

**COMMITMENT & INTEGRITY
DRIVE RESULTS**

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

T 866.702.6371
T 978.557.8150
F 978.557.7948



Via Electronic Mail and US Mail

September 29, 2017

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

Re: 2017 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 2017 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 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.

In addition, 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.

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 V. Franklin, CHMM
Technical Manager

cc: T. Wolejko, University of Massachusetts



2017 Long Term Monitoring Report

**Lederle Graduate
Research Center**

Tower A and Low-Rise
Buildings
Amherst, Massachusetts

40 Shattuck Road | Suite 110
Andover, MA 01810
866-702-6371

woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

225695.07
UMass LGRC
September 2017

TABLE OF CONTENTS

| SECTION | PAGE NO. |
|---|------------|
| 1. INTRODUCTION..... | 1-1 |
| 1.1 Background..... | 1-1 |
| 1.2 Summary of Interim Measures – Interior Glazing Sealants..... | 1-2 |
| 1.2.1 Summary of Remedial Activities | 1-2 |
| 1.2.2 Visual Inspection and Verification/Baseline Sampling | 1-2 |
| 1.3 Summary of Remediation Activities – Exterior Concrete at Type L Windows | 1-3 |
| 1.3.1 Summary of Remedial Approach | 1-3 |
| 1.3.2 Visual Inspection and Verification/Baseline Sampling | 1-4 |
| 1.4 Monitoring and Maintenance Implementation Plan..... | 1-4 |
| 2. 2017 MONITORING ACTIVITIES | 2-1 |
| 2.1 Visual Inspections..... | 2-1 |
| 2.2 Non-Routine Maintenance Activities | 2-1 |
| 2.3 Accessible Non-Porous Surfaces | 2-1 |
| 2.4 Encapsulated Surfaces | 2-1 |
| 2.5 Indoor Air – Long Term Monitoring | 2-2 |
| 3. SUMMARY AND CONCLUSIONS..... | 3-1 |
| 3.1 Corrective Actions..... | 3-1 |
| 3.2 Modifications to the Long Term Monitoring and Maintenance Plan | 3-1 |
| 3.3 Next Monitoring Event..... | 3-1 |

TABLES

| | |
|------------|--|
| Table 2-1: | Summary of Long Term Monitoring Wipe Sampling Results – Accessible Non-Porous Surfaces |
| Table 2-2: | Summary of Long Term Monitoring Wipe Sampling Results – Encapsulated Surfaces |
| Table 2-3: | Summary of Long Term Monitoring Indoor Air Sampling Results |

FIGURES

| | |
|-------------|--|
| Figure 1-1: | Site Location Map |
| Figure 2-1: | Areas of Encapsulated Materials – Tower A 1 st – 4 th Floors |
| Figure 2-2: | Areas of Encapsulated Materials – Tower A 5 th – 8 th Floors |
| Figure 2-3: | Areas of Encapsulated Materials – Tower A 9 th – 12 th Floors |
| Figure 2-4: | Areas of Encapsulated Materials – Tower A 13 th – 16 th Floors |
| Figure 2-5: | Areas of Encapsulated Materials – Low-Rise Building |

APPENDICES

| | |
|-------------|---|
| Appendix A: | Analytical Laboratory Reports and Data Validation Summaries |
|-------------|---|

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.

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 BACKGROUND

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 window replacement projects. There were approximately 900 windows located at the LGRC subject to the CAFO. To date, windows have been removed in the following three 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 (except for those within Room A106, see below) including the library areas, were removed as part of a large-scale window replacement project (refer to the September 17, 2013 notification submittal and the December 29, 2014 Completion Report).
- 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).

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). Removal and off-site disposal of the other ≥ 50 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 $\frac{1}{2}$ 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). Given that the Type L windows were made accessible during the 2013/2014 window replacement project (through the removal of the windows themselves), remediation activities associated with the exterior perimeter caulking at the Type L windows was completed in 2014 and included caulking removal and the in-place management of residual PCB impacts > 25 ppm in exterior concrete.

1.2 SUMMARY OF INTERIM MEASURES – INTERIOR GLAZING SEALANTS

Beginning in July 2012, the 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 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 previously reported, these interim measures were completed at the following locations:

- Tower A High-Rise
 - July - August 2012: Elevator lobby windows located on the 1st, 3rd, 7th, and 8th floors, as part of the NIH Grant Lab Renovation project.
 - July - August 2013: All remaining Tower A subject windows, as well as an additional sealant encountered in the stairwells (refer to the August 23, 2013 new condition notification submittal).
- Low-Rise
 - December 2013: Windows within Room A106 (the computer room). NOTE: all other low rise and library windows were removed.

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 cm²) in all samples with results reported as follows:

- Total PCBs were reported as non-detect (< 0.20 µg/100 cm²) in 31 samples; and
- Total PCBs were present in 23 samples at concentrations below 10 µg/100 cm², with concentrations ranging from 0.20 to 2.0 µg/100 cm² and an average concentration of 0.56 µg/100cm².

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. A summary of the analytical results from the hexane wipe samples is as follows:

- Total PCBs were reported as either non-detect (ten samples at $< 0.20 \mu\text{g}/100 \text{ cm}^2$) or $< 1 \mu\text{g}/100 \text{ cm}^2$ (five samples with reported concentrations ranging from 0.21 to $0.95 \mu\text{g}/100 \text{ cm}^2$) in 15 of the 17 samples collected; and
- Total PCBs were reported at concentrations $> 1 \mu\text{g}/100 \text{ cm}^2$ in two samples with reported concentrations of 1.5 and $3.1 \mu\text{g}/100 \text{ cm}^2$ (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 the 2015, 2016 or 2017 events due to the 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.

1.3.1 Summary of Remedial Approach

The remedial approach consisted of the following:

- Exterior perimeter window caulking 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.

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 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 $< 0.20 \mu\text{g}/100\text{cm}^2$) or less than the encapsulation goal of $1 \mu\text{g}/100\text{cm}^2$ (2 samples with reported concentrations of 0.22 and $0.28 \mu\text{g}/100\text{cm}^2$). PCBs in the remaining sample were reported at concentration of $1.4 \mu\text{g}/100\text{cm}^2$.
- Elastomeric Coatings – Analytical results indicated that PCBs were either non-detect (8 samples at $< 0.20 \mu\text{g}/100\text{cm}^2$) or less than the encapsulation goal of $1 \mu\text{g}/100\text{cm}^2$ (4 samples with a maximum concentration of $0.56 \mu\text{g}/100\text{cm}^2$).

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 PCB-containing glazing sealants encapsulated through the application of aluminum foil tape and silicone caulking. 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 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 Non-Porous Surface Wipe Samples – A total of 9 wipe samples are to be collected (1 from the Low-Rise computer room and 8 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 Surfaces Wipe Samples – A total of 9 wipe samples are to be collected (1 from the Low-Rise computer room and 8 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 – Long Term Monitoring – Six samples are to be collected to assess the effectiveness of the encapsulation (window glazing sealant) in reducing indoor air levels.

Prior to the 2017 monitoring activities, annual monitoring was conducted in June of 2015 and 2016. The results of the 2015 and 2016 events were consistent with the baseline monitoring results and communicated to EPA on September 29, 2015 and September 19, 2016 with recommendations to maintain the long term monitoring program without modification in 2017.

2. 2017 MONITORING ACTIVITIES

2.1 VISUAL INSPECTIONS

Visual inspections of the encapsulated surfaces were conducted at the Tower A high rise, the Low-Rise computer room, and at the Type L windows of the Low-Rise building. The inspections consisted of an assessment of the following:

- Physical condition of the new caulk (cracking, peeling, discoloration, etc.) and/or window frames;
- Signs of separation between the silicone sealant/aluminum foil tape and the glazing sealant, window frame, or glass;
- Signs of disturbance of the new sealant;
- Signs of disturbance of the exterior elastomeric coating (Type L windows); and
- A general inspection of the surrounding areas.

For encapsulated 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 Type L windows, 20% of the windows were inspected (10 windows).

Consistent with the results of the previous monitoring events, Woodard & Curran did not observe any signs of disturbance or deterioration during the visual inspections.

2.2 NON-ROUTINE MAINTENANCE ACTIVITIES

No non-routine maintenance activities that disturbed the encapsulated materials were observed or conducted in 2017, as reported by UMass personnel.

2.3 ACCESSIBLE NON-POROUS SURFACES

Surface wipe samples were collected from nine representative locations on the accessible non-porous surfaces below the Tower A and Low-Rise computer room windows as described in the MMIP. The locations of the wipe samples are depicted on Figures 2-1 through 2-5.

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 below the project specific action level of 10 $\mu\text{g}/100 \text{ cm}^2$ in all nine samples with total PCBs reported as non-detect ($< 0.20 \mu\text{g}/100 \text{ cm}^2$). The complete analytical laboratory report and the associated data validation summary are provided in Appendix A. A summary of the analytical results is presented on Table 2-1.

2.4 ENCAPSULATED SURFACES

Surface wipe samples were collected from nine representative locations on the encapsulated surfaces and frame 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 2-5. The locations were also biased to the 1st, 3rd, 7th, and 8th floor elevator lobbies to evaluate materials applied as part of the 2012 NIH renovations based on the results of the 2015 and 2016 monitoring events which indicated that PCBs were present on these surfaces at concentrations $> 1 \mu\text{g}/100 \text{ cm}^2$.

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 $\frac{3}{4}$ -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 cm² area). Samples were submitted for laboratory analysis as described above. In addition to the primary samples indicated above, one duplicate sample was collected and submitted to the laboratory as part of the QA/QC procedures associated with the sample collection procedures.

Analytical results reported PCBs as non-detect ($< 0.20 \mu\text{g}/100 \text{ cm}^2$) in all nine samples collected. Based on these results and the results from previous monitoring events, where PCBs were reported on these surfaces at concentrations $> 1 \mu\text{g}/100 \text{ cm}^2$, wipe samples of the surfaces of the materials installed during the NIH renovation are variable; whereas, wipe samples from the other Tower A rooms and Low Rise computer room are consistently below the target level during all events. Overall, the materials remain effective in encapsulating the PCB containing glazing sealants.

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

2.5 INDOOR AIR – LONG TERM MONITORING

As part of the long term monitoring program, five indoor air samples were collected from representative locations throughout the LGRC Tower A and one sample was collected from the Low-Rise Computer Room. In addition, one ambient/outdoor air sample was collected from outside Tower A. Indoor air samples were distributed in a manner consistent with the 2009 baseline sampling event; modified based on the removal of select Tower A windows and the majority of the Low-Rise windows. The individual spaces were 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 2.6 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 PCBs were reported at concentrations ranging from 18.3 ng/m³ to 374.1 ng/m³ in the six samples with an average reported concentration of 135 ng/m³. Analytical results were non-detect for PCBs in the outdoor/ambient sample.

These indoor air results are generally consistent with results from the previous sampling events conducted in 2015 and 2016 and remain below the project action level of 500 ng/m³ (EPA’s exposure levels for evaluating PCBs in indoor school air for students ages 19 plus and adults, as amended on July 2015). Additionally, the average reported concentration was below the average reported concentration of 209.7 ng/m³ from the six samples collected from across the LGRC complex as part of the initial 2008 sampling event (Tower A and low-rise locations).

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 2017 long term monitoring event were as follows:

- 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 indicated that PCBs were non-detect ($< 0.2 \mu\text{g}/100\text{cm}^2$) in the nine samples collected.
- Analytical results from wipe samples collected from encapsulated surfaces indicated that PCBs were non-detect ($< 0.20 \mu\text{g}/100\text{cm}^2$) in the nine samples collected.
- Analytical results from indoor air samples collected as part of long term monitoring indicated that PCBs were generally consistent with previous sampling events and remain at concentrations below the action level of $500 \text{ ng}/\text{m}^3$.

3.1 CORRECTIVE ACTIONS

No corrective actions are warranted based on the results of the 2017 monitoring event.

3.2 MODIFICATIONS TO THE LONG TERM MONITORING AND MAINTENANCE PLAN

Based on the results of the inspections and sampling activities conducted in 2017, no modifications to the existing Long Term Monitoring and Maintenance Plan are warranted.

3.3 NEXT MONITORING EVENT

Pursuant to the CAFO, the next monitoring event will be conducted in June 2018 and consist of the following activities to be conducted in accordance with the December 2014 Revised MMIP:

- Visual inspections of encapsulated glazing sealants and exterior masonry surrounding the Type L windows;
- Wipe sampling of accessible non-porous surfaces from randomly selected locations;
- Wipe sampling of encapsulated surfaces from randomly selected locations; and
- Collecting indoor air samples.

Based on the results from the 2017 monitoring program, the wipe sample locations will not be biased towards surfaces encapsulated as part of the 2012 NIH renovation, however, it is anticipated that some of those locations will be included in the monitoring due to the distribution methods outlined in the MMIP.

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 ($\mu\text{g}/100\text{cm}^2$) |
|----------|----------------|--------------|-------------|--|
| 1 | Elevator Lobby | LGRC-VWP-010 | 6/19/2017 | <0.20 |
| 3 | Elevator Lobby | LGRC-VWP-011 | 6/19/2017 | <0.20 |
| 5 | 505B | LGRC-VWP-012 | 6/19/2017 | <0.20 |
| 7 | Elevator Lobby | LGRC-VWP-013 | 6/19/2017 | <0.20 |
| 8 | Elevator Lobby | LGRC-VWP-014 | 6/19/2017 | <0.20 |
| 11 | 1106 | LGRC-VWP-015 | 6/19/2017 | <0.20 |
| 13 | 1307 | LGRC-VWP-016 | 6/19/2017 | <0.20 |
| 15 | 1508 | LGRC-VWP-017 | 6/19/2017 | <0.20 |
| Low Rise | A106 | LGRC-VWP-018 | 7/3/2017 | <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 100cm² sample area.

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

| Floor | 2014 Baseline Wipe Samples | | | | June 2015 Wipe Samples | | | | June 2016 Wipe Samples | | | | June 2017 Wipe Samples | | | |
|----------|----------------------------|-----------------|-------------|-------------------------------------|------------------------|--------------|-------------|-------------------------------------|------------------------|--------------|-------------|-------------------------------------|------------------------|--------------|-------------|-------------------------------------|
| | Room Number | Sample ID | Sample Date | Total PCBs (µg/100cm ²) | Room Number | Sample ID | Sample Date | Total PCBs (µg/100cm ²) | Room Number | Sample ID | Sample Date | Total PCBs (µg/100cm ²) | Room Number | Sample ID | Sample Date | Total PCBs (µg/100cm ²) |
| 1 | Elevator Lobby | LGRC-EN-VWK-124 | 2/24/2014 | < 0.20 | Elevator Lobby | LGRC-VWP-103 | 6/18/2015 | < 0.20 | Elevator Lobby | LGRC-VWP-115 | 6/21/2016 | < 0.20 | Elevator Lobby | LGRC-VWP-001 | 6/19/2017 | < 0.20 |
| 2 | Elevator Lobby | LGRC-EN-VWK-128 | 2/24/2014 | < 0.20 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3 | Elevator Lobby | LGRC-EN-VWK-130 | 2/24/2014 | 3.1 | Southern Stairway | LGRC-VWP-105 | 6/18/2015 | < 0.20 | Elevator Lobby | LGRC-VWP-113 | 6/21/2016 | 1.7 | Elevator Lobby | LGRC-VWP-002 | 6/19/2017 | < 0.20 |
| 4 | 408 | LGRC-EN-VWK-100 | 2/24/2014 | < 0.20 | -- | -- | -- | -- | South Stairwell | LGRC-VWP-111 | 6/21/2016 | < 0.20 | -- | -- | -- | -- |
| 5 | 502 | LGRC-EN-VWK-102 | 2/24/2014 | < 0.20 | 510 | LGRC-VWP-107 | 6/18/2015 | 0.30 | -- | -- | -- | -- | 505B | LGRC-VWP-003 | 6/19/2017 | < 0.20 |
| 6 | 605 | LGRC-EN-VWK-104 | 2/24/2014 | 0.27 | -- | -- | -- | -- | 605 | LGRC-VWP-109 | 6/21/2016 | 0.33 | -- | -- | -- | -- |
| 7 | Elevator Lobby | LGRC-EN-VWK-126 | 2/24/2014 | 0.64 | Elevator Lobby | LGRC-VWP-109 | 6/18/2015 | 3.3 | Elevator Lobby | LGRC-VWP-107 | 6/21/2016 | 3.2 | Elevator Lobby | LGRC-VWP-004 | 6/19/2017 | < 0.20 |
| 8 | Elevator Lobby | LGRC-EN-VWK-122 | 2/24/2014 | 1.5 | -- | -- | -- | -- | -- | -- | -- | -- | Elevator Lobby | LGRC-VWP-005 | 6/19/2017 | < 0.20 |
| 9 | 903A | LGRC-EN-VWK-120 | 2/24/2014 | < 0.20 | 903 | LGRC-VWP-111 | 6/18/2015 | 0.38 | -- | -- | -- | -- | -- | -- | -- | -- |
| 10 | 1003 | LGRC-EN-VWK-118 | 2/24/2014 | 0.21 | -- | -- | -- | -- | 1003C | LGRC-VWP-117 | 6/21/2016 | 0.24 | -- | -- | -- | -- |
| 11 | 1108 | LGRC-EN-VWK-116 | 2/24/2014 | < 0.20 | 1105 | LGRC-VWP-113 | 6/18/2015 | < 0.20 | -- | -- | -- | -- | 1106 | LGRC-VWP-006 | 6/19/2017 | < 0.20 |
| 12 | 1209 | LGRC-EN-VWK-114 | 2/24/2014 | < 0.20 | -- | -- | -- | -- | 1208 | LGRC-VWP-105 | 6/21/2016 | 0.79 | -- | -- | -- | -- |
| 13 | 1306 | LGRC-EN-VWK-112 | 2/24/2014 | < 0.20 | 1303 | LGRC-VWP-116 | 6/18/2015 | < 0.20 | -- | -- | -- | -- | 1307 | LGRC-VWP-007 | 6/19/2017 | < 0.20 |
| 14 | Elevator Lobby | LGRC-EN-VWK-110 | 2/24/2014 | 0.21 | -- | -- | -- | -- | 1405 | LGRC-VWP-103 | 6/21/2016 | 0.81 | -- | -- | -- | -- |
| 15 | 1508 | LGRC-EN-VWK-108 | 2/24/2014 | < 0.20 | 1509 | LGRC-VWP-119 | 6/18/2015 | 0.82 | -- | -- | -- | -- | 1508 | LGRC-VWP-008 | 6/19/2017 | < 0.20 |
| 16 | 1607 | LGRC-EN-VWK-106 | 2/24/2014 | 0.95 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Low Rise | A106 | LGRC-EN-VWK-132 | 2/24/2014 | < 0.20 | A106 | LGRC-VWP-101 | 6/18/2015 | < 0.20 | A106 | LGRC-VWP-101 | 6/21/2016 | < 0.20 | A106 | LGRC-VWP-009 | 6/20/2017 | < 0.20 |

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.

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/m³ | | | | | |
| June 18, 2015 | | | | | |
| 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 | | | | | |
| 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 | | | | | |
| 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 |

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/m³ = 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



University of Massachusetts Amherst Campus Map

July 2011

University Switchboard - (413) 545-0111

Tour Service - (413) 545-4237

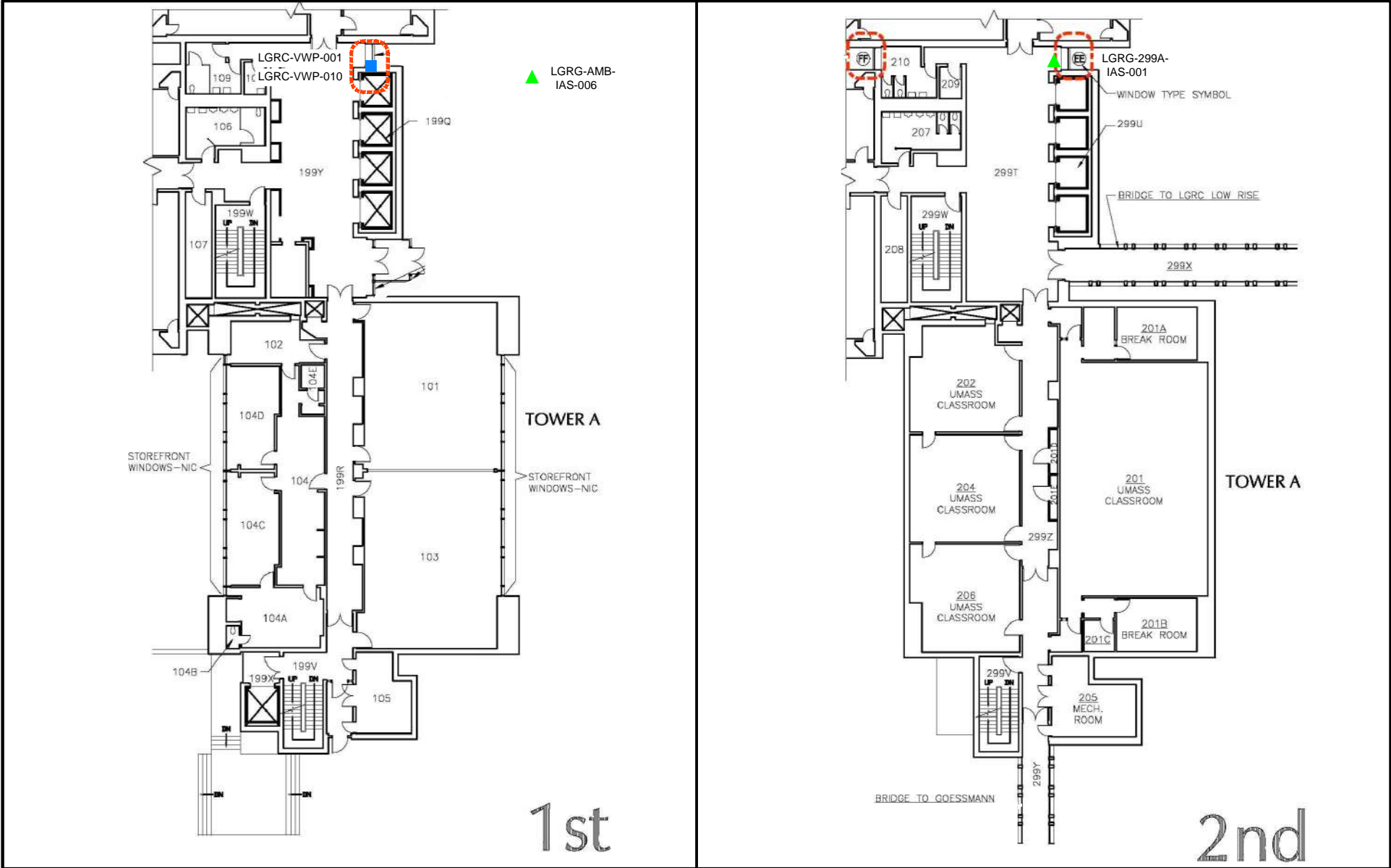
Robsham Memorial Visitors Center - (413) 545-0306

Map Key

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

Project Location

Figure 1-1 Site Location Map



LEGEND

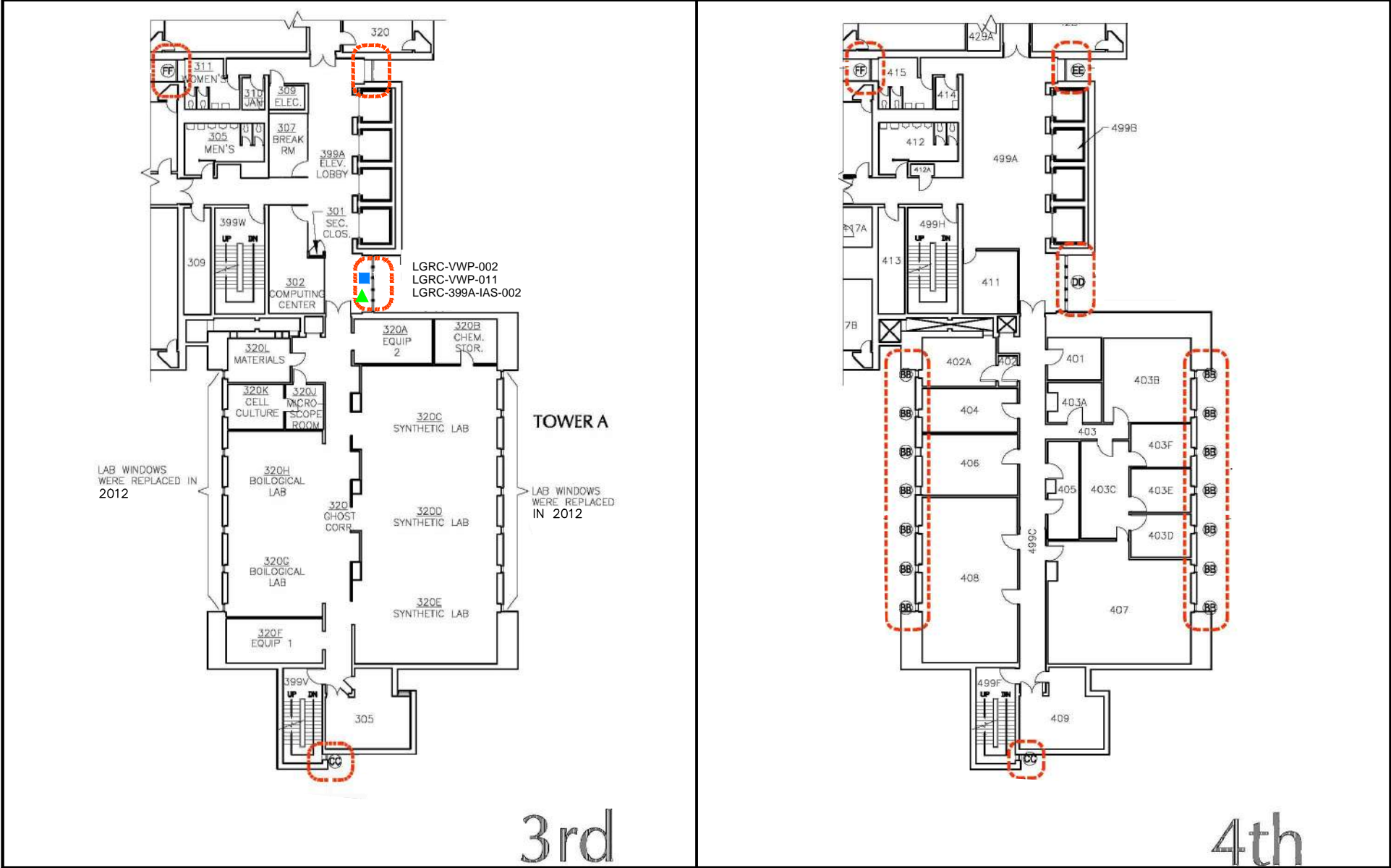
LOCATION OF WINDOWS/GLAZING SEALANTS INCLUDED IN THE INTERIM MEASURES AND SUBJECT TO LONG TERM MONITORING AND MAINTENANCE

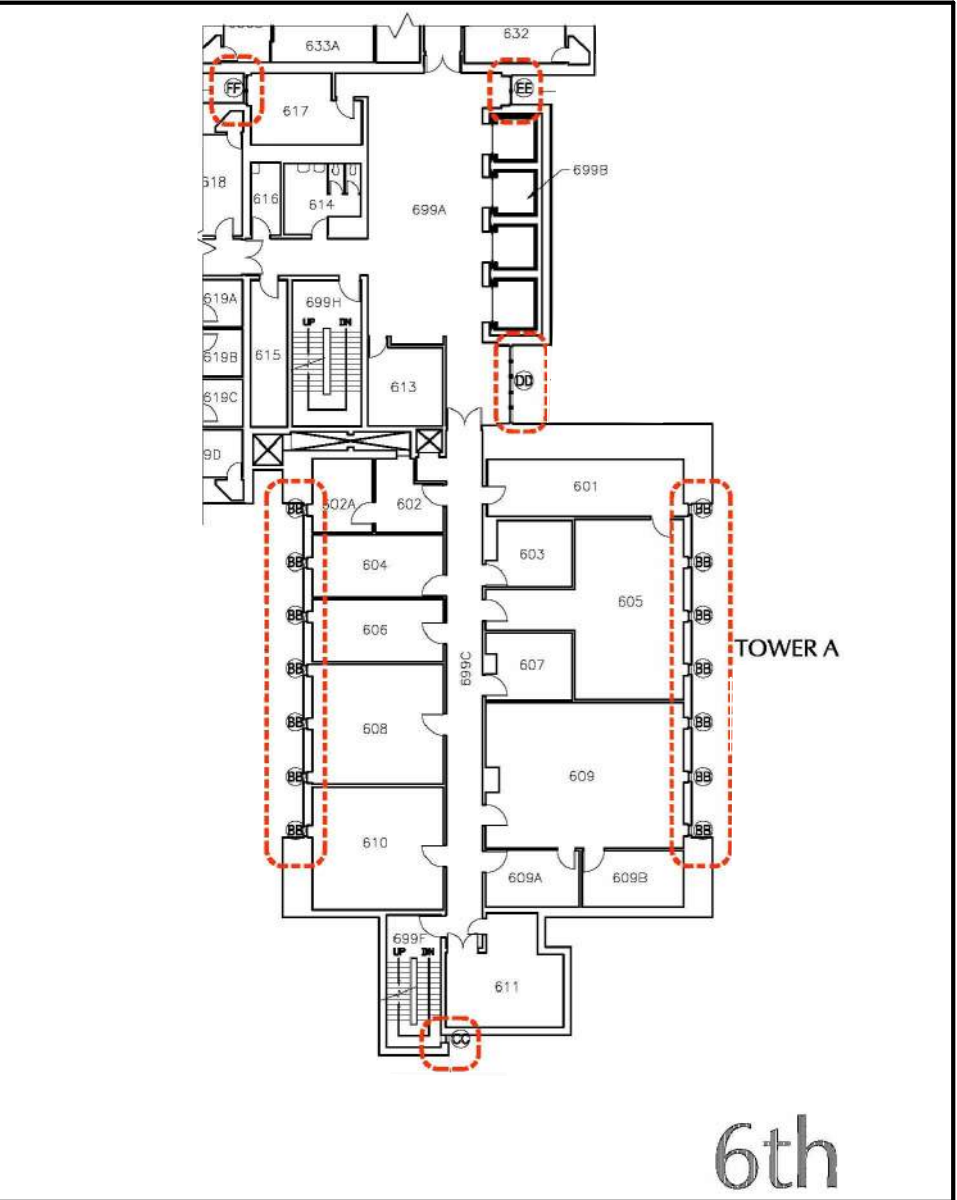
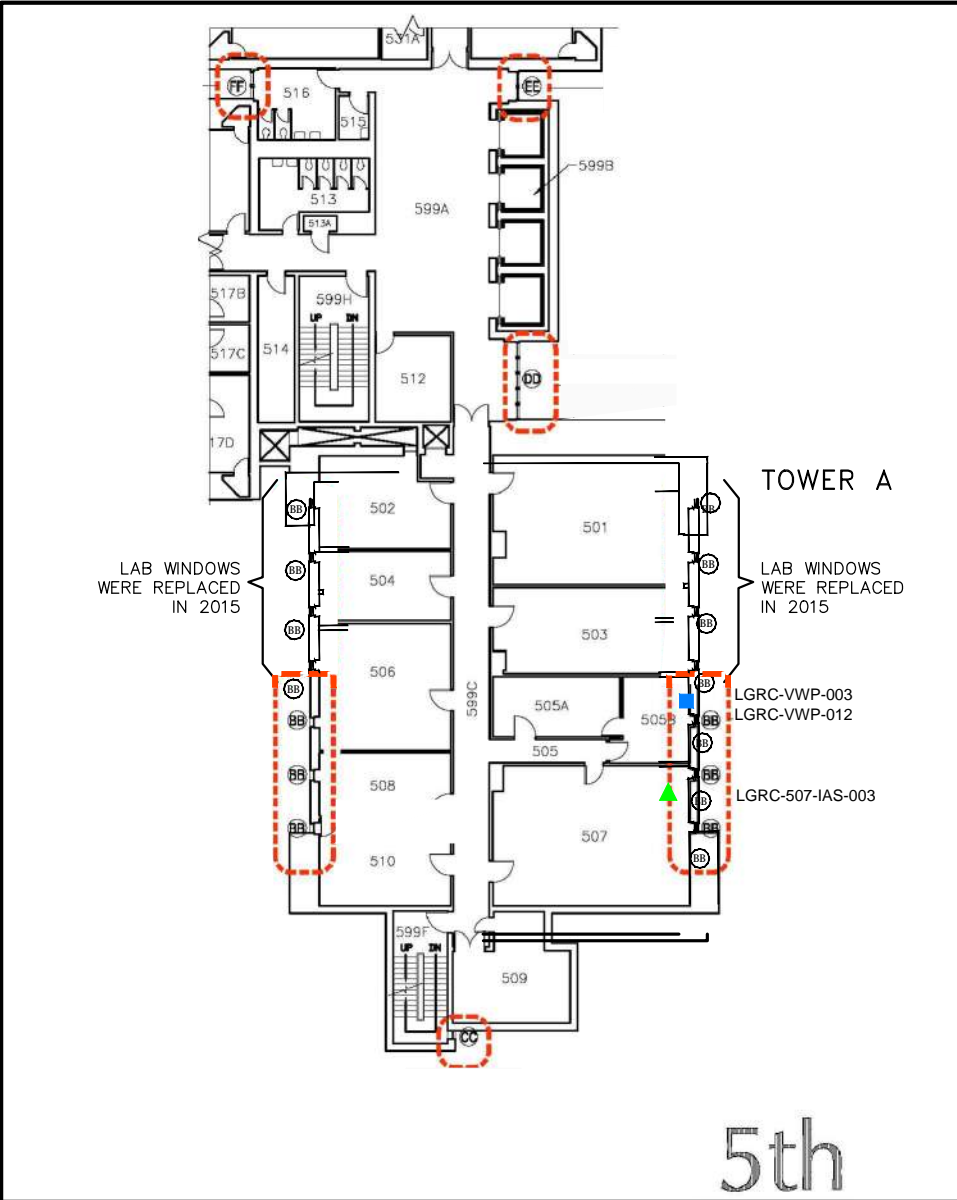
Wipe Sampling Location

Indoor Air Sampling Location

NOTE:

1. ORIGINAL DESIGN DRAWINGS BY GOLDMAN REINDORF ARCHITECTS INC.

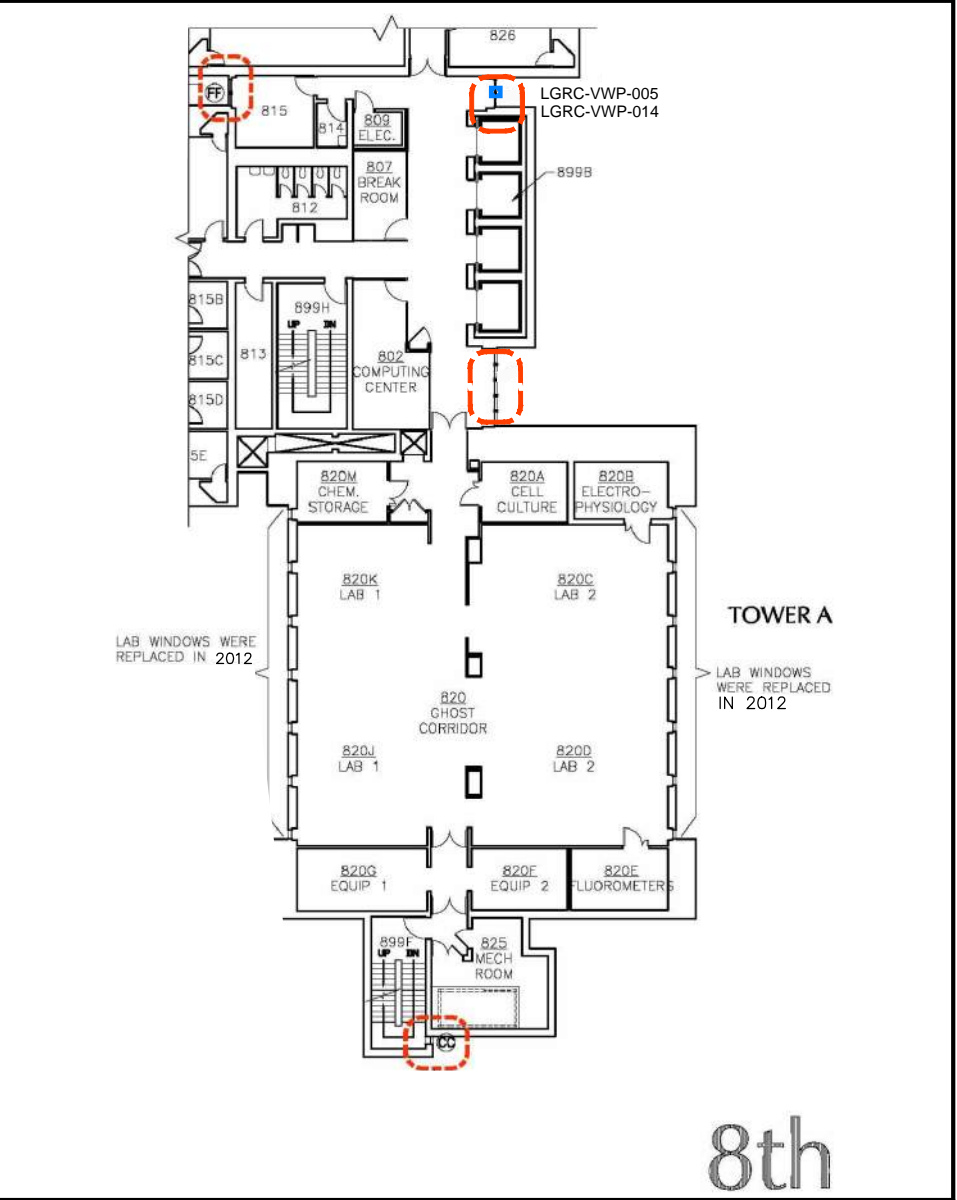
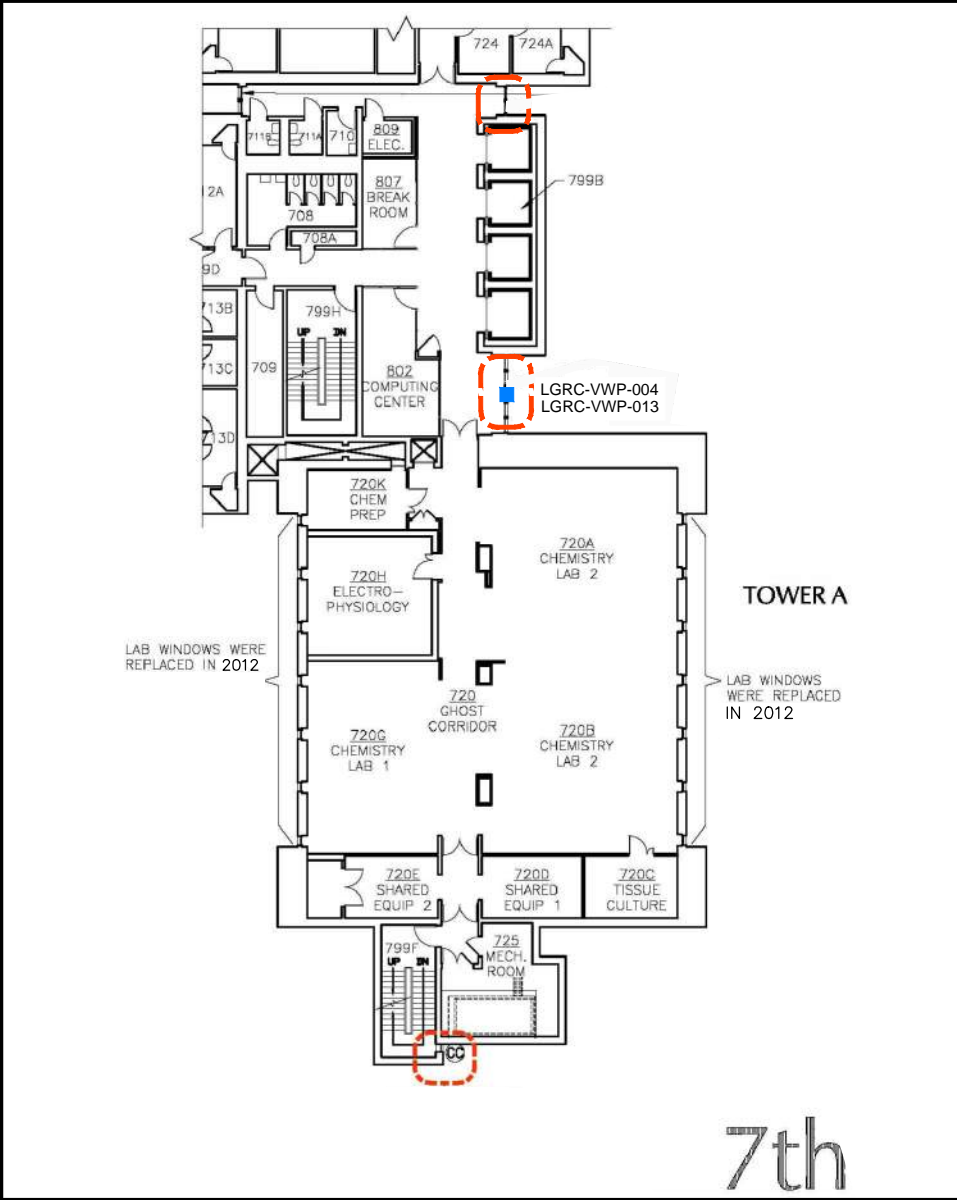


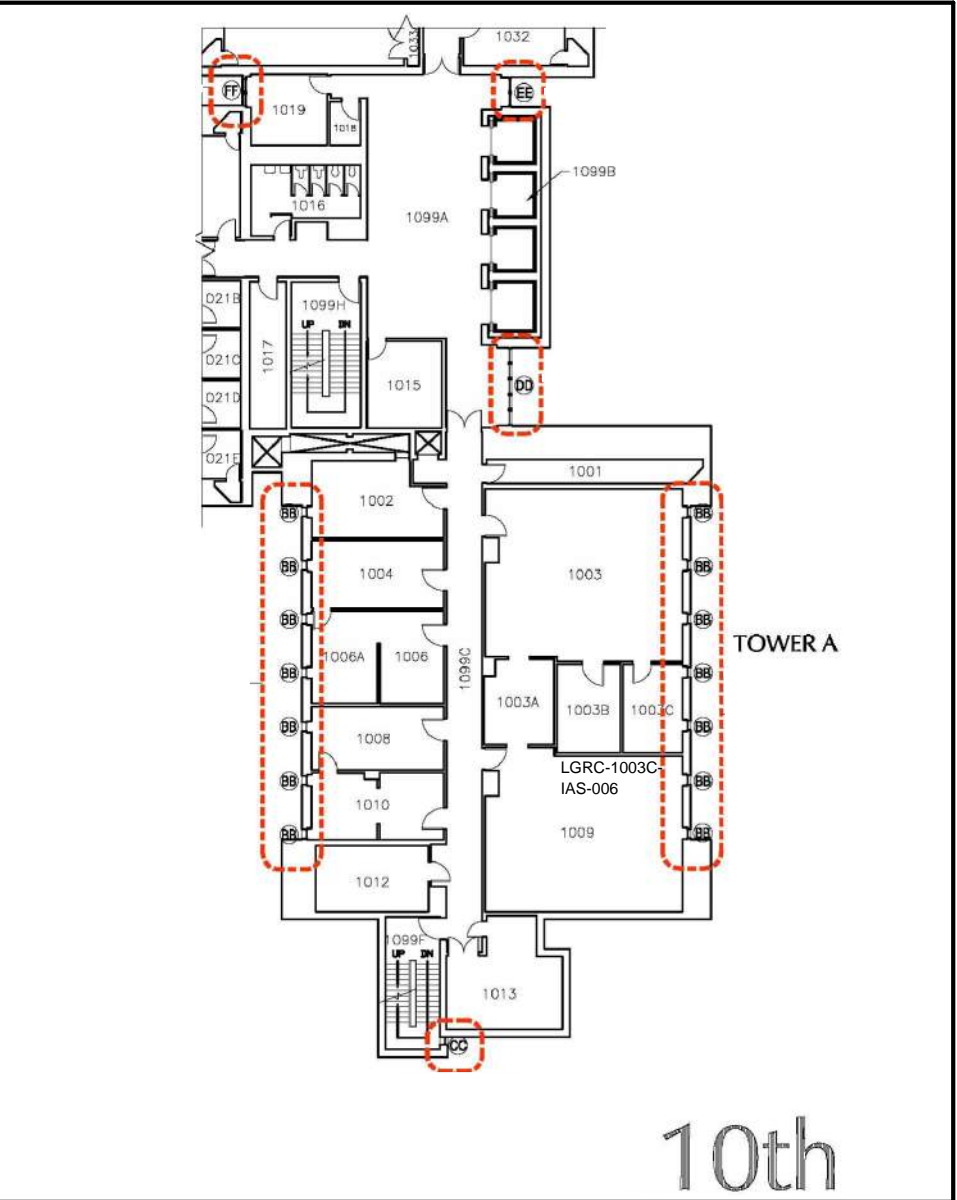
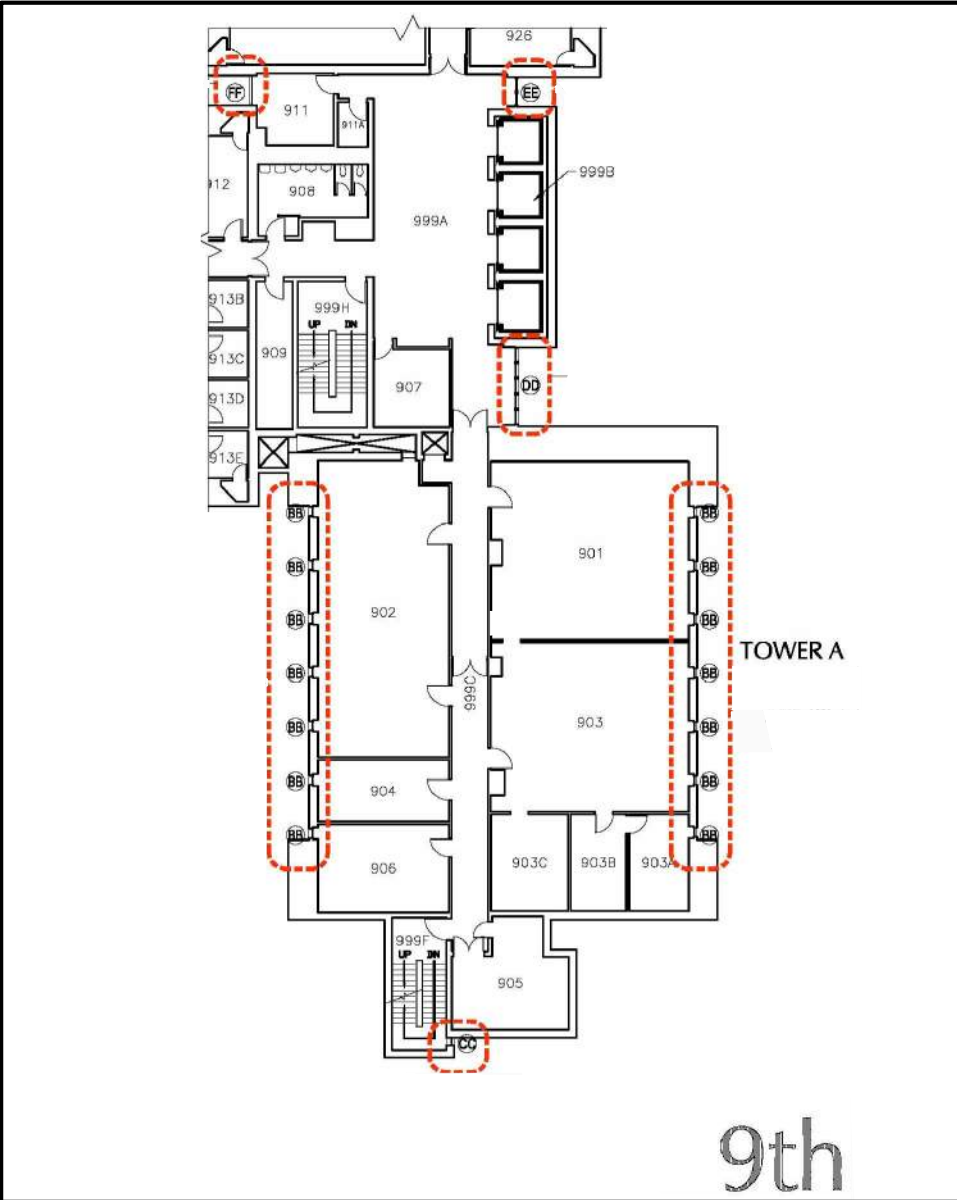


- LEGEND**
- LOCATION OF WINDOWS/GLAZING SEALANTS INCLUDED IN THE INTERIM MEASURES AND SUBJECT TO LONG TERM MONITORING AND MAINTENANCE
 - Wipe Sampling Location
 - Indoor Air Sampling Location

NOTE:

1. ORIGINAL DESIGN DRAWINGS BY GOLDMAN REINDORF ARCHITECTS INC.





LEGEND

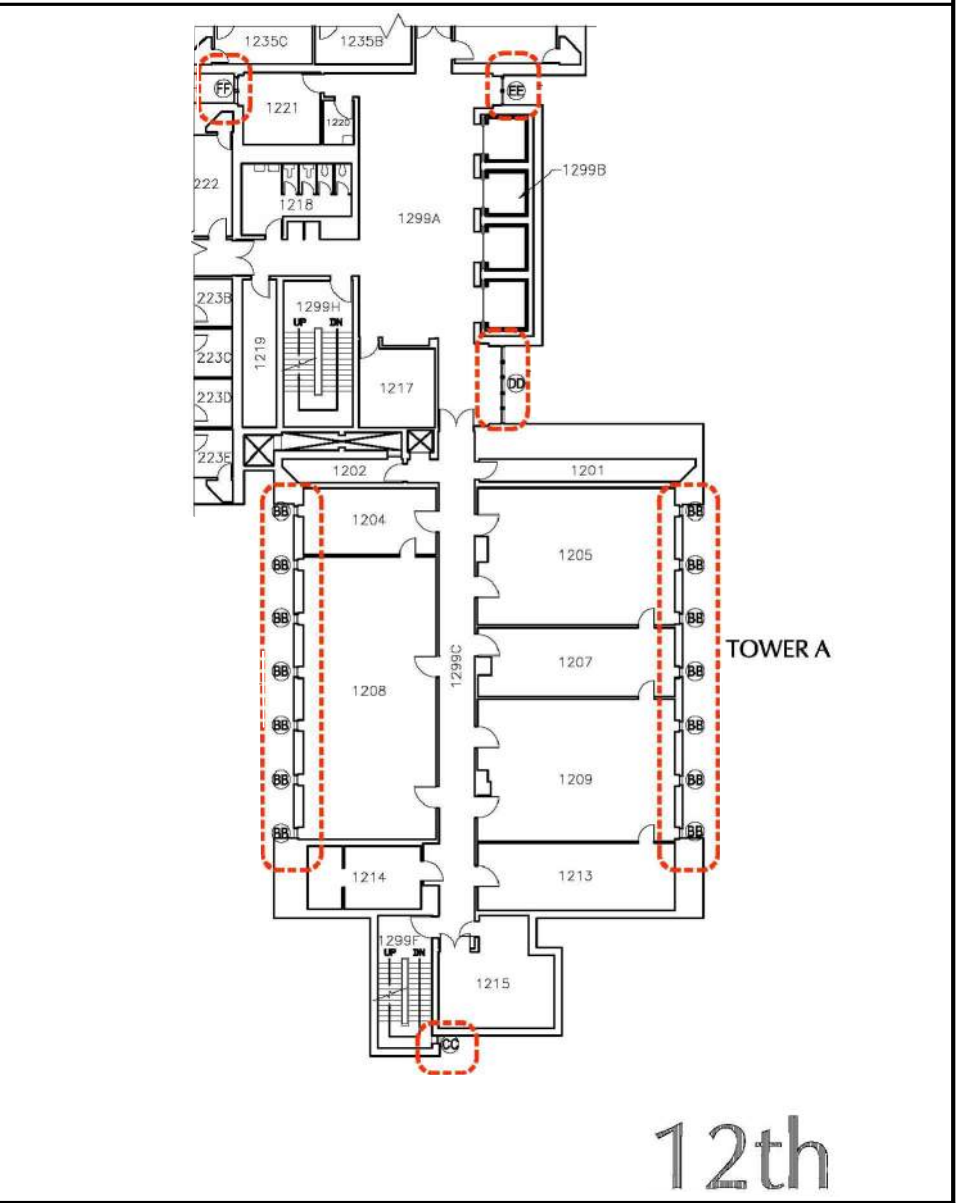
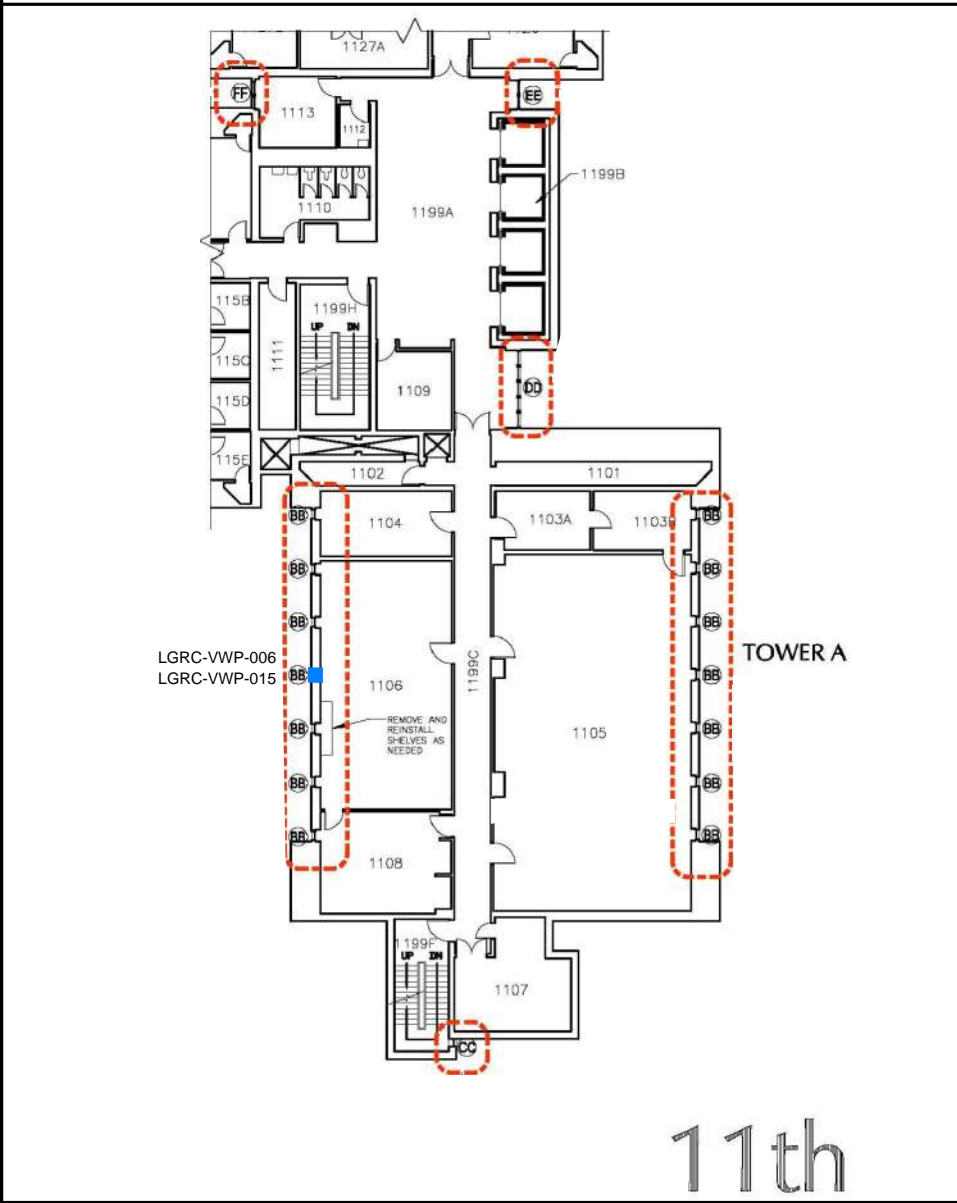
LOCATION OF WINDOWS/GLAZING SEALANTS INCLUDED IN THE INTERIM MEASURES AND SUBJECT TO LONG TERM MONITORING AND MAINTENANCE

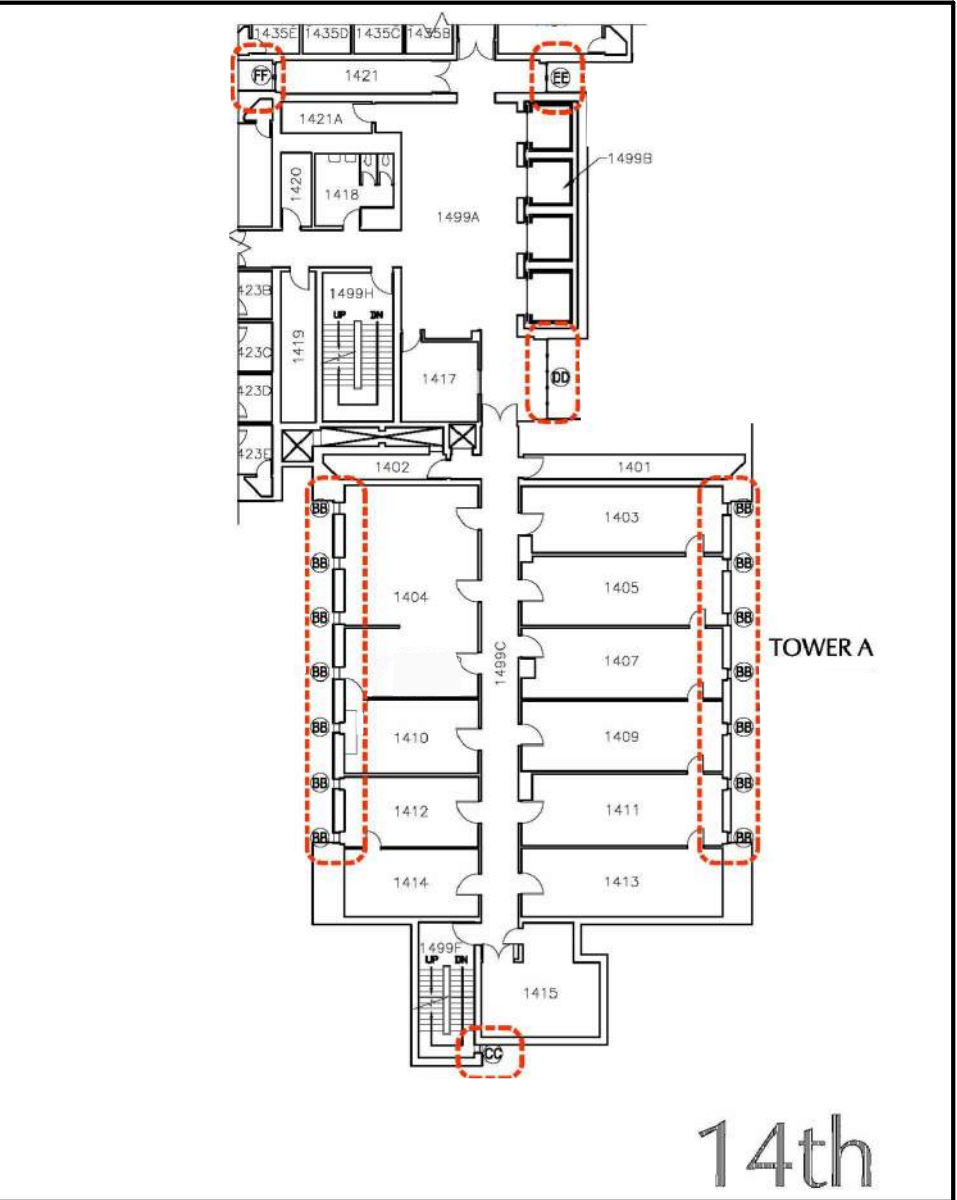
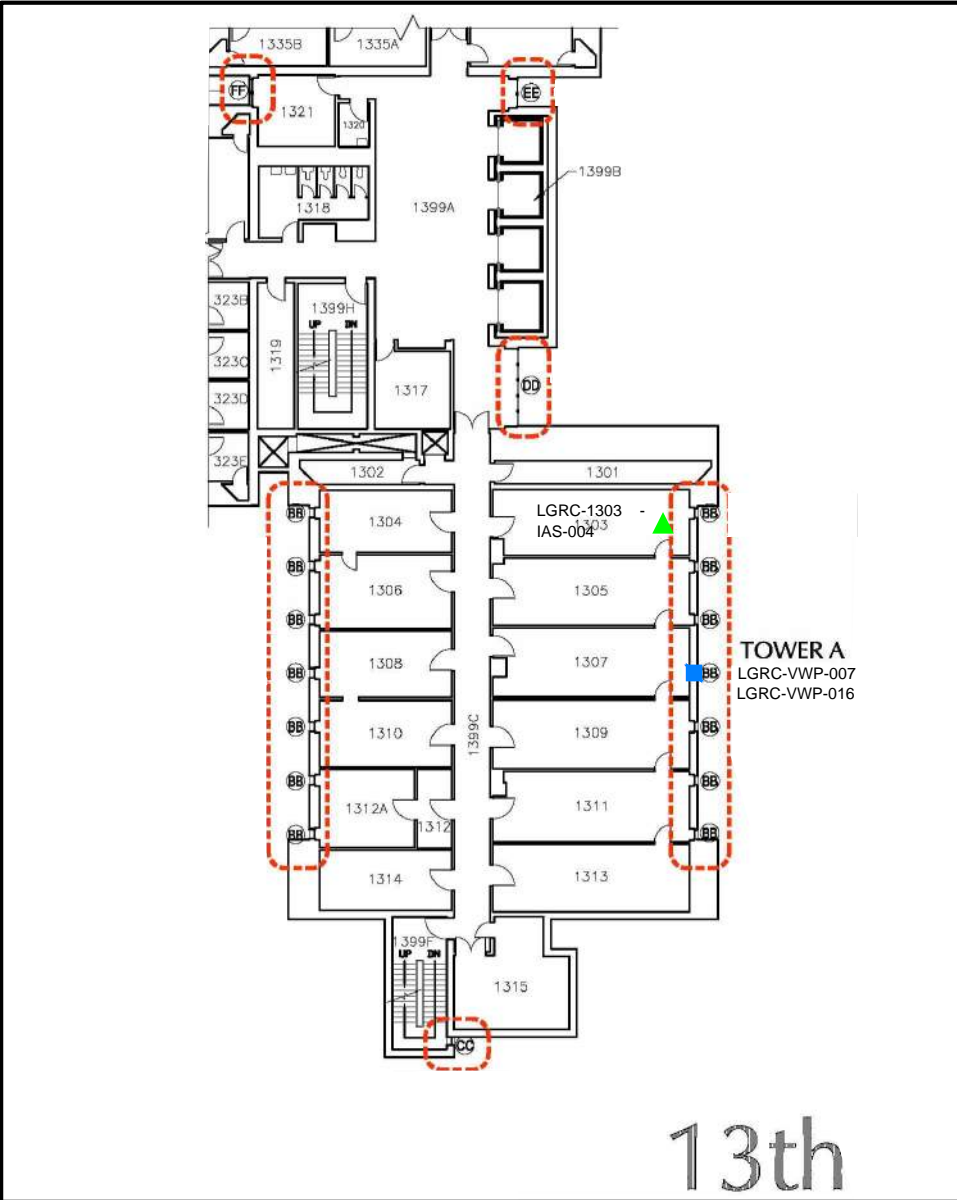
Wipe Sampling Location

Indoor Air Sampling Location

NOTE:

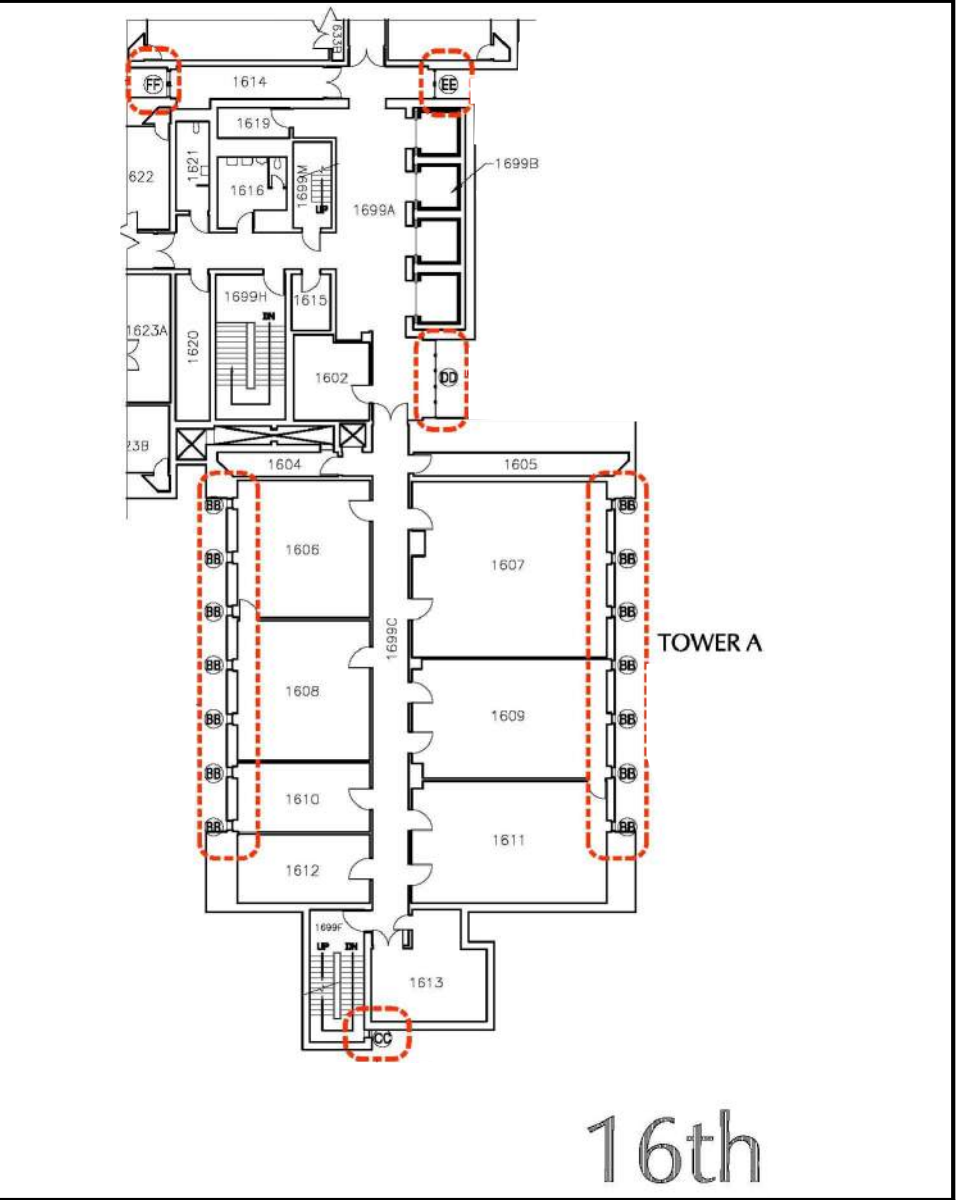
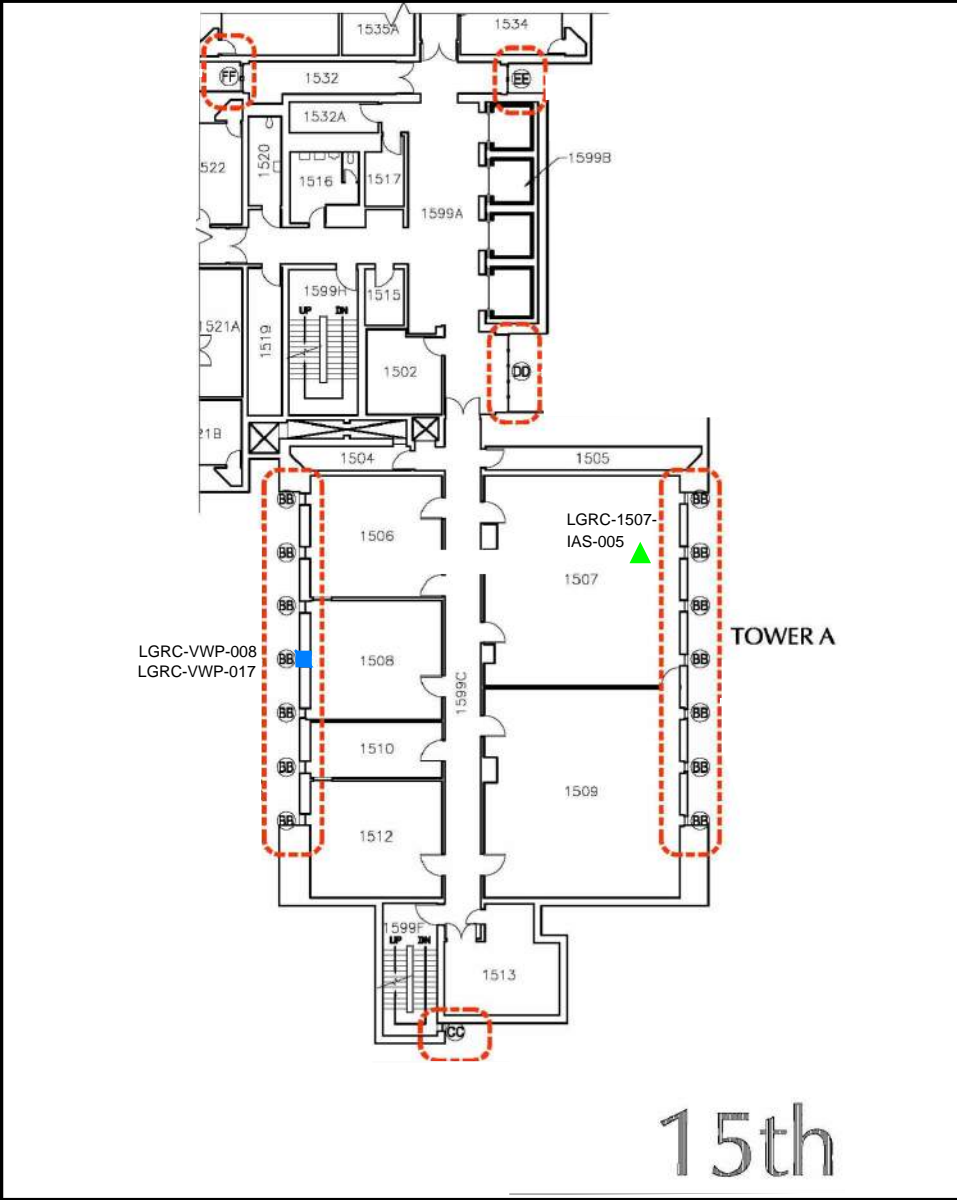
1. ORIGINAL DESIGN DRAWINGS BY GOLDMAN REINDORF ARCHITECTS INC.





- LEGEND**
- LOCATION OF WINDOWS/GLAZING SEALANTS INCLUDED IN THE INTERIM MEASURES AND SUBJECT TO LONG TERM MONITORING AND MAINTENANCE
 - Wipe Sampling Location
 - Indoor Air Sampling Location

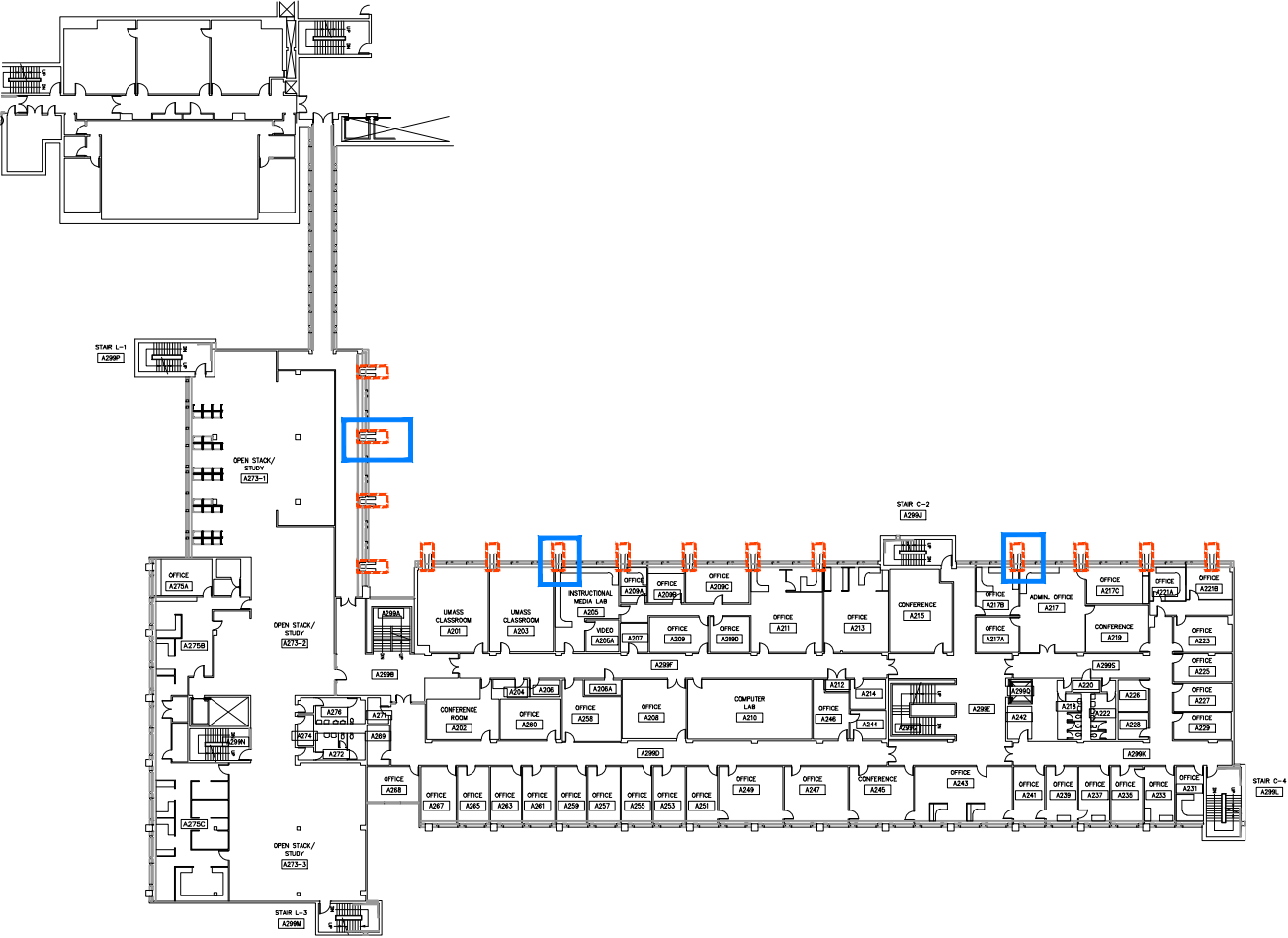
NOTE:
ORIGINAL DESIGN DRAWINGS BY GOLDMAN REINDORF ARCHITECTS INC.



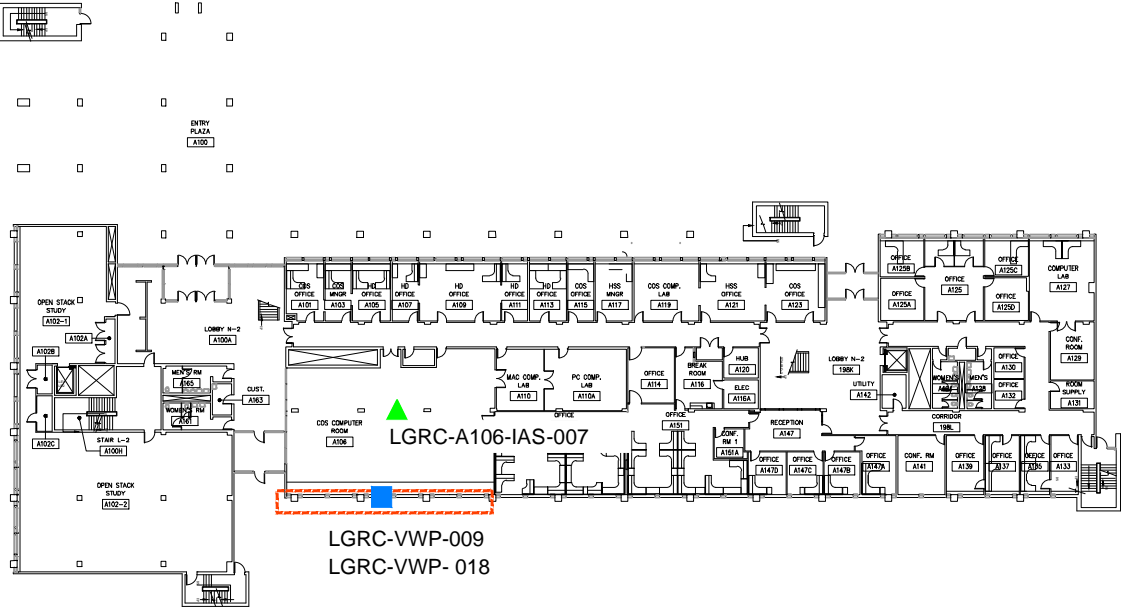
LEGEND:

- LOCATION OF WINDOWS/GLAZING SEALANTS OR EXTERIOR CONCRETE SURFACES INCLUDED IN THE INTERIM MEASURE AND SUBJECT TO LONG TERM MONITORING AND MAINTENANCE.
- LOCATION OF WIPE SAMPLES
- LOCATION OF LONG TERM MONITORING AIR SAMPLE
- TYPE- L WINDOWS INCLUDED IN THE VISUAL INSPECTIONS

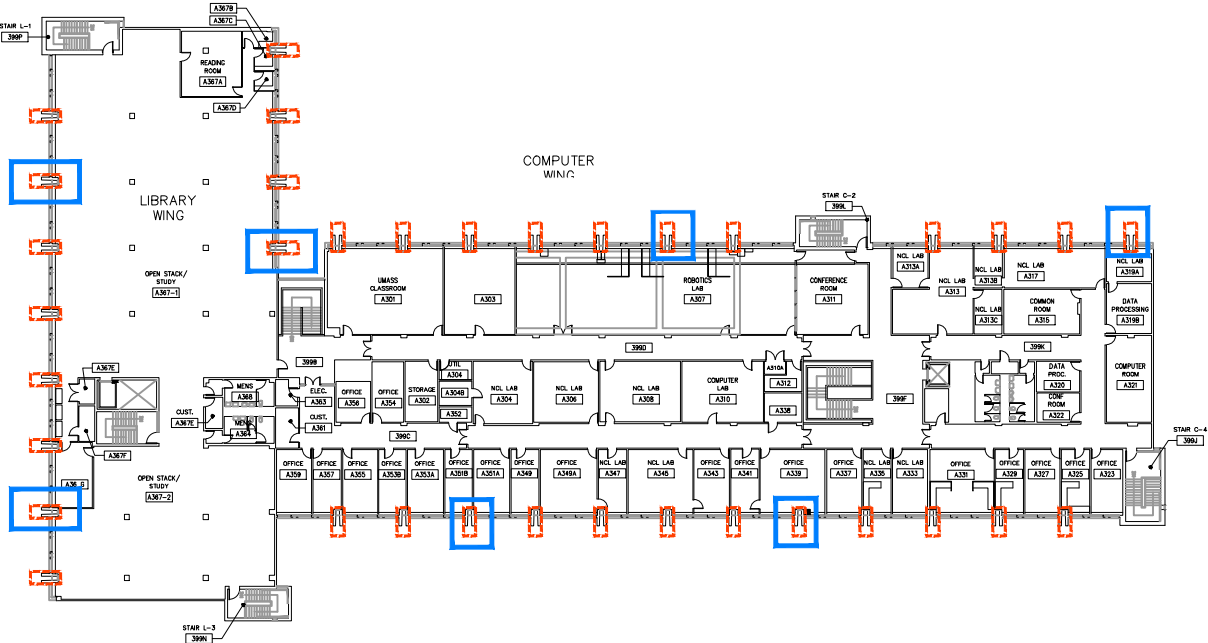
NOTE:
ORIGINAL DESIGN DRAWINGS BY GOLDMAN REINDORF ARCHITECTS INC.



SECOND FLOOR PLAN



FIRST FLOOR PLAN



THIRD FLOOR PLAN

APPENDIX A: ANALYTICAL LABORATORY REPORTS AND DATA VALIDATION SUMMARIES

June 28, 2017

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

Project Location: UMASS LGRC- Amherst, MA
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 17F1185

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

Sincerely,

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

Meghan E. Kelley
Project Manager

Table of Contents

| | |
|--|----|
| Sample Summary | 3 |
| Case Narrative | 4 |
| Sample Results | 5 |
| 17F1185-01 | 5 |
| 17F1185-02 | 6 |
| 17F1185-03 | 7 |
| 17F1185-04 | 8 |
| 17F1185-05 | 9 |
| 17F1185-06 | 10 |
| 17F1185-07 | 11 |
| 17F1185-08 | 12 |
| 17F1185-09 | 13 |
| 17F1185-10 | 14 |
| Sample Preparation Information | 15 |
| QC Data | 16 |
| Polychlorinated Biphenyls with 3540 Soxhlet Extraction | 16 |
| B179938 | 16 |
| Flag/Qualifier Summary | 17 |
| Certifications | 18 |
| Chain of Custody/Sample Receipt | 19 |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332Woodard & Curran - CT
213 Court Street., 4th Floor
Middletown, CT 06457
ATTN: George Franklin

REPORT DATE: 6/28/2017

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 17F1185

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

PROJECT LOCATION: UMASS LGRC- Amherst, MA

| FIELD SAMPLE # | LAB ID: | MATRIX | SAMPLE DESCRIPTION | TEST | SUB LAB |
|----------------|------------|--------|--------------------|--------------|---------|
| LGRC-VWP-001 | 17F1185-01 | Wipe | | SW-846 8082A | |
| LGRC-VWP-002 | 17F1185-02 | Wipe | | SW-846 8082A | |
| LGRC-VWP-003 | 17F1185-03 | Wipe | | SW-846 8082A | |
| LGRC-VWP-004 | 17F1185-04 | Wipe | | SW-846 8082A | |
| LGRC-VWP-005 | 17F1185-05 | Wipe | | SW-846 8082A | |
| LGRC-VWP-006 | 17F1185-06 | Wipe | | SW-846 8082A | |
| LGRC-VWP-007 | 17F1185-07 | Wipe | | SW-846 8082A | |
| LGRC-VWP-007D | 17F1185-08 | Wipe | | SW-846 8082A | |
| LGRC-VWP-008 | 17F1185-09 | Wipe | | SW-846 8082A | |
| LGRC-VWP-009 | 17F1185-10 | Wipe | | SW-846 8082A | |

CASE NARRATIVE SUMMARY

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

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

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

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

Lisa A. Worthington
Project Manager

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

Project Location: UMASS LGRC- Amherst, MA

Sample Description:

Work Order: 17F1185

Date Received: 6/21/2017

Field Sample #: LGRC-VWP-001

Sampled: 6/19/2017 10:42

Sample ID: 17F1185-01

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-----------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:30 | KAL |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:30 | KAL |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:30 | KAL |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:30 | KAL |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:30 | KAL |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:30 | KAL |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:30 | KAL |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:30 | KAL |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:30 | KAL |
| Surrogates | % Recovery | Recovery Limits | Flag/Qual | | | | | | |
| Decachlorobiphenyl [1] | 82.8 | 30-150 | | | | | | | |
| Decachlorobiphenyl [2] | 90.3 | 30-150 | | | | | | | |
| Tetrachloro-m-xylene [1] | 87.5 | 30-150 | | | | | | | |
| Tetrachloro-m-xylene [2] | 99.1 | 30-150 | | | | | | | |

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

Project Location: UMASS LGRC- Amherst, MA

Sample Description:

Work Order: 17F1185

Date Received: 6/21/2017

Field Sample #: LGRC-VWP-002

Sampled: 6/19/2017 10:48

Sample ID: 17F1185-02

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-----------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:43 | KAL |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:43 | KAL |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:43 | KAL |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:43 | KAL |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:43 | KAL |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:43 | KAL |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:43 | KAL |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:43 | KAL |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:43 | KAL |
| Surrogates | % Recovery | Recovery Limits | Flag/Qual | | | | | | |
| Decachlorobiphenyl [1] | 83.6 | 30-150 | | | | | | | |
| Decachlorobiphenyl [2] | 92.5 | 30-150 | | | | | | | |
| Tetrachloro-m-xylene [1] | 87.0 | 30-150 | | | | | | | |
| Tetrachloro-m-xylene [2] | 97.9 | 30-150 | | | | | | | |

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

Project Location: UMASS LGRC- Amherst, MA

Sample Description:

Work Order: 17F1185

Date Received: 6/21/2017

Field Sample #: LGRC-VWP-003

Sampled: 6/19/2017 11:02

Sample ID: 17F1185-03

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-----------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:55 | KAL |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:55 | KAL |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:55 | KAL |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:55 | KAL |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:55 | KAL |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:55 | KAL |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:55 | KAL |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:55 | KAL |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 15:55 | KAL |
| Surrogates | % Recovery | Recovery Limits | Flag/Qual | | | | | | |
| Decachlorobiphenyl [1] | 80.4 | 30-150 | | | | | | 6/27/17 15:55 | |
| Decachlorobiphenyl [2] | 85.9 | 30-150 | | | | | | 6/27/17 15:55 | |
| Tetrachloro-m-xylene [1] | 85.8 | 30-150 | | | | | | 6/27/17 15:55 | |
| Tetrachloro-m-xylene [2] | 96.9 | 30-150 | | | | | | 6/27/17 15:55 | |

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

Project Location: UMASS LGRC- Amherst, MA

Sample Description:

Work Order: 17F1185

Date Received: 6/21/2017

Field Sample #: LGRC-VWP-004

Sampled: 6/19/2017 11:08

Sample ID: 17F1185-04

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-----------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:08 | KAL |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:08 | KAL |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:08 | KAL |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:08 | KAL |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:08 | KAL |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:08 | KAL |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:08 | KAL |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:08 | KAL |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:08 | KAL |
| Surrogates | % Recovery | Recovery Limits | Flag/Qual | | | | | | |
| Decachlorobiphenyl [1] | 75.9 | 30-150 | | | | | | 6/27/17 16:08 | |
| Decachlorobiphenyl [2] | 79.9 | 30-150 | | | | | | 6/27/17 16:08 | |
| Tetrachloro-m-xylene [1] | 82.1 | 30-150 | | | | | | 6/27/17 16:08 | |
| Tetrachloro-m-xylene [2] | 90.7 | 30-150 | | | | | | 6/27/17 16:08 | |

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

Project Location: UMASS LGRC- Amherst, MA

Sample Description:

Work Order: 17F1185

Date Received: 6/21/2017

Field Sample #: LGRC-VWP-005

Sampled: 6/19/2017 11:12

Sample ID: 17F1185-05

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-----------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:20 | KAL |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:20 | KAL |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:20 | KAL |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:20 | KAL |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:20 | KAL |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:20 | KAL |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:20 | KAL |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:20 | KAL |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:20 | KAL |
| Surrogates | % Recovery | Recovery Limits | Flag/Qual | | | | | | |
| Decachlorobiphenyl [1] | 82.4 | 30-150 | | | | | | | |
| Decachlorobiphenyl [2] | 86.6 | 30-150 | | | | | | | |
| Tetrachloro-m-xylene [1] | 87.3 | 30-150 | | | | | | | |
| Tetrachloro-m-xylene [2] | 98.5 | 30-150 | | | | | | | |

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

Project Location: UMASS LGRC- Amherst, MA

Sample Description:

Work Order: 17F1185

Date Received: 6/21/2017

Field Sample #: LGRC-VWP-006

Sampled: 6/19/2017 11:20

Sample ID: 17F1185-06

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-----------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:33 | KAL |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:33 | KAL |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:33 | KAL |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:33 | KAL |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:33 | KAL |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:33 | KAL |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:33 | KAL |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:33 | KAL |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:33 | KAL |
| Surrogates | % Recovery | Recovery Limits | Flag/Qual | | | | | | |
| Decachlorobiphenyl [1] | 82.6 | 30-150 | | | | | | 6/27/17 16:33 | |
| Decachlorobiphenyl [2] | 87.7 | 30-150 | | | | | | 6/27/17 16:33 | |
| Tetrachloro-m-xylene [1] | 84.2 | 30-150 | | | | | | 6/27/17 16:33 | |
| Tetrachloro-m-xylene [2] | 95.3 | 30-150 | | | | | | 6/27/17 16:33 | |

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

Project Location: UMASS LGRC- Amherst, MA

Sample Description:

Work Order: 17F1185

Date Received: 6/21/2017

Field Sample #: LGRC-VWP-007

Sampled: 6/19/2017 11:28

Sample ID: 17F1185-07

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-----------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:46 | KAL |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:46 | KAL |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:46 | KAL |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:46 | KAL |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:46 | KAL |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:46 | KAL |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:46 | KAL |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:46 | KAL |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:46 | KAL |
| Surrogates | % Recovery | Recovery Limits | Flag/Qual | | | | | | |
| Decachlorobiphenyl [1] | 83.5 | 30-150 | | | | | | 6/27/17 16:46 | |
| Decachlorobiphenyl [2] | 89.3 | 30-150 | | | | | | 6/27/17 16:46 | |
| Tetrachloro-m-xylene [1] | 87.4 | 30-150 | | | | | | 6/27/17 16:46 | |
| Tetrachloro-m-xylene [2] | 99.4 | 30-150 | | | | | | 6/27/17 16:46 | |

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

Project Location: UMASS LGRC- Amherst, MA

Sample Description:

Work Order: 17F1185

Date Received: 6/21/2017

Field Sample #: LGRC-VWP-007D

Sampled: 6/19/2017 11:28

Sample ID: 17F1185-08

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-----------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:59 | KAL |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:59 | KAL |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:59 | KAL |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:59 | KAL |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:59 | KAL |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:59 | KAL |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:59 | KAL |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:59 | KAL |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 16:59 | KAL |
| Surrogates | % Recovery | Recovery Limits | Flag/Qual | | | | | | |
| Decachlorobiphenyl [1] | 85.7 | 30-150 | | | | | | | |
| Decachlorobiphenyl [2] | 90.6 | 30-150 | | | | | | | |
| Tetrachloro-m-xylene [1] | 87.5 | 30-150 | | | | | | | |
| Tetrachloro-m-xylene [2] | 98.9 | 30-150 | | | | | | | |

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

Project Location: UMASS LGRC- Amherst, MA

Sample Description:

Work Order: 17F1185

Date Received: 6/21/2017

Field Sample #: LGRC-VWP-008

Sampled: 6/19/2017 11:35

Sample ID: 17F1185-09

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 | 6/22/17 | 6/27/17 17:12 | KAL |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 17:12 | KAL |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 17:12 | KAL |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 17:12 | KAL |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 17:12 | KAL |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 17:12 | KAL |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 17:12 | KAL |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 17:12 | KAL |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 17:12 | KAL |
| Surrogates | % Recovery | Recovery Limits | Flag/Qual | | | | | | |
| Decachlorobiphenyl [1] | 81.8 | 30-150 | | | | | | | |
| Decachlorobiphenyl [2] | 87.5 | 30-150 | | | | | | | |
| Tetrachloro-m-xylene [1] | 86.7 | 30-150 | | | | | | | |
| Tetrachloro-m-xylene [2] | 98.6 | 30-150 | | | | | | | |

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

Project Location: UMASS LGRC- Amherst, MA

Sample Description:

Work Order: 17F1185

Date Received: 6/21/2017

Field Sample #: LGRC-VWP-009

Sampled: 6/20/2017 09:35

Sample ID: 17F1185-10

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 | 6/22/17 | 6/27/17 17:24 | KAL |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 17:24 | KAL |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 17:24 | KAL |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 17:24 | KAL |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 17:24 | KAL |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 17:24 | KAL |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 17:24 | KAL |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 17:24 | KAL |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/27/17 17:24 | KAL |
| Surrogates | % Recovery | Recovery Limits | Flag/Qual | | | | | | |
| Decachlorobiphenyl [1] | 84.7 | 30-150 | | | | | | 6/27/17 17:24 | |
| Decachlorobiphenyl [2] | 90.6 | 30-150 | | | | | | 6/27/17 17:24 | |
| Tetrachloro-m-xylene [1] | 88.1 | 30-150 | | | | | | 6/27/17 17:24 | |
| Tetrachloro-m-xylene [2] | 101 | 30-150 | | | | | | 6/27/17 17:24 | |

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

| Lab Number [Field ID] | Batch | Initial [Wipe] | Final [mL] | Date |
|----------------------------|---------|----------------|------------|----------|
| 17F1185-01 [LGRC-VWP-001] | B179938 | 1.00 | 10.0 | 06/22/17 |
| 17F1185-02 [LGRC-VWP-002] | B179938 | 1.00 | 10.0 | 06/22/17 |
| 17F1185-03 [LGRC-VWP-003] | B179938 | 1.00 | 10.0 | 06/22/17 |
| 17F1185-04 [LGRC-VWP-004] | B179938 | 1.00 | 10.0 | 06/22/17 |
| 17F1185-05 [LGRC-VWP-005] | B179938 | 1.00 | 10.0 | 06/22/17 |
| 17F1185-06 [LGRC-VWP-006] | B179938 | 1.00 | 10.0 | 06/22/17 |
| 17F1185-07 [LGRC-VWP-007] | B179938 | 1.00 | 10.0 | 06/22/17 |
| 17F1185-08 [LGRC-VWP-007D] | B179938 | 1.00 | 10.0 | 06/22/17 |
| 17F1185-09 [LGRC-VWP-008] | B179938 | 1.00 | 10.0 | 06/22/17 |
| 17F1185-10 [LGRC-VWP-009] | B179938 | 1.00 | 10.0 | 06/22/17 |

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

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

Batch B179938 - SW-846 3540C
Blank (B179938-BLK1)

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

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

LCS (B179938-BS1)

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

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

LCS Dup (B179938-BSD1)

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

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

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

FLAG/QUALIFIER SUMMARY

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

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

CERTIFICATIONS

Certified Analyses included in this Report

| Analyte | Certifications |
|---------|----------------|
|---------|----------------|

No certified Analyses included in this Report

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

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

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



con-test[®]
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

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

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

| Vials | # | Containers: | # | # | # |
|--------------|---|---------------|---|-----------------|-------------------------|
| Unp- | | 1 Liter Amb. | | 1 Liter Plastic | 16 oz Amb. |
| HCL- | | 500 mL Amb. | | 500 mL Plastic | 8oz Amb/Clear <u>10</u> |
| Meoh- | | 250 mL Amb. | | 250 mL Plastic | 4oz Amb/Clear |
| Bisulfate- | | Col./Bacteria | | Flashpoint | 2oz Amb/Clear |
| DI- | | Other Plastic | | Other Glass | Encore |
| Thiosulfate- | | SOC Kit | | Plastic Bag | Frozen: |
| Sulfuric- | | Perchlorate | | Ziplock | |

Unused Media

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

Comments:

June 28, 2017

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

Project Location: UMASS LGRC- Amherst, MA
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 17F1186

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

Sincerely,

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

Meghan E. Kelley
Project Manager

Table of Contents

| | |
|--|----|
| Sample Summary | 3 |
| Case Narrative | 4 |
| Sample Results | 5 |
| 17F1186-01 | 5 |
| 17F1186-02 | 6 |
| 17F1186-03 | 7 |
| 17F1186-04 | 8 |
| 17F1186-05 | 9 |
| 17F1186-06 | 10 |
| 17F1186-07 | 11 |
| 17F1186-08 | 12 |
| Sample Preparation Information | 13 |
| QC Data | 14 |
| Polychlorinated Biphenyls with 3540 Soxhlet Extraction | 14 |
| B179842 | 14 |
| Dual Column RPD Report | 15 |
| Flag/Qualifier Summary | 17 |
| Certifications | 18 |
| Chain of Custody/Sample Receipt | 19 |

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

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

REPORT DATE: 6/28/2017

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 17F1186

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

PROJECT LOCATION: UMASS LGRC- Amherst, MA

| FIELD SAMPLE # | LAB ID: | MATRIX | SAMPLE DESCRIPTION | TEST | SUB LAB |
|----------------|------------|--------|--------------------|--------------|---------|
| LGRC-VWP-010 | 17F1186-01 | Wipe | | SW-846 8082A | |
| LGRC-VWP-011 | 17F1186-02 | Wipe | | SW-846 8082A | |
| LGRC-VWP-012 | 17F1186-03 | Wipe | | SW-846 8082A | |
| LGRC-VWP-013 | 17F1186-04 | Wipe | | SW-846 8082A | |
| LGRC-VWP-014 | 17F1186-05 | Wipe | | SW-846 8082A | |
| LGRC-VWP-015 | 17F1186-06 | Wipe | | SW-846 8082A | |
| LGRC-VWP-016 | 17F1186-07 | Wipe | | SW-846 8082A | |
| LGRC-VWP-017 | 17F1186-08 | Wipe | | SW-846 8082A | |

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

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

SW-846 8082A**Qualifications:**

S-13

Surrogate recovery is outside of control limits on both columns.

Data validation is not affected since all results are "not detected" and bias is on the high side.

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

17F1186-03[LGRC-VWP-012]

Decachlorobiphenyl [2C]

17F1186-03[LGRC-VWP-012]

Tetrachloro-m-xylene

17F1186-03[LGRC-VWP-012]

Tetrachloro-m-xylene [2C]

17F1186-03[LGRC-VWP-012]

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

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

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

Lisa A. Worthington
Project Manager

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

Project Location: UMASS LGRC- Amherst, MA

Sample Description:

Work Order: 17F1186

Date Received: 6/21/2017

Field Sample #: LGRC-VWP-010

Sampled: 6/19/2017 10:44

Sample ID: 17F1186-01

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-----------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:27 | KAL |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:27 | KAL |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:27 | KAL |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:27 | KAL |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:27 | KAL |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:27 | KAL |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:27 | KAL |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:27 | KAL |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:27 | KAL |
| Surrogates | % Recovery | Recovery Limits | Flag/Qual | | | | | | |
| Decachlorobiphenyl [1] | 103 | 30-150 | | | | | | | |
| Decachlorobiphenyl [2] | 92.9 | 30-150 | | | | | | | |
| Tetrachloro-m-xylene [1] | 87.8 | 30-150 | | | | | | | |
| Tetrachloro-m-xylene [2] | 87.7 | 30-150 | | | | | | | |

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

Project Location: UMASS LGRC- Amherst, MA

Sample Description:

Work Order: 17F1186

Date Received: 6/21/2017

Field Sample #: LGRC-VWP-011

Sampled: 6/19/2017 10:50

Sample ID: 17F1186-02

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-----------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:39 | KAL |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:39 | KAL |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:39 | KAL |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:39 | KAL |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:39 | KAL |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:39 | KAL |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:39 | KAL |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:39 | KAL |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:39 | KAL |
| Surrogates | % Recovery | Recovery Limits | Flag/Qual | | | | | | |
| Decachlorobiphenyl [1] | 105 | 30-150 | | | | | | 6/28/17 8:39 | |
| Decachlorobiphenyl [2] | 95.2 | 30-150 | | | | | | 6/28/17 8:39 | |
| Tetrachloro-m-xylene [1] | 91.4 | 30-150 | | | | | | 6/28/17 8:39 | |
| Tetrachloro-m-xylene [2] | 91.4 | 30-150 | | | | | | 6/28/17 8:39 | |

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

Project Location: UMASS LGRC- Amherst, MA

Sample Description:

Work Order: 17F1186

Date Received: 6/21/2017

Field Sample #: LGRC-VWP-012

Sampled: 6/19/2017 11:04

Sample ID: 17F1186-03

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|------|-----------------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:53 | KAL |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:53 | KAL |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:53 | KAL |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:53 | KAL |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:53 | KAL |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:53 | KAL |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:53 | KAL |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:53 | KAL |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 8:53 | KAL |
| Surrogates | % Recovery | | Recovery Limits | | Flag/Qual | | | | |
| Decachlorobiphenyl [1] | 198 | * | 30-150 | | S-13 | | | 6/28/17 8:53 | |
| Decachlorobiphenyl [2] | 186 | * | 30-150 | | S-13 | | | 6/28/17 8:53 | |
| Tetrachloro-m-xylene [1] | 159 | * | 30-150 | | S-13 | | | 6/28/17 8:53 | |
| Tetrachloro-m-xylene [2] | 174 | * | 30-150 | | S-13 | | | 6/28/17 8:53 | |

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

Project Location: UMASS LGRC- Amherst, MA

Sample Description:

Work Order: 17F1186

Date Received: 6/21/2017

Field Sample #: LGRC-VWP-013

Sampled: 6/19/2017 11:10

Sample ID: 17F1186-04

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-----------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:05 | KAL |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:05 | KAL |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:05 | KAL |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:05 | KAL |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:05 | KAL |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:05 | KAL |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:05 | KAL |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:05 | KAL |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:05 | KAL |
| Surrogates | % Recovery | Recovery Limits | Flag/Qual | | | | | | |
| Decachlorobiphenyl [1] | 101 | 30-150 | | | | | | 6/28/17 9:05 | |
| Decachlorobiphenyl [2] | 91.2 | 30-150 | | | | | | 6/28/17 9:05 | |
| Tetrachloro-m-xylene [1] | 85.7 | 30-150 | | | | | | 6/28/17 9:05 | |
| Tetrachloro-m-xylene [2] | 85.9 | 30-150 | | | | | | 6/28/17 9:05 | |

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

Project Location: UMASS LGRC- Amherst, MA

Sample Description:

Work Order: 17F1186

Date Received: 6/21/2017

Field Sample #: LGRC-VWP-014

Sampled: 6/19/2017 01:14

Sample ID: 17F1186-05

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-----------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:17 | KAL |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:17 | KAL |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:17 | KAL |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:17 | KAL |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:17 | KAL |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:17 | KAL |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:17 | KAL |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:17 | KAL |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:17 | KAL |
| Surrogates | % Recovery | Recovery Limits | Flag/Qual | | | | | | |
| Decachlorobiphenyl [1] | 104 | 30-150 | | | | | | 6/28/17 9:17 | |
| Decachlorobiphenyl [2] | 94.6 | 30-150 | | | | | | 6/28/17 9:17 | |
| Tetrachloro-m-xylene [1] | 87.1 | 30-150 | | | | | | 6/28/17 9:17 | |
| Tetrachloro-m-xylene [2] | 87.0 | 30-150 | | | | | | 6/28/17 9:17 | |

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

Project Location: UMASS LGRC- Amherst, MA

Sample Description:

Work Order: 17F1186

Date Received: 6/21/2017

Field Sample #: LGRC-VWP-015

Sampled: 6/19/2017 11:22

Sample ID: 17F1186-06

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-----------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:30 | KAL |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:30 | KAL |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:30 | KAL |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:30 | KAL |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:30 | KAL |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:30 | KAL |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:30 | KAL |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:30 | KAL |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:30 | KAL |
| Surrogates | % Recovery | Recovery Limits | Flag/Qual | | | | | | |
| Decachlorobiphenyl [1] | 102 | 30-150 | | | | | | 6/28/17 9:30 | |
| Decachlorobiphenyl [2] | 93.8 | 30-150 | | | | | | 6/28/17 9:30 | |
| Tetrachloro-m-xylene [1] | 89.5 | 30-150 | | | | | | 6/28/17 9:30 | |
| Tetrachloro-m-xylene [2] | 88.8 | 30-150 | | | | | | 6/28/17 9:30 | |

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

Project Location: UMASS LGRC- Amherst, MA

Sample Description:

Work Order: 17F1186

Date Received: 6/21/2017

Field Sample #: LGRC-VWP-016

Sampled: 6/19/2017 11:30

Sample ID: 17F1186-07

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-----------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:42 | KAL |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:42 | KAL |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:42 | KAL |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:42 | KAL |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:42 | KAL |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:42 | KAL |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:42 | KAL |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:42 | KAL |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:42 | KAL |
| Surrogates | % Recovery | Recovery Limits | Flag/Qual | | | | | | |
| Decachlorobiphenyl [1] | 106 | 30-150 | | | | | | 6/28/17 9:42 | |
| Decachlorobiphenyl [2] | 94.8 | 30-150 | | | | | | 6/28/17 9:42 | |
| Tetrachloro-m-xylene [1] | 88.6 | 30-150 | | | | | | 6/28/17 9:42 | |
| Tetrachloro-m-xylene [2] | 88.4 | 30-150 | | | | | | 6/28/17 9:42 | |

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

Project Location: UMASS LGRC- Amherst, MA

Sample Description:

Work Order: 17F1186

Date Received: 6/21/2017

Field Sample #: LGRC-VWP-017

Sampled: 6/19/2017 11:37

Sample ID: 17F1186-08

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-----------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:54 | KAL |
| Aroclor-1221 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:54 | KAL |
| Aroclor-1232 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:54 | KAL |
| Aroclor-1242 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:54 | KAL |
| Aroclor-1248 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:54 | KAL |
| Aroclor-1254 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:54 | KAL |
| Aroclor-1260 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:54 | KAL |
| Aroclor-1262 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:54 | KAL |
| Aroclor-1268 [1] | ND | 0.20 | µg/Wipe | 1 | | SW-846 8082A | 6/22/17 | 6/28/17 9:54 | KAL |
| Surrogates | % Recovery | Recovery Limits | Flag/Qual | | | | | | |
| Decachlorobiphenyl [1] | 110 | 30-150 | | | | | | 6/28/17 9:54 | |
| Decachlorobiphenyl [2] | 99.0 | 30-150 | | | | | | 6/28/17 9:54 | |
| Tetrachloro-m-xylene [1] | 93.2 | 30-150 | | | | | | 6/28/17 9:54 | |
| Tetrachloro-m-xylene [2] | 92.3 | 30-150 | | | | | | 6/28/17 9:54 | |

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

| Lab Number [Field ID] | Batch | Initial [Wipe] | Final [mL] | Date |
|---------------------------|---------|----------------|------------|----------|
| 17F1186-01 [LGRC-VWP-010] | B179842 | 1.00 | 10.0 | 06/22/17 |
| 17F1186-02 [LGRC-VWP-011] | B179842 | 1.00 | 10.0 | 06/22/17 |
| 17F1186-03 [LGRC-VWP-012] | B179842 | 1.00 | 10.0 | 06/22/17 |
| 17F1186-04 [LGRC-VWP-013] | B179842 | 1.00 | 10.0 | 06/22/17 |
| 17F1186-05 [LGRC-VWP-014] | B179842 | 1.00 | 10.0 | 06/22/17 |
| 17F1186-06 [LGRC-VWP-015] | B179842 | 1.00 | 10.0 | 06/22/17 |
| 17F1186-07 [LGRC-VWP-016] | B179842 | 1.00 | 10.0 | 06/22/17 |
| 17F1186-08 [LGRC-VWP-017] | B179842 | 1.00 | 10.0 | 06/22/17 |

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

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

Batch B179842 - SW-846 3540C
Blank (B179842-BLK1)

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

| | | | | | | | | | | |
|--------------------------------------|------|------|---------|------|--|------|--------|--|--|--|
| Aroclor-1016 | ND | 0.20 | µg/Wipe | | | | | | | |
| Aroclor-1016 [2C] | ND | 0.20 | µg/Wipe | | | | | | | |
| Aroclor-1221 | ND | 0.20 | µg/Wipe | | | | | | | |
| Aroclor-1221 [2C] | ND | 0.20 | µg/Wipe | | | | | | | |
| Aroclor-1232 | ND | 0.20 | µg/Wipe | | | | | | | |
| Aroclor-1232 [2C] | ND | 0.20 | µg/Wipe | | | | | | | |
| Aroclor-1242 | ND | 0.20 | µg/Wipe | | | | | | | |
| Aroclor-1242 [2C] | ND | 0.20 | µg/Wipe | | | | | | | |
| Aroclor-1248 | ND | 0.20 | µg/Wipe | | | | | | | |
| Aroclor-1248 [2C] | ND | 0.20 | µg/Wipe | | | | | | | |
| Aroclor-1254 | ND | 0.20 | µg/Wipe | | | | | | | |
| Aroclor-1254 [2C] | ND | 0.20 | µg/Wipe | | | | | | | |
| Aroclor-1260 | ND | 0.20 | µg/Wipe | | | | | | | |
| Aroclor-1260 [2C] | ND | 0.20 | µg/Wipe | | | | | | | |
| Aroclor-1262 | ND | 0.20 | µg/Wipe | | | | | | | |
| Aroclor-1262 [2C] | ND | 0.20 | µg/Wipe | | | | | | | |
| Aroclor-1268 | ND | 0.20 | µg/Wipe | | | | | | | |
| Aroclor-1268 [2C] | ND | 0.20 | µg/Wipe | | | | | | | |
| Surrogate: Decachlorobiphenyl | 2.00 | | µg/Wipe | 2.00 | | 100 | 30-150 | | | |
| Surrogate: Decachlorobiphenyl [2C] | 1.93 | | µg/Wipe | 2.00 | | 96.5 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene | 1.90 | | µg/Wipe | 2.00 | | 94.8 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene [2C] | 1.72 | | µg/Wipe | 2.00 | | 85.8 | 30-150 | | | |

LCS (B179842-BS1)

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

| | | | | | | | | | | |
|--------------------------------------|------|------|---------|-------|--|------|--------|--|--|--|
| Aroclor-1016 | 0.53 | 0.20 | µg/Wipe | 0.500 | | 107 | 40-140 | | | |
| Aroclor-1016 [2C] | 0.54 | 0.20 | µg/Wipe | 0.500 | | 109 | 40-140 | | | |
| Aroclor-1260 | 0.44 | 0.20 | µg/Wipe | 0.500 | | 87.3 | 40-140 | | | |
| Aroclor-1260 [2C] | 0.44 | 0.20 | µg/Wipe | 0.500 | | 88.9 | 40-140 | | | |
| Surrogate: Decachlorobiphenyl | 2.02 | | µg/Wipe | 2.00 | | 101 | 30-150 | | | |
| Surrogate: Decachlorobiphenyl [2C] | 1.93 | | µg/Wipe | 2.00 | | 96.4 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene | 1.90 | | µg/Wipe | 2.00 | | 95.1 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene [2C] | 1.73 | | µg/Wipe | 2.00 | | 86.3 | 30-150 | | | |

LCS Dup (B179842-BSD1)

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

| | | | | | | | | | | |
|--------------------------------------|------|------|---------|-------|--|------|--------|-------|----|--|
| Aroclor-1016 | 0.55 | 0.20 | µg/Wipe | 0.500 | | 110 | 40-140 | 2.91 | 30 | |
| Aroclor-1016 [2C] | 0.54 | 0.20 | µg/Wipe | 0.500 | | 108 | 40-140 | 0.574 | 30 | |
| Aroclor-1260 | 0.45 | 0.20 | µg/Wipe | 0.500 | | 89.2 | 40-140 | 2.07 | 30 | |
| Aroclor-1260 [2C] | 0.45 | 0.20 | µg/Wipe | 0.500 | | 90.7 | 40-140 | 1.94 | 30 | |
| Surrogate: Decachlorobiphenyl | 2.06 | | µg/Wipe | 2.00 | | 103 | 30-150 | | | |
| Surrogate: Decachlorobiphenyl [2C] | 1.96 | | µg/Wipe | 2.00 | | 97.9 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene | 1.96 | | µg/Wipe | 2.00 | | 98.0 | 30-150 | | | |
| Surrogate: Tetrachloro-m-xylene [2C] | 1.79 | | µg/Wipe | 2.00 | | 89.4 | 30-150 | | | |

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

IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B179842-BS1 Date(s) Analyzed: 06/27/2017 06/27/2017

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

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

| ANALYTE | COL | RT | RT WINDOW | | CONCENTRATION | %RPD |
|--------------|-----|-------|-----------|-------|---------------|------|
| | | | FROM | TO | | |
| Aroclor-1016 | 1 | 0.000 | 0.000 | 0.000 | 0.53 | |
| | 2 | 0.000 | 0.000 | 0.000 | 0.54 | 1.9 |
| Aroclor-1260 | 1 | 0.000 | 0.000 | 0.000 | 0.44 | |
| | 2 | 0.000 | 0.000 | 0.000 | 0.44 | 0.0 |

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LCS Dup**Lab Sample ID: B179842-BSD1 Date(s) Analyzed: 06/27/2017 06/27/2017

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

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

| ANALYTE | COL | RT | RT WINDOW | | CONCENTRATION | %RPD |
|--------------|-----|-------|-----------|-------|---------------|------|
| | | | FROM | TO | | |
| Aroclor-1016 | 1 | 0.000 | 0.000 | 0.000 | 0.55 | |
| | 2 | 0.000 | 0.000 | 0.000 | 0.54 | 1.8 |
| Aroclor-1260 | 1 | 0.000 | 0.000 | 0.000 | 0.45 | |
| | 2 | 0.000 | 0.000 | 0.000 | 0.45 | 0.0 |

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

FLAG/QUALIFIER SUMMARY

| | |
|------|--|
| * | QC result is outside of established limits. |
| † | Wide recovery limits established for difficult compound. |
| ‡ | Wide RPD limits established for difficult compound. |
| # | Data exceeded client recommended or regulatory level |
| ND | Not Detected |
| RL | Reporting Limit |
| DL | Method Detection Limit |
| MCL | Maximum Contaminant Level |
| | Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded. |
| | No results have been blank subtracted unless specified in the case narrative section. |
| S-13 | Surrogate recovery is outside of control limits on both columns. Data validation is not affected since all results are "not detected" and bias is on the high side. |

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

CERTIFICATIONS

Certified Analyses included in this Report

| Analyte | Certifications |
|---------|----------------|
|---------|----------------|

No certified Analyses included in this Report

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

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



CHAIN OF CUSTODY RECORD

39 Spruce Street
East longmeadow, MA 01028

Page 1 of 1

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

Company Name: Woodward & Carron

Address: 213 Court St. Middlebury, CT

Attention: Project # 225695

Project Location: Unass. Ankerst, LGRC

Sampled By: Greg Reynolds

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

Proposal date

Collection Beginning Date/Time Ending Date/Time

Client Sample ID / Description

1 LGRC-VWP-010

2 LGRC-VWP-011

3 LGRC-VWP-012

4 LGRC-VWP-013

5 LGRC-VWP-014

6 LGRC-VWP-015

7 LGRC-VWP-016

8 LGRC-VWP-017

Comments: RC 51 mg/L

Relinquished by: (signature)

Date/Time: 6/24/17

Relinquished by: (signature)

Date/Time: 6/24/17

Relinquished by: (signature)

Date/Time: 6/24/17

Relinquished by: (signature)

Date/Time: 6/24/17

DATA DELIVERY (check all that apply)

☐ FAX ☐ EMAIL ☐ WEBSITE

Format: ☐ PDF ☐ EXCEL ☐ GIS ☐ OTHER

☐ "Enhanced Data Package"

Composite Grab

*Matrix Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

Conc. Code

ANALYSIS REQUESTED

Field Filtered

Lab to Filter

***Cont. Code:

A=amber glass

G=glass

P=plastic

ST=sterile

V=vial

S=summa can

T=tedlar bag

O=Other

***Preservation

I=Iced

H=HCL

M=Methanol

N=Nitric Acid

S=Sulfuric Acid

B=Sodium bisulfate

X=Na hydroxide

T=Na thiosulfate

O=Other

***Matrix Code:

GW=groundwater

WW=wastewater

DW=drinking water

A=air

S=soil/solid

SL=sludge

O=other

Is your project MCP or RCP?

MCP Form Required

RCP Form Required

MA State DW Form Required

PWSID #

NELAC & AIHA-LAP, LLC

Accredited

WBE/DBE Certified

PLEASE BE CAREFUL NOT TO CONTAMINATE THIS DOCUMENT

IF THIS FORM IS NOT FILLED OUT COMPLETELY OR

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

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

Page 19 of 20

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



con-test®
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

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

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

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

Unused Media

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

Comments:

July 6, 2017

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

Project Location: UMass Amherst, MA
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 17F1201

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

Sincerely,

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

Meghan E. Kelley
Project Manager

Table of Contents

| | |
|---|----|
| Sample Summary | 3 |
| Case Narrative | 4 |
| Sample Results | 5 |
| Sample Preparation Information | 13 |
| QC Data | 14 |
| PCB Homologues by GC/MS with Soxhlet Extraction | 14 |
| B180130 | 14 |
| Flag/Qualifier Summary | 15 |
| Certifications | 16 |
| Chain of Custody/Sample Receipt | 17 |

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

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

REPORT DATE: 7/6/2017

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 17F1201

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

PROJECT LOCATION: UMass Amherst, MA

| FIELD SAMPLE # | LAB ID: | MATRIX | SAMPLE DESCRIPTION | TEST | SUB LAB |
|--------------------|------------|-------------|--------------------|----------------------------|---------|
| LGRC-299T-IAS-001 | 17F1201-01 | Indoor air | | TO-10A/EPA 680 Modified | |
| LGRC-399A-IAS-002 | 17F1201-02 | Indoor air | | TO-10A/EPA 680 Modified | |
| LGRC-507-IAS-003 | 17F1201-03 | Indoor air | | TO-10A/EPA 680 Modified | |
| LGRC-1303-IAS-004 | 17F1201-04 | Indoor air | | TO-10A/EPA 680 Modified | |
| LGRC-1507-IAS-005 | 17F1201-05 | Indoor air | | TO-10A/EPA 680 Modified | |
| LGRC-AMB-IAS-006 | 17F1201-06 | Ambient Air | | TO-10A/EPA 680 Modified | |
| LGRC-A106-IAS-007 | 17F1201-07 | Indoor air | | TO-10A/EPA 680 Modified | |
| LGRC-A106D-IAS-008 | 17F1201-08 | Indoor air | | TO-10A/EPA 680 Modified | |

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

CASE NARRATIVE SUMMARY

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

TO-10A/EPA 680 Modified

Qualifications:

V-20

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

Analyte & Samples(s) Qualified:

Monochlorobiphenyls

17F1201-01[LGRC-299T-IAS-001], 17F1201-06[LGRC-AMB-IAS-006]

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

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

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

Lisa A. Worthington
Project Manager

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

ANALYTICAL RESULTS

Project Location: UMass Amherst, MA
Date Received: 6/21/2017
Field Sample #: LGRC-299T-IAS-001
Sample ID: 17F1201-01
Sample Matrix: Indoor air
Sampled: 6/19/2017 09:02

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 950.4

Work Order: 17F1201

TO-10A/EPA 680 Modified

| Analyte | Total µg | | Flag/Qual | ug/m3 | | Dilution | Date/Time | | Analyst |
|---------------------------------|------------|--------|-----------|--------------|--------|----------|--------------|--|---------|
| | Results | RL | | Results | RL | | Analyzed | | |
| Monochlorobiphenyls | ND | 0.0010 | V-20 | ND | 0.0011 | 1 | 6/29/17 8:29 | | CJM |
| Dichlorobiphenyls | ND | 0.0010 | | ND | 0.0011 | 1 | 6/29/17 8:29 | | CJM |
| Trichlorobiphenyls | ND | 0.0010 | | ND | 0.0011 | 1 | 6/29/17 8:29 | | CJM |
| Tetrachlorobiphenyls | 0.043 | 0.0020 | | 0.045 | 0.0021 | 1 | 6/29/17 8:29 | | CJM |
| Pentachlorobiphenyls | 0.078 | 0.0020 | | 0.082 | 0.0021 | 1 | 6/29/17 8:29 | | CJM |
| Hexachlorobiphenyls | 0.028 | 0.0020 | | 0.030 | 0.0021 | 1 | 6/29/17 8:29 | | CJM |
| Heptachlorobiphenyls | 0.0061 | 0.0030 | | 0.0064 | 0.0032 | 1 | 6/29/17 8:29 | | CJM |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0032 | 1 | 6/29/17 8:29 | | CJM |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0053 | 1 | 6/29/17 8:29 | | CJM |
| Decachlorobiphenyl | ND | 0.0050 | | ND | 0.0053 | 1 | 6/29/17 8:29 | | CJM |
| Total Polychlorinated biphenyls | 0.16 | | | 0.16 | | 1 | 6/29/17 8:29 | | CJM |
| Surrogates | % Recovery | | | % REC Limits | | | | | |
| Tetrachloro-m-xylene | 96.1 | | | 50-125 | | | 6/29/17 8:29 | | |

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

ANALYTICAL RESULTS

Project Location: UMass Amherst, MA
Date Received: 6/21/2017
Field Sample #: LGRC-399A-IAS-002
Sample ID: 17F1201-02
Sample Matrix: Indoor air
Sampled: 6/19/2017 09:09

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 943.2

Work Order: 17F1201

TO-10A/EPA 680 Modified

| Analyte | Total µg | | Flag/Qual | ug/m3 | | Dilution | Date/Time | | Analyst |
|---------------------------------|----------|--------|-----------|---------|--------|----------|---------------|--|---------|
| | Results | RL | | Results | RL | | Analyzed | | |
| Monochlorobiphenyls | ND | 0.0010 | | ND | 0.0011 | 1 | 6/29/17 12:51 | | CJM |
| Dichlorobiphenyls | ND | 0.0010 | | ND | 0.0011 | 1 | 6/29/17 12:51 | | CJM |
| Trichlorobiphenyls | 0.0051 | 0.0010 | | 0.0054 | 0.0011 | 1 | 6/29/17 12:51 | | CJM |
| Tetrachlorobiphenyls | 0.082 | 0.0020 | | 0.087 | 0.0021 | 1 | 6/29/17 12:51 | | CJM |
| Pentachlorobiphenyls | 0.17 | 0.0020 | | 0.18 | 0.0021 | 1 | 6/29/17 12:51 | | CJM |
| Hexachlorobiphenyls | 0.052 | 0.0020 | | 0.056 | 0.0021 | 1 | 6/29/17 12:51 | | CJM |
| Heptachlorobiphenyls | 0.0070 | 0.0030 | | 0.0075 | 0.0032 | 1 | 6/29/17 12:51 | | CJM |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0032 | 1 | 6/29/17 12:51 | | CJM |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0053 | 1 | 6/29/17 12:51 | | CJM |
| Decachlorobiphenyl | ND | 0.0050 | | ND | 0.0053 | 1 | 6/29/17 12:51 | | CJM |
| Total Polychlorinated biphenyls | 0.32 | | | 0.34 | | 1 | 6/29/17 12:51 | | CJM |

| Surrogates | % Recovery | % REC Limits | |
|----------------------|------------|--------------|---------------|
| Tetrachloro-m-xylene | 91.7 | 50-125 | 6/29/17 12:51 |

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

ANALYTICAL RESULTS

Project Location: UMass Amherst, MA

Date Received: 6/21/2017

Field Sample #: LGRC-507-IAS-003

Sample ID: 17F1201-03

Sample Matrix: Indoor air

Sampled: 6/19/2017 09:17

Sample Description/Location:

Sub Description/Location:

Work Order: 17F1201

Flow Controller ID:

Sample Type:

Air Volume L: 964.8

TO-10A/EPA 680 Modified

| Analyte | Total µg | | Flag/Qual | ug/m3 | | Dilution | Date/Time | | Analyst |
|---------------------------------|----------|--------|-----------|---------|--------|----------|---------------|-----|---------|
| | Results | RL | | Results | RL | | Analyzed | | |
| Monochlorobiphenyls | ND | 0.0010 | | ND | 0.001 | 1 | 6/29/17 13:28 | CJM | |
| Dichlorobiphenyls | ND | 0.0010 | | ND | 0.001 | 1 | 6/29/17 13:28 | CJM | |
| Trichlorobiphenyls | ND | 0.0010 | | ND | 0.001 | 1 | 6/29/17 13:28 | CJM | |
| Tetrachlorobiphenyls | 0.020 | 0.0020 | | 0.021 | 0.0021 | 1 | 6/29/17 13:28 | CJM | |
| Pentachlorobiphenyls | 0.040 | 0.0020 | | 0.041 | 0.0021 | 1 | 6/29/17 13:28 | CJM | |
| Hexachlorobiphenyls | 0.018 | 0.0020 | | 0.018 | 0.0021 | 1 | 6/29/17 13:28 | CJM | |
| Heptachlorobiphenyls | 0.0055 | 0.0030 | | 0.0057 | 0.0031 | 1 | 6/29/17 13:28 | CJM | |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0031 | 1 | 6/29/17 13:28 | CJM | |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0052 | 1 | 6/29/17 13:28 | CJM | |
| Decachlorobiphenyl | ND | 0.0050 | | ND | 0.0052 | 1 | 6/29/17 13:28 | CJM | |
| Total Polychlorinated biphenyls | 0.083 | | | 0.086 | | 1 | 6/29/17 13:28 | CJM | |

| Surrogates | % Recovery | % REC Limits | |
|----------------------|------------|--------------|---------------|
| Tetrachloro-m-xylene | 99.6 | 50-125 | 6/29/17 13:28 |

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

ANALYTICAL RESULTS

Project Location: UMass Amherst, MA
Date Received: 6/21/2017
Field Sample #: LGRC-1303-IAS-004
Sample ID: 17F1201-04
Sample Matrix: Indoor air
Sampled: 6/19/2017 09:26

Sample Description/Location:
Sub Description/Location:

Work Order: 17F1201

Flow Controller ID:
Sample Type:
Air Volume L: 954

TO-10A/EPA 680 Modified

| Analyte | Total µg | | Flag/Qual | ug/m3 | | Dilution | Date/Time | | |
|---------------------------------|----------|--------|-----------|---------|--------|----------|-----------|---------|-----|
| | Results | RL | | Results | RL | | Analyzed | Analyst | |
| Monochlorobiphenyls | ND | 0.0010 | | ND | 0.001 | 1 | 6/29/17 | 14:05 | CJM |
| Dichlorobiphenyls | ND | 0.0010 | | ND | 0.001 | 1 | 6/29/17 | 14:05 | CJM |
| Trichlorobiphenyls | ND | 0.0010 | | ND | 0.001 | 1 | 6/29/17 | 14:05 | CJM |
| Tetrachlorobiphenyls | 0.021 | 0.0020 | | 0.022 | 0.0021 | 1 | 6/29/17 | 14:05 | CJM |
| Pentachlorobiphenyls | 0.040 | 0.0020 | | 0.042 | 0.0021 | 1 | 6/29/17 | 14:05 | CJM |
| Hexachlorobiphenyls | 0.0090 | 0.0020 | | 0.0095 | 0.0021 | 1 | 6/29/17 | 14:05 | CJM |
| Heptachlorobiphenyls | ND | 0.0030 | | ND | 0.0031 | 1 | 6/29/17 | 14:05 | CJM |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0031 | 1 | 6/29/17 | 14:05 | CJM |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0052 | 1 | 6/29/17 | 14:05 | CJM |
| Decachlorobiphenyl | ND | 0.0050 | | ND | 0.0052 | 1 | 6/29/17 | 14:05 | CJM |
| Total Polychlorinated biphenyls | 0.070 | | | 0.073 | | 1 | 6/29/17 | 14:05 | CJM |

| Surrogates | % Recovery | % REC Limits | |
|----------------------|------------|--------------|---------------|
| Tetrachloro-m-xylene | 98.5 | 50-125 | 6/29/17 14:05 |

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

ANALYTICAL RESULTS

Project Location: UMass Amherst, MA
Date Received: 6/21/2017
Field Sample #: LGRC-1507-IAS-005
Sample ID: 17F1201-05
Sample Matrix: Indoor air
Sampled: 6/19/2017 09:38

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 964.8

Work Order: 17F1201

TO-10A/EPA 680 Modified

| Analyte | Total µg | | Flag/Qual | ug/m3 | | Dilution | Date/Time | | Analyst |
|---------------------------------|----------|--------|-----------|---------|--------|----------|---------------|-----|---------|
| | Results | RL | | Results | RL | | Analyzed | | |
| Monochlorobiphenyls | ND | 0.0010 | | ND | 0.001 | 1 | 6/29/17 14:43 | CJM | |
| Dichlorobiphenyls | ND | 0.0010 | | ND | 0.001 | 1 | 6/29/17 14:43 | CJM | |
| Trichlorobiphenyls | ND | 0.0010 | | ND | 0.001 | 1 | 6/29/17 14:43 | CJM | |
| Tetrachlorobiphenyls | 0.021 | 0.0020 | | 0.021 | 0.0021 | 1 | 6/29/17 14:43 | CJM | |
| Pentachlorobiphenyls | 0.037 | 0.0020 | | 0.038 | 0.0021 | 1 | 6/29/17 14:43 | CJM | |
| Hexachlorobiphenyls | 0.0097 | 0.0020 | | 0.010 | 0.0021 | 1 | 6/29/17 14:43 | CJM | |
| Heptachlorobiphenyls | ND | 0.0030 | | ND | 0.0031 | 1 | 6/29/17 14:43 | CJM | |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0031 | 1 | 6/29/17 14:43 | CJM | |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0052 | 1 | 6/29/17 14:43 | CJM | |
| Decachlorobiphenyl | ND | 0.0050 | | ND | 0.0052 | 1 | 6/29/17 14:43 | CJM | |
| Total Polychlorinated biphenyls | 0.067 | | | 0.070 | | 1 | 6/29/17 14:43 | CJM | |

| Surrogates | % Recovery | % REC Limits | |
|----------------------|------------|--------------|---------------|
| Tetrachloro-m-xylene | 99.4 | 50-125 | 6/29/17 14:43 |

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

ANALYTICAL RESULTS

Project Location: UMass Amherst, MA

Date Received: 6/21/2017

Field Sample #: LGRC-AMB-IAS-006

Sample ID: 17F1201-06

Sample Matrix: Ambient Air

Sampled: 6/19/2017 09:50

Sample Description/Location:

Sub Description/Location:

Flow Controller ID:

Sample Type:

Air Volume L: 943.2

Work Order: 17F1201

TO-10A/EPA 680 Modified

| Analyte | Total µg | | Flag/Qual | ug/m3 | | Dilution | Date/Time | | Analyst |
|---------------------------------|----------|--------|-----------|---------|--------|----------|--------------|-----|---------|
| | Results | RL | | Results | RL | | Analyzed | | |
| Monochlorobiphenyls | ND | 0.0010 | V-20 | ND | 0.0011 | 1 | 7/6/17 15:26 | CJM | |
| Dichlorobiphenyls | ND | 0.0010 | | ND | 0.0011 | 1 | 7/6/17 15:26 | CJM | |
| Trichlorobiphenyls | ND | 0.0010 | | ND | 0.0011 | 1 | 7/6/17 15:26 | CJM | |
| Tetrachlorobiphenyls | ND | 0.0020 | | ND | 0.0021 | 1 | 7/6/17 15:26 | CJM | |
| Pentachlorobiphenyls | ND | 0.0020 | | ND | 0.0021 | 1 | 7/6/17 15:26 | CJM | |
| Hexachlorobiphenyls | ND | 0.0020 | | ND | 0.0021 | 1 | 7/6/17 15:26 | CJM | |
| Heptachlorobiphenyls | ND | 0.0030 | | ND | 0.0032 | 1 | 7/6/17 15:26 | CJM | |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0032 | 1 | 7/6/17 15:26 | CJM | |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0053 | 1 | 7/6/17 15:26 | CJM | |
| Decachlorobiphenyl | ND | 0.0050 | | ND | 0.0053 | 1 | 7/6/17 15:26 | CJM | |
| Total Polychlorinated biphenyls | 0.0 | | | 0 | | 1 | 7/6/17 15:26 | CJM | |

| Surrogates | % Recovery | % REC Limits | |
|----------------------|------------|--------------|--------------|
| Tetrachloro-m-xylene | 117 | 50-125 | 7/6/17 15:26 |

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

ANALYTICAL RESULTS

Project Location: UMass Amherst, MA
Date Received: 6/21/2017
Field Sample #: LGRC-A106-IAS-007
Sample ID: 17F1201-07
Sample Matrix: Indoor air
Sampled: 6/20/2017 09:30

Sample Description/Location:
Sub Description/Location:

Work Order: 17F1201

Flow Controller ID:
Sample Type:
Air Volume L: 957.6

TO-10A/EPA 680 Modified

| Analyte | Total µg | | Flag/Qual | ug/m3 | | Dilution | Date/Time | | Analyst |
|---------------------------------|----------|--------|-----------|---------|--------|----------|---------------|-----|---------|
| | Results | RL | | Results | RL | | Analyzed | | |
| Monochlorobiphenyls | ND | 0.0010 | | ND | 0.001 | 1 | 6/29/17 15:58 | CJM | |
| Dichlorobiphenyls | ND | 0.0010 | | ND | 0.001 | 1 | 6/29/17 15:58 | CJM | |
| Trichlorobiphenyls | ND | 0.0010 | | ND | 0.001 | 1 | 6/29/17 15:58 | CJM | |
| Tetrachlorobiphenyls | 0.0039 | 0.0020 | | 0.0041 | 0.0021 | 1 | 6/29/17 15:58 | CJM | |
| Pentachlorobiphenyls | 0.0072 | 0.0020 | | 0.0075 | 0.0021 | 1 | 6/29/17 15:58 | CJM | |
| Hexachlorobiphenyls | 0.0048 | 0.0020 | | 0.005 | 0.0021 | 1 | 6/29/17 15:58 | CJM | |
| Heptachlorobiphenyls | ND | 0.0030 | | ND | 0.0031 | 1 | 6/29/17 15:58 | CJM | |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0031 | 1 | 6/29/17 15:58 | CJM | |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0052 | 1 | 6/29/17 15:58 | CJM | |
| Decachlorobiphenyl | ND | 0.0050 | | ND | 0.0052 | 1 | 6/29/17 15:58 | CJM | |
| Total Polychlorinated biphenyls | 0.016 | | | 0.017 | | 1 | 6/29/17 15:58 | CJM | |

| Surrogates | % Recovery | % REC Limits | |
|----------------------|------------|--------------|---------------|
| Tetrachloro-m-xylene | 98.9 | 50-125 | 6/29/17 15:58 |

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

ANALYTICAL RESULTS

Project Location: UMass Amherst, MA
Date Received: 6/21/2017
Field Sample #: LGRC-A106D-IAS-008
Sample ID: 17F1201-08
Sample Matrix: Indoor air
Sampled: 6/20/2017 09:30

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 968.4

Work Order: 17F1201

TO-10A/EPA 680 Modified

| Analyte | Total µg | | Flag/Qual | ug/m3 | | Dilution | Date/Time | | Analyst |
|---------------------------------|----------|--------|-----------|---------|--------|----------|---------------|-----|---------|
| | Results | RL | | Results | RL | | Analyzed | | |
| Monochlorobiphenyls | ND | 0.0010 | | ND | 0.001 | 1 | 6/29/17 16:35 | CJM | |
| Dichlorobiphenyls | ND | 0.0010 | | ND | 0.001 | 1 | 6/29/17 16:35 | CJM | |
| Trichlorobiphenyls | ND | 0.0010 | | ND | 0.001 | 1 | 6/29/17 16:35 | CJM | |
| Tetrachlorobiphenyls | 0.0072 | 0.0020 | | 0.0075 | 0.0021 | 1 | 6/29/17 16:35 | CJM | |
| Pentachlorobiphenyls | 0.013 | 0.0020 | | 0.014 | 0.0021 | 1 | 6/29/17 16:35 | CJM | |
| Hexachlorobiphenyls | ND | 0.0020 | | ND | 0.0021 | 1 | 6/29/17 16:35 | CJM | |
| Heptachlorobiphenyls | ND | 0.0030 | | ND | 0.0031 | 1 | 6/29/17 16:35 | CJM | |
| Octachlorobiphenyls | ND | 0.0030 | | ND | 0.0031 | 1 | 6/29/17 16:35 | CJM | |
| Nonachlorobiphenyls | ND | 0.0050 | | ND | 0.0052 | 1 | 6/29/17 16:35 | CJM | |
| Decachlorobiphenyl | ND | 0.0050 | | ND | 0.0052 | 1 | 6/29/17 16:35 | CJM | |
| Total Polychlorinated biphenyls | 0.029 | | | 0.030 | | 1 | 6/29/17 16:35 | CJM | |

| Surrogates | % Recovery | % REC Limits | |
|----------------------|------------|--------------|---------------|
| Tetrachloro-m-xylene | 94.0 | 50-125 | 6/29/17 16:35 |

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

| Lab Number [Field ID] | Batch | Initial [Cartridge | Final [mL] | Date |
|---------------------------------|---------|--------------------|------------|----------|
| 17F1201-01 [LGRC-299T-IAS-001] | B180130 | 1.00 | 1.00 | 06/26/17 |
| 17F1201-02 [LGRC-399A-IAS-002] | B180130 | 1.00 | 1.00 | 06/26/17 |
| 17F1201-03 [LGRC-507-IAS-003] | B180130 | 1.00 | 1.00 | 06/26/17 |
| 17F1201-04 [LGRC-1303-IAS-004] | B180130 | 1.00 | 1.00 | 06/26/17 |
| 17F1201-05 [LGRC-1507-IAS-005] | B180130 | 1.00 | 1.00 | 06/26/17 |
| 17F1201-06 [LGRC-AMB-IAS-006] | B180130 | 1.00 | 1.00 | 06/26/17 |
| 17F1201-07 [LGRC-A106-IAS-007] | B180130 | 1.00 | 1.00 | 06/26/17 |
| 17F1201-08 [LGRC-A106D-IAS-008] | B180130 | 1.00 | 1.00 | 06/26/17 |

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

QUALITY CONTROL

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

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

Batch B180130 - SW-846 3540C

Blank (B180130-BLK1)

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

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

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

LCS (B180130-BS1)

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

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

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

LCS Dup (B180130-BSD1)

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

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

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

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

FLAG/QUALIFIER SUMMARY

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

CERTIFICATIONS

Certified Analyses included in this Report

| Analyte | Certifications |
|---------|----------------|
|---------|----------------|

TO-10A/EPA 680 Modified in Air

Total Polychlorinated biphenyls AIHA

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

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

CHAIN OF CUSTODY RECORD (AIR)

Phone: 413-525-2332

Fax: 413-525-6405

Email: info@contestlabs.com



Company Name:

Address:

Phone:

Project Name:

Project Location:

Project Number:

Project Manager:

Con-Test Bid:

Invoice Recipient:

Sampled By:

| | |
|--|---------------------------------|
| Requested Turnaround Time | |
| 7-Day <input type="checkbox"/> | 10-Day <input type="checkbox"/> |
| Other: _____ | |
| Rush-Approval Required | |
| 1-Day <input type="checkbox"/> | 3-Day <input type="checkbox"/> |
| 2-Day <input type="checkbox"/> | 4-Day <input type="checkbox"/> |
| Data Delivery | |
| Format: PDF <input type="checkbox"/> | EXCEL <input type="checkbox"/> |
| Other: _____ | |
| Enhanced Data Package Required: <input type="checkbox"/> | |
| Email To: | |
| Fax To #: | |

| Lab Use | Client Use | Collection Data | Duration | Flow Rate | Matrix | Volume | ANALYSIS REQUESTED | | | | Summa Canister ID | Flow Controller ID |
|---------|--------------------|-----------------|----------|-----------|--------|--------|---------------------|------------------|-----------------------|---------------------------|-------------------|-----------------------|
| | | | | | | | Beginning Date/Time | Ending Date/Time | Total Minutes Sampled | m ³ /min L/min | Code | Liters m ³ |
| 1 | LGRC-299T-IAS-001 | 6/19/17 | 902 | 360 | 2.64 | IA | | | | | | |
| 2 | LGRC-399A-IAS-002 | | 909 | | 2.62 | | | | | | | |
| 3 | LGRC-507-IAS-003 | | 917 | | 2.68 | | | | | | | |
| 4 | LGRC-1303-IAS-004 | | 924 | | 2.65 | | | | | | | |
| 5 | LGRC-1507-IAS-005 | | 938 | | 2.68 | | | | | | | |
| 6 | LGRC-AMB-IAS-006 | | 950 | | 2.62 | AMB | | | | | | |
| 7 | LGRC-A106-IAS-007 | 6/20/17 | 930 | | 2.66 | IA | | | | | | |
| 8 | LGRC-A106D-IAS-008 | 6/20/17 | 930 | | 2.69 | IA | | | | | | |

Comments:

PCB homolog per client -
MEK 6/22/17Please 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 | |
|------------------------------|--------------|------------------------------|----|--------------------------|--------------------------|
| | | MA | CT | MA MCP Required | CT RCP Required |
| WMSY Tanawa | 6-21-17 | | | <input type="checkbox"/> | <input type="checkbox"/> |
| Tom Maw | 6/21/17 1200 | | | <input type="checkbox"/> | <input type="checkbox"/> |
| Tom Maw | 6/21/17 1200 | | | <input type="checkbox"/> | <input type="checkbox"/> |
| Tom Maw | 6/21/17 1200 | | | <input type="checkbox"/> | <input type="checkbox"/> |
| Tom Maw | 6/21/17 1200 | | | <input type="checkbox"/> | <input type="checkbox"/> |
| Tom Maw | 6/21/17 1200 | | | <input type="checkbox"/> | <input type="checkbox"/> |
| Tom Maw | 6/21/17 1200 | | | <input type="checkbox"/> | <input type="checkbox"/> |
| Tom Maw | 6/21/17 1200 | | | <input type="checkbox"/> | <input type="checkbox"/> |
| Tom Maw | 6/21/17 1200 | | | <input type="checkbox"/> | <input type="checkbox"/> |

NELAP and ARLAP, LLC Accredited

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

PLEASE BE CAREFUL NOT TO CONTAMINATE THIS DOCUMENT

July 11, 2017

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

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

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

Sincerely,

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

Meghan E. Kelley
Project Manager

Table of Contents

| | |
|--|----|
| Sample Summary | 3 |
| Case Narrative | 4 |
| Sample Results | 5 |
| 17G0121-01 | 5 |
| Sample Preparation Information | 6 |
| QC Data | 7 |
| Polychlorinated Biphenyls with 3540 Soxhlet Extraction | 7 |
| B181010 | 7 |
| Dual Column RPD Report | 8 |
| Flag/Qualifier Summary | 10 |
| Certifications | 11 |
| Chain of Custody/Sample Receipt | 12 |

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

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

REPORT DATE: 7/11/2017

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 17G0121

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

PROJECT LOCATION: LGRC-UMASS

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

CASE NARRATIVE SUMMARY

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

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

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

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

Tod E. Kopycinski
Laboratory Director

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

Project Location: LGRC-UMASS

Sample Description:

Work Order: 17G0121

Date Received: 7/6/2017

Field Sample #: LGRC-VWP-018

Sampled: 6/3/2017 10:45

Sample ID: 17G0121-01

Sample Matrix: Wipe

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

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

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

Sample Extraction Data

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

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

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

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

Batch B181010 - SW-846 3540C
Blank (B181010-BLK1)

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

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

LCS (B181010-BS1)

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

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

LCS Dup (B181010-BSD1)

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

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

IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

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

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

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

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

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

IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS Dup

Lab Sample ID: B181010-BSD1 Date(s) Analyzed: 07/08/2017 07/08/2017

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

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

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

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

FLAG/QUALIFIER SUMMARY

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

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

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

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

CERTIFICATIONS

Certified Analyses included in this Report

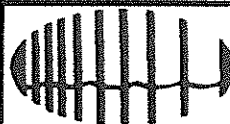
| Analyte | Certifications |
|---------|----------------|
|---------|----------------|

No certified Analyses included in this Report

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

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

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



con-test®
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

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

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

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

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

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

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

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

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

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

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

Unused Media

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

Comments:

**2017 LGRC MONITORING
PROJECT SUMMARY**

ConTest Analytical Laboratory Job Numbers: 17F1185, 17F1186, 17F1201, & 17G0121

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

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

Samples were received at 2.4 and 2.9 degrees Celsius. No qualifications were applied.

PCBs:

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

All PCB and PCB homolog surrogates met acceptance criteria (30-150%) with the following exceptions:

| LAB ID | SAMPLE ID | TCX (%/%) | DCB (%/%) | QUALIFIER |
|------------|--------------|-----------|-----------|-----------------|
| 17F1186-03 | LGRC-VWP-012 | 159/174 | 198/186 | None, sample ND |

TCX = tetrachloro-m-xylene

DCB = decachlorobiphenyl

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

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

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

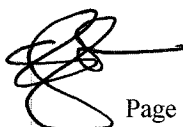
The PCB and PCB homolog laboratory control samples/laboratory control sample duplicates (LCS/LCSD) met acceptance criteria. No qualifications were applied.

PCB field duplicate samples LGRC-VWP-007 (17F1185-07)/LGRC-VWP-007D (17F1185-08) met relative percent difference (RPD) acceptance criteria. No qualifications were applied.

PCB homolog field duplicate samples LGRC-A106-IAS-007 (17F1201-07)/LGRC-A106D-IAS-008 (17F1201-08) met RPD acceptance criteria with the following exceptions. Tetrachlorobiphenyls (59%), pentachlorobiphenyls (165%), hexachlorobiphenyls (one result greater than two times the reporting limit and the duplicate result ND), and total polychlorinated biphenyls (55%) were above acceptance criteria ($\leq 50\%$). The detected and non-detected tetrachlorobiphenyls, pentachlorobiphenyls, hexachlorobiphenyls, and total polychlorinated biphenyls results in samples LGRC-A106-IAS-007 (17F1201-07)/LGRC-A106D-IAS-008 (17F1201-08) were estimated (J or UJ) with an unknown bias due to poor field duplicate precision.

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

Gloria J. Switalski (President):



Date:

7/20/2017