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Via Electronic Mail and US Mail

September 17, 2021

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

Re: 2021 Long Term Monitoring Report – LGRC Tower A and Low-Rise Buildings
University of Massachusetts - Amherst
Amherst, Massachusetts

Dear Ms. Tisa:

On behalf of the University of Massachusetts (UMass), please find attached a copy of the 2021 Long Term Monitoring Report for Tower A and the Low-Rise buildings within the Lederle Graduate Research Center (LGRC) on UMass' campus in Amherst, Massachusetts. This report has been prepared to meet the reporting requirements of the Consent Agreement and Final Order (CAFO) dated June 20, 2012 between UMass and the U.S. Environmental Protection Agency (EPA) for the encapsulation of polychlorinated biphenyl (PCB) containing glazing sealants at the Tower A and Low-Rise buildings. This report provides the results of the monitoring activities conducted in accordance with the December 2014 Revised Monitoring and Maintenance Plan (MMIP) for the encapsulated polychlorinated biphenyl (PCB) containing glazing sealants at the Tower A and Low-Rise buildings and the encapsulated residual PCBs in certain exterior masonry materials at the Low-Rise building.

As indicated in the report, revisions to the MMIP are proposed for EPA review and approval. As indicated in Section 3.2 of the report, the MMIP is proposed to be revised to include annual visual inspections of encapsulated surfaces and biennial indoor air and surface wipe sampling. These modifications are supported by both the surface wipe sampling results, which have been consistently reported as either non-detect or < 1 ug/100cm^2, and the indoor air sampling results, which have remained at levels well below the project action level of 500 ng/m^3 (EPA's exposure level for evaluating PCBs in indoor school air for students ages 19 plus and adults). The proposed changes are consistent with those proposed following the 2020 long term monitoring event and supported by the results of the 2021 monitoring, which included targeted indoor air sampling in locations 199, 299, and 399 as requested by EPA via email on June 8, 2021.

In accordance with the CAFO, revisions to the MMIP are required to be approved by EPA in writing. Following EPA approval, the proposed changes will be implemented for the 2022 monitoring event.

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

Sincerely,

WOODARD & CURRAN INC.

George J. Franklin, CHMM
Project Manager

cc: T. Wolejko, University of Massachusetts
J. Hamel, Woodard & Curran

2021 Long Term Monitoring Report

PCB Encapsulated Surfaces

Lederle Graduate Research Center

Tower A and Low-Rise Buildings
Amherst, Massachusetts

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UMass LGRC
September 2021

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APPENDICES

1. INTRODUCTION

This monitoring report has been prepared by Woodard & Curran on behalf of the University of Massachusetts (UMass) in accordance with the requirements of the Consent Agreement and Final Order (CAFO) dated June 20, 2012 between UMass and the U.S. Environmental Protection Agency (EPA) for the Lederle Graduate Research Center (LGRC) Tower A and Low-Rise buildings located at 701 – 740 North Pleasant Street on the UMass campus in Amherst, Massachusetts (see Figure 1-1).

This monitoring report provides the results of the monitoring activities conducted in accordance with the December 2014 Revised Monitoring and Maintenance Implementation Plan (MMIP) developed in accordance with the requirements of the CAFO for the encapsulated polychlorinated biphenyl (PCB) containing window glazing sealants at the Tower A and Low-Rise buildings and the encapsulated residual PCBs in certain exterior masonry materials at the Low-Rise building.

1.1 BACKROUND

As described in the CAFO, an approach was developed for the encapsulation of PCB-containing window glazing sealants as an interim measure until the glazing sealant could be removed during future window replacement projects. There were approximately 900 windows located at the LGRC subject to the CAFO. To date, approximately 649 of the 900 windows have been removed. The removals have been conducted in the following areas:

- As part of the National Institute of Health (NIH) renovations, 42 laboratory windows on the 3rd, 7th, and 8th floors of Tower A were removed as reported in the PCB Remediation Activities Completion Report dated December 17, 2012.

- All windows within the Low-Rise building including the library areas, were removed as either part of a large-scale window replacement project in 2014 (refer to the September 17, 2013 notification submittal and the December 29, 2014 Completion Report) or as part of the A106 renovations conducted in 2018 (refer to the notification submittal dated August 22, 2018 and the *Final Completion Report for Room A106 Renovations* dated September 23, 2019 by ATC Group Services of West Springfield, Massachusetts [ATC]).

- Seven laboratory windows in Tower A Rooms 501 through 504 were removed as part of a laboratory renovation project in 2014/2015 (refer to the 2015 Long Term Monitoring Report – LGRC Tower A and Low-Rise Buildings, dated September 29, 2015).

In addition to the specific window removals mentioned above and prior to the CAFO, removal and off-site disposal of ≥ 50 parts per million (ppm) exterior perimeter window caulking and the remediation of exterior building materials impacted by PCBs was conducted in accordance with EPA's June 22, 2007 Alternative Decontamination Approval under 40 CFR 761.61(a), 62, and 79(h). The remediation activities included the removal and off-site disposal of the exterior caulking and removal of a minimum of ½ inch of exterior concrete masonry around each of the windows to achieve the applicable high or low occupancy use clean up criteria (≤ 1 ppm for first floor locations and ≤ 25 ppm for second and third floor locations).

However, as described in the CAFO Notification submittal on September 17, 2013, the 2007/2008 exterior remediation activities were not completed at the 50 Type L windows on the Low-Rise and bridge connector due to the inaccessibility of exterior perimeter window caulking at these locations (the windows are located between two structural concrete features approximately 1.5 feet apart). Subsequent remediation activities at these 50 Type L windows was completed in 2014 and 2018. Remediation included caulking and window removal and the in-place management of residual PCB impacts > 25 ppm in exterior concrete, along with long term monitoring.

1.2 SUMMARY OF INTERIM MEASURES – INTERIOR GLAZING SEALANTS

Beginning in July 2012, Interim Measures were implemented/completed at the respective windows in Tower A and the Low-Rise building. A summary of the activities is provided below.

1.2.1 Summary of Remedial Activities

In accordance with the CAFO, Interim Measures were conducted to address the presence of PCBs ≥ 50 ppm in glazing sealants in the Tower (high rise) and Low-rise buildings as follows:

- A general cleaning of the window units and surrounding surfaces was conducted via the removal of dust and debris using a vacuum equipped with HEPA filtration followed by cleaning of surfaces with a standard industrial/commercial cleaner (Klean-Strip TSP Plus).

- Containment of the glazing sealants was achieved through the installation of a layer of aluminum foil tape and a bead of silicone caulking to reduce potential direct contact exposures.

As noted previously, in 2013, 2014, and 2018, all windows in the Low Rise were removed. As such, the interim measure glazing containment condition is no longer present within the Low-Rise.

1.2.2 Visual Inspection and Verification/Baseline Sampling

Following completion of the Interim Measures, visual inspections were conducted to confirm completion of the activities. Post-cleaning verification wipe samples were collected from accessible non-porous surfaces surrounding the windows and post-encapsulation surface wipe samples were collected from the encapsulated surfaces and window frames following the procedures and frequencies described in the Interim Measures Plan (IMP). A summary of the results of the initial/baseline wipe samples is provided below.

Post-Cleaning Wipe Samples

Post-cleaning wipe samples were collected from window ledges as part of the interim measures implementation and prior to the removal of the Low-Rise windows. Following the cleaning of the surrounding areas, verification wipe samples were collected from the non-porous window ledges adjacent to the windows. In accordance with the IMP, post-cleaning wipe samples were collected at a frequency of one sample per floor in the high rise and at a frequency of one sample per 20 windows in the Low-Rise. Analytical results of the verification wipe samples indicated that PCBs were below the high occupancy use cleanup standard for non-porous surfaces (10 µg/100 cm^2) in all samples with results reported as follows:

- Total PCBs were reported as non-detect (< 0.20 µg/100 cm^2) in 31 samples; and

- Total PCBs were present in 23 samples at concentrations below 10 µg/100 cm^2, with concentrations ranging from 0.20 to 2.0 µg/100 cm^2 and an average concentration of 0.56 µg/100cm^2.

Post-Encapsulation Wipe Samples

To confirm that the aluminum foil tape and caulking were effective encapsulants of PCBs in the glazing sealants, wipe samples were collected from the surface of the newly installed caulking following standard wipe sampling procedures described in 40 CFR 761.123. A summary of the analytical results from the wipe samples is as follows:

- Total PCBs were reported as either non-detect (ten samples at < 0.20 µg/100 cm^2) or < 1 µg/100 cm^2 (five samples with reported concentrations ranging from 0.21 to 0.95 µg/100 cm^2) in 15 of the 17 samples collected; and

- Total PCBs were reported at concentrations > 1 µg/100 cm^2 in two samples with reported concentrations of 1.5 and 3.1 µg/100 cm^2 (both samples were collected from areas encapsulated during the NIH renovation prior to modifications to the application methods).

To evaluate the suitability of an alternative wipe sampling procedure to assess "surface" concentrations on the newly applied porous caulking, additional wipe samples were collected using four different solvents/methods: hexane, isopropyl alcohol, saline, and dry wipe. Wipe samples were collected from the surfaces of the glazing sealants and from the encapsulated surfaces following installation of the aluminum tape and caulking barriers. Results from the wipe samples were described in detail in the PCB Interim Measures Completion Report dated June 2, 2014 and December 2014 Revised MMIP and indicated that while all four methods were able to detect PCBs on the surface of the source materials and the encapsulated surfaces, the more aggressive solvents reported higher results.

Based on these results, the December 2014 Revised MMIP included the potential collection of saline wipes to evaluate the potential presence of PCBs on the surface of the encapsulating barriers; however, saline wipes were not analyzed during subsequent events due to the continued results of the hexane wipes as presented in this report.

1.3 SUMMARY OF REMEDIATION ACTIVITIES – EXTERIOR CONCRETE AT TYPE L WINDOWS

Remediation activities associated with residual PCBs in exterior concrete surfaces surrounding the 50 Type L windows in the Low-Rise and the bridge connector were conducted in conjunction with the 2013/2014 window removal project and the 2018 Room A106 renovation project.

1.3.1 Summary of Remedial Activities

The remediation consisted of the following:

- Exterior perimeter window caulking and the window units containing ≥ 50 ppm PCBs was removed for disposal as PCB Bulk Product Waste using hand tools as part of the window removal project.
- Residual PCBs were encapsulated through the application of the following:
    - Liquid Epoxy Coating – A two-inch-wide strip of epoxy (either Sikagard 62 liquid epoxy or DevCon 5-minute epoxy), centered on the former joint, was applied to concrete surfaces;
    - Elastomeric Coating – Two coats of Sikagard 550W elastomeric coating were applied to concrete materials away from the joints and extending along the inner face of the concrete façade to match the rest of the building façade; and
    - Replacement Frames – The replacement window frames and a replacement bead of caulking were installed over the former caulked joints.

Detailed descriptions of the implemented activities were presented in the *Window Removal Completion Report* submittal dated December 29, 2014 and in the *Final Completion Report for Room A106 Renovations* dated September 23, 2019 by ATC.

1.3.2 Visual Inspection and Verification/Baseline Sampling

Following application/installation of each of the above barriers, visual inspections were conducted. For liquid coatings, the visual inspection was conducted to confirm the coatings were applied over the designated areas and had a smooth uniform appearance. For window frames and caulking, the inspection confirmed installation in accordance with the project specifications.

To confirm that the epoxy and elastomeric coatings were effective encapsulants of residual PCBs in the concrete, wipe samples were collected from the surfaces of the newly applied coatings at a frequency of one sample for every five

window locations (twelve wipe samples were collected from each type of coating due to the phased sequencing of work at the Type L windows). A summary of the analytical results from the wipe samples is as follows:

- Liquid Epoxy Coatings – Analytical results from eleven of the twelve samples indicated that PCBs were non-detect (9 samples at < 0.20 µg/100cm^2) or less than the encapsulation target of 1 µg/100cm^2 (2 samples with reported concentrations of 0.22 and 0.28 µg/100cm^2). PCBs in the remaining sample were reported at concentration of 1.4 µg/100cm^2.
- Elastomeric Coatings – Analytical results indicated that PCBs were either non-detect (8 samples at < 0.20 µg/100cm^2) or less than the encapsulation target of 1 µg/100cm^2 (4 samples with a maximum concentration of 0.56 µg/100cm^2).

1.4 MONITORING AND MAINTENANCE IMPLEMENTATION PLAN

In accordance with the requirements of the CAFO, annual monitoring is to be completed as part of the Interim Measures to monitor, over time, the effectiveness of the remedy for encapsulated PCB-containing glazing sealants. In addition, and as described in the December 2014 Revised MMIP, monitoring is also to be conducted for the residual PCB impacted exterior concrete encapsulated through the application of liquid coatings and replacement frames at the Type L windows. As presented in 2018 long term monitoring report, the removal of windows in Low-Rise Room A106 was completed in Q4 of 2018. Therefore, indoor monitoring will no longer be conducted in this space consistent with other low-rise locations.

As discussed in the MMIP, the evaluation of the effectiveness of the measures will be accomplished through:

- Visual inspection – to evaluate the physical condition of the new caulking and/or window frames; to look for signs of separation between the silicone sealant/aluminum foil tape and the glazing sealant, window frame or glass; to look for signs of disturbance to the new sealants or exterior elastomeric coatings (Type L windows); and a general inspection of the surrounding areas.
- Accessible, Interior Non-Porous Surface Wipe Samples – A total of 8 wipe samples are to be collected from the Tower A high rise from adjacent window ledges /sills to assess the effectiveness of the Interim Measure in reducing / eliminating PCB-containing dust or particulate levels on these adjacent surfaces.
- Encapsulated, Interior Surfaces Wipe Samples – A total of 8 wipe samples are to be collected from the Tower A high rise from the new caulking/adjacent frame to assess the concentrations of PCBs on the surface of the encapsulating barrier; and
- Indoor Air Samples – 5 samples are to be collected from the Tower A high rise to assess indoor air levels of PCBs over time.

Annual monitoring activities were initiated in 2015. Results of the monitoring from 2015 through 2020 were consistent with the baseline monitoring results and communicated to EPA in the annual monitoring reports submitted in September of each year.

Based on the results of the long term monitoring from 2015 through 2020, a modification was proposed to the long term monitoring program in the 2020 Long Term Monitoring Report. The proposed change was to modify the frequency of the monitoring program to include annual visual inspections of encapsulated surfaces and bi-annual indoor air sampling and wipe sampling of both the accessible interior non-porous surfaces and the encapsulated surfaces/window frames. On June 8, 2020, EPA requested that the 2021 monitoring program be conducted consistent with the MMIP and to re-visit the request for modification to the program following the completion of the 2021 monitoring activities.

2. 2021 MONITORING ACTIVITIES

2.1 VISUAL INSPECTIONS

Visual inspections of the interior encapsulated surfaces were conducted at the Tower A high rise and at the exterior elastomeric coatings of the Type L windows of the Low-Rise building. The inspections consisted of an assessment as described in Section 1.4.

For the interior encapsulated window glazing sealants, the specific windows that were visually inspected included the window unit randomly selected for wipe sampling (see discussion below) plus the window units on both sides of the selected window (total of three windows per sample location). For the Low-Rise Building, 20% of the Type L windows were included in the visual inspection (10 windows).

Consistent with the results of the previous monitoring events, no signs of disturbance or deterioration were observed during the visual inspections.

2.2 NON-ROUTINE MAINTENANCE ACTIVITIES

Based on discussions with UMass personnel, no non-routine maintenance activities that disturbed the encapsulated materials were observed or conducted since the last Monitoring Report submittal. Of note, UMass personnel reported that the use of the Tower A High Rise and Low-Rise buildings was greatly reduced in 2020 and the first quarter of 2021 with full use anticipated to resume for the 2021 Fall semester. Due to the pandemic, planned construction activities in portions of the 4th, 6th, and 13th through 16th floors were delayed to a yet to be determined future date (these spaces remain vacant pending the construction activities).

2.3 ACCESSIBLE INTERIOR NON-POROUS SURFACES

Surface wipe samples were collected from eight representative locations on the accessible interior non-porous window sills adjacent to the Tower A windows as described in the MMIP. The locations of the wipe samples are depicted on Figures 2-1 through 2-4.

At each location, the wipe sample was collected in accordance with the standard wipe test method as described in 40 CFR 761.123. At each sample location, a 2-inch square gauze pad, saturated with hexane, was wiped across a 100 square centimeter template area. All samples were transported to the laboratory under standard Chain of Custody procedures, extracted using USEPA Method 3540C (Soxhlet extraction), and analyzed for PCBs using USEPA Method 8082.

Analytical results indicated that PCBs were non-detect (8 samples with reporting limits of < 0.20 µg/100 cm^2). These results are consistent with the results from the 2014 baseline sampling and the results from the previous samples collected as part of long-term monitoring from 2015 to 2020. The complete analytical laboratory report is provided in Appendix A. A summary of the analytical results is presented on Table 2-1.

2.4 ENCAPSULATED INTERIOR SURFACES

Surface wipe samples were collected from eight representative locations on the encapsulated surfaces and frames within the Tower A High Rise as described in the MMIP. The locations of the wipe samples were co-located with those collected from accessible non-porous surfaces and are depicted on Figures 2-1 through 2-4.

Wipe samples were collected in accordance with the standard wipe test method as described in 40 CFR 761.123 modified due to the narrow width of the sample area (total width of caulking and frame is approximately ¾-inch). At each sample location, a 2-inch square gauze pad, saturated with hexane, was wiped across a 22-inch long section of the caulking/window frame (to achieve a 100 cm^2 area). Samples were submitted for laboratory analysis as described above.

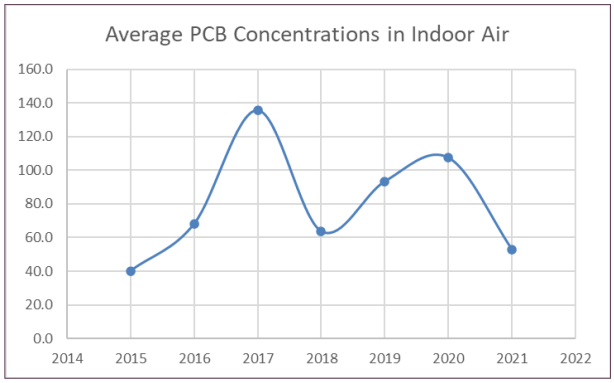
Analytical results from seven of the eight samples reported PCBs as either non-detect (reporting limit of < 0.20 µg/100 cm^2) or at concentrations <1 ug/100cm^2 (3 samples with PCBs reported at concentrations of 0.22, 0.32, and 0.42 ug/100cm^2). Analytical results from one sample reported PCBs at a concentration of 1.5 ug/100cm^2 (collected from a vacant room on the 15th floor that is designated for future construction/renovation which will include replacement of the windows). These results are consistent with the baseline wipe data collected following implementation of the interim actions (see Section 1.2.2 above) and previous monitoring events. Based on the overall data set, the results continue to show effective encapsulation of the glazing sealant materials. The complete analytical laboratory report is provided in Appendix A. A summary of the analytical results is presented on Table 2-2.

2.5 INDOOR AIR

Five indoor air samples were collected from representative locations throughout the LGRC Tower A. No indoor air samples were collected from the Low-Rise as a result of removals completed during window replacements (refer to **Section 2.2**). In addition, one ambient/outdoor air sample was collected from outside Tower A and one duplicate sample was collected from the 9th floor. As requested by EPA via email on June 8, 2021, three of the samples were collected from the elevator lobby spaces 199Y, 299T, and 399A to evaluate potential fluctuations in indoor air conditions within these spaces overtime. The remaining indoor air samples were distributed in accordance with the MMIP with individual spaces selected based on the use of the space (e.g., offices, laboratories, common areas) throughout the building.

Air samples were 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. At each of the sample locations, a low volume PUF cartridge was connected to a personal air pump with flexible tubing and the cartridge was positioned between three and five feet above the floor using a telescoping tubing stand. Samples were collected at an approximate flow rate of 2.5 L/min for minimum of six hours. The flow rates were set by the equipment rental supply company prior to delivery and verified and adjusted as needed in the field using a digital flow rate calibrator. Atmospheric information (ambient temperatures and barometric pressures) was obtained from a portable commercially available weather monitoring station. Pumps and flow rates were monitored periodically throughout the sample collection period. At the end of the required sample interval, the pump was shut off and the cartridge placed in aluminum foil, labeled, and placed on ice for delivery to the analytical laboratory.

Analytical results indicated that total PCBs were detected at concentrations ranging from 5.8 ng/m^3 to 92.3 ng/m^3 with an average detected concentration of 52.7 ng/m^3. Analytical results were non-detect for PCBs in the outdoor/ambient sample. These indoor air results are consistent with results from the previous sampling events conducted in Tower A in 2015 through 2020 and remain below the project action level of 500 ng/m^3 (EPA's exposure levels for evaluating PCBs in indoor school air for students ages 19 plus and adults, as amended on July 2015).



Specific to the samples collected from spaces 199Y, 299T, and 399A (the elevator lobby areas on the 1st, 2nd, and 3rd floors), while some variability has been observed overtime, the results remain consistently below the project action levels and the 2021 results were the lowest reported PCB concentrations in these rooms over all the sampled dates.

Total PCBs in Indoor Air Samples (ng/m^3)

Date	399A	299T	199Y
2016	33.8		
2017	374.1	175.2	
2018		95.4	
2019	250.9		
2020		116.1	139.1
2021	92.3	72.2	5.8

The complete analytical laboratory report and the associated data validation summary are provided in Appendix A and a summary of the analytical results is provided on Table 2-3.

3. SUMMARY AND CONCLUSIONS

Results of the 2021 long term monitoring event were as follows:

- As reported by UMass personnel, no non-routine maintenance activities that disturbed the encapsulated materials were observed or conducted in 2020/2021.
- Building use was reduced in 2020 and through the first half of 2021 due to the Covid-19 pandemic and is anticipated to resume to normal use for the 2021 Fall semester.
- Visual inspections indicated that the encapsulating barriers were in good physical condition with no observed damage or deterioration.
- Analytical results from wipe samples collected from accessible non-porous surfaces and encapsulated surfaces were consistent with the baseline monitoring results and results from previous long term monitoring events.
- Analytical results from indoor air samples indicted that PCBs were consistent with previous sampling events and remain at concentrations well below the action level of 500 ng/m^3.

In summary, the results of visual inspections, surface wipe sampling, and indoor air sampling conducted in 2021 as part of the long-term monitoring activities were consistent with the results of previous monitoring events and below the applicable action levels presented in the MMIP.

3.1 CORRECTIVE ACTIONS

No corrective actions are warranted based on the results of the 2021 monitoring event.

3.2 MODIFICATIONS TO THE LONG TERM MONITORING AND MAINTENANCE PLAN

Based on the results of the inspections and sampling activities from 2015 through 2021, the MMIP is proposed to be revised to include annual visual inspections of encapsulated surfaces and biennial indoor air sampling and wipe sampling of both the accessible interior non-porous surfaces and the encapsulated surfaces/window frames. This modification to the proposed sampling frequency is supported by the indoor air and surface wipe sampling results which have demonstrated stable interior conditions since the implementation of the Interim Measures.

This change in sample frequency is proposed to be implemented with the 2022 sampling event pending EPA approval as required by the CAFO.

3.3 NEXT MONITORING EVENT

Pending EPA approval of the proposed sampling frequency, the next monitoring event will be conducted in June 2022 and consist of visual inspections of the encapsulated glazing sealants and exterior masonry surrounding the Type L windows. The next biennial indoor air sampling and surface wipe sampling event would be conducted in June of 2023.

TABLES

Table 2-1
Summary of Long Term Monitoring Wipe Sampling Results - Accessible Non-Porous Surfaces
UMass Amherst

Floor	Room Number	Sample ID	Sample Date	Total PCBs ($\mu g/100cm^2$)
2	Elevator Lobby	LGRC-VWP-024	6/25/2021	<0.20
3	Elevator Lobby	LGRC-VWP-022	6/25/2021	<0.20
5	507	LGRC-VWP-020	6/25/2021	<0.20
7	Elevator Lobby	LGRC-VWP-018	6/25/2021	<0.20
9	902	LGRC-VWP-016	6/25/2021	<0.20
11	1105	LGRC-VWP-010	6/25/2021	<0.20
13	1308	LGRC-VWP-014	6/25/2021	<0.20
15	1507	LGRC-VWP-012	6/25/2021	<0.20

Notes:
Wipe samples collected in accordance with the standard wipe test method of 40 CFR 761.123 over a 4" x 4" square centered on the window sill to achieve a $100cm^2$ sample area.
Samples submitted for extraction via USEPA method 3540C (Soxhlet Extraction) and analyzed for PCBs via USEPA method 8082A.

Table 2-2
Summary of Long Term Monitoring Wipe Sampling Results - Encapsulated Surfaces
UMass Amherst

Floor	Room Number	Sample ID	Sample Date	Total PCBs ($\mu g/100cm^2$)
2	Elevator Lobby	LGRC-VWK-023	6/25/2021	<0.20
3	Elevator Lobby	LGRC-VWK-021	6/25/2021	0.42
5	507	LGRC-VWK-019	6/25/2021	<0.20
7	Elevator Lobby	LGRC-VWK-017	6/25/2021	0.22
9	902	LGRC-VWK-015	6/25/2021	<0.20
11	1105	LGRC-VWK-009	6/25/2021	0.32
13	1308	LGRC-VWK-013	6/25/2021	<0.20
15	1507	LGRC-VWK-011	6/25/2021	**1.30**

Notes:
Wipe samples collected in accordance with the standard wipe test method of 40 CFR 761.123 modified due to the narrow width of the area.
Samples submitted for extraction via USEPA method 3540C (Soxhlet Extraction) and analyzed for PCBs via USEPA method 8082A.

Table 2-3
Summary of Long Term Monitoring Indoor Air Sampling Results
UMass Amherst

Location	Air Sample	PCB Concentration (ng/cartridge)	Flow Rate (L/Minute)	Duration (minutes)	PCB Concentration (ng/m^3)
Project Action Level: 500 ng/m^3					
June 18, 2015	Average Recorded Temperature: Morning - 73 °F and Afternoon 74 °F				
Tower A - 403B	LGRC-403B-IAS-LT-011	35	2.79	240	53.5
Tower A -599A	LGRC-599A-IAS-LT-012	33	2.70	240	52.2
Tower A -903	LGRC-903-IAS-LT-013	16	2.78	240	24.7
Tower A -1105	LGRC-1105-IAS-LT-014	11	2.67	240	18.7
Tower A - 1506	LGRC-1506-IAS-LT-015	29	2.68	240	49.1
Low Rise - A106	LGRC-A106-IAS-LT-010	27	2.71	240	42.5
Ambient Air	LGRC-OUT-IAS-LT-016	0	2.68	240	0.0
June 21, 2016	Average Recorded Temperature: Morning - 77 °F and Afternoon 75 °F				
Tower A - 399A	LGRC-399A-IAS-005	32	2.66	365	33.8
Tower A -407	LGRC-407-IAS-007	46	2.67	361	49.4
Tower A - 606	LGRC-606-IAS-003	88	2.65	373	91.8
Tower A -1003C	LGRC-1003C-IAS-006	98	2.63	361	106.7
Tower A - 1606	LGRC-1606-IAS-002	63	2.67	378	64.3
Low Rise - A106	LGRC-A106-IAS-001	64	2.68	396	62.2
Ambient Air	LGRC-AMB-IAS-004	0	2.52	361	0.0
June 19, 2017	Average Recorded Temperature: Morning - 76 °F and Afternoon 79 °F				
Tower A - 299T	LGRC-299A-IAS-001	160	2.64	360	175.2
Tower A -399A	LGRC-399A-IAS-002	340	2.62	360	374.1
Tower A - 507	LGRC-507-IAS-003	86	2.68	360	92.3
Tower A -1303	LGRC-1303-IAS-004	73	2.65	360	79.1
Tower A - 1507	LGRC-1507-IAS-005	70	2.68	360	75.0
Low Rise - A106	LGRC-A106-IAS-007	17	2.66	360	18.3 J/UJ
Ambient Air	LGRC-AMB-IAS-006	0	2.62	360	0.0
June 25, 2018	Average Recorded Temperature: Morning - 74 °F and Afternoon 73 °F				
Tower A - 299T	LGRC-299-IAS-004	94	2.65	374	95.4
Tower A - 408	LGRC-408-IAS-003	19	2.65	373	19.3 UJ
Tower A - 899A	LGRC-899-IAS-002	22	2.63	369	23.4 UJ
Tower A - 1205	LGRC-1205-IAS-005	49	2.64	372	51.2
Tower A - 1606	LGRC-1606-IAS-001	80	2.65	371	101.7 UJ
Low Rise - A106	LGRC-A106-IAS-006	94	2.63	398	91.2
Ambient Air	LGRC-AMB-IAS-007	0	2.67	365	0.0
June 26, 2019	Average Recorded Temperature: Morning - 76 °F and Afternoon 77 °F				
Tower A - 399A	LGRC-399-IAS-01	315	3.61	360	250.9
Tower A - 503	LGRC-503-IAS-03	98	3.64	360	77.6
Tower A - 799A	LGRC-799A-IAS-02	31	3.63	360	24.6
Tower A - 901	LGRC-901-IAS-04	33	3.62	362	26.4
Tower A - 1404	LGRC-1404-IAS-05	111	3.63	362	87.5
Ambient Air	LGRC-Ambient-07	< 3	3.64	361	< 3

Table 2-3
Summary of Long Term Monitoring Indoor Air Sampling Results
UMass Amherst

Location	Air Sample	PCB Concentration (ng/cartridge)	Flow Rate (L/Minute)	Duration (minutes)	PCB Concentration (ng/m^3)
Project Action Level: 500 ng/m^3					
May 26, 2020	Average Recorded Temperature: Morning - 75 °F and Afternoon 78 °F				
Tower A - 199Y	LGRC-199Y-IAS-001	121	2.48	360	139.1
Tower A - 299T	LGRC-299T-IAS-002	100	2.47	360	116.1
Tower A - 506	LGRC-506-IAS-003	105	2.58	360	117.5
Tower A - 1106	LGRC-1106-IAS-004	68	2.53	373	74.6
Tower A - 1106	LGRC-1106-IASD-004	63	2.46	370	71.2
Tower A - 1512	LGRC-1512-IAS-005	112	2.55	361	126.0
Ambient Air	LGRC-Ambient-006	< 6	2.55	362	< 7
June 25, 2021	Average Recorded Temperature: Morning - 66 °F and Afternoon 71 °F				
Tower A - 199Y	LGRC-199Y-IAS-002	5.4	2.52	360	5.8
Tower A - 299T	LGRC-299T-IAS-003	70	2.61	360	72.2
Tower A - 399A	LGRC-399A-IAS-004	87	2.53	360	92.3
Tower A - 901	LGRC-901-IAS-005	46	2.53	362	49.1
Tower A - 1307	LGRC-1307-IAS-006	41	2.51	362	44.0
Ambient Air	LGRC-Ambient-001	< 5	2.53	360	<5

Notes:
Project Specific Risk-based Action Level based on the EPA's exposure levels for evaluating PCBs in indoor school air for students ages 19 plus and adults (July 2015).
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 the results of data validation. See Appendix A for additional information.

FIGURES

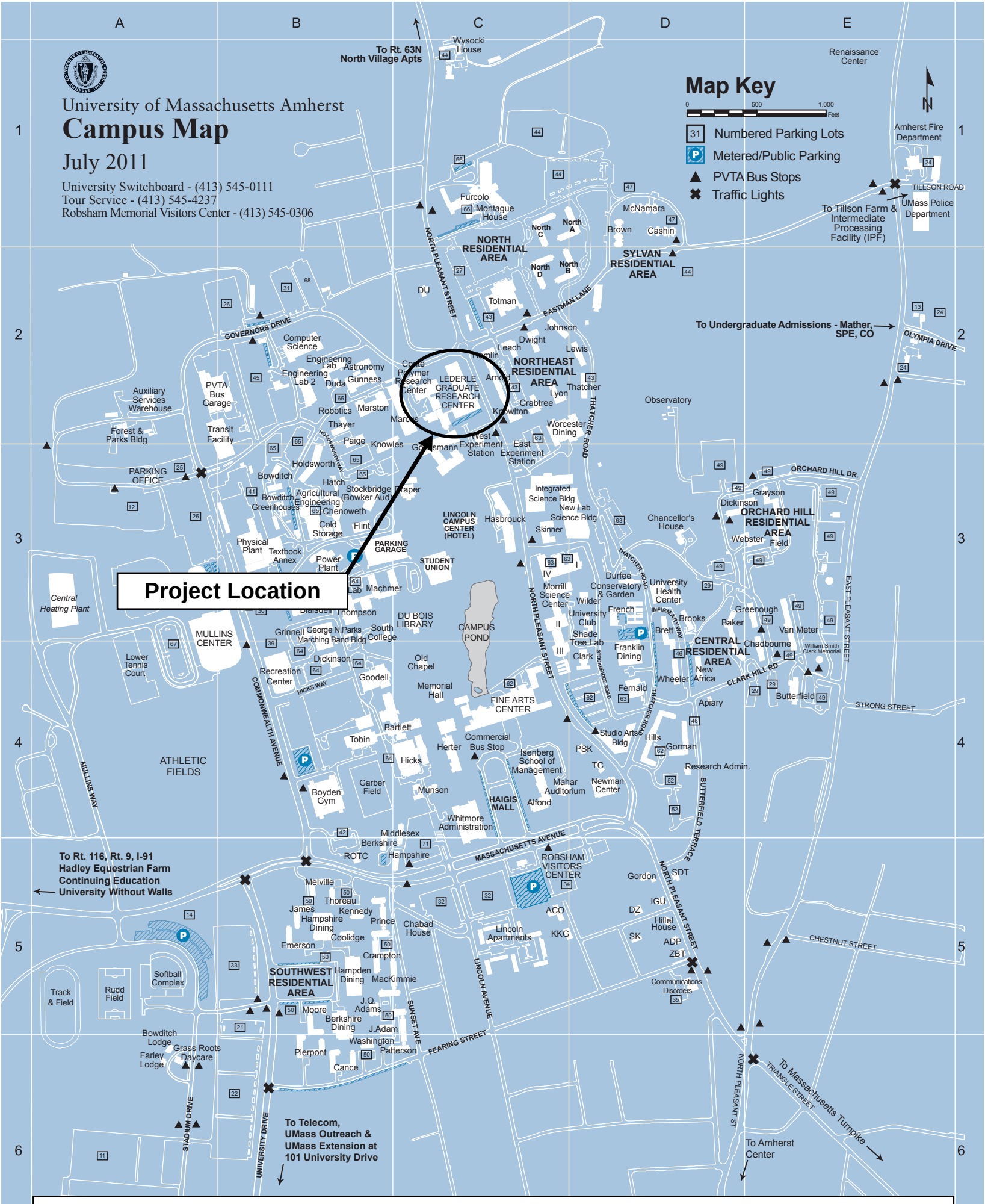
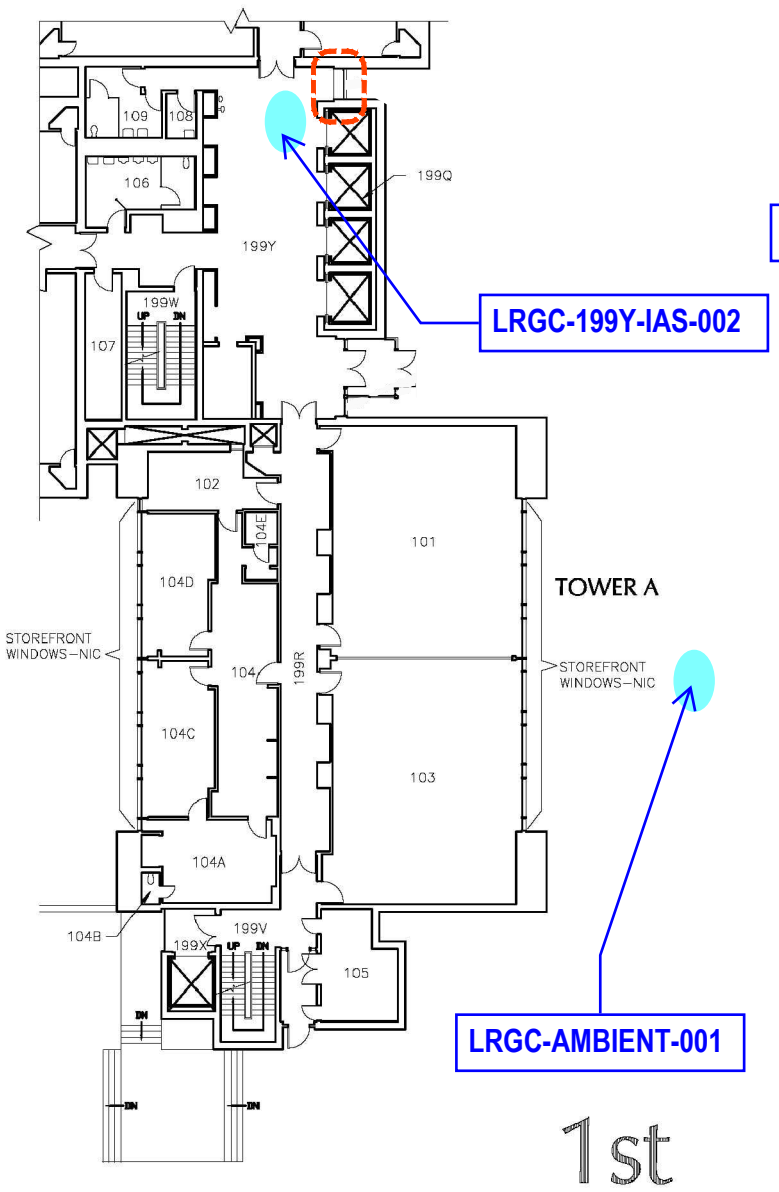
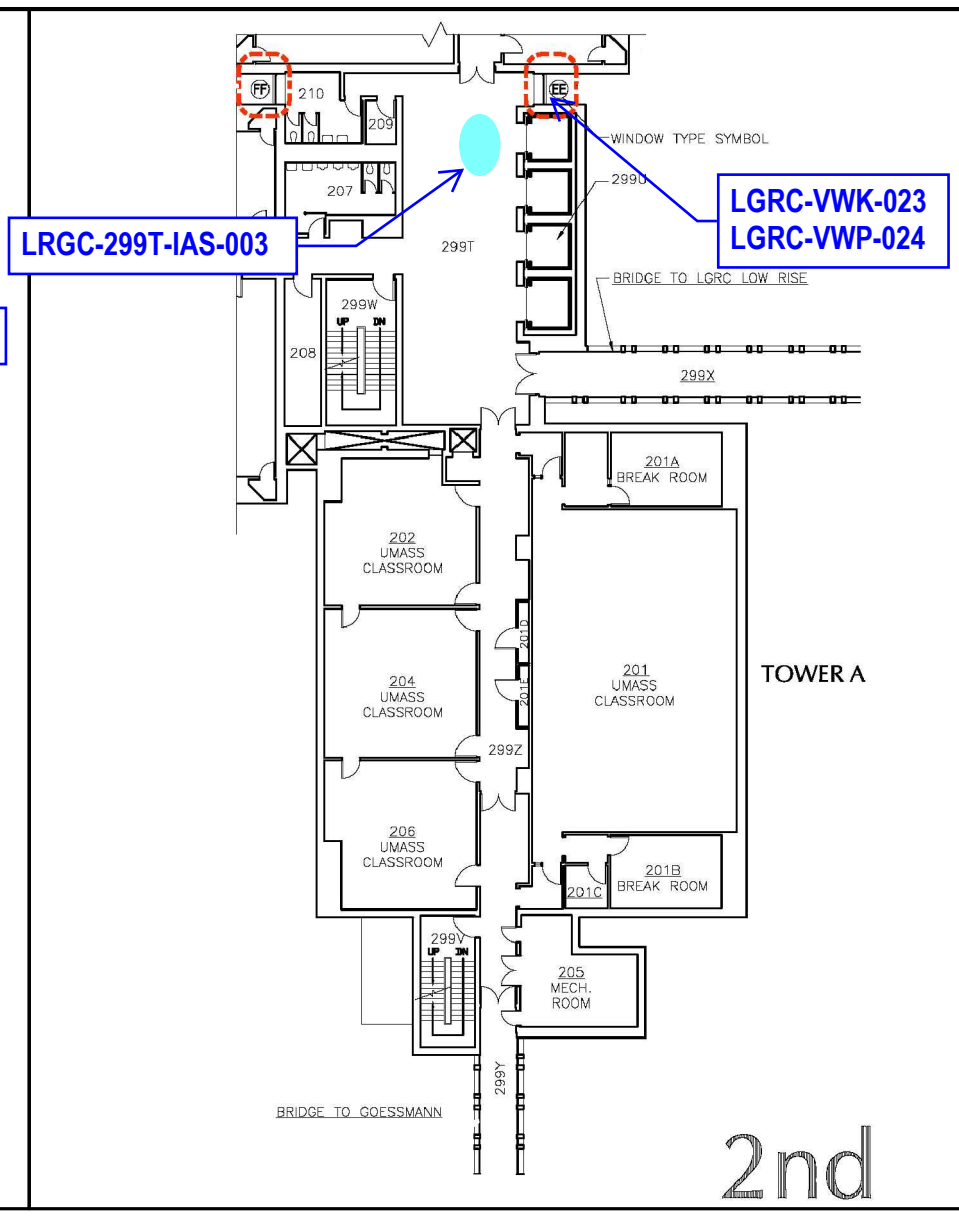


Figure 1-1 Site Location Map





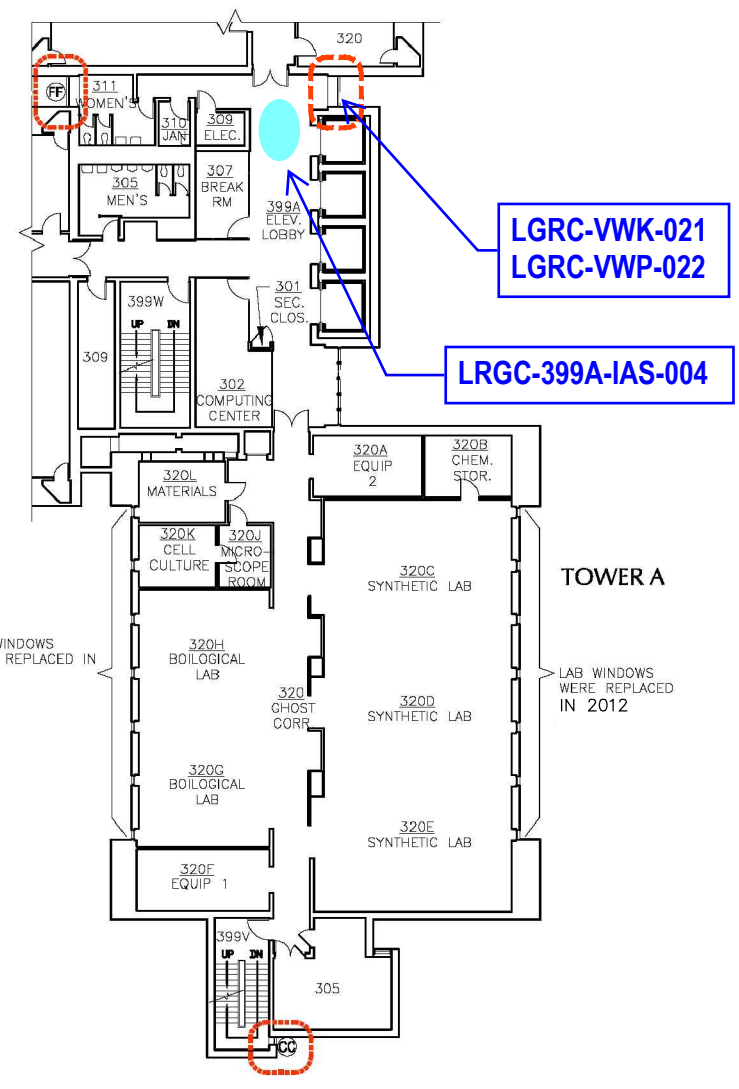
LEGEND

LOCATION OF WINDOWS/GLAZING SEALANTS INCLUDED IN THE INTERIM MEASURES AND SUBJECT TO LONG TERM MONITORING AND MAINTENANCE

2021 INDOOR AIR SAMPLE LOCATION

NOTE:

1. ORIGINAL DESIGN DRAWINGS BY GOLDMAN REINDORF ARCHITECTS INC.



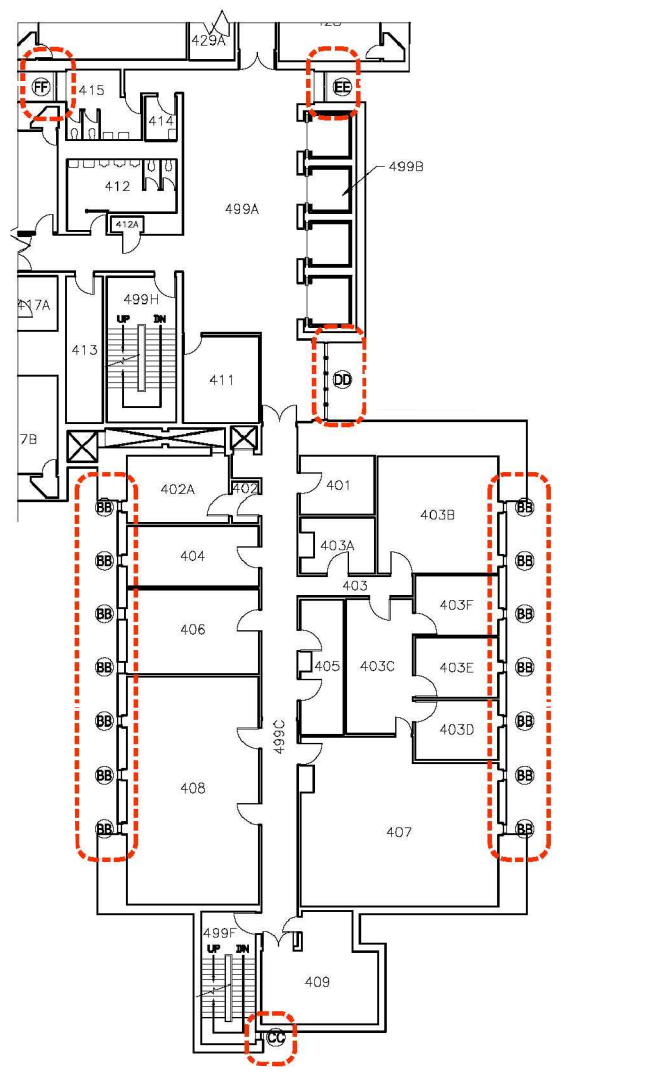


FIGURE 2-1	UMASS AMHERST LEDERLE GRADUATE RESEARCH CENTER MMIP	AREAS OF ENCAPSULATED MATERIALS TOWER A 1st–4th FLOORS
JOB NO: 210918 DATE: APRIL 2014 SCALE: NOT TO SCALE		DESIGNED BY: DRAWN BY: PF CHECKED BY: JAH MMIP–FIGURE 2–1.DWG

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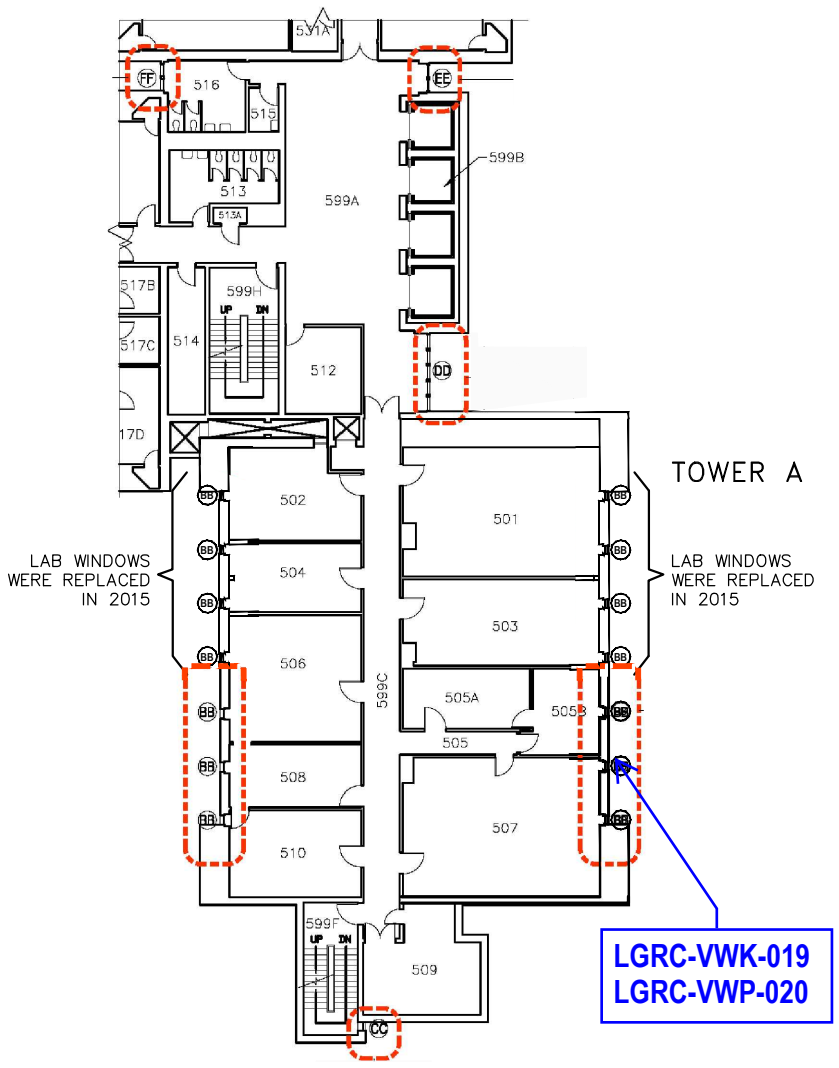
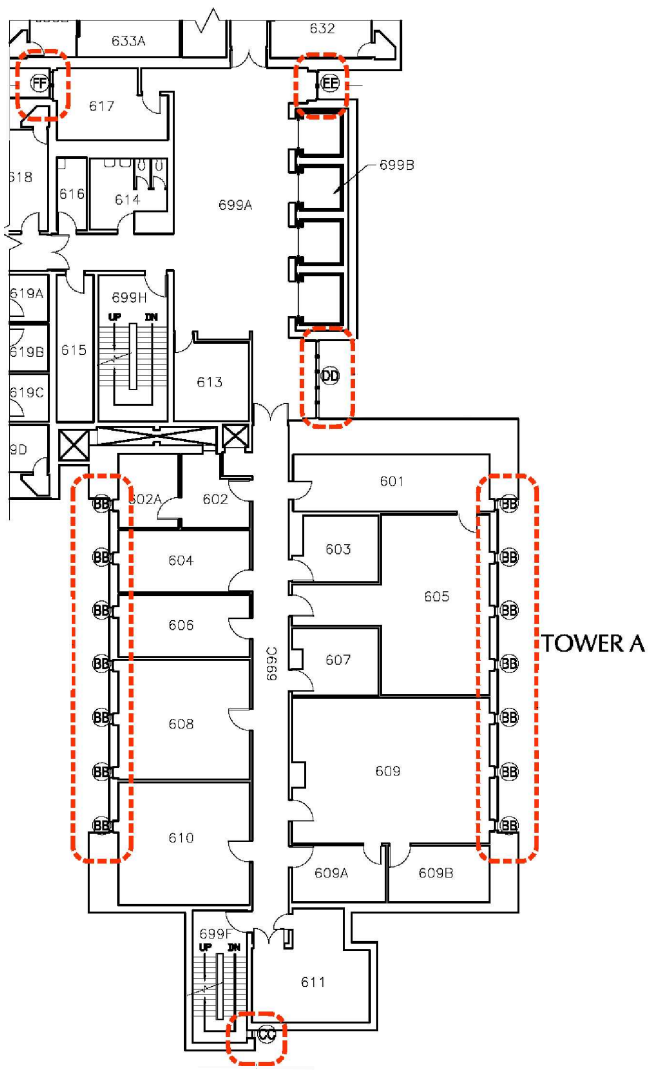




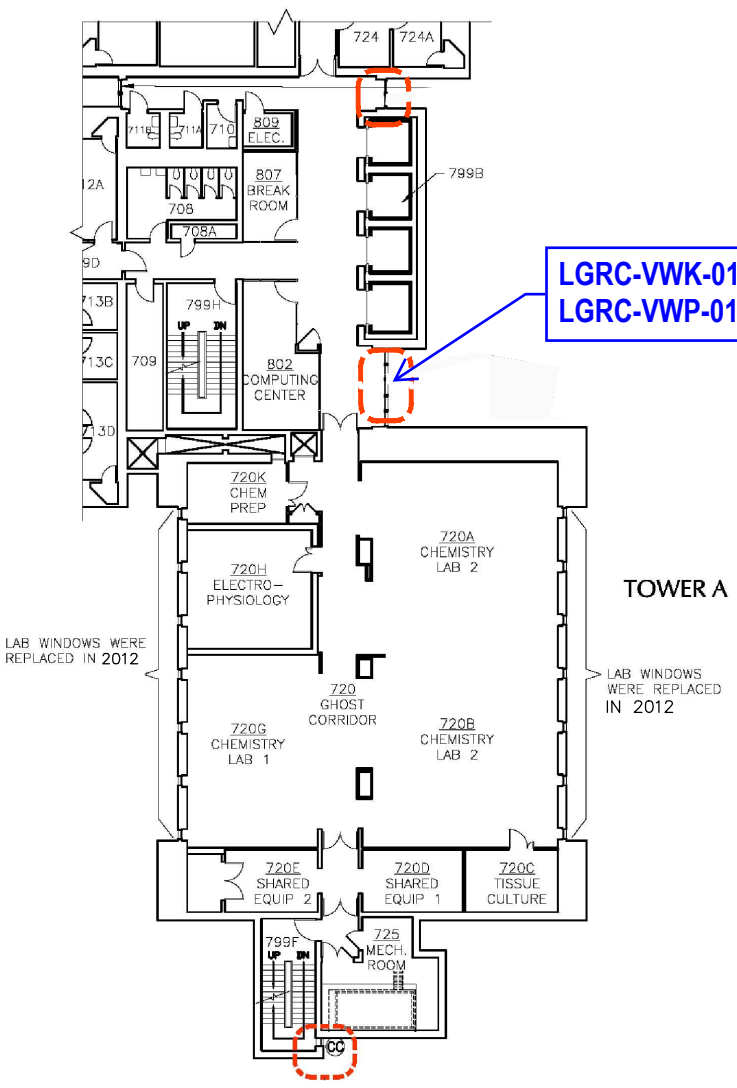
LEGEND

LOCATION OF WINDOWS/GLAZING SEALANTS INCLUDED IN THE INTERIM MEASURES AND SUBJECT TO LONG TERM MONITORING AND MAINTENANCE

2021 INDOOR AIR SAMPLE LOCATION

NOTE:

1. ORIGINAL DESIGN DRAWINGS BY GOLDMAN REINDORF ARCHITECTS INC.



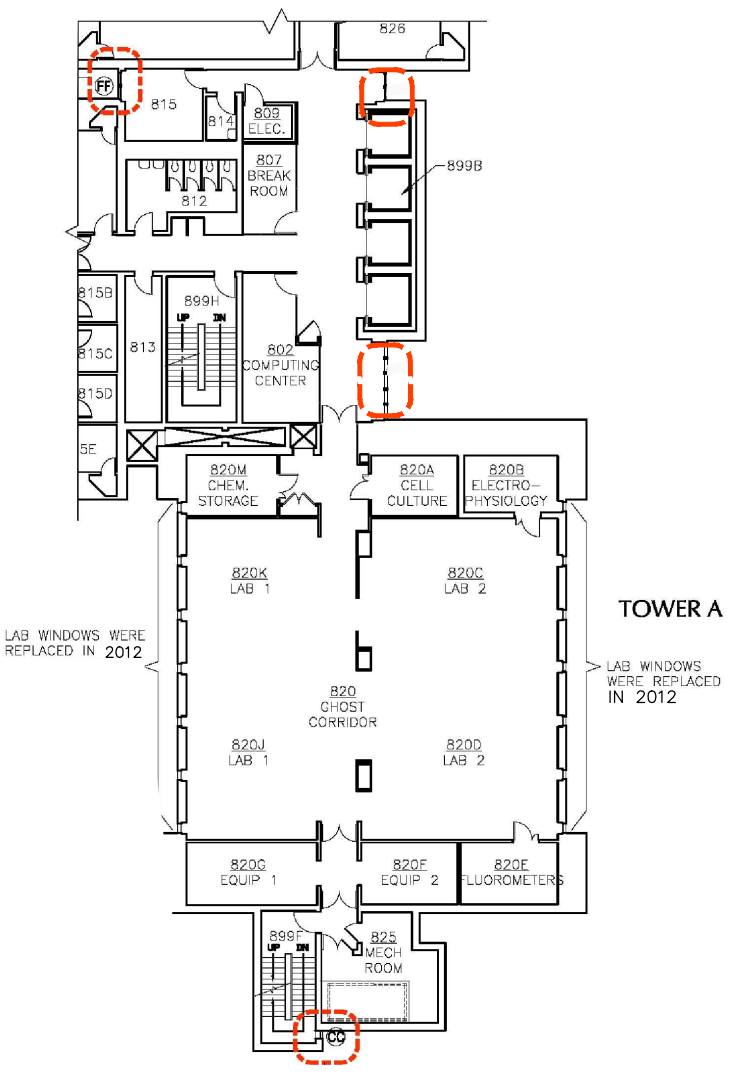


FIGURE 2-2

JOB NO: 225695.00
DATE: AUGUST 2020
SCALE: NOT TO SCALE

UMASS AMHERST
LEDERLE GRADUATE RESEARCH CENTER

MMIP

AREAS OF ENCAPSULATED MATERIALS
TOWER A 5th–8th FLOORS

DESIGNED BY: GF	CHECKED BY: JAH
DRAWN BY: PF	MMIP–FIGURE 2–2–B_R.DWG

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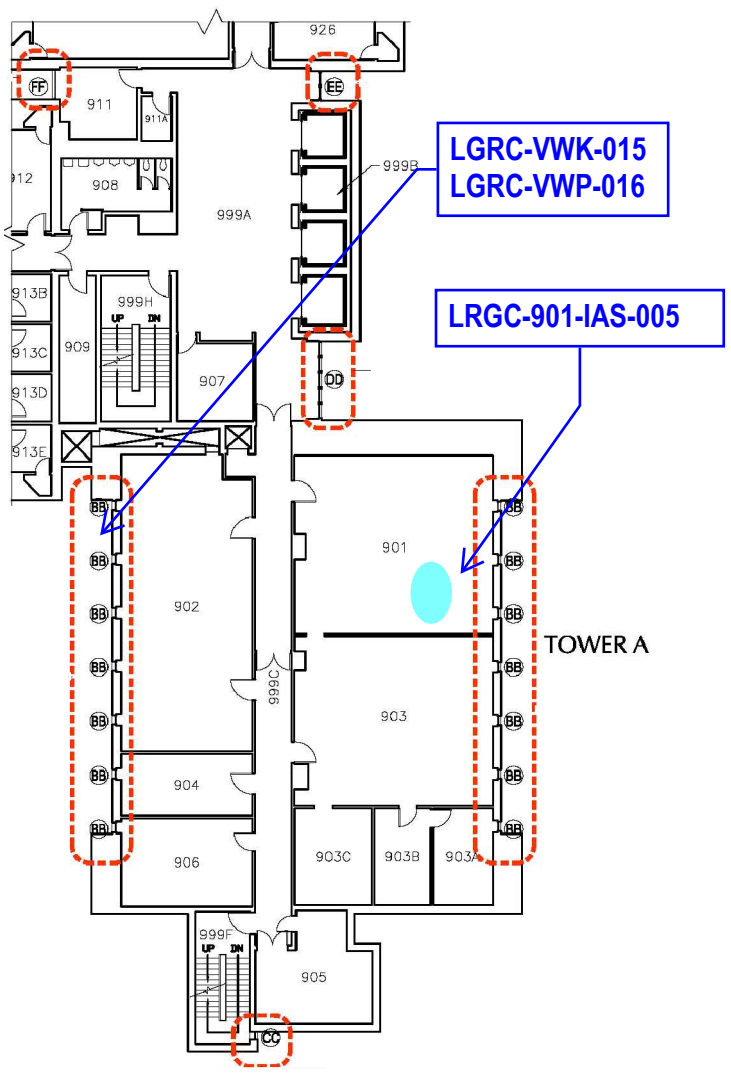
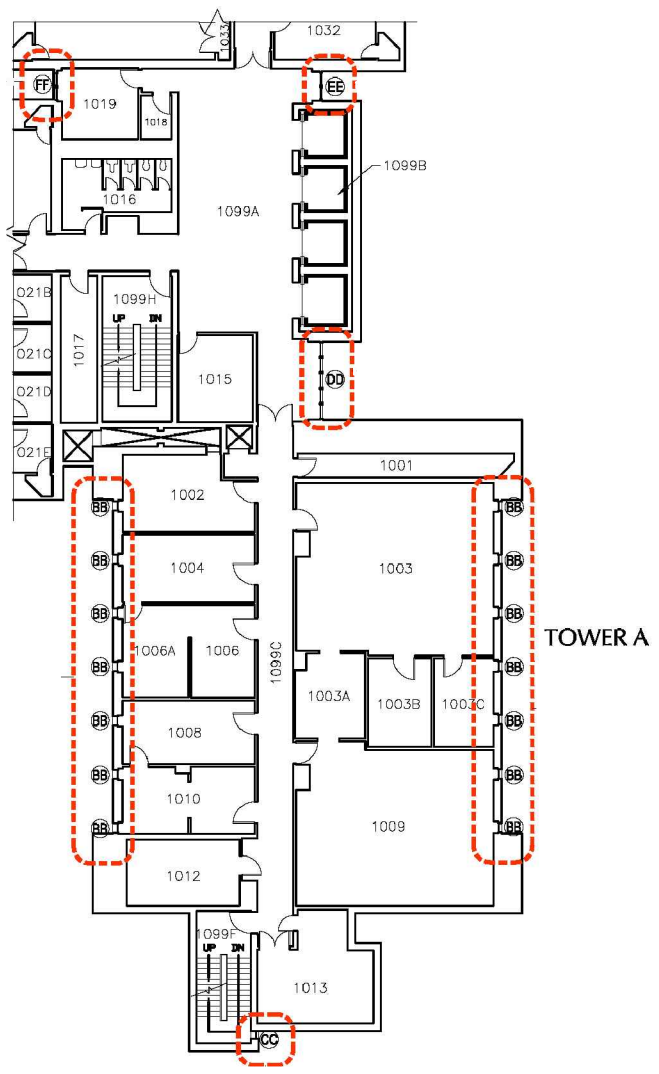
\\Woodardcurran.net\shares\Projects\225695 UMass Amherst – Long Term Monitoring\wip\Drawings\LGRC Floor Plans\MMIP–Figure 2–2–B_R.dwg



9th



10th

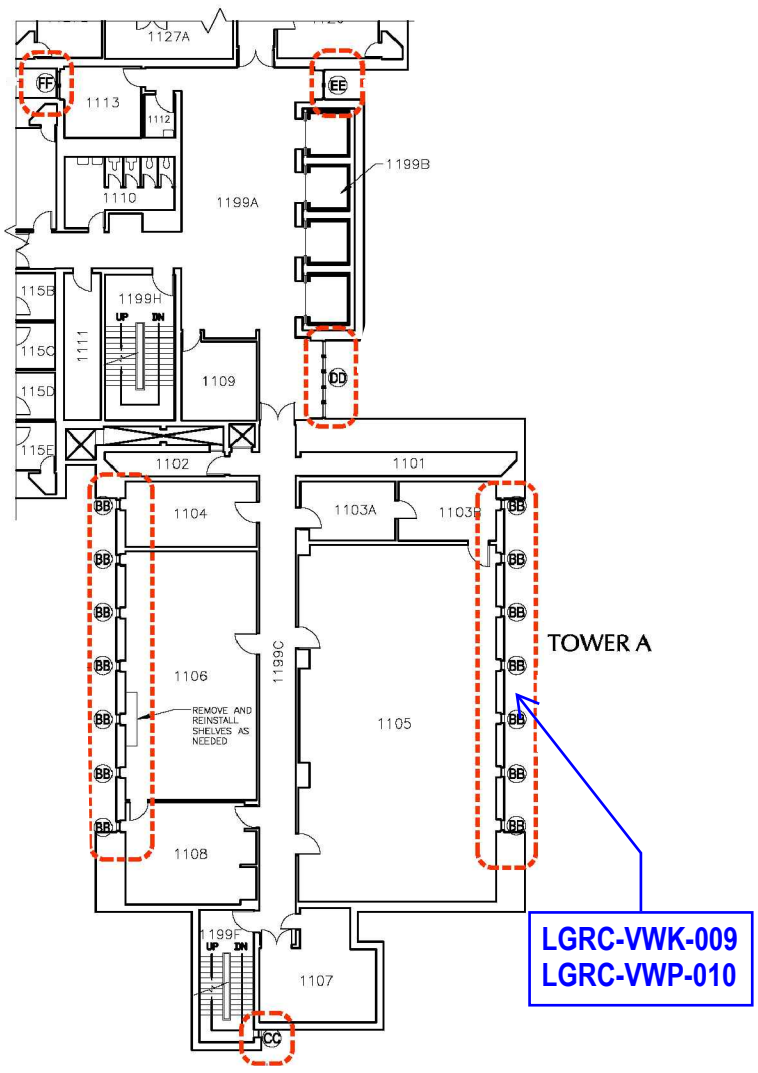
LEGEND

LOCATION OF WINDOWS/GLAZING SEALANTS INCLUDED IN THE INTERIM MEASURES AND SUBJECT TO LONG TERM MONITORING AND MAINTENANCE

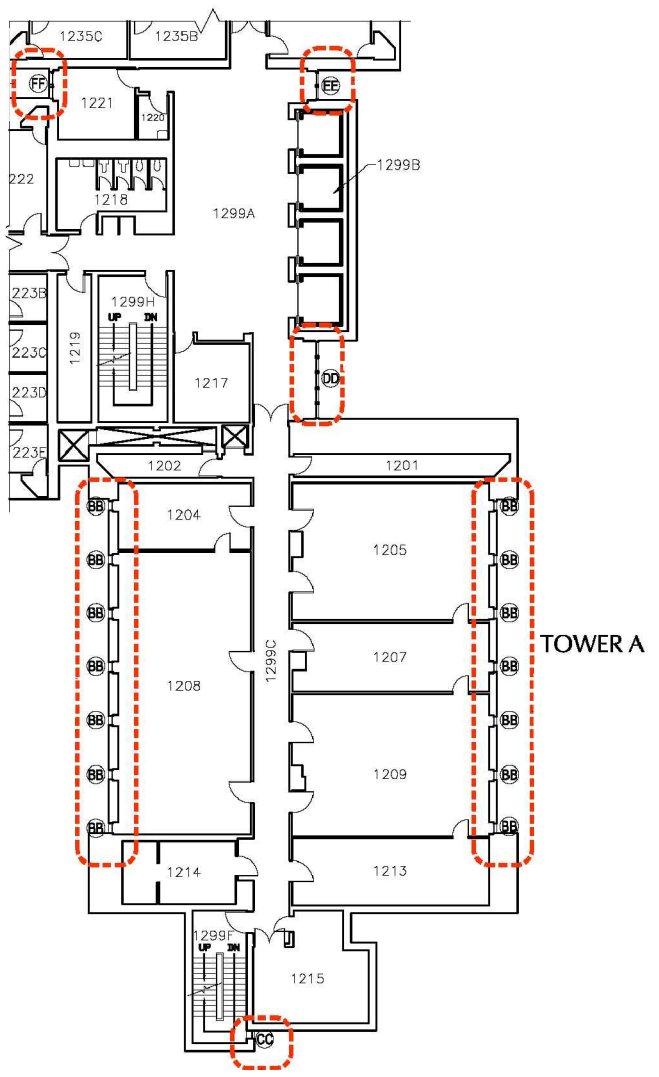
2021 INDOOR AIR SAMPLE LOCATION

NOTE:

1. ORIGINAL DESIGN DRAWINGS BY GOLDMAN REINDORF ARCHITECTS INC.

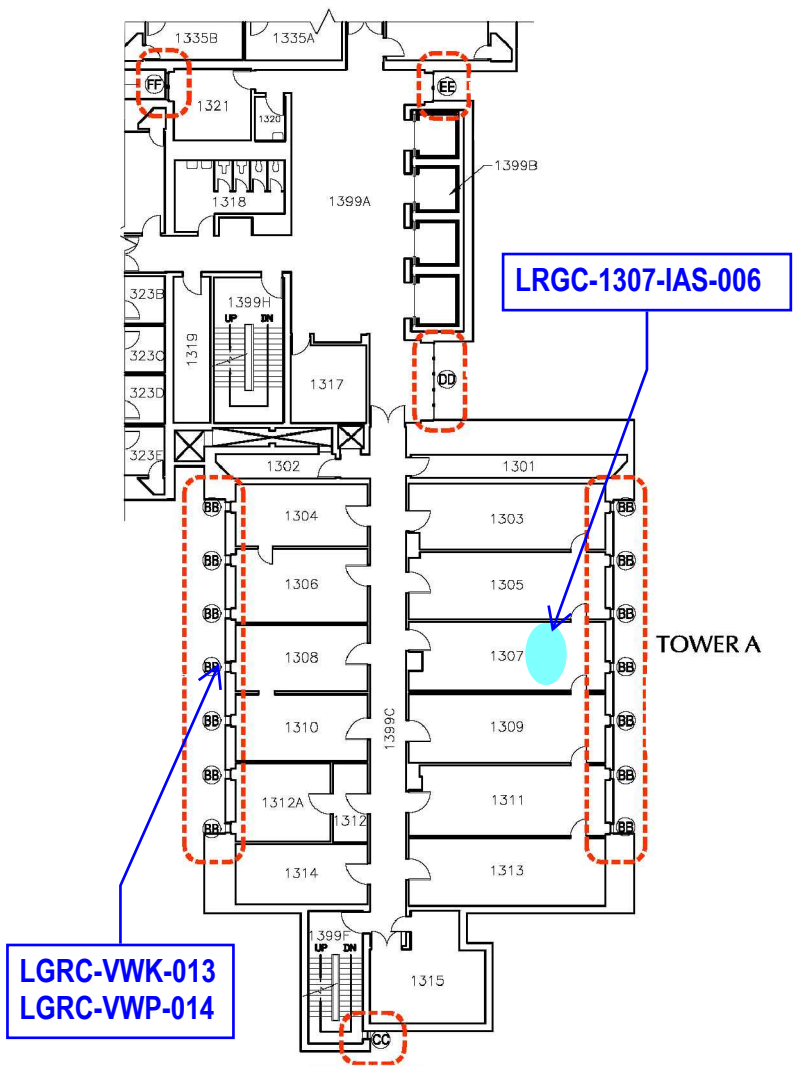


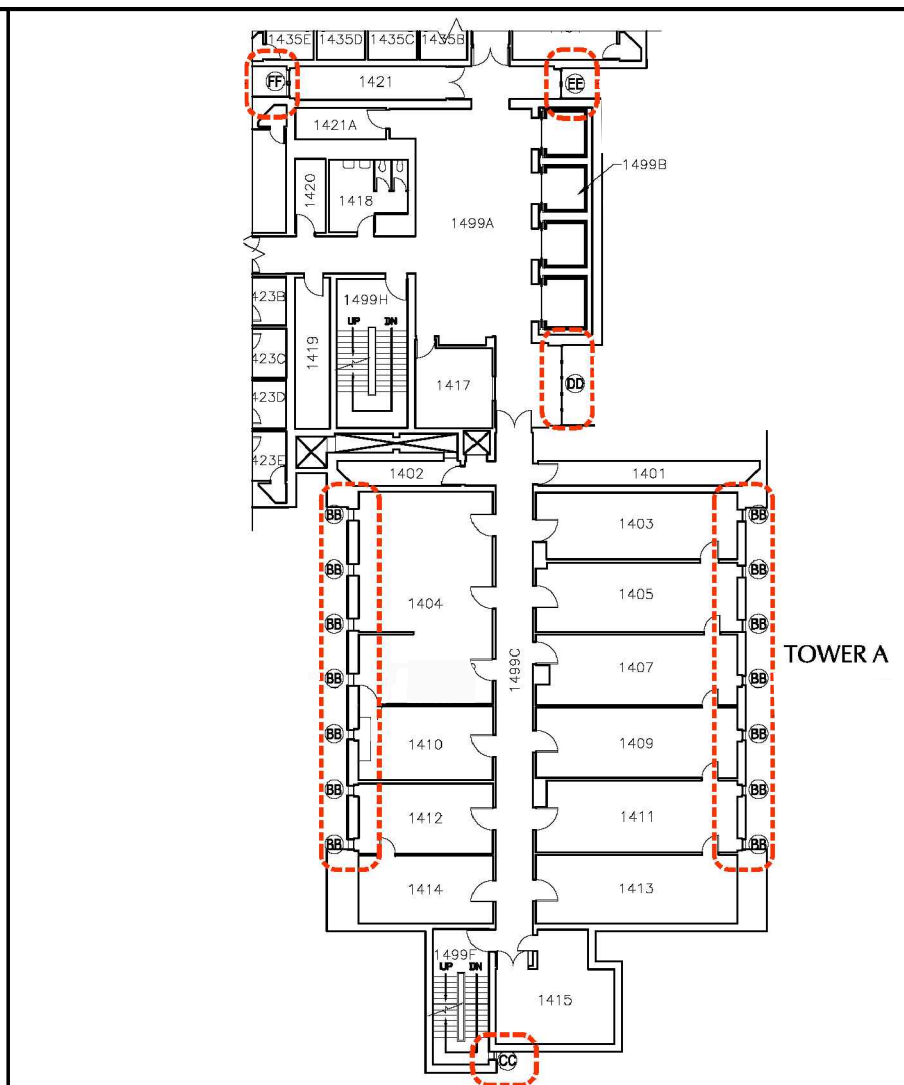
11th



12th

FIGURE 2-3	UMASS AMHERST LEDERLE GRADUATE RESEARCH CENTER	AREAS OF ENCAPSULATED MATERIALS TOWER A 9th–12th FLOORS	WOODARD & CURRAN 40 Shattuck Road | Suite 110 Andover, Massachusetts 01810 866.702.6371 | www.woodardcurran.com COMMITMENT & INTEGRITY DRIVE RESULTS
JOB NO: 210918 DATE: APRIL 2014 SCALE: NOT TO SCALE	MMIP	DESIGNED BY: PF DRAWN BY: PF CHECKED BY: JAH MMIP–FIGURE 2–3.DWG	





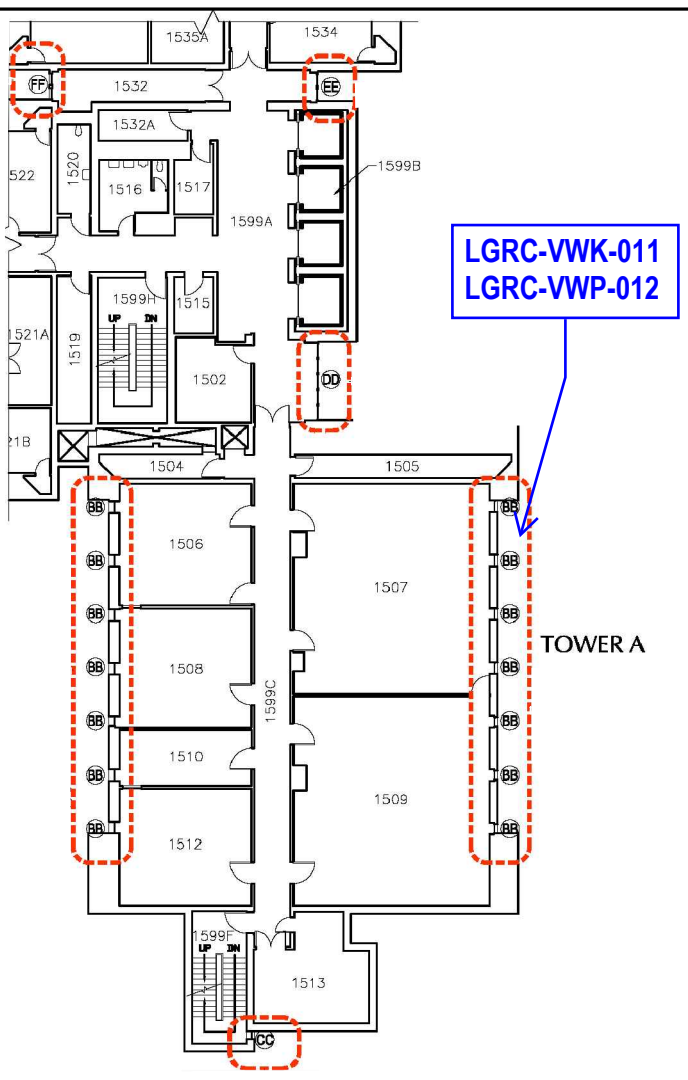
LEGEND

LOCATION OF WINDOWS/GLAZING SEALANTS INCLUDED IN THE INTERIM MEASURES AND SUBJECT TO LONG TERM MONITORING AND MAINTENANCE

2021 INDOOR AIR SAMPLE LOCATION

NOTE:

ORIGINAL DESIGN DRAWINGS BY GOLDMAN REINDORF ARCHITECTS INC.



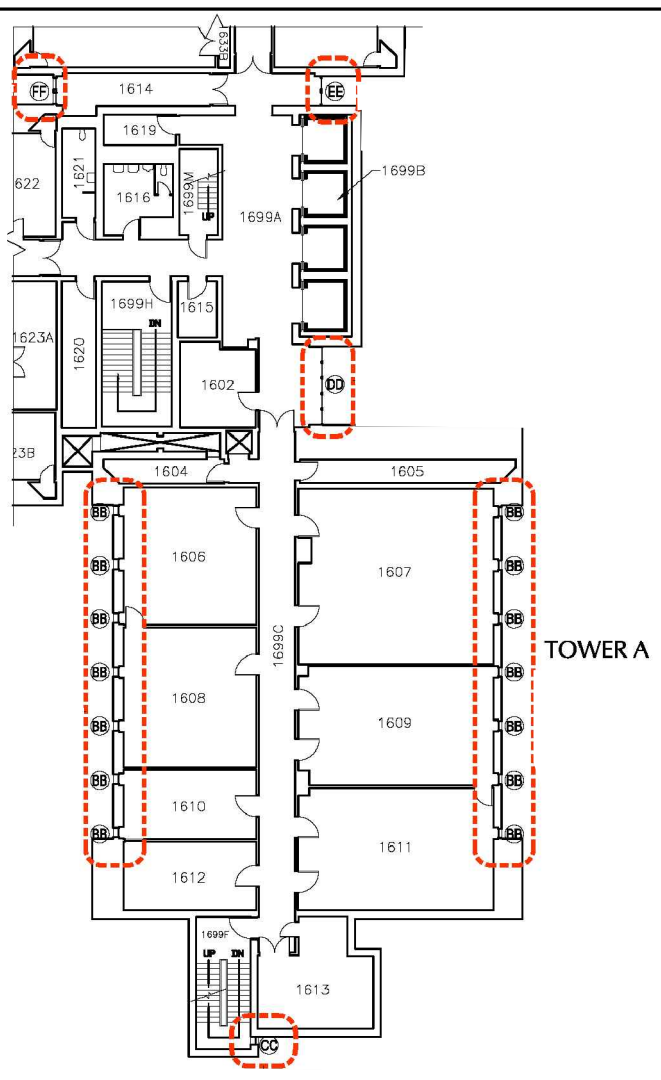


FIGURE 2-4	JOB NO: 210918 DATE: APRIL 2014 SCALE: NOT TO SCALE	UMASS AMHERST LEDERLE GRADUATE RESEARCH CENTER MMIP	AREAS OF ENCAPSULATED MATERIALS TOWER A 13th–16th FLOORS DESIGNED BY: / CHECKED BY: JAH DRAWN BY: PF / MMIP–FIGURE 2–4_2–5.DWG

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APPENDIX A: ANALYTICAL LABORATORY REPORTS

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July 6, 2021

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

Project Location: Amherst, MA
Client Job Number:
Project Number: 210918
Laboratory Work Order Number: 21F1748

Enclosed are results of analyses for samples received by the laboratory on June 28, 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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Table of Contents (continued)

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

REPORT DATE: 7/6/2021

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 210918

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 21F1748

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
LGRC-VWK-009	21F1748-01	Wipe		SW-846 8082A	
LGRC-VWP-010	21F1748-02	Wipe		SW-846 8082A	
LGRC-VWK-011	21F1748-03	Wipe		SW-846 8082A	
LGRC-VWP-012	21F1748-04	Wipe		SW-846 8082A	
LGRC-VWK-013	21F1748-05	Wipe		SW-846 8082A	
LGRC-VWP-014	21F1748-06	Wipe		SW-846 8082A	
LGRC-VWK-015	21F1748-07	Wipe		SW-846 8082A	
LGRC-VWP-016	21F1748-08	Wipe		SW-846 8082A	
LGRC-VWK-017	21F1748-09	Wipe		SW-846 8082A	
LGRC-VWP-018	21F1748-10	Wipe		SW-846 8082A	
LGRC-VWK-019	21F1748-11	Wipe		SW-846 8082A	
LGRC-VWP-020	21F1748-12	Wipe		SW-846 8082A	
LGRC-VWK-021	21F1748-13	Wipe		SW-846 8082A	
LGRC-VWP-022	21F1748-14	Wipe		SW-846 8082A	
LGRC-VWK-023	21F1748-15	Wipe		SW-846 8082A	
LGRC-VWP-024	21F1748-16	Wipe		SW-846 8082A	
LGRC-VWPD-024	21F1748-17	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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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Amherst, MA | Sample Description: | Work Order: 21F1748

Date Received: 6/28/2021

Field Sample #: LGRC-VWK-009 | Sampled: 6/25/2021 10:00

Sample ID: 21F1748-01

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:21	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:21	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:21	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:21	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:21	TG
Aroclor-1254 [1]	0.32	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:21	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:21	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:21	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:21	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	85.1	30-150		7/2/21 20:21
Decachlorobiphenyl [2]	89.1	30-150		7/2/21 20:21
Tetrachloro-m-xylene [1]	75.8	30-150		7/2/21 20:21
Tetrachloro-m-xylene [2]	77.7	30-150		7/2/21 20:21

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Project Location: Amherst, MA | Sample Description: | Work Order: 21F1748

Date Received: 6/28/2021

Field Sample #: LGRC-VWP-010 | Sampled: 6/25/2021 10:10

Sample ID: 21F1748-02

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:39	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:39	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:39	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:39	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:39	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:39	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:39	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:39	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:39	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	87.4	30-150		7/2/21 20:39
Decachlorobiphenyl [2]	92.3	30-150		7/2/21 20:39
Tetrachloro-m-xylene [1]	80.0	30-150		7/2/21 20:39
Tetrachloro-m-xylene [2]	82.1	30-150		7/2/21 20:39

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Project Location: Amherst, MA | Sample Description: | Work Order: 21F1748

Date Received: 6/28/2021

Field Sample #: LGRC-VWK-011 | Sampled: 6/25/2021 10:20

Sample ID: 21F1748-03

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:57	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:57	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:57	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:57	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:57	TG
Aroclor-1254 [1]	1.3	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:57	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:57	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:57	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 20:57	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	87.5	30-150		7/2/21 20:57
Decachlorobiphenyl [2]	91.8	30-150		7/2/21 20:57
Tetrachloro-m-xylene [1]	77.9	30-150		7/2/21 20:57
Tetrachloro-m-xylene [2]	80.3	30-150		7/2/21 20:57

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Project Location: Amherst, MA | Sample Description: | Work Order: 21F1748

Date Received: 6/28/2021

Field Sample #: LGRC-VWP-012 | Sampled: 6/25/2021 10:25

Sample ID: 21F1748-04

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:15	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:15	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:15	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:15	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:15	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:15	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:15	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:15	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:15	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	84.7	30-150		7/2/21 21:15
Decachlorobiphenyl [2]	89.1	30-150		7/2/21 21:15
Tetrachloro-m-xylene [1]	70.3	30-150		7/2/21 21:15
Tetrachloro-m-xylene [2]	72.8	30-150		7/2/21 21:15

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Project Location: Amherst, MA | Sample Description: | Work Order: 21F1748

Date Received: 6/28/2021

Field Sample #: LGRC-VWK-013 | Sampled: 6/25/2021 10:35

Sample ID: 21F1748-05

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:33	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:33	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:33	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:33	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:33	TG
Aroclor-1254 [2]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:33	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:33	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:33	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:33	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	87.7	30-150		7/2/21 21:33
Decachlorobiphenyl [2]	91.1	30-150		7/2/21 21:33
Tetrachloro-m-xylene [1]	81.0	30-150		7/2/21 21:33
Tetrachloro-m-xylene [2]	83.6	30-150		7/2/21 21:33

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Project Location: Amherst, MA | Sample Description: | Work Order: 21F1748

Date Received: 6/28/2021

Field Sample #: LGRC-VWP-014 | Sampled: 6/25/2021 10:40

Sample ID: 21F1748-06

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:51	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:51	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:51	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:51	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:51	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:51	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:51	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:51	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 21:51	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	76.8	30-150		7/2/21 21:51
Decachlorobiphenyl [2]	81.3	30-150		7/2/21 21:51
Tetrachloro-m-xylene [1]	67.3	30-150		7/2/21 21:51
Tetrachloro-m-xylene [2]	69.3	30-150		7/2/21 21:51

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Project Location: Amherst, MA | Sample Description: | Work Order: 21F1748

Date Received: 6/28/2021

Field Sample #: LGRC-VWK-015 | Sampled: 6/25/2021 11:00

Sample ID: 21F1748-07

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 22:09	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 22:09	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 22:09	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 22:09	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 22:09	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 22:09	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 22:09	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 22:09	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 22:09	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	85.6	30-150		7/2/21 22:09
Decachlorobiphenyl [2]	90.2	30-150		7/2/21 22:09
Tetrachloro-m-xylene [1]	78.2	30-150		7/2/21 22:09
Tetrachloro-m-xylene [2]	80.5	30-150		7/2/21 22:09

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Project Location: Amherst, MA | Sample Description: | Work Order: 21F1748

Date Received: 6/28/2021

Field Sample #: LGRC-VWP-016 | Sampled: 6/25/2021 11:10

Sample ID: 21F1748-08

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 23:33	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 23:33	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 23:33	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 23:33	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 23:33	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 23:33	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 23:33	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 23:33	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 23:33	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	75.4	30-150		7/2/21 23:33
Decachlorobiphenyl [2]	79.4	30-150		7/2/21 23:33
Tetrachloro-m-xylene [1]	71.8	30-150		7/2/21 23:33
Tetrachloro-m-xylene [2]	72.9	30-150		7/2/21 23:33

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Project Location: Amherst, MA | Sample Description: | Work Order: 21F1748

Date Received: 6/28/2021

Field Sample #: LGRC-VWK-017 | Sampled: 6/25/2021 11:15

Sample ID: 21F1748-09

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	6/29/21	7/2/21 23:51	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 23:51	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 23:51	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 23:51	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 23:51	TG
Aroclor-1254 [1]	0.22	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 23:51	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 23:51	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 23:51	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/2/21 23:51	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	83.5	30-150		7/2/21 23:51
Decachlorobiphenyl [2]	88.2	30-150		7/2/21 23:51
Tetrachloro-m-xylene [1]	69.7	30-150		7/2/21 23:51
Tetrachloro-m-xylene [2]	71.6	30-150		7/2/21 23:51

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Project Location: Amherst, MA | Sample Description: | Work Order: 21F1748

Date Received: 6/28/2021

Field Sample #: LGRC-VWP-018 | Sampled: 6/25/2021 11:20

Sample ID: 21F1748-10

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	6/29/21	7/3/21 0:09	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:09	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:09	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:09	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:09	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:09	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:09	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:09	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:09	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	77.5	30-150		7/3/21 0:09
Decachlorobiphenyl [2]	81.6	30-150		7/3/21 0:09
Tetrachloro-m-xylene [1]	78.1	30-150		7/3/21 0:09
Tetrachloro-m-xylene [2]	80.1	30-150		7/3/21 0:09

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Project Location: Amherst, MA | Sample Description: | Work Order: 21F1748

Date Received: 6/28/2021

Field Sample #: LGRC-VWK-019 | Sampled: 6/25/2021 11:30

Sample ID: 21F1748-11

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	6/29/21	7/3/21 0:27	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:27	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:27	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:27	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:27	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:27	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:27	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:27	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:27	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	72.9	30-150		7/3/21 0:27
Decachlorobiphenyl [2]	76.6	30-150		7/3/21 0:27
Tetrachloro-m-xylene [1]	69.0	30-150		7/3/21 0:27
Tetrachloro-m-xylene [2]	70.5	30-150		7/3/21 0:27

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Project Location: Amherst, MA | Sample Description: | Work Order: 21F1748

Date Received: 6/28/2021

Field Sample #: LGRC-VWP-020 | Sampled: 6/25/2021 11:35

Sample ID: 21F1748-12

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	6/29/21	7/3/21 0:45	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:45	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:45	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:45	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:45	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:45	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:45	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:45	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 0:45	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	83.6	30-150		7/3/21 0:45
Decachlorobiphenyl [2]	87.2	30-150		7/3/21 0:45
Tetrachloro-m-xylene [1]	78.6	30-150		7/3/21 0:45
Tetrachloro-m-xylene [2]	78.9	30-150		7/3/21 0:45

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Project Location: Amherst, MA | Sample Description: | Work Order: 21F1748

Date Received: 6/28/2021

Field Sample #: LGRC-VWK-021 | Sampled: 6/25/2021 11:40

Sample ID: 21F1748-13

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:03	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:03	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:03	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:03	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:03	TG
Aroclor-1254 [1]	0.42	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:03	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:03	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:03	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:03	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	86.6	30-150		7/3/21 1:03
Decachlorobiphenyl [2]	91.9	30-150		7/3/21 1:03
Tetrachloro-m-xylene [1]	80.5	30-150		7/3/21 1:03
Tetrachloro-m-xylene [2]	82.6	30-150		7/3/21 1:03

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Project Location: Amherst, MA | Sample Description: | Work Order: 21F1748

Date Received: 6/28/2021

Field Sample #: LGRC-VWP-022 | Sampled: 6/25/2021 11:45

Sample ID: 21F1748-14

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	6/29/21	7/3/21 1:21	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:21	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:21	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:21	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:21	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:21	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:21	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:21	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:21	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	84.0	30-150		7/3/21 1:21
Decachlorobiphenyl [2]	89.2	30-150		7/3/21 1:21
Tetrachloro-m-xylene [1]	76.3	30-150		7/3/21 1:21
Tetrachloro-m-xylene [2]	78.5	30-150		7/3/21 1:21

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Project Location: Amherst, MA | Sample Description: | Work Order: 21F1748

Date Received: 6/28/2021

Field Sample #: LGRC-VWK-023 | Sampled: 6/25/2021 11:50

Sample ID: 21F1748-15

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:38	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:38	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:38	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:38	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:38	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:38	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:38	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:38	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:38	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	84.0	30-150		7/3/21 1:38
Decachlorobiphenyl [2]	89.1	30-150		7/3/21 1:38
Tetrachloro-m-xylene [1]	75.4	30-150		7/3/21 1:38
Tetrachloro-m-xylene [2]	77.6	30-150		7/3/21 1:38

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Project Location: Amherst, MA | Sample Description: | Work Order: 21F1748

Date Received: 6/28/2021

Field Sample #: LGRC-VWP-024 | Sampled: 6/25/2021 11:55

Sample ID: 21F1748-16

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:56	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:56	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:56	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:56	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:56	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:56	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:56	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:56	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 1:56	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	75.6	30-150		7/3/21 1:56
Decachlorobiphenyl [2]	80.5	30-150		7/3/21 1:56
Tetrachloro-m-xylene [1]	52.8	30-150		7/3/21 1:56
Tetrachloro-m-xylene [2]	54.8	30-150		7/3/21 1:56

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Project Location: Amherst, MA | Sample Description: | Work Order: 21F1748

Date Received: 6/28/2021

Field Sample #: LGRC-VWPD-024 | Sampled: 6/25/2021 11:55

Sample ID: 21F1748-17

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 2:14	TG
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 2:14	TG
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 2:14	TG
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 2:14	TG
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 2:14	TG
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 2:14	TG
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 2:14	TG
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 2:14	TG
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/29/21	7/3/21 2:14	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	85.5	30-150		7/3/21 2:14
Decachlorobiphenyl [2]	90.9	30-150		7/3/21 2:14
Tetrachloro-m-xylene [1]	75.6	30-150		7/3/21 2:14
Tetrachloro-m-xylene [2]	78.1	30-150		7/3/21 2:14

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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
21F1748-01 [LGRC-VWK-009]	B284954	1.00	10.0	06/29/21
21F1748-02 [LGRC-VWP-010]	B284954	1.00	10.0	06/29/21
21F1748-03 [LGRC-VWK-011]	B284954	1.00	10.0	06/29/21
21F1748-04 [LGRC-VWP-012]	B284954	1.00	10.0	06/29/21
21F1748-05 [LGRC-VWK-013]	B284954	1.00	10.0	06/29/21
21F1748-06 [LGRC-VWP-014]	B284954	1.00	10.0	06/29/21
21F1748-07 [LGRC-VWK-015]	B284954	1.00	10.0	06/29/21
21F1748-08 [LGRC-VWP-016]	B284954	1.00	10.0	06/29/21
21F1748-09 [LGRC-VWK-017]	B284954	1.00	10.0	06/29/21
21F1748-10 [LGRC-VWP-018]	B284954	1.00	10.0	06/29/21
21F1748-11 [LGRC-VWK-019]	B284954	1.00	10.0	06/29/21
21F1748-12 [LGRC-VWP-020]	B284954	1.00	10.0	06/29/21
21F1748-13 [LGRC-VWK-021]	B284954	1.00	10.0	06/29/21
21F1748-14 [LGRC-VWP-022]	B284954	1.00	10.0	06/29/21
21F1748-15 [LGRC-VWK-023]	B284954	1.00	10.0	06/29/21
21F1748-16 [LGRC-VWP-024]	B284954	1.00	10.0	06/29/21
21F1748-17 [LGRC-VWPD-024]	B284954	1.00	10.0	06/29/21

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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 B284954 - SW-846 3540C										
Blank (B284954-BLK1)				Prepared: 06/29/21 Analyzed: 07/02/21						
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	*1.82*		µg/Wipe	2.00		90.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.91*		µg/Wipe	2.00		95.4	30-150			
Surrogate: Tetrachloro-m-xylene	*1.47*		µg/Wipe	2.00		73.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.48*		µg/Wipe	2.00		74.0	30-150			
LCS (B284954-BS1)				Prepared: 06/29/21 Analyzed: 07/02/21						
Aroclor-1016	0.45	0.20	µg/Wipe	0.500		89.7	40-140			
Aroclor-1016 [2C]	0.46	0.20	µg/Wipe	0.500		91.3	40-140			
Aroclor-1260	0.43	0.20	µg/Wipe	0.500		86.2	40-140			
Aroclor-1260 [2C]	0.44	0.20	µg/Wipe	0.500		87.8	40-140			
Surrogate: Decachlorobiphenyl	*1.83*		µg/Wipe	2.00		91.6	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.91*		µg/Wipe	2.00		95.4	30-150			
Surrogate: Tetrachloro-m-xylene	*1.49*		µg/Wipe	2.00		74.3	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.50*		µg/Wipe	2.00		75.0	30-150			
LCS Dup (B284954-BSD1)				Prepared: 06/29/21 Analyzed: 07/02/21						
Aroclor-1016	0.42	0.20	µg/Wipe	0.500		85.0	40-140	5.36	30	
Aroclor-1016 [2C]	0.42	0.20	µg/Wipe	0.500		84.5	40-140	7.76	30	
Aroclor-1260	0.43	0.20	µg/Wipe	0.500		85.3	40-140	1.13	30	
Aroclor-1260 [2C]	0.41	0.20	µg/Wipe	0.500		82.9	40-140	5.72	30	
Surrogate: Decachlorobiphenyl	*1.79*		µg/Wipe	2.00		89.5	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.86*		µg/Wipe	2.00		93.0	30-150			
Surrogate: Tetrachloro-m-xylene	*1.28*		µg/Wipe	2.00		63.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.28*		µg/Wipe	2.00		63.9	30-150			

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LGRC-VWK-009

Lab Sample ID: 21F1748-01 Date(s) Analyzed: 07/02/2021 07/02/2021

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-1254	1	0.000	0.000	0.000	0.32	
	2	0.000	0.000	0.000	0.29	9.8

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LGRC-VWK-011

Lab Sample ID: 21F1748-03

Date(s) Analyzed: 07/02/2021 07/02/2021

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-1254	1	0.000	0.000	0.000	1.3	
	2	0.000	0.000	0.000	1.2	8.0

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LGRC-VWK-017

Lab Sample ID: 21F1748-09

Date(s) Analyzed: 07/02/2021 07/02/2021

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-1254	1	0.000	0.000	0.000	0.22	
	2	0.000	0.000	0.000	0.21	4.7

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LGRC-VWK-021

Lab Sample ID: 21F1748-13

Date(s) Analyzed: 07/03/2021 07/03/2021

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-1254	1	0.000	0.000	0.000	0.42	
	2	0.000	0.000	0.000	0.39	7.4

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B284954-BS1 Date(s) Analyzed: 07/02/2021 07/02/2021

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	0.46	2.2
Aroclor-1260	1	0.000	0.000	0.000	0.43	
	2	0.000	0.000	0.000	0.44	2.3

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS Dup

Lab Sample ID: B284954-BSD1 Date(s) Analyzed: 07/02/2021 07/02/2021

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	0.42	
	2	0.000	0.000	0.000	0.42	2.4
Aroclor-1260	1	0.000	0.000	0.000	0.43	
	2	0.000	0.000	0.000	0.41	4.8

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FLAG/QUALIFIER SUMMARY

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

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

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

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8082A in Soil	
Aroclor-1016	CT,NH,NY,ME,NC,VA,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

21F1748

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CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Doc # 381 Rev 4_01/08/2020

Company Name:	Woodard & Curran
Address:	40 Shattuck Rd. Andover, MA 01810
Phone:	978-551-5666
Project Name:	UMass - LGRC
Project Location:	Amherst, MA
Project Number:	210918
Project Manager:	George Franklin
Con-Test 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 5-day

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

Data Delivery
Format: PDF ☑ EXCEL ☐
Other:
CLP Like Data Pkg Required: ☐
Email To: 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

Con-Test 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	LGRC-VWK-009	6/25/2021	1000	Grab	O	U		X				X
2	LGRC-VWP-010	6/25/2021	1010	Grab	O	U		X				X
3	LGRC-VWK-011	6/25/2021	1020	Grab	O	U		X				X
4	LGRC-VWP-012	6/25/2021	1025	Grab	O	U		X				X
5	LGRC-VWK-013	6/25/2021	1035	Grab	O	U		X				X
6	LGRC-VWP-014	6/25/2021	1040	Grab	O	U		X				X
7	LGRC-VWK-015	6/25/2021	1100	Grab	O	U		X				X
8	LGRC-VWP-016	6/25/2021	1110	Grab	O	U		X				X
9	LGRC-VWK-017	6/25/2021	1115	Grab	O	U		X				X
10	LGRC-VWP-018	6/25/2021	1120	Grab	O	U		X				X

[2] Preservation Code

Total Number Of:
VIALS
GLASS
PLASTIC
BACTERIA
ENCORE

Glassware in the fridge? Y / N

Glassware in freezer? Y / N

Prepackaged Cooler? Y / N

*Contest is not responsible for missing samples from prepacked coolers

Relinquished by: (signature)	Date/Time: 6-28-21 1345
Received by: (signature)	Date/Time: 6/28 1415
Relinquished by: (signature)	Date/Time: 6/28 1630
Received by: (signature)	Date/Time: 6/28/21 1630
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
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

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

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

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

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

Comments:

Disclaimer: Con-Test Labs 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. Con-Test values your partnership on each project and will try to assist with missing information, but will not be held accountable.

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21F1748

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

http://www.contestlabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Doc # 381 Rev 4_01/08/2020

Company Name:	Woodard & Curran
Address:	40 Shattuck Rd. Andover, MA 01810
Phone:	978-551-5666
Project Name:	UMass - LGRC
Project Location:	Amherst, MA
Project Number:	210918
Project Manager:	George Franklin
Con-Test 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 5-day

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

Data Delivery
Format: PDF ☒ EXCEL ☐
Other:
CLP Like Data Pkg Required: ☐
Email To: 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

Con-Test 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											[2] Preservation Code
11	LGRC-VWK-019	6/25/2021	1130	Grab	O	U		X				X											
12	LGRC-VWP-020	6/25/2021	1135	Grab	O	U		X				X											
13	LGRC-VWK-021	6/25/2021	1140	Grab	O	U		X				X											
14	LGRC-VWP-022	6/25/2021	1145	Grab	O	U		X				X											
15	LGRC-VWK-023	6/25/2021	1150	Grab	O	U		X				X											
16	LGRC-VWP-024	6/25/2021	1155	Grab	O	U		X				X											
17	LGRC-VWPD-024	6/25/2021	1155	Grab	O	U		X				X											

Total Number Of:
VIALS
GLASS
PLASTIC
BACTERIA
ENCORE

Glassware in the fridge? Y / N
Glassware in freezer? Y / N
Prepackaged Cooler? Y / N
*Contest is not responsible for missing samples from prepacked coolers

Relinquished by: (signature)		Date/Time: 6-28-21 1345
Received by: (signature)		Date/Time: 6/28 1345
Relinquished by: (signature)		Date/Time: 6/28 1630
Received by: (signature)	9.8	Date/Time: 6/28/21 1630
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
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*

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X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

Comments:

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

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

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

Client W & C

Received By CA Date 6/28/21 Time 1630

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 - 5.8
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	17
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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July 13, 2021

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

Project Location: Amherst, MA
Client Job Number:
Project Number: 210918
Laboratory Work Order Number: 21F1768

Enclosed are results of analyses for samples received by the laboratory on June 28, 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: 7/13/2021

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 210918

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 21F1768

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
LGRC-Ambient-001	21F1768-01	Indoor air		TO-10A/EPA 680 Modified	
LGRC-199Y-IAS-002	21F1768-02	Indoor air		TO-10A/EPA 680 Modified	
LGRC-299T-IAS-003	21F1768-03	Indoor air		TO-10A/EPA 680 Modified	
LGRC-399A-IAS-004	21F1768-04	Indoor air		TO-10A/EPA 680 Modified	
LGRC-901-IAS-005	21F1768-05	Indoor air		TO-10A/EPA 680 Modified	
LGRC-901-IASD-005	21F1768-06	Indoor air		TO-10A/EPA 680 Modified	
LGRC-1307-IAS-006	21F1768-07	Indoor air		TO-10A/EPA 680 Modified	

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CASE NARRATIVE SUMMARY

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

TO-10A/EPA 680 Modified

Qualifications:

S-26

Surrogate outside of control limits.

Analyte & Samples(s) Qualified:

Tetrachloro-m-xylene
21F1768-03[LGRC-299T-IAS-003]

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:

Monochlorobiphenyls
B285212-BS1, B285212-BSD1, S061445-CCV1, S061445-CCV2

V-20

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

Analyte & Samples(s) Qualified:

Monochlorobiphenyls
21F1768-01[LGRC-Ambient-001], 21F1768-02[LGRC-199Y-IAS-002], 21F1768-03[LGRC-299T-IAS-003], 21F1768-04[LGRC-399A-IAS-004], 21F1768-05[LGRC-901-IAS-005], 21F1768-06[LGRC-901-IASD-005], 21F1768-07[LGRC-1307-IAS-006], B285212-BLK1

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: 6/28/2021
Field Sample #: LGRC-Ambient-001
Sample ID: 21F1768-01
Sample Matrix: Indoor air
Sampled: 6/25/2021 13:15

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 910.6

Work Order: 21F1768

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	V-20	ND	0.0011	1	7/8/21 14:48	CLA
Dichlorobiphenyls	ND	0.0010		ND	0.0011	1	7/8/21 14:48	CLA
Trichlorobiphenyls	ND	0.0020		ND	0.0022	1	7/8/21 14:48	CLA
Tetrachlorobiphenyls	ND	0.0020		ND	0.0022	1	7/8/21 14:48	CLA
Pentachlorobiphenyls	ND	0.0020		ND	0.0022	1	7/8/21 14:48	CLA
Hexachlorobiphenyls	ND	0.0020		ND	0.0022	1	7/8/21 14:48	CLA
Heptachlorobiphenyls	ND	0.0030		ND	0.0033	1	7/8/21 14:48	CLA
Octachlorobiphenyls	ND	0.0030		ND	0.0033	1	7/8/21 14:48	CLA
Nonachlorobiphenyls	ND	0.0050		ND	0.0055	1	7/8/21 14:48	CLA
Decachlorobiphenyl	ND	0.0050		ND	0.0055	1	7/8/21 14:48	CLA
Total Polychlorinated biphenyls	0.0			0		1	7/8/21 14:48	CLA

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	107	50-125	7/8/21 14:48

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ANALYTICAL RESULTS

Project Location: Amherst, MA
Date Received: 6/28/2021
Field Sample #: LGRC-199Y-IAS-002
Sample ID: 21F1768-02
Sample Matrix: Indoor air
Sampled: 6/25/2021 13:35

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 907.2

Work Order: 21F1768

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	V-20	ND	0.0011	1	7/8/21 15:26	CLA
Dichlorobiphenyls	ND	0.0010		ND	0.0011	1	7/8/21 15:26	CLA
Trichlorobiphenyls	ND	0.0020		ND	0.0022	1	7/8/21 15:26	CLA
Tetrachlorobiphenyls	ND	0.0020		ND	0.0022	1	7/8/21 15:26	CLA
Pentachlorobiphenyls	0.0054	0.0020		0.0059	0.0022	1	7/8/21 15:26	CLA
Hexachlorobiphenyls	ND	0.0020		ND	0.0022	1	7/8/21 15:26	CLA
Heptachlorobiphenyls	ND	0.0030		ND	0.0033	1	7/8/21 15:26	CLA
Octachlorobiphenyls	ND	0.0030		ND	0.0033	1	7/8/21 15:26	CLA
Nonachlorobiphenyls	ND	0.0050		ND	0.0055	1	7/8/21 15:26	CLA
Decachlorobiphenyl	ND	0.0050		ND	0.0055	1	7/8/21 15:26	CLA
Total Polychlorinated biphenyls	0.0054			0.0059		1	7/8/21 15:26	CLA

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	108	50-125	7/8/21 15:26

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ANALYTICAL RESULTS

Project Location: Amherst, MA
Date Received: 6/28/2021
Field Sample #: LGRC-299T-IAS-003
Sample ID: 21F1768-03
Sample Matrix: Indoor air
Sampled: 6/25/2021 13:59

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 939.6

Work Order: 21F1768

TO-10A/EPA 680 Modified

Analyte	Total µg Results	Total µg RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Date/Time Analyzed	Analyst
Monochlorobiphenyls	ND	0.0010	V-20	ND	0.0011	1	7/8/21 16:03	CLA
Dichlorobiphenyls	ND	0.0010		ND	0.0011	1	7/8/21 16:03	CLA
Trichlorobiphenyls	ND	0.0020		ND	0.0021	1	7/8/21 16:03	CLA
Tetrachlorobiphenyls	0.024	0.0020		0.025	0.0021	1	7/8/21 16:03	CLA
Pentachlorobiphenyls	0.032	0.0020		0.034	0.0021	1	7/8/21 16:03	CLA
Hexachlorobiphenyls	0.014	0.0020		0.015	0.0021	1	7/8/21 16:03	CLA
Heptachlorobiphenyls	ND	0.0030		ND	0.0032	1	7/8/21 16:03	CLA
Octachlorobiphenyls	ND	0.0030		ND	0.0032	1	7/8/21 16:03	CLA
Nonachlorobiphenyls	ND	0.0050		ND	0.0053	1	7/8/21 16:03	CLA
Decachlorobiphenyl	ND	0.0050		ND	0.0053	1	7/8/21 16:03	CLA
Total Polychlorinated biphenyls	0.070			0.075		1	7/8/21 16:03	CLA

Surrogates	% Recovery		% REC Limits	
Tetrachloro-m-xylene	127*	S-26	50-125	7/8/21 16:03

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ANALYTICAL RESULTS

Project Location: Amherst, MA
Date Received: 6/28/2021
Field Sample #: LGRC-399A-IAS-004
Sample ID: 21F1768-04
Sample Matrix: Indoor air
Sampled: 6/25/2021 14:12

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 915.9

Work Order: 21F1768

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	V-20	ND	0.0011	1	7/8/21 16:41	CLA
Dichlorobiphenyls	ND	0.0010		ND	0.0011	1	7/8/21 16:41	CLA
Trichlorobiphenyls	ND	0.0020		ND	0.0022	1	7/8/21 16:41	CLA
Tetrachlorobiphenyls	0.030	0.0020		0.032	0.0022	1	7/8/21 16:41	CLA
Pentachlorobiphenyls	0.046	0.0020		0.050	0.0022	1	7/8/21 16:41	CLA
Hexachlorobiphenyls	0.011	0.0020		0.012	0.0022	1	7/8/21 16:41	CLA
Heptachlorobiphenyls	ND	0.0030		ND	0.0033	1	7/8/21 16:41	CLA
Octachlorobiphenyls	ND	0.0030		ND	0.0033	1	7/8/21 16:41	CLA
Nonachlorobiphenyls	ND	0.0050		ND	0.0055	1	7/8/21 16:41	CLA
Decachlorobiphenyl	ND	0.0050		ND	0.0055	1	7/8/21 16:41	CLA
Total Polychlorinated biphenyls	0.087			0.095		1	7/8/21 16:41	CLA

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	115	50-125	7/8/21 16:41

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ANALYTICAL RESULTS

Project Location: Amherst, MA
Date Received: 6/28/2021
Field Sample #: LGRC-901-IAS-005
Sample ID: 21F1768-05
Sample Matrix: Indoor air
Sampled: 6/25/2021 14:18

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 915.9

Work Order: 21F1768

TO-10A/EPA 680 Modified

Analyte	Total µg Results	Total µg RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Date/Time Analyzed	Analyst
Monochlorobiphenyls	ND	0.0010	V-20	ND	0.0011	1	7/8/21 17:18	CLA
Dichlorobiphenyls	ND	0.0010		ND	0.0011	1	7/8/21 17:18	CLA
Trichlorobiphenyls	ND	0.0020		ND	0.0022	1	7/8/21 17:18	CLA
Tetrachlorobiphenyls	0.016	0.0020		0.018	0.0022	1	7/8/21 17:18	CLA
Pentachlorobiphenyls	0.022	0.0020		0.024	0.0022	1	7/8/21 17:18	CLA
Hexachlorobiphenyls	0.0081	0.0020		0.0088	0.0022	1	7/8/21 17:18	CLA
Heptachlorobiphenyls	ND	0.0030		ND	0.0033	1	7/8/21 17:18	CLA
Octachlorobiphenyls	ND	0.0030		ND	0.0033	1	7/8/21 17:18	CLA
Nonachlorobiphenyls	ND	0.0050		ND	0.0055	1	7/8/21 17:18	CLA
Decachlorobiphenyl	ND	0.0050		ND	0.0055	1	7/8/21 17:18	CLA
Total Polychlorinated biphenyls	0.046			0.051		1	7/8/21 17:18	CLA

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	104	50-125	7/8/21 17:18

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ANALYTICAL RESULTS

Project Location: Amherst, MA
Date Received: 6/28/2021
Field Sample #: LGRC-901-IASD-005
Sample ID: 21F1768-06
Sample Matrix: Indoor air
Sampled: 6/25/2021 14:18

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 944.8

Work Order: 21F1768

TO-10A/EPA 680 Modified

Analyte	Total µg Results	Total µg RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Date/Time Analyzed	Analyst
Monochlorobiphenyls	ND	0.0010	V-20	ND	0.0011	1	7/8/21 17:56	CLA
Dichlorobiphenyls	ND	0.0010		ND	0.0011	1	7/8/21 17:56	CLA
Trichlorobiphenyls	ND	0.0020		ND	0.0021	1	7/8/21 17:56	CLA
Tetrachlorobiphenyls	0.0053	0.0020		0.0056	0.0021	1	7/8/21 17:56	CLA
Pentachlorobiphenyls	0.0093	0.0020		0.0098	0.0021	1	7/8/21 17:56	CLA
Hexachlorobiphenyls	ND	0.0020		ND	0.0021	1	7/8/21 17:56	CLA
Heptachlorobiphenyls	ND	0.0030		ND	0.0032	1	7/8/21 17:56	CLA
Octachlorobiphenyls	ND	0.0030		ND	0.0032	1	7/8/21 17:56	CLA
Nonachlorobiphenyls	ND	0.0050		ND	0.0053	1	7/8/21 17:56	CLA
Decachlorobiphenyl	ND	0.0050		ND	0.0053	1	7/8/21 17:56	CLA
Total Polychlorinated biphenyls	0.015			0.015		1	7/8/21 17:56	CLA

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	76.4	50-125	7/8/21 17:56

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ANALYTICAL RESULTS

Project Location: Amherst, MA
Date Received: 6/28/2021
Field Sample #: LGRC-1307-IAS-006
Sample ID: 21F1768-07
Sample Matrix: Indoor air
Sampled: 6/25/2021 14:30

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 903.6

Work Order: 21F1768

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	V-20	ND	0.0011	1	7/8/21 18:33	CLA
Dichlorobiphenyls	ND	0.0010		ND	0.0011	1	7/8/21 18:33	CLA
Trichlorobiphenyls	ND	0.0020		ND	0.0022	1	7/8/21 18:33	CLA
Tetrachlorobiphenyls	0.014	0.0020		0.015	0.0022	1	7/8/21 18:33	CLA
Pentachlorobiphenyls	0.021	0.0020		0.023	0.0022	1	7/8/21 18:33	CLA
Hexachlorobiphenyls	0.0060	0.0020		0.0066	0.0022	1	7/8/21 18:33	CLA
Heptachlorobiphenyls	ND	0.0030		ND	0.0033	1	7/8/21 18:33	CLA
Octachlorobiphenyls	ND	0.0030		ND	0.0033	1	7/8/21 18:33	CLA
Nonachlorobiphenyls	ND	0.0050		ND	0.0055	1	7/8/21 18:33	CLA
Decachlorobiphenyl	ND	0.0050		ND	0.0055	1	7/8/21 18:33	CLA
Total Polychlorinated biphenyls	0.040			0.045		1	7/8/21 18:33	CLA

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	102	50-125	7/8/21 18:33

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

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
21F1768-01 [LGRC-Ambient-001]	B285212	1.00	1.00	07/02/21
21F1768-02 [LGRC-199Y-IAS-002]	B285212	1.00	1.00	07/02/21
21F1768-03 [LGRC-299T-IAS-003]	B285212	1.00	1.00	07/02/21
21F1768-04 [LGRC-399A-IAS-004]	B285212	1.00	1.00	07/02/21
21F1768-05 [LGRC-901-IAS-005]	B285212	1.00	1.00	07/02/21
21F1768-06 [LGRC-901-IASD-005]	B285212	1.00	1.00	07/02/21
21F1768-07 [LGRC-1307-IAS-006]	B285212	1.00	1.00	07/02/21

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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 B285212 - SW-846 3540C											
Blank (B285212-BLK1)					Prepared: 07/02/21 Analyzed: 07/08/21						
Monochlorobiphenyls	ND	0.0010									V-20
Dichlorobiphenyls	ND	0.0010									
Trichlorobiphenyls	ND	0.0020									
Tetrachlorobiphenyls	ND	0.0020									
Pentachlorobiphenyls	ND	0.0020									
Hexachlorobiphenyls	ND	0.0020									
Heptachlorobiphenyls	ND	0.0030									
Octachlorobiphenyls	ND	0.0030									
Nonachlorobiphenyls	ND	0.0050									
Decachlorobiphenyl	ND	0.0050									
Total Polychlorinated biphenyls	0.0										
Surrogate: Tetrachloro-m-xylene	*0.170*				*0.200*		*84.8*	*50-125*			
LCS (B285212-BS1)					Prepared: 07/02/21 Analyzed: 07/08/21						
Monochlorobiphenyls	0.17	0.0010			0.200		83.9	40-140			V-06
Dichlorobiphenyls	0.15	0.0010			0.200		74.4	40-140			
Trichlorobiphenyls	0.14	0.0020			0.200		68.4	40-140			
Tetrachlorobiphenyls	0.28	0.0020			0.400		69.5	40-140			
Pentachlorobiphenyls	0.28	0.0020			0.400		68.8	40-140			
Hexachlorobiphenyls	0.30	0.0020			0.400		74.6	40-140			
Heptachlorobiphenyls	0.46	0.0030			0.600		76.8	40-140			
Octachlorobiphenyls	0.47	0.0030			0.600		77.8	40-140			
Nonachlorobiphenyls	0.76	0.0050			1.00		76.1	40-140			
Decachlorobiphenyl	0.75	0.0050			1.00		74.8	40-140			
Surrogate: Tetrachloro-m-xylene	*0.187*				*0.200*		*93.4*	*50-125*			
LCS Dup (B285212-BSD1)					Prepared: 07/02/21 Analyzed: 07/08/21						
Monochlorobiphenyls	0.19	0.0010			0.200		94.4	40-140	11.9	50	V-06
Dichlorobiphenyls	0.16	0.0010			0.200		81.0	40-140	8.42	50	
Trichlorobiphenyls	0.15	0.0020			0.200		73.5	40-140	7.31	50	
Tetrachlorobiphenyls	0.30	0.0020			0.400		74.9	40-140	7.46	50	
Pentachlorobiphenyls	0.30	0.0020			0.400		74.0	40-140	7.17	50	
Hexachlorobiphenyls	0.32	0.0020			0.400		79.3	40-140	6.12	50	
Heptachlorobiphenyls	0.49	0.0030			0.600		81.9	40-140	6.48	50	
Octachlorobiphenyls	0.50	0.0030			0.600		83.1	40-140	6.67	50	
Nonachlorobiphenyls	0.82	0.0050			1.00		82.4	40-140	7.97	50	
Decachlorobiphenyl	0.81	0.0050			1.00		81.4	40-140	8.43	50	
Surrogate: Tetrachloro-m-xylene	*0.195*				*0.200*		*97.4*	*50-125*			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
S-26	Surrogate outside of control limits.
V-06	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

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INTERNAL STANDARD AREA AND RT SUMMARY

TO-10A/EPA 680 Modified

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B285212-BLK1)			Lab File ID: F21S189004.D			Analyzed: 07/08/21 12:56			
Phenanthrene-d10	545212	20.155	491012	20.155	111	70 - 130	0.0000	+/-0.50	
Chrysene-d12	451037	27.784	390200	27.784	116	70 - 130	0.0000	+/-0.50	
LCS (B285212-BS1)			Lab File ID: F21S189005.D			Analyzed: 07/08/21 13:33			
Phenanthrene-d10	586572	20.155	491012	20.155	119	70 - 130	0.0000	+/-0.50	
Chrysene-d12	443256	27.792	390200	27.784	114	70 - 130	0.0080	+/-0.50	
LCS Dup (B285212-BSD1)			Lab File ID: F21S189006.D			Analyzed: 07/08/21 14:11			
Phenanthrene-d10	575716	20.155	491012	20.155	117	70 - 130	0.0000	+/-0.50	
Chrysene-d12	440870	27.792	390200	27.784	113	70 - 130	0.0080	+/-0.50	
LGRC-Ambient-001 (21F1768-01)			Lab File ID: F21S189007.D			Analyzed: 07/08/21 14:48			
Phenanthrene-d10	474500	20.155	491012	20.155	97	70 - 130	0.0000	+/-0.50	
Chrysene-d12	377796	27.784	390200	27.784	97	70 - 130	0.0000	+/-0.50	
LGRC-199Y-IAS-002 (21F1768-02)			Lab File ID: F21S189008.D			Analyzed: 07/08/21 15:26			
Phenanthrene-d10	500975	20.149	491012	20.155	102	70 - 130	-0.0060	+/-0.50	
Chrysene-d12	381875	27.784	390200	27.784	98	70 - 130	0.0000	+/-0.50	
LGRC-299T-IAS-003 (21F1768-03)			Lab File ID: F21S189009.D			Analyzed: 07/08/21 16:03			
Phenanthrene-d10	376032	20.149	491012	20.155	77	70 - 130	-0.0060	+/-0.50	
Chrysene-d12	298252	27.784	390200	27.784	76	70 - 130	0.0000	+/-0.50	
LGRC-399A-IAS-004 (21F1768-04)			Lab File ID: F21S189010.D			Analyzed: 07/08/21 16:41			
Phenanthrene-d10	396406	20.149	491012	20.155	81	70 - 130	-0.0060	+/-0.50	
Chrysene-d12	336066	27.784	390200	27.784	86	70 - 130	0.0000	+/-0.50	
LGRC-901-IAS-005 (21F1768-05)			Lab File ID: F21S189011.D			Analyzed: 07/08/21 17:18			
Phenanthrene-d10	557708	20.155	491012	20.155	114	70 - 130	0.0000	+/-0.50	
Chrysene-d12	420069	27.784	390200	27.784	108	70 - 130	0.0000	+/-0.50	
LGRC-901-IASD-005 (21F1768-06)			Lab File ID: F21S189012.D			Analyzed: 07/08/21 17:56			
Phenanthrene-d10	506168	20.149	491012	20.155	103	70 - 130	-0.0060	+/-0.50	
Chrysene-d12	394568	27.784	390200	27.784	101	70 - 130	0.0000	+/-0.50	
LGRC-1307-IAS-006 (21F1768-07)			Lab File ID: F21S189013.D			Analyzed: 07/08/21 18:33			
Phenanthrene-d10	450139	20.155	491012	20.155	92	70 - 130	0.0000	+/-0.50	
Chrysene-d12	355161	27.784	390200	27.784	91	70 - 130	0.0000	+/-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

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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

con-test ANALYTICAL LABORATORY

21F1768

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Email: info@contestlabs.com

http://www.contestlabs.com

Doc #378 Rev 1_03242017

CHAIN OF CUSTODY RECORD (AIR)

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name:	Woodard & Curran
Address:	40 Shattuck Rd. Andover, MA 01810
Phone:	978-551-5666
Project Name:	UMass - LGRC
Project Location:	Amherst, MA
Project Number:	210918
Project Manager:	George Franklin
Con-Test Quote Name/Number:	Standard MSA
Invoice Recipient:	George Franklin
Sampled By:	Andrew 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	ANALYSIS REQUESTED				" 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	TO 10-A PCB Homologs C20				Initial Pressure	Final Pressure	Lab Receipt Pressure	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	
															Summa Can ID	Flow Controller ID
1	LGRC-AMBIENT-001	6-25-21 0815	6-25-21 1315	360	2.53	IA	910.6	X								
2	LGRC-199Y-IAS-002	6-25-21 0735	6-25-21 1335	360	2.52		907.2	X								
3	LGRC-299T-IAS-003	6-25-21 0759	6-25-21 1359	360	2.61		939.6	X								
4	LGRC-399A-IAS-004	6-25-21 0810	6-25-21 1412	362	2.53		915.9	X								
5	LGRC-901-IAS-005	6-25-21 0816	6-25-21 1418	362	2.53		915.9	X								
6	LGRC-901-IASD-005	6-25-21 0816	6-25-21 1418	362	2.61		944.8	X								
7	LGRC-1307-IAS-006	6-25-21 0830	6-25-21 1430	360	2.51	↓	903.6	X								

Comments:

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

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

Relinquished by: (signature)	Date/Time:	Detection Limit Requirements	Special Requirements
Received by: (signature)	Date/Time:	RCP	☐ MA MCP Required
Relinquished by: (signature)	Date/Time:		MCP Certification Form Required
Received by: (signature)	Date/Time:		☐ CT RCP Required
Relinquished by: (signature)	Date/Time:	GW1	RCP Certification Form Required
Received by: (signature)	Date/Time:		☐ Other
Relinquished by: (signature)	Date/Time:	Other:	
Received by: (signature)	Date/Time:		

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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 WTC

Received By [signature] Date 06/28/17 Time 1630

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 - 3.8

By Blank # Actual Temp -

Was Custody Seal Intact? n/a Were Samples Tampered with? n/a

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

Are there 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? F

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	7	LV			Tedlar			

Can #'s					Reg #'s				
Unused Media					Pufs/TO-17's				
062221A-08					062221A-01	062221A-06			
					-02	↓ -07			
					-03				
					-04				
					↓ -05				

Comments:

woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS