

BEST MANAGEMENT PRACTICES (BMP)

FOR

PCB CAULK IN NEW YORK CITY SCHOOL BUILDINGS

EPA CONSENT AGREEMENT AND FINAL ORDER

DOCKET NUMBER: TSCA-02-2010-9201

CONSENT

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TABLE OF CONTENTS

Section	Page
1.0 INTRODUCTION.....	2
1.1 Purpose.....	2
1.2 Background.....	2
2.0 ROLES AND RESPONSIBILITIES.....	3
2.1 Custodial Engineers and staff.....	3
2.2 DSF Administrators.....	3
2.3 SCA Construction Management.....	4
3.0 OPERATION AND MANAGEMENT OF EXISTING CAULK.....	5
3.1 Caulk Inspections.....	5
3.2 Maintenance and Repair of PCB Caulking.....	5
3.3 Encapsulation.....	5
3.4 PCB Caulk Disturbance.....	6
4.0 PREVENTATIVE MAINTENANCE.....	7
5.0 PCB CAULK DISPOSAL.....	8
6.0 BMP TRACKING AND INSPECTIONS.....	9
7.0 COMMUNICATION AND TRAINING.....	10
8.0 RECORDS RETENTION.....	11

APPENDIX A – DSF Caulk Inspection Form

APPENDIX B – EPA Fact Sheets

APPENDIX C – List of schools constructed between 1950 and 1978

1.0 INTRODUCTION

1.1 Purpose

In recent years, EPA has learned that caulk containing polychlorinated biphenyls (PCBs) was used in many buildings, including schools built between 1950 and 1978. Although PCBs are an important environmental health concern, the potential presence of PCBs in school buildings of this age can be managed effectively by implementing Best Management Practices (BMPs).

The purpose of the BMP Protocol is to outline the most effective strategies for managing PCB caulk located in New York City public school buildings. The goal of the BMP plan is to develop methods to manage the potential impacts of PCB caulk, manage deteriorating caulk and minimize potential exposure to PCB caulk through direct contact, inhalation or ingestion. Caulk in schools constructed between 1950 and 1978 is presumed to contain PCBs, unless testing proves otherwise.

The BMP Protocol addresses many facets of control measures in schools built between 1950 and 1978. A list of these schools is annexed as Attachment C. This BMP Protocol will guide school staff in properly implementing current BMPs regarding caulk inspections, maintenance of caulk, general cleaning procedures, maintenance and cleaning of ventilation systems to optimize air circulation, caulk disposal, and communication and training.

1.2 Background

Although Congress banned the manufacture and most uses of PCBs in 1977 and the compounds were phased out in 1978, many buildings across the country constructed between 1950 and 1978 may have PCBs in the caulk. To address the presence of PCB caulk, New York City public schools perform quarterly visual inspections of interior caulk to determine if there is any exposed caulk that is flaking, cracking, or otherwise exhibiting visual signs of significant deterioration. If deteriorated caulk is identified, corrective actions are implemented, as described in Sections 3.2 and 3.3. SCA Construction specifications have been developed to properly manage and dispose of PCB caulk when it is disturbed, such as during renovation projects.

The City of New York has entered into an agreement with USEPA to study the presence of PCB caulk in public schools and evaluate remedial methods. The Consent Agreement and Final Order (CAFO), Docket Number TSCA-02-2010-9201 is intended to result in a consistent city-wide approach to assessing and reducing potential exposures to PCBs in caulk in schools.

EPA is also conducting independent research through its Office of Research and Development to determine the levels of PCBs in schools and evaluate strategies to reduce potential exposures. The results of this research will be used to develop further BMPs for schools and building owners, as they develop and implement long-term solutions.

2.0 ROLES AND RESPONSIBILITIES

New York City public schools are operated by the New York City Department of Education (DOE) and maintenance of the buildings is performed by the DOE's Division of School Facilities (DSF). The New York City School Construction Authority (SCA) is responsible for the construction of new school buildings and the rehabilitation of existing facilities. These organizations play an important role in properly managing caulk in schools, as discussed below and in Section 3.0. The EPA will observe the implementation of these BMPs through data collection, inspections and provide feedback on the implementation activities.

2.1 Custodial Engineers/ Building Managers and Custodial staff

Custodial Engineers/Building Managers and staff are responsible for operating and maintaining the buildings' mechanical systems and providing cleaning services. The responsibilities are outlined in Appendix F of the Collective Bargaining Agreements between the DOE and the service providers. The CBA can be found at http://www.opt-osfns.org/dsf/forms/custodial_contract_2002thru2007.pdf

Custodial activities associated with these BMPs include:

- Frequent and thorough cleaning of the school
- Visual inspections of caulk
- Ventilation system inspection and maintenance
- Cleaning methods
- Requesting the DSF Environmental, Health and Safety Group (EHS) perform interior caulk patch and repair, removal, encapsulation and caulk disposal
- Recordkeeping

2.2 DSF Administrators

DSF Facilities Managers are responsible for supervising the Custodial Engineers/Building Managers as well as communicating with Principals and other school based staff. DSF administrative activities associated with these BMPs include reviewing the files maintained at each school specific to Interior Caulk Inspections, inspecting and overseeing the implementation of the BMPs, and taking corrective actions if BMPs are not appropriately or adequately implemented.

2.3 SCA Construction Management

Construction projects are managed by the SCA. SCA activities associated with these BMPs include:

- Characterizing PCB caulks in the project scope,
- Using proper dust controls during construction, such as dust barriers, portable HEPA air purifiers, plastic covers and sheeting;
- Protecting soils adjacent to the construction zone, if applicable;
- Cleaning prior to re-occupancy, including proper disposal of dust control equipment, and use of high efficiency particulate air (HEPA) vacuums on all surfaces;
- Proper waste disposal;
- Soil characterization and remediation, if necessary; and
- Recordkeeping consistent with the requirements set forth in the CAFO

3.0 OPERATION AND MANAGEMENT OF EXISTING CAULK

3.1 Caulk Inspections

PCB caulk will be addressed using the following operation and maintenance (O&M) protocols. Custodial Engineers/Building Managers (CE/BM) or their designees will perform quarterly inspections of interior caulk using the inspection form contained in Attachment A. Inspection records will be maintained by the CE/BM in permanent files retained in the CE/BM's office. These forms will be available for inspection by representatives of the DOE, as well as other authorized personnel from EPA and remain in the file at the specific school location as described in Section 8.0., upon the transfer of any individual CE/BM. If deteriorated caulk is identified, corrective actions listed in Sections 3.2 and 3.3 will be taken.

3.2 Maintenance and Repair of PCB Caulking

If deteriorating caulk is identified during a quarterly inspection, the CE/BM will immediately contact the DSF Environmental Health and Safety Unit (EHS) to patch, repair, or remove the affected area. The initial contact will be made through the submission of a work request in the DSF's computerized maintenance management system (Passport), detailing the location/s and the identified issue/s. Simultaneously, an email notification to the Director of EHS, Bernard Orlan at (borlan@schools.nyc.gov), with copies to the respective Director and Deputy Director of Facilities will be forwarded listing the work request number and the identified issue/s.

Routine school maintenance activities involving plumbing, electrical, carpentry, or other trades, have the potential to impact PCB caulk. Removal of PCB caulk will be performed through the DSF EHS Unit. The DSF's skilled trades' workforce will contact the EHS unit to request assistance in the event any interior caulk may be impacted by their scheduled work. This request will also be submitted through Passport so that EHS can review the scope of work and address any issue prior to the maintenance work proceeding.

Disposal and handling of PCB caulk shall be performed in accordance with Section 5.

3.3 Encapsulation

If deteriorated interior caulk is identified during the quarterly inspections, DSF EHS may encapsulate the deteriorated caulk with new caulk or epoxy paint as an interim measure until the deteriorated caulk can be repaired or removed by a PCB caulk professional. These encapsulated areas will be documented on the work order generated from Passport as well as the quarterly inspection form located in the CE/BM office, and will be subject to bi-monthly monitoring by the EHS unit.

3.4 PCB Caulk Disturbance

Caulk that will be disturbed during renovation projects by SCA will be surveyed to identify the location, quantity and presence of PCBs. Dust controls, soil protection and cleaning protocols detailed in SCA's Specification Section 02082 will be used if caulk is disturbed. Records regarding the caulk survey, removal and disposal will be maintained by SCA's Construction Management Division.

3.5 Cleaning

CE/BMs will follow cleaning protocols intended to reduce exposure to PCBs.

Cleaning procedures will be performed in accordance with the requirements of Appendix F of the Collective Bargaining Agreement and the site specific annual performance plan agreed to by the CE/BMs and Principal/s. Custodial staff will maintain a neat, clean environment through, washing and wiping with a dampened cloth all accessible horizontal and vertical surfaces including, but not limited to, walls, chalk boards and troughs, door frames, window sills, furniture, fixtures, and floors. Hard flooring (wood, vinyl tile, or painted/sealed concrete) shall be cleaned using treated dust mops and spot mopped as necessary. Carpeting or rugs will be vacuum cleaned, using HEPA filters to capture dust particles.

Since occupants spend the majority of their day inside our facilities, the primary areas of focus are classrooms and major spaces (auditorium, cafeteria, and gymnasium) with a secondary focus on corridors, stairways, and restrooms. Any location/s with visibly deteriorating caulk is of the greatest priority.

Employees will be reminded to wash their hands with soap and water after performing cleaning activities or before eating or drinking.

4.0 PREVENTATIVE MAINTENANCE

In order to optimize ventilation and air circulation, HVAC and general ventilation supply and exhaust fans will be operated while schools are occupied. The CE/BM will ensure that building air exchange rates are maintained per design, by ensuring that the HVAC and general ventilation systems are operating properly. If problems are identified that are beyond the ability of the CE/BM to rectify, a work request will be submitted through Passport as a Priority 4, which is an expedited priority of a time sensitive nature, with an email notification to the respective deputy Director of Facilities. To help ensure the building air exchange rates are maintained, CE/BMs will:

- Change air filters as required
- Perform inspection and cleaning of coils
- Inspect and clean registers
- Adjust Dampers
- Inspect HVAC systems annually, including circuit breakers, belts, fan motors, bearings (and lubricate as necessary), controls, drain and vent lines, and air flow rate.
- Other

Records of the performance of the above listed requirements shall be entered into the Maintenance Log book. Additionally, records of daily operation of ventilation systems shall continue be recorded on the PO7 form which is retained in the CE/BM files.

5.0 PCB CAULK DISPOSAL

Waste caulk that contains (or is presumed to contain) PCBs in concentrations of 50 ppm or greater, as well as any personal protective equipment or disposable material used during the cleaning process, shall be disposed as PCB Bulk Product Waste and New York State Hazardous Waste, in accordance with 40 CFR 761 and 762 and 6 NYCRR Part 370-373. Waste caulk will also be evaluated for other components that contribute to the waste characterization, such as asbestos or lead paint, prior to disposal.

6.0 BMP TRACKING AND INSPECTIONS

DSF Managers will perform at least one (1) unannounced annual inspection of each school constructed between 1950 and 1978 in order to verify that:

- The BMPs are being implemented;
- Schools are kept clean and free of dust accumulations;
- Exposed Caulk is not deteriorated;
- HVAC and general ventilation fans are operating as designed; and
- Records are being maintained.

The Director of EHS will maintain records within Passport for all interior caulk related issues identified from the field (CE/BM, Skilled Trades).

DSF Managers will ensure that CE/BMs adhere to the BMP protocols. Anyone failing to comply will receive formal counseling and may be subject to discipline.

Further, EPA may conduct inspections to ensure compliance with CAFO requirements. Records will be maintained as described in Section 8.0 and copies will be made available to EPA upon request.

7.0 COMMUNICATION AND TRAINING

Information regarding PCB caulk shall be shared with teachers, parent representatives, and the school community through information sessions (referred to as Protocol Meetings) before caulk is disturbed. These meetings shall be used to communicate the scope of projects, hazardous materials (e.g., PCB caulk, asbestos, lead, etc.) that may be involved, measures used to ensure building occupant safety, and contacts to respond to questions and concerns during the project. EPA factsheets that may be used to educate building occupants about PCBs in caulk are included in Appendix B. All relevant schools will maintain copies of these fact sheets in the principal's office or in another suitable location in the school building. Additional information regarding PCB caulk will also be shared with the community as detailed in the Citizens Participation Plan for PCB caulk.

In order to inform building occupants of the possible presence of PCB caulk and BMPs, school personnel shall be trained as summarized below:

TITLE	TRAINING
CE/BMs and custodial support Staff	Hazcom and PCB health concerns (attached factsheet links) Function Specific Training, including: <ul style="list-style-type: none"> • BMP Protocols • Hygiene • Quarterly caulk inspection • Corrective Actions <ul style="list-style-type: none"> ○ Patch/Repair ○ Encapsulate • HVAC inspection • Waste Caulk Disposal
Construction Management	Hazcom and PCB health concerns (attached factsheet links) Function Specific Training, including: <ul style="list-style-type: none"> • Section 02082 <ul style="list-style-type: none"> • Dust controls • Cleaning • Soil protection • Waste disposal

8.0 RECORDS RETENTION

The following records related to the BMPs will be maintained until ten (10) years after the requirements of the CAFO have been satisfied:

DOCUMENT	RETENTION LOCATION*
Quarterly Caulk Inspection	Records to be maintained on site in the file of the CE/BMs
Disposal Manifests/Bills of Lading	Files to be maintained by the DSF EHS Unit or SCA Construction Management Offices
Work Requests & Work Orders	Records will be retained in Passport and hard copy documents will be produced as required.
HVAC fan inspections	Inspections will be recorded in the CE/BM Maintenance log book and remain on site at each school
DSF Audits	Annual Summary Inspection Reports will be submitted by each CE/BM to DSF - EHS.

* Records may be archived at off-site locations

APPENDIX A
DSF CAULK INSPECTION FORM

NEW YORK CITY DEPARTMENT OF EDUCATION
 DIVISION OF SCHOOL FACILITIES
 ANNUAL SUMMARY OF QUARTERLY INTERIOR CAULK INSPECTION FORM

BUILDING CODE: _____ YEAR BUILT: _____

ISC/DISTRICT: _____

QUARTER	DATE/INSPECTED BY <small>(i.e. MM/DD/YYYY; Name/Title)</small>	LOCATION/AREA <small>(i.e. Room Number, Window Wall, Door frame)</small>	DEFICIENCIES NOTED <small>(i.e. Missing or Damaged Caulk)</small>	NOTIFICATION MADE <small>(i.e. Date, P.P., Work Request Number)</small>	STATUS <small>(i.e. Pending, In Progress or Complete)</small>
Initial Inspection					
1st (Jan, Feb, March)					
2nd (April, May, June)					
3rd (July, Aug, Sept)					
4th (Oct, Nov, Dec)					

Completed by: _____ Title: _____ Date: _____

NEW YORK CITY DEPARTMENT OF EDUCATION
 DIVISION OF SCHOOL FACILITIES
 QUARTERLY INTERIOR CAULK INSPECTION FORM

BUILDING CODE: _____ YEAR BUILT: _____

ISC/DISTRICT: _____

DATE/INSPECTED BY <small>(i.e. MM/DD/YYYY; Name/Title)</small>	LOCATION/AREA <small>(i.e. Room Number, Window Wall, Door frame)</small>	DEFICIENCIES NOTED <small>(i.e. Missing or Damaged Caulk)</small>	NOTIFICATION MADE <small>(i.e. Date, P.P. Work Request Number)</small>	STATUS <small>(i.e. Pending, In Progress or Complete)</small>

Completed by: _____ Title: _____ Date: _____

NEW YORK CITY DEPARTMENT OF EDUCATION
 DIVISION OF SCHOOL FACILITIES
 QUARTERLY INTERIOR CAULK INSPECTION FORM

BUILDING CODE: _____ YEAR BUILT: _____

QUARTER: 2nd (April, May, June)

ISC/DISTRICT: _____

DATE/INSPECTED BY <small>(i.e. MM/DD/YYYY; Name/Title)</small>	LOCATION/AREA <small>(i.e. Room Number, Window Wall, Door frame)</small>	DEFICIENCIES NOTED <small>(i.e. Missing or Damaged Caulk)</small>	NOTIFICATION MADE <small>(i.e. Date, P.P. Work Request Number)</small>	STATUS <small>(i.e. Pending, In Progress or Complete)</small>

Completed by: _____ Title: _____ Date: _____

NEW YORK CITY DEPARTMENT OF EDUCATION
 DIVISION OF SCHOOL FACILITIES
 QUARTERLY INTERIOR CAULK INSPECTION FORM

BUILDING CODE: _____ YEAR BUILT: _____

QUARTER: 3rd (July, Aug, Sept)

ISC/DISTRICT: _____

DATE/INSPECTED BY <small>(i.e. MM/DD/YYYY, Name/Title)</small>	LOCATION/AREA <small>(i.e. Room Number, Window Wall, Door frame)</small>	DEFICIENCIES NOTED <small>(i.e. Missing or Damaged Caulk)</small>	NOTIFICATION MADE <small>(i.e. Date, P.P. Work Request Number)</small>	STATUS <small>(i.e. Pending, In Progress or Complete)</small>

Completed by: _____ Title: _____ Date: _____

NEW YORK CITY DEPARTMENT OF EDUCATION
 DIVISION OF SCHOOL FACILITIES
 QUARTERLY INTERIOR CAULK INSPECTION FORM

BUILDING CODE: _____ YEAR BUILT: _____

ISC/DISTRICT: _____

QUARTER: 4th (Oct, Nov, Dec)

DATE/INSPECTED BY (i.e. MM/DD/YYYY; Name/Title)	LOCATION/AREA (i.e. Room Number, Window Wall, Door frame)	DEFICIENCIES NOTED (i.e. Missing or Damaged Caulk)	NOTIFICATION MADE (i.e. Date, P.P. Work Request Number)	STATUS (i.e. Pending, In Progress or Complete)

Completed by: _____ Title: _____ Date: _____

APPENDIX B
EPA FACT SHEETS

BEST MANAGEMENT PRACTICES (BMP)
FOR PCB CAULK IN NYC SCHOOL BUILDINGS

- [Caulk Containing PCBs May Be Present in Older Schools and Buildings](#)
- [PCBs in Caulk School Checklist](#)
- [What to Say to Children About PCBs](#)
- [Fact Sheets for Schools and Teachers About PCB-Contaminated Caulk \(PDF\) \(3 pp, 339K, About PDF\)](#)
- [Fact Sheet: Testing for PCBs in Buildings || PDF version \(3 pp, 33K\)](#)
- [Fact Sheet: Interim Measures for Reducing Risk and Taking Action to Reduce Exposures || PDF version \(4 pp, 45K\)](#)
- [Fact Sheet: Removal and Clean-Up of PCBs in Caulk and PCB-Contaminated Soil and Building Materials || PDF version \(2 pp, 69K\)](#)
- [Fact Sheet: Disposal Options for PCBs in Caulk and PCB-Contaminated Soil and Building Materials || PDF version \(4 pp, 32K\)](#)

APPENDIX C
LIST OF SCHOOLS CONSTRUCTED BETWEEN 1950 AND 1978