APPENDIX E

Wastewater Discharge Regulations and Policies

Appendix E contains Federal, State, and Regional information related to the laws, regulations, and policies pertinent to the discharge of San Francisco's wastewater. The primary laws regulating water quality are the *Clean Water Act (Federal)* and the *California Water Code (State)*. However, numerous other environmental laws and policies may affect, and at least indirectly regulate, wastewater discharges, they are discussed in the following two sections: *Federal Laws, Regulations*, and *Policies and State Laws, Regulations, and Policies*.

Federal Laws, Regulations, and Policies

Federal Clean Water Act

The Clean Water Act (CWA) is the primary *Federal statute (33 U.S.C. §1227)* regulating water pollution in the United States. A pivotal component of the CWA is Section 301(a), which states, "the discharge of any pollutant by any person shall be unlawful" except in compliance with other requirements of the Act.

The CWA regulates water pollution via two different and supplementary approaches. One approach is through the use of water quality–based regulations aimed at setting water quality criteria that define the permissible amounts of pollution for a particular waterbody or segment thereof. These water quality criteria are coupled with designated beneficial uses of the waterbody (e.g., drinking water, agriculture, aquatic habitat, recreation, etc.) when determining the appropriate water quality standard.

The second approach to regulating water pollution is through the use of technology-based standards. These standards apply a particular type of pollution control technology to specific types of wastewater discharges. These standards are not dependent on the water quality of the receiving water, but rather set a technological baseline to be followed nationwide. For municipal discharges, this technology-based standard is secondary treatment, as defined in 40 CFR Part 133.

Both of the above described approaches are implemented through the use of discharge permits, which contain mass and/or concentration-based limits known as "effluent limitations," for the pollutants contained in the permitted entity's wastewater. These approaches are applied to pollutant dischargers through the implementation of the wastewater discharge permitting program set up under the CWA.

The CWA was last reauthorized and substantively amended in 1987. The 1987 amendments placed renewed emphasis and focus on toxic pollutant controls. In December 2000, the

Combined Sewer Overflow (CSO) Control Policy became part of the CWA. The CSO Control Policy establishes a consistent national approach for controlling combined sewer systems' discharges. Provisions of the CSO Control Policy are also implemented through discharge permits.

NPDES Permit Requirements

Discharges of pollutants are regulated through the issuance of National Pollution Discharge Elimination System (NPDES) permits, which set limits on the amount of pollutants that can be discharged into the waters of the United States. The NPDES permitting program was created under Section 402 of the CWA amendments of 1972. Under Section 402, the United Stated Environmental Protection Agency or a delegated State agency may issue permits for the discharge of pollutants into waterways.

Under the NPDES program, dischargers are required to monitor and provide reports on compliance with their permit limits. These Discharge Monitoring Reports provide effluent quality and receiving water quality data. Receiving water monitoring requirements are common in many NPDES permits for wastewater and sometimes stormwater discharges. Data obtained through discharger monitoring are reported to the appropriate regulatory agency. The regulatory agency or any interested citizen can review these data to determine whether or not the discharger has complied with its NPDES permit requirements, and, if appropriate, pursue action to enforce compliance.

The City and County of San Francisco (City) has two NPDES permits: NPDES Permit Number CA0037664 (Order Number R2-2008-0007, April 1, 2008) for the bayside discharges and NPDES Permit Number CA0037681 (Order Number R2-2003-0073, October 1, 2003) for the oceanside discharges. NPDES permits are renewed every five years.

EPA's Permitting and Water Quality Standards Regulations

The EPA regulations related to the NPDES permitting program are located at 40 CFR Part 122. Part 122 regulations define the requirements for the general permitting program, for permit applications, and for establishing permit conditions. In addition to rules relating to wastewater discharges, this section also provides specialized rules relating to discharges of stormwater and discharges from new sources.

Part 122 regulations are important to the wastewater permitting process because these regulations require that NPDES permits contain effluent limitations necessary to meet water quality criteria, including State narrative water quality criteria. Furthermore, these regulations require that NPDES permits contain effluent limits for any pollutant that is or may be discharged at a level that has the reasonable potential to cause or contribute to an exceedance of water quality standards.

EPA's Part 131 regulations set forth the general Federal policies on the establishment of water quality standards. The regulations require each State to submit to the EPA, for review and approval, beneficial use designations for the state's water bodies, water quality criteria sufficient to protect these designated uses, and an antidegradation policy to maintain and protect the existing in-stream water uses and water quality. Under Part 131, the state's designation of uses and antidegradation policy may consider economic and social factors. Part 131 regulations also authorize States to adopt implementation policies for EPA-approved water quality standards. These implementation policies may include mixing zones, allowances for low flows, and variances.

When States fail to adopt water quality standards, the EPA may promulgate standards for that state. The EPA has conducted two such standard-setting processes for California's inland surface waters including bays and estuaries through the National Toxics

Rule (NTR) and the California Toxics Rule (CTR), both of which are described below.

EPA's National Toxics Rule

In 1992, the EPA promulgated the NTR. The NTR contains water quality criteria for the states and territories that were designated as being subject to the NTR. California was one of the states designated under the NTR because it had failed to adopt all of the 126 water quality criteria required by the EPA. The NTR set aquatic life and/or human health criteria for numerous constituents or compounds, only certain of which were applicable to California.

Specifically applicable to the San Francisco Bay are the NTR numeric water quality criteria for selenium. Both the Basin Plan and CTR refer to the NTR for these water quality criteria values.

EPA's California Toxics Rule

Water Quality Standards, Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California (or CTR) was published in the Federal Register on May 18, 2000, by the EPA. The CTR establishes water quality objectives for numerous priority toxic pollutants for the inland surface waters and enclosed bays and estuaries of California. The CTR amended and added to the NTR numeric standards for toxic pollutant water quality criteria for the protection of aquatic life and human health. The CTR includes dissolved standards for most trace metals and endorses the use of a metals translator (i.e., a conversion factor from a total metal concentration to a dissolved metal criterion). Provisions are included in the CTR for compliance schedules and interim limits to meet the new standards. Implementation of the CTR water quality criteria is under California's State Implementation Policy and Regional Water Quality Contol Board (RWQCB) permitting processes, which are described in the State law section of this document.

The CTR includes water quality objectives for both freshwater and saltwater marine estuaries and enclosed bays. According to the salinity criteria defined in the CTR, a marine water is a water in which the salinity is equal to or greater than 10 parts 95% of the time. The portions of the San Francisco Bay into which the city's wastewater and stormwater discharges are considered marine waters, and therefore, marine water quality objectives apply.

CSO Control Policy

In December 2000, the Combined Sewer Overflow Control Policy (CSO Control Policy) officially became part of the CWA. Originally adopted on April 19, 1994, by the EPA, the purpose of this policy is to establish a nationwide approach for controlling CSO discharges. The CSO Control Policy is implemented through the NPDES program. The CSO Control Policy applies to San Francisco's wet-weather discharges including nearshore discharges from the transport/storage facilities, and wet–weather Southeast Water Pollution Control Plant (SEP), Oceanside Water Pollution Control Plant (OSP), and Southwest Ocean Outfall (SWO) decant discharges. The first step outlined in the CSO Control Policy is implementation of the following nine minimum controls:

- Conduct proper operation and regular maintenance programs for the combined sewer system and CSO outfalls.
- Maximize use of the collection system for storage.
- Review and modify pretreatment programs to ensure that CSO impacts are minimized.
- Maximize flow to the Publicly Owned Treatment Works for treatment.
- Prohibit CSOs during dry weather.
- Control solids and floatable materials in CSOs.
- Develop and implement pollution prevention programs that focus on containment reduction activities.

- Notify the public to ensure that the public receives adequate notification of CSO discharges and their impacts.
- Monitor to effectively characterize CSO impacts and the efficacy of CSO controls.

These nine minimum controls constitute the technology-based requirements of the CWA as applied to combined sewer facilities.

The CSO Control Policy also requires continued operation and maintenance of the CSO system and implementation of a post-construction monitoring plan. Long-term control plans are required to be developed to outline continuing compliance with the requirements of the CWA. Within the long-term control plan, the discharger is expected to consider control alternatives necessary to meet water quality–based requirements of the CWA. Two approaches can be taken, the "Presumption" approach and the "Demonstrative" approach. The Demonstrative approach is achieved by showing that remaining discharges do not cause impairment of the beneficial uses. A lack of wet-weather water quality standards and corresponding data typically preclude the assessment of beneficial use impairment. The "Presumption" approach states that a program that meets any of the criteria listed below would be presumed to meet the water quality–based requirements of the CWA. The criteria to meet the Presumption approach outlined in the CSO Control Policy include the following:

- No more than an average of four overflow events per year, provided that the permitting authority may allow up to two additional overflow events per year. For the purpose of this criterion, an overflow event is one or more overflows from a combined sewer system as the result of a precipitation event that does not receive the minimum treatment specified below
- The elimination or the capture for treatment of no less than 85% by volume of the combined sewage collected in the combined sewer system during precipitation events on a system-wide annual average basis
- The elimination or removal of no less than the mass of the pollutants identified as causing water quality impairment through the sewer system characterization, monitoring, and modeling effort, for the volumes that would be eliminated or captured for treatment under the previous bullet item

Combined sewer flows remaining after implementation of the nine minimum controls and within the criteria specified in the previous two bullets, should receive a minimum of:

- Primary clarification (removal of floatables and settleable solids may be achieved by any combination of treatment technologies or methods that are shown to be equivalent to primary clarification.)
- Solids and floatables disposal
- Disinfection of effluent, if necessary, to meet water quality standards, protect designated uses, and protect human health, including removal of disinfection chemical residuals, where necessary

Ocean Discharge Criteria

San Francisco's treated effluent from the Oceanside Water Pollution Control Plant discharges beyond the three-mile California water boundary into Federal waters. Federal requirements (40 CFR 125) require that discharges do not cause unreasonable degradation of marine environments, although no specific receiving water standards have been established for ocean discharges. As an alternative, the EPA has "borrowed" the California Ocean Plan objectives in the past for use as water quality standards. The EPA's understanding of this is that Section 403(a) of the CWA prohibits discharges to ocean water except when in compliance with guidelines established under Section 403(c) of the CWA. Section 403(c) of the CWA requires guidelines to be promulgated for determining the degradation of marine waters. Consequently,

the California Ocean Plan is used by the EPA as the guidelines to address the criteria listed under 403(c) of the CWA.

303(d) Lists and Total Maximum Daily Loads

Under Section 303(d) of the CWA, States are required to identify waters within their boundaries for which technology-based effluent limitations on point sources are not stringent enough to meet the applicable water quality standard for the receiving water. Once these waters are identified, States must then list these waters, taking into account the severity of the pollution and the uses to be made of the identified waters. This inventory of waters is commonly referred to as the 303(d) list.

For all waters identified by States pursuant to the 303(d) listing process, States are required to establish Total Maximum Daily Loads (TMDLs). TMDLs set the total amount of each pollutant, which can be discharged into a particular waterbody by all sources that will protect the applicable water quality standards, taking into account seasonal variations and a margin of safety.

Once implemented, the TMDL process leads to development of wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources. The determination of WLAs and LAs is a process of balancing legal constraints, equity, and cost-effectiveness in setting allowable contributions, or loads, from various sources. The WLA process would establish the Wastewater Treatment Plants (WWTP's) allowable loading of the pollutants in question to the receiving water. This limitation would then be placed in the NPDES permit as a mass-based effluent limitation for the Wastewater Treatment Plant (WWTP).

In compliance with Section 303(d), the State Water Resources Control Board (SWRCB) has identified pollutants impairing State waters in the 2006 CWA Section 303(d) List of Water Quality Limited Segments, which was partially approved by the EPA in November 30, 2006. On March 8, 2007, the EPA added locations to the impaired waters 303(d) list, which, for San Francisco, were all nearshore locations. Currently these additional listings are open for public comment.

The San Francisco Bay is listed as impaired for a number of pollutants. These areas of the bay into which the city's bayside system also discharges include the San Francisco Bay, Central; San Francisco Bay, Lower; Central Basin; Mission Creek; and Islais Creek. The Pacific Ocean is not listed as impaired on the 303(d) list. The only oceanside receiving water listed as impaired is a proposed listing by the EPA of nearshore Baker Beach (three areas) for "bacterial indicators."

Antibacksliding

CWA Section 402(o) outlines the antibacksliding rules that prohibit the relaxation of water quality–based permit effluent limitations during the permit renewal process, with a few exceptions (permissible only if the requirements for the exceptions to the antibacksliding rule are met). Congress adopted the general prohibition against backsliding by enacting Section 402(o) under the 1987 amendments to the CWA. The intent of these amendments was to preserve pollution control levels achieved by dischargers by prohibiting the adoption of less–stringent treatment or control limitations, standards, or conditions than those already contained in existing discharge permits, except in certain narrowly defined circumstances.

The antibacksliding provisions of the CWA may have importance if the WWTPs were to attempt to relax adopted permit limits based on a TMDL or new water quality criteria. This is important because the requirements of CWA Section 402(o)(3) prohibits backsliding regardless of any exception if the less stringent limitation violates water quality standards. Thus, the WWTP might be able to relax its permit limits, but the new effluent limits could not be allowed if they were deemed to contribute to the violation of water quality standards.

Pretreatment

A large number of industries nationwide discharge their industrial wastes indirectly into POTWs. Often, POTWs, which were designed primarily to treat sewage from domestic users, have difficulty treating the toxic, hazardous, or highly concentrated conventional wastes (e.g., BOD, TSS) that are discharged by industrial users. Industrial pretreatment programs evolved out of congressional concern that industrial wastes would "pass through" POTWs without adequate treatment, would interfere with a POTW's operations, or might otherwise contaminate a POTW's biosolids and limit the disposal options for such biosolids.

The CWA and EPA regulations require POTWs with a total design flow of 5 mgd or more to develop a local pretreatment program, which may include a local permitting program for industrial users. The EPA or the designated State may also require a pretreatment program where significant industrial contributions exist to POTWs with flows of less than 5 mgd.

In many cases, the CWA's industrial pretreatment program requires indirect discharging industries to "pretreat" their wastes before discharging to the POTW. This pretreatment requirement is based upon the category of industry as set forth in the EPA regulations, 40 CFR Part 403, as required under Section 307(b) of the CWA. For some industries, the EPA has developed these categorical pretreatment standards, which set a minimum national baseline for specific industries and pollutants. Because no national permit program exists for indirect dischargers, the categorical pretreatment standards apply to each industrial category as soon as the EPA promulgates the regulations.

Where no categorical pretreatment standards exist, municipalities can control pollutants in their influent through discharge limits for specific pollutants (such as San Francisco has done), public education, and source control programs targeted at specific businesses (e.g., oil and grease control at restaurants). These programs can be enforced under sewer use ordinances adopted by the regulating municipality.

EPA's Water Quality Policies

EPA Water Quality Standards Handbook

In 1983, the EPA published its first Water Quality Standards Handbook. This handbook was designed to help States implement the water quality standards regulations revised in 1983. Since then, Congress enacted the Water Quality Act of 1987 that made substantial additions to the CWA, and EPA amended their water quality standards regulations accordingly. In 1993, a second edition to the Water Quality Standards Handbook was published. This version of the handbook presented some of the evolving program concepts and policies designed to reduce human and ecological risks due to water pollution and described, in detail, the requirements contained in the EPA Part 131 regulations. Some of the general policies contained in the handbook included mixing zones, low flows, and variances from water quality standards.

The EPA's Water Quality Standards Handbook defines a "mixing zone" as a limited area or volume where initial dilution of a discharge takes place and where numeric criteria can be exceeded but where acutely toxic conditions are prevented. States, at their discretion, may allow mixing zones that may vary in location, shape, size, and proximity to the wastewater discharge pipe and the quality of water allowed within the zone. However, to ensure that mixing zones do not impair the integrity of the waterbody, the EPA policy encourages States to limit mixing zones to a size that will not cause lethality to passing organisms or adverse risks to human health.

EPA's Technical Support Document

In March of 1991, EPA issued a Technical Support Document (TSD) for water quality-based toxics control. The TSD was issued in support of the CWA and EPA regulations to provide guidance on the application of biological and chemical assessment techniques to control toxic pollution to surface waters. Specifically, the TSD sets forth several methods for protecting human health and aquatic life, including the chemical-specific approach, the whole effluent toxicity test method, and the biological criteria/bioassessment approach. The TSD also discusses water quality criteria and standards, effluent characterization, wasteload allocations, mixing zones, permit requirements, and compliance monitoring and reporting. To assist users of the TSD, this document also includes several case studies for both industrial and POTW discharges.

The TSD provides technical guidance for assessing and regulating the discharge of toxic substances to the waters of the United States, and sets forth the methods for calculating water quality-based effluent limitations (WQBELs) and for determining the existence of a "reasonable potential" to violate water quality standards. If a discharge has a reasonable potential to cause or contribute to an in-stream exceedance of water quality standard for a particular pollutant, a WQBEL for that pollutant must be included in the NPDES permit. California's State Implementation Plan has an alternate method for assessing reasonable potential—defining the steps in a Reasonable Potential Analysis. In practice, the San Francisco Bay RWQCB has utilized the steps in the State Implementation Plan's Reasonable Potential Analysis for priority pollutants in inland waters.

Other EPA Criteria and the Concept of Independent Applicability

In addition to water quality criteria, the EPA has made some initial steps toward adopting other environmental criteria. For example, the Great Lakes Water Quality Initiative premiered the adoption of wildlife criteria. Other States and areas have adopted environmental criteria for sediment, fish tissue, and nutrients (e.g., Bay Area mercury fish tissue objectives and sediment quality objectives—both being developed for the bay). Other criteria are being developed in the area of biological assessments that are designed to assess habitat health, species diversity, etc. Such criteria, if adopted for California, could be incorporated as new permit requirements for the Wastewater Treatment Plant.

Of importance to any discussion of water quality or environmental criteria is the EPA's independent applicability policy. This policy states that failure to comply with any single criterion is cause to identify a water quality problem, despite other evidence demonstrating compliance with the criteria. The policy assumes all criteria are independently valid for the waterbody in question. For example, if toxicity tests or biological studies in a waterbody do not indicate a water quality problem, but a single chemical criterion is exceeded in the water column, the independent applicability policy says the waterbody must be judged to be impaired. Thus, this policy places significant importance on each criterion proposed for a waterbody or ecosystem. If any criterion or objective is violated, the City could be required to institute additional control measures to reduce the constituent(s) of concern causing the violation.

Federal Resource Protection Laws

In addition to the Federal laws directly regulating water discharges and water quality, several Federal resource protection laws can impact water quality decisions. The following subsections will explain the major Federal resource protection statutes and how these laws may impact water quality either directly or indirectly.

Endangered Species Act

The Endangered Species Act protects species of fish, wildlife, and plants that are in danger of or threatened with extinction. Section 7 of the Act requires that before actions are taken that may adversely affect designated critical habitat of a threatened or endangered species, the U.S. Fish and Wildlife Service must be consulted. The EPA program offices are developing plans to use existing programs, such as NPDES permitting requirements, to promote species recovery and protection using an ecosystem protection framework.

Species relevant to the San Francisco Bay and protected under the Endangered Species Act include the tidewater goby and the Coho salmon, which are both endangered. Additionally, the San Francisco Bay is listed as a critical habitat for the endangered winter-run Chinook salmon, the threatened Central California Coastal steelhead, and the Central Valley steelhead.

As more aquatic species that inhabit the area are placed on the threatened or endangered species list, more restrictions may be placed on water quality to improve the aquatic habitat for these species. If necessary to ensure continued survival of these species, it is conceivable that additional, more stringent restrictions (i.e., more stringent water quality criteria) could be imposed on the WWTP as an entity regulated under a Federal program, such as the NPDES program.

National Environmental Policy Act

The National Environmental Policy Act (NEPA) requires all Federal agencies to take into account the environmental effects of their programs. In general, all Federal agencies must use a systematic, interdisciplinary approach to environmental planning and evaluation in all decision-making that might have an impact on man's environment. Under NEPA, if the proposed Federal agency action is "major" and significantly affects the quality of the human environment, then the Federal agency taking the action must prepare a detailed environmental impact statement (EIS) describing the impact of their actions on the environment, the environmental costs that might be avoided, and alternative measures that might alter the cost-benefit equation. The purpose of the EIS is to guide agency decision making and advise other interested agencies and the public of the environmental consequences of planned Federal actions. If the Federal agency action is not major and does not significantly affect the environment, then the agency may prepare a Finding of No Significant Impact.

The CWA specifically states that NEPA requirements only apply to EPA actions as they relate to the provision of wastewater treatment construction grants and the issuance of NPDES permits to a new source. Unless San Francisco receives Federal funding for an expansion project or builds a new treatment plant, the requirements under NEPA do not apply.

Monterey Bay Marine Sanctuary

The Monterey Bay and its adjacent waters off the California central coast (with some exceptions) were designated a national marine sanctuary by the National Oceanic and Atmospheric Administration in 1992. The Monterey Bay National Marine Sanctuary extends from Marin to Cambria, with exception to the San Francisco-Pacifica Exclusion Zone, a small area on the north coast of San Mateo County and San Francisco which includes the SWO discharge location.

The Monterey Bay National Marine Sanctuary Management Plan requires that all wastewater effluent discharged into the sanctuary receives, at a minimum, secondary treatment. San Francisco's discharges are located within the Exclusion Zone and are therefore excluded from this requirement.

State Laws, Regulations, and Policies

California Water Code

The California Water Code regulates water rights and diversions; water in dams, reservoirs, wells, and streams; flood control; water conservation, development, and utilization; and water quality. The Water Code also regulates special districts related to water use, such as irrigation districts, water districts, water storage districts, reclamation districts, drainage districts, levee districts, and water conservation districts.

The most important provision of the California Water Code for San Francisco is the Porter-Cologne Water Quality Control Act, which is California's statutory authority for the protection of water quality. Under the Porter-Cologne Water Quality Control Act, the State is required to adopt water quality policies, plans, and objectives that will provide protection of the State's waters for the use and enjoyment of the people of California. Additionally, this Act requires that a report of waste discharge be filed for all discharges into State waters.

Water Quality Objectives

Under the Porter-Cologne Water Quality Control Act, RWQCBs are required to establish water quality criteria or "objectives" in their Basin Plans that will ensure the reasonable protection of beneficial uses and that will prevent nuisance. ("Nuisance" is defined in California Water Code Section 13050[m].) However, the Act explicitly recognizes that the quality of the water may be changed to some degree without unreasonably affecting beneficial uses. When setting water quality objectives, RWQCBs must consider each of the following:

- Past, present, and probable future beneficial uses of the water
- Environmental characteristics of the hydrographic unit under consideration, including the quality of water available
- Water quality conditions that could reasonably be achieved through the coordinated control of all factors that affect the area's water quality
- Economics
- Regional housing needs
- The need to develop and use recycled water

RWQCBs must also establish a program of implementation for achieving water quality objectives. The implementation program must include a description of the actions necessary to achieve the objectives, a time schedule for these actions, and a compliance assessment plan.

Sediment Quality Objectives

In 1989, the California Water Code was amended to require that the State Water Resources Control Board develop sediment quality objectives. In 1999, a lawsuit was filed against the SWRCB for failing, among other things, to adopt sediment quality objectives. Since the lawsuit, the SWRCB has been developing sediment quality objectives. A California Environmental Quality Act (CEQA) scoping document for sediment objectives for enclosed bays and estuaries was released in August 2006.

It will take some time before the sediment objective policy will impact NPDES permit holders. The policy will likely include narrative objectives that require comprehensive monitoring of sediments every 3 to 5 years by NPDES permit holders. Monitoring of problem areas and the identification of stressors and sources would be required in the years between comprehensive monitoring events. Likely, site-specific studies will be required to translate sediment quality objectives into mass loading reductions needed to minimize degradation. The objectives will mainly affect cleanup programs for the designated hot spots and 303(d) listed sediment sites.

Waste Discharge Requirements

The Porter-Cologne Water Quality Control Act authorizes the SWRCB and the nine RWQCBs to issue permits containing waste discharge requirements and to enforce the terms of these permits. Permits are required to contain effluent standards or limitations necessary to implement water quality control plans, to protect beneficial uses and to prevent nuisance. Since California has been delegated NPDES permitting authority by the EPA, these State–issued waste discharge requirements also constitute a California discharger's NPDES permit under the CWA.

Statewide Water Quality Control Plans

The Porter-Cologne Water Quality Control Act requires that the SWRCB formulate State and regional water quality control plans and policies for water quality control. The statewide plans adopted by the SWRCB include the State Implementation Policy, the Thermal Plan, and the Ocean Plan.

Inland Surface Waters Plan/Enclosed Bays And Estuaries Plan (Rescinded)

In 1991, the SWRCB adopted statewide water quality control plans, the Inland Surface Waters Plan and the Enclosed Bays And Estuaries Plan for the control of toxic pollutants. These plans established numeric objectives for toxic pollutants and toxicity in California waters. In 1994, a Superior Court in Sacramento ruled that the plans had not been adopted in conformance with three State laws (the Porter-Cologne Water Quality Control Act, CEQA, and the Administrative Procedures Act), and required that the SWRCB rescind the statewide plans. In September of 1994, the SWRCB withdrew the statewide plans and initiated actions to reformulate the plans.

There are no definitive plans by the SWRCB to move forward with revised versions of the Inland Surface Waters Plan and the Enclosed Bays And Estuaries Plan. These plans would house all of the various plans and policies governing toxics in the state, resulting in only one triennial review versus having various triennial reviews for all of the different plans and policies. Theoretically, these plans would have little impact on the numerical water quality values for toxics.

California State Implementation Policy

On March 2, 2000, the SWRCB adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (or State Implementation Policy. The State Implementation Policy applies to San Francisco's Bayside discharges. The State Implementation Policy contains provisions for implementing the priority toxic pollutant criteria promulgated by the EPA in the CTR and the NTR, and by the RWQCBs in their respective Basin Plans. The State Implementation Policy also provides monitoring and source identification requirements for dioxin (2,3,7,8-TCDD equivalents), and chronic toxicity control provisions. The State Implementation Policy was approved by the Office of Administrative Law and became effective on May 18, 2000. On February 24, 2005, the SWRCB adopted revisions to it.

Although issued as a "Policy," the provisions of this document have full regulatory effect. The main components of this document that are of interest are the rules for determining reasonable potential and those for calculating and establishing WQBELs for priority pollutant criteria/objectives. The following issues related to WQBELs are included:

- Selecting pollutants for regulation in NPDES permits (determination of reasonable potential)
- Calculating WQBELs
- Translators and water effect ratios for metals (selenium)
- Mixing zones and dilution credits
- Ambient background concentrations
- Intake water credits
- Compliance schedule justification and interim limits

The State Implementation Policy's method for conducting a Reasonable Potential Analysis (RPA) compares the ambient (receiving water) and effluent concentrations for a constituent to the lowest applicable criterion for that constituent. Dilution is not considered in the State Implentation Policy's Reasonable Potential Analysis process. Where there is insufficient information to calculate final water quality–based effluent limits, the State Implementation Policy allows the imposition of interim, performance-based effluent limits. These limits are to remain in effect while the necessary information (e.g., ambient monitoring, translator studies, or mixing zone analyses) is developed.

A notable change was made to the Reasonable Potential Analysis method in the 2005 State Implementation Policy revisions. No longer does the State Implementation Policy require the development of a WQBEL for those constituents with an ambient concentration that exceeds the criterion if the constituent is not present in the effluent.

The State Implementation Policy has detailed procedures for the calculation of WQBELs, based on a statistical analysis of existing effluent data, receiving water constituent concentrations, potential dilution credit, aquatic life and human health criteria, and statistical multipliers for the protection of aquatic life and human health. Another notable change made in the 2005 State Implementation Policy revisions is the ability to adjust the metals criteria based on discharger-specific Water Effects Ratios (WER) according to EPA WER Guidance.

State Management of Nonpoint Sources of Pollution

Nonpoint sources of pollution enter waterways from nonspecific sources, such as runoff or discharge from agricultural fields, mines, logging operations, atmospheric deposition, and other inputs. These sources are not regulated under the NPDES permitting program, but are sometimes regulated by State programs under Porter-Cologne Water Quality Control Act that emphasize voluntary implementation of best management practices and good housekeeping activities. Recent programs enlisted to curb nonpoint sources of pollution include voluntary NPS management plans, watershed management activities, and pollutant trading. These types of programs could affect the pollutant loadings ultimately allocated under a TMDL program, and thereby affect the allowable loads from the WWTP.

California Ocean Plan

The California Ocean Plan was originally adopted by the SWRCB in 1972. The Ocean Plan sets the beneficial uses, water quality objectives, and monitoring requirements for point and, to a lesser degree, nonpoint discharges to California ocean waters. The Ocean Plan goes through a review process every three years and is updated periodically to reflect changes identified in the triennial review. The most recent version of the Ocean Plan was approved by the EPA and became effective on February 14, 2006.

San Francisco's dry–weather discharges do not discharge into California ocean waters because the outfall reaches beyond the three-mile marker into Federal waters. Yet, because Federal waters lack water quality goals and objectives, the EPA has typically "borrowed" objectives from the Ocean Plan. Therefore, the Ocean Plan objectives have been applied to San Francisco's dry–weather oceanside discharges (see Section 2.1.1.5)

The beneficial uses outlined in the Ocean Plan for ocean dischargers include the following:

- Industrial water supply
- Water contact and noncontact recreation, including aesthetic enjoyment
- Navigation
- Commercial and sport fishing
- Mariculture

- Preservation and enhancement of designated Areas of Special Biological Significance
- Rare and endangered species
- Marine habitat
- Fish migration
- Fish spawning and shellfish harvesting

The Ocean Plan provides water quality objectives for the protection of marine aquatic life and the protection of human health. The methodology for conducting the reasonable potential analysis was outlined in the Technical Support Document for Water Quality–Based Toxics Control, or (EPA 1991). Since this time, the Ocean Plan has been revised and now includes its own methodology for determining reasonable potential. In the 2003 and 2008 permits, no water quality–based effluent limits were developed.

In addition to the new reasonable potential methodology, other changes that were made to the Ocean Plan in the 2006 revision include choice of the indicator organisms for water-contact bacterial standards, reclassifying "Areas of Special Biological Significance" to "State Water Quality Protection Areas," and establishing a fecal coliform standard for shellfish harvesting areas. These changes are not expected to impact regulatory compliance for San Francisco.

Bay-Delta Pollutant Policy Document

In June of 1990, the SWRCB adopted a Pollutant Policy Document (PPD) for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. The PPD was designed to provide solutions to specific pollutant problems in the Bay-Delta. The PPD identified and characterized pollutants with the greatest potential biological significance. These pollutants include: arsenic, cadmium, chromium, copper, chlorinated dibenzodioxins and dibenzofurans, hydrocarbons, lead, mercury, nickel, organochlorines, selenium, silver, tributyltin, and zinc.

The other purposes of the PPD were to ensure consistency in the regulatory approaches used by the RWQCBs to provide a basis for future regulatory effort and to establish a monitoring program to assess the progress of the programs instituted under the PPD.

For the WWTP, the Mass Emission Strategy contained in the PPD is probably the most significant provision of this plan. The Mass Emission Strategy aims to control the accumulation of toxic pollutants in sediments and in the tissues of aquatic organisms. To date, neither the Central Valley nor San Francisco Bay RWQCBs have developed the Mass Emission Strategy required under the PPD. At this time, its implementation Mass Emission Strategy is primarily occurring through development of TMDLs for pollutant and waterbody combinations identified on the 303(d) List.

Thermal Plan

The SWRQB has adopted a Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California, also known as the Thermal Plan. The Thermal Plan sets specific thermal water quality objectives for certain water bodies, and sets forth prohibitions on elevated temperature discharges into receiving waters. The Thermal Plan also sets limits on the maximum impact thermal discharges may have in relation to migrating fish. The SWRCB and the RWQCBs administer this plan by establishing waste discharge requirements for discharges of elevated temperature wastes.

According to the Thermal Plan, San Francisco's existing discharges are required to comply with thermal limitations that protect beneficial uses, and, in coastal water, to protect areas of special biological significance. Ocean discharges outside of State waters are not governed by the Thermal Plan. San Francisco's NPDES permits reflect these requirements.

RWQCB Basin Plans

Regional Water Quality Control Plans (Basin Plans) are required by the Porter-Cologne Act for each of the nine regions of California. Basin Plans are the primary regulatory document for RWQCBs. Basin Plans establish beneficial uses, water quality standards, monitoring objectives, implementation plans, and other programs designed to meet water quality standards.

San Francisco Bay Basin Plan

The San Francisco Bay Basin Plan is applicable to San Francisco's bayside discharges. The latest version of the San Francisco Bay Basin Plan was adopted by the RWQCB on June 21, 1995, with final approval from the Office of Administrative Law on November 13, 1995. There have been amendments made to the Basin Plan since 1995. Of them, the most significant to San Francisco is the Basin Plan Amendment adopted by the RWQCB on January 21, 2004, which modified water quality objectives for arsenic, cadmium, chromium, copper (freshwater only), lead, nickel, silver, and zinc so that they are now consistent with the values published in the CTR.

Similar to the CTR, the Basin Plan includes water quality objectives for both freshwaters and marine waters. The January 21, 2004 Basin Plan Amendment modified the definition of salinity so that the same waters classified as marine waters in the CTR are the same as waters classified as marine waters in the Basin Plan. According to the salinity criteria defined in the Basin Plan, a marine water is a water in which the salinity is equal to or greater than 10 parts per thousand 95% of the time. The portions of the San Francisco Bay into which the city's wastewater and stormwater discharge are considered marine waters, and therefore, marine water quality objectives apply.

Additional Basin Plan Amendments are underway that will also impact San Francisco's bayside discharges. Currently, Basin Plan Amendments are being conducted for applying site-specific copper water quality objectives to marine waters in the San Francisco Bay Area. Additionally, a Basin Plan Amendment for new mercury fish tissue objectives and mercury TMDL has been recently established by the SWRCB.

Every three years the Basin Plan goes through a review process, which prioritizes Basin Plan issues and provides the opportunity to identify areas in the Basin Plan where improvement, efficiency, or updating is needed. The last triennial review of the San Francisco Bay Basin Plan was in 2004. Many of the items already discussed and currently under progress (site-specific objectives, updates to water quality objectives, etc.) are included in the 2004 triennial review. An additional item on the triennial review list that may have consequence to San Francisco is the modification of the bacterial effluent limit. Bacteria limits may be changed from Total Coliform to Fecal Coliform. RWQCB is participating in a statewide effort that is currently in progress to update bacteria criteria.

The Basin Plan designates the water quality goals, or beneficial uses, for individual waters and their tributaries. Water quality objectives are based on beneficial uses. The beneficial uses set by the Basin Plan for the bayside discharges are listed below. The beneficial uses for the waters of the Southeast Plant discharge, its tributaries, Islais Creek and Mission Creek, and Combined Sewer Discharges 19 through 43 (Lower San Francisco Bay) are as follows:

- COMM – Commercial and Sport Fishing
- EST – Estuarine Habitat
- IND – Industrial Service Supply
- MIGR – Fish Migration
- NAV – Navigation
- RARE – Preservation of Rare and Endangered Species
- REC-1 – Water Contact Recreation
- REC-2 – Noncontact Water Recreation
- SHELL – Shellfish Harvesting
- WILD – Wildlife Habitat

The beneficial uses for the waters of the Northeast Wet–Weather Facility and Combined Sewer Discharges 9 through 18 are as follows (Central San Francisco Bay):

- COMM – Commercial and Sport Fishing
- EST – Estuarine Habitat
- IND – Industrial Service Supply
- MIGR – Fish Migration
- NAV – Navigation
- PROC – Industrial Process Supply
- RARE – Preservation of Rare and Endangered Species
- REC-1 – Water Contact Recreation
- REC-2 – Noncontact Water Recreation
- SHELL – Shellfish Harvesting
- SPAWN – Fish Spawning
- WILD – Wildlife Habitat

State Watershed Management Initiative

Watershed management is an integrated, holistic approach for restoring and protecting aquatic ecosystems and human health in a specific geographic area (typically, a natural hydrologic drainage basin for stream, lake, or river). Watershed management usually involves an interest-based planning process that encourages the collaborative efforts of stakeholder groups (individuals, landowners, farmers, POTWs, industries, environmentalists, regulators) to develop a consensus on, and share responsibility for, addressing local water quality or water management problems. The goals of watershed management include:

- Increasing participation at a local level
- Reducing the impact of sources of pollution
- Integrating the management of all components of aquatic ecosystems
- Moving away from a command-and-control form of regulation
- Optimizing the effectiveness of point and nonpoint source control efforts

As part of the SWRCB's Strategic Planning Process, the SWRCB implemented a Watershed Management Initiative intended to support, sponsor, and facilitate water quality management on a watershed scale in partnership with local stakeholders. Each RWQCB was responsible for developing a chapter for the SWRCB's Integrated Plan for Integration of the Watershed Management Initiative to identify and prioritize watershed issues within their Basin. The San Francisco RWQCB completed the Watershed Management Initiative Integrated Plan Chapter (March 2004) that identified both pollutants of concern and significant issues and water quality problems for each watershed.

The pollutants of concern identified for San Francisco's watershed were PCBs, pesticides, and pathogens. Significant issues and water quality problems identified for the San Francisco watershed were groundwater recharge, urban runoff, base conversion, and beach closures.

Pollutant Trading / Discharge Offset Policies

Pollutant trading and discharge offsets are just two potential approaches for controlling point and nonpoint sources of pollution. The goal of these approaches is to achieve similar or improved pollution control results in a more cost-effective manner than under the current regulatory structure. Examples of several different types of trades that may be theoretically possible include, but are not limited to:

- Intraplant trading between outfalls within one permitted facility
- Pretreatment trading between indirect industrial point sources that discharge to a POTW
- Point source to point source trading
- Nonpoint source to non-point source trading
- Point source to nonpoint source trading (e.g., POTW installs pollutant controls on an upstream abandoned mine instead

of installing advanced pollutant removal technology at the POTW)

Pollutant trading may eventually occur on a regional basis and would most likely be administered by the RWQCB with input and oversight from the EPA. Trades must be advantageous to both trading partners for a pollutant trading program to be successful.

At the direction of the SWRCB, and in consideration of the fact that both the San Francisco Bay and the Sacramento-San Joaquin River Delta and tributaries are impaired by mercury, the SWRCB has proposed a Mercury Discharge Offset Policy for both areas. Offsets refer to voluntary abatement efforts by a discharger to remove a specified pollutant from a different existing source to compensate for all or a portion of the discharger's own discharge for that same pollutant. Under the proposed Mercury Discharge Offset Policy, individual dischargers may obtain offsets:

- To help meet their wasteload or load allocations
- To allow an increase above their wasteload or load allocation as a result of expansion that would otherwise result in additional mercury loading to the Bay-Delta system
- To initiate a new discharge that would otherwise result in new mercury loading to the Bay-Delta system

Source: Information Document, "Public Scoping Meeting for Proposed State Policy for Water Quality Control, San Francisco Bay, Sacramento-San Joaquin River Delta, and Tributaries Mercury Discharge Offset Policy, SWRCB, January 2007

Nondegradation Policy

California's nondegradation policy is found in SWRCB Resolution No. 68-16. This policy is deemed to meet the Federal requirement for antidegradation policies. California's nondegradation policy states that:

- Whenever the existing water quality is better than the quality established in policies as of the date on which such policies become effective, the existing high quality will be maintained until it has been demonstrated to the state that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial uses of such water, and will not result in water quality less than that prescribed in the policies.
- Any activity that produces or may produce a waste or increased volume or concentration of waste and that discharges or proposes to discharge to existing high–quality waters will be required to meet waste discharge requirements that will result in the best practicable treatment or control of the discharge necessary to assure that (a) pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the state will be maintained.
- In implementing this policy, the Secretary of the Interior will be kept advised and will be provided with the information necessary to fulfill as her/his responsibilities under the Federal Water Pollution Control Act. (The reference to Secretary of the Interior has been superseded by and now refers to the EPA.)

Application of this policy in the NPDES permitting processes may restrict the amount of water quality change produced by a particular waste discharge and considers to what extent the "maximum benefit to the people of the state" is provided. Thus, a certain amount of water quality change may be allowable if the change benefits the state as a whole.

Bay Protection and Toxic Cleanup Program

In 1989, the California Legislature codified the Bay Protection and Toxic Cleanup Program. Under the Bay Protection and Toxic Cleanup Program, RWQCBs were required to identify "toxic hot spots" and

develop toxic hot spot cleanup plans. The SWRCB was required to adopt a statewide toxic hot spots cleanup plan. Toxic hot spots were defined as locations in enclosed bays, estuaries, or any adjacent waters in the contiguous zone or the ocean where pollution or contamination affects the interests of the State, and where hazardous substances have accumulated in the water or sediment to levels that might pose a substantial hazard to fish, wildlife (including aquatic life) or humans; might adversely affect the beneficial uses of the waterbody; or might cause an exceedance of the adopted water quality or sediment quality objectives.

The San Francisco Bay, Mission Creek, Islais Creek, and Central Basin have all been identified as toxic hot spots under the Bay Protection and Toxic Cleanup Program. In the SWRCB's Amended Draft Functional Equivalent Document, Consolidated Toxic Hot Spots Cleanup Plan (August 29, 2003), the extent of sediment contamination in Islais and Mission creeks is unknown. Additionally, the extent of the contamination due to new and continuing combined sewer discharges versus the resuspension of existing contaminated sediment already there is also unknown. Overall, the sediment toxic hot spots are being addressed primarily through the 303(d)/TMDL effort.

California Resource Protection Statutes

CEQA is the principal statute mandating environmental impact review of government actions taken in California. Generally, CEQA applies to all activities undertaken by State and local agencies and to private activities that are financed, regulated, or approved by state and local agencies.

Modeled after NEPA, CEQA requires that an environmental impact report (EIR) be prepared whenever a governmental action may have a significant effect on the environment. In addition to evaluating the environmental effects themselves, CEQA requires that the agency evaluate all direct and indirect social and economic effects caused by the environmental changes. However, where the initial study reveals no substantial evidence that the project may have a significant effect in the environment, the lead agency may issue a Negative Declaration instead of an EIR. NPDES permits for existing discharges are exempt from CEQA.