

REMOVAL AND ABATEMENT REPORT FOR PCB BUILDING MATERIALS – 2009 THROUGH 2011

**New Bedford High School
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TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
1.0 INTRODUCTION.....	1-1
1.1 New Bedford High School Description	1-1
1.2 Sampling Description.....	1-2
1.3 Working Hypothesis	1-3
1.4 Building Material Classifications	1-3
2.0 REPORT SUMMARY BY YEAR.....	2-1

Report Summaries

Removal and Abatement Report for PCB Building Materials – 2009
Removal and Abatement Report for PCB Building Materials – 2010
Removal and Abatement Report for PCB Building Materials – 2011

1.0 INTRODUCTION

This Removal and Abatement Report (RAR) was prepared to document the removal and abatement activities detailed in the following TRC *Removal and Abatement Plans*:

- *Removal and Abatement Plan – New Bedford High School, Building Interior PCB Removal & Abatement Plan, March 2009*
- *Removal and Abatement Plan – New Bedford High School, Building Interior PCB Removal & Abatement Plan, March 2010*
- *Removal and Abatement Plan – New Bedford High School, Building Interior PCB Removal & Abatement Plan, March 2011*

The removal and abatement activities were conducted to address polychlorinated biphenyl (PCB) containing building materials regulated for removal by the United States Environmental Protection Agency (EPA) per 40 CFR 761. With a building the size of NBHS, the removal and abatement activities proceeded in phases that could accommodate the continued use of the building as an educational facility without significant interruption by focusing efforts primarily during summer vacation periods.

1.1 New Bedford High School Description

NBHS is an approximately 535,000 square foot (sq. ft.) building of principally concrete and masonry construction built during the early 1970s (completed in 1971). The building is capable of housing a maximum of 4,000 students, but current enrollment is approximately 2,500 students. The building is divided into six parts or “blocks” listed below along with a description of the use and/or occupancy of the block. Schematic layouts of the building are provided in Figures 2A through 2C.

- **A-Block.** The A-Block portion of the building includes four separate wings, known as the “Houses”, consisting principally of classrooms, dining halls and some office space. The corridors in the A-Block are lined with lockers.
- **B-Block.** The B-Block portion of the building is also known as the “Core”. The B-Block is a mix of classroom space, laboratories, and lecture halls, as well as the school library. The B-Block is also the location of the main mechanical room, kitchens, and dining hall serving areas.
- **C-Block.** The C-Block is a transitional area that houses the main offices, a school store, hallway space and the boiler room.
- **D-Block.** The D-Block houses a variety of activities including wood shops, an auto shop, the main auditorium, a small theater, a rifle range, offices and some classroom space, as well as a large area located beneath the sloped auditorium floor for storage.
- **E-Block.** Boys and girls gymnasiums and locker rooms.

- **F-Block.** The swimming pool facility.

1.2 Sampling Description

Past investigations conducted by TRC and others have documented the presence of PCBs in indoor air at NBHS at concentrations greater than United States Environmental Protection Agency (EPA) benchmarks described below. PCBs have also been detected in samples of building materials and dust (TRC, 2006a, 2008; BETA, 2006)¹. The following provides a timeline for previously conducted air, dust, and bulk material sampling within NBHS, subsequent remedial actions, and additional bulk material sampling performed to identify other potential source materials:

- **Initial indoor air sampling.** The initial indoor air sampling performed by The BETA Group, Incorporated (BETA) in April 2006 detected PCBs in indoor air at concentrations above the EPA Threshold for Further Investigation of 0.05 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) based on eight indoor air samples.
- **Followup indoor air, bulk, and wipe sampling.** A subsequent larger indoor air sampling effort undertaken by TRC in August 2006 detected PCBs in indoor air at concentrations above the EPA Threshold for Further Investigation of $0.05 \mu\text{g}/\text{m}^3$ and also one result above the Acceptable Long-Term Average Exposure Concentration of $0.3 \mu\text{g}/\text{m}^3$.

Sampling and analysis of dust within the duct work for the ventilation system, on building surfaces, and beneath lockers conducted by TRC in August 2006 also detected PCBs.

- **Duct remediation and supplemental sampling.** TRC oversaw a remedial program performed in the summer of 2007 that removed the dust from various surfaces including the internal surfaces of duct work. Repairs to the ventilation system were also performed under the direction of NBHS engineering staff and City school officials and the heating, ventilation and air-conditioning (HVAC) system was rebalanced in January/February 2008.

Also during the summer of 2007 remedial program, TRC undertook supplemental diagnostic PCB source sampling that included additional bulk sampling in the two classrooms with the highest detected concentrations of indoor air PCBs in August 2006. This sampling was performed to evaluate the relative contributions of potential PCB

¹ EPA's Action Level of 0.05 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) is considered a threshold for further evaluation. The risk-based Acceptable Long-Term Average Exposure Concentration of $0.3 \mu\text{g}/\text{m}^3$ represents a long-term average concentration that corresponds to risk benchmarks established by the Massachusetts Department of Environmental Protection (MassDEP) assuming 25 years of daily workplace exposure. Short-term exposures at the EPA Action Level do not represent an immediate threat to health.

sources present at these locations and help evaluate appropriate remedial actions for PCB-containing building materials in other portions of the school.

- **Post-duct remediation air sampling.** Indoor air sampling performed by TRC in February 2008 found that PCB concentrations in indoor air had decreased beneath the Acceptable Long-Term Average Exposure Concentration of $0.3 \mu\text{g}/\text{m}^3$, and showed significant reductions throughout the building. However, PCBs were still detected in excess of the EPA Threshold for Further Investigation of $0.05 \mu\text{g}/\text{m}^3$. Additional remedial measures to address PCB-containing building materials were deemed necessary because indoor air PCB concentrations still exceeded the EPA Threshold for Further Investigation.
- **Source/sink sampling program.** TRC developed a multi-phase source/sink sampling program to further characterize possible PCB-containing building materials at the site. This sampling program was based in part on a September 12, 2007 site reconnaissance of NBHS conducted with representatives of the City, EPA, and TRC. It was developed further based upon analytical results for initial sampling and implemented in three parts.

1.3 Working Hypothesis

The current working hypothesis for the detection of air-phase concentrations of PCBs at NBHS is that numerous low concentration PCB-containing building materials and ballast related release residues serve as reservoir sources for the air phase PCBs detected at NBHS. Solid phase PCBs volatilize slowly into the vapor phase; therefore, higher concentrations in indoor air may be expected in locations where building material PCB concentrations are higher. Outdoor air does not appear to be a significant source of PCBs found in indoor air since outdoor air samples collected in 2007 concurrently with indoor air samples were either non-detect for PCBs, or had measured concentrations significantly lower (by an order of magnitude or more in many cases) than the corresponding indoor air levels.

1.4 Building Material Classifications

Building materials found to contain PCBs are classified into one of three regulatory categories listed below based on regulatory defined criteria discussed herein:

- **PCB Bulk Product Wastes.** Materials classified as PCB Bulk Product Wastes include those building materials where the source of PCBs is reasonably believed to be from original manufacture with a PCB concentration equal to or greater than 50 milligrams per kilogram (mg/kg). Materials are also classified as PCB Bulk Product Wastes if subsequent construction or building maintenance procedures may have led to a dilution of the original PCB concentration. Where the dilution amount cannot be reasonably determined, then the materials were assumed to have originally contained PCBs at a concentration greater than 50 mg/kg per 40 CFR 761.62. This category of material constitutes an unauthorized use of PCBs under 40 CFR 761.62 and must be removed

from the NBHS building. Based on TRC's evaluations, this category includes the following:

- Coatings found within certain univent systems;
 - Certain laminate adhesives; and
 - Wall paint in limited areas of the building.
- **PCB Remediation Wastes.** Building materials classified as PCB Remediation Wastes include all those where the source of the PCBs is the release from a source containing PCBs at a concentration greater than 50 mg/kg and not from manufacture. In the case of building materials, the release from the source would either be from direct contact with the material classified as a PCB Bulk Product Waste or from the deposition of airborne PCBs onto the material (e.g., via adsorption). Because the exact source of PCBs for each of the PCB Remediation Wastes cannot be determined, EPA requires that it must be assumed that the source was greater than 50 mg/kg. At NBHS, this category includes the following:
- Polyurethane foams used in chairs or other pieces of furniture and gymnasium padding;
 - Polyurethane foam in chairs located in the main auditorium; and
 - Releases from PCB fluorescent light ballasts.
- **Excluded PCB Products.** The final category, Excluded PCB Products, includes all materials with a PCB concentration less than 50 mg/kg where the source is reasonably believed to be from manufacture and not from a release. In addition, these materials must be part of the original construction or it must be reasonably determined that subsequent construction or maintenance activities could have led to the dilution of PCBs within the material. This category includes the following:
- Wall divider gaskets;
 - Laminate adhesives and paint not determined to be PCB Bulk Product Wastes;
 - Window caulking and glazing;
 - Vinyl cove base
 - Joint sealants;
 - Carpets and padding;
 - Push-pin materials;
 - Mastics (e.g., floor tile and cove base molding); and
 - Other building materials (e.g., wallboard, tile, concrete, roofing materials, and insulation).

Excluded PCB Products are not regulated for removal. The 2010 Removal and Abatement Plan proposed Maintenance Measures that are addressed in a separate memorandum submitted under separate cover.

2.0 REPORT SUMMARY BY YEAR

This report includes three volumes, detailing the interior removal and abatement work performed at New Bedford High School during 2009, 2010 and 2011.

- **Removal and Abatement Report for PCB Building Materials – 2009.** Removal and abatement actions performed during the summer break 2009 included the removal of cabinets in rooms A-205-4, A-319-3, and B-240 that had laminate adhesive which was classified as PCB Bulk Product Waste. Painted sheetrock and all materials in contact with the paint were also removed from the closet in room A-206-4 as the paint was classified as PCB Bulk Product Waste. There was some additional removal of polyurethane foam (PUF) furniture and gymnasium pads that were classified as PCB Remediation Wastes. As part of this program, asbestos containing material (ACM) consisting of coated sinks and pipe insulation were also removed from the target areas. Locations where cabinetry was removed were secured on an interim basis until new cabinetry could be installed in December 2009.
- **Removal and Abatement Report for PCB Building Materials – 2010.** Removal and abatement actions performed during the summer break 2010 included the removal and replacement of unit ventilators (univents) within the B-block, classified as PCB Bulk Product Waste due to the presence of PCBs in the interior coating of the univents. This coating was also found to be ACM and was removed under full containment. Painted sheetrock within rooms B-230, A-211-3, and A-213-4 was also removed, classified as PCB Bulk Product Waste. Additionally, paint was present on the concrete masonry unit (CMU) walls of each of these three rooms and was left in place. A temporary false wall was erected to cover the painted CMUs until the removal and abatement action in 2011.
- **Removal and Abatement Report for PCB Building Materials – 2011.** Removal and abatement actions performed during the summer break 2011 included the removal and replacement of fluorescent light fixtures throughout the school PUF cushions from the auditorium, both classified as PCB Remediation Wastes. PCB-containing fluorescent light ballasts were also removed. Additionally, paint classified as PCB Bulk Product Waste was removed from the CMU walls within rooms B-230, A-211-3, and A-213-4 which had been covered with a false wall in 2010. Incidental ACM which was limited to the wire insulation in the fluorescent light fixtures was also removed.

Removal and Abatement Report for PCB Building Materials – 2009

Removal and Abatement Report for PCB Building Materials – 2010

Removal and Abatement Report for PCB Building Materials – 2011