PCBs in Caulk Training

Introduction to Best Management Practices and Model Implementation Process

Funding for this project has been provided by a State Water Resources Control Board Proposition 50 Coastal Nonpoint Source grant known as "Taking Action for Clean Water", and from the State Revolving Fund under the American Recovery and Reinvestment Act of 2009 (ARRA). The contents of this document do not necessarily reflect the views and policies of the State Water Resources Control Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use. (Gov. Code, § 7550, 40 CFR § 31.20.)

PCBs in Caulk Project Objectives

I. Develop Bay Area specific Best Management Practices (BMPs) to prevent the release of PCBs from building materials at demolition/renovation, including window replacement
   - Focus on methods to identify, handle, contain, transport, and properly dispose of PCBs-containing building materials

II. Develop a Model Implementation Process to assist municipalities develop control programs
   - Create model tools and processes to assist municipalities prevent the release of PCBs from building materials at building demolition/renovation

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- Stacy Braye

Best Management Practices to Address PCBs in Caulk

Best Management Practice Introduction

- 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
- PCBs in Caulk BMP consist of practices that help to limit the spread of contaminated materials from the demolition or remodeling project site

BMP Recommendations

- EPA recommends implementing BMPs that capture PCBs-containing dust that may be mobilized when caulk is removed during building remodeling or demolition
- While these practices focus on human health, they also protect water quality because they limit the spread of contaminated dust and particles

Nine Recommended BMP Categories

1. Building occupant notification
2. Worker training
3. Personal protective equipment (PPE)
4. Work area containment
5. Tools and equipment
6. Demolition
7. Temporary erosion control
8. Work area housekeeping
9. Transport and disposal

1. Building Occupant Notification

- Identify, notify, and update building occupants, neighbors, or other potentially affected parties of
  - Goals, types and length of demolition/renovation activities
  - Health and safety considerations and practices
  - Site access requirements and limitations
- Helps to limit unauthorized access to the work zones and limits unintentional tracking of contaminated dust

2. Worker Training

- Promotes proper handling and disposal of PCBs-contaminated materials and limits the potential for these materials to get into surface waters
- Site-specific training topics may include:
  - Presence of PCBs in caulk, and human health and ecological consequences of exposure
  - Identify personnel responsible for site safety and health
  - Identify site safety and health hazards
  - Measures to prevent exposure to hazardous materials

3. Personal Protective Equipment

- PPE protects worker health and limits the spread of contaminated materials
- PPE may include:
  - Chemical-resistant gloves
  - *Tyvek*® disposable coveralls and shoe covers
  - Safety glasses or protective goggles
  - Respiratory protection

4. Work Area Containment

- Work area containment minimizes the spread of dust beyond immediate work area
  - Isolate work area (e.g., with plastic sheeting)
  - Seal vents into the work area
  - Use vacuum to create negative pressure and collect dust in vacuum
  - Create decontamination areas for workers to remove dust when exiting containment area

5. Tools and Equipment

- Tools that minimize the potential for dust generation help to limit the spread of contaminated materials
  - Select tools and equipment that generate lowest dust volume
  - Avoid use of heat to assist removal
  - Use HEPA vacuum attachments to tools to reduce dust generation
  - Use wet sanders and mister to control dust created from sanding, drilling and cutting

6. Demolition BMPs

- Demolition activities should only occur after hazardous materials such as PCBs have been removed from the building
- BMPs help to limit the spread of contaminated materials from the work site
  - Spray areas where excavators are razing parts of a building to limit the generation of dust and its subsequent transport by wind
    - Wetting activities should be designed to avoid runoff and unauthorized non-stormwater discharge
    - Wastewater must be collected and managed for proper disposal

7. Erosion and Sediment Control

- Erosion and sediment control BMPs limit the transport of potentially contaminated soil and construction materials from the project site
  - Wind Erosion Control (WE-1)
  - Stabilized Construction Entrance/Exit (TC-1)
  - Stockpile Management (WM-3)
  - Hazardous Waste Management (WM-6)
  - Contaminated Soil Management (WM-7)
  - Concrete Waste Management (WM-8)
  - Demolition Adjacent to Water (NS-15)
  - Paving and Grinding Operations (NS-3)

BMP Factsheets from: CASQA Stormwater Best Management Practice Handbook Portal: Construction (November 2009)

8. Work Area Housekeeping and End of Project Activities

- Regular housekeeping limits the spread of potentially contaminated materials
  - Pick up as you go. Put trash in heavy-duty plastic bags
  - Use covered and lined trash containers, and remove material from site on regular basis
  - Vacuum the work area with a HEPA vacuum cleaner frequently during the day and at the end of the day
  - Clean tools at the end of the day
  - Dispose of or clean off your personal protective equipment

8. Work Area Housekeeping and End of Project Activities

- At the end of the project:
  - Dispose of all trash and debris per BMP Category 9
  - Vacuum the exposed surfaces with a HEPA vacuum cleaner
  - Remove plastic sheeting carefully to minimize the spread of contaminated dust
  - Re-vacuum surfaces
  - Visually inspect all surfaces for dust and debris
  - Re-clean work area if needed

9. Transport and Disposal

- Transport and disposal of PCBs-containing waste is regulated by EPA and DTSC
- Transporter must hold a valid registration issued by DTSC
  - A current list of registered hazardous waste transporters is available in the Registered Hazardous Waste Transporter Database at: http://www.dtsc.ca.gov/database/Transporters/Transoo.cfm

9. Transport and Disposal

- The generator of waste is responsible for and required to dispose of all PCBs wastes in accordance with Federal and State waste disposal regulations
  - 40 CFR 761
  - CCR Title 22
- Permitted hazardous waste facilities are contained in DTSC's Envirostor database at: http://www.envirostor.dtsc.ca.gov/public/commercial_offsite.asp.

9. Transport and Disposal

- Wastes generated during the project may include:
  - PCBs Containing Caulk and Other Materials in Contact with Caulk
  - Solid Waste Generated as Part of Clean Up Process
  - Liquid Waste Generated as Part of Clean Up Process

Model Implementation Process

Model Implementation Process Introduction

- The process provides 'model' tools to assist municipal staff implementing a PCBs runoff prevention program during demolition or remodeling projects
  - Municipal building or planning departments
  - Focus of the process is on water quality
  - Tools complement other regulatory programs administered by EPA and the State
  - The process does not establish clean-up standards
- Designed to fit into municipality's current processes
  - Intention is for each agency to modify the tools to fit their needs

Overview of Process

1. Municipality notifies Applicants of PCBs in Caulk requirements
   - PCBs Screening Assessment
   - PCBs Runoff Prevention Plan
   - Obligation under Federal and State laws when PCBs are found in caulk
2. Applicant certifies PCBs Screening Assessment and development of PCBs Runoff Prevention Plan, if applicable
3. Applicant certifies completion of PCBs Runoff Prevention Plan, removal, clean-up, and disposal obligations

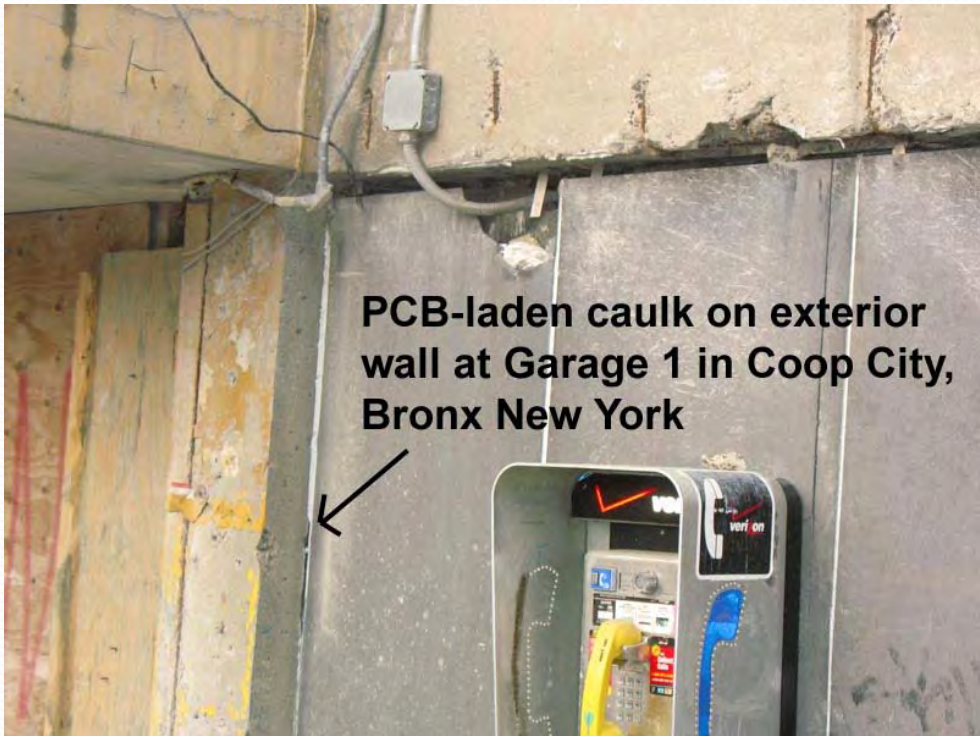
Municipal Role in Process

- Adopt an ordinance that provides legal authority to implement the process
- Notify Applicant of requirements
- Confirm Applicant has conducted PCBs Screening Assessment by checking Applicant certifications
  - PCBs in Caulk Initiation Form
- Confirm Applicant has completed PCBs Runoff Prevention Plan, removal, clean-up, and disposal obligations by checking Applicant certifications
  - PCBs in Caulk Termination Form

PCBs in Caulk Initiation Form

PCBs in Caulk Initiation Form

- Includes:
  - Part 1: Owner and Project Information
  - Part 2: PCBs Screening Assessment
  - Part 3: PCBs Runoff Prevention
  - Part 4: PCBs in Caulk Removal
  - Part 5: Notifications
  - Part 6: Certification



MODEL FORM 1

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 was 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.

Part 1: Owner and Project Information

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 Screening Assessment

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 was 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.			

Structure Type, Use, Age Outcomes

- If the answer to any part of Question 1 is No:
  - The structure is unlikely to contain PCBs in caulk
  - The Applicant proceeds to Part 6 of the form, which is the certification
- If the answers to all parts of Question 1 are Yes:
  - The Applicant must screen (test) the caulk for PCBs (Question 2)
    - Caulk screening involves representative sampling and analysis for PCBs
      - If available the Applicant can use existing information

PCBs in Caulk Screening (Testing)

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? ➢ If **Yes**, continue to Question 2b. ➢ If **No**, use Option 2.	☐ Yes	☐ No
2b	Do you know the concentration of PCBs in the caulk formulations? ➢ If **Yes**, enter concentrations in Question 2c	☐ Yes	☐ No
	➢ If **No**, you must sample the caulk, use Option 2.		

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.*

What caulk applications need to be screened?

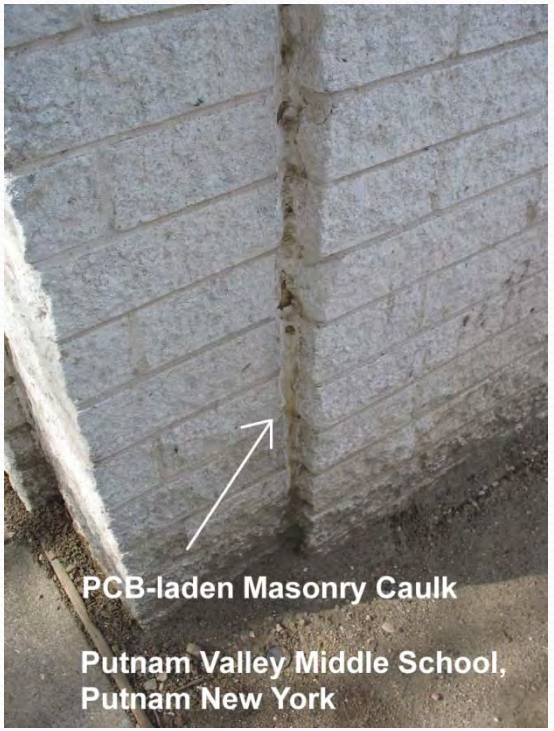
- Screening is limited to those caulk applications likely to contain PCBs:
  - In outdoor expansion joints;
  - At structure/walkway interfaces; and
  - Around windows and doorframes.

What is representative sampling

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

PCBs in Caulk Screening Outcomes

- Screening determines that the concentration of PCBs in caulk is less than 1 mg/kg
  - Applicant proceeds to Part 6 of the form, which is the certification
- Screening determines that the concentration PCBs in caulk is ≥ 1 mg/kg
  - Applicant continues to Part 3 of the form



Part 3: PCBs Runoff Pollution Prevention

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

Runoff Prevention Plan Outcomes

- A written PCBs Runoff Prevention Plan is required unless all PCBs contaminated materials (caulk, waste, demolition debris, equipment) will be indoors
  - Materials are not exposed to wind, rain, runoff

Containment (Source: EPA)

PCBs Runoff Prevention Plan

- Written plan to protect water quality during the project
  - Describes project
  - Describes PCBs caulk removal and clean-up, if required
  - Describes site-specific application of BMPs
  - Includes inspection schedule
  - Includes site maps and schematics
- Applicant certifies the development of the plan
- Plan is not submitted to the Municipality

Part 4: PCBs in Caulk Removal

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

- Applicant documents whether removal of the PCBs-containing caulk must be removed per EPA regulations
  - EPA requires removal of caulk if the PCBs concentrations are ≥50 mg/kg

Part 5: Notifications

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 1b. 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 Board	☐ Yes	☐ No
➢ Local California Unified Program Agency	☐ Yes	☐ No

Part 6: Certification

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: _____

PCBs in Caulk Termination Form

PCBs in Caulk Termination Form

- Includes:
  - Part 1: Owner and Project Information
  - Part 2: Information on PCBs Runoff Prevention Plan implementation
  - Part 3: Information on PCBs caulk removal and clean-up, if applicable
  - Part 4: Information about disposal of PCBs waste
  - Part 5: Certification

Housekeeping BMP: Vacuum area with HEPA vacuum cleaner (Source: EPA)

MODEL FORM 2

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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 1: Owner and Project Location

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

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

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? ➢ If **No**, continue to Part 4.	☐ Yes	☐ No
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) _____	_____	

Part 3: PCBs Removal and Clean-up

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

Part 4: PCBs Waste Disposal

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

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: _____

Summary

Summary of the Process

- Municipality informs Applicant of requirements
- Applicant completes and submits the PCBs in Caulk Initiation Form
    1. Owner and Project Location information
    2. PCBs Screening Assessment
        - Determines if the building is likely to contain PCBs in Caulk
        - Screens (Tests) caulk for PCBs
    3. PCBs Runoff Prevention - determines whether a written PCBs Runoff Prevention Plan is required
    4. Caulk Removal - determines if Federal regulations require removal of the caulk
    5. Notifications – inform Federal, State, and local agencies about finding PCBs in the caulk

Summary of the Process

- Applicant completes and submits the PCBs in Caulk Termination Form
  1. Owner and Project Location information
  2. PCBs Runoff Prevention – identifies whether PCBs Runoff Prevention Plan was implemented
  3. PCBs Removal and clean-up – identified whether - Federal, State, and local agencies required removal of the caulk or clean-up of the project site
  4. PCBs waste Disposal – identifies where and how much PCBs wastes was disposed of

Status

- Model program has been developed and finalized
- Program is not required now
- In 2014, an assessment will be conducted re whether this is a promising direction for future work (effectiveness at reducing PCBs in runoff, cost-effectiveness)
- Potential to be incorporated into next Municipal Regional Permit for Stormwater as a regionwide requirement

Questions?

- Athena Honore, 510-622-2325 or ahonore@waterboards.ca.gov

- Project webpage: http://www.sfestuary.org/projects/detail.php?projectID=29

DISCLAIMER

- *This document is one of several major products for the San Francisco Estuary Partnership's polychlorinated biphenyls (PCBs) in Caulk Project, which was created to address potential impacts of 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 PCB 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.*

DISCLAIMER

- *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 Training Program refers to a companion document, the Model Implementation Process, which 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.*

DISCLAIMER

- *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.*
- *The authors and sponsors of this report do not make any warranty, expressed or implied, nor assume any legal liability or responsibility for any third party's use of this report or the consequences of the use of any information, product, or process described in this report.*

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