

State of Vermont
Department of Environmental Conservation
Waste Management & Prevention Division
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Indoor Air Testing for Polychlorinated Biphenyls in Non-School Buildings – Technical Guidance Winter 2022 - DRAFT

This technical guidance document provides information on what should be included in an Indoor Air Sampling Plan for polychlorinated biphenyls (PCBs) in non-school buildings, including analytical methods and reporting requirements.

Pre-Sampling Building Inventory

The environmental consultant should conduct a [Pre-Sampling Building Inventory \(Inventory\)](#) of potential PCB-containing products. The Inventory should include a comprehensive list of potential PCB-containing products. The Inventory should be conducted in every space within the building. Spaces are considered rooms and ancillary spaces (bathrooms, hallways, stairwells, etc.). All spaces should be included in the Inventory, including spaces that will not be tested. An example building inventory spreadsheet may be found [here](#). If other materials are identified as potentially containing PCBs, which are not included in the example Inventory, they should be added for assessment.

Group Assignments

The findings in the Inventory should be used to assign spaces to groups that are considered to have similar PCB-containing products. Individual spaces can be assigned as a group. Other considerations, besides potential PCB products used to designate groups could also include type of ventilation, date of construction, and location within the building. Use of the space or occupancy should not factor into group assignments.

Based on the group assignments, representative spaces within each group need to be selected for sampling. Additional information needed to help with group assignments is included in the Inventory. The Inventory can be sorted to allow for easier group assignments and building materials to support how a group was created and support the rationale for which space to sample.

What Should the Indoor Air Sampling Plan Include?

The recommended sampling and analytical methods described below should be included in the Indoor Air Sampling Plan. All the following information should be included:

1. Site Name, address, date of building construction and renovation, and building materials (wood, brick, stone), if known.
2. Map of sampling locations, with Unique space ID and Occupancy Type identified on a base map (a table noting each labelled space and use will also be acceptable if it accompanies a



building map that has same labelling notation). Sampling locations should be labelled by floor/space number. This information is included in the Inventory spreadsheet and should be submitted with this workplan.

3. Number of proposed samples, including sample duplicates (this will vary by building).
4. Group Assignments for Sampling. Each Group should be sampled as equally distributed as possible. Groups with multiple spaces shall sample, at a minimum, 30% of spaces in each group. In buildings with a small number of total spaces, an alternative number of sample locations, other than what is detailed above, can be proposed to the SMS site manager.
5. Proposed ambient air sample and location of sample.
6. Completed Inventory.
7. Justification for the proposed sampled and unsampled spaces, as identified through the Inventory, including information on potential current or historic PCB source locations within each space.
8. Proposed sampling method (see below), including sample collection height (sample collection equipment must not be placed on the floor), sampling duration, and Standard Operating Procedures for sample collection.
9. Plans for including one field blank and a duplicate sample (per every 20 samples).
10. Name of the laboratory that will analyze the samples, with laboratory reporting limits for each Aroclor.
11. Consultant .csv file to Column V completed and submitted to VT DEC with work plan. Consultant .csv file from Column V to AM completed and submitted to VT DEC after sampling event. (this will be determined by database ability to capture non-school data-a separate non-school.csv file would be created-more to come on this requirement)
12. Timeline for sample collection, receipt of results, and report completion.

The Indoor Air Sampling Plan must be submitted to the VT DEC for review and approval within 30 days of planned sampling.

What Are The recommended PCB Sampling and Analytical Methods?

There are various sampling procedures and analytical methods that can be used to test for PCBs in indoor air. The VT DEC recommends:

- All samples should be collected via EPA Method TO-10A for 24 hours at maximum pump flow rate (5L/min) and analyzed for individual PCB Aroclors using EPA method 8082¹;
- Sample analytical results must be reported as total Aroclors;
- The reporting limit for each Aroclor should be 10 ng/m³ or below; and
- The laboratory reviews the raw data (for example, chromatogram) and report any peaks that cannot be identified as an Aroclor (UIP) but fall within the retention time windows for a potential PCB congener.
- Alternative sampling methods, such as TO-4A, could be considered for building with larger spaces (such as large open mill buildings).

¹ Other suitable methods exist for sampling and analyses of indoor air for PCBs, including analyses as homologs or congeners. Previous sampling efforts have shown acceptable correlation between congener and Aroclor analyses. Aroclors are recommended as a cost-effective screen for PCBs in air.

What Should the final Indoor Air Sampling Report Include (if conducted outside of a Site Investigation)?

All reports should be submitted electronically as a text searchable PDF within 30 days of the analytical results being submitted, and must include:

1. Executive Summary that includes the findings, conclusions and recommendations based upon the data collected during the indoor air sampling investigation.
2. Property history. Past and present land use and potential sources of PCBs.
 - a. This should include any information pertaining to updates or renovations to the building that may have occurred since its original construction.
3. A discussion of any deviations from the Indoor Air Sampling Plan that occurred.
4. A detailed site map-that includes:
 - a. sampling locations and results (in excel format, and a map showing sample locations and corresponding results).
 - b. potential current or historic PCB source locations within each space
5. Analytical results presented in tabular format which sums each individual Aroclor and compares to 22.5 ng/m³.
6. A copy of the laboratory reports, chains of custody documentation, all quality assurance data, and analytical chromatograms from each sample.
7. Field Notes (Copies of the original field notes shall be attached as an appendix and the field notes shall contain the following minimum content: the date the work was performed, name of the person conducting the work, tasks completed, documentation of weather conditions, sampling timeline with locations, sampling logs, field monitoring results, and calibration information for each type of field analytical equipment).
8. Data interpretation, conclusions and recommendations for any next steps related to the findings of the indoor air sampling.

If PCB levels exceed the Regulatory Action Level (RAL) of 22.5 ng/m³, this will be considered a “release” to the environment and notification to the VT DEC must be provided immediately per the Investigation and Remediation of Contaminated Properties Rule (IRule) § 35-102(c)(2). Additional investigation may be required to determine the degree and extent of contamination and whether corrective action is necessary, per the IRule.