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August 31, 2011

Kim Tisa, PCB Coordinator
U.S. Environmental Protection Agency, Region 1
5 Post Office Square, Suite 100
Mail Code: OSRR07-2
Boston, MA 02109-3912

Re: Request for Approval of TSCA Risk-Based Clean-up of PCBs per 40 CFR 761
Cabot Yard – Entire Train Building
275 Dorchester Ave.
Dorchester, Massachusetts
ATC Project No. 60.07443.1028

Dear Ms. Tisa:

Please find enclosed a request for approval of a risk-based clean-up of PCBs in floor caulk under the Toxic Substances Control Act, 40 CFR 761.61(c), on behalf of the Massachusetts Bay Transportation Authority, for the train building at the above-referenced property. The proposed activities incorporate and build upon work previously completed at portions of the building under Environmental Protection Agency approved cleanup plans.

If you have any questions, please contact the undersigned at (781) 932-9400.

Sincerely,
ATC Associates Inc.

Daniel P. White, PG
Senior Project Manager

Michael Gitten, PE
Environmental Division Manager

cc: Ms. Lauren Lesinski, ATC
Ms. Debra Darby, MBTA
Ms. Janis Kearney, MBTA
Mr. Paul Miner, MBTA
Mr. Bob Perry, MBTA
Mr. Bill Mahar, MBTA
Kenneth Kimmell, Commissioner, Massachusetts DEP, One Winter St., Boston, MA 02108
Ms. Barbara Ferrer, Executive Director, Boston Public Health Commission

REQUEST FOR APPROVAL OF TSCA RISK-BASED CLEAN-UP OF PCBS

MBTA CABOT YARD – ENTIRE TRAIN BUILDING
275 DORCHESTER AVENUE
DORCHESTER, MASSACHUSETTS 02127

AUGUST 31, 2011

Prepared for:

Massachusetts Bay Transportation Authority
Ten Park Plaza, Room 6720
Boston, Massachusetts 02116
(617) 222-1592

Prepared by:

ATC Associates Inc.
600 West Cummings Park, Suite 5500
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(781) 932-9400

ATC Project No. 60.07443.1028

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1 INTRODUCTION

ATC Associates Inc. (ATC) has prepared this request for approval of a risk-based clean-up of polychlorinated biphenyls (PCBs) in floor caulk (Request) under the Toxic Substances Control Act (TSCA), on behalf of the Massachusetts Bay Transportation Authority (MBTA). Materials to be remediated include both PCB Bulk Product Waste (caulk with PCB concentrations >/= 50 ppm) and PCB Remediation Waste (other building materials impacted by the PCB Bulk Product Waste with PCB concentrations >/= 1 ppm).

The Request is provided for proposed work in the Red Line train repair building at the MBTA's Cabot Yard facility, located at 275 Dorchester Avenue, Boston, Massachusetts. The train repair building is hereinafter referred to as the Site.

PCB containing caulk and associated PCB Remediation Waste in two separate areas of the train building (the wash alley and the hydraulic lift area) have already been remediated in 2009 under EPA-approved TSCA risk-based and self-implementing cleanup plans, respectively. The remedial efforts in 2009 were undertaken to allow maintenance and capital improvement projects in those areas to be completed. The clean-up plan outlined in this document is intended to be a comprehensive PCB remedial effort to include PCB-containing floor caulk in the entire building, including the two previously remediated areas.

This Request has been prepared in accordance with the TSCA requirements for a risk-based clean-up plan for PCB Remediation Waste, as outlined at 40 CFR 761.61(c). 40 CFR 761.61(c) indicates that all the information outlined in 40 CFR 761.61(a)(3) (*Self-Implementing Clean-up Notification and Certification*) must be provided. Therefore, various references are made throughout this document to 40 CFR 761.61(a)(3), even though this submittal is for a risk-based clean-up pursuant to 40 CFR 761.61(c).

A summary of sampling procedures, as required by 40 CFR 761.61(a)(3)(i)(B), is provided in Section 3. Information on the nature of PCB contamination and location and extent of contamination, as required by 40 CFR 761.61(a)(3)(i)(A) and (C), is provided in Section 4. Section 6 provides the cleanup plan information required by 40 CFR 761.61(a)(3)(i)(D). The certification required by 40 CFR 761.61(a)(3)(i)(E) is included in Section 7.

1.1 ENTITY SUBMITTING REQUEST

Following is information regarding the entity submitting this Request:

Entity:	Massachusetts Bay Transportation Authority
Address:	Department of Environmental Affairs 10 Park Plaza, Room 6720 Boston, Massachusetts 02116
Contact:	Janis Kearney
Telephone:	(617) 222-1592

2 SITE BACKGROUND AND HISTORY

This section outlines background and history on the project, including a description of the Site and Cabot Yard facility, the reason for discovery of PCBs at the Site, and relationship of the current work to prior activities involving PCBs at the facility.

2.1 GENERAL LOCATION

A locus map showing the location of the Cabot Yard facility is included as ***Figure 1***. The train repair building is one of several buildings at the facility, and is located on the western portion of the facility. A Site plan showing the train repair building is included as ***Figure 2***.

2.2 FACILITY AND SITE DESCRIPTION

The Cabot Yard train repair building is a one-story high-bay repair garage with steel frame, concrete panel walls, and a concrete slab floor, constructed in approximately 1972. Most of the building has a floor slab at grade level. There are several areas with sub-grade features, including hydraulic lift machinery pits, a large train inspection/repair pit along four interior tracks, and a compressor room. The building only has one small basement area, located in the northern portion of the building as shown on ***Figure 2***. The building is used for repairing trains, and includes a small two-story block of offices (under the main roof-line) in the center of the building.

PCBs in building materials have already been remediated in two areas of the building. The train wash alley, approximately 600 feet long and located along the western side of the building, separated from the rest of the building by a concrete wall, was remediated under the EPA-approved risk-based clean-up plan *Revised Request for Approval of TSCA Risk-Based Clean-up of PCBs, MBTA Cabot Yard – Train Wash Alley, 275 Dorchester Ave., Dorchester, MA* (ATC, June 2, 2009) in 2009. The location of the wash alley within the building is shown on ***Figure 2***. PCB-containing caulk was removed from the wash alley floor, and PCB-impacted areas of the concrete floor were coated with a multi-layer epoxy to prevent human exposure. Annual inspections and wipe sampling are conducted for the wash alley in accordance with the EPA-approved *Revised Final Long-term Monitoring and Maintenance Implementation Plan, Cabot Yard – Train Wash Alley, 275 Dorchester Ave., Dorchester, MA* (MMIP) (ATC, December 31, 2009).

An area along Track #1, in the southeast corner of the building, was remediated under the EPA-approved self-implementing clean-up plan *Revised Notification of TSCA Self-Implementing Clean-up of PCBs, MBTA Cabot Yard – Train Building - Proposed Hydraulic Lift Area, 275 Dorchester Ave., Dorchester, MA* (ATC, January 22, 2009) in 2009, as part of the installation of a new train hydraulic lift system. The location of this area within the building is shown on ***Figure 2***. PCB-containing caulk and impacted concrete was removed and disposed off-site. Since all PCB-affected materials were removed from the facility, no follow-up actions are necessary.

Within the train building, eight sets of train rails (Tracks 1-8) run north-south through the building. In most areas, the rails are embedded in the slab-on-grade concrete floor. The rails are elevated on supports above the train inspection/repair pit along Tracks 3-6. The train building is used to maintain and repair MBTA Red Line rapid transit subway trains.

Within the train building, there are two main ¾-inch wide caulked floor joints on either side of each track, running parallel to the rails and extending from the southern to the northern building walls, as well as outside through the concrete aprons on the north and south ends of the building. These joints typically have fibrous backer board underneath the caulk. There are also two, approximately 1.5-inch wide, caulked floor expansion joints within the building that run perpendicular to the rails and extend from the eastern to the western side of the building. These wider expansion joints have foam backer rod beneath the caulk. Various other smaller areas of caulked floor joints exist in the building, including joints running east-west along the north and south ends of the building, perimeter joints, joints around roof support columns, and miscellaneous other joints. A Site plan showing the features of the train building is included as ***Figure 2***, while the locations of caulked concrete joints are shown on ***Figure 3***.

2.3 SITE BACKGROUND AND HISTORY

PCBs were initially identified in wash water discharged from the building's train wash alley in the 1990s. Assessment and limited remedial work in the wash alley was conducted in 2000/2001. Caulk was not known to be a source of PCBs at that time. The MBTA, in consultation with U.S. EPA, also performed investigation work in 2000/2001 to evaluate sources of PCBs in the entire building. No PCB sources were identified during the investigations. These evaluations did not include sampling caulk.

3 PCB CHARACTERIZATION SAMPLING

Sampling efforts to characterize PCBs in building materials at the Site are discussed in this section, as required by 40 CFR 761.61(a)(3)(i)(B).

3.1 BUILDING MATERIAL CHARACTERIZATION SAMPLING

ATC originally conducted sampling of representative caulk from floor joints within the building's wash alley in 2008. All samples were analyzed for PCBs using EPA Method 8082 and soxhlet extraction. The results of the analysis, as provided in ***Table 1***, indicated that the samples contained levels of total PCBs in the caulk ranging from 83,000 to 134,000 mg/kg (parts per million – ppm). Aroclor 1254 was observed. Follow-up sampling of caulk from the floor of the lift area in the southeast corner of the building was conducted in 2008, with a level of total PCBs in one sample of the caulk of 165,000 mg/kg. Aroclors 1254 and 1260 were observed. Further details on assessment of caulk in the building, to determine the nature and extent of PCB Bulk Product, were provided in two documents prepared for remediation of the wash alley and lift area and previously submitted to the EPA for review and approval:

- *Revised Request for Approval of TSCA Risk-Based Clean-up of PCBs, MBTA Cabot Yard – Train Wash Alley, 275 Dorchester Ave., Dorchester, MA*, dated June 2, 2009, prepared by ATC. EPA conditional approval was received in an letter dated July 24, 2009.
- *Revised Notification of TSCA Self-Implementing Clean-up of PCBs, MBTA Cabot Yard – Train Building - Proposed Hydraulic Lift Area, 275 Dorchester Ave., Dorchester, MA*, dated January 22, 2009, prepared by ATC. EPA conditional approval was received in a letter dated February 12, 2009.

ATC conducted sampling of representative concrete in the wash alley floor and floor of the lift area in the southeast corner of the building in 2008 and 2009, to determine the nature and extent

of PCB Remediation Waste associated with floor caulk identified as PCB Bulk Product. All samples were analyzed for PCBs using EPA Method 8082 and soxhlet extraction. The results of the laboratory analyses are summarized in the attached ***Tables 2a*** and ***2b***. The results indicate that concentrations of total PCBs in concrete ranged from non-detect (below 1 mg/kg) to 3,650 mg/kg, with the vast majority of samples less than 50 mg/kg. Aroclors 1254 and 1260 were most commonly observed. Total PCB concentrations consistently showed a declining trend away from caulked joints, with higher concentrations (>100 mg/kg) only observed in samples collected at the edge of a caulked joint. Further details on assessment of concrete in the building were provided in the two documents noted above.

ATC collected four samples of representative caulk from wall joints on the inside of the exterior walls of the building on October 27, 2010. This caulk had previously been inspected and noted to be different from floor joint caulk in color and density. The locations of the four samples are shown on ***Figure 2***. The samples were analyzed for PCBs using EPA Method 8082 and soxhlet extraction at Con-test Analytical Laboratories of East Longmeadow, Massachusetts (Con-test). The results of the analysis, as provided in ***Table 1***, indicated that the samples contained levels of total PCBs in the caulk ranging from 4 to 46 mg/kg, several orders of magnitude lower than the levels observed in floor caulk. Aroclors 1254 and 1260 were observed. The sample with the highest concentrations of total PCBs (46 mg/kg) was noted to have a paint coating, which could also have contained a layer of dust from the building. Some of the PCBs in this sample may have come from the paint and/or dust layer on the surface of the caulk. Based on sample results, facts noted above, and the location of the caulk, ATC views the wall caulk as a TSCA Excluded PCB product, and not likely to contribute to human health risk in the building. Removal of the wall caulk is not planned. The laboratory analytical report for the wall caulk samples is included in ***Appendix A***.

3.2 RISK CHARACTERIZATION SAMPLING

Based on the presence of PCBs in building materials, and the desire of MBTA to ensure that there was not an unacceptable risk to the health of its employees in the building, MBTA hired ATC to conduct a human health risk assessment of PCBs for the building. In 2009 and 2010, ATC collected indoor air, floor/wall wipe, and bulk dust samples in the building. Details on sample collection and resulting data are included in the document *Characterization Of Potential Worker Health Risk, MBTA Cabot Yard, 275 Dorchester Avenue, South Boston, Massachusetts, 02127*, dated March 19, 2010, prepared by ATC and previously submitted to the EPA. A copy of this risk characterization is included in ***Appendix B***.

Further indoor air sampling, to support additional risk characterization efforts, were collected in August 2010. Additional indoor air samples were also collected in October 2010 as required by the EPA-approved MMIP (ATC, December 31, 2009) for the train wash alley, which was previously remediated under a separate risk-based cleanup plan. The data from both sampling events is provided in ***Table 3***, and the laboratory analytical report for the air samples from these two events is included in ***Appendix C***. Note that the August and October 2010 indoor air data was collected after the risk characterization was submitted to EPA.

For the August 2010 event, samples were collected similarly in most respects to the January 2010 event, using both filtered and unfiltered PUF cartridges sampling at a low flow rate over a 24-hour period, with analysis by Method TO-10A/680 for PCB Aroclors, homologs, and/or congeners. The details of the January 2010 sampling event were included in Section 1.2.3.3 of

the March 2010 risk characterization (see ***Appendix B***). Slight differences between the two sampling events include:

- The August 2010 event included sample sets (one set consisting of a filtered sample and an unfiltered sample) at three locations in the train building. These three locations are shown on ***Figure 2*** and correspond to the two locations sampled initially, for risk purposes, in March 2009, as well as the one location sampled along the Track 8 platform in October 2009 and January 2010.
- The August 2010 event included a set of background samples, collected outside on the west side of the train building, as shown on ***Figure 2***.
- No blank sample was collected during the August 2010 event.

Overall, air PCB concentrations collected during the August 2010 event were similar in magnitude to those identified in samples in January 2010. No PCBs were detected in outdoor background samples.

The collection and analytical procedures for the October 2010 event were generally similar to those of the August 2010 event, and were discussed in the *1st Annual MMIP Inspection Report, TSCA Risk-Based Clean-up of PCBs, Cabot Yard– Train Wash Alley*, submitted to EPA on April 21, 2011. Differences between the October and August 2010 sampling events, present because of the different objectives of the sampling events (limited remedial confirmatory sampling vs. risk characterization) include:

- The October 2010 event included a sample collected from within the train wash alley portion of the building, as shown on ***Figure 2***, but did not include samples from two of the August 2010 locations ("Air-NE" and "Air-W").
- A blank sample was collected during the October 2010 event.
- A duplicate sample was collected during the October 2010 event, from within the train wash alley portion of the building.
- The samples collected in October 2010 were not analyzed for Aroclors.
- All samples collected in October 2010 were collected with unfiltered PUF cartridges.

Overall, air PCB concentrations collected during the October 2010 event were significantly lower (roughly one order of magnitude) than concentrations identified in samples in January and August 2010.

Further discussion of the risk characterization is provided in Section 5.

3.3 CLEANING WASTE CHARACTERIZATION SAMPLING

In 2010, MBTA requested that ATC collect and analyze samples of waste solids (dust/debris) vacuumed from the facility floors, as well as waste wash water used in a floor cleaning machine.

ATC collected two samples of the waste solids/dust collected during routine building janitorial cleaning. One sample was collected from the vacuum used on the main building floors, and one from the vacuum used in the office block. The samples were analyzed for PCBs using EPA Method 8082 and soxhlet extraction.

The results of the laboratory analyses indicated that concentrations of total PCBs were 730 mg/kg in the vacuum dirt/dust sample from the main facility floors and 96 mg/kg in the vacuum dirt/dust sample from the office block. Aroclors 1254 and 1260 were observed, consistent with Aroclors detected in source caulk. The sample data are presented in ***Table 4***. The concentrations detected in the main facility floor vacuum solids were an order of magnitude higher than in a sample of bulk dust collected from undisturbed surfaces such as shelves in 2009, 730 mg/kg compared to 61.8 mg/kg in the bulk dust sample (see the risk characterization in ***Appendix B***). This may indicate that tiny bits of caulk were present in the vacuum waste material from the floor that were not present in formerly airborne dust on elevated surfaces.

ATC collected two samples of the waste wash water from the machine used to clean the floors of the facility. ATC requested that the laboratory filter one of the samples prior to analysis using a 0.45-micron filter. The samples were analyzed for PCBs using EPA Method 8082 and soxhlet extraction. The results of the laboratory analyses indicated a concentration of total PCBs of 460 ug/L in the unfiltered sample and 41 ug/L (based on two analytical runs) in the filtered sample. Aroclors 1254 and 1260 were observed, consistent with Aroclors detected in source caulk. These results indicate that the majority of PCBs in the waste wash water were adhered to solid particles/debris in the water.

The laboratory analytical report for the waste solids and wash water samples is included in ***Appendix D***.

3.4 PILOT TEST SAMPLING

To evaluate floor decontamination fluids, ATC conducted a pilot test of four different fluids in January 2011.

ATC established a pilot test area in the south end of the building between Tracks 7 and 8, as shown on ***Figure 2***. The test area is flat and lies between two caulk joints between Tracks 7 and 8. Four 4-foot by 4-foot test plots were laid out in a line parallel to the Tracks, with one edge of each plot adjoining the caulk joint on the east side of Track 8, and each test plot separated by two-feet. The northernmost test plot was approximately 14 feet south of the southernmost caulked east-west expansion joint in the building. An attempt was made to ensure that characteristics of each plot were similar, based on visual observation of the concrete surface and nearby building features. The plots were prepared by placing duct tape over the caulk joint, extending approximately one inch into the test plot from the nearest edge of the caulked joint. This was intended to prevent contact with caulk, which could significantly skew test results. ATC then placed a small plastic barrier around each test plot, attached to the floor using an adhesive strip, to contain wash fluids. The layout of the pilot test area is shown on ***Figure 4***.

ATC divided each plot into a grid of one-foot rows and columns, and assigned row and column numbers in numerical order. ATC randomly selected one of the grid squares in each row (rows lay parallel to the caulk joint) as the location of pre- and post-test wipe samples. This selection procedure was intended to be fairly random, and to also help determine whether a concentration trend away from the joint existed. These same four selected grid squares were sampled in each of the four plots. ***Figure 4*** shows the location of wipe samples in each test plot. The test plots were vacuumed to remove loose debris and dust.

Before the floor decontamination was conducted, pre-test wipe samples were collected at each of the locations described above. The wipe samples were collected in accordance with 40 CFR 761.123 utilizing the applicable procedures identified in ***Wipe Sampling and Double Wash/Rinse Cleanup***, as recommended by the EPA PCB Spill Cleanup Policy (June 23, 1987, Revised and Clarified on April 18, 1991). Hexane-soaked wipes and a one-use template to delineate the 100 cm^2 sampling area were used. In addition, one duplicate and one blank sample were collected. The blank sample consisted of a wipe that was prepared in the same manner as the other samples, but was not rubbed on any surfaces. The duplicate was collected over a 10 cm by 10 cm area abutting the area wiped for the primary sample.

The samples were analyzed for PCB Aroclors by Con-test via EPA Method 8082 and extracted via EPA Method 3540C (soxhlet). The pre-test wipe sample results are summarized in ***Table 5*** and the laboratory analytical data report is provided in ***Appendix E***. Both Aroclor 1254 and Aroclor 1260 were detected in the samples, consistent with previous Site data, with Aroclor 1260 typically present at a concentration three to four times greater than Aroclor 1254. As noted in the table, the range of total PCBs detected in the pre-test wipe samples was 8 to 88 ug/100 cm^2, with an average of 28.8 ug/100 cm^2. In three of the four test plots, the highest concentration was in the row next to the caulk joint.

Following collection of pre-test wipe samples, ATC conducted the pilot test floor decontamination using the four cleaning fluids listed in the table below.

Floor Decontamination Procedures

Cleaning Fluid	Mix Ratio (Fluid: Water)	Total Soak Time (minutes)	Total Scrub Time (minutes)	Number of Applications
Simple Green	1:8	60	10	2*
PowerClean 155	1:4	60	10	2*
Capsur	1:4	60	10	2*
Verusol	Pre-mixed	60	10	1

*No scrubbing 2nd application.

The cleaning procedures consisted of the following:

- Each cleaning fluid was mixed according to manufacturer's instructions, using a mixing ratio to achieve a relatively concentrated solution typically recommended for a dirty/greasy floor. Mix ratios are provided in the table above. Verusol did not come in a concentrate, but was supplied by the manufacturer pre-mixed.
- Each solution was spread in its test plot using dedicated sponges and/or brushes.
- Each solution, except for the Verusol, as discussed below, was allowed to sit on the concrete floor for approximately 30 minutes. Brushes and sponges were used to periodically re-distribute the fluid across the test plot to ensure that all areas remained saturated.
- After the soak period, each test plot was scrubbed using a hand-held brush with stiff nylon bristles for approximately 10 minutes.
- After the scrubbing period, each fluid was collected using sponges and paper towels. Waste fluids and absorbents were placed in labeled and sealed 5-gallon buckets for later disposal.

- For the first three listed fluids, a second soak period was conducted for approximately 30 minutes, using procedures similar to the first soak period. No second application was conducted for Verusol, per manufacturer's recommendation.
- After the second soak period, the fluid was collected and containerized.
- A triple rinse, using fresh tap water, was conducted in each test plot.
- The Verusol fluid consisted of two components, a surfactant/detergent and an oxidizer. The first component was applied and let soak for two minutes, followed by a five-minute scrubbing period. Then the second component was applied, mixed with the first component, and let soak for two minutes, and the mixed solution was scrubbed for five minutes. Therefore, the total scrub time for Verusol was the same as for the other cleaning fluids. The Verusol solution was then allowed to soak for 1 hour, which is the same total soak period as for the other cleaning fluids.

Field evaluation of each cleaning fluid is provided in the table below.

Floor Decontamination Fluid Evaluation

Cleaning Fluid	Effectiveness (Visual Cleanliness)	Ease of Use	Health & Safety Characteristics
Simple Green	Moderate	Easy	Excellent
PowerClean 155	Very Good	Relatively Easy	Good (caustic)
Capsur	Very Good	Moderate	Poor (Strong odor)
Verusol	Very Good	Moderate	Good (caustic)

After cleaning with the four selected cleaning fluids and triple rinsing each test plot, the plots were allowed to air dry for 24 hours. The following day, ATC returned to the Site and collected post-test wipe samples at the same locations and using the same procedures as the pre-test samples. The only difference was that the 100 cm^2 wipe sample area for each wipe sample was off-set 10 cm to the north of (abutting) the corresponding pre-test sample. This was done because the hexane solvent used in the wipe sampling procedure during the pre-test wipe sample collection may have removed a significant portion of PCBs in that 100 cm^2 area, so post-test samples in that same area might not reflect only PCB removal by the cleaning fluids.

The post-test wipe sample results are summarized in ***Table 5*** and the laboratory analytical data report is provided in ***Appendix E***. Both Aroclor 1254 and Aroclor 1260 were detected in the samples, at similar ratios to the pre-test data. The range of total PCBs detected in the post-test wipe samples was 7.1 to 34 ug/100 cm^2, with an average of 15.6 ug/100 cm^2.

Evaluating the effectiveness of the pilot test floor decontamination based on wipe sample results can be done in various ways. In ***Table 5***, ATC has calculated the following statistical values:

- Percentage decrease in total PCB concentration at each grid wipe sample location;
- Percentage decrease in total PCB concentration for the maximum detected concentration in each test plot pre-test vs. post-test;
- Percentage decrease in total PCB concentration for the minimum detected concentration in each test plot pre-test vs. post-test; and
- Percentage decrease in total PCB concentration for the average detected concentration in each test plot pre-test vs. post-test.

ATC believes that all these calculated values provide useful information, however the most useful overall value is the percentage decrease in average concentration for each plot. It should be recognized that because there is variation in PCB concentrations within each test plot and from plot to plot, comparisons will not be exact; after all, this is a field test, not a controlled laboratory study. Based on the average concentration decrease, Capsur performed slightly better than PowerClean 155 and Verusol, which performed similarly to each other. Simple Green ran a distant fourth.

Considering cleaning effectiveness, Capsur seemed to perform slightly better than the PowerClean155 and the Verusol. However, Capsur has a very strong odor that would require active venting and probable containment when used on a large scale, making Capsur a poor choice in this active facility. PowerClean 155 and Verusol performed similarly and are similar in their ease of use and health and safety characteristics. One advantage to Verusol is the fact that it partially destroys the PCBs through oxidation, whereas PowerClean155 simply pulls the PCBs into the cleaning fluid. The actual amount of PCB destruction was not measured by ATC. While the amount of destruction is unlikely to be enough to make disposal less costly for a Verusol waste fluid, any amount of destruction is considered positive.

A rough cost comparison by ATC indicates that of the entire cost of the floor decontamination project, the cost of the decontamination fluid is likely to be approximately 5% (estimated $10,000-$15,000) of the total project budget. Based on estimated application rates and vendor cost quotes, the cost of Verusol fluid is likely to be approximately 50% more expensive than PowerClean 155 on a per square foot basis, which would equate to approximately 2.5% more total project cost. However, with only one application there will be slightly less labor charges with Verusol.

Based on these considerations, ATC identifies PowerClean 155 and Verusol as suitable floor decontamination fluids. As detailed in the risk characterization (and further discussed in Section 6.2.7), decontamination of the floor is not required for the building to pose an acceptable risk. Floor decontamination is therefore contemplated as a further risk reduction measure and the final product selection will be based on more detailed cost analysis.

4 NATURE AND EXTENT OF PCB CONTAMINATION

This section identifies the media contaminated by PCBs and the extent of contamination in that media, as required by 40 CFR 761.61(a)(3)(i)(A) and 40 CFR 761.61(a)(3)(i)(C).

The caulk material filling joints in the concrete floor of the building contains PCBs, as described in Section 3.1. The location of PCB-containing floor caulk is shown on ***Figure 3***. A caulk survey performed by ATC in 2010 estimated that there was 9,000 linear feet of floor caulk remaining in the building. Caulk has previously been removed during the hydraulic lift and wash alley abatement projects. The caulk is considered a PCB Bulk Product Waste. The foam backer rod under the caulk in the wider expansion joints, as well as fiber backer board beneath caulk in the narrower joints, are also presumed to contain PCBs at concentrations greater than 1 ppm, making it a PCB Remediation Waste.

The concrete floor of the main level of the building, excluding the office block and the previously remediated lift area, also contains PCBs, as described in Section 3.1. It is presumed that the majority of the contamination is present on the surface of the concrete, due to the method of contamination (smearing of caulk and/or deposition of dust/particulates).

Sampling of indoor air, building surfaces (via wipes), and bulk dust, conducted to support risk characterization efforts as described in Section 3.2, revealed that PCBs are present in these media. Additional wipe sampling, conducted during a pilot test of floor decontamination fluids as described in Section 3.4, also indicated the presence of PCBs. Maximum concentrations of total PCBs detected were 0.1327 ug/m^3 (vapor/dust in indoor air), 88 ug/100 cm^2 (wipes of floor surfaces), and 61.8 mg/kg (bulk dust from undisturbed surfaces).

Finally, samples of solid dust/debris vacuumed up during routine maintenance of the facility, as well as waste wash water from a floor cleaning machine, contained PCBs as discussed in Section 3.3. The concentration of PCBs in these waste streams is expected to drop significantly after implementation of the remedial activities described in this clean-up plan.

5 HUMAN HEALTH RISK CHARACTERIZATION

Based on the presence of PCBs in building materials, and the desire of MBTA to ensure that there was not an unacceptable risk to the health of its employees in the building, MBTA hired ATC to conduct a human health risk assessment associated with PCBs for the building in accordance with 40 CFR 761.61(c). In 2009 and 2010, ATC collected indoor air, floor/wall wipe, and bulk dust samples in the building. The resulting data, along with caulk data, were used to prepare a human health risk characterization in accordance with EPA guidance. Details on sample collection and resulting data are included in the document *Characterization Of Potential Worker Health Risk, MBTA Cabot Yard, 275 Dorchester Avenue, South Boston, Massachusetts, 02127*, dated March 19, 2010, prepared by ATC. A copy of this risk characterization is included in ***Appendix B***. The noted risk characterization was prepared using conservative assumptions regarding exposure parameters of employees to PCB-impacted indoor air and building materials. The conclusions of the risk characterization were:

> The result of this risk characterization demonstrates that PCBs on facility floors and in fine particulate (PM10) within facility air pose a health risk slightly exceeding EPA acceptable target risks…This analysis suggests that the use of less conservative EPC (i.e., one representing exposures that are more representative of MBTA workers throughout the facility) and/or less conservative exposure parameters representing all MBTA employees would likely result in lower quantitative estimates of human health risk.

MBTA submitted the risk characterization to the EPA in 2010 and requested that EPA provide comments. EPA provided comments in a letter dated September 23, 2010, a copy of which is included in ***Appendix F***. A "Response to Comments" letter prepared by ATC and providing discussion of each of EPA's comments, and how MBTA proposes to address them, is provided in ***Appendix G***. A brief discussion of the main comments that might affect the outcome of the risk characterization is provided below:

- *Direct Exposure to Caulk* – Two comments relate to potential direct employee contact with PCB-containing caulk. As explained in the risk characterization, ATC does not

believe that this exposure pathway is significant because of the nature of work performed at the building and limited total area where caulk is accessible. However, the removal of most PCB-containing floor caulk has recently been completed, and approximately 100 linear feet of remaining inaccessible floor caulk will be removed as part of this project. Therefore, this potential exposure pathway will no longer exist.

- *Ingestion of Dust* – Several comments relate to potential employee ingestion of PCB-containing dust. The risk characterization already incorporates an estimate of risk from ingestion of inhaled airborne particulates. As explained in the risk characterization, ATC does not believe that ingestion of dust that has been deposited on surfaces is a significant risk factor primarily because health and safety practices in effect at the building limit ingestion of dust, as well as the fact that hand-to-mouth activity in adults is negligible. However, given that clean-up of PCB-impacted dust is a planned part of the clean-up of the building, and on-going cleaning protocols will mitigate any future dust accumulations that could be a source of employee exposure, this potential exposure pathway will be significantly mitigated.
- *Calculation Method for Inhalation Pathway* – One comment questions whether Site-specific ventilation rates and body weights should be used in the calculation of inhalation risk. ATC believes that the use of these Site-specific values provides a more representative estimate of risk for the Site. However, as suggested by the reviewers, ATC will revise the inhalation risk calculations to eliminate these Site-specific parameters. The revised approach is not expected to significantly change the calculated inhalation risk.
- *Gastrointestinal RAF* – ATC used a gastrointestinal (GI) relative absorption factor (RAF) of 67% that derives from studies of weathered PCBs in soil, and one comment questioned whether the PCBs present in the facility could be considered analogous to weathered PCBs in soil. ATC believes that PCBs in facility surfaces, dust, and indoor air would be weathered in a similar fashion to PCBs in soil. However, the use of a 67% RAF instead of a 100% RAF makes little difference in the risk calculations, therefore ATC will use a 100% GI RAF in the revised calculations.

The EPA identifies an acceptable non-cancer risk criteria as a Hazard Quotient (HQ) = 1. The risk calculated by ATC did not exceed this acceptable risk criteria, and is unlikely to significantly change upon revision per EPA comments. EPA identifies an acceptable cancer risk criteria of an Excess Lifetime Cancer Risk (ELCR) = 1E-04 to 1E-06. As noted in the risk characterization, ATC calculated an ELCR of 1.1E-05, which slightly exceeds the mid-point (1E-05) of the EPA-acceptable cancer risk range. ATC believes 1E-05 is a reasonable target risk criteria for this industrial facility. However, one EPA comment on the risk characterization was that EPA guidelines call for use of only one significant figure in the display of ELCR. Therefore, the ATC-calculated ELCR of 1.1E-05 would round down to 1E-05, which does not exceed the mid-point (1E-05) of the EPA-acceptable cancer risk range, and therefore would be considered acceptable risk, under existing conditions. The calculated cancer risk is unlikely to significantly change upon revision per EPA comments.

Based on the previously calculated risks, ATC reiterates that acceptable risk is present under existing conditions and using conservative exposure parameters. Even a slight reduction in the EPCs for exposure pathways will result in a reduction of risk, further below EPA accepted risk criteria. Therefore, the focus of this risk-based clean-up plan is on reducing EPCs in building media to which building occupants may be exposed, specifically indoor air, floor surfaces, and

dust. A reduction in PCB concentrations in indoor air and floor wipe samples, together with elimination of PCB-containing caulk, and dust to the extent practicable, will continue to show acceptable risk from remaining residual levels of PCBs in the building. An updated risk assessment will be performed after abatement activities are completed, incorporating the EPA's comments, as applicable.

6 RISK-BASED CLEAN-UP PLAN

This section details the clean-up plan, as required by 40 CFR 761.61(a)(3)(i)(D). Since the risk characterization demonstrates that current Site conditions are within an acceptable risk range, the overall clean-up plan objectives are to remove PCB Bulk Product Waste and, as a risk reduction measure, reduce the extent and concentration of PCBs in indoor air, in dust, and on surfaces that are accessible to building occupants.

To meet the above objectives, the primary components of the risk-based clean-up plan are:

1) Remove caulk (PCB Bulk Product Waste) containing PCBs from the building floor joints. This is expected to significantly reduce future PCB contamination in indoor air, on floor surface, and in dust;
2) Perform floor decontamination as a risk reduction method to reduce residual PCB concentrations that employees might contact;
3) Install new backer rod and caulk in floor joints;
4) Clean dust from horizontal facility surfaces as a risk reduction method;
5) Install new HVAC system as a risk reduction method to increase the air exchange rate for the building and thereby mitigate PCBs in indoor air;
6) Perform indoor air sampling and wipe sampling to evaluate post-remedial exposure levels;
7) Update risk characterization per EPA comments and to include new post-remedial exposure data. This will include calculation of acceptable site-specific wipe and indoor air concentrations that in the future will represent a default acceptable risk.
8) Prepare and implement Standard Operating Procedures (SOPs) for a) management of janitorial waste solids and liquids, and b) disturbance of the concrete floor (interim SOPs have already been prepared and are being followed).
9) Perform annual indoor air and wipe sampling to confirm that exposure levels remain below site-specific risk values; re-run risk calculations as necessary if either indoor air or wipe comparison values exceed site-specific criteria;
10) Record a deed notice for the property with the Registry of Deeds.

We believe that the work plan outlined in this submittal will adequately abate PCB Bulk Product waste and control future exposures to PCB Remediation Waste and residual PCBs in other building materials and media.

6.1 ASSIGNMENT OF WORK

The clean-up activities will be performed by qualified contractors contracted by the MBTA. As a proactive measure, MBTA has proceeded with caulk removal. ATC, utilizing The Aulson

Companies as a subcontractor, recently completed this task. Contractors for the remaining clean-up activities have not yet been selected. Once these contractors are selected, MBTA will notify the EPA of the selected contractor/subcontractor.

A qualified environmental consultant hired by the MBTA will provide environmental oversight and review of the clean-up plan activities prior to, during, and after their performance. The consultant will also perform initial and on-going annual wipe and indoor air testing, and assist in administrative functions including implementing PCB-related SOPs. ATC is serving as the environmental consultant for the caulk removal.

6.2 PROCEDURES FOR IMPLEMENTATION

Each of the primary components of the risk-based clean-up plan is detailed in the following subsections. The components will be performed generally in the order in which they are listed.

6.2.1 Caulk Removal

Most caulk within the concrete floor joints of the building, as well as in the joints on the concrete aprons on the south and north sides of the building, was recently removed using hand tools. All underlying backer rod and board was removed to the extent practicable. In all cases, a minimum of one inch of backer material was removed. The extent of the caulk is described in Sections 3.1 and 4, and shown on ***Figure 3***. Approximately 100 linear feet of inaccessible floor caulk could not be removed easily as part of this initial effort. This remaining caulk will be removed as part of the project outlined in this plan.

During removal, low barriers were erected to ensure that all removed caulk was contained within the area of removal. Workers removing caulk wore PPE including, at a minimum, tyvek suits, rubber/nitrile gloves, work boots, rubber boot covers, and safety glasses. A rolling decontamination area, including PPE removal area and hand wash, was established at the entry to the work area. Caulk and backer material pieces were collected periodically and the work area was routinely vacuumed using a HEPA-equipped vacuum. ATC visually inspected all completed joints to ensure that no caulk residue remains in the joints or in the work area. Open joints have been temporarily filled with new foam backer material.

Removed caulk was placed in open-top 55-gallon DOT steel drums, properly labeled per TSCA, 40 CFR 761.40. Tools used in the work were disposed of as PCB waste. Waste materials including caulk and backer materials (PCB Bulk Product Waste), PPE (PCB Remediation Waste), and hand tools, are being managed as described in Section 6.3. The Technical Specification enclosed in ***Appendix H*** provides additional details.

6.2.2 Floor Decontamination

To reduce surface concentrations of PCBs on the floor as a risk reduction measure, MBTA will implement a floor decontamination program using a detergent. The objective of the program is to reduce PCBs on the floor to which employees could be exposed. Calculations by ATC indicate that approximately 102,000 square feet of the building will need to have the floor decontaminated, as shown on ***Figure 5***. This total includes the new hydraulic lift area in the southeast corner of the building (whose surface may have minimal dust), but excludes the following areas:

- Office block (no caulk, floor coverings in place, isolated from main floor)
- Wheel Truing Pit (no caulk, isolated, rarely occupied)
- Basement Compressor Room (no caulk, isolated, rarely occupied)
- Wash Alley (already remediated)
- A few small areas of floor underneath cabinets and storage racks that are not attached to the floor, and non-mobile sheds constructed within the building

As outlined in Section 3.4, a pilot test of four separate floor cleaning solutions was performed in January 2011. Based on an evaluation of the pilot test results, health and safety issues, and cost, either PowerClean 155 or Verusol will be used in the floor decontamination program. The most cost effective (lowest material and labor costs) cleaner will be selected based on further detailed cost evaluations. A copy of manufacturer product information on PowerClean 155 and Verusol is included in ***Appendix I***.

The entire floor of the building, excluding areas as described above, will be decontaminated. This includes the floor of the sub-grade "repair pit" in the center of the building and the elevated concrete walkways over the bottom of the repair pit.

Decontamination will take place before formerly caulked joints are re-caulked, and will include decontamination along these joints. To limit spread of contamination from zones of higher concentration along the joints, brushes used to scrub within one foot of the joints will not be used elsewhere on the floor surface and care will be taken to keep decontamination solution spread along joints from flowing to other areas of the floor as much as possible. Decontamination procedures, including mix ratios, soak and scrub times, rinse cycles, etc. will at a minimum mimic those used for the selected decontamination fluid during the pilot test, as described in Section 3.4. Portable berms or barriers will be used to ensure that decontamination fluids stay within the work zone. Note that the cleaning approach in the lift area & paint booth will be less aggressive (length of scrubbing time and/or soak time) than elsewhere in the building. This is because the concrete floor in the lift area was previously removed, replaced, and coated with an epoxy surface coating, and the floor in the paint booth has periodically been painted and currently has a paint coating in good condition. Application procedures may be modified slightly as work progresses based on experience obtained during the initial stages of the decontamination activities.

During floor decontamination activities, the work area will be cordoned off to exclude people not involved in the work. Workers performing floor decontamination will wear PPE including, at a minimum, tyvek suits, rubber/nitrile gloves inner gloves, rubber/nitrile outer gloves, work boots, rubber boot covers, safety goggles, and face shields. A mobile decontamination area, including PPE removal area and hand wash, will be established at the entry to the work area. An eye-wash station will be available at the decontamination area. The environmental consultant will inspect decontamination operations to ensure that activities are consistent with established protocol and that all fluid residue is removed.

Decontamination fluids, rinse water, absorbents, and PPE will be placed in open-top 55-gallon DOT steel drums or other secure containers, properly labeled per TSCA, 40 CFR 761.40. Tools used in the work will either be decontaminated using a solvent wipe as outlined in 40 CFR 761.79(c)(2), or disposed of as PCB remediation waste. Following completion of activities, waste materials including decontamination fluids, rinse water, absorbents, and PPE caulk (all

considered PCB Remediation Waste), and hand tools, if not decontaminated (PCB Remediation Waste) will be managed as described in Section 6.3.

To ensure the adopted cleaning protocol is adequate to meet intended decontamination objectives, the MBTA will perform performance monitoring during the initial stages of the decontamination effort. The performance monitoring will include collection of pre- and post-cleaning wipe samples. Cleaning protocols may be adjusted based on the results. Because these wipe samples will be collected immediately following decontamination and only in a limited portion of the building, they will not be used in the revised risk characterization.

Post-decontamination wipe sampling of the floor, to gather data for use in the revised risk characterization, is described in Section 6.2.6.

6.2.3 Caulk and Backer Material Replacement

The temporary foam backer placed within the cleaned joints as outlined in Section 6.2.1 will be removed. The joints where PCB-containing caulk and backer materials were removed will be re-sealed with appropriate new backer rod and caulk. Preparation of joints will be required prior to installation of new caulk, which may include grinding the edges of the joints, acid washing, or washing with other detergents/solvents. Any joint preparation will be conducted using appropriate tools, PPE, and procedures. If grinding is conducted, it will be completed using tools with a shroud and vacuum attachment, or mobile glove-box type containment, to capture dust and particulates.

Any wastes generated by joint preparation (such as temporary foam backer material, waste cleaning liquids, dust/particulates, absorbents, and/or PPE) will be containerized appropriately in open-top 55-gallon DOT steel drums or other secure containers, properly labeled per TSCA, 40 CFR 761.40. Tools used in any joint preparation will either be decontaminated using a solvent wipe as outlined in 40 CFR 761.79(c)(2), or disposed of as PCB waste. Following completion of joint preparation activities, waste materials will be managed as PCB Remediation Waste as described in Section 6.3.

6.2.4 Dust Clean-up

The MBTA will conduct a dust-cleanup program. The objective of the program is to remove accumulations of dust from accessible elevated horizontal surfaces such as shelves, tops of cabinets, equipment, etc. that may contain elevated levels of PCBs, to which employees could be occasionally exposed or may possibly become entrained in the air at a future date. Sampling conducted in 2009 has identified PCBs in dust at a concentration of 61.8 mg/kg.

Workers cleaning up dust will wear PPE including, at a minimum, tyvek suits, rubber/nitrile gloves, work boots, and safety glasses. Dust cleaning will be conducted using wet methods, with typical widely available commercial/industrial liquid cleaners and cleaning materials such as cloth rags, paper towels, and absorbent pads.

Cleaning materials and PPE will be placed in open-top 55-gallon DOT steel drums, properly labeled per TSCA, 40 CFR 761.40. It is not projected that any liquid cleaners will be generated; all cleaning liquid will be absorbed by cleaning materials. Following completion of cleaning

activities, waste materials (considered PCB Remediation Waste) will be managed as described in Section 6.3.

6.2.5 Install New HVAC System

MBTA recently performed an evaluation of the existing HVAC system in the building. The evaluation indicated that the system is only partly functional, and a complete replacement is appropriate. This replacement will improve overall air quality in the facility. It should also reduce indoor air concentrations of PCBs emanating from residual concentrations in building materials, due to improved air cycling and exchange with fresh outdoor air. Note that ATC assumes that outdoor concentrations of PCBs are significantly lower than current indoor concentrations, based on the results of air testing in August 2010 that included an outdoor ambient air sample.

MBTA will hire a design firm to design a new HVAC system. The new system will include all components (package units, ductwork, utility hookups) and will be designed to meet typical industry and governmental requirements for a facility such as the train building. The MBTA will then hire a contractor to install the new HVAC system.

Prior to removal of the existing HVAC system ductwork, it will be evaluated to determine whether it contains significant amounts of dust containing PCBs. If significant amounts of dust containing PCBs are observed, the dust will be removed using cleaning methods similar to those outlined in Section 6.2.4, and any resultant waste will be handled similarly.

Because the design has not yet been completed, ATC cannot provide specific information on the predicted air exchange rate or other factors, nor can we predict how the concentration of PCBs in indoor air will decline. However, we can confidently predict that the new system, in combination with the other abatement activities detailed herein, will reduce concentrations of PCBs in indoor air. Any reduction in indoor air concentrations will act to reduce risk to employees in the building.

Post-installation indoor air sampling, to gather data for use in the revised risk characterization, is described in Section 6.2.6.

6.2.6 Post-Remedial Indoor Air and Wipe Sampling

MBTA will gather post-remedial data for use in a revised risk characterization, to ensure that remaining PCB levels in building media do not pose unacceptable risk to building occupants.

6.2.6.1 Indoor Air Sampling

Post-remedial indoor air sampling will consist of samples collected at each of three locations in the train building, as shown on ***Figure 6***. These locations were selected to be broadly representative of indoor air within the train building. Sampling will be conducted during the possible “worst-case” season of December – March, when cold weather results in less opening of overhead doors in the building and therefore potentially less ventilation of the building.

The samples will be collected with a pump using the low-flow polyurethane foam (PUF) TO-10A method over a period of approximately 24 hours. At each location, two samples will be collected.

One of the samples at each location will be collected using the standard TO-10A method, which will measure PCBs in both vapors and particulates. A second sample (placed next to the first sample cartridge and using a separate pump) will include a glass fiber pre-filter placed in front of the PUF media within the sample cartridge. Prior to analysis, the filter, with any accumulated air particulates, will be removed and discarded. This will result in a PCB concentration for vapors only for this sample, and the concentration of PCBs in particulates can be back-calculated for that sample location by subtracting the vapors-only value from the total value.

In addition, one outdoor background air sample set (consisting of an unfiltered and a filtered sample), one duplicate sample, and one blank sample will also be collected. The location for the outdoor background sample set is shown on ***Figure 6***. The duplicate sample will be an unfiltered cartridge that is placed next to the initial sample cartridge but uses a separate pump. The blank sample will consist of an unfiltered PUF cartridge that is sent back to the laboratory unopened for analysis. Duplicate and blank samples shall be identified in a manner so that it is not obvious to the laboratory that the sample is a duplicate or blank.

Sample analysis will be performed by a certified laboratory. The name of the selected laboratory will be submitted to EPA prior to any laboratory analyses being conducted, together with a letter certifying that they will comply with the analytical requirements for this project and a copy of their Standard Operating Procedure (SOP) for Method 680. The sample collection and extraction method will be EPA method TO-10A, while the PCB analytical method will be EPA 680 for PCB homologs. Sufficient sample volumes shall be collected to provide a laboratory reporting limit of <0.001 $\mu g/m^3$.

6.2.6.2 Wipe Sampling

The MBTA will perform initial post-remedial wipe sampling of the concrete floor for risk evaluation purposes at the same floor locations within the train building that were sampled as part of initial risk characterization efforts in 2009. These sample locations are shown on ***Figure 6***, and are also listed in Table 1 and shown on Figure 2 of the initial risk characterization (ATC, 2010), a copy of which is included in ***Appendix B***. As noted in the initial risk characterization, these sample locations are conservatively biased toward caulked floor joints, where concentrations of PCBs on the concrete floor surface would be expected to be highest.

In addition, one duplicate sample and one blank sample will also be collected. The duplicate sample will collected from a 100 square centimeter area adjacent to the area of the initial sample. The blank sample will consist of a wiping media prepared in the same manner as the other wipe sample media, but not wiped on any surfaces. Duplicate and blank samples shall be identified in a manner so that it is not obvious to the laboratory that the sample is a duplicate or blank.

The wipe samples will be collected per standard wipe test protocols in accordance with 40 CFR 761.123. The samples will be collected utilizing the applicable procedures identified in Wipe Sampling and Double Wash/Rinse Cleanup as recommended by the Environmental Protection Agency PCB Spill Cleanup Policy (June 23, 1987, Revised and Clarified on April 18, 1991). A one-use template will be used to delineate the 100 cm^2 sampling area. The samples will be analyzed at a certified laboratory. The name of the selected laboratory will be submitted to EPA prior to any laboratory analyses being conducted, together with a letter certifying that they will comply with the analytical requirements for this project. The sample analysis will be for PCB

Aroclors via EPA Method 8082 with extraction via EPA Method 3540C (soxhlet). The MBTA will work with the laboratory to ensure a laboratory reporting limit of <1 µg/100 cm^2.

6.2.7 Update Risk Characterization

The MBTA will update the risk characterization described in Section 5 to evaluate risk to train building occupants following implementation of the remedial actions described in this plan. The updated risk characterization will incorporate post-remedial data, collected as described in Section 6.2.6. The updated risk characterization will also include revisions to address EPA's September 23, 2010 comments on the risk characterization (ATC, March 19, 2010). Note that Section 5 summarizes how ATC plans to address the EPA comments, with details provided in the "Response to Comments" letter in ***Appendix G***. The calculated risk is anticipated to be lower than what was calculated in the March 2010 risk characterization. As noted in Section 5, the current risk due to PCBs in building materials is within an acceptable range, and the abatement measures outlined in this submittal will further reduce risk.

After the risk characterization has been updated, it will be submitted to EPA for review along with the Closure Report. MBTA will also use the updated risk characterization to calculate a site-specific "wipe action level" and "air action level". These action levels will be calculated to serve as a conservative "maximum allowed level" for each of these exposure pathways, assuming that the other action level was not exceeded, for easy comparison to future annual monitoring data. The ratio of the two calculated action levels will reflect the approximate contributions of risk from the dermal and inhalation exposure pathways based on initial post-remedial data. Use of these calculated action levels during future annual monitoring is described in Section 6.2.10.

The EPA provides an acceptable non-cancer risk criteria of a Hazard Quotient (HQ) = 1 and an acceptable cancer risk criteria of a Excess Lifetime Cancer Risk (ELCR) = 1E-04 to 1E-06. ATC believes the mid-point (1E-05) of the EPA-acceptable cancer risk range is a reasonable target cancer risk criteria for this industrial facility.

As noted in Section 5, <u>acceptable risk is already present</u> under existing conditions and using conservative exposure parameters. Even a slight reduction in the EPCs for exposure pathways will result in a further reduction of risk below target risk criteria. Based upon the risk characterization as currently drafted (March 19, 2010), dermal exposure accounts for approximately 46% of non-cancer risk and 81% of cancer risk to MBTA employees, while inhalation exposure accounts for approximately 54% of non-cancer risk and 19% of cancer risk. A reduction in PCB concentrations in indoor air and floor wipe samples, together with elimination of PCB-containing caulk, and dust to the extent practicable, will continue to show acceptable risk from remaining residual levels of PCBs in the building.

6.2.8 Implement Standard Operating Procedures (SOPs)

The MBTA has already prepared and is following interim Standard Operating Procedures (SOPs) for performing the following tasks in the building that could involve PCB-containing materials. After abatement is completed, these SOPs will be updated.

1) Management of janitorial waste solids (debris generated during sweeping/vacuuming the floor) and waste liquids (waste water from cleaning the floor); and

2) Disturbance of the concrete floor for reasons such as installing bolts to anchor equipment.

As discussed in Section 3.3, PCBs were detected in solid and liquid janitorial cleaning-related wastes from the facility. These materials are currently being managed under the interim SOPs noted above, which discuss proper PPE to use while transferring/handling wastes, proper waste transfer/handling procedures, and waste storage and disposal requirements. While concentrations in these wastes are likely to decrease significantly after the remedial activities discussed in this plan, residual levels may remain. The SOP for managing janitorial wastes will be implemented until several rounds of samples indicate that PCBs in these wastes are no longer greater than regulatory standards (1 mg/kg (ppm) for solid wastes and 0.5 ug/L for liquid wastes).

Residual PCBs will remain in the concrete floor of the train building. To prevent spread of PCBs and reduce exposure if concrete is disturbed, the SOP for management of floor penetrations is needed.

The SOPs will apply to the entire train building, including the wash alley. The SOPs will be included as part of the MMIP to be developed for the Site. This MMIP will build upon and replace the EPA-approved MMIP (ATC, December 31, 2009) for the wash alley.

6.2.9 Annual Sampling

On an annual schedule, beginning one year following the completion of initial post-remedial wipe and indoor air sampling efforts (whichever is performed last), the MBTA will conduct wipe sampling to confirm that PCB exposure levels remain below the site-specific wipe action level derived as described in Section 5. The sampling will replicate the protocols outlined in Section 6.2.6.2, including number and locations of samples.

The wipe data will be evaluated, including a calculation of the exposure point concentration using the same method as is used in the revised risk characterization, for comparison to the site-specific wipe action level. If the calculated concentration exceeds the site-specific wipe action level, it may mean that overall risk criteria will be exceeded. However, since the total risk includes exposure from multiple pathways, including dermal contact with the floor and inhalation of indoor air, total risk still may not exceed acceptable criteria if exposure concentrations for other pathways have been significantly reduced (such as indoor air concentrations). Therefore, if the calculated wipe concentration exceeds the site-specific wipe action level, MBTA will re-run risk calculations to determine whether total risk exceeds acceptable criteria. If total risk exceeds criteria, then MBTA will evaluate what actions are feasible to take to further reduce exposure concentrations and thereby reduce total risk to acceptable levels.

At the same time as the wipe sampling described above, the MBTA will conduct indoor air sampling to confirm that PCB exposure levels remain below the site-specific air action level derived as described in Section 5. The indoor air samples will be collected and analyzed as described in Section 6.2.6 for the initial post-remedial indoor air samples, except for the following differences:

- At each of the three sample locations, only one sample (unfiltered) will be collected, rather than a filtered and unfiltered as will be done for the initial sampling; and

- No background outdoor air sample will be collected.

The indoor air data will be evaluated to determine an appropriate representative exposure concentration (Concentration in Air – CA) for the building. The exposure concentration will be calculated using the same protocol as in the revised risk characterization. If the CA exceeds the site-specific air action level, it may mean that overall risk criteria will be exceeded. However, since the total risk includes exposure from multiple pathways, including dermal contact with the floor and inhalation of indoor air, total risk may not exceed acceptable criteria if exposure concentrations for other pathways have been significantly reduced (such as floor wipe concentrations). Therefore, if the CA exceeds the site-specific air action level, MBTA will re-run risk calculations to determine whether total risk exceeds acceptable criteria. If total risk exceeds criteria, then MBTA will evaluate what actions are feasible to take to further reduce exposure concentrations and thereby reduce total risk to acceptable levels.

The monitoring/sampling requirements will be included as part of the MMIP to be developed for the entire train building. The monitoring and sampling results will be reviewed periodically to determine if modifications to the program are warranted. If, after a period of three years of annual monitoring, the monitoring shows no increase in risk, the annual monitoring program will be discontinued.

Note that the train wash alley was remediated under a separate risk-based clean-up plan in 2009, and the MMIP (ATC, December 31, 2009) prepared for the wash alley specifies annual wipe sampling at several locations in the wash alley. After the remedial activities outlined in this report are completed, the annual wipe sampling specified in the MMIP for the wash alley will be suspended. The risk-based clean-up plan outlined in this document will be sufficient to monitor and maintain acceptable risk levels for the entire building, including the train wash alley, because: 1) all PCB-containing caulk in the wash alley has been removed, 2) the epoxy coating in most areas of the wash alley limits PCB concentrations on the floor surface to less than is planned for the rest of the building, and 3) occupancy of the wash alley by employees is for fewer hours per week than in the rest of the building. Separate annual reporting on MMIP monitoring of the wash alley will also be suspended. Annual inspections of the wash alley epoxy coating will continue, and reporting of these inspections will be conducted under the MMIP for the entire train building. Other maintenance provisions of the wash alley MMIP will remain in effect, and will be similar to maintenance procedures for the rest of the building.

The annual inspection/monitoring efforts will be documented on an official form, and the forms will be maintained by the MBTA for the life of the building. The form, as well as sampling results and an evaluation of those results, will be submitted to the EPA soon after the inspection/sampling is completed.

6.2.10 Deed Notice

At least 180 days prior to sale of the property, the MBTA will record a deed notice for the property. The deed notice will follow the TSCA requirements outlined at 40 CFR 761.61(a)(8), and will inform any potential future purchaser of the property that:

1) PCBs remain in concrete and backer materials in the floor of the train building;
2) On-going monitoring of conditions related to residual PCBs in the train building are required;

3) Implementation of SOPs are required for certain activities taking place in the train building;
4) Proper removal and disposal of remaining PCB-impacted materials is required upon demolition of all or portions of the train building; and
5) The use of the train building is restricted to industrial purposes.

Note that the deed notice will apply to the entire train building, including the train wash alley. A separate deed notice for the wash alley will then no longer be needed.

Following recording of the deed notice, the MBTA will submit a copy of the deed notice, along with certification that the deed notice has been recorded with the registry of deeds, to the EPA.

6.3 MANAGEMENT OF WASTE

The types of waste that will be generated during the risk-based clean-up plan described in Section 6 include PCB-containing caulk (PCB Bulk Product Waste), as well as caulk backer materials, temporary foam backer material, decontamination solution, used absorbents and rags, janitorial waste solids and liquids, PPE, and containment materials (PCB Remediation Wastes).

PCB Bulk Product Waste and PCB Remediation Waste will be stored in appropriate containers, covered and secured in accordance with 40 CFR 761.65. PCB waste containers will be placed in a secure location approved by MBTA and will be placarded on all sides as containing PCB waste with markings meeting the requirements of 40 CFR 761.40 and 761.45, as required.

Any water generated during the remedial activities will be managed in accordance with 40 CFR 761.61(a)(iv).

PCB Cleanup Waste (e.g. PPE, containment material, non-decontaminated tools) will be managed in accordance with 40 CFR 40.761.61(a)(5)(v).

Disposal of all waste will be in accordance with applicable state and federal regulations, including 40 CFR 761.61 and 761.62. The waste will be shipped by a licensed transporter and sent to licensed facilities that will receive and dispose PCB Bulk Product Waste and PCB Remediation Waste, in accordance with EPA regulations.

The PCB Bulk Product Waste and PCB Remediation Waste >/=50 ppm will be shipped under a hazardous waste manifest. It is anticipated that caulk and associated backer materials will be managed in this manner. Any PCB Remediation Waste <50 ppm that is generated (PPE, containment materials, tools, etc.) may be shipped under a non-hazardous waste manifest instead of a hazardous waste manifest. Copies of all waste shipment records and certificates of disposal will be provided to MBTA as proof of proper disposal.

6.4 SCHEDULE FOR IMPLEMENTATION

In accordance with the TSCA regulations at 40 CFR 761.61(c), the MBTA plans to begin implementation of the plan outlined in this Request after approval is provided by the U.S. EPA - Region 1 PCB coordinator. The MBTA will coordinate implementation of the components of the plan with the planned facility improvements to the building, including installation of the new HVAC system.

As noted previously, removal and off-site disposal of floor caulk, as outlined in Section 6.2.1, was recently completed, except for approximately 100 linear feet that was inaccessible. The remaining caulk will be removed as part of this project.

The MBTA estimates that the work outlined in Sections 6.2.1 through 6.2.4, and Sections 6.2.8 and 6.2.9, of this Request will be completed within approximately one year of EPA approval.

The MBTA estimates that the new HVAC system (Section 6.2.5) will be installed in 2012-2013, if funding can be procured.

The initial post-remedial wipe sampling (Section 6.2.6.2) will be conducted within an estimated four months after completion of the floor decontamination, while the initial post-remedial indoor air sampling (Section 6.2.6.1) will be completed during the first winter season after the new HVAC system is installed.

The updated risk characterization, described in Section 6.2.7, will be completed for submittal to EPA, along with the Closure Report, within six months of collection of post-remedial indoor air and wipe data.

Annual sampling, as described in Section 6.2.10, will begin approximately one year following the completion of initial post-remedial indoor air and wipe sampling, with results of the annual inspections submitted to EPA within four months of each annual inspection/sampling.

The MBTA will record a deed notice for the property at least 180 days prior to sale of the property.

6.5 STATE OR LOCAL PERMITS AND APPROVALS

State and/or local permits and/or inspections will not be necessary during implementation of the clean-up plan. Per 40 CFR 761.61(a)(3)(i), the director of the Massachusetts DEP and the executive director of the Boston Public Health Commission have been copied on this Request.

7 MBTA CERTIFICATION

This section of the Request provides the certification required by 40 CFR 761.61(a)(3)(i)(E).

I certify that the Risk-Based Clean-up Plan proposed in this document will meet the following requirements:

> All sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the cleanup site are or will be on file at the following location and are available for U.S. EPA inspection:
>
> Massachusetts Bay Transportation Authority
> Department of Environmental Affairs
> 10 Park Plaza, Room 6720
> Boston, Massachusetts 02116
> Attn: Janis Kearney
> (617) 222-1592

Janis O. Kearney
Name (Printed)

Janis O. Kearney
Signature

Dir. of Environmental Compliance
Title

August 31, 2011
Date

Figures

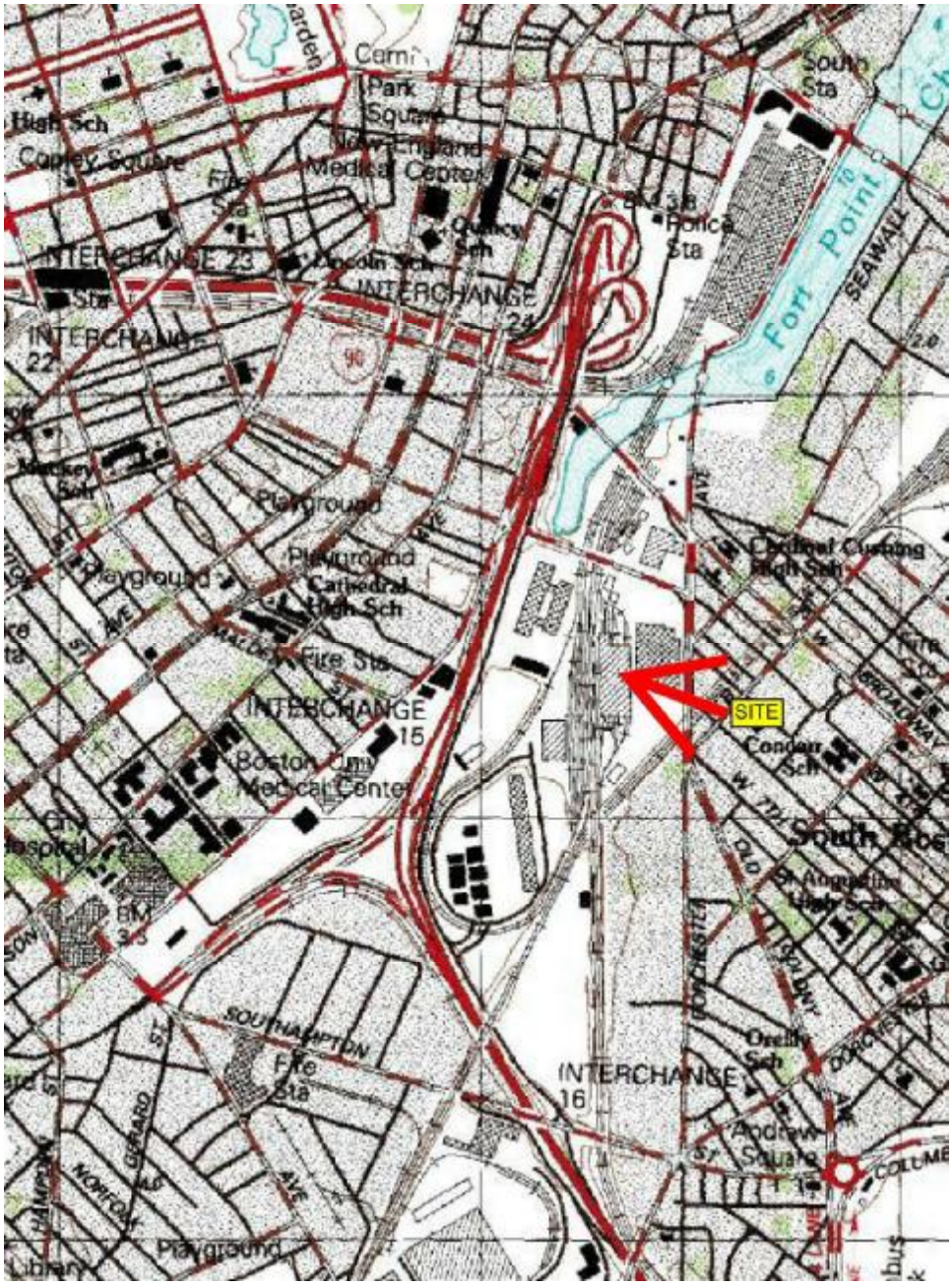
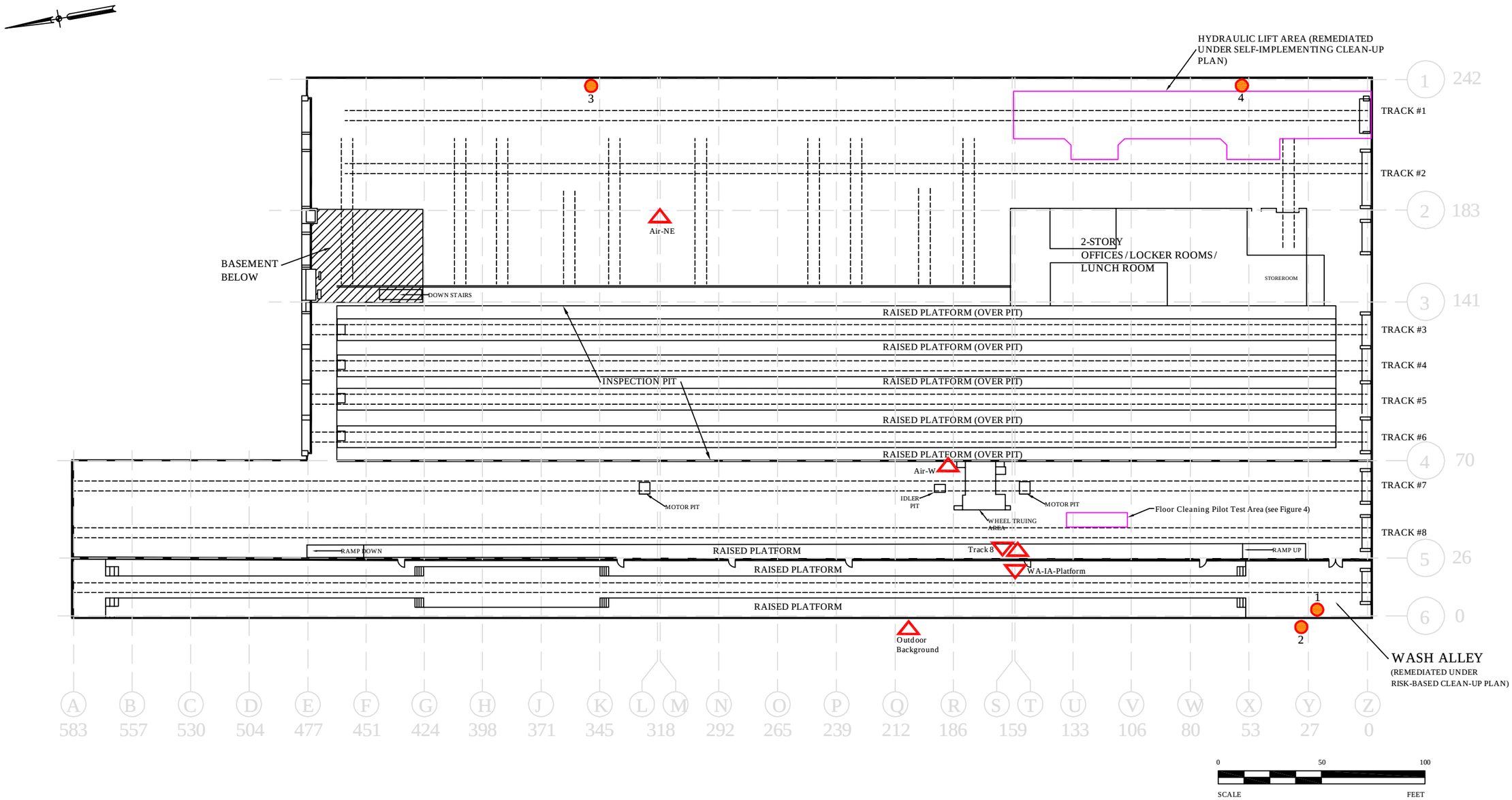


FIGURE 1: SITE VICINITY MAP

SOURCE:
Boston, Massachusetts USGS
7.5 x 15 Minute Quadrangle Map (1991)
Scale = 1:18,600

ATC ASSOCIATES INC.

MBTA Cabot Yard
Dorchester, Massachusetts
ATC Project No. 60.07443.0059



LEGEND

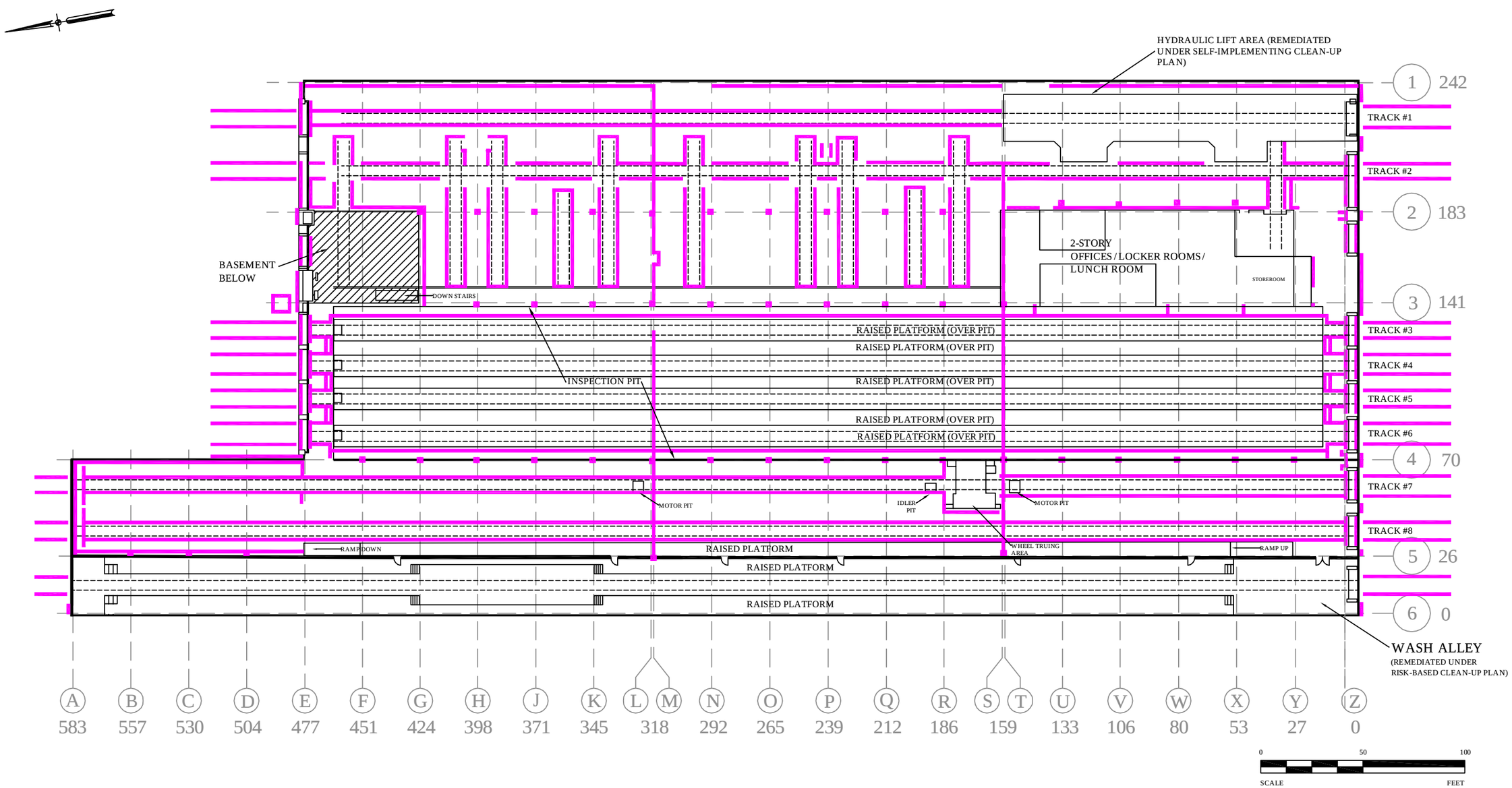
- RAILS
- COLUMN LINE
- 3 COLUMN LINE IDENTIFICATION
- 4 WALL CAULK SAMPLE LOCATIONS
- AUGUST 2010 INDOOR AIR SAMPLE LOCATIONS
- OCTOBER 2010 INDOOR AIR SAMPLE LOCATIONS

SITE PLAN

MBTA CABOT YARD RAIL BUILDING
275 DORCHESTER AVENUE
DORCHESTER, MASSACHUSETTS

PROJECT NUMBER: 060.07443.1028	FIGURE NUMBER: 2
SCALE: See Scale Bar	CHECKED BY: DPW
DRAWN BY: RRM	REVISED BY: RV / DPW / CA
DRAWING FILE: SITE PLAN5 5-20-11.DWG	

ATC ASSOCIATES INC.
600 West Cummings Park, Suite 5450
Woburn, Massachusetts 01801-6350
Tel.(781)932-9400 Fax.(781)932-6211



LEGEND

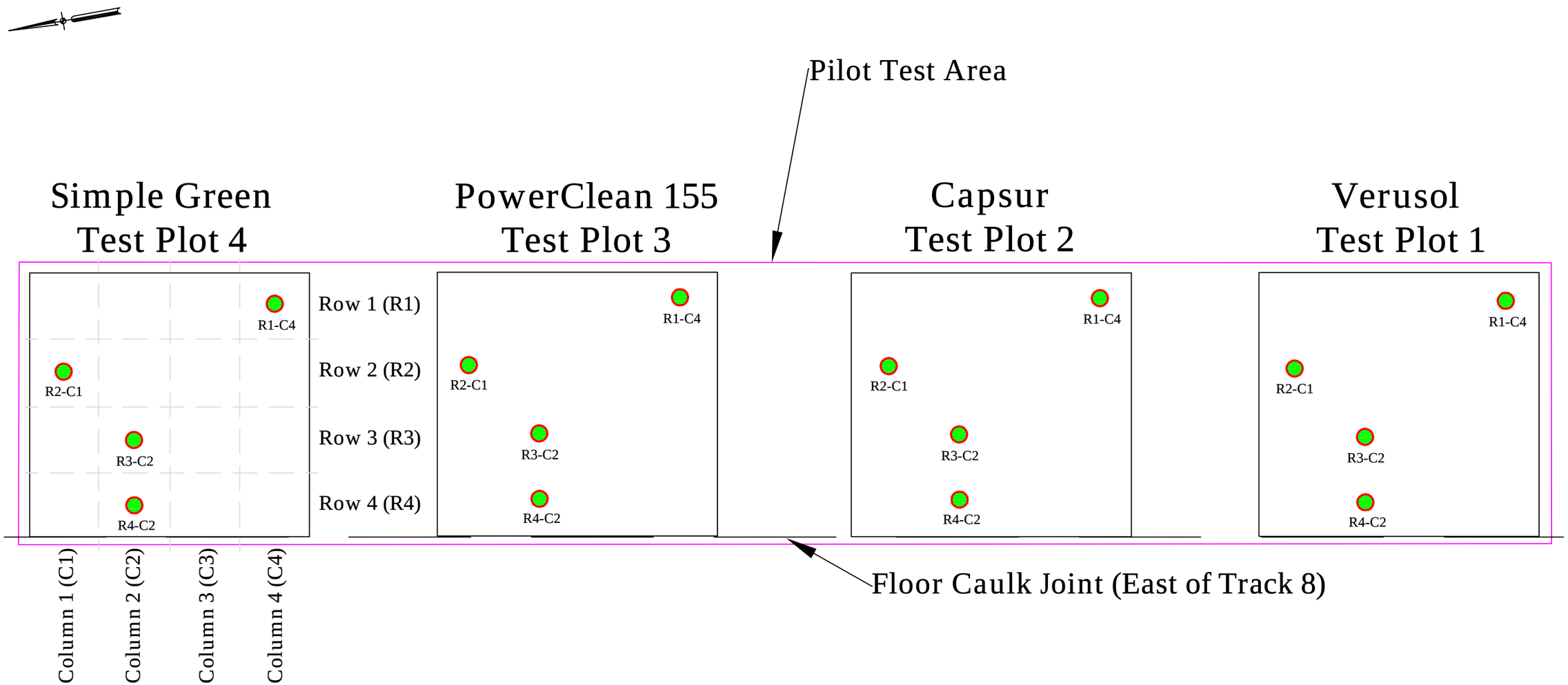
- RAILS
- COLUMN LINE
- V 106 — COLUMN LINE IDENTIFICATION, WITH DISTANCE (FEET) FROM SOUTH WALL OR WEST WALL
- FLOOR JOINT CAULK LOCATIONS

SITE PLAN
FLOOR CAULK JOINTS

MBTA CABOT YARD RAIL BUILDING
275 DORCHESTER AVENUE
DORCHESTER, MASSACHUSETTS

PROJECT NUMBER: 060.07443.1028	FIGURE NUMBER: 3
SCALE: See Scale Bar	CHECKED BY: DPW
DRAWN BY: RRM	REVISED BY: CA / DPW
DRAWING FILE: CAULK SURVEY.DWG	

ATC ASSOCIATES INC.
600 West Cummings Park, Suite 5500
Woburn, Massachusetts 01801-6350
Tel.(781)932-9400 Fax.(781)932-6211



NOTE: SEE SITE PLAN FOR LOCATION OF PILOT TEST AREA WITHIN CABOT TRAIN BUILDING

LEGEND

Test Plot Grid Line (typical for all plots)

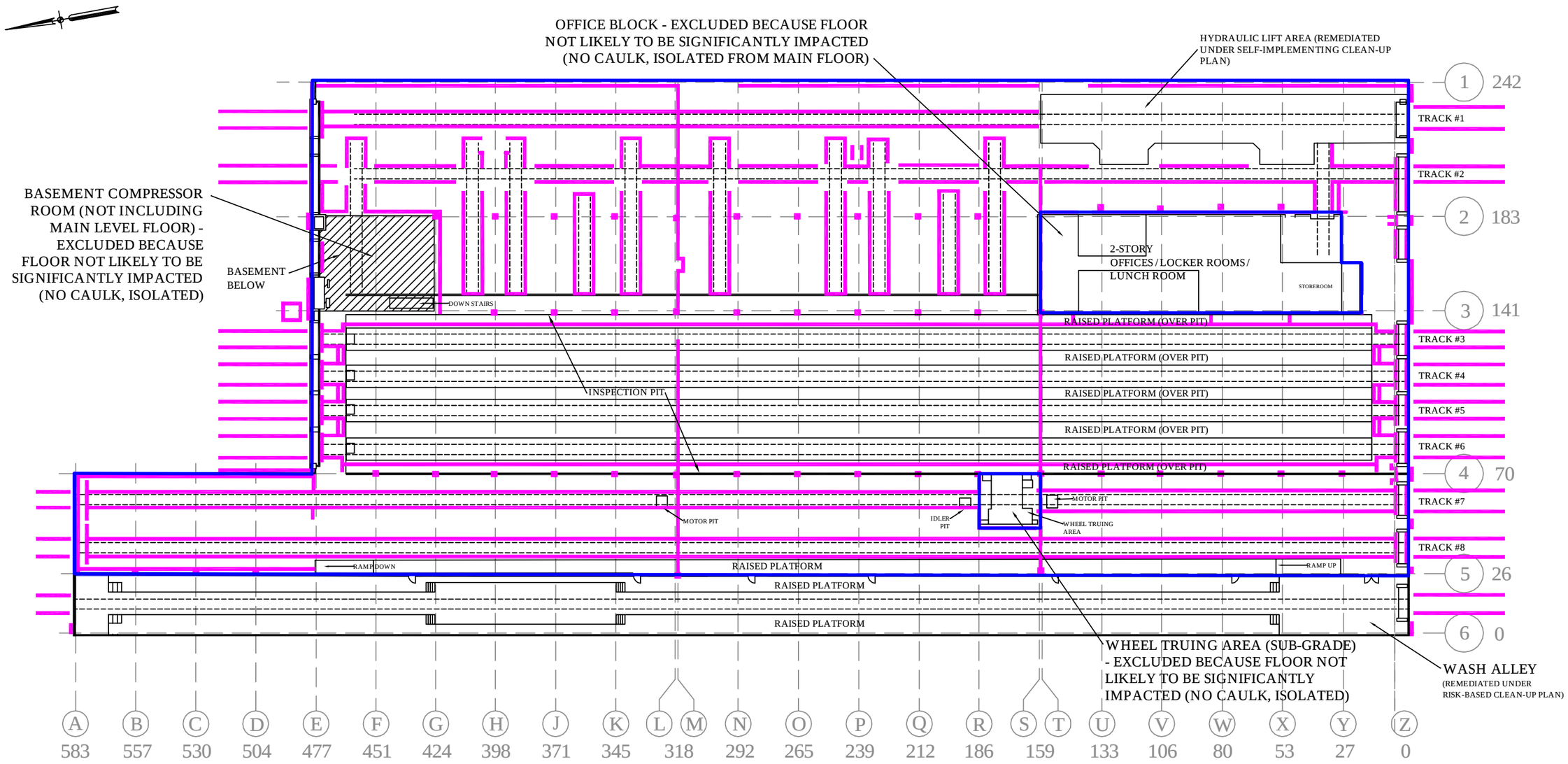
Pilot Test Wipe Sample Locations (Post-test Location Adjusted 10 cm North of Pre-test Location)

PILOT TEST LAYOUT

MBTA CABOT YARD RAIL BUILDING
275 DORCHESTER AVENUE
DORCHESTER, MASSACHUSETTS

PROJECT NUMBER: 060.07443.1028	FIGURE NUMBER: 4
SCALE: See Scale Bar	CHECKED BY: DPW
DRAWN BY: RRM	REVISED BY: RV / DPW
DRAWING FILE: SITE PLAN5_5-19-11.DWG	

ATC ASSOCIATES INC.
600 West Cummings Park, Suite 5500
Woburn, Massachusetts 01801-6350
Tel.(781)932-9400 Fax.(781)932-6211



NOTE: A FEW OTHER AREAS WHERE PERMANENT SHEDS HAVE BEEN CONSTRUCTED ARE ALSO EXCLUDED

LEGEND

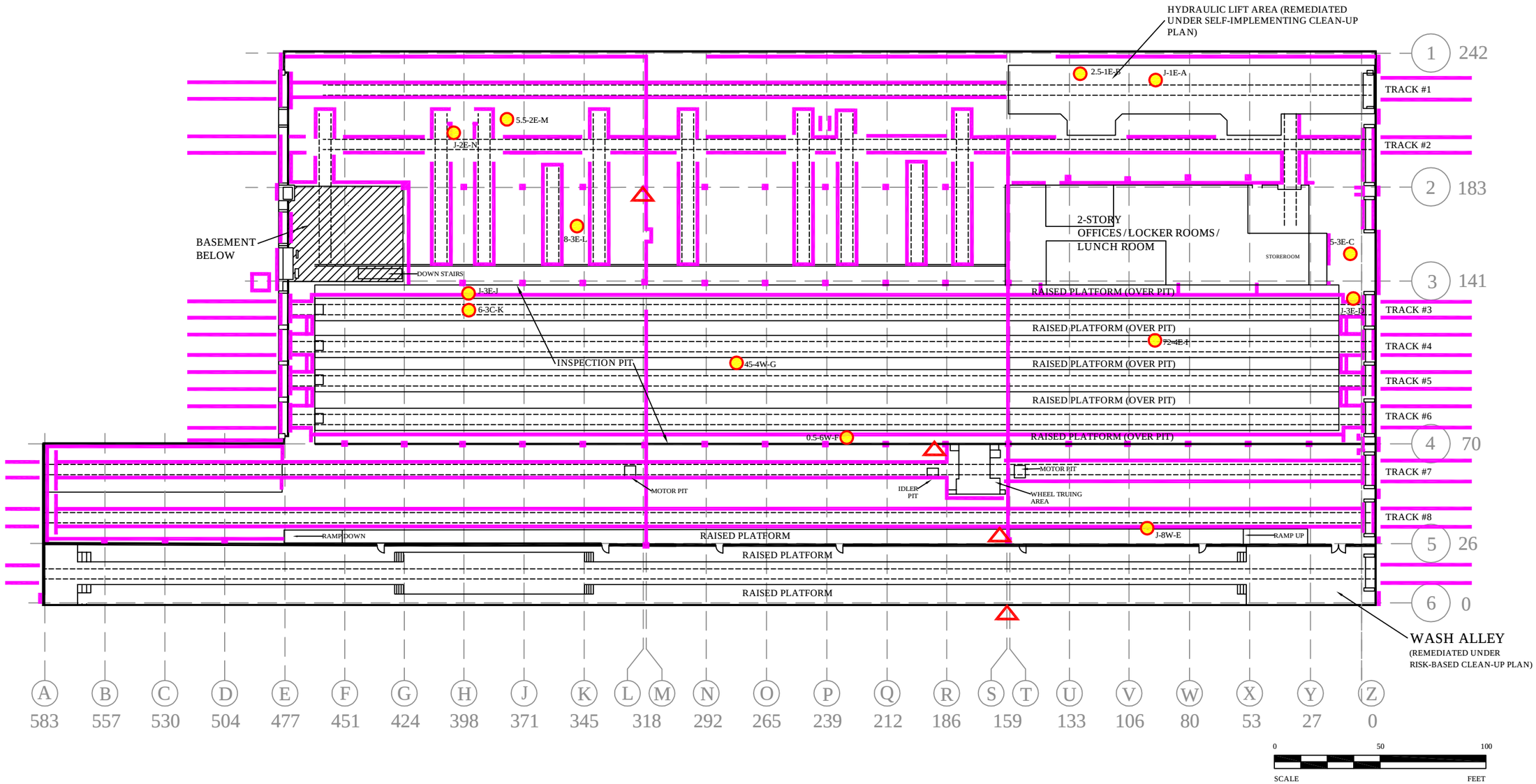
- RAILS
- COLUMN LINE
- V 106 — COLUMN LINE IDENTIFICATION, WITH DISTANCE (FEET) FROM SOUTH WALL OR WEST WALL
- FLOOR CAULK JOINTS
- BOUNDARY OF FLOOR AREA TO BE DECOMTAMINATED

SITE PLAN – FLOOR AREA TO BE CLEANED

MBTA CABOT YARD RAIL BUILDING
275 DORCHESTER AVENUE
DORCHESTER, MASSACHUSETTS

PROJECT NUMBER: 060.07443.1028	FIGURE NUMBER: 5
SCALE: See Scale Bar	CHECKED BY: DPW
DRAWN BY: RRM	REVISED BY: CA / DPW
DRAWING FILE: CAULK SURVEY.DWG	

ATC ASSOCIATES INC.
600 West Cummings Park, Suite 5450
Woburn, Massachusetts 01801-6350
Tel.(781)932-9400 Fax.(781)932-6211



LEGEND

FLOOR CAULK JOINTS

PROPOSED WIPE SAMPLE LOCATION

PROPOSED AIR SAMPLE LOCATION

SITE PLAN – POST–REMEDIAL SAMPLE LOCATIONS

MBTA CABOT YARD RAIL BUILDING
275 DORCHESTER AVENUE
DORCHESTER, MASSACHUSETTS

PROJECT NUMBER: 060.07443.1028	FIGURE NUMBER: 6
SCALE: See Scale Bar	CHECKED BY: DPW
DRAWN BY: RRM	REVISED BY: CA / DPW
DRAWING FILE: CAULK SURVEY.DWG	

ATC ASSOCIATES INC.
600 West Cummings Park, Suite 5450
Woburn, Massachusetts 01801-6350
Tel.(781)932-9400 Fax.(781)932-6211

Tables

TABLE 1
Caulk Sampling Data: PCBs
Train Building
MBTA Cabot Yard
275 Dorchester Avenue
Dorchester, Massachusetts

		Polychlorinated Biphenyls (by EPA Method 8082)										
		1016	1221	1232	1242	1248	1254	1260	1262	1268	Total PCBs	QA/QC Acceptable?
Sample ID	**Sample Date**	**mg/kg**									**mg/kg**	
Wash Alley												
Caulk #1	**20-Mar-08**	<8,800	<8,800	<8,800	<8,800	<8,800	**96,000**	<8,800	<8,800	**38,000**	**134,000**	(1)
Caulk #2	**20-Mar-08**	<9,300	<9,300	<9,300	<9,300	<9,300	**69,000**	<9,300	<9,300	**29,000**	**98,000**	(1)
Caulk #3	**20-Mar-08**	<9,800	<9,800	<9,800	<9,800	<9,800	**65,000**	<9,800	<9,800	**26,000**	**91,000**	(1)
Caulk #4	**20-Mar-08**	<9,600	<9,600	<9,600	<9,600	<9,600	**59,000**	<9,600	<9,600	**24,000**	**83,000**	(1)
Hydraulic Lift Area												
Caulk C	**09-Apr-08**	<3,800	<3,800	<3,800	<3,800	<3,800	**78,000**	**87,000**	<3,800	<3,800	**165,000**	(2), (3), (4)
Exterior Wall Caulk												
Wall Caulk 1	**27-Oct-10**	<8.0	<8.0	<8.0	<8.0	<8.0	**25**	**21**	<8.0	<8.0	**46**	OK
Wall Caulk 2	**27-Oct-10**	<0.79	<0.79	<0.79	<0.79	<0.79	**1.9**	**1.8**	<0.79	<0.79	**4**	OK
Wall Caulk 3	**27-Oct-10**	<4.0	<4.0	<4.0	<4.0	<4.0	**11**	<4.0	<4.0	<4.0	**11**	OK
Wall Caulk 4	**27-Oct-10**	<3.8	<3.8	<3.8	<3.8	<3.8	**13**	<3.8	<3.8	<3.8	**13**	OK

NOTES:
Concentrations presented in milligrams per kilogram (mg/kg), or parts per million
Bolded indicates concentration above laboratory method detection limit
(1) All surrogate spike compounds were diluted out, due to the 10,000X dilution required for the analysis.
(2) All surrogate spike compounds were diluted out, due to the 1,000X dilution required for the analysis.
(3) Sample analyzed past holding time.
(4) Two surrogate spikes recovered outside (above) method criteria.

TABLE 2a
Concrete Core Sampling Data: PCBs
Train Wash Alley
Train Building
MBTA Cabot Yard
275 Dorchester Avenue
Dorchester, Massachusetts

				Polychlorinated Biphenyls (by EPA Method 8082)										
				1016	1221	1232	1242	1248	1254	1260	1262	1268	Total PCBs	QA/QC Acceptable?
Sample ID	**Depth (inches)**	**Date**	**Location/Area**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
A-1-4 Composite	**Surface**	**20-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.1**	NT	NT	**0.1**	Yes
B-5-8 Composite	**Surface**	**20-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NT	NT	**ND**	Yes
C-9-12 Composite	**Surface**	**20-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NT	NT	**ND**	Yes
D-13-16 Composite	**Surface**	**20-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NT	NT	**ND**	Yes
E-17-20 Composite	**Surface**	**20-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.1**	NT	NT	**0.1**	Yes
F-21-24 Composite	**Surface**	**20-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.7**	NT	NT	**0.7**	Yes
G-25-28 Composite	**Surface**	**20-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.8**	NT	NT	**0.8**	Yes
H-29-32 Composite	**Surface**	**20-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.6**	NT	NT	**0.6**	Yes
I-33-36 Composite	**Surface**	**21-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	**0.2**	**0.3**	NT	NT	**0.5**	Yes
J-37-40 Composite	**Surface**	**21-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NT	NT	**ND**	Yes
K-41-44 Composite	**Surface**	**21-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NT	NT	**ND**	Yes
L-45-48 Composite	**Surface**	**21-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.1**	NT	NT	**0.1**	Yes
M-49-52 Composite	**Surface**	**21-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	**0.2**	**0.2**	NT	NT	**0.4**	Yes
N-53-56 Composite	**Surface**	**21-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	**0.2**	**0.3**	NT	NT	**0.5**	Yes
O-57-60 Composite	**Surface**	**21-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	**0.3**	**0.4**	NT	NT	**0.7**	Yes
O-57-60 Composite (Dup)	**Surface**	**21-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	**0.4**	**0.5**	NT	NT	**0.9**	Yes
P-61-64 Composite	**Surface**	**21-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	**0.1**	**0.2**	NT	NT	**0.3**	Yes
Q-65-68 Composite	**Surface**	**21-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.2**	NT	NT	**0.2**	Yes
R-69-72 Composite	**Surface**	**21-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	**0.2**	**0.2**	NT	NT	**0.4**	Yes
S-73-76 Composite	**Surface**	**21-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.2**	NT	NT	**0.2**	Yes
T-77-80 Composite	**Surface**	**21-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.2**	NT	NT	**0.2**	Yes
U-81-84 Composite	**Surface**	**21-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NT	NT	**ND**	Yes
V-85-88 Composite	**Surface**	**21-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.1**	NT	NT	**0.1**	Yes
W-89-92 Composite	**Surface**	**21-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NT	NT	**ND**	Yes
X-93-96 Composite	**Surface**	**21-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NT	NT	**ND**	Yes
Y-97-100 Composite	**Surface**	**21-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.3**	NT	NT	**0.3**	Yes
Z-101-104 Composite	**Surface**	**21-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NT	NT	**ND**	Yes
AA-105-108 Composite	**Surface**	**21-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NT	NT	**ND**	Yes
BB - 109 Composite	**Surface**	**21-Dec-00**	**Center of Rails**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NT	NT	**ND**	Yes
A - Deep Side of Sep. Grab	**Surface**	**26-Dec-00**	**Sedimentation Tank**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.1**	NT	NT	**0.1**	Yes
B = Shallow Side Grab	**Surface**	**26-Dec-00**	**Sedimentation Tank**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NT	NT	**ND**	Yes
WA-A	**0-0.5**	**25-Aug-08**	**Platform - East Side**	<0.101	<0.101	<0.101	<0.101	<0.101	<0.101	**0.211**	<0.101	<0.101	**0.211**	Yes
WA-B	**0-0.5**	**25-Aug-08**	**Platform - East Side**	<0.101	<0.101	<0.101	<0.101	<0.101	<0.101	**0.341**	<0.101	<0.101	**0.341**	Yes
WA-C	**0-0.5**	**25-Aug-08**	**Platform - West Side**	<0.101	<0.101	<0.101	<0.101	<0.101	<0.101	**0.409**	<0.101	<0.101	**0.409**	Yes
WA-D	**0-0.5**	**25-Aug-08**	**Center of Rails**	<0.105	<0.105	<0.105	<0.105	<0.105	<0.105	**0.387**	<0.105	<0.105	**0.387**	Yes
WA-E	**0-0.5**	**25-Aug-08**	**Center of Rails**	<0.103	<0.103	<0.103	<0.103	<0.103	<0.103	**0.577**	<0.103	<0.103	**0.577**	Yes
WA-F	**0-0.5**	**25-Aug-08**	**Center of Rails**	<0.414	<0.414	<0.414	<0.414	<0.414	<0.414	**2.67**	<0.414	<0.414	**2.67**	Yes
WA-J Para-0	**0-1.0**	**25-Aug-08**	**Next to Caulk Joint Parallel to Rails**	<101	<101	<101	<101	<101	<101	**1040**	<101	<101	**1040**	*
WA-J Para-3	**0-0.5**	**25-Aug-08**	**3" from Caulk Joint Parallel to Rails**	<0.406	<0.406	<0.406	<0.406	<0.406	<0.406	**2.88**	<0.406	<0.406	**2.88**	Yes
WA-J Para-6	**0-0.5**	**25-Aug-08**	**6" from Caulk Joint Parallel to Rails**	<0.102	<0.102	<0.102	<0.102	<0.102	<0.102	**0.472**	<0.102	<0.102	**0.472**	**
WA-J Perp-0	**0-1.0**	**25-Aug-08**	**Next to Caulk Joint Perpendicular to Rails**	<103	<103	<103	<103	<103	<103	**745**	<103	<103	**745**	*
WA-J Perp-3	**0-0.5**	**25-Aug-08**	**3" from Caulk Joint Perpendicular to Rails**	<0.420	<0.420	<0.420	<0.420	<0.420	<0.420	**4.95**	<0.420	<0.420	**4.95**	Yes
WA-J Perp-6	**0-0.5**	**25-Aug-08**	**6" from Caulk Joint Perpendicular to Rails**	<0.103	<0.103	<0.103	<0.103	<0.103	<0.103	**0.542**	<0.103	<0.103	**0.542**	**

NOTES:
Concentrations presented in milligrams per kilogram (mg/kg), or parts per million
Bolded indicates concentration above laboratory method detection limit
ND = Not detected
NT = Not Tested
2000 samples collected by Clean Ventures
2008 and later samples collected by ATC
*Surrogate spike compounds were diluted out, due to the 5,000X dilution required for the analysis.
**Surrogate spike compounds were outside of method limits.
Yellow Shading = Value above 1.0 mg/kg.

TABLE 2b
Concrete Core Sampling Data: PCBs
Proposed Hydraulic Lift Area
Train Building
MBTA Cabot Yard
275 Dorchester Avenue
Dorchester, Massachusetts

Sample ID	Depth (inches)	Date	Location/Area	Polychlorinated Biphenyls (by EPA Method 8082) 1016	1221	1232	1242	1248	1254	1260	1262	1268	Total PCBs	QA/QC Review (see footnotes)
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
Horizontal Delineation														
HL-A	**0-0.5**	**25-Aug-08**	**East Side of Rails**	<0.403	<0.403	<0.403	<0.403	<0.403	<0.403	**4.37**	<0.403	<0.403	**4.37**	
HL-B	**0-0.5**		**West Side of Rails**	<1.01	<1.01	<1.01	<1.01	<1.01	<1.01	**14.3**	<1.01	<1.01	**14.3**	*, ^
HL-C	**0-0.5**		**East Side of Rails**	<0.403	<0.403	<0.403	<0.403	<0.403	<0.403	**2.15**	<0.403	<0.403	**2.15**	
HL-D	**0-0.5**	**10-Dec-08**	**Southwest "Bumpout"**	<2.04	<2.04	<2.04	<2.04	<2.04	**8.90**	**12.2**	<2.04	<2.04	**21.1**	#
HL-E	**0-0.5**		**Southwest of Rails**	<2.03	<2.03	<2.03	<2.03	<2.03	**3.71**	**6.96**	<2.03	<2.03	**10.67**	#
HL-F	**0-0.5**		**Northwest of Rails**	<2.01	<2.01	<2.01	<2.01	<2.01	**7.31**	**11.4**	<2.01	<2.01	**18.71**	#
HL-G	**0-0.5**		**Center of Rails**	<2.02	<2.02	<2.02	<2.02	<2.02	**10.5**	**13.4**	<2.02	<2.02	**23.9**	#
HL-H	**0-0.5**		**Between E Rail and E Joint**	<2.02	<2.02	<2.02	<2.02	<2.02	**6.27**	**8.44**	<2.02	<2.02	**14.71**	#
HL-I	**0-0.5**		**Between W Rail and W**	<2.02	<2.02	<2.02	<2.02	<2.02	**16.2**	**19.5**	<2.02	<2.02	**35.7**	#
HL-J0	**0-1.0**	**25-Aug-08**	**Next to Caulk Joint**	<101	<101	<101	<101	<101	<101	**3650**	<101	<101	**3650**	*, ^
HL-J3	**0-0.5**		**3" from Caulk Joint**	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02	**22.6**	<2.02	<2.02	**22.6**	^
HL-J6	**0-0.5**		**6" from Caulk Joint**	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02	**22**	<2.02	<2.02	**22**	^
HL-NJ-E	**0-0.5**	**10-Dec-08**	**3" from Caulk Joint**	<5.03	<5.03	<5.03	<5.03	<5.03	**38.6**	**43.8**	<5.03	<5.03	**82.4**	
HL-NJ-E-6	**0-0.5**	**22-Dec-08**	**6" from Caulk Joint**	<2.02	<2.02	<2.02	<2.02	<2.02	**13.8**	**19.7**	<2.02	<2.02	**33.5**	
HL-NJ-WS-5	**0-0.5**	**10-Dec-08**	**3" from Caulk Joint**	<2.03	<2.03	<2.03	<2.03	<2.03	**20.0**	**24.5**	<2.03	<2.03	**44.5**	
HL-SJ-E	**0-0.5**	**10-Dec-08**	**3" from Caulk Joint**	<1.01	<1.01	<1.01	<1.01	<1.01	<1.01	**1.60**	<1.01	<1.01	**1.6**	
HL-SJ-W	**0-0.5**	**10-Dec-08**	**3" from Caulk Joint**	<1.04	<1.04	<1.04	<1.04	<1.04	**1.59**	**1.92**	<1.04	<1.04	**3.51**	
HL-NWJ-N	**0-0.5**	**10-Dec-08**	**3" from Caulk Joint**	<2.03	<2.03	<2.03	<2.03	<2.03	**20.8**	**24.4**	<2.03	<2.03	**45.2**	
HL-NWJ-S	**0-0.5**	**10-Dec-08**	**3" from Caulk Joint**	<5.03	<5.03	<5.03	<5.03	<5.03	**25.0**	**34.8**	<5.03	<5.03	**59.8**	
HL-NWJ-S-6	**0-0.5**	**22-Dec-08**	**6" from Caulk Joint**	<5.04	<5.04	<5.04	<5.04	<5.04	**16.0**	**28.3**	<5.04	<5.04	**44.3**	
HL-SWJ-N	**0-0.5**	**10-Dec-08**	**3" from Caulk Joint**	<2.02	<2.02	<2.02	<2.02	<2.02	**13.7**	**16.8**	<2.02	<2.02	**30.5**	
HL-SWJ-S	**0-0.5**	**10-Dec-08**	**3" from Caulk Joint**	<2.01	<2.01	<2.01	<2.01	<2.01	**13.4**	**17.9**	<2.01	<2.01	**31.3**	
HL-EJ-ES-005	**0-0.5**	**10-Dec-08**	**3" from Caulk Joint**	<1.02	<1.02	<1.02	<1.02	<1.02	**7.90**	**11.9**	<1.02	<1.02	**19.8**	
HL-EJ-WS-005	**0-0.5**	**10-Dec-08**	**3" from Caulk Joint**	<1.01	<1.01	<1.01	<1.01	<1.01	**7.86**	**11.7**	<1.01	<1.01	**19.56**	
HL-EJ-ES-020	**0-0.5**	**22-Dec-08**	**3" from Caulk Joint**	<2.03	<2.03	<2.03	<2.03	<2.03	**14.6**	**20.3**	<2.03	<2.03	**34.9**	
HL-EJ-WS-020	**0-0.5**	**22-Dec-08**	**3" from Caulk Joint**	<2.03	<2.03	<2.03	<2.03	<2.03	**11.3**	**17.0**	<2.03	<2.03	**28.3**	
HL-EJ-ES-035	**0-0.5**	**10-Dec-08**	**3" from Caulk Joint**	<2.02	<2.02	<2.02	<2.02	<2.02	**14.9**	**23.1**	<2.02	<2.02	**38**	
HL-EJ-WS-035	**0-0.5**	**10-Dec-08**	**3" from Caulk Joint**	<2.03	<2.03	<2.03	<2.03	<2.03	**14.6**	**17.8**	<2.03	<2.03	**32.4**	
HL-EJ-ES-050	**0-0.5**	**22-Dec-08**	**3" from Caulk Joint**	<2.04	<2.04	<2.04	<2.04	<2.04	**8.57**	**13.2**	<2.04	<2.04	**21.77**	
HL-EJ-WS-050	**0-0.5**	**22-Dec-08**	**3" from Caulk Joint**	<5.07	<5.07	<5.07	<5.07	<5.07	**28.2**	**37.8**	<5.07	<5.07	**66**	

TABLE 2b
Concrete Core Sampling Data: PCBs
Proposed Hydraulic Lift Area
Train Building
MBTA Cabot Yard
275 Dorchester Avenue
Dorchester, Massachusetts

				Polychlorinated Biphenyls (by EPA Method 8082)										
				1016	1221	1232	1242	1248	1254	1260	1262	1268	Total PCBs	QA/QC Review (see footnotes)
Sample ID	Depth (inches)	Date	Location/Area	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
HL-EJ-WS-050-6	0-0.5	22-Dec-08	6" from Caulk Joint	<1.02	<1.02	<1.02	<1.02	<1.02	6.83	9.41	<1.02	<1.02	16.24	
HL-EJ-ES-065	0-0.5	10-Dec-08	3" from Caulk Joint	<2.04	<2.04	<2.04	<2.04	<2.04	7.06	8.19	<2.04	<2.04	15.25	
HL-EJ-WS-065	0-0.5	10-Dec-08	3" from Caulk Joint	<2.22	<2.22	<2.22	<2.22	<2.22	16.9	14.6	<2.22	<2.22	31.5	
HL-EJ-ES-080-6	0-0.5	22-Dec-08	6" from Caulk Joint	<2.03	<2.03	<2.03	<2.03	<2.03	4.67	7.99	<2.03	<2.03	12.66	
HL-EJ-WS-080-6	0-0.5	22-Dec-08	6" from Caulk Joint	<2.02	<2.02	<2.02	<2.02	<2.02	13.5	16.1	<2.02	<2.02	29.6	
HL-EJ-ES-095	0-0.5	10-Dec-08	3" from Caulk Joint	<2.02	<2.02	<2.02	<2.02	<2.02	15.9	19.0	<2.02	<2.02	34.9	
HL-EJ-WS-095	0-0.5	10-Dec-08	3" from Caulk Joint	<2.17	<2.17	<2.17	<2.17	<2.17	16.6	15.8	<2.17	<2.17	32.4	
HL-EJ-ES-110-6	0-0.5	22-Dec-08	6" from Caulk Joint	<2.02	<2.02	<2.02	<2.02	<2.02	5.78	11.8	<2.02	<2.02	17.58	
HL-EJ-WS-110-6	0-0.5	22-Dec-08	6" from Caulk Joint	<2.02	<2.02	<2.02	<2.02	<2.02	16.4	17.0	<2.02	<2.02	33.4	
HL-EJ-ES-125	0-0.5	10-Dec-08	3" from Caulk Joint	<2.02	<2.02	<2.02	<2.02	<2.02	13.1	16.6	<2.02	<2.02	29.7	
HL-EJ-WS-125***	0-0.5	10-Dec-08	3" from Caulk Joint	<2.02	<2.02	<2.02	<2.02	<2.02	16.3	12.2	<2.02	<2.02	28.5	
HL-EJ-ES-140-6	0-0.5	22-Dec-08	6" from Caulk Joint	<2.02	<2.02	<2.02	<2.02	<2.02	11.0	14.7	<2.02	<2.02	25.7	
HL-EJ-WS-140-6	0-0.5	22-Dec-08	6" from Caulk Joint	<2.02	<2.02	<2.02	<2.02	<2.02	16.5	16.7	<2.02	<2.02	33.2	
HL-EJ-ES-155	0-0.5	10-Dec-08	3" from Caulk Joint	<2.03	<2.03	<2.03	<2.03	<2.03	22.7	23.7	<2.03	<2.03	46.4	
HL-EJ-WS-155	0-0.5	10-Dec-08	3" from Caulk Joint	<5.04	<5.04	<5.04	<5.04	<5.04	44.6	35.0	<5.04	<5.04	79.6	^
HL-EJ-WS-155-6	0-0.5	22-Dec-08	6" from Caulk Joint	<5.05	<5.05	<5.05	<5.05	<5.05	23.5	25.8	<5.05	<5.05	49.3	
HL-WJ-ES-005	0-0.5	22-Dec-08	3" from Caulk Joint	<5.08	<5.08	<5.08	<5.08	<5.08	18.6	28.6	<5.08	<5.08	47.2	
HL-WJ-WS-005	0-0.5	22-Dec-08	3" from Caulk Joint	<2.03	<2.03	<2.03	<2.03	<2.03	12.7	18.8	<2.03	<2.03	31.5	
HL-WJ-ES-020	0-0.5	10-Dec-08	3" from Caulk Joint	<2.03	<2.03	<2.03	<2.03	<2.03	13.0	16.2	<2.03	<2.03	29.2	
HL-WJ-WS-020	0-0.5	10-Dec-08	3" from Caulk Joint	<2.02	<2.02	<2.02	<2.02	<2.02	16.4	23.3	<2.02	<2.02	39.7	
HL-WJ-ES-035	0-0.5	22-Dec-08	3" from Caulk Joint	<5.08	<5.08	<5.08	<5.08	<5.08	18.8	26.9	<5.08	<5.08	45.7	
HL-WJ-WS-035	0-0.5	22-Dec-08	3" from Caulk Joint	<10.2	<10.2	<10.2	<10.2	<10.2	32.4	52.6	<10.2	<10.2	85	
HL-WJ-WS-035-6	0-0.5	22-Dec-08	6" from Caulk Joint	<5.05	<5.05	<5.05	<5.05	<5.05	19.0	37.3	<5.05	<5.05	56.3	
HL-WJ-ES-050	0-0.5	10-Dec-08	3" from Caulk Joint	<2.19	<2.19	<2.19	<2.19	<2.19	13.2	18.3	<2.19	<2.19	31.5	
HL-WJ-WS-050	0-0.5	10-Dec-08	3" from Caulk Joint	<2.03	<2.03	<2.03	<2.03	<2.03	12.0	19.4	<2.03	<2.03	31.4	
HL-WJ-ES-065-6	0-0.5	22-Dec-08	6" from Caulk Joint	<5.05	<5.05	<5.05	<5.05	<5.05	18.9	23.1	<5.05	<5.05	42	
HL-WJ-WS-065-6	0-0.5	22-Dec-08	6" from Caulk Joint	<2.04	<2.04	<2.04	<2.04	<2.04	6.96	12.3	<2.04	<2.04	19.26	
HL-WJ-ES-080**	0-0.5	10-Dec-08	3" from Caulk Joint	<2.04	<2.04	<2.04	<2.04	<2.04	17.8	17.9	<2.04	<2.04	35.7	
HL-WJ-WS-080	0-0.5	10-Dec-08	3" from Caulk Joint	<5.05	<5.05	<5.05	<5.05	<5.05	50.1	46.6	<5.05	<5.05	96.7	
HL-WJ-WS-080-6	0-0.5	22-Dec-08	6" from Caulk Joint	<2.02	<2.02	<2.02	<2.02	<2.02	8.70	14.2	<2.02	<2.02	22.9	
HL-WJ-ES-095-6	0-0.5	22-Dec-08	6" from Caulk Joint	<2.02	<2.02	<2.02	<2.02	<2.02	13.8	17.5	<2.02	<2.02	31.3	
HL-WJ-WS-095-6	0-0.5	22-Dec-08	6" from Caulk Joint	<5.04	<5.04	<5.04	<5.04	<5.04	19.3	27.1	<5.04	<5.04	46.4	

TABLE 2b
Concrete Core Sampling Data: PCBs
Proposed Hydraulic Lift Area
Train Building
MBTA Cabot Yard
275 Dorchester Avenue
Dorchester, Massachusetts

				Polychlorinated Biphenyls (by EPA Method 8082)										
				1016	1221	1232	1242	1248	1254	1260	1262	1268	Total PCBs	QA/QC Review (see footnotes)
Sample ID	**Depth (inches)**	**Date**	**Location/Area**	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
HL-WJ-ES-110	**0-0.5**	**10-Dec-08**	**3" from Caulk Joint**	<5.03	<5.03	<5.03	<5.03	<5.03	**31.0**	**35.6**	<5.03	<5.03	**66.6**	
HL-WJ-ES-110-6	**0-0.5**	**22-Dec-08**	**6" from Caulk Joint**	<2.02	<2.02	<2.02	<2.02	<2.02	**14.5**	**21.4**	<2.02	<2.02	**35.9**	
HL-WJ-WS-110	**0-0.5**	**10-Dec-08**	**3" from Caulk Joint**	<5.04	<5.04	<5.04	<5.04	<5.04	**25.5**	**31.1**	<5.04	<5.04	**56.6**	^
HL-WJ-WS-110-6	**0-0.5**	**22-Dec-08**	**6" from Caulk Joint**	<2.02	<2.02	<2.02	<2.02	<2.02	**10.5**	**16.9**	<2.02	<2.02	**27.4**	
HL-WJ-ES-125-6	**0-0.5**	**22-Dec-08**	**6" from Caulk Joint**	<2.02	<2.02	<2.02	<2.02	<2.02	**11.6**	**15.0**	<2.02	<2.02	**26.6**	
HL-WJ-WS-125-6	**0-0.5**	**22-Dec-08**	**6" from Caulk Joint**	<2.02	<2.02	<2.02	<2.02	<2.02	**7.43**	**14.5**	<2.02	<2.02	**21.93**	
HL-WJ-ES-140	**0-0.5**	**10-Dec-08**	**3" from Caulk Joint**	<2.03	<2.03	<2.03	<2.03	<2.03	**17.9**	**18.9**	<2.03	<2.03	**36.8**	
HL-WJ-WS-140	**0-0.5**	**10-Dec-08**	**3" from Caulk Joint**	<5.05	<5.05	<5.05	<5.05	<5.05	**52.9**	**44.3**	<5.05	<5.05	**97.2**	^
HL-WJ-WS-140-6	**0-0.5**	**22-Dec-08**	**6" from Caulk Joint**	<10.1	<10.1	<10.1	<10.1	<10.1	**30.7**	**51.9**	<10.1	<10.1	**82.6**	
HL-WJ-WS-140-9	**0-0.5**	**02-Jan-09**	**9" from Caulk Joint**	<2.02	<2.02	<2.02	<2.02	<2.02	**8.80**	**13.2**	<2.02	<2.02	**22**	
HL-WJ-ES-155-6	**0-0.5**	**22-Dec-08**	**6" from Caulk Joint**	<2.02	<2.02	<2.02	<2.02	<2.02	**11.1**	**21.3**	<2.02	<2.02	**32.4**	
HL-WJ-WS-155-6	**0-0.5**	**22-Dec-08**	**6" from Caulk Joint**	<5.05	<5.05	<5.05	<5.05	<5.05	**16.8**	**31.5**	<5.05	<5.05	**48.3**	
HL-Sidetrack-EJ-35	**0-0.5**	**08-Jan-09**	**3" from Caulk Joint**	<2.03	<2.03	<2.03	<2.03	<2.03	**13.6**	**17.7**	<2.03	<2.03	**31.3**	
HL-Sidetrack-NJ	**0-0.5**	**08-Jan-09**	**3" from Caulk Joint**	<2.04	<2.04	<2.04	<2.04	<2.04	**15.7**	**20.2**	<2.04	<2.04	**35.9**	
Vertical Delineation														
HL-EJ-N-4inch	**4**	**19-Dec-08**	**Side of Caulk Joint**	<1.04	<1.04	<1.04	<1.04	<1.04	**6.24**	**6.24**	<1.04	<1.04	**12.48**	
HL-EJ-S-4inch	**4**	**19-Dec-08**	**Side of Caulk Joint**	<0.106	<0.106	<0.106	**0.346**	<0.106	**0.313**	**0.171**	<0.106	<0.106	**0.83**	
HL-WJ-N-4inch	**4**	**19-Dec-08**	**Side of Caulk Joint**	<0.104	<0.104	<0.104	<0.104	<0.104	<0.104	<0.104	<0.104	<0.104	0	
HL-WJ-S-4inch	**4**	**19-Dec-08**	**Side of Caulk Joint**	<20.9	<20.9	<20.9	<20.9	<20.9	**153**	**155**	<20.9	<20.9	**308**	^
HL-WJ-S-6inch	**6**	**22-Dec-08**	**Side of Caulk Joint**	<0.105	<0.105	<0.105	<0.105	<0.105	**0.813**	**1.09**	<0.105	<0.105	**1.903**	

NOTES:
Concentrations presented in milligrams per kilogram (mg/kg), or parts per million
ND = Not detected
Samples collected by ATC
*Reported value exceeds calibration range.
^Surrogate spike compounds were diluted out, due to the dilution required for the analysis.
#Relative percent difference between 2 instrument runs was >40%. Higher result was used.
Bolded indicates concentration above laboratory method detection limit
Red Bold Text = Value above 50 mg/kg.
**Reported by lab as "HL-WT-ES-080"
***Reported by lab as "HL-ES-WS-125"
Sample ID Codes: "WJ" = West Joint; "WS" = West Side; "020" = Distance (feet) along N-S axis.

Table 3
Indoor Air Sampling Data: PCBs
Train Building
MBTA Cabot Yard
275 Dorchester Avenue
Dorchester, Massachusetts

Location	Northeast Quadrant			West Half Near Wheel Truing		
Starting Sample Date	3/12/2009	8/6/2010		3/12/2009	8/6/2010	
Total Sample Time (min)	1,569	1,446	1,445	1,530	1,447	1,448
Total Sample Volume (L)	1,733,000	2,892	2,890	1,776,000	2,894	2,896
Sample	Particulates Only	Vapors Only*	Total Vapors + Particulates	Particulates Only	Vapors Only*	Total Vapors + Particulates
Sample ID	AIR-NE	AIR-NE-FILTERED	AIR-NE-UNFILTERED	AIR-W	AIR-W-FILTERED	AIR-W-UNFILTERED
PCB Aroclors						
1016	<0.0001	NA	<0.035	<0.0001	NA	<0.035
1221	<0.0001	NA	<0.035	<0.0001	NA	<0.035
1232	<0.0001	NA	<0.035	<0.0001	NA	<0.035
1242	<0.0001	NA	<0.035	<0.0001	NA	<0.035
1248	<0.0001	NA	<0.035	<0.0001	NA	<0.035
1254	0.0003	NA	0.021	0.0009	NA	0.104
1260	0.0006	NA	<0.035	0.002	NA	<0.035
1262	<0.0001	NA	<0.035	<0.0001	NA	<0.035
1268	<0.0001	NA	<0.035	<0.0001	NA	<0.035
Total Aroclors	*0.0009*	*NA*	*0.0210*	*0.0029*	*NA*	*0.1040*
PCB Congeners						
Cl1-BZ#1	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl1-BZ#2	NA	<0.001	<0.001	NA	<0.001	<0.001
CL1-BZ#3	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl2-BZ#4/#10	NA	0.0009 J	<0.002	NA	0.0009 J	<0.002
Cl2-BZ#9	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl2-BZ#7	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl2-BZ#6	NA	0.0004 J	<0.001	NA	0.0004 J	<0.001
Cl2-BZ#5	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl2-BZ#8	NA	0.0019	<0.001	NA	0.0019	0.0016
Cl3-BZ#19	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl2-BZ#14	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl3-BZ#30	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl3-BZ#18	NA	0.0026	<0.001	NA	0.0021	0.0019
Cl2-BZ#11	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl3-BZ#17	NA	0.0009	<0.001	NA	0.0008 J	0.0007 J
Cl2-BZ#12	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl3-BZ#27	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl2-BZ#13	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl3-BZ#24	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl3-BZ#16	NA	0.0011	<0.001	NA	0.0007 J	0.0007 J
Cl3-BZ#32	NA	0.0007 J	<0.001	NA	0.0005 J	0.0005 J
Cl2-BZ#15	NA	0.0005 J	<0.001	NA	0.0004 J	<0.001
Cl3-BZ#34	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl3-BZ#23	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#54	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl3-BZ#29	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#50	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl3-BZ#26	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl3-BZ#25	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#53	NA	0.0005 J	<0.001	NA	<0.001	<0.001
Cl3-BZ#-31	NA	0.0021	<0.001	NA	0.0014	0.0014
Cl3-BZ#28	NA	0.0019	<0.001	NA	0.0014	0.0013
Cl3-BZ#33	NA	0.0010	<0.001	NA	0.0008 J	0.0008 J
Cl4-BZ#51	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl3-BZ#21/#20	NA	<0.002	<0.002	NA	<0.002	<0.002
Cl4-BZ#45	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl3-BZ#22	NA	0.0007 J	<0.001	NA	0.0005 J	0.0005 J
Cl4-BZ#73/#46	NA	<0.002	<0.002	NA	<0.002	<0.002
Cl4-BZ#69	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#43	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl3-BZ#36	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#52	NA	0.0127	0.0013	NA	0.0079	0.0080
Cl4-BZ#48	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#49	NA	0.0025	<0.001	NA	0.0014	0.0014
Cl5-BZ#104	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#47	NA	0.0005 J	<0.001	NA	<0.001	<0.001
Cl4-BZ#65/#75/#62	NA	<0.003	<0.003	NA	<0.003	<0.003
Cl3-BZ#39	NA	<0.001	<0.001	NA	<0.001	<0.001

Table 3
Indoor Air Sampling Data: PCBs
Train Building
MBTA Cabot Yard
275 Dorchester Avenue
Dorchester, Massachusetts

Location	Northeast Quadrant			West Half Near Wheel Truing		
Starting Sample Date	3/12/2009	8/6/2010		3/12/2009	8/6/2010	
Total Sample Time (min)	1,569	1,446	1,445	1,530	1,447	1,448
Total Sample Volume (L)	1,733,000	2,892	2,890	1,776,000	2,894	2,896
Sample	Particulates Only	Vapors Only*	Total Vapors + Particulates	Particulates Only	Vapors Only*	Total Vapors + Particulates
Sample ID	AIR-NE	AIR-NE-FILTERED	AIR-NE-UNFILTERED	AIR-W	AIR-W-FILTERED	AIR-W-UNFILTERED
Cl3-BZ#38	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#44	NA	0.0050	0.0005 J	NA	0.0031	0.0030
Cl4-BZ#59	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#42	NA	0.0005 J	<0.001	NA	<0.001	<0.001
Cl4-BZ#71	NA	0.0005 J	<0.001	NA	<0.001	<0.001
Cl3-BZ#35	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#41	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#72	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl5-BZ#96	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl5-BZ#103	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#68/#64	NA	0.0012 J	<0.002	NA	<0.002	<0.002
Cl4-BZ#40	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl3-BZ#37	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl5-BZ#100	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl5-BZ#94	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#57	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#67/#58	NA	<0.002	<0.002	NA	<0.002	<0.002
Cl5-BZ#102	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#61	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl5-BZ#98	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#76	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl5-BZ#93	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#63	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl5-BZ#121/#95/#88	NA	0.0107	<0.003	NA	0.0070	0.0068
Cl4-BZ#74	NA	0.0013	<0.001	NA	0.0008 J	0.0007 J
Cl6-BZ#155	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#70	NA	0.0040	0.0005 J	NA	0.0023	0.0026
Cl5-BZ#91	NA	0.0014	<0.001	NA	0.0010	0.0009
Cl4-BZ#66	NA	0.0017	<0.001	NA	0.0009	0.0009
Cl4-BZ#80	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#55	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl5-BZ#92	NA	0.0021	<0.001	NA	0.0012	0.0014
Cl5-BZ#89/#84	NA	0.0033	<0.002	NA	0.0017 J	0.0017 J
Cl5-BZ#101/#90	NA	0.0115	0.0012 J	NA	0.0073	0.0077
Cl4-BZ#56	NA	0.0009	<0.001	NA	0.0006 J	0.0006 J
Cl5-BZ#113	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl5-BZ#99	NA	0.0035	0.0005 J	NA	0.0021	0.0022
Cl6-BZ#150	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#60	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl6-BZ#152	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl5-BZ#119	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl5-BZ#83/#125/#112	NA	<0.003	<0.003	NA	<0.003	<0.003
Cl5-BZ#86/#109	NA	<0.002	<0.002	NA	<0.002	<0.002
Cl5-BZ#97	NA	0.0025	<0.001	NA	0.0016	0.0017
Cl5-BZ#116	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl5-BZ#87/#111	NA	0.0031	<0.002	NA	0.0018	0.0021
Cl6-BZ#145	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl6-BZ#148	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#79	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl6-BZ#154	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl4-BZ#78	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl6-BZ#136	NA	0.0018	<0.001	NA	0.0012	0.0011
Cl5-BZ#117	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl5-BZ#115	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl5-BZ#85	NA	0.0011	<0.001	NA	0.0005 J	0.0007 J
Cl5-BZ#120	NA	<0.001	<0.001	NA	<0.001	<0.001
Cl5-BZ#110	NA	0.0081	0.0010	NA	0.0050	0.0049
Cl4-BZ#81	NA	0.0005 J	<0.001	NA	<0.001	<0.001
Cl6-BZ#151	NA	0.0025	<0.001	NA	0.0017	0.0016
Cl6-BZ#135	NA	0.0010	<0.001	NA	0.0007 J	0.0007 J

Table 3
Indoor Air Sampling Data: PCBs
Train Building
MBTA Cabot Yard
275 Dorchester Avenue
Dorchester, Massachusetts

Location	Northeast Quadrant			West Half Near Wheel Truing		
Starting Sample Date	3/12/2009	8/6/2010		3/12/2009	8/6/2010	
Total Sample Time (min)	1,569	1,446	1,445	1,530	1,447	1,448
Total Sample Volume (L)	1,733,000	2,892	2,890	1,776,000	2,894	2,896
Sample	Particulates Only	Vapors Only*	Total Vapors + Particulates	Particulates Only	Vapors Only*	Total Vapors + Particulates
Sample ID	AIR-NE	AIR-NE-FILTERED	AIR-NE-UNFILTERED	AIR-W	AIR-W-FILTERED	AIR-W-UNFILTERED
CI5-BZ#82	NA	0.0008 J	<0.001	NA	0.0006 J	0.0006 J
CI6-BZ#144	NA	0.0006 J	<0.001	NA	<0.001	<0.001
CI6-BZ#147/#149	NA	0.0065	0.0009 J	NA	0.0042	0.0039
CI4-BZ#77	NA	<0.001	<0.001	NA	<0.001	<0.001
CI6-BZ#143/#139	NA	<0.002	<0.002	NA	<0.002	<0.002
CI5-BZ#124	NA	<0.001	<0.001	NA	<0.001	<0.001
CI6-BZ#140	NA	<0.001	<0.001	NA	<0.001	<0.001
CI5-BZ#108	NA	<0.001	<0.001	NA	<0.001	<0.001
CI5-BZ#107/#123	NA	<0.002	<0.002	NA	<0.002	<0.002
CI7-BZ#188	NA	<0.001	<0.001	NA	<0.001	<0.001
CI6-BZ#134	NA	<0.001	<0.001	NA	<0.001	<0.001
CI5-BZ#106	NA	<0.001	<0.001	NA	<0.001	<0.001
CI6-BZ#133	NA	<0.001	<0.001	NA	<0.001	<0.001
CI6-BZ#142	NA	<0.001	<0.001	NA	<0.001	<0.001
CI5-BZ#118	NA	0.0037	0.0006 J	NA	0.0026	0.0024
CI6-BZ#131	NA	<0.001	<0.001	NA	<0.001	<0.001
CI7-BZ#184	NA	<0.001	<0.001	NA	<0.001	<0.001
CI6-BZ#165	NA	<0.001	<0.001	NA	<0.001	<0.001
CI6-BZ#146	NA	0.0007 J	<0.001	NA	0.0005 J	0.0004 J
CI6-BZ#161	NA	<0.001	<0.001	NA	<0.001	<0.001
CI5-BZ#122	NA	<0.001	<0.001	NA	<0.001	<0.001
CI6-BZ#168	NA	<0.001	<0.001	NA	<0.001	<0.001
CI5-BZ#114	NA	<0.001	<0.001	NA	<0.001	<0.001
CI6-BZ#153	NA	0.0050	0.0007 J	NA	0.0034	0.0031
CI6-BZ#132	NA	0.0021	<0.001	NA	0.0014	0.0013
CI7-BZ#179	NA	0.0015	<0.001	NA	0.0010	0.0009
CI6-BZ#141	NA	0.0011	<0.001	NA	0.0009	0.0008 J
CI7-BZ#176	NA	<0.001	<0.001	NA	<0.001	<0.001
CI5-BZ#105	NA	0.0011	<0.001	NA	0.0007 J	0.0008 J
CI6-BZ#137	NA	<0.001	<0.001	NA	<0.001	<0.001
CI5-BZ#127	NA	<0.001	<0.001	NA	<0.001	<0.001
CI7-BZ#186	NA	<0.001	<0.001	NA	<0.001	<0.001
CI6-BZ#130/#164	NA	<0.002	<0.002	NA	<0.002	<0.002
CI7-BZ#178	NA	<0.001	<0.001	NA	<0.001	<0.001
CI6-BZ#138	NA	0.0026	<0.001	NA	0.0020	0.0017
CI6-BZ#163/#160	NA	<0.002	<0.002	NA	<0.002	<0.002
CI6-BZ#129/#158	NA	<0.002	<0.002	NA	<0.002	<0.002
CI7-BZ#182/#175	NA	<0.002	<0.002	NA	<0.002	<0.002
CI7-BZ#187	NA	0.0020	<0.001	NA	0.0013	0.0012
CI7-BZ#183	NA	0.0009	<0.001	NA	0.0006 J	0.0006 J
CI6-BZ#166	NA	<0.001	<0.001	NA	<0.001	<0.001
CI6-BZ#159	NA	<0.001	<0.001	NA	<0.001	<0.001
CI5-BZ#126	NA	<0.001	<0.001	NA	<0.001	0.0005 J
CI7-BZ#185	NA	<0.001	<0.001	NA	<0.001	<0.001
CI6-BZ#162	NA	<0.001	<0.001	NA	<0.001	<0.001
CI7-BZ#174	NA	0.0013	<0.001	NA	0.0008 J	0.0008 J
CI6-BZ#128	NA	0.0007 J	<0.001	NA	<0.001	<0.001
CI6-BZ#167	NA	<0.001	<0.001	NA	<0.001	<0.001
CI8-BZ#202	NA	<0.001	<0.001	NA	<0.001	<0.001
CI7-BZ#181	NA	<0.001	<0.001	NA	<0.001	<0.001
CI7-BZ#177	NA	0.0006 J	<0.001	NA	0.0004 J	<0.001
CI8-BZ#204/#200-CAL	NA	<0.002	<0.002	NA	<0.002	<0.002
CI7-BZ#171	NA	<0.001	<0.001	NA	<0.001	<0.001
CI7-BZ#173	NA	<0.001	<0.001	NA	<0.001	<0.001
CI8-BZ#197	NA	<0.001	<0.001	NA	<0.001	<0.001
CI7-BZ#172	NA	<0.001	<0.001	NA	<0.001	<0.001
CI7-BZ#192	NA	<0.001	<0.001	NA	<0.001	<0.001
CI6-BZ#156	NA	<0.001	<0.001	NA	<0.001	<0.001
CI6-BZ#157	NA	<0.001	<0.001	NA	<0.001	<0.001
CI7-BZ#180	NA	0.0015	<0.001	NA	0.0012	0.0012

Table 3
Indoor Air Sampling Data: PCBs
Train Building
MBTA Cabot Yard
275 Dorchester Avenue
Dorchester, Massachusetts

Location	Northeast Quadrant			West Half Near Wheel Truing		
Starting Sample Date	3/12/2009	8/6/2010		3/12/2009	8/6/2010	
Total Sample Time (min)	1,569	1,446	1,445	1,530	1,447	1,448
Total Sample Volume (L)	1,733,000	2,892	2,890	1,776,000	2,894	2,896
Sample	Particulates Only	Vapors Only*	Total Vapors + Particulates	Particulates Only	Vapors Only*	Total Vapors + Particulates
Sample ID	AIR-NE	AIR-NE-FILTERED	AIR-NE-UNFILTERED	AIR-W	AIR-W-FILTERED	AIR-W-UNFILTERED
CI7-BZ#193	NA	<0.001	<0.001	NA	<0.001	<0.001
CI8-BZ#199	NA	<0.001	<0.001	NA	<0.001	<0.001
CI7-BZ#191	NA	<0.001	<0.001	NA	<0.001	<0.001
CI8-BZ#198	NA	<0.001	<0.001	NA	<0.001	<0.001
CI8-BZ#201	NA	0.0005 J	<0.001	NA	0.0005 J	<0.001
CI7-BZ#170	NA	0.0004 J	<0.001	NA	<0.001	<0.001
CI7-BZ#190	NA	<0.001	<0.001	NA	<0.001	<0.001
CI8-BZ#196	NA	<0.001	<0.001	NA	<0.001	<0.001
CI8-BZ#203	NA	<0.001	<0.001	NA	<0.001	<0.001
CI6-BZ#169	NA	<0.001	<0.001	NA	<0.001	<0.001
CI9-BZ#208	NA	<0.001	<0.001	NA	<0.001	<0.001
CI9-BZ#207	NA	<0.001	<0.001	NA	<0.001	<0.001
CI7-BZ#189	NA	<0.001	<0.001	NA	<0.001	<0.001
CI8-BZ#195	NA	<0.001	<0.001	NA	<0.001	<0.001
CI8-BZ#194	NA	<0.001	<0.001	NA	<0.001	<0.001
CI8-BZ#205	NA	<0.001	<0.001	NA	<0.001	<0.001
CI9-BZ#206	NA	<0.001	<0.001	NA	<0.001	<0.001
CI10-BZ#209	NA	<0.001	<0.001	NA	<0.001	<0.001
Total Congeners	*NA*	*0.1327*	*0.0072*	*NA*	*0.0838*	*0.0803*
PCB Homologs**						
Monochlorobiphenyls	NA	<0.001	<0.001	NA	<0.001	<0.001
Dichlorobiphenyls	NA	0.0037	<0.001	NA	0.0037	0.0016
Trichlorobiphenyls	NA	0.0110	<0.001	NA	0.0081	0.0077
Tetrachlorobiphenyls	NA	0.0317	0.0024	NA	0.0170	0.0173
Pentachlorobiphenyls	NA	0.0529	0.0033	NA	0.0332	0.0343
Hexachlorobiphenyls	NA	0.0247	0.0016	NA	0.0160	0.0147
Heptachlorobiphenyls	NA	0.0082	<0.001	NA	0.0054	0.0047
Octachlorobiphenyls	NA	0.0005 J	<0.001	NA	0.0005 J	<0.001
Nonachlorobiphenyls	NA	<0.001	<0.001	NA	<0.001	<0.001
Decachlorobiphenyl	NA	<0.001	<0.001	NA	<0.001	<0.001
Total Homologs	*NA*	*0.1327*	*0.0072*	*NA*	*0.0839*	*0.0803*

Notes:
All concentrations in ug/m3
Bold values indicate detected concentration
ND = Not Detected
NA = Not Analyzed
*Particulate Filter on cartridge was discarded before analysis.
**For the 1/10 data set, the homolog data was from a separate analysis than the congener data set. For the 8/10 and 10/10 data sets, the homolog
Values believed to be of poor quality due to low surrogate recovery.

Table 3
Indoor Air Sampling Data: PCBs
Train Building
MBTA Cabot Yard
275 Dorchester Avenue
Dorchester, Massachusetts

Location	Track 8 Platform - South Cross-Joint						
Starting Sample Date	10/19/2009	1/19/2010			8/6/2010		10/27/2010
Total Sample Time (min)	120	1,440			1,446	1,447	120
Total Sample Volume (L)	240	2,880			2,892	2,894	240
Sample	Total Vapors + Particulates	Total Vapors + Particulates	Vapors Only*	Particulates Only	Vapors Only*	Total Vapors + Particulates	Total Vapors + Particulates
Sample ID	WA-IA-Platform-Ambient	TRACK 8 - #1 - NO FILTER	TRACK 8 - #2 - FILTER	(Calculated)	TRACK 8-FILTERED	TRACK 8-UNFILTERED	WA-IA-Platform-Ambient
PCB Aroclors							
1016	NA	NA	<0.0069	NA	NA	<0.035	NA
1221	NA	NA	<0.0069	NA	NA	<0.035	NA
1232	NA	NA	<0.0069	NA	NA	<0.035	NA
1242	NA	NA	0.0154	NA	NA	<0.035	NA
1248	NA	NA	<0.0069	NA	NA	<0.035	NA
1254	NA	NA	0.0135	NA	NA	0.123	NA
1260	NA	NA	<0.0069	NA	NA	<0.035	NA
1262	NA	NA	<0.0069	NA	NA	<0.035	NA
1268	NA	NA	<0.0069	NA	NA	<0.035	NA
Total Aroclors	*NA*	*NA*	*0.0289*	*NA*	*NA*	*0.1230*	*NA*
PCB Congeners							
Cl1-BZ#1	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl1-BZ#2	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CL1-BZ#3	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl2-BZ#4/#10	NA	<0.003	<0.003	<0.003	<0.002	<0.002	<0.021
Cl2-BZ#9	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl2-BZ#7	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl2-BZ#6	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl2-BZ#5	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl2-BZ#8	NA	0.0057	0.0062	0	0.0017	0.0018	<0.01
Cl3-BZ#19	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl2-BZ#14	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl3-BZ#30	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl3-BZ#18	NA	0.0058	0.0055	0.0003	0.0030	0.0029	<0.01
Cl2-BZ#11	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl3-BZ#17	NA	0.0021	0.0018	0.0003	0.0010	0.0010	<0.01
Cl2-BZ#12	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl3-BZ#27	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl2-BZ#13	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl3-BZ#24	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl3-BZ#16	NA	<0.002	0.0017	0	0.0011	0.0011	<0.01
Cl3-BZ#32	NA	<0.002	<0.002	<0.002	0.0007 J	0.0007 J	<0.01
Cl2-BZ#15	NA	<0.002	<0.002	<0.002	0.0005 J	0.0004 J	<0.01
Cl3-BZ#34	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl3-BZ#23	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl4-BZ#54	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl3-BZ#29	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl4-BZ#50	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl3-BZ#26	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl3-BZ#25	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl4-BZ#53	NA	<0.002	<0.002	<0.002	0.0005 J	0.0006 J	<0.01
Cl3-BZ#-31	NA	0.0026	0.0030	0	0.0026	0.0024	<0.01
Cl3-BZ#28	NA	0.0029	0.0029	0.0029	0.0022	0.0021	<0.01
Cl3-BZ#33	NA	<0.002	<0.002	<0.002	0.0012	0.0014	<0.01
Cl4-BZ#51	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl3-BZ#21/#20	NA	<0.003	<0.003	<0.003	<0.002	<0.002	<0.021
Cl4-BZ#45	NA	<0.002	<0.002	<0.002	0.0006 J	0.0005 J	<0.01
Cl3-BZ#22	NA	<0.002	<0.002	<0.002	0.0009	0.0008 J	<0.01
Cl4-BZ#73/#46	NA	<0.003	<0.003	<0.003	<0.002	<0.002	<0.021
Cl4-BZ#69	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl4-BZ#43	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl3-BZ#36	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl4-BZ#52	NA	0.0084	0.0084	0	0.0112	0.0106	<0.01
Cl4-BZ#48	NA	<0.002	<0.002	<0.002	0.0006 J	0.0005 J	<0.01
Cl4-BZ#49	NA	0.0020	0.0020	0	0.0024	0.0023	<0.01
Cl5-BZ#104	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Cl4-BZ#47	NA	<0.002	<0.002	<0.002	0.0005 J	0.0005 J	<0.01
Cl4-BZ#65/#75/#62	NA	<0.005	<0.005	<0.005	<0.003	<0.003	<0.031
Cl3-BZ#39	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01

Table 3
Indoor Air Sampling Data: PCBs
Train Building
MBTA Cabot Yard
275 Dorchester Avenue
Dorchester, Massachusetts

Location	Track 8 Platform - South Cross-Joint						
Starting Sample Date	10/19/2009	1/19/2010			8/6/2010		10/27/2010
Total Sample Time (min)	120	1,440			1,446	1,447	120
Total Sample Volume (L)	240	2,880			2,892	2,894	240
Sample	Total Vapors + Particulates	Total Vapors + Particulates	Vapors Only*	Particulates Only	Vapors Only*	Total Vapors + Particulates	Total Vapors + Particulates
Sample ID	WA-IA-Platform-Ambient	TRACK 8 - #1 - NO FILTER	TRACK 8 - #2 - FILTER	(Calculated)	TRACK 8-FILTERED	TRACK 8-UNFILTERED	WA-IA-Platform-Ambient
CI3-BZ#38	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI4-BZ#44	NA	0.0036	0.0040	0	0.0047	0.0044	<0.01
CI4-BZ#59	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI4-BZ#42	NA	<0.002	<0.002	<0.002	0.0006 J	0.0006 J	<0.01
CI4-BZ#71	NA	<0.002	<0.002	<0.002	0.0006 J	0.0005 J	<0.01
CI3-BZ#35	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI4-BZ#41	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI4-BZ#72	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#96	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#103	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI4-BZ#68/#64	NA	<0.003	<0.003	<0.003	0.0012 J	0.0012 J	<0.021
CI4-BZ#40	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI3-BZ#37	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#100	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#94	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI4-BZ#57	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI4-BZ#67/#58	NA	<0.003	<0.003	<0.003	<0.002	<0.002	<0.021
CI5-BZ#102	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI4-BZ#61	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#98	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI4-BZ#76	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#93	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI4-BZ#63	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#121/#95/#88	NA	0.0068	0.0071	0	0.0084	0.0077	<0.031
CI4-BZ#74	NA	<0.002	<0.002	<0.002	0.0012	0.0011	<0.01
CI6-BZ#155	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI4-BZ#70	NA	0.0023	0.0022	0.0001	0.0036	0.0030	<0.01
CI5-BZ#91	NA	<0.002	<0.002	<0.002	0.0012	0.0009	<0.01
CI4-BZ#66	NA	<0.002	<0.002	<0.002	0.0018	0.0014	<0.01
CI4-BZ#80	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI4-BZ#55	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#92	NA	<0.002	<0.002	<0.002	0.0015	0.0013	<0.01
CI5-BZ#89/#84	NA	<0.003	<0.003	<0.003	0.0022	0.0020	<0.021
CI5-BZ#101/#90	NA	0.0074	0.0066	0.0008	0.0084	0.0081	<0.021
CI4-BZ#56	NA	<0.002	<0.002	<0.002	0.0009	0.0008 J	<0.01
CI5-BZ#113	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#99	NA	0.0019	0.0019	0	0.0024	0.0023	<0.01
CI6-BZ#150	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI4-BZ#60	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#152	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#119	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#83/#125/#112	NA	<0.005	<0.005	<0.005	<0.003	<0.003	<0.031
CI5-BZ#86/#109	NA	<0.003	<0.003	<0.003	<0.002	<0.002	<0.021
CI5-BZ#97	NA	<0.002	<0.002	<0.002	0.0018	0.0015	<0.01
CI5-BZ#116	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#87/#111	NA	<0.003	<0.003	<0.003	0.0022	0.0020	<0.021
CI6-BZ#145	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#148	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI4-BZ#79	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#154	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI4-BZ#78	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#136	NA	<0.002	<0.002	<0.002	0.0013	0.0013	<0.01
CI5-BZ#117	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#115	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#85	NA	<0.002	<0.002	<0.002	0.0006 J	0.0006 J	<0.01
CI5-BZ#120	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#110	NA	0.0052	0.0043	0.0009	0.0052	0.0048	<0.01
CI4-BZ#81	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#151	NA	0.0020	0.0020	0.0020	0.0019	0.0021	<0.01
CI6-BZ#135	NA	<0.002	<0.002	<0.002	0.0008 J	0.0009	<0.01

Table 3
Indoor Air Sampling Data: PCBs
Train Building
MBTA Cabot Yard
275 Dorchester Avenue
Dorchester, Massachusetts

Location	Track 8 Platform - South Cross-Joint						
Starting Sample Date	10/19/2009	1/19/2010			8/6/2010		10/27/2010
Total Sample Time (min)	120	1,440			1,446	1,447	120
Total Sample Volume (L)	240	2,880			2,892	2,894	240
Sample	Total Vapors + Particulates	Total Vapors + Particulates	Vapors Only*	Particulates Only	Vapors Only*	Total Vapors + Particulates	Total Vapors + Particulates
Sample ID	WA-IA-Platform-Ambient	TRACK 8 - #1 - NO FILTER	TRACK 8 - #2 - FILTER	(Calculated)	TRACK 8-FILTERED	TRACK 8-UNFILTERED	WA-IA-Platform-Ambient
CI5-BZ#82	NA	<0.002	<0.002	<0.002	0.0006 J	0.0005 J	<0.01
CI6-BZ#144	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#147/#149	NA	0.0044	<0.003	0.0044	0.0046	0.0049	<0.021
CI4-BZ#77	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#143/#139	NA	<0.003	<0.003	<0.003	<0.002	<0.002	<0.021
CI5-BZ#124	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#140	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#108	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#107/#123	NA	<0.003	<0.003	<0.003	<0.002	<0.002	<0.021
CI7-BZ#188	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#134	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#106	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#133	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#142	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#118	NA	0.0024	<0.002	0.0024	0.0025	0.0024	<0.01
CI6-BZ#131	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI7-BZ#184	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#165	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#146	NA	<0.002	<0.002	<0.002	0.0005 J	0.0005 J	<0.01
CI6-BZ#161	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#122	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#168	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#114	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#153	NA	0.0039	0.0028	0.0011	0.0037	0.0040	<0.01
CI6-BZ#132	NA	<0.002	<0.002	<0.002	0.0013	0.0015	<0.01
CI7-BZ#179	NA	<0.002	<0.002	<0.002	0.0010	0.0013	<0.01
CI6-BZ#141	NA	<0.002	<0.002	<0.002	0.0009	0.0009	<0.01
CI7-BZ#176	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#105	NA	<0.002	<0.002	<0.002	0.0005 J	0.0007 J	<0.01
CI6-BZ#137	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#127	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI7-BZ#186	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#130/#164	NA	<0.003	<0.003	<0.003	<0.002	<0.002	<0.021
CI7-BZ#178	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#138	NA	<0.002	<0.002	<0.002	0.0016	0.0019	<0.01
CI6-BZ#163/#160	NA	<0.003	<0.003	<0.003	<0.002	<0.002	<0.021
CI6-BZ#129/#158	NA	<0.003	<0.003	<0.003	<0.002	<0.002	<0.021
CI7-BZ#182/#175	NA	<0.003	<0.003	<0.003	<0.002	<0.002	<0.021
CI7-BZ#187	NA	<0.002	<0.002	<0.002	0.0015	0.0017	<0.01
CI7-BZ#183	NA	<0.002	<0.002	<0.002	0.0006 J	0.0007 J	<0.01
CI6-BZ#166	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#159	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI5-BZ#126	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI7-BZ#185	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#162	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI7-BZ#174	NA	<0.002	<0.002	<0.002	0.0009	0.0011	<0.01
CI6-BZ#128	NA	<0.002	<0.002	<0.002	<0.001	0.0004 J	<0.01
CI6-BZ#167	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI8-BZ#202	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI7-BZ#181	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI7-BZ#177	NA	<0.002	<0.002	<0.002	0.0005 J	0.0005 J	<0.01
CI8-BZ#204/#200-CAL	NA	<0.003	<0.003	<0.003	<0.002	<0.002	<0.021
CI7-BZ#171	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI7-BZ#173	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI8-BZ#197	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI7-BZ#172	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI7-BZ#192	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#156	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#157	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI7-BZ#180	NA	<0.002	<0.002	<0.002	0.0010	0.0015	<0.01

Table 3
Indoor Air Sampling Data: PCBs
Train Building
MBTA Cabot Yard
275 Dorchester Avenue
Dorchester, Massachusetts

Location	Track 8 Platform - South Cross-Joint						
Starting Sample Date	10/19/2009	1/19/2010			8/6/2010		10/27/2010
Total Sample Time (min)	120	1,440			1,446	1,447	120
Total Sample Volume (L)	240	2,880			2,892	2,894	240
Sample	Total Vapors + Particulates	Total Vapors + Particulates	Vapors Only*	Particulates Only	Vapors Only*	Total Vapors + Particulates	Total Vapors + Particulates
Sample ID	WA-IA-Platform-Ambient	TRACK 8 - #1 - NO FILTER	TRACK 8 - #2 - FILTER	(Calculated)	TRACK 8-FILTERED	TRACK 8-UNFILTERED	WA-IA-Platform-Ambient
CI7-BZ#193	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI8-BZ#199	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI7-BZ#191	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI8-BZ#198	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI8-BZ#201	NA	<0.002	<0.002	<0.002	<0.001	0.0005 J	<0.01
CI7-BZ#170	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI7-BZ#190	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI8-BZ#196	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI8-BZ#203	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI6-BZ#169	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI9-BZ#208	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI9-BZ#207	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI7-BZ#189	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI8-BZ#195	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI8-BZ#194	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI8-BZ#205	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI9-BZ#206	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
CI10-BZ#209	NA	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Total Congeners	*NA*	*0.0693*	*0.0624*	*0.0151*	*0.1049*	*0.1033*	*<0.031*
PCB Homologs**							<0.01
Monochlorobiphenyls	<0.042	<0	<0.002	0.0000	<0.001	<0.001	<0.01
Dichlorobiphenyls	<0.042	0.0108	0.0111	0	0.0022	0.0022	<0.01
Trichlorobiphenyls	<0.042	0.0186	0.0188	0	0.0127	0.0125	<0.01
Tetrachlorobiphenyls	0.0450	0.0184	0.0176	0.0008	0.0303	0.0280	<0.01
Pentachlorobiphenyls	0.0617	0.0297	0.0299	0	0.0373	0.0349	<0.01
Hexachlorobiphenyls	<0.042	0.0133	0.0120	0.0013	0.0167	0.0185	<0.01
Heptachlorobiphenyls	<0.042	0.0047	0.0045	0.0002	0.0055	0.0069	<0.01
Octachlorobiphenyls	<0.042	<0.002	<0.002	<0.002	<0.001	0.0005 J	<0.01
Nonachlorobiphenyls	<0.042	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Decachlorobiphenyl	<0.042	<0.002	<0.002	<0.002	<0.001	<0.001	<0.01
Total Homologs	*0.1067*	*0.0955*	*0.0941*	*0.0022*	*0.1048*	*0.1035*	*<0.01*

Notes:
All concentrations in ug/m3
Bold values indicate detected c
ND = Not Detected
NA = Not Analyzed
*Particulate Filter on cartridge
**For the 1/10 data set, the hovalues are simply the sum of congener data for each homolog.
Values believed to be of poor q

Table 3
Indoor Air Sampling Data: PCBs
Train Building
MBTA Cabot Yard
275 Dorchester Avenue
Dorchester, Massachusetts

Location	Wash Alley South Cross-Joint				Outdoor Background		Trip Blank		
Starting Sample Date	10/19/2009		10/27/2010		8/6/2010		10/19/2009	1/19/2010	10/27/2010
Total Sample Time (min)	120		120		1,447	1,448	NA	NA	NA
Total Sample Volume (L)	240		240		2,894	2,896	NA	NA	NA
Sample	Total Vapors + Particulates				Vapors Only*	Total Vapors + Particulates	Blank*	Blank*	Blank*
Sample ID	WA-IA-Platform#1	Duplicate (WA-IA-Platform#2)	WA-IA-Platform#1	Duplicate (WA-IA-Platform#2)	OUTDOOR BACKGROUND FILTERED	OUTDOOR BACKGROUND UNFILTERED	WA-IA-Platform#B	TRACK 8 - #4 - FILTER	WA-IA-Platform#B
PCB Aroclors									
1016	NA	NA	NA	NA	NA	<0.035	NA	NA	NA
1221	NA	NA	NA	NA	NA	<0.035	NA	NA	NA
1232	NA	NA	NA	NA	NA	<0.035	NA	NA	NA
1242	NA	NA	NA	NA	NA	<0.035	NA	NA	NA
1248	NA	NA	NA	NA	NA	<0.035	NA	NA	NA
1254	NA	NA	NA	NA	NA	<0.035	NA	NA	NA
1260	NA	NA	NA	NA	NA	<0.035	NA	NA	NA
1262	NA	NA	NA	NA	NA	<0.035	NA	NA	NA
1268	NA	NA	NA	NA	NA	<0.035	NA	NA	NA
Total Aroclors	*NA*	*NA*	*NA*	*NA*	*NA*	*<0.035*	*NA*	*NA*	*NA*
PCB Congeners									
Cl1-BZ#1	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl1-BZ#2	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CL1-BZ#3	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl2-BZ#4/#10	NA	NA	NA	NA	<0.002	<0.002	NA	<0.003	<0.021
Cl2-BZ#9	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl2-BZ#7	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl2-BZ#6	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl2-BZ#5	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl2-BZ#8	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl3-BZ#19	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl2-BZ#14	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl3-BZ#30	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl3-BZ#18	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl2-BZ#11	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl3-BZ#17	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl2-BZ#12	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl3-BZ#27	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl2-BZ#13	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl3-BZ#24	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl3-BZ#16	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl3-BZ#32	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl2-BZ#15	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl3-BZ#34	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl3-BZ#23	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl4-BZ#54	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl3-BZ#29	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl4-BZ#50	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl3-BZ#26	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl3-BZ#25	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl4-BZ#53	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl3-BZ#-31	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl3-BZ#28	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl3-BZ#33	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl4-BZ#51	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl3-BZ#21/#20	NA	NA	NA	NA	<0.002	<0.002	NA	<0.003	<0.021
Cl4-BZ#45	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl3-BZ#22	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl4-BZ#73/#46	NA	NA	NA	NA	<0.002	<0.002	NA	<0.003	<0.021
Cl4-BZ#69	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl4-BZ#43	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl3-BZ#36	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl4-BZ#52	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl4-BZ#48	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl4-BZ#49	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl5-BZ#104	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl4-BZ#47	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Cl4-BZ#65/#75/#62	NA	NA	NA	NA	<0.003	<0.003	NA	<0.005	<0.031
Cl3-BZ#39	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01

Table 3
Indoor Air Sampling Data: PCBs
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MBTA Cabot Yard
275 Dorchester Avenue
Dorchester, Massachusetts

Location	Wash Alley South Cross-Joint				Outdoor Background		Trip Blank		
Starting Sample Date	10/19/2009		10/27/2010		8/6/2010		10/19/2009	1/19/2010	10/27/2010
Total Sample Time (min)	120		120		1,447	1,448	NA	NA	NA
Total Sample Volume (L)	240		240		2,894	2,896	NA	NA	NA
Sample	Total Vapors + Particulates				Vapors Only*	Total Vapors + Particulates	Blank*	Blank*	Blank*
Sample ID	WA-IA-Platform#1	Duplicate (WA-IA-Platform#2)	WA-IA-Platform#1	Duplicate (WA-IA-Platform#2)	OUTDOOR BACKGROUND FILTERED	OUTDOOR BACKGROUND UNFILTERED	WA-IA-Platform#B	TRACK 8 - #4 - FILTER	WA-IA-Platform#B
CI3-BZ#38	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI4-BZ#44	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI4-BZ#59	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI4-BZ#42	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI4-BZ#71	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI3-BZ#35	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI4-BZ#41	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI4-BZ#72	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#96	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#103	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI4-BZ#68/#64	NA	NA	NA	NA	<0.002	<0.002	NA	<0.003	<0.021
CI4-BZ#40	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI3-BZ#37	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#100	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#94	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI4-BZ#57	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI4-BZ#67/#58	NA	NA	NA	NA	<0.002	<0.002	NA	<0.003	<0.021
CI5-BZ#102	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI4-BZ#61	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#98	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI4-BZ#76	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#93	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI4-BZ#63	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#121/#95/#88	NA	NA	NA	NA	<0.003	<0.003	NA	<0.005	<0.031
CI4-BZ#74	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#155	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI4-BZ#70	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#91	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI4-BZ#66	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI4-BZ#80	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI4-BZ#55	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#92	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#89/#84	NA	NA	NA	NA	<0.002	<0.002	NA	<0.003	<0.021
CI5-BZ#101/#90	NA	NA	NA	NA	<0.002	<0.002	NA	<0.003	<0.021
CI4-BZ#56	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#113	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#99	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#150	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI4-BZ#60	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#152	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#119	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#83/#125/#112	NA	NA	NA	NA	<0.003	<0.003	NA	<0.005	<0.031
CI5-BZ#86/#109	NA	NA	NA	NA	<0.002	<0.002	NA	<0.003	<0.021
CI5-BZ#97	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#116	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#87/#111	NA	NA	NA	NA	<0.002	<0.002	NA	<0.003	<0.021
CI6-BZ#145	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#148	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI4-BZ#79	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#154	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI4-BZ#78	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#136	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#117	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#115	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#85	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#120	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#110	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI4-BZ#81	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#151	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#135	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01

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Starting Sample Date	10/19/2009		10/27/2010		8/6/2010		10/19/2009	1/19/2010	10/27/2010
Total Sample Time (min)	120		120		1,447	1,448	NA	NA	NA
Total Sample Volume (L)	240		240		2,894	2,896	NA	NA	NA
Sample	Total Vapors + Particulates				Vapors Only*	Total Vapors + Particulates	Blank*	Blank*	Blank*
Sample ID	WA-IA-Platform#1	Duplicate (WA-IA-Platform#2)	WA-IA-Platform#1	Duplicate (WA-IA-Platform#2)	OUTDOOR BACKGROUND FILTERED	OUTDOOR BACKGROUND UNFILTERED	WA-IA-Platform#B	TRACK 8 - #4 - FILTER	WA-IA-Platform#B
CI5-BZ#82	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#144	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#147/#149	NA	NA	NA	NA	<0.002	<0.002	NA	<0.003	<0.021
CI4-BZ#77	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#143/#139	NA	NA	NA	NA	<0.002	<0.002	NA	<0.003	<0.021
CI5-BZ#124	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#140	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#108	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#107/#123	NA	NA	NA	NA	<0.002	<0.002	NA	<0.003	<0.021
CI7-BZ#188	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#134	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#106	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#133	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#142	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#118	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#131	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI7-BZ#184	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#165	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#146	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#161	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#122	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#168	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#114	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#153	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#132	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI7-BZ#179	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#141	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI7-BZ#176	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#105	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#137	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#127	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI7-BZ#186	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#130/#164	NA	NA	NA	NA	<0.002	<0.002	NA	<0.003	<0.021
CI7-BZ#178	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#138	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#163/#160	NA	NA	NA	NA	<0.002	<0.002	NA	<0.003	<0.021
CI6-BZ#129/#158	NA	NA	NA	NA	<0.002	<0.002	NA	<0.003	<0.021
CI7-BZ#182/#175	NA	NA	NA	NA	<0.002	<0.002	NA	<0.003	<0.021
CI7-BZ#187	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI7-BZ#183	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#166	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#159	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI5-BZ#126	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI7-BZ#185	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#162	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI7-BZ#174	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#128	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#167	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI8-BZ#202	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI7-BZ#181	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI7-BZ#177	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI8-BZ#204/#200-CAL	NA	NA	NA	NA	<0.002	<0.002	NA	<0.003	<0.021
CI7-BZ#171	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI7-BZ#173	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI8-BZ#197	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI7-BZ#172	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI7-BZ#192	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#156	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#157	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI7-BZ#180	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01

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Sample ID	WA-IA-Platform#1	Duplicate (WA-IA-Platform#2)	WA-IA-Platform#1	Duplicate (WA-IA-Platform#2)	OUTDOOR BACKGROUND FILTERED	OUTDOOR BACKGROUND UNFILTERED	WA-IA-Platform#B	TRACK 8 - #4 - FILTER	WA-IA-Platform#B
CI7-BZ#193	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI8-BZ#199	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI7-BZ#191	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI8-BZ#198	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI8-BZ#201	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI7-BZ#170	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI7-BZ#190	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI8-BZ#196	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI8-BZ#203	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI6-BZ#169	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI9-BZ#208	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI9-BZ#207	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI7-BZ#189	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI8-BZ#195	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI8-BZ#194	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI8-BZ#205	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI9-BZ#206	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
CI10-BZ#209	NA	NA	NA	NA	<0.001	<0.001	NA	<0.002	<0.01
Total Congeners	*NA*	*NA*	*NA*	*NA*	*<0.003*	*<0.003*	*NA*	*<0.005*	*<0.031*
PCB Homologs**									
Monochlorobiphenyls	<0.042	<0.042	<0.01	<0.01	<0.001	<0.001	<0.042	<0.002	<0.01
Dichlorobiphenyls	<0.042	<0.042	0.0115	0.0077 J	<0.001	<0.001	<0.042	<0.002	<0.01
Trichlorobiphenyls	<0.042	<0.042	0.0073 J	0.0065 J	<0.001	<0.001	<0.042	<0.002	<0.01
Tetrachlorobiphenyls	<0.042	<0.042	<0.01	<0.01	<0.001	<0.001	<0.042	<0.002	<0.01
Pentachlorobiphenyls	<0.042	<0.042	<0.01	<0.01	<0.001	<0.001	<0.042	<0.002	<0.01
Hexachlorobiphenyls	<0.042	<0.042	0.0063 J	<0.01	<0.001	<0.001	<0.042	<0.002	<0.01
Heptachlorobiphenyls	<0.042	<0.042	<0.01	<0.01	<0.001	<0.001	<0.042	<0.002	<0.01
Octachlorobiphenyls	<0.042	<0.042	<0.01	<0.01	<0.001	<0.001	<0.042	<0.002	<0.01
Nonachlorobiphenyls	<0.042	<0.042	<0.01	<0.01	<0.001	<0.001	<0.042	<0.002	<0.01
Decachlorobiphenyl	<0.042	<0.042	<0.01	<0.01	<0.001	<0.001	<0.042	<0.002	<0.01
Total Homologs	*<0.042*	*<0.042*	*0.0250*	*0.0142*	*<0.001*	*<0.001*	*<0.042*	*<0.002*	*<0.01*

Notes:
All concentrations in ug/m3
Bold values indicate detected c
ND = Not Detected
NA = Not Analyzed
*Particulate Filter on cartridge v
**For the 1/10 data set, the ho
Values believed to be of poor qu

TABLE 4
Vacuum Dust/Debris and Wash Water Sampling Data: PCBs
Train Building
MBTA Cabot Yard
275 Dorchester Avenue
Dorchester, Massachusetts

		Polychlorinated Biphenyls (by EPA Method 8082)										
		1016	1221	1232	1242	1248	1254	1260	1262	1268	Total PCBs	QA/QC Acceptable?
Sample ID	**Sample Date**	**Aroclors**										
Vacuum Floor Dust/Debris (mg/kg)												
Main Floor Vac Dust	**27-Oct-10**	<50	<50	<50	<50	<50	**370**	**360**	<50	<50	**730**	(1)
Office Vac Dust	**27-Oct-10**	<4.5	<4.5	<4.5	<4.5	<4.5	**50**	**46**	<4.5	<4.5	**96**	(1)
Floor Wash Water (ug/L)												
Zamboni Water (Dissolved)	**27-Oct-10**	<2.0	<2.0	<2.0	<2.0	<2.0	**19**	**13**	<2.0	<2.0	**32**	(2)
Zamboni Water (Total)	**27-Oct-10**	<20	<20	<20	<20	<20	**250**	**210**	<20	<20	**460**	(1)

NOTES:
Concentrations presented in milligrams per kilogram (mg/kg), or parts per million, for dust/debris, and micrograms per liter (ug/L), or parts per billion, for wash water.
Bolded indicates concentration above laboratory method detection limit.
(1) All surrogate spike compounds were diluted out, due to the dilution required for the analysis.
(2) One surrogate spike compound recovered outside (below) method criteria due to matrix interference.

TABLE 5
Pilot Test Wipe Sample Results: PCBs
Train Building
MBTA Cabot Yard
275 Dorchester Avenue
Dorchester, Massachusetts

Sample ID	Date	Approx. distance from Nearest Caulk Joint (feet)	Polychlorinated Biphenyls (by EPA Method 8082) ug/100cm^2										QA/QC Review	Statistical Evaluation of Total PCB Concentration						
			1016	1221	1232	1242	1248	1254	1260	1262	1268	Total PCBs		Sample Point % Decrease	Maximum in Plot	Maximum % Decrease	Minimum in Plot	Minimum % Decrease	Average in Plot	Average % Decrease
Plot 1 - Verusol																				
P1-R1-C4 Pre	**25-Jan-11**	**3.5**	<2.0	<2.0	<2.0	<2.0	<2.0	**3.8**	**13**	<2.0	<2.0	16.8	OK	NA	55		11.6		25.8	
P1-R2-C1 Pre	**25-Jan-11**	**2.5**	<1.0	<1.0	<1.0	<1.0	<1.0	**2.6**	**9**	<1.0	<1.0	11.6	OK							
P1-R3-C2 Pre	**25-Jan-11**	**1.5**	<2.0	<2.0	<2.0	<2.0	<2.0	**4.7**	**15**	<2.0	<2.0	19.7	OK							
P1-R4-C2 Pre	**25-Jan-11**	**Adjacent***	<4.0	<4.0	<4.0	<4.0	<4.0	**16**	**39**	<4.0	<4.0	55	OK							
P1-R1-C4 Post	**26-Jan-11**	**3.5**	<2.0	<2.0	<2.0	<2.0	<2.0	**3.4**	**12**	<2.0	<2.0	15.4	OK	8%	20.2	63%	7.4	36%	14.6	43%
P1-R2-C1 Post	**26-Jan-11**	**2.5**	<2.0	<2.0	<2.0	<2.0	<2.0	**4.2**	**16**	<2.0	<2.0	20.2	OK	-74%						
P1-R3-C2 Post	**26-Jan-11**	**1.5**	<2.0	<2.0	<2.0	<2.0	<2.0	**3.5**	**12**	<2.0	<2.0	15.5	OK	21%						
P1-R4-C2 Post	**26-Jan-11**	**Adjacent***	<.8	<.8	<.8	<.8	<.8	**1.9**	**5.5**	<.8	<.8	7.4	(2)	87%						
Plot 2 - Capsur																				
P2-R1-C4 Pre	**25-Jan-11**	**3.5**	<2.0	<2.0	<2.0	<2.0	<2.0	**3.5**	**15**	<2.0	<2.0	18.5	OK	NA	88		18.5		37.7	
P2-R2-C1 Pre	**25-Jan-11**	**2.5**	<2.0	<2.0	<2.0	<2.0	<2.0	**4.3**	**15**	<2.0	<2.0	19.3	OK							
P2-R3-C2 Pre	**25-Jan-11**	**1.5**	<2.0	<2.0	<2.0	<2.0	<2.0	**5.9**	**19**	<2.0	<2.0	24.9	OK							
P2-R4-C2 Pre	**25-Jan-11**	**Adjacent***	<10	<10	<10	<10	<10	**26**	**62**	<10	<10	88	(1)							
P2-R1-C4 Post	**26-Jan-11**	**3.5**	<1.0	<1.0	<1.0	<1.0	<1.0	**1.5**	**5.6**	<1.0	<1.0	7.1	OK	62%	23.4	73%	7.1	62%	12.7	66%
P2-R2-C1 Post	**26-Jan-11**	**2.5**	<1.0	<1.0	<1.0	<1.0	<1.0	**2.5**	**8.6**	<1.0	<1.0	11.1	OK	42%						
P2-R3-C2 Post	**26-Jan-11**	**1.5**	<1.0	<1.0	<1.0	<1.0	<1.0	**2.3**	**7**	<1.0	<1.0	9.3	OK	63%						
P2-R4-C2 Post	**26-Jan-11**	**Adjacent***	<2.0	<2.0	<2.0	<2.0	<2.0	**7.4**	**16**	<2.0	<2.0	23.4	OK	73%						
Plot 3 - Powercleaner 155																				
P3-R1-C4 Pre	**25-Jan-11**	**3.5**	<2.0	<2.0	<2.0	<2.0	<2.0	**3.8**	**14**	<2.0	<2.0	17.8	OK	NA	77		8		33.7	
P3-R2-C1 Pre	**25-Jan-11**	**2.5**	<1.0	<1.0	<1.0	<1.0	<1.0	**1.7**	**6.3**	<1.0	<1.0	8	OK							
P3-R3-C2 Pre	**25-Jan-11**	**1.5**	<4.0	<4.0	<4.0	<4.0	<4.0	**28**	**49**	<4.0	<4.0	77	OK							
P3-R4-C2 Pre	**25-Jan-11**	**Adjacent***	<2.0	<2.0	<2.0	<2.0	<2.0	**9.8**	**22**	<2.0	<2.0	31.8	OK							
P3-R1-C4 Post	**26-Jan-11**	**3.5**	<2.0	<2.0	<2.0	<2.0	<2.0	**4**	**13**	<2.0	<2.0	17	OK	4%	28.4	63%	9.6	-20%	16.7	51%
P3-R2-C1 Post	**26-Jan-11**	**2.5**	<1.0	<1.0	<1.0	<1.0	<1.0	**2**	**7.6**	<1.0	<1.0	9.6	OK	-20%						
P3-R3-C2 Post	**26-Jan-11**	**1.5**	<1.0	<1.0	<1.0	<1.0	<1.0	**2.7**	**8.9**	<1.0	<1.0	11.6	OK	85%						
P3-R4-C2 Post	**26-Jan-11**	**Adjacent***	<2.0	<2.0	<2.0	<2.0	<2.0	**8.4**	**20**	<2.0	<2.0	28.4	OK	11%						

TABLE 5
Pilot Test Wipe Sample Results: PCBs
Train Building
MBTA Cabot Yard
275 Dorchester Avenue
Dorchester, Massachusetts

Sample ID	Date	Approx. distance from Nearest Caulk Joint (feet)	Polychlorinated Biphenyls (by EPA Method 8082) ug/100cm^2										QA/QC Review	Statistical Evaluation of Total PCB Concentration						
			1016	1221	1232	1242	1248	1254	1260	1262	1268	Total PCBs		Sample Point % Decrease	Maximum in Plot	Maximum % Decrease	Minimum in Plot	Minimum % Decrease	Average in Plot	Average % Decrease
Plot 4 - Simple Green																				
P4-R1-C4 Pre	**25-Jan-11**	**3.5**	<1.0	<1.0	<1.0	<1.0	<1.0	**2.7**	**10**	<1.0	<1.0	12.7	OK	NA	36		11.4		18.3	
P4-R2-C1 Pre	**25-Jan-11**	**2.5**	<1.0	<1.0	<1.0	<1.0	<1.0	**2.5**	**8.9**	<1.0	<1.0	11.4	OK							
P4-R3-C2 Pre	**25-Jan-11**	**1.5**	<1.0	<1.0	<1.0	<1.0	<1.0	**2.9**	**10**	<1.0	<1.0	12.9	OK							
P4-R4-C2 Pre	**25-Jan-11**	**Adjacent***	<2.0	<2.0	<2.0	<2.0	<2.0	**11**	**25**	<2.0	<2.0	36	OK							
P4-R1-C4 Post	**26-Jan-11**	**3.5**	<1.0	<1.0	<1.0	<1.0	<1.0	**1.8**	**6.4**	<1.0	<1.0	8.2	OK	35%	34	6%	8.2	28%	18.3	0%
P4-R2-C1 Post	**26-Jan-11**	**2.5**	<2.0	<2.0	<2.0	<2.0	<2.0	**3.5**	**12**	<2.0	<2.0	15.5	OK	-36%						
P4-R3-C2 Post	**26-Jan-11**	**1.5**	<1.0	<1.0	<1.0	<1.0	<1.0	**3.3**	**12**	<1.0	<1.0	15.3	OK	-19%						
P4-R4-C2 Post	**26-Jan-11**	**Adjacent***	<2.0	<2.0	<2.0	<2.0	<2.0	**11**	**23**	<2.0	<2.0	34	OK	6%						
QA Samples																				
P1-R5-C2 Pre (Blank)	**25-Jan-11**	**NA**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0	OK							
P1-R3-C2 Pre 2 (Dupe)	**25-Jan-11**	**1.5**	<0.20	<0.20	<0.20	<0.20	<0.20	**6.20**	**19**	<0.20	<0.20	25.2	OK							
P1-R3-C2 Pre (Original)	**25-Jan-11**	**1.5**	<2.0	<2.0	<2.0	<2.0	<2.0	**4.7**	**15**	<2.0	<2.0	19.7	OK							
Relative Percent Difference (duplicate samples)			0%	0%	0%	0%	0%	28%	24%	0%	0%	24%	NA							

NOTES:
Concentrations presented in micrograms per 100 cm^2
Bolded indicates concentration above laboratory method detection limit
"<" = Compound not detected above noted method detection limit
*Sample collected with nearest edge of sample area 1 inch from edge of joint.
(1) No surrogate recovery due to needed sample dilutions.
(2) Surrogate recovery on confirmatory column outside control limits; surrogate recovery on primary column acceptable.

Appendix A

Laboratory Analytical Data Report – Wall Caulk

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

November 4, 2010

Dan White
ATC Associates - Woburn
600 W Cummings Park, Suite 5500
Woburn, MA 01801

Project Location: MBTA-Cabot Yard
Client Job Number:
Project Number: 60.07443.1028
Laboratory Work Order Number: 10J0895

Enclosed are results of analyses for samples received by the laboratory on October 28, 2010. 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

ATC Associates - Woburn
600 W Cummings Park, Suite 5500
Woburn, MA 01801
ATTN: Dan White

REPORT DATE: 11/4/2010

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 60.07443.1028

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 10J0895

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

PROJECT LOCATION: MBTA-Cabot Yard

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
Wall Caulk 1	10J0895-01	Caulk		SW-846 8082	
Wall Caulk 2	10J0895-02	Caulk		SW-846 8082	
Wall Caulk 3	10J0895-03	Caulk		SW-846 8082	
Wall Caulk 4	10J0895-04	Caulk		SW-846 8082	

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

CASE NARRATIVE SUMMARY

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

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 individuuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Michael A. Erickson
Laboratory Director

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

Project Location: MBTA-Cabot Yard
Sample Description:
Work Order: 10J0895

Date Received: 10/28/2010

Field Sample #: Wall Caulk 1
Sampled: 10/27/2010 14:00

Sample ID: 10J0895-01

Sample Matrix: Caulk

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	8.0	mg/Kg	10		SW-846 8082	10/29/10	11/2/10 11:19	PJG
Aroclor-1221 [1]	ND	8.0	mg/Kg	10		SW-846 8082	10/29/10	11/2/10 11:19	PJG
Aroclor-1232 [1]	ND	8.0	mg/Kg	10		SW-846 8082	10/29/10	11/2/10 11:19	PJG
Aroclor-1242 [1]	ND	8.0	mg/Kg	10		SW-846 8082	10/29/10	11/2/10 11:19	PJG
Aroclor-1248 [1]	ND	8.0	mg/Kg	10		SW-846 8082	10/29/10	11/2/10 11:19	PJG
Aroclor-1254 [1]	25	8.0	mg/Kg	10		SW-846 8082	10/29/10	11/2/10 11:19	PJG
Aroclor-1260 [2]	21	8.0	mg/Kg	10		SW-846 8082	10/29/10	11/2/10 11:19	PJG
Aroclor-1262 [1]	ND	8.0	mg/Kg	10		SW-846 8082	10/29/10	11/2/10 11:19	PJG
Aroclor-1268 [1]	ND	8.0	mg/Kg	10		SW-846 8082	10/29/10	11/2/10 11:19	PJG

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	90.4	30-150		11/2/10 11:19
Decachlorobiphenyl [2]	89.9	30-150		11/2/10 11:19
Tetrachloro-m-xylene [1]	88.3	30-150		11/2/10 11:19
Tetrachloro-m-xylene [2]	90.7	30-150		11/2/10 11:19

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

Project Location: MBTA-Cabot Yard
Sample Description:
Work Order: 10J0895

Date Received: 10/28/2010

Field Sample #: Wall Caulk 2
Sampled: 10/27/2010 14:10

Sample ID: 10J0895-02

Sample Matrix: Caulk

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.79	mg/Kg	1		SW-846 8082	10/29/10	11/2/10 11:33	PJG
Aroclor-1221 [1]	ND	0.79	mg/Kg	1		SW-846 8082	10/29/10	11/2/10 11:33	PJG
Aroclor-1232 [1]	ND	0.79	mg/Kg	1		SW-846 8082	10/29/10	11/2/10 11:33	PJG
Aroclor-1242 [1]	ND	0.79	mg/Kg	1		SW-846 8082	10/29/10	11/2/10 11:33	PJG
Aroclor-1248 [1]	ND	0.79	mg/Kg	1		SW-846 8082	10/29/10	11/2/10 11:33	PJG
Aroclor-1254 [2]	1.9	0.79	mg/Kg	1		SW-846 8082	10/29/10	11/2/10 11:33	PJG
Aroclor-1260 [2]	1.8	0.79	mg/Kg	1		SW-846 8082	10/29/10	11/2/10 11:33	PJG
Aroclor-1262 [1]	ND	0.79	mg/Kg	1		SW-846 8082	10/29/10	11/2/10 11:33	PJG
Aroclor-1268 [1]	ND	0.79	mg/Kg	1		SW-846 8082	10/29/10	11/2/10 11:33	PJG

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	92.6	30-150		11/2/10 11:33
Decachlorobiphenyl [2]	99.7	30-150		11/2/10 11:33
Tetrachloro-m-xylene [1]	90.6	30-150		11/2/10 11:33
Tetrachloro-m-xylene [2]	91.5	30-150		11/2/10 11:33

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

Project Location: MBTA-Cabot Yard
Sample Description:
Work Order: 10J0895

Date Received: 10/28/2010

Field Sample #: Wall Caulk 3
Sampled: 10/27/2010 14:20

Sample ID: 10J0895-03

Sample Matrix: Caulk

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	4.0	mg/Kg	5		SW-846 8082	10/29/10	11/2/10 11:47	PJG
Aroclor-1221 [1]	ND	4.0	mg/Kg	5		SW-846 8082	10/29/10	11/2/10 11:47	PJG
Aroclor-1232 [1]	ND	4.0	mg/Kg	5		SW-846 8082	10/29/10	11/2/10 11:47	PJG
Aroclor-1242 [1]	ND	4.0	mg/Kg	5		SW-846 8082	10/29/10	11/2/10 11:47	PJG
Aroclor-1248 [1]	ND	4.0	mg/Kg	5		SW-846 8082	10/29/10	11/2/10 11:47	PJG
Aroclor-1254 [2]	11	4.0	mg/Kg	5		SW-846 8082	10/29/10	11/2/10 11:47	PJG
Aroclor-1260 [1]	ND	4.0	mg/Kg	5		SW-846 8082	10/29/10	11/2/10 11:47	PJG
Aroclor-1262 [1]	ND	4.0	mg/Kg	5		SW-846 8082	10/29/10	11/2/10 11:47	PJG
Aroclor-1268 [1]	ND	4.0	mg/Kg	5		SW-846 8082	10/29/10	11/2/10 11:47	PJG

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	89.4	30-150		11/2/10 11:47
Decachlorobiphenyl [2]	81.7	30-150		11/2/10 11:47
Tetrachloro-m-xylene [1]	92.7	30-150		11/2/10 11:47
Tetrachloro-m-xylene [2]	99.2	30-150		11/2/10 11:47

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Project Location: MBTA-Cabot Yard
Sample Description:
Work Order: 10J0895

Date Received: 10/28/2010

Field Sample #: Wall Caulk 4
Sampled: 10/27/2010 14:30

Sample ID: 10J0895-04

Sample Matrix: Caulk

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	3.8	mg/Kg	5		SW-846 8082	10/29/10	11/2/10 12:02	PJG
Aroclor-1221 [1]	ND	3.8	mg/Kg	5		SW-846 8082	10/29/10	11/2/10 12:02	PJG
Aroclor-1232 [1]	ND	3.8	mg/Kg	5		SW-846 8082	10/29/10	11/2/10 12:02	PJG
Aroclor-1242 [1]	ND	3.8	mg/Kg	5		SW-846 8082	10/29/10	11/2/10 12:02	PJG
Aroclor-1248 [1]	ND	3.8	mg/Kg	5		SW-846 8082	10/29/10	11/2/10 12:02	PJG
Aroclor-1254 [2]	13	3.8	mg/Kg	5		SW-846 8082	10/29/10	11/2/10 12:02	PJG
Aroclor-1260 [1]	ND	3.8	mg/Kg	5		SW-846 8082	10/29/10	11/2/10 12:02	PJG
Aroclor-1262 [1]	ND	3.8	mg/Kg	5		SW-846 8082	10/29/10	11/2/10 12:02	PJG
Aroclor-1268 [1]	ND	3.8	mg/Kg	5		SW-846 8082	10/29/10	11/2/10 12:02	PJG

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	84.8	30-150		11/2/10 12:02
Decachlorobiphenyl [2]	83.7	30-150		11/2/10 12:02
Tetrachloro-m-xylene [1]	94.0	30-150		11/2/10 12:02
Tetrachloro-m-xylene [2]	88.4	30-150		11/2/10 12:02

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Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
10J0895-01 [Wall Caulk 1]	B021506	0.501	10.0	10/29/10
10J0895-02 [Wall Caulk 2]	B021506	0.509	10.0	10/29/10
10J0895-03 [Wall Caulk 3]	B021506	0.501	10.0	10/29/10
10J0895-04 [Wall Caulk 4]	B021506	0.525	10.0	10/29/10

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QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B021506 - SW-846 3540C										
Blank (B021506-BLK1)				Prepared: 10/29/10 Analyzed: 11/02/10						
Aroclor-1016	ND	0.80	mg/Kg							
Aroclor-1016 [2C]	ND	0.80	mg/Kg							
Aroclor-1221	ND	0.80	mg/Kg							
Aroclor-1221 [2C]	ND	0.80	mg/Kg							
Aroclor-1232	ND	0.80	mg/Kg							
Aroclor-1232 [2C]	ND	0.80	mg/Kg							
Aroclor-1242	ND	0.80	mg/Kg							
Aroclor-1242 [2C]	ND	0.80	mg/Kg							
Aroclor-1248	ND	0.80	mg/Kg							
Aroclor-1248 [2C]	ND	0.80	mg/Kg							
Aroclor-1254	ND	0.80	mg/Kg							
Aroclor-1254 [2C]	ND	0.80	mg/Kg							
Aroclor-1260	ND	0.80	mg/Kg							
Aroclor-1260 [2C]	ND	0.80	mg/Kg							
Aroclor-1262	ND	0.80	mg/Kg							
Aroclor-1262 [2C]	ND	0.80	mg/Kg							
Aroclor-1268	ND	0.80	mg/Kg							
Aroclor-1268 [2C]	ND	0.80	mg/Kg							
Surrogate: Decachlorobiphenyl	*4.24*		mg/Kg	4.00		106	30-150			
Surrogate: Decachlorobiphenyl [2C]	*4.45*		mg/Kg	4.00		111	30-150			
Surrogate: Tetrachloro-m-xylene	*4.04*		mg/Kg	4.00		101	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*4.26*		mg/Kg	4.00		106	30-150			
LCS (B021506-BS1)				Prepared: 10/29/10 Analyzed: 11/02/10						
Aroclor-1016	1.0	0.80	mg/Kg	1.00		102	40-140			
Aroclor-1016 [2C]	1.1	0.80	mg/Kg	1.00		107	40-140			
Aroclor-1260	1.1	0.80	mg/Kg	1.00		108	40-140			
Aroclor-1260 [2C]	1.1	0.80	mg/Kg	1.00		108	40-140			
Surrogate: Decachlorobiphenyl	*4.12*		mg/Kg	4.00		103	30-150			
Surrogate: Decachlorobiphenyl [2C]	*4.33*		mg/Kg	4.00		108	30-150			
Surrogate: Tetrachloro-m-xylene	*3.99*		mg/Kg	4.00		99.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*4.12*		mg/Kg	4.00		103	30-150			
LCS Dup (B021506-BSD1)				Prepared: 10/29/10 Analyzed: 11/02/10						
Aroclor-1016	1.1	0.80	mg/Kg	1.00		114	40-140	11.0	30	
Aroclor-1016 [2C]	1.1	0.80	mg/Kg	1.00		110	40-140	3.15	30	
Aroclor-1260	1.1	0.80	mg/Kg	1.00		110	40-140	1.93	30	
Aroclor-1260 [2C]	1.1	0.80	mg/Kg	1.00		113	40-140	4.64	30	
Surrogate: Decachlorobiphenyl	*4.23*		mg/Kg	4.00		106	30-150			
Surrogate: Decachlorobiphenyl [2C]	*4.43*		mg/Kg	4.00		111	30-150			
Surrogate: Tetrachloro-m-xylene	*4.03*		mg/Kg	4.00		101	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*4.14*		mg/Kg	4.00		103	30-150			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level

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

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications

No certified Analyses included in this Report

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

Code	Description	Number	Expires
AIHA	American Industrial Hygiene Association	100033	01/1/2012
MA	Massachusetts DEP	M-MA100	06/30/2011
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2011
NY	New York State Department of Health	10899 NELAP	04/1/2011
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2011
RI	Rhode Island Department of Health	LAO00112	12/30/2010
NC	North Carolina Div. of Water Quality	652	12/31/2010
NJ	New Jersey DEP	MA007 NELAP	06/30/2011
FL	Florida Department of Health	E871027 NELAP	06/30/2011
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2011
WA	State of Washington Department of Ecology	C2065	02/23/2011

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CHAIN OF CUSTODY RECORD

1050895

39 Spruce Street
East longmeadow, MA 01028

Page 1 of

Company Name: ATC Associates
Address: 600 W. Cummings Park, Ste 5500
Woburn, MA 01801
Attention: Dan White
Project Location: MBTA - Cobat Yard
Sampled By: DPW

Telephone: 781-404-1432
Project #: 60.07443.1028
Client PO#: —

DATA DELIVERY (check all that apply)
O FAX ☒ EMAIL ☒ WEBSITE
Fax #: —
Email: Daniel.White@ATCAssociates.com
Format: ☒ PDF ☒ EXCEL O GIS
O OTHER
O "Enhanced Data Package"

Project Proposal Provided? (for billing purposes)
O yes _____ proposal date

ANALYSIS REQUESTED

Con-Test Lab ID (laboratory use only)	Client Sample ID / Description	Collection ~~Beginning~~ Date/~~Time~~	Collection ~~Ending~~ Date/Time	Composite	Grab	*Matrix Code	Conc Code	PCBs (8082) + Soxhlet	I	I	O	# of Containe	** Preservati	***Container le
-01	Wall Caulk 1	10/27/10	1400		X	S	Unknown	X						
-02	Wall Caulk 2	↓	1410		↓	↓	↓	↓						
-03	Wall Caulk 3		1420											
-04	Wall Caulk 4		1430											

Comments:

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in Matrix/Conc. Code Box:

H - High; M - Medium; L - Low; C - Clean; U - Unknown

Dissolved Metals
O Field Filtered
O Lab to Filter

***Cont. Code:
A=amber glass
G=glass
P=plastic
ST=sterile
V= vial
S=summa can
T=tedlar bag
O=Other Ziplock bag

**Preservation
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium bisulfate
X = Na hydroxide
T = Na thiosulfate
O = Other _____

*Matrix Code:
GW= groundwater
WW= wastewater
DW= drinking water
A = air
S = soil/solid
SL = sludge
O = other Caulk

Relinquished by: (signature)	Date/Time: 10/28/10
Received by: (signature)	Date/Time: 1335 10-28-10
Relinquished by: (signature)	Date/Time: 1940 10-28-10
Received by: (signature)	Date/Time: 10/28/10 1940

Turnaround ††
☐ 7-Day
☐ 10-Day
☒ Other Std.

RUSH †
☐ †24-Hr ☐ †48-Hr
☐ †72-Hr ☐ †4-Day
† Require lab approval

Detection Limit Requirements
Massachusetts:
Connecticut:
Other: TSCA 1.0 mg/kg

Is your project MCP or RCP ?
O MCP Analytical Certification Form Required
O RCP Analysis Certification Form Required
O MA State DW Form Required PWSID # _____

NELAC & AIHA Certified
WBE/DBE Certified

†† TURNAROUND TIME (business days) STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED.

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Sample Receipt Checklist

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East Longmeadow, MA.
01028
P: 413-525-2332
F: 413-525-6405

CLIENT NAME: ATC Associates RECEIVED BY: CJB DATE: 10/28/10

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

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 2.8°C

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

Who was notified _____ Date _____ Time _____

6) Are there any samples "On Hold"? Yes (No) Stored where: _____

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

Who was notified _____ Date _____ Time _____

8) Location where samples are stored: 19

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

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	
250 mL Amber (8oz amber)		2 oz amber/clear jar	
1 Liter Plastic		Other glass jar	
500 mL Plastic		Plastic Bag / Ziploc	4
250 mL plastic		Air Cassette	
40 mL Vial - type listed below		SOC Kit	
Colisure / bacteria bottle		Tubes	
Dissolved Oxygen bottle		Non-ConTest Container	
Flashpoint bottle		Other	
Encore		PM 2.5 / PM 10	
Perchlorate Kit		PUF Cartridge	

Laboratory Comments:

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

Time and Date Frozen:

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

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

Appendix B

Risk Characterization dated March 19, 2010

CHARACTERIZATION OF POTENTIAL WORKER HEALTH RISK

MBTA CABOT YARD
275 DORCHESTER AVENUE
SOUTH BOSTON, MASSACHUSETTS 02127

MARCH 19, 2010

Prepared for:

Massachusetts Bay Transportation Authority
Ten Park Plaza, Room 6720
Boston, Massachusetts 02116
(617) 222-1592

Prepared by:

ATC Associates Inc.
600 West Cummings Park, Suite 5500
Woburn, Massachusetts 01801
(781) 932-9400

ATC Project No. 60.07443.1011

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APPENDICES

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ACRONYMS/DEFINITIONS LIST

Risk Characterization	The process of quantifying the level of risk (most frequently risk to human health) posed by exposure to contaminants. Risk characterizations use measured data (from samples) and observed and assumed exposure scenarios to calculate risk levels that can then be compared to criteria established by regulatory agencies.
PCBs	Polychlorinated biphenyls, a family of manmade chemicals with a similar structure.
Congener	An individual PCB compound with a specific structure. There are a total of 209 different PCB congeners.
Homolog	A group of PCB congeners with the same number of chlorine atoms. There are 10 different PCB homologs (with between 1 and 10 chlorine atoms).
Aroclor	A mixture of certain PCB congeners. Monsanto chemical company originally developed aroclor mixtures to be useful for different purposes. Each aroclor is identified by a four letter ID (e.g. Aroclor 1254).
CoPC	Compounds of Potential Concern. In this Risk Characterization, certain PCB aroclors are the CoPC.
TSCA	Toxic Substances Control Act. The federal environmental legislation that governs PCB use (among other things).
ATC	ATC Associates Inc., an environmental consultant for the MBTA.
U.S. EPA / EPA	The U.S. Environmental Protection Agency, the federal agency that implements TSCA regulations.
MassDEP	The Massachusetts Department of Environmental Protection. While not involved in issues related to PCBs in building materials, the MassDEP has published some guidance on risk characterization that is used in this document.
MWRA	The Massachusetts Water Resources Authority, the agency that manages the sewer collection system that the Cabot Yard buildings discharge to.
VERSAR	A consultant company that has developed toxicity parameters under contract to EPA.
ATSDR	Agency for Toxic Substances and Disease Registry, a federal public health agency of the U.S. Department of Health and

	Human Services that supplies information on toxic substances, including PCBs.
Surface Wipe sample	A sample collected by wiping a surface (such as concrete) with a gauze pad soaked in hexane. A wipe sample provides data on contaminants that could be picked up by people from a contaminated surface.
Air Particulate Sample	A sample of small particles (dust) floating in indoor air, collected by pulling air through a filter on which the particles accumulate. An air particulate sample provides data on airborne contaminants that could be inhaled by people.
PUF Cartridge	An air sampling cartridge that collects both vapors and particulates on a Poly-Urethane Foam plug. Analyzed by either TO-4A or TO-10A methods.
Bulk Dust sample	A sample of dust that has accumulated on horizontal surfaces, collected by scraping up dust with a hand tool.
Concrete Sample	A sample of a concrete building structure (in this case, the floor), collected by drilling a hole in the top ½ inch of the concrete slab and collecting the resulting dust.
Respirable Particulate	Airborne particulate matter that could be inhaled deep into the lungs of a person. Some airborne particulate is too large to be inhaled deep into the lungs. See PM_{10} below.
PM_{10}	Particulate Matter less then 10 microns in diameter, considered able to be inhaled into the lungs.
ug/m^3	Micrograms per cubic meter of air, the units for concentrations of contamination in indoor air.
$ug/100\ cm^2$	Micrograms per 100 square centimeters of wiped surface, the units for concentrations of contamination on surfaces.
mg/kg	Milligrams per kilogram, the units for concentrations of contamination in solid matter (including concrete). Also abbreviated as parts per million (ppm).
TSCA Clean-up Level	The level to which PCBs have to be cleaned up in the environment or in buildings under a TSCA self-implementing clean-up. These levels were originally defined to manage spills of PCB-containing oil or similar materials. The most stringent TSCA clean-up level for PCBs in porous materials is 1 ppm, while the lowest clean-up level for PCBs on non-porous surfaces is 10 $ug/100cm^2$.

EPC	Exposure Point Concentration, the concentration of a contaminant present at the point of exposure for a person. The EPC is used in the risk characterization calculations.
95th CI	95th confidence interval on the mean, a statistical parameter. In a distribution of values in a data set, 95 percent of the measured concentrations are expected to be less than this value.
MEAN	The average PCB concentration.
SD	Standard deviation, a statistical parameter of data, used to calculate the mean.
Exposure Profile	A narrative description of the assumed potential for receptor (human) exposure at the disposal site.
RfD	Reference Dose, the highest dose of a contaminant deemed unlikely to cause adverse effects for all other exposures, defined in units of mg/kg body weight per day (mg/kg-bw/day).
RfC	Reference Concentration, the highest concentration of a contaminant deemed unlikely to cause adverse effects for inhalation exposure, defined in units of milligrams per cubic meter (mg/m^3) of air.
CSF	Cancer Slope Factor, a toxicity value indicating the relative cancer-causing potential of a contaminant.
UR	Unit Risk value, a standardized toxicity value (similar to CSF) indicating the relative cancer-causing potential of a contaminant
IRIS	U.S. EPA's Integrated Risk Information System, source of toxicity information for many chemicals.
RAIS	Risk Assessment Information Service, another source of toxicity information.
HEAST	U.S. EPA's Health and Environmental Assessment Summary Table, another source of toxicity information.
GI Tract	Gastrointestinal tract
NOAEL	No-Observed-Adverse-Effect-Level, the level of a contaminant at which no adverse effects have been observed in humans or laboratory test animals.
LOAEL	Lowest-Observed-Adverse-Effect-Level, the lowest level of a contaminant at which adverse effects have been observed in humans or laboratory test animals.

UF	Uncertainty factors, used in toxicity values to adjust for various uncertainties associated with measurements of a contaminant's toxicity.
TF	Transfer Factor, the relative mass of a contaminant transferred from a surface to a person's skin (typically expressed as a percentage).
RAF	Relative Absorption Factor, the amount of a contaminant on human skin absorbed into the body (typically expressed as a percentage).
FI	Fractional Intake, a unit-less value used to adjust exposure values for miscellaneous site-specific parameters.
EEC	Effective Exposure Concentration, use to adjust the PM_{10} concentration to account for differences in the fate of contaminates on inhaled particulates. While some inhaled particulates are trapped in mucosal membranes and subsequently swallowed, with contaminants absorbed in the gastrointestinal ("GI") tract, other particulates are deposited deep in the lungs where contaminants are absorbed into the blood stream through alveolar membranes.
ADD	Average Daily Dose, the average daily intake of a non-carcinogenic contaminant over a certain time period, used in risk calculations.
LADD	Lifetime Average Daily Dose, the average daily intake of a carcinogenic contaminant over a typical life-time, used in risk calculations.
Exposure Parameters	(Defined in Table 9, Section 4.4 and the list in Section 4.5)
HI	Hazard Index, the measurement of the amount of risk from non-cancer health problems.
ELCR	Excess Lifetime Cancer Risk, the measurement of the amount of cancer risk.
Acceptable Risk	The level of risk from exposure to a contaminant that is deemed acceptable, as defined by regulatory agencies. EPA's acceptable HI is 1, and acceptable ELCR ranges from 10^{-4} to 10^{-6}.
Sensitivity Analysis	The name given to a process of systematically altering the value of input parameters used in risk calculations for the purpose of defining how parameter changes affect risk estimates (see Section 6.0).

EXECUTIVE SUMMARY

ATC Associates Inc. ("ATC") characterized Massachusetts Bay Transportation Authority ("MBTA') worker health risks associated with polychlorinated biphenyls ("PCBs") detected on floor surfaces and in airborne respirable dusts of the MBTA Cabot Yard train facility, located at 275 Dorchester Avenue in South Boston, Massachusetts. ATC performed this risk characterization in a manner consistent with applicable risk assessment guidance, assuming that current site uses and receptor activities continue into the foreseeable future. The purpose of this risk characterization is to (1) to determine whether PCBs originating from building materials in the facility pose a risk of harm current MBTA workers and (2) to help determine if additional remedial action(s) are needed.

PCBs were detected in caulking material in the Cabot Yard train building in 2008 during preparation for work the MBTA planned to conduct in the wash alley. The MBTA has conducted this worker health risk characterization as a protective measure to ensure long-term worker health and safety, as part of the development and submittal of required clean-up plans to the U.S. Environmental Protection Agency ("EPA") under the Toxic Substances Control Act ("TSCA"). The MBTA intends to use this risk characterization to help guide practices for the protection of workers and the long-term maintenance of the building. ATC performed this human health risk characterization using conservative exposure point concentrations ("EPC") for PCBs associated with facility floor surfaces and in indoor air, including PCBs in vapors and in airborne respirable particulates. ATC used the group of MBTA repairer/mechanics as a surrogate receptor group for all MBTA employees working at the facility, since this receptor group has the greatest potential frequency and intensity of contact with floor surfaces, and the highest likely breathing rates of MBTA employees at the Cabot Yard train building. ATC assumes that the entire surface of the facility floor is impacted by PCBs at the level of the 95th confidence interval on the mean of wipe sample data, and that indoor air contains the highest concentration of total PCBs measured in vapors and in respirable particulates (i.e., particulate below 10 micron in size; PM_{10}). ATC assumes that MBTA repairer/mechanics are exposed daily to PCBs on the floor and in the air of the facility over the maximum period these workers could be present at the facility. Finally, ATC assumes that repairers/mechanics have more than just casual contact with the facility floor and a somewhat higher breathing rate than ATC observed for these workers. In total, these assumptions produce conservative health risk estimates that are overly protective of MBTA worker health.

The result of this risk characterization demonstrates that PCBs on facility floors and in fine particulate (PM_{10}) within facility air pose a health risk slightly exceeding EPA acceptable target risks. ATC augments the results of this risk characterization with a sensitivity analysis of the exposure point concentration ("EPC") derived for each media and exposure parameters for MBTA repairer/mechanics, which ATC used to reach this conclusion. This analysis suggests that the use of less conservative EPC (i.e., one

representing exposures that are more representative of MBTA workers throughout the facility) and/or less conservative exposure parameters representing all MBTA employees would likely result in lower quantitative estimates of human health risk.

The presence of PCBs in certain building materials (such as caulk) in structures throughout the United States has only become generally known in the last several years. It is a new and emerging issue that is the subject of significant continuing study by EPA and state agencies. The MBTA expects that advances will be made in understanding the nature and distribution of PCBs from building materials, human health effects from PCBs in building materials, and best management practices for PCB caulking materials. The MBTA will use the results of this risk characterization to develop appropriate management practices for the caulk and procedures to limit worker health risk, and will modify these practices and procedures at Cabot Yard as understanding of the issue on the state and national level improves.

RISK CHARACTERIZATION

This report describes ATC's characterization of MBTA worker health risks associated with PCBs detected on floor surfaces and in indoor air of the MBTA Cabot Yard train facility, located at 275 Dorchester Avenue in South Boston, Massachusetts. ATC characterized MBTA employee health risk using accepted methods of human health risk characterization consistent with established chemical risk assessment principles and procedures (NAS 1983) and EPA risk characterization guidance (USEPA 1989, 1991a, b, 1992b). The purpose of this risk characterization is to provide MBTA with information concerning the potential for PCBs within the Cabot Yard train facility to pose a risk of harm to MBTA workers. The information derived from this risk characterization may be used by MBTA management and workers in the management of PCB-associated health risks as it relates to PCBs on surfaces and in the air of this facility. This report is intended to support development of a risk based clean up of PCBs under the TSCA [40 CFR 761.61(c)].

Risk characterization, while appearing to use quantitative science to arrive at receptor health risk estimates, relies heavily on professional judgment, the use of default assumptions, and in the selection of appropriate exposure parameters used to model receptor exposure. Because small changes in some exposure parameters can result in large changes in estimated exposures and resulting health risk estimates, it is not uncommon for different risk assessors, evaluating the same receptor's exposure, to arrive at very different conclusions. Because of the potential for different risk assessors to reach very different conclusions, ATC provides a discussion of the uncertainty inherent in risk characterization and performs a sensitivity analysis of exposure parameters, identifying those with the greatest potential to cause significant changes in worker health risk estimates.

1.0 HUMAN HEALTH RISK CHARACTERIZATION

ATC performed a characterization of human health risk in a manner consistent with applicable risk assessment guidance (MASSDEP 1995; USEPA 1989, 1991a, 1992b, c). While ATC uses the U.S. EPA risk characterization paradigm and, where necessary, U.S. EPA default exposure parameters, ATC also uses several exposure parameters identified by the Massachusetts Department of Environmental Protection ("MassDEP") as well as a MassDEP approach for evaluating receptor exposure to respirable particulate. ATC uses several MassDEP exposure parameters because they are more appropriate for people living and working in Massachusetts than are the generic U.S. EPA exposure parameters provided for use in evaluating health risk within the general population. ATC uses the MassDEP approach for evaluating receptor exposure to respirable particulate since it better approximates contaminant intake associated with inhalation of particulate matter.

The basic process of characterizing human health risk involves integration of five separate components: hazard identification, dose response or toxicity assessment, exposure assessment, risk characterization, and uncertainty analysis. The result of human health risk characterization is a set of quantitative estimates of non-cancer hazard (i.e., hazard indices or HIs) and excess lifetime cancer risk ("ELCR") associated with receptor exposure to concentrations of chemicals in various media from the site. In this risk characterization the only compounds of potential concern ("CoPC") are the group of PCBs detected in indoor air (i.e., in vapors and in airborne respirable particulate) and in wipe samples from the facility floor. ATC assumes that the construction caulk in floor joints is the source of these PCBs. ATC considers several preliminary steps prior to characterizing health risk at the site.

1.1 Preliminary Steps

Risk characterizations require information on current and foreseeable site land uses, site media, background concentrations, and any assumptions or limitations relating to allowable site activities and uses. ATC addresses each of these preliminary steps and each of the major components of a human health risk characterization in the following sections.

1.1.1 Current and Foreseeable Site Activities and Uses

Currently, MBTA owns and operates the subject site for the purpose of servicing trains. MBTA employees working at the site are involved in the management of employees, maintenance of the site, and the repair, painting, and cleaning of MBTA trains. An interview of MBTA staff (***Appendix A***) identified specific categories of MBTA employees currently working at the facility. These categories include rail repairers or mechanics (i.e., repairer/mechanics), tradesman (e.g., carpenters, electricians, sheet metal workers, blacksmiths, and painters), car cleaners, engineers, clerks, janitors, and motormen. In February of 2009, ATC recorded general observations of MBTA employees working in the vicinity of floor areas with caulk containing PCBs. ATC

recorded observations of worker contact with floor surfaces and other behaviors typical of each worker's job performance that may relate to their potential contact with PCB containing materials (***Appendix B***). Current site activities and uses are not expected to change in the foreseeable future.

1.1.2 Assumptions Concerning Future Site Use

This risk characterization assumes that the use of the MBTA's Cabot Yard train facility will not change in the foreseeable future. It is anticipated that a deed restriction will be drafted and submitted to the EPA for approval in the future to formalize this assumption as part of the TSCA PCB remediation plan that will be developed for the Site. Considering current MBTA uses and activities at the site, ATC identified repairer/mechanics as the receptor group with the greatest potential contact with PCBs associated with airborne respirable particulate and floor surfaces.

1.1.3 Established Background

While there is no "natural" background concentration for PCBs in the environment, a major source of PCBs to air, water, and soil occurs from the cycling of PCBs remaining in the environment (VERSAR. 2000). According to ATSDR, the cycling process involves volatilization of PCBs from aquatic and terrestrial surfaces to the atmosphere with subsequent re-deposition of these compounds back to soil and surface waters (ATSDR 2000). Typical mean PCB concentrations in air from urban, rural, and remote locations are 1 to 10 ng/m^3, 0.6 ng/m^3, and less than 0.1 ng/m^3, respectively (ATSDR 2000). While the background concentration of PCBs in soils is less than 100 ug/kg (0.1 mg/kg), PCB concentrations in drinking water are typically non-detect (i.e., less than 0.1 ug/L). This is in contrast to PCB concentrations of 0.5 to 3.3 ug/L in Great Lakes water and 0.5 ug/g tissue in freshwater fish (ATSDR 2000). For the purpose of this risk characterization, ATC assumed that PCB background concentrations are below method detection limits for wipe, indoor air, and bulk dust samples.

1.2 Site Characterization

The MBTA Cabot Yard train repair facility is a one-story high (20 foot or greater roof heights) steel frame building with concrete panel walls and a concrete slab floor, with one interior portion of the building containing two stories under the same roof-line. While much of the building's floor consists of a concrete slab at grade level, there are several areas, including the wheel truing pit, train inspection/repair pits and a small basement compressor room, that have floors that are lower than the rest of the facility floor. Of principal importance in this risk characterization are floor surfaces in the vicinity of the construction caulk joints that exist within the concrete floor slabs and serve as expansion joints.

1.2.1 Train Building Description

MBTA uses the Cabot Yard train facility for repairing and maintaining trains. The facility includes a two story office area, parts storage, and locker rooms in the center of the building (i.e., between tracks 2 and 3), with the vast majority of the facility dedicated to work areas where train repair, maintenance, and cleaning occur. The facility is divided into several general areas; a hydraulic lift and repair area (i.e., tracks 1 and 2 on the east side of the building), an inspection and repair area (i.e., tracks 3, 4, 5, and 6 in the middle of the building), a repair area and paint booth at the north end of the facility (i.e., tracks 7 and 8 toward the west side of the building), and the train wash alley (i.e., a single un-numbered track at the west end of the building that is segregated from the rest of the building by an internal concrete block wall). A large area in the northeast section of the building, and including tracks 1 and 2, is used for storage and heavy repair functions. See ***Figure 1*** for layout of the train building.

The train wash alley is approximately 600 feet long and is located along the western side of the building, separated from the rest of the building by a concrete block wall. A single track runs north-south through the train wash alley, entering from the south and exiting to the north. Concrete platforms, similar to those found in MBTA subway stations, line both sides of the alley for almost its entire length. The alley has a concrete floor with a shallow channel for collection of wash water, which drains into one of four drains located along the length of the alley and which eventually discharge to a concrete sedimentation tank located beneath the concrete platform on the east side of the rails near the north end of the alley. Waste water from the sedimentation tank is pumped out periodically to a wastewater treatment system and is ultimately discharged to the Massachusetts Water Resources Authority ("MWRA") sewer system. The train wash alley is typically used to wash MBTA red line rapid transit subway trains, a process that uses sprayers and brushes similar to those employed in an automatic car wash.

Within the train wash alley, ATC identified construction caulk in two ¾-inch wide floor joints located on either side of the track rails, running parallel to the rail, and extending the full length of the track, from the southern to the northern building walls. These joints are slightly elevated from the floor of the alley on a small concrete "bench" that runs parallel to the rails. ATC also identified construction caulk existing in two, 1.5-inch wide, expansion joints that run perpendicular to the rails and extend from the eastern to the western side of the train wash alley. These caulk joints extend across the wash alley floor, sides, and floor of the platform. The caulk within these wash alley joints was removed during a TSCA risk-based remediation in August-September 2009, and most of the concrete floor of the wash alley was covered with an epoxy coating.

Outside the train wash alley, ATC identified additional construction-caulked expansion joints in the concrete apron outside each track bay door, ¾ inch floor joints on each side of eight additional train tracks (numbered tracks 1 through 8, not including the wash alley track, for a total of 16 caulked joints) running the length of the building and extending approximately 50 feet to the north and south outside the building, and two, 1.5-inch wide, expansion joints that run perpendicular to the rails and extend the full width of the

building. ATC also identified 1 inch caulked joints around the base of most of approximately 145 structural column within the building and ¾ to 1 inch caulked joints within sub-grade repair pits and at the north and south ends of the building.

1.2.2 Site Background and History

The following subsections describe the history of detection and assessment of PCBs at the Cabot Yard facility train building.

1.2.2.1 PCBs in Wash Water from Train Wash Alley

Historically, PCBs were detected in MBTA waste water discharged to the MWRA sewer system in the late 1990s at concentrations above the acceptable criteria of 0.5 ug/L (parts-per-billion or ppb) for PCBs. In 2000 and 2001, MBTA in consultation with U.S. EPA conducted an investigation to determine the source of PCBs in waste waters and performed remedial work to remove residual contamination. This investigation included analyses of PCBs in concrete core samples collected from the floor of the train wash alley and the floor and walls of the sedimentation tank receiving waste waters. This investigation failed to identify the source of PCBs to waste waters from the wash alley, finding only low concentrations of PCBs in concrete samples (i.e., less than 1.0 mg/kg, the most stringent clean-up level for porous surfaces established by TSCA Part 761).

The wash alley floor and walls, and the sedimentation tank, were cleaned with diesel fuel and steam-cleaned to remove PCB contamination on these surfaces. With the exception of the train wash alley wash water and sanitary sewage from the building, MBTA eliminated discharge of wastewater to MWRA from the facility. MBTA installed a dedicated wastewater treatment system to treat wastewater from the train wash alley prior to discharge to the MWRA sewer system.

Discharge of wastewater from the train wash alley to the MWRA sewer system continued until 2007. Between 2001 and 2007, the installed treatment system reduced PCB effluent levels in waste water to generally non-detect (<0.5 ug/L) concentrations. However, PCBs were occasionally detected, with a maximum waste water PCB concentration in effluent of 1.1 ug/L.

1.2.2.2 Characterization of PCBs in the Train Wash Alley

The MBTA collected a series of 109 concrete surficial (0.5-inch depth) core samples down the center of the wash alley floor in December 2000. The samples were equally spaced and extended down the full length of the wash alley, approximately every three feet, generating a total of 28 composite samples for analysis (i.e., each composite sample consisting of 5 consecutive sample locations). The MBTA also collected two (2) concrete core samples from the sedimentation tank. Laboratory analysis using U.S. EPA Method 8082 detected PCBs between 0.1 and 0.9 mg/kg (parts per million or ppm) in 19 of the samples.

In a later sampling and analysis event on March 20, 2008, ATC sampled caulk from joints within the wash alley. TSCA-recommended methods used in laboratory analysis of four samples detected total PCBs in caulk ranging from 83,000 to 134,000 mg/kg (ppm).

To determine whether the December 2000 concrete data was representative of current conditions, ATC collected three (3) randomly-spaced concrete samples from the platform level of the wash alley and three (3) samples from along the center-line of the wash alley between the rails to a depth of approximately 0.5 inches. To characterize the concentration of PCBs directly adjacent to the caulked joints, ATC collected two (2) "sets" of three (3) samples from areas adjacent to caulked joints on the floor of the wash alley. Each "set" of samples consisted of three samples, collected immediately adjacent to (edge of) the joint, and three and six inches away perpendicular from the nearest edge of the caulk joint. ATC collected one "set" of samples adjacent to an east-west expansion joint that runs perpendicular to the wash alley rails, and a second "set" of samples adjacent to a north-south joint that lies on either side of the wash alley rails. In all, ATC collected twelve surficial concrete samples for submission to Con-Test Analytical Laboratory (East Longmeadow, Massachusetts) for PCB analysis using EPA Method 8082 by soxhlet extraction.

Results of laboratory analysis detected PCBs in all platform level samples and two out of three center-line samples at concentrations below 1 mg/kg (ppm) (the most stringent clean-up level for porous surfaces established by TSCA Part 761). Laboratory analysis detected PCBs in one center-line sample at a concentration of greater than 1 ppm (2.67 ppm. Laboratory analyses identified the PCBs in concrete as having a composition similar to that of Aroclor® 1260, the same Aroclor mixture identified in concrete sampled and analyzed in December of 2000. Two samples collected immediately adjacent to caulked joints detected total PCB concentrations of 1,040 and 745 ppm, while the PCB concentrations detected in two concrete collected three inches from the caulked joints was substantially lower, 2.88 and 4.95 ppm. PCB concentrations in concrete samples collected six inches from the caulked joints were less than 1 ppm.

Further details regarding the characterization of PCBs in the train wash alley in 2008 are included in the *REVISED Request for Approval of TSCA Risk-Based Clean-up of PCBs, MBTA Cabot Yard – Train Wash Alley, 275 Dorchester Avenue, Dorchester, Massachusetts*, dated June 2, 2009 (ATC 2009a).

1.2.2.3 Characterization of PCBs In Hydraulic Lift Area

In preparation for a project to install a new hydraulic train lift in the southeast corner of the building along Track 1 (see ***Figure 1***), ATC sampled caulk from a joint within the planned project area on April 9, 2008. Laboratory analysis of the sample detected total PCBs at 165,000 mg/kg (ppm). Based on the detection of PCBs in this caulk sample and in consultation with U.S. EPA, ATC conducted additional concrete sampling in the planned project area between August 2008 and January 2009.

ATC initially collected one sample "set" at a location within the project area directly adjacent to a caulked joint, as described above for the wash alley, and three samples at random locations more than 12 inches from caulked joints. ATC later collected six additional samples at random locations more than 12 inches from caulked joints. To evaluate the decrease in concentrations of PCBs away from the caulked joints and support a TSCA "self-implementing" remediation program for this area, ATC collected 64 samples of concrete (0.5 inches in depth) along caulked joints at distances of three, six, and/or nine inches from the joints. Finally, to determine vertical migration (i.e., depth) of PCBs within caulked joints, ATC collected four concrete samples at a depth of 4 inches (plus 6 inches at one location) within the caulk joints. ATC submitted the samples to Con-Test Analytical Laboratory for PCB analysis using EPA Method 8082, by soxhlet extraction.

Laboratory analysis detected PCBs in all but one of the concrete samples collected. PCBs in concrete were identified as having a composition similar to that of Aroclors® 1254 and 1260, with these two Aroclors present in approximately equal concentrations. In the nine (9) randomly placed samples more than 12 inches from caulked joints, the concentration of total PCBs ranged from 2.15 to 35.7 ppm. One sample collected immediately adjacent to the caulked joint had a total PCB concentration of 3,650 ppm. In the samples collected within 12 inches, but not directly adjacent to caulked joints, total PCB concentrations ranged from 1.6 to 97.2 ppm. ATC noted that for most sample locations PCB concentrations were less than 50 ppm at distances equal to and greater than three inches from a caulk joint. ATC found several sample locations where PCB concentrations of greater than 50 ppm extended up to six inches distant from caulk joints and one sample location where the PCB concentration was greater than 50 ppm nine inches from a caulk joint.

Vertically, three of four PCB concentrations in concrete samples collected along a caulk joint from a depth of four inches were less than 50 ppm (ranging from <0.1 to 12.5 ppm) with one sample having a PCB concentration of 308 ppm. At the location where the sample at four inches below the surface contained 308 ppm of total PCBs, the six-inch depth sample contained less than 2 ppm total PCBs.

Further details on the 2008-2009 characterization of PCB concentrations in the new hydraulic lift area is included in the *Revised Notification of TSCA Self-Implementing Clean-up of PCBs, MBTA Cabot Yard – Train Building - Proposed Hydraulic Lift Area, 275 Dorchester Avenue, Dorchester, Massachusetts*, dated January 22, 2009 (ATC 2009b).

1.2.2.4 Summary of PCBs in Building Materials (Caulk & Concrete)

ATC determined the source of PCBs detected in wash alley waste water and on concrete floors most likely comes from the loss of PCBs from construction caulk material used in floor joints within the facility. Because of PCB's insolubility in water (USEPA 1996b),

the PCBs detected in wash water are likely bound to particulate matter, rather than dissolved in the wash water.

Contest laboratory analyses identified total PCB concentrations in caulk ranging from 83,000 to 165,000 ppm and are most similar to Aroclors® 1254, 1260, and 1268. EPA Method 8082 uses laboratory technicians to visually match similar Aroclor® mixtures to the environmental PCB mixture identified in laboratory analyses. The selective loss of less chlorinated PCB congeners from Aroclors® 1254 and 1260 over time (e.g., such as occurs in weathering) may result in assignment of higher chlorinated Aroclors®, such as Aroclor® 1268. Since all other media samples from the MBTA facility only detected Aroclors® 1254 and 1260, the detection of Aroclor® 1268 is likely due to the variation in the visual match process. Consequently, ATC assumes that the initial identification of Aroclor® 1268 in caulk is in error. The combined available analytical evidence suggests that caulk in floor joints within the train building contain PCBs that are similar in composition to Aroclors® 1254 and 1260 and at approximately equal concentrations.

ATC determined that the concrete floor of the wash alley and new hydraulic lift area are contaminated with PCBs. Laboratory analysis detected total PCBs in concrete, with compositions similar to Aroclors® 1254 and/or 1260, in concentrations of up to 3,650 ppm immediately abutting the caulk joints. In the wash alley, laboratory analysis detected PCB concentrations in concrete sampled more than three inches away from caulked joints at below 1 ppm (the most stringent clean-up level for porous surfaces established by TSCA Part 761) except in one location, which had a concentration of 2.67 ppm. In the new hydraulic lift area, laboratory analysis detected PCB concentrations less than 50 ppm at a distance of six inches or greater from a caulked joint at all but one sample location.

1.2.2.5 Recent PCB Remediation

Recently completed (August-September 2009) remedial activities within the train wash alley include the removal of PCB-containing construction caulk from floor joints, cleaning of floors, and application to the floor of an impervious epoxy coating to seal in residual PCBs remaining in the concrete. This remedial effort is designed to prevent the migration of residual PCBs in concrete off-site with train wash waste water.

In addition, within the new hydraulic lift area in the southeast corner of the building, MBTA recently (June-August 2009) completed a PCB remedial effort involving the removal of PCB-containing construction caulk and PCB-impacted concrete. PCBs are no longer present in the new building materials in this area.

1.2.3 PCB Concentrations in Indoor Air, Surface Wipe, and Bulk Dust Samples

MBTA workers may have dermal contact with PCBs associated with concrete floor surfaces and inhalation exposure to PCBs in vapors and in respirable airborne dusts. Note

that exposures are likely to be eliminated in the train wash alley and new hydraulic lift area, where recent remediation of PCBs has taken place.

To evaluate potential worker exposure to PCBs on surfaces, ATC conducted a wipe sampling survey of facility surfaces. Additionally, because solid materials containing PCBs (i.e., caulk containing PCBs and PCB-impacted concrete) are, through weathering and deterioration, a potential source of respirable dusts in indoor air, ATC evaluated potential MBTA worker exposure to PCBs associated with inhalation of airborne dusts smaller than 10 micrometers in size (PM_{10}). Finally, because some PCB congeners have the potential to volatilize, ATC evaluated potential MBTA worker exposure to these volatile PCBs in indoor air of the MBTA facility.

ATC also collected a composite bulk dust sample. The results of bulk dust analysis, however, were not used in risk characterization since, based on observations conducted by ATC as part of this risk assessment, MBTA workers do not have significant contact with PCBs in bulk dusts found deposited on limited site surfaces (see Section 1.3 for further discussion of this exposure pathway).

Receptors are unlikely to have direct contact with significant areas of caulk containing PCBs, as further discussed in Section 1.3.

1.2.3.1 Wipe Samples

ATC collected a total of thirteen (13) wipe samples from the floor of the Site building, four from interior walls of the Site building at approximately shoulder height, and one from the surface of a rail overlying the repair pit in the center of the building. These samples were collected using standard TSCA wipe sample method protocol (i.e., use of hexane as the extractant and a 100 cm^2 template). The objective of wipe sampling was to identify surface PCB concentrations within the facility and to identify a representative exposure point concentration (EPC) for use in risk characterization. ATC biased the location of wipe samples to surfaces likely to have either high PCB concentrations or high frequency of contact by MBTA employees. Specifically, floor wipe samples were generally collected near caulk joints, with only two (2) floor wipe samples collected from a distance greater than 8 feet from a caulk joint.

ATC wipe sample nomenclature uses three characters separated by hyphens to identify sample locations, their distance from a caulk joint, and their location within the facility. The first character indicates whether the sample was from a “Wall”, or the distance in feet from nearest caulk joint, or “J” if the sample was collected adjacent to the caulk joint (i.e., zero distance). The second value indicates the nearest track number to the wipe sample, with a letter indicating the sample location (E)ast, (C)enter, or (W)est of the rails for that track number. Finally, the third value indicates the sequential ID (alphabetical) of sample collection. ATC submitted each of the collected wipe samples to Con-Test Analytical Laboratory for PCB analysis using a modified U.S. EPA Method 8082. The following modifications were necessary to accurately identify PCBs in these samples:

- Aroclor® 1016 and 1260 standards were run separately (they are typically run together). Running two separate chromatograms for these two standard Aroclors® aids in a comparison with sample runs.
- Sulfuric acid was used to cleanup samples. Sample sulfuric acid extractions were performed until there was no color in the aqueous phase (i.e., aqueous phase was clear). The intent of this step is to remove any matrix interference from sample analysis.
- Aroclor® standard curves used no fewer than five standard concentrations.
- The laboratory was asked to note chromatogram peaks used to identify each Aroclor® mixture (i.e., congener identification was not performed).
- Identification of each Aroclor® mixture, similar to the environmental mixture, used no fewer than five peaks in the chromatogram.
- GC/MS chromatograms were run over 30 minutes (i.e., horizontal axis of the chromatogram).

Laboratory analyses of the thirteen (13) wipe samples collected from floor locations across the Site Building (see ***Figure 2***: Risk Assessment Sampling Locations) detected an average of 19.6 ug/100 cm^2 total PCBs with a 95th confidence interval on the mean of approximately 26 ug/100 cm^2 (i.e., 95 percent of the total PCB concentrations measured fall below this value). Total PCB concentrations in wipe sample ranged from 1.26 to 65.3 ug/100 cm^2. See ***Table 1*** for all wipe sample results. On average, wipe samples contained 40% Aroclor® 1254 and 60% Aroclor® 1260 (***Table 2***). Only three (3) of the thirteen (13) sample locations have total PCB concentrations exceeding the 95th CI on the mean (i.e., samples J-8W-E, J-2E-N, and J-3E-D). These samples are all directly adjacent to caulk joints, in varying locations throughout the facility. As noted before in discussion of the laboratory analyses of concrete core samples, wipe sample analytical data suggest that total PCB concentrations on surfaces generally diminish with increasing distance from caulk joints. The laboratory analytical report for the floor wipe samples is provided in ***Appendix C***.

Summary statistics of total PCB concentrations detected in wipe sample analyses (***Table 2***) indicate that most of the detected PCB concentrations are tightly grouped about the mean, with all but three samples falling within half a standard deviation of the mean value. While several individual samples include detection of total PCBs ranging up to 65.3 ug/100 cm^2, 95 percent of the samples fall below 26 ug/100 cm^2.

The average total PCB concentration associated with four (4) wipe samples collected from the concrete surface of interior walls within the MBTA facility (locations shown on ***Figure 2***: Risk Assessment Sampling Locations) is approximately 0.5 ug/100 cm^2. This total PCB concentration is the mean of three (3) samples with non-detectable concentrations (i.e., less than 0.4 ug per 100 cm^2) and a single detected total PCB concentration of 1.7 ug per 100 cm^2 (***Table 2***). Because of the low detection frequency, relatively low concentration of total PCBs detected on wall surfaces, and infrequent contact with interior walls by MBTA workers, ATC believes that worker contact with

interior walls is not a significant exposure pathway. The laboratory analytical report for the wall wipe samples is provided in ***Appendix C***.

ATC collected a single PCB wipe sample from a rail associated with a section of track 4 from the middle of the inspection pit within the facility (see ***Figure 2***: Risk Assessment Sampling Locations). Laboratory analysis of this sample detected total PCBs of 4.1 ug/100 cm^2 (***Table 1***). This wipe sample contained 45% Aroclor® 1254 and 55% Aroclor® 1260. The laboratory analytical report for this wipe sample is provided in ***Appendix C***. Total PCBs detected in this wipe sample were significantly less than the mean PCB concentration found associated with concrete floor surfaces, but greater than that associated with facility walls (***Table 2***). ATC uses MBTA worker contact with facility floors as a surrogate for evaluating health risk to MBTA employees who contact facility rails. This is a conservative means of characterizing health risk, since the mean total concentration of total PCBs on facility floor surfaces is nearly five times that identified on a rail.

Table 2. Summary Statistics for Wipe Sample PCB Analytical Results.

PCBs	Samples	MEAN	SD	95th CI	Minimum	Maximum
FLOORS						
1254	13	8.06	6.84	12.31	0.47	26.20
1260	13	11.57	10.23	15.82	0.79	39.10
Total	**13**	**19.63**	**17.04**	**25.99**	**1.26**	**65.30**
WALLS						
1254	4	0.30	0.39	7.96	<0.200	0.88
1260	4	0.28	0.36	7.95	<0.200	0.82
Total	**4**	**0.50**	**0.80**	**11.97**	**<0.200**	**1.71**
RAIL						
1254	1	1.82	NA	NA	NA	NA
1260	1	2.24	NA	NA	NA	NA
Total	**1**	**4.06**	NA	NA	NA	NA

All concentrations are reported in micrograms per 100 square centimeters (ug/100 cm^2).
MEAN is the average PCB concentration.
SD is the standard deviation of data used to calculate the mean.
95th CI is the 95th confidence interval on the mean (i.e., 95 percent of the measured concentrations are less than this value). Note that the "total" 95th CI value is calculated based on all data and is not necessarily the sum of the 95th CI for the two detected aroclors.
Minimum is the lowest detected concentration of PCBs in any one sample.
Maximum is the highest PCB concentration detected in any one sample.
NA = Not applicable because only one sample collected from a rail.

1.2.3.2 Bulk Dust Sample

ATC collected a composite bulk dust sample from approximately 20 undisturbed horizontal surfaces within the facility and submitted it to Con-Test Analytical Laboratory

for PCB analysis using EPA Method 8082, by soxhlet extraction. Sample results identified Aroclors® 1254 and 1260, with the same relative abundance as found in floor wipe samples. The concentration of total PCBs in bulk dust is 61.8 mg/kg (ppm), with 24.8 mg/kg Aroclor® 1254 (40%) and 37.0 mg/kg Aroclor® 1260 (60%). See ***Table 3*** for sample results.

Table 3. PCBs in a Composite Sample of Bulk Dust.

Aroclor	PCBs in Composite Bulk Dust (mg/kg)	PCBs in Airborne PM_{10} (ug/m^3)	
		Air-NE	Air-W
Aroclor 1254	24.8 (40%)	0.0003 (33%)	0.0009 (31%)
Aroclor 1260	37.0 (60%)	0.0006 (67%)	0.002 (69%)
Total PCBs	**61.8**	**0.0009**	**0.0029**

PM_{10} = Respirable Particulate less than 10 microns in diameter.

The total concentration of PCBs in bulk dusts is similar to that found in respirable dusts collected from indoor air samples. This suggests that bulk dusts and airborne respirable particulate source from the same material and process. In addition, the remaining volume of the bulk dust sample was sieved with a 250 micrometer (um) sieve to determine the percent of dust particles smaller than 250 um. The results of the sieve analysis indicated that 64% of the sample was less than 250 um in size. ATC did not evaluate potential receptor exposure to bulk dusts, since based on observations conducted by ATC as part of this risk assessment, this exposure pathway is not considered to be a significant route of receptor exposure (see Section 1.3 for further discussion of this potential exposure pathway). The laboratory analytical report of the composite bulk dust sample analysis is provided in ***Appendix C***.

1.2.3.3 Indoor Air Samples

ATC collected indoor air samples to characterize PCBs in vapors and in airborne respirable particulate.

PCBs in Airborne Respirable Particulate

ATC collected two (2) indoor air samples of respirable particulate (i.e., particulate of less than 10 micrometers in diameter; PM_{10}) from the northeast and west areas of the MBTA facility (locations shown on ***Figure 2***: Risk Assessment Sampling Locations). The samples were collected using a Tisch PM_{10} high-volume air sampling machine. PM_{10} particulate samples were collected over an approximately 26 hour time period at a flow rate of approximately 1,100 liters/minute. ATC submitted these air particulate samples to Con-Test Analytical Laboratory for PM_{10} analysis followed by PCB analysis using EPA Method 8082, by soxhlet extraction. The Aroclors®-like concentrations detected in these samples is provided in ***Table 4*** and identifies a total PCB concentration of 0.0009 ug/m^3 (in 28 ug PM_{10} /m^3) collected in the northeast section of this facility and 0.0029 ug/m^3 (in 38 ug PM_{10} /m^3) collected in the western section of the facility. Note that these values are

within or below the range of urban ambient air background PCB concentrations of 0.001-0.01 ug/m^3 quoted by one reference document, as referenced in Section 1.1.3. Although there is no established regulatory criteria for PCBs in indoor air, EPA has posted maximum values for PCBs in indoor air of schools that is believed to be health protective. The most conservative of these values is 0.070 ug/m^3 (USEPA 2009e), which is greater than the concentration detected in Site samples of indoor air. The total PCB concentration in PM_{10} is equivalent to 32.1 and 76.3 mg total PCB per kg of respirable dust (ppm), respectively. The laboratory analytical report for the air particulate samples is provided in ***Appendix C***.

The mean total PCB concentration of PM_{10} is 55.6 mg/kg is similar in magnitude to the total PCB concentration determined in the composite bulk dust sample collected from the facility (i.e., 61.8 mg/kg). Based on similar PCB concentrations in PM_{10} and bulk dusts, ATC concludes that the majority of the PCBs in bulk dust are associated with PM_{10}. Like floor wipe samples, Aroclor® 1260 comprises the majority of the total PCB concentration measured in PM_{10}. While close to the relative abundance of Aroclors® detected in floor and wall wipe samples and in bulk dusts, the relative abundance of Aroclors® in airborne respirable particulate appears to favor a slightly higher percentage of Aroclor® 1260 (i.e., approximately 67%). This difference may reflect the relative loss of volatile PCB congeners from these two Aroclors® following adsorption to fine particulate, but more likely reflects a reduction in precision associated with reporting PCB detections near the method detection limit in this media.

PCBs in Vapors

Following completion of PCB caulk remediation in the wash alley in October 2009, ATC collected indoor air samples, as required by EPA, for analysis of PCBs in both particulate and vapor phases. The samples were collected using low-flow polyurethane foam (PUF) cartridges as part of the EPA TO-10A method. One sample and a duplicate sample were collected on the eastern platform inside the wash alley, while another sample was collected on the platform adjacent to Track #8 near the southernmost east-west cross joint to provide data on background indoor air levels in the rest of the train building. The samples were submitted to a laboratory for analysis of PCB homologs using EPA method TO-10A/680. The requested analysis reported the concentration of each of 10 homologs (i.e., groups of PCB congeners with the same number of chlorine atoms). The sample and duplicate sample collected in the wash alley did not contain detectable levels of PCB homologs. The sample collected on the platform next to Track #8 had a total PCB concentration (sum of all detected homologs) of 0.1067 ug/m^3, a concentration greater than that obtained in March 2009 in ATC high volume indoor air respirable particulate sampling. The sample locations of the PUF air samples are shown on ***Figure 2***. The data are presented in ***Table 4*** and the laboratory data report is provided in ***Appendix C***.

This concentration of total PCBs in indoor air (i.e., 106.7 ng/m^3) compares with guidance values recently published by EPA of 450 ng/m^3 for schoolteachers and 100 ng/m^3 for preschool children. Although these guidance values are not directly comparable to

MBTA workers (e.g. teachers work fewer workdays each year; 180 vs. 240-250 for an MBTA facility worker, and a teacher's breathing rate is likely to be less than that of an MBTA worker performing manual labor), it is unlikely that MBTA workers would exceed this school standard in their workplace.

In order to better characterize PCB concentrations within indoor air of the MBTA facility, ATC conducted additional focused indoor air sampling. ATC collected multiple "replicate" samples at the same location using different sampling and analytical methods in order to evaluate the effect of sampling and analytical methods on particulate and vapor PCB concentrations. Specifically, ATC collected four different samples on January 19, 2010 at the same location as one of the October 2009 samples, on the platform next to Track #8. ATC collected and analyzed these samples in the following manner:

- Sample (1): Collected using low-flow PUF (approximately 2 L/min flow rate) using the TO-10A method over a 24-hour time period. Analyzed via both the homolog and congener methods. The purpose of this sample and analysis was to confirm, at higher resolution, the previous result from October 2009 and to determine the PCB congener profile present for vapors plus particulates.
- Sample (2): Collected using low-flow PUF (approximately 2 L/min flow rate) with a 1.0-micron glass fiber particulate pre-filter (packed into the PUF cartridge in front of the foam absorbent material) using the TO-10A method over a 24-hour time period. Analysis occurred via the homolog, congener, and Aroclor® methods. The purpose of this sample and analysis was to determine the fraction of PCBs in vapors (the difference between this sample and Sample 1 above being the PCB concentration in airborne particulate excluded by the filter), to determine the PCB congener and Aroclor® profiles present in vapors, and to provide a means of comparing Aroclor® results with PCB homolog and congener results for total PCBs.
- Sample (3): This sample was a negative control or blank sample which the laboratory analyzed via both the homolog and congener methods.

Analytical results of these samples (***Table 4***) demonstrated that the majority of total PCBs in indoor air are associated with vapors and not with airborne respirable particulate. In fact, the congener-specific analyses for filtered and un-filtered PUF samples resulted in essentially the same PCB congener mass (i.e., the mass of each detected congener does not differ significantly between the two sampling approaches). As a result, un-filtered PUF sampling and analysis for total PCBs in indoor air is appropriate for characterizing total PCBs in indoor air of this facility. The laboratory data report is provided in ***Appendix C***.

A comparison of congener- and homolog-specific analyses indicates that the latter over-predicts the total mass of PCBs in indoor air. This conclusion is based on the fact that the congener analysis is a measure of every congener, while the homolog analysis is a measure of only certain congeners that is then extrapolated to the homolog

concentrations. The sum of PCB congeners containing the same number of chlorine atoms (i.e., a PCB homolog group) is in each case less than the concentration identified for the corresponding homolog class, and substantially so for the most volatile homologs, those with fewer than four chlorine atoms. This suggests that homolog-specific analyses conservatively over-estimate total PCB concentrations in indoor air. This and the fact that PCB homolog analyses are problematic in human risk characterization, suggests that congener-specific analyses may be a more useful and accurate means of characterizing PCB concentrations in indoor air.

The one January 2009 sample analyzed for Aroclors® indicated patterns most closely matching Aroclors® 1242 and 1254. However, pattern matching for an Aroclor® analysis is done visually and therefore has some inherent subjectivity in the laboratory analyst's interpretation. Because Aroclor® 1242 has never been detected in any other sample of any media at the facility, ATC assumes that this matched Aroclor® is actually more likely Aroclor® 1260, as detected in almost all other samples.

It is also clear that homolog analyses cannot be used to identify weathered PCB mixtures as similar to an Aroclor® mixture. This is true since the profile of PCB homologs detected in indoor air of the MBTA facility, either detected as individual PCB congeners or through homolog analysis, are not similar to the profile of PCB homologs typically associated with PCBs in any known Aroclor®, including those known to have been used in caulking inside this facility.

Finally, it is noteworthy to identify the individual PCB congeners detected in indoor air of the MTBA facility with respect to their known mechanisms of toxicity. Of the detected PCB congeners, only one is identified by EPA as having dioxin-like activity (Cl5-BZ#118), but this congener is 10,000-times less potent as a carcinogen. In contrast, EPA understands that a PCB congener's cancer-causing potential may not be associated with dioxin-like toxicity (USEPA 1996b), but rather with a congener's ability to induce specific liver enzymes (Brunner et al., 1996). In this regard, the total mass of PCB congeners detected in indoor air that have cancer potency might be estimated as the total mass of PCB congeners capable of phenobarbital-like liver enzyme induction (Buchmann et al. 1991; Laib et al. 1991), including Cl4-BZ#44, Cl4-BZ#49, Cl4-BZ#52, Cl5-BZ#99, Cl5-BZ#101(#90), Cl5-BZ#118, and Cl6-BZ#153.

While several PCB congeners are associated with non-cancer effects, only 2 (i.e., Cl3-BZ#28 and Cl6-BZ#153) are detected in indoor air of the MBTA facility. While these PCB congeners are associated with neurological effects (Cl3-BZ#28) and immunological, reproductive and developmental effects (Cl6-BZ#153), they occur only at very low concentrations in indoor air of the MBTA facility.

1.3 Conceptual Model

A conceptual model is an important first step in defining the potential for exposure (USEPA 1989). A conceptual model identifies all potential or suspected sources of

release; types and concentrations of contaminants detected in media, all potentially impacted media, potential exposure pathways, and potentially exposed receptors. A site conceptual model provides a systematic way to identify and summarize this information based on current and potential future site-specific land use considerations.

ATC detected total PCB concentrations in caulk ranging from 83,000 to 165,000 ppm. MBTA workers could potentially have contact with PCBs on exposed caulk surfaces, adjacent concrete surfaces to which PCBs have migrated, and with PCBs in vapors and airborne respirable dusts in indoor air. ATC believes receptor contact with caulk surfaces is an insignificant exposure pathway for several reasons. First, caulk joints account for less than 5 thousandths of the total area of the facility (i.e., 0.5 % of the floor surface area). Second, there are few caulk joints within the main repair pit (Tracks 3 through 6) where the majority of potential workers might contact the floor while performing their job tasks. Finally, caulk joints are recessed below the surface of the concrete floor, which limits the potential skin contact with caulk.

ATC site assessment activities identified PCBs (i.e., Aroclors® 1242, 1254, and 1260) on facility surfaces (i.e., floors and walls), in respirable particulate (PM_{10}) in indoor air samples, and in a composite bulk dust sample collected from approximately 20 locations within the facility. PCBs detected on surfaces (***Tables 1 and 2***) and in dusts are presumed to come from PCB-containing construction caulk used in concrete floor joints throughout the facility. Analytical results of concrete core sampling and wipe sampling suggest that PCBs in caulking may migrate from the caulk to adjacent concrete. Normal weathering and deterioration of caulk and adjacent concrete surfaces likely produces fine particulate that can become entrained in indoor air and subsequently inhaled or re-deposited on horizontal surfaces. Additionally, PCB congeners may volatilize from caulking and adjacent concrete into indoor air. Wipe sample procedures detect both PCBs associated with the media surface as well as PCBs adsorbed to dusts that have been re-deposited on that surface.

Normal weathering and deterioration of caulk and adjacent concrete containing PCBs appears to have resulted in detectable PCB concentrations in airborne respirable dusts (PM_{10}). ATC determined a total PCB concentration in bulk dusts of 61.8 mg/kg. This is similar to the mean total PCB concentration of 54.6 mg/kg detected in two (2) samples of airborne respirable particulate (i.e., 32.1 and 76.3 mg/kg).

ATC detected PCBs, through homolog- and congener-specific analyses, in indoor air at concentrations exceeding that detected in respirable airborne particulate. This is surprising given the very low volatility of PCB congeners. While the total PCB concentration in indoor air of the MBTA facility is below EPA guidelines for schools, it may pose a potential risk to MBTA employees.

ATC identified the potential exposure pathways through which facility employees may be exposed to PCBs as including dermal contact with exposed surfaces and the inhalation of indoor air, including PCB vapors and PCBs adsorbed to airborne respirable dusts.

Dermal contact with exposed horizontal surfaces (i.e., the facility floor) includes contact with PCBs deposited in dusts in addition to PCBs associated with concrete floor surfaces. Given the relatively low level of airborne respirable dust within the facility (i.e., 38 ug PM_{10}/m^3) and the relatively low concentration of PCBs adsorbed onto airborne respirable dusts, ATC did not conduct a separate evaluation of the dermal absorption of PCBs from airborne respirable particulate deposited on the skin of workers. Furthermore, ATC did not evaluate the potential health risk associated with MBTA worker ingestion of bulk dusts. Several lines of evidence suggest that such an exposure pathway does not result in significant intake of PCBs. First, ATC identified few horizontal surfaces on which dust could accumulate within the facility other than the floor. Second, MBTA employees have relatively low frequency of contact with existing horizontal surfaces upon which dust is allowed to accumulate. Third, the concentration of PCBs in these dusts, while significant on a per kilogram basis, are rather low given the actual mass of dust found on these surfaces (i.e., the bulk dust sample is a composite of 20 surface samples). ATC discusses these components of the bulk dust exposure pathway more fully in Section 4.1. Finally, while hand-to-mouth activity is an important exposure pathway in children, it is not a significant route of exposure in adults who typically have limited hand-to-mouth activity. Additionally, MBTA workers typically wear gloves during working, and have separate facilities for hand washing, meal preparation, and meal consumption. ATC therefore concluded that receptor contact with bulk dusts is not a significant contributor to receptor exposure.

Potential receptors exposed to PCBs include all MBTA employees, visitors, and trespassers. MBTA workers include management personnel, rail repairers or mechanics, tradesman (e.g., carpenters, electricians, sheet metal workers, blacksmiths, and painters), car cleaners, engineers, clerks, janitors, and motormen. This risk characterization focuses on MBTA repairers/mechanics as the receptor group most likely to have the highest frequency and intensity exposure to PCBs in the facility. These receptors work most frequently in the repair areas, are most likely to contact the floor during the performance of typical job tasks, and are likely to have a higher breathing rate than other MBTA workers. For simplicity, ATC limits this risk characterization to an evaluation of repairer/mechanic health risk posed by exposure to PCBs associated with facility surfaces and to PCBs in indoor air. ATC assumes that all other potential receptor groups have lower frequency and intensity exposures, and consequently, lower health risk.

ATC developed a model of receptor exposure to PCBs on facility surfaces and to PCBs in indoor air. These models use exposure parameters based on observations by ATC (documentation provided in ***Appendix B***), and interviews with, and information provided by MBTA management (documentation provided in ***Appendix A***). While PCBs in indoor air are present throughout the facility and available to all receptors in the building, ATC focused this characterization of health risk on repairers/mechanics, who are expected to have the highest relative breathing rates of any MBTA employee, visitor, or trespasser. While much of the building's floor surface is impacted by PCBs, many areas of the facility's floor surface are unavailable for worker contact or are infrequently contacted. In addition, the concentration of total PCBs in wipe samples tend to decrease with

distance from caulked joints. ATC conservatively assumed that the all building floor surfaces are available for dermal contact by MBTA employees and that those floor surfaces have PCB concentrations equivalent to the 95th confidence interval on the mean (i.e., 25.99 ug/100 cm^2), a statistical value indicating 95 percent confidence that the true mean PCB concentration on facility surfaces is less than this value. This is a highly conservative assumption since ATC's wipe sampling identified PCB concentrations biased towards areas of higher PCB concentrations (i.e., near caulked joints).

ATC used worker observations, and interviews with and information provided by MBTA management, to estimate worker dermal contact with exposed floor surfaces during a normal work day. The maximum amount of contact with floor surfaces, observed by ATC, was a gloved repairer/mechanic contacting the concrete flooring and platform edges for less than 10 minutes during the one hour during which he was observed. However, ATC's evaluation of dermal exposures assumes receptor contact with a surface is sufficient to load the skin with PCBs and that those PCBs remain on the skin (i.e., residence time) for the entire day, regardless of washing. As such, the simple act of touching the floor results in an exposure frequency of 1 event per day. In contrast, MBTA employees in several work categories (e.g., management personnel, carpenters, electricians, sheet metal workers, blacksmiths, painters, clerks, and motormen) are unlikely to have any direct dermal contact with the floor.

VERSAR, who developed toxicity parameters under contract to EPA, recommends the use of a transfer factor ("TF") of 25% to describe the efficiency of transferring PCBs from a hard surface to human skin (VERSAR. 2000). VERSAR conservatively derived this TF from information obtained from the transfer of PCBs from a hard non-porous surface to skin (Wester, R. *et al.* 1993). PCBs and other organic surface contaminants are picked up in greater quantities using the PCB wipe sampling protocol than are picked up by a dry, oily, or sweaty hand. This is because hexane, the solvent used in U.S. EPA wipe sample PCB collection methodology, is an aggressive solvent that can collect PCBs from below the surface of porous materials like concrete. Furthermore, the aggressive rubbing required in the collection of wipe samples (i.e., wiping in multiple directions) is not representative of casual dermal contact. After studying the transfer efficiency of PCBs, Slayton et al. recommend a transfer factor of less than 1% for infrequent or casual dermal contact, and a TF of 12% for strenuous activities involving sliding dermal contact on bare concrete (Slayton, T.M. *et al.* 1998). ATC uses the data presented by Slayton et al. to select a conservative TF value of 2.5 percent to reflect the transfer of PCBs from a concrete floor to sweaty receptor skin (i.e., 2.5% removal efficiency of the Non-Rubbing Method using saline relative to the U.S. EPA wipe sample methodology used to sample concrete). This TF value conservatively reflects the casual dermal contact of MBTA workers that might occur while they are working on trains.

In an evaluation of worker breathing rates, ATC observations and MBTA management personnel did not identify any workers involved in long-term strenuous activities requiring a heavy breathing rate. Based on ATC observations, most MBTA workers appear to be relaxed and breathing comfortably at a rate that is on average unlikely to

exceed MassDEP's defined "light exertion" ventilation rate of 20 Liters per minute (9.6 m^3/day) or U.S. EPA's default breathing rate of 1.1 m^3/hour (USEPA 1997). Each of these is somewhat less than the VERSAR recommended ventilation rate of 15.2 m^3/day (VERSAR. 2000) and a little less than half that of the U.S. EPA default (20 m^3/day) used to derive the U.S. EPA cancer and non-cancer toxicity values (USEPA 1997). However, in order to conservatively approximate inhalation exposures of MBTA workers, ATC assumed that MBTA workers breathe at a "moderate" U.S. EPA ventilation rate of 1.7 m^3/hour during their entire workday. This is a highly conservative assumption given ATC's observations of MBTA worker breathing rates and the unlikely possibility that MBTA workers would be employed in moderate activity for their entire work day, and every day for the entire time they are employed.

For other receptor exposure parameters, this risk characterization uses conservative default assumptions regarding receptor exposure to generate quantitative estimates of health risk for each exposure pathway. ATC integrated receptor exposures and PCB toxicity values to generate cumulative estimates of health risk for MBTA workers employed at MBTA's Cabot Yard facility. The conservative and health protective nature of this risk characterization is, by design, intended to identify potential human health liabilities associated with current site uses and activities.

2.0 HAZARD IDENTIFICATION

Hazard identification determines whether a substance causes adverse health effects, identifies those effects and describes why the substance is of regulatory concern. This section also describes the selection of compounds of potential concern ("CoPC"), provides a summary of the analytical data for each CoPC, describes the nature and distribution of hazardous wastes at the site, and provides a brief toxicity profile for each CoPC, describing its potential to cause health effects.

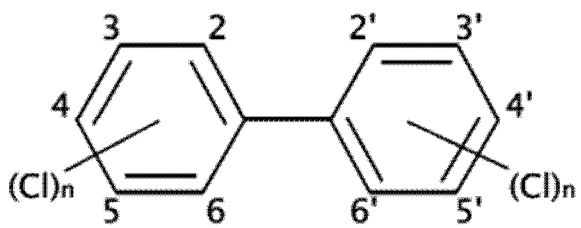
In this risk characterization, the only CoPC of interest are the group of compounds known as polychlorinated biphenyls (PCBs) and which are similar in character to Aroclors® 1254 and 1260. Sampling and analysis has confirmed these PCBs in caulk, while subsequent analyses of concrete surfaces (***Tables 1 and 2***), indoor air (***Table 4***), airborne respirable particulate (***Table 4***), and in a composite sample of bulk dusts at MBTA Cabot Yard facility (***Table 3***) identify differing PCB homolog and congener profiles.

Remediation of caulk and impacted concrete in the train wash alley has occurred under an EPA-approved Risk-Based Clean-up Plan, and in the new hydraulic lift area along Track No. 1 under an EPA-approved Self-Implementing Clean-up Plan.

2.1 Nature and Distribution of PCBs

Polychlorinated biphenyls ("PCBs") are mixtures of synthetic organic chemicals that vary in the number and position of chlorine substitutions. Each molecule in a PCB mixture consists of two 6-carbon rings bound together by a single carbon-carbon bond (***Figure 3***). A chlorine atom can be bound to any one of the remaining 10 carbon atoms, where they substitute for hydrogen. There are 209 different arrangements of chlorine substitution on the biphenyl molecule. Individual unique PCB compounds are called congeners. Congeners with the same number of chlorine atoms are grouped together and called isomers, or homologs. The number and position of chlorine substitutions determine congeners' chemical and physical properties.

Figure 3. PCB Structure and Nomenclature.



The possible positions of chlorine atoms on the benzene rings are denoted by numbers assigned to the carbon atoms. Taken from Wikipedia, The Free Encyclopedia (http://en.wikipedia.org/wiki/Polychlorinated_biphenyl).

PCB mixtures have been used in many different industrial applications, including as coolants, lubricants, in capacitors, transformers, plasticizers, surface coatings and paints, inks, adhesives, flame retardants, pesticide extenders, and carbonless duplicating paper (ATSDR 2000; USEPA 1996b; VERSAR. 2000). PCBs were produced in the United States between 1929 and 1977, with U.S. EPA regulations severely limiting production, import, use, and disposal of PCBs since 1977. While PCB manufacture in the U.S. has been discontinued, PCB mixtures remain in the environment.

Standard chemical nomenclature for PCBs use numbers to identify individual locations of chlorine substitution on each biphenyl ring (***Figure 3***). The first carbon on the biphenyl ring (1) indicates the point at which the rings are bound together. This leaves carbons 2 through 6 to indicate the location of chlorine substitution. The second biphenyl ring is numbered similarly, but the position of each chlorine substitution is indicated by a prime ('). For example, the congener 2,3,3',4,4',5'-hexachlorobiphenyl has chlorine atoms substituted at the 2, 3 and 4 positions of the first biphenyl ring and at the 3', 4', and 5' positions on the second biphenyl ring. Chlorines located in positions 2, 6, 2', or 6', adjacent to the biphenyl-biphenyl bond, are said to be ortho chlorines; chlorines in positions 3, 5, 3', 5' are called meta chlorines; and 4, and 4' are called para chlorines. The International Union of Pure and Applied Chemists ("IUPAC") devised an alternative nomenclature. IUPAC uses a number system from 1 to 209 for naming PCB congeners. The names of PCB congeners detected in laboratory analyses presented in this report

(e.g., Cl6-BZ#118) relate the number of chlorine atoms (i.e., Cl for chlorine and then the number of chlorine atoms) and then the IUPAC number designation after "BZ".

The number and position of chlorine atoms in PCB congeners determines the congener's physical, chemical, and biological properties. The biphenyl rings in a PCB molecule can rotate about the connecting biphenyl-biphenyl bond. Because ortho position chlorine atoms on one ring tend to repel ortho position chlorine atoms on the other biphenyl ring, ortho substituted congeners tend to be non-planar and prefer a conformation in which the plane of one biphenyl ring is at a right angle to the plane of the other biphenyl ring. In contrast, congeners that are not ortho substituted are thought to occupy a more planar configuration in which both biphenyl rings occupy the same plane (termed coplanar). Such coplanar PCBs are known to have dioxin-like properties (ATSDR 2000; USEPA 1996b; VERSAR. 2000).

2.1.1 Characteristics of PCB Mixtures

PCB mixtures manufactured in the US were designated Aroclors® and followed by a 4-digit number. The first two numbers indicated the type of congener mixture, while second two numbers indicated the approximate chlorine content of the mixture by weight (ATSDR 2000; USEPA 1996b; VERSAR. 2000). The relative composition of commercial Aroclors® is depicted in ***Table 5*** (ATSDR 2000; USEPA 1996b; VERSAR. 2000).

Table 5. Percent Homolog Composition of Commercial Aroclors[â].

PCB Homologs	Aroclors[â] 1016	1242	1248	1254	1260
Mono-CBs	2	1	-	-	-
Di-CBs	19	13	1	-	-
Tri-CBs	57	45	21	1	-
Tetra-CBs	22	31	49	15	12
Penta-CBs	-	10	27	53	42
Hexa-CBs	-	-	2	26	38
Hepta-CBs	-	-	-	4	7
Octa-CBs	-	-	-	-	1
Nona-CBs	-	-	-	-	-

Taken from (USEPA 1996b)
CBs = Chlorinated Biphenyls

According to Monsanto Technical Bulletin O-P-115, the Aroclors® range in form and appearance from mobile oily liquids to fine white crystals and hard transparent resins. They are non-oxidizing, permanently thermoplastic, of low volatility and non-corrosive to metals. They are not hydrolyzed by water, alkalis, or acids and will not support combustion when heated alone. All Aroclors® are virtually insoluble in water.

In the environment, PCB congener mixture composition differs from that of the commercial Aroclor® mixtures. This is because the composition of PCBs in the environment changes over time through partitioning, chemical transformation, and preferential bioaccumulation (ATSDR 2000; USEPA 1996b; VERSAR. 2000). Partitioning refers to the process by which different PCB congeners separate into air, water, sediment, and soil. The absorption of PCBs to organic matter, sediment, and soil tends to increase with congener chlorine content (ATSDR 2000; USEPA 1996b; VERSAR. 2000). In contrast, congener volatility and water solubility tend to increase with lower chlorine content. Vaporization rates and water solubility of various PCB congeners can vary by several orders of magnitude, with the relative vaporization rate for PCB congeners being very low (ATSDR 2000; USEPA 1996b; VERSAR. 2000). For example, Monsanto's Technical Bulletin O-P-115 lists the vaporization rate for Aroclor® 1242 as 0.000338 g-cm^2-hr at 100°C, Aroclor® 1248 is 0.000152 g-cm^2-hr at 100°C, and Aroclor® 1254 is 0.000053 g-cm^2-hr at 100°C. Approximate vapor pressures for Aroclors® 1242, 1248, and 1254 at 100°C are 0.001, 0.00037 and 0.00006 mm mercury (Hg), respectively (Monsanto Technical Bulletin O-P-115). In contrast, the vapor pressure for water at this same temperature is 760 mm Hg. The relative water solubility for Aroclors® is very low. In contrast, Johnson et al. (2006) reports PCBs can be readily measured in air and that most (i.e., greater than 90 percent) are found in the vapor phase.

2.1.2 PCB Fate & Transport

Chemical transformation of PCBs in the environment occurs through photolysis and biodegradation. Both anaerobic and aerobic bacteria can dechlorinate PCB congeners, but the rate of dechlorination is very slow and depends on PCB congener concentration and the number and position of chlorine substitutions on the PCB congeners present.

PCBs can selectively accumulate in living organisms. PCBs have high solubility in oils and fats and are absorbed by fish and other animals and are subsequently distributed to fatty tissues. The metabolism and elimination of PCBs is generally quite slow and tends to vary with congener and species. More detailed information concerning the metabolism, distribution and elimination of PCBs is reviewed by ATSDR (ATSDR 2000).

3.0 DOSE RESPONSE/ TOXICITY ASSESSMENT

Dose-response or toxicity assessment describes the observed effects in humans and/or laboratory animals associated with a particular exposure. This information is obtained from the published literature describing epidemiological or toxicological studies involving the CoPC and is used to quantitatively characterize the relationship between the dose of a contaminate and the incidence of adverse effects in an exposed population.

Dose-response assessments for the cancer and non-cancer effects of Aroclors® are provided by the U.S. EPA (ATSDR 2000; USEPA 1996b, 2009b, c). US EPA has

defined all Aroclors® as "probable human carcinogens." U.S. EPA indicates that there is limited or inadequate human evidence, but adequate animal evidence of the ability of PCBs to cause cancer. U.S. EPA determined CSF values for Aroclors® 1016, 1221, 1232, 1242, 1248, 1254, and 1260. In contrast, U.S. EPA only provides a non-cancer toxicity value, termed a reference dose ("RfD"), for Aroclors® 1016 and 1254 (USEPA 2009b).

As noted earlier, individual PCB congeners can have dioxin-like toxicity (i.e., cancer potency), liver inducing activity associated with cancer potency, and/or systemic effects, including immunological, neurological, reproductive, and developmental effects. In contrast to established U.S. EPA toxicity values for use in the characterization of human health risk posed by exposure to Aroclors® (except for the toxic equivalency factor ("TEF") approach used to assess the health risk associated with exposure to dioxin-like PCBs) the U.S. EPA has not established toxicity values for individual PCB congeners.

A TEF is defined as an order of magnitude estimate of the toxicity of a compound (e.g., a PCB congener) relative to the toxicity of 2,3,7,8-tetrachlorodibenzo-p-dioxin ("TCDD"), the most toxic of the polyhalogenated aromatic hydrocarbons. Because of the lack of toxicity data for many dioxin-like compounds, many TEFs are based on the relative ability of a compound to bind the aryl hydrocarbon ("Ah") receptor and induce enzyme activity, ethoxyresorufin-O-deethylase ("EROD"). EROD activity has been used as a marker for dioxin-mediated induction of *CYP1A1* gene transcription and for dioxin-mediated toxic effects. Many of the World Health Organization and EPA TEFs for PCBs are based on EROD induction. This use is rooted in the presumption that the mechanism by which dioxin causes enzyme induction and toxic effect is the same. There is, however, no mechanistic evidence that Ah receptor binding or induction of EROD is linked to the occurrence or severity of any adverse effect (U.S. EPA 2007). While EPA sometimes uses TEFs to evaluate the human health risk posed by exposure to environmental mixtures of PCBs, ATC will use the mixtures-based approach most often recommended by U.S. EPA for evaluating MBTA worker health risks posed by PCBs.

Generally, U.S. EPA indicates the carcinogenic potency of a compound by the oral- and inhalation-specific cancer slope factor (CSF_O and CSF_I, respectively) expressed as the reciprocal of standard intake units (i.e., milligrams per kilogram body weight per day or mg/kg-bw/day). For non-carcinogenic effects, the highest dose deemed unlikely to cause adverse effects when administered over a lifetime, is termed the chronic oral reference dose ("RfD") or, for inhalation exposure, the chronic inhalation reference concentration ("RfC"). The RfD is typically defined in units of milligrams per kilogram body weight per day (mg/kg-bw/day) while the RfC is defined in units of milligrams per cubic meter (mg/m^3).

3.1 Receptor- and Pathway-Specific Adjustments to Toxicity Values

U.S. EPA guidance suggests correction of the CSF and RfC toxicity values to reflect the characteristics of the exposed population (USEPA 1996a, 1997). U.S. EPA derives Unit

Risk values for air ("UR_{AIR}") and RfC values using a default mean adult breathing rate of 20 m^3/day and adult mean body weight of 70 kg, which makes these toxicity values inappropriate for use in evaluating the health risk of receptors with very different breathing rates and/or body weights. In order to evaluate site-specific receptor non-cancer risk, ATC uses the chronic oral inhalation reference dose ("RfD_I") provided by U.S. EPA's Region III (USEPA 2009c). The conversion from an RfC to RfD_I is accomplished by multiplying the RfC by the default mean adult breathing rate of 20 m^3/day and dividing the product by the default mean adult body weight of 70 kg (USEPA 1996a, 1997, 2009b, c). Use of the RfD_I allows ATC to adjust receptor exposure estimates to reflect unique receptor ventilation rates and body weights.

For the very same reason, U.S. EPA's UR_{AIR} is not appropriate for use with all receptors. U.S. EPA derives the CSF assuming a default adult body weight of 70 kg, making it necessary to adjust this toxicity value to reflect differences in body weights within the exposed receptor population. In order to adjust the CSF for use in characterizing cancer risk of receptors with different body weights, ATC calculated an appropriate adjustment factor. According to U.S. EPA guidance (USEPA 1996a), this adjustment factor is equivalent to the cube root of the quotient of the receptor's body weight over the default mean adult body weight used to calculate the CSF (i.e., 70 kg). For the predominantly male MBTA repairer/mechanics, the default body weight of 79.8 kg, results in an adjustment factor of approximately 1.04 the CSF. While an adjustment factor can significantly affect the result of excess lifetime cancer risk ("ELCR") estimates for children with much smaller body weights than the default adult body weight of 70 kg, the adjustment factor ATC identified for these nearly all male MBTA workers does not significantly increase resulting risk estimates. Regardless, ATC uses this CSF adjustment factor to adjust CSF values used in this risk characterization. ***Table 6*** lists the un-adjusted toxicity values for the two (2) Aroclor®-like environmental PCB mixtures predominantly detected on surfaces and in indoor air at the MBTA facility (RAIS 2009; USEPA 1993, 2009b, c).

U.S. EPA derivation of a chronic oral reference dose ("RfD_O") includes adjustment to reflect toxicity over a chronic exposure period. In characterizing health risks to receptors with subchronic exposures, the RfD_O is typically adjusted upward by a factor of 10 to account for the lower toxicity associated with subchronic exposures. In this risk characterization, all of the potentially exposed receptors are assumed to be chronically exposed to PCBs on facility surfaces and to PCBs in indoor air. Consequently, ATC does not adjust non-cancer toxicity values to account for subchronic exposure.

3.2 Source of Toxicity Values

In order of preference, ATC prefers to obtain cancer and non-cancer toxicity values from U.S. EPA's Integrated Risk Information System ("IRIS") (USEPA 2009b), and where absent, the U.S. EPA Region III Risk-Based Concentration Table (USEPA 2009c) and the Risk Assessment Information Service (RAIS 2009). These later two sources include toxicity values published in U.S. EPA's Health and Environmental Assessment Summary

Table ("HEAST") and provisional toxicity values determined by U.S. EPA program offices for specific SuperFund sites. Where toxicity values are not available, ATC assigned surrogate toxicity values to CoPC based on structural similarity to other CoPC for which toxicity values are available (e.g., Aroclor® 1260 is assumed to have the same non-cancer toxicity as Aroclor® 1254). As suggested by U.S. EPA, ATC uses the mixtures-based approach for evaluating MBTA worker health risks posed by PCBs on facility surfaces and PCBs in indoor air.

3.3 Cancer Effects

U.S. EPA's cancer dose-response assessment for PCBs provides information on toxicity, disposition, and environmental processes considered in the evaluation of health risks posed by PCB mixtures in the environment (USEPA 1996b). U.S. EPA uses the sentinel animal carcinogenicity study by Brunner et.al. (Brunner, M. J. *et al.* 1996) to identify a range of cancer slope factors ("CSFs") for use in evaluating environmental PCB mixtures. These typical and upper-bound CSF range from 0.0.4 to 2.0 $(mg/kg\text{-}day)^{-1}$ and are implemented depending on the route of exposure and the population of interest (USEPA 1996b).

Studies of the potential for PCBs to cause cancer in humans are considered to provide limited to inadequate evidence of human carcinogenicity. While exposure of workers to PCBs has been associated with excess cancer mortality (ATSDR 2000; USEPA 1996b), a number of other studies found no increase in cancer mortality associated with PCB exposure (ATSDR 2000). U.S. EPA finds, however, that the available animal evidence is sufficient to conclude PCBs cause cancer. Therefore, U.S. EPA categorizes PCBs as a "probable" human carcinogen (i.e., B carcinogen). U.S. EPA developed CSF values for several Aroclors based on the results of the Brunner et. al., study in which rats, fed Aroclor® 1016, 1242, 1254 or 1260 in their diet, developed significant incidences of liver tumors (USEPA 1996b). The findings of the Brunner et al., study are consistent with earlier partial lifetime studies (Kimbrough, R. D. *et al.* 1975.; Norback, D. H. and R. H. Weltman 1985; Schaeffer, E. *et al.* 1984) that found pre-cancerous liver lesions in rats and mice ingesting PCBs.

U.S. EPA assumes there is no threshold for carcinogenic effect. This means that there is a finite risk of cancer no matter how small the dose (USEPA 1996c). CSFs derived by U.S. EPA are plausible upper-bound estimates of the probability of an individual developing cancer as a result of exposure to a carcinogen over a lifetime. The oral CSF for Aroclors® 1254 and 1260 (***Table 6***) is 2 $(mg/kg\text{-}day)^{-1}$, with a central tendency of 1.0 $(mg/kg\text{-}day)^{-1}$. U.S. EPA provides a central tendency estimate for the CSF to describe an individuals "typical" risk, while the upper-bound estimate provides assurance that health risks are not underestimated – assuming the underlying model of exposure is correct. According to the U.S. EPA, the central tendency CSF is useful for estimating total risk across a population (USEPA 1996c). In contrast, VERSAR specifically recommends the use of the oral CSF of 2.0 $(mg/kg\text{-}day)^{-1}$ to characterize human health risk posed by dermal exposures (VERSAR 2000). To characterize health risk to receptors with dermal

exposure to PCBs, ATC uses U.S. EPA's upper bound CSF of 2.0 $(mg/kg\text{-}day)^{-1}$ with a dermal absorption factor of 0.14 to convert potential dermal doses to absorbed doses (VERSAR. 2000). This is necessary since the oral toxicity of PCBs is based on the internal dose, which VERSAR notes is 14 percent of the applied dose (USEPA 1996c; VERSAR. 2000).

To evaluate receptor health risk resulting from inhalation exposure to PCBs absorbed onto airborne respirable particulate, ATC uses a CSF of 2.0 $(mg/kg\text{-}day)^{-1}$, which is equivalent to the inhalation unit risk ("UR_{AIR}") of 5.7E-4 $(ug/m^3)^{-1}$. Consistent with U.S. EPA guidance (U.S. EPA 1996), ATC uses a CSF of 0.4 $(mg/kg/day)^{-1}$ to evaluate receptor health risk resulting from inhalation exposure to PCBs in vapors. This is equivalent to an inhalation UR_{AIR} of 1.14E-4 $(ug/m^3)^{-1}$.

Inherent in the use of UR_{AIR} is the assumption that all of the exposed population has a body weight of 70 kgs and a breathing rate of 20 m^3/day (i.e., U.S. EPA default parameters). Based on observations by ATC and information provided by MBTA management, MBTA worker body weights and breathing rates are different from the U.S. EPA defaults (see Section 4.2.3 for more details). Consequently, in order to evaluate specific MBTA receptor health risk posed by PCBs in PM_{10} within facility air, ATC used the CSF value and not the UR_{AIR} value, since use of the CSF allows ATC to adjust PCB toxicity relative to the MBTA receptor population's specific ventilation rates and body weights.

US EPA provides guidance on the selection of an appropriate CSF for use in evaluating specific PCB exposure pathways (USEPA 1996b). Consistent with this guidance, this risk characterization uses a CSF of 2.0 $(mg/kg\text{-}day)^{-1}$ to evaluate dermal exposure to PCBs associated with MBTA facility surfaces and to evaluate inhalation exposure to PCBs associated with airborne PM_{10}, and the CSF of 0.4 $(mg/kg\text{-}day)^{-1}$ to evaluate inhalation exposure to PCB vapors.

3.4 Non-Cancer Effects

US EPA provides limited data on the non-cancer toxicity of PCBs (USEPA 2009b, c). Non-cancer toxicity to very low doses of Aroclor® 1016, the least chlorinated of the Aroclors®, is primarily associated with neurological effects. For example, prenatal and postnatal exposure of monkeys to lower chlorinated Aroclors® has been shown to cause problems with these animals learning specific tasks. At higher concentrations, postnatal exposure to the higher chlorinated Aroclor® 1254 is associated with enlargement of the Meibomian gland, eye exudate, changes to the finger nails, toe nails, and nail beds, acneform lesions, alopecia, erythema, swelling of the eyelid, hairline hyperpigmentation, and reduced birth weights. Other studies reported reproductive effects, changes in reproductive cycles, immunological parameters, and at very high doses, a reduction in feed consumption (ATSDR 2000; USEPA 1996b, 2009b; VERSAR. 2000). US EPA uses the studies showing reduced birth weights and changes in the Meibomian gland, eye, nails, and immunological effects to derive a chronic oral reference dose ("RfD") for

Aroclor® 1254 of 2E-05 mg/kg-day. While there is no published chronic oral RfD for Aroclor® 1260, ATC conservatively assumes that its RfD is the same as that for Aroclor® 1254 (USEPA 2009b). Consistent with applicable guidance for a mixture-based approach, ATC evaluates PCB human health risks posed by the total concentration of PCBs (i.e., the sum of all Aroclor® concentrations) present in each environmental media. This is a highly conservative means of characterizing human health risks as individual PCB congeners may cause one or another, but generally not all of these effects. Because the risk of non-cancer effects should be segregated by their effect on individual toxic organs, the sum of the masses of individual PCB congeners causing neurological effects might be segregated from those causing immunological effects, or reproductive and developmental effects. Because there is limiting information regarding what effects are associated with each PCB congener, however, ATC assumes that the total mass of all PCB congeners has the potential to affect any and all target organs.

The chronic oral RfD for Aroclor® 1254 is 2E-05 mg/kg-day. This RfD is based on studies in which rhesus monkeys were administered Aroclor® 1254 in a glycerin-corn oil capsule (Arnold, D. L. *et al.* 1993a; Arnold, D. L. *et al.* 1993b; Tryphonas, H. *et al.* 1989; Tryphonas, H. *et al.* 1991a; Tryphonas, H. *et al.* 1991b). Exposed monkeys developed eye exudate, inflamed and prominent Meibomian glands, distorted growth of finger and toenails, and decreased antibody responses to sheep erythrocytes. Because there was no No-Observed-Adverse-Effect-Level (NOAEL) identified in these studies, the RfD is based on a Lowest-Observed-Adverse-Effect-Level ("LOAEL") of 0.005 mg/kg-day. The RfD is derived from this LOAEL and an uncertainty factor product of 300 consisting of the product of four (4) uncertainty factors ("UF"); a UF of 10 to account for sensitive human individuals, a factor of 3 to extrapolate from effects in the rhesus monkey to humans, a factor of 3 to account for extrapolation of effects observed in a subchronic to chronic study, and a factor of 3 to account for the reduced severity of the critical effect (i.e., extrapolation from a LOAEL to NOAEL). Because 3 represents an approximation of ½ the log of 10, the uncertainty factor product is 300.

Table 6. U.S. EPA Toxicity Values for Select Aroclors[Ò].

PCBs	**RfD** (mg/kg-day)	**CSF** $(mg/kg\text{-}day)^{-1}$	**CSF** $(mg/kg\text{-}day)^{-1}$
Exposure	ALL	PCBs on Surfaces and on Particulate	PCBs in Vapors
Aroclor® 1254	2E-05	2.00	0.4
Aroclor® 1260	2E-05	2.00	0.4

Reference dose (RfD) for Aroclor® 1254 was obtained from US EPA's Integrated Risk Information System (IRIS) (USEPA 2009b)
CSFs were obtained from (USEPA 2006b, 2009b)

Additional information regarding the mechanisms of PCB toxicity is provided in ***Appendix D***.

4.0 EXPOSURE ASSESSMENT

The purpose of exposure assessment is to provide an estimate of the representative concentrations of PCBs on surfaces and in indoor air to which receptors have contact over a specific period. Exposure assessment includes an evaluation of site characteristics, activities and uses (including any limitations), potential receptors, exposure points, exposure media, exposure pathways, and exposure concentrations ("EPCs"), culminating in an estimate of the potential uptake of CoPC by receptors. In this risk characterization, site characteristics, activities and uses (including limitations), and potential receptors are described in the Conceptual Model for the site (Section 2.0).

4.1 Exposure Profiles

An exposure profile is a narrative description of the assumed potential for receptor exposure at the site. An exposure profile is developed for each potential receptor for all current and foreseeable uses of the site. The exposure profile described in ***Table 7*** is of the one group of MBTA workers most likely to receive the greatest potential PCB exposure through contact with floor surfaces and inhalation of PCBs in indoor air

Table 7. Exposure Profiles

Receptor	Age (yrs)	Exposure Point	Exposure Pathways	Exposure Media
MBTA Worker				
Rail Repairer/Mechanic	18-45	Facility Floors	Dermal Contact	Surfaces
		Facility Air Space	Inhalation	Vapors PM_{10}

The exposure profile listed in ***Table 7*** reflects the greatest potential receptor exposure associated with both current and reasonably foreseeable future activities at the facility.

ATC did not include exposure to PCBs detected on wall surfaces as this is not thought to add significantly to receptor exposure for several reasons: (1) PCBs were infrequently detected on facility walls, (2) where PCBs were detected on facility walls they were detected at a low concentration, much lower than the average PCB concentration determined in floor samples, and (3) ATC did not observe significant MBTA employee contact with facility walls. Consequently, ATC assumes that receptor contact with wall surfaces does not add significantly to receptor health risks. Assuming a similar receptor wall contact rate, as ATC used for the floor, would have increased health risk by less than 2 percent.

MBTA workers may directly contact caulk containing PCBs. ATC feels, however, that such exposures are unlikely to significantly add to these receptors' exposure to PCBs for the following reasons. First, there are a limited number of joints with caulk containing PCBs in the facility. As noted earlier, there are 16 caulk joints running north and south on either side of the 8 tracks and two caulk joints running east to west through the middle of the facility, as well as short lengths of additional caulk joints, such as those running

east-west in the northeast portion of the building and joints around structural columns. In total, the area of caulk within these joints accounts for less than 0.5 percent of the total floor surface. Second, few caulk joints are located in the main repair pit (Tracks 3 through 6) where the majority of potential MBTA personnel work on trains. Finally, the caulk within the joints is recessed below the surface of the concrete floor, making physical contact with worker skin much less probable.

Ingestion of bulk dusts by MBTA workers is not a significant exposure pathway. Conceptually, MBTA workers may contact horizontal surfaces used to store parts or other materials that are also not routinely cleaned and upon which dusts collect. Such contact typically results in some dusts adhering to skin on the hands, adding to dermal exposure. These same dusts could also be ingested following hand-to-mouth activity or failure to wash before eating. Such contact is, however, likely to be infrequent. In addition, MBTA workers typically wear gloves while working, do not smoke in the building, use available facilities for personal hygiene (i.e., washing up and changing into and out of work clothing), and eat in a dedicated lunchroom isolated from PCB-impacted areas. Finally, the amount of PCBs in bulk dusts that a worker might contact on a surface is not significant. For example, assuming a weighted skin-soil adherence factor of 0.03 mg/cm^2 for an industrial worker (MASSDEP 2002b) and daily dermal contact with sufficient dust to cover the palms of the hands (i.e., 408.5 cm^2), the total amount of dust that can adhere to a receptor's hands is 1.22 mg. Based on the amount of total PCBs measured in bulk dust, this amount of dust contains 0.08 ug total PCBs contacted by a receptor each day, with only a fraction of that being absorbed through the skin,. The potential risk posed by the ingestion of bulk dusts is also insignificant, even assuming a receptor consumes the entire amount of PCBs adhering to the receptor's hands. In combination, the increase in non-cancer HI, associated with dermal exposure and ingestion of the bulk dust adhering to the palms of the hands, is less than 3E-05, with the ELCR increasing by less than 1E-09.

Finally, it is possible that MBTA workers, walking within the facility, pick up PCBs onto the bottom of their shoes. Such processes could result in the transport of PCBs off site. For several reasons, this is not a significant mechanism of PCB transport nor is it a significant exposure pathway for MBTA workers or other offsite receptors. Because MBTA workers wear work-related uniforms that remain at the facility, PCBs adhering to worker clothing are unlikely to leave the facility. These uniforms are provided to employees and are regularly laundered at the facility. Conceptually, the mass of PCBs adhering to the soles of worker shoes can be no greater than the mass of PCBs associated with the facility floor. Floor to shoe transfer of PCBs might result in shoe sole concentrations that are 25 percent (i.e., assuming a conservative TF of 25%) of the average PCB concentration of facility floor wipe sample results (i.e., approximately 20 ug/100 cm^2). Assuming a shoe sole of approximately 350 cm^2 (men's size 12) results in a total adherent PCB mass of less than 17.5 ug on each shoe. While subsequent transfer of PCBs to skin may occur (i.e., TF = 3%) when putting on or taking off ones shoes, the transfer is not likely to be significant assuming typical methods of putting on and taking off shoes (i.e., few people choose to fully contact the entire sole of the shoe with their

hands when either putting on or taking off their shoes). Although work shoes may be worn home, the mass of PCBs transferred from shoe soles to any off-site location appear to become increasingly small with each step taken away from the facility. With each step after leaving the facility, PCBs would be transferred to the ground/floor surface. Assuming a 25 percent TF for PCBs from shoes to ground/floor, PCB mass is lost from the bottom of the shoes with each step. Within twenty (20) steps, an initial concentration of 20 ug/100 cm^2 (equivalent to the mean of floor wipe sample results) on the bottom of a shoe reduces to less than 0.07 ug/100 cm^2. Assuming a lower TF (i.e., 10 percent) also results in a loss of PCB mass from the bottom of the shoe, with 51 steps required to reduce the starting PCB mass from 20 ug/100 cm^2 to less than 0.1 ug/100 cm^2. As workers are likely to live more than 50 steps from the MBTA facility, ATC does not expect transfer of PCBs on shoes to be a significant mechanism of PCB transfer to non-facility locations nor does ATC expect the deposition of PCBs on clothing or shoes to be a means by which MBTA workers, or other offsite receptors, have significant exposure to PCBs.

Based on ATC observations, onsite repairer/mechanics are generally assumed to have contact with concrete flooring within the MBTA facility. In contrast, while MBTA engineers and other administrative staff are unlikely to have significant contact with exposed floor, they are present at the facility and potentially exposed to PCBs in air. Their exposure to PCBs in vapors and in airborne respirable particulate is, however, unlikely to be greater than that assumed for rail repairer/mechanics, since the latter receptor is more likely to be involved in more strenuous activity requiring higher breathing rates in the performance of their job tasks. ATC conservatively assumes that repairer/mechanics have direct contact with the floor with the palms of their hands and forearms and indirect contact with the floor through secondary transfer to the back of the hands, back of the forearms, and face. ATC assumes that other skin areas of the body do not have significant contact with floor surfaces.

4.2 Exposure Assumptions

ATC relied on observations and interview data detailed in ***Appendix A and B*** to derive site-specific exposure parameters. Where such parameters could not be obtained from ATC observations or interviews with MBTA management, or where additional conservatism might be obtained using a default exposure parameter, ATC relied on guidance from U.S. EPA in the selection of an appropriate default exposure parameter (USEPA 1989, 1991a, 1992a, 1995a, b, 1996a, 1997, 1999, 2000, 2001a, b, 2005, 2009a, d). There is significant variability and uncertainty in the value of many exposure parameters used in this risk characterization. Where exposure parameter variability is described, ATC uses a discrete value to best represent the population of workers currently working at the MBTA Cabot Yard facility.

Consistent with the conceptual model, ATC describes each of the parameters used to estimate receptor exposure (i.e., intake) from contact with floor surfaces and the

inhalation of indoor air using the exposure parameters described in the following sections.

4.2.1 Exposure Times

MBTA Repairers/Mechanics: ATC observations and interviews with MBTA facility managers identify three (3) shifts of workers employed at the MBTA Cabot Yard facility, with most workers employed during the day and evening shifts. Each shift is 8.5 hours long and includes time for a meal and break periods totaling 1.25 hours. The average time spent servicing trains is less than 7.25 hours. In contrast, some workers work overtime, typically in 8-hour blocks, working a maximum of 64 hours a week, which averages out to approximately 12.8 hours per day, assuming the worker is working the maximum overtime allowed each week.

Rail repairer/mechanics are assumed to have direct contact with floor surfaces in the immediate area of the train repair pits, areas around the tracks, and areas beneath trains on a daily basis (i.e., an exposure time or ET of one event per day). U.S. EPA typically assumes that workers work five days a week, 50 weeks a year (i.e., assumes 2 weeks of vacation spent away from work), for a total of 250 days a year over a 27 year period of employment. In contrast, ATC's census of current MBTA repairers/mechanics indicates that these workers receive an average of 3.5 weeks (17.5 days) of vacation and 12 days of holidays during a year. In total, MBTA repairers/mechanics average about 231 workdays a year (assuming no sick days are taken). Nonetheless, ATC uses the more conservative U.S. EPA default exposure frequency ("EF") of 250 days/year to approximate MBTA repairer/mechanic workdays worked each year. ATC used census data collected for MBTA workers who left work within the last 10 years to derive the 90th percentile for the total number of years worked as repairers/mechanics (i.e., 27 years). This is the same as the default exposure duration ("ED") recommended by the U.S. EPA for workers. This is a conservative estimate, since most current repairer/mechanics work fewer than 27 years at the Cabot Yard train building.

Repairer/Mechanics – Surface Contact Exposure:

- ET = 1 event/day
- EF = 250 days/year
- ED = 27 years

Repairer/Mechanics – Inhalation Exposure:

- ET = 12.8 hours/day
- EF = 250 days/year
- ED = 27 years

While other MBTA employee categories have different job descriptions, it is unlikely that their exposure to PCBs on floor surfaces or to PCBs in indoor air is greater than that of the repairers/mechanics evaluated using the exposure factors above.

4.2.2 Ages

ATC evaluated MBTA worker exposure between the ages of 18 and 45 years, inclusive. The selection of this age range is used to coincide with the same category used by MassDEP to assign default breathing rates. While MBTA employees may be older, but not younger than this age range, the result of including older aged receptors does not change the exposure parameters used to calculate exposure or characterize health risk. ATC's census of current and former (i.e., left in the last 10 years) MBTA workers indicate workers are on average 38 years of age when hired. Current and former repairers/mechanics census data indicates that the current work force has worked an average of 13.2 years, with a 90th percentile of 15.1 years. In contrast, ATC found that former repairers/mechanics (i.e., workers who no longer work as a repairer/mechanic) worked an average of 24.2 years, with a 90th percentile of nearly 27 years. ATC census information indicates repairers/mechanics range in age from 18 to 45 years of age (i.e., hired at 18 years of age with 90 percent of those workers retiring or leaving before spending 27 years on the job).

4.2.3 Body Weights ("BW")

ATC calculated an age- and sex-adjusted mean body weight of 78.9 kg for the predominantly all male repairer/mechanic work force at the MBTA Cabot Yard facility. ATC calculated an age- and sex-specific body weight using Equation 1 and U.S. EPA information regarding age- and sex-specific body weights for the current group of repairers/mechanics working at the facility.

Equation 1.

$$BW = \frac{\sum_A (BW_{MALE} \times \text{Number Workers}_{MALE} + BW_{FEMALE} \times \text{Number Workers}_{FEMALE})}{\text{Total Number of Workers}}$$

Where:

$\sum_A$ = Sum of mean body weight for a worker age.

BW = age- and sex-specific mean body weight (kilograms or kg);

BW_{MALE} = age-specific male body weight (kg);

BW_{FEMALE} = age-specific female body weight (kg);

Number of Workers_{MALE} = Number male workers at age-specific body weight; and

Number of Workers_{FEMALE} = Number female workers at age-specific body weight.

Total Number of Workers = Number of Workers_{MALE} + Number of Workers_{FEMALE}.

The age- and sex-adjusted body weight for the repairer/mechanic worker population of 78.9 kg is greater than the U.S. EPA default population age- and sex-specific default body weight of 70 kg and therefore results in a lower intake per body weight than would be assumed using the U.S. EPA default body weight of 70 kg. ATC uses the estimated sex- and age-specific MBTA repairer/mechanic population body weight in characterizing health risks to this population.

Table 8. U.S. EPA Age- and Sex-Specific Body Weights.

Worker Age (years)	Mean Male Body Weight (kg)	Number of Male Repairer/Mechanics	Mean Female Body Weight (kg)	Number of Female Repairer/Mechanics
25-34	78.7	6	64.2	0
35-44	80.9	13	67.1	0
45-54	80.9	34	68.0	0
55-64	78.8	21	67.9	1
65-74	74.8	3	66.6	0
	Mean = 79.9	Total Workers = 77	Mean = 67.9	Total Workers = 1

Note: The youngest MBTA repairer/mechanic falls within the 25-34 age group.

The U.S. EPA default body weight of 70 kg is used by the U.S. EPA in the derivation of chronic oral reference concentrations (RfD) and is also used in the derivation of CSF. It is a conservative approximation of the mean of all male and female adult body weights (USEPA 1997). ATC provides a summary of sex- and age-adjusted mean body weights for each receptor class below:

Rail Repairer/Mechanic:

- BW = 78.9 kg

4.2.4 Ventilation Rates ("VR")

Consistent with U.S. EPA risk characterization guidance, ATC used a U.S. EPA defined activity-specific ventilation rate to evaluate health risk posed by the inhalation of PCBs in indoor air. Activity-specific ventilation rates are presented in U.S. EPA's Exposure Factors Handbook (USEPA 1997). Based on observations, most MBTA rail repairer/mechanics appear to be breathing at a comfortable rate while performing job-related tasks. ATC feels that it is unlikely that they would exceed the "light" ventilation rate of 1.1 m^3/hour recommended for use by U.S. EPA. ATC, however, conservatively assumes that MBTA repairer/mechanics have a moderate ventilation rate of 1.7 m^3/hour for their entire workday (21.8 m^3/day assuming a 12.8 hour shift), is greater than the U.S. EPA default ventilation rate used to derive cancer and non-cancer toxicity values of 20 m^3/day (USEPA 1997). Most MBTA workers do not perform any kind of strenuous activity (i.e. office personnel, clerks, engineers, etc.) and therefore have lower breathing rates than assumed for repairer/mechanics. ATC conservatively assumed that MBTA workers breathe at the following ventilation rate for their entire workday.

MBTA Repairer/Mechanic:

- VR = 1.7 m^3/hour

This MBTA repairer/mechanic ventilation rate is different from that assumed by U.S. EPA (i.e., 20 m^3/day) in the derivation of RfC and UR_{AIR} toxicity values. While the default U.S. EPA ventilation rate of 20 m^3/day is meant to encompass workers involved in more strenuous tasks requiring much higher ventilation rates, ATC has rarely observed MBTA repairers/mechanics involved in work requiring such high ventilation rates, and

certainly not requiring such high ventilation rates for the entire workday, all year. Nonetheless, ATC has used this more conservative moderate ventilation rate.

4.2.5 Dermal Contact Surface Area ("SA")

U.S. EPA (USEPA 1997, 2000, 2001c) provides information regarding specific skin surface areas available for contact with media. Based on observations of MBTA workers performing work related tasks, ATC identified repairer/mechanic workers as having the most frequent and intense (i.e., greatest surface area) contact with floor surfaces of any MBTA employee. While these workers typically wear disposable gloves when working on trains, ATC assumed that these workers do not wear gloves, directly contacting the floor with the palms of the hands and a portion of their forearms at least once each day. Such contact results in worker skin surface area available for contact with the facility floor that is half the 50th percentile of male receptors hands and forearm skin surface area (i.e., 1,150 cm^2). While the backs of the hands and the top surface of the forearms would never have direct contact with floor surfaces, ATC assumed that workers have significant secondary transfer of PCBs from the palms of the hands to other areas of exposed skin on the backs of hands, top surface of the forearms, and the face. This secondary transfer from the palms of the hands to these other areas increases the total exposed skin surface area to 2,950 cm^2. This surface area, however, presumes complete and total transfer of PCBs from the palms of the hands to these other exposed skin surface areas (i.e., TF = 100%). Applying the actual TF of 3% to estimate PCB transfer from palm of hand to other exposed skin surfaces results in an equivalent skin surface area in direct contact with the floor of approximately 1,204 cm^2 (i.e., direct contact skin surface area plus 3% of the remaining exposed skin surface area).

MBTA Worker:

- SA = 1,204 cm^2

4.2.6 Transfer Factor ("TF")

Conceptually, loose material on a surface can be transferred to skin when a person touches or brushes up against the surface. The relative mass transferred during such an exchange is described by the transfer factor ("TF"). VERSAR recommends the use of a transfer factor ("TF") of 25% to describe the efficiency of transferring PCBs from a hard smooth surface to human skin (VERSAR. 2000). According to VERSAR, this TF is based on a study (Christianson, H. *et al.* 1986) evaluating the transfer of PCBs from smooth glass and metal surfaces in *in vivo* experiments, noting that the actual transfer of PCBs from a more porous surface, like concrete, to skin is likely to be much lower.

Application of the VERSAR TF value for use in estimating MBTA worker intake of PCBs through dermal contact is unrealistic. PCBs and other organic surface contaminates are efficiently collected using the U.S. EPA's PCB wipe sampling protocol. This is because hexane, the solvent used in U.S. EPA wipe sample PCB collection methodology, is an aggressive solvent that collects PCBs from below the surface of

porous materials like concrete. Furthermore, aggressive rubbing required in the collection of wipe samples (i.e., wiping in multiple directions) is not representative of casual dermal contact. After studying the transfer efficiency of PCBs, Slayton et al. recommend a transfer factor of less than 1% for infrequent or casual dermal contact, and a TF of 12% for strenuous activities involving repetitive sliding dermal contact on bare concrete (Slayton, T.M. *et al.* 1998). ATC reviewed the data presented by Slayton et.al. and selected a conservative TF value of 2.5 percent to reflect the transfer of PCBs from a concrete floor to a receptor's sweaty skin. This TF reflects the fractional transfer of PCBs using a non-rubbing method and a saline solvent relative to that obtained using hexane in the U.S. EPA wipe sample methodology. This TF value conservatively reflects the casual dermal contact of MBTA workers that ATC observed during their normal performance of job tasks and is almost three times greater than the value recommended by Slayton et al. for casual contact with surfaces.

Transfer Factor(TF):

- TF = 2.5 percent

It is important to note that TF values assume that the source of PCBs on a surface is infinite (i.e., that the total mass of PCBs on the surface remains constant even after multiple transfer events). A TF of 10% indicates transfer of 10% of the PCBs from the surface to a receptors skin, leaving 90 percent of the PCBs on the original surface after first contact. Repeated contact with this same surface, with transfer of 10% of the remaining PCB concentration on each contact, would in actuality result in an exponential decline in surface PCB mass. At the MBTA facility, PCBs exist in concrete and on concrete surfaces. The rate of PCB migration from caulk to the adjacent mass of concrete and the PCB migration from that concrete mass to its surface is unknown, but likely to be quite slow. Consequently, any concrete surface routinely contacted by MBTA employees is likely to exhibit a net loss of PCB mass resulting in a net lower total transfer of PCBs to receptors' skin than is assumed using the above TF value.

4.2.7 Relative Absorption Factor ("RAF")

The relative absorption factor ("RAF") is used to account for differences in the absorbed dose of a compound under a set of exposure conditions (i.e., route and matrix) relative to the absorption of that same compound under experimental conditions used to derive its toxicity value (USEPA 1989). Consequently, the RAF is the ratio of two absorption efficiencies (Equation 2).

Equation 2

$$RAF = \frac{\text{Absorption Efficiency}_{\textbf{(SITE route/medium exposure)}}}{\text{Absorption Efficiency}_{\textbf{(STUDY route/medium of exposure)}}}$$

For dermal exposure, early guidance by the U.S. EPA suggests an appropriate RAF value for PCBs in soils lies between 0.6 and 6 percent (USEPA 1992a). The RAF of 6% is an upper-bound estimate of the dermal absorption of PCBs in soils adhering to skin and is supported by studies reviewed by Kimbrough (Kimbrough, R. D. 1995) in which dermal

uptake is less than 6 percent of that absorbed after oral intake. The U.S. EPA's dermal RAF is based on experimental data relating the uptake of trichlorobiphenyl ("TCB"), a compound whose dermal uptake exceeds or is equal to that of PCBs in rat skin. According to this U.S. EPA document:

> "*… it is appropriate to apply the recommendations for TCB … to all PCBs and Aroclors*[â]*. The upper-bound of 6% should be used.*"

In contrast, U.S. EPA's document entitled "*Cancer Dose-Response Assessment and Application to Environmental Mixtures*" (USEPA 1996b; VERSAR. 2000) suggests that a more appropriate RAF for dermal absorption is 14%. This later RAF is based on a study of *in vivo* absorption of Aroclor 1242 and 1254 in rhesus monkeys (Wester, R. *et al.* 1993). This later RAF, because it is derived from living animal studies and PCB mixtures, is more relevant to potential human exposures than the *in vitro* study with TCB. In addition, Wester et. al., reported that subsequent washing did not remove all PCBs from skin, especially with increased time after initial exposure (Wester, R. C. *et al.* 1983). ATC uses the later U.S. EPA RAF for PCB dermal absorption based on *in vivo* studies in monkeys (i.e., 14%) as the RAF for dermal absorption.

Dermal - Relative Absorption Factor (RAF):

- RAF = 14 %

For inhalation exposures, ATC uses MassDEP's method for evaluating particulate exposures. More complete than U.S. EPA's evaluation of particulate exposures, MassDEP considers the ingestion of inhaled particulate as well as that which is inhaled deep into the lung and subsequently absorbed. While MBTA workers are unlikely to directly consume caulk containing PCBs, ATC assumed that these workers ingest a fraction of the PCB-laden particulate that is inhaled.

ATC identified an oral RAF for PCBs ingested on particulate as 67%. Fries et al., reported on the bioavailability of aged PCBs in contaminated soils (Fries, G. F. *et al.* 1989). These authors determined that the bioavailability of PCBs was greatest when administered in corn oil, 3 to 4 percent less when administered in feed with a solvent, and 10 to 20 percent less when administered in soil. Experimental data provided by these authors also suggest that the bioavailability of individual congeners diminishes with increasing chlorine content. Specifically, the PCB congener 2,2',4,5,5'-pentachlorobiphenyl, 2,2',5,5'-tetrachlorobiphenyl, and 2,2',5-trichlorobiphenyl exhibited bioavailability of 66.8, 79.5, and 82.1, respectively. Since PCBs associated with airborne respirable particulate within the MBTA facility are identified as the more heavily chlorinated Aroclors® 1254 and 1260 (i.e., 84 % of the PCB congeners in Aroclor 1254 and all of the PCB congeners in Aroclor 1260 contain 5 chlorines or more), ATC chose an oral RAF of 67% as the RAF for ingested PCBs on inhaled PM_{10}. Use of a overly conservative RAF (i.e., 100%) for this route of exposure would not significantly change the results of the risk characterization.

Oral - Relative Absorption Factor (RAF):

- RAF_I = 67 %

The relative absorption factor for PCBs inhaled on particulate and subsequently absorbed through lung tissue, or inhaled as vapors, is assumed to be 100 percent.

Inhalation - Relative Absorption Factor (RAF):

- RAF_A = 100 %

4.2.8 Respirable Particulate Matter ("PM_{10}")

ATC uses MassDEP's method for evaluating particulate exposures. MassDEP's methodology for evaluating contaminant intake from inhaled particulate is more complete than that offered by the U.S. EPA in that it considers the incidental ingestion of inhaled particulate as well as that which is inhaled deep into the lung and subsequently absorbed. PM_{10} refers to particles with a defined size distribution, where the "10" in PM_{10} refers to the upper limit of particles mean aerodynamic diameter (i.e., 10 micrometers). ATC measured airborne respirable particulate (PM_{10}) concentrations in two (2) areas of the MBTA facility associated with the highest levels of occupancy by repairers/mechanics. Laboratory analysis using U.S. EPA Method PM-10 detected 0.028 and 0.038 mg respirable particulate per cubic meter air (mg/m^3), which corresponds to 28 and 38 ug respirable particulate per m^3 (ug/m^3). ATC used the maximum of these two PM_{10} values as the EPC for evaluating MBTA receptor risk to PCBs in PM_{10}.

Respirable Particulate (PM_{10}):

- PM_{10} = 38 ug/m^3

Under the MassDEP approach for evaluating receptor exposure to inhaled particulate, PM_{10} values are adjusted to reflect the route of intake following inhalation of respirable particulates (MASSDEP 2002a).

Consistent with risk characterization guidance, ATC used an effective exposure concentration ("EEC") to adjust the PM_{10} concentration to account for differences in the fate of contaminates on inhaled particulates. While some inhaled particulates are trapped in mucosal membranes and subsequently swallowed, with contaminates absorbed in the gastrointestinal ("GI") tract, other particulates are deposited deep in the lungs where contaminates are absorbed into the blood stream through alveolar membranes. To evaluate GI tract absorption of contaminates on inhaled particulate, ATC uses an EEC equivalent to 2 times the concentration of PM_{10}. In contrast, to evaluate lung absorption of contaminates on inhaled particulate, ATC used an EEC that is 0.5 times the PM_{10} concentration. It is important to note that absorption of PCBs from the GI tract is very different from that assumed for PCBs absorbed in the lungs.

$EEC_{INHALATION}$ (MBTA Worker) = 0.5. ATC uses this EEC to adjust receptor the intake of PCBs associated with airborne PM_{10} to reflect the assumption that only half (0.5) of the PM_{10} in air is deposited and absorbed in the lungs.

$EEC_{INGESTION}$ (MBTA Worker) = 2.0. ATC uses this EEC to adjust receptor intake of PCBs associated with airborne PM_{10} to reflect the assumption that 2 times the PM_{10} concentration in air, is trapped in mucosal membranes of the airways, subsequently swallowed, and absorbed in the GI tract.

4.2.9 Fractional Intake ("FI")

Standard risk equations use a unit-less fractional intake ("FI") value to adjust exposure values for miscellaneous site-specific parameters. ATC did not use a FI to adjust MBTA worker dermal intake of PCBs from facility floor surfaces or inhalation intake from indoor air. Rather than change the standard equations, ATC set the FI equal to 1 in risk calculations.

FI_D (dermal exposure):

- $FI_D = 1$

FI_I (inhalation exposure):

- $FI_I = 1$

4.2.10 Averaging Times ("AT")

In the quantification of exposure, the receptor intake is divided by the time required to cause an adverse effect. For non-carcinogenic agents, the time required to develop an adverse response is typically the same time as the exposure duration or ED. This is because termination of exposure results in a cessation of cumulative tissue damage caused by non-carcinogenic agents. The averaging time for non-carcinogenic agents (ATn) is used to calculate an average daily dose ("ADD"), in units of mg/kg-day (USEPA 1989, 1991a, 1995a, 1996a, 1997). For carcinogenic agents, cessation of exposure does not necessarily reduce the likelihood of developing an adverse effect (i.e., cancer) since a single dose of a carcinogenic agent can interact with cellular DNA to confer a heritable increase in the risk of developing cancer over a receptor's lifetime. For carcinogenic agents, ATC uses an averaging time ("ATc") equivalent to the lifetime of the receptor to calculate a lifetime average daily dose ("LADD"), in units of mg/kg-day. The likelihood of developing cancer is therefore averaged over the ATc, which is set equivalent to the lifetime of the receptor; 75 years or 27,375 days (USEPA 1989, 1991a, 1995a, 1996a, 1997). A 75 year lifespan is consistent with the lifespan recommended for this purpose by U.S. EPA (USEPA 1996a, 1997).

4.3 Determination of Exposure Point Concentrations

ATC identified appropriate Exposure Point Concentrations ("EPCs") for MBTA facility surfaces and for airborne respirable particulate and vapors in indoor air from laboratory analyses of these media.

4.3.1 Facility Surfaces

Laboratory analyses of floor wipe samples identified the presence of PCBs with a profile similar to Aroclors® 1254 and 1260. The laboratory did not identify PCB mixtures equivalent to Aroclor® 1221, 1232, 1242, or 1248. Thirteen (13) detections of Aroclor® 1254-like PCB mixtures in floor wipe samples ranged from 0.47 to 26.2 ug/100 cm^2, with a mean of 8.06 ug/100 cm^2 and a 95th confidence interval ("CI") on the mean (i.e., a statistically derived value indicating 95 percent certainty that the true mean PCB surface concentration falls below this value) of 12.31 ug/100 cm^2 (***Table 2***). Thirteen (13) detections of Aroclor® 1260-like PCB mixtures in floor wipe samples ranged from 0.79 to 39.1 ug/100 cm^2, with a mean of 11.57 ug/100 cm^2 and a 95th CI on the mean of 15.82 ug/100 cm^2 (***Table 2***). As is common in PCB risk characterizations and as recommended by the U.S. EPA in their mixtures-based approach to risk characterization (U.S. EPA 1996b), the two Aroclor® concentrations are summed to get a total PCB concentration. The mean total PCB concentration in wipe samples (i.e., the mean of the sum of Aroclor® 1254 and 1260 concentrations) is 19.63 ug/100 cm^2 with a 95th CI of 25.99 ug/100 cm^2. ATC conservatively used the 95th CI on the mean of total PCB concentration (26 ug/100cm^2) as the EPC for evaluating MBTA worker health risks.

4.3.2 PM_{10} in Facility Air

Laboratory analyses of two (2) indoor air samples for PCBs in PM_{10} (i.e., respirable particulate) detected Aroclors® 1254 and 1260 (***Table 4***). ATC used the maximum total PCB concentration in facility air (i.e., 0.0029 ug/m^3) as the EPC for use in characterizing MBTA worker health risks from inhaled and ingested airborne particulate matter.

4.3.3 Vapor-phase PCBs in Facility Air

Sampling and analysis of indoor air demonstrated that the majority of PCBs in indoor air are present in the vapor phase. Of the indoor air samples collected at the facility and analyzed for vapor-phase and/or total (i.e. particulate and vapor-phase) PCBs, the maximum measured value of the sum of PCB homologs is 0.1067 ug/m^3. The concentrations of 1) vapors and 2) total PCBs (particulates plus vapors) in the indoor air samples collected in January 2010 were not statistically different from each other.

The October 2009 homolog analyses only detected tetrachlorobiphenyl and pentachlorobiphenyl homologs. Other homologs, identified in later sampling and analysis of indoor air, may have been masked by the method detection limits of 0.043 ug/m^3 of this initial analysis. Subsequent PUF sampling and homolog analysis of PCBs in indoor air identified six (6) separate chlorobiphenyl homolog groups, including homolog groups with 2 (di), 3 (tri), 4 (tetra), 5 (penta), 6 (hexa), and 7 (hepta) chlorine atoms. The sum total of these PCB homolog groups (i.e., total vapor-phase and particulate PCBs in indoor air) is approximately 0.0955 ug/m^3, which is slightly less than that detected in the initial homolog analysis that identified only two (2) homolog groups in indoor air. In contrast, the sum total of individual PCB congeners detected in indoor

air (i.e., total vapor-phase and particulate PCBs in indoor air) is substantially less than that detected in homolog analyses (i.e., 0.0693 ug/m^3). Interestingly, while homolog analysis detected the heptachlorobiphenyls homolog group in indoor air equivalent to 5 percent of the total PCB concentration, congener-specific analysis failed to detect any heptachlorobiphenyls at a method detection limit of 0.002 ug/m^3.

As a conservative measure, ATC uses the total (vapor-phase plus particulate) PCB concentration detected in the October 2009 homolog analysis of indoor air, minus the airborne particulate EPC described in Section 4.3.2, as a conservative vapor-phase air EPC in this risk characterization. Note that this concentration is greater than subsequent PCB homolog- and congener-specific analyses.

4.4 Summary of Exposure Parameters

Table 9 below provides a summary of risk equation input parameters, as detailed in Sections 4.1 through 4.3.

Table 9. Exposure Parameters Values

Variable	Value	Units	Description
C_A	0.1038	ug/m^3	Concentration of total PCBs in vapors (maximum) minus C_P.
C_P	0.0029	ug/m^3	Concentration of total PCBs in PM_{10} (maximum measured).
W_C	26	ug/100 cm^2	Surface concentration of total PCBs (95th CI on the mean).
SA	1,204	cm^2	Skin surface area in direct/indirect contact with floor.
RAF_D	14%	unitless	Relative absorption factor; dermal.
RAF_I	67%	unitless	Relative absorption factor; ingestion.
RAF_A	100%	unitless	Relative absorption factor; inhalation air.
FI_D	1	unitless	Fractional Intake, dermal
FI_I	1	unitless	Fractional Intake, ingestion
VR	1.7	m^3/hour	Activity-specific ventilation rate (USEPA 1997).
TF	2.5%	unitless	Transfer factor (Slayton, T.M. *et al.* 1998).
PM_{10}	0.038	mg/m^3	PM_{10} concentration in MBTA facility air (maximum of measured values).
CF_D	1E-05	mg/ug-cm^2	Conversion factor; dermal intake equation (includes 100 cm^2 for W_C).
CF_I	1E-06	kg/mg	Conversion factor; inhalation intake equation.
$EEC_{INHALATION}$	0.5	unitless	Default value.
$EEC_{INGESTION}$	2	unitless	Default value.
ET_D	1	event/day	Default value.
ET_I	12.8	hours/day	Hours spent each workday, and with maximum overtime.
EF	250	days/year	Days worked each year (default - assumes 50 weeks, 5 days a week).
ED	27	years	90th percentile of years worked at facility for retired repairers/mechanics.
BW	79.8	kg	Mean age- and sex-specific body weights of repairers/mechanics.
ATn	9,855	days	Non-cancer effect averaging time.
ATc	27,375	days	Cancer effect averaging time.

4.5 Quantitative Exposure Estimates

Quantitative exposure estimates were determined in accordance with U.S. EPA risk assessment guidance (USEPA 1989). ATC calculated quantitative estimates of the average daily dose ("ADD") and lifetime average daily dose ("LADD") using the following equations:

Inhalation of Indoor Air:

Fugitive Dusts

Inhaled

Equation 3

$$ADD_{INHALED}\ (mg/kg\text{-}day) = \frac{C_P \times EEC_{INH} \times PM_{10} \times VR \times RAF \times FI \times ET_I \times EF \times ED \times CF_I}{BW \times ATn}$$

Equation 4

$$LADD_{INHALED}\ (mg/kg\text{-}day) = \frac{C_P \times EEC_{INH} \times PM_{10} \times VR \times RAF \times FI \times ET_I \times EF \times ED \times CF_I}{BW \times ATc}$$

Ingested

Equation 5

$$ADD_{INGESTED}\ (mg/kg\text{-}day) = \frac{C_P \times EEC_{ING} \times PM_{10} \times VR \times RAF \times FI \times ET_I \times EF \times ED \times CF_I}{BW \times ATn}$$

Equation 6

$$LADD_{INGESTED}\ (mg/kg\text{-}day) = \frac{C_P \times EEC_{ING} \times PM_{10} \times VR \times RAF \times FI \times ET_I \times EF \times ED \times CF_I}{BW \times ATc}$$

Vapors

Equation 7

$$ADD_{INHALED}\ (mg/kg\text{-}day) = \frac{C_A \times VR \times RAF \times FI \times ET_I \times EF \times ED \times CF_A}{BW \times ATn}$$

Equation 8

$$LADD_{INHALED}\ (mg/kg\text{-}day) = \frac{C_A \times VR \times RAF \times FI \times ET_I \times EF \times ED \times CF_A}{BW \times ATc}$$

Dermal Contact with a Surface:

Equation 9

$$ADD\ (mg/kg\text{-}d) = \frac{W_C \times SA \times RAF \times FI \times TF \times ET_D \times EF \times ED \times CF_D}{BW \times ATn}$$

Equation 10

$$LADD\ (mg/kg\text{-}d) = \frac{W_C \times SA \times RAF \times FI \times TF \times ET_D \times EF \times ED \times CF_D}{BW \times ATc}$$

Where:

ADD = Average daily dose (mg/kg-day).
LADD = Lifetime average daily dose (mg/kg-day).
C_A = Concentration of PCBs in vapor (ug/m^3). Calculated as total (particulate plus vapors) PCBs measured during October 2009 event minus C_P.
C_P = Concentration of total PCBs in airborne particulate (mg/kg).
Calculated as (C_A/PM_{10}) x 1000 (mg-mg/ug-kg)
W_C = Concentration of total PCBs on a surface (ug/100 cm^2).
RAF_D = Dermal relative absorption factor (unitless).
RAF_I = Ingestion relative absorption factor (unitless).
RAF_A = Air (inhalation) relative absorption factor (unitless).
VR = Ventilation rate (m^3/hr).
$EEC_{INHALATION}$ = 0.5 (unitless).
$EEC_{INGESTION}$ = 2.0 (unitless).
TF = Fraction PCBs transferred from the surface to skin.
PM_{10} = Airborne respiratory particulate (mg/m^3).
SA = Skin surface contact area (cm^2/event).
CF_D = Dermal exposure conversion factor (1E-05 mg/ug).
(Includes a factor of 100 to adjust surface wipe sample units to ug/cm^2)
CF_I = Particulate inhalation conversion factor (1E-06 kg/mg).
CF_A = Vapor inhalation conversion factor (1E-03 mg/ug).
FI = Fractional intake
ET_I = Exposure time, inhalation (hrs/day).
ET_D = Exposure time, dermal (events/day).
EF = Exposure frequency (days/year).
ED = Exposure duration (years).
BW = Age-specific body weight (kg).
ATn = Effect specific averaging time for non-carcinogenic agents (days).
ATc = Effect specific averaging time for carcinogenic agents (days).

5.0 RISK CHARACTERIZATION

In risk characterization, the available information regarding hazard identification, dose-response assessment, and exposure assessment are integrated to quantify the potential cancer and non-cancer risks. The results of this risk characterization are summarized in ***Table 10***. It is important to note that the cumulative risk to MBTA workers is the sum of worker exposure to PCBs on floor surfaces and in indoor air. Estimated MBTA worker health risks are compared to U.S. EPA target risks. While U.S. EPA identifies acceptable cancer target excess lifetime cancer risk ("ELCR") as between 1E-04 and 1E-06, most

comparisons with health risk estimates use the single median target ELCR of 1E-05. In contrast, U.S. EPA identifies a single acceptable non-cancer hazard quotient ("HQ") of 1. Generated health risk estimates that are less than the identified target health risks are acceptable and said to be without appreciable risk of harm to health over a lifetime of exposure.

Table 10. Health Risk Estimates Associated with MBTA Worker Exposures.

Exposure	Intake	PCB Toxicity Values		HEALTH RISK	
	(mg/kg-day)	RfD	CSF	HI	ELCR
MBTA Worker Contact with Floor Surfaces.					
ADD	9.4E-06	2.00E-05	--	0.470	--
LADD	3.4E-06	--	2	--	7.5E-06
MBTA Worker Inhalation of Indoor Air.					
Vapors in Indoor Air					
ADD	1.9E-05	2.00E-05	--	0.970	--
LADD	7.0E-06	--	0.4	--	3.1E-06
Particulates in Indoor Air					
Gastrointestinal Absorption					
ADD	7.3E-07	2.00E-05	--	0.037	--
LADD	2.6E-07	--	2	--	5.8E-07
Lung Absorption					
ADD	2.7E-07	2.00E-05	--	0.014	--
LADD	9.8E-08	--	2	--	2.2E-07
Total Inhalation Health Risk =				1.0	3.9E-06
TOTAL MBTA Worker Health Risk* =				**1**	**1.1E-05**
EPA Target Health Risk =				**1**	**1.0E-04 to 1.0E-06**

Notes:
*Sum of total dermal and total inhalation health risk.
ADD = is the Average Daily Dose (mg/kg-day) used to assess non-carcinogens.
CSF (i.e., cancer slope factor) values are provided in units of $(mg/kg\text{-}day)^{-1}$.
ELCR = excess Lifetime Cancer Risk; an estimate of cancer risk.
HI = Hazard Index; an estimate of non-cancer risk.
LADD = is the Lifetime Average Daily Dose (mg/kg-day) used to assess carcinogens.
RfD (i.e., chronic oral reference dose) values are provided in units of mg/kg-day.
Total MBTA Worker Health Risk is rounded to the nearest significant figure.

The ELCR estimate for MBTA repairer/mechanics exposed to PCBs on floor surfaces and to PCBs in indoor air slightly exceeds the applicable target health risk, while the non-cancer health risk estimate is at the applicable target health risk. It is important to realize, however, that each of the health risk estimates in ***Table 10*** is dependent on the selection of exposure parameters used to model MBTA repairer/mechanic exposure to PCBs. As such, the exposure scenario used by ATC likely over estimates actual worker exposures, and less conservative exposure parameters consistent with ATC's observations of MBTA workers would result in lower risk estimates.

This risk characterization demonstrates that PCBs on floor surfaces and in indoor air (i.e., in vapors and in airborne respirable particulate) pose a slight risk of harm to health of MBTA employees. In the following Uncertainty Section (Section 6), ATC explores how the risk estimates above may change with exposure parameter selection.

6.0 UNCERTAINTY ANALYSIS

ATC conducted this risk characterization in a manner consistent with applicable U.S. EPA guidance (USEPA 1989, 1991a, 1992a, b, 1993, 1995a, b, 1996a, 1997, 2000, 2001b, 2005, 2009a, d). Use of conservatively selected site-specific and U.S. EPA default exposure parameters ensures that this risk characterization provides a conservative estimate of site-related human health risk (i.e., actual human health risks are unlikely to be greater than those derived in this report). ATC used exposure parameters designed to address exposure of MBTA receptors within the facility. In every case, ATC attempted to provide a conservative approach to the selection of exposure parameters. ATC identified the MBTA repairer/mechanic as the MBTA worker with the greatest potential exposure to PCBs associated with facility floors and in indoor air. These workers have direct exposure to floor surfaces that other MBTA employees typically do not have, and because they perform more strenuous activity, they are likely to breathe at a rate that is greater than other MBTA employees, inhaling a greater volume of air while at work each day. For these workers, ATC purposefully overestimated their exposure to floor surfaces, assuming that they could contact any area of the facility floor and that such contact would not reduce transfer of PCBs during any subsequent contact (i.e., the mass of PCBs remaining and available for subsequent transfer never diminished). These and other conservative exposure parameters work together to provide a conservative estimate of worker exposure to PCBs associated with the facility. In the following Section 6.1 Sensitivity Analysis, ATC identifies how risk estimates change with different exposure assumptions.

6.1 Sensitivity Analysis

Sensitivity analysis is the name given to a process of systematically altering the value of input parameters used in exposure equations for the purpose of defining how parameter changes affect risk estimates. ATC used a conservative estimate of the concentration of PCBs associated with facility floors, the 95th CI on the mean of positively biased wipe sample data. Such an EPC alone adds significant conservatism to this risk characterization since receptors are assumed to have contact with floors containing significant PCB concentrations. Small changes in individual exposure parameters, however, may significantly alter the resulting health risk estimates.

In some areas of this risk characterization, ATC used default methods and/or exposure parameters. As noted earlier, MassDEP's methodology for the evaluation of health risk posed by PCBs in airborne respirable particulate is more complete than that provided by U.S. EPA in that it addresses inhaled particulate contaminate absorption from the gut and

from the lungs. As noted by U.S. EPA, MassDEP default exposure parameters may be more suitable for use in estimating exposures of people in Massachusetts than blanket use of U.S. EPA default exposure parameters (USEPA 1997). As such, where MassDEP default exposure parameters are used in this risk characterization, they are used because they best reflect the exposure of people living and working in Massachusetts. In the following sections, ATC discusses how changes in exposure parameters can affect health risk estimates.

6.1.1 Dermal Exposures & Risks

ATC observations, interviews with MBTA facility managers, and the employee census conducted by ATC and MBTA management provided site-specific information about employee work hours, days, and years spent on the job. ATC used conservative site-specific estimates of hours worked per day ("ET"), the days worked each year ("EF"), and the years worked as a repairer/mechanic ("ED") derived from information gathered for current and former MBTA repairer/mechanic employees. For the days worked each year ("EF"), ATC used a conservative U.S. EPA default exposure value in the risk assessment. ATC's employee census, however, indicated that MBTA repairer/mechanics take an average of 3.5 weeks vacation and 12 holidays, resulting in an average of 19 fewer days at work (i.e., assuming no sick days are taken) than were assumed in this risk characterization. Using a more realistic (less conservative) value for EF in the risk calculations would result in lower MBTA worker health risk.

Other dermal exposure parameters impacting risk estimates include the transfer factor ("TF"), the amount of skin surface area ("SA") available for contact with the floor surface, and the relative dermal absorption ("RAF") of PCBs through skin. While there is little variation in the choice of relative dermal absorption factors, the selection of the TF and SA available for contact with the floor can have a significant impact on health risk estimates. ATC used a TF value of 2.5% to reflect the transfer of PCBs from a concrete floor to a receptor's sweaty skin. The use of a TF of 25 percent, recommended by VERSAR (see further discussion in Section 4.2.6) and derived from in vitro studies of PCB transfer from a smooth surface to skin, would likely over-predict transfer of PCBs from a concrete surface to human skin. Using a lower TF percentage that is more representative of the transfer from concrete to human skin (i.e., Slayton et al. recommended less than 1% for casual contact) would result in more than two-fold lower health risk. Finally, the use of any one TF value assumes an infinite source of PCBs on a surface and instant migration of PCBs to the surface where they can be transferred to receptor skin. Both assumptions are unrealistic. Conceptually, each successive transfer of PCBs from the surface leaves a reduced mass of PCBs behind, a mass that is unlikely to be quickly replaced by PCBs migrating from adjacent concrete or caulk. Consequently, the use of any one TF to model multiple surface contacts, without altering the mass of PCBs left on the surface (i.e., assuming an infinite source), is a conservative approach to estimating receptor intake by dermal contact.

Similarly, a change in the amount of skin surface area ("SA") contacting the floor surface can have a significant impact on health risk estimates. While ATC assumed direct contact of skin that included half the hands (i.e., palms) and half the forearms, with indirect contact with back of hands, back of forearms, and face, ATC's observations of workers performing job tasks suggest that much less skin actually touches the floor surface. This is especially true because most MBTA workers wear gloves when working at the facility. Taken together, the use of less conservative and more realistic TF and SA values in the evaluation of dermal exposure of MBTA workers to PCBs associated with facility floors would result in a significant reduction in calculated MBTA repairer/mechanic health risk.

Altogether, changing the MBTA workers exposure to surfaces and indoor air to reflect an ET of 8 hours, an EF of 231 days, changing the TF from 2.5 percent to less than 1, and reducing the SA from 1,204 cm^2 to something that is more typical of MBTA repairer/mechanics would result in a substantial reduction in the HI and ELCR calculated for MBTA employees.

6.1.2 Inhalation Exposure & Risks

The use of exposure parameters to characterize MBTA worker exposure to indoor air is also conservative. ATC used a conservative estimate of worker breathing rates to estimate the intake of PCBs through inhalation of vapors and particulates. While workers may have higher breathing rates for a brief period of time, they are unlikely to have a higher breathing rate over the entire work day. In fact, a lower breathing rate (such as a "light exertion" breathing rate of 1.1 m^3/hr) could be justified given ATC's observations of repairers/mechanics. A change of breathing rate to 1.1 m^3/hr, by itself, reduces the estimated HI by 24 percent and the ELCR by 12 percent, to a level at or below acceptable risk criteria.

ATC assumed that MBTA workers are exposed 12.8 hours a day for their entire exposure, throughout each year for their entire time of employment at the facility. This is a highly conservative assumption that MBTA employees will work the maximum allowed overtime every week of their employment as a repairer/mechanic. A more reasonable exposure time is a typical 8 hour work day. Such a change, by itself, reduces the estimated HI by 26 percent and the ELCR by 12 percent, to a level at or below acceptable risk criteria.

Two additional parameters might be altered in the evaluation of health risk posed by inhaled airborne fine particulates. One parameter is the use of EEC for ingestion and inhalation routes of exposure. Without additional information regarding the disposition of particulate in MBTA workers, however, ATC is unable to provide a more site-specific alternate EEC value for either pathway. The other parameter is the concentration of PCBs in vapors and airborne respirable particulate in indoor air. MBTA facility seasonal practices relating to leaving the large overhead doors at the south and north ends of the building open during warmer weather could have a significant impact on the measured

concentration of PCBs in indoor air (i.e., lower total PCB concentrations in indoor air) resulting in overall lower health risk estimates for this exposure pathway. ATC sampled facility indoor air during the fall and winter with doors usually closed. Consequently, total PCBs in indoor air (originating from inside the building) are contained within the facility walls. In contrast, sampling indoor air during the summer, when doors are left open is likely (because of wind blowing through the facility) to result in much lower concentrations of total PCBs in indoor air.

6.1.3 Other Areas of Uncertainty

Four typical areas of uncertainty in risk characterization are media concentrations, transport modeling, exposure assumptions, and toxicity factors. State certified laboratories determined media concentrations using applicable QA/QC guidance and appropriate analytical protocols. Although such measures do not guarantee good quality data, ATC has no reason to suspect site analytical data are inappropriate for use in the characterization of health risks at this site.

ATC did not use a model to estimate PCB transport within the MBTA facility, but instead relied on laboratory analytical data to identify PCB concentrations in the various media of interest. Of the PCB concentrations detected on surfaces and in indoor air, ATC chose to use conservative estimates of the total PCB concentration associated with each medium. For surfaces, ATC used the 95th CI on the mean of total PCB analytical data obtained from facility surfaces. For indoor air, ATC used the highest airborne particulate and total (vapor-phase plus particulate) PCB concentration detected.

Where site-specific information was not known, ATC used default exposure assumptions in the estimation of receptor exposure. ATC also used U.S. EPA toxicity values in the conduct of this risk characterization (RAIS 2009; USEPA 2009b, c). While these toxicity values are accepted for use in risk characterization, they themselves exhibit an additional layer of conservatism that is added to the characterization of human health risk. As noted earlier, the RfD used to estimate non-cancer health risks to PCBs uses an uncertainty factor of 300, with the U.S. EPA stipulating that non-cancer toxicity values likely over estimate CoPC toxicity by at least an order of magnitude. The use of uncertainty factors ("UF") totaling 300 and the inherent conservatism employed in the use of site-specific and default exposure factors results in very conservative estimates of health risk.

ATC used the U.S. EPA recommended mixtures-approach to PCB risk characterization and used the very low RfD U.S. EPA derived for Aroclor® 1254 for both this Aroclor® and Aroclor® 1260 as well as in the characterization of health risk posed by total PCBs homolog groups or congeners). Such an RfD, which includes an uncertainty factor ("UF") of 300, should be protective of the risk of developing reproductive and developmental, immunological, neurological, and other non-cancer health effects. Similar to non-cancer toxicity values, U.S. EPA indicates that CSF values over estimate cancer potency for compounds that may have no cancer causing potential at all. While PCBs have been shown to cause cancer in laboratory animals, human evidence of the

same effect is not clear. Additionally, as discussed earlier, only certain PCBs are likely to be associated with the development of cancer and/or toxicity to a specific target organ. ATC did not adjust the total PCB concentration input into risk equations to reflect the fraction of PCBs associated either with specific target organ toxicity or with cancer potency. Finally, use of U.S. EPA default exposure parameters likely results in an overstatement of health risk at the site, minimizing the potential for this risk characterization to under estimate actual health risks posed by PCBs to MBTA workers.

As previously noted, floor wipe sample concentrations were biased towards areas that are likely to have higher concentrations of PCBs, namely near caulked joints. Not only is the average concentrations in wipe samples likely to be biased high, but ATC used the 95th CI on the mean of total PCBs associated with floor surfaces in this risk characterization, adding further conservatism.

In conclusion, ATC attempted to minimize uncertainty in this risk characterization through the careful selection and use of conservative site-specific and default exposure parameters and media-specific EPC. Where ATC lacked specific information supporting a useful exposure parameter, ATC used a more conservative value so as to over-estimate rather than under-estimate total PCB intake and associated health risk.

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Tables

TABLE 1
Wipe Sampling Data
Train Building
MBTA Cabot Yard
Dorchester,
Massachusetts

Sample ID	Date	Distance from Nearest Caulk Joint (feet)	Nearest Track	Polychlorinated Biphenyls (by EPA Method 8082)										QA/QC Review
				1016	1221	1232	1242	1248	1254	1260	1262	1268	Total PCBs	
				ug/100 cm^2										
Floors														
0.5-6W-F	**13-Mar-09**	**0.5**	**6**	<1.00	<1.00	<1.00	<1.00	<1.00	**3.65**	**5.55**	<1.00	<1.00	**9**	OK
2.5-1E-B	**13-Mar-09**	**2.5**	**1**	<1.00	<1.00	<1.00	<1.00	<1.00	**5.85**	**9.33**	<1.00	<1.00	**15**	OK
45-4W-G	**13-Mar-09**	**45**	**4**	<0.200	<0.200	<0.200	<0.200	<0.200	**0.469**	**0.793**	<0.200	<0.200	**1**	OK
5-3E-C	**13-Mar-09**	**5**	**3**	<1.00	<1.00	<1.00	<1.00	<1.00	**7.55**	**11.4**	<1.00	<1.00	**19**	OK
5.5-2E-M	**13-Mar-09**	**5.5**	**2**	<1.00	<1.00	<1.00	<1.00	<1.00	**3.20**	**4.63**	<1.00	<1.00	**8**	OK
6-3C-K	**13-Mar-09**	**6**	**3**	<1.00	<1.00	<1.00	<1.00	<1.00	**8.30**	**10.2**	<1.00	<1.00	**19**	OK
72-4E-I	**13-Mar-09**	**72**	**4**	<0.200	<0.200	<0.200	<0.200	<0.200	**0.470**	**0.829**	<0.200	<0.200	**1**	OK
8-3E-L	**13-Mar-09**	**8**	**3**	<1.00	<1.00	<1.00	<1.00	<1.00	**4.54**	**6.09**	<1.00	<1.00	**11**	OK
1-8W-E	**13-Mar-09**	**1**	**8**	<4.00	<4.00	<4.00	<4.00	<4.00	**13.8**	**21.4**	<4.00	<4.00	**35**	OK
J-1E-A	**13-Mar-09**	**Adjacent**	**1**	<1.00	<1.00	<1.00	<1.00	<1.00	**10.8**	**12.2**	<1.00	<1.00	**23**	OK
J-2E-N	**13-Mar-09**	**Adjacent**	**2**	<4.00	<4.00	<4.00	<4.00	<4.00	**26.2**	**39.1**	<4.00	<4.00	**65**	OK
J-3E-D	**13-Mar-09**	**Adjacent**	**3**	<4.00	<4.00	<4.00	<4.00	<4.00	**12.1**	**18.4**	<4.00	<4.00	**31**	OK
J-3E-J	**13-Mar-09**	**Adjacent**	**3**	<1.00	<1.00	<1.00	<1.00	<1.00	**7.80**	**10.5**	<1.00	<1.00	**18**	OK
Walls														
WALL-3E-Q	**16-Mar-09**	**NA**	**3**	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	0	OK
WALL-3E-R	**16-Mar-09**	**NA**	**3**	<0.200	<0.200	<0.200	<0.200	<0.200	**0.882**	**0.826**	<0.200	<0.200	**2**	OK
WALL-6W-P	**16-Mar-09**	**NA**	**6**	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	0	OK
WALL-8W-O	**16-Mar-09**	**NA**	**8**	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	0	OK
Rail														
Rail-4W-H	**13-Mar-09**	**NA**	**4**	<1.00	<1.00	<1.00	<1.00	<1.00	**1.82**	**2.24**	<1.00	<1.00	**4**	OK

NOTES:
Concentrations presented in micrograms per 100 square centimeters (ug/100cm2)
Bolded indicates concentration above laboratory method detection limit

Table 4
PCBs in Indoor Air Vapors and Particulates
Train Building
MBTA Cabot Yard
275 Dorchester Ave.
South Boston, Massachusetts

Location	Northeast Quadrant	West Half Near Wheel Truing	Wash Alley South Cross-Joint	Wash Alley South Cross-Joint (duplicate)	Track 8 Platform - South Cross-Joint	Track 8 Platform - South Cross-Joint	
Starting Sample Date	3/12/2009	3/12/2009	10/19/2009			1/19/2010	
Total Sample Time (min)	1,569	1,530	120			1440	
Total Sample Volume (L)	1,733,000	1,776,000	240			2880	
Sample Media	Particulates Only	Particulates Only	Total Vapors + Particulates			Total Vapors + Particulates	Vapors Only*
Sample ID	AIR-NE	AIR-W	WA-IA-Platform#1	WA-IA-Platform#2 [duplicate]	WA-IA-Platform-Ambient	TRACK 8 - #1 - NO FILTER	TRACK 8 - #2 - FILTER
PCB Aroclors							
1016	<0.0001	<0.0001	NA	NA	NA	NA	<0.0069
1221	<0.0001	<0.0001	NA	NA	NA	NA	<0.0069
1232	<0.0001	<0.0001	NA	NA	NA	NA	<0.0069
1242	<0.0001	<0.0001	NA	NA	NA	NA	0.0154
1248	<0.0001	<0.0001	NA	NA	NA	NA	<0.0069
1254	0.0003	0.0009	NA	NA	NA	NA	0.0135
1260	0.0006	0.002	NA	NA	NA	NA	<0.0069
1262	<0.0001	<0.0001	NA	NA	NA	NA	<0.0069
1268	<0.0001	<0.0001	NA	NA	NA	NA	<0.0069
Total Aroclors	*0.0009*	*0.0029*	*NA*	*NA*	*NA*	*NA*	*0.0289*
Detected PCB Congeners							
Cl2-BZ#8	NA	NA	NA	NA	NA	0.0057	0.0062
Cl3-BZ#16	NA	NA	NA	NA	NA	<0.002	0.0017
Cl3-BZ#17	NA	NA	NA	NA	NA	0.0021	0.0018
Cl3-BZ#18	NA	NA	NA	NA	NA	0.0058	0.0055
Cl3-BZ#28	NA	NA	NA	NA	NA	0.0029	0.0029
Cl3-BZ#-31	NA	NA	NA	NA	NA	0.0026	0.0030
Cl4-BZ#44	NA	NA	NA	NA	NA	0.0036	0.0040
Cl4-BZ#49	NA	NA	NA	NA	NA	0.0020	0.0020
Cl4-BZ#52	NA	NA	NA	NA	NA	0.0084	0.0084
Cl4-BZ#70	NA	NA	NA	NA	NA	0.0023	0.0022
Cl5-BZ#101/#90	NA	NA	NA	NA	NA	0.0074	0.0066
Cl5-BZ#110	NA	NA	NA	NA	NA	0.0052	0.0043
Cl5-BZ#118	NA	NA	NA	NA	NA	0.0024	<0.002
Cl5-BZ#121/#95/#88	NA	NA	NA	NA	NA	0.0068	0.0071
Cl5-BZ#99	NA	NA	NA	NA	NA	0.0019	0.0019
Cl6-BZ#147/#149	NA	NA	NA	NA	NA	0.0044	<0.003
Cl6-BZ#151	NA	NA	NA	NA	NA	0.0020	0.0020
Cl6-BZ#153	NA	NA	NA	NA	NA	0.0039	0.0028
Total Congeners	*NA*	*NA*	*NA*	*NA*	*NA*	*0.0693*	*0.0624*
PCB Homologs							
Monochlorobiphenyls	NA	NA	<0.042	<0.042	<0.042	<0	<0.002
Dichlorobiphenyls	NA	NA	<0.042	<0.042	<0.042	0.0108	0.0111
Trichlorobiphenyls	NA	NA	<0.042	<0.042	<0.042	0.0186	0.0188
Tetrachlorobiphenyls	NA	NA	<0.042	<0.042	0.0450	0.0184	0.0176
Pentachlorobiphenyls	NA	NA	<0.042	<0.042	0.0617	0.0297	0.0299
Hexachlorobiphenyls	NA	NA	<0.042	<0.042	<0.042	0.0133	0.0120
Heptachlorobiphenyls	NA	NA	<0.042	<0.042	<0.042	0.0047	0.0045
Octachlorobiphenyls	NA	NA	<0.042	<0.042	<0.042	<0.002	<0.002
Nonachlorobiphenyls	NA	NA	<0.042	<0.042	<0.042	<0.002	<0.002
Decachlorobiphenyl	NA	NA	<0.042	<0.042	<0.042	<0.002	<0.002
Total Homologs	*NA*	*NA*	<0.042	<0.042	*0.1067*	*0.0955*	*0.0941*

Notes:
All concentrations in ug/m3
Bold values indicate detected concentration
ND = Not Detected
NA = Not Analyzed
*Particulate Filter on cartridge was discarded before analysis.

Figures

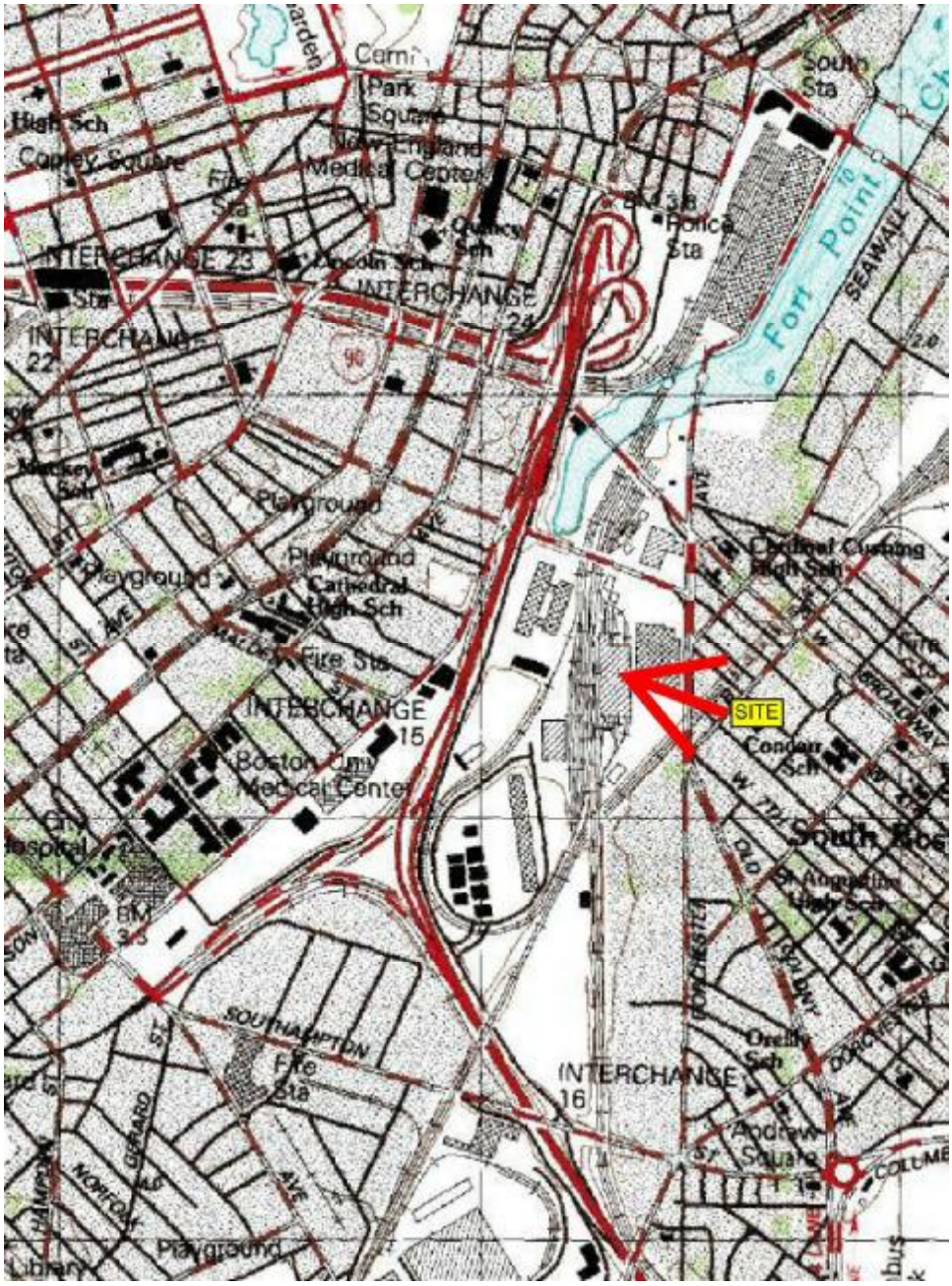
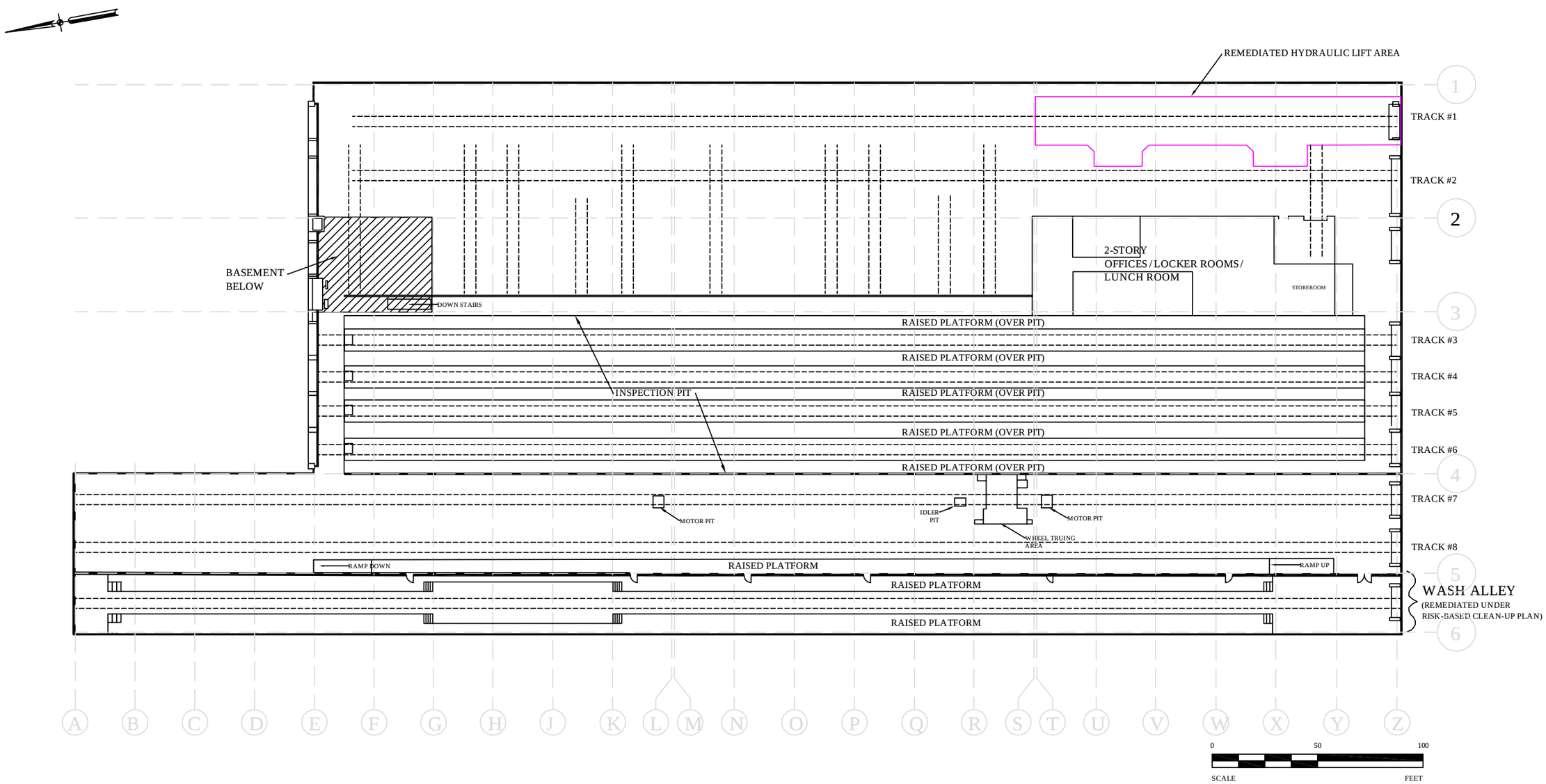


FIGURE 1: SITE VICINITY MAP

SOURCE:
Boston, Massachusetts USGS
7.5 x 15 Minute Quadrangle Map (1991)
Scale = 1:18,600

ATC ASSOCIATES INC.

MBTA Cabot Yard
Dorchester, Massachusetts
ATC Project No. 60.07443.0059



LEGEND

RAILS

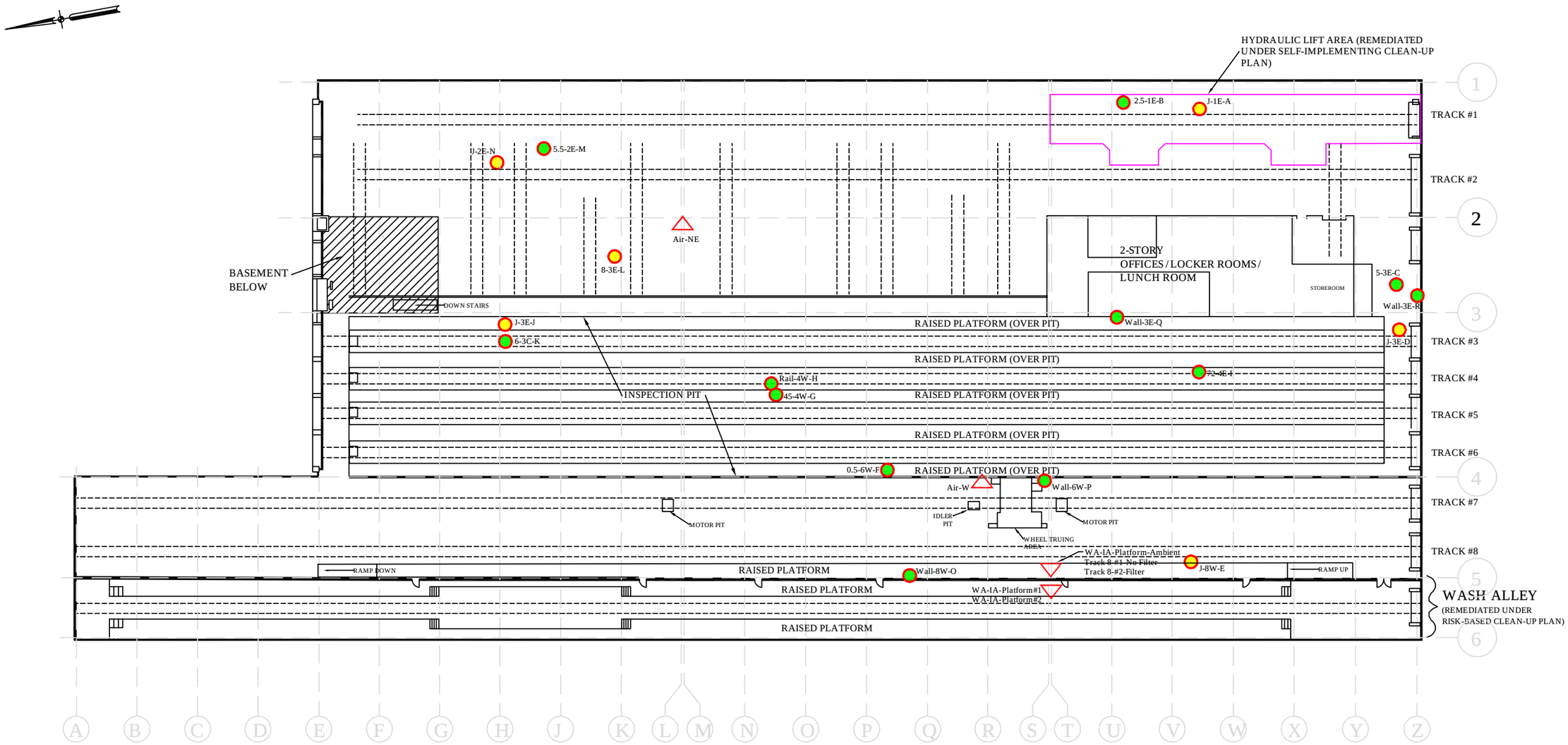
COLUMN LINE IDENTIFICATION

SITE PLAN

MBTA CABOT YARD RAIL BUILDING
275 DORCHESTER AVENUE
DORCHESTER, MASSACHUSETTS

PROJECT NUMBER: 060.07443.1003	FIGURE NUMBER: 2
SCALE: See Scale Bar	CHECKED BY: DPW
DRAWN BY: RRM	REVISED BY: RV
DRAWING FILE: SITE PLAN4_8-6-09	

ATC ASSOCIATES INC.
600 West Cummings Park, Suite 5500
Woburn, Massachusetts 01801-6350
Tel.(781)932-9400 Fax.(781)932-6211



WIPE SAMPLE NOMENCLATURE : 1st value = Next to (J)oint or distance (ft) from nearest caulk joint
2nd value = Nearest track # & (E)ast of rails, (C)enter of rails, or (W) est of rails
3rd value = Sequential ID (alphabetical)

BULK DUST SAMPLE = Composite throughout building

LEGEND

- WIPE SAMPLE - NEXT TO JOINTS
- WIPE SAMPLE - AWAY FROM JOINTS
- AIR PARTICULATE SAMPLES
- AIR VAPOR OR COMBINED VAPOR / PARTICULATE SAMPLES
- COLUMN LINE IDENTIFICATION
- ------ RAILS

RISK ASSESSMENT SAMPLING LOCATIONS

MBTA CABOT YARD RAIL BUILDING
275 DORCHESTER AVENUE
DORCHESTER, MASSACHUSETTS

PROJECT NUMBER: 060.07443.1003	FIGURE NUMBER: 3
SCALE: See Scale Bar	CHECKED BY: DPW
DRAWN BY: RRM	REVISED BY: RV
DRAWING FILE: SITE PLAN4_8-6-09	

ATC ASSOCIATES INC.
600 West Cummings Park, Suite 5500
Woburn, Massachusetts 01801-6350
Tel.(781)932-9400 Fax.(781)932-6211

Appendix A:
Notes from Interview of MBTA Cabot Yard Facility Managers

Census of MBTA Employees
Cabot Yard Train Building
275 Dorchester Avenue
Dorchester, Massachusetts

Prepared by Paul Miner
April 2009

Employee ID	Shift	Current Job Title	Gender (M/F)	Age	Over/ Underweight? (specify lbs.)	Years Employed & Job Positions Held at Cabot*	Current Amount of Vacation (Weeks)
Current Employees							
1	1	Rail Repairer	M	47	No	24- Repairer	5
2	1	Rail Repairer	M	58	No	24- Repairer	5
3	1	Rail Repairer	M	54	No	21- Repairer	5
4	1	Rail Repairer	M	64	No	20- Repairer	5
5	1	Rail Repairer	M	49	50+	20- Repairer	5
6	1	Rail Repairer	M	43	No	20- Repairer	5
7	1	Rail Repairer	M	50	No	20- Repairer	5
8	1	Rail Repairer	M	52	No	20- Repairer	5
9	1	Rail Repairer	M	61	5+	18- Repairer	4
10	1	Rail Repairer	M	54	No	15- Repairer	4
11	1	Rail Repairer	M	54	No	15- Repairer	4
12	1	Rail Repairer	M	48	10+	14- Repairer	4
13	1	Rail Repairer	M	48	No	13- Repairer	4
14	1	Rail Repairer	M	63	No	9- Repairer	3
15	1	Rail Repairer	M	37	No	9- Repairer	3
16	1	Rail Repairer	M	50	No	9- Repairer	3
17	1	Rail Repairer	M	40	No	9- Repairer	3
18	1	Rail Repairer	M	56	20+	8- Repairer	3
19	1	Rail Repairer	M	61	No	7- Repairer	3
20	1	Rail Repairer	M	53	No	7- Repairer	3
21	1	Rail Repairer	M	48	No	6- Repairer	3
22	1	Rail Repairer	M	45	No	6- Repairer	3
23	1	Rail Repairer	M	48	No	13- Repairer	4
24	1	Rail Repairer	M	50	10+	4- Repairer	2
25	1	Rail Repairer	M	35	No	4- Repairer	2
26	1	Rail Repairer	M	56	No	4- Repairer	2
27	1	Rail Repairer	M	61	No	1- Repairer	1
28	1	Rail Repairer	M	49	5+	1- Repairer	1
29	2	Rail Repairer	M	65	No	20- Repairer	5
30	2	Rail Repairer	M	62	No	20- Repairer	5
31	2	Rail Repairer	M	52	No	17- Repairer	4
32	2	Rail Repairer	M	58	No	17- Repairer	4
33	2	Rail Repairer	M	56	No	15- Repairer	4
34	2	Rail Repairer	M	63	No	15- Repairer	4

Census of MBTA Employees
Cabot Yard Train Building
275 Dorchester Avenue
Dorchester, Massachusetts

Prepared by Paul Miner
April 2009

Employee ID	Shift	Current Job Title	Gender (M/F)	Age	Over/ Underweight? (specify lbs.)	Years Employed & Job Positions Held at Cabot*	Current Amount of Vacation (Weeks)
35	2	Rail Repairer	F	64	No	14- Repairer	4
36	2	Rail Repairer	M	50	30+	6- Repairer	3
37	2	Rail Repairer	M	48	No	6- Repairer	3
38	2	Rail Repairer	M	62	No	4- Repairer	2
39	2	Rail Repairer	M	34	No	5- Repairer	3
40	2	Rail Repairer	M	39	10+	4- Repairer	2
41	2	Rail Repairer	M	62	No	4- Repairer	2
42	2	Rail Repairer	M	66	No	4- Repairer	2
43	2	Rail Repairer	M	43	No	4- Repairer	2
44	2	Rail Repairer	M	43	No	7- Repairer	3
45	2	Rail Repairer	M	28	5+	4- Repairer	2
46	2	Rail Repairer	M	55	No	4- Repairer	2
47	2	Rail Repairer	M	29	No	3- Repairer	2
48	2	Rail Repairer	M	35	No	3- Repairer	2
49	2	Rail Repairer	M	26	10+	4- Repairer	2
50	2	Rail Repairer	M	51	10+	1- Repairer	1
51	2	Rail Repairer	M	26	No	1- Repairer	1
52	2	Rail Repairer	M	38	50+	1- Repairer	1
53	3	Rail Repairer	M	65	No	40- Repairer	5
54	3	Rail Repairer	M	57	No	32- Repairer	5
55	3	Rail Repairer	M	51	No	25- Repairer	5
56	3	Rail Repairer	M	50	30+	25- Repairer	5
57	3	Rail Repairer	M	51	10+	25- Repairer	5
58	3	Rail Repairer	M	54	No	23- Repairer	5
59	3	Rail Repairer	M	57	5+	20- Repairer	5
60	3	Rail Repairer	M	60	5+	20- Repairer	5
61	1	Carhouse Foreman	M	63	No	32: 3-Repairer, 29-Carhouse/Foreman	5
62	1	Carhouse Foreman	M	50	No	22- Repairer	5
63	1	Carhouse Foreman	M	38	No	18: 14-Repairer, 4-Carhouse/Foreman	4
64	1	Carhouse Foreman	M	54	No	15: 13-Repairer, 2-Carhouse/Foreman	4
65	1	Foreman	M	51	No	8: 6-Repairer, 2-Carhouse/Foreman	3

Census of MBTA Employees
Cabot Yard Train Building
275 Dorchester Avenue
Dorchester, Massachusetts

Prepared by Paul Miner
April 2009

Employee ID	Shift	Current Job Title	Gender (M/F)	Age	Over/ Underweight? (specify lbs.)	Years Employed & Job Positions Held at Cabot*	Current Amount of Vacation (Weeks)
66	1	Foreman	M	53	No	8: 7.5-Repairer, 6 mos.-Carhouse/Foreman	3
67	1	Foreman	M	49	No	7: 6.5-Repairer, 6 mos.-Carhouse/Foreman	3
68	1	Foreman	M	52	No	21: 4-Repairer, 17-Carhouse/Foreman	5
69	2	Carhouse Foreman	M	61	No	20: 10-Repairer, 10-Carhouse/Foreman	5
70	2	Foreman	M	52	No	9: 3-Repairer, 6-Carhouse/Foreman	3
71	2	Foreman	M	43	No	9: 3-Repairer, 6-Carhouse/Foreman	3
72	2	Foreman	M	61	No	15: 12-Repairer, 3-Carhouse/Foreman	4
73	2	Foreman	M	34	No	5: 2-Repairer, 3-Carhouse/Foreman	3
74	3	Carhouse Foreman	M	44	No	8: 3-Repairer, 5-Carhouse/Foreman	3
75	3	Foreman	M	40	No	21: 3-Repairer, 18-Carhouse/Foreman	5
76	1	Car Cleaner	F	56	No	22	5
77	1	Car Cleaner	M	47	No	15	4
78	1	perations Foreman	M	64	No	20	5
79	1	Sheetmetal Worker	M	56	No	22	5
80	1	Electrician	F	48	No	11	4
81	1	Painter	M	50	No	18	4
82	1	Painter	M	56	No	21	5
83	1	Carpenter	M	64	No	10	4
84	1	Clerk	F	28	No	10	4
85	1	Supervisor	M	51	No	17: 13-Repairer, 4-Supervisor	4
86	1	Supervisor	M	50	No	20: 11.5-Repairer, 8-Carhouse/Foreman, 6 mos.-Supervisor	4
87	1	Supervisor	M	54	No	16: 15-Repairer, 1-Supervisor	4
88	1	Supervisor	M	57	No	5 Mos.	0

Census of MBTA Employees
Cabot Yard Train Building
275 Dorchester Avenue
Dorchester, Massachusetts

Prepared by Paul Miner
April 2009

Employee ID	Shift	Current Job Title	Gender (M/F)	Age	Over/ Underweight? (specify lbs.)	Years Employed & Job Positions Held at Cabot*	Current Amount of Vacation (Weeks)
89	1	Engineer	M	31	No	5 Mos.	0
90	1	Engineer	M	54	No	22	5
91	1	Engineer	M	50	No	20	5
Past Employees (Retired, left MBTA, or still with MBTA but not at Cabot) who have left in last 10 years							
1	Do Not Fill Out					23- 18 Carhouse	Do Not Fill Out
2						23- 17 Carhouse	
3						23- 3 Supervisor	
4						23- Repairer	
5						29- Repairer	
6						23- Engineer	
7						27- Repairer	
8						27- Repairer	
9						23- Superintendent	
10						17- Payroll Clerk	
11						27- Repairer	
12						28- Carhouse	
13						28- Carpenter	
14						23- 18 Carhouse	
15						21- Painter Foreman	
16						22- Engineer	
17						23- Sheetmetal Worker	
18						23- Car Cleaner	
19						22- Repairer	
20						22- 2 Carhouse	
21						23- Foreman	
22						23- Repairer	
23						24- Repairer	
24						31- Repairer	
25						24- Repairer	
26						23- Repairer	
27						11- Repairer	

*Breakdown of years in each job category, for instance: 10 - repairer; 5 - carhouse foreman

From Paul Miner, MBTA, 4/20/09:

REPAIRER - DUTIES & RESPONSIBILITIES INCLUDE: The Repairer is responsible for inspection, trouble-shooting, maintenance and repair of all electronic, electrical and mechanical equipment and systems on rail/electric trolley bus (ETB)/ Dual Mode Articulated (DMA) vehicles and for response to vehicle road failures. The Repairer will: conduct routine inspections for major and minor repairs; perform overhaul and preventative maintenance; perform routine maintenance and correction of defects on such equipment as differentials, trucks, wheel bearings, axles, springs, shock absorbers, propeller shafts, universal joints, instruments and various auxiliary equipment; and use and operate various types of equipment including hand tools, power tools, complex testing instruments and railcar equipment. The selected candidate will: drive a company or personal vehicle to inspect work and/or transport crews or equipment as needed; ensure that all inventory levels, equipment and facilities under their control are protected in a safe operating condition; and respond to each inquiry, whether from a customer, vendor or co-worker in a courteous and professional manner consistent with the Authority's "Driven by Customer Service" quality standard. Further, the Repairer will: maintain up-to-date knowledge of electronic, electrical and mechanical principles applied to rail car/electric trolley bus (ETB)/Dual Mode Articulated (DMA) equipment; interpret technical publications, blueprints and wiring diagrams; produce written equipment reports and records; adhere to the rules, regulations, collective bargaining agreements (if applicable) and policies of the Authority including the EEO, Anti-Discrimination and Anti-Harassment and Anti-Retaliation policies; and perform related duties and projects as assigned.

REPAIR FOREPERSON - DUTIES & RESPONSIBILITIES INCLUDE: The Repair Foreperson will repair, maintain and inspect all Subway Operations rail vehicles. The Repair Foreperson will be responsible for: assigning, overseeing and directing the activities of the work crews under his/her jurisdiction; inspecting the work crew maintenance/repair activities to ensure that assignments are completed safely and according to established schedules and operating standards; enforcing the Authority safety standards to ensure the safety of workers and customers; ensuring that all inventory levels, equipment and facilities under their control are protected in a safe operating condition; and assuming the responsibilities of their supervisor as needed. The selected candidate will: document, maintain, and prepare required maintenance and personnel records on manual and computerized tracking systems; ensure budgetary goals are met and that all work is performed in a timely and cost effective manner; provide technical instruction when necessary; and drive a company or personal vehicle to visit work sites and/or transport crews or equipment as needed. Further, the Repair Foreperson will: respond to each inquiry, whether from a customer, vendor or co-worker in a courteous and professional manner consistent with the Authority's "Driven by Customer Service" quality standard; respond either directly or through others, to emergencies twenty-four (24) hours per day, seven (7) days per week; uphold the rights and interests of the Authority while building and maintaining an effective relationship with employees; assist in the management of a workforce by ensuring the fair and consistent application and strict adherence to the rules, regulations, collective bargaining agreements (if applicable) and policies of the Authority including the EEO, Anti-Discrimination and Anti-Harassment and Anti-Retaliation policies; and perform related duties and projects as assigned.

Interview RE: Employee Characteristics w/ Paul Miner, MBTA
Cabot Yard
2/6/09 & 3/12/09 (in Red)
Dan White, ATC

Building has 24/7 operation

Categories of Employees

1) Rail Repairers (i.e. mechanics), broken down as follows

Category	# on Day Shift	# on Evening Shift	# on Overnight Shift	Floor contact Rating (0,1,2,3)
Repairer	32 (+ 9 vacancies)	25 (+ 6 vacancies)	6 (+ 7 vacancies)	3
Foreman	3 (+2 vacancies)	4 (+ 1 vacancy)	(2 vacancies)	1
Carhouse Foreman	4	1	1	1
Supervisor	3	1	0	0
Superintendant	1	0	0	0

2) Tradesman (work mostly on trains, some building maintenance)

- 1 carpenter (builds shoe beans, interiors of cars); Floor Contact Rating = 1
- 1 electrician (misc., more building work than other trades); Floor Contact Rating = 1
- 1 sheet metal worker (all work on trains); Floor Contact Rating = 1
- 1 blacksmith (mostly car undercarriage work); Floor Contact Rating = 1
- 2 painters (painting exteriors & some interiors); Floor Contact Rating = 1

3) "Car Cleaners" (don't actually clean cars) (all Day shift)

- 2 car cleaners (+ 1 vacancy) (sweeping, cleaning building, handling stock, misc. tasks); Floor Contact Rating = 2
- 1 car cleaner foreman; Floor Contact Rating = 2

4) Engineers (work in offices mostly, a little on floor)

- 5 total in building Floor Contact Rating = 1

5) Misc.

- Payroll clerk (office) Floor Contact Rating = 0
- Stock clerk (office/stockroom) Floor Contact Rating = 0

6) "Janitors" (actual car cleaners)

Typically work 2000 – 0400 (one shift)
Do things like pick up trash in cars, wash floors & walls of cars, sweep
Complete 2-3 6-car trains per night
Currently work along Track #8 (with platform on side); typically (past & future) work in wash alley (platforms both sides) & Track #8 (time split equally); occasionally collect trash in trains throughout train building; 2 employees typically work full-time in trains outside of building
Not MBTA employees – outside union contractor – schedule coordinated by MBTA

Occasionally visit rest of train building
Meals/breaks taken at table/chairs on platform, or outside (in warm weather)
Current staff:

- 1 supervisor (40 hours max. per week); Floor Contact Rating = 0
- 4 cleaners (35 hours max. per week); Floor Contact Rating = 1
- 2 cleaners (30 hours max. per week); Floor Contact Rating = 1

Rarely work overtime
Always stay on platforms, in trains. Never enter track level or pit of wash alley.
Most of time spent inside train cars. Some time spent on platforms washing train exteriors.
Rarely touch floors (no reason to); some equipment/supplies touch platforms/floors (such as buckets, hoses, etc.)
Typically long-term employees (transfer from company to company as contracts transfer).
See spreadsheet for employee specs.
Not many specific health & safety policies – MBTA spells out some basics in contract – Contractor company responsible for enforcing.
PPE = long pants, t-shirts OK, sneakers (no boots required) likely worn home, usually wear rubber gloves.

7) Motormen
Move trains in & out, minimal time in building
Based in another building
Floor Contact Rating = 0

Habits, etc.

Clothing/PPE –
Winter attire long pants, long-sleeve shirts (or short-sleeve), work boots.
Summer attire same, but can have short-sleeve shirts.
Clothes changed at work.
Outside company launders clothes
Most employees change boots & leave at work – not required by MBTA
Most employees wear latex gloves while working (provided by MBTA but not required); sometimes leather or cotton gloves worn.

Work time –
3 Daily shifts, Day (0600-1430), Evening (1430-2300), Overnight (2200-0600)
40 hour work-week is standard. Overtime occasionally worked in 8-hour blocks. 64 hours/week is max. hours worked (with overtime). Overtime typically taken by about 6 highest-ranking (most senior) employees (repairers). Average overtime taken by these repairer employees varies – 2008 = 2-3 shifts/week; 2009 = 1-2 shifts/week; predicted 2010 = 0-1 shifts/week. Foreman rotate overtime shifts among themselves, so they have fewer, average of no more than 1 shift/week.
Each shift is approximately 7.25 hours of actual "work time" (1.25 hours of breaks).
Most employees working on rail cars for ¾ of "work time" ~5.5 hours/day. Other time spent getting parts, prepping, bathroom breaks?, ??? Observations by ATC on multiple visits to site indicate that this is reasonably conservative estimate.

Vacation –
0 weeks until 1 year of employment
1 week until 2 years of employment
2 weeks until 5 years of employment
3 weeks until 10 years of employment
4 weeks after 10 years

Length of employment –

Most retire after 23 years. A few stay up to >30 years. See employee spreadsheet.

1/3-1/2 of current employees at Cabot have been at Cabot most of their careers.

Gender breakdown –

Most workers men.

There is 1 woman "car cleaner", 1 woman electrician, and a couple other women "repairers" See employee spreadsheet.

Hygiene –

Rubber gloves typically keep hands mostly clean.

Most employees wash hands regularly

No eating on shop floor allowed – all employees eat in lunchroom on 2nd floor of offices.

No smoking allowed indoors.

Cleaning of Building –

"Zamboni" cleaner used to clean floor, detergent & water solution, used solution dumped down drain that leads to oil/water separator.

"Junior" (a car cleaner) says Zamboni run in main aisles once per week

"Flat" tracks (#1, #2, #7, #8) cleaned with zamboni 1-2 times per month

Track #3 pit & pit sides pressure washed quarterly w/ detergent & water solution (due to release of oil/grease during repairs in this area).

Tools Used –

Mostly hand tools; some electric/pneumatic

Tools stored in employee-assigned tool bags.

Tools often placed on floor/sides of pit when using.

Typically wiped down as needed. No other routine maintenance.

Breathing rates –

Occasionally elevated breathing rates, but not common. Mostly low-stress tasks.

Contact with Floors & walls –

Occasionally sit on floors during repairs – typically sit on absorbent pad or other padding

Touch floors (side of pit) when getting into & out of pit

Lean against edge of pit during repair work

Rare to contact walls

<u>Areas of Building</u>

- Track #1 – mostly out of use
- Track #2 – North end (including short side tracks) used for heavy component repairs/replacement
- Tracks #3-#6 – Pits used for lighter repairs/inspections
- Track #7 – Wheel truing (grinding) in middle & paint booth at north end
- Track #8 – Platform on west side, mostly used for interior repairs.
- Wash Alley – platforms on both sides
    - Cleaned by MBTA "car cleaners" – scoop up debris from center pit daily when in operation. Takes ~15 minutes (assumed)? Debris shoveled (assumed). Center pit washed down with hose.
    - After epoxying of pit is complete, MBTA presumes not much sediment accumulation in center pit.

Typical "Categories" of Work

Note these categories do not necessarily vary by actual work practices, but are instead grouped administratively

- Mileage Inspection – 12 cars inspected per week – various systems checked – routine inspections
- HVAC Inspection – 10 cars inspected per week – HVAC systems checked (mostly on top of car but some underneath) – routine inspections
- Floor Work – Misc. repairs on broken trains – as necessary
- Wheelhouse – Larger components, including truing (grinding) wheels with machine, changing/repairing wheels, axles, undercarriage
- "Programs" – Special programs, such as a system-wide overhaul of compressors, replacing driver seats, changing gear oil, control case replacement, motor changeout. Varies substantially over time.
- MBTA estimates general breakdown for underside/interior work is 70%/30%.

Appendix B:
Notes from ATC Observation of MBTA Workers

MBTA Employee Observations
Cabot Yard
2/6/09
Dan White, ATC

09:55-10:50 a.m.

Observations conducted in pits along Rails #1 & #2.
Employees mostly working alone; occasionally with 1 other employee.

Employee #1

0955	Jumps into pit; wearing latex gloves
	Holds rails (elevated in pit – see pictures)
	Stands on stepstool doing repairs on underside of train; some sort of wiring/testing
0958	Works on laptop computer placed on edge of platform
	Leans elbow on side of platform
1000	Back to repairs under train
1002	Leans on platform edge (elbow) again ~30 sec. Touches edge of platform (both hands)
1003	Leans on platform edge ~1.5 minutes
1005	Leans on platform edge ~1 minute
	Holds tools – somewhat greasy/grimy – flashlight, electrical tester
	Repairs under train
1010	Steps out of pit up stepladder, touches platform edge as he gets out, leaves area
1013	Climbs back into pit, touches platform edge
	Works between rails under train, leans on rail
1016	Climbs out of pit up stool, touches platform edge
1018	Climbs back in pit
	Works between rails under train, leans on rail
1030	Climbs out of pit up stool, touches platform edge
1032	Climbs back in pit, touches platform edge
	Leans on edge of platform working on computer for ~3 minutes
1035	Back to repairs on bottom of train, leaning on rail
1038	Leans on platform edge, talking to another employee, ~2 minutes
1040	Back to repairs on bottom of train, leaning on rail, standing on stepstool
1045	Leans on edge of platform working on computer for ~1 minute
1046	Talks to me for a few minutes, leans on edge of platform, taes latex gloves off, touches platform edge lightly with bare hands

Employee #2

0955	Standing on floor of pit doing repairs on underside of train; wearing latex gloves
0958	Walks down pit beneath train and up stairs at end, checks something on side of train
1002	Heads out of site down platform (doesn't return)

Employee #3

Not wearing latest gloves

Employee #4

Kneels on edge of platform for ~ 3 minutes, talking with employee #1. Wearing latex gloves

Employee #5

Works under train (standing) ~ 10 minutes. Wearing latex gloves.
Touches floor with knuckles as he goes under rail to side of pit.
Using hand tools placed on side of platform.
Leans/places hands (gloved) & elbows (bare) on rails.
Climbs out of pit – places hands on edge of platform.
Touches clothes some with latex gloves while talking

Employee #6

1000	Working in middle of rails on bottom of train ~15 minutes; latex gloves
1019	Climbs out of pit; touches edge of platform with gloved hands
1030	Climbs back in pit, again touching edge of platform.
	Back to repairs on bottom of train, standing in middle of rails
1033	Moves to next train car, again works on bottom, standing between rails & leaning on rails

Employee #7

Walks around replacing fluorescent bulbs in train cars.
2/3 times outside rail cars; 1/3 time inside
No floor touching

Employee #8

Using scaffolding on platforms over pit to do light/electrical repairs on sides of rail cars.
No floor touching

Painters (2 employees)

Observed for about ½ hour
Touching up interior paint in train cars; wearing latex gloves.
Suspect little contact with floor.

Cabot Risk Assessment Observations 2.6.09, Vladan Vlahovich

9:25 – 12:00

-Start observation at approx. 9:25 AM in NE section of building. Observed three repairers on truck and underside of train car. Train was elevated on hydraulic lift, all three repairers wearing latex gloves and long sleeve shirts. Two of three workers used air powered hand tools. One employee placed tool on floor and picked it up for use ~ 7 times, another worker 3 times. Garage door at north end of track two opened and closed 5 times between 9:30 am and 12 pm to allow forklift indoor/outdoor access.

-Observed all three repairers take one bathroom break apiece. Took off latex gloves before going to restroom, put same gloves back on hands upon return.

-Observed one of repairers standing on stepladder to get up into underside of train. Then got down from stepladder and picked up stepladder with gloved hands and moved around three times.

-One of three repairers has tendency to scratch top of head with gloved hand. Observed scratching head approximately 15 times between 9:30 am and 12 pm.

-One of repairers tossed a loose part onto work cart, missed and part rolled into track of track two. Repairer picked up part with gloved hand and placed it back on cart (same employee that scratches head often).

-Observed repairer walk over from another part of building carrying parts with bare hands (wearing long sleeves) and put parts on tray for three repairers being observed.

-Observed repairers foreman checking work of repairers, touched train truck and power tools with bare hands twice.

-Observed welder working east of track 1, about midpoint of building. Observed not wearing gloves while adjusting equipment and gathering tools, approx ½ hour to 45 minutes. Observed touching work table, tools, and clothing, and adjusted glasses three times. When work began, he put on leather work gloves and facemask for welding and grinding activities. No dust mask worn, only tinted face shield.

-Observed repairer from other part of building come over and move overhead lift. Used bare hands to operate controls, which were covered with a dark substance (dirt / grease / oil?)

Observed repairer that had tendency to scratch head pick up two charger from the floor and hook up to train for charging purposes. Latex gloves were worn during this time

-When work completed on train truck, two of three repairmen took off latex gloves and left the area. Observed one of the workers pick up a dirty rag from the floor and switch hands several times as walking away. Third repairer left the area without taking gloves off.

10:30 – 12:00

-Observed two electricians working together to change light bulbs in NE section of building. Neither electrician wore gloves while operating hydraulic lift and carrying crates with new lights to the area where they would be working. Did not observe either electrician touching face or

head or exposed skin with hands. When electrician who was changing the lights began changing lights leather work gloves were put on hands and remained on hands for duration of time changing bulbs. Long sleeves were worn by both electricians. Electrician on the ground carrying bulbs etc. around never wore gloves. Was observed picking up a dirty rag from floor, touched with both hands, and then threw in waste container.

Lunch from approx 11:45 until second shift arrived at 2:30

During lunch break observed car cleaner sweeping area between tracks two and three for approximately ½ hour. Was observed wearing latex gloves and a short sleeved shirt. Touched clothes with gloved hands 10 to 12 times during sweeping activities. Generated a moderate amount of dust in the area being swept. Did not touch floor or anything except for clothes and broom. Swept debris was left in a pile on floor and was not removed by the end of day when ATC left (4:45).

2:45 – 3:00

Observed repairer on west side of track 7 placing parts and tools into a cart from a shelf. Was observed wearing latex gloves. Did not touch face or floor but touched shirt and belt 12 times.

3:00 – 3:35

Observed three repairers (2nd shift, different repairers than the morning) at north end of Track 2 working on a new train car from the one in the morning. All three were wearing latex gloves and long sleeve shirts. One repairer observed wearing a dust mask. Touched dust mask two times with gloved hand to remove from face temporarily and then placed back on face. One of the three repairers (not wearing dust mask) used two power tools that were placed on the floor when not in use. Picked up power tools approximately 12 to 15 times during course of work observed.

3:35 – 4:00

Observed repairer and repairer foreman working on car wheels and brakes on east side of Track 3 at north end. Repairer was primarily in the pit, wearing latex gloves, and short sleeved shirt. Pulled himself out of pit 4 times by hands and touched pants and bare elbows on edge of pit to do so. Touched belt and pulled up pants approx. 20 times during work being observed. Leaned on edge of pit for support using bare arms and leaned with back for support while working. Picked up power tools from floor of pit 5 or six times while observed. Repairer foreman was observed wearing latex gloves and long sleeve shirt. Foreman handed tools to the repairer and took them back 12 to 15 times. Repairer did not touch face or head during time being observed.

4:00 – 4:35

Observed 2 repairers working on truck in area between Tracks 2 and 3. All wearing latex gloves and long sleeved shirts. Did not touch face or head during time being observed. Both workers placed power tools on ground and picked them up between 5 and 7 times each. Touched and leaned on edge of truck wheel that comes in contact with rails for balance 10 to 12 times each. Sat on wheels for better angle to work. Touched clothing numerous times each with gloved hands.

Ended observations at 4:35

NOTE: ADDITIONAL INFORMAL OBSERVATIONS CONDUCTED BY ATC ON MANY DATES (>50 DAYS) IN 2008-2009

Appendix C:
Laboratory Analytical Reports: Wipe, Indoor Air, and Bulk Dust Samples

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

REPORT DATE 3/11/2010

ATC ASSOCIATES - WOBURN
600 W CUMMINGS PARK, SUITE 6500
WOBURN, MA 01801
ATTN: DANIEL WHITE

CONTRACT NUMBER:
PURCHASE ORDER NUMBER:

PROJECT NUMBER:

ANALYTICAL SUMMARY

LIMS BAT #: LIMT-23984
JOB NUMBER: 060.07443.1011

PROJECT LOCATION: SOUTH BOSTON, MA.

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST	Subcontract Lab (if any) Cert. Nos.
0.5-6W-F	09B07894	WIPE - OTHER	Not Specified	pcb wipe 8082	
2.5-1E-B	09B07890	WIPE - OTHER	Not Specified	pcb wipe 8082	
45-4W-G	09B07895	WIPE - OTHER	Not Specified	pcb wipe 8082	
5-3E-C	09B07891	WIPE - OTHER	Not Specified	pcb wipe 8082	
5.5-2E-M	09B07901	WIPE - OTHER	Not Specified	pcb wipe 8082	
6-3C-K	09B07899	WIPE - OTHER	Not Specified	pcb wipe 8082	
72-4E-I	09B07897	WIPE - OTHER	Not Specified	pcb wipe 8082	
8-3E-L	09B07900	WIPE - OTHER	Not Specified	pcb wipe 8082	
AIR-NE	09B07908	AIR	Not Specified	air special test	
AIR-NE	09B07910	AIR	Not Specified	air special test	
AIR-W	09B07909	AIR	Not Specified	air special test	
AIR-W	09B07911	AIR	Not Specified	air special test	
BULK DUST	09B07907	SOLID	Not Specified	8082 solid	
I-8W-E	09B07893	WIPE - OTHER	Not Specified	pcb wipe 8082	
J-1E-A	09B07889	WIPE - OTHER	Not Specified	pcb wipe 8082	
J-2E-N	09B07902	WIPE - OTHER	Not Specified	pcb wipe 8082	
J-3E-D	09B07892	WIPE - OTHER	Not Specified	pcb wipe 8082	
J-3E-J	09B07898	WIPE - OTHER	Not Specified	pcb wipe 8082	
RAIL-4W-H	09B07896	WIPE - OTHER	Not Specified	pcb wipe 8082	
WALL-3E-Q	09B07905	WIPE - OTHER	Not Specified	pcb wipe 8082	
WALL-3E-R	09B07906	WIPE - OTHER	Not Specified	pcb wipe 8082	
WALL-6W-P	09B07904	WIPE - OTHER	Not Specified	pcb wipe 8082	
WALL-8W-O	09B07903	WIPE - OTHER	Not Specified	pcb wipe 8082	

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REPORT DATE 3/11/2010

ATC ASSOCIATES - WOBURN
600 W CUMMINGS PARK, SUITE 6500
WOBURN, MA 01801
ATTN: DANIEL WHITE

CONTRACT NUMBER:
PURCHASE ORDER NUMBER:

PROJECT NUMBER:

ANALYTICAL SUMMARY

LIMS BAT #: LIMT-23984
JOB NUMBER: 060.07443.1011

Comments :

LIMS BATCH NO. : LIMT-23984

3RD REVISED REPORT - 03/11/10 - DATA SET TO INCLUDE LIST OF AROCLORS ANALYZED

2ND REVISED REPORT - 8/18/09 - METHOD BLANK RESULTS REVISED TO INCLUDE LESS THAN SYMBOL

REVISED REPORT - 4/15/09 - ADDED RESULTS FOR AROCLORS 1016, 1262, 1268 FOR ALL WIPE SAMPLES

Bulk (Dust) sample- 09B07907
Extracted at 1 gram to a final volume of 10 mls by method SW-846 3540 (Soxhlet).
Sample received one acid clean up (no color).
Analyzed using specialized QA procedures.

PM-10 (Dust in Air) samples- 09B07908-09B07909
Analyzed using method PM-10 (Particulate Matter).

PM-10 (Dust in Air) samples- 09B07910-09B07911
After PM-10 analysis was complete, filter was cut in half and extracted by method SW-846 3540 (Soxhlet).
Samples received one acid clean up (no color).
Analyzed using specialized QA procedures.

Wipe samples- 09B07889-09B07906
Extracted by method SW-846 3540 (Soxhlet).
Samples received one acid clean up (no color).
Analyzed using specialized QA procedures.

Wipe samples:

	Aroclor 1016	Aroclor 1262	Aroclor 1268
09B07889	<1.00 ug	<1.00 ug	<1.00 ug
09B07890	<1.00 ug	<1.00 ug	<1.00ug
09B07891	<1.00 ug	<1.00 ug	<1.00g
09B07892	<4.00 ug	<4.00 ug	<4.00 ug
09B07893	<4.00 ug	<4.00 ug	<4.00 ug
09B07894	<1.00 ug	<1.00 ug	<1.00 ug
09B07895	<0.200 ug	<0.200 ug	<0.200 ug
09B07896	<1.00ug	<1.00 ug	<1.00 ug
09B07897	<0.200 ug	<0.200 ug	<0.200 ug
09B07898	<1.00 ug	<1.00 ug	<1.00 ug
09B07899	<1.00 ug	<1.00 ug	<1.00 ug
09B07900	<1.00 ug	<1.00 ug	<1.00ug
09B07901	<1.00 ug	<1.00 ug	<1.00 ug
09B07902	<4.00 ug	<4.00 ug	<4.00 ug
09B07903	<0.200 ug	<0.200ug	<0.200 ug
09B07904	<0.200 ug	<0.200 ug	<0.200 ug
09B07905	<0.200 ug	<0.200 ug	<0.200 ug
09B07906	<0.200 ug	<0.200 ug	<0.200 ug

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

REPORT DATE 3/11/2010

ATC ASSOCIATES - WOBURN
600 W CUMMINGS PARK, SUITE 6500
WOBURN, MA 01801
ATTN: DANIEL WHITE

CONTRACT NUMBER:
PURCHASE ORDER NUMBER:

PROJECT NUMBER:

ANALYTICAL SUMMARY

LIMS BAT #: LIMT-23984
JOB NUMBER: 060.07443.1011

The results of analyses performed are based on samples as submitted to the laboratory and relate only to the items collected and tested.

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations. AIHA accreditations only apply to NIOSH methods and Environmental Lead Analyses.

AIHA 100033	AIHA ELLAP (LEAD) 100033	NORTH CAROLINA CERT. # 652
MASSACHUSETTS MA0100	NEW HAMPSHIRE NELAP 2516	NEW JERSEY NELAP NJ MA007 (AIR)
CONNECTICUT PH-0567	VERMONT DOH (LEAD) No. LL015036	FLORIDA DOH E871027 (AIR)
NEW YORK ELAP/NELAP 10899	RHODE ISLAND (LIC. No. 112)	

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.

3/11/10

SIGNATURE DATE

Tod Kopyscinski
Air Laboratory Manager

Michael Erickson
Laboratory Director

Chris Hall
Project Chemist Supervisor

Daren Damboragian
Laboratory Manager

* See end of data tabulation for notes and comments pertaining to this sample

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DANIEL WHITE
ATC ASSOCIATES - WOBURN
600 W CUMMINGS PARK, SUITE 6500
WOBURN, MA 01801

3/11/2010

Purchase Order No.:

Project Location: SOUTH BOSTON, MA.
Date Received: 3/16/2009
Field Sample # : BULK DUST

LIMS-BAT #: LIMT-23984
Job Number: 060.07443.1011

Sample ID : 09B07907

‡Sampled : 3/13/2009
Not Specified

Sample Matrix: SOLID

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
PCB 1016	mg/kg	ND	03/22/09	JB	5.00			
PCB-1221	mg/kg	ND	03/22/09	JB	5.00			
PCB-1232	mg/kg	ND	03/22/09	JB	5.00			
PCB-1242	mg/kg	ND	03/22/09	JB	5.00			
PCB-1248	mg/kg	ND	03/22/09	JB	5.00			
PCB-1254	mg/kg	24.8	03/22/09	JB	5.00			
PCB-1260	mg/kg	37.0	03/22/09	JB	5.00			
PCB 1262	mg/kg	ND	03/22/09	JB	5.00			
PCB 1268	mg/kg	ND	03/22/09	JB	5.00			
Extraction Date PCBs		3/20/2009	03/22/09	JB				

Analytical Method:
SW846 8082
SAMPLES ARE EXTRACTED WITH SOLVENT AND ANALYZED BY GAS CHROMATOGRAPHY WITH ELECTRON CAPTURE DETECTION.

RL = Reporting Limit

ND = Not Detected at or above the Reporting Limit

NM = Not Measured

SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

* = See end of report for comments and notes applying to this sample

‡ = See attached chain-of-custody record for time sampled

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WOBURN, MA 01801

3/11/2010

Purchase Order No.:

Project Location: SOUTH BOSTON, MA.
Date Received: 3/16/2009
Field Sample # : AIR-NE

LIMS-BAT #: LIMT-23984
Job Number: 060.07443.1011

Sample ID : 09B07908 ‡Sampled : 3/12/2009
Not Specified
Sample Matrix: AIR Sample Medium : LARGE FILTER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
SPECIAL TEST			03/23/09	FD				

See attached results page.

Sample ID : 09B07910 ‡Sampled : 3/12/2009
Not Specified
Sample Matrix: AIR Sample Medium : LARGE FILTER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
SPECIAL TEST			03/21/09	JB				

Aroclor 1016 = <0.0001 ug/m3
Aroclor 1221 = <0.0001 ug/m3
Aroclor 1232 = <0.0001 ug/m3
Aroclor 1242 = <0.0001 ug/m3
Aroclor 1248 = <0.0001 ug/m3
Aroclor 1254 = 0.0003 ug/m3 = 51.99 ug/L
Aroclor 1260 = 0.0006 ug/m3 = 103.98 ug/L
Aroclor 1262 = <0.0001 ug/m3
Aroclor 1268 = <0.0001 ug/m3

Method Blank
Aroclor 1260 = <0.2 ug
Aroclor 1254 = <0.2 ug

Laboratory Fortified Blank and Duplicate Recovery

	LFB	LFBD
Aroclor 1016	117%	124%
Aroclor 1260	113%	122%

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DANIEL WHITE
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WOBURN, MA 01801

Purchase Order No.:

3/11/2010

Project Location: SOUTH BOSTON, MA.
Date Received: 3/16/2009
Field Sample # : AIR-W

LIMS-BAT #: LIMT-23984
Job Number: 060.07443.1011

Sample ID : 09B07909 ‡Sampled : 3/12/2009
Not Specified
Sample Matrix: AIR Sample Medium : LARGE FILTER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
SPECIAL TEST			03/23/09	FD				

See attached results page.

Sample ID : 09B07911 ‡Sampled : 3/12/2009
Not Specified
Sample Matrix: AIR Sample Medium : LARGE FILTER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
SPECIAL TEST			03/21/09	JB				

Aroclor 1016 = <0.0001 ug/m3
Aroclor 1221 = <0.0001 ug/m3
Aroclor 1232 = <0.0001 ug/m3
Aroclor 1242 = <0.0001 ug/m3
Aroclor 1248 = <0.0001 ug/m3
Aroclor 1254 = 0.0009 ug/m3 = 159.84 ug/L
Aroclor 1260 = 0.002 ug/m3 = 355.2 ug/L
Aroclor 1262 = <0.0001 ug/m3
Aroclor 1268 = <0.0001 ug/m3

RL = Reporting Limit

ND = Not Detected at or above the Reporting Limit

NM = Not Measured

SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

* = See end of report for comments and notes applying to this sample

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con-test ANALYTICAL LABORATORY

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DANIEL WHITE
ATC ASSOCIATES - WOBURN
600 W CUMMINGS PARK, SUITE 6500
WOBURN, MA 01801

Purchase Order No.:

3/11/2010

Project Location: SOUTH BOSTON, MA.
Date Received: 3/16/2009
Field Sample # : 0.5-6W-F

LIMS-BAT #: LIMT-23984
Job Number: 060.07443.1011

Sample ID : 09B07894 ‡Sampled : 3/13/2009
Not Specified

Sample Matrix: WIPE - OTHER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
PCB-1221	ug	ND	03/20/09	JB	1.00			
PCB-1232	ug	ND	03/20/09	JB	1.00			
PCB-1242	ug	ND	03/20/09	JB	1.00			
PCB-1248	ug	ND	03/20/09	JB	1.00			
PCB-1254	ug	3.65	03/20/09	JB	1.00			
PCB-1260	ug	5.55	03/20/09	JB	1.00			

Field Sample # : 2.5-1E-B

Sample ID : 09B07890 ‡Sampled : 3/13/2009
Not Specified

Sample Matrix: WIPE - OTHER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
PCB-1221	ug	ND	03/20/09	JB	1.00			
PCB-1232	ug	ND	03/20/09	JB	1.00			
PCB-1242	ug	ND	03/20/09	JB	1.00			
PCB-1248	ug	ND	03/20/09	JB	1.00			
PCB-1254	ug	5.85	03/20/09	JB	1.00			
PCB-1260	ug	9.33	03/20/09	JB	1.00			

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‡ = See attached chain-of-custody record for time sampled

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

DANIEL WHITE
ATC ASSOCIATES - WOBURN
600 W CUMMINGS PARK, SUITE 6500
WOBURN, MA 01801

Purchase Order No.:

3/11/2010

Project Location: SOUTH BOSTON, MA.
Date Received: 3/16/2009
Field Sample # : 45-4W-G

LIMS-BAT #: LIMT-23984
Job Number: 060.07443.1011

Sample ID : 09B07895 ‡Sampled : 3/13/2009
Not Specified

Sample Matrix: WIPE - OTHER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
PCB-1221	ug	ND	03/20/09	JB	0.200			
PCB-1232	ug	ND	03/20/09	JB	0.200			
PCB-1242	ug	ND	03/20/09	JB	0.200			
PCB-1248	ug	ND	03/20/09	JB	0.200			
PCB-1254	ug	0.469	03/20/09	JB	0.200			
PCB-1260	ug	0.793	03/20/09	JB	0.200			

Field Sample # : 5-3E-C

Sample ID : 09B07891 ‡Sampled : 3/13/2009
Not Specified

Sample Matrix: WIPE - OTHER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
PCB-1221	ug	ND	03/20/09	JB	1.00			
PCB-1232	ug	ND	03/20/09	JB	1.00			
PCB-1242	ug	ND	03/20/09	JB	1.00			
PCB-1248	ug	ND	03/20/09	JB	1.00			
PCB-1254	ug	7.55	03/20/09	JB	1.00			
PCB-1260	ug	11.4	03/20/09	JB	1.00			

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NM = Not Measured

SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

* = See end of report for comments and notes applying to this sample

‡ = See attached chain-of-custody record for time sampled

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DANIEL WHITE
ATC ASSOCIATES - WOBURN
600 W CUMMINGS PARK, SUITE 6500
WOBURN, MA 01801

Purchase Order No.:

3/11/2010

Project Location: SOUTH BOSTON, MA.
Date Received: 3/16/2009
LIMS-BAT #: LIMT-23984
Job Number: 060.07443.1011

Field Sample # : 5.5-2E-M

Sample ID : 09B07901 ‡Sampled : 3/13/2009
Not Specified

Sample Matrix: WIPE - OTHER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
PCB-1221	ug	ND	03/20/09	JB	1.00			
PCB-1232	ug	ND	03/20/09	JB	1.00			
PCB-1242	ug	ND	03/20/09	JB	1.00			
PCB-1248	ug	ND	03/20/09	JB	1.00			
PCB-1254	ug	3.20	03/20/09	JB	1.00			
PCB-1260	ug	4.63	03/20/09	JB	1.00			

Field Sample # : 6-3C-K

Sample ID : 09B07899 ‡Sampled : 3/13/2009
Not Specified

Sample Matrix: WIPE - OTHER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
PCB-1221	ug	ND	03/20/09	JB	1.00			
PCB-1232	ug	ND	03/20/09	JB	1.00			
PCB-1242	ug	ND	03/20/09	JB	1.00			
PCB-1248	ug	ND	03/20/09	JB	1.00			
PCB-1254	ug	8.30	03/20/09	JB	1.00			
PCB-1260	ug	10.2	03/20/09	JB	1.00			

RL = Reporting Limit

ND = Not Detected at or above the Reporting Limit

NM = Not Measured

SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

* = See end of report for comments and notes applying to this sample

‡ = See attached chain-of-custody record for time sampled

con-test ANALYTICAL LABORATORY

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

DANIEL WHITE
ATC ASSOCIATES - WOBURN
600 W CUMMINGS PARK, SUITE 6500
WOBURN, MA 01801

Purchase Order No.:

3/11/2010

Project Location: SOUTH BOSTON, MA.
Date Received: 3/16/2009
LIMS-BAT #: LIMT-23984
Job Number: 060.07443.1011

Field Sample # : 72-4E-I

Sample ID : 09B07897 ‡Sampled : 3/13/2009
Not Specified

Sample Matrix: WIPE - OTHER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
PCB-1221	ug	ND	03/20/09	JB	0.200			
PCB-1232	ug	ND	03/20/09	JB	0.200			
PCB-1242	ug	ND	03/20/09	JB	0.200			
PCB-1248	ug	ND	03/20/09	JB	0.200			
PCB-1254	ug	0.470	03/20/09	JB	0.200			
PCB-1260	ug	0.829	03/20/09	JB	0.200			

Field Sample # : 8-3E-L

Sample ID : 09B07900 ‡Sampled : 3/13/2009
Not Specified

Sample Matrix: WIPE - OTHER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
PCB-1221	ug	ND	03/20/09	JB	1.00			
PCB-1232	ug	ND	03/20/09	JB	1.00			
PCB-1242	ug	ND	03/20/09	JB	1.00			
PCB-1248	ug	ND	03/20/09	JB	1.00			
PCB-1254	ug	4.54	03/20/09	JB	1.00			
PCB-1260	ug	6.09	03/20/09	JB	1.00			

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con-test ANALYTICAL LABORATORY

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DANIEL WHITE
ATC ASSOCIATES - WOBURN
600 W CUMMINGS PARK, SUITE 6500
WOBURN, MA 01801

Purchase Order No.:

3/11/2010

Project Location: SOUTH BOSTON, MA.
Date Received: 3/16/2009
Field Sample # : I-8W-E

LIMS-BAT #: LIMT-23984
Job Number: 060.07443.1011

Sample ID : 09B07893 ‡Sampled : 3/13/2009
Not Specified

Sample Matrix: WIPE - OTHER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
PCB-1221	ug	ND	03/20/09	JB	4.00			
PCB-1232	ug	ND	03/20/09	JB	4.00			
PCB-1242	ug	ND	03/20/09	JB	4.00			
PCB-1248	ug	ND	03/20/09	JB	4.00			
PCB-1254	ug	13.8	03/20/09	JB	4.00			
PCB-1260	ug	21.4	03/20/09	JB	4.00			

Field Sample # : J-1E-A

Sample ID : 09B07889 ‡Sampled : 3/13/2009
Not Specified

Sample Matrix: WIPE - OTHER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
PCB-1221	ug	ND	03/20/09	JB	1.00			
PCB-1232	ug	ND	03/20/09	JB	1.00			
PCB-1242	ug	ND	03/20/09	JB	1.00			
PCB-1248	ug	ND	03/20/09	JB	1.00			
PCB-1254	ug	10.8	03/20/09	JB	1.00			
PCB-1260	ug	12.2	03/20/09	JB	1.00			

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con-test ANALYTICAL LABORATORY

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DANIEL WHITE
ATC ASSOCIATES - WOBURN
600 W CUMMINGS PARK, SUITE 6500
WOBURN, MA 01801

Purchase Order No.:

3/11/2010

Project Location: SOUTH BOSTON, MA.
Date Received: 3/16/2009
Field Sample # : J-2E-N

LIMS-BAT #: LIMT-23984
Job Number: 060.07443.1011

Sample ID : 09B07902 ‡Sampled : 3/13/2009
Not Specified

Sample Matrix: WIPE - OTHER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
PCB-1221	ug	ND	03/21/09	JB	4.00			
PCB-1232	ug	ND	03/21/09	JB	4.00			
PCB-1242	ug	ND	03/21/09	JB	4.00			
PCB-1248	ug	ND	03/21/09	JB	4.00			
PCB-1254	ug	26.2	03/21/09	JB	4.00			
PCB-1260	ug	39.1	03/21/09	JB	4.00			

Field Sample # : J-3E-D

Sample ID : 09B07892 ‡Sampled : 3/13/2009
Not Specified

Sample Matrix: WIPE - OTHER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
PCB-1221	ug	ND	03/20/09	JB	4.00			
PCB-1232	ug	ND	03/20/09	JB	4.00			
PCB-1242	ug	ND	03/20/09	JB	4.00			
PCB-1248	ug	ND	03/20/09	JB	4.00			
PCB-1254	ug	12.1	03/20/09	JB	4.00			
PCB-1260	ug	18.4	03/20/09	JB	4.00			

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con-test ANALYTICAL LABORATORY

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DANIEL WHITE
ATC ASSOCIATES - WOBURN
600 W CUMMINGS PARK, SUITE 6500
WOBURN, MA 01801

Purchase Order No.:

3/11/2010

Project Location: SOUTH BOSTON, MA.
Date Received: 3/16/2009
Field Sample # : J-3E-J

LIMS-BAT #: LIMT-23984
Job Number: 060.07443.1011

Sample ID : 09B07898 ‡Sampled : 3/13/2009
Not Specified

Sample Matrix: WIPE - OTHER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
PCB-1221	ug	ND	03/20/09	JB	1.00			
PCB-1232	ug	ND	03/20/09	JB	1.00			
PCB-1242	ug	ND	03/20/09	JB	1.00			
PCB-1248	ug	ND	03/20/09	JB	1.00			
PCB-1254	ug	7.80	03/20/09	JB	1.00			
PCB-1260	ug	10.5	03/20/09	JB	1.00			

Field Sample # : RAIL-4W-H

Sample ID : 09B07896 ‡Sampled : 3/13/2009
Not Specified

Sample Matrix: WIPE - OTHER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
PCB-1221	ug	ND	03/20/09	JB	1.00			
PCB-1232	ug	ND	03/20/09	JB	1.00			
PCB-1242	ug	ND	03/20/09	JB	1.00			
PCB-1248	ug	ND	03/20/09	JB	1.00			
PCB-1254	ug	1.82	03/20/09	JB	1.00			
PCB-1260	ug	2.24	03/20/09	JB	1.00			

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con-test ANALYTICAL LABORATORY

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DANIEL WHITE
ATC ASSOCIATES - WOBURN
600 W CUMMINGS PARK, SUITE 6500
WOBURN, MA 01801

Purchase Order No.:

3/11/2010

Project Location: SOUTH BOSTON, MA.
Date Received: 3/16/2009
LIMS-BAT #: LIMT-23984
Job Number: 060.07443.1011

Field Sample # : WALL-3E-Q

Sample ID : 09B07905 ‡Sampled : 3/16/2009
Not Specified

Sample Matrix: WIPE - OTHER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
PCB-1221	ug	ND	03/21/09	JB	0.200			
PCB-1232	ug	ND	03/21/09	JB	0.200			
PCB-1242	ug	ND	03/21/09	JB	0.200			
PCB-1248	ug	ND	03/21/09	JB	0.200			
PCB-1254	ug	ND	03/21/09	JB	0.200			
PCB-1260	ug	ND	03/21/09	JB	0.200			

Field Sample # : WALL-3E-R

Sample ID : 09B07906 ‡Sampled : 3/16/2009
Not Specified

Sample Matrix: WIPE - OTHER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
PCB-1221	ug	ND	03/21/09	JB	0.200			
PCB-1232	ug	ND	03/21/09	JB	0.200			
PCB-1242	ug	ND	03/21/09	JB	0.200			
PCB-1248	ug	ND	03/21/09	JB	0.200			
PCB-1254	ug	0.882	03/21/09	JB	0.200			
PCB-1260	ug	0.826	03/21/09	JB	0.200			

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‡ = See attached chain-of-custody record for time sampled

con-test ANALYTICAL LABORATORY

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DANIEL WHITE
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600 W CUMMINGS PARK, SUITE 6500
WOBURN, MA 01801

3/11/2010

Purchase Order No.:

Project Location: SOUTH BOSTON, MA.
Date Received: 3/16/2009
LIMS-BAT #: LIMT-23984
Job Number: 060.07443.1011

Field Sample # : WALL-6W-P

Sample ID : 09B07904 ‡Sampled : 3/16/2009
Not Specified

Sample Matrix: WIPE - OTHER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
PCB-1221	ug	ND	03/21/09	JB	0.200			
PCB-1232	ug	ND	03/21/09	JB	0.200			
PCB-1242	ug	ND	03/21/09	JB	0.200			
PCB-1248	ug	ND	03/21/09	JB	0.200			
PCB-1254	ug	ND	03/21/09	JB	0.200			
PCB-1260	ug	ND	03/21/09	JB	0.200			

Field Sample # : WALL-8W-O

Sample ID : 09B07903 ‡Sampled : 3/16/2009
Not Specified

Sample Matrix: WIPE - OTHER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
PCB-1221	ug	ND	03/21/09	JB	0.200			
PCB-1232	ug	ND	03/21/09	JB	0.200			
PCB-1242	ug	ND	03/21/09	JB	0.200			
PCB-1248	ug	ND	03/21/09	JB	0.200			
PCB-1254	ug	ND	03/21/09	JB	0.200			
PCB-1260	ug	ND	03/21/09	JB	0.200			

Analytical Method:
SW846 8082
SAMPLES ARE EXTRACTED INTO HEXANE AND ANALYZED BY CAPILLARY GAS CHROMATOGRAPHY WITH ELECTRON CAPTURE DETECTION.

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NM = Not Measured
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‡ = See attached chain-of-custody record for time sampled

SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

con-test® ANALYTICAL LABORATORY

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ATC ASSOCIATES - WOBURN
600 W CUMMINGS PARK, SUITE 6500
WOBURN, MA 01801

3/11/2010

Purchase Order No.:

Project Location: SOUTH BOSTON, MA.
Date Received: 3/16/2009

LIMS-BAT #: LIMT-23984
Job Number: 060.07443.1011

** END OF REPORT **

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con-test® ANALYTICAL LABORATORY

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

QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 3/11/2010 Lims Bat # : LIMT-23984

QC Batch Number: GC/ECD-12217

Sample Id	Analysis	QC Analysis	Values	Units	Limits
09B07907					
	Decachlorobiphenyl	Surrogate Recovery	N.M.	%	30-150
	Tetrachloro-m-Xylene	Surrogate Recovery	N.M.	%	30-150
BLANK-131109					
	PCB-1232	Blank	<0.020	mg/kg	
	PCB-1242	Blank	<0.020	mg/kg	
	PCB-1254	Blank	<0.020	mg/kg	
	PCB-1260	Blank	<0.020	mg/kg	
	PCB-1248	Blank	<0.020	mg/kg	
	PCB-1221	Blank	<0.020	mg/kg	
	PCB 1016	Blank	<0.020	mg/kg	
	PCB 1262	Blank	<0.020	mg/kg	
	PCB 1268	Blank	<0.020	mg/kg	
LFBLANK-93334					
	PCB-1260	Lab Fort Blank Amt.	0.050	mg/kg	
		Lab Fort Blk. Found	0.050	mg/kg	
		Lab Fort Blk. % Rec.	100.000	%	40-140
		Dup Lab Fort Bl Amt.	0.050	mg/kg	
		Dup Lab Fort Bl. Fnd	0.049	mg/kg	
		Dup Lab Fort Bl %Rec	99.400	%	
		Lab Fort Blank Range	0.599	units	
		Lab Fort Bl. Av. Rec	99.700	%	
		LFB Duplicate RPD	0.601	%	0-30
	PCB 1016	Lab Fort Blank Amt.	0.050	mg/kg	
		Lab Fort Blk. Found	0.049	mg/kg	
		Lab Fort Blk. % Rec.	98.600	%	40-140
		Dup Lab Fort Bl Amt.	0.050	mg/kg	
		Dup Lab Fort Bl. Fnd	0.048	mg/kg	
		Dup Lab Fort Bl %Rec	97.400	%	
		Lab Fort Blank Range	1.199	units	
		Lab Fort Bl. Av. Rec	98.000	%	
		LFB Duplicate RPD	1.224	%	0-30

con-test ANALYTICAL LABORATORY

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

QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 3/11/2010 Lims Bat # : LIMT-23984

QC Batch Number: GC/ECD-12218

Sample Id	Analysis	QC Analysis	Values	Units	Limits
09B07889					
	Decachlorobiphenyl	Surrogate Recovery	113.2	%	30-150
	Tetrachloro-m-Xylene	Surrogate Recovery	111.7	%	30-150
09B07890					
	Decachlorobiphenyl	Surrogate Recovery	107.5	%	30-150
	Tetrachloro-m-Xylene	Surrogate Recovery	110.0	%	30-150
09B07891					
	Decachlorobiphenyl	Surrogate Recovery	110.0	%	30-150
	Tetrachloro-m-Xylene	Surrogate Recovery	115.0	%	30-150
09B07892					
	Decachlorobiphenyl	Surrogate Recovery	141.0	%	30-150
	Tetrachloro-m-Xylene	Surrogate Recovery	130.0	%	30-150
09B07893					
	Decachlorobiphenyl	Surrogate Recovery	140.0	%	30-150
	Tetrachloro-m-Xylene	Surrogate Recovery	100.0	%	30-150
09B07894					
	Decachlorobiphenyl	Surrogate Recovery	112.5	%	30-150
	Tetrachloro-m-Xylene	Surrogate Recovery	115.0	%	30-150
09B07895					
	Decachlorobiphenyl	Surrogate Recovery	119.5	%	30-150
	Tetrachloro-m-Xylene	Surrogate Recovery	92.0	%	30-150
09B07896					
	Decachlorobiphenyl	Surrogate Recovery	112.5	%	30-150
	Tetrachloro-m-Xylene	Surrogate Recovery	110.0	%	30-150
09B07897					
	Decachlorobiphenyl	Surrogate Recovery	121.0	%	30-150
	Tetrachloro-m-Xylene	Surrogate Recovery	92.5	%	30-150
09B07898					
	Decachlorobiphenyl	Surrogate Recovery	122.5	%	30-150
	Tetrachloro-m-Xylene	Surrogate Recovery	117.5	%	30-150
09B07899					
	Decachlorobiphenyl	Surrogate Recovery	115.0	%	30-150
	Tetrachloro-m-Xylene	Surrogate Recovery	100.0	%	30-150
09B07900					
	Decachlorobiphenyl	Surrogate Recovery	125.0	%	30-150
	Tetrachloro-m-Xylene	Surrogate Recovery	100.0	%	30-150
09B07901					
	Decachlorobiphenyl	Surrogate Recovery	105.0	%	30-150
	Tetrachloro-m-Xylene	Surrogate Recovery	110.0	%	30-150
09B07902					
	Decachlorobiphenyl	Surrogate Recovery	140.0	%	30-150
	Tetrachloro-m-Xylene	Surrogate Recovery	90.0	%	30-150
09B07903					
	Decachlorobiphenyl	Surrogate Recovery	137.0	%	30-150

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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 3/11/2010 Lims Bat # : LIMT-23984

QC Batch Number: GC/ECD-12218

Sample Id	Analysis	QC Analysis	Values	Units	Limits
09B07903					
	Tetrachloro-m-Xylene	Surrogate Recovery	105.0	%	30-150
09B07904					
	Decachlorobiphenyl	Surrogate Recovery	116.0	%	30-150
	Tetrachloro-m-Xylene	Surrogate Recovery	89.5	%	30-150
09B07905					
	Decachlorobiphenyl	Surrogate Recovery	144.5	%	30-150
	Tetrachloro-m-Xylene	Surrogate Recovery	112.5	%	30-150
09B07906					
	Decachlorobiphenyl	Surrogate Recovery	108.0	%	30-150
	Tetrachloro-m-Xylene	Surrogate Recovery	88.0	%	30-150
BLANK-131111					
	PCB-1232	Blank	<0.200	ug	
	PCB-1242	Blank	<0.200	ug	
	PCB-1254	Blank	<0.200	ug	
	PCB-1260	Blank	<0.200	ug	
	PCB-1248	Blank	<0.200	ug	
	PCB-1221	Blank	<0.200	ug	

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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

NOTES:

QC Batch No. : GC/ECD-12217
Sample ID : 09B07907
Analysis : Decachlorobiphenyl

SURROGATE CONCENTRATION BELOW DETECTION LIMIT DUE TO DILUTION REQUIRED FOR SAMPLE ANALYSIS.

QC Batch No. : GC/ECD-12217
Sample ID : 09B07907
Analysis : Tetrachloro-m-Xylene

SURROGATE CONCENTRATION BELOW DETECTION LIMIT DUE TO DILUTION REQUIRED FOR SAMPLE ANALYSIS.

con-test ANALYTICAL LABORATORY

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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

QUALITY CONTROL DEFINITIONS AND ABBREVIATIONS

QC BATCH NUMBER	This is the number assigned to all samples analyzed together that would be subject to comparison with a particular set of Quality Control Data.
LIMITS	Upper and Lower Control Limits for the QC ANALYSIS Reported. All values normally would fall within these statistically determined limits, unless there is an unusual circumstance that would be documented in a NOTE appearing on the last page of the QC SUMMARY REPORT. Not all QC results will have Limits defined.
Sample Amount	Amount of analyte found in a sample.
Blank	Method Blank that has been taken though all the steps of the analysis.
LFBLANK	Laboratory Fortified Blank (a control sample)
STDADD	Standard Added (a laboratory control sample)
Matrix Spk Amt Added	Amount of analyte spiked into a sample
MS Amt Measured	Amount of analyte found including amount that was spiked
Matrix Spike % Rec.	% Recovery of spiked amount in sample.
Duplicate Value	The result from the Duplicate analysis of the sample.
Duplicate RPD	The Relative Percent Difference between two Duplicate Analyses.
Surrogate Recovery	The % Recovery for non-environmental compounds (surrogates) spiked into samples to determine the performance of the analytical methods.
Sur. Recovery (ELCD)	Surrogate Recovery on the Electrolytic Conductivity Detector.
Sur. Recovery (PID)	Surrogate Recovery on the Photoionization Detector.
Standard Measured	Amount measured for a laboratory control sample
Standard Amt Added	Known value for a laboratory control sample
Standard % Recovery	% recovered for a laboratory control sample with a known value.
Lab Fort Blank Amt	Laboratory Fortified Blank Amount Added
Lab Fort Blk. Found	Laboratory Fortified Blank Amount Found
Lab Fort Blk % Rec	Laboratory Fortified Blank % Recovered
Dup Lab Fort Bl Amt	Duplicate Laboratory Fortified Blank Amount Added
Dup Lab Fort Bl Fnd	Duplicate Laboratory Fortified Blank Amount Found
Dup Lab Fort Bl % Rec	Duplicate Laboratory Fortified Blank % Recovery
Lab Fort Blank Range	Laboratory Fortified Blank Range (Absolute value of difference between recoveries for Lab Fortified Blank and Lab Fortified Blank Duplicate).
Lab Fort Bl. Av. Rec.	Laboratory Fortified Blank Average Recovery
Duplicate Sample Amt	Sample Value for Duplicate used with Matrix Spike Duplicate
MSD Amount Added	Matrix Spike Duplicate Amount Added (Spiked)
MSD Amt Measured	Matrix Spike Duplicate Amount Measured
MSD % Recovery	Matrix Spike Duplicate % Recovery
MSD Range	Absolute difference between Matrix Spike and Matrix Spike Duplicate Recoveries

con-test ANALYTICAL LABORATORY
39 Spruce Street
East Longmeadow, Ma 01028
413.525.2332
413.525.6405(fax)

RESULTS FOR EPA METHOD PM-10

LIMT Number: 23984

Date Analyzed: 3/23/2009
Analyst: FWD

Lab ID Number: 09B07908
Client ID Number: AIR-NE

Volume: 1,733 M^3

Analyte:	Sample Results MG	Sample Results MG/M^3
PM-10	48.9	0.028

Lab ID Number: 09B07909
Client ID Number: AIR-W

Volume: 1,776 M^3

Analyte:	Sample Results MG	Sample Results MG/M^3
PM-10	67.0	0.038

PM-10 = Particulate matter having an aerodynamic diameter less than or equal to 10 micrometers.
MG = Milligrams
MG/M^3= Milligrams per cubic meter
Method: EPA PM-10

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

CHAIN OF CUSTODY RECORD

39 SPRUCE ST, 2ND FLOOR
EAST LONGMEADOW, MA 01028

Limit # 23984

Company Name: ATC ASSOCIATES
Address: 600 W CUMMINGS PARK
SUITE 5500, WOBURN, MA 01801
Attention: DANIEL WHITE
Project Location: BOSTON, MA
Sampled By: VV/DW

Telephone: (781) 932 9400
Project # 060.07443.1018
Client PO # NONE

DATA DELIVERY (check one):
☐ FAX ☑ EMAIL ☐ WEBSITE CLIENT
Fax # :
Email: Daniel.White@ATCAssociates.com
Format: ☑ EXCEL ☑ PDF ☐ GIS KEY
☐ OTHER

Proposal Provided? (For Billing purposes) ☒ yes 1108-28 proposal ~~date~~
State Form Required? ☐ yes ☐ no

Field ID	Sample Description	Lab # 09B	Date Sampled: Start Date/Time	Stop Date/Time	Composite	Grab	*Matrix Code	Conc. Code	PCB - See attached (8)	PM-10 (2)										# of containers
									None	None										**Preservation
									A/G	O										-Cont.Code
	WALL 3E-Q	07905	3/16/09	0820		/	O		/											
	WALL 3E-R	07906	3/16/09	0830		/	O		/											
	BULK DUST	07907	3/13/09	1100	/		Dust/Solid		/											
	Air-NE	07908/10	3/12/09 1354	3/13/09 1603	/		A/S(Dust)		/	/										
	Air-W	07909/11	3/12/09 1422	3/13/09 1552	/		A/S(Dust)		/	/										

ANALYSIS REQUESTED

-Cont. Code:
A=amber glass
G=glass
P=plastic
ST=sterile
V=vial
S=summa can
T=tedlar bag
O=Other 2"x10" filter/Dust

Client Comments:

Laboratory Comments:

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in **Matrix/Conc.** Code Box:
H - High; **M** - Medium; **L** - Low; **C** - Clean; **U** - Unknown

Relinquished by: (signature) [signature]	Date/Time: 3/16/09 - 1105
Received by: (signature) [signature]	Date/Time: 3/16/09 1005
Relinquished by: (signature) [signature]	Date/Time: 3/16/09 700
Received by: (signature) [signature] 3-0C	Date/Time: 3/16/09 1900

Turnaround **
☐ 7-Day
☐ 10-Day
☒ Other Std.

RUSH *
☐ *24-Hr ☐ *48-Hr
☐ *72-Hr ☐ *4-Day
* Require lab approval

Detection Limit Requirements
Regulations? Per Analysis Plan
Data Enhancement Project/RCP? ☐ Y ☒ N
Special Requirements or DL's: Please report all Lab QA See attached

***Matrix Code:**
GW= groundwater
WW= wastewater
DW= drinking water
A = air
S = soil/solid
SL = sludge
O = other WIPE

****Preservation Codes:**
I = Iced
X = Na hydroxide
H = HCL
T = Na thiosulfate
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium bisulfate
O = Other

** TURNAROUND TIME STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED BY OUR CLIENT.

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www.contestlabs.com

CHAIN OF CUSTODY RECORD

Limt# 23984

39 SPRUCE ST, 2ND FLOOR
EAST LONGMEADOW, MA 01028

Company Name: ATC ASSOCIATES
Address: 600 W CUMMINGS PARK
SUITE 5500 WOBURN, MA 01801
Attention: DANIEL WHITE
Project Location: SOUTH BOSTON, MA
Sampled By: VV / DW

Telephone: (781) 932-9400
Project # 060.07443.1011
Client PO # NONE

DATA DELIVERY (check one):
☒ FAX ☒ EMAIL ☐ WEBSITE CLIENT
Fax # :
Email: Daniel.White@ATCAssociates.com
Format: ☒ EXCEL ☒ PDF ☐ GIS KEY
☐ OTHER

Proposal Provided? (For Billing purposes) ☒ yes 1108-28 proposal date
State Form Required? ☒ yes ☒ no

Field ID	Sample Description	Lab # 09B	Date Sampled Start Date/Time	Stop Date/Time	Composite	Grab	*Matrix Code	Conc. Code	PCB - See attached											# of containers / **Preservation / ~Cont.Code
	J-1E-A	07889	3/17/09	1340		✓	O		✓											
	2.5-1E-B	07890	3/13/09	1355		✓	O		✓											
	5-3E-C	07891	↓	1403		✓	O		✓											
	J-3E-D	07892	↓	1415		✓	O		✓											
	I-8W-E	07893	↓	1422		✓	O		✓											
	0.5-6W-F	07894	↓	1436		✓	O		✓											
	45-4W-G	07895	↓	1445		✓	O		✓											
	RALL-4W-H	07896	↓	1452		✓	O		✓											

8
wave
A/G

ANALYSIS REQUESTED

~Cont. Code:
A=amber glass
G=glass
P=plastic
ST=sterile
V=vial
S=summa can
T=tedlar bag
O=Other

Client Comments:

Laboratory Comments:

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in Matrix/Conc. Code Box:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature) [signature]	Date/Time: 3/16/09 1105
Received by: (signature) Don MC	Date/Time: 3/16/09 1105
Relinquished by: (signature) Don MC	Date/Time: 3/16/09 1700
Received by: (signature) [signature]	Date/Time: 3/16/09 1900

Turnaround **
☐ 7-Day
☐ 10-Day
☒ Other Std.

RUSH *
☐ *24-Hr ☐ *48-Hr
☐ *72-Hr ☐ *4-Day
* Require lab approval See attached

Detection Limit Requirements
Regulations? Per Analysis Plan
Data Enhancement Project/RCP? ☐ Y ☒ N
Special Requirements or DL's: Please Report all Lab QA

*Matrix Code:
GW= groundwater
WW= wastewater
DW= drinking water
A = air
S = soil/solid
SL = sludge
O = other WIPE

**Preservation Codes:
I = Iced
X = Na hydroxide
H = HCL
T = Na thiosulfate
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium bisulfate
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www.contestlabs.com

CHAIN OF CUSTODY RECORD

Limit # 23984

39 SPRUCE ST, 2ND FLOOR
EAST LONGMEADOW, MA 01028

Company Name: ATC Associates
Address: 600 W Cummings Park
Suite 5500, Woburn, MA 01801
Attention: Daniel White
Project Location: Boston, MA
Sampled By: W / DW

Telephone: (781) 932 9400
Project # 060.07443.1011
Client PO # none

DATA DELIVERY (check one):
☐ FAX ☒ EMAIL ☐ WEBSITE CLIENT
Fax # :
Email: Daniel.White@ATCAssociates.com
Format: ☒ EXCEL ☒ PDF ☐ GIS KEY
☐ OTHER

Proposal Provided? (For Billing purposes) ☒ yes 1108-28 proposal date
State Form Required? ☐ yes ☐ no

Field ID	Sample Description	Lab # 09B	Date Sampled: Start Date/Time	Stop Date/Time	Composite	Grab	*Matrix Code	Conc. Code	PCB - See attached											# of containers / **Preservation / ~Cont.Code
									8											
									None											
									A/G											
	72-4E-I	07897	3/13/09	1502		✓	O		✓											
	J-3E-J	07898	3/13/09	1515		✓	O		✓											
	6-3C-K	07899	3/13/09	1520		✓	O		✓											
	8-3E-L	07900	3/13/09	1530		✓	O		✓											
	5,5-2E-M	07901	3/13/09	1537		✓	O		✓											
	J-2E-N	07902	3/13/09	1545		✓	O		✓											
	WALL-8W-O	07903	3/16/09	0805		✓	O		✓											
	WALL-GW-P	07904	3/16/09	0812		✓	O		✓											

ANALYSIS REQUESTED

~Cont. Code:
A=amber glass
G=glass
P=plastic
ST=sterile
V=vial
S=summa can
T=tedlar bag
O=Other

Client Comments:

Laboratory Comments:

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in **Matrix/Conc.** Code Box:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature)	Date/Time:
[signature]	3/16/09 1105
Received by: (signature) [signature]	Date/Time: 3/16/09 1105
Relinquished by: (signature) [signature]	Date/Time: 3/16/09 1900
Received by: (signature) [signature]	Date/Time: 3/16/09 1900

Turnaround **
☐ 7-Day
☐ 10-Day
☒ Other Std.

RUSH *
☐ *24-Hr ☐ *48-Hr
☐ *72-Hr ☐ *4-Day
* Require lab approval

Detection Limit Requirements
Regulations? Per Analysis Plan
Data Enhancement Project/RCP? ☐ Y ☒ N
Special Requirements or DL's: Please Report all Lab QA See attached

***Matrix Code:**
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WW= wastewater
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****Preservation Codes:**
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AIHA, NELAC & WBE/DBE Certified

Daniel White

To: Daniel White; 'Susan Burney at Con-Test Labs'
Subject: RE: MBTA Cabot - PCB Analyses

From: Daniel White
Sent: Wednesday, March 04, 2009 2:17 PM
To: 'Susan Burney at Con-Test Labs'
Subject: MBTA Cabot - PCB Analyses

Sue -

To try to make sure we're all on the same page, I've tried to summarize the types of samples & needed handling/analyses below:

Bulk Dust - 1 sample
Split & hold 1/2 sample.
Run Soxhlet/8082 analysis on unsieved 1/2.
Use specialized QA procedures worked out between ConTest (Ed & Todd) and Jim Smith (ATC) in November. Any questions or uncertainty, please call.
After seeing results from whole sample, we may have you sieve remaining split 1/2 using 250 um sieve and re-run.

PM-10 (Dust in Air) - 2 samples
Run PM-10 to determine dust concentration in air.
Split & hold 1/2 sample, if possible to acheive desired detection limits as discussed between ConTest & Jim Smith.
Run Soxhlet/8082 analysis on same sample.
Use specialized QA procedures worked out between ConTest (Ed & Todd) and Jim Smith (ATC) in November. Any questions or uncertainty, please call.
If it was possible to hold 1/2 sample, we may want to later send to another lab for congener-specific analysis.

Wipes - 18 samples
Run Soxhlet/8082 analysis on 1/2.
Use specialized QA procedures worked out between ConTest (Ed & Todd) and Jim Smith (ATC) in November. Any questions or uncertainty, please call.

Please let me know if there is any uncertainty on methods to be employed.

All analyses associated with price quote #1108-28.

We received the sample supplies today.

We will have you pick up samples middle to end of next week.

Thanks

Dan

Daniel P. White | Senior Project Manager | **ATC Associates Inc.** | **Woburn, MA**
781-404-1432 direct | 617-872-6579 mobile | daniel.white@atcassociates.com

600 W. Cummings Park | Suite 5500 | Woburn, Massachusetts 01801
781-932-9400 tel | 781-932-6211 fax | www.atcassociates.com

www.contestlabs.com

con-test ANALYTICAL LABORATORY

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

Sample Receipt Checklist

CLIENT NAME: ATC - Wolin RECEIVED BY: CEC DATE: 3/16/09

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

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

Temperature °C by Temp blank 3-6 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 samples "On Hold"? Yes No Stored where: _____

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

Who was notified _____ Date _____ Time _____

8) Location where samples are stored: 19

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

Client Signature: _____

Containers sent in to Con-Test

	# of containers		# of containers
1 Liter Amber		8 oz clear jar	3
500 mL Amber		4 oz clear jar	10
250 mL Amber (8oz amber)		2 oz clear jar	
1 Liter Plastic		Other glass jar	
500 mL Plastic		Plastic Bag / Ziploc	1
250 mL plastic		Air Cassette	
40 mL Vial - type listed below		Brass Sleeves	
Colisure / bacteria bottle		Tubes	
Dissolved Oxygen bottle		Summa Cans	
Flashpoint bottle		Regulators	
Encore		Other amber 8 oz Jar	6

Laboratory Comments: Missing Air - W

40 mL vials: # HCl _____ # Methanol _____

Bisulfate _____ # DI Water _____ Time and Date Frozen: _____

Thiosulfate _____ Unpreserved _____

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

con-test®
ANALYTICAL LABORATORY

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

REPORT DATE 4/16/2009

ATC ASSOCIATES - WOBURN
600 W CUMMINGS PARK, SUITE 6500
WOBURN, MA 01801
ATTN: DANIEL WHITE

CONTRACT NUMBER:
PURCHASE ORDER NUMBER:

PROJECT NUMBER:

ANALYTICAL SUMMARY

LIMS BAT #: LIMT-24504
JOB NUMBER: 060.07443.1011

PROJECT LOCATION: BOSTON, MA

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST	Subcontract Lab (if any) Cert. Nos.
BULK DUST	09B10693	SOLID	Not Specified	org special test	

The results of analyses performed are based on samples as submitted to the laboratory and relate only to the items collected and tested.

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations. AIHA accreditations only apply to NIOSH methods and Environmental Lead Analyses.

AIHA 100033
AIHA ELLAP (LEAD) 100033
NORTH CAROLINA CERT. #652
MASSACHUSETTS MA0100
NEW HAMPSHIRE NELAP 2516
NEW JERSEY NELAP NJ MA007 (AIR)
CONNECTICUT PH-0567
VERMONT DOH (LEAD) No. LL015036
FLORIDA DOH E871027 (AIR)
NEW YORK ELAP/NELAP 10899
RHODE ISLAND (LIC. No. 112)

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.

SIGNATURE 4/16/09 DATE

Tod Kopyscinski
Air Laboratory Manager

Michael Erickson
Assistant Laboratory Director

Edward Denson
Technical Director

Daren Damboragian
Organics Department Supervisor

con-test® ANALYTICAL LABORATORY

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

DANIEL WHITE
ATC ASSOCIATES - WOBURN
600 W CUMMINGS PARK, SUITE 6500
WOBURN, MA 01801

4/16/2009

Purchase Order No.:

Project Location: BOSTON, MA
Date Received: 4/3/2009
Field Sample # : BULK DUST

LIMS-BAT #: LIMT-24504
Job Number: 060.07443.1011

Sample ID : 09B10693

‡Sampled : 3/13/2009
Not Specified

Sample Matrix: SOLID

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
SPECIAL TEST			04/07/09	FD				

SEE ATTACHED RESULT PAGE

RL = Reporting Limit

ND = Not Detected at or above the Reporting Limit

NM = Not Measured

SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

* = See end of report for comments and notes applying to this sample

‡ = See attached chain-of-custody record for time sampled

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

DANIEL WHITE
ATC ASSOCIATES - WOBURN
600 W CUMMINGS PARK, SUITE 6500
WOBURN, MA 01801

4/16/2009

Purchase Order No.:

Project Location: BOSTON, MA
Date Received: 4/3/2009

LIMS-BAT #: LIMT-24504
Job Number: 060.07443.1011

** END OF REPORT **

RL = Reporting Limit

ND = Not Detected at or above the Reporting Limit

NM = Not Measured

SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

* = See end of report for comments and notes applying to this sample

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con-test® ANALYTICAL LABORATORY
39 Spruce Street
East Longmeadow, Ma 01028
413.525.2332
413.525.6405(fax)

Client: ATC ASSOCIATES
Lims# : LIMT-24504

Field ID: BULK DUST

Original BULK DUST sampled 3/13/2009

Initial Weight:	19.0950 g

Additional sample sent in 4/7/09

Initial Weight:	14.6819 g
Total Weight:	33.7769 g

Sample was then sieved (250 um)

Amount Remaining (in sieve):	12.0699 g
Amount passed thru sieve:	21.7070 g

Percent Remaining (in sieve):	**35.73%**
Percent Passed thru sieve:	**64.27%**

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

CHAIN OF CUSTODY RECORD

LIMT: 24504

~~Lmt # 23184~~

39 SPRUCE ST, 2ND FLOOR
EAST LONGMEADOW, MA 01028

Company Name: ATC ASSOCIATES
Address: 600 W CUMMINGS PARK
SUITE 5500, WOBURN, MA ~~MA~~ 01801
Attention: DANIEL WHITE
Project Location: BOSTON, MA
Sampled By: VV/DW

Telephone: (781) 932 9400
Project # 060.07443.10
Client PO # NONE

DATA DELIVERY (check one):
☐ FAX ☑ EMAIL ☐ WEBSITE CLIENT
Fax #:
Email: Daniel.White@ATCAssociates.com
Format: ☑ EXCEL ☑ PDF ☐ GIS KEY
☐ OTHER

Proposal Provided? (For Billing purposes) ☒ yes 1108-28 proposal ~~date~~
State Form Required? ☐ yes ☐ no

ANALYSIS REQUESTED

Field ID	Sample Description	Lab # 09	Date Sampled Start Date/Time	Stop Date/Time	Composite	Grab	*Matrix Code	Conc. Code	PCB – See attached	PM-10									# of containers	**Preservation	~Cont.Code
																			8	7	
																			None	None	
																			A/G	O	
	WALL 3E-Q	07905	3/16/09	0820		/	O		/												
	WALL-7E-R	07906	3/16/09	0830		/	O		/												
	BULK DUST	~~07907~~ 10693	3/13/09	1100	/		DUST/SOLID		/												
	Air-NE	07908 /10	3/12/09 1354	3/13/09 1603	/		A/S(DUST)		/	/											
	Air-W	07909 /11	3/12/09 1422	3/13/09 1552	/		A/S(DUST)		/	/											

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A=amber glass
G=glass
P=plastic
ST=sterile
V= vial
S=summa can
T=tedlar bag
O=Other 2" x 10" filter/Dust

Client Comments:

Laboratory Comments:

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in **Matrix/Conc.** Code Box:

H - High; **M** - Medium; **L** - Low; **C** - Clean; **U** - Unknown

Relinquished by: (signature)	Date/Time: 3/16/09 1105
Received by: (signature)	Date/Time: 3/16/09 1105
Relinquished by: (signature)	Date/Time: 3/16/09 700
Received by: (signature) 3.0C	Date/Time: 1900 3/16/09

Turnaround **
☐ 7-Day
☐ 10-Day
☒ Other Std.

RUSH *
☐ *24-Hr ☐ *48-Hr
☐ *72-Hr ☐ *4-Day
* Require lab approval

Detection Limit Requirements
Regulations? Per Analysis Plan
Data Enhancement Project/RCP? ☐ Y ☒ N
Special Requirements or DL's: Please report all LOS QA
See attached

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GW= groundwater
WW= wastewater
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CHAIN OF CUSTODY RECORD

39 SPRUCE ST, 2ND FLOOR
EAST LONGMEADOW, MA 01028

Company Name: ATC Associates
Address: 600 W Cummings Park
Suite 5500 Woburn, MA 01801
Attention: Daniel White
Project Location: Boston, MA
Sampled By: VV/DW

Telephone: (781) 932-9400
Project # 060.07443.1011
Client PO # None

DATA DELIVERY (check one):
☐ FAX ☑ EMAIL ☐ WEBSITE CLIENT
Fax # :
Email: Daniel.White@ATCAssociates.com
Format: ☐ EXCEL ☑ PDF ☐ GIS KEY
☐ OTHER

Proposal Provided? (For Billing purposes) ☐ yes _____ proposal date
State Form Required? ☐ yes ☐ no

Field ID	Sample Description	Lab #	Date Sampled: ~~Start~~ Date/~~Time~~	~~Stop~~ ~~Date~~/Time	Composite	Grab	*Matrix Code	Conc. Code	250 µm Seive											# of containers
									1											**Preservation
									None											~Cont.Code
									G											
	Bulk Dust		3/13/09	1100	/		Dust Solid		/											

ANALYSIS REQUESTED

~Cont. Code:
A=amber glass
G=glass
P=plastic
ST=sterile
V=vial
S=summa can
T=tedlar bag
O=Other

Client Comments:
Additional sample volume to be added to previous bulk dust sample and seived

Laboratory Comments:

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in **Matrix/Conc.** Code Box:
H - High; **M** - Medium; **L** - Low; **C** - Clean; **U** - Unknown

Relinquished by: (signature) [signature]	Date/Time: 4/6/09 / 10:07
Received by: (signature) [signature]	Date/Time: 4/6/09 1010
Relinquished by: (signature) [signature]	Date/Time: 4/6 1835
Received by: (signature) [signature]	Date/Time: 4/6/09 1835

Turnaround **
☐ 7-Day
☐ 10-Day
☑ Other STD

RUSH *
☐ *24-Hr ☐ *48-Hr
☐ *72-Hr ☐ *4-Day
* Require lab approval

Detection Limit Requirements
Regulations? Per Analysis Plan
Data Enhancement Project/RCP? ☐ Y ☑ N
Special Requirements or DL's: Please report all lab QA

***Matrix Code:**
GW= groundwater
WW= wastewater
DW= drinking water
A = air
S = soil/solid
SL = sludge
O = other

****Preservation Codes:**
I = Iced
X = Na hydroxide
H = HCL
T = Na thiosulfate
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium bisulfate
O = Other

** TURNAROUND TIME STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED BY OUR CLIENT.

AIHA, NELAC & WBE/DBE Certified

con-test® ANALYTICAL LABORATORY
Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com
www.contestlabs.com
39 SPRUCE ST, 2ND FLOOR
EAST LONGMEADOW, MA 01028

CHAIN OF CUSTODY RECORD

Lmt # 23984

Company Name: ATC ASSOCIATES
Address: 600 W CUMMINGS PARK SUITE 5500, WOBURN, MA 01801
Attention: DANIEL WHITE
Project Location: BOSTON, MA
Sampled By: VV / OW
Proposal Provided? (For Billing purposes) ☒ yes 1108-28 proposal date
State Form Required? ☐ yes ☐ no

Telephone: (781) 932 9400
Project # 060.07443.1008
Client PO # NONE

DATA DELIVERY (check one):
☐FAX ☒EMAIL ☐WEBSITE CLIENT
Fax #:
Email: Daniel.white@ATCAssociates.com
Format: ☒EXCEL ☒PDF ☐GIS KEY ☐ OTHER

ANALYSIS REQUESTED: PCB – See attached; BH-10
Containers / Preservation / Cont. Code: 8 / NM / A/G; 9 / None / O

Field ID	Sample Description	Lab # 095	Start Date/Time	Stop Date/Time	Composite	Grab	*Matrix Code	Conc. Code	PCB	BH-10
	WALL 3E-Q	07905	3/16/09	0820		✓	O		✓	
	WALL 3E-R	07906	3/16/09	0830		✓	O		✓	
	BULK DUST	07907	3/13/09	1100	✓		Dust/Solid		✓	
	Air-NE	07908/10	3/12/09 1354	3/13/09 1603	✓		A/S (dust)		✓	✓
	Air-W	07909/11	3/12/09 1422	3/13/09 1552	✓		A/S (dust)		✓	✓

Revised COC

Client Comments:

Laboratory Comments:

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in **Matrix/Conc.** Code Box:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature)	Date/Time: 3/16/09 - 1105
Received by: (signature) [signature]	Date/Time: 3/16/09 1005
Relinquished by: (signature) [signature]	Date/Time: 3/16/09 1700
Received by: (signature) [signature] 3.0°C	Date/Time: 3/16/09 1900

Turnaround **
☐ 7-Day
☐ 10-Day
☒ Other Std.
RUSH *
☐ *24-Hr ☐ *48-Hr
☐ *72-Hr ☐ *4-Day
* Require lab approval

Detection Limit Requirements
Regulations? Per Analysis Plan
Data Enhancement Project/RCP? ☐ Y ☒ N
Special Requirements or DL's: Please report all Lab QA See attached

***Matrix Code:**
GW= groundwater
WW= wastewater
DW= drinking water
A = air
S = soil/solid
SL = sludge
O = other Wipe

****Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium bisulfate
X = Na hydroxide
T = Na thiosulfate
O = Other

** TURNAROUND TIME STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED BY OUR CLIENT.

AIHA, NELAC & WBE/DBE Certified

SAMPLE REACTIVATION FORM

COMPANY ATC LOCATION IC

CONTACT Dan White PROJECT ID 23984

CONTACT PHONE 781-932-9400 FAX _____

DATE 4/3 TIME _____ TAT _____ DUE DATE _____

REQUEST TAKEN BY _____ GIVEN TO _____

ACTIVATION REQUEST:

Bulk dust 09B07907 → ~~PCB Soxhlet~~

250UM Sieve Test ~~* MUST BE FILTERED THRU 250µ filter FIRST~~

ONLY Special Test

SPECIAL INSTRUCTIONS AND TERMS:

FAXED TO CONTACT FOR APPROVAL: Y N

ACTIVATION IS CORRECT PER OUR REQUEST _____ DATE _____
INITIALS

CONTEST FINAL APPROVAL _____

con-test® ANALYTICAL LABORATORY

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

November 4, 2009

Dan White
ATC Associates - Woburn
600 W Cummings Park, Suite 6500
Woburn, MA 01801

Project Location: MBTA-Cabot Wash Alley
Client Job Number:
Project Number: 60.07443.1003
Laboratory Work Order Number: 09J0469

Enclosed are results of analyses for samples received by the laboratory on October 21, 2009. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Christopher J. Hall
Project Manager

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

ATC Associates - Woburn
600 W Cummings Park, Suite 6500
Woburn, MA 01801
ATTN: Dan White

REPORT DATE: 11/4/2009

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 60.07443.1003

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 09J0469

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

PROJECT LOCATION: MBTA-Cabot Wash Alley

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
WA-IA-Platform#1	09J0469-01	Air		EPA TO-10A	MA M-MA-086/CT PH-0574/NY11148
WA-IA-Platform#2	09J0469-02	Air		EPA TO-10A	MA M-MA-086/CT PH-0574/NY11148
WA-IA-Platform-Ambient	09J0469-03	Air		EPA TO-10A	MA M-MA-086/CT PH-0574/NY11148
WA-IA-Platform#B	09J0469-04	Air		EPA TO-10A	MA M-MA-086/CT PH-0574/NY11148

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

CASE NARRATIVE SUMMARY

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

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 individuuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Christopher J. Hall
Project Chemist Supervisor

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

Project Location: Sample Description: Work Order:

Date Received:

Field Sample #:

Sample ID: Start Date/Time:

Sample Matrix: Stop Date/Time:

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst

Analyte	Results	Units	Response	RT	DF	CAS #	Method	Date Prepared	Date/Time Analyzed	Analyst

Surrogates	% Recovery	Recovery Limits	Flag

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

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits estabished for difficult compound.
‡	Wide RPD limits estabished 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.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications

No certified Analyses included in this Report

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

Code	Description	Number	Expires
AIHA	American Industrial Hygiene Association	100033	01/1/2012
MA	Massachusetts DEP	M-MA100	06/30/2010
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2011
NY	New York State Department of Health	10899 NELAP	04/1/2010
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2010
RI	Rhode Island Department of Health	LAO00112	12/30/2009
NC	North Carolina Div. of Water Quality	652	12/31/2009
NJ	New Jersey DEP	MA007 NELAP	06/30/2010
FL	Florida Department of Health	E871027 NELAP	06/30/2010
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2010
WA	State of Washington Department of Ecology	C2065	03/23/2010

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

CHAIN OF CUSTODY RECORD

09J0469

39 SPRUCE ST, 2ND FLOOR
EAST LONGMEADOW, MA 01028

Page ____ of ____

Company Name: ATC Associates
Address: 600 W. Cummings Park, Ste 5500
Woburn, MA 01801
Attention: Dan White
Project Location: MBTA - Cabot Wash Alley
Sampled By: DPW

Telephone: (781) 932-9400
Project # 60.07443.1003
Client PO # None

DATA DELIVERY (check one):
☐ FAX ☒ EMAIL ☒ WEBSITE CLIENT
Fax # : —
Email: Daniel.White@ATCAssociates.com
Format: ☒ EXCEL ☒ PDF ☐ GIS KEY
☐ OTHER

Proposal Provided? (For Billing purposes)
☐ yes _____ proposal date

State Form Required?
☒ yes ☐ no

ANALYSIS REQUESTED

Field ID	Sample Description	Lab #	Date Sampled: Start Date/Time	Stop Date/Time	Composite	Grab	*Matrix Code	Conc. Code	TO-10A/680 PCB Homologs										# of containers / **Preservation / ~Cont.Code
	WA-IA-Platform #1	01	10/19/09 1114	10/19/09 1314	X		A	C-M	X										
	WA-IA-Platform #2	02	10/19/09 1114	↓	↓		↓	↓	↓										
	WA-IA-Platform-Ambient	03	↓	↓	↓		↓	↓	↓										
	WA-IA-Platform #B	04	↓	↓	↓		↓	↓	↓										

~Cont. Code:
A=amber glass
G=glass
P=plastic
ST=sterile
V=vial
S=summa can
T=tedlar bag
O=Other PUF-Low-flow

Client Comments:
Total Pumping Time =2 hrs
Flow Rate =2 L/min

Laboratory Comments:

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in **Matrix/Conc.** Code Box:
H - High; **M** - Medium; **L** - Low; **C** - Clean; **U** - Unknown

Relinquished by: (signature) [signature]	Date/Time: 10/21/09 1200
Received by: (signature) [signature]	Date/Time: 1200 10-21-09
Relinquished by: (signature) [signature]	Date/Time: 7:45 pm 10-21-09
Received by: (signature) [signature] 3-8	Date/Time: 1945 10/21/09

Turnaround **
☐ 7-Day
☐ 10-Day
☒ Other Std.

RUSH *
☐ *24-Hr ☐ *48-Hr
☐ *72-Hr ☐ *4-Day
* Require lab approval

Detection Limit Requirements
Regulations? TSCA
Data Enhancement Project/RCP? ☐ Y ☒ N
Special Requirements or DL's: Minimum 0.1 µg/m³

***Matrix Code:**
GW= groundwater
WW= wastewater
DW= drinking water
A = air
S = soil/solid
SL = sludge
O = other

****Preservation Codes:**
I = Iced
X = Na hydroxide
H = HCL
T = Na thiosulfate
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium bisulfate
O = Other

** TURNAROUND TIME STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED BY OUR CLIENT.

www.contestlabs.com

con-test® ANALYTICAL LABORATORY

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

Sample Receipt Checklist

CLIENT NAME: ATC **RECEIVED BY:** CEC **DATE:** 10/21/09

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

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

Temperature °C by Temp blank 3.0 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 samples "On Hold"? Yes No Stored where: _____

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

Who was notified _____ Date _____ Time _____

8) Location where samples are stored: 14

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

Client Signature: _____

Containers sent in to Con-Test

	# of containers		# of containers
1 Liter Amber		8 oz clear jar	
500 mL Amber		4 oz clear jar	
250 mL Amber (8oz amber)		2 oz clear jar	
1 Liter Plastic		Other glass jar	
500 mL Plastic		Plastic Bag / Ziploc	
250 mL plastic		Air Cassette	
40 mL Vial - type listed below		Brass Sleeves	
Colisure / bacteria bottle		Tubes	4
Dissolved Oxygen bottle		Summa Cans	
Flashpoint bottle		Regulators	
Encore		Other	

Laboratory Comments:

40 mL vials: # HCl _____ # Methanol _____

Bisulfate _____ # DI Water _____ **Time and Date Frozen:** _____

Thiosulfate _____ Unpreserved _____

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

ALPHA ANALYTICAL

ANALYTICAL REPORT

Lab Number:	L0915175
Client:	Con-Test Laboratory PO Box 591 39 Spruce Street East Longmeadow, MA 01028
ATTN:	Andrea Anderson
Project Name:	Not Specified
Project Number:	09J0469
Report Date:	10/30/09

Certifications & Approvals: MA (M-MA030), NY (11627), CT (PH-0141), NH (2206), NJ (MA015), RI (LAO00299), ME (MA0030), PA (Registration #68-02089), LA NELAC (03090), FL NELAC (E87814), US Army Corps of Engineers.

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: Not Specified
Project Number: 09J0469

Lab Number: L0915175
Report Date: 10/30/09

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L0915175-01	09J0469-01	Not Specified	10/19/09 13:14
L0915175-02	09J0469-02	Not Specified	10/19/09 13:14
L0915175-03	09J0469-03	Not Specified	10/19/09 13:14
L0915175-04	09J0469-04	Not Specified	10/19/09 13:14

Project Name: Not Specified
Project Number: 09J0469

Lab Number: L0915175
Report Date: 10/30/09

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

For additional information, please contact Client Services at 800-624-9220.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

Title: Technical Director/Representative

Date: 10/30/09

ORGANICS

SEMIVOLATILES

Project Name: Not Specified
Project Number: 09J0469

Lab Number: L0915175
Report Date: 10/30/09

SAMPLE RESULTS

Lab ID:	L0915175-01	Date Collected:	10/19/09 13:14
Client ID:	09J0469-01	Date Received:	10/23/09
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air Cartridge	Extraction Method:	EPA 3540C
Analytical Method:	1,8270C-SIM	Extraction Date:	10/26/09 14:48
Analytical Date:	10/27/09 19:52		
Analyst:	JS		

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Homologs by GC/MS-SIM - Mansfield Lab					
Monochlorobiphenyls	ND		ng/cart	10.0	1
Dichlorobiphenyls	ND		ng/cart	10.0	1
Trichlorobiphenyls	ND		ng/cart	10.0	1
Tetrachlorobiphenyls	ND		ng/cart	10.0	1
Pentachlorobiphenyls	ND		ng/cart	10.0	1
Hexachlorobiphenyls	ND		ng/cart	10.0	1
Heptachlorobiphenyls	ND		ng/cart	10.0	1
Octachlorobiphenyls	ND		ng/cart	10.0	1
Nonachlorobiphenyls	ND		ng/cart	10.0	1
Decachlorobiphenyl	ND		ng/cart	10.0	1
Total Homologs	ND		ng/cart	10.0	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	71		50-125
Cl8-BZ#202-C13	70		50-125

Project Name:	Not Specified	**Lab Number:**	L0915175
Project Number:	09J0469	**Report Date:**	10/30/09

SAMPLE RESULTS

Lab ID:	L0915175-02	Date Collected:	10/19/09 13:14
Client ID:	09J0469-02	Date Received:	10/23/09
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air Cartridge	Extraction Method:	EPA 3540C
Analytical Method:	1,8270C-SIM	Extraction Date:	10/26/09 14:48
Analytical Date:	10/28/09 11:17		
Analyst:	JS		

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Homologs by GC/MS-SIM - Mansfield Lab					
Monochlorobiphenyls	ND		ng/cart	10.0	1
Dichlorobiphenyls	ND		ng/cart	10.0	1
Trichlorobiphenyls	ND		ng/cart	10.0	1
Tetrachlorobiphenyls	ND		ng/cart	10.0	1
Pentachlorobiphenyls	ND		ng/cart	10.0	1
Hexachlorobiphenyls	ND		ng/cart	10.0	1
Heptachlorobiphenyls	ND		ng/cart	10.0	1
Octachlorobiphenyls	ND		ng/cart	10.0	1
Nonachlorobiphenyls	ND		ng/cart	10.0	1
Decachlorobiphenyl	ND		ng/cart	10.0	1
Total Homologs	ND		ng/cart	10.0	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	79		50-125
Cl8-BZ#202-C13	78		50-125

Project Name: Not Specified
Project Number: 09J0469

Lab Number: L0915175
Report Date: 10/30/09

SAMPLE RESULTS

Lab ID:	L0915175-03	Date Collected:	10/19/09 13:14
Client ID:	09J0469-03	Date Received:	10/23/09
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air Cartridge	Extraction Method:	EPA 3540C
Analytical Method:	1,8270C-SIM	Extraction Date:	10/26/09 14:48
Analytical Date:	10/28/09 12:11		
Analyst:	JS		

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Homologs by GC/MS-SIM - Mansfield Lab					
Monochlorobiphenyls	ND		ng/cart	10.0	1
Dichlorobiphenyls	ND		ng/cart	10.0	1
Trichlorobiphenyls	ND		ng/cart	10.0	1
Tetrachlorobiphenyls	10.8		ng/cart	10.0	1
Pentachlorobiphenyls	14.8		ng/cart	10.0	1
Hexachlorobiphenyls	ND		ng/cart	10.0	1
Heptachlorobiphenyls	ND		ng/cart	10.0	1
Octachlorobiphenyls	ND		ng/cart	10.0	1
Nonachlorobiphenyls	ND		ng/cart	10.0	1
Decachlorobiphenyl	ND		ng/cart	10.0	1
Total Homologs	25.6		ng/cart	10.0	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	80		50-125
Cl8-BZ#202-C13	80		50-125

Project Name: Not Specified
Project Number: 09J0469

Lab Number: L0915175
Report Date: 10/30/09

SAMPLE RESULTS

Lab ID:	L0915175-04	Date Collected:	10/19/09 13:14
Client ID:	09J0469-04	Date Received:	10/23/09
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air Cartridge	Extraction Method:	EPA 3540C
Analytical Method:	1,8270C-SIM	Extraction Date:	10/26/09 14:48
Analytical Date:	10/28/09 13:06		
Analyst:	JS		

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Homologs by GC/MS-SIM - Mansfield Lab					
Monochlorobiphenyls	ND		ng/cart	10.0	1
Dichlorobiphenyls	ND		ng/cart	10.0	1
Trichlorobiphenyls	ND		ng/cart	10.0	1
Tetrachlorobiphenyls	ND		ng/cart	10.0	1
Pentachlorobiphenyls	ND		ng/cart	10.0	1
Hexachlorobiphenyls	ND		ng/cart	10.0	1
Heptachlorobiphenyls	ND		ng/cart	10.0	1
Octachlorobiphenyls	ND		ng/cart	10.0	1
Nonachlorobiphenyls	ND		ng/cart	10.0	1
Decachlorobiphenyl	ND		ng/cart	10.0	1
Total Homologs	ND		ng/cart	10.0	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	80		50-125
Cl8-BZ#202-C13	80		50-125

Project Name: Not Specified
Project Number: 09J0469

Lab Number: L0915175
Report Date: 10/30/09

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 10/27/09 17:10
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 10/26/09 14:48

Parameter	Result	Qualifier	Units	RDL
PCB Homologs by GC/MS-SIM - Mansfield Lab for sample(s): 01-04 Batch: WG386011-1				
Monochlorobiphenyls	ND		ng/cart	10.0
Dichlorobiphenyls	ND		ng/cart	10.0
Trichlorobiphenyls	ND		ng/cart	10.0
Tetrachlorobiphenyls	ND		ng/cart	10.0
Pentachlorobiphenyls	ND		ng/cart	10.0
Hexachlorobiphenyls	ND		ng/cart	10.0
Heptachlorobiphenyls	ND		ng/cart	10.0
Octachlorobiphenyls	ND		ng/cart	10.0
Nonachlorobiphenyls	ND		ng/cart	10.0
Decachlorobiphenyl	ND		ng/cart	10.0
Total Homologs	ND		ng/cart	10.0

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	93		50-125
Cl8-BZ#202-C13	84		50-125

Lab Control Sample Analysis
Batch Quality Control

Project Name: Not Specified
Project Number: 09J0469

Lab Number: L0915175
Report Date: 10/30/09

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Homologs by GC/MS-SIM - Mansfield Lab Associated sample(s): 01-04 Batch: WG386011-2								
Cl1-BZ#1	59		-		40-140	-		30
CL1-BZ#3	62		-		40-140	-		30
Cl2-BZ#4/#10	70		-		40-140	-		30
Cl2-BZ#5/#8	58		-		40-140	-		30
Cl3-BZ#19	66		-		40-140	-		30
Cl3-BZ#18	61		-		40-140	-		30
Cl2-BZ#15	58		-		40-140	-		30
Cl4-BZ#54	67		-		40-140	-		30
Cl3-BZ#29	60		-		40-140	-		30
Cl4-BZ#50	90		-		40-140	-		30
Cl3-BZ#28/#31	72		-		40-140	-		30
Cl4-BZ#45	80		-		40-140	-		30
Cl4-BZ#52	70		-		40-140	-		30
Cl4-BZ#43/#49	75		-		40-140	-		30
Cl4-Bz#47/#48	69		-		40-140	-		30
Cl5-BZ#104	68		-		40-140	-		30
Cl4-BZ#44	70		-		40-140	-		30
Cl3-BZ#37	60		-		40-140	-		30
Cl4-BZ#74	68		-		40-140	-		30
Cl6-BZ#155	80		-		40-140	-		30
Cl4-BZ#70	66		-		40-140	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: Not Specified
Project Number: 09J0469

Lab Number: L0915175
Report Date: 10/30/09

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Homologs by GC/MS-SIM - Mansfield Lab Associated sample(s): 01-04 Batch: WG386011-2								
Cl4-BZ#66	67		-		40-140	-		30
Cl5-BZ#95	62		-		40-140	-		30
Cl4-BZ#56/#60	63		-		40-140	-		30
Cl5-BZ#101/#84	74		-		40-140	-		30
Cl5-BZ#99	69		-		40-140	-		30
Cl6-BZ#154	72		-		40-140	-		30
Cl5-BZ#110	61		-		40-140	-		30
Cl4-BZ#81	65		-		40-140	-		30
Cl6-BZ#151	70		-		40-140	-		30
Cl4-BZ#77	66		-		40-140	-		30
Cl5-BZ#123	65		-		40-140	-		30
Cl6-BZ#149	74		-		40-140	-		30
Cl7-BZ#188	70		-		40-140	-		30
Cl5-BZ#118	68		-		40-140	-		30
Cl6-BZ#146	75		-		40-140	-		30
Cl5-BZ#114	68		-		40-140	-		30
Cl6-BZ#153	73		-		40-140	-		30
Cl6-BZ#138/#163	63		-		40-140	-		30
Cl6-BZ#158	78		-		40-140	-		30
Cl5-BZ#105	62		-		40-140	-		30
Cl7-BZ#182/#187	81		-		40-140	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: Not Specified
Project Number: 09J0469

Lab Number: L0915175
Report Date: 10/30/09

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Homologs by GC/MS-SIM - Mansfield Lab Associated sample(s): 01-04 Batch: WG386011-2								
Cl7-BZ#183	81		-		40-140	-		30
Cl6-BZ#167/#128	74		-		40-140	-		30
Cl5-BZ#126	54		-		40-140	-		30
Cl7-BZ#174	82		-		40-140	-		30
Cl8-BZ#202	76		-		40-140	-		30
Cl7-BZ#177	79		-		40-140	-		30
Cl6-BZ#156	71		-		40-140	-		30
Cl6-BZ#157	72		-		40-140	-		30
Cl7-BZ#180	81		-		40-140	-		30
Cl7-BZ#170/#190	64		-		40-140	-		30
Cl8-BZ#201	79		-		40-140	-		30
Cl6-BZ#169	77		-		40-140	-		30
Cl9-BZ#208	81		-		40-140	-		30
Cl7-BZ#189	82		-		40-140	-		30
Cl8-BZ#195	75		-		40-140	-		30
Cl8-BZ#194	79		-		40-140	-		30
Cl8-BZ#205	76		-		40-140	-		30
Cl9-BZ#206	77		-		40-140	-		30
Cl10-BZ#209	77		-		40-140	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: Not Specified
Project Number: 09J0469

Lab Number: L0915175
Report Date: 10/30/09

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits

PCB Homologs by GC/MS-SIM - Mansfield Lab Associated sample(s): 01-04 Batch: WG386011-2

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Cl3-BZ#19-C13	76				50-125
Cl8-BZ#202-C13	72				50-125

Project Name: Not Specified
Project Number: 09J0469

Lab Number: L0915175
Report Date: 10/30/09

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
N/A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis
L0915175-01A	PUF Air Cartridge - High or Low	N/A	N/A		Y	Absent	A2-PCBHOMS-8270SIM(14)
L0915175-02A	PUF Air Cartridge - High or Low	N/A	N/A		Y	Absent	A2-PCBHOMS-8270SIM(14)
L0915175-03A	PUF Air Cartridge - High or Low	N/A	N/A		Y	Absent	A2-PCBHOMS-8270SIM(14)
L0915175-04A	PUF Air Cartridge - High or Low	N/A	N/A		Y	Absent	A2-PCBHOMS-8270SIM(14)

*Hold days indicated by values in parentheses

Project Name:	Not Specified	**Lab Number:**	L0915175
Project Number:	09J0469	**Report Date:**	10/30/09

GLOSSARY

Acronyms

EPA · Environmental Protection Agency.

LCS · Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD · Laboratory Control Sample Duplicate: Refer to LCS.

MS · Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

MSD · Matrix Spike Sample Duplicate: Refer to MS.

NA · Not Applicable.

NC · Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

ND · Not detected at the reported detection limit for the sample.

NI · Not Ignitable.

RDL · Reported Detection Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD · Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A · Spectra identified as "Aldol Condensation Product".

B · The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank.

D · Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E · Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

H · The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

P · The RPD between the results for the two columns exceeds the method-specified criteria.

Q · The quality control sample exceeds the associated acceptance criteria. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RDL. (Metals only.)

R · Analytical results are from sample re-analysis.

RE · Analytical results are from sample re-extraction.

J · Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

Report Format: Data Usability Report

Project Name: Not Specified
Project Number: 09J0469

Lab Number: L0915175
Report Date: 10/30/09

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Woods Hole Labs shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Woods Hole Labs.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certificate/Approval Program Summary

Last revised June 17, 2009 – Mansfield Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0141.

Wastewater/Non-Potable Water (Inorganic Parameters: pH, Turbidity, Conductivity, Alkalinity, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Vanadium, Zinc, Total Residue (Solids), Total Suspended Solids (non-filterable), Total Cyanide. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Acid Extractables, Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, PAHs, Haloethers, Chlorinated Hydrocarbons, Volatile Organics.)

Solid Waste/Soil (Inorganic Parameters: pH, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Organic Carbon, Total Cyanide, Corrosivity, TCLP 1311. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Volatile Organics, Acid Extractables, Benzidines, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Florida Department of Health Certificate/Lab ID: E87814. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: SM2320B, 4500NH3-F, EPA 120.1, SM2510B, 2340B, EPA 245.1, EPA 150.1, EPA 160.2, SM2540D, EPA 335.2, 420.1, SM2540G, EPA 180.1. Organic Parameters: EPA 625, 608.)

Solid & Chemical Materials (Inorganic Parameters: 6020, 7470, 7471, 9045, 9014. Organic Parameters: EPA 8260, 8270, 8082, 8081.)

Air & Emissions (EPA TO-15.)

Louisiana Department of Environmental Quality Certificate/Lab ID: 03090. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: EPA 120.1, 150.1, 160.2, 180.1, 200.8, 245.1, 310.1, 335.2, 608, 625, 1631, 3010, 3015, 3020, 6020, 9010, 9014, 9040, SM2320B, 2510B, 2540D, 2540G, 4500CN-E, 4500H-B, Organic Parameters: EPA 3510, 3580, 3630, 3640, 3660, 3665, 5030, 8015 (mod), 3570, 8081, 8082, 8260, 8270,)

Solid & Chemical Materials (Inorganic Parameters: 6020, 7196, 7470, 7471, 7474, 9010, 9014, 9040, 9045, 9060. Organic Parameters: EPA 8015 (mod), EPA 3570, 1311, 3050, 3051, 3060, 3580, 3630, 3640, 3660, 3665, 5035, 8081, 8082, 8260, 8270.)

Biological Tissue (Inorganic Parameters: EPA 6020. Organic Parameters: EPA 3570, 3510, 3610, 3630, 3640, 8270.)

Maine Department of Human Services Certificate/Lab ID: MA0030.

Wastewater (Inorganic Parameters: EPA 120.1, 300.0, SM 2320, 2510B, 2540C, 2540D, EPA 245.1. Organic Parameters: 608, 624.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA030.

Non-Potable Water (Inorganic Parameters: SM4500H+B. Organic Parameters: EPA 624.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 2206. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: EPA 200.8, 245.1, 1631E, 120.1, 150.1, 180.1, 310.1, 335.2, 160.2, SM2540D, 2540G, 4500CN-E, 4500H+B, 2320B, 2510B. Organic Parameters: EPA 625, 608.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA015. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: SW-846 1312, 3010, 3020A, 3015, 6020, SM2320B, EPA 200.8, SM2540C, 2540D, 2540G, EPA 120.1, SM2510B, EPA 180.1, 245.1, 1631E, SW-846 9040B, 6020, 9010B, 9014 Organic Parameters: EPA 608, 625, SW-846 3510C, 3580A, 5030B, 3035L, 5035H, 3630C, 3640A, 3660B, 3665A, 8081A, 8082 8260B, 8270C)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6020, 9010B, 9014, 1311, 1312, 3050B, 3051, 3060A, 7196A, 7470A, 7471A, 9045C, 9060. Organic Parameters: SW-846 3580A, 5030B, 3035L, 5035H, 3630C, 3640A, 3660B, 3665A, 8081A, 8082, 8260B, 8270C, 3570, 8015B.)

Atmospheric Organic Parameters (EPA TO-15)

Biological Tissue (Inorganic Parameters: SW-846 6020 Organic Parameters: SW-846 8270C, 3510C, 3570, 3610B, 3630C, 3640A)

New York Department of Health Certificate/Lab ID: 11627. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: EPA 310.1, SM2320B, EPA 365.2, 160.1, EPA 160.2, SM2540D, EPA 200.8, 6020, 1631E, 245.1, 335.2, 9014, 150.1, 9040B, 120.1, SM2510B, EPA 376.2, 180.1, 9010B. Organic Parameters: EPA 624, 8260B, 8270C, 608, 8081A, 625, 8082, 3510C, 3511, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 9040B, 9045C, SW-846 Ch7 Sec 7.3, EPA 6020, 7196A, 7471A, 7474, 9014, 9040B, 9045C, 9010B. Organic Parameters: EPA 8260B, 8270C, 8081A, DRO 8015B, 8082, 1311, 3050B, 3580, 3050B, 3035, 3570, 3051, 5035, 5030B.)

Air & Emissions (EPA TO-15.)

Pennsylvania Department of Environmental Protection Certificate/Lab ID: 68-02089. ***NELAP Accredited.***

Non-Potable Water (Organic Parameters: EPA 5030B, EPA 8260)

Rhode Island Department of Health Certificate/Lab ID: LAO00299. ***NELAP Accredited via LA-DEQ.***

Refer to MA-DEP Certificate for Non-Potable Water.

Refer to LA-DEQ Certificate for Non-Potable Water.

Texas Commission of Environmental Quality Certificate/Lab ID: T104704419-08-TX. ***NELAP Accredited.***

Solid & Chemical Materials (Inorganic Parameters: EPA 6020, 7471. Organic Parameters: EPA 8015, 8270.)

U.S. Army Corps of Engineers

10300917:31

con-test® ANALYTICAL LABORATORY

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

CHAIN OF CUSTODY RECORD

39 SPRUCE ST, 2ND FLOOR
EAST LONGMEADOW, MA 01028

L0915175

Company: Con-Test Analytical Lab
Address: 39 Spruce St, East Longmeadow, MA. 01028
Attn: Andrea Anderson
Phone: (413) 525-2332
Fax: (413) 525-6405
Attention:

Project Location:
Sampled By:

Proposal Provided? (For Billing purposes) ☐ yes _____ proposal date

State Form Required? ☐ yes ☐ no

Telephone:( )
Project # 09J0469
Client PO #

DATA DELIVERY (check one):
☐FAX ☒EMAIL ☐WEBSITE CLIENT
Fax # :
Email: anderson@contestlabs.com
Format: ☐ EXCEL ☐ PDF ☐ GIS KEY
☐ OTHER

ANALYSIS REQUESTED

	Field ID	Sample Description	Lab #	Date Sampled Start Date/Time	Stop Date/Time	Composite	Grab	*Matrix Code	Conc. Code	TD IDA 1680 PCB Homologs	# of containers	**Preservation	~Cont.Code
1	1	09J0469-01		10/19/09 11:14	13:14	✓		A		✓			
2	2	02		↓	↓	↓		A		✓			
3	3	03		↓	↓	↓		A		✓			
4	4	04		↓	↓	↓		A		✓			

~Cont.Code:
A=amber glass
G=glass
P=plastic
ST=sterile
V=vial
S=summa can
T=tedlar bag
O=Other

Client Comments:
Total Pumping Time = 2 HRS
Flow Rate: = 2 L/Min.

Laboratory Comments:

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in **Matrix/Conc.** Code Box:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature)	Date/Time: 10-23-09 1102
Received by: (signature)	Date/Time: 10/23/09 1102
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Turnaround **
☐ 7-Day
☐ 10-Day
☒ Other STD
RUSH *
☐ *24-Hr ☐ *48-Hr
☐ *72-Hr ☐ *4-Day
* Require lab approval

Detection Limit Requirements
Regulations? TSCA
Data Enhancement Project/RCP? ☐ Y ☒ N
Special Requirements or DL's: Minimum 0.1 ug/m3

***Matrix Code:**
GW= groundwater
WW= wastewater
DW= drinking water
A = air
S = soil/solid
SL = sludge
O = other

****Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium bisulfate
O = Other
X = Na hydroxide
T = Na thiosulfate

** TURNAROUND TIME STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED BY OUR CLIENT.

AIHA, NELAC & WBE/DBE Certified

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

February 16, 2010

Dan White
ATC Associates - Woburn
600 W Cummings Park, Suite 6500
Woburn, MA 01801

Project Location: MBTA-Cabot Yard
Client Job Number:
Project Number: 060.07443.1028
Laboratory Work Order Number: 10A0457

Enclosed are results of analyses for samples received by the laboratory on January 25, 2010. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Christopher J. Hall
Project Manager

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

ATC Associates - Woburn
600 W Cummings Park, Suite 6500
Woburn, MA 01801
ATTN: Dan White

REPORT DATE: 2/16/2010

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 060.07443.1028

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 10A0457

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

PROJECT LOCATION: MBTA-Cabot Yard

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
Track8-#5 NIOSH	10A0457-01	Air		NIOSH 0500	
Track8-#6-PMI	10A0457-02	Air		40CFR50 App. M	

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CASE NARRATIVE SUMMARY

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

REVISED REPORT: 02.16.10 - Updated RL for Dust, Total (mg) by NIOH 0500

REVISED REPORT:
This report replaces the report issued on February 9, 2010. The RL for Monochlorobiphenyls has been corrected on L1001169-03 (TRACK 8 - #1 - NO FILTER). The narrative section for PCB Aroclors has also been amended.

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 individuuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Christopher J. Hall
Project Chemist Supervisor

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

ANALYTICAL RESULTS

Project Location: MBTA-Cabot Yard
Date Received: 1/25/2010
Field Sample #: Track8-#5 NIOSH
Sample ID: 10A0457-01
Sample Matrix: Air
Sampled: 1/19/2010 10:48

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:

Work Order: 10A0457

NIOSH 0500

Analyte	mg Results	RL	Flag	Dilution	Date/Time Analyzed	Analyst
Dust	0.27	0.050		1	2/3/10 12:10	SBP

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ANALYTICAL RESULTS

Project Location: MBTA-Cabot Yard
Date Received: 1/25/2010
Field Sample #: Track8-#6-PMI
Sample ID: 10A0457-02
Sample Matrix: Air
Sampled: 1/19/2010 10:48

Sample Description/Location:
Sub Description/Location:

Flow Controller ID:
Sample Type:
Air Volume L: 4320

Work Order: 10A0457

40CFR50 App. M

Analyte	Total µg Results	Total µg RL	Flag	ug/m3 Results	ug/m3 RL	Dilution	Date/Time Analyzed	Analyst
Particulate Matter PM10	480	50		110	12	1	2/2/10 11:51	FWD

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Sample Extraction Data

Prep Method: 40CFR50 App. M-40CFR50 App. M

Lab Number [Field ID]	Batch	Initial [g]	Final [g]	Date
10A0457-02 [Track8-#6-PMI]	B009960	0.066894	0.067368	02/02/10

NIOSH 0500

Lab Number [Field ID]	Batch	Initial [mL]	Date
10A0457-01 [Track8-#5 NIOSH]	B010027	119.54	02/03/10

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QUALITY CONTROL

Miscellaneous Air Analyses - Quality Control

Analyte	mg Results	mg RL	ug/m3 Results	ug/m3 RL	Spike Level mg	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch B010027 - NO PREP											
Blank (B010027-BLK1)					Prepared & Analyzed: 02/03/10						
Dust	ND	2.0									

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits estabished for difficult compound.
‡	Wide RPD limits estabished 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.

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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
NIOSH 0500 in Air	
Dust	AIHA

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

Code	Description	Number	Expires
AIHA	American Industrial Hygiene Association	100033	01/1/2012
MA	Massachusetts DEP	M-MA100	06/30/2010
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2011
NY	New York State Department of Health	10899 NELAP	04/1/2010
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2010
RI	Rhode Island Department of Health	LAO00112	12/30/2010
NC	North Carolina Div. of Water Quality	652	12/31/2010
NJ	New Jersey DEP	MA007 NELAP	06/30/2010
FL	Florida Department of Health	E871027 NELAP	06/30/2010
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2010
WA	State of Washington Department of Ecology	C2065	03/23/2010

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 ST, 2ND FLOOR
EAST LONGMEADOW, MA 01028

Page 1 of 1

Company Name: ATC Associates
Address: 600 W. Cummings Park, Ste 5500
Woburn, MA 01801
Attention: Dan White
Project Location: MBTA - Cabot Yard
Sampled By: VV

Telephone: (781) 932-9400
Project # 60.07443.1028
Client PO # —

DATA DELIVERY (check one):
☐ FAX ☒ EMAIL ☒ WEBSITE CLIENT
Fax # :
Email: Daniel.White@ATCAssociates.com
Format: ☒ EXCEL ☒ PDF ☐ GIS KEY
☐ OTHER

Proposal Provided? (For Billing purposes) ☒ yes 12/14/09 proposal date

State Form Required? ☐ yes ☒ no

ANALYSIS REQUESTED

Field ID	Sample Description	Lab # 10A0457	Date Sampled Start Date/Time	Date Sampled Stop Date/Time	Composite (24-hr)	Grab	*Matrix Code	Conc. Code	NIOSH 0500 Total Particulate	PMI PM-10												
									1	1												
									I	I												
									O	O												
	Track 8 - #5 - NIOSH	-01	1/19/10 1048	1/20/10 1048	X		A	L-M	X													
	Track 8 - #6 - PMI	-02	↓	↓	X		↓	↓		X												

ID 1485

PMI #2

PMI #1 - Do not analyze

# of containers
**Preservation
~Cont.Code

~Cont. Code:
A=amber glass
G=glass
P=plastic
ST=sterile
V=vial
S=summa can
T=tedlar bag
O=Other

Client Comments

#5 (NIOSH) total flow = 2880 L (2 L/min)

#6 (PMI) total flow = 4,320 L (3 L/min)

Laboratory Comments:

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in **Matrix/Conc.** Code Box:
H - High; **M** - Medium; **L** - Low; **C** - Clean; **U** - Unknown

Relinquished by: (signature) [signature]	Date/Time: 1/21/10 1020
Received by: (signature) [signature]	Date/Time: 1020 1-21-10
Relinquished by: (signature) [signature]	Date/Time: 6:00 1-21-10
Received by: (signature) [signature] Temp 5°C	Date/Time: 1/21/10 18:00

Turnaround **
☐ 7-Day
☐ 10-Day
☒ Other Std.

RUSH *
☐ *24-Hr ☐ *48-Hr
☐ *72-Hr ☐ *4-Day
* Require lab approval

Detection Limit Requirements
Regulations? EPA TSCA
Data Enhancement Project/RCP? ☐ Y ☒ N
Special Requirements or DL's: As Low as possible

***Matrix Code:**
GW= groundwater
WW= wastewater
DW= drinking water
A = air
S = soil/solid
SL = sludge
O = other

****Preservation Codes:**
I = Iced
X = Na hydroxide
H = HCL
T = Na thiosulfate
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium bisulfate
O = Other

** TURNAROUND TIME STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED BY ONE QUESTION

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con-test® ANALYTICAL LABORATORY

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

Sample Receipt Checklist

CLIENT NAME: ATC woburn RECEIVED BY: KA DATE: 1/21/10

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

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

Temperature °C by Temp blank _____ Temperature °C by Temp gun 5°C

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

Who was notified _____ Date _____ Time _____

6) Are there any samples "On Hold"? Yes No Stored where: _____

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

Who was notified _____ Date _____ Time _____

8) Location where samples are stored: 19

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

Client Signature: _____

Containers sent in to Con-Test

	# of containers		# of containers
1 Liter Amber		8 oz clear jar	
500 mL Amber		4 oz clear jar	
250 mL Amber (8oz amber)		2 oz clear jar	
1 Liter Plastic		Other glass jar	
500 mL Plastic		Plastic Bag / Ziploc	1 / Air media
250 mL plastic		Air Cassette	
40 mL Vial - type listed below		Brass Sleeves	
Colisure / bacteria bottle		Tubes	
Dissolved Oxygen bottle		Summa Cans	
Flashpoint bottle		Regulators	
Encore		Other	

Laboratory Comments:

40 mL vials: # HCl _____ # Methanol _____

Bisulfate _____ # DI Water _____ **Time and Date Frozen:** _____

Thiosulfate _____ Unpreserved _____

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

ANALYTICAL REPORT

Lab Number:	L1001169
Client:	Con-Test Laboratory PO Box 591 39 Spruce Street East Longmeadow, MA 01028
ATTN:	Andrea Anderson
Project Name:	Not Specified
Project Number:	Not Specified
Report Date:	02/11/10

Certifications & Approvals: MA (M-MA086), NY NELAC (11148), CT (PH-0574), NH (2003), NJ (MA935), RI (LAO00065), ME (MA0086), PA (Registration #68-03671), USDA (Permit #S-72578), US Army Corps of Engineers, Naval FESC.

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1001169
Report Date: 02/11/10

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1001169-01	TRACK 8 - #2 - FILTER	Not Specified	01/19/10 10:48
L1001169-02	TRACK 8 - #4 - FILTER	Not Specified	01/19/10 10:48
L1001169-03	TRACK 8 - #1 - NO FILTER	Not Specified	01/19/10 10:48

Project Name: Not Specified
Project Number: Not Specified
Lab Number: L1001169
Report Date: 02/11/10

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

For additional information, please contact Client Services at 800-624-9220.

Report Submission

This report replaces the report issued on February 9, 2010. The RL for Monochlorobiphenyls has been corrected on L1001169-03 (TRACK 8 - #1 - NO FILTER). The narrative section for PCB Aroclors has also been amended.

Sample Receipt

The samples were received on ice; however, the temperature was not noted upon receipt.

Project Name:	Not Specified	**Lab Number:**	L1001169
Project Number:	Not Specified	**Report Date:**	02/11/10

Case Narrative (continued)

For samples L1001169-01 and -02 the filter was removed prior to extraction.

PCB Homologs and Congeners

The WG398182-2 LCS recoveries are below the individual acceptance criteria for Cl3-BZ#37 (37%) and Cl5-BZ#126 (33%), but within the overall method allowances; however, re-extraction could not be performed due to the sample matrix. The results of the associated sample(s) are reported; however, all results are considered to have a potentially low bias for these compounds.

PCB Aroclors

Per client request, sample Track 8 - #2 - Filter was analyzed via SW-846 Method 8082. The following Aroclors were analyzed for: 1016, 1221, 1232, 1242, 1248, 1254, 1260, 1262 and 1268. The RL for the each Aroclor is 20 ng/cartridge.

The Aroclors detected in the Track 8 - #2 - Filter sample were Aroclor 1242 at a concentration of 44.3 ng/cartridge and Aroclor 1254 at a concentration of 38.8 ng/cartridge.

The LCS recoveries are below the acceptance criteria for Aroclor 1016 (26%) and Aroclor 1260 (32%); however, re-extraction could not be performed due to the sample matrix.

It should also be noted that since the laboratory does not routinely report Aroclor concentration for PUF cartridges, no method detection limit study (MDL) has been performed for PUF cartridges via method 8082.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kathleen M. O'Brien

Title: Technical Director/Representative Date: 02/11/10

ORGANICS

PCBS

Project Name: Not Specified **Lab Number:** L1001169

Project Number: Not Specified **Report Date:** 02/11/10

SAMPLE RESULTS

Lab ID:	L1001169-01	Date Collected:	01/19/10 10:48
Client ID:	TRACK 8 - #2 - FILTER	Date Received:	01/22/10
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air Cartridge	Extraction Method:	EPA 3540C
Analytical Method:	1,8270C-SIM	Extraction Date:	01/26/10 15:20
Analytical Date:	01/30/10 02:53		
Analyst:	JS		

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab					
Cl1-BZ#1	ND		ng/cart	5.00	10
Cl1-BZ#2	ND		ng/cart	5.00	10
CL1-BZ#3	ND		ng/cart	5.00	10
Cl2-BZ#4/#10	ND		ng/cart	10.0	10
Cl2-BZ#9	ND		ng/cart	5.00	10
Cl2-BZ#7	ND		ng/cart	5.00	10
Cl2-BZ#6	ND		ng/cart	5.00	10
Cl2-BZ#5	ND		ng/cart	5.00	10
Cl2-BZ#8	17.9		ng/cart	5.00	10
Cl3-BZ#19	ND		ng/cart	5.00	10
Cl2-BZ#14	ND		ng/cart	5.00	10
Cl3-BZ#30	ND		ng/cart	5.00	10
Cl3-BZ#18	15.9		ng/cart	5.00	10
Cl2-BZ#11	ND		ng/cart	5.00	10
Cl3-BZ#17	5.20		ng/cart	5.00	10
Cl2-BZ#12	ND		ng/cart	5.00	10
Cl3-BZ#27	ND		ng/cart	5.00	10
Cl2-BZ#13	ND		ng/cart	5.00	10
Cl3-BZ#24	ND		ng/cart	5.00	10
Cl3-BZ#16	5.00		ng/cart	5.00	10
Cl3-BZ#32	ND		ng/cart	5.00	10
Cl2-BZ#15	ND		ng/cart	5.00	10
Cl3-BZ#34	ND		ng/cart	5.00	10
Cl3-BZ#23	ND		ng/cart	5.00	10
Cl4-BZ#54	ND		ng/cart	5.00	10
Cl3-BZ#29	ND		ng/cart	5.00	10
Cl4-BZ#50	ND		ng/cart	5.00	10
Cl3-BZ#26	ND		ng/cart	5.00	10
Cl3-BZ#25	ND		ng/cart	5.00	10
Cl4-BZ#53	ND		ng/cart	5.00	10

Project Name: Not Specified **Lab Number:** L1001169

Project Number: Not Specified **Report Date:** 02/11/10

SAMPLE RESULTS

Lab ID:	L1001169-01	Date Collected:	01/19/10 10:48
Client ID:	TRACK 8 - #2 - FILTER	Date Received:	01/22/10
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab					
Cl3-BZ#-31	8.50		ng/cart	5.00	10
Cl3-BZ#28	8.30		ng/cart	5.00	10
Cl3-BZ#33	ND		ng/cart	5.00	10
Cl4-BZ#51	ND		ng/cart	5.00	10
Cl3-BZ#21/#20	ND		ng/cart	10.0	10
Cl4-BZ#45	ND		ng/cart	5.00	10
Cl3-BZ#22	ND		ng/cart	5.00	10
Cl4-BZ#73/#46	ND		ng/cart	10.0	10
Cl4-BZ#69	ND		ng/cart	5.00	10
Cl4-BZ#43	ND		ng/cart	5.00	10
Cl3-BZ#36	ND		ng/cart	5.00	10
Cl4-BZ#52	24.2		ng/cart	5.00	10
Cl4-BZ#48	ND		ng/cart	5.00	10
Cl4-BZ#49	5.80		ng/cart	5.00	10
Cl5-BZ#104	ND		ng/cart	5.00	10
Cl4-BZ#47	ND		ng/cart	5.00	10
Cl4-BZ#65/#75/#62	ND		ng/cart	15.0	10
Cl3-BZ#39	ND		ng/cart	5.00	10
Cl3-BZ#38	ND		ng/cart	5.00	10
Cl4-BZ#44	11.4		ng/cart	5.00	10
Cl4-BZ#59	ND		ng/cart	5.00	10
Cl4-BZ#42	ND		ng/cart	5.00	10
Cl4-BZ#71	ND		ng/cart	5.00	10
Cl3-BZ#35	ND		ng/cart	5.00	10
Cl4-BZ#41	ND		ng/cart	5.00	10
Cl4-BZ#72	ND		ng/cart	5.00	10
Cl5-BZ#96	ND		ng/cart	5.00	10
Cl5-BZ#103	ND		ng/cart	5.00	10
Cl4-BZ#68/#64	ND		ng/cart	10.0	10
Cl4-BZ#40	ND		ng/cart	5.00	10
Cl3-BZ#37	ND		ng/cart	5.00	10
Cl5-BZ#100	ND		ng/cart	5.00	10
Cl5-BZ#94	ND		ng/cart	5.00	10
Cl4-BZ#57	ND		ng/cart	5.00	10
Cl4-BZ#67/#58	ND		ng/cart	10.0	10
Cl5-BZ#102	ND		ng/cart	5.00	10
Cl4-BZ#61	ND		ng/cart	5.00	10

Project Name: Not Specified **Lab Number:** L1001169

Project Number: Not Specified **Report Date:** 02/11/10

SAMPLE RESULTS

Lab ID:	L1001169-01	Date Collected:	01/19/10 10:48
Client ID:	TRACK 8 - #2 - FILTER	Date Received:	01/22/10
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab					
Cl5-BZ#98	ND		ng/cart	5.00	10
Cl4-BZ#76	ND		ng/cart	5.00	10
Cl5-BZ#93	ND		ng/cart	5.00	10
Cl4-BZ#63	ND		ng/cart	5.00	10
Cl5-BZ#121/#95/#88	20.5		ng/cart	15.0	10
Cl4-BZ#74	ND		ng/cart	5.00	10
Cl6-BZ#155	ND		ng/cart	5.00	10
Cl4-BZ#70	6.30		ng/cart	5.00	10
Cl5-BZ#91	ND		ng/cart	5.00	10
Cl4-BZ#66	ND		ng/cart	5.00	10
Cl4-BZ#80	ND		ng/cart	5.00	10
Cl4-BZ#55	ND		ng/cart	5.00	10
Cl5-BZ#92	ND		ng/cart	5.00	10
Cl5-BZ#89/#84	ND		ng/cart	10.0	10
Cl5-BZ#101/#90	19.0		ng/cart	10.0	10
Cl4-BZ#56	ND		ng/cart	5.00	10
Cl5-BZ#113	ND		ng/cart	5.00	10
Cl5-BZ#99	5.50		ng/cart	5.00	10
Cl6-BZ#150	ND		ng/cart	5.00	10
Cl4-BZ#60	ND		ng/cart	5.00	10
Cl6-BZ#152	ND		ng/cart	5.00	10
Cl5-BZ#119	ND		ng/cart	5.00	10
Cl5-BZ#83/#125/#112	ND		ng/cart	15.0	10
Cl5-BZ#86/#109	ND		ng/cart	10.0	10
Cl5-BZ#97	ND		ng/cart	5.00	10
Cl5-BZ#116	ND		ng/cart	5.00	10
Cl5-BZ#87/#111	ND		ng/cart	10.0	10
Cl6-BZ#145	ND		ng/cart	5.00	10
Cl6-BZ#148	ND		ng/cart	5.00	10
Cl4-BZ#79	ND		ng/cart	5.00	10
Cl6-BZ#154	ND		ng/cart	5.00	10
Cl4-BZ#78	ND		ng/cart	5.00	10
Cl6-BZ#136	ND		ng/cart	5.00	10
Cl5-BZ#117	ND		ng/cart	5.00	10
Cl5-BZ#115	ND		ng/cart	5.00	10
Cl5-BZ#85	ND		ng/cart	5.00	10
Cl5-BZ#120	ND		ng/cart	5.00	10

Project Name: Not Specified **Lab Number:** L1001169

Project Number: Not Specified **Report Date:** 02/11/10

SAMPLE RESULTS

Lab ID: L1001169-01 Date Collected: 01/19/10 10:48

Client ID: TRACK 8 - #2 - FILTER Date Received: 01/22/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab					
Cl5-BZ#110	12.4		ng/cart	5.00	10
Cl4-BZ#81	ND		ng/cart	5.00	10
Cl6-BZ#151	5.70		ng/cart	5.00	10
Cl6-BZ#135	ND		ng/cart	5.00	10
Cl5-BZ#82	ND		ng/cart	5.00	10
Cl6-BZ#144	ND		ng/cart	5.00	10
Cl6-BZ#147/#149	ND		ng/cart	10.0	10
Cl4-BZ#77	ND		ng/cart	5.00	10
Cl6-BZ#143/#139	ND		ng/cart	10.0	10
Cl5-BZ#124	ND		ng/cart	5.00	10
Cl6-BZ#140	ND		ng/cart	5.00	10
Cl5-BZ#108	ND		ng/cart	5.00	10
Cl5-BZ#107/#123	ND		ng/cart	10.0	10
Cl7-BZ#188	ND		ng/cart	5.00	10
Cl6-BZ#134	ND		ng/cart	5.00	10
Cl5-BZ#106	ND		ng/cart	5.00	10
Cl6-BZ#133	ND		ng/cart	5.00	10
Cl6-BZ#142	ND		ng/cart	5.00	10
Cl5-BZ#118	ND		ng/cart	5.00	10
Cl6-BZ#131	ND		ng/cart	5.00	10
Cl7-BZ#184	ND		ng/cart	5.00	10
Cl6-BZ#165	ND		ng/cart	5.00	10
Cl6-BZ#146	ND		ng/cart	5.00	10
Cl6-BZ#161	ND		ng/cart	5.00	10
Cl5-BZ#122	ND		ng/cart	5.00	10
Cl6-BZ#168	ND		ng/cart	5.00	10
Cl5-BZ#114	ND		ng/cart	5.00	10
Cl6-BZ#153	8.00		ng/cart	5.00	10
Cl6-BZ#132	ND		ng/cart	5.00	10
Cl7-BZ#179	ND		ng/cart	5.00	10
Cl6-BZ#141	ND		ng/cart	5.00	10
Cl7-BZ#176	ND		ng/cart	5.00	10
Cl5-BZ#105	ND		ng/cart	5.00	10
Cl6-BZ#137	ND		ng/cart	5.00	10
Cl5-BZ#127	ND		ng/cart	5.00	10
Cl7-BZ#186	ND		ng/cart	5.00	10
Cl6-BZ#130/#164	ND		ng/cart	10.0	10

Project Name: Not Specified **Lab Number:** L1001169

Project Number: Not Specified **Report Date:** 02/11/10

SAMPLE RESULTS

Lab ID: L1001169-01 Date Collected: 01/19/10 10:48

Client ID: TRACK 8 - #2 - FILTER Date Received: 01/22/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab					
Cl7-BZ#178	ND		ng/cart	5.00	10
Cl6-BZ#138	ND		ng/cart	5.00	10
Cl6-BZ#163/#160	ND		ng/cart	10.0	10
Cl6-BZ#129/#158	ND		ng/cart	10.0	10
Cl7-BZ#182/#175	ND		ng/cart	10.0	10
Cl7-BZ#187	ND		ng/cart	5.00	10
Cl7-BZ#183	ND		ng/cart	5.00	10
Cl6-BZ#166	ND		ng/cart	5.00	10
Cl6-BZ#159	ND		ng/cart	5.00	10
Cl5-BZ#126	ND		ng/cart	5.00	10
Cl7-BZ#185	ND		ng/cart	5.00	10
Cl6-BZ#162	ND		ng/cart	5.00	10
Cl7-BZ#174	ND		ng/cart	5.00	10
Cl6-BZ#128	ND		ng/cart	5.00	10
Cl6-BZ#167	ND		ng/cart	5.00	10
Cl8-BZ#202	ND		ng/cart	5.00	10
Cl7-BZ#181	ND		ng/cart	5.00	10
Cl7-BZ#177	ND		ng/cart	5.00	10
Cl8-BZ#204/#200-CAL	ND		ng/cart	10.0	10
Cl7-BZ#171	ND		ng/cart	5.00	10
Cl7-BZ#173	ND		ng/cart	5.00	10
Cl8-BZ#197	ND		ng/cart	5.00	10
Cl7-BZ#172	ND		ng/cart	5.00	10
Cl7-BZ#192	ND		ng/cart	5.00	10
Cl6-BZ#156	ND		ng/cart	5.00	10
Cl6-BZ#157	ND		ng/cart	5.00	10
Cl7-BZ#180	ND		ng/cart	5.00	10
Cl7-BZ#193	ND		ng/cart	5.00	10
Cl8-BZ#199	ND		ng/cart	5.00	10
Cl7-BZ#191	ND		ng/cart	5.00	10
Cl8-BZ#198	ND		ng/cart	5.00	10
Cl8-BZ#201	ND		ng/cart	5.00	10
Cl7-BZ#170	ND		ng/cart	5.00	10
Cl7-BZ#190	ND		ng/cart	5.00	10
Cl8-BZ#196	ND		ng/cart	5.00	10
Cl8-BZ#203	ND		ng/cart	5.00	10
Cl6-BZ#169	ND		ng/cart	5.00	10

Project Name: Not Specified **Lab Number:** L1001169

Project Number: Not Specified **Report Date:** 02/11/10

SAMPLE RESULTS

Lab ID:	L1001169-01	Date Collected:	01/19/10 10:48
Client ID:	TRACK 8 - #2 - FILTER	Date Received:	01/22/10
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab					
Cl9-BZ#208	ND		ng/cart	5.00	10
Cl9-BZ#207	ND		ng/cart	5.00	10
Cl7-BZ#189	ND		ng/cart	5.00	10
Cl8-BZ#195	ND		ng/cart	5.00	10
Cl8-BZ#194	ND		ng/cart	5.00	10
Cl8-BZ#205	ND		ng/cart	5.00	10
Cl9-BZ#206	ND		ng/cart	5.00	10
Cl10-BZ#209	ND		ng/cart	5.00	10
Monochlorobiphenyls	ND		ng/cart	5.00	10
Dichlorobiphenyls	32.0		ng/cart	5.00	10
Trichlorobiphenyls	54.0		ng/cart	5.00	10
Tetrachlorobiphenyls	50.6		ng/cart	5.00	10
Pentachlorobiphenyls	86.1		ng/cart	5.00	10
Hexachlorobiphenyls	34.7		ng/cart	5.00	10
Heptachlorobiphenyls	13.1		ng/cart	5.00	10
Octachlorobiphenyls	ND		ng/cart	5.00	10
Nonachlorobiphenyls	ND		ng/cart	5.00	10
Decachlorobiphenyl	ND		ng/cart	5.00	10
Total Homologs	271		ng/cart	5.00	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	65		50-125
Cl8-BZ#202-C13	77		50-125

Project Name: Not Specified **Lab Number:** L1001169

Project Number: Not Specified **Report Date:** 02/11/10

SAMPLE RESULTS

Lab ID:	L1001169-02	Date Collected:	01/19/10 10:48
Client ID:	TRACK 8 - #4 - FILTER	Date Received:	01/22/10
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air Cartridge	Extraction Method:	EPA 3540C
Analytical Method:	1,8270C-SIM	Extraction Date:	01/26/10 15:20
Analytical Date:	01/30/10 04:02		
Analyst:	JS		

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab					
Cl1-BZ#1	ND		ng/cart	5.00	10
Cl1-BZ#2	ND		ng/cart	5.00	10
CL1-BZ#3	ND		ng/cart	5.00	10
Cl2-BZ#4/#10	ND		ng/cart	10.0	10
Cl2-BZ#9	ND		ng/cart	5.00	10
Cl2-BZ#7	ND		ng/cart	5.00	10
Cl2-BZ#6	ND		ng/cart	5.00	10
Cl2-BZ#5	ND		ng/cart	5.00	10
Cl2-BZ#8	ND		ng/cart	5.00	10
Cl3-BZ#19	ND		ng/cart	5.00	10
Cl2-BZ#14	ND		ng/cart	5.00	10
Cl3-BZ#30	ND		ng/cart	5.00	10
Cl3-BZ#18	ND		ng/cart	5.00	10
Cl2-BZ#11	ND		ng/cart	5.00	10
Cl3-BZ#17	ND		ng/cart	5.00	10
Cl2-BZ#12	ND		ng/cart	5.00	10
Cl3-BZ#27	ND		ng/cart	5.00	10
Cl2-BZ#13	ND		ng/cart	5.00	10
Cl3-BZ#24	ND		ng/cart	5.00	10
Cl3-BZ#16	ND		ng/cart	5.00	10
Cl3-BZ#32	ND		ng/cart	5.00	10
Cl2-BZ#15	ND		ng/cart	5.00	10
Cl3-BZ#34	ND		ng/cart	5.00	10
Cl3-BZ#23	ND		ng/cart	5.00	10
Cl4-BZ#54	ND		ng/cart	5.00	10
Cl3-BZ#29	ND		ng/cart	5.00	10
Cl4-BZ#50	ND		ng/cart	5.00	10
Cl3-BZ#26	ND		ng/cart	5.00	10
Cl3-BZ#25	ND		ng/cart	5.00	10
Cl4-BZ#53	ND		ng/cart	5.00	10

Project Name: Not Specified **Lab Number:** L1001169

Project Number: Not Specified **Report Date:** 02/11/10

SAMPLE RESULTS

Lab ID:	L1001169-02	Date Collected:	01/19/10 10:48
Client ID:	TRACK 8 - #4 - FILTER	Date Received:	01/22/10
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab					
Cl3-BZ#-31	ND		ng/cart	5.00	10
Cl3-BZ#28	ND		ng/cart	5.00	10
Cl3-BZ#33	ND		ng/cart	5.00	10
Cl4-BZ#51	ND		ng/cart	5.00	10
Cl3-BZ#21/#20	ND		ng/cart	10.0	10
Cl4-BZ#45	ND		ng/cart	5.00	10
Cl3-BZ#22	ND		ng/cart	5.00	10
Cl4-BZ#73/#46	ND		ng/cart	10.0	10
Cl4-BZ#69	ND		ng/cart	5.00	10
Cl4-BZ#43	ND		ng/cart	5.00	10
Cl3-BZ#36	ND		ng/cart	5.00	10
Cl4-BZ#52	ND		ng/cart	5.00	10
Cl4-BZ#48	ND		ng/cart	5.00	10
Cl4-BZ#49	ND		ng/cart	5.00	10
Cl5-BZ#104	ND		ng/cart	5.00	10
Cl4-BZ#47	ND		ng/cart	5.00	10
Cl4-BZ#65/#75/#62	ND		ng/cart	15.0	10
Cl3-BZ#39	ND		ng/cart	5.00	10
Cl3-BZ#38	ND		ng/cart	5.00	10
Cl4-BZ#44	ND		ng/cart	5.00	10
Cl4-BZ#59	ND		ng/cart	5.00	10
Cl4-BZ#42	ND		ng/cart	5.00	10
Cl4-BZ#71	ND		ng/cart	5.00	10
Cl3-BZ#35	ND		ng/cart	5.00	10
Cl4-BZ#41	ND		ng/cart	5.00	10
Cl4-BZ#72	ND		ng/cart	5.00	10
Cl5-BZ#96	ND		ng/cart	5.00	10
Cl5-BZ#103	ND		ng/cart	5.00	10
Cl4-BZ#68/#64	ND		ng/cart	10.0	10
Cl4-BZ#40	ND		ng/cart	5.00	10
Cl3-BZ#37	ND		ng/cart	5.00	10
Cl5-BZ#100	ND		ng/cart	5.00	10
Cl5-BZ#94	ND		ng/cart	5.00	10
Cl4-BZ#57	ND		ng/cart	5.00	10
Cl4-BZ#67/#58	ND		ng/cart	10.0	10
Cl5-BZ#102	ND		ng/cart	5.00	10
Cl4-BZ#61	ND		ng/cart	5.00	10

Project Name: Not Specified **Lab Number:** L1001169

Project Number: Not Specified **Report Date:** 02/11/10

SAMPLE RESULTS

Lab ID:	L1001169-02	Date Collected:	01/19/10 10:48
Client ID:	TRACK 8 - #4 - FILTER	Date Received:	01/22/10
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab					
Cl5-BZ#98	ND		ng/cart	5.00	10
Cl4-BZ#76	ND		ng/cart	5.00	10
Cl5-BZ#93	ND		ng/cart	5.00	10
Cl4-BZ#63	ND		ng/cart	5.00	10
Cl5-BZ#121/#95/#88	ND		ng/cart	15.0	10
Cl4-BZ#74	ND		ng/cart	5.00	10
Cl6-BZ#155	ND		ng/cart	5.00	10
Cl4-BZ#70	ND		ng/cart	5.00	10
Cl5-BZ#91	ND		ng/cart	5.00	10
Cl4-BZ#66	ND		ng/cart	5.00	10
Cl4-BZ#80	ND		ng/cart	5.00	10
Cl4-BZ#55	ND		ng/cart	5.00	10
Cl5-BZ#92	ND		ng/cart	5.00	10
Cl5-BZ#89/#84	ND		ng/cart	10.0	10
Cl5-BZ#101/#90	ND		ng/cart	10.0	10
Cl4-BZ#56	ND		ng/cart	5.00	10
Cl5-BZ#113	ND		ng/cart	5.00	10
Cl5-BZ#99	ND		ng/cart	5.00	10
Cl6-BZ#150	ND		ng/cart	5.00	10
Cl4-BZ#60	ND		ng/cart	5.00	10
Cl6-BZ#152	ND		ng/cart	5.00	10
Cl5-BZ#119	ND		ng/cart	5.00	10
Cl5-BZ#83/#125/#112	ND		ng/cart	15.0	10
Cl5-BZ#86/#109	ND		ng/cart	10.0	10
Cl5-BZ#97	ND		ng/cart	5.00	10
Cl5-BZ#116	ND		ng/cart	5.00	10
Cl5-BZ#87/#111	ND		ng/cart	10.0	10
Cl6-BZ#145	ND		ng/cart	5.00	10
Cl6-BZ#148	ND		ng/cart	5.00	10
Cl4-BZ#79	ND		ng/cart	5.00	10
Cl6-BZ#154	ND		ng/cart	5.00	10
Cl4-BZ#78	ND		ng/cart	5.00	10
Cl6-BZ#136	ND		ng/cart	5.00	10
Cl5-BZ#117	ND		ng/cart	5.00	10
Cl5-BZ#115	ND		ng/cart	5.00	10
Cl5-BZ#85	ND		ng/cart	5.00	10
Cl5-BZ#120	ND		ng/cart	5.00	10

Project Name: Not Specified **Lab Number:** L1001169

Project Number: Not Specified **Report Date:** 02/11/10

SAMPLE RESULTS

Lab ID: L1001169-02 Date Collected: 01/19/10 10:48

Client ID: TRACK 8 - #4 - FILTER Date Received: 01/22/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab					
Cl5-BZ#110	ND		ng/cart	5.00	10
Cl4-BZ#81	ND		ng/cart	5.00	10
Cl6-BZ#151	ND		ng/cart	5.00	10
Cl6-BZ#135	ND		ng/cart	5.00	10
Cl5-BZ#82	ND		ng/cart	5.00	10
Cl6-BZ#144	ND		ng/cart	5.00	10
Cl6-BZ#147/#149	ND		ng/cart	10.0	10
Cl4-BZ#77	ND		ng/cart	5.00	10
Cl6-BZ#143/#139	ND		ng/cart	10.0	10
Cl5-BZ#124	ND		ng/cart	5.00	10
Cl6-BZ#140	ND		ng/cart	5.00	10
Cl5-BZ#108	ND		ng/cart	5.00	10
Cl5-BZ#107/#123	ND		ng/cart	10.0	10
Cl7-BZ#188	ND		ng/cart	5.00	10
Cl6-BZ#134	ND		ng/cart	5.00	10
Cl5-BZ#106	ND		ng/cart	5.00	10
Cl6-BZ#133	ND		ng/cart	5.00	10
Cl6-BZ#142	ND		ng/cart	5.00	10
Cl5-BZ#118	ND		ng/cart	5.00	10
Cl6-BZ#131	ND		ng/cart	5.00	10
Cl7-BZ#184	ND		ng/cart	5.00	10
Cl6-BZ#165	ND		ng/cart	5.00	10
Cl6-BZ#146	ND		ng/cart	5.00	10
Cl6-BZ#161	ND		ng/cart	5.00	10
Cl5-BZ#122	ND		ng/cart	5.00	10
Cl6-BZ#168	ND		ng/cart	5.00	10
Cl5-BZ#114	ND		ng/cart	5.00	10
Cl6-BZ#153	ND		ng/cart	5.00	10
Cl6-BZ#132	ND		ng/cart	5.00	10
Cl7-BZ#179	ND		ng/cart	5.00	10
Cl6-BZ#141	ND		ng/cart	5.00	10
Cl7-BZ#176	ND		ng/cart	5.00	10
Cl5-BZ#105	ND		ng/cart	5.00	10
Cl6-BZ#137	ND		ng/cart	5.00	10
Cl5-BZ#127	ND		ng/cart	5.00	10
Cl7-BZ#186	ND		ng/cart	5.00	10
Cl6-BZ#130/#164	ND		ng/cart	10.0	10

Project Name: Not Specified **Lab Number:** L1001169

Project Number: Not Specified **Report Date:** 02/11/10

SAMPLE RESULTS

Lab ID: L1001169-02 Date Collected: 01/19/10 10:48

Client ID: TRACK 8 - #4 - FILTER Date Received: 01/22/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab					
Cl7-BZ#178	ND		ng/cart	5.00	10
Cl6-BZ#138	ND		ng/cart	5.00	10
Cl6-BZ#163/#160	ND		ng/cart	10.0	10
Cl6-BZ#129/#158	ND		ng/cart	10.0	10
Cl7-BZ#182/#175	ND		ng/cart	10.0	10
Cl7-BZ#187	ND		ng/cart	5.00	10
Cl7-BZ#183	ND		ng/cart	5.00	10
Cl6-BZ#166	ND		ng/cart	5.00	10
Cl6-BZ#159	ND		ng/cart	5.00	10
Cl5-BZ#126	ND		ng/cart	5.00	10
Cl7-BZ#185	ND		ng/cart	5.00	10
Cl6-BZ#162	ND		ng/cart	5.00	10
Cl7-BZ#174	ND		ng/cart	5.00	10
Cl6-BZ#128	ND		ng/cart	5.00	10
Cl6-BZ#167	ND		ng/cart	5.00	10
Cl8-BZ#202	ND		ng/cart	5.00	10
Cl7-BZ#181	ND		ng/cart	5.00	10
Cl7-BZ#177	ND		ng/cart	5.00	10
Cl8-BZ#204/#200-CAL	ND		ng/cart	10.0	10
Cl7-BZ#171	ND		ng/cart	5.00	10
Cl7-BZ#173	ND		ng/cart	5.00	10
Cl8-BZ#197	ND		ng/cart	5.00	10
Cl7-BZ#172	ND		ng/cart	5.00	10
Cl7-BZ#192	ND		ng/cart	5.00	10
Cl6-BZ#156	ND		ng/cart	5.00	10
Cl6-BZ#157	ND		ng/cart	5.00	10
Cl7-BZ#180	ND		ng/cart	5.00	10
Cl7-BZ#193	ND		ng/cart	5.00	10
Cl8-BZ#199	ND		ng/cart	5.00	10
Cl7-BZ#191	ND		ng/cart	5.00	10
Cl8-BZ#198	ND		ng/cart	5.00	10
Cl8-BZ#201	ND		ng/cart	5.00	10
Cl7-BZ#170	ND		ng/cart	5.00	10
Cl7-BZ#190	ND		ng/cart	5.00	10
Cl8-BZ#196	ND		ng/cart	5.00	10
Cl8-BZ#203	ND		ng/cart	5.00	10
Cl6-BZ#169	ND		ng/cart	5.00	10

Project Name: Not Specified **Lab Number:** L1001169

Project Number: Not Specified **Report Date:** 02/11/10

SAMPLE RESULTS

Lab ID:	L1001169-02	Date Collected:	01/19/10 10:48
Client ID:	TRACK 8 - #4 - FILTER	Date Received:	01/22/10
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab					
Cl9-BZ#208	ND		ng/cart	5.00	10
Cl9-BZ#207	ND		ng/cart	5.00	10
Cl7-BZ#189	ND		ng/cart	5.00	10
Cl8-BZ#195	ND		ng/cart	5.00	10
Cl8-BZ#194	ND		ng/cart	5.00	10
Cl8-BZ#205	ND		ng/cart	5.00	10
Cl9-BZ#206	ND		ng/cart	5.00	10
Cl10-BZ#209	ND		ng/cart	5.00	10
Monochlorobiphenyls	ND		ng/cart	5.00	10
Dichlorobiphenyls	ND		ng/cart	5.00	10
Trichlorobiphenyls	ND		ng/cart	5.00	10
Tetrachlorobiphenyls	ND		ng/cart	5.00	10
Pentachlorobiphenyls	ND		ng/cart	5.00	10
Hexachlorobiphenyls	ND		ng/cart	5.00	10
Heptachlorobiphenyls	ND		ng/cart	5.00	10
Octachlorobiphenyls	ND		ng/cart	5.00	10
Nonachlorobiphenyls	ND		ng/cart	5.00	10
Decachlorobiphenyl	ND		ng/cart	5.00	10
Total Homologs	ND		ng/cart	5.00	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	65		50-125
Cl8-BZ#202-C13	88		50-125

Project Name: Not Specified **Lab Number:** L1001169

Project Number: Not Specified **Report Date:** 02/11/10

SAMPLE RESULTS

Lab ID:	L1001169-03	Date Collected:	01/19/10 10:48
Client ID:	TRACK 8 - #1 - NO FILTER	Date Received:	01/22/10
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air Cartridge	Extraction Method:	EPA 3540C
Analytical Method:	1,8270C-SIM	Extraction Date:	01/26/10 15:20
Analytical Date:	01/30/10 05:11		
Analyst:	JS		

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab					
Cl1-BZ#1	ND		ng/cart	5.00	10
Cl1-BZ#2	ND		ng/cart	5.00	10
CL1-BZ#3	ND		ng/cart	5.00	10
Cl2-BZ#4/#10	ND		ng/cart	10.0	10
Cl2-BZ#9	ND		ng/cart	5.00	10
Cl2-BZ#7	ND		ng/cart	5.00	10
Cl2-BZ#6	ND		ng/cart	5.00	10
Cl2-BZ#5	ND		ng/cart	5.00	10
Cl2-BZ#8	16.3		ng/cart	5.00	10
Cl3-BZ#19	ND		ng/cart	5.00	10
Cl2-BZ#14	ND		ng/cart	5.00	10
Cl3-BZ#30	ND		ng/cart	5.00	10
Cl3-BZ#18	16.7		ng/cart	5.00	10
Cl2-BZ#11	ND		ng/cart	5.00	10
Cl3-BZ#17	6.10		ng/cart	5.00	10
Cl2-BZ#12	ND		ng/cart	5.00	10
Cl3-BZ#27	ND		ng/cart	5.00	10
Cl2-BZ#13	ND		ng/cart	5.00	10
Cl3-BZ#24	ND		ng/cart	5.00	10
Cl3-BZ#16	ND		ng/cart	5.00	10
Cl3-BZ#32	ND		ng/cart	5.00	10
Cl2-BZ#15	ND		ng/cart	5.00	10
Cl3-BZ#34	ND		ng/cart	5.00	10
Cl3-BZ#23	ND		ng/cart	5.00	10
Cl4-BZ#54	ND		ng/cart	5.00	10
Cl3-BZ#29	ND		ng/cart	5.00	10
Cl4-BZ#50	ND		ng/cart	5.00	10
Cl3-BZ#26	ND		ng/cart	5.00	10
Cl3-BZ#25	ND		ng/cart	5.00	10
Cl4-BZ#53	ND		ng/cart	5.00	10

Project Name: Not Specified **Lab Number:** L1001169

Project Number: Not Specified **Report Date:** 02/11/10

SAMPLE RESULTS

Lab ID: L1001169-03 Date Collected: 01/19/10 10:48

Client ID: TRACK 8 - #1 - NO FILTER Date Received: 01/22/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab					
Cl3-BZ#-31	7.50		ng/cart	5.00	10
Cl3-BZ#28	8.30		ng/cart	5.00	10
Cl3-BZ#33	ND		ng/cart	5.00	10
Cl4-BZ#51	ND		ng/cart	5.00	10
Cl3-BZ#21/#20	ND		ng/cart	10.0	10
Cl4-BZ#45	ND		ng/cart	5.00	10
Cl3-BZ#22	ND		ng/cart	5.00	10
Cl4-BZ#73/#46	ND		ng/cart	10.0	10
Cl4-BZ#69	ND		ng/cart	5.00	10
Cl4-BZ#43	ND		ng/cart	5.00	10
Cl3-BZ#36	ND		ng/cart	5.00	10
Cl4-BZ#52	24.3		ng/cart	5.00	10
Cl4-BZ#48	ND		ng/cart	5.00	10
Cl4-BZ#49	5.70		ng/cart	5.00	10
Cl5-BZ#104	ND		ng/cart	5.00	10
Cl4-BZ#47	ND		ng/cart	5.00	10
Cl4-BZ#65/#75/#62	ND		ng/cart	15.0	10
Cl3-BZ#39	ND		ng/cart	5.00	10
Cl3-BZ#38	ND		ng/cart	5.00	10
Cl4-BZ#44	10.5		ng/cart	5.00	10
Cl4-BZ#59	ND		ng/cart	5.00	10
Cl4-BZ#42	ND		ng/cart	5.00	10
Cl4-BZ#71	ND		ng/cart	5.00	10
Cl3-BZ#35	ND		ng/cart	5.00	10
Cl4-BZ#41	ND		ng/cart	5.00	10
Cl4-BZ#72	ND		ng/cart	5.00	10
Cl5-BZ#96	ND		ng/cart	5.00	10
Cl5-BZ#103	ND		ng/cart	5.00	10
Cl4-BZ#68/#64	ND		ng/cart	10.0	10
Cl4-BZ#40	ND		ng/cart	5.00	10
Cl3-BZ#37	ND		ng/cart	5.00	10
Cl5-BZ#100	ND		ng/cart	5.00	10
Cl5-BZ#94	ND		ng/cart	5.00	10
Cl4-BZ#57	ND		ng/cart	5.00	10
Cl4-BZ#67/#58	ND		ng/cart	10.0	10
Cl5-BZ#102	ND		ng/cart	5.00	10
Cl4-BZ#61	ND		ng/cart	5.00	10

Project Name: Not Specified **Lab Number:** L1001169

Project Number: Not Specified **Report Date:** 02/11/10

SAMPLE RESULTS

Lab ID: L1001169-03 Date Collected: 01/19/10 10:48

Client ID: TRACK 8 - #1 - NO FILTER Date Received: 01/22/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab					
Cl5-BZ#98	ND		ng/cart	5.00	10
Cl4-BZ#76	ND		ng/cart	5.00	10
Cl5-BZ#93	ND		ng/cart	5.00	10
Cl4-BZ#63	ND		ng/cart	5.00	10
Cl5-BZ#121/#95/#88	19.7		ng/cart	15.0	10
Cl4-BZ#74	ND		ng/cart	5.00	10
Cl6-BZ#155	ND		ng/cart	5.00	10
Cl4-BZ#70	6.50		ng/cart	5.00	10
Cl5-BZ#91	ND		ng/cart	5.00	10
Cl4-BZ#66	ND		ng/cart	5.00	10
Cl4-BZ#80	ND		ng/cart	5.00	10
Cl4-BZ#55	ND		ng/cart	5.00	10
Cl5-BZ#92	ND		ng/cart	5.00	10
Cl5-BZ#89/#84	ND		ng/cart	10.0	10
Cl5-BZ#101/#90	21.4		ng/cart	10.0	10
Cl4-BZ#56	ND		ng/cart	5.00	10
Cl5-BZ#113	ND		ng/cart	5.00	10
Cl5-BZ#99	5.40		ng/cart	5.00	10
Cl6-BZ#150	ND		ng/cart	5.00	10
Cl4-BZ#60	ND		ng/cart	5.00	10
Cl6-BZ#152	ND		ng/cart	5.00	10
Cl5-BZ#119	ND		ng/cart	5.00	10
Cl5-BZ#83/#125/#112	ND		ng/cart	15.0	10
Cl5-BZ#86/#109	ND		ng/cart	10.0	10
Cl5-BZ#97	ND		ng/cart	5.00	10
Cl5-BZ#116	ND		ng/cart	5.00	10
Cl5-BZ#87/#111	ND		ng/cart	10.0	10
Cl6-BZ#145	ND		ng/cart	5.00	10
Cl6-BZ#148	ND		ng/cart	5.00	10
Cl4-BZ#79	ND		ng/cart	5.00	10
Cl6-BZ#154	ND		ng/cart	5.00	10
Cl4-BZ#78	ND		ng/cart	5.00	10
Cl6-BZ#136	ND		ng/cart	5.00	10
Cl5-BZ#117	ND		ng/cart	5.00	10
Cl5-BZ#115	ND		ng/cart	5.00	10
Cl5-BZ#85	ND		ng/cart	5.00	10
Cl5-BZ#120	ND		ng/cart	5.00	10

Project Name: Not Specified **Lab Number:** L1001169

Project Number: Not Specified **Report Date:** 02/11/10

SAMPLE RESULTS

Lab ID: L1001169-03 Date Collected: 01/19/10 10:48

Client ID: TRACK 8 - #1 - NO FILTER Date Received: 01/22/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab					
Cl5-BZ#110	14.9		ng/cart	5.00	10
Cl4-BZ#81	ND		ng/cart	5.00	10
Cl6-BZ#151	5.70		ng/cart	5.00	10
Cl6-BZ#135	ND		ng/cart	5.00	10
Cl5-BZ#82	ND		ng/cart	5.00	10
Cl6-BZ#144	ND		ng/cart	5.00	10
Cl6-BZ#147/#149	12.6		ng/cart	10.0	10
Cl4-BZ#77	ND		ng/cart	5.00	10
Cl6-BZ#143/#139	ND		ng/cart	10.0	10
Cl5-BZ#124	ND		ng/cart	5.00	10
Cl6-BZ#140	ND		ng/cart	5.00	10
Cl5-BZ#108	ND		ng/cart	5.00	10
Cl5-BZ#107/#123	ND		ng/cart	10.0	10
Cl7-BZ#188	ND		ng/cart	5.00	10
Cl6-BZ#134	ND		ng/cart	5.00	10
Cl5-BZ#106	ND		ng/cart	5.00	10
Cl6-BZ#133	ND		ng/cart	5.00	10
Cl6-BZ#142	ND		ng/cart	5.00	10
Cl5-BZ#118	6.90		ng/cart	5.00	10
Cl6-BZ#131	ND		ng/cart	5.00	10
Cl7-BZ#184	ND		ng/cart	5.00	10
Cl6-BZ#165	ND		ng/cart	5.00	10
Cl6-BZ#146	ND		ng/cart	5.00	10
Cl6-BZ#161	ND		ng/cart	5.00	10
Cl5-BZ#122	ND		ng/cart	5.00	10
Cl6-BZ#168	ND		ng/cart	5.00	10
Cl5-BZ#114	ND		ng/cart	5.00	10
Cl6-BZ#153	11.1		ng/cart	5.00	10
Cl6-BZ#132	ND		ng/cart	5.00	10
Cl7-BZ#179	ND		ng/cart	5.00	10
Cl6-BZ#141	ND		ng/cart	5.00	10
Cl7-BZ#176	ND		ng/cart	5.00	10
Cl5-BZ#105	ND		ng/cart	5.00	10
Cl6-BZ#137	ND		ng/cart	5.00	10
Cl5-BZ#127	ND		ng/cart	5.00	10
Cl7-BZ#186	ND		ng/cart	5.00	10
Cl6-BZ#130/#164	ND		ng/cart	10.0	10

Project Name: Not Specified **Lab Number:** L1001169

Project Number: Not Specified **Report Date:** 02/11/10

SAMPLE RESULTS

Lab ID: L1001169-03 Date Collected: 01/19/10 10:48

Client ID: TRACK 8 - #1 - NO FILTER Date Received: 01/22/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab					
Cl7-BZ#178	ND		ng/cart	5.00	10
Cl6-BZ#138	ND		ng/cart	5.00	10
Cl6-BZ#163/#160	ND		ng/cart	10.0	10
Cl6-BZ#129/#158	ND		ng/cart	10.0	10
Cl7-BZ#182/#175	ND		ng/cart	10.0	10
Cl7-BZ#187	ND		ng/cart	5.00	10
Cl7-BZ#183	ND		ng/cart	5.00	10
Cl6-BZ#166	ND		ng/cart	5.00	10
Cl6-BZ#159	ND		ng/cart	5.00	10
Cl5-BZ#126	ND		ng/cart	5.00	10
Cl7-BZ#185	ND		ng/cart	5.00	10
Cl6-BZ#162	ND		ng/cart	5.00	10
Cl7-BZ#174	ND		ng/cart	5.00	10
Cl6-BZ#128	ND		ng/cart	5.00	10
Cl6-BZ#167	ND		ng/cart	5.00	10
Cl8-BZ#202	ND		ng/cart	5.00	10
Cl7-BZ#181	ND		ng/cart	5.00	10
Cl7-BZ#177	ND		ng/cart	5.00	10
Cl8-BZ#204/#200-CAL	ND		ng/cart	10.0	10
Cl7-BZ#171	ND		ng/cart	5.00	10
Cl7-BZ#173	ND		ng/cart	5.00	10
Cl8-BZ#197	ND		ng/cart	5.00	10
Cl7-BZ#172	ND		ng/cart	5.00	10
Cl7-BZ#192	ND		ng/cart	5.00	10
Cl6-BZ#156	ND		ng/cart	5.00	10
Cl6-BZ#157	ND		ng/cart	5.00	10
Cl7-BZ#180	ND		ng/cart	5.00	10
Cl7-BZ#193	ND		ng/cart	5.00	10
Cl8-BZ#199	ND		ng/cart	5.00	10
Cl7-BZ#191	ND		ng/cart	5.00	10
Cl8-BZ#198	ND		ng/cart	5.00	10
Cl8-BZ#201	ND		ng/cart	5.00	10
Cl7-BZ#170	ND		ng/cart	5.00	10
Cl7-BZ#190	ND		ng/cart	5.00	10
Cl8-BZ#196	ND		ng/cart	5.00	10
Cl8-BZ#203	ND		ng/cart	5.00	10
Cl6-BZ#169	ND		ng/cart	5.00	10

Project Name: Not Specified **Lab Number:** L1001169

Project Number: Not Specified **Report Date:** 02/11/10

SAMPLE RESULTS

Lab ID:	L1001169-03	Date Collected:	01/19/10 10:48
Client ID:	TRACK 8 - #1 - NO FILTER	Date Received:	01/22/10
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab					
Cl9-BZ#208	ND		ng/cart	5.00	10
Cl9-BZ#207	ND		ng/cart	5.00	10
Cl7-BZ#189	ND		ng/cart	5.00	10
Cl8-BZ#195	ND		ng/cart	5.00	10
Cl8-BZ#194	ND		ng/cart	5.00	10
Cl8-BZ#205	ND		ng/cart	5.00	10
Cl9-BZ#206	ND		ng/cart	5.00	10
Cl10-BZ#209	ND		ng/cart	5.00	10
Monochlorobiphenyls	ND		ng/cart	5.00	10
Dichlorobiphenyls	31.1		ng/cart	5.00	10
Trichlorobiphenyls	53.5		ng/cart	5.00	10
Tetrachlorobiphenyls	52.9		ng/cart	5.00	10
Pentachlorobiphenyls	85.4		ng/cart	5.00	10
Hexachlorobiphenyls	38.3		ng/cart	5.00	10
Heptachlorobiphenyls	13.6		ng/cart	5.00	10
Octachlorobiphenyls	ND		ng/cart	5.00	10
Nonachlorobiphenyls	ND		ng/cart	5.00	10
Decachlorobiphenyl	ND		ng/cart	5.00	10
Total Homologs	275		ng/cart	5.00	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	59		50-125
Cl8-BZ#202-C13	78		50-125

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1001169
Report Date: 02/11/10

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 01/30/10 00:36
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 01/26/10 15:20

Parameter	Result	Qualifier	Units	RDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-03 Batch: WG398182-1				
Cl1-BZ#1	ND		ng/cart	5.00
Cl1-BZ#2	ND		ng/cart	5.00
CL1-BZ#3	ND		ng/cart	5.00
Cl2-BZ#4/#10	ND		ng/cart	10.0
Cl2-BZ#9	ND		ng/cart	5.00
Cl2-BZ#7	ND		ng/cart	5.00
Cl2-BZ#6	ND		ng/cart	5.00
Cl2-BZ#5	ND		ng/cart	5.00
Cl2-BZ#8	ND		ng/cart	5.00
Cl3-BZ#19	ND		ng/cart	5.00
Cl2-BZ#14	ND		ng/cart	5.00
Cl3-BZ#30	ND		ng/cart	5.00
Cl3-BZ#18	ND		ng/cart	5.00
Cl2-BZ#11	ND		ng/cart	5.00
Cl3-BZ#17	ND		ng/cart	5.00
Cl2-BZ#12	ND		ng/cart	5.00
Cl3-BZ#27	ND		ng/cart	5.00
Cl2-BZ#13	ND		ng/cart	5.00
Cl3-BZ#24	ND		ng/cart	5.00
Cl3-BZ#16	ND		ng/cart	5.00
Cl3-BZ#32	ND		ng/cart	5.00
Cl2-BZ#15	ND		ng/cart	5.00
Cl3-BZ#34	ND		ng/cart	5.00
Cl3-BZ#23	ND		ng/cart	5.00
Cl4-BZ#54	ND		ng/cart	5.00
Cl3-BZ#29	ND		ng/cart	5.00
Cl4-BZ#50	ND		ng/cart	5.00
Cl3-BZ#26	ND		ng/cart	5.00
Cl3-BZ#25	ND		ng/cart	5.00
Cl4-BZ#53	ND		ng/cart	5.00
Cl3-BZ#-31	ND		ng/cart	5.00

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1001169
Report Date: 02/11/10

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 01/30/10 00:36
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 01/26/10 15:20

Parameter	Result	Qualifier	Units	RDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-03 Batch: WG398182-1				
Cl3-BZ#28	ND		ng/cart	5.00
Cl3-BZ#33	ND		ng/cart	5.00
Cl4-BZ#51	ND		ng/cart	5.00
Cl3-BZ#21/#20	ND		ng/cart	10.0
Cl4-BZ#45	ND		ng/cart	5.00
Cl3-BZ#22	ND		ng/cart	5.00
Cl4-BZ#73/#46	ND		ng/cart	10.0
Cl4-BZ#69	ND		ng/cart	5.00
Cl4-BZ#43	ND		ng/cart	5.00
Cl3-BZ#36	ND		ng/cart	5.00
Cl4-BZ#52	ND		ng/cart	5.00
Cl4-BZ#48	ND		ng/cart	5.00
Cl4-BZ#49	ND		ng/cart	5.00
Cl5-BZ#104	ND		ng/cart	5.00
Cl4-BZ#47	ND		ng/cart	5.00
Cl4-BZ#65/#75/#62	ND		ng/cart	15.0
Cl3-BZ#39	ND		ng/cart	5.00
Cl3-BZ#38	ND		ng/cart	5.00
Cl4-BZ#44	ND		ng/cart	5.00
Cl4-BZ#59	ND		ng/cart	5.00
Cl4-BZ#42	ND		ng/cart	5.00
Cl4-BZ#71	ND		ng/cart	5.00
Cl3-BZ#35	ND		ng/cart	5.00
Cl4-BZ#41	ND		ng/cart	5.00
Cl4-BZ#72	ND		ng/cart	5.00
Cl5-BZ#96	ND		ng/cart	5.00
Cl5-BZ#103	ND		ng/cart	5.00
Cl4-BZ#68/#64	ND		ng/cart	10.0
Cl4-BZ#40	ND		ng/cart	5.00
Cl3-BZ#37	ND		ng/cart	5.00
Cl5-BZ#100	ND		ng/cart	5.00

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1001169
Report Date: 02/11/10

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 01/30/10 00:36
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 01/26/10 15:20

Parameter	Result	Qualifier	Units	RDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-03 Batch: WG398182-1				
Cl5-BZ#94	ND		ng/cart	5.00
Cl4-BZ#57	ND		ng/cart	5.00
Cl4-BZ#67/#58	ND		ng/cart	10.0
Cl5-BZ#102	ND		ng/cart	5.00
Cl4-BZ#61	ND		ng/cart	5.00
Cl5-BZ#98	ND		ng/cart	5.00
Cl4-BZ#76	ND		ng/cart	5.00
Cl5-BZ#93	ND		ng/cart	5.00
Cl4-BZ#63	ND		ng/cart	5.00
Cl5-BZ#121/#95/#88	ND		ng/cart	15.0
Cl4-BZ#74	ND		ng/cart	5.00
Cl6-BZ#155	ND		ng/cart	5.00
Cl4-BZ#70	ND		ng/cart	5.00
Cl5-BZ#91	ND		ng/cart	5.00
Cl4-BZ#66	ND		ng/cart	5.00
Cl4-BZ#80	ND		ng/cart	5.00
Cl4-BZ#55	ND		ng/cart	5.00
Cl5-BZ#92	ND		ng/cart	5.00
Cl5-BZ#89/#84	ND		ng/cart	10.0
Cl5-BZ#101/#90	ND		ng/cart	10.0
Cl4-BZ#56	ND		ng/cart	5.00
Cl5-BZ#113	ND		ng/cart	5.00
Cl5-BZ#99	ND		ng/cart	5.00
Cl6-BZ#150	ND		ng/cart	5.00
Cl4-BZ#60	ND		ng/cart	5.00
Cl6-BZ#152	ND		ng/cart	5.00
Cl5-BZ#119	ND		ng/cart	5.00
Cl5-BZ#83/#125/#112	ND		ng/cart	15.0
Cl5-BZ#86/#109	ND		ng/cart	10.0
Cl5-BZ#97	ND		ng/cart	5.00
Cl5-BZ#116	ND		ng/cart	5.00

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1001169
Report Date: 02/11/10

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 01/30/10 00:36
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 01/26/10 15:20

Parameter	Result	Qualifier	Units	RDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-03 Batch: WG398182-1				
Cl5-BZ#87/#111	ND		ng/cart	10.0
Cl6-BZ#145	ND		ng/cart	5.00
Cl6-BZ#148	ND		ng/cart	5.00
Cl4-BZ#79	ND		ng/cart	5.00
Cl6-BZ#154	ND		ng/cart	5.00
Cl4-BZ#78	ND		ng/cart	5.00
Cl6-BZ#136	ND		ng/cart	5.00
Cl5-BZ#117	ND		ng/cart	5.00
Cl5-BZ#115	ND		ng/cart	5.00
Cl5-BZ#85	ND		ng/cart	5.00
Cl5-BZ#120	ND		ng/cart	5.00
Cl5-BZ#110	ND		ng/cart	5.00
Cl4-BZ#81	ND		ng/cart	5.00
Cl6-BZ#151	ND		ng/cart	5.00
Cl6-BZ#135	ND		ng/cart	5.00
Cl5-BZ#82	ND		ng/cart	5.00
Cl6-BZ#144	ND		ng/cart	5.00
Cl6-BZ#147/#149	ND		ng/cart	10.0
Cl4-BZ#77	ND		ng/cart	5.00
Cl6-BZ#143/#139	ND		ng/cart	10.0
Cl5-BZ#124	ND		ng/cart	5.00
Cl6-BZ#140	ND		ng/cart	5.00
Cl5-BZ#108	ND		ng/cart	5.00
Cl5-BZ#107/#123	ND		ng/cart	10.0
Cl7-BZ#188	ND		ng/cart	5.00
Cl6-BZ#134	ND		ng/cart	5.00
Cl5-BZ#106	ND		ng/cart	5.00
Cl6-BZ#133	ND		ng/cart	5.00
Cl6-BZ#142	ND		ng/cart	5.00
Cl5-BZ#118	ND		ng/cart	5.00
Cl6-BZ#131	ND		ng/cart	5.00

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1001169
Report Date: 02/11/10

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 01/30/10 00:36
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 01/26/10 15:20

Parameter	Result	Qualifier	Units	RDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-03 Batch: WG398182-1				
Cl7-BZ#184	ND		ng/cart	5.00
Cl6-BZ#165	ND		ng/cart	5.00
Cl6-BZ#146	ND		ng/cart	5.00
Cl6-BZ#161	ND		ng/cart	5.00
Cl5-BZ#122	ND		ng/cart	5.00
Cl6-BZ#168	ND		ng/cart	5.00
Cl5-BZ#114	ND		ng/cart	5.00
Cl6-BZ#153	ND		ng/cart	5.00
Cl6-BZ#132	ND		ng/cart	5.00
Cl7-BZ#179	ND		ng/cart	5.00
Cl6-BZ#141	ND		ng/cart	5.00
Cl7-BZ#176	ND		ng/cart	5.00
Cl5-BZ#105	ND		ng/cart	5.00
Cl6-BZ#137	ND		ng/cart	5.00
Cl5-BZ#127	ND		ng/cart	5.00
Cl7-BZ#186	ND		ng/cart	5.00
Cl6-BZ#130/#164	ND		ng/cart	10.0
Cl7-BZ#178	ND		ng/cart	5.00
Cl6-BZ#138	ND		ng/cart	5.00
Cl6-BZ#163/#160	ND		ng/cart	10.0
Cl6-BZ#129/#158	ND		ng/cart	10.0
Cl7-BZ#182/#175	ND		ng/cart	10.0
Cl7-BZ#187	ND		ng/cart	5.00
Cl7-BZ#183	ND		ng/cart	5.00
Cl6-BZ#166	ND		ng/cart	5.00
Cl6-BZ#159	ND		ng/cart	5.00
Cl5-BZ#126	ND		ng/cart	5.00
Cl7-BZ#185	ND		ng/cart	5.00
Cl6-BZ#162	ND		ng/cart	5.00
Cl7-BZ#174	ND		ng/cart	5.00
Cl6-BZ#128	ND		ng/cart	5.00

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1001169
Report Date: 02/11/10

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 01/30/10 00:36
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 01/26/10 15:20

Parameter	Result	Qualifier	Units	RDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-03 Batch: WG398182-1				
Cl6-BZ#167	ND		ng/cart	5.00
Cl8-BZ#202	ND		ng/cart	5.00
Cl7-BZ#181	ND		ng/cart	5.00
Cl7-BZ#177	ND		ng/cart	5.00
Cl8-BZ#204/#200-CAL	ND		ng/cart	10.0
Cl7-BZ#171	ND		ng/cart	5.00
Cl7-BZ#173	ND		ng/cart	5.00
Cl8-BZ#197	ND		ng/cart	5.00
Cl7-BZ#172	ND		ng/cart	5.00
Cl7-BZ#192	ND		ng/cart	5.00
Cl6-BZ#156	ND		ng/cart	5.00
Cl6-BZ#157	ND		ng/cart	5.00
Cl7-BZ#180	ND		ng/cart	5.00
Cl7-BZ#193	ND		ng/cart	5.00
Cl8-BZ#199	ND		ng/cart	5.00
Cl7-BZ#191	ND		ng/cart	5.00
Cl8-BZ#198	ND		ng/cart	5.00
Cl8-BZ#201	ND		ng/cart	5.00
Cl7-BZ#170	ND		ng/cart	5.00
Cl7-BZ#190	ND		ng/cart	5.00
Cl8-BZ#196	ND		ng/cart	5.00
Cl8-BZ#203	ND		ng/cart	5.00
Cl6-BZ#169	ND		ng/cart	5.00
Cl9-BZ#208	ND		ng/cart	5.00
Cl9-BZ#207	ND		ng/cart	5.00
Cl7-BZ#189	ND		ng/cart	5.00
Cl8-BZ#195	ND		ng/cart	5.00
Cl8-BZ#194	ND		ng/cart	5.00
Cl8-BZ#205	ND		ng/cart	5.00
Cl9-BZ#206	ND		ng/cart	5.00
Cl10-BZ#209	ND		ng/cart	5.00

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1001169
Report Date: 02/11/10

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 01/30/10 00:36
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 01/26/10 15:20

Parameter	Result	Qualifier	Units	RDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-03 Batch: WG398182-1				
Monochlorobiphenyls	ND		ng/cart	5.00
Dichlorobiphenyls	ND		ng/cart	5.00
Trichlorobiphenyls	ND		ng/cart	5.00
Tetrachlorobiphenyls	ND		ng/cart	5.00
Pentachlorobiphenyls	ND		ng/cart	5.00
Hexachlorobiphenyls	ND		ng/cart	5.00
Heptachlorobiphenyls	ND		ng/cart	5.00
Octachlorobiphenyls	ND		ng/cart	5.00
Nonachlorobiphenyls	ND		ng/cart	5.00
Decachlorobiphenyl	ND		ng/cart	5.00
Total Homologs	ND		ng/cart	5.00

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	64		50-125
Cl8-BZ#202-C13	85		50-125

Lab Control Sample Analysis
Batch Quality Control

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1001169
Report Date: 02/11/10

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-03 Batch: WG398182-2								
Cl1-BZ#1	42		-		40-140	-		30
CL1-BZ#3	50		-		40-140	-		30
Cl2-BZ#4/#10	56		-		40-140	-		30
Cl2-BZ#8	48		-		40-140	-		30
Cl3-BZ#19	48		-		40-140	-		30
Cl3-BZ#18	55		-		40-140	-		30
Cl2-BZ#15	51		-		40-140	-		30
Cl4-BZ#54	54		-		40-140	-		30
Cl3-BZ#29	52		-		40-140	-		30
Cl4-BZ#50	50		-		40-140	-		30
Cl3-BZ#-31	52		-		40-140	-		30
Cl3-BZ#28	53		-		40-140	-		30
Cl4-BZ#45	54		-		40-140	-		30
Cl4-BZ#52	56		-		40-140	-		30
Cl4-BZ#49	50		-		40-140	-		30
Cl5-BZ#104	53		-		40-140	-		30
Cl4-BZ#47	54		-		40-140	-		30
Cl4-BZ#44	64		-		40-140	-		30
Cl3-BZ#37	**37**	Q	-		40-140	-		30
Cl5-BZ#121/#95/#88	42		-		40-140	-		30
Cl4-BZ#74	62		-		40-140	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1001169
Report Date: 02/11/10

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-03 Batch: WG398182-2								
Cl6-BZ#155	57		-		40-140	-		30
Cl4-BZ#70	45		-		40-140	-		30
Cl4-BZ#66	58		-		40-140	-		30
Cl5-BZ#101/#90	57		-		40-140	-		30
Cl4-BZ#56	59		-		40-140	-		30
Cl5-BZ#99	59		-		40-140	-		30
Cl5-BZ#87/#111	44		-		40-140	-		30
Cl6-BZ#154	61		-		40-140	-		30
Cl5-BZ#110	59		-		40-140	-		30
Cl4-BZ#81	59		-		40-140	-		30
Cl6-BZ#151	56		-		40-140	-		30
Cl6-BZ#147/#149	52		-		40-140	-		30
Cl4-BZ#77	48		-		40-140	-		30
Cl5-BZ#107/#123	56		-		40-140	-		30
Cl7-BZ#188	48		-		40-140	-		30
Cl5-BZ#118	48		-		40-140	-		30
Cl6-BZ#146	48		-		40-140	-		30
Cl5-BZ#114	50		-		40-140	-		30
Cl6-BZ#153	58		-		40-140	-		30
Cl5-BZ#105	40		-		40-140	-		30
Cl6-BZ#138	59		-		40-140	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1001169
Report Date: 02/11/10

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-03 Batch: WG398182-2								
Cl6-BZ#129/#158	72		-		40-140	-		30
Cl7-BZ#187	72		-		40-140	-		30
Cl7-BZ#183	60		-		40-140	-		30
Cl5-BZ#126	**33**	Q	-		40-140	-		30
Cl7-BZ#174	54		-		40-140	-		30
Cl6-BZ#128	48		-		40-140	-		30
Cl6-BZ#167	56		-		40-140	-		30
Cl8-BZ#202	62		-		40-140	-		30
Cl7-BZ#177	58		-		40-140	-		30
Cl8-BZ#204/#200-CAL	54		-		40-140	-		30
Cl6-BZ#156	44		-		40-140	-		30
Cl6-BZ#157	52		-		40-140	-		30
Cl7-BZ#180	52		-		40-140	-		30
Cl8-BZ#201	47		-		40-140	-		30
Cl7-BZ#170	52		-		40-140	-		30
Cl6-BZ#169	48		-		40-140	-		30
Cl9-BZ#208	54		-		40-140	-		30
Cl7-BZ#189	54		-		40-140	-		30
Cl8-BZ#195	54		-		40-140	-		30
Cl8-BZ#194	56		-		40-140	-		30
Cl8-BZ#205	52		-		40-140	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: Not Specified

Project Number: Not Specified

Lab Number: L1001169

Report Date: 02/11/10

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-03 Batch: WG398182-2								
Cl9-BZ#206	40		-		40-140	-		30
Cl10-BZ#209	51		-		40-140	-		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Cl3-BZ#19-C13	60				50-125
Cl8-BZ#202-C13	65				50-125

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1001169
Report Date: 02/11/10

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis
L1001169-01A	PUF Air Cartridge (PCB) - Low	A	N/A		Y	Absent	A2-PCB209-C/H-8270()
L1001169-02A	PUF Air Cartridge (PCB) - Low	A	N/A		Y	Absent	A2-PCB209-C/H-8270()
L1001169-03A	PUF Air Cartridge (PCB) - Low	A	N/A		Y	Absent	A2-PCB209-C/H-8270()

*Hold days indicated by values in parentheses

Project Name:	Not Specified	**Lab Number:**	L1001169
Project Number:	Not Specified	**Report Date:**	02/11/10

GLOSSARY

Acronyms

EPA	· Environmental Protection Agency.
LCS	· Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	· Laboratory Control Sample Duplicate: Refer to LCS.
MS	· Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	· Matrix Spike Sample Duplicate: Refer to MS.
NA	· Not Applicable.
NC	· Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
ND	· Not detected at the reported detection limit for the sample.
NI	· Not Ignitable.
RDL	· Reported Detection Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	· Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A	- Spectra identified as "Aldol Condensation Product".
B	- The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank.
D	- Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
E	- Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
H	- The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
P	- The RPD between the results for the two columns exceeds the method-specified criteria.
Q	- The quality control sample exceeds the associated acceptance criteria. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RDL. (Metals only.)
R	- Analytical results are from sample re-analysis.
RE	- Analytical results are from sample re-extraction.
J	- Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

Report Format: Data Usability Report

Project Name:	Not Specified	**Lab Number:**	L1001169
Project Number:	Not Specified	**Report Date:**	02/11/10

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Woods Hole Labs shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Woods Hole Labs.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certificate/Approval Program Summary

Last revised December 15, 2009 – Mansfield Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0141.

Wastewater/Non-Potable Water (Inorganic Parameters: pH, Turbidity, Conductivity, Alkalinity, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Vanadium, Zinc, Total Residue (Solids), Total Suspended Solids (non-filterable), Total Cyanide. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Acid Extractables, Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, PAHs, Haloethers, Chlorinated Hydrocarbons, Volatile Organics.)

Solid Waste/Soil (Inorganic Parameters: pH, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Organic Carbon, Total Cyanide, Corrosivity, TCLP 1311. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Volatile Organics, Acid Extractables, Benzidines, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Florida Department of Health Certificate/Lab ID: E87814. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: SM2320B, EPA 120.1, SM2510B, EPA 245.1, EPA 150.1, EPA 160.2, SM2540D, EPA 335.2, SM2540G, EPA 180.1. Organic Parameters: EPA 625, 608.)

Solid & Chemical Materials (Inorganic Parameters: 6020, 7470, 7471, 9045, 9014. Organic Parameters: EPA 8260, 8270, 8082, 8081.)

Air & Emissions (EPA TO-15.)

Louisiana Department of Environmental Quality Certificate/Lab ID: 03090. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: EPA 120.1, 150.1, 160.2, 180.1, 200.8, 245.1, 310.1, 335.2, 608, 625, 1631, 3010, 3015, 3020, 6020, 9010, 9014, 9040, SM2320B, 2510B, 2540D, 2540G, 4500CN-E, 4500H-B, Organic Parameters: EPA 3510, 3580, 3630, 3640, 3660, 3665, 5030, 8015 (mod), 3570, 8081, 8082, 8260, 8270,)

Solid & Chemical Materials (Inorganic Parameters: 6020, 7196, 7470, 7471, 7474, 9010, 9014, 9040, 9045, 9060. Organic Parameters: EPA 8015 (mod), EPA 3570, 1311, 3050, 3051, 3060, 3580, 3630, 3640, 3660, 3665, 5035, 8081, 8082, 8260, 8270.)

Biological Tissue (Inorganic Parameters: EPA 6020. Organic Parameters: EPA 3570, 3510, 3610, 3630, 3640, 8270.)

Maine Department of Human Services Certificate/Lab ID: MA0030.

Wastewater (Inorganic Parameters: EPA 120.1, 300.0, SM 2320, 2510B, 2540C, 2540D, EPA 245.1. Organic Parameters: 608, 624.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA030.

Non-Potable Water (Inorganic Parameters: SM4500H+B. Organic Parameters: EPA 624.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 2206. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: EPA 200.8, 245.1, 1631E, 120.1, 150.1, 180.1, 310.1, 335.2, 160.2, SM2540D, 2540G, 4500CN-E, 4500H+B, 2320B, 2510B. Organic Parameters: EPA 625, 608.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA015. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: SW-846 1312, 3010, 3020A, 3015, 6020, SM2320B, EPA 200.8, SM2540C, 2540D, 2540G, EPA 120.1, SM2510B, EPA 180.1, 245.1, 1631E, SW-846 9040B, 6020, 9010B, 9014 Organic Parameters: EPA 608, 625, SW-846 3510C, 3580A, 5030B, 3035L, 5035H, 3630C, 3640A, 3660B, 3665A, 8081A, 8082 8260B, 8270C)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6020, 9010B, 9014, 1311, 1312, 3050B, 3051, 3060A, 7196A, 7470A, 7471A, 9045C, 9060. Organic Parameters: SW-846 3580A, 5030B, 3035L, 5035H, 3630C, 3640A, 3660B, 3665A, 8081A, 8082, 8260B, 8270C, 3570, 8015B.)

Atmospheric Organic Parameters (EPA TO-15)

Biological Tissue (Inorganic Parameters: SW-846 6020 Organic Parameters: SW-846 8270C, 3510C, 3570, 3610B, 3630C, 3640A)

New York Department of Health Certificate/Lab ID: 11627. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: EPA 310.1, SM2320B, EPA 365.2, 160.1, EPA 160.2, SM2540D, EPA 200.8, 6020, 1631E, 245.1, 335.2, 9014, 150.1, 9040B, 120.1, SM2510B, EPA 376.2, 180.1, 9010B. Organic Parameters: EPA 624, 8260B, 8270C, 608, 8081A, 625, 8082, 3510C, 3511, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 9040B, 9045C, SW-846 Ch7 Sec 7.3, EPA 6020, 7196A, 7471A, 7474, 9014, 9040B, 9045C, 9010B. Organic Parameters: EPA 8260B, 8270C, 8081A, DRO 8015B, 8082, 1311, 3050B, 3580, 3050B, 3035, 3570, 3051, 5035, 5030B.)

Air & Emissions (EPA TO-15.)

Pennsylvania Department of Environmental Protection Certificate/Lab ID: 68-02089. ***NELAP Accredited.***

Non-Potable Water (Organic Parameters: EPA 5030B, EPA 8260)

Rhode Island Department of Health Certificate/Lab ID: LAO00299. ***NELAP Accredited via LA-DEQ.***

Refer to MA-DEP Certificate for Non-Potable Water.

Refer to LA-DEQ Certificate for Non-Potable Water.

Texas Commission of Environmental Quality Certificate/Lab ID: T104704419-08-TX. ***NELAP Accredited.***

Solid & Chemical Materials (Inorganic Parameters: EPA 6020, 7470, 7471, 1311, 7196, 9014, 9040, 9045, 9060. Organic Parameters: EPA 8015, 8270, 8260, 8081, 8082.)

U.S. Army Corps of Engineers

Department of Defense Certificate/Lab ID: L2217.01.

Non-Potable Water (Inorganic Parameters: EPA 3005A,3020, 6020, 245.1, 245.7, 1631E, 7470A, 7474, 9014, 120.1, 9050A, 180.1, SM4500H-B, 2320B, 2510B, 2540D,9040. Organic Parameters: EPA 3510C, 5030B, 9010B, 624, 8260B, 8270C, 8270 Alk-PAH, 8082, 8081A, 8015 (SHC), 8015 (DRO).)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312,3051, 6020, 747A, 7474, 9045C,9060, SM 2540G, ASTM D422-63. Organic Parameters: EPA 3580, 3570, 3540C, 5035, 8260B, 8270C, 8270 Alk-PAH, 8082, 8081A, 8015 (SHC), 8015 (DRO).

Air & Emissions (EPA TO-15.)

Analytes Not Accredited by NELAP
Certification is not available by NELAP for the following analytes: **8270C:** Biphenyl.

CHAIN OF CUSTODY

PAGE _____ OF _____

Date Rec'd in Lab: 1/22/10

ALPHA Job #: L1001169

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

02111016:50

Client Information

Client: Con Test Laboratory
Address:
Phone:
Fax:
Email:
❑ These samples have been previously analyzed by Alpha

Project Information

Project Name:
Project Location:
Project #:
Project Manager:
ALPHA Quote #:

Turn-Around Time

❑ Standard ❑ RUSH (only confirmed if pre-approved!)
Date Due: 2/5/10 Time:

Report Information - Data Deliverables

❑ FAX ❑ EMAIL
❑ ADEx ❑ Add'l Deliverables

Billing Information

❑ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

ANALYSIS

SAMPLE HANDLING
Filtration
❑ Done
❑ Not needed
❑ Lab to do
Preservation
❑ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Sample Specific Comments	TOTAL # BOTTLES
01169 1	Track 8-#2-Filter	1/19/10	1048				
2	Track 8-#4-Filter	1/19/10	1048				
3	Track 8-#1-Filter	1/19/10	1048				

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	1/22/10 1345	[signature]	1/22/10 1345

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

Contest. Chris Hall.

Date Rec'd in Lab:

ALPHA Job #:

Report Information - Data Deliverables

- ☐ FAX
- ☒ ADEx
- Criteria Checker: (Default based on Regulatory Criteria Indicated)
- Other Formats:
- ☒ EMAIL (standard pdf report)
- ☐ Additional Deliverables:

Report to: (if different than Project Manager)
Chris Hall
ConTest

Billing Information

☐ Same as Client info | PO #:
Cen-Test Labs

Regulatory Requirements/Report Limits

State/Fed	Program	Criteria
FPA	TSCA	

Other Project Specific Requirements/Comments:
For Sample #2, remove filter & extract foam only to get vapor-phase concentrations. Do not extract filter.
Also same for #4

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	TO-14A by TO-15	TO-15	TO-15 SIM	APH	FIXED GASES	TO-~~15~~/~~14~~/~~10A~~ TO-10A Pull	PCB Homologs & Congeners & Aroclors	Sample Comments (i.e. PID)
	~~Phase I - Track #2 - No filter~~	~~1/19/10~~			~~NA~~	~~NA~~	~~AA~~	~~VV~~			~~NA~~								
	Track 8 - #1 - No filter	1/19/10	1048	1048	NA	NA	AA	VV	PUF	142	NA						X		2 L/min x 1440 min = 2,880 L total
	Track 8 - #2 - Filter	1/19/10	↓	↓	↓	↓	↓	↓	↓	121	↓					X	X		2,880 L Total
	Track 8 - #4 - Filter	↓	↓	↓	↓	↓	↓	↓	↓	140	↓						X		2,880 L Total.
										106		Do not analyze - HOLD							
										169									No Hold
										158									
										163									

COPY

*SAMPLE MATRIX CODES
AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type: Low-flow PUF

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Relinquished By:	Date/Time	Received By:	Date/Time:
[signature]	1/21/10 1020	[signature]	1-21-10 1020
[signature]	1-21-10 [illegible]	[signature]	1/21/10 18:00
			Temp 5°

Form No. 101-02 (19-Jun-09)

02111016:50

CHAIN OF CUSTODY

PAGE ____ OF ____

Date Rec'd in Lab: 1/22/10

ALPHA Job #: L1001169

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Con Test Laboratory

Address:

Phone:

Fax:

Email:

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name:

Project Location:

Project #:

Project Manager:

ALPHA Quote #:

Turn-Around Time

☐ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: 2/5/10 Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL

☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program Criteria

Other Project Specific Requirements/Comments/Detection Limits:

ANALYSIS

SAMPLE HANDLING

Filtration ____
☐ Done
☐ Not needed
☐ Lab to do

Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Sample Specific Comments	TOTAL # BOTTLES
01169 1	Track 8 - #2 - Filter	1/19/10	1048				
2	Track 8 - #4 - Filter	1/19/10	1048				
3	Track 8 - #1 - Filter	1/19/10	1048				

Container Type

Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	1/22/10 1345	[illegible]	1/22/10 1345
Paul Gilbert	1/25/10 17:40	Paul Gilbert	1/25/10 16:50 1/25/10 1740

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

Contest. Chris Hall.

OF 1

Date Rec'd In Lab:

ALPHA Job #:

Report Information - Data Deliverables

- ☐ PAX
- ☒ ADEx
  - Criteria Checker:
  - (Default based on Regulatory Criteria Indicated)
  - Other Formats:
- ☒ EMAIL (standard pdf report)
- ☐ Additional Deliverables:

Report to: (if different than Project Manager)
Chris Hall
ConTest

Billing Information

☐ Same as Client info PO #:
Con-Test Labs

Regulatory Requirements/Report Limits

State/Fed	Program	Criteria
EPA	TSCA	

Other Project Specific Requirements/Comments:
For Sample #2, remove filter; extract foam only to get vapor-phase concentrations. Do not extract filter.
Also same for #4

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	TO-14A by TO-15	TO-15	TO-15 SIM	APH	FIXED GASES	TO-~~13A~~ 10A Aroclors	~~TO-4~~ TO-10A PUF	Sample Comments (i.e. PID)
	~~Phase 1 - Track #8 No filter~~	~~1/19/10~~			~~NA~~	~~NA~~	~~AA~~	~~VV~~			~~NA~~								
	Track 8 - #1 - No filter	1/19/10	1048	1048	NA	NA	AA	VV	PUF	142	NA							X	2 L/min x 1440 min = 2,880 L total
	Track 8 - #2 - Filter	1/19/10	↓	↓	↓	↓	↓	↓	↓	121	↓						X	X	2,880 L Total
	Track 8 - #4 - Filter	↓	↓	↓	↓	↓	↓	↓	↓	140	↓							X	2,880 L Total.
										106		Do not analyze - HOLD							
										169									No Hold
										158									
										163									

COPY

*SAMPLE MATRIX CODES
AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type: Low-flow PUF

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Relinquished By:	Date/Time	Received By:	Date/Time:
[signature]	1/21/10 1020	[signature]	1-21-10 1020
[signature]	1-21-10 bfm	[signature]	1/21/10 18:00
			Temp 5°

Form No. 101-02 (19-Jun-09)

Appendix D:
Summary of PCB Toxicity

PCB Toxicity

A brief description of PCB toxicity is presented here. Additional information regarding the toxicity of PCBs can be obtained from the US EPA (USEPA 1996b) and ATSDR (ATSDR 2000). The evaluation of the health effects of PCB mixtures is complicated by their complex composition (ATSDR 2000; USEPA 1996b). Certain generalizations, however, can be made about PCB toxicity in humans. Observed effects in humans range from mild chloracne and rashes, typically associated with dermal contact, to irritations of the nose and lung following inhalation exposures, to serious health effects following consumption of high concentrations of PCBs in contaminated cooking oils. Following oral exposure of laboratory animals, reported health effects have included liver, stomach, and thyroid gland damage, anemia, acne, and reproductive effects (ATSDR 2000; USEPA 1996b; VERSAR. 2000). In contrast, dermal exposure studies in rabbits have resulted in liver, kidney, and skin damage, while inhalation studies in rats have resulted in kidney damage.

U.S. EPA categorizes PCBs as "probable" human carcinogens (i.e., B) based on evidence in animal studies that PCBs can cause cancer. Studies of the relative potency of PCB mixtures have demonstrated that all PCB mixtures pose a cancer hazard, but that different PCB mixtures have different potencies for carcinogenesis (ATSDR 2000; USEPA 1996b, 2009b, c). The potency of PCBs to cause cancer in animal species generally increases with higher chlorinated PCB mixtures, with Aroclor® 1260 demonstrated to be potent liver carcinogens in rats and mice (ATSDR 2000; USEPA 1996b, 2009b, c; VERSAR. 2000).

Individually, PCB congeners have mixed toxicities. Several PCB congeners are considered to have dioxin-like toxicity and have been assigned Toxic Equivalency Factors ("TEFs") that relate the PCB congeners toxicity to that of 2,3,7,8-tetrachlorodibenzo-p-dioxin ("TCDD"), the most toxic of the polychlorinated dibenzo-p-dioxins. While the use of TEFs and TEQs (i.e., toxic equivalency concentrations) are the primary means used to assess PCB health risks in humans, it is important to note that PCBs to which humans have been exposed often contain low levels (i.e., up to 3 percent) dioxins, which because of their higher TEF potency can complicate the characterization of health risk. Furthermore, and perhaps more importantly, because several health effects caused by PCBs appear to be un-related to their dioxin-like toxicity, the use of a dioxin-like toxicity scheme to characterize human health risk may significantly underestimate and even ignore health risks posed by exposure to PCBs.

U.S. EPA suggests that PCB risk assessments should begin with the mixture-based approach, but recognizes that the concentration of dioxin-like PCB congeners may be increased in environmental PCB mixtures. In such cases where congener-specific concentrations are available, the mixtures-based approach can be supplemented by an analysis of dioxin-like toxicity. Congener-specific analyses have additional value in cases where the selection of a high or low CSF values is potentially confounded by a laboratory's inappropriate identification of the Aroclor® mixture most similar to an

environmental mixture. Finally, because certain PCB congeners have preferential partitioning, transformation and/or bioaccumulation, congener-specific analyses can shed light on the potential for some exposures to pose an increased risk of harm to receptors (e.g., exposure to PCBs through the consumption of fish).

Mechanism of PCB Toxicity

More than any other biological response, enzyme induction has been used to assess the relative potencies of dioxin-like compounds, including PCBs. This use is based on the presumption that the mechanism by which dioxin causes enzyme induction and toxic effects is the same as that for other dioxin-like compounds (Poland, A. and J.C. Knutson 1982; Safe, S.H. 1986). The best studied of the dioxin-induced enzyme activities, Ethoxyresorufin-*O*-Deethylase ("EROD"), has been used as a marker for dioxin induction of *CYP1A1* gene transcription. *CYP1A1* is the name of a cytochrome P-450 monoxygenase gene induced by dioxin-aryl hydrocarbon receptor ("dioxin-AhR") complexes binding to one or more cis-acting DNA binding domains (i.e., dioxin response elements or DREs) (Denison, M.S. *et al.* 1988; Denison, M.S. *et al.* 1987; WhitlockJr., J.P. 1987, 1990). It is the induction of EROD that is the basis for TEF schemes derived by the U.S. EPA and the World Health Organization ("WHO") for the purpose of characterizing human and environmental health risks.

Dioxin-like compounds are known to induce or inhibit the expression of a number of genes other than *CYP1A1*. The process by which dioxin is capable of altering other genes expression is assumed to be similar to that known for *CYP1A1*, but studies of dioxin-regulated gene function indicate that is not the case. Basically, dioxin-like compound binding to the aryl hydrocarbon receptor ("AhR") mediates a process that regulates gene induction. In rats and marmosets, TCDD has been shown to induce EROD and methoxyresoruffin-*O*-demethylase ("MROD") activity. Where EROD is a marker for *CYP1A1* induction, MROD is a marker for another dioxin-induced P450 enzyme, *CYP1A2*. Interestingly, the ability of dioxin to induce these enzymes is species- and tissue-specific, suggesting differences in gene regulation between within species and tissues. For example, in rat liver both enzymes are induced by dioxin, whereas in human liver only MROD activity (*CYP1A2*) is induced by dioxin. In addition, evidence exists for dose dependence in the level of enzyme induction, a dose dependence that may be different within a species or tissue (Gradin, K. *et al.* 1993; SmithJr, J. S. 2006). For example, in rat liver, dioxin induces MROD to a greater extent than EROD at low doses (i.e., 3 ng/kg-bw), while the reverse is true at high doses (167 ng/kg-bw). Because there is no mechanistic evidence that AhR binding or induction of EROD is linked to the occurrence or severity of any adverse effect (Environ 1995; USEPA 1995c), the use of TEF schemes for assigning toxicity to dioxin-like compounds has no basis in the biological mechanisms of dioxin-like compound toxicity.

Individual PCB congeners in Aroclor® 1254 have been shown to induce both dioxin-like 3-methylcholanthrene ("3MC") enzyme activity and non-dioxin-like phenobarbital ("PB") enzyme activities. PCB congeners that induce AhR-dependent EROD activity are

said to have dioxin-like 3MC-like enzyme inducing activity. These PCBs are thought to have dioxin-like toxicity and are typified by the coplanar PCB compounds with IUPAC numbers 77, 126, 169, and their coplanar mono-ortho analogs (see table below). In comparison to TCDD, individual PCB congeners are typically much less potent toxicologically, with PCB congeners having dioxin-like activity that ranges from one tenth to one-one hundred thousandth that of TCDD (table below).

Table. WHO TEFs for PCBs.

PCB Congener (IUPAC #)	WHO-TEFs
2,3,7,8- tetrachlorodibenzo-p-dioxin (TCDD)	1
Coplanar PCBs	
3,3',4,4'- Tetrachlorobiphenyl (77)	0.0001
3,4,4',5- Tetrachlorobiphenyl (81)	0.0001
3,3',4,4',5- Pentachlorobiphenyl (126)	0.1
3,3',4,4',5,5'- Hexachlorobiphenyl (169)	0.01
Mono-ortho PCBs	
2,3,3',4,4'- Tetrachlorobiphenyl (105)	0.0001
2,3,4,4',5- Pentachlorobiphenyl (114)	0.0005
2,3',4,4',5- Pentachlorobiphenyl (118)	0.0001
2',3,4,4',5- Pentachlorobiphenyl (123)	0.0001
2,3,3',4,4',5-Hexachlorobiphenyl (156)	0.0005
2,3,3',4,4',5'- Hexachlorobiphenyl (157)	0.0005
2,3',4,4',5,5'- Hexachlorobiphenyl (167)	0.00001
2,3,3',4,4',5,5'- Heptachlorobiphenyl (189)	0.0001

Obtained from (Leeuwen, F. X. R. van *et al.* 2000)

Among Aroclor® mixtures, Aroclor® 1254 is the most potent inducer of EROD, followed in order by Aroclors® 1248, 1242, 1260, and 1232. Interestingly, Aroclor® 1260 is the most potent liver carcinogen (Kimbrough, R. D. *et al.* 1975.; Norback, D. H. and R. H. Weltman 1985; Silberhorn, E. M. *et al.* 1990.). In contrast to the rank order of Aroclor® mixtures ability to induce AhR-dependent EROD and 3-MC-like dioxin activity, Aroclor® 1260 is a more potent inducer of AhR-dependent 7-pentoxyresorufin O-dealkylase (“”PROD) activity, indicating PB-like induction of *CYP2B* genes (*CY2B1*, *CYP2B2*, and *CYP2A1*) and *CYP3A1*. PCBs, which exhibit PB-like enzyme induction have been shown to be promoters of liver cancer in rodents (Buchmann, A. *et al.* 1991.; Laib, R. J. *et al.* 1991.). Consequently, AhR-binding, receptor affinity and EROD induction are not sufficient for identifying the rank order of carcinogenic potency of PCB congeners present in Aroclor® mixtures.

According to Stephen Safe, the dioxin-like effects of PCBs are primarily due to the non-ortho substituted or coplanar PCB congeners 126 and 169 (3,3',4,4',5-pentaCB, 3,3',4,4',5,5'-hexaCB, respectively) or their mono-ortho substituted analogues 123, 114, 105, 118, 156, 167, 157, and 189 (2',3,4,4',5-pentCB, 2,3,4,4',5-pentaCB, 2,3,3',4,4'-pentaCB, 2,3',4,4',5-pentaCB, 2,3,3',4,4',5-hexaCB, 2,3',4,4',5,5'-hexaCB, 2,3,3',4,4',5'-hexaCB, and 2,3,3',4,4',5,5'-heptaCB, respectively) (Safe, S. 1997). All of

these compounds bind to the Ah receptor and elicit Ah-receptor mediated responses. The mono-ortho congeners, however, also induce phenobarbital-type P450 enzymes that are associated with tumor promotion and other systemic effects.

Appendix C

Laboratory Analytical Data Reports – Indoor Air

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

September 10, 2010

Dan White
ATC Associates - Woburn
600 W Cummings Park, Suite 6500
Woburn, MA 01801

Project Location: Cabot Yard - MBTA Dorchester, MA
Client Job Number:
Project Number: 060.15044.0007
Laboratory Work Order Number: 10H0237

Enclosed are results of analyses for samples received by the laboratory on August 10, 2010. 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

ATC Associates - Woburn
600 W Cummings Park, Suite 6500
Woburn, MA 01801
ATTN: Dan White

REPORT DATE: 9/10/2010

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 060.15044.0007

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 10H0237

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

PROJECT LOCATION: Cabot Yard - MBTA Dorchester, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
AIR-NE-Filtered	10H0237-01	Air		-	MA M-MA-086/CT PH-0574/NY11148
AIR-NE-Unfiltered	10H0237-02	Air		-	MA M-MA-086/CT PH-0574/NY11148
AIR-W-Filtered	10H0237-03	Air		-	MA M-MA-086/CT PH-0574/NY11148
AIR-W-Unfiltered	10H0237-04	Air		-	MA M-MA-086/CT PH-0574/NY11148
TRACK 8 - Filtered	10H0237-05	Air		-	MA M-MA-086/CT PH-0574/NY11148
TRACK 8 - Unfiltered	10H0237-06	Air		-	MA M-MA-086/CT PH-0574/NY11148
Outdoor Backround Filtered	10H0237-07	Air		-	MA M-MA-086/CT PH-0574/NY11148
Outdoor Backround Unfiltered	10H0237-08	Air		-	MA M-MA-086/CT PH-0574/NY11148

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

CASE NARRATIVE SUMMARY

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

Revised Report on 9/10/10 to include both Con-Test and ATC sample ID's.

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 individuuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Holly L. Folsom
Project Chemist

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

ANALYTICAL RESULTS

Project Location: Cabot Yard - MBTA Dorchester,
Date Received: 8/10/2010
Field Sample #: AIR-NE-Filtered
Sample ID: 10H0237-01
Sample Matrix: Air
Sampled: 8/7/2010 00:00

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:

Work Order: 10H0237

-

Analyte	N/A Results	RL	Flag	Dilution	Date/Time Analyzed	Analyst
See Attached Report Pages	-			1		

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

ANALYTICAL RESULTS

Project Location: Cabot Yard - MBTA Dorchester,
Date Received: 8/10/2010
Field Sample #: AIR-NE-Unfiltered
Sample ID: 10H0237-02
Sample Matrix: Air
Sampled: 8/7/2010 00:00

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:

Work Order: 10H0237

-

Analyte	N/A Results	RL	Flag	Dilution	Date/Time Analyzed	Analyst
See Attached Report Pages	-			1		

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

ANALYTICAL RESULTS

Project Location: Cabot Yard - MBTA Dorchester,
Date Received: 8/10/2010
Field Sample #: AIR-W-Filtered
Sample ID: 10H0237-03
Sample Matrix: Air
Sampled: 8/7/2010 00:00

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:

Work Order: 10H0237

-

Analyte	N/A Results	RL	Flag	Dilution	Date/Time Analyzed	Analyst
See Attached Report Pages	-			1		

con-test® ANALYTICAL LABORATORY

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

ANALYTICAL RESULTS

Project Location: Cabot Yard - MBTA Dorchester,
Date Received: 8/10/2010
Field Sample #: AIR-W-Unfiltered
Sample ID: 10H0237-04
Sample Matrix: Air
Sampled: 8/7/2010 00:00

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:

Work Order: 10H0237

-

Analyte	N/A Results	RL	Flag	Dilution	Date/Time Analyzed	Analyst
See Attached Report Pages	-			1		

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

ANALYTICAL RESULTS

Project Location: Cabot Yard - MBTA Dorchester,
Date Received: 8/10/2010
Field Sample #: TRACK 8 - Filtered
Sample ID: 10H0237-05
Sample Matrix: Air
Sampled: 8/7/2010 00:00

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:

Work Order: 10H0237

-

Analyte	N/A Results	RL	Flag	Dilution	Date/Time Analyzed	Analyst
See Attached Report Pages	-			1		

con-test® ANALYTICAL LABORATORY

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ANALYTICAL RESULTS

Project Location: Cabot Yard - MBTA Dorchester,
Date Received: 8/10/2010
Field Sample #: TRACK 8 - Unfiltered
Sample ID: 10H0237-06
Sample Matrix: Air
Sampled: 8/7/2010 00:00

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:

Work Order: 10H0237

-

Analyte	N/A Results	RL	Flag	Dilution	Date/Time Analyzed	Analyst
See Attached Report Pages	-			1		

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

ANALYTICAL RESULTS

Project Location: Cabot Yard - MBTA Dorchester,
Date Received: 8/10/2010
Field Sample #: Outdoor Backround Filtered
Sample ID: 10H0237-07
Sample Matrix: Air
Sampled: 8/7/2010 00:00

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:

Work Order: 10H0237

-

Analyte	N/A Results	RL	Flag	Dilution	Date/Time Analyzed	Analyst
See Attached Report Pages	-			1		

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

ANALYTICAL RESULTS

Project Location: Cabot Yard - MBTA Dorchester,
Date Received: 8/10/2010
Field Sample #: Outdoor Backround Unfiltered
Sample ID: 10H0237-08
Sample Matrix: Air
Sampled: 8/7/2010 00:00

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:

Work Order: 10H0237

-

Analyte	N/A Results	RL	Flag	Dilution	Date/Time Analyzed	Analyst
See Attached Report Pages	-			1		

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

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits estabished for difficult compound.
‡	Wide RPD limits estabished 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.

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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications

No certified Analyses included in this Report

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

Code	Description	Number	Expires
AIHA	American Industrial Hygiene Association	100033	01/1/2012
MA	Massachusetts DEP	M-MA100	06/30/2011
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2011
NY	New York State Department of Health	10899 NELAP	04/1/2011
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2011
RI	Rhode Island Department of Health	LAO00112	12/30/2010
NC	North Carolina Div. of Water Quality	652	12/31/2010
NJ	New Jersey DEP	MA007 NELAP	06/30/2011
FL	Florida Department of Health	E871027 NELAP	06/30/2011
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2011
WA	State of Washington Department of Ecology	C2065	02/23/2011

ANALYTICAL REPORT

Lab Number:	L1012315
Client:	Con-Test Laboratory PO Box 591 39 Spruce Street East Longmeadow, MA 01028
ATTN:	Alan Pienkowski
Phone:	(413) 525-2332
Project Name:	Not Specified
Project Number:	Not Specified
Report Date:	09/09/10

Certifications & Approvals: MA (M-MA030), NY (11627), CT (PH-0141), NH (2206), NJ (MA015), RI (LAO00299), ME (MA0030), PA (Registration #68-02089), LA NELAC (03090), FL NELAC (E87814), US Army Corps of Engineers.

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1012315
Report Date: 09/09/10

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1012315-01	10H0237-01 AIR-NE-FILTERED	Not Specified	08/07/10 00:00
L1012315-02	10H0237-02 AIR-NE-UNFILTERED	Not Specified	08/07/10 00:00
L1012315-03	10H0237-03 AIR-W-FILTERED	Not Specified	08/07/10 00:00
L1012315-04	10H0237-04 AIR-W-UNFILTERED	Not Specified	08/07/10 00:00
L1012315-05	10H0237-05 TRACK 8-FILTERED	Not Specified	08/07/10 00:00
L1012315-06	10H0237-06 TRACK 8-UNFILTERED	Not Specified	08/07/10 00:00
L1012315-07	10H0237-07 OUTDOOR BKGD FILTER	Not Specified	08/07/10 00:00
L1012315-08	10H0237-08 OUTDOOR BKGD UNFILT	Not Specified	08/07/10 00:00
L1012315-09	LP-100	Not Specified	

Project Name: Not Specified **Lab Number:** L1012315
Project Number: Not Specified **Report Date:** 09/09/10

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

For additional information, please contact Client Services at 800-624-9220.

Report Submission

This report replaces the report issued on August 25, 2010. The client sample identifications have been amended at the request of the client.

Sample Receipt

The samples were received at the laboratory above the required temperature range. The samples were transported to the laboratory in a cooler with ice. The client was notified of the exceedance, and all requested analyses were performed.

PCB Congeners and Homologs

The surrogate recoveries for L1012315-02 were outside the acceptance criteria for Cl3-BZ#19-C13(10%),

Project Name: Not Specified **Lab Number:** L1012315
Project Number: Not Specified **Report Date:** 09/09/10

Case Narrative (continued)

Cl8-BZ#202-C13 (12%); however, re-extraction could not be performed due to lack of additional sample. It was noted that there was a partial loss of sample during the extraction process. The results of the original analysis are reported; however, all associated compounds are considered to have a potential bias.

The surrogate recoveries for the method blank, WG427292-1 were outside the acceptance criteria for Cl3-BZ#19-C13 (44%), Cl8-BZ#202-C13 (43%); however, re-extraction could not be performed due to lack of additional sample. The results of the original analysis are reported; however, all associated compounds are considered to have a potential bias.

PCB Aroclors
Per client request, samples L1012315-02, -04, -06, -08 were analyzed via SW-846 Method 8082. The following Aroclors were analyzed for: 1016, 1221, 1232, 1242, 1248, 1254, 1260, 1262 and 1268. The RL for the each Aroclor is 100 ng/cartridge.

L1012315-02: Aroclor1254 was detected at the level of 60 ng/cart which is below the detection limit (100ng/cart)
L1012315-04: Aroclor 1254 was detected at the level of 300 ng/cart.
L1012315-06: Aroclor 1254 was detected at the level of 355 ng/cart.
L1012315-08: no aroclors were detected

It should also be noted that since the laboratory does not routinely report Aroclor concentration for PUF cartridges, no method detection limit study (MDL) has been performed for PUF cartridges via method 8082.

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1012315
Report Date: 09/09/10

Case Narrative (continued)

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kathleen M. O'Brien Kathleen O'Brien

Title: Technical Director/Representative

Date: 09/09/10

ORGANICS

PCBS

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1012315
Report Date: 09/09/10

SAMPLE RESULTS

Lab ID:	L1012315-01	Date Collected:	08/07/10 00:00
Client ID:	10H0237-01 AIR-NE-FILTERED	Date Received:	08/11/10
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air Cartridge	Extraction Method:	EPA 3540C
Analytical Method:	1,8270C-SIM	Extraction Date:	08/12/10 11:28
Analytical Date:	08/18/10 16:30	Cleanup Method1:	- - - -
Analyst:	JS		- - - -
		Cleanup Method2:	

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl1-BZ#1	ND		ng/cart	2.50	1.25	1
Cl1-BZ#2	ND		ng/cart	2.50	1.25	1
CL1-BZ#3	ND		ng/cart	2.50	1.25	1
Cl2-BZ#4/#10	2.55	J	ng/cart	5.00	2.50	1
Cl2-BZ#9	ND		ng/cart	2.50	1.25	1
Cl2-BZ#7	ND		ng/cart	2.50	1.25	1
Cl2-BZ#6	1.25	J	ng/cart	2.50	1.25	1
Cl2-BZ#5	ND		ng/cart	2.50	1.25	1
Cl2-BZ#8	5.55		ng/cart	2.50	1.25	1
Cl3-BZ#19	ND		ng/cart	2.50	1.25	1
Cl2-BZ#14	ND		ng/cart	2.50	1.25	1
Cl3-BZ#30	ND		ng/cart	2.50	1.25	1
Cl3-BZ#18	7.45		ng/cart	2.50	1.25	1
Cl2-BZ#11	ND		ng/cart	2.50	1.25	1
Cl3-BZ#17	2.65		ng/cart	2.50	1.25	1
Cl2-BZ#12	ND		ng/cart	2.50	1.25	1
Cl3-BZ#27	ND		ng/cart	2.50	1.25	1
Cl2-BZ#13	ND		ng/cart	2.50	1.25	1
Cl3-BZ#24	ND		ng/cart	2.50	1.25	1
Cl3-BZ#16	3.10		ng/cart	2.50	1.25	1
Cl3-BZ#32	1.95	J	ng/cart	2.50	1.25	1
Cl2-BZ#15	1.35	J	ng/cart	2.50	1.25	1
Cl3-BZ#34	ND		ng/cart	2.50	1.25	1
Cl3-BZ#23	ND		ng/cart	2.50	1.25	1
Cl4-BZ#54	ND		ng/cart	2.50	1.25	1
Cl3-BZ#29	ND		ng/cart	2.50	1.25	1
Cl4-BZ#50	ND		ng/cart	2.50	1.25	1
Cl3-BZ#26	ND		ng/cart	2.50	1.25	1
Cl3-BZ#25	ND		ng/cart	2.50	1.25	1
Cl4-BZ#53	1.45	J	ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-01 Date Collected: 08/07/10 00:00

Client ID: 10H0237-01 AIR-NE-FILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl3-BZ#-31	6.15		ng/cart	2.50	1.25	1
Cl3-BZ#28	5.40		ng/cart	2.50	1.25	1
Cl3-BZ#33	2.90		ng/cart	2.50	1.25	1
Cl4-BZ#51	ND		ng/cart	2.50	1.25	1
Cl3-BZ#21/#20	ND		ng/cart	5.00	2.50	1
Cl4-BZ#45	ND		ng/cart	2.50	1.25	1
Cl3-BZ#22	2.1	J	ng/cart	2.50	1.25	1
Cl4-BZ#73/#46	ND		ng/cart	5.00	2.50	1
Cl4-BZ#69	ND		ng/cart	2.50	1.25	1
Cl4-BZ#43	ND		ng/cart	2.50	1.25	1
Cl3-BZ#36	ND		ng/cart	2.50	1.25	1
Cl4-BZ#52	36.8		ng/cart	2.50	1.25	1
Cl4-BZ#48	ND		ng/cart	2.50	1.25	1
Cl4-BZ#49	7.10		ng/cart	2.50	1.25	1
Cl5-BZ#104	ND		ng/cart	2.50	1.25	1
Cl4-BZ#47	1.35	J	ng/cart	2.50	1.25	1
Cl4-BZ#65/#75/#62	ND		ng/cart	7.50	3.75	1
Cl3-BZ#39	ND		ng/cart	2.50	1.25	1
Cl3-BZ#38	ND		ng/cart	2.50	1.25	1
Cl4-BZ#44	14.4		ng/cart	2.50	1.25	1
Cl4-BZ#59	ND		ng/cart	2.50	1.25	1
Cl4-BZ#42	1.4	J	ng/cart	2.50	1.25	1
Cl4-BZ#71	1.45	J	ng/cart	2.50	1.25	1
Cl3-BZ#35	ND		ng/cart	2.50	1.25	1
Cl4-BZ#41	ND		ng/cart	2.50	1.25	1
Cl4-BZ#72	ND		ng/cart	2.50	1.25	1
Cl5-BZ#96	ND		ng/cart	2.50	1.25	1
Cl5-BZ#103	ND		ng/cart	2.50	1.25	1
Cl4-BZ#68/#64	3.5	J	ng/cart	5.00	2.50	1
Cl4-BZ#40	ND		ng/cart	2.50	1.25	1
Cl3-BZ#37	ND		ng/cart	2.50	1.25	1
Cl5-BZ#100	ND		ng/cart	2.50	1.25	1
Cl5-BZ#94	ND		ng/cart	2.50	1.25	1
Cl4-BZ#57	ND		ng/cart	2.50	1.25	1
Cl4-BZ#67/#58	ND		ng/cart	5.00	2.50	1
Cl5-BZ#102	ND		ng/cart	2.50	1.25	1
Cl4-BZ#61	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-01 Date Collected: 08/07/10 00:00

Client ID: 10H0237-01 AIR-NE-FILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#98	ND		ng/cart	2.50	1.25	1
Cl4-BZ#76	ND		ng/cart	2.50	1.25	1
Cl5-BZ#93	ND		ng/cart	2.50	1.25	1
Cl4-BZ#63	ND		ng/cart	2.50	1.25	1
Cl5-BZ#121/#95/#88	31.0		ng/cart	7.50	3.75	1
Cl4-BZ#74	3.80		ng/cart	2.50	1.25	1
Cl6-BZ#155	ND		ng/cart	2.50	1.25	1
Cl4-BZ#70	11.7		ng/cart	2.50	1.25	1
Cl5-BZ#91	3.95		ng/cart	2.50	1.25	1
Cl4-BZ#66	4.80		ng/cart	2.50	1.25	1
Cl4-BZ#80	ND		ng/cart	2.50	1.25	1
Cl4-BZ#55	ND		ng/cart	2.50	1.25	1
Cl5-BZ#92	6.15		ng/cart	2.50	1.25	1
Cl5-BZ#89/#84	9.60		ng/cart	5.00	2.50	1
Cl5-BZ#101/#90	33.4		ng/cart	5.00	2.50	1
Cl4-BZ#56	2.60		ng/cart	2.50	1.25	1
Cl5-BZ#113	ND		ng/cart	2.50	1.25	1
Cl5-BZ#99	10.0		ng/cart	2.50	1.25	1
Cl6-BZ#150	ND		ng/cart	2.50	1.25	1
Cl4-BZ#60	ND		ng/cart	2.50	1.25	1
Cl6-BZ#152	ND		ng/cart	2.50	1.25	1
Cl5-BZ#119	ND		ng/cart	2.50	1.25	1
Cl5-BZ#83/#125/#112	ND		ng/cart	7.50	3.75	1
Cl5-BZ#86/#109	ND		ng/cart	5.00	2.50	1
Cl5-BZ#97	7.35		ng/cart	2.50	1.25	1
Cl5-BZ#116	ND		ng/cart	2.50	1.25	1
Cl5-BZ#87/#111	9.05		ng/cart	5.00	2.50	1
Cl6-BZ#145	ND		ng/cart	2.50	1.25	1
Cl6-BZ#148	ND		ng/cart	2.50	1.25	1
Cl4-BZ#79	ND		ng/cart	2.50	1.25	1
Cl6-BZ#154	ND		ng/cart	2.50	1.25	1
Cl4-BZ#78	ND		ng/cart	2.50	1.25	1
Cl6-BZ#136	5.20		ng/cart	2.50	1.25	1
Cl5-BZ#117	ND		ng/cart	2.50	1.25	1
Cl5-BZ#115	ND		ng/cart	2.50	1.25	1
Cl5-BZ#85	3.20		ng/cart	2.50	1.25	1
Cl5-BZ#120	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-01 Date Collected: 08/07/10 00:00

Client ID: 10H0237-01 AIR-NE-FILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#110	23.4		ng/cart	2.50	1.25	1
Cl4-BZ#81	1.35	J	ng/cart	2.50	1.25	1
Cl6-BZ#151	7.30		ng/cart	2.50	1.25	1
Cl6-BZ#135	2.90		ng/cart	2.50	1.25	1
Cl5-BZ#82	2.4	J	ng/cart	2.50	1.25	1
Cl6-BZ#144	1.7	J	ng/cart	2.50	1.25	1
Cl6-BZ#147/#149	18.8		ng/cart	5.00	2.50	1
Cl4-BZ#77	ND		ng/cart	2.50	1.25	1
Cl6-BZ#143/#139	ND		ng/cart	5.00	2.50	1
Cl5-BZ#124	ND		ng/cart	2.50	1.25	1
Cl6-BZ#140	ND		ng/cart	2.50	1.25	1
Cl5-BZ#108	ND		ng/cart	2.50	1.25	1
Cl5-BZ#107/#123	ND		ng/cart	5.00	2.50	1
Cl7-BZ#188	ND		ng/cart	2.50	1.25	1
Cl6-BZ#134	ND		ng/cart	2.50	1.25	1
Cl5-BZ#106	ND		ng/cart	2.50	1.25	1
Cl6-BZ#133	ND		ng/cart	2.50	1.25	1
Cl6-BZ#142	ND		ng/cart	2.50	1.25	1
Cl5-BZ#118	10.6		ng/cart	2.50	1.25	1
Cl6-BZ#131	ND		ng/cart	2.50	1.25	1
Cl7-BZ#184	ND		ng/cart	2.50	1.25	1
Cl6-BZ#165	ND		ng/cart	2.50	1.25	1
Cl6-BZ#146	2.05	J	ng/cart	2.50	1.25	1
Cl6-BZ#161	ND		ng/cart	2.50	1.25	1
Cl5-BZ#122	ND		ng/cart	2.50	1.25	1
Cl6-BZ#168	ND		ng/cart	2.50	1.25	1
Cl5-BZ#114	ND		ng/cart	2.50	1.25	1
Cl6-BZ#153	14.6		ng/cart	2.50	1.25	1
Cl6-BZ#132	5.95		ng/cart	2.50	1.25	1
Cl7-BZ#179	4.30		ng/cart	2.50	1.25	1
Cl6-BZ#141	3.30		ng/cart	2.50	1.25	1
Cl7-BZ#176	ND		ng/cart	2.50	1.25	1
Cl5-BZ#105	3.15		ng/cart	2.50	1.25	1
Cl6-BZ#137	ND		ng/cart	2.50	1.25	1
Cl5-BZ#127	ND		ng/cart	2.50	1.25	1
Cl7-BZ#186	ND		ng/cart	2.50	1.25	1
Cl6-BZ#130/#164	ND		ng/cart	5.00	2.50	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-01 Date Collected: 08/07/10 00:00

Client ID: 10H0237-01 AIR-NE-FILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl7-BZ#178	ND		ng/cart	2.50	1.25	1
Cl6-BZ#138	7.55		ng/cart	2.50	1.25	1
Cl6-BZ#163/#160	ND		ng/cart	5.00	2.50	1
Cl6-BZ#129/#158	ND		ng/cart	5.00	2.50	1
Cl7-BZ#182/#175	ND		ng/cart	5.00	2.50	1
Cl7-BZ#187	5.70		ng/cart	2.50	1.25	1
Cl7-BZ#183	2.50		ng/cart	2.50	1.25	1
Cl6-BZ#166	ND		ng/cart	2.50	1.25	1
Cl6-BZ#159	ND		ng/cart	2.50	1.25	1
Cl5-BZ#126	ND		ng/cart	2.50	1.25	1
Cl7-BZ#185	ND		ng/cart	2.50	1.25	1
Cl6-BZ#162	ND		ng/cart	2.50	1.25	1
Cl7-BZ#174	3.85		ng/cart	2.50	1.25	1
Cl6-BZ#128	2.05	J	ng/cart	2.50	1.25	1
Cl6-BZ#167	ND		ng/cart	2.50	1.25	1
Cl8-BZ#202	ND		ng/cart	2.50	1.25	1
Cl7-BZ#181	ND		ng/cart	2.50	1.25	1
Cl7-BZ#177	1.65	J	ng/cart	2.50	1.25	1
Cl8-BZ#204/#200-CAL	ND		ng/cart	5.00	2.50	1
Cl7-BZ#171	ND		ng/cart	2.50	1.25	1
Cl7-BZ#173	ND		ng/cart	2.50	1.25	1
Cl8-BZ#197	ND		ng/cart	2.50	1.25	1
Cl7-BZ#172	ND		ng/cart	2.50	1.25	1
Cl7-BZ#192	ND		ng/cart	2.50	1.25	1
Cl6-BZ#156	ND		ng/cart	2.50	1.25	1
Cl6-BZ#157	ND		ng/cart	2.50	1.25	1
Cl7-BZ#180	4.35		ng/cart	2.50	1.25	1
Cl7-BZ#193	ND		ng/cart	2.50	1.25	1
Cl8-BZ#199	ND		ng/cart	2.50	1.25	1
Cl7-BZ#191	ND		ng/cart	2.50	1.25	1
Cl8-BZ#198	ND		ng/cart	2.50	1.25	1
Cl8-BZ#201	1.5	J	ng/cart	2.50	1.25	1
Cl7-BZ#170	1.3	J	ng/cart	2.50	1.25	1
Cl7-BZ#190	ND		ng/cart	2.50	1.25	1
Cl8-BZ#196	ND		ng/cart	2.50	1.25	1
Cl8-BZ#203	ND		ng/cart	2.50	1.25	1
Cl6-BZ#169	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-01 Date Collected: 08/07/10 00:00

Client ID: 10H0237-01 AIR-NE-FILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl9-BZ#208	ND		ng/cart	2.50	1.25	1
Cl9-BZ#207	ND		ng/cart	2.50	1.25	1
Cl7-BZ#189	ND		ng/cart	2.50	1.25	1
Cl8-BZ#195	ND		ng/cart	2.50	1.25	1
Cl8-BZ#194	ND		ng/cart	2.50	1.25	1
Cl8-BZ#205	ND		ng/cart	2.50	1.25	1
Cl9-BZ#206	ND		ng/cart	2.50	1.25	1
Cl10-BZ#209	ND		ng/cart	2.50	1.25	1
Monochlorobiphenyls	ND		ng/cart	2.50	1.25	1
Dichlorobiphenyls	10.7		ng/cart	2.50	1.25	1
Trichlorobiphenyls	31.7		ng/cart	2.50	1.25	1
Tetrachlorobiphenyls	91.7		ng/cart	2.50	1.25	1
Pentachlorobiphenyls	153		ng/cart	2.50	1.25	1
Hexachlorobiphenyls	71.4		ng/cart	2.50	1.25	1
Heptachlorobiphenyls	23.7		ng/cart	2.50	1.25	1
Octachlorobiphenyls	1.5	J	ng/cart	2.50	1.25	1
Nonachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Decachlorobiphenyl	ND		ng/cart	2.50	1.25	1
Total Homologs	384		ng/cart	2.50	1.25	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	95		50-125
Cl8-BZ#202-C13	101		50-125

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1012315
Report Date: 09/09/10

SAMPLE RESULTS

Lab ID:	L1012315-02	Date Collected:	08/07/10 00:00
Client ID:	10H0237-02 AIR-NE-UNFILTERED	Date Received:	08/11/10
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air Cartridge	Extraction Method:	EPA 3540C
Analytical Method:	1,8270C-SIM	Extraction Date:	08/12/10 11:28
Analytical Date:	08/18/10 17:38	Cleanup Method1:	- - - -
Analyst:	JS		- - - -
		Cleanup Method2:	

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl1-BZ#1	ND		ng/cart	2.50	1.25	1
Cl1-BZ#2	ND		ng/cart	2.50	1.25	1
CL1-BZ#3	ND		ng/cart	2.50	1.25	1
Cl2-BZ#4/#10	ND		ng/cart	5.00	2.50	1
Cl2-BZ#9	ND		ng/cart	2.50	1.25	1
Cl2-BZ#7	ND		ng/cart	2.50	1.25	1
Cl2-BZ#6	ND		ng/cart	2.50	1.25	1
Cl2-BZ#5	ND		ng/cart	2.50	1.25	1
Cl2-BZ#8	ND		ng/cart	2.50	1.25	1
Cl3-BZ#19	ND		ng/cart	2.50	1.25	1
Cl2-BZ#14	ND		ng/cart	2.50	1.25	1
Cl3-BZ#30	ND		ng/cart	2.50	1.25	1
Cl3-BZ#18	ND		ng/cart	2.50	1.25	1
Cl2-BZ#11	ND		ng/cart	2.50	1.25	1
Cl3-BZ#17	ND		ng/cart	2.50	1.25	1
Cl2-BZ#12	ND		ng/cart	2.50	1.25	1
Cl3-BZ#27	ND		ng/cart	2.50	1.25	1
Cl2-BZ#13	ND		ng/cart	2.50	1.25	1
Cl3-BZ#24	ND		ng/cart	2.50	1.25	1
Cl3-BZ#16	ND		ng/cart	2.50	1.25	1
Cl3-BZ#32	ND		ng/cart	2.50	1.25	1
Cl2-BZ#15	ND		ng/cart	2.50	1.25	1
Cl3-BZ#34	ND		ng/cart	2.50	1.25	1
Cl3-BZ#23	ND		ng/cart	2.50	1.25	1
Cl4-BZ#54	ND		ng/cart	2.50	1.25	1
Cl3-BZ#29	ND		ng/cart	2.50	1.25	1
Cl4-BZ#50	ND		ng/cart	2.50	1.25	1
Cl3-BZ#26	ND		ng/cart	2.50	1.25	1
Cl3-BZ#25	ND		ng/cart	2.50	1.25	1
Cl4-BZ#53	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-02 Date Collected: 08/07/10 00:00

Client ID: 10H0237-02 AIR-NE-UNFILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl3-BZ#-31	ND		ng/cart	2.50	1.25	1
Cl3-BZ#28	ND		ng/cart	2.50	1.25	1
Cl3-BZ#33	ND		ng/cart	2.50	1.25	1
Cl4-BZ#51	ND		ng/cart	2.50	1.25	1
Cl3-BZ#21/#20	ND		ng/cart	5.00	2.50	1
Cl4-BZ#45	ND		ng/cart	2.50	1.25	1
Cl3-BZ#22	ND		ng/cart	2.50	1.25	1
Cl4-BZ#73/#46	ND		ng/cart	5.00	2.50	1
Cl4-BZ#69	ND		ng/cart	2.50	1.25	1
Cl4-BZ#43	ND		ng/cart	2.50	1.25	1
Cl3-BZ#36	ND		ng/cart	2.50	1.25	1
Cl4-BZ#52	3.90		ng/cart	2.50	1.25	1
Cl4-BZ#48	ND		ng/cart	2.50	1.25	1
Cl4-BZ#49	ND		ng/cart	2.50	1.25	1
Cl5-BZ#104	ND		ng/cart	2.50	1.25	1
Cl4-BZ#47	ND		ng/cart	2.50	1.25	1
Cl4-BZ#65/#75/#62	ND		ng/cart	7.50	3.75	1
Cl3-BZ#39	ND		ng/cart	2.50	1.25	1
Cl3-BZ#38	ND		ng/cart	2.50	1.25	1
Cl4-BZ#44	1.55	J	ng/cart	2.50	1.25	1
Cl4-BZ#59	ND		ng/cart	2.50	1.25	1
Cl4-BZ#42	ND		ng/cart	2.50	1.25	1
Cl4-BZ#71	ND		ng/cart	2.50	1.25	1
Cl3-BZ#35	ND		ng/cart	2.50	1.25	1
Cl4-BZ#41	ND		ng/cart	2.50	1.25	1
Cl4-BZ#72	ND		ng/cart	2.50	1.25	1
Cl5-BZ#96	ND		ng/cart	2.50	1.25	1
Cl5-BZ#103	ND		ng/cart	2.50	1.25	1
Cl4-BZ#68/#64	ND		ng/cart	5.00	2.50	1
Cl4-BZ#40	ND		ng/cart	2.50	1.25	1
Cl3-BZ#37	ND		ng/cart	2.50	1.25	1
Cl5-BZ#100	ND		ng/cart	2.50	1.25	1
Cl5-BZ#94	ND		ng/cart	2.50	1.25	1
Cl4-BZ#57	ND		ng/cart	2.50	1.25	1
Cl4-BZ#67/#58	ND		ng/cart	5.00	2.50	1
Cl5-BZ#102	ND		ng/cart	2.50	1.25	1
Cl4-BZ#61	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-02 Date Collected: 08/07/10 00:00

Client ID: 10H0237-02 AIR-NE-UNFILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#98	ND		ng/cart	2.50	1.25	1
Cl4-BZ#76	ND		ng/cart	2.50	1.25	1
Cl5-BZ#93	ND		ng/cart	2.50	1.25	1
Cl4-BZ#63	ND		ng/cart	2.50	1.25	1
Cl5-BZ#121/#95/#88	ND		ng/cart	7.50	3.75	1
Cl4-BZ#74	ND		ng/cart	2.50	1.25	1
Cl6-BZ#155	ND		ng/cart	2.50	1.25	1
Cl4-BZ#70	1.35	J	ng/cart	2.50	1.25	1
Cl5-BZ#91	ND		ng/cart	2.50	1.25	1
Cl4-BZ#66	ND		ng/cart	2.50	1.25	1
Cl4-BZ#80	ND		ng/cart	2.50	1.25	1
Cl4-BZ#55	ND		ng/cart	2.50	1.25	1
Cl5-BZ#92	ND		ng/cart	2.50	1.25	1
Cl5-BZ#89/#84	ND		ng/cart	5.00	2.50	1
Cl5-BZ#101/#90	3.35	J	ng/cart	5.00	2.50	1
Cl4-BZ#56	ND		ng/cart	2.50	1.25	1
Cl5-BZ#113	ND		ng/cart	2.50	1.25	1
Cl5-BZ#99	1.45	J	ng/cart	2.50	1.25	1
Cl6-BZ#150	ND		ng/cart	2.50	1.25	1
Cl4-BZ#60	ND		ng/cart	2.50	1.25	1
Cl6-BZ#152	ND		ng/cart	2.50	1.25	1
Cl5-BZ#119	ND		ng/cart	2.50	1.25	1
Cl5-BZ#83/#125/#112	ND		ng/cart	7.50	3.75	1
Cl5-BZ#86/#109	ND		ng/cart	5.00	2.50	1
Cl5-BZ#97	ND		ng/cart	2.50	1.25	1
Cl5-BZ#116	ND		ng/cart	2.50	1.25	1
Cl5-BZ#87/#111	ND		ng/cart	5.00	2.50	1
Cl6-BZ#145	ND		ng/cart	2.50	1.25	1
Cl6-BZ#148	ND		ng/cart	2.50	1.25	1
Cl4-BZ#79	ND		ng/cart	2.50	1.25	1
Cl6-BZ#154	ND		ng/cart	2.50	1.25	1
Cl4-BZ#78	ND		ng/cart	2.50	1.25	1
Cl6-BZ#136	ND		ng/cart	2.50	1.25	1
Cl5-BZ#117	ND		ng/cart	2.50	1.25	1
Cl5-BZ#115	ND		ng/cart	2.50	1.25	1
Cl5-BZ#85	ND		ng/cart	2.50	1.25	1
Cl5-BZ#120	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-02 Date Collected: 08/07/10 00:00

Client ID: 10H0237-02 AIR-NE-UNFILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#110	3.00		ng/cart	2.50	1.25	1
Cl4-BZ#81	ND		ng/cart	2.50	1.25	1
Cl6-BZ#151	ND		ng/cart	2.50	1.25	1
Cl6-BZ#135	ND		ng/cart	2.50	1.25	1
Cl5-BZ#82	ND		ng/cart	2.50	1.25	1
Cl6-BZ#144	ND		ng/cart	2.50	1.25	1
Cl6-BZ#147/#149	2.55	J	ng/cart	5.00	2.50	1
Cl4-BZ#77	ND		ng/cart	2.50	1.25	1
Cl6-BZ#143/#139	ND		ng/cart	5.00	2.50	1
Cl5-BZ#124	ND		ng/cart	2.50	1.25	1
Cl6-BZ#140	ND		ng/cart	2.50	1.25	1
Cl5-BZ#108	ND		ng/cart	2.50	1.25	1
Cl5-BZ#107/#123	ND		ng/cart	5.00	2.50	1
Cl7-BZ#188	ND		ng/cart	2.50	1.25	1
Cl6-BZ#134	ND		ng/cart	2.50	1.25	1
Cl5-BZ#106	ND		ng/cart	2.50	1.25	1
Cl6-BZ#133	ND		ng/cart	2.50	1.25	1
Cl6-BZ#142	ND		ng/cart	2.50	1.25	1
Cl5-BZ#118	1.75	J	ng/cart	2.50	1.25	1
Cl6-BZ#131	ND		ng/cart	2.50	1.25	1
Cl7-BZ#184	ND		ng/cart	2.50	1.25	1
Cl6-BZ#165	ND		ng/cart	2.50	1.25	1
Cl6-BZ#146	ND		ng/cart	2.50	1.25	1
Cl6-BZ#161	ND		ng/cart	2.50	1.25	1
Cl5-BZ#122	ND		ng/cart	2.50	1.25	1
Cl6-BZ#168	ND		ng/cart	2.50	1.25	1
Cl5-BZ#114	ND		ng/cart	2.50	1.25	1
Cl6-BZ#153	2	J	ng/cart	2.50	1.25	1
Cl6-BZ#132	ND		ng/cart	2.50	1.25	1
Cl7-BZ#179	ND		ng/cart	2.50	1.25	1
Cl6-BZ#141	ND		ng/cart	2.50	1.25	1
Cl7-BZ#176	ND		ng/cart	2.50	1.25	1
Cl5-BZ#105	ND		ng/cart	2.50	1.25	1
Cl6-BZ#137	ND		ng/cart	2.50	1.25	1
Cl5-BZ#127	ND		ng/cart	2.50	1.25	1
Cl7-BZ#186	ND		ng/cart	2.50	1.25	1
Cl6-BZ#130/#164	ND		ng/cart	5.00	2.50	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-02 Date Collected: 08/07/10 00:00

Client ID: 10H0237-02 AIR-NE-UNFILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl7-BZ#178	ND		ng/cart	2.50	1.25	1
Cl6-BZ#138	ND		ng/cart	2.50	1.25	1
Cl6-BZ#163/#160	ND		ng/cart	5.00	2.50	1
Cl6-BZ#129/#158	ND		ng/cart	5.00	2.50	1
Cl7-BZ#182/#175	ND		ng/cart	5.00	2.50	1
Cl7-BZ#187	ND		ng/cart	2.50	1.25	1
Cl7-BZ#183	ND		ng/cart	2.50	1.25	1
Cl6-BZ#166	ND		ng/cart	2.50	1.25	1
Cl6-BZ#159	ND		ng/cart	2.50	1.25	1
Cl5-BZ#126	ND		ng/cart	2.50	1.25	1
Cl7-BZ#185	ND		ng/cart	2.50	1.25	1
Cl6-BZ#162	ND		ng/cart	2.50	1.25	1
Cl7-BZ#174	ND		ng/cart	2.50	1.25	1
Cl6-BZ#128	ND		ng/cart	2.50	1.25	1
Cl6-BZ#167	ND		ng/cart	2.50	1.25	1
Cl8-BZ#202	ND		ng/cart	2.50	1.25	1
Cl7-BZ#181	ND		ng/cart	2.50	1.25	1
Cl7-BZ#177	ND		ng/cart	2.50	1.25	1
Cl8-BZ#204/#200-CAL	ND		ng/cart	5.00	2.50	1
Cl7-BZ#171	ND		ng/cart	2.50	1.25	1
Cl7-BZ#173	ND		ng/cart	2.50	1.25	1
Cl8-BZ#197	ND		ng/cart	2.50	1.25	1
Cl7-BZ#172	ND		ng/cart	2.50	1.25	1
Cl7-BZ#192	ND		ng/cart	2.50	1.25	1
Cl6-BZ#156	ND		ng/cart	2.50	1.25	1
Cl6-BZ#157	ND		ng/cart	2.50	1.25	1
Cl7-BZ#180	ND		ng/cart	2.50	1.25	1
Cl7-BZ#193	ND		ng/cart	2.50	1.25	1
Cl8-BZ#199	ND		ng/cart	2.50	1.25	1
Cl7-BZ#191	ND		ng/cart	2.50	1.25	1
Cl8-BZ#198	ND		ng/cart	2.50	1.25	1
Cl8-BZ#201	ND		ng/cart	2.50	1.25	1
Cl7-BZ#170	ND		ng/cart	2.50	1.25	1
Cl7-BZ#190	ND		ng/cart	2.50	1.25	1
Cl8-BZ#196	ND		ng/cart	2.50	1.25	1
Cl8-BZ#203	ND		ng/cart	2.50	1.25	1
Cl6-BZ#169	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-02 Date Collected: 08/07/10 00:00

Client ID: 10H0237-02 AIR-NE-UNFILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl9-BZ#208	ND		ng/cart	2.50	1.25	1
Cl9-BZ#207	ND		ng/cart	2.50	1.25	1
Cl7-BZ#189	ND		ng/cart	2.50	1.25	1
Cl8-BZ#195	ND		ng/cart	2.50	1.25	1
Cl8-BZ#194	ND		ng/cart	2.50	1.25	1
Cl8-BZ#205	ND		ng/cart	2.50	1.25	1
Cl9-BZ#206	ND		ng/cart	2.50	1.25	1
Cl10-BZ#209	ND		ng/cart	2.50	1.25	1
Monochlorobiphenyls	ND		ng/cart	2.50	1.25	1
Dichlorobiphenyls	ND		ng/cart	2.50	1.25	1
Trichlorobiphenyls	ND		ng/cart	2.50	1.25	1
Tetrachlorobiphenyls	6.80		ng/cart	2.50	1.25	1
Pentachlorobiphenyls	9.55		ng/cart	2.50	1.25	1
Hexachlorobiphenyls	4.55		ng/cart	2.50	1.25	1
Heptachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Octachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Nonachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Decachlorobiphenyl	ND		ng/cart	2.50	1.25	1
Total Homologs	20.9		ng/cart	2.50	1.25	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	**10**	Q	50-125
Cl8-BZ#202-C13	**12**	Q	50-125

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID:	L1012315-03	Date Collected:	08/07/10 00:00
Client ID:	10H0237-03 AIR-W-FILTERED	Date Received:	08/11/10
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air Cartridge	Extraction Method:	EPA 3540C
Analytical Method:	1,8270C-SIM	Extraction Date:	08/12/10 11:28
Analytical Date:	08/18/10 18:46	Cleanup Method1:	- - - -
Analyst:	JS		- - - -
		Cleanup Method2:	

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl1-BZ#1	ND		ng/cart	2.50	1.25	1
Cl1-BZ#2	ND		ng/cart	2.50	1.25	1
CL1-BZ#3	ND		ng/cart	2.50	1.25	1
Cl2-BZ#4/#10	2.65	J	ng/cart	5.00	2.50	1
Cl2-BZ#9	ND		ng/cart	2.50	1.25	1
Cl2-BZ#7	ND		ng/cart	2.50	1.25	1
Cl2-BZ#6	1.25	J	ng/cart	2.50	1.25	1
Cl2-BZ#5	ND		ng/cart	2.50	1.25	1
Cl2-BZ#8	5.60		ng/cart	2.50	1.25	1
Cl3-BZ#19	ND		ng/cart	2.50	1.25	1
Cl2-BZ#14	ND		ng/cart	2.50	1.25	1
Cl3-BZ#30	ND		ng/cart	2.50	1.25	1
Cl3-BZ#18	5.95		ng/cart	2.50	1.25	1
Cl2-BZ#11	ND		ng/cart	2.50	1.25	1
Cl3-BZ#17	2.25	J	ng/cart	2.50	1.25	1
Cl2-BZ#12	ND		ng/cart	2.50	1.25	1
Cl3-BZ#27	ND		ng/cart	2.50	1.25	1
Cl2-BZ#13	ND		ng/cart	2.50	1.25	1
Cl3-BZ#24	ND		ng/cart	2.50	1.25	1
Cl3-BZ#16	2.1	J	ng/cart	2.50	1.25	1
Cl3-BZ#32	1.45	J	ng/cart	2.50	1.25	1
Cl2-BZ#15	1.25	J	ng/cart	2.50	1.25	1
Cl3-BZ#34	ND		ng/cart	2.50	1.25	1
Cl3-BZ#23	ND		ng/cart	2.50	1.25	1
Cl4-BZ#54	ND		ng/cart	2.50	1.25	1
Cl3-BZ#29	ND		ng/cart	2.50	1.25	1
Cl4-BZ#50	ND		ng/cart	2.50	1.25	1
Cl3-BZ#26	ND		ng/cart	2.50	1.25	1
Cl3-BZ#25	ND		ng/cart	2.50	1.25	1
Cl4-BZ#53	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-03 Date Collected: 08/07/10 00:00

Client ID: 10H0237-03 AIR-W-FILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl3-BZ#-31	3.95		ng/cart	2.50	1.25	1
Cl3-BZ#28	4.00		ng/cart	2.50	1.25	1
Cl3-BZ#33	2.2	J	ng/cart	2.50	1.25	1
Cl4-BZ#51	ND		ng/cart	2.50	1.25	1
Cl3-BZ#21/#20	ND		ng/cart	5.00	2.50	1
Cl4-BZ#45	ND		ng/cart	2.50	1.25	1
Cl3-BZ#22	1.4	J	ng/cart	2.50	1.25	1
Cl4-BZ#73/#46	ND		ng/cart	5.00	2.50	1
Cl4-BZ#69	ND		ng/cart	2.50	1.25	1
Cl4-BZ#43	ND		ng/cart	2.50	1.25	1
Cl3-BZ#36	ND		ng/cart	2.50	1.25	1
Cl4-BZ#52	23.0		ng/cart	2.50	1.25	1
Cl4-BZ#48	ND		ng/cart	2.50	1.25	1
Cl4-BZ#49	4.15		ng/cart	2.50	1.25	1
Cl5-BZ#104	ND		ng/cart	2.50	1.25	1
Cl4-BZ#47	ND		ng/cart	2.50	1.25	1
Cl4-BZ#65/#75/#62	ND		ng/cart	7.50	3.75	1
Cl3-BZ#39	ND		ng/cart	2.50	1.25	1
Cl3-BZ#38	ND		ng/cart	2.50	1.25	1
Cl4-BZ#44	8.90		ng/cart	2.50	1.25	1
Cl4-BZ#59	ND		ng/cart	2.50	1.25	1
Cl4-BZ#42	ND		ng/cart	2.50	1.25	1
Cl4-BZ#71	ND		ng/cart	2.50	1.25	1
Cl3-BZ#35	ND		ng/cart	2.50	1.25	1
Cl4-BZ#41	ND		ng/cart	2.50	1.25	1
Cl4-BZ#72	ND		ng/cart	2.50	1.25	1
Cl5-BZ#96	ND		ng/cart	2.50	1.25	1
Cl5-BZ#103	ND		ng/cart	2.50	1.25	1
Cl4-BZ#68/#64	ND		ng/cart	5.00	2.50	1
Cl4-BZ#40	ND		ng/cart	2.50	1.25	1
Cl3-BZ#37	ND		ng/cart	2.50	1.25	1
Cl5-BZ#100	ND		ng/cart	2.50	1.25	1
Cl5-BZ#94	ND		ng/cart	2.50	1.25	1
Cl4-BZ#57	ND		ng/cart	2.50	1.25	1
Cl4-BZ#67/#58	ND		ng/cart	5.00	2.50	1
Cl5-BZ#102	ND		ng/cart	2.50	1.25	1
Cl4-BZ#61	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-03 Date Collected: 08/07/10 00:00

Client ID: 10H0237-03 AIR-W-FILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#98	ND		ng/cart	2.50	1.25	1
Cl4-BZ#76	ND		ng/cart	2.50	1.25	1
Cl5-BZ#93	ND		ng/cart	2.50	1.25	1
Cl4-BZ#63	ND		ng/cart	2.50	1.25	1
Cl5-BZ#121/#95/#88	20.2		ng/cart	7.50	3.75	1
Cl4-BZ#74	2.2	J	ng/cart	2.50	1.25	1
Cl6-BZ#155	ND		ng/cart	2.50	1.25	1
Cl4-BZ#70	6.75		ng/cart	2.50	1.25	1
Cl5-BZ#91	2.85		ng/cart	2.50	1.25	1
Cl4-BZ#66	2.50		ng/cart	2.50	1.25	1
Cl4-BZ#80	ND		ng/cart	2.50	1.25	1
Cl4-BZ#55	ND		ng/cart	2.50	1.25	1
Cl5-BZ#92	3.50		ng/cart	2.50	1.25	1
Cl5-BZ#89/#84	4.8	J	ng/cart	5.00	2.50	1
Cl5-BZ#101/#90	21.2		ng/cart	5.00	2.50	1
Cl4-BZ#56	1.75	J	ng/cart	2.50	1.25	1
Cl5-BZ#113	ND		ng/cart	2.50	1.25	1
Cl5-BZ#99	5.95		ng/cart	2.50	1.25	1
Cl6-BZ#150	ND		ng/cart	2.50	1.25	1
Cl4-BZ#60	ND		ng/cart	2.50	1.25	1
Cl6-BZ#152	ND		ng/cart	2.50	1.25	1
Cl5-BZ#119	ND		ng/cart	2.50	1.25	1
Cl5-BZ#83/#125/#112	ND		ng/cart	7.50	3.75	1
Cl5-BZ#86/#109	ND		ng/cart	5.00	2.50	1
Cl5-BZ#97	4.60		ng/cart	2.50	1.25	1
Cl5-BZ#116	ND		ng/cart	2.50	1.25	1
Cl5-BZ#87/#111	5.35		ng/cart	5.00	2.50	1
Cl6-BZ#145	ND		ng/cart	2.50	1.25	1
Cl6-BZ#148	ND		ng/cart	2.50	1.25	1
Cl4-BZ#79	ND		ng/cart	2.50	1.25	1
Cl6-BZ#154	ND		ng/cart	2.50	1.25	1
Cl4-BZ#78	ND		ng/cart	2.50	1.25	1
Cl6-BZ#136	3.35		ng/cart	2.50	1.25	1
Cl5-BZ#117	ND		ng/cart	2.50	1.25	1
Cl5-BZ#115	ND		ng/cart	2.50	1.25	1
Cl5-BZ#85	1.55	J	ng/cart	2.50	1.25	1
Cl5-BZ#120	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-03 Date Collected: 08/07/10 00:00

Client ID: 10H0237-03 AIR-W-FILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#110	14.5		ng/cart	2.50	1.25	1
Cl4-BZ#81	ND		ng/cart	2.50	1.25	1
Cl6-BZ#151	4.95		ng/cart	2.50	1.25	1
Cl6-BZ#135	2.05	J	ng/cart	2.50	1.25	1
Cl5-BZ#82	1.8	J	ng/cart	2.50	1.25	1
Cl6-BZ#144	ND		ng/cart	2.50	1.25	1
Cl6-BZ#147/#149	12.2		ng/cart	5.00	2.50	1
Cl4-BZ#77	ND		ng/cart	2.50	1.25	1
Cl6-BZ#143/#139	ND		ng/cart	5.00	2.50	1
Cl5-BZ#124	ND		ng/cart	2.50	1.25	1
Cl6-BZ#140	ND		ng/cart	2.50	1.25	1
Cl5-BZ#108	ND		ng/cart	2.50	1.25	1
Cl5-BZ#107/#123	ND		ng/cart	5.00	2.50	1
Cl7-BZ#188	ND		ng/cart	2.50	1.25	1
Cl6-BZ#134	ND		ng/cart	2.50	1.25	1
Cl5-BZ#106	ND		ng/cart	2.50	1.25	1
Cl6-BZ#133	ND		ng/cart	2.50	1.25	1
Cl6-BZ#142	ND		ng/cart	2.50	1.25	1
Cl5-BZ#118	7.55		ng/cart	2.50	1.25	1
Cl6-BZ#131	ND		ng/cart	2.50	1.25	1
Cl7-BZ#184	ND		ng/cart	2.50	1.25	1
Cl6-BZ#165	ND		ng/cart	2.50	1.25	1
Cl6-BZ#146	1.4	J	ng/cart	2.50	1.25	1
Cl6-BZ#161	ND		ng/cart	2.50	1.25	1
Cl5-BZ#122	ND		ng/cart	2.50	1.25	1
Cl6-BZ#168	ND		ng/cart	2.50	1.25	1
Cl5-BZ#114	ND		ng/cart	2.50	1.25	1
Cl6-BZ#153	9.85		ng/cart	2.50	1.25	1
Cl6-BZ#132	4.05		ng/cart	2.50	1.25	1
Cl7-BZ#179	3.00		ng/cart	2.50	1.25	1
Cl6-BZ#141	2.60		ng/cart	2.50	1.25	1
Cl7-BZ#176	ND		ng/cart	2.50	1.25	1
Cl5-BZ#105	2.15	J	ng/cart	2.50	1.25	1
Cl6-BZ#137	ND		ng/cart	2.50	1.25	1
Cl5-BZ#127	ND		ng/cart	2.50	1.25	1
Cl7-BZ#186	ND		ng/cart	2.50	1.25	1
Cl6-BZ#130/#164	ND		ng/cart	5.00	2.50	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-03 Date Collected: 08/07/10 00:00

Client ID: 10H0237-03 AIR-W-FILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl7-BZ#178	ND		ng/cart	2.50	1.25	1
Cl6-BZ#138	5.75		ng/cart	2.50	1.25	1
Cl6-BZ#163/#160	ND		ng/cart	5.00	2.50	1
Cl6-BZ#129/#158	ND		ng/cart	5.00	2.50	1
Cl7-BZ#182/#175	ND		ng/cart	5.00	2.50	1
Cl7-BZ#187	3.75		ng/cart	2.50	1.25	1
Cl7-BZ#183	1.7	J	ng/cart	2.50	1.25	1
Cl6-BZ#166	ND		ng/cart	2.50	1.25	1
Cl6-BZ#159	ND		ng/cart	2.50	1.25	1
Cl5-BZ#126	ND		ng/cart	2.50	1.25	1
Cl7-BZ#185	ND		ng/cart	2.50	1.25	1
Cl6-BZ#162	ND		ng/cart	2.50	1.25	1
Cl7-BZ#174	2.45	J	ng/cart	2.50	1.25	1
Cl6-BZ#128	ND		ng/cart	2.50	1.25	1
Cl6-BZ#167	ND		ng/cart	2.50	1.25	1
Cl8-BZ#202	ND		ng/cart	2.50	1.25	1
Cl7-BZ#181	ND		ng/cart	2.50	1.25	1
Cl7-BZ#177	1.3	J	ng/cart	2.50	1.25	1
Cl8-BZ#204/#200-CAL	ND		ng/cart	5.00	2.50	1
Cl7-BZ#171	ND		ng/cart	2.50	1.25	1
Cl7-BZ#173	ND		ng/cart	2.50	1.25	1
Cl8-BZ#197	ND		ng/cart	2.50	1.25	1
Cl7-BZ#172	ND		ng/cart	2.50	1.25	1
Cl7-BZ#192	ND		ng/cart	2.50	1.25	1
Cl6-BZ#156	ND		ng/cart	2.50	1.25	1
Cl6-BZ#157	ND		ng/cart	2.50	1.25	1
Cl7-BZ#180	3.45		ng/cart	2.50	1.25	1
Cl7-BZ#193	ND		ng/cart	2.50	1.25	1
Cl8-BZ#199	ND		ng/cart	2.50	1.25	1
Cl7-BZ#191	ND		ng/cart	2.50	1.25	1
Cl8-BZ#198	ND		ng/cart	2.50	1.25	1
Cl8-BZ#201	1.45	J	ng/cart	2.50	1.25	1
Cl7-BZ#170	ND		ng/cart	2.50	1.25	1
Cl7-BZ#190	ND		ng/cart	2.50	1.25	1
Cl8-BZ#196	ND		ng/cart	2.50	1.25	1
Cl8-BZ#203	ND		ng/cart	2.50	1.25	1
Cl6-BZ#169	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-03 Date Collected: 08/07/10 00:00

Client ID: 10H0237-03 AIR-W-FILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl9-BZ#208	ND		ng/cart	2.50	1.25	1
Cl9-BZ#207	ND		ng/cart	2.50	1.25	1
Cl7-BZ#189	ND		ng/cart	2.50	1.25	1
Cl8-BZ#195	ND		ng/cart	2.50	1.25	1
Cl8-BZ#194	ND		ng/cart	2.50	1.25	1
Cl8-BZ#205	ND		ng/cart	2.50	1.25	1
Cl9-BZ#206	ND		ng/cart	2.50	1.25	1
Cl10-BZ#209	ND		ng/cart	2.50	1.25	1
Monochlorobiphenyls	ND		ng/cart	2.50	1.25	1
Dichlorobiphenyls	10.8		ng/cart	2.50	1.25	1
Trichlorobiphenyls	23.3		ng/cart	2.50	1.25	1
Tetrachlorobiphenyls	49.3		ng/cart	2.50	1.25	1
Pentachlorobiphenyls	96.0		ng/cart	2.50	1.25	1
Hexachlorobiphenyls	46.2		ng/cart	2.50	1.25	1
Heptachlorobiphenyls	15.7		ng/cart	2.50	1.25	1
Octachlorobiphenyls	1.45	J	ng/cart	2.50	1.25	1
Nonachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Decachlorobiphenyl	ND		ng/cart	2.50	1.25	1
Total Homologs	243		ng/cart	2.50	1.25	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	96		50-125
Cl8-BZ#202-C13	103		50-125

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID:	L1012315-04	Date Collected:	08/07/10 00:00
Client ID:	10H0237-04 AIR-W-UNFILTERED	Date Received:	08/11/10
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air Cartridge	Extraction Method:	EPA 3540C
Analytical Method:	1,8270C-SIM	Extraction Date:	08/12/10 11:28
Analytical Date:	08/18/10 19:54	Cleanup Method1:	- - - -
Analyst:	JS		- - - -
		Cleanup Method2:	

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl1-BZ#1	ND		ng/cart	2.50	1.25	1
Cl1-BZ#2	ND		ng/cart	2.50	1.25	1
CL1-BZ#3	ND		ng/cart	2.50	1.25	1
Cl2-BZ#4/#10	ND		ng/cart	5.00	2.50	1
Cl2-BZ#9	ND		ng/cart	2.50	1.25	1
Cl2-BZ#7	ND		ng/cart	2.50	1.25	1
Cl2-BZ#6	ND		ng/cart	2.50	1.25	1
Cl2-BZ#5	ND		ng/cart	2.50	1.25	1
Cl2-BZ#8	4.70		ng/cart	2.50	1.25	1
Cl3-BZ#19	ND		ng/cart	2.50	1.25	1
Cl2-BZ#14	ND		ng/cart	2.50	1.25	1
Cl3-BZ#30	ND		ng/cart	2.50	1.25	1
Cl3-BZ#18	5.45		ng/cart	2.50	1.25	1
Cl2-BZ#11	ND		ng/cart	2.50	1.25	1
Cl3-BZ#17	2.1	J	ng/cart	2.50	1.25	1
Cl2-BZ#12	ND		ng/cart	2.50	1.25	1
Cl3-BZ#27	ND		ng/cart	2.50	1.25	1
Cl2-BZ#13	ND		ng/cart	2.50	1.25	1
Cl3-BZ#24	ND		ng/cart	2.50	1.25	1
Cl3-BZ#16	1.95	J	ng/cart	2.50	1.25	1
Cl3-BZ#32	1.35	J	ng/cart	2.50	1.25	1
Cl2-BZ#15	ND		ng/cart	2.50	1.25	1
Cl3-BZ#34	ND		ng/cart	2.50	1.25	1
Cl3-BZ#23	ND		ng/cart	2.50	1.25	1
Cl4-BZ#54	ND		ng/cart	2.50	1.25	1
Cl3-BZ#29	ND		ng/cart	2.50	1.25	1
Cl4-BZ#50	ND		ng/cart	2.50	1.25	1
Cl3-BZ#26	ND		ng/cart	2.50	1.25	1
Cl3-BZ#25	ND		ng/cart	2.50	1.25	1
Cl4-BZ#53	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-04 Date Collected: 08/07/10 00:00

Client ID: 10H0237-04 AIR-W-UNFILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl3-BZ#-31	4.05		ng/cart	2.50	1.25	1
Cl3-BZ#28	3.70		ng/cart	2.50	1.25	1
Cl3-BZ#33	2.2	J	ng/cart	2.50	1.25	1
Cl4-BZ#51	ND		ng/cart	2.50	1.25	1
Cl3-BZ#21/#20	ND		ng/cart	5.00	2.50	1
Cl4-BZ#45	ND		ng/cart	2.50	1.25	1
Cl3-BZ#22	1.4	J	ng/cart	2.50	1.25	1
Cl4-BZ#73/#46	ND		ng/cart	5.00	2.50	1
Cl4-BZ#69	ND		ng/cart	2.50	1.25	1
Cl4-BZ#43	ND		ng/cart	2.50	1.25	1
Cl3-BZ#36	ND		ng/cart	2.50	1.25	1
Cl4-BZ#52	23.2		ng/cart	2.50	1.25	1
Cl4-BZ#48	ND		ng/cart	2.50	1.25	1
Cl4-BZ#49	4.15		ng/cart	2.50	1.25	1
Cl5-BZ#104	ND		ng/cart	2.50	1.25	1
Cl4-BZ#47	ND		ng/cart	2.50	1.25	1
Cl4-BZ#65/#75/#62	ND		ng/cart	7.50	3.75	1
Cl3-BZ#39	ND		ng/cart	2.50	1.25	1
Cl3-BZ#38	ND		ng/cart	2.50	1.25	1
Cl4-BZ#44	8.55		ng/cart	2.50	1.25	1
Cl4-BZ#59	ND		ng/cart	2.50	1.25	1
Cl4-BZ#42	ND		ng/cart	2.50	1.25	1
Cl4-BZ#71	ND		ng/cart	2.50	1.25	1
Cl3-BZ#35	ND		ng/cart	2.50	1.25	1
Cl4-BZ#41	ND		ng/cart	2.50	1.25	1
Cl4-BZ#72	ND		ng/cart	2.50	1.25	1
Cl5-BZ#96	ND		ng/cart	2.50	1.25	1
Cl5-BZ#103	ND		ng/cart	2.50	1.25	1
Cl4-BZ#68/#64	ND		ng/cart	5.00	2.50	1
Cl4-BZ#40	ND		ng/cart	2.50	1.25	1
Cl3-BZ#37	ND		ng/cart	2.50	1.25	1
Cl5-BZ#100	ND		ng/cart	2.50	1.25	1
Cl5-BZ#94	ND		ng/cart	2.50	1.25	1
Cl4-BZ#57	ND		ng/cart	2.50	1.25	1
Cl4-BZ#67/#58	ND		ng/cart	5.00	2.50	1
Cl5-BZ#102	ND		ng/cart	2.50	1.25	1
Cl4-BZ#61	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-04 Date Collected: 08/07/10 00:00

Client ID: 10H0237-04 AIR-W-UNFILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#98	ND		ng/cart	2.50	1.25	1
Cl4-BZ#76	ND		ng/cart	2.50	1.25	1
Cl5-BZ#93	ND		ng/cart	2.50	1.25	1
Cl4-BZ#63	ND		ng/cart	2.50	1.25	1
Cl5-BZ#121/#95/#88	19.6		ng/cart	7.50	3.75	1
Cl4-BZ#74	2.15	J	ng/cart	2.50	1.25	1
Cl6-BZ#155	ND		ng/cart	2.50	1.25	1
Cl4-BZ#70	7.65		ng/cart	2.50	1.25	1
Cl5-BZ#91	2.50		ng/cart	2.50	1.25	1
Cl4-BZ#66	2.65		ng/cart	2.50	1.25	1
Cl4-BZ#80	ND		ng/cart	2.50	1.25	1
Cl4-BZ#55	ND		ng/cart	2.50	1.25	1
Cl5-BZ#92	4.10		ng/cart	2.50	1.25	1
Cl5-BZ#89/#84	4.8	J	ng/cart	5.00	2.50	1
Cl5-BZ#101/#90	22.2		ng/cart	5.00	2.50	1
Cl4-BZ#56	1.85	J	ng/cart	2.50	1.25	1
Cl5-BZ#113	ND		ng/cart	2.50	1.25	1
Cl5-BZ#99	6.40		ng/cart	2.50	1.25	1
Cl6-BZ#150	ND		ng/cart	2.50	1.25	1
Cl4-BZ#60	ND		ng/cart	2.50	1.25	1
Cl6-BZ#152	ND		ng/cart	2.50	1.25	1
Cl5-BZ#119	ND		ng/cart	2.50	1.25	1
Cl5-BZ#83/#125/#112	ND		ng/cart	7.50	3.75	1
Cl5-BZ#86/#109	ND		ng/cart	5.00	2.50	1
Cl5-BZ#97	4.95		ng/cart	2.50	1.25	1
Cl5-BZ#116	ND		ng/cart	2.50	1.25	1
Cl5-BZ#87/#111	5.95		ng/cart	5.00	2.50	1
Cl6-BZ#145	ND		ng/cart	2.50	1.25	1
Cl6-BZ#148	ND		ng/cart	2.50	1.25	1
Cl4-BZ#79	ND		ng/cart	2.50	1.25	1
Cl6-BZ#154	ND		ng/cart	2.50	1.25	1
Cl4-BZ#78	ND		ng/cart	2.50	1.25	1
Cl6-BZ#136	3.30		ng/cart	2.50	1.25	1
Cl5-BZ#117	ND		ng/cart	2.50	1.25	1
Cl5-BZ#115	ND		ng/cart	2.50	1.25	1
Cl5-BZ#85	2.1	J	ng/cart	2.50	1.25	1
Cl5-BZ#120	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-04 Date Collected: 08/07/10 00:00

Client ID: 10H0237-04 AIR-W-UNFILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#110	14.2		ng/cart	2.50	1.25	1
Cl4-BZ#81	ND		ng/cart	2.50	1.25	1
Cl6-BZ#151	4.50		ng/cart	2.50	1.25	1
Cl6-BZ#135	2	J	ng/cart	2.50	1.25	1
Cl5-BZ#82	1.8	J	ng/cart	2.50	1.25	1
Cl6-BZ#144	ND		ng/cart	2.50	1.25	1
Cl6-BZ#147/#149	11.4		ng/cart	5.00	2.50	1
Cl4-BZ#77	ND		ng/cart	2.50	1.25	1
Cl6-BZ#143/#139	ND		ng/cart	5.00	2.50	1
Cl5-BZ#124	ND		ng/cart	2.50	1.25	1
Cl6-BZ#140	ND		ng/cart	2.50	1.25	1
Cl5-BZ#108	ND		ng/cart	2.50	1.25	1
Cl5-BZ#107/#123	ND		ng/cart	5.00	2.50	1
Cl7-BZ#188	ND		ng/cart	2.50	1.25	1
Cl6-BZ#134	ND		ng/cart	2.50	1.25	1
Cl5-BZ#106	ND		ng/cart	2.50	1.25	1
Cl6-BZ#133	ND		ng/cart	2.50	1.25	1
Cl6-BZ#142	ND		ng/cart	2.50	1.25	1
Cl5-BZ#118	6.95		ng/cart	2.50	1.25	1
Cl6-BZ#131	ND		ng/cart	2.50	1.25	1
Cl7-BZ#184	ND		ng/cart	2.50	1.25	1
Cl6-BZ#165	ND		ng/cart	2.50	1.25	1
Cl6-BZ#146	1.3	J	ng/cart	2.50	1.25	1
Cl6-BZ#161	ND		ng/cart	2.50	1.25	1
Cl5-BZ#122	ND		ng/cart	2.50	1.25	1
Cl6-BZ#168	ND		ng/cart	2.50	1.25	1
Cl5-BZ#114	ND		ng/cart	2.50	1.25	1
Cl6-BZ#153	8.95		ng/cart	2.50	1.25	1
Cl6-BZ#132	3.90		ng/cart	2.50	1.25	1
Cl7-BZ#179	2.60		ng/cart	2.50	1.25	1
Cl6-BZ#141	2.2	J	ng/cart	2.50	1.25	1
Cl7-BZ#176	ND		ng/cart	2.50	1.25	1
Cl5-BZ#105	2.25	J	ng/cart	2.50	1.25	1
Cl6-BZ#137	ND		ng/cart	2.50	1.25	1
Cl5-BZ#127	ND		ng/cart	2.50	1.25	1
Cl7-BZ#186	ND		ng/cart	2.50	1.25	1
Cl6-BZ#130/#164	ND		ng/cart	5.00	2.50	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-04 Date Collected: 08/07/10 00:00

Client ID: 10H0237-04 AIR-W-UNFILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl7-BZ#178	ND		ng/cart	2.50	1.25	1
Cl6-BZ#138	4.95		ng/cart	2.50	1.25	1
Cl6-BZ#163/#160	ND		ng/cart	5.00	2.50	1
Cl6-BZ#129/#158	ND		ng/cart	5.00	2.50	1
Cl7-BZ#182/#175	ND		ng/cart	5.00	2.50	1
Cl7-BZ#187	3.60		ng/cart	2.50	1.25	1
Cl7-BZ#183	1.7	J	ng/cart	2.50	1.25	1
Cl6-BZ#166	ND		ng/cart	2.50	1.25	1
Cl6-BZ#159	ND		ng/cart	2.50	1.25	1
Cl5-BZ#126	1.45	J	ng/cart	2.50	1.25	1
Cl7-BZ#185	ND		ng/cart	2.50	1.25	1
Cl6-BZ#162	ND		ng/cart	2.50	1.25	1
Cl7-BZ#174	2.4	J	ng/cart	2.50	1.25	1
Cl6-BZ#128	ND		ng/cart	2.50	1.25	1
Cl6-BZ#167	ND		ng/cart	2.50	1.25	1
Cl8-BZ#202	ND		ng/cart	2.50	1.25	1
Cl7-BZ#181	ND		ng/cart	2.50	1.25	1
Cl7-BZ#177	ND		ng/cart	2.50	1.25	1
Cl8-BZ#204/#200-CAL	ND		ng/cart	5.00	2.50	1
Cl7-BZ#171	ND		ng/cart	2.50	1.25	1
Cl7-BZ#173	ND		ng/cart	2.50	1.25	1
Cl8-BZ#197	ND		ng/cart	2.50	1.25	1
Cl7-BZ#172	ND		ng/cart	2.50	1.25	1
Cl7-BZ#192	ND		ng/cart	2.50	1.25	1
Cl6-BZ#156	ND		ng/cart	2.50	1.25	1
Cl6-BZ#157	ND		ng/cart	2.50	1.25	1
Cl7-BZ#180	3.35		ng/cart	2.50	1.25	1
Cl7-BZ#193	ND		ng/cart	2.50	1.25	1
Cl8-BZ#199	ND		ng/cart	2.50	1.25	1
Cl7-BZ#191	ND		ng/cart	2.50	1.25	1
Cl8-BZ#198	ND		ng/cart	2.50	1.25	1
Cl8-BZ#201	ND		ng/cart	2.50	1.25	1
Cl7-BZ#170	ND		ng/cart	2.50	1.25	1
Cl7-BZ#190	ND		ng/cart	2.50	1.25	1
Cl8-BZ#196	ND		ng/cart	2.50	1.25	1
Cl8-BZ#203	ND		ng/cart	2.50	1.25	1
Cl6-BZ#169	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-04 Date Collected: 08/07/10 00:00

Client ID: 10H0237-04 AIR-W-UNFILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl9-BZ#208	ND		ng/cart	2.50	1.25	1
Cl9-BZ#207	ND		ng/cart	2.50	1.25	1
Cl7-BZ#189	ND		ng/cart	2.50	1.25	1
Cl8-BZ#195	ND		ng/cart	2.50	1.25	1
Cl8-BZ#194	ND		ng/cart	2.50	1.25	1
Cl8-BZ#205	ND		ng/cart	2.50	1.25	1
Cl9-BZ#206	ND		ng/cart	2.50	1.25	1
Cl10-BZ#209	ND		ng/cart	2.50	1.25	1
Monochlorobiphenyls	ND		ng/cart	2.50	1.25	1
Dichlorobiphenyls	4.70		ng/cart	2.50	1.25	1
Trichlorobiphenyls	22.2		ng/cart	2.50	1.25	1
Tetrachlorobiphenyls	50.2		ng/cart	2.50	1.25	1
Pentachlorobiphenyls	99.3		ng/cart	2.50	1.25	1
Hexachlorobiphenyls	42.5		ng/cart	2.50	1.25	1
Heptachlorobiphenyls	13.7		ng/cart	2.50	1.25	1
Octachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Nonachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Decachlorobiphenyl	ND		ng/cart	2.50	1.25	1
Total Homologs	233		ng/cart	2.50	1.25	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	94		50-125
Cl8-BZ#202-C13	92		50-125

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1012315
Report Date: 09/09/10

SAMPLE RESULTS

Lab ID:	L1012315-05	Date Collected:	08/07/10 00:00
Client ID:	10H0237-05 TRACK 8-FILTERED	Date Received:	08/11/10
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air Cartridge	Extraction Method:	EPA 3540C
Analytical Method:	1,8270C-SIM	Extraction Date:	08/12/10 11:28
Analytical Date:	08/18/10 21:03	Cleanup Method1:	- - - -
Analyst:	JS		- - - -
		Cleanup Method2:	

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl1-BZ#1	ND		ng/cart	2.50	1.25	1
Cl1-BZ#2	ND		ng/cart	2.50	1.25	1
CL1-BZ#3	ND		ng/cart	2.50	1.25	1
Cl2-BZ#4/#10	ND		ng/cart	5.00	2.50	1
Cl2-BZ#9	ND		ng/cart	2.50	1.25	1
Cl2-BZ#7	ND		ng/cart	2.50	1.25	1
Cl2-BZ#6	ND		ng/cart	2.50	1.25	1
Cl2-BZ#5	ND		ng/cart	2.50	1.25	1
Cl2-BZ#8	4.95		ng/cart	2.50	1.25	1
Cl3-BZ#19	ND		ng/cart	2.50	1.25	1
Cl2-BZ#14	ND		ng/cart	2.50	1.25	1
Cl3-BZ#30	ND		ng/cart	2.50	1.25	1
Cl3-BZ#18	8.60		ng/cart	2.50	1.25	1
Cl2-BZ#11	ND		ng/cart	2.50	1.25	1
Cl3-BZ#17	2.90		ng/cart	2.50	1.25	1
Cl2-BZ#12	ND		ng/cart	2.50	1.25	1
Cl3-BZ#27	ND		ng/cart	2.50	1.25	1
Cl2-BZ#13	ND		ng/cart	2.50	1.25	1
Cl3-BZ#24	ND		ng/cart	2.50	1.25	1
Cl3-BZ#16	3.15		ng/cart	2.50	1.25	1
Cl3-BZ#32	1.95	J	ng/cart	2.50	1.25	1
Cl2-BZ#15	1.5	J	ng/cart	2.50	1.25	1
Cl3-BZ#34	ND		ng/cart	2.50	1.25	1
Cl3-BZ#23	ND		ng/cart	2.50	1.25	1
Cl4-BZ#54	ND		ng/cart	2.50	1.25	1
Cl3-BZ#29	ND		ng/cart	2.50	1.25	1
Cl4-BZ#50	ND		ng/cart	2.50	1.25	1
Cl3-BZ#26	ND		ng/cart	2.50	1.25	1
Cl3-BZ#25	ND		ng/cart	2.50	1.25	1
Cl4-BZ#53	1.55	J	ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-05 Date Collected: 08/07/10 00:00

Client ID: 10H0237-05 TRACK 8-FILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl3-BZ#-31	7.60		ng/cart	2.50	1.25	1
Cl3-BZ#28	6.45		ng/cart	2.50	1.25	1
Cl3-BZ#33	3.50		ng/cart	2.50	1.25	1
Cl4-BZ#51	ND		ng/cart	2.50	1.25	1
Cl3-BZ#21/#20	ND		ng/cart	5.00	2.50	1
Cl4-BZ#45	1.6	J	ng/cart	2.50	1.25	1
Cl3-BZ#22	2.55		ng/cart	2.50	1.25	1
Cl4-BZ#73/#46	ND		ng/cart	5.00	2.50	1
Cl4-BZ#69	ND		ng/cart	2.50	1.25	1
Cl4-BZ#43	ND		ng/cart	2.50	1.25	1
Cl3-BZ#36	ND		ng/cart	2.50	1.25	1
Cl4-BZ#52	32.4		ng/cart	2.50	1.25	1
Cl4-BZ#48	1.6	J	ng/cart	2.50	1.25	1
Cl4-BZ#49	6.85		ng/cart	2.50	1.25	1
Cl5-BZ#104	ND		ng/cart	2.50	1.25	1
Cl4-BZ#47	1.5	J	ng/cart	2.50	1.25	1
Cl4-BZ#65/#75/#62	ND		ng/cart	7.50	3.75	1
Cl3-BZ#39	ND		ng/cart	2.50	1.25	1
Cl3-BZ#38	ND		ng/cart	2.50	1.25	1
Cl4-BZ#44	13.6		ng/cart	2.50	1.25	1
Cl4-BZ#59	ND		ng/cart	2.50	1.25	1
Cl4-BZ#42	1.85	J	ng/cart	2.50	1.25	1
Cl4-BZ#71	1.6	J	ng/cart	2.50	1.25	1
Cl3-BZ#35	ND		ng/cart	2.50	1.25	1
Cl4-BZ#41	ND		ng/cart	2.50	1.25	1
Cl4-BZ#72	ND		ng/cart	2.50	1.25	1
Cl5-BZ#96	ND		ng/cart	2.50	1.25	1
Cl5-BZ#103	ND		ng/cart	2.50	1.25	1
Cl4-BZ#68/#64	3.35	J	ng/cart	5.00	2.50	1
Cl4-BZ#40	ND		ng/cart	2.50	1.25	1
Cl3-BZ#37	ND		ng/cart	2.50	1.25	1
Cl5-BZ#100	ND		ng/cart	2.50	1.25	1
Cl5-BZ#94	ND		ng/cart	2.50	1.25	1
Cl4-BZ#57	ND		ng/cart	2.50	1.25	1
Cl4-BZ#67/#58	ND		ng/cart	5.00	2.50	1
Cl5-BZ#102	ND		ng/cart	2.50	1.25	1
Cl4-BZ#61	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-05 Date Collected: 08/07/10 00:00

Client ID: 10H0237-05 TRACK 8-FILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#98	ND		ng/cart	2.50	1.25	1
Cl4-BZ#76	ND		ng/cart	2.50	1.25	1
Cl5-BZ#93	ND		ng/cart	2.50	1.25	1
Cl4-BZ#63	ND		ng/cart	2.50	1.25	1
Cl5-BZ#121/#95/#88	24.4		ng/cart	7.50	3.75	1
Cl4-BZ#74	3.60		ng/cart	2.50	1.25	1
Cl6-BZ#155	ND		ng/cart	2.50	1.25	1
Cl4-BZ#70	10.3		ng/cart	2.50	1.25	1
Cl5-BZ#91	3.50		ng/cart	2.50	1.25	1
Cl4-BZ#66	5.15		ng/cart	2.50	1.25	1
Cl4-BZ#80	ND		ng/cart	2.50	1.25	1
Cl4-BZ#55	ND		ng/cart	2.50	1.25	1
Cl5-BZ#92	4.20		ng/cart	2.50	1.25	1
Cl5-BZ#89/#84	6.30		ng/cart	5.00	2.50	1
Cl5-BZ#101/#90	24.2		ng/cart	5.00	2.50	1
Cl4-BZ#56	2.50		ng/cart	2.50	1.25	1
Cl5-BZ#113	ND		ng/cart	2.50	1.25	1
Cl5-BZ#99	6.90		ng/cart	2.50	1.25	1
Cl6-BZ#150	ND		ng/cart	2.50	1.25	1
Cl4-BZ#60	ND		ng/cart	2.50	1.25	1
Cl6-BZ#152	ND		ng/cart	2.50	1.25	1
Cl5-BZ#119	ND		ng/cart	2.50	1.25	1
Cl5-BZ#83/#125/#112	ND		ng/cart	7.50	3.75	1
Cl5-BZ#86/#109	ND		ng/cart	5.00	2.50	1
Cl5-BZ#97	5.20		ng/cart	2.50	1.25	1
Cl5-BZ#116	ND		ng/cart	2.50	1.25	1
Cl5-BZ#87/#111	6.50		ng/cart	5.00	2.50	1
Cl6-BZ#145	ND		ng/cart	2.50	1.25	1
Cl6-BZ#148	ND		ng/cart	2.50	1.25	1
Cl4-BZ#79	ND		ng/cart	2.50	1.25	1
Cl6-BZ#154	ND		ng/cart	2.50	1.25	1
Cl4-BZ#78	ND		ng/cart	2.50	1.25	1
Cl6-BZ#136	3.80		ng/cart	2.50	1.25	1
Cl5-BZ#117	ND		ng/cart	2.50	1.25	1
Cl5-BZ#115	ND		ng/cart	2.50	1.25	1
Cl5-BZ#85	1.85	J	ng/cart	2.50	1.25	1
Cl5-BZ#120	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-05 Date Collected: 08/07/10 00:00

Client ID: 10H0237-05 TRACK 8-FILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#110	15.0		ng/cart	2.50	1.25	1
Cl4-BZ#81	ND		ng/cart	2.50	1.25	1
Cl6-BZ#151	5.55		ng/cart	2.50	1.25	1
Cl6-BZ#135	2.2	J	ng/cart	2.50	1.25	1
Cl5-BZ#82	1.8	J	ng/cart	2.50	1.25	1
Cl6-BZ#144	ND		ng/cart	2.50	1.25	1
Cl6-BZ#147/#149	13.4		ng/cart	5.00	2.50	1
Cl4-BZ#77	ND		ng/cart	2.50	1.25	1
Cl6-BZ#143/#139	ND		ng/cart	5.00	2.50	1
Cl5-BZ#124	ND		ng/cart	2.50	1.25	1
Cl6-BZ#140	ND		ng/cart	2.50	1.25	1
Cl5-BZ#108	ND		ng/cart	2.50	1.25	1
Cl5-BZ#107/#123	ND		ng/cart	5.00	2.50	1
Cl7-BZ#188	ND		ng/cart	2.50	1.25	1
Cl6-BZ#134	ND		ng/cart	2.50	1.25	1
Cl5-BZ#106	ND		ng/cart	2.50	1.25	1
Cl6-BZ#133	ND		ng/cart	2.50	1.25	1
Cl6-BZ#142	ND		ng/cart	2.50	1.25	1
Cl5-BZ#118	7.25		ng/cart	2.50	1.25	1
Cl6-BZ#131	ND		ng/cart	2.50	1.25	1
Cl7-BZ#184	ND		ng/cart	2.50	1.25	1
Cl6-BZ#165	ND		ng/cart	2.50	1.25	1
Cl6-BZ#146	1.55	J	ng/cart	2.50	1.25	1
Cl6-BZ#161	ND		ng/cart	2.50	1.25	1
Cl5-BZ#122	ND		ng/cart	2.50	1.25	1
Cl6-BZ#168	ND		ng/cart	2.50	1.25	1
Cl5-BZ#114	ND		ng/cart	2.50	1.25	1
Cl6-BZ#153	10.8		ng/cart	2.50	1.25	1
Cl6-BZ#132	3.85		ng/cart	2.50	1.25	1
Cl7-BZ#179	3.00		ng/cart	2.50	1.25	1
Cl6-BZ#141	2.55		ng/cart	2.50	1.25	1
Cl7-BZ#176	ND		ng/cart	2.50	1.25	1
Cl5-BZ#105	1.35	J	ng/cart	2.50	1.25	1
Cl6-BZ#137	ND		ng/cart	2.50	1.25	1
Cl5-BZ#127	ND		ng/cart	2.50	1.25	1
Cl7-BZ#186	ND		ng/cart	2.50	1.25	1
Cl6-BZ#130/#164	ND		ng/cart	5.00	2.50	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-05 Date Collected: 08/07/10 00:00

Client ID: 10H0237-05 TRACK 8-FILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl7-BZ#178	ND		ng/cart	2.50	1.25	1
Cl6-BZ#138	4.70		ng/cart	2.50	1.25	1
Cl6-BZ#163/#160	ND		ng/cart	5.00	2.50	1
Cl6-BZ#129/#158	ND		ng/cart	5.00	2.50	1
Cl7-BZ#182/#175	ND		ng/cart	5.00	2.50	1
Cl7-BZ#187	4.25		ng/cart	2.50	1.25	1
Cl7-BZ#183	1.7	J	ng/cart	2.50	1.25	1
Cl6-BZ#166	ND		ng/cart	2.50	1.25	1
Cl6-BZ#159	ND		ng/cart	2.50	1.25	1
Cl5-BZ#126	ND		ng/cart	2.50	1.25	1
Cl7-BZ#185	ND		ng/cart	2.50	1.25	1
Cl6-BZ#162	ND		ng/cart	2.50	1.25	1
Cl7-BZ#174	2.55		ng/cart	2.50	1.25	1
Cl6-BZ#128	ND		ng/cart	2.50	1.25	1
Cl6-BZ#167	ND		ng/cart	2.50	1.25	1
Cl8-BZ#202	ND		ng/cart	2.50	1.25	1
Cl7-BZ#181	ND		ng/cart	2.50	1.25	1
Cl7-BZ#177	1.4	J	ng/cart	2.50	1.25	1
Cl8-BZ#204/#200-CAL	ND		ng/cart	5.00	2.50	1
Cl7-BZ#171	ND		ng/cart	2.50	1.25	1
Cl7-BZ#173	ND		ng/cart	2.50	1.25	1
Cl8-BZ#197	ND		ng/cart	2.50	1.25	1
Cl7-BZ#172	ND		ng/cart	2.50	1.25	1
Cl7-BZ#192	ND		ng/cart	2.50	1.25	1
Cl6-BZ#156	ND		ng/cart	2.50	1.25	1
Cl6-BZ#157	ND		ng/cart	2.50	1.25	1
Cl7-BZ#180	3.00		ng/cart	2.50	1.25	1
Cl7-BZ#193	ND		ng/cart	2.50	1.25	1
Cl8-BZ#199	ND		ng/cart	2.50	1.25	1
Cl7-BZ#191	ND		ng/cart	2.50	1.25	1
Cl8-BZ#198	ND		ng/cart	2.50	1.25	1
Cl8-BZ#201	ND		ng/cart	2.50	1.25	1
Cl7-BZ#170	ND		ng/cart	2.50	1.25	1
Cl7-BZ#190	ND		ng/cart	2.50	1.25	1
Cl8-BZ#196	ND		ng/cart	2.50	1.25	1
Cl8-BZ#203	ND		ng/cart	2.50	1.25	1
Cl6-BZ#169	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-05 Date Collected: 08/07/10 00:00

Client ID: 10H0237-05 TRACK 8-FILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl9-BZ#208	ND		ng/cart	2.50	1.25	1
Cl9-BZ#207	ND		ng/cart	2.50	1.25	1
Cl7-BZ#189	ND		ng/cart	2.50	1.25	1
Cl8-BZ#195	ND		ng/cart	2.50	1.25	1
Cl8-BZ#194	ND		ng/cart	2.50	1.25	1
Cl8-BZ#205	ND		ng/cart	2.50	1.25	1
Cl9-BZ#206	ND		ng/cart	2.50	1.25	1
Cl10-BZ#209	ND		ng/cart	2.50	1.25	1
Monochlorobiphenyls	ND		ng/cart	2.50	1.25	1
Dichlorobiphenyls	6.45		ng/cart	2.50	1.25	1
Trichlorobiphenyls	36.7		ng/cart	2.50	1.25	1
Tetrachlorobiphenyls	87.5		ng/cart	2.50	1.25	1
Pentachlorobiphenyls	108		ng/cart	2.50	1.25	1
Hexachlorobiphenyls	48.4		ng/cart	2.50	1.25	1
Heptachlorobiphenyls	15.9		ng/cart	2.50	1.25	1
Octachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Nonachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Decachlorobiphenyl	ND		ng/cart	2.50	1.25	1
Total Homologs	303		ng/cart	2.50	1.25	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	85		50-125
Cl8-BZ#202-C13	82		50-125

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID:	L1012315-06	Date Collected:	08/07/10 00:00
Client ID:	10H0237-06 TRACK 8-UNFILTERED	Date Received:	08/11/10
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air Cartridge	Extraction Method:	EPA 3540C
Analytical Method:	1,8270C-SIM	Extraction Date:	08/12/10 11:28
Analytical Date:	08/19/10 00:20	Cleanup Method1:	- - - -
Analyst:	JS		- - - -
		Cleanup Method2:	

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl1-BZ#1	ND		ng/cart	2.50	1.25	1
Cl1-BZ#2	ND		ng/cart	2.50	1.25	1
CL1-BZ#3	ND		ng/cart	2.50	1.25	1
Cl2-BZ#4/#10	ND		ng/cart	5.00	2.50	1
Cl2-BZ#9	ND		ng/cart	2.50	1.25	1
Cl2-BZ#7	ND		ng/cart	2.50	1.25	1
Cl2-BZ#6	ND		ng/cart	2.50	1.25	1
Cl2-BZ#5	ND		ng/cart	2.50	1.25	1
Cl2-BZ#8	5.10		ng/cart	2.50	1.25	1
Cl3-BZ#19	ND		ng/cart	2.50	1.25	1
Cl2-BZ#14	ND		ng/cart	2.50	1.25	1
Cl3-BZ#30	ND		ng/cart	2.50	1.25	1
Cl3-BZ#18	8.50		ng/cart	2.50	1.25	1
Cl2-BZ#11	ND		ng/cart	2.50	1.25	1
Cl3-BZ#17	2.90		ng/cart	2.50	1.25	1
Cl2-BZ#12	ND		ng/cart	2.50	1.25	1
Cl3-BZ#27	ND		ng/cart	2.50	1.25	1
Cl2-BZ#13	ND		ng/cart	2.50	1.25	1
Cl3-BZ#24	ND		ng/cart	2.50	1.25	1
Cl3-BZ#16	3.10		ng/cart	2.50	1.25	1
Cl3-BZ#32	2.1	J	ng/cart	2.50	1.25	1
Cl2-BZ#15	1.3	J	ng/cart	2.50	1.25	1
Cl3-BZ#34	ND		ng/cart	2.50	1.25	1
Cl3-BZ#23	ND		ng/cart	2.50	1.25	1
Cl4-BZ#54	ND		ng/cart	2.50	1.25	1
Cl3-BZ#29	ND		ng/cart	2.50	1.25	1
Cl4-BZ#50	ND		ng/cart	2.50	1.25	1
Cl3-BZ#26	ND		ng/cart	2.50	1.25	1
Cl3-BZ#25	ND		ng/cart	2.50	1.25	1
Cl4-BZ#53	1.65	J	ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-06 Date Collected: 08/07/10 00:00

Client ID: 10H0237-06 TRACK 8-UNFILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl3-BZ#-31	7.00		ng/cart	2.50	1.25	1
Cl3-BZ#28	6.10		ng/cart	2.50	1.25	1
Cl3-BZ#33	4.05		ng/cart	2.50	1.25	1
Cl4-BZ#51	ND		ng/cart	2.50	1.25	1
Cl3-BZ#21/#20	ND		ng/cart	5.00	2.50	1
Cl4-BZ#45	1.5	J	ng/cart	2.50	1.25	1
Cl3-BZ#22	2.45	J	ng/cart	2.50	1.25	1
Cl4-BZ#73/#46	ND		ng/cart	5.00	2.50	1
Cl4-BZ#69	ND		ng/cart	2.50	1.25	1
Cl4-BZ#43	ND		ng/cart	2.50	1.25	1
Cl3-BZ#36	ND		ng/cart	2.50	1.25	1
Cl4-BZ#52	30.8		ng/cart	2.50	1.25	1
Cl4-BZ#48	1.55	J	ng/cart	2.50	1.25	1
Cl4-BZ#49	6.60		ng/cart	2.50	1.25	1
Cl5-BZ#104	ND		ng/cart	2.50	1.25	1
Cl4-BZ#47	1.55	J	ng/cart	2.50	1.25	1
Cl4-BZ#65/#75/#62	ND		ng/cart	7.50	3.75	1
Cl3-BZ#39	ND		ng/cart	2.50	1.25	1
Cl3-BZ#38	ND		ng/cart	2.50	1.25	1
Cl4-BZ#44	12.6		ng/cart	2.50	1.25	1
Cl4-BZ#59	ND		ng/cart	2.50	1.25	1
Cl4-BZ#42	1.65	J	ng/cart	2.50	1.25	1
Cl4-BZ#71	1.5	J	ng/cart	2.50	1.25	1
Cl3-BZ#35	ND		ng/cart	2.50	1.25	1
Cl4-BZ#41	ND		ng/cart	2.50	1.25	1
Cl4-BZ#72	ND		ng/cart	2.50	1.25	1
Cl5-BZ#96	ND		ng/cart	2.50	1.25	1
Cl5-BZ#103	ND		ng/cart	2.50	1.25	1
Cl4-BZ#68/#64	3.35	J	ng/cart	5.00	2.50	1
Cl4-BZ#40	ND		ng/cart	2.50	1.25	1
Cl3-BZ#37	ND		ng/cart	2.50	1.25	1
Cl5-BZ#100	ND		ng/cart	2.50	1.25	1
Cl5-BZ#94	ND		ng/cart	2.50	1.25	1
Cl4-BZ#57	ND		ng/cart	2.50	1.25	1
Cl4-BZ#67/#58	ND		ng/cart	5.00	2.50	1
Cl5-BZ#102	ND		ng/cart	2.50	1.25	1
Cl4-BZ#61	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-06 Date Collected: 08/07/10 00:00

Client ID: 10H0237-06 TRACK 8-UNFILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#98	ND		ng/cart	2.50	1.25	1
Cl4-BZ#76	ND		ng/cart	2.50	1.25	1
Cl5-BZ#93	ND		ng/cart	2.50	1.25	1
Cl4-BZ#63	ND		ng/cart	2.50	1.25	1
Cl5-BZ#121/#95/#88	22.2		ng/cart	7.50	3.75	1
Cl4-BZ#74	3.10		ng/cart	2.50	1.25	1
Cl6-BZ#155	ND		ng/cart	2.50	1.25	1
Cl4-BZ#70	8.60		ng/cart	2.50	1.25	1
Cl5-BZ#91	2.65		ng/cart	2.50	1.25	1
Cl4-BZ#66	4.10		ng/cart	2.50	1.25	1
Cl4-BZ#80	ND		ng/cart	2.50	1.25	1
Cl4-BZ#55	ND		ng/cart	2.50	1.25	1
Cl5-BZ#92	3.85		ng/cart	2.50	1.25	1
Cl5-BZ#89/#84	5.65		ng/cart	5.00	2.50	1
Cl5-BZ#101/#90	23.3		ng/cart	5.00	2.50	1
Cl4-BZ#56	2.3	J	ng/cart	2.50	1.25	1
Cl5-BZ#113	ND		ng/cart	2.50	1.25	1
Cl5-BZ#99	6.65		ng/cart	2.50	1.25	1
Cl6-BZ#150	ND		ng/cart	2.50	1.25	1
Cl4-BZ#60	ND		ng/cart	2.50	1.25	1
Cl6-BZ#152	ND		ng/cart	2.50	1.25	1
Cl5-BZ#119	ND		ng/cart	2.50	1.25	1
Cl5-BZ#83/#125/#112	ND		ng/cart	7.50	3.75	1
Cl5-BZ#86/#109	ND		ng/cart	5.00	2.50	1
Cl5-BZ#97	4.25		ng/cart	2.50	1.25	1
Cl5-BZ#116	ND		ng/cart	2.50	1.25	1
Cl5-BZ#87/#111	5.85		ng/cart	5.00	2.50	1
Cl6-BZ#145	ND		ng/cart	2.50	1.25	1
Cl6-BZ#148	ND		ng/cart	2.50	1.25	1
Cl4-BZ#79	ND		ng/cart	2.50	1.25	1
Cl6-BZ#154	ND		ng/cart	2.50	1.25	1
Cl4-BZ#78	ND		ng/cart	2.50	1.25	1
Cl6-BZ#136	3.90		ng/cart	2.50	1.25	1
Cl5-BZ#117	ND		ng/cart	2.50	1.25	1
Cl5-BZ#115	ND		ng/cart	2.50	1.25	1
Cl5-BZ#85	1.85	J	ng/cart	2.50	1.25	1
Cl5-BZ#120	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-06 Date Collected: 08/07/10 00:00

Client ID: 10H0237-06 TRACK 8-UNFILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#110	14.0		ng/cart	2.50	1.25	1
Cl4-BZ#81	ND		ng/cart	2.50	1.25	1
Cl6-BZ#151	6.05		ng/cart	2.50	1.25	1
Cl6-BZ#135	2.50		ng/cart	2.50	1.25	1
Cl5-BZ#82	1.4	J	ng/cart	2.50	1.25	1
Cl6-BZ#144	ND		ng/cart	2.50	1.25	1
Cl6-BZ#147/#149	14.3		ng/cart	5.00	2.50	1
Cl4-BZ#77	ND		ng/cart	2.50	1.25	1
Cl6-BZ#143/#139	ND		ng/cart	5.00	2.50	1
Cl5-BZ#124	ND		ng/cart	2.50	1.25	1
Cl6-BZ#140	ND		ng/cart	2.50	1.25	1
Cl5-BZ#108	ND		ng/cart	2.50	1.25	1
Cl5-BZ#107/#123	ND		ng/cart	5.00	2.50	1
Cl7-BZ#188	ND		ng/cart	2.50	1.25	1
Cl6-BZ#134	ND		ng/cart	2.50	1.25	1
Cl5-BZ#106	ND		ng/cart	2.50	1.25	1
Cl6-BZ#133	ND		ng/cart	2.50	1.25	1
Cl6-BZ#142	ND		ng/cart	2.50	1.25	1
Cl5-BZ#118	6.95		ng/cart	2.50	1.25	1
Cl6-BZ#131	ND		ng/cart	2.50	1.25	1
Cl7-BZ#184	ND		ng/cart	2.50	1.25	1
Cl6-BZ#165	ND		ng/cart	2.50	1.25	1
Cl6-BZ#146	1.4	J	ng/cart	2.50	1.25	1
Cl6-BZ#161	ND		ng/cart	2.50	1.25	1
Cl5-BZ#122	ND		ng/cart	2.50	1.25	1
Cl6-BZ#168	ND		ng/cart	2.50	1.25	1
Cl5-BZ#114	ND		ng/cart	2.50	1.25	1
Cl6-BZ#153	11.6		ng/cart	2.50	1.25	1
Cl6-BZ#132	4.35		ng/cart	2.50	1.25	1
Cl7-BZ#179	3.75		ng/cart	2.50	1.25	1
Cl6-BZ#141	2.55		ng/cart	2.50	1.25	1
Cl7-BZ#176	ND		ng/cart	2.50	1.25	1
Cl5-BZ#105	1.9	J	ng/cart	2.50	1.25	1
Cl6-BZ#137	ND		ng/cart	2.50	1.25	1
Cl5-BZ#127	ND		ng/cart	2.50	1.25	1
Cl7-BZ#186	ND		ng/cart	2.50	1.25	1
Cl6-BZ#130/#164	ND		ng/cart	5.00	2.50	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-06 Date Collected: 08/07/10 00:00

Client ID: 10H0237-06 TRACK 8-UNFILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl7-BZ#178	ND		ng/cart	2.50	1.25	1
Cl6-BZ#138	5.55		ng/cart	2.50	1.25	1
Cl6-BZ#163/#160	ND		ng/cart	5.00	2.50	1
Cl6-BZ#129/#158	ND		ng/cart	5.00	2.50	1
Cl7-BZ#182/#175	ND		ng/cart	5.00	2.50	1
Cl7-BZ#187	4.85		ng/cart	2.50	1.25	1
Cl7-BZ#183	2.05	J	ng/cart	2.50	1.25	1
Cl6-BZ#166	ND		ng/cart	2.50	1.25	1
Cl6-BZ#159	ND		ng/cart	2.50	1.25	1
Cl5-BZ#126	ND		ng/cart	2.50	1.25	1
Cl7-BZ#185	ND		ng/cart	2.50	1.25	1
Cl6-BZ#162	ND		ng/cart	2.50	1.25	1
Cl7-BZ#174	3.30		ng/cart	2.50	1.25	1
Cl6-BZ#128	1.3	J	ng/cart	2.50	1.25	1
Cl6-BZ#167	ND		ng/cart	2.50	1.25	1
Cl8-BZ#202	ND		ng/cart	2.50	1.25	1
Cl7-BZ#181	ND		ng/cart	2.50	1.25	1
Cl7-BZ#177	1.55	J	ng/cart	2.50	1.25	1
Cl8-BZ#204/#200-CAL	ND		ng/cart	5.00	2.50	1
Cl7-BZ#171	ND		ng/cart	2.50	1.25	1
Cl7-BZ#173	ND		ng/cart	2.50	1.25	1
Cl8-BZ#197	ND		ng/cart	2.50	1.25	1
Cl7-BZ#172	ND		ng/cart	2.50	1.25	1
Cl7-BZ#192	ND		ng/cart	2.50	1.25	1
Cl6-BZ#156	ND		ng/cart	2.50	1.25	1
Cl6-BZ#157	ND		ng/cart	2.50	1.25	1
Cl7-BZ#180	4.45		ng/cart	2.50	1.25	1
Cl7-BZ#193	ND		ng/cart	2.50	1.25	1
Cl8-BZ#199	ND		ng/cart	2.50	1.25	1
Cl7-BZ#191	ND		ng/cart	2.50	1.25	1
Cl8-BZ#198	ND		ng/cart	2.50	1.25	1
Cl8-BZ#201	1.55	J	ng/cart	2.50	1.25	1
Cl7-BZ#170	ND		ng/cart	2.50	1.25	1
Cl7-BZ#190	ND		ng/cart	2.50	1.25	1
Cl8-BZ#196	ND		ng/cart	2.50	1.25	1
Cl8-BZ#203	ND		ng/cart	2.50	1.25	1
Cl6-BZ#169	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-06 Date Collected: 08/07/10 00:00

Client ID: 10H0237-06 TRACK 8-UNFILTERED Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl9-BZ#208	ND		ng/cart	2.50	1.25	1
Cl9-BZ#207	ND		ng/cart	2.50	1.25	1
Cl7-BZ#189	ND		ng/cart	2.50	1.25	1
Cl8-BZ#195	ND		ng/cart	2.50	1.25	1
Cl8-BZ#194	ND		ng/cart	2.50	1.25	1
Cl8-BZ#205	ND		ng/cart	2.50	1.25	1
Cl9-BZ#206	ND		ng/cart	2.50	1.25	1
Cl10-BZ#209	ND		ng/cart	2.50	1.25	1
Monochlorobiphenyls	ND		ng/cart	2.50	1.25	1
Dichlorobiphenyls	6.40		ng/cart	2.50	1.25	1
Trichlorobiphenyls	36.2		ng/cart	2.50	1.25	1
Tetrachlorobiphenyls	80.9		ng/cart	2.50	1.25	1
Pentachlorobiphenyls	101		ng/cart	2.50	1.25	1
Hexachlorobiphenyls	53.5		ng/cart	2.50	1.25	1
Heptachlorobiphenyls	20.0		ng/cart	2.50	1.25	1
Octachlorobiphenyls	1.55	J	ng/cart	2.50	1.25	1
Nonachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Decachlorobiphenyl	ND		ng/cart	2.50	1.25	1
Total Homologs	299		ng/cart	2.50	1.25	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	98		50-125
Cl8-BZ#202-C13	103		50-125

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1012315
Report Date: 09/09/10

SAMPLE RESULTS

Lab ID:	L1012315-07	Date Collected:	08/07/10 00:00
Client ID:	10H0237-07 OUTDOOR BKGD FILTER	Date Received:	08/11/10
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air Cartridge	Extraction Method:	EPA 3540C
Analytical Method:	1,8270C-SIM	Extraction Date:	08/12/10 11:28
Analytical Date:	08/19/10 01:29	Cleanup Method1:	- - - -
Analyst:	JS		- - - -
		Cleanup Method2:	

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl1-BZ#1	ND		ng/cart	2.50	1.25	1
Cl1-BZ#2	ND		ng/cart	2.50	1.25	1
CL1-BZ#3	ND		ng/cart	2.50	1.25	1
Cl2-BZ#4/#10	ND		ng/cart	5.00	2.50	1
Cl2-BZ#9	ND		ng/cart	2.50	1.25	1
Cl2-BZ#7	ND		ng/cart	2.50	1.25	1
Cl2-BZ#6	ND		ng/cart	2.50	1.25	1
Cl2-BZ#5	ND		ng/cart	2.50	1.25	1
Cl2-BZ#8	ND		ng/cart	2.50	1.25	1
Cl3-BZ#19	ND		ng/cart	2.50	1.25	1
Cl2-BZ#14	ND		ng/cart	2.50	1.25	1
Cl3-BZ#30	ND		ng/cart	2.50	1.25	1
Cl3-BZ#18	ND		ng/cart	2.50	1.25	1
Cl2-BZ#11	ND		ng/cart	2.50	1.25	1
Cl3-BZ#17	ND		ng/cart	2.50	1.25	1
Cl2-BZ#12	ND		ng/cart	2.50	1.25	1
Cl3-BZ#27	ND		ng/cart	2.50	1.25	1
Cl2-BZ#13	ND		ng/cart	2.50	1.25	1
Cl3-BZ#24	ND		ng/cart	2.50	1.25	1
Cl3-BZ#16	ND		ng/cart	2.50	1.25	1
Cl3-BZ#32	ND		ng/cart	2.50	1.25	1
Cl2-BZ#15	ND		ng/cart	2.50	1.25	1
Cl3-BZ#34	ND		ng/cart	2.50	1.25	1
Cl3-BZ#23	ND		ng/cart	2.50	1.25	1
Cl4-BZ#54	ND		ng/cart	2.50	1.25	1
Cl3-BZ#29	ND		ng/cart	2.50	1.25	1
Cl4-BZ#50	ND		ng/cart	2.50	1.25	1
Cl3-BZ#26	ND		ng/cart	2.50	1.25	1
Cl3-BZ#25	ND		ng/cart	2.50	1.25	1
Cl4-BZ#53	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-07 Date Collected: 08/07/10 00:00

Client ID: 10H0237-07 OUTDOOR BKGD FILTER Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl3-BZ#-31	ND		ng/cart	2.50	1.25	1
Cl3-BZ#28	ND		ng/cart	2.50	1.25	1
Cl3-BZ#33	ND		ng/cart	2.50	1.25	1
Cl4-BZ#51	ND		ng/cart	2.50	1.25	1
Cl3-BZ#21/#20	ND		ng/cart	5.00	2.50	1
Cl4-BZ#45	ND		ng/cart	2.50	1.25	1
Cl3-BZ#22	ND		ng/cart	2.50	1.25	1
Cl4-BZ#73/#46	ND		ng/cart	5.00	2.50	1
Cl4-BZ#69	ND		ng/cart	2.50	1.25	1
Cl4-BZ#43	ND		ng/cart	2.50	1.25	1
Cl3-BZ#36	ND		ng/cart	2.50	1.25	1
Cl4-BZ#52	ND		ng/cart	2.50	1.25	1
Cl4-BZ#48	ND		ng/cart	2.50	1.25	1
Cl4-BZ#49	ND		ng/cart	2.50	1.25	1
Cl5-BZ#104	ND		ng/cart	2.50	1.25	1
Cl4-BZ#47	ND		ng/cart	2.50	1.25	1
Cl4-BZ#65/#75/#62	ND		ng/cart	7.50	3.75	1
Cl3-BZ#39	ND		ng/cart	2.50	1.25	1
Cl3-BZ#38	ND		ng/cart	2.50	1.25	1
Cl4-BZ#44	ND		ng/cart	2.50	1.25	1
Cl4-BZ#59	ND		ng/cart	2.50	1.25	1
Cl4-BZ#42	ND		ng/cart	2.50	1.25	1
Cl4-BZ#71	ND		ng/cart	2.50	1.25	1
Cl3-BZ#35	ND		ng/cart	2.50	1.25	1
Cl4-BZ#41	ND		ng/cart	2.50	1.25	1
Cl4-BZ#72	ND		ng/cart	2.50	1.25	1
Cl5-BZ#96	ND		ng/cart	2.50	1.25	1
Cl5-BZ#103	ND		ng/cart	2.50	1.25	1
Cl4-BZ#68/#64	ND		ng/cart	5.00	2.50	1
Cl4-BZ#40	ND		ng/cart	2.50	1.25	1
Cl3-BZ#37	ND		ng/cart	2.50	1.25	1
Cl5-BZ#100	ND		ng/cart	2.50	1.25	1
Cl5-BZ#94	ND		ng/cart	2.50	1.25	1
Cl4-BZ#57	ND		ng/cart	2.50	1.25	1
Cl4-BZ#67/#58	ND		ng/cart	5.00	2.50	1
Cl5-BZ#102	ND		ng/cart	2.50	1.25	1
Cl4-BZ#61	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-07 Date Collected: 08/07/10 00:00

Client ID: 10H0237-07 OUTDOOR BKGD FILTER Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#98	ND		ng/cart	2.50	1.25	1
Cl4-BZ#76	ND		ng/cart	2.50	1.25	1
Cl5-BZ#93	ND		ng/cart	2.50	1.25	1
Cl4-BZ#63	ND		ng/cart	2.50	1.25	1
Cl5-BZ#121/#95/#88	ND		ng/cart	7.50	3.75	1
Cl4-BZ#74	ND		ng/cart	2.50	1.25	1
Cl6-BZ#155	ND		ng/cart	2.50	1.25	1
Cl4-BZ#70	ND		ng/cart	2.50	1.25	1
Cl5-BZ#91	ND		ng/cart	2.50	1.25	1
Cl4-BZ#66	ND		ng/cart	2.50	1.25	1
Cl4-BZ#80	ND		ng/cart	2.50	1.25	1
Cl4-BZ#55	ND		ng/cart	2.50	1.25	1
Cl5-BZ#92	ND		ng/cart	2.50	1.25	1
Cl5-BZ#89/#84	ND		ng/cart	5.00	2.50	1
Cl5-BZ#101/#90	ND		ng/cart	5.00	2.50	1
Cl4-BZ#56	ND		ng/cart	2.50	1.25	1
Cl5-BZ#113	ND		ng/cart	2.50	1.25	1
Cl5-BZ#99	ND		ng/cart	2.50	1.25	1
Cl6-BZ#150	ND		ng/cart	2.50	1.25	1
Cl4-BZ#60	ND		ng/cart	2.50	1.25	1
Cl6-BZ#152	ND		ng/cart	2.50	1.25	1
Cl5-BZ#119	ND		ng/cart	2.50	1.25	1
Cl5-BZ#83/#125/#112	ND		ng/cart	7.50	3.75	1
Cl5-BZ#86/#109	ND		ng/cart	5.00	2.50	1
Cl5-BZ#97	ND		ng/cart	2.50	1.25	1
Cl5-BZ#116	ND		ng/cart	2.50	1.25	1
Cl5-BZ#87/#111	ND		ng/cart	5.00	2.50	1
Cl6-BZ#145	ND		ng/cart	2.50	1.25	1
Cl6-BZ#148	ND		ng/cart	2.50	1.25	1
Cl4-BZ#79	ND		ng/cart	2.50	1.25	1
Cl6-BZ#154	ND		ng/cart	2.50	1.25	1
Cl4-BZ#78	ND		ng/cart	2.50	1.25	1
Cl6-BZ#136	ND		ng/cart	2.50	1.25	1
Cl5-BZ#117	ND		ng/cart	2.50	1.25	1
Cl5-BZ#115	ND		ng/cart	2.50	1.25	1
Cl5-BZ#85	ND		ng/cart	2.50	1.25	1
Cl5-BZ#120	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-07 Date Collected: 08/07/10 00:00

Client ID: 10H0237-07 OUTDOOR BKGD FILTER Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#110	ND		ng/cart	2.50	1.25	1
Cl4-BZ#81	ND		ng/cart	2.50	1.25	1
Cl6-BZ#151	ND		ng/cart	2.50	1.25	1
Cl6-BZ#135	ND		ng/cart	2.50	1.25	1
Cl5-BZ#82	ND		ng/cart	2.50	1.25	1
Cl6-BZ#144	ND		ng/cart	2.50	1.25	1
Cl6-BZ#147/#149	ND		ng/cart	5.00	2.50	1
Cl4-BZ#77	ND		ng/cart	2.50	1.25	1
Cl6-BZ#143/#139	ND		ng/cart	5.00	2.50	1
Cl5-BZ#124	ND		ng/cart	2.50	1.25	1
Cl6-BZ#140	ND		ng/cart	2.50	1.25	1
Cl5-BZ#108	ND		ng/cart	2.50	1.25	1
Cl5-BZ#107/#123	ND		ng/cart	5.00	2.50	1
Cl7-BZ#188	ND		ng/cart	2.50	1.25	1
Cl6-BZ#134	ND		ng/cart	2.50	1.25	1
Cl5-BZ#106	ND		ng/cart	2.50	1.25	1
Cl6-BZ#133	ND		ng/cart	2.50	1.25	1
Cl6-BZ#142	ND		ng/cart	2.50	1.25	1
Cl5-BZ#118	ND		ng/cart	2.50	1.25	1
Cl6-BZ#131	ND		ng/cart	2.50	1.25	1
Cl7-BZ#184	ND		ng/cart	2.50	1.25	1
Cl6-BZ#165	ND		ng/cart	2.50	1.25	1
Cl6-BZ#146	ND		ng/cart	2.50	1.25	1
Cl6-BZ#161	ND		ng/cart	2.50	1.25	1
Cl5-BZ#122	ND		ng/cart	2.50	1.25	1
Cl6-BZ#168	ND		ng/cart	2.50	1.25	1
Cl5-BZ#114	ND		ng/cart	2.50	1.25	1
Cl6-BZ#153	ND		ng/cart	2.50	1.25	1
Cl6-BZ#132	ND		ng/cart	2.50	1.25	1
Cl7-BZ#179	ND		ng/cart	2.50	1.25	1
Cl6-BZ#141	ND		ng/cart	2.50	1.25	1
Cl7-BZ#176	ND		ng/cart	2.50	1.25	1
Cl5-BZ#105	ND		ng/cart	2.50	1.25	1
Cl6-BZ#137	ND		ng/cart	2.50	1.25	1
Cl5-BZ#127	ND		ng/cart	2.50	1.25	1
Cl7-BZ#186	ND		ng/cart	2.50	1.25	1
Cl6-BZ#130/#164	ND		ng/cart	5.00	2.50	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-07 Date Collected: 08/07/10 00:00

Client ID: 10H0237-07 OUTDOOR BKGD FILTER Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl7-BZ#178	ND		ng/cart	2.50	1.25	1
Cl6-BZ#138	ND		ng/cart	2.50	1.25	1
Cl6-BZ#163/#160	ND		ng/cart	5.00	2.50	1
Cl6-BZ#129/#158	ND		ng/cart	5.00	2.50	1
Cl7-BZ#182/#175	ND		ng/cart	5.00	2.50	1
Cl7-BZ#187	ND		ng/cart	2.50	1.25	1
Cl7-BZ#183	ND		ng/cart	2.50	1.25	1
Cl6-BZ#166	ND		ng/cart	2.50	1.25	1
Cl6-BZ#159	ND		ng/cart	2.50	1.25	1
Cl5-BZ#126	ND		ng/cart	2.50	1.25	1
Cl7-BZ#185	ND		ng/cart	2.50	1.25	1
Cl6-BZ#162	ND		ng/cart	2.50	1.25	1
Cl7-BZ#174	ND		ng/cart	2.50	1.25	1
Cl6-BZ#128	ND		ng/cart	2.50	1.25	1
Cl6-BZ#167	ND		ng/cart	2.50	1.25	1
Cl8-BZ#202	ND		ng/cart	2.50	1.25	1
Cl7-BZ#181	ND		ng/cart	2.50	1.25	1
Cl7-BZ#177	ND		ng/cart	2.50	1.25	1
Cl8-BZ#204/#200-CAL	ND		ng/cart	5.00	2.50	1
Cl7-BZ#171	ND		ng/cart	2.50	1.25	1
Cl7-BZ#173	ND		ng/cart	2.50	1.25	1
Cl8-BZ#197	ND		ng/cart	2.50	1.25	1
Cl7-BZ#172	ND		ng/cart	2.50	1.25	1
Cl7-BZ#192	ND		ng/cart	2.50	1.25	1
Cl6-BZ#156	ND		ng/cart	2.50	1.25	1
Cl6-BZ#157	ND		ng/cart	2.50	1.25	1
Cl7-BZ#180	ND		ng/cart	2.50	1.25	1
Cl7-BZ#193	ND		ng/cart	2.50	1.25	1
Cl8-BZ#199	ND		ng/cart	2.50	1.25	1
Cl7-BZ#191	ND		ng/cart	2.50	1.25	1
Cl8-BZ#198	ND		ng/cart	2.50	1.25	1
Cl8-BZ#201	ND		ng/cart	2.50	1.25	1
Cl7-BZ#170	ND		ng/cart	2.50	1.25	1
Cl7-BZ#190	ND		ng/cart	2.50	1.25	1
Cl8-BZ#196	ND		ng/cart	2.50	1.25	1
Cl8-BZ#203	ND		ng/cart	2.50	1.25	1
Cl6-BZ#169	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-07 Date Collected: 08/07/10 00:00

Client ID: 10H0237-07 OUTDOOR BKGD FILTER Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl9-BZ#208	ND		ng/cart	2.50	1.25	1
Cl9-BZ#207	ND		ng/cart	2.50	1.25	1
Cl7-BZ#189	ND		ng/cart	2.50	1.25	1
Cl8-BZ#195	ND		ng/cart	2.50	1.25	1
Cl8-BZ#194	ND		ng/cart	2.50	1.25	1
Cl8-BZ#205	ND		ng/cart	2.50	1.25	1
Cl9-BZ#206	ND		ng/cart	2.50	1.25	1
Cl10-BZ#209	ND		ng/cart	2.50	1.25	1
Monochlorobiphenyls	ND		ng/cart	2.50	1.25	1
Dichlorobiphenyls	ND		ng/cart	2.50	1.25	1
Trichlorobiphenyls	ND		ng/cart	2.50	1.25	1
Tetrachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Pentachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Hexachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Heptachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Octachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Nonachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Decachlorobiphenyl	ND		ng/cart	2.50	1.25	1
Total Homologs	ND		ng/cart	2.50	1.25	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	104		50-125
Cl8-BZ#202-C13	102		50-125

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID:	L1012315-08	Date Collected:	08/07/10 00:00
Client ID:	10H0237-08 OUTDOOR BKGD UNFILT	Date Received:	08/11/10
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air Cartridge	Extraction Method:	EPA 3540C
Analytical Method:	1,8270C-SIM	Extraction Date:	08/12/10 11:28
Analytical Date:	08/19/10 02:39	Cleanup Method1:	- - - -
Analyst:	JS		- - - -
		Cleanup Method2:	

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl1-BZ#1	ND		ng/cart	2.50	1.25	1
Cl1-BZ#2	ND		ng/cart	2.50	1.25	1
CL1-BZ#3	ND		ng/cart	2.50	1.25	1
Cl2-BZ#4/#10	ND		ng/cart	5.00	2.50	1
Cl2-BZ#9	ND		ng/cart	2.50	1.25	1
Cl2-BZ#7	ND		ng/cart	2.50	1.25	1
Cl2-BZ#6	ND		ng/cart	2.50	1.25	1
Cl2-BZ#5	ND		ng/cart	2.50	1.25	1
Cl2-BZ#8	ND		ng/cart	2.50	1.25	1
Cl3-BZ#19	ND		ng/cart	2.50	1.25	1
Cl2-BZ#14	ND		ng/cart	2.50	1.25	1
Cl3-BZ#30	ND		ng/cart	2.50	1.25	1
Cl3-BZ#18	ND		ng/cart	2.50	1.25	1
Cl2-BZ#11	ND		ng/cart	2.50	1.25	1
Cl3-BZ#17	ND		ng/cart	2.50	1.25	1
Cl2-BZ#12	ND		ng/cart	2.50	1.25	1
Cl3-BZ#27	ND		ng/cart	2.50	1.25	1
Cl2-BZ#13	ND		ng/cart	2.50	1.25	1
Cl3-BZ#24	ND		ng/cart	2.50	1.25	1
Cl3-BZ#16	ND		ng/cart	2.50	1.25	1
Cl3-BZ#32	ND		ng/cart	2.50	1.25	1
Cl2-BZ#15	ND		ng/cart	2.50	1.25	1
Cl3-BZ#34	ND		ng/cart	2.50	1.25	1
Cl3-BZ#23	ND		ng/cart	2.50	1.25	1
Cl4-BZ#54	ND		ng/cart	2.50	1.25	1
Cl3-BZ#29	ND		ng/cart	2.50	1.25	1
Cl4-BZ#50	ND		ng/cart	2.50	1.25	1
Cl3-BZ#26	ND		ng/cart	2.50	1.25	1
Cl3-BZ#25	ND		ng/cart	2.50	1.25	1
Cl4-BZ#53	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-08 Date Collected: 08/07/10 00:00

Client ID: 10H0237-08 OUTDOOR BKGD UNFILT Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl3-BZ#-31	ND		ng/cart	2.50	1.25	1
Cl3-BZ#28	ND		ng/cart	2.50	1.25	1
Cl3-BZ#33	ND		ng/cart	2.50	1.25	1
Cl4-BZ#51	ND		ng/cart	2.50	1.25	1
Cl3-BZ#21/#20	ND		ng/cart	5.00	2.50	1
Cl4-BZ#45	ND		ng/cart	2.50	1.25	1
Cl3-BZ#22	ND		ng/cart	2.50	1.25	1
Cl4-BZ#73/#46	ND		ng/cart	5.00	2.50	1
Cl4-BZ#69	ND		ng/cart	2.50	1.25	1
Cl4-BZ#43	ND		ng/cart	2.50	1.25	1
Cl3-BZ#36	ND		ng/cart	2.50	1.25	1
Cl4-BZ#52	ND		ng/cart	2.50	1.25	1
Cl4-BZ#48	ND		ng/cart	2.50	1.25	1
Cl4-BZ#49	ND		ng/cart	2.50	1.25	1
Cl5-BZ#104	ND		ng/cart	2.50	1.25	1
Cl4-BZ#47	ND		ng/cart	2.50	1.25	1
Cl4-BZ#65/#75/#62	ND		ng/cart	7.50	3.75	1
Cl3-BZ#39	ND		ng/cart	2.50	1.25	1
Cl3-BZ#38	ND		ng/cart	2.50	1.25	1
Cl4-BZ#44	ND		ng/cart	2.50	1.25	1
Cl4-BZ#59	ND		ng/cart	2.50	1.25	1
Cl4-BZ#42	ND		ng/cart	2.50	1.25	1
Cl4-BZ#71	ND		ng/cart	2.50	1.25	1
Cl3-BZ#35	ND		ng/cart	2.50	1.25	1
Cl4-BZ#41	ND		ng/cart	2.50	1.25	1
Cl4-BZ#72	ND		ng/cart	2.50	1.25	1
Cl5-BZ#96	ND		ng/cart	2.50	1.25	1
Cl5-BZ#103	ND		ng/cart	2.50	1.25	1
Cl4-BZ#68/#64	ND		ng/cart	5.00	2.50	1
Cl4-BZ#40	ND		ng/cart	2.50	1.25	1
Cl3-BZ#37	ND		ng/cart	2.50	1.25	1
Cl5-BZ#100	ND		ng/cart	2.50	1.25	1
Cl5-BZ#94	ND		ng/cart	2.50	1.25	1
Cl4-BZ#57	ND		ng/cart	2.50	1.25	1
Cl4-BZ#67/#58	ND		ng/cart	5.00	2.50	1
Cl5-BZ#102	ND		ng/cart	2.50	1.25	1
Cl4-BZ#61	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-08 Date Collected: 08/07/10 00:00

Client ID: 10H0237-08 OUTDOOR BKGD UNFILT Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#98	ND		ng/cart	2.50	1.25	1
Cl4-BZ#76	ND		ng/cart	2.50	1.25	1
Cl5-BZ#93	ND		ng/cart	2.50	1.25	1
Cl4-BZ#63	ND		ng/cart	2.50	1.25	1
Cl5-BZ#121/#95/#88	ND		ng/cart	7.50	3.75	1
Cl4-BZ#74	ND		ng/cart	2.50	1.25	1
Cl6-BZ#155	ND		ng/cart	2.50	1.25	1
Cl4-BZ#70	ND		ng/cart	2.50	1.25	1
Cl5-BZ#91	ND		ng/cart	2.50	1.25	1
Cl4-BZ#66	ND		ng/cart	2.50	1.25	1
Cl4-BZ#80	ND		ng/cart	2.50	1.25	1
Cl4-BZ#55	ND		ng/cart	2.50	1.25	1
Cl5-BZ#92	ND		ng/cart	2.50	1.25	1
Cl5-BZ#89/#84	ND		ng/cart	5.00	2.50	1
Cl5-BZ#101/#90	ND		ng/cart	5.00	2.50	1
Cl4-BZ#56	ND		ng/cart	2.50	1.25	1
Cl5-BZ#113	ND		ng/cart	2.50	1.25	1
Cl5-BZ#99	ND		ng/cart	2.50	1.25	1
Cl6-BZ#150	ND		ng/cart	2.50	1.25	1
Cl4-BZ#60	ND		ng/cart	2.50	1.25	1
Cl6-BZ#152	ND		ng/cart	2.50	1.25	1
Cl5-BZ#119	ND		ng/cart	2.50	1.25	1
Cl5-BZ#83/#125/#112	ND		ng/cart	7.50	3.75	1
Cl5-BZ#86/#109	ND		ng/cart	5.00	2.50	1
Cl5-BZ#97	ND		ng/cart	2.50	1.25	1
Cl5-BZ#116	ND		ng/cart	2.50	1.25	1
Cl5-BZ#87/#111	ND		ng/cart	5.00	2.50	1
Cl6-BZ#145	ND		ng/cart	2.50	1.25	1
Cl6-BZ#148	ND		ng/cart	2.50	1.25	1
Cl4-BZ#79	ND		ng/cart	2.50	1.25	1
Cl6-BZ#154	ND		ng/cart	2.50	1.25	1
Cl4-BZ#78	ND		ng/cart	2.50	1.25	1
Cl6-BZ#136	ND		ng/cart	2.50	1.25	1
Cl5-BZ#117	ND		ng/cart	2.50	1.25	1
Cl5-BZ#115	ND		ng/cart	2.50	1.25	1
Cl5-BZ#85	ND		ng/cart	2.50	1.25	1
Cl5-BZ#120	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-08 Date Collected: 08/07/10 00:00

Client ID: 10H0237-08 OUTDOOR BKGD UNFILT Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#110	ND		ng/cart	2.50	1.25	1
Cl4-BZ#81	ND		ng/cart	2.50	1.25	1
Cl6-BZ#151	ND		ng/cart	2.50	1.25	1
Cl6-BZ#135	ND		ng/cart	2.50	1.25	1
Cl5-BZ#82	ND		ng/cart	2.50	1.25	1
Cl6-BZ#144	ND		ng/cart	2.50	1.25	1
Cl6-BZ#147/#149	ND		ng/cart	5.00	2.50	1
Cl4-BZ#77	ND		ng/cart	2.50	1.25	1
Cl6-BZ#143/#139	ND		ng/cart	5.00	2.50	1
Cl5-BZ#124	ND		ng/cart	2.50	1.25	1
Cl6-BZ#140	ND		ng/cart	2.50	1.25	1
Cl5-BZ#108	ND		ng/cart	2.50	1.25	1
Cl5-BZ#107/#123	ND		ng/cart	5.00	2.50	1
Cl7-BZ#188	ND		ng/cart	2.50	1.25	1
Cl6-BZ#134	ND		ng/cart	2.50	1.25	1
Cl5-BZ#106	ND		ng/cart	2.50	1.25	1
Cl6-BZ#133	ND		ng/cart	2.50	1.25	1
Cl6-BZ#142	ND		ng/cart	2.50	1.25	1
Cl5-BZ#118	ND		ng/cart	2.50	1.25	1
Cl6-BZ#131	ND		ng/cart	2.50	1.25	1
Cl7-BZ#184	ND		ng/cart	2.50	1.25	1
Cl6-BZ#165	ND		ng/cart	2.50	1.25	1
Cl6-BZ#146	ND		ng/cart	2.50	1.25	1
Cl6-BZ#161	ND		ng/cart	2.50	1.25	1
Cl5-BZ#122	ND		ng/cart	2.50	1.25	1
Cl6-BZ#168	ND		ng/cart	2.50	1.25	1
Cl5-BZ#114	ND		ng/cart	2.50	1.25	1
Cl6-BZ#153	ND		ng/cart	2.50	1.25	1
Cl6-BZ#132	ND		ng/cart	2.50	1.25	1
Cl7-BZ#179	ND		ng/cart	2.50	1.25	1
Cl6-BZ#141	ND		ng/cart	2.50	1.25	1
Cl7-BZ#176	ND		ng/cart	2.50	1.25	1
Cl5-BZ#105	ND		ng/cart	2.50	1.25	1
Cl6-BZ#137	ND		ng/cart	2.50	1.25	1
Cl5-BZ#127	ND		ng/cart	2.50	1.25	1
Cl7-BZ#186	ND		ng/cart	2.50	1.25	1
Cl6-BZ#130/#164	ND		ng/cart	5.00	2.50	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-08 Date Collected: 08/07/10 00:00

Client ID: 10H0237-08 OUTDOOR BKGD UNFILT Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl7-BZ#178	ND		ng/cart	2.50	1.25	1
Cl6-BZ#138	ND		ng/cart	2.50	1.25	1
Cl6-BZ#163/#160	ND		ng/cart	5.00	2.50	1
Cl6-BZ#129/#158	ND		ng/cart	5.00	2.50	1
Cl7-BZ#182/#175	ND		ng/cart	5.00	2.50	1
Cl7-BZ#187	ND		ng/cart	2.50	1.25	1
Cl7-BZ#183	ND		ng/cart	2.50	1.25	1
Cl6-BZ#166	ND		ng/cart	2.50	1.25	1
Cl6-BZ#159	ND		ng/cart	2.50	1.25	1
Cl5-BZ#126	ND		ng/cart	2.50	1.25	1
Cl7-BZ#185	ND		ng/cart	2.50	1.25	1
Cl6-BZ#162	ND		ng/cart	2.50	1.25	1
Cl7-BZ#174	ND		ng/cart	2.50	1.25	1
Cl6-BZ#128	ND		ng/cart	2.50	1.25	1
Cl6-BZ#167	ND		ng/cart	2.50	1.25	1
Cl8-BZ#202	ND		ng/cart	2.50	1.25	1
Cl7-BZ#181	ND		ng/cart	2.50	1.25	1
Cl7-BZ#177	ND		ng/cart	2.50	1.25	1
Cl8-BZ#204/#200-CAL	ND		ng/cart	5.00	2.50	1
Cl7-BZ#171	ND		ng/cart	2.50	1.25	1
Cl7-BZ#173	ND		ng/cart	2.50	1.25	1
Cl8-BZ#197	ND		ng/cart	2.50	1.25	1
Cl7-BZ#172	ND		ng/cart	2.50	1.25	1
Cl7-BZ#192	ND		ng/cart	2.50	1.25	1
Cl6-BZ#156	ND		ng/cart	2.50	1.25	1
Cl6-BZ#157	ND		ng/cart	2.50	1.25	1
Cl7-BZ#180	ND		ng/cart	2.50	1.25	1
Cl7-BZ#193	ND		ng/cart	2.50	1.25	1
Cl8-BZ#199	ND		ng/cart	2.50	1.25	1
Cl7-BZ#191	ND		ng/cart	2.50	1.25	1
Cl8-BZ#198	ND		ng/cart	2.50	1.25	1
Cl8-BZ#201	ND		ng/cart	2.50	1.25	1
Cl7-BZ#170	ND		ng/cart	2.50	1.25	1
Cl7-BZ#190	ND		ng/cart	2.50	1.25	1
Cl8-BZ#196	ND		ng/cart	2.50	1.25	1
Cl8-BZ#203	ND		ng/cart	2.50	1.25	1
Cl6-BZ#169	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1012315

Project Number: Not Specified **Report Date:** 09/09/10

SAMPLE RESULTS

Lab ID: L1012315-08 Date Collected: 08/07/10 00:00

Client ID: 10H0237-08 OUTDOOR BKGD UNFILT Date Received: 08/11/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl9-BZ#208	ND		ng/cart	2.50	1.25	1
Cl9-BZ#207	ND		ng/cart	2.50	1.25	1
Cl7-BZ#189	ND		ng/cart	2.50	1.25	1
Cl8-BZ#195	ND		ng/cart	2.50	1.25	1
Cl8-BZ#194	ND		ng/cart	2.50	1.25	1
Cl8-BZ#205	ND		ng/cart	2.50	1.25	1
Cl9-BZ#206	ND		ng/cart	2.50	1.25	1
Cl10-BZ#209	ND		ng/cart	2.50	1.25	1
Monochlorobiphenyls	ND		ng/cart	2.50	1.25	1
Dichlorobiphenyls	ND		ng/cart	2.50	1.25	1
Trichlorobiphenyls	ND		ng/cart	2.50	1.25	1
Tetrachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Pentachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Hexachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Heptachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Octachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Nonachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Decachlorobiphenyl	ND		ng/cart	2.50	1.25	1
Total Homologs	ND		ng/cart	2.50	1.25	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	93		50-125
Cl8-BZ#202-C13	94		50-125

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1012315
Report Date: 09/09/10

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 08/18/10 12:47
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 08/12/10 11:28
Cleanup Method1: - - - -
Cleanup Date1:
Cleanup Method2: - - - -
Cleanup Date2:

Parameter	Result	Qualifier	Units	RL	MDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-08 Batch: WG427292-1					
Cl1-BZ#1	ND		ng/cart	2.50	1.25
Cl1-BZ#2	ND		ng/cart	2.50	1.25
CL1-BZ#3	ND		ng/cart	2.50	1.25
Cl2-BZ#4/#10	ND		ng/cart	5.00	2.50
Cl2-BZ#9	ND		ng/cart	2.50	1.25
Cl2-BZ#7	ND		ng/cart	2.50	1.25
Cl2-BZ#6	ND		ng/cart	2.50	1.25
Cl2-BZ#5	ND		ng/cart	2.50	1.25
Cl2-BZ#8	ND		ng/cart	2.50	1.25
Cl3-BZ#19	ND		ng/cart	2.50	1.25
Cl2-BZ#14	ND		ng/cart	2.50	1.25
Cl3-BZ#30	ND		ng/cart	2.50	1.25
Cl3-BZ#18	ND		ng/cart	2.50	1.25
Cl2-BZ#11	ND		ng/cart	2.50	1.25
Cl3-BZ#17	ND		ng/cart	2.50	1.25
Cl2-BZ#12	ND		ng/cart	2.50	1.25
Cl3-BZ#27	ND		ng/cart	2.50	1.25
Cl2-BZ#13	ND		ng/cart	2.50	1.25
Cl3-BZ#24	ND		ng/cart	2.50	1.25
Cl3-BZ#16	ND		ng/cart	2.50	1.25
Cl3-BZ#32	ND		ng/cart	2.50	1.25
Cl2-BZ#15	ND		ng/cart	2.50	1.25
Cl3-BZ#34	ND		ng/cart	2.50	1.25
Cl3-BZ#23	ND		ng/cart	2.50	1.25
Cl4-BZ#54	ND		ng/cart	2.50	1.25
Cl3-BZ#29	ND		ng/cart	2.50	1.25
Cl4-BZ#50	ND		ng/cart	2.50	1.25
Cl3-BZ#26	ND		ng/cart	2.50	1.25
Cl3-BZ#25	ND		ng/cart	2.50	1.25
Cl4-BZ#53	ND		ng/cart	2.50	1.25
Cl3-BZ#-31	ND		ng/cart	2.50	1.25

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1012315
Report Date: 09/09/10

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 08/18/10 12:47
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 08/12/10 11:28
Cleanup Method1: - - - -
Cleanup Date1:
Cleanup Method2: - - - -
Cleanup Date2:

Parameter	Result	Qualifier	Units	RL	MDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-08 Batch: WG427292-1					
Cl3-BZ#28	ND		ng/cart	2.50	1.25
Cl3-BZ#33	ND		ng/cart	2.50	1.25
Cl4-BZ#51	ND		ng/cart	2.50	1.25
Cl3-BZ#21/#20	ND		ng/cart	5.00	2.50
Cl4-BZ#45	ND		ng/cart	2.50	1.25
Cl3-BZ#22	ND		ng/cart	2.50	1.25
Cl4-BZ#73/#46	ND		ng/cart	5.00	2.50
Cl4-BZ#69	ND		ng/cart	2.50	1.25
Cl4-BZ#43	ND		ng/cart	2.50	1.25
Cl3-BZ#36	ND		ng/cart	2.50	1.25
Cl4-BZ#52	ND		ng/cart	2.50	1.25
Cl4-BZ#48	ND		ng/cart	2.50	1.25
Cl4-BZ#49	ND		ng/cart	2.50	1.25
Cl5-BZ#104	ND		ng/cart	2.50	1.25
Cl4-BZ#47	ND		ng/cart	2.50	1.25
Cl4-BZ#65/#75/#62	ND		ng/cart	7.50	3.75
Cl3-BZ#39	ND		ng/cart	2.50	1.25
Cl3-BZ#38	ND		ng/cart	2.50	1.25
Cl4-BZ#44	ND		ng/cart	2.50	1.25
Cl4-BZ#59	ND		ng/cart	2.50	1.25
Cl4-BZ#42	ND		ng/cart	2.50	1.25
Cl4-BZ#71	ND		ng/cart	2.50	1.25
Cl3-BZ#35	ND		ng/cart	2.50	1.25
Cl4-BZ#41	ND		ng/cart	2.50	1.25
Cl4-BZ#72	ND		ng/cart	2.50	1.25
Cl5-BZ#96	ND		ng/cart	2.50	1.25
Cl5-BZ#103	ND		ng/cart	2.50	1.25
Cl4-BZ#68/#64	ND		ng/cart	5.00	2.50
Cl4-BZ#40	ND		ng/cart	2.50	1.25
Cl3-BZ#37	ND		ng/cart	2.50	1.25
Cl5-BZ#100	ND		ng/cart	2.50	1.25

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1012315
Report Date: 09/09/10

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 08/18/10 12:47
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 08/12/10 11:28
Cleanup Method1: - - - -
Cleanup Date1:
Cleanup Method2: - - - -
Cleanup Date2:

Parameter	Result	Qualifier	Units	RL	MDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-08 Batch: WG427292-1					
Cl5-BZ#94	ND		ng/cart	2.50	1.25
Cl4-BZ#57	ND		ng/cart	2.50	1.25
Cl4-BZ#67/#58	ND		ng/cart	5.00	2.50
Cl5-BZ#102	ND		ng/cart	2.50	1.25
Cl4-BZ#61	ND		ng/cart	2.50	1.25
Cl5-BZ#98	ND		ng/cart	2.50	1.25
Cl4-BZ#76	ND		ng/cart	2.50	1.25
Cl5-BZ#93	ND		ng/cart	2.50	1.25
Cl4-BZ#63	ND		ng/cart	2.50	1.25
Cl5-BZ#121/#95/#88	ND		ng/cart	7.50	3.75
Cl4-BZ#74	ND		ng/cart	2.50	1.25
Cl6-BZ#155	ND		ng/cart	2.50	1.25
Cl4-BZ#70	ND		ng/cart	2.50	1.25
Cl5-BZ#91	ND		ng/cart	2.50	1.25
Cl4-BZ#66	ND		ng/cart	2.50	1.25
Cl4-BZ#80	ND		ng/cart	2.50	1.25
Cl4-BZ#55	ND		ng/cart	2.50	1.25
Cl5-BZ#92	ND		ng/cart	2.50	1.25
Cl5-BZ#89/#84	ND		ng/cart	5.00	2.50
Cl5-BZ#101/#90	ND		ng/cart	5.00	2.50
Cl4-BZ#56	ND		ng/cart	2.50	1.25
Cl5-BZ#113	ND		ng/cart	2.50	1.25
Cl5-BZ#99	ND		ng/cart	2.50	1.25
Cl6-BZ#150	ND		ng/cart	2.50	1.25
Cl4-BZ#60	ND		ng/cart	2.50	1.25
Cl6-BZ#152	ND		ng/cart	2.50	1.25
Cl5-BZ#119	ND		ng/cart	2.50	1.25
Cl5-BZ#83/#125/#112	ND		ng/cart	7.50	3.75
Cl5-BZ#86/#109	ND		ng/cart	5.00	2.50
Cl5-BZ#97	ND		ng/cart	2.50	1.25
Cl5-BZ#116	ND		ng/cart	2.50	1.25

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1012315
Report Date: 09/09/10

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 08/18/10 12:47
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 08/12/10 11:28
Cleanup Method1: - - - -
Cleanup Date1:
Cleanup Method2: - - - -
Cleanup Date2:

Parameter	Result	Qualifier	Units	RL	MDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-08 Batch: WG427292-1					
Cl5-BZ#87/#111	ND		ng/cart	5.00	2.50
Cl6-BZ#145	ND		ng/cart	2.50	1.25
Cl6-BZ#148	ND		ng/cart	2.50	1.25
Cl4-BZ#79	ND		ng/cart	2.50	1.25
Cl6-BZ#154	ND		ng/cart	2.50	1.25
Cl4-BZ#78	ND		ng/cart	2.50	1.25
Cl6-BZ#136	ND		ng/cart	2.50	1.25
Cl5-BZ#117	ND		ng/cart	2.50	1.25
Cl5-BZ#115	ND		ng/cart	2.50	1.25
Cl5-BZ#85	ND		ng/cart	2.50	1.25
Cl5-BZ#120	ND		ng/cart	2.50	1.25
Cl5-BZ#110	ND		ng/cart	2.50	1.25
Cl4-BZ#81	ND		ng/cart	2.50	1.25
Cl6-BZ#151	ND		ng/cart	2.50	1.25
Cl6-BZ#135	ND		ng/cart	2.50	1.25
Cl5-BZ#82	ND		ng/cart	2.50	1.25
Cl6-BZ#144	ND		ng/cart	2.50	1.25
Cl6-BZ#147/#149	ND		ng/cart	5.00	2.50
Cl4-BZ#77	ND		ng/cart	2.50	1.25
Cl6-BZ#143/#139	ND		ng/cart	5.00	2.50
Cl5-BZ#124	ND		ng/cart	2.50	1.25
Cl6-BZ#140	ND		ng/cart	2.50	1.25
Cl5-BZ#108	ND		ng/cart	2.50	1.25
Cl5-BZ#107/#123	ND		ng/cart	5.00	2.50
Cl7-BZ#188	ND		ng/cart	2.50	1.25
Cl6-BZ#134	ND		ng/cart	2.50	1.25
Cl5-BZ#106	ND		ng/cart	2.50	1.25
Cl6-BZ#133	ND		ng/cart	2.50	1.25
Cl6-BZ#142	ND		ng/cart	2.50	1.25
Cl5-BZ#118	ND		ng/cart	2.50	1.25
Cl6-BZ#131	ND		ng/cart	2.50	1.25

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1012315
Report Date: 09/09/10

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 08/18/10 12:47
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 08/12/10 11:28
Cleanup Method1: - - - -
Cleanup Date1:
Cleanup Method2: - - - -
Cleanup Date2:

Parameter	Result	Qualifier	Units	RL	MDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-08 Batch: WG427292-1					
Cl7-BZ#184	ND		ng/cart	2.50	1.25
Cl6-BZ#165	ND		ng/cart	2.50	1.25
Cl6-BZ#146	ND		ng/cart	2.50	1.25
Cl6-BZ#161	ND		ng/cart	2.50	1.25
Cl5-BZ#122	ND		ng/cart	2.50	1.25
Cl6-BZ#168	ND		ng/cart	2.50	1.25
Cl5-BZ#114	ND		ng/cart	2.50	1.25
Cl6-BZ#153	ND		ng/cart	2.50	1.25
Cl6-BZ#132	ND		ng/cart	2.50	1.25
Cl7-BZ#179	ND		ng/cart	2.50	1.25
Cl6-BZ#141	ND		ng/cart	2.50	1.25
Cl7-BZ#176	ND		ng/cart	2.50	1.25
Cl5-BZ#105	ND		ng/cart	2.50	1.25
Cl6-BZ#137	ND		ng/cart	2.50	1.25
Cl5-BZ#127	ND		ng/cart	2.50	1.25
Cl7-BZ#186	ND		ng/cart	2.50	1.25
Cl6-BZ#130/#164	ND		ng/cart	5.00	2.50
Cl7-BZ#178	ND		ng/cart	2.50	1.25
Cl6-BZ#138	ND		ng/cart	2.50	1.25
Cl6-BZ#163/#160	ND		ng/cart	5.00	2.50
Cl6-BZ#129/#158	ND		ng/cart	5.00	2.50
Cl7-BZ#182/#175	ND		ng/cart	5.00	2.50
Cl7-BZ#187	ND		ng/cart	2.50	1.25
Cl7-BZ#183	ND		ng/cart	2.50	1.25
Cl6-BZ#166	ND		ng/cart	2.50	1.25
Cl6-BZ#159	ND		ng/cart	2.50	1.25
Cl5-BZ#126	ND		ng/cart	2.50	1.25
Cl7-BZ#185	ND		ng/cart	2.50	1.25
Cl6-BZ#162	ND		ng/cart	2.50	1.25
Cl7-BZ#174	ND		ng/cart	2.50	1.25
Cl6-BZ#128	ND		ng/cart	2.50	1.25

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1012315
Report Date: 09/09/10

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 08/18/10 12:47
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 08/12/10 11:28
Cleanup Method1: - - - -
Cleanup Date1:
Cleanup Method2: - - - -
Cleanup Date2:

Parameter	Result	Qualifier	Units	RL	MDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-08 Batch: WG427292-1					
Cl6-BZ#167	ND		ng/cart	2.50	1.25
Cl8-BZ#202	ND		ng/cart	2.50	1.25
Cl7-BZ#181	ND		ng/cart	2.50	1.25
Cl7-BZ#177	ND		ng/cart	2.50	1.25
Cl8-BZ#204/#200-CAL	ND		ng/cart	5.00	2.50
Cl7-BZ#171	ND		ng/cart	2.50	1.25
Cl7-BZ#173	ND		ng/cart	2.50	1.25
Cl8-BZ#197	ND		ng/cart	2.50	1.25
Cl7-BZ#172	ND		ng/cart	2.50	1.25
Cl7-BZ#192	ND		ng/cart	2.50	1.25
Cl6-BZ#156	ND		ng/cart	2.50	1.25
Cl6-BZ#157	ND		ng/cart	2.50	1.25
Cl7-BZ#180	ND		ng/cart	2.50	1.25
Cl7-BZ#193	ND		ng/cart	2.50	1.25
Cl8-BZ#199	ND		ng/cart	2.50	1.25
Cl7-BZ#191	ND		ng/cart	2.50	1.25
Cl8-BZ#198	ND		ng/cart	2.50	1.25
Cl8-BZ#201	ND		ng/cart	2.50	1.25
Cl7-BZ#170	ND		ng/cart	2.50	1.25
Cl7-BZ#190	ND		ng/cart	2.50	1.25
Cl8-BZ#196	ND		ng/cart	2.50	1.25
Cl8-BZ#203	ND		ng/cart	2.50	1.25
Cl6-BZ#169	ND		ng/cart	2.50	1.25
Cl9-BZ#208	ND		ng/cart	2.50	1.25
Cl9-BZ#207	ND		ng/cart	2.50	1.25
Cl7-BZ#189	ND		ng/cart	2.50	1.25
Cl8-BZ#195	ND		ng/cart	2.50	1.25
Cl8-BZ#194	ND		ng/cart	2.50	1.25
Cl8-BZ#205	ND		ng/cart	2.50	1.25
Cl9-BZ#206	ND		ng/cart	2.50	1.25
Cl10-BZ#209	ND		ng/cart	2.50	1.25

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1012315
Report Date: 09/09/10

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 08/18/10 12:47
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 08/12/10 11:28
Cleanup Method1: - - - -
Cleanup Date1:
Cleanup Method2: - - - -
Cleanup Date2:

Parameter	Result	Qualifier	Units	RL	MDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-08 Batch: WG427292-1					
Monochlorobiphenyls	ND		ng/cart	2.50	1.25
Dichlorobiphenyls	ND		ng/cart	2.50	1.25
Trichlorobiphenyls	ND		ng/cart	2.50	1.25
Tetrachlorobiphenyls	ND		ng/cart	2.50	1.25
Pentachlorobiphenyls	ND		ng/cart	2.50	1.25
Hexachlorobiphenyls	ND		ng/cart	2.50	1.25
Heptachlorobiphenyls	ND		ng/cart	2.50	1.25
Octachlorobiphenyls	ND		ng/cart	2.50	1.25
Nonachlorobiphenyls	ND		ng/cart	2.50	1.25
Decachlorobiphenyl	ND		ng/cart	2.50	1.25
Total Homologs	ND		ng/cart	2.50	1.25

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	**44**	Q	50-125
Cl8-BZ#202-C13	**43**	Q	50-125

Lab Control Sample Analysis
Batch Quality Control

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1012315
Report Date: 09/09/10

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-08 Batch: WG427292-2								
Cl1-BZ#1	95		-		40-140	-		30
CL1-BZ#3	100		-		40-140	-		30
Cl2-BZ#4/#10	114		-		40-140	-		30
Cl2-BZ#8	98		-		40-140	-		30
Cl3-BZ#19	95		-		40-140	-		30
Cl3-BZ#18	97		-		40-140	-		30
Cl2-BZ#15	93		-		40-140	-		30
Cl4-BZ#54	104		-		40-140	-		30
Cl3-BZ#29	97		-		40-140	-		30
Cl4-BZ#50	101		-		40-140	-		30
Cl3-BZ#-31	102		-		40-140	-		30
Cl3-BZ#28	110		-		40-140	-		30
Cl4-BZ#45	106		-		40-140	-		30
Cl4-BZ#52	106		-		40-140	-		30
Cl4-BZ#49	100		-		40-140	-		30
Cl5-BZ#104	94		-		40-140	-		30
Cl4-BZ#47	112		-		40-140	-		30
Cl4-BZ#44	116		-		40-140	-		30
Cl3-BZ#37	79		-		40-140	-		30
Cl5-BZ#121/#95/#88	80		-		40-140	-		30
Cl4-BZ#74	104		-		40-140	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1012315
Report Date: 09/09/10

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-08 Batch: WG427292-2								
Cl6-BZ#155	99		-		40-140	-		30
Cl4-BZ#70	107		-		40-140	-		30
Cl4-BZ#66	125		-		40-140	-		30
Cl5-BZ#101/#90	104		-		40-140	-		30
Cl4-BZ#56	123		-		40-140	-		30
Cl5-BZ#99	105		-		40-140	-		30
Cl5-BZ#87/#111	89		-		40-140	-		30
Cl6-BZ#154	107		-		40-140	-		30
Cl5-BZ#110	110		-		40-140	-		30
Cl4-BZ#81	118		-		40-140	-		30
Cl6-BZ#151	96		-		40-140	-		30
Cl6-BZ#147/#149	95		-		40-140	-		30
Cl4-BZ#77	104		-		40-140	-		30
Cl5-BZ#107/#123	102		-		40-140	-		30
Cl7-BZ#188	88		-		40-140	-		30
Cl5-BZ#118	89		-		40-140	-		30
Cl6-BZ#146	102		-		40-140	-		30
Cl5-BZ#114	89		-		40-140	-		30
Cl6-BZ#153	110		-		40-140	-		30
Cl5-BZ#105	72		-		40-140	-		30
Cl6-BZ#138	91		-		40-140	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1012315
Report Date: 09/09/10

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-08 Batch: WG427292-2								
Cl6-BZ#129/#158	108		-		40-140	-		30
Cl7-BZ#187	99		-		40-140	-		30
Cl7-BZ#183	94		-		40-140	-		30
Cl5-BZ#126	94		-		40-140	-		30
Cl7-BZ#174	102		-		40-140	-		30
Cl6-BZ#128	104		-		40-140	-		30
Cl6-BZ#167	102		-		40-140	-		30
Cl8-BZ#202	107		-		40-140	-		30
Cl7-BZ#177	100		-		40-140	-		30
Cl8-BZ#204/#200-CAL	98		-		40-140	-		30
Cl6-BZ#156	90		-		40-140	-		30
Cl6-BZ#157	94		-		40-140	-		30
Cl7-BZ#180	87		-		40-140	-		30
Cl8-BZ#201	101		-		40-140	-		30
Cl7-BZ#170	103		-		40-140	-		30
Cl6-BZ#169	103		-		40-140	-		30
Cl9-BZ#208	93		-		40-140	-		30
Cl7-BZ#189	100		-		40-140	-		30
Cl8-BZ#195	99		-		40-140	-		30
Cl8-BZ#194	96		-		40-140	-		30
Cl8-BZ#205	96		-		40-140	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1012315
Report Date: 09/09/10

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-08 Batch: WG427292-2								
Cl9-BZ#206	93		-		40-140	-		30
Cl10-BZ#209	88		-		40-140	-		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Cl3-BZ#19-C13	91				50-125
Cl8-BZ#202-C13	90				50-125

Project Name: Not Specified
Project Number: Not Specified

Lab Number: L1012315
Report Date: 09/09/10

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler	
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1012315-01A	PUF Air Cartridge (PCB) - Low	A	N/A	23	Y	Absent	A2-PCB209-C/H-8270(7)
L1012315-02A	PUF Air Cartridge (PCB) - Low	A	N/A	23	Y	Absent	A2-PCB209-C/H-8270(7)
L1012315-03A	PUF Air Cartridge (PCB) - Low	A	N/A	23	Y	Absent	A2-PCB209-C/H-8270(7)
L1012315-04A	PUF Air Cartridge (PCB) - Low	A	N/A	23	Y	Absent	A2-PCB209-C/H-8270(7)
L1012315-05A	PUF Air Cartridge (PCB) - Low	A	N/A	23	Y	Absent	A2-PCB209-C/H-8270(7)
L1012315-06A	PUF Air Cartridge (PCB) - Low	A	N/A	23	Y	Absent	A2-PCB209-C/H-8270(7)
L1012315-07A	PUF Air Cartridge (PCB) - Low	A	N/A	23	Y	Absent	A2-PCB209-C/H-8270(7)
L1012315-08A	PUF Air Cartridge (PCB) - Low	A	N/A	23	Y	Absent	A2-PCB209-C/H-8270(7)
L1012315-09A	PUF Air Cartridge (PCB) - Low	A	N/A	23	Y	Absent	PUF-LO(),CLEAN-FEE()

*Values in parentheses indicate holding time in days

Project Name:	Not Specified	**Lab Number:**	L1012315
Project Number:	Not Specified	**Report Date:**	09/09/10

GLOSSARY

Acronyms

EPA	· Environmental Protection Agency.
LCS	· Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	· Laboratory Control Sample Duplicate: Refer to LCS.
MDL	· Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	· Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	· Matrix Spike Sample Duplicate: Refer to MS.
NA	· Not Applicable.
NC	· Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NI	· Not Ignitable.
RL	· Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	· Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A	- Spectra identified as "Aldol Condensation Product".
B	- The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank.
D	- Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
E	- Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
H	- The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
I	- The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported due to obvious interference.
P	- The RPD between the results for the two columns exceeds the method-specified criteria.
Q	- The quality control sample exceeds the associated acceptance criteria. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
R	- Analytical results are from sample re-analysis.

Report Format: DU "J" Qualify to 1/2 the RDL

Project Name: Not Specified
Project Number: Not Specified
Lab Number: L1012315
Report Date: 09/09/10

Data Qualifiers

RE - Analytical results are from sample re-extraction.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above one half the RL. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at one half the reporting limit (RL) for the sample.

Report Format: DU "J" Qualify to 1/2 the RDL

Project Name: Not Specified **Lab Number:** L1012315
Project Number: Not Specified **Report Date:** 09/09/10

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certificate/Approval Program Summary

Last revised July 19, 2010 – Mansfield Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0141.

Wastewater/Non-Potable Water (Inorganic Parameters: pH, Turbidity, Conductivity, Alkalinity, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Vanadium, Zinc, Total Residue (Solids), Total Suspended Solids (non-filterable), Total Cyanide. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Acid Extractables, Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, PAHs, Haloethers, Chlorinated Hydrocarbons, Volatile Organics.)

Solid Waste/Soil (Inorganic Parameters: pH, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Organic Carbon, Total Cyanide, Corrosivity, TCLP 1311. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Volatile Organics, Acid Extractables, Benzidines, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Florida Department of Health Certificate/Lab ID: E87814. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: SM2320B, EPA 120.1, SM2510B, EPA 245.1, EPA 150.1, EPA 160.2, SM2540D, EPA 335.2, SM2540G, EPA 180.1. Organic Parameters: EPA 625, 608.)

Solid & Chemical Materials (Inorganic Parameters: 6020, 7470, 7471, 9045, 9014. Organic Parameters: EPA 8260, 8270, 8082, 8081.)

Air & Emissions (EPA TO-15.)

Louisiana Department of Environmental Quality Certificate/Lab ID: 03090. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: EPA 120.1, 150.1, 160.2, 180.1, 200.8, 245.1, 310.1, 335.2, 608, 625, 1631, 3010, 3015, 3020, 6020, 9010, 9014, 9040, SM2320B, 2510B, 2540D, 2540G, 4500CN-E, 4500H-B, Organic Parameters: EPA 3510, 3580, 3630, 3640, 3660, 3665, 5030, 8015 (mod), 3570, 8081, 8082, 8260, 8270,)

Solid & Chemical Materials (Inorganic Parameters: 6020, 7196, 7470, 7471, 7474, 9010, 9014, 9040, 9045, 9060. Organic Parameters: EPA 8015 (mod), EPA 3570, 1311, 3050, 3051, 3060, 3580, 3630, 3640, 3660, 3665, 5035, 8081, 8082, 8260, 8270.)

Biological Tissue (Inorganic Parameters: EPA 6020. Organic Parameters: EPA 3570, 3510, 3610, 3630, 3640, 8270.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA030.

Non-Potable Water (Inorganic Parameters: SM4500H+B. Organic Parameters: EPA 624.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 2206. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: EPA 200.8, 245.1, 1631E, 120.1, 150.1, 180.1, 310.1, 335.2, 160.2, SM2540D, 2540G, 4500CN-E, 4500H+B, 2320B, 2510B. Organic Parameters: EPA 625, 608.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA015. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: SW-846 1312, 3010, 3020A, 3015, 6020, SM2320B, EPA 200.8, SM2540C, 2540D, 2540G, EPA 120.1, SM2510B, EPA 180.1, 245.1, 1631E, SW-846 9040B, 6020, 9010B, 9014 Organic Parameters: EPA 608, 625, SW-846 3510C, 3580A, 5030B, 3035L, 5035H, 3630C, 3640A, 3660B, 3665A, 8081A, 8082 8260B, 8270C)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6020, 9010B, 9014, 1311, 1312, 3050B, 3051, 3060A, 7196A, 7470A, 7471A, 9045C, 9060. Organic Parameters: SW-846 3580A, 5030B, 3035L, 5035H, 3630C, 3640A, 3660B, 3665A, 8081A, 8082, 8260B, 8270C, 3570, 8015B.)

Atmospheric Organic Parameters (EPA TO-15)

Biological Tissue (Inorganic Parameters: SW-846 6020 Organic Parameters: SW-846 8270C, 3510C, 3570, 3610B, 3630C, 3640A)

New York Department of Health Certificate/Lab ID: 11627. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: EPA 310.1, SM2320B, EPA 365.2, 160.1, EPA 160.2, SM2540D, EPA 200.8, 6020, 1631E, 245.1, 335.2, 9014, 150.1, 9040B, 120.1, SM2510B, EPA 376.2, 180.1, 9010B. Organic Parameters: EPA 624, 8260B, 8270C, 608, 8081A, 625, 8082, 3510C, 3511, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 9040B, 9045C, SW-846 Ch7 Sec 7.3, EPA 6020, 7196A, 7471A, 7474, 9014, 9040B, 9045C, 9010B. Organic Parameters: EPA 8260B, 8270C, 8081A, DRO 8015B, 8082, 1311, 3050B, 3580, 3050B, 3035, 3570, 3051, 5035, 5030B.)

Air & Emissions (EPA TO-15.)

Rhode Island Department of Health Certificate/Lab ID: LAO00299. ***NELAP Accredited via LA-DEQ.***

Refer to MA-DEP Certificate for Non-Potable Water.

Refer to LA-DEQ Certificate for Non-Potable Water.

Texas Commission of Environmental Quality Certificate/Lab ID: T104704419-08-TX. ***NELAP Accredited.***

Solid & Chemical Materials (Inorganic Parameters: EPA 6020, 7470, 7471, 1311, 7196, 9014, 9040, 9045, 9060. Organic Parameters: EPA 8015, 8270, 8260, 8081, 8082.)

Air (Organic Parameters: EPA TO-15)

U.S. Army Corps of Engineers

Department of Defense Certificate/Lab ID: L2217.01.

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312,3051, 6020, 747A, 7474, 9045C,9060, SM 2540G, ASTM D422-63. Organic Parameters: EPA 3580, 3570, 3540C, 5035, 8260B, 8270C, 8270 Alk-PAH, 8082, 8081A, 8015 (SHC), 8015 (DRO).

Air & Emissions (EPA TO-15.)

Analytes Not Accredited by NELAP
Certification is not available by NELAP for the following analytes: **8270C:** Biphenyl.

SUBCONTRACT ORDER

Con-Test Analytical Laboratory

10H0237

L1012315

SENDING LABORATORY:

Con-Test Analytical Laboratory
39 Spruce Street
East Longmeadow, MA 01028
Phone: 413.525.2332
Fax: 413.525.6405
Project Manager: Colleen E. Molloy

RECEIVING LABORATORY:

Alpha Analytical Laboratory
8 Walkup Drive
Westborough, MA 01581
Phone :(508) 898-9220
Fax: (508) 898-9193

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 10H0237-01	**Air**	**Sampled:08/07/10 00:00**		**PCB CONGENERS**
Miscellaneous 1	08/16/10 23:59	08/21/10 00:00		
Containers Supplied:				
Sample ID: 10H0237-02	**Air**	**Sampled:08/07/10 00:00**		**PCB CONGENERS AND AROCLORS**
Miscellaneous 1	08/16/10 23:59	08/21/10 00:00		
Containers Supplied:				
Sample ID: 10H0237-03	**Air**	**Sampled:08/07/10 00:00**		**PCB CONGENERS**
Miscellaneous 1	08/16/10 23:59	08/21/10 00:00		
Containers Supplied:				
Sample ID: 10H0237-04	**Air**	**Sampled:08/07/10 00:00**		**PCB CONGENERS AND AROCLORS**
Miscellaneous 1	08/16/10 23:59	08/21/10 00:00		
Containers Supplied:				
Sample ID: 10H0237-05	**Air**	**Sampled:08/07/10 00:00**		**PCB CONGENERS**
Miscellaneous 1	08/16/10 23:59	08/21/10 00:00		
Containers Supplied:				
Sample ID: 10H0237-06	**Air**	**Sampled:08/07/10 00:00**		**PCB CONGENERS AND AROCLORS**
Miscellaneous 1	08/16/10 23:59	08/21/10 00:00		
Containers Supplied:				

Released By	Date	Received By	Date
[signature]	8-11-10 0952	[signature]	8/11/10 0952

SUBCONTRACT ORDER

Con-Test Analytical Laboratory

10H0237

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 10H0237-07	**Air**	**Sampled:08/07/10 00:00**		**PCB CONGENERS**
Miscellaneous 1	08/16/10 23:59	08/21/10 00:00		
Containers Supplied:				
Sample ID: 10H0237-08	**Air**	**Sampled:08/07/10 00:00**		**PCB CONGENERS AND AROCLORS**
Miscellaneous 1	08/16/10 23:59	08/21/10 00:00		
Containers Supplied:				

Released By	Date	Received By	Date
[signature]	8-11-10 0952	[signature]	8/11/10 0952

Page 2 of 2

(via ConTest)

AIR ANALYSIS

ALPHA ANALYTICAL

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab:

ALPHA Job #:

Project Information

Project Name: CABOT YARD - MBTA

Project Location: DORCHESTER, MA

Project #: 060 07443. ~~1007~~/1022

Project Manager: DANIEL WHITE

ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved!)

☐ These samples have been previously analyzed by Alpha

Date Due: Time:

Report Information - Data Deliverables

☐ FAX

☑ ADEx

Criteria Checker:

(Default based on Regulatory Criteria Indicated)

Other Formats:

☑ EMAIL (standard pdf report)

☐ Additional Deliverables:

Report to: (if different than Project Manager)

Billing Information

☑ Same as Client info PO #: 60.07443.10

(Con-Test Labs)

Regulatory Requirements/Report Limits

State/Fed	Program	Criteria
Fed	TSCA	

Other Project Specific Requirements/Comments:
For "Filtered" Samples: Remove filter, extract foam only to get vapor-phase concentrations. Do not extract filter.

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	Canister ID / Can	Flow Controller ID	~~TO-14A by TO-15~~	~~TO-15~~	~~TO-15 SIM~~	~~APH~~ TO-10A / Fol-List / Conyl-ACS	~~FIXED GASES~~	~~TO-15A~~	~~TO-14 TO-10~~	Total Pump Volume (L) / Sample Comments (i.e. PID)
	AIR-NE-FILTERED	8/6 → 8/7/10	1714	1720	2.0	2.20	AA	DW	PUF	LP-143	NA		X						2892
	AIR-NE-UNFILTERED	8/6 → 8/7/10	1715	1720	1.8	2.25	AA			LP-146	↓		X		X				2890
	~~AIR-NE (2) UNFILTERED~~		~~1716~~	~~1720~~	~~2.5~~	~~2.10~~	~~AA~~												~~2894~~
	AIR-W-FILTERED		1711	1718	2.1	2.25	AA			LP-82	NA		X						2894
	AIR-W-UNFILTERED		1710	1718	1.9	2.15	AA			LP-126			X		X				2896
	TRACK 8-FILTERED		1709	1715	2.0	2.20	AA			LP-164			X						2892
	TRACK 8-UNFILTERED		1708	1715	1.9	2.10	AA			LP-167			X		X				2894
	OUTDOOR BACKGROUND FILTERED		1701	1708	2.0	2.25	AA			LP-49			X						2894
	OUTDOOR BACKGROUND UNFILTERED		1700	1708	1.8	2.15	AA	↓	↓	LP-97	↓		X		X				2896

*SAMPLE MATRIX CODES
AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type: Low-Flow PUF

Relinquished By:	Date/Time	Received By:	Date/Time:
[signature]	8/8/10-1312	[signature]	8/8/10 1312
[signature] / ATC	8-9-10/1430	[signature]	8/9/10 1430
[signature]	8-9-10 1813	[signature]	8/10/10 09:20

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Form No: 101-02 (19-Jun-09)

Serial_No:09091012:14

www.contestlabs.com

con-test® ANALYTICAL LABORATORY

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

Sample Receipt Checklist CEC

CLIENT NAME: ATC - Woburn RECEIVED BY: ~~AP~~ AR DATE: ~~8/10/10~~ AR 8/9/10

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

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 4.0°C

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

Who was notified _____ Date _____ Time _____

6) Are there any samples "On Hold"? Yes No Stored where: _____

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

Who was notified _____ Date _____ Time _____

8) Location where samples are stored: Login Cart

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

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	
250 mL Amber (8oz amber)		2 oz amber/clear jar	
1 Liter Plastic		Other glass jar	
500 mL Plastic		Plastic Bag / Ziploc	
250 mL plastic		Air Cassette	
40 mL Vial - type listed below		SOC Kit	
Colisure / bacteria bottle		Tubes	
Dissolved Oxygen bottle		Non-ConTest Container	
Flashpoint bottle		Other	
Encore		PM 2.5 / PM 10	
Perchlorate Kit		PUF Cartridge	9 - Low-Flow

Laboratory Comments:

Time and Date Frozen:

40 mL vials: # HCl _____ # Methanol _____

Bisulfate _____ # DI Water _____

Thiosulfate _____ Unpreserved _____

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

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

June 2010

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

November 11, 2010

Dan White
ATC Associates - Woburn
600 W Cummings Park, Suite 5500
Woburn, MA 01801

Project Location: MBTA - Cabot Yard
Client Job Number:
Project Number: 60.07443.1028
Laboratory Work Order Number: 10J0900

Enclosed are results of analyses for samples received by the laboratory on October 28, 2010. 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

ATC Associates - Woburn
600 W Cummings Park, Suite 5500
Woburn, MA 01801
ATTN: Dan White

REPORT DATE: 11/11/2010

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 60.07443.1028

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 10J0900

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

PROJECT LOCATION: MBTA - Cabot Yard

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
WA-IA-Platform #1	10J0900-01	Air		TO-10A/EPA 680 Modified	MA M-MA-086/CT PH-0574/NY11148
WA-IA-Platform #2	10J0900-02	Air		TO-10A/EPA 680 Modified	MA M-MA-086/CT PH-0574/NY11148
WA-IA-Platform-Ambient	10J0900-03	Air		TO-10A/EPA 680 Modified	MA M-MA-086/CT PH-0574/NY11148
WA-IA-Platform #B	10J0900-04	Air		TO-10A/EPA 680 Modified	MA M-MA-086/CT PH-0574/NY11148

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

CASE NARRATIVE SUMMARY

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

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 individuuals 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

con-test® ANALYTICAL LABORATORY

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

ANALYTICAL RESULTS

Project Location: MBTA - Cabot Yard
Date Received: 10/28/2010
Field Sample #: WA-IA-Platform #1
Sample ID: 10J0900-01
Sample Matrix: Air
Sampled: 10/27/2010 12:45

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:

Work Order: 10J0900

TO-10A/EPA 680 Modified

Analyte	Total µg Results	RL	Flag	Dilution	Date/Time Analyzed	Analyst
See Attached Subcontracted Report	ND			1		AAL

con-test® ANALYTICAL LABORATORY

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

ANALYTICAL RESULTS

Project Location: MBTA - Cabot Yard
Date Received: 10/28/2010
Field Sample #: WA-IA-Platform #2
Sample ID: 10J0900-02
Sample Matrix: Air
Sampled: 10/27/2010 12:45

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:

Work Order: 10J0900

TO-10A/EPA 680 Modified

Analyte	Total µg Results	RL	Flag	Dilution	Date/Time Analyzed	Analyst
See Attached Subcontracted Report	ND			1		AAL

con-test® ANALYTICAL LABORATORY

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

ANALYTICAL RESULTS

Project Location: MBTA - Cabot Yard
Date Received: 10/28/2010
Field Sample #: WA-IA-Platform-Ambient
Sample ID: 10J0900-03
Sample Matrix: Air
Sampled: 10/27/2010 12:49

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:

Work Order: 10J0900

TO-10A/EPA 680 Modified

Analyte	Total µg Results	RL	Flag	Dilution	Date/Time Analyzed	Analyst
See Attached Subcontracted Report	ND			1		AAL

con-test® ANALYTICAL LABORATORY

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

ANALYTICAL RESULTS

Project Location: MBTA - Cabot Yard
Date Received: 10/28/2010
Field Sample #: WA-IA-Platform #B
Sample ID: 10J0900-04
Sample Matrix: Air
Sampled: 10/27/2010 13:00

Sample Description/Location:
Sub Description/Location:
Flow Controller ID:
Sample Type:

Work Order: 10J0900

TO-10A/EPA 680 Modified

Analyte	Total µg Results	RL	Flag	Dilution	Date/Time Analyzed	Analyst
See Attached Subcontracted Report	ND			1		AAL

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

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level

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

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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications

No certified Analyses included in this Report

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

Code	Description	Number	Expires
AIHA	American Industrial Hygiene Association	100033	01/1/2012
MA	Massachusetts DEP	M-MA100	06/30/2011
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2011
NY	New York State Department of Health	10899 NELAP	04/1/2011
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2011
RI	Rhode Island Department of Health	LAO00112	12/30/2010
NC	North Carolina Div. of Water Quality	652	12/31/2010
NJ	New Jersey DEP	MA007 NELAP	06/30/2011
FL	Florida Department of Health	E871027 NELAP	06/30/2011
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2011
WA	State of Washington Department of Ecology	C2065	02/23/2011

1050400

AIR ANALYSIS

PAGE 1 OF 1

Date Rec'd in Lab:

ALPHA Job #:

ALPHA ANALYTICAL

CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: ATC Associates
Address: 600 W. Cummings Park, Ste 5500
Woburn, MA 01801
Phone: 781-404-1432
Fax: —
Email: Daniel.White@ATCAssociates.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: MBTA – Cabot Yard
Project Location: Dorchester, MA
Project #: 60.07443.1028
Project Manager: Dan White
~~ALPHA~~ Contest Quote #: 1009-55

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX
☐ ADEx
Criteria Checker:
(Default based on Regulatory Criteria Indicated)
Other Formats:
☒ EMAIL (standard pdf report)
☐ Additional Deliverables:

Report to: (if different than Project Manager)
Con-Test PM

Billing Information

☐ Same as Client info PO #: —
(Con-Test Labs)

Regulatory Requirements/Report Limits

State/Fed	Program	RL Criteria
TSCA		<0.1 µg/m³

Other Project Specific Requirements/Comments:

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	TO-14A by TO-15	TO-15	TO-15 SIM	APH	FIXED GASES	TO-13A	TO-4 (TO-10) PCB 680 Homologs	Sample Comments (i.e. PID)
-01	WA-IA-Platform #1	10/27/10	1045	1245	NA		AA	DPW	NA	LP-221	—							X	Flow Rate = 2 L/min.
-02	WA-IA-Platform #2	↓	1045	1245	↓		↓	↓	↓	LP-143	—							↓	↓
-03	WA-IA-Platform-Ambient	↓	1049	1249	↓		↓	↓	↓	LP-227	—							↓	↓
-04	WA-IA-Platform #B	↓	1100	1300	↓		↓	↓	↓	LP-148	—							↓	↓

(*) Okay per Dan White, to analyze above timerange.
MT 10/1/10

*SAMPLE MATRIX CODES
AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type: LOW-FLOW PUF

Relinquished By:	Date/Time	Received By:	Date/Time:
[signature]	10/28/10	[signature]	10-28-10 1335
[signature]	10-28-10 1940	[signature]	
		[signature]	10/28/10 1940

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Form No: 101-02 (19-Jun-09)

www.contestlabs.com

con-test ANALYTICAL LABORATORY

Sample Receipt Checklist

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

CLIENT NAME: ATC Associates RECEIVED BY: CJB DATE: 10/28/10

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

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 22-5°C

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

Who was notified _____ Date _____ Time _____

6) Are there any samples "On Hold"? Yes No Stored where: _____

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

Who was notified _____ Date _____ Time _____

8) Location where samples are stored: 19

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

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	
250 mL Amber (8oz amber)		2 oz amber/clear jar	
1 Liter Plastic		Other glass jar	
500 mL Plastic		Plastic Bag / Ziploc	
250 mL plastic		Air Cassette	
40 mL Vial - type listed below		SOC Kit	
Colisure / bacteria bottle		Tubes	
Dissolved Oxygen bottle		Non-ConTest Container	
Flashpoint bottle		Other	
Encore		PM 2.5 / PM 10	
Perchlorate Kit		PUF Cartridge	5

Laboratory Comments:
Also received one unused PUF ID UP-58

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

Time and Date Frozen:

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

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

June 2010

ANALYTICAL REPORT

Lab Number:	L1017228
Client:	Con-Test Laboratory PO Box 591 39 Spruce Street East Longmeadow, MA 01028
ATTN:	Meghan Kelley
Phone:	(413) 525-2332
Project Name:	Not Specified
Project Number:	10J0900
Report Date:	11/10/10

Certifications & Approvals: MA (M-MA030), NY (11627), CT (PH-0141), NH (2206), NJ (MA015), RI (LAO00299), ME (MA0030), PA (Registration #68-02089), LA NELAC (03090), FL NELAC (E87814), US Army Corps of Engineers.

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: Not Specified
Project Number: 10J0900

Lab Number: L1017228
Report Date: 11/10/10

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1017228-01	10J0900-01 WA-IA-PLATFORM #1	Not Specified	10/27/10 12:45
L1017228-02	10J0900-02 WA-IA-PLATFORM #2	Not Specified	10/27/10 12:45
L1017228-03	10J0900-03 WA-IA-PLATFORM AMB	Not Specified	10/27/10 12:49
L1017228-04	10J0900-04 WA-IA-PLATFORM #B	Not Specified	10/27/10 13:00
L1017228-05	LP-58	Not Specified	

Project Name: Not Specified **Lab Number:** L1017228
Project Number: 10J0900 **Report Date:** 11/10/10

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

For additional information, please contact Client Services at 800-624-9220.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cynthia McQueen

Title: Technical Director/Representative Date: 11/10/10

ORGANICS

PCBS

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID:	L1017228-01	Date Collected:	10/27/10 12:45
Client ID:	10J0900-01 WA-IA-PLATFORM #1	Date Received:	11/01/10
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air Cartridge	Extraction Method:	EPA 3540C
Analytical Method:	1,8270C-SIM	Extraction Date:	11/02/10 15:27
Analytical Date:	11/05/10 11:58		
Analyst:	JS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl1-BZ#1	ND		ng/cart	2.50	1.25	1
Cl1-BZ#2	ND		ng/cart	2.50	1.25	1
CL1-BZ#3	ND		ng/cart	2.50	1.25	1
Cl2-BZ#4/#10	ND		ng/cart	5.00	2.50	1
Cl2-BZ#9	ND		ng/cart	2.50	1.25	1
Cl2-BZ#7	ND		ng/cart	2.50	1.25	1
Cl2-BZ#6	ND		ng/cart	2.50	1.25	1
Cl2-BZ#5	ND		ng/cart	2.50	1.25	1
Cl2-BZ#8	2.75		ng/cart	2.50	1.25	1
Cl3-BZ#19	ND		ng/cart	2.50	1.25	1
Cl2-BZ#14	ND		ng/cart	2.50	1.25	1
Cl3-BZ#30	ND		ng/cart	2.50	1.25	1
Cl3-BZ#18	1.75	J	ng/cart	2.50	1.25	1
Cl2-BZ#11	ND		ng/cart	2.50	1.25	1
Cl3-BZ#17	ND		ng/cart	2.50	1.25	1
Cl2-BZ#12	ND		ng/cart	2.50	1.25	1
Cl3-BZ#27	ND		ng/cart	2.50	1.25	1
Cl2-BZ#13	ND		ng/cart	2.50	1.25	1
Cl3-BZ#24	ND		ng/cart	2.50	1.25	1
Cl3-BZ#16	ND		ng/cart	2.50	1.25	1
Cl3-BZ#32	ND		ng/cart	2.50	1.25	1
Cl2-BZ#15	ND		ng/cart	2.50	1.25	1
Cl3-BZ#34	ND		ng/cart	2.50	1.25	1
Cl3-BZ#23	ND		ng/cart	2.50	1.25	1
Cl4-BZ#54	ND		ng/cart	2.50	1.25	1
Cl3-BZ#29	ND		ng/cart	2.50	1.25	1
Cl4-BZ#50	ND		ng/cart	2.50	1.25	1
Cl3-BZ#26	ND		ng/cart	2.50	1.25	1
Cl3-BZ#25	ND		ng/cart	2.50	1.25	1
Cl4-BZ#53	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID: L1017228-01 Date Collected: 10/27/10 12:45

Client ID: 10J0900-01 WA-IA-PLATFORM #1 Date Received: 11/01/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl3-BZ#-31	ND		ng/cart	2.50	1.25	1
Cl3-BZ#28	ND		ng/cart	2.50	1.25	1
Cl3-BZ#33	ND		ng/cart	2.50	1.25	1
Cl4-BZ#51	ND		ng/cart	2.50	1.25	1
Cl3-BZ#21/#20	ND		ng/cart	5.00	2.50	1
Cl4-BZ#45	ND		ng/cart	2.50	1.25	1
Cl3-BZ#22	ND		ng/cart	2.50	1.25	1
Cl4-BZ#73/#46	ND		ng/cart	5.00	2.50	1
Cl4-BZ#69	ND		ng/cart	2.50	1.25	1
Cl4-BZ#43	ND		ng/cart	2.50	1.25	1
Cl3-BZ#36	ND		ng/cart	2.50	1.25	1
Cl4-BZ#52	ND		ng/cart	2.50	1.25	1
Cl4-BZ#48	ND		ng/cart	2.50	1.25	1
Cl4-BZ#49	ND		ng/cart	2.50	1.25	1
Cl5-BZ#104	ND		ng/cart	2.50	1.25	1
Cl4-BZ#47	ND		ng/cart	2.50	1.25	1
Cl4-BZ#65/#75/#62	ND		ng/cart	7.50	3.75	1
Cl3-BZ#39	ND		ng/cart	2.50	1.25	1
Cl3-BZ#38	ND		ng/cart	2.50	1.25	1
Cl4-BZ#44	ND		ng/cart	2.50	1.25	1
Cl4-BZ#59	ND		ng/cart	2.50	1.25	1
Cl4-BZ#42	ND		ng/cart	2.50	1.25	1
Cl4-BZ#71	ND		ng/cart	2.50	1.25	1
Cl3-BZ#35	ND		ng/cart	2.50	1.25	1
Cl4-BZ#41	ND		ng/cart	2.50	1.25	1
Cl4-BZ#72	ND		ng/cart	2.50	1.25	1
Cl5-BZ#96	ND		ng/cart	2.50	1.25	1
Cl5-BZ#103	ND		ng/cart	2.50	1.25	1
Cl4-BZ#68/#64	ND		ng/cart	5.00	2.50	1
Cl4-BZ#40	ND		ng/cart	2.50	1.25	1
Cl3-BZ#37	ND		ng/cart	2.50	1.25	1
Cl5-BZ#100	ND		ng/cart	2.50	1.25	1
Cl5-BZ#94	ND		ng/cart	2.50	1.25	1
Cl4-BZ#57	ND		ng/cart	2.50	1.25	1
Cl4-BZ#67/#58	ND		ng/cart	5.00	2.50	1
Cl5-BZ#102	ND		ng/cart	2.50	1.25	1
Cl4-BZ#61	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID: L1017228-01 Date Collected: 10/27/10 12:45

Client ID: 10J0900-01 WA-IA-PLATFORM #1 Date Received: 11/01/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#98	ND		ng/cart	2.50	1.25	1
Cl4-BZ#76	ND		ng/cart	2.50	1.25	1
Cl5-BZ#93	ND		ng/cart	2.50	1.25	1
Cl4-BZ#63	ND		ng/cart	2.50	1.25	1
Cl5-BZ#121/#95/#88	ND		ng/cart	7.50	3.75	1
Cl4-BZ#74	ND		ng/cart	2.50	1.25	1
Cl6-BZ#155	ND		ng/cart	2.50	1.25	1
Cl4-BZ#70	ND		ng/cart	2.50	1.25	1
Cl5-BZ#91	ND		ng/cart	2.50	1.25	1
Cl4-BZ#66	ND		ng/cart	2.50	1.25	1
Cl4-BZ#80	ND		ng/cart	2.50	1.25	1
Cl4-BZ#55	ND		ng/cart	2.50	1.25	1
Cl5-BZ#92	ND		ng/cart	2.50	1.25	1
Cl5-BZ#89/#84	ND		ng/cart	5.00	2.50	1
Cl5-BZ#101/#90	ND		ng/cart	5.00	2.50	1
Cl4-BZ#56	ND		ng/cart	2.50	1.25	1
Cl5-BZ#113	ND		ng/cart	2.50	1.25	1
Cl5-BZ#99	ND		ng/cart	2.50	1.25	1
Cl6-BZ#150	ND		ng/cart	2.50	1.25	1
Cl4-BZ#60	ND		ng/cart	2.50	1.25	1
Cl6-BZ#152	ND		ng/cart	2.50	1.25	1
Cl5-BZ#119	ND		ng/cart	2.50	1.25	1
Cl5-BZ#83/#125/#112	ND		ng/cart	7.50	3.75	1
Cl5-BZ#86/#109	ND		ng/cart	5.00	2.50	1
Cl5-BZ#97	ND		ng/cart	2.50	1.25	1
Cl5-BZ#116	ND		ng/cart	2.50	1.25	1
Cl5-BZ#87/#111	ND		ng/cart	5.00	2.50	1
Cl6-BZ#145	ND		ng/cart	2.50	1.25	1
Cl6-BZ#148	ND		ng/cart	2.50	1.25	1
Cl4-BZ#79	ND		ng/cart	2.50	1.25	1
Cl6-BZ#154	ND		ng/cart	2.50	1.25	1
Cl4-BZ#78	ND		ng/cart	2.50	1.25	1
Cl6-BZ#136	ND		ng/cart	2.50	1.25	1
Cl5-BZ#117	ND		ng/cart	2.50	1.25	1
Cl5-BZ#115	ND		ng/cart	2.50	1.25	1
Cl5-BZ#85	ND		ng/cart	2.50	1.25	1
Cl5-BZ#120	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID: L1017228-01 Date Collected: 10/27/10 12:45

Client ID: 10J0900-01 WA-IA-PLATFORM #1 Date Received: 11/01/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#110	ND		ng/cart	2.50	1.25	1
Cl4-BZ#81	ND		ng/cart	2.50	1.25	1
Cl6-BZ#151	ND		ng/cart	2.50	1.25	1
Cl6-BZ#135	ND		ng/cart	2.50	1.25	1
Cl5-BZ#82	ND		ng/cart	2.50	1.25	1
Cl6-BZ#144	ND		ng/cart	2.50	1.25	1
Cl6-BZ#147/#149	ND		ng/cart	5.00	2.50	1
Cl4-BZ#77	ND		ng/cart	2.50	1.25	1
Cl6-BZ#143/#139	ND		ng/cart	5.00	2.50	1
Cl5-BZ#124	ND		ng/cart	2.50	1.25	1
Cl6-BZ#140	ND		ng/cart	2.50	1.25	1
Cl5-BZ#108	ND		ng/cart	2.50	1.25	1
Cl5-BZ#107/#123	ND		ng/cart	5.00	2.50	1
Cl7-BZ#188	ND		ng/cart	2.50	1.25	1
Cl6-BZ#134	ND		ng/cart	2.50	1.25	1
Cl5-BZ#106	ND		ng/cart	2.50	1.25	1
Cl6-BZ#133	ND		ng/cart	2.50	1.25	1
Cl6-BZ#142	ND		ng/cart	2.50	1.25	1
Cl5-BZ#118	ND		ng/cart	2.50	1.25	1
Cl6-BZ#131	ND		ng/cart	2.50	1.25	1
Cl7-BZ#184	ND		ng/cart	2.50	1.25	1
Cl6-BZ#165	ND		ng/cart	2.50	1.25	1
Cl6-BZ#146	1.5	J	ng/cart	2.50	1.25	1
Cl6-BZ#161	ND		ng/cart	2.50	1.25	1
Cl5-BZ#122	ND		ng/cart	2.50	1.25	1
Cl6-BZ#168	ND		ng/cart	2.50	1.25	1
Cl5-BZ#114	ND		ng/cart	2.50	1.25	1
Cl6-BZ#153	ND		ng/cart	2.50	1.25	1
Cl6-BZ#132	ND		ng/cart	2.50	1.25	1
Cl7-BZ#179	ND		ng/cart	2.50	1.25	1
Cl6-BZ#141	ND		ng/cart	2.50	1.25	1
Cl7-BZ#176	ND		ng/cart	2.50	1.25	1
Cl5-BZ#105	ND		ng/cart	2.50	1.25	1
Cl6-BZ#137	ND		ng/cart	2.50	1.25	1
Cl5-BZ#127	ND		ng/cart	2.50	1.25	1
Cl7-BZ#186	ND		ng/cart	2.50	1.25	1
Cl6-BZ#130/#164	ND		ng/cart	5.00	2.50	1

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID: L1017228-01 Date Collected: 10/27/10 12:45

Client ID: 10J0900-01 WA-IA-PLATFORM #1 Date Received: 11/01/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl7-BZ#178	ND		ng/cart	2.50	1.25	1
Cl6-BZ#138	ND		ng/cart	2.50	1.25	1
Cl6-BZ#163/#160	ND		ng/cart	5.00	2.50	1
Cl6-BZ#129/#158	ND		ng/cart	5.00	2.50	1
Cl7-BZ#182/#175	ND		ng/cart	5.00	2.50	1
Cl7-BZ#187	ND		ng/cart	2.50	1.25	1
Cl7-BZ#183	ND		ng/cart	2.50	1.25	1
Cl6-BZ#166	ND		ng/cart	2.50	1.25	1
Cl6-BZ#159	ND		ng/cart	2.50	1.25	1
Cl5-BZ#126	ND		ng/cart	2.50	1.25	1
Cl7-BZ#185	ND		ng/cart	2.50	1.25	1
Cl6-BZ#162	ND		ng/cart	2.50	1.25	1
Cl7-BZ#174	ND		ng/cart	2.50	1.25	1
Cl6-BZ#128	ND		ng/cart	2.50	1.25	1
Cl6-BZ#167	ND		ng/cart	2.50	1.25	1
Cl8-BZ#202	ND		ng/cart	2.50	1.25	1
Cl7-BZ#181	ND		ng/cart	2.50	1.25	1
Cl7-BZ#177	ND		ng/cart	2.50	1.25	1
Cl8-BZ#204/#200-CAL	ND		ng/cart	5.00	2.50	1
Cl7-BZ#171	ND		ng/cart	2.50	1.25	1
Cl7-BZ#173	ND		ng/cart	2.50	1.25	1
Cl8-BZ#197	ND		ng/cart	2.50	1.25	1
Cl7-BZ#172	ND		ng/cart	2.50	1.25	1
Cl7-BZ#192	ND		ng/cart	2.50	1.25	1
Cl6-BZ#156	ND		ng/cart	2.50	1.25	1
Cl6-BZ#157	ND		ng/cart	2.50	1.25	1
Cl7-BZ#180	ND		ng/cart	2.50	1.25	1
Cl7-BZ#193	ND		ng/cart	2.50	1.25	1
Cl8-BZ#199	ND		ng/cart	2.50	1.25	1
Cl7-BZ#191	ND		ng/cart	2.50	1.25	1
Cl8-BZ#198	ND		ng/cart	2.50	1.25	1
Cl8-BZ#201	ND		ng/cart	2.50	1.25	1
Cl7-BZ#170	ND		ng/cart	2.50	1.25	1
Cl7-BZ#190	ND		ng/cart	2.50	1.25	1
Cl8-BZ#196	ND		ng/cart	2.50	1.25	1
Cl8-BZ#203	ND		ng/cart	2.50	1.25	1
Cl6-BZ#169	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID:	L1017228-01	Date Collected:	10/27/10 12:45
Client ID:	10J0900-01 WA-IA-PLATFORM #1	Date Received:	11/01/10
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl9-BZ#208	ND		ng/cart	2.50	1.25	1
Cl9-BZ#207	ND		ng/cart	2.50	1.25	1
Cl7-BZ#189	ND		ng/cart	2.50	1.25	1
Cl8-BZ#195	ND		ng/cart	2.50	1.25	1
Cl8-BZ#194	ND		ng/cart	2.50	1.25	1
Cl8-BZ#205	ND		ng/cart	2.50	1.25	1
Cl9-BZ#206	ND		ng/cart	2.50	1.25	1
Cl10-BZ#209	ND		ng/cart	2.50	1.25	1
Monochlorobiphenyls	ND		ng/cart	2.50	1.25	1
Dichlorobiphenyls	2.75		ng/cart	2.50	1.25	1
Trichlorobiphenyls	1.75	J	ng/cart	2.50	1.25	1
Tetrachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Pentachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Hexachlorobiphenyls	1.5	J	ng/cart	2.50	1.25	1
Heptachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Octachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Nonachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Decachlorobiphenyl	ND		ng/cart	2.50	1.25	1
Total Homologs	6.00		ng/cart	2.50	1.25	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	84		50-125
Cl8-BZ#202-C13	75		50-125

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID:	L1017228-02	Date Collected:	10/27/10 12:45
Client ID:	10J0900-02 WA-IA-PLATFORM #2	Date Received:	11/01/10
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air Cartridge	Extraction Method:	EPA 3540C
Analytical Method:	1,8270C-SIM	Extraction Date:	11/02/10 15:27
Analytical Date:	11/05/10 13:12		
Analyst:	JS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl1-BZ#1	ND		ng/cart	2.50	1.25	1
Cl1-BZ#2	ND		ng/cart	2.50	1.25	1
CL1-BZ#3	ND		ng/cart	2.50	1.25	1
Cl2-BZ#4/#10	ND		ng/cart	5.00	2.50	1
Cl2-BZ#9	ND		ng/cart	2.50	1.25	1
Cl2-BZ#7	ND		ng/cart	2.50	1.25	1
Cl2-BZ#6	ND		ng/cart	2.50	1.25	1
Cl2-BZ#5	ND		ng/cart	2.50	1.25	1
Cl2-BZ#8	1.85	J	ng/cart	2.50	1.25	1
Cl3-BZ#19	ND		ng/cart	2.50	1.25	1
Cl2-BZ#14	ND		ng/cart	2.50	1.25	1
Cl3-BZ#30	ND		ng/cart	2.50	1.25	1
Cl3-BZ#18	1.55	J	ng/cart	2.50	1.25	1
Cl2-BZ#11	ND		ng/cart	2.50	1.25	1
Cl3-BZ#17	ND		ng/cart	2.50	1.25	1
Cl2-BZ#12	ND		ng/cart	2.50	1.25	1
Cl3-BZ#27	ND		ng/cart	2.50	1.25	1
Cl2-BZ#13	ND		ng/cart	2.50	1.25	1
Cl3-BZ#24	ND		ng/cart	2.50	1.25	1
Cl3-BZ#16	ND		ng/cart	2.50	1.25	1
Cl3-BZ#32	ND		ng/cart	2.50	1.25	1
Cl2-BZ#15	ND		ng/cart	2.50	1.25	1
Cl3-BZ#34	ND		ng/cart	2.50	1.25	1
Cl3-BZ#23	ND		ng/cart	2.50	1.25	1
Cl4-BZ#54	ND		ng/cart	2.50	1.25	1
Cl3-BZ#29	ND		ng/cart	2.50	1.25	1
Cl4-BZ#50	ND		ng/cart	2.50	1.25	1
Cl3-BZ#26	ND		ng/cart	2.50	1.25	1
Cl3-BZ#25	ND		ng/cart	2.50	1.25	1
Cl4-BZ#53	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID: L1017228-02 Date Collected: 10/27/10 12:45

Client ID: 10J0900-02 WA-IA-PLATFORM #2 Date Received: 11/01/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl3-BZ#-31	ND		ng/cart	2.50	1.25	1
Cl3-BZ#28	ND		ng/cart	2.50	1.25	1
Cl3-BZ#33	ND		ng/cart	2.50	1.25	1
Cl4-BZ#51	ND		ng/cart	2.50	1.25	1
Cl3-BZ#21/#20	ND		ng/cart	5.00	2.50	1
Cl4-BZ#45	ND		ng/cart	2.50	1.25	1
Cl3-BZ#22	ND		ng/cart	2.50	1.25	1
Cl4-BZ#73/#46	ND		ng/cart	5.00	2.50	1
Cl4-BZ#69	ND		ng/cart	2.50	1.25	1
Cl4-BZ#43	ND		ng/cart	2.50	1.25	1
Cl3-BZ#36	ND		ng/cart	2.50	1.25	1
Cl4-BZ#52	ND		ng/cart	2.50	1.25	1
Cl4-BZ#48	ND		ng/cart	2.50	1.25	1
Cl4-BZ#49	ND		ng/cart	2.50	1.25	1
Cl5-BZ#104	ND		ng/cart	2.50	1.25	1
Cl4-BZ#47	ND		ng/cart	2.50	1.25	1
Cl4-BZ#65/#75/#62	ND		ng/cart	7.50	3.75	1
Cl3-BZ#39	ND		ng/cart	2.50	1.25	1
Cl3-BZ#38	ND		ng/cart	2.50	1.25	1
Cl4-BZ#44	ND		ng/cart	2.50	1.25	1
Cl4-BZ#59	ND		ng/cart	2.50	1.25	1
Cl4-BZ#42	ND		ng/cart	2.50	1.25	1
Cl4-BZ#71	ND		ng/cart	2.50	1.25	1
Cl3-BZ#35	ND		ng/cart	2.50	1.25	1
Cl4-BZ#41	ND		ng/cart	2.50	1.25	1
Cl4-BZ#72	ND		ng/cart	2.50	1.25	1
Cl5-BZ#96	ND		ng/cart	2.50	1.25	1
Cl5-BZ#103	ND		ng/cart	2.50	1.25	1
Cl4-BZ#68/#64	ND		ng/cart	5.00	2.50	1
Cl4-BZ#40	ND		ng/cart	2.50	1.25	1
Cl3-BZ#37	ND		ng/cart	2.50	1.25	1
Cl5-BZ#100	ND		ng/cart	2.50	1.25	1
Cl5-BZ#94	ND		ng/cart	2.50	1.25	1
Cl4-BZ#57	ND		ng/cart	2.50	1.25	1
Cl4-BZ#67/#58	ND		ng/cart	5.00	2.50	1
Cl5-BZ#102	ND		ng/cart	2.50	1.25	1
Cl4-BZ#61	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID: L1017228-02 Date Collected: 10/27/10 12:45

Client ID: 10J0900-02 WA-IA-PLATFORM #2 Date Received: 11/01/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#98	ND		ng/cart	2.50	1.25	1
Cl4-BZ#76	ND		ng/cart	2.50	1.25	1
Cl5-BZ#93	ND		ng/cart	2.50	1.25	1
Cl4-BZ#63	ND		ng/cart	2.50	1.25	1
Cl5-BZ#121/#95/#88	ND		ng/cart	7.50	3.75	1
Cl4-BZ#74	ND		ng/cart	2.50	1.25	1
Cl6-BZ#155	ND		ng/cart	2.50	1.25	1
Cl4-BZ#70	ND		ng/cart	2.50	1.25	1
Cl5-BZ#91	ND		ng/cart	2.50	1.25	1
Cl4-BZ#66	ND		ng/cart	2.50	1.25	1
Cl4-BZ#80	ND		ng/cart	2.50	1.25	1
Cl4-BZ#55	ND		ng/cart	2.50	1.25	1
Cl5-BZ#92	ND		ng/cart	2.50	1.25	1
Cl5-BZ#89/#84	ND		ng/cart	5.00	2.50	1
Cl5-BZ#101/#90	ND		ng/cart	5.00	2.50	1
Cl4-BZ#56	ND		ng/cart	2.50	1.25	1
Cl5-BZ#113	ND		ng/cart	2.50	1.25	1
Cl5-BZ#99	ND		ng/cart	2.50	1.25	1
Cl6-BZ#150	ND		ng/cart	2.50	1.25	1
Cl4-BZ#60	ND		ng/cart	2.50	1.25	1
Cl6-BZ#152	ND		ng/cart	2.50	1.25	1
Cl5-BZ#119	ND		ng/cart	2.50	1.25	1
Cl5-BZ#83/#125/#112	ND		ng/cart	7.50	3.75	1
Cl5-BZ#86/#109	ND		ng/cart	5.00	2.50	1
Cl5-BZ#97	ND		ng/cart	2.50	1.25	1
Cl5-BZ#116	ND		ng/cart	2.50	1.25	1
Cl5-BZ#87/#111	ND		ng/cart	5.00	2.50	1
Cl6-BZ#145	ND		ng/cart	2.50	1.25	1
Cl6-BZ#148	ND		ng/cart	2.50	1.25	1
Cl4-BZ#79	ND		ng/cart	2.50	1.25	1
Cl6-BZ#154	ND		ng/cart	2.50	1.25	1
Cl4-BZ#78	ND		ng/cart	2.50	1.25	1
Cl6-BZ#136	ND		ng/cart	2.50	1.25	1
Cl5-BZ#117	ND		ng/cart	2.50	1.25	1
Cl5-BZ#115	ND		ng/cart	2.50	1.25	1
Cl5-BZ#85	ND		ng/cart	2.50	1.25	1
Cl5-BZ#120	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID: L1017228-02 Date Collected: 10/27/10 12:45

Client ID: 10J0900-02 WA-IA-PLATFORM #2 Date Received: 11/01/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#110	ND		ng/cart	2.50	1.25	1
Cl4-BZ#81	ND		ng/cart	2.50	1.25	1
Cl6-BZ#151	ND		ng/cart	2.50	1.25	1
Cl6-BZ#135	ND		ng/cart	2.50	1.25	1
Cl5-BZ#82	ND		ng/cart	2.50	1.25	1
Cl6-BZ#144	ND		ng/cart	2.50	1.25	1
Cl6-BZ#147/#149	ND		ng/cart	5.00	2.50	1
Cl4-BZ#77	ND		ng/cart	2.50	1.25	1
Cl6-BZ#143/#139	ND		ng/cart	5.00	2.50	1
Cl5-BZ#124	ND		ng/cart	2.50	1.25	1
Cl6-BZ#140	ND		ng/cart	2.50	1.25	1
Cl5-BZ#108	ND		ng/cart	2.50	1.25	1
Cl5-BZ#107/#123	ND		ng/cart	5.00	2.50	1
Cl7-BZ#188	ND		ng/cart	2.50	1.25	1
Cl6-BZ#134	ND		ng/cart	2.50	1.25	1
Cl5-BZ#106	ND		ng/cart	2.50	1.25	1
Cl6-BZ#133	ND		ng/cart	2.50	1.25	1
Cl6-BZ#142	ND		ng/cart	2.50	1.25	1
Cl5-BZ#118	ND		ng/cart	2.50	1.25	1
Cl6-BZ#131	ND		ng/cart	2.50	1.25	1
Cl7-BZ#184	ND		ng/cart	2.50	1.25	1
Cl6-BZ#165	ND		ng/cart	2.50	1.25	1
Cl6-BZ#146	ND		ng/cart	2.50	1.25	1
Cl6-BZ#161	ND		ng/cart	2.50	1.25	1
Cl5-BZ#122	ND		ng/cart	2.50	1.25	1
Cl6-BZ#168	ND		ng/cart	2.50	1.25	1
Cl5-BZ#114	ND		ng/cart	2.50	1.25	1
Cl6-BZ#153	ND		ng/cart	2.50	1.25	1
Cl6-BZ#132	ND		ng/cart	2.50	1.25	1
Cl7-BZ#179	ND		ng/cart	2.50	1.25	1
Cl6-BZ#141	ND		ng/cart	2.50	1.25	1
Cl7-BZ#176	ND		ng/cart	2.50	1.25	1
Cl5-BZ#105	ND		ng/cart	2.50	1.25	1
Cl6-BZ#137	ND		ng/cart	2.50	1.25	1
Cl5-BZ#127	ND		ng/cart	2.50	1.25	1
Cl7-BZ#186	ND		ng/cart	2.50	1.25	1
Cl6-BZ#130/#164	ND		ng/cart	5.00	2.50	1

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID: L1017228-02 Date Collected: 10/27/10 12:45

Client ID: 10J0900-02 WA-IA-PLATFORM #2 Date Received: 11/01/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl7-BZ#178	ND		ng/cart	2.50	1.25	1
Cl6-BZ#138	ND		ng/cart	2.50	1.25	1
Cl6-BZ#163/#160	ND		ng/cart	5.00	2.50	1
Cl6-BZ#129/#158	ND		ng/cart	5.00	2.50	1
Cl7-BZ#182/#175	ND		ng/cart	5.00	2.50	1
Cl7-BZ#187	ND		ng/cart	2.50	1.25	1
Cl7-BZ#183	ND		ng/cart	2.50	1.25	1
Cl6-BZ#166	ND		ng/cart	2.50	1.25	1
Cl6-BZ#159	ND		ng/cart	2.50	1.25	1
Cl5-BZ#126	ND		ng/cart	2.50	1.25	1
Cl7-BZ#185	ND		ng/cart	2.50	1.25	1
Cl6-BZ#162	ND		ng/cart	2.50	1.25	1
Cl7-BZ#174	ND		ng/cart	2.50	1.25	1
Cl6-BZ#128	ND		ng/cart	2.50	1.25	1
Cl6-BZ#167	ND		ng/cart	2.50	1.25	1
Cl8-BZ#202	ND		ng/cart	2.50	1.25	1
Cl7-BZ#181	ND		ng/cart	2.50	1.25	1
Cl7-BZ#177	ND		ng/cart	2.50	1.25	1
Cl8-BZ#204/#200-CAL	ND		ng/cart	5.00	2.50	1
Cl7-BZ#171	ND		ng/cart	2.50	1.25	1
Cl7-BZ#173	ND		ng/cart	2.50	1.25	1
Cl8-BZ#197	ND		ng/cart	2.50	1.25	1
Cl7-BZ#172	ND		ng/cart	2.50	1.25	1
Cl7-BZ#192	ND		ng/cart	2.50	1.25	1
Cl6-BZ#156	ND		ng/cart	2.50	1.25	1
Cl6-BZ#157	ND		ng/cart	2.50	1.25	1
Cl7-BZ#180	ND		ng/cart	2.50	1.25	1
Cl7-BZ#193	ND		ng/cart	2.50	1.25	1
Cl8-BZ#199	ND		ng/cart	2.50	1.25	1
Cl7-BZ#191	ND		ng/cart	2.50	1.25	1
Cl8-BZ#198	ND		ng/cart	2.50	1.25	1
Cl8-BZ#201	ND		ng/cart	2.50	1.25	1
Cl7-BZ#170	ND		ng/cart	2.50	1.25	1
Cl7-BZ#190	ND		ng/cart	2.50	1.25	1
Cl8-BZ#196	ND		ng/cart	2.50	1.25	1
Cl8-BZ#203	ND		ng/cart	2.50	1.25	1
Cl6-BZ#169	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID:	L1017228-02	Date Collected:	10/27/10 12:45
Client ID:	10J0900-02 WA-IA-PLATFORM #2	Date Received:	11/01/10
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl9-BZ#208	ND		ng/cart	2.50	1.25	1
Cl9-BZ#207	ND		ng/cart	2.50	1.25	1
Cl7-BZ#189	ND		ng/cart	2.50	1.25	1
Cl8-BZ#195	ND		ng/cart	2.50	1.25	1
Cl8-BZ#194	ND		ng/cart	2.50	1.25	1
Cl8-BZ#205	ND		ng/cart	2.50	1.25	1
Cl9-BZ#206	ND		ng/cart	2.50	1.25	1
Cl10-BZ#209	ND		ng/cart	2.50	1.25	1
Monochlorobiphenyls	ND		ng/cart	2.50	1.25	1
Dichlorobiphenyls	1.85	J	ng/cart	2.50	1.25	1
Trichlorobiphenyls	1.55	J	ng/cart	2.50	1.25	1
Tetrachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Pentachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Hexachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Heptachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Octachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Nonachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Decachlorobiphenyl	ND		ng/cart	2.50	1.25	1
Total Homologs	3.40		ng/cart	2.50	1.25	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	82		50-125
Cl8-BZ#202-C13	74		50-125

Project Name: Not Specified
Project Number: 10J0900
Lab Number: L1017228
Report Date: 11/10/10

SAMPLE RESULTS

Lab ID:	L1017228-03	Date Collected:	10/27/10 12:49
Client ID:	10J0900-03 WA-IA-PLATFORM AMB	Date Received:	11/01/10
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air Cartridge	Extraction Method:	EPA 3540C
Analytical Method:	1,8270C-SIM	Extraction Date:	11/02/10 15:27
Analytical Date:	11/05/10 14:27		
Analyst:	JS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl1-BZ#1	ND		ng/cart	2.50	1.25	1
Cl1-BZ#2	ND		ng/cart	2.50	1.25	1
CL1-BZ#3	ND		ng/cart	2.50	1.25	1
Cl2-BZ#4/#10	ND		ng/cart	5.00	2.50	1
Cl2-BZ#9	ND		ng/cart	2.50	1.25	1
Cl2-BZ#7	ND		ng/cart	2.50	1.25	1
Cl2-BZ#6	ND		ng/cart	2.50	1.25	1
Cl2-BZ#5	ND		ng/cart	2.50	1.25	1
Cl2-BZ#8	ND		ng/cart	2.50	1.25	1
Cl3-BZ#19	ND		ng/cart	2.50	1.25	1
Cl2-BZ#14	ND		ng/cart	2.50	1.25	1
Cl3-BZ#30	ND		ng/cart	2.50	1.25	1
Cl3-BZ#18	ND		ng/cart	2.50	1.25	1
Cl2-BZ#11	ND		ng/cart	2.50	1.25	1
Cl3-BZ#17	ND		ng/cart	2.50	1.25	1
Cl2-BZ#12	ND		ng/cart	2.50	1.25	1
Cl3-BZ#27	ND		ng/cart	2.50	1.25	1
Cl2-BZ#13	ND		ng/cart	2.50	1.25	1
Cl3-BZ#24	ND		ng/cart	2.50	1.25	1
Cl3-BZ#16	ND		ng/cart	2.50	1.25	1
Cl3-BZ#32	ND		ng/cart	2.50	1.25	1
Cl2-BZ#15	ND		ng/cart	2.50	1.25	1
Cl3-BZ#34	ND		ng/cart	2.50	1.25	1
Cl3-BZ#23	ND		ng/cart	2.50	1.25	1
Cl4-BZ#54	ND		ng/cart	2.50	1.25	1
Cl3-BZ#29	ND		ng/cart	2.50	1.25	1
Cl4-BZ#50	ND		ng/cart	2.50	1.25	1
Cl3-BZ#26	ND		ng/cart	2.50	1.25	1
Cl3-BZ#25	ND		ng/cart	2.50	1.25	1
Cl4-BZ#53	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID: L1017228-03 Date Collected: 10/27/10 12:49

Client ID: 10J0900-03 WA-IA-PLATFORM AMB Date Received: 11/01/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl3-BZ#-31	ND		ng/cart	2.50	1.25	1
Cl3-BZ#28	ND		ng/cart	2.50	1.25	1
Cl3-BZ#33	ND		ng/cart	2.50	1.25	1
Cl4-BZ#51	ND		ng/cart	2.50	1.25	1
Cl3-BZ#21/#20	ND		ng/cart	5.00	2.50	1
Cl4-BZ#45	ND		ng/cart	2.50	1.25	1
Cl3-BZ#22	ND		ng/cart	2.50	1.25	1
Cl4-BZ#73/#46	ND		ng/cart	5.00	2.50	1
Cl4-BZ#69	ND		ng/cart	2.50	1.25	1
Cl4-BZ#43	ND		ng/cart	2.50	1.25	1
Cl3-BZ#36	ND		ng/cart	2.50	1.25	1
Cl4-BZ#52	ND		ng/cart	2.50	1.25	1
Cl4-BZ#48	ND		ng/cart	2.50	1.25	1
Cl4-BZ#49	ND		ng/cart	2.50	1.25	1
Cl5-BZ#104	ND		ng/cart	2.50	1.25	1
Cl4-BZ#47	ND		ng/cart	2.50	1.25	1
Cl4-BZ#65/#75/#62	ND		ng/cart	7.50	3.75	1
Cl3-BZ#39	ND		ng/cart	2.50	1.25	1
Cl3-BZ#38	ND		ng/cart	2.50	1.25	1
Cl4-BZ#44	ND		ng/cart	2.50	1.25	1
Cl4-BZ#59	ND		ng/cart	2.50	1.25	1
Cl4-BZ#42	ND		ng/cart	2.50	1.25	1
Cl4-BZ#71	ND		ng/cart	2.50	1.25	1
Cl3-BZ#35	ND		ng/cart	2.50	1.25	1
Cl4-BZ#41	ND		ng/cart	2.50	1.25	1
Cl4-BZ#72	ND		ng/cart	2.50	1.25	1
Cl5-BZ#96	ND		ng/cart	2.50	1.25	1
Cl5-BZ#103	ND		ng/cart	2.50	1.25	1
Cl4-BZ#68/#64	ND		ng/cart	5.00	2.50	1
Cl4-BZ#40	ND		ng/cart	2.50	1.25	1
Cl3-BZ#37	ND		ng/cart	2.50	1.25	1
Cl5-BZ#100	ND		ng/cart	2.50	1.25	1
Cl5-BZ#94	ND		ng/cart	2.50	1.25	1
Cl4-BZ#57	ND		ng/cart	2.50	1.25	1
Cl4-BZ#67/#58	ND		ng/cart	5.00	2.50	1
Cl5-BZ#102	ND		ng/cart	2.50	1.25	1
Cl4-BZ#61	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID: L1017228-03 Date Collected: 10/27/10 12:49

Client ID: 10J0900-03 WA-IA-PLATFORM AMB Date Received: 11/01/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#98	ND		ng/cart	2.50	1.25	1
Cl4-BZ#76	ND		ng/cart	2.50	1.25	1
Cl5-BZ#93	ND		ng/cart	2.50	1.25	1
Cl4-BZ#63	ND		ng/cart	2.50	1.25	1
Cl5-BZ#121/#95/#88	ND		ng/cart	7.50	3.75	1
Cl4-BZ#74	ND		ng/cart	2.50	1.25	1
Cl6-BZ#155	ND		ng/cart	2.50	1.25	1
Cl4-BZ#70	ND		ng/cart	2.50	1.25	1
Cl5-BZ#91	ND		ng/cart	2.50	1.25	1
Cl4-BZ#66	ND		ng/cart	2.50	1.25	1
Cl4-BZ#80	ND		ng/cart	2.50	1.25	1
Cl4-BZ#55	ND		ng/cart	2.50	1.25	1
Cl5-BZ#92	ND		ng/cart	2.50	1.25	1
Cl5-BZ#89/#84	ND		ng/cart	5.00	2.50	1
Cl5-BZ#101/#90	ND		ng/cart	5.00	2.50	1
Cl4-BZ#56	ND		ng/cart	2.50	1.25	1
Cl5-BZ#113	ND		ng/cart	2.50	1.25	1
Cl5-BZ#99	ND		ng/cart	2.50	1.25	1
Cl6-BZ#150	ND		ng/cart	2.50	1.25	1
Cl4-BZ#60	ND		ng/cart	2.50	1.25	1
Cl6-BZ#152	ND		ng/cart	2.50	1.25	1
Cl5-BZ#119	ND		ng/cart	2.50	1.25	1
Cl5-BZ#83/#125/#112	ND		ng/cart	7.50	3.75	1
Cl5-BZ#86/#109	ND		ng/cart	5.00	2.50	1
Cl5-BZ#97	ND		ng/cart	2.50	1.25	1
Cl5-BZ#116	ND		ng/cart	2.50	1.25	1
Cl5-BZ#87/#111	ND		ng/cart	5.00	2.50	1
Cl6-BZ#145	ND		ng/cart	2.50	1.25	1
Cl6-BZ#148	ND		ng/cart	2.50	1.25	1
Cl4-BZ#79	ND		ng/cart	2.50	1.25	1
Cl6-BZ#154	ND		ng/cart	2.50	1.25	1
Cl4-BZ#78	ND		ng/cart	2.50	1.25	1
Cl6-BZ#136	ND		ng/cart	2.50	1.25	1
Cl5-BZ#117	ND		ng/cart	2.50	1.25	1
Cl5-BZ#115	ND		ng/cart	2.50	1.25	1
Cl5-BZ#85	ND		ng/cart	2.50	1.25	1
Cl5-BZ#120	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID: L1017228-03 Date Collected: 10/27/10 12:49

Client ID: 10J0900-03 WA-IA-PLATFORM AMB Date Received: 11/01/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#110	ND		ng/cart	2.50	1.25	1
Cl4-BZ#81	ND		ng/cart	2.50	1.25	1
Cl6-BZ#151	ND		ng/cart	2.50	1.25	1
Cl6-BZ#135	ND		ng/cart	2.50	1.25	1
Cl5-BZ#82	ND		ng/cart	2.50	1.25	1
Cl6-BZ#144	ND		ng/cart	2.50	1.25	1
Cl6-BZ#147/#149	ND		ng/cart	5.00	2.50	1
Cl4-BZ#77	ND		ng/cart	2.50	1.25	1
Cl6-BZ#143/#139	ND		ng/cart	5.00	2.50	1
Cl5-BZ#124	ND		ng/cart	2.50	1.25	1
Cl6-BZ#140	ND		ng/cart	2.50	1.25	1
Cl5-BZ#108	ND		ng/cart	2.50	1.25	1
Cl5-BZ#107/#123	ND		ng/cart	5.00	2.50	1
Cl7-BZ#188	ND		ng/cart	2.50	1.25	1
Cl6-BZ#134	ND		ng/cart	2.50	1.25	1
Cl5-BZ#106	ND		ng/cart	2.50	1.25	1
Cl6-BZ#133	ND		ng/cart	2.50	1.25	1
Cl6-BZ#142	ND		ng/cart	2.50	1.25	1
Cl5-BZ#118	ND		ng/cart	2.50	1.25	1
Cl6-BZ#131	ND		ng/cart	2.50	1.25	1
Cl7-BZ#184	ND		ng/cart	2.50	1.25	1
Cl6-BZ#165	ND		ng/cart	2.50	1.25	1
Cl6-BZ#146	ND		ng/cart	2.50	1.25	1
Cl6-BZ#161	ND		ng/cart	2.50	1.25	1
Cl5-BZ#122	ND		ng/cart	2.50	1.25	1
Cl6-BZ#168	ND		ng/cart	2.50	1.25	1
Cl5-BZ#114	ND		ng/cart	2.50	1.25	1
Cl6-BZ#153	ND		ng/cart	2.50	1.25	1
Cl6-BZ#132	ND		ng/cart	2.50	1.25	1
Cl7-BZ#179	ND		ng/cart	2.50	1.25	1
Cl6-BZ#141	ND		ng/cart	2.50	1.25	1
Cl7-BZ#176	ND		ng/cart	2.50	1.25	1
Cl5-BZ#105	ND		ng/cart	2.50	1.25	1
Cl6-BZ#137	ND		ng/cart	2.50	1.25	1
Cl5-BZ#127	ND		ng/cart	2.50	1.25	1
Cl7-BZ#186	ND		ng/cart	2.50	1.25	1
Cl6-BZ#130/#164	ND		ng/cart	5.00	2.50	1

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID: L1017228-03 Date Collected: 10/27/10 12:49

Client ID: 10J0900-03 WA-IA-PLATFORM AMB Date Received: 11/01/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl7-BZ#178	ND		ng/cart	2.50	1.25	1
Cl6-BZ#138	ND		ng/cart	2.50	1.25	1
Cl6-BZ#163/#160	ND		ng/cart	5.00	2.50	1
Cl6-BZ#129/#158	ND		ng/cart	5.00	2.50	1
Cl7-BZ#182/#175	ND		ng/cart	5.00	2.50	1
Cl7-BZ#187	ND		ng/cart	2.50	1.25	1
Cl7-BZ#183	ND		ng/cart	2.50	1.25	1
Cl6-BZ#166	ND		ng/cart	2.50	1.25	1
Cl6-BZ#159	ND		ng/cart	2.50	1.25	1
Cl5-BZ#126	ND		ng/cart	2.50	1.25	1
Cl7-BZ#185	ND		ng/cart	2.50	1.25	1
Cl6-BZ#162	ND		ng/cart	2.50	1.25	1
Cl7-BZ#174	ND		ng/cart	2.50	1.25	1
Cl6-BZ#128	ND		ng/cart	2.50	1.25	1
Cl6-BZ#167	ND		ng/cart	2.50	1.25	1
Cl8-BZ#202	ND		ng/cart	2.50	1.25	1
Cl7-BZ#181	ND		ng/cart	2.50	1.25	1
Cl7-BZ#177	ND		ng/cart	2.50	1.25	1
Cl8-BZ#204/#200-CAL	ND		ng/cart	5.00	2.50	1
Cl7-BZ#171	ND		ng/cart	2.50	1.25	1
Cl7-BZ#173	ND		ng/cart	2.50	1.25	1
Cl8-BZ#197	ND		ng/cart	2.50	1.25	1
Cl7-BZ#172	ND		ng/cart	2.50	1.25	1
Cl7-BZ#192	ND		ng/cart	2.50	1.25	1
Cl6-BZ#156	ND		ng/cart	2.50	1.25	1
Cl6-BZ#157	ND		ng/cart	2.50	1.25	1
Cl7-BZ#180	ND		ng/cart	2.50	1.25	1
Cl7-BZ#193	ND		ng/cart	2.50	1.25	1
Cl8-BZ#199	ND		ng/cart	2.50	1.25	1
Cl7-BZ#191	ND		ng/cart	2.50	1.25	1
Cl8-BZ#198	ND		ng/cart	2.50	1.25	1
Cl8-BZ#201	ND		ng/cart	2.50	1.25	1
Cl7-BZ#170	ND		ng/cart	2.50	1.25	1
Cl7-BZ#190	ND		ng/cart	2.50	1.25	1
Cl8-BZ#196	ND		ng/cart	2.50	1.25	1
Cl8-BZ#203	ND		ng/cart	2.50	1.25	1
Cl6-BZ#169	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID:	L1017228-03	Date Collected:	10/27/10 12:49
Client ID:	10J0900-03 WA-IA-PLATFORM AMB	Date Received:	11/01/10
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl9-BZ#208	ND		ng/cart	2.50	1.25	1
Cl9-BZ#207	ND		ng/cart	2.50	1.25	1
Cl7-BZ#189	ND		ng/cart	2.50	1.25	1
Cl8-BZ#195	ND		ng/cart	2.50	1.25	1
Cl8-BZ#194	ND		ng/cart	2.50	1.25	1
Cl8-BZ#205	ND		ng/cart	2.50	1.25	1
Cl9-BZ#206	ND		ng/cart	2.50	1.25	1
Cl10-BZ#209	ND		ng/cart	2.50	1.25	1
Monochlorobiphenyls	ND		ng/cart	2.50	1.25	1
Dichlorobiphenyls	ND		ng/cart	2.50	1.25	1
Trichlorobiphenyls	ND		ng/cart	2.50	1.25	1
Tetrachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Pentachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Hexachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Heptachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Octachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Nonachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Decachlorobiphenyl	ND		ng/cart	2.50	1.25	1
Total Homologs	ND		ng/cart	2.50	1.25	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	83		50-125
Cl8-BZ#202-C13	76		50-125

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID:	L1017228-04	Date Collected:	10/27/10 13:00
Client ID:	10J0900-04 WA-IA-PLATFORM #B	Date Received:	11/01/10
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air Cartridge	Extraction Method:	EPA 3540C
Analytical Method:	1,8270C-SIM	Extraction Date:	11/02/10 15:27
Analytical Date:	11/05/10 15:41		
Analyst:	JS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl1-BZ#1	ND		ng/cart	2.50	1.25	1
Cl1-BZ#2	ND		ng/cart	2.50	1.25	1
CL1-BZ#3	ND		ng/cart	2.50	1.25	1
Cl2-BZ#4/#10	ND		ng/cart	5.00	2.50	1
Cl2-BZ#9	ND		ng/cart	2.50	1.25	1
Cl2-BZ#7	ND		ng/cart	2.50	1.25	1
Cl2-BZ#6	ND		ng/cart	2.50	1.25	1
Cl2-BZ#5	ND		ng/cart	2.50	1.25	1
Cl2-BZ#8	ND		ng/cart	2.50	1.25	1
Cl3-BZ#19	ND		ng/cart	2.50	1.25	1
Cl2-BZ#14	ND		ng/cart	2.50	1.25	1
Cl3-BZ#30	ND		ng/cart	2.50	1.25	1
Cl3-BZ#18	ND		ng/cart	2.50	1.25	1
Cl2-BZ#11	ND		ng/cart	2.50	1.25	1
Cl3-BZ#17	ND		ng/cart	2.50	1.25	1
Cl2-BZ#12	ND		ng/cart	2.50	1.25	1
Cl3-BZ#27	ND		ng/cart	2.50	1.25	1
Cl2-BZ#13	ND		ng/cart	2.50	1.25	1
Cl3-BZ#24	ND		ng/cart	2.50	1.25	1
Cl3-BZ#16	ND		ng/cart	2.50	1.25	1
Cl3-BZ#32	ND		ng/cart	2.50	1.25	1
Cl2-BZ#15	ND		ng/cart	2.50	1.25	1
Cl3-BZ#34	ND		ng/cart	2.50	1.25	1
Cl3-BZ#23	ND		ng/cart	2.50	1.25	1
Cl4-BZ#54	ND		ng/cart	2.50	1.25	1
Cl3-BZ#29	ND		ng/cart	2.50	1.25	1
Cl4-BZ#50	ND		ng/cart	2.50	1.25	1
Cl3-BZ#26	ND		ng/cart	2.50	1.25	1
Cl3-BZ#25	ND		ng/cart	2.50	1.25	1
Cl4-BZ#53	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID: L1017228-04 Date Collected: 10/27/10 13:00

Client ID: 10J0900-04 WA-IA-PLATFORM #B Date Received: 11/01/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl3-BZ#-31	ND		ng/cart	2.50	1.25	1
Cl3-BZ#28	ND		ng/cart	2.50	1.25	1
Cl3-BZ#33	ND		ng/cart	2.50	1.25	1
Cl4-BZ#51	ND		ng/cart	2.50	1.25	1
Cl3-BZ#21/#20	ND		ng/cart	5.00	2.50	1
Cl4-BZ#45	ND		ng/cart	2.50	1.25	1
Cl3-BZ#22	ND		ng/cart	2.50	1.25	1
Cl4-BZ#73/#46	ND		ng/cart	5.00	2.50	1
Cl4-BZ#69	ND		ng/cart	2.50	1.25	1
Cl4-BZ#43	ND		ng/cart	2.50	1.25	1
Cl3-BZ#36	ND		ng/cart	2.50	1.25	1
Cl4-BZ#52	ND		ng/cart	2.50	1.25	1
Cl4-BZ#48	ND		ng/cart	2.50	1.25	1
Cl4-BZ#49	ND		ng/cart	2.50	1.25	1
Cl5-BZ#104	ND		ng/cart	2.50	1.25	1
Cl4-BZ#47	ND		ng/cart	2.50	1.25	1
Cl4-BZ#65/#75/#62	ND		ng/cart	7.50	3.75	1
Cl3-BZ#39	ND		ng/cart	2.50	1.25	1
Cl3-BZ#38	ND		ng/cart	2.50	1.25	1
Cl4-BZ#44	ND		ng/cart	2.50	1.25	1
Cl4-BZ#59	ND		ng/cart	2.50	1.25	1
Cl4-BZ#42	ND		ng/cart	2.50	1.25	1
Cl4-BZ#71	ND		ng/cart	2.50	1.25	1
Cl3-BZ#35	ND		ng/cart	2.50	1.25	1
Cl4-BZ#41	ND		ng/cart	2.50	1.25	1
Cl4-BZ#72	ND		ng/cart	2.50	1.25	1
Cl5-BZ#96	ND		ng/cart	2.50	1.25	1
Cl5-BZ#103	ND		ng/cart	2.50	1.25	1
Cl4-BZ#68/#64	ND		ng/cart	5.00	2.50	1
Cl4-BZ#40	ND		ng/cart	2.50	1.25	1
Cl3-BZ#37	ND		ng/cart	2.50	1.25	1
Cl5-BZ#100	ND		ng/cart	2.50	1.25	1
Cl5-BZ#94	ND		ng/cart	2.50	1.25	1
Cl4-BZ#57	ND		ng/cart	2.50	1.25	1
Cl4-BZ#67/#58	ND		ng/cart	5.00	2.50	1
Cl5-BZ#102	ND		ng/cart	2.50	1.25	1
Cl4-BZ#61	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID: L1017228-04 Date Collected: 10/27/10 13:00

Client ID: 10J0900-04 WA-IA-PLATFORM #B Date Received: 11/01/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#98	ND		ng/cart	2.50	1.25	1
Cl4-BZ#76	ND		ng/cart	2.50	1.25	1
Cl5-BZ#93	ND		ng/cart	2.50	1.25	1
Cl4-BZ#63	ND		ng/cart	2.50	1.25	1
Cl5-BZ#121/#95/#88	ND		ng/cart	7.50	3.75	1
Cl4-BZ#74	ND		ng/cart	2.50	1.25	1
Cl6-BZ#155	ND		ng/cart	2.50	1.25	1
Cl4-BZ#70	ND		ng/cart	2.50	1.25	1
Cl5-BZ#91	ND		ng/cart	2.50	1.25	1
Cl4-BZ#66	ND		ng/cart	2.50	1.25	1
Cl4-BZ#80	ND		ng/cart	2.50	1.25	1
Cl4-BZ#55	ND		ng/cart	2.50	1.25	1
Cl5-BZ#92	ND		ng/cart	2.50	1.25	1
Cl5-BZ#89/#84	ND		ng/cart	5.00	2.50	1
Cl5-BZ#101/#90	ND		ng/cart	5.00	2.50	1
Cl4-BZ#56	ND		ng/cart	2.50	1.25	1
Cl5-BZ#113	ND		ng/cart	2.50	1.25	1
Cl5-BZ#99	ND		ng/cart	2.50	1.25	1
Cl6-BZ#150	ND		ng/cart	2.50	1.25	1
Cl4-BZ#60	ND		ng/cart	2.50	1.25	1
Cl6-BZ#152	ND		ng/cart	2.50	1.25	1
Cl5-BZ#119	ND		ng/cart	2.50	1.25	1
Cl5-BZ#83/#125/#112	ND		ng/cart	7.50	3.75	1
Cl5-BZ#86/#109	ND		ng/cart	5.00	2.50	1
Cl5-BZ#97	ND		ng/cart	2.50	1.25	1
Cl5-BZ#116	ND		ng/cart	2.50	1.25	1
Cl5-BZ#87/#111	ND		ng/cart	5.00	2.50	1
Cl6-BZ#145	ND		ng/cart	2.50	1.25	1
Cl6-BZ#148	ND		ng/cart	2.50	1.25	1
Cl4-BZ#79	ND		ng/cart	2.50	1.25	1
Cl6-BZ#154	ND		ng/cart	2.50	1.25	1
Cl4-BZ#78	ND		ng/cart	2.50	1.25	1
Cl6-BZ#136	ND		ng/cart	2.50	1.25	1
Cl5-BZ#117	ND		ng/cart	2.50	1.25	1
Cl5-BZ#115	ND		ng/cart	2.50	1.25	1
Cl5-BZ#85	ND		ng/cart	2.50	1.25	1
Cl5-BZ#120	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID: L1017228-04 Date Collected: 10/27/10 13:00

Client ID: 10J0900-04 WA-IA-PLATFORM #B Date Received: 11/01/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl5-BZ#110	ND		ng/cart	2.50	1.25	1
Cl4-BZ#81	ND		ng/cart	2.50	1.25	1
Cl6-BZ#151	ND		ng/cart	2.50	1.25	1
Cl6-BZ#135	ND		ng/cart	2.50	1.25	1
Cl5-BZ#82	ND		ng/cart	2.50	1.25	1
Cl6-BZ#144	ND		ng/cart	2.50	1.25	1
Cl6-BZ#147/#149	ND		ng/cart	5.00	2.50	1
Cl4-BZ#77	ND		ng/cart	2.50	1.25	1
Cl6-BZ#143/#139	ND		ng/cart	5.00	2.50	1
Cl5-BZ#124	ND		ng/cart	2.50	1.25	1
Cl6-BZ#140	ND		ng/cart	2.50	1.25	1
Cl5-BZ#108	ND		ng/cart	2.50	1.25	1
Cl5-BZ#107/#123	ND		ng/cart	5.00	2.50	1
Cl7-BZ#188	ND		ng/cart	2.50	1.25	1
Cl6-BZ#134	ND		ng/cart	2.50	1.25	1
Cl5-BZ#106	ND		ng/cart	2.50	1.25	1
Cl6-BZ#133	ND		ng/cart	2.50	1.25	1
Cl6-BZ#142	ND		ng/cart	2.50	1.25	1
Cl5-BZ#118	ND		ng/cart	2.50	1.25	1
Cl6-BZ#131	ND		ng/cart	2.50	1.25	1
Cl7-BZ#184	ND		ng/cart	2.50	1.25	1
Cl6-BZ#165	ND		ng/cart	2.50	1.25	1
Cl6-BZ#146	ND		ng/cart	2.50	1.25	1
Cl6-BZ#161	ND		ng/cart	2.50	1.25	1
Cl5-BZ#122	ND		ng/cart	2.50	1.25	1
Cl6-BZ#168	ND		ng/cart	2.50	1.25	1
Cl5-BZ#114	ND		ng/cart	2.50	1.25	1
Cl6-BZ#153	ND		ng/cart	2.50	1.25	1
Cl6-BZ#132	ND		ng/cart	2.50	1.25	1
Cl7-BZ#179	ND		ng/cart	2.50	1.25	1
Cl6-BZ#141	ND		ng/cart	2.50	1.25	1
Cl7-BZ#176	ND		ng/cart	2.50	1.25	1
Cl5-BZ#105	ND		ng/cart	2.50	1.25	1
Cl6-BZ#137	ND		ng/cart	2.50	1.25	1
Cl5-BZ#127	ND		ng/cart	2.50	1.25	1
Cl7-BZ#186	ND		ng/cart	2.50	1.25	1
Cl6-BZ#130/#164	ND		ng/cart	5.00	2.50	1

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID: L1017228-04 Date Collected: 10/27/10 13:00

Client ID: 10J0900-04 WA-IA-PLATFORM #B Date Received: 11/01/10

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl7-BZ#178	ND		ng/cart	2.50	1.25	1
Cl6-BZ#138	ND		ng/cart	2.50	1.25	1
Cl6-BZ#163/#160	ND		ng/cart	5.00	2.50	1
Cl6-BZ#129/#158	ND		ng/cart	5.00	2.50	1
Cl7-BZ#182/#175	ND		ng/cart	5.00	2.50	1
Cl7-BZ#187	ND		ng/cart	2.50	1.25	1
Cl7-BZ#183	ND		ng/cart	2.50	1.25	1
Cl6-BZ#166	ND		ng/cart	2.50	1.25	1
Cl6-BZ#159	ND		ng/cart	2.50	1.25	1
Cl5-BZ#126	ND		ng/cart	2.50	1.25	1
Cl7-BZ#185	ND		ng/cart	2.50	1.25	1
Cl6-BZ#162	ND		ng/cart	2.50	1.25	1
Cl7-BZ#174	ND		ng/cart	2.50	1.25	1
Cl6-BZ#128	ND		ng/cart	2.50	1.25	1
Cl6-BZ#167	ND		ng/cart	2.50	1.25	1
Cl8-BZ#202	ND		ng/cart	2.50	1.25	1
Cl7-BZ#181	ND		ng/cart	2.50	1.25	1
Cl7-BZ#177	ND		ng/cart	2.50	1.25	1
Cl8-BZ#204/#200-CAL	ND		ng/cart	5.00	2.50	1
Cl7-BZ#171	ND		ng/cart	2.50	1.25	1
Cl7-BZ#173	ND		ng/cart	2.50	1.25	1
Cl8-BZ#197	ND		ng/cart	2.50	1.25	1
Cl7-BZ#172	ND		ng/cart	2.50	1.25	1
Cl7-BZ#192	ND		ng/cart	2.50	1.25	1
Cl6-BZ#156	ND		ng/cart	2.50	1.25	1
Cl6-BZ#157	ND		ng/cart	2.50	1.25	1
Cl7-BZ#180	ND		ng/cart	2.50	1.25	1
Cl7-BZ#193	ND		ng/cart	2.50	1.25	1
Cl8-BZ#199	ND		ng/cart	2.50	1.25	1
Cl7-BZ#191	ND		ng/cart	2.50	1.25	1
Cl8-BZ#198	ND		ng/cart	2.50	1.25	1
Cl8-BZ#201	ND		ng/cart	2.50	1.25	1
Cl7-BZ#170	ND		ng/cart	2.50	1.25	1
Cl7-BZ#190	ND		ng/cart	2.50	1.25	1
Cl8-BZ#196	ND		ng/cart	2.50	1.25	1
Cl8-BZ#203	ND		ng/cart	2.50	1.25	1
Cl6-BZ#169	ND		ng/cart	2.50	1.25	1

Project Name: Not Specified **Lab Number:** L1017228

Project Number: 10J0900 **Report Date:** 11/10/10

SAMPLE RESULTS

Lab ID:	L1017228-04	Date Collected:	10/27/10 13:00
Client ID:	10J0900-04 WA-IA-PLATFORM #B	Date Received:	11/01/10
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Cl9-BZ#208	ND		ng/cart	2.50	1.25	1
Cl9-BZ#207	ND		ng/cart	2.50	1.25	1
Cl7-BZ#189	ND		ng/cart	2.50	1.25	1
Cl8-BZ#195	ND		ng/cart	2.50	1.25	1
Cl8-BZ#194	ND		ng/cart	2.50	1.25	1
Cl8-BZ#205	ND		ng/cart	2.50	1.25	1
Cl9-BZ#206	ND		ng/cart	2.50	1.25	1
Cl10-BZ#209	ND		ng/cart	2.50	1.25	1
Monochlorobiphenyls	ND		ng/cart	2.50	1.25	1
Dichlorobiphenyls	ND		ng/cart	2.50	1.25	1
Trichlorobiphenyls	ND		ng/cart	2.50	1.25	1
Tetrachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Pentachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Hexachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Heptachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Octachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Nonachlorobiphenyls	ND		ng/cart	2.50	1.25	1
Decachlorobiphenyl	ND		ng/cart	2.50	1.25	1
Total Homologs	ND		ng/cart	2.50	1.25	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	83		50-125
Cl8-BZ#202-C13	74		50-125

Project Name: Not Specified
Project Number: 10J0900

Lab Number: L1017228
Report Date: 11/10/10

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 11/05/10 09:30
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 11/02/10 15:27

Parameter	Result	Qualifier	Units	RL	MDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-04 Batch: WG440768-1					
Cl1-BZ#1	ND		ng/cart	2.50	1.25
Cl1-BZ#2	ND		ng/cart	2.50	1.25
CL1-BZ#3	ND		ng/cart	2.50	1.25
Cl2-BZ#4/#10	ND		ng/cart	5.00	2.50
Cl2-BZ#9	ND		ng/cart	2.50	1.25
Cl2-BZ#7	ND		ng/cart	2.50	1.25
Cl2-BZ#6	ND		ng/cart	2.50	1.25
Cl2-BZ#5	ND		ng/cart	2.50	1.25
Cl2-BZ#8	ND		ng/cart	2.50	1.25
Cl3-BZ#19	ND		ng/cart	2.50	1.25
Cl2-BZ#14	ND		ng/cart	2.50	1.25
Cl3-BZ#30	ND		ng/cart	2.50	1.25
Cl3-BZ#18	ND		ng/cart	2.50	1.25
Cl2-BZ#11	ND		ng/cart	2.50	1.25
Cl3-BZ#17	ND		ng/cart	2.50	1.25
Cl2-BZ#12	ND		ng/cart	2.50	1.25
Cl3-BZ#27	ND		ng/cart	2.50	1.25
Cl2-BZ#13	ND		ng/cart	2.50	1.25
Cl3-BZ#24	ND		ng/cart	2.50	1.25
Cl3-BZ#16	ND		ng/cart	2.50	1.25
Cl3-BZ#32	ND		ng/cart	2.50	1.25
Cl2-BZ#15	ND		ng/cart	2.50	1.25
Cl3-BZ#34	ND		ng/cart	2.50	1.25
Cl3-BZ#23	ND		ng/cart	2.50	1.25
Cl4-BZ#54	ND		ng/cart	2.50	1.25
Cl3-BZ#29	ND		ng/cart	2.50	1.25
Cl4-BZ#50	ND		ng/cart	2.50	1.25
Cl3-BZ#26	ND		ng/cart	2.50	1.25
Cl3-BZ#25	ND		ng/cart	2.50	1.25
Cl4-BZ#53	ND		ng/cart	2.50	1.25
Cl3-BZ#-31	ND		ng/cart	2.50	1.25

Project Name: Not Specified
Project Number: 10J0900

Lab Number: L1017228
Report Date: 11/10/10

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 11/05/10 09:30
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 11/02/10 15:27

Parameter	Result	Qualifier	Units	RL	MDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-04 Batch: WG440768-1					
Cl3-BZ#28	ND		ng/cart	2.50	1.25
Cl3-BZ#33	ND		ng/cart	2.50	1.25
Cl4-BZ#51	ND		ng/cart	2.50	1.25
Cl3-BZ#21/#20	ND		ng/cart	5.00	2.50
Cl4-BZ#45	ND		ng/cart	2.50	1.25
Cl3-BZ#22	ND		ng/cart	2.50	1.25
Cl4-BZ#73/#46	ND		ng/cart	5.00	2.50
Cl4-BZ#69	ND		ng/cart	2.50	1.25
Cl4-BZ#43	ND		ng/cart	2.50	1.25
Cl3-BZ#36	ND		ng/cart	2.50	1.25
Cl4-BZ#52	ND		ng/cart	2.50	1.25
Cl4-BZ#48	ND		ng/cart	2.50	1.25
Cl4-BZ#49	ND		ng/cart	2.50	1.25
Cl5-BZ#104	ND		ng/cart	2.50	1.25
Cl4-BZ#47	ND		ng/cart	2.50	1.25
Cl4-BZ#65/#75/#62	ND		ng/cart	7.50	3.75
Cl3-BZ#39	ND		ng/cart	2.50	1.25
Cl3-BZ#38	ND		ng/cart	2.50	1.25
Cl4-BZ#44	ND		ng/cart	2.50	1.25
Cl4-BZ#59	ND		ng/cart	2.50	1.25
Cl4-BZ#42	ND		ng/cart	2.50	1.25
Cl4-BZ#71	ND		ng/cart	2.50	1.25
Cl3-BZ#35	ND		ng/cart	2.50	1.25
Cl4-BZ#41	ND		ng/cart	2.50	1.25
Cl4-BZ#72	ND		ng/cart	2.50	1.25
Cl5-BZ#96	ND		ng/cart	2.50	1.25
Cl5-BZ#103	ND		ng/cart	2.50	1.25
Cl4-BZ#68/#64	ND		ng/cart	5.00	2.50
Cl4-BZ#40	ND		ng/cart	2.50	1.25
Cl3-BZ#37	ND		ng/cart	2.50	1.25
Cl5-BZ#100	ND		ng/cart	2.50	1.25

Project Name: Not Specified
Project Number: 10J0900

Lab Number: L1017228
Report Date: 11/10/10

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 11/05/10 09:30
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 11/02/10 15:27

Parameter	Result	Qualifier	Units	RL	MDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-04 Batch: WG440768-1					
Cl5-BZ#94	ND		ng/cart	2.50	1.25
Cl4-BZ#57	ND		ng/cart	2.50	1.25
Cl4-BZ#67/#58	ND		ng/cart	5.00	2.50
Cl5-BZ#102	ND		ng/cart	2.50	1.25
Cl4-BZ#61	ND		ng/cart	2.50	1.25
Cl5-BZ#98	ND		ng/cart	2.50	1.25
Cl4-BZ#76	ND		ng/cart	2.50	1.25
Cl5-BZ#93	ND		ng/cart	2.50	1.25
Cl4-BZ#63	ND		ng/cart	2.50	1.25
Cl5-BZ#121/#95/#88	ND		ng/cart	7.50	3.75
Cl4-BZ#74	ND		ng/cart	2.50	1.25
Cl6-BZ#155	ND		ng/cart	2.50	1.25
Cl4-BZ#70	ND		ng/cart	2.50	1.25
Cl5-BZ#91	ND		ng/cart	2.50	1.25
Cl4-BZ#66	ND		ng/cart	2.50	1.25
Cl4-BZ#80	ND		ng/cart	2.50	1.25
Cl4-BZ#55	ND		ng/cart	2.50	1.25
Cl5-BZ#92	ND		ng/cart	2.50	1.25
Cl5-BZ#89/#84	ND		ng/cart	5.00	2.50
Cl5-BZ#101/#90	ND		ng/cart	5.00	2.50
Cl4-BZ#56	ND		ng/cart	2.50	1.25
Cl5-BZ#113	ND		ng/cart	2.50	1.25
Cl5-BZ#99	ND		ng/cart	2.50	1.25
Cl6-BZ#150	ND		ng/cart	2.50	1.25
Cl4-BZ#60	ND		ng/cart	2.50	1.25
Cl6-BZ#152	ND		ng/cart	2.50	1.25
Cl5-BZ#119	ND		ng/cart	2.50	1.25
Cl5-BZ#83/#125/#112	ND		ng/cart	7.50	3.75
Cl5-BZ#86/#109	ND		ng/cart	5.00	2.50
Cl5-BZ#97	ND		ng/cart	2.50	1.25
Cl5-BZ#116	ND		ng/cart	2.50	1.25

Project Name: Not Specified
Project Number: 10J0900

Lab Number: L1017228
Report Date: 11/10/10

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 11/05/10 09:30
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 11/02/10 15:27

Parameter	Result	Qualifier	Units	RL	MDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-04 Batch: WG440768-1					
Cl5-BZ#87/#111	ND		ng/cart	5.00	2.50
Cl6-BZ#145	ND		ng/cart	2.50	1.25
Cl6-BZ#148	ND		ng/cart	2.50	1.25
Cl4-BZ#79	ND		ng/cart	2.50	1.25
Cl6-BZ#154	ND		ng/cart	2.50	1.25
Cl4-BZ#78	ND		ng/cart	2.50	1.25
Cl6-BZ#136	ND		ng/cart	2.50	1.25
Cl5-BZ#117	ND		ng/cart	2.50	1.25
Cl5-BZ#115	ND		ng/cart	2.50	1.25
Cl5-BZ#85	ND		ng/cart	2.50	1.25
Cl5-BZ#120	ND		ng/cart	2.50	1.25
Cl5-BZ#110	ND		ng/cart	2.50	1.25
Cl4-BZ#81	ND		ng/cart	2.50	1.25
Cl6-BZ#151	ND		ng/cart	2.50	1.25
Cl6-BZ#135	ND		ng/cart	2.50	1.25
Cl5-BZ#82	ND		ng/cart	2.50	1.25
Cl6-BZ#144	ND		ng/cart	2.50	1.25
Cl6-BZ#147/#149	ND		ng/cart	5.00	2.50
Cl4-BZ#77	ND		ng/cart	2.50	1.25
Cl6-BZ#143/#139	ND		ng/cart	5.00	2.50
Cl5-BZ#124	ND		ng/cart	2.50	1.25
Cl6-BZ#140	ND		ng/cart	2.50	1.25
Cl5-BZ#108	ND		ng/cart	2.50	1.25
Cl5-BZ#107/#123	ND		ng/cart	5.00	2.50
Cl7-BZ#188	ND		ng/cart	2.50	1.25
Cl6-BZ#134	ND		ng/cart	2.50	1.25
Cl5-BZ#106	ND		ng/cart	2.50	1.25
Cl6-BZ#133	ND		ng/cart	2.50	1.25
Cl6-BZ#142	ND		ng/cart	2.50	1.25
Cl5-BZ#118	ND		ng/cart	2.50	1.25
Cl6-BZ#131	ND		ng/cart	2.50	1.25

Project Name: Not Specified
Project Number: 10J0900

Lab Number: L1017228
Report Date: 11/10/10

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 11/05/10 09:30
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 11/02/10 15:27

Parameter	Result	Qualifier	Units	RL	MDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-04 Batch: WG440768-1					
Cl7-BZ#184	ND		ng/cart	2.50	1.25
Cl6-BZ#165	ND		ng/cart	2.50	1.25
Cl6-BZ#146	ND		ng/cart	2.50	1.25
Cl6-BZ#161	ND		ng/cart	2.50	1.25
Cl5-BZ#122	ND		ng/cart	2.50	1.25
Cl6-BZ#168	ND		ng/cart	2.50	1.25
Cl5-BZ#114	ND		ng/cart	2.50	1.25
Cl6-BZ#153	ND		ng/cart	2.50	1.25
Cl6-BZ#132	ND		ng/cart	2.50	1.25
Cl7-BZ#179	ND		ng/cart	2.50	1.25
Cl6-BZ#141	ND		ng/cart	2.50	1.25
Cl7-BZ#176	ND		ng/cart	2.50	1.25
Cl5-BZ#105	ND		ng/cart	2.50	1.25
Cl6-BZ#137	ND		ng/cart	2.50	1.25
Cl5-BZ#127	ND		ng/cart	2.50	1.25
Cl7-BZ#186	ND		ng/cart	2.50	1.25
Cl6-BZ#130/#164	ND		ng/cart	5.00	2.50
Cl7-BZ#178	ND		ng/cart	2.50	1.25
Cl6-BZ#138	ND		ng/cart	2.50	1.25
Cl6-BZ#163/#160	ND		ng/cart	5.00	2.50
Cl6-BZ#129/#158	ND		ng/cart	5.00	2.50
Cl7-BZ#182/#175	ND		ng/cart	5.00	2.50
Cl7-BZ#187	ND		ng/cart	2.50	1.25
Cl7-BZ#183	ND		ng/cart	2.50	1.25
Cl6-BZ#166	ND		ng/cart	2.50	1.25
Cl6-BZ#159	ND		ng/cart	2.50	1.25
Cl5-BZ#126	ND		ng/cart	2.50	1.25
Cl7-BZ#185	ND		ng/cart	2.50	1.25
Cl6-BZ#162	ND		ng/cart	2.50	1.25
Cl7-BZ#174	ND		ng/cart	2.50	1.25
Cl6-BZ#128	ND		ng/cart	2.50	1.25

Project Name: Not Specified
Project Number: 10J0900

Lab Number: L1017228
Report Date: 11/10/10

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 11/05/10 09:30
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 11/02/10 15:27

Parameter	Result	Qualifier	Units	RL	MDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-04 Batch: WG440768-1					
Cl6-BZ#167	ND		ng/cart	2.50	1.25
Cl8-BZ#202	ND		ng/cart	2.50	1.25
Cl7-BZ#181	ND		ng/cart	2.50	1.25
Cl7-BZ#177	ND		ng/cart	2.50	1.25
Cl8-BZ#204/#200-CAL	ND		ng/cart	5.00	2.50
Cl7-BZ#171	ND		ng/cart	2.50	1.25
Cl7-BZ#173	ND		ng/cart	2.50	1.25
Cl8-BZ#197	ND		ng/cart	2.50	1.25
Cl7-BZ#172	ND		ng/cart	2.50	1.25
Cl7-BZ#192	ND		ng/cart	2.50	1.25
Cl6-BZ#156	ND		ng/cart	2.50	1.25
Cl6-BZ#157	ND		ng/cart	2.50	1.25
Cl7-BZ#180	ND		ng/cart	2.50	1.25
Cl7-BZ#193	ND		ng/cart	2.50	1.25
Cl8-BZ#199	ND		ng/cart	2.50	1.25
Cl7-BZ#191	ND		ng/cart	2.50	1.25
Cl8-BZ#198	ND		ng/cart	2.50	1.25
Cl8-BZ#201	ND		ng/cart	2.50	1.25
Cl7-BZ#170	ND		ng/cart	2.50	1.25
Cl7-BZ#190	ND		ng/cart	2.50	1.25
Cl8-BZ#196	ND		ng/cart	2.50	1.25
Cl8-BZ#203	ND		ng/cart	2.50	1.25
Cl6-BZ#169	ND		ng/cart	2.50	1.25
Cl9-BZ#208	ND		ng/cart	2.50	1.25
Cl9-BZ#207	ND		ng/cart	2.50	1.25
Cl7-BZ#189	ND		ng/cart	2.50	1.25
Cl8-BZ#195	ND		ng/cart	2.50	1.25
Cl8-BZ#194	ND		ng/cart	2.50	1.25
Cl8-BZ#205	ND		ng/cart	2.50	1.25
Cl9-BZ#206	ND		ng/cart	2.50	1.25
Cl10-BZ#209	ND		ng/cart	2.50	1.25

Project Name: Not Specified
Project Number: 10J0900

Lab Number: L1017228
Report Date: 11/10/10

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 11/05/10 09:30
Analyst: JS

Extraction Method: EPA 3540C
Extraction Date: 11/02/10 15:27

Parameter	Result	Qualifier	Units	RL	MDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-04 Batch: WG440768-1					
Monochlorobiphenyls	ND		ng/cart	2.50	1.25
Dichlorobiphenyls	ND		ng/cart	2.50	1.25
Trichlorobiphenyls	ND		ng/cart	2.50	1.25
Tetrachlorobiphenyls	ND		ng/cart	2.50	1.25
Pentachlorobiphenyls	ND		ng/cart	2.50	1.25
Hexachlorobiphenyls	ND		ng/cart	2.50	1.25
Heptachlorobiphenyls	ND		ng/cart	2.50	1.25
Octachlorobiphenyls	ND		ng/cart	2.50	1.25
Nonachlorobiphenyls	ND		ng/cart	2.50	1.25
Decachlorobiphenyl	ND		ng/cart	2.50	1.25
Total Homologs	ND		ng/cart	2.50	1.25

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13	83		50-125
Cl8-BZ#202-C13	75		50-125

Lab Control Sample Analysis
Batch Quality Control

Project Name: Not Specified
Project Number: 10J0900

Lab Number: L1017228
Report Date: 11/10/10

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-04 Batch: WG440768-2								
Cl1-BZ#1	88		-		40-140	-		30
CL1-BZ#3	85		-		40-140	-		30
Cl2-BZ#4/#10	102		-		40-140	-		30
Cl2-BZ#8	84		-		40-140	-		30
Cl3-BZ#19	82		-		40-140	-		30
Cl3-BZ#18	81		-		40-140	-		30
Cl2-BZ#15	80		-		40-140	-		30
Cl4-BZ#54	86		-		40-140	-		30
Cl3-BZ#29	75		-		40-140	-		30
Cl4-BZ#50	78		-		40-140	-		30
Cl3-BZ#-31	78		-		40-140	-		30
Cl3-BZ#28	81		-		40-140	-		30
Cl4-BZ#45	81		-		40-140	-		30
Cl4-BZ#52	81		-		40-140	-		30
Cl4-BZ#49	73		-		40-140	-		30
Cl5-BZ#104	78		-		40-140	-		30
Cl4-BZ#47	84		-		40-140	-		30
Cl4-BZ#44	82		-		40-140	-		30
Cl3-BZ#37	48		-		40-140	-		30
Cl5-BZ#121/#95/#88	62		-		40-140	-		30
Cl4-BZ#74	75		-		40-140	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: Not Specified
Project Number: 10J0900

Lab Number: L1017228
Report Date: 11/10/10

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-04 Batch: WG440768-2								
Cl6-BZ#155	78		-		40-140	-		30
Cl4-BZ#70	77		-		40-140	-		30
Cl4-BZ#66	80		-		40-140	-		30
Cl5-BZ#101/#90	76		-		40-140	-		30
Cl4-BZ#56	78		-		40-140	-		30
Cl5-BZ#99	73		-		40-140	-		30
Cl5-BZ#87/#111	61		-		40-140	-		30
Cl6-BZ#154	78		-		40-140	-		30
Cl5-BZ#110	76		-		40-140	-		30
Cl4-BZ#81	73		-		40-140	-		30
Cl6-BZ#151	79		-		40-140	-		30
Cl6-BZ#147/#149	79		-		40-140	-		30
Cl4-BZ#77	75		-		40-140	-		30
Cl5-BZ#107/#123	86		-		40-140	-		30
Cl7-BZ#188	76		-		40-140	-		30
Cl5-BZ#118	71		-		40-140	-		30
Cl6-BZ#146	77		-		40-140	-		30
Cl5-BZ#114	68		-		40-140	-		30
Cl6-BZ#153	86		-		40-140	-		30
Cl5-BZ#105	55		-		40-140	-		30
Cl6-BZ#138	69		-		40-140	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: Not Specified
Project Number: 10J0900

Lab Number: L1017228
Report Date: 11/10/10

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-04 Batch: WG440768-2								
Cl6-BZ#129/#158	94		-		40-140	-		30
Cl7-BZ#187	80		-		40-140	-		30
Cl7-BZ#183	78		-		40-140	-		30
Cl5-BZ#126	47		-		40-140	-		30
Cl7-BZ#174	82		-		40-140	-		30
Cl6-BZ#128	74		-		40-140	-		30
Cl6-BZ#167	84		-		40-140	-		30
Cl8-BZ#202	96		-		40-140	-		30
Cl7-BZ#177	76		-		40-140	-		30
Cl8-BZ#204/#200-CAL	84		-		40-140	-		30
Cl6-BZ#156	61		-		40-140	-		30
Cl6-BZ#157	73		-		40-140	-		30
Cl7-BZ#180	72		-		40-140	-		30
Cl8-BZ#201	76		-		40-140	-		30
Cl7-BZ#170	75		-		40-140	-		30
Cl6-BZ#169	63		-		40-140	-		30
Cl9-BZ#208	75		-		40-140	-		30
Cl7-BZ#189	75		-		40-140	-		30
Cl8-BZ#195	78		-		40-140	-		30
Cl8-BZ#194	72		-		40-140	-		30
Cl8-BZ#205	74		-		40-140	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: Not Specified
Project Number: 10J0900
Lab Number: L1017228
Report Date: 11/10/10

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-04 Batch: WG440768-2								
Cl9-BZ#206	70		-		40-140	-		30
Cl10-BZ#209	73		-		40-140	-		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Cl3-BZ#19-C13	84				50-125
Cl8-BZ#202-C13	75				50-125

Project Name: Not Specified
Project Number: 10J0900

Lab Number: L1017228
Report Date: 11/10/10

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information **Custody Seal**

Cooler	
N/A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1017228-01A	PUF Air Cartridge (PCB) - Low	N/A	N/A		NA	Absent	A2-PCB209-C/H-8270(7)
L1017228-02A	PUF Air Cartridge (PCB) - Low	N/A	N/A		NA	Absent	A2-PCB209-C/H-8270(7)
L1017228-03A	PUF Air Cartridge (PCB) - Low	N/A	N/A		NA	Absent	A2-PCB209-C/H-8270(7)
L1017228-04A	PUF Air Cartridge (PCB) - Low	N/A	N/A		NA	Absent	A2-PCB209-C/H-8270(7)
L1017228-05A	PUF Air Cartridge (PCB) - Low	N/A	N/A		NA	Absent	PUF-LO(),CLEAN-FEE()

*Values in parentheses indicate holding time in days

Project Name: Not Specified **Lab Number:** L1017228
Project Number: 10J0900 **Report Date:** 11/10/10

GLOSSARY

Acronyms

EPA	· Environmental Protection Agency.
LCS	· Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	· Laboratory Control Sample Duplicate: Refer to LCS.
MDL	· Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	· Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	· Matrix Spike Sample Duplicate: Refer to MS.
NA	· Not Applicable.
NC	· Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NI	· Not Ignitable.
RL	· Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	· Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A	- Spectra identified as "Aldol Condensation Product".
B	- The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank.
D	- Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
E	- Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
H	- The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
I	- The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported due to obvious interference.
P	- The RPD between the results for the two columns exceeds the method-specified criteria.
Q	- The quality control sample exceeds the associated acceptance criteria. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
R	- Analytical results are from sample re-analysis.

Report Format: DU Report with "J" Qualifiers

Project Name:	Not Specified	**Lab Number:**	L1017228
Project Number:	10J0900	**Report Date:**	11/10/10

Data Qualifiers

RE - Analytical results are from sample re-extraction.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL). This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the method detection limit (MDL) for the sample.

Report Format: DU Report with "J" Qualifiers

Project Name: Not Specified
Project Number: 10J0900
Lab Number: L1017228
Report Date: 11/10/10

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certificate/Approval Program Summary

Last revised July 19, 2010 – Mansfield Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0141.

Wastewater/Non-Potable Water (Inorganic Parameters: pH, Turbidity, Conductivity, Alkalinity, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Vanadium, Zinc, Total Residue (Solids), Total Suspended Solids (non-filterable), Total Cyanide. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Acid Extractables, Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, PAHs, Haloethers, Chlorinated Hydrocarbons, Volatile Organics.)

Solid Waste/Soil (Inorganic Parameters: pH, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Organic Carbon, Total Cyanide, Corrosivity, TCLP 1311. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Volatile Organics, Acid Extractables, Benzidines, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Florida Department of Health Certificate/Lab ID: E87814. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: SM2320B, EPA 120.1, SM2510B, EPA 245.1, EPA 150.1, EPA 160.2, SM2540D, EPA 335.2, SM2540G, EPA 180.1. Organic Parameters: EPA 625, 608.)

Solid & Chemical Materials (Inorganic Parameters: 6020, 7470, 7471, 9045, 9014. Organic Parameters: EPA 8260, 8270, 8082, 8081.)

Air & Emissions (EPA TO-15.)

Louisiana Department of Environmental Quality Certificate/Lab ID: 03090. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: EPA 120.1, 150.1, 160.2, 180.1, 200.8, 245.1, 310.1, 335.2, 608, 625, 1631, 3010, 3015, 3020, 6020, 9010, 9014, 9040, SM2320B, 2510B, 2540D, 2540G, 4500CN-E, 4500H-B, Organic Parameters: EPA 3510, 3580, 3630, 3640, 3660, 3665, 5030, 8015 (mod), 3570, 8081, 8082, 8260, 8270,)

Solid & Chemical Materials (Inorganic Parameters: 6020, 7196, 7470, 7471, 7474, 9010, 9014, 9040, 9045, 9060. Organic Parameters: EPA 8015 (mod), EPA 3570, 1311, 3050, 3051, 3060, 3580, 3630, 3640, 3660, 3665, 5035, 8081, 8082, 8260, 8270.)

Biological Tissue (Inorganic Parameters: EPA 6020. Organic Parameters: EPA 3570, 3510, 3610, 3630, 3640, 8270.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA030.

Non-Potable Water (Inorganic Parameters: SM4500H+B. Organic Parameters: EPA 624.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 2206. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: EPA 200.8, 245.1, 1631E, 120.1, 150.1, 180.1, 310.1, 335.2, 160.2, SM2540D, 2540G, 4500CN-E, 4500H+B, 2320B, 2510B. Organic Parameters: EPA 625, 608.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA015. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: SW-846 1312, 3010, 3020A, 3015, 6020, SM2320B, EPA 200.8, SM2540C, 2540D, 2540G, EPA 120.1, SM2510B, EPA 180.1, 245.1, 1631E, SW-846 9040B, 6020, 9010B, 9014 Organic Parameters: EPA 608, 625, SW-846 3510C, 3580A, 5030B, 3035L, 5035H, 3630C, 3640A, 3660B, 3665A, 8081A, 8082 8260B, 8270C)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6020, 9010B, 9014, 1311, 1312, 3050B, 3051, 3060A, 7196A, 7470A, 7471A, 9045C, 9060. Organic Parameters: SW-846 3580A, 5030B, 3035L, 5035H, 3630C, 3640A, 3660B, 3665A, 8081A, 8082, 8260B, 8270C, 3570, 8015B.)

Atmospheric Organic Parameters (EPA TO-15)

Biological Tissue (Inorganic Parameters: SW-846 6020 Organic Parameters: SW-846 8270C, 3510C, 3570, 3610B, 3630C, 3640A)

New York Department of Health Certificate/Lab ID: 11627. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: EPA 310.1, SM2320B, EPA 365.2, 160.1, EPA 160.2, SM2540D, EPA 200.8, 6020, 1631E, 245.1, 335.2, 9014, 150.1, 9040B, 120.1, SM2510B, EPA 376.2, 180.1, 9010B. Organic Parameters: EPA 624, 8260B, 8270C, 608, 8081A, 625, 8082, 3510C, 3511, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 9040B, 9045C, SW-846 Ch7 Sec 7.3, EPA 6020, 7196A, 7471A, 7474, 9014, 9040B, 9045C, 9010B. Organic Parameters: EPA 8260B, 8270C, 8081A, DRO 8015B, 8082, 1311, 3050B, 3580, 3050B, 3035, 3570, 3051, 5035, 5030B.)

Air & Emissions (EPA TO-15.)

Rhode Island Department of Health Certificate/Lab ID: LAO00299. ***NELAP Accredited via LA-DEQ.***

Refer to MA-DEP Certificate for Non-Potable Water.

Refer to LA-DEQ Certificate for Non-Potable Water.

Texas Commission of Environmental Quality Certificate/Lab ID: T104704419-08-TX. ***NELAP Accredited.***

Solid & Chemical Materials (Inorganic Parameters: EPA 6020, 7470, 7471, 1311, 7196, 9014, 9040, 9045, 9060. Organic Parameters: EPA 8015, 8270, 8260, 8081, 8082.)

Air (Organic Parameters: EPA TO-15)

U.S. Army Corps of Engineers

Department of Defense Certificate/Lab ID: L2217.01.

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312,3051, 6020, 747A, 7474, 9045C,9060, SM 2540G, ASTM D422-63. Organic Parameters: EPA 3580, 3570, 3540C, 5035, 8260B, 8270C, 8270 Alk-PAH, 8082, 8081A, 8015 (SHC), 8015 (DRO).

Air & Emissions (EPA TO-15.)

Analytes Not Accredited by NELAP
Certification is not available by NELAP for the following analytes: **8270C:** Biphenyl.

L1017228

SUBCONTRACT ORDER

Con-Test Analytical Laboratory

10J0900

SENDING LABORATORY:

Con-Test Analytical Laboratory
39 Spruce Street
East Longmeadow, MA 01028
Phone: 413.525.2332
Fax: 413.525.6405
Project Manager: Meghan E. Kelley

RECEIVING LABORATORY:

Alpha Analytical Laboratory
8 Walkup Drive
Westborough, MA 01581
Phone :(508) 898-9220
Fax: (508) 898-9193

MASITE

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 10J0900-01	**Air**	**Sampled:10/27/10 12:45**		
-1 680 PCB Homologs	11/10/10 23:59	11/03/10 12:45		TSCA RL <0.1 ug/m3
Containers Supplied: PUF Cartridge (A)				
Sample ID: 10J0900-02	**Air**	**Sampled:10/27/10 12:45**		
-2 680 PCB Homologs	11/10/10 23:59	11/03/10 12:45		TSCA RL <0.1 ug/m3
Containers Supplied: PUF Cartridge (A)				
Sample ID: 10J0900-03	**Air**	**Sampled:10/27/10 12:49**		
-3 680 PCB Homologs	11/10/10 23:59	11/03/10 12:49		TSCA RL <0.1 ug/m3
Containers Supplied: PUF Cartridge (A)				
Sample ID: 10J0900-04	**Air**	**Sampled:10/27/10 13:00**		
-4 680 PCB Homologs	11/10/10 23:59	11/03/10 13:00		TSCA RL <0.1 ug/m3
Containers Supplied: PUF Cartridge (A)				

Released By	Date	Received By	Date
[signature]	11/1/10 11:45	K Bates	11-1-10

Serial_No:11101010:02

AIR ANALYSIS

PAGE 1 OF 1

ALPHA CHAIN OF CUSTODY

Date Rec'd in Lab:

ALPHA Job #:

Report Information - Data Deliverables

- ❑ FAX
- ❑ ADEx
  - Criteria Checker: _____
  - (Default based on Regulatory Criteria Indicated)
  - Other Formats: _____
- ☒ EMAIL (standard pdf report)
- ❑ Additional Deliverables: _____

Report to: (if different than Project Manager)
Con-Test PM

Billing Information

❑ Same as Client info | PO #: —

(Con-Test Labs)

Regulatory Requirements/Report Limits

State/Fed	Program	RL Criteria
TSCA		<0.1 µg/m3

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	TO-14A by TO-15	TO-15	TO-15 SIM	APH	FIXED GASES	TO-13A	TO-4 (TO-10 PCB Geo Herbicides)	Sample Comments (i.e. PID)
	WA-IA-Platform #1	10/27/10	1045	1245		NA	AA	DMW	NA	LP-221	—							X	Flow Rate = 2 L/min.
	WA-IA-Platform #2	↓	1045	1245		↓	↓	↓	↓	LP-143	—							↓	↓
	WA-IA-Platform-Ambient		1049	1249						LP-227	—								
	WA-IA-Platform #3	↓	1100	1300		↓	↓	↓	↓	LP-142	—							↓	↓

*SAMPLE MATRIX CODES
AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type: LOW-FLOW PUF

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Relinquished By:	Date/Time	Received By:	Date/Time:
[signature]	10/28/10 1940	[signature]	10-28-10 1335
[signature]	10-28-10 1940		
[signature]	11/1/10 11:45	[signature] 10/28/10 1940 22.5°C	[signature] 11-1-10 11:45

Form No: 101-02 (19-Jun-09)

Appendix D

Laboratory Analytical Data Report – Waste Solids & Liquids

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

November 4, 2010

Dan White
ATC Associates - Woburn
600 W Cummings Park, Suite 5500
Woburn, MA 01801

Project Location: MBTA-Cabot Yard
Client Job Number:
Project Number: 60.07443.1028
Laboratory Work Order Number: 10J0894

Enclosed are results of analyses for samples received by the laboratory on October 28, 2010. 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

ATC Associates - Woburn
600 W Cummings Park, Suite 5500
Woburn, MA 01801
ATTN: Dan White

REPORT DATE: 11/4/2010

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 60.07443.1028

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 10J0894

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

PROJECT LOCATION: MBTA-Cabot Yard

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
Office Vac Dust	10J0894-01	Product/Solid		SW-846 8082	
Main Floor Vac Dust	10J0894-02	Product/Solid		SW-846 8082	
Zamboni Water-Total	10J0894-03	Water		SW-846 8082	
Zamboni Water-Dissolved	10J0894-04	Water		SW-846 8082	

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

CASE NARRATIVE SUMMARY

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

SW-846 8082

Qualifications:

The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

Analyte & Samples(s) Qualified:

Decachlorobiphenyl, Decachlorobiphenyl [2C], Tetrachloro-m-xylene, Tetrachloro-m-xylene [2C]

10J0894-01[Office Vac Dust], 10J0894-02[Main Floor Vac Dust], 10J0894-03[Zamboni Water-Total]

Duplicate analysis confirmed surrogate failure due to matrix effects.

Analyte & Samples(s) Qualified:

Decachlorobiphenyl, Decachlorobiphenyl [2C]

10J0894-04[Zamboni Water-Dissolved], 10J0894-04RE1[Zamboni Water-Dissolved]

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 individuuals 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

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

Project Location: MBTA-Cabot Yard
Sample Description:
Work Order: 10J0894

Date Received: 10/28/2010

Field Sample #: Office Vac Dust
Sampled: 10/27/2010 12:08

Sample ID: 10J0894-01

Sample Matrix: Product/Solid

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	4.5	mg/Kg	50		SW-846 8082	10/29/10	11/2/10 12:28	PJG
Aroclor-1221 [1]	ND	4.5	mg/Kg	50		SW-846 8082	10/29/10	11/2/10 12:28	PJG
Aroclor-1232 [1]	ND	4.5	mg/Kg	50		SW-846 8082	10/29/10	11/2/10 12:28	PJG
Aroclor-1242 [1]	ND	4.5	mg/Kg	50		SW-846 8082	10/29/10	11/2/10 12:28	PJG
Aroclor-1248 [1]	ND	4.5	mg/Kg	50		SW-846 8082	10/29/10	11/2/10 12:28	PJG
Aroclor-1254 [1]	50	4.5	mg/Kg	50		SW-846 8082	10/29/10	11/2/10 12:28	PJG
Aroclor-1260 [1]	46	4.5	mg/Kg	50		SW-846 8082	10/29/10	11/2/10 12:28	PJG
Aroclor-1262 [1]	ND	4.5	mg/Kg	50		SW-846 8082	10/29/10	11/2/10 12:28	PJG
Aroclor-1268 [1]	ND	4.5	mg/Kg	50		SW-846 8082	10/29/10	11/2/10 12:28	PJG

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	*	30-150	S-01	11/2/10 12:28
Decachlorobiphenyl [2]	*	30-150	S-01	11/2/10 12:28
Tetrachloro-m-xylene [1]	*	30-150	S-01	11/2/10 12:28
Tetrachloro-m-xylene [2]	*	30-150	S-01	11/2/10 12:28

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

Project Location: MBTA-Cabot Yard
Sample Description:
Work Order: 10J0894

Date Received: 10/28/2010

Field Sample #: Main Floor Vac Dust
Sampled: 10/27/2010 12:20

Sample ID: 10J0894-02

Sample Matrix: Product/Solid

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	50	mg/Kg	500		SW-846 8082	10/29/10	11/2/10 12:41	PJG
Aroclor-1221 [1]	ND	50	mg/Kg	500		SW-846 8082	10/29/10	11/2/10 12:41	PJG
Aroclor-1232 [1]	ND	50	mg/Kg	500		SW-846 8082	10/29/10	11/2/10 12:41	PJG
Aroclor-1242 [1]	ND	50	mg/Kg	500		SW-846 8082	10/29/10	11/2/10 12:41	PJG
Aroclor-1248 [1]	ND	50	mg/Kg	500		SW-846 8082	10/29/10	11/2/10 12:41	PJG
Aroclor-1254 [1]	370	50	mg/Kg	500		SW-846 8082	10/29/10	11/2/10 12:41	PJG
Aroclor-1260 [2]	360	50	mg/Kg	500		SW-846 8082	10/29/10	11/2/10 12:41	PJG
Aroclor-1262 [1]	ND	50	mg/Kg	500		SW-846 8082	10/29/10	11/2/10 12:41	PJG
Aroclor-1268 [1]	ND	50	mg/Kg	500		SW-846 8082	10/29/10	11/2/10 12:41	PJG

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	*	30-150	S-01	11/2/10 12:41
Decachlorobiphenyl [2]	*	30-150	S-01	11/2/10 12:41
Tetrachloro-m-xylene [1]	*	30-150	S-01	11/2/10 12:41
Tetrachloro-m-xylene [2]	*	30-150	S-01	11/2/10 12:41

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

Project Location: MBTA-Cabot Yard
Sample Description:
Work Order: 10J0894

Date Received: 10/28/2010

Field Sample #: Zamboni Water-Total
Sampled: 10/27/2010 13:00

Sample ID: 10J0894-03

Sample Matrix: Water

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	20	µg/L	100		SW-846 8082	11/1/10	11/2/10 14:02	PJG
Aroclor-1221 [1]	ND	20	µg/L	100		SW-846 8082	11/1/10	11/2/10 14:02	PJG
Aroclor-1232 [1]	ND	20	µg/L	100		SW-846 8082	11/1/10	11/2/10 14:02	PJG
Aroclor-1242 [1]	ND	20	µg/L	100		SW-846 8082	11/1/10	11/2/10 14:02	PJG
Aroclor-1248 [1]	ND	20	µg/L	100		SW-846 8082	11/1/10	11/2/10 14:02	PJG
Aroclor-1254 [1]	250	20	µg/L	100		SW-846 8082	11/1/10	11/2/10 14:02	PJG
Aroclor-1260 [2]	210	20	µg/L	100		SW-846 8082	11/1/10	11/2/10 14:02	PJG
Aroclor-1262 [1]	ND	20	µg/L	100		SW-846 8082	11/1/10	11/2/10 14:02	PJG
Aroclor-1268 [1]	ND	20	µg/L	100		SW-846 8082	11/1/10	11/2/10 14:02	PJG

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	*	30-150	S-01	11/2/10 14:02
Decachlorobiphenyl [2]	*	30-150	S-01	11/2/10 14:02
Tetrachloro-m-xylene [1]	*	30-150	S-01	11/2/10 14:02
Tetrachloro-m-xylene [2]	*	30-150	S-01	11/2/10 14:02

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Project Location: MBTA-Cabot Yard | Sample Description: | Work Order: 10J0894

Date Received: 10/28/2010

Field Sample #: Zamboni Water-Dissolved | Sampled: 10/27/2010 13:00

Sample ID: 10J0894-04

Sample Matrix: Water

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/L	1		SW-846 8082	11/2/10	11/3/10 9:51	JMB
Aroclor-1016 [1]	ND	2.0	µg/L	10		SW-846 8082	11/1/10	11/2/10 14:16	PJG
Aroclor-1221 [1]	ND	2.0	µg/L	1		SW-846 8082	11/2/10	11/3/10 9:51	JMB
Aroclor-1221 [1]	ND	2.0	µg/L	10		SW-846 8082	11/1/10	11/2/10 14:16	PJG
Aroclor-1232 [1]	ND	2.0	µg/L	1		SW-846 8082	11/2/10	11/3/10 9:51	JMB
Aroclor-1232 [1]	ND	2.0	µg/L	10		SW-846 8082	11/1/10	11/2/10 14:16	PJG
Aroclor-1242 [1]	ND	2.0	µg/L	1		SW-846 8082	11/2/10	11/3/10 9:51	JMB
Aroclor-1242 [1]	ND	2.0	µg/L	10		SW-846 8082	11/1/10	11/2/10 14:16	PJG
Aroclor-1248 [1]	ND	2.0	µg/L	1		SW-846 8082	11/2/10	11/3/10 9:51	JMB
Aroclor-1248 [1]	ND	2.0	µg/L	10		SW-846 8082	11/1/10	11/2/10 14:16	PJG
Aroclor-1254 [1]	24	2.0	µg/L	1		SW-846 8082	11/2/10	11/3/10 9:51	JMB
Aroclor-1254 [1]	19	2.0	µg/L	10		SW-846 8082	11/1/10	11/2/10 14:16	PJG
Aroclor-1260 [1]	17	2.0	µg/L	1		SW-846 8082	11/2/10	11/3/10 9:51	JMB
Aroclor-1260 [1]	13	2.0	µg/L	10		SW-846 8082	11/1/10	11/2/10 14:16	PJG
Aroclor-1262 [1]	ND	2.0	µg/L	1		SW-846 8082	11/2/10	11/3/10 9:51	JMB
Aroclor-1262 [1]	ND	2.0	µg/L	10		SW-846 8082	11/1/10	11/2/10 14:16	PJG
Aroclor-1268 [1]	ND	2.0	µg/L	1		SW-846 8082	11/2/10	11/3/10 9:51	JMB
Aroclor-1268 [1]	ND	2.0	µg/L	10		SW-846 8082	11/1/10	11/2/10 14:16	PJG

Surrogates	% Recovery		Recovery Limits	Flag	
Decachlorobiphenyl [1]	**18.0**	*	30-150	S-08	11/3/10 9:51
Decachlorobiphenyl [1]	**11.2**	*	30-150	S-08	11/2/10 14:16
Decachlorobiphenyl [2]	**12.4**	*	30-150	S-08	11/3/10 9:51
Decachlorobiphenyl [2]	**12.9**	*	30-150	S-08	11/2/10 14:16
Tetrachloro-m-xylene [1]	63.6		30-150		11/3/10 9:51
Tetrachloro-m-xylene [1]	76.3		30-150		11/2/10 14:16
Tetrachloro-m-xylene [2]	83.3		30-150		11/2/10 14:16
Tetrachloro-m-xylene [2]	63.3		30-150		11/3/10 9:51

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

Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
10J0894-01 [Office Vac Dust]	B021504	2.20	10.0	10/29/10
10J0894-02 [Main Floor Vac Dust]	B021504	2.00	10.0	10/29/10

Prep Method: SW-846 3510C-SW-846 8082

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
10J0894-03 [Zamboni Water-Total]	B021528	1000	10.0	11/01/10
10J0894-04 [Zamboni Water-Dissolved]	B021528	1000	10.0	11/01/10

Prep Method: SW-846 3510C-SW-846 8082

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
10J0894-04RE1 [Zamboni Water-Dissolved]	B021622	100	10.0	11/02/10

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QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B021504 - SW-846 3540C										
Blank (B021504-BLK1)				Prepared: 10/29/10 Analyzed: 11/02/10						
Aroclor-1016	ND	0.10	mg/Kg							
Aroclor-1016 [2C]	ND	0.10	mg/Kg							
Aroclor-1221	ND	0.10	mg/Kg							
Aroclor-1221 [2C]	ND	0.10	mg/Kg							
Aroclor-1232	ND	0.10	mg/Kg							
Aroclor-1232 [2C]	ND	0.10	mg/Kg							
Aroclor-1242	ND	0.10	mg/Kg							
Aroclor-1242 [2C]	ND	0.10	mg/Kg							
Aroclor-1248	ND	0.10	mg/Kg							
Aroclor-1248 [2C]	ND	0.10	mg/Kg							
Aroclor-1254	ND	0.10	mg/Kg							
Aroclor-1254 [2C]	ND	0.10	mg/Kg							
Aroclor-1260	ND	0.10	mg/Kg							
Aroclor-1260 [2C]	ND	0.10	mg/Kg							
Aroclor-1262	ND	0.10	mg/Kg							
Aroclor-1262 [2C]	ND	0.10	mg/Kg							
Aroclor-1268	ND	0.10	mg/Kg							
Aroclor-1268 [2C]	ND	0.10	mg/Kg							
Surrogate: Decachlorobiphenyl	*1.09*		mg/Kg	1.00		109	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.00*		mg/Kg	1.00		100	30-150			
Surrogate: Tetrachloro-m-xylene	*1.11*		mg/Kg	1.00		111	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.07*		mg/Kg	1.00		107	30-150			
LCS (B021504-BS1)				Prepared: 10/29/10 Analyzed: 11/02/10						
Aroclor-1016	0.26	0.10	mg/Kg	0.250		105	40-140			
Aroclor-1016 [2C]	0.28	0.10	mg/Kg	0.250		113	40-140			
Aroclor-1260	0.26	0.10	mg/Kg	0.250		103	40-140			
Aroclor-1260 [2C]	0.25	0.10	mg/Kg	0.250		101	40-140			
Surrogate: Decachlorobiphenyl	*1.04*		mg/Kg	1.00		104	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.983*		mg/Kg	1.00		98.3	30-150			
Surrogate: Tetrachloro-m-xylene	*1.09*		mg/Kg	1.00		109	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.06*		mg/Kg	1.00		106	30-150			
LCS Dup (B021504-BSD1)				Prepared: 10/29/10 Analyzed: 11/02/10						
Aroclor-1016	0.26	0.10	mg/Kg	0.250		105	40-140	0.703	30	
Aroclor-1016 [2C]	0.28	0.10	mg/Kg	0.250		111	40-140	1.38	30	
Aroclor-1260	0.25	0.10	mg/Kg	0.250		101	40-140	1.26	30	
Aroclor-1260 [2C]	0.25	0.10	mg/Kg	0.250		101	40-140	0.735	30	
Surrogate: Decachlorobiphenyl	*0.970*		mg/Kg	1.00		97.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.914*		mg/Kg	1.00		91.4	30-150			
Surrogate: Tetrachloro-m-xylene	*1.04*		mg/Kg	1.00		104	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.02*		mg/Kg	1.00		102	30-150			

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

QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B021528 - SW-846 3510C										
Blank (B021528-BLK1)				Prepared: 11/01/10 Analyzed: 11/02/10						
Aroclor-1016	ND	0.20	µg/L							
Aroclor-1016 [2C]	ND	0.20	µg/L							
Aroclor-1221	ND	0.20	µg/L							
Aroclor-1221 [2C]	ND	0.20	µg/L							
Aroclor-1232	ND	0.20	µg/L							
Aroclor-1232 [2C]	ND	0.20	µg/L							
Aroclor-1242	ND	0.20	µg/L							
Aroclor-1242 [2C]	ND	0.20	µg/L							
Aroclor-1248	ND	0.20	µg/L							
Aroclor-1248 [2C]	ND	0.20	µg/L							
Aroclor-1254	ND	0.20	µg/L							
Aroclor-1254 [2C]	ND	0.20	µg/L							
Aroclor-1260	ND	0.20	µg/L							
Aroclor-1260 [2C]	ND	0.20	µg/L							
Aroclor-1262	ND	0.20	µg/L							
Aroclor-1262 [2C]	ND	0.20	µg/L							
Aroclor-1268	ND	0.20	µg/L							
Aroclor-1268 [2C]	ND	0.20	µg/L							
Surrogate: Decachlorobiphenyl	*2.11*		µg/L	2.00		105	30-150			
Surrogate: Decachlorobiphenyl [2C]	*2.00*		µg/L	2.00		99.8	30-150			
Surrogate: Tetrachloro-m-xylene	*2.09*		µg/L	2.00		105	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*2.08*		µg/L	2.00		104	30-150			
LCS (B021528-BS1)				Prepared: 11/01/10 Analyzed: 11/02/10						
Aroclor-1016	0.46	0.20	µg/L	0.500		92.7	40-140			
Aroclor-1016 [2C]	0.45	0.20	µg/L	0.500		90.3	40-140			
Aroclor-1260	0.47	0.20	µg/L	0.500		93.8	40-140			
Aroclor-1260 [2C]	0.46	0.20	µg/L	0.500		91.5	40-140			
Surrogate: Decachlorobiphenyl	*1.98*		µg/L	2.00		99.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.89*		µg/L	2.00		94.3	30-150			
Surrogate: Tetrachloro-m-xylene	*1.92*		µg/L	2.00		95.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.94*		µg/L	2.00		97.0	30-150			
LCS Dup (B021528-BSD1)				Prepared: 11/01/10 Analyzed: 11/02/10						
Aroclor-1016	0.56	0.20	µg/L	0.500		112	40-140	18.6	20	
Aroclor-1016 [2C]	0.53	0.20	µg/L	0.500		107	40-140	16.7	20	
Aroclor-1260	0.57	0.20	µg/L	0.500		113	40-140	18.6	20	
Aroclor-1260 [2C]	0.55	0.20	µg/L	0.500		110	40-140	18.7	20	
Surrogate: Decachlorobiphenyl	*2.41*		µg/L	2.00		120	30-150			
Surrogate: Decachlorobiphenyl [2C]	*2.27*		µg/L	2.00		114	30-150			
Surrogate: Tetrachloro-m-xylene	*2.35*		µg/L	2.00		117	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*2.39*		µg/L	2.00		119	30-150			

con-test® ANALYTICAL LABORATORY

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

QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B021622 - SW-846 3510C										
Blank (B021622-BLK1)				Prepared: 11/02/10 Analyzed: 11/03/10						
Aroclor-1016	ND	0.20	µg/L							
Aroclor-1016 [2C]	ND	0.20	µg/L							
Aroclor-1221	ND	0.20	µg/L							
Aroclor-1221 [2C]	ND	0.20	µg/L							
Aroclor-1232	ND	0.20	µg/L							
Aroclor-1232 [2C]	ND	0.20	µg/L							
Aroclor-1242	ND	0.20	µg/L							
Aroclor-1242 [2C]	ND	0.20	µg/L							
Aroclor-1248	ND	0.20	µg/L							
Aroclor-1248 [2C]	ND	0.20	µg/L							
Aroclor-1254	ND	0.20	µg/L							
Aroclor-1254 [2C]	ND	0.20	µg/L							
Aroclor-1260	ND	0.20	µg/L							
Aroclor-1260 [2C]	ND	0.20	µg/L							
Aroclor-1262	ND	0.20	µg/L							
Aroclor-1262 [2C]	ND	0.20	µg/L							
Aroclor-1268	ND	0.20	µg/L							
Aroclor-1268 [2C]	ND	0.20	µg/L							
Surrogate: Decachlorobiphenyl	*2.19*		µg/L	2.00		109	30-150			
Surrogate: Decachlorobiphenyl [2C]	*2.03*		µg/L	2.00		101	30-150			
Surrogate: Tetrachloro-m-xylene	*2.03*		µg/L	2.00		101	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.97*		µg/L	2.00		98.3	30-150			
LCS (B021622-BS1)				Prepared: 11/02/10 Analyzed: 11/03/10						
Aroclor-1016	0.55	0.20	µg/L	0.500		111	40-140			
Aroclor-1016 [2C]	0.56	0.20	µg/L	0.500		112	40-140			
Aroclor-1260	0.57	0.20	µg/L	0.500		114	40-140			
Aroclor-1260 [2C]	0.56	0.20	µg/L	0.500		112	40-140			
Surrogate: Decachlorobiphenyl	*2.38*		µg/L	2.00		119	30-150			
Surrogate: Decachlorobiphenyl [2C]	*2.21*		µg/L	2.00		110	30-150			
Surrogate: Tetrachloro-m-xylene	*2.28*		µg/L	2.00		114	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*2.20*		µg/L	2.00		110	30-150			
LCS Dup (B021622-BSD1)				Prepared: 11/02/10 Analyzed: 11/03/10						
Aroclor-1016	0.56	0.20	µg/L	0.500		112	40-140	1.17	20	
Aroclor-1016 [2C]	0.57	0.20	µg/L	0.500		113	40-140	1.00	20	
Aroclor-1260	0.55	0.20	µg/L	0.500		111	40-140	2.29	20	
Aroclor-1260 [2C]	0.54	0.20	µg/L	0.500		109	40-140	2.60	20	
Surrogate: Decachlorobiphenyl	*2.22*		µg/L	2.00		111	30-150			
Surrogate: Decachlorobiphenyl [2C]	*2.06*		µg/L	2.00		103	30-150			
Surrogate: Tetrachloro-m-xylene	*2.29*		µg/L	2.00		115	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*2.22*		µg/L	2.00		111	30-150			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
S-01	The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.
S-08	Duplicate analysis confirmed surrogate failure due to matrix effects.

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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8082 in Product/Solid	
Aroclor-1016	CT,NH,NY
Aroclor-1016 [2C]	CT,NH,NY
Aroclor-1221	CT,NH,NY
Aroclor-1221 [2C]	CT,NH,NY
Aroclor-1232	CT,NH,NY
Aroclor-1232 [2C]	CT,NH,NY
Aroclor-1242	CT,NH,NY
Aroclor-1242 [2C]	CT,NH,NY
Aroclor-1248	CT,NH,NY
Aroclor-1248 [2C]	CT,NH,NY
Aroclor-1254	CT,NH,NY
Aroclor-1254 [2C]	CT,NH,NY
Aroclor-1260	CT,NH,NY
Aroclor-1260 [2C]	CT,NH,NY
SW-846 8082 in Water	
Aroclor-1016	CT,NH,NY,RI,NC
Aroclor-1016 [2C]	CT,NH,NY,RI,NC
Aroclor-1221	CT,NH,NY,RI,NC
Aroclor-1221 [2C]	CT,NH,NY,RI,NC
Aroclor-1232	CT,NH,NY,RI,NC
Aroclor-1232 [2C]	CT,NH,NY,RI,NC
Aroclor-1242	CT,NH,NY,RI,NC
Aroclor-1242 [2C]	CT,NH,NY,RI,NC
Aroclor-1248	CT,NH,NY,RI,NC
Aroclor-1248 [2C]	CT,NH,NY,RI,NC
Aroclor-1254	CT,NH,NY,RI,NC
Aroclor-1254 [2C]	CT,NH,NY,RI,NC
Aroclor-1260	CT,NH,NY,RI,NC
Aroclor-1260 [2C]	CT,NH,NY,RI,NC
Aroclor-1262	NC
Aroclor-1262 [2C]	NC
Aroclor-1268	NC
Aroclor-1268 [2C]	NC

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

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

Code	Description	Number	Expires
AIHA	American Industrial Hygiene Association	100033	01/1/2012
MA	Massachusetts DEP	M-MA100	06/30/2011
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2011
NY	New York State Department of Health	10899 NELAP	04/1/2011
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2011
RI	Rhode Island Department of Health	LAO00112	12/30/2010
NC	North Carolina Div. of Water Quality	652	12/31/2010
NJ	New Jersey DEP	MA007 NELAP	06/30/2011
FL	Florida Department of Health	E871027 NELAP	06/30/2011
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2011
WA	State of Washington Department of Ecology	C2065	02/23/2011

con-test® ANALYTICAL LABORATORY
Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com
www.contestlabs.com

CHAIN OF CUSTODY RECORD

10J0894

39 SPRUCE ST, 2ND FLOOR
EAST LONGMEADOW, MA 01028

Page 1 of

Company Name: ATC Associates
Address: 600 W. Cummings Park, Ste 5500
Woburn, MA 01801
Attention: Dan White
Project Location: MBTA - Cabot Yard
Sampled By: DPW

Telephone: (781) 404-1432
Project # 60.07443.1028
Client PO # —

DATA DELIVERY (check one):
☐ FAX ☒ EMAIL ☒ WEBSITE CLIENT
Fax # : —
Email: Daniel.White@ATCAssociates.com
Format: ☒ EXCEL ☒ PDF ☐ GIS KEY
☐ OTHER

Proposal Provided? (For Billing purposes) ☐ yes _____ proposal date

State Form Required? ☒ yes ☐ no

Field ID	Sample Description	Lab #	Date Sampled: ~~Start~~ Date/~~Time~~	~~Stop Date~~/Time	Composite	Grab	*Matrix Code	Conc. Code	PCBs (8082) + Soxhlet (2 Total)	PCBs (8082) + Soxhlet (4 Total)										# of cont... s
									1	2										**Preserv... n
									I	I										~Cont.Co...
									A	A										
	Office Vac Dust	-01	10/27/10	1208		X	S	L	X											
	Main Floor Vac Dust	-02	↓	1220		X	S	L	X											
	Zamboni Water - Total	-03	↓	1300		X	WW	L		X										
	Zamboni Water - Dissolved	-04	↓	1300		X	WW	L		X	← Please filter in lab before analysis									

ANALYSIS REQUESTED

~Cont. Code:
A=amber glass
G=glass
P=plastic
ST=sterile
V=vial
S=summa can
T=tedlar bag
O=Other

Client Comments:

Laboratory Comments:

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in **Matrix/Conc.** Code Box:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature)	Date/Time:
[signature]	10/28/10
Received by: (signature) [signature]	Date/Time: 1335 10-28-10
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Turnaround **
☐ 7-Day
☐ 10-Day
☒ Other Std.

RUSH *
☐ *24-Hr ☐ *48-Hr
☐ *72-Hr ☐ *4-Day
* Require lab approval

Detection Limit Requirements
Regulations? TSCA
Data Enhancement Project/RCP? ☒ Y ☐ N
Special Requirements or DL's:
Solid - 1 mg/kg or lower Liquid - 0.5 ug/L or lower

***Matrix Code:**
GW= groundwater
WW= wastewater
DW= drinking water
A = air
S = soil/solid
SL = sludge
O = other

****Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium bisulfate
O = Other
X = Na hydroxide
T = Na thiosulfate

** TURNAROUND TIME STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED BY OUR CLIENT.

AIHA, NELAC & WBE/DBE Certified

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 ST, 2ND FLOOR
EAST LONGMEADOW, MA 01028

Page 1 of

Company Name: ATC Associates
Address: 600 W. Cummings Park, Ste 5500
Woburn, MA 01801
Attention: Dan White
Project Location: MBTA - Cobot Yard
Sampled By: DPW

Telephone: (781) 404-1432
Project # 60.07443.1028
Client PO #

DATA DELIVERY (check one):
☐ FAX ☒ EMAIL ☒ WEBSITE CLIENT
Fax # :
Email: Daniel.White@ATCAssociates.com
Format: ☒ EXCEL ☒ PDF ☐ GIS KEY
☐ OTHER

Proposal Provided? (For Billing purposes)
☐ yes proposal date

State Form Required?
☒ yes ☐ no

ANALYSIS REQUESTED

Field ID	Sample Description	Lab #	Date Sampled Start Date/~~Time~~	Stop ~~Date~~/Time	Composite	Grab	*Matrix Code	Conc. Code	PCBs (8082) (2 Total)	PCBs (8082) (4 Total)	# of containers	**Preservation	~Cont. Code
	Office Vac Dust		10/27/10	1208		X	S	L	X				
	Main Floor Vac Dust		↓	1220		X	S	L	X				
	Zamboni Water - Total		↓	1300		X	WW	L		X			
	Zamboni Water - Dissolved		↓	1300		X	WW	L		X			

← Please filter in lab before analysis

~Cont. Code:
A=amber glass
G=glass
P=plastic
ST=sterile
V= vial
S=summa can
T=tedlar bag
O=Other

Client Comments:

Laboratory Comments:

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in Matrix/Conc. Code Box:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature)	Date/Time: 10/28/10
Received by: (signature)	Date/Time: 1325 10-28-10
Relinquished by: (signature)	Date/Time: 1940 10-28-10
Received by: (signature) 5.5C	Date/Time: 1940 10/28/10

Turnaround **
☐ 7-Day
☐ 10-Day
☒ Other Std.

RUSH *
☐ *24-Hr ☐ *48-Hr
☐ *72-Hr ☐ *4-Day
* Require lab approval

Detection Limit Requirements
Regulations? TSCA
Data Enhancement Project/RCP? ☒ Y ☐ N
Special Requirements or DL's: Solid - 1 mg/kg or lower; Liquid - 0.5 µg/L or lower

***Matrix Code:**
GW= groundwater
WW= wastewater
DW= drinking water
A = air
S = soil/solid
SL = sludge
O = other

****Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium bisulfate
O = Other
X = Na hydroxide
T = Na thiosulfate

** TURNAROUND TIME STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED BY OUR CLIENT.

AIHA, NELAC & WBE/DBE Certified

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con-test ANALYTICAL LABORATORY

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

Sample Receipt Checklist

CLIENT NAME: ATC Assoc. RECEIVED BY: TEC DATE: 10/28/10

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

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 5.5 C

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

Who was notified _____ Date _____ Time _____

6) Are there any samples "On Hold"? Yes No Stored where: _____

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

Who was notified _____ Date _____ Time _____

8) Location where samples are stored: walkin

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

Containers received at Con-Test

	# of containers		# of containers
1 Liter Amber	4	8 oz amber/clear jar	
500 mL Amber		4 oz amber/clear jar	
250 mL Amber (8oz amber)	2	2 oz amber/clear jar	
1 Liter Plastic		Other glass jar	
500 mL Plastic		Plastic Bag / Ziploc	
250 mL plastic		Air Cassette	
40 mL Vial - type listed below		SOC Kit	
Colisure / bacteria bottle		Tubes	
Dissolved Oxygen bottle		Non-ConTest Container	
Flashpoint bottle		Other	
Encore		PM 2.5 / PM 10	
Perchlorate Kit		PUF Cartridge	

Laboratory Comments:

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

Time and Date Frozen:

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

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

Appendix E

Laboratory Analytical Data Report – Pilot Test Wipes

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

February 8, 2011

Dan White
ATC Associates - Woburn
600 W Cummings Park, Suite 5500
Woburn, MA 01801

Project Location: MBTA Cabot
Client Job Number:
Project Number: [none]
Laboratory Work Order Number: 11A0606

Enclosed are results of analyses for samples received by the laboratory on January 28, 2011. 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

ATC Associates - Woburn
600 W Cummings Park, Suite 5500
Woburn, MA 01801
ATTN: Dan White

REPORT DATE: 2/8/2011

PURCHASE ORDER NUMBER:

PROJECT NUMBER: [none]

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 11A0606

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

PROJECT LOCATION: MBTA Cabot

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
P1-R1-C4 Pre	11A0606-01	Wipe		SW-846 8082	
P1-R2-C1 Pre	11A0606-02	Wipe		SW-846 8082	
P1-R3-C2 Pre	11A0606-03	Wipe		SW-846 8082	
P1-R4-C2 Pre	11A0606-04	Wipe		SW-846 8082	
P2-R1-C4 Pre	11A0606-05	Wipe		SW-846 8082	
P2-R2-C1 Pre	11A0606-06	Wipe		SW-846 8082	
P2-R3-C2 Pre	11A0606-07	Wipe		SW-846 8082	
P2-R4-C2 Pre	11A0606-08	Wipe		SW-846 8082	
P3-R1-C4 Pre	11A0606-09	Wipe		SW-846 8082	
P3-R2-C1 Pre	11A0606-10	Wipe		SW-846 8082	
P3-R3-C2 Pre	11A0606-11	Wipe		SW-846 8082	
P3-R4-C2 Pre	11A0606-12	Wipe		SW-846 8082	
P4-R1-C4 Pre	11A0606-13	Wipe		SW-846 8082	
P4-R2-C1 Pre	11A0606-14	Wipe		SW-846 8082	
P4-R3-C2 Pre	11A0606-15	Wipe		SW-846 8082	
P4-R4-C2 Pre	11A0606-16	Wipe		SW-846 8082	
P1-R5-C2 Pre	11A0606-17	Wipe		SW-846 8082	
P1-R3-C2 Pre 2	11A0606-18	Wipe		SW-846 8082	
P1-R1-C4 Post	11A0606-19	Wipe		SW-846 8082	
P1-R2-C1 Post	11A0606-20	Wipe		SW-846 8082	
P1-R3-C2 Post	11A0606-21	Wipe		SW-846 8082	
P1-R4-C2 Post	11A0606-22	Wipe		SW-846 8082	
P2-R1-C4 Post	11A0606-23	Wipe		SW-846 8082	
P2-R2-C1 Post	11A0606-24	Wipe		SW-846 8082	
P2-R3-C2 Post	11A0606-25	Wipe		SW-846 8082	
P2-R4-C2 Post	11A0606-26	Wipe		SW-846 8082	
P3-R1-C4 Post	11A0606-27	Wipe		SW-846 8082	
P3-R2-C1 Post	11A0606-28	Wipe		SW-846 8082	
P3-R3-C2 Post	11A0606-29	Wipe		SW-846 8082	
P3-R4-C2 Post	11A0606-30	Wipe		SW-846 8082	
P4-R1-C4 Post	11A0606-31	Wipe		SW-846 8082	
P4-R2-C1 Post	11A0606-32	Wipe		SW-846 8082	
P4-R3-C2 Post	11A0606-33	Wipe		SW-846 8082	
P4-R4-C2 Post	11A0606-34	Wipe		SW-846 8082	

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

CASE NARRATIVE SUMMARY

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

SW-846 8082

Qualifications:

The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

Analyte & Samples(s) Qualified:

Decachlorobiphenyl, Decachlorobiphenyl [2C], Tetrachloro-m-xylene, Tetrachloro-m-xylene [2C]

11A0606-08[P2-R4-C2 Pre]

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

Analyte & Samples(s) Qualified:

Tetrachloro-m-xylene [2C]

11A0606-22[P1-R4-C2 Post]

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 individuuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Michael A. Erickson
Laboratory Director

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

Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P1-R1-C4 Pre
Sampled: 1/25/2011 09:40

Sample ID: 11A0606-01

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 13:23	JMB
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 13:23	JMB
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 13:23	JMB
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 13:23	JMB
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 13:23	JMB
Aroclor-1254 [2]	3.8	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 13:23	JMB
Aroclor-1260 [2]	13	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 13:23	JMB
Aroclor-1262 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 13:23	JMB
Aroclor-1268 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 13:23	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	115	30-150		2/5/11 13:23
Decachlorobiphenyl [2]	114	30-150		2/5/11 13:23
Tetrachloro-m-xylene [1]	120	30-150		2/5/11 13:23
Tetrachloro-m-xylene [2]	123	30-150		2/5/11 13:23

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

Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P1-R2-C1 Pre
Sampled: 1/25/2011 09:43

Sample ID: 11A0606-02

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 13:38	JMB
Aroclor-1221 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 13:38	JMB
Aroclor-1232 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 13:38	JMB
Aroclor-1242 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 13:38	JMB
Aroclor-1248 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 13:38	JMB
Aroclor-1254 [2]	2.6	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 13:38	JMB
Aroclor-1260 [2]	9.0	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 13:38	JMB
Aroclor-1262 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 13:38	JMB
Aroclor-1268 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 13:38	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	103	30-150		2/5/11 13:38
Decachlorobiphenyl [2]	105	30-150		2/5/11 13:38
Tetrachloro-m-xylene [1]	101	30-150		2/5/11 13:38
Tetrachloro-m-xylene [2]	105	30-150		2/5/11 13:38

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

Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P1-R3-C2 Pre
Sampled: 1/25/2011 09:45

Sample ID: 11A0606-03

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 13:52	JMB
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 13:52	JMB
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 13:52	JMB
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 13:52	JMB
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 13:52	JMB
Aroclor-1254 [2]	4.7	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 13:52	JMB
Aroclor-1260 [2]	15	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 13:52	JMB
Aroclor-1262 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 13:52	JMB
Aroclor-1268 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 13:52	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	113	30-150		2/5/11 13:52
Decachlorobiphenyl [2]	112	30-150		2/5/11 13:52
Tetrachloro-m-xylene [1]	118	30-150		2/5/11 13:52
Tetrachloro-m-xylene [2]	120	30-150		2/5/11 13:52

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

Project Location: MBTA Cabot | Sample Description: | Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P1-R4-C2 Pre | Sampled: 1/25/2011 09:47

Sample ID: 11A0606-04

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	4.0	µg/Wipe	20		SW-846 8082	1/31/11	2/5/11 14:05	JMB
Aroclor-1221 [1]	ND	4.0	µg/Wipe	20		SW-846 8082	1/31/11	2/5/11 14:05	JMB
Aroclor-1232 [1]	ND	4.0	µg/Wipe	20		SW-846 8082	1/31/11	2/5/11 14:05	JMB
Aroclor-1242 [1]	ND	4.0	µg/Wipe	20		SW-846 8082	1/31/11	2/5/11 14:05	JMB
Aroclor-1248 [1]	ND	4.0	µg/Wipe	20		SW-846 8082	1/31/11	2/5/11 14:05	JMB
Aroclor-1254 [2]	16	4.0	µg/Wipe	20		SW-846 8082	1/31/11	2/5/11 14:05	JMB
Aroclor-1260 [2]	39	4.0	µg/Wipe	20		SW-846 8082	1/31/11	2/5/11 14:05	JMB
Aroclor-1262 [1]	ND	4.0	µg/Wipe	20		SW-846 8082	1/31/11	2/5/11 14:05	JMB
Aroclor-1268 [1]	ND	4.0	µg/Wipe	20		SW-846 8082	1/31/11	2/5/11 14:05	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	136	30-150		2/5/11 14:05
Decachlorobiphenyl [2]	125	30-150		2/5/11 14:05
Tetrachloro-m-xylene [1]	129	30-150		2/5/11 14:05
Tetrachloro-m-xylene [2]	122	30-150		2/5/11 14:05

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

Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P2-R1-C4 Pre
Sampled: 1/25/2011 09:50

Sample ID: 11A0606-05

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:19	JMB
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:19	JMB
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:19	JMB
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:19	JMB
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:19	JMB
Aroclor-1254 [2]	3.5	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:19	JMB
Aroclor-1260 [2]	15	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:19	JMB
Aroclor-1262 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:19	JMB
Aroclor-1268 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:19	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	110	30-150		2/5/11 14:19
Decachlorobiphenyl [2]	107	30-150		2/5/11 14:19
Tetrachloro-m-xylene [1]	109	30-150		2/5/11 14:19
Tetrachloro-m-xylene [2]	111	30-150		2/5/11 14:19

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

Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P2-R2-C1 Pre
Sampled: 1/25/2011 09:52

Sample ID: 11A0606-06

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:33	JMB
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:33	JMB
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:33	JMB
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:33	JMB
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:33	JMB
Aroclor-1254 [2]	4.3	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:33	JMB
Aroclor-1260 [2]	15	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:33	JMB
Aroclor-1262 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:33	JMB
Aroclor-1268 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:33	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	123	30-150		2/5/11 14:33
Decachlorobiphenyl [2]	122	30-150		2/5/11 14:33
Tetrachloro-m-xylene [1]	117	30-150		2/5/11 14:33
Tetrachloro-m-xylene [2]	119	30-150		2/5/11 14:33

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

Project Location: MBTA Cabot | Sample Description: | Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P2-R3-C2 Pre | Sampled: 1/25/2011 09:55

Sample ID: 11A0606-07

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:46	JMB
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:46	JMB
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:46	JMB
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:46	JMB
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:46	JMB
Aroclor-1254 [2]	5.9	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:46	JMB
Aroclor-1260 [2]	19	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:46	JMB
Aroclor-1262 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:46	JMB
Aroclor-1268 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 14:46	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	115	30-150		2/5/11 14:46
Decachlorobiphenyl [2]	113	30-150		2/5/11 14:46
Tetrachloro-m-xylene [1]	115	30-150		2/5/11 14:46
Tetrachloro-m-xylene [2]	117	30-150		2/5/11 14:46

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

Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P2-R4-C2 Pre
Sampled: 1/25/2011 09:58

Sample ID: 11A0606-08

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	10	µg/Wipe	50		SW-846 8082	1/31/11	2/5/11 15:00	JMB
Aroclor-1221 [1]	ND	10	µg/Wipe	50		SW-846 8082	1/31/11	2/5/11 15:00	JMB
Aroclor-1232 [1]	ND	10	µg/Wipe	50		SW-846 8082	1/31/11	2/5/11 15:00	JMB
Aroclor-1242 [1]	ND	10	µg/Wipe	50		SW-846 8082	1/31/11	2/5/11 15:00	JMB
Aroclor-1248 [1]	ND	10	µg/Wipe	50		SW-846 8082	1/31/11	2/5/11 15:00	JMB
Aroclor-1254 [2]	26	10	µg/Wipe	50		SW-846 8082	1/31/11	2/5/11 15:00	JMB
Aroclor-1260 [2]	62	10	µg/Wipe	50		SW-846 8082	1/31/11	2/5/11 15:00	JMB
Aroclor-1262 [1]	ND	10	µg/Wipe	50		SW-846 8082	1/31/11	2/5/11 15:00	JMB
Aroclor-1268 [1]	ND	10	µg/Wipe	50		SW-846 8082	1/31/11	2/5/11 15:00	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	*	30-150	S-01	2/5/11 15:00
Decachlorobiphenyl [2]	*	30-150	S-01	2/5/11 15:00
Tetrachloro-m-xylene [1]	*	30-150	S-01	2/5/11 15:00
Tetrachloro-m-xylene [2]	*	30-150	S-01	2/5/11 15:00

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

Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P3-R1-C4 Pre
Sampled: 1/25/2011 10:01

Sample ID: 11A0606-09

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 15:13	JMB
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 15:13	JMB
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 15:13	JMB
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 15:13	JMB
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 15:13	JMB
Aroclor-1254 [2]	3.8	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 15:13	JMB
Aroclor-1260 [2]	14	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 15:13	JMB
Aroclor-1262 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 15:13	JMB
Aroclor-1268 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 15:13	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	127	30-150		2/5/11 15:13
Decachlorobiphenyl [2]	126	30-150		2/5/11 15:13
Tetrachloro-m-xylene [1]	123	30-150		2/5/11 15:13
Tetrachloro-m-xylene [2]	125	30-150		2/5/11 15:13

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

Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P3-R2-C1 Pre
Sampled: 1/25/2011 10:05

Sample ID: 11A0606-10

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 15:27	JMB
Aroclor-1221 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 15:27	JMB
Aroclor-1232 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 15:27	JMB
Aroclor-1242 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 15:27	JMB
Aroclor-1248 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 15:27	JMB
Aroclor-1254 [2]	1.7	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 15:27	JMB
Aroclor-1260 [2]	6.3	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 15:27	JMB
Aroclor-1262 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 15:27	JMB
Aroclor-1268 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 15:27	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	102	30-150		2/5/11 15:27
Decachlorobiphenyl [2]	104	30-150		2/5/11 15:27
Tetrachloro-m-xylene [1]	106	30-150		2/5/11 15:27
Tetrachloro-m-xylene [2]	111	30-150		2/5/11 15:27

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

Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P3-R3-C2 Pre
Sampled: 1/25/2011 10:09

Sample ID: 11A0606-11

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	4.0	µg/Wipe	20		SW-846 8082	1/31/11	2/5/11 15:40	JMB
Aroclor-1221 [1]	ND	4.0	µg/Wipe	20		SW-846 8082	1/31/11	2/5/11 15:40	JMB
Aroclor-1232 [1]	ND	4.0	µg/Wipe	20		SW-846 8082	1/31/11	2/5/11 15:40	JMB
Aroclor-1242 [1]	ND	4.0	µg/Wipe	20		SW-846 8082	1/31/11	2/5/11 15:40	JMB
Aroclor-1248 [1]	ND	4.0	µg/Wipe	20		SW-846 8082	1/31/11	2/5/11 15:40	JMB
Aroclor-1254 [2]	28	4.0	µg/Wipe	20		SW-846 8082	1/31/11	2/5/11 15:40	JMB
Aroclor-1260 [2]	49	4.0	µg/Wipe	20		SW-846 8082	1/31/11	2/5/11 15:40	JMB
Aroclor-1262 [1]	ND	4.0	µg/Wipe	20		SW-846 8082	1/31/11	2/5/11 15:40	JMB
Aroclor-1268 [1]	ND	4.0	µg/Wipe	20		SW-846 8082	1/31/11	2/5/11 15:40	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	147	30-150		2/5/11 15:40
Decachlorobiphenyl [2]	135	30-150		2/5/11 15:40
Tetrachloro-m-xylene [1]	140	30-150		2/5/11 15:40
Tetrachloro-m-xylene [2]	135	30-150		2/5/11 15:40

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

Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P3-R4-C2 Pre
Sampled: 1/25/2011 10:12

Sample ID: 11A0606-12

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 16:35	JMB
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 16:35	JMB
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 16:35	JMB
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 16:35	JMB
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 16:35	JMB
Aroclor-1254 [2]	9.8	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 16:35	JMB
Aroclor-1260 [2]	22	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 16:35	JMB
Aroclor-1262 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 16:35	JMB
Aroclor-1268 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 16:35	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	123	30-150		2/5/11 16:35
Decachlorobiphenyl [2]	122	30-150		2/5/11 16:35
Tetrachloro-m-xylene [1]	113	30-150		2/5/11 16:35
Tetrachloro-m-xylene [2]	114	30-150		2/5/11 16:35

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Project Location: MBTA Cabot | Sample Description: | Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P4-R1-C4 Pre | Sampled: 1/25/2011 10:16

Sample ID: 11A0606-13

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 16:48	JMB
Aroclor-1221 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 16:48	JMB
Aroclor-1232 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 16:48	JMB
Aroclor-1242 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 16:48	JMB
Aroclor-1248 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 16:48	JMB
Aroclor-1254 [2]	2.7	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 16:48	JMB
Aroclor-1260 [2]	10	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 16:48	JMB
Aroclor-1262 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 16:48	JMB
Aroclor-1268 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 16:48	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	97.2	30-150		2/5/11 16:48
Decachlorobiphenyl [2]	97.9	30-150		2/5/11 16:48
Tetrachloro-m-xylene [1]	101	30-150		2/5/11 16:48
Tetrachloro-m-xylene [2]	105	30-150		2/5/11 16:48

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Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P4-R2-C1 Pre
Sampled: 1/25/2011 10:19

Sample ID: 11A0606-14

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 17:02	JMB
Aroclor-1221 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 17:02	JMB
Aroclor-1232 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 17:02	JMB
Aroclor-1242 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 17:02	JMB
Aroclor-1248 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 17:02	JMB
Aroclor-1254 [2]	2.5	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 17:02	JMB
Aroclor-1260 [2]	8.9	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 17:02	JMB
Aroclor-1262 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 17:02	JMB
Aroclor-1268 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 17:02	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	98.4	30-150		2/5/11 17:02
Decachlorobiphenyl [2]	98.9	30-150		2/5/11 17:02
Tetrachloro-m-xylene [1]	107	30-150		2/5/11 17:02
Tetrachloro-m-xylene [2]	112	30-150		2/5/11 17:02

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Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P4-R3-C2 Pre
Sampled: 1/25/2011 10:22

Sample ID: 11A0606-15

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 17:15	JMB
Aroclor-1221 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 17:15	JMB
Aroclor-1232 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 17:15	JMB
Aroclor-1242 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 17:15	JMB
Aroclor-1248 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 17:15	JMB
Aroclor-1254 [2]	2.9	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 17:15	JMB
Aroclor-1260 [2]	10	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 17:15	JMB
Aroclor-1262 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 17:15	JMB
Aroclor-1268 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 17:15	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	101	30-150		2/5/11 17:15
Decachlorobiphenyl [2]	102	30-150		2/5/11 17:15
Tetrachloro-m-xylene [1]	109	30-150		2/5/11 17:15
Tetrachloro-m-xylene [2]	113	30-150		2/5/11 17:15

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Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P4-R4-C2 Pre
Sampled: 1/25/2011 10:26

Sample ID: 11A0606-16

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:29	JMB
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:29	JMB
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:29	JMB
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:29	JMB
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:29	JMB
Aroclor-1254 [2]	11	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:29	JMB
Aroclor-1260 [2]	25	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:29	JMB
Aroclor-1262 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:29	JMB
Aroclor-1268 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:29	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	117	30-150		2/5/11 17:29
Decachlorobiphenyl [2]	114	30-150		2/5/11 17:29
Tetrachloro-m-xylene [1]	117	30-150		2/5/11 17:29
Tetrachloro-m-xylene [2]	119	30-150		2/5/11 17:29

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Project Location: MBTA Cabot | Sample Description: | Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P1-R5-C2 Pre | Sampled: 1/25/2011 10:30

Sample ID: 11A0606-17

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/Wipe	1		SW-846 8082	1/31/11	2/4/11 20:38	JMB
Aroclor-1221 [1]	ND	0.20	µg/Wipe	1		SW-846 8082	1/31/11	2/4/11 20:38	JMB
Aroclor-1232 [1]	ND	0.20	µg/Wipe	1		SW-846 8082	1/31/11	2/4/11 20:38	JMB
Aroclor-1242 [1]	ND	0.20	µg/Wipe	1		SW-846 8082	1/31/11	2/4/11 20:38	JMB
Aroclor-1248 [1]	ND	0.20	µg/Wipe	1		SW-846 8082	1/31/11	2/4/11 20:38	JMB
Aroclor-1254 [1]	ND	0.20	µg/Wipe	1		SW-846 8082	1/31/11	2/4/11 20:38	JMB
Aroclor-1260 [1]	ND	0.20	µg/Wipe	1		SW-846 8082	1/31/11	2/4/11 20:38	JMB
Aroclor-1262 [1]	ND	0.20	µg/Wipe	1		SW-846 8082	1/31/11	2/4/11 20:38	JMB
Aroclor-1268 [1]	ND	0.20	µg/Wipe	1		SW-846 8082	1/31/11	2/4/11 20:38	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	76.7	30-150		2/4/11 20:38
Decachlorobiphenyl [2]	79.8	30-150		2/4/11 20:38
Tetrachloro-m-xylene [1]	85.7	30-150		2/4/11 20:38
Tetrachloro-m-xylene [2]	89.7	30-150		2/4/11 20:38

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Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P1-R3-C2 Pre 2
Sampled: 1/25/2011 10:34

Sample ID: 11A0606-18

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:43	JMB
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:43	JMB
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:43	JMB
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:43	JMB
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:43	JMB
Aroclor-1254 [2]	6.2	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:43	JMB
Aroclor-1260 [2]	19	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:43	JMB
Aroclor-1262 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:43	JMB
Aroclor-1268 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:43	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	119	30-150		2/5/11 17:43
Decachlorobiphenyl [2]	116	30-150		2/5/11 17:43
Tetrachloro-m-xylene [1]	120	30-150		2/5/11 17:43
Tetrachloro-m-xylene [2]	122	30-150		2/5/11 17:43

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Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P1-R1-C4 Post
Sampled: 1/26/2011 12:30

Sample ID: 11A0606-19

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:56	JMB
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:56	JMB
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:56	JMB
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:56	JMB
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:56	JMB
Aroclor-1254 [2]	3.4	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:56	JMB
Aroclor-1260 [2]	12	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:56	JMB
Aroclor-1262 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:56	JMB
Aroclor-1268 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 17:56	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	119	30-150		2/5/11 17:56
Decachlorobiphenyl [2]	116	30-150		2/5/11 17:56
Tetrachloro-m-xylene [1]	123	30-150		2/5/11 17:56
Tetrachloro-m-xylene [2]	125	30-150		2/5/11 17:56

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Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P1-R2-C1 Post
Sampled: 1/26/2011 12:32

Sample ID: 11A0606-20

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 18:10	JMB
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 18:10	JMB
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 18:10	JMB
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 18:10	JMB
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 18:10	JMB
Aroclor-1254 [2]	4.2	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 18:10	JMB
Aroclor-1260 [2]	16	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 18:10	JMB
Aroclor-1262 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 18:10	JMB
Aroclor-1268 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 18:10	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	122	30-150		2/5/11 18:10
Decachlorobiphenyl [2]	119	30-150		2/5/11 18:10
Tetrachloro-m-xylene [1]	122	30-150		2/5/11 18:10
Tetrachloro-m-xylene [2]	124	30-150		2/5/11 18:10

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Project Location: MBTA Cabot | Sample Description: | Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P1-R3-C2 Post | Sampled: 1/26/2011 12:35

Sample ID: 11A0606-21

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 18:23	JMB
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 18:23	JMB
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 18:23	JMB
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 18:23	JMB
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 18:23	JMB
Aroclor-1254 [2]	3.5	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 18:23	JMB
Aroclor-1260 [2]	12	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 18:23	JMB
Aroclor-1262 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 18:23	JMB
Aroclor-1268 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 18:23	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	112	30-150		2/5/11 18:23
Decachlorobiphenyl [2]	109	30-150		2/5/11 18:23
Tetrachloro-m-xylene [1]	115	30-150		2/5/11 18:23
Tetrachloro-m-xylene [2]	117	30-150		2/5/11 18:23

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

Project Location: MBTA Cabot | Sample Description: | Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P1-R4-C2 Post | Sampled: 1/26/2011 12:37

Sample ID: 11A0606-22

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.80	µg/Wipe	4		SW-846 8082	1/31/11	2/7/11 13:08	JMB
Aroclor-1221 [1]	ND	0.80	µg/Wipe	4		SW-846 8082	1/31/11	2/7/11 13:08	JMB
Aroclor-1232 [1]	ND	0.80	µg/Wipe	4		SW-846 8082	1/31/11	2/7/11 13:08	JMB
Aroclor-1242 [1]	ND	0.80	µg/Wipe	4		SW-846 8082	1/31/11	2/7/11 13:08	JMB
Aroclor-1248 [1]	ND	0.80	µg/Wipe	4		SW-846 8082	1/31/11	2/7/11 13:08	JMB
Aroclor-1254 [2]	1.9	0.80	µg/Wipe	4		SW-846 8082	1/31/11	2/7/11 13:08	JMB
Aroclor-1260 [2]	5.5	0.80	µg/Wipe	4		SW-846 8082	1/31/11	2/7/11 13:08	JMB
Aroclor-1262 [1]	ND	0.80	µg/Wipe	4		SW-846 8082	1/31/11	2/7/11 13:08	JMB
Aroclor-1268 [1]	ND	0.80	µg/Wipe	4		SW-846 8082	1/31/11	2/7/11 13:08	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	32.5	30-150		2/7/11 13:08
Decachlorobiphenyl [2]	30.6	30-150		2/7/11 13:08
Tetrachloro-m-xylene [1]	30.6	30-150		2/7/11 13:08
Tetrachloro-m-xylene [2]	**29.5** *	30-150	S-12	2/7/11 13:08

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Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P2-R1-C4 Post
Sampled: 1/26/2011 12:40

Sample ID: 11A0606-23

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 18:50	JMB
Aroclor-1221 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 18:50	JMB
Aroclor-1232 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 18:50	JMB
Aroclor-1242 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 18:50	JMB
Aroclor-1248 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 18:50	JMB
Aroclor-1254 [2]	1.5	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 18:50	JMB
Aroclor-1260 [2]	5.6	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 18:50	JMB
Aroclor-1262 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 18:50	JMB
Aroclor-1268 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 18:50	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	99.2	30-150		2/5/11 18:50
Decachlorobiphenyl [2]	99.9	30-150		2/5/11 18:50
Tetrachloro-m-xylene [1]	103	30-150		2/5/11 18:50
Tetrachloro-m-xylene [2]	107	30-150		2/5/11 18:50

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Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P2-R2-C1 Post
Sampled: 1/26/2011 12:42

Sample ID: 11A0606-24

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 19:45	JMB
Aroclor-1221 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 19:45	JMB
Aroclor-1232 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 19:45	JMB
Aroclor-1242 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 19:45	JMB
Aroclor-1248 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 19:45	JMB
Aroclor-1254 [2]	2.5	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 19:45	JMB
Aroclor-1260 [2]	8.6	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 19:45	JMB
Aroclor-1262 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 19:45	JMB
Aroclor-1268 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 19:45	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	109	30-150		2/5/11 19:45
Decachlorobiphenyl [2]	111	30-150		2/5/11 19:45
Tetrachloro-m-xylene [1]	104	30-150		2/5/11 19:45
Tetrachloro-m-xylene [2]	107	30-150		2/5/11 19:45

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Project Location: MBTA Cabot | Sample Description: | Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P2-R3-C2 Post | Sampled: 1/26/2011 12:44

Sample ID: 11A0606-25

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 19:58	JMB
Aroclor-1221 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 19:58	JMB
Aroclor-1232 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 19:58	JMB
Aroclor-1242 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 19:58	JMB
Aroclor-1248 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 19:58	JMB
Aroclor-1254 [2]	2.3	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 19:58	JMB
Aroclor-1260 [2]	7.0	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 19:58	JMB
Aroclor-1262 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 19:58	JMB
Aroclor-1268 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 19:58	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	101	30-150		2/5/11 19:58
Decachlorobiphenyl [2]	102	30-150		2/5/11 19:58
Tetrachloro-m-xylene [1]	109	30-150		2/5/11 19:58
Tetrachloro-m-xylene [2]	114	30-150		2/5/11 19:58

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Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P2-R4-C2 Post
Sampled: 1/26/2011 12:47

Sample ID: 11A0606-26

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 20:12	JMB
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 20:12	JMB
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 20:12	JMB
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 20:12	JMB
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 20:12	JMB
Aroclor-1254 [2]	7.4	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 20:12	JMB
Aroclor-1260 [2]	16	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 20:12	JMB
Aroclor-1262 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 20:12	JMB
Aroclor-1268 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 20:12	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	123	30-150		2/5/11 20:12
Decachlorobiphenyl [2]	121	30-150		2/5/11 20:12
Tetrachloro-m-xylene [1]	115	30-150		2/5/11 20:12
Tetrachloro-m-xylene [2]	118	30-150		2/5/11 20:12

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Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P3-R1-C4 Post
Sampled: 1/26/2011 12:50

Sample ID: 11A0606-27

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 20:26	JMB
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 20:26	JMB
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 20:26	JMB
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 20:26	JMB
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 20:26	JMB
Aroclor-1254 [2]	4.0	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 20:26	JMB
Aroclor-1260 [2]	13	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 20:26	JMB
Aroclor-1262 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 20:26	JMB
Aroclor-1268 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 20:26	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	119	30-150		2/5/11 20:26
Decachlorobiphenyl [2]	116	30-150		2/5/11 20:26
Tetrachloro-m-xylene [1]	122	30-150		2/5/11 20:26
Tetrachloro-m-xylene [2]	125	30-150		2/5/11 20:26

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

Project Location: MBTA Cabot | Sample Description: | Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P3-R2-C1 Post | Sampled: 1/26/2011 12:52

Sample ID: 11A0606-28

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 20:39	JMB
Aroclor-1221 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 20:39	JMB
Aroclor-1232 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 20:39	JMB
Aroclor-1242 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 20:39	JMB
Aroclor-1248 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 20:39	JMB
Aroclor-1254 [2]	2.0	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 20:39	JMB
Aroclor-1260 [2]	7.6	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 20:39	JMB
Aroclor-1262 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 20:39	JMB
Aroclor-1268 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 20:39	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	101	30-150		2/5/11 20:39
Decachlorobiphenyl [2]	102	30-150		2/5/11 20:39
Tetrachloro-m-xylene [1]	103	30-150		2/5/11 20:39
Tetrachloro-m-xylene [2]	107	30-150		2/5/11 20:39

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Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P3-R3-C2 Post
Sampled: 1/26/2011 12:55

Sample ID: 11A0606-29

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 20:53	JMB
Aroclor-1221 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 20:53	JMB
Aroclor-1232 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 20:53	JMB
Aroclor-1242 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 20:53	JMB
Aroclor-1248 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 20:53	JMB
Aroclor-1254 [2]	2.7	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 20:53	JMB
Aroclor-1260 [2]	8.9	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 20:53	JMB
Aroclor-1262 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 20:53	JMB
Aroclor-1268 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 20:53	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	97.6	30-150		2/5/11 20:53
Decachlorobiphenyl [2]	98.1	30-150		2/5/11 20:53
Tetrachloro-m-xylene [1]	102	30-150		2/5/11 20:53
Tetrachloro-m-xylene [2]	105	30-150		2/5/11 20:53

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Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P3-R4-C2 Post
Sampled: 1/26/2011 12:57

Sample ID: 11A0606-30

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 21:06	JMB
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 21:06	JMB
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 21:06	JMB
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 21:06	JMB
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 21:06	JMB
Aroclor-1254 [2]	8.4	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 21:06	JMB
Aroclor-1260 [2]	20	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 21:06	JMB
Aroclor-1262 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 21:06	JMB
Aroclor-1268 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 21:06	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	119	30-150		2/5/11 21:06
Decachlorobiphenyl [2]	117	30-150		2/5/11 21:06
Tetrachloro-m-xylene [1]	122	30-150		2/5/11 21:06
Tetrachloro-m-xylene [2]	124	30-150		2/5/11 21:06

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Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P4-R1-C4 Post
Sampled: 1/26/2011 13:00

Sample ID: 11A0606-31

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 21:20	JMB
Aroclor-1221 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 21:20	JMB
Aroclor-1232 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 21:20	JMB
Aroclor-1242 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 21:20	JMB
Aroclor-1248 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 21:20	JMB
Aroclor-1254 [2]	1.8	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 21:20	JMB
Aroclor-1260 [2]	6.4	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 21:20	JMB
Aroclor-1262 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 21:20	JMB
Aroclor-1268 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 21:20	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	99.5	30-150		2/5/11 21:20
Decachlorobiphenyl [2]	99.9	30-150		2/5/11 21:20
Tetrachloro-m-xylene [1]	102	30-150		2/5/11 21:20
Tetrachloro-m-xylene [2]	105	30-150		2/5/11 21:20

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Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P4-R2-C1 Post
Sampled: 1/26/2011 13:04

Sample ID: 11A0606-32

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 21:33	JMB
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 21:33	JMB
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 21:33	JMB
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 21:33	JMB
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 21:33	JMB
Aroclor-1254 [2]	3.5	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 21:33	JMB
Aroclor-1260 [2]	12	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 21:33	JMB
Aroclor-1262 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 21:33	JMB
Aroclor-1268 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 21:33	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	119	30-150		2/5/11 21:33
Decachlorobiphenyl [2]	117	30-150		2/5/11 21:33
Tetrachloro-m-xylene [1]	124	30-150		2/5/11 21:33
Tetrachloro-m-xylene [2]	126	30-150		2/5/11 21:33

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Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P4-R3-C2 Post
Sampled: 1/26/2011 13:07

Sample ID: 11A0606-33

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 21:47	JMB
Aroclor-1221 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 21:47	JMB
Aroclor-1232 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 21:47	JMB
Aroclor-1242 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 21:47	JMB
Aroclor-1248 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 21:47	JMB
Aroclor-1254 [2]	3.3	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 21:47	JMB
Aroclor-1260 [2]	12	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 21:47	JMB
Aroclor-1262 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 21:47	JMB
Aroclor-1268 [1]	ND	1.0	µg/Wipe	5		SW-846 8082	1/31/11	2/5/11 21:47	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	112	30-150		2/5/11 21:47
Decachlorobiphenyl [2]	113	30-150		2/5/11 21:47
Tetrachloro-m-xylene [1]	121	30-150		2/5/11 21:47
Tetrachloro-m-xylene [2]	125	30-150		2/5/11 21:47

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

Project Location: MBTA Cabot
Sample Description:
Work Order: 11A0606

Date Received: 1/28/2011

Field Sample #: P4-R4-C2 Post
Sampled: 1/26/2011 13:10

Sample ID: 11A0606-34

Sample Matrix: Wipe

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 22:01	JMB
Aroclor-1221 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 22:01	JMB
Aroclor-1232 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 22:01	JMB
Aroclor-1242 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 22:01	JMB
Aroclor-1248 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 22:01	JMB
Aroclor-1254 [2]	11	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 22:01	JMB
Aroclor-1260 [2]	23	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 22:01	JMB
Aroclor-1262 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 22:01	JMB
Aroclor-1268 [1]	ND	2.0	µg/Wipe	10		SW-846 8082	1/31/11	2/5/11 22:01	JMB

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	110	30-150		2/5/11 22:01
Decachlorobiphenyl [2]	107	30-150		2/5/11 22:01
Tetrachloro-m-xylene [1]	73.4	30-150		2/5/11 22:01
Tetrachloro-m-xylene [2]	70.7	30-150		2/5/11 22:01

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

Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
11A0606-01 [P1-R1-C4 Pre]	B025487	1.00	10.0	01/31/11
11A0606-02 [P1-R2-C1 Pre]	B025487	1.00	10.0	01/31/11
11A0606-03 [P1-R3-C2 Pre]	B025487	1.00	10.0	01/31/11
11A0606-04 [P1-R4-C2 Pre]	B025487	1.00	10.0	01/31/11
11A0606-05 [P2-R1-C4 Pre]	B025487	1.00	10.0	01/31/11
11A0606-06 [P2-R2-C1 Pre]	B025487	1.00	10.0	01/31/11
11A0606-07 [P2-R3-C2 Pre]	B025487	1.00	10.0	01/31/11
11A0606-08 [P2-R4-C2 Pre]	B025487	1.00	10.0	01/31/11
11A0606-09 [P3-R1-C4 Pre]	B025487	1.00	10.0	01/31/11
11A0606-10 [P3-R2-C1 Pre]	B025487	1.00	10.0	01/31/11
11A0606-11 [P3-R3-C2 Pre]	B025487	1.00	10.0	01/31/11
11A0606-12 [P3-R4-C2 Pre]	B025487	1.00	10.0	01/31/11
11A0606-13 [P4-R1-C4 Pre]	B025487	1.00	10.0	01/31/11
11A0606-14 [P4-R2-C1 Pre]	B025487	1.00	10.0	01/31/11
11A0606-15 [P4-R3-C2 Pre]	B025487	1.00	10.0	01/31/11
11A0606-16 [P4-R4-C2 Pre]	B025487	1.00	10.0	01/31/11
11A0606-17 [P1-R5-C2 Pre]	B025487	1.00	10.0	01/31/11
11A0606-18 [P1-R3-C2 Pre 2]	B025487	1.00	10.0	01/31/11
11A0606-19 [P1-R1-C4 Post]	B025487	1.00	10.0	01/31/11
11A0606-20 [P1-R2-C1 Post]	B025487	1.00	10.0	01/31/11

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

Lab Number [Field ID]	Batch	Initial [Wipe]	Final [mL]	Date
11A0606-21 [P1-R3-C2 Post]	B025488	1.00	10.0	01/31/11
11A0606-22 [P1-R4-C2 Post]	B025488	1.00	10.0	01/31/11
11A0606-23 [P2-R1-C4 Post]	B025488	1.00	10.0	01/31/11
11A0606-24 [P2-R2-C1 Post]	B025488	1.00	10.0	01/31/11
11A0606-25 [P2-R3-C2 Post]	B025488	1.00	10.0	01/31/11
11A0606-26 [P2-R4-C2 Post]	B025488	1.00	10.0	01/31/11
11A0606-27 [P3-R1-C4 Post]	B025488	1.00	10.0	01/31/11
11A0606-28 [P3-R2-C1 Post]	B025488	1.00	10.0	01/31/11
11A0606-29 [P3-R3-C2 Post]	B025488	1.00	10.0	01/31/11
11A0606-30 [P3-R4-C2 Post]	B025488	1.00	10.0	01/31/11
11A0606-31 [P4-R1-C4 Post]	B025488	1.00	10.0	01/31/11
11A0606-32 [P4-R2-C1 Post]	B025488	1.00	10.0	01/31/11
11A0606-33 [P4-R3-C2 Post]	B025488	1.00	10.0	01/31/11
11A0606-34 [P4-R4-C2 Post]	B025488	1.00	10.0	01/31/11

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

QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B025487 - SW-846 3540C										
Blank (B025487-BLK1)				Prepared: 01/31/11 Analyzed: 02/04/11						
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]	*2.02*		µg/Wipe	2.00		101	30-150			
Surrogate: Tetrachloro-m-xylene	*1.91*		µg/Wipe	2.00		95.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.93*		µg/Wipe	2.00		96.7	30-150			
LCS (B025487-BS1)				Prepared: 01/31/11 Analyzed: 02/04/11						
Aroclor-1016	0.55	0.20	µg/Wipe	0.500		109	40-140			
Aroclor-1016 [2C]	0.58	0.20	µg/Wipe	0.500		116	40-140			
Aroclor-1260	0.57	0.20	µg/Wipe	0.500		113	40-140			
Aroclor-1260 [2C]	0.56	0.20	µg/Wipe	0.500		113	40-140			
Surrogate: Decachlorobiphenyl	*1.90*		µg/Wipe	2.00		95.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.87*		µg/Wipe	2.00		93.4	30-150			
Surrogate: Tetrachloro-m-xylene	*1.83*		µg/Wipe	2.00		91.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.86*		µg/Wipe	2.00		93.1	30-150			
LCS Dup (B025487-BSD1)				Prepared: 01/31/11 Analyzed: 02/04/11						
Aroclor-1016	0.57	0.20	µg/Wipe	0.500		114	40-140	4.01	30	
Aroclor-1016 [2C]	0.60	0.20	µg/Wipe	0.500		119	40-140	2.46	30	
Aroclor-1260	0.58	0.20	µg/Wipe	0.500		115	40-140	1.74	30	
Aroclor-1260 [2C]	0.58	0.20	µg/Wipe	0.500		115	40-140	2.50	30	
Surrogate: Decachlorobiphenyl	*1.88*		µg/Wipe	2.00		94.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.86*		µg/Wipe	2.00		93.1	30-150			
Surrogate: Tetrachloro-m-xylene	*1.87*		µg/Wipe	2.00		93.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.89*		µg/Wipe	2.00		94.7	30-150			

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

QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B025488 - SW-846 3540C										
Blank (B025488-BLK1)				Prepared: 01/31/11 Analyzed: 02/04/11						
Aroclor-1016	ND	0.20	µg/Wipe							
Aroclor-1016 [2C]	ND	0.20	µg/Wipe							
Aroclor-1221	ND	0.20	µg/Wipe							
Aroclor-1221 [2C]	ND	0.20	µg/Wipe							
Aroclor-1232	ND	0.20	µg/Wipe							
Aroclor-1232 [2C]	ND	0.20	µg/Wipe							
Aroclor-1242	ND	0.20	µg/Wipe							
Aroclor-1242 [2C]	ND	0.20	µg/Wipe							
Aroclor-1248	ND	0.20	µg/Wipe							
Aroclor-1248 [2C]	ND	0.20	µg/Wipe							
Aroclor-1254	ND	0.20	µg/Wipe							
Aroclor-1254 [2C]	ND	0.20	µg/Wipe							
Aroclor-1260	ND	0.20	µg/Wipe							
Aroclor-1260 [2C]	ND	0.20	µg/Wipe							
Aroclor-1262	ND	0.20	µg/Wipe							
Aroclor-1262 [2C]	ND	0.20	µg/Wipe							
Aroclor-1268	ND	0.20	µg/Wipe							
Aroclor-1268 [2C]	ND	0.20	µg/Wipe							
Surrogate: Decachlorobiphenyl	*1.65*		µg/Wipe	2.00		82.7	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.67*		µg/Wipe	2.00		83.3	30-150			
Surrogate: Tetrachloro-m-xylene	*1.83*		µg/Wipe	2.00		91.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.88*		µg/Wipe	2.00		94.0	30-150			
LCS (B025488-BS1)				Prepared: 01/31/11 Analyzed: 02/04/11						
Aroclor-1016	0.56	0.20	µg/Wipe	0.500		112	40-140			
Aroclor-1016 [2C]	0.57	0.20	µg/Wipe	0.500		115	40-140			
Aroclor-1260	0.58	0.20	µg/Wipe	0.500		117	40-140			
Aroclor-1260 [2C]	0.60	0.20	µg/Wipe	0.500		120	40-140			
Surrogate: Decachlorobiphenyl	*1.93*		µg/Wipe	2.00		96.6	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.93*		µg/Wipe	2.00		96.7	30-150			
Surrogate: Tetrachloro-m-xylene	*1.80*		µg/Wipe	2.00		89.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.84*		µg/Wipe	2.00		92.1	30-150			
LCS Dup (B025488-BSD1)				Prepared: 01/31/11 Analyzed: 02/04/11						
Aroclor-1016	0.56	0.20	µg/Wipe	0.500		111	40-140	1.15	30	
Aroclor-1016 [2C]	0.57	0.20	µg/Wipe	0.500		113	40-140	1.43	30	
Aroclor-1260	0.53	0.20	µg/Wipe	0.500		107	40-140	9.11	30	
Aroclor-1260 [2C]	0.53	0.20	µg/Wipe	0.500		106	40-140	12.0	30	
Surrogate: Decachlorobiphenyl	*1.65*		µg/Wipe	2.00		82.6	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.66*		µg/Wipe	2.00		83.0	30-150			
Surrogate: Tetrachloro-m-xylene	*1.83*		µg/Wipe	2.00		91.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.88*		µg/Wipe	2.00		94.1	30-150			

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

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
S-01	The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.
S-12	Surrogate recovery is outside of control limits on confirmatory column, but within control limits on primary column. Data validation is not affected.

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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications

No certified Analyses included in this Report

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

Code	Description	Number	Expires
AIHA	American Industrial Hygiene Association	100033	01/1/2012
MA	Massachusetts DEP	M-MA100	06/30/2011
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2011
NY	New York State Department of Health	10899 NELAP	04/1/2011
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2011
RI	Rhode Island Department of Health	LAO00112	12/30/2011
NC	North Carolina Div. of Water Quality	652	12/31/2011
NJ	New Jersey DEP	MA007 NELAP	06/30/2011
FL	Florida Department of Health	E871027 NELAP	06/30/2011
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2011
WA	State of Washington Department of Ecology	C2065	02/23/2011

con-test® ANALYTICAL LABORATORY
Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com
www.contestlabs.com
39 Spruce Street
East longmeadow, MA 01028

CHAIN OF CUSTODY RECORD

11A0606

Page 1 of

Company Name: ATC Associates
Address: 600 W Cummings Park, Suite 5450, Woburn MA 01801
Attention: Dan White
Project Location: MBTA Cabot
Sampled By: BJC
Project Proposal Provided? (for billing purposes) ○ yes ______ proposal date

Telephone: 781-404-1432
Project #: 600.07443-1028
Client PO#:

DATA DELIVERY (check all that apply): ○ FAX ⊗ EMAIL ⊗ WEBSITE
Fax #: ——
Email: daniel.white@atcassociates.com
Format: ⊗ PDF ⊗ EXCEL ○ GIS ○ OTHER ______ ○ "Enhanced Data Package"

ANALYSIS REQUESTED: PCBs/Soxhlet (8082)
# of Containers: 1
** Preservation: O
*** Container Code: G

Dissolved Metals: ○ Field Filtered ○ Lab to Filter

Con-Test Lab ID (laboratory use only)	Client Sample ID / Description	Collection Beginning Date/Time	Collection Ending Date/Time	Composite	Grab	*Matrix Code	Conc Code	PCBs/Soxhlet (8082)
01	P1-R1-C4 Pre	1/25/2011	940		X	O	H/M	X
02	P1-R2-C1 Pre	↓	943		↓	↓	↓	↓
03	P1-R3-C2 Pre	↓	945		↓	↓	↓	↓
04	P1-R4-C2 Pre	↓	947		↓	↓	↓	↓
05	P2-R1-C4 Pre	↓	950		↓	↓	↓	↓
06	P2-R2-C1 Pre	↓	952		↓	↓	↓	↓
07	P2-R3-C2 Pre	↓	955		↓	↓	↓	↓
08	P2-R4-C2 Pre	↓	958		↓	↓	↓	↓
09	P3-R1-C4 Pre	↓	1001		↓	↓	↓	↓
10	P3-R2-C1 Pre	↓	1005		↓	↓	↓	↓

Comments:

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in Matrix/Conc. Code Box:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

***Cont. Code:
A=amber glass
G=glass
P=plastic
ST=sterile
V= vial
S=summa can
T=tedlar bag
O=Other

**Preservation
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium bisulfate
X = Na hydroxide
T = Na thiosulfate
O = Other Hexane

*Matrix Code:
GW= groundwater
WW= wastewater
DW= drinking water
A = air
S = soil/solid
SL = sludge
O = other wipe

Relinquished / Received	Date/Time
Relinquished by: (signature) [signature]	1/28/2011 1015
Received by: (signature) [signature]	1·28·2011 1015
(signature) [signature]	1·28·11 1820
ure) [signature]	1/28/11 1820

Turnaround ††
☐ 7-Day
☐ 10-Day
☒ Other Std
RUSH †
☐ †24-Hr ☐ †48-Hr
☐ †72-Hr ☐ †4-Day
† Require lab approval

Detection Limit Requirements
Massachusetts: TSCA
Connecticut:
Other:

Is your project MCP or RCP ?
○ MCP Analytical Certification Form Required
○ RCP Analysis Certification Form Required
○ MA State DW Form Required PWSID # ______

NELAC & AIHA Certified
WBE/DBE Certified

† (business days) STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT CORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED.
PLEASE BE CAREFUL NOT TO CONTAMINATE THIS DOCUMENT

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

CHAIN OF CUSTODY RECORD

39 Spruce Street
East longmeadow, MA 01028

11A0606

Company Name: ATC Associates
Address: 600 W Cummings Park, Suite 5450
Woburn MA 01801
Attention: Dan White
Project Location: MBTA Cabot
Sampled By: BSC

Telephone: 781-404-1432
Project #: 60.07443.1028
Client PO#:

DATA DELIVERY (check all that apply)
○ FAX ☒ EMAIL ☒ WEBSITE
Fax #:
Email: daniel.white@atcassociates.com
Format: ☒ PDF ☒ EXCEL ○ GIS
○ OTHER
○ "Enhanced Data Package"

Project Proposal Provided? (for billing purposes)
○ yes _____ proposal date

ANALYSIS REQUESTED

Con-Test Lab ID (laboratory use only)	Client Sample ID / Description	Collection ~~Beginning~~ Date/~~Time~~	Collection ~~Ending~~ Date/Time	Composite	Grab	*Matrix Code	Conc Code	PCBs/Sonlient (8082)										
11	P3-R3-C2 Pre	1/25/11	1009		X	O	L/M	X										
12	P3-R4-C2 Pre	↓	1012		↓	↓	↓	↓										
13	P4-R1-C4 Pre		1016															
14	P4-R2-C1 Pre		1019															
15	P4-R3-C2 Pre		1022															
16	P4-R4-C2 Pre		1026															
17	P1-R5-C2 Pre		1030															
18	P1-R3-C2 Pre 2	↓	1034															
19	P1-R1-C4 Post	1/26/11	1230															
20	P1-R2-C1 Post	↓	1232		↓	↓	↓	↓										

# of Containers
** Preservation
***Container Code

Dissolved Metals
○ Field Filtered
○ Lab to Filter

***Cont. Code:
A=amber glass
G=glass
P=plastic
ST=sterile
V= vial
S=summa can
T=tedlar bag
O=Other

**Preservation
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium bisulfate
X = Na hydroxide
T = Na thiosulfate
O = Other Hexane

*Matrix Code:
GW= groundwater
WW= wastewater
DW= drinking water
A = air
S = soil/solid
SL = sludge
O = other wipe

Comments:

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in Matrix/Conc. Code Box:

H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature) [signature]	Date/Time: 1/28/2011
Received by: (signature) Steph Malfa	Date/Time: 1015 1.28.11
Relinquished by: (signature) Steph Malfa	Date/Time: 1820 1.28.11
Received by: (signature) [signature] 5.12	Date/Time: 1/28/11 1820

Turnaround ††
☐ 7-Day
☐ 10-Day
☒ Other Std

RUSH †
☐ †24-Hr ☐ †48-Hr
☐ †72-Hr ☐ †4-Day
† Require lab approval

Detection Limit Requirements
Massachusetts: TSCA
Connecticut:
Other:

Is your project MCP or RCP ?
○ MCP Analytical Certification Form Required
○ RCP Analysis Certification Form Required
○ MA State DW Form Required PWSID # _____

NELAC & AIHA Certified
WBE/DBE Certified

†† TURNAROUND TIME (business days) STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED.

PLEASE BE CAREFUL NOT TO CONTAMINATE THIS DOCUMENT

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CHAIN OF CUSTODY RECORD

39 Spruce Street
East longmeadow, MA 01028

11A0606

Company Name: ATC Associates
Address: 600 W Cummings Park, Suite 5450
Woburn MA 01801
Attention: Dan White
Project Location: MBTA Cabrit
Sampled By: BSC

Telephone: 781-404-1452
Project # 600.07443.1028
Client PO#

DATA DELIVERY (check all that apply)
O FAX ⊗ EMAIL ⊗ WEBSITE
Fax #
Email: daniel.white@atcassociates.com
Format: ⊗ PDF ⊗ EXCEL O GIS
O OTHER
O "Enhanced Data Package"

Project Proposal Provided? (for billing purposes)
O yes _____ proposal date

ANALYSIS REQUESTED

Con-Test Lab ID (laboratory use only)	Client Sample ID / Description	Collection Beginning Date/Time	Collection Ending Date/Time	Composite	Grab	*Matrix Code	Conc Code	PCBs/Solvent (8082)
21	P1-R3-C2 Post	1/26/11	1235		X	O	L/M	X
22	P1-R4-C2 Post		1237					
23	P2-R1-C4 Post		1240					
24	P2-R2-C1 Post		1242					
25	P2-R3-C2 Post		1244					
26	P2-R4-C2 Post		1247					
27	P3-R1-C4 Post		1250					
28	P3-R2-C1 Post		1252					
29	P3-R3-C2 Post		1255					
30	P3-R4-C2 Post		1257					

Comments:

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in Matrix/Conc. Code Box:

H - High; M - Medium; L - Low; C - Clean; U - Unknown

# of Containers
** Preservatives
***Container Size

Dissolved Metals
O Field Filtered
O Lab to Filter

***Cont. Code:
A=amber glass
G=glass
P=plastic
ST=sterile
V= vial
S=summa can
T=tedlar bag
O=Other

**Preservation
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium bisulfate
X = Na hydroxide
T = Na thiosulfate
O = Other Hexane

*Matrix Code:
GW= groundwater
WW= wastewater
DW= drinking water
A = air
S = soil/solid
SL = sludge
O = other wipe

Relinquished by: (signature)	Date/Time: 1/28/2011 1015
Received by: (signature) Steph Maffa	Date/Time: 1/28/11 1015
Relinquished by: (signature) Steph Maffa	Date/Time: 1/28/11 1820
Received by: (signature) Chris	Date/Time: 1/28/11 1820

Turnaround ††
☐ 7-Day
☐ 10-Day
☑ Other Std
RUSH †
☐ †24-Hr ☐ †48-Hr
☐ †72-Hr ☐ †4-Day
† Require lab approval

Detection Limit Requirements
Massachusetts: TSCA
Connecticut:
Other:

Is your project MCP or RCP ?
O MCP Analytical Certification Form Required
O RCP Analysis Certification Form Required
O MA State DW Form Required PWSID # _____

NELAC & AIHA Certified
WBE/DBE Certified

†† TURNAROUND TIME (business days) STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED.

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

CHAIN OF CUSTODY RECORD

39 Spruce Street
East longmeadow, MA 01028

11A0606

Company Name: ATC Associates
Address: 1200 W Cummings Park, Suite 5450
Woburn MA 01801
Attention: Dan White
Project Location: MBTA Cabot
Sampled By: DSC

Telephone: 781-404-1482
Project #: 60-07443-1028
Client PO#:

DATA DELIVERY (check all that apply)
O FAX ⊗ EMAIL ⊗ WEBSITE
Fax #:
Email: daniel.white@atcassociates.com
Format: ⊗ PDF ⊗ EXCEL O GIS
O OTHER
O "Enhanced Data Package"

Project Proposal Provided? (for billing purposes)
O yes _____ proposal date

ANALYSIS REQUESTED: PCBs/Solvent (8082)

Con-Test Lab ID (laboratory use only)	Client Sample ID / Description	Collection Beginning Date/Time	Collection Ending Date/Time	Composite	Grab	*Matrix Code	Conc Code	PCBs/Solvent (8082)	# of Containers	** Preservation	***Container Code
31	P4-R1-C4 Post	1/26/11	100		X	O	4m	X			
32	P4-R2-C4 Post	↓	104		↓	↓	↓	↓			
33	P4-R3-C2 Post	↓	107		↓	↓	↓	↓			
34	P4-R4-C2 Post	↓	110		↓	↓	↓	↓			

Dissolved Metals
O Field Filtered
O Lab to Filter

***Cont. Code:
A=amber glass
G=glass
P=plastic
ST=sterile
V= vial
S=summa can
T=tedlar bag
O=Other

**Preservation
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium bisulfate
X = Na hydroxide
T = Na thiosulfate
O = Other _____

*Matrix Code:
GW= groundwater
WW= wastewater
DW= drinking water
A = air
S = soil/solid
SL = sludge
O = other wipe

Comments:

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in Matrix/Conc. Code Box:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature)	Date/Time: 1/28/2011
Received by: (signature) Steph Malfa	Date/Time: 1/28/11 1015
Relinquished by: (signature) Steph Malfa	Date/Time: 1/28/11 1020
Received by: (signature)	Date/Time: 1/28/11 1820

Turnaround ††
O 7-Day
O 10-Day
O Other std.
RUSH †
O †24-Hr O †48-Hr
O †72-Hr O †4-Day
† Require lab approval

Detection Limit Requirements
Massachusetts: TSCA
Connecticut:
Other:

Is your project MCP or RCP ?
O MCP Analytical Certification Form Required
O RCP Analysis Certification Form Required
O MA State DW Form Required PWSID # _____

NELAC & AIHA Certified
WBE/DBE Certified

†† TURNAROUND TIME (business days) STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED.

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con-test ANALYTICAL LABORATORY

Sample Receipt Checklist

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

CLIENT NAME: ATC Associates RECEIVED BY: CB DATE: 1/28/11

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

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 5.1°C

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

Who was notified _____ Date _____ Time _____

6) Are there any samples "On Hold"? Yes (No) Stored where: [ ]

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

Who was notified _____ Date _____ Time _____

8) Location where samples are stored: 19

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

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	34
250 mL Amber (8oz amber)		2 oz amber/clear jar	
1 Liter Plastic		Other glass jar	
500 mL Plastic		Plastic Bag / Ziploc	
250 mL plastic		Air Cassette	
40 mL Vial - type listed below		SOC Kit	
Colisure / bacteria bottle		Tubes	
Dissolved Oxygen bottle		Non-ConTest Container	
Flashpoint bottle		Other	
Encore		PM 2.5 / PM 10	
Perchlorate Kit		PUF Cartridge	

Laboratory Comments:

40 mL vials: # HCl _____ # Methanol _____

Bisulfate _____ # DI Water _____

Thiosulfate _____ Unpreserved _____

Time and Date Frozen:

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

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

June 2010

Appendix F

EPA Comments on Risk Characterization

September 23, 2010

Review of Worker Health Risk Assessment for MTBA Cabot Yard Facility

Introduction and General Comments

ATC Associates, Inc. (ATC) state in Section 1.0 that the risk assessment was conducted in accordance with Massachusetts Department of Environmental Protection (MassDEP) and EPA Superfund risk assessment guidance. This review evaluates the adequacy of the risk assessment based on technical guidance and regulation published by these agencies.

Neptune and Company found the Human Health Risk Assessment for Worker Exposures to PCBs at the MBTA Cabot Yard Facility to be in need of revision due to technical errors and lack of transparency. Several critical issues should be resolved before the risk assessment is approved. These are summarized here and addressed in detail in the following sections.

1. The conceptual model needs to determine whether the PCBs collected on wipe samples of floors and walls were predominantly on particulate matter or present within the material matrix. The selection of appropriate exposure models for contact with these surfaces is dependent on this knowledge.
2. A potentially important exposure pathway for workers, incidental ingestion of particulates, should be added to the assessment.
3. An evaluation of data usability needs to be provided.
4. Additional information on sampling design and methods must be provided so that statements that the data result in protective estimates of exposure concentrations can be verified. In particular, sample support for evaluating the inhalation exposure pathway is minimal.
5. Information related to the methods used for calculation of exposure concentrations needs to be provided to determine whether their calculation is consistent with EPA guidance.
6. Equations for calculating exposure based on wipe sample measurements must be referenced and explained. There appears to be an error in the use of both a transfer factor and relative absorption factor in a single equation.
7. Calculation of inhalation chemical hazard and cancer risk must be revised to be consistent with current EPA guidance on the use of reference concentrations and inhalation unit risk values.
8. The Uncertainty Analysis should be revised to include uncertainties that may result in underestimation of exposure and risk.

1. Conceptual Model Issues

a. The conceptual model needs to resolve whether PCBs on the surface of floors and walls are predominantly on particulate matter or present within the material matrix. Without this understanding, interpretation of PCB wipe sample data and selection of an appropriate dermal exposure model for contact with these surfaces is impossible. In Section 1.2.2, ATC concludes that PCBs detected in

discharged wash water in the 1990s were likely bound to particulate matter and had their origin in construction caulk material. The presence of PCBs on particulate matter in quantities sufficient to impact wastewater concentrations indicates that exposures mediated by PCBs in particulate form should be addressed.

b. A conceptual model figure(s) should be included. This figure(s) should show sources, release mechanisms, transport mechanisms, exposure media, exposure routes, and receptors. See Section 6 of RAGS, Part A (EPA, 1999) for description.

c. Why, as stated in Section 1.2, does ATC assume that PCB background concentrations in an urban location in South Boston are below detectable levels? Comparison of site and background concentrations, particularly for air samples, may provide useful information to guide risk management decisions.

d. The sampling design for bulk cement and surface wipe floor samples considered proximity to caulk joints, the identified PCB source, as a factor for selecting sampling locations. The conceptual model should also discuss selection of locations for air sampling, as well as temporal issues related to indoor air sampling. As noted in MassDEP risk assessment guidance, if indoor air sampling is done on only one or two occasions, "the site assessment report must demonstrate that the concentrations would be highest at those times…" (MassDEP 1995, Section 7.3.3.8). This requirement recognizes that indoor air concentrations can vary considerably due to daily, weekly, or seasonal changes in atmospheric and climatologic conditions, and in the operation of a heating / ventilation system throughout the day.

2. Data Collection and Evaluation Issues

a. No discussion of data usability was found in the report, other than a statement in Section 6.1.3 that "ATC has no reason to suspect site analytical data are inappropriate for use in characterization of health risks at this site." Data usability should be systematically addressed in the report in a manner consistent with USEPA's (1992a,b) *Guidance for Data Usability in Risk Assessment (Parts A and B).*

b. A summary of sampling methodology for wipe samples and air samples, with references, should be provided.

c. Text explaining the rationale for selection of all sampling locations (including air samples), and text discussing the adequacy of the number of samples collected for calculating representative chronic exposure concentrations, should be added to the report.

d. The MTBA Cabot Yard risk assessment evaluates PCB exposure and risk based on analysis of PCB Aroclor mixtures. The analysis of PCB Aroclor mixtures, as opposed to analysis of individual PCB congeners, is referenced to EPA recommendation in Section 3.0 of the risk assessment ("While EPA sometimes uses toxicity equivalency factors to evaluate the human health risk posed by exposure to environmental mixtures of PCBs, ATC will use the mixtures-based approach most often recommended by U.S. EPA…") and Section 3.1 ("As suggested by U.S. EPA, ATC uses the mixtures-based approach for evaluating MBTA worker health risks…"). Please provide the basis for these statements such as a reference to EPA guidance or direction from the EPA remedial project manager.

3. Exposure Assessment Issues

a. No discussion regarding data preparation and statistical methods for calculation of exposure point concentrations was found in the report. This information should be added to the report.

b. In addition to dermal absorption and inhalation of indoor air, incidental ingestion of particulates should be evaluated as a potentially complete exposure pathways for site workers. Section 1.2.3.3 states that the average total PCB concentration in two indoor PM_{10} air samples and a single composite "bulk dust" sample were approximately 55 to 60 mg/kg. These are relatively high PCB concentrations, such that even limited particulate ingestion may be significant. The arguments for eliminating incidental ingestion of particulate matter as an exposure pathway in Section 4.1 are not persuasive – if anything, the use of protective clothing and gloves should predominantly limit dermal exposure more so than incidental particle ingestion. For example, workers can still wipe their mouth with gloved hands and shirt sleeves. Also, in Section 4.2.5 of the risk assessment, ATC states that workers are *not* assumed to wear gloves at all times, resulting in direct contact with the floor "at least once per day."

c. Although acute or chronic exposure to grout may be minimal and difficult to quantify, there are very high PCB concentrations in this material such that even occasional contact may present a health risk. A screening assessment of acute and chronic risks related to episodes of caulk contact should be included in the risk assessment.

d. The basis for Equations 9 and 10 for evaluating exposure to dermal contact with a contaminated surface is unclear The mass of PCB in a 100-cm^2 area of floor (W_c; µg/100 cm^2) is multiplied by a presumed skin surface area in contact with the floor (SA; cm^2) to obtain the mass of PCB available for dermal absorption through the skin. This PCB mass is then multiplied by the fraction of PCB transferred from a solid surface and the fraction of PCB transferred from particulates. Section 4.5 of the risk assessment states that quantitative exposure estimates were determined in accordance with USEPA (1989), but equations relating to the use of surface wipe sample data were not found in this reference. Please provide the appropriate reference for these equations.

There may be a conceptual inconsistency in the use of both a solid surface transfer factor (TF) and a soil relative absorption factor (RAF) in Equations 9 and 10. The TF applies to contamination on a solid surface, whereas the RAF described in Section 4.2.7 pertains to bulk particulates such as soil. If PCBs from surface wipe samples of the floor are predominantly related to particles, the RAF related to soil particles is appropriate. Otherwise, the use of a TF is appropriate.

e. Section 4.2.3: The rationale for calculating a population-specific body weight in this manner, using measured body weights of current employees, should be explained. Is this risk assessment intended to be specific to these individuals?

f. Section 4.2.4: This subsection should be eliminated. The use of an activity-specific ventilation rate is inconsistent with recent EPA guidance *RAGS Part F, Supplemental Guidance for Inhalation Risk Assessment* (EPA-540-R-070-002). Risks related to inhalation exposure should be assessed according to the methods described in this EPA reference, which are consistent with the methodology discussed in Chapter 7 of MassDEP (1995). The time-averaged contaminant concentration in air, rather than contaminant intake, is used as the basis for estimating chemical inhalation risks. Implications for

subpopulations that may have especially high ventilation rates are discussed in the risk characterization, although Section 4.2.4 of the Cabot Yard risk assessment indicates this is not the case for the target receptors.

g. Section 4.2.5: The derivation of the dermal contact surface area appears to be predicated on PCBs being transferred directly to skin from a solid surface, rather than the transfer being mediated by PCB-contaminated particles. This assumption needs to be verified, as noted in comments related to the conceptual model. Also, what is the basis for the definition of an "actual TF of 3%" for PCB transfer from palm to other exposed skin?

h. Section 4.2.6: The relevant data from the Slayton, T.M. et.al. 1998 publication should be provided in an appendix of the risk assessment so that a reviewer may verify the statement, "ATC reviewed the data presented by Slayton et.al. and selected a conservative TF value of 2.5 percent to reflect the transfer of PCBs from a concrete floor to a receptor's sweaty skin."

i. Section 4.2.7: The basis for the oral ingestion RAF of 67% is inadequate for justifying departure from the recommendation of 100% gastrointestinal absorption for PCBs from Exhibit 4-1 of EPA/540/R-99/005 (2004). The value of 67% described in the risk assessment relates to aged PCBs in soil, which has not been established as analogous to conditions in the MTBA Cabot Yard building. A value of 100% should be used for the soil ingestion RAF.

j. Section 4.2.8: The 2002 reference used for evaluating particulate exposure has been superceded by a 2008 update (MassDEP, 2008), which has revised effective exposure concentrations. In the subsection "Limitations" of MassDEP 2008, the effective exposure concentrations for scenarios other than construction worker is 2.0, which is the value currently used in the Cabot Yard risk assessment. Hence, recalculation is not necessary in relation to this change in reference.

4. Toxicity Assessment Issues

a. Inhalation toxicity criteria. In Section 3.1 ATC states that employing reference concentration and unit risk values is inappropriate "for use in evaluating the health risk of receptors with very different breathing rates and/or body weights". This statement is inconsistent with current EPA guidance for assessing risks by the inhalation exposure route (EPA-540-R-070-002). Inhalation chemical hazard and cancer risk should be calculated with reference concentration and unit risk values by the methods described in RAGS Part F, Supplemental Guidance for Inhalation Risk Assessment (EPA-540-R-070-002).

b. Section 3.2. This section should be revised to have selection of toxicity criteria consistent with the hierarchy of references described in a 2003 memorandum from EPA's Office of Solid Waste and Emergency Response (OSWER 9285.7-53). In accordance with this memorandum, the primary source of toxicity is EPA's Integrated Risk Information System database (IRIS). The second tier of toxicity criteria are the provisional peer-reviewed toxicity values published by the National Center for Environmental Assessment in EPA's Office of Research and Development. The third tier of references includes values published in EPA's *Health Effects Assessment Summary Tables*, and other sources such as California EPA and the Agency for Toxic Substances and Disease Registry.

c. Section 3.3. The dermal absorption factor (ABS) of 0.14 for PCBs should be referenced to *RAGS, Part E* (EPA/540/R-99/005) rather than VERSAR.

5. Risk Characterization and Uncertainty Analysis Issues

a. In Section 4.1, exposure to PCBs by direct contact with caulk is discounted as a potential exposure pathway because the surface area of the caulked joints is relatively small and the caulk is recessed below the floor level. However, the very high concentrations of PCBs in the caulk (8% to 16.5% by weight; Section 1.2.2) suggests that even occasional contact may present significant health risks. It is also possible that a maintenance worker cleaning debris from the joints could have more intensive exposure than was envisioned for any of the usual workers observed by ATC. The risk assessment should provide a screening-level assessment of possible acute and chronic risks related to caulk contact.

b. The risk assessment should include a section on recommendations and conclusions following the uncertainty analysis. This discussion should highlight key assumptions and uncertainties underlying the quantitative risk estimates, and identify any potential data gaps or data insufficiency. Recommendations for reducing uncertainty in the risk assessment results or mitigating potential exposures should be provided.

c. Section 5.0. The sentence “While U.S. EPA identifies acceptable cancer target excess lifetime cancer risk (“ELCR”) as between 1E-04 and 1E-06, most comparisons with health risk estimates use the single median target ELCR of 1E-05” needs to be referenced. Cite the basis of the risk management range in the National Contingency Plan or EPA guidance, and either remove the assertion that 1E-05 is the common risk management target or provide a reference applicable to this assessment.

d. Section 5.0. Provide a reference for the hazard quotient threshold of 1.0.

e. Provide equations for calculating cancer risk and hazard quotient based on intake (ingestion and dermal exposure routes) and the time-averaged exposure concentration in air (inhalation exposure route).

f. Provide an explanation of hazard index, as shown in Table 10.

g. Per EPA guidance, (EPA/540/1-89/002), cancer risk results should be displayed with only one significant figure.

h. Section 6.1. The title “Sensitivity Analysis” for this subsection is a misnomer. The results of a sensitivity analysis, as described in the first sentence of this subsection, are not presented. Section 6 presents a qualitative discussion of uncertainty. Please remove reference to sensitivity analysis.

i. Uncertainty Analysis. This discussion left the reviewer with the conclusion that the risk estimates are unreasonably biased. This section would benefit from introducing the concept of “reasonable maximum exposure”, as defined in Section 6.1.2 of EPA/540/1-89/002. As discussed in EPA/540/1-89/002, RME risk calculations should not be composed of so many upper-bound estimates that conservatism will compound into an unrealistic upper-bound risk estimate. The exposure parameter values should be reviewed if the authors believe the results of the Cabot Yard risk assessment are unrealistic.

The Uncertainty Analysis is focused solely on elucidating protective assumptions in the quantitative risk estimates. However, there are also assumptions that may result in underestimation of exposure. These include elimination of particulates ingestion as an exposure pathway, and no direct contact of receptors with grout. Also, because sample support is very limited for the inhalation exposure route, there is considerable uncertainty regarding the protectiveness of these exposure concentrations. These issues should be addressed in the Uncertainty Analysis.

j. It is not clear why the use of a 95% upper confidence limit on the mean for exposure concentrations adds "significant conservatism to the risk characterization", as described in Section 6.1. This value only becomes large relative to the arithmetic average when the number of samples is limited and/or there is high variability among individual sample values.

Literature Cited

MassDEP, 1995. Guidance for Disposal Site Risk Characterization, Interim Final Policy #WSC/ORS-95-141, Massachusetts Department of Environmental Protection, Bureau of Waste Site Cleanup and Office of Research and Standards. July.

MassDEP, 2008. Characterization of Risks Due to Inhalation of Particulates by Construction Workers, technical update to: Section 7.3 and Appendix B of the MA DEP Guidance for Disposal Site Risk Characterization. July.

USEPA, 1992a. Guidance for Data Usability in Risk Assessment. Part A. Office of Emergency and Remedial Response, Washington D.C. Publication 9285.7-09A. PB92-963356. April.

USEPA, 1992b. Guidance for Data Usability in Risk Assessment. Part B. Office of Emergency and Remedial Response, Washington D.C. Publication 9285.7-09B. PB92-963362. May.

EPA/540/1-89/002, 1989. *Risk Assessment Guidance for Superfund Volume 1 Human Health Evaluation Manual (Part A)*, U.S. Environmental Protection Agency, Washington D.C.

EPA-540-R-070-002, 2009. *Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment)*, U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation, Washington, D.C.

EPA/540/R-99/005, 2004. *Risk Assessment Guidance for Superfund (RAGS), Volume I: Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment) Final*, OSWER 9285.7-02EP, Office of Superfund Remediation and Technology Innovation, U.S. Environmental Protection Agency, Washington, D.C.

OSWER 9285.7-53, 2003. *Human Health Toxicity Values in Superfund Risk Assessments*, Memorandum from M. B. Cook, Director of the Office of Superfund Remediation and Technology Innovation, to Superfund National Policy Managers, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, D.C.

Appendix G

ATC Response to EPA Comments on Risk Characterization

600 West Cummings Park, Suite 5450
Woburn, Massachusetts 01801

(781) 932-9400 (781) 932-6211 facsimile

MEMORANDUM

To: U.S. EPA, Region 1 PCB Coordinator
Kim Tisa

cc: Janis Kearney, MBTA

From: Daniel P. White, ATC
Michael Gitten, ATC
James Smith, ATC

Re: Response to Comments contained in:
U.S. EPA, *Review of Worker Health Risk Assessment for MTBA Cabot Yard Facility*, dated September 23, 2010

Date: August 30, 2011

This document provides a response to each of the EPA's comments on the *Characterization of Potential Worker Health Risk, MBTA Cabot Yard* (ATC, March 19, 2010). The comments were provided by EPA in a letter dated September 23, 2010. The overall objective of the ATC risk characterization was to support the development of a remedial program to address PCB-containing caulk (PCB Bulk Product Waste) and associated impacted media (air, dust, and adjacent building materials (PCB Remediation Waste)). ATC believes that the risk characterization was adequate to meet this objective. After implementation of the cleanup activities detailed in the TSCA Risk-Based Clean-up of PCBs (ATC, 2011) for this Site, ATC is confident that the potential risk to human health from PCBs will be less than what was forecasted by our March 2010 risk characterization, even after modifying the risk characterization per the EPA's comments, and that this calculated risk will be well within the acceptable range applicable to an industrial setting, as defined by the EPA.

The following presents each EPA comment, followed by ATC's response.

1. **Conceptual Model Issues**

   a. The conceptual model needs to resolve whether PCBs on the surface of floors and walls are predominantly on particulate matter or present within the material matrix. Without this understanding, interpretation of PCB wipe sample data and selection of an appropriate dermal exposure model for contact with these surfaces is impossible. In Section 1.2.2, ATC concludes

that PCBs detected in discharged wash water in the 1990s were likely bound to particulate matter and had their origin in construction caulk material. The presence of PCBs on particulate matter in quantities sufficient to impact wastewater concentrations indicates that exposures mediated by PCBs in particulate form should be addressed.

> ATC response*: ATC notes that only one of four wipe samples on facility walls contained PCBs, at a very low concentration (<2 ug/100 cm^2). The approach that ATC took to evaluate dermal exposure risk is conservative and assumes that all PCBs in either particulates on the floor surface or in the concrete floor matrix itself are transferred to skin upon contact. Whether PCBs are associated with concrete or particulate would not change the selection of an appropriate dermal exposure model, since such a model would still assume transfer to and then absorption through skin.*
>
> *The use of an aggressive wipe sampling method, including hexane as the wipe solvent (as further discussed in the risk assessment), accounts for transfer of PCBs both in particulate and in the concrete matrix. ATC does not believe it is worth the significant effort and expense needed to separate the contributions of PCBs from a thin particulate film vs. the concrete matrix in order to show what is likely to be only a slight reduction in risk. Furthermore, ATC believes it may be difficult, if not impossible, to evaluate this distinction in source for the wipe sample PCBs.*
>
> *In the risk assessment, ATC already uses an exposure model to estimate receptor inhalation exposure to PCBs associated with airborne particulate, a model that relies on the measured PCB concentration in respirable particulate collected from within the facility.*
>
> *The remediation proposed for the facility will entail a cleaning of the facility floor and dust on other horizontal surfaces after the PCB-containing caulk (assumed source of PCBs on floor surface and in dust) is removed, thereby eliminating dust/particulates as an exposure medium. Post-remedial air and floor surface wipe sampling will enable a determination of the presence of PCB-containing particulates in indoor air and frequently accessible surfaces. Further discussion of incidental ingestion of particulates is provided in the response to Comment 3(b).*

b. A conceptual model figure(s) should be included. This figure(s) should show sources, release mechanisms, transport mechanisms, exposure media, exposure routes, and receptors. See Section 6 of RAGS, Part A (EPA, 1999) for description.

> ATC response*: ATC will include a conceptual model figure in the risk assessment, when it is revised.*

c. Why, as stated in Section 1.2, does ATC assume that PCB background concentrations in an urban location in South Boston are below detectable levels? Comparison of site and background concentrations, particularly for air samples, may provide useful information to guide risk management decisions.

ATC response*: ATC collected additional air data in August 2010 that included a background outdoor ambient air sample. The data are presented in the TSCA Risk-Based Clean-up of PCBs submittal and shows that no PCBs were observed above laboratory method detection limits. This, or more current, data and an evaluation of the data will be included in the risk assessment when it is revised. Regardless, ATC's assumption that no PCBs are present in ambient air in the vicinity of the MBTA facility is conservative and will not result in an underestimate of health risk to workers within the facility.*

d. The sampling design for bulk cement and surface wipe floor samples considered proximity to caulk joints, the identified PCB source, as a factor for selecting sampling locations. The conceptual model should also discuss selection of locations for air sampling, as well as temporal issues related to indoor air sampling. As noted in MassDEP risk assessment guidance, if indoor air sampling is done on only one or two occasions, "the site assessment report must demonstrate that the concentrations would be highest at those times…" (MassDEP 1995, Section 7.3.3.8). This requirement recognizes that indoor air concentrations can vary considerably due to daily, weekly, or seasonal changes in atmospheric and climatologic conditions, and in the operation of a heating / ventilation system throughout the day.

ATC response*: ATC will include additional air data collected after abatement is completed in the risk assessment when it is revised. Air data was collected in August and October 2010 as summarized in the TSCA Risk-Based Clean-up of PCBs submittal. This additional air data appears to indicate that indoor air concentrations within the MBTA facility do not vary significantly with changes in season, heating/ventilation, or climatological conditions, possibly because of the large open spaces within the structure and routine work requirement to open large doors to the outside environment. ATC will provide more discussion in the risk assessment of the rationale behind selection of sample locations and an evaluation of the adequacy of sample frequency.*

2. Data Collection and Evaluation Issues

a. No discussion of data usability was found in the report, other than a statement in Section 6.1.3 that "ATC has no reason to suspect site analytical data are inappropriate for use in characterization of health risks at this site." Data usability should be systematically addressed in the report in a manner consistent with USEPA's (1992a,b) *Guidance for Data Usability in Risk Assessment (Parts A and B).*

ATC response*: ATC will provide additional discussion of data usability in the risk assessment, when it is revised.*

b. A summary of sampling methodology for wipe samples and air samples, with references, should be provided.

ATC response*: Additional samples will be collected after abatement activities and used for the updated risk characterization. ATC notes that there is discussion of wipe and air sampling methods in Section 1.2.3 of the risk assessment. However, ATC will provide additional discussion of sampling methods in the risk assessment, when it is revised. See*

the TSCA Risk-Based Clean-up of PCBs submittal for the proposed post-abatement sampling methodology.

c. Text explaining the rationale for selection of all sampling locations (including air samples), and text discussing the adequacy of the number of samples collected for calculating representative chronic exposure concentrations, should be added to the report.

ATC response*: Additional samples will be collected after abatement activities. ATC will provide additional discussion of the rationale behind selection of sample locations and an evaluation of the adequacy of sample frequency in the risk assessment, when it is revised. See the TSCA Risk-Based Clean-up of PCBs submittal for rationale for additional sampling locations and frequencies.*

d. The MTBA Cabot Yard risk assessment evaluates PCB exposure and risk based on analysis of PCB Aroclor mixtures. The analysis of PCB Aroclor mixtures, as opposed to analysis of individual PCB congeners, is referenced to EPA recommendation in Section 3.0 of the risk assessment ("While EPA sometimes uses toxicity equivalency factors to evaluate the human health risk posed by exposure to environmental mixtures of PCBs, ATC will use the mixtures-based approach most often recommended by U.S. EPA…") and Section 3.1 ("As suggested by U.S. EPA, ATC uses the mixtures-based approach for evaluating MBTA worker health risks…"). Please provide the basis for these statements such as a reference to EPA guidance or direction from the EPA remedial project manager.

ATC response*: The relevant reference is "USEPA. 1996. PCBs: Cancer Dose Response Assessment and Application to Environmental Mixtures. EPA/600/P-96/001. Office of Research and Development, U.S. Environmental Protection Agency. Washington, DC." ATC will include this reference in the risk assessment, when it is revised.*

3. Exposure Assessment Issues

a. No discussion regarding data preparation and statistical methods for calculation of exposure point concentrations was found in the report. This information should be added to the report.

ATC response*: ATC used Microsoft Excel™-based data manipulation and statistical tools, assuming a normal distribution of PCB concentration data in environmental media to determine exposure point concentrations. ATC will add this discussion to the risk assessment, when it is revised. A detailed discussion of statistical results is already provided in the risk assessment.*

b. In addition to dermal absorption and inhalation of indoor air, incidental ingestion of particulates should be evaluated as a potentially complete exposure pathway for site workers. Section 1.2.3.3 states that the average total PCB concentration in two indoor PM_{10} air samples and a single composite "bulk dust" sample were approximately 55 to 60 mg/kg. These are relatively high PCB concentrations, such that even limited particulate ingestion may be significant. The arguments for eliminating incidental ingestion of particulate matter as an exposure pathway in Section 4.1 are not persuasive – if anything, the use of protective clothing and gloves should predominantly limit dermal exposure more so than incidental particle

ingestion. For example, workers can still wipe their mouth with gloved hands and shirt sleeves. Also, in Section 4.2.5 of the risk assessment, ATC states that workers are *not* assumed to wear gloves at all times, resulting in direct contact with the floor "at least once per day."

> ATC response*: ATC notes that the use of protective gloves and clothing was only one of several justifications provided for why ingestion of particulates is not a significant exposure pathway. The most important reason for excluding the ingestion of PCBs on particulate is that ingestion via hand-to-mouth activity in adults is negligible (i.e., hand-to-mouth consumption of particulate is only considered an important route of exposure in young children)[1,2]. ATC did consider ingestion of inhaled particulates, which is a more certain exposure pathway, in the risk assessment. Part of the proposed remediation of the facility is a thorough cleaning of undisturbed bulk dusts (i.e., dust that ATC sampled) from surfaces within the facility. Regular cleaning is also part of building maintenance and will significantly reduce any health risk posed by the incidental ingestion of bulk dusts. In addition, removal of the caulk source material, decontaminating the floors, and improving the building's HVAC system will further reduce the generation, and therefore potential ingestion, of dust.*

c. Although acute or chronic exposure to grout may be minimal and difficult to quantify, there are very high PCB concentrations in this material such that even occasional contact may present a health risk. A screening assessment of acute and chronic risks related to episodes of caulk contact should be included in the risk assessment.

> ATC response*: Part of the proposed remediation is removal of PCB-containing caulk in the short term (Summer 2011). This removal will eliminate any exposure to this material.*

d. The basis for Equations 9 and 10 for evaluating exposure to dermal contact with a contaminated surface is unclear. The mass of PCB in a 100 cm^2 area of floor (W_c; µg/100 cm^2) is multiplied by a presumed skin surface area in contact with the floor (SA; cm^2) to obtain the mass of PCB available for dermal absorption through the skin. This PCB mass is then multiplied by the fraction of PCB transferred from a solid surface and the fraction of PCB transferred from particulates. Section 4.5 of the risk assessment states that quantitative exposure estimates were determined in accordance with USEPA (1989), but equations relating to the use of surface wipe sample data were not found in this reference. Please provide the appropriate reference for these equations.

There may be a conceptual inconsistency in the use of both a solid surface transfer factor (TF) and a soil relative absorption factor (RAF) in Equations 9 and 10. The TF applies to contamination on a solid surface, whereas the RAF described in Section 4.2.7 pertains to bulk particulates such as soil. If PCBs from surface wipe samples of the floor are predominantly

[1] USEPA. 2008. Child-Specific Exposure Factors Handbook. EPA/600/R-06/096F. National Center for Environmental Assessment, US Environmental Protection Agency. Washington, DC. September.

[2] Xue, J., V. G. Zartarian, J. Moya, N. C. Freeman, P. Beamer, K. Black, N. S. Tulve, And S. L. Shalat. A Meta-Analysis Of Children's Hand-To-Mouth Frequency Data For Estimating Non-Dietary Ingestion Exposure. Risk Analysis. Blackwell Publishing, Malden, Ma, 27(2):411-420, (2007).

related to particles, the RAF related to soil particles is appropriate. Otherwise, the use of a TF is appropriate.

ATC response*: Regarding the applicability of wipe sample results in dermal risk characterization, US EPA recommends wipe sampling for determining PCB concentrations on large flat surfaces*[3]*. While a wipe sample may be used to determine the PCB concentration of concrete that has been contaminated by a spill of PCBs less than 72 hours old [§761.79(b)(4)], the PCB concentration of concrete contaminated by older PCB spills must be determined by analyzing a bulk sample of the concrete. For the purpose of risk characterization, however, the concentration of PCBs in a bulk sample of concrete (i.e., a core sample) is not useful for determining or estimating the potential for those PCBs to transfer to skin. A wipe sample, using the aggressive protocol recommended by the US EPA (e.g. hexane-wetted wipe), provides a quantitative approach to estimating the concentration of PCBs per concrete surface area that are available for transfer to human skin. In fact, while PCB wipe samples are often used to determine disposal requirements for pipes, US EPA also provides standards for remediation of PCB sites based on receptor use*[2]*, presumably to protect human health. While not specifically addressed in this US EPA guidance, the development of these standards suggests that the use of PCB wipe samples is appropriate for use in estimating health risk to receptors. This is supported by a 1993 Technical Memo by TRC, which documents the use of wipe samples for the purpose of assessing risk from dermal exposure*[4]*. The equations used in the risk characterization to characterize exposure to PCBs through dermal contact with contaminated surfaces are based on guidance provided by US EPA*[5,6]*, and are consistent with those used within the TRC Technical Memorandum*[4]*.*

The use of both a TF and a RAF to estimate the absorbed dose of PCBs contacted on a floor surface is appropriate. The TF accounts for the portion of PCBs transferred from the concrete surface to the skin and the RAF (a.k.a. ABS, absorbed fraction) accounts for that portion of the PCBs on skin that are absorbed through the skin. This approach is the same as that used by TRC[3] *for a similar risk assessment using wipe samples at a PCB site. Although the term RAF was used in the risk assessment, ATC will change this term to ABS in the revised risk assessment, to be clearer. Finally, after a discussion of the*

[3] USEPA. 1991. Wipe Sampling and Double Wash/Rinse Cleanup as Recommended by the Environmental Protection Agency PCB Spill Cleanup Policy. John H. Smith, Ph.D., Chief, PCB Disposal Section, Chemical Regulation Branch, U.S. Environmental Protection Agency, Washington, DC., June 23.

[4] TRC. 1993. Risk Assessment Technical Memo. Site 12 - Building 316 - DPDO Transformer Oil Spill Area, and Site 14 - Building 38 - Transformer Oil Leak. Naval Construction Battalion Center, Davisville, Rhode Island. Contract No. N62472-85-C-1026. TRC Project No. 13990-N41-10. TRC Environmental Corporation. March 25.

[5] USEPA. 1992. Dermal Exposure Assessment: Principles and Applications. EPA/600/8-91/011B. Office of Research and Development. Washington, DC.

[6] USEPA. 2004. Risk Assessment Guidance for Superfund Volume 1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. PB99-963312, EPA/540/R/99/005, OSWER 9285.7-02EP. U.S. Environmental Protection Agency. Washington, DC. July.

available evidence for the absorption of neat PCBs through animal skin, EPA[7] concluded "it is appropriate to apply the recommendations for TCB in Table 6-3 to all PCBs and Aroclors. The upper bound of 6% should be used." While this previous EPA guidance is now superseded by more recent EPA guidance[5], the discussion of studies in the earlier guidance describing the absorption of neat PCB compounds through animal skin is still relevant. ATC used the RAF value of 14 percent reported in the latest EPA guidance.

e. Section 4.2.3: The rationale for calculating a population-specific body weight in this manner, using measured body weights of current employees, should be explained. Is this risk assessment intended to be specific to these individuals?

ATC response*: Yes, ATC produced a site-specific risk assessment of MBTA employees at this facility. ATC used information relating to current employees to derive a population-specific estimate of mean body weight. The data used to calculate population-specific body weight is viewed as comprehensive and representative of current and future MBTA train car repairers.*

f. Section 4.2.4: This subsection should be eliminated. The use of an activity-specific ventilation rate is inconsistent with recent EPA guidance *RAGS Part F, Supplemental Guidance for Inhalation Risk Assessment* (EPA-540-R-070-002). Risks related to inhalation exposure should be assessed according to the methods described in this EPA reference, which are consistent with the methodology discussed in Chapter 7 of MassDEP (1995). The time-averaged contaminant concentration in air, rather than contaminant intake, is used as the basis for estimating chemical inhalation risks. Implications for subpopulations that may have especially high ventilation rates are discussed in the risk characterization, although Section 4.2.4 of the Cabot Yard risk assessment indicates this is not the case for the target receptors.

ATC response*: The use of an activity-specific ventilation rate is not inconsistent with the most recent US EPA guidance[8], it is simply not "recommended." The EPA is adopting a revised means of assessing exposure from the inhalation of vapors to be more consistent with the development of the inhalation reference concentration (RfC) and carcinogenic unit risk in air (UR_{AIR}). This revised means of assessing exposure is based on Inhalation Dosimetry Methodology, arguing that differences in receptor ventilation rate and body weight are not important:*

> *"… because the amount of the chemical that reaches the target site is not a simple function of IR and BW. Instead, the interaction of the inhaled contaminant with the respiratory tract is affected by factors such as species-specific relationships of exposure concentrations (ECs) to deposited/delivered doses and physiochemical characteristics of the inhaled contaminant. The Inhalation Dosimetry Methodology also*

[7] USEPA. 1992. Dermal Exposure Assessment: Principles and Applications. EPA/600/8-91/011B. Office of Research and Development. Washington, DC.

[8] USEPA. 2009. Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA-540-R-070-002. OSWER 9285.7-82. Office of Superfund Remediation and Technology Innovation. U.S. Environmental Protection Agency. Washington, DC. January.

considers the target site where the toxic effect occurs (e.g., the respiratory tract or a location in the body remote from the portal-of entry) when applying dosimetric adjustments to experimental concentrations."

ATC will use the revised method recommended by the EPA in the revision of the risk assessment, but believes that the risk characterization's current method of estimating PCB exposure in MBTA workers provides a useful and conservative approximation of PCB intake for these receptors.

g. Section 4.2.5: The derivation of the dermal contact surface area appears to be predicated on PCBs being transferred directly to skin from a solid surface, rather than the transfer being mediated by PCB-contaminated particles. This assumption needs to be verified, as noted in comments related to the conceptual model. Also, what is the basis for the definition of an "actual TF of 3%" for PCB transfer from palm to other exposed skin?

ATC response*: As noted in the response to Comment 1(a), the approach that ATC took to evaluate dermal exposure risk is a conservative approach that assumes that all PCBs, in either particulates on the floor surface or in the concrete floor matrix itself, are transferred to skin upon contact. The use of an aggressive wipe sampling method, including hexane as the wipe solvent (as further discussed in the risk assessment), accounts for transfer of PCBs both in particulate and in the concrete matrix. Whether PCBs are associated with concrete or particulate would not change the selection of an appropriate dermal exposure model, as such a model would still assume transfer to and then absorption through skin. ATC does not believe it is worth the significant effort and expense needed to separate the contributions of PCBs from a thin particulate film vs. the concrete matrix in order to show what is likely to be only a slight reduction in risk.*

ATC believes that the most significant exposure to PCBs associated with floor surfaces is through dermal contact. As such, dermal transfer can only occur from one of two methods: (1) direct transfer to the skin surface area having contact with floor surfaces, and (2) indirect transfer of PCBs from skin surfaces having direct contact with the floor (e.g., the palms of the hands) to other areas of the body not having direct contact with concrete (e.g., face). For the purpose of risk assessment, ATC conservatively assumed that 100% of the total mass of PCBs on the palm of the hands is available for transfer to other skin surfaces. Given the assumption that 14 percent of the PCBs on the skin are absorbed, the actual transfer of PCBs from one skin surface to another is likely to be less than 100%. The basis of the statement "actual TF of 3%" is the transfer factor identified in the next section (as further discussed in the risk characterization Section 4.2.6, "Transfer Factor") rounded to the nearest whole number (2.5 rounded to 3).

h. Section 4.2.6: The relevant data from the Slayton, T.M. et.al. 1998 publication should be provided in an appendix of the risk assessment so that a reviewer may verify the statement, "ATC reviewed the data presented by Slayton et.al. and selected a conservative TF value of 2.5 percent to reflect the transfer of PCBs from a concrete floor to a receptor's sweaty skin."

ATC response*: ATC will include a copy of this reference in an Appendix to the risk assessment.*

i. Section 4.2.7: The basis for the oral ingestion RAF of 67% is inadequate for justifying departure from the recommendation of 100% gastrointestinal absorption for PCBs from Exhibit 4-1 of EPA/540/R-99/005 (2004). The value of 67% described in the risk assessment relates to aged PCBs in soil, which has not been established as analogous to conditions in the MTBA Cabot Yard building. A value of 100% should be used for the soil ingestion RAF.

ATC response*: ATC stated in the risk characterization text:*

> *"Since PCBs associated with airborne respirable particulate within the MBTA facility are identified as the more heavily chlorinated Aroclors® 1254 and 1260 (i.e., 84 % of the PCB congeners in Aroclor 1254 and all of the PCB congeners in Aroclor 1260 contain 5 chlorines or more), ATC chose an oral RAF of 67% as the RAF for ingested PCBs on inhaled PM10. Use of an overly conservative RAF (i.e., 100%) for this route of exposure would not change the overall conclusions of the risk characterization."*

It is reasonable to conclude that PCBs within the MBTA facility, particularly those to which MBTA employees are exposed on concrete floor surfaces, in indoor air, and in dust, are "aged" or "weathered" and are unlikely to have the same congener-specific composition as that of any neat unweathered Aroclor®. The reference from which the RAF used in the risk characterization is derived[9] shows that weathering of PCBs can alter their availability for absorption. Regardless, assuming 100% gastrointestinal absorption of PCBs on particulate would not change the overall conclusion of the risk characterization. ATC will revise the risk characterization to use an estimate of gastrointestinal RAF of 100%.

j. Section 4.2.8: The 2002 reference used for evaluating particulate exposure has been superseded by a 2008 update (MassDEP, 2008), which has revised effective exposure concentrations. In the subsection "Limitations" of MassDEP 2008, the effective exposure concentrations for scenarios other than construction worker is 2.0, which is the value currently used in the Cabot Yard risk assessment. Hence, recalculation is not necessary in relation to this change in reference.

ATC response*: ATC will change the reference to be consistent with the exposure equations used in the risk assessment, when it is revised.*

4. Toxicity Assessment Issues

a. Inhalation toxicity criteria. In Section 3.1 ATC states that employing reference concentration and unit risk values is inappropriate "for use in evaluating the health risk of receptors with very

[9] Fries, G. F., G. S. Marrow and C. J. Somich. 1989. oral Bioavailability of Aged Polychlorinated Biphenyl Residues Contained in Soil. Bull. Environ. Contam. Toxicol. 43:683-690.

different breathing rates and/or body weights". This statement is inconsistent with current EPA guidance for assessing risks by the inhalation exposure route (EPA-540-R-070-002). Inhalation chemical hazard and cancer risk should be calculated with reference concentration and unit risk values by the methods described in RAGS Part F, Supplemental Guidance for Inhalation Risk Assessment (EPA-540-R-070-002).

> ATC response*: Please see ATC's response to Comment 3(f). While the use of receptor-specific inhalation rates and body weights is "not recommended" in recent US EPA guidance[8], such use is still consistent with existing MassDEP guidance[10,11,12]. ATC also believes the use of receptor-specific breathing rates and body weights eliminates some of the uncertainty inherent in modeling exposure of receptors with very different inhalation rates than those used in the derivation of the RfC and UR_{AIR}. In contrast, the updated EPA guidance contends that the given "… parameter values used in the default method for calculating the HEC (human equivalent concentration)…yield results sufficient to cover populations and life stages with varying activities and physiologic characteristics. Nonetheless, ATC will use the updated EPA method of calculating inhalation risk in the revised risk characterization, as suggested.*

b. Section 3.2. This section should be revised to have selection of toxicity criteria consistent with the hierarchy of references described in a 2003 memorandum from EPA's Office of Solid Waste and Emergency Response (OSWER 9285.7-53). In accordance with this memorandum, the primary source of toxicity is EPA's Integrated Risk Information System database (IRIS). The second tier of toxicity criteria are the provisional peer-reviewed toxicity values published by the National Center for Environmental Assessment in EPA's Office of Research and Development. The third tier of references includes values published in EPA's *Health Effects Assessment Summary Tables*, and other sources such as California EPA and the Agency for Toxic Substances and Disease Registry.

> ATC response*: ATC believes that its selection of toxicity values in the original risk characterization was appropriate. However, ATC will revise and up-date its order of toxicity value selection in the revised risk assessment. This will not change the toxicity values used.*

c. Section 3.3. The dermal absorption factor (ABS) of 0.14 for PCBs should be referenced to *RAGS, Part E* (EPA/540/R-99/005) rather than VERSAR.

> ATC response*: ATC will change the reference in the risk assessment when it is revised, noting that the VERSAR reference is the source of the EPA ABS value for PCBs. Unfortunately, the EPA guidance referenced above does not fully discuss the derivation*

[10] MASSDEP. 1994. Background Documentation for the Development of the MCP Numerical Standards. Bureau of Waste Site Cleanup and Office of Research and Standards.

[11] MASSDEP. 1995. Guidance for Disposal Site Risk Characterization. In Support of the Massachusetts Contingency Plan. Interim Final Policy #WSC/ORS-95-141. Bureau of Waste Site Cleanup. July.

[12] MASSDEP. 2002. Characterization of Risks Due to Inhalation of Particulates by Construction Workers. Technical Update. Updates: Section 7.3 and Appendix B of the MADEP Guidance for Disposal Site Risk Characterization - In Support of the Massachusetts Contingency Plan (1995). Office of Research & Standards. April.

of this ABS for PCBs, whereas earlier EPA guidance[6] provided a detailed discussion of the rationale supporting the previously recommended 6 percent ABS value for PCBs.

5. Risk Characterization and Uncertainty Analysis Issues

a. In Section 4.1, exposure to PCBs by direct contact with caulk is discounted as a potential exposure pathway because the surface area of the caulked joints is relatively small and the caulk is recessed below the floor level. However, the very high concentrations of PCBs in the caulk (8% to 16.5% by weight; Section 1.2.2) suggests that even occasional contact may present significant health risks. It is also possible that a maintenance worker cleaning debris from the joints could have more intensive exposure than was envisioned for any of the usual workers observed by ATC. The risk assessment should provide a screening-level assessment of possible acute and chronic risks related to caulk contact.

ATC response*: As noted in the response to Comment 3(c), part of the proposed remediation of the facility is removal of PCB-containing caulk in the short term. This removal will eliminate any exposure to this material.*

b. The risk assessment should include a section on recommendations and conclusions following the uncertainty analysis. This discussion should highlight key assumptions and uncertainties underlying the quantitative risk estimates, and identify any potential data gaps or data insufficiency. Recommendations for reducing uncertainty in the risk assessment results or mitigating potential exposures should be provided.

ATC response*: ATC will expand the conclusions discussion and add a recommendations section to the risk assessment, when it is revised.*

c. Section 5.0. The sentence "While U.S. EPA identifies acceptable cancer target excess lifetime cancer risk ("ELCR") as between 1E-04 and 1E-06, most comparisons with health risk estimates use the single median target ELCR of 1E-05" needs to be referenced. Cite the basis of the risk management range in the National Contingency Plan or EPA guidance, and either remove the assertion that 1E-05 is the common risk management target or provide a reference applicable to this assessment.

ATC response*: Additional discussion on the source and meaning of the EPA carcinogenic target risk range will be added to the revised risk characterization. ATC believes that it is appropriate to use the middle value of the provided range as a reasonable acceptable risk level for direct evaluation with calculated risk levels for this industrial facility.*

d. Section 5.0. Provide a reference for the hazard quotient threshold of 1.0.

ATC response*: Note that ATC actually used a hazard quotient threshold of 1 (one significant figure). ATC will add the requested reference(s) in the risk assessment, when it is revised.*

e. Provide equations for calculating cancer risk and hazard quotient based on intake (ingestion and dermal exposure routes) and the time-averaged exposure concentration in air (inhalation exposure route).

> ATC response*: ATC will add the requested equations to the risk assessment, when it is revised. ATC will revise the risk characterization to estimate exposure concentrations for contaminants in air using recent revised EPA guidance[8], as suggested.*

f. Provide an explanation of hazard index, as shown in Table 10.

> ATC response*: ATC defines the Hazard Index (HI) and Hazard Quotient (HQ) in the same manner as the EPA. ATC will provide this definition and appropriate reference in the revised risk characterization.*

g. Per EPA guidance, (EPA/540/1-89/002), cancer risk results should be displayed with only one significant figure.

> ATC response*: ATC will revise the ELCR values to reflect only one significant figure in the risk assessment, when it is revised. While ATC acknowledges that the ELCR should be reported as one significant figure, per EPA guidance, ATC often reports additional significant figures in the ELCR and HI/HQ for the benefit of risk managers making decisions based on simple point estimates of risk.*

h. Section 6.1. The title "Sensitivity Analysis" for this subsection is a misnomer. The results of a sensitivity analysis, as described in the first sentence of this subsection, are not presented. Section 6 presents a qualitative discussion of uncertainty. Please remove reference to sensitivity analysis.

> ATC response*: ATC will re-name this section "Sensitivity of Risk Estimates to Changes in Selected Exposure Parameter Values." The purpose of this section was to provide MBTA risk managers with additional information regarding health risks associated with different exposure scenarios. Changes in exposure assumptions (i.e., exposure parameter selection) can significantly change calculated risk estimates. This section was intended to describe how simple changes in these parameters could affect calculated human health risk.*

i. Uncertainty Analysis. This discussion left the reviewer with the conclusion that the risk estimates are unreasonably biased. This section would benefit from introducing the concept of "reasonable maximum exposure", as defined in Section 6.1.2 of EPA/540/1-89/002. As discussed in EPA/540/1-89/002, RME risk calculations should not be composed of so many upper-bound estimates that conservatism will compound into an unrealistic upper-bound risk estimate. The exposure parameter values should be reviewed if the authors believe the results of the Cabot Yard risk assessment are unrealistic.

The Uncertainty Analysis is focused solely on elucidating protective assumptions in the quantitative risk estimates. However, there are also assumptions that may result in underestimation of exposure. These include elimination of particulates ingestion as an exposure

pathway, and no direct contact of receptors with grout. Also, because sample support is very limited for the inhalation exposure route, there is considerable uncertainty regarding the protectiveness of these exposure concentrations. These issues should be addressed in the Uncertainty Analysis.

ATC response*: ATC did consider use of the RME approach, but decided against it in consultation with the client in the interest of simplicity. ATC believes that the risk assessment, as currently written, shows that even with conservative assumptions about the input parameters, there is only slight risk to MBTA employees at the site. Planned remediation of PCBs at the site will further reduce exposure concentrations and result in an even lower risk. ATC will revise the Uncertainty Analysis section as suggested, noting that the identified assumptions that may result in underestimation of exposure were discussed in detail in the other portions of the risk assessment, and their collective impact is likely to be small in comparison to the assumptions that tend to overestimate exposure risk.*

j. It is not clear why the use of a 95% upper confidence limit on the mean for exposure concentrations adds "significant conservatism to the risk characterization", as described in Section 6.1. This value only becomes large relative to the arithmetic average when the number of samples is limited and/or there is high variability among individual sample values.

ATC response*: The 95th confidence interval on the mean is a statistically derived media concentration that, with scientific certainty ($p<0.05$), includes the mean concentration (i.e., the mean does not exceed the 95th CI on the mean). The use of this value as the EPC is conservative because there is more scientific certainty that it includes the true mean, and it is greater than the mean. As noted in Section 4.3.1, the mean for total PCBs in wipe samples at the facility was 19.63 ug/100 cm^2, while the 95% CI was 25.99 ug/100 cm^2, a 32% greater value than the mean. ATC considers this significant.*

REFERENCES

Johnson, G.W., III J.F. Quensen, J.R. Chiarenzelli and M.C. Hamilton. 2006. Chapter 10. Polychlorinated Biphenyls. In: Environmental Forensics, Contaminant Specific Guide. Morrison, R.D. and B.L. Murphy, Editors. New York: Academic Press/Elsevier. p 187-226.

Appendix H

Technical Specifications for Caulk Removal

SPECIFICATION

PCB-CONTAINING CAULK REMOVAL AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. This Specification establishes requirements for the removal, management, and disposal of Polychlorinated biphenyl (PCB)-containing caulk and underlying backer material (PCB Bulk Product Waste as defined at 40 CFR 761.3), from the train building at the Massachusetts Bay Transportation Authority (MBTA) Cabot Yard facility at 275 Dorchester Avenue, South Boston, Massachusetts. Contractor shall furnish all labor, materials, equipment, and services required for all work included in this Specification.

B. Examine all conditions as they exist at the project prior to submitting a bid for the Work of this Specification.

C. The removal and disposal of caulk containing PCBs is regulated by and shall be completed in accordance with the Toxic Substance Control Act (TSCA) pursuant to Federal regulations at 40 CFR 761, as well as applicable Massachusetts regulations.

1.2 DEFINITIONS

A. The following definitions shall be applicable to this Specification:

1. CFR – Code of Federal Regulations.

2. Contractor – The contractor performing the transformer Work as outlined by this Specification.

3. Hazardous Waste – A waste, or combination of wastes, which because of its quantity, combinations, or physical, chemical of infectious characteristics may pose a substantial hazard to human health, safety or welfare or to the environment when improperly treated, stored, transported, used or disposed, or otherwise managed, as further defined by 310 CMR 30.000.

4. PCB – Polychlorinated Biphenyls.

5. PCB Bulk Product Waste – Waste derived from manufactured products containing PCBs in a non-liquid state, at any concentration where the concentration at the time of designation for disposal was >=50 ppm PCBs. For the purposes of this Specification, tools, cleanup materials, personal protective equipment (PPE), and other supplies used in the remediation that become contaminated by PCBs shall also be considered PCB Bulk Product Waste.

6. PPM – Parts per million.

7. RCRA – Resource Conservation Recovery Act

8. United States Environmental Protection Agency (EPA) – Agency responsible for implementing PCBs Manufacturing, Processing, Distribution in Commerce, And Use Prohibition, 40 CFR 761 ("TSCA") regulations.

9. Work – All activities to be performed by the Contractor as defined herein.

1.3 WORK INCLUDED

A. The Work includes the removal, management, and disposal of PCB-containing caulk and underlying backer material (PCB Bulk Product Waste as defined at 40 CFR 761.3) from the train building. Contractor shall furnish all labor, materials, equipment, and services required.

1. Caulked expansion joints are located in the concrete grade-level floor slab in the building. Joints are also located outside the building on the abutting concrete aprons on the south and north side of the building. The extent of the caulked joints is shown on the attached Site Plan and described in the attached table. Caulk from the joints has been tested and shown to contain PCBs at concentrations greater than 50 ppm.

2. Approximately 9,000 linear feet of caulk and backer material shall be removed.

3. Small shelves/cabinets/equipment/etc. will be moved by MBTA personnel to allow the Contractor access to caulk joints. There are a few areas where caulk joints run under large shelves, etc. that cannot be practically moved by MBTA personnel at this time. The caulk in these areas is not considered to be part of the Work outlined in this Specification.

1.4 GENERAL REQUIREMENTS

A. All equipment, tools, and supplies shall be provided to the Site free of contamination. The MBTA and its representatives retain express authority to prohibit from the Site any equipment or materials that in his/her opinion has not been thoroughly decontaminated prior to arriving at the Site. Any decontamination of the Contractor's equipment prior to arrival at the Site shall be at the expense of the Contractor. The Contractor is prohibited from decontaminating equipment on the Site which is not thoroughly decontaminated upon arrival.

B. The work area will be demarcated with caution tape and signage at a distance to keep unauthorized workers and visitors out of the work area. A temporary barrier (minimum 3-foot height) shall be erected around the area where caulk removal is taking place to demarcate the area and ensure that removed caulk and backer material is contained.

C. The Contractor shall provide all drums or other storage containers and related products and materials required for storing and transporting the PCB-containing caulk and backer material in compliance with MassDEP, U.S. EPA, and U.S. Department of Transportation (DOT) requirements. All drums shall meet the requirements of DOT 49 CFR 173.

1.5 HEALTH AND SAFETY

A. All provisions of this Specification relating to the health and safety of workers and the general public, as well as protection of the environment, are minimum standards. The Contractor is responsible for determining whether any legal requirements or prudent conservative work practices require any additional and/or more stringent protective measures, and implementing such measures if deemed necessary.

Nothing in this Specification shall be deemed to relieve the Contractor from any liability with respect to any such legal requirements or requirement of prudent conservative practice.

B. At a minimum, worker protection shall comply with applicable OSHA and TSCA standards. Worker Right to Know and Health and Safety Standards of 1926 shall also apply to the Work of this Specification.

C. All caulk and backer material removal, management, and disposal Work referenced herein shall be performed in accordance with a Health and Safety Plan (HASP) developed by the Contractor in accordance with Occupational Safety and Health Administration (OSHA) regulations, and any other applicable federal, state, or local regulations.

D. No work shall occur that can reasonably be expected to increase the worker's exposure above the Permissible Exposure Limit (PEL) for PCBs unless appropriate worker protection is implemented.

E. Workers shall be informed of the presence of PCBs >50 ppm in the caulk and backer material.

F. The Contractor shall provide protective clothing, eye protection, and respiratory protection as required by Federal, State and local regulations, and as defined in the approved Health and Safety Plan.

G. Workers shall have current OSHA 40-hour hazardous waste operations training or approved equivalent, and current MBTA 8-hour Right-of-Way (ROW) training.

1.6 REGULATORY REQUIREMENTS

A. The Work of this Specification shall be performed in accordance with TSCA, 40 CFR 761 and other applicable federal, state, and local regulations, laws, codes, and ordinances governing the removal, handling, transportation, and disposal of PCB-impacted materials.

B. Contractor is solely responsible for obtaining all federal, state, and local permits or approvals which may be required to perform the Work of this Specification, including all costs, fees and taxes required or levied. Contractor shall adhere to all permit/approval requirements. Note that prior EPA approval is not required for the removal of PCB-containing caulk and backer material, as described in this Specification.

C. The Contractor shall document that the disposal facility(ies) proposed have all certifications and permits as required by federal, state and local regulatory agencies to receive and dispose of the PCB Bulk Product Wastes managed under this Specification.

D. The following regulations are cited for the information and guidance. The list below is not all-inclusive. The Contractor shall be responsible for a thorough knowledge and full implementation of all requirements for removal, transportation, and disposal of the PCB Bulk Product Wastes managed under this Specification.

1. PCBs Manufacturing, Processing, Distribution in Commerce, And Use Prohibition, 40 CFR 761 ("TSCA").

2. Hazardous Waste Operations and Emergency Response, Federal Occupational Safety and Health Act (OSHA), 29 CFR 1910.120.

3. Safety and Health Regulations for Construction, OSHA 29 CFR Part 1926.

4. General Regulations for Hazardous Waste Management, EPA, 40 CFR 260.

5. Regulations for Identifying Hazardous Waste, Hazardous Waste Generators and Hazardous Waste Transporters, EPA, 40 CFR 261, 262 and 263.

6. Regulations for Owners and Operators of Permitted Hazardous Waste Facilities, EPA, 40 CFR 264.

7. Interim Status Standards for Owners and Operators of Permitted Hazardous Waste Facilities, EPA. 40 CFR 265.

8. Standards for Management of Specific Hazardous Wastes and Facilities, EPA, 40 CFR 266.

9. Interim Standards for Owners and Operators of New Hazardous Waste Land Disposal Facilities, EPA, 40 CFR 267.

10. Hazardous Materials Regulations Relating to Transportation, 49 CFR 171-180 – U.S. Department of Transportation (U.S. DOT).

11. Regulations Relating to Transportation, 49 CFR Subtitle B Parts 100-185 – U.S. Department of Transportation (U.S. DOT).

12. Publications, Practices for Respiratory Protection, z88.2-1992 - American National Standards Institute (ANSI).

13. Hazardous Waste Management, 310 CMR 30, Massachusetts Department of Environmental Protection.

1.7 SUBMITTALS

A. At least one week prior to the start of Work, prepare and submit the following items. Do not commence Work activities until the submittals are approved by the MBTA or MBTA's representative.

1. Name(s), address(es), and contact(s) of subcontractors, if any, retained for the Work outlined in this Specification.

2. Documentation that all Workers who will be performing Work have OSHA 40-hour hazardous waste operations training or approved equivalent and MBTA 8-hour Right-of-Way (ROW) training.

3. Health and Safety Plan (HASP): Developed in accordance with Occupational Safety and Health Administration (OSHA) regulations and any other applicable federal, state, or local regulations.

4. Licenses and Permits: List of and copy of licenses and permits required for complying with any applicable federal, state and local laws, codes, policies and regulations in connection with the Work.

5. Detailed step by step procedure indicating how the Work is to be accomplished. This shall include:

a. Description of engineering controls (if any) and procedures to be used to minimize exposure of workers performing the Work to PCBs, and to ensure recovery of all removed caulk and backer material for later off-Site disposal.

b. Proposed methods of waste storage, transportation, and disposal.

6. Waste Profiles and Shipping Papers: All waste profiles, applications and questionnaires, as well as manifests or other documents required to transport and dispose of the PCB Bulk Product Wastes prior to forwarding them to the party requiring these documents.

7. Name(s), address(es), and contact(s) of hazardous waste transporter(s) that will transport hazardous waste from the Site to a TSCA-approved disposal facility, including EPA identification number and proof of permit, license, or authorization to transport hazardous waste in all affected states.

8. Name(s), address(es), and contact(s) of disposal facility(ies) that will accept materials containing PCBs, and a letter of acceptance indicating that the facility will accept the PCB Bulk Product Wastes.

9. A sample of the proposed closed-cell foam backer material and manufacture's product information to be used as a backer material, inserted into joints after removal of PCB-containing caulk/backer material.

B. Completed copies of all Uniform Hazardous Waste Manifests and other applicable transport/disposal documents, as well as certified scale weight receipts, as applicable, must be furnished to the MBTA as attachments to all invoices.

C. Within one month of the completion of the Work, submit a Completion Report that summarizes and documents the removal and disposal of the PCB Bulk Product Wastes associated with activities outlined in this Specification. The Report shall be a prerequisite for payment. At a minimum the Report shall include a summary of activities (including dates of work), the name of the disposal facility, a summary of PCB Bulk Product Wastes disposed, and a copy of Uniform Hazardous Waste Manifests, PCB waste Certificates of Disposal, and other applicable documentation.

1.8 QUALITY ASSURANCE

A. Consultant will periodically inspect cleaned joints before foam backer rod is inserted to visually evaluate if all caulk has been removed (including any visible residue on sides of joint). Work shall not be considered complete until Consultant gives final approval of each area of removed caulk/backer material.

B. Care shall be taken to frequently sweep/vacuum/collect removed caulk and backer material from active work areas.

C. Single-Party Responsibility: The Contractor performing the Work of this Specification shall be responsible for all activities included herein related to the removal and disposal of the PCB Bulk Product Wastes.

1.9 COORDINATION

A. The Contractor shall extend full cooperation to the MBTA and their representatives in all matters involving the use of the Site. At no time shall the Contractor cause or allow to be caused conditions, which may

cause risk or hazard to the general public, employees or other users of the Site building, or cause conditions that might impair safe use of the Site.

B. Scheduling of this project will be subject to coordination with the MBTA. The Contractor shall provide access to work areas to MBTA, Consultant, and EPA upon request.

PART 2 – PRODUCTS

A. Contractor shall be responsible for providing all tools, material, and protective equipment required for performance of the Work. Contractor shall comply with all local, state and federal regulations pertaining to the selection and use of materials and equipment on this project.

B. Warning Signs and Labels: Work areas and storage containers for PCB Bulk Product Waste shall be properly demarcated and posted in accordance with OSHA and TSCA requirements.

C. New Backer Rod. Closed-cell foam backer rod material that can be field shaped and fitted snuggly within cleaned floor joints. The material shall have sufficient stiffness to remain fixed in joint upon insertion. The Contractor shall provide the MBTA with a sample of the proposed foam backer material prior to the start of the Work, and the MBTA will review and approve the material.

PART 3 – EXECUTION

3.1 SEQUENCING

A. The Contractor shall complete work within a two month time period. If work is started during the winter season, outdoor work on the north and south aprons of the building may be completed in the spring.

B. Work may be scheduled up to 7 days per week, 24 hours per day. Contractor should be aware that MBTA employees are present in the building at all times, on a three shift per day schedule.

C. Most of the building is relatively open and work may be scheduled with few conflicts, in coordination with MBTA building managers. More coordination will be required in the northeast portion of the building along tracks #1 and #2, where train lifts are used on a routine basis by MBTA maintenance personnel. The Contractor will need to be prepared to work quickly to complete work in this area to minimize disturbance to MBTA operations.

D. The following is a typical sequence of Work that shall be adhered to by the Contractor. The sequencing is listed for a particular work zone. Work zones will be moved as work progresses through the building.

1. Post all required signage.

2. Establish and secure from unauthorized access an active work area and waste storage area.

3. Remove and containerize caulk/backer material as required by this Specification.

4. Decontaminate tools, if they are not being disposed of.

5. Remove all work area barriers, equipment, polyethylene sheeting, etc.

6. Manage and transport off-Site the caulk/backer material, along with disposable tools, cleanup materials, PPE, and other supplies used in the remediation, in accordance with this specification.

3.2 REMOVAL METHODS

A. Contractor shall use Work methods, including installation of a temporary low barrier around the work area, to ensure that all removed caulk and backer rod is contained within the exclusion zone and collected for off-Site disposal.

B. Contractor shall remove caulk and backer material to the extent practicable (minimum one inch of backer material from below bottom of caulk). Use of hand tools ONLY is allowed (no power tools, to avoid generating dust).

C. Contractor shall use a thin vacuum attachment on a HEPA-equipped vacuum to remove loose material from within joints.

D. Consultant will provide periodic inspection of joints to visually confirm that caulk has been removed (including any visible residue).

E. Contractor shall frequently collect the caulk and backer material from the work area into temporary storage containers (for instance, bags or buckets). Containerize the caulk/backer material in DOT-approved 55-gallon steel open-top drums at least as frequently as the end of each work shift.

F. A HEPA equipped vacuum shall be used as a final measure to clean floor around work area.

G. All PPE, containment materials, etc. that touches caulk or backer material shall be containerized in appropriate DOT-approved shipping containers.

H. Tools used in the Work shall be disposed of as PCB Bulk Product Waste or decontaminated with a double wipe with a solvent wetted rag in accordance with 40 CFR 761.79.

I. Containers shall be sealed and labeled appropriately for transport using PCB labels and placards as outlined in 40 CFR 761.40 and 761.45. After approval of transport and disposal documentation by MBTA, Contractor shall transport all waste materials off-site to approved disposal facility under a hazardous waste manifest. All waste materials shall be considered “PCB Bulk Product Waste”.

J. Contractor shall insert foam backer rod material in cleaned joints. Foam backer material shall be inserted so that the top level of the material is approximately 1/8-inch below the adjacent floor surface.

K. Work shall not be considered complete until Consultant gives final approval of each area of removed caulk/backer material.

3.3 WASTE MANAGEMENT

A. General: All costs associated with proper disposal of the PCB-containing caulk and backer materials, miscellaneous absorbents, disposable tools, polyethylene sheeting, PPE, etc. shall be borne by the

Contractor. All materials shall be disposed of in accordance with all laws, and the provisions of this Specification and any or all other applicable federal, state, county or local regulations and guidelines.

B. The types of waste that will be generated include:

1. PCB-containing caulk and backer materials, containing >50 ppm PCBs ("PCB Bulk Product Waste").

   a. A Uniform Hazardous Waste Manifest is required for removal from the Site, and disposal.

   b. Waste containers shall be placarded as containing PCB Waste with markings meeting the EPA requirements of 40 CFR 761.40 and 761.45.

   c. Wastes shall be disposed of in accordance with 40 CFR 761.50 through 761.79 at a licensed facility that will receive and retain PCB Waste.

2. Miscellaneous absorbents, disposable tools, PPE, temporary containment materials, etc. (also considered "PCB Bulk Product Waste"). These materials shall be disposed of as PCB Bulk Product Waste following the same procedures as caulk/backer material described above.

C. Tools and equipment that comes in contact with the caulk/backer material during performance of the Work shall either be disposed off-Site as PCB Bulk Product Waste, or be decontaminated with a double wipe with a solvent wetted rag in accordance with 40 CFR 761.79.

D. Waste containers shall be placed in the designated waste storage area until they can be shipped off-Site to an appropriate disposal facility. Under no circumstances shall containers remain on-Site for more than one month following generation. Storage containers and designated waste storage area shall be placarded as containing PCB Waste with markings meeting the EPA requirements of 40 CFR 761.40 and 761.45.

E. Uniform Hazardous Waste Manifests

1. Each waste manifest shall note the truck registration number, state of registration, name of driver, and date of removal of material from the Site.

2. Contractor shall comply with the RCRA Hazardous Waste Manifest policies and shall use the permanent RCRA EPA Identification Number for the Site.

3. The MBTA will be designated as generator and will sign all manifests and waste profile applications or questionnaires.

3.4 DECONTAMINATION PROCEDURES

A. General: Furnish labor, materials, tools, and equipment for decontamination of all personnel, equipment and supplies that are exposed to PCB-containing caulk and are not being shipped off-Site for disposal. Provide equipment and decontamination fluids, etc. necessary for the decontamination of equipment and personnel.

B. Equipment and Tools Decontamination: The decontamination procedure shall follow the requirements of 40 CFR 761.79, decontamination via a wiping or double wash/rinse with an approved solvent. If not decontaminated, equipment and tools shall be managed as PCB Bulk Product Waste.

C. Personnel Decontamination: Provide and maintain a decontamination area which is to be located in the contamination reduction zone. Decontamination of personnel and equipment is required after performance of activities outlined in this Specification. Personnel decontamination shall, at a minimum, be conducted before breaks, each time workers exit the exclusion zone, and at the completion of each work day, to prevent worker exposure and the spread of contaminants out of the exclusion zone.

D. Emergency Decontamination: Should a worker come into direct skin contact with PCB-containing caulk or other liquid chemicals used in the Work, the worker shall be immediately decontaminated in accordance with the HASP. Site eye wash and shower stations shall be made available and operable.

3.5 TRANSPORT OF CONTAMINATED MATERIAL

A. No PCB Bulk Product Waste shall be transported off-Site until all disposal or recycling facility documentation has been received, reviewed, and accepted by the MBTA.

B. Transportation shall be in accordance with Department of Transportation (DOT) Hazardous Materials Regulations in 49 CFR 171-179, as applicable. Also comply with State and Local requirements, including obtaining all necessary permits, licenses and approvals.

C. All hauler(s) shall be licensed in all states affected by transport.

D. The Contractor shall be responsible for inspecting the access routes for road conditions, overhead clearance, and weight restrictions, and shall provide traffic control as needed.

E. The Contractor shall be responsible for any and all actions and costs necessary to remedy situations involving material spilled in transit. This cleanup and associated activities shall be accomplished at the Contractor expense.

F. Trucks and containers shall be covered during transport as required by applicable law.

3.6 SPILL RESPONSIBILITY

A. The Contractor is solely responsible for any and all spills or leaks of PCB materials being removed as part of the Work or other chemicals used in the Work, which occur as a result of or are contributed to by the actions of its agents, employees or subcontractors. Such spills or leaks shall be cleaned to the satisfaction of the MBTA or its representative, and in a manner that complies with applicable federal, state and local laws, codes, policies and regulations. The spill cleanup and any associated activities shall be at no cost to the MBTA.

B. The Contractor shall report all such spills or leaks, regardless of their quantity, to the MBTA immediately upon discovery. A written follow-up report shall be submitted to the MBTA as soon as possible, but not later than 24 hours after the initial telephone report. The written report shall be in narrative form and, at a minimum, include the following:

1. Description of material spilled (including identity, quantity, manifest number, etc.).

2. Exact time and location of spill, including a description of the area involved.

3. Containment procedures initiated.

4. Description of cleanup procedures employed or to be employed at the Site, including location of disposal of spill residues, and corrective measures to prevent recurrences.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All Work as described in this Specification shall be measured by the linear foot of caulk/backer material removed and replaced with foam backer. Contractor shall prepare invoices for completed linear feet.

4.2 PAYMENT

A. Work will be paid for at the Contract Unit Prices for the quantities determined as specified above.

B. Payment will be made following MBTA's confirmation of completed linear feet claimed.

C. Unit Prices shall be valid for plus or minus 25 percent of the total estimated quantities presented herein.

D. Final payment will be contingent upon receipt of all completed Uniform Hazardous Waste Manifests, PCB – Certificates of Disposal, and the Closure Report.

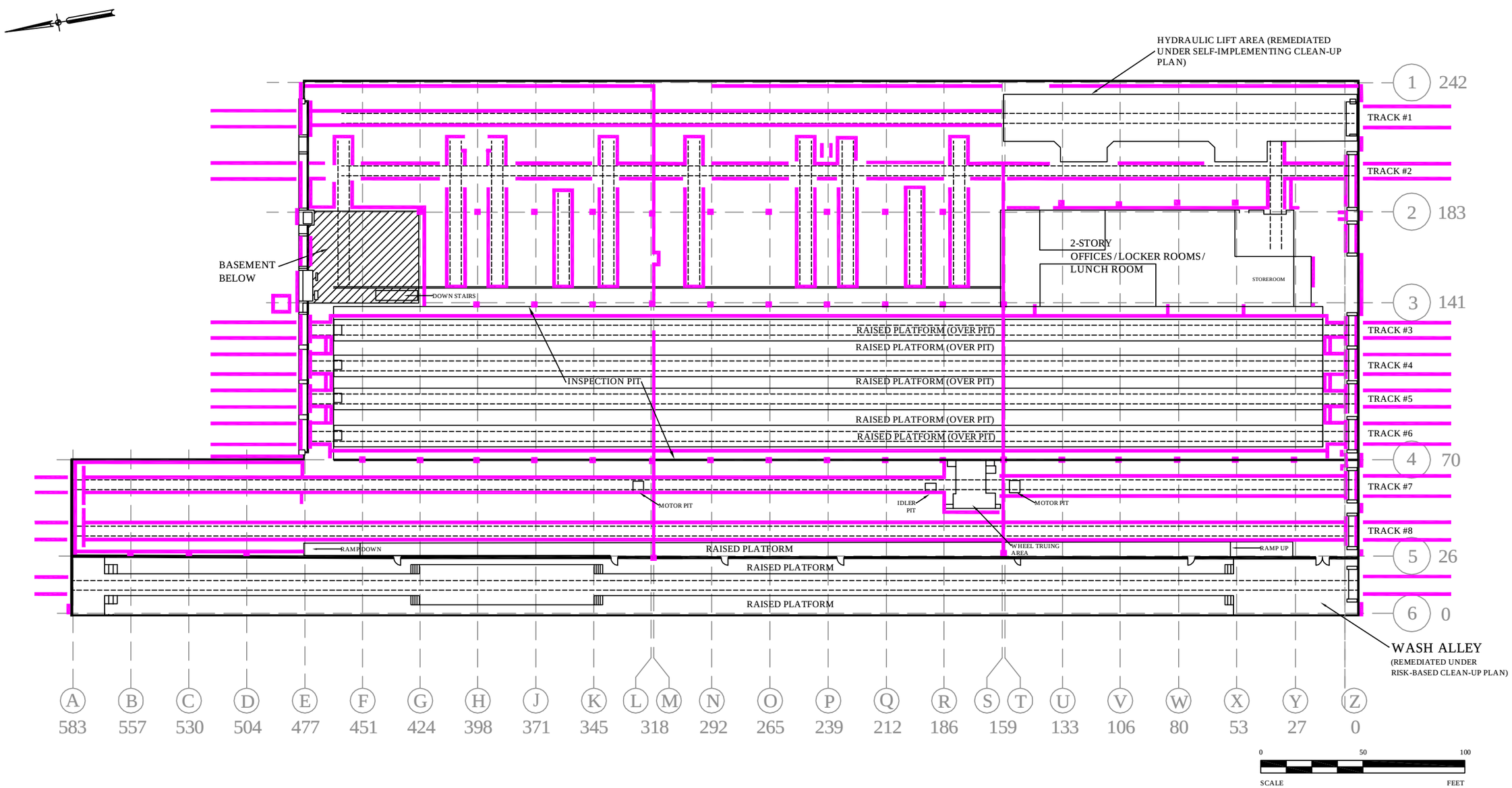
4.3 PAYMENT ITEMS

ITEM NO.	DESCRIPTION	UNIT
1	REMOVE & DISPOSE PCB-CONTAINING CAULK/ BACKER ROD MATERIAL & REPLACE WITH	LINEAR FOOT

ATTACHMENTS:

FIGURE – SITE PLAN CAULK JOINTS
TABLE – FLOOR CAULK SURVEY RESULTS

END OF SPECIFICATION



LEGEND

- RAILS
- COLUMN LINE
- V 106 — COLUMN LINE IDENTIFICATION, WITH DISTANCE (FEET) FROM SOUTH WALL OR WEST WALL
- FLOOR JOINT CAULK LOCATIONS

SITE PLAN
FLOOR CAULK JOINTS

MBTA CABOT YARD RAIL BUILDING
275 DORCHESTER AVENUE
DORCHESTER, MASSACHUSETTS

PROJECT NUMBER: 060.07443.1028	FIGURE NUMBER: 3
SCALE: See Scale Bar	CHECKED BY: DPW
DRAWN BY: RRM	REVISED BY: CA / DPW
DRAWING FILE: CAULK SURVEY.DWG	

ATC ASSOCIATES INC.
600 West Cummings Park, Suite 5500
Woburn, Massachusetts 01801-6350
Tel.(781)932-9400 Fax.(781)932-6211

Floor Caulk Survey Results - March 5th through 8th, 2010
MBTA Cabot Yard - Train Building
275 Dorchester Ave.
South Boston, Massachusetts

Caulk Line Description				*Accessibility*		*Condition*			
Caulk Line ID*	Extent (feet)**	Total Length (feet)	Width (inches)	Interval (feet)***	Access-ibility^	Interval (feet)***	Condition^^	*Comments*	*Removal Ranking^^^*
N-S 242	0-139	139	0.50	Entire	3	Entire	2		6
	159-292	133		Entire	3	Entire	1		3
	318-478	160	0.50	Entire	1	Entire	1	Not visible beneath shelving/equipment	1
Track 1 - East	(-43)-(-4)	39	0.50	Entire	2	Entire	2	South Exterior Apron	4
	159-478	319	0.50	159-212	3	Entire	2	Blacksmith shop	6
				212-318	2	Entire	2	Various work areas and storage	4
				318-478	2	Entire	1	Open area but little actual work	2
	482-523	0	0.50	Entire	1	482-500	Missing	North Exterior Apron; Caulk Missing	NA
		23			1	500-523	3		3
Track 1 - West	(-43)-(-4)	39	0.50	Entire	2	Entire	2	South Exterior Apron	4
	159-478	319	0.50	159-208	3	159-208	2		6
				208-478	2	208-244	2		4
					2	244-255	3		6
					2	255-318	2		4
					2	318-345	1		2
					2	345-360	2		4
					2	360-392	1		2
					2	392-478	2		4
	482-523	41	0.50	Entire	1	Entire	3	North Exterior Apron	3

Floor Caulk Survey Results - March 5th through 8th, 2010
MBTA Cabot Yard - Train Building
275 Dorchester Ave.
South Boston, Massachusetts

Caulk Line Description				*Accessibility*		*Condition*			
Caulk Line ID*	Extent (feet)**	Total Length (feet)	Width (inches)	Interval (feet)***	Access-ibility^	Interval (feet)***	Condition^^	*Comments*	*Removal Ranking^^^*
Track 2 - East	(-43)-(-4)	39	0.50	Entire	2	Entire	2	South Exterior Apron	4
	1-34	33	0.50	Entire	2	Entire	2		4
	68-108	40	0.50	Entire	2	Entire	2		4
	140-176	36	0.50	Entire	3	Entire	2		6
	186-222	36	0.50	Entire	3	Entire	2		6
	234-244	10	0.50	Entire	3	Entire	2		6
	255-295	40	0.50	Entire	3	Entire	2		6
	305-335	30	0.50	Entire	3	Entire	1		3
	345-380	35	0.50	Entire	3	Entire	2		6
	412-451	39	0.50	Entire	3	Entire	1		3
	465-478	13	0.50	Entire	3	Entire	2		6
	482-523	41	0.50	Entire	1	Entire	3	North Exterior Apron	3
Track 2 - West	(-43)-(-4)	39	0.50	Entire	2	Entire	3	South Exterior Apron	6
	1-34	33	0.50	Entire	2	Entire	2		4
	40-176	136	0.50	40-159	2	Entire	2		4
				159-176	3	Entire	2		6
	186-222	36	0.50	Entire	3	Entire	2		6
	234-244	10	0.50	Entire	3	Entire	2		6
	255-295	40	0.50	Entire	3	Entire	2		6
	305-335	30	0.50	Entire	3	Entire	2		6
	345-380	35	0.50	Entire	3	Entire	2		6
	412-451	39	0.50	Entire	3	Entire	1		3
	465-478	13	0.50	Entire	3	Entire	2		6
	482-523	41	0.50	Entire	1	Entire	3	North Exterior Apron	3
N-S 183	40-138	98	0.50	Entire	1	Entire	1	Joint next to offices	
	144-159	15	0.50	Entire	1	Entire	1	Joint next to offices	
	424-455	31	0.50	Entire	1	Entire	2	Adjacent to Basement Edge	
	460-478	18	0.50	Entire	1	Entire	2	Adjacent to Basement Edge	

Floor Caulk Survey Results - March 5th through 8th, 2010
MBTA Cabot Yard - Train Building
275 Dorchester Ave.
South Boston, Massachusetts

Caulk Line Description				*Accessibility*		*Condition*			
Caulk Line ID*	Extent (feet)**	Total Length (feet)	Width (inches)	Interval (feet)***	Access-ibility^	Interval (feet)***	Condition^^	*Comments*	*Removal Ranking^^^*
Track 3 - East	(-43)-(-4)	39	0.50	Entire	1	Entire	3	South Exterior Apron	3
	1-478	477	0.50	1-12	2	Entire	2	East Edge of Repair Pit	4
				12-478	3	12-53	2		6
					3	53-63	3		9
					3	63-292	2		6
					3	292-318	3		9
					3	318-460	3		9
					3	460-478	2		6
	482-523	41	0.50	Entire	1	Entire	3	North Exterior Apron	3
Track 3 - West	(-43)-(-4)	0	0.50	Entire	1	Entire	Missing	South Exterior Apron; Caulk Missing	NA
	1-12	11	0.50	Entire	2	Entire	2		4
	460-478	18	0.50	Entire	2	Entire	2		4
	482-523	41	0.50	Entire	1	Entire	3	North Exterior Apron	3
Track 4 - East	(-43)-(-4)	0	0.50	Entire	1	Entire	Missing	South Exterior Apron; Caulk Missing	NA
	1-12	11	0.50	Entire	2	Entire	2		4
	460-478	18	0.50	Entire	2	Entire	2		4
	482-523	41	0.50	Entire	1	Entire	3	North Exterior Apron	3
Track 4 - West	(-43)-(-4)	39	0.50	Entire	1	Entire	3	South Exterior Apron	3
	1-12	11	0.50	Entire	2	Entire	2		4
	460-478	18	0.50	Entire	2	Entire	2		4
	482-523	41	0.50	Entire	1	Entire	2	North Exterior Apron	2

Floor Caulk Survey Results - March 5th through 8th, 2010
MBTA Cabot Yard - Train Building
275 Dorchester Ave.
South Boston, Massachusetts

Caulk Line Description				*Accessibility*		*Condition*			
Caulk Line ID*	Extent (feet)**	Total Length (feet)	Width (inches)	Interval (feet)***	Access-ibility^	Interval (feet)***	Condition^^	*Comments*	*Removal Ranking^^^*
Track 5 - East	(-43)-(-4)	39	0.50	Entire	1	(-43)-(-38)	2	South Exterior Apron	2
					1	(-38)-(-4)	3	South Exterior Apron	3
	1-12	11	0.50	Entire	2	Entire	2		4
	460-478	18	0.50	Entire	2	Entire	2		4
	482-523	41	0.50	Entire	1	Entire	2	North Exterior Apron	2
Track 5 - West	(-43)-(-4)	39	0.50	Entire	1	Entire	2	South Exterior Apron	2
	1-12	11	0.50	Entire	2	Entire	2		4
	460-478	18	0.50	Entire	2	Entire	2		4
	482-523	41	0.50	Entire	1	Entire	2	North Exterior Apron	2
Track 6 - East	(-43)-(-4)	39	0.50	Entire	1	Entire	2	South Exterior Apron	2
	1-12	11	0.50	Entire	2	Entire	2		4
	460-478	18	0.50	Entire	2	Entire	2		4
	482-523	41	0.50	Entire	1	Entire	3	North Exterior Apron	3
Track 6 - West	(-43)-(-4)	39	0.50	Entire	1	(-43)-(-30)	2	South Exterior Apron	2
					1	(-30)-(-10)	3	South Exterior Apron	3
					1	(-10)-(-4)	2	South Exterior Apron	2
	1-478	477	0.50	Entire	2	Entire	2	West Edge of Repair Pit	4
	482-523	41	0.50	Entire	1	Entire	3	North Exterior Apron	3
N-S 72	479-523	44	0.50	Entire	1	Entire	3	Exterior along wall	3
N-S 70	478-583	105	0.50	Entire	1	Entire	1	Interior along wall	1

Floor Caulk Survey Results - March 5th through 8th, 2010
MBTA Cabot Yard - Train Building
275 Dorchester Ave.
South Boston, Massachusetts

Caulk Line Description				*Accessibility*		*Condition*			
Caulk Line ID*	Extent (feet)**	Total Length (feet)	Width (inches)	Interval (feet)***	Access-ibility^	Interval (feet)***	Condition^^	*Comments*	*Removal Ranking^^^*
Track 7 - East	(-43)-(-4)	39	0.50	Entire	1	(-43)-(-30)	1		1
					1	(-30)-(-11)	3		3
					1	(-11)-(-4)	2		2
	1-159	158	0.50	Entire	2	Entire	2		4
	186-582	396	0.50	Entire	2	186-477	2		4
					2	477-582	1	Train car painting room	2
	587-600	13	0.50	Entire	1	Entire	2	North Exterior Apron	2
Track 7 - West	(-43)-(-4)	39	0.50	Entire	1	Entire	3	South Exterior Apron	3
	1-159	158	0.50	Entire	2	Entire	2		4
	186-582	396	0.50	Entire	2	186-477	2		4
					2	477-582	1	Train car painting room	2
	587-600	13	0.50	Entire	1	Entire	2	North Exterior Apron	2
N-S 48	159-186	27	0.50	Entire	2	Entire	2	Edge of Truing Pit	NA
Track 8 - East	(-43)-(-4)	0	0.50	Entire	1	(-43)-(-40)	Missing	South Exterior Apron; Caulk Missing	NA
		36			1	(-40)-(-4)	3	South Exterior Apron	3
	1-582	581	0.50	Entire	2	1-6	2		4
					2	6-60	1		2
					2	60-80	2		4
					2	80-320	1		2
					2	320-370	2		4
					2	370-582	1		2
	587-600	13	0.50	Entire	1	Entire	2	North Exterior Apron	2
Track 8 - West	(-43)-(-4)	0	0.50	Entire	1	(-43)-(-10)	Missing	South Exterior Apron; Caulk Missing	NA
		6			1	(-10)-(-4)	3	South Exterior Apron	3
	1-582	581	0.50	Entire	2	Entire	2		4
	587-600	13	0.50	Entire	1	Entire	2	North Exterior Apron	2

Floor Caulk Survey Results - March 5th through 8th, 2010
MBTA Cabot Yard - Train Building
275 Dorchester Ave.
South Boston, Massachusetts

Caulk Line Description				*Accessibility*		*Condition*			
Caulk Line ID*	Extent (feet)**	Total Length (feet)	Width (inches)	Interval (feet)***	Access-ibility^	Interval (feet)***	Condition^^	*Comments*	*Removal Ranking^^^*
N-S 26	470-583	0	0.50	Entire	1	Entire	Missing	Caulk Missing	NA
Wash Alley - East	(-43)-(-4)	39	0.50	Entire	1	Entire	3	South Exterior Apron	3
	587-600	13	0.50	Entire	1	Entire	3	North Exterior Apron	3
Wash Alley - West	(-43)-(-4)	39	0.50	Entire	1	Entire	3	South Exterior Apron	3
	587-600	13	0.50	Entire	1	Entire	3	North Exterior Apron	3
E-W (-1)	0-5	5	0.50	Entire	1	Entire	2	Exterior Joint Along Wall	2
	26-30	4	0.50	Entire	1	Entire	2	Exterior Joint Along Wall	2
	30-44	14	0.50	Entire	2	Entire	1	South wall overhead door area	2
	44-52	8	0.50	Entire	1	Entire	2	Exterior Joint Along Wall	2
	52-66	14	0.50	Entire	2	Entire	1	South wall overhead door area	2
	66-75	9	0.50	Entire	1	Entire	2	Exterior Joint Along Wall	2
	75-89	14	0.50	Entire	2	Entire	1	South wall overhead door area	2
	91-105	14	0.50	Entire	2	Entire	1	South wall overhead door area	2
	107-121	14	0.50	Entire	2	Entire	1	South wall overhead door area	2
	123-137	14	0.50	Entire	2	Entire	1	South wall overhead door area	2
	137-158	21	0.50	Entire	1	Entire	2	Exterior Joint Along Wall	2
	164-178	14	0.50	Entire	3	Entire	3	South wall overhead door area	9
	179-184	5	0.50	Entire	1	Entire	2	Exterior Joint Along Wall	2
	186-210	24	0.50	Entire	3	Entire	3	South wall overhead door area	9
	234-242	8	0.50	Entire	1	Entire	2	Exterior Joint Along Wall	2

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Caulk Line Description				*Accessibility*		*Condition*			
Caulk Line ID*	Extent (feet)**	Total Length (feet)	Width (inches)	Interval (feet)***	Access-ibility^	Interval (feet)***	Condition^^	*Comments*	*Removal Ranking^^^*
E-W 1	30-44	14	0.50	Entire	2	Entire	1	South wall overhead door area	2
	52-66	14	0.50	Entire	2	Entire	1		2
	75-89	14	0.50	Entire	2	Entire	2		4
	91-105	14	0.50	Entire	2	Entire	1		2
	107-121	14	0.50	Entire	2	Entire	1		2
	123-137	14	0.50	Entire	2	Entire	1		2
	164-178	14	0.50	Entire	3	Entire	3		9
	186-210	24	0.50	Entire	3	Entire	3		9
E-W (1-4) (Squiggly joint)	66-75	9	0.50	Entire	2	Entire	1	South wall overhead door area	2
	178-185	7	0.50	Entire	3	Entire	2		6
E-W 12	86-94	8	0.50	Entire	3	Entire	2	Beginning of repair pit (south)	6
	100-108	8	0.50	Entire	3	Entire	2		6
	119-127	8	0.50	Entire	3	Entire	3		9
E-W 14	70-77	7	0.50	Entire	3	Entire	1	Beginning of repair pit (south)	3
	86-94	8	0.50	Entire	3	Entire	2		6
	100-108	8	0.50	Entire	3	Entire	3		9
	119-127	8	0.50	Entire	3	Entire	2		6
E-W 18	139-141	2	0.50	Entire	2	Entire	1	Joint south of Storeroom	2
	149-163	14	0.50	Entire	2	Entire	2	Joint south of Storeroom	4
E-W 30	183-199	16	0.50	Entire	3	Entire	2		6
E-W 32	183-199	16	0.50	Entire	3	Entire	2		6
	204-220	16	0.50	Entire	3	Entire	2		6

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MBTA Cabot Yard - Train Building
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Caulk Line Description				*Accessibility*		*Condition*			
Caulk Line ID*	Extent (feet)**	Total Length (feet)	Width (inches)	Interval (feet)***	Access-ibility^	Interval (feet)***	Condition^^	*Comments*	*Removal Ranking^^^*
E-W 38	183-199	16	0.50	Entire	3	Entire	2		6
E-W 49	136-141	5	0.50	Entire	3	Entire	2		6
E-W 84	136-141	5	0.50	Entire	3	Entire	3		9
E-W 146	136-141	5	0.50	Entire	3	Entire	2		6
E-W 159	26-205	179	1.50	26-56	1	Entire	2	Main Expansion Joint (Southernmost of 2)	2
				56-133	3	Entire	2		6
				133-205	2	133-141	3		6
					2	141-205	2		4
E-W 176	148-195	47	0.50	Entire	3	Entire	2	E-W Work tracks	6
	205-217	12	0.50	Entire	3	Entire	2		6
E-W 181	148-195	47	0.50	Entire	3	Entire	2	E-W Work tracks	6
	205-217	12	0.50	Entire	3	Entire	2		6
E-W 186	48-55	7	0.50	Entire	2	Entire	2	Edge of Truing Pit	4
	63-70	7	0.50	Entire	2	Entire	2		4
E-W 196	148-195	47	0.50	Entire	3	Entire	2	E-W Work tracks	6
E-W 201	148-195	47	0.50	Entire	3	Entire	2	E-W Work tracks	6
E-W 227	148-195	47	0.50	Entire	3	Entire	2	E-W Work tracks	6
	205-217	12	0.50	Entire	3	Entire	2		6

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Caulk Line Description				*Accessibility*		*Condition*			
Caulk Line ID*	Extent (feet)**	Total Length (feet)	Width (inches)	Interval (feet)***	Access-ibility^	Interval (feet)***	Condition^^	*Comments*	*Removal Ranking^^^*
E-W 232	148-195	47	0.50	Entire	3	Entire	2	E-W Work tracks	6
	205-217	12	0.50	Entire	3	Entire	2		6
E-W 237	206-212	6	0.50	Entire	2	Entire	1		2
E-W 242	206-212	6	0.50	Entire	2	Entire	1		2
E-W 246	148-195	47	0.50	Entire	3	Entire	2	E-W Work tracks	6
	205-217	12	0.50	Entire	3	Entire	1		3
E-W 251	148-195	47	0.50	Entire	3	148-171	2	E-W Work tracks	6
						171-195	3		
	205-217	12	0.50	Entire	3	Entire	1		3
E-W 297	148-195	47	0.50	Entire	3	Entire	2	E-W Work tracks	6
	205-217	12	0.50	Entire	3	Entire	2		6
E-W 302	148-195	47	0.50	Entire	3	Entire	2	E-W Work tracks	6
	205-217	12	0.50	Entire	3	Entire	2		6
E-W 318	26-242	51	1.50	26-77	1	Entire	1	Main Expansion Joint (Northernmost of 2)	1
		43		77-141	3	77-120	2		6
		0			3	120-141	Missing	Joint filled with Concrete	NA
		17		141-158	2	Entire	2		4
		8		158-242	3	158-166	1		3
		76			3	166-242	2		6
E-W 336	148-195	47	0.50	Entire	3	Entire	3	E-W Work tracks	9
	205-217	12	0.50	Entire	3	Entire	2		6

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Caulk Line Description				*Accessibility*		*Condition*			
Caulk Line ID*	Extent (feet)**	Total Length (feet)	Width (inches)	Interval (feet)***	Access-ibility^	Interval (feet)***	Condition^^	*Comments*	*Removal Ranking^^^*
E-W 341	148-195	47	0.50	Entire	3	Entire	3	E-W Work tracks	9
	205-217	12	0.50	Entire	3	Entire	2		6
E-W 356	148-195	47	0.50	Entire	3	148-175	2	E-W Work tracks	6
					3	175-195	3		9
E-W 361	148-195	47	0.50	Entire	3	Entire	2	E-W Work tracks	6
E-W 386	148-195	47	0.50	Entire	3	148-177	3	E-W Work tracks	9
					3	177-195	2		6
	205-217	12	0.50	Entire	3	Entire	1		3
E-W 391	148-195	47	0.50	Entire	3	148-180	2	E-W Work tracks	6
					3	180-195	3		9
	205-211	6	0.50	Entire	3	Entire	1		3
E-W 405	148-195	47	0.50	Entire	3	Entire	3	E-W Work tracks	9
	205-211	6	0.50	Entire	3	Entire	1		3
E-W 410	148-195	47	0.50	Entire	3	Entire	3	E-W Work tracks	9
	205-217	12	0.50	Entire	3	Entire	1		3
E-W 424	141-183	42	0.50	Entire	1	Entire	2		2
E-W 455	183-191	8	0.50	Entire	3	Entire	2		6
	205-217	12	0.50	Entire	3	Entire	1		3
E-W 460	183-195	12	0.50	Entire	3	Entire	2		6
	205-217	12	0.50	Entire	3	Entire	1		3

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Caulk Line Description				*Accessibility*		*Condition*			
Caulk Line ID*	Extent (feet)**	Total Length (feet)	Width (inches)	Interval (feet)***	Access-ibility^	Interval (feet)***	Condition^^	*Comments*	*Removal Ranking^^^*
E-W 464	70-77	7	0.50	Entire	3	Entire	2	End of Repair Pit (north)	6
	86-94	8	0.50	Entire	3	Entire	3		9
	100-108	8	0.50	Entire	3	Entire	3		9
	119-127	8	0.50	Entire	3	Entire	3		9
E-W 466	86-94	8	0.50	Entire	3	Entire	2	End of Repair Pit (north)	6
	100-108	8	0.50	Entire	3	Entire	2		6
	119-127	8	0.50	Entire	3	Entire	2		6
E-W 476	75-89	14	0.50	Entire	2	Entire	2	North wall overhead door area	4
	91-105	14	0.50	Entire	2	Entire	2		4
	107-121	14	0.50	Entire	2	Entire	2		4
	123-137	14	0.50	Entire	2	Entire	2		4
	159-172	13	0.50	Entire	2	Entire	1		2
	183-205	22	0.50	Entire	2	Entire	2		4
	220-233	13	0.50	Entire	2	Entire	1		2
E-W 478	75-89	14	0.50	Entire	2	Entire	3	North wall overhead door area	6
	91-105	14	0.50	Entire	2	Entire	3	North wall overhead door area	6
	107-121	14	0.50	Entire	2	Entire	3	North wall overhead door area	6
	123-135	12	0.50	Entire	2	Entire	3	North wall overhead door area	6
	135-157	22	0.50	Entire	1	Entire	3	Exterior Joint Along Wall	3
	159-172	13	0.50	Entire	2	Entire	2	North wall overhead door area	4
	177-183	6	0.50	Entire	2	Entire	3	Exterior Joint Along Wall	6
	183-205	22	0.50	Entire	1	Entire	3	North wall overhead door area	3
	220-233	13	0.50	Entire	2	Entire	3	North wall overhead door area	6
E-W 582	30-44	14	0.50	Entire	1	Entire	2	North wall overhead door area	2
	52-65	13	0.50	Entire	1	Entire	2		2

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Caulk Line Description				*Accessibility*		*Condition*			
Caulk Line ID*	Extent (feet)**	Total Length (feet)	Width (inches)	Interval (feet)***	Access-ibility^	Interval (feet)***	Condition^^	*Comments*	*Removal Ranking^^^*
E-W 584	0-5	5	0.50	Entire	1	Entire	2	Exterior along wall	2
	26-70	44	0.50	Entire	1	Entire	2	Portions are Exterior along wall	2
Column G-2	NA	4	0.50	Entire	2	Entire	1		2
Column H-2	NA	4	0.50	Entire	2	Entire	1		2
Column J-2	NA	4	0.50	Entire	2	Entire	1		2
Column K-2	NA	4	0.50	Entire	2	Entire	1		2
Column L/M-2	NA	4	0.50	Entire	2	Entire	1		2
Column N-2	NA	4	0.50	Entire	2	Entire	1		2
Column O-2	NA	4	0.50	Entire	2	Entire	1		2
Column P-2	NA	4	0.50	Entire	2	Entire	1		2
Column Q-2	NA	4	0.50	Entire	2	Entire	1		2
Column R-2	NA	4	0.50	Entire	2	Entire	1		2
Note: Column joints between Column Lines S and X along Column Line 2 not included because they fall along Joint N-S 183									
Column H-3	NA	4	0.50	Entire	2	Entire	1		2
Column J-3	NA	4	0.50	Entire	2	Entire	2		4
Column K-3	NA	4	0.50	Entire	2	Entire	1		2
Column L/M-3	NA	4	0.50	Entire	2	Entire	1		2
Column N-3	NA	4	0.50	Entire	2	Entire	2		4
Column O-3	NA	4	0.50	Entire	2	Entire	1		2
Column P-3	NA	4	0.50	Entire	2	Entire	1		2
Column Q-3	NA	4	0.50	Entire	2	Entire	1		2
Column R-3	NA	4	0.50	Entire	2	Entire	1		2
Note: Caulked joints around columns may exist under offices along Column Line 3 between Column Lines T & Y. Inaccessible under flooring.									
Column F-4	NA	4	0.50	Entire	2	Entire	1		2
Column G-4	NA	4	0.50	Entire	2	Entire	1		2
Column H-4	NA	4	0.50	Entire	2	Entire	1		2
Column J-4	NA	4	0.50	Entire	2	Entire	1		2
Column K-4	NA	4	0.50	Entire	2	Entire	1		2
Column L/M-4	NA	4	0.50	Entire	2	Entire	1		2

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Caulk Line Description				*Accessibility*		*Condition*			
Caulk Line ID*	Extent (feet)**	Total Length (feet)	Width (inches)	Interval (feet)***	Access-ibility^	Interval (feet)***	Condition^^	*Comments*	*Removal Ranking^^^*
Column N-4	NA	4	0.50	Entire	2	Entire	1		2
Column O-4	NA	4	0.50	Entire	2	Entire	1		2
Column P-4	NA	4	0.50	Entire	2	Entire	1		2
Column Q-4	NA	4	0.50	Entire	2	Entire	1		2
Column R-4	NA	4	0.50	Entire	2	Entire	1		2
Column S/T-4	NA	4	0.50	Entire	2	Entire	2		4
Column U-4	NA	4	0.50	Entire	2	Entire	1		2
Column V-4	NA	4	0.50	Entire	2	Entire	1		2
Column W-4	NA	4	0.50	Entire	2	Entire	1		2
Column X-4	NA	4	0.50	Entire	2	Entire	1		2
Column Y-4	NA	4	0.50	Entire	2	Entire	1		2
Column B-5	NA	4	0.50	Entire	1	Entire	1	Inaccessible	1
Column C-5	NA	4	0.50	Entire	1	Entire	1	Inaccessible	1
Column D-5	NA	0	0.50	Entire	0	Entire	Missing	Caulk missing from joint	NA
Column L/M-5	NA	4	0.50	Entire	1	Entire	1		1
Column S/T-5	NA	4	0.50	Entire	1	Entire	1		1
Note: Caulked joints around columns may exist under platform along Column Line 5. Most of these are inaccessible under platform.									
Joint around Square Pad	24	24	0.50	Entire	1	Entire	3	Outside north side of building to the east of Track 3; Approximately 6' x 6'	3

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South Boston, Massachusetts

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Caulk Line ID*	Extent (feet)**	Total Length (feet)	Width (inches)	Interval (feet)***	Access-ibility^	Interval (feet)***	Condition^^	*Comments*	*Removal Ranking^^^*

KEY:
**Track Lines* : "Track #" + East Side/West Side (e.g. Track 3 - West)
East-West Lines : "E-W" + Feet from South Wall of building (e.g. E-W 30)
North-South Lines : "N-S" + Feet from West Wall of building (e.g. N-S 30)
Column Surrounds : "Column" + Column ID (see blueprint) (e.g. Column N-3)
Miscellaneous : Provide Description

**If caulk line does not extend full length or width of building, give start & stop points in feet, using protocol below.

***Distance in feet from West wall (for north-south lines), or South wall (for east-west lines)

^Rank 1 - 3 as follows:
1 - Out-of-the-way area, little work activity (e.g. corner of building, mainly storage, infrequent work area)
2 - Accessible area, little work activity (e.g. common travel path but little work done in area)
3 - Accessible Area, frequent work activity (e.g. repair pits, wheel/undercarriage work area)

^^Condition: "Missing" or rate on 1-3 scale, with 1 being perfect condition & 3 being terrible condition.
For example:
3 - Caulk mostly in joint, but torn up quite a bit
2 - Caulk in joint, but surface is moderately to badly damaged, with chunks missing
1 - Caulk in joint, surface is pristine to weathered but no apparent physical damage like scratches/holes

^^^Caulk Removal Ranking = Accessibility Score * Condition Score
Higher Score = Top Priority for Removal

Appendix I

Manufacturer Information on Selected Floor Cleaners

GENERAL PRODUCT

POWER CLEANER® 155

Multi-Purpose, Liquid Alkaline Cleaner

FEATURES/BENEFITS

Features

Highly concentrated

Low foaming

Contains no VOC's

Not Photochemically reactive

No SARA 313 reportables

No Prop 65 substances

Odorless

Safer to people & equipment

Biodegradable

No flash point

Benefits

Extremely cost effective

Eliminates reporting

Pleasant to use

Eliminates solvent fires

No solvent disposal problem

Power Cleaner 155 is available in of 6 gallon pails, 55 gallon drums, totes and bulk deliveries.

Description

Power Cleaner 155 is a highly concentrated liquid alkaline used widely to clean up difficult PCB spills and is highly effective for removing grease, oil and grime quickly and safely from most surfaces, such as: floors, walls, machinery, etc..

Typical Uses

- **Rapid Soil Penetration** - ***Power Cleaner 155*** rapidly attacks a wide variety of soils, holds them in suspension, then rinses freely.
- **Versatile** - Use with any method: steam, high pressure, power scrubbers, mop & bucket. Ties up hard water to reduce scaling in coils, hoses, make-up tanks, and gun heads. Increases the life of expensive equipment.
- **Retrofits Vapor Degreasers** - Dilute ***Power Cleaner 155*** one part to 5 parts of water, heat to 160°F, add two 3/4" pipes along the bottom with holes drilled for air, then connect to an air valve. Cleans most soils including lube oils.
- **Meat, Fish & Poultry** - ***Power Cleaner 155*** is a Class A1 cleaner for use in food plants.

Power Cleaner 155 is free of butyl cellosolve (2-butoxyethanol), a reportable SARA Title III, Section 313 ingredient found in many cleaners.

Note:

Starting in 1996, VOC's must be reduced 10% yearly. Penetone has helped companies reduce VOC's for over 60 years. Call and we will be happy to help you reduce your VOC's.

IMPORTANT: Before using POWER CLEANER 155, always be sure to read and follow precautions and directions for use appearing on the product container label and MSDS. (Oct04)

Penetone Corporation • 700 Gotham Parkway • Carlstadt, New Jersey 07072 • (800) 631-1652
West Penetone, Inc. • 10900 Secant Street • Ville d'Anjou, QC H1J 1S5 • (514) 355-4660

West Penetone®

YOUR CLEANING SOLUTIONS RESOURCE.

PENETONE CORPORATION -- POWER CLEANER 155 -- 7930-00N001399

========== Product Identification ==========

Product ID:POWER CLEANER 155
MSDS Date:10/09/1989
FSC:7930
NIIN:00N001399
MSDS Number: BCHSN
=== Responsible Party ===
Company Name:PENETONE CORPORATION
Address:74 HUDSON AVE
City:TENAFLY
State:NJ
ZIP:07670
Country:US
Info Phone Num:201-567-3000
Emergency Phone Num:201-5673000
CAGE:53883
=== Contractor Identification ===
Company Name:PENETONE CORP
Address:74 HUDSON AVE
Box:City:TENAFLY
State:NJ
ZIP:07670
Country:US
Phone:201-567-3000
CAGE:56883
Company Name:PENETONE CORPORATION/SUB OF WEST CHEMICAL PRODUCTS INC
Address:74 HUDSON AVENUE
Box:City:TENAFLY
State:NJ
ZIP:07670
Phone:(201) 567-3000
CAGE:53883

========== Composition/Information on Ingredients ==========

Ingred Name:ALKALINE DETERGENT

Ingred Name:PHOSPHATES

Ingred Name:SODIUM SALT

Ingred Name:WETTING AGENTS

========== Hazards Identification ==========

Effects of Overexposure:DRYNESS ON PROLONGED CONTACT WITH SKIN. EYE: IRRITATION

========== First Aid Measures ==========

First Aid:EYES:IN CASE OF CONTACT, FLUSH WITH A GENTLE STREAM OF COOL RUNNING WATER FOR SEVERAL MINUTES (15 MINS). GET MED ATTN.

========== Fire Fighting Measures ==========

Flash Point Method:COC

Flash Point:NONE
Extinguishing Media:MEDIA SUITABLE FOR SURROUNDING FIRE .
Fire Fighting Procedures:WEAR NIOSH/MSHA APPROVED SCBA AND FULL PROTECTIVE EQUIPMENT . COOL DRUMS W/WATER.
Unusual Fire/Explosion Hazard:NONE

Accidental Release Measures

Spill Release Procedures:FLUSH AWAY WITH WATER OR USE ABSORBENTS.

Handling and Storage

Handling and Storage Precautions:PROTECT FROM FREEZING. SHOULD IT FREEZE,ALLOW TO THAW OUT AND ROLL THE DRUM. PRODUCT WILL REVERT TO NORMAL CONDITION.

Exposure Controls/Personal Protection

Respiratory Protection:NONE REQUIRED
Ventilation:NONE
Protective Gloves:RUBBER
Eye Protection:GOGGLES
Supplemental Safety and Health

Physical/Chemical Properties

Boiling Pt:B.P. Text:212F/100C
Vapor Pres:15@68F
Vapor Density:= TO WATER
Spec Gravity:1.140
pH:12.6
Evaporation Rate & Reference:EQUAL TO WATER
Solubility in Water:COMPLETE
Appearance and Odor:CLEAR LIQUID; VIRTUALLY ODORLESS
Percent Volatiles by Volume:78

Stability and Reactivity Data

Stability Indicator/Materials to Avoid:YES
STRONG ACIDS.
Stability Condition to Avoid:NONE SPECIFIED BY MANUFACTURER.

Disposal Considerations

Waste Disposal Methods:TO SEWER,IN ACCORDANCE WITH LOCAL,STATE AND FEDERAL REGULATIONS.

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VeruSOL™

Ecofriendly, Biodegradable Surfactant

VeruSOL™ is an innovative clear formulation made with citrus extracts and plant-derived surfactants; advancing a new microemulsion technology to achieve excellent efficiency in a wide range of applications.

Provides companies with reliable environmental cleanup, enhanced oil recovery, and industrial cleanup of oils.

100 YEAR OLD COAL TAR IN SOIL AT 20 FOOT DEPTH...

SAME LOCATION BEFORE AND AFTER.

Soil and Groundwater Cleanup

VeruSOL™ can be combined with oxidants including hydrogen peroxide or sodium persulfate in VeruTEK's proprietary S-ISCO™ (Surfactant-Enhanced In Situ Chemical Oxidation) process.

Features and Benefits

- ***An ecofriendly surfactant*** – VeruSOL™ is made from plant materials and biodegrades in the environment. It is nontoxic.
- ***Controlled solubilization*** – VeruSOL™ forms stable Winsor Type I emulsions with contaminants and contaminant nonaqueous phase liquids for targeted destruction by coeluted oxidants such as hydrogen peroxide.
- ***Safe to use*** – VeruSOL™ is easily manipulated due to its nontoxic and non-irritant properties.
- ***Applications*** – VeruSOL™ is ideal for environmental cleanup strategies and for industrial cleaning. It can be used to extract oils, and with oxidants, used to extract minerals.

- **VeruSOL™ is designed for reliable cleanup of free phase products and NAPLS**
- **VeruSOL™ with Peroxide is 10X more efficient than any ISCO oxidant alone**
- **Green technology providing certainty in the toughest of environmental remediation scenarios**
- **Applicators can choose from a range of flexible options:**
  - ***VeruSOL™ Review of site data and support for dosage calculation.***
  - ***VeruSOL™ + Peroxide S-ISCO™ technical support***
  - ***VeruSOL™ + Peroxide Project Implementation***

VeruTEK TECHNOLOGIES

VeruTEK Technologies, Inc.
65 West Dudley Town Rd, Suite 100
Bloomfield, CT 06002
Contact Sales at: 860-242-9800
860-242-9899 FAX

For more VeruSOL™ product information, check out our website at:

www.verutek.com

VeruSOL™ Green Environmental In-Situ Cleanup and Resource Extraction

	Applications	Benefits
MGP Sites **DNAPL/NAPL** **Superfund** **Oil & Gas**	• Surfactant-Enhanced In Situ Chemical Oxidation (S-ISCO™) destruction of free phase and dissolved contaminants in soils and groundwater • DNAPL/NAPL • Coal Tar, Creosote, Oil • Chlorinated Solvents • PCBs • MTBE, Gasoline • Historic contamination and sources	Low cost remediation - certainty in cleanup schedule and performance Contamination treated in-place without excavation or air emission issues Enables destruction of free phase and DNAPL Can safely travel under buildings and production equipment to treat target contaminants No costly transport of contaminated materials to landfills or incineration Enables cleanup without disturbance of structures or operations Eliminates need to retreat - significantly extends effectiveness of common treatment oxidants (such as Persulfate or Peroxide) Regulator approved VeruSOL™ is easily manipulated due to its nontoxic and non-irritant properties.
Property Redevelopment	• Brownfield's • Municipal Setting Designations (MSDs) • Industrial properties • In-place cleanup under parking lots, buildings, foundations	
Pipeline **Railroad** **Industrial**	• In-place cleanup under and between piping, railways, and equipment • Fleet maintenance bays, underground storage tanks and sumps • Concrete floors, foundations and structures; including PCBs • Spill containment areas, product loading terminals and pump stations	
Residential	• Home heating oil tanks and leaks • Concrete basements and water wells • Pesticides/herbicides in gardens and children's play areas	
Oil Sands and Uranium Extraction	• Enhanced extraction of uranium from ore deposits • Effective in oil sands extraction	

VeruSOL Properties

Specific Gravity	0.968 to 0.985 @ 77°F (25°C)
Density	8.63 lb/gal
Physical State	Liquid
Availability	5 gal pail 55 gal drum 275 gal tote Tanker

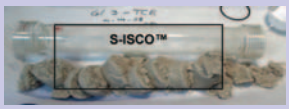
- **Outstanding handling properties**
- **Stable product with long shelf life**
- **Highly soluble and easy to mix**

VeruSOL'S Success

S-ISCO™– Surfactant Enhanced In-Situ Chemical Oxidation (S-ISCO)™ is a below ground solution designed to destroy subsurface NAPLs and overcome the limitations/failures of traditional ISCO solutions.

S-ESCO™ – Surface solution that overcomes the inherent costs and limitations of excavation – 1/3 cost of excavation.

S-EPR™ – VeruSOL™ enhances the efficiency of product removal from the subsurface. VeruSOL™ can increase oil or contaminant solubilization up top 100X



Traditional ISCO vs. S-ISCO

For more VeruSOL™ product information, check out our website at:

www.verutek.com

VeruSOL®-200C

MATERIAL SAFETY DATA SHEET

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Manufacturer: VeruTEK® Technologies, Inc.
Address: 65 West Dudley Town Road, Suite 100, Bloomfield, CT 06002
Phone Number: (860) 242-9800

Product Name: VeruSOL®-200C
Issue Date: January 2011

Section 2: HAZARDS IDENTIFICATION

Emergency Overview

Appearance/Odor: Opaque. Mild natural odor.

Stability: Product is stable under normal conditions.

Slippery when spilled.

Potential Health Effects: See Section 11 for more information.

Likely Routes of Exposure: Eye contact, skin contact, inhalation, ingestion.
Eye: Causes moderate to severe irritation.
Skin: May cause irritation. Prolonged or repeated exposure may cause drying of the skin.
Inhalation: May cause nose, throat, and respiratory tract irritation if mist is inhaled.
Ingestion: Not likely to be toxic, but may cause vomiting, headache, or other medical problems.
Medical Conditions Aggravated By Exposure: May irritate the skin of people with pre-existing skin conditions.

This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC, or NTP.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

	Percent	CAS	Carcinogenic (OSHA,TP,IARC)
Non-hazardous Ingredients			
Water	>98%	7732-18-5	No
Fe-EDTA	<1%	15708-41-5	No
GreenCAT™	<1%	Not yet established	No
VeruSOL®-200	5-20%	Not yet established	No
Hazardous Ingredients			
Sodium Hydroxide	0.01-0.1%	1310-73-2	No

Section 4: FIRST AID MEASURES

Eye Contact:
Flush with water for at least 15 minutes. If irritation persists, seek medical attention.

Skin Contact:
Wash affected area with copious amounts of soap and water for at least 15 minutes. Remove contaminated clothing. If irritation develops, seek medical attention.

Inhalation:
Move to fresh air immediately. If breathing is difficult or discomfort persists, seek medical attention.

Ingestion:
Rinse mouth with water. Dilute by drinking 1 or 2 glasses of water. Do not induce vomiting. Seek medical attention immediately. Do not administer anything by mouth to an unconscious person.

Section 5: FIRE FIGHTING MEASURES

Flash Point (Method): Not combustible **Explosion Limits**: Upper: N/A Lower: N/A

Suitable Extinguishing Media:
Flood area with water.
.
Protection of Firefighters:
Vapors may be irritating to eyes, skin and respiratory tract. Firefighters should wear self-contained breathing apparatus (SCBA) and full fire-fighting turnout gear.

Section 6: ACCIDENTAL RELEASE MEASURES

Methods for Accidental Release:
Product will be slippery. Dike spill area and cap leaking containers if possible to prevent further spreading of spilled material. Absorb small spills with suitable material and put into approved containers.

Larger spills should be contained by blocking nearby sewers, drains, or bodies of water. Dilute with large amounts of water and hold in a dike for disposal.

Waste Disposal:
May be diluted and disposable in sewers if local regulations permit; otherwise, send to a licensed treatment and disposal facility for handling and disposal.

Other Information: There are no special reporting requirements for spills of this material.

Section 7: HANDLING AND STORAGE

Handling
Wear chemical splash goggles and full face shield, impervious clothing, such as rubber, PVC, etc., and rubber or neoprene gloves and shoes. Do not allow this material to come in contact with eyes. Avoid contact with skin. Use in well ventilated areas. Do not breathe vapors. Thoroughly wash hands with soap and water after handling this material.

Storage
Keep away from incompatible materials and heat, sparks, and flame. Open container slowly to release pressure caused by temperature variations. Keep container closed when not in use.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines
VeruSOL®-200C N/E (N/E – Not Established)

Engineering Controls:
Spills should be minimized or confined to prevent release from work area. Remove contaminated clothing immediately and wash before reuse. Keep away from sparks and flames.

Eye/Face Protection:
Wear chemical splash-type safety glasses or goggles. Use full face mask if severe splashing is expected during use.

Skin Protection:
Liquid proof neoprene gloves are recommended. Nitrile gloves are adequate. Wear boots, apron, or bodysuits as necessary.

Respiratory Protection:
Respiratory protection is not necessary under normal conditions and use.

Protective Clothing:
Wear impervious clothing material such as rubber, neoprene, nitrile, etc. Wear splash goggles while handling material.

General Hygiene Considerations:
As with any chemical, wash hands thoroughly after handling. Have eyewash facilities immediately available.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Color: Opaque
Physical State: Liquid
Specific Gravity: 1.02 @ 20°C
Flash Point: N/A
pH: 12
Odor: Mild natural odor
Boiling Point: N/A
Vapor Pressure: N/A
Solubility in Water: Soluble.
Volatile Organic Compound (VOC) Content: <1% by volume.

Note: These specifications represent a typical sample of this product, but actual values may vary. Certificates of Analysis and Specification Sheets are available upon request.

Section 10: STABILITY AND REACTIVITY

Stability: Stable. Contamination may cause decomposition and production of oxygen gas.

Conditions to Avoid: Keep away from heat, sparks, flames, and contamination.

Incompatible Materials: Strong oxidizing agents.

Hazardous Decomposition Products: None.

Possibility of Hazardous Reactions: Possible under extreme conditions or in presence of incompatible material.

Section 11: TOXICOLOGICAL INFORMATION

Acute Effects
N/A

Chronic Effects
N/A

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity: N/A

Persistence/Degradability: N/A

Bioaccumulation/Accumulation: N/A

Mobility in Environment: N/A

Section 13: DISPOSAL CONSIDERATIONS

Disposal:
Product is considered corrosive. Dispose of in accordance with regulatory agencies.

Section 14: TRANSPORT INFORMATION

US DOT Shipping Classification
Hazard Class: Not regulated

Identification No.: Not applicable
Packing Group: Not applicable
Label/Placard: Not applicable

TDG Status: Not regulated
IMO Status: Not regulated
IATA Status: Not regulated

Section 15: REGULATORY INFORMATION

Global Inventories
N/A

Section 16: OTHER INFORMATION

NFPA 704: National Fire Protection Association
Health – 2 Fire – 0 Reactivity – 0

Legend
OSHA – United States Occupational Health and Safety Administration
IARC – International Agency for Research on Cancer
NTP – National Toxicology Program
NIOSH – National Institute for Occupational Safety and Health
EPA – United States Environmental Protection Agency

Caution: The user should conduct his/her own experiments and establish proper procedures and control before attempting use on critical parts.

The information contained herein is based on current knowledge and experience: no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider these data only as a supplement to other information obtained by the user. No warranty is expressed or implied regarding the accuracy of this data, the results to be obtained from the use thereof, or that any such use will not infringe any patent. Users should make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials, the safety and health of employees and customers, and the protection of the environment. This information is furnished upon the condition the person receiving it shall determine the suitability for the particular purpose. This MSDS is to be used as a guideline for safe work practices and emergency response.

MATERIAL SAFETY DATA SHEET

Hydrogen Peroxide (20 to 40%)

MSDS Ref. No.: 7722-84-1-3
Date Approved: 06/03/2008
Revision No.: 11

This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200 and Canada's Workplace Hazardous Materials Information System (WHMIS) requirements.

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Hydrogen Peroxide (20 to 40%)

ALTERNATE PRODUCT NAME(S): Durox® Reg. & LR 35%, Oxypure® 35%, Standard 27.5 & 35%, Super D® 25 & 35, Technical 35%, HTP 35%, OHP 35%, Chlorate Grade, 20%, Semiconductor Reg, Seg, RGS, RGS 2, RGS 3, 31%

GENERAL USE: Durox® 35% Reg. & LR - meets the Food Chemical Codex requirements for aseptic packaging and other food related applications.

Oxypure® 35% - certified by NSF to meet NSF/ANSI Standard 60 requirements for drinking water treatment.

Standard 27.5 and 35% - most suitable grade for industrial bleaching, processing, pollution abatement and general oxidation reactions.

Semiconductor Reg, Seg, RGS, RGS 2, RGS 3, 31% - conform to ACS and Semi Specs. for wafer etching and cleaning, and applications requiring low residues.

Super D® 25 and 35% - meets US Pharmacopoeia specifications for 3% topical solutions when diluted with proper quality water. While manufactured to the USP standards for purity and to FMC's demanding ISO 9002 quality standards, FMC does not claim that it's Hydrogen Peroxide is manufactured in accordance with all pharmaceutical cGMP conditions.

Technical 35% - essentially free of inorganic metals suitable for chemical synthesis.

HTP 35% - specially formulated for aerospace equipment conditioning.

OHP 35% - specially formulated for OHP process, advanced oxidation, and activated peroxide applications

Chlorate Grade 20% - specially formulated for use in chlorate manufacture or processing.

MANUFACTURER

FMC CORPORATION
FMC Peroxygens
1735 Market Street
Philadelphia, PA 19103
(215) 299-6000 (General Information)
msdsinfo@fmc.com (Email - General Information)

FMC of Canada Ltd.
FMC Peroxygens
PG Pulp Mill Road
Prince George, BC V2N2S6
(250) 561-4200 (General Information)

EMERGENCY TELEPHONE NUMBERS

(281) 474-8750 (Plant: Pasadena, TX, US - Call Collect)
(250) 561-4221 (Plant: Prince George, BC, Canada - Call Collect)
(303) 595-9048 (Medical - U.S. - Call Collect)

For leak, fire, spill, or accident emergencies, call:
(800) 424-9300 (CHEMTREC - U.S.A.)
(613) 996-6666 (CANUTEC - Canada)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

- Clear, colorless, odorless liquid
- Oxidizer.
- Contact with combustibles may cause fire.
- Decomposes yielding oxygen that supports combustion of organic matters and can cause overpressure if confined.
- Corrosive to eyes, nose, throat, lungs and gastrointestinal tract.

POTENTIAL HEALTH EFFECTS: Corrosive to eyes, nose, throat and lungs. May cause irreversible tissue damage to the eyes including blindness. May cause skin irritation.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt.%	EC No.	EC Class
Hydrogen Peroxide	7722-84-1	20 - 40	231-765-0	O, C, Xn; R5- R8-R35-R20/22
Water	7732-18-5	60 - 80	231-791-2	Not classified

4. FIRST AID MEASURES

EYES: Immediately flush with water for at least 15 minutes, lifting the upper and lower eyelids intermittently. See a medical doctor or ophthalmologist immediately.

SKIN: Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.

INGESTION: Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. See a medical doctor immediately.

INHALATION: Remove to fresh air. If breathing difficulty or discomfort occurs and persists, contact a medical doctor.

NOTES TO MEDICAL DOCTOR: Hydrogen peroxide at these concentrations is a strong oxidant. Direct contact with the eye is likely to cause corneal damage especially if not washed immediately. Careful ophthalmologic evaluation is recommended and the possibility of local corticosteroid therapy should be considered. Because of the likelihood of corrosive effects on the gastrointestinal tract after ingestion, and the unlikelihood of systemic effects, attempts at evacuating the stomach via emesis induction or gastric lavage should be avoided. There is a remote possibility, however, that a nasogastric or orogastric tube may be required for the reduction of severe distension due to gas formation.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Flood with water.

FIRE / EXPLOSION HAZARDS: Product is non-combustible. On decomposition releases oxygen which may intensify fire.

FIRE FIGHTING PROCEDURES: Any tank or container surrounded by fire should be flooded with water for cooling. Wear full protective clothing and self-contained breathing apparatus.

FLAMMABLE LIMITS: Non-combustible

SENSITIVITY TO IMPACT: No data available

SENSITIVITY TO STATIC DISCHARGE: No data available

6. ACCIDENTAL RELEASE MEASURES

RELEASE NOTES: Dilute with a large volume of water and hold in a pond or diked area until hydrogen peroxide decomposes. Hydrogen peroxide may be decomposed by adding sodium metabisulfite or sodium sulfite after diluting to about 5%. Dispose according to methods outlined for waste disposal.

Combustible materials exposed to hydrogen peroxide should be immediately submerged in or rinsed with large amounts of water to ensure that all hydrogen peroxide is removed. Residual hydrogen peroxide that is allowed to dry (upon evaporation hydrogen peroxide can concentrate) on organic materials such as paper, fabrics, cotton, leather, wood or other combustibles can cause the material to ignite and result in a fire.

7. HANDLING AND STORAGE

HANDLING: Wear chemical splash-type monogoggles and full-face shield, impervious clothing, such as rubber, PVC, etc., and rubber or neoprene gloves and shoes. Avoid cotton, wool and leather. Avoid excessive heat and contamination. Contamination may cause decomposition and generation of oxygen gas which could result in high pressures and possible container rupture. Hydrogen peroxide should be stored only in vented containers and transferred only in a prescribed manner (see FMC Technical Bulletins). Never return unused hydrogen peroxide to original container, empty drums should be triple rinsed with water before discarding. Utensils used for handling hydrogen peroxide should only be made of glass, stainless steel, aluminum or plastic.

STORAGE: Store drums in cool areas out of direct sunlight and away from combustibles. For bulk storage refer to FMC Technical Bulletins.

COMMENTS: VENTILATION: Provide mechanical general and/or local exhaust ventilation to prevent release of vapor or mist into the work environment.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

Chemical Name	ACGIH	OSHA	Supplier
Hydrogen Peroxide	1 ppm (TWA)	1 ppm (PEL) 1.4 mg/m^3 (PEL)	

ENGINEERING CONTROLS: Ventilation should be provided to minimize the release of hydrogen peroxide vapors and mists into the work environment. Spills should be minimized or confined immediately to prevent release into the work area. Remove contaminated clothing immediately and wash before reuse.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Use chemical splash-type monogoggles and a full-face shield made of polycarbonate, acetate, polycarbonate/acetate, PETG or thermoplastic.

RESPIRATORY: If concentrations in excess of 10 ppm are expected, use NIOSH/DHHS approved self-contained breathing apparatus (SCBA), or other approved atmospheric-supplied respirator (ASR) equipment (e.g., a full-face airline respirator (ALR)). DO NOT use any form of air-purifying respirator (APR) or filtering facepiece (AKA dust mask), especially those containing oxidizable sorbants such as activated carbon.

PROTECTIVE CLOTHING: For body protection wear impervious clothing such as an approved splash protective suit made of SBR Rubber, PVC (PVC Outershell w/Polyester Substrate), Gore-Tex (Polyester trilaminate w/Gore-Tex), or a specialized HAZMAT Splash or Protective Suite (Level A, B, or C). For foot protection, wear approved boots made of NBR, PVC, Polyurethane, or neoprene. Overboots made of Latex or PVC, as well as firefighter boots or specialized HAZMAT boots are also permitted. DO NOT wear any form of boot or overboots made of nylon or nylon blends. DO NOT use cotton, wool or leather, as these materials react RAPIDLY with higher concentrations of hydrogen peroxide. Completely submerge hydrogen peroxide contaminated clothing or other materials in water prior to drying. Residual hydrogen peroxide, if allowed to dry on materials such as paper, fabrics, cotton, leather, wood or other combustibles can cause the material to ignite and result in a fire.

GLOVES: For hand protection, wear approved gloves made of nitrile, PVC, or neoprene. DO NOT use cotton, wool or leather for these materials react RAPIDLY with higher concentrations of hydrogen peroxide. Thoroughly rinse the outside of gloves with water prior to removal. Inspect regularly for leaks.

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9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR:	Odorless
APPEARANCE:	Clear, colorless liquid
AUTOIGNITION TEMPERATURE:	Non-combustible
BOILING POINT:	103ºC/218ºF (20%); 107ºC/225ºF (31%); 108ºC/226ºF (35%)
COEFFICIENT OF OIL / WATER:	Not available
DENSITY / WEIGHT PER VOLUME:	Not available
EVAPORATION RATE:	> 1 (Butyl Acetate = 1)
FLASH POINT:	Non-combustible
FREEZING POINT:	-15ºC/6ºF (20%); -26ºC/-15ºF (31%); -33ºC/-27ºF (35%)
ODOR THRESHOLD:	Not available
OXIDIZING PROPERTIES:	Strong oxidizer
PERCENT VOLATILE:	100
pH:	<= 3.7 5.0 - 6.0 @ 25 °C (1% solution)
SOLUBILITY IN WATER:	100 %
SPECIFIC GRAVITY:	1.07 @ 20ºC/4ºC (20%); 1.11 @ 20ºC/4ºC (31%); 1.13 @ 20ºC/4ºC (35%)
VAPOR DENSITY:	(Air = 1): Not available
VAPOR PRESSURE:	28 mmHg @ 30ºC (20%); 24 mmHg @ 30ºC (31%); 23 mmHg @ 30ºC (35%)

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID:	Excessive heat or contamination could cause product to become unstable.
STABILITY:	Stable (heat and contamination could cause decomposition)
POLYMERIZATION:	Will not occur
INCOMPATIBLE MATERIALS:	Reducing agents, wood, paper and other combustibles, iron and other heavy metals, copper alloys and caustic.
HAZARDOUS DECOMPOSITION PRODUCTS:	Oxygen which supports combustion.

COMMENTS: Materials to Avoid : Dirt, organics, cyanides and combustibles such as wood, paper, oils, etc.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: 35% hydrogen peroxide: Extremely irritating/corrosive (rabbit) [FMC Study Number: I83-748]

SKIN EFFECTS: 35% hydrogen peroxide: Mildly irritating after 4-hour exposure (rabbit) [FMC Study Number: I83-747]

DERMAL LD_{50}: 35% hydrogen peroxide: > 2,000 mg/kg (rabbit) [FMC Study Number: I83-746]

ORAL LD_{50}: 35% hydrogen peroxide: 1,193 mg/kg (rat) [FMC Study Number: I83-745]

INHALATION LC_{50}: 50% hydrogen peroxide: > 0.17 mg/l (rat) [FMC Study Number: I89-1080]

TARGET ORGANS: Eyes, nose, throat and lungs

ACUTE EFFECTS FROM OVEREXPOSURE: Extremely irritating/corrosive to eyes and gastrointestinal tract. May cause irreversible tissue damage to the eyes including blindness. Inhalation of mist or vapors may be severely irritating to nose, throat and lungs. May cause skin irritation.

CHRONIC EFFECTS FROM OVEREXPOSURE: The International Agency for Research on Cancer (IARC) has concluded that there is inadequate evidence for carcinogenicity of hydrogen peroxide in humans, but limited evidence in experimental animals (Group 3 - not classifiable as to its carcinogenicity to humans). The American Conference of Governmental Industrial Hygienists (ACGIH) has concluded that hydrogen peroxide is a 'Confirmed Animal Carcinogen with Unknown Relevance to Humans' (A3).

CARCINOGENICITY:

Chemical Name	IARC	NTP	OSHA	Other
Hydrogen Peroxide	Not listed	Not listed	Not listed	(ACGIH) Listed (A3, Animal Carcinogen)

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: Channel catfish 96-hour LC_{50} = 37.4 mg/L
Fathead minnow 96-hour LC_{50} = 16.4 mg/L
Daphnia magna 24-hour EC_{50} = 7.7 mg/L
Daphnia pulex 48-hour LC_{50} = 2.4 mg/L
Freshwater snail 96-hour LC_{50} = 17.7 mg/L
For more information refer to ECETOC "Joint Assessment of Commodity Chemicals No. 22, Hydrogen Peroxide." ISSN-0773-6339, January 1993

CHEMICAL FATE INFORMATION: Hydrogen peroxide in the aquatic environment is subject to various reduction or oxidation processes and decomposes into water and oxygen. Hydrogen peroxide half-life in freshwater ranged from 8 hours to 20 days, in air from 10-20 hrs. and in soils from minutes to hours depending upon microbiological activity and metal contaminants.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: An acceptable method of disposal is to dilute with a large amount of water and allow the hydrogen peroxide to decompose followed by discharge into a suitable treatment system in accordance with all regulatory agencies. The appropriate regulatory agencies should be contacted prior to disposal.

14. TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

PROPER SHIPPING NAME:	Hydrogen peroxide, aqueous solutions with not less than 20% but not more than 40% hydrogen peroxide
PRIMARY HAZARD CLASS / DIVISION:	5.1 (Oxidizer)
UN/NA NUMBER:	UN 2014
PACKING GROUP:	II
LABEL(S):	Oxidizer, Corrosive
PLACARD(S):	5.1 (Oxidizer)

ADDITIONAL INFORMATION:

DOT Marking: Hydrogen Peroxide, aqueous solution with not less than 20%, but not more than 40% Hydrogen Peroxide, UN 2014

Hazardous Substance/RQ: Not applicable

49 STCC Number: 4918775

DOT Spec: stainless steel/high purity aluminum cargo tanks and rail cars. UN Spec: HDPE drums. Contact FMC for specific details.

INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG)

PROPER SHIPPING NAME: Hydrogen peroxide, aqueous solutions with not less than 20%, but not more than 60% hydrogen peroxide.

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) / INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)

PROPER SHIPPING NAME: Hydrogen peroxide, aqueous solutions with not less than 20%, but not more than 40% hydrogen peroxide (*).

OTHER INFORMATION:

(*) Air regulations permit shipment of Hydrogen Peroxide (20 - 40%) in non-vented containers for Air Cargo Only aircraft, as well as for Passenger and Cargo aircraft. HOWEVER, all FMC Hydrogen Peroxide containers are vented and therefore, air shipments of FMC H_20_2 is not permitted. IATA air regulations state that venting of packages containing oxidizing substances is not permitted for air transport.

Protect from physical damage. Keep drums in upright position. Drums should not be stacked in transit. Do not store drum on wooden pallets.

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355, APPENDIX A):
Not listed

SECTION 311 HAZARD CATEGORIES (40 CFR 370):
Fire Hazard, Immediate (Acute) Health Hazard

SECTION 312 THRESHOLD PLANNING QUANTITY (40 CFR 370):

The Threshold Planning Quantity (TPQ) for this product, if treated as a mixture, is 10,000 lbs; however, this product contains the following ingredients with a TPQ of less than 10,000 lbs.: None, (conc. <52%)

SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372):

Not listed

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT)

CERCLA DESIGNATION & REPORTABLE QUANTITIES (RQ) (40 CFR 302.4):

Unlisted (Hydrogen Peroxide 20-40%); RQ = 100 lbs.; Ignitability, Corrosivity

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA INVENTORY STATUS (40 CFR 710):

Listed

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

RCRA IDENTIFICATION OF HAZARDOUS WASTE (40 CFR 261):

Waste Number: D001, D002

CANADA

WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Hazard Classification / Division:	C E D2B
Product Identification Number:	2014
Ingredient Disclosure List:	Listed
Domestic Substance List:	All components listed

INTERNATIONAL LISTINGS

Hydrogen peroxide:

China: Listed
Japan (ENCS): (1)-419
Korea: KE-20204
Philippines (PICCS): Listed

HAZARD AND RISK PHRASE DESCRIPTIONS:

EC Symbols: O (Oxidizer)

	C	(Corrosive)
	Xn	(Harmful)
EC Risk Phrases:	R5	(Heating may cause an explosion.)
	R8	(Contact with combustible material may cause fire)
	R35	(Causes severe burns.)
	R20/22	(Harmful by inhalation and if swallowed.)

16. OTHER INFORMATION

HMIS

Health	3
Flammability	0
Physical Hazard	1
Personal Protection (PPE)	H

Protection = H (Safety goggles, gloves, apron, the use of a supplied air or SCBA respirator is required in lieu of a vapor cartridge respirator)

HMIS = Hazardous Materials Identification System

Degree of Hazard Code:
4 = Severe
3 = Serious
2 = Moderate
1 = Slight
0 = Minimal

NFPA

Health	3
Flammability	0
Reactivity	1
Special	OX

SPECIAL = OX (Oxidizer)

NFPA (National Fire Protection Association)

Degree of Hazard Code:
4 = Extreme
3 = High
2 = Moderate
1 = Slight
0 = Insignificant

REVISION SUMMARY:
This MSDS replaces Revision #10, dated April 27, 2006.

Changes in information are as follows:
Section 1 (Product and Company Identification)
Section 3 (Composition / Information on Ingredients)
Section 15 (Regulatory Information)
Section 16 (Other Information)

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