STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

ORDER: WQ 99 - 09

Own Motion Review of the Petition of
COMMUNITIES FOR A BETTER ENVIRONMENT
AND
SAN FRANCISCO BAYKEEPER AND CLEAN SOUTH BAY
To Review Waste Discharge Requirements Order Nos. 98-052, 98-053, 98-054,
NPDES Nos. CA0037842, CA0037621, and CA0037834,
Issued by the
California Regional Water Quality Control Board,
San Francisco Bay Region
SWRCB/OCC FILES A-1167 AND A-1167(a)

BY THE BOARD:

In June 1998, the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) reissued National Pollutant Discharge Elimination System (NPDES) permits to the cities of Palo Alto, Sunnyvale, and, collectively, San Jose and Santa Clara.[1] The cities (referred to as the South Bay dischargers) operate wastewater treatment plants in Santa Clara County. The plants discharge tertiary-treated effluent to shallow waters tributary to South San Francisco Bay.

Communities for a Better Environment, San Francisco BayKeeper and CLEAN South Bay[2] filed timely petitions for State Water Resources Control Board (State Water Board or Board) review of the three permits. The petitions were consolidated for purposes of review because they were legally and factually related.[3] In August 1999, the Board decided to review the South Bay permits on its own motion[4] because the Board's regulatory deadline for final action on the petitions was about to expire.[5]

This order upholds the permits' interim, performance-based, concentration and mass limits for copper and (for San Jose/Santa Clara) nickel and the performance goals for certain other pollutants. The order also provides direction to the Regional Water Board on appropriate concentration and mass limits when the permits are reissued in 2003.

I. BACKGROUND

For the third time in ten years, the State Water Board is reviewing permits issued to the South Bay dischargers. The Board reviewed prior permits in 1990 and 1994 and adopted Orders WQ 90-5 and 94-8, respectively. As Regional Water Board staff noted, over the last decade the permits have been extensively petitioned, by both the dischargers and environmental groups, remanded, reconsidered and litigated.

The controversy has largely focussed on the Regional Water Board's efforts to regulate toxic pollutant discharges to the South Bay. This subject has been particularly contentious

due to several factors. The South Bay has been placed on several impaired waters lists due to elevated levels of copper, nickel, and other toxic pollutants in bay waters and sediments.[6] Recent studies, however, have called the listings into question, particularly for copper and nickel. At present, protective receiving water concentrations of copper and nickel have not been definitively established for South Bay waters. The three publicly-owned treatment works discharge copper, nickel and other pollutants to bay waters. The dischargers are classified as shallow water dischargers. As such, they are generally not allowed a mixing zone[7] under the applicable regional water quality control plan (Basin Plan).[8] Without a mixing zone, permit limitations for copper, nickel and other constituents can be stringent and pose compliance problems for the South Bay dischargers.

In part, to address the contentiousness surrounding regulation of the South Bay discharges, the Regional Water Board formed the Santa Clara Basin Watershed Management Initiative (Watershed Management Initiative) as a pilot project in 1996. It is a stakeholder-driven process that seeks to integrate regulatory and watershed programs in the South San Francisco Bay region. A Regulatory Subgroup of the Watershed Management Initiative, consisting of representatives of the Regional Water Board, the Environmental Protection Agency (EPA), the South Bay dischargers, CLEAN South Bay and the San Francisco BayKeeper, began meeting in April 1997 to discuss reissuance of the South Bay permits. The prior permits were issued in 1993 for a five-year term, and they were about to expire. In January 1998 a permit workgroup was created. It included members of the subgroup as well as representatives of the Santa Clara Valley Manufacturers Group, the Chamber of Commerce, the Department of Fish and Game, and others. The workgroup met several times in early 1998 in an attempt to reach consensus on permit language.

The participants did agree on the actions that the dischargers would take during the life of the reissued permits. First, the dischargers would continue to maintain both a high level of treatment plant performance and their source control programs. Second, San Jose agreed to fund a study of the South Bay to determine scientifically-sound, site-specific water quality objectives[9] for copper and nickel for the South Bay. The participants agreed on several other permit issues as well. However, they were unable to reach agreement on three key issues. These were: (l) the default permit limits to use in five years if site-specific objectives were not established; (2) mass limits for these constituents; and (3) the appropriate regulatory approach for pollutants for which analytical detection levels are higher than water quality-based effluent limitations.

The Regional Water Board reissued the South Bay permits in June 1998. Petitions by San Francisco BayKeeper, Communities for a Better Environment, and other environmental groups ensued. The petitions focussed on the three key areas of disagreement, as well as other issues.

In August 1999, the Board decided to review the 1998 South Bay permits on its own motion. This order addresses the validity of the interim copper and nickel (for San Jose/SantaClara) limits and the three issues on which the permit workgroup participants were unable to agree.

II. ANALYSIS OF ISSUES

A. Interim and Default Performance-Based Concentration Limits

Issue: Are the interim and the default performance-based effluent limits for copper and (for San Jose/Santa Clara) nickel in the South Bay permits legal?

Conclusion: The interim performance-based limits are legal; the default limits are legal if they are equal to or more stringent than any applicable water quality-based limits.

Analysis: The federal Clean Water Act[10] and implementing regulations[11] define the contents of an NPDES permit. In general, the Clean Water Act prohibits the point source[12] discharge of pollutants to surface waters without an NPDES permit.[13] The permits must include technology-based effluent limitations as well as any more stringent limitations necessary to achieve water quality standards.[14] Water quality standards consist of a waterbody's designated beneficial uses, criteria to protect those uses, and antidegradation requirements.[15] The “criteria” in water quality standards are equivalent to “water quality objectives”[16] under state law.[17] Criteria (or objectives) may be either narrative or numeric.

Effluent limitations for a pollutant are “necessary to achieve water quality standards” if the pollutant may be discharged at a level “which will cause, or have the reasonable potential to cause, or contribute to an excursion above any State water quality standards, including State narrative criteria for water quality.”[18] EPA regulations provide three options for using a narrative criterion to determine whether a discharge causes, has the reasonable potential to cause, or contributes to a violation of a narrative criterion because of an individual pollutant. Under these options, the narrative criterion is interpreted with a numeric protective level based on:

· a calculated numeric water quality criterion, such as a criterion derived from a proposed state criterion;

· EPA's water quality criteria guidance,[19] supplemented by other relevant information; or an indicator parameter.[20]

The numeric protective level that is selected defines the desired receiving water quality. If reasonable potential is found using the numeric protective level, this value is then used to calculate an appropriate permit limit.[21]

No numeric water quality objectives for copper and nickel apply to South Bay waters. South Bay permit limits for copper, nickel, and other toxic pollutants have been based on the Basin Plan's narrative toxicity objective.[22]

The South Bay dischargers did reasonable potential analyses, using the second option in the EPA regulations for interpreting a narrative criterion. San Jose/Santa Clara and Sunnyvale used numeric protective levels of 3.1 mg/L for dissolved copper and 8.2 mg/L for dissolved nickel, based on the proposed California Toxics Rule's chronic saltwater criteria. The California Toxics Rule (CTR) is a draft rule proposed by EPA to establish numeric criteria for toxic pollutants in California.[23] Palo Alto, similarly, used the proposed rule's chronic aquatic life criterion for dissolved nickel. For dissolved copper, Palo Alto used a site-specific chronic value of 5.8 mg/L. Palo Alto derived this value by recalculating the proposed CTR criterion for copper of 3.1 mg/L using preliminary site-specific data developed by San

Jose . All of the dischargers found reasonable potential for copper.[24] Only San Jose/Santa Clara found reasonable potential for nickel.

The Regional Water Board did not base permit limits for copper and (for San Jose/Santa Clara) nickel on the numeric protective levels used by the dischargers in their reasonable potential analyses. Rather, the Regional Water Board put interim, performance-based limits in the permits for copper and (for San Jose/Santa Clara) nickel.[25] The limits represent the 99.7 percentile of the effluent data from 1995 through 1997. The limits, expressed as total recoverable metal, are:

San Jose/Santa Clara: nickel – 18 mg/L, four-day average

copper- 7.4 mg/L, one-day average,

Sunnyvale: copper - 8.6 mg/L, one-day average

Palo Alto: copper – 12 mg/L, one-day average

The permits also state that the Regional Water Board will implement final water quality-based limits for copper and (for San Jose/Santa Clara) nickel by July 1, 2003.[26] The final limits will be based on site-specific objectives and Total Maximum Daily Loads (TMDLs)[27] currently being developed as part of the Watershed Management Initiative. If site-specific objectives are not available, the final limits will be based on applicable federal water quality criteria or state water quality objectives. If neither site-specific objectives nor applicable criteria or objectives are available, revised performance-based limits will go into effect. These default limits are based on the 95th percentile of plant performance between 1995 and 1997.[28] The default limits, expressed as total recoverable metal, are:

San Jose/Santa Clara: nickel - 13.0 mg/L, four-day average

copper - 7.4 mg/L, one-day average

Sunnyvale: copper - 6.6 mg/L, one-day average

Palo Alto: copper - 8.2 mg/L one-day average

The environmental groups object to the interim and default limits because they are not water quality-based. They argue that water quality-based effluent limitations are required under the Clean Water Act, EPA regulations, and State Water Board Order WQ 90-5. They also contend that the limits violate federal antibacksliding rules. The Regional Water Board, on the other hand, contends that the performance-based limits are valid because they are as or more stringent than water quality-based limits. The Regional Water Board based this conclusion on preliminary results from several studies indicating that acceptable site-specific objectives for copper and nickel might fall within a range. Because the interim, performance-based limits also fall within this range, the Regional Water Board concluded that the limits are protective.

One of the studies on which the Regional Water Board relied was a San Jose study to develop an appropriate “water-effect ratio” for copper for the South Bay. EPA allows the states to adjust the metals criteria through a “water-effect ratio” procedure.[29] This procedure compares the bioavailability and toxicity of a specific pollutant in receiving waters and in laboratory waters. A water-effect ratio is the acute (or chronic) value of a pollutant in site water divided by the acute (or chronic) value in standard laboratory water.

When the Regional Water Board wrote the South Bay permits, the Regional Water Board had the preliminary results from the San Jose water-effect ratio study. The study identified water-effect ratios in the South Bay ranging from 2.17 to 4.86 for dissolved copper and 2.1 to 8.75 for total recoverable copper for the period from January 1996 through March 1997. The Regional Water Board applied the total recoverable water-effect ratios to the EPA total recoverable acute copper criterion of 2.9 mg/L. This yielded potential values ranging from 6.1 mg/l to 25.4 mg/L for total recoverable copper.

To adjust the proposed CTR nickel values, the Regional Water Board also had preliminary results from a San Jose-financed study on acute-to-chronic ratios for the saltwater nickel criterion. An acute-to-chronic ratio compares the concentration of a pollutant causing acute toxicity to a species to the concentration causing chronic toxicity to the same species. EPA's saltwater criteria guidance document for nickel established a final acute-to-chronic value of 17.99, based on two freshwater and one saltwater value. The San Jose study will supplement the national dataset with additional saltwater acute-to-chronic values. Using preliminary results from this study, the Regional Water Board developed potential revised chronic nickel criteria ranging from 11.9 to 37.45 mg/L.

Based on this new information, the Regional Water Board concluded that total recoverable criteria ranging from 6.1 to 25.4 mg/L for copper and 11.9 to 37.45 mg/L for nickel are protective.[30] The Regional Water Board found that the performance-based permit limits for copper and (for San Jose/Santa Clara) nickel will protect beneficial uses because the limits all fall within these ranges. Noting also that the dischargers' current long-term average effluent concentrations of copper and (for San Jose/Santa Clara) nickel fall below the most conservative end of the ranges, the Regional Water Board concluded that the permit limits are protective because they ensure that current plant performance will be maintained. Regarding current plant performance, the permits cite long-term averages for total recoverable copper of 4.2 mg/L for San Jose/Santa Clara, 4.1 mg/L for Sunnyvale, and 5.7 mg/L for Palo Alto.[31] San Jose/ Santa Clara's long term average for total recoverable nickel is 7.5 mg/L.[32]

There are several problems with the Regional Water Board's analysis. For example, if one assumes that acceptable copper and nickel criteria will fall within the ranges identified by the Regional Water Board, then the South Bay discharges have the reasonable potential to cause or contribute to an excursion above the criteria for copper and (for San Jose/Santa Clara) nickel at the lower end of the range.[33] Appropriate numeric levels for copper and nickel have not yet been definitively established within these ranges. To be protective, therefore, effluent limitations would have to implement the lowest end of the ranges. Only Sunnyvale's performance-based copper limit, however, is protective for all numbers within the copper range, including 6.1 mg/L.[34] Another problem with the analysis is that the performance-based limits do not necessarily ensure current performance. For example, San

Jose/Santa Clara's 11.3 mg/L daily average copper limit does not equate to a long-term average of 4.2 mg/L, but rather 6.5 mg/L.

Legally, the Regional Water Board could have addressed reasonable potential for copper and nickel in one of two ways. The Regional Water Board could have determined reasonable potential by selecting a numeric protective level for these pollutants based on available information. For copper, possible numeric protective levels could have been based, for example, on the proposed CTR criteria, modified by water-effect ratios or translators, or both. The San Jose water-effect ratio study was finalized in May 1998. The final study recommended a site-specific chronic criterion of 6.9 mg/L for dissolved copper and 11.0 mg/L for total recoverable copper.[35] The Board notes that if 11.0 mg/L had been selected as the numeric protective level for copper, Sunnyvale's copper discharge would not have the reasonable potential to cause or contribute to an excursion over this level.

Translators are used to convert dissolved criteria into total recoverable criteria for the purpose of deriving total recoverable effluent limitations. Translators are necessary because EPA regulations require that all NPDES metal permit limitations be expressed as total recoverable metal.[36] A Sunnyvale study had developed a site-specific translator value of 0.62 for copper. Applying this value to the proposed CTR criterion of 3.1 mg/L for dissolved copper yields a total recoverable value of 5.0 mg/l.

For nickel, likewise, the Regional Water Board could have used the proposed CTR criteria, adjusted by translators or other appropriate information. A San Jose study had calculated a site-specific translator value for nickel of 0.46. Applied to the proposed CTR nickel criterion, this translator results in a total recoverable value of 17.8 mg/L.

Alternatively, the Regional Water Board could have postponed determining reasonable potential for the five-year permit term, pending final selection of appropriate numeric values for copper and nickel for the South Bay. This is essentially what the Regional Water Board did.[37] This approach is consistent with EPA guidance[38] and with the State Water Board's proposed policy implementing the CTR.[39] It is justified because the Regional Water Board could not determine reasonable potential absent more definitive numeric protective levels for copper and nickel. The Regional Water Board had before it significant evidence indicating that the EPA national copper and nickel criteria guidance are probably not appropriate for the South Bay. Further, work is ongoing through the Watershed Management Initiative to develop appropriate site-specific copper and nickel objectives for the South Bay. Under these circumstances, it made sense for the Regional Water Board to await the outcome of this effort.

Given the facts that the South Bay is currently listed as impaired for copper and nickel and that the dischargers contribute these pollutants to the bay, it is not appropriate to postpone a reasonable potential determination indefinitely. A substantial amount of work has already been done to develop site-specific objectives for copper and nickel for the South Bay. It is reasonable to assume that this work can be completed within the five-year permit term. If for some reason it is not, and there are no federal criteria or numeric objectives applicable to the South Bay for copper and nickel, the Regional Water Board must use the available information in 2003 to determine whether the South Bay discharges have reasonable potential to cause or contribute to a violation of the narrative toxicity objective. If site-specific

objectives for copper and nickel are not in-place by 2003, but federal criteria, such as the CTR, or numeric state objectives are in effect, the Regional Water Board must assess reasonable potential using those criteria or objectives, adjusted, as appropriate, with translators. At that time, the Regional Water Board can include more performance-based limits in the South Bay permits if these limits are as or more stringent than any applicable water quality-based limits. Our review indicates that water quality-based limits for some of the South Bay discharges may not, in fact, be required because effluent concentrations of copper and nickel are now quite low.

This conclusion is not inconsistent with our prior Order WQ 90-5. In that order, the State Water Board directed the Regional Water Board to, among other actions, amend the then current South Bay permits to include numeric, water quality-based effluent limits for toxic pollutants, including copper and nickel. Then, as now, the issue was whether or not the South Bay discharges had the reasonable potential to cause or contribute to a violation of an applicable water quality standard.[40] In 1990 the Board had evidence that ambient copper and nickel levels in South Bay waters exceeded EPA criteria guidance for the protection of aquatic life. Likewise, effluent concentrations of these substances in the South Bay discharges were higher than effluent limitations applicable to North Bay dischargers. These factors led to the conclusion that the South Bay discharges had reasonable potential. Now, the Regional Water Board has significant evidence in the record indicating that the EPA criteria guidance for copper and nickel are probably inappropriate for the South Bay. In addition, effluent concentrations have decreased substantially. For the reasons explained above, the Board concludes that it was appropriate for the Regional Water Board to delay a reasonable potential determination for the five-year permit term.

The Board's conclusion also does not violate federal antibacksliding proscriptions. Antibacksliding is a rule that prohibits a permit issuer from putting less stringent effluent limitations in a permit than were in a prior permit.[41] It applies to specific types of effluent limitations, including water quality-based effluent limitations. The environmental groups contend that the recent performance-based copper and (for San Jose/Santa Clara) nickel effluent limitations violate antibacksliding because they are less stringent than the 1993 permit limits. San Jose/Santa Clara's prior permit, for example, had a total copper limit of 4.9 mg/L, as a one-day average, and a total nickel limit of 8.3 mg/L, as a four-day average. Compared to these, the copper and nickel limits (11.3 mg/L for copper and 18 mg/L for nickel) in the recent permits are significantly higher.

The Regional Water Board contends that the 1993 permit limits are invalid and, therefore, cannot be used for comparison because the State Water Board in Order WQ 94-8 remanded the permits to the Regional Water Board for reconsideration. The remand was necessitated by the invalidation of certain Basin Plan amendments on which the 1993 permits were based. The State Water Board notes, however, that our 1994 order remanding the permits stated that the permits would remain in effect until they were revised.[42] The 1993 permits were neither revised nor stayed. They were replaced in 1998 with the current permits.

Nevertheless, the Board concludes that this case falls under an exception to the antibacksliding rule. Water quality-based limits may be relaxed in a later permit based on new information.[43] This exception applies if the information was not available when the

prior permit was issued and if it would have justified less stringent effluent limitations. When the Regional Water Board reissued the South Bay permits, the Regional Water Board had new information on appropriate water-effect ratios for copper, translators for both copper and nickel and the acute-to-chronic ratio for nickel. This new information would have justified less stringent limits in 1993.

B. Mass Limitations

Issue: Are the copper and nickel mass limitations in the South Bay orders appropriate?

Conclusion: Yes, the limits are appropriate as interim limits until the permits are reissued.

Analysis: Mass-based permit limits control the mass loading of a pollutant to a waterbody. Mass limits are generally expressed in terms of pounds or kilograms per day. The Regional Water Board included copper and nickel mass limitations in the 1998 South Bay permits based on average flow data from 1985-1988 and average concentration data from 1989. The permit findings indicate that the Regional Water Board based these limits on State Water Board Order WQ 90-5.

The environmental groups contend that the Regional Water Board misconstrued Order WQ 90-5. They say that the Regional Water Board was required to use more recent effluent flow and concentration data. They contend that the mass limits will, in fact, allow significant increases in the mass of copper and nickel actually discharged by the South Bay dischargers over the last five years. The environmental groups assert that the mass limits violate antidegradation requirements.

The following table shows the South Bay dischargers' 1993 and 1998 mass limits for copper and nickel and the amount of increase that the 1998 mass limits represent over current performance.[44]

Mass Limits (pounds/year)

	San Jose/Santa Clara			Sunnyvale			Palo Alto		
	1993 limits	1998 limits	Increase over current performance	1993 limits	1998 limits	Increase over current performance	1993 limits	1998 limits	Increase over current performance
Copper	1760	3309	1629.6	200	715	514.2	720	1580	1076
Nickel	4272	4272	937.4	770	770	623.8	948	948	631.2

As shown in the table, the 1993 and 1998 mass nickel limits are the same. The 1998 copper mass limits are significantly higher than the earlier limits. The 1993 copper mass limits were based on a Regional Water Board mass-based strategy to implement a site-specific objective of 4.9 mg/L.[45] Neither the site-specific objective nor the strategy ever went into effect, and the State Water Board ultimately remanded the 1993 permits to the Regional Water Board for reconsideration.

The EPA permitting regulations generally require permit issuers to express effluent limitations in terms of mass, but do not provide guidance on how to establish mass

limits.[46] For publicly-owned treatment works, like the South Bay dischargers' treatment plants, the regulations only provide the general direction that effluent limitations be based on design flow.[47] Thus, the permitting issuer can use best professional judgment to establish mass limits.[48]

In Order WQ 90-5 the State Water Board concluded that the South Bay dischargers' permits had to include mass limits for

heavy metals based on current performance. The Board based this holding on state and federal antidegradation policies. The state policy, entitled “Statement of Policy with Respect to Maintaining High Quality of Waters in California, is contained in State Water Board Resolution 68-16. It is part of the state's water quality standards, and it has been incorporated into all the Regional Water Quality Control Boards' Basin Plans. The state policy incorporates the federal policy where applicable.[49]

The federal policy applies to NPDES permitting decisions. It is triggered by a lowering of water quality. In general, the policy applies to permit decisions that authorize a substantial increase in mass emissions.[50]

The federal policy is a three-part test. It requires that states, at a minimum, ensure that water quality necessary to support existing instream uses is maintained.[51] This is called Tier 1. “Existing uses” are uses actually attained in a waterbody on or after November 28, 1975, or water quality suitable to attain the uses.[52] Where water quality is better than that required to support instream uses, water quality can be lowered if necessary to allow important economic or social development. This is Tier 2. Tier 3 applies to outstanding national resource waters, such as Lake Tahoe and Mono Lake. No lowering of water quality is allowed in these waters.

In Order WQ 90-5 the State Water Board interpreted Tier 1 to require mass limits for heavy metals based on current performance. Several factors dictated this result. First, then, as now, the South Bay was listed as impaired for heavy metals, due to both water column and sediment concentrations. The old permits, like the current permits, had both concentration and mass, performance-based heavy metals limits. Because the receiving waters were already impaired, the Board concluded that increases in the mass of heavy metals discharged to the South Bay would further degrade water quality. Therefore, the Board held that mass emissions of heavy metals could not increase over current performance. Current performance, at that time, represented the best water quality since 1975. The Board directed that mass limits be calculated by multiplying the 1989 annual mean effluent concentration by the 1985-1988 annual average flow.

When Order WQ 90-5 was adopted, there was little, if any, EPA guidance on how to limit pollutants that are discharged into a waterbody impaired by the pollutant in the interim until a TMDL is developed. EPA's position on this topic is now evolving. In the 1995 final water quality guidance for the Great Lakes System,[53] EPA indicated that interim water quality-based effluent limitations for the pollutant set at the applicable water quality criteria end-of-pipe may be sufficient without any additional restrictions on mass.[54] EPA noted that limiting discharges to criteria end-of-pipe might in fact improve water quality under some circumstances. Although this approach might “mean[] that additional mass of a pollutant

may be added to the waterbody consideration of adverse effects due to increases in mass is well suited to the TMDL development process".[55] EPA concluded that environmental concerns associated with additions of mass alone could be handled through interpretations of the narrative toxicity objective. For example, a permitting authority could interpret the narrative toxicity objective "to require more stringent limitations than criteria end-of-pipe" where sediment enrichment is a concern or for bioaccumulative pollutants.[56]

More recently, EPA published proposed revisions to the NPDES permit regulations and to Tier 1 of the federal antidegradation policy.[57] The proposal addresses permitting for discharges to impaired waters prior to TMDL development. The draft rule requires that selected dischargers offset any increase in mass loadings of a pollutant causing impairment in an amount that will result in "reasonable further progress toward attainment of water quality standards."[58] Reasonable further progress means that the increase in mass will be offset by load reductions of the pollutant of concern from existing sources located on the same waterbody by a ratio of at least 1.5:1.[59] The draft rule applies to large new dischargers and existing dischargers undergoing a significant expansion. A "significant expansion" is defined as a 20 percent or greater increase in loadings above the current permit limits.[60]

The offset requirements, under the proposed rule, are in addition to any other applicable requirements of the Clean Water Act. Thus, according to the proposal, a discharger subject to the offset requirements has to comply with both water quality-based effluent limitations for the pollutant of concern as well as the new requirements for reasonable further progress.[61]

The Board has reviewed the South Bay dischargers' 1998 mass limits in light of our previous order, antidegradation requirements, and EPA's proposed regulations and guidance. It is clear that Regional Water Board misconstrued Order WQ 90-5. In the South Bay permits the Regional Water Board found that the mass limits were consistent with State Water Board direction in Order WQ 90-5 that "performance based (mass) limits will remain in effect until maximum daily loads and wasteload allocations are developed for the pollutants".[62] Rather than a direction to the Regional Water Board, however, the quoted language was a description of South Bay permit amendments adopted by the Regional Water Board in 1990.[63]

As explained above, the State Water Board's holding in Order WQ 90-5 was an interpretation of Tier 1 of the federal antidegradation policy. The Board concluded that existing instream uses were impaired; consequently, the South Bay dischargers were held to their best performance since 1975, i.e., current performance as of 1990. Today, the dischargers have achieved even greater reductions in mass emissions; thus, current performance is now better than in 1990.

Nevertheless, the Board upholds the copper and nickel mass limits for the reasons explained below. [64] Starting with nickel, the Board finds that the 1998 permits do not trigger antidegradation requirements because the mass limits are unchanged from the 1993 permits. The 1998 permits do not authorize an increase in mass emissions over the 1993 permit limits. Further, even assuming that antidegradation requirements did apply, the Board concludes that the Tier 1 analysis in Order WQ 90-5 is distinguishable from the present

case. In Order WQ 90-5, the Board concluded that bay waters were impaired because receiving water nickel concentrations exceeded EPA criteria. More recent data indicates that water concentrations of nickel are consistently below the proposed CTR criterion of 8.2 mg/L. For example, from 1994 through 1997, the maximum dissolved nickel concentration measured at any of the South Bay monitoring stations was 6.56 mg/L. The Board also notes that, even if EPA's proposed regulations governing interim permitting were in effect, the South Bay dischargers would not be required to offset nickel mass loadings because their 1993 and 1998 permits limits are unchanged.

With respect to the copper mass limits, the Board notes, preliminarily, that the 1993 mass limits were based on a basin plan amendment that never legally went into effect. Aside from that fact, the Board concludes that the Tier 1 antidegradation basis for limiting mass articulated in Order WQ 90-5 is now factually uncertain. At the present time, it is not clear whether and to what extent the South Bay is impaired for copper. Work is ongoing, as part of the Watershed Management Initiative, to assess impairment and to develop site-specific objectives for both copper and nickel. As discussed above, a copper site-specific saltwater objective of 6.9 mg/L has been recommended for South Bay. Receiving water concentrations of dissolved copper are consistently below this recommended objective. From 1994 through 1997, the mean dissolved copper concentration at the Coyote Creek monitoring station was 3.41 mg/L and the maximum was 4.89 mg/L. The Board also notes that additional limits on Sunnyvale's mass discharge of copper may be unnecessary, given EPA's reasoning in the Great Lakes Guidance, since Sunnyvale's copper concentration limits are protective of any proposed criterion within the range cited in Sunnyvale's permit. Given the uncertainty regarding impairment, the State Water Board concludes that it is not appropriate at this time to further restrict the dischargers' mass emissions of copper.

When the permits are reissued in 2003, the Regional Water Board must reconsider the mass limits. If TMDLs for copper and nickel are in effect by then, permit effluent limitations will have to be consistent with any wasteload allocations established as part of the TMDL for the South Bay discharges.[65] If the South Bay is still considered impaired but TMDLs have not been completed, then the Regional Water Board must reexamine the mass limits in the current permits. Under those circumstances, the Regional Water Board must determine whether an increase in mass emissions of copper and nickel over current levels could cause or contribute to a violation of water quality standards, including Tier 1 of the antidegradation policy. In some cases, as EPA recognized in the Great Lakes guidance, additional restrictions on mass may be unnecessary if a permit includes interim, end-of-pipe, water quality-based effluent limitations for the pollutant of concern. Of course, if federal regulations governing mass emissions are in place by 2003, the Regional Water Board will have to ensure consistency with those regulations.

If the South Bay is no longer considered impaired for copper and nickel in 2003, then the Regional Water Board can allow increases in mass as long as the Regional Water Board complies with Tier 2 of the federal antidegradation policy. Under Tier 2, the dischargers can discharge greater amounts of copper and nickel provided that they demonstrate that this is necessary for important economic or social development and that existing instream uses are fully protected.

C. Numeric Effluent Goals

Issue: The Regional Water Board included numeric effluent goals for several pollutants with analytical detection limits above water quality-based effluent limitations. Was this approach legal?

Conclusion: Yes, the Regional Water Board had discretion to decide that it could not determine reasonable potential for these pollutants.

Analysis: In the South Bay permits, the Regional Water Board adopted numeric effluent goals for several pollutants, including some pollutants for which South Bay is water quality-limited.[66] The latter include selenium, PCBs, and dioxin.[67] The Regional Water Board found that they could not determine reasonable potential for these pollutants because water quality-based effluent limitations for them are at levels that are lower than current analytical techniques can measure.[68] On this basis, the Regional Water Board decided not to include enforceable water quality-based effluent limitations for these substances.

In addition to adopting goals, the Regional Water Board required the dischargers to continue to monitor for these pollutants and to investigate methodologies to improve detection limits.[69] The Regional Water Board also required San Jose/Santa Clara and Sunnyvale to study sources of organochlorine pesticides, PCBs, and dioxins in treatment plant influent and to investigate source control and pollution prevention opportunities.[70]

The Regional Water Board's approach is consistent with EPA guidance. EPA recommends, when a permitting authority is unable to determine reasonable potential based on effluent data, that the authority require further testing to develop the necessary data.[71] The State Water Board's proposed policy implementing the CTR takes a similar approach in cases where effluent data are insufficient to determine whether an effluent limitation is needed to control a pollutant.[72] The draft policy is, of course, still under consideration and has not yet been finalized.

III. RECORD

In preparing this order, the State Water Board reviewed the Regional Water Board's administrative record for Orders 98-052, 98-053, and 98-054. In addition, the Board has reviewed documents in the Board's files for petitions A-1167 and A-1167(a), excluding the Regional Water Board's response to San Francisco BayKeeper's petition on the Petaluma and Fairfield-Suisun Sewer District permits.[73]

IV. CONCLUSIONS

Based upon the above discussion, the State Water Board concludes as follows:

1. The performance-based concentration and mass limits for copper and nickel in the South Bay permits are appropriate for the five-year permit term.

2. When the Regional Water Board reissues the permits in 2003, if copper or nickel in the South Bay discharges has the reasonable potential to cause or contribute to a violation of water quality standards, the Regional Water Board may include performance-based limits

for these pollutants only if they are as or more stringent than any appropriate water quality-based effluent limitations.

3. The permits' mass nickel limits are not subject to antidegradation requirements.

4. When the Regional Water Board reissues the permits in 2003, the Regional Water Board must reconsider the copper and nickel mass limits, as discussed in this Order.

5. The Regional Water Board could appropriately include performance goals for pollutants for which the Regional Water Board was unable to determine reasonable potential based on the available effluent data.

V. ORDER

IT IS HEREBY ORDERED that the 1998 South Bay permits are upheld and that the Regional Water Board shall reissue the permits in 2003 consistent with the direction in this Order.

CERTIFICATION

The undersigned, Administrative Assistant 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 October 21, 1999.

AYE: James M. Stubchaer

Mary Jane Forster

John W. Brown

Arthur G. Baggett, Jr.

NO: None

ABSENT: None

ABSTAIN: None

/s/ Maureen Marché

Administrative Assistant to the Board