A/EPA 680 Modified	
LT-WH-IAS-005	16H1053-05	Indoor air		TO-10A/EPA 680 Modified	
LT-GH-IAS-006	16H1053-06	Indoor air		TO-10A/EPA 680 Modified	

**CASE NARRATIVE SUMMARY**

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

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

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

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

Lisa A. Worthington  
Project Manager

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

## ANALYTICAL RESULTS

Project Location: Sylvan and Orchard Hill

Date Received: 8/19/2016

Field Sample #: LT-MR-IAS-001

Sample ID: 16H1053-01

Sample Matrix: Indoor air

Sampled: 8/18/2016 15:17

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Air Volume L: 1082.56

Work Order: 16H1053

## TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		Analyst
	Results	RL		Results	RL		Analyzed		
Monochlorobiphenyls	ND	0.0010		ND	0.00092	1	8/25/16 8:26		CJM
Dichlorobiphenyls	0.044	0.0010		0.041	0.00092	1	8/25/16 8:26		CJM
Trichlorobiphenyls	0.11	0.0010		0.100	0.00092	1	8/25/16 8:26		CJM
Tetrachlorobiphenyls	0.21	0.0020		0.19	0.0018	1	8/25/16 8:26		CJM
Pentachlorobiphenyls	0.16	0.0020		0.14	0.0018	1	8/25/16 8:26		CJM
Hexachlorobiphenyls	0.041	0.0020		0.038	0.0018	1	8/25/16 8:26		CJM
Heptachlorobiphenyls	0.0053	0.0030		0.0049	0.0028	1	8/25/16 8:26		CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0028	1	8/25/16 8:26		CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0046	1	8/25/16 8:26		CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0046	1	8/25/16 8:26		CJM
Total Polychlorinated biphenyls	0.56			0.52		1	8/25/16 8:26		CJM
Surrogates	% Recovery			% REC Limits					
Tetrachloro-m-xylene	74.0			50-125			8/25/16 8:26		



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## ANALYTICAL RESULTS

Project Location: Sylvan and Orchard Hill

Date Received: 8/19/2016

Field Sample #: LT-MR-IAS-002

Sample ID: 16H1053-02

Sample Matrix: Indoor air

Sampled: 8/18/2016 15:10

Sample Description/Location:

Sub Description/Location:

Work Order: 16H1053

Flow Controller ID:

Sample Type:

Air Volume L: 1073.42

## TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	ND	0.0010		ND	0.00093	1	8/25/16	9:03	CJM
Dichlorobiphenyls	0.016	0.0010		0.015	0.00093	1	8/25/16	9:03	CJM
Trichlorobiphenyls	0.089	0.0010		0.083	0.00093	1	8/25/16	9:03	CJM
Tetrachlorobiphenyls	0.24	0.0020		0.23	0.0019	1	8/25/16	9:03	CJM
Pentachlorobiphenyls	0.30	0.0020		0.28	0.0019	1	8/25/16	9:03	CJM
Hexachlorobiphenyls	0.10	0.0020		0.095	0.0019	1	8/25/16	9:03	CJM
Heptachlorobiphenyls	0.022	0.0030		0.020	0.0028	1	8/25/16	9:03	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0028	1	8/25/16	9:03	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0047	1	8/25/16	9:03	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0047	1	8/25/16	9:03	CJM
Total Polychlorinated biphenyls	0.77			0.72		1	8/25/16	9:03	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	89.3	50-125	8/25/16 9:03

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## ANALYTICAL RESULTS

Project Location: Sylvan and Orchard Hill

Date Received: 8/19/2016

Field Sample #: LT-CR-IAS-003

Sample ID: 16H1053-03

Sample Matrix: Indoor air

Sampled: 8/18/2016 15:26

Sample Description/Location:

Sub Description/Location:

Work Order: 16H1053

Flow Controller ID:

Sample Type:

Air Volume L: 1018.78

## TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	ND	0.0010		ND	0.00098	1	8/25/16	9:41	CJM
Dichlorobiphenyls	0.043	0.0010		0.042	0.00098	1	8/25/16	9:41	CJM
Trichlorobiphenyls	0.10	0.0010		0.099	0.00098	1	8/25/16	9:41	CJM
Tetrachlorobiphenyls	0.38	0.0020		0.37	0.002	1	8/25/16	9:41	CJM
Pentachlorobiphenyls	0.42	0.0020		0.41	0.002	1	8/25/16	9:41	CJM
Hexachlorobiphenyls	0.088	0.0020		0.087	0.002	1	8/25/16	9:41	CJM
Heptachlorobiphenyls	0.0078	0.0030		0.0076	0.0029	1	8/25/16	9:41	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0029	1	8/25/16	9:41	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0049	1	8/25/16	9:41	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0049	1	8/25/16	9:41	CJM
Total Polychlorinated biphenyls	1.0			1.0		1	8/25/16	9:41	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	80.0	50-125	8/25/16 9:41

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## ANALYTICAL RESULTS

Project Location: Sylvan and Orchard Hill

Date Received: 8/19/2016

Field Sample #: LT-BR-IAS-004

Sample ID: 16H1053-04

Sample Matrix: Indoor air

Sampled: 8/18/2016 15:33

Sample Description/Location:

Sub Description/Location:

Work Order: 16H1053

Flow Controller ID:

Sample Type:

Air Volume L: 1049.83

## TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		Analyst
	Results	RL		Results	RL		Analyzed		
Monochlorobiphenyls	ND	0.0010		ND	0.00095	1	8/25/16	10:18	CJM
Dichlorobiphenyls	0.0040	0.0010		0.0038	0.00095	1	8/25/16	10:18	CJM
Trichlorobiphenyls	0.027	0.0010		0.026	0.00095	1	8/25/16	10:18	CJM
Tetrachlorobiphenyls	0.12	0.0020		0.11	0.0019	1	8/25/16	10:18	CJM
Pentachlorobiphenyls	0.14	0.0020		0.13	0.0019	1	8/25/16	10:18	CJM
Hexachlorobiphenyls	0.048	0.0020		0.046	0.0019	1	8/25/16	10:18	CJM
Heptachlorobiphenyls	0.010	0.0030		0.0096	0.0029	1	8/25/16	10:18	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0029	1	8/25/16	10:18	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0048	1	8/25/16	10:18	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0048	1	8/25/16	10:18	CJM
Total Polychlorinated biphenyls	0.35			0.33		1	8/25/16	10:18	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	80.5	50-125	8/25/16 10:18

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## ANALYTICAL RESULTS

Project Location: Sylvan and Orchard Hill

Date Received: 8/19/2016

Field Sample #: LT-WH-IAS-005

Sample ID: 16H1053-05

Sample Matrix: Indoor air

Sampled: 8/18/2016 15:49

Sample Description/Location:

Sub Description/Location:

Work Order: 16H1053

Flow Controller ID:

Sample Type:

Air Volume L: 1004.4

## TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	0.0012	0.0010		0.0011	0.001	1	8/25/16	13:26	CJM
Dichlorobiphenyls	0.0041	0.0010		0.0041	0.001	1	8/25/16	13:26	CJM
Trichlorobiphenyls	0.0089	0.0010		0.0088	0.001	1	8/25/16	13:26	CJM
Tetrachlorobiphenyls	0.0096	0.0020		0.0095	0.002	1	8/25/16	13:26	CJM
Pentachlorobiphenyls	0.010	0.0020		0.010	0.002	1	8/25/16	13:26	CJM
Hexachlorobiphenyls	ND	0.0020		ND	0.002	1	8/25/16	13:26	CJM
Heptachlorobiphenyls	ND	0.0030		ND	0.003	1	8/25/16	13:26	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.003	1	8/25/16	13:26	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.005	1	8/25/16	13:26	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.005	1	8/25/16	13:26	CJM
Total Polychlorinated biphenyls	0.034			0.034		1	8/25/16	13:26	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	80.8	50-125	8/25/16 13:26

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## ANALYTICAL RESULTS

Project Location: Sylvan and Orchard Hill

Date Received: 8/19/2016

Field Sample #: LT-GH-IAS-006

Sample ID: 16H1053-06

Sample Matrix: Indoor air

Sampled: 8/18/2016 16:00

Sample Description/Location:

Sub Description/Location:

Work Order: 16H1053

Flow Controller ID:

Sample Type:

Air Volume L: 1004.4

## TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	ND	0.0010		ND	0.001	1	8/25/16	14:03	CJM
Dichlorobiphenyls	0.0027	0.0010		0.0027	0.001	1	8/25/16	14:03	CJM
Trichlorobiphenyls	0.0062	0.0010		0.0062	0.001	1	8/25/16	14:03	CJM
Tetrachlorobiphenyls	0.011	0.0020		0.011	0.002	1	8/25/16	14:03	CJM
Pentachlorobiphenyls	0.010	0.0020		0.0099	0.002	1	8/25/16	14:03	CJM
Hexachlorobiphenyls	0.0024	0.0020		0.0024	0.002	1	8/25/16	14:03	CJM
Heptachlorobiphenyls	ND	0.0030		ND	0.003	1	8/25/16	14:03	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.003	1	8/25/16	14:03	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.005	1	8/25/16	14:03	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.005	1	8/25/16	14:03	CJM
Total Polychlorinated biphenyls	0.032			0.032		1	8/25/16	14:03	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	76.0	50-125	8/25/16 14:03

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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
16H1053-01 [LT-MR-IAS-001]	B156585	1.00	1.00	08/23/16
16H1053-02 [LT-MR-IAS-002]	B156585	1.00	1.00	08/23/16
16H1053-03 [LT-CR-IAS-003]	B156585	1.00	1.00	08/23/16
16H1053-04 [LT-BR-IAS-004]	B156585	1.00	1.00	08/23/16
16H1053-05 [LT-WH-IAS-005]	B156585	1.00	1.00	08/23/16
16H1053-06 [LT-GH-IAS-006]	B156585	1.00	1.00	08/23/16

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

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

**Batch B156585 - SW-846 3540C**
**Blank (B156585-BLK1)**

Prepared: 08/23/16 Analyzed: 08/24/16

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

Surrogate: Tetrachloro-m-xylene 0.172 0.200 85.9 50-125

**LCS (B156585-BS1)**

Prepared: 08/23/16 Analyzed: 08/24/16

Monochlorobiphenyls	0.15	0.0010	0.200	75.8	40-140
Dichlorobiphenyls	0.16	0.0010	0.200	77.9	40-140
Trichlorobiphenyls	0.14	0.0010	0.200	72.0	40-140
Tetrachlorobiphenyls	0.29	0.0020	0.400	72.2	40-140
Pentachlorobiphenyls	0.31	0.0020	0.400	76.3	40-140
Hexachlorobiphenyls	0.34	0.0020	0.400	86.1	40-140
Heptachlorobiphenyls	0.53	0.0030	0.600	88.7	40-140
Octachlorobiphenyls	0.48	0.0030	0.600	80.7	40-140
Nonachlorobiphenyls	0.73	0.0050	1.00	72.7	40-140
Decachlorobiphenyl	0.66	0.0050	1.00	66.4	40-140

Surrogate: Tetrachloro-m-xylene 0.153 0.200 76.5 50-125

**LCS Dup (B156585-BSD1)**

Prepared: 08/23/16 Analyzed: 08/24/16

Monochlorobiphenyls	0.17	0.0010	0.200	82.7	40-140	8.63	50
Dichlorobiphenyls	0.17	0.0010	0.200	86.2	40-140	10.2	50
Trichlorobiphenyls	0.16	0.0010	0.200	79.3	40-140	9.62	50
Tetrachlorobiphenyls	0.32	0.0020	0.400	78.9	40-140	8.77	50
Pentachlorobiphenyls	0.33	0.0020	0.400	83.4	40-140	8.81	50
Hexachlorobiphenyls	0.38	0.0020	0.400	94.5	40-140	9.27	50
Heptachlorobiphenyls	0.57	0.0030	0.600	95.5	40-140	7.44	50
Octachlorobiphenyls	0.53	0.0030	0.600	88.1	40-140	8.82	50
Nonachlorobiphenyls	0.80	0.0050	1.00	80.1	40-140	9.72	50
Decachlorobiphenyl	0.74	0.0050	1.00	74.3	40-140	11.2	50

Surrogate: Tetrachloro-m-xylene 0.161 0.200 80.7 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
DL	Method Detection Limit
MCL	Maximum Contaminant Level

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

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



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# CERTIFICATIONS

## Certified Analyses included in this Report

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

### TO-10A/EPA 680 Modified in Air

Total Polychlorinated biphenyls                      AIHA

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

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2017
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2017
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2017
RI	Rhode Island Department of Health	LAO00112	12/30/2016
NC	North Carolina Div. of Water Quality	652	12/31/2016
NJ	New Jersey DEP	MA007 NELAP	06/30/2017
FL	Florida Department of Health	E871027 NELAP	06/30/2017
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2017
ME	State of Maine	2011028	06/9/2017
VA	Commonwealth of Virginia	460217	12/14/2016
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2016





Phone: 413-525-2332

Fax: 413-525-6405

Email: info@contestlabs.com

http://www.contestlabs.com

Doc #378 Rev 0 5/8/15

## CHAIN OF CUSTODY RECORD (AIR)

39 Spruce Street  
East Longmeadow, MA 01028

Page 1 of 1

Company Name: **WOODARD & CURRAN**  
 Address: **40 SHATTUCK RD ANDOVER MA**  
 Phone: **978 482 7867**  
 Project Name: **UMASS RES AIR SAMPLING**  
 Project Location: **SYLVAN AND ORCHARD**  
 Project Number: **226 225695**  
 Project Manager: **JEFF HAMEL**  
 Con-Test Bid:  
 Invoice Recipient: **GEORGE FRANKLIN**  
 Sampled By: **GEORGE FRANKLIN**

**Requested Turnaround Time**  
 1-Day ☐ 10-Day ☒  
 Other:  
**Rush Approval Required**  
 1-Day ☐ 3-Day ☐  
 2-Day ☐ 4-Day ☐  
**Data Delivery**  
 Format: PDF ☒ EXCEL ☐  
 Other:  
 Enhanced Data Package Required: ☐  
 Email To: **gfranklin@jeffhamel.com**  
 Fax To #:

## ANALYSIS REQUESTED

Hg

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	Client Use	Collection Data		Duration	Flow Rate	Matrix	Volumes	Initial Pressure				Final Pressure				Lab Receipt Pressure			
Con-Test Work Order	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Total Minutes Sampled	mp/min L/min	Code	Liters ml												
01	LT-MR-IAS-001	8/15/16 0839	1517	398	2.72	IA	1082.56	X				28.21							
02	LT-MR-IAS-002	8/15/16 0845	1510	382	2.81	IA	1073.42	X				28.21							
03	LT-MR-IAS-003	8/15/16 0903	1526	383	2.66	IA	1018.78	X				28.21							
04	LT-MR-IAS-004	8/15/16 0914	1533	379	2.77	IA	1049.83	X				28.21							
05	LT-WH-IAS-005	8/15/16 0949	1549	360	2.79	IA	1004.4	X				28.09							
06	LT-GH-IAS-006	8/15/16 1500	1530	360	2.79	IA	1004.4	X				28.09							

Comments:  
 TO-10A BY RL S O.10  
 GC/MS PCB ANALYSIS METHOD 680A

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:

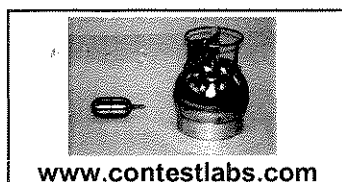
SG = SOIL GAS  
 IA = INDOOR AIR  
 AMB = AMBIENT  
 SS = SUB SLAB  
 D = DUP  
 BL = BLANK  
 O = Other

Relinquished by: (signature) **[Signature]** Date/Time: **8/19/16 1000**  
 Received by: (signature) **[Signature]** Date/Time: **8/19/16 1000**  
 Relinquished by: (signature) **[Signature]** Date/Time: **8/19/16 1300**  
 Received by: (signature) **[Signature]** Date/Time: **8-19-16**  
 Relinquished by: (signature) **[Signature]** Date/Time: **8-19-16 1740**  
 Received by: (signature) **[Signature]** Date/Time: **8/19/16 1740**

**Detection Limit Requirements**  
 MA ☐ MA MCP Required  
 CT ☐ CT RCP Required  
 Other ☐ Enhanced Data Package Required

TURNAROUND TIME (BUSINESS DAYS) STARTS AT 9:00 AM THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON THIS CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME CANNOT START UNTIL ALL QUESTIONS HAVE BEEN ANSWERED.

PLEASE BE CAREFUL NOT TO CONTAMINATE THIS DOCUMENT



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

**AIR Only Receipt Checklist**

CLIENT NAME Woodard & Curran RECEIVED BY: PLF DATE: 8/19/16

1) Was the chain(s) of custody relinquished and signed? Yes X No     

2) Does the chain agree with the samples? Yes X No     

If not, explain:

3) Are all the samples in good condition? Yes X No     

If not, explain:

4) Are there any samples "On Hold"? Yes      No X Stored where:     

5) Are there any RUSH or SHORT HOLDING TIME samples? Yes      No X

Who was notified      Date      Time     

6) Location where samples are stored:

Walk in

Permission to subcontract samples? Yes No  
(Walk-in clients only) if not already approved  
Client Signature:     

7) Number of cans Individually Certified or Batch Certified? None

**Containers received at Con-Test**

	# of Containers	Types (Size, Duration)
Summa Cans (TO-14/TO-15/APH)		
Tedlar Bags		
TO-17 Tubes		
Regulators		
Restrictors		
Hg/Hopcalite Tube (NIOSH 6009)		
(TO-4A/TO-10A/TO-13) PUFs	<u>6</u>	<u>100 Volume</u>
PCB Florisil Tubes (NIOSH 5503)		
Air cassette		
PM 2.5/PM 10		
TO-11A Cartridges		
Other		

Unused Summas/PUF Media:

Unused Regulators:

1) Was all media (used & unused) checked into the WASP?

2) Were all returned summa cans, Restrictors & Regulators and PUF's documented as returned in the Air Lab Inbound/Outbound Excel Spreadsheet?

Laboratory Comments:									
	<u>081516-01</u>	<u>081516-03</u>	<u>081516-05</u>						
	<u>081516-02</u>	<u>081516-04</u>	<u>081516-06</u>						

Page 2 of 2

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

<u>Question</u>	<u>Answer (True/False)</u>		<u>Comment</u>
	<u>T/F/NA</u>		
1) The coolers'/boxes' custody seal, if present, is intact.	LA		
2) The cooler or samples do not appear to have been compromised or tampered with.	T		
3) Samples were received on ice.	T		
4) Cooler Temperature is acceptable.	T		
5) Cooler Temperature is recorded.	T		
6) COC is filled out in ink and legible.	T		
7) COC is filled out with all pertinent information.	T		
8) Field Sampler's name present on COC.	T		
9) Samples are received within Holding Time.	T		
10) Sample containers have legible labels.	T		
11) Containers/media are not broken or leaking and valves and caps are closed tightly.	T		
12) Sample collection date/times are provided.	T		
13) Appropriate sample/media containers are used.	T		
14) There is sufficient volume for all requested analyses, including any requested MS/MSDs.	T		
15) Trip blanks provided if applicable.	T		

Doc #278 Rev. 5 October 2014

Who notified of False statements?

Log-In Technician Initials:

Date/Time:

Date/Time:

PLT 8/19/16 1740

December 2, 2016

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

Project Location: UMass Sylvan, Amherst, MA  
Client Job Number:  
Project Number: 225695  
Laboratory Work Order Number: 16K1224

Enclosed are results of analyses for samples received by the laboratory on November 22, 2016. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Meghan E. Kelley  
Project Manager

## Table of Contents

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

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

REPORT DATE: 12/2/2016

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

**ANALYTICAL SUMMARY**

---

WORK ORDER NUMBER: 16K1224

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

PROJECT LOCATION: UMass Sylvan, Amherst, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MR-IAS-003	16K1224-01	Indoor air		TO-10A/EPA 680 Modified	
MR-IAS-004	16K1224-02	Indoor air		TO-10A/EPA 680 Modified	
CR-IAS-005	16K1224-03	Indoor air		TO-10A/EPA 680 Modified	



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#### CASE NARRATIVE SUMMARY

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

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

##### Qualifications:

###### V-06

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

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

###### Octachlorobiphenyls

B164275-BS1, B164275-BSD1

###### V-20

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

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

###### Octachlorobiphenyls

16K1224-01[MR-IAS-003], 16K1224-02[MR-IAS-004], 16K1224-03[CR-IAS-005], B164275-BLK1

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

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



Lisa A. Worthington  
Project Manager

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

## ANALYTICAL RESULTS

Project Location: UMass Sylvan, Amherst, MA

Date Received: 11/22/2016

Field Sample #: MR-IAS-003

Sample ID: 16K1224-01

Sample Matrix: Indoor air

Sampled: 11/21/2016 14:41

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Air Volume L: 1067.4

Work Order: 16K1224

## TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	ND	0.0010		ND	0.00094	1	11/30/16	4:40	CJM
Dichlorobiphenyls	ND	0.0010		ND	0.00094	1	11/30/16	4:40	CJM
Trichlorobiphenyls	0.028	0.0010		0.027	0.00094	1	11/30/16	4:40	CJM
Tetrachlorobiphenyls	0.055	0.0020		0.051	0.0019	1	11/30/16	4:40	CJM
Pentachlorobiphenyls	0.035	0.0020		0.033	0.0019	1	11/30/16	4:40	CJM
Hexachlorobiphenyls	0.020	0.0020		0.019	0.0019	1	11/30/16	4:40	CJM
Heptachlorobiphenyls	0.0047	0.0030		0.0044	0.0028	1	11/30/16	4:40	CJM
Octachlorobiphenyls	ND	0.0030	V-20	ND	0.0028	1	11/30/16	4:40	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0047	1	11/30/16	4:40	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0047	1	11/30/16	4:40	CJM
Total Polychlorinated biphenyls	0.14			0.13		1	11/30/16	4:40	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	101	50-125	11/30/16 4:40

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## ANALYTICAL RESULTS

Project Location: UMass Sylvan, Amherst, MA

Date Received: 11/22/2016

Field Sample #: MR-1AS-004

Sample ID: 16K1224-02

Sample Matrix: Indoor air

Sampled: 11/21/2016 14:50

Sample Description/Location:

Sub Description/Location:

Work Order: 16K1224

Flow Controller ID:

Sample Type:

Air Volume L: 1078.6

## TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	ND	0.0010	V-20	ND	0.00093	1	11/30/16	5:18	CJM
Dichlorobiphenyls	0.0065	0.0010		0.006	0.00093	1	11/30/16	5:18	CJM
Trichlorobiphenyls	0.043	0.0010		0.040	0.00093	1	11/30/16	5:18	CJM
Tetrachlorobiphenyls	0.11	0.0020		0.099	0.0019	1	11/30/16	5:18	CJM
Pentachlorobiphenyls	0.13	0.0020		0.12	0.0019	1	11/30/16	5:18	CJM
Hexachlorobiphenyls	0.031	0.0020		0.028	0.0019	1	11/30/16	5:18	CJM
Heptachlorobiphenyls	0.0047	0.0030		0.0043	0.0028	1	11/30/16	5:18	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0028	1	11/30/16	5:18	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0046	1	11/30/16	5:18	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0046	1	11/30/16	5:18	CJM
Total Polychlorinated biphenyls	0.32			0.30		1	11/30/16	5:18	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	101	50-125	11/30/16 5:18

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## ANALYTICAL RESULTS

Project Location: UMass Sylvan, Amherst, MA

Date Received: 11/22/2016

Field Sample #: CR-IAS-005

Sample ID: 16K1224-03

Sample Matrix: Indoor air

Sampled: 11/21/2016 15:05

Sample Description/Location:

Sub Description/Location:

Work Order: 16K1224

Flow Controller ID:

Sample Type:

Air Volume L: 983.5

## TO-10A/EPA 680 Modified

Analyte	Total µg		Flag/Qual	ug/m3		Dilution	Date/Time		
	Results	RL		Results	RL		Analyzed	Analyst	
Monochlorobiphenyls	ND	0.0010	V-20	ND	0.001	1	11/30/16	5:55	CJM
Dichlorobiphenyls	0.016	0.0010		0.016	0.001	1	11/30/16	5:55	CJM
Trichlorobiphenyls	0.050	0.0010		0.051	0.001	1	11/30/16	5:55	CJM
Tetrachlorobiphenyls	0.19	0.0020		0.19	0.002	1	11/30/16	5:55	CJM
Pentachlorobiphenyls	0.21	0.0020		0.22	0.002	1	11/30/16	5:55	CJM
Hexachlorobiphenyls	0.031	0.0020		0.031	0.002	1	11/30/16	5:55	CJM
Heptachlorobiphenyls	ND	0.0030		ND	0.0031	1	11/30/16	5:55	CJM
Octachlorobiphenyls	ND	0.0030		ND	0.0031	1	11/30/16	5:55	CJM
Nonachlorobiphenyls	ND	0.0050		ND	0.0051	1	11/30/16	5:55	CJM
Decachlorobiphenyl	ND	0.0050		ND	0.0051	1	11/30/16	5:55	CJM
Total Polychlorinated biphenyls	0.50			0.51		1	11/30/16	5:55	CJM

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	102	50-125	11/30/16 5:55

---

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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
16K1224-01 [MR-IAS-003]	B164275	1.00	1.00	11/28/16
16K1224-02 [MR-IAS-004]	B164275	1.00	1.00	11/28/16
16K1224-03 [CR-IAS-005]	B164275	1.00	1.00	11/28/16

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## QUALITY CONTROL

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

Analyte	Total µg		ug/m3		Spike Level	Source	%REC	%REC	RPD	RPD	Flag/Qual
	Results	RL	Results	RL	Total µg	Result	%REC	Limits	RPD	Limit	
Batch B164275 - SW-846 3540C											
Blank (B164275-BLK1)					Prepared: 11/28/16 Analyzed: 11/30/16						
Monochlorobiphenyls	ND	0.0010									
Dichlorobiphenyls	ND	0.0010									
Trichlorobiphenyls	ND	0.0010									
Tetrachlorobiphenyls	ND	0.0020									
Pentachlorobiphenyls	ND	0.0020									
Hexachlorobiphenyls	ND	0.0020									
Heptachlorobiphenyls	ND	0.0030									
Octachlorobiphenyls	ND	0.0030									V-20
Nonachlorobiphenyls	ND	0.0050									
Decachlorobiphenyl	ND	0.0050									
Total Polychlorinated biphenyls	0.0										
Surrogate: Tetrachloro-m-xylene	0.199				0.200		99.3	50-125			
LCS (B164275-BS1)					Prepared: 11/28/16 Analyzed: 11/30/16						
Monochlorobiphenyls	0.21	0.0010			0.200		105	40-140			
Dichlorobiphenyls	0.20	0.0010			0.200		98.4	40-140			
Trichlorobiphenyls	0.19	0.0010			0.200		97.3	40-140			
Tetrachlorobiphenyls	0.43	0.0020			0.400		106	40-140			
Pentachlorobiphenyls	0.48	0.0020			0.400		120	40-140			
Hexachlorobiphenyls	0.48	0.0020			0.400		120	40-140			
Heptachlorobiphenyls	0.72	0.0030			0.600		121	40-140			
Octachlorobiphenyls	0.76	0.0030			0.600		126	40-140			V-06
Nonachlorobiphenyls	1.1	0.0050			1.00		107	40-140			
Decachlorobiphenyl	0.90	0.0050			1.00		90.2	40-140			
Surrogate: Tetrachloro-m-xylene	0.226				0.200		113	50-125			
LCS Dup (B164275-BSD1)					Prepared: 11/28/16 Analyzed: 11/30/16						
Monochlorobiphenyls	0.20	0.0010			0.200		101	40-140	3.84	50	
Dichlorobiphenyls	0.20	0.0010			0.200		97.5	40-140	0.895	50	
Trichlorobiphenyls	0.20	0.0010			0.200		98.6	40-140	1.31	50	
Tetrachlorobiphenyls	0.43	0.0020			0.400		107	40-140	0.869	50	
Pentachlorobiphenyls	0.50	0.0020			0.400		124	40-140	3.43	50	
Hexachlorobiphenyls	0.48	0.0020			0.400		119	40-140	0.565	50	
Heptachlorobiphenyls	0.72	0.0030			0.600		119	40-140	0.907	50	
Octachlorobiphenyls	0.75	0.0030			0.600		124	40-140	1.18	50	V-06
Nonachlorobiphenyls	1.0	0.0050			1.00		104	40-140	2.75	50	
Decachlorobiphenyl	0.85	0.0050			1.00		84.9	40-140	6.13	50	
Surrogate: Tetrachloro-m-xylene	0.208				0.200		104	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
DL	Method Detection Limit
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
V-06	Continuing calibration did not meet method specifications and was biased on the high side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the high side.
V-20	Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

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# CERTIFICATIONS

## Certified Analyses included in this Report

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

### TO-10A/EPA 680 Modified in Air

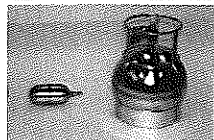
Total Polychlorinated biphenyls                      AIHA

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

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2017
CT	Connecticut Department of Public Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2017
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2017
RI	Rhode Island Department of Health	LAO00112	12/30/2016
NC	North Carolina Div. of Water Quality	652	12/31/2016
NJ	New Jersey DEP	MA007 NELAP	06/30/2017
FL	Florida Department of Health	E871027 NELAP	06/30/2017
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2017
ME	State of Maine	2011028	06/9/2017
VA	Commonwealth of Virginia	460217	12/14/2016
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2017







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Page 1 of 2

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

**AIR Only Receipt Checklist**

CLIENT NAME Woodard Curran RECEIVED BY: PB DATE: 11.22.16

1) Was the chain(s) of custody relinquished and signed?

Yes ☒ No ☐

2) Does the chain agree with the samples?

Yes ☒ No ☐

If not, explain:

3) Are all the samples in good condition?

Yes ☒ No ☐

If not, explain:

4) Are there any samples "On Hold"?

Yes ☐ No ☒ Stored where: 

5) Are there any RUSH or SHORT HOLDING TIME samples?

Yes ☐ No ☒

Who was notified \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

6) Location where samples are stored:

Walk In

Permission to subcontract samples? Yes No  
(Walk-in clients only) if not already approved  
Client Signature: \_\_\_\_\_

7) Number of cans Individually Certified or Batch Certified? \_\_\_\_\_

**Containers received at Con-Test**

	# of Containers	Types (Size, Duration)
Summa Cans (TO-14/TO-15/APH)		
Tedlar Bags		
TO-17 Tubes		
Regulators		
Restrictors		
Hg/Hopcalite Tube (NIOSH 6009)		
(TO-4A/ TO-10A/TO-13) PUFs	3	low level
PCB Florisil Tubes (NIOSH 5503)		
Air cassette		
PM 2.5/PM 10		
TO-11A Cartridges		
Other		

Unused Summas/PUF Media:

Unused Regulators:

111616-01  
02  
03

1) Was all media (used &amp; unused) checked into the WASP?

2) Were all returned summa cans, Restrictors & Regulators and PUF's documented as returned in the Air Lab Inbound/Outbound Excel Spreadsheet?

Laboratory Comments:																				

Page 2 of 2

**Login Sample Receipt Checklist****(Rejection Criteria Listing - Using Sample Acceptance Policy)****Any False statement will be brought to the attention of Client**

Question	Answer (True/False)		Comment
	T/F/NA		
1) The coolers'/'boxes' custody seal, if present, is intact.	NA		
2) The cooler or samples do not appear to have been compromised or tampered with.	T		
3) Samples were received on ice.	T		
4) Cooler Temperature is acceptable.	T		
5) Cooler Temperature is recorded.	T		
6) COC is filled out in ink and legible.	T		
7) COC is filled out with all pertinent information.	T		
8) Field Sampler's name present on COC.	T		
9) Samples are received within Holding Time.	T		
10) Sample containers have legible labels.	T		
11) Containers/media are not broken or leaking and valves and caps are closed tightly.	T		
12) Sample collection date/times are provided.	T		
13) Appropriate sample/media containers are used.	T		
14) There is sufficient volume for all requested analyses, including any requested MS/MSDs.	T		
15) Trip blanks provided if applicable.	NA		

Doc #278 Rev. 5 October 2014

Who notified of False statements?

Log-In Technician Initials: PB

Date/Time:

Date/Time: 11.22.16

19:10

## SOUTHWEST CONCOURSE WIPE SAMPLE - PROJECT SUMMARY

### ConTest Analytical Laboratory Job Number: 16H0205

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

The data validation was conducted in accordance with "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review" August 2014; "EPA New England Environmental Data Review Supplement For Regional Data Review Elements and Superfund Specific Guidance/Procedures" April 2013; and the referenced method.

Samples were received at 5.6 degrees Celsius. No qualifications were applied.

#### PCBs:

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

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

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

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

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

The PCB laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) met recovery and relative percent difference (RPD) acceptance criteria. No qualifications were applied.

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

The RPD between the column results for all detected PCBs met acceptance criteria ( $\leq 25\%$ ) with the following exception:

LAB ID	SAMPLE ID	PCB	RPD	QUALIFIER
16H0205-01	LTM-SWC-VWC-367	1254	28.2	J

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Gloria J. Switalski:  
President



Date: 8/16/2016

## DUBOIS LIBRARY INDOOR AIR SAMPLES - PROJECT SUMMARY

### Con-Test Analytical Laboratory Job Number: 16H0200

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

The data validation was conducted in accordance with "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review" August 2014; "EPA New England Environmental Data Review Supplement For Regional Data Review Elements and Superfund Specific Guidance/Procedures" April 2013; and the referenced method.

Samples were received above 6°C. Therefore, detected and non-detected results for all samples in 16H0200 were qualified as estimated (J/UJ).

### 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: "Continuing calibration did not meet method specifications and was biased on the high side for this compound. Increased uncertainty is associated with the associate value which is likely to be biased on the high side." Therefore, the detected monochlorobiphenyl result for all samples in 16H0200 was qualified as estimated (J).

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-8E-IAS-232 (16H0200-03)/DL-8E-IAS-233 (16H0200-04) met acceptance criteria. No qualifications were applied.

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## UMASS LONG TERM MONITORING AUGUST 2016 - PROJECT SUMMARY

### Con-Test Analytical Laboratory Job Number: 16H1053

The data validation was conducted in accordance with "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review" September 2016; "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 "in good condition". No qualifications were applied.

#### PCBs:

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

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

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

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

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

The PCB homolog laboratory control 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.

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Date:

12/7/2016

## SYLVAN INDOOR AIR NOVEMBER 2016 - PROJECT SUMMARY

### Con-Test Analytical Laboratory Job Number: 16K1224

The data validation was conducted in accordance with "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review" September 2016; "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 "in good condition". 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 octachlorobiphenyls: "Continuing calibration did not meet method specifications and was biased on the high side for this compound. Increased uncertainty is associated with the associate value which is likely to be biased on the high side." Since the affected compounds were 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 blanks were non-detect (ND) for all target analytes. No qualifications were applied.

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

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

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

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

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Date: 12/5/2016