STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

ORDER WQ 2001 - 16

In the Matter of the Petitions of

NAPA SANITATION DISTRICT, BAY AREA CLEAN WATER AGENCIES, AND SAN FRANCISCO BAYKEEPER

For Review of Waste Discharge Requirements Order No. 00-059
Issued by the
California Regional Water Quality Control Board,
San Francisco Bay Region

SWRCB/OCC FILES A-1318, A1318(a), A-1318(b)

BY THE BOARD:

In July 2000 the San Francisco Bay Regional Water Quality Control Board (Regional Board) reissued waste discharge requirements in Order No. 00-059 to Napa Sanitation District (District). The requirements authorize the District to discharge secondary-treated effluent in the wet season from its Soscol Water Recycling Facility to the Napa River. The District, Bay Area Dischargers Association (now Bay Area Clean Water Agencies), and San Francisco BayKeeper (BayKeeper) all filed petitions for review of the requirements. In this order the State Water Resources Control Board (State Board or Board) addresses several issues raised in the petitions and remands Order No. 00-059 to the Regional Board for modifications. The remaining issues are dismissed.[1]

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[1] See *People v. Barry* (1987) 194 Cal.App.3d 158 [239 Cal.Rptr. 349]; Cal. Code Regs., tit. 23, sec. 2052(a)(1).

I. BACKGROUND

The Soscol Water Recycling Facility is a secondary and tertiary biological physical-chemical treatment facility located near Ratto Landing on the Napa River. The facility has a dry weather design capacity of 15.4 million gallons per day (mgd) and currently treats an annual average of 14.7 mgd of wastewater. At present the plant receives wastewater from the City of Napa, unincorporated areas in Napa County, and the City of American Canyon. In January 2002 the City of American Canyon is expected to complete construction of its own treatment plant. When that occurs, the City of American Canyon will cease pumping its influent to the Soscol plant.

The District discharges secondary-treated effluent from the Soscol plant to the Napa River during the wet season. The wet season extends from November 1 through April 30.[2] During the dry season, the effluent is either stored in waste stabilization ponds or reclaimed for use in irrigating industrial parks, golf courses, pasture lands, feed and fodder crops, and vineyards. Dry season effluent goes through a tertiary treatment process, if necessary. Under emergency circumstances, the District can discharge to the Napa River during the dry season.[3]

When Order No. 00-059 was issued, the treatment facilities consisted primarily of waste stabilization, or oxidation, ponds. The Soscol plant has four waste stabilization ponds, totaling about 340 acres. The ponds were operated in series and provided biological stabilization with detention times between 60 to 120 days. Pond effluent was then pumped to the physical-chemical facility for additional treatment, including polymer coagulation followed by

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[2] See Order No. 00-059, Finding 7(a).

[3] See *id.* Finding 7(b), Discharge Prohibition A.6. The Regional Board Executive Officer may authorize discharge to the Napa River prior to October 31 or later than May 1, "based on written, email or facsimile request from the discharger documenting that normally planned disposal to land is not feasible due to wet season conditions."

clarification, chlorination, and dechlorination. During the dry season, the effluent was also filtered, if necessary, for reuse.

In the late 80's the District experienced severe odor problems at the facility due to overloading of the oxidation ponds with wastewater and sludge. To address this problem, the District decided in the early 90's to convert its treatment system to a conventional activated sludge secondary treatment process. The District was nearing completion of the new system when the Regional Board adopted Order No. 00-059. The new activated sludge plant is designed to handle a dry weather flow of 8.6 mgd. The waste stabilization ponds will treat the remaining flow. The ponds will also be used to handle peak wet weather flows.

Secondary-treated effluent from the Soscol facility is discharged to the Napa River at a point approximately 14 miles from the confluence of the river and San Pablo Bay. Both the Napa River and San Pablo Bay are on the state's Clean Water Act section 303(d)[4] list of impaired waters.[5] Sediments, pathogens and nutrients are identified as pollutants impairing the river. The pollutants impairing San Pablo Bay include mercury, copper, dioxin and furan compounds, chlordane, dieldrin, 4,4'-DDT, diazinon, PCBs, and others.

The Clean Water Act, in general, mandates that the states develop "total maximum daily loads" (TMDLs) for all section 303(d)-listed waters. A TMDL is a water quality control strategy designed to address a water body impairment and to bring the water into

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[4] 33 U.S.C. sec. 1313(d). This section requires that the states identify waters for which technology-based effluent limitations are not stringent enough to meet water quality standards. The states must establish a priority ranking for these waters, taking into account the pollution's severity and the waters' uses. The states must then establish, "in accordance with the priority ranking, the total maximum daily load, for those pollutants . . . ." "Such load shall be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality."

[5] See 63 Fed. Reg. 59556-59557 (Nov. 4, 1998) (notice of availability of proposed Environmental Protection Agency (EPA) decision, partially approving and partially disapproving the state's 1998 section 303(d) list). EPA transmitted the final list to the state by a letter, dated May 12, 1999.

compliance with water quality standards.[6] Water quality standards for a water consist of its beneficial uses, criteria to protect those uses, and an antidegradation policy.[7]

The Regional Board has not yet completed TMDLs for the Napa River or San Pablo Bay although work is underway. The Regional Board is currently engaged in developing a TMDL for mercury in San Francisco Bay. Work is also apparently underway to assess whether North San Francisco Bay, including San Pablo Bay, is actually impaired for copper. As a result of this effort, the North Bay may eventually be de-listed for copper. The Regional Board anticipates that EPA will develop a TMDL for dioxins and furans.

Prior to the adoption of Order No. 00-059, the District was regulated under Order No. 94-037. The District filed an application for permit reissuance in October 1998. Before Order No. 00-059 was adopted, the United States Environmental Protection Agency (EPA) in May 2000 promulgated the California Toxics Rule (CTR).[8] The CTR established numeric criteria, the equivalent of state-adopted water quality objectives,[9] for priority toxic pollutants[10] for the state's inland surface waters and enclosed bays and estuaries. The State Board concurrently adopted a policy to implement the new criteria, as well as applicable National

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[6] EPA regulations currently define a TMDL as the sum of wasteload allocations for point sources, load allocations for nonpoint sources and background sources. 40 C.F.R. sec. 130.2(i). A "wasteload allocation" is the portion of a receiving waters' loading capacity that is allocated to one of its existing or future point sources of pollution. *Id.* sec. 130.2(h). A "load allocation" is the portion of a receiving water's loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background sources." *Id.* sec. 130.2(g).

[7] See 33 U.S.C. sec. 1313(c)(2)(A); 40 C.F.R. sec. 131.6.

[8] See 40 C.F.R. sec. 138.38, 65 Fed. Reg. 31682-31719 (May 18, 2000).

[9] Compare Wat. Code sec. 13050(h) ("Water quality objectives' means the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.") with 40 C.F.R. 131.3(b) ("*[C]riteria* are elements of State water quality standards, expressed as constituent concentrations, levels, or narrative statements, representing a quality of water that supports a particular use.")

[10] Appendix A to 40 C.F.R. Part 423 lists 126 priority pollutants.

Toxics Rule (NTR) criteria,[11] and priority pollutant water quality objectives.[12] The policy is entitled "Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (2000)" (Implementation Policy or Policy). Among other provisions, the Policy establishes procedures for selecting priority toxic pollutants that must be regulated in a permit, calculating effluent limitations, and establishing compliance schedules.

The Regional Board adopted Order No. 00-059 in July 2000. The permit was one of the first to be issued in the state after the CTR and Policy went into effect. The permit establishes interim, but not final, effluent limitations for 15 priority toxic pollutants.[13] The permit imposes generally more stringent interim limits for dry weather, emergency discharges than for wet season discharges for most priority pollutants.

The permit contains specific findings on mercury,[14] copper,[15] and dioxin and furan compounds,[16] which are identified as 303(d)-listed pollutants.[17] For these pollutants, the permit includes interim effluent limitations that are, with one exception, based on current, treatment plant performance.[18] Interim, mass-based limits are included for mercury and dioxin and furan

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[11] See 40 C.F.R. sec. 131.36, 57 Fed. Reg. 60848-60923 (Dec. 22, 1992).

[12] See Cal. Code Regs., tit. 23, sec. 2914. The Board adopted the Policy on March 2, 2000. The Policy went into effect for NTR criteria and state-adopted water quality objectives on April 28, 2000, the date of Office of Administrative Law approval. It became effective for CTR criteria on May 18, 2000, the CTR's effective date.

[13] See Order No. 00-059, Effluent Limitations B(i)7, B(ii)7, and B(iii). The priority pollutants regulated in the permit are: copper, mercury, cyanide, hexachlorobenzene, aldrin, chlordane, 4, 4'-DDT, dieldrin, endosulfan (alpha), endosulfan (beta), endrin, heptachlor, heptachlor epoxide, PCBs, and toxaphene. In addition, the permit regulates 4 dioxin and furan compounds.

[14] See *id.*, Finding 45.

[15] See *id.*, Finding 44.

[16] See *id.*, Finding 46.

[17] The remaining 303(d)-listed pollutants that are regulated in the permit include: chlordane, 4,'4-DDT, dieldrin, and PCBs.

[18] The one exception is the monthly average, dry weather mercury limit of 0.012 micrograms per liter (µg/L). This limit is a carryover from the limits in Order No. 94-037.

compounds[19] and concentration-based limits for mercury and copper.[20] The effluent limitations are intended to cover the "interim" until 2010 for mercury and copper, or 2012 for dioxins and furans. At that time, the permit findings state that the Regional Board will impose final effluent limitations that are consistent with wasteload allocations[21] in an adopted TMDL.[22] If a TMDL has not been adopted for the relevant pollutant, the findings state that alternative final limitations for bioaccumulative pollutants will be no net loading.[23] "No net loading" means that the actual loading from the discharge must be offset by at least the equivalent loading of the same pollutant achieved through a mass offset.[24] For 303(d)-listed, non-bioaccumulative pollutants, the permit findings state that the Regional Board will impose final alternative limits based on the criterion or water quality objective applied end-of-pipe.[25]

For the remaining pollutants, the Regional Board included interim limits based on the corresponding limits in the prior permit. For these pollutants, the "interim" referred to the period of time required for the District to provide ambient background receiving water data for the pollutants and for the Regional Board to determine whether final water quality-based effluent limitations are required.[26] The permit requires the District to submit a report with the required data by April 28, 2003,[27] and authorizes the Regional Board to reopen the permit to include final limitations, if necessary.[28]

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[19] See Order No. 00-059, Effluent Limitations B(iii).
[20] See *id.*, Effluent Limitations B(i)(7) and B(ii)(7).
[21] See fn. 6, *supra*.
[22] Order No. 00-059, Finding 33.
[23] See *id.*, Finding 35a.
[24] *Ibid.*
[25] *Id.*, Finding 35b.
[26] See *id.*, Findings 42 and 53.
[27] See *id.*, Provision F.11.
[28] See *id.*, Provision F.1.

The District, Bay Area Clean Water Agencies, and BayKeeper all filed timely petitions for review of the permit. The petitions were consolidated[29] and were later held in abeyance pending final State Board action on petitions filed by Tosco Corporation and others for review of 2 refinery permits.[30] The latter petitions raised several issues in common with the Napa petitions. In February 2001 the District requested that the Board reactivate its petition and partially stay Order No. 00-059. On March 7, 2001, the Board adopted Order WQ 2001-06 (Tosco Order). On March 21, 2001, the Napa petitions were reactivated. The District's stay request was later dismissed.[31]

This order addresses both issues raised in the petitions as well as new legal arguments raised by the District and Bay Area Clean Water Agencies on November 13, 2001 in comments on a prior draft order.[32] The draft order was presented to the Board at its November 15, 2001 workshop. At that time, the petitioners also requested that the Board receive new evidence into the record. Their request was denied; and they later requested that the Board reconsider its ruling. On reconsideration, the Board concludes that Exhibits A, B, and C, relating to petitioners' legal arguments, are appropriately included in the record. Exhibits J, K, and M are already in the Regional Board's record. The Board denies the request to augment the record with the remaining exhibits. Four of the remaining seven exhibits preceded the Regional Board's adoption of Order No. 00-059, and petitioners do not explain why they could not have been

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[29] See Cal. Code Regs., tit. 23, sec. 2054.

[30] See State Board Order WQ 2001-06, referred to as the "Tosco Decision", which was adopted on March 7, 2001. The order addressed issues raised in petitions filed by Tosco Corporation, Bay Area Clean Water Agencies, and others. The major issues addressed by the order focused on the regulation of impairing pollutants discharged to 303(d)-listed waters prior to TMDL development.

[31] See letter, dated June 7, 2001, to Michael S. Riback, District counsel, from Celeste Cantu, State Board Executive Director.

[32] See Joint Response to SWRCB Draft Order WQ 2001-XX (Nov. 2, 2001).

presented to the Regional Board.[33] This order remands Order No. 00-059 to the Regional Board for reconsideration and revision. In light of the remand, the Board concludes that it is appropriate that the petitioners present any new evidence that is relevant to their permit challenges to the Regional Board in the first instance.

II. CONTENTIONS AND FINDINGS

A. District Petition

The petition filed by Bay Area Clean Water Agencies is identical to the District's petition. Therefore, the Board's analysis of the District's issues will also address the issues raised by Bay Area Clean Water Agencies.

After the petitions were filed in this case, the Regional Board agreed to two permit changes requested by the District. These are: (1) to remove the "alternative final limits finding,"[34] and (2) to clarify that the Regional Board will use "reported Minimum Levels," as specified in the Implementation Policy, to determine compliance with priority pollutant effluent limitations. These changes are consistent with the Board's Tosco Order[35] and the Implementation Policy,[36] respectively. The Board, therefore, concurs with the changes and will not further analyze the District's contentions on these points.

In the following discussion, the Board will first address the Regional Board's regulation of mercury, dioxin and furan compounds, and copper in Order No. 00-059. For each pollutant, the Board will explain what the Regional Board did and follow with the District's

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[33] See Cal. Code Regs., tit. 23, sec. 2066(b). A request to augment the record must include a statement and supporting argument that the evidence was improperly excluded from the record or an explanation of the reasons why the factual evidence could not previously have been submitted.

[34] Order No. 00-059, Finding 35.

[35] See Order WQ 2001-06, pp. 20-25.

[36] See Policy, sec. 2.4.

specific challenges to those actions. After that, the Board will discuss other issues raised by the District. The Board will conclude with two issues raised by BayKeeper.

1. MERCURY

Mercury is a priority toxic pollutant. It has several forms, the most toxic of which is methylmercury. Various biological and chemical processes can cause mercury discharged to water to react with organic matter to form methylmercury. Methylmercury is readily taken up by plants and animals. It bioaccumulates through the food chain. Consequently, the mercury concentration in predators at the top of the food chain, such as predatory fish, can be thousands or even millions of times greater than the concentrations in water. San Francisco Bay is one of the environments known to favor the production of methylmercury.[37]

The Regional Board's Water Quality Control Plan, San Francisco Bay Basin (Region 2) (Basin Plan), has had both marine and fresh water quality objectives for certain priority pollutants, including mercury, since 1986. EPA approved these objectives in 1987; and, when EPA promulgated the CTR, EPA left the objectives intact.[38] Hence, the CTR criteria do not apply to waters subject to the objectives. The objectives are currently found in Basin Plan Tables 3-3 for marine waters and 3-4 for fresh waters.[39]

Tables 3-3 and 3-4 have mercury objectives for human health protection. The tables have the same 4-day average mercury objective of 0.025 µg/L.[40] Table 3-4 also has a

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[37] *Mercury in the Environment*, USGS Fact Sheet 146-00 (October 2000), p.5 (available at http://www.usgs.gov/themes/factsheet/146-00).

[38] See 40 C.F.R. sec. 131.38(b)(1) fn. b. It states: "Criteria apply to California waters except for those waters subject to objectives in Tables III-2A and III-2B of the [Regional Board] 1986 Basin Plan, that were adopted by the [Regional Board] and the [State Board], approved by EPA, and which continue to apply."

[39] See Cal. Code Regs., tit. 23, sec. 3912. The Regional Board Basin Plan was amended in 1995. The amendments changed the headings of Tables III-2A and III-2B but did not change the objectives in the tables.

[40] Table 3-3's 1-hour average mercury objective is 2.1 µg/L; Table 3-4's is 2.4 µg/L.

value of 0.012 µg/L in a footnote to the freshwater, 4-day objective.[41] The footnote indicates that the 0.025 µg/L objective was based on the level of detection at the time. The then-current EPA water quality criterion guidance was 0.012 µg/L. The footnote states that "[a]n objective of 0.012 µg/L is desirable, but attainment can only be determined at the level of detection."[42]

EPA derived the 0.012 µg/L value for mercury based on bioconcentration. Bioconcentration occurs through the uptake and retention of a substance from water only, through gill membranes or other external body surfaces. In contrast, bioaccumulation considers pollutant uptake from all routes of exposure, including the food chain.

In Order No. 00-059, the Regional Board regulated both the mass and the concentration of mercury discharged by the District. The Regional Board regulated the mass in order to address the impairment of downstream San Pablo Bay waters due to mercury bioaccumulation in fish tissues. The Regional Board regulated the concentration apparently to implement water quality standards for mercury based on a water column value of 0.012 µg/L.

a. *Mass Limits*

(1) Description

The Regional Board included both mass limits and triggers for mercury in Order No. 00-059.[43] The mass limits cap the total allowable mercury load, in kilograms per month, that the District can discharge to the river. The mass triggers, also in kilograms per month, are set

[41] Basin Plan, Table 3-4, fn. i.
[42] *Ibid.*
[43] See Order No. 00-059, Effluent Limitation B(iii). The mass limit with the City of American Canyon's flows is 0.027 kilograms per month (kg/mo), and without is 0.025 kg/mo. The mass trigger with the City of American Canyon's flows is 0.015 kg/mo and without is 0.014 kg/mo.

lower than the mass limits. If the District exceeds the mass triggers, the District is required to take certain actions to investigate the cause and implement appropriate corrective action. The mass limits and triggers cover discharge both with and without the City of American Canyon flows. They were intended to maintain ambient conditions in the receiving waters pending TMDL development.[44] Final water quality-based effluent limitations for mercury will be based on the wasteload allocations in a TMDL to be developed by 2010.[45]

The mercury mass limits were calculated using three standard deviations above mean mercury loading, which was derived from the most recent previous three years of data.[46] The limits were developed using year-round flows although the District reclaims its effluent during the dry season. The limits were also derived using mercury data resulting from older, less-sensitive detection techniques.

The mercury mass triggers were based on the loads actually discharged to the Napa River.[47] If the District exceeds the trigger values, the District must identify the cause and investigate corrective actions, such as improving public education and outreach, increasing reclamation, and other options.[48] In addition, the District must develop a plan and time schedule, acceptable to the Regional Board Executive Officer, to implement all reasonable actions to maintain mercury mass loadings at or below the trigger.[49]

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[44] See *id.* Finding 45c.
[45] As explained above, the Regional Board has agreed to delete the permit finding on alternative, final default limits; therefore the final limits will be consistent with the wasteload allocations in a TMDL.
[46] See Revised Draft Fact Sheet (July 20, 2000), Reissuance of Waste Discharge Requirements for Discharge to State Waters for Napa Sanitation District, Napa County (Fact Sheet), pp. 10-11 and Att. C.
[47] *Ibid.*
[48] See Order No. 00-059, Provision F.4.
[49] *Ibid.*

(2) Contentions

Contention No. 1: The District contends that Congress intended in the Clean Water Act that water quality-based effluent limitations, including mass limits, be based solely on the results of a TMDL process. Hence, the District argues that, in the absence of a TMDL, the Regional Board could not legally regulate the mercury mass discharged by the District to the Napa River.

Finding: The District's contentions are without merit. As a preliminary matter, the Board notes that the Regional Board did not impose final water quality-based mass limits on the District. Final water quality-based limits will not be imposed for several years. When they are, they will be consistent with the wasteload allocations in a TMDL. The Regional Board, instead, imposed interim limits based on current treatment plant performance.

The Regional Board was unquestionably authorized to regulate the mercury mass discharged by the District to the river prior to the development of a mercury TMDL. Indeed, the Clean Water Act mandates that permits include water quality-based effluent limitations where necessary to meet water quality standards. The Clean Water Act in section 402[50] created the National Pollutant Discharge Elimination System (NPDES) to regulate the point source[51] discharge of pollutants to surface waters. The Act prohibits the discharge of any pollutant except in compliance with a permit.[52] Permits must implement section 301, which requires that dischargers comply with certain technology-based effluent limitations as well as "any more stringent limitation, ~~including those necessary to meet water quality standards."[53] Nothing in the~~

[50] 33 U.S.C. sec. 1342. NPDES permits in California are issued by the State Board and the Regional Water Quality Control Boards.

[51] A "point source" is "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel . . . from which pollutants are or may be discharged." 33 U.S.C. sec. 1362(14).

[52] See *id.* secs. 1311(a), 1342.

[53] *Id.* sec. 1311(b)(1)(C).

express wording of section 301 suggests that this requirement applies to impaired waters only after TMDL-development.

This view is reflected in EPA permit regulations. They require that permits include any requirements "in addition to or more stringent than" technology-based limits and standards that are "necessary to . . . [a]chieve water quality standards."[54] A pollutant must be limited if its discharge has the reasonable potential to cause, or contribute to, a water quality standards violation.[55] If a wasteload allocation has not "been prepared by the State and approved by EPA pursuant to [the TMDL regulation]", the permitting authority must nevertheless establish a permit limit that is "derived from, and complies with all applicable water quality standards."[56] These regulations, according to EPA, "do not allow the permitting authority to delay developing and issuing a permit if a wasteload allocation has not already been developed and approved."[57]

The Board does not believe that the Clean Water Act is vague or ambiguous on this point. Assuming that it were, however, the Board may appropriately defer to EPA's interpretation of the Act.[58] This interpretation is eminently reasonable given that achieving water quality standards is one of the Clean Water Act's central objectives.[59]

The District argues that EPA's Water Quality Standards Handbook (Handbook)[60] lends itself to a different interpretation. The Handbook is a compilation of guidance on water

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[54] 40 C.F.R. sec. 122.44(d).

[55] "Limitations must control all pollutants . . . which the [permit issuer] determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." *Id.* sec. 122.44(d)(1)(i).

[56] *Id.* sec. 122.44(d)(1)(vii).

[57] 54 Fed. Reg. 23868, 23879 (June 2, 1989); cf. *American Paper Institute v. United States Environmental Protection Agency* (D.C. Cir. 1993) 996 F.2d 346, 350.

[58] See *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.* (1984) 467 U.S. 837.

[59] *Arkansas v. Oklahoma* (1992) 503 U.S. 91, 106.

[60] Water Quality Standards Handbook (2d ed.), EPA-823-B-93-002.

quality standards, rather than a primer for developing effluent limitations. In particular, the Handbook does not state that water quality-based effluent limitations for impairing pollutants, prior to TMDL-development, are invalid. Rather, the Handbook specifically refers to EPA's Technical Support Document for Water Quality-Based Toxics Control[61], which details how to derive water quality-based effluent limits, both with and without a TMDL.[62]

In practice, both EPA and the state have issued permits for years that regulate the discharge of impairing pollutants to 303(d)-listed waters before TMDL development. For these reasons, the Board has previously rejected the District's interpretation[63] and continues to do so.

Contention No. 2: The District argues that Clean Water Act section 301(b)(1)(C) only requires compliance with effluent limitations implementing pre-1977 water quality standards. Post-1977 standards, the District contends, were to be implemented under the Clean Water Act through various planning programs, such as the now-inactive section 208[64] areawide waste treatment management program and the TMDL program.

Finding: The District's contentions are without merit. EPA has taken the position, since at least 1982, that "there is no dispute that [section] 301(b)(1)(C) continues to have regulatory force and applicability" post-July1, 1977.[65] Consistent with EPA's interpretation, the states and EPA have issued thousands of permits since 1977 implementing post-1977 water quality standards. Over the years, numerous courts, as well, have interpreted

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[61] See fn. 75, *infra.*
[62] See Handbook, fn. 60, *supra,* p. 7-9.
[63] See Order WQ 2001-06, p. 29 at fn. 114, citing Order WQ 89-11, p. 11.
[64] 33 U.S.C. sec. 1288.
[65] *In the Matter of Star-Kist Caribe, Inc.*, 3 E.A.D. 172 (NPDES Appeal No. 88-5) (April 16, 1990) (*Star-Kist)*

section 301(b)(1)(C) to require that permits include any more stringent limits necessary to meet water quality standards.[66]

The District's interpretation conflicts with the actual wording of section 301(b)(1)(C), with the Clean Water Act's overriding objectives, and with EPA interpretation. It must be rejected. The section, in fact, states that in order to achieve the Clean Water Act's objective, "not later than July 1, 1977 [there shall be achieved] any more stringent limitation, including those necessary to meet water quality standards . . . ."[67] The statute patently does not require compliance with only pre-1977 water quality standards. Rather, as EPA's Environmental Appeals Board concluded in *Star-Kist*, Congress provided the July 1, 1977 deadline as a "grace period" in a timetable to achieve the Clean Water Act's objectives.[68] Once the grace period lapsed, permits had to contain effluent limitations necessary to meet whatever water quality standards were in effect when the permit was issued.

Contrary to the District's assertion, the Board finds this interpretation logical and compelling. The *Star-Kist* decision interprets the Clean Water Act consistently with its overall objective "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[69] The decision likewise harmonizes other Clean Water Act provisions that explicitly contemplated that the states would continue to adopt new and revised standards after July 1, 1977, and provided that the states could allow compliance schedules for them.[70] Compliance

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[66] See, e.g., *Arkansas v. Oklahoma*, fn. 59, *supra; American Paper Institute, Inc. v. United States Environmental Protection Agency* (D.C. Cir. 1993) 996 F.2d 346, 349 ("Of primary importance in this case is section 301's second requirement—*i.e.*, that permits contain discharge limitations sufficient to assure that the receiving waterway satisfies water quality standards.")

[67] 33 U.S.C. sec. 1311(b)(1)(C).

[68] See fn. 65, *supra.*

[69] 33 U.S.C. sec. 1251(a).

[70] See *id.* secs. 1313(c), 1313(e)(3)(F).

schedules are irrelevant if permits need not implement new standards. To read the statute as suggested by the District would create a gaping hole in the regulatory scheme that cannot be reconciled with the Clean Water Act's goals to achieve waters that are "fishable and swimmable" by 1983 and to eliminate pollutant discharges by 1985.[71]

The District cites a number of cases that held that administrative agencies could not legally extend the 1977 statutory deadline for meeting the then-existing standards. These cases are irrelevant because they do not address the specific question at issue: Does section 301(b)(1)(C) continue to have regulatory effect for post-July 1, 1977 standards? The District also cites a 1978 EPA memorandum that addresses post-1977 compliance schedules. The memorandum assumes that permits must implement post-July 1, 1977 water quality standards, and, thus, does not support the District's position. [72]

The District asserts that 40 C.F.R. section 122.44(d) is also flawed because it is based on EPA's erroneous interpretation of Section 301(b)(1)(C). Because the Board rejects the District's interpretation of section 301(b)(1)(C), the Board concludes that the District's challenge to the regulation is also without merit.

Contention No. 3: The District also contends that 40 C.F.R. section 122.44(d) does not apply to publicly-owned treatment works (POTWs). That regulation requires that dischargers meet "any requirements in addition to or more stringent than promulgated effluent limitations guidelines or standards . . . necessary to . . . [a]chieve water quality standards . . . ."

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[71] See *id.* sec. 1251(a)(1) and (2). Waters that are fishable and swimmable are waters that provide for the protection and propagation of fish, shellfish, and wildlife and for recreation in and on the water.

[72] See Joint Response to SWRCB Draft Order, fn. 32, *supra*, Exhibit C, pp. 4-5. The memorandum discusses post-1977 water quality standards compliance schedules. It states that if the states have not established compliance schedules in their planning documents, "the EPA permit writer must establish the source's Phase II [water quality standards] compliance schedule."

The District argues that "effluent limitations guidelines or standards" apply only to industrial sources.

Finding: We disagree. The phrase "effluent limitations guidelines and standards" is commonly used throughout the NPDES permit regulations to refer to any effluent requirements established under the Clean Water Act. The language quoted above was first included in the NPDES regulations in 1979.[73] The original language has long been implemented in permits issued to POTWs. If EPA had intended the regulation to apply only to industrial sources, EPA would have narrowed the scope of the regulation when it was originally adopted or later, in the many regulation revisions adopted subsequently.

Contention No. 4: The District further argues that mass limits are not mandated by the NPDES permitting regulations. The regulations require that permits include mass limits for all pollutants, with three exceptions, including one for pollutants for which "the applicable standards and limitations are expressed in terms of other units of measurement."[74] Since concentration limits are included in the District's permit, the District argues that mass limits are unnecessary.

Finding: EPA interprets its regulations to generally require mass limits for all pollutants for which mass limits can be calculated. And, "[m]ass limits in terms of pounds per

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[73] See 44 Fed. Reg. 32854, 32907 (June 7, 1979), 40 C.F.R. 122.15(f).

[74] 40 C.F.R. sec. 122.45(f). This section states:

> "(1) All pollutants limited in permits shall have limitations, standards or prohibitions expressed in terms of mass except:
>
> (i) For pH, temperature, radiation, or other pollutants which cannot appropriately be expressed by mass;
>
> (ii) When applicable standards and limitations are expressed in terms of other units of measurement; or
>
> (iii) If in establishing permit limitations on a case-by-case basis . . . , limitations expressed in terms of mass are infeasible because the mass of the pollutant discharged cannot be related to a measure of operation . . . , and permit conditions ensure that dilution will not be used as a substitute for treatment."

day or kilograms per day can be calculated for all chemical-specific toxics such as chlorine or chromium."[75]

Whether or not EPA regulations mandate mass limits, the Regional Board clearly had the discretion to include mass limits for bioaccumulative and persistent pollutants in the District's permit. Under state law, the Regional Boards must ensure that permits comply with the applicable water quality control plan, protect beneficial uses, and prevent nuisance.[76] EPA guidance instructs that "[m]ass limits are particularly important for control of bioconcentratable pollutants. . . . For these pollutants, controlling mass loadings to the receiving water is critical for preventing adverse environmental effects."[77] In general, mass limits for bioaccumulative and persistent pollutants are appropriate because their toxicity is typically associated with mass rather than concentration. Here, the Regional Board was authorized to impose mass limits in Order No. 00-059 to implement the Basin Plan narrative bioaccumulation objective.[78] This narrative objective protects beneficial uses associated with fish consumption in downstream San Pablo Bay waters.

When a waterbody is impaired due to excessive pollutant levels in fish tissue or sediments, regulating mass loading is even more important. This Board's Implementation Policy cautions the permit writer in these circumstances to consider whether to limit the pollutant mass

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[75] Technical Support Document for Water Quality-based Toxics Control (March 1991), EPA 505 2-90-001 (TSD), p. 110. See also Water Quality Guidance for the Great Lakes System, 40 C.F.R. Part 132, App. F, Procedure 7, which requires that water quality-based effluent limits be expressed as both a concentration value and a mass loading rate.

[76] See Wat. Code secs. 13263, 13377.

[77] TSD, fn. 75, *supra*.

[78] Basin Plan, p. 3-2. This narrative objective states:

> "Many pollutants can accumulate on particles, in sediment, or bioaccumulate in fish and other aquatic organisms. Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered."

loading to "representative, current levels pending TMDL development in order to implement the applicable water quality standard."[79] With respect to mercury in particular, EPA has recommended that the state consider water quality-based effluent limits based on mass for discharges to water bodies that are impaired due to mercury fish tissue or sediment contamination.[80] Mercury loadings, under these circumstances, "could contribute to or exacerbate the impairment."[81]

Contention No. 5: The Regional Board cited antidegradation policies as one basis for supporting the mass limits in Order 00-059. Antidegradation policies, in general, specify the criteria that a permit issuer will use in deciding whether water quality can be lowered. The District contends that Clean Water Act section 303(d)(4)(B)[82] limits antidegradation policies only to waters that are currently attaining standards. The District further contends that neither federal nor state antidegradation policies mandate mass limits.

Finding: The District's interpretation of section 303(d)(4)(B) is erroneous. Antidegradation policies,[83] indeed, support the mass limits in Order 00-059.

In 1987 Congress amended the Clean Water Act to, among other things, add an anti-backsliding rule and exceptions to the rule in section 402(o).[84] Congress also added section 303(d)(4).[85] The anti-backsliding rule, in general, prohibits reissuing a permit with a pollutant limit that is less stringent than a comparable limit in a prior permit. There are two sets

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[79] Policy, sec. 2.1.1 at 20.
[80] 65 Fed. Reg. at 31698.
[81] *Ibid.*
[82] 33 U.S.C. sec. 1313(d)(4)(B).
[83] The state antidegradation policy, entitled "Statement of Policy with Respect to Maintaining High Quality of Waters in California, State Board Res. 68-16, is part of the state's water quality standards. It is in all of the Regional Water Quality Control Board's water quality control plans. It incorporates the federal policy where applicable. This discussion focuses on the federal policy because it is applicable to NPDES permitting actions. See State Board Order WQ 86-17 at 17-18.
[84] 33 U.S.C. sec. 1342(o).
[85] See Pub.L. 100-4 (Feb. 4, 1987).

of exceptions for water quality-based effluent limits, one in section 402(o)(2) and the second in section 303(d)(4).[86]

Section 303(d)(4) distinguishes between waters that attain water quality standards (in § 303(d)(4)(B)) and those that do not (in § 303(d)(4)(A)). Effluent limits for attainment waters may be relaxed if consistent with antidegradation requirements. Effluent limits for non-attainment waters may be relaxed only if the existing permit limit is based on a TMDL, and the cumulative effect of all revised limits assures attainment of water quality standards or the affected use is removed.

Section 303(d)(4)(B), thus, only dictates the circumstances under which backsliding is allowed for attainment waters. It does not and cannot reasonably be read to restrict antidegradation only to waters attaining standards. Had Congress intended this result, it needed to be much more explicit. When section 303(d)(4) was added to the Clean Water Act, the federal antidegradation policy[87] had been in existence for more than 20 years. The policy applied in 1987 and still applies to <u>any</u> lowering of water quality, not just a lowering in waters attaining standards.

This interpretation finds support in the language of the federal policy. The policy establishes three tiers of water quality protection.[88] In Tier one the states must, at a minimum, ensure that the water quality necessary to support existing instream uses is maintained. Tier two waters are referred to as "high quality waters." These are waters whose quality is better than that

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[86] TSD, fn. 75, *supra*, at 113.
[87] The federal policy was first added to the water quality standards regulations in 1975. It is now found at 40 C.F.R. sec. 131.12.
[88] 40 C.F.R. sec. 131.12. See also the discussion of antidegradation in Water Quality Standards Handbook, fn. 60, *supra*, ch. 4.

required to support instream uses. Water quality may be lowered in these waters if necessary to allow important economic or social development. Tier three waters are outstanding national resource waters, such as Lake Tahoe and Mono Lake. No lowering of water quality is allowed in Tier three waters.

Tier one waters are obviously waters whose quality does not meet that of Tier two waters. Tier one waters, thus, are waters whose quality is not better than that required to support instream uses. They are necessarily waters that are either not attaining or are just barely attaining standards.

San Pablo Bay has been identified on the 303(d) list as a nonattainment water due to mercury bioaccumulation in fish tissues. Bay waters are, therefore, presumably in Tier one with respect to mercury. Assuming that evidence in the Regional Board record supports the presumption of impairment, the Board concludes that interim, performance-based mass mercury limits are appropriate to prevent a further lowering of water quality in San Pablo Bay waters and to implement its Tier one status.

Contention No. 6: The District contends that the mere fact of a 303(d) listing is insufficient to justify limiting the mass discharge of impairing pollutants to their current levels.

Finding: The Board agrees that a water body listing, without more, is an insufficient basis on which to conclude that the water lacks assimilative capacity for the impairing pollutant. The fact of a listing, however, is a sufficient basis on which to conclude that a pollutant should be limited in a permit.[89] Further, the data on which the listing is based may very well justify mass limits for the pollutant.

[89] See Policy, secs. 1.3, *Step 7*, at 5 (A Regional Board may use other information to determine that a pollutant must be limited, including "water quality and beneficial uses of the receiving waters, [Clean Water Act sec.] 303(d) listing for the pollutant, the presence of endangered or threatened species or critical habitat, and other information." (Emphasis added.).

The Board held in the Tosco order that a listing is suggestive of impairment but is not determinative.[90] A listing is only suggestive of impairment because the standard for listing has been set at a threshold low enough to ensure that all waters of concern are brought within the TMDL regulatory structure. Indeed, EPA has instructed the states to rely on "all existing and readily available water quality-related data and information" in making listing decisions.[91] In addition to sampling data, this information can include, for example, opinions from other agencies, anecdotal information from the public, and circumstantial evidence. Further, as we stated in the Tosco order, the information may not represent conditions throughout the entire water body or in all seasons.

The converse is also true. The fact that a water body is not listed does not necessarily mean that the water has assimilative capacity for a pollutant. In all cases, the Regional Boards have the discretion to determine whether or not a mixing zone and dilution credits are appropriate for a discharge.[92] In making this determination, they are not required to authorize the full waste assimilation capacity of the receiving waters.[93]

Although a listing alone does not conclusively determine a water's capacity to assimilate an impairing pollutant, the listing does indicate that the water is of concern and deserves further scrutiny. In particular, a 303(d) listing for a priority pollutant may form the

[90] See Order WQ 2001-06 at 20.
[91] 40 C.F.R. sec. 130.7(b)(5).
[92] For priority pollutants, see Policy, sec. 1.4.2 at 13 ("The allowance of mixing zones is discretionary and shall be determined on a discharge-by-discharge basis."). See also TSD, fn. 75, *supra*, sec. 2.2.2 ("Mixing zone allowances will increase the mass loadings of the pollutant to the waterbody, and decrease treatment requirements. They adversely impact immobile species, such as benthic communities, in the immediate vicinity of the outfall. Because of these and other factors, mixing zones must be applied carefully, so as not to impede progress toward the [Clean Water Act] goals of maintaining and improving water quality.").
[93] Wat. Code sec. 13263(b).

basis for a Regional Board determination that discharge of the pollutant has the reasonable potential to cause or contribute to a water quality standards violation and, therefore, that the pollutant could be limited.[94] Here, the Regional Board could properly determine, based on San Pablo's listing for mercury, that the District's discharge of this pollutant had the reasonable potential to cause or contribute to a violation of downstream water quality standards for bioaccumulation.

And, while a listing alone is not determinative of assimilative capacity, the data and other information on which the listing is based certainly may justify mass limits for the impairing pollutant. In this case the Regional Board could properly determine, based on the listing as well as other relevant water quality information, that the mercury mass discharged by the District had to be limited to prevent further water quality impairment downstream.

Contention No. 7: The District objects to the mass limits on the additional ground that the Regional Board failed to comply with Water Code section 13263(a). The District contends that this statute required the Regional Board to consider certain factors, including economics and the need for developing housing, before imposing the limits.

Finding: The mass, performance-based limits do not violate section 13263(a). This statute requires that waste discharge requirements implement "any relevant [basin plans] that have been adopted, and . . . take into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, the need to prevent nuisance, and the provisions of section 13241." Section 13241 specifies factors that the Regional Boards must consider in establishing water quality objectives. These include economic considerations and the need to develop housing, as well as factors relevant to the water body,

[94] See Policy, sec. 1.3, Step 7 at 5.

such as its past, present and probable future beneficial uses and its environmental characteristics.[95]

The Board has previously concluded that the Regional Boards are not required to consider the section 13241 factors when implementing an existing Basin Plan objective.[96] The Board has also held that the Regional Boards are not required to consider the section 13241 factors when they establish performance-based mass limits in a compliance schedule to achieve a previously adopted objective.[97] The limits in dispute here are based on the treatment plant's current capabilities to remove mercury. The limits are essentially placeholders. They are intended to preserve the status quo pending TMDL development. If the Regional Board ultimately adopts a site-specific mercury objective based on bioaccumulation as part of the TMDL process, the Regional Board will have to comply with section 13241 at that time.

The District's primary concern is the Regional Board's alleged failure to consider economics and the need for developing housing. Although the Board concludes that the Regional Board was not required to consider the section 13241 factors, the Board finds ample evidence in the record that the Regional Board did, in fact, consider these factors.

Although the Regional Board did not calculate the interim mercury mass limits to purposely account for future growth, the limits allow some room for growth. This is due to

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[95] Section 13241 lists 6 factors that the Regional Boards must consider "in establishing water quality objectives." These include:

"(a) Past, present, and probable future beneficial uses of water.
(b) Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto.
(c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.
(d) Economic considerations.
(e) The need for developing housing within the region.
(f) The need to develop and use recycled water."

[96] See, e.g., State Board Orders WQ 94-8 and 77-16.

[97] See Order WQ 2001-06 at 29-30, citing Order WQ 90-5, pp. 79-80.

several factors. The Regional Board calculated the mercury mass load rate by taking the average of 12-month moving average mass loads over a 3-year period and adding 3 standard deviations of that data. To develop a mass load rate for a given month, the Regional Board multiplied the mercury effluent concentration by the average monthly flow.[98] The Regional Board used reported detection limits, which occurred in 20 of 21 samples, to represent the concentration whenever there were no detectable concentrations. Accordingly, the mercury mass limit was developed with loads that may not actually exist.

Second, the mass limit was calculated using monthly average flows discharged to the Napa River with an incidental credit built into the calculations by adding monthly average flows of reclaimed water. Thus, the District received "credit" for its reclamation efforts.

An incidental allowance for growth was likewise built into the calculations by taking the average of the 12-month moving averages and adding 3 standard deviations. Had the Regional Board added only 2 standard deviations, none of the historical moving averages would have exceeded the limit. Consequently, adding 3 standard deviations results in an even greater cushion.

Fourth, the Regional Board calculated the mass limits using data derived from older analytical detection methods. Future compliance will be determined using data derived from newer, more sensitive analytical methods.[99] And, finally, there is no evidence in the record that the mass limits will, in fact, adversely impact growth and development in the Napa area.

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[98] In reviewing the mercury mass limit calculations, the Board has noted an apparent anomaly in the data. The mercury concentrations for March 1997 and December 1997 on the calculation sheets (Fact Sheet, Att. C, pp. 42 and 43) do not match the data shown in the reasonable potential analysis data sheet (Fact Sheet, Att. B, p. 26). On remand, the Regional Board should review these data and the mass calculations.

[99] In June 1999 EPA published a final rule promulgating EPA Method 1631 for mercury. The method has a much lower detection limit, around 0.0005 µg/L, compared to 0.2 µg/L using traditional methods. EPA recently published proposed modifications to the rule to require use of clean techniques and quality control requirements when using the test method. 66 Fed. Reg. 51517-51528 (October 9, 2001).

Contention No. 8: The District contends that the mass limits are neither required by, nor consistent with, the Implementation Policy.

Finding: The Policy did not apply. However, using the Policy as guidance, the Board finds that the mass limits are unquestionably consistent with the Policy.

The Policy applies to the implementation of only NTR and CTR criteria and numeric objectives in Regional Water Quality Control Boards' (Regional Board) water quality control plans (basin plans) for priority pollutants.[100] Thus, when the Regional Boards implement narrative water quality objectives for priority pollutants, the Policy is not binding. In adopting the Policy, however, the Board intended to establish a standardized approach for permitting toxic pollutant discharges to the state's inland surface waters and enclosed bays and estuaries. In light of this goal, the Board concludes that it is appropriate to use the Policy as guidance in reviewing the priority pollutants limits at issue in Order No. 00-059.[101]

The Policy specifically directs the Regional Board to consider, when basing a compliance schedule on a TMDL, "whether the mass loading of the bioaccumulative pollutant(s) should be limited to representative, current levels pending TMDL development in order to implement the applicable water quality standard."[102] The Regional Board based the mercury compliance schedule in Order No. 00-059 on a TMDL; hence the interim, performance-based mass limits are consistent with this Policy directive.

Contention No. 9: The District additionally contends that the mercury mass limits are inappropriate because the Napa River has not been identified as impaired for mercury. Further, regional monitoring data demonstrate that San Francisco Bay waters generally do not

[100] See Policy, Introduction and sec. 1.1.
[101] The Board also notes that the Policy's implementation provisions are, generally, consistent with EPA guidance in the TSD, fn. 75, *supra*, on water quality-based toxics control.
[102] Policy, sec. 2.1.1 at 20.

exceed EPA water quality criteria guidance for mercury.[103] Therefore, the District concludes that current mercury levels in waters potentially influenced by the District's discharge are protecting the designated beneficial uses.

Finding: The impairment at issue here is not based on mercury water column concentrations, but rather on evidence of mercury bioaccumulation in fish tissues in downstream San Pablo Bay waters. Because mercury bioaccumulates, controlling mass loading is critical. Even small quantities can be of concern. The District's mass mercury discharge to the Napa River can exacerbate the identified impairment of San Pablo Bay. There is no evidence in the record that mercury discharged by the District is taken out of the hydrologic system, by volatilization or other processes, before reaching San Pablo Bay. Absent this evidence, the Board assumes that it reaches the bay either through sediment transport or in the water column. The District does not argue that the bay is not impaired due to mercury bioaccumulation, nor does the District contend that the mercury it discharges does not reach the bay.

Contention No. 10: The District contends that the mass limits and related findings are not based on evidence in the record or permit findings.

Finding: The Board concludes that Order No. 00-059 should be remanded to the Regional Board to clarify the findings and augment the record for the permit. Order No. 00-059 has extensive findings. The findings clearly indicate that the Regional Board is regulating mercury mass based on the San Pablo 303(d) listing for excessive fish tissue levels of mercury. The findings should clarify the water quality standard that the Regional Board seeks to protect through regulating the mercury mass discharged by the District. The Board assumes that the

[103] Past EPA human health criteria guidance for mercury has been for total mercury in the water column. EPA recently issued a new mercury criteria guidance document for human health protection. It contains a recommended fish tissue residue criterion for methylmercury of 0.3 milligrams per kilogram. See EPA-823-R-01-001. See generally http://www.epa.gov/waterscience/criteria/methylmercury/criteria.html.

Regional Board intended to implement water quality standards for bioaccumulation in San Pablo Bay. The findings should also address the nexus between the District's Napa River discharge and the downstream impairment. As stated previously, in the absence of evidence to the contrary, the Regional Board can reasonably assume that mercury discharged by the District reaches San Pablo Bay, either through sediment transport or in the water column.

Finally, the Board held for the first time in the Tosco decision that a section 303(d) listing, alone, cannot support a finding that an impaired waterbody has no assimilative capacity for the impairing pollutant.[104] This decision was made after the Regional Board adopted the District's permit. In Order No. 00-059 the Regional Board found that San Pablo Bay is impaired and, therefore, mass limits were necessary to prevent further degradation. Consistent with the Tosco decision, the Board concludes that the Regional Board must augment its record with the evidence of downstream impairment, in particular, the fish tissue data showing mercury bioaccumulation.

b. Mercury Concentration Limits

(1) Description

While it is clear that the Regional Board regulated the mercury mass in the District's effluent to address the downstream impairment in San Pablo Bay, the Regional Board's rationale for regulating the mercury concentration levels in the District's effluent is less unclear. The Regional Board apparently followed the procedures outlined in the Implementation Policy to

[104] See fn. 35, *supra*.

determine whether a mercury effluent limitation was required to implement the Table 3-4 footnote value of 0.012 µg/L.[105]

The Policy has three triggers for selecting pollutants requiring water quality-based effluent limits.[106] The first compares the maximum pollutant effluent concentration with the most stringent applicable criterion or water quality objective. If the maximum effluent concentration equals or exceeds the criterion or objective, the pollutant must be limited. The second trigger compares ambient background pollutant concentrations to the applicable criterion or objective. If the background concentration equals or exceeds the criterion or objective, the pollutant likewise must be limited. In the third trigger, the Regional Boards can exercise their discretion, based on other appropriate information, to determine that a pollutant must be regulated. This information can include, for example, fish tissue residue data, lack of dilution, and a Clean Water Act section 303(d) listing.

To analyze reasonable potential for the District's discharge, the Regional Board relied on the first trigger. The Regional Board used effluent monitoring data from January 1997 through December 1999 for this purpose. The Regional Board did not have ambient background receiving water data for these pollutants and, hence, could not use the second reasonable potential trigger.

The Regional Board found reasonable potential for mercury using the 0.012 µg/L mercury value.[107] The maximum effluent concentration was 0.01 µg/L, a value slightly lower

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[105] See Fact Sheet, fn. 46, *supra*, Table 4 at page 11, Table 5 at page 14, and Att. B at pp. 26-27. As explained previously, at pages 9-10, *supra*, the Basin Plan in Table 3-4 has a freshwater mercury objective of 0.025 µg/L, as a 4-day average. The table references the 0.012 µg/L value in a footnote.

[106] See Policy, sec. 1.3 at pp. 4-5.

[107] See fn. 108, *supra*.

than the footnote value. The maximum effluent concentration was based on the only detectable value out of 21 total samples, with non-detectable values ranging from <0.01 to <0.018 µg/L.

The Regional Board determined that the District could not meet water quality-based effluent limitations implementing the footnote value.[108] The Regional Board, therefore, included interim, performance-based concentration limits for mercury. The limits are 0.018 µg/L, as a monthly average for the wet season; and 0.012 µg/L, as a monthly average, and 0.018 µg/L, as a daily maximum, for the dry season.[109] The 0.012 µg/L value is a carryover from the District's prior permit.[110] In addition, Order No. 00-059 requires the District to develop and implement a mercury reduction study. As part of the study, the District must implement an aggressive source control program as well as assess the feasibility of attaining the 0.012 µg/L value.[111]

Order No. 00-059 also requires the District to use analytical methods capable of detecting mercury at levels as low or lower than 0.01 µg/L.[112] The permit provides that the Regional Board will modify the permit if new data, collected using ultra-clean sampling and analysis techniques, do not indicate "a reasonable potential to cause or contribute to violation of the mercury water quality objective of 0.012 µg/L."[113]

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[108] See the Regional Board Response to Petitions for Review of Waste Discharge Requirements, Order No. 00-059 (NPDES Permit No. CA0037575), for Napa Sanitation District, Napa County, in Memorandum, dated April 30, 2001, from Loretta Barsamian, Regional Board Executive Officer, to Sheila Vassey, State Board (Regional Board Response), Response 41 at page 21 and Att. 2.

[109] Order No. 00-059, Effluent Limitations B(i)7 and B(ii)7.

[110] See Order No. 94-037, Effluent Limitations B(ii)5.

[111] Order No. 00-059, Provision F.3. The District is not required to do the study if mercury sampling results are below 0.012 µg/L consistently over a 6-month period.

[112] *Ibid.*

[113] *Id.* Finding 45 f.

(2) Contentions

Contention No. 1: The District contends that the Regional Board failed to comply with State Board Order WQ 95-4. Specifically, the District alleges that the Regional Board failed to include permit findings that explained its rationale for using the 0.012 µg/L footnote value instead of the water quality objective of 0.025 µg/L, to support use of the former with evidence in the record, and to address the Water Code section 13241 factors.

Findings: The Board agrees to the extent that the Regional Board based regulation of mercury effluent concentrations on its conclusion that the District's mercury discharge had the reasonable potential to cause or contribute to a violation of the 0.012 µg/L value. The basis on which the Regional Board, in fact, concluded that the discharge had reasonable potential is unclear. As the Board has stated above, the Regional Board had an alternative basis for regulation, grounded on the potential for the discharge to contribute to mercury bioaccumulation in downstream waters. The Board has previously concluded that the Regional Board must clarify the mercury findings. On remand, the Regional Board must explain the basis on which it is regulating the mercury concentration and, if appropriate, address the section 13241 factors.

Evidence in the record indicates that the Regional Board based its reasonable potential analysis for mercury on the 0.012 µg/L value. The Regional Board found reasonable potential although reasonable potential was not established under either the first or second Policy triggers. It was not established under the first trigger because the maximum effluent concentration was less than the 0.012 µg/L value. It was not established under the second trigger because there was no background data. The Regional Board had the discretion under the third trigger to consider other appropriate information in determining whether a mercury limit was

necessary. This information could include San Pablo Bay's section 303(d) listing for mercury. The listing is, however, based on bioaccumulation rather than water column concentrations, and the mercury mass limits were imposed to address this impairment. It is not clear from the record whether the Regional Board decided to regulate the mercury effluent concentration to also address bioaccumulation in downstream waters or to ultimately implement the 0.012 µg/L value in the Napa River or the bay.

In Order WQ 95-4 the Board held that the Regional Board was authorized to impose effluent limits more stringent than limits based on the applicable numeric basin plan objective where necessary to protect beneficial uses or prevent nuisance.[114] The Board also held that the rationale for the more stringent limitations must be explained in the permit findings, and the findings must be supported by evidence in the record. Further, the findings must reflect that the Regional Board considered the Water Code section 13241 factors in doing so.

Although not addressed in the permit findings or Fact Sheet, the Regional Board's response to the petitions explains that the Table 3-4 freshwater mercury objective of 0.025 µg/L objective was not used because it was based on analytical detection limits rather than environmental protection. This statement is supported by language in the accompanying footnote, which explains that the objective is not as stringent as EPA criteria, but that it reflected the then-existing detection limit.

On remand, the Regional Board must clarify on what basis the Regional Board found reasonable potential. If the Regional Board intended to implement the 0.012 µg/L mercury value, the Regional Board must include appropriate permit findings justifying use of the value since it is more stringent than the water quality objective, and addressing the section 13241

[114] Order WQ 95-4, pp. 11-14.

factors.[115] If, instead, the basis is the narrative bioaccumulation objective, the findings must explain the relationship between the concentration-based limits and that objective. Alternatively, the Regional Board may decide on remand to implement the existing mercury objective in the Basin Plan.

Contention No. 2: The District contends that the Regional Board did not comply with the Implementation Policy in imposing the interim, concentration-based mercury limits in Order No. 00-059.

Finding: The Implementation Policy did not apply. The Regional Board did not implement either a CTR or NTR criterion or an applicable numeric Basin Plan objective for a priority pollutant. Rather, the Regional Board apparently decided to regulate the concentration of mercury in the District's discharge either to implement the 0.012 µg/L value or narrative objectives for bioaccumulation or toxicity in the river or the bay.[116]

Using the Policy as a guide, however, the Board concludes that the interim, performance-based concentration limits for mercury were consistent with the Policy. Under the Policy, if a compliance scheduled is authorized and the schedule exceeds one year, the Regional Board must include interim numeric limits for the pollutants.[117] The interim limits must be the more stringent of performance-based limits or the prior permit limitations.[118] In this case the

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[115] At times, Order No. 00-059 refers to the footnote value as a water quality objective, but it is clear that the Basin Plan freshwater objective for mercury is 0.025 µg/L.

[116] The Basin Plan narrative toxicity objective states, in part: "All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms. Detrimental responses include, but are not limited to, decreased growth rate and decreased reproductive success of resident or indicator species." Basin Plan at 3-4.

[117] See Policy, sec. 2.2.1. If the discharge of a pollutant has the reasonable potential to cause or contribute to a water quality standards violation, interim limits for the pollutant are appropriate only if a compliance schedule is authorized. The Policy authorizes a compliance schedule only if the discharger requests one and demonstrates that it is infeasible to achieve immediate compliance with a CTR criterion or an effluent limit based on a CTR criterion. *Id.*, sec. 2.1. The Basin Plan imposes similar preconditions to obtaining a compliance schedule. See Basin Plan at 4-14.

[118] Policy, sec. 2.2.1.

Regional Board determined that the District could not meet final effluent limitations based on the 0.012 µg/L value, and that final limits will be based on a TMDL. Therefore, consistent with the Policy, the Regional Board imposed the more stringent of performance-based limits or the prior permit limits to regulate the mercury concentration in the District's effluent.

The Policy also provides an alternative basis on which to uphold interim, performance-based concentration limits. Under the Policy, a Regional Board is required to impose interim numeric limitations whenever the Regional Board finds reasonable potential for a pollutant but is unable to calculate final limits.[119] The interim limits must be the more stringent of performance-based limits or the prior permit limitations. In this case the Regional Board apparently could not calculate final mercury limits because the Regional Board lacked background data.[120] The Regional Board imposed the more stringent of performance-based limits or the prior permit limits. Hence, the Regional Board's actions were consistent with the Policy.[121]

Contention No. 3: The District contends that the concentration limits are improper because the Napa River is not 303(d)-listed for mercury.

Finding: The Napa River need not be 303(d)-listed for mercury in order to justify interim, performance-based concentration limits. The Regional Board can regulate mercury concentrations in the District's effluent if necessary to implement downstream water quality standards. As stated previously, however, the Regional Board must clarify its basis for imposing the performance-based, concentration limits for mercury.

[119] *Id.*, sec. 2.2.2 B.
[120] But see Regional Board Response, fn. 111, *supra*.
[121] While the Board recognizes that the Policy is not binding; it provides an appropriate guide.

Contention No. 4: The District contends that the interim limits are inappropriate because they are based on performance of the oxidation ponds rather than the new activated sludge treatment system. The District expresses concern that its effluent mercury concentrations may increase when its new system is on-line.

Finding: The State Board cannot determine whether the limits can or should be relaxed because there is insufficient information in the record. There is no data on performance of the new activated sludge treatment system. Further, Order No. 00-059 establishes a process to resolve this issue once the necessary data is available. This issue is best left to the Regional Board and the District to resolve in the first instance.

The oxidation ponds have performed extremely well in removing metals from influent to the Soscol plant. This is due to the long pond detention times, which have allowed greater settling of metals-adsorbed particles, and metals precipitation through sulfide generation. The Regional Board and the District have anticipated that the new activated sludge system will be less effective in removing metals. In fact, Order No. 00-059 provides that the Regional Board may reevaluate and reopen the permit based on new information after the new system is optimized and stabilized.[122]

The Regional Board has expressed a willingness to work with the District in assembling the data and information needed to support a legally-defensible permit modification. The Board encourages the Regional Board and the District to continue to work toward a mutually acceptable agreement on permit modification.

The Board will comment, however, on one issue identified by the Regional Board as a legal prerequisite to modifying the interim mercury concentration limits based on

[122] Order No. 00-059, Finding 42 b.; Fact Sheet, fn. 46, *supra*, p. 11 and Att. D.

performance of the new treatment system. This issue is antidegradation. The Board does not believe that antidegradation requirements necessarily bar permit modification.

As explained above, the Regional Board regulated the District's mercury discharge to address downstream impairment due to bioaccumulation and apparently to attain the 0.012 µg/L water column value in either the Napa River or the bay. For the reasons explained previously, the Board has concluded that interim, performance-based mass limits are appropriate to implement Tier one of the antidegradation policy for San Pablo Bay.[123] The mass limits are designed to maintain the status quo and prevent further degradation of downstream waters.

The Board cannot analyze whether the Napa River itself is in Tier one or Tier two, based on mercury water column concentrations, however, because there is no background data. If the 0.012 µg/L mercury value is appropriate for the Napa River, and water column concentrations in the river are lower than the 0.012 µg/L value, the river could be in Tier two. If it is in Tier two, then some lowering of water quality can be allowed as long as the necessary antidegradation demonstrations and findings are made.[124] The Board notes that, even if the concentration limits were relaxed, the District would still have to comply with the mass limits.

2. DIOXIN AND FURAN COMPOUNDS

The priority pollutant, 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD), is one of the most toxic pollutants known to man.[125] An additional six chlorinated dibenzodioxins and

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[123] This conclusion assumes that the Regional Board will clarify the findings and augment the record to support the mass mercury limits, as discussed above.

[124] To allow a water quality lowering in high quality waters, the state must finding that "allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located." 40 C.F.R. sec. 131.12(a)(2). The state must assure water quality necessary to protect existing uses fully. *Ibid.* The state must also "assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control." *Ibid.*

[125] See Order WQ 2001-06, pp. 44-47 for a general discussion of dioxins and furans.

ten chlorinated dibenzofurans exhibit toxic effects similar to 2,3,7,8-TCDD. These "dioxin-like" compounds tend to be very stable in the environment and to accumulate in biological tissues.

a. Mass Limits

(1) Description

The District's prior permit had an effluent limitation of 0.13 picograms per liter (pg/L) for 2,3,7,7-TCDD equivalents or TEQ.[126] The TEQ, or toxicity equivalence, of a mixture of the 17 compounds is the weighted sum of each compound's concentration multiplied by its toxicity equivalency factor or TEF. The TEFs express the toxicity of a compound as compared to 2,3,7,8-TCDD, the most toxic compound, which is assigned a TEF of 1.0.

Order No. 00-059 regulates the mass loading of 4 of the 17 compounds.[127] They were the only ones detected in the District's effluent out of a data set of 6 samples spanning from 1997 to 1999. The order contains an interim, performance-based mass limit.[128] The Regional Board calculated the limit by applying each compound's TEF to both detected concentrations and the method detection limit for non-detectable values. The resulting concentrations were multiplied by appropriate conversion factors and by the flow actually discharged by the District to the Napa River to obtain an estimated mass load during the relevant sampling period. The Regional Board then averaged the estimated load rates and added 3 standard deviations to obtain the mass load limit.[129]

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[126] Order No. 94-037, Effluent Limitation B(i)5.

[127] See Order No. 00-059, Effluent Limitation B(iii) and note 2. The compounds are: 1,2,3,4,6,7,8-hepta CDD; octa-CDD; 1,2,3,4,6,7,8-hepta CDF; and octa-CDF.

[128] The mass limit, with the City of American Canyon's flows, is 0.74 milligrams per month (mg/mo), and without is 0.67 mg/mo.

[129] See Order No. 00-059, Finding 46 d.; Fact Sheet, fn. 46, *supra*, Att. D.

(2) Contentions

The District objects to the interim mass load limits on the same grounds as the District raised for the mercury mass limits. The Board will not repeat that discussion here. In this discussion, the Board will only address issues specific to the interim dioxin limit.

Contention No. 1: The District contends that the interim mass limits will require the District to freeze dioxin mass emissions at existing levels. The inevitable result will be a freeze on local economic growth and development.

Finding: Like the interim mercury mass limits, the interim dioxin limits allow some room for growth. Over half of the data set for the 4 regulated dioxin and furan compounds reflects non-detectable concentrations. Accordingly, the mass limit was calculated assuming a load that may not actually exist. Also, the Regional Board's decision to add 3 standard deviations appears to provide incidental room for growth. In fact, there is no evidence in the record that the limits will have any impact on growth and development in the area.

Contention No. 2: The District contends that regulation of dioxins in its effluent is inappropriate because 2,3,7,8-TCDD has never been detected in its effluent, the Napa River is not impaired for dioxins, and water column concentrations in both the river and San Francisco Bay meet the CTR dioxin criteria.

Finding: The Regional Board appropriately regulated the dioxin and furan mass discharged by the District. The District's effluent contains dioxin and furan compounds. San Pablo Bay is section 303(d)-listed as impaired due to the bioaccumulation of dioxins and furan compounds in fish tissues. Absent evidence to the contrary, the Regional Board could reasonably assume that dioxins and furans discharged by the District reach San Pablo Bay. The evidence of impairment can support the interim, performance-based mass dioxin limits in

Order 00-059. The Regional Board must clarify the nexus between the District's discharge and the San Pablo Bay impairment in findings and must augment its record with the evidence of impairment.

The CTR has criteria for 2,3,7,8-TCDD only.[130] The preamble to the rule, however, expresses EPA's expectation that the state will regulate other dioxin-like compounds using a TEF scheme if their discharge has the reasonable potential to cause or contribute to a violation of a narrative objective.[131] The Regional Board acted consistently with this EPA directive. Evidence in the record indicates that the Regional Board concluded that the District's discharge of the 4 dioxin and furan compounds had the reasonable potential to cause or contribute to a violation of a narrative objective, presumably for bioaccumulation. Final water quality-based effluent limits will be based on wasteload allocations in a TMDL. To maintain the status quo in the interim, the Regional Board imposed performance-based mass limits for the 4 compounds.

The fact that water column concentrations in the Napa River and San Pablo Bay may not exceed the CTR criteria for the one dioxin compound, 2,3,7,8-TCDD, is not determinative. The other 16 dioxin-like compounds are also toxic. In addition, San Pablo Bay is 303(d)-listed for dioxin and furan compounds based on excessive fish tissue levels, rather than water column concentrations. The Napa River is tributary to the bay. Because dioxins and furans are generally persistent, bioaccumulative pollutants, controlling their mass is critical. Absent evidence of processes that take dioxin and furan compounds out of the system, the Regional Board could reasonably assume that dioxins and furans discharged from the Soscol

[130] See 40 C.F.R. sec. 131.38(b)(1) (Pollutant #16).
[131] 65 Fed. Reg. 31682 at 31696.

plant will ultimately reach San Pablo Bay waters, either through sediment transport or in the water column. The District does not contend that San Pablo Bay is not impaired for dioxins and furans. Nor does the District assert that these substances, when discharged by the District to the river, do not reach the bay.

Assuming that evidence in the record supports the conclusion that San Pablo Bay waters are impaired and assuming a nexus between the District's discharge and the downstream impairment, the Regional Board acted properly is regulating the mass load of dioxins and furans discharged from the treatment facility to the Napa River. On remand, the Regional Board must clarify the dioxin and furan findings in Order No. 00-059 to address the water quality standard at issue and the nexus between the District's discharge and the San Pablo Bay impairment. The Regional Board must also augment its record with the evidence of impairment.

b. Dioxin Study

(1) Description

In addition to regulating the mass dioxin loading, Order No. 00-059 requires the District to investigate the cost-effectiveness of improving solids removal from its discharge.[132] The investigation must include analyzing the cost-effectiveness of operating the filter during the wet season, optimizing coagulation and clarification, and other alternatives that will enhance solids removal. The permit required the District to submit a study plan by January 19, 2001, identifying the alternatives. Once the Regional Board approved the plan, the District had six months to submit an evaluation report that recommended cost-effective alternatives and a time schedule to implement the alternatives. One year after the evaluation report's approval, the

[132] Order No. 00-059, Provision F.12.

District had to submit a completion report documenting that the District had completed the recommended alternatives.

(2) Contentions

Contention No. 1: The District, in essence, contends that the dioxin study requirement is inconsistent with the Policy. The District states that the Policy envisioned that the Regional Boards would complete a required dioxin monitoring study before taking additional action.

Finding: The Regional Board's actions were not inconsistent with the Policy. The Policy required each Regional Board to implement a discharger self-monitoring program for the 2,3,7,8-TCDD and the other 16 dioxin-like compounds.[133] Industrial dischargers and POTWs had to monitor for the presence of these compounds in their effluent for 3 years. The purpose was "to assess the presence and amounts of the [17 dioxin and furan compounds] being discharged in inland surface waters, enclosed bays, and estuaries for the development of a strategy to control these chemicals in a future multi-media approach."[134]

The State Board did not intend, by imposing the dioxin self-monitoring requirements, to restrict the Regional Boards from taking other appropriate action to address these pollutants. The Policy, for example, specifically provides that a Regional Board "may, at its discretion, increase the monitoring requirement . . . to further investigate frequent or significant detections of any congener."[135]

Nothing in the Policy precluded the Regional Board from requiring that the District conduct additional studies that bear on the District's ability to comply with its permit.

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[133] Policy, sec. 3, pp. 27-28.
[134] *Id.* at page 28.
[135] *Ibid.*

As stated previously, the Regional Board concluded that the District's discharge of dioxin and furan compounds had the reasonable potential to cause or contribute to a violation of narrative standards. Dioxin and furan compounds are primarily associated with particulate matter. Hence, the study on enhancing solids removal has a direct bearing on the District's ability to comply with its dioxin mass limits.

Contention No. 2: The District contends that the Regional Board violated Water Code section 13267 in requiring the study without first assessing the impacts of the requirement on the District and determining whether the burden and costs bear a reasonable relationship to the need for the information.

Finding: The Regional Board did not violate Water Code section 13267. This section broadly authorizes the Regional Boards to require dischargers to investigate water quality and to furnish technical and monitoring program reports. The Regional Boards can require these reports when reissuing permits "or in connection with any action relating to any plan or requirement or authorized" under the Porter-Cologne Water Quality Control Act.[136] The burden, including costs, of the reports must bear a reasonable relationship to the need for them and the benefits to be gained from them.

Here, the Regional Board was unquestionably authorized to require the report. The requested study is directly related to the District's ability to comply with its interim, performance-based mass dioxin limits. Further, the Regional Board only required the District to investigate "cost-effective alternatives" for enhancing solids removal. Under the circumstances, the Board concludes that the burden on the District of submitting the required report is not disproportionate to its water quality benefits, given the toxicity of the pollutants in question.

[136] Wat. Code sec. 13300 et seq.

Contention No. 3: The District further contends that the Regional Board failed to make appropriate findings and to include evidence in the record supporting the dioxin study requirement.

Finding: The Board assumes that the Regional Board required the study because waters downstream of the District's discharge are impaired for dioxins and furans. These pollutants have low water solubility and are primarily adsorbed onto particulate and organic matter. Hence, if the District can identify cost-effective methods for enhancing solids removal, the District can potentially reduce its dioxin and furan loading.

The Board notes that the Governor recently signed legislation amending section 13267 that bears on the District's contention. Effective January 1, 2002, when the Regional Boards require technical or monitoring program reports pursuant to section 13267, they must give the person required to prepare the report a written explanation of the need for the report and the evidence supporting the information request.[137] To be consistent with the intent of this new legislation, the Regional Board should, on remand, include appropriate findings in Order No. 00-059 clarifying these matters.

3. COPPER

The District's prior permit had daily average effluent limitations for total recoverable copper of 37 µg/L in the wet season and 4.9 µg/L in the dry season.[138] Before reissuing the District's permit, the Regional Board analyzed whether the discharge had the reasonable potential to cause or contribute to an excursion above the CTR saltwater dissolved copper criterion of 3.1 µg/L. Out of a data set of 21 samples from January 1997 to December

[137] Stats. 2001, ch. 869, sec. 3.
[138] Order No. 94-037, Effluent Limitations B(i)5. and B(ii)5.

1997, the District had 2 detectable values, 2 µg/L and 5 µg/L (total recoverable).[139] The Regional Board applied the applicable EPA conversion factor to the saltwater dissolved copper criterion to achieve a total recoverable criterion of 3.7 µg/L. Since the maximum effluent concentration (5 µg/L) was greater than the criterion, the Regional Board found reasonable potential under the first Policy trigger.[140] The Regional Board did not have background data for copper.

The permit findings state that a final water quality-based effluent limitation will be based on the wasteload allocations in a TMDL.[141] In the interim, the Regional Board imposed a total recoverable copper concentration limit of 5 µg/L for both the wet and dry seasons.[142]

Contention No. 1: The District contends that the Regional Board erred in not basing its reasonable potential analysis on the Basin Plan's freshwater copper objective. The District further contends that the Regional Board erred in relying on CTR provisions for distinguishing freshwater from saltwater.

Finding: The Regional Board correctly selected the CTR saltwater copper criterion for the reasonable potential analysis. The Basin Plan's provisions for distinguishing between freshwater and marine water govern implementation of the Tables 3-3 and 3-4 objectives.

As explained above, EPA promulgated around the Basin Plan's priority pollutant objectives in Tables 3-3 (saltwater) and 3-4 (freshwater). The Basin Plan establishes rules, based primarily on salinity, for determining which objectives apply. The Basin Plan defines freshwaters as "waters both outside the zone of tidal influence and with salinities lower than five

[139] See Fact Sheet, fn. 46, *supra*, Att. B.
[140] *Id.* Table 5 and Att. B.
[141] Order No. 00-059, Finding 44.e.
[142] *Id.*, Effluent Limitations B(i)7 and B(ii)7.

parts per thousand at least 75 percent of the time in a normal water year."[143] Marine waters or salt waters are "waters with salinities greater than 5 parts per thousand at least 75 percent of the time in a normal water year. . . ."[144] Effluent limitations for waters with salinities in between or for "tidally influenced fresh waters that support estuarine beneficial uses" are the lower of the marine or freshwater effluent limitations.[145]

The CTR has different standards for distinguishing between saltwater and freshwater.[146] The CTR delineations, however, apply only to the CTR freshwater and saltwater aquatic life criteria in the rule.[147]

The Regional Board found that the receiving waters were estuarine, that is, neither freshwater nor saltwater, using the CTR delineation standards. The Board defers to the Regional Board's determination that the receiving waters are estuarine. Basin Plan provisions indicate that the receiving waters are tidally influenced and support estuarine uses. The Basin Plan defines the lower portions of the Napa River as estuarine.[148] The District discharges to the Napa River at a location that is within the upper reaches of wetlands identified as brackish in the Basin Plan.[149] Further, according to a map attached to Order No. 00-059, a tidal gate is located upstream of the District's discharge.[150]

Because the receiving waters are estuarine, the Basin Plan dictates that the more stringent of the freshwater or marine effluent limitations applies. The Basin Plan has freshwater

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[143] Basin Plan at 4-13. Emphasis added.
[144] *Ibid.*
[145] *Ibid.* Emphasis added.
[146] See 40 C.F.R. sec. 131.38(c)(3). Under the CTR, freshwaters are waters in which the salinity if equal to or less than 1 part per thousand 95% or more of the time. Waters in which the salinity is equal to or greater than 10 parts per thousand 95% or more of the time are considered saltwater. For waters in between, the more stringent of the freshwater or saltwater criteria apply.
[147] *Ibid.*
[148] Basin Plan at 2-5.
[149] See *id.*, Figures 2-8 and 2-11 and Table 2-10.
[150] See Order No. 00-059, Att. A.

objectives for total recoverable copper of 6.5 µg/L as a 4-day average and 9.2 µg/L as a 1-hour average, but no saltwater objectives. To fill in this gap, the CTR dissolved saltwater copper criterion of 3.1 µg/L applies. The CTR saltwater copper criterion is more stringent than the Basin Plan freshwater copper objectives. Hence, the CTR saltwater criteria apply. Therefore, the Regional Board correctly selected the CTR criterion for its reasonable potential analysis.

Contention No. 2: The District objects to the interim copper limit on the grounds that it was based on performance of the oxidation pond system. The District does not expect that the new activated sludge system will perform as effectively in removing metals.

Finding: As stated previously, Order No. 00-059 establishes a process to resolve this issue. The Board encourages the Regional Board and the District to work together to develop a mutually agreeable permit modification, reflecting the capabilities of the new treatment system.

The Board will also comment here on the antidegradation policy. The Board does not view the policy as an absolute bar to less stringent, performance-based copper limits. The Board notes that Order No. 00-059 treats copper as a non-bioaccumulative pollutant. Hence, water column concentrations presumably are the critical parameter. There is no background receiving water data on which to assess whether the Napa River is in Tier one or Tier two for copper. If background concentrations in the river do not exceed the applicable criterion, the Napa River would be a Tier two or high quality water under the antidegradation policy. If this is true, the Regional Board could allow a lowering of water quality provided that the applicable antidegradation requirements,[151] as well as downstream standards, are met.

[151] See fn. 127, *supra*.

Contention No. 3: The District objects to the interim copper limit on the grounds that the Napa River is not impaired for copper and that dissolved copper levels in the parts of San Francisco Bay that are influenced by the Napa River do not exceed the CTR copper criterion.

Finding: The interim, performance-based copper limit in Order No. 00-059 is appropriate under the Policy because there is no ambient background data on which to calculate final permit limits. There is no clear connection between the District's discharge of copper to the Napa River and the San Pablo Bay impairment for copper. Absent this connection, it is inappropriate to defer final water quality-based effluent limits until a TMDL is developed for San Pablo Bay. Once the Regional Board has appropriate ambient receiving water copper data, the Regional Board must calculate a final water quality-based effluent limitation.

The interim, performance-based copper limit complies with the Policy because the Regional Board found reasonable potential and because, due to the lack of background data, a final effluent limitation could not be calculated. Under the Policy, if the Regional Board finds reasonable potential for a pollutant but is unable to develop a final limit, the Regional Board must impose numeric interim limits that are the more stringent of limits based on performance or the prior permit limits. Here, copper limits based on performance are the more stringent limits.

The Policy allows the Regional Board to include a schedule giving a discharger additional time, not to exceed 3 years from the Policy's effective date, to collect the needed data.[152] Thereafter, the permit must be revised to include final water quality-based effluent limitations.[153]

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[152] Policy, sec. 2.2.2 at 21.
[153] *Id.* at 22.

Neither the permit findings nor the fact sheet establish a nexus between copper discharged to the Napa River and water column copper concentrations in San Pablo Bay. The river is not listed as impaired for copper, and the Regional Board had no background receiving water data on this pollutant. Without this information, it is difficult to draw any conclusions about the potential impact, if any, of the District's discharge on copper water column concentrations in San Pablo Bay. The Board notes that the Regional Board regulated copper, unlike mercury and dioxin and furan compounds, as a non-bioaccumulative pollutant.

Consequently, the Board concludes that, without a clear nexus between the District's discharge and the San Pablo Bay impairment, it was inappropriate for the Regional Board to defer final water quality-based effluent limitations for copper until a TMDL is developed for the bay. Under the Policy, the Regional Board was required to include in the permit findings, among other information, a schedule to develop a final water quality-based effluent limit for copper.[154] On remand, the Regional Board must amend the permit findings to address these requirements.

Contention No. 4: The District contends that the interim copper limit is not supported by appropriate findings or evidence in the record.

Finding: Order No. 00-059 contains adequate findings to support the interim, performance-based copper limit. The findings correctly identify the relevant CTR copper criterion and state that the Regional Board has found that the District's discharge has the reasonable potential to cause or contribute to a water quality standards violation.[155] The permit fact sheet supports these findings. For the reasons stated above, however, the Board concludes

[154] *Ibid.*
[155] Order No. 00-059, Finding 44.

that the Regional Board must modify the permit findings that are based on San Pablo Bay's 303(d) listing for copper and add findings that address the Policy requirements for development of a final water quality-based effluent limit for copper.

4. CYANIDE

The District's prior permit had a daily average limit for cyanide of 25 µg/L in wet weather and 5 µg/L in dry weather.[156] The Regional Board included a cyanide limit in Order No. 00-059 of 3.4 µg/L, as a daily maximum, for both wet and dry weather.[157] The Regional Board analyzed reasonable potential for cyanide, based on a data set of samples all of which had no detectable concentrations, ranging from <2 to <3.4 µg/L.[158] The Regional Board compared the lowest detection limit (2 µg/L) to the lowest applicable criterion, 1 µg/L, and found reasonable potential under the first Policy trigger.

Contention No. 1: The District contends that the Regional Board erred in using the NTR saltwater aquatic life cyanide criterion of 1 µg/L, rather than the Basin Plan freshwater objective of 5.2 µg/L, as a 4-day average, to analyze reasonable potential. The District argues that neither the CTR nor the NTR criteria for cyanide apply.

Finding: The Regional Board correctly selected the NTR saltwater criterion for its analysis. As the Board explained above, the CTR criteria do not apply "to waters subject to objectives in Tables [3-3] and [3-4]" of the Basin Plan. Eight years before the CTR was promulgated, however, the saltwater cyanide objective in Table 3-3 was amended by the NTR.

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[156] Order No. 94-037, Effluent Limitations B(i)5 and B(ii)(5.
[157] Order No. 00-059, Effluent Limitations B(i)7 and B(ii)7.
[158] See Fact Sheet, fn. 46, *supra*, Att. B at 28.

The CTR left intact certain criteria promulgated in the NTR for specific California water bodies.[159] The NTR criteria, which were promulgated in 1992, "amend[ed] portions of the State standards contained in the Basin Plans."[160] In particular, the NTR criteria "amend[ed] water quality criteria contained in the Basin Plan Chapters specifying water quality objectives . . . for the toxic pollutants" identified in the NTR for California waters.[161] And, the NTR specifically amended the Basin Plan Table 3-3 saltwater cyanide objective for "[w]aters of San Francisco Bay upstream to and including Suisun Bay and the Sacramento-San Joaquin Delta."[162]

The Board has previously concluded that the receiving waters are estuarine under the Basin Plan. Consequently, the more stringent of the freshwater or saltwater cyanide criteria applied.[163] The NTR saltwater criteria of 1 µg/L are more stringent.[164]

Contention No. 2: The District contends that the Regional Board erred in finding reasonable potential for cyanide.

Finding: The Board agrees. Reasonable potential is not established under the first Policy trigger because cyanide was not detected in any of the effluent samples and all detection limits are above the applicable NTR criterion. Reasonable potential cannot be found under the second trigger because there were no background receiving water data. There is no additional information in the record supporting the need for a cyanide limit. Thus, reasonable potential is not established under any of the three Policy triggers. In this circumstance the Policy

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[159] See 40 C.F.R. sec. 131.38(b)(1) fns. o, p, q, r, s, and t; 65 Fed. Reg. 31682 at 31683 ("This final rule does not change or supersede any criteria previously promulgated for the State of California in the NTR, as amended. Criteria which EPA promulgated for California in the NTR, as amended, are footnoted in the final table at 131.38(b)(1). . . .").

[160] 40 C.F.R. sec. 131.36(d)(10)(i).

[161] *Ibid.*

[162] *Id.* sec. 131.36(d)(10)(ii).

[163] The NTR's standards for delineating freshwater and saltwater are identical to the CTR's. Compare 40 C.F.R. sec. 131.36(c)(3) with *id.* sec. 131.38(c)(3). See fn. 149, *supra*. The Board's review of data in the record indicates that the receiving waters would also be considered estuarine under the NTR delineation standards.

[164] Both the NTR acute and chronic saltwater cyanide criteria are 1 µg/L.

provides that the Regional Board cannot establish numeric interim limitations for cyanide.[165] Instead, the Regional Board had to require the District to collect more data. On remand, the Regional Board must amend Order No. 00-059 to conform to the Policy's requirements.

5. OTHER POLLUTANTS NOT DETECTED IN EFFLUENT

In addition to the interim limits for mercury, dioxins and furans, copper, and cyanide, Order No. 00-059 contains interim limits for 12 other priority pollutants. These are: hexachlorobenzene, aldrin, chlordane, 4,4'-DDT, dieldrin, endosulfan (alpha), endosulfan (beta), endrin, heptachlor, heptachlor epoxide, PCBs, and toxaphene. None of the pollutants were detected in the District's effluent, and all of the detection limits exceed the applicable criteria. San Pablo Bay is 303(d)-listed for four constituents, chlordane, 4,4'-DDT, dieldrin, and PCBs. The Regional Board included interim limits for the 12 pollutants in Order No. 00-059 because limits were included in the prior permit. The Regional Board cited antibacksliding as the basis for including limits in the current permit.

Contention: The District objects to these limits on various grounds, including that the limits do not comply with the Policy.

Finding: For the reasons explained above, the Board agrees that, without additional information justifying limits, the interim limits were inappropriate.[166] The Regional Board could not find reasonable potential for these pollutants under the first or second Policy triggers. Under the third trigger, the Regional Board was authorized to consider other information to determine the need for limits. However, the findings do not reflect that this

[165] See Policy, sec. 2.2.2 A at 21.
[166] Accord, Order WQ 2001-06, pp. 36-37.

occurred. Rather, the Regional Board imposed the limits to comply with antibacksliding requirements.

The Board does not view antibacksliding as an absolute bar to removing limits under these circumstances. Antibacksliding does not necessarily dictate that a pollutant that was limited in a prior permit must have a limit in a later permit, even though the pollutant has never been detected and its discharge does not have the reasonable potential to cause or contribute to a water quality standards violation. It appears that, at a minimum, the antibacksliding exception in Clean Water Act Section 303(d)(4) for attainment waters could apply. The Napa River is not listed as impaired for any of these pollutants. If the receiving waters are in attainment of the applicable water quality standard, the new permit limits may backslide as long as antidegradation requirements are met.[167] Of course, any new limits must ensure that downstream water quality standards are attained, as well. For these reasons, the Board concludes that, on remand, the Regional Board must reconsider reasonable potential for these pollutants.

6. PERCENT REMOVAL REQUIREMENTS FOR BOD AND TSS

The Clean Water Act generally mandates that POTWs achieve secondary treatment.[168] EPA regulations define secondary treatment to include a requirement that a facility achieve 85 percent removal of the biochemical oxygen demand (BOD) and total suspended solids (TSS) from its influent.[169] Order No. 00-059 contains this removal requirement for influent to the Soscol Plant.[170] The regulations allow exceptions to the requirement for plants

[167] See 33 U.S.C. sec. 1313(d)(4)(B).
[168] See *id.* sec. 1311(b)(1)(B).
[169] 40 C.F.R. sec. 133.102.
[170] Order No. 00-059, Effluent Limitations B(i)4 and B(ii)4.

treating less concentrated influent wastewater for separate sewers.[171] The District requested that the Regional Board approve an exception for 79 percent removal.

To qualify for an exception, a discharger must satisfactorily demonstrate that it meets three criteria, two of which are not in dispute here.[172] Under the third criteria, a discharger must show that the less concentrated wastewater is not the result of excessive inflow or infiltration (I/I). "Excessive I/I", for this purpose, is defined as the quantities of I/I that can be economically eliminated from a sewer system as determined in a cost-effectiveness analysis that compares the costs for correcting the I/I conditions to the total costs for their transportation and treatment.[173] Additionally, "inflow is nonexcessive if the total flow to the POTW (i.e. wastewater plus inflow plus infiltration) is less than 275 gallons per capita per day."[174] The Regional Board determined that the District had not demonstrated that the less concentrated effluent was not due to excessive I/I.

Contention: The District contends that the Regional Board acted arbitrarily and capriciously and otherwise violated the law in imposing the 85 percent removal requirement.

Finding: The Board does not agree. Federal regulations impose the 85 percent removal requirement on POTWs discharging to surface waters. To qualify for an exception to this requirement, the District had the burden of satisfactorily demonstrating that it met all three criteria for an exception. In this case, the District did not provide a cost-effectiveness analysis to support its request for a change. In addition, the Regional Board determined that inflow to the

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[171] See 40 C.F.R. sec. 133.103(d).
[172] The other two criteria are: (l) the treatment works is consistently meeting, or will consistently meet, its permit effluent concentration limits but its percent removal requirements cannot be met due to less concentrated influent wastewater and (2) to meet the percent removal requirements, the treatment works would have to achieve significantly more stringent limits than would otherwise be required by the concentration-based standards. *Ibid.*
[173] 40 C.F.R. sec. 35.2005(b)(16).
[174] *Id.* sec. 133.103(d).

Soscol plant exceeded 275 gallons per capita per day. The District, therefore, did not meet its burden of demonstrating compliance with all of the criteria.

The record reflects that the District committed $3 million on I/I control projects beginning in July 2000. The Regional Board indicated that it was willing, at the discharger's request, to revisit the exception request once the I/I control projects were completed. The Regional Board's actions were reasonable under the circumstances.

7. YEAR-ROUND SAMPLING

Order No. 00-059's Self-Monitoring Program (Part B) requires that the District monitor two effluent stations and several receiving water stations throughout the year. One effluent station is E-001, which is described as "at any point in the outfall from the treatment facilities between the point of discharge and the point at which all waste tributary to that outfall is present." The second is E-001D, which is "at any point in the disinfection facilities for Station E-001, at which point adequate contact with the disinfectant is assured." The receiving water stations are at various locations in the Napa River.

Contention: The District contends that the year-round monitoring requirement is costly and unreasonable. The District questions the need to monitor the Napa River in the dry season when the District is not discharging to the river. The District further alleges that E-001 only has flow in it during the times when the District discharges to the river. The District maintains that the year-round monitoring requirement violates Water Code section 13267 and other statutes.

Finding: The Board normally does not second-guess a Regional Board regarding the need for or scope of monitoring programs. The Regional Board asserts that year-round monitoring is appropriate here because the District has typically had dry season discharges. These discharges can have a greater adverse water quality impact than wet weather discharges

because of low river flows. The Regional Board also alleges that effluent monitoring in the dry season is necessary to ensure proper operation of the tertiary treatment system.

It is not entirely clear to the Board that the Self-Monitoring Program actually requires monitoring at E-001 when there is no flow in the outflow, i.e. when the District is reclaiming 100 percent of its effluent. The rationale for requiring receiving water monitoring when the District is not discharging to the river is also not obvious. In any event, as explained previously, Water Code section 13267 was very recently amended. Effective January 1, 2001, the Regional Boards must support requests for monitoring reports under that section with a written explanation of the need for the reports and the evidence supporting the request. To be consistent with the intent of this new legislation, on remand, the Regional Board should include appropriate findings in Order No. 00-059 clarifying the scope of the year-round monitoring requirement and the rationale for it.

B. BayKeeper Petition

The BayKeeper petition generally challenges the permit provisions as too lenient. Two of their contentions follow.

Contention No. 1: The Soscol facility currently treats wastewater from the City of American Canyon (City). In January 2000 the Regional Board issued the City a new permit to discharge; the City's plant is expected to come on-line in January 2002. BayKeeper contends that Order No. 00-059 illegally fails to reduce the mass loading for all impairing pollutants, other than mercury, by the loads permitted under the City's permit.

Finding: Order No. 00-059 is not invalid on this basis. The permit currently includes two sets of mass load limits for mercury and dioxin and furan compounds, one with and one without the City's loads. Thus, when the City's plant comes on-line, the District will have to meet reduced mass limits for mercury and dioxin and furan compounds. Mercury and dioxin and

furan compounds are bioaccumulative; consequently, the mass limits and offsets are appropriate to address long-term exposure to these pollutants in San Pablo Bay.

Copper was the only other San Pablo Bay impairing pollutant for which the Regional Board found reasonable potential. The Regional Board has not identified copper as a bioaccumulative pollutant; hence, concentration-based limits are the appropriate means to regulate short-term exposure. Further, the data set used by the Regional Board to analyze reasonable potential had only two detectable copper concentrations, one of which was above the applicable criteria, from 21 samples. Because most of the samples were at less than detectable concentrations and below the applicable criteria, calculating loads from this data set would not be meaningful. Finally, as the Board stated above, the nexus between the District's copper discharge and San Pablo Bay impairment is not clear.

The Napa River is not 303(d)-listed for any priority pollutants. The Regional Board must complete its reasonable potential analysis for the priority pollutants identified in Order No. 00-059, including those identified as impairing San Pablo Bay, when appropriate background receiving water data is available. At a minimum, mass load limits and any related offsets are not required for pollutants the discharge of which does not have the reasonable potential to cause or contribute to a water quality standards violation.

Contention No. 2: BayKeeper contends that Order No. 00-059 improperly fails to limit diazinon, chlorpyrifos, and selenium. Diazinon and selenium are identified on the 303(d) list as impairing San Pablo Bay. BayKeeper argues, therefore, that any discharge of these pollutants has the reasonable potential to cause or contribute to a water quality standards violation.

Finding: The Regional Board acted properly in concluding that there was no reasonable potential for these pollutants. Diazinon and chlorpyrifos are not priority pollutants.

There are no CTR nor NTR criteria nor Basin Plan objectives for these pollutants. In addition, the Regional Board has stated that there was no direct evidence that diazinon or chlorpyrifos was present in the District's effluent. Under these circumstances, the Regional Board acted properly in not limiting these pollutants. The applicable CTR criterion for selenium is 5 µg/L. Selenium was not detected in any of the samples used by the Regional Board for its reasonable potential analysis. The non-detectable values for selenium ranged from <1.0 to <1.2 µg/L, well below the CTR criterion. Thus, reasonable potential was not established for selenium.

III. CONCLUSIONS

In the above discussion, the State Board concluded that Findings 44, 45, and 46 of the District's permit, covering copper, mercury, and dioxins and furans, must be clarified. The Board also held that the Regional Board must augment the record for Order No. 00-059 with the evidence of mercury and dioxin and furan impairment in San Pablo Bay. In addition, the Board concluded that the Regional Board must reconsider the effluent limitations, found in Effluent Limitations B(i)7 and B(ii)7 of Order No. 00-059, for pollutants not detected in the effluent. The Board, additionally, determined that the Regional Board should add permit findings addressing the dioxin study, in Provision F.12, and the requirement for year-round monitoring in Self-Monitoring Program (Part B). Until the Regional Board acts to reconsider and modify, as appropriate, Order No. 00-059, this Order will stay the permit findings, effluent limitations, provisions and requirements that are remanded by this Order.

The State Board's conclusions are summarized below:

1. Clean Water Act section 301(b)(1)(C) requires that permits include water quality-based effluent limitations, including mass limits, for impairing pollutants where

necessary to implement water quality standards, even in the absence of a TMDL for the pollutants.

2. Clean Water Act section 301(b)(1)(C) applies to water quality standards adopted or revised after July 1, 1977.

3. Section 122.44(d) of 40 C.F.R. appropriately implements post-July 1, 1977 water quality standards in permits.

4. Section 122.44(d) of 40 C.F.R. applies to POTWs as well as industrial sources.

5. NPDES permit regulations generally require mass limits for all pollutants limited in a permit.

6. The federal antidegradation policy applies to all waters, including those that attain water quality standards and those that do not.

7. Performance-based mass limits for bioaccumulative pollutants are an appropriate method to implement Tier one of the federal antidegradation policy.

8. Under the Policy, a Regional Board may determine that a pollutant must be limited in a permit based on a section 303(d) listing for the pollutant.

9. Evidence that bioaccumulative or persistent pollutants have impaired beneficial uses, such as evidence of fish tissue level exceedances or of sediment enrichment, may support interim, performance-based mass limits for these pollutants.

10. The Regional Board was not required to consider the Water Code section 13241 factors in imposing the interim, performance-based mass limits in the District's permit.

11. There is no evidence in the record that either the mercury or the dioxin and furan mass limits are growth-inhibiting.

12. The interim, performance-based mass mercury and dioxin and furan limits are consistent with the Policy.

13. The Regional Board must clarify the permit findings and augment the record to support the mercury and dioxin and furan mass limits.

14. The Regional Board must clarify the basis on which the Regional Board found reasonable potential for mercury, using the 0.012 µg/L value, and regulated the mercury concentration in the District's discharge.

15. The District and the Regional Board should strive to achieve a mutually acceptable agreement on modifying the interim concentration limits for copper and mercury, based on the capabilities of the new treatment system.

16. The Regional Board appropriately regulated the discharge of the 4 dioxin and furan compounds detected in the District's effluent, despite the fact that 2,3,7,8-TCDD was not detected.

17. The dioxin study requirement is not inconsistent with the Policy.

18. The Regional Board did not violate Water Code section 13267 in requiring the dioxin study.

19. On remand, the Regional Board should address the need for the dioxin study and the year-round sampling requirement and the evidence supporting these requests in the permit findings.

20. The Regional Board selected the appropriate copper criterion for the reasonable potential analysis and correctly found reasonable potential.

21. The Basin Plan's delineation of freshwater and marine water governs implementation of the Table 3-3 and Table 3-4 objectives.

22. The Regional Board appropriately concluded that the receiving waters are estuarine in this case.

23. The interim, performance-based copper concentration limits in Order No. 00-059 comply with the Policy.

24. The Regional Board must amend the permit findings to establish a schedule to develop a final water quality-based effluent limitation implementing the CTR saltwater copper criterion for the Napa River.

25. The record does not support the Regional Board's decision to delay the final water quality-based copper limit for the District's discharge until a TMDL is developed for San Pablo Bay, and the Regional Board must, therefore, amend the pertinent permit findings.

26. The Regional Board correctly analyzed reasonable potential for cyanide by using the NTR saltwater aquatic life criteria.

27. The Regional Board erred in finding reasonable potential for cyanide and for other pollutants not detected in the effluent.

28. The Regional Board acted properly in requiring 85 percent removal of BOD and TSS from the District's influent.

29. The Regional Board acted properly in regulating the mass loads of impairing pollutants in relation to the loads from the City of American Canyon.

30. The Regional Board appropriately concluded that there was no reasonable potential for diazinon, chlorpyrifos, or selenium.

IV. ORDER

IT IS HEREBY ORDERED that Order No. 00-059 is remanded to the Regional Board for review and revision consistent with the discussion and findings of this Order.

IT IS FURTHER ORDERED that the petitions of the District, Bay Area Clean Water Agencies, and BayKeeper are otherwise denied.

IT IS FURTHER ORDERED that the permit findings, effluent limitations, provisions and requirements that are remanded by this Order are stayed until the Regional Board acts to reconsider and modify, as appropriate, Order No. 00-059.

CERTIFICATION

The undersigned, Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on December 5, 2001.

AYE: Arthur G. Baggett, Jr.
Peter S. Silva
Richard Katz

NO: None

ABSENT: None

ABSTAIN: None

Maureen Marché
Clerk to the Board