



SECTION 4

FY 03-04 ANNUAL MONITORING PLAN & WATERSHED MANAGEMENT MEASURES

4. MONITORING PROGRAM

INTRODUCTION

The Annual Monitoring Plan contains two main elements: 1) Summary of Programmatic Monitoring Indicators (PMIs) and 2) Summary of Environmental Monitoring Measures (EMMs). The goals of the Program's monitoring program are provided within the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) Multi-Year Receiving Waters Monitoring Plan¹.

SUMMARY OF PROGRAMMATIC MONITORING INDICATORS (PMIS)

The PMIs are used to gauge how well Performance Standards are being met and control measures are being implemented. The summary (see Attachment 4-1) illustrates all existing commitments and priorities established by the Program, including ongoing activities meant to fulfill Regional Board Order Provisions C.9. "Water Quality-Based Requirements for Specific Pollutants of Concern" and C.10. "Watershed Management" of the NPDES permit. A brief capsule scope is provided for each project along with the anticipated products and expected timeframe for completion. For some projects, specifically those that are being conducted to directly respond to a specific pollutant of concern referenced in the NPDES permit, a separate one-page scope was developed and is contained in Attachment 4-2. Attachment 4-3 contains an update of the FY03-04 Copper/Nickel baseline activities planned by the Program.

SUMMARY OF ENVIRONMENTAL MONITORING MEASURES (EMMS)

The purposes of the Environmental Monitoring Measures (EMMs) are to: 1) assist the Regional Water Quality Control Board (RWQCB) in characterizing receiving water quality in urban watersheds consistent with the priorities of the Watershed Management Initiative and the SCVURPPP; 2) identify where and what type of status and trend type monitoring is appropriate; 3) recognize the need for site-specific water quality investigations to address questions that might arise during screening-level monitoring efforts; and 4) determine if control measures are having the intended effect. The main EMM activities that the Program will conduct during FY 03-04 are described in the following sections.

FY 03-04 Annual Receiving Water Monitoring Plan

The Annual Receiving Water Monitoring Plan is contained in Attachment 4-4. Table 4-1 in Attachment 4-4 was prepared consistent with the MY-RWMP². Table 4-1 includes and identifies planned receiving water monitoring activities for FY 03-04, the proposed schedule (by fiscal year quarter) to conduct the work, the rationale for the proposed item and the lead party. The information on data type utilizes a tiered monitoring approach. The approach is discussed by the RWQCB staff in its RMAS memo (February 8, 2001 Draft Monitoring Design in Regional

¹ SCVURPPP's Multi-Year Receiving Waters Monitoring Plan (MY-RWMP) was revised to respond to RWQCB staff comments a resubmitted to the RWQCB on August 5, 2002. The MY-RWMP covers a period of eight years starting with FY 02-03. Each SCVURPPP Annual Monitoring Plan is developed consistent with the framework on MY-RWMP.

² As part of the FY 02-03 work effort, the SCVURPPP is conducting a brief technical evaluation of four to five major watershed assessment approaches being used statewide and plans to discuss the feasibility and utility implementation within the SCVURPPP. Based on the evaluation, the Program intends to identify a watershed assessment approach that could be implemented in major SCVURPPP watersheds. It is the intent of the Program to closely link implementation of the assessment approach with the ongoing implementation of My-RWMP. It is the Program's intent to consider the results of the evaluation of the various assessment approaches and the linkage with MY-RWMP as part of developing the FY 04-05 Annual Monitoring Plan.

Board-lead Pilot Watersheds, Spring 2001) and includes the following monitoring categories: screening level, detailed investigation, and status and trends.

The locations and frequencies of sampling events scheduled during FY 03-04 are shown in Table 4-2 of Attachment 4-4. Site maps detailing sampling locations in the Adobe Creek and San Thomas Aquino Creek watersheds are provided in Figures 4-1 and 4-2 of Attachment 4-4. Table 4-3 of Attachment 4-4 provides a description of data parameters and analytical methods to be used in the monitoring plan.

Sediment Assessment

Beginning in FY 03-04, the Program will be conducting a limiting factors analysis and sediment management practice assessment in Stevens Creek watershed to determine if the creek is impaired by sediment production from anthropogenic activities. The Work Plan (Attachment 4-5) was previously submitted to RWQCB staff on August 30, 2002 in fulfillment of the SCVURPPP NPDES Permit Order No. 01-024 Provision C.9.f.iii paragraph two.

The Sediment Assessment work plan contains two separate phases. Phase I is scheduled for FY 03-04 and includes conducting a limiting factors analysis and sediment management practices assessment. Phase II includes conducting a rapid sediment budget and is scheduled for the subsequent year. Phase II will only be conducted if Phase I study results indicate that excessive sediment from anthropogenic sources is impairing beneficial uses in the watershed.

A Watershed Analysis Ad Hoc Task Group (Watershed Analysis AHTG), which was previously established to develop the work plan, will review products developed in Phase I and make recommendations for Phase II (or other future studies) and potential management actions. The Watershed Analysis AHTG recommendations will be reviewed and approved by the Management Committee.

Trash Work Plan

To fulfill a FY 01-02 Continuous Improvement item and actions within the Program's Multi-Year Receiving Waters Monitoring Plan, the Program prepared a Trash Work Plan (Attachment 4-6) that identifies a strategy for addressing trash problem areas that occur in urban streams and waterways. The Work Plan was developed in response to the November 14, 2001 RWQCB 303(d) Staff Report that proposed all urban creeks, lakes and shorelines be placed on a preliminary or "monitoring" list due to the threat of trash impairment to water quality.

The results and implementation efforts over the next two years will be documented and provided within the Program's and Co-permittee's Annual Reports. The information is intended to assist Regional Board staff in their assessment of creeks and more specifically, stream reaches (for potential trash impairment) by the next 303 (d) listing cycle; which is expected to begin in the Spring of 2005.

The Trash Work Plan includes the following objectives: 1) Document and evaluate existing trash management practices implemented by municipalities and agencies within the Program's jurisdiction; 2) Develop a strategy to conduct trash evaluations in creeks; 3) Assist municipalities in identifying the high priority trash problem areas and sources of trash; 4) Provide guidance on the implementation of potential control measures and evaluation criteria needed to address problem areas; and 5) Develop a standardized reporting format for documenting and evaluating

trash management and monitoring activities. The FY 03-04 tasks focus on further documentation and evaluation of existing management practices; the identification of potential management actions; the further development of trash evaluation tools and the development of standardized format for reporting and evaluating trash management practices. The FY 04-05 tasks focus on the development of a monitoring strategy; implementation of trash evaluations and the identification and implementation of trash management practices.

Monitoring Program Activities- PCBs

The United States Environmental Protection Agency (USEPA) listed San Francisco Bay as impaired by PCBs in the 1998 and 2002 303(d) lists. Both 303(d) lists designate the TMDL priority for PCBs (in San Francisco Bay) as high. Provision C.9.e of the Program's NPDES permit requires the Program to develop a control program for PCBs.

Previous Work

During the past three years, the Program has provided leadership to Bay area stormwater programs in addressing PCBs. This has included coordinating efforts to characterize the distribution of PCBs concentrations in Bay area watersheds. The Program has also performed PCBs case studies in selected areas with elevated concentrations of PCBs and coordinated similar efforts by other Bay area stormwater agencies. The case studies are aimed at identifying PCBs sources and developing controls. As part of these efforts, the Program has led a work group of representatives from the BASMAA Monitoring Committee and Regional Board staff. The work group has met periodically to facilitate information sharing, coordination of field activities and regional planning. All of the Program's efforts have been outlined in periodic work plans. The overall goal has been to work with other stakeholders to develop data needed for the San Francisco Bay PCBs TMDL.

Watershed Characterization

Under the Program's leadership, several Bay area stormwater management agencies collaborated to characterize the distribution of PCBs and other pollutants in stormwater conveyance embedded sediment in Bay area watersheds. The second year of work was completed during FY 01-02 (*Final Report, Joint Stormwater Agency Project to Study Urban Sources of Mercury, PCBs and Organochlorine Pesticides, Kinnetic Laboratories, Inc., April 2002*). An analysis of both years of data revealed that median PCBs concentrations normalized to fines (less than 62.5 microns) were over 100 times higher in samples from urban sites compared to open space sites. Significant differences in normalized concentrations of PCBs were not found between industrial and residential/commercial sites. Planning-level estimates of urban runoff PCBs loads from the surrounding watersheds to San Francisco Bay were developed. The two-year study provided important data on the distribution of PCBs among land uses in Bay area watersheds and identified elevated areas.

PCBs Case Study

The Program and the City of San Jose performed a PCBs case study during FY 01-02 (*Case Study Investigating Elevated Levels of PCBs in Storm Drain Sediments in San Jose, California, April 15, 2002*). The investigation consisted of a field sampling program, researching stormwater-related violations and researching current and historical land uses in four industrial/commercial areas in San Jose. One of these areas, the Leo Avenue drainage, had

consistently high levels of PCBs in storm drain sediments. A composite sediment sample from an adjacent railroad track right of way contained PCBs, suggesting that the right of way may be a source area. Other potential sources of PCBs were historical activities at the properties adjacent to Leo Avenue. The case study work was an effective first step in identifying PCBs sources and developing control measures.

PCBs Work Plans and PCBs Case Study Guidance

The Program prepared two PCBs work plans during FY 01-02. The first work plan (*Control Program for PCBs, March 1, 2002 Submittal Per Provision C.9.e.iv. of SCVURPPP's NPDES Permit*) includes a preliminary list of known sites where PCBs were used, stored and/or released in Santa Clara County and a preliminary table summarizing PCBs control options. The second work plan (*Control Program for PCBs, July 1, 2002 Work Plan, July 1, 2002*) included a refined table summarizing PCBs control options, a schedule for continued case study work at the Leo Avenue drainage and two new areas in Santa Clara County, and a list of potential tasks for the project work group. The Program also recently prepared an updated guidance to assist stormwater agencies performing PCBs case studies during FY 02-03 (*Guidance for Performing FY 02-03 San Francisco Bay Area Stormwater Program PCBs Case Studies, September 20, 2002*). The guidance outlines case study objectives, tasks, locations and schedules.

Current Activities

The Program continues to perform activities in support of the PCBs TMDL. Currently, the Program is:

- Performing PCBs case studies in two new areas known to have elevated PCBs in embedded storm drain sediments and follow-up work in the Leo Avenue area;
- Coordinating similar case studies by other Bay area storm water programs; and
- Performing a feasibility study on PCBs storm water control measures in parallel with the case studies.

It should also be noted that the Program is testing sediment samples from the bottom of the Lower Silver and Lower Penitencia Creek watersheds for PCBs and other pollutants of concern during its FY 02-03 surface water monitoring program. Similar bedded sediment samples from the bottom of Adobe and San Thomas Aquino Creek watersheds will be tested for PCBs and other pollutants of concern during FY 03-04.

FY 03-04 Activities

During FY 03-04, the Program will continue to perform activities in support of the PCBs TMDL.³ Program staff will:

- Perform follow-up work which emphasizes continuing the process of identifying and

³ The Program is also testing sediment samples from the bottom of the Lower Silver and Lower Penitencia Creek watersheds for PCBs and other pollutants of concern during its FY 02-03 surface water monitoring program. Similar bedded sediment samples from the bottom of Adobe and San Thomas Aquino Creek watersheds will be tested for PCBs and other pollutants of concern during FY 03-04.

addressing controllable sources of PCBs in urban runoff, if any. This work will be scoped after the results of the FY 02-03 case study work and stormwater control measures feasibility study (once they become available). This work may be performed in collaboration with other Bay area stormwater management agencies and specific Co-permittees.

- Continue to attend PCBs TMDL-related stakeholder, Clean Estuary Partnership (CEP), Regional Monitoring Program (RMP) and work group meetings; and represent BASMAA on the CEP PCBs work group. As appropriate, the Program will review and comment on related documents prepared by the CEP, RMP and Regional Board staff.

Monitoring Program Activities – Polynuclear Aromatic Hydrocarbons

Polynuclear Aromatic Hydrocarbons (PAHs) are not 303(d) listed, but are on the 2002 “Monitoring List” for San Francisco Bay. The Program had planned to analyze archived embedded storm drain and creek sediment samples for PAHs. These samples were archived during last year’s regional survey for mercury, PCBs and chlorinated pesticides. However, an internal communication error at the project laboratory resulted in inadvertent disposal of the samples before analysis could be performed. It should be noted that the Alameda County Clean Water Program has analyzed PAHs in similar sediment samples collected over a two-year period in Alameda County. This data could be extrapolated to other parts of the Bay area to develop rough characterization and loading estimates.

The Program is testing sediment samples from the bottom of the Lower Silver and Lower Penitencia Creek watersheds for PAHs and other pollutants of concern during its FY 02-03 surface water monitoring program.

FY 03-04 Activities

During FY 03-04, sediment samples from the bottom of Adobe and San Thomas Aquino Creek watersheds will be tested for PAHs and other pollutants of concern. The Program will also work with other Bay area dischargers and RWQCB staff through the CEP and RMP to coordinate and plan any future PAHs monitoring activities. Agreed upon activities will be incorporated into the Program’s work plans as appropriate.

Monitoring Program Activities – Chlorinated Pesticides

USEPA listed San Francisco Bay as impaired by dieldrin, chlordanes and DDTs in the 1998 and 2002 303(d) lists. Both 303(d) lists designate the TMDL priority for dieldrin, chlordanes and DDTs in San Francisco Bay as low. A letter dated December 6, 2002 to the State Water Resources Control Board (SWRCB) from the Bay Area Clean Water Agencies (BACWA) requested that the SWRCB move dieldrin, chlordanes and DDTs from the 303(d) list to the “Monitoring List”. BACWA believes that the original rationale for listing these chlorinated pesticides in San Francisco Bay was inadequate, and that new information developed since 1999 further supports removal of these compounds from the 303(d) list. This new information includes studies on pollutant concentrations in San Francisco Bay fish (1997 data) and local fish consumption; and data associated with the California Toxics Rule and the State Implementation Policy. At a recent conference held in Sacramento (California Water Institute, December 12 and 13, 2002), Dr. Jay Davis of the San Francisco Estuary Institute (SFEI) presented a comparison of more recent data on concentrations of pollutants in fish tissue (2000 data) to screening

values. Concentrations of chlordanes never exceeded screening values. Only nineteen percent of samples analyzed for dieldrin and four percent of samples analyzed for DDTs exceeded screening values.

The Program previously participated in a regional study that tested embedded storm drain and creek sediment samples for chlorinated pesticides (and mercury and PCBs). It should also be noted that the Alameda County Clean Water Program has analyzed similar sediment samples collected in Alameda County for chlorinated pesticides.

The Program is also testing sediment samples from the bottom of the Lower Silver and Lower Penitencia Creek watersheds for chlorinated pesticides and other pollutants of concern during its FY 02-03 surface water monitoring program.

FY 03-04 Activities

Sediment samples from the bottom of Adobe and San Thomas Aquino Creek watersheds will be tested for chlorinated pesticides and other pollutants of concern during FY 03-04. The Program will also work with other Bay area dischargers and RWQCB staff through the CEP and RMP to coordinate and plan any future TMDL-related chlorinated pesticides monitoring activities. Agreed upon activities will be incorporated into the Program's work plans as appropriate.

Monitoring Program Activities – Dioxin-like Compounds

The United States Environmental Protection Agency listed San Francisco Bay as impaired by certain dioxin-like compounds from each of the three closely related families in the 1998 and 2002 303(d) lists. Both 303(d) lists designate the TMDL priority for dioxins and furans as low, and a schedule for performing a TMDL has not been determined by Regional Board staff.

There is considerable controversy regarding the potential threats to the environment and human health in the Bay area by dioxins and furans. It is our understanding that the California State Water Resources Control Board (SWRCB) and the Regional Board opposed the 1998 listing of dioxins and furans. More recently, a letter dated December 6, 2002 to the SWRCB from the Bay Area Clean Water Agencies (BACWA) requested that the SWRCB move dioxins and furans from the 303(d) list to the "Monitoring List". BACWA believes the original rationale for listing dioxins and furans in San Francisco Bay was inadequate, and that new information developed since 1999 further supports removal of these compounds from the 303(d) list. This new information includes studies on pollutant concentrations in San Francisco Bay fish and local fish consumption, and data associated with the California Toxics Rule and the State Implementation Policy.

Previous Work

One year ago, the Program submitted a work plan to address dioxins and furans (*Control Program for Dioxin-like Compounds, March 1, 2002 Submittal per Provision C.9.e.i. and ii. of SCVURPPP's NPDES Permit*). The work plan specified reviewing readily available data on methods used to characterize dioxin-like compounds in stormwater runoff and surface waters and concentrations typically found in the Bay area and other areas. The results of the review were documented in a technical memorandum submitted to the Regional Board (*Dioxins Information Review, October 1, 2002*). The review found that dioxins and furans have been found in urban runoff in the Bay area and other locations, and in sediments in the Bay and other

estuaries. It was concluded, however, that existing data is not sufficient to characterize the distribution in urban runoff among Bay area land uses or calculate loadings to the Bay. In the Bay area, combustion-related air emissions may currently be the major source of dioxins and furans to the environment and stormwater runoff. Reservoirs of dioxins and furans associated with activities no longer practiced in the Bay area (i.e., medical waste incineration and municipal garbage burning) may also exist.

Current Activities

In accordance with the recommendations of the October 1, 2002 information review, the Program had planned to analyze archived embedded storm drain and creek sediment samples for dioxins and furans. These samples were archived during last year's regional survey for mercury, PCBs and chlorinated pesticides. However, an internal communication error at the project laboratory resulted in inadvertent disposal of the samples before analysis could be performed. It should be noted that the Alameda County Clean Water Program is currently analyzing similar archived sediment samples collected in Alameda County for dioxins and furans. The Program intends to look at the possibility of extrapolating the Alameda County data to other parts of the Bay area to develop rough characterization and loading estimates.

The Program is currently collaborating with other Bay area stormwater management programs to develop a "synthesis" document on dioxin-like compounds. The synthesis document will summarize the current state of knowledge regarding dioxin-like compounds in relation to stormwater runoff. The Program anticipates that the synthesis document will be completed by the end of FY 02-03.

In accordance with Permit Provision C.9.e.iii, the Program has prepared a Dioxin-Like Compounds Action Plan (provided within Attachment 4-7). The Plan begins to identify control measures and/or management practices to eliminate or reduce discharges of dioxin-like compounds conveyed by urban runoff conveyance systems.

FY 03-04 Activities

During FY 03-04, the Program will work with other Bay area dischargers and Regional Board staff (through the CEP and RMP) to coordinate and plan any future TMDL-related dioxins and furans monitoring activities. Agreed upon activities will be incorporated into the Program's work plans as appropriate. In addition, the Program will work with the BASMAA Monitoring Committee to establish BASMAA's strategy for addressing dioxins and furans and present this information to the CEP Technical Committee; attend relevant stakeholder, CEP, RMP and work group meetings; and review and comment on any related documents prepared by the CEP, RMP and Regional Board staff (as appropriate).

Regional Collaborative Monitoring Efforts

Regional Monitoring Program for Trace Substances

In accordance with the Program's NPDES permit, the Program contributes approximately \$156,000 annually to the Regional Monitoring Program for Trace Substances (RMP), which monitors contaminant concentrations in water, sediments, and fish and shellfish tissue in San Francisco Bay and the Delta. The San Francisco Estuary Institute (SFEI) administers the RMP. This funding is in addition to funding provided by the three South Bay POTWs, who are also Co-

permittees, to the SFEI. Program staff participates on the RMP Steering Committee, Technical Review Committee and Sources, Pathways and Loading Work Group.

Bay Area Stormwater Management Agencies Association (BASMAA)

The Program is a member of BASMAA, a consortium of seven San Francisco Bay Area municipal storm water programs. The goal of BASMAA is to promote regional collaboration on developing consistent monitoring and watershed assessment methodologies and to facilitate efficient use of public resources. The Program participates in the following BASMAA activities: Executive Board, Monitoring Committee, New Development Committee, Public Information/Participation Committee and Operational Permits Committee.

Clean Estuary Partnership

On August 6, 2001, a Memorandum of Understanding (MOU) regarding development of: 1) a Water Quality Attainment Strategy for San Francisco Bay-Delta and Tributaries and 2) TMDLs for 303(d) pollutants (including mercury), was entered into by the Regional Board, BACWA and BASMAA. This group is referred to as the Clean Estuary Partnership (CEP). As a member agency of BASMAA, the Program assisted in developing and funding potential projects for the Bay TMDLs. During FY 02-03, Program staff has been participating in CEP Executive Board and CEP technical committee meetings.

FY 03-04 Activities

The Program will continue to participate in various RMP committees and work groups; participate in the CEP depending on the availability of resources; and collaborate with BASMAA on regional stormwater issues.