

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

ORDER WQ 2001 - 06

In the Matter of the Review
on its Own Motion of

Waste Discharge Requirements for the
Avon Refinery, Order No. 00-011, as amended by
Order No. 00-056 [NPDES Permit No. CA0004961],
and for the Rodeo Refinery, Order No. 00-015 [NPDES Permit No. CA0005053],
Issued by the
California Regional Water Quality Control Board,
San Francisco Bay Region

SWRCB/OCC FILES A-1283, A-1283(a)-(e), A-1289, A-1289(a)-(c)

BY THE BOARD:

In this order the State Water Resources Control Board (State Water Board or Board) remands two industrial National Pollutant Discharge Elimination System (NPDES) permits to the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) for revisions. The Regional Water Board reissued these permits in Order Nos. 00-011 and 00-015 to Tosco Corporation (Tosco) for its Avon and Rodeo petroleum refineries, respectively.

Order No. 00-011, issued in February 2000, regulates the discharge of pollutants from the Avon refinery to Suisun Bay. In June 2000, the Regional Water Board in Order 00-056 amended portions of the Avon permit that address the discharge of dioxin and furan compounds. The Avon refinery is now owned by Ultramar Inc. (Ultramar) and has been renamed the Golden Eagle refinery. Order No. 00-015, issued in March 2000, regulates the discharge of effluent from the Rodeo refinery to San Pablo Bay.

Both Suisun and San Pablo Bays are on the Clean Water Act Section 303(d)¹ impaired waters list.² The impairing pollutants are, with one exception, toxic pollutants.³ They include copper, nickel, selenium, mercury, dioxin and furan compounds, chlordane, DDT, dieldrin, and dioxin-like PCBs.

Reissuance of the permits was highly controversial due largely to the receiving waters' impaired status. In issuing the permits the Regional Water Board became embroiled in a nationwide debate over how to properly regulate the discharge of an impairing pollutant to a Section 303(d)-listed water before a TMDL is developed for the pollutant. A TMDL, or total maximum daily load, is a water quality control strategy designed to address the impairment and to bring the water body into compliance with water quality standards.⁴ Permit issuance after a water body is listed but before a TMDL is done is referred to as "interim permitting." A second, and equally thorny, issue faced by the Regional Water Board was the appropriate manner in which to regulate the discharge of dioxin and furan compounds from the Avon refinery.

The Regional Water Board reissued the two permits after an extensive public process that included significant involvement from the Regional 9 Office of the Environmental Protection Agency (EPA).⁵ To address interim permitting, the Regional Water Board adopted ten-year compliance schedules for the impairing pollutants, excluding dioxin and furan

¹ 33 U.S.C. Sec. 1313(d).

² See 1998 California 303(d) List and TMDL Priority Schedule.

³ The bays are also listed as impaired by exotic species.

⁴ See 40 C.F.R. Sec. 130.2(h). "A TMDL is a written, quantitative plan and analysis for attaining and maintaining water quality standards in all seasons for a specific waterbody and pollutant."

⁵ See EPA Region 9 comment letters, dated July 22, 1999, November 12, 1999, and February 1, 2000 (Regional Water Board Administrative Record (AR) for Order No. 00-011, Vol. II, Att. 4A) and June 19, 2000 (Regional Water Board AR for Order No. 00-056, Vol. I, Att. 2B).

compounds.⁶ The permits include interim, concentration-based limits for these pollutants,⁷ as well as interim performance-based mass effluent limits for copper, nickel, mercury and selenium.⁸

The permits also contain findings regarding final limits for the impairing pollutants.⁹ The final effluent limits will be based on a TMDL for the pollutant. If none is available, the alternative final limits for non-bioaccumulative pollutants¹⁰ will be criteria applied end-of-pipe limits. For bioaccumulative pollutants, the alternative final limits will be “no net loading.” “No net loading” means that the actual pollutant loading has to be offset by reducing an equivalent pollutant load elsewhere in the watershed.¹¹

The Regional Water Board’s approach to regulation of dioxin and furan compounds discharged from the Golden Eagle refinery differed from this general approach in two respects. The compliance schedule was twelve years instead of ten,¹² and the interim limits were concentration-based, only, for five dioxin and furan compounds.¹³

The Regional Water Board’s permit actions prompted ten petitions for review by this Board. Tosco, Western States Petroleum Association (WSPA), Bay Area Dischargers

⁶ See Order No. 00-011, Finding 57; Order No. 00-015, Finding 47.

⁷ See Order No. 00-011, Finding 56 and Effluent Limitations B.8; Order No. 00-015, Finding 46 and Effluent Limitations B.8.

⁸ *Ibid.*

⁹ See fn. 6, *supra*.

¹⁰ Bioaccumulative pollutants are “those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.” Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (2000), App. 1.

¹¹ The Board recognizes that Ultramar does not object to the alternative final limits finding.

¹² See Order No. 00-056, Findings 18 & 19; Order No. 00-011, Finding 57, as amended.

¹³ See Order No. 00-056, Findings 20-29; Order No. 00-011, Finding 56 and Effluent Limitations B.8, as amended.

Association (BADA), Contra Costa Council, Central Contra Costa Sanitary District (District) and, jointly, WaterKeepers Northern California and Communities for a Better Environment (WaterKeepers) sought review of the Avon permit. Tosco, WSPA, Contra Costa Council, and WaterKeepers requested review of the Rodeo permit.¹⁴ WaterKeepers also petitioned for review of the Avon permit amendments. The latter petition was treated as a supplement to WaterKeepers' original petition for review of the Avon permit.¹⁵

On September 7 and 8, 2000 the State Water Board held an evidentiary hearing on the petitions. The hearing focused primarily on issues related to interim permitting and the regulation of dioxin and furan compounds.

One week prior to the September hearing Tosco sold the Avon refinery to Ultramar. At Ultramar's request, the Board held an additional half-day of evidentiary hearing on November 15, 2000. This hearing was limited to the receipt of evidence by Ultramar on aerial emissions of dioxin and furan compounds from the Golden Eagle refinery. Notably, at that time Ultramar requested that the Board uphold the Golden Eagle permit without remand or modification.

The Board has reviewed the record before the Regional Water Board and the additional evidence introduced at the State Water Board. Based on this review, the Board concludes that the permits should be remanded to the Regional Water Board for reconsideration and revisions, as appropriate. The primary reason for this conclusion is that the Board has addressed many of the issues raised in the petitions in the Board's Policy for Implementation of

¹⁴ Tosco and WSPA also petitioned for a stay of Order Nos. 00-011 and 00-015. By letter dated June 2, 2000, Edward C. Anton, Acting Executive Director for the Board, notified petitioners that the stay requests were dismissed.

¹⁵ WaterKeepers also petitioned for a stay of Order No. 00-056. In lieu of acting on the stay request, the Board decided to hold an evidentiary hearing and to decide the petitions on the merits. This order disposes of the underlying petitions.

Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (2000) (Implementation Policy or Policy). This Policy became effective after Order Nos. 00-011 and 00-015 were adopted.

Specifically, this order directs the Regional Water Board to reconsider and revise portions of the Rodeo permit and, if requested by Ultramar, the Golden Eagle permit that address:

- the consideration of dilution in the selection of impairing pollutants requiring effluent limitations
- the alternative final limits for impairing pollutants
- the interim, performance-based mass limits for copper, mercury and nickel
- effluent limitations for pollutants not detected in the effluent, and
- waste minimization plans.

This order also remands the Golden Eagle permit to the Regional Water Board to revise the 12-year schedule to comply with water quality standards for dioxin and furan compounds.

Although the Board remands the permits to the Regional Water Board, the Board commends the Regional Water Board for the conscientious, thorough, and professional work by staff and board members in developing and issuing the two permits.

I. BACKGROUND

This order begins with an overview of the legal framework for the two refinery permits. The overview covers the NPDES permit program, toxics control, Section 303(d), and interim permitting.

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A. NPDES Permit Program

The Federal Water Pollution Control Act, commonly referred to as the Clean Water Act,¹⁶ was enacted in 1972. It established the NPDES permit program.¹⁷ Under this program, it is illegal to discharge pollutants from a point source¹⁸ to surface waters without an NPDES permit.¹⁹ Either EPA or states with EPA-approved programs are authorized to issue permits. California has an approved program.

Permits must include technology-based effluent limitations, as well as any more stringent limits necessary to meet water quality standards.²⁰ Water quality standards, as defined in Clean Water Act Section 303(c),²¹ consist of the beneficial uses of a water body and criteria to protect those uses.²² The criteria can be either narrative or numeric.²³ A typical narrative criterion, for example, prohibits “the discharge of toxic pollutants in toxic amounts.” Numeric criteria establish pollutant concentrations or levels in water that protect beneficial uses. An example of a numeric saltwater criterion for copper to protect aquatic life is 3.1 micrograms per liter ($\mu\text{g/l}$) as a monthly average.

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¹⁶ 33 U.S.C. Sec. 1251 et seq.

¹⁷ See *id.* Sec. 1342.

¹⁸ A “point source” is “any discernible, confined and discrete conveyance”, such as a pipe, ditch, channel, tunnel, conduit, or well. *Id.* Sec. 1362(14).

¹⁹ See *id.* Secs. 1311, 1342.

²⁰ See *ibid.*

²¹ 33 U.S.C. Sec. 1313(c).

²² EPA regulations define water quality standards to also include an antidegradation policy. See 40 C.F.R. Sec. 131.6.

²³ See 40 C.F.R. Sec. 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.”)

The states are primarily responsible for the adoption of water quality standards, although EPA has oversight and promulgation authority, as well.²⁴ In California water quality standards are found in statewide and regional water quality control plans.²⁵ Water quality control plans contain beneficial use designations, water quality objectives to protect those uses, and a program to implement the objectives.²⁶ Water quality objectives are the state equivalent of federal criteria under Clean Water Act Section 303(c).²⁷

Permit limitations implementing water quality standards are called water quality-based effluent limitations. In 1989 EPA amended its regulations to specify minimum consistent procedures that states must follow for developing water quality-based effluent limitations.²⁸ The regulations, which are found in 40 C.F.R. Section 122.44(d), clarified that permits must limit any pollutant that is or may be discharged at a level that causes, has the reasonable potential to cause, or contribute to an excursion above any water quality standard, including narrative criteria. The analysis to determine what pollutants must have permit limits is commonly called the "reasonable potential analysis."

The regulations also established minimum consistent procedures that the states must use in developing effluent limits to attain narrative water quality standards.²⁹ Under these procedures the states can use one of three methods to develop effluent limitations interpreting narrative criteria. The options entail using: (1) a proposed state criterion or an explicit state

²⁴ See 33 U.S.C. Sec. 1313(c).

²⁵ See Wat. Code Secs. 13170, 13170.2, 13240-13247.

²⁶ *Id.* Sec. 13050(j).

²⁷ Compare Wat. Code Sec. 13050(h) with 40 C.F.R. Sec. 131.3(b).

²⁸ 40 C.F.R. Sec. 122.44(d), 54 Fed. Reg. 23868-23899 (June 2, 1989).

²⁹ See 40 C.F.R. Sec. 122.44(d)(1)(vi).

policy or regulation interpreting its narrative criterion, supplemented with other relevant information; (2) EPA's Section 304(a)³⁰ criteria guidance, supplemented where necessary by other relevant information; or (3) an indicator parameter for the pollutant of concern.³¹ These options were intended to provide a regulatory basis for developing water quality-based effluent limitations as an interim measure until a numeric criterion for the pollutant of concern was available.³²

In California NPDES permits are issued by the Regional Water Quality Control Boards and, in some cases, this Board.³³ State statutory authority for the NPDES permit program is found in Chapter 5.5, Division 2 of the Water Code. Chapter 5.5's provisions must be read to ensure consistency with the Clean Water Act requirements for state permit programs.³⁴ The permits must "apply and ensure compliance with" all applicable provisions of the Clean Water Act and "with any more stringent effluent standards or limitations necessary to implement water quality control plans."³⁵ In addition, permits must be issued and administered in accordance with the applicable EPA permit regulations.³⁶ The provisions of Chapter 5.5 prevail over other Water Code provisions to the extent of any inconsistency.³⁷

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³⁰ 33 U.S.C. Sec. 1314(a).

³¹ See fn. 27, *supra*.

³² See 54 Fed. Reg. at 23876.

³³ See Wat. Code Sec. 13377.

³⁴ *Id.* Sec. 13372.

³⁵ *Id.* Sec. 13377.

³⁶ Cal. Code Regs., tit. 23, Sec. 2235.2.

³⁷ Wat. Code 13372.

B. Toxics Control

In 1986 the Regional Water Board amended its water quality control plan (1986 Basin Plan) to add water quality objectives for selected toxic pollutants in surface waters. The objectives are found in Tables III-2A and III-2B of the 1986 Basin Plan. The pollutants include mercury, nickel, and, for freshwater, copper.

In 1987 Congress amended the Clean Water Act to specifically address toxics control.³⁸ The amendments, in Clean Water Act Section 303(c)(2)(B),³⁹ required the states to adopt numeric criteria for specific toxic pollutants. These included all toxic pollutants listed under Section 307(a)(1)⁴⁰ of the Act for which criteria guidance had been published under Section 304(a),⁴¹ the discharge or presence of which could be expected to interfere with designated uses. The pollutants listed under Section 307(a)(1) are called priority toxic pollutants. They number 126.⁴²

In 1991 the Board adopted two statewide plans to comply with the 1987 Clean Water Act requirement for numeric toxic criteria. The plans, entitled the Inland Surface Waters Plan and the Enclosed Bays and Estuaries Plan, contained water quality objectives for most priority toxic pollutants.

In 1992 EPA promulgated the National Toxics Rule, establishing numeric toxic pollutant criteria for 14 states that had not yet fully complied with Section 303(c)(2)(B).⁴³ The NTR covered California for about 40 pollutants that were not included in the 1991 statewide

³⁸ See Water Quality Act of 1987, Pub. L. 100-4 (Feb. 4, 1987).

³⁹ 33 U.S.C. Sec. 1313(c)(2)(B).

⁴⁰ *Id.* Sec. 1317(a)(1).

⁴¹ *Id.* Sec. 1314(a).

⁴² See 40 C.F.R. Part 423, App. A.

⁴³ 40 C.F.R. Sec. 131.36, 57 Fed. Reg. 60848-60923 (Dec. 22, 1992).

plans.⁴⁴ In addition, the NTR applied freshwater selenium criteria to selected waters in the state, including San Francisco Bay.⁴⁵

In 1993 the State Water Board amended the 1991 statewide plans to include water quality objectives for the remaining priority pollutants not covered in the initial plans. The following year, however, the Board rescinded both plans in response to an adverse ruling in litigation filed against the Board.⁴⁶ As a consequence, the only numeric criteria for priority pollutants that applied statewide were the limited number in the NTR that applied to California.

To fill in the gap created by the litigation, EPA proposed priority toxic pollutant criteria for California in 1997, supplementing the applicable NTR criteria.⁴⁷ The Board, concurrently, circulated a draft water quality control policy to implement the proposed California rule.

Several months after the Regional Water Board adopted Orders No. 00-011 and 00-015, EPA promulgated the California Toxics Rule (CTR)⁴⁸ in final form. The CTR promulgated "around" the water quality objectives in Tables III-2A and III-2B of the Regional

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⁴⁴ See 40 C.F.R. Sec. 131.36(d)(10).

⁴⁵ *Ibid.*

⁴⁶ See Water Quality Control Cases, Judicial Council Coordination Proceeding No. JC2610, Sacramento County Superior Court. The Board rescinded the plans, as amended.

⁴⁷ See 62 Fed. Reg. 42160-42208 (Aug. 5, 1997).

⁴⁸ See 40 C.F.R. Sec. 131.38, 65 Fed. Reg. 31682-31719 (May 18, 2000).

Water Board's 1986 Basin Plan.⁴⁹ Thus, the CTR criteria do not apply to waters subject to these objectives, and the objectives were left intact. More recently, EPA approved basin plan amendments adopted by the Regional Water Board in 1995 (1995 Basin Plan). The 1995 Basin Plan changed the headings of Tables III-2A and III-2B to Tables 3-3 and 3-4, respectively, but did not change the actual objectives.

This Board adopted the Implementation Policy in March 2000. The Policy was approved by the Office of Administrative Law on April 28 and became fully effective with respect to the CTR criteria on May 18, 2000, the effective date of the CTR.⁵⁰ The Implementation Policy, in general, applies to the implementation of water quality standards for NTR and CTR criteria and priority pollutant objectives for inland surface waters and enclosed bays and estuaries.⁵¹ In general, the Policy supersedes water quality control plan provisions to the extent that they address implementation of toxic pollutant standards.⁵² The Policy addresses many of the issues raised in the current petitions. In particular, the Policy covers the selection of pollutants requiring effluent limitations (the reasonable potential analysis), effluent limitation calculation, mixing zones, and TMDL-based compliance schedules.

C. Section 303(d)

In addition to providing the basis for deriving effluent limitations, water quality standards also provide the foundation for identifying impaired waters. Clean Water Act Section 303(d)⁵³ requires that the states identify and establish a priority ranking for all waters for which technology-based effluent limitations are not stringent enough to attain and maintain water

⁴⁹ See *id.* Sec. 131.38(b)(1), fn. b. to Table.

⁵⁰ See Cal. Code Regs., tit. 23, Sec. 2914.

⁵¹ Policy, Introduction, p. 1.

⁵² *Id.* at 2.

⁵³ 33 U.S.C. Sec. 1313(d).

quality standards. The states must then establish TMDLs for the pollutants causing impairment. A TMDL is a written, quantitative plan and analysis for attaining and maintaining standards.⁵⁴ It includes wasteload allocations or WLAs⁵⁵ assigned to point sources, load allocations⁵⁶ for nonpoint sources⁵⁷ and other elements designed to achieve water quality standards. Once a TMDL is developed for a pollutant, effluent limitations in NPDES permits must be consistent with the wasteload allocations in the TMDL.⁵⁸

Over 500 water bodies in California are currently listed as impaired by one or more pollutants.⁵⁹ More than 1470 pollutants have been identified as the cause. Due to the substantial workload involved in developing TMDLs for all listed waters, the state's schedule for completing them extends to 2013.

San Francisco Bay has been listed as impaired for metals for several years. For the 1998 Section 303(d) list, the Regional Water Board clarified that the specific pollutants of concern are copper, nickel, mercury, and selenium. For San Pablo and Suisun Bays, the Regional Water Board also added diazinon and polychlorinated biphenyls (PCBs) as impairing pollutants. In November 1998, EPA partially approved and partially disapproved the state's

⁵⁴ See fn. 4, *supra*.

⁵⁵ A "wasteload allocation" is the portion of the TMDL's pollutant load that is allocated to a point source for which an NPDES permit is required. 40 C.F.R. Sec. 130.2(g).

⁵⁶ A "load allocation" is the portion of the TMDL's pollutant load that is allocated to a nonpoint source, background, atmospheric deposition, ground water, or a storm water source for which an NPDES permit is not required. *Id.* Sec. 130.2(f).

⁵⁷ "Nonpoint sources", in general, are pollutant sources that do not meet the definition of a point source. See fn. 17, *supra*. Nonpoint source pollution typically results from land runoff, drainage, seepage, precipitation, and atmospheric deposition.

⁵⁸ 40 C.F.R. Sec. 122.44(d)(1)(vii)(B).

⁵⁹ See fn. 2, *supra*.

list.⁶⁰ EPA added dioxin and furan compounds, chlordane, DDT, and dieldrin as impairing pollutants for San Pablo and Suisun Bays. All of these pollutants, with the exception of dioxin and furan compounds other than 2, 3, 7, 8-tetrachloro-dibenzo-p-dioxin (2, 3, 7, 8-TCDD), are priority toxic pollutants.

The Regional Water Board is scheduled to complete TMDLs for both bays for mercury in 2003, diazinon in 2005, copper and PCBs in 2008, and nickel and selenium in 2010. EPA Region 9 is expected to complete a TMDL for dioxin and furan compounds sometime within the next 13 years.

D. Interim Permitting

NPDES permits are issued for a five-year term.⁶¹ As noted above, the schedules for TMDL development sometimes stretch well into the future. Many permits authorizing discharge to impaired water bodies have to be reissued before the necessary TMDLs are done. Permit reissuance under these circumstances can be problematic because if a water body is impaired, the water may not be able to assimilate more of the impairing pollutant. If this is the case, effluent limitations for the pollutant may be based solely on the applicable criterion or objective with no allowance for dilution. Hence, they may be extremely stringent. Ultimately, when the TMDL is done, the stringent limitations may become unnecessary because nonpoint source controls may provide assimilative capacity for the point source discharges.⁶² This may be especially true in

⁶⁰ 63 Fed. Reg. 59556-59557 (Nov. 4, 1998) (notice of availability of proposed EPA decision, partially approving and partially disapproving the state's list). By letter dated May 12, 1999, EPA transmitted to the state the final 1998 Section 303(d) list for California.

⁶¹ See 33 U.S.C. Sec. 1342(b)(1)(B).

⁶² EPA's TMDL regulations recognize this possibility. They state that "[f]or waterbodies impaired by both point and nonpoint sources, wasteload allocations may reflect anticipated or expected reductions of pollutants from other sources if those anticipated or expected reductions are supported by reasonable assurance that they will occur." 40 C.F.R. Sec. 130.2(g).

cases where nonpoint pollutant sources are the primary contributors and point sources are insignificant.

There is currently no nationwide EPA guidance on interim permitting. In August 1999 EPA proposed TMDL regulations that included an interim permitting offset requirement.⁶³ Under the proposal, new and significantly expanding dischargers would have to obtain offsets of their new or increased loadings of impairing pollutants pending TMDL development. When the TMDL regulations were adopted in final form in July 2000, however, EPA had dropped the concept of mass offsets.⁶⁴ Instead, EPA concluded that its existing permit regulations adequately address interim permitting.

EPA based this conclusion on two regulations in particular, Sections 122.4(i) and 122.44(d)(1)(vii).⁶⁵ Under the former, no permit can be issued to a new source or a new discharger if the discharge will cause or contribute to a water quality standards violation. Under the latter, water quality-based effluent limitations must ensure that “[t]he level of water quality to be achieved by limits on point sources . . . is derived from, and complies with all applicable water quality standards.” For guidance on developing water quality-based limits, EPA cited its “Technical Support Document for Water Quality-Based Toxics Control” (TSD) (1991)⁶⁶ and the Water Quality Guidance for the Great Lakes System.⁶⁷

EPA also stated that it intended to provide further guidance on permitting discharges to impaired waters in the absence of a TMDL.⁶⁸ An EPA workgroup was established in

⁶³ See 64 Fed. Reg. 46058-46089 (Aug. 23, 1999).

⁶⁴ See 65 Fed. Reg. 43586 at 43638-43644 (July 13, 2000).

⁶⁵ See *id.* at 43641.

⁶⁶ EPA/505/2-90-001.

⁶⁷ *Ibid.* The Great Lakes Guidance is in 40 C.F.R. Part 132.

⁶⁸ 65 Fed. Reg. at 43643.

June 2000 to develop national guidance on this topic,⁶⁹ and a rough draft was circulated in August 2000.⁷⁰ To date, the draft guidance has not been finalized.

In the meantime, EPA Region 9 had also developed draft guidance on interim permitting.⁷¹ The Golden Eagle and Rodeo refinery permits were consistent with the draft guidance. The Region 9 draft recommends that, in the absence of a TMDL, final water quality-based effluent limits for bioaccumulative or persistent pollutants be no net loading and for other pollutants, the criterion applied end-of-pipe. In addition, the draft provides that if state law allows time schedules in permits, permits may include interim limits regulating both the mass and concentration of impairing pollutants. The interim concentration limits are performance-based, reflecting best available technology. The mass limits are based on current loading.

The EPA Region 9 draft guidance has also not been finalized. When the EPA workgroup was established in June 2000, the Regional Offices were requested to forego further work on regional policies pending development of national guidance.⁷²

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⁶⁹ See memorandum, dated June 2, 2000, from J. Charles Fox, EPA Assistant Administrator, to Office Directors, Office of Water, et al., entitled "Call for EPA Workgroup to Develop National Guidance on NPDES Water Quality-based Permitting for Discharges to Impaired Waters in Advance of a TMDL."

⁷⁰ *Draft EPA Guidance on Permitting for Impaired Waters Before TMDL Established*, BNA Environment Report, vol. 31, no. 36, 1985-1991 (Sept. 15, 2000).

⁷¹ *EPA Region 9 Draft Guidance for Permitting Discharges into Impaired Waterbodies in Absence of a TMDL*, <http://www.epa.gov/region09/water/npdes/index.html#draftguidance>.

⁷² See fn. 68, *supra*.

II. CONTENTIONS AND FINDINGS

In this discussion, the Board will first address issues relating to interim permitting.⁷³ Following this discussion, the Board will discuss other issues relevant to both refinery permits. Lastly, the Board will discuss issues specific to the Golden Eagle permit. These include the classification of Suisun Bay as a marine water, the regulation of dioxin and furan compounds discharged from the Golden Eagle refinery, and the deletion of an effluent limitation credit for reclaimed water use.

A. Interim Permitting Issues

In the text that follows, the Board discusses three interim permitting issues. These are: the need to consider dilution in the reasonable potential analysis for impairing pollutants; the propriety of the alternative default limit findings for impairing pollutants; and the validity of interim, performance-based mass limits for these pollutants. The Board concludes that the Implementation Policy, together with existing law and regulations, adequately addresses these issues. It is, therefore, unnecessary to resort to the regional or nationwide, draft interim permitting guidance to resolve the issues.

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⁷³ This order does not address all of the issues raised by the petitioners. The Board finds that the issues that are not addressed are insubstantial and not appropriate for State Water Board review. (See *People v. Barry* (1987) 194 Cal. App. 3d 158 [239 Cal. Rptr. 349]; Cal Code Regs., tit. 23, sec. 2052.) In particular, the Board declines to review issues relating to the legality of compliance schedules under the Clean Water Act. The Board has already taken the position that compliance schedules are authorized under the Clean Water Act. See Policy, Sec. 2.1.

1. Consideration of Dilution in the Reasonable Potential Analysis

Contention: Tosco and WSPA⁷⁴ object to a finding in the Golden Eagle⁷⁵ and Rodeo permits⁷⁶ stating that, because the receiving waters are impaired, no dilution was used in analyzing reasonable potential for the impairing pollutants. Tosco and WSPA contend that the Regional Water Board violated Section 122.44(d)(1)(ii), which states that in making a reasonable potential determination the permitting authority “shall use procedures which account for . . . *where appropriate*, the dilution of the effluent in the receiving water.” (Emphasis added.) Tosco and WSPA argue that the Regional Water Board was required to grant the refineries a 10:1 dilution in analyzing reasonable potential. They also contend that it is inappropriate to conclude, based solely on a Section 303(d) listing, that a water body lacks assimilative capacity for the impairing pollutant.

Finding: The Board concludes that this issue has become moot due to the adoption of the Policy. Under the Policy, dilution is not considered in a reasonable potential analysis. The Board disagrees with Tosco and WSPA that the cited regulation required the Regional Water Board to factor in dilution for impairing pollutants. The Board agrees that a Section 303(d) listing alone is not a sufficient basis on which to conclude that a water body lacks assimilative capacity for an impairing pollutant.

⁷⁴ Since the original petitions were filed, Tosco sold the Avon refinery to Ultramar and, consequently, dropped its petition regarding the Avon permit. WSPA’s petitions cover both permits. This order refers to Tosco and WSPA jointly, however, the Board recognizes that Tosco is now seeking review only of the Rodeo permit.

⁷⁵ Order No. 00-011, finding 49. It reads in part: “For pollutants on the 303(d) list as impairing Suisun Bay, the USEPA has commented that there is a lack of assimilative capacity in the receiving water, and that it is inappropriate to allow any dilution in projecting maximum receiving water concentrations of the 303(d)-listed pollutants. This RP analysis evaluates both situations with and without a 10:1 dilution. Because the waterbody is impaired, no dilution is used in the statistical determination of RP for the 303(d)-listed pollutants.”

⁷⁶ Order No. 00-015, finding 40. This finding contains wording identical to that in the Golden Eagle permit. See fn. 74, *supra*.

The Regional Water Board analyzed reasonable potential for the impairing pollutants using TSD procedures. The Regional Water Board used a statistical approach to determine a pollutant effluent concentration. This value was then compared to a preliminary effluent limitation that was calculated using a steady-state equation from the 1995 Basin Plan.⁷⁷ Although the equation factors in dilution, the Regional Water Board did not consider dilution for the impairing pollutants. The Regional Water Board found reasonable potential for all the impairing pollutants.⁷⁸

The procedures in the Implementation Policy now govern reasonable potential analyses for priority pollutants. Under these procedures, dilution is not considered in the analysis.⁷⁹ This is true whether the pollutant of concern is impairing or not. Therefore, the issue raised by Tosco and WSPA has become moot for permits regulating the discharge of priority toxic pollutants that are adopted after the Policy's effective date.⁸⁰ On remand of these permits, the Board will direct the Regional Water Board to reconsider reasonable potential for the impairing pollutants, as provided in the Policy.

The Board, nevertheless, disagrees that the Regional Water Board was required to consider dilution in assessing reasonable potential. Tosco and WSPA contend that because the 1995 Basin Plan assumes a 10:1 dilution for deepwater discharges, the Regional Water Board had to factor in this dilution in determining reasonable potential. The Regional Water Board's 1995 Basin Plan, however, does not contain specific procedures for analyzing reasonable potential. Rather, the 1995 Basin Plan appears to require effluent limitations for all pollutants of

⁷⁷ 1995 Basin Plan at 4-11.

⁷⁸ See Order No. 00-011, findings 51 & 52; Order No. 00-015, findings 42 & 43.

⁷⁹ See Policy, Sec. 1.3.

⁸⁰ The Policy became effective on April 28, 2000 for priority pollutant objectives and NTR criteria and on May 18, 2000 for CTR criteria.

concern unless a discharger certifies that the pollutant is not present in the effluent.⁸¹ The Regional Water Board's inclusion of effluent limitations for impairing pollutants present in the refinery discharges was, therefore, consistent with the 1995 Basin Plan.

In any event, Section 122.44(d)(1)(ii) did not mandate that the Regional Water Board consider dilution in determining reasonable potential for impairing pollutants. The regulation directed the Regional Water Board to consider dilution "where appropriate." Determining whether dilution is "appropriate" entails two analyses, the first legal and the second factual. Legally, dilution may be considered if allowed under the state's water quality standards.⁸² Factually, dilution may be considered if the receiving waters actually have the capacity to dilute the effluent to levels below the applicable water quality objective or criteria. If dilution is allowed, water quality standards must be met at the edge of the authorized mixing zone.⁸³ If both effluent and receiving water pollutant concentrations exceed the applicable objective or criteria, it is mathematically impossible for the applicable criteria or objective to be met at the edge of the mixing zone.

If a permit writer mechanically assumes a dilution ratio in a case where the receiving waters do not have assimilative capacity for a pollutant, the permit writer may not limit the pollutant. As a result, the pollutant may be discharged in an amount that can cause, or contribute to, an actual water quality standards violation. This result conflicts with the Clean

⁸¹ See 1995 Basin Plan at 4-14, (E) Selection of Parameters.

⁸² See 40 C.F.R. Sec. 131.13; Water Quality Standards Handbook (2d ed. 1993) (EPA-823-B-002) p. 5-1.

⁸³ TSD at 70. See also 65 Fed. Reg. at 43641-43642 ("[U]se of valid verifiable ambient background values is imperative to technically sound effluent characterization and analysis of the need for water quality-based effluent limits.").

Water Act requirement that permits include limitations where necessary to achieve water quality standards.⁸⁴ It also violates California law requiring that the state issue NPDES permits that apply and ensure compliance with the Clean Water Act.⁸⁵

The Board agrees with Tosco, WSPA, and other petitioners, that a 303(d)-listing alone is not a sufficient basis on which to conclude that a water necessarily lacks assimilative capacity for an impairing pollutant. The listing itself is only suggestive; it is not determinative. Listing decisions are made based on "all existing and readily available water quality-related data and information."⁸⁶ That information may not represent water quality conditions throughout the entire water body. It may not reflect seasonal variations. In addition, more recent site-specific ambient data⁸⁷ may be available since the original listing. In assessing reasonable potential and developing effluent limitations, the Regional Water Board must review the available ambient data and base its determinations on this data.

2. Alternate Final Limits Finding

Contention: Tosco, WSPA, BADA, Contra Costa Council and the District object to a finding in the refinery permits that, if TMDLs are not adopted by 2010, the Regional Water Board will impose alternative final limits for impairing pollutants.⁸⁸ These limits will be no net loading for bioaccumulative pollutants and the water quality objectives applied end-of-pipe for nonbioaccumulative pollutants. One or more of these petitioners object to the finding on the

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⁸⁴ See 33 U.S.C. Secs. 1311, 1342; 40 C.F.R. Sec. 122.44(d).

⁸⁵ See Wat. Code Sec. 13377; Cal. Code Regs., tit. 23, sec. 2235.2.

⁸⁶ 40 C.F.R. Sec. 130.7(b)(5).

⁸⁷ The term "ambient data," as used in this Order, refers to water quality-related data, including water column, biological and sediment data.

⁸⁸ See fn. 6, *supra*.

grounds, among others, that the alternative final limits are not required by the Clean Water Act, violate the California Environmental Quality Act⁸⁹ and the rulemaking part of the Administrative Procedure Act (APA),⁹⁰ violate the 1995 Basin Plan's allowance of 10:1 dilution for deepwater dischargers,⁹¹ subvert the TMDL process, and are technically and economically infeasible.

Finding: The Board finds it unnecessary to address all of petitioners' objections because the Board concludes that the alternative final limitations findings are inappropriate. This order directs the Regional Water Board to calculate final effluent limitations for the impairing pollutants following the Implementation Policy's procedures, using appropriate site-specific data, if available. If the dischargers cannot comply with these limits, the Regional Water Board is directed to develop appropriate compliance schedules based on TMDL development for the pollutant. The permit findings should state that final water quality-based effluent limitations will be based on the wasteload allocations in the TMDL.

The Regional Water Board, after finding reasonable potential for all of the impairing pollutants, did not calculate final limits. Instead, the Regional Water Board established ten-year compliance schedules (except for dioxins and furans) based on the anticipated completion of a TMDL for the impairing pollutant. In findings, the Regional Water Board stated that final limitations will be based on the wasteload allocation in the TMDL or, if none is available, on no net loading for bioaccumulative impairing pollutants or the objective or criterion applied end-of-pipe for non-bioaccumulative impairing pollutants. The record indicates

⁸⁹ Pub. Resources Code Sec. 21000 et seq.

⁹⁰ Gov. Code Sec. 11340 et seq.

⁹¹ See 1995 Basin Plan at 4-11 through 4-12.

that EPA Region 9 told the Regional Water Board that they would object to the permits if they did not include the alternative final limits findings.⁹²

The Regional Water Board correctly points out that the alternative final limits findings are, in fact, only findings. They are not binding on future Regional Water Boards. In addition, EPA Region 9 concurred in the permits.

Nevertheless, the Board concludes that the alternative final limits findings are inappropriate for several reasons. First, the findings presume that the receiving waters lack assimilative capacity for the pollutants identified as impairing on the Section 303(d) list. This may or may not be true. As discussed above, the fact alone that a water body is listed under Section 303(d) as impaired for a particular pollutant is an insufficient basis on which to decide that the water body lacks assimilative capacity for the pollutant. The Board has reviewed data on water column concentrations of impairing pollutants in Suisun and San Pablo Bays. Based on this very preliminary review, which is discussed in the following section of this Order, the Board concludes that it is uncertain whether the receiving waters are, in fact, impaired for copper. On a pollutant-specific basis, the Regional Water Board must similarly review the relevant effluent and ambient data and decide whether the water body can assimilate more of the particular pollutant.

Secondly, the Board is concerned that the alternative default limits, if imposed, may be technically infeasible and, ultimately, unnecessary. The limits are very stringent, in some cases, below current detection levels. Tosco and WSPA introduced evidence at the hearing indicating that the limits for some pollutants cannot be met with waste minimization, pollution

⁹² Reporter's Transcript (RT) of Board's September 7, 2000 hearing (RT-9/7/00) at 172.

prevention, or current technology.⁹³ In addition, Regional Water Board representatives have indicated that the refineries' discharges of impairing pollutants are insignificant and that, even if the dischargers achieved "0" discharge, there would be no demonstrable water quality effect.⁹⁴ This is apparently due to the fact that, for some pollutants, the impairments are caused primarily by nonpoint sources, aerial deposition, or legacy sources. These types of pollution problems are best addressed through the TMDL program. The TMDL program considers all pollutant sources within a watershed and focuses on a watershed-wide solution to the impairment. Additionally, in a TMDL, pollutant reductions can be equitably apportioned among all sources, both point and nonpoint.

Further, Regional Water Board and EPA Region 9 representatives have indicated that they do not expect the dischargers to institute any structural controls in order to comply with the potential alternative default limitations, in other words, that the alternative limits should not be taken seriously.⁹⁵ In addition, Regional Water Board and EPA Region 9 representatives have stated that there is a high likelihood that the TMDLs slated for Suisun and San Pablo Bays will be done on time.⁹⁶

Finally, the Board believes that the Implementation Policy's approach to TMDL-based compliance schedules is preferable. Under the Implementation Policy, effluent limitations must be calculated for all priority pollutants for which there is reasonable potential.⁹⁷ If a discharger cannot comply with the limits, the Policy authorizes compliance schedules under

⁹³ See Exh. 2 to Testimony and Additional Supporting Evidence of Tosco and WSPA, dated August 18, 2000.

⁹⁴ See, e.g., RT-9/7/00, pp. 132, 133, 144, 186; Regional Water Board AR for Order No. 00-011, Vol. I, Att.2C, pp. 30, 121.

⁹⁵ See, e.g., RT-9/7/00, p.135; Regional Water Board AR for Order No. 00-015, Vol. I, Att. 2C, p. 24.

⁹⁶ See RT-9/7/00, pp. 131, 134-135; Regional Water Board AR for Order No. 00-015, Vol. I, Att. 2C, pp. 27-28.

⁹⁷ Policy, Sec. 1.4.

certain circumstances.⁹⁸ In particular, for Section 303(d)-listed waters, if a discharger cannot feasibly comply with a CTR criterion or an effluent limitation based on the criterion, and the discharger has made appropriate commitments to support and expedite TMDL development, the Policy allows a TMDL-based compliance schedule.⁹⁹ This schedule can extend up to 15 years from the Policy's effective date to allow time to develop and adopt a TMDL and accompanying wasteload allocations.¹⁰⁰

If the compliance schedule extends beyond the permit term, the Policy requires that the permit include findings explaining why a final limit is not included in the permit. In addition, the findings must express the Regional Water Quality Control Board's intent to include in a later permit revision "the final water quality-based effluent limitation as an enforceable limitation (based either on the CTR criterion directly or on future regulatory developments, such as TMDL . . . development) (emphasis added)."¹⁰¹ Thus, under the Policy a final alternative default limit is not required in a TMDL-based compliance schedule.

The Board does not construe the Clean Water Act as mandating the alternative final limits. The Clean Water Act authorizes compliance schedules for water quality standards that are adopted or revised after July 1, 1977.¹⁰² A TMDL, as explained previously, is a quantitative plan to attain and maintain water quality standards for an impairing pollutant. A TMDL, thus, is 'derived from, and complies with' the applicable water quality standard. A water quality-based effluent limitation that is consistent with the waste load allocations in a

⁹⁸ *Id.*, Sec. 2.

⁹⁹ *Id.*, Sec. 2.1.1.

¹⁰⁰ *Id.*, Sec. 2.1.

¹⁰¹ *Id.*, Sec. 2.2.1.

¹⁰² See *In the Matter of Star-Kist Caribe, Inc.*, 3 E.A.D. 172 (NPDES Appeal No. 88-5)(April 16, 1990).

TMDL likewise is derived from and complies with the standard.¹⁰³ The Board concludes, therefore, that a compliance schedule that leads to compliance with a water quality standard through TMDL development satisfies applicable legal requirements, and that an alternative default limitation is unnecessary.

The Board, accordingly, directs the Regional Water Board to calculate effluent limitations for the impairing pollutants in accordance with the Implementation Policy and based on any available site-specific data. If the dischargers are unable to comply with these limits, the Regional Water Board should include appropriate compliance schedules based on TMDL development in the permits. Permit findings need only reflect that final water quality-based effluent limitations for these pollutants will be derived from wasteload allocations in the applicable TMDL.

3. Interim, Performance-based Mass Limits

Contention: All of the petitioners, except WaterKeepers, object to one or more of the interim, performance-based mass effluent limitations for copper, mercury, nickel, and selenium and their related permit findings.¹⁰⁴ Several petitioners contend that the Clean Water Act does not authorize this type of limits. BADA and the District also argue, among other contentions, that the Regional Water Board violated the APA's rulemaking provisions, Water

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¹⁰³ 40 C.F.R. Sec. 122.44(d)(1)(vii)(A).

¹⁰⁴ See fn. 7, *supra*.

Code Section 13241,¹⁰⁵ the 1995 Basin Plan, and the Board's Pollutant Policy Document for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (1990) (Pollutant Policy Document) in imposing the limits. Various petitioners maintain that the performance-based mass limits will inhibit growth and development. In addition, Tosco and WSPA contend that the Regional Water Board improperly calculated the mass limits for copper, mercury and nickel.

Finding: The State Water Board concludes that interim, performance-based mass limits for a pollutant under a compliance schedule to achieve the applicable water quality standard for the pollutant are authorized under the Clean Water Act and state law. The limits imposed in this case do not violate the APA, Water Code Section 13241, the 1995 Basin Plan, or the Pollutant Policy Document. There is no evidence in the record indicating that the refineries' mass limits have any impact on growth or development. To address the industry's concerns about the potential impact of future clean fuels requirements on treatment plant performance, the Regional Water Board can include a reopener clause in the permits.

The Board agrees that, in general, performance-based mass limits should be calculated using statistical procedures other than those used by the Regional Water Board in this case. If, on remand of these permits, the Regional Water Board adopts compliance schedules

¹⁰⁵ This section lists factors that a Regional Water Quality Control Board must consider in establishing water quality objectives. These factors are:

- “(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.”

with interim mass limits, the Regional Water Board should use other statistical methods to calculate the mass limits.

The interim, performance-based mass limits in this case are premised on the assumption that the receiving waters cannot assimilate more copper, mercury, selenium, or nickel. The Board's preliminary review of ambient water column data for Suisun and San Pablo Bays in the vicinity of the refinery discharges supports this conclusion for nickel and mercury. There is insufficient data in the Board's record to evaluate assimilative capacity for copper and selenium.

a. Legal Validity

Interim, performance-based mass pollutant limits under a schedule to comply with water quality standards for the pollutant are clearly authorized under the Clean Water Act. The Clean Water Act requires water quality-based effluent limitations when the discharge of a pollutant has the reasonable potential to cause or contribute to a water quality standards violation.¹⁰⁶ A permit can require immediate compliance with water quality-based limits or compliance at some future date, if a compliance schedule is authorized. Authorization of a compliance schedule is discretionary. If a compliance schedule is allowed, it is entirely appropriate for the permit to include interim, performance-based mass limits to preserve the status quo and prevent further water quality degradation until the water quality standard is achieved. The federal regulations require that compliance schedules include interim

¹⁰⁶ See background discussion in I.A. of this order.

requirements.¹⁰⁷ The federal regulations also generally require that effluent limitations be expressed in terms of mass.¹⁰⁸

Likewise, state law authorizes interim, performance-based mass limits in a compliance schedule. The Regional Water Boards have broad authority to include in permits those effluent limitations deemed necessary to implement water quality standards, protect beneficial uses, or prevent nuisance.¹⁰⁹ More specifically, the Policy requires interim numeric limits in a compliance schedule exceeding one year.¹¹⁰ The limits *must* be based on current treatment facility performance or on existing permit limitations, whichever is more stringent.¹¹¹ In addition, the Policy instructs the Regional Water Quality Control Boards, when establishing compliance schedules, to consider whether to limit the mass loading of bioaccumulative impairing pollutants to representative, current levels pending TMDL development.¹¹²

In the refinery permits, the dischargers are allowed to discharge copper, mercury, nickel and selenium at concentrations above the applicable objective or criterion applied

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¹⁰⁷ See 40 C.F.R. Sec. 122.47(a)(3).

¹⁰⁸ See *id.* Sec. 122.45(f).

¹⁰⁹ See Wat. Code Secs. 13260, 13377.

¹¹⁰ Policy, Sec. 2.2.1.

¹¹¹ *Ibid.*

¹¹² *Id.* Sec. 2.1.1.

end-of-pipe.¹¹³ The permits assume that the receiving waters lack assimilative capacity for these pollutants. If this assumption is correct, then any increase in the pollutant mass discharged to Suisun and San Pablo Bays can further degrade water quality. Interim, performance-based mass limits under these circumstances are a reasonable step to preserve the status quo until final water quality-based effluent limitations can be established for these pollutants that are consistent with the wasteload allocations in the TMDLs.

BADA contends that the Clean Water Act precludes the Regional Water Board from including water quality-based effluent limitations for these pollutants before TMDLs are done. The interim limits, however, are not water quality-based, but rather performance-based. In any event, this interpretation of the Clean Water Act is inconsistent with EPA's, and the Board has previously rejected this reading of the Act.¹¹⁴

BADA and others also contend that the Regional Water Board violated the APA's rulemaking provisions in imposing the interim limits. These provisions do not apply to individual permitting actions.¹¹⁵ Rather, in each permit action the Regional Water Board applies existing law to the facts specific to the discharge. Whether interim, performance-based mass limits are appropriate in any given permit depends on the facts.

BADA argues that the Regional Water Board failed to comply with Water Code Section 13241 in adopting the interim limits. Water Code Section 13241 specifies several factors that a Regional Water Board must consider in developing water quality objectives.¹¹⁶ The

¹¹³ Compare Order Nos. 00-011 & 00-015, Effluent Limitations B.8, with the criteria/objectives listed in Tables 1 and 2, *infra*, of this Order.

¹¹⁴ See *In the Matter of the Petition of Las Virgenes Municipal Water District, et al.*, Order WQ 98-11, State Water Board, at page 11.

¹¹⁵ See Gov. Code Sec. 11352(b).

¹¹⁶ See fn. 105, *supra*.

State Water Board has previously concluded that the section does not apply to interim, performance-based mass permit limits.¹¹⁷

BADA further contends that the Regional Water Board violated the 1995 Basin Plan. BADA maintains that the 1995 Basin Plan allows alternate limits based on mass rather than concentration only if the discharger requests mass limits. The 1995 Basin Plan specifies certain circumstances under which a discharger can request alternate limits from those specified in the plan for certain toxic and conventional pollutants.¹¹⁸ The provision is not a limitation on the Regional Water Board's ability to impose appropriate mass limits. Further, BADA's interpretation of the 1995 Basin Plan conflicts with the federal requirement that permits include mass limits, whether requested by the discharger or not.

BADA also maintains that the interim mass limits violate the Pollutant Policy Document. BADA asserts that the Pollutant Policy Document requires that the regulation of mass emissions of mercury, selenium and copper be based on a watershed, rather than an individual discharge, basis. The Pollutant Policy Document requires that the Regional Water Quality Control Boards for the Central Valley and San Francisco Bay regions develop a mass emission strategy to regulate copper, mercury, and selenium.¹¹⁹ It does not, and cannot be read to, preclude regulation of mass emissions from individual discharges pending development of the strategy. The Clean Water Act dictates that permits include effluent limitations necessary to implement applicable water quality standards. The mass limits, although performance-based, are

¹¹⁷ See *In the Matter of the Petition of Citizens for a Better Environment, et al.*, Order WQ 90-5, State Water Board, pp. 79-80.

¹¹⁸ See 1995 Basin Plan at 4-8 through 4-9.

¹¹⁹ See Pollutant Policy Document, Sec. 4.3.

intended to prevent further degradation in a water body that is assumed to be impaired. In addition, federal regulations require that effluent limitations be expressed in terms of mass.

b. Attainability and Impacts on Growth and Development

Both refinery permits include interim, performance-based mass limits for copper, mercury, nickel and selenium. There is no evidence in the record that either refinery will have difficulty meeting these limits. Ultramar did not object to the limits. Tosco objected but currently complies with the limits. Further, a Regional Water Board representative testified that, based on a review of effluent data covering the last three years, Tosco would not have violated the mass limits during that entire time period.¹²⁰

Tosco has expressed concern that it may be unable to comply in the future with the interim mass limits due to upcoming clean fuels requirements or other unspecified refinery modifications that may be undertaken in the future. This concern may be addressed with an appropriate reopener clause in the permit. If the permittee demonstrates that increases in mass emissions will result from future clean fuels requirements, for example, and that these increases cannot be reduced or avoided through pollutant minimization or other means, then the Regional Water Board can reconsider the interim mass limits.

The record is also devoid of any evidence that the interim mass limits will inhibit or preclude growth and development. The permits at issue here are industrial permits. The Board expresses no opinion on the validity of interim mass limits in a permit regulating waste discharge from a publicly-owned treatment works.

¹²⁰ RT-9/7/00, p. 132.

c. Method of Calculation

The Regional Water Board based the copper, mercury, and nickel mass limits on the 99.7th percentile value of a 12-month moving average mass discharge of the pollutant. The selenium mass limit is based on a 1994 settlement agreement between WSPA and the Regional Board.

The Regional Water Board developed the mass limits for copper, nickel, and mercury using an Excel spreadsheet function that calculates the 99.7th percentile of the input data set. Tosco and WSPA contend that this is not a normal statistical procedure and that it is guaranteed to produce a limit that will be exceeded in the future. They recommend some other statistical method that accounts for the effluent's historic variability.

The Board agrees. The Board has concluded that the Regional Water Board, on remand, must reconsider reasonable potential and calculate effluent limitations, as appropriate, for the impairing pollutants. If, on remand, the Regional Water Board concludes that mass limits for the impairing pollutants are appropriate under a compliance schedule, the limits should be calculated using other statistical methods. The Regional Water Board's approach for these permits can pose problems if there is a small data set. In those circumstances, the 99.7th percentile may be lower than the maximum observed value. Rather, the Regional Water Board should develop frequency distributions from available representative data and use those distributions to calculate effluent limitations. The Regional Water Board can select the percentiles or number of standard deviations, based on balancing the risk of a violation with the need to protect the bays' water quality.

d. Preliminary Analysis of Ambient Data

As stated above, the interim, performance-based mass limits for copper, mercury, nickel and selenium in the two refinery permits are premised on the assumption that the receiving waters are impaired for these pollutants. The Board has conducted a preliminary review of limited water column data to assess the assimilative capacity of Suisun and San Pablo Bays for these constituents. The Board concludes from this cursory review that bay waters may lack assimilative capacity for nickel and mercury. There is insufficient evidence in the State Water Board's record to assess their assimilative capacity for copper and selenium. The Board stresses that its review is based on very limited data. It is for illustrative purposes only, and the results are not binding on the Regional Water Board.

The Board reviewed water column data collected as part of the San Francisco Bay Regional Monitoring Program from 1996 through 1998 for copper, mercury, nickel and selenium. For Suisun Bay, the Board reviewed data from the Pacheco Creek monitoring station and for San Pablo Bay, from the Davis Point monitoring station. These data are shown in Tables 1 and 2 of this Order. These data are all expressed as total concentrations, except the copper data, which are expressed as dissolved.

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Table 1
 Suisun Bay, Pacheco Creek Monitoring Station, Water Column Concentrations for Copper,
 Mercury, Nickel and Selenium ($\mu\text{g/l}$)

Date	Cu	Hg	Ni	Se
02/13/96	1.9	0.009	7.1	0.14
04/24/96	1.2	0.006	2.8	0.12
07/22/96	2.1	0.011	5.3	0.16
01/28/97	2.3	0.0298	16.6	0.15
04/23/97	1.8	0.0199	9.9	0.25
08/05/97	1.5	0.0145	6.3	0.21
02/03/98	1.5	0.0121	6.0	0.21
04/15/98	1.3	0.0073	4.0	0.32
07/28/98	1.4	0.0237	11.9	0.22
Criteria/Objective	3.1	0.025	7.1	5

Table 2
 San Pablo Bay, Davis Point Monitoring Station, Water Column Concentrations for Copper,
 Mercury Nickel and Selenium ($\mu\text{g/l}$)

Date	Cu	Hg	Ni	Se
02/12/96	1.9	0.0130	8.6	0.18
04/22/96	1.3	0.0250	8.8	0.21
07/23/96	1.9	0.0100	4.9	0.15
01/27/97	2.3	0.0344	12.8	0.18
04/21/97	1.6	0.0110	6.3	0.21
08/04/97	1.3	0.0189	8.4	0.29
02/02/98	1.8	0.0114	5.8	0.18
04/14/98	1.5	0.0900	36.3	0.51
07/27/98	1.5	0.0227	9.7	0.17
Criteria/Objective	3.1	0.025	7.1	5

The Board has compared these water column data to the applicable numeric criteria or objective for each pollutant. The permit findings state that Suisun and San Pablo Bays are marine waters.¹²¹ Assuming that this is the case, the lowest applicable saltwater objective for

¹²¹ Order No. 00-011, Finding 26-28; Order No. 00-015, Finding 23.

nickel is 7.1 µg/l as a 24-hour average¹²² and for mercury is 0.025 µg/l as a 4-day average,¹²³ both expressed as total concentrations. The 1995 Basin Plan does not have saltwater objectives for copper; therefore, the CTR saltwater criteria apply. These are 4.8 µg/l, as an acute value, and 3.1 µg/l, as a chronic value, for aquatic life protection.¹²⁴ These values are expressed as dissolved concentrations.¹²⁵ The 1995 Basin Plan also does not have saltwater selenium objectives. The NTR freshwater criteria apply to San Francisco Bay.¹²⁶ The freshwater acute aquatic life criterion is 20 µg/l, and the chronic criterion is 5 µg/l.¹²⁷ These criteria are expressed as total concentrations.

Our comparison indicates that nickel and mercury water column concentrations in both bays exceed the lowest applicable water quality objective. This means that bay waters may not have the capacity to dilute nickel and mercury effluent concentrations above the applicable objective to levels meeting the objective. In addition to water column concentrations, the Section 303(d) listing for the bays indicates that mercury mass is a concern due to bioaccumulation in the food chain.¹²⁸ Evidence of mercury bioaccumulation is relevant in determining assimilative capacity, but this evidence is not in the State Water Board's record.

Dissolved copper water column concentrations approach but do not exceed the lowest applicable CTR criterion. The bays' Section 303(d) listing indicates that sediment

¹²² See 1995 Basin Plan, Table 3-3, p. 3-9.

¹²³ See *id.*

¹²⁴ See 40 C.F.R. Sec. 131.38(b)(1).

¹²⁵ *Id.* fn. m to Table in paragraph (b)(1).

¹²⁶ *Id.* fn. q to Table in paragraph (b)(1).

¹²⁷ See 40 C.F.R. Sec. 131.38(b)(1).

¹²⁸ See fn. 2, *supra.*

enrichment may be a concern. Thus, bay waters may be unable to assimilate more copper mass; however, evidence supporting this conclusion is not in the Board's record.

Selenium water column concentrations are well below the applicable NTR criterion. The bays' Section 303(d) listing for selenium is based on bioaccumulation of this pollutant in the food chain.¹²⁹ Likewise, the NTR refers to "high levels of bioaccumulation of selenium in the" San Francisco Bay estuary.¹³⁰ Evidence of selenium bioaccumulation is relevant in determining assimilative capacity, but this evidence is also not in the Board's record.

B. Other Issues

1. Reasonable Potential for Pollutants Not Detected

Contention: The Regional Water Board found reasonable potential and included effluent limitations and monitoring requirements in both refinery permits for several pollutants that were not detected in the effluent.¹³¹ The existing effluent limits for these pollutants were below levels that current analytical techniques can measure. The Regional Water Board concluded that, because the actual loads of these pollutants were unknown and the chemicals may have been used on-site, a reasonable potential finding was appropriate. Tosco and WSPA object on the ground that the reasonable potential findings were inadequate.

Finding: The Board, in part, agrees. The Regional Water Board found reasonable potential on this basis in both permits for fourteen pollutants, including aldrin, alpha-BHC, chlordane, DDT, dieldrin, endrin, heptachlor, heptachlor epoxide, hexachlorobenzene, PAHs, pentachlorophenol, toxaphene, and PCBs (total). Four of these substances, chlordane, DDT, dieldrin, and PCBs (total), have been identified on the Section 303(d) list as impairing

¹²⁹ *Ibid.*

¹³⁰ See 40 C.F.R. Sec. 131.36(d)(10)(ii) footnote.

¹³¹ See Order 00-011, finding 52 & Effluent Limitations B.7 & 8; Order 00-015, finding 43 & Effluent Limitations B.7 & 8.

pollutants for Suisun and San Pablo Bays. Tosco contends that the company neither uses nor manufactures these chemicals, many of which are banned pesticides.

Under the Policy, if a pollutant was not detected in any effluent samples and all the reported detection limits for the pollutant are equal to or greater than the most stringent applicable criterion or objective and detected ambient background concentrations of the pollutant are greater than the applicable criterion or objective, the Regional Water Board must develop effluent limitations for that pollutant.¹³² If, however, under these circumstances ambient background concentrations of the pollutant are less than or equal to the criterion or objective, the Regional Water Board must review other information to determine whether a limit is required.¹³³ If there is no additional information, an effluent limitation is inappropriate.

Based on the Policy, the Board concludes that a finding of reasonable potential for the ten non-impairing pollutants is inappropriate, absent any additional information indicating the need for a limit. This order directs the Regional Water Board to reconsider reasonable potential for the fourteen pollutants as provided in the Policy.

2. MTBE

Contention: WaterKeepers contend that the refinery permits should prohibit the discharge of methyl tertiary-butyl-ether (MTBE).

Finding: When the Regional Water Board adopted Order Nos. 00-011 and 00-015, the Regional Water Board did not have sufficient information to justify regulating the discharge of MTBE. There was no effluent data for MTBE. In addition, there is currently no applicable numeric criterion or objective, criteria guidance, or other appropriate protective

¹³² See Policy, Sec. 1.3.

¹³³ *Ibid.*

numeric level for MTBE on which to make a reasonable potential determination. The permits do require effluent monitoring for MTBE.¹³⁴ When sufficient information is available, the Regional Water Board can reconsider reasonable potential for this pollutant.

3. Waste Minimization Plans

Contention: Tosco and WSPA object to a permit provision included in Order Nos. 00-011 and 00-015 that requires the dischargers to develop and implement a waste minimization plan for reducing the use or generation of certain pollutants.¹³⁵ The pollutants include the impairing pollutants as well as the pollutants, discussed in Section B.1 above of this Order, which were not detected in the effluent. The provision directs the discharger to implement the plan within 30 days of the Regional Water Board executive officer's approval of it.¹³⁶ Tosco and WSPA contend that the provision is inconsistent with Water Code Section 13263.3. They also argue that the provision, as applied to pollutants not detected in the refinery effluent, is arbitrary.

Finding: The Board concludes that the provision, as written, is inconsistent with Section 13263.3, and is inappropriate for pollutants for which there is no reasonable potential. As provided in Section B.1 above, the Regional Water Board must reconsider reasonable potential for the pollutants not detected in the effluent in accordance with the Policy's provisions.

Water Code Section 13263.3, enacted in 1999, places new emphasis on pollution prevention as the first step in a hierarchy for reducing pollution and managing wastes. Under the

¹³⁴ See Order 00-011, Table 1 of Self-Monitoring Program, Part B; Order 00-015, Table 2 of Self-Monitoring Program, Part B.

¹³⁵ Order 00-011, finding 58 & Provision E.16; Order 00-015, finding 49 & Provision F.14.

¹³⁶ *Ibid.*

section the Board and the Regional Water Quality Control Boards can require pollution prevention plans from NPDES permittees and others if, among other grounds, they conclude that pollution prevention is necessary to achieve a water quality objective. A pollution prevention plan must contain specified information. Once a pollution prevention plan is developed, the boards can require that the discharger comply with it, after providing an opportunity for comment at a public proceeding.¹³⁷ Subsection (k) of Section 13263.3 further provides that the board “may not include a pollution prevention plan in any waste discharge requirements or other permit issued by” them.

“Pollution prevention” means “any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged in water and includes any of the following”: input change, operational improvement, production process change, and product reformulation.¹³⁸ “Waste minimization” in the refinery permits is defined exactly the same.¹³⁹ Therefore, the Board treats a waste minimization plan the same as if it were labeled a pollution prevention plan.

Tosco and WSPA contend that the permit provisions conflict with Section 13263.3(k)'s proscription against including pollution prevention plans in permits. Tosco contends that this proscription was included in 13263.3 to ensure that the contents of pollution prevention plans are not subject to citizen suits under the Clean Water Act.

¹³⁷ Wat. Code Sec. 13263.3(e).

¹³⁸ *Id.* Sec. 13263.3(b)(1).

¹³⁹ See Order 00-011, Provision E.16; Order 00-015, Provision F.14.

The permits require that the dischargers both prepare and implement waste minimization plans.¹⁴⁰ The Board concludes that the requirement to prepare these plans does not conflict with Section 13263.3. The requirement to prepare a waste minimization plan does not literally incorporate the contents of the plan in the permit. A requirement to implement the plan, in effect, does, however; and the Board concludes that it is inconsistent with the proscription. In addition, the permit provisions requiring the discharger to implement the plan within 30 days of the executive officer's approval of the plan is inconsistent with the process set out in Section 13263.3. Under subsection (e) of section 13263.3 the boards can only require the discharger to comply with the pollution prevention plan "after providing an opportunity for comment at a public proceeding with regard to that plan."

Finally, Tosco and WSPA object to the permits because they require that the dischargers develop waste minimization plans for the pollutants discussed in Section B.1 above that have not been detected in the refinery effluent. The Regional Water Board must reconsider reasonable potential for these pollutants. If the Regional Water Board determines that there is no reasonable potential for a particular pollutant, the associated effluent limitations, monitoring requirements, and waste minimization plan provisions must be revised accordingly.

C. Golden Eagle Issues

1. Status of Suisun Bay as a Marine Water

Contention: WaterKeepers contend that the Regional Water Board incorrectly used marine objectives to analyze reasonable potential for hexavalent chromium, lead and cadmium discharged by the Golden Eagle refinery.

¹⁴⁰ This requirement was consistent with the *Clean Water Enforcement and Pollution Prevention Act of 1999 (SB 709) Summary/Questions/Answers (Dec. 6, 1999)*, I.9, available at http://www.swrcb.ca.gov/water_laws/index.html.

Finding: The Regional Water Board acted correctly in deferring a determination on the applicability of freshwater objectives for Suisun Bay until more monitoring data is available. The Regional Water Board decided that the Golden Eagle refinery's discharge of hexavalent chromium, lead and cadmium did not have the reasonable potential to cause or contribute to violations of the marine objectives in Table 3-3 of the 1995 Basin Plan.¹⁴¹ These objectives apply to water bodies with a salinity greater than 5 parts per thousand (ppt). Marine waters under the 1995 Basin Plan are waters with salinities greater than 5 ppt at least 75 percent of the time in a normal water year.¹⁴² Freshwaters are waters with salinities lower than 5 ppt at least 75 percent of the time in a normal water year.¹⁴³ Effluent limitations for waters in between these two categories are the lower of the marine or freshwater effluent limitations, based on ambient hardness.¹⁴⁴

The following table compares the marine and freshwater objectives for cadmium, chromium (VI) and lead. The cadmium and lead objectives are hardness-dependent. The cadmium and lead objectives were calculated assuming a hardness of 50 mg/l. As is evident from the table, the freshwater objectives for these pollutants are more stringent than the marine objectives.

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¹⁴¹ See Order No. 00-011, finding 53.

¹⁴² 1995 Basin Plan at 4-13.

¹⁴³ *Ibid.*

¹⁴⁴ *Ibid.*

Table 3
1995 Basin Plan Objectives for Cadmium, Chromium (VI) and Lead

Pollutant	Table 3-3 (salt water)		Table 3-4 (fresh water)	
	4-day Avg.	1-Hr. Avgl	4-Day Avg.	1-Hr. Avg.
Cadmium	9.3 µg/l	43 µg/l	0.65 µg/l	1.80 µg/l
Chromium (VI)	50 µg/l	1100 µg/l	11 µg/l	16 µg/l
Lead	5.6 µg/l	140 µg/l	1.3 µg/l	34 µg/l

The prior permit for the Golden Eagle facility classified the receiving waters as marine. In Order No. 00-011 the Regional Water Board found, after reviewing Regional Monitoring Program, Department of Water Resources, and Central Contra Costa Sanitary District data, that Suisun Bay salinity varies spatially and seasonally, but that the trend is not clear.¹⁴⁵ To establish the long-term salinity characteristics of Suisun Bay, Order No. 00-011 requires the discharger to monitor the salinity of the receiving water.¹⁴⁶ The order further provides that it may be reopened if future salinity data indicate that the receiving water is not marine.¹⁴⁷

The Board has reviewed Regional Monitoring Program data from 1994 to 1998 for the Pacheco Creek Station in Suisun Bay. These data are shown below. For the Pacheco Creek station, only 7 of 15 samples were above 5, even for samples taken during the summer. The predominance of sampling during wet years, however, may have biased the result.

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¹⁴⁵ Order No. 00-011, Findings 26-28.

¹⁴⁶ See *id.*, Table 2 of Self-Monitoring Program, Part B.

¹⁴⁷ See *id.*, Finding 28.

Table 4
Salinity at the Davis Point and Pacheco Creek Monitoring Stations

Date	Cruise	Salinity*	
		Davis Point	Pacheco Creek
02/07/94	4	18.5	12.6
04/26/94	5	19.7	8.6
08/22/94	6	22.5	12.8
02/13/95	7	9	ND
04/19/95	8	5.8	ND
08/21/95	9	15.4	5.5
02/12/96	10	3.8	ND
04/22/96	11	7.9	ND
07/23/96	12	19.3	6.2
01/27/97	13	0	0
04/21/97	14	16.5	7.2
08/04/97	15	20	6.2
02/02/98	16	0.6	0
04/14/98	17	4.7	0
07/27/98	18	13.8	0.2

ND = Not detected *(ppt)

The Board concurs with the Regional Water Board that the current data do not clearly indicate how to classify Suisun Bay in terms of its salinity. There have not been any “normal” water years lately.¹⁴⁸ Little salinity data is available in the record for normal water years. Thus, the Regional Water Board acted appropriately in requiring additional monitoring to better define the salinity of Suisun Bay.

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¹⁴⁸ The Department of Water Resources has water year classification data on its Web site. See <http://cdec.water.ca.gov/cgi-progs/iodir/wsihist>.

2. Regulation of Dioxin and Furan Compounds

WaterKeepers objects to Order No. 00-056, which amended portions of the Golden Eagle permit addressing the discharge of dioxin and furan compounds. Background information on this topic is provided below, followed by a discussion of some of WaterKeepers' specific objections.

a. Background Information

(1) Description of Dioxin and Furan Compounds

Polychlorinated dibenzodioxins (dioxins) and polychlorinated dibenzofurans (furans) are two classes of over 200 structurally similar compounds. Of these, 2,3,7,8-TCDD is considered to be the most toxic. An additional six dioxin and ten furan compounds, or congeners, are also said to exhibit "dioxinlike" toxicity. These chemicals are essentially insoluble in water, very persistent and relatively immobile in soils and sediments. They are primarily adsorbed onto particulate and organic matter, and they tend to bioaccumulate in biological tissues.

Dioxins and furans were never intentionally produced. Rather, they are primarily formed as unwanted byproducts of combustion and during the manufacture and use of certain chlorinated chemicals. They are found throughout the world in practically all environmental media, including air, water, soils, and sediments. Dioxins and furans enter the atmosphere directly through aerial emissions and are widely dispersed through a variety of physical and biological processes, including erosion and runoff, volatilization from land or water, or resuspension of particles.

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The major route of human exposure to dioxins and furans is through the food chain. It is estimated that more than 95 percent of human exposure is from food, primarily meats, eggs, and fish. Most compounds enter the food chain through atmospheric deposition.

Dioxin and furan compounds are commonly found as complex mixtures when detected in the environment and in biological tissues. Researchers have developed the concept of "toxicity equivalency factors" (TEFs) to evaluate the relative risk of these mixtures.¹⁴⁹ The reference compound for assignment of TEFs is 2,3,7,8-TCDD. TEFs are used to convert the concentration of any of the seventeen dioxin and furan compounds exhibiting "dioxinlike" toxicity to an equivalent concentration of 2,3,7,8-TCDD. The "toxicity equivalence" (TEQ) of the mixture is the sum of each of the seventeen congener concentrations multiplied by its respective TEF. The resulting concentration is expressed as if the mixture's toxicity was due entirely to 2,3,7,8-TCDD.

(2) EPA Actions

In 1984 EPA published a criteria guidance document under Clean Water Act Section 304(a) for 2,3,7,8-TCDD for human health protection.¹⁵⁰ EPA later endorsed the TEF approach as the best interim approach for dealing with the risks associated with dioxin and furan mixtures. Despite this fact, EPA subsequently promulgated criteria in 1992 in the NTR for 2,3,7,8-TCDD only.¹⁵¹ In 1995 in the Great Lakes Guidance EPA promulgated criteria for 2,3,7,8-TCDD only but required the affected states and tribes to calculate a 2,3,7,8-TCDD TEQ

¹⁴⁹ In 1998 the World Health Organization (WHO) revised the previously established list of TEFs. This TEF scheme is TEQDFP-WHO98. D refers to dioxins, F to furans, and P to dioxinlike compounds.

¹⁵⁰ See discussion in the CTR preamble, 65 Fed. Reg. at 31695-31696.

¹⁵¹ See 40 C.F.R. Sec. 131.36(b)(1).

concentration in effluent when implementing human health criteria.¹⁵² In calculating this concentration, the states and tribes must use the TEFs as well as congener-specific bioaccumulation equivalency factors to convert the chemical concentrations of individual congeners into a 2,3,7,8-TCDD equivalent concentration.¹⁵³

In 2000 EPA promulgated the CTR with criteria for 2,3,7,8-TCDD only.¹⁵⁴ Although commenters requested that EPA promulgate criteria in the CTR for the other dioxin and furan congeners, EPA declined. EPA had initiated the third in a series of scientific reassessments of the risks of exposure to 2,3,7,8-TCDD and related compounds in 1991. EPA stated in the CTR preamble that when the 1991 dioxin reassessment is completed, the agency intends to revise the Section 304(a) criteria guidance and that, if necessary, EPA will amend the CTR at that time.¹⁵⁵

Although EPA did not itself promulgate criteria for the dioxin and furan compounds, EPA expressed its expectation that the state would use the TEF scheme to regulate the discharge of dioxin and furan compounds if their discharge has the reasonable potential to cause or contribute to violation of a narrative objective.¹⁵⁶ In addition, as noted previously, EPA added dioxin and furan compounds as impairing pollutants for Suisun and San Pablo Bays on the state's 1998 Section 303(d) list.

In June 2000 EPA publicly noticed the availability of draft dioxin reassessment documents.¹⁵⁷ One covers the TEF approach, and the other is an integrated summary and risk

¹⁵² See *id.* Part 132, App. F, Procedure 4.

¹⁵³ *Id.*, Tables 1 & 2.

¹⁵⁴ See *id.* Sec. 131.38(b)(1).

¹⁵⁵ See CTR preamble, 65 Fed. Reg. at 31695-31696.

¹⁵⁶ *Ibid.*

¹⁵⁷ See 65 Fed. Reg. 36898-36900 (June 12, 2000).

characterization for 2,3,7,8-TCDD and related compounds. The reassessment recommends that the TEF scheme be used to assign toxicity equivalence to complex mixtures of 2,3,7,8-TCDD and related compounds for assessment and regulatory purposes. EPA has emphasized, however, that the agency "will not use the conclusions of the draft dioxin reassessment for regulatory purposes until the science peer reviews are completed."¹⁵⁸ They are not yet complete. EPA has also stated that it intends to release a cross-media dioxin strategy, a national action plan, when the reassessment is finalized.¹⁵⁹

(3) State Water Board Actions

The State Water Board uses the TEF scheme to regulate the discharge of dioxin and furan compounds to ocean waters.¹⁶⁰ The Board also used the TEF approach in the now-rescinded 1991 statewide plans. In the Implementation Policy, the Board considered implementing the CTR criteria for 2,3,7,8-TCDD as TCDD equivalents. Instead, the Board decided to implement the 2,3,7,8-TCDD criteria and to require only monitoring for the remaining 16 dioxin and furan congeners.¹⁶¹ The reason for this was that "[t]he congeners appear to be ubiquitous, and the sources and control measures are uncertain."¹⁶² The monitoring data was intended to assist in developing a multi-media control strategy in the future.

(4) Regional Water Board Regulation

In 1993 the Regional Water Board adopted a permit in Order No. 93-068 for the Golden Eagle facility that included an effluent limitation of 0.14 picograms per liter (pg/l) for

¹⁵⁸ EPA Information Sheet 5, *Dioxin: EPA Cross-Media Dioxin Strategy*, <http://www.epa.gov/ncea/dioxin.html>.

¹⁵⁹ *Ibid.*

¹⁶⁰ Water Quality Control Plan, Ocean Waters of California (State Water Board) (1997), Table B at p. 10 and App. I at page 21.

¹⁶¹ See Policy, Sec. 3, pp. 27-28 and Functional Equivalent Document for Policy (FED) (State Water Board) (Jan. 31, 2000), V-117 through V-121.

¹⁶² See FED, fn. 147, *supra*, p. V-121.

2,3,7,8-TCDD equivalents.¹⁶³ The limit was based on an objective in the now-rescinded statewide Enclosed Bays and Estuaries Plan. After the plan was invalidated, the Regional Water Board adopted Order No. 95-138, ratifying the 1993 effluent limitation as necessary to protect beneficial uses. The Regional Water Board also adopted Order No. 95-151, requiring Tosco to cease and desist discharging dioxins and furans in violation of its permit. The Regional Water Board later amended the cease and desist order to extend the date for final compliance to July 1, 2000.

In February 2000 the Regional Water Board adopted Order No. 00-011. This permit retained the prior 2,3,7,8-TCDD equivalents effluent limitation as an interim limit and stated that final limits would be based on a TMDL or, alternatively, on no net loading.¹⁶⁴

Finally, in June 2000 the Regional Water Board adopted Order No. 00-056, amending Order No. 00-011 and rescinding Cease and Desist Order No. 95-151. Order No. 00-056 establishes a twelve-year schedule to comply with the final limits.¹⁶⁵ It includes an interim, performance-based concentration limit, using the TEF approach, for 5 dioxin and furan congeners.¹⁶⁶ These five are the only compounds measured in the effluent. The interim limit is 0.65 pg/l TCDD equivalents. It is based on the mean plus three standard deviations, and it represents the 99.87th percentile of data from August 1996 to January 2000.¹⁶⁷ Order No. 00-056 retained the findings on final and alternative final effluent limitations and clarified that the alternative no net loading limit will apply to all 17 dioxin and furan congeners.¹⁶⁸

¹⁶³ Order No. 93-068, Effluent Limitations A.3.

¹⁶⁴ Order No. 00-011, Findings 31-34 & Effluent Limitations B.8.

¹⁶⁵ See Order No. 00-056, Finding 18; Order No. 00-011, Finding 56, as amended.

¹⁶⁶ See Order No. 00-056, Findings 20-29; Order No. 00-011, Effluent Limitations B.8, as amended.

¹⁶⁷ Order No. 00-056, Finding 27.

¹⁶⁸ See Order No. 00-011, Finding 57, as amended.

(5) Tosco Response

At the Golden Eagle refinery treated process wastewater from the wastewater treatment plant combines with other non-process streams in a two-mile long discharge canal, called the Clean Canal. The other waste streams include return water from a 72-acre coke pond, storm water runoff, reject water from the facility's raw water treatment plant, and other miscellaneous flows. Collectively, the discharge is called Waste E-001. Wastewater in the Clean Canal is discharged to Suisun Bay through a deep-water outfall.

In the early 90's Tosco identified its two catalytic reformer waste streams as potential sources of dioxins in Waste E-001. In 1993 Tosco installed a granular activated carbon (GAC) treatment system at the No. 3 reformer. This system removed up to 99 percent of the dioxins and furans generated by the catalyst regeneration process. Control measures at the Number 2 reformer were similarly successful. However, these improvements had no appreciable impact on the concentration of dioxin and furan compounds in Waste E-001. In 1996 Tosco took measures to control solids resuspension in the Clean Canal. These measures, including installing riprap to control flow velocity and removing aerators, were successful in reducing concentrations of dioxins and furans in Waste E-001 by 85 percent. Since 1998 levels have dropped from a maximum value of 13 pg/l to consistently less than 0.5 pg/l TCDD equivalents.

In 1997 Tosco submitted the results of its dioxin source investigation to the Regional Water Board.¹⁶⁹ The report concluded that storm water runoff and drainage from the coke pond account for 90 percent of the dioxins and furans in the Clean Canal. Both of these sources drain large surface areas of the Golden Eagle refinery, 86 and 72 acres respectively, and are likely impacted by aerial deposition of dioxin and furan compounds.

¹⁶⁹ See *Dioxin Source Investigation Pursuant to CDO No. 95-151, Final Report* (Tosco) (April 1, 1997).

The Tosco report's conclusions were consistent with the results of the Regional Water Board's concurrent storm water survey.¹⁷⁰ The Regional Water Board conducted sampling of storm water runoff throughout the San Francisco Bay area during the wet weather season of 1995-1996. The results showed the widespread presence of dioxins and furans in runoff. In addition, there were no significant differences between the profiles or concentrations of dioxins and furans in runoff samples from areas close to refineries and areas far away. Likewise, the TEQ concentrations and congener profiles from Waste E-001 matched those in storm water from the Regional Water Board's survey.

b. Issues

(1) Antibacksliding

Contention: WaterKeepers contends that the interim limit of 0.65 pg/l TCDD equivalents illegally backslides from the prior permit limit of 0.14 pg/l TCDD equivalents. WaterKeepers maintains that the Clean Water Act antibacksliding prohibition applies to interim limits, and that a wasteload allocation and a TMDL are prerequisites to backsliding from water quality-based effluent limitations for impairing pollutants.

Finding: The Board disagrees that Order No. 00-056 violates the Clean Water Act prohibition against antibacksliding. The Board concludes that the prohibition does not apply to interim limits in a compliance schedule. Further, the Board concludes that a wasteload allocation and a TMDL are not prerequisites to backsliding from effluent limitations for impairing pollutants.

For water quality-based effluent limitations, Clean Water Act Section 402(o) prohibits reissuing or modifying a permit to include effluent limitations less stringent than "the

¹⁷⁰ See Regional Water Board AR for Order No. 00-056, Vol. II, Att. 5D. The report is entitled *Survey of Storm Water Runoff for Dioxins in the San Francisco Bay Area* (Regional Water Board) (Feb. 1997).

comparable effluent limitations in the previous permit,” unless certain exceptions are met. There are two sets of exceptions for water quality-based limits – one in Clean Water Act Section 303(d)(4) and the other in Section 402(o)(2). The exceptions in Section 303(d)(4) address both waters in attainment and those not in attainment, i.e. waters on the Section 303(d) list. For the latter, Section 303(d)(4) allows relaxation of a water quality-based effluent limitation only if the existing limit is based on a TMDL or other WLA and only if the cumulative effect of all revised limits assures attainment of water quality standards or the designated use that is not being attained is removed. Even if an antibacksliding exception applies, however, the new limit cannot “result in a violation of a water quality standard”¹⁷¹

The Board finds that the antibacksliding rule does not apply to the interim limit in the Golden Eagle permit because that limit is not “comparable” to the prior limit. Rather, the appropriate comparison is between the final and alternative final limits reflected in the findings and the prior limit of 0.14 pg/l. The Golden Eagle permit findings state that the final limits will be based either on a TMDL or on no net loading.¹⁷² Both limits are water quality-based, as is the prior limit. The interim limit is not; it is performance-based. The interim limit is intended to preserve the status quo during the compliance schedule term, rather than to implement the applicable standard.

In addition, if Section 402(o) is construed to apply to interim limits, this construction appears to negate the state’s ability to allow compliance schedules with interim limits. Section 402(o) prohibits backsliding from a water quality-based effluent limitation if the

¹⁷¹ 33 U.S.C. 1342(o)(3).

¹⁷² Order No. 00-011, Finding 57.

less stringent limitation will result in a water quality standards violation.¹⁷³ EPA has interpreted the Clean Water Act to authorize compliance schedules for water quality standards adopted or revised after July 1, 1977. Compliance schedules are issued to grant a discharger time to comply with a water quality standard. In the interim until the discharger achieves compliance, the discharger presumably is in noncompliance. A compliance schedule's interim limits will necessarily be less stringent than final limits implementing the standard. If the interim limits have to implement the standard, however, then the compliance schedule becomes meaningless.

The antibacksliding prohibition does apply to the final and alternative final limits addressed in the Golden Eagle permit's findings. EPA Region 9 determined that these final limits comply with antibacksliding requirements.¹⁷⁴ The Board concurs. The no net loading limit for 2,3,7,8-TCDD is more stringent than the prior limit and, thus, does not backslide. A limit that implements or is consistent with the wasteload allocations in a TMDL complies with the exception in Section 303(d)(4) for nonattainment waters.

The Board also concludes that a TMDL and WLA are not prerequisites to backsliding from water quality-based effluent limits for impairing pollutants. In addition to the exceptions in Section 303(d)(4), Section 402 contains additional exceptions to the prohibition against backsliding from water quality-based effluent limitations. Contrary to WaterKeepers' position, EPA has consistently interpreted Section 402(o) to allow relaxation of effluent limitations if *either* of the requirements of Section 303(d)(4) or 402(o)(2) is met.¹⁷⁵ They contain independent exceptions to the prohibition.

¹⁷³ *Ibid.*

¹⁷⁴ Letter, dated June 19, 2000, from Alexis Strauss, Director, Water Division, EPA Region 9, to Lawrence Kolb, Acting Executive Officer, Regional Water Board.

¹⁷⁵ See, e.g., the discussion in the *Water Quality Guidance for the Great Lakes System: Supplementary Information Document (SID)* (EPA-820-B-95-001) (Mar. 1995), p. 43.

(2) 12-Year Compliance Schedule

Contention: WaterKeepers contends that the 12-year compliance schedule for 2,3,7,8-TCDD equivalents is illegal. WaterKeepers contends that the schedule violates the Implementation Policy and that it illegally extends a schedule in the refinery's 1993 permit.

Finding: The Implementation Policy does not apply to the 2,3,7,8-TCDD equivalents limits. The 1995 Basin Plan authorizes a compliance schedule of up to ten years in certain circumstances. The Regional Water Board reinterpreted the narrative toxicity objective in Order No. 00-056; therefore, a new compliance schedule is appropriate in the Golden Eagle permit. The Regional Water Board must amend the permit to change the schedule length from twelve to ten years.

WaterKeepers contends that the interim limit is inconsistent with Policy provisions on interim limits in a compliance schedule. These provisions do not apply, however. The Regional Water Board imposed limits for 2,3,7,8-TCDD equivalents as an interpretation of a narrative toxicity objective in the 1995 Basin Plan. The Policy's compliance schedule provisions apply to implementation of CTR criteria only.¹⁷⁶ As explained above, the CTR contains criteria only for one dioxin congener, 2,3,7,8-TCDD.

WaterKeepers also argues that the Regional Water Board first imposed a 2,3,7,8-TCDD equivalents limit for the refinery in 1993 with a compliance schedule of about two years. WaterKeepers contends that the limit in the latest permit is, therefore, not new and that a new compliance schedule is unauthorized.

The Board concludes that a compliance schedule is authorized under the Regional Water Board's 1995 Basin Plan because the Regional Water Board reinterpreted its narrative

¹⁷⁶ See Policy, Sec. 2.1.

toxicity objective in the latest permit. The 1995 Basin Plan allows compliance schedules of up to ten years for new objectives or standards.¹⁷⁷ This language can reasonably be construed to authorize compliance schedules for new interpretations of existing standards.¹⁷⁸ When the Regional Water Board issued the 1993 permit for the refinery, they adopted a 2,3,7,8-TCDD equivalents limit based on the now-rescinded Enclosed Bays and Estuaries Plan. In 1995 the Regional Water Board clarified the basis of the effluent limitation in response to rescission of the Enclosed Bays and Estuaries Plan. In 2000 the Regional Water Board newly interpreted the narrative toxicity objective for 2,3,7,8-TCDD equivalents. Under the latest interpretation, final water quality-based effluent limitations will be based on a TMDL or, alternatively, on no net loading.

This new interpretation was justified for several reasons. Suisun Bay was newly listed as impaired for dioxin and furan compounds in 1998. Available information indicates that these compounds are ubiquitous in the environment and that they result primarily from aerial emissions. Solving the problem will require a regional, multi-media approach that is well suited to the TMDL program.

In addition, the refinery does not appear to be a significant source of dioxins and furans. Rather, evidence in the record indicates that the dioxins and furans in the Waste E-001 are due primarily to stormwater runoff. Tosco has already instituted measures that have resulted in an 85 percent reduction in the dioxins and furans discharged from the Clean Canal. Further, Tosco's efforts to control sediment resuspension in the Clean Canal have reduced the overall mass loading of dioxins and furans to Suisun Bay from stormwater runoff. Dioxins and furans in

¹⁷⁷ See 1995 Basin Plan, p. 4-14.

¹⁷⁸ See *Whole Effluent Toxicity (WET) Control Policy* (EPA 833-B-94-002) (July 1994) at 12.

other runoff sources are largely uncontrolled. The Regional Water Board estimates that the dioxins and furans discharged from Waste E-001 are about 0.1 of the concentration and 0.05 of the mass loading of these pollutants discharged in urban runoff.¹⁷⁹

An additional factor supporting the reinterpretation is the status of EPA's dioxin reassessment. As stated previously, it is not yet complete. Consequently, EPA has not yet released its multi-media strategy to address dioxins and furans, nor has the agency reconsidered the criteria guidance for 2,3,7,8-TCDD. Given this uncertainty, the Regional Water Board acted properly in reinterpreting its narrative toxicity objective for dioxins and furans to mean final water quality-based limits based on either the wasteload allocations in a TMDL or no net loading.

The compliance schedule is twelve years long. The 1995 Basin Plans allows schedules of up to ten years from the effective date of new standards or objectives. On remand, the Regional Water Board must amend the compliance schedule provisions in the Golden Eagle permit to conform to the 1995 Basin Plan compliance schedule requirements.

(3) Reasonable Potential for Remaining 12 Dioxin and Furan Congeners

Contention: WaterKeepers argues that the interim effluent limitation is illegal because it does not limit 12 of the 17 dioxinlike congeners. WaterKeepers contends that Tosco has detected many of these compounds in its internal waste streams and that their discharge could cause or contribute to a water quality standards violation. Therefore, the interim limit runs afoul of the Clean Water Act requirement that permits include water quality-based effluent limitations for all pollutants for which there is reasonable potential.

¹⁷⁹ Reporter's Transcript for Sept. 8, 2000 hearing, p. 41.

Finding: The Regional Water Board complied with the Clean Water Act because it did include water quality-based effluent limitations for all 17 dioxin and furan congeners in the permit findings. These limits will be based on a TMDL or on no net loading. The interim effluent limit was not water quality-based, but rather performance-based. The Regional Water Board acted appropriately in calculating a performance-based interim limit based on the congeners that were detected in effluent samples from August 1996 through January 2000. The remaining 12 congeners were not detected during this time period. The Board concurs with the Regional Water Board that meaningful performance-based limits cannot be calculated from data that is all below detection levels.

Further, the evidence in the record supports the Regional Water Board's finding that the five congeners for which data is available serve as "indicator parameters" for the remaining twelve. It is unlikely that the discharger can increase the discharge of the 12 compounds beyond current performance without violating the interim limit on the five compounds. Finally, the Golden Eagle permit requires that the discharger monitor for all seventeen congeners.¹⁸⁰ If any of the 12 congeners are detected, the permit also requires that the discharger accelerate the monitoring and investigate to determine whether there has been a decline in performance.

(4) Environmental Justice

Contention: WaterKeepers maintains that Order No. 00-056 will exacerbate the environmental injustice of the discharge of dioxins and furans to San Francisco Bay by allowing the discharger to discharge significantly more dioxins and furans than currently permitted.

¹⁸⁰ See Order No. 00-011, Self-Monitoring Program Part B, Section III.C, as amended.

Finding: This contention is premised on the assumption that the interim dioxin and furan limit will allow an increase in the discharge of dioxins and furans. This assumption is incorrect. The interim limit is based on current performance. It does not allow the discharger to discharge significantly more dioxins and furans than currently permitted. Further, current performance represents an 85 percent reduction in the discharge of dioxins and furans since the prior permit was issued.

3. Deletion of Effluent Limitation Credit for Reclaimed Water

Contention: The Regional Water Board decided not to include in the Golden Eagle permit an effluent limitation credit for reclaimed water use that was in the prior permit. Instead, the new permit includes a finding that the discharger had not used reclaimed water over the last 5 years for any refinery processes, and that if the discharger decides to use this source in the future the permit may be amended.¹⁸¹ The District contends that this action was improper because it discourages the use of recycled water. The District also cites the difficulty in reopening the refinery's permit.

Finding: In the late 80's the refinery first used reclaimed water supplied by the District and the Contra Costa Water District for cooling tower make-up water. The refinery did not use reclaimed water during the five-year permit cycle prior to adoption of Order No. 00-011. When the refinery's permit was up for renewal, the Regional Water Board asked Tosco whether the company had any plans to use this water source. Tosco indicated that it did not. Under these

¹⁸¹ Finding 54 of the permit states:

"The Previous Order allows for the use of an unspecified amount of reclaimed water provided by [the District] and the Contra Costa Water District (CCWD) for cooling tower make-up water. Over the last five years, the Discharger has not used reclaimed water as influent supply for any refinery processes. In addition, the Board has rescinded the permit for CCWD's reclaimed water project. As a result, this Order discontinues the provision for allowing effluent limitation credit for reclaimed water use. Should the water reclamation project be revived and if the Discharger has a plan to use reclaimed water, this Order may be amended."

circumstances, the Regional Water Board decided to delete the credit. The refinery now has a new owner, and its plans regarding reclaimed water use are unknown.

This Board, as well as the Regional Water Board, certainly recognizes and concurs in the strong legislative mandate to encourage water reclamation and recycling in order to conserve our existing water resources.¹⁸² The Board is remanding the Golden Eagle permit to the Regional Water Board for reconsideration and revision. At that time, the Regional Water Board can explore with the new owner whether Ultramar intends to use reclaimed water in its refinery processes.

The District has pointed out that the combined mass emissions of impairing pollutants discharged to Suisun Bay can be reduced by the refinery's use of reclaimed water. The Board encourages the Regional Water Board to consider whether an effluent limitation credit could be authorized as part of a mass offset program.

III. Administrative Record

The State Water Board record includes the Regional Water Board record as well as evidence introduced before the Board. In addition, the Board considered priority pollutant data for Suisun and San Pablo Bays in the 1996, 1997 and 1998 Annual Reports of the San Francisco Estuary Regional Monitoring Program for Trace Substances (Regional Monitoring Program). These reports are published by the San Francisco Estuary Institute. The Board also reviewed salinity data for the bays in Regional Monitoring Program Annual Reports from 1994 through 1998. In addition, the Board obtained Department of Water Resources water year classification information from the Department's Web site.¹⁸³

¹⁸² See, e.g., Wat Code Secs. 13500 et seq., 13550 et seq; State Water Board Res. 77-1.

¹⁸³ See fn. 146, *supra*.

WaterKeepers has requested that the Board strike Section V of Ultramar's November 3, 2000 Closing Brief. The Board denies this request. Contra Costa Council submitted additional materials in its December 15 closing brief that exceeded the five-page limits. These documents, as well as additional materials submitted by BADA on December 18, 2000, after the deadline for submission of closing statements will not be included in the record.

IV. CONCLUSIONS

Based on the above discussion, the Board concludes that:

1. The Regional Water Board was not legally required to factor in dilution in analyzing reasonable potential for impairing pollutants regulated under Order Nos. 00-011 and 00-015.

2. A Section 303(d) listing alone is not a sufficient basis on which to conclude that a water body lacks assimilative capacity for an impairing pollutant.

3. The alternative final limits findings in Order Nos. 00-011 and 00-015 are inappropriate. When a compliance schedule is authorized for an impairing pollutant and the compliance schedule exceeds the permit term, the permit findings need only state that the final water quality-based effluent limitation for the pollutant will be based on a WLA in the relevant TMDL.

4. Interim, performance-based mass effluent limitations in a compliance schedule are authorized under the Clean Water Act and state law.

5. The interim, performance-based mass limits in Order Nos. 00-011 and 00-015 have no impact on growth and development.

6. The Regional Water Board used inappropriate methods to calculate the interim, performance-based mass limits in Order Nos. 00-011 and 00-015.

7. For non-impairing pollutants, it is inappropriate for the Regional Water Board to find reasonable potential for pollutants that have not been detected in the effluent and for which there is no additional information indicating that the pollutants are present in the effluent.

8. The Regional Water Board lacked sufficient data on which to determine reasonable potential and to develop effluent limitations for MTBE in the refinery permits.

9. The Regional Water Board cannot require in a permit that a discharger implement a pollution prevention plan.

10. It is inappropriate to require a pollution prevention plan for pollutants for which there is no reasonable potential.

11. The Regional Water Board acted appropriately in deferring a determination on the applicability of freshwater objectives for Suisun Bay until more monitoring data is available.

12. The interim effluent limit for dioxins and furans in Order No. 00-056 does not violate the Clean Water Act's antibacksliding prohibition.

13. The Regional Water Board could legally include a schedule in the Golden Eagle permit to comply with water quality standards for toxicity.

14. The Regional Water Board acted properly in reinterpreting its narrative toxicity objective for dioxins and furans in Order No. 00-056.

15. The 1995 Basin Plan allows compliance schedules of up to ten years in length. The Golden Eagle permit must be amended to shorten the compliance schedule for dioxins and furans to ten years.

16. The interim effluent limitation for dioxins and furans in the Golden Eagle permit is performance-based and can legally limit only five of the seventeen dioxinlike congeners.

17. The Golden Eagle permit findings on final and alternative final effluent limitations for dioxin and furan compounds comply with Clean Water Act requirements that the permit contain water quality-based effluent limitations when necessary to implement water quality standards.

18. The interim effluent limitation in the Golden Eagle permit for dioxins and furans does not allow an increase in the discharge of these pollutants, and, therefore, does not cause environmental injustice.

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V. ORDER

IT IS HEREBY ORDERED that, for the reasons discussed above, Order No. 00-015 and, if requested by Ultramar, Order No. 00-011, as amended by Order No. 00-056, are remanded to the Regional Water Board for reconsideration and revision of those portions of the permit that address conclusion numbers 2, 3, 6, 7, 9 and 10, consistent with this order.

It is further ordered that the compliance schedule for dioxin & furan compounds in Order No. 00-011, as amended by Order No. 00-056, shall be revised, consistent with conclusion number 15 of this order.

CERTIFICATION

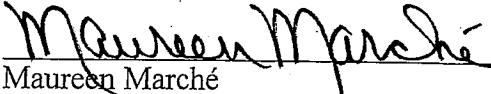
The undersigned, Administrative Assistant to the Board, does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on March 7, 2001.

AYE: Arthur G. Baggett, Jr.
John W. Brown
Peter S. Silva

NO: None

ABSENT: None

ABSTAIN: Richard Katz


Maureen Marché
Administrative Assistant to the Board