



SAN MATEO COUNTYWIDE
Water Pollution Prevention Program
Clean Water. Healthy Community.

Moderate PCBs Control Program

Lisa Sabin, M.S., D.Env.
EOA, Inc.

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Background

- **PCBs and Mercury are legacy pollutants!**
 - Peak production and use: 1950 – 1980
 - Major use of PCBs = electrical utility equipment
- **Persistent in the environment!**
 - Elevated concentrations in sediment, water and fish in the Bay Area.
- **Mobile!**
 - They attach to sediment/soil particles.
- **Associated with Old Industrial Areas!**
 - Areas that had industrial land uses prior to 1980.



Focus Area = Old Industrial Land Uses

- Areas with industrial land use prior to 1980

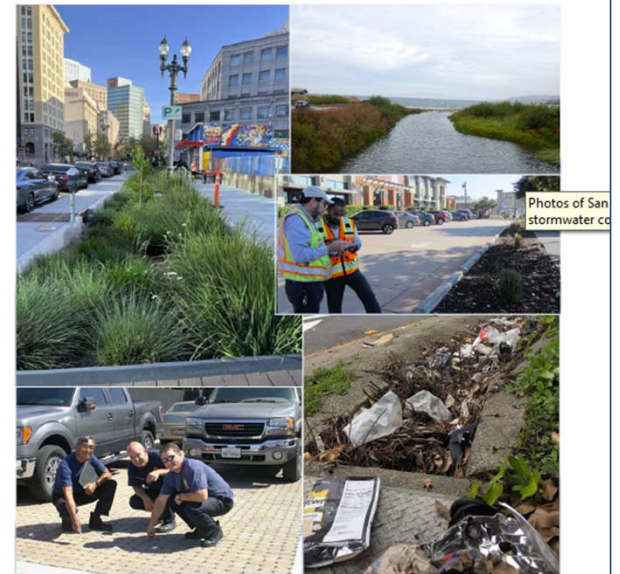


Regulatory Context

- **MRP Provisions C.11 (mercury) and C.12 (PCBs) includes requirements to identify and control sources of PCBs and mercury to municipal storm drain systems**
 - For San Mateo County:
 1. Investigate 1,400 acres of old industrial areas during permit term
 2. Control mercury/PCBs on 445 acres of old industrial areas
 3. Submit a plan to demonstrate how these targets will be achieved.


California Regional Water Quality Control Board
San Francisco Bay Region
Municipal Regional Stormwater NPDES Permit

Order No. R2-2022-0018
NPDES Permit No. CAS612008
May 11, 2022




Old Industrial Area Control Measure Plan for MRP 3.0

- **Plan and Schedule to achieve PCBs and mercury load reduction requirements during MRP 3.0**
 - Primary focus on targeted controls in areas with moderate or high PCBs
 - Moderate PCBs Control Program


SAN MATEO COUNTYWIDE
Water Pollution
Prevention Program

Pollutant Control Measure Plan to Reduce PCBs And Mercury in Urban Runoff from Old Industrial Areas in San Mateo County, California

Plan and Schedule for Control Measure Implementation during MRP 3



Submitted by the San Mateo Countywide Water Pollution Prevention Program in compliance with MRP 3.0 (NPDES Permit No. CAS612008, Order No. R2-2022-0018), Provision C.11/12.c.

REVISED March 31, 2024

Overview of Moderate PCBs Control Program

- **Purpose: Identify and control properties contributing PCBs to Permittee storm drain systems.**
- **Starts with investigations to identify source properties**
 - Source properties are determined based on PCBs Concentrations:

Require Controls {

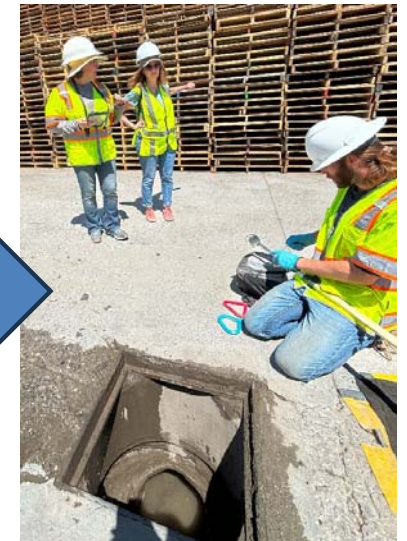
- High PCBs: ≥ 0.5 ppm
- Moderate PCBs: 0.2 ppm - < 0.5 ppm
- Low PCBs: < 0.2 ppm (urban background)

- **For properties with moderate PCBs: Municipal enforcement of controls on properties to prevent release of sediment (and associated PCBs) to the storm drain system**

Source Investigation Process

- **The Program leads investigations gathering information/monitoring data to identify PCBs source properties through a tiered approach:**

1. Screening-level Investigations – catchment-scale sampling to identify catchments with elevated PCBs for further investigation.
2. Targeted Public ROW Investigations – in catchments with elevated PCBs, focused sampling in public ROW to identify potential source properties.
3. On-site Inspections and Sampling – to confirm identify of any moderate or high PCBs source properties.



On-site Inspection and Sampling Overview

- **Purpose: collect sediment samples on properties to determine if a property is contributing moderate or high PCBs to storm drain system.**
 - Collaboration between Stormwater Program and Municipal Staff
 - Stormwater Program: conducts initial investigation to identify properties for on-site inspections
 - Municipal Staff: participates in on-site inspections which may be coordinated with existing stormwater inspection programs
 - Municipal Staff: conducts pre-inspection outreach to property owners
 - Notification letter to property owners
 - Stormwater Factsheets
 - Municipal Inspectors lead on-site inspections with Stormwater Program staff and collect soil/sediment samples on properties

Resources

- **SMCWPPP Template –**
 - On-site inspection and sampling notification letter

[City Letterhead Here]

Property Owner/Manager Name
Address

Subject: Upcoming Stormwater Inspection - NPDES Provision C.12 Polychlorinated Biphenyls (PCBs) Controls

Dear Owner / Facility Manager,

The City of [name] is inspecting private parcels in an effort to meet requirements of the Federal Clean Water Act and State issued regional municipal stormwater permit. The permit requires the City of [name] to implement a stormwater control program for polychlorinated biphenyls (PCBs), which includes source control, treatment control, and pollution prevention measures.¹ A Stormwater Inspector will be visiting your property within the next month or so during business hours. This inspection should only take 20 to 30 minutes, and only includes outdoor areas of the property.

Storm drains flow directly into creeks and the San Francisco Bay without any treatment. Because of this direct connection, PCBs-contaminated sediment that flows into a storm drain can easily cause pollution. It is the responsibility of your property owner/manager to ensure that only rainwater enters the storm drains at your property and that sediment on your property is controlled and prevented from mixing with stormwater runoff. Routine inspection of the City's infrastructure has confirmed the presence of elevated PCBs near your property. In an effort to investigate the sources of elevated PCBs, the Inspector will conduct an onsite inspection of and may collect sediment samples from your property.



Please see the enclosed additional information on this new Inspection Program. Since this is a new inspection program being implemented by the City of [name] to meet our Permit requirements, private parcels investigated for PCBs will not be charged for stormwater inspections at this time. If you have questions about [City name]'s Stormwater Inspection Program, please contact me at [Email Here] or <[phone # Here]. We appreciate your cooperation in keeping our environment clean.

Staff Name Here
Title

¹ Under the San Francisco Bay Municipal Regional Stormwater Permit (MRP) National Pollutant Discharge Elimination System (NPDES), Order No. R2-2022-0018, Provision C.12. - Polychlorinated Biphenyls (PCBs) Controls, the City of [name] is required to investigate land areas that likely contribute PCBs to MS4s and take actions to abate PCB sources. The City of [name] has the legal authority to enforce these requirements under the [municipal code here].

Resources

- **SMCWPPP Factsheet:**
 - Stormwater Pollutant Factsheet – PCBs and Mercury

What are PCBs and Mercury?	Stormwater Pollution
<p>Polychlorinated Biphenyls (PCBs) & mercury are stormwater pollutants that pose a health risk to people who eat certain fish in the San Francisco Bay. They were once common in industrial & electrical uses, building materials, and household items. The U.S. has banned production of PCBs for 30+ years and limited modern-day mercury pollution. Unfortunately, historic pollution from past use continues to linger in Bay Area soils today and can make its way to storm drain systems that drain to the Bay. The water quality of San Francisco Bay is currently listed as "impaired" by both PCBs and mercury.</p>	<p>Rainfall carries pollutants from sidewalks, streets, and other surfaces into storm drain systems. These pollutants often flow untreated with "stormwater" or "urban runoff" into local creeks that eventually reach San Francisco Bay. PCBs & mercury attach to soil particles and can enter streets and the storm drain system through rain events, wind activity, or with sediment tracked-out by vehicles from a property. Stormwater pollution management actions are mandated by the Federal Clean Water Act to reduce the transport of these pollutants to water ways to protect aquatic habitat, water resources and public health.</p>
	
Pollutant Reduction Mandates	
<p>Because high levels of PCBs and mercury have been found in sportfish in the San Francisco Bay and urban stormwater has been identified as a major conveyance of PCBs and mercury, Bay Area cities and counties are required by the State of California to significantly reduce these pollutants in stormwater. The San Francisco Bay Regional Water Board requires a 90% reduction of PCBs and a 50% reduction of mercury in urban stormwater over the next decade. Municipalities are implementing a number of pollutant control measures to reduce these pollutants, including the identification of key sources such as sediments on properties with moderate to high levels of PCBs or mercury.</p>	
PCBs and Mercury Source Investigations	
<p>Studies over the past 15+ years have identified sediments in streets and storm drains in San Mateo County with elevated PCBs or mercury levels. These locations are usually adjacent to properties where PCBs & mercury were historically used, stored, or discarded. The countywide stormwater program, SMCWPPP¹, assists San Mateo County cities and the unincorporated County investigate these locations to evaluate whether these properties appear to be ongoing sources of PCBs or mercury to the storm drain system. Pollutant "source property" investigations conducted by SMCWPPP include the following steps:</p> <ol style="list-style-type: none"> 1. Reviewing records to gather information on historical use of PCBs in specific land areas. 2. Site visits to observe current business practices and note any drainage patterns from land areas draining to adjacent streets. 3. Sediment and stormwater sampling on and adjacent to properties of interest to identify potential pollutant sources. 	
<p>Should a property be identified as a source of PCBs or mercury to a city/county storm drain system, additional or enhanced stormwater best management practices (BMPs) may be needed to eliminate the contribution of these pollutants to the public storm drain system.</p>	

¹ The San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) is a partnership of the City/County Association of Governments (C/CAG), each incorporated city and town in the county, and the County of San Mateo.

On-site Inspection Procedures

- **Explain purpose of the inspection and provide outreach materials to business/property owners**
- **Document conditions on property, including:**
 - Potential sources of PCBs on the property
 - Existing controls/BMPs onsite
 - Identify potential sediment transport pathways off the property (e.g., wind, vehicle tracking, stormwater runoff)
 - Verify locations of on-site storm drain structures and connections to MS4
- **Collect samples – ask permission of business/property owner**

Proposed Roles and Responsibilities

■ **Municipal Inspector –**

1. Prior to the field inspection:

- a. Conduct property owner outreach (e.g., notification letter)

2. During the Inspection:

- a. Make the initial contact with the owner/ business rep.
- b. Explain reason for the visit which includes investigation for pollutants to the municipal storm drain system.
- c. Lead inspection of the site.
- d. Request permission for sediment collection on property

3. After the Inspection:

- a. Record findings relevant for further action in the City's C.4 (or other applicable) database

■ **Stormwater Program Staff –**

1. Prior to the field inspection:

- a. Prepare Site Forms and maps

2. During the Inspection:

- a. Record information on the site form
 - Possible PCBs sources
 - Sediment migration
 - Pervious areas
 - Onsite flow patterns
 - Onsite storm drain infrastructure
 - Existing stormwater control measures

- b. Identify appropriate sampling site(s)

- c. Collect samples (w/ support from monitoring contractor)

3. After the Inspection:

- a. Follow-up with municipal staff on outcomes of the sampling

Potential Sources of PCBs on Industrial Properties

- **PCBs-containing equipment (i.e., manufactured prior to 1980), including:**
 - Electrical equipment (transformers, capacitors)
 - Hydraulic systems
 - Electric motors
- **Exterior Building Materials subject to weathering and breakdown**
 - Caulking, paints, roofing materials
- **PCBs-containing materials brought on site**
 - Building demolition waste, recycling materials
- **Erodible soils – *PCBs are transported via soil/sediment particles!***
 - Locations of historic spills, use of PCBs-containing equipment, or improper disposal sites

Resources

Regional Water Board Factsheets:

- [Identifying PCBs in Industrial Settings](#)

Identifying PCBs in Industrial Settings



Potential PCB-Containing Items

- Pre-1978 Transformers – can be any type and size. Industries with high power requirements are very likely to have PCB transformers in substations or powerhouses, inside, around, or on top of buildings, or in underground vaults.
- Pre 1978 electrical equipment and wire insulation and heat transfer systems
- Electric motors
- Hydraulic systems – such as in heavy equipment and transport vehicles
- Building demolition waste (aging paints, caulking, insulated cable, water proofing, asphalt roofing materials)
- Metal composite siding or roofing material (trade name “Galbestos”)



PCBs were widely used in coolants and insulating fluid in electrical equipment such as transformers.

Potential PCBs Sources and Sites

- Scrap metal recycling
- Auto salvage/crushing yards, auto wreckers
- Auto Repair Shops
- Copper recyclers
- Demolition/salvage companies
- Concrete/asphalt recycling (joint materials and impacted concrete)
- Electrical equipment rebuilders
- Electrical contractors
- Foundries, forges, rolling mills (impacted feedstock, casting wax, hydraulic fluids)
- Shipyards/ locomotive repair, heavy equipment repair
- Dredge spoils



Galbestos roofing/siding was banned in 1973, but can still be found on buildings. Highly aged, it can be a significant source of PCBs in runoff.



A typical pre-1979 PCB-containing fluorescent light ballast (FLB).

Only magnetic fluorescent light ballasts contained PCBs. A typical non-PCB containing light ballast will have a “No PCBs” marking on the top and the text “electronic ballast.”

Sampling Procedures

■ Sample Types:

1. Sediment/soils accumulated within stormdrain structures
2. Surface sediment/soils accumulated on hardscape areas
3. Shallow surface soils (< 5 cm depth) from unpaved/non-vegetated areas

■ Sample Collection Tools:

- Pre-cleaned natural fiber broom
- Stainless steel scoop



Next Steps

- **Stormwater Program reviews sampling results to identify PCBs source properties**
 - High PCBs properties = Referral to Regional Water Board for abatement
 - ≥ 0.5 ppm PCBs
 - Moderate PCBs properties = Implementation of the Moderate PCBs Control Program
 - ≥ 0.2 ppm to < 0.5 ppm PCBs

Implementation of Moderate PCBs Controls

- **Moderate PCBs Control Program = Municipal enforcement of controls on properties with moderate PCBs to prevent release to the storm drain system**
- **Step 1 – Stormwater Program summarizes the investigation findings in a technical memo**
- **Step 2 – Municipality and stormwater program develop a work plan for the Property**
- **Step 3 – Municipality works directly with property owner (with support/guidance from stormwater program) to implement the work plan**

Municipal Work Plan to Address Moderate PCBs

- **The work plan describes the process and timeline to address each Moderate PCBs Property, including:**
 - Process/timeline to inform property owner
 - Identify property specific requirements
 - List of recommended BMPs, or
 - Require property owner to develop a Pollutant Control Plan
 - Follow-up inspection (or other actions) to verify controls are in place and appropriately maintained
 - Potential enforcement actions and timeline
 - Implementation Schedule

Types of Controls for Moderate PCBs Properties

■ On the Property:

- Sediment and erosion controls – to prevent release of soil/sediment from the property
- On-site stormwater treatment

■ In the public ROW:

- Downstream Stormwater Treatment Measures
- Enhanced O&M (sediment removal actions)
- Stormwater diversion to sanitary sewer

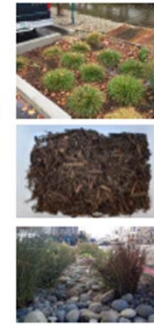
Resources

- **SMCWPPP Factsheet:**
 - Best Management Practices for Controlling Sediment –
 - Good Housekeeping
 - Stormwater Treatment
 - Erosion Control of Erodible Surfaces
 - Storm Drain Inlet Protection
 - Perimeter Control

Erodible Surfaces

Areas that are bare of vegetation are often subject to rain, wind, or vehicle traffic transporting sediments off a property. These sediments may be contaminated from past or current industrial activities. Cracked or broken paved areas are also a source of sediment. BMPs include:

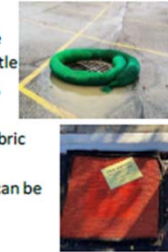
- Stabilize all roadways, entrances, and exits to sufficiently control discharges of erodible materials into the storm drain and prevent vehicle track-out.
- Lightly water down dirt areas to control dust. Do not allow water to run-on to paved areas.
- Divert run-on of stormwater around loose soil (i.e., erodible surfaces).
- Stabilize loose soil with vegetation whenever possible. Vegetation provides erosion control and improves infiltration of stormwater and capture of pollutants in the soil matrix. Where vegetative options are not feasible use:
 - *Decomposed Granite (DG) and Gravel Mulch* are suitable for use on flat surfaces, trails and pathways.
 - *Degradable Mulches* can be used to cover and protect soil surfaces from erosion. In many cases, the use of mulches by themselves requires routine inspection and re-application.
 - *Geotextiles and Mats* can be used as a temporary stand-alone soil stabilization method. Depending on material selection, geotextiles and mats can be a short-term (< 1 year) or long-term (1-2 years) stabilization method.



Storm Drain Inlet Protection

Prevent sediment from leaving your property by protecting storm drain inlets. The type of inlet protection should be appropriate for the area (e.g., high traffic area, landscape area) and inlet type. These BMPs must be maintained and accumulated sediment removed when needed.

- Inlet filters – Manufactured inlet filters are installed below the grate in storm drain inlet structures and use a media cartridge system that may be designed to capture sediment, fuel, oil, trash and other pollutants. Some companies will also offer maintenance services for these devices.
- Gravel bags – Placed around storm drain inlets or used as dams to hold or redirect flow. If filling your own bags, make sure to use clean gravel. Depending on the fabric used for the bag, these will filter and/or hold back water and allow sediment to settle out.
- Wattles – Filled with straw, compost or an absorbent, wattles can be placed and contoured where needed. Fiber rolls, typically filled with straw, will slow and pond water, allowing sediment to settle out. Compost socks, which tend to be more flexible and have better contact with paved surfaces, will pond water to allow sediment to settle out and slowly filter water through the sock.
- Filter fabric – Filter fabric allows water to slowly filter through, leaving behind sediment. Filter fabric bags are a common storm drain inlet device and can be permanent if maintained properly.
- Filter mats – Filter mats are often used in high traffic areas and are high visibility, thin mats that can be placed over and secured to a storm drain inlet grate.



Perimeter Control

Prevent sediment from leaving your property in stormwater runoff that flows off your site by having perimeter controls. You may already have some structural perimeter controls preventing (e.g., redirecting, ponding) stormwater runoff from leaving your property such as curbs or speed bumps. In places where stormwater sheet flows off your site, you can use BMPs such as compost socks, wattles, or silt fences.

Resources

■ SMCWPPP Pollutant Control Plan Template:

- Provides background info for the property owner
- Summarizes investigation results
- Identifies on-site storm drain infrastructure
- Identifies potential sources of PCBs on the property
- Identifies potential transport mechanisms off the property
- Identifies appropriate BMPs for each source/transport pathway
- May include requirements for ongoing sampling to verify controls are effective

SMCWPPP Template

Section 6. Best Management Practices (BMPs)

Complete the following sections to indicate the BMPs being implemented to prevent potential sources of PCBs from leaving the property including sediment, non-stormwater discharges (i.e., hydraulic fluid leaks, oil spills, etc.), and polluted stormwater.

- Deteriorating building components/materials with the potential for containing PCBs will be replaced/repared (describe schedule).
- Deteriorating building components/materials with the potential for containing PCBs will utilize the following containment BMPs to keep materials from depositing on other surfaces.

6.3 Equipment/Activity Source Control BMPs

- Spill Cleanup Procedures (documents onsite)
- Use dry clean up methods and dispose of material properly
- Inspect equipment for leaks (Describe frequency): _____
- Spill kits are easily accessible and located in areas of concern
- Spills are cleaned up immediately
- Secondary containment (Describe equipment and secondary containment): _____
- Tarp or cover stockpiles, degrading machines, etc.
- Other: _____

6.4 Erosion Control BMPs

- Divert run-on stormwater around erodible surfaces. Describe BMPs used and maintenance plan: _____
- Stabilize loose soil. Describe (e.g., area and how stabilized, such as vegetation, decomposed granite, gravel mulch, degradable mulch, geotextiles, etc.): _____
- Fence off unpaved areas (keep people/vehicles from entering the area). Describe: _____

Current Status of Moderate PCBs Control Program

- **No Moderate PCBs Properties have been identified to date in San Mateo County**
- **Source investigations are ongoing**
- **On-site inspections and sampling will begin in Fall 2024**
 - Exact locations and timing TBD
- **Stormwater Program will continue to work with individual cities to plan and implement the program, as needed**

Contact Information



Lisa Sabin

ldsabin@eoainc.com