

# **APPENDIX E**

## Source Area Investigation Guidance

# Source Area Investigation and Abatement Guidance

## Process to Conduct Source Area Investigations during MRP 3.0

### Background

Since 2000, Bay Area stormwater programs have conducted investigations on behalf of MRP Permittees to identify land areas or properties that contribute substantial amounts of PCBs to Bay Area municipal separate storm sewer systems (MS4s). These investigations have largely focused on land areas where industrial land use activities occurred prior to 1980 and continue today (i.e., old industrial land use areas). The *Interim Accounting Methodology for TMDL Loads Reduced Report* (BASMAA, March 2017) described this control measure and defined the methodology that was used for PCBs load reduction accounting during the MRP 2.0 permit term.

The pollutant reduction benefits and costs of conducting source property investigations were examined, along with other stormwater control measures, via the *Clean Watersheds for Clean Bay* (CW4CB) project. The CW4CB project concluded that PCBs source property investigations are much more cost-effective at reducing loads of PCBs than retrofitting old industrial areas with green stormwater infrastructure (GSI). This finding and the pollutant reductions achieved during the MRP 2.0 permit term via this control measure provide an impetus for MRP Permittees to continue source property investigations as a viable control measure for PCBs during MRP 3.0.

The process for conducting source area investigations that would be followed by each stormwater program during MRP 3.0 is presented below.

### Source Area Investigation Process

The source area investigation process consists of the four steps outlined below:

1. Identify areas that should be considered for source area investigations;
2. Conduct screening-level investigations in the areas identified in (1) to prioritize these areas as high, moderate, or low-likelihood source areas;
3. Conduct targeted source area investigations in areas prioritized as high or moderate-likelihood source areas in (2) to identify and confirm source areas; and
4. Determine next steps for confirmed source areas.

Each of these steps is described in more detail below.

#### Step 1: Identify Areas Considered for Source Area Investigations

Identify areas that should be considered for source area investigations as follows:

- A. Identify the extent of old industrial land use areas that were present in 2002, the starting date for accounting for POC load reductions;
- B. Remove those old industrial land use areas that have already been investigated, referred, and/or abated since 2002;
- C. Remove those old industrial land use areas that have undergone redevelopment or GSI retrofit since 2002;

- D. Remove those old industrial land use areas that do not drain to an MS4, rather drain directly to the Bay shoreline; and
- E. Identify the remaining old industrial land use areas that should be considered for source property investigations by subtracting B, C, and D from A above.

Each countywide stormwater program has implemented this process to identify the total area that will be considered for investigation within each of the five MRP counties.

## Step 2: Conduct Screening-level Source Area Investigations

The purpose of screening-level source area investigations is to identify both (1) areas that are likely to contain sources of PCBs, and (2) areas that are unlikely to contain sources of PCBs. This effort will assist Permittees in narrowing the focus for more in-depth, targeted source investigations to those areas that are most likely to contain sources. The screening methods described below are designed to categorize areas at the watershed, MS4 catchment, or individual parcel-scale as high-, moderate-, or low-likelihood source areas according to the following criteria:

- Low-likelihood source areas:
  - No evidence of current or historical use of PCBs; and,
  - all MS4 sediment concentrations and stormwater particle ratios are below 0.5 mg/kg.
- Moderate-likelihood source areas
  - There may be evidence of current or historical use of PCBs; and/or
  - At least one MS4 sediment or stormwater particle ratio between 0.5 and 1.0 mg/kg.
- High-likelihood source areas:
  - There is evidence of current or historical use of PCBs; and/or
  - At least one MS4 sediment or stormwater particle ratio is greater than 1.0 mg/kg.

Screening-level investigation methods may involve any of the following:

- Desktop Analysis. Desktop analysis conducted to gather available information on potential sources of PCBs in a given area or on a specific parcel can also be used to screen areas for further investigation or to remove them from further consideration. This type of screening may include review of current and historic land uses, historical parcel records, contaminated properties databases (e.g., Geotracker and EnviroStor), and aerial photography to identify past and current activities that may be associated with PCBs (e.g., recycling facilities, parcels with large electrical equipment, PCBs manufacturing sites, industrial activities that used PCBs, etc.). Any stormwater or MS4 sediment data collected in the past may also be used as an indicator of likely PCBs sources that warrant further investigation.
- Stormwater Monitoring. Stormwater samples collected at the outlet of a defined drainage area (watershed, MS4 catchment, or individual parcel scale) can be used to screen the entire area that drains to the sampling location; if the PCBs particle ratio in all stormwater samples is less

than 500 ng/g<sup>1</sup>, then the entire area draining to that sampling location can be identified as a low-likelihood source area.

- Sediment Monitoring. Suspended sediment samples collected from storm drain infrastructure or a channel that drains a defined area (e.g., a watershed, MS4 catchment, or one or more individual parcels) can be also be used to screen potential source areas. If the PCBs particle ratio in samples collected are less than 0.5 mg/kg, then the area or parcels that drain to the sampling location can be identified as low-likelihood area/parcels.

### Step 3: Conduct Targeted Source Area Investigations

Select parcels or smaller areas within areas that are identified in Step 2 as high- and moderate-likelihood source areas may be targeted for more in-depth source investigation. The purpose of a targeted source area investigation is to identify and confirm specific source properties that contribute elevated PCBs to MS4s. Once a source property has been confirmed, Permittees may refer the property to the Regional Water Board for abatement, or the Permittee can oversee property abatement directly. The targeted source area investigation steps are modeled after the CW4CB Source Property Identification and Referral Pilot Projects (BASMAA, 2017). The targeted source area investigation process proceeds through the following four tasks:

1. Records Review. The purpose of the records review is to evaluate available information on specific parcels of interest within an investigation area to identify sources of PCBs. The types of information reviewed may include the following:
  - Site history, cleanup records, or monitoring data available through online databases (i.e., Geotracker and EnviroStor);
  - Cal OES records of PCBs releases from electrical utility equipment;
  - Changes in aerial photos from prior to 1980 and present condition;
  - Outdoor storage, suspected waste areas or ponds;
  - Available stormwater inspection history, including occurrence of PCBs, spills, and stormwater violations on prior inspection reports; and
  - Industrial General Permit (IGP) facility data.
2. Public ROW Surveys / Facility Site Visits. The purpose of public ROW surveys / facility site visits is to verify information obtained during records review, document possible sources, observe sediment migration and flow patterns from parcels of interest to the public ROW, document existing stormwater control measures, and identify potential sample locations. Information documented during public ROW surveys / site visits may include the following:
  - Electrical equipment associated with PCBs (e.g., transformers and capacitors);
  - Old equipment with hydraulic fluids;
  - Outdoor hazardous material/waste storage areas (e.g., tanks, drums), especially with poor housekeeping;

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<sup>1</sup> This value may be adjusted in the future based on the results of the Advanced Data Analysis under development by the Regional Monitoring Program Sources, Pathways, and Loadings workgroup or equivalent analyses conducted by the Permittees.

- Signs related to hazardous materials and wastes;
- Recycling/scrap yards (e.g., for automobiles);
- Building demolition activities;
- Unidentified puddles or stains;
- Flow patterns and storm drain structures;
- Existing and potential stormwater control measures;
- Sediment erosion from a property and migration to the street or storm drains;
- Properties that have been redeveloped or are in the process of redevelopment; and
- Redeveloped areas where older exposed soils are available for tracking off site.

The combined results of the records reviews, public ROW surveys / facility site visits are then used to prioritize sampling and develop the sampling plan.

3. Sampling. The purpose of sampling is to confirm if the suspected source area is an actual source of elevated PCBs to the MS4 or is not. Sampling methods may include the collection of sediment in the ROW, and inlet, or the storm drain; and/or stormwater sampling.
4. Identification of Source Areas. This task will review the information gathered throughout the investigation process in order to identify and confirm any source areas. Pollutant concentrations provide the primary means of confirming the identification of source areas. Elevated soil/sediment or stormwater concentrations from samples collected onsite, at the border of a parcel, or at the junction of an onsite underground drainage pipe (lateral) and the MS4 provide the best definitive evidence of whether a property is a source of PCBs to the MS4 or is not. Parcels or areas with PCBs concentrations  $\geq 1.0$  mg/kg are considered confirmed source areas and need no further investigation.

#### Step 4: Determine Next Steps for Confirmed Source Areas

The options Permittees may pursue for confirmed source areas include the following:

- Submit a referral to the Regional Water Board (and/or other regulatory agency) for follow-up investigation and abatement. The referral process and standard referral form are more fully described in the *Source Control Load Reduction Accounting for Reasonable Assurance Analysis* report (BASMAA, 2020).
- Abate or cause the area to be abated directly, without referral to a regulatory agency. For this option, the City will work directly with the property owner to ensure the property is fully abated and a self-abatement report will be submitted to the Regional Water Board according to the process outlined in the *Source Control Load Reduction Accounting for Reasonable Assurance Analysis* report (BASMAA, 2020).
- If the investigation conducted in Step 3 does not identify a specific source area for the observed elevated concentrations, then the source area will be considered for the application of other types of control measures.