Fairfield Public Schools
Fairfield, CT 06825

TO: Dr. David Title and Members of the Board of Education

FROM: Salvatore Morabito

DATE: May 25, 2012

RE: Osborn Hill Window Replacement Project Testing
Additional PCB Testing of Window Materials **"Results"**

This letter is to notify you that the Fairfield Public School District has received the laboratory results for the additional Polychlorinated Biphenyl (PCB) testing of window materials at Osborn Hill School. The additional testing performed in classroom 116 and the corridor leading to the Gymnasium indicated levels higher than the EPA recommended maximum levels.

Our testing company has notified both DEEP and the EPA of their findings. In addition to these notifications, the local Health Department Director has been consulted. Our next steps will be to clean the affected areas per a specialized cleaning protocol developed by an industrial hygienist and then retest these and adjacent areas. The specialized cleaning is scheduled for the evening of Friday, May 25, 2012. The retesting of the spaces will occur on Saturday, May 26, 2012.

Expedited test results are expected by June 1, 2012. While waiting for these follow up test results, the affected areas can be used as normal per EPA guidance, according to the local Health Department Director (see www.epa.gov/pcbsincaulk/caulk-faqs.pdf). All results will be posted on the Fairfield Public Schools' website when received. The Central Office administration and the Osborn Hill School Principal will keep PCB test reports on file per State regulations.

If you have any questions or concerns regarding the specialized cleaning or the PCB testing, please feel free to contact me at (203) 255-7363.

Thank you.

c: Bev Dyer
Central Office Administration
Sands Cleary

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May 24, 2012

Mr. Sal Morabito
Fairfield Public Schools
501 Kings Highway East
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RE: PCB Air and Wipe Sampling at Osborne Hill Elementary School, Fairfield, CT

Dear Mr. Morabito:

INTRODUCTION

AMC Environmental was retained to obtain initial PCB in air samples and PCB wipe samples from classroom 116 and the corridor outside the gymnasium at Osborne Hill Elementary School in Fairfield on May 4 and 7, 2012. The sampling was obtained from the areas where materials with the highest PCB concentrations were previously identified during the initial bulk sample inspection associated with the anticipated window replacement project (see report dated April 25, 2012).

BACKGROUND

Polychlorinated Biphenyl (PCB)

Polychlorinated biphenyls (PCBs) are a group of chemicals that contain 209 individual compounds (known as congeners) with varying harmful effects. The U.S. Environmental Protection Agency (EPA) treats all PCBs as being potentially hazardous based on results from some formulations. However, this can have large uncertainty for any given mixture situation. PCBs were domestically manufactured from 1929 until their manufacture was banned in 1979. They have a range of toxicity and vary in consistency from thin, light-colored liquids to yellow or black waxy solids. Due to their non-flammability, chemical stability, high boiling point, and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications including electrical, heat transfer, and hydraulic equipment; as plasticizers in paints, plastics, and rubber products; in pigments, dyes, and carbonless copy paper; and many other industrial applications. For this project, initial PCB samples were tested in caulks and window glazing throughout the building.

PCBs are no longer produced or used in the United States today; the major source of exposure to PCBs today is the redistribution of PCBs already present in soil and water. Chronic (long-term) exposure to some PCB formulations by inhalation in humans results in respiratory tract symptoms, gastrointestinal effects, mild liver effects, and effects on the skin and eyes such as chloracne, skin rashes, and eye irritation. Epidemiological studies indicate an association between dietary PCB exposures and developmental effects. Human studies provide inconclusive, yet suggestive, evidence of an association between PCBs exposure and cancer. Animal studies have reported an increase in liver

tumors in rats and mice exposed orally to all tested PCB formulations. EPA has classified PCBs as a Group B2, probable human carcinogen.

PCB Air Samples

Public Health Levels for PCBs in Indoor School Air

The U.S. EPA has calculated prudent public health levels that maintain PCB exposures below the "reference dose" – the amount of PCB exposure that EPA does not believe will cause harm. EPA's reference dose (RfD) is 20 ng PCB/kg body weight per day. Indoor air levels are based upon EPA's understanding of average exposure to PCBs from all other major sources, and were calculated for all ages of children from toddlers in day-care to adolescents in high school as well as for adult school employees. The PCB in air action level set by the EPA is 450 ng/m^3. The action level used for this testing is 300 ng/m^3 of air due to presence of children between the ages of six (6) and twelve (12) years old

In calculating these indoor air levels, EPA considered potential sources of PCB exposure from both school and non-school environments. Non-school sources of PCB exposure include both indoor and outdoor air, indoor dust, outside soils, and diet. Although the concentrations of PCBs in environmental media are not well characterized, mean or median values from the scientific literature, and average contact rates, were used to estimate exposure. For non-school sources, the largest single source of PCB exposure for most individuals in uncontaminated buildings is diet, which contributes roughly 50 to 60% to total PCB exposure. Typical indoor and outdoor air contains a small amount of PCBs, and inhalation exposure accounts for another 25 to 35% of total exposure. Together, these non-school sources of PCBs generally result in exposures that are significantly below the reference dose. In addition, it is worth noting that the PCB concentrations in food have been decreasing and this trend would further decrease exposure.

School sources of PCBs that were considered include school indoor and outdoor air, indoor dust, and nearby outside soils. In calculating these public health levels for indoor air in schools, EPA assumed that the PCB concentrations in dusts and soils in and around schools were the same as in average homes or other buildings without elevated PCBs. EPA also assumed an 8-hour school day for adults and children less than 3 years old, and a 6.5 hour school for all other children. EPA also assumed children would be in school 180 days per year. Using estimates of exposure for sources except indoor air in schools, EPA calculated the school indoor air PCB concentration that would result in a total exposure equal to the reference dose. These calculated indoor air concentrations are the air concentration values provided in the table below.

EPA recommends that the concentrations of PCBs in indoor air be kept as low as is reasonably achievable and that total PCB exposure be kept below the reference dose or action level. The concentration values provided in the table below are based upon average situations. Spending less time in schools would decrease school exposure and cause the values to be higher. Spending more time in schools would have the opposite effect and would decrease the values. PCB concentrations in outdoor soils, indoor dusts, or indoor surfaces greater than those in background, non-school environments would suggest that exposure sources other than air in schools increase total exposure and, therefore, would decrease these air concentration values.

Public Health Levels of PCB's in School Indoor Air (ng/m^3)						
Assuming a background scenario of no significant PCB contamination in building materials and average exposure from other sources, these concentrations should keep total exposure below the reference dose of 20 ng PCB/KG-day.						
Age 1-<2 yr	Age 2-<3 yr	Age 3-<6 yr	**Age 6-<12 yr Elementary School**	Age 12<15 yr Middle School	Age 15-<19 High School	Age 19 + yr Adult
70	70	100	**300**	450	600	450

1,000 ng/m^3 = 1 ug/m^3

PCB Air Sampling

A. Carefully remove the clean sample cartridge from the aluminum foil wrapping (the foil is returned to jars for later use) and attached to the pump with flexible tubing. The sampling assembly is positioned with the intake downward or in horizontal position. Locate the sampler in an unobstructed area at least 30 meters from any obstacle to air flow. The PUF or PUF/XAD-2 cartridge intake is positioned 1 to 2 m above ground level. .

B. After the PUF cartridge is correctly inserted and positioned, the power switch is turned on and the sampling begins. The elapsed time meter is activated and the start time is recorded. The pumps are checked during the sampling process and any abnormal conditions discovered are recorded on the FTDS. Ambient temperatures and barometric pressures are measured and recorded periodically during the sampling procedure on the FTDS. For this project, a high flow sampling pump was calibrated using a high flow rotometer. The samples were run at 5 liters per minute for a period of approximately 4 hours.

C. At the end of the desired sampling period, the power is turned off, the PUF cartridge removed from the sampler and wrapped with the original aluminum foil and placed in a sealed, labeled container for transport, under blue ice (<4°C), back to the laboratory. Post calibration is conducted and recorded.

PCB Wipe Samples

AMC carefully obtained PCB wipe samples from Rooms 116 and from the hallway outside the gymnasium. The greatest concentration (>50) of caulk and glazing were identified in these rooms, therefore was deemed a priority for further assessment. Non-porous surface samples were collected on the floors and window sills from each of these rooms to determine if surface contamination is present, and if so, at what levels. A standard wipe test as specified in 40CFR 761.123 uses a 10x10 cm template (or equivalent) to outline the sample area and a gauze pad to be saturated with Hexane to collect the sample. The

Hexane saturated wipe is used to thoroughly wipe the area inside the 100 cm^2 template. The wipe media is then inserted into a 6 ounce sterilized glass jar and refrigerated until delivered to the lab. The sample analysis used for this process is the SOXHLET method.

The following lists the sampling procedure followed:

An Example of a Wipe Sampling Procedure

a) Ensure that the exact sampling site has been marked to a 100 cm^2 surface area.
b) With gloved hands, remove the cap from the sampling vial. A 6 ounce sterilized glass jar was used for the sample jar.
c) With the forceps, remove the gauze from the sampling vial.
d) From a solvent bottle, use the volumetric delivery device or fill a graduated cylinder with 5 milliliters of solvent to the gauze. The solvent used in this procedure was Hexane.
e) Immediately begin applying the gauze using a gloved hand and, applying pressure, wipe the marked area completely twice, from left to right and then from top to bottom.
f) Let the gauze air dry.
g) Fold the dry gauze (sampled side inward) and return it to the sample vial.
h) Cap the sample vial.
i) Remove and discard the gloves.
j) Label the vial and fill out sampling details on the sampling forms.
k) Fill out chain of custody forms and prepare the sample for storage and shipping.

RESULTS

Air Samples

Results of the PCB in air samples obtained from Room 116 documented the slight presence of PCBs in the air (99 ng/m^3); however, the limit was significantly lower than the EPA action level of 300 ng/m^3 for an elementary school. Therefore Room 116 is **acceptable and under the PCB in air in school threshold of 300 ng/m^3.**

Results of PCB in air samples obtained from the main hallway outside of the gymnasium documented elevated levels of PCB's in the air (720 ng/m^3). This elevated level is likely from the PCB containing window glazing that has been previously identified on the window within the hallway. Therefore, the sample results in the hallway outside the gymnasium are **not acceptable** under the PCB in air action level of 300 ng/m^3. Further action is necessary.

Wipe Samples

Results of the PCB in wipe samples obtained from the floor and window sills in Room 116 and the hallway outside the gym documented results both above and below the actionable level of 1 ug/100 cm^2. The wipe obtained from the window sill in Room 116 did not document the presence of PCBs. However, the wipe obtained from the floor (near window

sill) had detectable levels of PCBs (1.7 ug/100 cm^2); therefore, this concentration is slightly over the State and Federal action level of 1 ug/100 cm^2 threshold. Cleaning of the floors within Room 116 should be conducted, followed up by additional wipe sampling. Despite the acceptable results of the window sill cleaning of the window sill is recommended.

Results of PCB wipe samples obtained from the hallway outside the gymnasium both exceeded the 1.0 ug/100cm^2 action level. The floor sample in the hallway documented a level of 7.6 ug/100 cm^2 and the window sill documented concentration of 4.2 ug/100 cm^2. Therefore both samples are considered **unacceptable** and required further action at this time.

CONCLUSION

Overall, the samples obtained during this inspection present levels of concern within the school. Most significant of the concerns is the presence of airborne PCB concentration in excess of the permissible action level of 300 ng/m^3, which was found in the hallway outside of the gym. The un-acceptable levels likely originate from the elevated window glazing identified in the initial inspection. An air circulation system is present in this hallway and should be inspected to ensure it is functioning properly and clean. PCB dust was also documented in each area tested, this will require both areas to be thoroughly cleaned.

Cleaning of the areas should be conducted by a contractor having at minimum HAZWOPER training. Air scrubbers should be employed within the areas of concern. Wet methods and HEPA vacuuming of all surfaces must be incorporated into the cleaning plan. At the satisfactory completion of the work, additional sampling must be conducted. AMC has prepared a specialized cleaning guidance document for the contractor to follow during the cleanup. All work including cleaning must be done when no children are present.

Very truly yours,

Richard Onofrio
Environmental Consultant

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Enclosure

References: www.epa.gov/epawaste/hazard/tsd/pcbs/index.htm
www.epa.gov/epawaste/hazard/tsd/pcbs/pubs/about.htm