STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

STAFF SUMMARY REPORT:
Setenay Bozkurt Frucht and Katie Kulha
MEETING DATE: June 10, 2026

ITEM: 9

Polychlorinated Biphenyls (PCBs) Total Maximum Daily Load (TMDL) Revision and Cleanup Status – Informational Item

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DISCUSSION

This item provides an update by staff on the strategy to revise the San Francisco Bay Polychlorinated Biphenyls (PCBs) Total Maximum Daily Load (TMDL), which was approved by the U.S. Environmental Protection Agency in 2010 with a 20-year implementation timeline. It also provides an update on work to control sources of PCBs to the Bay, including cleanup of upland and in-Bay sites contaminated with PCBs, and describes the coordinated approach being taken by staff from multiple programs across the Water Board.

PCBs belong to a family of synthetic organic chemicals called chlorinated hydrocarbons. Because PCBs are stable at high temperatures, they had numerous industrial uses beginning in the 1920s. Accordingly, they were widely used in military and industrial operations around the Bay. They were also extensively used in building materials (paints and caulking) and road infrastructure (expansion joints). Although the manufacture of PCBs was banned in 1979, they can still be released to the environment due to deterioration or demolition of building materials, erosion of surface soils with legacy contamination—including soils in and adjacent to urban streets—leaks from electrical transformers, and illegal dumping of materials containing PCBs. PCBs bind strongly to organic matter and sediments, they are highly persistent, bioaccumulate in benthic organisms, and biomagnify up the food web. Long-term exposure to PCBs has been linked to numerous serious health conditions in both humans and animals, including cancer, immune system suppression, endocrine disruption, reproductive issues, and neurological deficits in developing infants. High levels of PCBs in San Francisco Bay fish prompted state health officials to advise the public to limit their consumption.

The TMDL established that urban stormwater runoff is the largest source of PCBs to the Bay. The TMDL set the total maximum average yearly PCBs load at 10 kilograms per year (kg/yr) and allocated 2 kg/yr to urban stormwater around the Bay. This was a required reduction of 90 percent from the estimated uncontrolled PCBs load from urban stormwater of 20 kg/yr. We are now approaching the end of the 20-year implementation horizon established by the TMDL and are in the process of reviewing and developing potential revisions to the TMDL.

The Municipal Regional Stormwater NPDES Permit (MRP) regulates stormwater discharges from municipalities in the San Francisco Bay Region pursuant to section 402(p) of the federal Clean Water Act. The MRP is a key tool used by the Water Board to implement the TMDL's required stormwater load reduction. We have worked closely with municipalities through issuance of three successive municipal stormwater permits to implement the required control measures and make progress. This effort has resulted in meaningful advances, particularly in source identification, control program development, and implementation of best management practices.

For example, permittees have implemented programs to sample stormwater and sediment to identify potential source properties, and control programs to ensure that PCBs are not released to the environment during building demolition activities or from municipal electric utilities. Staff is also working with PG&E to continue and accelerate their phase-out of transformers with PCBs-containing oil. However, the overall reduction in PCBs loads has not yet been substantial enough to result in reduced PCBs concentrations in fish in the Bay.

We have initiated a strategy to revise the PCBs TMDL prior to the completion of the original 20-year implementation timeline to help inform the next phase of implementation and to guide the scientific studies and loading model updates undertaken by the Bay Regional Monitoring Program. As part of this, data collected since 2010 are being synthesized to provide a state of the science report. The updated studies and modeling will be used to refine the understanding of current loadings, evaluate implementation action effectiveness, and support development of a more-targeted and outcome-oriented implementation approach in the revised TMDL. Staff anticipates bringing the proposed PCBs TMDL revision before the Board for its consideration in 2030.

While Bay-wide recovery remains slow, recent studies show more-encouraging trends at smaller geographic scales around the Bay margins. Over the last decade, scientific studies have shifted our focus from the open Bay to select contaminated areas around the Bay margins where impairment is greatest, where watershed load reductions are being pursued, and where measurable recovery can be tracked over time. These areas are referred to as Priority Margin Units (PMUs). Our strategy for revisions to the PCBs TMDL will focus on accelerating measurable progress toward the Bay's recovery by updating the implementation schedule and sequencing of control actions and incorporating more-targeted PMU-scale implementation approaches. We do not anticipate revising the existing numeric targets and load allocations.

The MRP requires stormwater agencies to identify sources of PCBs to the municipal stormwater system, implement control measures to reduce or eliminate PCBs discharges, and refer potential source properties to the Water Board for further investigation and remediation. After a potential source property is referred to the Water Board, staff in the Site Cleanup Program require property owners to conduct investigations to confirm the presence of PCBs. In the last 10 years, 29 source properties have been referred to the Water Board for further investigation. Following referral, investigation and remediation of some source properties may be overseen by

other agencies, such as the Department of Toxic Substances Control. To date, staff in the Site Cleanup Program have overseen the investigation of PCBs contamination at 38 upland sites and 26 in-Bay sites, and cleanup is complete or in progress at a majority of those sites.

PCBs cleanup has been hindered by two significant challenges that Water Board staff are taking steps to overcome. The first challenge is that toxic hot spots in the Bay are not always associated with a specific property or upland discharge. For example, the Mission Creek and Islais Creek channels are identified as toxic hot spots. In those cases, staff determined that pollutants responsible for impairing the channels may originate from San Francisco's past and present discharges from its combined sewer system. The Water Board Executive Officer issued a Water Code section 13383 directive to the City and County of San Francisco to (1) investigate water quality impairment of the channels, and (2) propose actions necessary to resolve the channels' impairments. The second challenge is that many cleanup sites focus on a human health screening level for cleanup. However, the human health screening level is not protective of aquatic receptors and cannot be used to evaluate the potential for offsite discharge (e.g., via stormwater runoff or construction track out). To address this issue, Water Board staff are conducting outreach and education to environmental consultants and other regulatory agencies via coordination meetings, technical presentations, and new fact sheets. Water Board staff also work with other agencies to use our authority under the Water Code to take progressive enforcement actions, as needed, when PCBs discharges are observed.