



Window Removal Completion Report

Lederle Graduate
Research Center

Low-Rise Building

University of
Massachusetts

Amherst, Massachusetts

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COMMITMENT & INTEGRITY DRIVE RESULTS

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1. INTRODUCTION

This Polychlorinated Biphenyl (PCB) Window Removal Completion Report has been prepared by Woodard & Curran on behalf of the University of Massachusetts (UMass) to document the PCB remediation activities associated with building perimeter windows within the Lederle Graduate Research Center (LGRC) low-rise building on the UMass campus in Amherst, Massachusetts.

Specifically, this Completion Report describes the removal and off-site disposal of PCB containing glazing sealants on the building perimeter windows and the in-place management of residual PCBs in exterior concrete surrounding 50 Type L windows on the second and third floors of the building.

1.1 BACKGROUND / CONCEPTUAL SITE MODEL

The LGRC complex was constructed in the early 1970's as a facility for classroom, library, laboratory, and office space. The complex consists of a three-story low-rise building ("the low-rise") and an attached 17-story tower identified as Tower A ("the high-rise"). The buildings are located toward the northern end of the UMass campus at the intersection of North Pleasant Street and Governors Drive. The location of the LGRC complex on the Amherst campus is shown on Figure 1-1.

Interior Glazing Sealants

During a hazardous building materials assessment, a sample of interior window glazing sealant was collected and analyzed for PCBs. This sample detected total PCBs at a concentration of 12,000 parts per million (ppm). Given that this concentration exceeded the regulatory threshold per Federal regulation (40 CFR 761) for PCBs in a non-totally enclosed manner, an approach was developed for the encapsulation of the glazing sealants as an interim measure until the glazing sealant could be removed during window replacement projects. The approach was presented to the United States Environmental Protection Agency (EPA) in the May 2012 Interim Measures Plan (IMP) and finalized as part of the Consent Agreement and Final Order (CAFO) between EPA and UMass dated June 21, 2012. In 2013, UMass initiated a window removal project at the low-rise building.

Exterior Concrete – Type L Windows

Removal and off-site disposal of ≥ 50 ppm exterior perimeter window caulking and the remediation of exterior building materials impacted by PCBs was conducted in accordance with the 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 the removal of a minimum of $\frac{1}{2}$ inch of exterior concrete masonry around each of the windows to achieve the applicable high or low occupancy use clean up criteria (≤ 1 ppm for first floor locations and ≤ 25 ppm for second and third floor locations). However, remedial actions 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 these areas were made accessible during the window replacement project (through the removal of the windows themselves), remediation activities associated with the exterior perimeter caulking at the Type L windows was completed in 2014 and included caulking removal and the in-place management of residual PCB impacts > 25 ppm in exterior concrete.

1.2 PROJECT TIMELINE

The following activities were initiated/conducted in support of developing and implementing the remedial activities described in this report:

- April 2009 - Inspection and inventory of all accessible windows in the LGRC low-rise and Tower A high rise buildings;

- May 2009 - Collection of window glazing sealant samples to confirm initial results from locations throughout the buildings, surface wipes from interior locations, and indoor air samples from representative locations throughout the buildings; and
- May 2009 - Public notifications and outreach through informational postings and a meeting with building occupants and stakeholders.

Following discussions with EPA, a draft Interim Measures Plan was submitted on July 31, 2009, which included an approach, based on pilot testing of several products, to implement an interim measure to reduce exposure potential to the window glazing sealant until a long-term solution can be implemented. This interim measure was a combination of decontamination procedures followed by an encapsulation of the glazing sealant.

Following submittal of this draft plan, the following activities were continued or conducted in support of EPA's review and approval:

- November 2009 – UMass personnel met with EPA personnel to review the plan and potential next steps in EPA's approval process. During this meeting, the topic of a Consent Agreement was discussed as a potential mechanism to manage the window glazing sealant and implement the Interim Measures plan.
- March 2010 – EPA provided a draft Consent Agreement to UMass for review. This was followed by subsequent comments and discussions to the Agreement language.
- February 2010 – February 2013 – Additional monitoring of the pilot test areas (wipe and bulk sample collection and analyses) as well as implementation of an expanded pilot test of different products was conducted.
- November 2010 – Project status and informational meeting with building occupants and stakeholders.
- June 2012 – Finalization of the CAFO.

Activities conducted in accordance with the CAFO are summarized below:

Tower A High-Rise

- Activities completed as part of the National Institute of Health (NIH) Grant Lab Renovation project, including:
 - February 2012 - Removal and replacement of 42 laboratory windows throughout the 3rd, 7th and 8th floors;
 - July - August 2012 - Implementation of the Interim Measure associated with the elevator lobby windows located on the 1st, 3rd, 7th and 8th floors; and
 - January 8, 2013 – Submittal of PCB Remediation Completion Report for the NIH renovation project.
- July - August 2013 - Interim Measure completed for all remaining subject windows (cleaning, encapsulation, and verification sampling of sills), as well as an additional sealant encountered in the stairwells (refer to the August 23, 2013 new condition notification submittal).
- To comply with the requirements set forth in the CAFO, the completion of the Interim Measures associated with the in-place management of PCB containing glazing sealants on windows within the LGRC Tower A and low-rise building that were not scheduled for removal in 2013 and 2014 was documented in the PCB Interim Measures Completion Report submitted to EPA on June 2, 2014.

Low-Rise and Walkway

- September 17, 2013 – Notice and phasing plan submitted to EPA indicating UMass' intention to remove/replace the windows throughout the low-rise and walkways in place of the Interim Measure (with the exception of one set of windows in the first floor computer room, which could not be replaced);
- November 2013 – Responses to EPA's November 1st comments on the notification were submitted on November 13, 2013 and responses to EPA's November 23rd follow-up comments were submitted on November 25th; including the removal of > 50 ppm PCB containing exterior caulking surrounding the 50 Type L windows on the low-rise and walkway;
- November 26, 2013 – EPA correspondence indicated that EPA has no further comments and UMass may proceed as authorized under the CAFO, including the revised completion date for replacement of the low-rise windows;
- December 2013 - Interim Measure completed at first floor windows of computer room; and
- September 2014 – Removal of windows throughout the low-rise completed.

Baseline Wipe Sampling

- Baseline wipe samples were collected from encapsulated surfaces over the glazing sealants within Tower A and the low-rise computer room on February 24, 2014 and March 7, 2014.
- Baseline wipe samples were collected from encapsulated exterior concrete surfaces surrounding the 50 Type L windows between April and September 2014.

A summary of the status of the interim measures in each of the major portions of the LGRC (as described in the Interim Measures Plan) and the completion of the removal activities described above is as follows:

- **Library Windows:** All windows have been removed as part of the large-scale window replacement project.
- **Low-Rise North Wing Windows:** All windows have been removed as part of the large-scale window replacement project except for the computer room windows (included in the interim measures).
- **Walkway Windows:** All windows have been removed as part of the large-scale window replacement project.
- **Tower A High Rise Windows:** Laboratory windows on the 3rd, 7th and 8th floors replaced as part of the NIH renovation project in 2012. Interim measures completed on all other windows.

1.3 PROJECT TEAM

The remediation project team consisted of the following parties:

- University of Massachusetts Amherst – Owner
- Goldman Reindorf Architects Inc. (GRA) – Project Designer and Architect
- Woodard & Curran – PCB Remediation Consultant
- Con-Test Analytical Laboratory – Laboratory for PCB sample analysis
- Souliere and Zepka (S&Z) – General Contractor
- Safe Environment of America (SEA) – Abatement Contractor
- Chapman Waterproofing Company (Chapman) – Liquid Epoxy, Elastomeric Coating, and Caulking Application
- R&R Windows – Replacement Window Installation

1.4 REPORT ORGANIZATION

Following completion of the window removals and consistent with the reporting requirements of the CAFO, this Completion Report has been prepared and is divided into the following sections:

Section 2 – Implementation

Section 3 – Data Usability Assessment

Section 4 – Waste Storage, Disposal, and Equipment Decontamination

Section 5 – Deed Restriction

Section 6 – Revised Long Term Monitoring Plan

Section 7 – Summary and Conclusions

2. IMPLEMENTATION

This section describes the removal of the windows at the library, low-rise north wing, and walkway. In addition, this section describes the removal of exterior window caulking at the 50 Type L windows and the encapsulation of residual PCBs > 25 ppm in the surrounding exterior concrete. As part of the preparation for window removal, general cleaning of the surrounding surfaces and post-cleaning verification inspections and sampling was conducted as described in Section 4 of the Interim Measures Plan.

2.1 REMEDIATION OVERVIEW

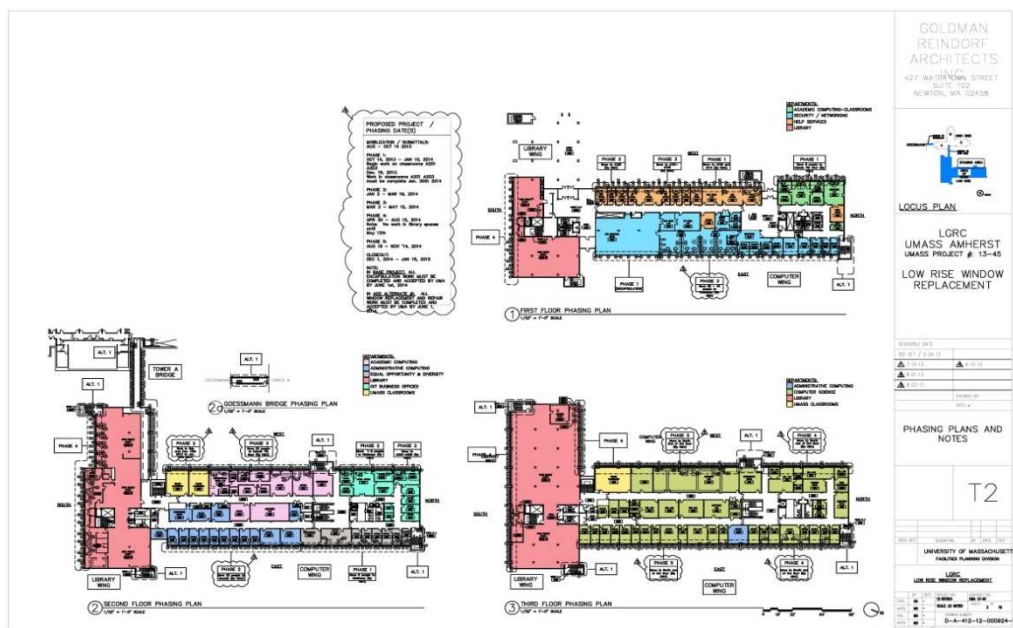
Glazing sealants on the windows at the LGRC were identified as containing ≥ 50 ppm PCBs. The remedial approach consisted of the following:

- General cleaning of the surrounding surfaces via 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).
- Removal of the windows in their entirety for off-site disposal as PCB Bulk Product Waste.
- Application of liquid coatings to the exterior concrete surfaces surrounding the 50 Type L windows.
- Installation of replacement windows and caulking.

A detailed summary of the activities, including site preparations and controls, cleaning and encapsulation, inspections and verification sampling, and off-site disposal of materials is presented in the following sections.

2.2 SITE PREPARATION AND CONTROLS

The project team coordinated with the University to establish a phased approach for the window removal project. The phase approach included the phased relocation of all occupants to alternative areas and/or buildings during the active stages of work. The phased approach was used to allow the work to be completed with the least amount of disturbance to the building occupants and so that work could be conducted with the spaces surrounding each work area unoccupied. Work was conducted over five phases, with window removal activities occurring between October 2013 and August 2014, a period of ten months (a copy of the phasing plan is provided below).



Prior to implementation of the interim measures, the following site controls were established:

- All movable objects were removed from the work area by occupants;
- All non-movable objects were covered with 6-mil fire retardant polyethylene sheeting;
- Polyethylene containments, negative pressure controls, and HEPA filtration were established prior to work starting in each area; and
- Access to the work areas was limited to authorized personnel through the posting of signs on the doors to the spaces and at the perimeter of the work areas.



Typical Polyethylene Controls

Due to the presence of asbestos in the glazing sealants and other building materials that were disturbed during the window replacement project, monitoring, inspections, and clearance testing were conducted throughout the work activities to meet the requirements of the applicable asbestos regulations. Results of the monitoring were communicated to the building occupants throughout the duration of the project through an on-line wiki site set up and maintained by UMass Environmental Health and Safety.

2.3 CLEANING OF THE AREAS

As an initial step, glazing sealant was covered by a layer of duct tape prior to cleaning the surrounding surfaces. Once the taping step was completed, the grate panels from the metal heating ducts located at the base of each window were cleaned and removed and any debris and particulates within the ducts were removed with a HEPA vacuum. As a final step, the horizontal surfaces surrounding each window (tops of heating ducts and window ledges) were cleaned using a phosphate detergent cleaner.

At the conclusion of each work day or following completion of work within an area, the work area, tools, and equipment were decontaminated by wet wiping and vacuuming. All removed materials, disposable cleaning materials, PPE, vacuum filter bags, and trash generated during the decontamination activities were placed in lined and labeled storage containers in the designated hazardous waste storage areas for disposal with the windows as ≥ 50 ppm PCB waste.

Following completion of the cleaning, visual inspections were conducted to confirm the areas were clear of dirt and debris and verification wipe samples were collected from the decontaminated window sills by Woodard & Curran personnel. Window sill decontamination wipe samples were collected using hexane-saturated gauze wipes in accordance with the standard wipe test method under 40 CFR 761.123. Wipe samples were submitted to Con-Test Analytical Laboratories under the standard chain of custody procedures. Samples were extracted via method 3540C (Soxhlet extraction) and analyzed via EPA method 8082.



Typical Window Sill Following Cleaning

Verification wipe samples were collected at a frequency of 5% of locations (or 1 per 20 windows) as described in the IMP for a total of 37 post-cleaning verification wipe samples. Analytical results indicated that PCBs were either non-

detect (25 samples at $< 0.20 \mu\text{g}/100\text{cm}^2$) or below the cleanup level of $10 \mu\text{g}/100\text{cm}^2$ (12 samples with a maximum concentration of $0.91 \mu\text{g}/100\text{cm}^2$).

A summary of the analytical results is presented on Table 2-1 and the complete analytical laboratory reports are included in Appendix A. The locations of the post-cleaning verification wipes are depicted on Figure 2-1.

Based on the results of the visual inspection and verification wipe sampling, no additional decontamination of the horizontal sills or heating ducts within the project work areas was warranted (or conducted).

2.4 WINDOW REMOVALS

Following the cleaning described above, the sills were removed from beneath the windows to provide access to the metal clips that held the individual windows in place. Each sill was removed from the containment and individually labeled to allow for reinstallation following window replacement.

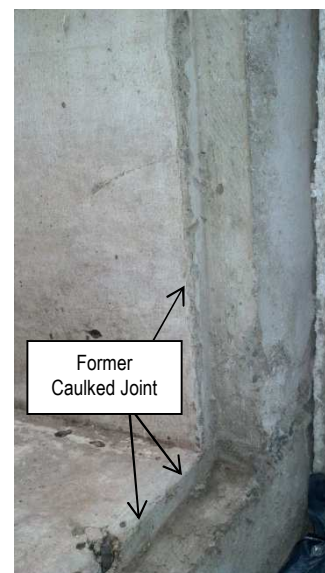
Windows were removed from the building using mechanical methods (hand tools), wrapped in polysheeting and labeled as PCB and ACM waste. Windows were transported to an on-site box trailer for re-sizing to meet the selected disposal facility size requirements for debris (no greater than three feet in any one dimension). Because the glazing sealant was asbestos containing material, the box trailer was enclosed under full containment controls including negative pressure controls during the active re-sizing process. When cutting of the frames was required for re-sizing, the glazing sealant at the cut point was removed to the maximum extent practical using scrapers and utility knives prior to making the cut. Re-sizing was conducted using hand tools and where needed, a reciprocating saw to cut the frames. Following re-sizing, the windows were transported into a roll-off container within the temporary waste storage area on site. Additional information on waste storage and disposal is provided in Section 4.

2.5 ENCAPSULATION OF EXTERIOR CONCRETE SURFACES – TYPE L WINDOWS

As described in the CAFO Notification dated September 17, 2013, exterior caulking at the 50 Type L windows was identified as containing ≥ 50 ppm PCBs (the exterior caulking had not been remediated with other exterior caulking due to access issues in 2007 and 2008). Following removal of the Type L windows, residual exterior window caulking was removed to the extent practical using manual methods (no grinding was performed). Verification samples of the exterior concrete formerly in direct contact with the caulking were then collected to determine the concentration of any residual PCBs. This data was compared to the low occupancy use criteria of 25 ppm. The application of the low-occupancy use criteria was consistent with the remediation of the other exterior caulking and impacted building materials at exterior locations above the first floor (all Type L windows were on the second or third floors of the LGRC).

As per the November 14, 2013 Response to Comments, verification samples of concrete were initially collected from 50% of the first ten Type L windows removed for a total of five samples. Samples were collected in accordance with EPA Region 1 Standard Operating Procedure for Sampling Porous Materials for PCBs (May 2011). Samples were collected from a depth of 0 to 0.5 inches using a rotary impact hammer drill with a 5/8-inch diameter drill bit.

Analytical results indicated that PCBs were present at concentrations > 25 ppm in all the samples, with total PCBs reported at concentrations ranging from 250 to 11,000 ppm. Based on these results, exterior concrete formerly in direct contact with exterior window caulking at all 50 Type L windows was assumed to contain PCBs > 25 ppm and no additional bulk samples were collected.



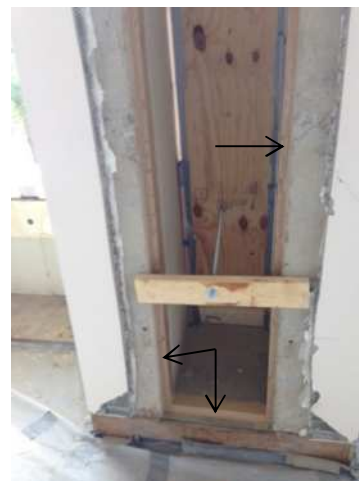
**Typical Type L Window
Opening Following
Caulking Removal**

A summary of the analytical results is presented on Table 2-2 and the complete analytical laboratory reports are provided in Appendix A. The locations of the bulk samples are presented on Figure 2-1.

2.5.1 Liquid Epoxy Coating

Given the bulk sample results and as described in the September 17, 2013 CAFO Notification for the window removal, liquid epoxy coating was applied over a two inch wide strip of concrete centered on the location of the former caulked joint to encapsulate residual PCBs as part of the in-place management of these materials.

For the first set of five windows (located on the northwest corner of the second floor), DevCon 5-minute epoxy was applied as the encapsulant. During the initial application, it was noted that the application of the product over a two inch wide strip of concrete was inefficient due to the application delivery of the product. Following application of the first coat, and visual inspection to confirm a smooth uniform appearance across the application area, a post-encapsulation wipe sample was collected. Analytical results indicated that PCBs were present at a concentration of $7.3 \mu\text{g}/100\text{cm}^2$. Based on these results, a second coat of DevCon 5-minute epoxy was applied to the five locations and two additional wipe samples were collected. Analytical results from these wipes indicated that PCBs were present at concentrations of 0.28 and $1.4 \mu\text{g}/100\text{cm}^2$. Prior to receipt of the analytical results, the replacement frames and caulking were installed to maintain the project schedule. Although results from one sample were $> 1 \mu\text{g}/100\text{cm}^2$, the replacement frames and caulking serve as a secondary physical barrier to the surfaces.



Areas of Epoxy Application

Based on the difficulty of application and the results of the initial wipe sampling, the project team elected to apply two coats of Sikagard 62 liquid epoxy to concrete at the remaining locations. Following application, visual inspections were conducted to confirm the epoxy had been applied to achieve a smooth uniform coat across the application area and post-encapsulation wipe samples were collected from the encapsulated surfaces.

Wipe samples were collected at a frequency of one sample every five windows. Based on the sample frequency, the phased approach for the activities, and the additional wipe samples due to the change in encapsulate a total of 10 epoxy wipe samples were collected from the 45 remaining locations. Analytical results indicated that PCBs were non-detect ($< 0.20 \mu\text{g}/100\text{cm}^2$) in the samples with the exception of one location where PCBs were reported at a concentration of $0.22 \mu\text{g}/100\text{cm}^2$.

A summary of the analytical results is presented on Table 2-3 and the complete analytical laboratory reports are provided in Appendix A. The locations of the Type L windows and the post-encapsulation wipe sample locations are presented on Figure 2-1.

2.5.2 Elastomeric Coating

Following the epoxy application and subsequent inspection and sampling, two coats of Sikagard 550w elastomeric coating were applied to exterior concrete surfaces along the inner face of the concrete structures. To prevent gaps in coverage, the elastomeric coating was applied to a portion of the epoxy coatings and outward, away from the window opening to the previously existing elastomeric coating (typically to a distance of approximately three to five feet from the former joint).

Following application, visual inspections were conducted to confirm the coating had been applied in a smooth uniform layer and wipe samples were collected from the painted surface just beyond the epoxy coated surface. Verification samples were collected at a frequency of one sample every five windows corresponding to the epoxy wipe sample locations. Based on the sampling frequency and the phased approach for activities a total of 12 wipe samples were collected from elastomeric coated surfaces. Analytical results indicated that PCBs were either non-detect (8 samples at $< 0.20 \mu\text{g}/100\text{cm}^2$) or $< 1 \mu\text{g}/100\text{cm}^2$ (4 samples with a maximum concentration of $0.56 \mu\text{g}/100\text{cm}^2$).



Elastomeric Applied
Over a Portion of
the Epoxy Coating

Typical Elastomeric Coating
Application

A summary of the analytical results is presented on Table 2-4 and the complete analytical laboratory reports are provided in Appendix A. The locations of the Type L windows and the elastomeric wipe sample locations are presented on Figure 2-1.

2.6 WINDOW REPLACEMENT

As described in the notification, following application of the liquid coatings, the replacement windows and exterior caulking were installed in the window openings. Based on the limited access to exterior sides of the Type L windows, the frames were installed first without the glass to allow for the application of the exterior caulking. Following caulking, the glass was then installed in the frames. In the majority of locations, the replacement windows were installed prior to receipt of the epoxy and/or elastomeric coating wipe samples to maintain the project schedule.

3. DATA USABILITY ASSESSMENT

This data quality and data usability assessment has been conducted to review the samples collected in support of the remediation and verification activities. Data validation and review was conducted by Woodard & Curran and a third-party validator, Data Check, Inc. of New Durham, New Hampshire. This review included a check of field documentation including sample collection and preservation methods, a check of the laboratory data and documentation, a review of the internal laboratory QA/QC procedures and results including surrogate recoveries, blank results, matrix spike (MS) and matrix spike duplicate (MSD) results, laboratory control standard (LCS) and laboratory control standard duplicate (LCSD) results, an evaluation of sample holding times, and field duplicate results. Data Check's data validation summaries are provided in Appendix A.

A summary of the data usability assessment for the data is presented below:

- All samples were extracted by USEPA Method 3540C (Soxhlet Extraction) and analyzed for PCBs by USEPA Method 8082.
- Consistent procedures and laboratory analysis of the data were achieved. Sample containers were packed on ice and delivered to the laboratory under standard chain of custody procedures. All samples were extracted and analyzed within allowable holding times for the method.
- Some samples were received at the laboratory outside the acceptable temperature range (4° Celsius +/-2°). However, the samples were received at the laboratory directly from sampling and no qualifications have been applied.
- The data packages were reviewed to ensure that all sample and associated quality assurance results were available. Results of the completeness review indicated that all collected samples were analyzed and all quality control results were available to complete the data validation process.
- Some samples were analyzed at dilutions due to the concentration of PCBs present in the samples and/or due to sample matrix. Elevated quantitation limits are reported in these samples as a result of the dilutions.
- A total of five field duplicate samples were collected during the sampling events to evaluate the precision of the verification sample results. Relative percent difference (RPD) between the primary and associated duplicate samples met the acceptance criteria. No qualifications were applied to the data.
- The RPD between sample column results for individual samples were evaluated to evaluate the precision of the results. The RPD between sample column results were evaluated and determined to be within the acceptance criteria ($\leq 25\%$) with the exception of Aroclor 1254 results in one sample (post-cleaning wipe sample LGRC-VWS-124) and Aroclor 1260 results in two samples (post-cleaning wipe sample LGRC-VWS-145 and bulk sample LGRC-VBC-106). Aroclor 1254 or Aroclor 1260 results from these samples were qualified as estimated based on this evaluation.
- Accuracy of the analytical data was assessed by reviewing the recoveries for MS, MSD, LCS, and LCSD. The MS/MSD results from sample LGRC-VBC-106 was not useable due to the concentration of Aroclor 1254 and 1260 present in the unspiked sample. No qualifications were applied. LCS/LCSD recoveries met the acceptance criteria (40 to 140%) in all samples and the RPD ($\leq 30\%$) with the exception of Aroclor 1016 and Aroclor 1260 in two samples; however, based on the recoveries within the acceptance criteria no qualifications were applied.
- Accuracy of the analytical data was assessed by reviewing the surrogate recoveries. The PCB surrogate recoveries met the acceptance criteria with the exception of the recoveries for two samples. Surrogate recovery for epoxy wipe sample LGRC-VWP-131 was $< 10\%$; therefore, all results for this sample were rejected. Given that the replacement frames were installed prior to receipt of the analytical results, a replacement wipe sample was not collected from the specific location (third floor northwest corner); however, the non-detect results were consistent with the other epoxy wipe samples collected and the overall

verification sampling frequency for epoxy coatings of one sample for every five locations was achieved for the project. The surrogate for post-cleaning wipe sample LGRC-VWS-104 was < 30% (28.2%); therefore all results were qualified as estimated (UJ).

- No analytes were detected in the method blanks. Due to the majority of samples being wipe samples with no reusable sampling equipment, no field equipment blank samples were collected during the sampling events.
- According to the case narrative, the lower of two results was reported for Aroclor 1254 in one sample (bulk sample LGRC-VBC-105 with a reported concentration above the low occupancy clean up criteria of 25 ppm) due to continuing non-conformance on the confirmatory detector. The Aroclor 1254 result for this sample was qualified as estimated.

Based on this review, the data adequately represents the materials tested, and the samples are considered usable for the purposes of characterizing PCB-affected media and verifying remediation efforts in accordance with 40 CFR Part 761.

4. WASTE STORAGE, DISPOSAL, AND EQUIPMENT DECONTAMINATION

Throughout the duration of the project, once the windows were removed using hand tools, the entire widow was wrapped in polysheeting and labeled as PCB waste. The windows were transported to a box trailer for re-sizing to meet the selected disposal facility's size requirements for debris. The re-sizing was performed under full polyethylene containment and negative pressure controls to meet the applicable asbestos regulations. Following re-sizing, the windows were transported into secured, lined, and covered roll-off containers within the temporary waste storage area onsite.

Following use, non-disposable equipment and tools were decontaminated using a double wipe with hexane soaked rags following gross removal of any dust or debris in accordance with 40 CFR 761.79. Decontamination materials were managed for off-site disposal with the glazing sealants as ≥ 50 ppm PCB waste. No free liquids were generated during the remediation activities.

All waste materials generated (windows, polyethylene sheeting, decontamination materials, etc.) were managed as a single waste stream and designated as ≥ 50 ppm PCB wastes. The waste were collected in secured, lined and covered roll-off waste containers in accordance with 40 CFR 761.65 and labeled and marked in accordance with 40 CFR 761.40.

A total of 40.6 tons of material in three roll-offs were shipped off site on October 27, 2014 (two roll-off containers) and December 5, 2014 (one roll-off container) as ≥ 50 ppm PCB wastes with ACM for disposal at Environmental Quality's Wayne Disposal Landfill in Belleville, Michigan. Copies of the PCB waste shipment records including manifests and certificates of disposal are provided in Appendix B.

5. DEED RESTRICTION

A deed notice was recorded on May 14, 2014 and includes a description of the extent and levels of PCBs remaining on the building following remediation, a description of the remedial actions taken, a description of the use restrictions, and the long-term monitoring and maintenance requirements. A copy of the Deed Restriction was provided in the Interim Measures Completion Report submitted on June 2, 2014.

6. REVISED LONG TERM MONITORING PLAN

In accordance with Section 5 of the Interim Measure Plan, long term monitoring and maintenance of the interim measures will be conducted including: visual inspections, surface wipe samples of non-porous surfaces, surface wipe samples of encapsulated surfaces, and indoor air samples.

Given that the conditions have changed since preparation and submittal of the Monitoring and Maintenance Implementation Plan (MMIP) in the CAFO and the Revised Long Term Monitoring Plan submitted in June 2014, a revised MMIP has been prepared to reflect current conditions and is provided under a separate cover.

The components of the revised MMIP are consistent with the MMIP included in the Interim Measures Plan and the June 2014 revised plan; however, due to the in-place management of residual PCBs in exterior concrete surrounding the 50 Type L windows, the monitoring plan has been revised to include inspections of those surfaces as part of the annual monitoring program.

7. SUMMARY AND CONCLUSIONS

The window removal project in the LGRC low-rise was conducted in five phases from October 2013 to September 2014. Activities completed as part of the project included:

- cleaning of the surrounding window sills and heating ducts;
- removal of the glazing sealants and windows;
- removal of exterior PCB window caulking from the Type L windows; and
- in-place management of residual PCBs in exterior concrete at the Type L windows through the application of liquid coatings and replacement window frames.

Following cleaning of surfaces surrounding the windows, confirmation that the work was completed in accordance with the IMP was conducted through visual inspection and verification wipe sampling. Results of the post-cleaning wipe sampling indicated that the cleaning was successful in meeting the project requirements (i.e., all dust and debris removed and total PCBs below the cleanup level of 10 $\mu\text{g}/100\text{cm}^2$; actual wipe results were all below 1 $\mu\text{g}/100\text{cm}^2$.)

Glazing sealants were removed with the window frames as a single unit and wrapped in polyethylene sheeting and placed into roll-off containers within the on-site waste storage area pending off-site disposal.

Following removal of the 50 Type L windows on the second and third floors, residual PCBs in the exterior concrete were encapsulated through the application of liquid epoxy coatings (a two-inch wide strip of concrete centered on the former joints), and elastomeric coatings (materials within the recessed areas). Results of baseline wipe samples collected from the encapsulated surfaces indicated that PCBs were either non-detect or present at concentrations < 1 $\mu\text{g}/100\text{cm}^2$ with the exception of one location where PCBs were reported at a concentration of 1.4 $\mu\text{g}/100\text{cm}^2$ on the surface of the epoxy coating. Of note, the surfaces coated with epoxy were subsequently covered by the new window frames (secondary barrier). The encapsulated areas will be included in the long term monitoring to be conducted at the LGRC complex.

A total of 40.6 tons of ≥ 50 ppm PCB waste (glazing sealants, window frames and components, poly sheeting, etc.) contained in three roll-off containers were removed for off-site disposal as ≥ 50 ppm PCB Waste to Environmental Quality's Wayne Disposal Landfill in Belleville, Michigan.

With the exception of the implementation of long term monitoring and maintenance activities (to start in 2015), the window removal activities have been completed in accordance with the Notification. Of note, given that the low-rise windows, including glazing sealants, have been removed (aside from the computer room), an indoor air long term monitoring component will not be collected at the low-rise buildings. However, to document the post-removal indoor air levels in the low-rise, a one-time indoor air sampling event will be conducted. Indoor air samples will be collected from the north wing of the low-rise (one sample per floor) and the library (one sample per floor) for a total of six samples. This data will be incorporated into the long term monitoring and maintenance report accordingly.

Table 2-1
Summary of Post-Cleaning Verification Wipe Sample Results
Lederle Graduate Research Center Low-Rise
University of Massachusetts Amherst
Amherst, MA

Category	Sample Frequency	Floor	Façade	Sample Date	Sample ID	Total PCBs (ug/100cm ²)
Library Windows	5% 70 windows (4 samples) per floor	1st	South	2/11/2014	LGRC-VWS-094	< 0.20
			South	2/11/2014	LGRC-VWS-095	< 0.20
			South	2/11/2014	LGRC-VWS-096	< 0.20
			South	2/11/2014	LGRC-VWS-097	0.49
		2nd	South	5/27/2014	LGRC-VWS-118	0.30
			South	5/27/2014	LGRC-VWS-119	< 0.20
			South	6/3/2014	LGRC-VWS-120	0.31
			South	6/3/2014	LGRC-VWS-121	0.2
		3rd	South	6/3/2014	LGRC-VWS-122	< 0.20
			South	6/3/2014	LGRC-VWS-123	< 0.20
			South	6/3/2014	LGRC-VWS-124	0.27 J
			North	6/3/2014	LGRC-VWS-125	0.24
Low-Rise North Windows	5 % First Floor 103 windows (6 samples) Second Floor 128 windows (7 samples) Third Floor 145 windows (8 samples)	1st	West	10/17/2013	LGRC-EN-VWS-070	< 0.20
			West	10/17/2013	LGRC-EN-VWS-071	< 0.20
			East	11/27/2013	LGRC-VWS-078	< 0.20
			East	3/7/2014	LGRC-VWS-099	< 0.20
			East	3/7/2014	LGRC-VWS-100	< 0.20
			West	3/11/2014	LGRC-VWS-104	< 0.20 UJ
		2nd	East	10/17/2013	LGRC-EN-VWS-068	< 0.20
			East	10/17/2013	LGRC-EN-VWS-069	< 0.20
			West	12/9/2013	LGRC-VWS-090	< 0.20
			East	1/7/2014	LGRC-VWS-091	< 0.20
			West	1/21/2014	LGRC-VWS-092	< 0.20
			West	3/7/2014	LGRC-VWS-101	< 0.20
		3rd	West	3/11/2014	LGRC-VWS-102	< 0.20
			East	5/8/2014	LGRC-VWS-113	0.24
			West	5/22/2014	LGRC-VWS-116	0.82
			West	5/22/2014	LGRC-VWS-117	0.48
			West	8/19/2014	LGRC-VWS-141	< 0.20
			East	8/19/2014	LGRC-VWS-143	< 0.20
Walk-way Windows	20 windows with sills are present in walkways. Windows are in four groups of five windows. Collected one sample per group for a total of 4 wipe samples.	2nd	East	8/19/2014	LGRC-VWS-144	0.22
			East	8/19/2014	LGRC-VWS-145	0.91 J
			West	8/26/2014	LGRC-VWS-146	0.56
			North	10/30/2013	LGRC-EN-VWS-072	< 0.20
		2nd	North	10/30/2013	LGRC-EN-VWS-073	< 0.20
			North	10/30/2013	LGRC-EN-VWS-075	< 0.20
			North	11/5/2013	LGRC-EN-VWS-076	< 0.20

Notes

1. Samples were sent to Contest Analytical Laboratories under the standard chain of custody and analyzed for PCBs via USEPA method 8082 with 3540C Soxhlet extraction.
2. Wipe samples were collected in accordance with the standard wipe test procedures of 40 CFR 761.123.
3. Total PCBs reported as either Aroclor 1254 and/or Aroclor 1260. No other Aroclors reported above the minimum laboratory reporting limits.
4. J/UJ indicates analytical results qualified as estimated. See Appendix A for additional information.

Table 2-2
Summary of Verification Bulk Sample Results
Lederle Graduate Research Center Low-Rise
University of Massachusetts Amherst
Amherst, MA

Floor	Façade	Sample Date	Sample ID	Total PCBs (mg/kg)
2nd	Low-Rise West	2/24/2014	LGRC-VBC-098	1,000
	Low-Rise West	3/25/2014	LGRC-VBC-105	11,000 J
	Low-Rise West	4/15/2014	LGRC-VBC-106	1,130 J
	Low-Rise West	4/15/2014	LGRC-VBC-107	270
	Low-Rise West	4/15/2014	LGRC-VBC-108	250

Notes:

1. Bulk samples were collected from the underlying concrete masonry surfaces formerly in direct contact with the exterior caulking, from 50% of the first ten Type L windows removed. Bulk samples were collected in accordance with US EPA Region 1 Standard Operating Procedure for Sampling Porous Surfaces for PCBs (May 2011).
2. Total PCBs reported as either Aroclor 1254 and/or Aroclor 1260. No other Aroclors reported above the minimum laboratory reporting limits.
3. Samples were submitted to Contest Analytical Laboratories under the standard chain of custody to be analyzed for PCBs via USEPA method 8082 with Soxhlet extraction (method 3540C).
4. J indicates analytical results qualified as estimated. See Appendix A for additional information.

Table 2-3
Summary of Post-Encapsulation Epoxy Wipe Sample Results
Lederle Graduate Research Center Low-Rise
University of Massachusetts Amherst
Amherst, MA

Floor	Façade	Sample Date	Sample ID	Total PCBs (ug/100cm ²)	Notes
1st	No Type L windows on first floor. No sampling required.				
2nd	Library North	6/24/2014	LGRC-VWP-130	<0.20	
	Low-rise West	4/15/2014	LGRC-VWP-109	7.3	Initial Wipe following application of Devcon 5 epoxy; subsequently re-epoxy coated
	Low-rise West	4/22/2014	LGRC-VWP-112	0.28	Wipe collected following application of second coat of DevCon 5 epoxy
	Low-rise West	4/22/2014	LGRC-VWP-110	1.4	Wipe collected following application of second coat of DevCon 5 epoxy
	Low-rise West	4/22/2014	LGRC-VWP-111	< 0.20	
	Low-rise West	6/10/2014	LGRC-VWP-126	<0.20	
3rd	Library North	7/8/2014	LGRC-VWP-134	<0.20	
	Library South	7/8/2014	LGRC-VWP-132	<0.20	
	Library South	7/8/2014	LGRC-VWP-133	<0.20	
	Low-rise East	6/10/2014	LGRC-VWP-127	<0.20	
	Low-rise East	9/11/2014	LGRC-VWP-146	0.22	
	Low-rise East	9/11/2014	LGRC-VWP-147	< 0.20	
	Low-rise West	9/11/2014	LGRC-VWP-149	< 0.20	

Notes

1. Wipe samples were collected from the area previously in direct contact with the caulking after epoxy application at a frequency of one sample per 5 windows.
2. Samples sent to Contest Analytical Laboratories under the standard chain of custody and analyzed for EPA 8082 PCBs with 3540C Soxhlet extraction.
3. Total PCBs reported as Aroclor 1254. No other Aroclors reported above the minimum laboratory reporting limits.
4. Wipe samples were collected in accordance with the standard wipe test procedures 40 CFR 761.123.

Table 2-4
Summary of Post-Encapsulation Elastomeric Wipe Sample Results
Lederle Graduate Research Center Low-Rise
University of Massachusetts Amherst
Amherst, MA

Floor	Façade	Sample Date	Sample ID	Total PCBs (ug/100cm ²)
1st	No Type L windows on first floor. No samples required.			
2nd	Library North	7/11/2014	LGRC-VWP-135	<0.20
	Low-rise West	5/14/2014	LGRC-VWP-115	< 0.20
	Low-rise West	5/14/2014	LGRC-VWP-114	< 0.20
	Low-rise West	6/16/2014	LGRC-VWP-128	0.24
3rd	Low-rise West	7/1/2014	LGRC-VWP-140	<0.20
	Library North	7/11/2014	LGRC-VWP-137	<0.20
	Library South	7/11/2014	LGRC-VWP-138	<0.20
	Library South	7/11/2014	LGRC-VWP-139	0.54
	Low-rise East	6/16/2014	LGRC-VWP-129	< 0.20
	Low-rise East	9/17/2014	LGRC-VWP-151	< 0.20
	Low-rise East	9/17/2014	LGRC-VWP-150	0.56
	Low-rise West	9/17/2014	LGRC-VWP-152	0.45

Notes:

1. Samples were sent to Contest Analytical Laboratories under the standard chain of custody and analyzed for PCBs via USEPA method 8082.
2. Total PCBs reported as Aroclor 1254. No other Aroclors reported above the minimum laboratory reporting limits.
3. Wipe samples were collected in accordance with the standard wipe test procedures of 40 CFR 761.123.



University of Massachusetts Amherst Campus Map

July 2011

University Switchboard - (413) 545-0111

Tour Service - (413) 545-4237

Robsham Memorial Visitors Center - (413) 545-0306

Map Key

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

Project Location

Figure 1-1 Site Location Map

VERIFICATION SAMPLE LOCATIONS

UMASS AMHERST

WINDOW REMOVAL COMPLETION REPORT

JOB NO.: 210918.08
DATE: OCTOBER 2014
SCALE: NOT TO SCALE
SHEET: 1 OF 1

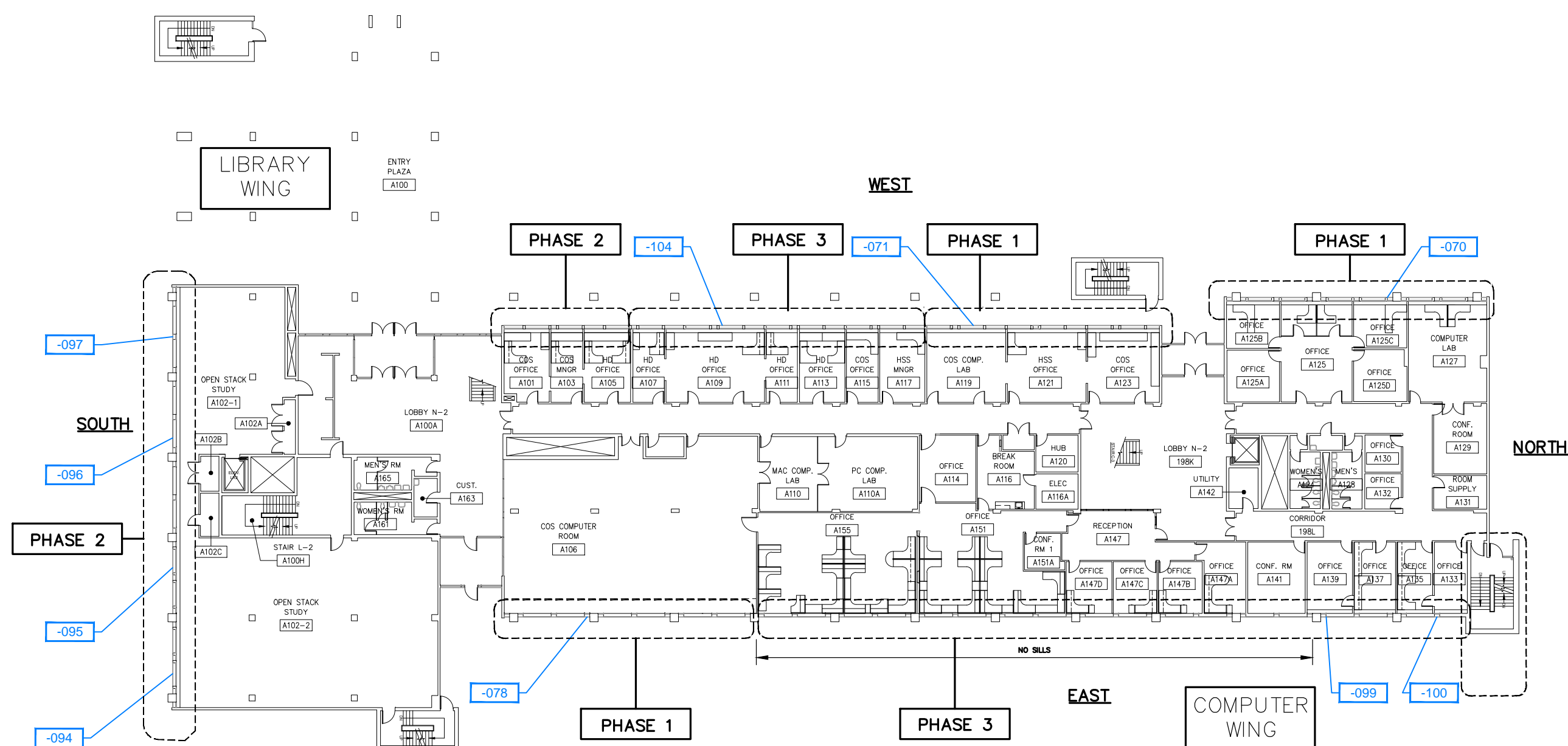
FIGURE 2-1

LEGEND:

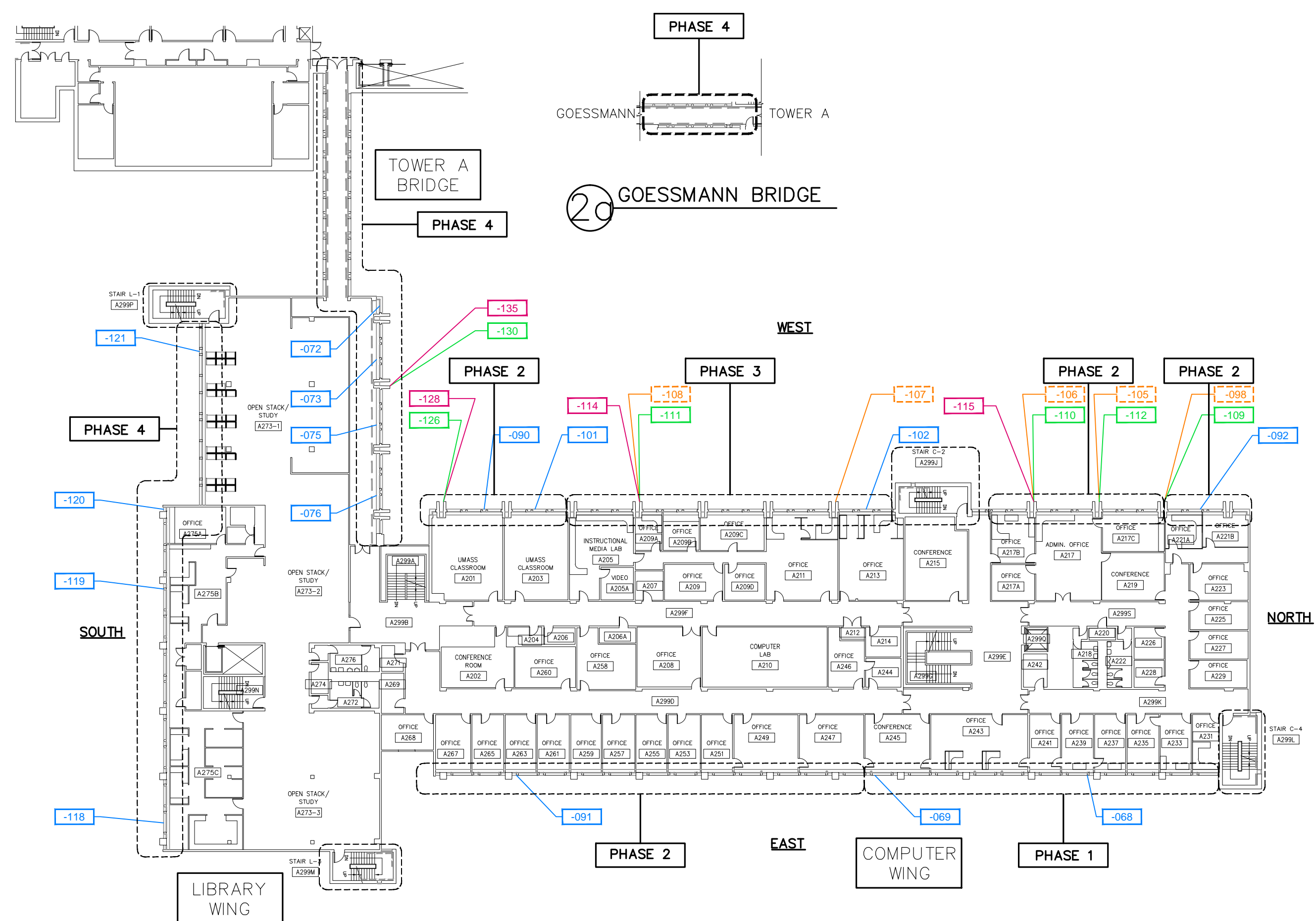
- | | |
|------|--|
| -102 | POST-CLEANING VERIFICATION WIPE SAMPLE LOCATION AND IDENTIFIER |
| -111 | POST-ENCAPSULATION EPOXY WIPE SAMPLE LOCATION AND IDENTIFIER |
| -115 | POST-ENCAPSULATION ELASTOMERIC WIPE SAMPLE LOCATION AND IDENTIFIER |
| -108 | VERIFICATION BULK SAMPLE LOCATION AND IDENTIFIER |

NOTE:

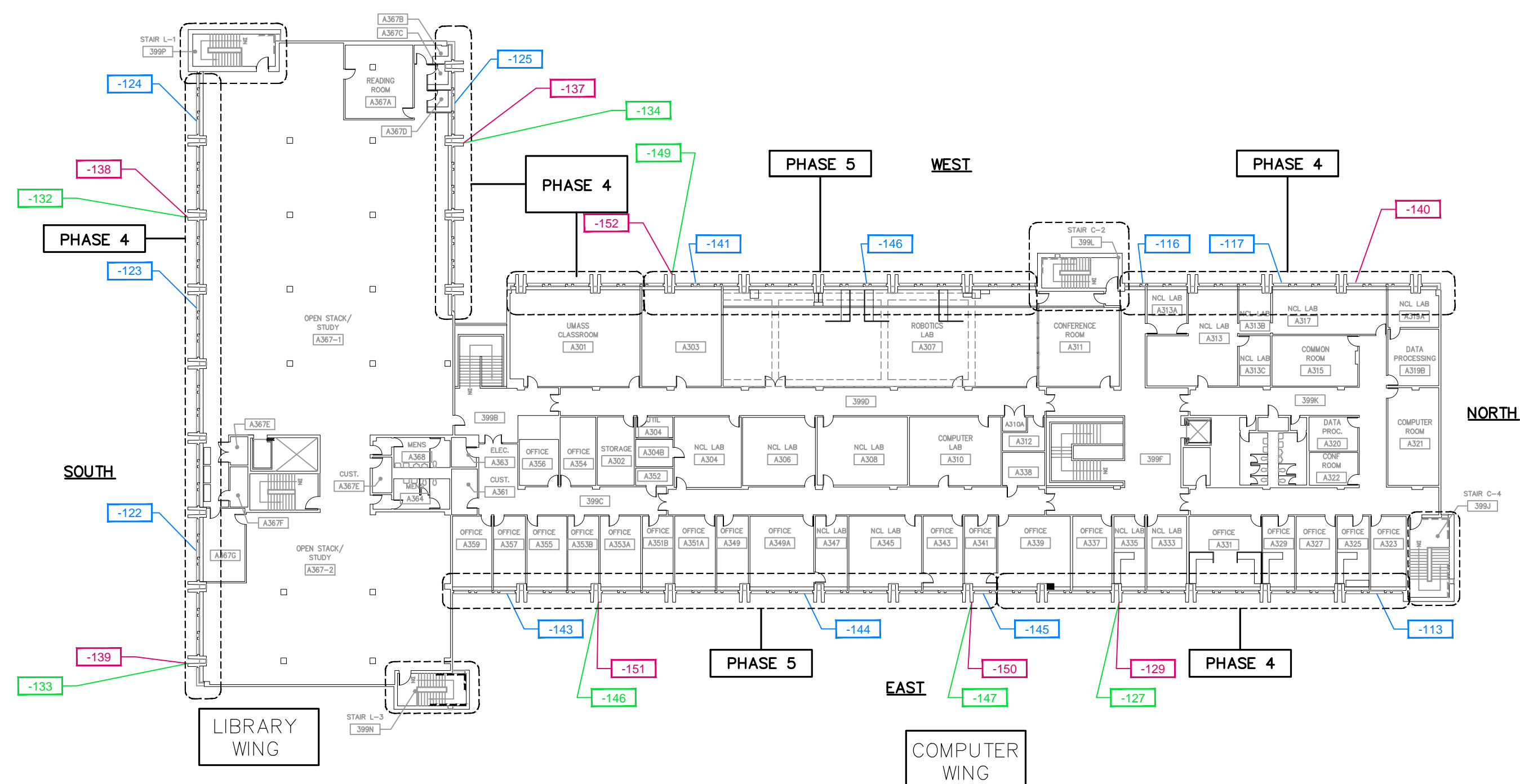
1. ORIGINAL DESIGN DRAWINGS BY GOLDMAN REINDORF ARCHITECTS INC.



1 FIRST FLOOR



② SECOND FLOOR



③ THIRD FLOOR

APPENDIX A: ANALYTICAL LABORATORY REPORTS AND DATA VALIDATION SUMMARIES

October 21, 2013

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

Project Location: UMASS Lederle Grad Research Low Rise
Client Job Number:
Project Number: 210918.08 Phase 1
Laboratory Work Order Number: 13J0669

Enclosed are results of analyses for samples received by the laboratory on October 17, 2013. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Meghan E. Kelley
Project Manager

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

REPORT DATE: 10/21/2013

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 210918.08 Phase 1

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 13J0669

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

PROJECT LOCATION: UMASS Lederle Grad Research Low Rise

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LGRC-EN-VWS-068	13J0669-01	Wipe	Rm 239	SW-846 8082A	
LGRC-EN-VWS-069	13J0669-02	Wipe	Rm 245	SW-846 8082A	
LGRC-EN-VWS-070	13J0669-03	Wipe	Rm 1250	SW-846 8082A	
LGRC-EN-VWS-071	13J0669-04	Wipe	Rm 119	SW-846 8082A	

CASE NARRATIVE SUMMARY

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

SW-846 8082A**Qualifications:**

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

Analyte & Samples(s) Qualified:**Aroclor-1016, Aroclor-1016 [2C], Aroclor-1260, Aroclor-1260 [2C]**

13J0669-01[LGRC-EN-VWS-068], 13J0669-02[LGRC-EN-VWS-069], 13J0669-03[LGRC-EN-VWS-070], 13J0669-04[LGRC-EN-VWS-071], B083135-BLK1, B083135-BS1, B083135-BSD1

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.



Daren J. Damboragian
Laboratory Manager

Project Location: UMASS Lederle Grad Research L

Sample Description: Rm 239

Work Order: 13J0669

Date Received: 10/17/2013

Field Sample #: LGRC-EN-VWS-068

Sampled: 10/17/2013 07:30

Sample ID: 13J0669-01

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	R-05	SW-846 8082A	10/17/13	10/18/13 17:47	JMB
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 17:47	JMB
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 17:47	JMB
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 17:47	JMB
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 17:47	JMB
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 17:47	JMB
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1	R-05	SW-846 8082A	10/17/13	10/18/13 17:47	JMB
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 17:47	JMB
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 17:47	JMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	74.0	30-150						10/18/13 17:47	
Decachlorobiphenyl [2]	76.5	30-150						10/18/13 17:47	
Tetrachloro-m-xylene [1]	72.2	30-150						10/18/13 17:47	
Tetrachloro-m-xylene [2]	72.5	30-150						10/18/13 17:47	

Project Location: UMASS Lederle Grad Research L

Sample Description: Rm 245

Work Order: 13J0669

Date Received: 10/17/2013

Field Sample #: LGRC-EN-VWS-069

Sampled: 10/17/2013 07:40

Sample ID: 13J0669-02

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	R-05	SW-846 8082A	10/17/13	10/18/13 18:00	JMB
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 18:00	JMB
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 18:00	JMB
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 18:00	JMB
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 18:00	JMB
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 18:00	JMB
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1	R-05	SW-846 8082A	10/17/13	10/18/13 18:00	JMB
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 18:00	JMB
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 18:00	JMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	98.1	30-150						10/18/13 18:00	
Decachlorobiphenyl [2]	102	30-150						10/18/13 18:00	
Tetrachloro-m-xylene [1]	93.9	30-150						10/18/13 18:00	
Tetrachloro-m-xylene [2]	96.7	30-150						10/18/13 18:00	

Project Location: UMASS Lederle Grad Research L

Sample Description: Rm 1250

Work Order: 13J0669

Date Received: 10/17/2013

Field Sample #: LGRC-EN-VWS-070

Sampled: 10/17/2013 07:45

Sample ID: 13J0669-03

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	R-05	SW-846 8082A	10/17/13	10/18/13 18:12	JMB
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 18:12	JMB
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 18:12	JMB
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 18:12	JMB
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 18:12	JMB
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 18:12	JMB
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1	R-05	SW-846 8082A	10/17/13	10/18/13 18:12	JMB
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 18:12	JMB
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 18:12	JMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	97.8	30-150							
Decachlorobiphenyl [2]	102	30-150							
Tetrachloro-m-xylene [1]	93.0	30-150							
Tetrachloro-m-xylene [2]	95.5	30-150							

Project Location: UMASS Lederle Grad Research L

Sample Description: Rm 119

Work Order: 13J0669

Date Received: 10/17/2013

Field Sample #: LGRC-EN-VWS-071

Sampled: 10/17/2013 07:55

Sample ID: 13J0669-04

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	R-05	SW-846 8082A	10/17/13	10/18/13 18:24	JMB
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 18:24	JMB
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 18:24	JMB
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 18:24	JMB
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 18:24	JMB
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 18:24	JMB
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1	R-05	SW-846 8082A	10/17/13	10/18/13 18:24	JMB
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 18:24	JMB
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/17/13	10/18/13 18:24	JMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	99.4	30-150							
Decachlorobiphenyl [2]	104	30-150							
Tetrachloro-m-xylene [1]	94.3	30-150							
Tetrachloro-m-xylene [2]	96.1	30-150							

Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
13J0669-01 [LGRC-EN-VWS-068]	B083135	1.00	10.0	10/17/13
13J0669-02 [LGRC-EN-VWS-069]	B083135	1.00	10.0	10/17/13
13J0669-03 [LGRC-EN-VWS-070]	B083135	1.00	10.0	10/17/13
13J0669-04 [LGRC-EN-VWS-071]	B083135	1.00	10.0	10/17/13

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 B083135 - SW-846 3540C
Blank (B083135-BLK1)

Prepared: 10/17/13 Analyzed: 10/18/13

Aroclor-1016	ND	0.20	µg/Wipe							R-05
Aroclor-1016 [2C]	ND	0.20	µg/Wipe							R-05
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							R-05
Aroclor-1260 [2C]	ND	0.20	µg/Wipe							R-05
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	1.89		µg/Wipe	2.00		94.3	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.93		µg/Wipe	2.00		96.3	30-150			
Surrogate: Tetrachloro-m-xylene	1.59		µg/Wipe	2.00		79.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.63		µg/Wipe	2.00		81.4	30-150			

LCS (B083135-BS1)

Prepared: 10/17/13 Analyzed: 10/18/13

Aroclor-1016	0.52	0.20	µg/Wipe	0.500		105	40-140			R-05
Aroclor-1016 [2C]	0.53	0.20	µg/Wipe	0.500		106	40-140			R-05
Aroclor-1260	0.51	0.20	µg/Wipe	0.500		102	40-140			R-05
Aroclor-1260 [2C]	0.52	0.20	µg/Wipe	0.500		104	40-140			R-05
Surrogate: Decachlorobiphenyl	2.14		µg/Wipe	2.00		107	30-150			
Surrogate: Decachlorobiphenyl [2C]	2.21		µg/Wipe	2.00		110	30-150			
Surrogate: Tetrachloro-m-xylene	2.02		µg/Wipe	2.00		101	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	2.08		µg/Wipe	2.00		104	30-150			

LCS Dup (B083135-BSD1)

Prepared: 10/17/13 Analyzed: 10/18/13

Aroclor-1016	0.36	0.20	µg/Wipe	0.500		72.2	40-140	36.9	*	30	R-05
Aroclor-1016 [2C]	0.37	0.20	µg/Wipe	0.500		74.0	40-140	35.7	*	30	R-05
Aroclor-1260	0.36	0.20	µg/Wipe	0.500		71.9	40-140	34.8	*	30	R-05
Aroclor-1260 [2C]	0.36	0.20	µg/Wipe	0.500		72.5	40-140	35.3	*	30	R-05
Surrogate: Decachlorobiphenyl	1.45		µg/Wipe	2.00		72.5	30-150				
Surrogate: Decachlorobiphenyl [2C]	1.48		µg/Wipe	2.00		74.0	30-150				
Surrogate: Tetrachloro-m-xylene	1.41		µg/Wipe	2.00		70.5	30-150				
Surrogate: Tetrachloro-m-xylene [2C]	1.44		µg/Wipe	2.00		72.0	30-150				

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
	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.
R-05	Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

CERTIFICATIONS**Certified Analyses included in this Report****Analyte****Certifications****No certified Analyses included in this Report**

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

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2014
MA	Massachusetts DEP	M-MA100	06/30/2014
CT	Connecticut Department of Public Health	PH-0567	09/30/2015
NY	New York State Department of Health	10899 NELAP	04/1/2014
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2014
RI	Rhode Island Department of Health	LAO00112	12/30/2013
NC	North Carolina Div. of Water Quality	652	12/31/2013
NJ	New Jersey DEP	MA007 NELAP	06/30/2014
FL	Florida Department of Health	E871027 NELAP	06/30/2014
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2014
WA	State of Washington Department of Ecology	C2065	02/23/2014
ME	State of Maine	2011028	06/9/2015
VA	Commonwealth of Virginia	460217	12/14/2013
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2014



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Email: info@contestlabs.com
www.contestlabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name: Woodman & Curran

Telephone:

Address: 40 Shafford Rd Suite 110 Andover MA

Project # 210918-08 Phase I

Client PO#

Attention: Harvey G Franks, E. Grand

DATA DELIVERY (check all that apply)

☐ FAX ☒ EMAIL ☐ WEBSITE

Project Location: Mass Lake Galeshead Low Rise

Fax #

Sampled By: Kim Rinnard

Email:

Project Proposal Provided? (for billing purposes)

☐ Yes ☐ No proposal date

Format:

☒ PDF ☒ EXCEL ☐ GIS

Collection

☐ OTHER ☐ "Enhanced Data Package"

Con-Test Lab ID

Beginning Date/Time

Ending Date/Time

Composite

Grab

*Matrix

Field

Lab

Ends

Code

Sample

Analysis

Requested

Containers

Preservation

Container Code

Client Sample ID / Description

Beginning Date/Time

Ending Date/Time

Composite

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Field

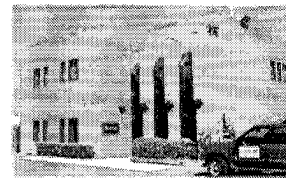
Lab

Ends

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F: 413-525-6405
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Page 1 of 2



Sample Receipt Checklist

CLIENT NAME: Woodward & Curran RECEIVED BY: KOB DATE: 10-17-13

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

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

If not, explain:

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

If not, explain:

4) How were the samples received:

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

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

Temperature °C by Temp blank _____ Temperature °C by Temp gun _____

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

Who was notified _____ Date _____ Time _____

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

Who was notified _____ Date _____ Time _____

7) Location where samples are stored:

19

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

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

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

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes No N/A

Containers received at Con-Test

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

Laboratory Comments:

40 mL vials: # HCl _____ # Methanol _____
Bisulfate _____ # DI Water _____
Thiosulfate _____ Unpreserved _____

Time and Date Frozen:

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

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

Doc #277 Rev. 4 August 2013

Who notified of False statements?**Log-In Technician Initials:** KOB**Date/Time:****Date/Time:** 10-17-13 1330

November 4, 2013

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

Project Location: LGRC Low Rise
Client Job Number:
Project Number: 225971
Laboratory Work Order Number: 13J1200

Enclosed are results of analyses for samples received by the laboratory on October 30, 2013. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Meghan E. Kelley
Project Manager

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

REPORT DATE: 11/4/2013

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225971

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 13J1200

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

PROJECT LOCATION: LGRC Low Rise

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LGRC-EN-VWS-072	13J1200-01	Wipe		SW-846 8082A	
LGRC-EN-VWS-073	13J1200-02	Wipe		SW-846 8082A	
LGRC-EN-VWS-075	13J1200-04	Wipe		SW-846 8082A	

CASE NARRATIVE SUMMARY

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

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

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

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

Daren J. Damboragian
Laboratory Manager

Project Location: LGRC Low Rise

Sample Description:

Work Order: 13J1200

Date Received: 10/30/2013

Field Sample #: LGRC-EN-VWS-072

Sampled: 10/30/2013 08:45

Sample ID: 13J1200-01

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	10/31/13	11/3/13 8:45	MJC
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/3/13 8:45	MJC
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/3/13 8:45	MJC
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/3/13 8:45	MJC
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/3/13 8:45	MJC
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/3/13 8:45	MJC
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/3/13 8:45	MJC
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/3/13 8:45	MJC
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/3/13 8:45	MJC
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	111	30-150						11/3/13 8:45	
Decachlorobiphenyl [2]	121	30-150						11/3/13 8:45	
Tetrachloro-m-xylene [1]	112	30-150						11/3/13 8:45	
Tetrachloro-m-xylene [2]	119	30-150						11/3/13 8:45	

Project Location: LGRC Low Rise

Sample Description:

Work Order: 13J1200

Date Received: 10/30/2013

Field Sample #: LGRC-EN-VWS-073

Sampled: 10/30/2013 08:50

Sample ID: 13J1200-02

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	10/31/13	11/2/13 10:10	MJC
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/2/13 10:10	MJC
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/2/13 10:10	MJC
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/2/13 10:10	MJC
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/2/13 10:10	MJC
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/2/13 10:10	MJC
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/2/13 10:10	MJC
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/2/13 10:10	MJC
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/2/13 10:10	MJC
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	101	30-150						11/2/13 10:10	
Decachlorobiphenyl [2]	111	30-150						11/2/13 10:10	
Tetrachloro-m-xylene [1]	103	30-150						11/2/13 10:10	
Tetrachloro-m-xylene [2]	109	30-150						11/2/13 10:10	

Project Location: LGRC Low Rise

Sample Description:

Work Order: 13J1200

Date Received: 10/30/2013

Field Sample #: LGRC-EN-VWS-075

Sampled: 10/30/2013 09:50

Sample ID: 13J1200-04

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	10/31/13	11/2/13 10:23	MJC
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/2/13 10:23	MJC
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/2/13 10:23	MJC
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/2/13 10:23	MJC
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/2/13 10:23	MJC
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/2/13 10:23	MJC
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/2/13 10:23	MJC
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/2/13 10:23	MJC
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	10/31/13	11/2/13 10:23	MJC
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	98.3	30-150							
Decachlorobiphenyl [2]	109	30-150							
Tetrachloro-m-xylene [1]	95.8	30-150							
Tetrachloro-m-xylene [2]	103	30-150							

Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
13J1200-01 [LGRC-EN-VWS-072]	B084141	1.00	10.0	10/31/13
13J1200-02 [LGRC-EN-VWS-073]	B084141	1.00	10.0	10/31/13
13J1200-04 [LGRC-EN-VWS-075]	B084141	1.00	10.0	10/31/13

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 B084141 - SW-846 3540C
Blank (B084141-BLK1)

Prepared: 10/31/13 Analyzed: 11/02/13

Aroclor-1016	ND	0.20	µg/Wipe							
Aroclor-1016 [2C]	ND	0.20	µg/Wipe							
Aroclor-1221	ND	0.20	µg/Wipe							
Aroclor-1221 [2C]	ND	0.20	µg/Wipe							
Aroclor-1232	ND	0.20	µg/Wipe							
Aroclor-1232 [2C]	ND	0.20	µg/Wipe							
Aroclor-1242	ND	0.20	µg/Wipe							
Aroclor-1242 [2C]	ND	0.20	µg/Wipe							
Aroclor-1248	ND	0.20	µg/Wipe							
Aroclor-1248 [2C]	ND	0.20	µg/Wipe							
Aroclor-1254	ND	0.20	µg/Wipe							
Aroclor-1254 [2C]	ND	0.20	µg/Wipe							
Aroclor-1260	ND	0.20	µg/Wipe							
Aroclor-1260 [2C]	ND	0.20	µg/Wipe							
Aroclor-1262	ND	0.20	µg/Wipe							
Aroclor-1262 [2C]	ND	0.20	µg/Wipe							
Aroclor-1268	ND	0.20	µg/Wipe							
Aroclor-1268 [2C]	ND	0.20	µg/Wipe							
Surrogate: Decachlorobiphenyl	2.03		µg/Wipe	2.00		101	30-150			
Surrogate: Decachlorobiphenyl [2C]	2.19		µg/Wipe	2.00		110	30-150			
Surrogate: Tetrachloro-m-xylene	1.78		µg/Wipe	2.00		89.1	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.90		µg/Wipe	2.00		95.1	30-150			

LCS (B084141-BS1)

Prepared: 10/31/13 Analyzed: 11/02/13

Aroclor-1016	0.50	0.20	µg/Wipe	0.500		100	40-140			
Aroclor-1016 [2C]	0.51	0.20	µg/Wipe	0.500		103	40-140			
Aroclor-1260	0.52	0.20	µg/Wipe	0.500		104	40-140			
Aroclor-1260 [2C]	0.55	0.20	µg/Wipe	0.500		110	40-140			
Surrogate: Decachlorobiphenyl	2.21		µg/Wipe	2.00		110	30-150			
Surrogate: Decachlorobiphenyl [2C]	2.38		µg/Wipe	2.00		119	30-150			
Surrogate: Tetrachloro-m-xylene	1.79		µg/Wipe	2.00		89.3	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.90		µg/Wipe	2.00		95.0	30-150			

LCS Dup (B084141-BSD1)

Prepared: 10/31/13 Analyzed: 11/02/13

Aroclor-1016	0.51	0.20	µg/Wipe	0.500		101	40-140	0.897	30	
Aroclor-1016 [2C]	0.53	0.20	µg/Wipe	0.500		105	40-140	2.06	30	
Aroclor-1260	0.50	0.20	µg/Wipe	0.500		100	40-140	3.07	30	
Aroclor-1260 [2C]	0.53	0.20	µg/Wipe	0.500		106	40-140	3.05	30	
Surrogate: Decachlorobiphenyl	2.06		µg/Wipe	2.00		103	30-150			
Surrogate: Decachlorobiphenyl [2C]	2.22		µg/Wipe	2.00		111	30-150			
Surrogate: Tetrachloro-m-xylene	1.88		µg/Wipe	2.00		94.1	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	2.01		µg/Wipe	2.00		101	30-150			

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

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

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

CERTIFICATIONS**Certified Analyses included in this Report****Analyte****Certifications****No certified Analyses included in this Report**

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

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2014
MA	Massachusetts DEP	M-MA100	06/30/2014
CT	Connecticut Department of Public Health	PH-0567	09/30/2015
NY	New York State Department of Health	10899 NELAP	04/1/2014
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2014
RI	Rhode Island Department of Health	LAO00112	12/30/2013
NC	North Carolina Div. of Water Quality	652	12/31/2013
NJ	New Jersey DEP	MA007 NELAP	06/30/2014
FL	Florida Department of Health	E871027 NELAP	06/30/2014
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2014
WA	State of Washington Department of Ecology	C2065	02/23/2014
ME	State of Maine	2011028	06/9/2015
VA	Commonwealth of Virginia	460217	12/14/2013
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2014



con-test
ANALYTICAL LABORATORY

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

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name: Woodpeck & Curran

Telephone:

Address: 40 Southwick Rd Suite 110

Project # 210918.08

Andover, MA

Client PO#

Attention: J Harnel & Franklin, Kline

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

Project Location: 210918.08 LGRL Low Rise

Fax #

Sampled By: Kim Richard

Email:

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

Format:

☒ PDF ☒ EXCEL ☐ GIS
☐ OTHER

Con-Test Lab ID

Client Sample ID / Description

Beginning Date/Time

Ending Date/Time

Composite

Grab

*Matrix Code

*Matrix Code

*Matrix Code

(Laboratory use only)

01

LGRL-EN-VWS-072

10/30/13

0845

02

LGRL-EN-VWS-073

0850

03

LGRL-EN-VWS-074

0855

04

LGRL-EN-VWS-075

0950

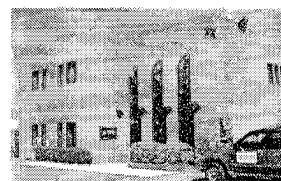
IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED BY OUR CLIENT.

PLEASE BE CAREFUL NOT TO CONTAMINATE THIS DOCUMENT

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



Page 1 of 2



Sample Receipt Checklist

CLIENT NAME: Woodward + Curran RECEIVED BY: KOB DATE: 10-30-13

- 1) Was the chain(s) of custody relinquished and signed? Yes No No CoC Included
2) Does the chain agree with the samples? Yes No
If not, explain:
3) Are all the samples in good condition? Yes No
If not, explain:

4) How were the samples received:

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

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

Temperature °C by Temp blank - Temperature °C by Temp gun 3.2°

5) Are there Dissolved samples for the lab to filter?

Yes No

Who was notified _____ Date _____ Time _____

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

Yes No

Who was notified _____ Date _____ Time _____

7) Location where samples are stored:

19

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

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

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

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes No N/A

Containers received at Con-Test

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

Laboratory Comments:

40 mL vials: # HCl _____ # Methanol _____
Bisulfate _____ # DI Water _____
Thiosulfate _____ Unpreserved _____

Time and Date Frozen: _____

Doc# 277

Rev. 4 August 2013

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

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

Doc #277 Rev. 4 August 2013

Who notified of False statements?

Log-In Technician Initials: KOB

Date/Time:

Date/Time: 10-30-13 1720

November 7, 2013

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

Project Location: UMASS LGRC Low-Rise
Client Job Number:
Project Number: 210918.08
Laboratory Work Order Number: 13K0166

Enclosed are results of analyses for samples received by the laboratory on November 5, 2013. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Meghan E. Kelley
Project Manager



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

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

REPORT DATE: 11/7/2013

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 210918.08

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 13K0166

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

PROJECT LOCATION: UMASS LGRC Low-Rise

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LG RC-EN-VWS-076	13K0166-01	Wipe		SW-846 8082A	

CASE NARRATIVE SUMMARY

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

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

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

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

Daren J. Damboragian
Laboratory Manager

Project Location: UMASS LGRC Low-Rise

Sample Description:

Work Order: 13K0166

Date Received: 11/5/2013

Field Sample #: LG RC-EN-VWS-076

Sampled: 11/5/2013 08:20

Sample ID: 13K0166-01

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	11/5/13	11/7/13 9:23	JMB
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	11/5/13	11/7/13 9:23	JMB
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	11/5/13	11/7/13 9:23	JMB
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	11/5/13	11/7/13 9:23	JMB
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	11/5/13	11/7/13 9:23	JMB
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	11/5/13	11/7/13 9:23	JMB
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	11/5/13	11/7/13 9:23	JMB
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	11/5/13	11/7/13 9:23	JMB
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	11/5/13	11/7/13 9:23	JMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	78.7	30-150						11/7/13 9:23	
Decachlorobiphenyl [2]	86.0	30-150						11/7/13 9:23	
Tetrachloro-m-xylene [1]	81.7	30-150						11/7/13 9:23	
Tetrachloro-m-xylene [2]	82.8	30-150						11/7/13 9:23	

Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
13K0166-01 [LG RC-EN-VWS-076]	B084465	1.00	10.0	11/05/13

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 B084465 - SW-846 3540C
Blank (B084465-BLK1)

Prepared: 11/05/13 Analyzed: 11/07/13

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	1.72		µg/Wipe	2.00		85.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.77		µg/Wipe	2.00		88.3	30-150			
Surrogate: Tetrachloro-m-xylene	1.64		µg/Wipe	2.00		81.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.61		µg/Wipe	2.00		80.4	30-150			

LCS (B084465-BS1)

Prepared: 11/05/13 Analyzed: 11/07/13

Aroclor-1016	0.51	0.20	µg/Wipe	0.500		102	40-140			
Aroclor-1016 [2C]	0.52	0.20	µg/Wipe	0.500		103	40-140			
Aroclor-1260	0.45	0.20	µg/Wipe	0.500		90.0	40-140			
Aroclor-1260 [2C]	0.50	0.20	µg/Wipe	0.500		101	40-140			
Surrogate: Decachlorobiphenyl	1.74		µg/Wipe	2.00		87.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.82		µg/Wipe	2.00		91.2	30-150			
Surrogate: Tetrachloro-m-xylene	1.58		µg/Wipe	2.00		79.1	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.55		µg/Wipe	2.00		77.4	30-150			

LCS Dup (B084465-BSD1)

Prepared: 11/05/13 Analyzed: 11/07/13

Aroclor-1016	0.51	0.20	µg/Wipe	0.500		103	40-140	1.11	30	
Aroclor-1016 [2C]	0.54	0.20	µg/Wipe	0.500		109	40-140	5.21	30	
Aroclor-1260	0.45	0.20	µg/Wipe	0.500		90.9	40-140	0.982	30	
Aroclor-1260 [2C]	0.51	0.20	µg/Wipe	0.500		103	40-140	2.16	30	
Surrogate: Decachlorobiphenyl	1.64		µg/Wipe	2.00		82.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.73		µg/Wipe	2.00		86.7	30-150			
Surrogate: Tetrachloro-m-xylene	1.54		µg/Wipe	2.00		77.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.53		µg/Wipe	2.00		76.7	30-150			

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

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

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

CERTIFICATIONS**Certified Analyses included in this Report****Analyte****Certifications****No certified Analyses included in this Report**

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

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2014
MA	Massachusetts DEP	M-MA100	06/30/2014
CT	Connecticut Department of Public Health	PH-0567	09/30/2015
NY	New York State Department of Health	10899 NELAP	04/1/2014
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2014
RI	Rhode Island Department of Health	LAO00112	12/30/2013
NC	North Carolina Div. of Water Quality	652	12/31/2013
NJ	New Jersey DEP	MA007 NELAP	06/30/2014
FL	Florida Department of Health	E871027 NELAP	06/30/2014
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2014
WA	State of Washington Department of Ecology	C2065	02/23/2014
ME	State of Maine	2011028	06/9/2015
VA	Commonwealth of Virginia	460217	12/14/2013
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2014



Email: info@collesuabs.com

39 Spruce Street
East Lansing, MI 48820

Page 1 of 1

Telephone:

Project #

Client PO#

DATA DELIVERY (check all that apply)

Log #

Email:

Format: ☒ PDF ☐ EXCEL ☐ OGIS

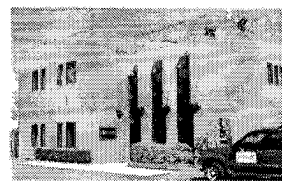
☐ Yes _____ proposal date

[illegible]

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



Page 1 of 2



Sample Receipt Checklist

CLIENT NAME: Woodard & Curran

RECEIVED BY: KOB

DATE: 11-5-13

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

Yes

No

No CoC Included

2) Does the chain agree with the samples?

Yes

No

If not, explain:

3) Are all the samples in good condition?

Yes

No

If not, explain:

4) How were the samples received:

On Ice ☒

Direct from Sampling ☐

Ambient ☐

In Cooler(s) ☒

Were the samples received in Temperature Compliance of (2-6°C)?

Yes

No

N/A

Temperature °C by Temp blank

Temperature °C by Temp gun

4.1

5) Are there Dissolved samples for the lab to filter?

Yes No

Who was notified _____ Date _____ Time _____

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

Yes

No

Who was notified _____ Date _____ Time _____

7) Location where samples are stored:

19

Permission to subcontract samples? Yes No

(Walk-in clients only) if not already approved

Client Signature: _____

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

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

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes No N/A

Containers received at Con-Test

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

Laboratory Comments:

40 mL vials: # HCl _____ # Methanol _____

Time and Date Frozen:

Doc# 277 # Bisulfate _____ # DI Water _____

Rev. 4 August 2013 # Thiosulfate _____ Unpreserved _____

Page 2 of 2
Login Sample Receipt Checklist
 (Rejection Criteria Listing - Using Sample Acceptance Policy)
 Any False statement will be brought to the attention of Client

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

Doc #277 Rev. 4 August 2013

Who notified of False statements?
 Log-In Technician Initials: KOB

Date/Time:
 Date/Time: 11-5-13 1920

December 10, 2013

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

Project Location: LGRC Low-Rise Rm A106
Client Job Number:
Project Number: 210918.08
Laboratory Work Order Number: 13L0080

Enclosed are results of analyses for samples received by the laboratory on December 3, 2013. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Meghan E. Kelley
Project Manager



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

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

REPORT DATE: 12/10/2013

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 210918.08

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 13L0080

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

PROJECT LOCATION: LGRC Low-Rise Rm A106


FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
LGRC-VWS-078	13L0080-01	Wipe		SW-846 8082A	

CASE NARRATIVE SUMMARY

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

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

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

A handwritten signature in black ink, appearing to read "M. Erickson", is displayed on a light gray rectangular background.

Michael A. Erickson
Laboratory Director

Project Location: LGRC Low-Rise Rm A106

Sample Description:

Work Order: 13L0080

Date Received: 12/3/2013

Field Sample #: LGRC-VWS-078

Sampled: 11/27/2013 08:55

Sample ID: 13L0080-01

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	12/8/13	12/10/13 0:45	JMB
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	12/8/13	12/10/13 0:45	JMB
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	12/8/13	12/10/13 0:45	JMB
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	12/8/13	12/10/13 0:45	JMB
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	12/8/13	12/10/13 0:45	JMB
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	12/8/13	12/10/13 0:45	JMB
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	12/8/13	12/10/13 0:45	JMB
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	12/8/13	12/10/13 0:45	JMB
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082A	12/8/13	12/10/13 0:45	JMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	105	30-150						12/10/13 0:45	
Decachlorobiphenyl [2]	113	30-150						12/10/13 0:45	
Tetrachloro-m-xylene [1]	98.2	30-150						12/10/13 0:45	
Tetrachloro-m-xylene [2]	102	30-150						12/10/13 0:45	

Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
13L0080-01 [LGRC-VWS-078]	B086653	1.00	10.0	12/08/13

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 B086653 - SW-846 3540C
Blank (B086653-BLK1)

Prepared: 12/08/13 Analyzed: 12/10/13

Aroclor-1016	ND	0.20	µg/Wipe							
Aroclor-1016 [2C]	ND	0.20	µg/Wipe							
Aroclor-1221	ND	0.20	µg/Wipe							
Aroclor-1221 [2C]	ND	0.20	µg/Wipe							
Aroclor-1232	ND	0.20	µg/Wipe							
Aroclor-1232 [2C]	ND	0.20	µg/Wipe							
Aroclor-1242	ND	0.20	µg/Wipe							
Aroclor-1242 [2C]	ND	0.20	µg/Wipe							
Aroclor-1248	ND	0.20	µg/Wipe							
Aroclor-1248 [2C]	ND	0.20	µg/Wipe							
Aroclor-1254	ND	0.20	µg/Wipe							
Aroclor-1254 [2C]	ND	0.20	µg/Wipe							
Aroclor-1260	ND	0.20	µg/Wipe							
Aroclor-1260 [2C]	ND	0.20	µg/Wipe							
Aroclor-1262	ND	0.20	µg/Wipe							
Aroclor-1262 [2C]	ND	0.20	µg/Wipe							
Aroclor-1268	ND	0.20	µg/Wipe							
Aroclor-1268 [2C]	ND	0.20	µg/Wipe							
Surrogate: Decachlorobiphenyl	2.23		µg/Wipe	2.00		112	30-150			
Surrogate: Decachlorobiphenyl [2C]	2.33		µg/Wipe	2.00		116	30-150			
Surrogate: Tetrachloro-m-xylene	2.05		µg/Wipe	2.00		102	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	2.07		µg/Wipe	2.00		103	30-150			

LCS (B086653-BS1)

Prepared: 12/08/13 Analyzed: 12/10/13

Aroclor-1016	0.54	0.20	µg/Wipe	0.500		109	40-140			
Aroclor-1016 [2C]	0.53	0.20	µg/Wipe	0.500		106	40-140			
Aroclor-1260	0.53	0.20	µg/Wipe	0.500		106	40-140			
Aroclor-1260 [2C]	0.54	0.20	µg/Wipe	0.500		109	40-140			
Surrogate: Decachlorobiphenyl	2.33		µg/Wipe	2.00		117	30-150			
Surrogate: Decachlorobiphenyl [2C]	2.41		µg/Wipe	2.00		121	30-150			
Surrogate: Tetrachloro-m-xylene	2.14		µg/Wipe	2.00		107	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	2.15		µg/Wipe	2.00		108	30-150			

LCS Dup (B086653-BSD1)

Prepared: 12/08/13 Analyzed: 12/10/13

Aroclor-1016	0.47	0.20	µg/Wipe	0.500		94.7	40-140	13.9	30	
Aroclor-1016 [2C]	0.45	0.20	µg/Wipe	0.500		90.7	40-140	15.9	30	
Aroclor-1260	0.49	0.20	µg/Wipe	0.500		99.0	40-140	6.41	30	
Aroclor-1260 [2C]	0.51	0.20	µg/Wipe	0.500		101	40-140	7.58	30	
Surrogate: Decachlorobiphenyl	2.15		µg/Wipe	2.00		108	30-150			
Surrogate: Decachlorobiphenyl [2C]	2.21		µg/Wipe	2.00		110	30-150			
Surrogate: Tetrachloro-m-xylene	1.67		µg/Wipe	2.00		83.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.67		µg/Wipe	2.00		83.5	30-150			

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

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

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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte

Certifications

No certified Analyses included in this Report

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

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2014
MA	Massachusetts DEP	M-MA100	06/30/2014
CT	Connecticut Department of Public Health	PH-0567	09/30/2015
NY	New York State Department of Health	10899 NELAP	04/1/2014
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2014
RI	Rhode Island Department of Health	LAO00112	12/30/2013
NC	North Carolina Div. of Water Quality	652	12/31/2013
NJ	New Jersey DEP	MA007 NELAP	06/30/2014
FL	Florida Department of Health	E871027 NELAP	06/30/2014
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2014
WA	State of Washington Department of Ecology	C2065	02/23/2014
ME	State of Maine	2011028	06/9/2015
VA	Commonwealth of Virginia	460217	12/14/2013
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2014

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



Page 1 of 2



Sample Receipt Checklist

CLIENT NAME: Woodard & Curran RECEIVED BY: KOB DATE: 12-3-13

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

2) Does the chain agree with the samples?

Yes No

If not, explain:

3) Are all the samples in good condition?

Yes No

If not, explain:

4) How were the samples received:

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

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

Temperature °C by Temp blank _____ Temperature °C by Temp gun 3.4°C

5) Are there Dissolved samples for the lab to filter?

Yes No

Who was notified _____ Date _____ Time _____

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

Yes No

Who was notified _____ Date _____ Time _____

7) Location where samples are stored:

19

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

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

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

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes No N/A

Containers received at Con-Test

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

Laboratory Comments:

40 mL vials: # HCl _____ # Methanol _____

Doc# 277 # Bisulfate _____ # DI Water _____

Rev. 4 August 2013 # Thiosulfate _____ Unpreserved _____

Time and Date Frozen:

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

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

Doc #277 Rev. 4 August 2013

Who notified of False statements?

Log-In Technician Initials: KOB

Date/Time:

Date/Time: 12-3-13 1130

APPENDIX B: WASTE DISPOSAL DOCUMENTS

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number MAD000844670	2. Page 1 of 1	3. Emergency Response Phone 660-257-6300	4. Manifest Tracking Number 008027649 JJK		
5. Generator's Name and Mailing Address University of Massachusetts EMS/117 Draper Hall, 40 Campus Center Way Amherst MA 01003			Generator's Site Address (if different than mailing address) University of Massachusetts Ledgate GRT 710 N. Pleasant St Amherst MA 01003				
Generator's Phone: 413 545-2682			U.S. EPA ID Number CTR000505958				
6. Transporter 1 Company Name RED Technologies, LLC.			U.S. EPA ID Number CTR000505958				
7. Transporter 2 Company Name Red Technologies LLC			U.S. EPA ID Number CTR000505958				
8. Designated Facility Name and Site Address Wayne Disposal, Inc. Site 2 Landfill 49350 N 194 Service Drive Belleville MI 48111			U.S. EPA ID Number MID048090633				
Facility's Phone: 300 5925489							
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	X	1. RQ UN3432, WASTE Polychlorinated biphenyls, solid 9. PGII	001	CM	13636	K	MA01(R)
14. Special Handling Instructions and Additional Information #19-135 ERG#171 1(S) Profile# G131198WDI Out of Service Date 10/22/2014 Unique ID # 7648-01 Job Weight is Estimated can # 4024 Confirmation # 533594							
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Offor's Printed/Typed Name Mike Bellino			Signature <i>Mike Bellino</i>		Month Day Year 10 27 14		
TRANSPORTER	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____						
	17. Transporter Acknowledgment of Receipt of Materials						
	Transporter 1 Printed/Typed Name Carl Sherman			Signature <i>Carl Sherman</i>		Month Day Year 10 27 14	
	Transporter 2 Printed/Typed Name Carl Sherman			Signature <i>Carl Sherman</i>		Month Day Year 10 28 14	
DESIGNATED FACILITY	18. Discrepancy						
	18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
	18b. Alternate Facility (or Generator) OK to receive per CH2M Windham w/ P&H T&C			Manifest Reference Number: CR-10-10-29-14			
	Facility's Phone: _____			U.S. EPA ID Number			
	18c. Signature of Alternate Facility (or Generator) Month Day Year						
	19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
	1. POB		2.		3.		4.
	20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a						
	Printed/Typed Name Dan Shilkin			Signature <i>Dan Shilkin</i>		Month Day Year 10 29 14	

CERTIFICATE OF DISPOSAL

FOR MANIFESTED PCB WASTE

This certificate is to verify the wastes identified as PCB SOLID
and specified on Manifest # 08022649 JIL, Line Item 1 has been landfilled on
October 29, 2014 in accordance with all local, state and federal regulations by:

Wayne Disposal, Inc.

(EPA I.D. # MID048090633)

49350 N. I-94 Service Drive, Belleville, Michigan 48111
Telephone: 1-800-KWALITY (592-5489)
Fax: 1-800-KWALFAX (592-5329)

Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (18 U.S.C. 1001 and 15 U.S.C. 2615), I certify that the information contained in or accompanying this document is true, accurate and complete. As to the identified section(s) of this document for which I cannot personally verify truth and accuracy, I certify as the company official having supervisory responsibility for the persons who are acting under my direct instructions made the verification that this information is true accurate and complete.

Authorized Signature: Md Wh



THE ENVIRONMENTAL QUALITY COMPANY 49350 N. I-94 SERVICE DRIVE BELLEVILLE MICHIGAN 48111

Form # REC-FM-030-BEL

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2/22/11

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number M A D 0 0 0 8 4 4 6 7 0		2. Page 1 of 1	3. Emergency Response Phone 860-257-8300		4. Manifest Tracking Number 008027648 JJK	
5. Generator's Name and Mailing Address University of Massachusetts ENS/117 Draper Hall, 40 Campus Center Way Amherst MA 01003				Generator's Site Address (if different than mailing address) University of Massachusetts Ledette GRT 710 N. Pleasant St Amherst MA 01003				Lourse Window Removal
Generator's Phone: 413 545-2682								
6. Transporter 1 Company Name RED Technologies, LLC.				U.S. EPA ID Number CTR000505958				
7. Transporter 2 Company Name RED Technologies LLC				U.S. EPA ID Number 012 000505958				
8. Designated Facility Name and Site Address Wayne Disposal, Inc. Site 2 Landfill 40350 N I-84 Service Drive Belleville MI 48111				U.S. EPA ID Number MID048090633				
Facility's Phone: 313 5925489								
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))			10. Containers No. Type		11. Total Quantity	12. Unit WL/Vol.	13. Waste Codes
1	1. RQ UN3432, WASTE Polychlorinated biphenyls, solid 9, PGI			00 CM		16,400	K	MA01 KBI
2								
3								
4								
14. Special Handling Instructions and Additional Information 1(S) Profile# G131198WDI Out of Service Date 10/22/2014 Unique ID #7648-01 Job #10-135 ERG#171 Weight Estimated in Section 11 CONF # 53595 CON # 4014								
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.								
Generator's/Officer's Printed/Typed Name SCOTT LABONTE				Signature <i>[Signature]</i>			Month Day Year 10/27/14	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:								
17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name Carl Sherman Signature <i>[Signature]</i> Month Day Year 10/27/14 Transporter 2 Printed/Typed Name JASON KLOCK Signature <i>[Signature]</i> Month Day Year 10/28/14								
18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection 01 H. CURVED PER CHRIS WINDMAGE W/ BERT TRIM Manifest Reference Number: CK-CD-10 2911								
18b. Alternate Facility (or Generator) U.S. EPA ID Number Facility's Phone: 18c. Signature of Alternate Facility (or Generator) Month Day Year								
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems) 1. 103 2. 3. 4.								
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a Printed/Typed Name Holt Sibson Signature <i>[Signature]</i> Month Day Year 10/28/14								

CERTIFICATE OF DISPOSAL



FOR MANIFESTED PCB WASTE

This certificate is to verify the wastes identified as PCB SOLIDS
and specified on Manifest # 008027648 JJK, Line Item 1 has been landfilled on
October 29, 2014 in accordance with all local, state and federal regulations by:

Wayne Disposal, Inc.

(EPA I.D. # MID048090633)

49350 N. I-94 Service Drive, Belleville, Michigan 48111

Telephone: 1-800-KWALITY (592-5489)

Fax: 1-800-KWALFAX (592-5329)

Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (18 U.S.C. 1001 and 15 U.S.C. 2615), I certify that the information contained in or accompanying this document is true, accurate and complete. As to the identified section(s) of this document for which I cannot personally verify truth and accuracy, I certify as the company official having supervisory responsibility for the persons who are acting under my direct instructions made the verification that this information is true accurate and complete.

Authorized Signature: _____

THE ENVIRONMENTAL QUALITY COMPANY 49350 N. I-94 SERVICE DRIVE BELLEVILLE MICHIGAN 48111

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2/22/11

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number M A D 0 0 0 8 4 4 6 7 0		2. Page 1 of 1	3. Emergency Response Phone 860-257-6300		4. Manifest Tracking Number 008027711 JJK		
5. Generator's Name and Mailing Address University of Massachusetts EHS/117 Draper Hall, 40 Campus Center Way Amherst MA 01003					Generator's Site Address (if different than mailing address) University of Massachusetts Lederle GRT 710 N. Pleasant St Amherst MA 01003				
Generator's Phone: 413 545-2682									
6. Transporter 1 Company Name RED Technologies, LLC.					U.S. EPA ID Number CTR000505958				
7. Transporter 2 Company Name Red Technologies LLC					U.S. EPA ID Number CTR000505958				
8. Designated Facility Name and Site Address Wayne Disposal, Inc. Site 2 Landfill 49350 N. 14 Service Drive Belleville MI 48111					U.S. EPA ID Number MID048090633				
Facility's Phone: 800 5925489									
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))			10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
					No.	Type			
	X	1. RQ UN3432, WASTE Polychlorinated biphenyls, solid 9, PGI			1	CM	100%	K	MA01PCB1
14. Special Handling Instructions and Additional Information 1(S) Profile# G131198WDI Out of Service Date 10/22/2014 Unique ID # 7648-01 Job									
Weight Section II estimated (9 AM TUESDAY Delivery) CAN #30-119 15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.									
Generator's/Offeror's Printed/Typed Name: Laura Sajewski Signature: <i>[Signature]</i> Month: 12 Day: 3 Year: 14									
TRANSPORTER	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____								
	17. Transporter Acknowledgment of Receipt of Materials								
	Transporter 1 Printed/Typed Name: JASON M Klock Signature: <i>[Signature]</i> Month: 12 Day: 5 Year: 14								
	Transporter 2 Printed/Typed Name: Carl Sherman Signature: <i>[Signature]</i> Month: 12 Day: 08 Year: 14								
DESIGNATED FACILITY	18. Discrepancy Actual weight 4145 kg ok per Chris Windmeyer w/ Red Tech ok CD-12-9-14								
	18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection								
	18b. Alternate Facility (or Generator) ok to add per Chris Windmeyer w/ Red Tech Manifest Reference Number: CD-12-9-14								
	18c. Signature of Alternate Facility (or Generator) _____ Month: _____ Day: _____ Year: _____								
	19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)								
	1. PCB		2. _____		3. _____		4. _____		
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a									
Printed/Typed Name: Dan St. Ives Signature: <i>[Signature]</i> Month: 12 Day: 9 Year: 14									

CERTIFICATE OF DISPOSAL

FOR MANIFESTED PCB WASTE


This certificate is to verify the wastes identified as PCB Solids
and specified on Manifest # 008027711 JK, Line Item 1 has been landfilled on
Dec 9, 2014 in accordance with all local, state and federal regulations by:

Wayne Disposal, Inc.

(EPA I.D. # MID048090633)

49350 N. I-94 Service Drive, Belleville, Michigan 48111
Telephone: 1-800-KWALITY (592-5489)
Fax: 1-800-KWALFAX (592-5329)

Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (18 U.S.C. 1001 and 15 U.S.C. 2615), I certify that the information contained in or accompanying this document is true, accurate and complete. As to the identified section(s) of this document for which I cannot personally verify truth and accuracy, I certify as the company official having supervisory responsibility for the persons who are acting under my direct instructions made the verification that this information is true accurate and complete.

Authorized Signature: 



THE ENVIRONMENTAL QUALITY COMPANY 49350 N. I-94 SERVICE DRIVE BELLEVILLE MICHIGAN 48111

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