2018 Long Term Monitoring Report

Lederle Graduate Research Center

Tower A and Low-Rise Buildings
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1. INTRODUCTION

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

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

1.1 BACKROUND

As described in the CAFO, an approach was developed for the encapsulation of PCB-containing window glazing sealants as an interim measure until the glazing sealant could be removed during 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).

- Windows within the Low-Rise building Room A106 are to be removed in the fourth quarter of 2018 as described in the notification submittal dated August 22, 2018.

Removal and off-site disposal of ≥ 50 parts per million (ppm) exterior perimeter window caulking and the remediation of exterior building materials impacted by PCBs was conducted in accordance with EPA's June 22, 2007 Alternative Decontamination Approval under 40 CFR 761.61(a), 62, and 79(h). The remediation activities included the removal and off-site disposal of the exterior caulking and removal of a minimum of ½ inch of exterior concrete masonry around each of the windows to achieve the applicable high or low occupancy use clean up criteria (≤ 1 ppm for first floor locations and ≤ 25 ppm for second and third floor locations). However, as described in the CAFO Notification submittal on September 17, 2013, the 2007/2008 exterior remediation activities were not completed at the 50 Type L windows on the Low-Rise and bridge connector due to the inaccessibility of exterior perimeter window caulking at these locations (the windows are located between two structural concrete features approximately 1.5 feet apart). Given that the Type L windows and associated exterior caulking 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, along with long term monitoring.

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 in 2013 and 2014.

1.2.2 Visual Inspection and Verification/Baseline Sampling

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

Post-Cleaning Wipe Samples

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

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

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

Post-Encapsulation Wipe Samples

To confirm that the aluminum foil tape and caulking were effective encapsulants of PCBs in the glazing sealants, wipe samples were collected from the surface of the newly installed caulking. 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 µg/100 cm^2) or < 1 µg/100 cm^2 (five samples with reported concentrations ranging from 0.21 to 0.95 µg/100 cm^2) in 15 of the 17 samples collected; and
- Total PCBs were reported at concentrations > 1 µg/100 cm^2 in two samples with reported concentrations of 1.5 and 3.1 µg/100 cm^2 (both samples were collected from areas encapsulated during the NIH renovation prior to modifications to the application methods).

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

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

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

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

1.3.1 Summary of Remedial Activities

The remediation 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 type of coating due to the phased sequencing of work at the Type L windows). A summary of the analytical results from the wipe samples is as follows:

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

1.4 MONITORING AND MAINTENANCE IMPLEMENTATION PLAN

In accordance with the requirements of the CAFO, annual monitoring is to be completed as part of the Interim Measures to monitor, over time, the effectiveness of the remedy for encapsulated PCB-containing glazing sealants. In addition, and as described in the December 2014 Revised MMIP, monitoring is also to be conducted for the residual PCB impacted exterior concrete encapsulated through the application of liquid coatings and replacement frames at the Type L windows.

As 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 indoor air levels of PCBs over time. .

Annual monitoring activities were initiated in 2015. Results of the monitoring were consistent with the baseline monitoring results and communicated to EPA in the annual monitoring reports submitted in September of each year. Based on the results of previous monitoring events, no recommendations for modification to the long-term monitoring plan were warranted.

2. 2018 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 as described in Section 1.4.

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 Low-Rise Building, 20% of the Type L windows were included in the visual inspection (10 windows).

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

2.2 NON-ROUTINE MAINTENANCE ACTIVITIES

No non-routine maintenance activities that disturbed the encapsulated materials were observed or conducted in 2017/2018, as reported by UMass personnel (window removals in Room A106 are scheduled for Q4 of 2018).

2.3 ACCESSIBLE NON-POROUS SURFACES

Surface wipe samples were collected from nine representative locations on the accessible non-porous surfaces adjacent to 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 non-detect in all nine samples collected (< 0.20 µg/100 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.

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

Analytical results from all nine samples reported PCBs as either non-detect (5 samples with reporting limits of < 0.20 µg/100 cm^2) or at concentrations < 1 ug/100 cm^2 (4 samples with concentrations ranging from 0.24 to 0.52 ug/100 cm^2). Based on these results the applied barrier 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 accordance with the MMIP. The individual spaces were selected based on the use of the space (e.g., offices, laboratories, common areas) throughout the building.

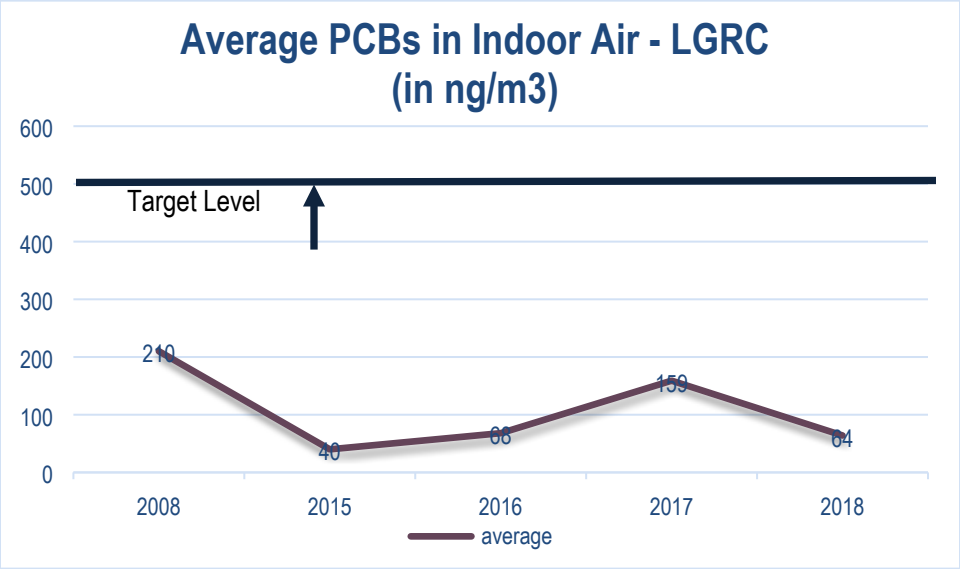
Air samples were collected in accordance with USEPA Compendium Method TO-10A *"Determination of Pesticides and Polychlorinated Biphenyls In Ambient Air Using Low Volume Polyurethane Foam (PUF) Sampling Followed by Gas Chromatographic/Multi-Detector Detection (GC/MD)"* and submitted for laboratory analysis 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 19.3 ng/m^3 to 101.7 ng/m^3 in the six samples with an average reported concentration of 64 ng/m^3. Analytical results were non-detect for PCBs in the outdoor/ambient sample.

These indoor air results are consistent with results from the previous sampling events conducted in 2015, 2016, and 2017 and remain below the project action level of 500 ng/m^3 (EPA's exposure levels for evaluating PCBs in indoor school air for students ages 19 plus and adults, as amended on July 2015). Additionally, the average reported concentration was below the average reported concentration of 210 ng/m^3 from the six samples collected from across the LGRC complex as part of the initial 2008 sampling event (Tower A and low-rise locations). A chart depicting the average indoor air levels over time is provided on the following page. 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.

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



3. SUMMARY AND CONCLUSIONS

Results of the 2018 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 µg/100cm^2) in the nine samples collected.
- Analytical results from wipe samples collected from encapsulated surfaces indicated that PCBs were either non-detect or < 1 ug/100cm^2 in the nine samples collected.
- Analytical results from indoor air samples collected as part of long term monitoring indicted that PCBs were generally consistent with previous sampling events and remain at concentrations below the action level of 500 ng/m^3.

3.1 CORRECTIVE ACTIONS

No corrective actions are warranted based on the results of the 2018 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 MMIP are warranted. However, the removal of windows in Low-Rise Room A106 is scheduled to be completed in Q4 of 2018. Therefore, indoor air sampling and wipe sampling will no longer be conducted in this space consistent with other low-rise locations.

3.3 NEXT MONITORING EVENT

Pursuant to the CAFO, the next monitoring event will be conducted in June 2019 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.

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 (µg/100cm^2)
2	Elevator Lobby	LGRC-VWP-017	6/25/2018	< 0.20
4	408	LGRC-VWP-015	6/25/2018	< 0.20
6	601	LGRC-VWP-013	6/25/2018	< 0.20
8	Elevator Lobby	LGRC-VWP-011	6/25/2018	< 0.20
10	1004	LGRC-VWP-009	6/25/2018	< 0.20
12	1205	LGRC-VWP-007	6/25/2018	< 0.20
14	1404	LGRC-VWP-005	6/25/2018	< 0.20
16	1606	LGRC-VWP-003	6/25/2018	< 0.20
Low Rise	A106	LGRC-VWP-001	6/25/2018	< 0.20

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

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

Floor	2014 Baseline Wipe Samples				June 2018 Wipe Samples			
	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	--	--	--	--
2	Elevator Lobby	LGRC-EN-VWK-128	2/24/2014	< 0.20	Elevator Lobby	LGRC-VWP-018	6/25/2018	0.24
3	Elevator Lobby	LGRC-EN-VWK-130	2/24/2014	3.1	--	--	--	--
4	408	LGRC-EN-VWK-100	2/24/2014	< 0.20	408	LGRC-VWP-016	6/25/2018	< 0.20
5	502	LGRC-EN-VWK-102	2/24/2014	< 0.20	--	--	--	--
6	605	LGRC-EN-VWK-104	2/24/2014	0.27	601	LGRC-VWP-014	6/25/2018	0.24
7	Elevator Lobby	LGRC-EN-VWK-126	2/24/2014	0.64	--	--	--	--
8	Elevator Lobby	LGRC-EN-VWK-122	2/24/2014	1.5	Elevator Lobby	LGRC-VWP-012	6/25/2018	< 0.20
9	903A	LGRC-EN-VWK-120	2/24/2014	< 0.20	--	--	--	--
10	1003	LGRC-EN-VWK-118	2/24/2014	0.21	1004	LGRC-VWP-010	6/25/2018	0.41
11	1108	LGRC-EN-VWK-116	2/24/2014	< 0.20	--	--	--	--
12	1209	LGRC-EN-VWK-114	2/24/2014	< 0.20	1205	LGRC-VWP-008	6/25/2018	< 0.20
13	1306	LGRC-EN-VWK-112	2/24/2014	< 0.20	--	--	--	--
14	Elevator Lobby	LGRC-EN-VWK-110	2/24/2014	0.21	1404	LGRC-VWP-006	6/25/2018	< 0.20
15	1508	LGRC-EN-VWK-108	2/24/2014	< 0.20	--	--	--	--
16	1607	LGRC-EN-VWK-106	2/24/2014	0.95	1606	LGRC-VWP-004	6/25/2018	< 0.20
Low Rise	A106	LGRC-EN-VWK-132	2/24/2014	< 0.20	A106	LGRC-VWP-002	6/25/2018	0.52

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

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

Location	Air Sample	PCB Concentration (ng/cartridge)	Flow Rate (L/Minute)	Duration (minutes)	PCB Concentration (ng/m^3)
Project Action Level: 500 ng/m^3					
June 18, 2015					
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
June 25, 2018					
Tower A - 299T	LGRC-299-IAS-004	94	2.65	374	95.4
Tower A - 408	LGRC-408-IAS-003	19	2.65	373	19.3 UJ
Tower A - 899A	LGRC-899-IAS-002	22	2.63	369	23.4 UJ
Tower A - 1205	LGRC-1205-IAS-005	49	2.64	372	51.2
Tower A - 1606	LGRC-1606-IAS-001	80	2.65	371	101.7 UJ
Low Rise - A106	LGRC-A106-IAS-006	94	2.63	398	91.2
Ambient Air	LGRC-AMB-IAS-007	0	2.67	365	0.0

Notes:
Project Specific Risk-based Action Level based on the EPA's exposure levels for evaluating PCBs in indoor school air for students ages 19 plus and adults (July 2015).
Air samples collected in accordance with USEPA Compendium Method TO-10A "Determination of Pesticides and Polychlorinated Biphenyls In Ambient Air Using Low Volume Polyurethane Foam (PUF) Sampling Followed by Gas Chromatographic/Multi-Detector Detection (GC/MD)" and submitted for laboratory analysis of PCBs homologs.
ng/m^3 = nanograms per cubic meter
J/UJ = Analytical results qualified as estimated based on the results of data validation. See Appendix A for additional information.

FIGURES

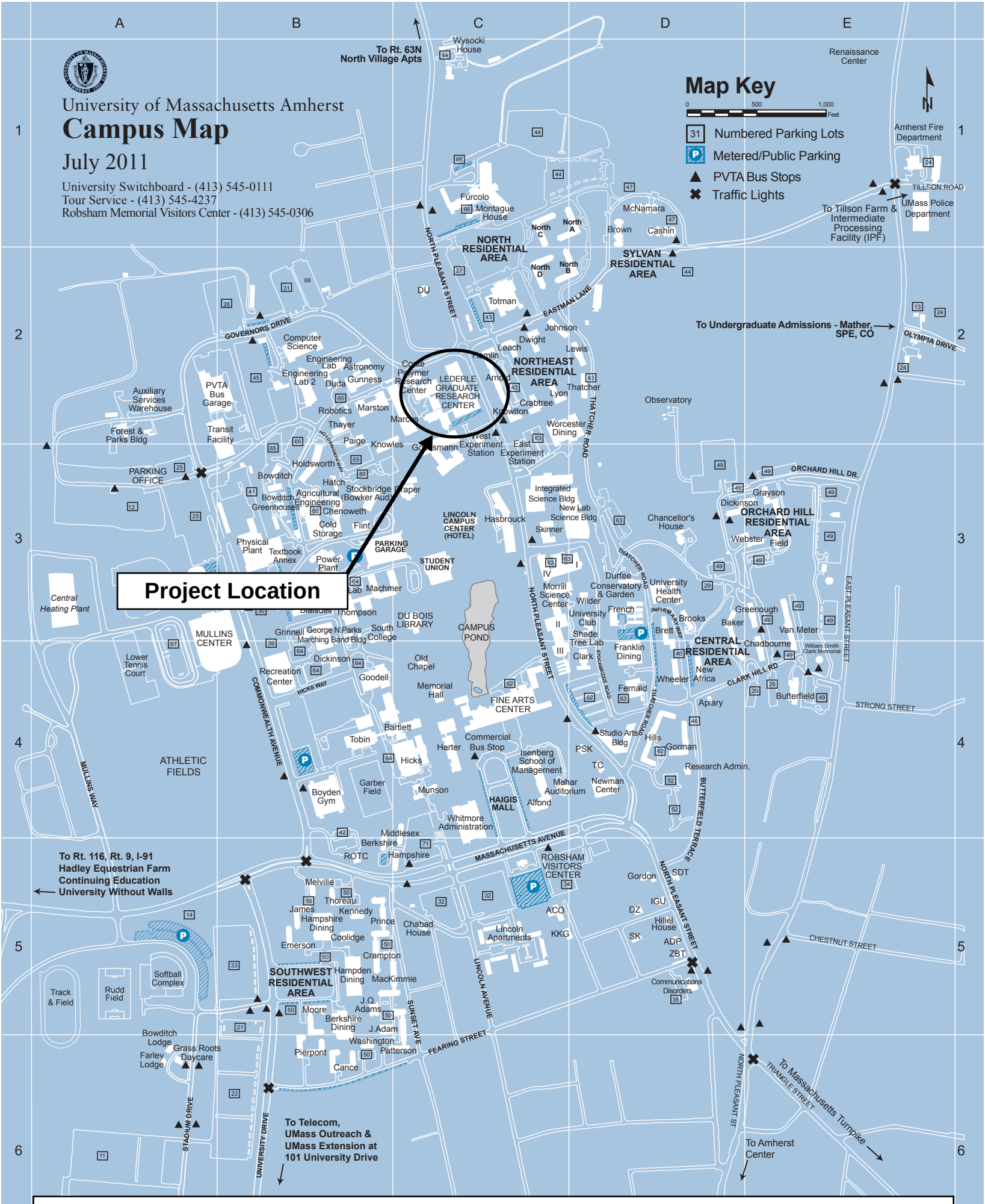
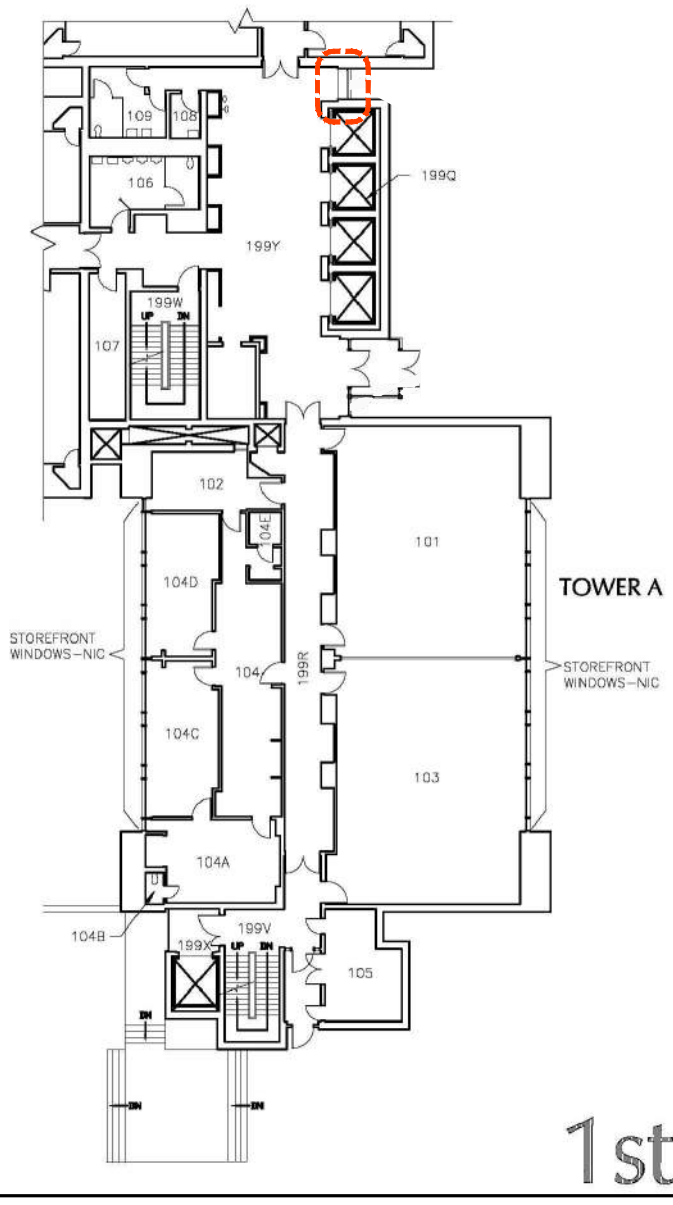
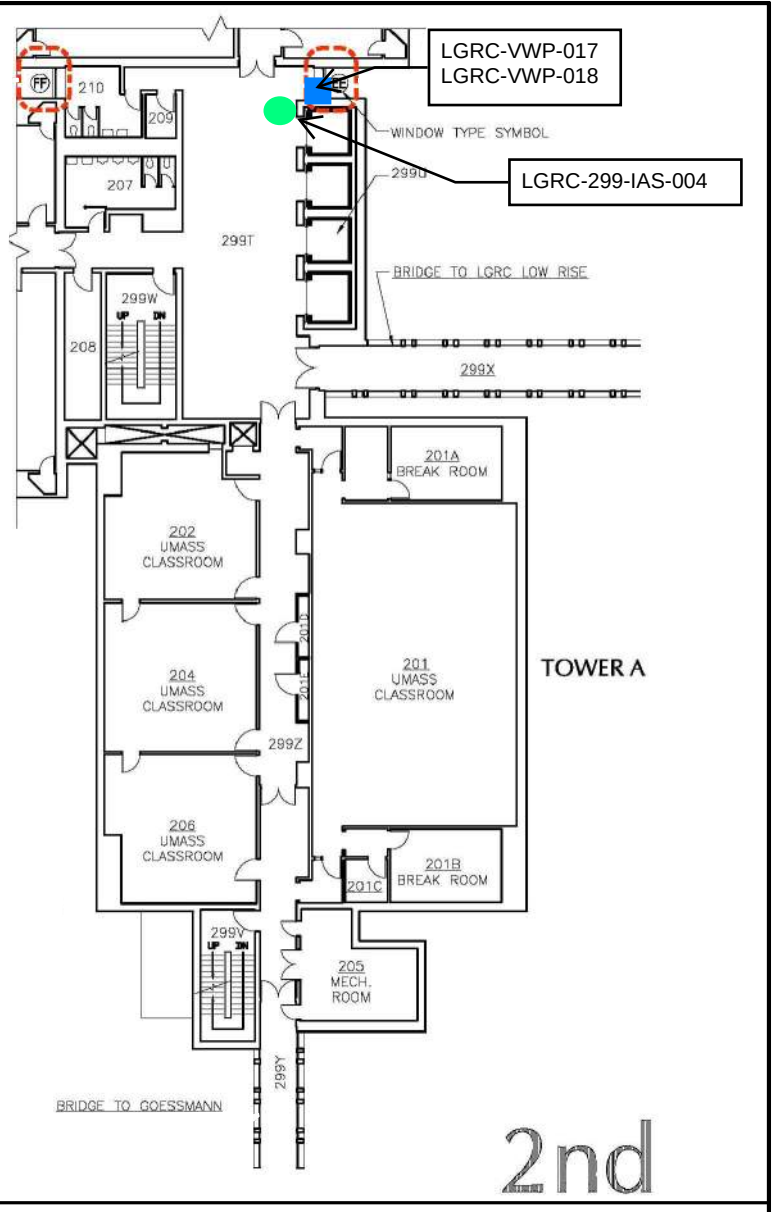


Figure 1-1 Site Location Map





LEGEND

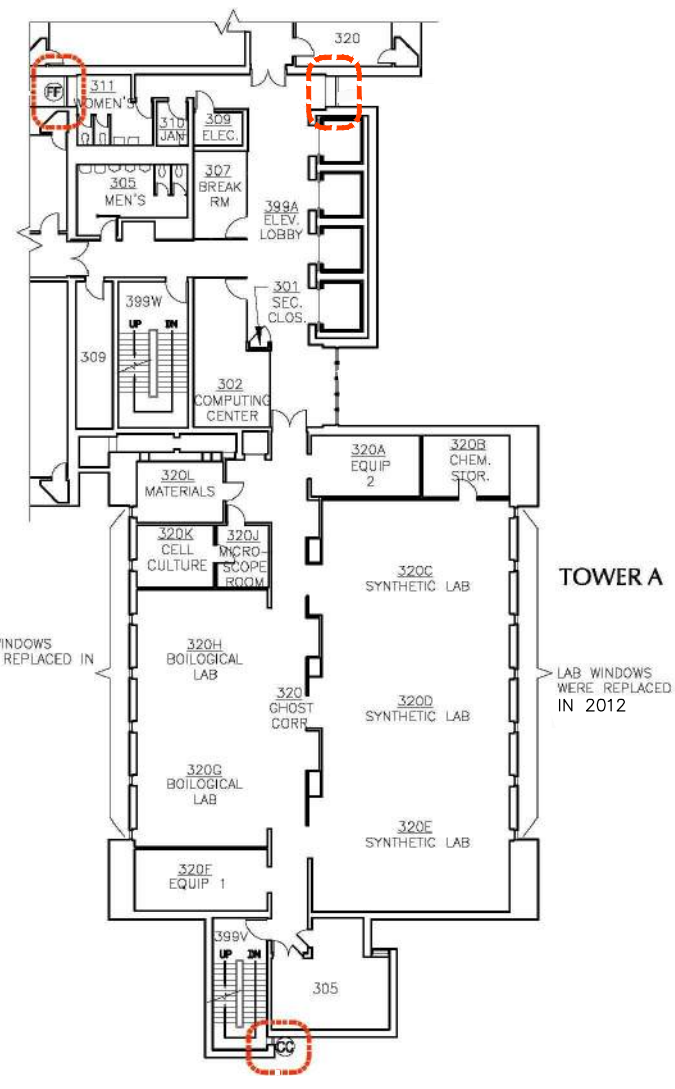
LOCATION OF WINDOWS/GLAZING SEALANTS INCLUDED IN THE INTERIM MEASURES AND SUBJECT TO LONG TERM MONITORING AND MAINTENANCE

INDOOR AIR SAMPLE LOCATION

SURFACE WIPE SAMPLE LOCATION

NOTE:

1. ORIGINAL DESIGN DRAWINGS BY GOLDMAN REINDORF ARCHITECTS INC.



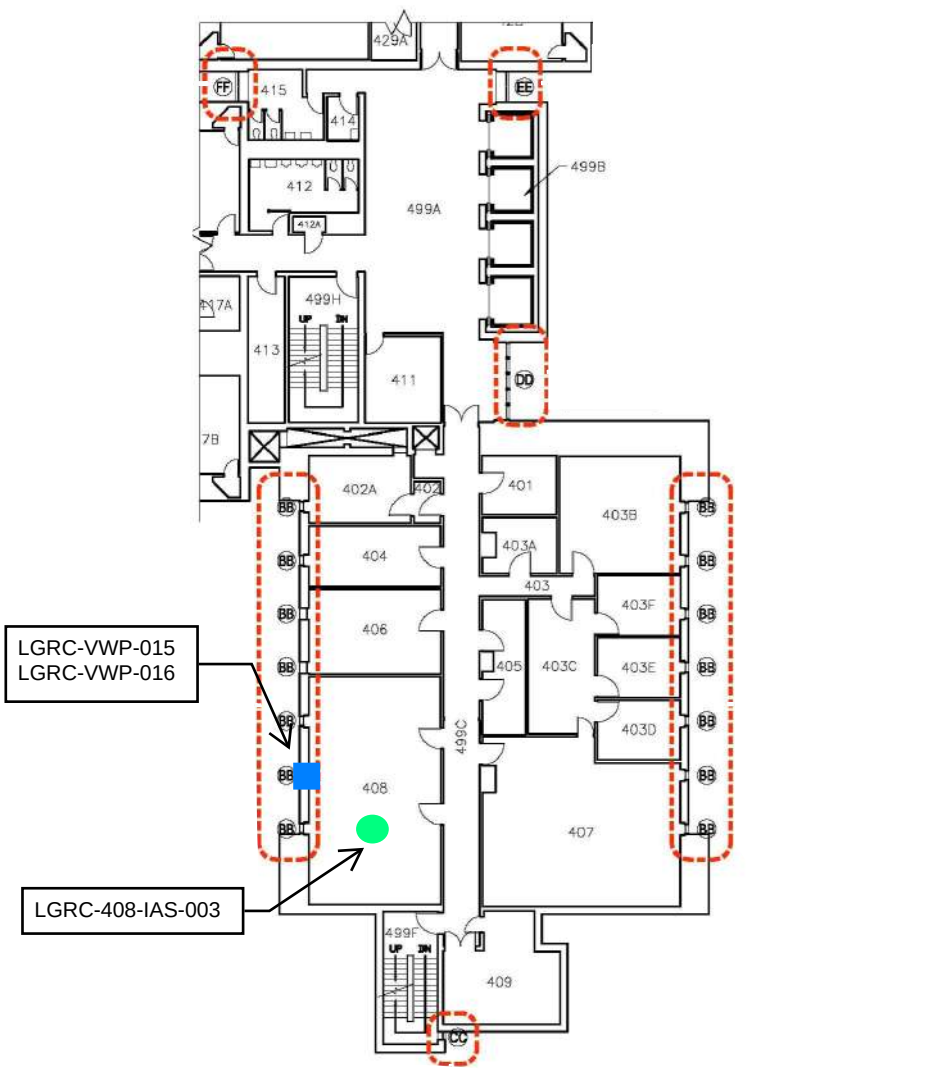


FIGURE 2-1

JOB NO: 210918
DATE: APRIL 2014
SCALE: NOT TO SCALE

UMASS AMHERST
LEDERLE GRADUATE RESEARCH CENTER

MMIP

AREAS OF ENCAPSULATED MATERIALS
TOWER A 1st–4th FLOORS

DESIGNED BY:	CHECKED BY: JAH
DRAWN BY: PF	MMIP–FIGURE 2–1.DWG

WOODARD &CURRAN
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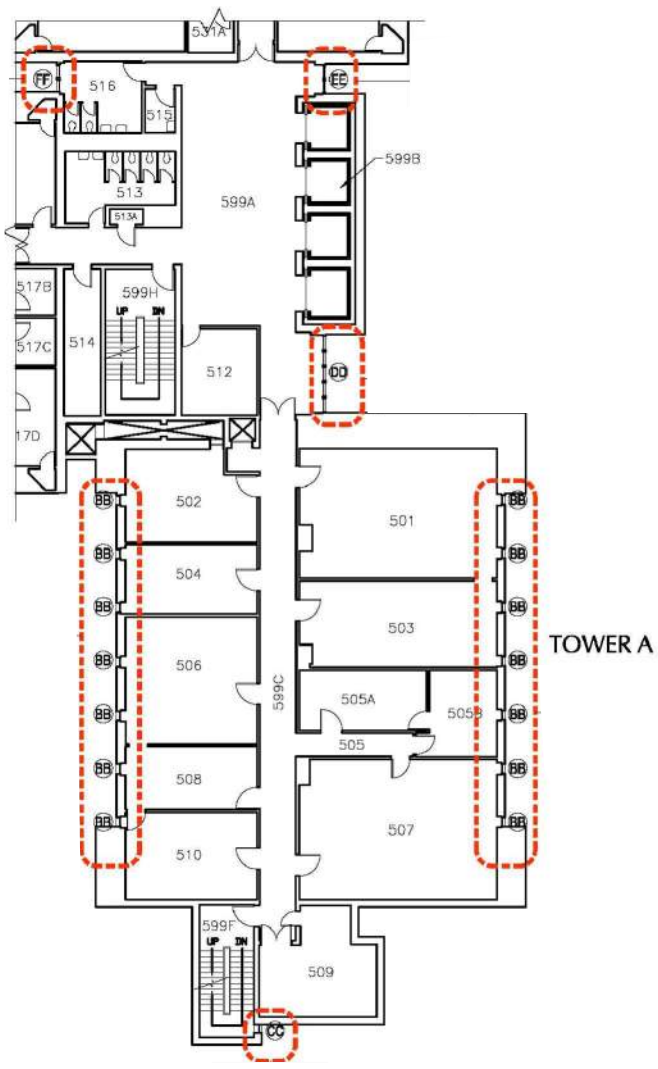
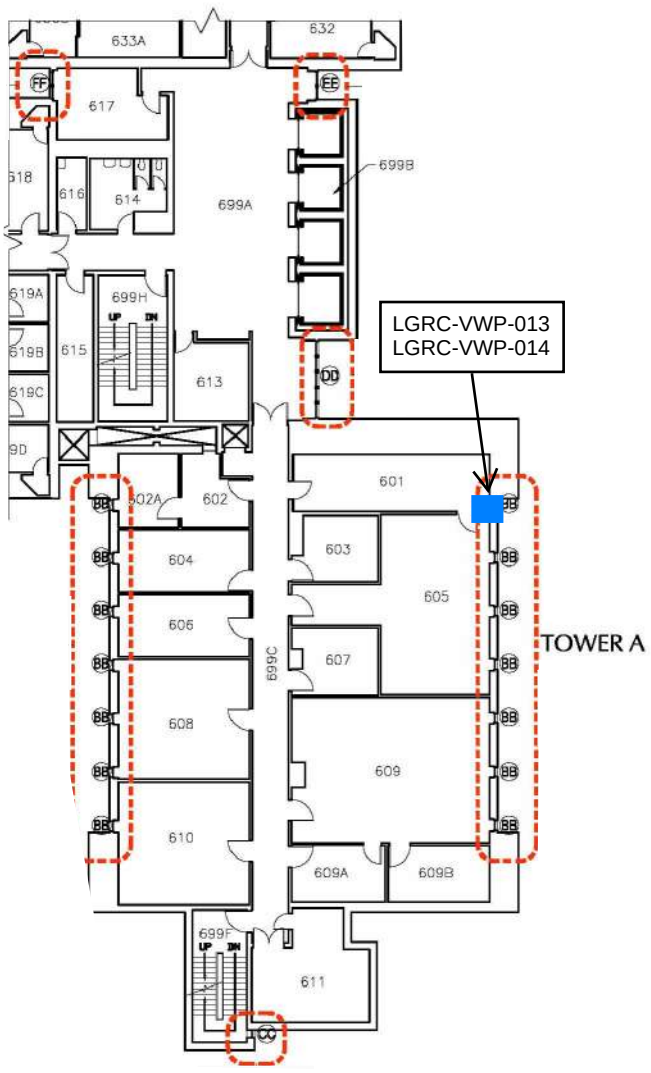
Andover, Massachusetts 01810
866.702.6371 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS





LEGEND

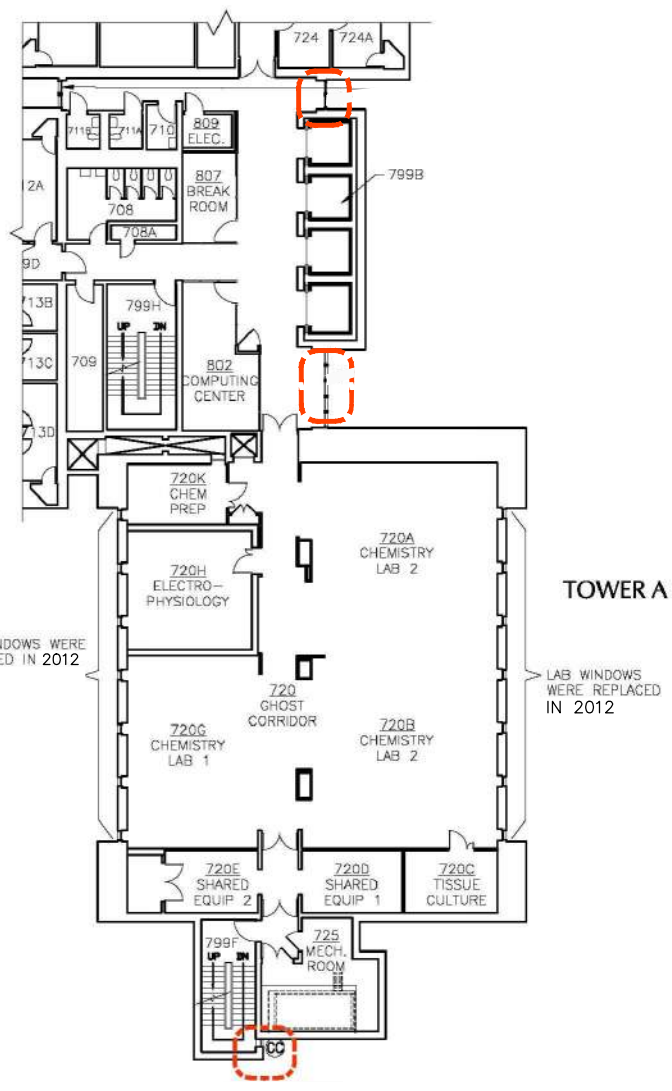
LOCATION OF WINDOWS/GLAZING SEALANTS INCLUDED IN THE INTERIM MEASURES AND SUBJECT TO LONG TERM MONITORING AND MAINTENANCE

INDOOR AIR SAMPLE LOCATION

SURFACE WIPE SAMPLE LOCATION

NOTE:

1. ORIGINAL DESIGN DRAWINGS BY GOLDMAN REINDORF ARCHITECTS INC.



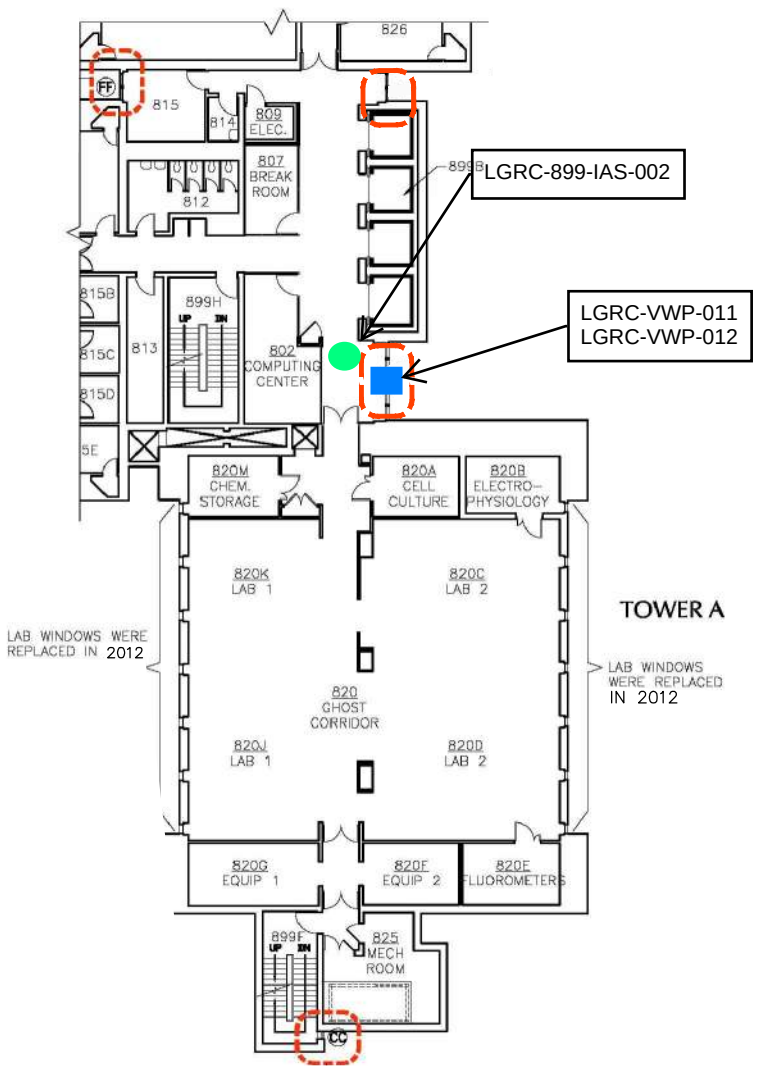


FIGURE 2-2

JOB NO: 210918
DATE: APRIL 2014
SCALE: NOT TO SCALE

UMASS AMHERST
LEDERLE GRADUATE RESEARCH CENTER

MMIP

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

DESIGNED BY:	CHECKED BY: JAH
DRAWN BY: PFF	MMIP–FIGURE 2–2.DWG

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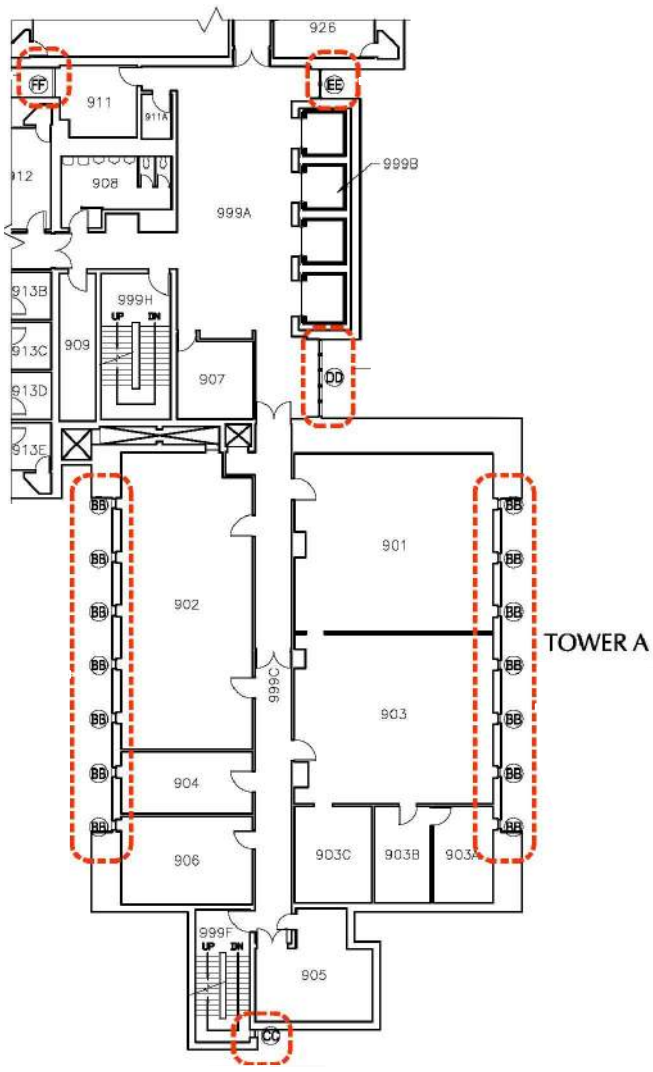
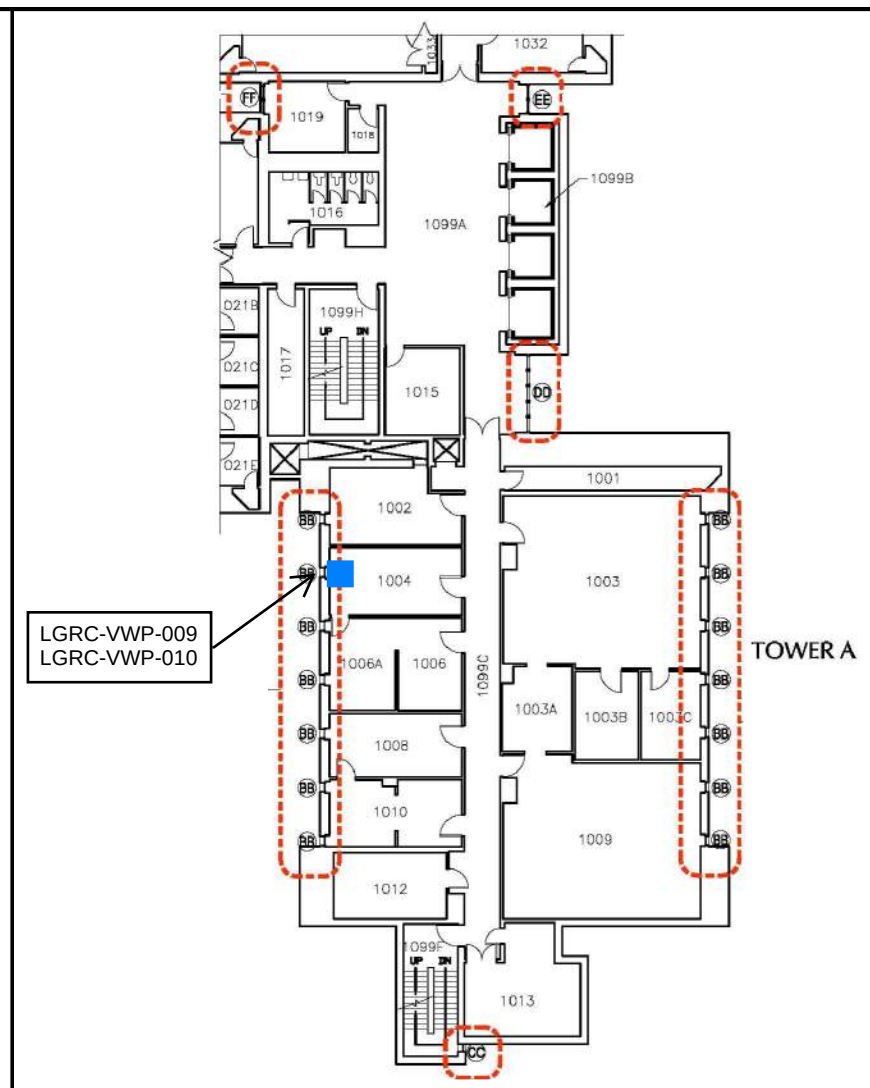
COMMITMENT & INTEGRITY DRIVE RESULTS



9th



10th

LEGEND

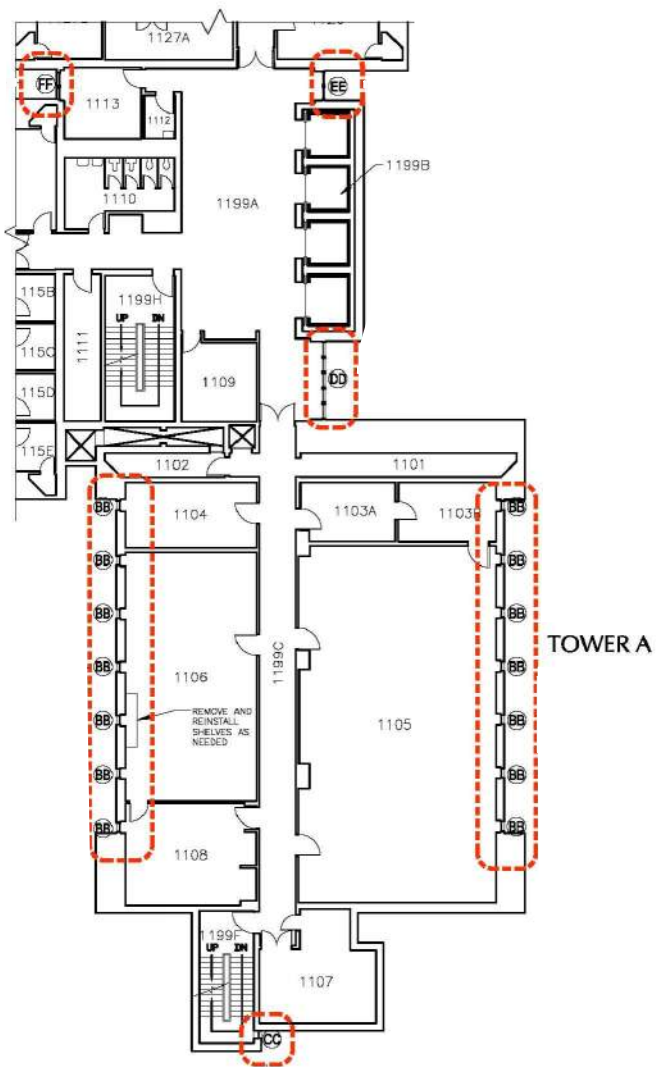
LOCATION OF WINDOWS/GLAZING SEALANTS INCLUDED IN THE INTERIM MEASURES AND SUBJECT TO LONG TERM MONITORING AND MAINTENANCE

INDOOR AIR SAMPLE LOCATION

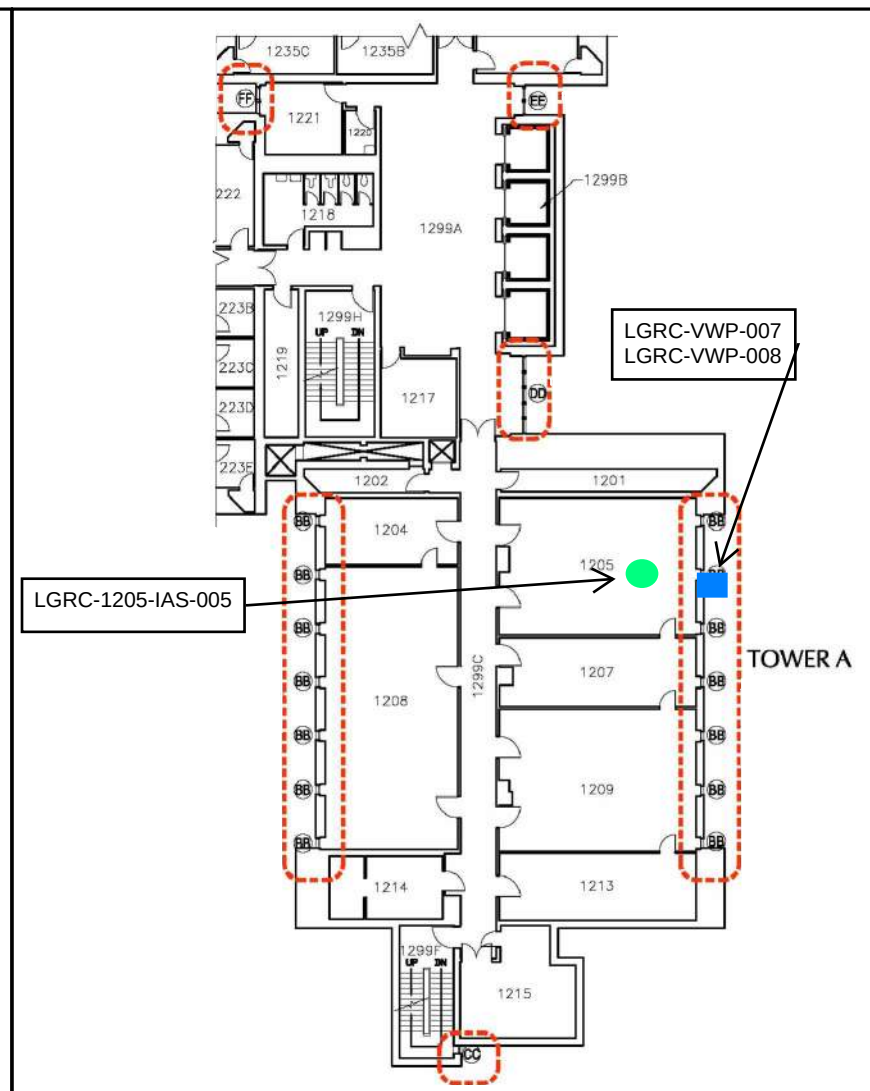
SURFACE WIPE SAMPLE LOCATION

NOTE:

1. ORIGINAL DESIGN DRAWINGS BY GOLDMAN REINDORF ARCHITECTS INC.



11th

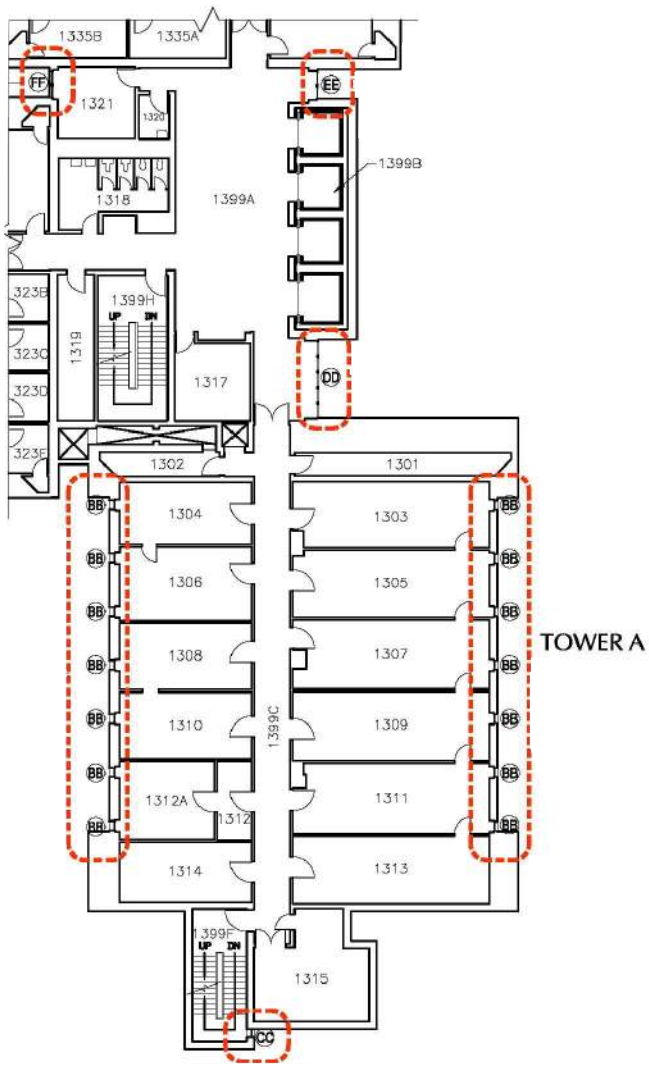


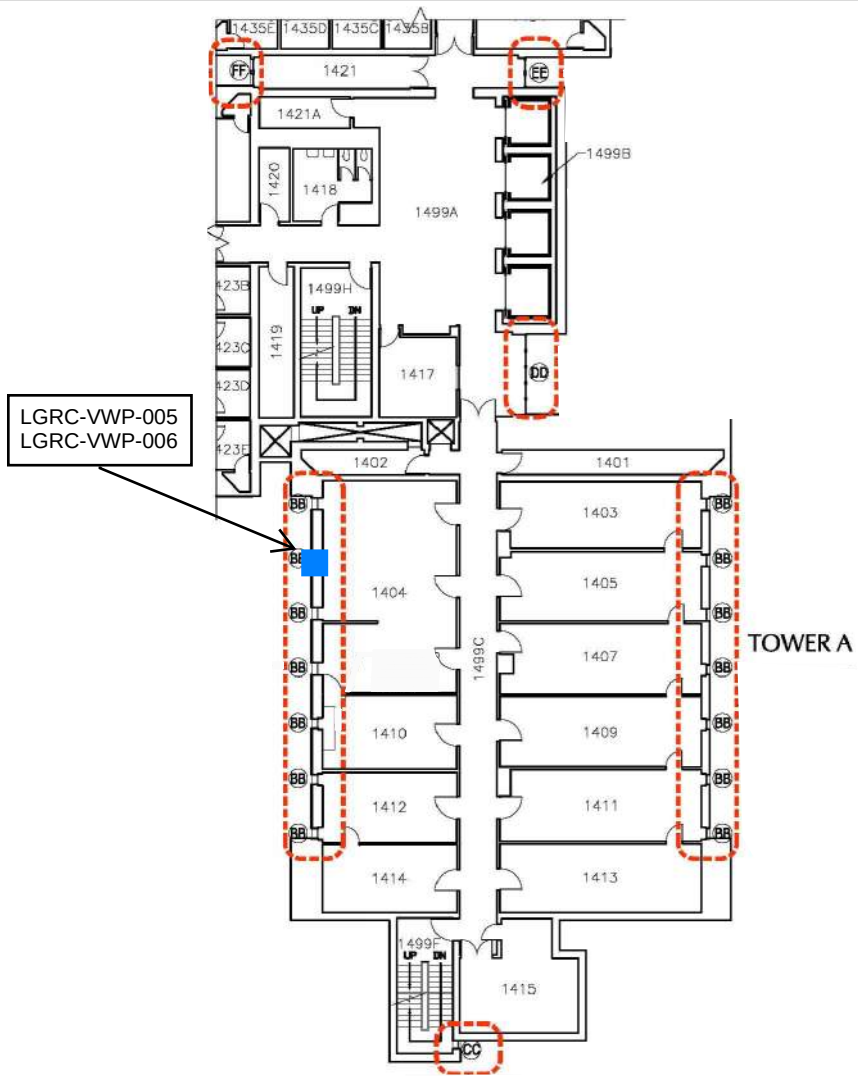
12th

FIGURE 2-3	UMASS AMHERST LEDERLE GRADUATE RESEARCH CENTER MMIP	AREAS OF ENCAPSULATED MATERIALS TOWER A 9th–12th FLOORS	WOODARD & CURRAN 40 Shattuck Road | Suite 110 Andover, Massachusetts 01810 866.702.6371 | www.woodardcurran.com COMMITMENT & INTEGRITY DRIVE RESULTS

JOB NO: 210918
DATE: APRIL 2014
SCALE: NOT TO SCALE

DESIGNED BY: | CHECKED BY: JAH
DRAWN BY: PF | MMIP–FIGURE 2–3.DWG





LEGEND

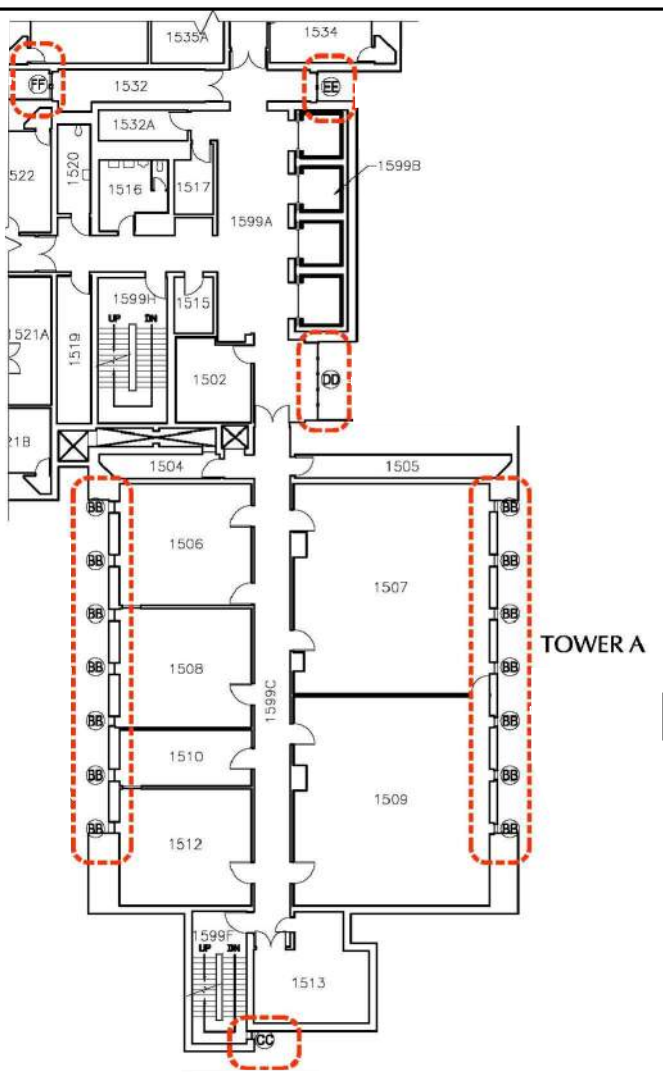
LOCATION OF WINDOWS/GLAZING SEALANTS INCLUDED IN THE INTERIM MEASURES AND SUBJECT TO LONG TERM MONITORING AND MAINTENANCE

INDOOR AIR SAMPLE LOCATION

SURFACE WIPE SAMPLE LOCATION

NOTE:

ORIGINAL DESIGN DRAWINGS BY GOLDMAN REINDORF ARCHITECTS INC.



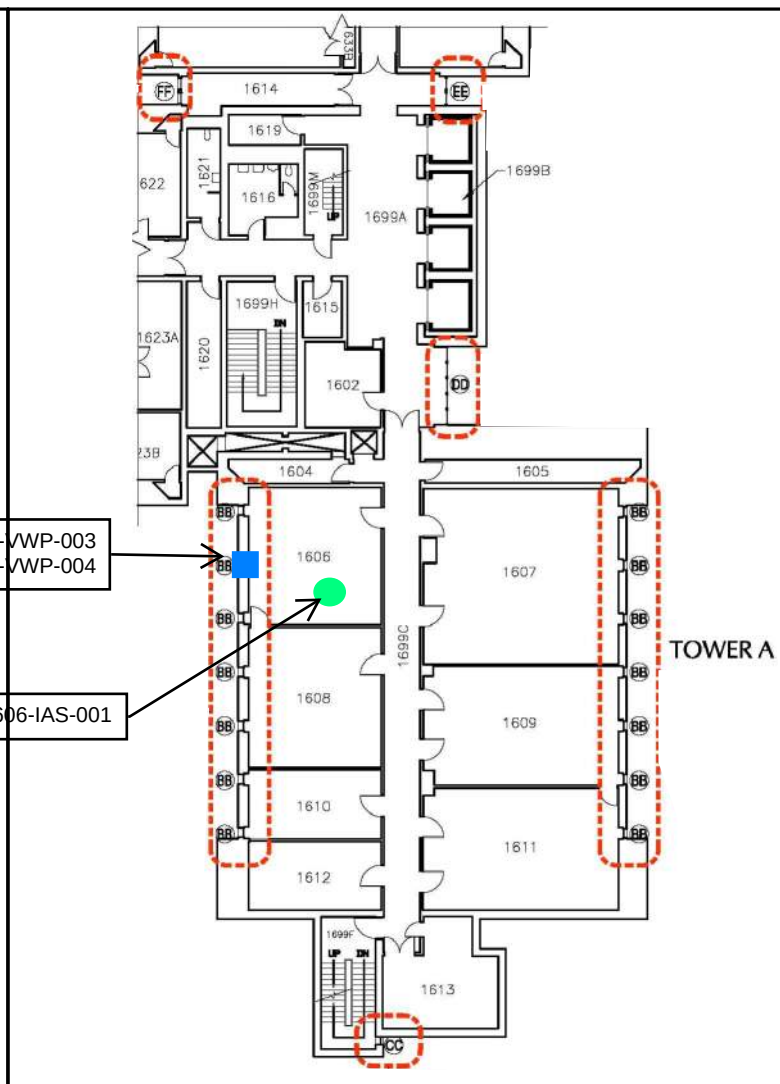


FIGURE 2-4	UMASS AMHERST LEDERLE GRADUATE RESEARCH CENTER	AREAS OF ENCAPSULATED MATERIALS TOWER A 13th–16th FLOORS	WOODARD &CURRAN 40 Shattuck Road | Suite 110 Andover, Massachusetts 01810 866.702.6371 | www.woodardcurran.com COMMITMENT & INTEGRITY DRIVE RESULTS
JOB NO: 210918 DATE: APRIL 2014 SCALE:NOT TO SCALE	MMIP	DESIGNED BY: DRAWN BY: PF CHECKED BY: JAH MMIP–FIGURE 2–4_2–5.DWG	

LEGEND:

LOCATION OF WINDOWS/GLAZING SEALANTS OR EXTERIOR CONCRETE SURFACES INCLUDED IN THE INTERIM MEASURE AND SUBJECT TO LONG TERM MONITORING AND MAINTENANCE.

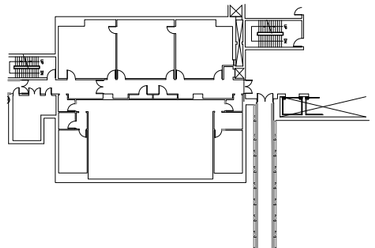
LOCATION OF WIPE SAMPLES

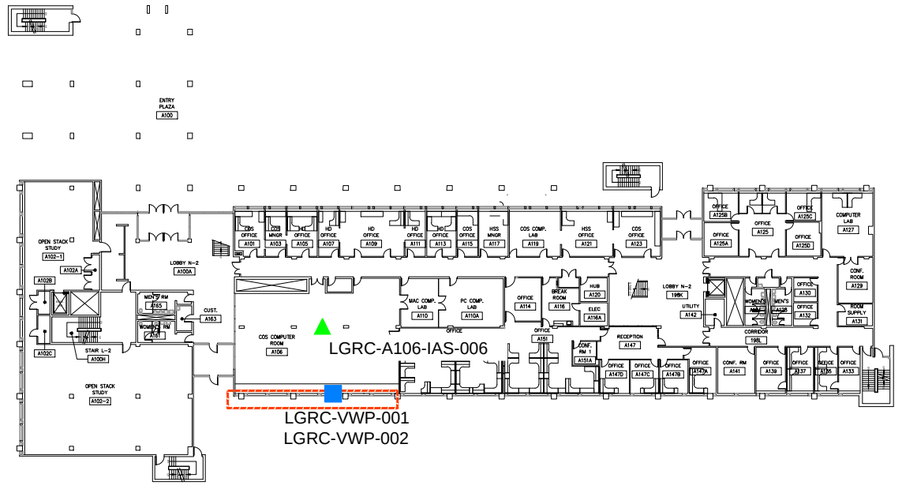
LOCATION OF LONG TERM MONITORING AIR SAMPLE

TYPE–L, VISUAL INSPECTION

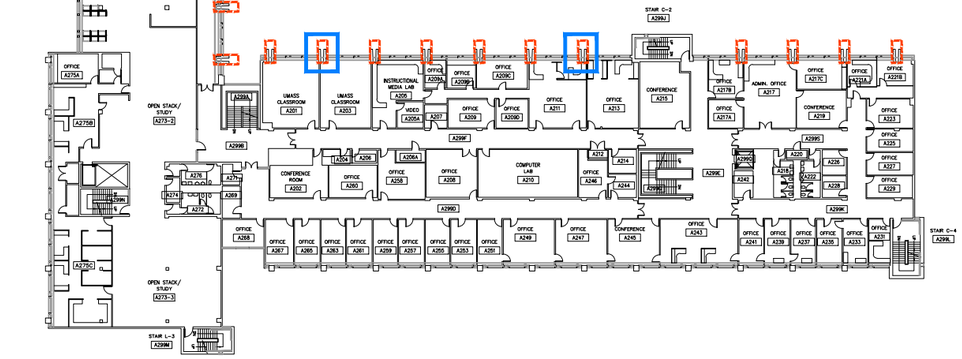
NOTE:

ORIGINAL DESIGN DRAWINGS BY GOLDMAN REINDORF ARCHITECTS INC.

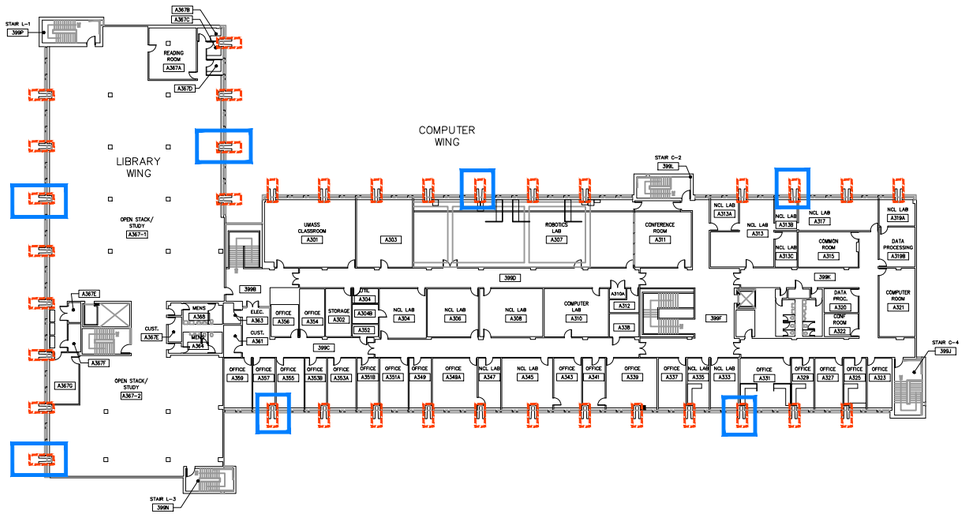




FIRST FLOOR PLAN



SECOND FLOOR PLAN



THIRD FLOOR PLAN

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AREAS OF ENCAPSULATED MATERIALS LOW–RISE BUILDING

DESIGNED BY: GF
DRAWN BY: PF
CHECKED BY: JAH
MMIP–FIGURE 2–5_B.DWG

UMASS AMHERST
LEDERLE GRADUATE RESEARCH CENTER

2018 LONG TERM MONITORING REPORT

JOB NO: 210918
DATE: JUNE 2018
SCALE: NOT TO SCALE

FIGURE 2-5

\\Woodardcurran.net\stored\Projects\210918 UMASS Amherst – LEDERLE PCB Soil Rem\vip\Drawings\MMP\MMP–Figure 2–5_B.dwg

APPENDIX A: ANALYTICAL LABORATORY REPORTS AND DATA VALIDATION SUMMARIES

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

July 3, 2018

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

Project Location: Amherst, MA
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 18F1302

Enclosed are results of analyses for samples received by the laboratory on June 26, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Meghan E. Kelley
Project Manager

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con-test® ANALYTICAL LABORATORY

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

REPORT DATE: 7/3/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18F1302

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

PROJECT LOCATION: Amherst, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LGRC-VWP-002	18F1302-01	Wipe		SW-846 8082A	
LGRC-VWP-004	18F1302-02	Wipe		SW-846 8082A	
LGRC-VWP-006	18F1302-03	Wipe		SW-846 8082A	
LGRC-VWP-008	18F1302-04	Wipe		SW-846 8082A	
LGRC-VWP-010	18F1302-05	Wipe		SW-846 8082A	
LGRC-VWP-012	18F1302-06	Wipe		SW-846 8082A	
LGRC-VWP-014	18F1302-07	Wipe		SW-846 8082A	
LGRC-VWP-016	18F1302-08	Wipe		SW-846 8082A	
LGRC-VWP-018	18F1302-09	Wipe		SW-846 8082A	

con-test® ANALYTICAL LABORATORY
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CASE NARRATIVE SUMMARY

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

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Project Manager

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

Project Location: Amherst, MA | Sample Description: | Work Order: 18F1302

Date Received: 6/26/2018

Field Sample #: LGRC-VWP-002 | Sampled: 6/25/2018 10:10

Sample ID: 18F1302-01

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	6/26/18	7/2/18 12:05	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:05	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:05	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:05	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:05	KAL
Aroclor-1254 [2]	0.52	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:05	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:05	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:05	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:05	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	91.7	30-150		7/2/18 12:05
Decachlorobiphenyl [2]	92.2	30-150		7/2/18 12:05
Tetrachloro-m-xylene [1]	86.1	30-150		7/2/18 12:05
Tetrachloro-m-xylene [2]	90.5	30-150		7/2/18 12:05

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

Project Location: Amherst, MA | Sample Description: | Work Order: 18F1302

Date Received: 6/26/2018

Field Sample #: LGRC-VWP-004 | Sampled: 6/25/2018 13:05

Sample ID: 18F1302-02

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	6/26/18	7/2/18 12:24	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:24	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:24	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:24	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:24	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:24	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:24	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:24	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:24	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	88.0	30-150		7/2/18 12:24
Decachlorobiphenyl [2]	89.5	30-150		7/2/18 12:24
Tetrachloro-m-xylene [1]	79.5	30-150		7/2/18 12:24
Tetrachloro-m-xylene [2]	83.1	30-150		7/2/18 12:24

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

Project Location: Amherst, MA | Sample Description: | Work Order: 18F1302

Date Received: 6/26/2018

Field Sample #: LGRC-VWP-006 | Sampled: 6/25/2018 13:15

Sample ID: 18F1302-03

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	6/26/18	7/2/18 12:42	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:42	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:42	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:42	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:42	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:42	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:42	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:42	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 12:42	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	91.3	30-150		7/2/18 12:42
Decachlorobiphenyl [2]	91.7	30-150		7/2/18 12:42
Tetrachloro-m-xylene [1]	81.5	30-150		7/2/18 12:42
Tetrachloro-m-xylene [2]	85.0	30-150		7/2/18 12:42

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

Project Location: Amherst, MA | Sample Description: | Work Order: 18F1302

Date Received: 6/26/2018

Field Sample #: LGRC-VWP-008 | Sampled: 6/25/2018 13:25

Sample ID: 18F1302-04

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	6/26/18	7/2/18 13:01	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:01	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:01	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:01	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:01	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:01	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:01	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:01	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:01	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	86.0	30-150		7/2/18 13:01
Decachlorobiphenyl [2]	85.7	30-150		7/2/18 13:01
Tetrachloro-m-xylene [1]	79.9	30-150		7/2/18 13:01
Tetrachloro-m-xylene [2]	83.8	30-150		7/2/18 13:01

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Project Location: Amherst, MA | Sample Description: | Work Order: 18F1302

Date Received: 6/26/2018

Field Sample #: LGRC-VWP-010 | Sampled: 6/25/2018 13:35

Sample ID: 18F1302-05

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	6/26/18	7/2/18 13:19	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:19	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:19	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:19	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:19	KAL
Aroclor-1254 [1]	0.41	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:19	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:19	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:19	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:19	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	87.0	30-150		7/2/18 13:19
Decachlorobiphenyl [2]	87.1	30-150		7/2/18 13:19
Tetrachloro-m-xylene [1]	82.1	30-150		7/2/18 13:19
Tetrachloro-m-xylene [2]	85.9	30-150		7/2/18 13:19

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Project Location: Amherst, MA | Sample Description: | Work Order: 18F1302

Date Received: 6/26/2018

Field Sample #: LGRC-VWP-012 | Sampled: 6/25/2018 13:45

Sample ID: 18F1302-06

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	6/26/18	7/2/18 13:37	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:37	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:37	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:37	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:37	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:37	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:37	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:37	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:37	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	87.8	30-150		7/2/18 13:37
Decachlorobiphenyl [2]	88.3	30-150		7/2/18 13:37
Tetrachloro-m-xylene [1]	83.9	30-150		7/2/18 13:37
Tetrachloro-m-xylene [2]	87.4	30-150		7/2/18 13:37

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Project Location: Amherst, MA | Sample Description: | Work Order: 18F1302

Date Received: 6/26/2018

Field Sample #: LGRC-VWP-014 | Sampled: 6/25/2018 13:55

Sample ID: 18F1302-07

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	6/26/18	7/2/18 13:56	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:56	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:56	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:56	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:56	KAL
Aroclor-1254 [1]	0.24	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:56	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:56	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:56	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 13:56	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	89.0	30-150		7/2/18 13:56
Decachlorobiphenyl [2]	88.9	30-150		7/2/18 13:56
Tetrachloro-m-xylene [1]	82.2	30-150		7/2/18 13:56
Tetrachloro-m-xylene [2]	85.6	30-150		7/2/18 13:56

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Project Location: Amherst, MA | Sample Description: | Work Order: 18F1302

Date Received: 6/26/2018

Field Sample #: LGRC-VWP-016 | Sampled: 6/25/2018 14:05

Sample ID: 18F1302-08

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	6/26/18	7/2/18 14:14	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 14:14	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 14:14	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 14:14	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 14:14	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 14:14	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 14:14	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 14:14	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 14:14	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	89.9	30-150		7/2/18 14:14
Decachlorobiphenyl [2]	90.0	30-150		7/2/18 14:14
Tetrachloro-m-xylene [1]	81.6	30-150		7/2/18 14:14
Tetrachloro-m-xylene [2]	86.0	30-150		7/2/18 14:14

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Project Location: Amherst, MA | Sample Description: | Work Order: 18F1302

Date Received: 6/26/2018

Field Sample #: LGRC-VWP-018 | Sampled: 6/25/2018 14:25

Sample ID: 18F1302-09

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	6/26/18	7/2/18 14:32	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 14:32	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 14:32	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 14:32	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 14:32	KAL
Aroclor-1254 [2]	0.24	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 14:32	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 14:32	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 14:32	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 14:32	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	86.6	30-150		7/2/18 14:32
Decachlorobiphenyl [2]	86.8	30-150		7/2/18 14:32
Tetrachloro-m-xylene [1]	83.5	30-150		7/2/18 14:32
Tetrachloro-m-xylene [2]	87.1	30-150		7/2/18 14:32

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Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
18F1302-01 [LGRC-VWP-002]	B206695	1.00	10.0	06/26/18
18F1302-02 [LGRC-VWP-004]	B206695	1.00	10.0	06/26/18
18F1302-03 [LGRC-VWP-006]	B206695	1.00	10.0	06/26/18
18F1302-04 [LGRC-VWP-008]	B206695	1.00	10.0	06/26/18
18F1302-05 [LGRC-VWP-010]	B206695	1.00	10.0	06/26/18
18F1302-06 [LGRC-VWP-012]	B206695	1.00	10.0	06/26/18
18F1302-07 [LGRC-VWP-014]	B206695	1.00	10.0	06/26/18
18F1302-08 [LGRC-VWP-016]	B206695	1.00	10.0	06/26/18
18F1302-09 [LGRC-VWP-018]	B206695	1.00	10.0	06/26/18

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QUALITY CONTROL

Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B206695 - SW-846 3540C										
Blank (B206695-BLK1)				Prepared: 06/26/18 Analyzed: 07/02/18						
Aroclor-1016	ND	0.20	µg/Wipe							
Aroclor-1016 [2C]	ND	0.20	µg/Wipe							
Aroclor-1221	ND	0.20	µg/Wipe							
Aroclor-1221 [2C]	ND	0.20	µg/Wipe							
Aroclor-1232	ND	0.20	µg/Wipe							
Aroclor-1232 [2C]	ND	0.20	µg/Wipe							
Aroclor-1242	ND	0.20	µg/Wipe							
Aroclor-1242 [2C]	ND	0.20	µg/Wipe							
Aroclor-1248	ND	0.20	µg/Wipe							
Aroclor-1248 [2C]	ND	0.20	µg/Wipe							
Aroclor-1254	ND	0.20	µg/Wipe							
Aroclor-1254 [2C]	ND	0.20	µg/Wipe							
Aroclor-1260	ND	0.20	µg/Wipe							
Aroclor-1260 [2C]	ND	0.20	µg/Wipe							
Aroclor-1262	ND	0.20	µg/Wipe							
Aroclor-1262 [2C]	ND	0.20	µg/Wipe							
Aroclor-1268	ND	0.20	µg/Wipe							
Aroclor-1268 [2C]	ND	0.20	µg/Wipe							
Surrogate: Decachlorobiphenyl	*1.71*		µg/Wipe	2.00		85.3	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.73*		µg/Wipe	2.00		86.6	30-150			
Surrogate: Tetrachloro-m-xylene	*1.54*		µg/Wipe	2.00		77.1	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.61*		µg/Wipe	2.00		80.7	30-150			
LCS (B206695-BS1)				Prepared: 06/26/18 Analyzed: 07/02/18						
Aroclor-1016	0.50	0.20	µg/Wipe	0.500		99.7	40-140			
Aroclor-1016 [2C]	0.49	0.20	µg/Wipe	0.500		97.7	40-140			
Aroclor-1260	0.45	0.20	µg/Wipe	0.500		90.4	40-140			
Aroclor-1260 [2C]	0.46	0.20	µg/Wipe	0.500		91.3	40-140			
Surrogate: Decachlorobiphenyl	*1.72*		µg/Wipe	2.00		85.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.74*		µg/Wipe	2.00		87.0	30-150			
Surrogate: Tetrachloro-m-xylene	*1.47*		µg/Wipe	2.00		73.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.55*		µg/Wipe	2.00		77.3	30-150			
LCS Dup (B206695-BSD1)				Prepared: 06/26/18 Analyzed: 07/02/18						
Aroclor-1016	0.55	0.20	µg/Wipe	0.500		110	40-140	9.64	30	
Aroclor-1016 [2C]	0.54	0.20	µg/Wipe	0.500		108	40-140	9.97	30	
Aroclor-1260	0.50	0.20	µg/Wipe	0.500		101	40-140	10.8	30	
Aroclor-1260 [2C]	0.51	0.20	µg/Wipe	0.500		101	40-140	10.5	30	
Surrogate: Decachlorobiphenyl	*1.90*		µg/Wipe	2.00		95.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.92*		µg/Wipe	2.00		96.2	30-150			
Surrogate: Tetrachloro-m-xylene	*1.62*		µg/Wipe	2.00		80.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.70*		µg/Wipe	2.00		85.2	30-150			

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LGRC-VWP-002

Lab Sample ID: 18F1302-01 Date(s) Analyzed: 07/02/2018 07/02/2018

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	0.50	
	2	0.000	0.000	0.000	0.52	3.9

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LGRC-VWP-010

Lab Sample ID: 18F1302-05 Date(s) Analyzed: 07/02/2018 07/02/2018

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	0.41	
	2	0.000	0.000	0.000	0.39	5.0

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LGRC-VWP-014

Lab Sample ID: 18F1302-07 Date(s) Analyzed: 07/02/2018 07/02/2018

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	0.24	
	2	0.000	0.000	0.000	0.24	0.0

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LGRC-VWP-018

Lab Sample ID: 18F1302-09 Date(s) Analyzed: 07/02/2018 07/02/2018

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1254	1	0.000	0.000	0.000	0.22	
	2	0.000	0.000	0.000	0.24	8.7

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B206695-BS1 Date(s) Analyzed: 07/02/2018 07/02/2018

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.50	
	2	0.000	0.000	0.000	0.49	2.0
Aroclor-1260	1	0.000	0.000	0.000	0.45	
	2	0.000	0.000	0.000	0.46	2.2

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS Dup

Lab Sample ID: B206695-BSD1 Date(s) Analyzed: 07/02/2018 07/02/2018

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.55	
	2	0.000	0.000	0.000	0.54	1.8
Aroclor-1260	1	0.000	0.000	0.000	0.50	
	2	0.000	0.000	0.000	0.51	2.0

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FLAG/QUALIFIER SUMMARY

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

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

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

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications

No certified Analyses included in this Report

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

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

18F1302

con-test ANALYTICAL LABORATORY
MEK

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

http://www.contestlabs.com

Doc # 381 Rev 1_03242017

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name:	Woodard & Curran
Address:	213 Court St, Middletown CT
Phone:	203 271 0379
Project Name:	UMASS-LGRC
Project Location:	225 C95 Amherst MA
Project Number:	
Project Manager:	George Franklin
Con-Test Quote Name/Number:	
Invoice Recipient:	
Sampled By:	Greg Reynolds

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

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

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

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	[1] Matrix Code	Conc Code	PCB's
01	LGRC-UWP-002	6/25/18	1010		X	W	U	X
02	LGRC-UWP-004		1305					
03	LGRC-UWP-006		1315					
04	LGRC-UWP-008		1325					
05	LGRC-UWP-010		1335					
06	LGRC-UWP-012		1345					
07	LGRC-UWP-014		1355					
08	LGRC-UWP-016		1405					
09	LGRC-UWP-018		1425					U

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

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

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

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

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

Comments:
Caulk

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

Relinquished by: (signature)	Date/Time: 6/26/18 1235	
Received by: (signature)	Date/Time: 6/26/18 1235	
Relinquished by: (signature)	Date/Time: 6/26/18 825	
Received by: (signature) A Marshall 2-3	Date/Time: 6/26/18 18:25	
Relinquished by: (signature)	Date/Time:	
Received by: (signature)	Date/Time:	

Detection Limit Requirements
MA
RCP
Other

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

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NELAC and AIHA-LAP, LLC Accredited

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

Other
☐ Chromatogram
☐ *AIHA-LAP,LLC*

PCB ONLY
☒ Soxhlet
☐ Non Soxhlet

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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 Woodward & Curran

Received By AMH Date 6/26/18 Time 18:25

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 # 7 Actual Temp - 2.3 By Blank # ____ Actual Temp - ____

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

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

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

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

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

Are Sample labels filled out and legible? T

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

Are there Rushes? F Who was notified? ____

Are there Short Holds? F Who was notified? ____

Is there enough Volume? T

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

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

Were trip blanks received? F On COC? F

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

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	9
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

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

Comments:

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

July 3, 2018

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

Project Location: Amherst, MA
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 18F1303

Enclosed are results of analyses for samples received by the laboratory on June 26, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Meghan E. Kelley
Project Manager

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

REPORT DATE: 7/3/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18F1303

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

PROJECT LOCATION: Amherst, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LGRC-VWP-001	18F1303-01	Wipe		SW-846 8082A	
LGRC-VWP-003	18F1303-02	Wipe		SW-846 8082A	
LGRC-VWP-005	18F1303-03	Wipe		SW-846 8082A	
LGRC-VWP-007	18F1303-04	Wipe		SW-846 8082A	
LGRC-VWP-009	18F1303-05	Wipe		SW-846 8082A	
LGRC-VWP-011	18F1303-06	Wipe		SW-846 8082A	
LGRC-VWP-013	18F1303-07	Wipe		SW-846 8082A	
LGRC-VWP-015	18F1303-08	Wipe		SW-846 8082A	
LGRC-VWP-017	18F1303-09	Wipe		SW-846 8082A	

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CASE NARRATIVE SUMMARY

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

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Project Manager

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

Project Location: Amherst, MA | Sample Description: | Work Order: 18F1303

Date Received: 6/26/2018

Field Sample #: LGRC-VWP-001 | Sampled: 6/25/2018 10:05

Sample ID: 18F1303-01

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	6/26/18	7/2/18 15:54	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 15:54	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 15:54	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 15:54	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 15:54	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 15:54	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 15:54	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 15:54	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 15:54	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	82.0	30-150		7/2/18 15:54
Decachlorobiphenyl [2]	82.5	30-150		7/2/18 15:54
Tetrachloro-m-xylene [1]	80.3	30-150		7/2/18 15:54
Tetrachloro-m-xylene [2]	83.4	30-150		7/2/18 15:54

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

Project Location: Amherst, MA | Sample Description: | Work Order: 18F1303

Date Received: 6/26/2018

Field Sample #: LGRC-VWP-003 | Sampled: 6/25/2018 13:00

Sample ID: 18F1303-02

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	6/26/18	7/2/18 16:12	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:12	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:12	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:12	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:12	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:12	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:12	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:12	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:12	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	84.6	30-150		7/2/18 16:12
Decachlorobiphenyl [2]	85.8	30-150		7/2/18 16:12
Tetrachloro-m-xylene [1]	80.6	30-150		7/2/18 16:12
Tetrachloro-m-xylene [2]	84.0	30-150		7/2/18 16:12

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Project Location: Amherst, MA | Sample Description: | Work Order: 18F1303

Date Received: 6/26/2018

Field Sample #: LGRC-VWP-005 | Sampled: 6/25/2018 13:10

Sample ID: 18F1303-03

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	6/26/18	7/2/18 16:31	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:31	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:31	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:31	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:31	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:31	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:31	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:31	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:31	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	85.6	30-150		7/2/18 16:31
Decachlorobiphenyl [2]	85.9	30-150		7/2/18 16:31
Tetrachloro-m-xylene [1]	80.8	30-150		7/2/18 16:31
Tetrachloro-m-xylene [2]	84.3	30-150		7/2/18 16:31

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

Project Location: Amherst, MA | Sample Description: | Work Order: 18F1303

Date Received: 6/26/2018

Field Sample #: LGRC-VWP-007 | Sampled: 6/25/2018 13:20

Sample ID: 18F1303-04

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	6/26/18	7/2/18 16:49	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:49	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:49	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:49	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:49	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:49	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:49	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:49	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 16:49	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	90.3	30-150		7/2/18 16:49
Decachlorobiphenyl [2]	90.4	30-150		7/2/18 16:49
Tetrachloro-m-xylene [1]	83.6	30-150		7/2/18 16:49
Tetrachloro-m-xylene [2]	87.3	30-150		7/2/18 16:49

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

Project Location: Amherst, MA | Sample Description: | Work Order: 18F1303

Date Received: 6/26/2018

Field Sample #: LGRC-VWP-009 | Sampled: 6/25/2018 13:30

Sample ID: 18F1303-05

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	6/26/18	7/2/18 17:07	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:07	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:07	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:07	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:07	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:07	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:07	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:07	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:07	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	92.7	30-150		7/2/18 17:07
Decachlorobiphenyl [2]	92.9	30-150		7/2/18 17:07
Tetrachloro-m-xylene [1]	87.7	30-150		7/2/18 17:07
Tetrachloro-m-xylene [2]	91.5	30-150		7/2/18 17:07

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

Project Location: Amherst, MA | Sample Description: | Work Order: 18F1303

Date Received: 6/26/2018

Field Sample #: LGRC-VWP-011 | Sampled: 6/25/2018 13:40

Sample ID: 18F1303-06

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	6/26/18	7/2/18 17:26	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:26	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:26	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:26	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:26	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:26	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:26	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:26	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:26	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	93.7	30-150		7/2/18 17:26
Decachlorobiphenyl [2]	93.2	30-150		7/2/18 17:26
Tetrachloro-m-xylene [1]	86.7	30-150		7/2/18 17:26
Tetrachloro-m-xylene [2]	90.2	30-150		7/2/18 17:26

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

Project Location: Amherst, MA | Sample Description: | Work Order: 18F1303

Date Received: 6/26/2018

Field Sample #: LGRC-VWP-013 | Sampled: 6/25/2018 13:50

Sample ID: 18F1303-07

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	6/26/18	7/2/18 17:44	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:44	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:44	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:44	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:44	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:44	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:44	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:44	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 17:44	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	86.6	30-150		7/2/18 17:44
Decachlorobiphenyl [2]	86.5	30-150		7/2/18 17:44
Tetrachloro-m-xylene [1]	81.6	30-150		7/2/18 17:44
Tetrachloro-m-xylene [2]	85.5	30-150		7/2/18 17:44

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

Project Location: Amherst, MA | Sample Description: | Work Order: 18F1303

Date Received: 6/26/2018

Field Sample #: LGRC-VWP-015 | Sampled: 6/25/2018 14:00

Sample ID: 18F1303-08

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	6/26/18	7/2/18 18:03	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 18:03	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 18:03	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 18:03	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 18:03	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 18:03	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 18:03	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 18:03	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 18:03	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	87.2	30-150		7/2/18 18:03
Decachlorobiphenyl [2]	87.2	30-150		7/2/18 18:03
Tetrachloro-m-xylene [1]	81.7	30-150		7/2/18 18:03
Tetrachloro-m-xylene [2]	84.8	30-150		7/2/18 18:03

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Project Location: Amherst, MA | Sample Description: | Work Order: 18F1303

Date Received: 6/26/2018

Field Sample #: LGRC-VWP-017 | Sampled: 6/25/2018 14:20

Sample ID: 18F1303-09

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	6/26/18	7/2/18 18:21	KAL
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 18:21	KAL
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 18:21	KAL
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 18:21	KAL
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 18:21	KAL
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 18:21	KAL
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 18:21	KAL
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 18:21	KAL
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	6/26/18	7/2/18 18:21	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	95.8	30-150		7/2/18 18:21
Decachlorobiphenyl [2]	95.4	30-150		7/2/18 18:21
Tetrachloro-m-xylene [1]	91.9	30-150		7/2/18 18:21
Tetrachloro-m-xylene [2]	96.1	30-150		7/2/18 18:21

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Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
18F1303-01 [LGRC-VWP-001]	B206695	1.00	10.0	06/26/18
18F1303-02 [LGRC-VWP-003]	B206695	1.00	10.0	06/26/18
18F1303-03 [LGRC-VWP-005]	B206695	1.00	10.0	06/26/18
18F1303-04 [LGRC-VWP-007]	B206695	1.00	10.0	06/26/18
18F1303-05 [LGRC-VWP-009]	B206695	1.00	10.0	06/26/18
18F1303-06 [LGRC-VWP-011]	B206695	1.00	10.0	06/26/18
18F1303-07 [LGRC-VWP-013]	B206695	1.00	10.0	06/26/18
18F1303-08 [LGRC-VWP-015]	B206695	1.00	10.0	06/26/18
18F1303-09 [LGRC-VWP-017]	B206695	1.00	10.0	06/26/18

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QUALITY CONTROL

Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B206695 - SW-846 3540C										
Blank (B206695-BLK1)				Prepared: 06/26/18 Analyzed: 07/02/18						
Aroclor-1016	ND	0.20	µg/Wipe							
Aroclor-1016 [2C]	ND	0.20	µg/Wipe							
Aroclor-1221	ND	0.20	µg/Wipe							
Aroclor-1221 [2C]	ND	0.20	µg/Wipe							
Aroclor-1232	ND	0.20	µg/Wipe							
Aroclor-1232 [2C]	ND	0.20	µg/Wipe							
Aroclor-1242	ND	0.20	µg/Wipe							
Aroclor-1242 [2C]	ND	0.20	µg/Wipe							
Aroclor-1248	ND	0.20	µg/Wipe							
Aroclor-1248 [2C]	ND	0.20	µg/Wipe							
Aroclor-1254	ND	0.20	µg/Wipe							
Aroclor-1254 [2C]	ND	0.20	µg/Wipe							
Aroclor-1260	ND	0.20	µg/Wipe							
Aroclor-1260 [2C]	ND	0.20	µg/Wipe							
Aroclor-1262	ND	0.20	µg/Wipe							
Aroclor-1262 [2C]	ND	0.20	µg/Wipe							
Aroclor-1268	ND	0.20	µg/Wipe							
Aroclor-1268 [2C]	ND	0.20	µg/Wipe							
Surrogate: Decachlorobiphenyl	*1.71*		µg/Wipe	2.00		85.3	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.73*		µg/Wipe	2.00		86.6	30-150			
Surrogate: Tetrachloro-m-xylene	*1.54*		µg/Wipe	2.00		77.1	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.61*		µg/Wipe	2.00		80.7	30-150			
LCS (B206695-BS1)				Prepared: 06/26/18 Analyzed: 07/02/18						
Aroclor-1016	0.50	0.20	µg/Wipe	0.500		99.7	40-140			
Aroclor-1016 [2C]	0.49	0.20	µg/Wipe	0.500		97.7	40-140			
Aroclor-1260	0.45	0.20	µg/Wipe	0.500		90.4	40-140			
Aroclor-1260 [2C]	0.46	0.20	µg/Wipe	0.500		91.3	40-140			
Surrogate: Decachlorobiphenyl	*1.72*		µg/Wipe	2.00		85.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.74*		µg/Wipe	2.00		87.0	30-150			
Surrogate: Tetrachloro-m-xylene	*1.47*		µg/Wipe	2.00		73.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.55*		µg/Wipe	2.00		77.3	30-150			
LCS Dup (B206695-BSD1)				Prepared: 06/26/18 Analyzed: 07/02/18						
Aroclor-1016	0.55	0.20	µg/Wipe	0.500		110	40-140	9.64	30	
Aroclor-1016 [2C]	0.54	0.20	µg/Wipe	0.500		108	40-140	9.97	30	
Aroclor-1260	0.50	0.20	µg/Wipe	0.500		101	40-140	10.8	30	
Aroclor-1260 [2C]	0.51	0.20	µg/Wipe	0.500		101	40-140	10.5	30	
Surrogate: Decachlorobiphenyl	*1.90*		µg/Wipe	2.00		95.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.92*		µg/Wipe	2.00		96.2	30-150			
Surrogate: Tetrachloro-m-xylene	*1.62*		µg/Wipe	2.00		80.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.70*		µg/Wipe	2.00		85.2	30-150			

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B206695-BS1 Date(s) Analyzed: 07/02/2018 07/02/2018

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.50	
	2	0.000	0.000	0.000	0.49	2.0
Aroclor-1260	1	0.000	0.000	0.000	0.45	
	2	0.000	0.000	0.000	0.46	2.2

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS Dup

Lab Sample ID: B206695-BSD1 Date(s) Analyzed: 07/02/2018 07/02/2018

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

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

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.55	
	2	0.000	0.000	0.000	0.54	1.8
Aroclor-1260	1	0.000	0.000	0.000	0.50	
	2	0.000	0.000	0.000	0.51	2.0

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FLAG/QUALIFIER SUMMARY

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

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

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

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications

No certified Analyses included in this Report

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

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

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18F1303

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MEK

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

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

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

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

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

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

PCBs by 8270

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	[1] Matrix Code	Conc Code		# of Containers	[2] Preservation Code	[3] Container Code
01	LGRC-VWP-001	6/25/18	1005		X	O	U	X			
02	LGRC-VWP-003		1300								
03	LGRC-VWP-005		1310								
04	LGRC-VWP-007		1320								
05	LGRC-VWP-009		1330								
06	LGRC-VWP-011		1340								
07	LGRC-VWP-013		1350								
08	LGRC-VWP-015		1400								
09	LGRC-VWP-017		1420								

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

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

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

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

Comments:
Porous Surfaces

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

Relinquished by: (signature)	Date/Time: 6/26/18 1235	
Received by: (signature)	Date/Time: 6/27/18 823	
Relinquished by: (signature)	Date/Time: 6/27/18 625	
Received by: (signature)	Date/Time: 6/26/18 1825	
Relinquished by: (signature)	Date/Time:	
Received by: (signature)	Date/Time:	

Detection Limit Requirements
MA:
RCP:
Other:

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

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NELAC and AIHA-LAP, LLC Accredited

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

Other
☐ Chromatogram
☐ *AIHA-LAP,LLC*

PCB ONLY
☒ Soxhlet
☐ Non Soxhlet

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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 Woodward & Curran

Received By AMM Date 6/26/18 Time 18:25

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 # 7 Actual Temp - 2.3 By Blank # ____ Actual Temp - ____

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

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

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

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

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

Are Sample labels filled out and legible? T

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

Are there Rushes? F Who was notified? ____

Are there Short Holds? F Who was notified? ____

Is there enough Volume? T

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

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

Were trip blanks received? F On COC? F

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

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	9
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

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

Comments:

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July 9, 2018

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

Project Location: Amherst, MA
Client Job Number:
Project Number: 225695
Laboratory Work Order Number: 18F1311

Enclosed are results of analyses for samples received by the laboratory on June 26, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Meghan E. Kelley
Project Manager

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

REPORT DATE: 7/9/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225695

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18F1311

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

PROJECT LOCATION: Amherst, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LGRC-1606-IAS-001	18F1311-01	Air		TO-10A/EPA 680 Modified	
LGRC-899-IAS-002	18F1311-02	Air		TO-10A/EPA 680 Modified	
LGRC-408-IAS-003	18F1311-03	Air		TO-10A/EPA 680 Modified	
LGRC-299-IAS-004	18F1311-04	Air		TO-10A/EPA 680 Modified	
LGRC-1205-IAS-005	18F1311-05	Air		TO-10A/EPA 680 Modified	
LGRC-A106-IAS-006	18F1311-06	Air		TO-10A/EPA 680 Modified	
LGRC-Amb-IAS-007	18F1311-07	Air		TO-10A/EPA 680 Modified	

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CASE NARRATIVE SUMMARY

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

EPA 680 Modified

Qualifications:

V-05

Continuing calibration did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:

Octachlorobiphenyls
S025035-CCV1, S025035-CCV2

V-20

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

Analyte & Samples(s) Qualified:

Decachlorobiphenyl
S024999-CCV1, S024999-CCV2

Heptachlorobiphenyls
S024999-CCV1, S024999-CCV2

Hexachlorobiphenyls
S024999-CCV1, S024999-CCV2

Nonachlorobiphenyls
S024999-CCV1, S024999-CCV2

Octachlorobiphenyls
S024999-CCV2

TO-10A/EPA 680 Modified

Qualifications:

V-05

Continuing calibration did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:

Octachlorobiphenyls
18F1311-01[LGRC-1606-IAS-001], 18F1311-02[LGRC-899-IAS-002], 18F1311-03[LGRC-408-IAS-003]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Project Manager

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ANALYTICAL RESULTS

Project Location: Amherst, MA
Date Received: 6/26/2018
Field Sample #: LGRC-1606-IAS-001
Sample ID: 18F1311-01
Sample Matrix: Air
Sampled: 6/25/2018 15:40

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:
Air Volume L: 2.645

Work Order: 18F1311

TO-10A/EPA 680 Modified

	Total µg			ug/m3			Date/Time	
Analyte	**Results**	**RL**	**Flag/Qual**	**Results**	**RL**	**Dilution**	**Analyzed**	**Analyst**
Monochlorobiphenyls	ND	0.0010		ND	0.38	1	7/6/18 18:46	IMR
Dichlorobiphenyls	ND	0.0010		ND	0.38	1	7/6/18 18:46	IMR
Trichlorobiphenyls	ND	0.0020		ND	0.76	1	7/6/18 18:46	IMR
Tetrachlorobiphenyls	0.025	0.0020		9.4	0.76	1	7/6/18 18:46	IMR
Pentachlorobiphenyls	0.047	0.0020		18	0.76	1	7/6/18 18:46	IMR
Hexachlorobiphenyls	0.0079	0.0020		3.0	0.76	1	7/6/18 18:46	IMR
Heptachlorobiphenyls	ND	0.0030		ND	1.1	1	7/6/18 18:46	IMR
Octachlorobiphenyls	ND	0.0030	V-05	ND	1.1	1	7/6/18 18:46	IMR
Nonachlorobiphenyls	ND	0.0050		ND	1.9	1	7/6/18 18:46	IMR
Decachlorobiphenyl	ND	0.0050		ND	1.9	1	7/6/18 18:46	IMR
Total Polychlorinated biphenyls	0.080			30		1	7/6/18 18:46	IMR

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	79.9	50-125	7/6/18 18:46

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ANALYTICAL RESULTS

Project Location: Amherst, MA
Date Received: 6/26/2018
Field Sample #: LGRC-899-IAS-002
Sample ID: 18F1311-02
Sample Matrix: Air
Sampled: 6/25/2018 15:45

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 2.63

Work Order: 18F1311

TO-10A/EPA 680 Modified

Analyte	Total µg Results	Total µg RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Date/Time Analyzed	Analyst
Monochlorobiphenyls	ND	0.0010		ND	0.38	1	7/6/18 19:23	IMR
Dichlorobiphenyls	ND	0.0010		ND	0.38	1	7/6/18 19:23	IMR
Trichlorobiphenyls	ND	0.0020		ND	0.76	1	7/6/18 19:23	IMR
Tetrachlorobiphenyls	0.0081	0.0020		3.1	0.76	1	7/6/18 19:23	IMR
Pentachlorobiphenyls	0.012	0.0020		4.6	0.76	1	7/6/18 19:23	IMR
Hexachlorobiphenyls	0.0020	0.0020		0.78	0.76	1	7/6/18 19:23	IMR
Heptachlorobiphenyls	ND	0.0030		ND	1.1	1	7/6/18 19:23	IMR
Octachlorobiphenyls	ND	0.0030	V-05	ND	1.1	1	7/6/18 19:23	IMR
Nonachlorobiphenyls	ND	0.0050		ND	1.9	1	7/6/18 19:23	IMR
Decachlorobiphenyl	ND	0.0050		ND	1.9	1	7/6/18 19:23	IMR
Total Polychlorinated biphenyls	0.022			8.5		1	7/6/18 19:23	IMR

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	72.8	50-125	7/6/18 19:23

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ANALYTICAL RESULTS

Project Location: Amherst, MA
Date Received: 6/26/2018
Field Sample #: LGRC-408-IAS-003
Sample ID: 18F1311-03
Sample Matrix: Air
Sampled: 6/25/2018 15:55

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:
Air Volume L: 2.645

Work Order: 18F1311

TO-10A/EPA 680 Modified

Analyte	Total µg Results	Total µg RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Date/Time Analyzed	Analyst
Monochlorobiphenyls	ND	0.0010		ND	0.38	1	7/6/18 20:01	IMR
Dichlorobiphenyls	ND	0.0010		ND	0.38	1	7/6/18 20:01	IMR
Trichlorobiphenyls	ND	0.0020		ND	0.76	1	7/6/18 20:01	IMR
Tetrachlorobiphenyls	0.0064	0.0020		2.4	0.76	1	7/6/18 20:01	IMR
Pentachlorobiphenyls	0.0091	0.0020		3.5	0.76	1	7/6/18 20:01	IMR
Hexachlorobiphenyls	0.0032	0.0020		1.2	0.76	1	7/6/18 20:01	IMR
Heptachlorobiphenyls	ND	0.0030		ND	1.1	1	7/6/18 20:01	IMR
Octachlorobiphenyls	ND	0.0030	V-05	ND	1.1	1	7/6/18 20:01	IMR
Nonachlorobiphenyls	ND	0.0050		ND	1.9	1	7/6/18 20:01	IMR
Decachlorobiphenyl	ND	0.0050		ND	1.9	1	7/6/18 20:01	IMR
Total Polychlorinated biphenyls	0.019			7.1		1	7/6/18 20:01	IMR

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	82.0	50-125	7/6/18 20:01

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ANALYTICAL RESULTS

Project Location: Amherst, MA
Date Received: 6/26/2018
Field Sample #: LGRC-299-IAS-004
Sample ID: 18F1311-04
Sample Matrix: Air
Sampled: 6/25/2018 16:02

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 2.65

Work Order: 18F1311

TO-10A/EPA 680 Modified

Analyte	Total µg Results	RL	Flag/Qual	ug/m3 Results	RL	Dilution	Date/Time Analyzed	Analyst
Monochlorobiphenyls	ND	0.0010		ND	0.38	1	7/3/18 21:43	IMR
Dichlorobiphenyls	ND	0.0010		ND	0.38	1	7/3/18 21:43	IMR
Trichlorobiphenyls	ND	0.0020		ND	0.75	1	7/3/18 21:43	IMR
Tetrachlorobiphenyls	0.026	0.0020		9.8	0.75	1	7/3/18 21:43	IMR
Pentachlorobiphenyls	0.042	0.0020		16	0.75	1	7/3/18 21:43	IMR
Hexachlorobiphenyls	0.020	0.0020		7.4	0.75	1	7/3/18 21:43	IMR
Heptachlorobiphenyls	0.0051	0.0030		1.9	1.1	1	7/3/18 21:43	IMR
Octachlorobiphenyls	ND	0.0030		ND	1.1	1	7/3/18 21:43	IMR
Nonachlorobiphenyls	ND	0.0050		ND	1.9	1	7/3/18 21:43	IMR
Decachlorobiphenyl	ND	0.0050		ND	1.9	1	7/3/18 21:43	IMR
Total Polychlorinated biphenyls	0.094			35		1	7/3/18 21:43	IMR

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	58.9	50-125	7/3/18 21:43

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ANALYTICAL RESULTS

Project Location: Amherst, MA
Date Received: 6/26/2018
Field Sample #: LGRC-1205-IAS-005
Sample ID: 18F1311-05
Sample Matrix: Air
Sampled: 6/25/2018 16:06

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:
Air Volume L: 2.64

Work Order: 18F1311

TO-10A/EPA 680 Modified

Analyte	Total µg Results	RL	Flag/Qual	ug/m3 Results	RL	Dilution	Date/Time Analyzed	Analyst
Monochlorobiphenyls	ND	0.0010		ND	0.38	1	7/3/18 22:21	IMR
Dichlorobiphenyls	ND	0.0010		ND	0.38	1	7/3/18 22:21	IMR
Trichlorobiphenyls	ND	0.0020		ND	0.76	1	7/3/18 22:21	IMR
Tetrachlorobiphenyls	0.017	0.0020		6.3	0.76	1	7/3/18 22:21	IMR
Pentachlorobiphenyls	0.026	0.0020		10.0	0.76	1	7/3/18 22:21	IMR
Hexachlorobiphenyls	0.0062	0.0020		2.4	0.76	1	7/3/18 22:21	IMR
Heptachlorobiphenyls	ND	0.0030		ND	1.1	1	7/3/18 22:21	IMR
Octachlorobiphenyls	ND	0.0030		ND	1.1	1	7/3/18 22:21	IMR
Nonachlorobiphenyls	ND	0.0050		ND	1.9	1	7/3/18 22:21	IMR
Decachlorobiphenyl	ND	0.0050		ND	1.9	1	7/3/18 22:21	IMR
Total Polychlorinated biphenyls	0.049			19		1	7/3/18 22:21	IMR

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	53.1	50-125	7/3/18 22:21

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ANALYTICAL RESULTS

Project Location: Amherst, MA
Date Received: 6/26/2018
Field Sample #: LGRC-A106-IAS-006
Sample ID: 18F1311-06
Sample Matrix: Air
Sampled: 6/25/2018 16:40

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:
Air Volume L: 2.625

Work Order: 18F1311

TO-10A/EPA 680 Modified

	Total µg			ug/m3			Date/Time	
Analyte	**Results**	**RL**	**Flag/Qual**	**Results**	**RL**	**Dilution**	**Analyzed**	**Analyst**
Monochlorobiphenyls	ND	0.0010		ND	0.38	1	7/3/18 22:58	IMR
Dichlorobiphenyls	ND	0.0010		ND	0.38	1	7/3/18 22:58	IMR
Trichlorobiphenyls	ND	0.0020		ND	0.76	1	7/3/18 22:58	IMR
Tetrachlorobiphenyls	0.020	0.0020		7.6	0.76	1	7/3/18 22:58	IMR
Pentachlorobiphenyls	0.039	0.0020		15	0.76	1	7/3/18 22:58	IMR
Hexachlorobiphenyls	0.028	0.0020		11	0.76	1	7/3/18 22:58	IMR
Heptachlorobiphenyls	0.0063	0.0030		2.4	1.1	1	7/3/18 22:58	IMR
Octachlorobiphenyls	ND	0.0030		ND	1.1	1	7/3/18 22:58	IMR
Nonachlorobiphenyls	ND	0.0050		ND	1.9	1	7/3/18 22:58	IMR
Decachlorobiphenyl	ND	0.0050		ND	1.9	1	7/3/18 22:58	IMR
Total Polychlorinated biphenyls	0.094			36		1	7/3/18 22:58	IMR

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	60.2	50-125	7/3/18 22:58

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ANALYTICAL RESULTS

Project Location: Amherst, MA
Date Received: 6/26/2018
Field Sample #: LGRC-Amb-IAS-007
Sample ID: 18F1311-07
Sample Matrix: Air
Sampled: 6/25/2018 16:15

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:
Air Volume L: 2.67

Work Order: 18F1311

TO-10A/EPA 680 Modified

	Total µg			ug/m3			Date/Time	
Analyte	**Results**	**RL**	**Flag/Qual**	**Results**	**RL**	**Dilution**	**Analyzed**	**Analyst**
Monochlorobiphenyls	ND	0.0010		ND	0.37	1	7/3/18 23:36	IMR
Dichlorobiphenyls	ND	0.0010		ND	0.37	1	7/3/18 23:36	IMR
Trichlorobiphenyls	ND	0.0020		ND	0.75	1	7/3/18 23:36	IMR
Tetrachlorobiphenyls	ND	0.0020		ND	0.75	1	7/3/18 23:36	IMR
Pentachlorobiphenyls	ND	0.0020		ND	0.75	1	7/3/18 23:36	IMR
Hexachlorobiphenyls	ND	0.0020		ND	0.75	1	7/3/18 23:36	IMR
Heptachlorobiphenyls	ND	0.0030		ND	1.1	1	7/3/18 23:36	IMR
Octachlorobiphenyls	ND	0.0030		ND	1.1	1	7/3/18 23:36	IMR
Nonachlorobiphenyls	ND	0.0050		ND	1.9	1	7/3/18 23:36	IMR
Decachlorobiphenyl	ND	0.0050		ND	1.9	1	7/3/18 23:36	IMR
Total Polychlorinated biphenyls	0.0			0		1	7/3/18 23:36	IMR

Surrogates	% Recovery	% REC Limits	
Tetrachloro-m-xylene	59.5	50-125	7/3/18 23:36

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Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [Cartridge	Final [mL]	Date
18F1311-01 [LGRC-1606-IAS-001]	B206731	1.00	1.00	06/28/18
18F1311-02 [LGRC-899-IAS-002]	B206731	1.00	1.00	06/28/18
18F1311-03 [LGRC-408-IAS-003]	B206731	1.00	1.00	06/28/18
18F1311-04 [LGRC-299-IAS-004]	B206731	1.00	1.00	06/28/18
18F1311-05 [LGRC-1205-IAS-005]	B206731	1.00	1.00	06/28/18
18F1311-06 [LGRC-A106-IAS-006]	B206731	1.00	1.00	06/28/18
18F1311-07 [LGRC-Amb-IAS-007]	B206731	1.00	1.00	06/28/18

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QUALITY CONTROL

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

Analyte	Total µg Results	Total µg RL	ug/m3 Results	ug/m3 RL	Spike Level Total µg	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag/Qual
Batch B206731 - SW-846 3540C											
Blank (B206731-BLK1)					Prepared: 06/28/18 Analyzed: 07/03/18						
Monochlorobiphenyls	ND	0.0010									
Dichlorobiphenyls	ND	0.0010									
Trichlorobiphenyls	ND	0.0020									
Tetrachlorobiphenyls	ND	0.0020									
Pentachlorobiphenyls	ND	0.0020									
Hexachlorobiphenyls	ND	0.0020									
Heptachlorobiphenyls	ND	0.0030									
Octachlorobiphenyls	ND	0.0030									
Nonachlorobiphenyls	ND	0.0050									
Decachlorobiphenyl	ND	0.0050									
Total Polychlorinated biphenyls	0.0										
Surrogate: Tetrachloro-m-xylene	*0.160*				*0.200*		*79.8*	*50-125*			
LCS (B206731-BS1)					Prepared: 06/28/18 Analyzed: 07/03/18						
Monochlorobiphenyls	0.16	0.0010			0.200		81.3	40-140			
Dichlorobiphenyls	0.17	0.0010			0.200		85.8	40-140			
Trichlorobiphenyls	0.16	0.0020			0.200		81.5	40-140			
Tetrachlorobiphenyls	0.34	0.0020			0.400		84.7	40-140			
Pentachlorobiphenyls	0.38	0.0020			0.400		95.8	40-140			
Hexachlorobiphenyls	0.41	0.0020			0.400		103	40-140			
Heptachlorobiphenyls	0.61	0.0030			0.600		102	40-140			
Octachlorobiphenyls	0.62	0.0030			0.600		104	40-140			
Nonachlorobiphenyls	1.1	0.0050			1.00		105	40-140			
Decachlorobiphenyl	1.0	0.0050			1.00		103	40-140			
Surrogate: Tetrachloro-m-xylene	*0.135*				*0.200*		*67.4*	*50-125*			
LCS Dup (B206731-BSD1)					Prepared: 06/28/18 Analyzed: 07/03/18						
Monochlorobiphenyls	0.16	0.0010			0.200		78.6	40-140	3.31	50	
Dichlorobiphenyls	0.17	0.0010			0.200		84.2	40-140	1.97	50	
Trichlorobiphenyls	0.16	0.0020			0.200		79.3	40-140	2.79	50	
Tetrachlorobiphenyls	0.33	0.0020			0.400		83.2	40-140	1.80	50	
Pentachlorobiphenyls	0.36	0.0020			0.400		90.7	40-140	5.53	50	
Hexachlorobiphenyls	0.44	0.0020			0.400		110	40-140	6.66	50	
Heptachlorobiphenyls	0.65	0.0030			0.600		109	40-140	6.11	50	
Octachlorobiphenyls	0.66	0.0030			0.600		109	40-140	4.90	50	
Nonachlorobiphenyls	1.1	0.0050			1.00		110	40-140	3.96	50	
Decachlorobiphenyl	1.1	0.0050			1.00		107	40-140	4.27	50	
Surrogate: Tetrachloro-m-xylene	*0.253*				*0.400*		*63.4*	*50-125*			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
V-05	Continuing calibration did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.
V-20	Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

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INTERNAL STANDARD AREA AND RT SUMMARY

TO-10A/EPA 680 Modified

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B206731-BS1)			Lab File ID: F0702029.D			Analyzed: 07/03/18 03:37			
Phenanthrene-d10	1404754	19.592	1522196	19.592	92	50 - 200	0.0000	+/-0.50	
Chrysene-d12	792509	27.069	727907	27.061	109	50 - 200	0.0080	+/-0.50	
LCS Dup (B206731-BSD1)			Lab File ID: F0702030.D			Analyzed: 07/03/18 04:15			
Phenanthrene-d10	1327758	19.592	1522196	19.592	87	50 - 200	0.0000	+/-0.50	
Chrysene-d12	664048	27.069	727907	27.061	91	50 - 200	0.0080	+/-0.50	
Blank (B206731-BLK1)			Lab File ID: F0702031.D			Analyzed: 07/03/18 04:52			
Phenanthrene-d10	1246521	19.592	1522196	19.592	82	50 - 200	0.0000	+/-0.50	
Chrysene-d12	718821	27.069	727907	27.061	99	50 - 200	0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 680 Modified

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (S025002-ICV1)			Lab File ID: F0703014.D			Analyzed: 07/03/18 19:51			
Phenanthrene-d10	1136409	19.484	1138591	19.477	100	50 - 200	0.0070	+/-0.50	
Chrysene-d12	582326	26.919	510047	26.911	114	50 - 200	0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 680 Modified

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Calibration Check (S025011-CCV1)			Lab File ID: F0703016.D			Analyzed: 07/03/18 21:06			
Phenanthrene-d10	1237250	19.478	1138591	19.477	109	0 - 200	0.0010	+/-0.50	
Chrysene-d12	598316	26.91	510047	26.911	117	0 - 200	-0.0010	+/-0.50	
LGRC-299-IAS-004 (18F1311-04)			Lab File ID: F0703017.D			Analyzed: 07/03/18 21:43			
Phenanthrene-d10	1101066	19.478	1237250	19.478	89	50 - 200	0.0000	+/-0.50	
Chrysene-d12	566036	26.911	598316	26.91	95	50 - 200	0.0010	+/-0.50	
LGRC-1205-IAS-005 (18F1311-05)			Lab File ID: F0703018.D			Analyzed: 07/03/18 22:21			
Phenanthrene-d10	1216067	19.478	1237250	19.478	98	50 - 200	0.0000	+/-0.50	
Chrysene-d12	612624	26.912	598316	26.91	102	50 - 200	0.0020	+/-0.50	
LGRC-A106-IAS-006 (18F1311-06)			Lab File ID: F0703019.D			Analyzed: 07/03/18 22:58			
Phenanthrene-d10	1249911	19.478	1237250	19.478	101	50 - 200	0.0000	+/-0.50	
Chrysene-d12	641292	26.912	598316	26.91	107	50 - 200	0.0020	+/-0.50	
LGRC-Amb-IAS-007 (18F1311-07)			Lab File ID: F0703020.D			Analyzed: 07/03/18 23:36			
Phenanthrene-d10	1254273	19.477	1237250	19.478	101	50 - 200	-0.0010	+/-0.50	
Chrysene-d12	647494	26.91	598316	26.91	108	50 - 200	0.0000	+/-0.50	
Calibration Check (S025011-CCV2)			Lab File ID: F0703022.D			Analyzed: 07/04/18 00:51			
Phenanthrene-d10	1072834	19.478	1237250	19.478	87	0 - 200	0.0000	+/-0.50	
Chrysene-d12	521934	26.912	598316	26.91	87	0 - 200	0.0020	+/-0.50	

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

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 680 Modified

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Calibration Check (S025035-CCV1)			Lab File ID: F0706003B.D			Analyzed: 07/06/18 15:00			
Phenanthrene-d10	1221110	19.478	1138591	19.477	107	0 - 200	0.0010	+/-0.50	
Chrysene-d12	717977	26.911	510047	26.911	141	0 - 200	0.0000	+/-0.50	
LGRC-1606-IAS-001 (18F1311-01)			Lab File ID: F0706009.D			Analyzed: 07/06/18 18:46			
Phenanthrene-d10	1466102	19.478	1221110	19.478	120	50 - 200	0.0000	+/-0.50	
Chrysene-d12	916134	26.911	717977	26.911	128	50 - 200	0.0000	+/-0.50	
LGRC-899-IAS-002 (18F1311-02)			Lab File ID: F0706010.D			Analyzed: 07/06/18 19:23			
Phenanthrene-d10	1624774	19.478	1221110	19.478	133	50 - 200	0.0000	+/-0.50	
Chrysene-d12	943280	26.911	717977	26.911	131	50 - 200	0.0000	+/-0.50	
LGRC-408-IAS-003 (18F1311-03)			Lab File ID: F0706011.D			Analyzed: 07/06/18 20:01			
Phenanthrene-d10	1505896	19.478	1221110	19.478	123	50 - 200	0.0000	+/-0.50	
Chrysene-d12	842979	26.911	717977	26.911	117	50 - 200	0.0000	+/-0.50	
Calibration Check (S025035-CCV2)			Lab File ID: F0706014.D			Analyzed: 07/06/18 21:53			
Phenanthrene-d10	1329701	19.477	1221110	19.478	109	0 - 200	-0.0010	+/-0.50	
Chrysene-d12	773475	26.911	717977	26.911	108	0 - 200	0.0000	+/-0.50	

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CONTINUING CALIBRATION CHECK

EPA 680 Modified

S025011-CCV1

COMPOUND	TYPE	CONC. (ng/mL)		RESPONSE FACTOR			% DIFF / DRIFT	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Monochlorobiphenyls	A	100	91.3	23.77055	21.69206		-8.7	20
Dichlorobiphenyls	A	100	95.3	23.24702	22.1469		-4.7	20
Trichlorobiphenyls	A	100	97.4	21.09508	20.53688		-2.6	20
Tetrachlorobiphenyls	A	200	194	13.14673	12.765		-2.9	20
Pentachlorobiphenyls	A	200	201	10.68059	10.75045		0.7	20
Hexachlorobiphenyls	A	200	194	21.20122	20.55791		-3.0	20
Heptachlorobiphenyls	A	300	293	20.68248	20.21549		-2.3	20
Octachlorobiphenyls	A	300	269	18.34375	16.42429		-10.5	20
Nonachlorobiphenyls	A	500	490	13.61259	13.33777		-2.0	20
Decachlorobiphenyl	A	500	493	10.13249	9.999649		-1.3	20

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

* Values outside of QC limits

con-test® ANALYTICAL LABORATORY

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

CONTINUING CALIBRATION CHECK

EPA 680 Modified

S025011-CCV2

COMPOUND	TYPE	CONC. (ng/mL)		RESPONSE FACTOR			% DIFF / DRIFT	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Monochlorobiphenyls	A	100	99.3	23.77055	23.59941		-0.7	20
Dichlorobiphenyls	A	100	96.0	23.24702	22.31683		-4.0	20
Trichlorobiphenyls	A	100	95.0	21.09508	20.04015		-5.0	20
Tetrachlorobiphenyls	A	200	190	13.14673	12.47723		-5.1	20
Pentachlorobiphenyls	A	200	187	10.68059	10.0026		-6.3	20
Hexachlorobiphenyls	A	200	181	21.20122	19.19879		-9.4	20
Heptachlorobiphenyls	A	300	270	20.68248	18.63087		-9.9	20
Octachlorobiphenyls	A	300	246	18.34375	15.04788		-18.0	20
Nonachlorobiphenyls	A	500	456	13.61259	12.41527		-8.8	20
Decachlorobiphenyl	A	500	462	10.13249	9.357792		-7.6	20

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

* Values outside of QC limits

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CONTINUING CALIBRATION CHECK

EPA 680 Modified

S025035-CCV1

COMPOUND	TYPE	CONC. (ng/mL)		RESPONSE FACTOR			% DIFF / DRIFT		
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)	
Monochlorobiphenyls	A	100	120	23.77055	28.49784		19.9	20	
Dichlorobiphenyls	A	100	115	23.24702	26.78342		15.2	20	
Trichlorobiphenyls	A	100	107	21.09508	22.62757		7.3	20	
Tetrachlorobiphenyls	A	200	214	13.14673	14.06937		7.0	20	
Pentachlorobiphenyls	A	200	205	10.68059	10.95069		2.5	20	
Hexachlorobiphenyls	A	200	163	21.20122	17.29303		-18.4	20	
Heptachlorobiphenyls	A	300	243	20.68248	16.78129		-18.9	20	
Octachlorobiphenyls	A	300	224	18.34375	13.68359		-25.4	20	*
Nonachlorobiphenyls	A	500	407	13.61259	11.08336		-18.6	20	
Decachlorobiphenyl	A	500	413	10.13249	8.373249		-17.4	20	

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

* Values outside of QC limits

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CONTINUING CALIBRATION CHECK

EPA 680 Modified

S025035-CCV2

COMPOUND	TYPE	CONC. (ng/mL)		RESPONSE FACTOR			% DIFF / DRIFT		
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)	
Monochlorobiphenyls	A	100	120	23.77055	28.4705		19.8	20	
Dichlorobiphenyls	A	100	114	23.24702	26.43301		13.7	20	
Trichlorobiphenyls	A	100	105	21.09508	22.05345		4.5	20	
Tetrachlorobiphenyls	A	200	206	13.14673	13.52014		2.8	20	
Pentachlorobiphenyls	A	200	205	10.68059	10.92163		2.3	20	
Hexachlorobiphenyls	A	200	165	21.20122	17.44675		-17.7	20	
Heptachlorobiphenyls	A	300	249	20.68248	17.17304		-17.0	20	
Octachlorobiphenyls	A	300	234	18.34375	14.30374		-22.0	20	*
Nonachlorobiphenyls	A	500	444	13.61259	12.09632		-11.1	20	
Decachlorobiphenyl	A	500	453	10.13249	9.170432		-9.5	20	

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

* Values outside of QC limits

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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications

No certified Analyses included in this Report

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

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

con-test ANALYTICAL LABORATORY
MEK

18F1311

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http://www.contestlabs.com

Doc #378 Rev 1_03242017

CHAIN OF CUSTODY RECORD (AIR)

39 Spruce Street
East Longmeadow, MA 01028

Company Name:	Woodard & Curran
Address:	213 Court St, Middletown, CT
Phone:	203 271 0379
Project Name:	UMASS - LGRC
Project Location:	Amherst Ma
Project Number:	275695
Project Manager:	George Franklin
Con-Test Quote Name/Number:	
Invoice Recipient:	
Sampled By:	Greg Reynolds

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

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

Data Delivery
Format: PDF ☒ EXCEL ☒
Other:
CLP Like Data Pkg Required: ☐
Email To: gfranklin@woodardcurran.com
Fax To #: greynolds@ 11

ANALYSIS REQUESTED

Lab Use: Con-Test Work Order#	Client Use: Client Sample ID / Description	Collection Data: Beginning Date/Time	Collection Data: Ending Date/Time	Duration: Total Minutes Sampled	Flow Rate: ☐ m³/min ☒ L/min	Matrix: Code	Volume: ☐ Liters ☐ m³	PCBs				" Hg: Initial Pressure	" Hg: Final Pressure	" Hg: Lab Receipt Pressure	Summa Can ID	Flow Controller ID
01	LGRC-160C-1AS-001	6/25/18	927/1540	371	2.645	PuF		X								
02	LGRC-899-1AS-002		936/1545	369	~~2.645~~ 2.63			X								
03	LGRC-408-1AS-003		947/1555	373	2.645			X								
04	LGRC-299-1AS-004		948/1602	374	2.65			X								
05	LGRC-1205-1AS-005		954/1606	372	2.64			X								
06	LGRC-A106-1AS-006		1002/1640	398	2.625			X								
07	LGRC-AMB-1AS-007	↓	1010/1615	365	2.67	↓		X								

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

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

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

Comments:

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

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

	Date/Time
Relinquished by: (signature)	6/26/18 1235
Received by: (signature)	6/26/18 1235
Relinquished by: (signature)	6/27/18 820
Received by: (signature) 2.3	6/26/18 18:25
Relinquished by: (signature)	
Received by: (signature)	

Detection Limit Requirements
MA
CT
Other:

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

con-test ANALYTICAL LABORATORY www.contestlabs.com

NELAC and AIHA-LAP, LLC Accredited

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

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

PCB ONLY
☒ Soxhlet
☐ Non Soxhlet

Table of Contents

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

con-test® ANALYTICAL LABORATORY

Doc# 278 Rev 6 2017

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

Client W+C

Received By	SE	Date	6/26/18	Time	1825		
How were the samples received?	In Cooler	T	On Ice	T	No Ice		
	In Box		Ambient		Melted Ice		
Were samples within Temperature Compliance? 2-6°C	By Gun #	8	Actual Temp -	2.3			
	By Blank #		Actual Temp -				
Was Custody Seal Intact?	N/A	Were Samples Tampered with?	N/A				
Was COC Relinquished ?	T	Does Chain Agree With Samples?	T				
Are there any loose caps/valves on any samples?	F						
Is COC in ink/ Legible?	T						
Did COC Include all Pertinent Information?	Client	T	Analysis	T	Sampler Name	T	
	Project	T	ID's	T	Collection Dates/Times	T	
Are Sample Labels filled out and legible?	T						
Are there Rushes?	F	Who was notified?	N/A				
Samples are received within holding time?	T						
Proper Media Used?	T	Individually Certified Cans?	F				
Are there Trip Blanks?	F	Is there enough Volume?	T				

Containers:	#	Size	Regulator	Duration	Accessories:			
Summa Cans					Nut/Ferrule		IC Train	
Tedlar Bags					Tubing			
TO-17 Tubes					T-Connector		Shipping Charges	
Radiello					Syringe			
Pufs/TO-11s	9				Tedlar			

Can #'s					Reg #'s				
Unused Media					**Pufs/TO-17's**				
031318-08					031318-01	031318-06			
031318-09					031318-02	031318-07			
					031318-03				
					031318-04				
					031318-05				

Comments:

UMASS LGRC WIPE SAMPLES - PROJECT SUMMARY

Con-Test Analytical Laboratory Job Numbers: 18F1302 & 18F1303

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

The data validation was conducted in accordance with "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review" June 2008; "EPA New England Environmental Data Review Supplement For Regional Data Review Elements and Superfund Specific Guidance/Procedures" April 2013; and the referenced method.

Samples were received at 2.3 degrees Celsius. No qualifications were applied.

PCBs:

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

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

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

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

No PCB matrix spike/matrix spike duplicate (MS/MSD) was performed since the samples in these analytical packages are wipe samples. No qualifications were applied.

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

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

The relative percent difference (RPD) between the column results for all detected PCBs met acceptance criteria. No qualifications were applied.

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

Gloria J. Switalski:
President

Date: 7/16/2018

UMASS LGRC INDOOR AIR - PROJECT SUMMARY

Con-Test Analytical Laboratory Job Number: 18F1311

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

The data validation was conducted in accordance with "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review" June 2008; "EPA New England Environmental Data Review Supplement For Regional Data Review Elements and Superfund Specific Guidance/Procedures" April 2013; and the referenced method.

Samples were received at 2.3 degrees Celsius. No qualifications were applied.

PCB Homologs:

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

The laboratory noted in the case narrative that for octachlorobiphenyl: "Continuing calibration did not meet method specifications and was biased on the low side". The laboratory V-05 is removed and the non-detected octachlorobiphenyl result in samples LGRC-1606-IAS-001 (18F1311-01), LGRC-899-IAS-002 (18F1311-02), and LGRC-408-IAS-003 (18F1311-03) is qualified as estimated, UJ with a low bias.

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

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

No field blanks were submitted with this analytical package. No qualifications were applied.

No matrix spike/matrix spike duplicate (MS/MSD) was performed since the samples in this analytical package are air samples. No qualifications were applied.

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

No field duplicate samples were submitted with this analytical package.

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Gloria J. Switalski:
President

Date: 7/16/2018

woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS