SECTION VI ENVIRONMENTAL EFFECTS OF THE PROPOSED POLICY

This section provides an analysis of potential adverse effects of SWRCB adoption of the proposed Policy. After evaluating the potential adverse effects of each of the issues in the proposed Policy, this analysis concludes that only one issue has the potential for significant adverse environmental effects: the proposed policy for compliance schedules. (See discussion of Issue 2.1 ~~on page VI-17~~.)

The proposed Policy consists of provisions to (1) establish, and determine compliance with, effluent limitations based on chemical-specific criteria set forth in the CTR and for certain chemical-specific basin plan objectives for priority pollutants; (2) establish monitoring requirements for the TCDD equivalents; and (3) establish statewide narrative chronic toxicity provisions.

In addition, the proposed Policy addresses implementation of the above criteria and water quality objectives, relating to the following topics: storm water and urban runoff, nonpoint source discharges, site-specific objectives, and exceptions. Special studies, watershed management and TMDLs are discussed in an Appendix to the Policy.

This section analyzes potentially significant adverse environmental effects of SWRCB adoption of the proposed Policy. There are two baselines for this analysis.

A. BASELINES

The first baseline is the existing physical conditions, pre-CTR, under current RWQCB practices for regulating toxic substances. The baseline is what is now occurring in the absence of the proposed Policy and the CTR. This analysis identifies differences between existing RWQCB practices under current basin plan provisions and the proposed Policy, and the potential environmental effects of these differences. Also, this analysis examines whether adoption of the proposed Policy would change anything and, if so, does the change have the potential for significant adverse effects.

The second baseline is potential future conditions under the CTR criteria. This baseline is what would occur with implementation of the CTR in the absence of the proposed Policy. This analysis examines differences between RWQCB regulation of toxic pollutants, given the CTR and current basin plan provisions, and regulation under the proposed Policy. More detailed descriptions of each baseline follows.

Two baselines are required for this environmental document because CEQA requires the assessment of the potential effects of the proposed Policy on the existing physical environment as well as on potential future conditions under the CTR.

Baseline 1: Pre-CTR

At the present time, the SWRCB and RWQCBs have various options for the regulation of toxic pollutants in the absence of the CTR. The various bases for regulation of toxic pollutants, as well as implementation procedures, are briefly discussed below.

The RWQCBs and the SWRCB regulate the point source discharge of pollutants to surface waters through NPDES permits. Some permits contain numeric effluent limitations for toxics. RWQCBs have established numeric toxic effluent limitations in NPDES permits on several grounds.

First, in 1992, the U.S. EPA promulgated the National Toxics Rule (NTR). The NTR established criteria for the priority pollutants that were not included in the 1991 ISWP and EBEP. Those criteria remain in effect and are incorporated into some permits.

Second, some RWQCB basin plans include water quality objectives for some of the priority pollutants. (No basin plan includes objectives for all priority pollutants; see FED Section II Existing Regulatory Conditions.) Where this is the case, RWQCBs have included numeric effluent limitations based on these numeric objectives in some permits.

Third, all RWQCB basin plans contain a narrative toxicity objective to ensure "no toxics in toxic amounts". Some of the RWQCBs have included numeric effluent limitations in permits to implement this narrative toxicity objective. To derive these numeric limits, they may rely on numeric water quality protection values or guidance contained in U.S. EPA's TSD, NTR, Gold Book Criteria, U.S. EPA Region 9's "Guidance for NPDES Permit Issuance", drinking water maximum contaminant levels (MCLs), or Central Valley RWQCB's "Compilation of Water Quality Goals." In some cases, permits only require monitoring for toxic constituents, due to lack of data needed to prescribe specific effluent limitations.

Numeric permit limits are developed using existing implementation procedures (actions required to meet objectives). The implementation provisions vary from region to region. Some basin plans, for example, allow mixing zones and compliance schedules. Others do not address these subjects. The proposed Policy sets out statewide implementation procedures for all RWQCBs to follow, and this section of the FED addresses the potential environmental effects of this action.

The RWQCBs regulate the nonpoint source discharge of pollutants to surface waters primarily through application of the SWRCB's Nonpoint Source Management Plan (NPS Plan). The NPS Plan provides a policy for addressing all types of nonpoint source discharges, including those containing priority toxic pollutants. The State's NPS Plan describes three management options that are available to the RWQCBs, either individually or in combination, to address a nonpoint source pollution problem. Those options are: (1) voluntary implementation by dischargers of best management practices (BMPs); (2) regulatory actions by RWQCBs to encourage dischargers to implement BMPs; and (3) RWQCB issuance of effluent limitations in WDRs (three-tiered approach).

Baseline 2: Post-CTR

When the CTR is adopted by the U.S. EPA, RWQCBs will implement the CTR criteria in place of relying on narrative toxicity objectives to establish effluent limitations for those priority pollutants for which there are no NTR criteria or basin plan objectives. Upon adoption of the CTR, RWQCBs will base permit limits on the federal criteria rather than developing numeric permit limits on a case-by-case basis based on narrative objectives. (The CTR will incorporate existing NTR criteria. RWQCBs will continue to implement existing basin plan water quality objectives for those priority toxic pollutants that remain in effect after promulgation of the CTR ~~If both a state-adopted objective and a CTR criteria are in effect for the same pollutant, the more stringent of the state-adopted objective or NTR criteria will apply~~.)

After adoption of the CTR, in the absence of the proposed Policy, the RWQCBs would use existing practices including existing basin plan implementation policies as well as implementation provisions in the CTR (e.g., compliance schedules), to establish numeric permit limits for priority pollutants. In addition, the RWQCBs would likely continue to use available U.S. EPA guidance, such as the TSD (U.S. EPA 1991) or U.S. EPA Region IX Guidance on Permit Issuance. For nonpoint sources, the RWQCBs would continue to use the ~~existing NPS Plan~~ three-tiered approach.

B. Determining Significance of Environmental Effects

When considering the significance of potential environmental effects in this FED, the CTR and NTR criteria, the RWQCB chemical-specific objectives for priority pollutants that remain in effect after the CTR~~,~~ is adopted and the RWQCB toxicity objectives are generally considered the standards of significance for effects to water quality, to humans due to ingestion of water or organisms, and to aquatic life. Use of these Federal criteria and State objectives to determine potential significance of environmental effects generally is appropriate because they have been designed to represent the maximum amount of these pollutants that can remain in the water column without causing adverse effects on organisms using the aquatic system, on people consuming these organisms or water, and on other beneficial uses.

Section 15064(h) of the CEQA Guidelines states in relevant part:

(h)(1)(A) Except as otherwise required by Section 15065, a change in the environment is not a significant effect if the change complies with a standard that meets the definition in subsection (i)(3).

(3) For the purposes of this subsection a "standard" means a standard of general application that is all of the following:

(A) a quantitative, qualitative or performance requirement found in a statute, ordinance, resolution, rule, regulation, order, or other standard of general application;

(B) adopted for the purpose of environmental protection;

(C) adopted by a public agency through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency;

(D) one that governs the same environmental effect which the change in the environment is impacting; and,

(E) one that governs within the jurisdiction where the project is located.

For a few issues (e.g., mixing zones), there may be some exceedance of water quality criteria/objectives and additional factors are considered in the determination of significance of environmental effects. In these cases, the additional factors will be discussed in the analysis.

CHAPTER 1
POTENTIALLY SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS

Because of the variability in the regulation of toxics among the RWQCBs, in this FED each issue in the proposed Policy was evaluated in terms of the two baselines described above. For Baseline 1, differences between the proposed Policy and existing RWQCB practices pre-CTR are explained, and the potential adverse environmental effects of the differences are discussed. For Baseline 2, potential environmental effects of the proposed Policy on potential future conditions under implementation of the CTR (as compared to future conditions under the CTR without the proposed Policy).

This analysis of each issue is formatted consistently as described below.

Baseline 1: Effects on existing environmental conditions

1. Existing RWQCB practices. This section provides a brief description of how RWQCBs currently address this issue.

2. Proposed Policy. This section provides a brief description of how the Policy addresses this issue and a brief description of why the Policy was developed this way.

3. Differences between proposed Policy and existing RWQCB practices. Differences between (1) and (2).

4. Potential adverse environmental effects. What are the potential effects of (3) on the existing physical environment?

5. Potentially significant adverse environmental effects. Are any anticipated adverse effects identified in (4) significant?

Baseline 2: Effects on potential future environmental conditions under CTR

In many cases, potential environment effects of the proposed Policy under Baseline 2 (with

adoption of the CTR) are the same as they are under Baseline 1 (pre-CTR). Whether there may be additional effects under Baseline 2 and, if so, the nature of those potential effects are addressed for each issue.

~~*NOTE: Prepare and insert something re Issues 1.1 and 1.2.*~~

ISSUE 1.3 DETERMINATION OF POLLUTANTS REQUIRING WATER QUALITY-BASED EFFLUENT LIMITATIONS

Baseline 1: Effects on Existing Environmental Conditions

1. Existing RWQCB practices for selection of pollutants for calculating effluent limitations. Currently, no statewide law, regulation, or policy specifies procedures for determining when effluent limitations are necessary to control discharged pollutants and prevent adverse effects to receiving waters. Permit writers at most RWQCBs presently use their best professional judgement[1] and guidance found in various technical documents when identifying the pollutants in a discharge requiring effluent limitations.

Only the basin plan of the San Francisco Bay RWQCB includes specific procedures for determining when effluent limitations should be established for substances in a discharge. The San Francisco Bay Basin Plan requires effluent limitations to be developed for all pollutants of concern unless dischargers certify that the pollutant is not present in the discharge and no change has occurred that may cause release of pollutants. This certification must be accompanied by monitoring results, and process and treatment descriptions, before issuance and reissuance of permits. The basin plan further states that dischargers must demonstrate to the satisfaction of the San Francisco Bay RWQCB that particular substances do not cause, or have the reasonable potential to cause, or contribute to an excursion[2] above numerical or narrative objectives (i.e., exhibit "reasonable potential"). The basin plan allows low volume discharges to be exempted from certification and monitoring if the discharges have been determined to have no significant adverse effect on water quality.

FED Section VIII, Table ~~VIII-4~~A-2, provides a summary of practices used by RWQCBs to select pollutants for calculating effluent limits for the sample facilities used in the economic analysis.

2. Proposed Policy for determination of pollutants requiring water quality-based effluent limitations. The proposed Policy states that if a RWQCB determines that a pollutant is or may be discharged at a level that may cause, have the reasonable potential to cause, or contribute to an excursion above any applicable priority pollutant objective or criterion, the RWQCB shall

[1] Best professional judgement means the highest quality technical opinion developed by a permit writer after consideration of all reasonably available and pertinent data and information that forms the basis for the terms and conditions of an NPDES permit (U.S. EPA 1993). Best professional judgement, as used in this context, should be distinguished from the use of best professional judgement to develop technology-based effluent limitations in cases where an applicable effluent guideline has not been promulgated for an industry (see 40 CFR 125.3).

[2] An excursion is defined to occur only when the average concentration over the duration of the averaging period is above the criteria, whereas an exceedance is defined to occur whenever the instantaneous concentration in the receiving water is above the criteria, whereas (U.S. EPA 1991).

establish a water quality-based effluent limitation in the permit for the discharge of that pollutant in accordance with the provisions of the proposed Policy. When facility-specific effluent monitoring data are available, the RWQCB shall make this determination by requiring effluent limitations for priority pollutants that are present in the discharger's undiluted effluent at levels above any applicable CTR criterion~~,~~. RWQCBs shall also establish effluent limitations when ambient background concentrations exceed any applicable CTR criteria. If the above analysis cannot be conducted due to lack of data, the RWQCB shall establish interim requirements for additional monitoring of receiving water. Notwithstanding these provisions, the RWQCBs may include an effluent limitation for a CTR criterion in waste discharge requirements if the RWQCB finds that an effluent limitation is necessary to protect beneficial uses or to comply with antidegradation provisions, antibacksliding provisions, or other provisions of law.

This approach was selected because it is protective of water quality, and relatively easy for permit writers to implement.

3. Differences between proposed Policy and existing RWQCB practices. The proposed Policy sets out a consistent statewide method as compared to various methods now used by RWQCBs. Compared to existing RWQCB practices, the proposed Policy will result in fewer effluent limitations for some facilities and more effluent limitations for others. The proposed Policy methodology requires effluent limitations in WDRs where a priority pollutant may be discharged at a level that will cause, or has the reasonable potential to cause or contribute to an excursion above an applicable priority pollutant objective or criterion. In addition, RWQCBs may include effluent limitations where necessary to protect beneficial uses or to comply with antidegradation provisions, antibacksliding provisions, or other provisions of law. The various methods now used by the RWQCBs differ in terms of data requirements and ease of calculation; they do not differ in terms of their effect on water quality and the environment.

4. Potential adverse environmental effects of proposed Policy for selection of pollutants for calculating effluent limitations. The proposed Policy will have no significant effect on the environment. The proposed Policy will protect water quality in the non-ocean surface waters of California by ensuring that effluent limitations are included in permits where there is a reasonable potential for either criteria or objectives for priority pollutants to be exceeded. As explained in the introduction to this section of the FED, these criteria and objectives have been established to protect human health and organisms using the aquatic system; therefore, there should be no adverse effects to human health or aquatic life.

For some facilities, the proposed Policy would result in fewer effluent limitations than ~~under~~would be the case under ~~some~~ current RWQCB practices. This should result in lower monitoring costs, in these cases, for the discharger. Because fewer toxic substances would be regulated, through effluent limitations and associated monitoring, there is a greater possibility that there could be an increase in the discharge of an unregulated pollutant that would not be detected through routine monitoring. The proposed Policy protects against this potential adverse effect by stating:

> "RWQCBs shall require periodic monitoring (at least once prior to the issuance and reissuance of a WDR) for pollutants for which criteria/objectives apply and for which no

effluent limitations have been established; however, RWQCBs may choose to exempt low volume discharges determined to have no significant adverse effect on water quality."

In addition, WDRs, including NPDES permits, are subject to certain reporting requirements, which can be triggered by the new or increased discharge of toxic pollutants (see 40 CFR Sections 122.41(l) and 122.42(a) and (b); Water Code Section 13260(c); 23 California Code of Regulations Section 2210). Once reported, the RWQCBs can modify the permit, or WDRs, if appropriate, to regulate the discharge of these pollutants.

The Policy also protects against adverse effects by providing that if a pollutant is not detected in any of the effluent monitoring samples and all of the detection levels are greater than or equal to the criterion value, the RWQCB will establish monitoring requirements in place of an effluent limitation.

5. Potentially significant adverse environmental effects. None.

B. Baseline 2: Adverse effects on Potential Future Environmental Conditions under CTR

After adoption of the CTR, in the absence of the proposed Policy, the RWQCBs would continue to determine reasonable potential under existing practices, which are described above. Therefore, the environmental analysis for Baseline 2 is the same as for Baseline 1. Consequently, there will be no significant adverse effects when the proposed Policy is implemented in conjunction with the CTR.

ISSUE 1.4 CALCULATION OF EFFLUENT LIMITATIONS BASED ON NUMERIC CRITERIA

Baseline 1: Effects on Existing Environmental Conditions

1. Existing RWQCB practices for calculating effluent limitations. Currently, no statewide policies exist for calculating water quality-based effluent limitations for the inland surface waters, enclosed bays, and estuaries of California. Most of the basin plans for the individual RWQCBs also do not provide detailed instructions on calculating water quality-based effluent limitations, but refer to various State and Federal guidance documents. The RWQCBs may use a variety of methods for deriving effluent limitations, most of which have been listed in the proposed Policy as optional methods. For facilities with dilution, most RWQCB permit writers use a steady-state mass balance equation. For the majority of facilities without dilution, permit writers set effluent limitations equal to criterion.

Only the San Francisco Bay RWQCB specifies a particular method for calculating effluent limitations. The San Francisco Bay basin plan requires that a steady-state mass balance equation be used to calculate water quality-based effluent limitations when ambient concentrations are equal to or less than the water quality criteria. The mass-balance equation considers dilution credit, the water quality objective, and the ambient background concentration of each substance.

2. Proposed Policy for calculating effluent limitations. The proposed Policy states that when a RWQCB determines, using procedures described in the proposed Policy, that water quality-based effluent limitations are necessary to control a pollutant in a discharge, the permit shall contain effluent limitations developed using any of the following methods:

a. RWQCBs may assign a portion of the loading capacity of the receiving water to each source of waste, point and nonpoint based on a TMDL;

b. RWQCBs may use a steady-state mass balance model in connection with a statistical, stepwise procedure that is described in the proposed Policy;

c. RWQCBs may elect to apply a dynamic model, approved by the RWQCB, where sufficient effluent and receiving water data exist; or

~~d. RWQCBs may use discharge prohibitions to implement water quality criteria for a particular area; or~~

~~e.~~d. RWQCBs may establish effluent limitations that considers intake water pollutants according to the proposed Policy.

3. Differences between proposed Policy and existing RWQCB practices. The proposed Policy sets out consistent statewide methods as compared to various methods now used by the RWQCBs. Compared to the steady-state equation included in the San Francisco Bay Basin Plan (and used by many RWQCB permit writers), method (b) of the proposed Policy is a more accurate method for deriving effluent limitations (in some cases resulting in more stringent effluent limitations; in some cases resulting in less stringent effluent limitations.)

4. Potential adverse environmental effects of proposed Policy for calculating effluent limitations. The proposed Policy will not have significant effects on the environment. The proposed Policy will probably result in more accurate effluent limitations. (See Section V, Chapter 1.2 for evaluation of various methods for calculating effluent limitations.) In some cases, more accurate effluent limitations could result in more stringent effluent limitations which would be slightly more protective of water quality. In other cases, more accurate effluent limitations could result in slightly less stringent effluent limitations that are still protective of water quality.

In any event, the proposed Policy sets forth methods to accurately calculate effluent limitations that implement the applicable toxics criteria or objectives. Therefore, the proposed Policy will protect non-ocean surface water quality for designated beneficial uses which include human health and other aquatic life.

In addition, the methods allowed under the proposed Policy do not differ substantially from those currently used by the RWQCBs to calculate effluent limitations. Therefore, the effect on the dischargers of specifying the allowable methods should be minimal.

5. Potentially significant adverse environmental effects. None.

B. Baseline 2: Adverse effects on Potential Future Environmental Conditions Under CTR

After adoption of the CTR, in the absence of the proposed Policy, the RWQCB would use existing practices to calculate effluent limitations. Adoption of the CTR would necessitate one additional step for the RWQCBs when they develop effluent limitations for metals because ~~the~~ most CTR aquatic life metals criteria will be in the dissolved form. They will have to be translated into the total recoverable form before effluent limitations can be determined. The potential effects of this are described below under Issue 1.2.1 (Translators for Metals and Selenium). Potential environmental impacts under Baseline 2 do not differ from impacts under Baseline 1.

ISSUE 1.4.1 TRANSLATORS FOR METALS AND SELENIUM

A. Baseline 1: Effects on Existing Environmental Conditions

1. Existing RWQCB practices for metals translators. There are currently no basin plan policies for metals translators. The metals objectives in the San Francisco Bay Basin Plan currently are expressed as total recoverable; therefore, a translator is not needed. The Central Valley Basin Plan expresses the metals objectives as dissolved and the selenium objectives as total recoverable; translators for dissolved objectives are not addressed in the basin plan and the dissolved metals objectives have not yet been ~~put into~~ implemented through effluent limitations in permits. The Santa Ana Basin Plan includes site-specific objectives for three metals (that apply to segments of the Santa Ana River) which are expressed as dissolved. Although not contained in their basin plan, the Santa Ana RWQCB uses translators that were developed during the site-specific objectives study for these metals (i.e., 2.6 for cadmium and copper, and 6.1 for lead).

2. Proposed Policy for metals translators. Under the proposed Policy, RWQCBs that have metals objectives expressed as dissolved would divide the dissolved objective by the applicable U.S. EPA conversion factor prior to calculating a total recoverable effluent limitation unless a defensible translator study is planned and completed.

3. Differences between proposed Policy and existing RWQCB practices. The proposed Policy provides a discharger with two choices: (a) Use of a U.S. EPA conversion factor; or (b) development of a site-specific translator based on a defensible study. While there are no established RWQCB translator policies, these proposed Policy methods are the ones RWQCBs would most likely use to implement metals objectives in the dissolved form.

4. Potential adverse environmental effects of proposed Policy for metals translators. The proposed translator Policy is not expected to result in adverse impacts to the environment when compared with implementation of dissolved metals objectives without the Policy. Without promulgation of the CTR criteria, this Policy would apply only to existing basin plan metals objectives that are expressed in dissolved form. Only the Central Valley and Santa Ana RWQCBs have such objectives. Both the U.S. EPA conversion factor translator and the site-specific translator study result in the development of effluent limitations necessary to meet dissolved metals objectives. Therefore, the use of the proposed Policy for translators would not

cause adverse impacts to water quality, human health, or other organisms when compared with implementation of dissolved metals objectives without the Policy.

In some cases, use of a U.S. EPA conversion factor translator could result in effluent limitations more stringent than necessary to meet the applicable dissolved objectives. In such cases, the discharger has the option of entering into a site-specific translator study. A site-specific study analyzes the receiving water to determine the dissolved and total recoverable metal fractions. The ratio of these fractions is then used to translate from the dissolved concentration in the receiving water to the total recoverable concentration in the effluent that will not exceed the criterion. This approach will likely give the most accurate estimate of actual in-stream partitioning relationships and will result in the least costly means for dischargers to meet dissolved metals objectives.

5. Potentially significant adverse environmental effects. None.

Baseline 2: Adverse effects on Potential Future Environmental Conditions Under CTR

The CTR will establish criteria for some metals. This U.S. EPA action could result in a greater number of permit effluent limitations for metals and significant reductions in metals loading to the waters of the State. With the exception of the freshwater chronic criteria for selenium, the CTR aquatic life criteria for metals and selenium are ~~being~~ expressed as the dissolved fraction. In the absence if the proposed Policy, RWQCBs would likely use similar methods to implement CTR dissolved metals criteria. The potential for environmental effects, therefore, is the same as Baseline 1.

ISSUE 1.4.2 MIXING ZONES AND DILUTION CREDITS

Baseline 1: Effects on Existing Environmental Conditions

1. Existing RWQCB practices for mixing zones and dilution credits. There is currently no statewide policy on mixing zones for non-ocean surface waters in California. (The U.S. EPA allows for mixing zones in the water quality standards regulations (40 CFR 131.11).) Four of the nine RWQCB basin plans have varying provisions for mixing zones, while the basin plans for the remaining five do not mention them. Of the four RWQCB basin plans addressing mixing zones, three (Central Valley, Los Angeles, and San Diego) contain provisions to allow them on a case-by-case basis. The San Francisco Bay Basin Plan specifies a dilution ratio of 10:1 for deep water outfalls and zero for shallow water outfalls. Exceptions are allowed based on site-specific factors in determining mixing zones. The remaining five RWQCBs (North Coast, Central Coast, Lahontan, Colorado River, and Santa Ana) cannot grant mixing zones to dischargers.

2. Proposed Policy for mixing zones and dilution credits. The proposed Policy authorizes RWQCBs to grant mixing zones and dilution credits for point source discharges under the provisions of the proposed Policy. The proposed Policy specifies the parameters for determining how much (if any) receiving water is available for dilution, the dilution ratio, and dilution credit. Dilution credits and mixing zones are prohibited for incompletely-mixed discharges unless the discharger completes a mixing zone analysis and demonstrates to the satisfaction of the RWQCB

that a dilution credit is appropriate. The Policy specifies mixing zones requirements to ensure protection of water quality and the environment.

3. Differences between proposed Policy and existing RWQCB practices. With the proposed Policy, all RWQCBs, including those that currently do not have mixing zone provisions in their basin plans, would have the option of considering whether to grant or deny a mixing zone for priority pollutants and chronic toxicity on a case-by-case basis. The proposed Policy supersedes the San Francisco Bay Basin Plan provisions that specify a dilution ratio of 10:1 for deep water outfalls and zero for shallow water outfalls. However, the San Francisco Bay RWQCB may grant these dilution ratios, case-by-case, if they are consistent with the provisions of the proposed Policy.

4. Potential adverse environmental effects of proposed Policy for mixing zones. Since, by definition, mixing zones are areas where water quality criteria can be exceeded, there is the potential for adverse environmental effects. The proposed Policy could result in increased concentrations of pollutants within a RWQCB-designated mixing zone, particularly for those RWQCBs that do not have any provisions currently. Mixing zones increase the mass loadings of the pollutant(s) to the water body and can adversely effect benthic communities within the area of the mixing zone. However, a mixing zone is defined as a limited volume of receiving water allocated for mixing that will not cause adverse effects to the overall water body. The proposed Policy provides protections against any significant adverse environmental effects.

5. Potentially significant adverse environmental effects. Under the proposed Policy, mixing zone effects are considered by the RWQCB on a case-by-case basis after determining the capacity of the receiving water to accommodate the discharge. This assessment must take into consideration the following protections which are set forth in the proposed Policy.

> "A mixing zone shall not:
>
> (1) compromise the integrity of the entire water body;
> (2) cause acutely toxic conditions to aquatic life passing through the mixing zone;
> (3) restrict the passage of aquatic life;
> (4) adversely impact biologically sensitive, or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws;
> (5) produce undesirable or nuisance aquatic life;
> (6) result in floating debris, oil, or scum;
> (7) produce objectionable color, odor, taste, or turbidity;
> (8) cause objectionable bottom deposits;
> (9) cause nuisance;
> (10) dominate the receiving water body or overlap from different outfalls; or
> (11) be allowed at or near any drinking water intake. A mixing zone is not a source of drinking water. To the extent of any conflict between this determination and the Sources of Drinking Water Policy (SWRCB Resolution 88-63), this determination supersedes the provisions of that policy.

> The RWQCB shall deny or significantly limit a mixing zone and dilution credit ~~if~~ as necessary to protect beneficial uses, meet the conditions of this Policy, or comply with other regulatory requirements. Such situations may exist based on the quality of the discharge, hydraulics of the water body, or the overall discharge environment (including water column chemistry, organism health, and food chain issues). For example, in determining the extent of or whether to allow a mixing zone and dilution credit, the RWQCB shall consider the presence of pollutants in the discharge that are carcinogenic, mutagenic, teratogenic, persistent, bioaccumulative, or attractive to aquatic organisms. In another example, the RWQCB also shall consider, if necessary to protect beneficial uses, the level of flushing in water bodies such as lakes, reservoirs, enclosed bays, estuaries, or other water body types where pollutants may not be readily flushed through the system. In the case of multiple mixing zones, proximity to other outfalls shall be carefully considered to protect beneficial uses."

For most of the issues addressed in this FED, we have taken the general approach of using the priority pollutant criteria/objectives as presumptively valid standards of significance for environmental effects. While the mixing zone policy provision allows water quality criteria/objectives to be exceeded for a limited volume of receiving water, it requires a site-specific evaluation of potential effects and clearly prohibits RWQCB designation of a mixing zone if it would have adverse effects on the integrity of the water body or ~~to~~ beneficial uses. Probably the greatest potential for adverse effects would be those that could occur to benthic organisms. Under the proposed Policy, mixing zones that would have significant adverse effects to these organisms are clearly prohibited in the section of the Policy which prohibits mixing zones that could cause objectionable bottom deposits. "Objectionable bottom deposits" are defined in the Policy as follows:

> "...an accumulation of materials or substances on or near the bottom of a water body which creates conditions that adversely effect aquatic life, human health, beneficial uses, or aesthetics. These conditions include, but are not limited to, the accumulation of pollutants in the sediments and other conditions ~~which~~ that result in harm to benthic organisms, production of food chain organisms, or fish egg development. The presence of such deposits shall be determined by RWQCB(s) on a case-by-case basis."

Pollutant loading due to RWQCB designation of a mixing zone cannot result in significant adverse effects to a water body because the proposed Policy provides that water quality criteria/objectives must be met outside the limits of the mixing zone, the integrity of the water body as a whole cannot be compromised, and RWQCBs must deny mixing zones if necessary to comply with other regulatory requirements (e.g., TMDLs).

Based on the proposed Policy's requirement for site-specific consideration of a water body's ability to assimilate the discharge and on the proposed Policy's protections against adverse environmental effects, no significant adverse effects are anticipated due to the proposed Policy for mixing zones. Also, allowing ~~that~~ mixing zones ~~may~~ to be considered by all the RWQCBs ~~statewide~~, provided that specified conditions are met, could ease the dischargers' compliance burden.

Baseline 2: Adverse effects on Potential Future Environmental Conditions Under CTR

The potential for environmental effects of the proposed Policy for mixing zones and dilution credits when implemented in conjunction with the CTR is virtually the same as it would be under Baseline 1. Addition of the mixing zone policy should ease the regulatory burden on certain dischargers of complying with effluent limitations necessary to implement the CTR criteria.

1.4.3 AMBIENT BACKGROUND CONCENTRATIONS

Baseline 1: Effects on Existing Environmental Conditions

1. Existing RWQCB practices for calculating ambient background concentrations. Currently, there is no statewide law or policy applicable to inland surface waters, enclosed bays, or estuaries that defines ambient background concentration or specifies how it should be determined. The definition and determination of ambient background concentrations for these waters are currently deferred to the RWQCBs. The San Francisco Bay RWQCB has estimated saltwater and freshwater background concentrations for seven metals. These background concentrations, listed in the basin plan, were calculated as averages of observed concentrations. The remaining eight RWQCBs do not specify in their basin plans how background concentrations are to be estimated and, thus, various methods are used. The survey of RWQCB practices that was conducted for the economic analysis indicated that some permit writers used the mean of reported concentrations for a pollutant, some used the median, and some used published values for different water bodies.

2. Proposed policy for calculating ambient background concentrations. The ambient background concentration will be the maximum ambient water column concentration for determining which pollutants will require water quality-based effluent limitations. For the purpose of calculating effluent limitations, the ambient background concentration will be the maximum observed concentration except for pollutants that are human carcinogens. For priority pollutants that are intended to protect human health from carcinogenic effects, ambient background concentrations will be based on the arithmetic mean of the data.

3. Differences between proposed Policy and existing RWQCB practices. Currently, the RWQCBs use various methods to calculate ambient background concentrations. The proposed Policy sets forth a reasonable and reliable method (see discussion of alternative methods in Section V, Chapter 1.4.~~4~~ 3) that also provides statewide consistency.

4. Potential adverse environmental effects of proposed Policy for calculating ambient background concentrations. For most priority toxic pollutants, the proposed Policy would result in ~~a reasonable estimate of the highest~~ use of the highest measured background concentration in a water body so that an effluent limitation derived from this background concentration will be protective in a "worst case" scenario. For these criteria, adverse effects can occur in short-term periods (e.g., 1 hour for acute aquatic life criteria and 4 days for chronic aquatic life criteria). For priority toxic pollutants which are human health carcinogens, an estimate of the average

ambient background concentration is sufficient for protection. The criteria for human health carcinogens are based on average exposure over a 70-year period.

Use of a reasonable and reliable method to calculate background ensures protection of water quality and, therefore, serves to protect non-ocean surface water quality for identified beneficial uses such as human health and aquatic life. Selection of a reasonable and consistent method for calculating background should have no significant effect on dischargers.

5. Potentially significant adverse environmental effects. None.

Baseline 2: Adverse effects on Potential Future Environmental Conditions Under CTR

The potential for environmental effects of the proposed Policy for calculating effluent limitations is virtually the same as it would be under Baseline 1.

ISSUE 1.4.4 INTAKE WATER CREDITS

Baseline 1: Effects on Existing Environmental Conditions

1. Existing RWQCB practices regarding intake water credits. Currently, no statewide law or policy exists that directly addresses credit for intake water pollutants when establishing water quality-based effluent limitations for discharges to inland surface waters, enclosed bays, or estuaries. The basin plans also do not contain any special provisions for intake water pollutants, but permit writers may take the presence of intake water pollutants into account, as appropriate, in individual permitting decisions as long as permit limits are adequate to meet the water quality objectives when considered along with control requirements for other discharges to the stream.

2. Proposed Policy for intake water credits. If a pollutant in the receiving water has exceeded an applicable criterion, the discharge may contain that pollutant at levels no greater than the concentration of the receiving water, if no net addition of the pollutant occurs and other conditions are also met. This alternative was selected because the U.S. EPA had found in the Great Lakes Initiative that this approach could be implemented without causing adverse effects on the environment, yet providing regulatory relief to certain dischargers.

3. Differences between proposed Policy and existing RWQCB practices. The proposed Policy sets out a consistent statewide method for allowing intake water credits. The proposed Policy allows consideration of intake water credit on a pollutant-by-pollutant and outfall-by-outfall basis for all types of dischargers if certain conditions are met that protect the water quality of the receiving water.

4. Potential adverse environmental effects of proposed Policy for intake water credits. For those cases where a RWQCB determines that an intake water credit is appropriate, effluent limitations may be less stringent than current limitations. However, given the restrictions of the proposed Policy, the water quality of the receiving water should be maintained, with the mass and the concentration of the intake water pollutant neither increasing nor decreasing.

5. Potentially significant environmental effects. No significant adverse effects to water quality, human health, or aquatic life are anticipated from the proposed Policy because intake water

credit may only be considered if certain conditions are met to protect against such effects. Intake water credits are considered only on a pollutant-by-pollutant and outfall-by-outfall basis and the discharger must demonstrate that the following conditions are met:

- The maximum ambient background concentration (see Section V, Chapter 1.4.~~3~~4) and the intake water concentration of the pollutant exceed the most stringent applicable criterion for that pollutant;

- The intake water credits provided are ~~is~~ consistent with any TMDL applicable to the discharge that has been approved by the RWQCB, SWRCB and U.S. EPA;
- The intake water is from the same water body as the receiving water body~~;~~. This may be demonstrated by showing that: (1) the ambient background concentration of the pollutant in the receiving water, excluding any amount of the pollutant in the facility's discharge is similar to that of the intake water; (2) there is a direct hydrological connection between the intake and discharge points; (3) water quality characteristics are similar in the intake and receiving waters, and (4) the intake water pollutant would have reached the vicinity of the discharge point in the receiving water within a reasonable period of time and with the same effect had it not been diverted by the discharger. The RWQCB may also consider other factors when determining whether the intake water is from the same water body as the receiving water body;
- The facility does not alter the intake water pollutant chemically or physically in a manner that adversely affects water quality and beneficial uses; and
- The timing and location of the discharge does not cause adverse effects on water quality and beneficial uses that would not occur if the intake water pollutant had been left ~~in-stream~~ in the receiving water body.

Furthermore, the facility may only discharge a mass and concentration of the intake water pollutant that are no greater than the mass and concentration found in the facility's intake water. ~~Also,~~ The proposed Policy may provide some regulatory relief to dischargers faced with this situation.

Baseline 2: Adverse effects on Potential Future Environmental Conditions Under CTR

The proposed Policy would be implemented in the same manner as described in Baseline 1 (pre-CTR), so no significant adverse effects are anticipated.

ISSUE 2.1 COMPLIANCE SCHEDULES

Baseline 1: Effects on Existing Environmental Conditions

1. Existing RWQCB practices regarding compliance schedules. A compliance schedule refers to a designated timetable of interim and final dates in a permit for implementing required actions to comply with water quality standards and effluent limitations based on the standards. State regulations authorize the SWRCB and RWQCBs to include time schedules in WDRs for discharges not required to be regulated under an NPDES permit. There is no current statewide

policy allowing compliance schedules in NPDES permits for discharges to inland surface waters, oceans, enclosed bays, or estuaries. However, the San Francisco Bay and Central Valley basin plans contain compliance schedule provisions applicable to NPDES permittees that allow up to 10 years for compliance. The other seven RWQCBs have not yet included specific provisions for compliance schedules in their respective basin plans.

2. Proposed Policy for compliance schedules. The proposed Policy authorizes a schedule of compliance ~~for CTR-based effluent limitations. The schedule must be as short as feasible but in no case exceed the following:~~

~~A. Five years to complete necessary facility upgrades.~~
~~B. Ten years to develop and adopt a TMDL, WLA, and LA.~~
~~C. Five years to develop and adopt site-specific objectives.~~
~~D. Three years to collect additional data needed to develop effluent limitations.~~

of up to five years from the date of permit issuance, reissuance, or modification to complete actions necessary to comply with CTR-based effluent limitations that are derived with or without a TMDL. The Policy also provides for up to 15 years from the effective date of the Policy to develop and adopt a TMDL and accompanying WLAs and LAs.

3. Differences between proposed Policy and RWQCB practices regarding compliance schedules. The proposed Policy allows compliance schedules in WDRs for CTR criteria only. The proposed Policy does not apply to basin plan objectives for priority pollutants that are not superseded by the CTR nor does it apply to NTR criteria. The proposed Policy will apply statewide, including in those regions that do not currently address compliance schedules.

4. Potential adverse environmental effects of proposed Policy for compliance schedules. The proposed Policy will have no effects on existing environmental conditions prior to adoption of the CTR because this section of the proposed Policy applies only to CTR criteria.

5. Potentially significant environmental effects. None.

Baseline 2: Adverse effects on Potential Future Environmental Conditions Under CTR

~~Under the proposed Policy, a RWQCB may allow a total compliance schedule of up to 15 years if facility upgrades are required after a WLA is adopted. The RWQCB may allow up to 10 years if facility upgrades are required after a site-specific objective has been adopted or eight years if additional data are required to develop effluent limitations.~~

In the absence of the Policy, two RWQCBs (Central Valley and San Francisco) would allow up to 10 years for compliance. The August 1997 draft CTR would allow up to five years from the date an NPDES permit is first issued, reissued or modified to include CTR-based effluent limitations, whichever is sooner, with a maximum compliance deadline of 10 years from the effective date of the CTR. ~~In some cases, the discharger would be required to come into compliance sooner under the proposed Policy (within five years of Policy adoption). This could mean that water quality would be improved sooner, and would eliminate the potential for adverse effects that could occur under longer compliance schedules. In other cases, longer compliance~~

~~schedules could be authorized under the proposed Policy. In such cases, there could be adverse effects because the water quality criteria established to protect human health and aquatic life would not be met.~~ In a January 21, 2000 letter from Alexis Strauss, Director of U.S. EPA Region IX's Water Division, to SWRCB Executive Director Walt Pettit, U.S. EPA indicated that it may add a sunset provision of December 2004 to the authorizing compliance schedule provisions of the CTR.

~~As an alternative to the proposed Policy, the SWRCB could require five years maximum compliance schedules for all facilities. However, it is clearly not feasible to require a discharger to comply with a not-yet-determined SSO, TMDL, or effluent limitation. To require the discharger to comply with a CTR-based effluent limitation without adequate data or while an SSO or TMDL is under development could mean that the discharger would have to install treatment controls that may later be determined to be unnecessary. The proposed compliance schedules are reasonable to allow dischargers to comply with the effluent limitations that are determined to be appropriate, once appropriate data are collected and SSO or TMDL is completed.~~

For the most part, the Policy's compliance schedule provisions are virtually the same as the CTR provisions insofar as each allows for up to five years from permit issuance with a maximum compliance deadline of 10 years from adoption. It is anticipated that Policy's effective date will track CTR's effective date by only a few weeks. However, the Policy differs from the CTR in that it allows additional time to develop and adopt a TMDL and accompanying WLAs and LAs. Such a compliance schedule may be authorized for TMDL development when it is infeasible for the discharger to achieve immediate compliance with a CTR criterion and the discharger has made appropriate commitments to support and expedite development of the TMDL. A maximum of 20 years from Policy adoption is allowed for compliance with a WLA derived from a TMDL.

The Policy's compliance schedule provisions do not have the potential to result in significant adverse effects, except in cases where longer compliance schedules are allowed for TMDL development (see discussion of TMDL-based compliance schedules below). For discharges which are not based on TMDLs, maximum allowed compliance schedules are virtually the same under the CTR and the proposed Policy. There is no significant difference in these timeframes; therefore, no significant impacts to the environment would result.

Additionally, the proposed Policy contains provisions (that are not included in the CTR) to mitigate potential adverse effects. ~~It~~ The Policy is written narrowly to apply only to those situations where the discharger demonstrates that it is infeasible to achieve immediate compliance with the CTR criteria, and it does not apply to new discharges. The schedule of compliance must include ~~a time schedule for completing actions that demonstrate progress toward attainment of the criteria, and the final compliance date is to be based on the shortest practicable time necessary to achieve compliance.~~ specified required actions that demonstrate progress toward attainment of the CTR criterion or effluent limitation. Completion of these tasks and the final compliance date shall be the shortest time practicable, and the RWQCB can impose interim requirements such as source control and pollution minimization/prevention.

TMDL-Based Compliance Schedules. If it is infeasible for the discharger to achieve immediate compliance with a CTR limitation and the discharger has made appropriate commitments to support and expedite TMDL development, the Policy allows RWQCBs to authorize longer compliance schedules if necessary. In some cases, dischargers could be allowed up to ten additional years to comply with CTR-based limitations. There could be adverse effects during that period because criteria established to protect human health and aquatic life may not be met.

As described above, the Policy contains provisions to mitigate potential adverse effects. The TMDL-Based Compliance Schedule provisions of the Policy provide an additional measure to protect against adverse environmental effects: for bioaccumulative priority pollutants on the CWA Section 303(d) list, the RWQCB should consider limiting mass loading of these pollutants to current, representative levels pending TMDL development.

As an alternative, the SWRCB could eliminate the TMDL-Based Compliance Schedules provisions of the Policy and avoid any potential for adverse effects due to the Policy's compliance schedules provisions. Eliminating these compliance schedules for TMDLs is unrealistic. Currently, over 500 water bodies are listed as impaired on the state's Clean Water Act Section 303(303(d) list. More than 1400 impairments are cited for these waters. Existing U.S. EPA policy requires that the states develop schedules for TMDL development of up to 13 years, beginning with the 1998 lists. U.S. EPA has proposed, however, in draft TMDL regulations published in August, 1999, that the states develop schedules for establishing TMDLs as expeditiously as practicable, but no later than 15 years from the date of the initial listing. The draft regulations also contemplate that each TMDL include an implementation plan containing a timeline, including interim milestones, for implementing control actions and management measures necessary to achieve the WLAs and LAs. The implementation plan also must include an estimate of the time required to achieve water quality standards. In the draft rule U.S. EPA recognizes that relatively longer timeframes may be necessary for some problems are extremely difficult to solve. Our proposed TMDL compliance schedule provisions are consistent with U.S. EPA's direction.

Implementing TMDLs for priority pollutants may result in greater overall improvements to water quality because all significant sources of a pollutant will be addressed. If a TMDL is under development, the discharger must still immediately comply with CTR-based effluent limitations if it is feasible to do so. If it is infeasible, the discharger must comply with RWQCB interim requirements that demonstrate progress toward meeting the CTR criterion or effluent limitations. The Policy provides that the RWQCB can impose requirements for source control and pollution minimization/prevention during the compliance schedule period. However, to require the discharger to install expensive advanced treatment controls to comply with a CTR-based effluent limitation while the TMDL is under development could result in unnecessary costs and unnecessary secondary environmental effects due to construction of the treatment controls.

~~Prior to authorization of a compliance schedule in a permit, a discharger must document that the proposed schedule is as short as possible and that source control measures have been implemented or are scheduled. There must be a final compliance date which is based on the~~

~~shortest practicable time needed to achieve compliance.~~

Under the proposed Policy, dischargers will be able to properly develop the basis for their effluent limitations (e.g., sufficient data, SSOs, TMDLs) and work with RWQCBs to develop efficient and effective methods of compliance that may minimize secondary environmental effects that could be caused by the means of compliance. The proposed Policy requirements to achieve compliance in the shortest time practicable, plus the interim requirements of the Policy would ensure that progress is made toward meeting the CTR criteria. In addition, compliance schedule provisions assist dischargers in achieving the criteria.

ISSUE 2.2 INTERIM REQUIREMENTS

Baseline 1: Effects on Existing Environmental Conditions

1. Existing RWQCB practices regarding interim requirements. Presently, no statewide policy specifies the situations under which interim effluent limitations may be considered for discharges to inland surface waters, enclosed bays, estuaries, or ocean waters. State regulations for NPDES permits and other WDRs address interim requirements, other than interim effluent limitations, under certain circumstances. Interim requirements, including effluent limitations and other requirements, may be allowed where a schedule of compliance has been authorized. In the absence of such an authorization, water-quality based limitations in NPDES permits must be met at the date of permit issuance. Interim effluent limitations are conditionally provided for in the San Francisco Bay and the Central Valley basin plans.

2. Proposed Policy regarding interim requirements. If it cannot be determined, due to lack of data, whether an effluent limitation is necessary for a pollutant, the RWQCB may require the discharger to collect the necessary data. The RWQCB shall set a compliance schedule for data collection that is as short as practicable, and shall determine, based on the collected data, whether effluent limitations are necessary to control the pollutant.

If an effluent limitation cannot be calculated due to lack of data, an interim limitation may be established in the WDR that is at least as stringent as the previous effluent limitation. The discharger may, furthermore, be required to participate in activities necessary to develop final limitations and other measures, such as source control, may also be imposed. When interim requirements are completed, the RWQCB will reopen the WDR for that pollutant, and calculate and include in the WDR final water quality-based effluent limitations based on collected information.

If a discharger cannot immediately meet water quality-based effluent limitations, and the RWQCB determines that a compliance schedule is appropriate, an interim limitation must be established in the WDR that is at least as stringent as the previous effluent limitation. The discharger may, furthermore, be required to implement requirements to control the pollutant, such as source control measures.

3. Differences between proposed Policy and RWQCB practices. SWRCB regulations address interim requirements in compliance schedules for NPDES permits and WDRs, under certain circumstances. The proposed Policy would provide additional, more detailed guidance on interim requirements.

4. Potential adverse environmental effects of proposed Policy regarding interim requirements. It is not anticipated that the proposed Policy will have any adverse effects on the environment. The proposed Policy recognizes that, in some cases, there may be inadequate data to determine whether an effluent limitation is needed or to calculate an effluent limitation, or the discharger may not be able to immediately meet an effluent limitation. In such cases, the proposed Policy establishes requirements for interim actions to ensure that progress is made in a timely manner toward meeting applicable criteria/objectives.

5. Potentially significant environmental effects. None.

Baseline 2: Adverse effects on Potential Future Environmental Conditions Under CTR

The potential for environmental effects is virtually the same upon implementation of the CTR as it would be under Baseline 1 (pre-CTR).

ISSUE 2.3 MONITORING AND REPORTING REQUIREMENTS

Baseline 1: Effects on Existing Environmental Conditions

1. Existing RWQCB practices for monitoring and reporting. Federal and State regulations specify monitoring requirements for NPDES permits and non-NPDES WDRs, respectively (see Section V, Chapter 2.2). The information generated by these monitoring and reporting requirements is used to determine compliance with effluent limitations established to protect water quality.

2. Proposed Policy for monitoring and reporting. The proposed Policy language would provide general monitoring and reporting requirements which are consistent with Federal and State regulations.

3. Differences between proposed Policy and RWQCB practices. The proposed Policy does not represent a substantive change from existing practices but is designed to provide greater statewide consistency.

4. Potential adverse environmental effects of proposed Policy for monitoring and reporting. The proposed Policy, as well as the various existing RWQCB practices, protects water quality by providing additional guidance to the RWQCBs on monitoring compliance with effluent limitations that have been established to meet applicable criteria and objectives. The proposed Policy does not represent a significant change from existing practices, and, therefore, would not have significant effects on water quality, human health, or aquatic life, or place significant additional requirements on dischargers.

5. Potentially significant environmental effects. None.

Baseline 2: Adverse effects on Potential Future Environmental Conditions Under CTR

Adoption of the CTR will not affect how RWQCBs conduct their monitoring and reporting programs. Therefore, there will be no significant environmental effect when this proposed Policy for monitoring and reporting is implemented in conjunction with the CTR.

ISSUE 2.4 REPORTING LEVELS

Baseline1: Effects on Existing Environmental Conditions

1. Existing RWQCB practices regarding reporting levels. With one or two exceptions, the RWQCBs do not have reporting levels policies. Laboratories typically report results of their analyses as either nondetect or a quantified numeric value. The RWQCBs use the numeric values for compliance purposes. Values of nondetect are presumed to be in compliance. The Santa Ana RWQCB uses a table of practical quantitation levels for compliance determinations. In general, these levels are close to or slightly exceed the ~~R~~MLs for the proposed Policy (listed in Appendix 2) and exceed MDLs.

2. Proposed Policy for reporting levels. In Appendix 2, the proposed Policy establishes numeric ~~R~~MLs to be used for compliance determinations. In addition, the RWQCBs are required to include a condition in WDRs mandating that the discharger develop and conduct a pollutant minimization program (including pollutant prevention measures when appropriate) for each reportable substance with a calculated effluent limitation below the ~~R~~ML whenever there is evidence that the facility is discharging between the effluent ~~concentration~~ limitation and the ~~R~~ML. The goal of the program is to reduce all potential sources of the substance to maintain the effluent concentrations at or below the calculated effluent limitation.

The RWQCBs have the discretion to include special conditions in WDRs to require the gathering of evidence to determine whether the constituent of concern is present in the effluent at levels above the calculated effluent limitation.

3. Differences between the proposed Policy and RWQCB practices regarding reporting levels. There are several significant differences between the proposed Policy and RWQCB practices.

First, the proposed Policy would establish uniform, statewide groundrules for reporting levels for priority toxic pollutants. It would replace the variable and inconsistent approaches currently used by the RWQCBs.

Second, the proposed Policy requires that dischargers develop and conduct a pollutant minimization program for substances with calculated effluent limitations below the ~~R~~ML where there is evidence that the facility is discharging between the ~~R~~ML and the effluent limitation and the ~~R~~ML. In general, the RWQCBs do not address values below the ~~R~~ML so ~~that~~ this is a departure from current practices.

4. Potential adverse environmental effects of proposed Policy for reporting levels. The proposed Policy could potentially provide greater water quality protection for non-ocean waters of California than under current RWQCB practices. The proposed Policy requires that dischargers develop and conduct a pollutant minimization program (including pollutant prevention measures as appropriate) for all reportable substances with effluent limitations below the ~~R~~ML when there is evidence that the facility is discharging between the ~~R~~ML and the effluent limitation. The goal of this requirement is to control pollutant sources in order to attempt to achieve the calculated effluent limitation and should help to improve water quality when compared with existing practices where no action is taken for nondetects from existing laboratory methods.

It is possible that dischargers may be affected by the proposed reporting levels provisions, depending on current practice and the constituent of concern. Currently, the great majority of RWQCBs do not have reporting level policies and there does not appear to be any consistent approach among RWQCBs on this issue. There may be some impact to dischargers if there is evidence that their effluent contains concentrations of a substance of concern that is below the RL but above their calculated effluent limit. In such cases, the discharger must conduct a Pollutant Minimization Program. There normally is not much information that allows characterization of effluent concentrations below detection limits, so the Policy is not expected to result in widespread PMPs for a significant number of pollutants.

5. Potentially significant environmental effects. None

Baseline 2: Adverse effects on Potential Future Environmental Conditions Under CTR

The CTR does not address reporting levels; therefore, the potential environmental effects of Baseline 2 are the same as Baseline 1.

ISSUE 3 2,3,7,8-TCDD EQUIVALENTS

1. Existing RWQCB practices regarding 2,3,7,8-TCDD equivalents. While RWQCBs have not adopted objectives for congeners of 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) equivalents for non-ocean surface waters, the San Francisco Bay RWQCB~~s~~ has included TCDD equivalents in some WDRs ~~has required~~, and is monitoring for the equivalents in other discharges. The Ocean Plan contains a water quality objective of 0.0039 picograms per liter (pg/l) for TCDD equivalents.

2. Proposed Policy regarding 2,3,7,8-TCDD equivalents. RWQCBs will require ~~all~~ NPDES dischargers to conduct effluent and ambient monitoring for the following 2,3,7,8-tetrachlorodibenzo-p-dioxin equivalents:

2,3,7,8-TetraCDD
1,2,3,7,8-PentaCDD
1,2,3,4,7,8-HexaCDD~~s~~
1,2,3,6,7,8 HexaCDD

1,2,3,7,8,9-HexaCDD
1,2,3,4,6,7,8-HeptaCDD
OctaCDD
2,3,7,8-TetraCDF
1,2,3,7,8-PentaCDF
2,3,4,7,8-PentaCDF
1,2,3,4,7,8-HexaCDF~~s~~
1,2,3,6,7,8-HexaCDF
1,2,3,7,8,9-HexaCDF
2,3,4,6,7,8-HexaCDF
1,2,3,4,7,8-HeptaCDF~~s~~
1,2,3,4,7,8,9-HeptaCDF
OctaCDF

The purpose of the monitoring is to assess the presence and amounts of the congeners being discharged to inland waters, enclosed bays, and estuaries for the development of a strategy to control these chemicals in a future multi-media approach.

3. Differences between proposed Policy and RWQCB practices. Except for the existing monitoring requirements for some San Francisco Bay RWQCB facilities, the proposed Policy would institute monitoring requirements for these congeners.

4. Potential adverse environmental effects of proposed Policy regarding 2,3,7,8-TCDD equivalents. There are no adverse environmental effects due to monitoring and identifying discharges and sources of the 2,3,7,8 TCDD equivalents.

5. Potentially significant environmental effects. None.

Baseline 2: Adverse effects on Potential Future Environmental Conditions Under CTR

The CTR is not setting any objectives or procedures for these 2,3,7,8-TCDD equivalents, therefore, potential environmental effects are the same as Baseline 1.

ISSUE 4 TOXICITY CONTROL PROVISIONS

Baseline 1: Effects on Existing Environmental Conditions

1. Existing RWQCB practices regarding chronic toxicity. All of the basin plans contain a narrative toxicity objective. The San Francisco Bay and San Diego basin plans call for toxicity identification evaluations (TIEs) and toxicity reduction evaluations (TREs) in the event that toxicity is identified. A great majority of existing permits contain monitoring requirements or effluent limits for chronic toxicity, and ~~that~~ generally the permits also include standardized TRE/TIE language. In addition, the permits for 17 of the ~~20 sample~~ facilities used in U.S. EPA's 1997 economic analysis for the CTR were examined to determine what toxicity requirements

were included.[3] The results of this examination are summarized in Table VI-1.

2. Proposed Policy for chronic toxicity. To promote statewide consistency, the proposed Policy establishes ~~a~~ uniform ~~narrative chronic~~ toxicity ~~objective and~~ implementation procedures for existing RWQCB toxicity objectives. The proposed Policy specifies acceptable critical life stage toxicity tests, but allows the development of new tests. Once repeated tests reveal chronic toxicity, the discharger must do a TRE.

3. Differences between proposed Policy and RWQCB practices. The proposed Policy is very similar to existing RWQCB practices and to current U.S. EPA guidance for POTWs and industrial discharges.

4. Potential adverse environmental effects of proposed Policy for chronic toxicity. The proposed Policy establishes a consistent statewide approach for chronic toxicity control. This approach will help to protect the beneficial uses of surface waters throughout the State. Because the proposed Policy establishes requirements that are very similar to existing RWQCB practices, the SWRCB does not anticipate additional impacts on dischargers over and above current requirements. As noted above, all basin plans currently contain a narrative toxicity objective, and the RWQCBs have been addressing toxicity control for several years. The chronic toxicity assessment for the 17 sample facilities addressed in Table VI-1 supports this conclusion and indicates that the RWQCBs are already implementing chronic toxicity requirements.

[3] ~~The full names and locations of these facilities can be found in FED Section VIII.~~

Table VI-1. Toxicity Requirements Assessment of ~~Sixteen~~ Seventeen Sample Facilities with NPDES Permits

FACILITY	Chronic Toxicity Limit*	TIE/TRE Required	Comment
Alta-Gold	No	No	No reasonable potential for toxicity.
Arcata	Yes	Yes	
Coachella	Acute limits	Yes	Monitoring for chronic toxicity required in permit to evaluate need for chronic toxicity limit.
Collins Pine Co.	Acute testing only		Reasonable potential for toxicity not demonstrated. Chronic testing showed 100% survival. Permit states that chronic and acute limits, and monitoring, will be placed in permit based on State policy for water quality toxicity control 6 months after adoption of the state policy (this policy was never adopted).
Colton	Yes	Yes	
E.I. Dupont	Acute limits		Monitoring for chronic toxicity required in permit. No reasonable potential for toxicity demonstrated as no toxicity found in studies conducted before permit was adopted.
Exxon Corp.	Yes	Yes	

Table VI-I (continued)

FACILITY	Chronic Toxicity Limit*	TIE/TRE Required	Comment
Hunter's Point	Acute limits	Yes, in Basin Plan	Studies of PG&E effluent has not indicated a need for chronic toxicity limitations. Monitoring programs require that all violations of permit limits be reported to the RWQCB, and the TRE provisions are included in the region's basin plan and would be enforced if necessary.
Merced	Yes	Yes	Permit does not specifically mention TREs, but requires workplan to investigate toxicity and steps to be taken to reduce or eliminate toxicity.
Riverside	Acute limits	Yes	Monitoring for chronic toxicity required. Accelerated monitoring if over 1.0 TU_c.
Rockwell	Yes	Yes	
Sacramento	Acute limits	Yes	Monitoring for chronic toxicity required. TIE required in monitoring proposal. Previous monitoring showed no toxicity
San Jose	Yes	Yes, in process	Blanket Chronic Toxicity Order #92-104 included as part of permit.
San Juan	Yes	Yes	
Sunnyvale	Yes	Yes, in process	Blanket Chronic Toxicity Order #92-104 included as part of permit.
Tillman	Yes	Yes	
Unocal	Acute limit	Yes	Reasonable Potential for chronic toxicity not demonstrated.

* Unless otherwise noted if a limit is included in the permit, then a monitoring requirement is included in the permit.

Nevertheless, in FED Section VIII, the SWRCB looked at several case studies of dischargers that have conducted TIE/TREs. The purpose of the case studies was to examine the costs that dischargers might incur in conducting various types of TIE/TREs, as well as different types of compliance actions taken by the dischargers. It should be noted that the dischargers conducted these TIE/TREs as a result of current permit requirements.

5. Potentially significant environmental effects. The toxicity requirements will not adversely affect water quality or aquatic life. Compliance by dischargers with the requirements is not expected to result in any additional environmental effects, over existing requirements.

Baseline 2: Adverse effects on Potential Future Environmental Conditions Under CTR

The CTR does not address whole effluent toxicity. Therefore, potential environmental effects of Baseline 2 will be the same as Baseline 1.

ISSUE 5.1 STORM WATER AND URBAN RUNOFF

Baseline 1: Effects on Existing Environmental Conditions

1. Existing RWQCB practices regarding storm water. RWQCBs have adopted NPDES storm water permits for municipal separate storm sewer systems (MS4's) serving a population of 100,000 or more and for industrial facilities not suited for coverage under a General Industrial Permit. The MS4 permits require the discharger to reduce the discharge of pollutants to the maximum extent practicable (MEP). Efforts of municipalities subject to MS4 permits have been focused on implementation of BMPs to reduce pollutants, rather than on treatment of storm water to remove pollutants. BMPs emphasize activities such as pollution prevention and public education regarding topics such as the use and disposal of household chemicals, oil, and other wastes.

In addition, there are two statewide NPDES general storm water permits, the General Industrial Permit and the General Construction Permit. These permits require implementation of best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT). Both the General Industrial and Construction Permits require the development of a Storm Water Pollution Prevention Plan (SWPP) and a monitoring plan. The SWPP~~P~~ must include BMPs which can range from good housekeeping to structural controls.

2. Proposed Policy for storm water. The existing storm water programs will remain in effect at the SWRCB and RWQCBs. ~~If concentration-based numeric effluent limits were established, provisions of the proposed Policy would apply.~~

3. Differences between proposed Policy and RWQCB practices. There is no difference between the proposed Policy and RWQCB practices, because no new program is proposed.

4. Potential adverse environmental effects of proposed Policy for storm water. There is no change in SWRCB/RWQCB practice, so there are no environmental effects attributable to the proposed Policy.

5. Potentially significant environmental effects. None.

Baseline 2: Adverse effects on Potential Future Environmental Conditions Under CTR

The proposed Policy does not change the SWRCB and RWQCB approach to addressing storm water and urban runoff by pollution prevention and reduction: This approach will continue after U.S. EPA promulgates the CTR criteria; therefore, it is the same as Baseline 1.

ISSUE 5.2 NONPOINT SOURCE DISCHARGES

Baseline 1: Effects on Existing Environmental Conditions

1. Existing RWQCB practices regarding nonpoint sources. Nonpoint source control programs are used by the RWQCBs to protect beneficial uses, prevent nuisance conditions, and to implement water quality standards in waters of the State affected by nonpoint source pollution. RWQCB nonpoint source control programs are built upon and furthered by the SWRCB nonpoint source program. See discussion of the SWRCB nonpoint source program in FED Section V.

2. Proposed Policy for nonpoint source discharges. The existing nonpoint source program would remain in effect, and the RWQCBs would continue to use it to develop nonpoint source control implementation measures. The SWRCB would continue support for the watershed management approach and the NPS Plan. If concentration-based, numeric effluent limits were established provisions of the proposed Policy would be applied.

3. Differences between proposed Policy and RWQCB practices. There is no difference between the proposed Policy and RWQCB practices, because currently, there are no concentration-based, numeric effluent limits in WDRs for nonpoint sources in the State.

4. Potential adverse environmental effects. There is no change in SWRCB/RWQCB practice, so there are no environmental effects due to the proposed Policy.

5. Potentially significant environmental effects. None.

B. Baseline 2: Adverse effects on potential future conditions under CTR.

Essentially the same as Baseline 1. Adoption of the CTR will not result in any change in the nonpoint source program.

ISSUE 5.3 SITE-SPECIFIC OBJECTIVES

Baseline 1: Effects on Existing Environmental Conditions

1. Existing RWQCB practices regarding site-specific objectives. Development of site-specific objectives is allowed under Federal regulations, and site-specific objectives are subject to U.S. EPA review and approval. Most RWQCB basin plans mention site-specific objectives as available alternatives, but do not provide procedural detail for their development. Those RWQCB basin plans that have details on site-specific objectives reiterate the Federal requirements and guidance on site-specific objectives.

2. Proposed Policy regarding site-specific objectives. The proposed Policy provides a process framework to assist in the development of site-specific objectives.

3. Differences between proposed Policy and RWQCB practices. The development of site-specific objectives is allowed under current practices and the proposed Policy will not change this. The policy promotes statewide consistency and generally describes the procedural steps to be taken to develop site-specific objectives.

4. Potential environmental effects. There is no substantive change to State or Federal requirements for site-specific objectives, so no environmental effects are anticipated as a result of establishing a process framework for their development.

5. Potentially significant environmental effects. None.

B. Baseline 2: Effects on Potential Future Environmental Conditions Under CTR

The CTR will not proposing any additional procedures for site-specific objectives and, therefore, the effects of Baseline 2 are the same as Baseline 1.

ISSUE 5.4 WATERSHED MANAGEMENT AND TMDLs

This issue has been deleted from the body of the Policy. Information regarding watershed management approaches and TMDLs is included as an Appendix to the Policy. This Appendix has no regulatory effect.

~~**Baseline 2: Effects on Potential Future Environmental Conditions under CTR**~~

ISSUE 5.5 EXCEPTIONS

Baseline 1: Effects on Existing Environmental Conditions

1. Existing RWQCB practices regarding exceptions. The U.S. EPA water quality standards regulations authorize the states to grant exceptions to their water quality standards. Specifically, the regulations allow the states to include policies in their water quality standards "generally

affecting their application and implementation, such as ... variances" (40 CFR 131.13). The purpose of a variance is to provide a mechanism for not changing the underlying standards, while, at the same time, allowing NPDES permits to be issued in compliance with the Clean Water Act (U.S. EPA 1993). A variance is a type of exception for water quality standards.

Some RWQCB basin plans specifically allow exceptions to certain discharge prohibitions in their plans. RWQCBs currently utilize various and multiple mechanisms, other than exceptions to allow legally mandated pest control and resource management activities to occur.

2. Proposed Policy regarding exceptions. The proposed Policy describes two types of exceptions:

a. Categorical exceptions for categories of discharges, such as legally-mandated resource and pest management activities, and

b. Case-by-case exceptions specific to individual permitted dischargers.

Under the proposed Policy, the RWQCBs may, after compliance with CEQA, allow short-term or seasonal exceptions from meeting a priority pollutant criterion/objective ~~and the statewide toxicity objective of the proposed Policy~~, if determined to be necessary to implement statutorily-required control measures for resource or pest management (i.e., vector or weed control, pest eradication, or fishery management) or the maintenance of drinking water supplies.

The proposed Policy also allows the SWRCB, with concurrence of U.S. EPA, to grant case-by-case exceptions to meeting a priority pollutant criterion/objective~~, the statewide toxicity objective in the proposed Policy~~, or any other provision of the proposed Policy. The SWRCB may grant such a case-by-case exception where site-specific conditions in individual water bodies or watersheds differ sufficiently from statewide conditions, and those differences cannot be addressed through other provisions of the proposed Policy.

3. Differences between proposed Policy and RWQCB practices. Regarding categorical exemptions for legally-mandated activities to protect drinking water and other resources, RWQCBs typically allow these activities to go forward, using various mechanisms. The proposed Policy would likewise allow these activities under a consistent, statewide exception. The provisions for case-by-case exceptions are new and apply only to priority pollutant criteria/objectives~~, the proposed State narrative chronic toxicity objective,~~ and other provisions of the proposed Policy.

4. Potential environmental effects of proposed Policy regarding exceptions. SWRCB adoption of the proposed Policy for categorical exemptions is not expected to result in potential adverse environmental effects. Categorical exemptions are currently being allowed by RWQCBs for statutorily-required resource or pest management activities and various approaches have been used to address specific situations. For example, the Lahontan RWQCB addresses the use of rotenone for fishery management through a memorandum of understanding with the DFG. The Department of Health Services, Environmental Health Branch has a permit from the U.S. Army

Corps of Engineers and CWA Section 401 certification from the SWRCB for mosquito abatement activities in wetlands in the San Francisco Bay, and parts of the North Coast, Central Coast, and Central Valley regions.

Existing practices for these pest and resource management activities (e.g., using rotenone to kill fish that would eventually eliminate other fish species in a lake, mosquito abatement, etc.) clearly impact water quality and species other than those that are targeted for elimination, and these short-term impacts would occur after adoption of the proposed Policy as well. SWRCB adoption of the proposed Policy will not cause additional adverse impacts. In fact, the proposed Policy sets forth provisions to minimize short-term impacts and prevent long-term adverse impacts to water quality and the environment. Prior to undertaking these statutorily-required resource or pest management activities, the discharger must notify potentially affected public and governmental agencies, and provide a detailed description of the proposed action, including the proposed method of completing the action, time schedule, discharge and receiving water quality monitoring plan (before project initiation, during the project, and after project completion, with the appropriate quality assurance and quality control procedures), CEQA review documents, contingency plans, identification of alternate water supply (if needed), residual waste disposal plans, and, upon completion of the project, certification by a qualified biologist that the receiving water beneficial uses have been restored. CEQA requires public disclosure of potentially significant environmental effects, as well as mitigation of significant effects whenever feasible.

The proposed Policy also allows the SWRCB to grant case-by-case exceptions to priority pollutant criteria/objectives, ~~the proposed Policy's chronic toxicity objective,~~ and other provisions of the proposed Policy. The proposed Policy is narrowly written to address only those situations where site-specific conditions in individual water bodies or watersheds differ significantly from statewide conditions and those differences cannot be addressed through other provisions of the proposed Policy. Here again, the proposed Policy provides measures to protect against environmental impacts.

The SWRCB cannot grant a case-by-case exception until there has been full compliance with CEQA. CEQA requires public notice, consultation with public agencies (responsible agencies) that plan to approve or carry out the actions inherent in the exception, State agencies with jurisdiction over natural resources which are held in trust for the people of the State (trustee agencies such as DFG), as well as any other agencies with jurisdiction over resources that would be affected by granting of the exception. In addition, CEQA requires consideration of alternatives and feasible mitigation in cases with potentially significant adverse environmental impacts.

The proposed Policy also requires that the SWRCB hold a public hearing prior to granting an exception. The U.S. EPA must concur with the exception before it can be granted.

5. <u>Potentially significant environmental effects</u>. It is unlikely that there will be potentially significant effects due to the categorical exception provisions of the proposed Policy because this is not a change from existing practices and additional safeguards are established. Case-by-case exceptions can not be granted unless the SWRCB complies with CEQA and considers potential environmental effects at that time.

B. Baseline 2: Effects on Potential Future Environmental Conditions under CTR

While additional priority pollutants may be regulated upon implementation of the CTR, the potential for environmental effects of the proposed Policy for exceptions is the same as it would be under Baseline 1.

CHAPTER 2 REASONABLE MEANS OF COMPLIANCE

The SWRCB conducted an assessment of economic impacts of adoption of the proposed Policy (See Section VIII). In order to estimate costs, it was necessary to project whether dischargers would have to take additional compliance actions[4] due to the Policy provisions addressed in the economic analysis. ~~The Policy as it is currently being proposed is most similar to economic analysis Alternative 4; however, some aspects of the proposed Policy are not reflected in the analysis of Alternative 4.~~ See discussion in ~~the "Introduction" and "Reasonable Means of Compliance" subsections of~~ FED Section VIII "Economic Considerations."

Potential for adverse environmental effects due to installation of advanced treatment

As explained in the FED Section VIII discussion on Reasonable Means of Compliance, it is estimated that fewer facilities may need to install treatment under the proposed Policy (which is most similar to Alternative 4 in the economic analysis) than would be the case if the CTR were implemented without the Policy. Therefore, SWRCB adoption of the proposed Policy may result in fewer of the potential adverse impacts to the environment that ~~may~~ might occur due to installation of these types of advanced treatment. In any event, the proposed Policy is not expected to cause more wastewater treatment facilities in the State to install advanced treatment and, therefore, will not result in more adverse impacts attributable to such treatment.

A number of commenters expressed concerns that the proposed Policy would result in effluent limits that would require dischargers to install advanced treatment such as lime precipitation, carbon adsorption, and reverse osmosis. They commented that it is the responsibility of the SWRCB to consider the potential adverse environmental effects of installing these types of treatment. As explained above, SWRCB adoption of the proposed Policy is not expected to result in more of these impacts than would occur if the Policy was not adopted. Although we do not agree that these types of treatment will be the result of SWRCB adoption of the proposed Policy, following is a discussion of potential adverse effects of these types of treatment.

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[4] Compliance measures could include construction of treatment facilities. The construction and operation of waste water treatment facilities could potentially result in adverse effects to the environment. Potential effects could include such things as impacts to aesthetics or archaeological resources, wildlife habitat, air emissions, energy consumption, number of vehicle trips, surface water drainage patterns, odors, etc.

In the process of planning and CEQA review, most potential impacts for treatment facilities are mitigated to less than significant levels. In the past five years, the SWRCB Division of Clean Water Programs considered approximately 50 CEQA documents that went to the SWRCB for State Revolving Fund loans for construction of waste water treatment facilities. Potential environmental impacts were less than significant for about 80 percent of these projects. About 20 percent of the projects had at least one environmental impact that could not be mitigated to a less than significant level. For these projects, both the discharger and the SWRCB determined that the benefits of the project outweighed the unmitigable impact, and so the project was approved.

Chemical Precipitation

Chemical precipitation is a process that converts a soluble substance to an insoluble form, either by a chemical reaction or by changes in the composition of the solvent that diminish the solubility of the substance in the solvent. The precipitated solids can be removed by settling and/or filtration. Precipitation is commonly used to reduce the hardness of water by removing calcium and magnesium, but this process can also be applied to the removal of many toxic metals from aqueous wastes. Metals that can be removed by precipitation include: arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc. (Freeman, 1989)

In the chemical precipitation process, a chemical precipitant is added to the metal bearing wastewater in an agitated vessel. The dissolved metals are converted to an insoluble form and are separated out by settling. Coagulating or flocculating compounds may be added to assist the settling process. Several precipitants have been shown to be effective in removing heavy metals from aqueous wastes. The most widely used method is hydroxide precipitation using lime as the precipitant, although caustic (sodium hydroxide) can also be used. Many metals can also be precipitated as sulfides using sodium sulfide, sodium hydrosulfide, or ferrous sulfide as precipitants; and certain metals (i.e., cadmium and lead) can be precipitated as carbonates using sodium carbonate (soda ash). (Freeman, 1989)

Several factors affect heavy-metal precipitation: choice of precipitant and coagulant aid, operating temperature and pH, valence state of the metal(s), and the presence of chelating agents (Clifford and Sorg, 1986). Because of the highly variable quality of different water and wastewater, jar testing is recommended to determine the appropriate precipitant, dosages, optimum pH, settleability of precipitants, settling aid requirements, and final constituent concentrations in the treated effluent.

Residuals

Sludge is one of the largest streams generated in water and wastewater treatment, and management and disposal of these streams are one of the most complex challenges for the facility. If not properly treated, managed, and regulated, sludge can create water quality and human health problems. Several disposal methods can be considered for sludges generated by chemical precipitation processes. These sludges may be the only sludge generated at a facility or combined with other sludges (e.g., biological sludges). Depending on a variety of site specific and economic factors, these wastes can be sent to lagoons, buried in a landfill, or, under certain conditions, applied to land:

- If adequate land is available, dilute sludge may be sent to a lagoon where solids and will settle and concentrate over time. However, the lagoon will eventually be filled and will require cleaning and sludge removal, and the facility must dispose of the removed sludge.

- Sludges may be disposed of in landfills, however additional treatment may first be required. Dilute sludges are typically concentrated using thickeners and clarifiers, and

dewatered using filters. These processes reduce the volume of sludge and minimize any free liquid; otherwise a landfill may not accept this waste. If the sludge contains high levels of toxic constituents, it may be considered a hazardous waste and subject to more stringent hazardous waste management and disposal requirements.

- Precipitation sludges may be applied to land for agricultural or silvicultural use, reclaimed to disturbed and marginal lands, and disposed of through application to dedicated lands. Land application may beneficially modify soil properties while recycling residual components. Potential disadvantages include increased metals concentrations in the soil and groundwater contamination (EPA 1996). In addition, there are numerous regulations that must be met for a sludge to qualify for land application.

Currently, it is estimated that 672,330 dry tons per year is produced by NPDES and non-NPDES permitted facilities. Methods of disposal are estimated to be:

46,390 tons stored
527,106 tons land applied (utilized)
37,650 tons incinerated
61,182 tons landfilled
(Source: Thompson, 1999)

Most sewage sludge generated in California is nonhazardous. Only a very small amount would meet the hazardous classification – for the most part only sludge that has been stored for a very long time (60's, 70's, early 80's) has characteristics of hazardous materials. (Thompson, 1999)

Granulated Activated Carbon (GAC)

Activated carbon adsorption is most often used for the removal of dissolved organics and control of wastewater parameters such as COD (chemical oxygen demand), TOC (total organic carbon), BOD (biochemical oxygen demand), and some soluble organic materials. In most cases, activated carbon is used to pretreat an individual stream; however in other cases, activated carbon treatment is used as a final treatment process following biological treatment. (EPA, 1980)

Granular carbon systems generally consist of vessels in which the carbon is placed to form a fixed-bed column. The contaminated water is passed through the bed where contaminants are adsorbed onto the activated carbon. These systems can also include carbon storage vessels and thermal regeneration facilities. Multiple carbon vessels can be operated in series or parallel mode to allow continuous operation.

Activated carbon works on the principal of adsorption where dissolved contaminants are transferred from the water solution to the microporous surface of the carbon particles. The adsorptive capacity is reached when all the surface sites are filled. Activated carbon has a large surface area and high porosity; one gram of activated carbon has a surface area equivalent to that of a football field. Adsorption is a physical process that is relatively easy to reverse, so the activated carbon can generally be regenerated using a variety of techniques. (EPA, 1990)

The amount of material removed in carbon adsorption systems is dependent on the characteristics of process stream and its constituents. Most carbon treatment efficiencies are greater than 99 percent with influent concentrations below 1,000 ppm. At higher concentrations, removal efficiencies can reach 99.9 percent. (EPA, 1985)

Residuals

The activated carbon used in the carbon adsorption process eventually reaches a point where it will no longer adsorb material. This spent carbon must be either regenerated or discarded. Regeneration may be done onsite or offsite, often depending on the size of the system which determines the amount of carbon. Carbon usage varies with the type of contamination. VOCs utilize the most carbon and shorten its useful life, while pesticides generally use less carbon than VOCs, and chlorinated aromatic organic compounds use the least. (EPA, 1990)

Small systems usually dispose of spent carbon or regenerate it offsite. One source indicates that systems using above about 1,000 pounds per day usually provide onsite regeneration for economic reasons (EPA, 1980). Other sources indicate that facilities using more than 2,000 pounds per day will consider onsite regeneration; facilities that use 500 to 2,000 pounds per day will generally use offsite regeneration, which is typically done on a contract basis; and facilities that use less than 500 pounds per day are likely to dispose of the spent carbon rather than regenerate it (EPA, 1990). Facilities that regenerate spent carbon offsite usually have agreements with a vendor to pick up a load of the spent material and drop off virgin or regenerated activated carbon. Onsite regeneration requires the use of additional equipment.

The most common form of regeneration is thermal regeneration using multiple hearth furnaces, although various types of chemical regeneration are also used. For thermal regeneration, spent carbon is sent through the furnace to oxidize the organics and restore the adsorptive capacity. These systems typically utilize air pollution control (APC) technologies to control atmospheric releases, and may generate additional residuals such as quench waters, APC dusts, furnace ash, and other furnace residuals (e.g., refractory materials).

Spent carbon that is not regenerated is likely to be disposed of in a landfill. The facility must determine whether the spent carbon must be managed and disposed of as a hazardous waste.

Reverse Osmosis (RO)

Reverse osmosis (RO) is used for the removal of dissolved organic and inorganic materials and control of wastewater parameters such as soluble metals, TDS (total dissolved solids), and TOC. RO separates dissolved materials in solution by filtration through a semipermeable membrane at 8a pressure greater than the osmotic pressure caused by the dissolved materials in the wastewater (EPA, 1980). Water with different contaminant concentrations is placed on each side of the membrane. The water is directed through the membrane by hydrostatic pressure to the side with the lower concentration of contaminants. Since the membrane permits only water, and not dissolved ions, to pass through its pores, contaminants are left behind in a brine solution.

Typical RO systems include pumps, pretreatment, membranes, disinfection, storage, and distribution elements. There are two distinct designs for membranes: spiral wound and hollow fiber. The main advantage of each type of membrane is that the spiral wound design clogs less frequently, while the hollow fiber has a much greater surface area per unit of space. These membranes may be constructed of cellulose acetate, aromatic polyamide, or thin filmed polymer composites. Pretreatment is dependent on the influent water quality, ionic species, and the membrane type, and is implemented to minimize fouling (e.g., inhibit bacterial growth, remove larger particles, remove oil/grease and other film forming compounds). (EPA, 1990)

Residuals

Residuals from RO consists of constituents that do not pass through the membrane and are called reject, concentrate, or brine. Reported disposal methods for RO residuals include: discharge to surface waters, deep well injection, spray irrigation, drainfield or borehole, and sanitary sewer collection systems. Each of these disposal methods must be evaluated in light of geographic, environmental, and regulatory impacts. Concerns related to each method are summarized in Table VI-2.

Non-conventional disposal methods are generally considered cost-prohibitive and are usually only considered when zero-discharge conditions need to be met. These disposal methods include evaporation and crystallization technologies to concentrate the brine into a cake. Evaporation can also be done using solar ponds or by solar distillation. (EPA, 1996)

Table VI-2. RO Residuals Disposal

Disposal Method	Concerns
Disposal to surface water	Receiving stream limitations - Dissolved oxygen - pH - Toxicity (toxic constituents) - Discharge limits
Deep well injection	Confining layer Injection well integrity Corrosivity
Spray irrigation	Groundwater protection
Drainfield or borehole	Groundwater protection
Sanitary sewer collection system	Effect on wastewater treatment plant operations

Source: EPA (1996)

Addition of new treatment systems can result in other environmental effects. There is potential for impacts to surface and ground water, air quality, geologic stability, soils (erosion), important vegetation types, fish and wildlife, aesthetics, noise, recreation, open space, cultural resources,

threatened or endangered species, energy, transportation, population and housing. Often such effects can be avoided by modifications to a facility plan or mitigated to less than significant levels (see footnote 4 in this FED Section).

CHAPTER 3 GROWTH-INDUCING IMPACTS

The CEQA Guidelines (Section 15126(g)) describes growth inducing impacts as those that could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. The proposed Policy would not affect any of these parameters.

CHAPTER 4 CUMULATIVE AND LONG-TERM IMPACTS

CEQA Guidelines Section 15355 provides the following description of cumulative impacts:

> "'Cumulative impacts' refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
> (a) The individual effects may be changes resulting from a single project or a number of separate projects.
> (b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time."

One means of complying with CEQA's requirement to consider cumulative impacts is to provide a list of past, present, and reasonably foreseeable future projects which are related to the proposed action. There are two projects which meet this definition: the CTR, and Phase 2 of development of the ISWP and EBEP.

This FED evaluates the potential effects of each of the proposed Policy provisions when that issue is implemented in conjunction with the CTR (as compared to implementation of the CTR under existing RWQCB practices). This evaluation, which is included in Section VI, Chapter 1, which provides an issue-by-issue analysis of potential environmental impacts of the proposed Policy both under existing physical conditions ("Baseline 1", pre-CTR) and potential effects of the proposed Policy on future physical conditions under the CTR ("Baseline 2", post-CTR). Baseline 2 provides the cumulative effects analysis necessary to determine potential effects of the proposed Policy when it is implemented in conjunction with the CTR. Only the TMDL-Based Compliance Schedules Section has the potential to result in adverse environmental effects when it is implemented in conjunction with the CTR. (See discussion in FED Section VI, Issue 2.1.)

The other "reasonably foreseeable" related project is Phase 2 of the development of the ISWP/EBEP. As explained in the FED Section I (Introduction), Phase 2 ~~will~~ may involve the

establishment of State-adopted water quality objectives for the priority pollutants and incorporation of the proposed Policy into a new ISWP and EBEP. When the SWRCB proposes State water quality objectives, it must consider potential impacts of those objectives. However, we do not at this time know what those objectives would be. At that time, the SWRCB will have to conduct a CEQA review and consider potential environmental impacts (both direct and indirect) of adoption of the objectives it proposes.