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SUPPLEMENTAL REPORT OF THE 1999 BUDGET ACT
ITEM 3940-001-0001

FINAL REPORT:
CORE REGULATORY PROGRAMS' PERFORMANCE MEASURES

I. Introduction

The Legislature's Supplemental Report Language to the FY 1999/00 Budget Act directed the State Water Resources Control Board (State Board) to "develop performance measures for its core regulatory water quality program (NPDES, Chapter 15, Non-Chapter 15, and Stormwater programs) that relate directly to water quality outcomes, pursuant to the requirement of Chapter 418, Statutes of 1993 (SB 1082, Calderon) for performance measures." The Supplemental Report Language directed the State Board to report to the Legislature on these measures in a preliminary report (submitted April 10, 2000), and a final report by January 1, 2001. This report constitutes the final report.

Executive Office staff of the State Board worked with the Regional Water Quality Control Board (Regional Board) Executive Officers, Assistant Executive Officers, State Board Division/Office management, and core regulatory programmatic groups, over a 14-month period, to review the current measures used in these programs and to develop new water quality-related performance measures. Measures were selected to establish links between the core program activities and resultant water quality improvements. They provide the best assessment of core regulatory program effectiveness in protecting beneficial uses related to water quality, given the current state of data availability and data/information management capability.

This report describes the development, definition, proposed monitoring, and reporting of these measures. It also describes significant related work being performed in other performance measurement/environmental indicator efforts that will enhance and perhaps modify these measures in the future. Most notably, these activities involve: (1) the July 2000 Cal/EPA Strategic Vision and resulting effort to establish agency-wide environmental indicators; (2) the current State and Regional Boards' strategic planning effort using a Balanced Scorecard Approach; (3) the recommendations of the Assembly Bill (AB) 982 stakeholder advisory group (established by AB 982, Ducheny, Statutes of 1999, Chapter 495) on ambient water quality monitoring; and (4) the State and Regional Boards' progress in improving their data management and reporting system, System for Water Information Management (SWIM).

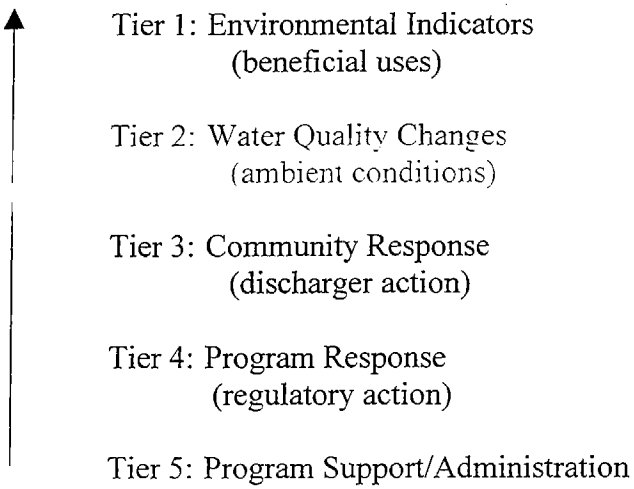
II. Background

The State and Regional Boards use a number of performance measures to manage programs and report progress. The measures are used to evaluate personnel, program, federal grant, Strategic Plan, and environmental performance. Numerous measures are reported regularly, both internally and externally.

To organize the measures used currently, and to put the Boards' overall measurement work into a coherent framework, the Boards researched existing performance measure models including the U.S. Environmental Protection Agency's Hierarchy of Core Performance Measures and the Chesapeake Bay Program's Hierarchy of Indicators. Staff developed a custom model, similar to these, that shows the hierarchy and relationship of water quality and efficiency measures – with overarching water quality measures at the top, down to more detailed sublevels of performance. At the highest level, Tier 1, environmental indicators are used to measure the health of the environment, or more specific to the State and Regional Boards, the attainment of the beneficial uses of water. The second tier (Tier 2 – Water Quality Changes) measures actual changes to ambient water quality which supports attainment of beneficial uses. The third tier (Tier 3 – Community Response) measures responses, or actions and effectiveness of the regulated community. The fourth tier (Tier 4 – Program Response) measures regulatory responses of the Boards and includes the traditional program output measures. The fifth tier (Tier 5 – Program Support/Administration) measures efficiency and effectiveness of program functioning.

A summary of the major steps in the tiered model is shown in Figure 1.

Figure 1. Performance Measures Hierarchy



Each tier represents a significant and major part of the effort to improve water quality or represents the effects of the lower level efforts. Work represented in

the bottom tiers is necessary to support the structure for improvement; individual efforts in the lower tiers sum or combine in the upper tiers.

For example, in the NPDES program, it is important to negotiate efficiently a federal workplan, obtain the offered federal funds, and put the money into the State and internal budgeting system, as soon as possible. Tier 5 measures would relate to these tasks. The NPDES staff are then charged with efficiently considering permit applications, inspecting the permit holders and responding to requests from the regulated community (Tier 4). Once the permit is issued, the next level of water quality performance measures are those related to the discharger such as compliance with the permit, and performing the required sampling and monitoring (Tier 3). The effect of the NPDES staff's efforts, and those of the permitees, result in changes to water quality. These changes might be decreases in harmful constituents, increases in needed oxygen levels, etc. (Tier 2). If these incremental efforts are successful, beneficial uses (drinking water sources, aquatic habitat, public consumption of fish/shellfish, etc.) are protected.

As individual staff efforts feed into each water quality program, which in turn produce community responses, the successes and measures of the individual actions become less distinct. Ambient water quality sampling for sediment at the level of Tier 1 or 2, for instance, cannot easily distinguish between a result of a construction stormwater permit for sediment and that of a nonpoint source program effort to control the same type of water quality problem from a vineyard. The higher the level, the more difficult to tie the achievement to individual programs.

Previously reported measures have largely represented Tiers 3 through 5. Initial measures, adopted in response to the requirements of SB 1082 were developed to provide information on the efficiency and effectiveness of the major Board processes. These measures (timeliness of interactions with permit applicants, water rights holders, and financial applicants, etc.) primarily represent Tier 4. Additional workplan and grant measures, which traditionally focus on effective use of available resources, numbers of permits issued, number of cases closed, and contracts/financial obligations, are also focused on these lower tiers. The 1997 Board strategic planning process attempted to identify new Tier 1, 2, or 3 measures that would provide "outcome" measures to complement the existing "output" measures in these lower tiers. While there was some success, these efforts were hampered by limited data management capabilities, and fragmented and incomplete water quality monitoring data.

III. Core Regulatory Program Performance Measures Selection Process

State and Regional Board staffs at all levels of the organizations participated in a number of sessions to develop the new measures for the four core regulatory programs. Initial sessions were held with the Regional Board Executive Officers and selected State Board managers. The Regional Board Assistant Executive

Officers then further developed and refined potential measures. Roundtable groups, composed of front line staff and managers in each of the four core regulatory programs, were asked to evaluate the proposals and to develop any needed modifications, including proposals for data base changes, etc.

The groups were asked to identify clear, specific, available (or near-future) data that could be used to measure the water quality progress of the NPDES, Chapter 15, Non-Chapter 15, and Storm Water programs.

IV. Core Regulatory Program Performance Measures

The final core regulatory program performance measures are presented in Table 1 (attached) and discussed below. The selection represents a range of measures – from an overall water quality measurement of these programs' effectiveness to direct productivity measures (Tier 1 to 4). The measures were selected to cover the breadth of impacts of the programs and to provide representative coverage of core regulatory program activities.

Overall Core Regulatory Program Measure

Because all four of these core regulatory programs are relevant to the degree of protection afforded beneficial uses, an overall measure was developed that sums the effectiveness of these primary programs. Measurement of beneficial use protection (Tier 1) will be through measurement of:

Total number of pollution episodes with beneficial use impacts resulting from core regulatory program discharges including:

- Type of beneficial uses impacted (number of beach postings and closures, fish kills, drinking water supply closures, shellfish closures, other impacts)
- Source of pollution impact (sewage spill, chemical spill, storm water event, unknown, etc.)

This is an important measure with intense public interest and is a reflection of the overall performance of the Boards' regulatory programs. While not all core regulatory program spills and other water pollution events involve pollution of waterways and beaches, or substances that would impact these beneficial uses, this measure captures both the significant impacts to the high priority uses and issues of significant public concern. The reported incidents may not be directly or exclusively attributable to an individual core regulatory program or regulated discharger, but the core regulatory programs form the key components of the regulatory structure.

Data related to some beneficial use impairments are gathered by others but tracked by the State Board as part of this measure of core regulatory program performance. For example, local county health departments compile data on beach closures. This information directly relates to the performance of several

core regulatory programs, as closures often result from sewage spills or storm water runoff. The State Board also uses data maintained by the Department of Health Services on shellfish closures, as it relates to the NPDES, Non-Chapter 15, and storm water programs, and on municipal well water quality, as it relates to the Chapter 15 and other groundwater-related programs.

The Boards are currently tracking information on some of these incidents in a Sanitary Sewer Overflow (SSO) and Spill Data Management System databases. The SSO database will be incorporated into SWIM with additional features to allow reporting of this measure during the second phase of SWIM development. It is anticipated that full reporting of this measure will be achievable in FY 2002-03.

Common Measures for Each Program (NPDES, Non-Chapter 15, Storm Water, and Chapter 15)

Several measures will be reported for each of these core regulatory programs. These measures address the Regional Boards' inspections of regulated facilities to determine compliance and deter non-compliance, the Regional Board response to identified non-compliance, and the compliance status of the regulated facilities. Regional Boards issue Waste Discharge Requirements (WDRs) to protect the beneficial uses of waters of the State. Compliance with the provisions of WDRs, therefore, represents a measure of the level of protection of the beneficial uses of receiving waters. These measures represent somewhat indirect water quality relationships, but are directly related to the individual program performance.

Inspections

- Percent of regulated facilities inspected by Board staff
  - San Francisco Bay Regional Board storm water program only: Measure includes industrial and construction sites inspected by municipal storm water permittees
- Percent of workplan commitment inspections completed

The Boards consider on-site inspections an important compliance assistance activity. Inspections provide visual observation of conditions and face to face discussion of problems and solutions. It is important to document the condition of all facilities to ensure compliance. Often, small problems are identified during inspections that prevent the occurrence of much larger, more serious violations. Inspections enhance the regulatory presence and serve as a major deterrent to non-compliance.

Response to Non-Compliance

- Percent of significant violations resulting in enforcement action
- Percent of significant violations resolved (i.e., return to compliance or in compliance with Board order)

Enforcement must be consistent, predictable, and fair. Enforcement efforts must be prioritized to address the worst violators and environmental harm. The State Board has improved its data management system so that tracking the State and Regional Boards' response to non-compliance can be monitored and evaluated. The State Board is also revising its Water Quality Enforcement Policy to define more clearly significant violations and the appropriate response.

Compliance

- Percent of regulated facilities without significant violations

Compliance rates are an overall measure of the success of the regulatory programs in limiting the discharge of pollutants so that water quality is protected. Compliance rates indicate the effectiveness of enforcement, inspections and other compliance assurance activities.

As California's population increases, so will the volumes of municipal wastewater requiring treatment. This will tax existing collection and treatment systems. To give an overall representation of the status of these programs, this measure will be graphically depicted in comparison with (1) the population and (2) the volume of treated wastewater discharged. By doing so, the reviewer can see how well beneficial uses are being protected in light of an increasing population, and the overall volume of treated wastewater produced by that population.

Data for compiling these measures are currently tracked in the SWIM and System for Information on Non-Compliance (SINC) databases. These databases will be merged into SWIM during FY 2000-01. Because the full suite of enforcement tools is not available for Federal facilities, data for those dischargers will be reported separately. Reporting for these measures will begin in FY 2000-01.

Specific Measure for the NPDES Program

A measure specific to the NPDES program was selected to depict the magnitude of the program and its resultant water quality improvement impact:

Mass of Metals Removed by Wastewater Treatment

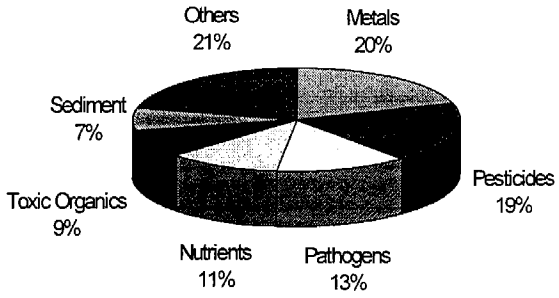
- Mass of metals in municipal wastewater removed by treatment (largest representative municipal NPDES dischargers)

Like the measure for compliance (above), this measure will be reported with the volume of treated municipal wastewater discharged and State population data. Given that municipal discharges to surface waters are directly related to population growth and are characteristic of the types of pollutants typically found in surface water discharges regulated under other core regulatory programs, these measures also are good indicators of the effectiveness of these programs in response to increasing environmental pressures.

The goal of the NPDES program is to protect the beneficial uses of the State's surface waters by regulating the discharges to prevent pollution and nuisance. An important component of the program is the treatment of municipal wastewater to remove toxic pollutants, so the discharge meets the effluent limits designed to protect the beneficial uses. Metals are the most prevalent pollutant causing impairment of surface waters (see Figure 2). The reduction in the amount of metals discharged to the State's waters as a result of regulating discharges under this program is an important indicator of the program's success in restoring impaired waters and protecting good quality waters from impairment.

Figure 2

Most Prevalent Pollutants Causing Impairments of Assessed Surface Waters



Data for the largest municipal dischargers are available and are currently tracked in SWIM. The State and Regional Board program staff will select representative facilities on which to measure and report performance. Reporting for this measure will begin in FY 2000-01.

Specific Measures for the Chapter 15 Program

Many of the measures previously discussed focus on potential surface water impairments. Discharges from Chapter 15 facilities typically impact ground water. To evaluate the performance of the Chapter 15 Program in protecting ground water beneficial uses, two measures were selected specifically for that program:

Compliance

- Percent of sites with confirmed releases that have implemented an approved Evaluation Monitoring Program or Corrective Action Plan

Landfill Closures

- Percent of unlined landfills under closure requirements

In most cases, long timeframes are required to restore polluted ground water. The first measure reflects the interim step of initiating cleanup through implementation of an approved Evaluation Monitoring Program or Corrective Action Plan.

The second Chapter 15-specific measure addresses the water quality problem posed by continued operation of unlined landfills in the State. The Solid Waste Assessment Test (SWAT) Program (conducted from 1986 to 1995) showed that most of the unlined or non-composite lined landfills have leaked waste constituents. Getting these facilities under appropriate closure requirements to minimize further leakage is one of the program goals and an indirect water quality measure.

The Chapter 15 Program has a database with fields for tracking these measures. Initial efforts will have to be made to update and verify the accuracy of the data during FY 2000-01. Reporting for this measure will begin in FY 2001-02.

V. Related Activities

The core regulatory program performance measures presented in this report will be refined, enhanced, and expanded as progress is made in several related activities. These activities, discussed below, are Cal/EPA's Strategic Vision and environmental indicators project, the State and Regional Board's strategic planning process, and the AB 982 ambient monitoring program. These activities are shown in relation to the performance measures hierarchy in Figure 3 to help illustrate their relevance to the further development of measures.

Cal/EPA's Strategic Vision and Environmental Indicators

Cal/EPA's Strategic Vision (Vision) was released in July 2000. The Vision documents Cal/EPA's vision and goals, and commitment to establishing agency-wide environmental indicators. The Vision was developed with the input from executives and staff of all of the various Cal/EPA Boards, Departments and Offices (BDOs). Each of Cal/EPA's BDOs are developing individual Strategic Plans to achieve the applicable strategies and objectives outlined in the Vision.

As outlined in the Vision, Cal/EPA is undertaking a major initiative to develop environmental indicators which directly measure the health of the environment and success at meeting identified environmental objectives. This is a collaborative effort by an Environmental Indicators Workgroup that is led by the Office of Environmental Health Hazard Assessment (OEHHA) and involves all the Cal/EPA BDOs, other State and federal agencies, and stakeholders. The environmental indicators will be used to measure the current state of the

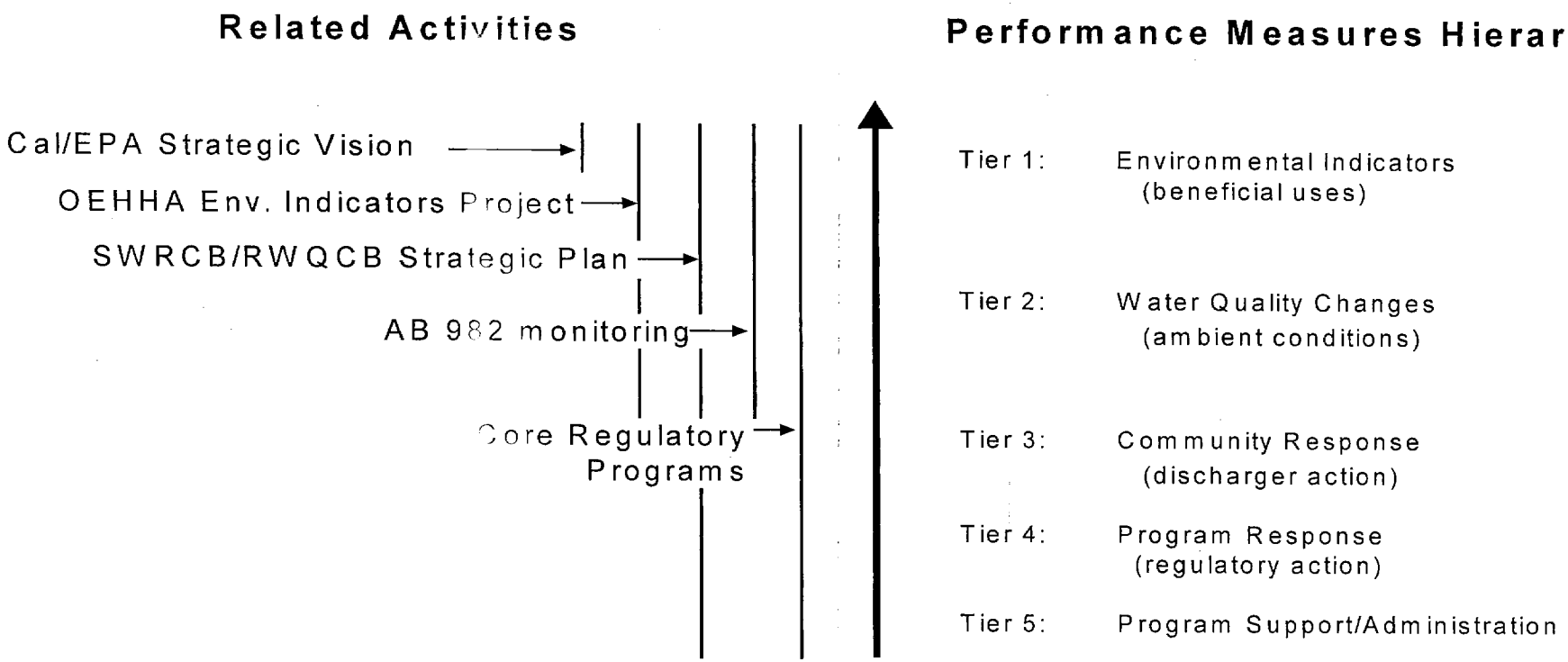


Figure 3

Performance Measure Hierarchy and Related Activities

environment and progress in meeting environmental objectives. These indicators will be instrumental in helping the BDOs assess the outcome of their efforts, and to design new and better strategies to deal with existing or emerging problems.

While in many cases, these environmental indicators will replace the traditional outputs as a measure of performance, specific programs will continue to evaluate and monitor performance at several levels. Development of these environmental indicators is underway and anticipated to be complete by August 2001.

State and Regional Boards' Strategic Planning Process

The State and Regional Boards are updating their Strategic Plan within the Cal/EPA framework. The Plan will use the Balanced Scorecard Approach to establish the goals, objectives and water quality-based outcome measures to evaluate the Boards' success. The measures developed using this Strategic Plan Approach will closely link strategies to indicators and provide measurement of cross-program efforts to protect and enhance the beneficial uses of water.

The core regulatory program performance measures developed over the last year will be utilized for monitoring specific contributions to water quality improvements through the Boards' work in those programs. These core measures will be further tied to achievement of the strategic objectives, outlined in the Boards' new Strategic Plan. The Boards are targeting an April 2001 adoption date for their new Strategic Plan.

AB 982 Ambient Monitoring Program

The Boards' ability to tie collective program performance to water quality outcomes has, in many cases, been hampered by fragmented water quality monitoring data. AB 982 requires the State and Regional Boards to develop a proposal for a statewide, comprehensive Surface Water Ambient Monitoring Program (SWAMP). The State Board convened a Public Advisory Group in February 2000 to provide broad stakeholder input into the AB 982 monitoring proposal. The State Board also convened a Scientific Advisory Group to review the technical and scientific aspects of the proposal. State Board staff incorporated recommendations from the two advisory groups into the monitoring proposal. The State Board will submit a report on these efforts to the Legislature as required by AB 982. The SWAMP, when implemented, will provide substantially more water quality information for the Boards to identify impacts on beneficial uses, locations of polluted sites, areal extents of pollution, and trends in water quality. Additional ambient monitoring data will allow more advanced scope and types of water quality analysis. This will in turn open the door for more accurate or comprehensive core regulatory program measures.

VI. Reporting Mechanisms

The Boards have made significant improvements in data management capabilities over the last several years. An improved system, when completed, will allow better tracking and reporting of program performance and water quality trends. In November 1999, the Boards put SWIM into production. SWIM replaced a legacy system and provided a modern database platform. The Boards have proposed an aggressive time frame for analysis, design, and development of SWIM Phase II, a comprehensive water quality data management system. Full development and deployment is scheduled for July 2003. The Feasibility Study Report for SWIM Phase II was submitted to the Department of Information Technology and the Department of Finance in April 2000. SWIM Phase II entails a significant enhancement and expansion of SWIM Phase I to incorporate all of the Boards' water quality programs and to automate core business processes including:

- Permitting
- Compliance and enforcement
- Discharger reporting
- Complaint, spill, beach closure reporting and tracking of response
- Water quality monitoring
- Watershed analysis and management

The new system will have two components: a program information/reporting system and a Geographic Information System (GIS). The program information/reporting component will include data on sites and activities for the various State and Regional Board regulatory programs, water quality-related information from monitoring programs and other sources, features for electronic submittal of data and reports by dischargers and others, and an interface to water rights data. It will also provide tools to improve consistency and efficiency of key processes. The GIS component will provide data analysis and management tools currently not available. Geo-located water quality and facility data displayed with standard GIS layers will greatly enhance the Boards' water quality data analysis and reporting. Internet access to SWIM will facilitate multiple or cross media analysis, and general public access to water quality data.

VII. Schedule and Conclusion

The State and Regional Boards are committed to sharing performance and water quality data with stakeholders through a variety of reporting mechanisms. Some of the highest level environmental indicators developed for Cal/EPA that provide information on the overall health of the environment will be reported in the State of the Environment Report published by the Governor's Office of Planning and Research. Cal/EPA, with input from all of its BDOs, will detail the data sources and analyses used to develop the indicators in an Environmental Indicators Report. Cal/EPA will link the BDO Strategic Plans with the Strategic Vision

through an Agency-wide Synthesis on the Internet. The State and Regional Boards will provide performance and environmental indicator data for all of these efforts. Additionally, the measures identified in this Legislative report will be updated annually on the State Board's Internet site.

Table 1 (attached) shows the anticipated timeframe for reporting on the selected core regulatory program performance measures.

Table 1

Statewide Core Regulatory Programs Performance Measures

Tier	Measured Activity	Performance Measure	Timeframe for Reporting
		Overall Core Regulatory Programs Measure	
1	Beneficial Use Protection	Total number of pollution episodes with beneficial use impacts resulting from core regulatory program discharges including: • Type of beneficial uses impacted (# of beach postings and closures, # of fish kills, # of drinking water supply closures, # of shellfish closures, other impacts) • Source of pollution impact (sewage spill, chemical spill, storm water event, unknown, etc.)	FY 2002-03
		Measures for Each Program (NPDES, Non-Chapter 15, Storm Water, and Chapter 15)	
4	Inspections	Multi-part measure: • Percent of regulated facilities inspected by Board staff (# facilities inspected/total # facilities)[1] • Percent of workplan commitment inspections completed (# inspections completed/# workplan inspections)	FY 2000-01 FY 2000-01
4 3	Response to Non-Compliance	Multi-part measure:[2] • Percent of significant violations[3] resulting in enforcement action[4] (# significant violations with enforcement actions/# significant violations) • Percent of significant violations resolved (i.e., return to compliance or in compliance with Board order) (# significant violations resolved/# significant violations)	FY 2000-01 FY 2000-01
3	Compliance	• Percent of regulated facilities without significant violations[3] (# facilities without significant violations/total # facilities)[5]	FY 2000-01

1 In addition, for the Region 2 storm water program only: Percent of industrial and construction sites inspected includes those inspected by municipal permittees (# inspections/total # industrial facilities and construction sites); will be footnoted as such in reports.

2 Federal facilities will be reported separately.

3 Will be defined by revised Enforcement Policy.

4 Enforcement actions include informal (e.g., verbal warning, NOV, and staff enforcement letter) and formal (e.g., NTC, 13267 letters, ACLs, CAOs, etc.) in response to violations of regulatory requirements (e.g., effluent limitations, monitoring, reporting, inspections, etc.).

5 Present measure with (1) volume of treated municipal wastewater discharged by the largest representative NPDES dischargers (providing extensive geographic coverage) and (2) State population data.

Table 1

Statewide Core Regulatory Programs Performance Measures

Tier	Measured Activity	Performance Measure	Timeframe for Reporting
		Measure for NPDES Program	
2	Discharged Pollutant Mass Reductions	• Mass of metals in municipal wastewater removed by treatment (largest, representative municipal NPDES dischargers)[5]	FY 2000-01
		Measures for Chapter 15 Program	
3	Compliance	• Percent of sites with confirmed releases that have implemented an approved Evaluation Monitoring Program or Corrective Action Plan	FY 2001-02
3	Landfill Closures	• Percent of unlined landfills under closure requirements	FY 2001-02