

## Proposed School Sampling and Funding Approach through June 30, 2025

The Department of Environmental Conservation (DEC) is retooling its program to test for and respond to elevated levels of polychlorinated biphenyls (PCB) in schools in a manner that seeks to maximize the health benefits of the program consistent with available resources. The adjustments in program activities consider available funding, capacity of state and school staff, availability of environmental consulting and laboratory services.

Significant concentrations of PCBs in indoor air are being detected in some schools. Some of these detections are well above the action levels established by the Vermont Department of Health (Health). In schools where PCB concentrations exceed the action levels established by Health, the exposure occurring during the school day could represent the most significant exposure to PCBs that students and staff receive in their daily lives.<sup>1</sup>

As of January 1, 2024, DEC has identified a total of 324 schools that were built or renovated before 1980 and therefore require testing consistent with Act 185.

To date, indoor air sampling results from 96 schools have been received by DEC; an additional 22 schools have approved sampling plans and will complete indoor air testing by April 2024. There are 228 schools that remain to be tested. Of the schools sampled, the following indoor air information is available:

- 61 (63%) schools have had no PCB detections above the School Action Level (SAL)
- 35 (37%) schools have PCB detections above the SAL
- 13 of the above 35 schools (13% of all schools tested) have PCB detections above the Immediate Action Level (IAL)

Indoor air sampling for PCBs at schools will continue, but at a somewhat slower pace throughout the remainder of FY24 and FY25, with an additional 65 schools (including the 22 with currently approved sampling plans) being tested by June 30, 2025 – at which point approximately half of all schools will have been tested. Schools that are recognized independent schools that don’t also serve as the local public school (i.e., Vermont Academy) have been shifted to the end of the sampling schedule (attached).

The following balances are anticipated to be available to support continued testing, mitigation and remediation:

	<b>Unexpended Balance, as of Jan. 1, 2024</b>
<b>DEC</b>	
Environmental Contingency Fund (ECF)	\$1,074,000
Proposed transfer from Solid Waste Management Fund (FY24 BAA)	\$3,500,000
<b>DEC Total</b>	<b>\$4,574,000</b>
<b>AOE (Ed Fund)</b>	
<i>Burlington High School (dedicated)</i>	\$16,000,000
<i>All Other Schools</i>	\$9,162,000
<b>AOE Total</b>	<b>\$25,162,000</b>

The available funding is being prioritized and used in the following way:

- DEC funds will continue to be used to conduct inventories and complete indoor air sampling at schools.
  - Anticipate completing testing 65 additional schools through June 30, 2025
- DEC funds will be used to conduct building material sampling, to evaluate cleanup alternatives and develop plans to remediate schools.
  - Note: this shifts the funding source for sampling and the development of clean-up plans from AOE to DEC which is anticipated to reduce financial and administrative burdens on school administrators. The work will be conducted “on behalf” of the school (DEC will contract and pay consultants directly); this is the same approach used for the DEC Brownfields program.
- AOE funds will be used to conduct mitigation and remediation efforts, including purchase of activated carbon units. The State will use the following order of operations in prioritizing mitigation and remediation efforts to reduce exposures to levels of PCBs in indoor air that exceed the action levels established by Health for Vermont schools.
  1. Facilities with “primary spaces” with PCB detections above the IAL where mitigation measures are not successful in reducing indoor air concentrations to below the IAL, and therefore the space cannot be used.
  2. Facilities with “primary spaces” with PCB detections above the SAL where mitigation measures are not successful in reducing indoor air concentrations to below the SAL.
  3. Facilities with PCB detections above the SAL but it doesn’t impact use of primary spaces
    - For example, a facility that serves students grades PreK-6, but only non-PreK spaces have PCB detections above the PreK SAL)
  4. Facilities with PCB detections above the IAL in an ancillary space.
  5. Facilities with PCB detections above the SAL in an ancillary space.

Primary spaces are spaces within a school that are used or occupied all day by students and staff (classrooms, libraries, cafeteria, nurses office). Ancillary spaces are spaces that are not occupied all day by students and staff (hallways, bathrooms, closets).

Given currently available funding, support for mitigation and remediation will not be prioritized for work in areas described in scenarios 3, 4 and 5. In these instances, DEC will work with the school to develop a management plan (similar to asbestos management plans). This approach will be applied to schools that have already completed indoor air testing as well as schools that will be tested going forward. Building material sampling will be prioritized similarly.

If a school has a mix of impacts as described above, the initial focus of mitigation and remediation efforts will be on spaces that have exceedances of the IAL with other primary space SAL exceedances addressed after the IAL PCB concentrations have been reduced and the space is usable. This approach will be applied to current schools with known exceedances of the action levels established by Health.

These adjustments in program activities supports continued testing and prioritizes mitigation and remediation efforts at schools to limits student and staff exposure to elevated concentrations of PCBs

that exceed action levels established by Health, while recognizing that many schools have larger facility construction needs and the interest in avoiding an inefficient, piecemeal approach to renovations.

For schools where testing has been completed, the following are averages of the cost for school inventory and indoor air sampling based on school size:

	average inventory cost	average sampling cost
small	\$8,000	\$13,000
medium	\$11,000	\$18,000
large	\$17,000	\$26,000
average	\$12,000	\$19,000

For schools with an exceedance of school action levels, the following table presents the lowest and highest costs for building material sampling; these numbers have been used to estimate expenditures for the 65 schools where work will be completed between now and June 30, 2025.

Materials & indoor air sampling	\$16,000 (low)	\$82,000 (high)
Quarterly IA monitoring	\$26,000 (low)	\$72,000 (high)
Evaluation of Corrective Action Alternatives (ECAA)	\$13,000 (low)	\$19,000 (high)
Corrective Action Plan (CAP) development	\$35,300 (only one completed)	

### Projections through June 30, 2025

#### *Sampling/Testing*

DEC projects the following expenses related to on-going efforts at schools with known detections of PCBs that exceed the action levels established by Health:

Continued work at current schools				Projected ECF Balance on 06/30/2025
Activity	Number of Schools	Cost	Total	
Building Material Sampling	4	\$82,000	\$328,000	
Quarterly IA sampling	14	\$72,000	\$1,008,000	
ECAA	2	\$19,000	\$38,000	
CAP	2	\$35,000	\$70,000	
Totals		\$4,574,000	\$1,444,000	\$3,130,000

In addition, using current cost data costs and % of schools with PCBs detected in indoor air, DEC projects the following results from the planned testing of 65 additional schools through June 30, 2025:

- 63% of sampled schools (42 schools) will have results below the SAL
- 37% (24 schools) will have detections of PCBs > SAL
- 6% (1 school) will have detections of PCBs > IAL

<b>New Schools through 2025</b>				<b>Projected ECF Balance on 06/30/2025</b>
<b>Activity</b>	<b>Number of Schools</b>	<b>Cost</b>	<b>Total</b>	
Inventory	40	\$12,000	\$480,000	
Air Sampling	65	\$19,000	\$1,235,000	
Building Material Sampling	10	\$82,000	\$820,000	
Quarterly IA sampling	10	\$72,000	\$720,000	
ECAA	5	\$19,000	\$95,000	
CAP	5	\$35,000	\$175,000	
<b>Totals</b>	<b>\$3,130,000</b>		<b>\$3,525,000</b>	<b>(\$395,000)</b>

Estimates are based on high-end cost of costs to date; air sampling efforts will continue to be adjusted over the coming 18 months to maximize testing within the available resources.

***Required Mitigation/Remediation***

Based on work to date, costs related to mitigation or remediation are anticipated to range between \$500,000 and \$1.5M per impacted building. DEC projects that seven schools would need to implement some form of PCB removal, at a total estimated cost between \$3.5M (low) to \$10.5M (high). There is currently \$9,162,000 available to support this work.

As noted above, estimated costs are related to interim measures or partial remediation necessary to reduce PCB concentrations in indoor air below the action levels established by Health and do not reflect a full school remedial action.

Supporting Documentation (footnote)

<sup>1</sup> Email from Dr. Owen (12/22/23)

High levels of PCBs in the indoor air of schools represent the biggest exposure for students and staff. Here's an explanation to support that statement.

The Health Department used the same approach as the US EPA to evaluate the contribution of PCBs from diet, background and school. This approach estimates the diet and background exposure to PCBs for each age group - In Vermont our age groups are PreK, K-6, and 7-adult. For each of those age groups, EPA estimates the PCB dose from diet and other background sources. The PCB dose from diet and background is listed below: (the units show the nanograms of PCBs per kilogram body weight per day; this is the common way to look at dose from a chemical)

The PCB dose from diet and background for each age group:

PreK	5.6 ng/kg/day
K-6	3.2 ng/kg/day
7-adult	2.1 ng/kg/day

The PCB dose from inhalation of school air for each age group at the School Action Level (30 / 60/ 100 ng/m<sup>3</sup> for the age groups) is listed below:

PreK	5.5 ng/kg/day
K-6	6.1 ng/kg/day
7-adult	7.0 ng/kg/day

The PCB dose from inhalation of school air for each age group at the Immediate Action Level (90 / 180 / 300 ng/m<sup>3</sup> for the age group) is listed below:

PreK	16.5 ng/kg/day
K-6	18.4 ng/kg/day
7-adult	20.9 ng/kg/day

The PCB dose from inhalation of school air for each age group at the highest level found in a school (6,300 ng/m<sup>3</sup>) is listed below:

PreK	1156 ng/kg/day
K-6	643 ng/kg/day
7-adult	438 ng/kg/day

You can see how high PCB levels in school air can be the biggest source of exposure to students and staff.

This information is also shown in graph form:

