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PCBS IN CAULK PROJECT

Model Implementation Process

for a Municipal Program to Reduce PCBs in Runoff Associated with Demolition and Remodeling Projects

Prepared for

SAN FRANCISCO ESTUARY PARTNERSHIP

TAKING ACTION FOR CLEAN WATER

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DISCLAIMER

This document is one of several major products for the San Francisco Estuary Partnership's PCBs in Caulk Project, which was created to address potential impacts of polychlorinated biphenyls (PCBs) in caulks and sealants released into stormwater runoff during demolition or remodeling projects in the San Francisco Bay Area. The project is assisting the implementation of the Total Maximum Daily Load (TMDL) for PCBs in San Francisco Bay. The PCBs TMDL includes a plan for reducing PCBs loads that is implemented through permits, including the Municipal Regional National Pollutant Discharge Elimination System (NPDES) Permit for Stormwater (MRP). In the first five-year permit term, starting in 2009, stormwater Permittees are required to investigate the costs, effectiveness, and technical feasibility of several categories of potential PCBs control measures. The PCBs in Caulk Project focused on one such category of potential PCBs controls: measures to minimize the release of PCBs in caulks and sealants to stormwater runoff during demolition or remodeling projects.

In the 2014-2015 timeframe, Permittees and San Francisco Bay Regional Water Quality Control Board (Regional Water Board) staff will evaluate the potential PCBs controls based on their effectiveness in reducing PCBs loads to stormwater, cost, and other relevant factors, to inform planning further efforts to address PCBs during the next permit term. To the extent that Permittees will be required in future permits to control PCBs in caulks and sealants released during building demolition or remodeling, this document is intended to assist in complying with such requirements. At the time of publication (2011), municipalities are not required to implement this process.

This document breaks new ground as the first known attempt to create a potential regional regulatory process to manage PCBs in caulks and sealants to protect water quality. It also leaves many issues for potential future implementers to address, compiled in **Appendix A** of this document on Obstacles, Challenges, and Future Needs.

This document refers to state and federal regulations related to PCBs that are legally complex and may be subject to varying interpretations, in some cases due to variable, site-specific characteristics. The regulatory information in this document is presented as background information only and does not replace or supplant the requirements of federal or California law and regulations, including but not limited to the Toxic Substances Control Act or the PCBs regulations at 40 CFR Part 761.

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Model Implementation Process for a Municipal Program to Reduce PCBs in Runoff Associated with Demolition and Remodeling Projects

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1.0 PROJECT BACKGROUND

To address State health advisories that people should limit the consumption of some types of fish from the San Francisco Bay that contain elevated concentrations of polychlorinated biphenyls (PCBs), the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) developed a Total Maximum Daily Load (TMDL) for PCBs in San Francisco Bay. The Regional Water Board adopted an adaptive TMDL Implementation Plan to describe a wide variety of PCBs control measures to reduce the discharge of PCBs to the Bay over a 20 year time frame.

In April 2007, the State Water Resources Control Board awarded the Association of Bay Area Governments/San Francisco Estuary Partnership (SFEP) a Proposition 50 Coastal Nonpoint Source Pollution grant known as the "Taking Action for Clean Water" project to further implementation of several Bay Area Total Maximum Daily Loads (TMDLs). After the California bond project freeze in 2008-2009, the grant was transferred to the Clean Water State Revolving Fund under the American Recovery and Reinvestment Act of 2009 (ARRA).

One of the Taking Action for Clean Water projects is the "PCBs in Caulk" project that proposes a model management process to keep PCBs in historic building materials, specifically uncontained materials like sealants and caulking, out of urban runoff. Caulk is targeted because it is a building material that has been found in many studies to have high concentrations of PCBs and is used on the exterior of buildings, and thus exposed to the environment.

In October 2009, the Regional Water Board adopted the Municipal Regional National Pollutant Discharge Elimination System (NPDES) Permit for Stormwater (hereafter MRP). Many of the measures from the TMDL Implementation Plan to control urban runoff of PCBs are incorporated into the MRP as pilot projects to evaluate the feasibility and cost-effectiveness of individual control measures where those aspects are not yet understood well enough to warrant wide-scale implementation. The MRP includes Provision C.12.b.ii (4) requiring that permittees develop "…model ordinances or policies, train and deploy inspectors..." On March 29, 2010, the United States Environmental Protection Agency (EPA) adopted the final version of the PCBs TMDL.

This document proposes a model process for implementing measures to prevent releases of PCBs into urban runoff during demolition and remodeling projects. The model implementation process has been developed in anticipation of requirements that may be issued by the Regional Water Board to implement the PCBs TMDL through a future municipal stormwater permit. If the Regional Water Board requires PCBs in Caulk control measures, the model implementation process should be re-evaluated and updated to match the requirements of that future permit and current Federal and State PCBs regulations.

The model implementation process is supported by two related documents: a set of "best management practices (BMPs)" for reducing PCBs in runoff associated with demolition and remodeling projects, and a training strategy for municipal staff implementing the program.

2.0 MODEL IMPLEMENTATION PROCESS INTRODUCTION

The model implementation process laid out in this document is intended to provide a starting point for municipalities to develop a runoff prevention program for PCBs in caulk to protect water quality in the San Francisco Bay.

The model implementation process includes a model process, model ordinance, model staff report, and template forms for municipal planning and permitting processes and to provide guidance to project Applicants.

The focus of the model implementation process is limited to PCBs runoff prevention during demolition or remodeling. The model implementation process does not address the following issues:

- The model implementation process does not ask municipalities to oversee or enforce human health protection standards.
- Although there may be some overlap in practices that address human health and the environment, the model implementation process does not specifically address or establish practices to protect human health during demolition or remodeling projects (e.g., air sampling/air clearance sampling is not part of these tools).
- The model implementation process does not ask municipalities to oversee PCBs abatement or remediation of materials or lands contaminated by PCBs.
- The model implementation process does not establish remediation standards.

Rather, the model implementation process tools are meant to complement requirements of EPA and to emphasize the need to protect water quality during abatement and remedial activities.

Municipalities will continue to rely on EPA and, where appropriate, California Department of Toxic Substances Control (DTSC), the Regional Water Board, and California Unified Program Agencies (CUPA) requirements to ensure appropriate abatement, remediation, and waste disposal. Municipalities are expected to inform project proponents that EPA, State, and local requirements exist and to refer Applicants to these agencies—but should not provide regulatory guidance to Applicants.

While this process was in development, EPA announced its intent to modify its PCBs regulatory framework.[1] Since future regulatory changes may affect the model implementation process, EPA should be consulted prior to taking the next steps on PCBs in caulk runoff prevention programs.

A companion project being conducted by the San Francisco Estuary Institute and supported by these grant funds is looking at loadings of PCBs from demolition and remodeling sources. The findings of this report will provide valuable information for future efforts and refinement of this process.

During the course of the model implementation process development, input was sought from Bay Area municipalities, and a trial implementation workshop of the process was conducted. The implementation trial was held on July 26, 2011, and included participation by municipal environmental specialists, planners, and permit specialists. In addition to providing valuable input that refined the process, the participants in the trial implementation workshop identified challenges and obstacles to implementation and offered suggestions for tools and information that would be needed to supplement the model implementation process. This information is documented in **Appendix A**.

3.0 PCBS IN CAULK PROBLEM STATEMENT

Caulk is a flexible material used as a joint sealant to make windows, door frames, and masonry joints in structures water tight or air tight. PCBs were added because they imparted flexibility to the caulk. EPA banned the manufacture and most uses of PCBs in 1979. According to EPA,

[1] *Polychlorinated Biphenyls (PCBs); Reassessment of Use Authorizations*. Federal Register 2010. **75**(66), 17645-17667.

caulk containing PCBs was often used in concrete and masonry structures built or renovated between 1950 and 1980.[2]

Estimates on the amount of PCBs in caulk vary. Research in the United States and abroad has found concentrations ranging from less than one milligram per kilogram (mg/kg)[3] to more than 500,000 mg/kg.[4] Recent research found a similar concentration range in caulk in Bay Area buildings.[5] Anecdotes suggest that the variability in concentrations of PCBs in caulk may come from the way PCBs were added to caulk (e.g., during the manufacturing process or as an after-market addition mixed into a batch of caulk prior to use) and materials left in equipment between batches.[6]

Remodeling and demolition represent stages in the lifecycle of a structure when mobilization of the PCBs into local surface waters is most likely. During the remodeling or demolition process, pieces and particles of caulk containing PCBs can be mobilized and washed into storm drains, local creeks, and the Bay. The State of California Office of Environmental Health Hazard Assessment advises people to limit their consumption of fish from San Francisco Bay because fish in the Bay contain PCBs. [7]

The proposed model implementation process would give Bay Area municipalities a method to ensure that remodeling and demolition projects are managed in a way that reduces PCBs in runoff that enters storm drains and Bay Area waters. This proposed model regulatory process would screen for PCBs in caulk as part of the local permitting process. When this screening identifies PCBs in caulk at concentrations of 1 mg/kg or greater Applicants would be required to implement management practices to prevent mobilization of the PCBs in caulk into the environment.

The action threshold of 1 mg/kg of PCBs in Caulk is not a Federal or State regulatory threshold. The threshold was selected as a starting point for the model implementation process. The proposed action threshold requires further scientific evaluation to determine if this or another threshold concentration of PCBs in caulk is required to protect water quality. At the current time there is not enough information to make a final determination as to where to place the cut-off for significant sources of PCBs. This threshold was selected because it is achievable by the current analytical methods and provides a clear decision point for municipal staff and Applicants.

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[2] *Polychlorinated Biphenyls: Facts About PCBs in Caulk*. http://www.epa.gov/pcbsincaulk/guide/guide-sect1.htm, accessed October 19, 2011.

[3] Milligrams per kilogram (mg/kg) may also be expressed as parts per million (ppm).

[4] Moran, K. et al. (2007). *First Phase Support Information for PCB Portion of Taking Action for Clean Water Grant*, Memorandum prepared for the San Francisco Bay Clean Estuary Partnership. July 16.

[5] Klosterhaus, S. et al. (2011), *Polychlorinated Biphenyls in Sealants in San Francisco Bay Area Buildings: Estimated Stock in Currently Standing Building and Releases to Stormwater during Renovation or Demolition*, November.

[6] Personal communication between Athena Honore and Ann Casey at NEA-Pace Analytical Labs in Schenectady, NY. March 16, 2011; and Klosterhaus et al., *op. cit.*

[7] I*nformation about Fish and Shellfish from San Francisco Bay* [05/23/11]. http://oehha.ca.gov/fish/general/sfbaydelta.html, accessed October 11, 2011.

4.0 MUNICIPAL MODEL IMPLEMENTATION PROCESS

4.1 Process Overview

Federal and State regulations create a framework for managing PCBs in caulk once those PCBs are identified; however, at present, few structure owners know whether the caulk in their structures contains PCBs. The model implementation process has a simple design, focused on ensuring that Applicants seeking to demolish or remodel a structure become aware of any PCBs in caulk, so that PCBs can be managed in accordance with Federal and State regulations. Due to the special water quality hazards posed by PCBs, the process includes a requirement for Applicants who identify PCBs to implement enhanced construction activity stormwater pollution prevention best management practices to prevent PCBs from running off the project site in the stormwater or being mobilized by wind.

The model process involves three steps:

- Notifying Applicants of the requirement to conduct a PCBs Screening Assessment prior to demolition or remodeling of structures that are likely to contain PCBs in caulk;
- Receiving the Applicant's certified statement that the PCBs Screening Assessment has been completed (or that an assessment is not required); and
- When a PCBs Screening Assessment identifies PCBs, receiving the Applicant's certified statements that he or she implemented a PCBs Runoff Prevention Plan and that he or she completed any required PCBs removal, clean-up, and disposal in accordance with Federal and State requirements.

The main roles for municipalities in this process are:

1) Adopting an ordinance that provides the legal authority necessary to implement the process.
2) Providing information to Applicants about:
    a. The PCBs Screening Assessment requirement;
    b. PCBs Runoff Prevention requirements when the concentration of PCBs in caulk is found to be 1 mg/kg or greater[8, 9] through the PCBs Screening Assessment; and
    c. The Applicant's obligations under Federal and California laws and regulations when PCBs are found in the caulk.
3) Confirming the Applicant has conducted the PCBs Screening Assessment by checking Applicant certifications.
4) Confirming the Applicant has completed his or her PCBs runoff prevention, removal, clean-up, and disposal obligations by checking Applicant certifications.

The model process described below follows the organization of two model forms that were designed for the Applicant to submit the information to the municipality. The PCBs in Caulk Initiation Form (**Appendix B**) is a template for Applicants to summarize and certify the

[8] This concentration may also be expressed as 1 part per million (ppm).

[9] 1 mg/kg is a draft value pending further scientific evaluation to determine a threshold concentration of PCBs in caulk that poses a threat to water quality. This number may be modified in the future if new information shows that a higher or lower concentration is required to assure protection of water quality.

information needed by the municipality to issue the remodeling or demolition permit. The PCBs in Caulk Initiation Form is divided into six parts:

- Part 1 provides Applicant and project location information;
- Parts 2 through 4 of the form document the three steps of the implementation process (these steps are described in Sections 4.2 through 4.4);
- Part 5 of the form documents that the appropriate Federal, State, and local agencies have been notified of the discovery of PCBs in caulk at concentrations of 1 mg/kg or greater; and
- Part 6 of the form consists of the Applicant's certification of the information submitted.

Flow charts of the process described in this section are provided in **Appendix C**. Flow Chart 1 provides a process diagram of the PCBs Screening Assessment. Flow Chart 2 provides a process diagram of the exposure screening; walks through the questions of potential Federal, State, and local involvement in caulk removal and/or clean-up; and waste disposal.

The PCBs in Caulk Termination Form (**Appendix B**) has been created as a template for Applicants to summarize and certify the information the municipality will need to close-out the remodeling or demolition permit at the end of the project. The PCBs in Caulk Termination Form is divided into five parts:

- Part 1 provides Applicant and project location information;
- Part 2 documents the implementation of a PCBs Runoff Pollution Prevention Plan if one was required;
- Part 3 documents the removal of PCBs caulk and site clean-up if this was required by EPA or a State or local agency;
- Part 4 documents waste disposal; and
- Part 5 of the form consists of the Applicant's certification of the information submitted.

Section 4.5 summarizes information on the waste disposal regulations that the Applicant will need to consult in order to determine appropriate ways of disposing of waste generated during the removal of caulk containing PCBs and materials affected by the PCBs. Section 4.6 describes the project close-out process.

4.2 PCBs Screening Assessment

The Applicant conducts the PCBs Screening Assessment to determine whether or not the building is likely to contain PCBs in caulk, and if so whether it contains PCBs in its caulk at concentrations of 1 mg/kg or greater. The results of the PCBs Screening Assessment are provided to the municipality with the permit application. The PCBs Screening Assessment consists of two questions that are described in this section.

At the end of the PCBs Screening Assessment, the Applicant will know the concentration of PCBs in caulk. If the PCBs concentration is less than 1 mg/kg, the Applicant may proceed with a standard remodeling or demolition project. If the PCBs in caulk concentration are 1 mg/kg or greater, he or she must implement the PCBs runoff prevention requirements.

The PCBs Screening Assessment will also provide the Applicant with the information that will assist them in determining whether removal of the caulk containing PCBs may be required by Federal regulations. This is further discussed in Section 4.4.

The results of the PCBs Screening Assessment are documented in Part 2 of the PCBs in Caulk Initiation Form.

4.2.1 Question 1. Structure Type, Use, and Age Screening

Assessing the structure to be renovated or demolished is the first step in the process. Current research indicates that PCBs were used in caulk in a limited subset of structure types. Only if the answers to all subparts of Question 1 are **Yes** does the Applicant need to continue to the next step in the PCBs Screening Assessment. An answer of **No** to any part of the Question 1 ends the PCBs Screening Assessment, and the Applicant may proceed with the standard remodeling or demolition permitting process.

Determine the type of structure

- If the structure is concrete or masonry, the Applicant continues to the next determination.
- If the structure is not concrete or masonry, the PCBs Screening Assessment is complete.

Determine the use of the structure

- If the structure's use is institutional, industrial, or commercial, or if it is a residential building with four or more stories above ground level and is not a single family home,[10] the Applicant continues to the next determination.
- If the structure is not one of these uses, the PCBs Screening Assessment is complete.

Determine the age of the structure

- If the structure was built or renovated[11] between 1950 and 1980, the Applicant continues to Question 2.
- If the structure was not built or renovated between 1950 and 1980, the PCBs Screening Assessment is complete.

4.2.2 Question 2. PCBs in Caulk Screening

Screening for PCBs in caulk is required when the answers to all the subparts of Question 1 are **Yes**. Screening for PCBs may be satisfied in several ways, which are discussed here. Only those areas of the building that will be affected by the demolition or remodeling must be screened for PCBs in the caulk. Screening is limited to those caulk applications likely to contain PCBs:

- In outdoor expansion joints;
- At structure/walkway interfaces; and
- Around windows and doorframes.

In general, indoor caulk applications do not have to be screened unless past remodeling of the building expanded the structure such that a previous exterior wall is now interior.

[10] Definition of residential building size to include in PCBs Screening is arbitrary; see discussion in Appendix A.

[11] Including window remodeling or replacements.

Knowledge of caulk formulation

In some cases, a property owner may have records of the formulation of the caulk used during the construction or past remodels. If such records exist, the Applicant may use them to demonstrate the concentration of PCBs in the caulk for the screening step. However, if the presence of PCBs is indicated at an unknown concentration or if the minimum detection level was greater than 1 mg/kg, the Applicant must have the caulk sampled and analyzed by a laboratory.

Note: It is expected that this option will be used infrequently as it is unlikely that records of caulk formulation will exist.

Federal PCBs Remediation Regulations

The Toxic Substances Control Act and Federal regulations establish 50 mg/kg (ppm) of PCBs in caulk as the concentration that triggers removal of caulk. Clean-up of materials contaminated by the PCBs containing caulk may also be required. See EPA regulations, 40 CFR 761. These requirements are summarized in Section 4.4.

- If the caulk formulation is known to contain PCBs but at an unknown concentration, the Applicant must conduct representative sampling of the caulk.
- If the caulk formulation is known to contain PCBs at a concentration of 1 mg/kg or greater, the Applicant must implement the PCBs runoff pollution prevention requirements (see Section 4.3). Based on the concentration of PCBs in caulk, the Applicant may be required by EPA to remove the caulk containing PCB. This further discussed in Section 4.4. EPA and possibly State or local agencies may require clean-up of the materials contaminated by the PCBs in the caulk.
- If the caulk formulation is known not to contain PCBs, the PCBs Screening Assessment is complete.

Caulk sampling and analysis

If the Applicant has previously conducted representative sampling and has the analytical test results, those results can be used to demonstrate the PCBs concentrations for this screening step.

In most cases, the Applicant will need to sample the caulk and send the samples to a laboratory for analysis to complete the PCBs screening. For a discussion of what constitutes representative sampling, see the sidebar.

Representative Caulk Sampling and PCBs Analysis

Caulk samples must be representative of the types and extent of caulk in the structure. At minimum, at least one sample of caulk for each sealant application likely to contain PCBs must be taken.

Sealant applications likely to contain PCBs include: caulk around windows; caulk at structure/walkway interfaces; and caulk in expansion joints.

Caulk samples must be analyzed by a qualified laboratory according to methods approved by EPA.

- If the analytical tests from representative sampling indicate PCBs in caulk at concentrations of 1 mg/kg or greater, the Applicant must implement runoff prevention requirements (see Section 4.3). As noted previously, EPA may require the caulk that contains PCBs be removed and EPA and possibly State or local agencies may require clean-up of the materials contaminated by the PCBs in the caulk.

- If the analytical tests from representative sampling indicate the absence of PCBs in caulk (i.e., concentrations less than 1 mg/kg), the PCBs Screening Assessment is complete.

4.2.3 Assistance for Applicants

There is no specific certification or license that qualifies an environmental professional to conduct PCBs Screening Assessments and PCBs clean-up. However, **Appendix D** provides suggested criteria for use in developing a list of qualified professionals because municipal staff will undoubtedly be asked how to select a qualified professional. As the program matures, it is possible that a more specific certification program may be developed, such as has occurred for asbestos assessments and abatement.

Applicants may also have questions about the PCBs sampling and analysis. To be representative, sampling plans must be site specific, so municipal staff should refrain from specifying the number of samples required to conduct a representative PCBs Screening Assessment.

Until field screening methods improve, samples need to be sent to a qualified analytical laboratory and analyzed by methods approved by EPA. Approved methods are identified in *SW-846, Test Methods for Evaluating Solid Waste*.[12] EPA recommends Method 3500B/3540C for chemical extraction of PCBs by the laboratory and the use of Method 8082 for analyzing the extracts. EPA estimates the cost of analyzing caulk at about $100 per sample.[13] However, costs may vary in different areas of the United States.

Summary of PCBs Screening Assessment

The PCBs Screening Assessment is a process for the Applicant to determine if PCBs are present in caulk. First the Applicant gathers information on the likelihood that PCBs are present in building caulk. If building caulk is likely to contain PCBs, the Applicant demonstrates through existing information or analytical testing the concentration of PCBs in the caulk.

The results of the PCBs Screening Assessment are documented by the Applicant on Part 2 of PCBs in Caulk Initiation Form.

4.3 PCBs Runoff Prevention

When the results of the PCBs Screening Assessment indicate the presence of PCBs at concentrations of 1 mg/kg or greater, the Applicant must develop and implement BMPs and strategies to prevent the dispersal of PCBs during the remodeling or demolition project and to properly manage and dispose of all PCBs-containing wastes.

In most cases the BMPs and strategies will be specified in a PCBs Runoff Prevention Plan that is prepared by the Applicant. In cases where the Applicant certifies there will be no exposure of the

[12] *Wastes – Hazardous Waste – Test Methods: SW-846*. http://www.epa.gov/epawaste/hazard/testmethods/sw846/index.htm, accessed October 19, 2011

[13] *Polychlorinated Biphenyls (PCBs): Current Best Practices for PCBs in Caulk Fact Sheet – Testing in Buildings*. http://www.epa.gov/epawaste/hazard/tsd/pcbs/pubs/caulk/caulktesting.htm, accessed on August 26, 2011.

PCBs caulk, contaminated materials, or wastes, then a written PCBs Runoff Prevention Plan is not required.

The PCBs Runoff Prevention Plan will specify the PCBs BMPs that the Applicant plans to implement, the methods to inspect the implementation of the BMPs, the project schedule, and plans for disposal of PCBs-containing waste in accordance with Federal and State law.[14] Waste disposal requirements are further discussed in Section 4.5.

In addition, the PCBs Runoff Prevention Plan will identify whether EPA required removal of the caulk containing PCBs, and whether EPA or another agency required clean-up of materials contaminated by the PCBs in the caulk. See Section 4.4 for a discussion of the EPA requirements.

The PCBs Runoff Prevention Plan may be a stand-alone document, or it may be incorporated into a construction activity Stormwater Pollution Prevention Plan (SWPPP) required by the State Water Resources Control Board Order 2009-0009-DWQ, referred to as the Construction Stormwater General Permit,[15] or a local SWPPP required by a municipality under its stormwater ordinance.[16]

Confirmation that the PCBs Runoff Prevention Plan has been developed is provided to the municipality with the permit application. This confirmation is documented in Part 3 of the PCBs in Caulk Initiation Form.

The process provides an exemption from the requirement to develop a PCBs Runoff Pollution Prevention Plan for those projects where all PCBs occur indoors and all PCBs-containing materials will be fully protected from wind and rain and thus not available to be washed away in urban runoff. Part 3 of the PCBs in Caulk Initiation Form includes questions to determine if the exemption is applicable.

Certification that the PCBs Runoff Prevention Plan was implemented is provided by the Applicant to the municipality at the conclusion of the project. This confirmation is documented on the PCBs in Caulk Termination Form.

At the end of this step in the process, the Applicant will have:

- Determined whether PCBs will be exposed to wind and rain;
- Identified the appropriate runoff prevention strategies; and
- Developed a PCBs Runoff Prevention Plan, if needed.

[14] Federal PCBs waste management requirements are specified in 40 CFR 761. California waste management requirements are specified in CCR Title 22 (primarily in Section 66262).

[15] The State Water Resource Control Board's Order 2009-0009-DWQ requires a SWPPP for construction activities, including demolition, where one acre or more of soil is disturbed or for smaller projects part of a common plan of development. For details see Storm Water Program: 2009-0009-DWQ Construction General Permit (Effective July 1, 2010, http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml.

[16] The MRP requires municipalities to establish stormwater ordinances to control construction site runoff. Municipalities require local SWPPPs for projects subject to the stormwater ordinance.

4.3.1 Question 1. Exposure Screening

Determining whether the PCBs will be outdoors (and thereby exposed to wind and rain) is the primary question to be addressed in determining whether a PCBs Runoff Prevention Plan is required.

- If all PCBs in caulk and associated PCBs-contaminated materials and wastes are indoors and wastes generated from the removal of these materials will be temporarily stored indoors until transported for proper disposal, then the Applicant confirms that there will be no exposure in Part 3 of the PCBs in Caulk Initiation Form.
- If the PCBs in caulk and associated PCBs-contaminated materials and wastes will be outdoors, then the Applicant is required to develop a PCBs Runoff Prevention Plan. The development of this plan is documented in Part 3 of the PCBs in Caulk Initiation Form.

4.3.2 Assistance for Applicants

A model outline of the content of a PCBs Runoff Prevention Plan and self-inspection forms have been developed for municipalities to provide as guidance to Applicants. The model outline and inspection forms are provided in **Appendix E**. A companion document to this model implementation process, the *Best Management Practices for Reducing PCBs in Runoff Associated with Demolition and Remodeling Projects*,[17] developed recommended BMPs that are geared toward preventing mobilization of PCBs-containing dust and sediments by wind and water erosion when caulk is removed during building remodeling or demolition. The BMP document may be provided to Applicants as well.

The PCBs Runoff Prevention Plan should be prepared by an environmental professional. There are no specific certifications that qualify an environmental professional to prepare a PCBs Runoff Prevention Plan. However, **Appendix D** provides suggested criteria that can be used develop a list of qualified professionals. Professionals qualified to conduct PCBs remediation services are likely to have the expertise to prepare the PCBs Runoff Pollution Prevention Plan.[18]

Summary of PCBs Runoff Prevention

The PCBs runoff prevention strategy is a process for the Applicant to determine if PCBs will be outdoors (and thereby exposed to wind and rain). If there is no exposure, the Applicant is provided an 'off-ramp' from the requirement to develop a PCBs Runoff Prevention Plan.

The results of this assessment are documented by the Applicant on Part 3 of the PCBs in Caulk Initiation Form.

[17] Geosyntec, et al. (2011). PCBs in Caulk Project, SFEP Taking Action for Clean Water. November.

[18] In cases where a PCBs Runoff Prevention Plan will be part of a Stormwater Pollution Prevention Plan prepared in compliance with State Water Resources Control Board Order 2009-0009-DWQ, the Construction Stormwater General Permit, those regulations require the SWPPP to be developed by a Qualified SWPPP Developer.

4.4 EPA Role in PCBs in Caulk Removal and Clean-up

4.4.1 Process Overview

If the PCBs Screening Assessment indicates that the concentration of the PCBs in the caulk equals or exceeds 50 mg/kg (i.e., ≥ 50 parts per million), the Applicant must remove the caulk containing the PCBs in accordance with EPA regulations. Clean-up of the materials and soil contaminated by the PCBs in caulk may also be required.[19] Municipalities will not have any involvement in the PCBs removal decisions or clean-up, but will receive certification from the Applicant that the removal or clean-up was completed in accordance with applicable requirements, and that all wastes were disposed of properly. This information is documented on the PCBs in Caulk Termination Form.

The information in this section does not replace or supplant the requirements of the Toxic Substances Control Act or the PCBs regulations, 40 CFR 761, or California or local laws and regulations.

4.4.2 Removal of PCBs-Contaminated Caulk

EPA regulations regarding PCBs are found in 40 CFR 761.[20] Under these regulations, caulk containing PCBs at a concentration of 50 mg/kg or greater is considered an unauthorized use of PCBs and once discovered must be removed and disposed of properly.[21]

EPA Region 9 encourages building owners to contact the EPA Region 9 PCBs Coordinator concerning steps the building owner can take to remove PCBs caulk and address other matters related to impacts from the migration of PCBs in the caulk into building materials or adjacent soil. However, EPA does not necessarily oversee PCBs caulk removal.

Applicants that need to remove caulk containing PCBs should retain environmental professionals who are thoroughly familiar with 40 CFR 761 and applicable State and local laws and regulations.

4.4.3 Clean-up of PCBs-Contaminated Materials

If the PCBs in the caulk have migrated into the substrate building materials or nearby soil, clean-up of surrounding building materials and/or adjoining soils may be required by EPA or by State or local agencies. To ensure that the appropriate agencies are aware of the potential for PCBs contamination and can take action if their involvement is warranted, Applicants are required to notify EPA Region 9, DTSC, the Regional Water Board, and the local CUPA. Notification involves sending each of these agencies a copy of the completed PCBs in Caulk Initiation form.

EPA ordinarily is the lead agency for clean-up of materials contaminated by PCBs in caulk. PCBs clean-up plans are addressed in 40 CFR 761.61. Clean-up plans must be submitted to EPA Region 9 for review and approval prior to implementation. Applicants can expect that EPA

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[19] Clean-up of surrounding contaminated materials may be directed by EPA or from time to time, may be directed by DTSC, the Regional Water Board, or local CUPAs.

[20] 40 CFR 761: *Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions*. http://www.access.gpo.gov/nara/cfr/waisidx_07/40cfr761_07.html, accessed October 19, 2011.

[21] EPA is currently in the process of clarifying the specific material that must be removed. To remove all of the caulk, it may be necessary to remove surrounding materials (like concrete) where the PCBs-containing caulk has penetrated.

Region 9 will establish clean-up levels for the site that take into consideration current and future planned land uses, and potential impacts to human and ecological receptors.

EPA provides detailed guidance on conducting the characterization sampling including specification of sampling plan development, sampling methods, and analytical methods in 40 CFR 761 Subpart N. Characterization sampling will be more extensive than the PCBs in Caulk Screening Assessment described in Section 4.2.

Applicants that need to conduct PCBs clean-up should retain environmental professionals that are thoroughly familiar with 40 CFR 761 and all applicable State and local laws and regulations.

4.4.4 Assistance for Applicants

Municipal staff should not provide guidance on Federal PCBs removal requirements or Federal, State or local clean-up plans. Applicants should always be referred to the Federal and State laws and regulations or the EPA Region 9 PCBs Coordinator and DTSC Regulatory Assistance Officer.

Federal and State regulations do not specify or require certifications for professionals that conduct PCBs clean-up. However, **Appendix D** provides suggested criteria to use in developing a list of qualified professionals because municipal staff will undoubtedly be asked how to select a qualified professional. As the program matures, it is possible that a more specific certification program may be developed, such as has occurred for asbestos assessments and abatement.

Summary of EPA Role in PCBs Caulk Removal and Clean-up

Under EPA regulations, caulk containing PCBs at a concentration of 50 mg/kg or greater is considered an unauthorized use of PCBs and once discovered must be removed and disposed of properly. EPA, California, or local agencies may require clean-up of surrounding building materials and/or soil. Municipalities will not have any involvement in the removal or clean-up.

When PCBs caulk removal or clean-up is required, Applicants document that they have notified EPA, State, and local agencies on Part 5 of the PCBs in Caulk Initiation Form.

4.5 Temporary Storage and Disposal of PCBs Caulk and PCBs Contaminated Materials

Both EPA and DTSC regulate the temporary storage and disposal of PCBs-contaminated wastes. Proper disposal of waste is governed by the source of the waste material and the concentration of the PCBs in the wastes. The disposal of wastewater will be further regulated by the wastewater treatment plant, which must authorize any discharges to the sanitary sewer. Under both Federal and State regulations the generator of the waste is responsible for the handling, storage, and disposal of the PCBs waste and California hazardous wastes.

Wastes generated during removal of caulk, clean-up of the project site, or decontamination of equipment associated with caulk that contained PCBs ≥50 mg/kg must be handled, stored, and disposed of per the requirements of 40 CFR 761 and CCR Title 22.

Wastes generated during caulk removal, clean-up of the project site, or decontamination of equipment associated with caulk that contained PCBs <50 mg/kg must be handled, stored, and disposed of per the requirements of CCR Title 22.

Discharge of any wastewater that may contain PCBs to sanitary sewer is contingent upon prior authorization of the wastewater treatment plant.

Table 1 provides a simplified summary of the PCBs wastes disposal framework based on Federal and State regulations. Applicants that will generate wastes containing PCBs should retain environmental professionals who are thoroughly familiar with 40 CFR 761, CCR Title 22, and other applicable State and local laws and regulations governing waste disposal. Waste disposal rules may change and the most current regulations and requirements should be researched by Applicants.

To protect workers, neighbors, and the environment, waste generators should generally expect to handle, store, and transport PCBs in caulk waste and other wastes associated with PCBs clean-up in a manners similar to those used for hazardous wastes.

Table 1. Simplified Summary of PCBs Disposal Framework[1]

Material	PCBs Concentration[2]	Regulatory Classifications	General Disposal Approach
PCBs-Containing Caulk (may include surrounding materials where the PCBs have penetrated)	Caulk concentration ≥50 mg/kg Waste concentration ≥50 mg/kg[3]	Federal PCBs Bulk Product Waste AND California Hazardous Waste	California disposal as hazardous waste. Disposal out of State depends on receiving State's requirements and landfill acceptance criteria.
	Caulk concentration ≥50 mg/kg Waste concentration <50 mg/kg	Federal PCBs Bulk Product Waste	Disposal depends on primarily on landfill acceptance criteria. Federal law allows these wastes to be disposed in an ordinary landfill with prior notification.
	Caulk concentration <50 mg/kg Waste concentration <50 mg/kg	Solid Waste	Disposal depends on primarily on landfill acceptance criteria. Federal law allows these wastes to be disposed in an ordinary landfill with prior notification.
Solid waste from clean-up of PCBs in caulk, such as building materials, soil, and paper	Waste concentration ≥50 mg/kg	Federal PCBs Remediation Waste or PCBs Decontamination Waste AND California Hazardous Waste	Toxic Substance Control Act (TSCA)-approved landfill or hazardous waste landfill.
	Solid waste concentration <50 mg/kg	Federal PCBs Remediation Waste and PCBs Decontamination Waste	Disposal depends on landfill acceptance criteria.

Continued

Table 1. Simplified Summary of PCBs Disposal Framework[1]

Material	PCBs Concentration[2]	Regulatory Classifications	General Disposal Approach
Liquid waste from clean-up of PCBs in caulk, such as solutions used to clean equipment or surfaces	Liquid waste concentration ≥5 mg/L	Federal PCBs Remediation Waste or PCBs Decontamination Waste AND California Hazardous Waste	Toxic Substance Control Act (TSCA)-approved waste disposal facility or hazardous waste disposal facility.
	Non-aqueous liquid waste concentration <5 mg/L	California Hazardous Waste or Non-hazardous waste depending on composition.	Disposal depends on regulatory status and waste management facility acceptance criteria.
	Aqueous waste concentration <5 mg/L and ≥3 µg/L	Non-hazardous liquid waste	Disposal depends on waste management facility acceptance criteria. Wastewater treatment plants unlikely to authorize sewer discharge. Disposal to storm drains, gutters, or other outdoor locations is never allowed.
	Aqueous waste concentration <3 µg/L	Depends on local wastewater treatment plant	Consult 40 CFR 761 and local wastewater treatment plant to determine if wastewater may be discharged to sewer system. Wastewater treatment plant authorization must be obtained prior to any discharge. Disposal to storm drains, gutters, or other outdoor locations is never allowed.

1 This simplified summary should not be used for compliance purposes. It does not describe all disposal requirements or all disposal options available for all specific wastes. Persons seeking to determine appropriate waste handling, storage, and disposal of PCBs waste should consult 40 CFR 761, CCR Title 22, and regulatory agencies.

2 The law prohibits dilution of wastes with clean solids or liquids to reduce concentrations below regulatory thresholds.

3 California hazardous waste thresholds also include a soluble waste concentration, which is not fully reflected in this table for solid waste.

4.6 Project Close-Out and Records Retention

The project close-out is the last step in the process. The close-out document is submitted after the Applicant has completed the remodeling or demolition project, completed PCBs remediation (if necessary), and completed all elements of the PCBs Runoff Prevention Plan.

The Applicant documents and certifies the completion and fulfillment of obligations on the PCBs in Caulk Termination Form (**Appendix B**). After receiving a completed PCBs in Caulk Termination Form, municipalities will close-out the permit and return any sureties of completion, such as bonds, required during the permitting process. The PCBs in Caulk Termination Form also asks the Applicant to summarize information on the amount of PCBs waste disposed of to support the tracking of the quantities of PCBs removed from the watershed.[22]

At the end of this final step, the Applicant will have completed the demolition or remodeling project, and filed the form to terminate his or her remodeling or demolition permit.

Following the filing of the PCBs in Caulk Termination Form, the Applicant needs to maintain documentation of the PCBs Runoff Prevention Plan implementation and the PCBs caulk removal or clean-up (if necessary), including all PCBs waste disposal records, for a minimum of five years, unless a longer period is specified by Federal, State, or local laws and regulations.

Similar to the PCBs in Caulk Initiation Form, Part 1 of the PCBs in Caulk Termination Form requires asks for owner and project information. Parts 2 through 4 ask questions regarding the project, and Part 5 is the Applicant's certification of the information. The structure of the PCBs in Caulk Termination Form is simpler than the PCBs in Caulk Initiation Form because it documents actions taken, and not a decision process.

Summary of Project Close-out and Records Retention

The project close-out step completes the PCBs in Caulk municipal process. The Applicant certifies the completion of the project in accordance with the information submitted at the project initiation and reports the amount of PCBs waste disposed of on the PCBs in Caulk Termination Form.

5.0 MODEL ORDINANCE

A key tool that municipalities will need to implement a program to control PCBs in caulk is an ordinance giving the municipality the authority to require PCBs screening of caulk in structures proposed for demolition or remodeling, to require that Applicants prepare and implement a PCBs Runoff Prevention Plan, and to define required reporting and record keeping. A model ordinance and staff report has been developed to facilitate the ordinance development process.[23] The model ordinance and staff report are provided in **Appendix F.**

[22] Since the details on what information will be required are not currently known, a set of place holder questions regarding weights and volumes of wastes disposed of during the project are included in the model form.

[23] The Model Ordinance and accompanying Staff Report were not vetted by municipalities. Only the process described in this document to complete the forms in Appendix B were part of the July 2011 implementation trial.

6.0 CONCLUSION

The model implementation process laid out in this document is intended to provide a starting point for municipalities to develop a runoff prevention program for PCBs in caulk. In addition to describing a model process, this document includes a model ordinance, model staff report, and form templates for municipal planning and permitting processes and to provide guidance to project Applicants.

As a model, the process, ordinance, and forms are intended to be customized by municipalities to fit into existing permitting processes. The key initial step is the adoption of an ordinance to provide necessary legal authority to require the initial PCBs screening and the subsequent development of a PCBs Runoff Prevention Plan.

The model implementation process has been developed in anticipation of future requirements issued by the Regional Water Board to implement the PCBs TMDL through a future municipal stormwater permit. The PCBs in Caulk project is one of several PCBs control measures being considered to reduce PCBs loads in urban runoff. If the Regional Water Board requires PCBs in Caulk control program, the model implementation process should be re-evaluated and updated to match the requirements of that future permit, and current Federal and State PCBs and waste disposal regulations.

EPA regulates PCBs under the authority of the Toxic Substances Control Act. The model implementation process was developed to complement this law and associated regulations (40 CFR 761). Should the EPA PCBs regulations be revised, the model implementation process sections referring to those regulations should be reassessed and revised.

During the course of the model implementation process development, stakeholder input from the staff of Bay Area municipalities was important in refining this process and identifying challenges and obstacles to implementation of a PCBs runoff control program. Stakeholders also provided useful input for next steps and additional information that would facilitate the implementation process. This input, where it did not result in direct changes to the model implementation process, is documented in **Appendix A**.

APPENDIX A. OBSTACLES, CHALLENGES, AND FUTURE NEEDS

A trial implementation workshop was held on July 26, 2011, to obtain feedback on the draft version of the model implementation process. Participants included municipal staff, regulators, and the project team. **Attachment 1** provides the workshop agenda and a complete listing of the participants. The trial resulted in significant modifications and refinements of the model implementation process. This section documents information provided by participants at the trial implementation workshop and other issues identified by the project team. The participants in the trial implementation workshop identified challenges and obstacles to implementation, and offered suggestions for tools and information that would be needed to facilitate the implementation.

1. Gaps in Federal Regulatory Program

EPA regulates PCBs under the Toxics Substances Control Act (TSCA). TSCA does not require the testing for PCBs in caulk, but mandates removal once the PCBs caulk concentration is known to be 50 mg/kg[1] or greater. TSCA and EPA regulations do not require notification of EPA or EPA's approval to remove caulk that contains PCBs. EPA may require a clean-up when it is known that PCBs have contaminated building substrate materials (e.g., wood, concrete) or surrounding soil, but EPA regulations do not require this testing.

Absent the proposed model implementation process, there is no Federal, State, or local requirement that mandates building owners look for PCBs. Without knowledge of the presence of PCBs, precautions are most likely not taken to protect water quality. Similarly, without knowledge of the presence of PCBs in caulk, waste caulk may not be carefully collected at project sites, and demolition debris potentially contaminated with PCBs may be recycled, or disposed of in municipal landfills. These actions may inadvertently result in further spreading of PCBs in the watershed.

No regulatory program specifically triggers clean-up of materials contaminated by PCBs in caulk, although EPA and possibly State or local agencies may require such clean-up if they become aware of the contamination. Municipalities do not possess the expertise to oversee clean-up projects. The model implementation process requires an Applicant who identifies the presence of PCBs in caulk at concentrations of 1 mg/kg to notify EPA Region 9, DTSC, the Regional Water Board, and the local CUPA so that those agencies have the opportunity to direct a clean-up should it be appropriate.

2. Waste Disposal

California regulations are unclear on how demolition waste is tested for disposal. For projects that are outside federal jurisdiction, demolition waste may be bulked for characterization. With PCBs waste representing a small overall portion of the debris, the PCBs-containing waste might legally be recycled or disposed of at municipal landfill. Nothing requires care in segregation of caulk and caulk-contaminated materials at construction sites.

Municipalities throughout the Bay Area have established 100% recycling goals for concrete waste, and have goals for demolition debris. Debris known to be contaminated with PCBs should be diverted from recycling to prevent further spreading of the PCBs in the San Francisco Bay watershed or beyond.

[1] This concentration may also be expressed as 50 parts per million (ppm).

3. Sampling and Analysis

Guidance on developing sampling plans for PCBs Screening Assessments is needed. There is limited information on the types and extent of caulk that contained PCBs, so it will be difficult to provide precise guidelines for screening level sampling. EPA has detailed requirements for site characterization, but this level of sampling is too detailed and not appropriate for screening.

The model process recommends analytical testing of caulk samples for PCBs because no reliable field screening tools exist. Analytical testing is expensive and time consuming. If reliable field techniques are developed in the future, the efficiency of screening caulk would be improved and it could lower costs for building owners.

4. Verification of Information

The model implementation process is set up as a self-certifying process, which is similar to other regulatory programs that rely on the Applicant to submit accurate information. Further work is needed by each municipal entity adopting a PCBs control program to identify what level of verification is needed, and whether jurisdiction-specific penalties may be needed for submitting false information.

The submission forms have been set up for the owner to submit the information. Requiring information to be certified and stamped by a State licensed professional may help to provide some assurance of accuracy. However, there is no specific license that covers PCBs screening assessments, sampling, or caulk removal, or site clean-up.

5. Qualified Professionals

Unlike the asbestos program, there is no State certification for PCBs testing or abatement professionals. This puts the property owner in the position of 'let the buyer beware' and provides no assurance to municipalities that the work was done properly. General guidelines have been included in the model implementation process, but the process would be easier to implement if the State established a certification program similar to the asbestos program.

6. Thresholds for Triggering the Process

As currently proposed, PCBs screening would be triggered for any remodeling or demolition permit issued by a municipality. As more information is gathered on the Bay Area building stock that may contain PCBs caulk, and on which caulk applications may contain PCBs, the establishment of thresholds can be considered, e.g., more than X-lineal feet of caulk would have to be removed in order to trigger screening. Alternately, municipalities may consider establishing a project cost threshold, where the screening would only be required for projects greater than a specified cost. However, such thresholds must be balanced with the water quality risk and benefit that such exemptions may involve.

7. Completing the Process

The model implementation process includes a final step where the Applicant completes a close-out certification. Typically, completion paperwork is not filed for demolition and remodeling permits. Municipal staff have noted that currently Applicants may not file the paperwork necessary to release bonds. Conditions on the process to get the final paperwork may be specific to each municipality. These might include: additional surety (bonds); withholding the certificate of occupancy (remodeling); or placing a restriction on the future land development (demolition).

8. Consistent Implementation

Municipal staff identified that it will be important for the PCBs control requirements to be implemented consistently throughout the Bay Area, so that one community is not perceived as more or less friendly to redevelopment as compared to neighboring communities.

9. Residential Buildings

Most data on the concentrations of PCBs in caulk do not indicate whether the sampled structures were residential or non-residential.[2] The very limited available data indicate that PCBs rarely occur in single-family homes.[3] Multi-story, multi-family residential buildings have been a priority for remediation of PCBs in caulk in Europe,[4] suggesting that PCBs caulk may have been used in taller residential buildings. Anecdotal information suggests that PCBs-containing caulk was used primarily in more expensive construction types. On the basis of this very limited information, the model implementation process categorized residential buildings with four or more stories above ground among those considered "likely to have PCBs in caulk," and excludes all other residential buildings, including all single-family homes regardless of the number of stories. Additional scientific data are necessary to provide an appropriate basis for identifying the types of residential structures that should be exempted from PCBs in caulk screening requirements. Public policy (economic burdens) and human health risk should also be considered in development of the residential exemption.

10. Outreach Materials

If city officials are indeed asked to adopt an ordinance requiring a PCBs control program, they will need further materials that provide a layperson's explanation of why PCBs control is needed.

Outreach materials for developers, contractors, and the building community will be needed to explain the need for the screening and the screening process.

11. PCBs in Caulk Concentration Threshold

For the purposes of the model implementation process the threshold of 1 mg/kg of PCBs in caulk was selected to trigger the PCBs runoff prevention measures. At the current time there is not enough information to make a final determination as to where to place the cut-off for significant sources of PCBs. This threshold was selected because it is achievable by the current analytical methods.

12. Cost and Added Time for Model Implementation Process to Applicants

Municipal staff would like information on the cost to the Applicant to implement the PCBs screening and runoff prevention measures and the amount of time that would be added to the project. At this time the implementation costs and time frames are unknown and are likely to

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[2] Moran, K. et al. (2007). *First Phase Support Information for PCB Portion of Taking Action for Clean Water Grant*, Memorandum prepared for the San Francisco Bay Clean Estuary Partnership. July 16.

[3] Robson, M., L. Melymuk, et al. (2010). *Continuing sources of PCBs: The significance of building sealants*. Environment International **36**(6): 506-513.

[4] Priha, E., S. Hellman, et al. (2005). *PCB contamination from polysulphide sealants in residential areas-exposure and risk assessment.* Chemosphere **59**(4): 537-543; Ljung, Maria et al. (2002). *Research and development in sanitation technology for PCB-containing sealants*. Building Physics 2002 – 6th Nordic Symposium (Conference Proceedings).

vary significantly between projects given site-specific details (e.g., size of project, extent of caulk applications). As more information is gathered in the future, cost information may be more readily estimated. A summary of the requirements that will add costs to the project are noted below.

Requirement	**Resource (Cost)[1]**
Research building age, structure, type	Agent/Staff time
PCBs Screening Assessment	
Research caulk formulation	Agent/Staff time
Representative sampling plan	Hire environmental consultant
Sample collection	Staff time or hire sampling consultant
Sample analysis	Contract Analytical Laboratory ($100/sample – EPA estimate)
PCBs Runoff Prevention Plan preparation	Hire environmental consultant
PCBs Runoff Prevention Plan implementation	Added demolition / remodeling costs
PCBs Caulk Removal and Clean-up	
Site Characterization Plan	Hire environmental consultant
Sample collection	Staff time or hire sampling consultant
Sample analysis	Contract Analytical Laboratory ($100/sample – EPA estimate)
Removal Plan	Hire environmental consultant
Clean-up Plan	Hire environmental consultant
PCBs caulk and clean-up	Hire abatement and clean-up contractor
Verification sample collection	Staff time or hire sampling consultant
Sample analysis	Contract Analytical Laboratory ($100/sample – EPA estimate)
Waste Transport and Disposal	
PCBs Waste Transport and Disposal (Toxic Waste)	Chemical waste landfill fees Transport fees
PCBs Waste Transport and Disposal (Hazardous)	Hazardous waste landfill fees Transport fees
Municipal Waste Transport and Disposal	Municipal waste landfill fees Transport fees
Oversight and Management	Agent/Staff time

1 Costs are unknown at this time. The table is placeholder for future information.

13. Delinquent Owners

An unanswered question coming out of the trial implementation workshop was, "What does the municipality do if an Applicant conducts the PCBs screening, finds PCBs, and then abandons the project?" It is not clear that municipalities have any recourse in this case. If the Applicant submitted the screening levels and the concentrations were above 50 mg/kg, the municipality could refer the property to EPA. For lower concentrations, each municipality implementing a PCBs control program might investigate their ability to condition future permits issued for the property with the requirement to implement PCBs runoff control measures.

14. CEQA Review Required for Ordinance Adoption

Adoption of the model ordinance will probably require environmental review under the California Environmental Quality Act (CEQA). An attorney should be consulted to determine these requirements and the type of document that should be prepared (e.g., Negative Declaration, or Environmental Impact Report). It may be possible to reduce implementation costs by preparing a regional document, similar to regional documents prepared for trash control measures.

15. PCBs in Materials Other than Caulk

Building materials other than caulk may contain PCBs. This project examined PCBs in caulk because caulk has been found to contain elevated concentrations of PCBs and is used on the exterior of the building. PCBs-containing exterior materials in particular are a threat to stormwater quality as wind and rain may mobilize materials containing PCBs into the storm drainage system. Future work on measures to minimize PCBs loads to the Bay may need to evaluate PCBs contributions from other building materials and incorporate them accordingly into a control program.

APPENDIX A. ATTACHMENT 1

Opportunity for Bay Area Municipalities:

Test-drive and provide input into a potential new regulatory process that your municipality may be required to implement

To: Demolition and renovation permitting managers, via management and new development committees

Request: Participation in the PCBs in Caulk Project (Project) through attendance of one staff member who handles the building demolition/renovation and permitting process at a half-day workshop.

Background: PCBs can be found in caulking and sealants installed in structures that were built or remodeled during the 1950s-1970s. The Project, funded by a federal stimulus grant (ARRA), is a collaboration among the San Francisco Estuary Partnership, the Regional Water Quality Control Board (Regional Board), and BASMAA to assist municipalities in fulfilling their Municipal Regional Permit (MRP) requirements for managing PCBs in caulk (section C.12.b). The Project has developed Best Management Practices (BMPs) and a Model Implementation Process (MIP) to reduce or prevent the release of PCB-laden caulks to the environment during renovation and demolition of Bay Area buildings and the subsequent conveyance of PCB-laden caulks by urban stormwater runoff to the San Francisco Bay.

This workshop will provide an opportunity for municipal staff, particularly from planning and building departments, to give input on the draft products and process, which would assign municipalities an active role in requiring that demolition and renovation activities demonstrate control of PCB pollution from caulk and sealants. This workshop is designed to satisfy requirements identified in the Municipal Regional Permit provision C.12.b.ii.4.

Workshop Outcomes: Municipal staff understands potential new regulatory process and provides input to improve and refine the process and associated products.

Workshop Details
When: Tuesday, July 26, 1:00pm to 5:00pm
Where: Menlo Park's Arrillaga Family Recreation Center, 700 Alma Street (Juniper Room)

Agenda: See back of page

Please RSVP by July 12 to: Athena Honore, San Francisco Estuary Partnership, ahonore@waterboards.ca.gov

Questions: Contact Project Stormwater Program Representatives

Alameda County: Arleen Feng, Alameda Countywide Clean Water Program
Email: arleen@acpwa.org Phone: 510-670-5575

Contra Costa County: Jamison Crosby, Contra Costa Clean Water Program
Email: jcros@pw.cccounty.us Phone: 925-313-2364

San Mateo and Santa Clara Counties: Pam Boyle Rodriguez, EOA Inc.
Email: pboyle@eoainc.com Phone: 510-832-2852 x 107

Fairfield-Suisun: Kevin Cullen, Fairfield-Suisun Sewer District
Email: kcullen@fssd.com Phone: 707-428-9191

PCB in Caulk Project – MIP Workshop Tentative Agenda

1.	**Introductions of Participants** *Round table introductions.*	**10 minutes**
2.	**Orientation on Project Background** *Brief overview of the PCB in Caulk project and MRP requirements.*	**15 minutes**
3.	**Goals of Implementation Trial** *Provide context for the trial and outcome expectations.*	**10 minutes**
4.	**Introduction of the MIP Tools** *Review the tools that have been developed to date for the MIP and walk through the process.*	**30 minutes**
	Break	**10 minutes**
5.	**MIP Implementation Exercise** *Groups will role play the exercise. Players will serve in the roles of municipal staff receiving the request for a demolition permit and in the role of the project proponent needing the permit. Municipal players will draw on the materials at hand and relate it to the routine permit processes they address within their own municipality.*	**90 minutes**
	Break	**10 minutes**
6.	**Debrief** *The players and observers review the implementation exercise and have an opportunity to give immediate feedback regarding the exercise and draft tools and process.*	**20 minutes**
7.	**Needed Changes, Improvements** *Detail and list specific improvements and needs to improve the MIP. Identify global changes needed, and any adjustments to account for differences between agency processes.*	**15 minutes**
8.	**Wrap-up and Next Steps**	**10 minutes**

PCB in Caulk | MIP Implementation Trial | 7/26/2011

Last Name	First	Agency	Group	Department	Job Title	Signature
Bernard	Charmaine	Contra Costa County	4	CCCo-		C. Bernard
Brennan Boyle	John Pam	San Mateo County EOA	4	Building	Building Permit Coordinator	
Centis	Craig	City of Milbrae	1	PW		
Crosby	Jamison	Contra Costa County	3	CCCWP		Jamison Crosby
Davidson	Scott	PMC	2	—	Consultant	
Dunlavey	Eric	City of San Jose	3	—	Env. Services Specialist	
Egset	Annie	City of San Jose	4	Building	Senior Permit Specialist	
Feng	Arleen	Alameda County Clean Water Program	3	—		

Last Name	First	Agency	Group	Department	Job Title	Signature
Honore	Athena	San Francisco Estuary Partnership		- None -		Athena H.
La France	Ron	City of Menlo Park	2	Build.		Ron LaFrance
Lecel	Rob	Water Quality Control Plant, South San Francisco	2	Public Works	Sr. Environmental Compliance Inspector	Rob Lecel
Leung	Camille	San Mateo County	3	Planning	Planner III	Camille Leung
Lewis	Will	Geosyntec	4	—	Senior Staff Scientist	
Lundberg	Kate	LWA	1	- None -		
Mandapat	Val	City of Daly City	1	E.D. / Building	Chief Bldg. Supervisor	
Mangarella	Peter	Geosyntec	2	- None -		Peter Mangarella

Last Name	First	Agency	Group	Department	Job Title	Signature
Marshall	Elaine	City of San Jose	4	Environmental Services	Program Mgr.	
Mathews	Sandy	LWA		Same —	Sr. Scientist	
McCumby Hyland	Kristy	City of Sunnyvale	2	Utility	Env. Analyst	
Miller	Brian	PMC	3	—	Consultant	
Moran	Kelly	TDC Environmental	2	Public Works	Sr. Civil Engr.	
Ng	Jennifer	City of Menlo Park	1	Kelly Moran →		
O'Hara	Jan	San Francisco Bay Water Board	1	Same —		
Prudhel	Cassie	Water Quality Control Plant, South San Francisco	1	Public Works	Technical Services Supervisor	

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Last Name	First	Agency	Group	Department	Job Title	Signature
Teter	David	Northgate Environmental	3		SR. SCIENTIST	
Williamson	Joshua	City of Sunnyvale	4	PW/PAS	PW CONST. INSPECTOR	
John	Brennan	~~City of~~ San Mateo County				

APPENDIX B. PCBS IN CAULK FORMS

For Municipality Use Only	
Date Received	
File #	

Form 1. PCBs in Caulk Initiation Form
PCBs Screening Assessment and Runoff Prevention

All Applicants complete Part 1.

Part 1. Owner and Project Information

Owner Information

Name		
Address		
City	State	Zip
Contact (Agent)		
Phone		

Project Location

Address		
City	State CA	Zip

All Applicants complete Part 2, Question 1.

Part 2. PCBs Screening Assessment

Question 1. Structure Type, Use, and Age Screening

1a	Is the structure concrete or masonry construction?	☐ Yes	☐ No
1b	Is the structure's use institutional, industrial, commercial, or a residential building with four or more stories above ground level that is not a single-family home?	☐ Yes	☐ No
1c	Was the structure built or renovated between 1950 and 1980?	☐ Yes	☐ No

- If the answer to all of the above questions is **Yes**, continue to Question 2.
- If the answer to any of the above questions is **No**, the PCBs Screening Assessment is complete, skip to Part 6.

Complete Part 2, Question 2 if you answered Yes to all sections of Question 1.

Part 2. PCBs Screening Assessment (Continued)

Question 2. PCBs in Caulk Screening

Prior Knowledge of Caulk Formulation (Option 1)
Option for Applicants who possess specific information on the formulation of the caulk used in the structure.

2a Do you have documentation of the all the caulk formulations used in the building that confirms the caulk contains PCBs? ☐ Yes ☐ No

- If **Yes**, continue to Question 2b.
- If **No**, use Option 2.

2b Do you know the concentration of PCBs in the caulk formulations? ☐ Yes ☐ No

- If **Yes**, enter concentrations in Question 2c
- If **No**, you must sample the caulk, use Option 2.

2c Enter the application type[1] and concentrations of PCBs.

Application Type	Concentration
1.	
2.	
3.	
4.	
5.	

2d Were any of the concentrations 1 mg/kg or greater ☐ Yes ☐ No

- If **Yes**, complete Parts 3 through 6.
- If **No**, the PCBs Screening Assessment is complete, skip to Part 6.

[1] *Application types include caulk around windows and doors; caulk at structure/walkway interfaces; and caulk in expansion joints.*

Part 2. PCBs Screening Assessment (Continued)

Caulk Sampling and Analysis (Option 2)
Option for Applicants who conducted representative sampling and analysis as part of the PCBs Screening Assessment.

2f Enter the application type[1] and concentrations of PCBs.

Application Type	Concentration
1.	
2.	
3.	
4.	
5.	

2g Were any of the concentrations 1 mg/kg or greater? ☐ Yes ☐ No

- If **Yes**, complete Parts 3 through 6.
- If **No**, the PCBs Screening Assessment is complete, skip to Part 6.

[1] *Application types include caulk around windows and doors; caulk at structure/walkway interfaces; and caulk in expansion joints.*

Form 1. PCB in Caulk Initiation Form
PCB Screening Assessment and Runoff Prevention

Complete Part 3 if PCBs were detected in the caulk at concentrations of 1 mg/kg or greater.

Part 3. PCBs Runoff Prevention			
Question 1. Exposure Screening			
1a	Are all PCBs contaminated materials inside the structure?	☐ Yes	☐ No
1b	Will all equipment and tools that contacts the PCBs contaminated materials be stored inside the structure?	☐ Yes	☐ No
1c	Will all wastes be stored inside the structure (including debris, wastewater from decontamination, trash containers, and waste management containers) and will all wastes be fully sealed in containers prior to moving outdoors when shipped for off-site disposal?	☐ Yes	☐ No
➢ If the answer to all of the above questions is **Yes**, the project is exempt from the requirement to develop a PCBs Runoff Prevention Plan. ➢ If the answer to any of the above questions is **No**, a PCBs Runoff Prevention Plan is required.			
Question 2. PCBs Runoff Prevention Plan			
1	Has a PCBs Runoff Prevention Plan been **developed**?	☐ Yes	☐ No

Complete Part 4 if PCBs were detected in the caulk at concentrations of 1 mg/kg or greater.

Part 4. PCBs in Caulk Removal			
1	Is removal of the caulk containing PCBs required by Federal regulations? (See 40 CFR Part 761 or consult with an Environmental Professional)	☐ Yes	☐ No

Complete Part 5 if PCBs were detected in the caulk at concentrations of 1 mg/kg or greater.

Part 5. Notifications

When PCBs are detected in caulk at concentrations of 1 mg/kg or greater notification to Federal, State, and local agencies is required. Notification includes submission of a copy of the completed PCBs in Caulk Initiation Form to the agencies listed below.

Question 1. Have the following agencies been notified?

➢ Environmental Protection Agency, Region 9 PCBs Coordinator	☐ Yes	☐ No
➢ California Department of Toxic Substances Control	☐ Yes	☐ No
➢ San Francisco Bay Regional Water Quality Control Board	☐ Yes	☐ No
➢ Local California Unified Program Agency	☐ Yes	☐ No

All Applicants complete Part 6.

Part 6. Certification

I certify that the information provided in this form is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that I will notify the [municipality] and submit revised information if any of the information or conditions documented in this form change. I understand there are significant penalties for submitting false information [insert appropriate section of municipal code]. I will retain a copy of this form and the supporting documentation for at least 5 years.

Signature: _____ Date: _____

Name: _____

Title: _____

MODEL FORM 2

For Municipality Use Only	
Date Received	
File #	

Form 2. PCBs in Caulk Termination Form

Part 1. Owner and Project Information		
Owner Information		
Name		
Address		
City	State	Zip
Contact (Agent)		
Phone		
Project Location		
Address		
City	State CA	Zip

Part 2. PCBs Runoff Prevention Plan		
Question 1 Did this project have a PCBs Runoff Prevention Plan?	☐ Yes	☐ No
➢ If **No**, skip to Part 3.		
Question 2 Was the PCBs Runoff Prevention Plan implemented?	☐ Yes	☐ No

Part 3. PCBs Removal and Clean-up

Question 1	Was this project required to remove PCBs-containing caulk per the requirements of 40 CFR 761?	☐ Yes	☐ No
Question 2	Did this project have a PCBs clean-up plan required by EPA or a State or local agency?	☐ Yes	☐ No
	➢ If **No**, continue to Part 4.		
Question 2a	Were the EPA or other applicable clean-up levels met?	☐ Yes	☐ No
	Based on the clean-up verification samples, list the maximum concentrations of PCBs detected following clean-up for any materials or soil not disposed of (i.e., the decontaminated material will remain on the site).	Concentration	
	1.Soil	_____	
	2.Wood	_____	
	3.Asphalt	_____	
	4.Concrete	_____	
	5.Other (specify) _____	_____	
Question 3	Did EPA or another agency impose any conditions on future land use?	☐ Yes	☐ No
	Identify type of restriction:		
	Cap	☐ Yes	☐ No
	Fencing	☐ Yes	☐ No
	Signage	☐ Yes	☐ No
	Low Occupancy Restriction	☐ Yes	☐ No
	Other (specify)_____	☐ Yes	☐ No
Question 3a	Has the property owner recorded the above noted restriction(s) on the deed or instrument that is normally examined during a title search and property transfer so that in perpetuity a potential purchaser is informed of the restrictions?	☐ Yes ☐ Not Applicable	☐ No

Form 2. PCB in Caulk Termination Form

Part 4. PCBs Waste Disposal

Question 1	Were all wastes disposed of properly per Federal, State, and local requirements?	☐ Yes ☐ No
Question 2	Did the project generate PCBs hazardous waste?	☐ Yes ☐ No
	Estimate of the weight (in tons, pounds, or kilograms) of PCBs hazardous waste disposed of:	_____ tons / pounds / kilograms (Circle unit used)
	Name of facility where PCBs hazardous waste was disposed of: _____	
Question 3	Did the project generate PCBs non-hazardous waste?	☐ Yes ☐ No
	Estimate of the weight (in tons, pounds, or kilograms) of PCBs non-hazardous waste disposed of:	_____ tons / pounds / kilograms (Circle unit used)
	Name of facility where PCBs non-hazardous waste was disposed of: _____	
Question 4	Did the project generate wastewater containing PCBs?	☐ Yes ☐ No
	Estimate of the volume (in gallons) of wastewater disposed of:	_____ gallons
	What was the concentration of PCBs in the wastewater disposed of? (Include Units)	_____ _____
	Name of facility where wastewater was discharged to or disposed of: _____	

Part 5. Certification

I certify that the information provided in this form is to the best of my knowledge and belief, true, accurate, and complete. I understand there are significant penalties for submitting false information [insert appropriate section of municipal code]. I will retain a copy of this form and the supporting documentation for at least 5 years.

Signature: _____ Date: _____

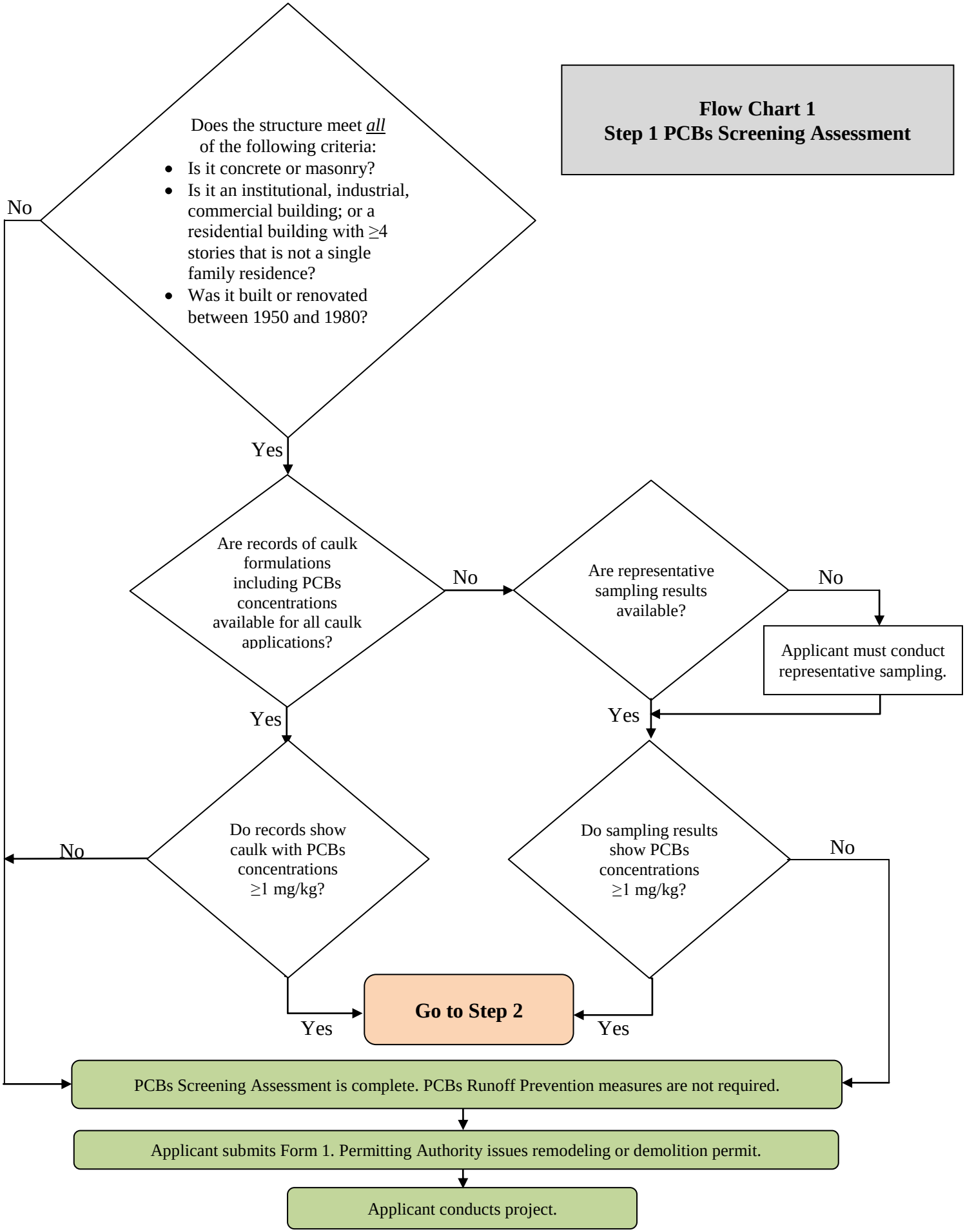
Name: _____

Title: _____

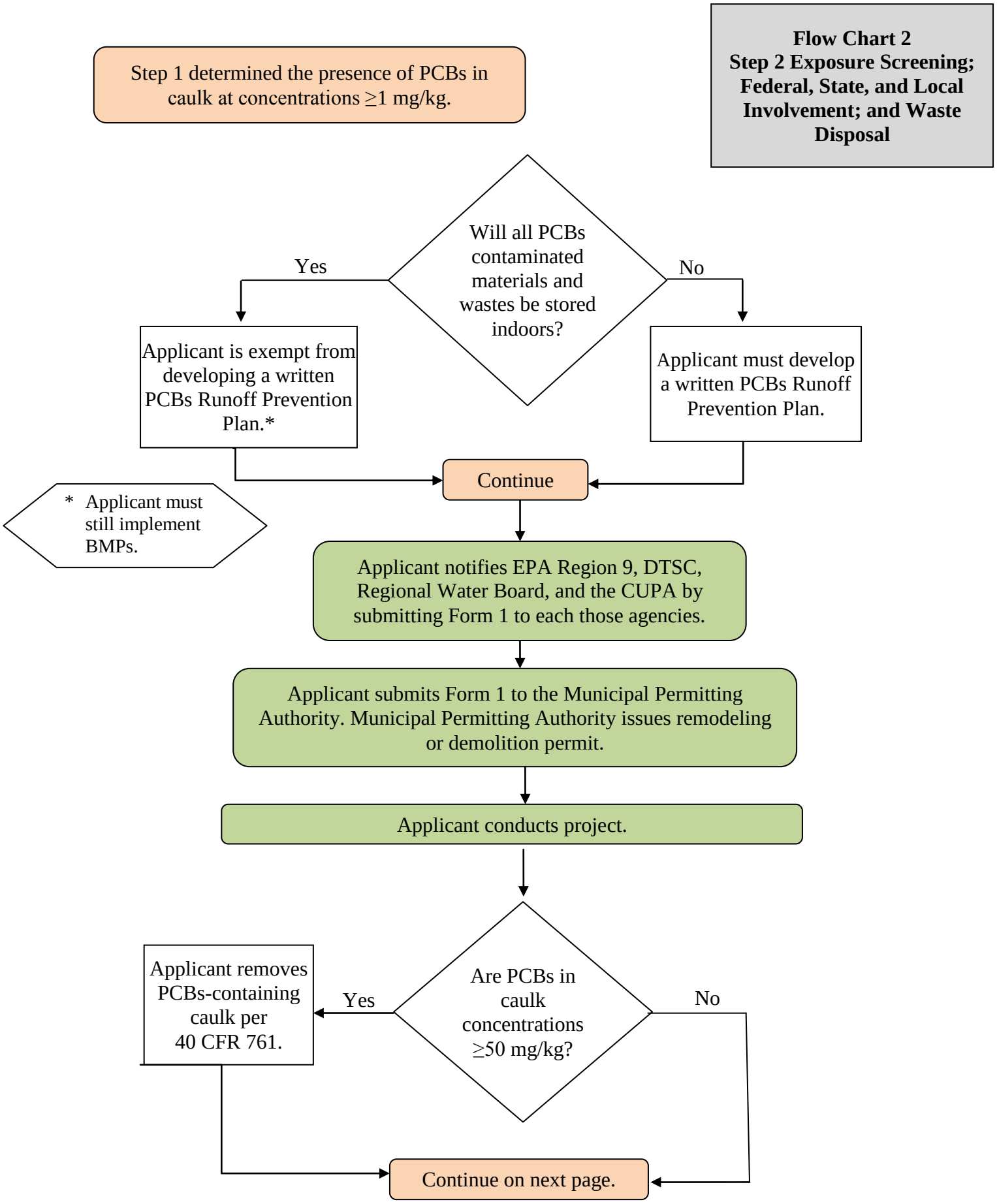
Form 2. PCB in Caulk Termination Form

APPENDIX C. PCBS IN CAULK FLOW CHARTS

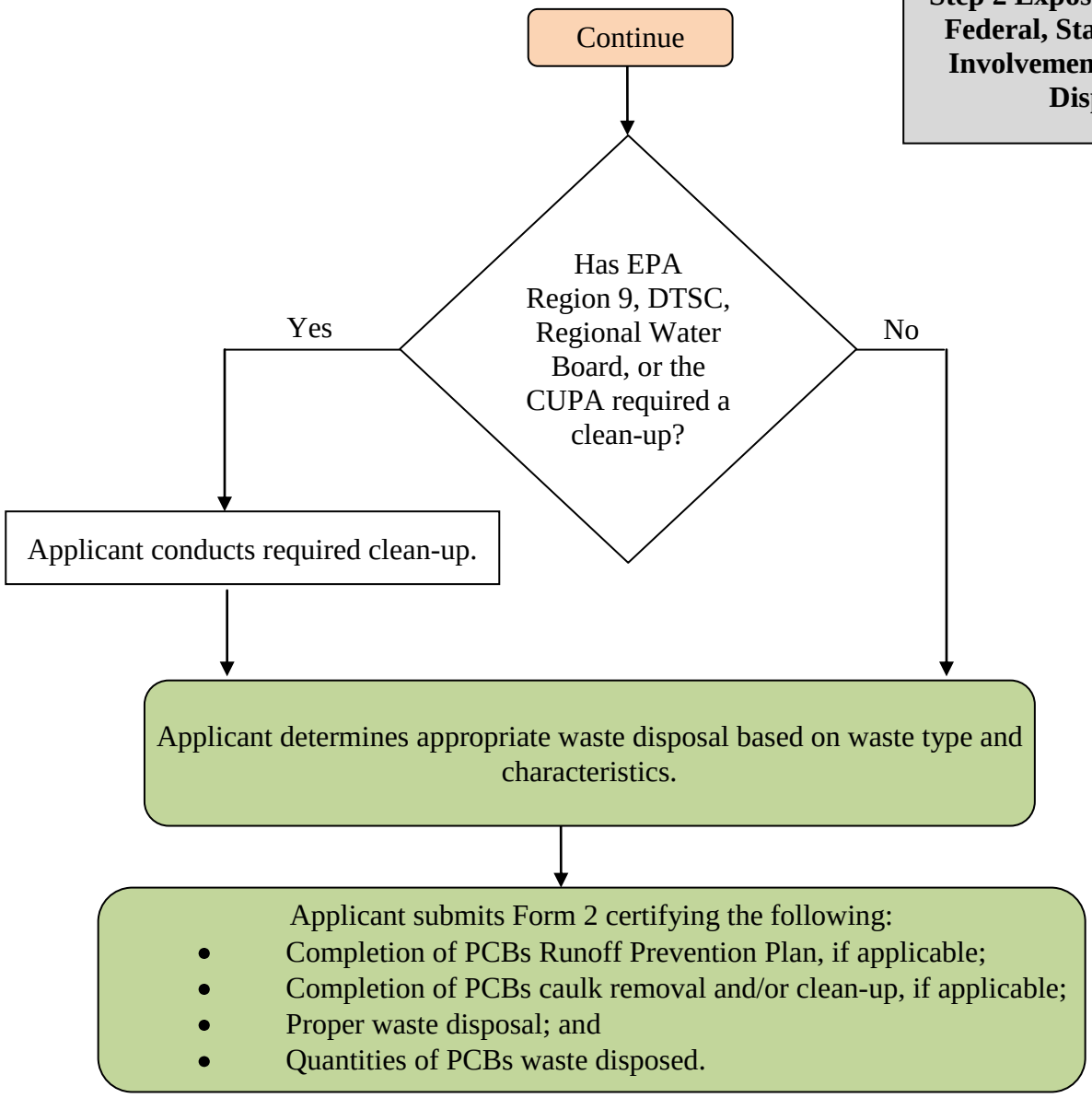
Flow Chart 1
Step 1 PCBs Screening Assessment



Flow Chart 2
Step 2 Exposure Screening; Federal, State, and Local Involvement; and Waste Disposal



Flow Chart 2 Continued
Step 2 Exposure Screening; Federal, State, and Local Involvement; and Waste Disposal



APPENDIX D. ENVIRONMENTAL PROFESSIONAL CRITERIA

Environmental Professionals Criteria for PCBs in Caulk Screening Assessments

This section provides suggested criteria for use in developing a list of qualified environmental professionals for testing PCBs contamination in caulk and building materials. Note that specific criteria for this expertise have not been established by EPA or State regulations and the suggested criteria are based on other similar programs and certifications. Lists should include an appropriate disclaimer, such as is noted below.

1) REA I staff [defined below].
2) REA II staff [defined below].
3) OSHA – HAZWOPER 40-hour trained staff.
4) Demonstrated experience developing assessment plans for testing caulk or related building materials.

Disclaimer: This listing does not constitute a recommendation or endorsement of any service provider, nor is the absence of listing any particular provider an indication that they are not capable of providing comparable services. Anyone using this information uses it at his or her own risk and discretion, and should independently verify the capabilities of the providers.

Environmental Professionals Criteria for PCBs Caulk Removal and Clean-up Services

This section provides suggested criteria for use in developing a list of qualified environmental professionals for removing PCBs caulk and associated contamination in building materials and soil. Note that specific criteria for this expertise have not been established by EPA or State regulations, and the suggested criteria are based on other similar programs and certifications. Lists should include an appropriate disclaimer, such as is noted below.

1) REA II staff [defined below].
2) CA General Contractors License with HAZ - Hazardous Substance Removal Certification.
3) OSHA – HAZWOPER 40-hour trained staff.
4) Demonstrated experience remediating open source PCBs contamination in building materials and soil.

Disclaimer: This listing does not constitute a recommendation or endorsement of any service provider, nor is the absence of listing any particular provider an indication that they are not capable of providing comparable services. Anyone using this information uses it at his or her own risk and discretion, and should independently verify the capabilities of the providers.

Definitions

An **REA I** has specific expertise in areas such as: environmental site assessment; air emissions assessment, prevention, monitoring and control; emergency preparedness and response; surface and groundwater contamination assessment, prevention, monitoring, and control; generator waste disposal, recycling, reduction, storage, and treatment; occupational health and safety reviews; risk assessment and risk reduction recommendations; soil contamination assessment, prevention, monitoring, and control; underground tank checks and removal; and other areas of expertise relating to hazardous substances and/or hazardous waste management.

An REA I develops an opinion which describes whether current or past hazardous substance or hazardous waste management practices have resulted in a release or threatened release of hazardous wastes or substances at a site. In addition, REA I's are qualified to review and certify the Compliance Checklist developed pursuant to Title 22 California Code of Regulations,

Section 67100.10. More information about the REA program can be found at http://www.dtsc.ca.gov/rea/.

The **REA II** is a project manager, who, based upon field investigation, sampling, and assessment, develops opinions describing whether contamination is present at a site, the risk posed by that contamination, the work needed to remediate that contamination, and whether that work has been completed. The REA II is given a mandated role to serve as a Private Site Manager, conduct school site environmental assessments, and conduct activities pursuant to the DTSC Clean Brownfields Loan Program. More information about the REA program can be found at http://www.dtsc.ca.gov/rea/.

OSHA HAZWOPER 40-hour training is required for workers involved in clean-up operations at uncontrolled hazardous waste sites and initial investigations that are conducted before the presence or absence of hazardous substances has been determined. Workers exposed to hazardous substances, health hazards, or safety hazards; their supervisors; and management responsible for the site must complete the training before the workers are permitted to engage in hazardous waste operations. Additional details on the OSHA training requirements are available at http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=9765.

APPENDIX E. PCBS RUNOFF PREVENTION PLAN AND SELF INSPECTION FORMS

Model Outline PCBs Runoff Prevention Plan

Model Outline PCBs Runoff Prevention Plan for Demolition and Remodeling Projects

1. OBJECTIVE

(This section describes the objective of this plan, which is to identify the steps that will be taken to minimize the exposure of PCBs-contaminated materials to wind and water erosion and prevent runoff of PCBs contaminated materials.)

2. PROJECT DESCRIPTION

(Brief description of project.)

3. PCBs CAULK REMOVAL AND CLEAN-UP

(This section of the plan will identify EPA requirements to remove PCBs caulk and any Federal, State, or local clean-up requirements, if applicable to the project.)

4. WORK SCHEDULE

(Identify remodeling or demolition schedule.)

5. PCBs BEST MANAGEMENT PRACTICES (BMPs)

(Identify and describe the site-specific application of BMPs designed to prevent mobilization of PCBs-contaminated materials and dust. See the Best Management Practice Report for descriptions of these BMPs.)

5.1 Building Occupant Notification
5.2 Worker Training
5.3 Personal Protective Equipment
5.4 Work Area Containment
5.5 Tools and Equipment
5.6 Demolition BMPs
5.7 Site Erosion and Sediment Controls
5.8 Work Area Housekeeping and End of Project BMPs
5.9 Transport and Disposal

6. INSPECTIONS

(Identify the planned inspection schedule and inspection forms. At minimum, the site should plan weekly documented inspections during the wet season (OCT-APR) and monthly documented inspections during the dry season (MAY-SEP). Daily inspections of the site at the end of the work day (or work shift for projects that work more than one shift) need to be conducted to ensure there are no inadvertent exposures of PCBs waste, debris or contaminated tools and equipment.)

7. SITE MAPS/SCHEMATICS

(Provide site map/schematic showing PCBs work zones and containment areas. Indicate prevailing wind direction and runoff direction.)

Model Inspection Form – During Project

Model: Inspection Form – During Project PCBs Demolition or Remodeling Project				
Permit ID #:		Project Name:		
Inspection Date:		Inspector:		
Inspection Time:		Weather: (note rain, wind conditions)		
☐ All work, including waste storage, is interior, i.e., not exposed to wind or rain (Inspection for water quality is complete)				
☐ Work or waste storage is exterior, i.e., potentially exposed to wind or rain (Complete water quality visual inspection and BMP Review)				
Water Quality Visual Inspection				
Evidence of visible dust being mobilized from PCBs work zone	☐ Yes	☐ No		
Evidence of stormwater runoff mobilizing out of PCBs work zone	☐ Yes	☐ No		
Evidence of stormwater runoff from PCBs work zone discharging from project site	☐ Yes	☐ No		
Evidence of dust control water mobilizing out of PCBs work zone	☐ Yes	☐ No		
Evidence of dust control water discharging from project site	☐ Yes	☐ No		
Evidence of improperly contained PCBs wastes	☐ Yes	☐ No		
Building Occupant Notification/Worker Training BMPs				
Signs designate PCBs work area (bilingual signs, if applicable)	☐ Yes	☐ No	☐ N/A	
Workers have been trained/are aware of PCBs work procedures (bilingual training, if applicable)	☐ Yes	☐ No	☐ N/A	
PCBs work area is isolated from public and general work areas of the site	☐ Yes	☐ No	☐ N/A	
PPE BMPs				
Workers use PPE that prevents spread of PCBs dust (e.g., booties)	☐ Yes	☐ No	☐ N/A	
Work Area Containment BMPs				
A containment area to prevent the spread of dust has been constructed around the PCBs work zone	☐ Yes	☐ No	☐ N/A	
Measures are implemented to prevent spread of dust outside containment area (e.g., decontamination area between PCBs work zone and general construction areas)	☐ Yes	☐ No	☐ N/A	
Page 1 of 3				

Model: Inspection Form – During Project PCBs Demolition or Remodeling Project			
Permit ID #: _____ Project Name: _____			
Tool and Equipment BMPs			
Manual tools and equipment that generate minimal dust are in use	☐ Yes	☐ No	☐ N/A
Electromechanical tools and equipment have HEPA vacuum attachments	☐ Yes	☐ No	☐ N/A
Water misting is used to manage dust	☐ Yes	☐ No	☐ N/A
Dust control water is contained or evaporates (no runoff)	☐ Yes	☐ No	☐ N/A
Demolition BMPs			
PCBs-containing caulk was removed before the start of general site/structure demolition	☐ Yes	☐ No	☐ N/A
Structure materials contaminated by PCBs-containing caulk were removed before the start of demolition	☐ Yes	☐ No	☐ N/A
Soils contaminated by PCBs containing caulk were removed before the start of demolition	☐ Yes	☐ No	☐ N/A
Water is used to manage dust during demolition	☐ Yes	☐ No	☐ N/A
Dust control water is contained or evaporates (no runoff)	☐ Yes	☐ No	☐ N/A
Temporary Erosion Control and Good Housekeeping BMPs[1]			
Wind Erosion Control (WE-1)	☐ Yes	☐ No	☐ N/A
Stabilized Construction Entrance/Exit (TC-1)	☐ Yes	☐ No	☐ N/A
Stockpile Management (WM-3)	☐ Yes	☐ No	☐ N/A
Hazardous Waste Management (WM-6)	☐ Yes	☐ No	☐ N/A
Contaminated Soil Management (WM-7)	☐ Yes	☐ No	☐ N/A
Concrete Waste Management (WM-8)	☐ Yes	☐ No	☐ N/A
Demolition Adjacent to Water (NS-15)	☐ Yes	☐ No	☐ N/A
Paving and Grinding Operations (NS-3)	☐ Yes	☐ No	☐ N/A
Page 2 of 3			

1 The BMP codes refer to the Fact Sheets in the CASQA Construction BMP Handbook/Portal, November 2009. These are included in the *Best Management Practice Report*.

Model: Inspection Form – During Project PCBs Demolition or Remodeling Project			
Permit ID #: _____	Project Name: _____		
Work Area Housekeeping BMPs			
Trash and debris is picked up and placed in bags as it is generated, at minimum all trash and debris is placed in bags at the end of the shift	☐ Yes	☐ No	☐ N/A
Trash containers are covered and lined	☐ Yes	☐ No	☐ N/A
Work area is vacuumed at the end of day with HEPA vacuum cleaner	☐ Yes	☐ No	☐ N/A
Tools are cleaned daily and before removing from PCBs work zone	☐ Yes	☐ No	☐ N/A
PPE is cleaned or disposed of daily and before leaving decontamination zone	☐ Yes	☐ No	☐ N/A
Wastewater from mopping, wet cleaning, cleaning of equipment, or misting is contained for proper disposal	☐ Yes	☐ No	☐ N/A
Deficiencies/Corrective Actions Identified			
Explanation of Boxes Checked "Not Applicable"			
I certify that the above information is, to the best of my knowledge and belief, true, accurate, and complete. Signature: _____ Date: _____ Name: _____ Title: _____			
Registration Number:	(Stamp)		
Page 3 of 3			

Model Inspection Form – Project Completion

Model: Inspection Form – Project Completion ***PCBs Demolition or Remodeling Project*** ***Project Completion***		
Permit ID #:	Project Name:	
Inspector:		
Inspection Time:	Inspection Date:	
Work Area End-of-Project Housekeeping BMPs		
Trash and debris, including structure components, have been disposed of properly	☐ Yes ☐ No	☐ N/A
Plastic sheeting has been removed, minimizing dust, and disposed of properly	☐ Yes ☐ No	☐ N/A
Exposed surfaces of work area have been vacuumed with a HEPA vacuum cleaner	☐ Yes ☐ No	☐ N/A
Exposed surfaces of work area have been scrubbed with a general-purpose cleaner and wet rag	☐ Yes ☐ No	☐ N/A
Visual evidence of dust and debris in PCBs work zone	☐ Yes ☐ No	☐ N/A
Deficiencies/Corrective Actions Identified		
Explanation of Boxes Checked 'Not Applicable'		
I certify that the above information is, to the best of my knowledge and belief, true, accurate, and complete. Signature: _____ Date: _____ Name: _____ Title: _____		
Registration Number:	(Stamp)	

APPENDIX F. MODEL ORDINANCE AND STAFF REPORT

Note: This model ordinance provides the framework for an ordinance to implement the model PCBs runoff protection program, but does not include all necessary legal elements of a municipal ordinance. This model was not developed by an attorney and does not constitute legal advice. The model ordinance has not been vetted by municipalities.

Model Ordinance

REMODELING AND DEMOLITION PCBS RUNOFF PREVENTION

Section 1. Purpose

Section 2. Definitions

Section 3. Applicability

Section 4. Exemptions

Section 5. PCBs Screening Assessment

Section 6. Agency Notification

Section 7. PCBs in Caulk Best Management Practices (BMPs)

Section 8. PCBs Runoff Prevention Plan

Section 9. PCBs Waste Disposal Quantity Reporting

Section 10. Compliance with California and Federal PCBs Laws and Regulations

Section 11. Information Submission and Applicant Certification

Section 12. Recordkeeping

Section 13. Obligation to Notify [insert name of municipality] **of Changes**

Section 14. Liability

Section 15. Enforcement

Section 16. Fees

Section 17. [City or County] Projects

Section 18. Effective Date

Section 1. Purpose

(a) The provisions of this Article shall be construed to accomplish the following purposes:

1. To require Applicants for remodeling and demolition permits for buildings likely to contain PCBs in caulk to complete PCBs Screening Assessments.
2. To require Applicants to notify responsible Federal, State, and local agencies when PCBs exist in building caulk above a specific threshold concentration.
3. To require the implementation of appropriate control measures to prevent runoff and dispersal of PCBs contaminated materials and sediments from remodeling and demolition project sites.
4. Meet the requirements of the Federal Clean Water Act, the California Porter-Cologne Water Quality Control Act and the Municipal Regional Stormwater NPDES Permit No. [insert permit number].

(b) The requirements of this ordinance do not replace or supplant the requirements of California or Federal law, including but not limited to the Toxic Substances Control Act,

40 Code of Federal Regulations (CFR) Part 761, or California Code of Regulations (CCR) Title 22.

Section 2. Definitions

In addition to the general definitions applicable to this Code, whenever used in this Article, the following terms shall have the meanings set forth below:

(a) "Applicant" means a person applying for a demolition or remodeling permit as required by Article [insert applicable Article], Sections [insert applicable code for demolition and remodeling permits]

(b) "[Appropriate authority]" means the [insert name of appropriate authority] of [insert name of municipality].

(c) "Best Management Practices (BMPs)" are schedules of activities, prohibitions of practices, maintenance procedures, and other management practices that prevent, eliminate, or reduce pollution of waterways.

(d) "DTSC" means the State of California Department of Toxic Substances Control.

(e) "EPA" means The United States Environmental Protection Agency.

(f) "California Environmental Laboratory Accreditation Program" means the California state program for accreditation of environmental laboratories defined by California Code of Regulations Title 22, Division 4, Chapter 19.

(g) "CUPA" means California Unified Program Agency.

(h) "PCBs" means polychlorinated biphenyls.

(i) "PCBs Screening Assessment" means the two-step process used to determine whether 1) PCBs in caulk are likely to be present in a structure based on the structure age, use, and construction; and 2) demonstrating the presence or absence and concentration of PCBs in caulk through existing information or representative sampling and chemical analysis of the caulk in the building.

(j) "PCBs in Caulk Building" means a building for which the Applicant's PCBs Screening Assessment identified PCBs in caulk at concentrations equal to or greater than 1 milligram per kilogram (mg/kg). (This concentration may alternatively be expressed as 1 part per million).

(k) "Regional Water Board" means the California Regional Water Quality Control Board, San Francisco Bay Region.

(l) "Structure Likely to Contain PCBs in Caulk" means any structure meeting all of the following criteria:

1. Constructed of Concrete or Masonry;
2. Built or renovated between 1950 and 1980; and
3. Constructed for Industrial, Institutional, or Commercial use or constructed for Residential use and including four or more stories above ground level.

Section 3. Applicability

This Article applies to Applicants for demolition and remodeling permits for any Structure Likely to Contain PCBs in Caulk.

Section 4. Exemptions

Single family residential structures are exempt from this Article. Residential structures less than four stories above ground level are exempt from this Article.

Section 5. PCBs Screening Assessment

Every Applicant for a demolition or remodeling permit for a Structure Likely to Contain PCBs in Caulk shall complete a PCBs Screening Assessment. Only those areas of the building that will be affected by the demolition or remodeling must be screened.

Representative screening may be accomplished by either of the following means:

1. Analytical tests of a representative number of caulk applications with an analytical detection limit of 1 mg/kg or less. Sampling and testing shall be conducted in conformance with EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846) or another EPA-approved method.
2. Documentation of the caulk formulation demonstrating the absence of PCBs, or demonstrating the concentration of PCBs in the caulk.

Caulk samples must be analyzed with EPA-approved methods by a laboratory accredited by the California Environmental Laboratory Accreditation Program.

Section 6. Agency Notification

When the PCBs Screening Assessment identifies a PCBs in Caulk Building, the Applicant shall notify EPA Region 9, DTSC, the Regional Water Board, and the local CUPA.

Section 7. PCBs in Caulk Best Management Practices (BMPs)

When the PCBs Screening Assessment identifies a PCBs in Caulk Building, the Applicant shall implement BMPs to prevent dispersal of PCBs during the remodeling or demolition project. The [Director of Public Works or other appropriate official] may specify appropriate BMPs.

Section 8. PCBs Runoff Prevention Plan

(a) When the PCBs Screening Assessment identifies a PCBs in Caulk Building, the Applicant shall prepare a written PCBs Runoff Prevention Plan and implement the plan. The plan shall specify BMPs and strategies to protect against the dispersal of PCBs during the remodeling or demolition project. The [Director of Public Works or other appropriate official] may specify a format or guidance for the Plan.

(b) The requirement for a written PCBs Runoff Prevention Plan is waived if the Applicant certifies that all PCBs in caulk and associated PCBs-contaminated materials and wastes are indoors and wastes generated from the removal of these materials will be stored indoors.

Section 9. PCBs Waste Disposal Quantity Reporting

The Applicant is required to record the quantity of all PCBs-containing waste generated during the implementation of the PCBs caulk removal, PCBs Runoff Prevention Plan and any PCBs clean-up, if required under Federal or California law. The waste quantities must be reported to [insert name of municipality] at project completion.

Section 10. Compliance with California and Federal PCBs Laws and Regulations

Applicants must comply with all Federal and California laws and regulations, including but not limited to health, safety, and environmental laws and regulations, that relate to management and

clean-up of any and all PCBs, including but not limited to PCBs in caulk, PCBs-contaminated materials, and PCBs waste.

Section 11. Information Submission and Applicant Certification

(a) The Applicant shall submit the following information as part of the demolition or remodeling permit application:[1]

1. Owner information;
2. Project location;
3. Results of PCBs Screening Assessment;
4. Certification of development of PCBs Runoff Prevention Plan or certification of no exposure;
5. If applicable, certification that a PCBs removal is not legally required;
6. Certification that EPA Region 9, DTSC, the Regional Water Board, and the CUPA have been notified of the presence of PCBs in caulk in concentrations of 1 mg/kg or greater; and
7. Owner's certification of the accuracy of the information submitted.

(b) At the conclusion of the demolition or remodeling project, the Applicant shall submit the following information in a project completion report:[2]

1. Owner Information;
2. Project Location;
3. Certification of the implementation of the PCBs Runoff Prevention Plan;
4. Certification of the completion of PCBs removal and clean-up if required by law;
    a. Identification of the concentrations of PCBs remaining on the project site following a required clean-up
5. Identification of any land use restriction imposed by EPA or other State agency;
6. The quantity of PCBs waste disposed of, and identification of the waste disposal facility; and
7. Owner's certification of the accuracy of the information submitted.

(c) The [Director of Public Works or other appropriate official] may specify a format or guidance for the submission of the initial information and the project completion report.

Section 12. Recordkeeping

Those Applicants conducting a demolition or remodeling project on a PCBs in Caulk Building must maintain documentation of PCBs Runoff Prevention Plan implementation, the PCBs caulk removal, or PCBs clean-up, if one was required, and all PCBs waste disposal records, for a minimum of five years after filing the project completion report.

[1] The PCBs in Caulk Initiation Form (see Appendix B) could be part of the permit application.

[2] This could be the PCBs in Caulk Termination Form (see Appendix B).

Section 13. Obligation to Notify [insert name of municipality] **of Changes**

The Applicant shall submit written notifications documenting any changes in the information submitted in compliance with this Article.

The Applicant shall submit the revised information to [insert name of Appropriate authority] when changes in project conditions affect the information submitted with the permit application.

Section 14. Liability

The Applicant is responsible for safely and legally complying with the requirements of this Article. Neither the issuance of a permit under the requirements of [insert Building Ordinance Section], nor the compliance with the requirements of this Article or with any condition imposed by the issuing authority, shall relieve any person from responsibility for damage to persons or property resulting there from, or as otherwise imposed by law, nor impose any liability upon the [insert name of municipality] for damages to persons or property.

Section 15. Enforcement

Failure to submit the information required in this Article or submittal of false information will result in enforcement under [insert Appropriate Code].

Section 16. Fees

In addition to the fees required under Article [insert applicable Article], Sections [insert applicable code for demolition and remodeling permits], all Applicants subject to this Article shall pay a fee [insert amount, refer to fee schedule or "sufficient to reimburse [insert name of municipality's] costs for staff time required to implement this Article."]

Section 17. [City or County] Projects

[City or County] departments shall comply with all the requirements of this Article except they shall not be required to obtain permits and approvals under this Article for work performed within a [City or County] owned properties and areas, such as right-of-ways.

Section 18. Effective Date

This ordinance shall become effective on [date].

Staff Report

REMODELING AND DEMOLITION PCBS RUNOFF PREVENTION

Action Requested

Staff is requesting that the [City Council or County Board of Supervisors] adopt the attached ordinance establishing requirements for Applicants for demolition and remodeling permits involving buildings likely to have PCBs in caulk to conduct a PCBs Screening Assessment; and if the assessment indicates PCBs are present above a threshold concentration, to require that a PCBs Runoff Prevention Plan be implemented to prevent PCBs from entering urban runoff and to require notification of appropriate agencies in case a PCBs clean-up is warranted.

Background

Polychlorinated biphenyls (PCBs) have been detected in elevated levels in sports fish in the San Francisco Bay. To make fish safe to eat, PCBs sources need to be managed and controlled. Urban runoff is considered a significant pathway for PCBs into the Bay. Accordingly, regulatory agencies are requiring that local municipalities address sources that may contribute to PCBs in urban runoff. This ordinance targets PCBs in caulk because caulk manufactured between 1950 and 1980 has been found to be particularly high in PCBs and is often exposed to the environment when used in external construction. During demolition or remodeling, caulk particulate is most likely to be generated and transported to Bay Area waters through wind and urban runoff.

Water quality within the San Francisco Bay Region is regulated by the San Francisco Regional Water Quality Control Board (Regional Water Board) and overseen by the State Water Resources Control Board (State Water Board). The San Francisco Bay Region encompasses portions of Alameda, Contra Costa, Marin, Napa, Santa Clara, San Francisco, San Mateo, Solano, and Sonoma Counties. One way that the Regional and State Water Boards protect water bodies within the San Francisco Bay Region is to develop Total Maximum Daily Loads (TMDLs) for water bodies. TMDLs allocate a certain amount of a pollutant, which is allowed within a water body while still being protective of the uses of the water body (e.g., fish consumption). Currently there is a TMDL that allocates a certain amount of PCBs within San Francisco Bay. To achieve the TMDL, a reduction in the amount of inputs of PCBs to the Bay is required.

[In addition, to protect water quality in San Francisco Bay Region, the Regional Water Board has adopted a regional stormwater permit that requires municipalities to adopt ordinances to reduce PCBs in urban runoff.][1]

The PCBs TMDL identified 33.3 kilograms per year (kg/year) of PCBs entering the Bay, of which 20 kilograms was estimated to be from urban runoff discharge. The TMDL allocated 2 kg/year as allowable input to the Bay from urban runoff discharge. Therefore, a significant reduction is required.

Estimates on the amount of PCBs in caulk vary. Research in the United States and abroad has found concentration ranging from less than 1 milligram per kilogram (mg/kg)[2] to more than

[1] Placeholder language – revise with the requirements of a future generation of the MRP, which, for the purposes of this document, is assumed will contain a requirement to adopt a PCBs control ordinance.

[2] This concentration may also be expressed as 1 part per million (ppm).

500,000 mg/kg.[3] Recent research found a similar concentration range in caulk in San Francisco Bay Region buildings.[4] Similar ordinances are being considered and adopted by municipalities throughout the San Francisco Bay Region.

Analysis and Summary of Ordinance

The [insert name of City or County] is required by the PCBs TMDL and [Municipal Regional NPDES Permit for Stormwater (MRP)][5] to reduce PCBs in urban runoff. Caulk has particularly high concentrations of PCBs and is exposed to the external environment in concrete and masonry buildings. Many other sources known to have comparable or high concentrations of PCBs are "closed systems" such as transformers and are unlikely to be a source of PCBs to urban runoff. It is recommended that PCBs in caulk be regulated during demolition and remodeling because this is when activities will generate caulk particulates that can be transported through wind and runoff to local waterways and eventually to the Bay.

This ordinance requires that Applicants conduct a PCBs Screening Assessment to determine if PCBs are present in caulk. If PCBs are found above the threshold concentration of 1 mg/kg, the ordinance requires that a PCBs Runoff Prevention Plan be prepared an implemented for the project. The Plan must specify the practices that will be used to contain PCBs, such that they will not be washed into creeks and San Francisco Bay when it rains. These practices are similar to those currently implemented for asbestos abatement and for erosion and sediment control.

The focus of the ordinance is on PCBs runoff prevention to protect water quality.

- The ordinance does not ask municipalities to oversee or enforce human health protection standards.
- The ordinance does not ask municipalities to oversee PCBs abatement or remediation of materials or lands contaminated by PCBs.
- The ordinance does not establish remediation standards.

The ordinance requires demolition and remodeling permit Applicants to submit information confirming:

1) The results of the PCBs Screening Assessment;
2) The development of a PCBs Runoff Prevention Plan or certification of no exposure
3) If applicable, certification that a PCBs removal is not legally required; and
4) Certification that EPA Region 9, DTSC, the Regional Water Board, and the CUPA have been notified of the presence of PCBs in caulk in concentrations of 1 mg/kg or greater.

At the completion of the project, permit holders are required to submit information confirming:

1) The implementation of the PCBs Runoff Prevention Plan;

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[3] Moran, K. et al. (2007), *First Phase Support Information for PCB Portion of Taking Action for Clean Water Grant*, Memorandum prepared for the San Francisco Bay Clean Estuary Partnership. July 16.

[4] Klosterhaus, S. et al. (2011). *Polychlorinated Biphenyls in Sealants in San Francisco Bay Area Buildings: Estimated Stock in Currently Standing Building and Releases to Stormwater during Renovation or Demolition*, November.

[5] Insert reference name of the future generation of the MRP.

2) Certification of the completion of PCBs caulk removal and clean-up if required by law;

    a. Identification of the concentrations of PCBs remaining on the project site following a required clean-up

3) Identification of any land use restriction imposed by EPA or other State or local agency; and

4) The quantity of PCBs waste disposed of, and identification of the waste disposal facility.

Two forms have been created to submit this information: the PCBs in Caulk Initiation Form and the PCBs in Caulk Termination Form.

Fiscal Impact

The fiscal impact of this ordinance would be offset by the collection of permit fees to recover the cost of its implementation. The fee increase would be relatively small because the process is based on Applicant certifications and does not require the review of corroborating information.

Additional costs would be incurred for public building projects that would involve implementing the requirements of this ordinance.

Applicants for demolition or remodeling permits for affected buildings would incur additional costs. Most Applicants would incur costs for the PCBs Screening Assessment. Fewer Applicants would incur the higher costs associated with managing PCBs, if identified. Costs would be incurred for the following:

Requirement	**Resource (Cost)[1]**
Research building age, structure, type	Staff time
PCBs Screening Assessment	
Research caulk formulation	Staff time
Representative sampling plan	Hire environmental consultant
Sample collection	Staff time or hire sampling consultant
Sample analysis	Contract Analytical Laboratory ($100/sample – EPA Estimate)
PCBs Runoff Prevention Plan preparation	Hire environmental consultant
PCBs Runoff Prevention Plan implementation	Added demolition / remodeling costs

Continued

Requirement	Resource (Cost)[1]
PCBs Removal and Clean-up	
Site Characterization Plan	Hire environmental consultant
Sample collection	Staff time or hire sampling consultant
Sample analysis	Contract Analytical Laboratory ($100/sample – EPA Estimate)
Removal Plan	Hire environmental consultant
Clean-up Plan	Hire environmental consultant
PCBs removal and clean-up	Hire abatement and clean-up contractor
Verification sample collection	Staff time or hire sampling consultant
Sample analysis	Contract Analytical Laboratory ($100/sample – EPA Estimate)
Waste Transport and Disposal	
PCBs Waste Transport and Disposal (Toxic Waste)	Chemical waste landfill fees Transport fees
PCBs Waste Transport and Disposal (Hazardous)	Hazardous waste landfill fees Transport fees
Municipal Waste Transport and Disposal	Municipal waste landfill fees Transport fees
Oversight and Management	Staff time

1 Costs are unknown at this time, placeholder for future information.

Environmental Analysis

(Adoption of this model ordinance would likely require environmental review under the California Environmental Quality Act (CEQA). Municipalities should consult an attorney to determine the CEQA requirements.)

Policy Issues

[To be Added by Municipality]

Submitted By:

[Appropriate Authority]	[Appropriate Authority]
[Title]	[Title]

Attachments: 1. Ordinance

2. Frequently Asked Questions

Frequently Asked Questions

1. What are polychlorinated biphenyls (PCBs)?

PCBs are synthetic chemicals that are no longer produced in the United States, but are still found in the environment. PCBs have been used as coolants and lubricants in transformers, capacitors, and other electrical equipment because they do not burn easily and they are good insulators. They have also been used in sealants such as caulk to impart flexibility. Their manufacture was stopped in the United States in 1979 because of evidence they build up in the environment and can have harmful health effects.

2. Why are PCBs in caulk being targeted by the ordinance?

The PCBs TMDL determined that the largest source of PCBs to the Bay was urban runoff. An evaluation of products containing PCBs was conducted and caulk manufactured between 1950 and 1980 was found to have relatively high concentrations of PCBs. Other sources that contained high concentrations of PCBs were "closed" systems such as transformers, where the PCBs are not exposed to the environment. Caulk is prone to becoming brittle over time and can chip and crumble. This can leave larger particles on the ground and carry smaller particles away with the wind. The particles can then be washed away by urban runoff or smaller particles can settle in Bay Area water. Consequently, especially during demolition and remodeling when caulk is being removed, PCBs from the caulk can be mobilized into urban runoff and the environment. This is a source of PCBs in urban runoff discharge that can be controlled through this ordinance.

3. Are other sources of PCBs being addressed?

Municipal and industrial wastewater discharges are also being regulated under the PCBs TMDL; however, their current contribution to PCBs in San Francisco Bay is much smaller than that from urban runoff.

Urban runoff is being addressed by several actions in addition to the PCBs in Caulk program. In areas with high concentrations of PCBs in sediment, abatement activities are taking place. Municipalities in the San Francisco Bay Region are also required to evaluate stormwater treatment retrofits and also evaluate the diversion of urban runoff to wastewater treatment plants during certain times of the year.

4. Which buildings are likely to contain PCBs in caulk?

Buildings that were constructed or remodeled between 1950 and 1980 are most likely to contain PCBs in caulk. Buildings constructed prior to 1950 may also have caulk containing PCBs, if building maintenance or remodeling took place in the 1950s through the 1980s.

PCBs-containing caulk has been found primarily in concrete and masonry buildings. It occurs around windows and doors, at structure/walkway interfaces, and in expansion joints. PCBs-containing caulk has rarely been found in single-family homes.

5. Why were PCBs added to caulk?

PCBs were added to caulk to improve the flexibility of the material, to increase the resistance to mechanical erosion, and to improve adherence to other building materials. The U.S. Environmental Protection Agency banned the use of PCBs in caulk and other unenclosed materials in 1979.

6. How high are PCBs levels in caulk?

Based on data collected in other parts of the United States and elsewhere in the world, we know that when PCBs occur in caulk, they are most commonly found at concentrations of 1,000 to 100,000 mg/kg (0.1% to 10%) by weight. Recent testing in the Bay Area in 2011 found similar concentrations.

7. What happens if an Applicant finds PCBs in its building's caulk?

If a building owner identifies the presence of PCBs-containing caulk, regulatory requirements would be triggered for managing that caulk and protecting building occupants. The table below describes three potential scenarios that could occur once results of the PCBs tests are obtained.

Result of PCBs Test	Consequence
PCBs in caulk detected at concentrations <1 mg/kg	• Normal remodeling/demolition process and waste disposal practices followed.
PCBs in caulk detected at >1 mg/kg to <50 mg/kg	• Implement PCBs runoff prevention requirements. • Federal or State laws and regulations may require additional actions to protect public or worker health and the environment. • Characterize waste to determine whether it is considered California hazardous waste and dispose appropriately.
PCBs in caulk detected at ≥50 mg/kg	• Implement PCBs runoff prevention requirements. • Federal or State laws and regulations may require additional actions to protect public or worker health and the environment. • Caulk must be removed and disposed of in accordance with Federal and California law. • EPA or other State or local agencies may require materials and soil contaminated by the caulk be characterized and cleaned up. • Characterize waste to determine whether it is considered California hazardous waste and dispose appropriately.

8. If PCBs are found, will it delay a building remodeling or demolition?

If removal of the PCBs caulk and clean-up plans were not already part of the initial planning, finding PCBs in caulk may add delays. Finding PCBs-containing caulk at concentrations ≥50 mg/kg would require the owner to remove, and properly dispose of all similar caulk (≥50 mg/kg). EPA or other State or local agencies may also require a clean-up if the PCBs from the caulk contaminated substrate materials or surrounding areas. Project delays may be encountered to allow for sampling, laboratory analyses, and working through the clean-up plan approval processes with the regulatory agencies.

9. Could PCBs in caulk migrate to other building materials?

Yes, PCBs can migrate into other building materials such as concrete, brick, cinder block, and wood. If exterior caulk is in poor condition (e.g., crumbling) then PCBs may be present in the soil outside the building.

10. Do PCBs in building materials present health risks for building occupants?

PCBs are considered likely human carcinogens and have been demonstrated to cause a variety of adverse health effects. According to the EPA, "Because of the risks posed by PCBs, they were banned from production by the EPA in 1979. However, we all continue to be exposed to PCBs, through eating food and from breathing indoor air and coming into skin contact with dirt and dust. The generally small amounts of PCBs to which we are exposed each day build up over time in our bodies. These small daily increments accumulate over years leading to a long term 'body burden' of PCBs. It is this accumulated body burden of PCBs that is important in understanding potential health effects, rather than individual higher or lower daily doses." For more information, see http://www.epa.gov/epawaste/hazard/tsd/pcbs/pubs/effects.htm.

For those concerned about exposure in buildings, EPA recommends testing indoor air in buildings that may have PCBs-containing caulk and provides guidance for interpreting results and for measures to protect building occupants (see http://www.epa.gov/pcbsincaulk/).

11. Are there health risks to the demolition or remodeling contractors from PCBs?

If a building has PCBs-containing caulk, workers are at particular risk through inhalation of dust and dermal contact. To ensure worker safety, building owners should consider the potential presence of PCBs-containing caulk when developing remodeling and demolition plans for pre-1980 buildings. For more information, see http://www.epa.gov/pcbsincaulk/caulkcontractors.pdf and http://www.epa.gov/pcbsincaulk/.