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December 20, 2021

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 – 2021 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 2021 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 biennial wipe testing of encapsulated surfaces.
- Southwest Concourse – The MMIP was submitted on December 29, 2010 in accordance with Condition 13 of the EPA's Southwest Residential Area Concourse PCB Cleanup and Disposal Approval dated August 30, 2010; monitoring activities were also conducted at those areas described in the PCB Remediation Plan Amendment dated May 9, 2011 and along the east side of the Patterson and MacKimmie Houses as described in the PCB Remediation Plan dated May 15, 2017; 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 biennial 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 biennial basis.
- Orchard Hill Complex:
  - Webster House – The MMIP was submitted on January 5, 2012 in accordance with Condition 16 of the EPA's PCB Decontamination and Disposal Approval dated July 4, 2011; following completion of the 2015 monitoring event and communications with EPA, the long-term monitoring program was modified to include annual visual inspections and biennial wipe testing of encapsulated surfaces as well as a single round of post-abatement indoor air sampling to confirm site conditions, which was conducted in 2016.

- Field and Grayson Houses – The MMIP was submitted on January 13, 2014 in accordance with Condition 17 of the EPA's April 30, 2012 PCB Decontamination and Disposal Approval for the window/door replacement project; monitoring activities were also conducted in accordance with the MMIP for the work completed on the exterior joints submitted on April 24, 2012 as part of the PCB Remediation Plan/Close Out Document for Field and Grayson House; following completion of the 2015 monitoring event and communications with EPA, the long-term monitoring program was modified to include annual visual inspections and biennial wipe testing of encapsulated surfaces as well as a single round of post-abatement indoor air sampling to confirm site conditions, which was conducted in 2016.

- Sylvan Complex – The MMIP was submitted on February 20, 2014 as part of the remediation completion reporting for the exterior and interior renovations conducted at each of the three buildings within the Sylvan Complex (Brown, Cashin, and McNamara). Annual post-remediation monitoring has been conducted in accordance with the MMIP and additional communications with EPA since 2014. Following completion of the 2017 monitoring event, the long-term monitoring program was modified to include visual inspections and wipe testing of encapsulated surfaces on a biennial basis. In addition, indoor air monitoring is being conducted in interior areas where residual PCBs were encapsulated. On June 4, 2019, EPA issued the PCB Decontamination and Disposal Approval for the Sylvan Complex which included continued long-term monitoring of encapsulated surfaces.
- Physical Plant Second Floor – The MMIP was submitted on December 16, 2013 in accordance with Condition 15 of EPA's October 19, 2012 PCB Decontamination and Disposal Approval for the replacement of windows in Room 230A within the Physical Plant building. Long-term monitoring activities include visual inspections to be conducted on an annual basis.

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

An overall summary of the 2021 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 are 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 are collected using a hexane-soaked wipe following the standard wipe test procedures described in 40 CFR 761.123.
- Indoor air monitoring is 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 are compared to evaluation criteria to determine the need and type of corrective actions and/or continued monitoring.
- A monitoring report is 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 also includes 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 –2021

Woodard & Curran performed the following monitoring activities between July and August 2021:

- Visual inspections of encapsulated surfaces were conducted at each of the six areas identified for long-term monitoring;
- Surface wipe sampling of encapsulated surfaces was conducted on the encapsulated surfaces at Tobin Hall, Southwest Concourse, Dubois Library, and the Orchard Hill complex;
- Indoor air samples were collected from the elevator lobbies of the Dubois Library and interior areas of the Sylvan Complex. At the Sylvan Complex, two rounds of indoor air sampling were conducted to correspond to the return of students for both the spring and fall semester (the buildings had been vacant since Spring of 2020 due to the Covid-19 pandemic).

RESULTS

A summary of the results of the 2021 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 2021 inspection and sampling results indicate that the liquid coatings and secondary barriers continue to be effective containment barriers to residual concentrations of PCBs in the masonry and concrete. Based on information provided by UMass, no work or maintenance activities were conducted in the subject areas.

The results from surface wipe samples collected from encapsulated surfaces were consistent with previous sampling events with PCBs reported as either non-detect or < 1 ug/100cm^2.

The results from the indoor air sampling at the Dubois Library indicated that the concentrations of PCBs were below the calculated site-specific exposure level. Results of indoor air sampling from January and September at the Sylvan Complex reported concentrations consistent with previous sampling events and well below the calculated site-specific exposure levels with the exception of the Cashin Service Desk. The results from this area have fluctuated over time (since 2017) with individual results (as well as the overall temporal average) slightly over the calculated site-specific exposure level.

Corrective Measures

Based on the results of the annual monitoring, no corrective measures are proposed to be conducted; however, areas of damaged epoxy coatings in the Southwest Concourse and at Tobin Hall will be addressed through routine maintenance programs. In addition, an additional indoor air sample will be collected from the Cashin Service Desk during the first quarter of 2022 based on the results of the sample collected from within that space as part of the annual monitoring.

As reported in previous annual reports, UMass continues to evaluate the application of secondary barrier systems over those vertical control joints considered to be in the high occupancy area as defined specific to the Sylvan project (< 8' 8" above ground surface) at the McNamara building. At this time, the final product has not been determined; however, it is anticipated that it will a pre-formed silicone barrier material or similar barrier material designed to span the control joint.

Continued Monitoring

It is proposed to continue the campus wide long-term monitoring as per the applicable MMIPs with revisions for each area to include annual visual inspections and indoor air sampling (where applicable) and biennial surface wipe sampling.

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

Sincerely,

WOODARD & CURRAN INC.

George J. Franklin, CHMM
Technical Manager

Jeffrey A. Hamel, LSP, LEP
Senior Principal

cc: Terri Wolejko, UMass EH&S

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

Attachment 1 – Tobin Hall Deck

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

Location: Tobin Hall

Summary of Remedial Areas

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

Photos depicting the encapsulated surfaces are presented below.

Northern Side of Stair Landing

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

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

Monitoring and Maintenance Implementation Plan

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

Monitoring Activities – Previous Events

Between 2012 and 2020 annual visual inspections of encapsulated surfaces indicated that the coatings on accessible portions of the encapsulated surfaces remained in good physical condition with the exception of a small, isolated area of epoxy coating deterioration directly adjacent to a hose connection on the northern retaining wall (the area was subsequently covered in 2013 with the installation of a four foot high retaining wall) and some flaking and peeling of the Sikagard 670W clear coating applied to a limited portion of the concrete on the northern retaining wall. Based on the observed flaking and peeling, in 2017 UMass applied two coats of Sikagard 62 epoxy coating to the accessible portion of the northern retaining wall where the clear coating had been observed to be flaking and peeling during previous events.

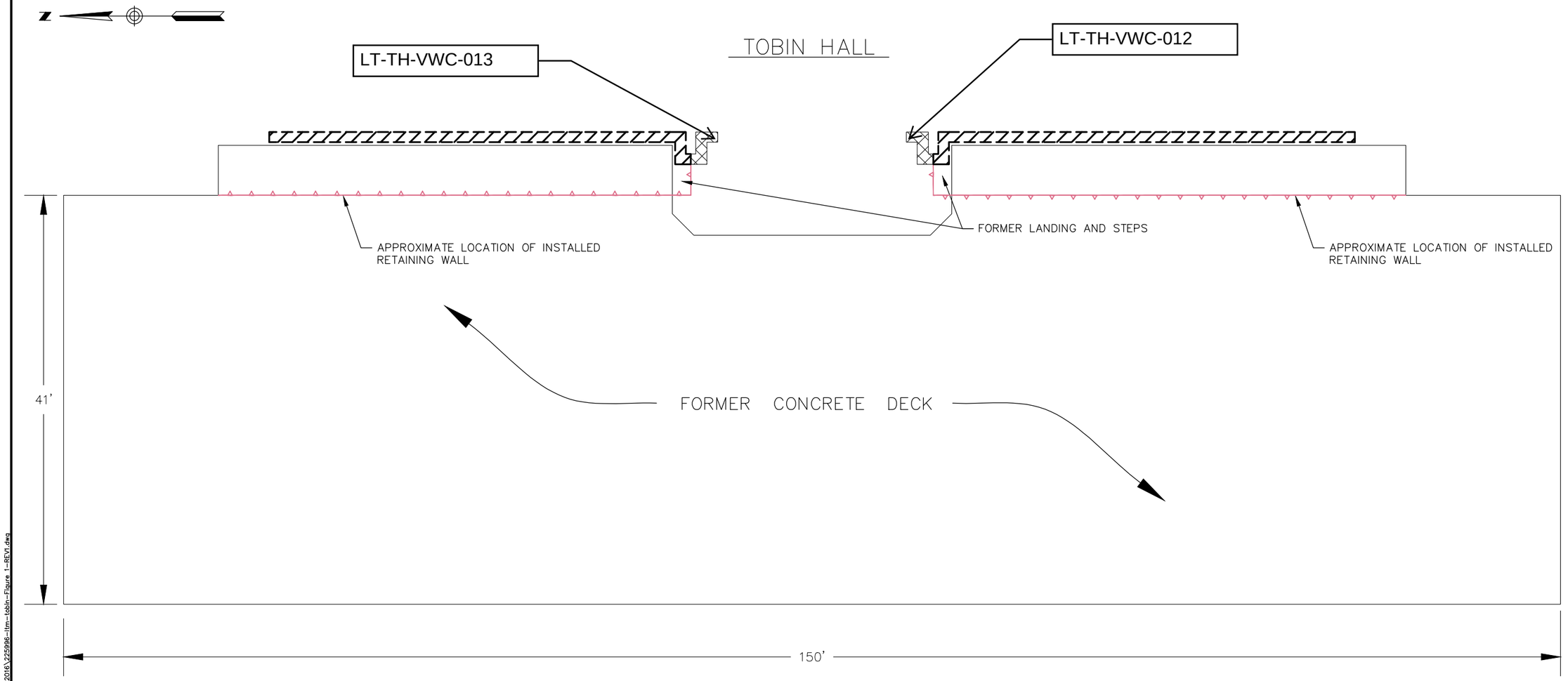
Wipe samples collected on an annual basis between 2012 and 2017 and on a biennial basis starting in 2019 from encapsulated surfaces indicated that PCBs were non-detect (< 0.20 µg/100cm^2).

Monitoring Activities – July 2021

Monitoring activities included visual inspections and the collection of surface wipe samples from the encapsulated surfaces. Results of visual inspections indicated that the epoxy coatings on accessible portions of the retaining walls were in good physical condition with the exception of one isolated location of flaking epoxy on the east side of the southern column. Analytical results from the two biennial wipe samples reported PCBs as non-detect (< 0.20 µg/100cm^2) consistent with previous events.

Next Steps

The next monitoring event is scheduled for July 2022 to include annual visual inspections. The inspections will include an evaluation of the extent of flaking coating on the southern column to confirm it is not progressing. Additional coating will be applied by UMass personnel as part of routine maintenance activities at a to be determined date.



LEGEND

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

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

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

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

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ENCAPSULATED BUILDING SURFACES

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

UNIVERSITY OF MASSACHUSETTS
AMHERST, MASSACHUSETTS

2019 Long Term Monitoring Report

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

Figure 1-1

Attachment 2 – Southwest Concourse

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

Location: Southwest Concourse Area

Areas: Hampshire Plaza, Berkshire Plaza, Washington Plaza, MacKimmie House/Stonewall Center, and Patterson House

Summary of Remedial Areas

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

- Retaining Walls and Ground Level Structures (maximum residual PCB concentrations in concrete was 292 ppm):
    - Planned Sub-grade areas – Concrete materials formerly in direct contact with the caulked joint, to a minimum distance of 12 inches below the caulked joint, and to a distance equivalent to the planned final finished grade above the caulked joint (if the final grade was above the former caulked joint) were encapsulated with two coats of tan Sikagard 62 colored epoxy; and
    - Planned Above-grade areas – Concrete materials to a minimum distance of 12 inches above the caulked joint or planned finished grade were encapsulated with two coats of clear Sikagard 670W acrylic coating.

- Concrete Ceiling of Pedestrian Tunnel (maximum residual PCB concentration in masonry was 309 ppm) – Concrete materials formerly in direct contact with the caulking and to a lateral distance of 12 inches from the caulked joint were encapsulated with two coats of tan Sikagard 62 epoxy coating. Following application of the epoxy, a new bead of caulking was installed within the joint and a final topcoat of a white elastomeric acrylic coating was applied to the entire tunnel ceiling.

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

Typical Retaining Wall Application

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

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

Baseline Verification Data Summary: Initial baseline wipe samples were collected in July and August 2010 (majority of the Southwest Concourse Area), in July and August 2011 (areas included in the PCB Remediation Plan Amendment), and in June 2017 (Patterson and MacKimmie Houses). A summary of analytical results from the baseline sampling is as follows:

- Sikagard 62 Epoxy Encapsulated Surfaces – 69 of 71 samples were reported as non-detect (the two samples of former direct contact materials in the pedestrian tunnel reported PCBs at concentrations of 7.16 and 24 µg/100 cm^2; however, these areas were subsequently covered with a new bead of caulking and a final acrylic coating).
- Sikagard 670W Acrylic Coating Encapsulated Surfaces – 64 of 64 samples collected from above grade locations were reported as non-detect (< 1.0 µg/100 cm^2).
- Encapsulated Concrete Building Foundations (July/August 2011 and June 2017) – 6 of 7 samples collected at grade (both epoxy and clear coated surfaces) were reported as non-detect and one sample reported at a concentration of 4 µg/100 cm^2; however, materials in this area were recoated and results from the follow-up wipe samples indicated PCBs were non-detect (< 1.0 µg/100 cm^2).

Monitoring and Maintenance Implementation Plan

The Monitoring and Maintenance Implementation Plan (MMIP) was submitted to the United States Environmental Protection Agency (EPA) in December 2010 with a final response to comments on the plan submitted in January 2011. Revisions to the plan were implemented following the 2015 monitoring event and subsequent communications with EPA. The MMIP includes visual inspections of encapsulated surfaces on an annual basis with wipe sampling conducted on a biennial 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 biennial basis as follows:

- Concrete Structures (retaining walls and ground surface structures):
    - Sub-grade areas (Sikagard 62 epoxy) – Given the inaccessibility to these areas and that all 69 baseline wipe samples were non-detect for PCBs, no long-term monitoring samples were proposed from these areas. However, due to modifications to the final site grade during construction, areas encapsulated with the Sikagard 62 liquid epoxy coating remain visible above grade over select portions of the Southwest Concourse. As such, both visual inspections of the epoxy coating and collection of verification wipe samples are being conducted similar to the planned above grade areas (eight wipe samples); and
    - Above-grade areas (Sikagard 670W acrylic) – Nine wipe samples from randomly selected locations throughout the concourse area are to be collected. One sample will be collected from each type of concrete structure (retaining walls, building walls, walls along stairs) within each of the three major subdivisions of the concourse area (Hampshire Plaza, Berkshire Plaza, and Washington Plaza).
- Concrete Ceiling of the Pedestrian Tunnel – Two wipe samples will be collected from materials within the tunnel as follows:
    - One sample from the new caulking; and
    - One sample from the adjacent coated concrete.

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

Previous Monitoring Activities – 2012 through 2020

Long term monitoring was conducted on an annual basis from 2012 through 2020. Results of the monitoring were presented to EPA in the annual monitoring reports and are summarized below.

Visual Inspection: Results of the visual inspections found no evidence of significant peeling, breakage, or brittleness of the epoxy coating; however, isolated areas of damage were observed and repaired as needed overtime. The visual inspections of the Sikagard 670W clear acrylic coating identified areas of flaking and peeling across the concourse typically isolated to areas 4 to 6 inches 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. As documented in the previous annual reports, isolated areas of additional flaking and peeling have been observed overtime; however, the areas are limited in size and not indicative of widespread failing of the acrylic coatings. The coatings on the ceiling of the pedestrian tunnel were observed to be in good physical condition with no observed signs of deterioration.

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 coated surfaces in the pedestrian tunnel. Following the 2015 monitoring event, the collection of surface wipe samples was transitioned to a biennial event. A summary of the samples collected is as follows:

- Sikagard 62 Liquid Epoxy: Analytical results indicated that PCBs were either non-detect or present at concentrations < 1 µg/100 cm^2 during each event with the exception of samples collected from the Washington Plaza stairs where PCBs were reported at concentrations > 1 µg/100 cm^2 during the 2012, 2013, and 2015 monitoring events. Based on these results, an additional coating of Sikagard 62 was applied to the subject stair surfaces in 2017 and results from wipe samples collected in 2017 and 2019 reported PCBs at concentrations of 0.51 ug/100cm^2 and 0.33 ug/100cm^2, respectively
- Sikagard 670W: Analytical results indicated that PCBs were all non-detect (< 0.20 µg/100 cm^2) or < 1 µg/100cm^2 in all samples collected through the 2019 event, including multiple samples collected from the areas of isolated flaking and peeling.
- Concrete Ceiling of Pedestrian Tunnel: Analytical results indicated that PCBs were non-detect (< 0.20 µg/100 cm^2) to 0.56 ug/100cm^2 in samples collected from coated concrete and continue to be detected at concentrations > 1 ug/100cm^2 in samples collected from the surface of the caulked joint (with a maximum reported concentration of 13.4 ug/100cm^2 in 2017).

Monitoring Activities – July 2021

The 2021 monitoring event was conducted on July 28, 2021 and included visual inspections and wipe sampling of the liquid coatings. A summary of the results is as follows:

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

- Sikagard 62 Epoxy: The coatings were observed to be in good physical condition and no additional damage observed from previous years.
- Sikagard 670W Acrylic: Visual inspection of the clear acrylic coating indicated that the coating remains in good condition over much of the encapsulated surfaces; however, some new areas of limited flaking and peeling were observed within each plaza. These areas will continue to be monitored to confirm the areas are not expanding over time.
- Concrete Ceiling of Pedestrian Tunnel: Visual inspection of the paint and caulking within the joint indicated the materials remain in good condition.

- The locations of the encapsulated surfaces and areas of observed damage or flaking and peeling are presented on Figure 2-1.

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

- Sikagard 62 Epoxy – Analytical results from the 8 wipe samples collected reported PCBs as non-detect including the sample collected from epoxy coatings on retaining walls within Berkshire Plaza where PCBs were reported at 1.2 ug/100cm^2 in 2019.

- Sikagard 670W Acrylic – Analytical results from all 9 wipe samples collected reported PCBs as non-detect (9 samples at < 0.20 µg/100cm^2) including 3 samples collected from areas of observed flaking and peeling.

- Concrete Ceiling of Pedestrian Tunnel – Analytical results reported PCBs as non-detect (< 0.20 ug/100cm^2) in the wipe samples collected from the expansion joint caulking and the adjacent concrete. These results are consistent with previously collected wipe samples from the encapsulated concrete ceiling. For the expansion joint caulking, the reported non-detect result is lower than the majority of previous sampling events where PCBs have consistently been reported since 2012; however, the non-detect results were also reported in the sample collected from this surface in 2018.

Conclusions/Next Steps

Based on these results, the liquid coatings applied to concrete surfaces within the Southwest Concourse continue to be effective in encapsulating residual PCBs in masonry. Minor damage to the acrylic coating was observed in each plaza. Repairs to the acrylic coating will continue to be made as part of routine maintenance activities within the concourse.

Next Monitoring Event

The next monitoring event will be performed during the Summer of 2022 and will include visual inspections of coated surfaces.

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

Coating/Area	Surface	Previous Sampling Events		
		Sample Date	Sample ID	Total PCBs (ug/100cm^2)
Southwest Concourse - Epoxy Coatings				
Washington Plaza	Building Wall	8/20/2012	LTM-SWC-VWC-017	0.24
		10/10/2013	LTM-SWC-VWC-028	< 0.20
		7/22/2014	LTM-SWC-VWC-266	<0.20
		7/21/2015	LTM-SWC-VWC-364	< 0.20
		8/10/2017	LT-SWC-VWC-026	< 0.20
		7/29/2019	LTM-SWC-VWC-414	<0.20
		7/29/2021	LTM-SWC-VWC-504	<0.20
	Retaining Wall	Epoxy coatings on retaining walls in Washington Plaza are below grade		
	Stairs	8/15/2012	LTM-SWC-VWC-020	1.4
		10/10/2013	LTM-SWC-VWC-027	2.4
		7/22/2014	LTM-SWC-VWC-267	0.24
		7/21/2015	LTM-SWC-VWC-366	4.6
		8/18/2016	LTM-SWC-VWC-500	< 0.20
		8/10/2017	LT-SWC-VWC-029	0.51
		7/29/2019	LTM-SWC-VWC-416	0.33
		7/29/2021	LTM-SWC-VWC-503	<0.20
Berkshire Plaza	Building Wall	8/15/2012	LTM-SWC-VWC-015	< 0.20
		10/10/2013	LTM-SWC-VWC-033	< 0.20
		7/22/2014	LTM-SWC-VWC-262	<0.20
		7/21/2015	LTM-SWC-VWC-355	< 0.20
		8/10/2017	LT-SWC-VWC-018	< 0.20
		7/29/2019	LTM-SWC-VWC-412	0.45
		7/29/2021	LTM-SWC-VWC-506	<0.20
	Retaining Wall	8/15/2012	LTM-SWC-VWC-012	< 0.20
		10/30/2013	LTM-SWC-VWC-046	< 0.20
		7/22/2014	LTM-SWC-VWC-260	<0.20
		7/21/2015	LTM-SWC-VWC-356	< 0.20
		8/10/2017	LT-SWC-VWC-019	< 0.20
		7/29/2019	LTM-SWC-VWC-410	1.2
		7/29/2021	LTM-SWC-VWC-508	<0.20
	Stairs	8/15/2012	LTM-SWC-VWC-013	< 0.20
		10/10/2013	LTM-SWC-VWC-035	< 0.20
		7/22/2014	LTM-SWC-VWC-264	<0.20
		7/21/2015	LTM-SWC-VWC-361	< 0.20
		8/10/2017	LT-SWC-VWC-023	< 0.20
		7/29/2019	LTM-SWC-VWC-408	<0.20
		7/29/2021	LTM-SWC-VWC-510	<0.20
Hampshire Plaza	Building Wall	8/15/2012	LTM-SWC-VWC-005	< 0.20
		10/10/2013	LTM-SWC-VWC-040	< 0.20
		7/22/2014	LTM-SWC-VWC-255	<0.20
		7/21/2015	LTM-SWC-VWC-349	< 0.20
		8/10/2017	LT-SWC-VWC-012	< 0.20
		Sample not analyzed due to lab error		
		7/29/2021	LTM-SWC-VWC-512	<0.20
	Retaining Wall	8/15/2012	LTM-SWC-VWC-007	< 0.20
		10/10/2013	LTM-SWC-VWC-041	0.46
		7/22/2014	LTM-SWC-VWC-254	<0.20
		7/21/2015	LTM-SWC-VWC-351	< 0.20
		8/10/2017	LT-SWC-VWC-015	< 0.20
		7/29/2019	LTM-SWC-VWC-402	<0.20
		7/29/2021	LTM-SWC-VWC-514	<0.20
	Stairs	8/15/2012	LTM-SWC-VWC-009	<0.20
		10/10/2013	LTM-SWC-VWC-038	< 0.20
		7/22/2014	LTM-SWC-VWC-252	<0.20
		7/21/2015	LTM-SWC-VWC-354	< 0.20
		8/10/2017	LT-SWC-VWC-017	0.28
		7/29/2019	LTM-SWC-VWC-406	<0.20
		7/29/2021	LTM-SWC-VWC-516	<0.20

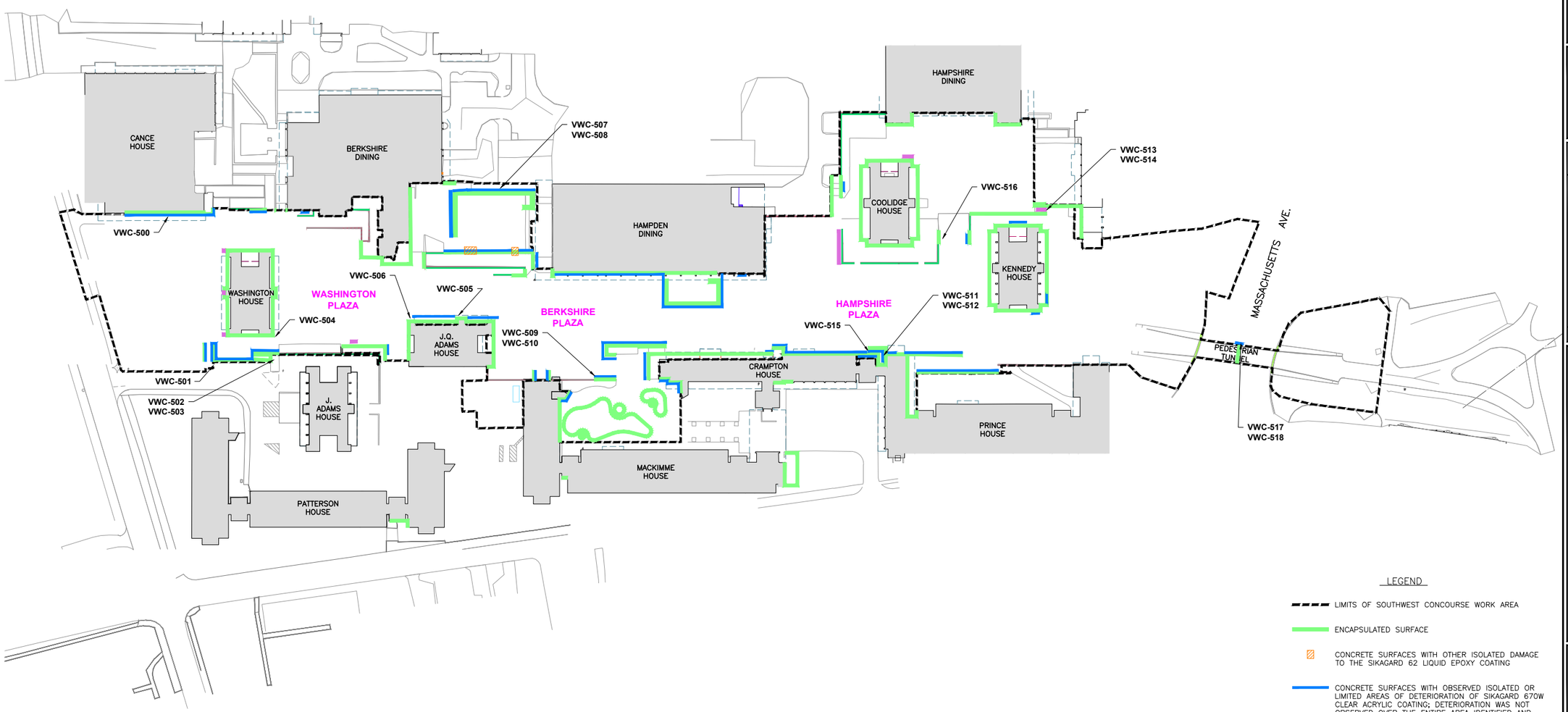
Table 2-1
Summary of Long Term Monitoring Wipe Sampling Results - Southwest Concourse
UMass Amherst

Coating/Area	Surface	Previous Sampling Events		
		Sample Date	Sample ID	Total PCBs (ug/100cm^2)
Southwest Concourse - Acrylic Coatings				
Washington Plaza	Building Wall	8/15/2012	LTM-SWC-VWC-018	< 0.20
		10/10/2013	LTM-SWC-VWC-031	< 0.20
		7/22/2014	LTM-SWC-VWC-268	<0.20
		7/21/2015	LTM-SWC-VWC-363	< 0.20
		8/10/2017	LT-SWC-VWC-027	< 0.20
		7/29/2019	LTM-SWC-VWC-415	<0.20
		7/29/2021	LTM-SWC-VWC-500	<0.20
	Retaining Wall	8/15/2012	LTM-SWC-VWC-019	< 0.20
		10/10/2013	LTM-SWC-VWC-029	< 0.20
		7/22/2014	LTM-SWC-VWC-269	<0.20
		7/21/2015	LTM-SWC-VWC-365	< 0.20
		8/10/2017	LT-SWC-VWC-028	< 0.20
		7/29/2019	LTM-SWC-VWC-418	<0.20
		7/29/2021	LTM-SWC-VWC-501	<0.20
	Stairs	8/15/2012	LTM-SWC-VWC-021	< 0.20
		10/10/2013	LTM-SWC-VWC-030	< 0.20
		7/22/2014	LTM-SWC-VWC-265	<0.20
		7/21/2015	LTM-SWC-VWC-362	< 0.20
		8/10/2017	LT-SWC-VWC-024	< 0.20
		7/29/2019	LTM-SWC-VWC-417	<0.20
		7/29/2021	LTM-SWC-VWC-502	<0.20
Berkshire Plaza	Building Wall	8/15/2012	LTM-SWC-VWC-016	< 0.20
		10/10/2013	LTM-SWC-VWC-036	0.34
		7/22/2014	LTM-SWC-VWC-258	<0.20
		7/21/2015	LTM-SWC-VWC-358	< 0.20
		8/10/2017	LT-SWC-VWC-020	0.35
		7/29/2019	LTM-SWC-VWC-413	<0.20
		7/29/2021	LTM-SWC-VWC-505	<0.20
	Retaining Wall	8/15/2012	LTM-SWC-VWC-011	< 0.20
		10/10/2013	LTM-SWC-VWC-037	< 0.20
		7/22/2014	LTM-SWC-VWC-259	<0.20
		7/21/2015	LTM-SWC-VWC-357	< 0.20
		8/10/2017	LT-SWC-VWC-021	< 0.20
		7/29/2019	LTM-SWC-VWC-411	<0.20
		7/29/2021	LTM-SWC-VWC-507	<0.20
	Stairs	8/15/2012	LTM-SWC-VWC-014	< 0.20
		10/10/2013	LTM-SWC-VWC-032	< 0.20
		7/22/2014	LTM-SWC-VWC-263	<0.20
		7/21/2015	LTM-SWC-VWC-360	< 0.20
		8/10/2017	LT-SWC-VWC-022	< 0.20
		7/29/2019	LTM-SWC-VWC-409	<0.20
		7/29/2021	LTM-SWC-VWC-509	<0.20
Hampshire Plaza	Building Wall	8/15/2012	LTM-SWC-VWC-006	< 0.20
		10/10/2013	LTM-SWC-VWC-039	< 0.20
		7/22/2014	LTM-SWC-VWC-256	<0.20
		7/21/2015	LTM-SWC-VWC-352	< 0.20
		8/10/2017	LT-SWC-VWC-014	0.46
		7/29/2019	LTM-SWC-VWC-405	<0.20
		7/29/2021	LTM-SWC-VWC-511	<0.20
	Retaining Wall	8/15/2012	LTM-SWC-VWC-008	< 0.20
		10/10/2013	LTM-SWC-VWC-042	< 0.20
		7/22/2014	LTM-SWC-VWC-253	<0.20
		7/21/2015	LTM-SWC-VWC-350	< 0.20
		8/10/2017	LT-SWC-VWC-013	< 0.20
		7/29/2019	LTM-SWC-VWC-403	< 0.20
		7/29/2021	LTM-SWC-VWC-513	<0.20
	Stairs	8/15/2012	LTM-SWC-VWC-010	< 0.20
		10/10/2013	LTM-SWC-VWC-045	< 0.20
		7/22/2014	LTM-SWC-VWC-257	<0.20
		7/21/2015	LTM-SWC-VWC-353	< 0.20
		8/10/2017	LT-SWC-VWC-016	0.32
		7/29/2019	LTM-SWC-VWC-407	<0.20
		7/29/2021	LTM-SWC-VWC-515	<0.20

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

Coating/Area	Surface	Previous Sampling Events		
		Sample Date	Sample ID	Total PCBs (ug/100cm^2)
Southwest Concourse - Pedestrian Tunnel				
Sika 550W White	Expansion Joint Caulking	8/15/2012	LTM-SWC-VWC-022	1.6
		10/10/2013	LTM-SWC-VWK-043	2.7
		7/22/2014	LTM-SWC-VWK-250	1.9
		7/21/2015	LTM-SWC-VWC-348	1.98
		8/10/2017	LT-SWC-VWK-011	13.4
		7/10/2018	LT-SWC-VWK-001	< 0.20
		7/29/2019	LTM-SWC-VWK-401	5.3
		7/29/2021	LTM-SWC-VWK-517	<0.20
	Adjacent Concrete	8/15/2012	LTM-SWC-VWC-023	< 0.20
		10/10/2013	LTM-SWC-VWC-044	< 0.20
		7/22/2014	LTM-SWC-VWC-251	<0.20
		7/21/15	LTM-SWC-VWC-347	< 0.20
		8/10/2017	LT-SWC-VWC-010	0.56
		7/10/2018	LTM-SWC-VWC-002	< 0.20
		7/29/2019	LTM-SWC-VWC-400	0.77
		7/29/2021	LTM-SWC-VWC-518	<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.



LEGEND

- LIMITS OF SOUTHWEST CONCOURSE WORK AREA
- ENCAPSULATED SURFACE
- CONCRETE SURFACES WITH OTHER ISOLATED DAMAGE TO THE SIKAGARD 62 LIQUID EPOXY COATING
- CONCRETE SURFACES WITH OBSERVED ISOLATED OR LIMITED AREAS OF DETERIORATION OF SIKAGARD 670W CLEAR ACRYLIC COATING; DETERIORATION WAS NOT OBSERVED OVER THE ENTIRE AREA IDENTIFIED AND HAS REMAINED RELATIVELY CONSISTENT SINCE 2012.
- ADDITIONAL AREAS WITH "OBSERVED ISOLATED OR LIMITED DETERIORATION"

VWC-500 ▲ VERIFICATION WIPE SAMPLE LOCATION AND IDENTIFIER

0 60 120
SCALE IN FEET

40 SHATTUCK ROAD | SUITE 110
ANDOVER, MASSACHUSETTS 01810
866.702.6371 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

REV	DESCRIPTION	DATE
DESIGNED BY:	AE	
DRAWN BY:	FF	
CHECKED BY:	GF	
225695-2021-Figure-2-1.dwg		

AREAS OF ENCAPSULATED SURFACES AND WIPE SAMPLE LOCATIONS

UNIVERSITY OF MASSACHUSETTS
AMHERST, MASSACHUSETTS

2021 SOUTHWEST CONCOURSE PCB MMIP REPORT

JOB NO.: 225695.02
DATE: OCTOBER 2021
SCALE: AS NOTED
SHEET: 1 OF 1

FIGURE 2-1

Attachment 3 – Dubois Library Elevator Lobbies

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

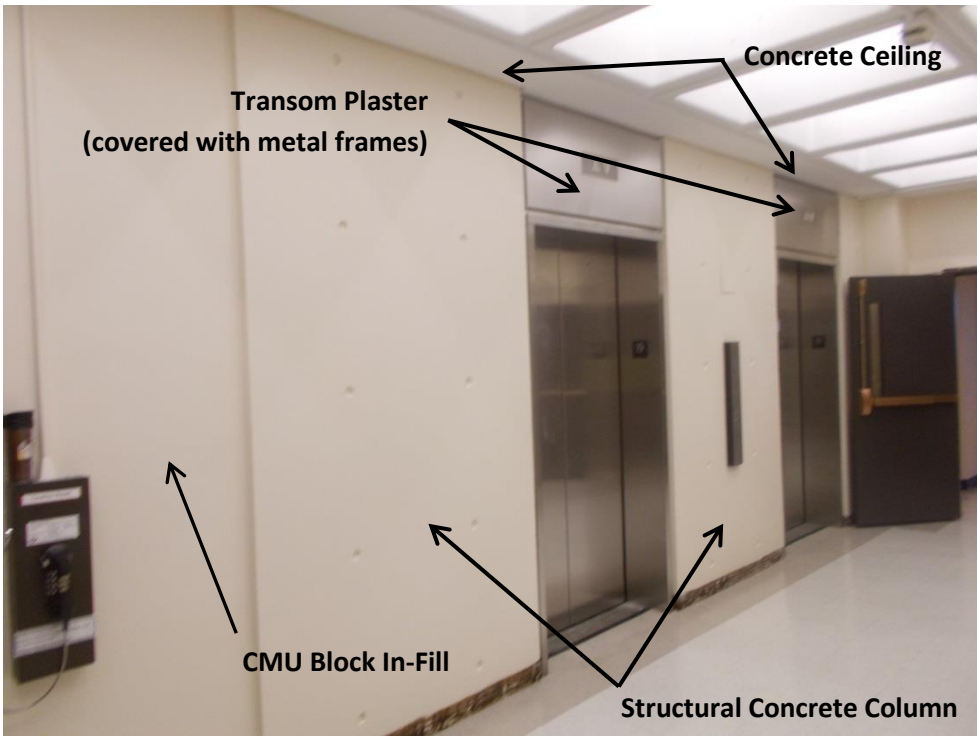
Location: W.E.B Dubois Library

Summary of Remedial Areas

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

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

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



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

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

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

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

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

Monitoring and Maintenance Implementation Plan

The MMIP was submitted to the United States Environmental Protection Agency (EPA) in March 2013 and included visual inspections of encapsulated surfaces, verification wipe sampling, and continued indoor air sampling. Following the 2015 monitoring event, the plan was modified to include annual visual inspections and indoor air sampling and biennial 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 biennial basis from randomly selected locations as follows:

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

  - One wipe sample will be collected at a distance of 1.5 inches from the former caulked joint (i.e., within the return of the elevator door recess, prior to the first 90-degree angle). Two wipe samples will be collected at a distance of 10 inches from the former joint (the higher number of samples is based on the higher likelihood of direct contact with the lobby walls compared to the relatively small [1.5-inch-wide] elevator door recess).

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

Indoor Air Sampling: Based on the results of indoor air monitoring through October 2015, which indicated that PCB concentrations were not dependent on seasonal variations of the ventilation system and were decreasing over time, the frequency of indoor air sampling was modified in 2016 to include one round of sampling per year. The sampling was selected to be conducted in July of each year to evaluate conditions during the summer months in periods of warmer ambient temperatures when the building ventilation dampers generally in a more closed configuration to provide less make-up air.

In 2018, a site-specific exposure level for PCBs in indoor air was calculated in accordance with EPA's "Exposure Levels for Evaluating Polychlorinated Biphenyls (PCBs) in Indoor School Air". This calculation provides a target level to maintain an overall PCB exposure below the oral reference dose of 20 ng PCB/kg body weight per day. The resulting calculation provides exposure levels that may be used to guide thoughtful evaluation of indoor air quality (per EPA guidance [*July 28, 2015 PCBs in Building Materials – Q&A*], these exposure levels should not be interpreted nor applied as "not-to-exceed criteria"; Isolated or infrequent indoor air PCB measurements that exceed the exposure levels would not signal unsafe exposure to PCBs).

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

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

Previous Monitoring Activities

Visual Inspections and Surface Wipes

Visual inspections of the encapsulated materials conducted between 2013 and 2020 indicated that the coatings remained in good physical condition with no observed damage other than slight wearing of the outer latex paint layer. Results of verification wipe samples collected during previous events indicated that PCBs were either non-detect or present at concentrations < 1 µg/100 cm^2 in all samples.

Indoor Air

Indoor air sampling was conducted at a minimum of twice per year from 2013 through 2015 (to evaluate potential seasonal fluctuations) and then on an annual basis starting in 2016. Analytical results were relatively consistent across all events with the maximum and average concentrations consistently within or slightly below the concentration range identified for continued monitoring between 2012 and 2017 (500 to 1,180 ng/m^3) and below the site-specific exposure level of 3,357 ng/m^3 calculated following the 2018 sampling event. However, analytical results from samples collected from the 19th and 23rd floors in July 2019 were higher than results from previous sampling events. A follow up sample was collected in September 2019 to evaluate conditions during higher periods of building use. Results from this sample were consistent with (although slightly lower than) previous sampling events. Analytical results from the sampling conducted in July 2020 reported PCBs slightly lower than the 2019 event and still within the range of previous sampling events.

2021 Monitoring Activities

Visual Inspections and Surface Wipes

Visual inspections of encapsulated surfaces were conducted during the annual monitoring event on July 28, 2021. Coatings were observed to be in good physical condition with no signs of wear or damage. Results of verification wipe samples were consistent with previous events and indicated that PCBs were non-detect (7 samples at < 0.20 ug/100cm^2). The complete analytical laboratory report is included in Attachment 7 and a summary of the surface wipe sampling results is presented on Table 3-1.

Indoor Air Sampling

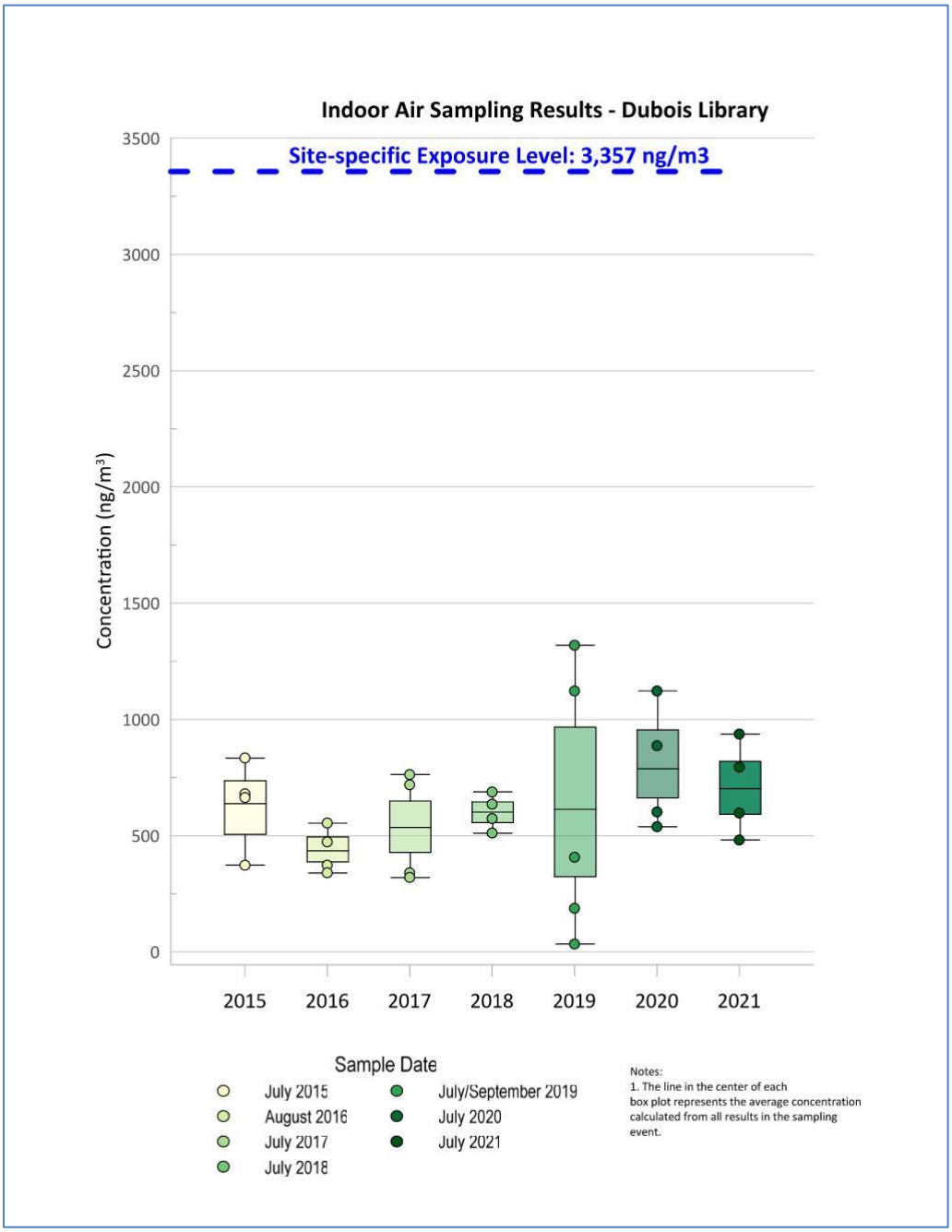
Four indoor air samples were collected on July 28, 2021 from the 4th, 14th, 19th and 23rd floors. Analytical results indicated that PCBs were reported at concentrations ranging from 481 to 937 ng/m^3 with an average reported concentration of 702 ng/m^3. These analytical results indicate that PCB concentrations in indoor air remain well below the site-specific exposure level of 3,357 ng/m^3.

As depicted on the chart presented on the following page, both the maximum reported concentration and the range of reported concentrations in the 2021 sampling event were consistent with the results from 2015 through 2020 where the average reported concentrations ranged from 435 to 787 ng/m^3.

During the sampling event no maintenance or other activities were observed, and the ventilation system was reported to be operating under normal conditions by UMass personnel. Also of note, due to the University's Covid-19 protocols the Dubois Library was not being utilized as in previous years with less students and workers in the building; however, based on discussions with library staff, the building was anticipated to be back to normal operation for the 2021 fall semester as students return to campus.

The complete analytical results are included in Attachment 7. A summary of the analytical results from the 2021 event and the previous six events (2015 to 2020) is presented on Table 3-2 and on the box plot chart on the following page.

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



Corrective Actions

Based on the 2021 monitoring activities, no corrective actions are proposed at this time.

Next Monitoring Event

The next monitoring event is scheduled for July 2023 to include visual inspections and indoor air sampling.

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

Coating/Area	Surface	2015 Wipe Samples			2017 Wipe Samples			2019 Wipe Samples			2021 Wipe Samples		
		Sample Date	Sample ID	Total PCBs (ug/100 cm^2)	Sample Date	Sample ID	Total PCBs (ug/100 cm^2)	Sample Date	Sample ID	Total PCBs (ug/100 cm^2)	Sample Date	Sample ID	Total PCBs (ug/100 cm^2)
Sikagard 55W and Acrylic Latex Paint	CMU Block In-Fill	7/21/2015	LTM-DL-VWC-243	<0.20	7/3/2017	LTM-DL-VWC-250	<0.20	7/29/2019	DL-21E-VWC-258	< 0.20	7/29/2021	DL-07E-VWC-264	<0.20
		7/21/2015	LTM-DL-VWC-244	<0.20	7/3/2017	LTM-DL-VWC-253	<0.20	7/29/2019	DL-15E-VWC-260	< 0.20	7/29/2021	DL-14E-VWC-266	<0.20
		7/21/2015	LTM-DL-VWC-247	<0.20	7/3/2017	LTM-DL-VWC-255	<0.20	7/29/2019	DL-4E-VWC-263	< 0.20	7/29/2021	DL-19E-VWC-259	<0.20
	Structural Concrete Lobby Walls	7/21/2015	LTM-DL-VWC-242	<0.20	7/3/2017	LTM-DL-VWC-251	<0.20	7/29/2019	DL-19E-VWC-259	0.30	7/29/2021	DL-04E-VWC-263	<0.20
		7/21/2015	LTM-DL-VWC-245	<0.20	7/3/2017	LTM-DL-VWC-254	<0.20	7/29/2019	DL-13E-VWC-261	< 0.20	7/29/2021	DL-08E-VWC-265	<0.20
		7/21/2015	LTM-DL-VWC-246	<0.20	7/3/2017	LTM-DL-VWC-256	<0.20	7/29/2019	DL-10E-VWC-262	< 0.20	7/29/2021	DL-18E-VWC-267	<0.20
	Ceiling	7/21/2015	LTM-DL-VWC-249	<0.20	7/3/2017	LTM-DL-VWC-252	<0.20	7/29/2019	DL-23E-VWC-257	< 0.20	7/29/2021	DL-05E-VWC-261	<0.20

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

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

Floor	Air Sample	PCB Concentration (ng/cartridge)	Flow Rate (L/Minute)	Duration (minutes)	PCB Concentration (ng/m^3)
Project Specific Exposure Level: 3,357 ng/m^3					
Post PCB Remediation Indoor Air Samples July 21, 2015					
4	DL-4E-IAS-219	0.23	2.68	240	373
13	DL-13E-IAS-220	0.42	2.71	240	680
19	DL-19E-IAS-221	0.52	2.73	240	834
23	DL-23E-IAS-223	0.41	2.71	240	664
Post PCB Remediation Indoor Air Samples August 3, 2016					
4	DL-4E-IAS-231	350	2.63	360	373
8	DL-8E-IAS-232	320	2.65	360	340
19	DL-19E-IAS-234	520	2.63	360	554
20	DL-20E-IAS-235	440	2.62	360	473
Post PCB Remediation Indoor Air Samples July 3, 2017					
4	DL-4E-IAS-241	310	2.67	360	340
13	DL-13E-IAS-239	290	2.62	360	320
19	DL-19E-IAS-238	700	2.65	360	763
23	DL-23E-IAS-237	660	2.66	360	719
Post PCB Remediation Indoor Air Samples July 10, 2018					
4	DL-4E-IAS-005	475	2.65	367	511
13	DL-13E-IAS-004	538	2.65	371	573
19	DL-19E-IAS-002	637	2.64	371	688
23	DL-23E-IAS-001	643	2.68	400	635
Post PCB Remediation Indoor Air Samples July 29, 2019 and September 17, 2019					
4	DL-4E-IAS-245	510	3.66	360	407
13	DL-13E-IAS-244	44	3.73	362	34
19	DL-19E-IAS-243	1655	3.70	360	1319
	DL-19E-IAS-246	173.8	2.63	361	187
23	DL-23E-IAS-242	1425	3.74	362	1122
Post PCB Remediation Indoor Air Samples July 31, 2020					
4	DL-4E-IAS-245	546	2.62	360	602
13	DL-13E-IAS-244	476	2.56	360	538
19	DL-19E-IAS-243	980	2.54	360	1122
23	DL-23E-IAS-242	777	2.55	361	886
Post PCB Remediation Indoor Air Samples July 28, 2021					
4	DL-04E-IAS-251	428	2.49	360	481
14	DL-14E-IAS-252	548	2.59	360	597
19	DL-19E-IAS-253	836	2.51	360	937
23	DL-23E-IAS-254	704	2.50	360	794

Notes:
Project Specific Exposure Level calculated using EPA's PCB Exposure Estimation Tool (v1.2).
Air samples collected in accordance with USEPA Compendium Method TO-10A "Determination of Pesticides and Polychlorinated Biphenyls In Ambient Air Using Low Volume Polyurethane Foam (PUF) Sampling Followed by Gas Chromatographic/Multi-Detector Detection (GC/MD)" and submitted for laboratory analysis of PCBs homologs.
ng/m^3 = nanograms per cubic meter
J/UJ = Analytical results qualified as estimated based on external data validation of individual homolog groups.

Attachment 4 – Orchard Hill Residential Complex

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

Location: Orchard Hill Residential Area

Building: Webster, Field, and Grayson Houses

Summary of Remedial Areas

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

Field and Grayson Houses

- Exterior Parapet Masonry Joints (2010): Following replacement of caulking along masonry joints at the upper parapet walls of the Field and Grayson Houses, two coats of Sikagard 62 liquid epoxy coating were applied to concrete materials formerly in direct contact with and to a distance of 6 inches from the joints in either direction (see the photograph to the right).

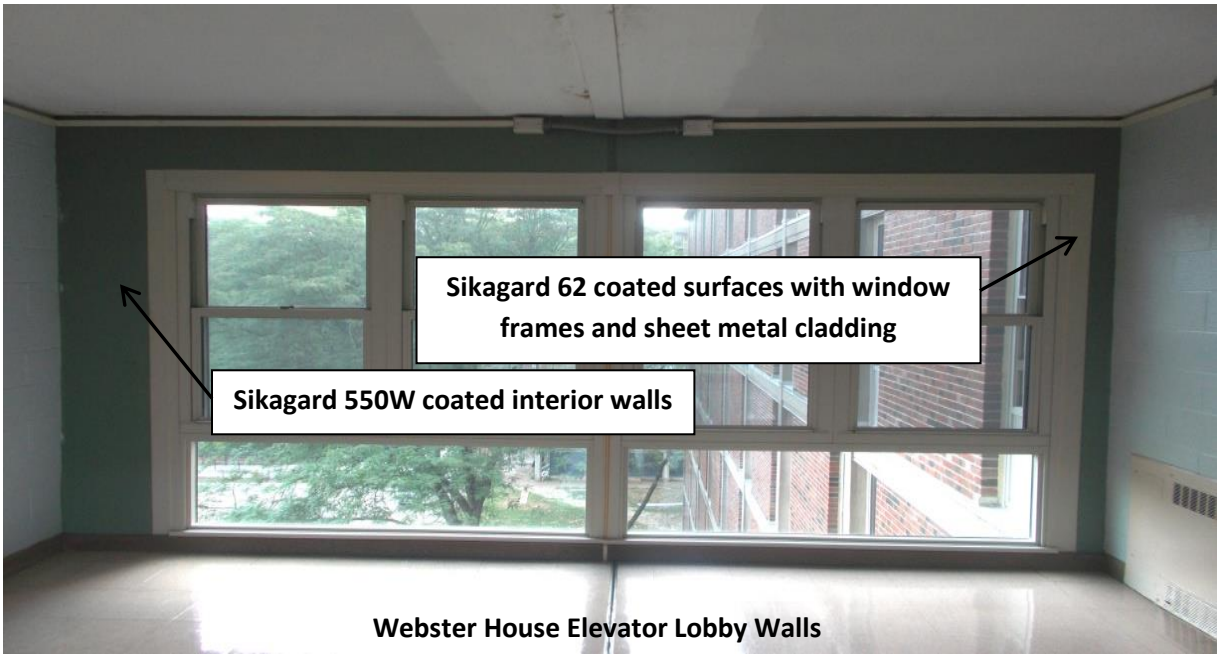
Locations of Typical Parapet Masonry Joints

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

- 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

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

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 indicated that PCBs were non-detect (24 samples at < 0.20 µg/100cm^2) or < 1 µg/100cm^2 (2 samples with total PCBs reported at concentrations of 0.44 and 0.90 µg/100cm^2).
- Elevator Hall CMU Block Walls:
    - Sikagard 62 Epoxy Coated Materials – In July 2012, prior to installation of the window frames and sheet metal cladding, one verification wipe sample was collected from the encapsulated surfaces. Analytical results reported PCBs as non-detect (< 0.20 µg/100cm^2).
    - Sikagard 550W Elastomeric Coated Materials – In August 2012, one verification wipe sample was collected from encapsulated materials above the 6th floor elevator hall windows. Analytical results indicated that PCBs were non-detect (< 0.20 µg/100cm^2).
- Concrete Spandrel Beams – Following application of the liquid coatings in August 2012 and July 2013, four verification wipe samples were collected from encapsulated surfaces of the concrete spandrel beams. Analytical results reported PCBs as non-detect (< 0.20 µg/100 cm^2) in the four samples.
- Grayson House Exterior Narrow Stairwell Window Jambs – In July 2013, prior to installation of the window frames, one verification wipe sample was collected from the encapsulated surfaces. Analytical results reported PCBs as non-detect (< 0.20 µg/100cm^2).
- Grayson House Interior Stairwell Concrete Sills - In July 2012, prior to installation of the window frames, one verification wipe sample was collected from the encapsulated surfaces. Analytical results reported PCBs as non-detect (< 0.20 µg/100cm^2).
- Field House Interior Stairwell Brick Jambs - In July 2012, prior to installation of the window frames, one verification wipe sample was collected from the encapsulated surfaces. Analytical results reported PCBs as non-detect (< 0.20 µg/100cm^2).

Webster House

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

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

Monitoring and Maintenance Implementation Plan

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

Based on the baseline sample results (majority were non-detect for PCBs) and some encapsulated areas subsequently covered by window frames and sheet metal cladding, wipe sampling was limited to accessible surfaces. Following the 2015 monitoring event and subsequent communications with EPA, the monitoring plan was modified to include annual visual inspections and biennial wipe sampling of accessible encapsulated surfaces. A summary of the monitoring plans is provided below:

Field and Grayson Houses

- Visual inspection of masonry joints along the roof lines from the ground. Due to the limited accessibility to these areas, wipe samples are not included in the long-term monitoring. In areas where damage or deterioration of the encapsulant or caulking is observed, recommendations for corrective actions will be proposed.
- Visual inspections of the other encapsulated surfaces will be conducted to look for signs of encapsulant deterioration and/or signs of weathering or disturbance of metal window frames and sheet metal barriers.
- Two surface wipe samples of the encapsulated concrete spandrel materials on the exterior side of the Elevator Hall Windows (Type D) will be collected on a biennial 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 biennial 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 biennial basis.

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

Previous Monitoring Activities – 2012 through 2020

Long term monitoring activities conducted between 2012 and 2020 were reported in the annual long-term monitoring reports and are summarized below:

Visual Inspections – results of visual inspections conducted as part of the annual monitoring activities reported the coatings and physical barriers (window frames, sheet metal cladding, caulking) to be in good physical condition with no evidence of deterioration or damage. The exceptions to this were coated concrete surfaces around a single roofline joint on field house (additional coating applied in 2018) and limited amount of damaged paint on the 6th floor elevator lobby wall at Grayson House (repainted in 2017).

Surface Wipe Sampling – analytical results from surface wipe samples collected from encapsulated surfaces reported PCBs as either non-detect or at concentrations < 1 ug/100cm^2.

Indoor Air Sampling – at the request of EPA, two indoor air samples were collected from the elevator lobby areas at Webster and Grayson Houses in 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. Analytical results indicated that PCBs were present at concentrations of 36 and 38 ng/m^3. Given the transitory nature of the elevator lobbies and the anticipated limited duration a typical occupant would be present in these buildings (no more than four years to coincide with a typical undergraduate degree program), these concentrations are well below any projected exposure levels. As such, no additional indoor air sampling was proposed to be conducted within these spaces.

2021 Monitoring Activities

The monitoring event was conducted on September 15, 2021 and included visual inspections of encapsulated surfaces and secondary physical barriers and the collection of surface wipe samples from encapsulated surfaces.

- Field and Grayson Houses:
    - Exterior Parapet Masonry Joints – Coated concrete surfaces surrounding the exterior parapet masonry joints were inspected and found no evidence of deterioration of the coating.
    - Concrete Spandrel Beams – Coated concrete surfaces surrounding exterior spandrel beams were inspected and found no evidence of deterioration of the coating. One surface wipe sample was collected from coated surfaces at the exterior spandrel beams at each building. Analytical results indicated that PCBs were non-detect (< 0.20 µg/100cm^2) in both samples.
    - Elevator Hall CMU Block Walls – Coated CMU block materials within the elevator lobby areas were inspected and found no evidence of deterioration of the coatings. One wipe sample was collected from the encapsulated surfaces within Field House and reported as non-detect (< 0.20 µg/100cm^2) for PCBs.
    - Stairwell Materials – Visual inspection of the windows and sheet metal cladding was conducted at the exterior narrow stairwell window jambs of the Grayson House and on the interior stairwell window concrete sills and brick jambs of both buildings. No evidence of damage to the materials was observed.
- Webster House - No signs of damage were observed to the sheet metal cladding and window frames on the northwest building elevation. Sheet metal cladding and liquid coatings in the elevator lobby areas were observed to be in good condition with no signs of wear or damage. Analytical results from the three wipe

samples collected from coated CMU block walls reported PCBs as non-detect (< 0.20 µg/100cm^2) as summarized on Table 4-1.

Corrective Actions

Based on the results of the 2021 monitoring event, no corrective actions are required at this time.

Next Monitoring Event

The next monitoring event will be conducted in 2022 and will include visual inspections of encapsulated surfaces and secondary physical barriers.

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

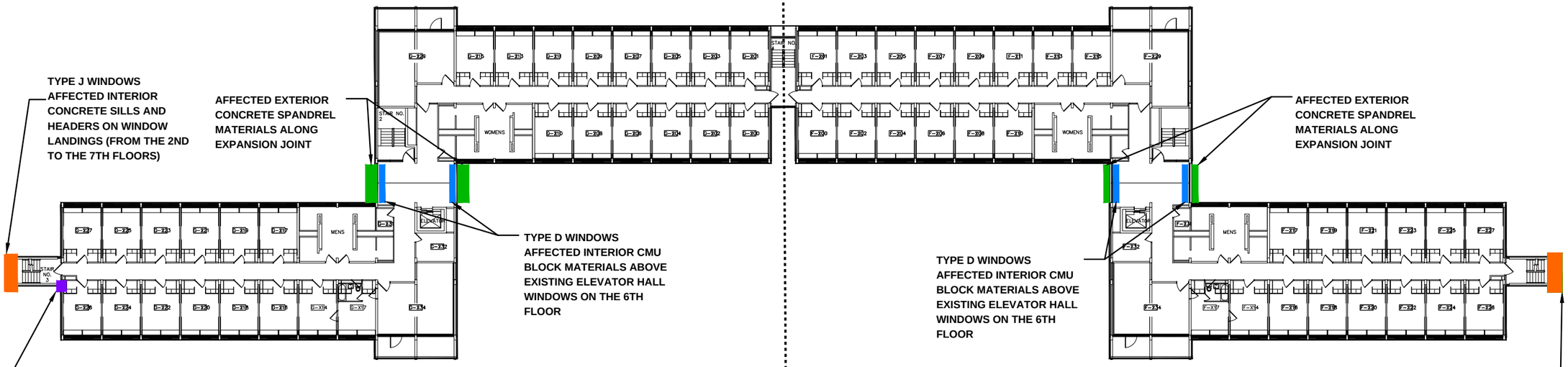
Coating/Area	Surface	Building	Sample Date	Sample ID	Total PCBs (ug/100cm^2)
Sikagard 62 Epoxy	Exterior Spandrel Beams	Field House	7/22/2014	LTM-FH-VWC-228	<0.20
			7/21/2015	LTM-FH-VWC-345	<0.20
			8/10/2017	LT-FH-VWC-006	< 0.20
			9/17/2019	LT-FW-VWC-010	< 0.20
			9/15/2021	LT-FW-VWC-008	< 0.20
		Grayson House	7/22/2014	LTM-GH-VWC-230	<0.20
			7/21/2015	LTM-GH-VWC-344	<0.20
			8/10/2017	LT-GH-VWC-005	0.25
			9/17/2019	LT-GH-VWC-012	< 0.20
			9/15/2021	LT-GH-VWC-009	< 0.20
Sika 550W	Interior CMU Block Walls	Webster House	8/9/2012	LTM-WH-VWC-001	< 0.20
			8/9/2012	LTM-WH-VWC-002	< 0.20
			8/9/2012	LTM-WH-VWC-003	< 0.20
			9/3/2013	LTWH-VWC-001	< 0.20
			9/3/2013	LTWH-VWC-002	< 0.20
			9/3/2013	LTWH-VWC-003	< 0.20
			7/22/2014	LTM-WH-VWC-225	<0.20
			7/22/2014	LTM-WH-VWC-226	<0.20
			7/22/2014	LTM-WH-VWC-227	<0.20
			7/21/2015	LTM-WH-VWC-341	<0.20
			7/21/2015	LTM-WH-VWC-342	<0.20
			7/21/2015	LTM-WH-VWC-343	<0.20
			8/10/2017	LT-WH-VWC-001	<0.20
			8/10/2017	LT-WH-VWC-002	<0.20
			8/10/2017	LT-WH-VWC-003	<0.20
			9/17/2019	LT-WH-VWC-013	< 0.20
			9/17/2019	LT-WH-VWC-014	< 0.20
			9/17/2019	LT-WH-VWC-015	< 0.20
			9/15/2021	LT-WH-VWC-010	< 0.20
			9/15/2021	LT-WH-VWC-011	< 0.20
			9/15/2021	LT-WH-VWC-012	< 0.20
		Field House	7/22/2014	LTM-FH-VWC-229	<0.20
			9/17/2019	LT-FH-VWC-011	< 0.20
			9/15/2021	LT-FH-VWC-007	< 0.20
		Grayson House	7/21/2015	LTM-GH-VWC-346	<0.20
			8/10/2017	LT-GH-VWC-007	< 0.20

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

ENCAPSULATED BUILDING SURFACES

Grayson House

Field House



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

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COMMITMENT & INTEGRITY DRIVE RESULTS

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DESIGNED BY: GJF
DRAWN BY: PF
CHECKED BY: GJF
224824-UMA-GRAYSON-U2-1*.dwg

UMASS GRAYSON & FIELD HOUSE
AMHERST, MASSACHUSETTS

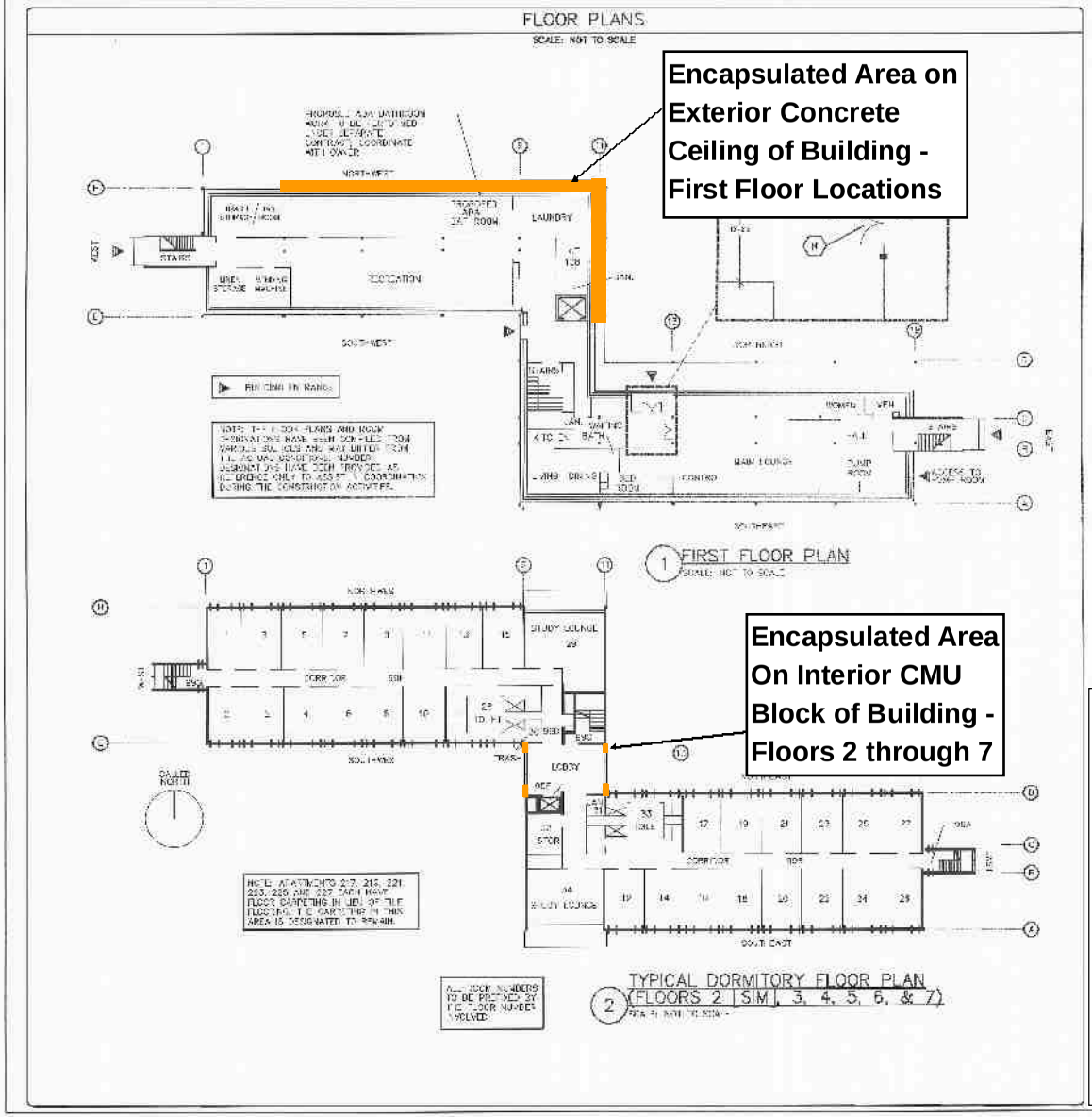
Long Term Monitoring and Maintenance Report

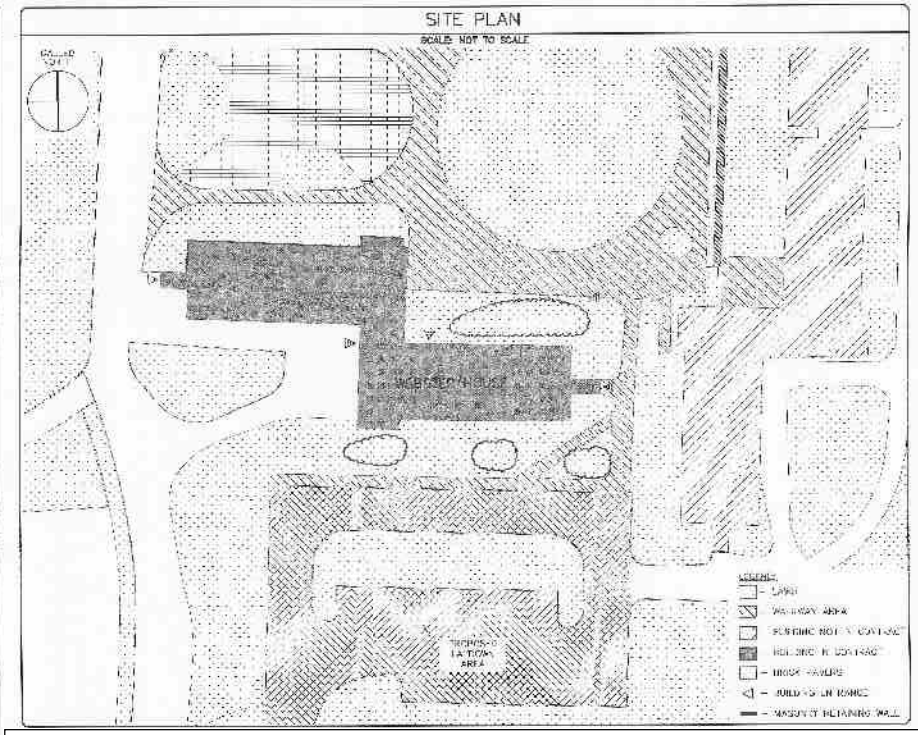
JOB NO: 224824.00
DATE: NOVEMBER 2013
SCALE: NONE

Figure 4-1

Figure 4-2 Encapsulated Building Surfaces
Webster House

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





Attachment 5 – Sylvan Residential Complex

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

Location: Sylvan Complex

Building: Brown, Cashin, McNamara

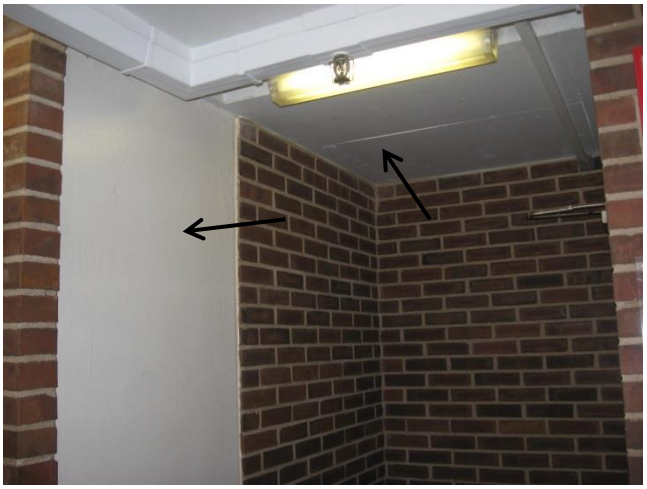
Summary of Remedial Areas

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

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

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

Photographs of typical coating application areas are provided below.



Typical Interior Encapsulated Surfaces
(Concrete Walls and Ceiling)

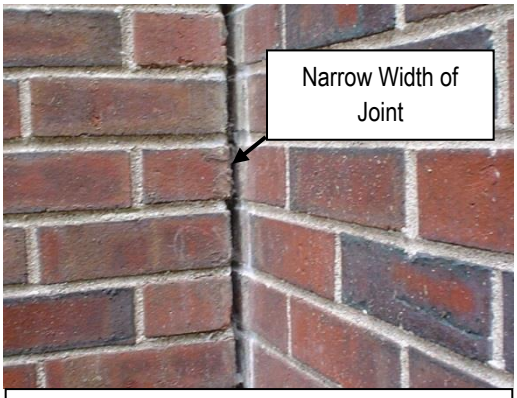
Typical Vertical and Horizontal Control Joints
(New Caulking and Clear Coating Visible)

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

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

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

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



Typical Vertical Control Joint

Monitoring and Maintenance Implementation Plan

Following completion of the remediation activities at the three buildings, a Long Term Monitoring and Maintenance Implementation Plan (MMIP) was submitted to the United Stated Environmental Protection Agency (EPA) in February 2014. The MMIP included visual inspections and surface wipe sampling of the encapsulated surfaces as follows:

Visual Inspections: 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 Sampling: Surface wipe samples will be collected from representative locations of the following encapsulated surfaces to aid in determining the effectiveness of the encapsulants over time.

- Areas Adjacent to Exterior Façade Horizontal Control Joints in High Occupancy Areas (< 8'-8" above ground surfaces [ags]) (860 l.f.) – 1 sample per building façade (total of 12 samples proposed; 4 per building);
- Areas Adjacent to Exterior Façade Vertical Control Joints in High Occupancy Areas (< 8' -8" ags) (878 l.f.) – 1 sample per building façade (total of 12 samples proposed; 4 per building);
- Interior Concrete Columns/Walls (Brown and McNamara) (352 s.f.) – 1 sample per work area (total of 3 samples proposed; 1 at Brown and 2 at McNamara); and
- Interior Concrete Ceilings (Brown, McNamara, and Cashin) (835 s.f.) – a total of five samples to be collected with a minimum of 1 sample per work area (1 at Brown; 2 at McNamara; and 2 at Cashin).
- Collection of surface wipe samples from exterior encapsulated surfaces in low-occupancy areas (i.e., surfaces at heights greater than 8'-8" ags) is not conducted given their inaccessibility and the low likelihood that these surfaces will be contacted by occupants or building users.

Following the completion of the 2018 monitoring event, modifications to the long-term monitoring program were proposed to include annual visual inspections and biennial wipe sampling of the accessible encapsulated surfaces. On June 4, 2019, EPA issued the PCB Decontamination and Disposal Approval for the Sylvan Complex which included confirmation that long-term monitoring was to continue in accordance with the MMIP.

Previous Monitoring Events

Visual inspection and wipe sampling of encapsulated surfaces was conducted in accordance with the MMIP as described above from 2014 to 2020. In addition, indoor air samples were collected during multiple events from 2016 through 2020 to evaluate indoor air conditions during periods of varying ambient conditions. Results of the monitoring activities are summarized below:

Visual Inspection: Results of the visual inspections indicated that the encapsulating barriers (caulking within exterior control joints and liquid coatings applied over interior and exterior areas with residual PCBs) were in good physical condition. Isolated areas of flaking and peeling were observed on the clear coating over the brick surfaces adjacent to the joints. The flaking and peeling were consistent with observations of similar coating applications at other areas on the campus.

Wipe Samples: Wipe samples were collected from interior and exterior coated masonry surfaces as described above. A summary of the results is as follows:

- Sikagard 670W Clear Acrylic Coating: Wipe samples were collected from exterior brick along horizontal and vertical control joints within high occupancy areas at the three buildings. Analytical results were as follows:
    - Horizontal Control Joints – From 2014 to 2020, PCBs were reported as either non-detect or present at concentrations < 1 µg/100cm^2. These results were consistent with the baseline data.
    - Vertical Control Joints – From 2014 to 2020, analytical results reported PCBs as either non-detect or present in 13 samples at concentrations ranging from 0.23 to 3.4 µg/100cm^2. These results were consistent with the baseline data.
- Interior Concrete Columns/Walls: Three wipe samples were collected during each event from interior concrete columns/walls encapsulated with Sikagard 550W elastomeric coating (the final coating applied to interior concrete columns and walls). Analytical results were consistent with the baseline data with PCBs reported as either non-detect or present at concentrations < 1 ug/100cm^2 in the majority of samples with total PCBs reported > 1 ug/100cm^2 in one sample (1.27 ug/100cm^2)
- Interior Concrete Ceiling: Five wipe samples were collected during each event from interior concrete ceiling surfaces encapsulated with interior acrylic paint (the final coating applied over Sikagard 62 liquid epoxy and/or Sikagard 670w clear acrylic). Analytical results indicated that PCBs were either non-detect or present at concentrations < 1 µg/100cm^2. These results are consistent with the baseline data.
- McNamara Vertical Control Joints: Four wipe samples (1 per elevation) were collected from the surface of the replacement caulking on the McNamara vertical control joints in 2014 and 2015. Analytical results indicated that PCBs were present in the wipe samples at concentrations ranging from 13 to 77 µg/100 cm^2. These results were consistent with the verification/baseline monitoring wipes collected at the completion of the project where analytical results had indicated that PCBs were present at a maximum concentration of 250 µg/100cm^2 on the liquid epoxy coating. In addition to the hexane wipes, four saline wipes were collected during both events from the locations co-located with the hexane wipe samples to evaluate alternative wipe sampling procedures to assess "surface" concentrations of PCBs to determine if the hexane was "extracting" or "pulling" the PCBs from within the porous caulking. Analytical results from the saline wipes indicated that PCBs were present at concentrations ranging from 0.28 to 7.6 µg/100cm^2. Based on these results, the hexane wipes may not be truly representative of surficial PCBs that could be available for direct contact and/or leaching through normal anticipated pathways (e.g., incidental contact, rainwater, etc.).

  Based on the results of samples from the surface of the replacement caulking, UMass evaluated products to apply as secondary physical barriers over the lower portions of the vertical joints at McNamara; although no decision as to a final product has been made.

Indoor Air Sampling

Between 2016 and 2019, multiple rounds of indoor air sampling were conducted to evaluate indoor air conditions in the renovation areas of the three buildings. The initial sampling events were conducted to evaluate indoor air conditions

during periods of normal occupancy and periods when the building was not occupied as well as periods of varying ambient outdoor conditions (e.g., warmer summer months, cooler fall/spring months, and colder winter months).

On average, the higher PCB concentrations were detected in the Summer months during the period of warmer ambient temperatures and when the building is unoccupied and typically closed-up with minimum usage (e.g., building doors and windows typically closed and students and staff either not present or in the buildings at a reduced frequency).

As presented in the 2017 monitoring report, site-specific exposure levels for each of the three types of spaces where residual PCBs were encapsulated were calculated in accordance with EPA's "Exposure Levels for Evaluating Polychlorinated Biphenyls (PCBs) in Indoor School Air" using occupancy durations provided by UMass for the various types of spaces and building users.

Overall, analytical results from the indoor air sampling demonstrated that the concentration of PCBs in indoor air remained below the calculated site-specific exposure levels during periods of normal occupancy (with the exception of the Cashin Service Desk area in 2017; only one time exceedance, later rounds were below) and that the ventilation of the three buildings prior to the start of the fall semester is effective in reducing the PCB concentrations in indoor air (based on a comparison between the results from the fall sampling events and the summer sampling events as described in previous submittals and the MMIP).

Because the intent of the monitoring is to evaluate potential exposures to building occupants under normal operating and use conditions, indoor air sampling has been conducted during the early parts of the fall semester. This timeframe was selected to evaluate conditions during periods of normal building use and occupancy that would typically coincide with periods of warmer ambient temperatures. Based on the 2019 indoor air results, another round of sampling was proposed to be conducted in 2020; however, because of the Covid-19 pandemic the Sylvan buildings were not in use during the fall semester and therefore, sampling was not conducted in 2020.

2021 Monitoring Activities

Monitoring was conducted in 2021 during two events. The first event was conducted on January 19, 2021 to evaluate indoor air conditions prior to students returning to the buildings in limited capacity for the Spring 2021 semester. The second event was conducted on September 15, 2021 in accordance with the annual monitoring conducted and included visual inspections of encapsulated surfaces and indoor air sampling. A summary of the results is presented below.

Visual Inspection

Results of the visual inspections are as follows:

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

Indoor Air Sample Collection

Two rounds of indoor air sampling was conducted in 2021 to evaluate interior conditions shortly after students returned to the buildings for the Spring and Fall semesters. In January, the sampling included the collection of two samples from common areas anticipated to be utilized by returning students. In September, the sampling included the collection of samples from common spaces, the ADA restrooms and the Cashin Service Desk consistent with previous sampling events.

As part of the building re-opening for use procedures and prior to each event, UMass conducted ventilation of the buildings by opening interior partition doors and the main building entry doors and using portable fans to enhance ventilation. However, due to staffing limitations associated with the on-going Covid-19 pandemic, the ventilation conducted in August prior to the Fall semester was conducted using small portable fans instead of the larger units used for previous semesters (including in January 2021).

Observations made during the sampling event indicated that the building doors and windows were closed during sample collection as were the majority of interior partition doors in the sample areas. Based on information provided by UMass, no major renovations or maintenance activities had occurred prior to the sampling events; however, following the August ventilation activities, the buildings were closed back up for several weeks prior to students returning for the Fall semester.

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

Analytical results are summarized in Table 5-1 (along with the previous data). Analytical results from samples collected from common spaces in January reported PCBs at concentrations of 196 and 205 ng/m^3, consistent with results from previous sampling events in these areas and well below the calculated site-specific exposure levels. Analytical results from the samples collected in September were reported at concentrations of 917 ng/m^3 in the Cashin Service Desk, 660 ng/m^3 in the McNamara ADA restroom, and 258 and 616 ng/m^3 in samples collected from the first floor and lower level common areas in McNamara and Brown. These results were within the range of previous samples collected from these spaces, consistent with results from prior rounds of sampling collected shortly after the return of students for the fall semester. The results were also well below the calculated site-specific exposure levels for the spaces with the exception of the Cashin Service Desk where PCBs were reported at a concentration of 917 ng/m^3. While this result is within the range of data collected from this space since 2015, the reported concentrations are consistent with previous samples collected during the summer months when the building was in a more closed condition, including the sampling event in August 2017 when PCBs were reported at a concentration of 922 ng/m^3. As noted above, the building was closed back up after the August ventilation activity and did not have the normal amount of activity during the weeks leading up to the fall semester. Because these results are above the site-specific exposure level for the Cashin Service Desk, an additional sample will be collected during the first quarter of 2022 to confirm that the analytical results are not indicative of normal conditions during the school year when the building is occupied.

Conclusions/Next Steps

As reported in previous annual reports, UMass continues to evaluate the application of secondary barrier systems over those vertical control joints considered to be in the high occupancy area as defined specific to this project (< 8' 8" above ground surface) at the McNamara building. At this time, the final product has not been determined however, it is anticipated that it will a pre-formed silicone barrier material or similar barrier material designed to span the control joint.

The results of the 2021 monitoring event were consistent with previous monitoring events. However, because the results from the sample collected at the Cashin Service Desk were slightly higher than previous sampling events when the buildings were occupied, an additional sample will be collected during the first quarter of 2022 to verify conditions. The next full monitoring event will be conducted during the September 2022 timeframe after students return for the fall semester. Consistent with the MMIP, activities will include visual inspections, biennial surface wipe sampling, and indoor air sampling. UMass EHS will continue to coordinate with Residential Life to ventilate the three buildings upon preparation for students returning for the fall semester. A summary of the planned air sampling program for 2022 is as follows:

- ADA Restrooms – 1 sample will be collected from the McNamara ADA restroom area.
- First Floor and Lower Level Common Areas – 1 sample will be collected from the 1st Floor Study/Lounge area at Brown and 1 sample will be collected from the lower level study area at McNamara (total of 2 samples).
- Cashin Service Desk – 1 sample will be collected in Q1 and 1 sample will be collected in the fall.

Table 5-1
Summary of Indoor Air Sampling Results - 2017 to 2021
Sylvan Complex

Area	Air Sample ID	Sample Date	Location	Notes	Total PCB Concentration (ng/m^3)	Site-Specific Exposure Level (ng/m^3)
Cashin Service Desk	LT-CR-IAS-109	10/5/2017	Service Desk	79.5 degrees	617	422 ng/m^3
	LT-CR-IAS-109	10/5/2017	Service Desk	79.5 degrees	617	
	LT-CR-IAS-301	9/13/2018	Service Desk	75.5 degrees	404	
	LT-CR-IAS-401	9/17/2019	Service Desk	74.1 degrees	370	
	LT-MR-IAS-408	9/15/2021	Cashin - 1st Floor Service Desk - Room 108	76.2 degrees	917	
ADA Restroom Areas	LT-BR-IAS-303	9/13/2018	Brown - ADA Restroom 113	75.5 degrees	321	7,943 ng/m^3
	LT-BR-IAS-402	9/17/2019	Brown - ADA Restroom 113	74.1 degrees	181	
	LT-MR-IAS-502	1/19/2021	McNamara - ADA Restroom 115	41.0 degrees	205	
	LT-MR-IAS-405	9/15/2021	McNamara - ADA Restroom 115	74.6 degrees	660	
First Floor and Lower Level Common Areas	LT-MR-IAS-107	10/5/2017	McNamara 1st Floor Study/Lounge - Room 113	79.5 degrees	453	1,662 ng/m^3
	LT-MR-IAS-105	10/5/2017	McNamara Lower Level Study Area - Room	79.5 degrees	223	
	LT-MR-IAS-106	10/5/2017	McNamara Lower Level Study Area - Hallway	79.5 degrees	237	
	LT-BR-IAS-108	10/5/2017	Brown 1st Floor Study/Lounge - Room 111	79.5 degrees	389	
	LT-MR-IAS-302	9/13/2018	McNamara Lower Level Study Area - Hallway	75.5 degrees	226	
	LT-MR-IAS-403	9/17/2019	McNamara 1st Floor Study/Lounge - Room 113	74.1 degrees	549	
	LT-MR-IAS-404	9/17/2019	McNamara Lower Level Study Area - Hallway	74.1 degrees	219	
	LT-BR-IAS-501	1/19/2021	Brown 1st Floor Study/Lounge - Room 111	41.0 degrees	196	
	LT-MR-IAS-406	9/15/2021	McNamara Lower Level Study Area - 04C	74.9 degrees	258	
	LT-MR-IAS-407	9/15/2021	Brown 1st Floor Study/Lounge - Room 111	77.4 degrees	616	

Notes:

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

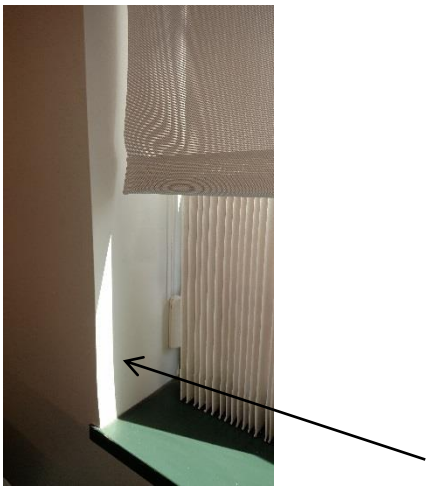
Attachment 6 – Physical Plant

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

Location: Physical Plant Room 230A

Summary of Remedial Areas

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



Typical Area of In-Place Management

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

Monitoring and Maintenance Implementation Plan

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

Previous Monitoring Activities

Results of visual inspections conducted on an annual basis through 2020 reported no damage, deterioration, or disturbance of the replacement window frames and gypsum wall board materials.

Monitoring Activities – July 2021

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

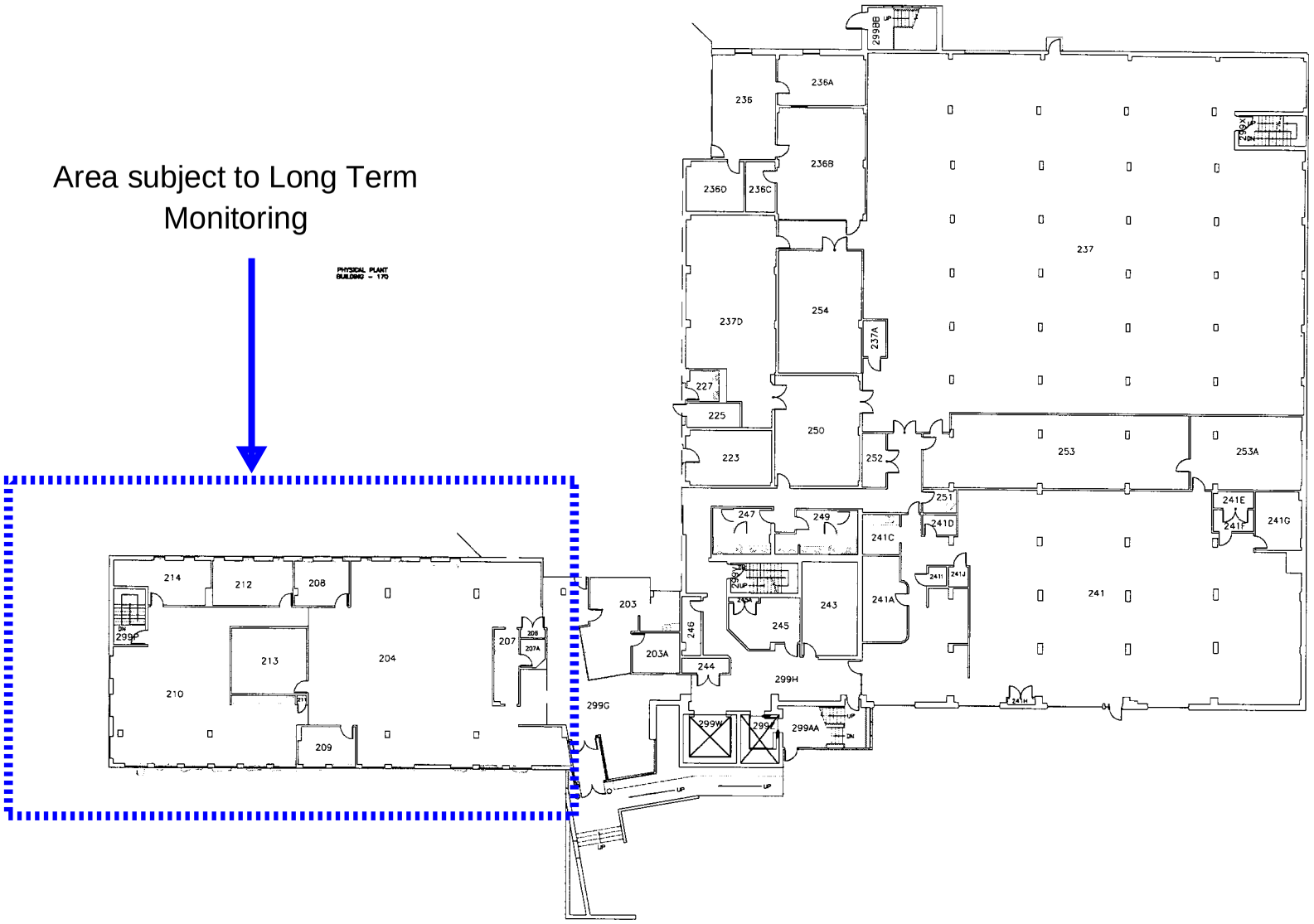
Next Monitoring Event

The next monitoring event will be conducted in July 2022 as part of the campus-wide long-term monitoring program.

ATTACHMENT A

Attachment A Second Floor Physical Plant

Area subject to Long Term Monitoring



PHYSICAL PLANT BUILDING ADDITION
SECOND FLOOR PLAN
Facilities Planning
University of Massachusetts Amherst

Issue Date: 08/23/06
Revision Date: 07/13
Building No: 398

398-02

NOT TO SCALE

Attachment 7 – Data Validation Summary and Analytical Laboratory Reports

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January 28, 2021

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

Project Location: Amherst, MA
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 21A0777

Enclosed are results of analyses for samples received by the laboratory on January 19, 2021. 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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Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: George Franklin

REPORT DATE: 1/28/2021

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 21A0777

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

PROJECT LOCATION: Amherst, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LT-MR-IAS-502	21A0777-01	Indoor air		TO-10A/EPA 680 Modified	
LT-BR-IAS-501	21A0777-02	Indoor air		TO-10A/EPA 680 Modified	

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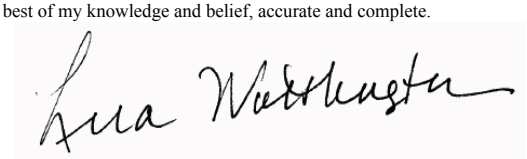
CASE NARRATIVE SUMMARY

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

The results of analyses reported only relate to samples submitted to Con-Test, a Pace 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
Technical Representative

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ANALYTICAL RESULTS

Project Location: Amherst, MA
Date Received: 1/19/2021
Field Sample #: LT-MR-IAS-502
Sample ID: 21A0777-01
Sample Matrix: Indoor air
Sampled: 1/19/2021 15:50

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 919.45

Work Order: 21A0777

TO-10A/EPA 680 Modified

Analyte	Total µg Results	RL	Flag/Qual	ug/m3 Results	RL	Dilution	Date/Time Analyzed	Analyst
Monochlorobiphenyls	ND	0.0010		ND	0.0011	1	1/27/21 17:04	IMR
Dichlorobiphenyls	0.0044	0.0010		0.0048	0.0011	1	1/27/21 17:04	IMR
Trichlorobiphenyls	0.025	0.0020		0.028	0.0022	1	1/27/21 17:04	IMR
Tetrachlorobiphenyls	0.068	0.0020		0.074	0.0022	1	1/27/21 17:04	IMR
Pentachlorobiphenyls	0.074	0.0020		0.081	0.0022	1	1/27/21 17:04	IMR
Hexachlorobiphenyls	0.018	0.0020		0.019	0.0022	1	1/27/21 17:04	IMR
Heptachlorobiphenyls	ND	0.0030		ND	0.0033	1	1/27/21 17:04	IMR
Octachlorobiphenyls	ND	0.0030		ND	0.0033	1	1/27/21 17:04	IMR
Nonachlorobiphenyls	ND	0.0050		ND	0.0054	1	1/27/21 17:04	IMR
Decachlorobiphenyl	ND	0.0050		ND	0.0054	1	1/27/21 17:04	IMR
Total Polychlorinated biphenyls	0.19			0.21		1	1/27/21 17:04	IMR

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	82.1	50-125	1/27/21 17:04

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ANALYTICAL RESULTS

Project Location: Amherst, MA
Date Received: 1/19/2021
Field Sample #: LT-BR-IAS-501
Sample ID: 21A0777-02
Sample Matrix: Indoor air
Sampled: 1/19/2021 15:35

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 965.25

Work Order: 21A0777

TO-10A/EPA 680 Modified

Analyte	Total µg Results	Total µg RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Date/Time Analyzed	Analyst
Monochlorobiphenyls	ND	0.0010		ND	0.001	1	1/27/21 17:41	IMR
Dichlorobiphenyls	0.0035	0.0010		0.0036	0.001	1	1/27/21 17:41	IMR
Trichlorobiphenyls	0.021	0.0020		0.022	0.0021	1	1/27/21 17:41	IMR
Tetrachlorobiphenyls	0.075	0.0020		0.078	0.0021	1	1/27/21 17:41	IMR
Pentachlorobiphenyls	0.074	0.0020		0.077	0.0021	1	1/27/21 17:41	IMR
Hexachlorobiphenyls	0.015	0.0020		0.015	0.0021	1	1/27/21 17:41	IMR
Heptachlorobiphenyls	ND	0.0030		ND	0.0031	1	1/27/21 17:41	IMR
Octachlorobiphenyls	ND	0.0030		ND	0.0031	1	1/27/21 17:41	IMR
Nonachlorobiphenyls	ND	0.0050		ND	0.0052	1	1/27/21 17:41	IMR
Decachlorobiphenyl	ND	0.0050		ND	0.0052	1	1/27/21 17:41	IMR
Total Polychlorinated biphenyls	0.19			0.20		1	1/27/21 17:41	IMR

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	82.7	50-125	1/27/21 17:41

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Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [Cartridge	Final [mL]	Date
21A0777-01 [LT-MR-IAS-502]	B275230	1.00	1.00	01/25/21
21A0777-02 [LT-BR-IAS-501]	B275230	1.00	1.00	01/25/21

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QUALITY CONTROL

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

Analyte	Total µg Results	Total µg RL	ug/m3 Results	ug/m3 RL	Spike Level Total µg	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag/Qual
Batch B275230 - SW-846 3540C											
Blank (B275230-BLK1)					Prepared: 01/25/21 Analyzed: 01/27/21						
Monochlorobiphenyls	ND	0.0010									
Dichlorobiphenyls	ND	0.0010									
Trichlorobiphenyls	ND	0.0020									
Tetrachlorobiphenyls	ND	0.0020									
Pentachlorobiphenyls	ND	0.0020									
Hexachlorobiphenyls	ND	0.0020									
Heptachlorobiphenyls	ND	0.0030									
Octachlorobiphenyls	ND	0.0030									
Nonachlorobiphenyls	ND	0.0050									
Decachlorobiphenyl	ND	0.0050									
Total Polychlorinated biphenyls	0.0										
Surrogate: Tetrachloro-m-xylene	*0.154*				*0.200*		*76.8*	*50-125*			
LCS (B275230-BS1)					Prepared: 01/25/21 Analyzed: 01/27/21						
Monochlorobiphenyls	0.13	0.0010			0.200		67.5	40-140			
Dichlorobiphenyls	0.15	0.0010			0.200		75.7	40-140			
Trichlorobiphenyls	0.15	0.0020			0.200		75.6	40-140			
Tetrachlorobiphenyls	0.31	0.0020			0.400		77.0	40-140			
Pentachlorobiphenyls	0.32	0.0020			0.400		80.6	40-140			
Hexachlorobiphenyls	0.30	0.0020			0.400		74.8	40-140			
Heptachlorobiphenyls	0.45	0.0030			0.600		75.6	40-140			
Octachlorobiphenyls	0.46	0.0030			0.600		77.2	40-140			
Nonachlorobiphenyls	0.81	0.0050			1.00		80.9	40-140			
Decachlorobiphenyl	0.71	0.0050			1.00		70.9	40-140			
Surrogate: Tetrachloro-m-xylene	*0.156*				*0.200*		*77.8*	*50-125*			
LCS Dup (B275230-BSD1)					Prepared: 01/25/21 Analyzed: 01/28/21						
Monochlorobiphenyls	0.13	0.0010			0.200		66.9	40-140	0.853	50	
Dichlorobiphenyls	0.14	0.0010			0.200		70.8	40-140	6.69	50	
Trichlorobiphenyls	0.14	0.0020			0.200		71.5	40-140	5.58	50	
Tetrachlorobiphenyls	0.28	0.0020			0.400		70.4	40-140	8.90	50	
Pentachlorobiphenyls	0.32	0.0020			0.400		78.8	40-140	2.16	50	
Hexachlorobiphenyls	0.24	0.0020			0.400		60.8	40-140	20.6	50	
Heptachlorobiphenyls	0.36	0.0030			0.600		60.6	40-140	21.9	50	
Octachlorobiphenyls	0.39	0.0030			0.600		64.5	40-140	17.9	50	
Nonachlorobiphenyls	0.68	0.0050			1.00		68.2	40-140	17.0	50	
Decachlorobiphenyl	0.59	0.0050			1.00		58.8	40-140	18.8	50	
Surrogate: Tetrachloro-m-xylene	*0.146*				*0.200*		*73.1*	*50-125*			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level

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

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

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INTERNAL STANDARD AREA AND RT SUMMARY

TO-10A/EPA 680 Modified

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B275230-BS1)			Lab File ID: F2102704.D			Analyzed: 01/27/21 15:11			
Phenanthrene-d10	670702	20.642	789566	20.642	85	70 - 130	0.0000	+/-0.50	
Chrysene-d12	536982	28.492	669966	28.497	80	70 - 130	-0.0050	+/-0.50	
Blank (B275230-BLK1)			Lab File ID: F2102706.D			Analyzed: 01/27/21 16:26			
Phenanthrene-d10	692743	20.642	789566	20.642	88	70 - 130	0.0000	+/-0.50	
Chrysene-d12	566840	28.491	669966	28.497	85	70 - 130	-0.0060	+/-0.50	
LT-MR-IAS-502 (21A0777-01)			Lab File ID: F2102707.D			Analyzed: 01/27/21 17:04			
Phenanthrene-d10	798446	20.643	789566	20.642	101	70 - 130	0.0010	+/-0.50	
Chrysene-d12	639401	28.49	669966	28.497	95	70 - 130	-0.0070	+/-0.50	
LT-BR-IAS-501 (21A0777-02)			Lab File ID: F2102708.D			Analyzed: 01/27/21 17:41			
Phenanthrene-d10	814489	20.643	789566	20.642	103	70 - 130	0.0010	+/-0.50	
Chrysene-d12	678378	28.49	669966	28.497	101	70 - 130	-0.0070	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

TO-10A/EPA 680 Modified

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS Dup (B275230-BSD1)			Lab File ID: F2102712.D			Analyzed: 01/28/21 10:02			
Phenanthrene-d10	790087	20.642	758369	20.642	104	70 - 130	0.0000	+/-0.50	
Chrysene-d12	756399	28.499	644654	28.497	117	70 - 130	0.0020	+/-0.50	

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CONTINUING CALIBRATION CHECK

				RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications

No certified Analyses included in this Report

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2021
CT	Connecticut Department of Publilc Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2021
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2022
RI	Rhode Island Department of Health	LAO00112	12/30/2021
NC	North Carolina Div. of Water Quality	652	12/31/2021
NJ	New Jersey DEP	MA007 NELAP	06/30/2021
FL	Florida Department of Health	E871027 NELAP	06/30/2021
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2021
ME	State of Maine	MA00100	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2021
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2021
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2021
NC-DW	North Carolina Department of Health	25703	07/31/2021
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2021
MI	Dept. of Env, Great Lakes, and Energy	9100	09/6/2021

con-test ANALYTICAL LABORATORY

21A0777

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http://www.contestlabs.com

Doc #378 Rev 1_03242017

CHAIN OF CUSTODY RECORD (AIR)

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of ____

Company Name:	Woodard & Curran
Address:	40 Shattuck Rd, Andover MA 01810
Phone:	978 557 8150
Project Name:	UMASS ~~EAS~~ Sylvan
Project Location:	Amherst MA
Project Number:	225695
Project Manager:	George Franklin
Con-Test Quote Name/Number:	
Invoice Recipient:	George Franklin
Sampled By:	Wm Delgscale

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

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

Data Delivery
Format: PDF ☒ EXCEL ☒
Other:
CLP Like Data Pkg Required: ☐
Email To: gfranklin@woodardcurran.com
Fax To #:

ANALYSIS REQUESTED

Con-Test Work Order# (Lab Use)	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Duration: Total Minutes Sampled	Flow Rate: ☐ m³/min ☒ L/min	Matrix Code	Volume: ☐ Liters ☐ m³	USEPA 680A / PCBs Homologs	TO 10A		Tube #	Initial Pressure ("Hg)	Final Pressure ("Hg)	Lab Receipt Pressure ("Hg)	Summa Can ID	Flow Controller ID
01	LT-MR-IAS-502	1/19/21	1550	370	2485	IA		X			1					
02	LT-BR-IAS-501	1/19/21	1535	375	2574	IA		X			2					

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

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

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

Comments:
RL - <0.10 ug/m3

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______

	Date/Time:
Relinquished by: (signature) [signature]	1/19/21 1725
Received by: (signature) [signature] 2.0	1/19/21 1725
Relinquished by: (signature)	
Received by: (signature)	
Relinquished by: (signature)	
Received by: (signature)	

Detection Limit Requirements
MA
CT
Other:

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

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NELAC and AIHA-LAP, LLC Accredited

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

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

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

con-test® ANALYTICAL LABORATORY

Doc# 278 Rev 6 2017

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

Client Woodard & Curran

Received By RLF Date 1/19/21 Time 1725

How were the samples received? In Cooler T On Ice T No Ice ____ In Box ____ Ambient ____ Melted Ice ____

Were samples within Temperature Compliance? 2-6°C T By Gun # 3 Actual Temp - 2°C By Blank # ____ Actual Temp - ____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there any loose caps/valves on any samples? F

Is COC in ink/ Legible? T

Did COC Include all Pertinent Information? Client T Project T Analysis T ID's T Sampler Name T Collection Dates/Times T

Are Sample Labels filled out and legible? T

Are there Rushes? F Who was notified? ____

Samples are received within holding time? T

Proper Media Used? T Individually Certified Cans? F

Are there Trip Blanks? F Is there enough Volume? T

Containers:	#	Size	Regulator	Duration	Accessories:			
Summa Cans					Nut/Ferrule		IC Train	
Tedlar Bags					Tubing			
TO-17 Tubes					T-Connector		Shipping Charges	
Radiello					Syringe			
Pufs/TO-11s	2				Tedlar			

Can #'s					Reg #'s				
Unused Media					**Pufs/TO-17's**				
					011421A-01				
					-02				

Comments:

Meghan Kelley

From: George Franklin <gfranklin@woodardcurran.com> on behalf of George Franklin
Sent: Wednesday, January 27, 2021 4:59 PM
To: mkelley
Subject: RE: UMass

Meghan,
The flow rates are as follows:

LT-MR-IAS-502 2.485 L/min
LT-BR-IAS-501 2.574 L/min

Thank you,

George

-----Original Message-----
From: Meghan Kelley <mkelley@contestlabs.com>
Sent: Wednesday, January 27, 2021 3:00 PM
To: George Franklin <gfranklin@woodardcurran.com>
Subject: UMass

Hi George,

The lab asked that I reach out to you and verify the flow rates for both these samples. If you could confirm ASAP, I would appreciate it.

Thanks,
Meghan

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August 3, 2021

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

Project Location: UMass Southwest Concourse - Amherst, MA
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 21G1698

Enclosed are results of analyses for samples received by the laboratory on July 29, 2021. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Meghan E. Kelley
Project Manager

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

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

REPORT DATE: 8/3/2021

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 21G1698

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

PROJECT LOCATION: UMass Southwest Concourse - Amherst, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LT-SWC-VWC-500	21G1698-01	Wipe		SW-846 8082A	
LT-SWC-VWC-501	21G1698-02	Wipe		SW-846 8082A	
LT-SWC-VWC-502	21G1698-03	Wipe		SW-846 8082A	
LT-SWC-VWC-503	21G1698-04	Wipe		SW-846 8082A	
LT-SWC-VWC-504	21G1698-05	Wipe		SW-846 8082A	
LT-SWC-VWC-505	21G1698-06	Wipe		SW-846 8082A	
LT-SWC-VWC-506	21G1698-07	Wipe		SW-846 8082A	
LT-SWC-VWC-507	21G1698-08	Wipe		SW-846 8082A	
LT-SWC-VWC-508	21G1698-09	Wipe		SW-846 8082A	
LT-SWC-VWC-509	21G1698-10	Wipe		SW-846 8082A	
LT-SWC-VWC-510	21G1698-11	Wipe		SW-846 8082A	
LT-SWC-VWC-511	21G1698-12	Wipe		SW-846 8082A	
LT-SWC-VWC-512	21G1698-13	Wipe		SW-846 8082A	
LT-SWC-VWC-513	21G1698-14	Wipe		SW-846 8082A	
LT-SWC-VWC-514	21G1698-15	Wipe		SW-846 8082A	
LT-SWC-VWC-515	21G1698-16	Wipe		SW-846 8082A	
LT-SWC-VWC-516	21G1698-17	Wipe		SW-846 8082A	
LT-SWC-VWC-518	21G1698-18	Wipe		SW-846 8082A	
LT-SWC-VWK-517	21G1698-19	Wipe		SW-846 8082A	
LT-SWC-VWCD-508	21G1698-20	Wipe		SW-846 8082A	

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CASE NARRATIVE SUMMARY

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

SW-846 8082A

Qualifications:

S-20

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

Analyte & Samples(s) Qualified:

Decachlorobiphenyl
21G1698-12[LT-SWC-VWC-511]

Decachlorobiphenyl [2C]
21G1698-12[LT-SWC-VWC-511]

Tetrachloro-m-xylene
21G1698-12[LT-SWC-VWC-511]

Tetrachloro-m-xylene [2C]
21G1698-12[LT-SWC-VWC-511]

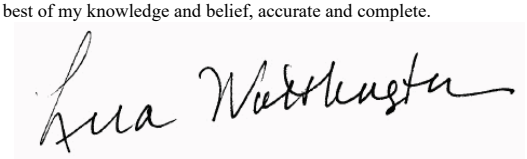
V-06

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

Aroclor-1260 [2C]
B287147-BS1, B287147-BSD1

The results of analyses reported only relate to samples submitted to Con-Test, a Pace 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
Technical Representative

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

Project Location: UMass Southwest Concourse - Am Sample Description: Work Order: 21G1698

Date Received: 7/29/2021

Field Sample #: LT-SWC-VWC-500 Sampled: 7/28/2021 11:20

Sample ID: 21G1698-01

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 11:27	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 11:27	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 11:27	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 11:27	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 11:27	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 11:27	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 11:27	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 11:27	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 11:27	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	80.6	30-150		8/1/21 11:27
Decachlorobiphenyl [2]	96.6	30-150		8/1/21 11:27
Tetrachloro-m-xylene [1]	71.3	30-150		8/1/21 11:27
Tetrachloro-m-xylene [2]	86.5	30-150		8/1/21 11:27

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Project Location: UMass Southwest Concourse - Am Sample Description: Work Order: 21G1698

Date Received: 7/29/2021

Field Sample #: LT-SWC-VWC-501 Sampled: 7/28/2021 11:30

Sample ID: 21G1698-02

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 11:45	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 11:45	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 11:45	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 11:45	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 11:45	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 11:45	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 11:45	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 11:45	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 11:45	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	76.1	30-150		8/1/21 11:45
Decachlorobiphenyl [2]	94.6	30-150		8/1/21 11:45
Tetrachloro-m-xylene [1]	72.7	30-150		8/1/21 11:45
Tetrachloro-m-xylene [2]	85.4	30-150		8/1/21 11:45

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Project Location: UMass Southwest Concourse - Am Sample Description: Work Order: 21G1698

Date Received: 7/29/2021

Field Sample #: LT-SWC-VWC-502 Sampled: 7/28/2021 11:35

Sample ID: 21G1698-03

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	7/30/21	8/1/21 12:02	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:02	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:02	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:02	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:02	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:02	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:02	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:02	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:02	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	64.8	30-150		8/1/21 12:02
Decachlorobiphenyl [2]	81.8	30-150		8/1/21 12:02
Tetrachloro-m-xylene [1]	64.2	30-150		8/1/21 12:02
Tetrachloro-m-xylene [2]	81.4	30-150		8/1/21 12:02

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Project Location: UMass Southwest Concourse - Am Sample Description: Work Order: 21G1698

Date Received: 7/29/2021

Field Sample #: LT-SWC-VWC-503 Sampled: 7/28/2021 11:40

Sample ID: 21G1698-04

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	7/30/21	8/2/21 19:22	JMB
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:22	JMB
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:22	JMB
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:22	JMB
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:22	JMB
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:22	JMB
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:22	JMB
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:22	JMB
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:22	JMB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	86.3	30-150		8/2/21 19:22
Decachlorobiphenyl [2]	73.7	30-150		8/2/21 19:22
Tetrachloro-m-xylene [1]	75.9	30-150		8/2/21 19:22
Tetrachloro-m-xylene [2]	70.7	30-150		8/2/21 19:22

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Project Location: UMass Southwest Concourse - Am Sample Description: Work Order: 21G1698

Date Received: 7/29/2021

Field Sample #: LT-SWC-VWC-504 Sampled: 7/28/2021 11:50

Sample ID: 21G1698-05

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	7/30/21	8/1/21 12:37	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:37	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:37	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:37	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:37	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:37	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:37	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:37	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:37	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	60.2	30-150		8/1/21 12:37
Decachlorobiphenyl [2]	76.8	30-150		8/1/21 12:37
Tetrachloro-m-xylene [1]	58.5	30-150		8/1/21 12:37
Tetrachloro-m-xylene [2]	76.1	30-150		8/1/21 12:37

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Project Location: UMass Southwest Concourse - Am Sample Description: Work Order: 21G1698

Date Received: 7/29/2021

Field Sample #: LT-SWC-VWC-505 Sampled: 7/28/2021 11:55

Sample ID: 21G1698-06

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	7/30/21	8/1/21 12:55	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:55	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:55	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:55	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:55	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:55	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:55	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:55	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 12:55	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	77.5	30-150		8/1/21 12:55
Decachlorobiphenyl [2]	96.7	30-150		8/1/21 12:55
Tetrachloro-m-xylene [1]	75.4	30-150		8/1/21 12:55
Tetrachloro-m-xylene [2]	90.7	30-150		8/1/21 12:55

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Project Location: UMass Southwest Concourse - Am Sample Description: Work Order: 21G1698

Date Received: 7/29/2021

Field Sample #: LT-SWC-VWC-506 Sampled: 7/28/2021 12:00

Sample ID: 21G1698-07

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	7/30/21	8/1/21 13:12	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 13:12	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 13:12	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 13:12	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 13:12	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 13:12	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 13:12	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 13:12	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 13:12	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	73.5	30-150		8/1/21 13:12
Decachlorobiphenyl [2]	94.2	30-150		8/1/21 13:12
Tetrachloro-m-xylene [1]	70.8	30-150		8/1/21 13:12
Tetrachloro-m-xylene [2]	88.6	30-150		8/1/21 13:12

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Project Location: UMass Southwest Concourse - Am Sample Description: Work Order: 21G1698

Date Received: 7/29/2021

Field Sample #: LT-SWC-VWC-507 Sampled: 7/28/2021 12:10

Sample ID: 21G1698-08

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	7/30/21	8/1/21 13:30	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 13:30	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 13:30	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 13:30	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 13:30	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 13:30	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 13:30	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 13:30	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 13:30	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	75.3	30-150		8/1/21 13:30
Decachlorobiphenyl [2]	94.9	30-150		8/1/21 13:30
Tetrachloro-m-xylene [1]	73.6	30-150		8/1/21 13:30
Tetrachloro-m-xylene [2]	87.7	30-150		8/1/21 13:30

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Project Location: UMass Southwest Concourse - Am Sample Description: Work Order: 21G1698

Date Received: 7/29/2021

Field Sample #: LT-SWC-VWC-508 Sampled: 7/28/2021 12:15

Sample ID: 21G1698-09

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	7/30/21	8/1/21 14:53	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 14:53	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 14:53	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 14:53	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 14:53	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 14:53	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 14:53	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 14:53	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 14:53	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	76.8	30-150		8/1/21 14:53
Decachlorobiphenyl [2]	97.1	30-150		8/1/21 14:53
Tetrachloro-m-xylene [1]	75.8	30-150		8/1/21 14:53
Tetrachloro-m-xylene [2]	91.0	30-150		8/1/21 14:53

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Project Location: UMass Southwest Concourse - Am Sample Description: Work Order: 21G1698

Date Received: 7/29/2021

Field Sample #: LT-SWC-VWC-509 Sampled: 7/28/2021 12:20

Sample ID: 21G1698-10

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:10	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:10	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:10	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:10	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:10	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:10	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:10	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:10	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:10	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	74.7	30-150		8/1/21 15:10
Decachlorobiphenyl [2]	96.4	30-150		8/1/21 15:10
Tetrachloro-m-xylene [1]	72.5	30-150		8/1/21 15:10
Tetrachloro-m-xylene [2]	95.0	30-150		8/1/21 15:10

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Project Location: UMass Southwest Concourse - Am Sample Description: Work Order: 21G1698

Date Received: 7/29/2021

Field Sample #: LT-SWC-VWC-510 Sampled: 7/28/2021 12:25

Sample ID: 21G1698-11

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:28	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:28	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:28	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:28	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:28	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:28	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:28	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:28	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:28	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	73.1	30-150		8/1/21 15:28
Decachlorobiphenyl [2]	94.8	30-150		8/1/21 15:28
Tetrachloro-m-xylene [1]	72.6	30-150		8/1/21 15:28
Tetrachloro-m-xylene [2]	87.0	30-150		8/1/21 15:28

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Project Location: UMass Southwest Concourse - Am Sample Description: Work Order: 21G1698

Date Received: 7/29/2021

Field Sample #: LT-SWC-VWC-511 Sampled: 7/28/2021 12:35

Sample ID: 21G1698-12

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:45	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:45	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:45	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:45	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:45	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:45	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:45	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:45	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 15:45	TG

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	**15.4**	*	30-150	S-20	8/1/21 15:45
Decachlorobiphenyl [2]	**19.1**	*	30-150	S-20	8/1/21 15:45
Tetrachloro-m-xylene [1]	**19.5**	*	30-150	S-20	8/1/21 15:45
Tetrachloro-m-xylene [2]	**26.0**	*	30-150	S-20	8/1/21 15:45

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Project Location: UMass Southwest Concourse - Am Sample Description: Work Order: 21G1698

Date Received: 7/29/2021

Field Sample #: LT-SWC-VWC-512 Sampled: 7/28/2021 12:40

Sample ID: 21G1698-13

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:03	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:03	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:03	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:03	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:03	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:03	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:03	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:03	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:03	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	84.4	30-150		8/1/21 16:03
Decachlorobiphenyl [2]	104	30-150		8/1/21 16:03
Tetrachloro-m-xylene [1]	79.2	30-150		8/1/21 16:03
Tetrachloro-m-xylene [2]	91.7	30-150		8/1/21 16:03

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Project Location: UMass Southwest Concourse - Am Sample Description: Work Order: 21G1698

Date Received: 7/29/2021

Field Sample #: LT-SWC-VWC-513 Sampled: 7/28/2021 12:48

Sample ID: 21G1698-14

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:20	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:20	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:20	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:20	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:20	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:20	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:20	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:20	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:20	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	81.1	30-150		8/1/21 16:20
Decachlorobiphenyl [2]	101	30-150		8/1/21 16:20
Tetrachloro-m-xylene [1]	74.2	30-150		8/1/21 16:20
Tetrachloro-m-xylene [2]	89.5	30-150		8/1/21 16:20

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Project Location: UMass Southwest Concourse - Am Sample Description: Work Order: 21G1698

Date Received: 7/29/2021

Field Sample #: LT-SWC-VWC-514 Sampled: 7/28/2021 12:50

Sample ID: 21G1698-15

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:38	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:38	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:38	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:38	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:38	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:38	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:38	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:38	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 16:38	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	73.9	30-150		8/1/21 16:38
Decachlorobiphenyl [2]	95.4	30-150		8/1/21 16:38
Tetrachloro-m-xylene [1]	78.3	30-150		8/1/21 16:38
Tetrachloro-m-xylene [2]	97.4	30-150		8/1/21 16:38

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Project Location: UMass Southwest Concourse - Am Sample Description: Work Order: 21G1698

Date Received: 7/29/2021

Field Sample #: LT-SWC-VWC-515 Sampled: 7/28/2021 13:00

Sample ID: 21G1698-16

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:39	JMB
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:39	JMB
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:39	JMB
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:39	JMB
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:39	JMB
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:39	JMB
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:39	JMB
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:39	JMB
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:39	JMB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	94.7	30-150		8/2/21 19:39
Decachlorobiphenyl [2]	81.1	30-150		8/2/21 19:39
Tetrachloro-m-xylene [1]	89.9	30-150		8/2/21 19:39
Tetrachloro-m-xylene [2]	83.7	30-150		8/2/21 19:39

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Project Location: UMass Southwest Concourse - Am Sample Description: Work Order: 21G1698

Date Received: 7/29/2021

Field Sample #: LT-SWC-VWC-516 Sampled: 7/28/2021 13:05

Sample ID: 21G1698-17

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:13	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:13	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:13	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:13	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:13	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:13	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:13	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:13	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:13	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	68.0	30-150		8/1/21 17:13
Decachlorobiphenyl [2]	90.6	30-150		8/1/21 17:13
Tetrachloro-m-xylene [1]	72.2	30-150		8/1/21 17:13
Tetrachloro-m-xylene [2]	91.6	30-150		8/1/21 17:13

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

Project Location: UMass Southwest Concourse - Am Sample Description: Work Order: 21G1698

Date Received: 7/29/2021

Field Sample #: LT-SWC-VWC-518 Sampled: 7/28/2021 13:20

Sample ID: 21G1698-18

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:30	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:30	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:30	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:30	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:30	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:30	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:30	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:30	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:30	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	82.4	30-150		8/1/21 17:30
Decachlorobiphenyl [2]	102	30-150		8/1/21 17:30
Tetrachloro-m-xylene [1]	81.2	30-150		8/1/21 17:30
Tetrachloro-m-xylene [2]	95.5	30-150		8/1/21 17:30

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Project Location: UMass Southwest Concourse - Am Sample Description: Work Order: 21G1698

Date Received: 7/29/2021

Field Sample #: LT-SWC-VWK-517 Sampled: 7/28/2021 13:15

Sample ID: 21G1698-19

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:48	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:48	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:48	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:48	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:48	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:48	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:48	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:48	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 17:48	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	61.4	30-150		8/1/21 17:48
Decachlorobiphenyl [2]	82.1	30-150		8/1/21 17:48
Tetrachloro-m-xylene [1]	65.4	30-150		8/1/21 17:48
Tetrachloro-m-xylene [2]	85.4	30-150		8/1/21 17:48

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

Project Location: UMass Southwest Concourse - Am Sample Description: Work Order: 21G1698

Date Received: 7/29/2021

Field Sample #: LT-SWC-VWCD-508 Sampled: 7/28/2021 12:15

Sample ID: 21G1698-20

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 18:05	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 18:05	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 18:05	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 18:05	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 18:05	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 18:05	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 18:05	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 18:05	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 18:05	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	82.9	30-150		8/1/21 18:05
Decachlorobiphenyl [2]	104	30-150		8/1/21 18:05
Tetrachloro-m-xylene [1]	80.7	30-150		8/1/21 18:05
Tetrachloro-m-xylene [2]	95.1	30-150		8/1/21 18:05

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Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
21G1698-01 [LT-SWC-VWC-500]	B287147	1.00	10.0	07/30/21
21G1698-02 [LT-SWC-VWC-501]	B287147	1.00	10.0	07/30/21
21G1698-03 [LT-SWC-VWC-502]	B287147	1.00	10.0	07/30/21
21G1698-04 [LT-SWC-VWC-503]	B287147	1.00	10.0	07/30/21
21G1698-05 [LT-SWC-VWC-504]	B287147	1.00	10.0	07/30/21
21G1698-06 [LT-SWC-VWC-505]	B287147	1.00	10.0	07/30/21
21G1698-07 [LT-SWC-VWC-506]	B287147	1.00	10.0	07/30/21
21G1698-08 [LT-SWC-VWC-507]	B287147	1.00	10.0	07/30/21
21G1698-09 [LT-SWC-VWC-508]	B287147	1.00	10.0	07/30/21
21G1698-10 [LT-SWC-VWC-509]	B287147	1.00	10.0	07/30/21
21G1698-11 [LT-SWC-VWC-510]	B287147	1.00	10.0	07/30/21
21G1698-12 [LT-SWC-VWC-511]	B287147	1.00	10.0	07/30/21
21G1698-13 [LT-SWC-VWC-512]	B287147	1.00	10.0	07/30/21
21G1698-14 [LT-SWC-VWC-513]	B287147	1.00	10.0	07/30/21
21G1698-15 [LT-SWC-VWC-514]	B287147	1.00	10.0	07/30/21
21G1698-16 [LT-SWC-VWC-515]	B287147	1.00	10.0	07/30/21
21G1698-17 [LT-SWC-VWC-516]	B287147	1.00	10.0	07/30/21
21G1698-18 [LT-SWC-VWC-518]	B287147	1.00	10.0	07/30/21
21G1698-19 [LT-SWC-VWK-517]	B287147	1.00	10.0	07/30/21
21G1698-20 [LT-SWC-VWCD-508]	B287147	1.00	10.0	07/30/21

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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 B287147 - SW-846 3540C										
Blank (B287147-BLK1)				Prepared: 07/30/21 Analyzed: 08/01/21						
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	*1.63*		µg/Wipe	2.00		81.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.91*		µg/Wipe	2.00		95.7	30-150			
Surrogate: Tetrachloro-m-xylene	*1.41*		µg/Wipe	2.00		70.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.62*		µg/Wipe	2.00		80.8	30-150			
LCS (B287147-BS1)				Prepared: 07/30/21 Analyzed: 08/01/21						
Aroclor-1016	0.42	0.20	µg/Wipe	0.500		84.9	40-140			
Aroclor-1016 [2C]	0.47	0.20	µg/Wipe	0.500		93.0	40-140			
Aroclor-1260	0.42	0.20	µg/Wipe	0.500		83.8	40-140			
Aroclor-1260 [2C]	0.49	0.20	µg/Wipe	0.500		97.8	40-140			V-06
Surrogate: Decachlorobiphenyl	*1.72*		µg/Wipe	2.00		86.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.99*		µg/Wipe	2.00		99.4	30-150			
Surrogate: Tetrachloro-m-xylene	*1.56*		µg/Wipe	2.00		78.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.67*		µg/Wipe	2.00		83.5	30-150			
LCS Dup (B287147-BSD1)				Prepared: 07/30/21 Analyzed: 08/01/21						
Aroclor-1016	0.40	0.20	µg/Wipe	0.500		80.0	40-140	5.95	30	
Aroclor-1016 [2C]	0.40	0.20	µg/Wipe	0.500		80.6	40-140	14.3	30	
Aroclor-1260	0.40	0.20	µg/Wipe	0.500		79.0	40-140	5.90	30	
Aroclor-1260 [2C]	0.44	0.20	µg/Wipe	0.500		88.8	40-140	9.61	30	V-06
Surrogate: Decachlorobiphenyl	*1.61*		µg/Wipe	2.00		80.3	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.88*		µg/Wipe	2.00		94.2	30-150			
Surrogate: Tetrachloro-m-xylene	*1.46*		µg/Wipe	2.00		73.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.61*		µg/Wipe	2.00		80.6	30-150			

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B287147-BS1

Date(s) Analyzed: 08/01/2021 08/01/2021

Instrument ID (1): ECD 9

Instrument ID (2): ECD 9

GC Column (1): ID: (mm)

GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.42	
	2	0.000	0.000	0.000	0.47	11.2
Aroclor-1260	1	0.000	0.000	0.000	0.42	
	2	0.000	0.000	0.000	0.49	15.4

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS Dup

Lab Sample ID: B287147-BSD1 Date(s) Analyzed: 08/01/2021 08/01/2021

Instrument ID (1): ECD 9 Instrument ID (2): ECD 9

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.40	
	2	0.000	0.000	0.000	0.40	0.0
Aroclor-1260	1	0.000	0.000	0.000	0.40	
	2	0.000	0.000	0.000	0.44	9.5

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 is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
S-20	Surrogate recovery is outside of control limits. Sample media does not allow for re-extraction.
V-06	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8082A in Soil	
Aroclor-1016	CT,NH,NY,ME,NC,VA,PA
Aroclor-1016 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1221	CT,NH,NY,ME,NC,VA,PA
Aroclor-1221 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1232	CT,NH,NY,ME,NC,VA,PA
Aroclor-1232 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1242	CT,NH,NY,ME,NC,VA,PA
Aroclor-1242 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1248	CT,NH,NY,ME,NC,VA,PA
Aroclor-1248 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1254	CT,NH,NY,ME,NC,VA,PA
Aroclor-1254 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1260	CT,NH,NY,ME,NC,VA,PA
Aroclor-1260 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1262	NY,NC,VA,PA
Aroclor-1262 [2C]	NY,NC,VA,PA
Aroclor-1268	NY,NC,VA,PA
Aroclor-1268 [2C]	NY,NC,VA,PA

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2022
CT	Connecticut Department of Publilc Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2022
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2022
RI	Rhode Island Department of Health	LAO00112	12/30/2021
NC	North Carolina Div. of Water Quality	652	12/31/2021
NJ	New Jersey DEP	MA007 NELAP	06/30/2022
FL	Florida Department of Health	E871027 NELAP	06/30/2022
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2022
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2021
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2021
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2022
NC-DW	North Carolina Department of Health	25703	07/31/2021
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2022
MI	Dept. of Env, Great Lakes, and Energy	9100	09/6/2021

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

21G1698

ALL SHADED AREAS are for LAB USE ONLY

Company: Woodard & Curran	Billing Information: Standard MSA
Address: 40 Shattuck Rd. Andover, MA	
Report To: George Franklin	Email To: George
Copy To: Andrew Eckhoff	Site Collection Info/Address: UMass Amherst
Customer Project Name/Number: 225695 / South West Concourse	State: MA County/City: 01003 Time Zone Collected: [ ]PT [ ]MT [ ]CT [X]ET
Phone: 978-551-5666 Email:	Site/Facility ID #:
Collected By (print): A. Eckhoff	Purchase Order #: Quote #:
Collected By (signature):	Turnaround Date Required: 5-Day
Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold:	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply)

Container Preservative Type **: 9

Lab Project Manager:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Analyses: PCB 8082 / Soxhlet 3540C

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	(NA)
Custody Signatures Present	Y	N	(NA)
Collector Signature Present	(Y)	N	NA
Bottles Intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples Received on Ice	(Y)	N	NA
VOA - Headspace Acceptable	Y	N	(NA)
USDA Regulated Soils	Y	N	(NA)
Samples in Holding Time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips:			
Sample pH Acceptable	Y	N	(NA)
pH Strips:			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips:			

LAB USE ONLY:
Lab Sample # / Comments:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	PCB 8082 / Soxhlet 3540C	Lab Sample # / Comments
LT-SWC-VWC-500	WP	G	7-28-21	1120			4	1	X	1
LT-SWC-VWC-501				1130				1	X	2
LT-SWC-VWC-502				1135				1	X	3
LT-SWC-VWC-503				1140				1	X	4
LT-SWC-VWC-504				1150				1	X	5
LT-SWC-VWC-505				1155				1	X	6
LT-SWC-VWC-506				1200				1	X	7
LT-SWC-VWC-507				12-10				1	X	8
LT-SWC-VWC-508				1215				1	X	9
LT-SWC-VWC-509				1220				1	X	10

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: (Wet) Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y (N) N/A

Lab Tracking #: 2676462

Samples received via: FEDEX UPS Client Courier (Pace Courier)

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#:
Cooler 1 Temp Upon Receipt: ____oC
Cooler 1 Therm Corr. Factor: ____oC
Cooler 1 Corrected Temp: ____oC
Comments: 4.7

Relinquished by/Company: (Signature)	Date/Time: 7/29/21 1515	Received by/Company: (Signature)	Date/Time: 7/29/21 1842
Relinquished by/Company: (Signature)	Date/Time: 7/29/21 1515	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time: 7/29/21 1842	Received by/Company: (Signature)	Date/Time:

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: 1 of: 2

Table of Contents

Pace Analytical

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

Company: Woodard & Curran
Address: 40 Shattuck Rd, Andover MA
Report To: George Franklin
Copy To: Andrew Ecknoff
Customer Project Name/Number: Southwest Concourse/225695
Phone: 978-551-5666
Email:
Collected By (print): A. Ecknoff
Collected By (signature): [signature]
Sample Disposal: [✓] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold:

Billing Information: Standard MSA
Email To: George
Site Collection Info/Address: UMASS Amherst
State: MA County/City: 01003 Time Zone Collected: [ ] PT [ ] MT [ ] CT [ ] ET
Site/Facility ID #:
Compliance Monitoring? [ ] Yes [ ] No
Purchase Order #:
Quote #:
DW PWS ID #:
DW Location Code:
Turnaround Date Required: 5-Day
Immediately Packed on Ice: [ ] Yes [ ] No
Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply)
Field Filtered (if applicable): [ ] Yes [ ] No
Analysis:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

216698

ALL SHADED AREAS are for LAB USE ONLY

Container Preservative Type **: 9

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Lab Project Manager:

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res Cl	# of Ctns	Analyses: PCB 8082/Soxhlet 3540C	Lab Sample # / Comments
LT-SWC-VWC-510	WP	G	7-28-21	1225			u	1	X	11
LT-SWC-VWC-511	↓	↓	↓	1235			↓	1	X	12
LT-SWC-VWC-512				1240				1	X	13
LT-SWC-VWC-513				1248				1	X	14
LT-SWC-VWC-514				1250				1	X	15
LT-SWC-VWC-515				1300				1	X	16
LT-SWC-VWC-516				1305				1	X	17
LT-SWC-VWC-518				1320				1	X	18
LT-SWC-VWK-517				1315				1	X	19
LT-SWC-VWD508	↓	↓	↓	1215			↓	1	↓	20

Lab Profile/Line:
Lab Sample Receipt Checklist:
- Custody Seals Present/Intact Y N (NA)
- Custody Signatures Present Y N (NA)
- Collector Signature Present (Y) N NA
- Bottles Intact (Y) N NA
- Correct Bottles (Y) N NA
- Sufficient Volume (Y) N NA
- Samples Received on Ice (Y) N NA
- VOA - Headspace Acceptable Y N (NA)
- USDA Regulated Soils Y N (NA)
- Samples in Holding Time (Y) N NA
- Residual Chlorine Present Y N (NA)
- Cl Strips:
- Sample pH Acceptable Y N (NA)
- pH Strips:
- Sulfide Present Y N (NA)
- Lead Acetate Strips:

LAB USE ONLY:
Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards: Last Line Sample ID = LT-SWC-VWCD-508

Type of Ice Used: (Wet) Blue Dry None
Packing Material Used:
Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y (N) N/A
Lab Tracking #: 2676467
Samples received via: FEDEX UPS Client Courier (Pace Courier)

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
[signature] 7/29/21	1515	[signature] 7/29/21	1842
[signature] 7/29/21	1515		
[signature] 7/29/21	1842		

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#:
Cooler 1 Temp Upon Receipt: ____oC
Cooler 1 Therm Corr. Factor: ____oC
Cooler 1 Corrected Temp: ____oC
Comments: 4.7

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO
Page: 2 of: 2

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August 3, 2021

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

Project Location: UMass Dubois Library - Amherst, MA
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 21G1700

Enclosed are results of analyses for samples received by the laboratory on July 29, 2021. 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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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: 8/3/2021

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 21G1700

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

PROJECT LOCATION: UMass Dubois Library - Amherst, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
DL-04E-VWC-263	21G1700-01	Wipe		SW-846 8082A	
DL-07E-VWC-264	21G1700-02	Wipe		SW-846 8082A	
DL-08E-VWC-265	21G1700-03	Wipe		SW-846 8082A	
DL-14E-VWC-266	21G1700-04	Wipe		SW-846 8082A	
DL-18E-VWC-267	21G1700-05	Wipe		SW-846 8082A	
DL-19E-VWC-259	21G1700-06	Wipe		SW-846 8082A	
DL-05E-VWC-261	21G1700-07	Wipe		SW-846 8082A	

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CASE NARRATIVE SUMMARY

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

SW-846 8082A

Qualifications:

S-12

Surrogate recovery is outside of control limits on confirmatory column, but within control limits on primary column. Data validation is not affected.

Analyte & Samples(s) Qualified:

Decachlorobiphenyl
21G1700-01[DL-04E-VWC-263]

V-06

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

Aroclor-1016 [2C]
B287146-BS1, B287146-BSD1

Aroclor-1260 [2C]
B287146-BS1, B287146-BSD1

The results of analyses reported only relate to samples submitted to Con-Test, a Pace 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
Technical Representative

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

Project Location: UMass Dubois Library - Amherst, Sample Description: Work Order: 21G1700

Date Received: 7/29/2021

Field Sample #: DL-04E-VWC-263 Sampled: 7/28/2021 14:40

Sample ID: 21G1700-01

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:57	JMB
Aroclor-1221 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:57	JMB
Aroclor-1232 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:57	JMB
Aroclor-1242 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:57	JMB
Aroclor-1248 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:57	JMB
Aroclor-1254 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:57	JMB
Aroclor-1260 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:57	JMB
Aroclor-1262 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:57	JMB
Aroclor-1268 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 19:57	JMB

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	**158**	*	30-150	S-12	8/2/21 19:57
Decachlorobiphenyl [2]	135		30-150		8/2/21 19:57
Tetrachloro-m-xylene [1]	136		30-150		8/2/21 19:57
Tetrachloro-m-xylene [2]	127		30-150		8/2/21 19:57

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Project Location: UMass Dubois Library - Amherst, Sample Description: Work Order: 21G1700

Date Received: 7/29/2021

Field Sample #: DL-07E-VWC-264 Sampled: 7/28/2021 14:45

Sample ID: 21G1700-02

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:23	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:23	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:23	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:23	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:23	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:23	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:23	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:23	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:23	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	76.0	30-150		8/1/21 20:23
Decachlorobiphenyl [2]	98.6	30-150		8/1/21 20:23
Tetrachloro-m-xylene [1]	76.9	30-150		8/1/21 20:23
Tetrachloro-m-xylene [2]	90.5	30-150		8/1/21 20:23

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Project Location: UMass Dubois Library - Amherst, Sample Description: Work Order: 21G1700

Date Received: 7/29/2021

Field Sample #: DL-08E-VWC-265 Sampled: 7/28/2021 14:50

Sample ID: 21G1700-03

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	7/30/21	8/1/21 20:40	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:40	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:40	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:40	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:40	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:40	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:40	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:40	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:40	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	74.1	30-150		8/1/21 20:40
Decachlorobiphenyl [2]	96.9	30-150		8/1/21 20:40
Tetrachloro-m-xylene [1]	68.9	30-150		8/1/21 20:40
Tetrachloro-m-xylene [2]	85.7	30-150		8/1/21 20:40

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Project Location: UMass Dubois Library - Amherst, Sample Description: Work Order: 21G1700

Date Received: 7/29/2021

Field Sample #: DL-14E-VWC-266 Sampled: 7/28/2021 14:55

Sample ID: 21G1700-04

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	7/30/21	8/1/21 20:58	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:58	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:58	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:58	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:58	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:58	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:58	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:58	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 20:58	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	81.8	30-150		8/1/21 20:58
Decachlorobiphenyl [2]	103	30-150		8/1/21 20:58
Tetrachloro-m-xylene [1]	81.9	30-150		8/1/21 20:58
Tetrachloro-m-xylene [2]	94.4	30-150		8/1/21 20:58

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Project Location: UMass Dubois Library - Amherst, Sample Description: Work Order: 21G1700

Date Received: 7/29/2021

Field Sample #: DL-18E-VWC-267 Sampled: 7/28/2021 14:58

Sample ID: 21G1700-05

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	7/30/21	8/1/21 21:15	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 21:15	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 21:15	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 21:15	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 21:15	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 21:15	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 21:15	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 21:15	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 21:15	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	67.2	30-150		8/1/21 21:15
Decachlorobiphenyl [2]	90.1	30-150		8/1/21 21:15
Tetrachloro-m-xylene [1]	68.3	30-150		8/1/21 21:15
Tetrachloro-m-xylene [2]	85.4	30-150		8/1/21 21:15

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Project Location: UMass Dubois Library - Amherst, Sample Description: Work Order: 21G1700

Date Received: 7/29/2021

Field Sample #: DL-19E-VWC-259 Sampled: 7/28/2021 13:00

Sample ID: 21G1700-06

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	7/30/21	8/2/21 20:14	JMB
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 20:14	JMB
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 20:14	JMB
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 20:14	JMB
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 20:14	JMB
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 20:14	JMB
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 20:14	JMB
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 20:14	JMB
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/2/21 20:14	JMB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	90.4	30-150		8/2/21 20:14
Decachlorobiphenyl [2]	77.2	30-150		8/2/21 20:14
Tetrachloro-m-xylene [1]	79.6	30-150		8/2/21 20:14
Tetrachloro-m-xylene [2]	74.2	30-150		8/2/21 20:14

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Project Location: UMass Dubois Library - Amherst, Sample Description: Work Order: 21G1700

Date Received: 7/29/2021

Field Sample #: DL-05E-VWC-261 Sampled: 7/28/2021 13:10

Sample ID: 21G1700-07

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	7/30/21	8/1/21 21:50	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 21:50	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 21:50	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 21:50	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 21:50	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 21:50	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 21:50	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 21:50	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 21:50	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	63.0	30-150		8/1/21 21:50
Decachlorobiphenyl [2]	85.5	30-150		8/1/21 21:50
Tetrachloro-m-xylene [1]	68.2	30-150		8/1/21 21:50
Tetrachloro-m-xylene [2]	89.7	30-150		8/1/21 21:50

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Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
21G1700-01 [DL-04E-VWC-263]	B287146	1.00	10.0	07/30/21
21G1700-02 [DL-07E-VWC-264]	B287146	1.00	10.0	07/30/21
21G1700-03 [DL-08E-VWC-265]	B287146	1.00	10.0	07/30/21
21G1700-04 [DL-14E-VWC-266]	B287146	1.00	10.0	07/30/21
21G1700-05 [DL-18E-VWC-267]	B287146	1.00	10.0	07/30/21
21G1700-06 [DL-19E-VWC-259]	B287146	1.00	10.0	07/30/21
21G1700-07 [DL-05E-VWC-261]	B287146	1.00	10.0	07/30/21

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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 B287146 - SW-846 3540C										
Blank (B287146-BLK1)				Prepared: 07/30/21 Analyzed: 08/01/21						
Aroclor-1016	ND	0.20	µg/Wipe							
Aroclor-1016 [2C]	ND	0.20	µg/Wipe							
Aroclor-1221	ND	0.20	µg/Wipe							
Aroclor-1221 [2C]	ND	0.20	µg/Wipe							
Aroclor-1232	ND	0.20	µg/Wipe							
Aroclor-1232 [2C]	ND	0.20	µg/Wipe							
Aroclor-1242	ND	0.20	µg/Wipe							
Aroclor-1242 [2C]	ND	0.20	µg/Wipe							
Aroclor-1248	ND	0.20	µg/Wipe							
Aroclor-1248 [2C]	ND	0.20	µg/Wipe							
Aroclor-1254	ND	0.20	µg/Wipe							
Aroclor-1254 [2C]	ND	0.20	µg/Wipe							
Aroclor-1260	ND	0.20	µg/Wipe							
Aroclor-1260 [2C]	ND	0.20	µg/Wipe							
Aroclor-1262	ND	0.20	µg/Wipe							
Aroclor-1262 [2C]	ND	0.20	µg/Wipe							
Aroclor-1268	ND	0.20	µg/Wipe							
Aroclor-1268 [2C]	ND	0.20	µg/Wipe							
Surrogate: Decachlorobiphenyl	*1.58*		µg/Wipe	2.00		78.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	*2.03*		µg/Wipe	2.00		102	30-150			
Surrogate: Tetrachloro-m-xylene	*1.37*		µg/Wipe	2.00		68.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.72*		µg/Wipe	2.00		85.9	30-150			
LCS (B287146-BS1)				Prepared: 07/30/21 Analyzed: 08/01/21						
Aroclor-1016	0.39	0.20	µg/Wipe	0.500		77.1	40-140			
Aroclor-1016 [2C]	0.45	0.20	µg/Wipe	0.500		90.9	40-140			V-06
Aroclor-1260	0.36	0.20	µg/Wipe	0.500		71.3	40-140			
Aroclor-1260 [2C]	0.46	0.20	µg/Wipe	0.500		91.9	40-140			V-06
Surrogate: Decachlorobiphenyl	*1.36*		µg/Wipe	2.00		68.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.82*		µg/Wipe	2.00		90.9	30-150			
Surrogate: Tetrachloro-m-xylene	*1.42*		µg/Wipe	2.00		71.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.72*		µg/Wipe	2.00		86.2	30-150			
LCS Dup (B287146-BSD1)				Prepared: 07/30/21 Analyzed: 08/01/21						
Aroclor-1016	0.44	0.20	µg/Wipe	0.500		88.6	40-140	13.8	30	
Aroclor-1016 [2C]	0.49	0.20	µg/Wipe	0.500		97.2	40-140	6.70	30	V-06
Aroclor-1260	0.42	0.20	µg/Wipe	0.500		83.2	40-140	15.3	30	
Aroclor-1260 [2C]	0.52	0.20	µg/Wipe	0.500		105	40-140	12.9	30	V-06
Surrogate: Decachlorobiphenyl	*1.68*		µg/Wipe	2.00		84.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	*2.05*		µg/Wipe	2.00		103	30-150			
Surrogate: Tetrachloro-m-xylene	*1.48*		µg/Wipe	2.00		73.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.72*		µg/Wipe	2.00		86.2	30-150			

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B287146-BS1

Date(s) Analyzed: 08/01/2021 08/01/2021

Instrument ID (1): ECD 9

Instrument ID (2): ECD 9

GC Column (1): ID: (mm)

GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.39	
	2	0.000	0.000	0.000	0.45	14.3
Aroclor-1260	1	0.000	0.000	0.000	0.36	
	2	0.000	0.000	0.000	0.46	24.4

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS Dup

Lab Sample ID: B287146-BSD1 Date(s) Analyzed: 08/01/2021 08/01/2021

Instrument ID (1): ECD 9 Instrument ID (2): ECD 9

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.44	
	2	0.000	0.000	0.000	0.49	10.8
Aroclor-1260	1	0.000	0.000	0.000	0.42	
	2	0.000	0.000	0.000	0.52	21.3

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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 is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
S-12	Surrogate recovery is outside of control limits on confirmatory column, but within control limits on primary column. Data validation is not affected.
V-06	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8082A in Soil	
Aroclor-1016	CT,NH,NY,ME,NC,VA,PA
Aroclor-1016 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1221	CT,NH,NY,ME,NC,VA,PA
Aroclor-1221 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1232	CT,NH,NY,ME,NC,VA,PA
Aroclor-1232 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1242	CT,NH,NY,ME,NC,VA,PA
Aroclor-1242 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1248	CT,NH,NY,ME,NC,VA,PA
Aroclor-1248 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1254	CT,NH,NY,ME,NC,VA,PA
Aroclor-1254 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1260	CT,NH,NY,ME,NC,VA,PA
Aroclor-1260 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1262	NY,NC,VA,PA
Aroclor-1262 [2C]	NY,NC,VA,PA
Aroclor-1268	NY,NC,VA,PA
Aroclor-1268 [2C]	NY,NC,VA,PA

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2022
CT	Connecticut Department of Publilc Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2022
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2022
RI	Rhode Island Department of Health	LAO00112	12/30/2021
NC	North Carolina Div. of Water Quality	652	12/31/2021
NJ	New Jersey DEP	MA007 NELAP	06/30/2022
FL	Florida Department of Health	E871027 NELAP	06/30/2022
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2022
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2021
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2021
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2022
NC-DW	North Carolina Department of Health	25703	07/31/2021
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2022
MI	Dept. of Env, Great Lakes, and Energy	9100	09/6/2021

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here: 216700

ALL SHADED AREAS are for LAB USE ONLY

Company: Woodard & Curran	Billing Information: Standard MSA
Address: 40 Shattuck Rd. Andover, MA	
Report To: George Franklin	Email To: George
Copy To: Andrew Ecknoff	Site Collection Info/Address: UMass Amherst
Customer Project Name/Number: Dubois Library / 225695	State: MA County/City: 01003 Time Zone Collected: [ ]PT [ ]MT [ ]CT [ ]ET
Phone: 978-551-5666 Email:	Site/Facility ID #:
Collected By (print): A. Ecknoff	Purchase Order #: Quote #:
Collected By (signature):	Turnaround Date Required: 5-Day
Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold:	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply)
	Compliance Monitoring? [ ] Yes [ ] No
	DW PWS ID #: DW Location Code:
	Immediately Packed on Ice: [X] Yes [ ] No
	Field Filtered (if applicable): [ ] Yes [ ] No Analysis:

Container Preservative Type **: 9

Lab Project Manager:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	Analyses: PCB 8082 / Solid 3540C	Lab Profile/Line:
DL-04E-WC-263	WP	Grab	7-28-21	2400			U	1	X	1
DL-07E-WC-264				2459			U	1	X	2
DL-08E-WC-265				1450			U	1	X	3
DL-14E-WC-266				1455			U	1	X	4
DL-18E-WC-267				1458			U	1	X	5
DL-19E-WC-259				1300			U	1	X	6
DL-05E-WC-261	↓	↓	↓	1310			U	1	X	7

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:			
Sample pH Acceptable	Y	N	NA
pH Strips:			
Sulfide Present	Y	N	NA
Lead Acetate Strips:			

LAB USE ONLY:
Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: (Wet) Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y (N) N/A

Lab Tracking #: 2676461

Samples received via: FEDEX UPS Client Courier (Pace Courier)

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#:
Cooler 1 Temp Upon Receipt: ____oC
Cooler 1 Therm Corr. Factor: ____oC
Cooler 1 Corrected Temp: ____oC
Comments: 4.7

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: ____ of: ____

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
	7/29/21 1515		7/29/21 1542
	7/29/21 1515		
	7/29/21 1842		

MTJL LAB USE ONLY

Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

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August 5, 2021

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

Project Location: UMass Dubois Library, Amherst, MA
Client Job Number:
Project Number: 2205695
Laboratory Work Order Number: 21G1718

Enclosed are results of analyses for samples received by the laboratory on July 29, 2021. 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 - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: George Franklin

REPORT DATE: 8/5/2021

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 2205695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 21G1718

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

PROJECT LOCATION: UMass Dubois Library, Amherst, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
DL-GLE-IAS-250	21G1718-01	Air		TO-10A/EPA 680 Modified	
DL-04E-IAS-251	21G1718-02	Air		TO-10A/EPA 680 Modified	
DL-14E-IAS-252	21G1718-03	Air		TO-10A/EPA 680 Modified	
DL-14ED-IAS-252	21G1718-04	Air		TO-10A/EPA 680 Modified	
DL-19E-IAS-253	21G1718-05	Air		TO-10A/EPA 680 Modified	
DL-23E-IAS-254	21G1718-06	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.

The results of analyses reported only relate to samples submitted to Con-Test, a Pace 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
Technical Representative

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ANALYTICAL RESULTS

Project Location: UMass Dubois Library, Amherst,
Date Received: 7/29/2021
Field Sample #: DL-GLE-IAS-250
Sample ID: 21G1718-01
Sample Matrix: Air
Sampled: 7/28/2021 14:21

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 1030.35

Work Order: 21G1718

TO-10A/EPA 680 Modified

Analyte	Total µg Results	RL	Flag/Qual	ug/m3 Results	RL	Dilution	Date/Time Analyzed	Analyst
Monochlorobiphenyls	ND	0.0010		ND	0.00097	1	8/2/21 21:38	IMR
Dichlorobiphenyls	ND	0.0010		ND	0.00097	1	8/2/21 21:38	IMR
Trichlorobiphenyls	ND	0.0020		ND	0.0019	1	8/2/21 21:38	IMR
Tetrachlorobiphenyls	ND	0.0020		ND	0.0019	1	8/2/21 21:38	IMR
Pentachlorobiphenyls	0.0032	0.0020		0.0031	0.0019	1	8/2/21 21:38	IMR
Hexachlorobiphenyls	ND	0.0020		ND	0.0019	1	8/2/21 21:38	IMR
Heptachlorobiphenyls	ND	0.0030		ND	0.0029	1	8/2/21 21:38	IMR
Octachlorobiphenyls	ND	0.0030		ND	0.0029	1	8/2/21 21:38	IMR
Nonachlorobiphenyls	ND	0.0050		ND	0.0049	1	8/2/21 21:38	IMR
Decachlorobiphenyl	ND	0.0050		ND	0.0049	1	8/2/21 21:38	IMR
Total Polychlorinated biphenyls	0.0032			0.0031		1	8/2/21 21:38	IMR

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	82.7	50-125	8/2/21 21:38

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ANALYTICAL RESULTS

Project Location: UMass Dubois Library, Amherst,
Date Received: 7/29/2021
Field Sample #: DL-04E-IAS-251
Sample ID: 21G1718-02
Sample Matrix: Air
Sampled: 7/28/2021 15:06

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 897.84

Work Order: 21G1718

TO-10A/EPA 680 Modified

Analyte	Total µg Results	RL	Flag/Qual	ug/m3 Results	RL	Dilution	Date/Time Analyzed	Analyst
Monochlorobiphenyls	0.034	0.0010		0.038	0.0011	1	8/2/21 22:15	IMR
Dichlorobiphenyls	0.031	0.0010		0.035	0.0011	1	8/2/21 22:15	IMR
Trichlorobiphenyls	0.062	0.0020		0.069	0.0022	1	8/2/21 22:15	IMR
Tetrachlorobiphenyls	0.13	0.0020		0.14	0.0022	1	8/2/21 22:15	IMR
Pentachlorobiphenyls	0.12	0.0020		0.13	0.0022	1	8/2/21 22:15	IMR
Hexachlorobiphenyls	0.041	0.0020		0.046	0.0022	1	8/2/21 22:15	IMR
Heptachlorobiphenyls	0.0099	0.0030		0.011	0.0033	1	8/2/21 22:15	IMR
Octachlorobiphenyls	ND	0.0030		ND	0.0033	1	8/2/21 22:15	IMR
Nonachlorobiphenyls	ND	0.0050		ND	0.0056	1	8/2/21 22:15	IMR
Decachlorobiphenyl	ND	0.0050		ND	0.0056	1	8/2/21 22:15	IMR
Total Polychlorinated biphenyls	0.42			0.47		1	8/2/21 22:15	IMR

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	73.7	50-125	8/2/21 22:15

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ANALYTICAL RESULTS

Project Location: UMass Dubois Library, Amherst,
Date Received: 7/29/2021
Field Sample #: DL-14E-IAS-252
Sample ID: 21G1718-03
Sample Matrix: Air
Sampled: 7/28/2021 15:17

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 927.00

Work Order: 21G1718

TO-10A/EPA 680 Modified

Analyte	Total µg Results	RL	Flag/Qual	ug/m3 Results	RL	Dilution	Date/Time Analyzed	Analyst
Monochlorobiphenyls	0.042	0.0010		0.045	0.0011	1	8/2/21 22:53	IMR
Dichlorobiphenyls	0.045	0.0010		0.049	0.0011	1	8/2/21 22:53	IMR
Trichlorobiphenyls	0.093	0.0020		0.10	0.0022	1	8/2/21 22:53	IMR
Tetrachlorobiphenyls	0.17	0.0020		0.19	0.0022	1	8/2/21 22:53	IMR
Pentachlorobiphenyls	0.13	0.0020		0.14	0.0022	1	8/2/21 22:53	IMR
Hexachlorobiphenyls	0.054	0.0020		0.058	0.0022	1	8/2/21 22:53	IMR
Heptachlorobiphenyls	0.014	0.0030		0.015	0.0032	1	8/2/21 22:53	IMR
Octachlorobiphenyls	ND	0.0030		ND	0.0032	1	8/2/21 22:53	IMR
Nonachlorobiphenyls	ND	0.0050		ND	0.0054	1	8/2/21 22:53	IMR
Decachlorobiphenyl	ND	0.0050		ND	0.0054	1	8/2/21 22:53	IMR
Total Polychlorinated biphenyls	0.56			0.60		1	8/2/21 22:53	IMR

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	79.0	50-125	8/2/21 22:53

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ANALYTICAL RESULTS

Project Location: UMass Dubois Library, Amherst,
Date Received: 7/29/2021
Field Sample #: DL-14ED-IAS-252
Sample ID: 21G1718-04
Sample Matrix: Air
Sampled: 7/28/2021 15:17

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 898.56

Work Order: 21G1718

TO-10A/EPA 680 Modified

	Total µg			ug/m3			Date/Time	
Analyte	**Results**	**RL**	**Flag/Qual**	**Results**	**RL**	**Dilution**	**Analyzed**	**Analyst**
Monochlorobiphenyls	ND	0.0010		ND	0.0011	1	8/2/21 23:30	IMR
Dichlorobiphenyls	ND	0.0010		ND	0.0011	1	8/2/21 23:30	IMR
Trichlorobiphenyls	ND	0.0020		ND	0.0022	1	8/2/21 23:30	IMR
Tetrachlorobiphenyls	ND	0.0020		ND	0.0022	1	8/2/21 23:30	IMR
Pentachlorobiphenyls	ND	0.0020		ND	0.0022	1	8/2/21 23:30	IMR
Hexachlorobiphenyls	ND	0.0020		ND	0.0022	1	8/2/21 23:30	IMR
Heptachlorobiphenyls	ND	0.0030		ND	0.0033	1	8/2/21 23:30	IMR
Octachlorobiphenyls	ND	0.0030		ND	0.0033	1	8/2/21 23:30	IMR
Nonachlorobiphenyls	ND	0.0050		ND	0.0056	1	8/2/21 23:30	IMR
Decachlorobiphenyl	ND	0.0050		ND	0.0056	1	8/2/21 23:30	IMR
Total Polychlorinated biphenyls	0.0			0		1	8/2/21 23:30	IMR

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	80.0	50-125	8/2/21 23:30

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ANALYTICAL RESULTS

Project Location: UMass Dubois Library, Amherst,
Date Received: 7/29/2021
Field Sample #: DL-19E-IAS-253
Sample ID: 21G1718-05
Sample Matrix: Air
Sampled: 7/28/2021 15:27

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 903.60

Work Order: 21G1718

TO-10A/EPA 680 Modified

Analyte	Total µg Results	RL	Flag/Qual	ug/m3 Results	RL	Dilution	Date/Time Analyzed	Analyst
Monochlorobiphenyls	0.042	0.0010		0.047	0.0011	1	8/3/21 0:08	IMR
Dichlorobiphenyls	0.048	0.0010		0.053	0.0011	1	8/3/21 0:08	IMR
Trichlorobiphenyls	0.15	0.0020		0.16	0.0022	1	8/3/21 0:08	IMR
Tetrachlorobiphenyls	0.27	0.0020		0.30	0.0022	1	8/3/21 0:08	IMR
Pentachlorobiphenyls	0.26	0.0020		0.28	0.0022	1	8/3/21 0:08	IMR
Hexachlorobiphenyls	0.057	0.0020		0.063	0.0022	1	8/3/21 0:08	IMR
Heptachlorobiphenyls	0.0091	0.0030		0.010	0.0033	1	8/3/21 0:08	IMR
Octachlorobiphenyls	ND	0.0030		ND	0.0033	1	8/3/21 0:08	IMR
Nonachlorobiphenyls	ND	0.0050		ND	0.0055	1	8/3/21 0:08	IMR
Decachlorobiphenyl	ND	0.0050		ND	0.0055	1	8/3/21 0:08	IMR
Total Polychlorinated biphenyls	0.83			0.92		1	8/3/21 0:08	IMR

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	76.1	50-125	8/3/21 0:08

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ANALYTICAL RESULTS

Project Location: UMass Dubois Library, Amherst,
Date Received: 7/29/2021
Field Sample #: DL-23E-IAS-254
Sample ID: 21G1718-06
Sample Matrix: Air
Sampled: 7/28/2021 15:33

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 898.38

Work Order: 21G1718

TO-10A/EPA 680 Modified

Analyte	Total µg Results	RL	Flag/Qual	ug/m3 Results	RL	Dilution	Date/Time Analyzed	Analyst
Monochlorobiphenyls	0.051	0.0010		0.056	0.0011	1	8/3/21 0:45	IMR
Dichlorobiphenyls	0.050	0.0010		0.056	0.0011	1	8/3/21 0:45	IMR
Trichlorobiphenyls	0.12	0.0020		0.13	0.0022	1	8/3/21 0:45	IMR
Tetrachlorobiphenyls	0.22	0.0020		0.25	0.0022	1	8/3/21 0:45	IMR
Pentachlorobiphenyls	0.19	0.0020		0.21	0.0022	1	8/3/21 0:45	IMR
Hexachlorobiphenyls	0.058	0.0020		0.064	0.0022	1	8/3/21 0:45	IMR
Heptachlorobiphenyls	0.015	0.0030		0.016	0.0033	1	8/3/21 0:45	IMR
Octachlorobiphenyls	ND	0.0030		ND	0.0033	1	8/3/21 0:45	IMR
Nonachlorobiphenyls	ND	0.0050		ND	0.0056	1	8/3/21 0:45	IMR
Decachlorobiphenyl	ND	0.0050		ND	0.0056	1	8/3/21 0:45	IMR
Total Polychlorinated biphenyls	0.70			0.78		1	8/3/21 0:45	IMR

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	79.5	50-125	8/3/21 0:45

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Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [Cartridge	Final [mL]	Date
21G1718-01 [DL-GLE-IAS-250]	B287148	1.00	1.00	07/30/21
21G1718-02 [DL-04E-IAS-251]	B287148	1.00	1.00	07/30/21
21G1718-03 [DL-14E-IAS-252]	B287148	1.00	1.00	07/30/21
21G1718-04 [DL-14ED-IAS-252]	B287148	1.00	1.00	07/30/21
21G1718-05 [DL-19E-IAS-253]	B287148	1.00	1.00	07/30/21
21G1718-06 [DL-23E-IAS-254]	B287148	1.00	1.00	07/30/21

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QUALITY CONTROL

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

Analyte	Total µg Results	Total µg RL	ug/m3 Results	ug/m3 RL	Spike Level Total µg	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag/Qual
Batch B287148 - SW-846 3540C											
Blank (B287148-BLK1)					Prepared: 07/30/21 Analyzed: 08/02/21						
Monochlorobiphenyls	ND	0.0010									
Dichlorobiphenyls	ND	0.0010									
Trichlorobiphenyls	ND	0.0020									
Tetrachlorobiphenyls	ND	0.0020									
Pentachlorobiphenyls	ND	0.0020									
Hexachlorobiphenyls	ND	0.0020									
Heptachlorobiphenyls	ND	0.0030									
Octachlorobiphenyls	ND	0.0030									
Nonachlorobiphenyls	ND	0.0050									
Decachlorobiphenyl	ND	0.0050									
Total Polychlorinated biphenyls	0.0										
Surrogate: Tetrachloro-m-xylene	*0.176*				*0.200*		*88.0*	*50-125*			
LCS (B287148-BS1)					Prepared: 07/30/21 Analyzed: 08/02/21						
Monochlorobiphenyls	0.14	0.0010			0.200		71.3	40-140			
Dichlorobiphenyls	0.16	0.0010			0.200		77.5	40-140			
Trichlorobiphenyls	0.15	0.0020			0.200		75.8	40-140			
Tetrachlorobiphenyls	0.31	0.0020			0.400		78.7	40-140			
Pentachlorobiphenyls	0.32	0.0020			0.400		80.0	40-140			
Hexachlorobiphenyls	0.32	0.0020			0.400		78.9	40-140			
Heptachlorobiphenyls	0.49	0.0030			0.600		82.4	40-140			
Octachlorobiphenyls	0.51	0.0030			0.600		84.3	40-140			
Nonachlorobiphenyls	0.83	0.0050			1.00		82.6	40-140			
Decachlorobiphenyl	0.83	0.0050			1.00		83.1	40-140			
Surrogate: Tetrachloro-m-xylene	*0.150*				*0.200*		*75.1*	*50-125*			
LCS Dup (B287148-BSD1)					Prepared: 07/30/21 Analyzed: 08/02/21						
Monochlorobiphenyls	0.16	0.0010			0.200		80.4	40-140	12.1	50	
Dichlorobiphenyls	0.17	0.0010			0.200		85.3	40-140	9.56	50	
Trichlorobiphenyls	0.16	0.0020			0.200		82.3	40-140	8.20	50	
Tetrachlorobiphenyls	0.34	0.0020			0.400		85.4	40-140	8.05	50	
Pentachlorobiphenyls	0.35	0.0020			0.400		86.3	40-140	7.59	50	
Hexachlorobiphenyls	0.35	0.0020			0.400		87.1	40-140	9.94	50	
Heptachlorobiphenyls	0.54	0.0030			0.600		90.6	40-140	9.42	50	
Octachlorobiphenyls	0.56	0.0030			0.600		93.3	40-140	10.2	50	
Nonachlorobiphenyls	0.91	0.0050			1.00		91.4	40-140	10.1	50	
Decachlorobiphenyl	0.92	0.0050			1.00		92.4	40-140	10.6	50	
Surrogate: Tetrachloro-m-xylene	*0.166*				*0.200*		*83.1*	*50-125*			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level

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

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

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INTERNAL STANDARD AREA AND RT SUMMARY

TO-10A/EPA 680 Modified

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B287148-BLK1)			Lab File ID: F21S214016.D			Analyzed: 08/02/21 19:45			
Phenanthrene-d10	542045	20.142	600846	20.142	90	70 - 130	0.0000	+/-0.50	
Chrysene-d12	454976	27.773	495831	27.772	92	70 - 130	0.0010	+/-0.50	
LCS (B287148-BS1)			Lab File ID: F21S214017.D			Analyzed: 08/02/21 20:23			
Phenanthrene-d10	662671	20.142	600846	20.142	110	70 - 130	0.0000	+/-0.50	
Chrysene-d12	561943	27.781	495831	27.772	113	70 - 130	0.0090	+/-0.50	
LCS Dup (B287148-BSD1)			Lab File ID: F21S214018.D			Analyzed: 08/02/21 21:00			
Phenanthrene-d10	631481	20.142	600846	20.142	105	70 - 130	0.0000	+/-0.50	
Chrysene-d12	522837	27.78	495831	27.772	105	70 - 130	0.0080	+/-0.50	
DL-GLE-IAS-250 (21G1718-01)			Lab File ID: F21S214019.D			Analyzed: 08/02/21 21:38			
Phenanthrene-d10	606734	20.142	600846	20.142	101	70 - 130	0.0000	+/-0.50	
Chrysene-d12	503758	27.772	495831	27.772	102	70 - 130	0.0000	+/-0.50	
DL-04E-IAS-251 (21G1718-02)			Lab File ID: F21S214020.D			Analyzed: 08/02/21 22:15			
Phenanthrene-d10	649355	20.142	600846	20.142	108	70 - 130	0.0000	+/-0.50	
Chrysene-d12	561310	27.772	495831	27.772	113	70 - 130	0.0000	+/-0.50	
DL-14E-IAS-252 (21G1718-03)			Lab File ID: F21S214021.D			Analyzed: 08/02/21 22:53			
Phenanthrene-d10	635044	20.142	600846	20.142	106	70 - 130	0.0000	+/-0.50	
Chrysene-d12	547542	27.772	495831	27.772	110	70 - 130	0.0000	+/-0.50	
DL-14ED-IAS-252 (21G1718-04)			Lab File ID: F21S214022.D			Analyzed: 08/02/21 23:30			
Phenanthrene-d10	640472	20.142	600846	20.142	107	70 - 130	0.0000	+/-0.50	
Chrysene-d12	559262	27.773	495831	27.772	113	70 - 130	0.0010	+/-0.50	
DL-19E-IAS-253 (21G1718-05)			Lab File ID: F21S214023.D			Analyzed: 08/03/21 00:08			
Phenanthrene-d10	656368	20.142	600846	20.142	109	70 - 130	0.0000	+/-0.50	
Chrysene-d12	573004	27.78	495831	27.772	116	70 - 130	0.0080	+/-0.50	
DL-23E-IAS-254 (21G1718-06)			Lab File ID: F21S214024.D			Analyzed: 08/03/21 00:45			
Phenanthrene-d10	640076	20.142	600846	20.142	107	70 - 130	0.0000	+/-0.50	
Chrysene-d12	570328	27.78	495831	27.772	115	70 - 130	0.0080	+/-0.50	

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CONTINUING CALIBRATION CHECK

COMPOUND	TYPE	STD	CCV	RESPONSE FACTOR ICAL	RESPONSE FACTOR CCV	RESPONSE FACTOR MIN (#)	% DIFF / DRIFT CCV	% DIFF / DRIFT LIMIT (#)

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications

No certified Analyses included in this Report

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2022
CT	Connecticut Department of Publilc Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2022
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2022
RI	Rhode Island Department of Health	LAO00112	12/30/2021
NC	North Carolina Div. of Water Quality	652	12/31/2021
NJ	New Jersey DEP	MA007 NELAP	06/30/2022
FL	Florida Department of Health	E871027 NELAP	06/30/2022
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2022
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2021
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2021
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2022
NC-DW	North Carolina Department of Health	25703	07/31/2022
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2022
MI	Dept. of Env, Great Lakes, and Energy	9100	09/6/2021

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

21G-1718

ALL SHADED AREAS are for LAB USE ONLY

Company: Woodard & Curran	Billing Information: Standard MSA
Address: 40 Shattuck Rd. Andover MA	
Report To: George Franklin	Email To: George
Copy To: Andrew Eckhoff	Site Collection Info/Address: UMass Amherst
Customer Project Name/Number: Dubois Library /2205695	State: MA County/City: Time Zone Collected: [ ] PT [ ] MT [ ] CT [ ] ET
Phone: 978-551-5660 Email:	Site/Facility ID #: Compliance Monitoring? [ ] Yes [ ] No
Collected By (print): A. Eckhoff	Purchase Order #: Quote #: DW PWS ID #: DW Location Code:
Collected By (signature):	Turnaround Date Required: 10-Day Immediately Packed on Ice: [X] Yes [ ] No
Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold:	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply) Field Filtered (if applicable): [ ] Yes [ ] No Analysis:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other Foam

Analyses

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	TO-10A / PCB Homologs (GC)	Lab Sample # / Comments
DL-GLE-IAS-250	AR	Comp	7-28-19	0814	7-28-19	1421	U	1	X	1
DL-04E-IAS-251	↓	↓	↓	0906	↓	1506	↓	1	X	2
DL-14E-IAS-252				0917		1517		1	X	3
DL-14ED-IAS-253				0917		1517		1	X	4
DL-19E-IAS-253				0927		1527		1	X	5
DL-23E-IAS-254	↓	↓	↓	0933	↓	1533	↓	1	X	6

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	(NA)
Custody Signatures Present	Y	N	(NA)
Collector Signature Present	(Y)	N	NA
Bottles Intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples Received on Ice	(Y)	N	NA
VOA - Headspace Acceptable	Y	N	(NA)
USDA Regulated Soils	Y	N	(NA)
Samples in Holding Time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips:			
Sample pH Acceptable	Y	N	(NA)
pH Strips:			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips:			

LAB USE ONLY:
Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: (Wet) Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y (N) N/A

Lab Tracking #: 2673707

Samples received via: FEDEX UPS Client Courier (Pace Courier)

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: 3
Cooler 1 Temp Upon Receipt: ____oC
Cooler 1 Therm Corr. Factor: ____oC
Cooler 1 Corrected Temp: ____oC
Comments: 4.7

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
	7/29/21	1515	7/29/21 1842
	7/29/21	1515	
	7/29/21	1842	

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y (N) NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: 1 of: 1

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

con-test® ANALYTICAL LABORATORY

Doc# 278 Rev 6 2017

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

Client W+C

Received By		Date	7/29/21	Time	1842		
How were the samples received?	In Cooler	T	On Ice	T	No Ice		
	In Box		Ambient		Melted Ice		
Were samples within Temperature Compliance? 2-6°C	T	By Gun #	3	Actual Temp -	4.7		
		By Blank #		Actual Temp -			
Was Custody Seal Intact?	n/a	Were Samples Tampered with?			n/a		
Was COC Relinquished ?	T	Does Chain Agree With Samples?			T		
Are there any loose caps/valves on any samples?	F						
Is COC in ink/ Legible?	T						
Did COC Include all Pertinent Information?	Client	T	Analysis	T	Sampler Name	T	
	Project	T	ID's	T	Collection Dates/Times	T	
Are Sample Labels filled out and legible?	T						
Are there Rushes?	F	Who was notified?					
Samples are received within holding time?	T						
Proper Media Used?	T	Individually Certified Cans?			F		
Are there Trip Blanks?	F	Is there enough Volume?			T		

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

Can #'s					Reg #'s				
Unused Media					**Pufs/TO-17's**				
					071321-06	071321-05			
					-02				
					-04				
					-03				
					-01				

Comments:

Floor	Air Sample	Initial Flow	Final Flow	Average Flow (L/Min)
Flow calcs				
GLE	DL-GLE-IAS-250	2.551	3.064	2.8075
4	DL-04E-IAS-251	2.508	2.480	2.494
14	DL-14E-IAS-252	2.564	2.586	2.575
14	DL-14ED-IAS-253	2.556	2.436	2.496
19	DL-19E-IAS-253	2.568	2.452	2.51
23	DL-23E-IAS-254	2.526	2.465	2.4955

Start time	End Time	Duration (minutes)	Total flow (L)
8:14:00 AM	2:21:00 PM	367	1030.35
9:06:00 AM	3:06:00 PM	360	897.84
9:17:00 AM	3:17:00 PM	360	927.00
9:17:00 AM	3:17:00 PM	360	898.56
9:27:00 AM	3:27:00 PM	360	903.60
9:33:00 AM	3:33:00 PM	360	898.38

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August 2, 2021

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

Project Location: UMassTobin Hall, Amherst, MA
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 21G1724

Enclosed are results of analyses for samples received by the laboratory on July 29, 2021. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Meghan E. Kelley
Project Manager

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

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

REPORT DATE: 8/2/2021

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 21G1724

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

PROJECT LOCATION: UMassTobin Hall, Amherst, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
TH-VWC-012	21G1724-01	Wipe		SW-846 8082A	
TH-VWC-013	21G1724-02	Wipe		SW-846 8082A	

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CASE NARRATIVE SUMMARY

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

SW-846 8082A

Qualifications:

V-06

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

Aroclor-1016 [2C]
B287146-BS1, B287146-BSD1

Aroclor-1260 [2C]
B287146-BS1, B287146-BSD1

The results of analyses reported only relate to samples submitted to Con-Test, a Pace 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
Technical Representative

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

Project Location: UMassTobin Hall, Amherst, MA Sample Description: Work Order: 21G1724

Date Received: 7/29/2021

Field Sample #: TH-VWC-012 Sampled: 7/28/2021 10:21

Sample ID: 21G1724-01

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 23:13	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 23:13	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 23:13	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 23:13	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 23:13	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 23:13	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 23:13	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 23:13	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 23:13	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	60.0	30-150		8/1/21 23:13
Decachlorobiphenyl [2]	80.8	30-150		8/1/21 23:13
Tetrachloro-m-xylene [1]	62.6	30-150		8/1/21 23:13
Tetrachloro-m-xylene [2]	82.1	30-150		8/1/21 23:13

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Project Location: UMassTobin Hall, Amherst, MA Sample Description: Work Order: 21G1724

Date Received: 7/29/2021

Field Sample #: TH-VWC-013 Sampled: 7/28/2021 10:30

Sample ID: 21G1724-02

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 23:31	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 23:31	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 23:31	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 23:31	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 23:31	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 23:31	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 23:31	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 23:31	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	7/30/21	8/1/21 23:31	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	76.2	30-150		8/1/21 23:31
Decachlorobiphenyl [2]	99.2	30-150		8/1/21 23:31
Tetrachloro-m-xylene [1]	76.9	30-150		8/1/21 23:31
Tetrachloro-m-xylene [2]	95.2	30-150		8/1/21 23:31

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Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
21G1724-01 [TH-VWC-012]	B287146	1.00	10.0	07/30/21
21G1724-02 [TH-VWC-013]	B287146	1.00	10.0	07/30/21

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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 B287146 - SW-846 3540C										
Blank (B287146-BLK1)				Prepared: 07/30/21 Analyzed: 08/01/21						
Aroclor-1016	ND	0.20	µg/Wipe							
Aroclor-1016 [2C]	ND	0.20	µg/Wipe							
Aroclor-1221	ND	0.20	µg/Wipe							
Aroclor-1221 [2C]	ND	0.20	µg/Wipe							
Aroclor-1232	ND	0.20	µg/Wipe							
Aroclor-1232 [2C]	ND	0.20	µg/Wipe							
Aroclor-1242	ND	0.20	µg/Wipe							
Aroclor-1242 [2C]	ND	0.20	µg/Wipe							
Aroclor-1248	ND	0.20	µg/Wipe							
Aroclor-1248 [2C]	ND	0.20	µg/Wipe							
Aroclor-1254	ND	0.20	µg/Wipe							
Aroclor-1254 [2C]	ND	0.20	µg/Wipe							
Aroclor-1260	ND	0.20	µg/Wipe							
Aroclor-1260 [2C]	ND	0.20	µg/Wipe							
Aroclor-1262	ND	0.20	µg/Wipe							
Aroclor-1262 [2C]	ND	0.20	µg/Wipe							
Aroclor-1268	ND	0.20	µg/Wipe							
Aroclor-1268 [2C]	ND	0.20	µg/Wipe							
Surrogate: Decachlorobiphenyl	*1.58*		µg/Wipe	2.00		78.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	*2.03*		µg/Wipe	2.00		102	30-150			
Surrogate: Tetrachloro-m-xylene	*1.37*		µg/Wipe	2.00		68.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.72*		µg/Wipe	2.00		85.9	30-150			
LCS (B287146-BS1)				Prepared: 07/30/21 Analyzed: 08/01/21						
Aroclor-1016	0.39	0.20	µg/Wipe	0.500		77.1	40-140			
Aroclor-1016 [2C]	0.45	0.20	µg/Wipe	0.500		90.9	40-140			V-06
Aroclor-1260	0.36	0.20	µg/Wipe	0.500		71.3	40-140			
Aroclor-1260 [2C]	0.46	0.20	µg/Wipe	0.500		91.9	40-140			V-06
Surrogate: Decachlorobiphenyl	*1.36*		µg/Wipe	2.00		68.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.82*		µg/Wipe	2.00		90.9	30-150			
Surrogate: Tetrachloro-m-xylene	*1.42*		µg/Wipe	2.00		71.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.72*		µg/Wipe	2.00		86.2	30-150			
LCS Dup (B287146-BSD1)				Prepared: 07/30/21 Analyzed: 08/01/21						
Aroclor-1016	0.44	0.20	µg/Wipe	0.500		88.6	40-140	13.8	30	
Aroclor-1016 [2C]	0.49	0.20	µg/Wipe	0.500		97.2	40-140	6.70	30	V-06
Aroclor-1260	0.42	0.20	µg/Wipe	0.500		83.2	40-140	15.3	30	
Aroclor-1260 [2C]	0.52	0.20	µg/Wipe	0.500		105	40-140	12.9	30	V-06
Surrogate: Decachlorobiphenyl	*1.68*		µg/Wipe	2.00		84.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	*2.05*		µg/Wipe	2.00		103	30-150			
Surrogate: Tetrachloro-m-xylene	*1.48*		µg/Wipe	2.00		73.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.72*		µg/Wipe	2.00		86.2	30-150			

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B287146-BS1

Date(s) Analyzed: 08/01/2021 08/01/2021

Instrument ID (1):

Instrument ID (2):

GC Column (1): ID: (mm)

GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.39	
	2	0.000	0.000	0.000	0.45	14.3
Aroclor-1260	1	0.000	0.000	0.000	0.36	
	2	0.000	0.000	0.000	0.46	24.4

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS Dup

Lab Sample ID: B287146-BSD1 Date(s) Analyzed: 08/01/2021 08/01/2021

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.44	
	2	0.000	0.000	0.000	0.49	10.8
Aroclor-1260	1	0.000	0.000	0.000	0.42	
	2	0.000	0.000	0.000	0.52	21.3

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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 is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
V-06	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications

No certified Analyses included in this Report

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2022
CT	Connecticut Department of Publilc Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2022
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2022
RI	Rhode Island Department of Health	LAO00112	12/30/2021
NC	North Carolina Div. of Water Quality	652	12/31/2021
NJ	New Jersey DEP	MA007 NELAP	06/30/2022
FL	Florida Department of Health	E871027 NELAP	06/30/2022
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2022
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2021
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2021
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2022
NC-DW	North Carolina Department of Health	25703	07/31/2021
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2022
MI	Dept. of Env, Great Lakes, and Energy	9100	09/6/2021

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

216724

ALL SHADED AREAS are for LAB USE ONLY

Company: Woodard & Curran	Billing Information: Standard MSA
Address: 40 Shattuck Rd Andover, MA	
Report To: George Franklin	Email To: George
Copy To: Andrew Eckhoff	Site Collection Info/Address: UMASS Amherst
Customer Project Name/Number: Tobin Hall / 225695	State: MA County/City: 01003 Time Zone Collected: [ ]PT [ ]MT [ ]CT [X]ET
Phone: 978-551-5566 Email:	Site/Facility ID #: Compliance Monitoring? [ ] Yes [ ] No
Collected By (print): A. Eckhoff	Purchase Order #: Quote #: DW PWS ID #: DW Location Code:
Collected By (signature):	Turnaround Date Required: 5 - Day Immediately Packed on Ice: [ ] Yes [ ] No
Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply) Field Filtered (if applicable): [ ] Yes [ ] No Analysis: _____

Container Preservative Type **: 9

Lab Project Manager:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Analyses: PCB - 8082 / Soxhlet 3540C

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:			
Sample pH Acceptable	Y	N	NA
pH Strips:			
Sulfide Present	Y	N	NA
Lead Acetate Strips:			

LAB USE ONLY:
Lab Sample # / Comments:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	PCB	Lab Sample # / Comments
TH-VWC-012	WP	Grab	7/18	1021			4	1	X	1
TH-VWC-013	WP	Grab	7/28/21	1030			4	1	X	2

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: (Wet) Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y (N) N/A

Lab Tracking #: 2676463

Samples received via: FEDEX UPS Client Courier (Pace Courier)

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: _____
Cooler 1 Temp Upon Receipt: _____oC
Cooler 1 Therm Corr. Factor: _____oC
Cooler 1 Corrected Temp: _____oC
Comments: 4.7

Relinquished by/Company: (Signature)	Date/Time: 7/29/21 1515	Received by/Company: (Signature)	Date/Time: 7/29/21 1515
Relinquished by/Company: (Signature)	Date/Time: 7/29/21 1515	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time: 7/29/21 1642	Received by/Company: (Signature)	Date/Time:

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: _____ of: _____

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September 23, 2021

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

Project Location: UMass- Orchid Hill, Amherst, MA
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 21I0874

Enclosed are results of analyses for samples received by the laboratory on September 16, 2021. 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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Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: George Franklin

REPORT DATE: 9/23/2021

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 21I0874

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

PROJECT LOCATION: UMass- Orchid Hill, Amherst, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LT-FW-VWC-008	21I0874-01	Wipe		SW-846 8082A	
LT-GH-VWC-009	21I0874-02	Wipe		SW-846 8082A	
LT-WH-VWC-010	21I0874-03	Wipe		SW-846 8082A	
LT-WH-VWC-011	21I0874-04	Wipe		SW-846 8082A	
LT-WH-VWC-012	21I0874-05	Wipe		SW-846 8082A	
LT-EH-VWC-007	21I0874-06	Wipe		SW-846 8082A	

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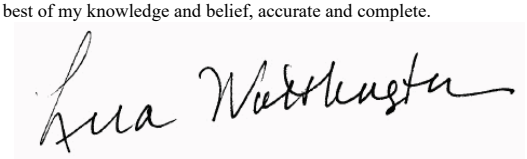
CASE NARRATIVE SUMMARY

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

The results of analyses reported only relate to samples submitted to Con-Test, a Pace 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
Technical Representative

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Project Location: UMass- Orchid Hill, Amherst, MA Sample Description: Work Order: 21I0874

Date Received: 9/16/2021

Field Sample #: LT-FW-VWC-008 Sampled: 9/15/2021 10:40

Sample ID: 21I0874-01

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:04	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:04	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:04	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:04	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:04	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:04	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:04	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:04	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:04	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	75.6	30-150		9/23/21 11:04
Decachlorobiphenyl [2]	78.1	30-150		9/23/21 11:04
Tetrachloro-m-xylene [1]	74.5	30-150		9/23/21 11:04
Tetrachloro-m-xylene [2]	76.4	30-150		9/23/21 11:04

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Project Location: UMass- Orchid Hill, Amherst, MA Sample Description: Work Order: 21I0874

Date Received: 9/16/2021

Field Sample #: LT-GH-VWC-009 Sampled: 9/15/2021 11:00

Sample ID: 21I0874-02

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:22	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:22	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:22	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:22	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:22	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:22	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:22	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:22	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:22	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	82.4	30-150		9/23/21 11:22
Decachlorobiphenyl [2]	85.6	30-150		9/23/21 11:22
Tetrachloro-m-xylene [1]	79.9	30-150		9/23/21 11:22
Tetrachloro-m-xylene [2]	82.1	30-150		9/23/21 11:22

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Project Location: UMass- Orchid Hill, Amherst, MA Sample Description: Work Order: 21I0874

Date Received: 9/16/2021

Field Sample #: LT-WH-VWC-010 Sampled: 9/15/2021 11:10

Sample ID: 21I0874-03

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:40	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:40	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:40	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:40	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:40	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:40	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:40	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:40	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:40	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	75.7	30-150		9/23/21 11:40
Decachlorobiphenyl [2]	78.3	30-150		9/23/21 11:40
Tetrachloro-m-xylene [1]	75.9	30-150		9/23/21 11:40
Tetrachloro-m-xylene [2]	78.2	30-150		9/23/21 11:40

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Project Location: UMass- Orchid Hill, Amherst, MA Sample Description: Work Order: 21I0874

Date Received: 9/16/2021

Field Sample #: LT-WH-VWC-011 Sampled: 9/15/2021 11:20

Sample ID: 21I0874-04

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:53	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:53	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:53	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:53	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:53	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:53	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:53	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:53	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 11:53	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	77.9	30-150		9/23/21 11:53
Decachlorobiphenyl [2]	78.0	30-150		9/23/21 11:53
Tetrachloro-m-xylene [1]	81.2	30-150		9/23/21 11:53
Tetrachloro-m-xylene [2]	82.9	30-150		9/23/21 11:53

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Project Location: UMass- Orchid Hill, Amherst, MA Sample Description: Work Order: 21I0874

Date Received: 9/16/2021

Field Sample #: LT-WH-VWC-012 Sampled: 9/15/2021 11:30

Sample ID: 21I0874-05

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 12:05	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 12:05	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 12:05	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 12:05	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 12:05	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 12:05	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 12:05	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 12:05	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 12:05	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	81.5	30-150		9/23/21 12:05
Decachlorobiphenyl [2]	83.4	30-150		9/23/21 12:05
Tetrachloro-m-xylene [1]	81.3	30-150		9/23/21 12:05
Tetrachloro-m-xylene [2]	82.9	30-150		9/23/21 12:05

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Project Location: UMass- Orchid Hill, Amherst, MA Sample Description: Work Order: 21I0874

Date Received: 9/16/2021

Field Sample #: LT-EH-VWC-007 Sampled: 9/15/2021 10:30

Sample ID: 21I0874-06

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 12:18	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 12:18	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 12:18	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 12:18	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 12:18	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 12:18	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 12:18	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 12:18	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	9/21/21	9/23/21 12:18	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	70.5	30-150		9/23/21 12:18
Decachlorobiphenyl [2]	72.0	30-150		9/23/21 12:18
Tetrachloro-m-xylene [1]	71.4	30-150		9/23/21 12:18
Tetrachloro-m-xylene [2]	72.9	30-150		9/23/21 12:18

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Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
21I0874-01 [LT-FW-VWC-008]	B290647	1.00	10.0	09/21/21
21I0874-02 [LT-GH-VWC-009]	B290647	1.00	10.0	09/21/21
21I0874-03 [LT-WH-VWC-010]	B290647	1.00	10.0	09/21/21
21I0874-04 [LT-WH-VWC-011]	B290647	1.00	10.0	09/21/21
21I0874-05 [LT-WH-VWC-012]	B290647	1.00	10.0	09/21/21
21I0874-06 [LT-EH-VWC-007]	B290647	1.00	10.0	09/21/21

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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 B290647 - SW-846 3540C										
Blank (B290647-BLK1)				Prepared: 09/21/21 Analyzed: 09/23/21						
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	*1.63*		µg/Wipe	2.00		81.7	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.69*		µg/Wipe	2.00		84.3	30-150			
Surrogate: Tetrachloro-m-xylene	*1.59*		µg/Wipe	2.00		79.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.61*		µg/Wipe	2.00		80.7	30-150			
LCS (B290647-BS1)				Prepared: 09/21/21 Analyzed: 09/23/21						
Aroclor-1016	0.45	0.20	µg/Wipe	0.500		89.7	40-140			
Aroclor-1016 [2C]	0.47	0.20	µg/Wipe	0.500		93.2	40-140			
Aroclor-1260	0.44	0.20	µg/Wipe	0.500		87.3	40-140			
Aroclor-1260 [2C]	0.45	0.20	µg/Wipe	0.500		90.8	40-140			
Surrogate: Decachlorobiphenyl	*1.68*		µg/Wipe	2.00		84.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.74*		µg/Wipe	2.00		86.8	30-150			
Surrogate: Tetrachloro-m-xylene	*1.68*		µg/Wipe	2.00		84.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.71*		µg/Wipe	2.00		85.5	30-150			
LCS Dup (B290647-BSD1)				Prepared: 09/21/21 Analyzed: 09/23/21						
Aroclor-1016	0.47	0.20	µg/Wipe	0.500		93.5	40-140	4.15	30	
Aroclor-1016 [2C]	0.48	0.20	µg/Wipe	0.500		95.2	40-140	2.10	30	
Aroclor-1260	0.44	0.20	µg/Wipe	0.500		87.3	40-140	0.0252	30	
Aroclor-1260 [2C]	0.46	0.20	µg/Wipe	0.500		92.1	40-140	1.42	30	
Surrogate: Decachlorobiphenyl	*1.70*		µg/Wipe	2.00		84.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.74*		µg/Wipe	2.00		87.1	30-150			
Surrogate: Tetrachloro-m-xylene	*1.71*		µg/Wipe	2.00		85.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.75*		µg/Wipe	2.00		87.4	30-150			

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B290647-BS1

Date(s) Analyzed: 09/23/2021 09/23/2021

Instrument ID (1): ECD3

Instrument ID (2): ECD3

GC Column (1): ID: (mm)

GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.45	
	2	0.000	0.000	0.000	0.47	4.4
Aroclor-1260	1	0.000	0.000	0.000	0.44	
	2	0.000	0.000	0.000	0.45	2.3

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS Dup

Lab Sample ID: B290647-BSD1 Date(s) Analyzed: 09/23/2021 09/23/2021

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.47	
	2	0.000	0.000	0.000	0.48	2.1
Aroclor-1260	1	0.000	0.000	0.000	0.44	
	2	0.000	0.000	0.000	0.46	4.4

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level

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

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

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications

No certified Analyses included in this Report

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2022
CT	Connecticut Department of Publilc Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2022
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2022
RI	Rhode Island Department of Health	LAO00112	12/30/2021
NC	North Carolina Div. of Water Quality	652	12/31/2021
NJ	New Jersey DEP	MA007 NELAP	06/30/2022
FL	Florida Department of Health	E871027 NELAP	06/30/2022
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2022
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2021
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2022
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2022
NC-DW	North Carolina Department of Health	25703	07/31/2022
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2022
MI	Dept. of Env, Great Lakes, and Energy	9100	09/6/2021

21T0874

Pace Analytical

Phone: 413-525-2332
Fax: 413-525-6405
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CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Doc # 381 Rev 5_07/13/2021

Page 1 of 1

Company Name:	Woodard & Curran
Address:	40 Shattuck Rd. Andover, MA
Phone:	978-551-5666
Project Name:	UMass- Orchard Hill
Project Location:	Amherst MA
Project Number:	225195
Project Manager:	George Franklin
Pace Quote Name/Number:	Standard MSA
Invoice Recipient:	George Franklin
Sampled By:	Andrew Eckhoff

Requested Turnaround Time
7-Day ☐ 10-Day ☐
PFAS 10-Day (std) ☐ Due Date:

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

Data Delivery
Format: PDF ☒ EXCEL ☐
Other:
CLP Like Data Pkg Required: ☐
Email To: George, Andrew
Fax To #:

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

PCB ONLY
SOXHLET ☒
NON SOXHLET ☐

ANALYSIS REQUESTED

Pace Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	[1]Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	PCB 8082/Soxhlet 3540C
1	LT-FW-VWC-008	1040	9-15-21	Grab	GW	U		X				X
2	LT-GH-VWC-009	1100										X
3	LT-WH-VWC-010	1110										7
4	LT-WH-VWC-011	1120										X
5	LT-WH-VWC-012	1130										4
6	LT-FH-VWC-007	1030										7

[2] Preservation Code
Courier Use Only
Total Number Of:
VIALS
GLASS 1
PLASTIC
BACTERIA
ENCORE

Glassware in the fridge? Y (N)
Glassware in freezer? Y (N)
Prepackaged Cooler? Y (N)
*Pace Analytical is not responsible for missing samples from prepacked coolers

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

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

Relinquished by: (signature)	Date/Time: 9-16-21 1430
Received by: (signature)	Date/Time: 9-16-21 1436
Relinquished by: (signature)	Date/Time: 9/16/21 6:15 pm
Received by: (signature) 2.0	Date/Time: 9/16/21 1815
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Client Comments:

Detection Limit Requirements
MA:
CT RCP:
Other:

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

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

NELAC and AIHA-LAP, LLC Accredited

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

Other
☐ Chromatogram
☐ *AIHA-LAP,LLC*

Comments:

Disclaimer: Pace Analytical is not responsible for any omitted information on the Chain of Custody. The Chain of Custody is a legal document that must be complete and accurate and is used to determine what analyses the laboratory will perform. Any missing information is not the laboratory's responsibility. Pace Analytical values your partnership on each project and will try to assist with missing information, but will not be held accountable.

Table of Contents

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

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

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

Client W & C

Received By GL Date 9/16/21 Time 1615

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

Were samples within Temperature? 2-6°C T By Gun # 2 Actual Temp - 20 By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? T Does Chain Agree With Samples? T

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

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Analysis T Sampler Name T Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? F Who was notified? _____

Is there enough Volume? T

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

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

Were trip blanks received? F On COC? F

Do all samples have the proper pH? NA Acid _____ Base _____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	6
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

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

Comments:

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September 28, 2021

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

Project Location: Amherst, MA
Client Job Number:
Project Number: 225699
Laboratory Work Order Number: 21I0890

Enclosed are results of analyses for samples received by the laboratory on September 16, 2021. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Meghan E. Kelley
Project Manager

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

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

REPORT DATE: 9/28/2021

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225699

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 21I0890

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

PROJECT LOCATION: Amherst, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LT-MR-IAS-405	21I0890-01	Indoor air		TO-10A/EPA 680 Modified	
LT-MR-IAS-406	21I0890-02	Indoor air		TO-10A/EPA 680 Modified	
LT-BR-IAS-407	21I0890-03	Indoor air		TO-10A/EPA 680 Modified	
LT-CR-IAS-408	21I0890-04	Indoor air		TO-10A/EPA 680 Modified	
LT-CR-IASD-408	21I0890-05	Indoor air		TO-10A/EPA 680 Modified	

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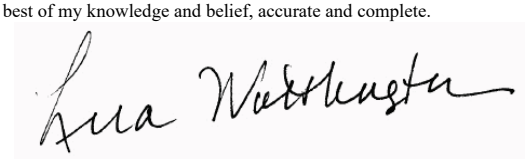
CASE NARRATIVE SUMMARY

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

The results of analyses reported only relate to samples submitted to Con-Test, a Pace 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
Technical Representative

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ANALYTICAL RESULTS

Project Location: Amherst, MA
Date Received: 9/16/2021
Field Sample #: LT-MR-IAS-405
Sample ID: 21I0890-01
Sample Matrix: Indoor air
Sampled: 9/15/2021 15:12

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 799

Work Order: 21I0890

TO-10A/EPA 680 Modified

Analyte	Total µg Results	RL	Flag/Qual	ug/m3 Results	RL	Dilution	Date/Time Analyzed	Analyst
Monochlorobiphenyls	ND	0.0010		ND	0.0013	1	9/24/21 12:24	IMR
Dichlorobiphenyls	0.0094	0.0010		0.012	0.0013	1	9/24/21 12:24	IMR
Trichlorobiphenyls	0.056	0.0020		0.071	0.0025	1	9/24/21 12:24	IMR
Tetrachlorobiphenyls	0.18	0.0020		0.22	0.0025	1	9/24/21 12:24	IMR
Pentachlorobiphenyls	0.20	0.0020		0.26	0.0025	1	9/24/21 12:24	IMR
Hexachlorobiphenyls	0.058	0.0020		0.073	0.0025	1	9/24/21 12:24	IMR
Heptachlorobiphenyls	0.015	0.0030		0.018	0.0038	1	9/24/21 12:24	IMR
Octachlorobiphenyls	0.0035	0.0030		0.0043	0.0038	1	9/24/21 12:24	IMR
Nonachlorobiphenyls	ND	0.0050		ND	0.0063	1	9/24/21 12:24	IMR
Decachlorobiphenyl	ND	0.0050		ND	0.0063	1	9/24/21 12:24	IMR
Total Polychlorinated biphenyls	0.52			0.65		1	9/24/21 12:24	IMR

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	84.6	50-125	9/24/21 12:24

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ANALYTICAL RESULTS

Project Location: Amherst, MA
Date Received: 9/16/2021
Field Sample #: LT-MR-IAS-406
Sample ID: 21I0890-02
Sample Matrix: Indoor air
Sampled: 9/15/2021 15:22

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 825

Work Order: 21I0890

TO-10A/EPA 680 Modified

Analyte	Total µg Results	RL	Flag/Qual	ug/m3 Results	RL	Dilution	Date/Time Analyzed	Analyst
Monochlorobiphenyls	ND	0.0010		ND	0.0012	1	9/24/21 14:54	IMR
Dichlorobiphenyls	0.0044	0.0010		0.0054	0.0012	1	9/24/21 14:54	IMR
Trichlorobiphenyls	0.014	0.0020		0.017	0.0024	1	9/24/21 14:54	IMR
Tetrachlorobiphenyls	0.071	0.0020		0.085	0.0024	1	9/24/21 14:54	IMR
Pentachlorobiphenyls	0.081	0.0020		0.098	0.0024	1	9/24/21 14:54	IMR
Hexachlorobiphenyls	0.031	0.0020		0.037	0.0024	1	9/24/21 14:54	IMR
Heptachlorobiphenyls	0.0097	0.0030		0.012	0.0036	1	9/24/21 14:54	IMR
Octachlorobiphenyls	ND	0.0030		ND	0.0036	1	9/24/21 14:54	IMR
Nonachlorobiphenyls	ND	0.0050		ND	0.0061	1	9/24/21 14:54	IMR
Decachlorobiphenyl	ND	0.0050		ND	0.0061	1	9/24/21 14:54	IMR
Total Polychlorinated biphenyls	0.21			0.25		1	9/24/21 14:54	IMR

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	96.6	50-125	9/24/21 14:54

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ANALYTICAL RESULTS

Project Location: Amherst, MA
Date Received: 9/16/2021
Field Sample #: LT-BR-IAS-407
Sample ID: 21I0890-03
Sample Matrix: Indoor air
Sampled: 9/15/2021 15:32

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 930.4

Work Order: 21I0890

TO-10A/EPA 680 Modified

Analyte	Total µg Results	RL	Flag/Qual	ug/m3 Results	RL	Dilution	Date/Time Analyzed	Analyst
Monochlorobiphenyls	ND	0.0010		ND	0.0011	1	9/24/21 13:01	IMR
Dichlorobiphenyls	0.0044	0.0010		0.0047	0.0011	1	9/24/21 13:01	IMR
Trichlorobiphenyls	0.037	0.0020		0.040	0.0021	1	9/24/21 13:01	IMR
Tetrachlorobiphenyls	0.18	0.0020		0.20	0.0021	1	9/24/21 13:01	IMR
Pentachlorobiphenyls	0.24	0.0020		0.26	0.0021	1	9/24/21 13:01	IMR
Hexachlorobiphenyls	0.078	0.0020		0.084	0.0021	1	9/24/21 13:01	IMR
Heptachlorobiphenyls	0.020	0.0030		0.022	0.0032	1	9/24/21 13:01	IMR
Octachlorobiphenyls	0.0037	0.0030		0.004	0.0032	1	9/24/21 13:01	IMR
Nonachlorobiphenyls	ND	0.0050		ND	0.0054	1	9/24/21 13:01	IMR
Decachlorobiphenyl	ND	0.0050		ND	0.0054	1	9/24/21 13:01	IMR
Total Polychlorinated biphenyls	0.56			0.61		1	9/24/21 13:01	IMR

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	80.8	50-125	9/24/21 13:01

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ANALYTICAL RESULTS

Project Location: Amherst, MA
Date Received: 9/16/2021
Field Sample #: LT-CR-IAS-408
Sample ID: 21I0890-04
Sample Matrix: Indoor air
Sampled: 9/15/2021 15:47

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 919.6

Work Order: 21I0890

TO-10A/EPA 680 Modified

Analyte	Total µg Results	RL	Flag/Qual	ug/m3 Results	RL	Dilution	Date/Time Analyzed	Analyst
Monochlorobiphenyls	ND	0.0010		ND	0.0011	1	9/24/21 13:39	IMR
Dichlorobiphenyls	0.019	0.0010		0.021	0.0011	1	9/24/21 13:39	IMR
Trichlorobiphenyls	0.061	0.0020		0.067	0.0022	1	9/24/21 13:39	IMR
Tetrachlorobiphenyls	0.29	0.0020		0.31	0.0022	1	9/24/21 13:39	IMR
Pentachlorobiphenyls	0.37	0.0020		0.40	0.0022	1	9/24/21 13:39	IMR
Hexachlorobiphenyls	0.081	0.0020		0.088	0.0022	1	9/24/21 13:39	IMR
Heptachlorobiphenyls	0.010	0.0030		0.011	0.0033	1	9/24/21 13:39	IMR
Octachlorobiphenyls	ND	0.0030		ND	0.0033	1	9/24/21 13:39	IMR
Nonachlorobiphenyls	ND	0.0050		ND	0.0054	1	9/24/21 13:39	IMR
Decachlorobiphenyl	ND	0.0050		ND	0.0054	1	9/24/21 13:39	IMR
Total Polychlorinated biphenyls	0.83			0.90		1	9/24/21 13:39	IMR

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	81.3	50-125	9/24/21 13:39

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ANALYTICAL RESULTS

Project Location: Amherst, MA
Date Received: 9/16/2021
Field Sample #: LT-CR-IASD-408
Sample ID: 21I0890-05
Sample Matrix: Indoor air
Sampled: 9/15/2021 15:47

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 919.9

Work Order: 21I0890

TO-10A/EPA 680 Modified

Analyte	Total µg Results	RL	Flag/Qual	ug/m3 Results	RL	Dilution	Date/Time Analyzed	Analyst
Monochlorobiphenyls	ND	0.0010		ND	0.0011	1	9/24/21 14:16	IMR
Dichlorobiphenyls	0.019	0.0010		0.020	0.0011	1	9/24/21 14:16	IMR
Trichlorobiphenyls	0.062	0.0020		0.067	0.0022	1	9/24/21 14:16	IMR
Tetrachlorobiphenyls	0.29	0.0020		0.31	0.0022	1	9/24/21 14:16	IMR
Pentachlorobiphenyls	0.35	0.0020		0.39	0.0022	1	9/24/21 14:16	IMR
Hexachlorobiphenyls	0.073	0.0020		0.079	0.0022	1	9/24/21 14:16	IMR
Heptachlorobiphenyls	0.0082	0.0030		0.009	0.0033	1	9/24/21 14:16	IMR
Octachlorobiphenyls	ND	0.0030		ND	0.0033	1	9/24/21 14:16	IMR
Nonachlorobiphenyls	ND	0.0050		ND	0.0054	1	9/24/21 14:16	IMR
Decachlorobiphenyl	ND	0.0050		ND	0.0054	1	9/24/21 14:16	IMR
Total Polychlorinated biphenyls	0.80			0.87		1	9/24/21 14:16	IMR

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	85.5	50-125	9/24/21 14:16

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Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [Cartridge	Final [mL]	Date
21I0890-01 [LT-MR-IAS-405]	B290775	1.00	1.00	09/22/21
21I0890-02 [LT-MR-IAS-406]	B290775	1.00	1.00	09/22/21
21I0890-03 [LT-BR-IAS-407]	B290775	1.00	1.00	09/22/21
21I0890-04 [LT-CR-IAS-408]	B290775	1.00	1.00	09/22/21
21I0890-05 [LT-CR-IASD-408]	B290775	1.00	1.00	09/22/21

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QUALITY CONTROL

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

Analyte	Total µg Results	Total µg RL	ug/m3 Results	ug/m3 RL	Spike Level Total µg	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag/Qual
Batch B290775 - SW-846 3540C											
Blank (B290775-BLK1)					Prepared: 09/22/21 Analyzed: 09/24/21						
Monochlorobiphenyls	ND	0.0010									
Dichlorobiphenyls	ND	0.0010									
Trichlorobiphenyls	ND	0.0020									
Tetrachlorobiphenyls	ND	0.0020									
Pentachlorobiphenyls	ND	0.0020									
Hexachlorobiphenyls	ND	0.0020									
Heptachlorobiphenyls	ND	0.0030									
Octachlorobiphenyls	ND	0.0030									
Nonachlorobiphenyls	ND	0.0050									
Decachlorobiphenyl	ND	0.0050									
Total Polychlorinated biphenyls	0.0										
Surrogate: Tetrachloro-m-xylene	*0.140*				*0.200*		*70.1*	*50-125*			
LCS (B290775-BS1)					Prepared: 09/22/21 Analyzed: 09/24/21						
Monochlorobiphenyls	0.15	0.0010			0.200		73.7	40-140			
Dichlorobiphenyls	0.16	0.0010			0.200		80.7	40-140			
Trichlorobiphenyls	0.16	0.0020			0.200		81.7	40-140			
Tetrachlorobiphenyls	0.31	0.0020			0.400		78.3	40-140			
Pentachlorobiphenyls	0.31	0.0020			0.400		77.5	40-140			
Hexachlorobiphenyls	0.33	0.0020			0.400		82.6	40-140			
Heptachlorobiphenyls	0.51	0.0030			0.600		85.5	40-140			
Octachlorobiphenyls	0.52	0.0030			0.600		87.0	40-140			
Nonachlorobiphenyls	0.83	0.0050			1.00		83.1	40-140			
Decachlorobiphenyl	0.82	0.0050			1.00		81.8	40-140			
Surrogate: Tetrachloro-m-xylene	*0.155*				*0.200*		*77.6*	*50-125*			
LCS Dup (B290775-BSD1)					Prepared: 09/22/21 Analyzed: 09/24/21						
Monochlorobiphenyls	0.17	0.0010			0.200		83.7	40-140	12.6	50	
Dichlorobiphenyls	0.18	0.0010			0.200		89.5	40-140	10.3	50	
Trichlorobiphenyls	0.18	0.0020			0.200		88.5	40-140	8.02	50	
Tetrachlorobiphenyls	0.35	0.0020			0.400		88.3	40-140	12.1	50	
Pentachlorobiphenyls	0.36	0.0020			0.400		89.9	40-140	14.8	50	
Hexachlorobiphenyls	0.37	0.0020			0.400		92.8	40-140	11.6	50	
Heptachlorobiphenyls	0.58	0.0030			0.600		96.6	40-140	12.2	50	
Octachlorobiphenyls	0.59	0.0030			0.600		98.6	40-140	12.5	50	
Nonachlorobiphenyls	0.94	0.0050			1.00		94.3	40-140	12.6	50	
Decachlorobiphenyl	0.92	0.0050			1.00		92.3	40-140	12.0	50	
Surrogate: Tetrachloro-m-xylene	*0.174*				*0.200*		*86.8*	*50-125*			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level

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

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

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INTERNAL STANDARD AREA AND RT SUMMARY

TO-10A/EPA 680 Modified

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (S062137-ICV1)			Lab File ID: F2109214.D			Analyzed: 04/02/21 15:24			
Phenanthrene-d10	536470	20.402	599910	20.402	89	70 - 130	0.0000	+/-0.50	
Chrysene-d12	494476	28.141	498634	28.141	99	70 - 130	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

TO-10A/EPA 680 Modified

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Calibration Check (S063692-CCV1)			Lab File ID: F21S267004.D			Analyzed: 09/24/21 09:56			
Phenanthrene-d10	567113	20.136	599910	20.402	95	70 - 130	-0.2660	+/-0.50	
Chrysene-d12	475333	27.757	498634	28.141	95	70 - 130	-0.3840	+/-0.50	
LCS (B290775-BS1)			Lab File ID: F21S267005.D			Analyzed: 09/24/21 10:32			
Phenanthrene-d10	614415	20.136	567113	20.136	108	70 - 130	0.0000	+/-0.50	
Chrysene-d12	475979	27.757	475333	27.757	100	70 - 130	0.0000	+/-0.50	
LCS Dup (B290775-BSD1)			Lab File ID: F21S267006.D			Analyzed: 09/24/21 11:09			
Phenanthrene-d10	618611	20.136	567113	20.136	109	70 - 130	0.0000	+/-0.50	
Chrysene-d12	492616	27.764	475333	27.757	104	70 - 130	0.0070	+/-0.50	
LT-MR-IAS-405 (21I0890-01)			Lab File ID: F21S267008.D			Analyzed: 09/24/21 12:24			
Phenanthrene-d10	626864	20.136	567113	20.136	111	70 - 130	0.0000	+/-0.50	
Chrysene-d12	517755	27.765	475333	27.757	109	70 - 130	0.0080	+/-0.50	
LT-BR-IAS-407 (21I0890-03)			Lab File ID: F21S267009.D			Analyzed: 09/24/21 13:01			
Phenanthrene-d10	624163	20.136	567113	20.136	110	70 - 130	0.0000	+/-0.50	
Chrysene-d12	514093	27.765	475333	27.757	108	70 - 130	0.0080	+/-0.50	
LT-CR-IAS-408 (21I0890-04)			Lab File ID: F21S267010.D			Analyzed: 09/24/21 13:39			
Phenanthrene-d10	613055	20.136	567113	20.136	108	70 - 130	0.0000	+/-0.50	
Chrysene-d12	503583	27.764	475333	27.757	106	70 - 130	0.0070	+/-0.50	
LT-CR-IASD-408 (21I0890-05)			Lab File ID: F21S267011.D			Analyzed: 09/24/21 14:16			
Phenanthrene-d10	636348	20.136	567113	20.136	112	70 - 130	0.0000	+/-0.50	
Chrysene-d12	534770	27.765	475333	27.757	113	70 - 130	0.0080	+/-0.50	
LT-MR-IAS-406 (21I0890-02)			Lab File ID: F21S267012.D			Analyzed: 09/24/21 14:54			
Phenanthrene-d10	503388	20.136	567113	20.136	89	70 - 130	0.0000	+/-0.50	
Chrysene-d12	433902	27.764	475333	27.757	91	70 - 130	0.0070	+/-0.50	
Blank (B290775-BLK1)			Lab File ID: F21S267014.D			Analyzed: 09/24/21 16:05			
Phenanthrene-d10	571394	20.136	567113	20.136	101	70 - 130	0.0000	+/-0.50	
Chrysene-d12	462995	27.765	475333	27.757	97	70 - 130	0.0080	+/-0.50	
Calibration Check (S063692-CCV2)			Lab File ID: F21S267015.D			Analyzed: 09/24/21 16:43			
Phenanthrene-d10	593983	20.13	567113	20.136	105	70 - 130	-0.0060	+/-0.50	
Chrysene-d12	506387	27.764	475333	27.757	107	70 - 130	0.0070	+/-0.50	

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CONTINUING CALIBRATION CHECK

TO-10A/EPA 680 Modified

S063692-CCV1

COMPOUND	TYPE	CONC. (ng/mL)		RESPONSE FACTOR			% DIFF / DRIFT	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Monochlorobiphenyls	A	100	117	18.85177	22.11376		17.3	20
Dichlorobiphenyls	A	100	97.6	23.03745	22.48538		-2.4	20
Trichlorobiphenyls	A	100	85.9	18.02784	15.48986		-14.1	20
Tetrachlorobiphenyls	A	200	178	10.89482	9.670471		-11.2	20
Pentachlorobiphenyls	A	200	170	9.461204	8.063208		-14.8	20
Hexachlorobiphenyls	A	200	172	11.11573	9.580652		-13.8	20
Heptachlorobiphenyls	A	300	270	10.15835	9.142187		-10.0	20
Octachlorobiphenyls	A	300	267	8.268449	7.358525		-11.0	20
Nonachlorobiphenyls	A	500	442	7.182804	6.351232		-11.6	20
Decachlorobiphenyl	A	500	469	5.665617	5.315431		-6.2	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

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CONTINUING CALIBRATION CHECK

TO-10A/EPA 680 Modified

S063692-CCV2

COMPOUND	TYPE	CONC. (ng/mL)		RESPONSE FACTOR			% DIFF / DRIFT	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Monochlorobiphenyls	A	100	96.9	18.85177	18.2602		-3.1	20
Dichlorobiphenyls	A	100	94.7	23.03745	21.81923		-5.3	20
Trichlorobiphenyls	A	100	89.5	18.02784	16.12672		-10.5	20
Tetrachlorobiphenyls	A	200	186	10.89482	10.10803		-7.2	20
Pentachlorobiphenyls	A	200	176	9.461204	8.333993		-11.9	20
Hexachlorobiphenyls	A	200	176	11.11573	9.789203		-11.9	20
Heptachlorobiphenyls	A	300	274	10.15835	9.276831		-8.7	20
Octachlorobiphenyls	A	300	273	8.268449	7.516484		-9.1	20
Nonachlorobiphenyls	A	500	459	7.182804	6.600683		-8.1	20
Decachlorobiphenyl	A	500	493	5.665617	5.588809		-1.4	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications

No certified Analyses included in this Report

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2022
CT	Connecticut Department of Publilc Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2022
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2022
RI	Rhode Island Department of Health	LAO00112	12/30/2021
NC	North Carolina Div. of Water Quality	652	12/31/2021
NJ	New Jersey DEP	MA007 NELAP	06/30/2022
FL	Florida Department of Health	E871027 NELAP	06/30/2022
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2022
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2021
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2022
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2022
NC-DW	North Carolina Department of Health	25703	07/31/2022
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2022
MI	Dept. of Env, Great Lakes, and Energy	9100	09/6/2022

con-test ANALYTICAL LABORATORY

2110890

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http://www.contestlabs.com

Doc #378 Rev 1_03242017

CHAIN OF CUSTODY RECORD (AIR)

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name:	Woodard & Curran
Address:	40 Shattuck Rd. Andover, MA 01810
Phone:	978-551-5666
Project Name:	UMass - Sylvan Hall
Project Location:	Amherst MA
Project Number:	235695
Project Manager:	George Franklin
Con-Test Quote Name/Number:	Standard MSA
Invoice Recipient:	George Franklin
Sampled By:	A. Eckhoff

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

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

Data Delivery
Format: PDF ☒ EXCEL ☐
Other:
CLP Like Data Pkg Required: ☐
Email To: George, Andrew
Fax To #:

ANALYSIS REQUESTED

Lab Use	Client Use	Collection Data		Duration	Flow Rate	Matrix	Volume	TO-10A / PCB Homologs				" Hg			Please fill out completely, sign, date and retain the yellow copy for your records	
Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Total Minutes Sampled	☐ m³/min ☒ L/min	Code	☒ Liters ☐ m³					Initial Pressure	Final Pressure	Lab Receipt Pressure	Summa Can ID	Flow Controller ID
01	LT-MR-IAS-405	9-15-21 0912	9-15-21 1512	360	2.22	1A	799	X								
02	LT-MR-IAS-406	9-15-21 0922	9-15-21 1522	↓	2.29	↓	825	X								
03	LT-BR-IAS-407	9-15-21 0932	9-15-21 1532		2.58		930.4	X								
04	LT-CR-IAS-408	9-15-21 0947	9-15-21 1547		2.55		919.6	X								
05	LT-CR-IASD-408	9-15-21 0947	9-15-21 1547		2.56		919.9	X								

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

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

Comments:

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

Matrix Codes:
SG = SOIL GAS
IA = INDOOR AIR
AMB = AMBIENT
SS = SUB SLAB
D = DUP
BL = BLANK
O = Other_____

Relinquished by: (signature)		Date/Time: 9/16/21 2:30 pm	
Received by: (signature)		Date/Time: 9/16/21 2:30 pm	
Relinquished by: (signature)		Date/Time: 9/16/21 6:15 pm	
Received by: (signature)	2.0	Date/Time: 9/16/21 1815	
Relinquished by: (signature)		Date/Time:	
Received by: (signature)		Date/Time:	

Detection Limit Requirements
MA
CT
Other:

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

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NELAC and AIHA-LAP, LLC Accredited

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

Other
☐ Chromatogram
☐ *AIHA-LAP,LLC*

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Table of Contents

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

con-test® ANALYTICAL LABORATORY

Doc# 278 Rev 6 2017

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

Client Woodard & Curran

Received By RLF Date 9/16/21 Time 1815

How were the samples received? In Cooler T On Ice T No Ice _____ In Box _____ Ambient _____ Melted Ice _____

Were samples within Temperature Compliance? 2-6°C T By Gun # 3 Actual Temp - 2°C By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there any loose caps/valves on any samples? F

Is COC in ink/ Legible? T

Did COC Include all Pertinent Information? Client T Project T Analysis T ID's T Sampler Name T Collection Dates/Times T

Are Sample Labels filled out and legible? T

Are there Rushes? F Who was notified? _____

Samples are received within holding time? T

Proper Media Used? T Individually Certified Cans? NA

Are there Trip Blanks? F Is there enough Volume? T

Containers:	#	Size	Regulator	Duration	Accessories:			
Summa Cans					Nut/Ferrule		IC Train	
Tedlar Bags					Tubing			
TO-17 Tubes					T-Connector		Shipping Charges	
Radiello					Syringe			
Pufs/TO-11s	5				Tedlar			

Can #'s					Reg #'s				
Unused Media					**Pufs/TO-17's**				
					090921B-05				
						-01			
						-04			
						-02			
						-03			

Comments: