

AUG 12, 2014

**MEMORANDUM:**

**MALIBU UNITES RECOMMENDATIONS FOR PCB INVESTIGATION AT MALIBU MIDDLE & HIGH SCHOOL AND JUAN CABRILLO ELEMENTARY SCHOOL**

**1. Introduction**

Malibu Unites has prepared this document to expand upon the proposed investigation of potential primary and secondary sources of polychlorinated biphenyls ("PCBs") in building materials at Malibu Middle & High School ("MMHS") and Juan Cabrillo Elementary School ("JCES"), which are both in the Santa Monica Malibu Unified School District. The recommendations enclosed were compiled following discovery of elevated levels of PCBs in building materials at MMHS, as well as extremely high concentrations measured by independent samples taken at MHS and JCES. After review of ENVIRON's Site-Specific PCB-Related Building Materials Management, Characterization and Remediation Plan<sup>1</sup> (the "ENVIRON Plan") and determined that the urgency and scope of the proposed work were not adequately addressed.

This Memorandum provides a summary of PCBs found at MMHS and JCES in assessment activities previously conducted, as well as recommendations to augment the characterization of PCBs in various media at MMHS and JCES in structures built prior to 1979 beyond the activities outlined in the ENVIRON Plan. The intent of this document is to outline a comprehensive investigation of building materials and indoor air for the presence of PCBs at both MMHS and JCES to ensure that the health of building occupants - namely students and teachers - is protected for present and future use. This work is recommended to be undertaken immediately and without procedural delay.

Malibu Unites is requesting that proposed activities not be limited to only four rooms at MMHS as suggested in the ENVIRON Plan, but expanded to every room that has not been verified to have adequately abated a potential PCB contamination issue and rooms that have been independently test at levels that exceed 50ppm. A general outline of the recommended activities for each applicable classroom at MMHS and JCES is as follows:

1. Compile an inventory of all materials potentially containing PCBs (primary sources, e.g. caulk, leaking light ballasts/fixtures), and all areas where PCB-contaminated materials may have leached to adjacent substances (secondary sources, e.g., window frames, around doors, wood products, paint);
2. Collect samples from each type of potential primary PCB source in each room as the Toxic Substances Control Act ("TSCA") mandates for asbestos and lead, following the concept that PCBs should not be provided special treatment in this regard;
3. Remediate the contaminated caulk and window frames immediately, which may require renting portable classroom trailers to accommodate students until the school is proven to be properly remediated. Adjacent porous media not capable of being removed will be encapsulated and retested to ensure that abatement strategies are adequate;

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<sup>1</sup> Site-Specific PCB-Related Building Materials Management, Characterization and Remediation Plan for the

4. Collect samples from potential secondary bulk sources (i.e., porous media) located near caulk discovered to be contaminated, and if concentrations of PCBs are found to be above 50 ppm those materials will need to be removed, replaced, or encapsulated;
5. After remediation, Perform surface wipe sampling in accordance with 40 CFR 761.123 to ensure that interior walls and student desks do not have dust with greater than 1 microgram per 100 square centimeters ( $1 \mu\text{g}/100 \text{ cm}^2$ ) PCBs as a site-specific threshold based on EPA correspondence with ENVIRON<sup>2</sup>;
6. After remediation, collect indoor air samples from all rooms at MMHS and all rooms at JCES prior to and following remediation activities and implementation of Best Management Practices ("BMPs") to assess effectiveness of cleanup program. BMPs to be implemented after remediation activities include, but are not necessarily limited to:
  - a. Augmentation of HVAC systems to enhance ventilation and provide circulation in all rooms at MMHS and JCES, reducing amount of stagnant air in classrooms;
  - b. Temporary relocation of students from classrooms found to contain contaminated materials until effective remediation is verified with post-cleaning sampling activities;
  - c. Implementation of a hand-washing education program effectively communicated to students and teachers to mitigate potential exposures, and secondarily monitoring that all restrooms are adequately stocked with these items at all times;
  - d. Periodic routine cleaning of classrooms using wet cloths and HEPA vacuums to remove dust and deteriorating building materials that may contain PCBs;
  - e. Periodic routine examination of light fixtures to ensure that there are no leaking ballasts located behind light panels from which PCBs could be emanating into indoor air;
7. Comprehensive evaluation three times per year of PCB levels following all sampling, abatement, remediation, and re-sampling activities in primary source materials, secondary source materials, porous media adjacent to contaminated sources, and indoor air to establish conformity with regulatory thresholds.

Prior to the official federal ban against their use in 1979, PCBs were widely used as plasticizers in building materials. The EPA has acknowledged that common sources of PCBs in school buildings include caulk, paint, and light ballasts/fixtures. Under the TSCA, any solid materials containing greater than 50 parts-per-million ("ppm") PCBs warrant abatement and remediation in accordance with 40 CFR 761.61(c). Bulk samples of caulk will be collected from rooms at JCES following protocols described in Section 3.2.1 of this memorandum. In addition to the bulk caulk sampling, SWAPE recommends collection of wipe samples from surfaces near caulk, as well as bulk samples of porous media such as concrete, paint, and wood. Indoor air samples will also be collected from each room after collection of bulk material samples and analyzed for total PCBs. Since Juan Cabrillo Elementary, has children on campus under 6 years old, the indoor air threshold for all of Juan Cabrillo will be set at 100 nanograms per cubic meter ( $\text{ng}/\text{m}^3$ )<sup>3</sup> in concurrence with the EPA recommendation. Air thresholds for pregnant women should be set to residential standards of  $20 \text{ ng}/\text{m}^3$  or lower (based on most up-to-date studies).

It is our understanding that the JCES buildings were constructed prior to 1963, making the structures prime candidates for PCB-contaminated materials. The recommendations from Malibu Unites describe a comprehensive evaluation of potential primary and secondary sources of PCBs at JCES. We have drafted these comments and encourage their immediate implementation based on the detection of elevated levels

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<sup>2</sup> *Ibid*, at 6.

<sup>3</sup> *Ibid*, at 6.

of PCBs in building material samples from MMHS and a preliminary caulk test at JCES, which are discussed in Section 2 of this document. The timeline provided in the ENVIRON Plan does not adequately address the urgency of the issue at hand with regards to identification and mitigation of PCB-contaminated materials at the MMHS and JCES, stating that the project may take up to 15 years<sup>4</sup>. This timeline is unacceptable given the concentrations of PCBs that have already been discovered at MMHS and JCES, and therefore we recommend the sampling and remediation activities commence immediately.

## **2. Background - PCBs Found at Malibu Middle & High School**

In November 2013, samples of caulk, paint, dust, and air were collected from various locations throughout MMHS by The Phylmar Group, Inc. ("Phylmar") after elevated levels of PCBs were measured in soil samples from the Middle School Quad in a 2009 Phase I Environmental Site Assessment conducted prior to proposed building renovation. The contaminated soil was removed following protocols outlined in a 2010 ARCADIS Removal Action Work Plan<sup>5</sup>, but the activities involved did not include tracing the PCBs to their original source once the excavation was complete. The objective of the first round of building materials sampling conducted in November 2013 was to delineate potential pathways by which the PCBs made it into the soil, and to evaluate the indoor air concentrations of PCBs to which MMHS students and teachers were regularly exposed.

### **2.1. Bulk Samples - Caulk and Paint**

A total of ten bulk samples of caulk were collected in the November 2013 Phylmar sampling activities from various rooms around the MMHS campus. The samples were sent to Frontier Analytical Laboratory ("Frontier") for congener-specific PCB analysis using EPA Method 1668. Four of ten caulk samples contained PCBs at levels greater than 50 ppm, and therefore are categorized as PCB-contaminated waste under TSCA and required remediation according to EPA regulation. A summary of the data was provided as Appendix B to the July 2014 ENVIRON Plan, and Table 3 of the ENVIRON Plan presents the analytical results.

In addition to the caulk samples, Phylmar scraped ten bulk samples of paint from ten by ten centimeter squares on interior walls located underneath the caulk sampling points. Frontier analyzed the samples using EPA Method 1668, but found no total PCB concentrations above the 50 ppm threshold. The paint likely represents a secondary source of PCBs that could become contaminated through leaching mechanisms from the caulk, even though levels of PCBs found at MMHS currently do not violate the TSCA regulation.

### **2.2. Wipe Samples**

Thirty-three surface wipe samples were collected by Phylmar in November 2013 from eleven rooms throughout MMHS, with three samples being taken from each room. Sampling points were interior window sills or plaster, exterior window sills, and interior floors. Wipe sampling was conducted according to EPA methodology described in 40 CFR 761.123, with a ten by ten centimeter square being the designated sampling area. The federal regulatory threshold for indication of PCB contamination in dust is 10  $\mu\text{g}/100\text{ cm}^2$ , and samples above this value require remediation and re-testing of the surfaces according to EPA guidance.

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<sup>4</sup> *Ibid*, at 1.

<sup>5</sup> Removal Action Workplan Malibu Middle and High School - Campus Improvements Project. ARCADIS U.S., Inc. August 5, 2010.

Four of the 33 wipe samples contained more than 10 µg of PCBs, and the Phylmar group conducted cleaning of all rooms to assess the effectiveness of Best Management Practices ("BMPs") for mitigating surface and air concentrations. It is our understanding that EPA Region I is currently enforcing a 1 µg/100 cm<sup>2</sup> threshold for PCBs in surface wipe samples at school buildings, and further investigation at MMHS and JCES should implement this screening value, as acknowledged in the ENVIRON Plan. Following completion of the cleaning activities and re-testing of surfaces at MMHS in January 2014, one interior sill/plaster sample remained above the 1 µg/100 cm<sup>2</sup> PCB threshold. This demonstrates that a thorough Quality Assurance/Quality Control ("QA/QC") protocol should be implemented in future work to ensure that the BMPs used in cleaning are conducted appropriately to mitigate the PCB contamination more effectively to levels below the site-specific thresholds.

### **2.3. Indoor Air Samples**

Phylmar also collected a total of 22 indoor air samples in November and December 2013 from rooms throughout MMHS using EPA Method TO-10A. These samples were analyzed by Frontier using EPA Method 1668 for congener-specific PCBs. EPA correspondence has identified a site-specific threshold for indoor air of 200 ng/m<sup>3</sup> PCBs at MMHS. None of the samples from November/December 2013 exceeded this threshold, with the highest value being 96.65 ng/m<sup>3</sup> found in the gym faculty office. Additional sampling activities were conducted by Phylmar in January 2014 post-remediation and post-BMP cleaning of rooms at MMHS some rooms with the windows open which was not in conformance with the EPA recommendation. In general, results of the secondary sampling showed slight reductions in indoor air concentrations, which may have occurred because the windows were open. Additional indoor air sampling is recommended as part of this comment letter in Section 4.3.3 to monitor concentrations during the investigation and remediation of JCES and MMHS.

### **2.4. Precursory JCES PCB Investigation**

On May 10, 2014, a sample of caulk was taken from an internal window sill in Room 19 of JCES and analyzed by BC Laboratories, Inc. ("BCL") for PCBs using EPA Method 8082A. No previous PCB investigation had been undertaken at JCES at the time of sampling, even though younger children are more susceptible to health harms from PCB exposure than older students. The caulk sample contained a concentration of 340,000 ppm PCBs, or 34% PCBs. The extreme magnitude of this PCB contamination warrants immediate attention and should be addressed prior to the commencement of the upcoming school year. The severely high result spurred the recommendations contained in this comment letter, as presented in the following sections.

## **3. Recommended Amendments to PCB Investigation and Abatement Strategy**

Malibu Unites is requesting that the following investigation activities be conducted in a timely manner to ensure that students' and teachers' health will be protected while attending class at MMHS and JCES in the upcoming school year. The indeterminate time frame referred to by ENVIRON fails to adequately address the urgency of the situation, and the scope is limited to only several rooms at MMHS. Protection of the health of students and teachers at the schools and provision of a safe academic environment should be the top priority of the investigation at hand.

### **3.1. Inspections and Inventory**

A thorough inspection shall be conducted in each room of MMHS and JCES that is subject to this investigation. Please refer to the documents attached to this Work Plan (Attachment 1: MMHS Campus Map; Attachment 2: JCES Campus Map; Attachment 3: PCB Visual Inspection Form for Schools) in

consideration of room inspections. Unless the individual bulk materials, potential secondary sources of PCBs, and indoor air have been sampled, Malibu Unites is requesting that every room be included in this environmental assessment.

### **3.1.1. Identify Potential Sources of PCBs**

Each room identified on the campus maps shall be included in the survey, unless PCB contamination has been excluded from possibility via previous sampling activities or buildings were built after 1980. The PCB Visual Inspection Form will be completed for each room. All potential primary and secondary sources of PCBs, including adjacent porous materials, will be listed in the inventory for each room. All rooms will have their light fixtures checked for leaks, and this will require removal of lighting panels in some instances. This work should be conducted wearing appropriate personal protective equipment (PPE).

### **3.1.2. Identify routes of exposure**

For each potential source of PCB contamination, the route by which room and the outdoors occupants could be exposed needs to be established. Contaminated caulk, window treatments, paint, soil, concrete, stucco and dust are primarily relevant to the ingestion route, while leaking light ballasts and fixtures volatilize PCBs and pose inhalation risks. Every source should be characterized from an exposure assessment standpoint in consideration of the health of teachers and students occupying the rooms.

## **3.2. Sampling Approach**

We are recommending that a sample be taken from each individual potential source of PCBs (e.g., interior and exterior caulk on windows; caulk on door frames and counters; light ballasts if discovered to be leaking). Every sample should be documented with a specific description of the location, making a note of the color of the substrate from which it was taken and the type of material. Each sample should be properly labeled with a sample name/number, date, and time. The EPA has provided online guidance for the methodology by which each type of sample will be designated and collected<sup>6</sup>.

### **3.2.1. Bulk Samples**

Two types of bulk samples will be collected from each room as a component of the PCB investigation. The primary source of PCBs will be caulk found on window treatments, door frames, and other interior fixtures in buildings erected prior to 1979. If PCBs are found at concentrations above the 50 ppm threshold, porous media in contact with or adjacent to the contaminated caulk shall be additionally sampled. According to EPA guidance, "samples should be collected from the top 0.5 to 2 cm of the surface closest to the likely source of PCB contamination."<sup>7</sup> Ample masses of bulk materials must be collected, to be determined through future correspondence with the laboratory representatives.

### **3.2.2. Wipe Samples**

The ENVIRON Plan addresses proposed air and wipe sampling procedures in Appendix D. Approximately two to five wipe samples will be collected from surfaces in each room. However, instead of choosing representative rooms to be sampled, Malibu Unites is recommending that all rooms be included in the wipe sampling survey both prior to and following remediation activities. This more robust effort will provide a comprehensive assessment of the likelihood that students and teachers will come into contact with levels of PCBs that exceed acceptable levels not affiliated with the primary sources.

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<sup>6</sup> <http://www.epa.gov/pcbsincaulk/>

<sup>7</sup> <http://www.epa.gov/epawaste/hazard/tsd/pcbs/pubs/caulk/guide/guide-sect3.htm#bulk>

### **3.2.3. Air Samples**

Air samples will be collected in accordance with the protocols outlined in ENVIRON Plan Appendix D, Section I.d. Indoor air samples should be collected prior to and following remediation activities, as well as quarterly thereafter to ensure that indoor air concentrations of PCBs remain below the 200 ng/m<sup>3</sup> site-specific threshold. Malibu Unites suggests that all rooms be sampled and re-sampled to verify conformance with the cleanup goal. A lower site-specific threshold should be analyzed for pregnant women and young children. If there is none available, then the lowest possible threshold should be used for this sensitive group. All air sampling should be conducted with the windows and doors closed and the room sealed up for 24 hours prior to sampling.

### **3.3. Laboratory Analysis**

All samples collected will be analyzed by EPA Method 8082 for Aroclor PCB mixtures to quantify total PCBs in various media throughout the schools. Appropriate sample mass and volume will be determined through correspondence with the laboratory prior to any sampling activities. The ENVIRON Plan adequately addresses the analytical methodologies that will be utilized in the PCB investigation.

### **3.4. Best Management Practices**

The EPA provides guidance on best practices for cleanup and management of PCB-contaminated materials in school buildings.<sup>8</sup> The ENVIRON Plan discusses BMPs for in-place handling of potentially contaminated materials prior to remediation activities in Appendix C. The approach set forth should be conducted concurrently with sampling and analytical activities to address the potential sources of contamination as aggressively as possible in the interest of protecting the health of students and teachers.

### **3.5. Removal and Remediation**

Any and all bulk materials found to contain PCB concentrations at or above 50 ppm are required to be removed and disposed of in accordance with the TSCA. Removal strategies and cleanup goals are discussed in the ENVIRON Plan Appendix F. Malibu Unites is in agreement with the methodologies set forth in the ENVIRON Plan.

## **4. Conclusions**

The parameters of the timeframe and coverage of rooms for PCB investigation, sampling, and remediation activities provided in the ENVIRON Plan does not adequately address the urgency of evaluating the PCB-contaminated materials at MMHS and JCES. Malibu Unites prepared this comment letter to stress the importance of expediting the recommended PCB identification and abatement process to ensure protection of student and faculty health at the schools. The results of early sampling activities have demonstrated the presence of elevated concentrations of PCBs at MMHS and JCES that warrant removal and disposal in accordance with EPA regulation under the Toxic Substances Control Act. Site-specific cleanup goals have been established through correspondence with the EPA and it is imperative that these goals be met prior to placing children and adults back into these rooms during the school year.

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<sup>8</sup> <http://www.epa.gov/pcbsincaulk/caulkremoval.htm>