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Special Hearing
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E-cys: BD, CC, HMS, TH, CMW

Steven Arita
Environmental Coordinator

February 18, 2005

Ms. Debbie Irvin, Clerk to the Board
State Water Resources Control Board
P.O. Box 100
Sacramento CA 95812-0100

Re: Western States Petroleum Association's comments on the December 15, 2004 Draft General Permit for Discharges of Storm Water Associated with Industrial Activities

Dear Ms. Irvin:

This letter and its attachments constitute the comments of the Western States Petroleum Association ("WSPA") regarding the proposed reissuance by the State Water Resources Control Board ("State Board") of its National Pollutant Discharge Elimination System ("NPDES") General Permit for Discharges of Storm Water Associated with Industrial Activities ("Industrial General Permit"), and in particular on the draft that was issued for public comment on December 15, 2004 ("2004 Draft Permit").

As indicated in its June 27, 2003 comments on an earlier draft of the Industrial General Permit (draft WQO No. 03-01-DWQ) and other submittals to the State Board, WSPA endorses the renewal and reissuance of the Industrial General Permit in the general form proposed in the 2004 Draft Permit. As explained in our comments below, WSPA believes that the continuing application of iterative Best Management Practices ("BMPs") constitutes the most appropriate and legally defensible strategy for regulation of storm water discharges. Accordingly, WSPA supports the basic approach to iterative BMPs embodied in this permit. However, we also believe that the 2004 Draft Permit, as drafted, requires some important clarifying revisions. Suggested language changes and certain technical issues are addressed in section 6 of this letter.

WSPA is a trade association comprised of companies engaged in the exploration, production, refining, marketing and transportation of petroleum and petroleum products in California and the western United States. WSPA members operate hundreds of facilities in California including petroleum refineries, bulk terminals, tank farms, retail service stations, oil and gas production fields, and pipeline distribution facilities which discharge storm water associated with these industrial operations. In most cases, these discharges are covered by the existing Industrial General Permit (WQO No. 97-03-DWQ) which requires the development and implementation of iterative BMPs to minimize pollutants in storm water runoff.

As discussed below, storm water discharges are very different from traditional process wastewater discharges and cannot be regulated utilizing the technical guidance and other permit policies and procedures typically used to regulate non-storm water discharges. Unlike discharges of process wastewater which tend to be relatively stable in their composition, volume and flow, storm water discharges vary widely in their timing, duration, quantity, flow and background levels of contamination. For this reason, the U.S. Environmental Protection Agency ("EPA") and the State Board have consistently and repeatedly found that the development of numeric limits for storm water discharges is infeasible. The scientific predicate for these prior decisions remains unchanged. Accordingly, consistent with existing law, incorporation of iterative BMPs into an Industrial General Permit, as proposed in the 2004 Draft Permit, remains the most sound and legally proper approach.

1. The Iterative BMP Approach in the 2004 Draft Permit is a Lawful and Appropriate Means of Achieving Compliance with the Clean Water Act

WSPA agrees with the State Board that storm water discharges associated with industrial activity must contain both technology-based and water quality-based effluent limitations as required by section 402(p) of the Clean Water Act. However, in neither case are effluent limitations required to be expressed in numeric terms. Instead, the NPDES regulations expressly authorize the use of BMPs in any circumstance in which "numeric effluent limitations are infeasible." 40 C.F.R. § 122.44(k)(3). As EPA emphasized when it adopted the final Storm Water Multi-Sector General Permit for Industrial Facilities (*see* 65 Fed. Reg. 64746, 64759 (October 30, 2000)), this standard for imposing BMPs was recognized in *Natural Resources Defense Council v. Costle*, 568 F.2d 1369, 1380 and n. 21 (D.D.C. 1977) (see Tab 1): "Congress did not regard numeric effluent limitations as the only permissible limitation on a discharge. . . . [W]hen numerical effluent limitations are infeasible, EPA may issue permits with conditions designed to reduce the level of effluent discharges to acceptable levels."[1]

The fundamental facts on which both EPA and the State Board relied in issuing previous storm water general permits have not changed. The development of scientifically defensible numeric limits for highly variable storm water discharges remains infeasible and BMPs remain the appropriate means of controlling such discharges. In the earlier draft of this Industrial General Permit, the State Board explained that:

> Unlike continuous point source discharges (e.g., POTWs), storm water discharges are variable in intensity and duration. The concentration of pollutants discharged at any one time is dependent on many complex variables. Obviously, the largest concentration of pollutants would be generally expected to discharge earlier in the storm event, and to taper off as discharges continued.

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[1] In addition, EPA stated that BMPS may be imposed which are "reasonably necessary. . . to carry out the purposes and intent of the [Clean Water Act]" as provided in 40 C.F.R. § 122.44(k)(4). EPA relied on both provisions in adopting the Multi-Sector General Permit, noting that both had been recognized in *NRDC v. Costle*. 65 Fed. Reg. at 64759. Section 122.44(k)(4) does not require a showing of infeasibility.

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See Fact Sheet for draft WQO No. 03-01-DWQ, at pp. VII-VIII. In recognition of the lack of information that would be needed to establish technically defensible numeric effluent limitations for storm water, EPA adopted an "interim permitting approach" in 1996 for water quality-based effluent limits ("WQBELs") in storm water permits (61 Fed. Reg. 43761; August 26, 1996). This approach relied upon BMPs in first round storm water permits, and expanded or better-tailored BMPs in subsequent permits, as necessary to provide for the attainment of water quality standards. While EPA noted that any ***"appropriately derived"*** numeric WQBELs should be included in permits where they existed, the existence of such WQBELs is clearly the exception, not the rule.

Federal and state courts have also recognized that the Clean Water Act does not mandate numeric limits in circumstances where they cannot be feasibly established. *NRDC v. Costle, supra; see also Defenders of Wildlife v. Browner*, 191 F.3d 1159 (9th Cir. 1999); *Communities for a Better Environment v. State Water Resources Control Board*, 109 Cal. App. 4th 1089 (2003) (*CBE v. State Board*). (See Tabs 2 and 3, respectively.) *CBE v. State Board* held generally that water quality-based effluent limitations need not be numeric. *Defenders of Wildlife* upheld EPA's reliance on its policy of using BMPs "to provide for the attainment of water quality standards." 191 F.3d at 1166.

The dictum in *Defenders of Wildlife* that "industrial discharges [unlike municipal discharges] must comply strictly with state water-quality standards," 191 F.3d at 1165, cannot reasonably be interpreted to mean that numeric limitations must be imposed, without regard to the technical infeasibility of calculating appropriate limits, the qualitative and incomplete nature of the available data, or the costs associated with imposition of overly stringent limits. The court characterized industrial dischargers' compliance obligation as "strict" to distinguish it from the more flexible standard applicable to municipal storm water dischargers. The court did not address at all the question of feasibility of calculating numeric limits for storm water discharges associated with industrial activity, and nothing in the case casts any doubt on the continuing validity of BMPs as authorized by EPA's interim storm water permitting policy or 40 C.F.R. § 122.44(k)(3). *See* 191 F.3d at 1166-1167. Thus, contrary to the assertions of some commenters on the prior draft Industrial General Permit, the "strict compliance" language of the *Defenders of Wildlife* case provides no basis for discrediting the BMP approach.

Indeed, one of those commenters, San Francisco Baykeeper, has acknowledged the authority for storm water BMPs in its briefing before the Court of Appeal in *CBE v. State Board*:

> The federal regulations provide for a single exception for issuing numeric water quality based effluent limits where reasonable potential has been found. . . . 40 C.F.R. section 122.44(k) provides for the application of best management practices where numeric effluent limitations are infeasible. . . . As regards WQBELs, the use of BMPs as an alternative to a numeric WQBEL has been applied to NPDES permits regulating only storm water discharges. . . . EPA has, through regulation, interpreted the [Clean Water Act] to allow for non-numeric limitations (e.g., best management practices or BMPs) to supplement or replace numeric limitations in specific instances that meet the criteria specified in 122.44(k).

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Brief of Respondents Communities for a Better Environment and San Francisco Baykeeper, February 24, 2003 (pp. 43-44). (See Tab 4.) The respondents in *CBE v. State Board* were correct to concede this longstanding principle, consistently endorsed by a line of court decisions beginning with *NRDC v. Costle* and continuing to the present; *see San Francisco Baykeeper v. Regional Water Quality Control Board, San Francisco Bay Region*, San Francisco Superior Court Consolidated Case No. 500527 (Order Granting Petition for Writ of Mandate and Statement of Decision, November 14, 2003, at 1) (noting the infeasibility of calculating numeric effluent limitations for storm water discharges and upholding the use of BMPs in municipal storm water permits) (see Tab 5). Clearly, there can be no dispute as to the legality of BMPs as authorized by the NPDES implementing regulations and upheld by the courts.

The question therefore turns on whether the calculation of numeric effluent limitations for storm water is a scientifically infeasible task. The evidence, repeatedly considered by EPA, the State Board and other agencies, demonstrates that this is indeed the case. As noted above, EPA reached this conclusion initially in developing its interim storm water permitting approach (61 Fed. Reg. 43761; August 26, 1996). EPA's Questions and Answers Regarding Implementation of an Interim Permitting Approach for Water Quality Based Effluent Limitations in Storm Water Permits, 61 Fed. Reg. 57425 (1996) (see Tab 6), attached to these comments, are instructive in a number of respects. EPA found that numeric effluent limitations for storm water discharges, industrial or municipal, were not required in order to attain water quality standards:

> EPA has interpreted the statute and regulations to allow BMPs in lieu of numeric limitations. . . . EPA has found that numeric limitations for storm water permits can be very difficult to develop at this time because of the existing state of knowledge about the intermittent and variable nature of these types of discharges and their effects on receiving waters. . .
>
> Storm water discharges are highly variable both in terms of flow and pollutant concentrations, and the relationships between discharges and water quality can be complex. . . Depending on site-specific considerations, some of the water quality impacts of storm water discharges may be more related to physical effects (e.g., stream bank erosion streambed scouring, extreme temperature variations, sediment smothering), than the type and amount of pollutants present in the discharge. . . . [T]he existing methodologies for deriving numeric water quality-based effluent limitations [] were designed primarily for process wastewater discharges which occur at predictable rates with predictable pollutant loadings under low flow conditions in receiving waters. Using these methodologies, limitations are typically derived for each specific outfall to be protective of low flows in the receiving water. Because of this, permit writers have not made widespread use of the existing methodologies and models for storm water discharge permits. In addition, wet weather modeling is technically more difficult and expensive than the simple dilution models generally used in the permitting process.

Those conclusions are no less true today. EPA reiterated its determination in subsequent revisions to the NPDES regulations addressing storm water discharges (64 Fed. Reg. 68722, 68752-68753, 68788-68789 (December 8, 1999)), finding that the methodology currently available for deriving numeric effluent limits is significantly complicated by the variability of storm water, and determining that storm water pollutants are appropriately controlled by BMPs

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rather than numeric limits. Similarly, the EPA Environmental Appeals Board rejected another demand for numeric limits, explaining that the derivation of numeric water quality-based effluent limits by application of the methods contained in EPA's 1991 Technical Support Document for Water Quality-based Toxics Control ("TSD") is not feasible where insufficient information is known about the magnitude, variation, and frequency of the flow rate of both the receiving waters and the storm water discharges. *In re: Government of the District of Columbia Municipal Separate Storm Sewer System, NPDES Appeal Nos. 00-14 & 01-09* (EPA Environmental Appeals Board, February 20, 2002) (see Tab 7).[2] EPA reaffirmed the continued appropriateness of the BMP-based approach for storm water discharges in its guidance on establishing waste load allocations for storm water discharges as part of the TMDL process. *Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs*, EPA Office of Water, November 22, 2002. (See Tab 9.) In this guidance, EPA stated that WQBELs for NPDES-regulated storm water discharges that implement WLAs in TMDLs may be expressed in the form of BMPs. *Id.* at 2. EPA further stated that it "recognizes that the available data and information usually are not detailed enough to determine wasteload allocations for NPDES-regulated storm water discharges on an outfall-specific basis." *Id.* at 4. It is noteworthy that EPA believes BMPs are an appropriate means of regulating storm water discharges even in situations where the receiving waters are listed as impaired under section 303(d) of the Act.

2. Analysis of Storm Water Discharges from WSPA Member Facilities

Regarding WSPA member facilities in particular, the evidence leads to the same conclusion. Dr. Susan Paulsen of Flow Science Incorporated conducted a detailed review of storm water data from WSPA member facilities in Los Angeles County, compared with data from several major land use types within Los Angeles County and receiving water quality data for the Dominguez Channel. Flow Science Incorporated, *Storm Water and Best Management Practices Analysis* (February 2, 2005) (see Tab 10). The results of this analysis demonstrate that storm water sampled prior to discharge at these facilities exhibits concentrations of total and dissolved metals that are similar to concentrations in runoff from several other major land use categories, including light industrial and transportation land uses. Concentrations of metals in the storm water at WSPA facilities were also found to be comparable to concentrations in receiving waters during storm events. Thus, runoff from these WSPA facilities (even before BMP implementation) generally would not increase concentrations of metals in receiving waters.

In addition, Dr. Paulsen's study documents in detail the crucial fact that storm water quality and quantity vary significantly from year to year, storm to storm, and even within

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[2] The 1991 Technical Support Document itself explains (at p. 68; see Tab 8):

> In many cases, [Load Allocations] for nonpoint sources are difficult to assess because the information needed to describe the runoff associated with the high-flow storm events does not exist. This lack of information is due to the high variability of the events. Because of the importance of estimating the nonpoint contributions to the waterbody, site-specific models may be required to estimate nonpoint source loadings. Even then, detailed models are difficult to calibrate with accuracy without intensive monitoring studies, and simplistic correlations between loadings and rainfall can be, by their statistical nature, unreliable for estimating low-frequency events (e.g., worst 10-year storm).

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individual storm events. This is the case for runoff from WSPA facilities and from major land use types, and within receiving waters. Rainfall amounts and runoff volumes vary significantly over even short distances within a watershed. Concentrations of metals in storm water entering on-site retention basins at WSPA facilities vary up to several-fold on timescales of less than an hour. Because of this inherent variability, the determination of scientifically appropriate numeric permit limits – and compliance with those limits – is a complex task, requiring more information than can be obtained in a single grab sample.[3] It would also be inappropriate to calculate numeric limits for one region of the state based upon a limited data set gathered in another region. Similarly, storm water characteristics would be expected to vary from one type of facility to another depending upon the distinct characteristics of individual facilities. As a result, the development of appropriate numeric limits must be based upon a dynamic modeling analysis utilizing a sufficient data set containing information on discharge flow rates and concentrations and receiving water flow rates and concentrations, taking into account geographic and facility variation. Such an analysis is simply not feasible at this time, as neither the necessary data set nor the methodology is available. (Appropriate modeling methodologies are discussed addressed in more detail in the Flow Science report and summarized in Section 5 of these comments, below.)

The final section of the Flow Science report considers candidate BMPs that are or could be utilized at WSPA member facilities reviewed for the study. The analysis concludes that BMPs at WSPA member facilities are effective in reducing pollutant loads. Many of the facilities employ extensive on-site BMPs, including oil-water separators and on-site retention. Retention ponds have significantly reduced pollutant loads by limiting storm water discharges from these facilities. Several of the facilities have experienced no discharges to receiving waters in recent years. Available data, which are somewhat limited because discharges have been limited, demonstrate that concentrations of metals in storm water from these facilities at the point of discharges (i.e., after BMP implementation) are generally similar to or better than storm water quality from several major land use types within Los Angeles County and in receiving waters during storm events.

In sum, the results of the Flow Science study further demonstrate that continued reliance on BMPs remains technically justified, and that determining scientifically defensible numeric limits for storm water discharges remains infeasible, thus satisfying the legal standard for utilizing BMPs in their place. *See* 40 C.F.R. § 122.44(k)(3).

3. Imposing CTR Criteria As End-of-Pipe Limits is Inappropriate

Some commenters have advocated that numeric water quality criteria from the California Toxics Rule ("CTR") should be inserted into the Industrial General Permit as numeric end-of-pipe water quality-based effluent limits.[4] However, in adopting the CTR, EPA indicated that it

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[3] As the Flow Science report explains, a typical storm water sample is a grab sample that may be collected at any point during a storm event or period of discharge. Because of the high variability in concentrations between and within storm events, a long-term average concentration would provide a more reliable estimate of pollution concentration and loading to the receiving water.

[4] Some regional boards have inappropriately imposed such limits in individual permits for certain facilities.

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did not intend the newly promulgated federal water quality criteria to be applied directly to storm water through numeric effluent limitations. Instead, referring back to its 1996 interim storm water policy, EPA stated that "compliance with water quality standards through the use of Best Management Practices (BMPs) is appropriate." 65 Fed. Reg. 31682, 31703 (May 18, 2000). EPA included a copy of the 1996 policy in the administrative record of the CTR. Consistent with EPA's conclusions, the State Board excluded storm water discharges from regulation under the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California ("State Implementation Policy" or "SIP"). *See* SIP at p. 1, fn. 1. The Functional Equivalent Document ("FED") for the SIP notes that:

> Because of the nature of storm water discharges and the typical lack of information on which to base numeric water quality based effluent limitations, it has not been feasible for the State Board to establish numeric effluent limitations for storm water permits.

SIP FED (V-1 33). By letter dated May 1, 2001, EPA substantially approved the SIP without adversely noting or disapproving its non-applicability to storm water discharges.

The CTR Response to Comments Report (EPA, December 1999) further explains why EPA concluded that establishment of numeric effluent limitations for storm water discharges is infeasible. In response to comments on the costs of compliance with CTR criteria if applied as numeric effluent limits for storm water, EPA stated that this was not a valid scenario, acknowledging that

> wet weather discharges are technically difficult to model and evaluate financially, because they are intermittent and highly variable. Wet weather discharges also occur under more diverse hydrologic or climatic conditions than continuous discharges from industrial or municipal facilities, which are evaluated under critical low flow or drought conditions. If the EPA had enough data to completely characterize all the conditions and do the necessary modeling, WQBELs would be developed using dynamic models to account for the intermittent loadings and exposures from the storm water discharges. In the absence of this data, EPA will continue to advocate the use of BMPs. . . .

Response to Comment ID: CTR-001-007 (see Tab 11). EPA provided a detailed explanation in response to comments submitted by Larry Walker Associates (LWA), on behalf of the County of Sacramento Water Division. LWA had analyzed a number of operating scenarios in an attempt to determine whether compliance with CTR-derived effluent limitations could be achieved within the cost estimates provided by EPA. In commenting on LWA's analysis, EPA stated:

> LWA use a limited data set . . . for each of the pollutants of concern, and use statistical projections to predict "worst case" (i.e., 95th, 99th, and 99.91th percentiles) discharge values. These predicted discharge concentrations [were] then used to assess whether instream criteria would be met. ***This is an extremely conservative approach that would not be used by EPA to establish compliance with water quality-based effluent limits or water quality criteria. To assess the potential for metals and organics to exceed aquatic life and human health criteria during intermittent, high flow, storm water episodes, a complex dynamic modeling effort would be required, This procedure is highly data intensive.*** . . . The generalized technical approach for assessing compliance with the

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applicable criteria is described in EPA's Technical Support Document for Water Quality-Based Toxics Control (March 1991). For typical point sources, this is performed by developing wasteload allocations (using steady-state models, under low flow conditions) and developing WQBELs based on these wasteload allocations. ***The process of developing wasteload allocations and WQBELs that would be protective of applicable criteria during storm events is significantly more difficult, and is not described in current EPA guidance.***

Response to Comment ID: CTR-040-004 (emphases added; see Tab 12). In response to LWA's comments concerning the criteria for PAHs and pentachlorophenol, EPA stated:

> In its evaluation, LWA again projects worst case (i.e., 95th, 99th, and 99.91th percentile) storm water concentration values and compares these values directly to ambient human health criteria. Human health criteria are developed assuming a lifetime exposure to the pollutant at a daily ingestion rate of 2 liters of drinking water and ingestion of an assumed mass of aquatic organisms. To account for such long term exposures, EPA permitting procedures recommend using typical stream flows (e.g., harmonic mean) in developing wasteload allocations. The calculated wasteload allocations are also assumed to represent long-term averages (i.e., average monthly permit limits) rather than maximum daily values. ***Depending on the available dilution, this approach generally results in WQBELS much higher (i.e., less stringent) than the actual criterion values.*** Based on LWA projections, it appears that even a small allowance for dilution would resolve the compliance concerns for pentachlorophenol. The potential for compliance concerns identified by LWA for PAH compounds could only be accurately determined based on the results of the dynamic modeling assessment previously discussed.

Response to Comment ID: CTR-040-004 (emphasis added).

The key conclusions from EPA's discussion in the CTR Response to Comments Report are as follows:

> (i) EPA believes that the use of BMPs will, in most cases, ensure that storm water discharges do not cause or contribute to exceedances of applicable water quality standards;
>
> (ii) the short-term nature of the exposures, the amount of dilution and other technical factors associated with storm events make direct use of instream criteria as numeric effluent limitations highly inappropriate;
>
> (iii) derivation of appropriate effluent limitations would require the use of complex, data-intensive hydrodynamic models; and
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> (iv) EPA has not developed a process for developing numeric WQBELs that would be protective of applicable water quality criteria during storm events.

For these reasons, the State Board is well justified in concluding that numeric limits remain infeasible and BMPs remain a legally defensible approach to Clean Water Act compliance for

1415 L Street, Suite 600, Sacramento, California 95814
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storm water discharges.[5]

The Flow Science study, *Storm Water and Best Management Practices Analysis* (see Tab 10) further documents the inappropriateness of applying CTR criteria directly as end-of-pipe, never-to-be-exceeded effluent limitations for storm water discharges. Given the inherent variability in the flows and concentrations of storm water discharges and receiving waters, developing scientifically appropriate numeric limits would require a dynamic modeling approach that should be based upon evaluation of appropriate data sets. Data requirements include discharge and receiving water concentration and flow data, collected more frequently than once per hour over the duration of a storm event and over multiple storm events. Neither data sets nor an accepted methodology appropriate for the calculation of numeric permit limits currently exists. Application of CTR criteria directly as end-of-pipe effluent limits would essentially dictate compliance with lower-than-CTR levels. Given the need to account for the high variability of storm flows, imposing a never-to-be exceeded numeric limit in a permit would be equivalent to promulgating a much lower standard than the value of the limit, far beyond what would be necessary to protect water quality. Determining the precise level of conservatism that would result from this approach would be a difficult task requiring examination of multiple data sets.

These conclusions reinforce EPA's original intent that CTR criteria should not be imposed as numeric limits at end-of-pipe. Moreover, it is not surprising that BMPs may be unable to achieve such an unreasonable and unnecessary level of performance. Indeed, the Flow Science analysis confirmed that conventional structural BMPs are unable to reduce pollutant concentrations in storm water sufficiently to meet numeric CTR limits consistently at end-of-pipe, over the wide-ranging conditions of storm flows. Moreover, operating sophisticated treatment facilities to consistently meet CTR levels at end-of-pipe would be exceedingly difficult. In any event, it must be emphasized that the ability or inability to achieve hypothetical limits is not relevant to determining whether those limits are appropriately derived, consistent with Clean Water Act requirements, in the first instance.

4. The BMP Approach in the 2004 Draft Permit

In addition to the fundamental point that BMPs are the appropriate solution when the calculation of numeric effluent limits is infeasible, a number of provisions in the 2004 Draft Permit bolster its reliance on the BMP approach. For example, Sections VII.2.a.ii and VII.8 require that Storm Water Pollution Prevention Plans ("SWPPPs") implement specified so-called "minimum BMPs" and additional facility-specific BMPs as necessary for compliance with the Best Available Technology Economically Achievable/Best Conventional Pollutant Control Technology (BAT/BCT) effluent limitations of Section II and the receiving water limitations of

[5] The Fact Sheet for the 2004 Draft Permit explains that the State Board intends "to determine whether numeric effluent limitations can be scientifically supported in the next general permit." Fact Sheet, p. IV. The Fact Sheet also indicates that the "one-time pollutant scan" provided for in Section VIII.6 is intended for development of a database which then might be used to develop numeric limitations. WSPA supports this data development effort, provided it is undertaken with sufficient recognition of the variability of storm water events and discharges so that any numeric limitations which might be developed thereafter genuinely are "appropriately derived."

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Section III. As the Fact Sheet explains, "The minimum BMPs are consistent with the types of BMPs normally found in properly developed SWPPPs and, in most cases, should represent a significant portion of a discharger's BAT and BCT compliance." *See* Fact Sheet at p. IX. Furthermore, if the minimum BMPs prove inapplicable or insufficient, alternative or additional facility-specific BMPs may be needed in recognition of the diversity of types of industrial activity and "facility-specific facts and circumstances." *Id.*[6]

Another set of provisions supporting the iterative BMP approach in the 2004 Draft Permit relies on the "benchmark levels" taken from the federal Multi-Sector General Permit, presented in Table VIII.2 of the Draft. Sections V.7 and VIII.4.f.i indicate that when analytical results exceed those values, dischargers shall evaluate whether additional BMPs are necessary.[7] As the Fact Sheet for the 2004 Draft Permit notes, "If there are pollutants that do not appear to be caused by facility operations, or if the pollutant discharge can be eliminated without the upgrading of the SWPPP (a one time pollutant source or a pollutant that does not derive from the facility), the discharger shall provide supporting documentation and certify that no new BMPs are necessary." *See* Fact Sheet, p. VIII. In either event, the 2004 Draft Permit correctly recognizes that benchmark level exceedances are not violations in and of themselves. Rather, they set the stage for a series of analytical, monitoring, and possible BMP and SWPPP adjustment steps. Only if and when these steps are not taken is there a permit violation: "The failure to implement any of these steps in a timely manner is a violation of this General Permit." *Id.*

WSPA agrees with the State Board's conclusion that exceedances of the benchmark levels are not automatically permit violations. If exceedances of benchmarks were automatic violations, the benchmarks would become *de facto* numeric effluent limitations. The Fact Sheet emphasizes that the benchmarks are "generic and not intended to be numeric limits or protective of any particular receiving water. . . . [I]f a discharger exceeds one of these benchmarks, it is required to take certain actions." *Id.* at p. VII; *see also* p. XIV ("exceedances of these

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[6] WSPA generally supports the identification of a consistent set of minimum BMPs which dischargers should evaluate as necessary. However, as indicated in our technical comments at the end of this letter, in WSPA's view the identified BMPs should be treated as a list of candidates for evaluation, rather than a mandatory list, leaving sufficient flexibility to specifically tailor BMPs to the characteristics of the individual facility. Moreover, Section 13360 of the Water Code provides that:

> No waste discharge requirement or other order of a regional board or the state board or decree of a court issued under this division shall specify the design, location, type of construction, or particular manner in which compliance may be had with that requirement, order, or decree. . . ."

Accordingly, it is inappropriate for the so-called minimum BMPs to be treated as mandatory requirements specified in the permit.

[7] As noted below in our technical comments, WSPA recommends that these provisions be clarified to indicate that further BMPs are not necessary if the required evaluation and assessment demonstrate that the exceedance of benchmark values is not the result of facility operations, but instead reflects background concentrations of pollutants in storm water, originating from regional sources rather than the facility. In addition, as explained further below, WSPA is concerned about the adequacy of a single grab sample as a basis for comparison to the benchmarks, and requests that the State Board consider further how to appropriately determine whether the benchmark levels are actually being exceeded.

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benchmarks are not automatically considered permit violations.") The benchmark levels were not developed by EPA to function as technology-based effluent limitations, but were rather intended to serve as a point of reference for dischargers seeking to evaluate the effectiveness of their own structural and non-structural BMPs.

> Facilities with less than benchmark concentrations are considered to have little potential for water quality impacts. Benchmark concentrations are not effluent limits, and EPA has instructed NPDES-authorized States that the benchmarks should not be interpreted or adopted as such.

Report to Congress on the Phase I Storm Water Regulations, EPA Office of Water, EPA833-4-00-001, February 2000 ("Report to Congress"), p. 5-17, fn. 10 (see Tab 13). *See also* preamble to Final Multi-Sector General Permit, 65 Fed. Reg. 64746, 64767 (October 30, 2000):

> The benchmark concentrations are not effluent limitations and should not be interpreted or adopted as such. These values are merely levels which EPA has used to determine if a storm water discharge from any given facility merits further monitoring to ensure that the facility has been successful in implementing a SWPPP.

As noted in a June 23, 2003 letter submitted by Lawyers for Clean Water ("LCW") containing the comments of various Waterkeeper organizations (the "LCW Letter"), the benchmark levels have been considered in two trial court decisions: *Ecological Rights Foundation v. Sierra Pacific Industries* case, C-01-0520 MEJ (N.D. Ca. 2002) and *Santa Monica Baykeeper v. Sunlite Salvage* case, CV 99-04578 WDK (C.D. Ca. 1999). (See Tabs 14 and 15, respectively.) However, as the LCW Letter concedes, neither of these cases holds that benchmark levels are *de facto* numeric effluent limitations. Indeed, both courts reached the opposite conclusion. The cases only support the proposition that the federal benchmark levels may be used as guidelines or objective standards against which to evaluate the adequacy and effectiveness of a particular discharger's BMPs. *See Sierra Pacific Industries* at 43 ("while the EPA benchmarks do not establish effluent limitations for the Arcata Mill, the Court herein shall use them as guidelines in making its determination"). It is abundantly clear from reading the facts of those cases that the facilities in question had not made significant efforts to comply with the requirements of the General Permit, and that their SWPPPs were patently deficient. Given those facts, the presiding judges, acting as the triers of fact, concluded that the defendants' BMPs were not adequate to meet the BAT/BCT standards of the General Permit. No new binding rule of law was established that casts any doubt on the iterative BMP approach exemplified in the State Board's 2004 Draft Permit. (Moreover, neither of these cases is published or in any legal sense "controlling.") On the contrary, both courts held that the dischargers were required to identify and implement additional BMPs. Thus, rather than undermining the use of BMPs as LCW argues, *Sierra Pacific Industries* and *Sunlite Salvage* support the iterative BMP approach that the State Board has taken.

5. Objections to the BMP Approach Are Not Supported by the Law or the Evidence

In the June 2003 LCW Letter and in subsequent testimony at public workshops on the Industrial General Permit, LCW argues that the iterative BMP approach represents a "failed

1415 L Street, Suite 600, Sacramento, California 95814
(916) 498-7753 • FAX: (916) 444-5745 • Steve@wspa.org • ww.wspa.org

regime" that is responsible for the impairment of many water bodies and should be replaced with individual permits containing numeric water quality-based effluent limits. The LCW Letter goes so far as to threaten the State Board with litigation should it proceed with reissuance of the Industrial General Permit as drafted in this manner.

WSPA trusts that the State Board will be guided in this matter by applicable legal precedent, technical guidance, sound public policy and the practical limitations of available data. These considerations, individually and collectively, strongly support continuing reliance on BMPs. As the evidence demonstrates, at this time, there is no supportable basis for establishing either water quality-based or technology-based numeric limits for storm water discharges from industrial facilities. The determination of appropriate technology- or water quality-based numeric effluent limitations for the vast majority of storm water dischargers remains infeasible, justifying the BMP approach in the 2004 Draft Permit. Conversely, the approach advocated by LCW is not scientifically or legally defensible, not required by the Clean Water Act and would not, in our view, be mandated by a court. While permits for storm water discharges associated with industrial activity are subject to applicable provisions of Clean Water Act sections 301 and 402 (see 33 U.S.C. § 1342(p)(3)(A)), the statute does not specify how compliance is to be achieved, leaving it to the administering agencies' reasonable discretion how best to accomplish that goal.[8] Due to the highly technical nature of the subject matter and the infeasibility of calculating appropriate numeric effluent limits, it is extremely unlikely that a court would disapprove the State Board's continued reliance on iterative BMPs.

Water Quality Trends. The LCW Letter asserts that the increase in the number of water bodies on the state's 303(d) list, during 1992 to 2003, proves that the overall quality of the water in the state has not improved. This assertion is contrary to a recent report by the State Board which shows that in southern California, over the past twenty years, mass loadings of cadmium, chromium, copper, lead, nickel and zinc have decreased between 300% and 3,000% and the total mass loading for all listed pollutants has decreased approximately 850%. Report to the Legislature, Comprehensive Coastal Water Quality Monitoring Program, January 2001, Table 2, p. 10 (see Tab 16). Further, LCW argues that because these listed pollutants are associated with industrial activity, industrial discharges must be causing the impairment of water bodies.

Surveys conducted by UCLA show that in the typical southern California urban setting, light industrial land uses such as those covered by the General Permit account for only four percent of the total urban land use setting. See, e.g., McPherson T., S.J. Burian, M.K. Stenstrom, and I.H. Suffet, "Trace metal pollutant loading in wet weather and dry weather urban runoff from a Southern California watershed," Abstracts of Papers of the American Chemical Society, 221: 75-ENVR, Part 1 April 1, 2001. According to the 1992 Source Identification and Control Report prepared by the Santa Clara Valley Nonpoint Source Control Program, motor

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[8] LCW further argues that the General Permit must tell dischargers "***what to do to comply*** by providing permit requirements that (if followed) will ensure industrial discharges will comply strictly with WQS." See LCW Letter, at p. 6 (emphasis added). By this, LCW must mean something beyond the inclusion of numeric limitations in the permit since mere inclusion of a numeric limit will not inform dischargers "what to do to comply." However, such an approach is not lawful under state law. As noted above, Water Code Section 13360 prohibits permits from specifying "the design, location, type of construction, or particular manner in which compliance may be had with that requirement, order, or decree. . . ." Thus, by law, the permit must remain silent as to ***how*** compliance is to be achieved, leaving that decision to the discharger so long as compliance is achieved.

1415 L Street, Suite 600, Sacramento, California 95814
(916) 498-7753 • FAX: (916) 444-5745 • Steve@wspa.org • ww.wspa.org

vehicles are considered the dominant loading source for many metals of concern, including copper, lead and zinc. This finding is confirmed by more recent studies conducted by the California Department of Transportation. See Caltrans Report ID CTSW-RT-03-069.51.42, 2002-2003 Annual Data Summary Report (August 2003) and Caltrans Report ID CTSW-RT-01-050, BMP Retrofit Pilot Progran, Final Report (January 2004). Further, with regard to WSPA member facilities, Dr. Paulsen's study *Storm Water and Best Management Practices Analysis* (see Tab 10) confirms that storm water quality from facilities surveyed in the Los Angeles area is comparable to – or better than – storm water from other land uses, including that associated with transportation and mixed residential land use. Dr. Paulsen's analysis also indicates that storm water from WSPA member facilities, even if discharged without BMP implementation, would likely not increase receiving water concentrations of metals in the Dominguez Channel.

Rejection of LCW's Arguments in Prior Litigation. In *San Francisco Baykeeper, et al. v. State Board*, Sacramento County Superior Court Case No. 99CS01929 (Ruling on Submitted Matter, July 27, 2000; see Tab 17), the plaintiffs advanced —without success— the very same arguments in their challenge to the General Permit for Storm Water Discharges Associated with Construction Activity that the LCW Letter makes regarding the Industrial General Permit. In that case, the plaintiffs argued that numerical effluent limitations were the only effective means of assuring that storm water discharges do not cause or contribute to an exceedance of water quality standards. Rejecting plaintiffs' argument, the court responded that "[c]ase law and regulations implementing the CWA indicate that BMPs may be used in lieu of numeric effluent limitations to control or abate the discharge of pollutants when numeric limitations are infeasible." *Id.* at 5. The court therefore upheld the use of BMPs in the general permit, finding that the methodology currently available for derivation of numeric WQBELs is significantly complicated by the variability of storm water and that calculation of numeric limits is technically infeasible, given the available data. The court also concluded that the Clean Water Act prohibition against "causing or contributing" to an exceedance of a water quality standard does not preclude the use of BMPs which are designed to prevent this result.[9] The plaintiffs in that case included some of the same Waterkeepers organizations on whose behalf LCW presented comments; see LCW Letter at p. 1. WSPA believes that Waterkeepers would be barred under principles of res judicata and collateral estoppel from raising these same arguments again, should it pursue a judicial challenge to the reissued Industrial General Permit.

Reasonable Potential Analysis. Pointing to 40 C.F.R. section 122.44(d)(1), LCW asserts that the monitoring data demonstrate that storm water discharges have "reasonable potential" ("RP") to exceed water quality standards and that "numeric WQBELs are in fact feasible and necessary to develop and apply in order to achieve strict compliance with WQS by industrial dischargers in California as required by the Clean Water Act." LCW Letter at 13. However, while a finding of "reasonable potential" requires establishing an effluent limit, that determination says nothing about the nature of the effluent limitation. In arguing that numeric limits are mandatory, LCW disregards the holding of the California Court of Appeals in *CBE v.*

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[9] The iterative BMP process was also endorsed in another recent case, *Building Industry Association of San Diego County v. State Water Resources Control Board*, 124 Cal. App. 4th 866 (2004) (see Tab 18) (compliance with water quality standards will be achieved "by engaging in a cooperative iterative process. . . . [to] incorporate approved modified best management practices. The [State and Regional] Water Boards have made clear in this litigation that they envision the ongoing iterative process as the centerpiece to achieving water quality standards").

1415 L Street, Suite 600, Sacramento, California 95814
(916) 498-7753 • FAX: (916) 444-5745 • Steve@wspa.org • ww.wspa.org

State Board, that the Clean Water Act does not require WQBELS to be numeric. 109 Cal. App. 4th 1089 (2003). Furthermore, under the federal regulations cited by LCW, RP is determined using

> procedures which account for existing controls on point and nonpoint sources of pollution, ***the variability of the pollutant or pollutant parameter in the effluent,*** the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), ***and where appropriate, the dilution of the effluent in the receiving water.***

40 C.F.R. § 122.44(d)(1)(ii). Although the SIP has eliminated consideration of dilution from the RP analysis for process wastewater discharges, the SIP is not applicable to storm water discharges. By contrast, EPA's *Technical Support Document for Water Quality-based Toxics Control* expressly provides for consideration of dilution in reasonable potential analyses. *See* TSD at p. 53. By default, the federal NPDES regulations and guidance govern the reasonable potential analysis for storm water discharges and require consideration of data beyond the concentration of particular pollutants in storm water samples. As is apparent from EPA's remarks in the CTR Response to Comment Report, cited above, discharge monitoring data alone is insufficient as a basis for establishing appropriately derived numeric WQBELs for storm water.

Assimilative Capacity of Impaired Water Bodies. The LCW Letter also points to the fact that many water bodies are listed as "impaired" under Clean Water Act section 303(d) due to pollutants contributed by storm water, and argues that any discharge of an impairing pollutant to listed waters by definition constitutes a violation of water quality standards (LCW Letter at 6). From this, LCW concludes that, for impaired water bodies, the only way to ensure compliance with water quality standards by storm water dischargers is to impose numeric effluent limitations equal to the applicable water quality standards or criteria for impairing pollutants. *See* LCW Letter at p. 12. In the case of non-impaired waters, LCW acknowledges in passing that establishing numeric effluent limitations is "more complicated" but insists it must still be done, without offering any insight or suggestion as to how that task is to be completed. The clear implication is that regional board permit writers should simply default to water quality standards to supply numeric effluent limitations.

The LCW Letter presumes there is necessarily no assimilative capacity for additional discharges to 303(d)-listed waters, a proposition which was rejected by the State Board in Order No. WQO 2001-06 (the "Tosco Order") at 22 (see Tab 19) ("a 303(d) listing 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"). The same argument was also rejected by the U.S. Supreme Court in *Arkansas v. Oklahoma*, 503 U.S. 91 (1992). (See Tab 20.) The Court concluded that:

> Although the [Clean Water] Act contains several provisions directing compliance with state water quality standards, see, e.g., §1311(b)(1)(C), the parties have pointed to nothing that mandates a complete ban on discharges into a waterway that is in violation of those standards. The statute does, however, contain provisions designed to remedy existing water quality violations and to allocate the burden of reducing undesirable discharges between existing sources and new sources. See., e.g., §1313(d). Thus, rather

1415 L Street, Suite 600, Sacramento, California 95814
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> than establishing the categorical ban announced by the Court of Appeals – which might frustrate the construction of new plants that would improve existing conditions – the Clean Water Act vests in the EPA and the States broad authority to develop long-range, area-wide programs to alleviate and eliminate existing pollution.

503 U.S. at 108. Accordingly, the Supreme Court found, an adverse impact on the receiving waters cannot be presumed simply because the water body is listed as impaired under section 303(d) of the Clean Water Act, upholding EPA's interpretation that "what matters is not the river's current status, but rather whether the proposed discharge will have a 'detectable effect' on that status (503 U.S. at 113; *see also id.* at 111, the state water quality standard would "only be violated if the discharge effected an 'actually detectable or measurable' change in water quality.") *See also* EPA Response to Comment ID: CTR-040-004, which discredits the notion that storm water discharges to impaired water bodies are prohibited.

EPA Guidance. The LCW Letter cites the 1996 EPA Permit Writer's Handbook as support for its arguments. However, reliance on that Handbook is misplaced as it does not provide ***any*** instruction on how either "reasonable potential" or numeric effluent limitations should be determined for intermittent storm water discharges. Moreover, EPA has expressly rejected the approach advocated by in the LCW Letter as technically incorrect and unnecessarily conservative. These very same problems were originally acknowledged in development of the 1996 interim storm water policy:

> Potential problems of incorporating inappropriate numeric water quality-based effluent limitations rather than BMPs in storm water permits at this time are significant in some cases. Deriving numeric water quality-based effluent limitations for any NPDES permit without an adequate effluent characterization, or an adequate receiving water exposure assessment. . . may result in the imposition of inappropriate numeric limitations on a discharge. Examples of this include the imposition of numeric water quality criteria as end-of-pipe limitations without properly accounting for the receiving water assimilation of the pollutant or failure to account for a mixing zone (if allowed by applicable State or Tribal [Water Quality Standards]). **This could lead to overly stringent permit requirements, and excessive and expensive controls on storm water discharges, not necessary to provide for attainment of WQS.**

Questions and Answers Regarding Implementation of an Interim Permitting Approach for Water Quality Based Effluent Limitations in Storm Water Permits, 61 Fed. Reg. 57425, 57427 (1996) (emphasis added). The EPA Environmental Appeals Board also rejected the position advocated in the LCW Letter, in *In re: Government of the District of Columbia Municipal Separate Storm Sewer System*:

> Petitioners elaborate further in their Reply Brief that, where mixing zones have not been established (as is the case here. . .), under "long-established EPA guidance and practice, effluent limits must be set to assure compliance with water quality standards at the point of discharge." [citation to brief omitted] In other words, Petitioners argue that the Agency can easily set a numeric limit for each outfall that is equal to the numeric water quality standard for the receiving water. Presumably, Petitioners reason that the discharges will not cause or contribute to an in-stream excursion above an allowable

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(916) 498-7753 • FAX: (916) 444-5745 • Steve@wspa.org • ww.wspa.org

> standard if the discharges, themselves, must be below the applicable standard. Petitioners further argue that "[t]his is not an exercise requiring any information beyond the water quality criteria set in D.C.'s published water quality standards." [citation to brief omitted] ***These arguments, however, do not persuade us that review of the Permit should be granted on this ground....*** In keeping with *Arizona Municipal*, ***we find these general arguments to be without merit.*** (emphasis added).[10]

Reliance on Existing Storm Water Monitoring Data. LCW claims that numeric effluent limits may be derived using storm water monitoring data collected at industrial facilities over the past ten years. However, the simplistic assertion that these data are adequate for the purpose is technically insupportable and contradicted by the evidence. As recognized by both EPA and State Board staff, storm water monitoring data are qualitative, not quantitative, in nature. After commenting on the variability of storm water discharges, as quoted above, the draft Fact Sheet for the prior draft of this Permit stated:

> Therefore, storm water discharges would need to be collected and sampled until most of the pollutants have been discharged. Multiple samples would have to be collected over many hours. To determine the pollutant mass loading, the storm water discharge flow would have to be measured at the time each sample is collected. Quantitative monitoring, as described above, would normally require the installation of automatic sampling devices and flow meters at each discharge location.

Draft Fact Sheet for draft WQO No. 03-01-DWQ, at pp. VII-VIII. Appropriate quantitative numeric effluent limitations cannot be derived from qualitative data. More fundamentally, this database does not contain any receiving water monitoring data or data related to meteorological or hydrological conditions associated with discrete storm events. Since this database is inadequate for purposes of deriving appropriate numeric effluent limits, its availability does not make such limits feasible.

LCW relies on the supposed "wealth" of storm water monitoring data, without making any attempt to demonstrate that the available data suffice for this purpose. On the contrary, there is no recognized methodology for making use of this limited and qualitative data set, as explained in the EPA guidance documents cited above. The current state of available data and methodology is discussed in three analyses attached to these comments: the Flow Science report, *Storm Water and Best Management Practices Analysis* (see Tab 10) and technical memoranda by Dr. Gary Lorden, Professor of Mathematics at the California Institute of Technology, *Statistical issues involved in the determination of numerical limits for pollutants in storm water flows* (see Tab 21) and by Dr. Susan Paulsen of Flow Science, *Determination of numeric limits for storm water flows* (see Tab 22). Drs. Lorden and Paulsen also presented testimony on this issue at the February 3, 2005 State Board workshop. As discussed in their testimony and the attached analyses, the existing steady-state modeling methodology for

[10] The Appeals Board noted that the petitioners also raised a specific argument that the permit writer could have derived numeric limits in this case using "long-established EPA guidance and practice." While the Appeals Board rejected this argument on the procedural ground that petitioners failed to raise it during the public comment period, the Board's observations concerning the underlying permit proceedings make it quite likely that the Board would have rejected the argument on its merits had it been necessary to do so.

1415 L Street, Suite 600, Sacramento, California 95814
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calculating numeric limits is designed for traditional point sources, such as highly predictable process wastewater discharges, under low-flow receiving water conditions. As Drs. Lorden and Paulsen explain, a much larger amount of quantitative data, collected over extended periods and widely variable conditions, would be necessary to adequately represent storm water discharges.

Moreover, even if an adequately representative database existed, an appropriate methodology for developing scientifically defensible numeric limits from that data does not now exist. Such a methodology would have to be developed using dynamic modeling techniques that could adequately capture and analyze the full range of statistical variation of storm water behavior. Dynamic modeling techniques require detailed information on the variability of effluent and receiving water concentrations and flows, over appropriate time scales. These data have not historically been collected for storm flows, and collecting an appropriate data set would be time-consuming and resource-intensive. Ideally, data collection requirements would be specified by the State Board so that data could be collected in a uniform manner throughout the state and used to establish a methodology for calculating appropriate permit limits (as well as for specifying data collection requirements and procedures for compliance determination in the permits themselves). In the absence of such a data set and methodology, however, there is no basis at this time to conclude that numeric effluent limitations are feasible for storm water discharges. *See* Dr. Paulsen's and Dr. Lorden's reports (Tabs 10, 21, 22).

In arguing that numeric limits could feasibly be included in the Industrial General Permit, LCW relies heavily on certain data purporting to demonstrate that, for an unspecified set of industrial facilities with individual NPDES permits incorporating storm water benchmarks, sampling data indicate a 90% rate of compliance with benchmarks for copper and 99% compliance rate with benchmarks for lead. *See* charts included in the LCW Letter as Exhibit C and presented by LCW at the February 3, 2005 State Board workshop and prior workshops. WSPA has been unable to determine what facilities are included in LCW's analysis, what the benchmark levels were, and how many sampling events are represented in these charts. As a result, it is impossible to evaluate what this information represents.[11] Moreover, the data were presumably from grab samples which are inappropriate for evaluating actual compliance with either benchmarks or numeric limits, since the variability of storm flow volumes and constituent concentrations has not been adequately characterized.

During a previous public hearing on the prior draft Industrial General Permit, LCW submitted to the State Board copies of NPDES permit files, including discharge monitoring data, for twelve industrial facilities in the Los Angeles area. Ten of these facilities are operated by WSPA member companies; the other two facilities are in the scrap metal industry. These facilities were presumably singled out by LCW because their most recent NPDES permits include numeric effluent limitations applicable to storm water discharges.[12] To the extent that

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[11] WSPA reserves the right to provide additional rebuttal to LCW's claims if and when the basis for these claims is clarified.

[12] The presence of numeric storm water limits in the permits for these ten petroleum facilities results from a rather convoluted permitting history. When initially issued, these permits addressed combined discharges that included both process wastewater and storm water. As a result, these facilities were not eligible for coverage under the previous Industrial General Permits and were required to obtain individual NPDES permits. Over the years, the operations at these facilities changed, such that now only storm water is discharged. In reissuing the individual permits, the regional boards did not re-evaluate whether the effluent limits were appropriate for storm water

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LCW may have relied on monitoring data from these facilities in the charts attached to the LCW Letter, it is important to recognize that the WSPA facilities in the Los Angeles area for which Flow Science reviewed data have significant on-site retention capacity. As a result, these facilities do not discharge to receiving waters except during major storm events. During the period covered by available data, the number of such discharge events was limited. Thus, the main reason that these facilities did not discharge storm water that would exceed numeric limits in individual NPDES permits was because they generally did not discharge **any** runoff during the period covered by the data. This outcome may have been favorable for those facilities, but it cannot be used to predict continued compliance during future storm events – and certainly cannot be relied on to demonstrate the ability to comply with such limits for the more than 9,500 facilities covered by the Industrial General Permit. That is especially true given that the characteristics of industrial facilities and the BMPs they employ vary greatly from site to site and region to region. The Flow Science report also reviews metals concentration data for storm water runoff from major land uses within Los Angeles County, and concludes that concentrations in runoff from these land uses (including light industrial uses) nearly always are in excess of CTR limits. Thus, we are unaware of any data indicating that storm water runoff from industrial facilities would or could consistently meet CTR-based numeric limits applied at end-of-pipe.

In addition, WSPA reviewed the reviewed State Board's data base of all active NPDES permits, covering nearly 13,000 facilities, to identify facilities that have individual NPDES permits which authorize the discharge of storm water only. There are 39 such facilities, some of which contain numeric limits for storm water discharges. Two of the facilities are located in region 5 (Central Valley) and the remaining 37 are located in Southern California: two in region 8 (Santa Ana), one in region 9 (San Diego) and 34 in region 4 (Los Angeles). We did not review every permit, but a brief review of some of the permits indicates that where numeric limits are included, they are generally for TSS, pH, oil and grease and/or phenol, rather than metals or other CTR constituents. It would not be appropriate to use the compliance record for these facilities as a basis for determining the feasibility of numeric limits for metals or other CTR constituents. Further, as noted above, storm events and facility characteristics in Southern California are not at all indicative of statewide conditions.

Technology-Based Effluent Limits. Finally, in the February 3, 2005 workshop on the 2004 Draft Permit, LCW modified its previous arguments to advocate the imposition of technology-based numeric limits for storm water, even if water quality-based numeric limits may be infeasible. LCW again misses the point. As the 2004 Draft Permit Fact Sheet (p. III) indicates, the iterative BMP process provides the means of achieving **both** technology-based (BAT/BCT) and water quality-based standards. The BMP approach is appropriate because, in both cases, the derivation of appropriate numeric limits from available data and analysis methodologies is equally infeasible. Under the Clean Water Act permitting scheme, water quality-based effluent limitations provide a "backstop" level of regulation where technology-based limits prove inadequate to achieve water quality standards. In the ordinary course of regulatory development, as the first step, available technology for storm water control (in this

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discharges. Rather, the old limits were simply carried forward into the new permits or were replaced by the limits based on CTR criteria. As discussed above, this permitting approach is seriously flawed. Many of these permits were or are under appeal. Accordingly, these examples cannot be used to justify the appropriateness of numeric limits for all facilities covered by the Industrial General Permit.

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case, the BMPs themselves) would be surveyed across an industry category and used to develop appropriate technology-based numeric limits, taking into account relevant factors including technical and economic feasibility. Only after implementing and assessing the effectiveness of such technology-based limits would it be necessary, if water quality standards could not be achieved, to proceed to develop water quality-based limits.[13]

In sum, LCW's assertions regarding what can be done with the data assembled from storm water monitoring to date are technically naïve and unsupportable. WSPA remains willing to work with the State Board and other stakeholders in an attempt to develop a data base and methodology for feasibly establishing valid, scientifically appropriate numeric limits for storm water, whether technology-based or water quality-based. However, notwithstanding LCW's claims, we are not there yet.

6. WSPA Requests Clarifying Changes to Certain Provisions of the 2004 Draft Permit As Necessary for its Effective Implementation

While generally supportive of the 2004 Draft Permit and its BMP approach, as indicated in our main comments above, WSPA is concerned that the language of certain provisions needs clarification if the permit is to be effectively implemented. We respectfully request that the State Board consider the following technical concerns, comments and recommendations (suggested deletions are struck through; suggested additions are underlined and in bold).

Item 1: Page 4, Section III.2 -- Receiving Water Limitations: Definition of "Cause or Contribute."

The 2004 Draft Permit states:

> Storm water discharges and authorized non-storm water discharges shall not contain pollutants that cause or contribute to an exceedance of any applicable water quality objectives or water quality standards (collectively, WQS) contained in a Statewide Water Quality Control Plan, the California Toxics Rule, the National Toxics Rule, or the applicable RWQCB's Water Quality Control Plans (Basin Plan).

The determination of whether a storm water discharge from a given facility is "causing or contributing" to an exceedance of water quality standards is an extremely complex process requiring significant data and consideration of numerous factors. Consistent with the Supreme Court's reasoning in *Arkansas v. Oklahoma*, 503 U.S. at 111, WSPA believes that a state water quality standard would "only be violated if the discharge effected an 'actually detectable or measurable' change in water quality." We are concerned, in the absence of a clear and scientifically valid procedure to determine exceedances, that the proposed permit language could be read to imply that the presence of even a single molecule of a pollutant constitutes a permit violation. WSPA recommends that the following language be inserted into this provision to

[13] WSPA concurs with the comments on this point being submitted by the California Stormwater Quality Association ("CASQA").

1415 L Street, Suite 600, Sacramento, California 95814
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ensure that the State Board does not inadvertently establish a threshold that will be impossible to meet given ambient background conditions.

> Storm water discharges and authorized non-storm water discharges shall not contain pollutants **in concentrations or amounts** that cause or contribute to an exceedance of any applicable water quality objectives or water quality standards (collectively, WQS) contained in a Statewide Water Quality Control Plan, the California Toxics Rule, the National Toxics Rule, or the applicable RWQCB's Water Quality Control Plans (Basin Plan).

Item 2: Page 3 Section I.2, Discharge Prohibitions: Same suggested addition as in Item 1.

Item 3: Page 3 Section III.1 Receiving Water Limitations: Same suggested addition as in Item 1.

Item 4: Page 4 Section IV.2.d, Non-Storm Water Dischargers: Same suggested addition as in Item 1.

Item 5: Page 5, Section V.6.c.iii and iv – Sources of pollutants at the facility:

The permit Fact Sheet (p. VIII) states that a discharger can certify that no new BMPs are necessary if there are pollutants that do not appear to be caused by facility operations. This is especially important in the case of storm water, since background concentrations of pollutants may originate from regional sources rather than the facility. The text of Section V.6.c.iii and iv of the General Permit is not consistent with the Fact Sheet, as it requires certification that "There are no sources of pollutants at the facility" and that the exceedance "will not occur again under similar circumstances." WSPA recommends that Section V.6.c.iii and iv be amended as follows so that it reflects the concept in the Fact Sheet:

> Section V.6.c.iii.
>
> ~~There are no sources of the pollutants at the facility.~~ **The pollutants are not caused by the facility's operations.**
>
> Section V.6.c.iv.
>
> If a certification states that no additional BMPs or SWPPP implementation measures are required to reduce or prevent pollutants in storm water discharges to meet Receiving Water Limitations III.2, the certification must show why the exceedance occurred and why it will not occur again under similar circumstances **or that it is not caused by the facility's operations**.

Item 6: Page 6, Section V.6.e - g -- Iterative BMP Report and Implementation.

WSPA recommends that these sections be entitled "Iterative BMP Report and Implementation for Exceedance of Receiving Water Limitations." Although the Fact Sheet makes reference to an "iterative process" to address concerns with receiving water limitations,

1415 L Street, Suite 600, Sacramento, California 95814
(916) 498-7753 • FAX: (916) 444-5745 • Steve@wspa.org • ww.wspa.org

the permit itself does not specifically state that the provisions of Section V constitute the "iterative process" envisioned by the State Board. This change would clarify the fact that this section does indeed embody the iterative process.

In addition, these sections requires submittal of an iterative BMP report within 30 days after determination that discharges are in violation of receiving water limitations, limits the schedule for implementation to a maximum of 90 days from the date of determination of exceedance, and requires approval of the report by the Regional Board. These unreasonably short deadlines raise three problems:

a. it may be impossible within 30 days to determine the necessary corrective actions to take. For instance, if source tests must be conducted or if information must be gathered to design necessary facilities, the discharger may have to wait for the next storm to gather samples.
b. it may be impossible to implement some BMPs within 90 days. For example, a structural BMP may require permitting that may take more than 90 days.
c. although the discharger is held to a 90-day approval and implementation schedule, the Regional Board is not given a specified deadline for approval of the report. If approval is not prompt, the discharger will be left with insufficient time to implement the revised BMPs.

Accordingly, WSPA recommends that Section 7.e be amended as follows:

Prepare and submit a report, within 30 days to the RWQCB that describes the facility evaluation and the BMPs and corrective actions that are currently being implemented to assure compliance with Receiving Water Limitations III.s, and additional BMPs, **evaluations,** or corrective actions not yet implemented as of the completion of the report. ~~**The implementation schedule shall not exceed 90 days from the date of the determination of the exceedance of Receiving Water Limitation III.2**~~ **The report shall also specify an implementation schedule, including milestones for BMPs and corrective actions.**

Item 7: Page 6, Section V.6.h. -- Enforcement during iterative BMP implementation.

This section authorizes the Regional Board to take enforcement action while the discharger prepares and implements iterative BMPs. Enforcement may be appropriate in the event of a violation unrelated to the exceedance that caused the initiation of the BMP process. However, WSPA recommends that the language be amended to provide that, once the BMP process is triggered and while the discharger is preparing and implementing an iterative BMP report, the Regional Board would defer any enforcement action with respect to the sampling event that triggered the process, pending evaluation of the outcome of the discharger's BMP efforts. No enforcement action should be pursued while the BMP process is pending. However, if violations of other provisions occur, enforcement action for those violations would be appropriate.

While the discharger is preparing and implementing the above report, the discharger shall be deemed in compliance with this General Permit with respect to

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the sampling event which caused the initiation of the BMP process. Nothing in this section shall prevent the appropriate RWQCB from enforcing any **other** provisions of this General Permit while dischargers prepare and implement the above report.

Item 8: Page 6, Section V.7.6.c.iii and v – Sources of pollutants at the facility.

As noted above, the permit Fact Sheet (p. VIII) states that a discharger can certify that no new BMPs are necessary if there are pollutants that do not appear to be caused by facility operations. The text of Section V.7.c.iii and v of the permit is not consistent with the Fact Sheet, as it requires certification that "There are no sources of pollutants at the facility" and that the exceedance "will not occur again under similar circumstances." WSPA recommends that Section V.7.c.iii and v be amended as follows so that it reflects the concept in the Fact Sheet:

Section V.7.c.iii.

~~There are no sources of the pollutants at the facility.~~ **The pollutants are not caused by the facility's operations.**

Section V.7.c.v.

If a certification states that no additional BMPs or SWPPP implementation measures are required to reduce or prevent pollutants in storm water discharges in compliance with BAT/BCT, the certification must show why the exceedance occurred and why it will not occur again under similar circumstances **or that it is not caused by the facility's operations**.

Item 9: Page 7, Section V.7: Significance of benchmark values.

WSPA requests that the State Board revise the language of this section to clarify the circumstances under which the iterative BMP process is triggered under Section V.7. As EPA acknowledged when it first created the benchmark approach, the trigger for iterative BMPs must be flexible, in recognition of the nature of storm water discharges. In particular, as currently worded, this section requires dischargers to implement iterative BMPs "[w]hen analytical results exceed the USEPA benchmark values" – implying that the analytical results of a single grab sample are sufficient to trigger the process. However, WSPA is concerned that a single grab sample does not provide an accurate indication of whether benchmark levels are actually being exceeded. Due to the high variability of storm water flows, a single sample cannot be considered representative and there is a considerable risk of false-positive results. *See, e.g.,* the attached reports by Dr. Susan Paulsen of Flow Science and memo on statistical issues from Dr. Gary Lorden. A grab sample may be collected at any point during a storm event or period of discharge. Because of the high variability in concentrations between and within storm events, a single grab sample cannot not provide a more reliable estimate of pollution concentration and loading to the receiving water.

WSPA believes that the approach taken by EPA in its Multi-Sector General Permit offers a better means of utilizing the benchmarks. Rather than relying on a single data point from a single grab sample, EPA acknowledged that:

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> Vagaries of storm discharges and statistical concerns will necessitate operators and EPA exercising best professional judgment in interpreting the results of any monitoring. When viewed as an indicator, analytic levels ***considerably above benchmark values*** can serve as a flag to the operator that his SWPPP needs to be reevaluted and that pollutant loads may need to be reduced. Conversely, analytic levels below ***or near*** benchmarks can confirm to the operator that his SWPPP is doing its intended job.

65 Fed. Reg.64746, 64796 (October 30, 2000) (emphasis added); *see also id.* at 64797. Moreover, the Multi-Sector General Permit includes a waiver of ongoing benchmark monitoring for facilities that:

> collected samples for all four quarters of the 2001-2002 monitoring year and the ***average*** concentration was below the benchmark value.

Id. at 64817 (emphasis added). Thus, EPA correctly does not regard a single grab sample exceedance of benchmark levels as determinative. WSPA urges the State Board to consider EPA's approach and to add clarifying language to the 2004 Draft Permit concerning the role of benchmarks in the iterative BMP process. We would be pleased to work with the State Board staff and other stakeholders to develop a reasonable and appropriate trigger for the iterative BMP process, a critical decision point for the implementation of the Industrial General Permit. We recommend that Page 6, Section 7 should be amended to expressly include all of the factors that may be included in the decision to initiate the BMP process, beyond analytical results.

> Accordingly, we suggest that a portion of the first sentence of Section V.7 be deleted:
>
> When [~~analytical results exceed the USEPA benchmark values in Table VIII-2~~], dischargers shall implement corrective actions that include:

and that the deleted language should be replaced with an explicit, reasonable and appropriate threshold for triggering the iterative BMP process, reflecting the benchmark values but not potentially triggered by a benchmark exceedance in a single grab sample.

In addition, to be consistent with statements in the Fact Sheet (pp. VII and XIV) that exceedance of a benchmark is not a violation of the permit, WSPA requests that the language of Section V.7 be amended to clarify that intent within the permit itself. Accordingly, WSPA recommends the following addition to the end of Section V.7:

> **i. Exceedance of a benchmark value, by itself, shall not be deemed a violation of this General Permit.**

Item 10: Page 7, Section V.7.e - g – Iterative BMP report and implementation after analytical results exceed benchmarks.

Same comments as above for Item 6. For the reasons discussed above, WSPA suggests that this section be entitled "Iterative BMP Report and Implementation after Analytical Results Exceed Benchmarks" and recommends the following revisions:

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Prepare and submit a report, within 30 days to the RWQCB that describes the facility evaluation and the BMPs and corrective actions that are currently being implemented and additional BMPs, **evaluations,** or corrective actions not yet implemented as of the completion of the report. ~~**The implementation schedule shall not exceed 90 days from the date of the determination of the exceedance of Receiving Water Limitation III.2**~~ **The report shall also specify an implementation schedule, including milestones for tracking BMP success in meeting benchmarks.**

Item 11: Page 7, Section V.7.h. -- Enforcement during iterative BMP implementation

This section authorizes the Regional Board to enforce provisions of this General Permit while the discharger prepares and implements iterative BMPs. Since the benchmarks are not, in fact, numeric effluent limitations, it is even less appropriate for a Regional Board to consider enforcement action as a response to such an exceedance. Accordingly, WSPA recommends that this language be amended to provide that, once the BMP process is triggered and while the discharger is preparing and implementing an iterative BMP report, the Regional Board would defer any enforcement action pending evaluation of the outcome of the discharger's BMP efforts. However, if violations of other permit provisions occur, enforcement action for those violations would be appropriate.

While the discharger is preparing and implementing the above report, the discharger shall be deemed in compliance with this General Permit with respect to the sampling event which caused the initiation of the BMP process. Nothing in this section shall prevent the appropriate RWQCB from enforcing any **other** provisions of this General Permit while dischargers prepare and implement the above report.

Item 12: Page 12, Section VII 8.a – Minimum BMPs

This section requires that facilities implement the listed minimum BMPs, allowing flexibility only if the discharger justifies that any of them are "clearly inapplicable to the facility." Dischargers may use alternative BMPs only if the discharger can provide a justification explaining why the minimum BMPs cannot be implemented and that alternative BMPs are at least as effective. WSPA believes that the requirements of this section are too restrictive and do not reflect the broad range of facilities and the multitude of situations found at the different facilities and sites covered by this permit. We believe that showing that alternatives are "at least as effective" will be a very high burden to meet in practice, resulting in imposition of the minimum BMPs by default. Moreover, section 13360 of the Water Code prohibits the incorporation of mandatory methods of compliance in a permit, providing that:

> No waste discharge requirement or other order of a regional board or the state board or decree of a court issued under this division shall specify the design, location, type of construction, or particular manner in which compliance may be had with that requirement, order, or decree. . . ."

WSPA believes that greater flexibility is needed in the implementation of the minimum BMPs which will not be appropriate for all facilities in all cases. It is appropriate for the General

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Permit require that the BMPs on a candidate BMP list should be considered and evaluated. However, they should not be mandated unless and until they are determined to be appropriate for the particular facility. Accordingly, WSPA recommends the following revision to Section VII.8:

> Dischargers shall **evaluate**~~implement~~ the following minimum BMPs described below throughout their facilities **if** ~~unless clearly in~~applicable to the facility. If any of the minimum BMPs are not applicable to the facility, dischargers shall include a written explanation of inapplicability in their SWPPP. ~~Dischargers have the burden to prove inapplicability.~~ Dischargers may use alternative BMPs instead of the minimum BMPs only if the dischargers provide specific justification in their SWPPP explaining why the minimum BMPs **are not appropriate** ~~cannot be implemented~~ and what alternative BMPS shall be implemented that will reduce or prevent pollutants in storm water discharges ~~at least to the same degree~~. ~~Dischargers have the burden to show that its alternative BMPs are at least as effective as the minimum BMPs.~~

Item 13: Page 12, Section VII.8.a Minimum BMPs i.(2) Implement BMPs to reduce or prevent material tracking

At many WSPA member facilities, there is truck traffic that is not associated with bulk storage of materials. Material tracking would not result at these facilities and imposing minimum BMPs would be unreasonable. The minimum BMPs should be appropriate for the type of industrial activity at the facility.

WSPA recommends that this minimum BMP be amended to read:

> (2) Implement BMPs to reduce or prevent material tracking **from bulk storage areas and activities, to the extent practicable.**

Item 14: Page 15, Section VII. 8.b. -- Additional Facility Specific BMPs

This section requires facilities to identify and implement additional facility specific BMPS to achieve compliance with water quality standards. At many facilities structural BMPs are not appropriate and at some they are not possible. However, at other facilities it may be appropriate to incorporate structural BMPs that will handle a specified volume of storm water. In order to design such structural BMPs, it is necessary to define design criteria such that facility specific structural BMPs can be incorporated into the facility SWPPP.

WSPA recommends that the General Permit specify design criteria for facilities at which it is appropriate and cost-effective to implement structural BMPs. The permit should also clearly state that storm water volumes in excess of the design criteria would be authorized to by-pass the structural BMP under this permit. WSPA is prepared to participate with the State Board and other stakeholders to develop appropriate design criteria.

Item 15: Regional Board discretion

There are several statements in the Fact Sheet that provide for the Regional Board's discretion, but provide no guidance as to the basis for the Regional Board to exercise that

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discretion. For instance,

- Fact Sheet, p. V, 2nd paragraph, "(3) Facilities whose operators seek coverage under this General Permit with the permission of the RWQCBs."

- Fact Sheet, p. VI, Types of Discharges not covered "3.Discharges may be determined by the RWQCBs to be ineligible for coverage under this permit. . ."

- Fact Sheet, p. VIII, 5th paragraph: "Even if a discharger follows this procedure, the RWQCB may determine that the steps are not adequate and it may require implementation of more measures or may take enforcement against the discharger."

WSPA recommends that the General Permit provide guidance for the basis or findings on which RWQCB may make these discretionary determinations.

Item 16: Page 18, Section VII.3.e – Storm Event Monitoring and Reporting

This section requires the facility to document storms which did not meet the discharge criteria. It provides that "Prior to completing each monthly visual observation required in Subsection 4.a, dischargers shall record any storm events that occurred during operating hours that did not produce a discharge." WSPA believes that the intent of this General Permit is to regulate storm water discharges associated with industrial activity from a qualifying storm event. Documenting monthly visual observations from any storm event that did not produce a discharge is unnecessary and overly burdensome. In areas such as Southern California, there may not be a qualifying storm event for several months. Occasionally, a storm event might materialize as drizzle but would not constitute a qualifying storm event, nor would it result in a discharge. WSPA believes that in addition to the existing observation and sampling criteria, this provision would create an additional recordkeeping burden without benefit to water quality

WSPA recommends that Section VII.3.e be deleted from the draft permit.

Item 17: Page 19, SectionVIII.4.f.ii - Sampling after exceedance of benchmarks

This section requires dischargers to continue sample collection and analysis until two consecutive samples result in no further exceedances of the benchmarks. This requirement does not provide an exemption from sampling in the event the facility certifies that pollutants are not caused by facility operations (per the intent stated in the Fact Sheet, p. VIII, that no new BMPs are necessary if there are pollutants that do not appear to be caused by facility operations).

WSPA recommends that Section VIII.4.f.ii be amended to read as follows:

". . . Dischargers shall continue sample collection and analysis until two consecutive samples **from qualifying storm events** result in no further exceedances of the USEPA benchmarks**. Facilities that have submitted certifications pursuant to section V.7.c.iii are exempt from this sampling requirement.**"

Further, WSPA recommends that a sampling protocol and results analysis protocol be

1415 L Street, Suite 600, Sacramento, California 95814
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added to Section VIII.4.

Item 18: Page 20, Section VIII.6.a-b – One-time pollution sampling

This section requires one-time pollution sampling for additional parameters (i.e., metals, COD, etc) listed in Table VIII.2 (pg 25). The Fact Sheet, page IV, states that the State Board intends to use this data to develop numeric effluent limits. WSPA does not believe a one-time grab sample would provide statistically valid results that can be used to develop numeric effluent limits, given the high degree of variability of storm water discharges as recognized by both the State Board and EPA (see discussion in the main part of these comments).

WSPA recommends this section VIII.6 be deleted and that a discussion be initiated with appropriate stakeholders to develop a proposal and mechanism for a more appropriate statewide monitoring study of industrial storm water discharges that could yield statistically valid results.

Item 19: Page 20, Section VIII.7.d – Sample Storm Water Locations

This section requires dischargers to collect samples from all drainage areas. At some facilities drains may be sealed or locked to prevent a discharge. Sampling these areas that have no potential to impact water quality would require unnecessary additional cost and resources to no water quality benefit.

WSPA recommends that the provision be amended to read as follows:

"Dischargers shall collect samples from all **active** drainage **or discharge** areas... "

Alternatively, the language in the existing General Permit could be retained as follows:

Where Facility Operators determine that the industrial activities and BMPs within two or more drainage areas are substantially identical may a) collect samples from a reduced number of substantially identical drainage areas, or b) collect samples from each substantially identical drainage area and analyze a combined sample from each substantially identical drainage area. Facility operators must document such determination in the annual report.

* * * *

Thank you for considering WSPA's comments on the 2004 Draft Permit. Should you have any questions or need additional information, please contact me at (916) 498-7753.

Sincerely yours,

Steven Arita

1415 L Street, Suite 600, Sacramento, California 95814
(916) 498-7753 • FAX: (916) 444-5745 • Steve@wspa.org • ww.wspa.org

encs.

cc: Mr. Arthur Baggett, SWRCB, Chairman
Mr. Gary Carlton, SWRCB, Boardmember
Mr. Richard Katz, SWRCB, Boardmember
Mr. Pete Silva, SWRCB, Boardmember
Ms. Nancy Sutley, SWRCB, Boardmember
Ms. Celeste Cantu, SWRCB, Executive Director
Mr. Tom Howard, SWRCB
Mr. Bruce Fujimoto, SWRCB
Ms. Betsy Jennings, SWRCB
Ms. Catherine H. Reheis-Boyd, WSPA

1415 L Street, Suite 600, Sacramento, California 95814
(916) 498-7753 • FAX: (916) 444-5745 • Steve@wspa.org • ww.wspa.org

Tab 1

United States Court of Appeals,
District of Columbia Circuit.

NATURAL RESOURCES DEFENSE COUNCIL, INC.[FN*]

FN* For convenience the court will refer to this case hereafter as NRDC v. Costle (Runoff Point Sources).

v.

Douglas M. COSTLE, Administrator, Environmental Protection Agency, et al., National Forest Products Association, Appellant.

NATURAL RESOURCES DEFENSE COUNCIL, INC., etc.

v.

Douglas M. COSTLE, Administrator, Environmental Protection Agency, et al., National Milk Producers Federation, Appellant.

NATURAL RESOURCES DEFENSE COUNCIL, INC., etc.

v.

Douglas M. COSTLE, Administrator, and Environmental Protection Agency, et al., Appellants.

NATURAL RESOURCES DEFENSE COUNCIL, INC.

v.

Douglas M. COSTLE, Administrator, Environmental Protection Agency, Colorado River Water Conservation District, Appellant.

Nos. 75-2056, 75-2066, 75-2067 and 75-2235.

Argued Dec. 3, 1976.
Decided Nov. 16, 1977.

The National Resources Defense Council, Inc. challenged authority of the Environmental Protection Agency Administrator to exempt categories of point sources from permit requirements of the Federal Water Pollution Control Act Amendments of 1972. The United States District Court for the District of Columbia, Thomas A. Flannery, J., 396 F.Supp. 1393, granted summary judgment to the NRDC and the Administrator and others appealed. The Court of Appeals, Leventhal, Circuit Judge, held that: (1) legislative history shows that National Pollution Discharge Elimination System permit is the only means by which discharger may escape total prohibition of discharges from point sources found in FWPCA; (2) national effluent limitations need not be uniform as precondition for NPDES program to include pollution from agricultural, silvicultural, and storm runoff point sources, and while technological or administrative infeasibility of such limitations may warrant adjustments in permit program it does not authorize Administrator to exclude relevant point sources; (3) where numeric effluent limitations are infeasible, permit conditions may proscribe industry practices that aggravate problems of point source pollution as well as require monitoring and reporting of effluent level; and (4) a number of administrative devices, including general or area permits are available to aid EPA in practical administration of NPDES program, and FWPCA, however tight in some respects, leaves some leeway to EPA in interpretation of that statute and affords agency some means to consider matters of feasibility.

Affirmed in accordance with opinion.

MacKinnon, Circuit Judge, filed a concurring opinion.

West Headnotes

[1] Environmental Law ⚖196
149Ek196 Most Cited Cases
(Formerly 270k35, 199k25.7(16) Health and Environment)
Legislative history clearly shows that Congress intended that the national pollution discharge elimination system permit be the only means by which a discharger of pollutant may escape total prohibition of discharges from point sources found in Federal Water Pollution Control Act Amendments. Federal Water Pollution Control Act, §§ 301, 301(a), 402 as amended 33 U.S.C.A. §§ 1311, 1311(a), 1342.

[2] Environmental Law ⚖196
149Ek196 Most Cited Cases
(Formerly 199k25.7(13.1), 199k25.7(13) Health and Environment, 270k35)
Use of word "may" in that section of Federal Water Pollution Control Act Amendment providing that the administrator may issue permit for discharge of any pollutant means only that the administrator has the

discretion either to issue permit or to leave pollutant discharger subject to total proscription of statute making discharge of any pollutant by any person unlawful except as provided in Act. Federal Water Pollution Control Act, §§ 301(a), 302, 304 as amended 33 U.S.C.A. §§ 1311(a), 1342, 1344.

[3] Environmental Law ⚖175
149Ek175 Most Cited Cases
(Formerly 199k25.7(6.1), 199k25.7(6) Health and Environment)
[3] Environmental Law ⚖196
149Ek196 Most Cited Cases
(Formerly 270k35)
Existence of uniform national effluent limitations is not a necessary precondition for incorporating into the national pollutant discharge elimination system program pollution from agricultural, silvicultural, and storm water runoff point sources; technological or administrative infeasibility of such limitations may result in adjustments in permit programs but does not authorize administrator to exclude relevant point sources from program. Federal Water Pollution Control Act, §§ 301, 402, 404, 1362(12, 14), as amended 33 U.S.C.A. §§ 1311, 1342, 1344, 502(12, 14).
[4] Environmental Law ⚖197
149Ek197 Most Cited Cases
(Formerly 270k35, 199k25.7(10.1), 199k25.7(10) Health and Environment)
Where numeric effluent limitations are infeasible, point of discharge permits may proscribe industry practices which aggravate problems of point source pollution as well as require monitoring and reporting of effluent levels contrary to claim that any limitations must be issued in terms of a numerical effluent standard. Federal Water Pollution Control Act, §§ 302(a), 402, 402(a) as amended 33 U.S.C.A. §§ 1312(a), 1342, 1342(a).
[5] Environmental Law ⚖196
149Ek196 Most Cited Cases
(Formerly 270k35, 199k25.7(13.1), 199k25.7(13) Health and Environment)
Federal Water Pollution Control Act Amendments merely require that point of discharge permits be in compliance with limitations section of Act and as a result the use of area or general permits is allowed. Federal Water Pollution Control Act, § 402 as amended 33 U.S.C.A. § 1342.
[6] Environmental Law ⚖641
149Ek641 Most Cited Cases
(Formerly 199k25.15(3.2), 199k25.15(1) Health and Environment, 270k35)
Power to define point and nonpoint sources of pollution is vested in Environmental Protection Agency under the Federal Water Pollution Control Act Amendments, and exercise of that power should be reviewed by court only after opportunity for full agency review and examination. Federal Water Pollution Control Act, § 402 as amended 33 U.S.C.A. § 1342.
[7] Environmental Law ⚖216
149Ek216 Most Cited Cases
(Formerly 270k35, 199k25.7(11) Health and Environment)
Federal Water Pollution Control Act Amendments, however tight in some respects, leave some leeway to Environmental Protection Agency in interpretation and affords agency some means to consider matter of feasibility. Federal Water Pollution Control Act, §§ 1-26, 101-517 as amended 33 U.S.C.A. §§ 1151-1175, 1251-1376.
[8] Administrative Law and Procedure ⚖305
15Ak305 Most Cited Cases
It is not what court thinks that is generally appropriate to regulatory process, but what Congress intended.

***1370 **148** Syllabus by the Court

The National Resources Defense Council, Inc. (NRDC) challenged the authority of the EPA Administrator to exempt categories of point sources from the permit requirements of s 402 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. s 1342 (Supp. V 1975). On appeal from a grant of summary judgment to NRDC, held:

1. The legislative history makes clear that Congress intended the National Pollution Discharge Elimination System (NPDES) permit to be the only means by which a discharger may escape the total prohibition of discharges from point sources found in FWPCA s 301(a), 33 U.S.C. s 1311(a) (Supp. V 1975).

2. It is not necessary that national effluent limitations be uniform as a precondition for the NPDES program to include pollution from agricultural, silvicultural, and storm

water runoff point sources. The technological or administrative infeasibility *1371 **149 of such limitations may warrant adjustments in the permit program, but it does not authorize the Administrator to exclude the relevant point source from the NPDES program.

3. Where numeric effluent limitations are infeasible, permit conditions may proscribe industry practices that aggravate the problems of point source pollution as well as require monitoring and reporting of effluent levels.

4. A number of administrative devices, including general or area permits, are available to aid EPA in the practical administration of the NPDES program. The FWPCA, however tight in some respects, leaves some leeway to EPA in the interpretation of that statute and, in that regard, affords the agency some means to consider matters of feasibility.

Appeals from the United States District Court for the District of Columbia (D.C. Civil 1629-73).

Irvin B. Nathan, Washington, D. C., with whom Burton J. Mallinger, Washington, D. C., was on the brief, for appellant in No. 75-2056.

Charles W. Bills, Washington, D. C., with whom James R. Murphy, Washington, D. C., was on the brief for appellant in No. 75-2066.

G. William Frick, Atty., Dept. of Justice, Kansas City, Mo., of the bar of the Supreme Court of Missouri, pro hac vice by special leave of court for appellants in No. 75-2067. Peter R. Taft, Asst. Atty. Gen., Robert V. Zener, Gen. Counsel, Environmental Protection Agency, Edmund B. Clark, Lloyd S. Guerci, Larry A. Boggs, Attys., Dept. of Justice and Pamela P. Quinn, Atty., Environmental Protection Agency, Washington, D. C., were on the brief for appellants in No. 75-2067.

Christopher D. Williams, Washington D. C., with whom Kenneth Balcomb and Robert L. McCarty, Washington, D. C., were on the brief for appellant in No. 75-2235.

J. G. Speth, Washington, D. C., for appellee.

Theodore O. Torve, Asst. Atty. Gen., State of Washington, Olympia, Wash., filed a brief on behalf of the State of Washington as amicus curiae urging reversal in No. 75-2056.

Richard E. Schwartz, Jefferson City, Mo., filed a brief on behalf of Iron and Steel Institute, as amicus curiae urging reversal in No. 75-2067.

John L. Hill, Atty. Gen., State of Texas, and David M. Kendall, Jr., First Asst. Atty. Gen., State of Texas, Austin, Tex., filed a brief on behalf of State of Texas as amicus curiae urging reversal in No. 75-2067.

Before BAZELON, Chief Judge, and LEVENTHAL and MacKINNON, Circuit Judges.

Opinion for the Court filed by LEVENTHAL, Circuit Judge.

Concurring Opinion filed by MacKINNON, Circuit Judge.

LEVENTHAL, Circuit Judge:

In 1972 Congress passed the Federal Water Pollution Control Act Amendments (hereafter referred to as the "FWPCA" or the "Act" [FN1]). It was a dramatic response to accelerating environmental degradation of rivers, lakes and streams in this country. The Act's stated goal is to eliminate the discharge of pollutants into the Nation's waters by 1985. This goal is to be achieved through the enforcement of the strict timetables and technology-based effluent limitations established by the Act.

> FN1. 33 U.S.C. ss 1251-1376 (Supp. V 1975). Although characterized in the official title as "amendments", the 1972 FWPCA actually substitutes its provisions for those of the pre-1972 Federal Water Pollution Control Act as amended, id. ss 1151-1175 (1970).

The FWPCA sets up a permit program, the National Pollutant Discharge Elimination System (NPDES), as the primary means of enforcing the Act's effluent limitations.[FN2] At issue in this case is the authority *1372 **150 of the Administrator of the Environmental Protection

Agency to make exemptions from this permit component of the FWPCA.

> FN2. This case deals with s 402 of the FWPCA, 33 U.S.C. s 1342 (Supp. V 1975), which sets out the permitting authority of the EPA Administrator as well as that of the states under EPA-approved state permit programs. The Secretary of the Army also has a permitting authority in certain circumstances. Under s 404 of the FWPCA, 33 U.S.C. s 1344 (Supp. V 1975), he may issue permits for the discharge of dredged or fill material into navigable waters.

Section 402 of the FWPCA, 33 U.S.C. s 1342 (Supp. V 1975), provides that under certain circumstances the EPA Administrator "may . . . issue a permit for the discharge of any pollutant" notwithstanding the general proscription of pollutant discharges found in s 301 of the Act. 33 U.S.C. s 1311 (Supp. V 1975). The discharge of a pollutant is defined in the FWPCA as "any addition of any pollutant to navigable waters from any point source" or "any addition of any pollutant to the waters of the contiguous zone or the ocean from any point source other than a vessel or floating craft." 33 U.S.C. s 1362(12) (Supp. V 1975). In 1973 the EPA Administrator issued regulations that exempted certain categories of "point sources" of pollution from the permit requirements of s 402.[FN3] The Administrator's purported authority to make such exemptions turns on the proper interpretation of s 402.

> FN3. 40 C.F.R. s 125.4 (1975). See 38 Fed.Reg. 18000-04 (1973).

A "point source" is defined in s 502(14) as "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged." [FN4]

> FN4. 33 U.S.C. s 1362(14) (Supp. V 1975).

The 1973 regulations exempted discharges from a number of classes of point sources from the permit requirements of s 402, including all silvicultural point sources; all confined animal feeding operations below a certain size; all irrigation return flows from areas of less than 3,000 contiguous acres or 3,000 noncontiguous acres that use the same drainage system; all nonfeedlot, nonirrigation agricultural point sources; and separate storm sewers containing only storm runoff uncontaminated by any industrial or commercial activity. [FN5] The EPA's ***1373 **151** rationale for these exemptions is that in order to conserve the Agency's enforcement resources for more significant point sources of pollution, it is necessary to exclude these smaller sources of pollutant discharges from the permit program.

> FN5. 40 C.F.R. s 125.4 (1975):
> The following do not require an NPDES permit:
> (f) Uncontrolled discharges composed entirely of storm runoff when these discharges are uncontaminated by any industrial or commercial activity, unless the particular storm runoff discharge has been identified by the Regional Administrator, the State water pollution control agency or an interstate agency as a significant contributor of pollution. (It is anticipated that significant contributors of pollution will be identified in connection with the development of plans pursuant to section 303(e) of the Act. This exclusion applies only to separate storm sewers. Discharges from combined sewers and bypass sewers are not excluded.)
> (j) Discharges of pollutants from agricultural and silvicultural activities, including irrigation return flow and runoff from orchards, cultivated crops, pastures, rangelands, and forest lands, except that this exclusion shall not apply to the following:
> (1) Discharges from animal confinement facilities, if such facility or facilities contain, or at any time during the previous 12 months contained, for a total of 30 days or more, any of the following types of animals at or in excess of the number listed for each type of animal:
> (i) 1,000 slaughter and feeder cattle;
> (ii) 700 mature dairy cattle (whether milkers or dry cows);
> (iii) 2,500 swine weighing over 55 pounds;

(iv) 10,000 sheep;
(v) 55,000 turkeys;
(vi) If the animal confinement facility has continuous overflow watering, 100,000 laying hens and broilers;
(vii) If the animal confinement facility has liquid manure handling systems, 30,000 laying hens and broilers;
(viii) 5,000 ducks;
(2) Discharges from animal confinement facilities, if such facility or facilities contain, or any time during the previous 12 months contained for a total of 30 days or more, a combination of animals such that the sum of the following numbers is 1,000 or greater: the number of slaughter and feeder cattle multiplied by 1.0, plus the number of mature dairy cattle multiplied by 1.4, plus the number of swine weighing over 55 pounds multiplied by 0.4, plus the number of sheep multiplied by 0.1;
(3) Discharges from aquatic animal production facilities;
(4) Discharges of irrigation return flow (such as tailwater, tile drainage, surfaced ground water flow or bypass water), operated by public or private organizations or individuals, if: (1) There is a point source of discharge (e. g., a pipe, ditch, or other defined or discrete conveyance, whether natural or artificial) and; (2) the return flow is from land areas of more than 3,000 contiguous acres, or 3,000 non-contiguous acres which use the same drainage system; and
(5) Discharges from any agricultural or silvicultural activity which have been identified by the Regional Administrator or the Director of the State water pollution control agency or interstate agency as a significant contributor of pollution.

The National Resources Defense Council, Inc. (NRDC) sought a declaratory judgment that the regulations are unlawful under the FWPCA. Specifically, NRDC contended that the Administrator does not have authority to exempt any class of point source from the permit requirements of s 402. It argued that Congress in enacting ss 301, 402 of the FWPCA intended to prohibit the discharge of pollutants from all point sources unless a permit had been issued to the discharger under s 402 or unless the point source was explicitly exempted from the permit requirements by statute. The District Court granted NRDC's motion for summary judgment. It held that the FWPCA does not authorize the Administrator to exclude any class of point sources from the permit program. NRDC v. Train, 396 F.Supp. 1393 (D.D.C.1975). The EPA has appealed to this court. It is joined on appeal by a number of defendant-intervenors, National Forest Products Association (NFPA), National Milk Producers Federation (NMPF), and the Colorado River Conservation District.[FN6]

FN6. Briefs as amicus curiae were filed by the American Iron and Steel Institute, the State of Texas, and the State of Washington, Department of Natural Resources.

This case thus presents principally a question of statutory interpretation. EPA also argues that even if Congress intended to include the pertinent categories in the permit program, the regulations exempting them should be upheld on a doctrine of administrative infeasibility, i. e., the regulations should be upheld as a deviation from the literal terms of the FWPCA that is necessary to permit the Agency to realize the principal objectives of the Act.

I. LEGISLATIVE HISTORY

The principal purpose of the FWPCA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." [FN7] The Act's ultimate objective, to eliminate the discharge of pollutants into navigable waters by 1985, is to be achieved by means of two intermediate steps. As of July 1, 1977, all point sources other than publicly owned treatment works were to have achieved effluent limitations that require application of the "best practicable control technology." [FN8] These same point sources must reduce their effluent discharges by July 1, 1983, to meet limitations determined by application of the "best available technology economically achievable" for each category of point source.[FN9]

FN7. 33 U.S.C. s 1251(a) (Supp. V 1975).

FN8. 33 U.S.C. s 1311(b)(1)(A) (Supp. V 1975).

FN9. Id. s 1311(b)(2)(A).

The technique for enforcing these effluent limitations is straightforward. Section 301(a) of the FWPCA provides:

> Except as in compliance with this section and sections 302, 306, 307, 318, 402, and 404 of this Act, the discharge of any pollutant by any person shall be unlawful.[FN10]

FN10. Id. s 1311(a).

Appellants concede that if the regulations are valid, it must be because they are authorized ***1374 **152** by s 402; none of the other sections listed in s 301(a) afford grounds for relieving the exempted point sources from the prohibition of s 301. [FN11]

> FN11. Section 302, 33 U.S.C. s 1312 (Supp. V 1975), permits the Administrator to set water quality related effluent limitations or control strategies where technology-based limitations are inadequate. Section 306, 33 U.S.C. s 1316 (Supp. V 1975), instructs the EPA Administrator to promulgate standards of performance for new sources of pollution constructed after those standards are proposed. Section 307, 33 U.S.C. s 1317 (Supp. V 1975), gives the EPA Administrator the authority to issue generally applicable effluent standards with respect to toxic substances and to require pretreatment of some pollutants before their introduction into treatment works. By virtue of s 318, 33 U.S.C. s 1328 (Supp. V 1975), the Administrator may "permit the discharge of a specific pollutant or pollutants under controlled conditions associated with an approved aquaculture project under Federal or State supervision." Section 404, 33 U.S.C. s 1344 (Supp. V 1975), gives the Secretary of the Army authority to issue permits for the discharge of dredged or fill material into the navigable waters at specified disposal sites.

Section 402 provides in relevant part that the Administrator may, after opportunity for public hearing, issue a permit for the discharge of any pollutant, or combination of pollutants, notwithstanding section 301(a), upon condition that such discharge will meet either all applicable requirements under sections 301, 302, 306, 307, 308, and 403 of this Act, or prior to the taking of the necessary implementing actions relating to all such requirements, such conditions as the Administrator determines are necessary to carry out the provisions of this Act.

The NPDES permit program established by s 402 is central to the enforcement of the FWPCA. It translates general effluent limitations into the specific obligations of a discharger. As this court noted in NRDC v. Train, 166 U.S.App.D.C. 312, 315, 510 F.2d 692, 695 (1975), the Act "relies primarily on a permit program for the achievement of effluent limitations . . . to attain its goals." The comments in floor debates of Senator Muskie, the leading Congressional sponsor of the Act, makes this clear.[FN12]

> FN12. "The Administrator of the Environmental Protection Agency is authorized to regulate discharge of pollutants through the use of an expanded permit program." 117 Cong.Rec. 38800 (1971) (Senator Muskie) (emphasis added), reprinted in 2 Environmental Policy Div., Congressional Reference Serv., A Legislative History of the Water Pollution Control Act Amendments of 1972, at 1259 (Senate Public Works Comm. Print 1973) (hereinafter cited as Legislative History).

The appellants argue that s 402 not only gives the Administrator the discretion to grant or refuse a permit, but also gives him the authority to exempt classes of point sources from the permit requirements entirely. They argue that this interpretation is supported by the legislative history of s 402 and the fact that unavailability of this exemption power would place unmanageable administrative burdens on the EPA.

[1] Putting aside for the moment the appellants' administrative infeasibility argument, we agree with the District Court that the legislative history makes clear that Congress intended the NPDES permit to be the only means by which a discharger from a point source may escape the total prohibition of s 301(a). This intention is evident in both Committee Reports. In discussing s 301 the House

Report stressed:

> Any discharge of a pollutant without a permit issued by the Administrator under section 318, or by the Administrator or the State under section 402 or by the Secretary of the Army under section 404 is unlawful. Any discharge of a pollutant not in compliance with the conditions or limitations of such a permit is also unlawful.[FN13]

> FN13. H.Rep.No.92-911, 92d Cong., 2d Sess. 100 (1972), reprinted in Legislative History at 787.

The Senate Report echoed this interpretation:

> (Section 301) clearly establishes that the discharge of pollutants is unlawful. Unlike its predecessor program which permitted the discharge of certain amounts of pollutants under the conditions described above, this legislation would clearly establish that no one has the right ***1375 **153** to pollute that pollution continues because of technological limits, not because of any inherent rights to use the nation's waterways for the purpose of disposing of wastes.
>
> The program proposed by this Section will be implemented through permits issued in Section 402. The Administrator will have the capability and the mandate to press technology and economics to achieve those levels of effluent reduction which he believes to be practicable in the first instance and attainable in the second.[FN14]

> FN14. S.Rep.No.92-414, 92d Cong., 1st Sess. 42 (1971), reprinted in Legislative History at 1460; U.S.Code Cong. & Admin.News 1972, pp. 3668, 3709.

[2] The EPA argues that since s 402 provides that "the Administrator may . . . issue a permit for the discharge of any pollutant" (emphasis added), he is given the discretion to exempt point sources from the permit requirements altogether. This argument, as to what Congress meant by the word "may" in s 402, is insufficient to rebut the plain language of the statute and the committee reports. We say this with due awareness of the deference normally due "the construction of a new statute by its implementing agency." NRDC v. Train, 166 U.S.App.D.C. at 326, 510 F.2d at 706; see Zuber v. Allen, 396 U.S. 168, 192, 90 S.Ct. 314, 24 L.Ed.2d 345 (1969); Udall v. Tallman, 380 U.S. 1, 16, 85 S.Ct. 792, 13 L.Ed.2d 616 (1965). The use of the word "may" in s 402 means only that the Administrator has discretion either to issue a permit or to leave the discharger subject to the total proscription of s 301. This is the natural reading, and the one that retains the fundamental logic of the statute.

Under the EPA's interpretation the Administrator would have broad discretion to exempt large classes of point sources from any or all requirements of the FWPCA. This is a result that the legislators did not intend. Rather they stressed that the FWPCA was a tough law that relied on explicit mandates to a degree uncommon in legislation of this type. A statement of Senator Jennings Randolph of West Virginia, Chairman of the Senate Committee responsible for the Act, is illustrative.

> I stress very strongly that Congress has become very specific on the steps it wants taken with regard to environmental protection. We have written into law precise standards and definite guidelines on how the environment should be protected. We have done more than just provide broad directives for administrators to follow. . . .
>
> In the past, too many of our environmental laws have contained vague generalities. What we are attempting to do now is provide laws that can be administered with certainty and precision. I think that is what the American people expect that we do.[FN15]

> FN15. 117 Cong.Rec. 38805 (1971), reprinted in Legislative History at 1272. See also the comments of Senator Montoya on the original Senate bill.
>
> Your committee has placed before you a tough bill. This body and this Nation would not have it be otherwise. Our legislation contains an important principle of psychology: Men seldom draw the best from themselves unless pressed by circumstances and deadlines. This bill contains deadlines and it imposes rather tough standards on industry, municipalities, and all other sources of pollution. Only under such conditions are we likely to press the technological threshold of invention into new and imaginative developments that will allow us to

> meet the objectives stated in our bill.
> 117 Cong.Rec. 38808 (1971), reprinted in Legislative History at 1278.

There are innumerable references in the legislative history to the effect that the Act is founded on the "basic premise that a discharge of pollutants without a permit is unlawful and that discharges not in compliance with the limitations and conditions for a permit are unlawful." [FN16] Even when infeasibility arguments were squarely raised, ***1376 ****154** the legislature declined to abandon the permit requirement.[FN17] We stand by our previous interpretation of the Act's scheme for the enforcement of effluent limitations:

> FN16. 118 Cong.Rec. 10215 (1972) (Rep. Clausen), reprinted in Legislative History at 378. See, e. g., H.R.Rep.No.92-911 92d Cong., 2d Sess. 100 (1972), reprinted in Legislative History at 787; S.Rep.No.92-414; 92d Cong., 1st Sess. 42-43 (1971), reprinted in Legislative History at 1460-61; 118 Cong.Rec. 10661 (1972) (Rep. Podell), reprinted in Legislative History at 574.
>
> FN17. The House rejected an amendment designed to avoid the problems of including irrigation return flows in the permit program. Congressman Teno Roncalio of Wyoming offered an amendment on the floor of the House that would have explicitly exempted irrigated agriculture from the NPDES permit program.
> Mr. RONCALIO. . . .
> I offer my amendment so that a serious omission to H.R. 11896 can be corrected before we end up with a law that would be virtually impossible to enforce. My amendment would specifically exempt irrigated agriculture from sections 301(a), 302 and 304 of the Federal Water Pollution Control Act.
> I think my colleagues will agree that the type of salinity problems created by irrigation runoff are simply not as alarming as the more common pollutants discharged by industrial and municipal facilities. Substantial salinity concentrations have little effect on recreational use of water or its suitability for the propagation of fish.
> My amendment is necessary, Mr. Chairman, because at the present time we could not enforce pollution control on irrigation systems. It is virtually impossible to trace pollutants to specific irrigation lands, making these pollutants a nonpoint source in most cases. Second, we do not have the technology to deal with irrigation runoff (as contrasted to industrial pollution) and if we begin making laws to control something that cannot be handled with our given technological knowledge, we will be doing many thousand farmers and ranchers a great disservice. In fact, we will be doing the Federal Government a great disservice if we actually pass a Federal water pollution control bill that cannot be fully enforced.
> 118 Cong.Rec. 10764-65 (1972), reprinted in Legislative History at 651. The amendment was rejected.

> After dates set forth in (s 301(b)), a person must obtain a permit and comply with its terms in order to discharge any pollutant. The conditions of the permit must assure that any discharge complies with the applicable requirements of numerous sections including the effluent limitations of section 301(b).

NRDC v. Train, 166 U.S.App.D.C. at 316, 510 F.2d at 696 (emphasis added; footnotes omitted).

We also note that all the Supreme Court decisions referring to s 402 view the permit as the only means by which a point source polluter can avoid the ban on discharges found in s 301. Strictly speaking these expressions may be dicta, for they do not touch directly on the interpretation of s 402. But they are at least a considered reading of what the Act appears to mean.

In Train v. Colorado Public Interest Research Group, Inc., 426 U.S. 1, 96 S.Ct. 1938, 48 L.Ed.2d 434 (1976), Justice Marshall characterized the enforcement scheme of the FWPCA as follows:

> (E)ffluent limitations are enforced through a permit program. The discharge of "pollutants" into water is unlawful without a permit issued by the Administrator of the EPA or, if a State has developed a program that complies with the FWPCA, by the State. . . .

Id. at 7, 96 S.Ct. at 1941 (footnote omitted).

In EPA v. State Water Resources Control Board, 426 U.S. 200, 96 S.Ct. 2022, 48 L.Ed.2d 578 (1976), the issue was whether federal installations were subject to state NPDES programs. Justice White's majority opinion describes NPDES at 205, 96 S.Ct. at 2025 (footnote omitted):

> Under NPDES, it is unlawful for any person to discharge a pollutant without obtaining a permit and complying with its terms. An NPDES permit serves to transform generally applicable effluent limitations and other standards including those based on water quality into the obligations (including a timetable for compliance) of the individual discharger, and the Amendments provide for direct administrative and judicial enforcement of permits.

In E. I. du Pont de Nemours v. Train, 430 U.S. 112, 97 S.Ct. 965, 51 L.Ed.2d 204 (1977), the Court held that under FWPCA the EPA can set uniform effluent limitations through industry-wide regulations rather than develop them on an individual basis during the permit issuance process. But the Court, per Justice Stevens, clearly indicated ***1377 ****155** that those limitations were translated into obligations of the discharger through their inclusion in an NPDES permit. Id. at 119-20, 97 S.Ct. 965.

The wording of the statute, legislative history, and precedents are clear: the EPA Administrator does not have authority to exempt categories of point sources from the permit requirements of s 402. Courts may not manufacture for an agency a revisory power inconsistent with the clear intent of the relevant statute. In holding that the FPC does not have authority to exempt the rates of small producers from regulation under the Natural Gas Act, the Supreme Court observed:

> It is not the Court's role . . . to overturn congressional assumptions embedded into the framework of regulation established by the Act. This is a proper task for the Legislature where the public interest may be considered from the multifaceted points of view of the representational process.

FPC v. Texaco, Inc., 417 U.S. 380, 400, 94 S.Ct. 2315, 2327, 41 L.Ed.2d 141 (1974).

II. ADMINISTRATIVE INFEASIBILITY

The appellants have stressed in briefs and at oral argument the extraordinary burden on the EPA that will be imposed by the above interpretation of the scope of the NPDES program. The spectre of millions of applications for permits is evoked both as part of appellants' legislative history argument that Congress could not have intended to impose such burdens on the EPA and as an invitation to this court to uphold the regulations as deviations from the literal terms of the FWPCA necessary to permit the agency to realize the general objectives of that act. During oral argument we asked for supplemental briefs so that the appellants could expand on their infeasibility arguments. We consider EPA's infeasibility contentions in turn.

A. Uniform National Effluent Limitations

EPA argues that the regulatory scheme intended under Titles III and IV of the FWPCA requires, first, that the Administrator establish national effluent limitations [FN18] and, second, that these limitations be incorporated in the individual permits of dischargers. EPA argues that the establishment of such limitations is simply not possible with the type of point sources involved in the 1973 regulations, which essentially involve the discharge of runoff i. e., wastewaters generated by rainfall that drain over terrain into navigable waters, picking up pollutants along the way.

> FN18. See FWPCA s 502(11), 33 U.S.C. s 1362(11) (Supp. V 1975):
> The term "effluent limitation" means any restriction established by a State or the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters, the waters of the contiguous zone, or the ocean, including schedules of compliance.

There is an initial question, to what extent point sources are involved in agricultural, silvicultural, and storm sewer runoff. The definition of point source in s 502(14), including the concept of a "discrete conveyance", suggests that there is room here for some exclusion by interpretation. We discuss this issue subsequently. Meanwhile, we assume that even taking into account what are clearly point sources,

there is a problem of infeasibility which the EPA properly opens for discussion.

EPA contends that certain characteristics of runoff pollution make it difficult to promulgate effluent limitations for most of the point sources exempted by the 1973 regulations:

> The major characteristic of the pollution problem which is generated by runoff . . . is that the owner of the discharge point . . . has no control over the quantity of the flow or the nature and amounts of the pollutants picked up by the runoff. The amount of flow obviously is unpredictable because it results from the duration and intensity of the rainfall event, the topography, the type of ground cover and the saturation point of the land due to any previous ***1378 **156** rainfall. Similar factors affect the types of pollutants which will be picked up by that runoff, including the type of farming practices employed, the rate and type of pesticide and fertilizer application, and the conservation practices employed . . .
>
> An effluent limitation must be a precise number in order for it to be an effective regulatory tool; both the discharger and the regulatory agency need to have an identifiable standard upon which to determine whether the facility is in compliance. That was the principal of the passage of the 1972 Amendments.

Federal Appellants' Memorandum on "Impossibility" at 7-8 (footnote omitted). Implicit in EPA's contentions is the premise that there must be a uniform effluent limitation prior to issuing a permit. That is not our understanding of the law.

In NRDC v. Train, we described the interrelationship of the effluent limitations and the NPDES permit program, 166 U.S.App.D.C. at 327, 510 F.2d at 707 (footnotes omitted):

> The Act relies on effluent limitations on individual point sources as the "basis of pollution prevention and elimination." . . . Section 301(b) contains a broad description of phase one and phase two effluent limitations, to be achieved by July 1, 1977 and July 1, 1983, respectively. The limitations established under section 301(b) are to be imposed upon individual point sources through permits issued under the National Pollutant Discharge Elimination System (NPDES) established by section 402. Those permits are to contain schedules which will assure phased compliance with the effluent limitations no later than the final dates set forth in section 301(b). Section 304(b) calls for the publication of regulations containing guidelines for effluent limitations for classes and categories of point sources. These guidelines are intended to assist in the establishment of section 301(b) limitations that will provide uniformity in the permit conditions imposed on similar sources within the same category by diverse state and federal permit authorities.

As noted in NRDC v. Train, the primary purpose of the effluent limitations and guidelines was to provide uniformity among the federal and state jurisdictions enforcing the NPDES program and prevent the "Tragedy of the Commons" [FN19] that might result if jurisdictions can compete for industry and development by providing more liberal limitations than their neighboring states. 166 U.S.App.D.C. at 329, 510 F.2d at 709. The effluent limitations were intended to create floors that had to be respected by state permit programs.

> FN19. As one commentator has recently written:
>
> The Tragedy of the Commons arises in noncentralized decisionmaking under conditions in which the rational but independent pursuit by each decisionmaker of its own self-interest leads to results that leave all decisionmakers worse off than they would have been had they been able to agree collectively on a different set of policies. Stewart, Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Environmental Policy, 86 Yale L.J. 1196, 1211 (1977). The classic account of the Tragedy of the Commons can be found in Hardin, The Tragedy of the Commons, 162 Science 1243 (1968). Hardin makes the point in the context of sheep-grazing. Put simply, even over-simply, Hardin shows that if no one is authorized to set limits to preserve open pasture land as a whole, allowing sheep to graze on that land may lead to serious overgrazing, as each herdsman thinks only of his own advantage. The solution lies in some mandate, from above or by agreement, with sanctions to compel conformance.

But in NRDC v. Train it was also recognized that permits could be issued before national effluent limitations were promulgated and that permits issued subsequent to promulgation of uniform effluent limitations could be modified to take account of special characteristics of subcategories of point sources.

> Prior to the promulgation of effluent limitations under section 301, the director of a state program is instructed merely to impose such terms and conditions in each permit as he determines are necessary to carry out the provisions of the Act. Once *1379 **157 an effluent limitation is established, however, the state director and the regional EPA Administrator are required to apply the specified, uniform effluent limitations, modified only as necessary to take account of fundamentally different factors pertaining to particular point sources within a given class or category. Any variation in the uniform limitations adopted for specific dischargers must be approved by the Administrator.

166 U.S.App.D.C. at 330, 510 F.2d at 710 (footnotes omitted).

Another passage in NRDC v. Train touches on the infeasibility problem. We noted that "(t)he statutory framework is not so tightly drawn as to require guidelines for each and every class and category of point source regardless of the need for uniform guidelines or to mandate that all guidelines be published prior to December 31 (1974) regardless of their quality or the burden that task would place upon the agency." Id. at 320-21, 510 F.2d at 710-11. In that case this court fully appreciated that technological and administrative constraints might prevent the Administrator from developing guidelines and corresponding uniform numeric effluent limitations for certain point sources anytime in the near future. The Administrator was deemed to have the burden of demonstrating that the failure to develop the guidelines on schedule was due to administrative or technological infeasibility. 166 U.S.App.D.C. at 333, 510 F.2d at 713. Yet the underlying teaching was that technological or administrative infeasibility was a reason for adjusting court mandates to the minimum extent necessary to realize the general objectives of the Act. [FN20] It is a number of steps again to suggest that these problems afford the Administrator the authority to exempt categories of point sources from the NPDES program entirely.

> FN20. In NRDC v. Train, this court stated:
> A federal equity court may exercise its discretion to give or withhold its mandate in furtherance of the public interest, including specifically the interest in effectuating the congressional objective incorporated in regulatory legislation. We think the court may forebear the issuance of an order in those cases where it is convinced by the official involved that he has in good faith employed the utmost diligence in discharging his statutory responsibilities. The sound discretion of an equity court does not embrace enforcement through contempt of a party's duty to comply with an order that calls him "to do an impossibility."
> 166 U.S.App.D.C. at 333, 510 F.2d at 713 (footnotes omitted). For reasons stated in this opinion, we conclude that to require the EPA Administrator to include silvicultural, agricultural, and storm sewer point sources in the NPDES program is not to require him "to do an impossibility."

With time, experience, and technological development, more point sources in the categories that EPA has now classed as exempt may be amenable to national effluent limitations achieved through end-of-pipe technology or other means of pollution control. EPA has noted its own success with runoff from mining operations:

> EPA has found that in the area of runoff from mining operations, there is sufficient predictability because of a longer history of regulation and the relatively confined nature of the operations that numerical limitations can be established. Thus, consistent with EPA's position stated earlier that it will expand the permit program where its capability of establishing effluent limitations allows, appropriate limitations have been created and the permit program expanded.

Federal Appellants' Memorandum on "Impossibility" at 8.

[3] In sum, we conclude that the existence of uniform national effluent limitations is not a necessary precondition for incorporating into the NPDES program pollution from

agricultural, silvicultural, and storm water runoff point sources. The technological or administrative infeasibility of such limitations may result in adjustments in the permit programs, as will be seen, but it does not authorize the Administrator to exclude the relevant point source from the NPDES program.

B. Alternative Permit Conditions under s 402(a)

EPA contends that even if it is possible to issue permits without national effluent limitations, ***1380 **158** the special characteristics of point sources of runoff pollution make it infeasible to develop restrictions on a case-by-case basis. EPA's implicit premise is that whether limitations are promulgated on a class or individual source basis, it is still necessary to articulate any limitation in terms of a numerical effluent standard. That is not our understanding.

[4] Section 402 provides that a permit may be issued upon condition "that such discharge will meet either all applicable requirements under sections 301, 302, 306, 307, 308 and 403 of this Act, or prior to taking of necessary implementing actions relating to all such requirements, such conditions as the Administrator determines are necessary to carry out the provisions of this Act." 33 U.S.C. s 1342(a) (Supp. V 1975) (emphasis added). This provision gives EPA considerable flexibility in framing the permit to achieve a desired reduction in pollutant discharges. The permit may proscribe industry practices that aggravate the problem of point source pollution.[FN21]

> FN21. That Congress did not regard numeric effluent limitations as the only permissible limitation on a discharger is supported by s 302(a) of the Act, 33 U.S.C. s 1312(a) (Supp. V 1975):
> Whenever, in the judgment of the Administrator, discharges of pollutants from a point source or group of point sources, with the application of effluent limitations required under (s 301(b) of the Act), would interfere with the attainment or maintenance of that water quality in a specific portion of the navigable waters which shall assure protection of public water supplies, agricultural and industrial uses, and the protection and propagation of a balanced population of shellfish, fish and wildlife, and allow recreational activities in and on the water, effluent limitations (including alternative effluent control strategies) for such point source or sources shall be established which can reasonably be expected to contribute to the attainment or maintenance of such water quality.
> The emphasis has been added.

EPA's counsel caricatures the matter by stating that recognition of any such authority would give EPA the power "to instruct each individual farmer on his farming practices." Federal Appellants Memorandum on "Impossibility" at 12. Any limitation on a polluter forces him to modify his conduct and operations. For example, an air polluter may have a choice of installing scrubbers, burning different fuels or reducing output. Indeed, the authority to prescribe limits consistent with the best practicable technology may be tantamount to prescribing that technology. Of course, when alternative techniques are available, Congress intended to give the discharger as much flexibility as possible in choosing his mode of compliance. See, e. g., H.Rep.No.92-911, 92d Cong., 2d Sess. 107, reprinted in Legislative History at 794. We only indicate here that when numerical effluent limitations are infeasible, EPA may issue permits with conditions designed to reduce the level of effluent discharges to acceptable levels. This may well mean opting for a gross reduction in pollutant discharge rather than the fine-tuning suggested by numerical limitations. But this ambitious statute is not hospitable to the concept that the appropriate response to a difficult pollution problem is not to try at all.

It may be appropriate in certain circumstances for the EPA to require a permittee simply to monitor and report effluent levels; EPA manifestly has this authority.[FN22] Such permit conditions might be desirable where the full extent of the pollution problem is not known.

> FN22. FWPCA s 402(a)(3), (b)(2)(B), 33 U.S.C. s 1342(a)(3), (b)(2)(B) (Supp. V 1975). EPA concedes that it has this authority. Federal Appellants' Memorandum on "Impossibility" at 14.

C. General Permits

Finally, EPA argues that the number of permits involved in the absence of an exemption authority will simply overwhelm the Agency. Affidavits filed with the District Court indicate, for example, that the number of silviculture point sources may be over 300,000 and that there are approximately 100,000 separate storm sewer point sources.[FN23] We are and must be sensitive to ***1381 ****159** EPA's concerns of an intolerable permit load. But the District Court and the various parties have suggested devices to mitigate the burden to accommodate within a practical regulatory scheme Congress's clear mandate that all point sources have permits. All that is required is that EPA makes full use of its interpretational authority. The existence of a variety of options belies EPA's infeasibility arguments.

> FN23. Affidavit of William H. McCredie, Director, Industrial Forestry, of the NFPA; Affidavit of Walter G. Gilbert, Chief of the Municipal Operations Branch, Municipal Waste Water Systems Div., EPA Office of Air and Water Programs.

[5] Section 402 does not explicitly describe the necessary scope of a NPDES permit. The most significant requirement is that the permit be in compliance with limitation sections of the Act described above. As a result NRDC and the District Court have suggested the use of area or general permits. The Act allows such techniques. Area-wide regulation is one well-established means of coping with administrative exigency. An instance is area pricing for natural gas producers, which the Supreme Court upheld in Permian Basin Area Rate Cases, 390 U.S. 747, 88 S.Ct. 1344, 20 L.Ed.2d 312 (1968).[FN24] A more dramatic example is the administrative search warrant, which may be issued on an area basis despite the normal Fourth Amendment requirement of probable cause for searching specific premises. Camara v. Municipal Court, 387 U.S. 523, 87 S.Ct. 1727, 18 L.Ed.2d 930 (1967).

> FN24. In Permian Basin the Supreme Court observed:
>
> The Commission has asserted, and the history of producer regulation has confirmed, that the ultimate achievement of the Commission's regulatory purposes may easily depend upon the contrivance of more expeditious administrative methods. The Commission believes that the elements of such methods may be found in area proceedings. "(C)onsiderations of feasibility and practicality are certainly germane" to the issues before us. . . . We cannot, in these circumstances, conclude that Congress has given authority inadequate to achieve with reasonable effectiveness the purposes for which it has acted.
>
> 390 U.S. at 777, 88 S.Ct. at 1365.

In response to the District Court's order, EPA promulgated regulations that make use of the general permit device. 42 Fed.Reg. 6846-53 (Feb. 4, 1977). The general permit is addressed to a class of point source dischargers, subject to notice and opportunity for public hearing in the geographical area covered by the permit. Although we do not pass on the validity of the February, 1977, regulations, they serve to dilute an objection of wholesale infeasibility. [FN25]

> FN25. It is also of some, albeit limited, significance that the House Committee on Government Operations found EPA's administrative problems with applying the permit program to animal feedlots "grossly exaggerated." It was of the opinion that the Administrator did not have authority to exempt point sources from the NPDES program. H.Rep.No.93-1012, 93d Cong., 2d Sess. 15-30 (1974).

Our approach is not fairly subject to the criticism that it elevates form over substance that the end result will look very much like EPA's categorical exemption. It is the function of the courts to require agencies to comply with legislative intent when that intent is clear, and to leave it to the legislature to make adjustments when the result is counterproductive.[FN26] At the same time, where intent on an issue is unclear, ***1382 ****160** we are instructed to afford the administering agency the flexibility necessary to achieve the general objectives of the Act. Weinberger v. Bentex Pharmaceuticals, Inc., 412 U.S. 645, 653, 93 S.Ct. 2448, 37 L.Ed.2d 235 (1973); United States v. Southwestern Cable Co., 392 U.S. 157, 177-78, 88 S.Ct. 1994, 20 L.Ed.2d 1001

(1968); Permian Basin Area Rate Cases, 390 U.S. 747, 780, 88 S.Ct. 1344, 20 L.Ed.2d 312 (1968). These lines of authority conjoin in our approach. We insist, as the Act insists, that a permit is necessary; the Administrator has no authority to exempt point sources from the NPDES program. But we concede necessary flexibility in the shaping of the permits that is not inconsistent with the clear terms of the Act.

> FN26. The Supreme Court recently reiterated this instruction in Union Electric Co. v. EPA, 427 U.S. 246, 96 S.Ct. 2518, 49 L.Ed.2d 474 (1976). There the Court held that the EPA Administrator could not consider claims of technological or economic infeasibility when approving state implementation plans under the Clean Air Act Amendments of 1970, 42 U.S.C. ss 1857a-1857l (1970). Such claims were held only to be cognizable by the states in the plan design stage or by the Administrator when drawing up compliance orders. Justice Marshall, writing for the Court, emphasized that federal courts are not to ignore clear expressions of Congressional intent in order to accommodate claims of technological or economic infeasibility.
>
> Allowing such claims to be raised by appealing the Administrator's approval of an implementation plan . . . would frustrate congressional intent. It would permit a proposed plan to be struck down as infeasible before it is given a chance to work, even though Congress clearly contemplated that some plans would be infeasible when proposed. And it would permit the Administrator or a federal court to reject a State's legislative choices in regulating air pollution, even though Congress plainly left with the States, so long as the national standards were met, the power to determine which sources would be burdened by regulation and to what extent. Technology forcing is a concept somewhat new to our national experience and it necessarily entails certain risks. But Congress considered those risks in passing the 1970 Amendments and decided that the dangers posed by uncontrolled air pollution made them worth taking. Petitioner's theory would render that considered legislative judgment a nullity, and that is a result we refuse to reach.
>
> 427 U.S. at 268-69, 96 S.Ct. at 2531 (footnote omitted). See also Wilderness Society v. Morton, 156 U.S.App.D.C. 121, 171, 479 F.2d 842, 892 (1973), cert. denied, 411 U.S. 917, 93 S.Ct. 1550, 36 L.Ed.2d 309 (quoting United States v. City and County of San Francisco, 310 U.S. 16, 31-32, 60 S.Ct. 749, 84 L.Ed. 1050 (1940): " 'We cannot accept the contention that administrative rulings such as those relied on can thwart the plain purpose of a valid law.' ")

There is also a very practical difference between a general permit and an exemption. An exemption tends to become indefinite: the problem drops out of sight, into a pool of inertia, unlikely to be recalled in the absence of crisis or a strong political protagonist. In contrast, the general or area permit approach forces the Agency to focus on the problems of specific regions and requires that the problems of the region be reconsidered at least every five years, the maximum duration of a permit.[FN27]

> FN27. 33 U.S.C. s 1342(a)(3), (b)(1)(B) (Supp. V 1975).

D. Other Interpretational Powers

[6] Many of the intervenor-appellants appear to argue that the District Court should be reversed because the categories exempted by EPA are nonpoint sources and are not, in fact, point sources.[FN28] We agree with the District Court "that the power to define point and nonpoint sources is vested in EPA and should be reviewed by the court only after opportunity for full agency review and examination." 396 F.Supp. at 1396. The only issue precisely confronted by all the parties and properly framed for our consideration is whether the Administrator has authority to exempt point sources from the NPDES program. We also think that we should, for similar reasons, not consider at this time the appropriate definition of "discharge of any pollutant" as used in s 402. The American Iron and Steel Institute as amicus curiae has pressed upon us the argument that the term "discharge" as used in s 402 was intended to encompass only "volitional flows" that add pollutants to

navigable waters. Most forms of runoff, it is argued, do not involve volitional flows.

> FN28. This appears to be the position of the Colorado River Water Conservation District and the NFPA with respect to silvicultural activities, and NMPF, less obviously, with respect to small dairy farms.
>
> We would put in the same category EPA's contention that the exempt categories are best handled under the areawide waste treatment management planning process of s 208 of the FWPCA, 33 U.S.C. s 1288 (Supp. V 1975). By its terms that section is concerned with areawide waste treatment plans that identify and control "agriculturally and silviculturally related non-point sources of pollution." Id. s 1288(b)(2)(F).

[7] We assume that FWPCA, however tight in some respects, leaves some leeway to EPA in the interpretation of that statute, and in that regard affords the Agency some means to consider matters of feasibility. However, for reasons already noted, we do not consider these particular contentions as to interpretation on the merits.

III. CONCLUSION

[8] As the Supreme Court recently stated in a FWPCA case, "(t)he question . . .is ***1383** ****161** not what a court thinks is generally appropriate to the regulatory process, it is what Congress intended . . .." E. I. du Pont de Nemours & Co. v. Train, 430 U.S. 112, 138, 97 S.Ct. 965, 980, 51 L.Ed.2d 204 (1977). We find a plain Congressional intent to require permits in any situation of pollution from point sources. We also discern an intent to give EPA flexibility in the structure of the permits, in the form of general or area permits. We are aware that Congress hoped that more of the NPDES permit program would be administered by the states at this point. [FN29] But it also made provision for continuing EPA administration. Imagination conjoined with determination will likely give EPA a capability for practicable administration. If not, the remedy lies with Congress.

> FN29. See, e. g., 118 Cong.Rec. 10235 (1972) (Rep. Ichord) reprinted in Legislative History at 428.

So ordered.

MacKINNON, Circuit Judge, concurring:

I concur in the very sound and practical construction set forth in the foregoing opinion. Any person concerned with the actual application and enforcement of laws would necessarily be concerned by the application of the relevant legislation to all point sources in agriculture and particularly to irrigated agriculture. Concern would also lie in the congressional admission that present technology is inadequate to enable our citizens to meet the standards and deadlines the Act imposes; in passing the law, Congress was relying on the future "invention (of) new and imaginative developments that will allow us to meet the objectives of our bill." [FN1] In gambling parlance, Congress in enacting the law was "betting on the come." It is relying on our citizens in the near future to develop the complex technology to meet all the law's standards and objectives on time. The difficulty with that approach is that the hopes of Congress in this respect, like that of any gambler, might not be realized. The agency in this case, however, has shown that it takes a realistic view of both the situation and the task of meeting the difficult requirements and objectives of the Act. I sincerely hope that the ability of the agency to issue section 402 permits including general area permits [FN2] will permit it to meet the present and future compliance problems posed by the Act in a practical way.

> FN1. Comments of Senator Montoya, 117 Cong.Rec. 38808 (1971), quoted in court's opinion at 12, reprinted in Legislative History at 1278.
>
> FN2. As an example, an area permit with appropriate conditions and modifications could issue for the agricultural point sources within the Grand River Irrigation District, or the watershed of the Roaring Fork River and tributaries, etc.

END OF DOCUMENT

Tab 2

Briefs and Other Related Documents

United States Court of Appeals,
Ninth Circuit.

DEFENDERS OF WILDLIFE and The Sierra Club, Petitioners,
v.
Carol M. BROWNER, in her official capacity as Administrator of the United States Environmental Protection Agency, Respondent.
City of Tempe, Arizona; City of Tucson, Arizona; City of Mesa, Arizona; Pima County, Arizona; and City of Phoenix, Arizona, Intervenors-Respondents.

No. 98-71080.

Argued and Submitted Aug. 11, 1999.
Decided Sept. 15, 1999.

Environmental organizations sought review of Environmental Protection Agency (EPA) decision to issue National Pollution Discharge Elimination System (NPDES) permits to five municipalities, for their separate storm sewers, without requiring numeric limitations to ensure compliance with state water-quality standards. The Court of Appeals, Graber, Circuit Judge, held that: (1) organizations had standing; (2) municipal storm-sewer discharges did not have to strictly comply with state water-quality standards; but (3) EPA had discretion to require that municipal discharges comply with such standards.

Petition denied.

West Headnotes

[1] Environmental Law 651
149Ek651 Most Cited Cases
(Formerly 199k25.15(4.1) Health and Environment)
For purpose of statute authorizing any interested person to seek judicial review of Environmental Protection Agency (EPA) decision issuing or denying any National Pollution Discharge Elimination System (NPDES) permit, "any interested person" means any person that satisfies the injury-in-fact requirement for Article III standing. U.S.C.A. Const. Art. 3, § 2, cl. 1; Federal Water Pollution Control Act Amendments of 1972, § 509(b)(1)(F), 33 U.S.C.A. § 1369(b)(1)(F).

[2] Environmental Law 652
149Ek652 Most Cited Cases
(Formerly 199k25.15(4.1) Health and Environment)
Environmental organizations had standing to seek judicial review of Environmental Protection Agency (EPA) decision to issue National Pollution Discharge Elimination System (NPDES) permits for municipalities' storm sewers based on allegation that organizations' members used and enjoyed ecosystems affected by storm water discharges and sources thereof governed by the permits. U.S.C.A. Const. Art. 3, § 2, cl. 1; Federal Water Pollution Control Act Amendments of 1972, § 509(b)(1)(F), 33 U.S.C.A. § 1369(b)(1)(F).

[3] Environmental Law 220
149Ek220 Most Cited Cases
(Formerly 199k25.7(13.1), 199k25.7(11) Health and Environment)
Although best practicable control technology (BPT) requirement for National Pollution Discharge Elimination System (NPDES) permits takes into account issues of practicability, the Environmental Protection Agency (EPA) also is under a specific obligation to require that level of effluent control which is needed to implement existing water quality standards without regard to the limits of practicability. Federal Water Pollution Control Act Amendments of 1972, §§ 301(b)(1)(A, C), 402(a)(1), 33 U.S.C.A. §§ 1311(b)(1)(A, C), 1342(a)(1).

[4] Environmental Law 196
149Ek196 Most Cited Cases
(Formerly 199k25.7(13.1) Health and Environment)
Water Quality Act amendments to the Clean Water Act do not require municipal storm-sewer discharges to strictly comply with state water-quality standards, in order to obtain National Pollution Discharge Elimination System (NPDES) permit, but instead prescribe separate standard requiring reduction of discharge of pollutants to maximum extent practicable, in view of Act's distinction between municipal and industrial discharges. Federal Water Pollution Control Act Amendments of 1972, §§ 301(b)(1)(C), 402(p)(3)(B)(iii), 33 U.S.C.A. §§ 1311(b)(1)(C), 1342(p)(3)(B)(iii).

[5] Statutes ⚿219(1)
361k219(1) Most Cited Cases
Questions of congressional intent that can be answered with traditional tools of statutory construction are still firmly within the province of the courts under *Chevron*, which governs review of an agency's interpretation of a statute.
[6] Statutes ⚿188
361k188 Most Cited Cases
[6] Statutes ⚿205
361k205 Most Cited Cases
Using traditional tools of statutory construction when interpreting a statute, courts look first to the words that Congress used, and, rather than focusing just on the word or phrase at issue, courts look to the entire statute to determine Congressional intent.
[7] Statutes ⚿195
361k195 Most Cited Cases
Where Congress includes particular language in one section of a statute but omits it in another section of the same act, it is generally presumed that Congress acts intentionally and purposely in the disparate inclusion or exclusion.
[8] Environmental Law ⚿197
149Ek197 Most Cited Cases
(Formerly 199k25.7(10.1) Health and Environment)
Environmental Protection Agency (EPA) is not prohibited from requiring, under Clean Water Act, that municipal storm-sewer discharges strictly comply with state water-quality standards, but has discretion to determine appropriate pollution controls. Federal Water Pollution Control Act Amendments of 1972, § 402(p)(3)(B)(iii), 33 U.S.C.A. § 1342(p)(3)(B)(iii).
***1160** Jennifer Anderson and David Baron, Arizona Center for Law in the Public Interest, Phoenix, Arizona, for the petitioners.

Alan Greenberg, Attorney, U.S. Department of Justice, Environment & Natural Resources Division, Denver, Colorado, for the respondent.

Craig Reece, Phoenix City Attorney's Office, Phoenix, Arizona; Stephen J. Burg, Mesa City Attorney's Office, Mesa, Arizona; Timothy Harrison, Tucson City Attorney's Office, Tucson, Arizona; Harlan C. Agnew, Deputy County Attorney, Tucson, Arizona; and Charlotte Benson, Tempe City Attorney's Office, Tempe, Arizona, for the intervenors-respondents.

***1161** David Burchmore, Squire, Sanders & Dempsey, Cleveland, Ohio, for amici curiae.

Petition to Review a Decision of the Environmental Protection Agency. EPA No. 97-3.

Before: NOONAN, THOMPSON, and GRABER, Circuit Judges.

GRABER, Circuit Judge:

Petitioners challenge the Environmental Protection Agency's (EPA) decision to issue National Pollution Discharge Elimination System (NPDES) permits to five municipalities, for their separate storm sewers, without requiring numeric limitations to ensure compliance with state water-quality standards. Petitioners sought administrative review of the decision within the EPA, which the Environmental Appeals Board (EAB) denied. This timely petition for review ensued. For the reasons that follow, we deny the petition.

FACTUAL AND PROCEDURAL BACKGROUND

Title 26 U.S.C. § 1342(a)(1) authorizes the EPA to issue NPDES permits, thereby allowing entities to discharge some pollutants. In 1992 and 1993, the cities of Tempe, Tucson, Mesa, and Phoenix, Arizona, and Pima County, Arizona (Intervenors), submitted applications for NPDES permits. The EPA prepared draft permits for public comment; those draft permits did not attempt to ensure compliance with Arizona's water-quality standards.

Petitioner Defenders of Wildlife objected to the permits, arguing that they must contain numeric limitations to ensure strict compliance with state water-quality standards. The State of Arizona also objected.

Thereafter, the EPA added new requirements:

> To ensure that the permittee's activities achieve timely compliance with applicable water quality standards (Arizona Administrative Code, Title 18, Chapter 11, Article 1), the permittee shall implement the [Storm

> Water Management Program], monitoring, reporting and other requirements of this permit in accordance with the time frames established in the [Storm Water Management Program] referenced in Part I.A.2, and elsewhere in the permit. This timely implementation of the requirements of this permit shall constitute a schedule of compliance authorized by Arizona Administrative Code, section R18-11-121(C).

The Storm Water Management Program included a number of structural environmental controls, such as storm-water detention basins, retention basins, and infiltration ponds. It also included programs to remove illegal discharges.

With the inclusion of those "best management practices," the EPA determined that the permits ensured compliance with state water-quality standards. The Arizona Department of Environmental Quality agreed:

> The Department has reviewed the referenced municipal NPDES storm-water permit pursuant to Section 401 of the Federal Clean Water Act to ensure compliance with State water quality standards. We have determined that, based on the information provided in the permit, and the fact sheet, adherence to provisions and requirements set forth in the final municipal permit, will protect the water quality of the receiving water.

On February 14, 1997, the EPA issued final NPDES permits to Intervenors. Within 30 days of that decision, Petitioners requested an evidentiary hearing with the regional administrator. *See* 40 C.F.R. § 124.74. Although Petitioners requested a hearing, they conceded that they raised only a legal issue and that a hearing was, in fact, unnecessary. Specifically, Petitioners raised only the legal question whether the Clean Water Act (CWA) requires numeric limitations to ensure strict compliance with state water-quality standards; they did not raise the factual question whether the management practices that the EPA chose would be effective.

***1162** On June 16, 1997, the regional administrator summarily denied Petitioners' request. Petitioners then filed a petition for review with the EAB. *See* 40 C.F.R. § 124.91(a). On May 21, 1998, the EAB denied the petition, holding that the permits need not contain numeric limitations to ensure strict compliance with state water-quality standards. Petitioners then moved for reconsideration, *see* 40 C.F.R. § 124.91(i), which the EAB denied.

JURISDICTION

[1][2] Title 33 U.S.C. § 1369(b)(1)(F) authorizes "any interested person" to seek review in this court of an EPA decision "issuing or denying any permit under section 1342 of this title." "Any interested person" means any person that satisfies the injury-in-fact requirement for Article III standing. *See Natural Resources Defense Council, Inc. v. EPA*, 966 F.2d 1292, 1297 (9th Cir.1992) [*NRDC II*]. It is undisputed that Petitioners satisfy that requirement. Petitioners allege that "[m]embers of Defenders and the Club use and enjoy ecosystems affected by storm water discharges and sources thereof governed by the above-referenced permits," and no other party disputes those facts. *See Lujan v. Defenders of Wildlife*, 504 U.S. 555, 565-66, 112 S.Ct. 2130, 119 L.Ed.2d 351 (1992) ("[A] plaintiff claiming injury from environmental damage must use the area affected by the challenged activity."); *see also NRDC II*, 966 F.2d at 1297 ("NRDC claims, inter alia, that [the] EPA has delayed unlawfully promulgation of storm water regulations and that its regulations, as published, inadequately control storm water contaminants. NRDC's allegations ... satisfy the broad standing requirement applicable here.").

Intervenors argue, however, that they were not parties when this action was filed and that this court cannot redress Petitioners' injury without them. Their real contention appears to be that they are indispensable parties under Federal Rule of Civil Procedure 19. We need not consider that contention, however, because in fact Intervenors have been permitted to intervene in this action and to present their position fully. In the circumstances, Intervenors have suffered no injury.

DISCUSSION

A. *Standard of Review*

The Administrative Procedures Act (APA), 5 U.S.C. §§ 701-06, provides our standard of review for the EPA's decision to issue a permit. *See American Mining Congress*

v. EPA, 965 F.2d 759, 763 (9th Cir.1992). Under the APA, we generally review such a decision to determine whether it was "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A).

On questions of statutory interpretation, we follow the approach from *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984). *See NRDC II*, 966 F.2d at 1297 (so holding). In *Chevron*, 467 U.S. at 842-44, 104 S.Ct. 2778, the Supreme Court devised a two-step process for reviewing an administrative agency's interpretation of a statute that it administers. *See also Bicycle Trails Council of Marin v. Babbitt*, 82 F.3d 1445, 1452 (9th Cir.1996) ("The Supreme Court has established a two-step process for reviewing an agency's construction of a statute it administers."). Under the first step, we employ "traditional tools of statutory construction" to determine whether Congress has expressed its intent unambiguously on the question before the court. *Chevron*, 467 U.S. at 843 n. 9, 104 S.Ct. 2778. "If the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress." *Id.* at 842-43, 104 S.Ct. 2778 (footnote omitted). If, instead, Congress has left a gap for the administrative agency to fill, we proceed to step two. *See id.* at 843, 104 S.Ct. 2778. At step two, we must uphold the administrative regulation unless it is "arbitrary, capricious, or manifestly contrary to the statute." *Id.* at 844, 104 S.Ct. 2778.

***1163** B. *Background*

The CWA generally prohibits the "discharge of any pollutant," 33 U.S.C. § 1311(a), from a "point source" into the navigable waters of the United States. *See* 33 U.S.C. § 1362(12)(A). An entity can, however, obtain an NPDES permit that allows for the discharge of some pollutants. *See* 33 U.S.C. § 1342(a)(1).

[3] Ordinarily, an NPDES permit imposes effluent limitations on such discharges. *See* 33 U.S.C. § 1342(a)(1) (incorporating effluent limitations found in 33 U.S.C. § 1311). First, a permit-holder "shall ... achiev [e] ... effluent limitations ... which shall require the application of the best practicable control technology [BPT] currently available." 33 U.S.C. § 1311(b)(1)(A). Second, a permit-holder "*shall ... achiev[e] ... any more stringent limitation,* including those *necessary to meet water quality standards,* treatment standards or schedules of compliance, established pursuant to any State law or regulations (under authority preserved by section 1370 of this title)." 33 U.S.C. § 1311(b)(1)(C) (emphasis added). Thus, although the BPT requirement takes into account issues of practicability, *see Rybachek v. EPA*, 904 F.2d 1276, 1289 (9th Cir.1990), the EPA also "is under a specific obligation to require that level of effluent control which is needed to implement existing water quality standards without regard to the limits of practicability," *Oklahoma v. EPA*, 908 F.2d 595, 613 (10th Cir.1990) (internal quotation marks omitted), *rev'd on other grounds sub nom. Arkansas v. Oklahoma*, 503 U.S. 91, 112 S.Ct. 1046, 117 L.Ed.2d 239 (1992). *See also Ackels v. EPA*, 7 F.3d 862, 865-66 (9th Cir.1993) (similar).

The EPA's treatment of storm-water discharges has been the subject of much debate. Initially, the EPA determined that such discharges generally were exempt from the requirements of the CWA (at least when they were uncontaminated by any industrial or commercial activity). *See* 40 C.F.R. § 125.4 (1975).

The Court of Appeals for the District of Columbia, however, invalidated that regulation, holding that "the EPA Administrator does not have authority to exempt categories of point sources from the permit requirements of § 402 [33 U.S.C. § 1342]." *Natural Resources Defense Council, Inc. v. Costle*, 568 F.2d 1369, 1377 (D.C.Cir.1977). "Following this decision, [the] EPA issued proposed and final rules covering storm water discharges in 1980, 1982, 1984, 1985 and 1988. These rules were challenged at the administrative level and in the courts." *American Mining Congress*, 965 F.2d at 763.

Ultimately, in 1987, Congress enacted the Water Quality Act amendments to the CWA. *See NRDC II*, 966 F.2d at 1296 ("Recognizing both the environmental threat posed by storm water runoff and [the] EPA's problems in implementing regulations, Congress passed the Water Quality Act of 1987 containing amendments to the CWA.") (footnotes omitted). Under the Water Quality Act, from

1987 until 1994, [FN1] most entities discharging storm water did not need to obtain a permit. *See* 33 U.S.C. § 1342(p).

> FN1. As enacted, the Water Quality Act extended the exemption to October 1, 1992. Congress later amended the Act to change that date to October 1, 1994. *See* Pub.L. No. 102-580.

Although the Water Quality Act generally did not require entities discharging storm water to obtain a permit, it did require such a permit for discharges "with respect to which a permit has been issued under this section before February 4, 1987," 33 U.S.C. § 1342(p)(2)(A); discharges "associated with industrial activity," 33 U.S.C. § 1342(p)(2)(B); discharges from a "municipal separate sewer system serving a population of [100,000] or more," 33 U.S.C. § 1342(p)(2)(C) & (D); and "[a] discharge for which the Administrator ... determines that the stormwater discharge contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States," 33 U.S.C. § 1342(p)(2)(E).

***1164** When a permit is required for the discharge of storm water, the Water Quality Act sets two different standards:

> (A) Industrial discharges
> Permits for discharges associated with industrial activity shall meet all applicable provisions of this section *and section 1311* of this title.
> (B) Municipal discharge
> Permits for discharges from municipal storm sewers--
> (i) may be issued on a system or jurisdiction-wide basis;
> (ii) shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers; and
> (iii) *shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator ... determines appropriate for the control of such pollutants.*

33 U.S.C. § 1342(p)(3) (emphasis added).

C. *Application of Chevron*

[4] The EPA and Petitioners argue that the Water Quality Act is ambiguous regarding whether Congress intended for municipalities to comply strictly with state water-quality standards, under 33 U.S.C. § 1311(b)(1)(C). Accordingly, they argue that we must proceed to step two of *Chevron* and defer to the EPA's interpretation that the statute does require strict compliance. *See Zimmerman v. Oregon Dep't of Justice*, 170 F.3d 1169, 1173 (9th Cir.1999) ("At step two, we must uphold the administrative regulation unless it is arbitrary, capricious, or manifestly contrary to the statute.") (citation and internal quotation marks omitted), *cert. denied*, 531 U.S. 1189, 121 S.Ct. 1186, 149 L.Ed.2d 103, 68 USLW 3129 (1999).

Intervenors and *amici*, on the other hand, argue that the Water Quality Act expresses Congress' intent unambiguously and, thus, that we must stop at step one of *Chevron*. *See, e.g., National Credit Union Admin. v. First Nat'l Bank & Trust Co.*, 522 U.S. 479, 118 S.Ct. 927, 938-39, 140 L.Ed.2d 1 (1998) ("Because we conclude that Congress has made it clear that the *same* common bond of occupation must unite each member of an occupationally defined federal credit union, we hold that the NCUA's contrary interpretation is impermissible under the first step of *Chevron*.") (emphasis in original); *Sierra Club v. EPA*, 118 F.3d 1324, 1327 (9th Cir.1997) ("Congress has spoken clearly on the subject and the regulation violates the provisions of the statute. Our inquiry ends at the first prong of *Chevron*."). We agree with Intervenors and *amici:* For the reasons discussed below, the Water Quality Act unambiguously demonstrates that Congress did not require municipal storm-sewer discharges to comply strictly with 33 U.S.C. § 1311(b)(1)(C). That being so, we end our inquiry at the first step of the *Chevron* analysis.

[5][6] "[Q]uestions of congressional intent that can be answered with 'traditional tools of statutory construction' are still firmly within the province of the courts" under *Chevron*. *NRDC II*, 966 F.2d at 1297 (citation omitted). "Using our 'traditional tools of statutory construction,' *Chevron*, 467 U.S. at 843 n. 9, 104 S.Ct. 2778, 81 L.Ed.2d 694, when interpreting a statute, we look first to the words that Congress used." *Zimmerman*, 170 F.3d at 1173 (alterations, citations, and internal quotation marks omitted). "Rather than focusing just on the word or phrase at issue, we

look to the entire statute to determine Congressional intent." *Id.* (alterations, citations, and internal quotation marks omitted).

As is apparent, Congress expressly required *industrial* storm-water discharges to comply with the requirements of 33 U.S.C. § 1311. *See* 33 U.S.C. § 1342(p)(3)(A) ("Permits for discharges associated with industrial activity *shall meet all applicable provisions of* this section and *section 1311* of this title.") (emphasis added). By incorporation, then, industrial***1165** storm-water discharges "*shall ... achiev[e] ... any more stringent limitation,* including those necessary to meet water quality standards, treatment standards or schedules of compliance, established pursuant to any State law or regulation (under authority preserved by section 1370 of this title)." 33 U.S.C. § 1311(b)(1)(C) (emphasis added); *see also* Sally A. Longroy, *The Regulation of Storm Water Runoff and its Impact on Aviation,* 58 J. Air. L. & Com. 555, 565-66 (1993) ("Congress further *singled out* industrial storm water dischargers, all of which are on the high-priority schedule, and requires them to satisfy all provisions of section 301 of the CWA [33 U.S.C. § 1311].... Section 301 further mandates that NPDES permits include requirements that receiving waters meet water quality based standards.") (emphasis added). In other words, industrial discharges must comply strictly with state water-quality standards.

Congress chose not to include a similar provision for municipal storm-sewer discharges. Instead, Congress required municipal storm-sewer discharges "to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator ... determines appropriate for the control of such pollutants." 33 U.S.C. § 1342(p)(3)(B)(iii).

[7] The EPA and Petitioners argue that the difference in wording between the two provisions demonstrates ambiguity. That argument ignores precedent respecting the reading of statutes. Ordinarily, "[w]here Congress includes particular language in one section of a statute but omits it in another section of the same Act, it is generally presumed that Congress acts intentionally and purposely in the disparate inclusion or exclusion." *Russello v. United States,* 464 U.S. 16, 23, 104 S.Ct. 296, 78 L.Ed.2d 17 (1983) (citation and internal quotation marks omitted); *see also United States v. Hanousek,* 176 F.3d 1116, 1121 (9th Cir.1999) (stating the same principle), *petition for cert. filed,* 68 USLW 3138 (Aug. 23, 1999). Applying that familiar and logical principle, we conclude that Congress' choice to require industrial storm-water discharges to comply with 33 U.S.C. § 1311, but not to include the same requirement for municipal discharges, must be given effect. When we read the two related sections together, we conclude that 33 U.S.C. § 1342(p)(3)(B)(iii) does not require municipal storm-sewer discharges to comply strictly with 33 U.S.C. § 1311(b)(1)(C).

Application of that principle is significantly strengthened here, because 33 U.S.C. § 1342(p)(3)(B) *is not merely silent* regarding whether municipal discharges must comply with 33 U.S.C. § 1311. Instead, § 1342(p)(3)(B)(iii) *replaces* the requirements of § 1311 with the requirement that municipal storm-sewer dischargers "reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator ... determines appropriate for the control of such pollutants." 33 U.S.C. § 1342(p)(3)(B)(iii). In the circumstances, the statute unambiguously demonstrates that Congress did not require municipal storm-sewer discharges to comply strictly with 33 U.S.C. § 1311(b)(1)(C).

Indeed, the EPA's and Petitioners' interpretation of 33 U.S.C. § 1342(p)(3)(B)(iii) would render that provision superfluous, a result that we prefer to avoid so as to give effect to all provisions that Congress has enacted. *See Government of Guam ex rel. Guam Econ. Dev. Auth. v. United States,* 179 F.3d 630, 634 (9th Cir.1999) ("This court generally refuses to interpret a statute in a way that renders a provision superfluous."), *as amended,* 1999 WL 604218 (9th Cir. Aug.12, 1999). As all parties concede, § 1342(p)(3)(B)(iii) creates a lesser standard than § 1311. Thus, if § 1311 continues to apply to municipal storm-sewer discharges, ***1166** the more stringent requirements of that section always would control.

Contextual clues support the plain meaning of §

1342(p)(3)(B)(iii), which we have described above. The Water Quality Act contains other provisions that undeniably exempt certain discharges from the permit requirement altogether (and therefore from § 1311). For example, "[t]he Administrator shall not require a permit under this section for discharges composed entirely of return flows from irrigated agriculture." 33 U.S.C. § 1342(*l*)(1). Similarly, a permit is not required for certain storm-water runoff from oil, gas, and mining operations. *See* 33 U.S.C. § 1342(*l*)(2). Read in the light of those provisions, Congress' choice to exempt municipal storm-sewer discharges from strict compliance with § 1311 is not so unusual that we should hesitate to give effect to the statutory text, as written.

Finally, our interpretation of § 1342(p)(3)(B)(iii) is supported by this court's decision in *NRDC II.* There, the petitioner had argued that "the EPA has failed to establish substantive controls for municipal storm water discharges as required by the 1987 amendments." *NRDC II,* 966 F.2d at 1308. This court disagreed with the petitioner's interpretation of the amendments:

> Prior to 1987, municipal storm water dischargers were subject to the same substantive control requirements as industrial and other types of storm water. In the 1987 amendments, *Congress retained the existing, stricter controls for industrial storm water dischargers but prescribed new controls for municipal storm water discharge.*

Id. (emphasis added). The court concluded that, under 33 U.S.C. § 1342(p)(3)(B)(iii), "*Congress did not mandate a minimum standards approach.* " *Id.* (emphasis added). The question in *NRDC II* was not whether § 1342(p)(3)(B)(iii) required strict compliance with state water-quality standards, *see* 33 U.S.C. § 1311(b)(1)(C). Nonetheless, the court's holding applies equally in this action and further supports our reading of 33 U.S.C. § 1342(p).

In conclusion, the text of 33 U.S.C. § 1342(p)(3)(B), the structure of the Water Quality Act as a whole, and this court's precedent all demonstrate that Congress did not require municipal storm-sewer discharges to comply strictly with 33 U.S.C. § 1311(b)(1)(C).

D. *Required Compliance with 33 U.S.C. § 1311(b)(1)(C)*

[8] We are left with Intervenors' contention that the EPA may not, under the CWA, require strict compliance with state water-quality standards, through numerical limits or otherwise. We disagree.

Although Congress did not require municipal storm-sewer discharges to comply strictly with § 1311(b)(1)(C), § 1342(p)(3)(B)(iii) states that "[p]ermits for discharges from municipal storm sewers ... shall require ... *such other provisions as the Administrator ... determines appropriate for the control of such pollutants.*" (Emphasis added.) That provision gives the EPA discretion to determine what pollution controls are appropriate. As this court stated in *NRDC II,* "Congress gave the administrator discretion to determine what controls are necessary.... NRDC's argument that the EPA rule is inadequate cannot prevail in the face of the clear statutory language." 966 F.2d at 1308.

Under that discretionary provision, the EPA has the authority to determine that ensuring strict compliance with state water-quality standards is necessary to control pollutants. The EPA also has the authority to require less than strict compliance with state water-quality standards. The EPA has adopted an interim approach, which "uses best management practices (BMPs) in first-round storm water permits ... to provide for the attainment of water quality standards." The EPA applied that approach to the permits at issue here. Under 33 U.S.C. § 1342(p)(3)(B)(iii), the EPA's choice to include***1167** either management practices or numeric limitations in the permits was within its discretion. *See NRDC II,* 966 F.2d at 1308 ("Congress did not mandate a minimum standards approach or specify that [the] EPA develop minimal performance requirements."). In the circumstances, the EPA did not act arbitrarily or capriciously by issuing permits to Intervenors.

PETITION DENIED.

191 F.3d 1159, 30 Envtl. L. Rep. 20,116, 99 Cal. Daily Op. Serv. 7618, 1999 Daily Journal D.A.R. 9661, 1999 Daily Journal D.A.R. 12,369

Briefs and Other Related Documents **(Back to top)**

• 1999 WL 33612319 (Appellate Brief) Reply Brief for the Petitioners (May. 10, 1999)Original Image of this

Document (PDF)

• 1999 WL 33636482 (Appellate Brief) Brief for Intervener-Respondent Pima County, Arizona (Mar. 29, 1999)Original Image of this Document (PDF)

• 1999 WL 33612517 (Appellate Brief) Brief for the Intervenor-Respondents Cities of Tucson, Tempe, Phoenix and Pima County (Mar. 26, 1999)Original Image of this Document with Appendix (PDF)

• 1999 WL 33636481 (Appellate Brief) Supplemental Brief for Intervenor-Respondent City of Tucson, Arizona (Mar. 26, 1999)Original Image of this Document (PDF)

• 1999 WL 33612279 (Appellate Brief) Supplemental Brief for Intervenor-Respondent City of Mesa, Arizona (Mar. 23, 1999)

• 1999 WL 33607153 (Appellate Brief) Brief for the Respondents (Mar. 22, 1999)

• 1999 WL 33617766 (Appellate Brief) Brief for Petitioners (Jan. 11, 1999)Original Image of this Document with Appendix (PDF)

• 98-71080 (Docket) (Sep. 18, 1998)

END OF DOCUMENT

Tab 3

H

COMMUNITIES FOR A BETTER ENVIRONMENT et al., Plaintiffs and Respondents,

v.

STATE WATER RESOURCES CONTROL BOARD et al., Defendants; TESORO REFINING AND MARKETING COMPANY, Real Party in Interest and Appellant.

No. A100327.

Court of Appeal, First District, Division 1, California.

May 30, 2003.

SUMMARY

Two organizations filed a petition for a writ of mandate challenging a refinery's pollutant discharge permit, as amended by the local water quality control board and upheld by the State Water Resources Control Board. The trial court granted the petition on the ground that the water quality based effluent limit (WQBEL) for dioxin discharges in the permit was not numeric, as required by federal regulations. (Superior Court of the City and County of San Francisco, No. 319575, James J. McBride, Judge.)

The Court of Appeal reversed and remanded. The court held that the relevant federal regulation did not require that a WQBEL be numeric in all cases. Under the circumstances, the court held, the agencies involved properly concluded that a numeric WQBEL was not feasible. The court further held that the agencies' establishment of a rigorous schedule of compliance, which would require the refinery either to comply with the dioxin requirements of a written, quantitative plan and analysis for maintaining water quality in all seasons, in the interests of achieving a comprehensive regional solution, or to reduce dioxin discharges to zero, amounted to a WQBEL, even though not numeric. (Opinion by Marchiano, P. J., with Swager and Margulies, JJ., concurring.)

HEADNOTES

Classified to California Digest of Official Reports

(1a, 1b, 1c) Pollution and Conservation Laws § 5--Pollution--Water Pollution--Refinery's Discharge of Dioxins--Nature of Effluent Limits Imposed.
In a proceeding for a writ of mandate by two organizations challenging a refinery's pollutant discharge permit, as amended ***1090** by the local water quality control board and upheld by the State Water Resources Control Board, the trial court erred in granting the relief prayed for on the ground that the water quality based effluent limit (WQBEL) for dioxin discharges in the permit had to be numeric. The relevant federal regulation does not require that a WQBEL be numeric in all cases. Under the circumstances, the agencies involved properly concluded that a numeric WQBEL was not feasible. Further, the agencies' establishment of a rigorous schedule of compliance, which would require the refinery either to comply with the dioxin requirements of a written, quantitative plan and analysis for maintaining water quality in all seasons, in the interests of achieving a comprehensive regional solution, or to reduce dioxin discharges to zero, amounted to a WQBEL, even though not numeric.

[See 4 Witkin, Summary of Cal. Law (9th ed. 1987) Real Property, § 69; West's Key Number Digest, Environmental Law ⚿ 186.]

(2) Administrative Law § 138--Judicial Review and Relief--Decision of Courts on Review and Subsequent Proceedings--Deference to Agency's Decision.
In reviewing a trial court's grant of mandamus relief from an agency decision, the appellate court extends appropriate deference to the agency and its technical expertise.

(3) Administrative Law § 121--Judicial Review and Relief--Scope and Extent of Review--Questions of Law--Interpretation of Statutes and Regulations.
While the interpretation of a statute or regulation is ultimately a question of law, a court must defer to an administrative agency's interpretation of a statute or regulation involving its area of expertise, unless the interpretation flies in the face of the clear language and purpose of the interpreted provision.

(4) Administrative Law § 35--Administrative Actions--Legislation or Rule Making--Construction and

Interpretation of Rules and Regulations--Deference to Agency.

A court must extend considerable deference to an administrative agency's interpretation of its own regulations or the regulatory scheme that the agency implements or enforces. The agency interpretation is entitled to great weight unless unauthorized or clearly erroneous. The factors governing the degree of judicial deference to agency interpretations include the court's assumption that the agency has the technical knowledge and expertise to interpret complex regulations in a technical or complex scheme. They also include the likelihood that agency officials have reached the ***1091** interpretation after careful and studied review and input from the public.

COUNSEL

Bingham McCutchen, William H. Freedman, John R. Reese, Rick R. Rothman and David K. Bowles for Real Party in Interest and Appellant.

Mayer, Brown, Rowe & Maw, Gregory R. McClintock and Scott C. McAdam for Western States Petroleum as Amicus Curiae on behalf of Real Party in Interest and Appellant.

Downey, Brand, Seymour & Rohwer, Melissa A. Thorme, Nicole E. Granquist and Courtney J. Hamamoto for Bay Area Clean Water Agencies as Amicus Curiae on behalf of Real Party in Interest and Appellant.

Earthjustice, Chris Jensen, Michael R. Lozeau and Deborah A. Sivas for Plaintiffs and Respondents.

MARCHIANO, P. J.

Appellant Tesoro Refining and Marketing Company operates the Golden Eagle Refinery (the Refinery) near Avon, California, on the shores of Suisun Bay. The Refinery operates under a National Pollutant Discharge Elimination System (NPDES) permit issued by the Regional Water Quality Control Board, San Francisco Bay Region (Regional Board). The permit regulates the Refinery's discharges of dioxins and other pollutants into Suisun Bay. In June 2000 the Regional Board amended the permit. After an administrative appeal, the State Water Resources Control Board (State Board) upheld the amended permit. Respondents, Communities for a Better Environment and San Francisco BayKeeper, challenged the amended permit by a petition for writ of mandate in the superior court. Respondents argued, inter alia, that the amended permit failed to comply with applicable federal pollution control laws because it failed to set a numeric "water quality based effluent limit" (WQBEL) for dioxin discharges. The superior court agreed and granted the petition. Tesoro appeals from the judgment granting the writ of mandate, and argues that the trial court erred by ruling a WQBEL had to be numeric. We reverse because a WQBEL does not have to be numeric in all cases, and under the circumstances of this case three administrative agencies properly approved the amended permit as a valid means of pollution control. ***1092**

I. Background

Before we review the merits, we must first discuss the legal, factual, and procedural background of this case.

A. *Legal Background*

We begin with a brief overview of the applicable law. To enhance understanding we use italics to introduce significant terms of art of pollution control.

In 1972, Congress enacted the Federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.), commonly known as the Clean Water Act (CWA). (See *WaterKeepers Northern California v. State Water Resources Control Bd.* (2002) 102 Cal.App.4th 1448, 1452 [126 Cal.Rptr.2d 389] (*WaterKeepers*).) The goal of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." (33 U.S.C. § 1251(a); see *Arkansas v. Oklahoma* (1992) 503 U.S. 91, 101 [112 S.Ct. 1046, 1054; 117 L.Ed.2d 239] (*Arkansas*).)

Generally, the CWA "prohibits the discharge of any pollutant except in compliance with one of several statutory exceptions. [Citation.]" (*WaterKeepers, supra*, 102 Cal.App.4th at p. 1452.) The most important of those exceptions is pollution discharge under a valid NPDES permit, which can be issued either by the Environmental Protection Agency (EPA), or by an EPA-approved state

permit program such as California's. (33 U.S.C. § 1342; *WaterKeepers, supra,* at p. 1452; see *Arkansas, supra,* 503 U.S. at pp. 101-103 [112 S.Ct. at pp. 1054-1055].) NPDES permits are valid for five years. (33 U.S.C. § 1342(b)(1)(B).)

Under the CWA's NPDES permit system, the states are required to develop *water quality standards*. (33 U.S.C. § 1313(a); see *Arkansas, supra,* 503 U.S. at p. 101 [112 S.Ct. at p. 1054].) A water quality standard "establish[es] the desired condition of a waterway." (503 U.S. at p. 101 [112 S.Ct. at p. 1054].) A water quality standard for any given waterway, or "water body," has two components: (1) the designated beneficial uses of the water body and (2) the *water quality criteria* sufficient to protect those uses. (33 U.S.C. § 1313(c)(2)(A); 40 C.F.R. § 131.3(i) (2002).)

Water quality criteria can be either *narrative* or *numeric*. (40 C.F.R. § 131.3(b) (2002).) By way of example, in its decision below the State Board noted that "[a] typical narrative criterion ... prohibits 'the discharge of toxic pollutants in toxic amounts.' " A numeric criterion establishes a quantitative limitation on pollutant concentrations or levels, to protect beneficial ***1093** uses of the water body. (40 C.F.R. § 131.3(b) (2002).) The State Board noted, "An example of a numeric saltwater criterion for copper to protect aquatic life is 3.1 micrograms per liter (ug/l) as a monthly average."

Generally, to meet water quality standards a polluter must comply with *effluent limitations*. The CWA defines an effluent limitation as "any restriction established by a State or the [EPA] Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters, the waters of the contiguous zone, or the ocean, including schedules of compliance." (33 U.S.C. § 1362(11).) [FN1] "Effluent limitations are a means of *achieving* water quality standards." (*Trustees for Alaska v. E.P.A.* (9th Cir. 1984) 749 F.2d 549, 557, italics in original.)

> FN1 A "point source" is defined as "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged." (33 U.S.C. § 1362(14).)

NPDES permits establish effluent limitations for the polluter. (33 U.S.C. §§ 1311, 1312, 1342(a)(1); *EPA v. State Water Resources Control Board* (1976) 426 U.S. 200, 205 [96 S.Ct. 2022, 2025, 48 L.Ed.2d 578] (*EPA*).) CWA's NPDES permit system provides for a two-step process for the establishing of effluent limitations. First, the polluter must comply with *technology-based effluent limitations*, which are limitations based on the best available or practical technology for the reduction of water pollution. (33 U.S.C. § 1311(b)(1)(A); see *EPA, supra,* at pp. 204-205 [96 S.Ct. at pp. 2024-2025].)

Second, the polluter must also comply with more stringent *water quality-based effluent limitations* (WQBEL's) where applicable. In the CWA, Congress "supplemented the 'technology-based' effluent limitations with 'water quality-based' limitations 'so that numerous point sources, despite individual compliance with effluent limitations, may be further regulated to prevent water quality from falling below acceptable levels.' " (*National Wildlife Fed. v. U.S. Army Corps* (D.Or. 2000) 92 F.Supp.2d 1072, 1075, quoting *EPA, supra,* 503 U.S. at p. 205, fn. 12 [96 S.Ct. at p. 2025].)

The CWA makes WQBEL's applicable to a given polluter whenever WQBEL's are "necessary to meet water quality standards, treatment standards, or schedules of compliance, established pursuant to any State law or regulations ...." (33 U.S.C. § 1311(b)(1)(C); 40 C.F.R. § 122.44(d)(1) (2002).) Generally, NPDES permits must conform to state water quality laws insofar as the state laws impose more stringent pollution controls than the ***1094** CWA. (33 U.S.C. § 1370; see Wat. Code, §§ 13263, subd. (a), 13372.) Simply put, WQBEL's implement water quality standards. [FN2]

> FN2 In California, water quality standards are established through regional water quality control plans, known as basin plans, which are approved by the State Board. (See *WaterKeepers, supra,* 102 Cal.App.4th at pp. 1451-1452.)

EPA regulations implement the two-prong effluent limitation system for NPDES permits. The regulation pertinent to the issue on appeal is 40 Code of Federal Regulations part 122.44 (2003) (section 122.44). [FN3] Section 122.44(a)(1) requires technology-based effluent limitations. Section 122.44(d) governs WQBEL's.

> FN3 Henceforth, we will refer to this part as "section 122.44," and to any of its subdivisions or smaller components as, for example, "section 122.44(d)(1)(i)."

Section 122.44(d)(1)(i) requires WQBEL's whenever the permitting agency determines that pollutants "are or may be discharged at a level which will cause, or *have the reasonable potential to cause, or contribute to* an excursion above any State water quality standard, [including narrative criteria for water quality]." (Italics added.) According to the State Board's decision, "The analysis to determine what pollutants must have [WQBEL's] is commonly called the 'reasonable potential analysis.' "

Section 122.44(d)(1)(iii) provides that "When the permitting authority determines ... that a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the allowable ambient concentration of a State numeric criteria within a State water quality standard for an individual pollutant, the permit must contain effluent limits for that pollutant."

Section 122.44(d)(1)(vi) provides that "Where a State has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits using one or more of the following options:

"(A) Establish effluent limits using a calculated numeric water quality criterion for the pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and will fully protect the designated use. Such a criterion may be derived using a proposed State criterion, or an explicit State policy or regulation interpreting its narrative water quality criterion, supplemented with other relevant information which may include: EPA's Water Quality Standards Handbook, October ***1095** 1983, risk assessment data, exposure data, information about the pollutant from the Food and Drug Administration, and current EPA criteria documents; or

"(B) Establish effluent limits on a case-by-case basis, using EPA's water quality criteria, published under section 304(a) of the CWA, supplemented where necessary by other relevant information; or

"(C) [The parties agree that option C, the third and final option, is not pertinent to this case. We therefore omit it.]"

We note that the trial court granted the writ of mandate on the ground that the Refinery permit, as amended by the State Board, "does not contain a numeric WQBEL ... in violation of [section] 122.44(d)(1)(vi)(A)." Whether section 122.44(d)(1)(vi)(A) requires a numeric WQBEL is the central issue to this appeal. As noted above, a water quality *standard* can be numeric; the question before us is whether a *WQBEL*, which implements a narrative or numeric water quality standard, *must itself* be numeric. Before we reach that issue we must conclude our discussion of this case's legal, factual, and procedural background.

Water quality standards do more than provide the basis for deriving effluent limits. The standards also are instrumental in identifying bodies of water which are impaired by the cumulative discharges of pollutants. The CWA requires the states to identify all bodies of water for which technologically-based effluent limitations are insufficient to maintain water quality standards. (33 U.S.C. § 1313(d)(1)(A); see 40 C.F.R. § 130.7 (2002).)

For all such identified water bodies, and for all appropriate pollutants discharged therein, the state must establish a *total maximum daily load* (TMDL), which defines the maximum amount of the pollutant which can be discharged-or "loaded"-into the body of water from all combined pollution sources. (40 C.F.R. § 130.2(i) (2002); see *Dioxin/Organochlorine Center v. Clarke* (9th Cir. 1995) 57 F.3d 1517, 1520.) 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." (40 C.F.R. § 130.2(h) (2002).)

A TMDL must be "established at a level necessary to implement the applicable water quality standards ...." (33 U.S.C. § 1313(d)(1)(C).) A TMDL assigns a *waste load allocation* (WLA) to each point source, which is that portion of the TMDL's total pollutant load, which is allocated to a point source for which an NPDES permit is required. (***109**40 C.F.R. § 130.2(g) (2002).) Once a TMDL is developed, effluent limitations in NPDES permits must be consistent with the WLA's in the TMDL. (§ 122.44(d)(1)(vii)(B).) In fact, a WLA in a completed TMDL is a type of WQBEL. (40 C.F.R. § 130.2(h) (2002).)

B. *Factual Background*

The factual background of this case, both scientific and historical, is not in material dispute.

1. *Scientific Background-Dioxins and Furans* [FN4]

Dioxins (polychlorinated dibenzodioxins) and furans (polychlorinated dibenzofurans) are two classes of over 200 structurally similar compounds. Seventeen of these compounds are considered the most toxic, at least for the purposes of the water quality case now before us. The most toxic of the 17 is the dioxin known as "2,3,7,8-tetrachlorodibenzo-p-dioxin," also known as "2,3,7,8-TCDD." The other 16 compounds are 6 dioxins and 10 furans, collectively considered "congeners" of 2,3,7,8-TCDD, meaning simply that they possess similar qualities or characteristics. [FN5] For the sake of simplicity, further references to "dioxins" in this opinion are to these 17 toxic dioxins and furans.

FN4 We take the facts in this part primarily from the written decision of the State Board. We by no means intend to present a comprehensive scientific discussion of the nature of dioxins and furans and their effect on the environment. Such a discussion is neither within the expertise of this court nor necessary for our resolution of this case.

FN5 A "congener" is defined generally as "[a] member of the same kind or class with another, or nearly allied to another in character." (Oxford English Dict. (2d ed. 1989) <http://www.dictionary.oed.com.html> [as of May 30, 2003].)

Dioxins are not produced intentionally. They are formed as undesired byproducts of combustion and the manufacture and use of certain chlorinated chemical compounds. They exist in the environment worldwide, particularly in air, water, soils, and sediments. They enter the atmosphere through aerial emissions and widely disperse through a number of processes, including erosion, runoff, and volatilization from land or water. For example, automobile exhaust is a common source of dioxins.

Dioxins are insoluble in water and very persistent in soil and sediments. They are absorbed into organic matter and bioaccumulate in human and animal tissue. They enter the food chain and thus bioaccumulate in human tissue from consumption of contaminated food, especially meat, fish, shellfish, and eggs. ***1097**

The EPA has targeted dioxins as dangerous and toxic substances since at least 1984. The State Board and the Regional Board have regulated dioxin discharges since at least the early 1990's.

2. *Historical Background*

As noted in the lead paragraph, Tesoro operates the Refinery on the shores of Suisun Bay. [FN6] The Refinery processes an average of 150,000 barrels of crude oil a day, producing gasoline and diesel fuel. Treated wastewater from the Refinery production-an average of 4.7 million gallons per day-is discharged into Suisun Bay through an outfall pipe known as "Waste 001." Waste 001 lies at the end of a two-mile canal, known as the "Clean Canal," through which storm water from several other industrial facilities drains into the bay. Thus, only a portion of the bay discharge from Waste 001 comes from the Refinery-although that fact was not known at the outset, but only emerged over time.

FN6 Various changes in the ownership and name of the Refinery do not concern us here.

Five of the 17 dioxins discussed above are consistently

found in the Refinery's wastewater. The five do not include 2,3,7,8-TCDD.

The Refinery's discharges are governed by NPDES permit No. CA0004961, first issued by the Regional Board in 1988. In 1993, the Regional Board reissued the permit, and imposed-apparently for the first time-a numeric WQBEL for dioxins. The 1993 permit included a WQBEL of 0.14 picograms per liter (pg/L) of "TCDD equivalents." [FN7] The phrase "TCDD equivalents" refers to the 17 toxic dioxins discussed above. The WQBEL of 0.14 pg/L was based on the State Board's 1992 amendments to the San Francisco Bay Basin Plan.

> FN7 A picogram is one million-millionth of a gram, or 1 x 10-12 gram. (See Oxford English Dict., *supra*, definition of prefix "pico-," <http:// www.dictionary.oed.com.html> [as of May 30, 2003].)

The 1993 permit included a compliance schedule consisting of six tasks the Refinery was charged to complete. These included continuing a pilot study of a method of pollution control, and submitting technical and progress reports. The Refinery was to comply fully with the effluent limit by June 30, 1995. It appears that when the 1993 permit was issued, the Regional Board assumed the Refinery was the sole, or at least the primary, source of dioxin discharge into Suisun Bay.

By October 1993, the Refinery had begun treating its wastewater with granulated activated carbon. This treatment was "successful at removing greater than 95% of the dioxins" from the Refinery's discharges. ***1098**

On June 21, 1995, the Regional Board reaffirmed the Refinery's 1993 NPDES permit, by rejecting the Refinery's request for an amendment to the numeric WQBEL for dioxins. The Regional Board found that "the effluent limit specified" in the 1993 permit "is appropriate and necessary for the full protection of water quality for beneficial uses."

On November 15, 1995, the Regional Board issued a cease-and-desist order (CDO) against the Refinery. In the CDO the Regional Board observed that-despite the removal of 95 percent of the dioxins from the wastewater by carbon treatment-the monitoring data since November 1993 "show no appreciable reduction of dioxins levels in the discharge from [the Refinery]. The data show that although treatment of the regeneration wash water was effective at the source, it had little if any impact on the final discharge."

The Regional Board then observed: "[The Refinery] has performed some preliminary studies to determine other potential sources of dioxins to Waste 001. Although not conclusive at this time because of the limited amount of data available, these preliminary studies indicate that [the Refinery's] treatment plant effluent may not be the major source of dioxins in the Waste 001 discharge. Other streams which combine with the treatment plant effluent in the 'Clean Canal' may be contributing greater quantities of dioxins. These streams include [the Refinery's] coke storage pond water, storm water runoff from non-process areas, storm water runoff from adjoining properties, and possibly even sediment in the 'Clean Canal.' Further investigation is necessary to verify any of these preliminary findings."

The Regional Board found that the Refinery "has put forth a reasonable amount of effort ... to solve the dioxin problem by installing the treatment system for catalytic reformer wash water." But the fact of continued pollution remained, regardless of the uncertainty about its source. The Regional Board found that all seven compliance samples of the Waste 001 discharge into Suisun Bay contained dioxins above the effluent limit of the 1993 permit, i.e., 0.14 pg/L. "These data show that [the Refinery] has violated and is threatening to continue to violate the effluent limit for dioxin specified in" the 1993 and 1995 permits. Thus, "additional effort is necessary to reduce the discharge of dioxins so that beneficial uses of the receiving water are fully protected."

Accordingly, in the CDO the Regional Board ordered the Refinery to immediately comply with an interim effluent limit of 0.14 pg/L for 2,3,7,8-TCDD, the most toxic dioxin, and to conduct a comprehensive study of measures to enable the Refinery to comply with a final effluent limit of 0.14 ***1099** pg/L for all 17 dioxins. Such "final compliance" with the effluent limit for all dioxins was required by July 1, 1999.

On June 16, 1999, the Regional Board issued an order extending the deadline for final compliance to July 1, 2000. In its six-page order, the Regional Board found the Refinery "has been in compliance with the interim" effluent limit for 2,3,7,8-TCDD. The Regional Board further found that the Refinery was still out of compliance with the effluent limits for the other 16 dioxins, as set forth in the 1993 and 1995 permits, but through its pollution control efforts the Refinery had substantially reduced discharge concentrations of those dioxins.

The Regional Board also noted that a Refinery investigation had shown that the refinery was not the primary source of dioxins in Suisun Bay. Rather, the dioxins entered the water by "atmospheric deposition," from sources such as motor vehicle exhaust and wood burning. The Refinery's wastewater thus became a "conveyance[] of dioxins ... from other sources."

The Regional Board granted the extension of the final compliance deadline because changes in the statewide water quality standards and policies regarding dioxins were forthcoming, and the Regional Board believed that any action to revise the terms of the CDO should await the new standards.

In May of 1999 the EPA formally declared Suisun Bay an impaired water body for several pollutants, including dioxins. In November 1999 the EPA wrote the Regional Board regarding the Refinery's permit, and stated the WQBEL for dioxins should be zero "unless a TMDL is completed which concludes that an alternative load can be assimilated by the receiving water." The EPA proposed that the Refinery's permit contain "[a] final limit ... that compliance with the final WQBEL will be required within ___ years (not to exceed the time allowed in the Basin Plan). This limit will either be the WLA determined from an approved TMDL, or zero." The EPA also suggested that the Refinery be subject to numerous provisions, including a ban on increasing the mass of dioxins in the Bay and the implementation of an aggressive source control program.

The EPA reviewed the Regional Board's proposed changes to the permit. By a letter dated February 1, 2000, the EPA commented favorably on the proposed changes. The EPA specifically agreed with the Regional Board's proposal to complete a TMDL to derive a final WQBEL for dioxins. The EPA also agreed that the proposed permit incorporated EPA's suggested scheme of final limits of either a WLA from a completed TMDL, or ***1100** zero-and that these proposed final limits "meet the [WQBEL] requirements of ... [section] 122.44(d)."

On February 16, 2000, the Regional Board implemented the proposed changes by reissuing the Refinery's NPDES permit. The 2000 permit concluded that the Refinery's dioxin discharges have a reasonable potential of exceeding water quality standards. The 2000 permit retained the 0.14 pg/L WQBEL for all 17 dioxins. The Regional Board noted in the permit that the Refinery continued to reduce substantially dioxin concentration, and that the Refinery was not the primary source of the dioxins.

The WQBEL of 0.14 pg/L was retained as an interim limitation, imposed pending the completion of a TMDL. In light of the 1999 EPA finding that Suisun Bay was impaired for dioxins, the Regional Board included in the 2000 permit a statement of its intent to adopt a TMDL for dioxins by 2010. The TMDL for dioxins would include a WLA for the Refinery. "The final effluent limitations for [the Refinery's dioxin] discharge will be based on [the] WLA[] ... derived from the TMDL[]." The Regional Board determined to maintain the effluent limitations from the 1995 permit until such time as the TMDL was completed-at that point the Regional Board "[would] adopt a WQBEL consistent with the corresponding WLA."

The adoption of the TMDL involved the EPA and was expected to take up to 13 years from the May 1999 EPA finding.

On June 21, 2000, the Regional Board amended the 2000 permit. In what we shall refer to as "the 2000 amendment," the Regional Board rescinded the numeric WQBEL of 0.14 pg/L because it was "not appropriate" for the Refinery. The Board gave two reasons for this action. First, the May 1999 EPA finding required a "region wide cross media assessment of the [dioxin] problem ... [which] should result in a more balanced, and more effective limitation" for the Refinery.

Second, "[the Refinery] has reduced the dioxins ... in its discharge by 85 percent since CDO adoption. Despite this [the Refinery] cannot comply with [the numeric WQBEL]. The root cause of the violations are not within [the Refinery's] control, and the next step of treatment will be overly burdensome and not cost effective relative to the benefits. [The Refinery] provided data in 1997 that supports [its] contention that the violations are caused by ambient air deposition of dioxins .... Much of this is beyond [the Refinery's] control .... [The Refinery] has estimated that $10 [m]illion may be necessary to implement the next step of reduction. [The Refinery's] mass contribution is minor compared to other storm water inputs into the Bay." ***1101**

The Regional Board replaced the numeric WQBEL with an interim effluent limitation of 0.65 pg/L. This was not a WQBEL-the new interim effluent limitation was not water quality-based, but performance-based. That is, the new interim effluent limitation was based on facility performance, viz., the actual concentrations of dioxins in the Refinery's discharge. The limitation applied to five of the 17 dioxins actually found in the discharge. But the 2000 amendment requires the Refinery to monitor for all 17 dioxins. The limitation was calculated from effluent samples collected from August 1996 to January 2000. The limitation was based on the mean plus three standard deviations. It represents the 99.87 percentile of the August 1996 to January 2000 data.

The Regional Board intended the 0.65 pg/L interim effluent limitation to apply until the EPA prepared a TMDL for dioxins in Suisun Bay, at which point the final WQBEL for dioxins would be established as a WLA in the TMDL. The Regional Board estimated that the EPA would complete the TMDL by 2012. If one were not complete at that time, the WQBEL for dioxins would be "no net loading," or zero. These two alternative WQBEL's, the WLA or zero, are entirely consistent with the EPA's position in its letters of November 1999 and February 2000.

The 2000 amendment also included provisions for compliance monitoring. In fact, the amended 2000 permit contained a 12-year schedule of compliance imposing detailed responsibilities on the Refinery. These requirements include preparation of a pollution prevention plan addressing dioxins, accelerated monitoring in the event that additional dioxins are discovered in the effluent, and participation in the San Francisco Bay Regional Monitoring Program which gathers data in support of the development of the TMDL. [FN8]

> FN8 For instance, the 2000 amendment provides: "In the interim, until final WQBELs are adopted, state and federal antibacksliding and antidegradation policies require that the Board retains effluent concentration limits from the Previous Order [the 1995 permit] to ensure that the waterbody will not be further degraded. In addition to interim concentration limits, interim performance-based mass limits are required to limit the discharge of [EPA-identified] pollutants to their current levels. These interim mass limits are based on recent discharge data.... Where pollutants have existing high detection limits [such as dioxins], interim mass limits are not required because meaningful performance-based limits cannot be calculated for those pollutants with non-detectable concentrations. However, [the Refinery is] required to investigate alternative analytical procedures that result in lower detection limits.... [The Refinery] will also be required to conduct a study to investigate the feasibility and reliability of increasing sample size to reduce the detection limits for [dioxins]."

C. *Procedural Background*

Respondents appealed to the State Board from the Regional Board's orders reissuing and amending the 2000 permit. After an evidentiary hearing ***1102** the State Board issued a lengthy decision largely upholding the orders of the Regional Board.

The State Board described the issuance of the 2000 permit as *interim permitting*, a process whereby five-year NPDES permits are issued in the interim pending the preparation of a TMDL-which frequently takes much longer than the lifetime of the permit.

The State Board noted that interim permitting "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[.] This may be especially true in cases where [as here] nonpoint pollutant sources are the primary contributors and point sources [such as the Refinery] are insignificant."

After considering the evidence, including expert testimony, the State Board concluded the Regional Board acted properly by imposing the performance-based effluent limitation and the schedule of compliance. The State Board noted that dioxins posed a problem that had to be solved on a regional level by creation of a TMDL. In the interim, the Refinery could comply with an effluent level consistent with its actual performance. The State Board pointed out the Refinery was not a significant source of dioxins: "evidence in the record indicates that the dioxins ... in [Waste 001] are due primarily to stormwater runoff." And the Refinery had instituted measures resulting in an 85 percent reduction of dioxins discharged from the Clean Canal.

The State Board agreed with the Regional Board's determination that dioxins from the Refinery's discharge-even though the dioxins entered the discharge waters from other sources-created a reasonable potential for causing or contributing to the exceeding of water quality standards. Thus, under section 122.44(d), a WQBEL was required in the NPDES permit. The State Board concluded: "The Regional Board complied with the [CWA] because it did include water quality-based effluent limitations for all 17 dioxin[s] ... in the permit findings. These limits will be based on a TMDL or on no net loading." The State Board concluded the Regional Board properly imposed the performance-based interim effluent limitation under the circumstances of this case. The State Board also determined that the interim limit of 0.65 pg/L did not allow the Refinery to *increase* its discharges of dioxins. ***1103**

The State Board reduced the 12-year schedule of compliance to 10 years, to comply with the 1995 basin plan. In all other respects pertinent to this opinion, the State Board upheld the Regional Board.

Respondents challenged the State Board's determination with a petition for writ of mandate filed in superior court. Respondents raised three issues: (1) that the amended 2000 permit violated the CWA and section 122.44(d) by failing to establish a WQBEL for dioxins; (2) that the permit violated the antibacksliding provisions of the CWA; and (3) that the permit schedule of compliance was invalid because no WQBEL had been established.

The superior court granted mandamus relief on issue (1), ruling that the amended 2000 permit "does not contain a numeric WQBEL," and thus violates section 122.44(d)(1)(vi)(A).

Specifically, the court ruled as follows: (a) that the parties did not dispute the Refinery's permit must contain a WQBEL for dioxins; (b) that the interim effluent limitation of 0.65 pg/L was not a WQBEL because it was performance based, not water quality based; and (c) that "[t]he final limits established in [the amended 2000 permit] do not constitute WQBELs because they are not numeric limits as required by [section] 122.44(d)(1)(vi)(A). The primary final limit, the TMDL-based limit, is not a WQBEL within the meaning of [s]ection 122.44(d)[(1)](vi)(A) because no TMDL has yet been established by [the] EPA or the State, and it therefore does not constitute a numeric limit. The alternate final limit, the limit of 'no net loading,' is not a WQBEL within the meaning of [s]ection 122.44(d)[(1)](vi)(A) because the State has not yet developed a program that establishes a numeric limit."

The superior court did not reach issues (2) and (3) of the petition.

II. Discussion

(1a) Tesoro makes numerous arguments on appeal, but first argues the trial court erred by determining that a WQBEL in the amended 2000 permit had to be numeric. Respondents counter by essentially arguing that the amended permit contained no WQBEL at all, numeric or otherwise, because

the permit did not "establish" a current effluent limitation but deferred to the future process of TMDL development. We conclude that a WQBEL does not always have to be numeric, and that under the circumstances of this case the Regional Board did include valid WQBEL's in the permit.

(2) We first note our standard of review must extend appropriate deference to the administrative agencies in this case, and their technical expertise. ***1104** (See, e.g., *Industrial Welfare Com. v. Superior Court* (1980) 27 Cal.3d 690, 702 [166 Cal.Rptr. 331, 613 P.2d 579]; *WaterKeepers, supra*, 102 Cal.App.4th at pp. 1457-1458.) (3) And while interpretation of a statute or regulation is ultimately a question of law, we must also defer to an administrative agency's interpretation of a statute or regulation involving its area of expertise, unless the interpretation flies in the face of the clear language and purpose of the interpreted provision. (See *Family Planning Associates Medical Group, Inc. v. Belshé* (1998) 62 Cal.App.4th 999, 1004 [73 Cal.Rptr.2d 221].)

(1b) We conclude that section 122.44(d) does not require a numeric WQBEL under the circumstances of this case. In the pertinent text of section 122.44(d), the word "numeric" never modifies "effluent limitation," only "water quality criterion." The reference to "numeric water quality criterion" is in section 122.44(d)(1)(vi)(A)-the very provision the trial court here found required a numeric WQBEL. But the EPA has made it clear that the function of section 122.44(d)(1)(vi) is to allow a permitting authority to derive a *numeric* water quality criterion when the state has only a *narrative* criterion. (National Pollutant Discharge Elimination System; Surface Water Toxics Control Program, 54 Fed.Reg. 23868, 23875 (June 2, 1989).) Section 122.44(d)(1)(vi) "requires NPDES permit writers to use one of three mechanisms to translate relevant narrative criteria into *chemical-specific* effluent limitations." (*American Paper Institute, Inc. v. U.S. E.P.A.* (D.C. Cir. 1993) 996 F.2d 346, 350.)

It thus appears that in the application of the modifier "numeric," the trial court confused effluent limitations (i.e., WQBEL's) with water quality criteria. We see nothing in the regulation which mandates numeric WQBEL's in all circumstances. The definition of "effluent limitation" in the CWA refers to "any restriction," does not specify that a limitation must be numeric, and provides that an effluent limitation may be a schedule of compliance. (33 U.S.C. § 1362(11).) Moreover, section 122.44(k)(3) permits non-numeric WQBEL's where numeric ones are not feasible.9 [FN9]

> FN9 The regulation provides that so-called "best management practices" may control or abate pollution discharges when "[n]umeric effluent limitations are infeasible ...." This is not inconsistent with section 122.45(d)(1), which requires that effluent limitations for continuous discharges be stated as maximum daily and average monthly discharge limitations "unless impracticable."

Case law is limited. A few cases seem to assume that a WQBEL is always a number, but the cases do not squarely address and decide the issue. (See *Am. Iron & Steel Inst. v. E.P.A.* (3d Cir. 1976) 543 F.2d 521, 528; *American Iron and Steel Institute v. E.P.A.* (3d Cir. 1975) 526 F.2d 1027, 1045.) But ***1105** *Natural Resources Defense Council, Inc. v. Costle* (D.C. Cir. 1977) 568 F.2d 1369 (*Costle*), suggests that Congress did not intend numeric effluent limitations to be the only limitation on pollution discharges under the CWA, but intended a flexible approach including alternative effluent control strategies. (*Costle, supra*, 568 F.2d at p. 1380 & fn. 21.)

We find instructive a prior decision of the State Board, of which we have taken judicial notice: *In the Matter of the Petition of Citizens for a Better Environment, Save San Francisco Bay Association, and Santa Clara Valley Audubon Society* (Order No. WQ 91-03, May 16, 1991) 1991 WL 135460 (Cal.St.Wat.Res.Bd.). In that order, the State Board stated: "The petitioners contend that the Clean Water Act, and regulations and court decisions interpreting the Act, require the inclusion of numeric effluent limitations in NPDES permits .... We have reviewed these authorities, and also opinions we have received from EPA, and conclude that numeric effluent limitations are not legally required. Further, we have determined that the program of prohibitions, source control measures and 'best management practices' set forth in the permit constitutes effluent

limitations as required by law." (1991 WL 135460, p. * 12.)

The State Board noted the EPA's regulatory definition of "effluent limitation" was broad, and noted that the *Costle* decision supported the conclusion that numeric limitations were not required-especially since CWA " 'gives EPA considerable flexibility in framing the permit to achieve a desired reduction in pollutant discharges....' " (1991 WL 135460, p. *15, quoting *Costle, supra*, 568 F.2d at p. 1380.)

Specifically referring to section 122.44(d)(1), the State Board noted the regulation did not contain "the term 'numeric' effluent limitation.... Concededly, in most cases, the easiest and most effective chemical-specific limitation would be numeric. However, there is no legal requirement that effluent limitations be numeric." (1991 WL 135460, p. *19, fn. omitted.)

In the present case, the Regional and State Boards in essence concluded that a numeric WQBEL was not feasible (i.e., "not appropriate") for the reasons discussed above. In accordance with applicable regulations, Tesoro's NPDES permit did not have to contain a numeric WQBEL, and the trial court erred by granting mandamus relief on that ground.

We turn to respondents' contention that the permit contains no WQBEL's at all, numeric or otherwise, because the Regional and State Boards deferred the determination of effluent limitations to the future completion of a TMDL, and did not establish current limitations. We note that this is not the ***1106** typical case of a point-source polluter significantly contributing to toxic concentrations in a water body. It is undisputed the Refinery is not the primary source of the dioxins in Suisun Bay, but the dioxins in fact come from other sources, including the forces of nature, beyond the Refinery's control. The goal of which we should not lose sight is a bay environment free of harmful dioxins from all sources, attainable through a comprehensive TMDL.

A TMDL must include allocations to both point and nonpoint sources of listed pollutants, such as dioxin. The limitation may be a daily load limit or may be part of multiple TMDL's on the water body or one TMDL addressing numerous pollutants. The sum of the allocations must result in the water body attaining the applicable water quality standards. [FN10]

FN10 See the EPA Web site at <http://www.epa.gov/owow/tmdl.html> and the State Board Web site at <http://www.swrcb.ca.gov/tmdl.html> (as of May 30, 2003).

The Regional and State Boards concluded the problem of dioxins had to be addressed comprehensively at a regional level, by the completion of a TMDL. To be an effective TMDL the source analysis must identify the amount, timing, and each point of origin of the dioxins contaminating the Bay. The allocation element of a TMDL assesses responsibilities, identifies specific actions to be taken by identified parties, and results in an allocation of the total allowable pollutant burden. The sum of individual allocations should equal the total allowable pollutant burden. [FN11] Achievement of harm-free levels of dioxins involves not only oversight of the Refinery, but also other sources of origin. The TMDL will impose an effluent limitation that will protect the Bay from all sources, which will necessarily include any dioxins controllable by Tesoro.

FN11 See footnote 10, *ante*.

In the interim the Refinery, through a schedule of compliance, was allowed to discharge only at current levels, which are not a significant source of the Suisun Bay dioxin problem. At the conclusion of the TMDL preparation period, during which the refinery must comply with a rigorous schedule of compliance, the refinery will have to either (1) comply with the dioxin WLA in the completed TMDL or (2) reduce dioxin discharge to zero. These two limitations, effluent limitations based on water quality standards, qualify as WQBEL's in the 2000 amended permit. Title 33 United States Code section 1362(11) includes "schedules of compliance" within its definition of the term "effluent limitation." Section 1362(17) explains that a schedule of compliance "means a schedule of remedial measures including ***1107** an enforceable sequence of actions or operations leading to compliance with an effluent limitation, ..." Title 40 Code of Federal Regulations part 130.0 (1985) explains that the process of water quality

planning and management is jointly implemented by the EPA, the states, interstate agencies, and areawide, local, and regional planning organizations. "This process is a dynamic one, in which requirements and emphases vary over time." (40 C.F.R. § 130.0(e) (2001).)

Three separate administrative agencies, the Regional Board, the State Board, and the EPA, have approved this approach after considering compliance requirements. The approach is based on the State Board's interpretation of section 122.44(d)(1). (4) Generally, we extend considerable deference to an administrative agency's interpretation of its own regulations or the regulatory scheme which the agency implements or enforces. The agency interpretation is entitled to great weight unless unauthorized or clearly erroneous. (See, e.g., *Californians for Political Reform Foundation v. Fair Political Practices Com.* (1998) 61 Cal.App.4th 472, 484 [71 Cal.Rptr.2d 606]; *Calderon v. Anderson* (1996) 45 Cal.App.4th 607, 613 [52 Cal.Rptr.2d 846].) The factors governing the degree of judicial deference to agency interpretations are set forth in *Yamaha Corp. of America v. State Bd. of Equalization* (1998) 19 Cal.4th 1 [78 Cal.Rptr.2d 1, 960 P.2d 1031] (*Yamaha*). These factors include the court's assumption that the agency has the technical knowledge and expertise to interpret complex regulations in a technical or complex scheme. They also include the likelihood that agency officials have reached the interpretation after careful and studied review and input from the public. (See *Yamaha, supra,* at pp. 12-13.) Those factors are present in this case.

(1c) In light of the supporting record, and our reading of the applicable statutes and regulations, we agree with the agencies' determinations. [FN12] Respondents' arguments that the WQBEL's are contingent and precatory simply ignore the reality of a carefully conceived, agency-approved, long-term pollution control procedure for a complex environmental setting.

> FN12 This is not a case like *WaterKeepers*, in which we did not defer to the agency because the regulation in that case was ambiguous and lacked a clear interpretive history. (*WaterKeepers, supra,* 102 Cal.App.4th at pp. 1457-1460.)

In view of these dispositive conclusions, we find it unnecessary to discuss any additional arguments of the parties. ***1108**

III. Disposition

The judgment granting the petition for writ of mandate on the first issue of the petition is reversed. The cause is remanded to the superior court for determination of the second and third issues of the petition. [FN13] Each party shall bear its own costs of this appeal.

> FN13 We are not expressing any view about the two remaining issues. This opinion should not be seen as a harbinger of issues not yet decided.

Swager, J., and Margulies, J., concurred.

A petition for a rehearing was denied June 27, 2003, and respondents' petition for review by the Supreme Court was denied September 24, 2003. Kennard, J., did not participate therein. ***1109**

Cal.App.1.Dist.,2003.

COMMUNITIES FOR A BETTER ENVIRONMENT et al., Plaintiffs and Respondents, v. STATE WATER RESOURCES CONTROL BOARD et al., Defendants; TESORO REFINING AND MARKETING COMPANY, Real Party in Interest and Appellant.

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Tab 4

CALIFORNIA COURT OF APPEAL

FOR THE FIRST APPELLATE DISTRICT – DIVISION ONE

No. A100327

TESORO REFINING AND MARKETING COMPANY,

Appellant,

v.

COMMUNITIES FOR A BETTER ENVIRONMENT AND SAN FRANCISCO BAYKEEPER,

Respondents.

Civil Case No. 319575

Appeal From the Superior Court of California, County of San Francisco
Honorable Judge James J. McBride

RESPONDENTS' BRIEF

Michael R. Lozeau (SBN 142893)
Deborah A. Sivas (SBN 135446)
EARTHJUSTICE
553 Salvatierra Walk
Stanford, California 94305-8620
Telephone: (650) 725-4217
Facsimile: (650) 725-8509

(Names and Addresses of Additional Counsel for Respondents Appear on the Following Page)

Attorneys for Respondents
COMMUNITIES FOR A BETTER ENVIRONMENT
and SAN FRANCISCO BAYKEEPER

Richard Toshiyuki Drury (SBN 163559)
Adrienne Bloch (SBN 215471)
COMMUNITIES FOR A BETTER ENVIRONMENT
1611 Telegraph Avenue, Suite 450
Oakland, California 94612
Telephone: (510) 302-0430
Facsimile: (510) 302-0438

Attorneys for Respondent
COMMUNITIES FOR A BETTER ENVIRONMENT

Leo O'Brien (SBN 171388)
Shana D. G. Lazerow (SBN 195491)
WATERKEEPERS NORTHERN CALIFORNIA
55 Hawthorne Street, Suite 550
San Francisco, California 94105
Telephone: (415) 856-0444
Facsimile: (415) 856-0443

Attorneys for Respondent
SAN FRANCISCO BAYKEEPER

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CALIFORNIA RULES OF COURT

I. INTRODUCTION

In 1993, the San Francisco Bay Regional Water Quality Control Board ("Regional Board or "Board") determined that dioxins discharged in the Avon Refinery's wastewater contributed to a violation of state water quality standards. Accordingly, the Board ordered the Refinery to reduce the concentrations of dioxins in its wastewater effluent. The Refinery never complied with this order. Instead, it returned to the Board seven years later and received permission to continue violating state water quality standards for dioxins for another twelve years—until 2010 or later. As a result of the Board's action, the amount of dioxins that the Refinery is permitted to discharge to Suisun Bay increased by more than 400 percent.

This four-fold increase in allowable discharges of dioxins violates the Regional Board's nondiscretionary obligation under the Clean Water Act ("CWA") to set permit limits at levels that maintain acceptable water quality. Rather than basing its effluent limitation for dioxins on state water quality standards, the Regional Board set a new, higher limit at a level that ensured compliance by the Refinery and a safe harbor from enforcement. This effluent limitation is compliance-based rather than water-quality based, in violation of section 301(b)(1)(C) of the CWA, 33 U.S.C. § 1311(b)(1)(C); *see WaterKeepers Northern Cal. v. State Water Resources Control Bd.* (2002) 102 Cal.App.4th 1448, 1462 (describing a "compliance-

based effluent limitation" as "a novel concept previously unknown in the federal and state regulatory scheme").

The Regional Board and the State Water Resources Control Board ("State Board") agreed that the Refinery's permit must include a water quality-based effluent limitation for dioxins. Yet perversely, the Boards relied on EPA's decision to designate Suisun Bay as impaired for dioxins to justify indefinitely delaying the establishment of a water quality-based limit. In other words, the Boards concluded that because concentrations of dioxins in Suisun Bay already are too high, they should do nothing to reduce them for another ten years. Neither the CWA nor common sense permits this absurd result.

To compound their error, the Boards concluded that a hypothetical future discharge limit based on the Bay's impaired status somehow qualifies as a water-quality based effluent limitation even though it has not been and may never be developed. In fact, this hypothetical future limit is not a limit of any kind; rather, in the Regional Board's own words, it is nothing more than "statement of future intent" that imposes no effluent limitation whatsoever. The CWA does not permit such a cosmetic attempt to circumvent its nondiscretionary mandate for permitting authorities to impose all effluent limitations "necessary to implement the applicable water quality standards." 33 U.S.C. § 1313(d)(1)(C). Accordingly, Petitioners respectfully request the Court of Appeal to affirm the Superior

Court's issuance of the writ of mandate vacating and setting aside Regional Board Order No. 00-056 and State Board Order WQ No. 2001-06.

II. LEGAL BACKGROUND

The CWA seeks "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" through the reduction and eventual elimination of pollutant discharges to these waters. 33 U.S.C. § 1251(a). The Act establishes two interrelated means for achieving its goal of eliminating pollutant discharges: (1) water quality standards; and (2) effluent limitations. *Arkansas v. Oklahoma*, 503 U.S. 91, 101 (1992).

A. Water Quality Standards

Section 303 of the CWA, 33 U.S.C. § 1313, requires states to develop water quality standards consistent with the purpose of restoring and maintaining the integrity of the Nation's waters. *Id.* § 1313(a)(1). Each water quality standard must identify both the "designated uses" for each water body (*e.g.*, fishing and swimming) and water quality "criteria" that are sufficient to preserve these uses. 33 U.S.C. § 1313(c)(2)(A); 40 C.F.R. § 131.3(i). The standards may take the form of quantitative limits on pollutant concentrations or "narrative water quality standards," which describe the designated uses and the criteria needed to support such uses. *Id.* State water quality standards provide the legal basis for establishing water quality-based effluent limitations under 40 C.F.R. § 122.44(d). 54

Fed. Reg. 23,868, 23,875 (1989) (Final Rule Amending NPDES Surface Waters Toxics Control Program).

California water quality standards are established though "basin plans." Water Code § 13241. In the 1975 Basin Plan for the San Francisco Bay Region, the Regional Board established a narrative water quality standard governing all toxic pollutants, including dioxins. *See In the Matter of Citizens for a Better Env't*, State Board Order No. WQ 91-03, 1991 WL 135460, at *3 & n.13 (May 16, 1991) (Petitioner's Request for Judicial Notice ("Jud. Not."), Ex. A). The standard was incorporated without modification into the current Basin Plan, adopted in 1995. *See* Appellant's Appendix ("App."), Vol. 1, Tab 3 at 124.[1] The Basin Plan states that "[a]ll water shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms." *Id.*

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[1] Appellant's Appendix does not comply with the California Rules of Court. Rule 5.1(b)(1)(B) requires appellant to include all documents necessary for the Court's proper consideration of the issues, including those documents from the record that may be relied upon by respondents. *See Comm. to Defend Reproductive Rights v. A Free Pregnancy Center* (1991) 229 Cal.App.3d 633, 638. Tesoro's Appendix leaves out numerous documents relied upon by Respondents in their briefing to the Superior Court and which Respondents clearly would again rely upon in this appeal. App., Vol. 4, Tabs 22 & 23. Consequently, Respondents have been obliged to file an additional appendix including the documents omitted from Appellant's Appendix.

B. Effluent Limitations

To meet water quality standards, the CWA requires polluters to comply with effluent limitations. "Effluent limitations" restrict "the quantities, rates, or concentrations" of pollutants discharged from point sources. 33 U.S.C. § 1362(11). Effluent limitations are established in National Pollutant Discharge Elimination System ("NPDES") permits issued to point source dischargers. 33 U.S.C. § 1342(a)(1); *EPA v. California ex rel. State Water Resources Control Bd.*, 426 U.S. 200, 205 (1976). Section 402 of the CWA prohibits the discharge of pollutants to waters of the United States without an NPDES permit. 33 U.S.C. § 1342(a)(1).

In California, the Regional Water Quality Control Boards issue NPDES permits pursuant to authority delegated to the state by the federal Environmental Protection Agency ("EPA"). *See EPA v. California*, 426 U.S. at 209. Regional boards must comply with federal regulations governing the issuance of NPDES permits. 40 C.F.R §§ 122.4(a), 123.25. In addition, NPDES permits must conform to state water quality laws to the extent that those laws impose more stringent pollution control requirements than the CWA. 33 U.S.C. § 1370; *see* Water Code §§ 13263(a), 13372. Permits are issued for "fixed terms not exceeding five years." 33 U.S.C. § 1342(b)(1)(B).

1. NPDES Permits Must Include Water Quality-Based Effluent Limitations for Specific Pollutants When Technology-Based Limits Do Not Assure Compliance with Water Quality Standards

"Effluent limitations are a means of achieving water quality standards." *Trustees for Alaska v. EPA*, 749 F.2d 549, 557 (9th Cir. 1984). Accordingly, the CWA establishes a two-phase approach to implementing effluent limitations through NPDES permits. First, CWA § 301(b)(1)(A) subjects all point source dischargers to "technology-based" effluent limitations. 33 U.S.C. § 1311(b)(1)(A). Thus, all dischargers must at a minimum implement the "best practicable control technology" or "best available technology" for reducing water pollution. *Id.* §§ 1311(b)(1)(A)(i), 1311(b)(2)(A)(i).

However, Congress recognized that these technology-based limits in many instances would be insufficient to meet water quality standards. To address this shortcoming, Congress "supplemented technology-based effluent limitations with water-quality based limitations so that numerous point sources, despite individual compliance with effluent limitations, may be further regulated to prevent water quality from falling below acceptable levels." *Nat'l Wildlife Fed'n v. U.S. Army Corps of Engineers*, 92 F. Supp. 2d 1072, 1075 (D. Or. 2000) (quoting *EPA v. California*, 426 U.S. at 205 n.12) (internal quotation marks omitted). These more stringent "water-quality based effluent limitations" or "WQBELs" apply whenever they are

"necessary to meet water quality standards . . . established pursuant to any State law or regulations." 33 U.S.C. § 1311(b)(1)(C); 40 C.F.R. § 122.44(d)(1).

Under EPA regulations, NPDES permits must include these more stringent effluent limitations when the permitting authority determines that pollutants "are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." 40 C.F.R. § 122.44(d)(1)(i). In setting these more stringent WQBELs, "economic and technological restraints are not a valid consideration." *Ackels v. EPA*, 7 F.3d 862, 865-66 (9th Cir. 1993).

EPA provides a single exception to regulations requiring a numeric effluent limitation that applies to the discharges of industrial wastewater from facilities like the Avon Refinery. An effluent limitation requiring "best management practices" ("BMPs") may be established in lieu of a numeric effluent limit when "[n]umeric effluent limitations are infeasible." 40 C.F.R. § 122.44(k)(3); *see also* 40 C.F.R. § 122.45(d)(1) (requiring all permit limits to be expressed as both average monthly and maximum daily values for all dischargers, unless impracticable). *See Natural Resources Defense Council, Inc. v. Costle*, 568 F.2d 1369, 1380 (D.C. Cir. 1977) (stating that "when numerical effluent limitations are infeasible, EPA may

issue permits with conditions designed to reduce the level of effluent discharges to acceptable levels").

2. EPA Regulations Require NPDES Permits to Include Numeric WQBELs Derived from Narrative Water Quality Standards

The federal regulations establish three procedures that a permit writer must use to calculate a WQBEL from a narrative criterion in the absence of any formally established numeric criterion. 40 C.F.R. § 122.44(d)(1)(vi). Only two of the options are potentially pertinent in this case:[2]

> [T]he regulation provides that a permit writer must establish effluent limits from narrative criteria by using (1) a calculated numeric water quality criterion derived from such tools as a proposed state numeric criterion or an "explicit State policy or regulation interpreting its narrative water quality criterion"; (2) the EPA recommended numeric water quality criteria, but only on a "case-by-case basis" and "supplemented where necessary by other relevant information". . . .

Am. Paper Inst., Inc. v. EPA, 996 F.2d 346, 350 (D.C. Cir. 1993) (emphasis added); *see* 40 C.F.R. § 122.44(d)(1)(vi)(A) & (B). By that regulation, EPA sought to replicate the straightforward process of establishing effluent limitations based on adopted numeric water quality standards: "When the standard includes numeric criteria, the process is fairly straightforward: the permit merely adopts a limitation on a point source's effluent discharge

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[2] Tesoro acknowledges that a third option involving establishing a WQBEL using an indicator parameter is not applicable to the Avon Refinery permit. App. Opening Br. at 24 n.12.

necessary to keep the concentration of a pollutant in a waterway at or below the numeric benchmark." *API v. EPA*, 996 F.2d at 350. Accordingly, the resulting water quality-based effluent limitations are expressed numerically, as either concentration or mass limits. *See, e.g., In the Matter of the Petition of Cal. Dental Ass'n ("CDA")*, State Board Order No. WQ 95-5, 1995 WL 576933, at *3 (Sept. 21, 1995) (stating that 40 C.F.R. § 122.44(d)(1)(vi) requires permit writer to establish "a specific numeric effluent limitation" based on one of three methods) (Jud. Not., Ex. B); Memorandum from Elizabeth Jennings, Senior Staff Counsel, SWRCB, to Regional Water Quality Control Board Members, at 5 (Aug. 1, 1997) ("SWRCB Counsel Memo") (concluding that "[i]f there is a 'reasonable potential,' the permit must include a numeric effluent limit for the constituent") (Jud. Not., Ex. C).[3]

C. Total Maximum Daily Loads ("TMDLs")

In addition to requiring states to develop water quality standards, section 303 of the CWA directs states and/or EPA to account for

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[3] *See also In the Matter of the Petition of City & County of San Francisco* ("*San Francisco*"), State Board Order No. WQ 95-4, 1995 WL 576920, at *7 (Sept. 21, 1995) ("A permitting authority has three options when developing numeric effluent limitations to implement a narrative objective.") (Jud. Not., Ex. D); *In the Matter of Citizens for a Better Env't*, State Board Order No. WQ 90-5, 1990 WL 182452, at *29 (Oct. 4, 1990) (holding that NPDES permits must include numeric WQBELs for toxic chemicals based on numeric toxic pollutant objectives or narrative water quality criteria) (Jud. Not., Ex. E).

cumulative discharges of pollutants to water bodies. Under section 303(d), each state must identify water bodies within its boundaries where the first phase of technology-based effluent limitations was not by itself sufficient to meet water quality standards. 33 U.S.C. § 1313(d)(1)(A); 40 C.F.R. § 130.7. For all waters identified pursuant to section 303(d)(1)(A) ("303(d) List"), the state must establish the "total maximum daily load" or "TMDL" for pollutants determined by EPA as suitable for TMDL calculation.[4] 33 U.S.C. § 1313(d)(1)(C); 40 C.F.R. § 130.7(c). A TMDL defines the maximum amount of a pollutant that can be discharged or "loaded" into a water body from all combined sources. 40 C.F.R. § 130.2(i); *Dioxin/Organochlorine Ctr. v. Clarke*, 57 F.3d 1517, 1520 (9th Cir. 1995). A TMDL must be "established at a level necessary to implement the applicable water quality standards." 33 U.S.C. § 1313(d)(1)(C). By assigning a "waste load allocation" ("WLA")[5] to each point source discharger, a completed TMDL may serve as the basis for a water quality-based effluent limitation derived from the applicable water quality standard.

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[4] EPA has identified all pollutants, under proper technical conditions, as suitable for TMDL calculation. 43 Fed. Reg. 60,662 (1978).

[5] EPA regulations define "waste load allocation" as "[t]he portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. WLAs constitute a type of water quality-based effluent limitation." 40 C.F.R. § 130.2(h).

40 C.F.R. §§ 122.44(d)(1)(vii), 130.2(g)-(i); *Pronsolino v. Nastri*, 291 F. 3d 1123, 1128 (9th Cir. 2002).

III. STATEMENT OF FACTS

A. Background

Dioxins are a class of seventeen highly toxic, structurally similar compounds produced as unwanted byproducts of combustion processes and the manufacture of chlorinated chemicals. App. Vol. 4, Tab 20 at 929.[6] Dioxins are the most toxic chemicals known to science, and can cause cancer and reproductive toxicity at extremely low levels. 2-Respondents' Appendix ("RA")-254, 257.[7] Because dioxins are long-lived in the environment and essentially insoluble in water, they accumulate in the tissue of animals at the top of the food chain. App. Vol. 2, Tab 10 at 494-95; App. Vol. 4, Tab 20 at 930. Accordingly, concentrations of dioxins as low as 0.014 pg/L or lower[8] adversely affect water quality. *See* App. Vol. 3,

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6 "Dioxins" refers collectively to the 17 most toxic compounds in two related classes of compounds, polychlorinated dibenzodioxins and polychlorinated dibenzofurans. App. Vol. 2, Tab 10 at 493; App Vol. 4, Tab 20 at 929. Of these, 2,3,7,8-tetrachlorodibenzo-p-dioxin ("2,3,7,8-TCDD") is considered to be the most toxic. *Id.* An additional 16 dioxin compounds exhibit "dioxin-like" toxicity. App. Vol. 2, Tab 10 at 495.

7 Citations to Respondents' Appendix will use the format [Volume]-RA-[Page], *e.g.*, 1-RA-1.

8 One pg/L ("picogram per liter") is 1 x 10^{-12} g/L.

Tab 14 at 797, 803.[9] Food consumption, including the consumption of contaminated fish and shellfish, is thought to be the primary route of dioxins exposure for humans. App. Vol. 2, Tab 10 at 494.

On May 12, 1999, the EPA approved a 303(d) List of "impaired" water bodies in California. App. Vol. 3, Tab 14 at 795 (Finding 41). The list designates Suisun Bay as impaired by all seventeen dioxins. *Id.* at 796. In other words, EPA has concluded that concentrations of dioxins in Suisun Bay interfere with the "beneficial uses" of the water body.[10] EPA further noted that Suisun Bay "has no assimilative capacity" for dioxins, concluding that the only discharge limit that would avoid contributing to the Bay's impairment is zero. App. Vol. 2, Tab 8 at 325; *see* App. Vol. 2, Tab 9 at 331, 335. Although section 303(d) of the CWA requires EPA or the State to develop a TMDL for discharges of dioxins to Suisun Bay, neither agency has done so. *See* App. 3, Tab 14 at 796 (Finding 42).

In addition to designating Suisun Bay as impaired for all seventeen dioxins, EPA has established a numeric water quality criterion for one of

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[9] However, EPA's 2000 Draft Dioxins Reassessment indicates that human cancer risks from dioxins exposure are ten times higher than previously estimated. *See* 2-AR-254. This higher cancer risk has yet to be reflected in the CWA regulatory process. *See* App. Vol. 4, Tab 20 at 932.

[10] The beneficial uses of Suisun Bay include water contact recreation, non-water contact recreation, ocean commercial and sport fishing, wildlife habitat, preservation of rare and endangered species, fish migration and spawning, estuarine habitat, shellfishing, navigation, and industrial supply service. *Id.* at 795 (Finding 30). "Beneficial uses" defined in the Basin Plan are equivalent to "designated uses" under section 303 of the CWA.

the seventeen dioxins, 2,3,7,8-TCDD. App. Tab 4, Vol. 20 at 931; *see also* 65 Fed. Reg. 31,682, 31,695-96 (2000). However, sixteen of the seventeen dioxins at issue do not have numeric water quality criteria. *Id.* Despite the absence of established criteria for the sixteen dioxin compounds, EPA supports their regulation in NPDES permits through the use of toxicity equivalencies and numeric water quality-based effluent limits. *Id.* The sixteen remaining compounds are also regulated under California's narrative water quality standard for toxics. *See* App. Vol. 1, Tab 3 at 124; *see also* 1-AR-34 (Response to Comment 50).

Five of the seventeen dioxins (not including 2,3,7,8-TCDD) are consistently detected in the Avon Refinery's wastewater. *See* App. Vol. 2, Tab 8 at 327.[11] The Refinery, located near Martinez, California on the shores of Suisun Bay, processes an average of 150,000 barrels per day of crude oil, producing diesel fuel and unleaded gasoline. App. Vol. 3, Tab 14 at 787. The facility discharges approximately 4.3 million gallons per day of process wastewater and contaminated storm water runoff to Suisun Bay. 1-AR-1. The bulk of the Refinery's effluent is discharged via a two-mile long canal (Outfall "Waste 001"). App. Vol. 3, Tab 14 at 788 (Finding 8).

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[11] Dioxins compounds regularly detected in the Refinery's wastewater include 1,2,3,4,6,7,8-heptachlorodibenenzo-p-dioxin ("CDD"), octa-CDD, 1,2,3,4,6,7,8-heptachlorodibenenzo-p-furan ("CDF"), 1,2,3,4,7,8,9-heptaCDF, and octa-CDF. *See* App. Vol. 3, Tab 16 at 840.

The Refinery's discharges are regulated by NPDES Permit No. CA0004961, as amended by Order No. 00-056. App. Vol. 3, Tabs 14 & 16.

B. The Refinery's Past Permits Included a Numeric WQBEL for Dioxins

The Regional Board has long known that significant amounts of dioxins are discharged from the Avon Refinery to Suisun Bay. *See* App. Vol. 3, Tab 14 at 798. Accordingly, between July 1993 and June 2000, the Board consistently ordered the Refinery to comply with a numeric WQBEL for all seventeen dioxins.

1. The 1993 Permit

The Board first adopted a numeric WQBEL for dioxins in 1993. App. Vol. 1, Tab 2 at 35 (Order No. 93-068, or "1993 Permit"). The 1993 Permit included a WQBEL of 0.14 pg/L of TCDD equivalents ("TEQ") applicable to all seventeen dioxins. *Id.* at 41[12] In addition, the permit set forth a schedule of compliance requiring "full compliance" with this limit by June 30, 1995. *Id.* at 41, 46.

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[12] "TCDD equivalents," or "TEQ" refers to the total concentration of all 17 dioxins compounds, weighted by toxicity relative to 2,3,7,8-TCDD. The 0.14 pg/L WQBEL was derived from a then existing numeric criterion of 0.014 pg/L for all 17 dioxins adopted by the State Board in its April, 1991 Water Quality Control Plan for Inland Surface Waters of California and the Water Quality Control Plan for Enclosed Bays and Estuaries of California (collectively "Inland Surface Waters Plan"). *See* App. Vol. 1, Tab 4 at 248.

2. The 1995 Permit

On June 21, 1995, the Board reaffirmed the 0.14 pg/L WQBEL for all 17 dioxins in Order No. 95-138 ("1995 Permit"), denying the Refinery's request for an amendment of the dioxins effluent limitation established in the 1993 Permit. App. Vol. 1, Tab 4 at 249-50.[13] In approving the 1995 Permit, the Board concluded that the WQBEL "is appropriate and necessary for the full protection of water quality and beneficial uses." *Id.* at 249 (Finding 6). Consistent with 40 C.F.R. § 122.44(d)(1)(vi)(B), the Board relied on an existing EPA criteria for one dioxin compound -- 2,3,7,8-TCDD -- plus the TEQ methodology adopted by EPA in order to address the sixteen other dioxins. *Id.* at 249-50. The Board also reaffirmed its commitment to the compliance schedule contained in the 1993 Permit. *Id.* at 250 (ordering the Refinery to comply immediately with effluent limitations contained in the 1993 Permit).

Despite the Board's order, the Refinery failed to comply with the 1995 Permit's dioxins discharge limit. On November 15, 1995, the

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[13] In March 1994, the Sacramento County Superior Court issued a writ of mandate ordering the State Board to set aside the 1991 Inland Surface Waters Plan, including the 0.014 pg/L criteria for all 17 dioxins. App. Vol. 1, Tab 4 at 249; *see WaterKeepers*, 102 Cal.App.4th at 1454. On May 31, 1994, the refineries, including the Avon Refinery, petitioned the Regional Board to delete from their NPDES permits the 0.14 pg/L WQBEL for dioxins based on the absence of the previous criteria. *Id.* Regional Board Order No. 95-138 rejected that request and reaffirmed the numeric WQBEL for dioxins. *Id.* at 250.

Regional Board issued a Cease and Desist Order directing the Refinery to comply with the dioxins WQBEL. App. Vol. 1, Tab 5 at 254-56.[14] However, the Refinery never came into compliance with its NPDES permit. *See* App. Vol. 3, Tab 14 at 794.

3. The 2000 Permit

On February 16, 2000, the Regional Board reissued the Avon Refinery's NPDES permit ("2000 Permit") and again reaffirmed the 0.14 pg/L WQBEL for all seventeen dioxins. App. Vol. 3, Tab 14 at 787 (Order No. 00-011). The numeric WQBEL was necessary to implement the narrative toxicity standard. *See id.* at 799 (Finding 57(a)). The Board derived that numeric WQBEL by applying the steps mandated by 40 C.F.R. § 122.44(d)(1)(vi) where only a narrative standard is available. *See id.* at 795 (Finding 40) ("The WQBELs are based on the Basin Plan, other State Plans and policies, or USEPA water quality criteria."). In adopting a numeric WQBEL for dioxins, the Board recognized the significance of the Refinery's discharges in contributing to elevated dioxin concentrations, concluding that "[s]ince TCDD equivalent [dioxins] has been detected in the final effluent at concentrations above the permit limit and Avon Refinery is identified as a source, this pollutant is determined to have [a reasonable potential] of causing or contributing to exceedences of the water

[14] The Board gave the Refinery until July 1, 1999 to comply with the dioxins limit. *Id.* In 1999, the Board further delayed the Refinery's final compliance date until July 1, 2000. App. Vol. 2, Tab 7 at 323.

quality objective." *Id.* at 798 (Finding 52). The Board further stated that in the absence of an approved TMDL, "any loading to the impaired water body has the reasonable potential to cause or contribute to an excursion [above] the narrative water quality criterion." *Id.* at 799 (Finding 57(a)).

C. The 2000 Amendment Abandoned the Previous Permits' Numeric WQBEL for Dioxins

Despite its adoption of the 0.14 pg/L numeric WQBEL in February 2000, the Board abruptly reversed course only a few months later. On June 21, 2000, by Order No. 00-056 ("2000 Amendment"), the Board amended the 2000 Permit conditions' effluent limitation for dioxins. App. Vol. 3, Tab 16 at 832. The 2000 Amendment abandoned the 0.14 pg/L TEQ limit first adopted in 1993, replacing it with a limit of 0.65 pg/L. *Id.* at 840. Moreover, the Board applied the 0.65 pg/L limit to only five of the seventeen dioxins.[15] The Board based the higher effluent limitation on the Refinery's past dioxins discharges. *Id.* at 836 (Finding 22) ("The interim limit [*i.e.*, the 0.65 pg/L limit] in this Order is based on facility performance . . . ."). The 0.65 pg/L limit will remain in effect for the duration of the permit's five-year term and possibly longer. *Id.*; *see* 40 C.F.R. § 122.6(d).

The Board recognized that the higher effluent limitation was performance-based rather than water-quality based. App. Vol. 3, Tab 14 at 836. To justify its abandonment of the 0.14 pg/L numeric WQBEL for all

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[15] *See supra* p. 13 n. 11 (listing dioxins detected in the Refinery's effluent).

seventeen dioxins contained in the previous permits, the Board included two nonbinding findings describing the current Regional Board's intentions regarding a future Board's establishment of effluent limitations for dioxins discharged from the Refinery. *Id.* at 838-39 (Order No. 00-056, Revisions to Findings 55 and 57).

Finding 55 states that when EPA completes a TMDL for San Francisco Bay dioxins, the Regional Board "will adopt a WQBEL consistent with the corresponding WLA." *Id.* at 838. The Regional Board itself disavows any intention itself to prepare a TMDL for dioxins. *See id.* (Revisions to Finding 42). Whether or not EPA will ever establish a TMDL for dioxins is not clear. 3-AR-627 (Testimony of Regional Board Counsel) (stating that "it is not certain how long [development of a dioxins TMDL] will take. Ten years is an estimate; it could be more . . . ."). In addition, whether such a TMDL would result in an enforceable criterion is not apparent. *Id.* ("We don't know the ultimate outcome of the TMDL process, what it will look like in the end, whether there will be enforceable, quantitative, numeric standards in place that we can count on as a definite, final limit.").

Finding 57 states that "[i]n the event . . . a TMDL is not established by the U.S. EPA for dioxins and furans by 2012, . . . the final alternative limit will be no net loading" for all 17 dioxin compounds. *Id.* at 839. The finding defines "no net loading" to mean "that the actual loading from the

discharge must be offset by at least equivalent loading of the same pollutant achieved through mass offset." *Id.* A program describing how such offsets would be determined has not been established by the Regional Board. 3-AR-530 (State Board Member Forster) ("You [EPA] don't have an offset policy, and neither do we").[16] Regional Board staff has explained that a future "no net loading" limit would not necessarily result in an effluent limitation equivalent to "zero" at the refinery's outfall. *See, e.g.*, 1-AR-37 (Response to Comment 65) (noting that Finding 57 "does not require further end of pipe treatment" of the Refinery's dioxins discharges). For example, a "no net loading" effluent limitation could permit dioxins discharges that equal or exceed the performance-based effluent limitation of 0.65 pg/L. 3-AR-671(lines 20-25)-672 (Regional Board staff acknowledge that a "no net loading" based limit could result in even less stringent limit for dioxins than 0.65 pg/L).

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16 *See also* 1-AR-233 (Regional Board Member DeLuca) (noting that "the reality is that there is no offset policy"); 3-AR-671 (Regional Board executive Officer) ("We don't have an offset program."); 3-AR-532 (EPA) ("[T]here's problems [sic] that we don't have any offset policies or procedures in place, no effluent trading policy."); 1-AR-38 (Response to Comment 8c) (stating that "[a]ny mass offset program will have to be approved by the Regional Board as a future action"); App. Vol. 3, Tab 13 at 759 (Response to Comment 17) (agreeing in part with the Avon Refinery's comment that "[t]he optional mass offset provision is not truly a viable option until program details are defined" and noting that the details of any potential future program will not be available for an indefinite period of time).

The Regional Board's projections of future actions included in Findings 55 and 57 of the 2000 Amendment are not binding on future Boards, nor are they enforceable. 1-AR-23 (Response to Comment 1) (stating that findings have "no direct regulatory effect" and that a "future Board, presumably in ten years . . . would not be legally bound by this finding").[17]

In issuing the 2000 Amendment, the Board did not directly address earlier studies that concluded that the Avon Refinery could comply with the 0.14 pg/L WBQEL. 5-AR-978 to 979. Testifying before the State Board, Regional Board Staff Engineer Lila Tang stated that the Board had "explored many alternatives" for compliance with the 0.14 pg/L TEQ limit

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[17] The apparent meaningless of the Permit's prospective findings is underscored time and time again by the Boards. *See* 3-AR-459 (stating that Finding 57 is "only a finding of Board's intent and has no direct regulatory effect. To effectuate this Finding, another action would be necessary by a future Board, presumably in ten years. Moreover, that Board would not be legally bound by this Finding."); 5-AR-1091 (stating that "findings [are] not binding on any future board"); 1-AR-57 (noting that the "findings are only statement of future intent, and are not directly enforceable . . . . [T]his language is not binding on the discharger. Any action to carry out this language in an enforceable way would require another action by a future Board."); 1-AR-89 (stating that the findings regarding future limits are "not something that would automatically go into place in ten years. Of course, this permit is going to expire in five years anyway, so this is an expression of the Board's intent of what would happen . . . ."); 1-AR-91 ("You can't legally bind that board ten years from now with what you do today. You can just make an expression of your intent . . . . It's hard because . . . NPDES permits cannot last longer than five years . . . . [B]asically, you really can't legally bind somebody for something that will occur after the permit term.").

and concluded that a final filtration of the combined discharge to Suisun Bay was the "simplest" means of compliance. 5-AR-944. The Regional Board estimated that installation of a final filtration system would cost $10 million. 2-AR-85; 5-AR-944 to 945. Three nearby refineries, not including the Avon Refinery, had spent comparable sums to remove another bioaccumulative pollutant (selenium) from their effluent discharges.[18]

D. Proceedings Below

On July 12, 2000, Communities For A Better Environment and San Francisco BayKeeper (collectively "CBE") appealed Regional Board Order No. 00-056 to the State Board. App. Vol. 4, Tab 17 at 843. After conducting an evidentiary hearing, the State Board denied in part and granted in part CBE's challenge to the 2000 Amendment. App. Vol. 4, Tab 20 at 886 (SWRCB Order No. WQ 2001-06). The State Board affirmed the Regional Board's finding that the dioxins discharges from the Avon Refinery have an "RP [reasonable potential] of causing or contributing [to] exceedences of the water quality objective." App. Vol. 3, Tab 14 at 798 (Regional Board Finding 52); *id.* at 945 (Finding 14). Accordingly, the State Board concluded that the Regional Board must include a WQBEL for dioxins in the Refinery's NPDES permit. App. Vol. 4, Tab 20 at 946 (Finding 17).

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[18] The three Bay Area refineries had installed selenium removal systems at an expense of approximately $15 million per refinery. 4-AR-700; 5-AR-723.

Nevertheless, the State Board held that the Regional Board could defer inclusion of a WQBEL in the Refinery's permit pending adoption of a final TMDL for dioxins. *Id.* at 909-10, 945-46. In addition, although the State Board earlier in its order rejected the "alternative final limit" of "no net loading" as "inappropriate," *Id.* at 907, it later relied on the alternative final limit for dioxins to uphold the Regional Board's decision to remove the 0.14 pg/L WQBEL from the Refinery's permit. *Id.* at 936-37.[19] The State Board's opinion does not explain this discrepancy.

On March 13, 2001, CBE filed a petition for writ of mandate in San Francisco County Superior Court seeking review of the 2000 Amendment and the State Board's decision. The Superior Court granted CBE's petition, holding that by eliminating the WQBEL for dioxins from the Refinery's NPDES permit, the Regional and State Boards violated 33 U.S.C. § 1311(b)(1)(C) and 40 C.F.R. § 122.44(d). App. Vol. 4, Tab 24 at 1025. In addition, the court held that the permit failed to include a numeric WQBEL in violation of 40 C.F.R. § 122.44(d)(1)(vi)(A). *Id.*[20]

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[19] However, the State Board did direct the Regional Board to amend the alternative final limit to state that a future board would impose a no net loading requirement in 2010 rather than in 2012. *Id.* at 940.

[20] In its petition, CBE also argued that the 2000 Amendment violates the CWA's anti-backsliding provision, 33 U.S.C. § 1342(o), because the new 0.65 pg/L limit is less stringent than the 0.14 pg/L effluent limitation contained in the Refinery's previous permits. *See* App. Vol. 4, Tab 22 at 989-97. In addition, CBE argued that the Regional Board exceeded its authority to establish a schedule of compliance for the Refinery's dioxins

The Regional Board and State Board did not appeal the Superior Court's ruling. In September 23, 2002, Tesoro filed this timely appeal. App. Vol. 4, Tab 26.

IV. DISCUSSION

A. Standard of Review

The Superior Court concluded that the Regional Board's 2000 Amendment (Order No. 00-056) and State Board Order No. WQ 2001-06 violated section 301(b)(1)(C) of the CWA and its implementing regulations. App Vol. 4, Tab 24 at 1025. On appeal, the Superior Court order is presumed to be correct. *State Farm Fire & Cas. Co. v. Pietak* (2001) 90 Cal.App.4th 600, 610. "All intendments and presumptions are indulged to support it on matters as to which the record is silent, and error must be affirmatively shown." *Denham v. Superior Court* (1970) 2 Cal.3d 557, 564. Tesoro bears the burden of overcoming the presumption of correctness. *Gee v. Am. Realty & Const., Inc.* (2002) 99 Cal.App.4th 1412, 1416. This Court reviews the Superior Court's conclusions and not the legal reasoning that supports those conclusions. *Whyte v. Schlage Lock Co.* (2002) 101 Cal.App.4th 1443, 1451. The Superior Court's order must be affirmed so long as it can be supported by any legal theory. *Id.*

WQBEL, in violation of the CWA. *See id.* at 997-1001. Because the Superior Court did not reach these issues, if the Court of Appeal were to vacate the Superior Court's ruling, Petitioners request that the resulting remand specify that the Superior Court proceed to rule on those additional claims.

In reviewing the State Board's ruling, deference to the Board's legal reasoning is appropriate only where the meaning of a statute or regulation is unclear or ambiguous. *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 843 n.9 (1984). Although an administrative agency's interpretation of a statute it is charged with administering is entitled to some deference, "[t]he ultimate interpretation of a statute is of course an exercise of judicial power and it is ultimately the responsibility of the courts to declare its true meaning even if it requires rejection of an earlier erroneous administrative interpretation." *Family Planning Ass'n Med. Group, Inc. v. Belshe* (1998) 62 Cal.App.4th 999, 1004 (quoting *Wheeler v. Bd. of Admin.* (1975) 25 Cal.3d 600, 605) (alterations omitted); *WaterKeepers*, 102 Cal.App.4th at 1458. Thus, if the intent of a federal statute is clear, no deference to the agency's interpretation of the statute is warranted: "[T]he court, as well as the agency, must give effect to the unambiguously expressed intent of Congress." *Chevron*, 467 U.S. at 842-43. Accordingly, the Court should exercise its independent judgment in reviewing the Regional and State Boards' interpretation of the CWA and EPA regulations. *See Clark v. City of Hermosa Beach* (1996) 48 Cal.App.4th 1152, 1169 (holding that in mandamus proceedings, questions of law are reviewed de novo); *M&B Constr. v. Yuba County Water Agency* (1999) 68 Cal.App.4th 1353, 1359 (same).

As a general rule, the appellant cannot raise new issues on appeal and must adhere to the theories litigated in the trial court. *Brown v. Boren* (1999) 74 Cal.App.4th 1303, 1316. This rule recognizes that it would be unfair to the appellee and the trial court to permit a change of theory on appeal. *Id.* However, when a new theory is based on a pure question of law or raises important public policy questions, the Court may exercise its discretion to consider the newly raised issue. *Resolution Trust Corp. v. Winslow* (1992) 9 Cal.App.4th 1799, 1810; *Hale v. Morgan* (1978) 22 Cal.3d 388, 394.[21]

B. The Regional Board Violated the CWA by Failing to Include a WQBEL in Tesoro's NPDES Permit

The Superior Court correctly concluded that Tesoro's NPDES permit does not include a WQBEL for dioxins. The Regional Board's so-called "water quality-based effluent limitation" does not establish an effluent limitation of any kind for dioxins and is not based on current water quality standards. Accordingly, Tesoro's NPDES permit fails to comply with the nondiscretionary requirements of section 301(b)(1)(C) of the CWA, 33 U.S.C. § 1311(b)(1)(C).

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[21] The arguments set forth at Sections IV.B.2 through IV.B.5 and IV.C of Tesoro's Opening Brief were not raised by either Tesoro or the State during the Superior Court proceedings despite an opportunity to do so. All of the parties filed briefs and participated in a hearing before the Superior Court regarding the contents of the Superior Court's statement of decision that included lengthy arguments regarding the scope and authority of 40 C.F.R. § 122.44(d)(1)(vi), including the requirement that WQBELs be numeric.

1. The Only "Effluent Limitation" Contained in Tesoro's NPDES Permit is Not a WQBEL

Tesoro's NPDES permit contains only one effluent limitation on the Avon Refinery's dioxins discharges: the inaptly named "interim" limit of 0.65 pg/L. Both the State and Regional Boards, as well as Tesoro, acknowledged that the 0.65 pg/L limit is based on the Refinery's past discharge levels of dioxins rather than water quality standards. App. Vol. 3, Tab 16 at 836 (Finding 22) ("The interim limitation in [the 2000 Amendment] is based on facility performance . . . ."); App. Vol. Tab 4, 20 at 941 ("The interim effluent limit [is] not water quality-based, but rather performance based."); App. Opening Br. at 13. Rather than assuring compliance with water quality standards, the "interim" effluent limitation was set at a level that guarantees the Refinery's compliance with its dioxins limits.[22] Indeed, the Regional and State Boards issued a dioxins limitation that rubber stamps existing control measures that failed to achieve compliance with the Refinery's previous 0.14 pg/L WQBEL for all seventeen dioxins. Thus, the 0.65 pg/L effluent limitation is insufficient to meet water quality standards and is therefore not a WQBEL.

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[22] The Regional Board assured the Refinery that the company would likely violate the "generous" 0.65 pg/L limit only once every 25 years. 5-AR-1032-1033; *see also* 4-AR-615 (noting that the limits "are numbers that the dischargers never violate").

2. Neither the TMDL-Based Nor "No Net Loading" Findings Constitute Effluent Limitations under the CWA

Despite the Regional Board's uncontested finding that the Refinery's permit must include a WQBEL for all seventeen dioxins, the compliance-based limit of 0.65 pg/L for five dioxins compounds is the only effluent limitation for dioxins in Tesoro's NPDES permit. The CWA defines "effluent limitations" as "any restriction established by a State or the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters, . . . including schedules of compliance." 33 U.S.C. § 1362(11). Applying this definition, it is clear that a finding describing a future TMDL or, alternatively, a non-binding statement of intent to create a "no net loading" requirement in a future permit, is not an "effluent limitation" for the purpose of the CWA. *See* 3-AR-664-665 (stating that prior to the Avon Refinery permit, the Regional Board had never proposed nor adopted any NPDES permit where it claimed an effluent limitation was included in a permit's findings).

First, effluent limitations must be "established," i.e., they must exist at the time that an NPDES permit is issued. 33 U.S.C. § 1362(11); *see also* 40 C.F.R. § 122.2 (defining effluent limitation as "any restriction imposed by the Director on quantities, discharge rates, and concentrations of 'pollutants'") (emphasis added). Rather than adopting a WQBEL, the 2000

Amendment indefinitely deferred the establishment of a WQBEL. In fact, counsel for the Board noted that the findings were included in the permit in order to "explain why you don't see a final effluent limit here [*i.e.*, in the Refinery's permit]." 1-AR-210-11. The State Board agreed, noting that "[t]he Regional Water Board, after finding reasonable potential for all of the impairing pollutants, did not calculate final limits." App. Vol. 4, Tab 20 at 906. In short, the 2000 Amendment's so-called "final effluent limit" is nothing more than a "statement of future intent" that a future Board *will establish* a WQBEL at some future date. 1-AR-57. However, section 1362(11) requires that effluent limitations already be "established" at the time that the permit is issued. 33 U.S.C. § 1362(11) (emphasis added). The Regional Board cannot evade its obligation to establish effluent limitations by delegating this duty to some hypothetical future Board.

Second, an effluent limitation must create an enforceable "restriction" on the Refinery's discharges. 33 U.S.C. § 1362(11); 40 C.F.R. § 122.2. The plain meaning of the CWA and its implementing regulations mandate that this restriction be expressed as an enforceable permit condition rather than a precatory finding. The Act requires all NPDES permits to "prescribe conditions . . . to assure compliance" with technology- and water-quality based effluent limits. 33 U.S.C. § 1342(a). Similarly, EPA regulations state that "each NPDES permit shall include conditions . . . necessary to . . . [a]chieve water quality standards

established under section 303 of the [CWA]." 40 C.F.R. § 122.44(d)(1); *see also Chevron U.S.A., Inc. v. Hammond*, 726 F.2d 483, 490 (9th Cir. 1984) ("[T]he regulations implementing section 1342 provide that applicable state water quality standards shall be incorporated into the permit conditions along with other relevant effluent limitations.") (emphasis added).

Despite this clear requirement, the Regional Board's so-called WQBEL is described in a non-binding "statement of future intent" rather than included as a permit condition. *See* 1-AR-57. The Regional Board recognized that this finding did not create any legally binding restrictions on the Avon Refinery's dioxins discharges. *See, e.g.*, 1-AR-23 (noting that findings have "no direct regulatory effect"); *see also* 1-AR-90 (stating that "the only effluent limitation, meaning the only thing that could be enforceable, . . . [is] the interim limits that are in the permit"); *see also supra* note 17 (collecting quotations). Thus, any "restriction" established by the Board' findings is wholly illusory and cannot be an "effluent limitation" as defined by the CWA.

Finally, an effluent limitation must include some quantifiable limit on the "quantities, rates, and concentrations" of pollutants discharged by NPDES permittees. 33 U.S.C. § 1362(11); *Am. Iron & Steel Inst. v. EPA*, 543 F.2d 521, 528 (3d Cir. 1976) ("An 'effluent limitation' represents a single number which limits the maximum amount of effluent discharge that

will be permitted."). According to EPA regulations, effluent limitations must be stated as daily maxima and monthly averages unless it is impracticable to do so. 40 C.F.R. § 122.45(d)(1).

The Regional Board's findings contain no quantifiable limitation on dioxins discharges. Instead, the findings refer to a TMDL that does not currently exist and will not be developed until many years after the permit expires. Similarly, a possible future "no net loading requirement" does not restrict the quantity of dioxins discharged; in fact, it could lead to an increase in the Refinery's dioxins discharges. *See, e.g.*, 1-AR-37 (Response to Comment 65); App. Vol. 2, Tab 9 at 335. The findings simply do not restrict the "quantities, rates or concentrations" of dioxins discharges, 33 U.S.C. § 1362(11), state "[m]aximum daily and average monthly discharge limitations," 40 C.F.R. § 122.45(d)(1), or establish any other restriction on dioxins discharged from the Refinery. *See also Am. Iron & Steel Inst.*, 543 F.2d at 528 (3d Cir. 1976).

3. The 2000 Amendment Does Not Include an Enforceable Schedule of Compliance that Could Qualify as an Effluent Limitation under the CWA

Although the Regional Board's findings do not create an established, quantitative restriction on Tesoro's discharges of dioxins, Tesoro nevertheless suggests that the Board's non-binding findings are a schedule of compliance, thereby qualifying as an "effluent limitation" under 33 U.S.C. § 1362(11). App. Opening Br. at 27. But even though an effluent

limitation may include a schedule of compliance under the CWA, *see* 33 U.S.C § 1362(11), the Regional Board's findings do not qualify as such. Accordingly, the findings cannot establish an effluent limitation that meets the requirements of section 1362(11).

The CWA's definition of "schedule of compliance" expressly excludes the Regional Board's non-binding findings. The Act defines a schedule of compliance as "a schedule of remedial measures including an enforceable sequence of actions or operations leading to compliance with an effluent limitation, other limitation, prohibition, or standard." 33 U.S.C. § 1362(17); *see also* 40 C.F.R. § 122.2 (defining a schedule of compliance as "a schedule of remedial measures included in a 'permit,' including an enforceable sequence of interim requirements (for example, actions, operations, or milestone events) leading to compliance with the [CWA] and [EPA] regulations"); 40 C.F.R. § 122.43(a) (requiring NPDES permits to "establish conditions" to enforce applicable schedules of compliance).

Accordingly, a schedule of compliance must be *enforceable.* Tesoro's purported schedule of compliance consists of a precatory finding rather than an enforceable permit condition, in violation of EPA regulations. *See* 40 C.F.R. §§ 122.2, 122.43(a). Indeed, the Regional Board characterized its findings as a "statement of future intent" and concluded that "[a]ny action to carry out this permit in an enforceable way would require action by a future Board." 1-AR-57. In other words, the

findings are unenforceable and thus cannot be a schedule of compliance under the CWA. *See* 33 U.S.C. § 1362(17); 40 C.F.R. § 122.43(a).

Moreover, the Regional Board's findings do not create a sequence of actions that would lead to compliance with a WQBEL for dioxins. *See* 33 U.S.C. § 1362(17); 40 C.F.R. § 122.2. To the contrary, they attempt to lock in the status quo with a compliance-based effluent limitation for the duration of at least two permit terms and ensure that Tesoro can continue to discharge dioxins at past levels without any risk of non-compliance.[23] Thus, the permit contains no enforceable sequence of actions that could constitute a schedule of compliance under 33 U.S.C. § 1362(17). Because the permit's unenforceable findings are not a schedule of compliance, they do not establish an effluent limitations for dioxins within the meaning of 33 U.S.C. § 1362(11).

4. The Board's Reference to a Potential Future TMDL Does Not Excuse its Failure to Include a WQBEL in the Refinery's NPDES Permit

Despite the plain language of the CWA, Tesoro contends that the State and Regional Boards may delay establishing any WQBEL on the Avon Refinery's dioxins discharges for twelve years pending development

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[23] For an example of a permit that *does* establish a schedule of compliance, see the Refinery's 1993 Permit. App. Vol. 1, Tab 2 at 45-46. The 1993 Permit includes an enforceable permit condition specifying six tasks, with compliance dates ranging from "Upon Adoption of this Order" (July 21, 1993) to June 30, 1995, culminating in an enforceable permit condition requiring the Refinery to "[a]chieve full compliance" with the WQBEL for dioxins. *Id.*

of a TMDL. App. Opening Br. at 26-27. Tesoro claims that EPA's decision to list Suisun Bay as impaired for dioxins should toll the establishment of WQBELs derived from existing water quality standards pending the development of a potential future TMDL, or alternatively, until 2010. However, notwithstanding Tesoro's assertions to the contrary, the Avon Refinery's NPDES permit must contain a WQBEL for dioxins based on existing water quality standards regardless of any hypothetical future regulatory action that might establish a TMDL for dioxins. Neither the plain meaning nor the remedial intent of the CWA supports Tesoro's interpretation.

a. The plain meaning of the CWA belies Tesoro's argument that a potential future TMDL justifies the Boards' failure to establish a WQBEL for dioxins

The CWA and its implementing regulations do not create a twelve-year exemption from WQBEL requirements for "TMDL development." There is simply no basis in the statute to suggest that listing a water body as impaired under section 303(d) exempts dischargers from WQBEL requirements under section 301(b)(1)(C). *See Longview Fibre Co. v. Rasmussen*, 980 F.2d 1307, 1312 (9th Cir. 1992) (holding that TMDLs developed under section 303(d) "are not the same thing" as WQBELs). Indeed, 40 C.F.R. § 122.44(d)(1)(vii) plainly states that WQBELs must comply with both state narrative water quality standards *and* "any available

waste load allocations" based on an approved TMDL. *Id.* Thus, the Refinery's obligation to enforce a WQBEL derived from the existing narrative water standard for dioxins is independent of its duty to ensure consistency with any hypothetical waste load allocation for the Refinery that might be "available" at some unspecified future date.

b. Tesoro's interpretation of the CWA would frustrate the statute's remedial purpose

Nevertheless, Tesoro contends that the Bay's section 303(d) listing should exempt it from compliance with a WQBEL derived from the existing water quality standard for dioxins. That is, Tesoro contends that because EPA concluded that dioxins levels in Suisun Bay are already too high, Tesoro's refinery should be allowed to continue discharging dioxins at levels that contribute to that degradation until a TMDL is developed or, alternatively, until 2010.

Congress did not intend such an absurd result. To the contrary, by adopting section 303(d) and its implementing regulations, Congress and EPA "determined that establishing TMDLs is an effective tool for achieving water quality standards." *Pronsolino*, 291 F.3d at 1139 (quoting *Alaska Ctr. for the Env't v. Browner*, 20 F.3d 981, 985 (9th Cir. 1994)). Consistent with this remedial intent, the State Board has recognized that "a state's failure to complete TMDLs cannot be used as an excuse to defer inclusion of WQBELs in permits as required by CWA section

301(b)(1)(C)." *In the Matter of Las Virgenes Mun. Water Dist.*, State Board No. WQ 98-11, 1999 WL 1808382, at *6 (Nov. 19, 1999) (rejecting NPDES permittee's argument that it is inappropriate to establish WQBELs for nutrients before TMDL study is complete) (Jud. Not., Ex. F). Although the State Board now rejects this sound principle and attempts to use a potential future TMDL as an excuse to delay compliance with the CWA's WQBEL requirements, neither the CWA nor the Board's own previous interpretations of the statute permit such a delay. While deference is appropriate for an agency's interpretation of its own regulations, no deference is appropriate when, as here, the interpretation conflicts with the language of the statute. *See Chevron*, 467 U.S. at 842-43.

5. The Regional Board's Reference to a Future "No Net Loading" Limit Does Not Excuse its Failure to Include a WQBEL for Dioxins in the Refinery's NPDES Permit and Was Deemed "Inappropriate" by the State Board

For the same reasons, Finding 57's reference to an unidentified "no net loading" scheme also does not justify the omission of a WQBEL for dioxins. Again, the statute and its regulations do not exempt the Boards from complying with the WQBEL requirement just because someday they may establish an effluent limitation of "no net loading."[24] Even assuming Finding 57 had even a tenuous connection to reality, it was effectively

[24] Indeed, without a TMDL, there is no authority in the CWA for a limit based on such a policy.

severed by the conclusion of the State Board in Order No. WQ 2001-06 that Finding 57 was "inappropriate." App. Vol. 4, Tab 20 at 906. That ruling virtually guarantees that the "no net loading" finding will not be included in the Refinery's future permits. The State Board found that the Regional Board and EPA "did not expect the dischargers to institute any structural controls in order to comply with the potential alternative default limitations [*i.e.*, no net loading], in other words that the alternative final limits should not be taken seriously." *Id.* at 908. In addition, the State Board concluded that regardless of its substance, the no net loading finding remained non-binding and unenforceable. *Id.* at 907. Thus, because the "no net loading" finding fails to assure any effort towards compliance with any water quality standard and, consistent with the State Board's ruling, will not exist as of the next NPDES permit issued to the Refinery in 2005, it cannot possibly be deemed a WQBEL.

C. The Regional Board Also Failed to Establish a WQBEL for Dioxins Because the Board Did Not Comply with EPA Regulations for Establishing WQBELs

In addition to failing to establish "effluent limitations" for dioxins within the plain meaning of the CWA, the Regional Board violated EPA regulations for establishing WQBELs.

1. The Refinery's WQBEL Must Be Derived from and Comply with the Narrative Water Quality Standard for Dioxins

In 40 C.F.R. § 122.44(d)(1)(vii), the regulations spell out two obligations for permitting authorities developing WQBELs. First, WQBELs must be "derived from, and compl[y] with all applicable water quality standards." 40 C.F.R. § 122.44(d)(1)(vii)(A). Second, WQBELs must be "consistent with the assumptions and requirements of any *available* wasteload allocation for the discharge." 40 C.F.R. § 122.44(d)(1)(vii)(B) (emphasis added).

By attempting to transform the Regional Board's non-binding findings into a WQBEL, the Regional and State Boards turn the meaning and intent of 40 C.F.R. § 122.44(d)(1)(vii) on its head. Contrary to the plain meaning of the regulation, the Board's findings are not derived from and do not purport to comply with any currently applicable water quality standard. *See id.* § 122.44(d)(1)(vii)(A). Nor did the Regional Board base the WQBEL on an <u>available</u> waste load allocation. *See* App. Vol. 3, Tab 13 at 777 (Response to Comment 99) (stating that "final WQBELs, which are based on TMDLs, <u>will not be available</u> until the Regional Board completes the required TMDLs") (emphasis added).

Instead, the Board ignored the applicable water quality standard -- the narrative toxicity standard -- and based Findings 55 and 57 on a wasteload allocation that does not exist and apparently will not be available

for a decade or more. Under the Boards' version of EPA regulations, section 122.44(d)(1)(vii) would read: "A WQBEL may be derived from applicable water quality standards unless there is a chance that a wasteload allocation for the discharges will become available within the next ten years." The Court should reject this absurd interpretation.

2. The Regional Board's Unenforceable Findings Are Not Based on the Factors Set Forth in 40 C.F.R. § 122.44(d)(1)(vi) and Thus Cannot Be WQBELs

The Regional Board's findings also violate 40 C.F.R. § 122.44(d)(1)(vi). Subsection (d)(1)(vi) sets forth the factors that a permitting authority must consider in translating narrative water quality criteria into enforceable WQBELs, providing two relevant methods for determining these effluent limitations.[25] First, the permitting authority may base the WQBEL on a "calculated numeric water quality criterion" derived from a proposed state criterion or an explicit state policy interpreting a narrative water quality criterion. *Id.* § 124.44(d)(1)(vi)(A). Alternatively, the permitting authority may "[e]stablish effluent limitations on a case-by-case basis using EPA's water quality criteria, published under section 304(a) of the CWA, supplemented when necessary by other relevant information." *Id.* § 122.44(d)(1)(vi)(B); *see* 33 U.S.C. § 1314(a).

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[25] As noted above, Tesoro concedes that a third option for establishing WQBELs, set forth in 40 C.F.R. § 122.44(d)(1)(vi)(C), is not relevant to this case. App. Opening Br. at 24 n.12.

The Regional Board did not base Findings 55 and 57 on a proposed state criterion, an explicit state policy, or on published EPA water quality criteria. Instead, it based the findings on a potential future TMDL, or alternatively, a potential future no net loading requirement. Neither the Board nor Tesoro can point to anything in the record even hinting at the possibility that the Board based either finding on a calculated numeric criteria or water quality criteria published by EPA pursuant to Section 304(a). In fact, EPA's comments regarding California's water quality criteria directly conflict with the Board's approach. In the preamble to the CTR, EPA states that "if the discharge of dioxin or dioxin-like compounds has reasonable potential to cause or contribute to a violation of a narrative criterion, numeric water quality-based effluent limits for dioxin or dioxin-like compounds should be included in NPDES permits and should be expressed using a TEQ scheme." 65 Fed. Reg. 31,682, 31,695 (2000); *see also* App. Vol. 3, Tab 16 at 836 (Finding 25) (citing CTR preamble). In contrast to these plainly stated requirements, the Board's unenforceable findings are not numeric WQBELs, are not included as permit conditions, and are not expressed using a TEQ scheme. In short, the findings are not WQBELs within the meaning of 40 C.F.R. § 122.44(d)(1)(vi).

3. The Regional Board Must Include a Numeric Water Quality-Based Effluent Limit for Dioxins in The Avon Refinery's NPDES Permit

Not only did the Regional Board fail to include any WQBEL at all in the Avon Refinery NPDES permit, the Board also ignored its mandate to include a numeric WQBEL for dioxins in the permit. The Superior Court held that the missing WQBEL also had to be stated as a numeric value. App. Vol. 4, Tab 25 at 1028. Tesoro attempts to take the Superior Court to task by arguing that the applicable regulations do not require the Regional Board to impose a numeric limit. App. Opening Br. at 16.[26] Contrary to Tesoro's myopic reading of 40 C.F.R. § 122.44(d)(1)(vi)(A), the Superior Court's ruling is entirely consistent with the State and Regional Boards' interpretation of 40 C.F.R. § 122.44(d)(1)(vi) and related CWA regulations.

As an initial matter, the Regional Board has repeatedly included a numeric WQBEL for dioxins in the Refinery's NPDES permit. For at least seven years prior to its issuance of Order No. 00-056, the Regional Board implemented Section 122.44(d)(1) at the Avon Refinery by issuing a numeric WQBEL for dioxins. In 1993, 1995 and in February 2000, the Regional Board implemented the narrative toxicity standard by establishing

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[26] Even if Tesoro's contention were correct would not create a ground for reversal of the Superior Court's issuance of the writ of mandate. The Court of Appeal does not review the Superior Court's reasoning, only its final decision. *Davey v. Southern Pacific Co.* (1897) 116 Cal. 325, 329; *Day v. Alta Bates Med. Ctr.* (2002) 98 Cal.App.4th 243, 252. Because the Avon Refinery's NPDES permit does not contain any WQBEL, numeric or otherwise, the Superior Court's judgment was correct and should be upheld.

a numeric WQBEL of 0.14 pg/L for all seventeen dioxins. App. Vol. 1, Tab 2 at 41; App. Vol. 1, Tab 4 at 250; App. Vol. 3, Tab 14 at 803. The same narrative toxicity standard remains in force today and mandates that the Regional Board include a numeric WQBEL for dioxins in the Refinery's existing permit.

Moreover, the State Board has interpreted 40 C.F.R. § 122.44(d)(1)(vi) as requiring NPDES permits to include enforceable, numeric effluent limitations that implement state water quality standards. As the State Board explains:

> [40 C.F.R. § 122.44(d)(1)(vi)] requires the states to employ one of three options to translate narrative criteria into chemical-specific effluent limitations in NPDES permits, where a chemical is present in wastewater at concentrations that cause, or have the reasonable potential to cause, an excursion above a narrative criterion. These options include establishing a specific numeric effluent limitation: (1) from a calculated criterion, such as a proposed state criterion, for the pollutant of concern; (2) on a case-by-case basis, using EPA's water quality criteria, supplemented where necessary by other relevant information; 0r (3) on an indicator parameter for the pollutant of concern.

CDA, State Board Order No. WQ 95-5, 1995 WL 576933, at *3 (emphasis added) (Jud. Not., Ex. B); *see also San Francisco*, State Board Order No. WQ 95-4, 1995 WL 576920, at *7 ("A permitting authority has three options when developing numeric effluent limitations to implement a narrative objective.") (Jud. Not., Ex. D); SWRCB Counsel Memo at 5 ("If there is a 'reasonable potential,' the permit must include a numeric effluent

limit for the constituent") (Jud. Not., Ex. C). Responding to comments on the 2000 Permit, the Regional Board also acknowledged the need for numeric WQBELs: "Mass limits are required (as are final numeric WQBELs), particularly before TMDLs are in place and particularly for bioaccumulative pollutants impairing the Bay . . . ." App Vol. 3, Tab 13 at 775 (Response to Comment 90) (emphasis added).[27]

The federal EPA likewise interprets 40 C.F.R. § 122.44(d)(1) to require the application of numeric WQBELs unless they are determined by the permitting agency to be infeasible. Indeed, EPA expressly addressed the need for numeric WQBELs for dioxins discharging to impaired waters like San Francisco Bay: "For California waters, if the discharge of dioxin or dioxin-like compounds has reasonable potential to cause or contribute to a violation of a narrative criterion, numeric water quality-based effluent limits for dioxin or dioxin-like compounds should be included in NPDES permits and should be expressed using a TEQ scheme." 65 Fed. Reg. 31,682, 31,696 (2000). Likewise, interpreting 40 C.F.R. § 122.44(d)(1)(vi)(B), EPA explains that "[i]n the absence of a state numeric criterion for a pollutant, the permitting authority would use the appropriate EPA Water Quality Criteria document to calculate effluent limits for the

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[27] Likewise, the Regional Board has acknowledged that "[t]he [WQBEL] calculations are based on State Water Quality Standards or numeric interpretations of the Basin Plan's narrative toxicity objective, and the procedures specified in the Basin Plan." 1-AR-11 (emphasis added).

pollutant in order to comply with applicable state narrative water quality criteria"). 54 Fed. Reg. 23,868, 23,876 (1989) (emphasis added).

The federal regulations provide for a single exception for issuing numeric water quality based effluent limit where reasonable potential has been found. However, even that exception underscores the general rule that a numeric WQBEL is required. 40 C.F.R. § 122.44(k) provides for the application of "best management practices" where "[n]umeric effluent limitations are infeasible." 40 C.F.R. § 122.44(k)(3). *See NRDC v. Costle*, 568 F.2d at 1380 (although not addressing WQBELs specifically, noting that "when numerical effluent limitations are infeasible, EPA may issue permits with conditions designed to reduce the level of effluent discharges to acceptable levels"); *see also* 40 C.F.R. § 122.45(d)(1) (requiring that all permit limits be expressed, unless impracticable, as both average monthly and maximum daily values for all dischargers). Best management practices are defined by EPA as "schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of 'waters of the United States.' BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage." 40 C.F.R. § 122.2.

As regards WQBELs, the use of BMPs as an alternative to a numeric WQBEL has been applied to NPDES permits regulating only storm water

discharges. Again, EPA's application of the exception to storm water permits underscores the general rule that numeric WQBELs are mandated: "EPA has, through regulation, interpreted the statute to allow for non-numeric limitations (e.g., 'best management practices' or BMPs) to supplement or replace numeric limitations in specific instances that meet the criteria specified at 122.44(k)." 61 Fed. Reg. 57,425, 57,426 (1996).

Nothing in the administrative record suggests that the Regional Board made a finding that a numeric WQBEL for dioxins was infeasible, warranting its replacement with BMPs. No such BMPs are referenced by the Board. Furthermore, the three previous numeric WQBELs for dioxins established in the Avon Refinery permit indisputably demonstrate the feasibility of establishing such a limit. Lastly, neither of the findings now alleged to be WQBELs qualify as BMPs, as defined by EPA. Neither prevents or reduces the pollution of San Francisco Bay by dioxins. As the State Board explained, the findings accomplish nothing, are not taken seriously by the dischargers and are "inappropriate." App. Vol. 4, Tab 20 at 906. Thus, Tesoro is incorrect in arguing that the Superior Court erred in its conclusion that a numeric WQBEL is required.

D. Contrary to Tesoro's Assertion, 40 C.F.R § 122.44(d)(1)(vi) Applies Because California's Water Quality Standards Do Not Include Numeric Criteria for Any of the Dioxin Compounds Discharged From The Avon Refinery

Well over half of Tesoro's arguments are based on its new and misleading assertion never presented to the trial court that numeric criteria for the dioxins discharged from the Avon Refinery have been promulgated in California's water quality standards. App. Opening Br. at 17-26. Tesoro naively asserts that 40 C.F.R. § 122.44(d)(1)(vi) does not apply because the company claims that a numeric criterion is included in California's water quality standards addressing a single dioxin compound that the Refinery does not even detect in its discharge to the Bay. *Id.* at 18-20.

1. The CTR's Criterion for 2,3,7,8-TCDD is Not a Criterion for the Five Dioxin Compounds Measured in the Refinery's Wastewater

If the State has adopted numeric water quality criteria for the specific "pollutants of concern" being discharged, subsection (d)(1)(vi) would not apply. 40 C.F.R. § 122.44(d)(1)(iii); 40 C.F.R. § 122.44(d)(1)(vi); 54 Fed. Reg. 23,868, 23,875 (1989) ("EPA emphasizes that paragraph (d)(1)(vi) is not used to establish effluent limits on a pollutant if the state has adopted a numeric water quality criterion for that pollutant") (emphasis added). Because the State's water quality standards do not include numeric criteria for the five dioxins discharged by Tesoro, subparagraph (d)(1)(vi) is applicable.

Tesoro's wishful pleading does not alter the fact that only one criterion is found in the CTR for one dioxin compound -- 2,3,7,8-TCDD. *See* 40 C.F.R. § 131.38(b)(1); *see also* App. Vol. 4, Tab 20 at 931.[28] As is clear from the face of Order No. 00-056, the Avon Refinery does not discharge any measurable amounts of that dioxin. App. Vol. 3, Tab 16 at 836 (Finding 25); App. Vol. 3, Tab 16 at 840; *see also* App. Opening Br. at 12 n. 9. The Order also makes clear that the Regional Board's "interim" performance-based limit of 0.65 pg/L governed discharges of five other dioxins, numeric criteria for which are not available in the CTR. *Id.* at 842.[29] The only criterion applicable to those five dioxins is the narrative

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[28] From 1991 through 1994, the State Board's Inland Surface Waters Plan did establish a numeric criterion for all seventeen dioxins of 0.014 pg/L. *See supra* p. 15 n. 13. That numeric criterion was the basis of the 1993 Permit's dioxins limit of 0.14 pg/L. *Id.* Unfortunately, that Plan was successfully challenged by various dischargers on non-scientific grounds and was vacated in 1994. *Id.* In 1995, the Regional Board reissued the Avon Refinery dioxins limit based on the Basin Plan' narrative toxicity standard, rather than the vacated criterion. *See id.* Six years later, after the State Board refused to reinstate the required numeric water quality standards for toxic pollutants, the federal EPA stepped in and promulgated the California Toxics Rule ("CTR"). *See* 40 C.F.R. § 131.38(b); *see also* 65 Fed. Reg. 31,682 (2000). The CTR includes only one numeric criterion for a single dioxin congener -- 2,3,7,8-TCDD. 40 C.F.R. § 131.38(b)(1). The CTR does not contain any numeric criteria for any of the other 16 dioxins. *Id.*

[29] *See also* 1-AR-112-13 (EPA testimony) ("The caveat is that we have included language in the preamble saying that the 2,3,7,8 congener that is in the California Toxics Rule is not intended to be a surrogate for other congeners that you are currently limiting . . . using the toxic equivalency factor . . . . We expect the state to continue using the toxic equivalency factors in implementing the narrative standard.") (emphasis added).

toxicity standard. Hence, subsection 122.44(d)(1)(vi) does apply to establishing a WQBEL for the five dioxins consistently measured in the refinery's wastewater discharges.

2. The Regional Board Expressly Rejected The 2,3,7,8-TCDD Criterion As a Basis for the Avon Refinery Permit's Dioxins Limit

This point is further underscored by the Regional Board's rejection of a discharger proposal to base the Avon Refinery's dioxins limit on the CTR's criterion for 2,3,7,8-TCDD. In the first version of Order No. 00-056, the Regional Board proposed to amend the Avon Refinery permit to replace the then-existing 0.14 pg/L limit for all seventeen dioxins with a 0.14 pg/L limit for a single dioxin, 2,3,7,8-TCDD, based on the criterion for that pollutant established in the CTR. 2-AR-448. Because that proposed limit failed to address the dioxins actually being discharged by the refinery, the Regional Board backtracked from that proposal and replaced it with the 0.65 pg/L performance-based limit for the five other dioxins measured in the plant's effluent. *See* 2-AR-242-43. Several discharger organizations objected to that change, arguing that the Regional Board only had authority to establish an effluent limitation for the one dioxin compound -- 2,3,7,8-TCDD -- for which a numeric criterion was included in the CTR. 2-AR-244. The Board rejected this argument and refused to include an effluent limit based on the CTR criteria for 2,3,7,8-TCDD because it likely would violate the CWA:

> Although a limit for 2,3,7,8-TCDD only is consistent with the CTR and [State Implementation Policy] and may be adequate for dischargers in other Regions and most other States, it is not adequate in this case because of Tosco's existing permit limit on all 17 congeners, and because of the 303(d) list.

Id. (Response to Comments 8a & 9b).

Tesoro now makes believe that the CTR criterion for 2,3,7,8,-TCDD expressly rejected by the Regional Board was, in hind sight, the basis for its permit's dioxins limitation. Tesoro does not explain which purported limit it claims is based on the 2,3,7,8-TCDD criterion. As the Regional Board and Tesoro admit, the only basis for the only effluent limitation for any dioxins included in the Avon Refinery permit was the past performance of the plant's treatment facility. *See supra* part IV.B.1. Presumably, Tesoro is referring to the 0.65 pg/L limit actually adopted. Of course, if indeed it were even plausible that performance-based limit was based on a criterion of 0.014 pg/L, it would be facially inconsistent with the criterion.

Likewise, if Tesoro is claiming that the permit's findings were somehow "calculated" based on a criterion of 0.014 pg/L, one must wonder why they are not stated numerically and included as enforceable limits within the permit. That being said, nothing in the record suggests, and the Regional Board expressly disavows, that either the 0.65 pg/L performance-based limit or any of the permit's findings were based on the numeric criterion for 2,3,7,8-TCDD.

3. Because Tesoro is Wrong To Assert That Applicable Numeric Water Quality Criteria Have Been Established for the Dioxin Compounds It Discharges to the Bay, Most of Its Arguments Must Fail

Because Tesoro is wrong about the availability of adopted numeric water quality criteria for the dioxin compounds it discharges to the Bay, almost of its arguments must fail. Tesoro is wrong that subsection 122.44(d)(1)(vi) does not govern the Regional Board's establishment of a WQBEL for dioxins in the refinery's permit. App. Opening Br. at 22-23. That subsection clearly applies because there are no numeric criteria established for the dioxins discharged at measurable levels from the refinery. 40 C.F.R. § 122.44(d)(1)(vi). Tesoro also is wrong in asserting that the Regional Board did what was required by subparagraph (d)(1)(vi)(B) to establish a WQBEL for dioxins by relying on an EPA water quality criterion, *i.e.* the CTR's criterion for 2,3,7,8-TCDD. App. Opening Br. at 23-26; *see supra* part IV.D.2. The Board expressly stated that it did no such thing. 2-AR-244. Given the fallacy of that core assertion by Tesoro, most of its arguments must be rejected.

E. The Court Should Not Defer to the State and Regional Boards' Erroneous Legal Conclusions

The State and Regional Boards' legal conclusions are contrary to the plain language of the CWA as well as to the statute's clear expression of

congressional intent. Accordingly, no deference to the Boards' erroneous legal conclusions is warranted.

1. Neither the Boards nor Tesoro Can Rely on EPA's Correspondence with the Regional Board to Support Their Flawed Construction of the CWA

The only support for Tesoro's contention that the 2000 Amendment's unenforceable findings are "valid WQBELS" is found in two letters from EPA Region 9 to the Regional Board. App. Vol. 2, Tab 9 at 335; App. Vol. 3, Tab 11 at 726; App. Opening Br. at 29-31. The Court should not defer to the erroneous interpretation of the CWA implicitly advanced by these letters.

Tesoro cites *Family Planning* for the proposition that an administrative agency's interpretation of a statute is entitled to deference. App. Opening Br. at 14. However, after *Family Planning* notes the "settled rule" of deference to administrative rulings, it continues:

> Nonetheless, . . . 'the foregoing rule of liberal construction should not blindly be followed so as to eradicate the clear language and purpose of the statute. The ultimate interpretation of a statute is of course an exercise of judicial power and it is ultimately the responsibility of the courts to declare its true meaning even if it requires rejection of an earlier erroneous administrative interpretation.'

62 Cal.App.4th at 1004 (quoting *Wheeler v. Bd. of Admin.* (1975) 25 Cal.3d 600, 605) (internal alterations omitted); *see also Henning v. Indus. Welfare Comm'n*, (1988) 46 Cal.3d 1262, 1283 n.1 (citing *Chevron*, 467 U.S. at 842-43 & n. 10 (1984)) (noting that "courts should not rubber stamp

administrative interpretations which the court finds inconsistent with the terms of the statute or the intent of Congress"). In short, the Court "is the final authority on statutory construction" and must reject the interpretation advanced by the Boards and EPA if it is inconsistent with the plain meaning and underling purpose of the CWA. *See Chevron*, 467 U.S at 843 n.9.

As discussed in part IV.B.4, *supra*, the interpretation of the CWA advanced in EPA's letters and by Tesoro would grant polluters an exemption from complying with section 301(b)(1)(C), which requires a WQBEL for dioxins, on the ground that Suisun Bay has been listed as impaired for dioxins under section 303(d). The plain language of the statute clearly does not contemplate such an exemption. Moreover, such an interpretation would set at cross-purposes two independent provisions of the CWA, both intended to bring heavily polluted water ways back into compliance with water quality standards. No level of deference could justify such an absurd result.

Furthermore, any deference to the letters' "interpretation" of the CWA is inappropriate. As the Supreme Court recently stated in *Christensen v. Harris County*, 529 U.S. 576 (2000), "[I]nterpretations contained in formats such as opinion letters are entitled to respect . . . , but only to the extent that those interpretations have the power to persuade." *Id. at* 587 (quoting *Skidmore v. Swift & Co.*, 323 U.S. 134, 140 (1944))

(internal quotations marks omitted). In *League of Wilderness Defenders/Blue Mountains Biodiversity Project v. Forsgren*, 309 F.3d 1181 (9th Cir. 2002), the Ninth Circuit applied *Christensen* to two EPA letters expressing the opinion that no NPDES permit was required for an aerial pesticide spraying project on National Forest lands. *Id.* at 1188-89. The court held that the letters were entitled to no deference, noting that "[t]he two letters have very little power to persuade. They provide no analysis and do not even mention the regulation that the Forest Service relies on." *Id.* at 1189. Such interpretations are particularly unavailing when they conflict with long-standing agency interpretations, as here. *See Van Wagner Communications, Inc. v. City of Los Angeles* (2000) 84 Cal.App.4th 499, 509.

The same could be said of the two letters relied on by Tesoro in the instant case. The EPA letters were not the product of a formal rulemaking or adjudicatory process. *See Yamaha Corp. of Am. v. State Bd. of Equalization* (1998) 19 Cal.4th 1, 7; *Yamaha Corp. of Am. v. State Bd. of Equalization* (1999) 73 Cal.App.4th 338, 351. In fact, the letters are inconsistent with prior interpretations of EPA that were part of formal rulemaking processes. *See* 65 Fed. Reg. 31,682, 31,696 (2000); 54 Fed. Reg. 23,868, 23,876 (1989). Moreover, the letters' conclusions are set forth without any explanation as to how they might comply with the statutory provisions at issue in this action. *See* App. Vol. 2, Tab 9 at 335;

see also 33 U.S.C. §§ 1311(b)(1)(C), 1362(11), 1362(17); 40 C.F.R. §§ 122.2, 122.43(a), 122.44(d)(1)(vi), 122.44(d)(1)(vii), 122.45(d)(1); *WaterKeepers*, 102 Cal.App.4th at 1459-60 (stating that Court of Appeal applies independent judgment where EPA guidance conflicting). In the words of Ninth Circuit, the letters have "very little power to persuade." Accordingly, the Court should not give the letters any deference whatsoever. *League of Wilderness Defenders*, 309 F.3d at 1189.[30]

2. The Court Owes No Deference to the State and Regional Boards' Inconsistent and Unpersuasive Legal Reasoning

The Court owes no deference to the decisions by the State and Regional Boards. The deference owed to the Boards' interpretation of the CWA depends upon "the thoroughness evident in its consideration, the

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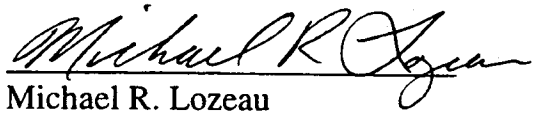
[30] EPA itself appears to be unsure of the merits of its earlier comment letters. The questionable reasoning underlying Findings 55 and 57 also is reflected in the State Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California ("2000 Toxics Standards"). *See* App. Vol. 2, Tab 9 at 331, 333; 23 Cal. Code of Regulations § 2914(b)(1). That Policy was adopted as part of the State's water quality standards in order to implement EPA's CTR. *See* App. Vol. 4, Tab 20 at 896. In its review of the 2000 Toxics Standards, EPA declined to approve those portions of the standards that relate to "lengthier compliance schedules . . . to take into account the development of [TMDLs and WLAs] for impaired waters." Letter from Alexis Strauss, EPA Region 9, to Edward Anton, State Water Resources Control Board, at 3 (May 1, 2001) (Jud. Not., Ex. G). EPA has continued to review those portions of the Toxics Standards. *Id.* As a matter of law, that portion of the Toxics Standards is not currently in effect. *See Alaska Clean Water Alliance v. Clarke*, 1997 WL 446499, at *3-4 (W.D. Wash. 1997). Accordingly, as proposed regulations, those portions of the Toxics Standards "are entitled to no deference until final." *Tedori v. United States*, 211 F.3d 488, 492 n.13 (9th Cir. 2000).

validity of its reasoning, its consistency with earlier and later pronouncements, and all those factors which give it power to persuade, if lacking power to control." *Yamaha*, 73 Cal.App.4th at 370. The Regional Board's Findings 55 and 57 adopt the EPA's erroneous and unsubstantiated interpretation of the CWA almost word-for-word. *Compare* App. Vol. 2, Tab 9 at 335 (Proposed Finding 1) *with* App. Vol. 3, Tab 16 at 839 (Revisions to Finding 57). Neither Board attempts to explain how two non-binding, unenforceable findings referencing a possible future TMDL or an as-yet-to-be-established no net loading program establishes a WQBEL derived from current water quality standards using a derived numeric criteria or EPA Section 304(a) criteria. Moreover, the State Board's order directly contradicts earlier interpretations of the same statutory provisions. *See, e.g., Las Virgenes*, State Board Order No. WQ 98-11, 1999 WL 1808382, at *6 (holding that "a state's failure to complete TMDLs cannot be used as an excuse to defer inclusion of WQBELs in permits as required by CWA section 301(b)(1)(C)") (Jud. Not., Ex. F); *CDA*, State Board Order No. WQ 95-5, 1995 WL 576933, at *3 (Jud. Not., Ex. B); *San Francisco*, State Board Order No. WQ 95-4, 1995 WL 576920, at *7 (Jud. Not., Ex. D); *CBE*, State Board Order No. WQ 90-5, 1990 WL 182452, at *29 (Jud. Not., Ex. E). In summary, the Court should not defer to the State and Regional Boards' inconsistent and unpersuasive reasoning.

V. CONCLUSION

For the foregoing reasons, CBE respectfully requests that the Court of Appeal affirm the Superior Court's ruling issuing a writ of mandate ordering the Regional Board to set aside and vacate the 2000 Amendment, Order No. 00-056, and ordering the State Board to set aside and vacate Order No. WQ 2001-06.

Respectfully submitted,



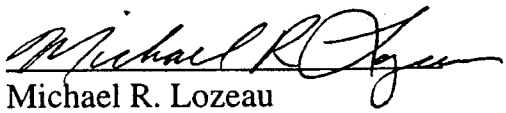
Michael R. Lozeau
Attorney for Respondents Communities For A Better Environment and San Francisco BayKeeper

Chris Jensen, Clinical Law Student

CERTIFICATE OF WORD COUNT
(Cal. Rules of Court, Rule 14(c)(1))

The text of this brief consists of 13,274 words as counted by the Microsoft Word version 9 word-processing program used to generate the brief.

Dated: February 24, 2003



Michael R. Lozeau
Attorney for Respondents
Communities For A Better
Environment and San Francisco
BayKeeper

Tab 5

CALIFORNIA SUPERIOR COURT, UNLIMITED JURISDICTION

CITY AND COUNTY OF SAN FRANCISCO

LAW AND MOTION DEPARTMENT 301

SAN FRANCISCO BAYKEEPER, A PROJECT OF WATERKEEPERS NORTHERN CALIFORNIA, a California non-profit corporation,

Petitioner,

vs.

REGIONAL WATER QUALITY CONTROL BOARD, SAN FRANCISCO BAY REGION, a California State Agency,

Respondents.

CONTRA COSTA CLEAN WATER PROGRAM, CONTRA COSTA COUNTY, CONTRA COSTA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, CITY OF CLAYTON, CITY OF CONCORD, TOWN OF DANVILLE, CITY OF EL CERRITO, CITY OF HERCULES, CITY OF LAFAYETTE, CITY OF MARTINEZ, TOWN OF MORAGA, CITY OF ORINDA, CITY OF PINOLE, CITY OF PITTSBURG, CITY OF PLEASANT HILL, CITY OF RICHMOND, CITY OF SAN PABLO, CITY OF SAN RAMON, CITY OF WALNUT CREEK,

Real Parties in Interest.

Consolidated Case No. 500527

ORDER GRANTING PETITION FOR WRIT OF MANDATE AND STATEMENT OF DECISION

SAN MATEO COUNTYWIDE STORMWATER POLLUTION PREVENTION PROGRAM, CITY COUNTY ASSOCIATION OF GOVERNMENTS OF SAN MATEO COUNTY, TOWN OF ATHERTON, CITY OF BELMONT, CITY OF BRISBANE, CITY OF BURLINGAME, TOWN OF COLMA, CITY OF DALY CITY, CITY OF EAST PALO ALTO, CITY OF FOSTER CITY, CITY OF HALF MOON BAY, TOWN OF HILLSBOROUGH, CITY OF MENLO PARK, CITY OF MILLBRAE, CITY OF PACIFICA, TOWN OF PORTOLA VALLEY, CITY OF REDWOOD CITY, CITY OF SAN BRUNO, CITY OF SAN MATEO, CITY OF SOUTH SAN FRANCISCO, TOWN OF WOODSIDE

Real Parties in Interest.

This matter came on for hearing on August 21, 2003, in Department 301 before the Honorable James L. Warren. Michael W. Graf of the Law Offices of Thomas N. Lippe, appeared as attorney for Petitioner. Deputy Attorney General Carol A. Squire appeared as attorney for Respondent Regional Water Quality Control Board, San Francisco Region ("Regional Board"). Nicole E. Granquist of Downey Brand LLP, appeared as attorney for Real Party in Interest Contra Costa Clean Water Program, *et al.* John Nibbelin of the San Mateo County Counsel's Office appeared as attorney for Real Party in Interest San Mateo Countywide Stormwater Pollution Prevention Program, *et al.*

The record of the administrative proceedings, having been received into evidence and examined by the Court, and arguments having been presented, the Court took this matter under submission on August 29, 2003. After review of the evidence, in light of the arguments of counsel and the applicable law, the Court rules as follows:

Petitioner's First Cause of Action Fails. Petitioner failed to address this cause of action in its opening brief. Even if this claim had been raised, it still would have failed as a matter of law. Water quality-based effluent limitations are not required for municipal stormwater discharges. 33 U.S.C. § 1342(p)(3)(B) and 40 C.F.R. § 122.44(k)(3). For municipal stormwater discharges, the Permits must contain best management practices (BMPs) which reduce pollutants to the maximum extent practicable. 33 U.S.C. § 1342(p)(3)(B). These Permits do contain these through the Stormwater Management Plan which is incorporated into the Permits by reference. In addition, the Board made the finding that having numeric effluent limitations would not be feasible, and in such a case, narrative BMPs are sufficient. 40 C.F.R. § 122.44(k)(3).

Petitioner affirmatively dismissed the Second and Third Causes of Action during oral arguments at the August 21, 2003 hearing.

Petitioner's Fourth Cause of Action Fails. Petitioner failed to address this cause of action it in its opening brief. Even if this claim had been raised, it still would have failed as a matter of law. Petitioner asserts that the Permits do not establish standards which reduce pollutants to the maximum extent practicable (MEP). Petitioner argues that the Permits rely on

an iterative process whereby standards will be determined in the future, instead of being part of the Permit as approved. Petitioner cites to sections C.3 and C.4 of the Permits to illustrate its argument. Petitioner, however, selectively quotes from these sections and fails to acknowledge that, in both provisions, MEP standards are set forth by referring to the Stormwater Management Plan, which is incorporated into the Permits. For example C.3 states the Dischargers "shall implement BMPs referred to as Performance Standards in the Plan, to reduce pollutants in stormwater discharges to the maximum extent practicable." These are established standards designed to reduce pollutants to the MEP and which are part of the Permits as approved. Both C.3 and C.4 do allow and provide for future modifications and improvements in the standards, but this is not a failure to establish any standards at the time the Permits were approved.

Petitioner's Fifth Cause of Action Fails. Petitioner failed to address this cause of action it in its opening brief and has therefore abandoned this argument.

Petitioner Prevails on the Sixth Cause of Action. Federal law requires that all NPDES permits specify "[r]equired monitoring including type, intervals, and frequency sufficient to yield data which are representative of the monitored activity." 40 C.F.R. § 122.48(b). Here, there is no monitoring program set forth in the Permit. Instead, an annual Monitoring Program Plan is to be prepared by the dischargers to set forth the monitoring program that will be used to demonstrate the effectiveness of the Stormwater Management Plan. This does not meet the regulatory requirements that a monitoring program be set forth including the types, intervals, and frequencies of the monitoring.

Petitioner Prevails on the Seventh Cause of Action. Federal law requires that modifications to NPDES permits go through a public notice and comment period unless the modifications are "minor." 40 C.F.R. §§ 122.62 and 122.63. "Minor modifications" are a very limited list of changes including such things as correcting typographical errors, increasing the frequency of monitoring, and changing interim compliance schedules. The Permits set forth numerous changes and revisions that can be made to the Stormwater Management Plan that need only be approved of by the Executive Officer. These changes are then incorporated into the Plan

(see C.2, C.5, and C.10). No public comment is required. Because the Stormwater Management Plan is incorporated and is deemed an integral part of the Permits (Findings 6 and 7), any changes to the Plan are actually changes to the Permits. Because these are changes to the Permits, the notice and comment requirements must be complied with.

The areas of modifications to the Plan are not "minor." They include changing and adding control measures, revising the Plan itself, and exempting non-stormwater discharges. Some of these changes become part of the Plan upon approval of the Executive Officer. Others become part of the Plan automatically unless the Executive Officer disapproves. By allowing revisions and modifications to the Permits without notice and comment, the Permits violate the federal regulations and act to exclude the public from the on-going permitting process.

Petitioner Prevails on the Eighth Cause of Action. State law prohibits the Board from delegating its authority to issue or modify waste discharge requirements. Water Code § 13223(a)(2). Waste discharge requirements are equivalent to permits as used in the Federal Water Pollution Control Act. Water Code § 13374. Here, the Permits unlawfully delegate to the Executive Officer the authority to approve reports which contain substantive changes that will be incorporated into the Permits through the Stormwater Management Plan. See C.2 and C.8. It is true that some duties delegated to the Executive Officer are completely permissible, such as approving the format of an annual report or reviewing a technical report. Other delegated activities, however, are not merely administrative and actually will modify or enhance the substantive requirements of the Permit, such as, modifications of the type of control measures a Discharger will implement if the original best management practices are insufficient to meet water quality standards (C.2), or approval of the Dischargers' Monitoring Plan which contain the monitoring requirements for the Permits (C.8).

In addition, the Permits also allow the permittees to propose changes to the waste discharge requirements that become incorporated into the Permits when the Executive Officer fails to act. For example, the Dischargers may propose revisions to the Stormwater Management Plan in their annual reports submitted to the Executive Officer. If these are not acted upon, they

are deemed approved, and are incorporated into the Plan and into the Permit by reference (C.5). The Dischargers are also allowed to submit a list of non-stormwater discharges they would like to exempt from the permitting process. Again, these are deemed approved and incorporated into the Plan, and thus the Permit (C.10). These are impermissible delegations of authority of the Board's authority under Water Code § 13233. In addition, it is illegal to delegate the government agency's authority to the permittee. *See* Environmental Defense Center v. U.S. EPA, (2003) 319 F.3d 398, 426-427.

For the foregoing reasons, this Court hereby issues peremptory writs of mandate ordering the Regional Board to modify the NPDES Permit Nos. CAS0029921 and CAS0029912 dated July 21, 1999, until the Board makes a satisfactory return to this Court showing compliance with the writs.

IT IS SO ORDERED.

Dated: 11/14/13

By: _____
The Honorable James L. Warren
JUDGE OF THE SUPERIOR COURT

#500527

Tab 6

should contact the Regional Hearing Clerk identified above.

The administrative record for the proceeding is located in the EPA Regional Office at the address stated above, and the file will be open for public inspection during normal business hours. All information submitted by Union Electric Company is available as part of the administrative record, subject to provisions of law restricting public disclosure of confidential information. In order to provide opportunity for public comment, EPA will issue no final order assessing a penalty in this proceeding prior to thirty (30) days from the date of this notice.

Dated: October 22, 1996.

William Rice,

Acting Regional Administrator.

[FR Doc. 96–28428 Filed 11–5–96; 8:45 am]

BILLING CODE 6560–50–M

[FRL–5647–7]

Proposed General NPDES Permit for log transfer facilities in Alaska: General NPDES Permit No. AK–G70–0000

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice, extension of the public comment period.

SUMMARY: On September 30, 1996, EPA provided notice of the draft general National Pollutant Discharge Elimination System (NPDES) permit no. AK–G70–0000 for log transfer facilities in Alaska. The public comment period was published in the notice. At the request of interested parties, EPA is today providing notice that the public comment period has been extended.

ORIGINAL PUBLIC NOTICE ISSUANCE DATE: September 30, 1996.

ORIGINAL PUBLIC NOTICE EXPIRATION DATE: October 30, 1996.

EXTENDED PUBLIC NOTICE EXPIRATION DATE: November 20, 1996.

PUBLIC COMMENTS: Interested persons may submit written comments on the draft general NPDES permit to: Environmental Protection Agency, Attn: Susan Cantor, 222 W. Seventh Avenue #19, Anchorage, Alaska 99513. All comments should include the name, address, and telephone number of the commenter and a concise statement of comment and the relevant facts upon which it is based. Comments of either support or concern which are directed at specific, cited permit requirements are appreciated. Comments must be submitted to EPA on or before the extended expiration date of the public notice.

ADMINISTRATIVE RECORD: The draft general NPDES permit, fact sheet, and the draft technical report for the "Ocean Discharge Criteria Evaluation of the NPDES General Permit for Alaskan Log Transfer Facilities" are available for inspection and copying at the EPA office in Anchorage (Room 537) any time between 8:00 am and 4:30 pm., Monday through Friday. Copies and other information may also be requested by mail or by calling Susan Cantor at (907) 271–3413.

FOR FURTHER INFORMATION CONTACT: Susan Cantor, of the Environmental Protection Agency, Region 10, Alaska Office, at the address listed above, or by telephone at (907) 271–3413. Inquiries may be submitted via facsimile to (907) 271–3424. Requests may be electronically mailed to CANTOR.SUSAN@EPAMAIL.EPA.GOV. Additional services can be made available to persons with disabilities. For those with impaired hearing or speech, please contact EPA's telecommunication device for the deaf at (206) 553–1698.

Dated: October 29, 1996.

Philip G. Millam,

Director, Office of Water.

[FR Doc. 96–28542 Filed 11–05–96; 8:45 am]

BILLING CODE 6560–50–P

[FRL–5646–6]

Questions and Answers Regarding Implementation of an Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits

AGENCY: Environmental Protection Agency.

ACTION: Notice.

SUMMARY: Notice is hereby given that the Environmental Protection Agency (EPA) has developed a set of questions and answers to assist municipalities and permitting authorities in implementing its recent policy outlining an interim approach for incorporating water quality-based effluent limitations into storm water permits.

Background and Purpose

On August 26, 1996, the EPA published in the **Federal Register** (61 FR 43761) a policy outlining an interim approach for incorporating water quality-based effluent limitations into National Pollution Discharge Elimination System (NPDES) storm water permits. The policy was developed to address the variable nature of storm water discharges, and the typical lack of information on which to base numeric water quality-based effluent limitations (expressed as concentration and mass). The policy addresses issues related to the type of effluent limitations that are most appropriate for NPDES storm water permits to provide for the attainment of water quality standards. Since the policy only applies to water quality-based effluent limitations, it is not intended to affect technology-based limitations, such as those based on effluent guidelines or the permit writer's best professional judgements, that are incorporated into storm water permits.

Based on numerous requests for additional information regarding the implementation of the policy, the EPA has developed the following set of questions and answers. For convenience, the policy is also reprinted below.

Policy Statement

In response to recent questions regarding the type of water quality-based effluent limitations that are most appropriate for National Pollutant Discharge Elimination System (NPDES) storm water permits, the Environmental Protection Agency (EPA) is adopting an interim permitting approach for regulating wet weather storm water discharges. Due to the nature of storm water discharges, and the typical lack of information on which to base numeric water quality-based effluent limitations (expressed as concentration and mass), EPA will use an interim permitting approach for NPDES storm water permits.

The interim permitting approach uses best management practices (BMPs) in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards. In cases where adequate information exists to develop more specific conditions or limitations to meet water quality standards, these conditions or limitations are to be incorporated into storm water permits, as necessary and appropriate. This interim permitting approach is not intended to affect those storm water permits that already include appropriately derived numeric water quality-based effluent limitations. Since the policy only applies to water quality-based effluent limitations, it is not intended to affect technology-based limitations, such as those based on effluent guidelines or the permit writer's best professional judgement, that are incorporated into storm water permits.

Each storm water permit should include coordinated and cost-effective monitoring program to gather necessary information to determine the extent to which the permit provides for attainment of applicable water quality standards and to determine the appropriate conditions or limitations for subsequent permits. Such a monitoring program may include, ambient monitoring, receiving water assessment, discharge monitoring (as needed), or a combination of monitoring procedures designed to gather necessary information.

This interim permitting approach applies only to EPA, however, EPA also encourages authorized States and Tribes to adopt similar policies for storm water permits. This interim permitting approach provides time, where necessary, to more fully assess the range of issues and possible options for the control of storm water discharges for the protection of water quality. This interim permitting approach may be modified as a result of the ongoing Urban Wet Weather Flows Federal Advisory Committee policy dialogue on this subject.

Questions and Answers

Question 1: Must EPA require that storm water dischargers, industrial or municipal, be subject to numeric water quality-based effluent limitations (expressed as concentration and mass) in order to attain water quality standards (WQS)?

Answer 1: No. Although National Pollutant Discharge Elimination System (NPDES) permits must contain conditions to ensure that water quality standards are met, this does not require the use of numeric water quality-based effluent limitations. Under the Clean Water Act (CWA) and NPDES regulations, permitting authorities may employ a variety of conditions and limitations in storm water permits, including best management practices, performance objectives, narrative conditions, monitoring triggers, action levels (e.g., monitoring benchmarks, toxicity reduction evaluation action levels), etc., as the necessary water quality-based limitations, where numeric water quality-based effluent limitations are determined to be unnecessary or infeasible.

Analysis

A. The Clean Water Act does not require numeric effluent limitations.

Section 301 of the CWA requires that discharger permits include effluent limitations necessary to meet State or Tribal WQS. Section 502 defines "effluent limitation" to mean *any* restriction on quantities, rates, and concentrations of constituents discharged from point sources. The CWA does not say that effluent limitations need be numeric. As a result, EPA and States have flexibility in terms of how to express effluent limitations.

B. EPA's regulations do not always require numeric effluent limitations.

EPA has, through regulation, interpreted the statute to allow for non-numeric limitations (e.g., "best management practices" or BMPs, see 40 CFR 122.2) to supplement or replace numeric limitations in specific instances that meet the criteria specified at 40 CFR 122.44(k). This regulation essentially codifies a court case addressing storm water discharges. *NRDC* v. *Costle*, 568 F.2d 1369 (D.C. Cir. 1977). In that case, the Court stated that EPA need not establish numeric effluent limitations where such limitations were infeasible.

C. EPA has interpreted the statute and regulations to allow BMPs in lieu of numeric limitations.

EPA has defended use of BMPs as a substitute for numeric limitations in litigation involving storm water discharges (*CBE* v. *EPA*, 91–70056 (9th Cir.)(brief on merits)) and in correspondence (Letter from Michael Cook, EPA, to Peter Lehner, NRDC, May 31, 1995). EPA has found that numeric limitations for storm water permits can be very difficult to develop at this time because of the existing state of knowledge about the intermittent and variable nature of these types of discharges and their effects on receiving waters. Some storm water permits, however, currently do contain numeric water quality-based effluent limitations where adequate information exists to derive such limitations.

Question 2: Has EPA provided guidance on a methodology for deriving numeric water quality-based effluent limitations?

Answer 2: Yes, but primarily for continuous wastewater discharges at low flow conditions in the receiving water, not intermittent wet weather discharges during high flow conditions. Regulations at 40 CFR 122.44(d) specify the requirements under which permitting authorities establish water quality-based effluent limitations when a facility has the "reasonable potential" to cause or contribute to an excursion of numeric or narrative water quality criteria. In addition, EPA guidance in the *Technical Support Document for Water Quality-Based Toxics Control* (TSD) and the *NPDES Permit Writers Training Manual*, supplemented with total maximum daily load (TMDL) and modeling guidance, supports issuing permits that include numeric water quality-based effluent limitations. This guidance was based on crafting numeric water quality-based effluent limitations using TMDLs, or calculations similar to those used in developing TMDLs, and wasteload allocations (WLAs) derived through modeling. EPA expects the Urban Wet Weather Flows Federal Advisory Committee (60 FR 21189, May 1, 1995) will review this issue at greater length and may provide recommendations on how to proceed.

Question 3: Why can numeric water quality-based effluent limitations be difficult to derive for storm water permits?

Answer 3: Storm water discharges are highly variable both in terms of flow and pollutant concentrations, and the relationships between discharges and water quality can be complex. The water quality impacts of storm water discharges are related to the uses designated by States and Tribes in their WQS, the quality of the storm water discharge (e.g., conventional or toxic pollutants conveyed to the receiving water) and quantity of the storm water (e.g., erosion and loss of habitat caused by increased flows and velocity). Uses may be impacted by both water quality and water quantity. Depending on site-specific considerations, some of the water quality impacts of storm water discharges may be more related to the physical effects (e.g., stream bank erosion, streambed scouring, extreme temperature variations, sediment smothering) than the type and amount of pollutants present in the discharge. For municipal storm water discharges in particular, the current use of system-wide permits and a variety of jurisdiction-wide BMPs, including educational and programmatic BMPs, does not easily lend itself to the existing methodologies for deriving numeric water quality-based effluent limitations. These methodologies were designed primarily for process wastewater discharges which occur at predictable rates with predictable pollutant loadings under low flow conditions in receiving waters. Using these methodologies, limitations are typically derived for each specific outfall to be protective of low flows in the receiving water. Because of this, permit writers have not made wide-spread use of the existing methodologies and models for storm water discharge permits. In addition, wet weather modeling is technically more difficult and expensive than the simple dilution models generally used in the permitting process.

Question 4: Has EPA previously recognized the technical difficulty in deriving numeric water quality-based

effluent limitations for storm water discharges?

Answer 4: Yes. EPA recognized the technical difficulty in deriving numeric water quality-based effluent limitations for wet weather discharges in its brief on the merits in *Citizens for a Better Environment (CBE)* v. *United States Environmental Protection Agency,* 91–70056 (9th Cir.) and in the Great Lakes Water Quality Guidance (58 FR 20841, April 16, 1993).

In the *CBE* case, EPA explained why it was technically infeasible to derive numeric water quality-based effluent limitations for the discharge of metals in storm water into South San Francisco Bay and asserted that a water quality-based effluent limitation could take the form of a narrative statement, such as a BMP, if it was infeasible to derive a numeric limitation. In explaining its arguments in the *CBE* case, EPA cited 40 CFR 122.44(k)(2), which provides that BMPs may be imposed in NPDES permits "to control or abate the discharge of pollutants when * * * [n]umeric effluent limitations are infeasible."

In the Great Lakes Water Quality Guidance, EPA did not extend the method for calculating wasteload allocations, the basis for numeric water quality-based effluent limitations, to storm water or combined sewer overflow (CSO) discharges because the varying nature of these discharges is inconsistent with the assumptions used in developing the guidance. The Great Lakes Water Quality Guidance defers to national guidance and policy on wet weather and does not seek to establish a separate and distinct set of wet weather requirements. EPA expects the Urban Wet Weather Flows Advisory Committee to provide recommendations about how to address the broader technical issues involved in achieving compliance with WQS in a wet weather context.

Question 5: What are the potential problems of using standard methodologies to derive numeric water quality-based effluent limitations for storm water permits?

Answer 5: Correctly derived numeric water quality-based effluent limitations provide a greater degree of confidence that a discharge will not cause or contribute to an exceedance of the WQS, because numeric water quality-based effluent limitations are derived directly from the numeric component of those standards. In addition, numeric water quality-based effluent limitations can avoid the expense associated with overly protective treatment technologies because numeric water quality-based effluent limitations provide a more precisely quantified target for permittees. Potential problems of incorporating inappropriate numeric water quality-based effluent limitations rather than BMPs in storm water permits at this time are significant in some cases. Deriving numeric water quality-based effluent limitations for any NPDES permit without an adequate effluent characterization, or an adequate receiving water exposure assessment (which could include the use of dynamic modeling or continuous simulations) may result in the imposition of inappropriate numeric limitations on a discharge. Examples of this include the imposition of numeric water quality criteria as end-of-pipe limitations without properly accounting for the receiving water assimilation of the pollutant or failure to account for a mixing zone (if allowed by applicable State or Tribal WQS). This could lead to overly stringent permit requirements, and excessive and expensive controls on storm water discharges, not necessary to provide for attainment of WQS. Conversely, an inadequate effluent characterization could lead to water quality-based effluent limitations that are not stringent enough to provide for attainment of WQS. This could result because effluent characterization and exposure assessments for discharges with high variability of pollutant concentrations, loadings, and flow are more difficult than with process wastewater discharges at low flows.

Question 6: How are water quality-based effluent limitations developed for combined sewer overflow (CSO) discharges?

Answer 6: The CSO Control Policy issued by EPA on April 19, 1994 (59 FR 18688) provides direction on compliance with the technology-based and water quality-based requirements of the CWA for communities with combined sewer systems. The CSO Policy provides for implementation of technology-based requirements (expressed as "nine minimum controls") by January 1, 1997.

In addition, under the CSO Policy, communities are also expected to develop long-term control plans that will provide for attainment of WQS through either the "presumption approach" or the "demonstration approach." Under the presumption approach, CSO controls would be presumed to attain WQS if certain performance criteria are met. A program that meets the criteria specified in the CSO policy is presumed to provide an adequate level of control to meet the water quality-based requirements of the CWA, provided the permitting authority determines that such presumption is reasonable based on characterization, monitoring, and modeling of the system, including consideration of sensitive areas. Under the demonstration approach, the permittee would demonstrate that the selected CSO controls, when implemented, would be adequate to meet the water quality-based requirements of the CWA.

The CSO Policy anticipates that it will be difficult in the early stages of permitting to determine whether numeric water quality-based effluent limitations are necessary for CSOs, and, if so, what the limitations should be. For that reason, in the absence of sufficient data to evaluate the need for numeric water quality-based effluent limitations, the Policy recommends that first phase of CSO permits ("Phase I") contain a narrative requirement to comply with WQS. Further, so-called "Phase II" permits would contain water quality-based effluent limitations, as provided in 40 CFR 122.44(d)(1) and 122.44(k), that may take the form of numeric performance or design standards, such as a certain number of overflow events or a certain percent volume capture. Generally, only after the long-term control plan is in place and after collection of sufficient water quality data (including applicable wasteload allocations developed during a TMDL process) would numeric water quality-based effluent limitations be included in the permit. This would likely occur only after several permitting cycles.

Question 7: If BMPs alone are demonstrated to provide adequate water quality protection, are additional controls necessary?

Answer 7: No. If the permitting authority determines that, through implementation of appropriate BMPs required by the NPDES storm water permit, the discharges have the necessary controls to provide for attainment of WQS and any technology-based requirements, additional controls need not be included in the permit. Conversely, if a discharger (municipal or industrial) fails or refuses to adopt and implement adequate BMPs, the permitting authority may have to consider other approaches to ensure water quality protection.

If, however, the permitting authority has adequate information on which to base more specific conditions or limitations, such limitations are to be incorporated into storm water permits, as necessary and appropriate. Such conditions or limitations may include an integrated suite of BMPs, performance objectives, narrative standards, monitoring triggers, numeric water quality-based effluent limitations,

action levels, etc. Storm water permits may also need to include additional requirements to receive State or Tribal 401 certifications.

Question 8: What is EPA doing to develop information about the linkage between BMPs and water quality and to facilitate a watershed-based approach to storm water permitting?

Answer 8: The Agency has cooperative agreements with WERF (Water Environment Research Foundation) and ASCE (American Society of Civil Engineers) to research which BMPs are most effective under which circumstances. The results of this research should provide permitting authorities and permittees with information about how to evaluate the effectiveness of different kinds of BMPs in different circumstances and to select the most appropriate controls to achieve water quality objectives. EPA also has cooperative agreements with the Watershed Management Institute and other organizations to conduct research over the next two to four years that will examine the capability of storm water BMPs to improve receiving water quality and restore/protect the biological integrity of those waters. EPA expects the Urban Wet Weather Flows Federal Advisory Committee to provide recommendations on how to permit storm water discharges on a watershed basis.

Question 9: The interim permitting approach states that permits should include monitoring programs to generate necessary information to determine the extent to which permits are providing for the attainment of water quality standards. What types of monitoring should be included and how much monitoring is necessary?

Answer 9: The amount and types of monitoring necessary will vary depending on the individual circumstances of each storm water discharge. EPA encourages dischargers and permitting authorities to carefully evaluate monitoring needs and storm water program objectives so as to select useful and cost-effective monitoring approaches. For most dischargers, storm water monitoring can be conducted for two basic reasons: (1) to identify if problems are present, either in the receiving water or in the discharge, and to characterize the cause(s) of such problems; and (2) to assess the effectiveness of storm water controls in reducing contaminants and making improvements in water quality.

Under the NPDES storm water program, large and medium municipal separate storm sewer system permittees are required to conduct monitoring. EPA recommends that each such municipal permittee design the monitoring effort to be supportive of the goals and objectives of its storm water management program when developing such a program for the term of its NPDES permit. To accomplish this, a municipal permittee may use a variety of storm water monitoring tools including receiving water chemistry; receiving water biological assessments (benthic invertebrate surveys, fish surveys, habitat assessments, etc.); effluent monitoring; including chemical, whole effluent and visual examinations; illicit connections screening; and combinations thereof, or other methods. Techniques that assess receiving waters will help to identify the degree to which storm water discharges are contributing to any water quality problems. Techniques that assess storm water discharge characteristics will help to identify potential causes of any identified water quality problems. The municipal permittee, in conjunction with the applicable NPDES permitting authority, should determine which monitoring approaches would be most appropriate given the objectives of the storm water management program. If municipal permittees conduct ambient monitoring, it may be most cost-effective to pool resources with other organizations (including, for example, other municipalities, States, and Tribes) conducting monitoring within the same watershed. This could be best accomplished through a coordinated watershed monitoring strategy.

For industrial storm water dischargers, monitoring may be required under the terms of an NPDES permit for storm water discharges. For those industrial storm water permits that do require monitoring, this is typically done to characterize contaminants that might be found in the industrial runoff and/or to assess the effectiveness of the industrial storm water pollution prevention plan in reducing these contaminants. This typically involves end-of-pipe chemical-specific monitoring. End-of-pipe monitoring may be more appropriate for an industrial facility than for a municipal permittee, given the industrial facility's more discrete site characteristics, which make management strategies such as collection and treatment more feasible. Industries, for the most part, have readily defined storm water conveyances into which runoff flows from discrete drainage areas. Industries may more readily identify and control existing on-site sources of storm water contamination or provide collection and treatment within these discrete drainage areas to control pollutant concentrations in their storm water discharges.

EPA and other organizations are currently working to improve approaches for monitoring storm water and the potential effects upon water quality. These new approaches are called storm water program "environmental indicators." Environmental indicators are designed to be more meaningful monitoring tools that storm water dischargers can use to conduct storm water monitoring for the purposes described above. A manual describing each of the recommended storm water program environmental indicators is being prepared by the Center for Watershed Protection in Silver Spring, Maryland. That manual is expected to be ready by the end of August 1996 and should provide useful information for storm water dischargers contemplating the need to develop a cost-effective, meaningful storm water monitoring program. In addition, EPA expects the Urban Wet Weather Flows Federal Advisory Committee to provide recommendations on how to better monitor storm water and other wet weather discharges using a watershed approach.

Question 10: Does this interim permitting approach apply to both storm water discharges associated with industrial activity and storm water discharges from municipal separate storm sewer systems?

Answer 10: Yes. The interim permitting approach is applicable to both discharges from municipal separate storm sewer systems and storm water discharges associated with industrial activity (as defined by 40 CFR 122.26(b)(14)). The interim permitting approach would not affect, however, permits that already incorporate appropriately derived numeric water quality-based effluent limitations. Since the interim permitting approach only addresses water quality-based effluent limitations, it also does not affect technology-based effluent limitations, such as those based on effluent limitations guidelines or developed using best professional judgement, that are incorporated into storm water permits. In addition, particularly for some industries, adequate information may already have been collected with which to assess the reasonable potential for a storm water discharge to cause or contribute to an excursion of a WQS, and from which a numeric water quality-based effluent limitation can be (or has been) appropriately derived. An adequate amount of storm water pollutant source information may also exist with which to assess the effectiveness of the industrial storm

water control measures in complying with the limitations and in reducing storm water contaminants for protecting water quality.

DATE: The policy was signed by the Assistant Administrator for Water on August 1, 1996.

FOR FURTHER INFORMATION CONTACT: Copies of the policy with the questions and answers are available by writing the U.S. Environmental Protection Agency, Water Resources Center, Mail Code 4101, 401 M Street, SW, Washington, D.C., 20460, or by calling (202) 260–7786. If you have additional questions about the policy, please contact, Bill Swietlik, Storm Water Phase I Matrix Manager, Office of Wastewater Management, at (202) 260–9529 or William Hall, Urban Wet Weather Flows Matrix Manager, Office of Wastewater Management, at (202) 260–1458, or by Internet at hall.william@epamail.epa.gov.

Dated: October 11, 1996.

Michael B. Cook,

Director, Office of Wastewater Management, Designated Federal Official.

[FR Doc. 96–28430 Filed 11–5–96; 8:45 am]

BILLING CODE 6560–50–P

FEDERAL COMMUNICATIONS COMMISSION

Notice of Public Information Collections Being Reviewed by FCC for Extension Under Delegated Authority 5 CFR 1320 Authority, Comments Requested

October 30, 1996.

SUMMARY: The Federal Communications Commission, as part of its continuing effort to reduce paperwork burden invites the general public and other Federal agencies to take this opportunity to comment on the following proposed and/or continuing information collections, as required by the Paperwork Reduction Act of 1995, Public Law 104–13. An agency may not conduct or sponsor a collection of information unless it displays a currently valid control number. No person shall be subject to any penalty for failing to comply with a collection of information subject to the Paperwork Reduction Act (PRA) that does not display a valid control number. Comments are requested concerning (a) whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility; (b) the accuracy of the Commissions burden estimates; (c) ways to enhance the quality, utility, and clarity of the information collected and (d) ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology.

The FCC is reviewing the following information collection requirements for possible 3-year extension under delegated authority 5 CFR 1320, authority delegated to the Commission by the Office of Management and Budget (OMB).

DATES: Written comments should be submitted on or before January 6, 1997. If you anticipate that you will be submitting comments, but find it difficult to do so within the period of time allowed by this notice, you should advise the contact listed below as soon as possible.

ADDRESSES: Direct all comments to Dorothy Conway, Federal Communications Commission, Room 234, 1919 M St., N.W., Washington, DC 20554 or via internet to dconway@fcc.gov.

FOR FURTHER INFORMATION CONTACT: For additional information or copies of the information collections contact Dorothy Conway at 202–418–0217 or via internet at dconway@fcc.gov.

SUPPLEMENTARY INFORMATION:

OMB Number: 3060–0270.

Title: 90.443 Content of Station Records.

Form Number: N/A.

Type of Review: Extension of an existing collection.

Respondents: State or local governments; Businesses or other for-profit; Non-profit institutions; Individuals or households.

Number of Respondents: 57,410 Recordkeepers.

Estimated time per response: .083 hours.

Total annual burden: 4,765 hours.

Needs and Uses: Rule lists information that station licensees are required to maintain. Maintenance records are used by licensee or Commission field personnel to note any recurring equipment problems that may pose an aviation hazard or cause interference.

Federal Communications Commission

William F. Caton,

Acting Secretary.

[FR Doc. 96–28434 Filed 11–5–96; 8:45 am]

BILLING CODE 6712–01–P

Notice of Public Information Collections Submitted to OMB for Review and Approval

October 29, 1996.

SUMMARY: The Federal Communications, as part of its continuing effort to reduce paperwork burden invites the general public and other Federal agencies to take this opportunity to comment on the following proposed and/or continuing information collections, as required by the Paperwork Reduction Act of 1995, Public Law 104–13. An agency may not conduct or sponsor a collection of information unless it displays a currently valid control number. No person shall be subject to any penalty for failing to comply with a collection of information subject to the Paperwork Reduction Act (PRA) that does not display a valid control number. Comments are requested concerning (a) whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility; (b) the accuracy of the Commissions burden estimates; (c)ways to enhance the quality, utility, and clarity of the information collected and (d) ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology.

DATES: Written comments should be submitted on or before December 6, 1996. If you anticipate that you will be submitting comments, but find it difficult to do so within the period of time allowed by this notice, you should advise the contact listed below as soon as possible.

ADDRESSES: Direct all comments to Dorothy Conway, Federal Communications, Room 234, 1919 M St., N.W., Washington, DC 20554 or via internet to dconway@fcc.gov and Timothy Fain, OMB Desk Officer, 10236 NEOB 725 17th Street, N.W., Washington, DC 20503 or fain_t@a1.eop.gov.

FOR FURTHER INFORMATION CONTACT: For additional information or copies of the information collections contact Dorothy Conway at 202–418–0217 or via internet at dconway@fcc.gov.

SUPPLEMENTARY INFORMATION:

OMB Approval Number: 3060–0076.

Title: Annual Employment Report for Common Carriers.

Form No.: N/A.

Type of Review: Revision of currently approved collection.

Respondents: Business or other for-profits.

Tab 7

2002 WL 257698 (E.P.A.)

United States Environmental Protection Agency (E.P.A.)

Environmental Appeals Board

IN RE: GOVERNMENT OF THE DISTRICT OF COLUMBIA MUNICIPAL **SEPARATE STORM** SEWER SYSTEM

National Pollutant Discharge Elimination System

NPDES Appeal Nos. 00-14 & 01-09
NPDES Permit No. DC 0000221
February 20, 2002

ORDER DENYING REVIEW IN PART AND REMANDING IN PART

Syllabus

In April 2000, U.S. EPA Region III (the "Region") issued a National Pollution Discharge Elimination System ("NPDES") permit, number DC 0000221 (the "Permit"), to the Government of the District of Columbia (the "District"). The Permit authorizes storm water discharges from the District's municipal separate storm sewer system ("MS4"). The Permit requires the District to use various best management practices ("BMPs") to control pollutant discharges in furtherance of attaining the District's water quality standards. The required BMPs are set forth in the District's storm water management plan ("SWMP"), which is incorporated into the Permit by reference. On August 11, 2000, Friends of the Earth and Defenders of Wildlife ("Petitioners") timely filed a petition requesting that the Environmental Appeals Board review the Permit (the "Petition") (the Petitioners also filed a second petition after the Region withdrew and reissued a portion of the Permit).

HELD: The Permit is remanded to the Region for further analysis and explanation in a number of areas. Petitioners and the Region have grouped their arguments in the nine categories described below, and the Board's holding on each is summarized as follows:

1. Compliance with Water Quality Standards. Petitioners object to the Permit's conditions that specify BMPs, rather than numeric limits, to control pollutant discharges and meet the District's water quality standards. The Petitioners' general argument that the Region violated an affirmative duty to set numeric limits is rejected, in keeping with the Board's decision on similar issues in In re Ariz. Mun. Storm Water NPDES Permits, 7 E.A.D. 646 (1998). The Petitioners' more specific argument that numeric limits could have been set equal to the numeric water quality standards of the receiving waters is also rejected on the grounds that Petitioners failed to demonstrate that they raised this argument and the cited authority during the public comment period. The Petitioners' argument that the Region should have included narrative provisions requiring compliance with water quality standards is also rejected on the grounds that there is no statutory or regulatory provision that requires use of narrative limits.

There is merit, however, to Petitioners' argument that the Region failed to show that the selected BMPs will be adequate to ensure compliance with water quality standards. First, it is not clear that the Region's determination that the specified BMPs are "reasonably capable" of achieving water quality standards fully comports with 40 C.F.R. § 122.4(d), which prohibits issuing a permit "when imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected states." (emphasis added). Second, even accepting the Region's suggestion that ensuring compliance was what the permit writer has in mind, there is nothing in the record, apart from the District's section 401 certification, that supports the conclusion that the Permit would, in fact, achieve water quality standards. Without such record support the Board cannot conclude that the approach selected by the Region is rational in light of all the information in the record. The Region does not dispute that the Region cannot rely

exclusively on the District's section 401 certification, at least in a circumstance like this one in which there is a body of information drawing the certification into question. Accordingly, additional record support for the Region's determination is required, and the Permit is remanded for further analysis in this regard.

2. Hickey Run. Petitioners argue that the Permit is deficient in that (a) it contains an aggregate numeric effluent limit for four outfalls into Hickey Run instead of a limit for each outfall and (b) it contains monitoring requirements that the Petitioners allege are inadequate. The regulation cited by Petitioners contains the disjunctive phrase "outfall or other discharge point" and therefore must be read as contemplating some flexibility in appropriate circumstances to frame effluent limits at a discharge point other than the outfall. There is no clear error in the Region's conclusion that, in the unique circumstances of this case, an aggregate limit fixed at a point proximate to four closely connected outfalls was appropriate. However, the proposed delayed development of the Hickey Run monitoring requirements is problematic in two respects. First, both 40 C.F.R. § 122.48(b) and 40 C.F.R. § 122.44(i) require that certain monitoring conditions be included in all permits. The Region has not explained how its issuance of this Permit, which does not at its inception contain monitoring requirements for Hickey Run, comports with the regulatory directive that all permits include these conditions. Second, while the monitoring requirements are expected to be added at the time of the District's first annual report and thus should be in place before the Hickey Run effluent limit becomes effective, the Board finds it troubling that this would be accomplished through minor permit modification without notice and opportunity for public comment. Given that the regulations appear to contemplate that monitoring requirements ordinarily be included as up-front permit conditions -- conditions which would thus ordinarily be subjected to public notice and comment -- and there does not appear to be anything in the regulations allowing for minor permit modifications that authorizes use of a minor permit modification in this setting, the Board concludes that this Permit does not meet minimum regulatory requirements and that remand of these parts of the Permit is necessary.

3. Reductions to the "Maximum Extent Practicable". Petitioners' argument that the Region erred in determinating that the Permit will reduce storm water pollutant discharges to the maximum extent practicable ("MEP") as required by CWA § 402(p) is rejected. The record demonstrates that the Region duly considered the issue raised by Petitioners in their comments, and the record does not lead to the conclusion that any additional BMPs beyond those identified in the Permit are practicable in this case.

4. Deferral of Complete Program. Petitioners' arguments that the Permit's provision for upgrading the SWMP indicates that the Permit is inadequate at its inception is rejected. The evaluation and upgrade requirement incorporates into the Permit a process for adjusting the Permit's terms and conditions to take into account new knowledge and changed circumstances affecting practicality of BMPs. This adjustment process does not imply that the Region has failed to properly assess MEP at the time of the Permit's issuance; it simply recognizes that what is practicable will change over time and that the Permit should be adaptable to such changes.

5. Failure to Require Compliance Within 3 Years. Petitioners' argument that the Permit fails to require compliance within the three-year time period set forth in CWA § 402(p)(4) is rejected. The Permit does not authorize a deferred implementation of the BMPs that were determined to be MEP at the time of issuance of the Permit; instead, the Permit simply recognizes that what is practicable will change during the Permit's term and that upgrades of the Permit's requirements should not be delayed until the Permit is renewed.

6 & 7. Storm Water Implementation Plan and Funding. Petitioners' argument that the "cost benefit and affordability" analysis required by Part III.E of the Permit violates the CWA is rejected. Information concerning a "cost benefit analysis" of the various BMPs is relevant to the upgrading of the SWMP and BMPs. Cost benefit information, however, is not relevant for purposes of determining compliance with the Permit's requirement that the District implement the BMPs in its current SWMP. The Permit recognizes this distinction and states that "[a]ffordability cannot be used as a defense for noncompliance."

8. Modifications. The Board addresses Petitioners' various arguments regarding deficiencies in the Permit's modification provisions as follows. The Board adopts the

Region's interpretation that the reference in the Permit to 40 C.F.R. § 122.63 serves to limit the allowable extensions of interim compliance dates undertaken as minor modifications to "not more than 120 days after the date specified in the existing permit and [provided that it] does not interfere with attainment of the final compliance date requirement." 40 C.F.R. § 122.63(c).

The Region did not err in characterizing the deadlines set forth in Part III.A and Part III.B.10 of the Permit as "interim compliance date[s] in a schedule of compliance" that may be modified by minor modification as set forth in 40 C.F.R. § 122.63(c). On the other hand, Permit Parts IV.A.1, VIII.A, IX. A.5 & IX.C, which together authorize changes in monitoring location by minor modification, cannot be squared with 40 C.F.R. § 122.63(c). That section only authorizes the addition of new monitoring requirements by minor modification; it does not authorize a change in monitoring location by minor modification. Accordingly, any such changes must be made through the formal "notice and comment" procedures of section 122.62. Therefore Permit Parts IV. A.1, VIII.A, IX.A.5 & IX.C are remanded for revision.

Petitioners object to the Permit's conditions that allow the Region to "approve" schedules for developing and implementing an enforcement plan (Petition, Part III.B.11), to approve certain additional SWMP program activities (Petition, Part III.B.12), and to approve, disapprove or revise the District's Annual Reports and Annual Implementation Plans (Petition, Part III.E). It is unclear whether these provisions are simply intended to reference EPA actions in administering the Permit that do not themselves result in changes to the Permit (or the SWMPs subsumed within the Permit) and thus should not be subjected to formal notice and comment procedures, or whether these provisions, referenced as they are in the minor modification section of the permit, are intended to serve as a basis for substantive changes to permit conditions. The Region is directed on remand to clarify the extent to which these provisions in the Permit allow for changes in permit conditions by minor modification.

9. Waivers and Exemptions. The Petitioners argue that the District's storm water regulations, incorporated into the Permit by reference, require the granting of various waivers or exemptions that are in conflict with the CWA and EPA rules. Because the Region's Second Response to Comments does not challenge the validity of Petitioners' Comments, but rather tends to treat them as meritorious, and because the Region failed to make changes to the Permit or to otherwise address Petitioners' concerns regarding these waivers and exemptions, this portion of the Permit is remanded to the Region to either make appropriate changes to the Permit or to explain why the Petitioners' comments do not merit such changes.

Before Environmental Appeals Judges Scott C. Fulton, Edward E. Reich, and Kathie A. Stein.

Opinion of the Board by Judge Fulton:

In April 2000, U.S. EPA Region III (the "Region") issued a National Pollution Discharge Elimination System ("NPDES") [FN1] permit, number DC 0000221 (the "Permit"), to the Government of the District of Columbia. The Permit authorizes storm water discharges from the District of Columbia's municipal separate storm sewer system ("MS4"). [FN2] On August 11, 2000, Friends of the Earth and Defenders of Wildlife ("Petitioners") timely filed a petition requesting that the Environmental Appeals Board review the Permit (the "Petition"). [FN3] The Petition argues that the Region clearly erred or abused its discretion in setting the Permit's conditions. The Region has filed a response to the Petition, and both parties have filed supplemental reply briefs.

As discussed below, we have, based on our consideration of the issues presented, determined that a number of issues warrant further consideration by the Region. Thus, we remand the Permit, in part, for further proceedings consistent with this decision.

I. BACKGROUND

A. Factual and Procedural Background

The MS4 that is owned and operated by the Government of the District of Columbia (the

"District") discharges storm water into the Potomac and Anacostia Rivers and their tributaries. Pursuant to the requirements for system-wide MS4 permitting set forth in CWA § 402(p)(4) and the implementing regulations at 40 C.F.R. § 122.26(d), the District was required to file a two-part application for an NPDES permit covering discharges from the District's MS4. [FN4] The District submitted Part 1 of the required NPDES permit application in July 1991 and the Part 2 application in 1994. See Certified Index to the Administrative Record ("Index") pts. I.1.n & I.3.a. On July 31, 1998, the District submitted revisions and updated materials for the Part 1 application, and, on November 4, 1998, the District submitted revisions and updated materials for the Part 2 application. Id. pts. I.5 - .6. The revised Part 2 application also included the District's current Storm Water Management Plan ("SWMP").

Thereafter, the Region prepared a draft permit and, on February 20, 1999, the Region provided public notice and requested public comments on its first draft permit for the District's MS4 discharges. Index pts. I.7 -.8. As part of the first public comment period, the Region conducted a public hearing on March 29, 1999. Id. pt. I.10. Subsequently, the Region revised the terms of the proposed permit in response to comments received from the public, and it issued a second draft permit on October 1, 1999 (the "Second Draft Permit") and requested further public comments. Id. pts. I.11 - .12. At that time, the Region also issued its response to comments regarding the February 1999 draft permit ("Region's First Response to Comments"). Id. pt. I.17.

On January 6, 2000, the District of Columbia Department of Health ("DCDH") issued its certification [FN5] that the conditions set forth in the second draft permit would comply with the District's water quality standards, approved water quality management plans and District monitoring requirements. Id. pt. I.15.a. On April 19, 2000, the Region issued the final Permit and fact sheet. Id. pt. I.20. The Region also issued its summary of the comments on the second draft permit and the Region's responses to those comments ("Region's Second Response to Comments"). Id. pt. I.18.

On May 25, 2000, the Petitioners filed a request for an evidentiary hearing pursuant to the regulations governing the NPDES program at that time. On July 14, 2000, the Region returned Petitioner's Request for Evidentiary Hearing and notified Petitioners of their right to file an appeal with the Board under changes made to the NPDES permit appeals process that became effective on June 14, 2000. [FN6] Thereafter, Petitioners timely filed the Petition with the Board on August 11, 2000. The Petition incorporates the May 25, 2000 request for an evidentiary hearing as stating the basis of the Petitioners' objections to the Permit. The Petitioners have grouped their arguments in nine categories. (Throughout this decision, we will generally follow the Petitioners' lead and consider the arguments grouped in categories identified by the issue number used in the Petition - we will summarize these categories below in Part I.C.)

The Region filed a response to the Petition. See Region III's Response to Petition for Review (Sept. 28, 2000) ("Region's Response"). The Region's Response generally argues that the Petitioners have not shown that their Petition should be granted. In one respect, however, the Region states that it withdraws a portion of the Permit in response to Petitioners' issue number eight (this issue, as described more fully below, relates to whether the Permit improperly allows amendments or changes without requiring the formal procedures contemplated by the regulations).

Subsequently, on January 12, 2001, the Region reissued the withdrawn portion of the Permit with several amendments. Thereafter, the Petitioners filed a petition requesting review of the amendments to the Permit and they requested that this second petition be consolidated with their original Petition. See Petition for Review and Motion to Consolidate (Feb. 2, 2001). [FN7] The Petitioners also filed supplemental briefing concerning issue number eight from their original Petition. See Supplemental Reply Based on Intervening Permit Modification (Feb. 2, 2001). The Region has responded to the Petitioners' second petition. More recently, on December 18, 2001, the Board held oral argument on several of the issues raised in this case.

B. Statutory and Regulatory Background

The CWA, which was enacted by Congress in 1972, prohibits the discharge of any pollutant to waters of the United States from a point source unless the discharge is authorized

by an NPDES permit. Section 402(a)(1) of the CWA authorizes the Administrator to issue permits for the discharge of pollutants into navigable waters of the United States. 33 U.S.C. § 1342(a)(1).

Section 402(a)(2) of the CWA states that the "Administrator shall prescribe conditions for such permits to assure compliance with the requirements of" section 402(a)(1). A requirement of section 402(a)(1) is that the permitted discharges must comply with section 301 of the CWA, 33 U.S.C. § 1311. Section 301 requires, among other things, achievement of "any more stringent limitation, including those necessary to meet water quality standards * * * established pursuant to any State law or regulation * * *." 33 U.S.C. § 1311(b)(1)(C).

The statutory requirement of CWA § 301(b)(1)(C) to protect water quality standards has been implemented through a variety of regulatory provisions. For example, long-standing Agency regulations prohibit the issuance of a permit "when imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected states." 40 C.F.R. § 122.4(d) (emphasis added). In addition, section 122.44(d) provides that the permit must contain effluent limits as necessary to protect water quality standards. Id. § 122.44(d)(1). Longstanding Agency regulations have also authorized the use of "best management practices" ("BMPs") to control or abate the discharge of pollutants in a variety of circumstances including when "[n]umeric effluent limitations are infeasible." Id. § 122.44(k).

Although EPA initially attempted to exempt municipal storm sewer systems from the requirement to obtain an NPDES permit for discharge of pollutants into navigable waters of the United States, [FN8] in the Water Quality Act of 1987 ("WQA"), Congress amended the CWA to specifically cover storm water discharges from conveyances such as MS4s. Among other amendments, the WQA added section 402(p) governing permitting for MS4s and certain other storm water systems. In particular, Congress required EPA to establish no later than February 4, 1989, regulations governing the permit application requirements for storm water discharges from MS4s serving a population of more than 250,000, and Congress required applications for such permits to be filed no later than February 4, 1990. CWA § 402(p)(4)(A), 33 U.S.C. § 1342(p)(4)(A). Congress also stated in section 402(p)(3) that permits from MS4s "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices * * * and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." CWA § 402(p)(3), 33 U.S.C. § 1342(p)(3).

EPA initially promulgated regulations implementing section 402(p) of the CWA in 1990. These regulations, commonly referred to as "Phase I" regulations, established the NPDES permit application requirements for storm water discharges associated with industrial activity and discharges from large and medium MS4s. See National Pollution Discharge Elimination System Permit Application Regulations for Storm Water Discharges, 55 Fed. Reg. 47,990 (Nov. 16, 1990) (codified at 40 C.F.R. pt. 122). In the preamble to the Phase I regulations, the Agency explained that the MS4 permitting program requires a substantial amount of flexibility but not "to such an extent that all municipalities do not face essentially the same responsibilities and commitments for achieving the goals of the CWA." 55 Fed. Reg. at 48,038. To achieve these ends, the Phase I regulations made a number of changes to the existing NPDES regulations to allow MS4s to focus less on end-of-pipe technology-based controls and to focus more on the development of site-specific SWMPs.

In the Phase I rulemaking, the Agency established a two-part permit application process for the development of MS4 permits that would assist permittees in developing SWMPs capable of meeting the statutory and regulatory goals. Id. The two parts of the permit application cover six general elements necessary for an MS4 permit: adequate legal authority, source identification, discharge characterization, proposed SWMP, assessment of controls, and fiscal analysis. See Office of Water, U.S. EPA, EPA 833-B-92-002, Guidance Manual for the Preparation of Part 2 of the NPDES Permit Application for Discharges from Municipal Separate Storm Sewer Systems at 2-1 to 2-4 (1992) (hereinafter "Part 2 Guidance Manual"); see also In re City of Irving, Tex. Mun. Separate Storm Sewer Sys., NPDES Appeal No. 00-18, slip. op. at 13-15 (EAB, July 16, 2001), 10 E.A.D. __ (describing in greater detail the elements addressing adequate legal authority, proposed SWMP, and assessment of controls).

As part of a subsequent rulemaking, commonly referred to as the "Phase II" regulations, section 122.44(k) was amended to authorize use of BMPs not only when "[n]umeric effluent limitations are infeasible" as was previously authorized, but also when "[a]uthorized under section 402(p) of the CWA for the control of storm water discharges." See National Pollutant Discharge Elimination System - Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges, 64 Fed. Reg. 68,722, 68,847 (Dec. 8, 1999) (codified at 40 C.F.R. § 122.44(k)(2)-(3)).

C. Summary of Issues Raised in the Petitions

As noted, Petitioners identify their bases for requesting review of the Permit in nine categories, which were separately numbered in their original Petition as issues one through nine. We will follow this numbering system in our discussion since the parties have used it to identify their arguments. The following is a brief summary of these nine issues, or categories of arguments, raised by Petitioners:

1. Compliance with Water Quality Standards. Under this heading, the Petitioners raise several arguments pertaining to whether the Permit is adequately protective of the District's water quality standards. In essence, Petitioners argue that the Permit does not have effluent limitations that assure compliance with the District's water quality standards. Petition at 3. The Region, in contrast, argues that the Permit does protect water quality standards. Region's Response at 10; see also Transcript of Oral Argument at 29, 32-33 (Dec. 18, 2001) (hereinafter "Tr. at __"). [FN9]

2. Hickey Run. Petitioners argue that the Permit is deficient in that (a) it contains an aggregate numeric effluent limit for four outfalls into Hickey Run (which is a tributary of the Anacostia River) and (b) it contains monitoring requirements that the Petitioners allege are inadequate.

3. Reductions to the "Maximum Extent Practicable". Under this heading, Petitioners argue that the Region's determination that the Permit will reduce storm water pollutant discharges to the maximum extent practicable ("MEP") as required by CWA § 402(p) was clearly erroneous.

4. Deferral of Complete Program. Under this heading, the Petitioners raise arguments concerning the Permit's deferral of the time for the District to submit implementation and enforcement plans for its SWMP and concerning the Permit's deferral of an "upgraded" SWMP.

5. Failure to Require Compliance Within Three Years. Petitioners argue that the Permit fails to require compliance within the three-year time period set forth in CWA § 402(p)(4).

6. Storm Water Implementation Plan. Petitioners argue that the Permit in Part III.E uses language allowing for a "cost benefit and affordability" analysis that the Petitioners argue is contrary to the CWA.

7. Funding. Petitioners raise several additional arguments concerning the "cost benefit and affordability analysis" under Part III.E of the Permit as it pertains to funding of the implementation plan.

8. Modifications. The Petitioners argued in their original Petition that the Permit "illegally authorizes numerous substantive changes in permit requirements without a formal permit revision." Petition at 9. In its response, the Region stated that it withdraws the provisions of the Permit that are affected by Petitioners' arguments in this category, and the Region proposed amendments to address this issue. Response at 25. After the Region issued its amendments on January 12, 2001, the Petitioners filed both a petition for review of the amendments and a supplemental brief, both of which argue that the modifications of the Permit fail to address most of the concerns raised by Petitioners in their original Petition.

9. Waivers and Exemptions. The Petitioners argue that the District's storm water regulations that are incorporated into the Permit by reference require the granting of various waivers or exemptions that the Petitioners argue are in conflict with the CWA

and EPA rules.

Each of these arguments will be separately considered in the discussion that follows. We begin, however, with a brief discussion of the standards we use in evaluating petitions filed under 40 C.F.R. part 124 for review of NPDES permits.

II. DISCUSSION

A. Standard of Review

The Board generally will not grant review of petitions filed under 40 C.F.R. § 124.19(a), unless it appears from the petition that the permit condition that is at issue is based on a clearly erroneous finding of fact or conclusion of law or involves an important policy consideration which the Board, in its discretion, should review. [FN10] 40 C.F.R. § 124.19(a) (2001); see also City of Moscow, Idaho, NPDES Appeal No. 00-10, slip op. at 8-9 (EAB, July 27, 2001), 10 E.A.D. __ (hereinafter "Moscow MS4"); In re City of Irving, Tex. Mun. Separate Storm Sewer Sys., NPDES Appeal No. 00-18, slip op. at 16 (EAB, July 16, 2001), 10 E.A.D. __ (hereinafter "Irving MS4"). While the Board has broad power to review decisions under section 124.19, the Agency intended this power to be exercised "only sparingly." 45 Fed. Reg. 33,290, 33,412 (May 19, 1980); see also Moscow MS4, slip op. at 9, 10 E.A.D. __; In re Rohm & Haas Co., RCRA Appeal No. 98-2, slip op. at 7 (EAB, Oct. 5, 2000), 9 E.A.D. __; In re AES P.R. L.P., PSD Appeal Nos. 98-29 to 98-31, slip op. at 7 (EAB, May 27, 1999), 8 E.A.D. __, aff'd sub nom. Sur Contra La Contaminación v. EPA, 202 F.3d 443 (1st Cir. 2000).

Agency policy favors final adjudication of most permits at the regional level. 45 Fed. Reg. at 33,412; see also Moscow MS4, slip op. at 9, 10 E.A.D. __; Irving MS4, slip op. at 16, 10 E.A.D. __; In re New England Plating Co., NPDES Appeal No. 00-07, slip op. at 7 (EAB, Mar. 29, 2001), 9 E.A.D. __; In re Town of Ashland Wastewater Treatment Facility, NPDES Appeal No. 00-15, slip op. at 9-10 (EAB, Feb. 26, 2001), 9 E.A.D. __; In re Town of Hopedale, Bd. of Water & Sewer Comm'rs, NPDES Appeal No. 00-4, slip op. 8-9 n.13 (EAB, Feb. 13, 2001), 9 E.A.D. ___. On appeal to the Board, the petitioner bears the burden of demonstrating that review is warranted. Moscow MS4, slip op. at 9, 10 E.A.D. __; see also AES P.R., slip op. at 7, 8 E.A.D. __; In re Haw. Elec. Light Co., PSD Appeal Nos. 97-15 to 97-23, slip op. at 8 (EAB, Nov. 25, 1998), 8 E.A.D. __; In re Kawaihae Cogeneration Project, 7 E.A.D. 107, 114 (EAB 1997). [FN11]

Persons seeking review must demonstrate to the Board, among other things, "that any issues being raised were raised during the public comment period to the extent required by these regulations * * *." 40 C.F.R. § 124.19(a) (2001). Participation during the comment period must conform with the requirements of section 124.13, which requires that all reasonably ascertainable issues and all reasonably available arguments supporting a petitioner's position be raised by the close of the public comment period. 40 C.F.R. § 124.13 (2001); see also, Moscow MS4, slip op. at 9, 10 E.A.D. __; In re New England Plating, NPDES Appeal No. 00-7, slip op. at 7 (EAB, Mar. 29, 2001), 9 E.A.D. __; In re City of Phoenix, Ariz. Squaw Peak & Deer Valley Water Treatment Plants, NPDES Appeal No. 99-2, slip op. at 14 (EAB, Nov. 1, 2000), 9 E.A.D. __ ("Those persons seeking to appeal based on their status as commenters or public hearing participants must also demonstrate to the Board, inter alia, 'that any issues being raised were raised during the public comment period (including any public hearing) to the extent required by these regulations * * *."').

The Board traditionally assigns a heavy burden to petitioners seeking review of issues that are essentially technical in nature. Moscow MS4, slip op. at 9, 10 E.A.D. __; see also In re Town of Ashland Wastewater Treatment Facility, NPDES Appeal No. 00-15, slip op. at 10 (EAB, Feb. 26, 2001), 9 E.A.D. __; In re NE Hub Partners, L.P., 7 E.A.D. 561, 567 (EAB 1998), petition for review denied sub nom. Penn Fuel Gas, Inc. v. EPA, 185 F.3d 862 (3rd Cir. 1999). When the Board is presented with technical issues we look to determine whether the record demonstrates that the Region duly considered the issues raised in the comments and whether the approach ultimately adopted by the Region is rational in light of all the information in the record. NE Hub, 7 E.A.D. at 568. If we are satisfied that the Region gave due consideration to comments received and adopted an approach in the final permit decision that is rational and supportable, we typically will defer to the Region's determination. Id.

For the following reasons, we conclude that Petitioners have shown that, in several respects, the Region's decision to issue the Permit was deficient under these standards. Accordingly, we remand the Permit for further proceedings consistent with this decision.

B. Petitioners' Issue One: Water Quality Standards

The Permit contains one numeric effluent limitation for discharges from four outfalls into Hickey Run. Other than this one numeric discharge limit, the Permit designates a variety of best management practices, or BMPs, to control the discharge of pollutants from the District's MS4. The Petitioners raise three arguments objecting to the Region's approval of the Permit conditions establishing BMPs to control pollutant discharges and ensure compliance with the District's water quality standards. First, the Petitioners argue that the Region should have established numeric limits for most of the system's outfalls, rather than relying on BMPs to control pollutant discharges. Petition at 2-3. Specifically, the Petitioners argue that the Region made no showing that numeric limits are infeasible and that the Region should set the numeric limits equal to the numeric water quality standards applicable to the receiving waters. Petition at 4; Petitioners' Reply Brief at 3. Second, Petitioners argue that the Region should, at a minimum, have established narrative limits. Petition at 4. Finally, Petitioners argue that the Region failed to make the requisite determination that the chosen BMPs will ensure protection of the District's water quality standards. Petition at 5; Petitioners' Reply at 4.

Before turning to these arguments, we must first address a number of issues by way of background, some of which were treated by the parties' briefs as being in dispute, but which the parties conceded during oral argument. As noted above, section 301 of the CWA requires, among other things, that NPDES permits contain "any more stringent limitation, including those necessary to meet water quality standards * * * established pursuant to any State law or regulation * * *." 33 U.S.C. § 1311(b)(1)(C). This statutory requirement has been implemented, in part, through long-standing regulations that prohibit the issuance of an NPDES permit "when imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected states." 40 C.F.R. § 122.4(d) (2001) (emphasis added.). In addition, section 122.44(d) provides that "the permit must contain effluent limits" for a particular pollutant "when the permitting authority determines * * * that a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the allowable ambient concentration of a state numeric criteria within a State water quality standard for an individual pollutant." Id. § 122.44(d)(1)(iii).

In their filings with the Board, Petitioners maintain that, based on evidence in the record, the Permit is required by 40 C.F.R. § 122.44(d) to contain effluent limitations that protect water quality standards. Petition at 3 (citing 1998 Water Quality Report at 48, app. D at 3-75). Specifically, Petitioners argue that information submitted by the District with its application for the Permit shows that discharges from the District's MS4 causes, has the reasonable potential to cause, or contributes to in-stream excursions above the allowable ambient concentrations of the District's numeric water quality standards, thereby triggering the requirements of section 122.44(d)(1). They explain as follows:

> The monitoring data submitted with D.C.'s MS4 application confirms that storm sewer discharges present major threats to surface water quality in the District. The data shows that such discharges repeatedly exceed the District's water quality standards for fecal coliform bacteria, which are 200/100 mL max. 30-day mean for Class A waters, and 1,000/100 mL for Class B waters. 21 DCMR 1104.6. In almost all of the storm water sampling reported in the Part 2 application, fecal coliform counts exceeded one or both of these standards, often by wide margins. Part 2 application, Tables 4.3.4-3 to -14; 21 DCMR 1104.6. At least one discharge also exceeded arsenic criteria for fisheries. Id., Part 2 application, table 4.3.4-10. * * *
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> Under these circumstances, the Act and EPA rules require that the permit include effluent limitations to assure compliance with water quality standards. * * * [T]he District's 1998 Water Quality Report specifically identifies storm water discharges as known or suspected contributors to violations of water quality standards for specific pollutants in waters throughout the District. Water Quality Report at 48, Appendix D at 3-75. For a number of waters, the report lists urban runoff/storm sewers as the only source of impairment. Id.

Petition at 3.

The Region does not argue that this evidence cited by Petitioners is insufficient to trigger the requirements of section 122.44(d)(1), which as noted requires "effluent limits" if discharges cause or contribute to violations of water quality standards. Instead, the Region maintains that section 122.44(d)(1) does not require that "effluent limits" be expressed as numeric limits. The Region argues that BMPs are a type of effluent limit and that it properly explained the basis for its decision to use BMPs instead of numeric effluent limits. Specifically, the Region explained in the Fact Sheet that "In accordance with 40 CFR § 122.44(k), the [Region] has required a series of [BMPs], in the form of a comprehensive SWMP, in lieu of numeric limitations." Fact Sheet at 7. The Region explained further in the Region's First Response to Comments that "[d]erivation of water quality-based limits by application of the methods contained in the Technical Support Document for Water Quality-based Toxics Control is not feasible at this time because insufficient information is known about the magnitude, variation, and frequency of the flow rate of both the river and storm discharges." Region's First Response to Comments at 7 (emphasis added); see also Region's Response at 9.

The notion that effluent limits may be expressed as either numeric limits or as some other restriction that limits the discharge of pollutants, such as BMPs, has been stated in EPA guidance and has been endorsed by this Board. In essence, because the term "effluent limitation" is defined to mean any restriction on quantities, rates, and concentrations of pollutants, [FN12] effluent limits required by section 122.44(d)(1) therefore may be expressed as either numeric limits or as BMPs, both of which serve to limit quantities, rates or concentrations of pollutants. In re Ariz. Mun. Storm Water NPDES Permits, 7 E.A.D. 646, 658-59 (EAB 1988) (hereinafter "Arizona Municipal") [FN13] (citing Questions and Answers Regarding Implementation of an Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits, 61 Fed. Reg. 57,425, 57,426 (Nov. 6. 1996)). Initially, the Petitioners argued that the Region's failure to use numeric limits violated section 301 of the CWA and 40 C.F.R. § § 122.4(d) & 122.44(d). Petition at 2-3. At oral argument, Petitioners also stated that where the water quality standards are numeric standards, the "only certain method to assure compliance with standards is with numeric effluent limits." Tr. at 6. The Petitioners, however, also acknowledged during oral argument that BMPs are a form of effluent limitation, Tr. at 7, and that BMPs may be used to satisfy water quality-based requirements. Tr. at 9. [FN14] Given this concession, we do not need to revisit our prior determination in Arizona Municipal that, as a general proposition, BMPs are a form of effluent limit that may in appropriate circumstances be used to satisfy the requirements of section 122.44(d) of the regulations in order to resolve the dispute at hand.

With respect to whether deployment of BMPs was inappropriate under the circumstances of this case, we note that the regulations specifically authorize the use of BMPs in two potentially applicable circumstances. First, section 122.44(k)(2), as added in 1999, authorizes BMPs when "[a]uthorized under section 402(p) of the CWA for the control of storm water discharges." 40 C.F.R. § 122.44(k)(2) (2001). Second, section 122.44(k)(3) authorizes BMPs when "[n]umeric effluent limitations are infeasible." Id. § 122.44(k)(3); see also Arizona Municipal, 7 E.A.D. at 656 ("Under the regulations, best management practices * * * may be incorporated into storm water permits where numeric limitations are infeasible."). In the present case, the Region stated at oral argument that it did not base its decision to approve BMPs on the new 40 C.F.R. § 122.44(k)(2), which was added in the 1999 amendments [FN15] and which allows BMPs when authorized by CWA § 402(p). Tr. at 48. Instead, the Region determined that numeric limits were not feasible, which is the criterion for use of BMPs under 40 C.F.R. § 122.44(k)(3). Specifically, as noted above, the Region explained that "[d]erivation of water quality-based limits by application of the methods contained in the Technical Support Document for Water Quality-based Toxics Control is not feasible at this time because insufficient information is known about the magnitude, variation, and frequency of the flow rate of both the river and storm discharges." Region's First Response to Comments at 7 (emphasis added).

This brings us to the issues that remain in dispute. The Petitioners argue first that "the Region has made no showing that numeric limitations are infeasible * * * . The Region did not even attempt development of numeric effluent limits for discharges to waters of the District other than Hickey Run." Petition at 4. On this point, the Petitioners

elaborate further in their Reply Brief that, where mixing zones [FN16] have not been established (as is the case here for all outfalls other those into Hickey Run), "under long-established EPA guidance and practice, effluent limits must be set to assure compliance with water quality standards at the point of discharge." Petitioners' Reply Brief at 3. In other words, Petitioners argue that the Agency can easily set a numeric limit for each outfall that is equal to the numeric water quality standard for the receiving water. Presumably, Petitioners reason that the discharges will not cause or contribute to an in-stream excursion above an allowable standard if the discharges, themselves, must be below the applicable standard. Petitioners argue further that "[t]his is not an exercise requiring any information beyond the water quality criteria set in D.C.'s published water quality standards." Id. These arguments, however, do not persuade us that review of the Permit should be granted on this ground.

In Arizona Municipal, we considered a challenge to the permit issuer's determination pursuant to what is now section 122.44(k)(3) [FN17] that setting numeric effluent limits was not feasible for an MS4 system's discharges. Arizona Municipal, 7 E.A.D. at 656. In that case, the permit issuer made its determination of infeasibility because, due to "the unique nature of storm water discharges in the arid Arizona environment and the uncertainties associated with the environmental effects of short-term, periodic discharges, 'it would be premature to include in the final permit any specific toxicity-related effluent limitations * * *."' Id. at 657. In considering arguments that this determination was insufficient, we noted that the permit issuer's reasons were consistent with Agency policy documents that "recogniz[e] that permitting agencies frequently lack adequate information to establish appropriate numeric water quality-based effluent limitations, and provid[e] for the inclusion of BMPs until such information becomes available." Id. at 658. The petitioners challenged the permit issuer's decision by arguing that the permit issuer had an affirmative duty to set numeric limits. We rejected this argument, stating that "the petitioners have failed to convince us that this determination was in any way unlawful or inappropriate." Id. at 659.

In the present case, the Petitioners have made many of the same generalized challenges to the Region's permitting decision as those we considered and rejected in Arizona Municipal, asserting that the Region has an affirmative duty to set numeric limits. In keeping with Arizona Municipal, we find these general arguments to be without merit. The Petitioners in this case, however, also rely on a more specific argument that numeric limits could have been derived under methods that the Petitioners describe as "long-established EPA guidance and practice." Petitioners' Reply Brief at 3. As discussed below, this more specific argument must also be rejected in this case because Petitioners failed to raise it and the cited authority during the public comment period.

The regulations governing the NPDES permitting program and review by this Board require that persons seeking review must demonstrate to the Board "that any issues being raised were raised during the public comment period to the extent required by these regulations * * *." 40 C.F.R. § 124.19(a) (2001); Moscow MS4, slip op. at 10, 10 E.A.D. __. The regulations provide further that all reasonably ascertainable issues and all reasonably available arguments supporting a petitioner's position must be raised by the close of the public comment period. 40 C.F.R. § 124.13 (2001); see, e.g., Moscow MS4, slip op. at 10, 10 E.A.D. __; In re New England Plating, NPDES Appeal No. 00-7, slip op. at 7 (EAB, Mar. 29, 2001), 9 E.A.D. __; In re City of Phoenix, Ariz. Squaw Peak & Deer Valley Water Treatment Plants, NPDES Appeal No. 99-2, slip op. at 14 (EAB, Nov. 1, 2000), 9 E.A.D. __. "Accordingly, only those issues and arguments raised during the comment period can form the basis for an appeal before the Board (except to the extent that issues or arguments were not reasonably ascertainable)." New England Plating, slip op. at 8 (citing In re Jett Black, Inc., UIC Appeal Nos. 98-3 & 98-5, slip. op. at 8 & nn.18, 23 (EAB, May 27, 1999), 8 E.A.D. __ (finding that reasonably ascertainable arguments not raised during the public comment period were not preserved for appeal)).

As we have previously explained, "[t]he effective, efficient and predictable administration of the permitting process, demands that the permit issuer be given the opportunity to address potential problems with draft permits before they become final." In re Encogen Cogeneration Facility, PSD Appeal Nos. 98-22 to 98-24, slip op. at 8 (EAB, Mar. 26, 1999), 9 E.A.D. __. "In this manner, the permit issuer can make timely and appropriate adjustments to the permit determination, or, if no adjustments are made, the permit issuer can include an explanation of why none are necessary." In re Essex County

(N.J.) Resource Recovery Facility, 5 E.A.D. 218, 224 (EAB 1994). In particular, the petitioner must have raised during the public comment period the specific argument that the petitioner seeks to raise on appeal; it is not sufficient for the petitioner to have raised a more general or related argument during the public comment period. See, e.g., In re RockGen Energy Ctr., PSD Appeal No. 99-1, slip op. at 11 (EAB, Aug. 25, 1999), 8 E.A.D. __ (petition denied because petitioner raised during the public comment period three issues regarding one type of emissions control technology, but had not raised the specific issue comparing that technology to the technology that was selected, which petitioner sought to raise on appeal). "At a minimum, commenters must present issues with sufficient specificity to apprise the permit issuing authority of the issue raised. Absent such specificity, the permit issuer cannot meaningfully respond to comments." Id. at 17 (citing In re Spokane Reg'l Waste-to-Energy, 2 E.A.D. 809, 816 (Adm'r 1989) ("Just as 'the opportunity to comment is meaningless unless the agency responds to significant points raised by the public,' so too is the agency's opportunity to respond to those comments meaningless unless the interested party clearly states its position.") (quoting Northside Sanitary Landfill, Inc. v. Thomas, 849 F.2d 1516, 1520 (D.C. Cir. 1988)) (internal citations omitted)).

In the present case, Petitioners raised their general objection to the absence of numeric effluent limits during both the public comment period on the first draft permit and during the public comment period on the second draft permit. See Letter from David S. Baron to William Colley, EPA Region III, at 2-3 (Apr. 21, 1999); Letter from David S. Baron to William Colley, EPA Region III, at 1- 2 (Oct. 29, 1999). The Petitioners, however, have not shown that they raised their argument concerning the alleged "long-established EPA guidance and practice" regarding point-of-discharge limits at any time during the first or second public comment periods, and the Petitioners have not explained why this argument and the cited authorities were not reasonably ascertainable at that time. In this regard, it is significant that the Region discussed the implications of "the Technical Support Document for Water Quality-based Toxics Control" in the Region's response to comments on the first draft permit. See Region's First Response to Comments at 8. [FN18] Presumably, Petitioners would recognize this document cited by the Region to be among the body of "long-established EPA guidance and practice" to which they now refer. Thus, the Region's basis for its decision was fully available to Petitioners during the second public comment period, and their failure to make their more specific response and citation to the allegedly countervailing authority at that time is fatal to their attempt to make their case at this juncture. Accordingly, Petitioners have failed to preserve this argument for appeal.

The Petitioners argue second that "[e]ven if numeric limits were infeasible, [the Region] has not shown why it could not include narrative provisions in the permit requiring protection of water quality standards." Petition at 4. This argument also must fail. There is no statutory or regulatory provision that requires use of narrative limits. Moreover, the regulations specifically authorize the use of BMPs where numeric limits are infeasible. 40 C.F.R. § 122.44(k)(3) (2001). Accordingly, we conclude that the Region was authorized to use BMPs and was not required to include narrative provisions in the Permit of the kind suggested by Petitioners. However, as discussed below, we are remanding this Permit on other grounds, and our conclusion here that use of narrative limits is not required should not be viewed as discouraging the use of narrative limits in any reissued permit if the Region determines that narrative limits would be appropriate in addressing the concerns giving rise to the remand.

Finally, Petitioners argue that "[i]f EPA intends to rely on BMPs, it still must demonstrate that those management practices will be adequate to assure compliance with water quality standards in the receiving waters" and that "[t]he Agency has failed to do so here." Petition at 5. Petitioners elaborate further on this last argument in their Reply Brief by noting that the record contains "absolutely no facts or technical analysis" to support the Region's statement in its response to comments that the Permit's BMPs are 'reasonably capable of achieving water quality standards,"' and by noting that "the legal test is not whether the BMPs are 'reasonably capable' of achieving water quality standards. Rather, the permit must 'ensure' compliance with water quality standards." Petitioners' Reply Brief at 4 (citing 33 U.S.C. § 1311(b)(1)(C); 40 C.F.R. § 122.4(d)). In its Response, the Region reiterated that it "issued the Permit based on its determination (and certification of the Permit by [D.C. Department of Health] * * *) that the BMPs set forth in the District's SWMP are 'reasonably capable of achieving water quality standards."'

Region's Response at 10; see also Region's Reply at 6. [FN19]

At oral argument, the Region stated that, in using the "reasonably capable" language, it was not seeking to establish a new, less restrictive, standard for MS4 permits, and that this Permit was intended to protect water quality standards. In particular, the Region stated that "[i]n the response to comments, we were not trying to set up a different standard." Tr. at 39. Instead, the Region stated that it intended the "reasonably capable" language as "merely a paraphrase of the requirement that [the Region] found that no more stringent limits were necessary to achieve water quality standards. That is set forth in [section] 301(b)(1)(c) [of the Act]." Tr. at 39.

We have two concerns regarding the manner in which the Region has addressed the question of the Permit's meeting water quality standards. First, it is not clear that the Region's determination that the BMPs required under the Permit are "reasonably capable" of achieving water quality standards fully comports with the regulatory prohibition on issuing a permit "when imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected states." 40 C.F.R. § 122.44(d) (2001) (emphasis added). Simply stated, the "reasonably capable" formulation, accepting as it is of the potential that the Permit will not, in fact, attain water quality standards, does not appear to be entirely comparable to the concept of ensuring compliance. [FN20]

Second, and more importantly, even accepting the Region's suggestion that ensuring compliance was what the permit writer had in mind, we find nothing in the record, apart from District's section 401 certification, [FN21] that supports the conclusion that the Permit would, in fact, achieve water quality standards. [FN22] Indeed, the Region acknowledged that "[u]nfortunately, the permit writer didn't commit a lot of his analysis to writing * * *." Tr. at 46. Although we traditionally assign a heavy burden to petitioners seeking review of issues that are essentially technical in nature, see e.g., Moscow MS4, slip op at 9, 10 E.A.D. at __, we nevertheless do look to determine whether the record demonstrates that the Region duly considered the issues raised in the comments and whether the approach ultimately adopted by the Region is rational in light of all information in the record. Id, slip op. at 10, 10 E.A.D. __ (citing In re NE Hub Partners, L.P., 7 E.A.D. 561, 567 (EAB 1998)). Without an articulation by the permit writer of his analysis, we cannot properly perform any review whatsoever of that analysis and, therefore, cannot conclude that it meets the requirement of rationality. Moreover, Petitioners argue, and the Region does not dispute, that the Region cannot rely exclusively on District's section 401 certification, at least in a circumstance like this one in which there is a body of information drawing the certification into question. See Tr. at 43. Accordingly, additional record support for the Region's determination is needed, and, finding such support altogether absent from the record, we are remanding the Permit to the Region to provide and/or develop support for its conclusion that the permit will "ensure" compliance with the District's water quality standards and to make whatever adjustments in the Permit, if any, might be necessary in light of its analysis. [FN23]

C. Petitioners' Issue Two: Hickey Run Numeric Effluent Limits

The second category of issues raised by the Petitioners concerns the Permit's effluent limits and monitoring requirements for four outfalls into Hickey Run. The Petitioners object that the prescribed numeric limit is set forth as an aggregate limit covering all four outfalls, and the Petitioners object that the prescribed requirements for monitoring compliance with the numeric limit lack the specificity required by the regulations. Petitioners object to the aggregate limit on the grounds that, according to Petitioners, the regulations "require that effluent limits be outfall specific unless infeasible" and "EPA has not shown that outfall specific limits are infeasible." Petition at 5. Petitioners elaborate on this point in their Reply Brief, stating that "EPA rules explicitly require outfall specific effluent limits." Petitioners' Reply at 6. Petitioners also argue in their Petition that "the monitoring provisions relevant to the Hickey Run effluent limit are inadequate because the Permit fails to "specify the type and interval of required monitoring as well as the frequency," and because the Permit fails to specify "the precise monitoring locations." Petition at 6.

The Region argues in its response that the Hickey Run numeric effluent limit is the first numeric limitation used in any MS4 permit based on a total maximum daily load ("TMDL") [FN24] and that the effluent limit is consistent with wasteload allocation set forth in

the Hickey Run TMDL as required by 40 C.F.R. § 122.44(d)(1)(vii)(B). The Region states that it approved the aggregate limit for four outfalls because those outfalls "combine to make up the Hickey Run headwaters," and "[a]bove these outfalls, Hickey Run does not exist outside the storm sewer pipes," and further that "the outfalls [are] located close together and one entity (the MS4) [is] responsible for all four outfalls and could best oversee the implementation." Region's Response at 14. The Region also states that the Hickey Run TMDL was not able to more precisely allocate the load between the outfalls and that the Petitioners did not provide any additional data or basis from which individual outfall limitations might be derived. Id. at 15. Thus, the Region states that it "had no additional legal or factual basis on which to make the Hickey Run limit outfall specific, and therefore concluded that such individual limits are infeasible." Id. at 15.

With respect to monitoring requirements, the Region argues that the Permit requires monitoring of Hickey Run no less than three times per year using the test analytic method specified in Part 136, and the Region notes that the Permit requires the District to develop a sampling plan with the First Annual Report. Id. at 16. The Region also argues that "[t]he Permit requires that all samples and measurements be representative of the volume and nature of the monitored discharges consistent with 40 C.F.R. § 122.41(j)(1). Region's Reply at 11. Finally, the Region states that "[t]he monitoring requirements, therefore, are representative of the monitored activity and otherwise consistent with federal regulations." Id. at 11-12.

We conclude that the Petitioners have failed to demonstrate in their Petition that the Region's decision to specify an aggregate numeric limit for the four outfalls forming the headwaters of Hickey Run was clear error or a policy choice that otherwise warrants review of this Permit. In particular, we cannot endorse Petitioners' argument that "EPA rules explicitly require outfall specific effluent limits." Petitioners' Reply at 6. The regulation cited by Petitioners reads as follows: "All permit effluent limitations, standards and prohibitions shall be established for each outfall or discharge point of the permitted facility * * *." 40 C.F.R. § 122.45(a) (2001) (emphasis added). Notably, this regulation identifies the location to which the limitation is applied (i.e, "outfall or discharge point") in the disjunctive. Thus, if we are to give meaning to the disjunctive phrase "or discharge point," we must read the regulation as contemplating some flexibility in appropriate circumstances to frame effluent limits at a point other than the outfall. Therefore, we cannot conclude that the Petitioners' proffered interpretation is required nor that the regulation precludes per se the establishment of a limit at a point other than an outfall.

Moreover, we find no clear error in the Region's conclusion that, in the unique circumstances of this case, an aggregate limit fixed at a discharge point proximate to four closely connected outfalls was appropriate. In this regard, we note that, here, (1) the aggregate limit is consistent with the aggregate waste load allocation set forth in the Hickey Run TMDL, (2) the four outfalls are located close together, (3) a single entity is responsible for all four outfalls, (4) the four outfalls, together, form the entire headwaters of Hickey Run, (5) the Region determined that it was infeasible to allocate the load by outfall or otherwise establish an appropriate limit specific to the individual outfalls, and (6) the Petitioners did not provide any additional data or basis for the Region to derive individual outfall limitations. See Region's Response at 13-15. [FN25]

With respect to monitoring requirements, Petitioners' point regarding the generality of the Permit's monitoring provisions is well taken. At its inception, the Permit would not specify the precise location or the sample collection method of monitoring tests to be performed on Hickey Run, although the Permit does contemplate that greater precision will be brought to the Hickey Run outfall monitoring plan as part of the District's First Annual Report. Agency guidance states that the permit's monitoring and reporting conditions should specify (1) the sampling location, (2) the sample collection method, (3) monitoring frequencies, (4) analytic methods, and (5) reporting and recordkeeping requirements. U.S. EPA NPDES Permit Writers' Manual, EPA-833-B-96-003, at 115 (Dec. 1996). This guidance states further that the permit writer is responsible for determining the appropriate monitoring location and for "explicitly specifying" this in the permit. Id. at 117. It further states that "[s]pecifying the appropriate monitoring location in a NPDES permit is critical to producing valid compliance data." Id. In addition, by "sample collection method," the guidance means the type of sampling, such as "grab" or "composite" samples, which is distinguished from the "analytic methods" referenced in 40 C.F.R. part

136. Id. at 122. The regulations require that all permits specify the required monitoring "type, interval, and frequency." 40 C.F.R. § 122.48(b) (2001).

In the present case, the Region has not explained why it departed from Agency guidance by not specifying the precise location for monitoring the Hickey Run discharges, nor has the Region adequately explained how the Permit conditions satisfy the regulatory requirement to specify the "type, interval, and frequency" of monitoring. Although the Region argues that the Permit satisfies the regulations by specifying that monitoring must be conducted three times per year, see Region's Response at 16, this Permit condition does not appear to specify both the "interval and frequency" of monitoring as required by 40 C.F.R. § 122.48(b). Further, the Permit's reference to the monitoring method specified in 40 C.F.R. part 136 does not appear to satisfy the requirement that sampling methods be specified in the Permit. However, the Region argues that these defects do not require remand because they will be cured before the Hickey Run numeric effluent limit becomes effective - the Permit requires the District to develop a sampling plan with the First Annual Report. Region's Response at 16.

We find the proposed delayed development of the Hickey Run monitoring requirements to be problematic in two respects. First, both section 122.48(b) and section 122.44(i) would appear to require that certain monitoring conditions be included in all permits. Section 122.48(b) states that "All permits shall specify" the monitoring type, intervals, and frequency. 40 C.F.R. § 122.48(b) (2001). Section 122.44(i) states that "each NPDES permit shall include" monitoring conditions in addition to those set forth in section 122.48 in order to assure compliance with permit limitations. Id. § 122.44(i). The Region has not explained how its issuance of this Permit, which does not at its inception contain monitoring requirements for Hickey Run, comports with the regulatory directive that all permits include these conditions. Second, while we recognize that the monitoring requirements are expected to be added at the time of the District's First Annual Report and thus should be in place before the Hickey Run effluent limit becomes effective, we are troubled that this would be accomplished through a minor permit modification without notice and opportunity for public comment. See Permit pts. III.E & IX.A.5 (as amended). Given that the regulations appear to contemplate that monitoring requirements ordinarily be included as up-front permit conditions - conditions which would thus ordinarily be subjected to public notice and comment - and the fact that we find nothing in the regulations allowing for minor permit modifications that authorizes use of a minor permit modification in this setting, [FN26] we conclude that this Permit does not meet minimum regulatory requirements and that remand of these parts of the Permit is necessary. We can foresee two possible paths available to the Region for addressing the Permit's imprecision in the Hickey Run monitoring requirements on remand. The path most easily reconciled with the regulatory requirements would be to add the missing precision to the revised permit at its inception. An alternative path may be to add the precision later in the context of formal, notice and comment permit modification. However, if the Region pursues the latter option, it must articulate its rationale for the consistency of such an approach with the regulations discussed above. [FN27] Accordingly, we remand the Permit's conditions for monitoring discharges into Hickey Run to afford the Region an opportunity to address these issues or to provide a more detailed explanation of its analysis.

D. Issues Three Through Seven: MEP Standard

In issues three through seven of the Petition, the Petitioners argue that the Region failed to properly apply the requirement in section 402(p)(3)(B)(iii) of the CWA to reduce the discharge of pollutants to the "maximum extent practicable." Petitioners raise the following sub-issues: In issue number three, Petitioners argue that the BMPs required by the Permit will produce no reductions in the discharges of a variety of pollutants and that the Permit does not contain a number of controls listed in the Agency guidance manual for MS4 permits. Petition at 6-7. In issue number four, the Petitioners argue that the Permit's requirement for evaluation and upgrade of the BMPs over time constitutes an admission that the current BMPs are not MEP and that therefore the permit contains an illegal deferral of compliance. Id. at 7. In issue number five, Petitioners argue that this deferral of compliance through upgrades over time does not comply with the requirement of section 402(p) to achieve implementation within 3 years. Id. at 7-9. Finally, in issues number six and seven, Petitioners argue that a "cost benefit and affordability analysis" required by Part III.E of the Permit is not authorized by the

regulations and illegally introduces cost and affordability as grounds for not implementing BMPs that are required to meet MEP. Id. at 8-9.

1. Issue Three: Permit Fails MEP Due to No Reductions in Certain Pollutants

The Petitioners argue that the Permit fails to satisfy the requirement of section 402(p)(3)(iii) of the CWA that the Permit reduce pollutant discharges to the "maximum extent practicable." Petition at 6. Petitioners argue that the BMPs required by the Permit will produce no reductions in cadmium (Potomac, Anacostia and Rock Creek), dissolved phosphorous (Potomac and Rock Creek) and copper and lead (Rock Creek). Id. They also argue that the reductions of total suspended solids, BOD, COD, total nitrogen and total phosphorus are so small as to constitute no meaningful reduction. Id. The Petitioners also argue that the Permit fails to comply with the EPA guidance manual for the Part 2 application, which according to Petitioners "sets out in great detail the specific control measures that must be included in any SWMP, and requires that those measures be incorporated into the MS4 permit." Id. at 7 (citing U.S. EPA Guidance Manual for the Preparation of Part 2 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems at 1-9, 6-1 to -25 (1992)).

The Region argues that, in the absence of promulgated technology-based standards defining MEP, the permitting authority must necessarily approach the question of what constitutes MEP on a case-by-case basis, taking into account the totality of the circumstances. Here, the Region concluded that "a relatively large number of new activities to be performed" under the Permit's BMPs satisfies the MEP criterion. Region's Response at 17 (quoting Region's First Response to Comments at 9-10). The Region notes that "the Current SWMP identifies over 220 structural BMPs that have been installed and over 600 that have been approved for installation and/or construction." Id. at 18 (citing Revised SWMP at 6-2 & tbl. 6.2-1). The Region notes further that "the SWMP also details storm water capital projects over the next several years starting with FY 1998 expenditures of over $1.3 million, FY 1999 projects costing more than $3.1 million and projected costs from FY2000-FY2007 of $39 million." Id. at 18-19. In addition, the Region argues that "the Permit requires the District to implement its current SWMP, and then to focus on specific revisions to develop an upgraded SWMP that (following EPA approval) will assure pollutants will be reduced to the maximum extent practicable." Id. at 19 (citing Permit pt. III).

We conclude that the Petitioners have failed to show any clear error of fact or law in the Region's analysis or any policy choice that warrants review. As we noted at the outset of our discussion, we traditionally assign a heavy burden to petitioners seeking review of issues that are essentially technical in nature. Moscow MS4, slip op. at 9, 10 E.A.D. __; see also In re Town of Ashland Wastewater Treatment Facility, NPDES Appeal No. 00-15, slip op. at 10 (EAB, Feb. 26, 2001), 9 E.A.D. __; In re NE Hub Partners, L.P., 7 E.A.D. 561, 567 (EAB 1998). This is grounded on the Agency policy that favors final adjudication of most permits at the regional level. 45 Fed. Reg. 33,290, 33,412 (May 19, 1980); see also Moscow MS4, slip op. at 9, 10 E.A.D. __; Irving MS4, slip op. at 16, 10 E.A.D. __; In re New England Plating Co., NPDES Appeal No. 00-7, slip op. at 7 (EAB, Mar. 29, 2001), 9 E.A.D. __; Town of Ashland, slip op. at 9-10, 9 E.A.D. __; In re Town of Hopedale, Bd. of Water & Sewer Comm'rs, NPDES Appeal No. 00-4, slip op. 8-9 n.13 (EAB, Feb. 13, 2001), 10 E.A.D. __.

When the Board is presented with technical issues, we look to determine whether the record demonstrates that the Region duly considered the issues raised in the comments and whether the approach ultimately adopted by the Region is rational in light of all the information in the record. Moscow MS4, slip op. at 10, 10 E.A.D. __ (citing NE Hub, 7 E.A.D. at 568). If we are satisfied that the Region gave due consideration to comments received and adopted an approach in the final permit decision that is rational and supportable, we typically will defer to the Region's position. Id.

In the present case, we note at the outset that Petitioners' emphasis on the amount of reduction achieved for the various pollutants is misplaced. The key question under section 402(p)(3)(B) of the statute is what is practicable. [FN28] Here, taking into account the full range of considerations before it, [FN29] the Region concluded that the BMPs required by the Permit collectively represent the maximum practicable effort to reduce pollution from the District's MS4. We are loath to second guess the Region's technical judgment in this regard. The record demonstrates that the Region duly considered the issue raised

by Petitioners in their comments, and the record does not lead to the clear conclusion that any additional BMPs beyond those identified in the Permit are practicable taking into account all of the relevant circumstances in the District. [FN30] Accordingly, we conclude that the position adopted by the Region is rational in light of the information in the record and consequently we deny review of this issue.

2. Issue Four: Upgrade of the SWMP over Time

The BMPs specified in the Permit as the applicable effluent limits are the BMPs set forth in the District's SWMP. The Permit requires that the District's SWMP, and the BMPs set forth in the SWMP, be evaluated and upgraded over time. The Petitioners argue that the Permit's requirement for the BMPs to be evaluated and upgraded over time constitutes an admission that the current BMPs do not meet the MEP criterion and that therefore the permit contains an illegal deferral of compliance with the permitting requirements of the CWA. Petition at 7. This argument, however, must fail. The Region correctly responds that the current BMPs are what the Region has determined to be MEP and that the evaluation and upgrade requirement is a "normal process of adjustment that the Region believes is necessary and appropriate to protect water quality and meet the MEP criterion." Region's Response at 19. The evaluation and upgrade requirement of the Permit, and Agency policy for MS4s, recognizes that knowledge concerning effective methods for controlling pollutant discharges and barriers restricting the ability to control pollutant discharges will necessarily change over time.

The evaluation and upgrade requirement incorporates into the Permit a process for adjusting the Permit's terms and conditions to take into account new knowledge and changed circumstances affecting practicality of BMPs. This adjustment process does not imply that the Region has failed to properly assess MEP at the time of the Permit's issuance; it simply recognizes that what is practicable will change over time and that the Permit should be adaptable to such changes. In short, the Petitioners have not shown clear error in the Region's determination of what is "practicable" at the time of Permit issuance.

3. Issue Five: Compliance within Three Years

The Petitioners argue that the evaluation and upgrade process discussed above does not comply with the requirement of section 402(p)(4)(A) of the CWA to achieve actual implementation within three years. Petition at 7-8. This argument also must fail. The Region correctly notes that the Permit requires the District to immediately implement the BMPs that have been determined to be MEP at the time of Permit issuance and, in addition, the Permit requires the District to begin a process of continual upgrade and improvement of those BMPs. Region's Response at 21. Thus, the Permit does not authorize a deferred implementation of the BMPs that were determined to be MEP at the time of issuance of the Permit; instead, the Permit simply recognizes that what is practicable will change during the Permit's term and that upgrades of the Permit's requirements should not be delayed until the Permit is renewed. Accordingly, here again we deny review.

4. Issues Six and Seven: The Implementation Plan and Cost Benefit Analysis

The Petitioners note that the Permit requires the District to submit each year a SWMP implementation plan covering the work to be done in the next three years and to analyze that work "based on a cost benefit and affordability analysis." Petition at 8 (quoting Permit pt. III.E). The Petitioners argue that this "cost benefit and affordability analysis" is not found anywhere in the Agency's regulations or guidance documents. Id. at 8-9. Petitioners also argue that the "cost benefit and affordability" analysis would allow the District to avoid BMP effluent limitations by claiming that it has inadequate resources to meet the implementation schedule. Id. at 9 (issue number seven). Specifically, they state that "compliance cannot be contingent on the willingness of the Mayor, the Control Board, or Congress to appropriate funds." Id. The Region argues that the Petitioners' concerns are unfounded. The Region argues that the "cost benefit and affordability analysis" is authorized by the CWA because it is meant to implement the "practicability" part of the MEP test in determining BMP requirements. Region's Response at 23. The Region also argues that the Permit specifically states that affordability is not a defense for compliance with the Permit's terms. Id. (citing Permit, pt. III.E).

We conclude that the Petitioners have not shown any clear error of fact or law or shown that a policy choice made by the Region with respect to the "cost benefit analysis" in part III.E of the Permit warrants review. We base this holding, in part, on our recognition that this Permit contains provisions establishing BMPs set forth in the current SWMP that

were determined to be MEP at the time of the Permit's issuance, and it also contains provisions requiring upgrade of the current SWMP within three years of the Permit's issuance. In this context, the required Annual Report and SWMP Implementation Plan serve two functions: they provide reporting on compliance with the Permit's requirement to implement the current SWMP, and they provide information, analysis and preliminary proposals for terms to be included in the upgraded SWMP when the Permit is amended. [FN31] Information concerning a "cost benefit analysis" of the various BMPs is relevant for the process of amending the Permit with an upgraded SWMP and upgraded BMPs. As stated by the Region, "[i]n terms of establishing the permit requirements to reduce pollutants to the maximum extent practicable, the Region finds cost and affordability information useful in determining the degree of practicability." Region's Response at 24.

This cost benefit information, however, is not relevant for determining compliance with the Permit's requirement that the District implement the BMPs in its current SWMP. By incorporating the District's current SWMP into the Permit, the Region has determined that the BMPs set forth in that SWMP are MEP. The Region, thus, has already determined that those BMPs are "practicable" and consideration of costs or benefits is not appropriate when considering whether the District has complied with the requirement to implement those BMPs. This distinction between the compliance-reporting and future planning functions of the Annual Report and Annual Implementation Plan is recognized and mandated by the Permit's condition that states that "[a]ffordability cannot be used as a defense for noncompliance." Permit pt. III.E. Accordingly, we see no clear error in the Region's decision to require that the District's Annual Implementation Plan provide information regarding the costs and benefits of the various BMPs covered by the plan, and we deny review of this condition of the Permit.

E. Issue Eight: Modifications of the Permit

Petitioners argue that the Permit "illegally authorizes substantive changes in permit requirements without a formal permit revision." Petition at 9. In its Response, the Region "notifies the Board of the Region's proposal to amend the permit to address this issue and that such amendment would remove the issue from this appeal in accordance with 40 C.F.R. § 124.19(d)." Region's Response at 25. Subsequently, on January 12, 2001, the Region re-issued the withdrawn portion of the Permit with several amendments. Thereafter, the Petitioners filed a petition for review of the amendments to the Permit. See Petition for Review and Motion to Consolidate (Feb. 2, 2001). The Petitioners also filed a supplemental brief supporting their original Petition on this issue. See Supplemental Reply Based on Intervening Permit Modification. As noted above in Part I.B, we have consolidated the February 2001 petition with the original Petition, and will consider all related issues in this part of our analysis.

In their second petition, Petitioners recall that they had argued in the first Petition that the Permit would improperly allow eight types of permit modifications to be made under the regulations governing minor modifications. Second Petition at 5. The Petitioners listed these allegedly improper modifications in eight categories. Petitioners argue that all of the types of modifications identified in its original list are major modifications that must comply with the more stringent requirements for formal permit revisions, including public notice and comment. Id. at 7-9. Petitioners state that the Region's amendment to the Permit addressed only a portion of one of those eight types of modifications. Id. The types of modifications originally identified by Petitioners as improper minor modifications are as follows:

a. Changes in deadlines for submission of Annual Review, Annual Report, Annual Implementation Plan, and Upgraded SWMP (Permit pt. III.A).

b. Changes in deadlines for implementing outfall monitoring and implementing upgraded SWMP (Permit pt. III.A).

c. Extension of time for implementing illicit discharge program (Permit pt. III.B.10, at 22).

d. EPA approval of schedule for developing and implementing an enforcement plan and approval of the plan itself (Permit pt. III.B.11, at 22-23).

e. EPA determination of minimum levels of effort required for additional SWMP program activities needed to meet requirements of EPA rules (Permit pt. III.B.12, at 25).

f. EPA approval, disapproval or revision of Annual Report and Annual Implementation Plan, and upgraded SWMP (Permit pt. III.E, at 29).

g. Other program modifications (Permit pt. III.H, at 30).

h. Changes in monitoring locations from those specified in the Permit (Permit pt. IV.A.1, at 34; pt. VIII.A, at 45; pt. IX.C, at 49).
Second Petition at 4; see also id. at 7; Petition at 9-10. Petitioners recognize that the Region's amendment to the Permit requires that EPA approval of the upgraded SWMP (a part of item (f) in the list) be subject to major modification procedures of 40 C.F.R.§ 122.62. Second Petition at 5. The Petitioners continue to argue that all of the remaining modifications contemplated by these eight categories, including the remnant of category (f) not changed by the Region's amendment, are also major modifications that cannot be made under the minor modification procedures. Petitioners also specifically argue that any changes in interim compliance dates cannot extend the date of compliance more than 120 days if implemented under the minor modification provisions of 40 C.F.R. § 122.63 and that any longer extensions can only be accomplished by modification under the procedures of section 122.62.

The Region, in contrast, argues that all of the modifications at issue fall within the ambit of permissible minor modifications under 40 C.F.R. § 122.63. See Region III's Response to Petition for Review at 7-8 (Mar. 28, 2001) ("Region's Second Response"). With respect to the issue of extensions of interim compliance dates, the Region argues that "[w]hile the Permit does not explicitly limit such extensions to the 120 days allowed by the regulations, the Permit requires that such revisions be 'in accordance with 40 C.F.R. § 122.63,' which sets forth such a requirement for interim compliance dates." Region's Second Response at 8. The Region goes on to argue that the modifications challenged by Petitioner in its categories (a), (b), (c) and (d) are interim compliance date changes falling within the scope of section 122.63. Id. at 10-12. The Region maintains that the modifications challenged by Petitioner in its categories (e) and (f) are merely the proper exercise of "review and approval" of various reports and implementation plans and that such oversight is properly part of the Region's duties in administering this Permit. Id. at 12-13. [FN32] The Region argues that the modification addressed in Petitioners' category (g) "only lays out the procedures by which the SWMP modifications will be implemented by the District in context with the compliance schedule discussed above. By itself this provision has no substantive effect." Id. at 13. With respect to Petitioners' final category concerning changes in monitoring locations (Petitioners' category (h)), the Region argues that "there is nothing in 40 C.F.R. § 122.63 that would prohibit EPA from authorizing change in monitoring locations for MS4 compliance purposes." Id. The Region also argues that allowing the District to select other equally representative outfalls for monitoring is a reasonable exercise of its authority to monitor a complex and dynamic permit. Id. at 14.

We begin with the regulatory text. Section 122.63, which governs minor modifications, provides as follows:

Upon the consent of the permittee, the Director may modify a permit to make the corrections or allowances for changes in the permitted activity listed in this section, without following the procedures of part 124. Any permit modification not processed as a minor modification under this section must be made for cause and with part 124 draft permit and public notice as required in § 122.62. Minor modifications may only:

(a) Correct typographical errors;

(b) Require more frequent monitoring or reporting by the permittee;

(c) Change an interim compliance date in a schedule of compliance, provided the new date is not more than 120 days after the date specified in the existing permit and does not interfere with attainment of the final compliance date requirement; or

(d) Allow for a change in ownership or operational control of a facility where the Director determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittees has been submitted to the Director.

(e) (1) Change the construction schedule for a discharger which is a new source. No such change shall affect a discharger's obligation to have all pollution control equipment installed and in operation prior to discharge under § 122.29.

(2) Delete a point source outfall when the discharge from that outfall is terminated and does not result in discharge of pollutants from other outfalls except in accordance with permit limits.

(f) [Reserved]

(g) Incorporate conditions of a POTW pretreatment program * * * as enforceable conditions of the POTW's permits.

40 C.F.R. § 122.63(a) - (g) (2001) (emphasis added). Significantly, this regulation allows changes to the Permit without formal notice and comment procedures "only" when the changes fall within the listed categories, and it expressly requires all other modifications to be made pursuant to the formal procedures of section 122.62.

With respect to the narrow issue of whether the Permit authorizes extensions of interim compliance dates that are longer than 120 days, we conclude that the better interpretation of the Permit is one that reconciles the text of the Permit with the applicable rules. Thus, we adopt the Region's interpretation that the reference in the Permit to 40 C.F.R. § 122.63 serves to limit the allowable extensions of interim compliance dates undertaken as minor modifications to "not more than 120 days after the date specified in the existing permit and [provided that it] does not interfere with attainment of the final compliance date requirement." 40 C.F.R. § 122.63(c) (2001). In addition, we also adopt the Region's interpretation that Part III.H of the Permit (Petitioners' category (g)) "[b]y itself * * * has no substantive effect." Regions' Second Response at 13. Thus, Part III.H may not be relied upon as independent authority for modifying the Permit; rather authority for a proposed modification must be provided elsewhere in the Permit or in the applicable regulation. With respect to both of these issues, our interpretation of the Permit's terms will be binding on the Region in implementing the permit. See Irving MS4, slip op. at 26 n.20, 10 E.A.D. __ ("[B]ecause we serve as the final decision maker for the Agency in this matter, our interpretation[s] will be binding on the Region in its implementation of the permit").

Next, we consider whether the Region is correct that the modifications challenged by Petitioner in its categories (a), (b) and (c) are interim compliance date changes falling within the scope of section 122.63(c). See Region's Second Response at 10-13. That section authorizes the minor modification procedures to be used to change "an interim compliance date in a schedule of compliance." 40 C.F.R. § 122.63(c) (2001). Thus, in analyzing the issues raised by Petitioner and the Region's response, we first must determine whether the changes authorized by the Permit in Petitioners' categories (a), (b) and (c) are changes to interim compliance dates in a "schedule of compliance."

The term "schedule of compliance" is defined by the regulations to mean "a schedule of remedial measures included in a 'permit,' including an enforceable sequence of interim requirements (for example, actions, operations, or milestone events) leading to compliance with the CWA and regulations." 40 C.F.R. § 122.2 (2001). Schedules of compliance are required to be included as conditions of a permit "to provide for and assure compliance with all applicable requirements of CWA and regulations." Id. § 122.43(a). "Schedules of compliance" are governed by 40 C.F.R. § 122.47, which requires, among other things, that a schedule of compliance "shall require compliance as soon as possible, but not later than the applicable statutory deadline under the CWA." Id. § 122.47(a)(1).

In the present case, Part III.A of the Permit is captioned "Compliance Schedule." In that part of the Permit, there are various substantive requirements leading to the implementation of an upgraded SWMP and a schedule of "deadlines" for steps in that process. In particular, deadlines are set for "First Annual Report," "Implement outfall monitoring," "First Annual Implementation Plan," submission of "Upgraded SWMP," and "Implement Upgraded SWMP." Permit pt. III.A, tbl. 1. Part III.A of the Permit also states that "the requirements in Table 2 in Part III.B of this permit are to be used in development of the upgraded SWMP" and that "[t]he District's November 4, 1998 SWMP (or revised/upgraded SWMP) is also incorporated by reference into this permit." Permit pt. III.A at 6. Both the substantive requirements set forth in Part III.A of the Permit and the requirements in Table 2 in Part III.B of the Permit appear to be "schedule[s] of remedial measures" fitting the regulatory definition of "schedule of compliance." 40 C.F.R. § 122.2 (2001). In addition, these deadlines appear to be "enforceable sequence[s] of interim requirements (for example, actions, operations, or milestone events) leading to compliance with the CWA and regulations." Thus, we conclude that the Petitioners have failed to show any clear error of fact or law, or important policy decision, warranting review of the Region's decision to characterize the deadlines set forth in Part III.A as "interim compliance date[s] in a schedule of compliance" that may be modified as set forth in 40 C.F.R. § 122.63(c). Accordingly, as Petitioners' categories (a) and (b) list deadlines set forth in Part III.A, we decline to grant review of these portions of the Permit.

We also find credible the Region's argument that the deadlines identified by Petitioners in their category (c) are appropriately viewed as "interim compliance date[s] in a schedule of compliance" under 40 C.F.R. § 122.63(c). Category (c) refers to deadlines, and authorizations for extensions of such deadlines, that are set forth in Part III.B.10 of the Permit. These deadlines appear to be additional detailed sub-parts of the deadlines identified in the schedule of compliance set forth in Part III.A of the Permit. Accordingly, we decline review of Petitioners' category (c). We note, consistent with our holding above, that any extension of the deadlines set forth in Parts III.A and III.B.10 of the Permit may not be more than 120 days from the date in the existing Permit. 40 C.F.R. § 122.63(c) (2001).

We conclude, however, that the Petitioners have shown that the Region erred in approving a Permit condition that authorizes changes listed in Petitioners' categories (h) as minor modifications under section 122.63, and we conclude that Petitioners have raised substantial questions regarding the scope of changes authorized by the Permit conditions identified in Petitioners' categories (d), (e) and (f) that require clarification.

In Petitioners' category (h), they object to the Permit's conditions that authorize changes to the monitoring locations that are required by the Permit (Permit pts. IV.A.1, VIII.A, IX.A.5 & IX.C). The Region correctly notes that section 122.63(b) authorizes minor modification to "require more frequent monitoring or reporting by the permittee." 40 C.F.R. § 122.63(b), cited in Region's Second Response at 13. The Region, however, is incorrect in its argument that "there is nothing in 40 C.F.R. § 122.63 that would prohibit EPA from authorizing change in monitoring locations for MS4 compliance purposes." Region's Response at 13.

As noted above, section 122.63 allows minor modifications "only" within categories listed in that section, and it expressly requires all other modifications to be made pursuant to the notice and comment procedures of section 122.62. Specifically, section 122.63 states:

> Upon the consent of the permittee, the Director may modify a permit to make the corrections or allowances for changes in the permitted activity listed in this section, without following the procedures of part 124. Any permit modification not processed as a minor modification under this section must be made for cause and with part 124 draft permit and public notice as required in § 122.62. Minor modifications may only: * * * [listing categories].

40 C.F.R. § 122.63 (2001). The only reference to monitoring found in section 122.63 is in subsection (b), which only authorizes modification to add additional monitoring requirements; it does not authorize a change in monitoring location. Accordingly, any such changes must be made through the formal "notice and comment" procedures of section 122.62, and therefore we grant review of the Permit, Parts IV.A.1, VIII.A, IX.A.5 & IX.C and remand the Permit for further proceedings consistent with this decision.

In Petitioners' categories (d), (e) and (f), Petitioners object to the Permit's conditions that allow the Region to "approve" schedules for developing and implementing an enforcement plan (Permit pt. III.B.11), to approve certain additional SWMP program activities (Permit pt. III.B.12), and to approve, disapprove or revise the District's Annual Reports and Annual Implementation Plans (Permit pt. III.E). Based on our review, it is unclear whether these provisions are simply intended to state that EPA decisions regarding various submissions required under the Permit related to the SWMPs do not themselves result in changes to the Permit (or the SWMPs subsumed within the Permit) and thus should not be subjected to formal notice and comment procedures, or whether these provisions, referenced as they are in the minor modification section of the permit, are intended to serve as a basis for substantive changes to permit conditions. Accordingly, as part of our remand of this Permit, we direct the Region to clarify the extent to which these provisions in the Permit contemplate changes to permit conditions. To the extent that permit changes are contemplated, the Region is further directed to explain how such changes can be approved by minor modification in the face of the Region's concession that upgrades to the Permit's SWMPs must be made through the formal procedures set forth in Section 122.62.

F. Issue Nine: Waivers and Exemptions

In their final category of issues, the Petitioners argue that the District's storm water

regulations, which are incorporated into the permit by reference, require the District to grant waivers or exemptions from the District's regulations that the Petitioners argue are in conflict with the CWA and implementing regulations. Petition at 11. The Region argues that the identified exemptions or waivers are not as broad as suggested by the Petitioners and that Petitioners have not shown that any of the exemptions or waivers under the District's regulations violate federal law. Region's Response at 26-29. The Region's arguments here are in stark contrast to its Second Response to Comments where, in response to comments raising these same concerns, the Region merely stated that "[t]he permit addresses most of the EJLDF [Petitioners] recommended changes." Second Response to Comments at 9. In fact, it would appear that the changes made by the Region to the second draft permit did not address any of the particular issues that Petitioners have now raised in this final category of issues on appeal.

Because the Region's Second Response to Comments does not challenge the validity of Petitioners' Comments, but rather tends to treat them as meritorious, [FN33] and because the Region failed to make changes to the Permit or to otherwise address Petitioners' concerns regarding these waivers and exemptions, we are remanding this portion of the Permit to the Region to either make appropriate changes to the Permit or to explain why the Petitioners' comments do not merit changes to the Permit.

III. CONCLUSION

For the foregoing reasons, this matter is remanded to the Region for further proceedings consistent with this decision.

So ordered.

FN1. Under the Clean Water Act ("CWA"), persons who discharge pollutants from point sources (discrete conveyances, such as pipes) into waters of the United States must have a permit in order for the discharge to be lawful. CWA § 301, 33 U.S.C. § 1311. The National Pollutant Discharge Elimination System is the principal permitting program under the CWA. CWA § 402, 33 U.S.C. § 1342.

FN2. Under CWA § 402(p) and 40 C.F.R. § 122.26, an NPDES permit is required for MS4s serving populations of 250,000 or more (large systems), and those serving populations of more than 100,000 but less than 250,000 (medium systems). It is undisputed that the District's MS4 is a large system.

FN3. The Petitioners originally filed a timely request for an evidentiary hearing with the Regional Hearing Clerk. However, on May 15, 2000, EPA published a final rule modifying, among other things, the appeal process for NPDES permits set forth in 40 C.F.R. part 124. See Amendments to Streamline the NPDES Program Regulations: Round II, 65 Fed. Reg. 30,866 (May 15, 2000). This rule eliminated the previously existing requirement that a party seek an evidentiary hearing before filing a petition for review with this Board. The new rule granted certain petitioners, including the Petitioners in this case, until August 13, 2000, to file a petition for review with this Board.

FN4. The permitting process is described below in Part I.B of this decision. See also In re City of Irving, Tex., Mun. Separate Storm Sewer Sys., NPDES Appeal No. 00-18, slip op. at 13-16 (EAB, July 16, 2001), 10 E.A.D. __.

FN5. All NPDES permit applicants must obtain a certification from the appropriate state agency validating the permit's compliance with the pertinent federal and state water pollution control standards. CWA § 401(a)(1), 33 U.S.C. § 1341(a)(1). The regulatory provisions pertaining to state certification provide that EPA may not issue a permit until a certification is granted or waived by the state in which the discharge originates. 40 C.F.R. § 124.53(a). The regulations further add that "when certification is required * * * no final permit shall be issued * * * [u]nless the final permit incorporates the requirements specified in the certification." 40 C.F.R. § 124.55(a).

FN6. See supra note 3.

FN7. The Petitioners' original petition was assigned EAB docket number NPDES 00-14 and

their second petition was assigned EAB docket number NPDES 01-09. The Petitioners' motion to consolidate their second petition for review with their original Petition is hereby granted.

FN8. That exemption was rejected by the U.S. Court of Appeals for the District of Columbia. See NRDC v. Costle, 568 F.2d 1369, 1377 (D.C. Cir. 1977). This history is described more fully in In re City of Irving, Tex. Mun. Separate Storm Sewer System, NPDES Appeal No. 00-18, slip. op. at 9 (EAB, July 16, 2001), 10 E.A.D. __.

FN9. The Region also quotes an argument it made in its response to comments where the Region stated that the Permit is not necessarily required to assure compliance with state water quality standards but need only "control the discharge of pollutants to meet such provisions EPA or the State determines appropriate." Region's Second Response to Comments at 10, quoted in Region's Response at 9. In support of this argument the Region explained that the Ninth Circuit Court of Appeals has held that "EPA * * * has authority to require less than strict compliance with state water quality standards." Region's Response at 9 (quoting Defenders of Wildlife v. Browner, 191 F.3d 1159, 1166 (9th Cir. 1999)); see also Region's Reply at 7 n.4. However, at oral argument, the Region stated that, in issuing this Permit, it is not relying on the Ninth Circuit's conclusion that EPA has authority to require less than strict compliance with state water quality standards. Tr. at 31. Specifically, the Region stated that it intends this Permit to satisfy water quality standards. Tr. at 32-33.

FN10. Prior to the amendments to streamline the NPDES regulations (see supra note 3), the rules governing petitions for review of NPDES permitting decisions were set out in 40 C.F.R. § 124.91. These rules did not provide for an appeal directly to the Board. Instead, a person seeking review of an NPDES permitting decision was required to first request an evidentiary hearing before the Regional Administrator. In re City of Moscow, Idaho, NPDES Appeal No. 00-10, slip op. at 9 n.20 (EAB, July 27, 2001), 10 E.A.D. __. The outcome of the request for an evidentiary hearing or the outcome of an evidentiary hearing -- if the request was granted -- was then appealable to the Board. However, under those rules there was no review as a matter of right from the Regional Administrator's decision or the denial of an evidentiary hearing. See In re City of Port St. Joe, 7 E.A.D. 275, 282 (EAB 1997); In re Fla. Pulp & Paper Ass'n, 6 E.A.D. 49, 51 (EAB 1995); In re J&L Specialty Prods. Corp., 5 E.A.D. 31, 41 (EAB 1994). Petitions for review of NPDES permits are now regulated by 40 C.F.R. § 124.19, as amended by 65 Fed. Reg. 30,886, 30,911 (May 15, 2000). Even though the regulations governing NPDES appeals changed in the sense that the evidentiary hearing provisions were eliminated, the standard of review has not changed. Moscow MS4, slip op. at 9 n.20, 10 E.A.D. __ (citing In re Town of Ashland Wastewater Treatment Facility, NPDES Appeal No. 00-15, slip op. at 9 n.11 (EAB, Feb. 26, 2001), 9 E.A.D. __).

FN11. Standing to appeal a final permit determination is limited under 40 C.F.R. § 124.19 to those persons "who filed comments on [the] draft permit or participated in the public hearing." Any person who failed to comment or participate in the public hearing on the draft permit can appeal "only to the extent of the changes from the draft to the final permit decision." 40 C.F.R. § 124.19(a) (2001); see In re City of Phoenix,Ariz. Squaw Peak & Deer Valley Water Treatment Plants, NPDES Appeal No. 99-2, slip op. at 14 (EAB, Nov. 1, 2000), 9 E.A.D. __.

FN12. The term "effluent limitation" is defined by the regulations to mean "any restriction * * * on quantities, discharge rates, and concentrations of 'pollutants' which are 'discharged' from 'point sources' into 'waters of the United States,' the waters of a 'contiguous zone,' or the ocean." 40 C.F.R. § 122.2 (2001).

FN13. Our holding in Arizona Municipal was affirmed by the Ninth Circuit Court of Appeals. See Defenders of Wildlife v. Browner, 191 F.3d 1159 (9th Cir. 1999), aff'g on other grounds In re Ariz. Mun. Storm Water NPDES Permits, 7 E.A.D. 646 (EAB 1988).

FN14. However, the Petitioners consistently argued that if the Region chooses BMPs to meet water quality-based standards, the Region "would still have to show that they [the BMPs] are going to do the job." Tr. at 10. This issue is discussed further below.

FN15. See National Pollutant Discharge Elimination System - Regulations for Revision

of the Water Pollution Control Program Addressing Storm Water Discharges, 64 Fed. Reg. 68,722, 68,847 (Dec. 8, 1999).

FN16. Briefly stated, a mixing zone is "an allocated impact zone in the receiving water which may include a small area or volume where acute criteria can be exceeded provided there is no lethality (zone of initial dilution), and a larger area or volume where chronic water quality criteria can be exceeded if the designated use of the water segment as a whole is not impaired as a result of the mixing zone." Guidance on Application of State Mixing Zone Policies in EPA-Issued NPDES Permits, (Aug. 1996).

FN17. The current section 122.44(k)(3) was section 122.44(k)(2) prior to the amendment of section 122.44(k) in 1999. As previously discussed, the 1999 amendments added a new section 122.44(k)(2), allowing use of BMPs when authorized under section 402(p) of the Act. The old section 122.44(k)(2) shifted at that time to become the new and current section 122.44(k)(3). See National Pollutant Discharge Elimination System - Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges, 64 Fed. Reg. 68,722, 68,847 (Dec. 8, 1999). Accordingly, at the time of the Arizona Municipal decision, the regulatory provision authorizing use of BMPs when numeric limits are infeasible was set forth in section 122.44(k)(2), which is the regulation cited in the Arizona Municipal decision. See Arizona Municipal, 7 E.A.D. at 656.

FN18. The Region explained in its First Response to Comments as follows: "Derivation of water quality-based limits by application of the methods contained in the 'Technical Support Document for Water Quality-based Toxics Control' (TSD) is not feasible at this time because insufficient information is known about the magnitude, variation, and frequency of the flow rate of both the river and storm water discharges." First Response to Comments at 8.

FN19. As noted supra note 9, the Petitioners also presented a number of arguments addressing the Ninth Circuit's statement in Defenders of Wildlife v. Browner, 191 F.3d 1159, 1166 (9th Cir. 1999), that "EPA * * * has authority to require less than strict compliance with state water quality standards." See Petitioners Reply at 4-6. We do not reach these arguments, however, because the Region has stated that it is not relying on this discretion identified in the Ninth Circuit's analysis. Tr. at 31.

FN20. The "reasonably capable" formulation does not appear to be common usage in EPA permits. At oral argument, counsel for the Region indicated that he was unaware of any other permit that relied upon such a formulation or any Agency guidance that recommended this formulation or treated it as comparable to a determination that a permit ensures compliance with water quality standards. Tr. at 41-42.

FN21. As described more fully supra note 5, section 401 of the CWA requires that any applicant for a federal permit (including NPDES permits issued by EPA) must provide the permitting agency a certification from the state in which the discharge originates that the discharge will comply with the state's water quality standards. CWA § 401, 33 U.S.C. § 1341. In the present case, the District of Columbia Department of Health issued its certification on January 6, 2000, that the conditions set forth in the second draft permit would comply with the District's water quality standards, approved water quality management plans and District monitoring requirements. Index pt. I.15.a.

FN22. It bears noting that, in the context of an MS4 permit, compliance with water quality standards need not be immediate, but must occur within "3 years after the date of issuance of such permit." CWA § 402(p)(4)(A), 33 U.S.C. § 1342(p)(4)(A); see also Memorandum by E. Donald Elliot, EPA Assistant Administrator and General Counsel, to Nancy J. Marvel, Regional Counsel Region IX, at 4-5 (Jan. 9, 1991) ("In light of the express language, we believe the Agency may reasonably interpret the three-year compliance provisions in Section 402(p)(4) to apply to all permit conditions, including those imposed under [section] 301(b)(1)(C) [water quality standards]."). Accordingly, the determination relative to water quality standards that the permit issuer is required to make at the time of issuance is that the permit will achieve compliance within three years. As explained below, however, even taking this flexibility into account the record is deficient here.

FN23. As we observed above, our determination that the Region is not required to include

narrative permit conditions requiring compliance with water quality standards does not preclude the Region from employing such provisions in any reissued permit upon remand. We note in this regard that inclusion of enforceable narrative permit conditions requiring compliance with applicable water quality standards within three years may be particularly useful in the event that the Region has difficulty stating that, without such a condition, compliance with water quality standards is assured.

FN24. Under section 303(d) of the CWA, states are required to identify those water segments where technology-based controls are insufficient to implement the applicable water quality standards, and which are therefore "water quality limited." 33 U.S.C. § 1313(d)(1)(A). Once a segment is identified as water quality limited, the state is further required to establish total maximum daily loads, or TMDLs, for the water segment. 40 C.F.R. § 130.7 (2001). A TMDL is the sum of waste load allocations for point sources discharging into the impaired segment and load allocations for nonpoint sources and natural background. A TMDL is a measure of the total amount of a pollutant from point sources, nonpoint sources and natural background that a water quality limited segment can tolerate without violating the applicable water quality standards. See Id. § 130.2(i) (2001).

FN25. We note that, since the Region has determined that setting limits for the individual outfalls into Hickey Run is not feasible, the Region might have, consistent with the regulations, established a system-wide BMP requirement in lieu of any effluent limitation. See 40 C.F.R. § 122.44(a), (k)(2001) (allowing the establishment of BMPs instead of effluent limits where effluent limitations are infeasible). Thus, if sustained, the Petitioners' objection might very well produce a result that is contrary to what Petitioners request: rather than resulting in individual limits for each outfall, the one numeric effluent limit in this Permit might be deleted in favor of reliance on system-wide BMP requirements. We are not suggesting that the Region alter the Permit in this regard. Rather we simply point out that this course of action may well have complied with the regulation.

FN26. 40 C.F.R. § 122.63 (2001). While this provision allows for the permit issuer to impose by minor modification "more frequent monitoring or reporting," there is no suggestion in the text of the regulation that the establishment of monitoring locations can be accomplished by minor modification. See infra Part II.E for further discussion of 40 C.F.R. § 122.63.

FN27. Further, it would appear that, in any case, the Permit must be constructed in such a manner that ensures monitoring requirements are in place before the Hickey Run numeric effluent limit becomes effective

FN28. As noted previously, the Region stated at oral argument that it intends this Permit to also satisfy water quality standards under section 301 of the Act. Tr. at 32-33. Although we determine in this part that the Petitioners have not shown any clear error in the Region's determination that the BMPs specified in this Permit were MEP at the time of issuance of the Permit, the Region must also determine, as discussed above in Part II.B, whether the conditions of this Permit ensure attainment of water quality standards as required by 40 C.F.R. § 122.4(d).

FN29. The circumstances that existed when the Region issued this Permit were unusual as explained by the Region at oral argument: "When the District finished their application in 1998 and when we issued the permit, the District was still under the control of the Financial Oversight and Management Authority and there was some difficulty in the District in determining which of the many parts of its government would be accomplishing which task in what time frame. Nevertheless, the [Region] found that it would be remiss in not issuing the permit with the requirements as specific as we could set them at that time, but to also require the District to further identify who would do what when, where the funding would come from, and to reevaluate the controls they had in place." Tr. at 50. The Region stated further that, since the issuance of the Permit, the District's Water and Sewer Authority has been authorized to lead the administration of the storm water management program and that "[t]he District has also been proceeding forward with the implementation of many new structural and other structural BMPs and other programs to reduce pollutants." Tr. at 51. We assume that these improvements will be incorporated in current or revised form into the Permit as SWMP upgrades pursuant to the process outlined in the Permit for such upgrades. Permit pts. III.A & III.F.

FN30. To the extent that the Petitioners seek to rely on Agency guidance that lists specific kinds of control measures to be included in the permit application and permit (EPA, Guidance Manual for the Preparation of Part 2 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems at 1-9, 6-1 to -25 (1992)) as somehow showing that the Region failed to include in this Permit required permit elements, the Petitioners have failed to show how the Region's response to comments on this issue did not adequately respond to their comments. More particularly, the Petitioners have not even identified what conditions that they believe should be included in the Permit under the guidance. Accordingly, we deny review on this ground.

FN31. As discussed below in Part II.E of this decision, we are remanding those portions of Part III.E of the Permit that purport to allow the Region to change the terms of the Permit by minor modification procedures.

FN32. The Region raises a similar argument regarding category (d) to the extent that Petitioners object to interim "approvals" in that category. Region's Second Response at 11.

FN33. Based on our review, there may be cause for treating these concerns as meritorious. Petitioners observe that 21 DCMR § 514.1 allows variances to requirements for land disturbing activities, erosion control requirements, and storm water control at construction sites, all of which are part of the storm water management activities incorporated as BMPs into the Permit. Petitioners' Reply at 12-13. In addition, Petitioners point out that the exemption provisions of 21 DCMR § § 527.1 and 528 also apply to storm water management requirements incorporated as BMPs into the Permit. Id. at 13. It is not clear how these BMPs can be enforceable obligations of the Permit when the District's regulations that are also incorporated into the Permit grant the District the right to grant waivers and exemptions from these BMP requirements under standards that apparently are not found in federal law and without notice to the Region or the public. The Region should address these issues on remand, either by changes to the Permit or by an explanation of the Region's rationale for why these concerns do not warrant modifications to the Permit.

2002 WL 257698 (E.P.A.)

END OF DOCUMENT

Tab 8

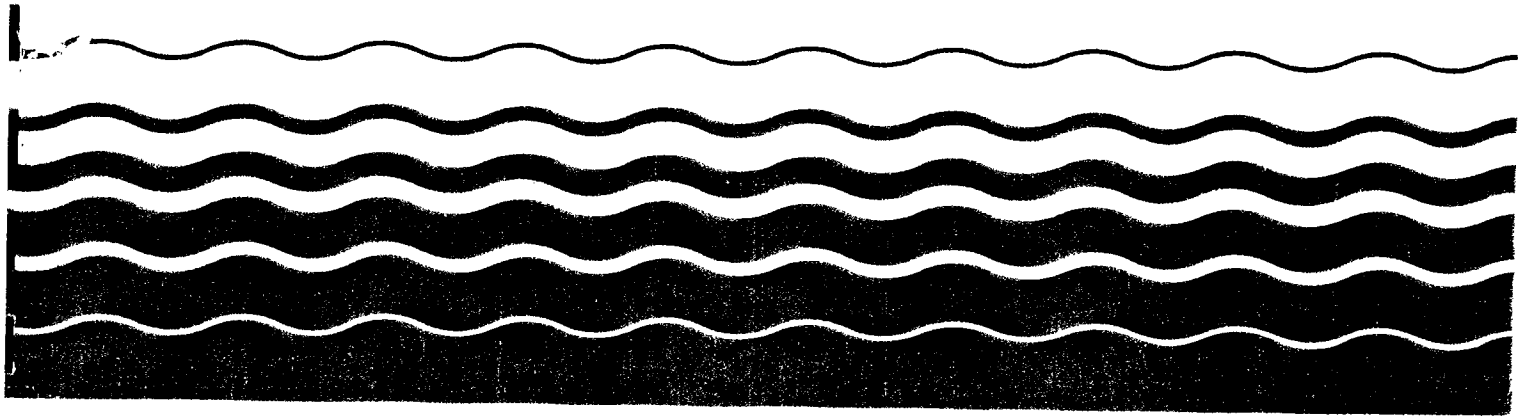
United States
Environmental Protection
Agency

Office Of Water
(EN-336)

EPA/505/2-90-001
PB91-127415
March 1991

EPA

Technical Support Document For Water Quality-based Toxics Control



4. EXPOSURE AND WASTELOAD ALLOCATION

4.1 INTRODUCTION

At this point in the toxics control process, a water quality problem has been identified. Screening analyses may have been done to assess the extent of toxicity, or a wasteload allocation (WLA) based on an existing total maximum daily load (TMDL) may already have been established. A TMDL is the sum of the individual WLAs for point sources and load allocations (LAs) for nonpoint sources of pollution and natural background sources, tributaries, or adjacent segments. WLAs represent that portion of a TMDL that is established to limit the amount of pollutants from existing and future point sources so that surface water quality is protected at all flow conditions.

The TMDL process uses water quality analyses to predict water quality conditions and pollutant concentrations. Limits on wastewater pollutant loads are set and nonpoint source allocations are established so that predicted receiving water concentrations do not exceed water quality criteria. TMDLs and WLAs/LAs should be established at levels necessary to attain and maintain the applicable narrative and numerical water quality standards, with seasonal variations and a margin of safety that takes into account any lack of knowledge concerning the relationship between point and nonpoint source loadings and water quality. Determination of WLAs/LAs and TMDLs should take into account critical conditions for stream flow, loading, and water quality parameters. Conditions that will protect the receiving water have been determined from State numeric or narrative water quality criteria.

This chapter is divided into sections that explain the steps that precede establishment of a WLA and then the methods and tools (models) that can be used to determine the WLA. Section 4.2 briefly discusses TMDLs and how they relate to waters identified as requiring a water quality-based approach for toxics control. The section also discusses different WLA schemes. Sections 4.3 and 4.4 discuss mixing zones, areas described as allocated impact zones where acute and chronic water quality criteria may be exceeded. Section 4.3 provides background information on mixing zones and discusses EPA's mixing zone policy and how this policy affects the allowable toxic load that can be discharged from a point source. State mixing zone dimensions and the determination of mixing zone boundaries are also discussed.

Section 4.4 discusses mixing zone analyses for situations in which the discharge does not mix completely with the receiving water within a short distance. Included in Section 4.4 are discussions of outfall designs that maximize initial dilution in the mixing zone, critical design periods for mixing zone analyses, and methods to analyze and model near-field and far-field mixing.

Section 4.5 discusses the calculations of the WLA and LA and the types of EPA-recommended mathematical models available to determine WLAs in completely mixed situations for both aquatic life and human health. The WLA models listed in Section 4.5 can be used to predict ambient concentrations and to calculate the effluent quality required to meet the criteria and protect designated and existing uses of the receiving water. The data requirements of each of these models are also described so that the effluent characterization procedures described in Chapter 3 can be designed to support the specific types of WLA modeling selected by the regulator. Section 4.6 discusses human health considerations and how to determine WLAs for human health toxicants.

EPA is currently working on methods to develop sediment criteria. Once developed, point source discharges could be further limited to prevent accumulation of pollutants in the bed sediment; such accumulation impairs beneficial uses. Although the criteria are not yet available for this document, they will be addressed in future documents. In the meantime, some of the models discussed in Section 4.5 are capable of simulating interactions between the water column and sediment and between toxic transport and transformation in the sediment. EPA is encouraging the States to consider the role of sediments in WLA.

4.2 TOTAL MAXIMUM DAILY LOADS AND WASTELOAD ALLOCATIONS

4.2.1 Total Maximum Daily Loads

The Federal Clean Water Act (CWA), under Section 303(d), requires the establishment of TMDLs for "water quality limited" stream segments. In such segments, water quality does not meet applicable water quality standards and/or is not expected to meet applicable water quality standards even after the application of the technology-based effluent limitations. A TMDL includes a determination of the amount of a pollutant, or property of a pollutant, from point, nonpoint, and natural background sources, including a margin of safety, that may be discharged to a water quality-limited waterbody. Any loading above this loading capacity risks violating water quality standards. TMDLs can be expressed in terms of chemical mass per unit of time, by toxicity, or by other appropriate measures. Permits should be issued based on TMDLs where available.

The establishment of a TMDL for a particular waterbody is dependent on the location of point sources, available dilution, water-quality standards, nonpoint source contributions, background conditions, and instream pollutant reactions and effluent toxicity. All of these factors can affect the allowable mass of the pollutant in the waterbody. Thus, two issues must be determined in conjunction with the establishment of the TMDL: (1) the definition of upstream and downstream boundaries of the waterbody for which the TMDL is being determined, and (2) the definition of critical conditions. For the following discussion, the waterbody boundaries are delineated as the portion of the waterbody be-

tween the pollutant source (whether point source or nonpoint source) that is farthest upstream and the downstream point at which water quality has recovered to the background quality found above the pollutant source that is farthest upstream. The delineation of critical conditions for stream flow, loading, and water quality parameters may be specific to the type of waterbody and is discussed in Section 4.4.

TMDLs are established based on water quality criteria pertinent to the designated and existing uses for the waterbody in question. TMDLs are traditionally calculated using State water quality standards as applied to a specific waterbody. Such a fitting of the TMDL to desired water quality criteria requires information concerning the distribution of loadings within the waterbody, namely, the locations and relative contributions of pollutant-specific loadings from point, nonpoint, and background sources during all flow conditions (40 *CFR* 130.2(f)). Low-flow TMDLs, by themselves, will not be adequate in situations where nonpoint source loadings (LAs) during high or intermediate flow conditions cause excursions above water quality standards (40 *CFR* 130.2(f)).

The loading capacity of TMDLs have been determined in many ways, but the most common method is to find the pollutant loading that will attain and maintain applicable water quality criteria. For example, in the Tualatin River Basin in Oregon, loading capacity was determined by multiplying stream flow in critical flow periods by the pollutant water quality standard [1]. Another method of determining a loading capacity is by quantifying instream toxicity. This method was used in developing a TMDL for the Amelia River in Florida [2].

The allowable TMDL is defined as the sum of the individual WLAs and LAs; a margin of safety can be included with the two types of allocations to ensure that allocated loads, regardless of source, would not produce an excursion above water quality standards. The WLAs are those portions of the TMDL assigned to point sources; the LAs are those portions of the TMDL assigned to the sum of all nonpoint sources and background sources (40 *CFR* 130.2(f)). The background sources represent loadings to the specified waterbody or stream segment that come from sources outside the defined segment. For example, loadings from regions upstream of the segment and estimated atmospheric deposition of the pollutant would constitute background sources. Sediments that are highly contaminated from upstream discharges or historical discharges might also act as a source of toxicants and contribute to the background levels; these sediments also may be part of the nonpoint sources.

The TMDL represents a mass loading that may occur over a given time period to attain and maintain water quality standards. As a result, the design flows under which the TMDL is determined can significantly alter its value. This phenomenon results in a somewhat unusual dichotomy. The design flows for aquatic life protection most applicable to point source loadings (WLAs) usually involve low-flow events (e.g., 7Q10) because the volumes associated with the point sources generally do not decrease with decreased stream flow. As a result, the highest concentrations associated with specific point source loads would be expected under low flow conditions. Conversely, elevated nonpoint source pollutant loadings (i.e., urban, agricultural) generally correspond to storm events. In fact, agricultural and urban runoff are often minimal or nonexistent in the absence of precipitation (i.e., nonexistent under low-flow drought conditions).

The TMDL is a composite of the allowable loads associated with point sources and nonpoint sources within the defined boundaries of the waterbody segment and the background loadings to that segment from upstream and from in-place sediments. Therefore, the TMDL should be evaluated under conditions that reflect worst-case (critical) conditions for both point and nonpoint source loadings (i.e., low-flow drought and high flow conditions). Determination of the TMDL under these two scenarios would identify the lower of the two loading capacities of the waterbody. This lower capacity is necessary to protect the waterbody in question.

In the case of design flows for human health protection, the harmonic mean flow is recommended as the basis for TMDLs for carcinogens. Design flows for human health protection should consider worst-case conditions for both point and nonpoint source loadings under this flow condition (see Section 4.6).

In many cases, LAs for nonpoint sources are difficult to assess because the information needed to describe the runoff associated with the high-flow storm events does not exist. This lack of information is due to the high variability of the events. Because of the importance of estimating the nonpoint contributions to the waterbody, site-specific models may be required to estimate nonpoint source loadings. Even then, detailed models are difficult to calibrate with accuracy without intensive monitoring studies, and simplistic correlations between loadings and rainfall can be, by their statistical nature, unreliable for estimating low-frequency events (e.g., worst 10-year storm). The uncertainties associated with nonpoint source loadings and background sources require that the TMDL be determined with a sufficient margin of safety to allow for significant variability in nonpoint source loadings.

CWA Section 303(d) and EPA regulations (40 *CFR* Parts 35 and 130, January 11, 1985) require that TMDLs contain a margin of safety "which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality." The margin of safety is to take into account any uncertainties related to development of the water quality-based control, including any uncertainties in pollutant loadings, ambient conditions, and the model analysis. The size of the required margin of safety can, of course, be reduced by collecting additional information, which reduces the amount of uncertainty. The margin of safety can be provided for in the TMDL process by one of the following:

- Reserving a portion of the loading capacity to a separate margin of safety.
- Including a margin of safety within the individual WLAs for point sources and within the LAs for nonpoint sources and background sources.

Most TMDLs are developed using the second approach, most often through the use of conservative design conditions.

In addition, all WLAs, LAs, and TMDLs must meet the State antidegradation provisions developed prusuant to the Water Quality Standards Regulation (Section 131.12 of 40 *CFR* Part 131,

November 8, 1983). This regulation establishes explicit procedures that must be followed prior to lowering existing water quality to a level that still supports the Section 101(a)(2) "fishable/swimmable" goal of the Act. WLAs, LAs, and TMDLs that allow such a decline in water quality cannot be established unless the applicable public participation and intergovern-mental review requirements of the antigradation provisions have been met and all existing uses are fully maintained and protected.

4.2.2 Wasteload Allocation Schemes

WLAs for water quality-based toxics permits must be set in accordance with EPA regulations [3, 4]. EPA has developed a number of WLA guidance documents to assist regulatory authorities in developing TMDLs and WLAs. The EPA Office of Water Regulations and Standards, Assessment and Watershed Protection Division, maintains the latest listing of all WLA guidance documents. Toxic WLA guidance documents are currently available for rivers and streams [5], lakes and reservoirs [6], and estuaries [7]. Guidance for the determination of critical design conditions for steady-state modeling of rivers and streams also is available [8].

Table 4-1 lists 19 allocation schemes that may be used by the States to develop WLAs. This is not intended to be a complete list of approaches; regulatory authorities may use any reasonable allocation scheme that meets the antidegradation provisions and other requirements of State water quality standards [3].

The most commonly used allocation methods have been equal percent removal, equal effluent concentrations, and a hybrid method. The equal percent removal approach can be applied in two ways: the overall removal efficiencies of each pollutant source must be equal, or the incremental removal efficiencies must be equal. The equal effluent concentration approach also can be applied in two acceptable ways—equal final concentrations or equal incremental concentration reductions. This method is similar to the equal percent removal method if influent concentrations at all sources are approximately the same. However, if one point source has substantially higher influent levels, requiring equal effluent concentrations will result in higher overall treatment levels for that source than the equal percent removal approach.

The final commonly used method of allocating wasteloads is a hybrid method in which the criteria for waste reduction may not be the same for each point source. One facility may be allowed to operate unchanged, while another may be required to provide the entire load reduction. More often, a proportionality rule that requires the percent removal to be proportional to the input loading can be assigned. In these cases, larger sources would be required to achieve higher overall removals.

4.3 INCOMPLETELY MIXED, DISCHARGE RECEIVING WATER SITUATIONS

Mixing zones are areas where an effluent discharge undergoes initial dilution and are extended to cover the secondary mixing in the ambient waterbody. A mixing zone is an allocated impact zone where acute and chronic water quality criteria can be exceeded as long as a number of protections are maintained, including freedom from the following:

- Materials in concentrations that settle to form objectionable deposits
- Floating debris, oil, scum, and other matter in concentrations that form nuisances

Table 4-1. Wasteload Allocation Methods [9]

1. Equal percent removal (equal percent treatment)
2. Equal effluent concentrations
3. Equal total mass discharge per day
4. Equal mass discharge per capita per day
5. Equal reduction of raw load (pounds per day)
6. Equal ambient mean annual quality (mg/l)
7. Equal cost per pound of pollutant removed
8. Equal treatment cost per unit of production
9. Equal mass discharged per unit of raw material used
10. Equal mass discharged per unit of production

11a. Percent removal proportional to raw load per day

11b. Larger facilities to achieve higher removal rates

12. Percent removal proportional to community effective income

13a. Effluent charges (dollars per pound, etc.)

13b. Effluent charge above some load limit

14. Seasonal limits based on cost-effectiveness analysis
15. Minimum total treatment cost
16. Best availability technology (BAT) (industry) plus some level for municipal inputs
17. Assimilative capacity divided to require an "equal effort among all dischargers"

18a. Municipal: treatment level proportional to plant size

18b. Industrial: equal percent between best practicable technology (BPT) and BAT, i.e., Allowable wasteload allocation:

$$(WLA) = BPT - \frac{X}{100}(BPT - BAT)$$

19. Industrial discharges given different treatment levels for different stream flows and seasons. For example, a plant might not be allowed to discharge when stream flow is below a certain value, but below another value, the plant would be required to use a higher level of treatment than BPT. Finally, when stream flow is above an upper value, the plant would be required to treat to a level comparable to BPT.

Tab 9

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 22 2002

OFFICE OF WATER

MEMORANDUM

SUBJECT: Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs

FROM: Robert H. Wayland, III, Director
Office of Wetlands, Oceans and Watersheds

James A. Hanlon, Director
Office of Wastewater Management

TO: Water Division Directors
Regions 1 - 10

This memorandum clarifies existing EPA regulatory requirements for, and provides guidance on, establishing wasteload allocations (WLAs) for storm water discharges in total maximum daily loads (TMDLs) approved or established by EPA. It also addresses the establishment of water quality-based effluent limits (WQBELs) and conditions in National Pollutant Discharge Elimination System (NPDES) permits based on the WLAs for storm water discharges in TMDLs. The key points presented in this memorandum are as follows:

NPDES-regulated storm water discharges must be addressed by the wasteload allocation component of a TMDL. See 40 C.F.R. § 130.2(h).

NPDES-regulated storm water discharges may not be addressed by the load allocation (LA) component of a TMDL. See 40 C.F.R. § 130.2 (g) & (h).

Storm water discharges from sources that are not currently subject to NPDES regulation may be addressed by the load allocation component of a TMDL. See 40 C.F.R. § 130.2(g).

It may be reasonable to express allocations for NPDES-regulated storm water discharges from multiple point sources as a single categorical wasteload allocation when data and information are insufficient to assign each source or outfall individual WLAs. See 40 C.F.R. § 130.2(i). In cases where wasteload allocations

are developed for categories of discharges, these categories should be defined as narrowly as available information allows.

The WLAs and LAs are to be expressed in numeric form in the TMDL. See 40 C.F.R. § 130.2(h) & (i). EPA expects TMDL authorities to make separate allocations to NPDES- regulated storm water discharges (in the form of WLAs) and unregulated storm water (in the form of LAs). EPA recognizes that these allocations might be fairly rudimentary because of data limitations and variability in the system.

NPDES permit conditions must be consistent with the assumptions and requirements of available WLAs. See 40 C.F.R. § 122.44(d)(1)(vii)(B).

WQBELs for NPDES-regulated storm water discharges that implement WLAs in TMDLs may be expressed in the form of best management practices (BMPs) under specified circumstances. See 33 U.S.C. §1342(p)(3)(B)(iii); 40 C.F.R. §122.44(k)(2)&(3). If BMPs alone adequately implement the WLAs, then additional controls are not necessary.

EPA expects that most WQBELs for NPDES-regulated municipal and small construction storm water discharges will be in the form of BMPs, and that numeric limits will be used only in rare instances.

When a non-numeric water quality-based effluent limit is imposed, the permit's administrative record, including the fact sheet when one is required, needs to support that the BMPs are expected to be sufficient to implement the WLA in the TMDL. See 40 C.F.R. §§ 124.8, 124.9 & 124.18.

The NPDES permit must also specify the monitoring necessary to determine compliance with effluent limitations. See 40 C.F.R. § 122.44(i). Where effluent limits are specified as BMPs, the permit should also specify the monitoring necessary to assess if the expected load reductions attributed to BMP implementation are achieved (e.g., BMP performance data).

The permit should also provide a mechanism to make adjustments to the required BMPs as necessary to ensure their adequate performance.

This memorandum is organized as follows:

(I). Regulatory basis for including NPDES-regulated storm water discharges in WLAs in TMDLs;

(II). Options for addressing storm water in TMDLs; and

(III). Determining effluent limits in NPDES permits for storm water discharges consistent with the WLA

(I). Regulatory Basis for Including NPDES-regulated Storm Water Discharges in WLAs in TMDLs

As part of the 1987 amendments to the CWA, Congress added Section 402(p) to the Act to cover discharges composed entirely of storm water. Section 402(p)(2) of the Act requires permit coverage for discharges associated with industrial activity and discharges from large and medium municipal separate storm sewer systems (MS4), i.e., systems serving a population over 250,000 or systems serving a population between 100,000 and 250,000, respectively. These discharges are referred to as Phase I MS4 discharges.

In addition, the Administrator was directed to study and issue regulations that designate additional storm water discharges, other than those regulated under Phase I, to be regulated in order to protect water quality. EPA issued regulations on December 8, 1999 (64 FR 68722), expanding the NPDES storm water program to include discharges from smaller MS4s (including all systems within "urbanized areas" and other systems serving populations less than 100,000) and storm water discharges from construction sites that disturb one to five acres, with opportunities for area-specific exclusions. This program expansion is referred to as Phase II.

Section 402(p) also specifies the levels of control to be incorporated into NPDES storm water permits depending on the source (industrial versus municipal storm water). Permits for storm water discharges associated with industrial activity are to require compliance with all applicable provisions of Sections 301 and 402 of the CWA, i.e., all technology-based and water quality-based requirements. See 33 U.S.C. §1342(p)(3)(A). Permits for discharges from MS4s, however, "shall require controls to reduce the discharge of pollutants to the maximum extent practicable ... and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." See 33 U.S.C. §1342(p)(3)(B)(iii).

Storm water discharges that are regulated under Phase I or Phase II of the NPDES storm water program are point sources that must be included in the WLA portion of a TMDL. See 40 C.F.R. § 130.2(h). Storm water discharges that are not currently subject to Phase I or Phase II of the NPDES storm water program are not required to obtain NPDES permits. 33 U.S.C. §1342(p)(1) & (p)(6). Therefore, for regulatory purposes, they are analogous to nonpoint sources and may be included in the LA portion of a TMDL. See 40 C.F.R. § 130.2(g).

(II). Options for Addressing Storm Water in TMDLs

Decisions about allocations of pollutant loads within a TMDL are driven by the quantity and quality of existing and readily available water quality data. The amount of storm water data available for a TMDL varies from location to location. Nevertheless, EPA expects TMDL authorities will make separate aggregate allocations to NPDES-regulated storm water discharges

(in the form of WLAs) and unregulated storm water (in the form of LAs). It may be reasonable to quantify the allocations through estimates or extrapolations, based either on knowledge of land use patterns and associated literature values for pollutant loadings or on actual, albeit limited, loading information. EPA recognizes that these allocations might be fairly rudimentary because of data limitations.

EPA also recognizes that the available data and information usually are not detailed enough to determine waste load allocations for NPDES-regulated storm water discharges on an outfall-specific basis. In this situation, EPA recommends expressing the wasteload allocation in the TMDL as either a single number for all NPDES-regulated storm water discharges, or when information allows, as different WLAs for different identifiable categories, e.g., municipal storm water as distinguished from storm water discharges from construction sites or municipal storm water discharges from City A as distinguished from City B. These categories should be defined as narrowly as available information allows (e.g., for municipalities, separate WLAs for each municipality and for industrial sources, separate WLAs for different types of industrial storm water sources or dischargers).

(III). Determining Effluent Limits in NPDES Permits for Storm Water Discharges Consistent with the WLA

Where a TMDL has been approved, NPDES permits must contain effluent limits and conditions consistent with the requirements and assumptions of the wasteload allocations in the TMDL. See 40 CFR § 122.44(d)(1)(vii)(B). Effluent limitations to control the discharge of pollutants generally are expressed in numerical form. However, in light of 33 U.S.C. §1342(p)(3)(B)(iii), EPA recommends that for NPDES-regulated municipal and small construction storm water discharges effluent limits should be expressed as best management practices (BMPs) or other similar requirements, rather than as numeric effluent limits. See *Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits*, 61 FR 43761 (Aug. 26, 1996). The Interim Permitting Approach Policy recognizes the need for an iterative approach to control pollutants in storm water discharges. Specifically, the policy anticipates that a suite of BMPs will be used in the initial rounds of permits and that these BMPs will be tailored in subsequent rounds.

EPA's policy recognizes that because storm water discharges are due to storm events that are highly variable in frequency and duration and are not easily characterized, only in rare cases will it be feasible or appropriate to establish numeric limits for municipal and small construction storm water discharges. The variability in the system and minimal data generally available make it difficult to determine with precision or certainty actual and projected loadings for individual dischargers or groups of dischargers. Therefore, EPA believes that in these situations, permit limits typically can be expressed as BMPs, and that numeric limits will be used only in rare instances.

Under certain circumstances, BMPs are an appropriate form of effluent limits to control pollutants in storm water. See 40 CFR § 122.44(k)(2) & (3). If it is determined that a BMP approach (including an iterative BMP approach) is appropriate to meet the storm water component of the TMDL, EPA recommends that the TMDL reflect this.

EPA expects that the NPDES permitting authority will review the information provided by the TMDL, see 40 C.F.R. § 122.44(d)(1)(vii)(B), and determine whether the effluent limit is appropriately expressed using a BMP approach (including an iterative BMP approach) or a numeric limit. Where BMPs are used, EPA recommends that the permit provide a mechanism to require use of expanded or better-tailored BMPs when monitoring demonstrates they are necessary to implement the WLA and protect water quality.

Where the NPDES permitting authority allows for a choice of BMPs, a discussion of the BMP selection and assumptions needs to be included in the permit's administrative record, including the fact sheet when one is required. 40 C.F.R.§§ 124.8, 124.9 & 124.18. For general permits, this may be included in the storm water pollution prevention plan required by the permit. See 40 C.F.R. § 122.28. Permitting authorities may require the permittee to provide supporting information, such as how the permittee designed its management plan to address the WLA(s). See 40 C.F.R. § 122.28. The NPDES permit must require the monitoring necessary to assure compliance with permit limitations, although the permitting authority has the discretion under EPA's regulations to decide the frequency of such monitoring. See 40 CFR § 122.44(i). EPA recommends that such permits require collecting data on the actual performance of the BMPs. These additional data may provide a basis for revised management measures. The monitoring data are likely to have other uses as well. For example, the monitoring data might indicate if it is necessary to adjust the BMPs. Any monitoring for storm water required as part of the permit should be consistent with the state's overall assessment and monitoring strategy.

The policy outlined in this memorandum affirms the appropriateness of an iterative, adaptive management BMP approach, whereby permits include effluent limits (e.g., a combination of structural and non-structural BMPs) that address storm water discharges, implement mechanisms to evaluate the performance of such controls, and make adjustments (i.e., more stringent controls or specific BMPs) as necessary to protect water quality. This approach is further supported by the recent report from the National Research Council (NRC), *Assessing the TMDL Approach to Water Quality Management* (National Academy Press, 2001). The NRC report recommends an approach that includes "adaptive implementation," i.e., "a cyclical process in which TMDL plans are periodically assessed for their achievement of water quality standards" . . . and adjustments made as necessary. *NRC Report* at ES-5.

This memorandum discusses existing requirements of the Clean Water Act (CWA) and codified in the TMDL and NPDES implementing regulations. Those CWA provisions and regulations contain legally binding requirements. This document describes these requirements; it does not substitute for those provisions or regulations. The recommendations in this memorandum are not binding; indeed, there may be other approaches that would be appropriate

in particular situations. When EPA makes a TMDL or permitting decision, it will make each decision on a case-by-case basis and will be guided by the applicable requirements of the CWA and implementing regulations, taking into account comments and information presented at that time by interested persons regarding the appropriateness of applying these recommendations to the particular situation. EPA may change this guidance in the future.

If you have any questions please feel free to contact us or Linda Boornazian, Director of the Water Permits Division or Charles Sutfin, Director of the Assessment and Watershed Protection Division.

cc:
Water Quality Branch Chiefs
Regions 1 - 10

Permit Branch Chiefs
Regions 1 - 10

Tab 10

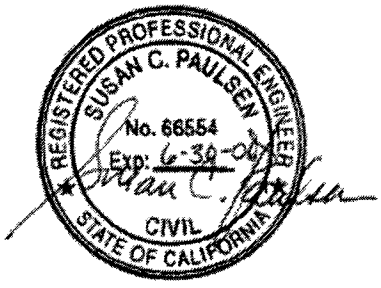
Flow Science Incorporated
723 E. Green St., Pasadena, CA 91101
(626) 304-1134 • FAX (626) 304-9427

STORM WATER AND BEST MANAGEMENT PRACTICES ANALYSIS

Prepared
for

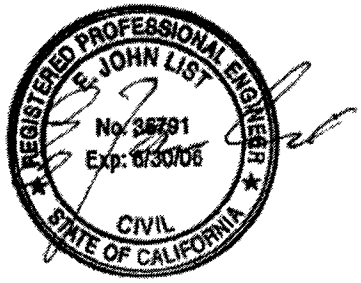
Western States Petroleum Association
1415 L Street, Suite 600
Sacramento, CA 95814

Prepared By:



Susan Paulsen, Ph.D., P.E.
Vice President, Senior Scientist

Reviewed By:



E. John List, Ph.D., P.E.
President

FSI 044018
February 18, 2005

FLOW SCIENCE®

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EXECUTIVE SUMMARY

Flow Science was retained by the Western States Petroleum Association (WSPA) to review available information and data to characterize the contribution of storm water runoff from industrial facilities and from WSPA member facilities to receiving waters in Los Angeles County. Flow Science evaluated storm water discharge and receiving water data collected by Los Angeles County, by SCCWRP, and directly by WSPA facilities. Because of concerns that metals concentrations in storm water runoff may contribute to exceedances of water quality objectives in receiving waters, and because more metals data are available than data for other water quality constituents, this analysis focused on total and dissolved concentrations of copper, nickel, and zinc.

Several industrial facilities have been issued NPDES permits for discharges of storm water based on California Toxics Rule (CTR) criteria applied as end-of-pipe limitations. WSPA also requested that Flow Science evaluate EPA's intentions for the use of CTR for storm water discharges by reviewing several regulatory support documents in EPA's record supporting the adoption of CTR criteria. Flow Science also evaluated how CTR levels could be used as a basis for the derivation of scientifically appropriate permit limits. Finally, Flow Science evaluated Best Management Practices (BMPs) prevention and control options. GeoSyntec Consultants, Inc. contributed to and supported the BMP analysis.

Basic conclusions of our review are as follows:

- **Storm water quality and quantity vary significantly year to year, storm to storm, and within a single storm event.** Storm water pollutant concentrations can vary by more than an order of magnitude during a single storm event. Variations in storm water runoff quality and quantity should be carefully taken into account when developing storm water management policies and when regulating storm flow water quality.

- **Untreated storm water runoff from WSPA facilities exhibits similar water quality to runoff from several other major land use categories.** Concentrations of both total and dissolved metals in storm water runoff from the WSPA facilities examined here before they have been processed through structural BMPs, such as oil-water separators or retention basins, are generally equivalent to (or in many cases, lower than) concentrations in storm water runoff from light industrial and transportation land uses within Los Angeles County. Similarly, concentrations in runoff from WSPA facilities are comparable to concentrations in receiving waters during storm events.

- **Runoff from the WSPA facilities examined in this report would likely <u>not</u> increase receiving water concentrations of metals in Dominguez Channel.** Storm water runoff from the WSPA member facilities examined here is unlikely to increase concentrations of copper, nickel, or zinc in receiving waters. Industrial facilities constitute a small portion (approximately 6.4%) of the land within the watershed. WSPA facilities are in turn a

small portion of this fraction. Storm water discharges from the WSPA facilities examined here are generally small, when they occur at all, and are generally of better quality than both discharges from transportation and light industrial land uses and receiving waters in Dominguez Channel.

- **EPA did not intend for CTR limits to be applied directly to storm water.** A review of the documentation prepared by the US Environmental Protection Agency to establish the numeric objectives contained in the California Toxics Rule (CTR) clearly demonstrates that EPA did not intend for these objectives to be applied as end-of-pipe, never-to-be-exceeded effluent limitations for storm water discharges.

- **Calculation of scientifically appropriate numeric limits would require consideration of frequency, duration, and magnitude.** Because of the inherent variability in the flows and concentrations of storm water discharges and receiving waters, developing numeric limits would require a dynamic modeling approach that should be based upon evaluation of appropriate data sets. Data requirements include discharge and receiving water concentration and flow data, collected more frequently than once per hour over the duration of a storm event and over multiple storm events. Neither data sets nor an accepted methodology appropriate for the calculation of numeric permit limits currently exist. Application of CTR limits as never-to-be-exceeded values applied at the end-of-pipe would be inappropriate and would essentially require compliance with lower-than-CTR levels.

- **EPA's approach for the use of iterative BMPs with benchmarks is a sensible regulatory approach to control storm water discharges from industrial facilities.** EPA acknowledges the intermittent, highly variable nature of storm flows and the difficulty in calculating defensible numeric effluent limitations. EPA has used the benchmark approach to employing iterative BMPs to regulate storm water in other jurisdictions. Absent data and an appropriate methodology to calculate scientifically appropriate permit limitations, this approach is sensible for discharges of storm water from industrial facilities in California.

- **BMPs at WSPA facilities are effective in reducing pollutant loads.** Many WSPA facilities employ extensive on-site BMPs, including oil-water separators and on-site retention. Retention ponds have significantly reduced pollutant loads by limiting storm water discharges from these facilities. Several of these facilities have experienced no discharges to receiving waters in recent years. Available data, which are somewhat limited because discharges have been limited, demonstrate that concentrations of metals in post-BMP storm water discharges from these facilities are generally better than storm water quality from several major land use types within Los Angeles County and in receiving waters during storm events.

- **Conventional structural BMPs cannot reduce pollutant concentrations in storm water to meet numeric CTR limits consistently over the wide-ranging conditions of storms.** Flow Science and GeoSyntec evaluated conventional structural BMP efficiencies from data published by ASCE and USEPA. These data demonstrate that although conventional structural BMPs can be effective at reducing pollutant loads, conventional BMPs cannot consistently achieve pollutant reductions sufficient to meet numeric CTR levels. Physical constraints such as land availability can also limit the applicability and effectiveness of some structural BMPs, such as retention ponds and wetlands.

- **Operating sophisticated treatment facilities to consistently meet numeric limits at CTR levels is difficult at best.** Treatment beyond conventional BMP management will likely require either large on-site storage capacity to allow for moderate treatment flow rates or more sophisticated treatment options that could treat large flow volumes in a very short period of time. These operating constraints will make compliance with numeric limits at CTR levels exceedingly difficult.

INTRODUCTION

Several industrial facilities have recently been issued NPDES permits or tentative permits that include effluent limitations that are based upon California Toxics Rule (CTR) criteria and that apply to storm flows from those facilities. In most cases, these sites have no process wastewater or continuous flows that are subject to permits. Other facilities segregate storm flows from process and non-process areas, discharging only storm flows from non-process areas, under specific conditions, to receiving waters. These permits apply CTR criteria directly as storm water discharge limitations, without consideration of dilution, without determination of reasonable potential or calculation of appropriate numeric effluent limitations, without a definitive sampling protocol beyond a single grab sample, and without provisions that would specify an allowable exceedance frequency.

In response to concerns about these developments, the Western States Petroleum Association (WSPA) and its members retained Flow Science to conduct a technical evaluation of existing storm water data in Los Angeles County to address the contribution of industrial storm water discharges to receiving water quality. The Flow Science technical analysis incorporates five major components:

(1) a review of available water quality data from various land use types within Los Angeles County;

(2) a review of storm water discharges from WSPA member facilities;

(3) a comparison of storm water discharges from WSPA member facilities to Los Angeles County data and to Dominguez Channel receiving water data;

(4) a review of the regulatory basis for CTR limitations and the support (or lack of support) for applying CTR limitations as numeric limits applicable to storm water discharges; and

(5) a review of best management practices (BMPs) and their ability to reduce concentrations of metals in storm water.

Flow Science received assistance from GeoSyntec Consultants, Inc. in addressing the treatment efficiency of BMPs and in evaluating BMPs used at WSPA member facilities.

REVIEW OF STORM WATER QUALITY DATA

Flow Science conducted a detailed analysis of available data to characterize the contribution of storm water runoff from industrial facilities, and from petroleum facilities in general. Several types of water quality data were available and were utilized in support of this analysis, including storm water data collected throughout Los Angeles County by land use, receiving water concentration data, and storm water data collected directly from industrial facilities. Because of concerns that metals concentrations in storm water runoff may contribute to exceedances of water quality objectives in receiving waters, and because more metals data are available than data for other water quality constituents, this analysis focused on total and dissolved concentrations of copper, nickel, and zinc.

Land Use Data

The Los Angeles County Department of Public Works (LACDPW) has collected samples to monitor and characterize the quality of storm water since the 1994-95 storm season. Results from the first six years of this effort are summarized in the *Los Angeles County 1994 -2000 Integrated Receiving Water Impacts Report.* Results of samples collected during subsequent years are summarized in reports for each storm season (LACDPW, 2001; LACDPW, 2002; and LACDPW, 2003). Flow Science has reviewed these reports and has obtained and reviewed the underlying sample data in the preparation of this report.

Prior to and including the 2000-2001 storm season, water quality was assessed based on catchments that were carefully defined to be representative of specific land uses. During the 2001-2002 storm season, the LACDPW embarked upon a watershed approach to storm water management, which focuses on receiving water impacts and does not collect samples by distinct land use catchments. As discussed below, LACDPW also has reported analytical results for receiving water samples collected within the County.

Data available for the 1994-2001 time period were collected and categorized by land use. LACDPW began this study by establishing the top 12 urban uses within Los Angeles County based on total area. The land use types that were anticipated to be the most important contributors to receiving water loadings for key constituents were prioritized by LACDPW as follows:

- Vacant (S11)
- High Density Single Family Residential (S18)
- Light Industrial (S24)
- Transportation (S23)
- Multifamily Residential (S26)
- Educational Facilities (S25)
- Mixed Residential (S27)

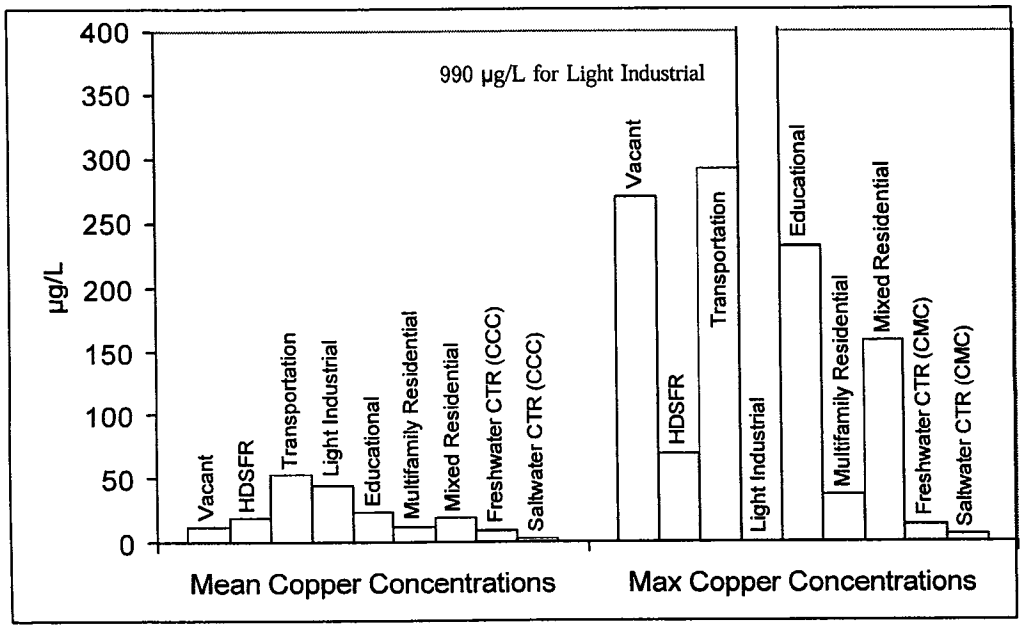
LACDPW then defined sampling locations to correspond to each of these land use types. For

each of these major land uses, Flow Science utilized the raw data (i.e., analytical results for all samples collected) to determine the minimum, maximum, and mean (average) concentration of six constituents in storm water runoff from the most significant land use types. The approach Flow Science used to calculate mean concentrations was consistent with the methodology used by LACDPW to prepare the LACDPW summary reports, as follows:

1. Summary statistics were computed when more than 20% of the sample analysis results were above the method detection limits.
2. Summary statistics were computed when the data set for each land use contained at least 2 detections.
3. In the computation of mean (average) concentrations, half of the detection limit is substituted for non-detects.

The Los Angeles County land use data are tabulated and graphed in Appendix A. These data clearly show that dissolved and total metals concentrations in storm water runoff from all land uses vary greatly from storm to storm. Figure 1 presents results for total copper, which is representative of trends observed in the data for other metals. As shown in this figure, maximum concentrations of total copper observed for all the storms tend to be highest for the light industrial land use (off scale), but average concentrations from this land use are comparable to average concentrations from other land uses and are significantly lower than maximum concentrations. The large differences between maximum and average concentrations are again indicative of the high degree of variability in concentrations during and between storm events. Maximum concentrations from all land uses exceed CTR requirements, as do average concentrations for many land uses.

Figure 1 – Total Copper Concentration from Land Uses and CTR



Receiving Water Data

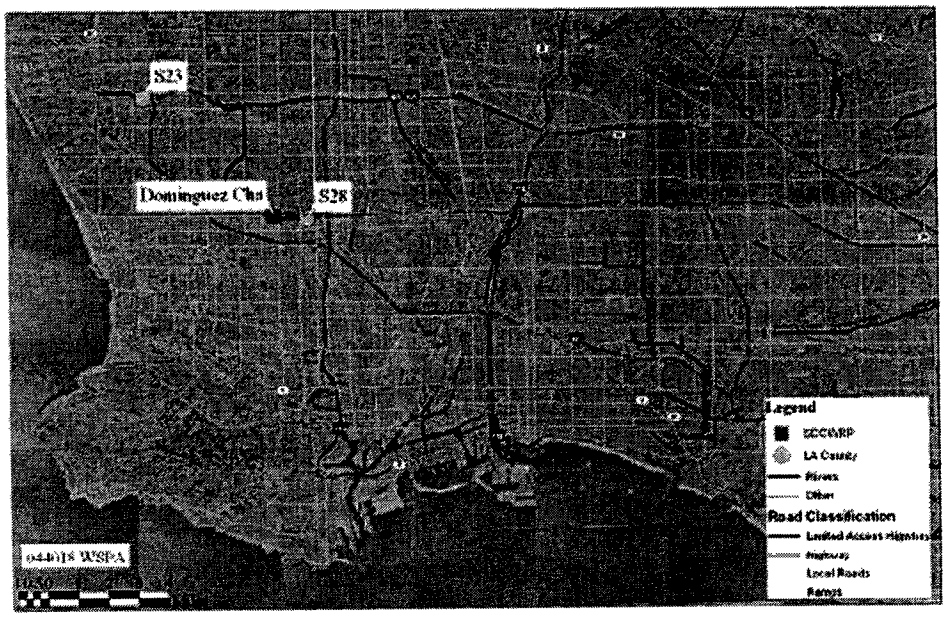
The LACDPW has also reported analytical results for receiving water samples collected within the County. In Dominguez Channel, LACDPW monitors water quality at two receiving water locations during storm events. Station S23 is located near Los Angeles International Airport (LAX) in the Dominguez Channel at 116th Street. Station S23 is located in the northern end of Dominguez Channel and was selected by LACDPW to represent the transportation land use for the 1994-2001 land use data analysis presented in the previous section. Flow Science evaluated metals concentrations in composite storm water samples collected at this location from February 1996 through April 2001.

LACDPW monitoring station S28 is located farther downstream in Dominguez Channel and was established to assess compliance with the 2001 storm water permit. Flow Science evaluated composite storm water sample data collected at Station S28 from October 2002 through April 2003.

Flow Science also evaluated grab sample data collected from Dominguez Channel during a single storm event in March 2002 by the Southern California Coastal Water Research Project (SCCWRP).

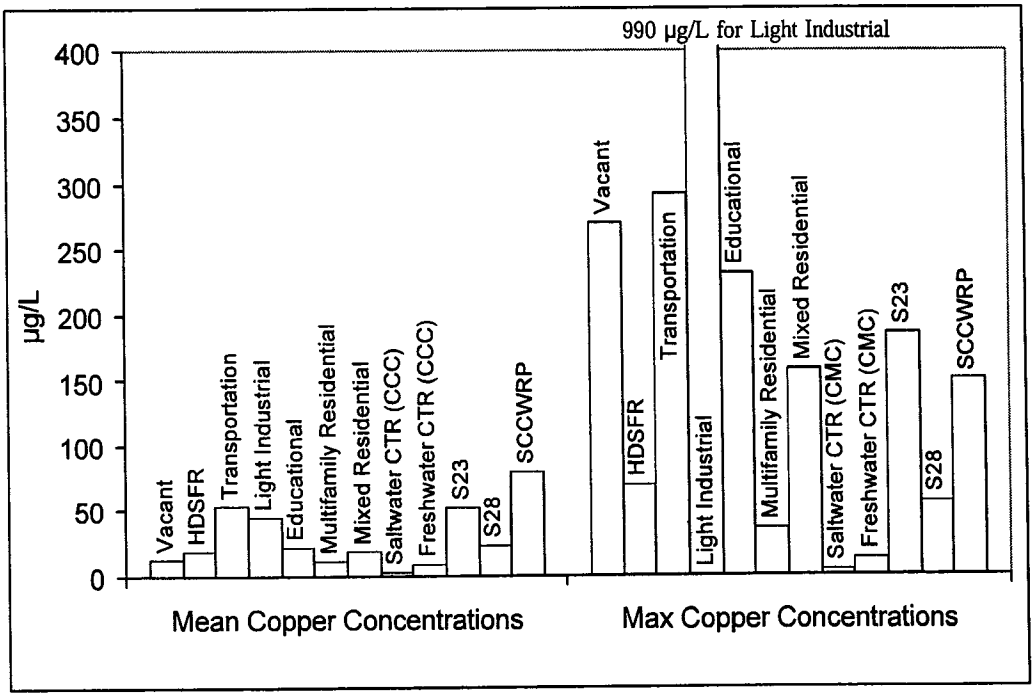
Receiving water sample collection locations are shown in Figure 2. All receiving water stations are located upstream of all the facilities for which data are presented in the next section of this report. The data collected from these stations are also summarized in plots presented in Appendix B.

Figure 2 – Project Location Map



As with the LACDPW 1994-2001 data, plots including receiving water data demonstrate that dissolved and total metals concentrations in the receiving water vary significantly within storms and from storm to storm. Figure 3 below compares total copper data collected from the receiving water to the land use data presented in Appendix A and to CTR criteria. Note that the maximum concentrations for Stations S23 and S28 are maximum concentrations observed in composite samples; instantaneous (grab sample) maximum concentrations would be significantly higher than shown in Figure 3. The monitored average and maximum concentrations in Dominguez Channel exceed CTR criteria.

Figure 3 – Dominguez Channel Compared to LA County Land Use – Total Copper



Further, as shown in Figure 3 for total copper and in the figures presented in Appendix B for the other metals, average receiving water concentrations of total copper, nickel, and zinc in samples collected in Dominguez Channel by SCCWRP exceeded the average total metals concentrations in runoff from the major land use categories defined by LACDPW (see Appendix A) except for zinc discharges from the light industrial land use. These data raise two issues:

1. Despite the fact that average concentrations in receiving waters exceed average concentrations from the major land uses, the receiving water sample maxima are below many of the maximum concentrations observed in the land use data for copper, nickel, and zinc. **This highlights the inadequacy of determining compliance and/or assessing impairments based on single grab samples. These data also confirm the highly variable nature of metals concentrations**

during storms that makes the determination of scientifically appropriate compliance limits very difficult.

2. Since none of the WSPA member facilities examined in this report discharged to Dominguez Channel during the time period when the SCCWRP data were collected (see discussion in the next section), and since these WSPA facilities are downstream from the receiving water measurement locations, the SCCWRP measurements do not reflect any use of the Channel by these WSPA facilities. Thus, **storm water from several of the major land uses within the watershed (and not from the subject facilities) must be largely responsible for the metals fluxes observed in Dominguez Channel. Even if discharges from the WSPA facilities had occurred during this storm event, they would not have increased pollutant concentrations in the Channel.**

Storm Water Data for WSPA Facilities

Concentrations of total and dissolved metals have been collected from several WSPA member facilities. These facilities collect data in several different formats. For example, some facilities collect only total metals data, while others collect both total and dissolved metals data. Some data are collected at the inflow point to structural BMPs located at the facilities (i.e., pre-BMP data, e.g. from the location where storm water flows into detention basins) while others collect samples from within detention facilities (i.e., subject to some degree of BMP management). Despite differences in data collection methods and locations, the data are useful in evaluating whether or not storm water runoff from these facilities is likely to increase receiving water concentrations of metals. A brief description of the facilities and data examined in this report is presented below. In order to maintain confidentiality, facilities are identified generically.

Facility A. Facility A is located within the Dominguez Channel watershed. Storm water samples have been collected since 2002 from two locations at Facility A: an on-site retention basin (Location 1) and the location downstream of on-site BMPs (Location 2) where discharge to Dominguez Channel would occur if on-site retention capacities were exceeded. Facility A collects data for total metals only. Only three discharges to receiving water have occurred from Facility A during the current permit term, which extends from 11/8/01 to 8/10/06. These discharges (and the reported volume discharged) occurred on 2/12/03 (7,450 gallons), 2/25/03 (35 gallons), and 4/15/03 (volume not reported). For the event occurring on 2/12/03, Facility A collected data from both Locations 1 (pre-retention basin) and 2 (discharge to receiving water).

Facility B. Facility B is located within the Dominguez Channel watershed. At Facility B, storm water from process areas is segregated from storm water from non-process areas. Only storm water data from non-process areas are considered here. This facility collects and treats storm water from non-process areas via a variety of BMPs, including on-site retention basins.

Storm water from non-process areas is collected prior to entering two on-site retention basins (i.e., prior to BMP treatment) at Locations 1 and 2; these samples are analyzed for both total and dissolved metals. Data are available from 2002 and 2003, and include samples collected at 20-minute intervals for four discrete storm events. Discharge from this facility to the receiving water has not occurred since 1998, and no sample data were available for the 1998 discharge event.

Facility C. Facility C is located within the Los Angeles River watershed. This facility includes two possible discharge locations: Location 1 includes runoff from storage facilities, and Location 2 includes runoff from on-site transportation areas. Runoff is also collected from Location 3, a parking area. Only a limited number of samples were collected from this facility (two samples from Location 1 in 2002-2003, two samples from Location 2 in 2001-2003, and one sample from Location 3 in 2001). The samples collected at Locations 1 and 2 were collected during releases of storm water to the Los Angeles River. Samples from Facility C were analyzed for total (not dissolved) metals.

Facility D. Facility D is located within the Dominguez Channel watershed. Only a limited number of storm water samples are available from facility D, including one sample for total metals from Location 1, three samples for dissolved metals from Location 2, and one sample each from Locations 3 and 4. Samples from Facility D were collected only when a discharge to receiving water occurred; discharge volumes were not reported. Three releases to receiving water from Facility D have occurred since 1998. In addition, eleven storm water samples were collected from Facility D by SCCWRP during a single storm event in March 2003 at a location near to Location 1 (and called Location 5 here).

Facility E. Facility E is located within the Dominguez Channel watershed and impounds and retains non-commingled storm water on-site. Two outfall locations are specified in the current permit; one would release only non-commingled storm water, while the other is for emergency discharges only and is intended to protect the facility from flooding during extreme flood events. Neither outfall has discharged to the receiving water during the current permit term (8/99 – 8/04).

Facility F. This facility is a refined products petroleum distribution terminal. Storm water from product handling areas is segregated and processed with process water. Storm water from other areas of the facility is collected in on-site storage and is released only if the on-site storage capacity is exceeded. No releases have occurred since at least 1999. Metals data are not collected at this facility.

Summary data are provided for these facilities in Appendix C, which shows the average, minimum, and maximum concentrations for grab samples for the available data, as described above. Indicated on each plot is the number of data points for each facility/location and the time span over which those data were collected. Appendix D includes time series concentration plots for single storm events; data are presented for four storm events monitored at Facility B, Locations 1 and 2, and one storm event monitored at Facility F.

Concentrations in Runoff at WSPA Facilities

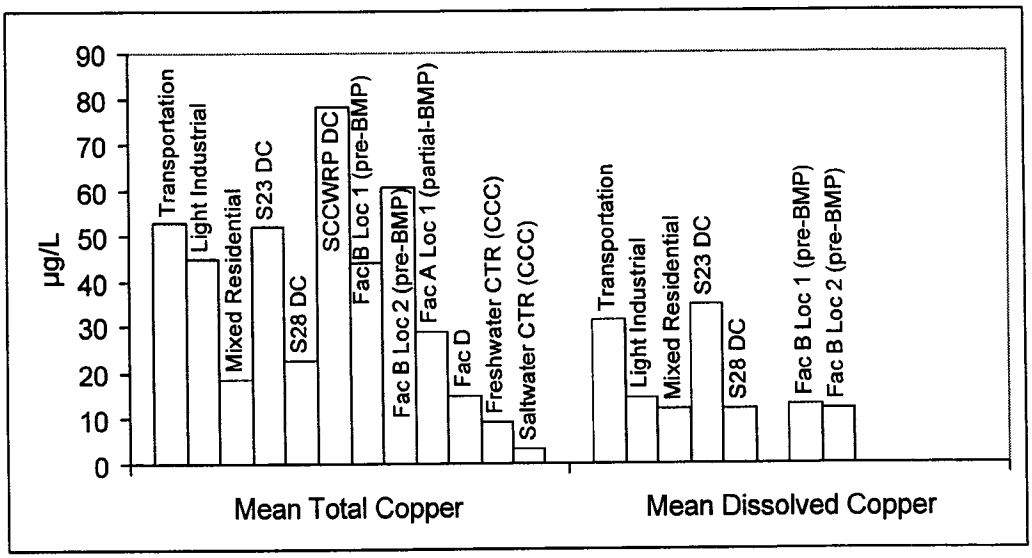
The plots in Appendices C and D again show that the metals concentrations in the storm water runoff at the WSPA facilities vary greatly from storm to storm and from facility to facility. As shown in Appendix D, time series data for storm water collected on-site at WSPA member facilities demonstrate a high degree of variability in metals concentrations during individual storm events. For example, total metals data from Facility B demonstrate that total metals concentrations in storm water may vary by a factor of ten or more on time scales of a few hours or less. A typical storm water sample is a grab sample that may be collected at any point during a storm event or period of discharge. Because of the high variability in concentrations during storm events, a long-term average concentration would provide a more reliable estimate of the pollutant concentration and loading to the receiving water. Further, data demonstrate that mean concentrations of dissolved metals in runoff from the WSPA facilities are generally equal to or less than concentrations of dissolved metals in runoff from transportation, light industrial, and mixed residential land uses or in receiving water samples (see Figures 4, 6, and 8 for mean dissolved and total concentrations of copper, nickel, and zinc, respectively). Because the dissolved fraction is most closely associated with toxicity in the receiving water, these data indicate that storm water runoff from WSPA member facilities is unlikely to contribute to an increase in receiving water toxicity.

COMPARISON OF METALS CONCENTRATIONS

Copper

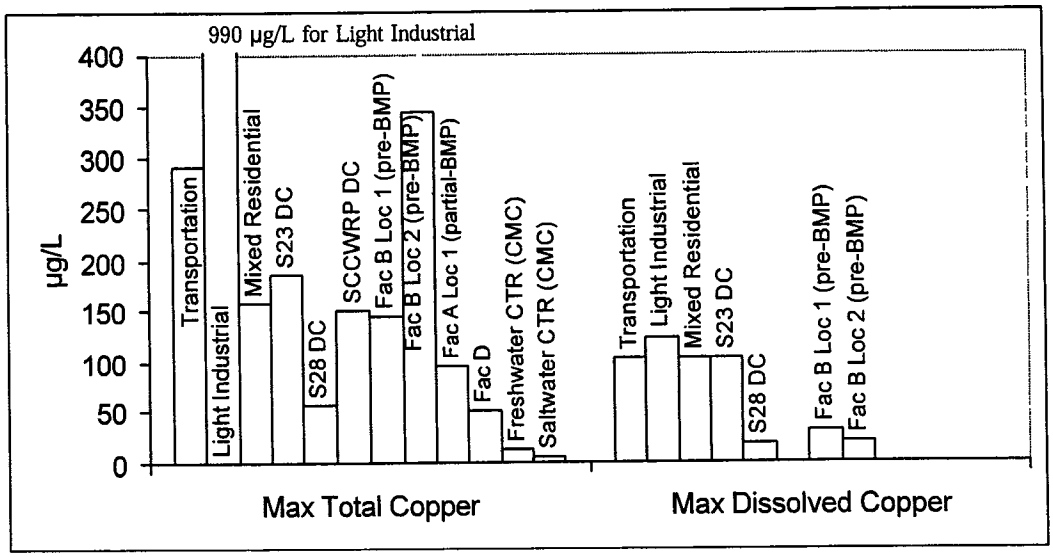
As shown in Figure 4, the highest observed mean concentrations of total copper in Dominguez Channel were contained in the SCCWRP dataset (i.e., receiving water samples). Mean total copper concentrations in storm water from Facility A, Location 1 (collected after some time in the retention basin, and thus some level of BMP management) are lower than concentrations from the transportation and light industrial land uses and much lower than mean total copper concentrations measured by SCCWRP in Dominguez Channel. Mean total copper concentrations in storm water collected at Facility B (collected before BMP management, and thus likely significantly higher than concentrations that would be released to receiving waters) are comparable to concentrations from the transportation and light industrial land uses, lower than concentrations measured by SCCWRP in the Dominguez Channel receiving water, and comparable to concentrations measured at station S23 in the Dominguez Channel.

Figure 4 – Dissolved and Total Copper (Mean of all Available Samples)



Maximum observed concentrations of total copper in storm water runoff from Facility B (collected prior to detention) (see Figure 5) are likely significantly higher than concentrations that would be released from this facility after BMP management (see discussion of BMP effectiveness below). These concentrations are within the range of maximum concentrations observed in runoff from other land uses and within the receiving water.

Figure 5 – Dissolved and Total Copper (Max of all Available Samples)



Of the five facilities located within the Dominguez Channel watershed, only two have experienced discharges to the receiving water in recent years. Discharge volumes from Facility A were small, and discharge volumes from Facility D were not recorded. With no discharges, Facilities B, C, and E cannot have contributed to receiving water concentrations of copper since 1998. Discharges (and mass fluxes) from Facilities A and D are believed to be minor, with maximum concentrations less than the maximum concentrations observed by SCCWRP and less than those observed in composite samples collected by LACDPW at station S23 in Dominguez Channel. Thus, it is unlikely that these facilities could have contributed to increases in the receiving water concentrations observed in the channel. From the total copper concentrations presented in Figures 4 and 5, it is unlikely—even in the case that storm water from all five of these facilities was to be discharged to Dominguez Channel—that storm water from the facilities examined here would result in increased concentrations of total copper in the Dominguez Channel receiving water.

Mean concentrations of dissolved copper from Facility B (the only facility for which dissolved copper concentrations are available) were collected prior to BMP management and are equivalent to concentrations from the mixed residential land use and concentrations measured within Dominguez Channel at station S28. Figure 5 also clearly indicates that the maximum observed dissolved copper concentrations from the three land uses shown here, and from composite samples collected at station S23 within Dominguez Channel, exceed the maximum dissolved copper concentrations in runoff from the WSPA facilities examined here. Again, it is unlikely that storm water discharges from the facilities examined here would result in increased concentrations of dissolved copper (or of toxicity) in the Dominguez Channel receiving water.

Nickel

As shown in Figure 6, mean concentrations of dissolved nickel in runoff from Facility B (collected prior to BMP management) are comparable to concentrations of dissolved nickel in runoff from the transportation and light industrial land uses, and are lower than concentrations in the receiving water at station S28. Maximum concentrations of dissolved nickel are shown in Figure 7 and follow the same trend.

Figure 6 – Dissolved and Total Nickel (Mean of all Available Samples)

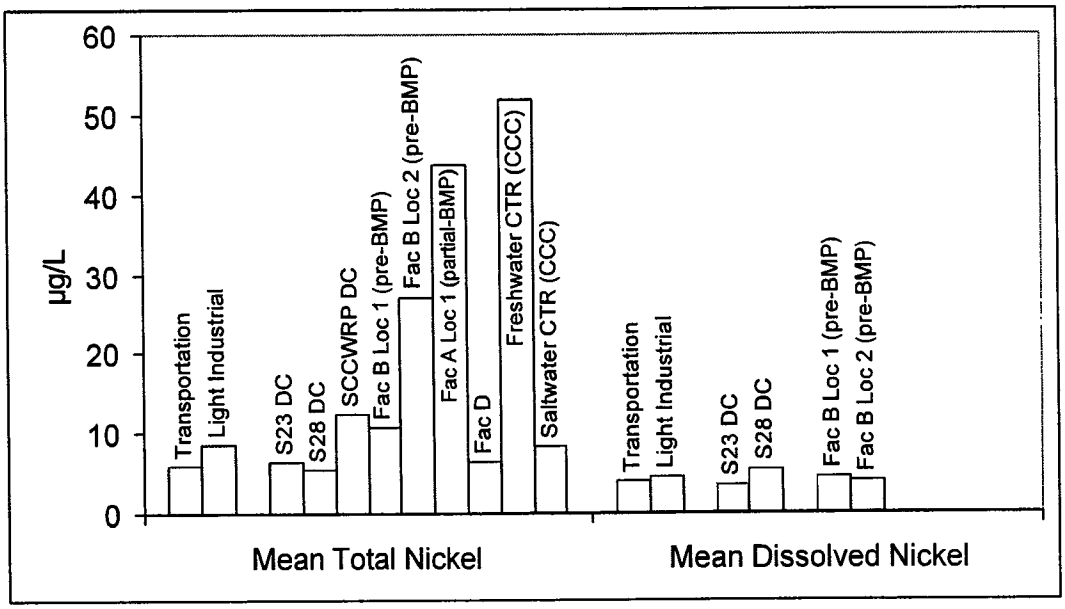
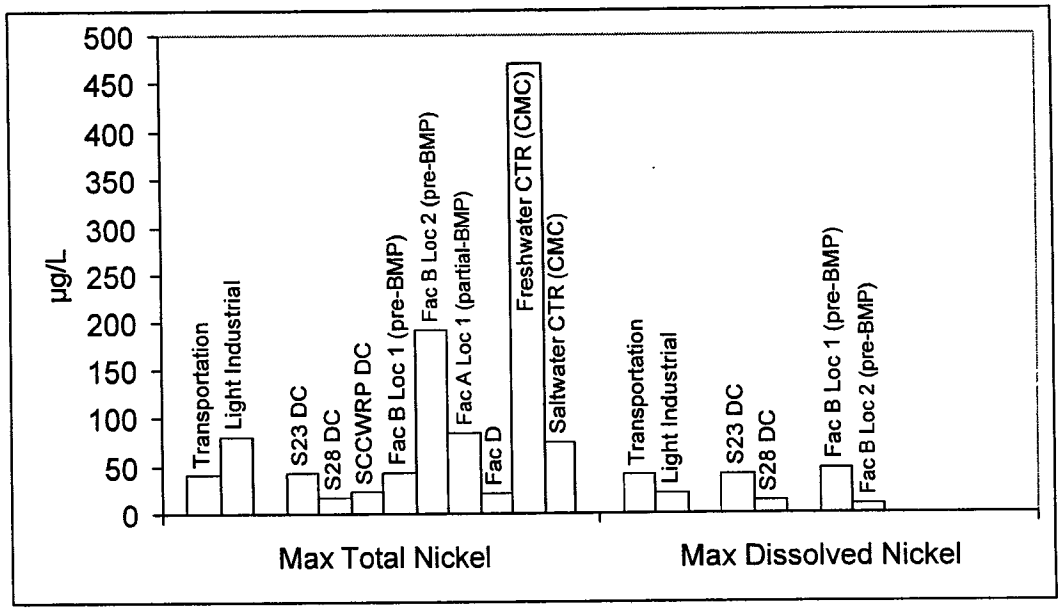


Figure 7 – Dissolved and Total Nickel (Max of all Available Samples)



As discussed above for copper, only intermittent releases of storm water from two of the five facilities examined have occurred in recent years. Based on these data, even in the case that a release of storm water from all facilities were to occur, it is unlikely that storm water runoff

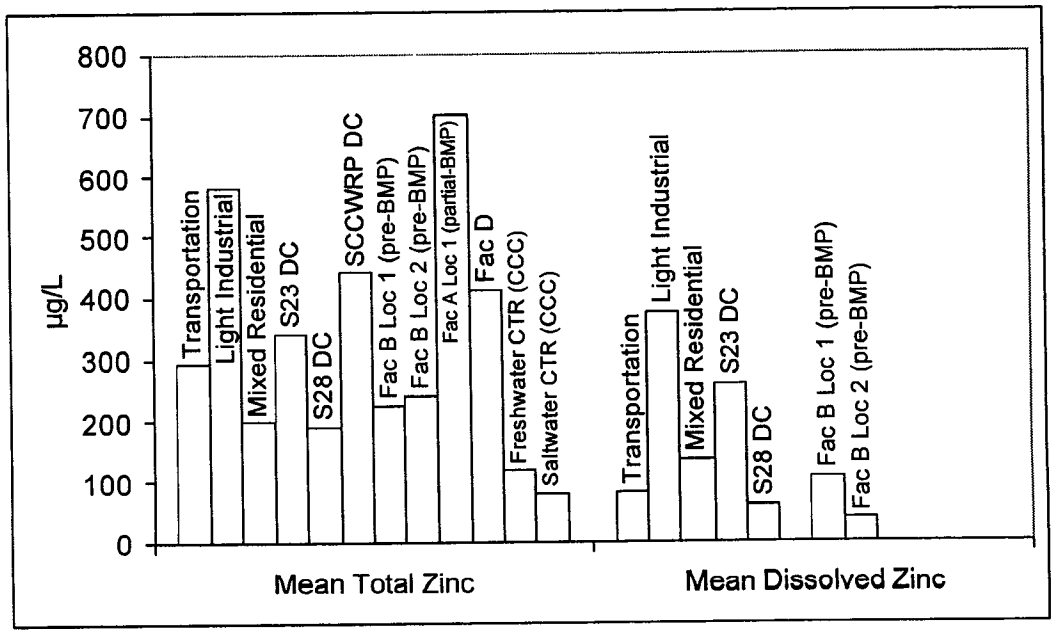
from this facility would increase concentrations of dissolved nickel (or increase toxicity due to dissolved nickel) in the receiving water.

Mean concentrations of total nickel in storm water samples collected from Facility B, Location 2 (collected pre-retention) and Facility A, Location 1 (collected after some detention time) are greater than mean concentrations of total nickel from the land uses examined. With the exception of three samples from Facility B, Location 2 (again, collected prior to on-site retention BMP management), maximum total nickel concentrations from the facilities are less than maximum concentrations in storm water runoff from the light industrial land use. Note that the maximum concentrations of total nickel in storm water collected at the facilities are likely significantly higher than the maximum concentrations of total nickel that would be released to receiving waters, if any releases from each of these facilities had occurred in recent years, as BMP treatment via detention basins will significantly reduce total metals concentrations. (See the discussion of BMP effectiveness below.)

Zinc

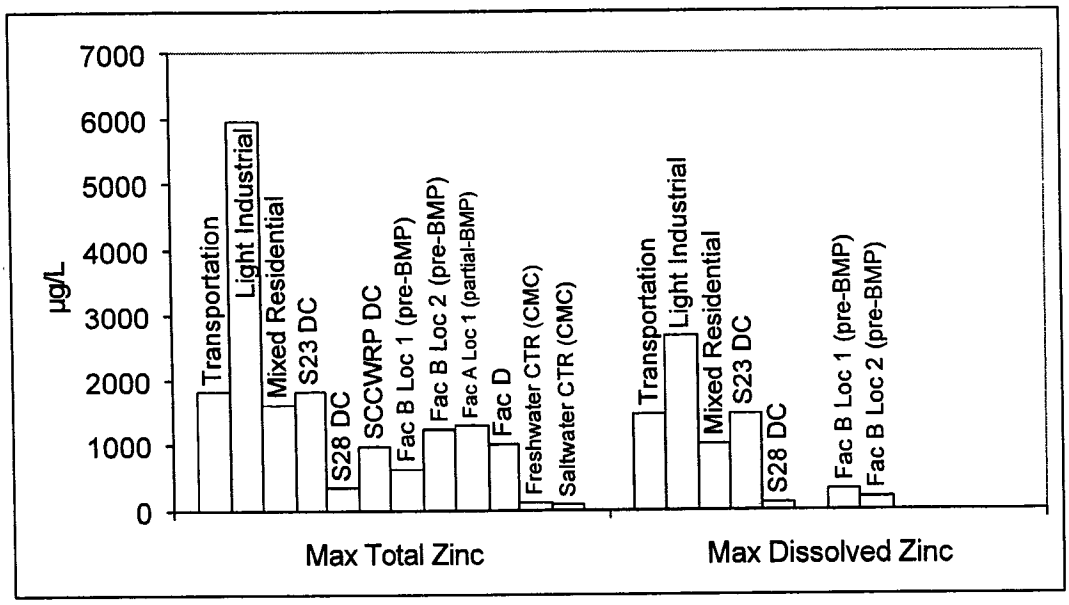
As shown in Figures 8 and 9, dissolved zinc concentrations in runoff from the WSPA facilities are lower than dissolved zinc concentrations in runoff from light industrial and mixed residential land use and lower than concentrations in receiving water composite samples at S23. The maximum dissolved zinc concentrations are significantly lower than maximum observed values from all land uses and in the receiving water at station S23. Even if routine releases of storm water from these facilities were to occur, it is unlikely that facilities could increase concentrations of dissolved zinc in the receiving water.

Figure 8 – Dissolved and Total Zinc (Mean of all Available Samples)



Analysis results are similar for total zinc. The mean concentrations of total zinc from the WSPA facilities are comparable to or lower than the mean concentrations from the various land uses shown in Figure 8, while the maximum total zinc concentrations in storm water runoff collected at the facilities are lower than the maximum concentrations in runoff from the land uses presented in Figures 8 and 9. Note again that samples of storm water from Facility B are collected as the storm water flows into detention basins (i.e., before BMP management) and concentrations of mean and maximum total zinc are likely significantly higher than concentrations after BMP management. Three of the five facilities examined have had no releases to receiving water in recent years, and thus cannot have contributed to concentrations in receiving water during that time period. The other two facilities have had only intermittent discharges to Dominguez Channel since 1998, and are not believed to have contributed significantly to observed concentrations in receiving water since that time. As with dissolved zinc, it is unlikely that, if releases of storm water impounded at these facilities were to occur, these releases would increase receiving water concentrations of total zinc.

Figure 9 – Dissolved and Total Zinc (Max of all Available Samples)



Metals Fluxes from WSPA Facilities

Flow Science calculated metals fluxes from flow volumes and composite sample metals concentrations measured by Los Angeles County for the Dominguez Channel at two stations, S23 and S28. As noted previously, station S23 is located in the northern-most reach of the watershed, above the WSPA member facilities for which data are available. Station S28 is shown in Figure 2, and is located roughly midway down Dominguez Channel; this station is

located upstream of all the WSPA facilities in the Dominguez Channel that are studied in this report. As shown in Table 1, very few discharges to the Dominguez Channel receiving water occurred from WSPA member facilities, and few data were available to describe the volume of water discharged.

Table 1 – Mass Fluxes in Dominguez Channel and from Facilities A through F

Mass Flux in Dominguez Channel								Mass Flux from Facilities to Dominguez Channel				
Station	Date	Copper (lbs)		Nickel (lbs)		Zinc (lbs)		A	B	D	E	F
		Total	Dissolved	Total	Dissolved	Total	Dissolved					
S23	11/08/1998	8.0	6.5	1.5	0.00	68	63	ND	0	VNR	ND	ND
	11/28/1998	4.2	2.2	0.53	0.27	23	11	ND	0	0	ND	ND
	12/01/1998	0.90	0.86	0.10	0.08	3.8	3.6	ND	0	0	ND	ND
	12/06/1998	1.2	0.92	0.28	0.24	6.6	5.4	ND	0	0	ND	ND
	01/21/1999	0.66	0.14	0.15	0.00	6.2	5.9	ND	0	0	ND	0
	01/25/1999	2.9	2.2	0.56	0.30	13	11	ND	0	VNR	ND	0
	01/31/1999	0.59	0.59	0.10	0.00	3.3	2.9	ND	0	0	ND	0
	02/06/1999	0.92	0.73	0.17	0.12	6.2	5.7	ND	0	0	ND	0
	02/09/1999	0.63	0.34	0.00	0.00	4.8	3.3	ND	0	0	ND	0
	03/08/1999	0.99	0.73	0.17	0.08	4.0	2.6	ND	0	0	ND	0
	03/15/1999	1.9	1.4	0.39	0.00	15	13	ND	0	VNR	ND	0
	03/20/1999	0.77	0.77	0.21	0.00	4.5	3.7	ND	0	0	ND	0
	03/26/1999	3.1	1.8	0.00	0.00	19	8.3	ND	0	0	ND	0
	04/07/1999	2.1	1.7	0.00	0.00	18	17	ND	0	0	ND	0
	04/11/1999	4.0	2.6	0.00	0.00	25	21	ND	0	0	ND	0
	12/31/1999	1.4	1.1	0.15	0.15	7.7	7.3	ND	0	0	0	0
	01/25/2000	1.4	1.1	0.21	0.00	8.7	7.8	ND	0	0	0	0
	01/30/2000	0.49	0.38	0.05	0.05	2.5	2.4	ND	0	0	0	0
	02/10/2000	0.86	0.60	0.16	0.00	5.4	4.8	ND	0	VNR	0	0
	02/12/2000	2.7	1.2	0.00	0.00	12	9.0	ND	0	0	0	0
	02/16/2000	1.3	0.90	0.00	0.00	6.7	6.0	ND	0	0	0	0
	02/20/2000	7.1	4.5	0.00	0.00	34	30	ND	0	0	0	0
	02/23/2000	1.8	0.99	0.00	0.00	9.0	8.3	ND	0	0	0	0
	03/08/2000	2.0	1.0	0.00	0.00	12	11	ND	0	0	0	0
	10/12/2000	0.05	0.04	0.02	0.02	0.26	0.17	ND	0	0	0	0
	10/28/2000	0.40	0.39	0.00	0.00	3.0	3.0	ND	0	0	0	0
	10/31/2000	2.9	1.5	0.40	0.27	12	12	ND	0	0	0	0
	01/17/2001	10.4	10.4	2.0	2.0	76	76	ND	0	0	0	0
	01/25/2001	1.2	1.1	0.15	0.14	6.5	5.7	ND	0	0	0	0
	01/30/2001	1.6	1.3	0.40	0.00	9.3	7.4	ND	0	0	0	0
	02/15/2001	0.85	0.73	0.12	0.00	5.6	5.4	ND	0	0	0	0
	02/28/2001	7.6	5.3	0.00	0.00	46	46	ND	0	0	0	0
	03/07/2001	1.5	1.2	0.00	0.00	8.1	7.1	ND	0	0	0	0
	04/11/2001	2.4	2.3	0.55	0.31	13	13	ND	0	0	0	0
S28	01/28/2002	34	13	4.5	3.5	96	96	0	0	0	0	0
	11/08/2002	166	56	45	41	674	227	0	0	0	0	0

Mass Flux in Dominguez Channel								Mass Flux from Facilities to Dominguez Channel				
Station	Date	Copper (lbs)		Nickel (lbs)		Zinc (lbs)		A	B	D	E	F
		Total	Dissolved	Total	Dissolved	Total	Dissolved					
S28 (cont.)	02/11/2003	215	180	110	90	1411	1298	0.0017 (tCu) 0.0018 (tNi) 0.0023 (tZn)	0	0	0	0
	03/15/2003	52	34	22	10	260	115	0	0	0	0	0
	04/30/2003	17	10	4.0	4.0	117	73	0	0	0	0	0

VNR: volume not recorded.

ND: no data were available to determine whether or not a discharge occurred for these dates.

*On these dates discharge occurred from Facility D. However, corresponding volume information was not available for mass flux determination.

As shown in Table 2, detailed data were available for four storm events at Facility B; time series plots of total and dissolved metals for these storm events are presented in Appendix D. According to the rainfall data collected at Facility B, these events had return periods ranging from less than 2 years to approximately 3 years (for the event occurring on 2/11/2003). However, these return intervals are based on data collected by LACDPW at a different location (Raingage No. 1113: Dominguez Water Company) and may not be representative of return intervals at the Facility B. Table 3 shows that rainfall amounts at gage No. 1113 are quite different from rainfall amounts at Facility B for these four events. Therefore, there is a considerable amount of uncertainty associated with our estimates of the return intervals for events at Facility B. (Note that the differences in rainfall amounts for these four storms again highlight the variability inherent in storms, even over short distances within the same watershed. Storm water runoff and discharges generally have a direct relationship to the size of the storm and would also be subject to this variability.)

Table 2 – Flow Volume and Concentration at Facility B

Date	Rainfall (inches)	Measured Runoff Volume (gallons)	Concentrations Entering Detention Basins					
			Mean Copper Concentration (mg/L)		Mean Nickel Concentration (mg/L)		Mean Zinc Concentration (mg/L)	
			Total	Dissolved	Total	Dissolved	Total	Dissolved
12/20/2002	0.28	389,294	0.0688	0.0138	0.0278	0.0042	0.3314	0.0811
02/11/2003	3.84	10,902,683	0.0425	0.0102	0.0131	0.0042	0.1843	ND
02/24/2003	1.38	1,637,055	0.0384	0.0107	0.0120	0.0028	0.1991	0.1159
03/15/2003	1.55	4,514,090	0.0334	0.0118	0.0112	0.0036	0.1279	0.0415

* The measured runoff volume is the volume of water entering retention basins; no discharge to receiving waters occurred from Facility B for these events.

Table 3 – Return Intervals and Storm Event Data, Raingage No. 1113 and Facility B

Date	LACDPW Raingage 1113		Facility B	
	Rainfall (inches)	Return Interval (years)	Rainfall (inches)	Estimated Return Interval (years)
12/20/2002	0.47	< 2	0.28	< 2
2/11/2003	2.54	< 2	3.84	3
2/24/2003	1.17	< 2	1.38	< 2
3/15/2003	2.16	< 2	1.55	< 2

Although discharges from Facility B to the receiving water did not occur for the rainfall events in Table 3, sufficient data were collected for these events, and sufficient information was available regarding site features at Facility B, to support an analysis of the flux of metals from this facility to the receiving water for larger, reconstructed events with higher return periods. To reconstruct events, the runoff volume that would result from large rainfall events was first calculated using available data for Facility B, and estimating the runoff coefficient (0.58) for the site during the largest of the four recorded storm events shown in Table 3. Total storm event runoff was estimated by multiplying 24-hour event rainfall amounts from the LACDPW gage No. 1113 rainfall frequency-duration curves by the total site area (450 acres) and the site runoff coefficient. Because the LACDPW gage No. 1113 rainfall frequency-duration relationship may not be fully representative of conditions at Facility B, the return-interval of the events evaluated at Facility B are estimates.

Total storm event runoff estimates were reduced by the volume of on-site detention storage (43 million gallons), and the estimated volume of storm water that would infiltrate through the bottom of the detention pond. Detention pond infiltration rates were estimated from typical values for relatively loose soils (Linsley et al., 1992, 48). It was assumed that runoff in excess of retention and infiltration capacities would be discharged to the Dominguez Channel during the large storm events. For the reasons stated above and because estimates of the runoff coefficient were obtained using data from a 3-year storm event, runoff and discharge volumes may be underestimated somewhat.

The average metals concentrations exhibited during the four measured storm events were taken as representative of metals concentrations in storm water flowing into retention basins at Facility B (i.e., pre-BMP management) during larger storm events. These average concentrations were reduced by the proportion of metals expected to be removed in the detention process (consistent with the data presented in Table 8 in the BMP discussion section, below), to produce metals concentrations expected post-BMP. Finally, these concentrations were multiplied by the storm water discharge volumes to estimate metals fluxes from Facility B during large storm events.

For comparison, metals fluxes were also calculated at the LACDPW monitoring station S28 on the Dominguez channel using similar methods. The limited available rainfall data from LACDPW gage No. 1113 for specific storm events were correlated with channel runoff

measurements from S28 for the same events, producing a rainfall-runoff correlation. These data were collected during relatively small storm events (each having less than a 2-year return interval), and the accuracy of the correlation for large storm events is uncertain. This rainfall runoff correlation was used to estimate runoff volumes at S28 for several large return-interval storm events. The computed event runoff flows for S28 were then multiplied by the average concentration of metals in samples collected at S28 during storm events to estimate metals fluxes in Dominguez Channel at S28. Again, because constituent concentrations generally decrease during larger storm events, this analysis likely overestimates constituent concentrations and metals fluxes during the events evaluated.

Results of these analyses are shown in Tables 4, 5, and 6. Table 4 presents estimated metals fluxes at S28 for storms with return intervals of 2, 5, 10, 25, 50, and 100 years. Table 5 presents similar information for Facility B, which were calculated as described above. Fluxes from Facility B are shown to be zero for events up to the 25-year event due to the large amount of detention storage at the site. Events up to approximately the 50-year level are simply stored in on-site detention facilities and thus do not discharge to Dominguez Channel. Table 6 presents metals fluxes from Facility B as a percentage of fluxes in the Dominguez Channel at S28. In all cases metals fluxes from Facility B represent significantly less than 1 % of metals fluxes in the Dominguez channel at S28.

Table 4 – Estimated Metals Fluxes at LACDPW Station S28 on Dominguez Channel

Storm Return Interval (years)	Discharge Metals Flux (kg)					
	Copper		Nickel		Zinc	
	Total	Dissolved	Total	Dissolved	Total	Dissolved
2	110	54	37	23	462	307
5	183	91	62	39	771	512
10	231	115	79	49	975	648
25	292	145	99	62	1233	819
50	338	168	115	71	1426	948
100	383	190	130	81	1615	1073

Table 5 – Estimated Metals Fluxes from Facility B to Dominguez Channel

Storm Return Interval (years)	Discharge Metals Flux (kg)					
	Copper		Nickel		Zinc	
	Total	Dissolved	Total	Dissolved	Total	Dissolved
2	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00
50	0.07	0.06	0.04	0.02	0.48	0.39
100	0.40	0.33	0.25	0.10	2.73	2.24

Table 6 – Estimated Metals Fluxes from Facility B as % of Fluxes at S28

Storm Return Interval (years)	Discharge Metals Flux (% of S28 Flux)					
	Copper		Nickel		Zinc	
	Total	Dissolved	Total	Dissolved	Total	Dissolved
2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
25	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
50	0.02%	0.03%	0.04%	0.03%	0.03%	0.04%
100	0.10%	0.17%	0.19%	0.13%	0.17%	0.21%

Because few data were available for this analysis, there is a considerable amount of uncertainty associated with estimates of metals fluxes from Facility B and at S28. Additional data and a more comprehensive hydrologic modeling approach would be required to characterize fluxes with more precision. Even so, these estimates indicate that for storms with a return interval of less than 50 years, the contributions from Facility B to metals fluxes in the receiving water are negligible due in large part to the retention capacity at the site.

APPROPRIATE USE OF CTR CRITERIA WHEN ESTABLISHING EFFLUENT LIMITATIONS

Basis for Regulating Storm Flows and Use of CTR Criteria

The Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (commonly known as the State Implementation Policy, or SIP) became effective on May 22, 2000. The stated goal of the SIP is to "establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency." The SIP established implementation provisions for priority pollutant criteria promulgated through the National Toxics Rule (NTR), the California Toxics Rule (CTR), and as established by Regional Water Quality Control Boards in their Water Quality Control Plans (Basin Plans). As noted in footnote 1 of the SIP, "This policy does not apply to regulation of storm water discharges."

The SIP provides guidelines for determining whether a discharge has a "reasonable potential" to cause or contribute to an excursion above an applicable priority pollutant concentration or objective. The SIP also provides a process for determining the appropriate effluent limitation for that pollutant. These calculation procedures are not intended to apply to storm water discharges, and indeed, are inappropriate for such discharges due to the intermittent, highly variable, and complex nature of storm events. In most cases, sufficient data do not exist

for storm water discharges to make a defensible analysis of reasonable potential.

Further, a review of EPA's record supporting the adoption of the CTR criteria indicates that these criteria were not intended to apply to storm water discharges, and were not intended to be applied without consideration of dilution or as never-to-be-exceeded values. EPA clearly stated in the documentation supporting the development and use of CTR criteria that:

- CTR criteria are not intended to be applied to storm water discharges as numeric water quality based effluent limits "which would be equivalent to criteria values and applied as effluent limits never to be exceeded, or calculated in the same manner that effluent limits are calculated for other point sources, such as POTWs."[1]

- "EPA believes that the final rule will not have a direct effect on sources not permitted under the NPDES program (e.g., nonpoint sources) or NPDES sources not typically subject to numeric water quality-based effluent limits (e.g., wet weather discharges)."[2]

- "EPA believes that the final CTR will not significantly affect the current storm water program being implemented by the State, which includes the requirement to develop best management practices to control pollutants in storm water discharges."[3]

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[1] See *California Toxics Rule Response to Comments Report, Volume II*, December 1999 (prepared by USEPA Office of Science and Technology and USEPA Region 9). Response to Comment CTR-001-007, p. 1248: "The commenter appears to assume that the storm water discharge would be subject to numeric water quality based effluent limits which would be equivalent to the criteria values and applied as effluent limits never to be exceeded, or calculated in the same manner that effluent limits are calculated for other point sources, such as POTWs. The commenter then appears to assume that such WQBELs would then require the construction of very costly end-of-pipe controls. EPA contends that neither scenario is valid with regards to developing WQBELs for storm water discharges or establishing compliance with WQBELs. EPA acknowledges that wet weather discharges are technically difficult to model and evaluate financially, because they are intermittent and highly variable. Wet weather discharges also occur under more diverse hydrologic or climatic conditions than continuous discharges from industrial or municipal facilities, which are evaluated under critical low flow or drought conditions. If the EPA had enough data to completely characterize all the conditions and do the necessary modelling, WQBELs would be developed using dynamic models to account for the intermittent loadings and exposures from the storm water discharges. In the absence of this data, EPA will continue to advocate the use of BMPs, as discussed in the CTR preamble... EPA will continue to work with the State to implement storm water permits that comply with water quality standards with an emphasis on pollution prevention and best management practices rather than costly end-of-pipe controls."

See also Response to Comment CTR-040-014b, at p. 1284: "EPA believes the applicability of water quality standards to storm water discharges is outside the scope of the rule."

[2] Ibid., Response to Comment CTR-034-014e, at p. 1268.

[3] Ibid., Response to Comment CTR-035-044c, at p. 1271.

- Water quality-based permitting and compliance should consider dilution.[4]
- Storage and treatment of storm water were not anticipated to be necessary to comply with CTR criteria.[5]
- There is insufficient information to develop effluent limits for storm water discharges.[6]

Further, both the preamble to the CTR and the documentation accompanying the CTR demonstrate EPA's intent to allow periodic exceedances of CTR criteria. For example, EPA selected a return frequency of once in three years, establishing that periodic exceedances of CTR criteria are acceptable,[7] and that the concept of periodic exceedances should extend to storm flows.[8] The National Research Council, in a report to Congress in July 2001, also supported these concepts, recommending that water quality criteria be developed to include magnitude, frequency, and duration components. The NRC further recommended that the frequency component be defined in terms of a number of allowed excursions in a specified time period and not as never-to-be-exceeded limits.[9]

In summary, there appears to be little or no support for applying CTR criteria directly to

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[4] Ibid., Response to Comment CTR-040-004, at p. 1280: "The primary scenario described in the report [providing comments on proposed CTR objectives] (i.e., comparing projected worse case [sic] discharge concentrations directly to chronic aquatic life and human health criteria with no allowance for dilution) is highly conservative in comparison with the water quality-based permitting and compliance procedures that would be implemented by EPA."

[5] Ibid., Response to Comment CTRH-001-001b, at p. 1309: "EPA disagrees with the cost estimates provided by the commenter as EPA does not believe that storage and treatment of stormwater would be required to ensure compliance with the CTR."

[6] Ibid., Response to Comment CTR-069-002a: "...evaluating agricultural nonpoint sources discharges and storm water discharges and their effects on the environment is highly site-specific and data intensive. Until this information is available, it is premature to project that the sources would incur any costs beyond those for which they are already responsible under the current regulations of the Clean Water Act."

[7] Ibid., Response to Comment CTR-020-016: "EPA's aquatic life criteria are based on three interrelated components which include magnitude, duration, and frequency. EPA's longstanding position is that the criteria may not be exceeded more than once every three years on average."

[8] Ibid., Response to Comment CTR-096-001b: "EPA agrees that its numerical exceedance frequency and design flow specifications are based on dry-weather conditions. Nevertheless, the rule provides for alternative development of averaging periods and exceedance frequencies, thereby allowing the extension of their applicability to wet-weather conditions."

[9] National Research Council, *Assessing the TMDL Approach to Water Quality Management*, National Academy Press, Washington, D.C., 2001, at p. 50.

storm water discharges. Application of those criteria as never-to-be-exceeded end-of-pipe limitations, especially without consideration of dilution in the receiving water, was clearly never contemplated.

Water Quality Criteria: Frequency, Duration, and Magnitude

Water quality standards consist of two parts: designated beneficial uses and water quality criteria or objectives. Beneficial uses describe the various uses of waters, while criteria describe the water quality conditions that are necessary to support or maintain a specified use. Water quality criteria may be either numeric or narrative. The discussion provided below concerns the application of numeric criteria in establishing permit limitations (the translation of narrative criteria to numeric values is a very different discussion). Most criteria are intended to protect aquatic life and/or human health. Aquatic life criteria are intended to protect against both short-term (acute) and long-term (chronic) impacts, while human health criteria are intended to protect people against long-term exposure to pollutants in either water or fish.

Priority pollutant criteria established by the California Toxics Rule (CTR) are intended to involve consideration of frequency, magnitude, and duration. For example, acute and chronic criteria incorporate these considerations as follows[10]:

- Chronic (CCC) criteria: aquatic organisms and their uses should not be affected unacceptably if the four-day average concentration of a constituent does not exceed the recommended value more than once every three years on average

- Acute (CMC) criteria: aquatic organisms and their uses should not be affected unacceptably if the one-hour average concentration of a constituent does not exceed the recommended value more than once every three years on average

These criteria clearly specify the magnitude (level) of a constituent concentration that is acceptable based upon the exposure duration (1 hour or 4 days) and the exceedance frequency (once-in-three-years). Criteria were developed in this manner in recognition of the inherent variability in effluent concentrations, receiving water conditions, sampling protocols, data availability, and laboratory analyses, among other factors. In applying and interpreting water quality criteria, it is important to consider the frequency, duration, and magnitude of exposure within the receiving water. For this reason, a statistical or modeling approach is required to properly apply water quality criteria as permit limits, as discussed below.

Because water quality criteria are statistically-derived limits, they are clearly <u>not</u> intended to apply as never-to-be-exceeded values.

[10] See, e.g., US Environmental Protection Agency, *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991, at p. 32 and p. 36.

Considerations in Establishing Numeric Limits

Both the USEPA and the State Board have provided guidance regarding the calculation of effluent limits for use in NPDES permits. Several steps are followed to determine if effluent limits are required for a given constituent and to determine the appropriate permit limitation. The first step involves a determination of "reasonable potential," an assessment based upon available data for the effluent and receiving water to determine if a discharge is likely to cause an exceedance of water quality objectives in the receiving water. If reasonable potential is found to exist, numeric limits are then calculated for the subject pollutant for insertion into the NPDES permit regulating that discharge. Because water quality criteria are defined in terms of frequency, magnitude, and duration, determining reasonable potential and establishing effluent limitations requires information on the frequency, duration, and magnitude with which a particular set of conditions will occur.

Reasonable Potential Determinations

The first step is to determine if "**reasonable potential**" exists to "**cause or contribute to**" an excursion of water quality standards in the receiving water. Reasonable potential calculation procedures have been developed for point source discharges and are applied at specified low-flow conditions. Reasonable potential calculation procedures have been described by the USEPA in the *Technical Support Document for Water Quality-based Toxics Control* (the "TSD") and by the *State Board in the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (also known as the "State Implementation Plan," or "SIP").[11] As outlined in the TSD, determination of reasonable potential requires information on observed effluent concentrations, variability in the data set describing effluent concentrations and flows, background receiving water concentrations, and consideration of dilution. Both the TSD and the SIP clearly state that these procedures are appropriate for evaluating point source discharges. These procedures are <u>not applicable to highly time-variable flows, like storm flows</u>.

Development of Effluent Limitations

If it is determined that reasonable potential exists for a discharge to result in an exceedance of water quality objectives, then, where possible, appropriate permit limits are calculated. As discussed in the TSD, permit limits can be calculated in one of two ways: (1) using steady-state representations of worst-case conditions; and (2) using dynamic modeling. Both the steady-state and dynamic modeling approaches can be used to determine appropriate permit limits for point source discharges. However, as shown below, only the dynamic modeling approaches are appropriate for addressing storm flows.

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[11] Ibid., at p. 53. See also the State Water Resources Control Board, *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, 2000, at p. 4.

Steady-state Models

As described in the TSD (see, e.g., p. 78), **steady-state models** require the following information:

- Effluent flow
- Effluent concentration and variability of constituents to be evaluated
- Background receiving water concentration of constituents to be evaluated
- Background receiving water flow

Steady-state models use available information to determine a water quality for a single condition. For example, water quality is evaluated for specified low-flow conditions in the receiving water (e.g., the 1Q10, the lowest one-day flow with a 10-year recurrence interval). A constant effluent concentration is selected based upon a statistical analysis of available data (e.g., using a 99% confidence level and 99% probability that a given concentration will be exceeded). Effluent flow rates are also assumed constant over the relevant timescales, so that the duration and frequency with which a water quality objective will be exceeded will be reflected by selecting the appropriate receiving water design flow. Thus, steady-state modeling is appropriate for constant discharges where critical conditions generally occur during low-flow time periods.

Available data clearly demonstrate that concentrations of pollutants in storm water can vary by more than an order of magnitude in less than an hour during a storm. Storm water discharge volumes also vary greatly during a storm. Variations in both pollutant concentrations and flow volumes depend upon a wide variety of factors, including time since the previous storm, rainfall amounts, soil saturation levels, location within a watershed, and direction from which a storm arrives. For these reasons, steady-state modeling is not appropriate for storm flows.[12] Steady-state models are also used to calculate permit limits in the State's SIP; the SWRCB recognizes that these methods are not appropriate for storm flows.[13]

Dynamic Models

Dynamic models explicitly predict the effects of receiving water and effluent flow and concentration variability. Computer models are used to incorporate the variability of individual inputs (e.g., effluent flow and concentration, receiving water flow and concentration) and are more accurate than steady-state models in accurately predicting receiving water concentrations and/or toxicity. Effluent limits derived using dynamic models are generally expressed as long-term average concentrations and acceptable variance from those averages.[14]

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[12] See EPA's TSD at p. 78-80.

[13] See SWRCB's SIP at p. 1.

[14] See the TSD at p. xv and p. 80.

As described in the TSD, several dynamic modeling techniques have been developed, including:

- Continuous simulation models use continuous records of effluent and receiving water flows and concentrations to generate continuous values of concentrations in the receiving water. These models predict downstream receiving water concentrations in chronological order. Model predictions are then used to calculate the occurrence frequency of the receiving water concentration of a given constituent, which can then be compared to water quality criteria and used to establish appropriate effluent limitations.

- Monte Carlo simulations use statistical probability distributions of effluent flow rate and effluent concentration in a mathematical model of constituent fate and transport. Monte Carlo simulations can also incorporate receiving water flow rate and concentration distributions or can be used in combination with continuous simulations. Results are used to generate probability distributions and to determine how often a given water quality concentration is exceeded.

- Lognormal probability modeling is similar to Monte Carlo simulations but uses log-normal probability distributions of input variables to calculate probability distributions of output variables. Thus, this method requires only the relevant statistical parameters of the input variables (e.g., sample means and variability, as derived from data sets describing effluent and receiving water characteristics).

As discussed above, all dynamic modeling techniques require detailed information on the variability of effluent and receiving water concentrations. Information on the variability of effluent and receiving water flows over time is also important. These data have not traditionally been collected for storm flows. Indeed, collection of an appropriate data set would be time-consuming and resource-intensive. Storm flow discharges exhibit considerable variability in terms of flow rate and concentration. Further, this variation occurs on short timescales, and this variability must be considered in developing appropriate limits.

Use of Inappropriately Derived Permit Limits

In fact, inserting a never-to-be-exceeded numeric limit in a permit is equivalent to promulgating a much lower standard than the value inserted into the permit. For example, inserting a CTR limit as a never-to-be-exceeded, end-of-pipe limit in a permit would be equivalent to implementing a standard that is below the CTR limit. Similarly, inserting a benchmark limit as a never-to-be-exceeded, end-of-pipe value in a permit would be equivalent to implementing a standard that is below the benchmark limit. Determining the level of conservatism that would result from this approach would require examination of multiple data sets.

As an analogy, consider EPA's guidance on bacteria standards.[15] Bacteria standards are given in terms of a long-term geometric mean and a single sample maximum value. For example, for enterococci, the geometric mean value is 35/100 ml and the single sample maximum is 104/100 ml, based on the 75th percentile distribution about the mean value from observed data. However, the water body geometric mean required to keep the water body concentration below 104/100 ml 99% of the time is 2/100 ml, far more stringent than the level of protection intended by the geometric mean.

Development of a Methodology for Calculating Numeric Permit Limits for Storm Flows

As discussed above, the inherent variability in storm flows and pollutant concentrations makes steady-state approaches inappropriate for calculating numeric limits for storm flows. Because of this variability, dynamic modeling approaches would be required to calculate appropriate permit limits. However, dynamic modeling approaches require detailed data sets, and we are unaware of data sets that are complete enough to be used to calculate defensible permit limits.

Additionally, there is no agreed-upon methodology for using dynamic modeling to develop scientifically appropriate permit limits for storm water discharges. Thus, the appropriate course of action would be for the SWRCB to initiate a data collection program and to use these data to test various approaches for determining reasonable potential and developing appropriate numeric limits. Then the SWRCB could establish a methodology that would specify data collection requirements, procedures for determining reasonable potential, and procedures for calculating appropriate permit limits. This methodology would likely recommend the use of one (or more) dynamic modeling techniques.

Detailed data sets would be required to establish a methodology for developing numeric permit limits for storm flows. At a minimum, these data sets would include:

- Effluent concentration data collected more frequently than once per hour during storm events
- Effluent flow data, preferably as a continuous record, but at a minimum more frequently than once per hour during storm events
- Receiving water concentration data, collected more frequently than once per hour during the intended discharge time period
- Receiving water flow data, preferably as a continuous measurement, but at a minimum more frequently than once per hour
- Information on the storm event during which data collection occurs – e.g., rainfall amount, antecedent dry period, and generation of a storm hydrograph
- General facility information, including facility type and information on BMPs and storm water management practices at that facility

[15] See Federal Register, Vol. 69, No. 220, November 16, 2004, at p. 67225.

Data to be collected during storms would be required more frequently than once per hour because the acute aquatic life criteria employ a one-hour averaging period, and because existing datasets demonstrate that large variations in concentration and flow occur on timescales shorter than one hour (see, e.g., the data contained in Appendix D). (For these reasons, it would be wholly inappropriate to develop permit limits based upon results from a single grab sample.) In addition, the datasets would be required for a variety of industrial categories, as storm water management practices and priority pollutants vary significantly from one category of industrial discharger to another.

Preferably, data collection requirements would be specified by the State Board, so that data would be collected in a uniform manner throughout the State. These data could be used to establish a methodology for calculating appropriate permit limits and for subsequent data collection. The methodology would specify acceptable approaches to calculating permit limits, data collection requirements to be used in the permit, and procedures for determining compliance with those limits.

EPA's Benchmark Approach

EPA's Multi-Sector Storm Water General Permit, which applies to industrial facilities in non-delegated states, includes the use of benchmarks in the required monitoring program. The results of benchmark monitoring are primarily used to determine the overall effectiveness of a Storm Water Pollution Prevention Plan (SWPPP) in controlling the discharge of pollutants to receiving waters. Benchmark values are not viewed as effluent limitations, and an exceedance of a benchmark value does not, in and of itself, constitute a violation of the permit. EPA has stated that

> "the 'benchmarks' are pollutant concentrations above which EPA determined represent a level of concern. The level of concern is a concentration at which storm water discharge could potentially impair, or contribute to impairing, water quality or affect human health from ingestion of water or fish. The benchmarks are also viewed by EPA as the level that, if below, a facility presents little potential for water quality concern. As such, the benchmarks also provide an appropriate level to determine whether a facility's storm water pollution prevention measures are successfully implemented. The benchmark concentrations are not effluent limitations and should not be interpreted or adopted as such. These values are merely levels which EPA has used to determine if a storm water discharge from any given facility merits further monitoring to ensure that the facility has been successful in implementing a SWPPP. As such, these levels represent a target concentration for a facility to achieve through implementation of pollution prevention measures at the facility."[16]

[16] Federal Register, Volume 65, Number 210, October 30, 2000, at pp. 64766-64767.

While exceedance of a benchmark value does not automatically indicate that a violation of a water quality standard has occurred, it does signal that modifications to the SWPPP may be necessary.

As shown by the data evaluated in this report, storm flows are very different in nature from traditional point source discharges. By their very nature, storm flows are episodic, intermittent, and highly variable. Storm water quantity and quality can vary significantly from storm to storm and within individual storm events. Thus, dynamic modeling would be required for these flows to defensibly establish water quality based effluent limitations (WQBELs) for use in NPDES permits. Industrial facilities generally do not collect the quantity or type of monitoring data that would be required to establish numeric permit limits through a dynamic modeling process. Further, imposing CTR limits as end-of-pipe, never-to-be-exceeded values is an inappropriate alternative to establishing scientifically defensible permit limits and would essentially require compliance with lower-than-CTR levels.[17] In addition, forcing a handful of facilities to comply with CTR criteria would likely not result in a reduction in concentration or toxicity in the receiving water, as the data in this report demonstrate. EPA's benchmark process provides a reasonable alternative process for regulating these sources.

BMPS AT WSPA FACILITIES AND CTR

The WSPA facilities examined here employ source control and structural best management practices (BMPs) that are designed both to prevent metals from entering storm water and to remove metals from storm water if present (see the general BMP discussion below). Structural BMPs, such as on-site detention, are used extensively at these facilities and are relatively effective in removing concentrations of total suspended solids (TSS) and total metals from storm water runoff. However, structural BMPs cannot consistently remove totals metals to CTR levels, and structural BMPs are even less effective in removing dissolved metals concentrations from storm water runoff. As detailed below, it will likely not be possible for BMPs alone to result in discharges that meet CTR criteria consistently at end-of-pipe.

If CTR criteria are to be met at all times at end-of-pipe, the collection and treatment of large volumes of storm water would likely be required prior to release to receiving waters. Designing treatment systems to remove dissolved metals and to "guarantee" that CTR criteria will never be exceeded at the point of discharge would be technically challenging, costly, and

[17] See, for example, the discussion in Federal Register, Volume 69, Number 220, November 16, 2004, at p. 67225. EPA states that it would be inappropriate to evaluate compliance with geometric mean criteria using single sample maxima. For example, EPA states that assuming a water body had the same statistical distribution as the data used to derive a long-term mean concentration, the geometric mean concentration required to keep a waterbody concentration below 104/100 ml 99% of the time would be 2/100 ml, far below the actual geometric mean criterion of 35/100 ml. Although this EPA discussion was developed for bacteria, CTR criteria are generally recognized to apply to averaged concentrations. In the case of acute criteria, the averaging time period in the receiving water is 1 hr; for chronic metals criteria, the averaging period is 4 days. Because metals concentrations can vary significantly on timesteps of an hour or less (see data in Appendix D), using single, instantaneous grab samples to evaluate compliance with CTR limits is inappropriate and is, in effect, a change in standard.

very difficult on a consistent basis. (Moreover, as discussed in the preceding section, the CTR criteria were never intended to be applied in this manner, and application of CTR criteria as never-to-be-exceeded, end-of-pipe limits would be equivalent to requiring compliance with lower-than-CTR criteria.) Unlike sewage treatment plants, which experience relatively constant, continuous influent flows, storm water treatment systems would be required to treat very large volumes of water on an intermittent, short-term basis. This would likely require either large on-site storage capacity coupled with moderate treatment flow rates or, where on-site storage capacity is limited, construction of treatment plants capable of treating very large volumes of flow on a nearly instantaneous basis. These treatment plants would sit idle most of the time. Startup, maintenance, operator training and availability during storms, variability of flows and pollutant loading, and power reliability, among other issues, would make the operation of sophisticated treatment systems that would meet CTR limits on a consistent basis, for a wide variety and range of different storm conditions, very difficult.

BMPS FOR INDUSTRIAL FACILITIES AND PERFORMANCE INFORMATION

Best management practices, also known as BMPs, are used to reduce concentrations of pollutants in storm water runoff from various facilities. For industrial facilities, BMPs are generally intended to reduce concentrations of the key pollutants that are expected to be encountered at those facilities. BMPs generally fall into two major categories:

- source control BMPs, which are intended to prevent the release of pollutants, and
- structural BMPs, which are intended to reduce concentrations of pollutants present in storm water.

These two general categories of BMPs are discussed in greater detail below, as is the anticipated effectiveness of various candidate BMP options available for industrial facilities. Of course, appropriate BMPs must be selected on a site-specific basis, and not all BMP options will be appropriate or feasible at all sites.

Pollutants of Concern

The following describes storm water pollutants of concern that would generally be expected to be associated with petroleum related activities and industrial facilities:

- **Sediments** – Sediments are a primary storm water pollutant and are likely for petroleum industrial facilities where storm water drainage is routed across open areas and through unlined channels. High sediment levels can be detrimental to water quality of receiving waters and can also transport other pollutants, including nutrients, heavy metals, and organic compounds.
- **Oil & Grease** – Oil and grease are high molecular-weight organic compounds such as motor oil, cooking oil and fat, and waxes. Oil & grease is a logical pollutant of concern for industrial facilities involving the production, refining, and transportation of petroleum products. Excessive oil & grease can result in a visible film on the water's surface, which decreases the aesthetic value of the water body and can potentially cause nuisance odors.

This category of pollutants includes other petroleum hydrocarbons, including polycyclic aromatic hydrocarbons (PAHs), which can be toxic to aquatic organisms.

- **Organics** – A wide variety of organic compounds, including fuels, solvents, cleaners, lubricants, and sealers, are used, manufactured, and/or transported at petroleum-related industrial facilities. Organic compounds in receiving waters are of concern because some can potentially cause direct or indirect toxicity to wildlife and humans.
- **Metals** – Heavy metals that are commonly found in storm water are copper, lead, zinc, and cadmium. Common sources of heavy metals that would be expected at petroleum facilities are compounds that are used and/or manufactured at the facility, automobiles, and a variety of materials/surfaces in the facilities such as galvanized metals, paints, and preserved wood. Metals can also be present at industrial facilities from aerial deposition. Metals in storm water are present in solution (dissolved metals) and attached to suspended soil particles. Generally only the dissolved metals can cause toxicity to aquatic life in receiving waters.
- **Gross Pollutants** – Gross pollutants include trash, debris, and floatable objects. Gross pollutants are an aesthetic nuisance and can also transport other pollutants.

Other general storm water pollutants of concern that would not be expected at petroleum industry facilities are nutrients, pesticides, and pathogens.

Best Management Practices for Storm Water Management

Methods to reduce pollutants in storm water runoff are collectively called Best Management Practices, or BMPs. BMPs are categorized into methods to control and limit the release of pollutants (source control BMPs) and methods to treat and reduce levels of pollutants in storm water runoff (structural BMPs).

Source Control BMPs

Source controls are practices to limit sources and pathways for the release and introduction of pollutants into storm water runoff. Source control BMPs are the first line of defense for storm water management. The California BMP handbooks (CASQA, 2003) provide a comprehensive description of structural and nonstructural source control measures for industrial facilities. Source control measures are required as part of the facility Pollution Prevention Plan. Selection of source control measures would be tailored to specific facility conditions and operations. These measures may include:

- Active Spill Prevention, Control, and Cleanup Program
- Protocols and physical controls for vehicle and equipment maintenance, cleaning, and repair
- Equipment operation procedures
- Protocols and physical controls for product storage, loading and unloading
- Waste handling procedures and controls
- Use of environmental friendly alternative products

- Maintenance of facilities, grounds, parking areas, and drainage facilities

Petroleum facilities typically are required to maintain other pollution and prevention plans that are the mandates of other federal, state and local agencies and that become part of the storm water compliance program. These programs may include:

SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN: This federally mandated plan describes the spill prevention measures utilized by the facility and details the emergency response measures for responding to and controlling a spill. This plan specifies how the facility will prevent petroleum from entering into surface water, including storm water.

FACILITY RESPONSE PLAN (FRP): This federally mandated (Oil Pollution Act of 1990 (OPA '90)) plan discusses the facility emergency response procedures for petroleum releases to open water and describes the training program to prepare for any such releases.

OPERATIONAL AND MAINTENANCE PROCEDURES: Facilities maintain operational and maintenance procedures that describe in detail how various tasks are to be performed. These procedures are used by facility operators, maintenance personnel, and outside contractors. When applicable, the procedures describe the proper method of disposing of liquids and preventing spills to the storm drains.

INVENTORY OF CHEMICALS: This document lists the chemicals used and produced at the facility and references the MSDS for each chemical. This plan is used in the SWPPP to identify potential pollutants of concern.

CERTIFIED UNIFIED PROGRAM AGENCY (CUPA) PLAN – Local CUPAs, like Los Angeles County, require a submittal that includes a list of the registered chemicals used and/or produced at facilities. The CUPA Plan lists the locations, quantities, and any alternative names of chemicals used at the facility. The CUPA Program also describes the UST inspection requirements, the facility's Hazardous Materials Release Response Plan, and inventory program inspections for above ground tanks.

MASTER TANK LIST: This document lists the contents and volumes of the above ground storage tanks at the facility. The list records of the physical properties of each tank and the maintenance record for each tank.

Structural BMPs

Structural BMPs are methods to remove pollutants in storm water runoff. Traditional structural BMPs include detention basins, wet basins, and catch basin filters. More recent developments in structural BMPs include the use of infiltration approaches and vegetated areas,

such as swales, filter strips, and wetlands to improve treatment performance and reduce runoff volumes. Engineered technologies such as hydrodynamic separators and media filtration systems are also being applied. Performance of structural BMPs is typically evaluated via a calculation of percent reduction in pollutant concentration achieved between the BMP influent and effluent from the BMP. Effectiveness is typically not based upon the ability of a BMP to reduce pollutants to a certain, specified level. Unfortunately, for metals, neither USEPA nor ASCE have found that the typical structural BMPs mentioned above can consistently achieve metal reductions to CTR levels evaluated end-of-pipe.

Table 7 describes selected BMPs that are likely candidates for petroleum industry facilities. This table includes a brief description of the BMPs, relative cost and O&M comparisons, and a general summary of potential issues and benefits for petroleum industry facilities.

Table 8 compares the effectiveness of BMPs selected for anticipated petroleum industry pollutants of concern. Data in this table were obtained from the ASCE BMP database (ASCE, 2001). Note that data for oil & grease and general organic constituents were limited in the BMP database and are therefore not included in Table 8. Information on infiltration BMPs was also limited (due to difficulty in monitoring), so infiltration BMPs are not included in Table 13.

Based on information from the California BMP Handbook (CASQA, 2003) and the median influent and effluent data presented in Table 13, a ranking of general effectiveness of structural BMPs for anticipated petroleum industry pollutants of concern is as follows:

High Treatment Performance	Wet Basins Wetlands Infiltration Approaches
Moderate to High Treatment Performance	Dry Extended Detention Basins Vegetated Swales and Buffer Strips Media Filters
Low to Moderate Treatment Performance	Hydrodynamic Separators Catch Basin Inserts

Table 7 – Description of Selected Candidate BMPs for Petroleum Industry Facilities

BMP Type	Description [1]	Area Required (% of Drainage Area) [2]	Capital Costs (excluding land value) [2]	O & M Costs [2]	Advantages & Potential Issues Affecting Suitability for Petroleum Industrial Facilities [1]
Infiltration Trench and Infiltration Basin	• Areas that are designed to impound and infiltrate storm water runoff. • Generally sized to infiltrate the water quality design volume within 48 hrs. • Requires suitable soil conditions & relatively flat topography.	2-4 %	Moderate to High	Moderate	• Provides a high level of treatment for all petroleum industry pollutants of concern. • May not be suitable at petroleum facilities where spills are likely or there is risk of groundwater contamination. • Pretreatment would likely to be needed at petroleum facilities to remove coarse sediments, gross pollutants, and/or organics. • Industrial facilities would need an active monitoring and maintenance program to insure good performance and to guard against clogging.
Dry Extended Detention Basin	• Basins that are designed to detain storm water runoff, usually for a period of 36-48 hrs. The basins are normally dry in the absence of storm water runoff. • Storm water pollutants are primarily removed by settling.	5-20%	Moderate	Low	• Provides a generally moderate level of treatment for petroleum industry pollutants of concern. • Generally low maintenance requirements and maintenance costs for industrial facilities. • Generally most effective at removing coarse sediments; less effective at removing fine particles, which may transport a significant portion of the metal and organic loads in storm water runoff from petroleum industrial facilities. • Depending on local soils, a significant fraction of the storm water detention volume may be lost through infiltration. There may be a potential risk of groundwater contamination, especially from soluble organic compounds such as MTBE. Facilities should be lined if such risks are identified.
Wet Ponds	• Wet ponds are similar in concept to dry extended detention basins except there is a permanent pool. • The storage volume for storm water detention is on	10-20%	Moderate	Low to Moderate	• Because of the generally long detention periods, wet ponds provide a high level of treatment for all petroleum industry pollutants of concern. Also they are more effective at removing fine particulates (and associated pollutants) than traditional dry detention basins, which are likely to be present in storm water runoff at many petroleum industrial

BMP Type	Description [1]	Area Required (% of Drainage Area)[2]	Capital Costs (excluding land value)[2]	O & M Costs [2]	Advantages & Potential Issues Affecting Suitability for Petroleum Industrial Facilities [1]
	top (in addition to) of the storage volume of the permanent pool. • In effectively designed wet ponds, the storm water detention volume will displace much of the permanent pool, providing longer detention periods of the storm water runoff than traditional dry detention basins.				facilities. • Wet ponds have greater maintenance requirements than dry detention basins. Industrial facilities will need to implement maintenance programs to monitor and remove accumulated sediments and vegetation, and to inspect and control mosquitoes. • Wet ponds may be attractive to wildlife. The design of wet ponds for petroleum industrial facilities should include consideration of the potential organic compounds in the storm water runoff and the potential environmental fate of these compounds. Pretreatment may be need if risks are identified.
Constructed Wetlands	• Similar to natural wetlands but are engineered systems that designed primarily for water quality treatment. • Surface flow wetlands include permanent pools that that are generally shallower than wet ponds. Wetlands may include open water areas with water depths from 2-6 ft, and areas with emergent vegetation (e.g. cattails and bulrush) with water depths form 0-2 ft. • An alternative wetland design are subsurface flow wetlands	10%	Moderate to High	Moderate	• Constructed wetlands provide a high level of treatment for all petroleum industry pollutants of concern, including fine particulates. Wetlands can also provide effective treatment of dry-weather discharges. • Because wetlands are attractive to wildlife, the design of wetlands for petroleum facilities should include a strong consideration of the potential organic compounds in the influent flows and the potential environmental fate of these constituents. • Constructed wetlands have large area requirements and would not be suitable at industrial facilities that have space constraints. • Established wetland facilities generally have low maintenance requirements and maintenance costs. There may be a need for active monitoring of the wetlands, especially during the early establishment period. • Subsurface flow wetlands are generally smaller in size than surface flow wetlands, and are generally better suited to treating industrial facilities with smaller drainage areas. Subsurface wetlands can be susceptible to clogging. Pretreatment would be needed at industrial facilities with

BMP Type	Description [1]	Area Required (% of Drainage Area)[2]	Capital Costs (excluding land value)[2]	O & M Costs [2]	Advantages & Potential Issues Affecting Suitability for Petroleum Industrial Facilities [1]
					high-sediment loads.
Vegetated Swale, Vegetated Buffer Strip, Bioretention	• In this group of BMPs runoff is routed to vegetated areas to remove pollutants by physical (sedimentation, infiltration) and chemical and biological (adsorption to organic materials, uptake by vegetation) processes. Vegetated areas could be shallow channels (swales), gentle sloping flat areas designed to treat sheet flow from adjacent areas (buffer strips), and vegetated retention areas such as landscape areas and planter boxes.	10-25%	Low	Low	• Provides a moderate to high level of treatment for all petroleum industry pollutants of concern. • Because infiltration is a major removal pathway, vegetated treatment BMPs may not be suitable at petroleum facilities where spills are likely or there is risk of groundwater contamination. • Requires maintenance of vegetated areas. • Not suitable for industrial facilities that require treatment of large runoff volumes and flows, and large drainage areas. Could be suitable at small facilities or portions of larger industrial facilities where vegetation can be readily maintained, e.g. parking lots and landscaped areas adjacent to offices.
Detention Vaults and Hydrodynamic Separators	• Underground vaults designed to promote sedimentation of coarse particulates through engineered hydrodynamic processes.	None	Moderate	Moderate	• Provides a low to moderate level of treatment for all petroleum industry pollutants of concern. • Effective at removing coarse sediments and gross pollutants. • Could be beneficial at industrial facilities with space constraints.
Media Filters	• Media filters treat storm water by filtering pollutants in a variety of media, including sand, compost, cellulose, and fabric materials. • Media filters typically include a pretreatment stage to remove coarse	2-3 %	Moderate	Moderate	• Two stage media filters, such as sand filters, can provide a high level of treatment for all petroleum industry pollutants of concern. Catch basin inserts generally provide a low to moderate level of treatment for petroleum industry pollutants of concern. • Generally most applicable for industrial facilities with small impervious watershed. • Media filters are susceptible to clogging. Pretreatment may be needed.

BMP Type	Description [1]	Area Required (% of Drainage Area)[2]	Capital Costs (excluding land value)[2]	O & M Costs [2]	Advantages & Potential Issues Affecting Suitability for Petroleum Industrial Facilities [1]
	particulates by settling. • Catch basin inserts are baskets and trays containing a media filter that are placed at storm drain inlets. A variety of filter media have been used including polypropylene, perlite, porous polymers, activated carbon, that are intended to trap organic pollutants.				• Industrial facilities would need an active maintenance program to insure good performance and to guard against clogging. Maintenance costs would be expected to be greater than vegetated BMPs.

1 – Adapted from the California BMP Handbook (CASQA, 2003)

2 – Adapted form FHWA (2000)

Note: Not all BMPs will be appropriate for all sites or facilities. BMP selection should be made on a site-specific basis.

Table 8 – Median Influent and Effluent Concentrations for Selected Candidate BMPs and Petroleum Industry Pollutants of Concern

	TSS			Total Copper			Diss. Copper			Total Lead			Diss. Lead			Total Zinc			Diss. Zinc		
	Inf mg/l	Eff mg/l	% rem	Inf µg/l	Eff µg/l	% rem	Inf µg/l	Eff µg/l	% rem	Inf µg/l	Eff µg/l	% rem	Inf µg/l	Eff µg/l	% rem	Inf µg/l	Eff µg/l	% rem	Inf µg/l	Eff µg/l	% rem
Detention Basin																					
Number of BMP studies	9	9		9	9		6	6		9	9		6	6		9	10		6	6	
Median Concentration.	87	41	53%	30	19	35%	12	15	-25%	68	15	78%	3	2	33%	240	86	64%	49	44	10%
Retention Basin (Wet Pond)																					
Number of BMP studies	20	21		13	13		4	4		15	15		5	5		16	17		4	4	
Median Concentration	88	19	78%	18	7	61%	9	5	44%	19	5	74%	9	4	56%	76	29	62%	58	20	66%
Wetland Basin or Channel																					
Number of BMP studies	9	9		2	2		1	1		6	6		2	2		7	7		2	2	
Median Concentration.	83	20	76%	16	3	81%	8	6	25%	28	6	79%	5	3	40%	121	75	38%	45	14	69%
Biofilter (swale, media strip)																					
Number of BMP studies	11	14		12	11		9	8		11	10		9	8		11	10		9	8	
Median Concentration.	61	25	59%	29	10	66%	13	8	38%	28	9	68%	3	1	66%	193	53	73%	70	32	54%
Hydrodynamic Separator																					
Number of BMP studies	12	13		9	9		6	6		8	8		6	6		11	11		6	6	
Median Concentration.	111	40	64%	21	14	33%	13	9	31%	22	13	41%	2	2	0%	167	90	46%	49	45	8%
Media Filter (various types)																					
Number of BMP studies	12	18		12	18		10	16		12	18		10	16		12	18		10	16	
Median Concentration.	62	25	60%	15	10	33%	9	8	11%	16	5	69%	2	1	50%	122	65	47%	72	57	21%

Inf = influent concentration; Eff = effluent concentration; % rem = % of constituent removed in selected BMP, calculated using median values

Data obtained from the ASCE BMP database (ASCE, 2001)

Note: Not all BMPs will be appropriate for all sites or facilities. BMP selection should be made on a site-specific basis.

BMP Selection

As noted above, selection of candidate structural BMPs for petroleum industry facilities will be tailored to specific facility conditions and constraints. Table 9 presents a matrix of guidelines for selecting structural BMPs based on site conditions. These guidelines should be considered general guidelines. All candidate structural BMPs described in Table 9 are potentially applicable to address specific site requirements or aspects of site-specific runoff conditions. Consistent with the BMP databases, the candidate structural BMPs contained in Table 9 are rated on their relative ability to remove pollutants. The candidate structural BMPs in Table 9 are not rated on their ability to remove pollutants to CTR levels and, in fact, may not be sufficient to reduce pollutants to CTR levels at end-of-pipe.

Table 9 – General Guidance for Selection of Candidate Structural BMPs at Industrial Facilities

Site Conditions	Wet Basin	Wetlands	Infiltration Methods	Dry Detention Basins	Biofilters	Media Filters	Detention Vaults & Vortex Separators	Catch basin inserts
Receiving water quality issues/concerns. Good treatment performance required for petroleum industry pollutants of concern.	Good candidate	Good candidate	Good candidate	Average candidate	Average to good candidate	Average to good candidate	Poor to average candidate	Poor to average candidate
Effectiveness is dependent on good infiltrative properties of local soils at the industrial facility	Not required	Not required	Required	Not required	Not required	Required	Not required	Not required
Concern/risk of groundwater contamination and environmental fate of petroleum industry pollutants of concern.	Average to good candidate	Poor to average candidate	Poor candidate	Average to good candidate	Poor to average candidate	Good candidate	Good candidate	Good candidate
Space constraints at industrial facility	Poor candidate	Poor candidate	Average candidate	Poor to average candidate	Poor candidate	Average to good candidate	Good candidate	Good candidate
Drainage area size of industrial facility. Need for capability to treat large runoff volumes.	Good candidate	Good candidate	Average candidate	Good candidate	Poor candidate	Poor candidate	Average to good candidate	Poor candidate
Concern of monitoring, maintenance, and pre-treatment requirements needed to ensure good performance	Good candidate	Average candidate	Poor to average candidate	Good candidate	Average to good candidate	Poor to average candidate	Good candidate	Average candidate
Cost concerns for capital and O&M expenditures.	Average to good candidate	Poor to average candidate	Poor to average candidate	Average to good candidate	Average to good candidate	Poor to average candidate	Average candidate	Good candidate

Site Conditions	Wet Basin	Wetlands	Infiltration Methods	Dry Detention Basins	Biofilters	Media Filters	Detention Vaults & Vortex Separators	Catch basin inserts
General suitability for petroleum industry facilities	Moderate to High	Moderate	Low to Moderate	Moderate to High	Low to Moderate	Moderate	Moderate	Low to Moderate

Note: Not all BMPs will be appropriate for all sites or facilities. BMP selection should be made on a site-specific basis.

Estimating BMP Effectiveness at Subject Facilities

As detailed above, a wide variety of data are collected by industrial facilities to evaluate water quality in storm water flows. Many facilities collect only dissolved, or only total, metals concentrations, and few collect sufficient data to allow a thorough investigation of BMP effectiveness. Within the data set reviewed for this project, two facilities, Facility A and Facility B, collected data that allow for an estimation of BMP effectiveness, as detailed below.

Estimating BMP Effectiveness for Facility A

The effectiveness of storm water treatment in the retention basin at Facility A was evaluated with available monitoring information from the site, as well as with available regional monitoring information. Facility A has experienced three minor discharges to the Dominguez Channel within the current permit term. Sampling data were collected at the entrance point to the on-site detention basin (Location 1) and at the outfall to receiving waters (Location 2) for one of these storms, which occurred on February 12, 2003. During this storm, the total volume of storm water discharged to the receiving water was 7,450 gallons.

These data allow a partial evaluation of the effectiveness of on-site detention in reducing total metals concentrations, but the data may not accurately describe the water quality of discharges from the detention basin because of other storm water impoundments and sources between the detention basin (Location 1) and the Dominguez Channel outfall (Location 2). According to the storm water pollution prevention plan (SWPPP) for Facility A, storm water from the retention basin is pumped to a drainage ditch between the retention basin and a separate on-site impoundment, and then may eventually flow to the Dominguez Channel outfall. The separate on-site impoundment may also receive runoff downstream of the retention basin and additional runoff from site surface drainage. The operational policy of Facility A is generally to limit storm water discharges to the Dominguez Channel, which generally occur only when the on-site storm water storage capacity (equivalent to a 10-year, 24-hour storm event) is exceeded.

Table 10 presents the mean and median constituent concentrations in storm water flows influent to the detention basin (Location 1). Comparison of the median concentration shown in Table 10 with the Los Angeles County land use water quality monitoring data (see Appendix A) indicates that storm water quality at Facility A Location 1 is generally comparable to that observed from light industrial land uses within the County, with the exception of total nickel, which is higher.

Table 10 – Mean and Median Storm Water Concentrations at Facility A, Location 1

Constituent	No. of samples (No. of non-detects)	Mean Concentration	Median Concentration
TSS [mg/L]	9 (0)	205	130
Total Copper [µg/L]	14 (4)	40	27
Total Nickel [µg/L]	9 (0)	637	597
Total Zinc [µg/L]	9 (0)	43	40

As shown in Table 11, total metals concentrations decreased significantly as a result of detention. Total metals removal rates for the single sample collected at Facility A ranged from 45% for nickel to 69% for copper. (Note that no dissolved metals concentration data were available for storm water collected from Facility A.) The comparison with data from the BMP database suggests that metals removals for Facility A are generally comparable to median percent removals for wet basins. In addition, it is possible that the actual performance of the retention basin is better than indicated in Table 11, given the likely storm water inputs that occur between the retention basin and the Dominguez Channel outfall. However, it is unlikely that end-of-pipe post-BMP concentrations will be lower than CTR levels.

Table 11 – Facility A Pre- and Post-BMP Concentrations of Total Metals Collected 2/12/2003

	Data from Facility A			Data from BMP database[1]	
Parameter	**Location 1 (Detention Basin) [µg/L]**	**Location 2 (Detention Basin Effluent) [µg/L]**	**Percent of total metals removed during detention**	**Number of studies**	**Median % removal**
TSS [mg/L]	470	230	51%	10	80%
Total Zinc	803	369	54%	10	75%
Total Nickel	54.3	29.7	45%	5	18%
Total Copper	86.0	26.7	69%	11	35%

[1] Data for wet basins

Estimating Metals Reductions Achievable by BMPs at Facility B

A significantly larger quantity of data were available for Facility B than for the other facilities examined here. These extensive monitoring data were reviewed and evaluated with the following objectives:

1. Characterize TSS monitoring data and compare it with LA County land use monitoring data.
2. Evaluate TSS data for possible dissolved/total metals trends.
3. Determine ratios of dissolved to total metals concentrations. Compare with available literature information.

Table 10 – Mean and Median Storm Water Concentrations at Facility A, Location 1

Constituent	No. of samples (No. of non-detects)	Mean Concentration	Median Concentration
TSS [mg/L]	9 (0)	205	130
Total Copper [µg/L]	14 (4)	40	27
Total Nickel [µg/L]	9 (0)	637	597
Total Zinc [µg/L]	9 (0)	43	40

As shown in Table 11, total metals concentrations decreased significantly as a result of detention. Total metals removal rates for the single sample collected at Facility A ranged from 45% for nickel to 69% for copper. (Note that no dissolved metals concentration data were available for storm water collected from Facility A.) The comparison with data from the BMP database suggests that metals removals for Facility A are generally comparable to median percent removals for wet basins. In addition, it is possible that the actual performance of the retention basin is better than indicated in Table 11, given the likely storm water inputs that occur between the retention basin and the Dominguez Channel outfall. However, it is unlikely that end-of-pipe post-BMP concentrations will be lower than CTR levels.

Table 11 – Facility A Pre- and Post-BMP Concentrations of Total Metals Collected 2/12/2003

	Data from Facility A			Data from BMP database[1]	
Parameter	**Location 1 (Detention Basin) [µg/L]**	**Location 2 (Detention Basin Effluent) [µg/L]**	**Percent of total metals removed during detention**	**Number of studies**	**Median % removal**
TSS [mg/L]	470	230	51%	10	80%
Total Zinc	803	369	54%	10	75%
Total Nickel	54.3	29.7	45%	5	18%
Total Copper	86.0	26.7	69%	11	35%

[1] Data for wet basins

Estimating Metals Reductions Achievable by BMPs at Facility B

A significantly larger quantity of data were available for Facility B than for the other facilities examined here. These extensive monitoring data were reviewed and evaluated with the following objectives:

1. Characterize TSS monitoring data and compare it with LA County land use monitoring data.
2. Evaluate TSS data for possible dissolved/total metals trends.
3. Determine ratios of dissolved to total metals concentrations. Compare with available literature information.

Table 10 – Mean and Median Storm Water Concentrations at Facility A, Location 1

Constituent	No. of samples (No. of non-detects)	Mean Concentration	Median Concentration
TSS [mg/L]	9 (0)	205	130
Total Copper [µg/L]	14 (4)	40	27
Total Nickel [µg/L]	9 (0)	637	597
Total Zinc [µg/L]	9 (0)	43	40

As shown in Table 11, total metals concentrations decreased significantly as a result of detention. Total metals removal rates for the single sample collected at Facility A ranged from 45% for nickel to 69% for copper. (Note that no dissolved metals concentration data were available for storm water collected from Facility A.) The comparison with data from the BMP database suggests that metals removals for Facility A are generally comparable to median percent removals for wet basins. In addition, it is possible that the actual performance of the retention basin is better than indicated in Table 11, given the likely storm water inputs that occur between the retention basin and the Dominguez Channel outfall. However, it is unlikely that end-of-pipe post-BMP concentrations will be lower than CTR levels.

Table 11 – Facility A Pre- and Post-BMP Concentrations of Total Metals Collected 2/12/2003

	Data from Facility A			Data from BMP database[1]	
Parameter	**Location 1 (Detention Basin) [µg/L]**	**Location 2 (Detention Basin Effluent) [µg/L]**	**Percent of total metals removed during detention**	**Number of studies**	**Median % removal**
TSS [mg/L]	470	230	51%	10	80%
Total Zinc	803	369	54%	10	75%
Total Nickel	54.3	29.7	45%	5	18%
Total Copper	86.0	26.7	69%	11	35%

[1] Data for wet basins

Estimating Metals Reductions Achievable by BMPs at Facility B

A significantly larger quantity of data were available for Facility B than for the other facilities examined here. These extensive monitoring data were reviewed and evaluated with the following objectives:

1. Characterize TSS monitoring data and compare it with LA County land use monitoring data.
2. Evaluate TSS data for possible dissolved/total metals trends.
3. Determine ratios of dissolved to total metals concentrations. Compare with available literature information.

Table 12 shows the average TSS, copper, nickel, and zinc concentrations for two monitoring locations at Facility B. Sites 1 and 2 are located upstream of a detention facility. Data collected at these locations characterize the storm water runoff quality from Facility B prior to detention. No discharges to receiving waters occurred during the time period for which monitoring data were available for Facility B, and no monitoring data were available for waters leaving the detention basins.

Table 12 – Average TSS and Metal Concentrations at the Entrance to Detention Basins at Facility B

	TSS (mg/L)	Copper (ug/L)		Nickel (ug/L)		Zinc (ug/L)	
		Total	Dissolved	Total	Dissolved	Total	Dissolved
Facility B – Storm 12-20-02							
Site 1	67	44	14	13	5	286	147
Site 2	223	67	15	31	5	280	35
Facility B – Storm 2-11-03							
Site 1	132	53	14	12	3	217	79
Site 2	541	77	10	33	4	246	17
Facility B – Storm 2-24-03							
Site 1	80	41	12	10	3	231	143
Site 2	332	54	11	23	3	234	84
Facility B – All Storms							
Site 1	97	47	14	12	4	243	118
Site 2	335	66	12	29	4	257	48

Average TSS concentrations were compared to average concentrations from Los Angeles County land use-based monitoring. The overall average TSS concentration at Site 1 was approximately 97 mg/L, which is comparable to the mean TSS concentrations for single family residential and transportation land uses in LA County (approximately 70 to 100 mg/L). The overall average TSS concentration at Site 2 was greater than at Site 1 (335 mg/L), and was consistently greater than Site 1 for each storm event. The mean TSS concentration at Site 2 exceeds the mean concentration observed from light industrial areas in LA County (240 mg/L). This information suggests that there may be greater impervious coverage in the catchment to Site 1, and/or there may be greater open space areas with significant sediments sources in the catchment to Site 2.

Average total metal concentrations in Table 12 correspond to average TSS concentrations. Site 2 generally has higher TSS and total metals concentrations, and Site 1 generally has lower TSS and higher dissolved metals concentrations. These data demonstrate that as average TSS levels increase, the fraction of metals associated with sediments (particulate phase metals) also increases. This is illustrated in Figure 10, which presents the relationship between total and dissolved metal concentrations and TSS concentration. Note that dissolved metal concentrations are relatively constant over the range of TSS concentrations, especially for copper and nickel. Dissolved zinc concentrations exhibit more scatter at lower TSS concentrations. The total metal concentrations for all three metals, in contrast, exhibit

increasing trends with increasing TSS concentrations, indicating that treatment processes that are effective at reducing TSS will correspondingly reduce total metals, but will likely have little or no influence on dissolved metals.

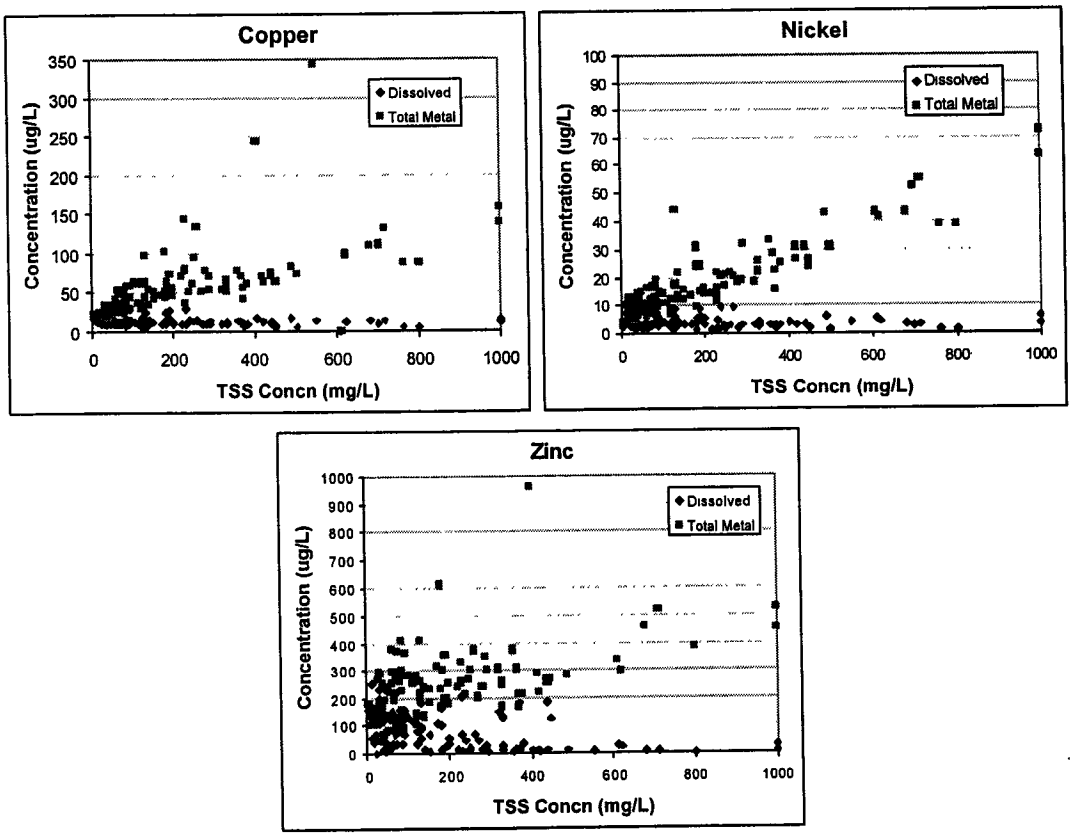

Figure 10 – Relationship between Total and Dissolved Metal Concentrations and TSS at Facility B

Particulate phase metals concentrations were calculated for all paired Facility B monitoring data. Figure 10 shows the percent of total metals in the particulate phase versus TSS concentration. As expected, the amount of metals associated with particulates exhibits increasing trends with TSS concentration. For elevated TSS levels (greater than 100 mg/L), which are observed primarily at Site 2, the fraction of particulate metals is generally greater than 80%. Thus, for TSS levels greater than approximately 100 mg/L, significant reductions in total metal concentrations can be achieved with BMPs that are effective at reducing TSS. However, to achieve significant reduction in total metal concentrations given TSS levels less than approximately 100 mg/L, BMP selection may need to consider reducing impacts via impoundment, infiltration, or other mechanisms that may limit discharges to receiving waters.

Alternatively, BMPs that reduce dissolved concentrations of metals may be considered, when available and where appropriate (see discussion in the following section), for discharges where metals are found primarily in the dissolved phase.

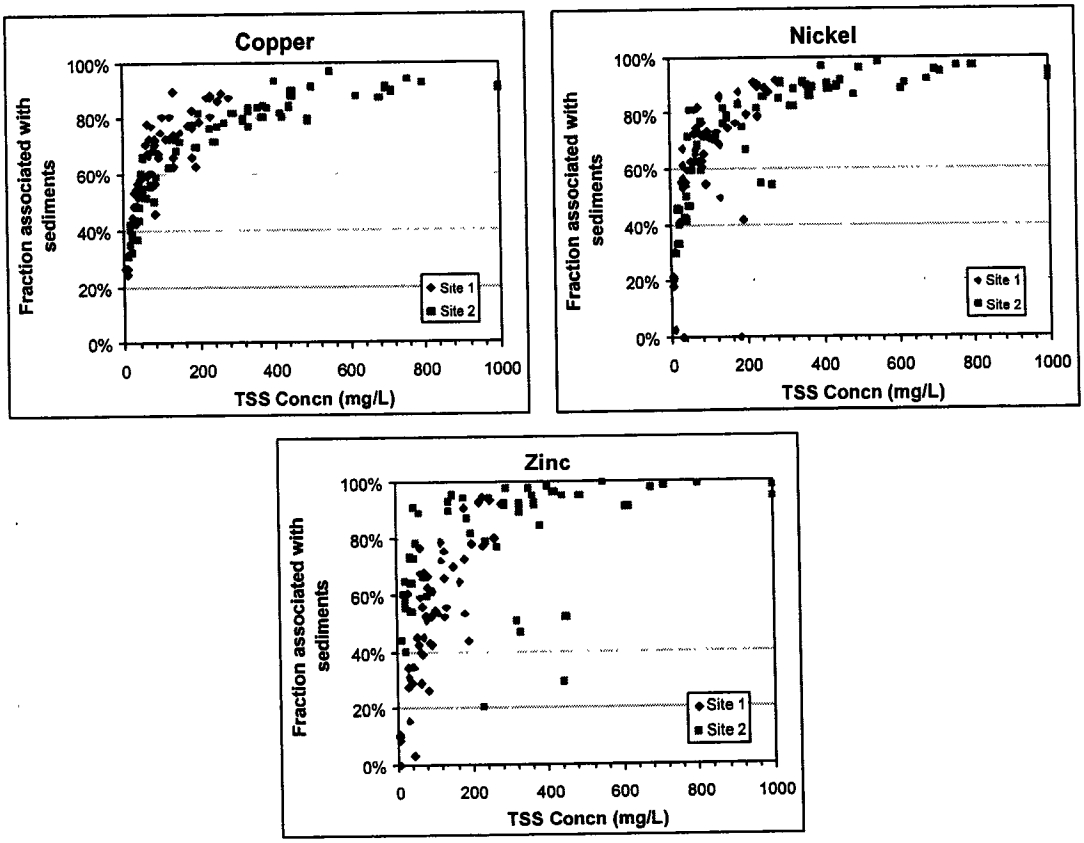

Figure 11 – Relationship between TSS and Metal Partitioning at Facility B

The fraction of metals associated with particulates is summarized in Table 13. Literature information from Sansalone (1997) is also included in Table 13 for comparison. Sansalone (1997) has conducted extensive studies to characterize metal partitioning in storm water runoff from highways. Comparisons show that average proportions of particulate-bound metals are generally higher in the Facility B monitoring data than in the data collected by Sansalone. This is especially notable for zinc, which is commonly characterized as having low levels of particulate bound metals in stormwater (23% found by Sansalone), whereas the Facility B monitoring shows quite high levels of particulate-bound zinc, generally greater than 50% and ranging up to 90%. These differences are important for two reasons: first, higher fractions of particle-bound metals indicate a greater "treatability" via BMPs, which generally remove particulate-bound metals more readily than dissolved metals. Second, because it is the dissolved

metals fraction that causes toxicity in receiving waters, storm waters with a higher-than-average fraction of particulate-bound metals are far less likely to cause toxicity in receiving waters. Differences between data from Facility B and the Sansalone data may be due to the location at which samples were collected: the Sansalone data are generally from sites east of the Mississippi (Ohio and Louisiana). Whether this is a site-specific condition, or representative of petroleum industrial facilities in general, is not known. However, it does highlight the need for site-specific evaluation and selection of both structural and non-structural BMPs.

Table 13 – Average Fraction of Particulate Metals

	Copper	Nickel	Zinc
Facility B – Storm on 12-20-02			
Site 1	65%	64%	47%
Site 2	61%	65%	76%
Facility B – Storm on 2-11-03			
Site 1	68%	63%	62%
Site 2	82%	84%	90%
Facility B – Storm on 2-24-03			
Site 1	60%	60%	45%
Site 2	74%	80%	72%
Facility B – All Storms			
Site 1	65%	63%	53%
Site 2	71%	75%	79%
Sansalone (1997)	54%	41%	23%

BMP Options for Removal of Dissolved Metals

Retention basins are considered fairly effective at reducing TSS levels in storm water. Primary factors in treatment effectiveness are detention time and particle size distribution of the suspended sediments in the influent to the detention pond, where a longer detention time and larger sediment particle size will improve treatment efficiency. Information from the ASCE BMP database shows a median TSS reduction of 64% for extended detention basins. As discussed above, removal of sediments will result in reductions in total metals concentrations. Figure 12 shows percent reductions of copper and zinc as a function of particulate fraction, based on information from the ASCE BMP database. These plots indicate that increasingly better removals of total copper and zinc concentrations can be expected as the fraction of particulate metals increases. The high fraction of particulate metals observed in the influent flows to extended detention basins at Facility B suggests that significant reductions in total metals can be reasonably expected in the extended detention basin at Facility B.

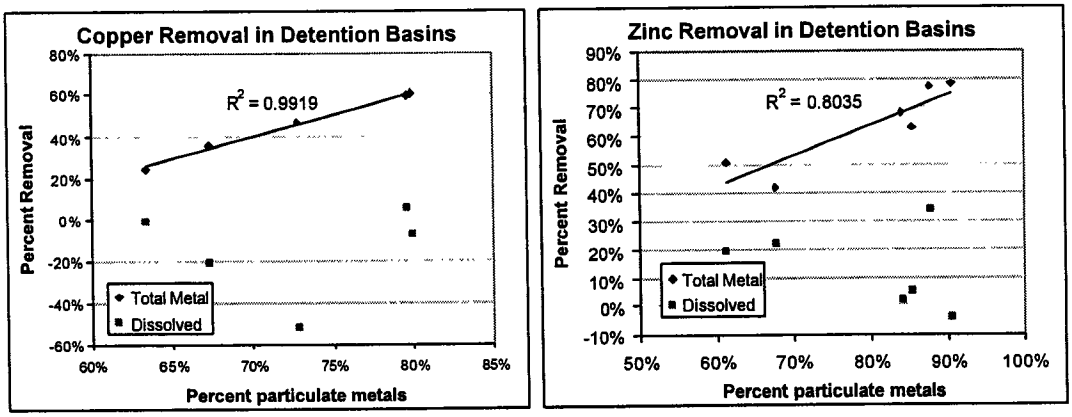

Figure 12 – Percent Removal as a Function of Metal Partitioning

In general, dissolved phase metals cannot be removed through settling of TSS, and removal efficiencies for dissolved metals in detention basins (Table 8) are low (< 20%) or negative in many cases. Where dissolved phase concentrations of metals in storm water exceed CTR criteria, there is a good possibility that discharges to receiving waters would occasionally exceed the CTR criteria as well. As shown in Table 8, certain BMPs can reduce concentrations of dissolved phase metals somewhat, although end-of-pipe concentrations of dissolved metals after BMP management may remain above CTR levels. However, not all candidate BMPs (as discussed below) will be appropriate or feasible for use at every site. As with all BMPs, sizing and operation of BMPs to remove dissolved metals would depend upon site constraints and the volume of water to be treated, among other factors.

Methods to reduce dissolved metal concentrations generally involve adsorption mechanisms, such as infiltration and media filtration using filter media that allows for adsorption. Infiltration BMPs are moderately effective methods for reducing metals loadings, and depend on the metal species present in storm water and the soil properties. Dissolved metals removed during infiltration are typically bound to soil particles near the ground surface.

A variety of media types have been tested for storm water treatment, including sand, peat/sand mixtures, compost, and zeolite. Experience with sand filters for storm water treatment suggests that these systems may have limited effectiveness for soluble compounds because of the lack of sorption areas. Media filtration using peat-sand mixtures have been found to provide the highest metal capture capability, but are prone to clogging and may have negative impacts on pH. Compost filters are also reported to have good metal capture capability for a range of species and are reported to have fewer problems from clogging and pH adjustment. Zeolite has been reported to have less efficient metal capture capability than either peat/sand or compost media. Pilot testing of filter media would likely be required on a site-specific basis to ensure that they operate as desired, without harmful "side effects," before these BMPs could be employed at facilities.

Filtration through a bioretention system has been reported as providing good treatment of soluble metals. In this approach, water is infiltrated in a soil and plant system, collected in an underdrain, and then discharged. Because metals adsorb strongly to the organic matter, the improved treatability of soluble metals reported for these systems is presumably related to greater organic content present in soil/plant system in comparison to sand filters. Bioretention systems may be difficult to implement on many built-out industrial sites.

CDS Technologies and Stormwater Management, Inc are two manufacturers of flow through media filtration systems. Reported removals efficiencies with the Stormwater Management system range from 49% to 92% for soluble copper and 43% to 64% for soluble zinc with a variety of different media types. Removals of this magnitude may reduce the likelihood of exceedances of the acute CTR criteria for dissolved copper and zinc in discharges from industrial sites to the Dominguez Channel. For facilities with retention, water quality monitoring data for effluent from the detention basins would need to be reviewed to estimate potential performance of media filtration systems and the quality of discharges to receiving waters.

BMP Design Considerations for Storm Water

Many municipal storm water discharge permits in California contain provisions such as Standard Urban Stormwater Mitigation Plans, Stormwater Quality Urban Impact Mitigation Plans, or Provision C.3 New and Redevelopment Performance Standards, commonly referred to as SUSMPs, SQUIMPs, or C.3 Provisions, respectively. What these and similar provisions have in common is that they require many new development and redevelopment projects to capture and then infiltrate or treat runoff from the project site prior to being discharged to storm drains. These provisions include minimum standards for sizing treatment control BMPs. While these standards do not apply to existing facilities that are covered under the NPDES Industrial General Permit, they may be used as a reference for treatment BMP sizing in retrofit situations at industrial facilities.

Sizing standards are prescribed for both volume-based and flow-based BMPs. A key point to consider when sizing treatment control BMPs for stormwater quality enhancement is that BMPs are most efficient and economical when they target small, frequent storm events that over time produce more total runoff than the larger, infrequent storms targeted for design of flood control facilities. (In this sense, the use of detention BMPs at the WSPA member facilities examined here are particularly effective, as they effectively prevent storm water discharges during relatively small, frequent storm events.) When candidate BMPs are designed for increasingly larger storms (for example, storms up to 1 inch versus storms of up to 0.5 inch), the BMP size and cost increase dramatically, while the number of additional treated storm events is small.

Typically, the incremental cost of employing candidate BMPs will increase as event sizes increase, making increases beyond a certain point generally unattractive. Design criteria for water quality control BMPs are generally set to coincide with the "knee of the curve," that is, the

point of inflection where the magnitude of the event increases more rapidly than number of events captured. In other words, targeting design storms larger than this will produce gains at considerable incremental cost.

SUMMARY

Available data demonstrate that runoff from the WSPA facilities examined here is comparable in quality to runoff from other major land uses and to receiving waters during storm conditions. These data demonstrate that these WSPA facilities would likely not increase receiving water concentrations of metals. At WSPA facilities where on-site retention prevents discharges to the receiving water for many storm events, metal fluxes generally occur only during larger storm events.

Available data also demonstrate that storm flows are significantly different from traditional point source discharges. Both flow rates and pollutant concentrations vary greatly from storm to storm, and over short timescales within storms, in both storm water discharges and in receiving waters. While BMPs can help reduce concentrations of constituents in storm flows, BMPs cannot produce discharges with concentrations below CTR criteria end-of-pipe at all times. Further, candidate BMPs must be selected based upon site-specific factors and characterization.

Because of the inherent variability in storm flows and concentrations, it would be wholly inappropriate to insert CTR levels or benchmarks as never-to-be-exceeded numeric limits in permits. The inherent variability in storm flows also renders traditional, steady-state approaches to calculating numeric permit limits improper for storm flows.

To calculate numeric limits for storm flows, the frequency, duration, and magnitude of storm discharges must be considered. Dynamic modeling approaches will be required to develop appropriate numeric limits, but as yet no methodology has been developed or agreed upon to support this process. In large part, this is because the data that would be required to develop a scientifically defensible methodology do not exist.

If numeric limits are to be developed for permits, an appropriate course of action would be to embark upon a data collection program that would gather the data needed to develop a methodology for calculating numeric permit limits. Data required to develop and support a methodology would include effluent and receiving water concentration and flow data, collected more frequently than once per hour over the duration of a storm event, plus detailed information on the facilities where data collection occurs and the nature of the storm events during which data are collected. The methodology to be developed would specify the type and frequency of data collection needed to determine reasonable potential and permit limits; the procedures for determining reasonable potential and permit limits; and the sampling and monitoring required to assess compliance with appropriate limits.

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Appendix A
L.A. County Land Use Data

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Table A-1. 1994-2000 Los Angeles County Land Use Data

Land Use	Class Constituent	DL	Units	No. of Samples	No. of Non-detects	Percent Detects	Mean	Max	Min
Vacant	Dissolved Copper	5	µg/l	64	59	8	S.I.D.	S.I.D.	S.I.D.
	Total Copper	5	µg/l	64	28	56	12.4	270.0	0.0
	Dissolved Nickel	5	µg/l	64	64	0	S.I.D.	S.I.D.	S.I.D.
	Nickel	5	µg/l	64	54	16	S.I.D.	S.I.D.	S.I.D.
	Dissolved Zinc	50	µg/l	64	62	3	S.I.D.	S.I.D.	S.I.D.
	Total Zinc	50	µg/l	64	50	22	41.0	489.0	0.0
High Density Single Family Residential	Dissolved Copper	5	µg/l	48	20	58	8.3	32.5	0.0
	Total Copper	5	µg/l	48	2	96	19.0	69.0	0.0
	Dissolved Nickel	5	µg/l	48	45	6	S.I.D.	S.I.D.	S.I.D.
	Nickel	5	µg/l	48	37	23	3.8	19.0	0.0
	Dissolved Zinc	50	µg/l	48	39	19	S.I.D.	S.I.D.	S.I.D.
	Total Zinc	50	µg/l	48	20	58	71.2	253.0	0.0
Transportation	Dissolved Copper	5	µg/l	80	1	99	31.4	103.0	2.5
	Total Copper	5	µg/l	80	0	100	52.9	292.0	13.0
	Dissolved Nickel	5	µg/l	80	61	24	4.0	40.4	2.0
	Nickel	5	µg/l	80	38	53	5.9	40.4	1.8
	Dissolved Zinc	50	µg/l	80	6	93	209.7	1450.0	16.0
	Total Zinc	50	µg/l	80	1	99	291.9	1810.0	25.0
Light Industrial	Dissolved Copper	5	µg/l	66	14	79	14.3	124.0	0.0
	Total Copper	5	µg/l	66	1	98	45.0	990.0	0.0
	Dissolved Nickel	5	µg/l	66	41	38	4.5	21.0	0.0
	Nickel	5	µg/l	66	26	61	8.5	80.4	0.0
	Dissolved Zinc	50	µg/l	66	7	89	374.9	2650.0	0.0
	Total Zinc	50	µg/l	66	1	98	579.3	5970.0	0.0
Educational	Dissolved Copper	5	µg/l	54	10	81	12.2	59.0	0.0
	Total Copper	5	µg/l	54	0	100	22.3	232.0	5.6
	Dissolved Nickel	5	µg/l	54	49	9	S.I.D.	S.I.D.	S.I.D.
	Nickel	5	µg/l	54	36	33	4.4	12.8	0.0
	Dissolved Zinc	50	µg/l	54	21	61	71.9	320.0	0.0
	Total Zinc	50	µg/l	54	5	91	130.8	1610.0	0.0
Multifamily Residential	Dissolved Copper	5	µg/l	54	20	63	7.2	34.0	0.0
	Total Copper	5	µg/l	54	4	93	12.0	36.0	0.0
	Dissolved Nickel	5	µg/l	54	51	6	S.I.D.	S.I.D.	S.I.D.
	Nickel	5	µg/l	54	45	17	S.I.D.	S.I.D.	S.I.D.

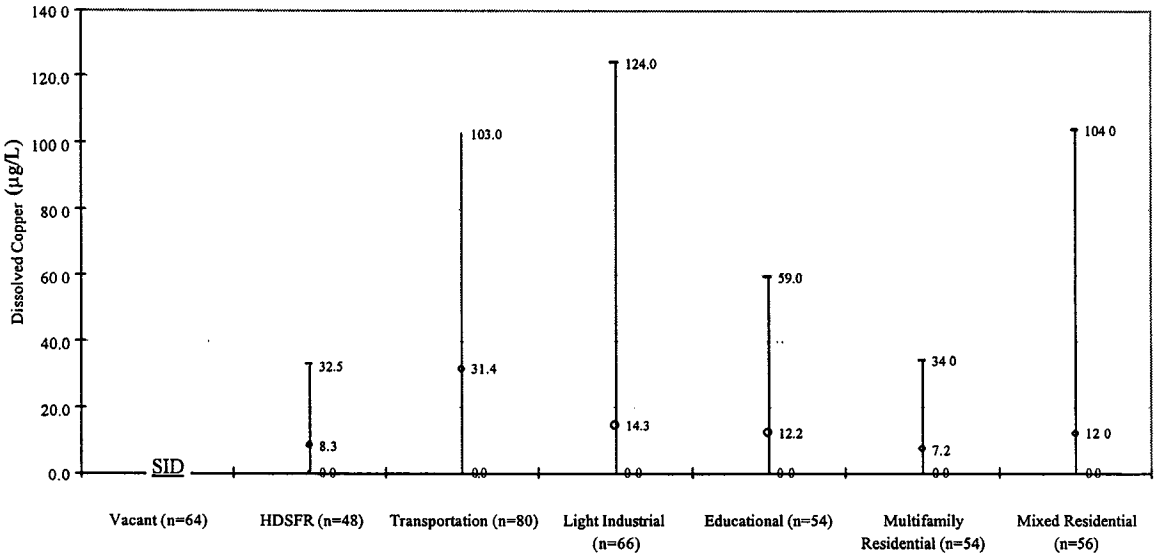
Land Use	Class Constituent	DL	Units	No. of Samples	No. of Non-detects	Percent Detects	Mean	Max	Min
Vacant	Dissolved Copper	5	µg/l	64	59	8	S.I.D.	S.I.D.	S.I.D.
	Total Copper	5	µg/l	64	28	56	12.4	270.0	0.0
	Dissolved Nickel	5	µg/l	64	64	0	S.I.D.	S.I.D.	S.I.D.
	Nickel	5	µg/l	64	54	16	S.I.D.	S.I.D.	S.I.D.
	Dissolved Zinc	50	µg/l	64	62	3	S.I.D.	S.I.D.	S.I.D.
	Total Zinc	50	µg/l	64	50	22	41.0	489.0	0.0
High Density Single Family Residential	Dissolved Copper	5	µg/l	48	20	58	8.3	32.5	0.0
	Total Copper	5	µg/l	48	2	96	19.0	69.0	0.0
	Dissolved Nickel	5	µg/l	48	45	6	S.I.D.	S.I.D.	S.I.D.
	Nickel	5	µg/l	48	37	23	3.8	19.0	0.0
	Dissolved Zinc	50	µg/l	48	39	19	S.I.D.	S.I.D.	S.I.D.
	Total Zinc	50	µg/l	48	20	58	71.2	253.0	0.0
Transportation	Dissolved Copper	5	µg/l	80	1	99	31.4	103.0	2.5
	Total Copper	5	µg/l	80	0	100	52.9	292.0	13.0
	Dissolved Nickel	5	µg/l	80	61	24	4.0	40.4	2.0
	Nickel	5	µg/l	80	38	53	5.9	40.4	1.8
	Dissolved Zinc	50	µg/l	80	6	93	209.7	1450.0	16.0
	Total Zinc	50	µg/l	80	1	99	291.9	1810.0	25.0
	Dissolved Zinc	50	µg/l	54	22	59	81.9	824.0	0.0
	Total Zinc	50	µg/l	54	5	91	136.8	1020.0	0.0
Mixed Residential	Dissolved Copper	5	µg/l	56	17	70	12.0	104.0	0.0
	Total Copper	5	µg/l	56	1	98	18.5	158.0	0.0
	Dissolved Nickel	5	µg/l	56	50	11	S.I.D.	S.I.D.	S.I.D.
	Nickel	5	µg/l	56	50	11	S.I.D.	S.I.D.	S.I.D.
	Dissolved Zinc	50	µg/l	56	10	82	137.6	1020.0	0.0
	Total Zinc	50	µg/l	56	1	98	198.3	1610.0	0.0

Source: Mert Ramos, Los Angeles Department of Public Works Watershed Division, April 14, 2004 (Data support Table 4-12 of the Los Angeles County 1994-2000 Integrated Receiving Water Impacts Report).
S.I.D. = Statistically Invalid Data, not enough data above detection limit collected

1994-2001 LA County Land Use Max, Min, and Average

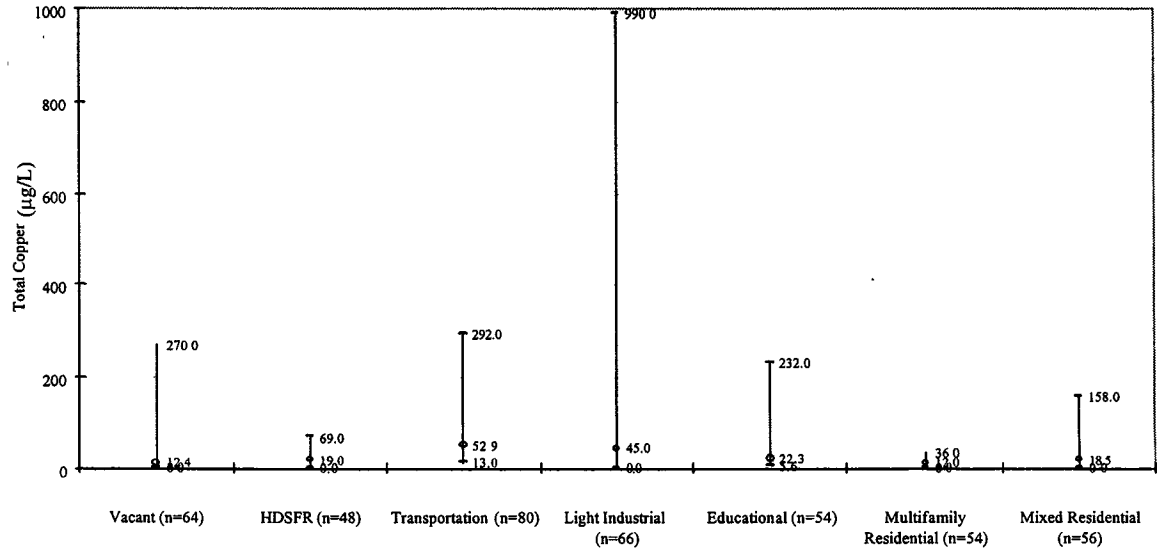
1994-2001 Dissolved Copper Land Use Data

Plot of Max, Min, and Average



1994-2001 Total Copper Land Use Data

Plot of Max, Min, and Average



1994-2001 LA County Land Use Max, Min, and Average

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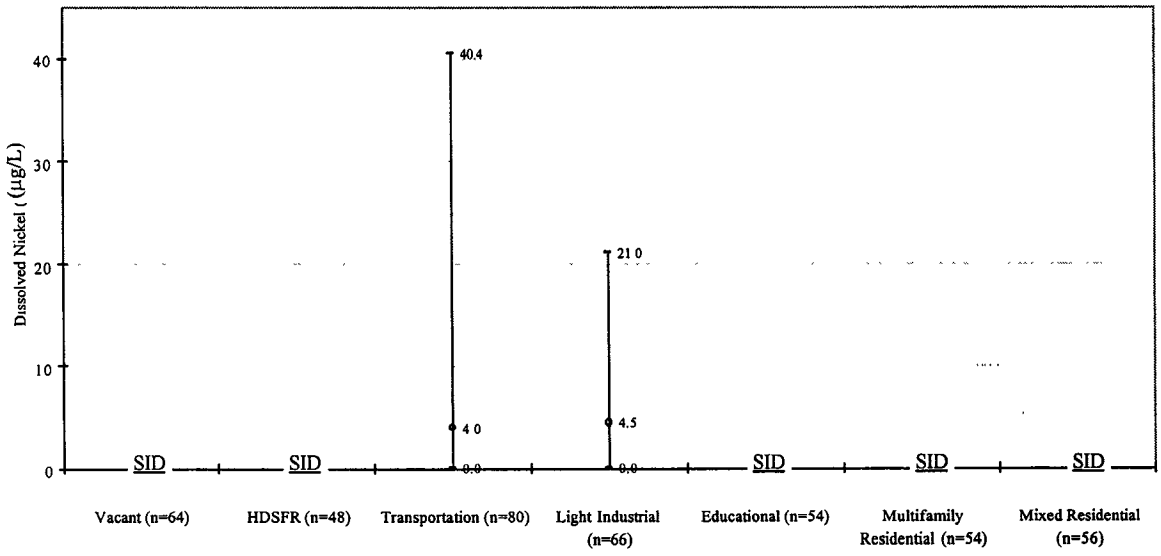
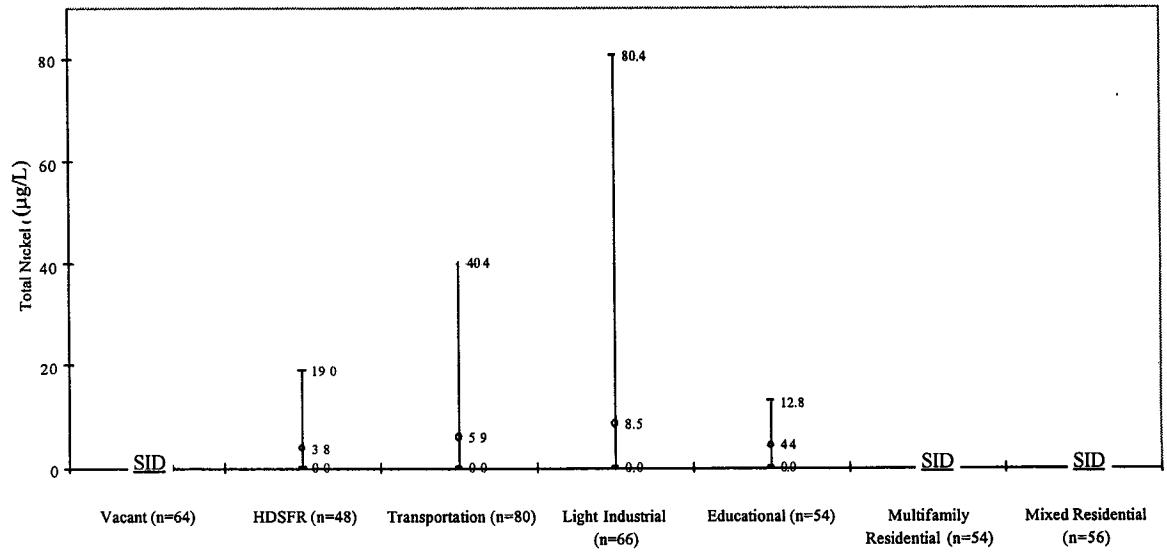
1994-2001 Dissolved Nickel Land Use Data

Plot of Max, Min, and Average



1994-2001 Total Nickel Land Use Data

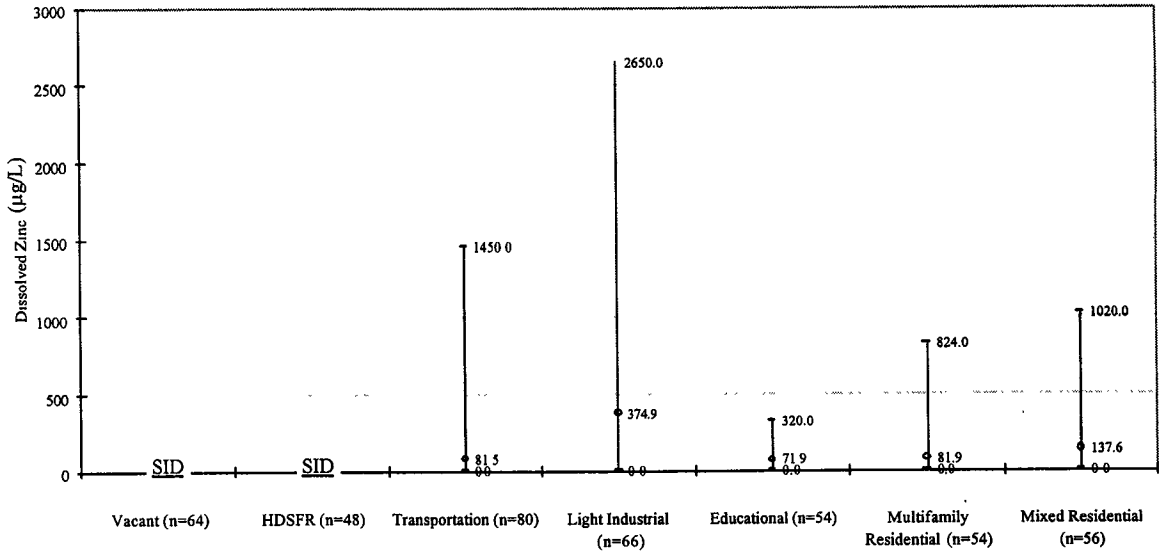
Plot of Max, Min, and Average



1994-2001 LA County Land Use Max, Min, and Average

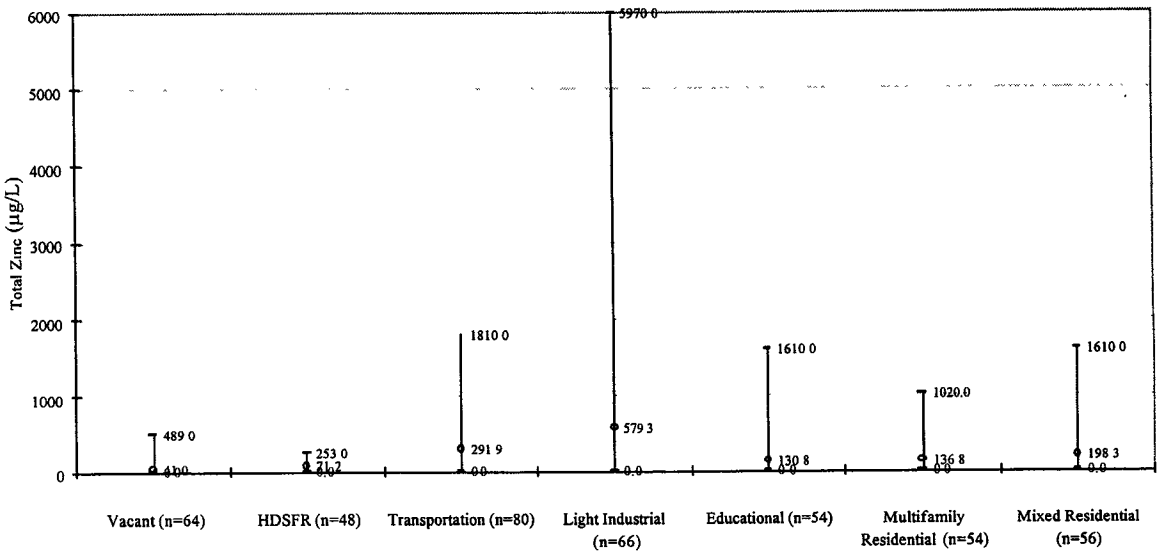
1994-2001 Dissolved Zinc Land Use Data

Plot of Max, Min, and Average



1994-2001 Total Zinc Land Use Data

Plot of Max, Min, and Average



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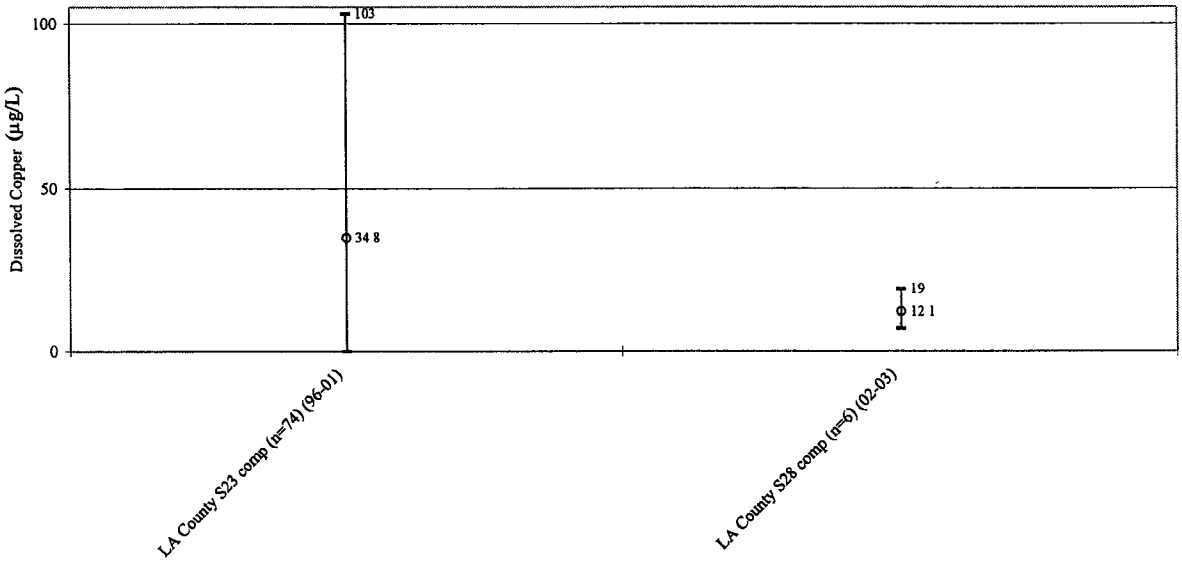
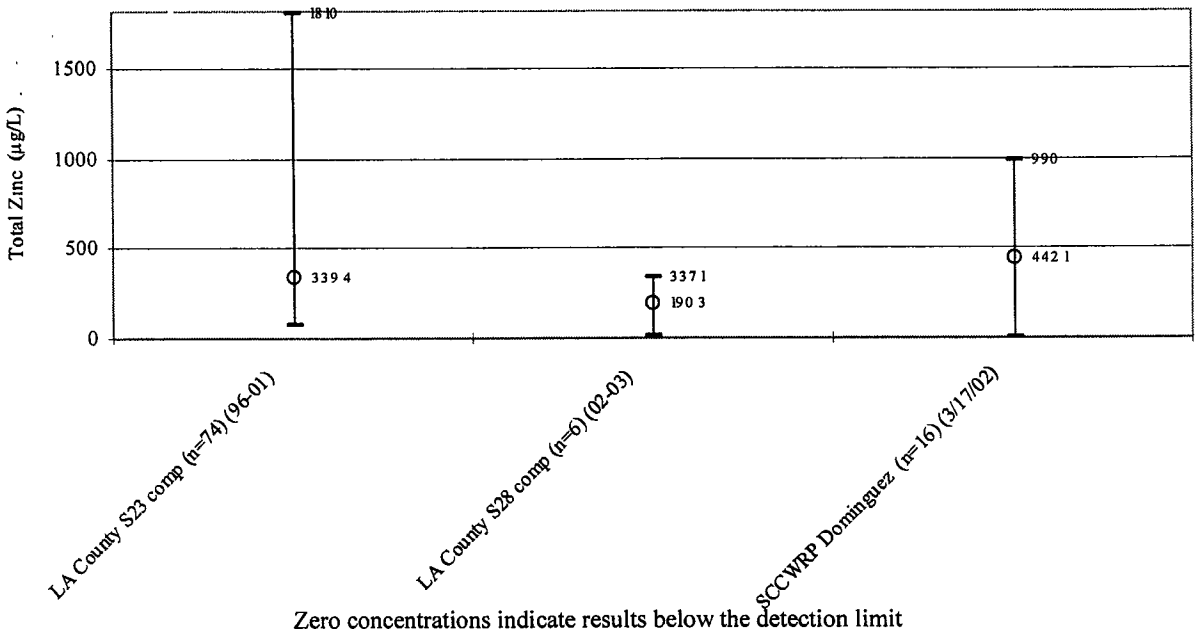
Appendix B
Plots of Receiving Water Monitoring Data

Receiving Water
Max, Min, and Average

Dissolved Copper Receiving Water Data
Plot of Max, Min, and Average



Total Zinc Receiving Water Data
Plot of Max, Min, and Average



Zero concentrations indicate results below the detection limit

Receiving Water
Copper Concentrations Over Time

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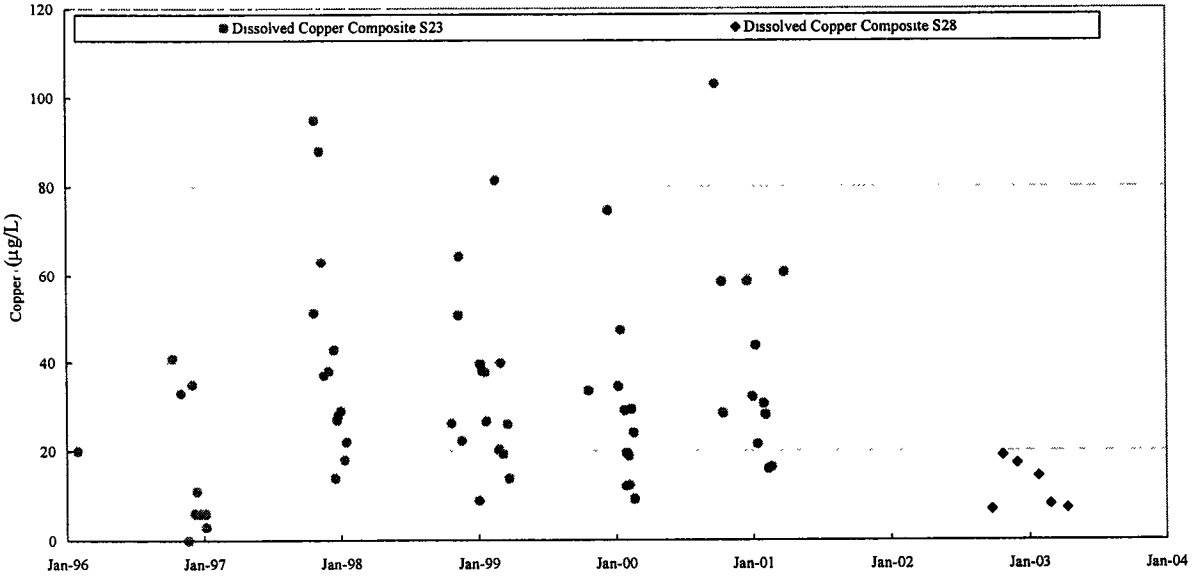
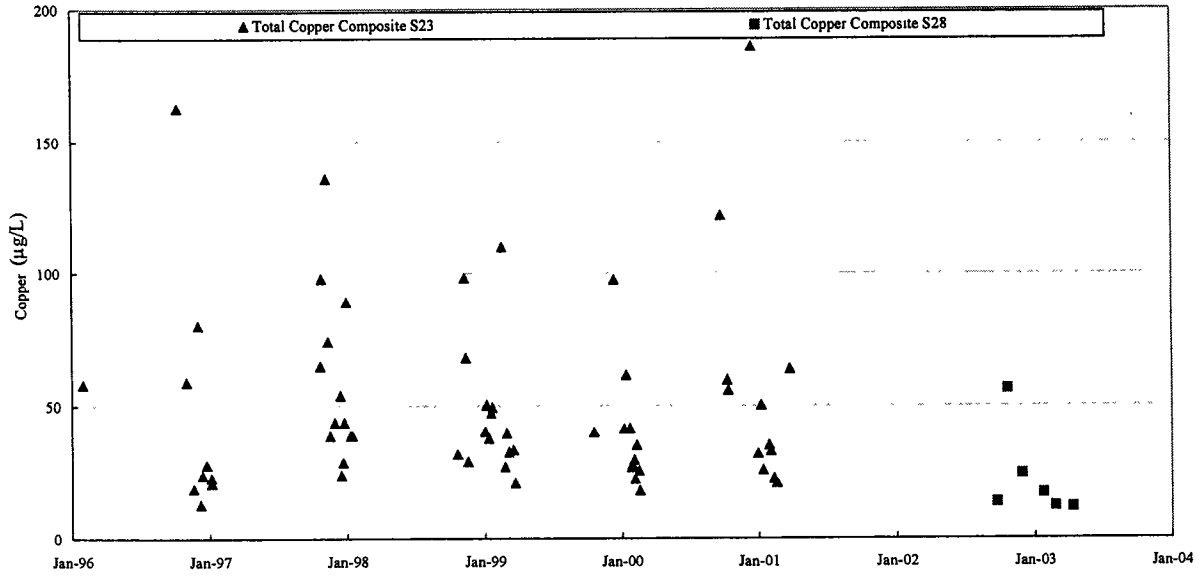
Dominguez Channel Historic Dissolved Copper Records



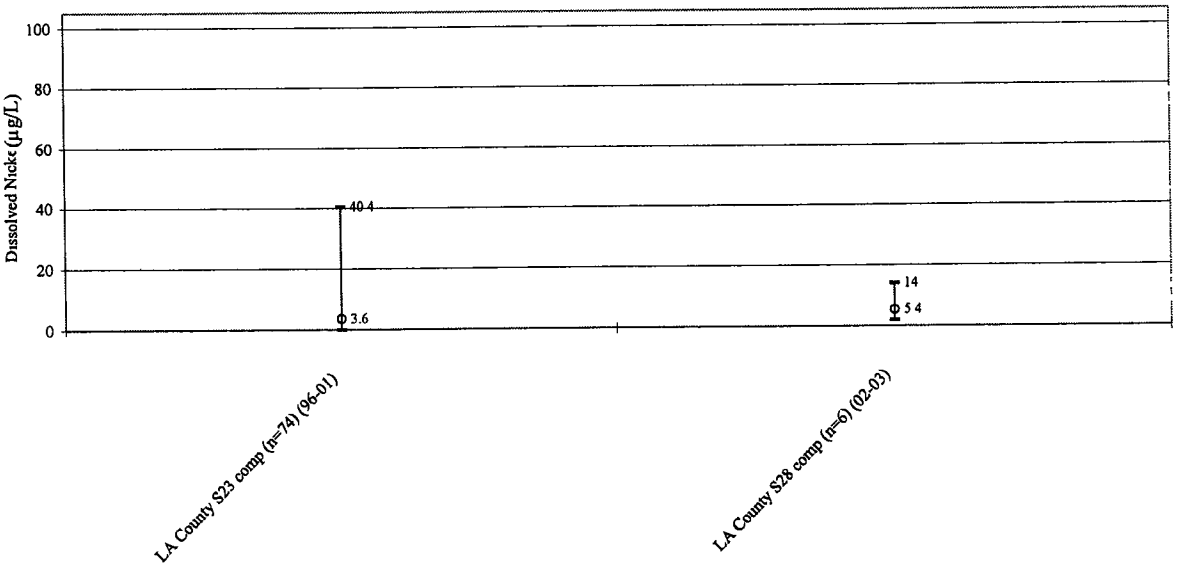
Dominguez Channel Historic Total Copper Records



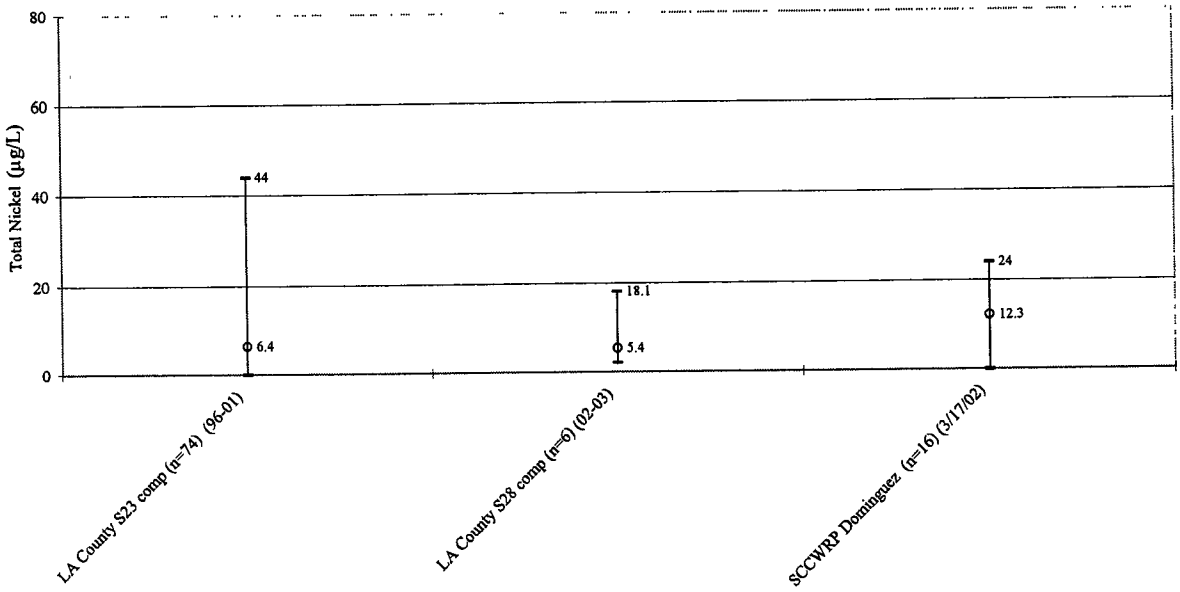
Zero concentrations indicate results below the detection limit

Receiving Water
Max, Min, and Average

Dissolved Nickel Receiving Water Data
Plot of Max, Min, and Average



Total Nickel Receiving Water Data
Plot of Max, Min, and Average

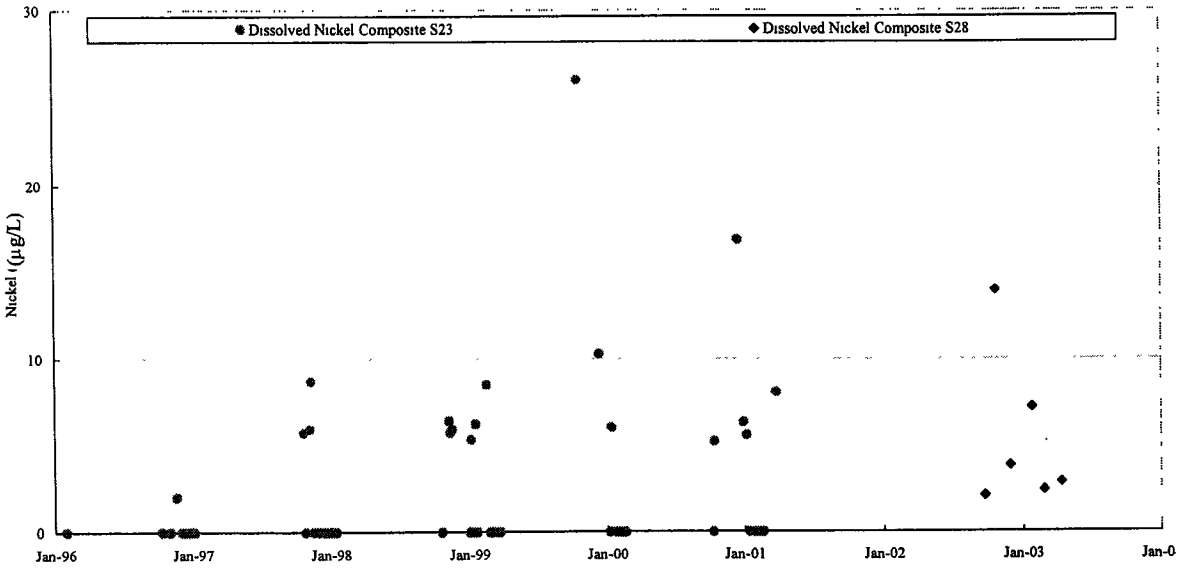


Zero concentrations indicate results below the detection limit

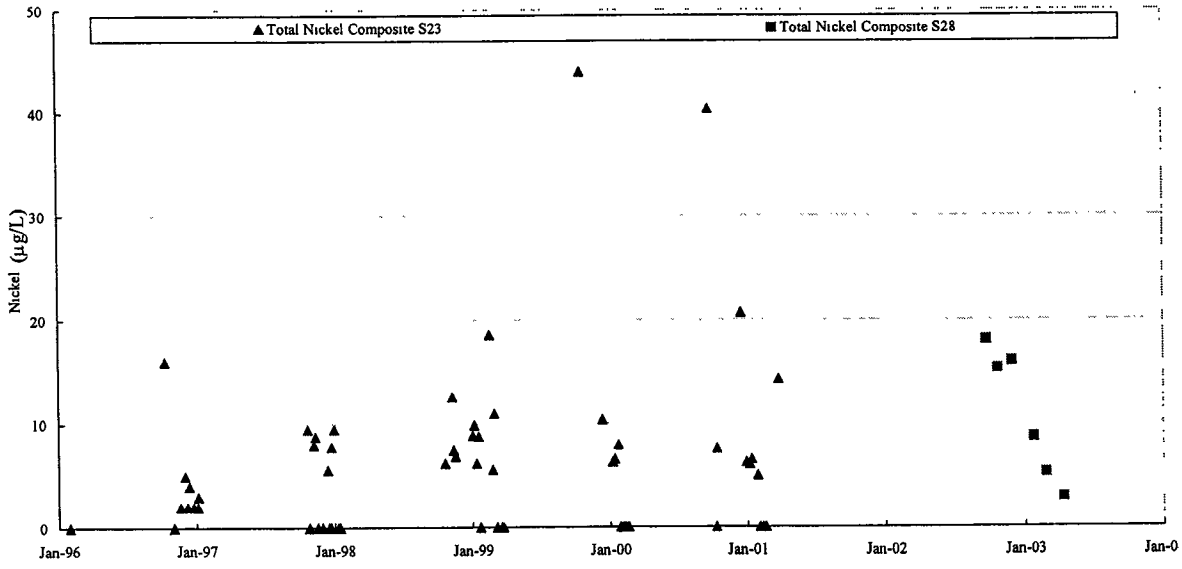
Receiving Water
Nickel Concentrations Over Time

FLOW SCIENCE

Dominguez Channel Historic Dissolved Nickel Records



Dominguez Channel Historic Total Nickel Records

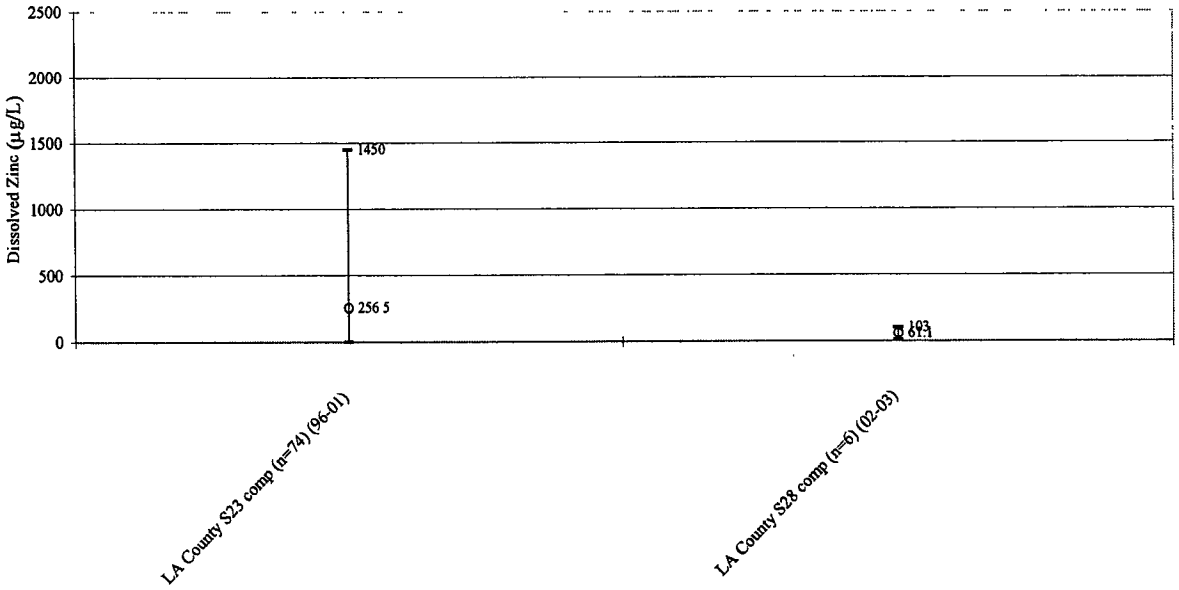


Zero concentrations indicate results below the detection limit

Receiving Water
Max, Min, and Average

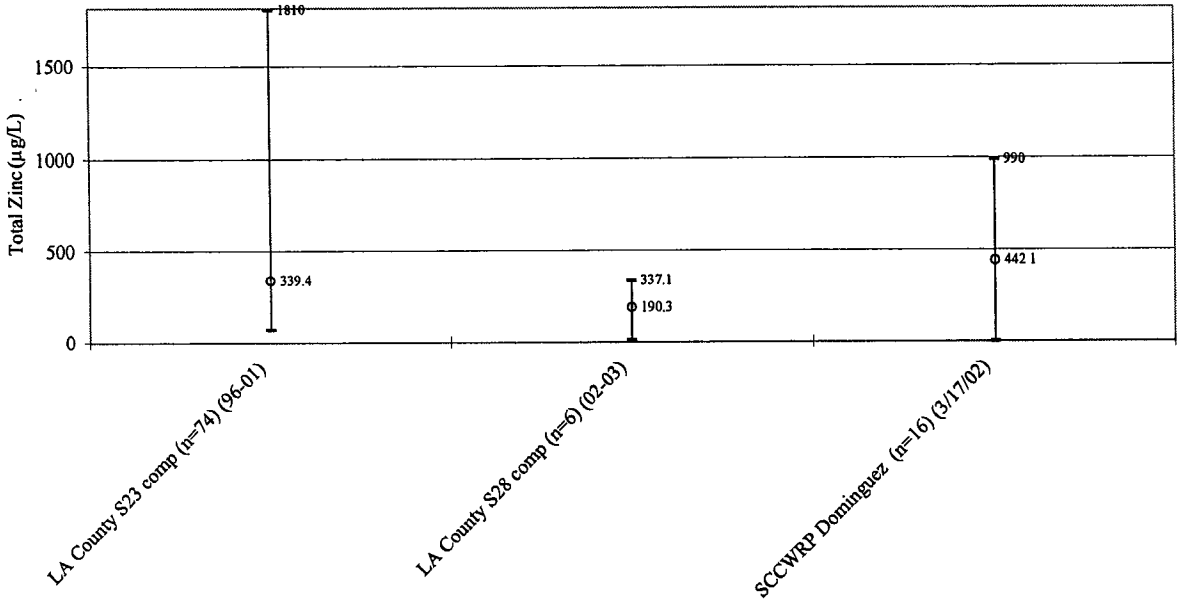
Dissolved Zinc Receiving Water Data

Plot of Max, Min, and Average



Total Zinc Receiving Water Data

Plot of Max, Min, and Average

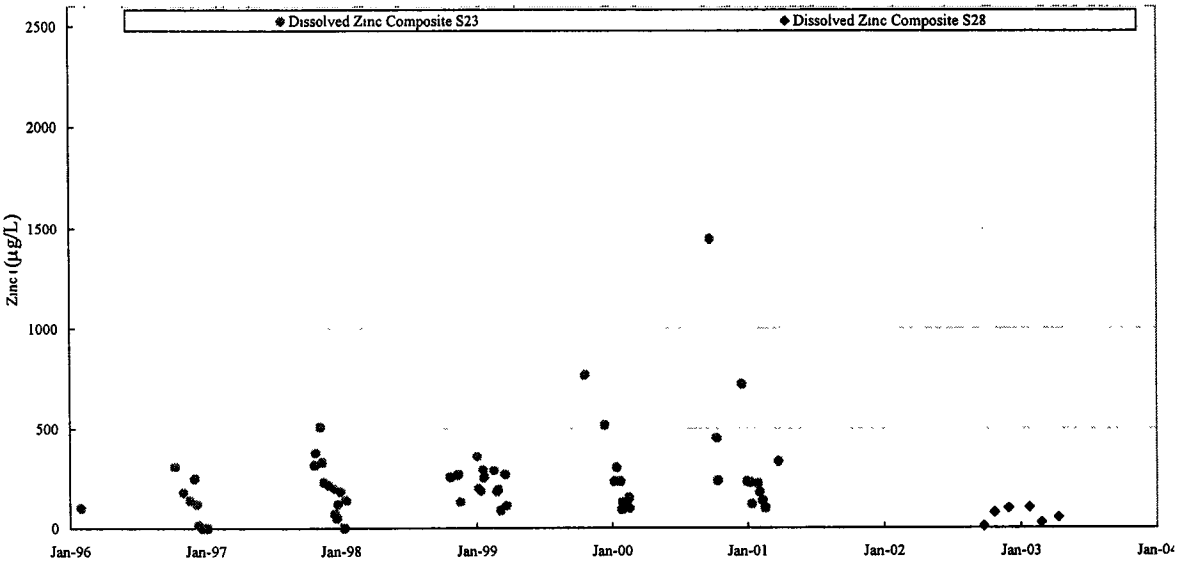


Zero concentrations indicate results below the detection limit

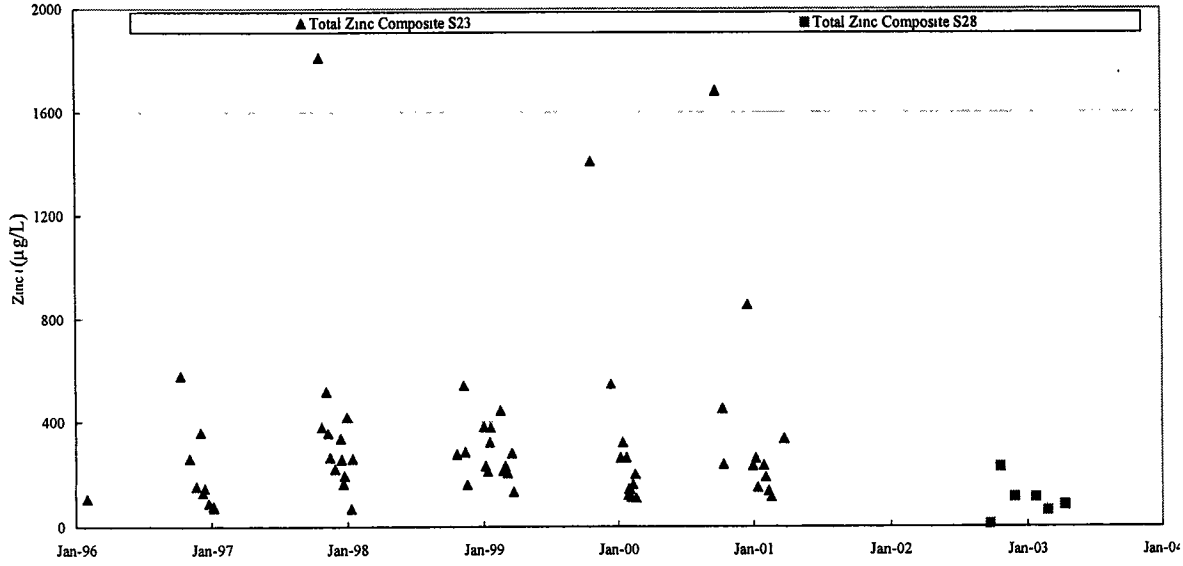
Receiving Water
Zinc Concentrations Over Time

FLOW SCIENCE®

Dominguez Channel Historic Dissolved Zinc Records



Dominguez Channel Historic Total Zinc Records

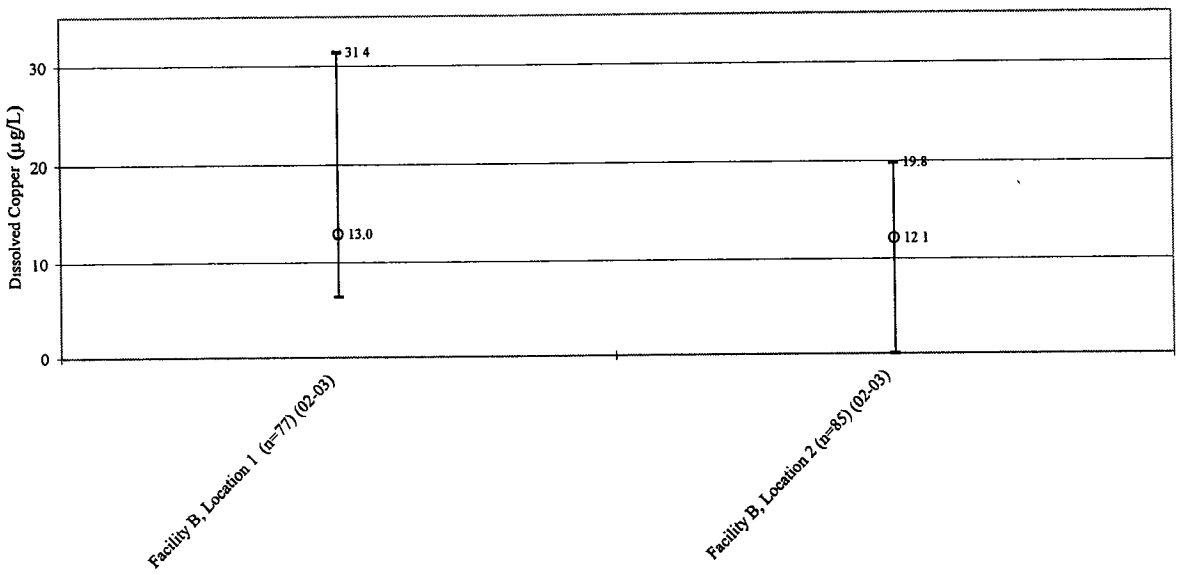


Zero concentrations indicate results below the detection limit

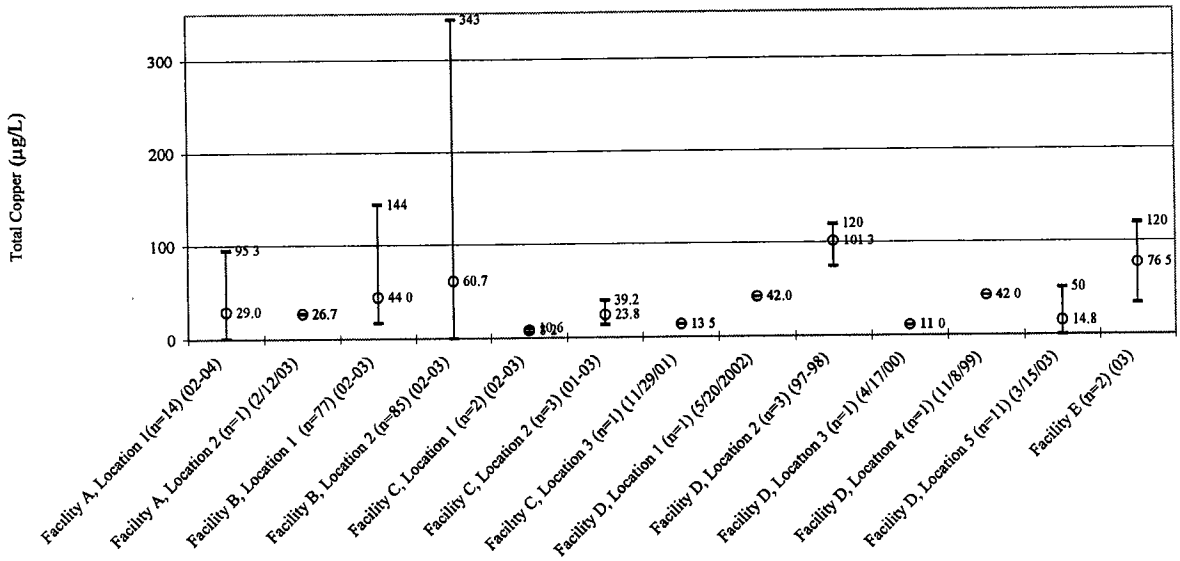
Appendix C
Plots of Facilities Data

Facilities Data
Max, Min, and Average

Dissolved Copper Facilities Data
Plot of Max, Min, and Average

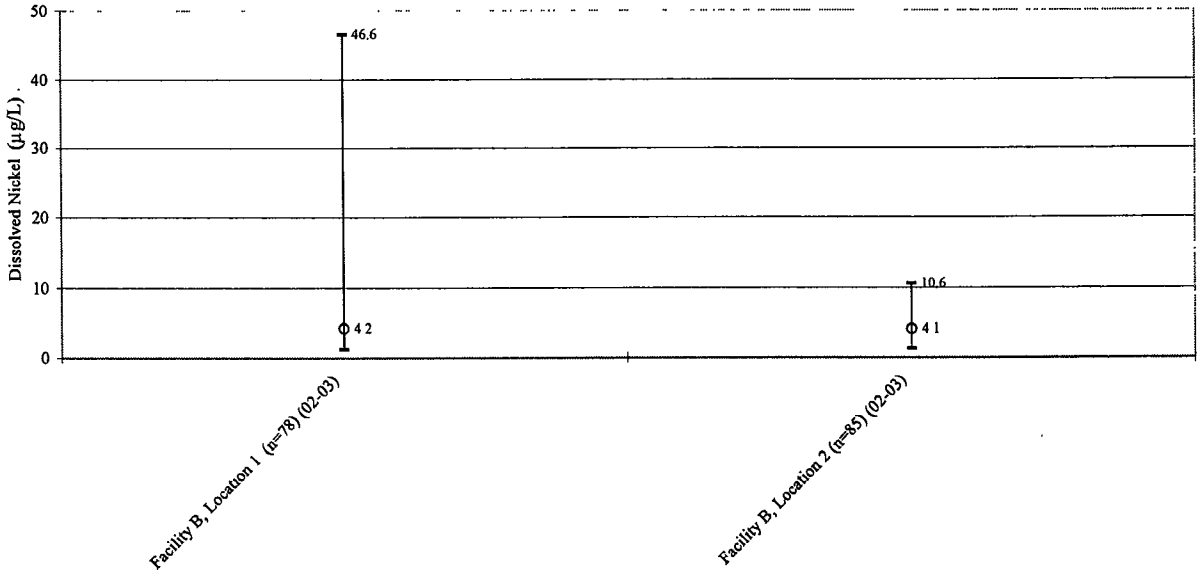


Total Copper Facilities Data
Plot of Max, Min, and Average

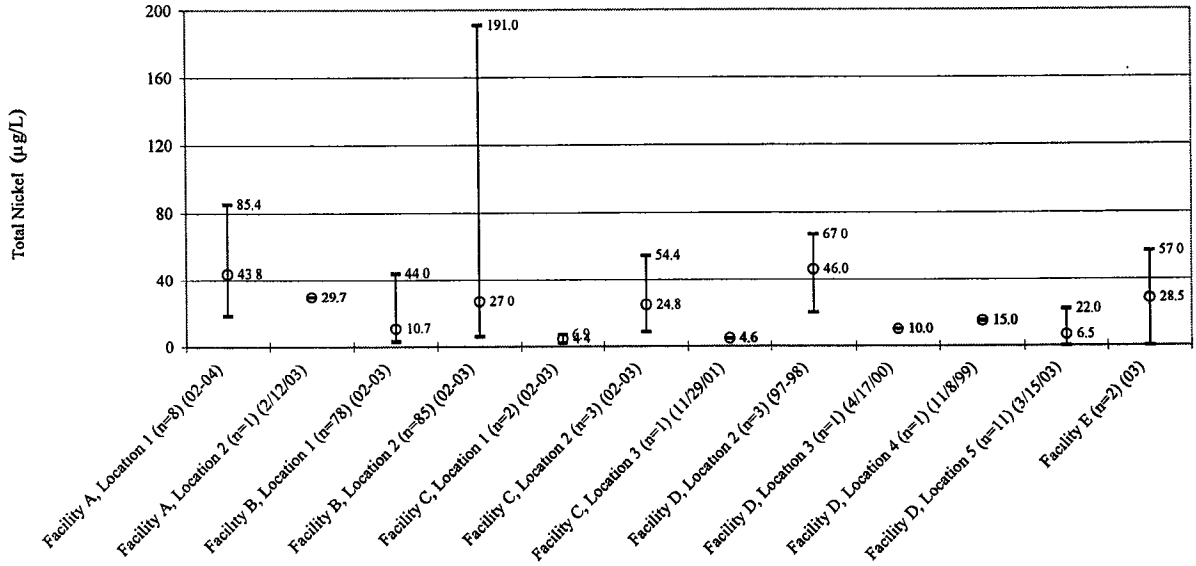


Facilities Data
Max, Min, and Average

Dissolved Nickel Facilities Data
Plot of Max, Min, and Average

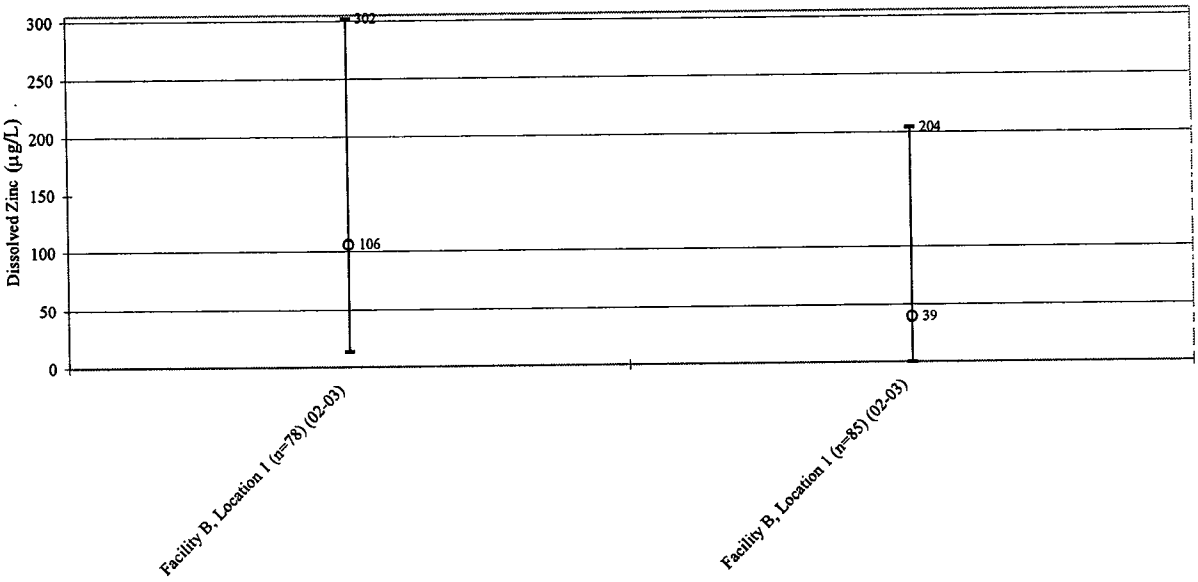


Total Nickel Facilities Data
Plot of Max, Min, and Average

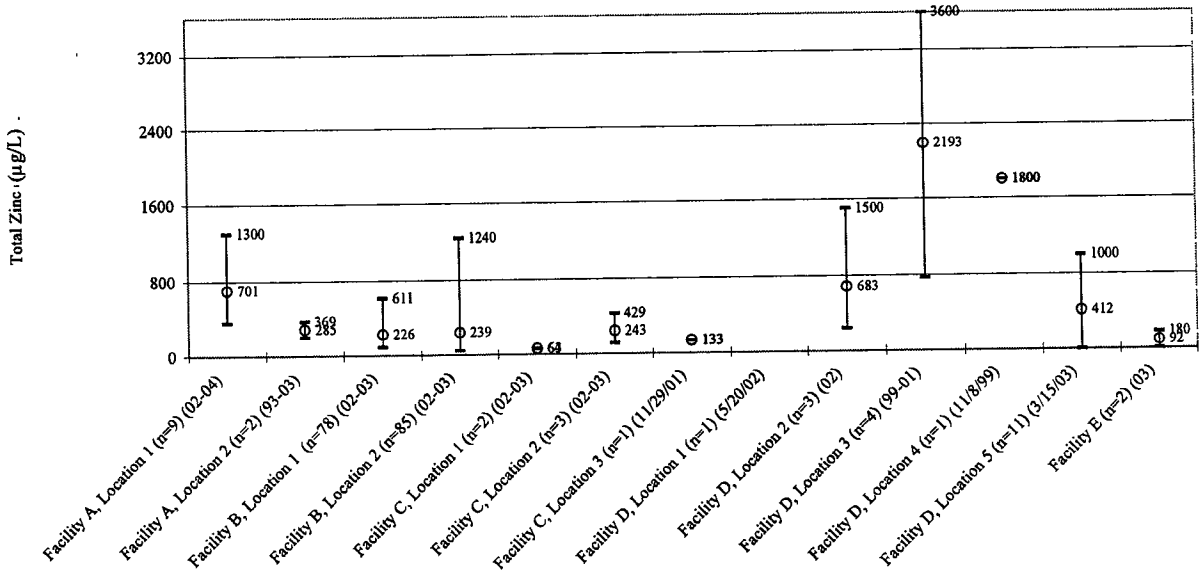


Facilities Data
Max, Min, and Average

Total Zinc Facilities Data
Plot of Max, Min, and Average



Total Zinc Facilities Data
Plot of Max, Min, and Average



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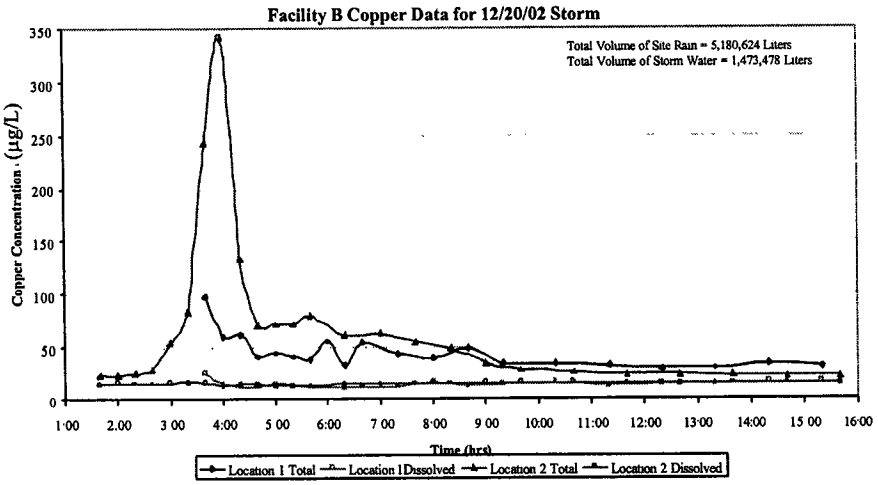
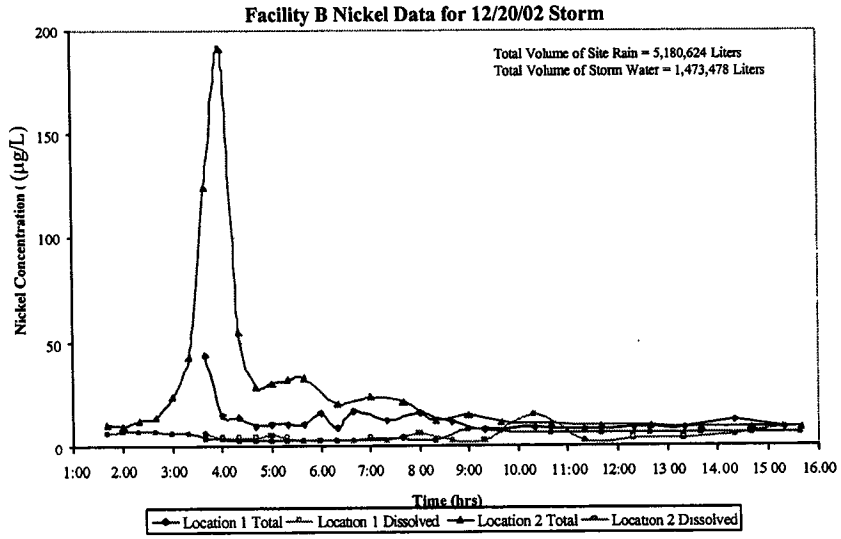
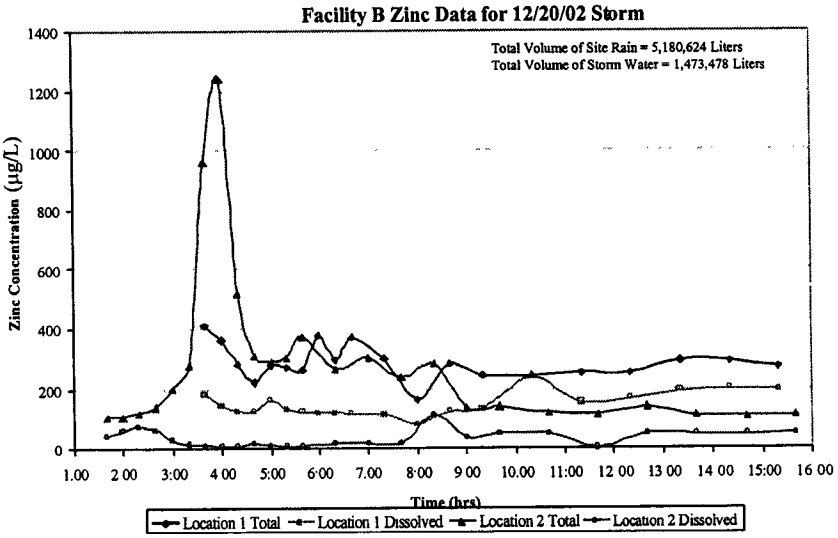
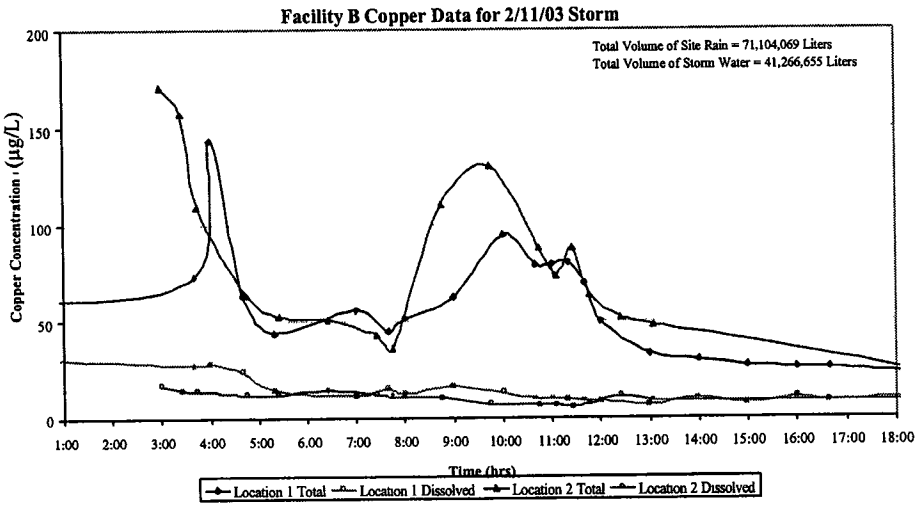
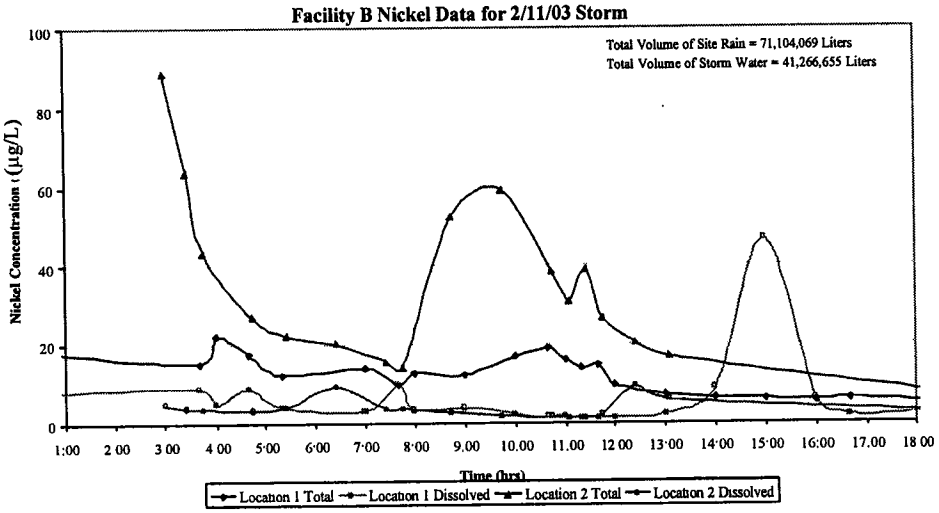
Appendix D
Time Series Plots of Facilities Data

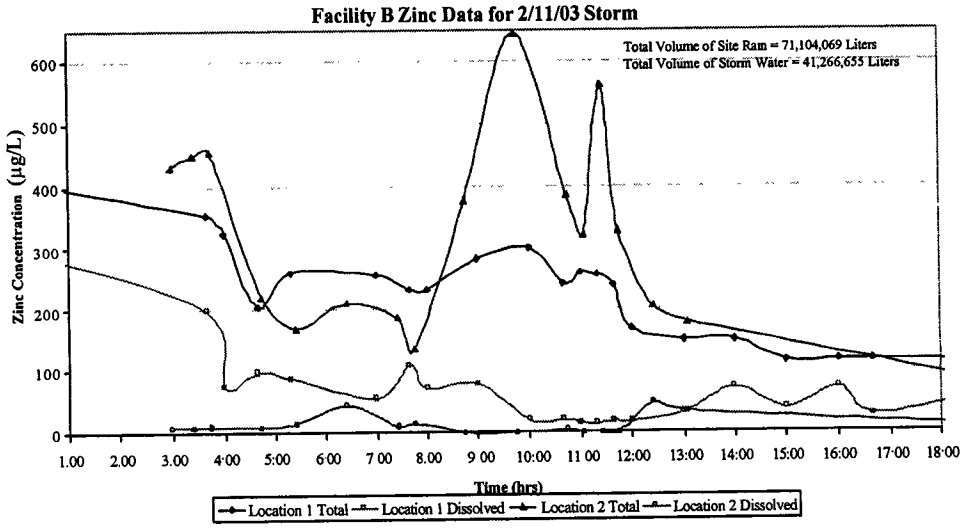

Facility B Copper Data for 12/20/02 Storm
Total Volume of Site Rain = 5,180,624 Liters
Total Volume of Storm Water = 1,473,478 Liters
Copper Concentration (µg/L)
350
300
250
200
150
100
50
0
1:00 2.00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00
Time (hrs)
Location 1 Total
Location 1 Dissolved
Location 2 Total
Location 2 Dissolved


Facility B Nickel Data for 12/20/02 Storm
Total Volume of Site Rain = 5,180,624 Liters
Total Volume of Storm Water = 1,473,478 Liters
Nickel Concentration ((µg/L)
200
150
100
50
0
1:00 2.00 3:00 4.00 5:00 6.00 7:00 8:00 9:00 10.00 11:00 12:00 13:00 14.00 15:00 16.00
Time (hrs)
Location 1 Total
Location 1 Dissolved
Location 2 Total
Location 2 Dissolved

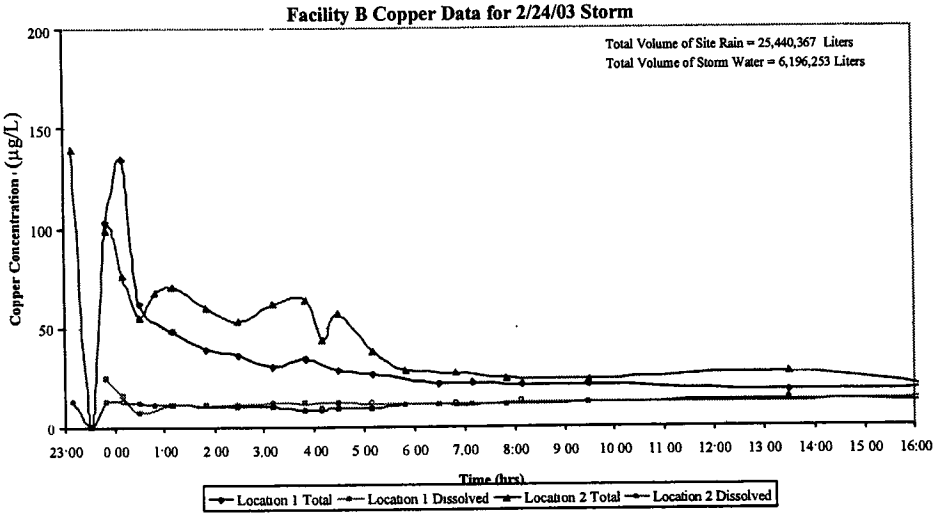

Facility B Zinc Data for 12/20/02 Storm
Total Volume of Site Rain = 5,180,624 Liters
Total Volume of Storm Water = 1,473,478 Liters
Zinc Concentration (µg/L)
1400
1200
1000
800
600
400
200
0
1.00 2:00 3:00 4:00 5:00 6:00 7.00 8:00 9:00 10.00 11:00 12:00 13:00 14:00 15:00 16:00
Time (hrs)
Location 1 Total
Location 1 Dissolved
Location 2 Total
Location 2 Dissolved


Facility B Copper Data for 2/11/03 Storm
Total Volume of Site Rain = 71,104,069 Liters
Total Volume of Storm Water = 41,266,655 Liters
Copper Concentration (µg/L)
200
150
100
50
0
1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00
Time (hrs)
Location 1 Total
Location 1 Dissolved
Location 2 Total
Location 2 Dissolved

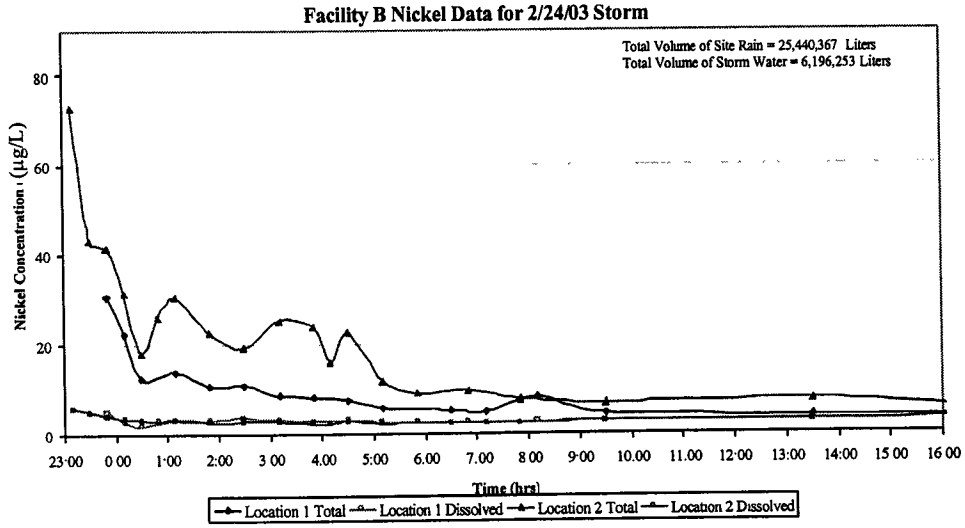

Facility B Nickel Data for 2/11/03 Storm
Total Volume of Site Rain = 71,104,069 Liters
Total Volume of Storm Water = 41,266,655 Liters
Nickel Concentration (µg/L)
100
80
60
40
20
0
1:00 2 00 3 00 4 00 5:00 6:00 7:00 8:00 9.00 10.00 11.00 12 00 13:00 14:00 15:00 16:00 17.00 18 00
Time (hrs)
Location 1 Total
Location 1 Dissolved
Location 2 Total
Location 2 Dissolved


Facility B Zinc Data for 2/11/03 Storm
Total Volume of Site Rain = 71,104,069 Liters
Total Volume of Storm Water = 41,266,655 Liters
Zinc Concentration (µg/L)
600
500
400
300
200
100
0
1.00 2.00 3.00 4:00 5:00 6:00 7 00 8.00 9 00 10:00 11 00 12:00 13:00 14:00 15:00 16:00 17:00 18:00
Time (hrs)
Location 1 Total
Location 1 Dissolved
Location 2 Total
Location 2 Dissolved

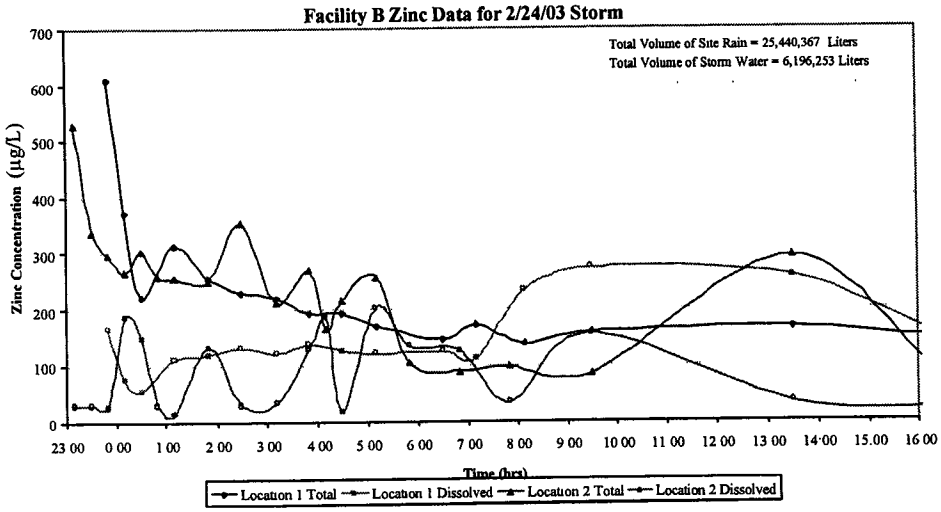
Facility B Copper Data for 2/24/03 Storm

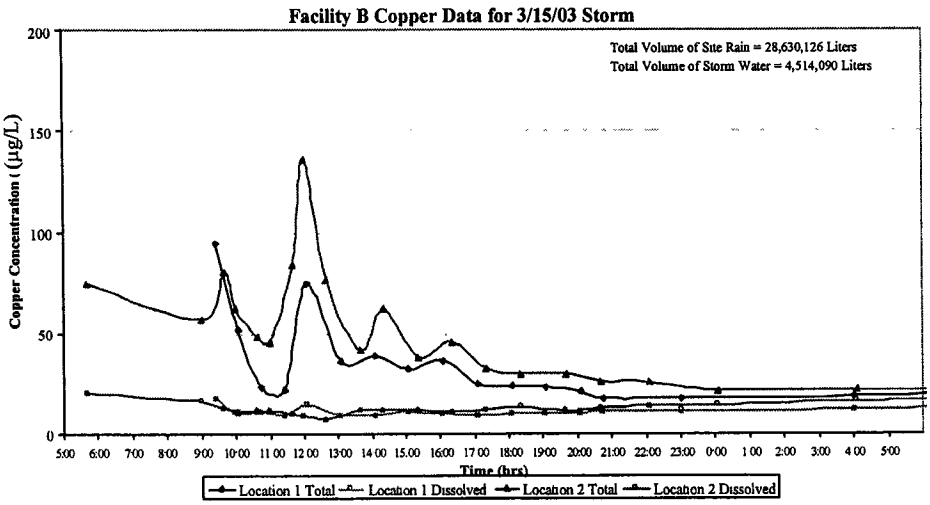


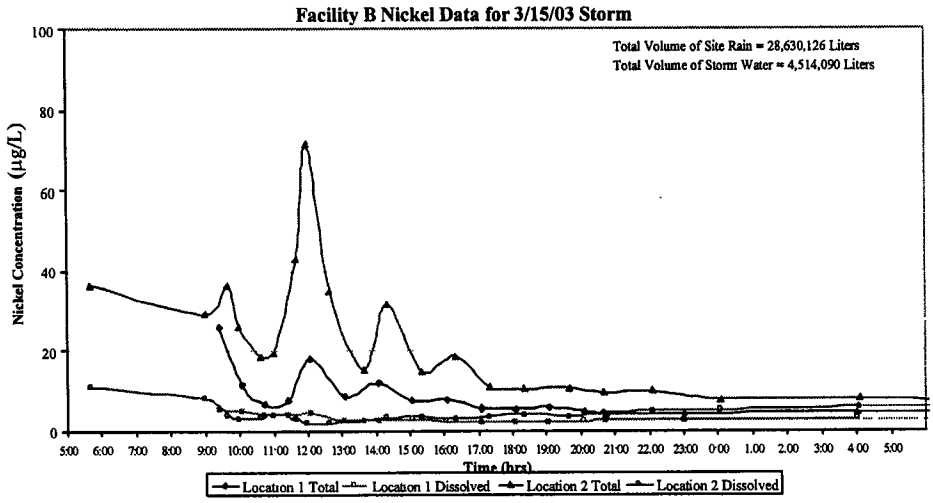
Facility B Nickel Data for 2/24/03 Storm

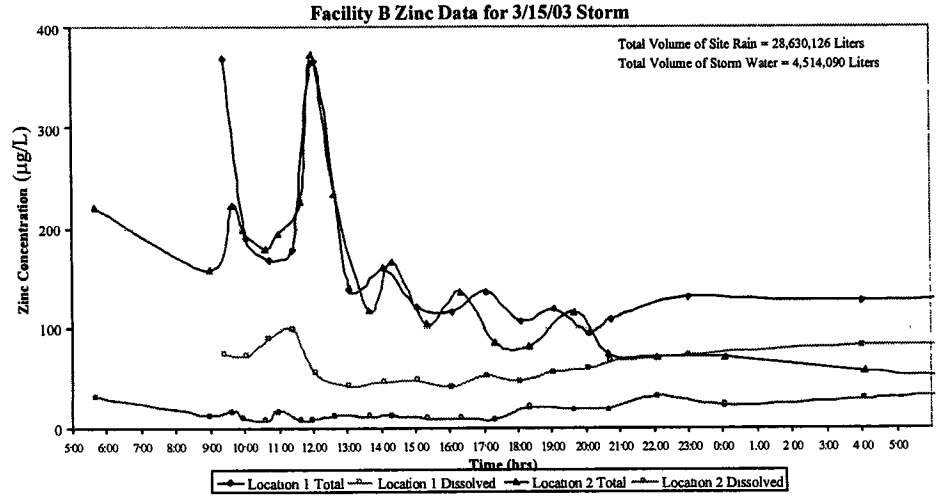


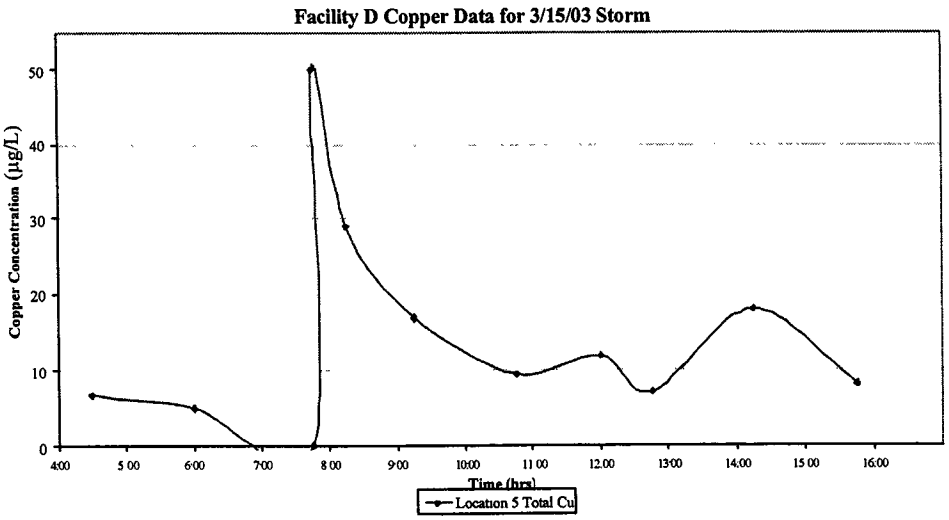
Facility B Zinc Data for 2/24/03 Storm

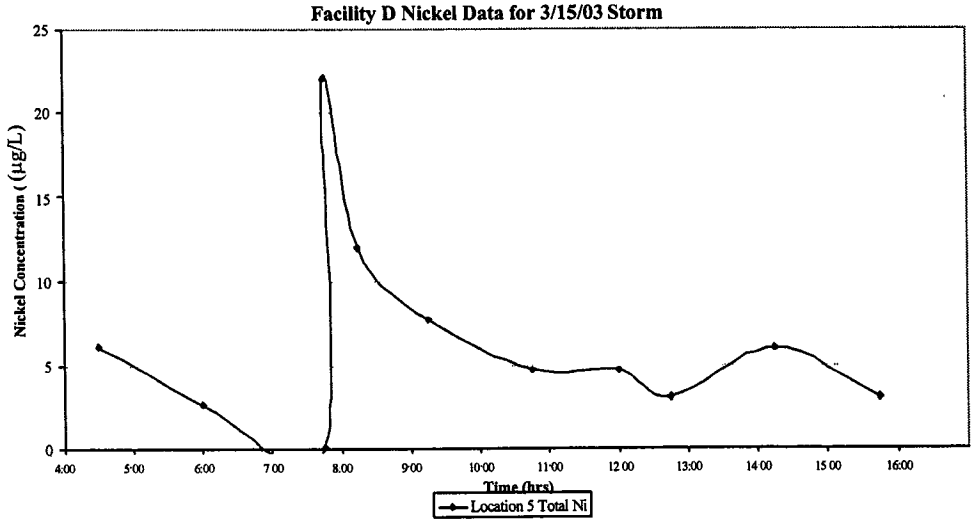


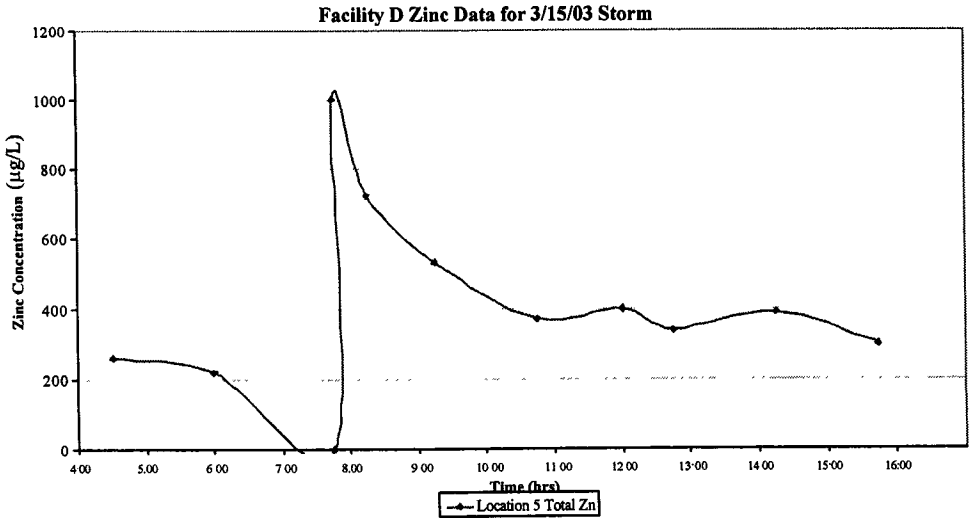

Facility B Copper Data for 3/15/03 Storm
Total Volume of Site Rain = 28,630,126 Liters
Total Volume of Storm Water = 4,514,090 Liters
Copper Concentration (µg/L)
Time (hrs)
Location 1 Total
Location 1 Dissolved
Location 2 Total
Location 2 Dissolved


Facility B Nickel Data for 3/15/03 Storm
Total Volume of Site Rain = 28,630,126 Liters
Total Volume of Storm Water = 4,514,090 Liters
Nickel Concentration (µg/L)
Time (hrs)
Location 1 Total
Location 1 Dissolved
Location 2 Total
Location 2 Dissolved


Facility B Zinc Data for 3/15/03 Storm
Total Volume of Site Rain = 28,630,126 Liters
Total Volume of Storm Water = 4,514,090 Liters
Zinc Concentration (µg/L)
Time (hrs)
Location 1 Total
Location 1 Dissolved
Location 2 Total
Location 2 Dissolved


Facility D Copper Data for 3/15/03 Storm
Copper Concentration (µg/L)
0
10
20
30
40
50
4:00
5:00
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
Time (hrs)
Location 5 Total Cu


Facility D Nickel Data for 3/15/03 Storm
Nickel Concentration ((µg/L)
0
5
10
15
20
25
4:00
5:00
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
Time (hrs)
Location 5 Total Ni


Facility D Zinc Data for 3/15/03 Storm
Zinc Concentration (µg/L)
0
200
400
600
800
1000
1200
4:00
5:00
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
Time (hrs)
Location 5 Total Zn

Tab 11

CALIFORNIA TOXICS RULE
RESPONSE TO COMMENTS REPORT

VOLUME II

December 1999

Prepared by:

U.S. Environmental Protection Agency
Office of Science and Technology
401 M Street, S.W.
Washington, D.C. 20460

and

U.S. Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, California 94105

Subject Matter Code: J Storm Water Economics

Comment ID: CTR-001-007
Comment Author: Law Offices of Alan C. Waltner
Document Type: Storm Water Auth.
State of Origin: CA
Represented Org: Almeda Cnty Clean Wtr Pgm
Document Date: 09/22/97
Subject Matter Code: J Storm Water Economics
References:
Attachments? N
CROSS REFERENCES

Comment: SIGNIFICANT ECONOMIC IMPACTS WOULD RESULT FROM THE APPLICATION OF WATER QUALITY STANDARDS AS NUMERIC EFFLUENT LIMITATIONS OR WASTELOAD ALLOCATIONS

If EPA intends that the WQS have a more direct effect on the permitting for MS4s, the implications are significant. in particular, the economic analysis supporting the proposed CTR would be dramatically incomplete. Massive expenditures would be required if storm water systems essentially were required to meet the same numerically based treatment standards as being considered for POTWs. The expenditures that would result from such an approach are being addressed in more detail in other MS4 comments, and will not be repeated here.

However, we note that the economic impact analysis that EPA prepared to support the proposed rule assumes that the regulation would have no economic impact on MS4s. (*11) If MS4s are subjected to NELs or WLAs as a result of the rule, significant economic impacts would result. Even if water quality based effluent limitations are based on BMPS, they would have an economic impact if they represent controls more extensive than the maximum extent practicable criteria of Section 402(p). EPA's economic analysis also provides no basis for estimating the costs to MS4s, since the "representative" dischargers analyzed in the economic analysis do not include any storm water systems. The economic analysis does not include these costs and it would be arbitrary to adopt a rule that would have these implications without considering those costs. (*12)

(*11) Likewise, the economic analysis supporting the State Implementation Policy excluded consideration of the costs to municipal storm water systems, on the theory that "the proposed Policy does not impose new regulatory requirements and, therefore, no additional costs are anticipated (i.e., . . . storm water . . .)" SIP at VIII-33. Elsewhere the SIP urges that: "The SWRCB is making no changes in the existing storm water program at the SWRCB and RWQCB. For these reasons, this cost analysis did not consider the storm water proposed Policy issue." Id. at VIII-43. These municipal costs were excluded even though the benefits calculations assumed that the proposed water quality standards would be achieved and that, with respect to San Francisco Bay, the share of toxic loadings attributable to nonpoint sources is estimated to range from 90% to 99% of the total. SIP at VIII-25. It is fundamental that "you can't get something for nothing" and the conflicting assumptions in the SIP, which parallel assumptions in the economic analysis of the CTR, are simply arbitrary.

(*12) Also, since EPA stands in the shoes of the state in adopting these criteria the action would violate the cost balancing elements of the Porter Cologne Act, as discussed below. At minimum, to the extent

that the rule creates an inflexible obligation to implement the criteria with respect to MS4s without complying with Porter Cologne Act requirements, it would set the State and Regional Boards on a collision course with those requirements at the Basin Plan and NPDES permitting phases.

Response to: CTR-001-007

EPA did not ascribe benefits or costs of controlling storm water discharges in the proposed or final Economic Analysis. EPA believes that many storm water dischargers can avoid violation of water quality standards through application of best management practices that are already required by current storm water permits. This conclusion is supported by EPA's analysis of the data submitted by several commenters (see response to CTR-040-004). EPA articulated its position on the use of BMPs in storm water permits in the Interim Permitting Approach for Water Quality Based Effluent Limitations in Storm Water Permits (61 FR 43761, August 19, 1996).

The commenter claims that even with the application of current BMPs, its storm water dischargers would still violate water quality standards due to the CTR criteria. The commenter appears to assume that the storm water discharge would be subject to numeric water quality based effluent limits which would be equivalent to the criteria values and applied as effluent limits never to be exceeded, or calculated in the same manner that effluent limits are calculated for other point sources, such as POTWs. The commenter then appears to assume that such WQBELs would then require the construction of very costly end-of-pipe controls.

EPA contends that neither scenario is valid with regards to developing WQBELs for storm water discharges or establishing compliance with WQBELs. EPA acknowledges that wet weather discharges are technically difficult to model and evaluate financially, because they are intermittent and highly variable. Wet weather discharges also occur under more diverse hydrologic or climatic conditions than continuous discharges from industrial or municipal facilities, which are evaluated under critical low flow or drought conditions. If the EPA had enough data to completely characterize all the conditions and do the necessary modelling, WQBELs would be developed using dynamic models to account for the intermittent loadings and exposures from the storm water discharges. In the absence of this data, EPA will continue to advocate the use of BMPs, as discussed in the CTR preamble. Therefore, EPA believes there is inadequate information at the current time to conclude whether the CTR will have any cost impact on storm water dischargers. Until that information is available, it is premature to project that storm water dischargers would be subject to strict numeric WQBELs and would incur any costs beyond those for which they are already legally responsible under the Clean Water Act. EPA will continue to work with the State to implement storm water permits that comply with water quality standards with an emphasis on pollution prevention and best management practices rather than costly end-of-pipe controls.

See also response to CTR-040-004.

EPA disagrees that the CTR must meet the requirements of the Porter Cologne Act. As a Federal agency, EPA is not subject to the requirements of the Porter-Cologne Act, which is State law. See also response to CTR-020-002 (Category C-21; Legal Issues).

Comment ID: CTR-013-003
Comment Author: County of Los Angeles
Document Type: Storm Water Auth.
State of Origin: CA

Tab 12

CALIFORNIA TOXICS RULE
RESPONSE TO COMMENTS REPORT

VOLUME II

December 1999

Prepared by:

U.S. Environmental Protection Agency
Office of Science and Technology
401 M Street, S.W.
Washington, D.C. 20460

and

U.S. Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, California 94105

This position is contrary to both the letter and the spirit of the RFA. The fact that the toxics criteria contained in the proposed rule must be translated into water quality standards and, in turn, NPDES permit effluent limitations, does not negate the fact that the burden of complying and implementing such toxics criteria ultimately will be borne by individual municipalities and business entities. As noted above, the costs to municipalities alone could run into billion of dollars placing a severe strain on their budgets and forcing them to divert funds currently allocated to other important municipal services, including public safety.

Moreover, EPA's statement that "California will have a number of discretionary choices associated with permit writing" is disingenuous and ironic in light of EPA's rationale for issuing the proposed rule. The toxics criteria will necessarily narrow the State's discretion in issuing NPDES permits and in establishing effluent limits for such permits. If EPA had meant for the State to have any serious discretion, it would not be promulgating these criteria in the first place.

Response to: CTR-036-004a

The purpose of the CTR is to fill the current gaps in water quality criteria in inland surface waters, enclosed bays, and estuaries. EPA disagrees that the State will not have substantial discretion in issuing NPDES permits under the rule. The CTR establishes pollutant levels necessary to protect designated uses. Establishing numeric criteria in the CTR does not limit the discretion of permit writers to use appropriate and flexible tools such as mixing zones or translators for dissolved metals criteria in establishing effluent limits. In addition, if a discharger believes the CTR criterion is inappropriately overprotective of the designated use, the discharger can request the State and EPA to approve a site-specific criterion or to downgrade the designated use.

Comment ID: CTR-040-004
Comment Author: County of Sacramento Water Div
Document Type: Storm Water Auth.
State of Origin: CA
Represented Org:
Document Date: 09/25/97
Subject Matter Code: J Storm Water Economics
References: Letter CTR-040 incorporates by reference letter CTR-027
Attachments? Y
CROSS REFERENCES

Comment: MAJOR CONCERNS

We do, however, have fundamental concerns with the Rule as it is presently proposed and its supporting economic analysis. We believe the Rule can be modified in a manner that will be responsive to our concerns while at the same time being consistent with applicable Federal law and regulations. Our major concerns are presented here and are followed by our recommended modifications.

1. Concern: The Rule, as presently proposed, appears to require discharges from municipal stormwater programs to meet water quality based effluent limits (WQBELs).

* The enclosed attainability analysis (See Attachment A) demonstrates that implementation of an

aggressive BMP-based program will cost on the order of $20 million per year. And, despite the implementation of ever escalating BMPs, the Sacramento Stormwater Management Program will not achieve several of the proposed aquatic life criteria (for copper, lead, and zinc) and human health criteria (for PAHs).

Response to:. CTR-040-004

EPA disagrees with the commenter's interpretation of the language regarding wet weather discharges in the proposed CTR, and has clarified the language in the section of the CTR that discusses the applicability of the rule to wet weather discharges. EPA believes that the CTR language allows the practice of applying maximum extent practicable (MEP) to MS4 permits, along with best management practices (BMPs) as effluent limits to meet water quality standards where infeasible or insufficient information exists to develop WQBELs.

Section 402(p)(3)(B) requires municipal separate storm water systems to 1) prohibit non-storm water discharges, and 2) reduce the discharge of pollutants in storm water to MEP. The Agency has purposely not defined MEP to allow municipalities flexibility in designing pollution control measures.. MEP is a dynamic performance standard which requires the municipality to demonstrate permit compliance in many ways including the use of BMPs, proper maintenance of their BMPs, and ongoing assessment of BMP performance in reducing pollutant discharges.. EPA has determined that, where sufficient information does not exist on which to base WQBELs, or where infeasible, the use of BMPs is consistent with the requirement that municipal storm water programs require controls to reduce the discharge of pollutants to MEP in order to attain and maintain water quality standards.

EPA articulated its position on the use of BMPs in storm water permits in the Interim Permitting Approach For Water Quality-Based Effluent Limitations In Storm Water Permits signed by the Assistant Administrator for Water, Robert Perciasepe on August 1, 1996 (61 FR 43761, August 19, 1996).. The policy focuses on the question of the applicability of WQBELs to MS4 permits, and whether or not numeric effluent limitations are required, or could be represented by other control mechanisms such as BMPs. The policy affirms the use of best management practices as a means to attain water quality standards in storm water permits.. The policy reads as follows:

In response to recent questions regarding the type of water quality-based effluent limitations that are most appropriate for National Pollutant Discharge Elimination System (NPDES) storm water permits, the Environmental Protection Agency (EPA) is adopting an interim permitting approach for regulating wet weather storm water discharges. Due to the nature of storm water discharges, and the typical lack of information on which to base numeric water quality-based effluent limitations (expressed as concentration and mass), EPA will use an interim permitting approach for NPDES storm water permits.

The interim permitting approach uses best management practices (BMPs) in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards. In cases where adequate information exists to develop more specific conditions or limitations to meet water quality standards, these conditions or limitations are to be incorporated into storm water permits, as necessary and appropriate.

This interim permitting approach is not intended to affect those storm water permits that already include appropriately derived numeric water quality-based effluent limitations. Since the policy only applies to water quality-based effluent limitations, it is not intended to affect technology-based limitations, such as those based on effluent guidelines or the permit writer's best professional judgement, that are incorporated into storm water permits.

Each storm water permit should include a coordinated and cost-effective monitoring program to gather necessary information to determine the extent to which the permit provides for attainment of applicable water quality standards and to determine the appropriate conditions or limitations for subsequent permits. Such a monitoring program may include ambient monitoring, receiving water assessment, discharge monitoring (as needed), or a combination of monitoring procedures designed to gather necessary information.

This interim permitting approach applies only to EPA; however, EPA also encourages authorized States and Tribes to adopt similar policies for storm water permits. This interim permitting approach provides time, where necessary, to more fully assess the range of issues and possible options for the control of storm water discharges for the protection of water quality. This interim permitting approach may be modified as a result of the ongoing Urban Wet Weather Flows Federal Advisory Committee policy dialogue on this subject.

EPA also reviewed the attached report entitled "Technical Report Assessing the Attainability of Water Quality Criteria Proposed in the California Toxics Rule," a report prepared for Sacramento County Stormwater Management Program by Larry Walker Associates (LWA). In response, EPA has the following concerns and comments regarding various aspects of the report and its conclusions.

General Limitations of the Analysis

* LWA do not provide the raw data upon which they base their conclusions regarding potential compliance problems with the proposed CTR water quality criteria. Without the raw data, EPA could not fully assess the validity of the analysis.

* The data may not be representative of the storm water discharges to the American and Sacramento Rivers. Most samples were collected for first-flush events, usually one hour or less in duration. As a result, the in stream exposure period is probably one hour at most, which corresponds to the exposure period for acute criteria, not chronic criteria as used in the LWA analysis.

* LWA report that applying BMPs to storm water would not result in attainment of criteria as proposed in the CTR. However, LWA focus on the most stringent (and unlikely) scenario for attainability of criteria (i.e., applying chronic criteria with no allowance for dilution). According to LWA's own analysis, BMPs would nearly achieve compliance under the scenario of applying acute criteria and dilution factors to storm water flows. If mathematical errors in LWA's Table's 11 and 12 are corrected, the analysis demonstrates compliance with acute criteria for even the 99.91 percentile values of copper, lead, and zinc in the Sacramento River, and for lead in the American River, with no additional treatment.

* The analysis also may not be reflective of the compliance scenario for other California waters. The metals criteria are based on a low hardness value for the American River (25 mg/l as CaCO3). This hardness value is lower than any of the hardness values observed for the economic analysis of sample facilities throughout California. As a result, the criteria for the American River are very stringent (i.e., criteria become more stringent with lower hardness) compared to criteria for California waters in general.

* LWA compare the concentration of the dissolved fraction of metals in the discharge to the instream criterion values expressed as dissolved metals to assess compliance. This approach may be overly stringent because it does not account for the partitioning of dissolved metals present in the discharge to suspended solids present in receiving waters (particularly during a storm event when suspended solids are elevated). Thus, less dissolved metals may be available in the water column than LWA's analysis

would estimate. In addition, this is not the approach that is used to determine compliance under the NPDES program. The NPDES regulations require all permit limits for metals to be expressed in terms of "total recoverable metals" [40 CFR 122.45]. In order to determine whether a discharge would meet NPDES permit limits developed to protect water quality, the instream criteria should not be used directly, but should be converted to a water quality-based effluent limit (WQBEL) using the EPA standards-to-permits procedures. The development of WQBELs expressed as total recoverable metals accounts for the partitioning of dissolved metals (present in the discharge) to suspended solids that are present in the receiving water. EPA used this approach in its cost evaluations.

* Cost estimates provided in the LWA analysis for complying with the CTR appear to mix BMP implementation costs to comply with Sacramento's storm water permit with new compliance costs resulting from the CTR. EPA's economic analysis only evaluates the incremental impact of the water quality standards for toxics compared to the baseline program to avoid a double counting of costs (and benefits).

Specific Data and Sampling Issues

* LWA calculated average event mean concentrations (AEMC) to represent the entire urbanized drainage area of Sacramento County. Samples were combined to calculate AEMCs (based on contributions of 95% commercial/residential and 5% industrial) utilizing three sampling locations. Although LWA indicate that both grab and composite samples were collected to estimate the AEMCs, as well as annual loadings, it is unclear how the different sample types were used. According to the EPA's Guidance Manual For The Preparation of Part 2 of the NPDES Permit Applications for Discharges From Municipal Separate Storm Sewer Systems (EPA 833-B-92-002), an event mean concentration (EMC) is determined from analyses of flow-weighted composite samples. In order to qualify as a valid sample, the storm event must be sampled for at least three hours, or for the entire storm if the event lasts less than three hours. Of great importance in such derivations is consistency in methodology, i.e., the first method employed must always be employed to ensure that results can be compared. LWA do not provide any information to confirm the consistency of sampling procedures.

* LWA completed a discharge characterization project (DCP) for storm water discharges in 1996 (not included as part of commenter's submission). LWA state that the DCP evaluated all urban runoff monitoring data available. However, it is not clear whether the data set used for the DCP was the same as that analyzed for the current report, or whether it was more extensive. LWA state that the DCP used "statistical modeling" (unnamed methodology) to "characterize and estimate" mass loadings. They also state that data on heavy metals, conventional and non-conventional pollutants were "updated for 1996/1997 data. However, they do not report which procedures governed the "update," whether the data sets were consistent, or under what circumstances they were sampled and analyzed. EPA believes that this lack of information makes it impossible to evaluate the methodologies used to extrapolate the data set and draw conclusions as to its appropriateness in demonstrating nonattainability of toxic criteria. In addition, LWA cite a "robust statistical method" for deciding whether to use detection limit values for nondetect data. This method is not described.

* It appears from Charts 1 through 5 presented in the report, that LWA use a limited data set (not included as part of commenter's submission) for each of the pollutants of concern, and use statistical projections to predict "worst case" (i.e., 95th, 99th, and 99.91th percentiles) discharge values. These predicted discharge concentrations are then used to assess whether instream criteria would be met. This is an extremely conservative approach that would not be used by EPA to establish compliance with water quality-based effluent limits or water quality criteria. To assess the potential for metals and organics to exceed aquatic life and human health criteria during intermittent, high flow, storm water episodes, a

complex dynamic modeling effort would be required. This procedure is highly data intensive, and is beyond the scope of this costing analysis; nevertheless, it should have been employed in the LWA analysis to accurately determine the potential for exceedances of criteria. The generalized technical approach for assessing compliance with the applicable criteria is described in EPA's Technical Support Document for Water Quality-Based Toxics Control (March 1991). For typical point sources, this is performed by developing wasteload allocations (using steady-state models, under low flow conditions) and developing WQBELs based on these wasteload allocations. The process of developing wasteload allocations and WQBELs that would be protective of applicable criteria during storm events is significantly more difficult, and is not described in current EPA guidance. The EPA Center for Exposure Assessment Modeling (CEAM), located at the National Exposure Research Laboratory in Athens, Georgia, maintains and distributes environmental simulation models and databases for urban and rural nonpoint sources. Information on dynamic models and their use for storm water modeling can be obtained through CEAM.

Cost Methodology Issues

* It is unclear why Tables 7 and 7a were included in the analysis. These tables appear to present costs associated with the implementation of the BMPs required by the current Sacramento MS4 permit. They are, therefore, distinct from any incremental attainment costs associated with treatment of storm water due to water quality criteria. The potential costs resulting from the alternative of collecting and treating all storm water prior to discharge are summarized in Figure C, however, no details, explanatory notes, or assumptions are presented in support of this estimate.

*. Figure B states that capital costs range from $160 to $187 million. However, EPA notes that only the higher value is presented in the summary. The choice to use only the higher value is not explained. It appears that the difference in the values results from the assumed level of engineering and other costs (50% of capital costs, as opposed to 30%, see Table 7). Other published sources have traditionally used a percentage more consistent with the lower of the two values referenced in Table 7 (see, for example, Estimating Costs for the Economic Benefits of RCRA Noncompliance, U.S. EPA, March 1997, page 1-4, where the percentage increase due to engineering and inspection, contractor's overhead and profit, and contingency is 35%).

Other Methodological Issues

*. LWA do not clearly state what proportion of the County's runoff enters the American River versus the Sacramento River. LWA base their presentation largely on discharges to the American River which has a two-fold lower hardness concentration, resulting in the most stringent metals criteria. As noted above, a hardness value of 25 mg/l (as CaCO3) is on the very low end of the range for receiving waters considered in the CTR analysis.

*. LWA focus their presentation on the "no dilution" scenario. However, both the American and Sacramento Rivers provide substantial dilution (reducing runoff concentrations by 51% and 86%, respectively). The analysis developed in the LWA report summarizes the results of this evaluation in Tables 11 and 12. In presenting the data, the LWA evaluation incorrectly calculates the dilution provided by the Sacramento River. When correctly calculated, the analysis indicates that the acute criteria for all of the metals would be met at the 99.91 percentile value in the Sacramento River. In addition the acute criterion for lead would be met for the American Rivers. Furthermore, compliance with copper and zinc criteria would practically be achieved assuming dilution and implementation of BMPs (i.e., 70% reduction of copper and zinc by BMPs). In their assessment of instream mixing, the LWA analysis used ambient background pollutant concentrations presented in Tables 11 and 12. While

all other values are indicated as "dissolved" concentrations, no such note is provided for the background data. If these values are expressed as total metals it would overestimate the background load and thus underestimate the available assimilative capacity of the stream.

*. Similarly, the LWA does not account for in-stream dilution in its evaluation of the potential for PAH compounds and pentachlorophenol to exceed human health criteria. In its evaluation, LWA again projects worst case (i.e., 95th, 99th, and 99.91th percentile) storm water concentration values and compares these values directly to ambient human health criteria. This approach significantly overestimates the potential for exceeding these criteria. Human health criteria are developed assuming a lifetime exposure to the pollutant at a daily ingestion rate of 2 liters of drinking water and ingestion of an assumed mass of aquatic organisms. To account for such long term exposures, EPA permitting procedures recommend using typical stream flows (e.g., harmonic mean) in developing wasteload allocations. The calculated wasteload allocations are also assumed to represent long-term averages (i.e., average monthly permit limits) rather than maximum daily values. Depending on the available dilution, this approach generally results in WQBELs much higher (i.e., less stringent) than the actual criterion values. Based on LWA projections, it appears that even a small allowance for dilution would resolve the compliance concerns or pentachlorophenol. The potential for compliance concerns identified by LWA for PAH compounds could only be accurately determined based on the results of the dynamic modeling assessment previously discussed.

*. In calculating the allowable discharge concentration (Ce) for lead and zinc, LWA used detection level values for ambient background concentrations even though no lead or zinc were measured. Since background concentrations may actually be significantly lower than the detection level, this may result in an overly stringent Ce (and thus more costly to achieve).

Comments from the Fresno Metropolitan Flood Control District (Fresno) and the California Department of Transportation (Caltrans)

EPA also reviewed comments submitted by the Fresno Metropolitan Flood Control District (Fresno) and the California Department of Transportation (Caltrans) on the CTR provisions relating to storm water. In response, EPA has the following concerns and comments regarding various aspects of the submissions and their conclusions. Some of these issues are addressed in the above review of LWA's submission and are so referenced.

General Limitations of the Analysis

* Neither Fresno nor Caltrans provide the raw data upon which they base their conclusions regarding potential compliance problems with the proposed CTR water quality criteria. Without the raw data, EPA could not fully assess the validity of the analysis.

*. Caltrans' data came from eight storm events at three urban freeway sites in the Los Angeles area, but the sampling methodology is not specified (i.e., first flush, peak, outfall, street, etc.). The data may not be representative of the storm water discharges for all Caltrans facilities. Fresno does not specify the sampling methodology nor the number of sites or storm events sampled.

*. Fresno reports that applying BMPs (including end-of-pipe) to storm water would not result in attainment of criteria as proposed in the CTR. However, Fresno presents a stringent (and unlikely) scenario for attainability of criteria (i.e., applying chronic criteria).

* Caltrans reports that applying source reduction and nonstructural BMPs will not provide the reduction

necessary to meet the criteria. End-of-pipe treatment would be required. Although acute criteria are used in this analysis, no data or estimates are provided to demonstrate that BMPs would not result in reductions needed to comply with properly developed WQBELs.

* The analysis also may not be reflective of the compliance scenario for other California waters.

*. Fresno and Caltrans compare the concentration of the dissolved fraction of metals in the discharge to the instream criterion values expressed as dissolved metals to assess compliance. See the response to LWA for EPA's discussion of the problems with this approach.

*. Cost estimates provided in the Fresno and Caltrans analysis for complying with the CTR may mix BMP implementation costs to comply with local storm water permits with new compliance costs resulting from the CTR. EPA's economic analysis only evaluates the incremental impact of the water quality standards for toxics compared to the baseline program to avoid a double counting of costs (and benefits).

Specific Data and Sampling Issues

*. Caltrans specifies that consistent procedures were used at all three sampling sites, but it does not specify the exact methodology (i.e., sampling duration, first flush, etc.). Of great importance in data analysis is consistency in methodology, i.e., the first method employed must always be employed to ensure that results can be compared.

Fresno does not describe its sampling procedures or methodology.

*. Caltrans uses a limited data set (not included as part of commenter's submission) for each of the pollutants of concern, and uses statistical projections to predict "worst case" (i.e., 99.91th percentile) discharge values. These predicted discharge concentrations are then used to assess whether in stream criteria would be met. This is an extremely conservative approach that would not be used to establish compliance with water quality-based effluent limits or water quality criteria because compliance is based on measured values and not on statistically derived worst case values.

Summary and Recommendations

The LWA report was based on storm water data collected at outfalls discharging to the American and Sacramento Rivers. The report did not provide the raw data, nor did it provide detailed information on how these data were collected. The primary scenario described in the report (i.e., comparing projected worse case discharge concentrations directly to chronic aquatic life and human health criteria with no allowance for dilution) is highly conservative in comparison with the water quality-based permitting and compliance procedures that would be implemented by EPA. The LWA analysis also did not consider the equilibrium partitioning of dissolved and total metals that may occur instream during a storm event. An ancillary analysis summarized in the LWA report compared the maximum projected discharge concentrations (99.91 percentile values) of copper, lead, and zinc to the acute aquatic life criteria accounting for dilution. If errors are corrected in the LWA spreadsheet, the LWA data indicate that there would be no compliance problems for these parameters in the Sacramento River, and that BMPs would likely result in compliance in the American River. While the LWA analysis provides information that could be useful in determining "reasonable potential" for possible WQBEL development, the approach is not consistent with water quality-based permitting procedures or EPA's approach to compliance assessment.

To accurately determine whether additional treatment would be necessary to control storm water discharges to the American and Sacramento Rivers, EPA would conduct a comprehensive modeling effort to develop appropriate WQBELs. The WQBELs (for organics and total metals), would be developed using dynamic models to account for the intermittent loadings and exposures from the storm water discharges. EPA recognizes that the determination of appropriate WQBELs for storm water outfalls is a difficult modeling effort that requires intensive data collection and verification. The LWA report has not utilized this approach, and the necessary level of effort is not within the scope of the agency's CTR analysis.

In summary, the CTR language allows (consistent with EPA's policy) the practice of applying MEP to MS4 permits, along with BMPs as effluent limits to meet water quality standards where infeasible or insufficient information exists to develop WQBELs. Neither the LWA report, nor the Fresno and Caltrans comments, provide a definitive argument that storm water dischargers cannot achieve compliance with the proposed water quality criteria or that compliance would result in widespread economic impact or hardship. Although none of the three comment submissions discussed above provide the raw data used for their analyses for EPA to fully assess the validity of the analyses, their methodology does not assess compliance with WQBELs as would be developed by EPA. In particular, the assessments do not account for dilution or the partitioning of dissolved metals to suspended solids present in the receiving waters. LWA and Caltrans also do not apply the appropriate criteria in assessing compliance and use statistical projections to predict "worst case" discharge concentrations, an approach that would not be used to establish compliance with WQBELs or water quality criteria. In addition, LWA's estimated costs do not accurately portray the incremental expense to Sacramento County resulting from implementation of the CTR, that is, the costs attributable to the CTR criteria that are over and above the cost of implementing the current storm water program.

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Attachments? Y
CROSS REFERENCES

Comment: MAJOR CONCERNS

We do, however, have fundamental concerns with the Rule as it is presently proposed and its supporting economic analysis. We believe the Rule can be modified in a manner that will be responsive to our concerns while at the same time being consistent with applicable Federal law and regulations. Our major concerns are presented here and are followed by our recommended modifications.

1. Concern: The Rule, as presently proposed, appears to require discharges from municipal stormwater programs to meet water quality based effluent limits (WQBELs).

* In order to achieve WQBELS, it will be necessary to intercept all of the urban runoff from the Sacramento metropolitan area (including that discharged to urban streams and the American River),

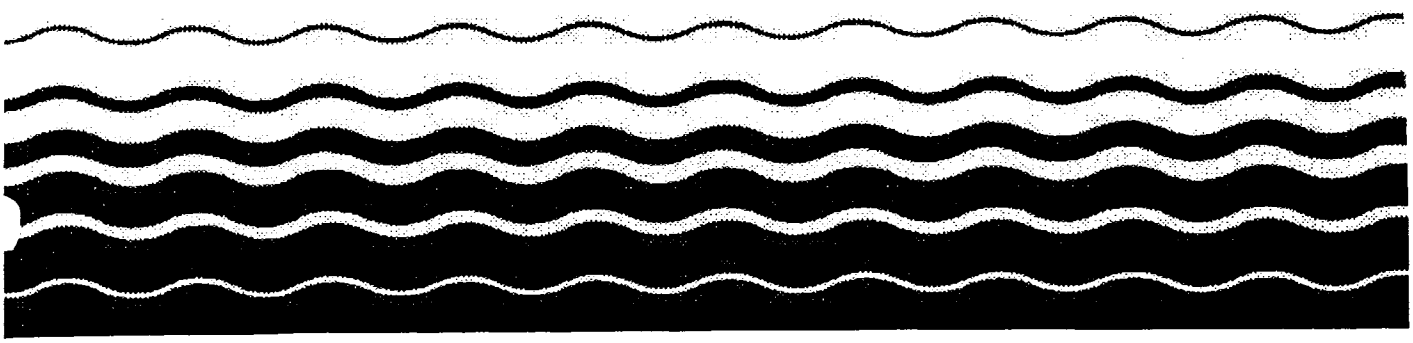
Tab 13

United States
Environmental Protection
Agency

Office of Water
(4203)
Washington, DC 20460

EPA833-R-00-001
February 2000

Report to Congress On The Phase I Storm Water Regulations



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAR 1 2000

THE ADMINISTRATOR

The Honorable Robert C. Smith
Chairman
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

The Environmental Protection Agency (EPA) is pleased to submit this Report to Congress on Phase I of the Storm Water Program. The Report responds to section 431(b) of the Department of Veterans Affairs and Housing and Urban Development and Independent Agencies Appropriations Act of 2000, Public Law 106-74 (1999) ("Appropriations Act"). The Appropriations Act directs EPA to conduct an evaluation of the Phase I Storm Water Program as follows:

> No later than 120 days after the enactment of this Act, the Environmental Protection Agency shall submit to the Environment and Public Works Committee of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives a report containing a detailed explanation of the impact, if any, that the Phase I program has had in improving water quality in the United States (including a description of specific measures that have been successful and those that have been unsuccessful).

In response to the mandate of the Appropriations Act, EPA conducted a review of existing and readily available information on the status and effectiveness of the Phase I storm water program. Our analysis of the Phase I storm water program demonstrates that a flexible regulatory framework is in place for controlling storm water discharges from municipal, construction, and industrial sources. Many Phase I program components, such as site-specific storm water pollution prevention plans (SWPPPs) and best management practices (BMPs), were found to be effective in preventing or reducing the discharge of pollutants in storm water in specific cases. Although we acknowledge that we do not currently have a system in place to measure the success of the Phase I program on a national scale, surveys and case studies described in this Report indicate that significant milestones are being achieved. This Report specifically provides evidence that the Phase I program has been successful in reducing pollutant loadings in storm water discharges and protecting and improving water quality on a site-specific basis. We have worked with stakeholders, and will continue to do so, to try to identify meaningful measures for reporting the effectiveness of the Phase I storm water program in the future.

In developing this Report to Congress, EPA was aware that the issue of storm water impacts to surface waters pre-dated the Phase I program. EPA wishes to acknowledge and applaud the efforts of many entities to address the potential impacts on water quality associated with storm water discharges prior to the Phase I program. These efforts include, for example, various regulatory and voluntary programs initiated at the State and local level. EPA accounted for many of these ongoing efforts in developing the Phase I rule, by providing flexibility in rule implementation to account for existing and applicable programs or efforts. In this Report, the Agency has taken a relatively conservative approach to distinguishing between successful efforts attributable to the Phase I program and earlier or parallel successful storm water control efforts, crediting success to the Phase I program only when efforts were directly attributable to the program. At the same time, this report acknowledges the many other efforts that have been and are being folded into the Phase I program as it matures. Where there is uncertainty related to the direct attribution of individual successes to the Phase I program, the Report provides appropriate caveats.

I believe this Report to Congress responds to the mandate of section 431(b) of the Appropriations Act of 2000. This Report constitutes an insightful and comprehensive examination of Phase I of the Storm Water Program, and its findings and recommendations are sound. EPA will publish notice of the Report in the Federal Register.

Sincerely,

Carol M. Browner

Enclosure

TABLE OF CONTENTS

APPENDICES

LIST OF ACRONYMS

ASWIPCA	Association of State and Interstate Water Pollution Control Administrators
BMP	Best management practice
CSO	Combined sewer overflow
CWA	Clean Water Act
CZARA	Coastal Zone Act Reauthorization Amendments of 1990
CZMA	Coastal Zone Management Act
GPRA	Government Performance and Results Act
LID	Low-impact development
MS4	Municipal separate storm sewer system
MSGP	Multi-Sector General Permit
NAFSMA	National Association of Flood and Stormwater Management Agencies
NOI	Notice of intent
NPDES	National Pollutant Discharge Elimination System
NRDC	Natural Resources Defense Council
NURP	Nationwide Urban Runoff Program
OWM	EPA Office of Wastewater Management
POTW	Publicly owned treatment works
SIC	Standard Industrial Classification code
SWPPP	Storm water pollution prevention plan
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
WEF	Water Environment Federation
WQA	Water Quality Act

ACKNOWLEDGMENTS

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- Tetra Tech, Inc., of Fairfax, Virginia, under subcontract to Northbridge Management Consultants, contract number 68-C-98-071
- Science Applications International Corporation (SAIC), Inc., of Reston, Virginia, under contract number 68-C4-0034.

The report was prepared under the direction of Daniel Weese, Patrick Ogbebor, and Ross Brennan of EPA's Office of Wastewater Management. Thomas O'Connor, of EPA's Office of Research and Development, and Peter Swenson, of EPA's Region 5, provided valuable comments.

EPA also gratefully acknowledges the assistance of the cities used as case studies in this report.

EXECUTIVE SUMMARY

The United States Environmental Protection Agency (EPA) is submitting this Report to Congress in accordance with section 431(b) of the Department of Veterans Affairs and Housing and Urban Development and Independent Agencies Appropriations Act of 2000, Public Law 106-74 (1999). The Appropriations Act directed EPA to conduct an evaluation of the Phase I Storm Water Program as follows:

> No later than 120 days after the enactment of this Act, the Environmental Protection Agency shall submit to the Environment and Public Works Committee of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives a report containing a detailed explanation of the impact, if any, that the Phase I program has had in improving water quality in the United States (including a description of specific measures that have been successful and those that have been unsuccessful).

In response to the mandate of the Appropriations Act, EPA conducted a review of existing and readily available information on the status and effectiveness of the Phase I storm water program. This review has led the Agency to the following findings:

- Although information on the water quality impacts of Phase I is unavailable at the national level, loading reductions and subsequent water quality impacts have been documented on the site-specific level.

- The fundamental approach for addressing storm water discharges under the Phase I program involves the use of site-specific storm water pollution prevention plans (SWPPPs) and best management practices (BMPs). These measures or practices, used to reduce the amount of pollution entering water bodies, can be implemented cost-effectively.

- The flexible nature of the program has encouraged innovation on the part of municipalities, construction operators, and industrial facilities and allowed them to tailor control programs to their own unique circumstances.

- Further improvements can be made in both program design and implementation to enhance effectiveness.

In developing this Report to Congress, EPA was aware that the issue of storm water impacts to surface waters pre-dated the Phase I program. EPA wishes to acknowledge and applaud the efforts of many entities to address the potential impacts on water quality associated with storm water discharges prior to the Phase I program. These efforts include for example, various

regulatory and voluntary programs initiated at the State and local level. As discussed further below, EPA accounted for many of these ongoing efforts in developing the Phase I rule, in the form of providing flexibility in rule implementation to account for existing and applicable programs or efforts. As a result, and specifically while preparing this Report, EPA at times found it difficult to distinguish between successful efforts attributable to the Phase I program and successful storm water control efforts that pre-date or were developed in parallel with the Phase I program. The Agency took a relatively conservative approach to contend with this issue, crediting success to the Phase I program only when efforts were directly attributable to the program. At the same time, this report acknowledges the many other efforts that have been and are being folded into the Phase I program as it matures. Where there is uncertainty related to the direct attribution of individual successes to the Phase I program, the Report provides appropriate caveats.

BACKGROUND

The primary objective of the Clean Water Act (CWA) is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. To achieve this objective, the CWA establishes a variety of programs to control the discharge of pollutants to waterways. Section 402 of the CWA established the National Pollutant Discharge Elimination System (NPDES) permit program to specifically control the discharge of pollutants from point source dischargers. EPA has been implementing the NPDES program since 1972. The program initially focused on industrial sources and municipal wastewater treatment plants and has made dramatic gains. In the Water Quality Act (WQA) of 1987, Congress directed EPA to control storm water discharges.

Section 402(p) of the WQA requires the development and implementation of regulations in two phases to control storm water discharges. In promulgating the Phase I storm water regulations, EPA recognized that:

- The regulations had to meet the intent of the provisions of the CWA as established by Congress.
- Many industries, municipalities, and States were already implementing storm water control programs (e.g., soil and erosion control programs), and EPA wanted to encourage their success and expand those successes to other jurisdictions and industries.
- The Phase I program would bring previously unregulated parties into the NPDES program.

Consequently, EPA promulgated relatively flexible Phase I regulations that provided broad requirements while allowing for site-specific measures for achieving compliance. By choosing this performance-based regulatory approach, EPA sought to meet congressional intent while avoiding duplication of effort where significant progress had already been made. Through the requirement

to develop site-specific storm water management programs, EPA also acknowledged that industrial facilities and municipalities are in the best position to determine the appropriate combination of storm water management practices for their own circumstances.

The regulations, promulgated on November 16, 1990 (55 FR 47990), require NPDES permits for discharges from two broad categories of storm water discharges: (1) municipal separate storm sewer systems (MS4s) serving populations of 100,000 or more and (2) discharges associated with industrial activity (including discharges from construction activities disturbing 5 acres or greater of total land area). A definition of each of these regulated parties, along with a short summary of associated requirements, follows.

Municipal Separate Storm Sewer Systems (MS4s). An MS4 is a conveyance or system of conveyances that is owned or operated by a Federal, State, or local government entity and is designed for collecting and conveying storm water (which is not part of a publicly owned treatment works). The November 1990 regulations specifically identified 220 municipalities whose MS4s were subject to the Phase I program. The municipalities were required to submit applications that identified a variety of site-specific pollution prevention measures, source controls, and BMPs to control pollutants from targeted sources within the municipality. Phase I MS4s were to develop storm water management programs that included identifying major outfalls and pollutant loadings; detecting and eliminating non-storm water discharges to the storm sewer system; using pollution prevention techniques to reduce pollutants in runoff from industrial, commercial, and residential areas; and controlling storm water discharges from new development and redevelopment areas.

Storm Water Discharges Associated with Industrial Activities. The Phase I program also addresses storm water runoff from industrial facilities. Regulated facilities must develop and implement a site-specific storm water pollution prevention plan (SWPPP) to prevent, reduce, or control storm water pollutant sources using, among other techniques, low-cost BMPs. Common BMPs include good housekeeping, employee training, site inspections, spill prevention and response, and preventive maintenance activities.

EPA and authorized States have relied on the use of general permits as the primary mechanism for providing permit coverage for storm water discharges associated with industrial activities. Currently, EPA's 1995 multi-sector general permit (60 FR 50804, September 29, 1995) identifies storm water control guidelines for 30 different industrial sectors. The general permit's most significant requirement is development and implementation of a site-specific SWPPP.

Storm Water Discharges Associated with Construction Activities. Under the Phase I program, "storm water discharge associated with industrial activity" includes storm water discharges from construction activities (including grading, clearing, excavation, or other earthmoving activities) that result in the disturbance of 5 or more acres of total land area. EPA's strategy for issuing NPDES permits for storm water discharges from construction activities is similar to that for industrial activities, that is the issuance of general permits.

The baseline general permit for construction activities requires development and implementation of a site-specific SWPPP specifying erosion and sediment control measures that will be implemented at the site. Examples of these BMPs include controls designed to retain sediment on site; controls that prevent litter, construction debris, and construction chemicals from becoming a pollutant; and interim and permanent stabilization practices to preserve existing vegetation.

DATA SOURCES AND METHODOLOGY

Given the 120-day deadline to submit this Report to Congress, EPA has relied primarily on existing and readily available data and information. Information used for this Report generally falls into the following three categories:

1. **Case studies**. This Report documents specific efforts, programs, and initiatives used by individual permittees to comply with Phase I requirements. The case studies mainly provide detailed information related to how the Phase I program is being developed and implemented by individual permittees. The case studies are discussed throughout the Report, and a detailed summary of each case study is provided in Appendix D.

2. **Existing surveys**. This Report uses the results of several existing surveys and data collection efforts:

   - A limited EPA survey of nine Phase I MS4s conducted for this Report, assessing a range of indicators for their storm water management programs.

   - A limited survey of ten Phase I MS4s that the National Association of Flood and Storm water Management Agencies (NAFSMA) conducted for this Report of its members to solicit input related to the effectiveness of the Phase I program.

   - A 1996 survey and study performed by the Water Environment Federation (WEF) of industrial facilities to assess the effectiveness of the industrial storm water general permitting program.

3. **Modeling**. EPA performed some limited modeling to extrapolate data, information, and results to provide a broader (national or regional) indication of the contributions of the Phase I program.

EPA used three types of indicators to measure program effectiveness for this Report:

1. **Programmatic Indicators**. Programmatic indicators are measures of the effectiveness of administrative activities undertaken by permitting authorities and the regulated community.

2. **Loading Reductions**. This Report describes (1) actual or estimated reductions in loadings of various pollutants achieved in specific cases as a result of Phase I BMPs and (2) estimated national loadings of sediment averted as a result of Phase I controls. Although the Appropriations Act specifically requested information on water quality improvements that have resulted from implementing Phase I, EPA does not have this data readily available and could not collect it in time to meet the deadline for the report. Another equally significant measurement of the Phase I program's progress is the degree to which water quality was protected from degradation.

3. **Direct Measures of Water Quality Improvements**. In this Report, EPA provides subjective and objective assessments on a site-specific basis and through qualitative surveys of the water quality benefits attributable to the Phase I program.

This Report to Congress is organized as follows:

- **Chapter 1** provides background information on the Phase I program.
- **Chapter 2** summarizes the methodology used to respond to Congress's request.
- **Chapter 3** presents EPA's evaluation of the Phase I storm water program for municipal separate storm sewer systems.
- **Chapter 4** presents EPA's evaluation of the Phase I storm water program for construction activities.
- **Chapter 5** presents EPA's evaluation of the Phase I storm water program for industrial activities.

FINDINGS

This Report documents a number of specific cases where the Phase I storm water control program has contributed to water quality protection and improvement. When EPA initiated this study, it was unclear whether the Agency would be able to attribute water quality improvements to the program. EPA recognized that the wide variety of pollutant sources, including for example in-place contaminated sediments, airborne deposition, and other point and nonpoint sources, would complicate any attempt to attribute water quality improvements to a single program. EPA also

recognized that water quality improvement was not the only goal of the program, but that prevention of degradation would be a major, although difficult-to-quantify, goal. Notwithstanding these complications, this Report does provide objective and subjective site-specific evidence that the loading reductions achieved through the application of best management practices (BMPs) have resulted in water quality benefits. In addition, EPA's experience with other water quality management programs suggests that water pollution control efforts do not necessarily result in immediate, recognizable environmental results, but may instead produce long-term improvements that must be tailored and refined over time and coordinated with other environmental protection programs. Thus, EPA expects additional evidence of water quality improvements attributable to Phase I to become available in the future, as the program matures.

The available evidence suggests that the regulated community agrees with the overall approach EPA has taken to implement the Phase I program, as evidenced by WEF's large survey of industrial facilities and the smaller, focused surveys of the municipal community by EPA and NAFSMA. From the perspective of the regulated community, EPA's approach to implementing Phase I has allowed permittees to tailor their storm water programs to meet site-specific needs.

Impacts of the Phase I Program

Although information on the water quality impacts of Phase I is unavailable at the national level, loading reductions and subsequent water quality impacts have been documented at the site-specific level.

Except for storm water discharges associated with construction activities, EPA does not have national estimates of water quality protection and improvements from the Phase I program. This Report does, however, provide survey and case study data identifying specific instances where water quality improvements have resulted, or are expected to result, from implementation of the Phase I program. Examples of loading reductions and subsequent water quality protection and improvements are provided below.

Loading Reductions

Phase I regulations are intended to protect and improve water quality by reducing pollutant loadings to the Nation's waters. A modeling analysis conducted for this Report estimates that storm water BMPs applicable to construction sites keep 73 percent of the sediments generated during construction from reaching surface water bodies. Using the average sediment load reduction per site (46.4 tons per site) and estimates of the number of permitted construction starts in 1999 (19,856 sites), the use of SWPPPs and BMPs has prevented at least 882,000 tons of sediment from entering the Nation's waters. The Phase I program has expanded the use of such measures by requiring them for all sites nationally that disturb 5 or more acres.

Specific case studies cited in this Report also document loading reductions as a result of storm water control programs, many of which were developed or enhanced as a result of Phase I. Case study findings include the following:

- By eliminating illicit connections to their MS4, Portland, Oregon, reduced annual pollutant loads due to wash water discharges, accidental spills, and erosion/sedimentation by 1,980 pounds of total suspended solids (TSS), 330 pounds of biochemical oxygen demand (BOD), 40 pounds of nitrogen, 10 pounds of phosphorous, 400 pounds of diesel fuel, and 4 pounds of oil and grease.

- Three storm water ponds in Austin, Texas's Central Park area provide environmental, economic, and aesthetic benefits. By capturing 300,000 cubic feet of rainfall runoff, the ponds annually remove 36,400 to 50,000 pounds of sediment, 55 to 275 pounds of nitrate/nitrite, 55 to 2000 pounds of phosphorous, 5 to 50 pounds of lead, and 10 to 150 pounds of zinc. Additional downstream benefits include improved oxygenation and flooding and erosion control.

- In Palo Alto, California, implementation of BMPs at vehicle service facilities significantly reduced concentrations of several toxic metals in storm water including copper (89 percent), lead (96 percent), nickel (93 percent), and zinc (77 percent) between 1993 and 1996.

- In Tulsa, Oklahoma, monitoring data from an iron foundry identified elevated levels of TSS in storm water discharges from the facility. The facility was able to reduce concentrations of TSS in its storm water discharges by 90 percent compared to their pre-phase I baseline through the implementation of BMPs, such as improved housekeeping, and the addition of a filtering system and storm water retention basin to promote settling.

- Prince George's County, Maryland's Low-Impact Development (LID) program uses a wide array of simple, cost-effective BMPs that infiltrate storm water runoff from new developments. LID techniques decrease runoff generation by between 75 and 95 percent from earlier land development designs, and, on a composite basis, are estimated to reduce nutrient and metal pollutant loadings by over 80 percent. Prince George's County has been piloting the LID program since the early 1990's, and has recently incorporated the program into their storm water management plan.

- Montgomery County, Maryland's structural BMPs prevented 23 percent of the potential sediment load (in the absence of BMPs)and 27 percent of the potential nitrogen load within its jurisdiction from entering streams in 1998.

Water Quality Results

As noted above, EPA was not able to conduct a national assessment of the water quality protection and improvement afforded by the Phase I program. Consequently, this Report documents water quality protection and improvement as identified in qualitative surveys and specific case studies.

Surveys of the regulated community indicate that respondents believe that water quality protection and improvement have been achieved and that additional protection and improvement will be evidenced in the future. For example, of those industrial respondents to the WEF survey that had collected monitoring information, over 74 percent stated that their monitoring data indicated at least some improvement in water quality or a reduction in pollutant loadings as a result of Phase I implementation. Additionally, most of the participants in NAFSMA's limited survey of Phase I permittees responded that the program has been successful in improving local water quality. The remaining respondents indicated that it is too early to determine water quality impacts.

- Salt Lake City, a NAFSMA respondent, stated that its Phase I program has improved the quality and quantity of storm water discharges and protected water quality. The City attributed programmatic success to the public information/education and construction management program.

- Within the North Carolina Department of Environment and Natural Resources, the Division of Land Resources (administering the Sedimentation Control Program) and the Division of Water Quality (administering the NPDES storm water program) have successfully integrated their functions to develop a comprehensive construction storm water program. Beaverdam Creek, a primary nursery area and high-quality water, had experienced turbidity exceedances due to poorly managed construction activities. Successful program integration enabled North Carolina to curb poor management practices at construction sites in Brunswick County, North Carolina, and thus prevent impacts to water quality.

- A Phase I storm water construction permit in Grays Harbor County, Washington provided the mechanism to ensure that the development of a major Department of Corrections (DOC) facility would not threaten the nearby wetlands and salmon habitat of Stafford Creek and other surrounding water bodies. Before full implementation of the SWPPP, water quality exceedances of turbidity standards were noted. After SWPPP implementation, there were no water quality exceedances.

- The Washington Department of Ecology found the Phase I program to be instrumental in addressing discharges to valuable ecological and drinking water resources, including Issaquah Creek, Valley Creek, and Salmon Creek.

Additionally, as part of this Report, EPA conducted a statistical analysis of the relationship between water quality and the implementation of storm water controls in Florida. That analysis provided limited evidence of a positive relationship between the implementation of storm water controls on construction activities and the key water quality parameter of total suspended solids.

To comply with the Appropriations Act, EPA has also identified successful and unsuccessful measures of the Phase I program. These measures are recounted below.

Successful Measures of the Phase I Storm Water Program

The fundamental approach for addressing storm water discharges under the Phase I program involves the use of site-specific storm water pollution prevention plans (SWPPPs) and best management practices (BMPs). These measures or practices, used to reduce the amount of pollution entering water bodies, can be implemented cost-effectively.

As noted above, some of the case studies collected for this Report identify specific loading reductions and water quality benefits. The Phase I program is based on the use of low-cost, common-sense solutions that appear to be widely accepted by the regulated entities and the public. In implementing control measures, Phase I permittees can take advantage of a comprehensive "menu" of structural and nonstructural BMPs, selecting those that are most effective on a site-specific basis.

Indeed, 75 percent of industrial respondents to the WEF survey consider BMPs such as good housekeeping, visual inspections, employee training, spill prevention and response, and preventive maintenance to be both applicable and moderately or highly effective. In some cases, these "nonstructural" BMPs can also lead to economic benefits to a facility in areas such as materials management and inventory control principles.

Municipal surveys by EPA and NAFSMA, and the industry survey by WEF, point to two particular BMPs — illicit discharge control and public outreach and training — as being particularly effective components of municipal and industrial storm water management programs. Examples of the effectiveness of these two BMPs are provided below.

Illicit Discharge Control

- In Boston, Massachusetts, 23 illicit connections, including a discharge of 71,000 gallons per day of raw sewage, were found and eliminated. The Charles River's environmental report card has improved from a "D" to a "B-minus" as the result of this and other wet weather control programs.

- Portland, Oregon's Phase I program involves regular monitoring for pollutants at storm water outfalls and has effectively halted illicit pollutant discharges.

- According to WEF's survey of nearly 600 industrial facilities, elimination of industrial source discharges into storm drain systems was found to be highly or moderately effective by 85 percent of the respondents who found the technique to be applicable to their site.

Training and Outreach

Six of nine respondents to the NAFSMA survey characterized public outreach and education as effective in reducing discharges from MS4s and in improving water quality. Case study information also shows that training and outreach activities are cost-effective and supported by the public.

- Fort Worth, Texas's aggressive public promotion of its household hazardous waste collection program, a component of its Phase I storm water management plan, has resulted in the annual collection of 50,000 gallons of toxic liquid wastes, preventing the release of these wastes to the environment.

- Charlotte, North Carolina (a Phase I permittee) has worked with Mecklenburg County (a Phase II permittee) to create a multifaceted program to protect their local water bodies — a program that has gained wide public support. Private citizens have volunteered to adopt over 40 miles of streams for cleanup and to stencil hundreds of storm drains to discourage illicit dumping.

- Outreach and training are effective for industrial programs as well. Nearly 90 percent of respondents to the WEF survey considered employee training a highly or moderately effective part of a SWPPP.

The flexible nature of the program has encouraged innovation on the part of municipalities, construction operators, and industrial facilities and allowed them to tailor control programs to their own unique circumstances.

Several elements of EPA's approach to implementing the Phase I program have encouraged innovation: (1) the program's administrative flexibility alleviates duplication of efforts between like programs, (2) EPA has mounted an extensive outreach campaign to ensure the regulated community is aware of its regulatory responsibilities, and (3) the regulated community has an appreciation of the program's purpose and approach.

Program Flexibility

EPA explicitly recognizes the Phase I program's relationship to other Federal, State, and local storm water control programs. Indeed, in designing the program EPA avoided duplication of effort, emphasizing integration of programmatic requirements so States and localities could

leverage the Phase I program to support existing programs. Case studies documented in this Report, including those identifying the alignment between the Phase I construction program and soil and erosion control programs in North Carolina and Washington State, show that State and local programs have successfully integrated and leveraged the program to improve program administration and yield water quality benefits.

Extensive Outreach Campaign

Because the Phase I regulations affects so many entities with no prior NPDES permitting experience, particularly in the construction sector, the program has included aggressive outreach since its inception. EPA found that tools such as a hotline, a full complement of guidance, training workshops, and an Internet-based web site have been used extensively by the regulated community. As noted in the WEF survey report, "it appears that both EPA and the States have done an excellent job in providing the necessary assistance to prepare a storm water management plan."

Stakeholder Support

As a result of the program's flexibility and the fact that BMPs offer real loading reductions, many members of the regulated community support the program. When WEF asked regulated industries whether they would implement SWPPPs even in the absence of storm water regulations, almost 43 percent indicated they would retain SWPPPs in their entirety. Of these, 80 percent would retain SWPPPs because of the environmental benefit. More than one-half (52.3 percent) of the remaining respondents stated they would retain at least some of their SWPPPs even in the absence of regulations.

Measures Identified as Unsuccessful

Further improvements can be made in both program design and implementation to enhance effectiveness.

As noted above, a sound program framework is in place to foster cost-effective implementation and loading reductions, and subsequent water quality protection and improvement have been evidenced. Nevertheless, information collected for this Report also identified measures of the Phase I storm water program that are considered less than successful. Those measures are discussed below, along with a summary of the Agency's response.

1. Stakeholders have expressed concerns regarding the cost and usefulness of analytical monitoring conducted under Phase I.

The Phase I program's monitoring programs were established to characterize storm water discharges and to provide monitoring data for use in evaluating compliance. EPA has found that both the industrial community (as reflected in the WEF survey) and the municipal community (as reflected in the NAFSMA survey) are concerned about the Phase I monitoring program requirements.

- The requirements of EPA's general permit for industrial facilities specify analytical monitoring for certain industrial sectors. The purpose of the monitoring is to provide facility operators with the necessary information to determine the effectiveness of their SWPPPs in controlling the discharge of pollutants in storm water. EPA has received feedback from industry representatives that the costs associated with analytical monitoring are too high, and that the data generated are not useful in determining the effectiveness of their SWPPPs.

  Agency Response: EPA is considering alternatives to the analytical monitoring requirements in EPA's general permit for storm water discharges associated with industrial activity, and will request public comment on alternatives to analytical monitoring requirements during proposal. The Federal Register notice for the proposed MSGP is expected in February 2000.

- Some Phase I municipalities have stated that uniform discharge monitoring requirements for MS4 permits have resulted in a significant expenditure of resources without a commensurate return in water quality improvement. These inefficiencies were particularly noted in areas where the standard Phase I end-of-pipe monitoring was considered inappropriate for the specific geographic and climatological locations of some MS4s (e.g., areas that experience infrequent rainfall events). In addition, some Phase I municipalities contend that MS4 monitoring requirements may not account for, or be integrated with other area-wide ambient monitoring efforts, characterization of other pollutant sources, and/or water quality modeling.

  Agency Response: The Agency will continue to investigate and encourage innovative and integrated approaches to monitoring through policy, guidance, and technical assistance.

2. The industrial community, through the WEF survey, identified elements of the SWPPP that have proven ineffective.

Respondents to the WEF survey identified the following BMP measures as ineffective in controlling the discharge of pollutants in storm water:

- Record keeping and reporting
- Raw material and product substitution
- Site mapping.

Agency Response: While some respondents to the WEF survey did not feel the above measures are effective in controlling the discharge of pollutants in storm water, EPA feels they are important components of a comprehensive and effective SWPPP. Developing a facility site map, for instance, although not directly effective in controlling the discharge of pollutants, can be a very simple and effective exercise that provides an operator with a better understanding of the potential sources of pollutants exposed to storm water. The site map also provides the operator with a better understanding of the drainage areas from their facility, which should facilitate assessment of necessary controls. Accurate record keeping and reporting is essential to track compliance with SWPPP implementation requirements, as well as assist in anticipating areas of concern for storm water contamination (e.g., tracking the types and amounts of materials stored at the facility). With regard to measures that address "raw material and product substitution," these are BMPs that facilities are to consider, and implement as appropriate and necessary.

CONCLUSIONS

EPA's analysis of the Phase I storm water program demonstrates that a flexible regulatory framework is in place for controlling storm water discharges from municipal, construction, and industrial sources. Many Phase I program components were found to be effective in preventing or reducing the discharge of pollutants in storm water in specific cases. Although EPA acknowledges that it does not currently have a system in place to measure the success of the Phase I program on a national scale, surveys and case studies described in this Report indicate that significant milestones are being achieved. This Report specifically provides evidence that the Phase I program has been successful in reducing pollutant loadings in storm water discharges and protecting and improving water quality on a site-specific basis. The Agency has worked with stakeholders, and will continue to do so, to identify meaningful measures for reporting the effectiveness of the Phase I storm water program in the future.

Finally, many Phase I municipalities agree that storm water management is a key component in multijurisdictional, multiwatershed efforts to protect receiving waters. Municipalities have stated that there are opportunities for integrating wet weather programs (storm water Phases I and II, combined sewer overflow, sanitary sewer overflow) to enhance efforts by municipalities and other stakeholders to manage wet weather flows on a watershed basis. The Agency will continue to look for ways to support innovative approaches to watershed protection through policy, guidance, and technical assistance.

5. EVALUATION OF PROGRAM FOR INDUSTRIAL ACTIVITIES

This chapter evaluates the impacts of the industrial portion of the Phase I storm water program. As demonstrated in this chapter, the industrial program has advanced Clean Water Act (CWA) water quality protection and improvement efforts by

- Providing facilities with the necessary flexibility to implement structural and nonstructural storm water controls tailored to site-specific conditions.

- Fostering pollution prevention procedures, many of which can be implemented at a relatively low cost.

The remainder of this chapter describes the Phase I requirements for storm water discharges associated with industrial activity (Section 5.1), the analytical approach used to evaluate the program (Section 5.2), the specific methodology used for determining program impacts (Section 5.3), and the overall findings (Section 5.4).

5.1 STATEMENT OF PHASE I REQUIREMENTS

The Storm Water Phase I Rule (55 FR 47990; November 16, 1990) specifies NPDES permit requirements for eleven categories of facilities with storm water discharges associated with industrial activity that discharge to waters of the United States or to municipal separate storm sewer systems (MS4s).

5.1.1 Industrial Facilities Regulated Under the Phase I Program

The definition at 40 CFR 122.26(b)(14) specifically identifies 11 categories of facilities (identified as "I" through "xi") considered to be engaging in "industrial activity" for purposes of the Phase I storm water regulations.[1] Ten of these eleven categories are discussed in this chapter; category "x," construction activities is addressed in Chapter 4. As described in Appendix G of this Report, the Federal regulations define "industrial activities" based on either Standard Industrial Classification (SIC) codes or facility-specific activities. The industrial activity categories apply to all types of facilities, including Federal, State, and municipally owned or operated facilities, with a few exceptions (e.g., the Intermodal Surface Transportation Efficiency Act of 1991 delayed certain program requirements for municipalities with a population less than 100,000 that perform industrial activities).

For the categories of industries identified in (I) through (ix) of the definition, storm water discharges associated with industrial activity include, but are not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of

[1] Covered industrial facilities also include those facilities with storm water discharges associated with industrial activity where the permitting authority determines that the discharge contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States.

process waste waters (as defined at 40 CFR Part 401); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and ***significant materials*** remain and are exposed to storm water.

Significant Materials - 40 CFR 122.26(b)(12)
Include, but are not limited to, raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical the facility is required to report pursuant to section 313 of title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with storm water discharges.

Category (xi) of the definition addresses storm water discharges from all the areas (except access roads and rail lines) listed in the previous sentence where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery ***are exposed to storm water***. This differs from the requirement for categories (I) through (ix), to which the requirements apply ***whether or not exposure has been identified.*** [2]

The term "storm water discharges associated with industrial activity" excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas.

5.1.2 NPDES Storm Water Permit Requirements for Industrial Activities

Facilities that meet the definition of "storm water discharge associated with industrial activity" were required to apply for an NPDES permit by October 1992. In developing a permitting approach for industrial facilities regulated under the Phase I storm water program, EPA acknowledged the administrative burden on EPA and States authorized to provide permit coverage for a large number of sites. Consequently, EPA and authorized States have primarily relied on the use of general permits to provide permit coverage for storm water discharges from industrial facilities.

Each facility covered under EPA's general storm water permit is required to develop and implement a storm water pollution prevention plan (SWPPP). As the primary method used to control storm water discharges, the SWPPP encompasses two main objectives: (1) to identify sources of pollution potentially affecting the quality of storm water discharges associated with industrial activity from the facility and (2) to describe and ensure implementation of practices to minimize and control pollutants in storm water discharges associated with industrial activity from

[2] The Phase II storm water regulations (64 FR 68722, December 8, 1999) revise this "no exposure" provision to apply to all industrial activities identified in categories (i) through (ix) and (xi). However, although past "no exposure" determinations allowed facilities to opt out of all storm water requirements, the Phase II rule requires that these "no exposure" facilities must notify the permitting authority in writing of this determination.

the facility. Implementation of a SWPPP provides facilities with a flexible, relatively inexpensive approach for reducing pollutant loadings from storm water. An overview of the SWPPP requirements is provided in Appendix H. Examples of the types of best management practices (BMPs) in an industrial facility's SWPPP include the following:

- Good housekeeping
- Employee training
- Site inspections
- Spill prevention and response
- Preventative maintenance activities.

5.1.3 Current Status of Phase I Program for Industrial Activities

As shown in Table 5-1, more than 75,000 facilities are currently permitted nationwide for discharges of storm water associated with industrial activity. Table 5-1 lists the number of facilities by State, grouped into EPA Regions.

The number of facilities listed in each State varies because of several factors. The amount and type of industrial activity to be found in the State is obviously one of the factors that determines the number of facilities required to be covered under a general permit. California and Texas list 9,192 and 7,285 facilities, respectively, or 12 percent and 10 percent of the total. Other States having large numbers of industrial facilities covered by the program include Michigan with 4,900 (7 percent), Illinois with 4,172 (6 percent), and Wisconsin with 3,899 (5 percent). These five States total 29,448 facilities, or almost 40 percent of the total number of facilities covered in the country.

Information related to the number of facilities within each of the 10 industrial categories is not available for the Nation. However, EPA has information related to the number of facilities in each of the 10 categories that are covered by the Agency's multi-sector general permit (MSGP). Evaluation of this information provides an indication of the potential relative distribution of facilities across categories. Figure 5-1 details the industrial facilities covered under EPA's MSGP, organized by facility type. EPA's general permit applies to facilities in nine States, the District of Columbia, and Puerto Rico (i.e., those States and territories in which EPA is the permitting authority).

Table 5-1. Industrial Facilities Covered by Storm Water General Permits by State

State	EPA Region	Total
CT	1	1,261
MA		1,163
ME		468
NH		347
RI		142
VT		N/A
NJ	2	1,799
NY		1,821
PR		471
VI		1
DC	3	44
DE		N/A
MD		N/A
VA		N/A
WV		N/A
AL	4	2,764
FL		2,422
GA		2,508
KY		1,856
MS		2,415
NC		3,671
SC		2,235
TN		2,254
IL	5	4,172
IN		1,535
MI		4,900
MN		2,121
OH		3,282
WI		3,899
AR	6	N/A
LA		708
NM		595
OK		693
TX		7,285
IA	7	1,249
KS		13
MO		2,300
NE		402
CO	8	1,440
MT		220
ND		480
SD		550
UT		435
WY		701
AZ	9	727
CA		9,192
GU		4
HI		198
NV		534
AK	10	366
ID		228
OR		1,076
WA		1,200
Total:		75,879

N/A - not available

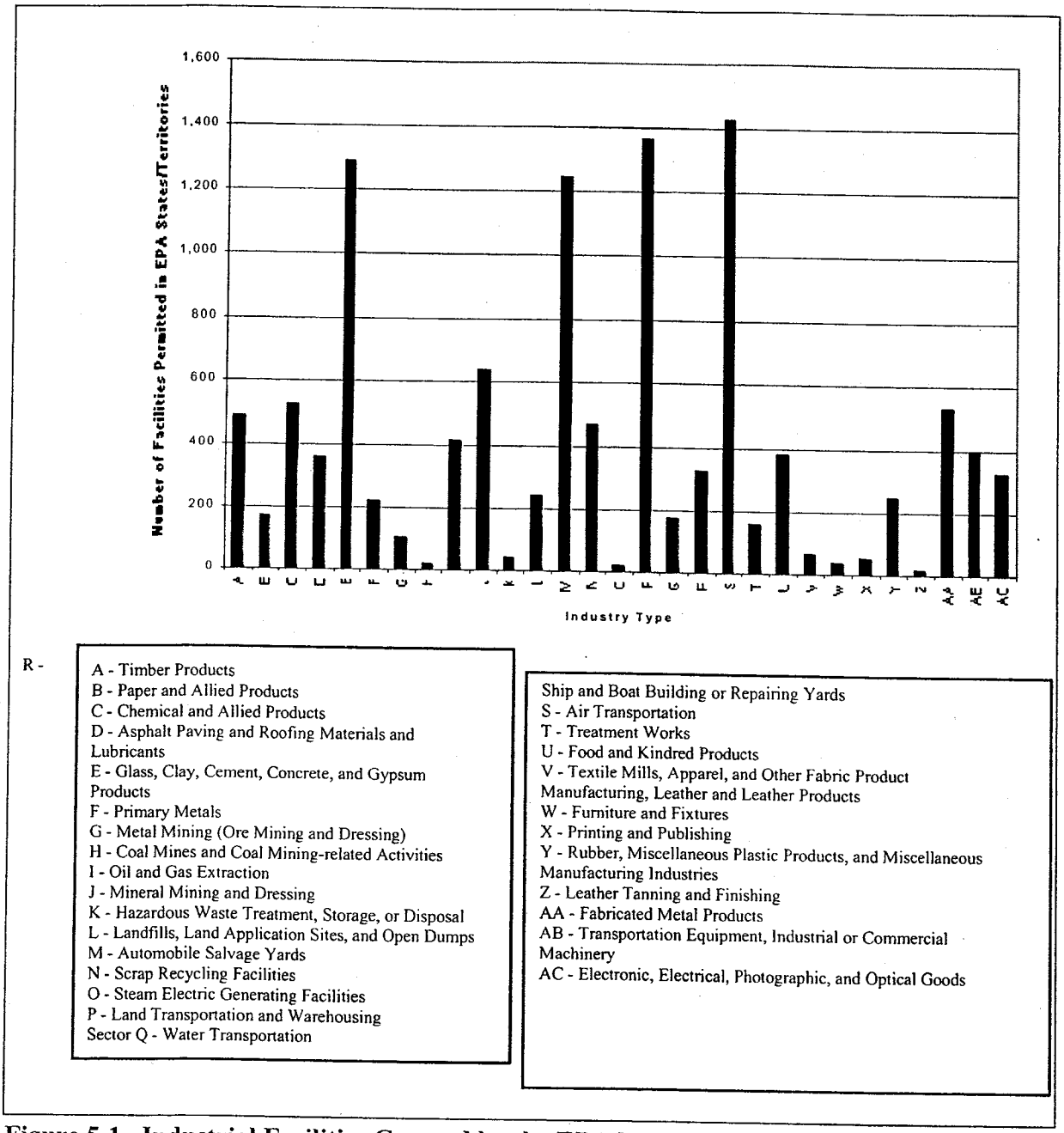


Figure 5-1. Industrial Facilities Covered by the EPA Multi-Sector General Permit by Industrial Category

Although Figure 5-1 demonstrates the types of activities covered under EPA's MSGP, it does not indicate the number of facilities nationwide that actually meet the definition of the individual sectors. The number of facilities defined by each sector highlights the fact that only a percentage of any given sector will be covered by a storm water general permit. Other facilities meeting the definition might not necessarily require permit coverage. For example, any facility that discharges storm water to a publicly owned treatment works (POTW) or to a combined sewer (i.e., a single sewer conveying domestic wastewater and storm water) is not covered by the Phase I regulations.

Also, a number of heavy industrial facilities have storm water discharges covered under an existing individual NPDES permit that includes both process wastewater and storm water controls. EPA does not track these individual NPDES permits that contain storm water provisions, and therefore they are excluded from the count of covered facilities in the Notice Of Intent (NOI) database. Additionally, light industry (i.e., those facilities defined at 40 CFR 122.26(b)(14)(xi)) are required to obtain permit coverage only if the industrial activity is exposed to storm water. Therefore, a much smaller percentage of light industrial facilities are expected to be covered under the Phase I program.

5.2 ANALYTICAL APPROACH

EPA's analysis of the industrial facilities provides an understanding of improvements associated with implementing SWPPPs and activities associated with the Phase I program. The analysis characterizes key program elements used to achieve pollutant load reductions and water quality improvements. Where possible, the analysis projects national trends.

As discussed in Chapter 2, three indicators are used to identify program success:

- **Programmatic indicators** show how permitting authorities have been able to communicate program requirements to permittees since promulgation of the Phase I regulations and how permittees have been able to effectively implement these requirements, quite often using low-cost solutions.

- **Loading reductions indicators** show how reductions in pollutant concentrations are occurring in a variety of industrial sectors and how permittees are beginning to recognize the contributions of these permitting solutions to reductions in pollutant loadings to waters of the United States.

- **Water quality improvement indicators** anecdotally show how the Phase I regulations can improve water quality and how the regulated community believes that the Phase I program can have positive influences on water quality.

In responding to Congress's directive to develop this Report, EPA used in-house information, including the results of a general permit effectiveness survey performed by the Water Environment Federation (WEF) in 1996 to characterize the program and document how the Phase I program has been successful in establishing a framework for reducing pollutant loadings to receiving waters.

5.3 SPECIFIC METHODS AND RESULTS

One of the biggest challenges for EPA is to ensure that all facilities with storm water discharges associated with industrial activity are covered by an NPDES permit. Unlike the situation for municipalities, in which the regulations identify the MS4S that require permit coverage, either the facility or the permitting authority (EPA or an NPDES-delegated State) must identify the need for an NPDES permit for storm water discharges associated with an industrial activity. It is unreasonable to expect permitting authorities to make these determinations for the more than 75,000 sites nationwide. Consequently, EPA has undertaken an extensive outreach program to communicate the requirements of the Phase I storm water program. Based on findings from a recent study, this outreach effort seems to be effective.

This section describes the specific methods used to analyze the effectiveness of the Phase I program for industrial activities. It also presents the results of the analyses, focusing on the three programmatic indicators described in Chapter 2 and highlighted in Section 5.2.

5.3.1 Programmatic Indicators

This section reports on Phase I programmatic improvements based on permitting authority information, results of a storm water general permit effectiveness survey, and case studies. This section first provides an overview of the outreach efforts performed by EPA and NPDES-authorized States since promulgation of the Phase I regulations. This outreach effort promotes cost-effective and timely implementation of the regulation. This section describes how permitting authorities have used the information gained to tailor specific requirements, maximizing the benefits of efforts expended by permittees. Next, results of a 1996 storm water survey are discussed, highlighting the effectiveness and acceptance of the storm water general permitting approach based on responses from the permittees. Finally, several case studies are presented that highlight specific efforts undertaken in response to the Phase I program.

5.3.1.1 Outreach Efforts

To assist industrial facilities in meeting the intent of the Phase I regulations, EPA has developed and implemented a number of different outreach activities to promote compliance with program requirements. These activities include maintaining an Internet web site specific to the storm water program, presenting training workshops, operating an active telephone hotline, and producing guidance documents for distribution to regulated facilities.

EPA's Office of Wastewater Management (OWM) Internet web site (www.epa.gov/owm/sw/industry/index.htm) provides specific storm water information for program stakeholders. The web site guides users through the process of determining applicable requirements of the Phase I program for industrial activities. The web site's design incorporates all the programmatic resources necessary for a facility with storm water discharges associated with industrial activity to identify applicable regulations and take the steps necessary to comply with those regulations. As an example, EPA maintains a list of all threatened and endangered species, by county, that permit applicants can access to determine if discharges from the site have the potential to affect any of these species. Without this web site, each applicant would have to

perform an independent assessment to identify the threatened and endangered species present in the immediate vicinity of the storm water discharge, a task that could be quite burdensome given the number of permitted discharges.

Since 1992 EPA has conducted 28 workshops to communicate the regulatory requirements of the Phase I storm water program. Approximately 4,000 representatives from industrial facilities, the construction industry, and municipalities attended the workshops.

EPA's Storm Water Hotline (800-245-6510) has also played a vital role in making information readily available to the regulated community. Since promulgation of the Phase I rule in 1990, EPA has received and responded to well over 150,000 calls on the hotline. In the 2 years after promulgation of the Phase I rule, EPA distributed more than **2,500 documents a month** based solely on hotline requests. To this day, the hotline continues to average more than 500 calls a month.

5.3.1.2 Water Environment Federation General Permit Effectiveness Survey

Arguably, one of the best ways to assess the effectiveness of an environmental program is to seek feedback directly from the regulated community regarding the value of the requirements in protecting the environment. Where compliance costs are high with little noticeable environmental improvement, it is reasonable to assume that many, if not most, companies will argue that the regulations are unnecessary, burdensome, inefficient, and so forth. Conversely, low-cost alternatives that provide noticeable improvements to the environment are likely to be more readily accepted by the regulated community.

Consistent with the approach described above, WEF[3] published a report in October 1996 entitled *Effectiveness of Industrial Storm Water General Permitting Program* (WEF, 1996). This report, funded through an EPA cooperative agreement, provides a summary of industrial storm water permittee's responses to a variety of questions related to the Phase I storm water program. The following discussion draws from information contained in that report and demonstrates that

- SWPPPs have been developed by industry.
- SWPPPs are not redundant requirements.
- EPA outreach materials have assisted affected facilities.
- BMPs have resulted in water quality improvements.

It was EPA's objective to increase stakeholder involvement in setting priorities for the Phase I program by working with WEF and industry to obtain input on the effectiveness of the industrial portion of the program. The report built on an initial project performed under the WEF/EPA cooperative agreement. The project was an avenue for Phase I industrial facilities (in States where EPA was the permitting authority) to report to EPA on the effectiveness of SWPPPs and

[3] WEF is an international not-for-profit educational and technical organization of more than 40,000 water quality experts. Members include environmental, civil, and chemical engineers, biologists, chemists, government officials, students, treatment plant managers and operators, laboratory analysts, and equipment manufacturers and distributors.

to provide feedback to EPA on the program's success. The objective was expanded in 1995 to address all States, evaluate the Phase I program beyond the SWPPP requirements, and provide an evaluation for the need for a "no exposure" exemption.

Data were collected through a survey instrument designed to elicit industrial permittee's perceptions of the storm water program. The survey was prepared by a diverse work group consisting of industrial representatives as well as State and EPA staff. Using EPA and State databases of facilities, WEF identified a total of 76,286 facilities covered by storm water general permits.[4] WEF determined that mailing the questionnaire to 10 percent of these facilities would provide statistically useful results even if only 5 percent of the surveys were returned. With that in mind, WEF distributed 7,500 questionnaires to a stratified random sample of facilities.

The questionnaires were mailed in January 1996 with responses due back to WEF in February 1996. WEF received 584 completed responses (an 8.2 percent response rate with a confidence level of ±4.04 percent). Responses were from industries representing 237 different four-digit SIC

Table 5-2. Makeup of WEF Survey Respondents

Types of Industries
- 44.4% heavy industry (categories (i) through (ix) in 40 CFR 122.26(b)(14))
- 31.5% light industry (category (xi) facilities)
- 10.1% miscellaneous (SIC codes that are not in any of the categories identified in 40 CFR 122.26(b)(14))
- 14.0% that WEF could not differentiate (no SIC code specified in the response)

Facility Size Designation
- 36.3% small business
- 51.8% not a small business
- 11.9% uncertain

Range of the Number of Employees at Facilities
- 0 employees (1.7%)
- 1–25 employees (36.6%)
- 26–100 employees (27.8%)
- >100 employees (33.9%)

Size of Facilities
- <1 acre (3.8%)
- 1–5 acres (32.2%)
- 5–25 acres (34.4%)
- >26 acres (29.6 %)

Annual Average Rainfall
- 0–10 inches (14.4%)
- 11–20 inches (26.8%)
- 21–20 inches (21.4%)
- 31–40 inches(19.1%)
- >40 inches (16.9%)

Source: WEF, 1996.

[4] No data were available for Vermont and West Virginia; two other States, Minnesota and Kansas, chose not to participate.

codes. A breakdown of the respondents is provided in Table 5-2.[5] One of the key indicators of facility makeup was to differentiate between small and large businesses as a way to evaluate the differential burden of program compliance. The discussion that follows highlights any meaningful differences (or similarities) for small and large facilities.

Implementation Status

WEF assessed the degrees of program implementation based on a number of survey questions. One of the most important questions asked whether the facility had developed a SWPPP. Presumably, facilities that had developed a SWPPP would be better able to assess the effectiveness of the program as well as the costs associated with implementation of program requirements. Of the total respondents, 17.4 percent stated that a SWPPP had not been developed, with another 3.9 percent uncertain if the facility had a SWPPP. Small business respondents were less likely to have prepared a SWPPP (23 percent) or to know if they had a plan (7.2 percent).[6] The WEF report surmises that small businesses tend not to understand the regulatory requirements as well as larger businesses.

WEF found that most firms that failed to prepare SWPPPs, irrespective of size, were confused by the program requirements.

The remainder of the analysis focused on facilities that had prepared a SWPPP. Of these industrial respondents, the vast majority (67 percent) indicated that the Phase I rule was the first regulation that affected storm water discharge from their facility.

To reduce program development costs, EPA has made significant efforts to provide permittees with as much guidance as possible. Therefore, one issue of concern was whether these outreach efforts had proven successful. The analysis found that approximately 70 percent of the facilities were able to prepare the SWPPP using internal resources; that is, only 30 percent used an external consultant to prepare the plan. For facilities that prepared their own SWPPP, 71.3 percent used government guidance only (EPA and/or State). Costs for plan preparation varied, with an overall average cost of $7,606 and a small business average cost of $4,341.

SWPPP Components Found to Be Effective in Controlling Storm Water

[5]WEF did not attempt to identify why certain facilities had submitted NOIs for coverage (and had returned the WEF questionnaire) even though the facility's SIC code was not in one of the covered sectors. Rather, the assumption was made that for one reason or another, since these facilities had submitted an NOI, they were covered under the Phase I program and would have valuable information to contribute. Therefore, all responses were retained and evaluated.

[6]The Phase I storm water regulations require all facilities submitting an NOI to have a SWPPP in place prior to submission of the NOI. Under the Phase I rule, certain classes of industrial activities can eliminate coverage under the storm water program by eliminating storm water discharges associated with industrial activities (i.e., eliminating exposure).

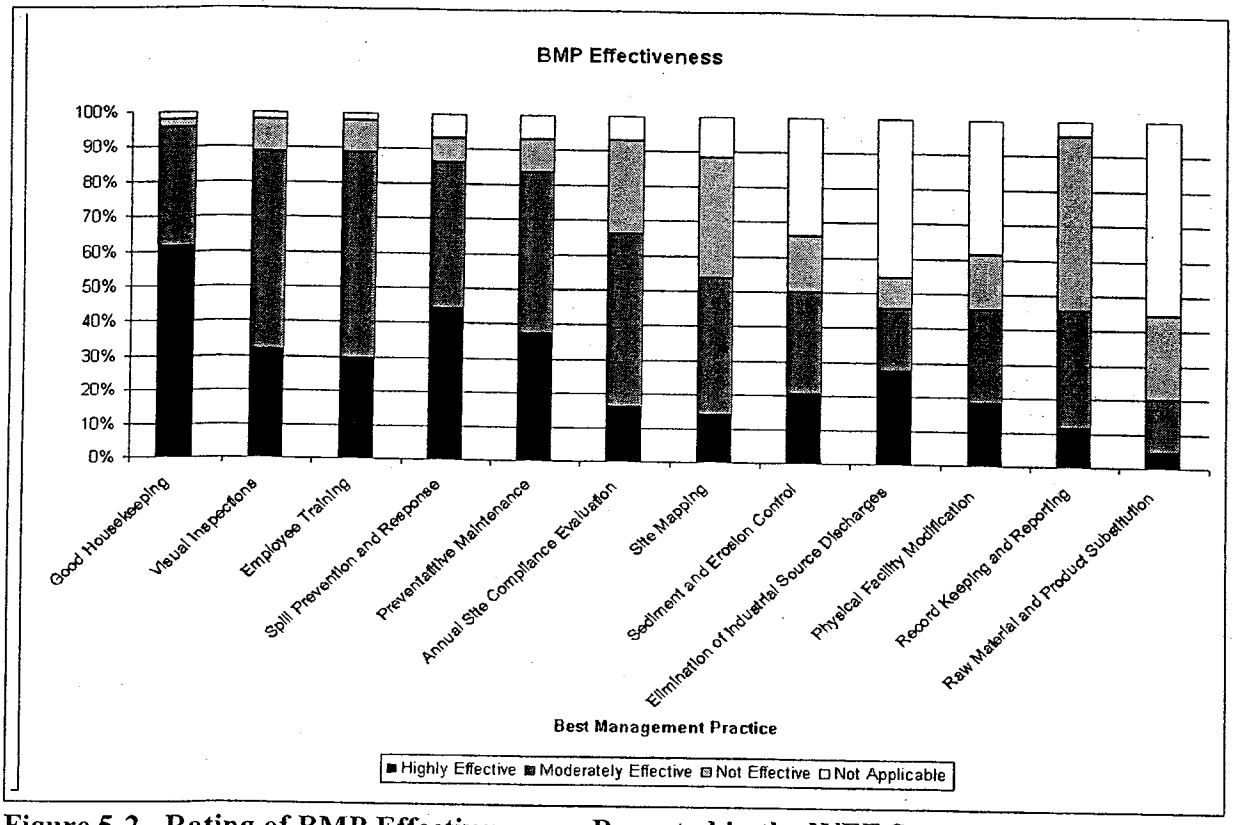


Figure 5-2. Rating of BMP Effectiveness as Reported in the WEF Survey

As discussed in Section 5.1.2, one of the key components of facility SWPPPs is BMPs. The WEF survey sought to assess the level of effectiveness of different combinations of BMPs. Permittees were asked to label each BMP as highly effective, moderately effective, not effective, or not applicable. The list of BMPs provided in the survey questionnaire matched the SWPPP requirements identified in the Phase I rule. A histogram showing how permittees evaluated each BMP is provided in Figure 5-2.

As shown in Figure 5-2, the BMPs considered by at least 75 percent of the respondents to be applicable and highly or moderately effective are

- Good housekeeping
- Visual inspections
- Employee training
- Spill prevention and response
- Preventative maintenance.

Other BMPs considered to be highly or moderately effective by at least 50 percent of the respondents included the annual site compliance evaluation, site mapping, and sediment and erosion control.

Not all BMPs were found to be applicable to any given site. For example, elimination of industrial source discharges was found to be highly or moderately effective by fewer than 50 percent of the respondents, but of the respondents that found the technique to be applicable to their site, more than 85 percent found it to be a highly or moderately effective technique. Similarly, sediment and erosion control and physical facility modifications were found to be highly or moderately effective for a majority of facilities for which these BMPs were applicable.

BMPs found not to be effective included raw material and product substitution and record keeping and reporting. As indicated in the WEF report, "clearly the one perceived to be the least effective was record keeping and reporting." In fact, more than 53 percent of the respondents who identified this as an applicable BMP found it not to be effective.

Cost of Complying with the Regulations

The WEF survey sought to establish costs for complying with the provisions of the storm water program. The survey identified three major cost components: SWPPP development, capital improvements, and annual operation. WEF designed its survey to collect costs in stated ranges.

SWPPP costs ranged from less than $1,000 to more than $100,000, with the average cost being about $7,500. More than 67 percent of the facilities spent less than $5,000 on plan development; 81 percent spent less than $10,000 developing the plan.

WEF found that approximately 39 percent of facilities had to expend resources for capital improvements to meet the regulatory requirements. The primary capital improvements identified were covered structures/improved storage (23.1 percent); ponds and other containment structures (19.3 percent); improved drainage, grading, and erosion control (18.5 percent); and berms, dikes, and diversion runoff (14.7 percent). WEF reported a trimodal distribution of costs with 33.7 percent of the facilities spending less than $5,000, 45.4 percent spending between $5,000 and $50,000, and 20.7 percent spending more than $50,000. Even though 80 percent of the facilities spent less than $50,000, the average cost was $89,030, which was heavily influenced by a number of facilities that had spent more than $100,000 on capital improvements (with an average cost of that group of more than $600,000 per facility). The median cost of capital improvements was just over $10,000 per facility.

For annual operating expenses, the average cost is $4,105, although the majority (69.5 percent) incurred annual costs of less than $2,500. The median annual cost was slightly more than $1,000.

To more fully understand the cost-effectiveness, WEF requested respondents to identify the three most cost-effective activities the facility had implemented and the three least cost effective measures. The two most common responses for most effective were good housekeeping and employee training, which were selected over 50 percent more frequently than the next two responses. The next two responses were structural controls, consisting of ponds and other containment structures, and improvement of storage, including installation of covered storage facilities.

By far, the least cost-effective measure reported was monitoring or sampling and analysis. Based on responses, WEF surmised that the costs associated with monitoring might be considered too high or the data generated from monitoring are considered of little value in effectively reducing storm water pollution. Not one respondent identified monitoring or sampling and analysis as one of the top three most effective measures. The next two most common least cost-effective measures, record keeping and reporting and plans/mapping, also were not identified as one of the three most effective measures by any respondent.

WEF asked respondents to identify those aspects of the SWPPP the facility would continue to implement even if the storm water regulations no longer existed. Almost 43 percent of the respondents indicated that they would retain the plan in it entirety, with 52.3 percent saying that they would retain some of it. Less than 5 percent indicated that they would not retain any aspect of the SWPPP in the absence of regulatory requirements. Similar to the question on effectiveness of specific BMPs, when asked which components of the SWPPP would be retained, the three overwhelmingly most common answers were good housekeeping, training, and inspections. Spill prevention and response, and preventative maintenance were the next two most common responses. Again, not one facility identified monitoring, or sampling and analysis as one of the measures that would be continued.

Finally, WEF asked respondents to identify the reasons that the facility would continue to implement the SWPPP even if the regulations did not exist. Approximately 80 percent of the respondents indicated that they would retain the plan requirements because of the environmental benefit, 59 percent because it was a corporate policy, 46 percent because it was required by other regulations, 24 percent because of the economic benefits, and 2.2. percent because of the public relations benefit.

The WEF study indicates that industrial facilities generally acknowledge the benefits associated with SWPPPs and BMPs. Indeed, as noted above, almost 43 percent of respondents reported they would retain the SWPPP in its entirety in the absence of regulatory requirements. Certain actions, particularly low-cost actions that could be characterized as good business practices, were well received. Other requirements, particularly monitoring and record keeping/reporting, were not highly valued by the respondents.

WEF Study Conclusions

- # Most respondents believe that BMP implementation has led to water quality improvement.
- # More than 95 percent of the respondents determined that good housekeeping was effective.
- # Preventative maintenance, elimination of sources, visual inspections, sediment and erosion control, spill prevention and response, and employee training were also rated as successful.
- # More than 60 percent of the respondents felt that the potential improvements in water quality might be worth the corresponding expenditures.
- # More than 90 percent of the respondents indicated that they would continue to implement at least some parts of their SWPPP even if the Phase I requirements were removed.

5.3.1.3 Case Studies

A number of case studies are presented here that describe the types of programmatic activities one State and several industrial facilities have undertaken to comply with the

Phase I program. The case studies illustrate how some facilities in different industrial sectors have taken advantage of the flexibility of the program by using a variety of approaches to comply. Complete case studies are provided in Appendix D.

Connecticut's Use of Phase I Monitoring Data Assists in Program Implementation

The Connecticut Department of Environmental Protection (DEP) currently regulates approximately 1,200 facilities under its General Permit for the Discharge of Stormwater from Industrial Facilities. Part of the general permit requirements include annual monitoring for 11 water quality parameters, including whole effluent toxicity. As described below, the State has found the Phase I storm water monitoring data to be essential to the efficient operation of the State's program.

The State general permit establishes performance criteria that represents the 80th percentile of statewide storm water quality from industrial facilities for each monitored parameter (derived from storm water discharge data collected from the first general permit issued by the State). These criteria are not enforceable limitations, but are used as a means of identifying storm water discharges that are significantly more contaminated than that discharged by most facilities regulated under the general permit. The performance criteria are specifically used by the State to provide flexibility for regulated facilities. Facilities that meet the criteria for all monitoring parameters for two consecutive years are exempt from monitoring for the remainder of the permit term.

The State has been collecting and analyzing storm water data for the past four years (1996-99). DEP prepares and distributes annual reports for the regulated facilities that summarizes all the monitoring data submitted to the State. According to DEP, the annual summary allows each facility to see where they stand in comparison to others, and many facilities have been found to improve storm water quality without prodding from DEP. DEP also uses the collected storm water data to more focus compliance activities. In particular, DEP lists those facilities that report highly contaminated storm water. By focusing on those with the greatest potential to impact water quality, DEP feels that the return on its limited resources is maximized and a higher rate of overall compliance is ultimately achieved.

DEP has also used the storm water monitoring data to assess technical assistance and research needs related to storm water controls. For example, the State discovered that marinas are much more likely to discharge storm water that is toxic to aquatic life than other types of facilities in the transportation category. As a result, DEP designated marinas as a priority problem, which is being addressed through a cooperative agreement with the Connecticut Marine Trades Association to perform research to identify the cause of the degraded storm water quality.

Ciba Specialty Chemicals, Newport, Delaware, Saves Money by Capturing and Reusing Storm Water

This case study shows how one industrial facility used the program's flexibility to arrive at an innovative solution to control its contaminated storm water discharge. Ciba Specialty Chemicals is a specialty chemical manufacturer that was identified as having a zinc-laden toxic dry weather

discharge to the receiving water as the result of infiltration at the site. Also, high levels of suspended solids were found to run off the site during storm events. Before the Phase I regulations, the facility collected contaminated ground water and pumped the water to the municipality for treatment. Storm water ran off the site directly to the river. Through installation of an on-site storm water collection network, Ciba Specialty Chemicals has been able to meet the SWPPP requirements of the Phase I program while at the same time eliminating the toxicity and reducing levels of suspended solids in the discharge. The facility's solution was to collect the first flush of storm water from the site and use the water for on-site cooling. In addition to the control of storm water discharges, Ciba's storm water collection system also captures spills, preventing discharge to the river. As a result, analytical testing of storm water discharges now shows zero percent mortality of aquatic species. In addition, the facility has saved money both from the reduction in the purchase of cooling water and from reduction in annual maintenance costs associated with the previously contaminated ground water.

Doggett Auto Parts, Bryan, Texas, Receives National Recognition for Aggressively Implementing Its Best Management Practices

This case study is an example of the positive effect that compliance with the Phase I program can have on a business. Doggett Auto Parts is a full-service auto recycling facility that stores 1,000 cars on-site and dismantles about 20 vehicles a month. In response to the Phase I regulations, the facility developed a SWPPP in 1994 and, through aggressive implementation, was approved as a Certified Automotive Recycler by the Automotive Recyclers Associations, becoming one of the first facilities in the Nation to achieve this status. (Doggett was also one of the first facilities in the country to achieve Gold Seal Quality Program status, a distinguished recognition for facilities with honest, reputable, quality business practices throughout the automotive recycling industry for the direct benefit of customers.) Employing fewer than 10 employees, Doggett trained its entire staff on the requirements of the Phase I program and then worked to identify solutions to eliminate storm water contamination from its facility. Some of the simple solutions incorporated into the facility's SWPPP included draining of all fluids from vehicles and reusing the fluids where possible, providing secondary containment around storage tanks, storing parts that had previously contained any automotive fluids indoors to prevent contact with storm water, and storing vehicles off the ground on wheel stands to allow for easy inspection of possible leaks under the cars. As a result of Doggett's aggressive plan for complying with the Phase I program, each of its employees is now aware of the environmental benefit of the program.

5.3.2 Loading Reductions

As noted previously, one of the key indicators of water quality benefits attributable to the Phase I program is preventing pollutants from being released to the environment. Water quality improvement occurs when industrial facilities employ practices that prevent or minimize contact of storm water with industrial activities and hence minimize the amount of pollutants carried off the site with the runoff and into receiving waters. This section describes how the Phase I program has reduced loadings of pollutants, highlighting this accomplishment through the use of storm water monitoring data, BMP effectiveness summaries, and case studies.

5.3.2.1 Storm Water Monitoring Data

The analysis of monitoring data from industrial sources presented below does not attempt to quantify nationwide estimates of loading reductions. Data on quantities of industrial pollutant discharges are insufficient to perform that type of analysis. Most notably, few data exist on the volume of storm water runoff from the diverse universe of industrial sources. Rather, the focus of this analysis will be on the reductions in concentrations (i.e., removal efficiency) that can be achieved at individual facilities, comparing storm water monitoring data submitted prior to Phase I permit requirements (i.e., group application monitoring data from 1991–92) with data submitted subsequent to Phase I permit requirements (i.e., discharge monitoring report data from 1994–present). The analysis suggests that, by and large, industry sectors experienced significant reductions in pollutant mean concentrations.

Use of Group Applications to Derive Pre-Phase I Program Pollutant Concentrations

The Phase I regulations originally established a two-part group application procedure to obtain coverage under the Phase I program. More than 1,200 groups and 60,000 member facilities (from all 50 States, Washington, DC, and many of the U.S. Territories) submitted part 1 applications. Of these applicants, EPA approved 700 groups and 44,000 members.[7]

The Phase I regulations required a set percentage of the group members to submit monitoring data in the part 2 applications (see Table 5-3). In addition to certain site-specific pollutants, all facilities submitting data were required to monitor for eight conventional pollutants: pH, 5-day biochemical oxygen demand, chemical oxygen demand, total suspended solids, oil and grease, total phosphorus, total Kjeldahl nitrogen, and nitrate plus nitrite nitrogen. Part 2 applications were a one-time option available for storm water discharges associated with industrial activity and were due to EPA by October 1, 1992. These data therefore represent the nature of storm water discharges before regulatory permit controls. EPA has compiled summaries of these part 2 group application monitoring data in several documents, most notably in the 1995 MSGP (60 FR 50804,

[7] EPA also issued a Baseline Industrial General Permit that provided another permitting option, although since that time EPA has merged the group and General Permit applications into a single permitting option, the Multi-Sector General Permit.

September 29, 1995) and in the March 1995 *Storm Water Discharges Potentially Addressed by Phase II of the National Pollutant Discharge Elimination System Storm Water Program* (USEPA, 1995). In both of those documents, EPA presented the data on a sector-specific basis. The sector approach has been used because, as has been discussed, the framework of EPA's current Phase I program is that the regulations are uniformly applied on a sector-specific basis (i.e., the MSGP).

Table 5-3. Part 2 Group Application Requirements (40 CFR 122.26(c)(2)(I)(D))

Size of Group	No. Required to Monitor
≥1,000 members	≥100 members
100–999 members	≥10% of members
21–99 members	≥10 members
4–20 members	≥50% of members

For groups with >10 members: at least two dischargers must monitor from each of the nine precipitation zones nationwide for any zone with at least 10 members or one discharger from each zone with fewer than 10 members.*

For groups with ≤10 members: at least one discharger must monitor from each of the nine precipitation zones nationwide.*

**Applies to each precipitation zone represented by the group.*

A brief summary of the group applications and the intent of the data collection effort highlights the significance of the group application monitoring data. The Phase I group application option enabled EPA to gather the information necessary for issuing permits for certain classes of storm water discharges associated with industrial activities. At the same time, this approach reduced the costs and administrative burdens associated with preparing permit applications and developing permits.[8]

The group application regulations required that monitoring data must be (1) representative of the members' discharges, (2) from a storm event greater than 0.1 inch, and (3) taken from a storm event that occurred at least 72 hours after a previously measurable storm event. Also, grab samples were to be collected during the first 30 minutes of the discharge. The regulations provided that when a facility had two or more substantially identical effluents,[9] the permittee had to sample only one of these outfalls and report that the data apply to the other outfalls.

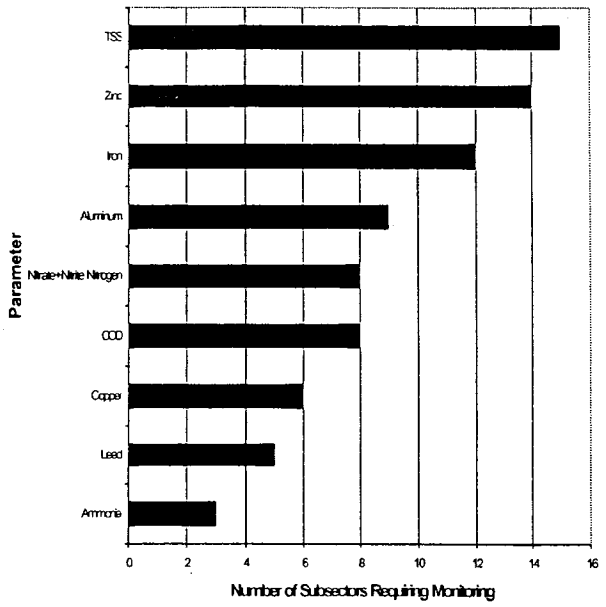
Use of Discharge Monitoring Reports to Derive Post-Phase I Pollutant Concentrations

The NPDES regulations, at 40 CFR 122.41(l)(4), specify monitoring report requirements that must be included in all NPDES permits. This section specifies that monitoring results are to be reported on a Discharge Monitoring Report (DMR). EPA and many NPDES-authorized States have developed and implemented DMR forms to be used by permittees for reporting analytical

[8] EPA recommended that NPDES-authorized States adopt the permits prepared by the Agency. Many States have, in fact, adopted EPA's MSGP or a permit similar in intent, form, and content, with specific State concerns added as appropriate.

[9] EPA defined the term "substantially identical effluents" in *NPDES Storm Water Sampling Guidance Document* (EPA 800/B-92-001).

monitoring results. The storm water MSGP does not require all covered facilities to submit DMRs. Appendix I contains a list of the 19 industrial sectors (and appropriate subsectors) with analytical monitoring requirements under the MSGP. EPA set monitoring requirements for these sectors based on an analysis of group application data and the identification of sectors and subsectors that were shown to have the potential to discharge pollutants above EPA-established benchmark concentrations.[10] Sectors and subsectors required to monitor must submit DMRs to the permitting authority. As indicated in Appendix I, the parameters to be monitored vary for each sector and subsector but are limited to the nine pollutants referenced in Figure 5-3. As in the group application process, grab samples are to be collected during the first 30 minutes of discharge.



* BOD and phosphorus monitoring is required of two subsectors each and magnesium, cadmium, cyanide, mercury, selenium, silver, manganese and pH monitoring is required of one subsector each.

Figure 5-3. Parameters Required to Be Monitored in the MSGP and the Number of Subsectors Required to Monitor for Each Parameter*

As noted previously, EPA is the permitting authority for seven States and all territories (except the Virgin Islands). In developing the MSGP, EPA recommended that NPDES-authorized States adopt a permit similar to EPA's. To date, all of the authorized States have adopted some type of general permit program for storm water discharges associated with industrial activity, with a significant number of the States having implemented a Multi-Sector permit similar or identical to that issued by EPA. As a result, the monitoring requirements highlighted above are similar across the country. With that in mind, and given the short time frame for preparing this Report, EPA opted to use DMR data from States for which EPA is the permitting authority and not attempt to collect data from other States.

For this Report, EPA compiled DMRs for 399 facilities from eight States and two territories, representing 24 of the 30 industrial sectors and five of the nine precipitation zones nationwide.[11]

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[10]EPA established benchmark concentrations that represent levels at which storm water discharge could potentially impair or could contribute to impairing water quality, or could affect human health from ingestion of water or fish. Facilities with less than benchmark concentrations are considered to have little potential for water quality impacts. Benchmark concentrations are not effluent limits, and EPA has instructed NPDES-authorized States that the benchmarks should not be interpreted or adopted as such.

[11] DMRs collected for Arizona, Florida, Johnston Atoll (Federal facilities only), Hawaii (Federal facilities only), Maine, Massachusetts, New Hampshire, New Mexico, Puerto Rico, and Texas. Florida and Texas have since received NPDES program authorization.

These data represent monitoring performed from 1993 to 1999, with 90 percent of the monitoring performed between 1996 and 1998. Of the six sectors not represented, five do not have analytical monitoring requirements in the MSGP and the sixth, sector K, Hazardous Waste Treatment and Disposal, is the one category with monitoring requirements for which EPA did not have DMR data available for this Report.

Group Application/DMR Comparative Analysis

As described above, EPA has collected a significant amount of effluent quality data for facilities with storm water discharges associated with industrial activity. For both the group application process and DMR requirements, similar sampling criteria and analytical monitoring techniques were used, making data from these two sources comparable. Although the best-case scenario would involve comparing data for identical facilities before Phase I regulation (i.e., group applications) and after Phase I implementation (i.e., DMRs), the short time frame allotted for preparation of this Report prevented the more detailed data collection effort needed for such an analysis. Rather, as had been done for the group applications, DMR data were grouped by parameter and subsector for comparison. Also, the analysis that follows is not intended to provide a definitive statistical analysis of data, but rather to provide indications of the trends of program implementation. As shown below, trends emerge.

As presented in the fact sheet of the MSGP, group application data were compiled and simple statistics performed on the data. Specifically, for each subsector, statistics included means, medians, maximums, minimums, and 95th and 99th percentiles. For this Report, EPA focused on the two most common approaches for evaluating environmental data—means and medians. EPA used mean and median concentrations of data submitted in group applications and compared those to mean and median concentrations of data submitted in DMRs. The analysis was performed on a subsector basis for each of the 33 sector/subsector combinations (see Appendix I) that are required to perform analytical monitoring as a condition of the MSGP. Of these 33 combinations, EPA analyzed data for 16 of the subsectors, those being the subsectors for which EPA had ample DMR data to compare. The criteria used to designate "ample data" were (1) any subsectors for which EPA had at least three facilities with DMR and three facilities with group application data for at least one pollutant, and (2) those subsectors with DMRs for two facilities where the MSGP had data for five or fewer facilities. A compilation of all the subsector/pollutant combinations with ample data is provided in Appendix J. For each of these combinations (a total of 35 combinations), Appendix J identifies the pollutant, the number of facilities with group application and with DMR monitoring data, the number of grab samples collected for both group application and DMR monitoring data, the mean and median concentrations, and the percent change in mean and median concentrations from the group application data to the DMR data.

Appendix K provides a ranking of the mean differences in pollutant concentrations for each of the subsector/pollutant combinations. As presented, 24 of the 35 combinations had at least 50 percent lower mean concentrations in the DMR data than in the group application data. Similarly, as noted in Appendix K, 24 of the 35 combinations had at least 50 percent lower median concentrations, with 18 of the combinations over 75 percent lower. For analyses such as this, median concentrations are better indicators since they are less vulnerable to the impact of outliers or extraneous data points. With the evaluation focusing on comparing data for industry

subsectors rather than comparing data for the same facility, median concentrations also minimize the influence that extremely high or low concentrations may have on the analytical results.

In addition to the analysis of each subsector/pollutant combination, EPA analyzed the differences in concentrations of each pollutant (see Appendix J). A summary of that analysis is presented in Figure 5-4. As can be seen, differences in pollutant concentrations ranged from 13 to 95 percent, with five of seven pollutants showing a DMR concentration greater than 50 percent lower than the pre-program group application data. Again, even though this analysis represents sector-based comparisons and is not comparing pre- and post-regulation data for the same facilities, the difference in concentrations suggests that loading reductions are occurring. Although influences other than the Phase I regulation may be partly responsible for these reductions, no other environmental legislation or regulation enacted or promulgated since 1992 at the Federal level has established such direct requirements for storm water associated with industrial activities.

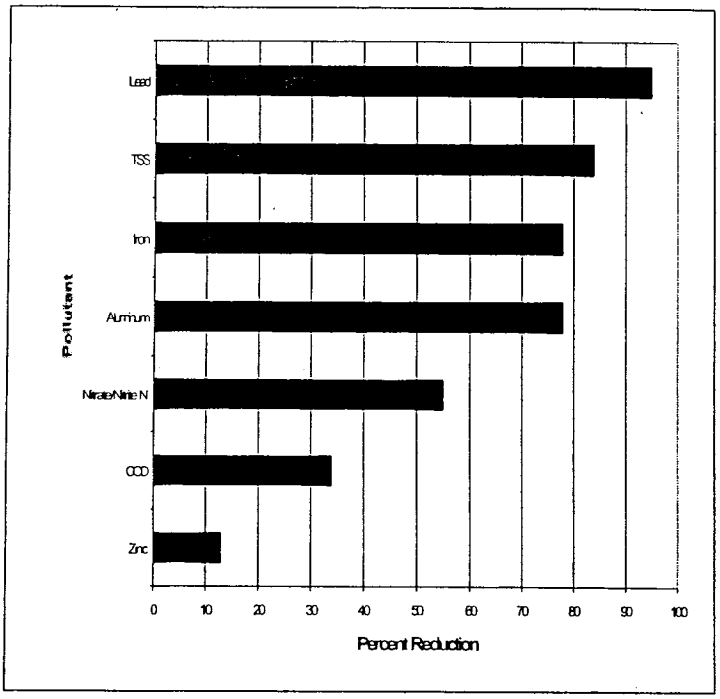


Figure 5-4. Median Reductions in Pollutant Concentrations by Pollutant

5.3.2.2 Case Studies on BMP Effectiveness

This section provides several examples of facilities that have demonstrated the reduction of pollutant loadings to receiving water through implementation of storm water controls in response to the Phase I regulations. As noted throughout this Report, EPA has minimal data that demonstrate clear improvements in water quality as a result of the Phase I program. However, EPA does have examples illustrating where the Phase I program is reducing the contribution of pollutants to waters of the United States. The following case studies demonstrate a few of these instances. Complete case studies are provided in Appendix D.

Empire Castings, Tulsa, Oklahoma, Reduces Solids Loadings by 90 Percent

This case study illustrates the pollutant reductions that can be obtained from compliance with the Phase I regulation. Empire Castings is an iron foundry that uses sand molds for its castings. Empire Castings worked with EPA Region 6 and the Oklahoma Department of Environmental Quality (DEQ) to participate in an innovative and voluntary program designed to help foundries comply with State and Federal regulations. Although the effort focused on all environmental

regulations, storm water discharges was one of the areas evaluated. Effluent sampling data, collected in October 1992 as a requirement of the Phase I regulation, identified elevated levels (i.e., 1,800 mg/L) of total suspended solids (TSS) in Empire Castings' storm water discharge. In consultation with local foundries, EPA, and DEQ, the facility identified and implemented several BMPs to minimize the discharge of pollutants. Some of the simple measures identified included improved housekeeping such as vacuuming up residual sand more frequently, addition of a filtering system (mesh-covered hay bales), and addition of a storm water retention basin to allow solids to settle from the storm water prior to discharge. These and other similar measures have reduced concentrations of TSS in the storm water discharge by 90 percent.

When asked about the cost-effectiveness of these measures, facility management indicated that it is difficult to put a price on environmental benefits, but they believe the program has been cost-effective in terms of direct benefits (reduced pollutants in storm water discharges) and indirect benefits (increased production rates due to housekeeping changes) achieved.

Pratt Auto Salvage and Sales, Hoxie, Arkansas, Implements Measures to Eliminate All Pollutants in Storm Water Discharges

This case study demonstrates the ability of a facility to totally eliminate storm water contaminants without a negative impact on business operations. Although one of the goals of the CWA is "zero discharge of pollutants," the efforts of facilities to completely eliminate process wastewater discharges can require expensive control technologies and process modifications. Storm water discharges, however, are not a necessary element of process operations, and in many instances they can be totally eliminated. Pratt Auto Salvage and Sales of Hoxie, Arkansas, has shown that industries can implement measures under the Phase I program to achieve the goals of the CWA. The facility engages in the wholesale distribution of motor vehicle supplies in addition to processing 100 used or damaged vehicles each month. It is located on a 20-acre site adjacent to an elementary school and an apartment complex.

To comply with its storm water discharge permit, issued pursuant to the Phase I regulations, Pratt Auto Salvage implemented a number of management practices to eliminate any contact of storm water with contaminated automotive fluids. One of the significant steps taken was to drain all fluids from vehicles in a covered building with a cement floor and recover the fluids for off-site recycling or disposal. Vehicles are then dismantled, with saleable parts removed and the rest of the vehicles placed outside in the yard for crushing. The 15-acre yard is covered with rocks and gravel and shows no signs of the oil or rust stains typically expected from salvage yards.

Hoechst Celanese, Coventry, Rhode Island, Addresses Significant Storm Water Issues as a Result of the Phase I Program

A January, 1995 inspection by the Rhode Island Department of Environmental Management (DEM) of Hoechst Celanese (HC) located in Coventry, Rhode Island found that the facility had numerous unsecured barrels located adjacent to the river, barrels actually floating in the river, and visual evidence of spills around the barrels and elsewhere on the facility property. Additionally, the inspector noted broken sandbags along the riverbank, litter in the channelized brook on the site, and eroded point source discharge points. At the time of the inspection, HC was operating

under an administratively extended permit that did not include any of the Phase I requirements. In response to this inspection, DEM compiled a list of activities for HC to undertake as part of the facility's application for permit reissuance. As a result of a letter from DEM to the facility in April 1995, HC developed and submitted a SWPPP to DEM in July 1995 to address the State's concerns. Although HC is not required by law to implement its SWPPP until it has been incorporated into the NPDES permit, the facility realized the importance of minimizing pollutant contamination of storm water discharges and began to implement the plan before the permit was reissued. In fact, the majority of the facility has since been sold to a new manufacturer and indications from current facility management are that the SWPPP is being implemented.

Measures undertaken by HC to address DEM's concerns included a number of good housekeeping practices such as improved pallet management techniques and loading/unloading techniques to prevent future spills/staining and to prevent any barrels from reaching the river. Also, HC developed an employee training program that, consistent with the Phase I requirements, addressed housekeeping, material handling, spill prevention and response, and routine inspections.

5.3.3 Water Quality Indicators

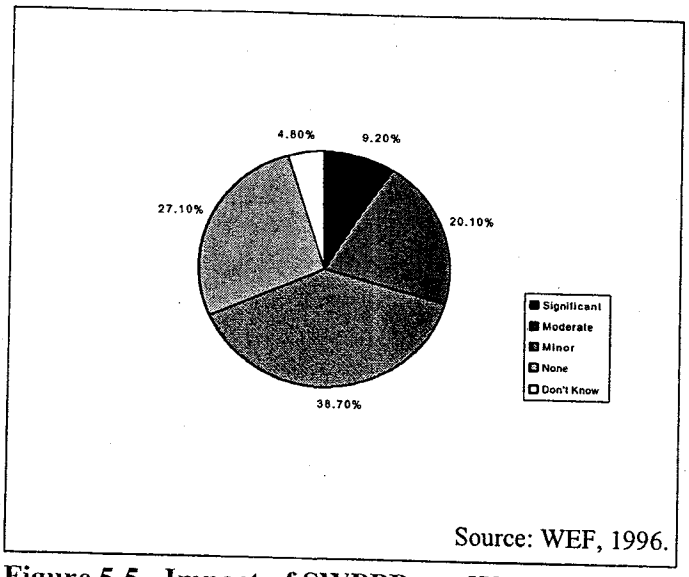
Only 6.3 percent of WEF survey respondents with SWPPPs who performed water quality monitoring did not think that the SWPPP implementation had improved water quality.

Although the Phase I program has resulted in loading reductions on a facility-specific basis, as demonstrated above, the Agency does not possess firm quantitative data indicating how such reductions have resulted in water quality improvements. The WEF survey, however, provides evidence that implementation of the Phase I program has benefitted water quality — at least in the opinion of survey respondents.

The survey asked respondents whether water quality monitoring and analysis had been performed on the storm water runoff from the facility and, if so, in the opinion of the survey respondent, were the BMPs incorporated into the SWPPP successful? More than half of the respondents (56.7 percent) indicated that water quality monitoring had been performed, with 56.9 percent of those respondents believing that BMPs were successful in improving water quality. Only 6.3 percent stated that BMPs were not successful (36.9 percent stated that data were inconclusive or not enough data had been collected to make the determination).

WEF also tried to assess just how much survey respondents felt that SWPPPs and improved water quality or reduced storm water contaminants. Figure 5-5 provides a summary of those responses. The responses to this question can be interpreted in two different ways: 68 percent believe that there is at least some improvement in water quality or 65.8 percent believe that there is little or no improvement.

The WEF report refined this analysis by assessing the opinions of those facilities that had collected the data to reinforce their impressions of water quality improvements. In this instance, 74.4 percent of the facilities responded that there had been at least some improvement in water quality or reduction in pollutant loadings.



Source: WEF, 1996.

Figure 5-5. Impact of SWPPPs on Water Quality

When asked whether the improvement or potential improvements in water quality were worth the corresponding expenditures, the amount of money expended on the program had little impact on the respondents' answers. The number of respondents that reported that water quality improvements were worth the costs was almost identical to the number of respondents reporting that water quality improvements were not worth the cost.

5.4 FINDINGS OF THE REVIEW OF THE PHASE I PROGRAM FOR STORM WATER ASSOCIATED WITH INDUSTRIAL ACTIVITIES

This section summarizes findings from EPA's review and analysis of the Phase I program for discharges of storm water associated with industrial activities. First, successful components of the Phase I program are identified, particularly as they relate to the protection of water quality. Second, the components of the Phase I program that may need to be addressed by EPA are discussed to ensure they are an effective part of future storm water management programs.

> The three WEF survey respondents with the highest expenditures on the program (each in excess of $1 million) all felt that the improvement in water quality was worth the expenditure.

5.4.1 Successful Attributes of the Phase I Program for Industrial Activities

This section describes the specific storm water management components that have been effective in controlling storm water discharges and protecting water quality.

The Phase I Program Provides a Sensible, Flexible, Low-Cost Approach to Storm Water Control

As documented in the WEF report, more than 95 percent of permittees said they would retain at least some of the required SWPPP even if the storm water regulations did not exist, with almost 43 percent saying that they would retain the plan in its entirety. Seventy-five percent of the WEF survey respondents indicated the following BMPs as being either highly or moderately effective:

- Good housekeeping
- Visual inspections
- Employee training
- Spill prevention and response
- Preventative maintenance.

Consistent with this finding, the general permitting option provides flexibility to the permittees on how to comply with the regulations, with the focus on low-cost pollution prevention techniques rather than more costly treatment alternatives. Similarly, EPA provides permittees with the option of using existing management plans developed for other environmental programs to supplement its storm water management plan or in lieu of developing a redundant plan for storm water control.

Loading Reductions Result From Phase I Permitting of Industrial Storm Water Discharges

In 1992 analytical data collected from Empire Castings, an iron foundry in Tulsa, Oklahoma, identified elevated levels of total suspended solids (TSS) in storm water discharges from the facility. In response, Empire Castings implemented several BMPs to minimize the discharge of pollutants, such as improved housekeeping, addition of a filtering system, and construction of a storm water retention basin to promote settling. As a result, the facility has reduced concentrations of total suspended solids in storm water discharges by 90 percent.

Water Quality Improvements Have Been Realized as a Result of Phase I Implementation

Based on findings from WEF survey respondents, 74 percent of industrial operators who had collected data as part of their SWPPP implementation indicated that there has been at least some improvement in water quality. Approximately half of the respondents to the WEF survey believe that the water quality improvements were worth the cost of the program. In fact, the three survey respondents with the highest expenditures on the program (each in excess of $1 million) all felt that the improvements to water quality were worth the expenditures.

EPA Outreach Has Facilitated Compliance

As indicated by the WEF survey respondents, more than 71 percent of the permittees prepared storm water pollution prevention plans using government-developed guidance materials. EPA has distributed guidance through an active outreach program incorporating a storm water hotline, training courses, guidance manuals, and the Internet. As noted in the WEF report, "it appears that both EPA and the States have done an excellent job in providing the necessary assistance to prepare a storm water management plan." As shown in the report, permittees using government-developed guidance were able to prepare these management plans at a lower cost than facilities that used other guidance materials.

"No-Exposure" Opt-Out Has Provided Flexibility

Additionally, as originally promulgated, the Phase I program provides light industry with an opportunity to opt out of program requirements altogether by eliminating exposure of industrial activity to storm water, thereby attaining the ultimate goal of the CWA of "zero discharge of pollutants" for those facilities selecting that option. The Phase II program expands upon this successful measure by providing heavy industry with a similar opportunity to opt out of the program by successfully eliminating exposure of industrial activity to storm water.

5.4.2 Components of the Phase I Program That May Need to Be Addressed

While collecting and analyzing information related to the effects of the Phase I program, EPA identified several components that might not be effective as currently established and implemented. Key aspects of the industrial storm water program that may need additional refinement include the following:

- The requirements of EPA's general permit for industrial facilities specify analytical monitoring for certain industrial sectors. The purpose of the monitoring is to provide facility operators with the necessary information to determine the effectiveness of their SWPPPs in controlling the discharge of pollutants in storm water. EPA has received feedback from industry representatives that the costs associated with analytical monitoring are too high, and that the data generated are not useful in determining the effectiveness of their SWPPPs.

  Agency Response: EPA is considering alternatives to the analytical monitoring requirements in EPA's general permit for storm water discharges associated with industrial activity, and will request public comment on alternatives to analytical monitoring requirements during proposal. The Federal Register notice for the proposed MSGP is expected in February 2000.

- Respondents to the WEF survey identified the following BMP measures as ineffective in controlling the discharge of pollutants in storm water:

  - Record keeping and reporting
  - Raw material and product substitution
  - Site mapping.

Agency Response: While some respondents to the WEF survey did not feel the above measures are effective in controlling the discharge of pollutants in storm water, EPA feels they are important components of a comprehensive and effective SWPPP. Developing a facility site map, for instance, although not directly effective in controlling the discharge of pollutants, can be a very simple and effective exercise that provides an operator with a better understanding of the potential sources of pollutants exposed to storm water. The site map also provides the operator with a better understanding of the drainage areas from their facility, which should facilitate assessment of necessary controls. Accurate record keeping and reporting is essential to track compliance with SWPPP implementation requirements, as well as assist in anticipating areas of concern for storm water contamination (e.g., tracking the types and amounts of materials stored at the facility). However, EPA will explore ways to streamline record keeping and reporting regulations to the extent practicable. With regard to measures that address "raw material and product substitution," these are BMPs that facilities are to consider, and implement as appropriate and necessary.

Tab 14

IN THE UNITED STATES DISTRICT COURT

FOR THE NORTHERN DISTRICT OF CALIFORNIA

ECOLOGICAL RIGHTS FOUNDATION,

Plaintiff,

vs.

SIERRA PACIFIC INDUSTRIES, INC., a corporation, A.A. EMMERSON, an individual, and DOES 1 through 20,

Defendants.
/

No. C 01-0520 MEJ

ORDER GRANTING PLAINTIFF'S MOTION FOR PARTIAL SUMMARY JUDGMENT

I. INTRODUCTION

Before the Court is Plaintiff's Motion for Partial Summary Judgment, filed on May 29, 2002. In its motion, Plaintiff Ecological Rights Foundation ("Plaintiff") moves for summary judgment on alleged violations by Defendants Sierra Pacific Industries, Inc.("SPI") and A.A. Emmerson (collectively, "Defendants") of the Clean Water Act, 33 U.S.C. §§ 1251-1387 (2001). After careful consideration of the parties' papers and oral arguments at the October 10, 2002 hearing, relevant statutory and case law authority, and good cause appearing, the Court hereby GRANTS Plaintiff's motion for the reasons set forth below.

II. BACKGROUND

A. Statutory Overview of the Clean Water Act

The United States has jurisdiction over the waters within the states which are statutorily and judicially defined as "waters of the United States;" 33 U.S.C. § 1326. Acting pursuant to that jurisdiction, the Congress of the United States enacted the Clean Water Act of 1972. The objective

of the Clean Water Act is to restore and maintain the "chemical, physical and biological integrity of [the] Nation's waters." 33 U.S.C. § 1251(a). The Clean Water Act seeks to eliminate "the discharge of pollutants into navigable waters" and to attain "water quality which provides for the propagation of fish, shellfish, and wildlife and provides for recreation in and on the water." 33 U.S.C. § 1251(a)(1),(2).

A cornerstone of the Clean Water Act is that the "discharge of any pollutant" from a "point source" into navigable waters of the United States is unlawful unless the discharge is made according to the terms of a National Pollution Discharge Elimination System ("NPDES") permit obtained from either the United States Environmental Protection Agency ("EPA") or from an authorized state agency. 33 U.S.C. §§ 1311(a), 1342; *see also Comm. to Save Mokelumne River v. E. Bay Mun. Util. Dist.*, 13 F.3d 305, 308 (9th Cir. 1993). The Clean Water Act's definition of a "point source" provides that it may be "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged." 33 U.S.C. § 1362(14).

. The EPA has authorized the State of California to issue NPDES permits, subject to EPA objection. 33 U.S.C. §§ 1342(b), (d). The California State Water Resources Board ("State Board") and the North Coast Regional Water Quality Control Board ("Regional Board") are responsible for the issuance of NPDES permits in Arcata, California. To effectuate its stated goals, the Clean Water Act imposes a total prohibition on the discharge of any pollutant into any navigable waters except where explicitly authorized by permit. 33 U.S.C. §§ 1311(a), 1342(b)-(c). The discharge of limited amounts of pollutants, decreasing over time, must be authorized by NPDES permits. *Id.* Any violation of a prohibition, limitation or other term or condition embodied in an NPDES permit constitutes a violation of the Act itself. 40 C.F.R. § 122.41(a).

As both Plaintiff and SPI state in their papers, the Clean Water Act is a strict liability statute. Thus, to establish a violation of the Act, a plaintiff need only prove that the defendant violated the

terms and conditions of its NPDES permit. 33 U.S.C. §§ 1311(a), 1342(k); *see also*, e.g., *Hawaii's Thousand Friends v. City and County of Honolulu*, 821 F.Supp. 1368, 1392 (D. Hawaii 1993)("courts throughout the country have held that NPDES compliance is a matter of strict liability and a defendant's intent and good faith are irrelevant").

B. Factual Background

SPI has owned and operated a sawmill ("Arcata Mill") at 2293 Samoa Road in Arcata, California since 1950. The 32 acre Arcata Mill is bordered on the south by Samoa Road, which separates the Arcata Mill from Humboldt Bay, and it is bordered on the east by the Mad River Slough ("Slough") at the Slough's confluence with the bay. The Slough and Humboldt Bay are navigable waters of the United States as that term is defined by the Clean Water Act (33 U.S.C. §§ 1251 *et seq.*). The Slough flows northerly on an incoming tide and southerly on an outgoing tide into and out of Humboldt Bay. Underlying the Arcata Mill are natural and human-made drainage courses which are tributaries to the Slough. The Arcata Mill overlies a shallow groundwater aquifer that is, in some places, less than five feet below ground level. Ground water beneath the Arcata Mill is discharged to waters of the United States, including the Slough, its tributaries and the Humboldt Bay.

Since the 1950s, the facility has manufactured, stored and distributed wood products that are manufactured from logs. The Mill consists of a log deck, a debarker for removing bark from logs prior to milling, a sawmill and planer for producing finished lumber and a lumber yard for storing finished products. Log trucks, loaders, forklifts, cranes and other heavy equipment are fueled, repaired and maintained on the site at a truck shop and hyster shop at the west end of the property and at an equipment maintenance shop on the east end near the Slough. SPI also operates a dry kiln fired by a boiler along the southern edge of the property that dries lumber as part of the finishing process and a dip tank near the western edge of the property which has been used to treat finished lumber with wood preservatives. A former dip tank and "green chain" were located near the present

location of the sawmill.

Sawmills, such as the Arcata Mill, used pentachlorophenol ("PCP") and/or tetrachlorophenol ("TCP") based wood treatment products from the early 1960s until the mid-1980s. The Arcata Mill used Noxtane and Azide, wood treatment chemicals containing PCP and TCP, on two percent of its freshly cut lumber to prevent staining. Noxtane was applied by a "green chain" method, whereby lumber was pulled into a large trough of wood treatment solution, called a dip tank, soaked and removed to dry. Approximately ninety-five percent of treated lumber was dried in the Mill's dry kiln and the remainder was stacked and stored in the lumber yard for drying. SPI cleaned out the dip tank at least once a year. During the cleaning operation, SPI employees got into the dip tank and shoveled the contaminated sediments from the bottom of the tank off to the side of the green chain. SPI then burned sediments from the dip tank in the boiler. SPI burned sediments from the dip tank pre-1983.

A truck scale has also been in operation at the Arcata Mill since the late 1960s. There is a manually operated electric sump pump below the truck scale. The pump discharges into a drainage ditch that flows into the Slough or into Humboldt Bay. SPI built a wash rack at the site in the 1980s. SPI used the wash rack to clean log trucks, trailers, hysters and forklifts. SPI cleaned out the built-up material from the wash rack at least once, sometimes twice, a year.

The planer area for producing finished lumber is located to the North of the administrative office, west of the sawmill building and south of the sorter building. The log storage area, or log deck, is located on the northern portion of the facility. The equipment maintenance area is located in the southwestern end of the facility, west of the administrative office and southwest of the lumber storage area. The equipment maintenance area consists of the hyster shop, the truck shop, a steam cleaning area, two oil sheds, a waste oil tank shed, and a rolling stock and log yard truck parking. Industrial processes that occur within the hyster shop building, truck shop building, and steam cleaning area include general maintenance, repair and washing of rolling stock used to load, unload and transfer logs and lumber throughout the facility.

The dry kiln area is located on the southeast end of the facility, south of the sawmill area and east of the administrative office. Operations in the dry kiln buildings include drying green lumber in eight separate dry kilns before being stored in the dry shed buildings and eventually sent to the planning mill to be surfaced. A culvert that drains storm water runs under the dry shed.

A dip tank building, located on the west side of the lumber storage area, has overhead coverage and the surface is concrete. A 2,500 gallon, lined dip tank designed for dipping lumber to reduce lumber staining is located inside the dip tank building. The industrial process in the dip tank building in the lumber storage area includes anti-stain treatment of approximately 2% of the total lumber produced by SPI. Scrap iron, spare parts, and discarded equipment are stored near the dip tank, next to the truck shop and along the slough near the maintenance shop. Spare parts are cannibalized and metals are cut from the parts and equipment in these areas.

SPI dismantled the original green chain between 1984 and 1985. In 1985, SPI discontinued the use of Noxtane and Azide at the Arcata Mill and constructed a new dip tank at the facility. SPI replaced those chemicals with Brightwood S and Kopper PQ-8, wood treatment chemicals not containing either PCP or TCP. The Regional Board approved SPI's dip tank closure method of combining the Noxtane/Azide solution with another substance in 35 gallon drums to solidify that material and having those containers hauled off site to a disposal facility. The Regional Board also approved SPI's recycling of the remaining Noxtane/Azide solution through the new dip tank. It took approximately two and a half years to recycle the anti-stain chemicals and sediments through the new dip tank. Rainwater contaminated with anti-stain was pumped out of the old green chain area and into the new dip tank. After the period of recycling the anti-stain materials, eight to ten, or more, 35-gallon drums of leftover contaminated liquids mixed with solids were hauled offsite. Since SPI discontinued the use of Noxtane and Azide at the Arcata Mill, PCP and TCP have been detected in storm water runoff from the facility. Also, there are soils at the Arcata Mill that are contaminated with PCP.

SPI discharges storm water at its mill from at least six discrete locations. In its motion for summary judgment, Plaintiff references discharge locations denoted in SPI's 2001 Storm Water Pollution Prevention Plan ("SWPPP") as follows: "Outfall 1" is the point where water flows into the Slough from the ditch identified as "DD-1" on Plate 2 of the 2001 SWPPP; "Outfall 2" is the point where water discharges from a drainage culvert into the Slough across from the Maintenance Building, identified as "SL-2" on Plate 2 of the 2001 SWPPP; "Outfall 3" is the point where water is discharged out of a culvert into the Slough across from the debarker, marked as "SL-3A" on Plate 2 of the 2001 SWPPP; "Outfall 4" is the point where water is discharged out of a culvert into the Slough marked as "SL-4" on Plate 2 of the 2001 SWPPP; "Outfall 5" is the point where water is discharged out of a culvert into the Slough from the far north end of the facility, identified as "SL-5" on Plate 2 of the 2001 SWPPP; and "Outfall 6" is the point where water flows underneath Samoa Road at the western edge of the facility from the ditch identified as "DD-6" on Plate 2 of the 2001 SWPPP.

Wastes generated from industrial activities at the Arcata Mill include, but are not limited to, used chain oil, used machine oil, used water-soluble oils, used hydraulic fluids, used coolants, used gasoline, used diesel fuels and used solvents.

Drippage from treated lumber discharged to a drainage ditch (Ditch 4) north of the mill building. Wood treatment chemicals, fungicides, solvents and/or petroleum products also leaked onto the ground at the Arcata Mill. Rainwater would enter the sides of the old dip tank and containment area, as well as mix with anti-stain chemicals. Storm water run-off at the Arcata Mill primarily flows into drainage ditches or drop inlets and culverts that flow east into the Slough. There is a natural spring that causes water to flow almost year-round in Ditch 4. Storm water flows from the west along the sorter building and underneath the sawmill where it enters a drop inlet beneath the sawmill. Condensate from the roof and walls of the kilns is discharged into a ditch next to the kiln building, then into a culvert that leads to another ditch (Ditch 1) running along the railroad tracks next to Samoa Road. The Arcata Mill at least sporadically discharges storm water contaminated

with pollutants through drainage ditches directly into waters of the United States, including the Slough and its tributaries.

Before 1991, industrial storm water dischargers such as SPI were regulated under individual NPDES permits. However, in 1991, the State Board issued a Statewide Industrial Storm Water Permit (State Water Resources Control Board, Water Quality Order No. 91-13-DWQ) ("General Permit") to regulate discharges of storm water associated with industrial activities. Facility operators seeking coverage by the General Permit are required to submit a Notice of Intent ("NOI") to Comply. On March 10, 1992, SPI executed an NOI, which the Regional Board received on March 13, 1992. Gordon Amos, Division Manager, executed the 1992 NOI. On the 1992 NOI, under "types of materials handled and/or stored outdoors:" SPI did not check the boxes for solvents, pesticides, scrap metal, hazardous wastes or wood treating products. The NOI certified that SPI would comply with the provisions of the General Permit, including the development and implementation of a SWPPP and a Monitoring Program Plan. After the General Permit was amended in April 1997 (97-03-DWQ), SPI filed an NOI, dated May 15, 1997, to comply with the amended permit.

On January 19, 1993, SPI submitted a Storm Water Pollution Prevention Plan ("SWPPP") to the Regional Board. SPI submitted its 1993 SWPPP with the advisement to the Regional Board that SPI hoped that the SWPPP was satisfactory and that SPI "will do whatever [is] needed immediately." This SWPPP was not amended until June, 2001. In its discussion of BMPs, the 1993 SWPPP identifies potential leaks of petroleum products at the above ground storage tanks for fuel and waste oil as the only pollution sources. The 1993 SWPPP omits any identification of non-storm water discharges, including discharges of boiler blow down and kiln condensate.

On October 25, 2000, Plaintiff provided notice of Defendants' violations of the Clean Water Act and of its intention to file suit to Defendants and the state and federal agencies as required by the Clean Water Act.

On December 19, 2000, the Regional Board issued directives to SPI ordering them to conduct

an extensive soil and groundwater contamination investigation by July 2001. The Regional Board also advised SPI that an individual NPDES permit was needed for the Arcata Mill. SPI initiated the requested soil and groundwater investigation and regulated in accordance with the terms of the General Permit. SPI prepared a detailing of its findings and, based upon the results of that report, the Regional Board issued Cleanup and Abatement Order No. R1-2001-0200. The abatement order requires SPI to prepare reports and work plans to abate discharges of certain pollutants.

In June 2001, SPI created a new SWPPP. SPI's 2001 SWPPP's description and assessment of potential pollutants spans 13 pages. As of April 29, 2002, no changes or amendments had been made to this SWPPP. In its 2001 SWPPP, SPI states that it "is not aware of any significant spills or leaks of any petroleum product or hazardous material occurring at any time during SPI's operation of the facility." Neither the 1993 nor the 2001 SWPPP describe the storage of scrap metal and discarded equipment as an industrial activity taking place at the facility, nor do they indicate where scrap iron and discarded equipment is stored.

Neither party disputes that there were unauthorized discharges of non-storm water from the Arcata Mill during the 1999-2000 monitoring period. Nor do the parties dispute that as of January 22, 2002, there was no berm around the service pumps, no overhead coverage of the service pumps or fuel tanks, and no specific drainage system for the fueling operations.

On October 30, 2001, Kevin Coker, an Environet employee, observed pollutants being discharged at discharge locations SL-1, SL-2, SL-3A, SL-4, SL-6, and ML-1. Mr. Coker also observed an oil sheen and minor discoloration at discharge location SL-1, in the ditch to the west of the driveway, that he attributed to "driveway run-off; soil from yard," as well as an oil sheen and discoloration at discharge location SL-6 that he attributed to "run off from yard, rolling stock." On November 16, 2001, Mr. Coker observed suspended solids, discoloration, and turbidity at discharge location SL-3A that he attributed to "bark & wood waste, log deck run-off," pollutants being discharged at discharge locations SL-1, SL-2, SL-3A, Sl-4, SL-6, oil and grease, sludge and a sheen

present at discharge location ML-1 that he attributed to "parked cars, rolling stock," and discoloration, oil and grease, sheen and a dark brown to black discharge at location ML-1 that he attributed to "run off from yard."

SPI detected PCP in storm water discharged from Ditch #2 in the following amounts:

Date of measurement	PCP amount detected
April 17, 1996	15.0 µg/L
May 23, 1997	10.0 µg/L
April 10, 1998	13.0 µg/L

SPI detected TCP in storm water discharged from Ditch #2 in the following amounts:

Date of measurement	TCP amount detected
April 17, 1996	7.9 µg/L
April 10, 1998	2.5 µg/L
November 21, 2000	1.2 µg/L
October 30, 2001	1.2 µg/L

SPI detected PCP in storm water discharged from Ditch #4 in the following amounts:

Date of measurement	PCP amount detected
December 1, 1995	13.0 µg/L
January 16, 1996	38.0 µg/L
April 17, 1996	12.0 µg/L
May 15, 1996	18.0 µg/L
December 5, 1996	15.0 µg/L
February 8, 1999	9.2 µg/L

SPI detected TCP in storm water discharged from Ditch #4 in the following amounts:

Date of measurement	TCP amount detected
December 1, 1995	7.9 µg/L
January 16, 1996	24.0 µg/L
April 17, 1996	6.9 µg/L

May 15, 1996	10.0 µg/L
December 5, 1996	7.5 µg/L
November 6, 1998	3.3 µg/L
February 8, 1999	3.3 µg/L
November 19, 1999	2.2 µg/L

On October 31, 2001, the Regional Board sent SPI a Cleanup and Abatement Order. In the abatement order, the Regional Board lists beneficial uses of Humboldt Bay, including agricultural supply, water contact recreation, commercial and sport fishing, shellfish harvesting, aquaculture, and many different aquatic habitat types, such as cold freshwater, wildlife, rare, threatened and endangered species, marine, spawning, reproduction and/or early development and migration habitat for aquatic organisms.

In the past, and currently, members of Ecological Rights Foundation recreate near the area close to the Arcata Mill. They picnic, walk, kayak, canoe, bird watch, and observe wildlife in the area around and adjacent to the Arcata Mill. Members have also fished from the railroad bridge over the Mad River Slough which is immediately adjacent to the Arcata Mill.

The following facts are the subject of dispute:

1) whether beneficial uses of the groundwater below the Arcata Mill include municipal, agricultural and industrial service supply;

2) whether the wash rack built at the site in the 1980s terminated in December 2000;

3) whether it is sufficient for SPI to implement best management practices in an attempt to reduce petroleum hydrocarbons which contaminate soils in the log deck at the Arcata Mill;

4) whether chemicals, including Azide and Kopper PQ-8, were used in a dip tank that was located at the former green chain between the sawmill building and the sorter building;

5) whether employees hauled around with a tractor and dumped into hog fuel bins contaminated sediments from the bottom of the dip tank off to the side of the green chain;

6) whether sediments from the dip tank were burned in the teepee burner after the mid 1970s;

7) whether boiler ash was piled on site uncontained;

8) whether the dip tank overflowed at least a couple of times;

9) whether anti-stain solution would drip down through the wood floor of the green chain;

10) whether anti-stain chemicals would slosh over the sides of the dip tank;

11) whether during kiln operations, moisture condensed on the walls and ceilings of the kilns and was discharged through a ditch that is a tributary to the Slough;

12) whether drainage from the south side of the green chain was to the southeast into the Ditch 2 drainage system;

13) whether anti-stain chemicals and sediments from the bottom of the tank and containment area were pumped out and recycled through the new dip tank that is present today;

14) whether SPI never employed any treatment systems for anti-stain chemicals at the Arcata Mill;

15) whether during the period January 1, 1997 through the present, storm water discharges from the Arcata Mill were regulated exclusively by the General Permit and not an individual NPDES permit;

16) whether the 1993 SWPPP: (a) identifies the area of the former green chain or dip tank on its site map; (b) mentions the historic use of wood preservatives at the facility; (c)

identifies PCP or TCP as potential constituents of wood preservatives used at the facility; (d) identifies PCP or TCP as potential pollutants in storm water discharges at the facility; (e) identifies dioxins or furans as potential constituents of wood preservatives used at the facility; and (f) identifies dioxins or furans as potential pollutants in storm water at the facility;

17) whether the 2001 SWPPP: (a) identifies the area of the former green chain or dip tank on its site map; (b) identifies dioxins or furans as potential constituents of wood preservatives used at the facility; and (c) identifies dioxins or furans as potential pollutants in storm water discharges at the facility;

18) whether storm water runoff from the west entrance, equipment maintenance and fueling areas flows west into drainage Ditches 6 and 7;

19) whether Drainage Ditch 6 is discharged into Humboldt Bay through a culvert under Samoa Road;

20) whether historical monitoring at the Arcata Mill indicates that discharges are not isolated occurrences but are, in fact, continuously present in the water flowing from Ditches 1, 2 and 4;

21) whether storm water and non-storm water discharges from the Arcata Mill that contain PCP, petroleum hydrocarbons, and or TCP violate the Basin Plan;

22) whether petroleum products continue to leak or spill onto the ground at the Arcata Mill;

23) whether SPI was notified that boiler blowdown was a non-storm water discharges at the facility;

24) whether SPI was notified that the discharge of kiln condensate would be a non-storm water discharge at the facility;

25) whether the following appear on the 1993 or 2001 SWPPP site maps: (a) ditch next to the kiln buildings and the culvert connecting the ditch to Ditch 1; (b) a drop inlet just west of the planer building, a drop inlet just north of the planer building, and a culvert connecting the two drop inlets running underneath the sort building to Ditch 4; and (c) the culvert running beneath the dry shed;

26) whether during the 1993-1994 wet season SPI did not report sampling storm water discharges on at least two occasions from outfalls identified as SL-2, SL-3, SL-5, SL-6 or from DD-7 o the site map attached as Plate 2 to SPI's June 2001 SWPPP;

27) whether during the 1994-1995 wet season SPI reported sampling storm water discharges for any constituents other than PCP and TCP, with the exception of testing for hydrocarbons at outfall #1 and #4 on December 30, 1994;

28) whether during the 1995-1996 wet season SPI did not report sampling storm water discharges on at least two occasions from outfalls identified as SL-2, SL-3, SL-5, SL-6 or from DD-7 on the site map attached as Plate 2 to its June 2001 SWPPP;

29) whether during the 1995-1996 wet season SPI reported sampling storm water discharges for any constituents other than PCP and TCP;

30) whether during the 1996-1997 wet season SPI did not report sampling storm water discharges on at least two occasions from outfalls identified as SL-2, SL-3, SL-5, SL-6 or from DD-7 on the site map attached as Plate 2 to its June 2001 SWPPP;

31) whether during the 1996-1997 wet season, SPI reported sampling storm water discharges for any constituents other than PCP and TCP;

32) whether during the 1997-1998 wet season SPI did not report sampling storm water discharges on at least two occasions from outfalls identified as SL-2, SL-3, SL-5, SL-6 or from DD-7 on the site map attached as Plate 2 to its June 2001 SWPPP;

33) whether during the 1997-1998 wet season, SPI reported sampling storm water discharges for any constituents other than PCP and TCP;

34) whether during the 1998-1999 wet season SPI did not report sampling storm water discharges on at least two occasions from outfalls identified as SL-2, SL-3, SL-5, SL-6 or DD-7 on the site map attached as Plate 2 to its June 2001 SWPPP;

35) whether during the 1998-1999 wet season SPI reported sampling storm water discharges for any constituents other than PCP and TCP;

36) whether during the 1999-2000 wet season SPI did not report sampling storm water discharges on at least two occasions from outfalls identified as SL-2, SL-3, SL-5, SL-6 or from DD-7 on the site map attached as Plate 2 to its June 2001 SWPPP;

37) whether SPI did not collect and analyze samples of temporarily stored or contained storm water discharges from at least two storm events during the 1999-2000 monitoring period;

38) whether SPI did not obtain samples from all the storm water locations at the facility during the 1999-2000 period;

39) whether during the 1999-2000 wet season, SPI reported sampling storm water discharges only once at outfall #1 and outfall #4 for Grease and Oil TPH Fraction, Conductivity, TSS, pH, COD and Zn, but did not test outfalls #1 and #4 for Arsenic or Copper and did not test any other outfall for any of these parameters;

40) whether during the 2000-2001 wet season, SPI did not report sampling storm water discharges on at least two occasions from outfalls identified as SL-2, SL-3, SL-5, SL-6 or from DD-7 on the site map attached as Plate 2 to its June 2001 SWPPP;

41) whether during the 2000-2001 wet season, SPI reported sampling storm water discharges only once at outfalls identified as SL-2, SL-3, SL-5, SL-6 or from DD-7 on

the site map attached as Plate 2 to its June 2001 SWPPP for Conductivity, TSS, pH, COD, Zn and Oil and Grease, but did not test any outfall for Arsenic or Copper;

42) whether sampling from Ditch 1, from 2/26/87 through 11/19/99, reveals detections of PCP in 27 of 32 sampling events;

43) whether sampling from Ditch 2 during the same period reveals detections of PCP on all five sampling events and TCP in 4 out of the 5 sampling events:

44) whether during the period January 1, 1997 through February 1, 2002 SPI analyzed any storm-water sample collected from the Arcata Mill for copper;

45) whether during the period January 1, 1997 through February 1, 2002 SPI analyzed any storm-water sample collected from the Arcata Mill for arsenic;

46) whether as of at least January 22, 2002, there were no best management practices utilized for controlling pollutants from the truck scales;

47) whether as of at least January 22, 2002, water that overflowed from the wash rack entered a vegetated area to the west of the mill;

48) whether materials from the was rack were dumped into the un-lined hole in the dunes;

49) whether materials from the wash rack are contaminated with oil and grease, petroleum hydrocarbons and other pollutants;

50) whether PCP was detected at 1.3 µg/L in storm water discharged from SL-1 on December 6, 2001;

51) whether PCP was detected at 1.4 µg/L in storm water discharged from Ditch #1 on November 16, 2001;

52) whether PCP was detected at 0.99 µg/L in storm water discharged from Outflow #1 on November 13, 2000;

53) whether PCP was detected from Ditch #1 on the following dates and in the following amounts:

Date of detection	Amount detected
December 1, 1995	2.9 µg/L
January 16, 1996	1.9 µg/L
March 1, 1996	0.5 µg/L
May 15, 1996	0.49 µg/L
October 22, 1996	0.61 µg/L
November 18, 1996	2.3 µg/L
December 5, 1996	0.73 µg/L
February 27, 1997	1.5 µg/L
April 16, 1997	0.99 µg/L
May 23, 1997	0.43 µg/L
September 17, 1997	1.3 µg/L
October 9, 1997	0.41 µg/L
April 10, 1998	1.7 µg/L
November 6, 1998	2.2 µg/L
January 18, 1999	0.69 µg/L
February 8, 1999	2.2 µg/L
April 5, 1999	1.1 µg/L
November 19, 1999	2.0 µg/L

54) whether PCP was detected in Ditch #2 on the following dates and in the following amounts:

Date of detection	Amount detected
November 21, 2000	0.82 µg/L
October 30, 2001	1.2 µg/L
November 16, 2001	13 µg/L

55) whether TCP was detected at 5.7 µg/L in storm water discharged from Ditch #2 on November 16, 2001;

56) whether PCP was detected in Ditch #4 on the following dates and in the following

amounts:

Date of detection	Amount detected
March 2, 1996	1.6 µg/L
October 22, 1996	0.50 µg/L
November 18, 1996	0.56 µg/L
February 27, 1997	1.2 µg/L
November 6, 1998	4.3 µg/L
January 18, 1999	2.0 µg/L
April 5, 1999	0.34 µg/L
October 28, 1999	0.44 µg/L
November 19, 1999	2.7 µg/L
November 16, 2001	7.4 µg/L

57) whether TCP was detected at 5.4 µg/L in storm water discharged from Ditch #4 on November 16, 2001;

58) whether members of Plaintiff have lived and currently live in close proximity to the Arcata Mill since at least 1987;

59) whether members of Plaintiff are aware that SPI used PCP and other wood treatment chemicals at the Arcata mill over the course of many years;

60) whether members of Plaintiff have learned that SPI has discharged polluted water into the Slough;

61) whether members of Plaintiff contend that SPI continues to discharge polluted water into the Slough;

62) whether members of Plaintiff have learned that PCP pollutes the groundwater and stormwater runoff and that PCP is discharged from the Arcata Mill into the ditches and into the Slough;

63) whether members of Plaintiff have learned that analytical tests taken on behalf of their organization reveal the presence of dioxins and furans in crabs caught very close to the areas of discharge for groundwater and storm water runoff from the Arcata Mill;

64) whether members of Plaintiff have learned that the detection of dioxins and furans was in crabs caught very close to the areas they have enjoyed walking and fishing;

65) whether since becoming aware of the pollution created from the Arcata Mill members of Plaintiff have suffered as their aesthetic and recreational enjoyment and satisfaction has been negatively affected and reduced;

66) whether since becoming aware of the pollution created from the Arcata Mill members of Plaintiff are concerned about the presence of toxic chemicals in the fish from the Slough, and now do not fish, or eat fish caught near the Slough and the Arcata Mill as they previously had done;

67) whether members of Plaintiff who lived near the Arcata Mill during and since the time SPI used PCP have learned of persons and animals which have suffered physical ailments which they believe are due to the contamination from the Arcata Mill;

68) whether since learning of the discharges of polluted groundwater and storm water from the Arcata Mill members of Plaintiff are more afraid to walk near and along the Slough near the Arcata Mill and to engage in activities such as bird watching, dog walking, canoeing, kayaking and otherwise taking in the beauty of the Humboldt Bay region near Samoa;

69) whether the Regional Board has pursued a formal enforcement action against SPI;

70) whether the Regional Board detected high levels of toxic chemicals associated with wood preservatives in storm water discharges from the Arcata Mill and in adjacent

sediments and aquatic organisms in the early 1980s;

71) whether PCP is a known carcinogen;

72) whether PCP is virtually always contaminated with polycholrinated dibenzo-p-dioxins and polychlorinated dibenzofurans ("dioxins");

73) whether the health risks posed by PCP are proportionately greatest from dioxins;

74) whether dioxins are recognized by the State of California and the scientific community at large as carcinogens;

75) whether dioxins are the same chemical contaminants found in Agent Orange, a deadly defoliant used in the Vietnam and Korean wars;

76) whether recent studies conclude that dioxins provoke adverse effects in virtually every organ system studied;

77) whether dioxins affect developing reproductive systems, causing diminished prenatal viability and learning behavior problems, and immune systems;

78) whether dioxins are extremely persistent environmental contaminants and in typical ecosystems have half-lives measured in decades;

79) whether once in the environment, dioxins will bio-concentrate or bioaccumulate in organisms like fish, shellfish, marine mammals, birds, humans and other that feed on lower members of the food chain, putting organisms which ingest such food at risk;

80) whether of the 29 times Ditch #4 was sampled, PCP was detected 19 times;

81) whether SPI has sampled storm water discharges for dioxins;

82) whether analytical results of groundwater samples reveal concentrations of PCP and TCP as high as 100,000 part-per-billion;

83) whether analytical results of soil samples reveal concentrations of PCP as high as 71

mg/kg;

84) whether Plaintiff's sampling of the Arcata Mill's discharge sites shows that dioxins are present at alarming levels in the Slough;

85) whether sampling results show particularly high levels of dioxins at the discharge point for Ditch #2, where SPI's sampling shows the highest levels of PCP in storm water discharges;

86) whether analyses of the samples reveals alarmingly high levels of dioxins in crab species and in mussels;

87) whether sediment, crab and mussel samples collected at a control site in the southern reaches of the Bay were virtually or completely dioxin-free:

88) whether the Regional Board sampling shows that dioxins are present in the Slough at the discharge points for the Arcata Mill's Ditches 1 and 4;

89) whether the Regional Board detected levels of Dioxins higher than those found in the Slough samples in sediments sampled from inside Ditch 4 on the Arcata Mill site;

90) whether the Arcata Mill is the source of Dioxins found in the Slough;

91) whether Plaintiff notified SPI and the appropriate state and federal agencies of SPI's Clean Water Act violations more than 60 days in advance of filing its Complaint;

92) whether sampling conducted by SPI in February 2001 at discharge point 3A showed exceedances of Benchmarks for Biochemical Oxygen Demand ("BOD"), Chemical Oxygen Demand ("COD"), Total Suspended Solids ("TSS") and zinc;

93) whether sampling conducted by SPI in February 2001 at discharge point 4 showed exceedances of Benchmarks for BOD, COD, TSS, and zinc;

94) whether sampling conducted by SPI in February 2001 at discharge point 5 showed exceedances of Benchmarks for BOD, COD, TSS and zinc;

95) whether sampling conducted by SPI in October 2001 showed COD levels of 240 mg/l and TSS levels of 51 mg/l at SL-1;

96) whether sampling conducted by SPI in October 2001 showed COD levels of 700 mg/l and TSS levels of 240 mg/l at SL-2;

97) whether sampling conducted by SPI in October 2001 showed COD levels of 2500 mg/l and TSS levels of 2000 mg/l at SL-3A;

98) whether sampling conducted by SPI in October 2001 showed COD levels of 680 mg/l and TSS levels of 180 mg/l at SL-4;

99) whether sampling conducted by SPI in October 2001 showed COD levels of 310 mg/l and TSS levels of 130 at SL-6;

100) whether sampling conducted by SPI in November 2001 showed COD levels of 170 mg/l and TSS levels of 51 at SL-1;

101) whether sampling conducted by SPI in November 2001 showed COD levels of 1000 mg/l and TSS levels of 51 mg/l at SL-2;

102) whether sampling conducted by SPI in November 2001 showed COD levels of 1400 mg/l and TSS levels of 640 mg/l at SL-3A;

103) whether sampling conducted by SPI in November 2001 showed COD levels of 250 mg/l and TSS levels of 200 mg/l at SL-4;

104) whether sampling conducted by SPI in November 2001 showed COD levels of 170 mg/l and TSS levels of 51 mg/l at SL-5;

105) whether sampling conducted by SPI in November 2001 showed COD levels of 360 mg/l and TSS levels of 200 mg/l at SL-6;

106) whether the 1993 SWPPP failed to contain the locations of all pollution sources and discharge points or even an adequate discussion of industrial activities;

107) whether the 1993 SWPPP omits any separate discussion of the potential pollutant sources at the Arcata Mill;

108) whether the 2001 SWPPP states that only non-PCP/TCP containing anti-stain was used in the new dip tank facility;

109) whether the 2001 SWPPP does not list PCP, TCP, nor Dioxins as potential pollutants from current dip tank operations;

110) whether the 2001 SWPPP does not mention that PCP and TCP have been detected nearly continuously in storm water discharges from outfalls 1, 2 and 4 since the old dip tank was dismantled;

111) whether the 2001 SWPPP fails to identify heavy metals, solvents and petroleum products as potential pollutants from the locations at where scrap metal, discarded vehicles and equipment are being stored or disposed of at the Arcata Mill near the Dip Tank Building, the Truck Shop and the Slough;

112) whether the 2001 SWPPP fails to identify the Dip Tank Building, the Truck Shop and the Slough where scrap metal, discarded vehicles and equipment are being stored or disposed of as areas where metal fabricating and maintenance are taking place;

113) whether the 2001 SWPPP fails to identify the location north of the Truck Shop where sludge from the Truck Wash has been placed in open pits as a potential source of petroleum product pollutants;

114) whether the 1993 SWPPP fails to identify kiln condensate discharges from the culvert running under the Dry Storage Shed as a non-storm water discharge containing potential pollutants;

115) whether the 1993 SWPPP site map provides an outline of all storm water drainage areas or any indication of the direction of storm water flow in these areas;

116) whether the 1993 SWPPP site map identifies the location of any drop inlets to the storm water drainage system or the locations of the culverts under the kiln building, under the sawmill, or any of the culverts leading to what are marked as "outfall #2" and "outfall #3," nor does it identify the outfall locations at the north end of the mill, the outfall next to what is marked as "outfall #3";

117) whether the 1993 SWPPP site map depicts the spring leading to what is marked as "outfall #4" as an on-site water body;

118) whether the 1993 SWPPP site map depicts the culvert leading into the pond at the north edge of the mill from the gun club;

119) whether the 1993 SWPPP site map identifies areas of the mill where industrial activities occur, such as metal fabricating and waste treatment and disposal;

120) whether the only Best Management Practices identified in the 1993 SWPPP addresses steps taken to prevent leaks of petroleum products from above ground storage tanks at the site, presumably the gasoline, diesel and waste oil tanks located in the Truck Shop area;

121) whether the 1993 SWPPP's discussion of BMP's omits any identification or discussion of measures to prevent intermingling of storm water and leaks or spills of gasoline or diesel at the fueling island;

122) whether the 2001 SWPPP describes no BMPs to control the discharge of PCP, TCP or Dioxins in storm water;

123) whether SPI conducted sampling on January 31, 2002, but none of the samples was tested for BOD or COD;

124) whether two of the four samples tested on January 31, 2002 exceeded the benchmark for TSS and two exceeded for zinc;

125) whether diesel, gasoline, motor oil and toluene were found in three of the samples tested on January 31, 2002;

126) whether SPI has undertaken efforts to comply with recommendations for Clean Water Act compliance made by the Water Board;

127) whether SPI has taken actions to reduce the amount of pollutants in its storm water runoff;

128) whether SPI has taken actions in compliance with the Regional Board's Cleanup and Abatement Order;

129) whether SPI has been cooperative with the Regional Board in trying to achieve compliance with the Clean Water Act;

130) whether SPI has made good faith efforts to comply with all Regional Board directives;

131) whether SPI has instituted Best Management Practices that have "gone a long way towards abating" PCP and TCP discharges;

132) whether SPI is not subject to numeric effluent limits on its storm water discharges;

133) whether the Regional Board relies upon water quality criteria in the California Toxic Rule, which sets allowable levels for PCP in salt water at 7.9 µg/L continuous concentration and 13 µg/L maximum concentration based on a pH of 7.8;

134) whether the Clean Water Act is not violated by PCP detections in storm water unless the discharge exceeds the applicable water quality objective;

135) whether sediments from the dip tank on the former green chain were burned in the boiler after 1983;

136) whether sediments from the former dip tank were burned in the teepee burner after the mid 1970s;

137) whether the Regional Board approved recycling old dip tank anti-stain solution in the new dip tank to dispose of the liquid waste that could not be disposed off site;

138) whether chemical treatment systems available in 1984 were ineffective in eliminating the toxicity of the anti-stain chemical discharge, and SPI therefore decided to remove the old green chain;

139) whether during the period January 1, 1997 through the present, the Arcata Mill was regulated by both the General Permit and the individual NPDES permit, Order No. 88-94;

140) whether a SWPPP is required to identify the former location of removed structures;

141) whether a SWPPP is required to state past use of discontinued chemicals;

142) whether Clean Water Act permits demand zero pollution and whether it is sufficient for a facility operator to implement best management practices to reduce pollutants;

143) whether sampling under SPI's individual NPDES permit was required only as to Outfall Nos. 1 and 4;

144) whether sampling under SPI's individual NPDES permit was required only for PCP, TCP and pH;

145) whether the Regional Board did not issue any notice of violations to SPI upon June 2001 dioxin testing;

146) whether SPI's 2001 SWPPP identifies PCP and TCP as potential pollutants;

147) whether SPI's 2001 SWPPP describes the location of the former green chain by relating its location to existing structures on the SWPPP site map;

148) whether SPI's 2001 SWPPP adequately identifies and evaluates sources of pollutants that may affect the quality of storm water and non-storm water at the facility;

149) whether SPI's 2001 SWPPP adequately identifies and implements best management practices to reduce or prevent pollutants in storm water and authorized non-storm water discharges;

150) whether SPI's 2001 SWPPP adequately meets the requirements of the Clean Water Act;

151) whether SPI has BMPs in use to control pollutants from being discharged to the Slough, including structural BMPs like K-rails to bar or redirect runoff, oil/water separators, constructed barriers and straw bales and/or straw wattles;

152) whether the only California land subject to the EPA Storm Water Mult-Sector General Permit is Indian land;

153) whether non-Indian California land, including the Arcata Mill, is subject to State regulation under the General Permit and/or individual NPDES permit;

154) whether the EPA benchmark values for pollutants contained in the Multi-Sector General Permit may be used as a guideline by the Regional Board;

155) whether EPA benchmark values for pollutants are effluent limitations;

156) whether EPA benchmark values are levels which EPA has used to determine if a storm water discharge from any given facility merits further monitoring to ensure that the facility has been successful in implementing a SWPPP;

157) whether a violation of the Clean Water Act is established by the detection of pollutants in excess of EPA benchmark levels alone;

158) whether a facility is required to develop and implement BMPs to reduce pollutants in storm water, and the detection of a pollutant in excess of an EPA benchmark is an indication that additional BMPs, or better implementation of existing BMPs, should be investigated;

159) whether the development of BMPs is a dynamic process;

160) whether the General Permit applicable in California requires storm water testing of TSS. pH, specific conductance and total organic carbon ("TOC"), or whether oil and grease may be substituted for TOC;

161) whether the General Permit requires General Sawmills and Planing Mills to test for arsenic or copper;

162) whether dioxin testing is required by SPI's individual NPDES permit;

163) whether the Water Board was aware of residual PCP and TCP in the soil and groundwater from the 1980s onward and worked with SPI to monitor the problem;

164) whether groundwater at the Arcata Mill site is used as potable water;

165) whether the detectable levels of PCP and TCP residual in the soil at the Arcata Mill is within the concentration range corresponding to the EPA acceptable risk range under both residential and industrial exposure scenarios;

166) whether the detected levels of TCP in storm water at SPI's Arcata Mill are lower than EPA Preliminary Remediation Goals ("PRGs") for tap water consumption;

167) whether all but one of the detected levels of PCP in storm water at SPI's Arcata Mill are lower than EPA PRGs for tap water consumption;

168) whether SPI sampling of oysters in Slough found that dioxin levels were approximately equal to the average concentration found in oysters sampled in 10 locations around Humboldt Bay;

169) whether the level of dioxins in the oysters in the slough was less than 1/10th of the Food and Drug Administration fish advisory level;

170) whether the presence of dioxin impurities in commercial-grade PCP entails the co-existence of dioxins in PCP found in the environment;

171) whether dioxins are ubiquitous in the environment and come from many sources;

172) whether testing of dioxins found in oysters in the slough and Humboldt Bay found that the pattern of dioxins is not consistent with the pattern the EPA has identified as typically associated with PCP wood treatment products;

173) with bioconcentration and biomagnification of dioxins is species-dependent;

174) whether the chemicals detected at the Arcata Mill pose a material risk to human health; and

175) whether the chemicals detected at the Arcata Mill have caused material ecological harm.

C. Procedural Background

On January 31, 2001, Plaintiff filed its initial Complaint in this matter. Defendants filed an Answer on April 12, 2001. On March 29, 2002, pursuant to the stipulation of all parties, Plaintiff filed a First Amended Complaint for Injunctive and Declaratory Relief and Civil Penalties, to which Defendants filed an Answer on April 22, 2002.

On May 22, 2002, Defendants filed a Motion to Stay Judicial Proceedings, as well as the Declaration of Scott L. Steever in support thereof.

On May 29, 2002, Plaintiff filed a Motion for Partial Summary Judgment, as well as the Declarations of Brian Acree, Rob DiPerna, Sharon E. Duggan, Daniel Ehresman, James Lamport, Marc A. Lappe, Ph.D., Heather Meader and Patti Taylor-Irish in support thereof.

On May 30, 2002, the Court stayed Plaintiff's summary judgment motion pending resolution of Defendants' motion to stay.

On June 6, 2002, Plaintiff filed a Memorandum in Opposition to Defendants' Motion to Stay Proceedings, as well as the Declarations of Marc Lappe and Sharon Duggan in support thereof, to which Defendants filed a Reply Memorandum, as well as the Declaration of Robert Scofield, on

June 13, 2002.

On June 27, 2002, the Court denied Defendants' motion to stay proceedings, lifted the stay on Plaintiff's summary judgment motion and ordered the parties to file a joint statement of undisputed facts in connection with Plaintiff's summary judgment motion.

On August 1, 2002, Defendants filed a Motion to Withdraw Certain Admissions to Plaintiff's Requests fo Admission (Set One), as well as the Declaration of Keith Uland in Support thereof. In its motion, Defendants requested an order from this Court permitting them to withdraw admissions made in response to Requests for Admission Nos. 41 and 43 through 47 in Plaintiff's requests for admissions. Plaintiff filed its Opposition to Defendants' motion, as well as the Declarations of Brian Acree and Cassandra Seebaum in support thereof, on August 15, 2002 and Defendants filed a Reply, as well as the Declaration of Keith T. Uland in support thereof, on August 22, 2002.

On August 12, 2002, Defendants filed a Memorandum of Points and Authorities Opposing Plaintiff's Partial Motion for Summary Judgment, as well as the Declarations of Robert Scofield, Ralph Vasquez and Keith T. Uland in support thereof. Also on August 12, Defendants filed Objections to Plaintiff's Declarations Supporting Their Motion for Partial Summary Judgment.

On August 19, 2002, Plaintiff filed a Reply in Support of Motion for Summary Judgment, as well as the Supplemental Declaration of Dr. Marc Lappe and Second Declaration of Brian Acree in support thereof, a Response to Defendants' Objection to Declarations Supporting Plaintiff's Motion for Partial Summary Judgment, and Additional Facts Responding to Defendants' Opposition to Motion for Partial Summary Judgment.

Also on August 19, 2002, the parties filed a Joint Statement of Undisputed Facts.

On August 23, 2002, Defendants filed Objections to Additional Facts and Evidence Accompanying Plaintiff's Reply to Defendants' Opposition to Motion for Partial Summary Judgment and Request to Strike or Alternatively Allow a Response to be Filed.

On October 4, 2002, Plaintiff filed a Response to Defendants' Objections to Additional Facts and Evidence Accompanying Plaintiff's Reply.

On October 4, 2002, the Court issued an Order Denying in Part and Granting in Part Defendants' Motion to Withdraw Certain Admissions to Plaintiff's Requests for Production (Set One). In its order, the Court granted Defendants' motion as to Requests for Admission Nos. 44 and 45, finding Defendants made the admissions due to a Regional Board decision that, as of the time of the Court's order, the Regional Board may have subsequently changed. The Court denied Defendants' motion as to Requests for Admission Nos. 41, 43, 46 and 47, finding that Defendants did not dispute their factual validity and did not meet their burden of showing that the withdrawal of said admissions would assist in the presentation of the merits of the case.

On October 10, 2002, the Court held a hearing on Plaintiff's summary judgment motion. At the hearing, the Court granted Defendants' request to strike Dr. Marc Lappe's Response to Report by Robert Scofield and the Evaluation of the General Permit by Steven Bond. Also on October 10, 2002, Plaintiff filed the Declaration of Frederic Evenson in Support of Motion for Partial Summary Judgment. The Court took Plaintiff's summary judgment motion under submission.

III. DISCUSSION

Plaintiff moves for partial summary judgment on the following Clean Water Act claims: 1) SPI has illegally discharged contaminated storm water from the Arcata Mill into the Mad River Slough and Humboldt Bay; 2) SPI has failed to use the best available technology ("BAT") and best conventional technology ("BCT") to control its chronic discharges of pollutants; 3) SPI has failed to develop and implement an adequate Storm Water Monitoring and Reporting Program ("MRP") and 4) SPI has failed to develop and implement an adequate Storm Water Pollution Prevention Plan ("SWPPP"). Plaintiff argues that the Clean Water Act is a strict liability statute and that the undisputed evidence demonstrates that SPI has violated the Act in these four ways. Plaintiff seeks a declaratory order from this Court finding SPI liable for separate violations of the Clean Water Act

for each day since October 25, 1995.

A. Summary Judgment Standard

Federal Rule of Civil Procedure ("Fed.R.Civ.P.") 56(c) provides that summary judgment "shall be rendered forthwith if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to judgment as a matter of law." Fed.R.Civ.P. 56(c). Material facts are those that may affect the outcome of the case. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986). A dispute as to a material fact is "genuine" if there is sufficient evidence for a reasonable jury to return a verdict for the nonmoving party. *Id.* The court may not weigh the evidence. *Id.* at 255. Rather, the nonmoving party's evidence must be believed and "all justifiable inferences are to be drawn in [the nonmovant's] favor." *United Steelworkers of American v. Phelps Dodge Corp.*, 865 F.2d 1539, 1542 (9th Cir. 1989) (en banc) (citing *Liberty Lobby*, 477 U.S. at 255).

The moving party bears the initial responsibility of informing the district court of the basis for its motion and identifying those portions of the pleadings, depositions, interrogatory answers, admissions and affidavits, if any, that it believes demonstrate the absence of a genuine issue of material fact. *See Celotex Corp. v. Catrett*, 477 U.S. 317, 323 (1986). Where the nonmoving party will bear the burden of proof at trial, the moving party's burden is discharged when it shows the court that there is an absence of evidence to support the nonmoving party's case. *Id.* at 325.

A party opposing a properly supported motion for summary judgment "may not rest upon the mere allegations or denials of [that] party's pleading, but . . . must set forth specific facts showing that there is a genuine issue for trial." Fed.R.Civ.P. 56(e); *Liberty Lobby*, 477 U.S. at 250. When the nonmoving party relies only on its own affidavits to oppose summary judgment, it cannot rely on conclusory allegations unsupported by factual data to create an issue of material fact. *See United States v. 1 Parcel of Real Property*, 904 F.2d 487, 492 n.3 (9th Cir. 1990)(citing *Marks v. United*

States, 578 F.2d 261, 263 (9th Cir. 1978). However, the opposing party need not produce evidence in a form that would be admissible at trial in order to avoid a summary judgment. *Celotex*, 477 U.S. at 324. Nor must the opposing party show that the issue will be resolved conclusively in its favor. *Liberty Lobby*, 477 U.S. at 248-49. All that is necessary is sufficient evidence supporting the asserted factual dispute and requiring a jury or judge to resolve the parties' differing versions of the truth at trial. *Id.*

B. SPI's NPDES Permit

1. whether SPI operated under the individual or general permit

As a preliminary matter, the Court shall address whether the individual NPDES or General Permit applies in this matter. In its opposition, SPI argues that partial summary judgment cannot be granted because genuine issues of material fact exist as to whether SPI's monitoring, reporting and sampling at the Arcata Mill should be evaluated against the terms of the General Permit or the individual NPDES permit. In support of this argument, SPI submitted a copy of the Regional Board's Preliminary Order No. R1-2002-0042, NPDES Permit No. CA0024520, dated March 25, 2002. Paragraph 4 of the preliminary order provides as follows:

> The Permittee is presently governed by Waste Discharge Requirements Order No. 88-94 (NPDES Permit No. CA0024520), adopted by the Regional Water Board on July 28, 1988. Order No. 88-94 expired on July 28, 1993. Because a complete ROWD was timely submitted, Order No. 88-94 continues to govern the discharge operation of law. 23 CCR 2235.4; 40 CFR 122.6.

Defendants readily admit that they did not file a renewal application for the individual permit in a timely manner. However, Defendants argue that the individual permit did not expire, arguing that "Order No. 88-94 said that its terms would expire on July 28, 1993 *unless* a renewal application was filed by January 28, 1993." Defendants' Opp., 4:19-20. However, a review of the 1988 individual permit shows otherwise.

Paragraph 4 of the 1988 individual NPDES permit provides as follows:

> This Permit expires on July 28, 1993. If the permittee wishes to continue an activity regulated by this Permit after the expiration date of this Permit, the permittee must apply for and obtain a new Permit. The application, including a report of waste discharge in accordance with Title 23, California Code of Regulations must be received by the Board no later than January 28, 1993. [40 CFR 122.41(b)]

Thus, under Paragraph 4, the permit expired on July 28, 1993. The term "unless," which Defendants placed in their argument, does not appear in Paragraph 4.

Further, on August 22, 2002, the Regional Board adopted Order No. R1-2002-0042, NPDES Permit No. CA0024520, Waste Discharge Requirements for Sierra-Pacific Industries, Arcata Division Sawmill. Upon review of the adopted order, the Court finds significant differences between the proposed order, relied upon by Defendants in their opposition, and the actual adopted order. Most importantly, the Regional Board deleted Paragraph 4, which stated that SPI continued to be governed by the individual permit past its expiration date. Such a finding does not appear in the adopted order. Also, Paragraph 8 of the adopted order provides that SPI operated under the General Permit.

Moreover, on March 10, 1992, SPI executed an NOI, which the Regional Board received on March 13, 1992. Signed by Gordon Amos, the NOI certified that SPI would comply with the provisions of the General Permit. After the General Permit was amended in April 1997, SPI filed an NOI to comply with the amended permit. In addition to certifying under penalty of law that it would comply with the terms of the General Permit, SPI has repeatedly admitted that the Arcata Mill is regulated by the General Permit and not an individual NPDES permit. SPI has submitted an annual report every year since 1993, certifying under penalty of law that it had complied with the provisions of the General Permit, not an individual NPDES permit. Acree Decl. in Support of Pl.'s Mot. for Summ. J., Exs. G-I, N-S.

Finally, as stated above, Defendants readily admit that they did not file a renewal application for the 1988 individual NPDES permit in a timely manner. SPI's application to renew that permit

was filed late, was incomplete and the permit was never renewed by the Regional Board. Thus, the Court finds that the individual NPDES permit expired on July 28, 1993 and there is no genuine factual or legal dispute that the General Permit governs SPI's conduct at the Arcata Mill.

2. Terms and Conditions of the General Permit

The General Permit (Water Quality Order No. 97-03-DWQ, NPDES, General Permit No. CAS000001) "authorizes storm water and authorized non-storm water discharges from facilities that are required to be covered by a storm water permit. The General Permit prohibits discharges of material other than storm water (non-storm water discharges) that are not authorized by the General Permit and discharges containing hazardous substances in storm water in excess of reportable quantities established at 40 CFR 117.3 and 40 CFR 302.4." Gen. Permit, pp.VII-VIII. The permit also prohibits storm water discharges that "cause or threaten to cause pollution, contamination, or nuisance." Gen. Permit, p.4 § A(2).

The General Permit implements the requirements of the Clean Water Act based on both technology-based requirements and water quality-based requirements. It requires dischargers to implement BAT/BCT to control storm water pollution. Gen. Permit, p.4 § B(3). The Ninth Circuit has held that a Clean Water Act "self-monitoring report is to be considered . . . conclusive evidence of an exceedance of a permit limitation." *Sierra Club v. Union Oil Co. of Cal.*, 813 F.2d 1480, 1492 (9th Cir. 1988), *vacated for reconsideration*, 485 U.S. 931 (1988), reinstated & amended, 853 F.2d 667 (9th Cir. 1988).

The General Permit also mandates that facilities (1) develop and implement a SWPPP covering the entire facility and (2) develop and implement a Storm Water Monitoring and Reporting Program ("MRP"). Gen. Permit, ¶.4 § A(1), 14 § A(6), 24 § B.

C. Plaintiff's Standing to Bring this Action & the Court's Jurisdiction

A discharger violating the terms of its NPDES permit is subject to enforcement actions by both federal and state regulatory agencies. 33 U.S.C. §§ 1319, 1342(b)(7). In the absence of formal

federal or state enforcement action, the Clean Water Act expressly authorizes citizens to file civil suit "against any . . . person who is alleged to be in violation of . . . an effluent standard or limitation under this chapter." 33 U.S.C. § 1365(a)(1). An association "has standing to bring suit on behalf of its members when its members would otherwise have standing to sue in their own right, the interests at stake are germane to the organization's purpose, and neither the claim asserted nor the relief requested requires the participation of individual members in the lawsuit." *Natural Resources Defense Council v. Southwest Marine, Inc.*, 236 F.3d 985, 994 (9th Cir. 2000) (*quoting Friends of the Earth, Inc. v. Laidlaw Envt'l Servs., Inc.*, 528 U.S. 167 (2000)). Individual members have standing in their own right under Article III of the U.S. Constitution if "they have suffered an 'injury in fact' that is (a) concrete and particularized and 9b) actual and imminent, not conjectural or hypothetical . . . the injury is fairly traceable to the challenged action of the defendant; and . . . it is likely, as opposed to merely speculative, that the injury will be redressed by a favorable decision." *Ecological Rights Foundation v. Pacific Lumber Co.*, 230 F.3d 1141, 1147 (9th Cir. 2000) (*quoting Laidlaw*, 528 U.S. at 180). The Supreme Court has clearly established that "environmental plaintiffs adequately allege 'injury in fact' when they aver that they use the affected area and are persons for whom the aesthetic and recreational values of the area will be lessened" by the challenged activity. *Laidlaw*, 528 U.S. at 183 (*quoting Sierra Club v. Morton*, 405 U.S. 727, 735 (1972).

Plaintiff is a non-profit public benefit corporation organized under the laws of the State of California with its main office in Garberville, California, dedicated to the protection and enhancement of the California North Coast environment, and actively seeks federal and state agency implementation of the Clean Water Act, including pursuing enforcement actions on behalf of itself and its members. Plaintiff's standing to bring this suit is not in dispute. First, both in its opposition and at the October 10, 2002 hearing, SPI stated that it does not dispute Plaintiff's standing to bring this citizen suit. Second, SPI does not challenge the adequacy of Plaintiff's 60-day notice letter

pursuant to 33 U.S.C. § 1365(a)(1).[1] Accordingly, the Court finds that it has jurisdiction to review Plaintiff's claims.

D. Whether SPI has Illegally Discharged Contaminated Storm Water from the Arcata Mill into the Mad River Slough and Humboldt Bay.

In its first claim for summary judgment, Plaintiff argues that SPI has illegally discharged contaminated storm water from the Arcata Mill into the Slough and Humboldt Bay. In support of its argument, Plaintiff states that SPI's storm water self-monitoring reports for the Arcata Mill confirm substantial contamination and ongoing discharges that violate the General Permit and the Clean Water Act. Plaintiff alleges that the contaminated discharges violate the General Permit in two ways: 1) they cause and contribute to an exceedance of applicable water quality standards and 2) they cause or threaten to cause pollution contamination.

In support of its argument regarding applicable water quality standards, Plaintiff points to the General Permit, which specifically provides that storm water discharges "shall not cause or contribute to an exceedance of any applicable water quality standards contained in a Statewide Water Quality Control Plan or the applicable Regional Water Board's Basin Plan." Gen. Permit, p.4 § C(2). Plaintiff states that the Water Quality Control Plan for the North Coast Basin requires that the most stringent criteria for a waste constituent be used to protect beneficial uses of water and contends that SPI admits that storm water discharges containing PCP, TCP or petroleum hydrocarbons violate the Basin Plan. Plaintiff also points to the Regional Board's October 31, 2001 Cleanup and Abatement Order, which states that "[d]ischarges of petroleum hydrocarbons, [PCP], [TCP] and their associated impurities are a violation of the basin plan." Acree Dec, Ex. T, p.2 (#8). Plaintiff contends that storm water sampling conducted by SPI and its consultants, during the period October 25, 1995 through the present, reveals detectable amounts of PCP in storm water discharges from the Arcata Mill on at least 43 separate occasions and detectable amounts of TCP in storm water discharges on

[1] For all violations alleged in Plaintiff's First Amended Complaint, Plaintiff properly notified SPI of those violations more than 60 days before it first filed this lawsuit.

14 separate occasions. Plaintiff further contends that sampling conducted by SPI's consultants in 2001, after Plaintiff filed its complaint, show continuing discharges of these chemicals in storm water at the Arcata Mill, with at least eight detections of PCP or TCP and that each of these discharges violates section C(2) of the General Permit.

In support of its argument regarding causing or threatening to cause pollution contamination, Plaintiff again points to the Regional Board's Cleanup and Abatement Order, which provides as follows:

> The discharge and threatened discharge of wood treatment chemicals and other wastes have unreasonably affected water quality in that the wastes are deleterious to [beneficial uses] and have created or may create a condition of pollution and/or nuisance, which threatens to continue unless the discharge or threatened discharge is permanently abated or cleaned up.

Acree Dec., Ex. T, p.4 (#13).

Plaintiff argues that not only are PCP and TCP themselves carcinogenic compounds and consistently detected in SPI's storm water runoff, but commercial grade PCP is contaminated with Dioxins. Plaintiff states that SPI has never sampled for Dioxins, but sampling conducted by it and the Regional Board conclusively shows that Dioxins are present in sediments in ditches at the Arcata Mill, in sediments in the Slough at the ditch outfalls and in the Slough biota. Based on the Dioxin levels found in the aquatic species sampled from the Arcata Mill, Plaintiff argues that fish, birds and mammals that participate in the Slough food chain bear an increased risk of suffering from a number of toxic endpoints, including increased risk of cancer, developmental toxicity and reproductive toxicity, as well as diminished immune system functioning which heightens the risk that those organisms will contract or succumb to viral, bacterial or parasitic infections and diseases. Plaintiff further alleges that the shellfish harvesting and aquaculture beneficial uses of the Slough and Humboldt Bay are impaired because of the significant risks to human health from consuming organisms with Dioxin contamination or bioaccumulation.

Plaintiff argues that from December 2, 1995 to the present, SPI's discharges of contaminated

stormwater have violated the Clean Water Act 57 times.

In their opposition, Defendants argue that storm water discharges from the Arcata Mill containing PCP lower than 7.9 µg/L in storm water at a pH of 7.8 does not violate the Clean Water Act. In making this argument, SPI cites to the individual NPDES permit.

As discussed above, SPI's individual NPDES permit is inapplicable in this matter. The Court finds that the individual NPDES permit expired on July 28, 1993 and there is no genuine factual or legal dispute that the General Permit governs SPI's conduct at the Arcata Mill. Therefore, any defense relating to the individual permit is inapplicable. Further, the Court fails to see how Defendants can now oppose the fact that any discharges from the Arcata Mill that contain petroleum hydrocarbons, PCP and/or TCP violate the basin plan when it admitted as much in its response to Plaintiff's Request for Admission No. 23. Acree Dec., Ex. DD, p.6, RFA No. 23. Finally, the Regional Board also stated that these discharges violate the basin plan. Specifically, the Regional Board's October 31, 2001 Cleanup and Abatement Order states that "[d]ischarges of petroleum hydrocarbons, [PCP], [TCP] and their associated impurities are a violation of the basin plan." Acree Dec, Ex. T, p.2 (#8). Thus, the Court finds that any discharges of petroleum hydrocarbons, PCP, TCP and their associated impurities are a violation of the basin plan. There is no genuine dispute as to this fact.

A review of the parties Joint Statement of Undisputed Facts shows the following detectable discharges, as obtained by SPI and its consultants:

PCP was detected in storm water discharged from Ditch #2 in the following amounts:

Date of measurement	**PCP amount detected**
April 17, 1996	15.0 µg/L
May 23, 1997	10.0 µg/L
April 10, 1998	13.0 µg/L

TCP was detected in storm water discharged from Ditch #2 in the following amounts:

Date of measurement	TCP amount detected
April 17, 1996	7.9 µg/L
April 10, 1998	2.5 µg/L
November 21, 2000	1.2 µg/L
October 30, 2001	1.2 µg/L

PCP was detected in storm water discharged from Ditch #4 in the following amounts:

Date of measurement	PCP amount detected
December 1, 1995	13.0 µg/L
January 16, 1996	38.0 µg/L
April 17, 1996	12.0 µg/L
May 15, 1996	18.0 µg/L
December 5, 1996	15.0 µg/L
February 8, 1999	9.2 µg/L

TCP was detected in storm water discharged from Ditch #4 in the following amounts:

Date of measurement	TCP amount detected
December 1, 1995	7.9 µg/L
January 16, 1996	24.0 µg/L
April 17, 1996	6.9 µg/L
May 15, 1996	10.0 µg/L
December 5, 1996	7.5 µg/L
November 6, 1998	3.3 µg/L
February 8, 1999	3.3 µg/L
November 19, 1999	2.2 µg/L

SPI disputes the following:

1) PCP was detected at 1.3 µg/L in storm water discharged from SL-1 on December 6, 2001;

2) PCP was detected at 1.4 µg/L in storm water discharged from Ditch #1 on November 16, 2001;

3) PCP was detected at 0.99 µg/L in storm water discharged from Outflow #1 on November 13, 2000;

4) PCP was detected from Ditch #1 on the following dates and in the following amounts:

Date of detection	Amount detected
December 1, 1995	2.9 µg/L
January 16, 1996	1.9 µg/L
March 1, 1996	0.5 µg/L
May 15, 1996	0.49 µg/L
October 22, 1996	0.61 µg/L
November 18, 1996	2.3 µg/L
December 5, 1996	0.73 µg/L
February 27, 1997	1.5 µg/L
April 16, 1997	0.99 µg/L
May 23, 1997	0.43 µg/L
September 17, 1997	1.3 µg/L
October 9, 1997	0.41 µg/L
April 10, 1998	1.7 µg/L
November 6, 1998	2.2 µg/L
January 18, 1999	0.69 µg/L
February 8, 1999	2.2 µg/L
April 5, 1999	1.1 µg/L
November 19, 1999	2.0 µg/L

5) PCP was detected in Ditch #2 on the following dates and in the following amounts:

Date of detection	Amount detected
November 21, 2000	0.82 µg/L
October 30, 2001	1.2 µg/L
November 16, 2001	13 µg/L

6) TCP was detected at 5.7 µg/L in storm water discharged from Ditch #2 on November 16, 2001;

7) PCP was detected in storm water discharged from Ditch #4 in the following amounts:

Date of measurement	PCP amount detected
March 2, 1996	1.6 µg/L

October 22, 1996	0.50 µg/L
November 18, 1996	0.56 µg/L
February 27, 1997	1.2 µg/L
November 6, 1998	4.3 µg/L
January 18, 1999	2.0 µg/L
April 5, 1999	0.34 µg/L
October 28, 1999	0.44 µg/L
November 19, 1999	2.7 µg/L
November 16, 2001	7.4 µg/L

SPI does not dispute that the above-listed amounts of PCP were detected. Rather, SPI argues that detections of PCP below 7.9 µg/L do not violate the Clean Water Act. However, as discussed above, *any* discharge of PCP violates the basin plan. As to the November 16, 2001 detection of TCP, SPI disputes only the amount of TCP, not whether TCP was detected. *Any* discharge of TCP violates the basin plan.

These illegal discharges are evidenced by SPI's own sampling reports, which are conclusive evidence of Clean Water Act violations. *Sierra Club v. Union Oil*, 813 F.2d at 1492. Thus, there is no genuine issue that SPI has discharged PCP and TCP on at least 57 occasions for which it sampled its storm water discharges and where the law clearly prohibits any discharges of PCP and TCP, Plaintiff is "entitled to a judgment as a matter of law" on this claim. Fed.R.Civ.P. 56(c).

E. Whether SPI has Failed to Use the Best Available Technology and Best Conventional Technology to Control its Discharges of Pollutants

In its second claim for summary judgment, Plaintiff argues that SPI has failed to use the Best Available Technology ("BAT") and Best Conventional Technology ("BCT") to control its discharge of pollutants. Plaintiff argues that the General Permit requires all SWPPPs to include best management practices ("BMPs") that achieve BAT standards for toxic pollutants and BCT standards for conventional pollutants, through which the permittee must reduce or prevent the discharge of pollutants in storm water. Plaintiff contends that compliance with the BAT/BCT requirement is demonstrated by establishing that pollutant concentrations in storm water discharges are below the

federal benchmark levels set out in the EPA Multi-Sector Permit. Plaintiff argues that, although SPI failed to collect and analyze two storm water samples from each discharge location each year, the sampling data compiled by SPI since Plaintiff sent its notice of intent to sue plainly documents significant contamination in storm water discharges arising from SPI's failure to implement proper pollution control measures.

Defendants argue that Plaintiff's request for summary judgment on this ground must be denied since Plaintiff has not asserted this claim independently against SPI prior to bringing its summary judgment motion. Defendants also argue that the EPA Benchmarks referenced by Plaintiff are inapplicable to the Arcata Mill because the only California lands subject to the EPA permit are Indian lands. Defendants contend that the Arcata Mill is subject only to the terms of the General permit and/or individual NPDES permits.

Although Defendants argue that Plaintiff cannot treat this argument as an independent claim because it was alleged as part of Plaintiff's Fourth Cause of Action in its original and amended complaints, Defendants cite no authority in support of their argument. In its amended complaint, Plaintiff alleged that SPI failed to adopt and implement an adequate SWPPP for many different reasons, including its failure to comply with BAT/BCT (Am. Compl. ¶ 69), its inadequate site map (Am. Compl. ¶ 70), inadequate description of pollutant sources (Am. Compl. ¶¶ 71-73), inadequate BMPs (Am. Compl. ¶ 74), etc. Because the claim of SPI's failure to achieve the BAT/BCT requirement of the General Permit was properly plead, the Court finds that Plaintiff can argue it as one basis for SPI's violation of the SWPPP requirements of the General Permit, regardless of its chronological order in the memorandum.

Related to the substance of the claim, although Defendants contend there is a dispute of fact, Defendants in effect argue a dispute of law, not one of fact. Defendants do not dispute the fact that SPI discharges levels of pollutants in excess of the EPA Benchmarks for those pollutants. Rather, Defendants argue that the EPA Benchmarks do not apply to the Arcata Mill and that they are not

effluent limitations, but that an exceedance of Benchmarks is evidence that BAT/BCT is not being achieved and that additional BMPs are necessary.

The General Permit provides as follows:

> Facility operators covered by this General Permit must reduce or prevent pollutants associated with industrial activity in storm water discharges and authorized non-storm water discharges through implementation of BAT for toxic and non-conventional pollutants and BCT for conventional pollutants. *Development and implementation of an SWPPP that complies with the requirements in Section A of the General permit and that includes BMPs that achieve BAT/BCT constitutes compliance with this requirement.*

Gen. Permit, p.4 §B(3) (italics added). Although Plaintiff argues that compliance with the BAT/BCT requirement is demonstrated by establishing that pollutant concentrations in storm water discharges are below the federal benchmark levels set out in the EPA Multi-Sector Permit, the Court finds that the EPA's permit does not directly apply in this matter. Specifically, the EPA permit "authorizes storm water discharges associated with industrial activity for most areas of the United States where the NPDES permit program has not been delegated. 65 Fed. Reg. 64746, § I. In California, the only lands covered by the EPA permit are Indian lands. *Id.* at 64748-49. However, the EPA benchmarks for pollutants contained in the Multi-Sector General Permit may be used as a guideline by the Regional Board. Vasquez Dec. in Support of Defs.' Opp. ¶ 12. Thus, while the EPA benchmarks do not establish effluent limitations for the Arcata Mill, the Court herein shall use them as guidelines in making its determination.

Using the EPA benchmarks as a guideline, the Court finds that the sampling data compiled by SPI since Plaintiff sent its notice of intent to sue plainly documents contamination in storm water discharges. Sampling conducted by SPI in February 2001, at three storm water discharge points, 3A, 4 and 5, showed exceedances of benchmarks for Biochemical Oxygen Demand ("BOD"), Chemical Oxygen Demand ("COD"), Total Suspended Solids ("TSS") and zinc. Sampling conducted by SPI in October 2001 showed that storm water outfall sampling points Sl-1, 2, 3A, 4 and 6 each exceed the

EPA benchmark level for COD by factors up to 20 times the benchmark. With the exception of SL-1, each of the outfall samples exceed the EPA benchmark for TSS also by a factor of 20. SL-6 exceed the benchmark for oil & grease, and SL-5 exceeded the benchmark for pH. Sampling conducted by SPI in November 2001 showed that outfall sampling points SL-1, 2, 3A, 4, 5 and 6 each exceeded the EPA benchmark for COD. With the exception of SL-1 and 4, each of the outfall samples exceeded the benchmark for TSS. SPI conducted sampling on January 31, 2002, but none of the samples was analyzed for COD or BOD. Two of the four samples exceed the benchmark for TSS and two samples exceeded the benchmark for zinc.

The General Permit requires all SWPPPs to include BMPs that achieve BAT and BCT, thereby reducing and preventing the discharge of pollutants into receiving waters. Gen. Permit, § B(3). Based on the undisputed levels listed above, the Court finds that SPI has not achieved BAT standards for toxic pollutants and BCT standards for conventional pollutants through implementation of its SWPPP. The storm water sampling results, which show exceedances of benchmarks established by the EPA, demonstrate that the management practices implemented at the Arcata Mill do not meet the BAT/BCT standard required by the General Permit. Gen. Permit §B(3). Accordingly, Plaintiff is entitled to summary judgment on this claim and Defendants are liable for each day upon which they failed to achieve BAT/BCT, dating back to October 25, 1995.

F. Whether SPI has Failed to Develop and Implement an Adequate Storm Water Monitoring an Reporting Program

In its third claim for summary judgment, Plaintiff argues that SPI's number of self-reported permit violations for illegal discharges of contaminated storm water would be significantly higher if Defendants had adequately developed and implemented a MRP and that its failure to do so is a violation of the General Permit and the Clean Water Act. Specifically, Plaintiff argues that SPI failed to conduct the required sampling at each discharge location and, when samples were collected, SPI failed to analyze the samples for all required pollutants. Plaintiff claims that since 1992, SPI committed 2,368 violations of the Clean Water Act.

Defendants argue that Plaintiff's argument is flawed since it calculates alleged violations outside the enforcement period. Defendants also argue that the Court cannot grant summary judgment on this claim because genuine issues of material fact exist as to whether SPI's monitoring, reporting and sampling at the Arcata Mill should be evaluated against the terms of the General Permit or the individual NPDES permit.

As discussed above, the General Permit applies in this matter. Facility operators subject to the General Permit are required to develop and implement a site-specific MRP. Gen. Permit, p.24, §§ B(1)(a), B(2)(d). The objectives of the MRP are to ensure and demonstrate compliance with the General Permit, aid in the implementation and revision of the MRP, ensure that practices to reduce or prevent pollutants from contaminating storm water and non-storm water discharges are evaluated and revised to meet changing conditions, and measure the effectiveness of the BMPs in reducing or preventing pollutants in storm water discharges and authorized non-storm water discharges. Gen. Permit, ¶.24-25, §B(2). As part of the MRP, permittees must: 1) conduct visual observations of storm water; 2) take storm water samples at every discharge location from at least two storms each year; 3) analyze the samples for specific contaminants; and 4) file annual reports with the Regional Board summarizing the visual observations and results of sample analyses. Gen. Permit, ¶. 25-27, 35, §§ B(3)-B(5), B(14). The annual report must include a certification that operations at the facility are in compliance with all permit requirements. Gen. Permit, ¶.35-36, § B(14).

Of the 6 storm water discharge locations identified by SPI's 2001 SWPPP, only two discharge locations, identified as Ditch 1 and Ditch 4, were sampled the required number of times between 1993 and 2001. Defendants do not deny this fact, but instead argue that the individual permit required no more. SPI admits that it did not collect and analyze samples of storm water discharges from at least two storm events and that it did not obtain samples from all storm water locations during the 1999-2000 monitoring period.

Nor did SPI have its samples from each location analyzed for the appropriate pollutants. SPI

is required to have its samples analyzed for TSS, specific conductance, and either total organic carbon ("TOC") or oil and grease ("O&G"). Gen. Permit, p.27, § B.5.c.i. The General Permit also requires operators to test for any additional parameters listed in Table D of section B that are applicable to their operations by Standard Industrial Code ("SIC"). Gen. Permit, p.27, § B.5.c.iii. Since the SIC codes applicable to the Arcata Mill include general sawmills and Planing and Wood Preserving, Table D constituents for which Defendants are required to test include chemical oxygen demand ("COD"), zinc, arsenic and copper. Gen. Permit, § B, Table D, ¶. 40-44. Defendants do not deny that from 1993 to until 1999, SPI never tested any storm water discharges for TSS, TOC, or O&G. Further, from 1999 until 2001, SPI only tested two outfalls, ditch 1 and ditch 4, for these constituents the required number of times. From 1993 to 1999, SPI never tested any outfalls for COD, zinc, arsenic or copper as required by the General Permit. In the 1999-2000 wet season, SPI tested only two outfalls for COD and zinc, but did not test for arsenic or copper. In 2000-2001, SPI tested all outfalls for COD and zinc, but did not test for arsenic or copper. SPI admits that it did not analyze any storm water samples for copper or arsenic from January 1, 1997 through February 1, 2002.

In addition to the above-listed constituents, the General Permit also requires operators to test for any toxic chemicals or other pollutants that are likely to be present in storm water in significant quantities. Gen. Permit, p.27, § B.5.c.ii. Given the historical use of wood preservatives and the results of storm water sampling since the mid 1980s, PCP and TCP were clearly toxic chemicals that were likely present in significant quantities in storm water discharges from the Arcata Mill. However, from 1993 until 2001, SPI tested only two outfalls, ditch 1 and ditch 4, the required number of times per year for PCP and TCP.

Based on the analysis above, the Court finds that Defendants operated the Arcata Mill with an inadequate MRP and failed to conduct the legally required sampling under the General Permit. Thus, each day from October 25, 1995 constitutes a separate violation of the Clean Water Act and Plaintiff is entitled to summary judgment on this claim.

G. Whether SPI has Failed to Develop and Implement an Adequate Storm Water Pollution Prevention Plan

In its fourth claim for summary judgment, Plaintiff argues that Defendants have failed to develop and implement an adequate storm water pollution prevention plan. Plaintiff contends that from 1993 to 2000, Defendants operated their sawmill under a SWPPP which failed to provide even the required basic information, including the locations of all pollution sources and discharge points or an adequate discussion of industrial activities. Plaintiff further contends that SPI's new SWPPP, submitted in June 2001, contains more detailed descriptions of industrial activities, but still fails to address basic, essential elements required by the General Permit that are critical to the Clean Water Act's goal of preventing and reducing industrial storm water pollution.

Defendants argue that Plaintiff's argument must fail because although Plaintiff compares portions of SPI's 1993 and 2001 SWPPPs to the applicable General Permit, they are not qualified as experts in SWPPPs and, therefore, may not offer their conclusions as evidence. Moreover, Defendants argue that Plaintiff offered no legal authority or expert declarations substantiating their conclusions.

As Plaintiff address three alleged deficiencies in support of its claim, the Court shall discuss each alleged deficiency individually.

1. whether the SWPPPs lack the required identification, description and assessment of potential pollution sources.

First, Plaintiff points to the General Permit requirement that operators investigate their facilities and identify all potential pollutant sources, including pollutants originating in areas where industrial process occur, where material is handled or stored, where dust and particulates are generated, where significant spills or leaks have occurred and where soils may be subject to erosion.

Gen. Permit, p.14, § A(6)(a). Plaintiff also points to the General Permit requirement that permittees investigate and identify all non-storm water discharges at the facility as potential pollutant sources. *Id.* Plaintiff argues that potential pollutant sources at the Arcata Mill include: the voluminous sawdust and other woodwaste generated at the sawmill, planer, debarker and log deck areas of the mill; process lubricant contamination and hydraulic fluid contamination from these areas and from the truck shop, hyster shop, and equipment maintenance areas; heavy metal contamination from metal fabricating and equipment storage areas of the Mill; and PCP, TCP, dioxin and furan contamination from soil and groundwater. Plaintiff argues that potential pollutant sources also include sources of non-storm water discharge at the Mill, including discharges of boiler blowdown, kiln condensate, truck wash waste water, truck scale sump discharges, process waste water discharges from the planer and sawmill operations and discharges of groundwater that comes in contact with process waters and/or pollutants.

As to the 1993 SWPPP, Plaintiff argues that it omits any discussion of the potential pollutant sources at the mill. Plaintiff further argues that while the 2001 SWPPP contains a more detailed description of potential pollutants and their sources, it still fails in critical respects, most notably in its failure to address potential pollutants resulting from historic contamination of the facility with PCP, TCP and dioxins. Plaintiff states that the 2001 SWPPP also fails to identify heavy metals, solvents and petroleum products as potential pollutants from the locations where scrap metal, discarded vehicles and equipment are being stored or disposed of at the Arcata Mill near the dip tank building, truck shop and Slough. In addition, Plaintiff states that the SWPPP fails to identify the location north of the truck shop where sludge from the truck wash has been placed in open pits and kiln condensate discharges from the culvert running under the dry storage shed.

In their opposition, Defendants state that the contents of the General Permit were amended in April 1997 and contained more stringent requirements for SWPPPs than its predecessor. Defendants argue that Plaintiff cannot establish liability for any violations based upon the 1993 SWPPP not complying with relevant provisions of the 1991 General Permit since they did not raise that argument

in their summary judgment motion. Thus, Defendants argue, if this Court finds the 1993 SWPPP did not comply with Section A(6)(a) of the General Permit, liability can only be established as of the effective date of the amended General Permit.

Defendants further argue that although Plaintiff claims that the 1993 SWPPP omits any separate discussion of potential pollutant sources at the Arcata Mill, the SWPPP complied with the Clean Water Act due to the Regional Board accepting that document and not advising SPI of or citing it for non-compliance with relevant SWPPP requirements. Defendants counter Plaintiff's argument regarding the failure to identify historical use of wood preservatives as a potential pollutant source by arguing that the General Permit does not impose such a requirement. Moreover, Defendants argue that the 2001 SWPPP contains an extensive description and assessment of potential pollutant sources, including an assessment and description of PCP and TCP from the Mill's prior use of wood treatment products containing those chemicals and adequately describes the location of the former green chain by relating its location to existing structures on the SWPPP site map.

Permittees subject to the General Permit must develop and implement a site-specific, written SWPPP prior to engaging in industrial activities at their facilities. Gen. Permit, p.11, § A. The two major objectives of a SWPPP are 1) "to identify and evaluate sources of pollutants associated with industrial activities that may affect the quality of storm water discharges and authorized non-storm water discharges from the facility;" and 2) "to identify and implement site-specific best management practices (BMPs) to reduce or prevent pollutants associated with industrial activities in storm water discharges and authorized non-storm water discharges." *Id.* at § A(2).

Although SPI contends that Plaintiff cannot establish liability for violations based upon the 1993 SWPPP because the 1997 amendments to the General Permit contained more stringent requirements for SWPPPs than its predecessor, Defendants never cite a single provision of the 1997 amendments on which Plaintiff relies that was not a requirement of the General Permit from 1992 to

1997. Thus, Plaintiff's claims against both the 1993 and 2001 SWPPPs are properly based upon alleged violations of the General Permit.

Regarding the 1993 SWPPP, SPI does not dispute, and the Court finds, that the only pollution sources identified by the 1993 SWPPP are potential leaks of petroleum products at the above ground storage tanks for fuel and waste oil. And SPI provides no counter evidence to dispute the fact that it did not discuss potential pollutant sources. The fact that the Regional Board did not compel SPI's compliance with the General Permit does not create an implicit finding that the 1993 SWPPP is compliant with the Clean Water Act. As both parties agree, the Clean Water Act is a strict liability statute and the good intentions of dischargers are irrelevant to a finding of liability. 33 U.S.C. § 1311(a); *Hawaii's Thousand Friends*, 821 F.Supp. at 1392. In addition, this position is entirely inconsistent with the citizen suit provision of the Clean Water Act, which allows citizens to enforce the Act where regulatory agencies have not. *Sierra Club v. Chevron U.S.A. Inc.*, 834 F.2d 1517, 1525 (9th Cir. 1987).

Further, Defendants do not dispute that the 1993 SWPPP does not identify the Arcata Mill's historical use of wood preservatives as a potential source of pollutants or describe any of the test results showing detection of PCP and TCP in storm water discharges. Instead, Defendants allege that SPI was not required to state past use of discontinued chemicals. However, Section A(4) of the General Permit does not simply require a description of current chemicals being used at the facility. Rather, it requires a description in the SWPPP of "potential sources which may be expected to add significant quantities of pollutants to storm water discharges, or which may result in non-storm water discharges from the facility." Gen. Permit, p.14, § A(4). There is no dispute that the Arcata Mill has areas contaminated with TCP and PCP and that these pollutants are discharged from the facility in storm water. Defendants also do not dispute that the SWPPP omits any identification of non-storm water discharges, including discharges of boiler blow down and kiln condensate.

As to the 2001 SWPPP, the Court finds that it also omits a description of "potential pollutant

sources and potential pollutant sources that could be discharged on storm water discharges." Gen. Permit, p.14, §A(6)(a). Further, the SWPPP fails to mention that PCP and TCP have been detected in storm water discharges from outfalls 1, 2 and 4 since the old dip tank was dismantled. Moreover, the SWPPP also fails to identify kiln condensate discharges from the culvert running under the dry storage shed as a non-storm water discharge containing potential pollutants

As to the above-listed omissions discussed by the Court, the Court finds that SPI's SWPPPs failed to meet the requirements of the General Permit and, therefore, constitute violations of the Clean Water Act. Plaintiff is entitled to summary judgment on this issue.

2. whether the SWPPPs site maps lack required elements critical to their effective use in abating storm water pollution.

Second, Plaintiff argues that Defendants' SWPPP site maps fail to provide several basic elements required by the General Permit, making them useless in designing, evaluating or implementing a SWPPP. Plaintiff argues that the 1993 SWPPP site map does not provide an outline of all storm water drainage areas or any indication of the direction of storm water flow in these areas, and that it does not identify the location of any drop inlets to the storm water drainage system or the locations of the culverts under the kiln building, under the sawmill or any of the culverts leading to what are marked as "outfall #2" and "outfall #3," nor does it identify the outfall locations at the north end of the mill, the outfall next to what is marked as "outfall #3." Plaintiff also argues that the map fails to depict the spring leading to what is marked as "outfall #4" as an on-site water body, fails to describe all areas impacted by storm water run-on as it does not show the culvert leading into the pond at the north edge of the mill from the gun club, and does not identify areas of the mill where industrial activities such as scrap metal and part storage and dismantling and waste treatment and disposal occur. Finally, Plaintiff argues that the map omits completely any description of the location of the former green chain and dip tank, areas of the Mill contaminated with PCP, TCP, dioxins and furans.

As for the June 2001 SWPPP map, Plaintiff states that it contains more detail on the storm water conveyance system, but argues that it still omits a number of important drop inlets and culverts, most notably the drop inlets and culverts located near areas contaminated with PCP, TCP, dioxins and furans, and culverts draining kiln condensate, a non-storm water discharge, into Ditch 1. Plaintiff argues that the map also fails to identify areas where substantial amount of scrap metal, spare parts and discarded equipment are stored uncovered and exposed to precipitation, such as near the truck shop, behind the dip tank building and across from the maintenance building next to the Slough. Finally, Plaintiff also states that the 2001 map entirely omits any description of the location of the former green chain and dip tank, areas of the Arcata Mill contaminated with PCP, TCP, dioxins and furans.

Defendants again argue that Plaintiff cannot establish liability for any violations based upon the 1993 SWPPP site map not complying with relevant provisions of the 1991 General Permit and that the fact that the Regional Board did not notify SPI of its non-compliance with SWPPP requirements proves that SPI complied with the requirements of the General Permit. However, as discussed in Section 1 above, the Court finds these arguments unpersuasive. As to the 2001 SWPPP site map, Defendants argue that SPI was not required to include the location of the former green chain and dip tank because Section A(4) of the General Permit only requires areas of "industrial activity" to be identified and that the use of that phrase in the present tense means that a SWPPP site map only needs to identify existing industrial activities, not past operations or structures.

The General Permit requires operators to provide a site map with the SWPPP that contains "notes, legends, and other data as appropriate to ensure that the site map is clear and understandable." Gen. Permit, p.12, § A(4). The site map must depict all details of the facility that are relevant to storm water management. Gen. Permit, p.14, § A(4)(a-e). Among the required details are the following: an outline of all storm water drainage areas, the direction of storm water flow in each area, and the locations of storm water collection and conveyance structures and associated points of discharge. Gen. Permit, p. 14, § A(4)(a-b). The map must also indicate all

portions of the facility affect by run-on from surrounding areas, all on-site surface water bodies, all areas of the facility where materials are exposed to storm water, all areas where significant spills or leaks of potential pollutants have occurred, all areas of soil erosion, and all areas where industrial activities such as vehicle and equipment storage and maintenance areas, waste treatment and disposal areas, fueling areas, areas generating dust and particulates, and all cleaning and rinsing areas. Gen. Permit, p.14, § A(4)(a-e).

Although Defendants claim that SPI is not required to depict areas of prior industrial activity, the Court finds that the General Permit requires depictions of pollutant sources, which the Court finds includes the former green chain. Although Defendants dispute the facts as alleged, they provide no factual evidence to create a genuine issue of material fact. Without evidence to support its claim of disputed facts, the facts establish by Plaintiff are undisputed. *Hansen v. United States*, 7 F.3d 137, 138 (9th Cir. 1993). Accordingly, the Court finds that the SWPPPs site maps lack required elements critical to their effective use in abating storm water pollution and Plaintiff is entitled to summary judgment on this issue.

3. whether the SWPPPs fail to identify and evaluate adequate best management practices for each potential pollutant.

Third, Plaintiff argues that SPI's SWPPPs fail to identify and evaluate adequate best management practices ("BMPs") for each potential pollutant. Plaintiff states that the only BMPs identified in the 1993 SWPPP address steps taken to prevent leaks of petroleum products from above ground storage tanks at the site and fails to provide BMPs for any of the other numerous pollutant sources at the mill even though SPI's own monitoring showed that other pollutants were discharged from the facility in the storm water. As to the 2001 SWPPP, Plaintiff argues that it remains devoid of any BMPs to control the discharge of PCP, TCP or dioxins in storm water.

Defendants again argue that Plaintiff cannot establish liability for any violations based upon the 1993 SWPPP site map not complying with relevant provisions of the 1991 General Permit and

that the fact that the Regional Board did not notify SPI of its non-compliance with SWPPP requirements proves that SPI complied with the requirements of the General Permit. However, as discussed in Section 1 above, the Court finds these arguments unpersuasive.

As for the 2001 SWPPP, Defendants argue that it adequately meets the requirements of the Clean Water Act. Defendants cite to the testimony of Charles Vath, a senior engineering geologist for the Regional Board, who acknowledged that SPI has instituted BMPs that he believes have "gone a long way towards abating" PCP and TCP discharges. Defendants also argue that the 2001 SWPPP meets the requirements of the General Permit because it identifies and implements BMPs, including the use of K-rails to bar or redirect storm water runoff, oil/water separators, constructed barriers and use of straw bales and/or straw wattles. Thus, Defendants argue, SPI has taken actions to reduce the amount of pollutants in its storm water runoff.

Facility operators must provide a narrative description of storm water BMPs for each potential pollutant in the facility's SWPPP. Gen. Permit, ¶. 17-18, § A(8). The description must identify 1) all existing BMPs, 2) existing BMPs to be revised and implemented and 3) new BMPs to be implemented, and must include a discussion of the effectiveness of each BMP in reducing or preventing pollutants in storm water discharges. *Id.* The SWPPP must also include a summary of all BMPs implemented for each pollutant source, preferably in the form of a table. *Id.*

Defendants provide no argument, other than the one mentioned above, in defense of the 1993 SWPPP. Accordingly, the Court finds that there is no genuine dispute of fact concerning the 1993 SWPPP and Plaintiff is entitled to summary judgment on this issue.

As to the 2001 SWPPP, the Court finds that no genuine issue of material fact exist. Facility operators must provide a narrative description of storm water BMPs for each potential pollutant in the facility's SWPPP. While the 2001 SWPPP lists PCP and TCP as potential pollutants (2001 SWPPP, p.14), the SWPPP remains devoid of any narrative description of storm water BMPs to control the discharge of PCP and TCP in storm water. Although Defendants cite to the testimony of

Mr. Vath, at no time does he state that there are structural BMPs to control the discharges of PCP and TCP. Nor does Mr. Vath state that SPI's SWPPP properly describes BMPs for the Arcata Mill. Thus, while the 2001 SWPPP does provide a more extensive list of BMPs, the Court finds that it does not meet the requirements of Section A(8) if the General Permit. Accordingly, Plaintiff is entitled to summary judgment on this claim.

IV. CONCLUSION

Based on the foregoing analysis, the Court hereby GRANTS Plaintiff's Motion for Partial Summary Judgment as follows:

1. Defendants have illegally discharged contaminated storm water from the Arcata Mill into the Mad River Slough and Humboldt Bay, in violation of the Clean Water Act, 33 U.S.C. § 1251 *et seq.* and the General Permit No. CAS000001, "Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities," Order No. 97-03-DWQ;

2. Defendants have failed to use the best available technology (BAT" and best conventional technology (BCT) to control its discharges of pollutants, in violation of the Clean Water Act, 33 U.S.C. § 1251 *et seq.* and the General Permit No. CAS000001, "Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities," Order No. 97-03-DWQ;

3. Defendants have failed to develop and implement an adequate Storm Water Monitoring and Reporting Program (MRP), in violation of the Clean Water Act, 33 U.S.C. § 1251 *et seq.* and the General Permit No. CAS000001, "Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities," Order No. 97-03-DWQ; and

4. Defendants have failed to develop and implement an adequate Storm Water Pollution Prevention Plan (SWPPP), in violation of the Clean Water Act, 33 U.S.C. § 1251 *et seq.* and the

General Permit No. CAS000001, "Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities," Order No. 97-03-DWQ.

5. Because the Clean Water Act is a strict liability statute and because the evidence demonstrates that Defendants have violated the Clean Water Act in these four ways, Plaintiff is granted declaratory judgment finding Defendants liable for violations of the Clean Water Act each day since October 25, 1995.

IT IS SO ORDERED.

Dated: 10.3.02

MARIA-ELENA JAMES
United States Magistrate Judge

UNITED STATES DISTRICT COURT
for the Northern District of California

* * CERTIFICATE OF SERVICE * *

I, the Undersigned, Hereby, Certify That I Am an Employee in the Office of the Clerk, U.S. District Court, Northern District of California.

That on October 30, 2002, I SERVED a true and correct copy(ies) of the attached, by placing said copy(ies) in a postage paid envelope addressed to the person(s) hereinafter listed, by depositing said envelope in the U.S. Mail, or by placing said copy(ies) into an inter-office delivery receptacle located in the Clerk's office.

Richard W. Wieking, Clerk
By: Brenda Tolbert

Sharon E. Duggan
Frederic Evenson
Sharon E. Duggan Law Offices
2070 Allston Way
Suite 300
Berkeley, CA 94704

Julia A. Olson
Wild Earth Advocates
370 Grand Ave
Suite 5
Oakland, CA 94610

David E. Martinek
David H. Dun
Randall H. Davis
Dun & Martinek
P O Box 1266
Eureka, CA 95502

Scott L. Steever
Lanham & Reilley LLP
3558 Round Barn Blvd, Suite 300
Santa Rosa, CA 95403

Tab 15

SEND CRT DOCS

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA

SANTA MONICA BAYKEEPER, a non profit corporation,

Plaintiff,

v.

SUNLITE SALVAGE, INC., a corporation; JAY LIGHT, an individual; GLICK BROS. LUMBER CO., a corporation,

Defendants.

GLICK BROS. LUMBER CO., a corporation,

Cross-Claimant,

v.

SUNLITE SALVAGE, INC., a corporation,

Cross-Defendants.

Case No.: CV. 99-04578 WDK (RCx)

The Honorable William Keller
United States District Court Judge

(Proposed)
ORDER GRANTING IN PART PLAINTIFF'S MOTION FOR PARTIAL SUMMARY JUDGMENT

Date: 25 October, 1999
Time: 3:00 p.m.
Place: Courtroom 1600

THIS CONSTITUTES NOTICE OF ENTRY AS REQUIRED BY FRCP, RULE 77(d).

Plaintiff Santa Monica BayKeeper ("BayKeeper") moves for partial summary judgment as to defendant SunLite Salvage, Inc.'s ("SunLite") and defendant Jay Lite's ("Lite") (collectively "Defendants") liability under the Federal Water Pollution Control Act ("Clean Water Act" or "the Act"). The matter was heard on October 25th, 27th and 28th 1999. Having considered all of the papers filed by the parties and oral argument on the motion, the Court GRANTS BayKeeper's motion for partial summary judgment in part.

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FACTUAL BACKGROUND

In its continuing effort to clean up the Los Angeles River and San Pedro Bay, BayKeeper brings this citizen suit, pursuant to Section 505(a) of the Clean Water Act ("the Act"), 33 U.S.C.§ 1365. The SunLite Salvage yard is located at 2213 E. Manchester Ave., Los Angeles, California ("the Yard"). The SunLite Yard is bordered by E. Manchester to the south, by 85th Street to the north, and by an alley ("the Alley") to the east. The Alley is also the western border of a lot that Defendants have used for their scrap metal operations since at least March of 1999 ("the Lot"). The Lot is bordered to the north by 85th Street, to the south by E. Manchester and to the east by South Alameda Street. The Yard, the Lot, 85th Street, and the Alley are collectively referred to as the "Facility." Defendants have operated the SunLite scrap metal Facility since January 1994.

Plaintiff seeks summary judgment as to Defendants' liability for violations of the Act based on the following causes of action: (1) discharges of contaminated storm water in violation of permit prohibitions; (2) failure to develop and implement an adequate storm water pollution prevention plan ("SWPPP") in violation of permit prohibitions; and (3) failure to develop and implement an adequate monitoring and reporting plan ("MRP") in violation of permit prohibitions.

STATUTORY FRAMEWORK

The purpose of the Clean Water Act is to "restore and maintain the chemical, physical and biological integrity of the nation's waters." 33 U.S.C. § 1251(a). Section 301(a) of the Act prohibits all discharges not authorized by or in violation of the terms of a National Pollutant Discharge Elimination System permit ("NPDES permit") issued pursuant to Section 402 of the Act. In order to achieve the purpose of the Act, every NPDES permit must include those effluent limitations necessary to achieve "water quality standards," or standards adopted pursuant to the Act which protect identified uses of the receiving waters, such as swimming, fishing, and wildlife habitat. 33 U.S.C. § 1311(b)(1)(C). Section 402(p) of the Act establishes a framework for regulating municipal and industrial storm water discharges under the NPDES program. 33 U.S.C § 1342(p). States with approved NPDES programs are

authorized by Section 402(p) to regulate industrial storm water discharges through individual permits issued to dischargers and/or through the issuance of a single, statewide general permit applicable to all industrial storm water dischargers. 33.U.S.C § 1342.

California, through the State Water Resources Control Board, has elected to issue a statewide Industrial Activities Storm Water General Permit ("General Permit") to regulate industrial storm water discharges. The General Permit implements the requirements of the Act based on both technology based requirements and water quality based requirements which are parallel and complimentary. Thus the General Permit requires dischargers to implement Best Available Technology ("BAT") to control storm water pollution (General Permit, Provision B(3)); to develop and implement a SWPPP (General Permit, Section A(1)); and to visually monitor, sample storm water, and report annually to demonstrate compliance with the General Permit (General Permit, Section B(4), (5), (14)). Compliance with the BAT requirement is determined by demonstrating that pollutant concentrations in storm water discharges are below the "benchmark levels" set out by EPA. 60 Fed. Reg. 50824, Sept. 29, 1995. In addition, the General Permit protects water quality by prohibiting discharges of storm water which "cause or contribute" to an exceedance of any applicable water quality standard contained in a Statewide Water Quality Control Plan or the applicable Regional Water Quality Control Board's Basin Plan. General Permit, Receiving Water Limitation C(2).

DISCUSSION

I. Standard for Summary Judgment

Under Fed. R. Civ. P. 56(e), the party opposing a properly made and supported motion for summary judgment "must set forth specific facts showing that there is a genuine issue for trial." This Court must decide whether there exists "any genuine issues that properly can be resolved only by a finder of fact because they may reasonably be resolved in favor of either party." *Anderson v. Liberty Lobby, Inc.* 477 U.S. 242, 250 (1986).

An issue is genuine if there is evidence produced that would allow a reasonable jury to reach a verdict in favor of the non-moving party. *Id.* at 248. "Therefore, a mere 'scintilla' of evidence will not be sufficient to defeat a properly supported motion for summary judgment;

rather the non-moving party must introduce some significant probative evidence tending to support the claim." *Summers v. Teichert & Sons*, 127 F.3d 1150, 1152 (9th Cir. 1997).

II. Plaintiff BayKeeper's Motion for Summary Judgment

Plaintiff BayKeeper advances two arguments relating to Defendants' failure to comply with the technology based requirements of the General Permit: (1) that Defendants violated the General Permit and the Act by failing to develop or implement any SWPPP between January 1994 and January of 1998, and that Defendants continue to violate the General Permit based on the inadequacy of the SWPPP eventually developed; and (2) that Defendants violated the General Permit and the Act by failing to conduct any sampling and monitoring between January 1994 and November of 1998, and that the sampling and monitoring conducted after November 1998 was inadequate. BayKeeper also argues that Defendants violated the discharge prohibitions and receiving water limitations of the General Permit by discharging storm water containing pollutants. Defendants contest each of these claims, and argue that BayKeeper lacks standing to file suit.

A. Defendants Violated the Act by Failing to Develop and Implement an Adequate SWPPP

1. Defendants Had No SWPPP for their Operations From January 1994 to January 1998

BayKeeper argues that based on Defendants own documents, Defendants failed to develop or implement a SWPPP for Defendants' scrap metal operation prior to February of 1998. The Defendants do not dispute this claim. The General Permit requires that industries covered by the Permit must develop and implement a SWPPP prior to beginning industrial operations. General Permit, Provision A(1) and Attachment 3, Section VII. Therefore, the Court finds that Defendants' failure to develop and implement a SWPPP for the Facility between January 1994 and January 1998 is in violation of the General Permit and the Act.

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2. Defendants' SWPPP Fails to Achieve the BAT Requirement of the General Permit

BayKeeper further argues that although the Defendants developed a SWPPP in 1998, it is inadequate. BayKeeper points to the sampling data collected both by BayKeeper and the Defendants, which indicates that Defendants' discharge storm water containing concentrations of pollutants well above benchmark levels set out in the EPA Multi-Sector Permit. The benchmark levels set out in the EPA Multi-Sector Permit provide an objective standard to determine if BAT has been implemented; if storm water containing concentrations of toxic pollutants above benchmark levels is being discharged, further BMPs are required and thus BAT is not being achieved. 60 Fed. Reg. 50824, Sept. 29, 1995. Therefore, the Court finds that the Defendants' discharges of storm water containing pollutant concentrations above benchmark levels demonstrates Defendants' failure to achieve BAT in violation of the General Permit.

3. The SWPPP Fails to Include Storm Water Control Measures Implemented at the Yard

BayKeeper next argues that the SWPPP is inadequate for failing to describe berms and oleophilic socks which Defendants has installed at the Yard. The General Permit requires that the SWPPP describe all Best Management Practices to be implemented at the facility for all potential pollutants. General Permit, Section A(8). The SWPPP prepared by Defendants fails to include the use of berms and oleophilic socks at the Yard. Therefore, the Court finds that the Defendants failure to include the berms and oleophilic socks in the SWPPP is in violation of the General Permit and the Act.

4. The Placement of Filter Socks Fails to Meet the BAT Requirement of the General Permit

BayKeeper also argues that the SWPPP is inadequate because the primary storm water pollution control measure adopted by the Defendants, oleophilic filter socks at two discharge points, does not meet the BAT requirement of the General Permit. BayKeeper maintains that the filter socks placed at the two discharge points are designed primarily to reduce oil and

grease in storm water, not to remove metals such as those in the Defendants' discharge, and that the inadequacy of the Defendants' measures are confirmed by sampling data, showing pollutant concentrations far above benchmark levels. The Defendants provide no meaningful evidence to dispute BayKeeper's position. Therefore, the Court finds that oleophilic socks do not constitute BAT for storm water pollution control at the Defendants' scrap metal Facility, in violation of the General Permit.

5. The SWPPP Fails to Address Defendants' Use of 85th Street and the Alley for their Operations

BayKeeper also argues that the SWPPP is inadequate for failing to include the Defendants loading, unloading, and material transfer operations on the streets adjacent to its Yard. BayKeeper provided declarations, including photographs, describing these operations by the Defendants, such as forklifts unloading dumpsters containing oily scrap metal and other materials. In the course of discovery, Defendants admitted that they use 85th Street for loading and unloading trucks. The General Permit requires that all operations at a facility which are potential sources of pollutants, must be included and considered in a facility's storm water pollution prevention plan. General Permit, Section A(4)(d & e), A(6) and (7). Therefore, the Court finds that the Defendants' failure to include their operations on 85th Street and the Alley in the SWPPP to be in violation of the General Permit and the Act.

6. The SWPPP Fails to Address Defendants' Use of the Lot for their operations

BayKeeper then argues that the Defendants' failure to develop a SWPPP which includes their scrap material handling and storage operations conducted at the adjacent Lot is a violation of the General Permit requirements. BayKeeper submitted extensive evidence of the Defendants' use of the Lot for scrap metal storage with exposed sources of storm water pollutants since April of 1999. In the course of discovery, Defendants admitted to their use of the Lot since March of 1999. Defendants respond that their use of the Lot is only temporary. However, the Court notes that the General Permit has no exclusion for temporary use, and that the criteria for inclusion in the SWPPP and other General Permit compliance documents is

pollutant exposure, not duration of use. Therefore, the Court finds that the Defendants' failure to include the Lot in its SWPPP is in violation of the General Permit and the Act.

7. The SWPPP Fails to Address Track-off

Finally, BayKeeper argues that the failure of the Defendants to address the track off of pollutants from their Facility in the SWPPP is a violation of the General Permit. BayKeeper again submitted evidence, including photographs, of the track-off problem caused by Defendants' operations, and Defendants provide no evidence to dispute BayKeeper's position. The General Permit requires that all potential pollutant sources at a facility be identified and addressed in the SWPPP. General Permit, Section A(6), and (7). Therefore, the Court finds that Defendants' failure to address track off of pollutants in the SWPPP is in violation of the General Permit and the Act.

B. Defendants Violated the Act by Failing to Develop and Implement an Adequate Monitoring and Reporting Plan

As with the SWPPP, BayKeeper argues that the Defendants violated the Permit and the Act by operating its Facility either without a MRP, or with an inadequate MRP which was inadequately implemented.

1. Defendants Failed to Develop or Implement an MRP for its Operations From January 1994 to February 1998

Defendants do not dispute that until February 1998, Defendants had no MRP for its scrap metal operation. The General Permit requires that Defendants develop and implement a MRP for their operations prior to beginning industrial operations. General Permit, Provision B(1); Attachment 3, Section VII. The Court finds that the Defendants' failure to develop and implement a MRP prior to February 1998 is in violation of the General Permit and the Act.

2. Defendants Have Failed to Monitor and Report as Required By the General Permit Since January 1998

BayKeeper argues that even since February 1998, when Jay Lite drafted the MRP for SunLite, Defendants have failed to sample and monitor as required by the Permit, due both to

the inadequate MRP, and the Defendants' failure to follow the procedures set forth in the MRP.

i. Defendants Failed to Monitor and Report for the 1997-1998 Wet Season.

BayKeeper maintains that despite the Defendants' assertions to the contrary, a review of rain data for the 1997-98 rainy season indicates that in fact rain events of sufficient size to generate run-off occurred on business days, during SunLite's business hours and following three days of dry weather. BayKeeper has submitted rain data and the declaration of its expert to establish that each of these days qualified for sampling as required by the General Permit. The Defendants have submitted no meaningful evidence to refute BayKeeper's position. Therefore, the Court finds that the Defendants' failure to sample in the 1997-98 wet season, despite opportunities to do so, is in violation of the General Permit and the Act.

ii. The Defendants Sampled and Analyzed One, Rather than Two, Rain Events in 1998-1999

BayKeeper next argues that the Defendants failed to sample and analyze twice at each identified discharge point as required in the 1998-1999 wet season. BayKeeper again submits rain data and interpretive declarations in support of its position that ample qualifying rain events occurred which would have allowed the Defendants to sample. Defendants again submit no meaningful evidence which would create a dispute as to these facts. Therefore, the Court finds that the Defendants' failure to sample and analyze twice at each discharge location at the Facility is in violation of the General Permit and the Act.

iii. The MRP Fails to Address the Lot.

Finally, BayKeeper argues that the Defendants' failure to include the Lot in the MRP is in violation of the Act. As set out above, the Defendants' argument that temporary use is not included in General Permit coverage is not supported by the language of the Permit. Therefore, the Court finds that the Defendants' failure to include the Lot in their MRP is in violation of the General Permit and the Act.

C. Defendants' Discharges of Storm Water Containing Pollutants Violates the Receiving Water Limitations of the General Permit

BayKeeper argues that the Defendants' discharges of pollution in the Facility's storm water, which then flows to the Los Angeles River and San Pedro Bay, violates the receiving water limitations of the General Permit. BayKeeper points to sampling data collected by BayKeeper and the Defendants at the Facility, and to sampling data collected by Los Angeles County at storm drains discharging to the Los Angeles River. The level of pollutants in these samples are well above levels set forth by EPA in its National Toxics Rule (40 C.F.R. § 131.36) and by the State Water Resources Control Board in its Water Quality Control Plan for Ocean Waters of California ("Ocean Plan"), demonstrating that the Defendants' discharges cause or contribute to a violation of water quality standards. Finally, BayKeeper points out that the Los Angeles River and San Pedro Bay are already listed as impaired, or above water quality standards, by the EPA and the Regional Board. BayKeeper then argues that the Defendants have discharged pollutants at levels above water quality standards in violation of the Permit during each rain event over 0.1 inches since 1994.

The Defendants argue that the pollutants discharged from its scrap metal operations never reach receiving waters in sufficient concentrations to cause or contribute to environmental harm. The Defendants cite to a vague "natural purification" mechanism for removing pollutants, but provide no basis or independent verification of this process. Further, the Defendants do not credibly contest the validity of the data relied on by BayKeeper.

The Court notes that the standards applied by BayKeeper to determine whether storm water discharges cause or contribute to exceedances of water quality standards in Los Angeles area receiving waters in violation of the General Permit, the National Toxics Rule and the Ocean Plan, are those used by the Regional Water Quality Control Board. *See Regional Board Order No. 99-060, p. 34.* Therefore, the Court finds that the Defendants' discharges of storm water containing pollutants in excess of levels set out in the National Toxics Rule and/or the Ocean Plan causes or contributes to exceedances of water quality standards in the Los Angeles River and San Pedro Bay, in violation of the receiving water limitations of the General Permit.

BayKeeper has not provided sufficient evidence to support its allegation that the Defendants' discharge these concentrations of pollutants during every substantial rain event, however. The Defendants' operations may change from month to month, changing pollutant concentrations at the site. Therefore, the Court grants summary judgment for each of the eight discharges of contaminated storm water causing and/or contributing to a violation of the General Permit receiving water limitations on those occasions where sampling was conducted. The Court denies summary judgment as to BayKeeper's claim for receiving water limitation violations for each rain event at or over 0.1 inches.

CONCLUSION

BayKeeper's motion for summary judgement is granted in part and denied in part. Defendant SunLite Salvage Inc. is liable for its violations of the General Permit and the Act for its failure to develop and implement an adequate SWPPP and MRP every day since January 1994. Defendant Jay Lite is liable for his failure to develop and implement an adequate SWPPP and MRP every day since September 1, 1995, the date subsequent to his bankruptcy filing. Defendants are liable for discharging storm water in violation of the receiving water limitations of the General Permit on seven occasions.

IT IS SO ORDERED.

Dated: 12/15/99

WILLIAM D. KELLER
UNITED STATES
DISTRICT COURT JUDGE

SERVICE LIST

Santa Monica Baykeeper v Sunlite Salvage, Inc.; Jay Lite;
Glick Bros. Lumber Co.
Glick Bros. Lumber Co. v. Sunlite Salvage, Inc.
Case No. SA CV 99-4578 WDK (RCx)

Daniel Cooper, Esq.
Layne Friedrick, Esq.
Lawyers for Clean Water
c/o San Francisco BayKeeper
Presidio, Building 1004
P. O. Box 29921
San Francisco, CA 94129

Julia A. Olson, Esq.
1065 Church Street
San Francisco, CA 94114

PROOF OF SERVICE

STATE OF CALIFORNIA COUNTY OF LOS ANGELES

Under the laws of the State of California, I declare that I am employed in the office of a member of the Bar of the County of Los Angeles, State of California; over the age of 18 years; not a party to the within action; and, that my business address is 5757 Wilshire Boulevard, Suite 600, Los Angeles, CA 90036.

I further declare that on **August 9, 2000**, I served:

PETITION FOR PERMISSION TO APPEAL

on the parties listed on the attached list via:

[X] **MAIL**, by placing a true copy thereof in a sealed envelope addressed as set forth on the attached service list, with postage thereon fully prepaid.

[ ] **FAX**, by facsimile transmission of a true copy thereof to plaintiffs at **(415) 561-2223.** Attempts were made to fax said document to **(415) 821-2825**, however, that number did not receive the facsimile transmission.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that this declaration was executed at Los Angeles, California on **August 9, 2000.**

Dee Browning-Bloch, Declarant

Tab 16

COMPREHENSIVE COASTAL WATER QUALITY MONITORING PROGRAM

REPORT TO THE LEGISLATURE

JANUARY 2001

STATE WATER RESOURCES CONTROL BOARD
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

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EXECUTIVE SUMMARY

Water Code Section 13181 (Assembly Bill [AB] 1429, Chapter 899, Statutes of 1997) requires the State Water Resources Control Board (SWRCB) to submit to the Legislature, not later than January 1, 2001, a report that proposes the implementation of a comprehensive program to monitor the quality of the State's coastal waters. The law requires the proposed program to include specific information, such as an estimate of the total discharge of pollutants into coastal waters, the sources of pollution, methods for monitoring long-term changes in coastal water quality, standard protocols for sampling and data collection, actions to be undertaken to maintain and improve coastal water quality, and methods for monitoring storm water emissions, etc. It also requires the proposed program to utilize available information and to avoid duplicating existing and ongoing monitoring efforts (Appendix 1).

This report proposes a comprehensive coastal water quality monitoring and assessment program that will provide the information required by the statute. The program proposes to utilize the monitoring and assessment information provided by various existing water quality programs, including the National Pollutant Discharge Elimination System (NPDES) Permit Program and the federal Clean Water Act (CWA) Section 305(b) program. The program also proposes to utilize the information that will become available once the recently proposed Surface Water Ambient Monitoring Program (SWAMP) is implemented.

For information that could not be obtained from existing programs, such as pollutant mass emissions and storm water's contribution to the pollution, a special study was conducted and its findings and recommendations are included in this report.

The program also proposes the implementation of 61 management measures identified in the Plan for California's Nonpoint Source Pollution Control Program (NPS Plan) and implementation of the Best Management Practices (BMPs) prescribed in storm water permits, as necessary actions to maintain and improve coastal water quality.

Existing and Proposed Programs/Plans

- **State Mussel Watch Program.** The California State Mussel Watch Program provides a uniform statewide approach to the detection and evaluation of the occurrence of toxic substances in the State's bays, harbors, and estuaries. This is accomplished through the analysis of transplanted and resident mussels and clams. Information collected is used to identify waters impacted by toxic pollutants.

- **Coastal Fish Contamination Program**. The Coastal Fish Contamination Program is designed to determine whether it is safe to eat fish and shellfish from the California coastline. Fish and shellfish from coastal sport fishing areas are collected and analyzed for contaminants, and the results

obtained are evaluated to determine whether issuance of a fish consumption guidance or health advisory is needed for a particular sport fishing area.

- **NPDES Self-Monitoring Program.** The NPDES permit program requires point source and selected storm water dischargers to measure pollutants in their discharges and monitor the impacts on receiving waters near the point of discharge, including coastal waters, bays, and estuaries. The data collected by dischargers can be used to estimate pollutant loads from point source discharges into coastal waters.

- **CWA Section 305(b) Program.** As required by the federal CWA Section 305(b), the SWRCB prepares a biennial report on water quality assessment that includes coastal waters of the State. The 2000 California 305(b) Report on Water Quality [305(b) Report] provides information on the extent to which existing water quality objectives, standards, and guidelines are being met (Appendix 2).

- **Surface Water Ambient Monitoring Program.** The SWRCB recently proposed a comprehensive surface water ambient monitoring program or SWAMP, pursuant to Water Code Section 13192 (AB 982, Chapter 495, Statutes of 1999). The proposed SWAMP includes monitoring and assessment methods for determining changes in inland and coastal water quality over time (Appendix 3). SWAMP contains a coastal water monitoring component which proposes using probabilistic monitoring on a five-year rotating basis. SWAMP also proposes to maximize the use of available data generated by other monitoring programs, including compliance monitoring data; regional monitoring efforts, such as SCCWRP, San Francisco Estuary Institute (SFEI), and the Interagency Ecological Program (IEP); and other monitoring by federal, State and local agencies, volunteer groups, and university efforts.

- **Plan for California's Nonpoint Source Pollution Control Program.** The NPS Plan provides a series of management measures to be implemented by nonpoint source pollution dischargers and land use regulatory and management agencies for the purpose of maintaining and improving coastal water quality (Appendix 4).

Study of Pollutant Mass Emissions and Storm Water

The SWRCB contracted with the Southern California Coastal Water Research Project (SCCWRP), SFEI, and the San Jose State University's Moss Landing Marine Laboratory (MLML) for technical assistance in developing estimates of the total discharges of pollutants into the State's coastal watersheds, bays, estuaries, and coastal waters from all sources. Storm water proved to be the largest contributor of various pollutants to coastal waters. Loads from publicly-owned treatment works (POTWs) have declined sharply since 1971, while storm water loads have remained steady or have increased. The contractors' report, "Pollutant Mass Emissions to the Coastal Ocean of California: Initial Estimates and Recommendations to Improve Storm Water Emission Estimates" (SCCWRP Study), provides 14 recommendations for developing a method to determine the appropriate frequency of monitoring, relative load, and effectiveness of management practices to reduce pollution (Appendix 5).

SCCWRP also prepared the Quality Assurance Project Plan (QAPP) for the SWRCB's coastal water quality monitoring program and the national "Coastal 2000" program. The QAPP provides standard sampling and data collection protocols and a standard format for reporting monitoring results (Appendix 6).

I. INTRODUCTION

Assembly Bill (AB) 1429 (Chapter 899, Statutes of 1997) enacted Water Code Section 13181. The law requires the State Water Resources Control Board (SWRCB) to prepare an inventory of existing water quality monitoring activities within the State's coastal watersheds, bays, estuaries, and coastal waters. The SWRCB completed the inventory and submitted it to the Legislature in October 1998. It is available to the general public at the web site http://www.sfei.org/camp.

AB 1429 also requires the SWRCB to prepare and submit to the Legislature by January 1, 2001 a report that proposes the implementation of a comprehensive program to monitor the quality of the State's coastal waters. The pollutants to be monitored must include bacteria and viruses, petroleum hydrocarbons, heavy metals, and pesticides. The law requires that the proposed program utilize available information and avoid the duplication of existing and ongoing monitoring efforts to the extent feasible.

The SWRCB's current coastal water monitoring efforts are limited to the Coastal Fish Contamination Program (CFCP), the State Mussel Watch Program (SMWP), and the investigation of fecal contamination in commercial shellfish harvesting waters as required by the Shellfish Protection Act of 1993. The CFCP focuses strictly on monitoring and assessing coastal areas where sport fishing is a major activity for the assessment of human health risks. The baseline budget for CFCP is 3.0 Personnel Years (PYs) and $324,000 for contract support by the Department of Fish and Game (DFG). In Fiscal Year (FY) 2000-01, the SWRCB also committed $143,000 in contract funds to the Office of Environmental Health Hazard Assessment (OEHHA) to conduct human health risk assessments and develop health advisories. The SMWP monitors and evaluates the occurrence of toxic substances in the State's bays, harbors, and estuaries through the analysis of transplanted and resident mussels and clams. The annual budget for SMWP consists of 2.3 PYs and $250,000 for contract support provided by DFG. In addition to the CFCP and SMWP, an average of $100,000 in contract funds is expended annually for the studies of bacterial contamination in shellfish harvesting waters. In summary, the total budget for SWRCB's current efforts to monitor and assess coastal water quality is 5.3 PYs and $817,000 in contract funds.

However, these existing programs are designed to produce information to answer specific questions concerning human health risks related to fish consumption. While they provide a snapshot of water quality conditions in areas monitored, they do not provide a comprehensive overview of the quality of the State's coastal waters, nor do they answer specific questions concerning pollutant emission loads or sources of pollution, as required by AB 1429.

Subsequent to the passage of AB 1429 in 1997, the Legislature enacted AB 982 in 1999. AB 982 requires the SWRCB to assess and report on the State's monitoring programs and to prepare a proposal for a statewide comprehensive surface water quality monitoring program. The SWRCB has since submitted to the Legislature the Proposal for a Comprehensive Surface Water Ambient

Monitoring Program (SWAMP). Although SWAMP contains a coastal water monitoring component, its primary focus is on inland waters. For coastal waters, SWAMP proposes an approach using a probabilistic monitoring on a five-year rotating basis. This approach will provide ambient water quality information on coastal waters and will establish trends in water quality. However, it will not produce other specific information required by AB 1429, such as source identification and pollutants related to storm water emission.

Specifically, AB 1429 requires the proposed comprehensive program to include all of the following:

1. A determination of the extent to which water quality objectives are being met.
2. Sources of pollution where water quality objectives are not being met.
3. Methods for determining changes in coastal water quality over time.
4. An estimate of the total discharge of pollutants from all sources into coastal watersheds, bays, estuaries, and coastal waters.
5. Standard protocols for sampling and data collection.
6. A standard format for reporting monitoring results.
7. An estimate of program costs and an implementation schedule.
8. A method to report biennially to the public on coastal water quality.
9. Recommended actions to maintain and improve coastal water quality.
10. A description of the methods to be used to monitor the mass emissions from storm water.

This report proposes a comprehensive coastal water quality monitoring and assessment program that will provide information related to the above ten topics. Some of the requirements can be partially achieved by utilizing information generated by existing programs, i.e., CFCP, SMWP, National Pollutant Discharge Elimination System (NPDES) Self-Monitoring Program, and federal Clean Water Act (CWA) Section 305(b) Program. Others can be accomplished by implementing SWAMP (e.g., determining changes in water quality over time), and by implementing the Plan for California's Nonpoint Source Pollution Control Program (NPS Plan), and the Best Management Practices (BMPs) required by NPDES storm water permits (e.g., actions to maintain and improve coastal water quality).

Since SWRCB currently lacks comprehensive monitoring information to meet all the requirements of AB 1429, a special study (SCCWRP Study) was also conducted to estimate the total discharge of pollutants into the State's coastal waters, sources of those pollutants, and the contribution of storm water to the pollution. The Study was jointly conducted by the Southern California Coastal Water Research Project (SCCWRP), the San Francisco Estuary Institute (SFEI), and the San Jose State University's Moss Landing Marine Laboratory (MLML).

To estimate the total discharge of pollutants from all sources, the contractors used a model based mainly on rainfall, land use categories, and historic information on water quality of runoff from different land uses. The SCCWRP Study recommended 14 activities (which are discussed in detail in the following chapter) to improve the State's ability to monitor and assess pollutant loads originated from storm water runoff. These 14 activities are an essential part of the proposed comprehensive coastal water quality monitoring program.

Under contract with both the SWRCB and the U.S. Environmental Protection Agency (USEPA), SCCWRP also prepared a Quality Assurance Project Plan (QAPP) for the State's coastal water quality monitoring program and the national Coastal 2000 program. The QAPP provides standard sampling and data collection protocols and a standard format for reporting monitoring results. The SWRCB proposes to use these standard protocols and reporting format for coastal water quality monitoring.

II. POLLUTANT MASS EMISSIONS AND STORM WATER DISCHARGE

Although there are existing regional efforts to monitor the quality of the State's coastal waters, such as the Southern California Bight Project, the San Francisco Estuary Regional Monitoring Program, and SCCWRP, there is no comprehensive statewide data on pollutant mass emissions into coastal waters due to the lack of a comprehensive statewide monitoring program. The increased frequency of beach closures in recent years has elevated concerns over the impact of storm water runoff on coastal water quality. AB 1429 requires the SWRCB to include in the proposed comprehensive program the following:

> "A description of the method by which the state board shall develop a system for monitoring mass contaminant discharges, including, but not limited to, heavy metals, PCBs, PAHs, and pesticides from storm water at the point of discharge. The system shall provide for the appropriate frequency of monitoring for each specific contaminant. The system shall be designed to identify the relative contribution of contaminants in storm water to the overall anthropogenic discharges into near coastal waters. To the extent possible, the system shall be designed to determine the effectiveness of best management practices in reducing the discharges of contaminants to near coastal waters."

To accomplish this task, the SWRCB contracted with SCCWRP, SFEI, and MLML to assist in estimating mass emissions, i.e., the total amount of pollutants discharged into the ocean. The contractors' report, "Pollutant Mass Emissions to the Coastal Ocean of California: Initial Estimates and Recommendations to Improve Storm Water Emission Estimates," is attached as Appendix 5.

Using existing water quality data collected in the past ten years (1990-1999) by various sources and the average rainfall data collected over 30 years (1961-1990), the Study found that storm water runoff is a significant contributor of pollutants to coastal waters (Table 1). Storm water runoff contributed over 90 percent of the nitrate, cadmium, and lead in southern California. Storm water also contributed the majority of the cumulative load for suspended solids and chromium, copper, nickel, and zinc. Bacteria loads were high regardless of the land use or type of watershed. In many cases, there were not enough data available, especially for the central and north coast, to make adequate estimates of loads. Since there were insufficient data from all sources to compare loads for other nutrients or organic constituents (such as pesticides and petroleum hydrocarbons), the loads were estimated using a rainfall-runoff model. Uncertainty in the estimates of runoff loads are caused by variability in rainfall, lack of data on water quality, and variability of the laboratory equipment or methodology used to detect pollutants (detection limits). Variability in rainfall and water quality values can alter the estimates of statewide loads several-fold.

To address the problem of insufficient data and inadequate load estimates, the Study has recommended methods to improve storm water monitoring, data collection, and runoff load estimates, which are discussed later in this chapter. Those methods will be implemented by the SWRCB and Regional Water Quality Control Boards (RWQCBs) as part of this proposed comprehensive coastal water quality monitoring program.

Table 1. Estimates of total mass emissions (load in metric tons) to California's coastal waters and percent of load by source[1/]

		Percent of Load					
Pollutant	**Total Load**	**Runoff**	**POTWs**	**Industrial**	**Dredge**	**Platform**	**Power Plants**
Suspended Solids	302×10^6	78.8	2.8	0.04	18.0	0.34	<0.01
Nitrate-N	52×10^6	93.5	6.5	<0.01	0.0	ND[2/]	<0.01
Cadmium	15	91.8	6.0	0.10	2.1	<0.01	<0.01
Chromium	400	73.4	1.8	0.18	24.6	<0.01	<0.01
Copper	756	57.3	39.2	0.12	3.3	<0.01	<0.01
Lead	214	91.3	1.8	0.05	6.9	<0.01	<0.01
Nickel	494	74.0	8.6	0.27	17.2	0.01	<0.01
Zinc	1,672	68.6	27.0	0.33	4.1	<0.01	<0.01

[1]Adapted from the Report on Pollutant Mass Emissions to the Coastal Ocean of California: Initial Estimates and Recommendations to Improve Storm Water Emission Estimates (Appendix 5).
[2]No Data

Mass emissions from NPDES point source discharges, including sewage treatment plants, are well documented. Thus, SCCWRP was able to compare estimates of discharges from sewage treatment plants and storm water from early 1970s to mid-1990s. Although the discharge volumes for sewage treatment plants increased over the 25-year period, the mass emissions of most pollutants from sewage treatment plants decreased by about 95 percent for trace metals and 99 percent for DDT. This decline was the result of sewage treatment plants spending $5 billion in the past two decades to enhance source control, pretreatment, treatment, and reclamation processes, as well as the prohibited use of some chemicals, such as DDT. Conversely, loads from storm water runoff were similar or increased from the early 1970s to the mid-1990s (Table 2); therefore, the proportion of the total loads attributable to storm water increased from a minor (5 percent or less) to a major portion of emission for most trace metals. In fact, the only pollutants which have been substantially reduced in storm water runoff over time have been those targeted for source reduction, such as lead and DDT. Increases in the load of pollutants coming from storm water is most likely due to increased urbanization within coastal watersheds.

Table 2. Comparison of combined mass emissions from publicly owned treatment works (POTWs) and storm water runoff from 1971-72 to 1995-96 to the southern California Bight. (mt = metric tons; kg = kilograms; L = liters)

		Early 1970s			Mid-1990s		
		Combined	Percent of Load		Combined	Percent of Load	
Parameters	Unit	Total	Runoff	POTW	Total	Runoff	POTW
Flow	$L \times 10^9$	1,359	5.5	94.5	2,660	35.1	64.9
Susp Solids	$mt \times 10^3$	552	49.6	50.4	340	77.8	22.2
Nitrate	Mt	1,510	64.9	35.1	3,137	86.7	13.3
Phosphate	Mt	13,710	3.0	97.0	2,310	22.0	78.0
Cadmium	Mt	55	2.2	97.8	2	30.0	70.0
Chromium	Mt	674	3.7	96.3	20	56.9	43.1
Copper	Mt	585	3.1	96.9	96	37.4	62.6
Lead	Mt	301	29.9	70.1	17	71.9	28.1
Nickel	Mt	330	5.2	94.8	44	26.1	73.9
Zinc	Mt	1781	5.7	94.3	263	61.2	38.8
Total DDT	Kg	19,119	0.6	99.4	24	87.7	12.3

Recommendations for Monitoring and Assessing Storm Water

The SCCWRP Study identifies 14 recommendations to improve the ability to monitor and assess pollutant loads from storm water runoff. These recommendations can be grouped into three general categories: (1) fill data gaps, (2) improve load estimates, and (3) improve storm water monitoring for managers to fully utilize load information.

1. Recommendations to Fill Data Gaps

a. Compile water quality data for northern and central California. Collect additional data on storm water flows, water quality, and land use information.

b. Monitor agricultural land-use sites. Monitor different agricultural activities throughout the State to obtain representative constituent concentrations from agricultural land use. Currently, only limited data on concentration of pollutants in runoff are available.

c. Monitor for organophosphate (OP) pesticides. Sample a variety of land uses and a large number of watersheds to assess the extent of OP pesticide contributions statewide.

d. Install flow gauges at the mouths of representative coastal watersheds. Less than 25 percent of the discharge volume entering the coast is measured with flow gauges. Accurate runoff volumes are needed to estimate mass loadings.

e. Monitor other sources, such as atmospheric deposition. Assess inputs from sources which are not currently monitored and may contribute large quantities of pollutants.

f. Develop minimum standards for detection limits statewide. A data gap identified in all three coastal regions of the State was the bias introduced by varying detection limits. Depending on how they were treated mathematically, mass emission estimates varied by orders of magnitude for many constituents.

2. **Recommendations to Improve Load Estimates**

   a. Create a statewide watershed classification system. A classification system incorporating land use distribution, precipitation, geology, and development can help allow extrapolation among similar watersheds.

   b. Choose a subset of watersheds for evaluation. The classification system should be used to prioritize representative watersheds for detailed, long-term evaluation. These watersheds can be testing grounds for developing improved monitoring and modeling techniques. They can also serve as testing grounds for management actions.

   c. Evaluate more complex watershed models that include environmental fate and transport elements. Several models exist which may be useful, but models must be validated for their applicability to California.

   d. Determine the optimum monitoring design depending on program goals. Additional studies are needed to assess the optimum monitoring design for addressing specific management questions.

3. **Recommendations to Improve Storm Water Monitoring for Managers to Fully Utilize Load Information**

   a. Form regional storm water monitoring networks to increase comparability among monitoring programs, pool resources, and share information. Many issues are regional in nature and networking can serve as a tool for cost-effective research, cost sharing, and improved information exchange.

   b. Link storm water discharges and beneficial use impacts. Assess whether storm water discharges are resulting in beneficial use impairments. Ambient monitoring can determine if the potential risk is resulting in real water quality impacts.

   c. Refine tools that assess anthropogenic (resulting from human activities) versus natural loads in storm water. This may be particularly important for developing Total Maximum Daily Loads (TMDLs) for trace metals.

   d. Refine tools for assessing biological impacts in receiving waters. Monitoring agencies and regulators need a way to assess if storm water discharges are impacting aquatic biota in receiving waters.

III. REQUIRED PROGRAM ELEMENTS

AB 1429 requires that the proposed comprehensive coastal water quality monitoring program include ten specific elements. The following describes in detail how these elements will be accomplished by SWRCB and RWQCB staff:

1. **A determination of the extent to which existing water quality objectives, sediment quality guidelines, tissue contaminant burden guidelines, and health standards are being met.**

   Currently, the SWRCB lacks comprehensive monitoring information to make such a determination on the statewide basis. The biennial report submitted to the USEPA pursuant to the CWA Section 305(b) provides information on the extent to which existing water quality objectives, standards, and guidelines are being met in a statewide overview. A copy of the 305(b) Report is attached as Appendix 2. As additional coastal monitoring data are generated, the 305(b) Report will include the results of the assessment.

   The proposed SWAMP will also provide information on the ambient water quality in coastal waters. SWAMP also proposes to maximize the use of available data generated by other monitoring programs, including compliance monitoring data; regional monitoring efforts such as SCCWRP, SFEI, and the Interagency Ecological Program (IEP); and other monitoring by federal, State and local agencies, volunteer groups, and university efforts.

2. **A determination regarding the sources of pollution in areas where objectives, standards, and guidelines are not being met.**

   This requirement can be satisfied by the existing federal programs that are implemented by the SWRCB and RWQCBs, i.e., CWA Section 303(d) listing and the TMDL processes. Section 303(d) requires the states to compile a list of waters that do not meet water quality standards after technology-based limits are implemented. The Section 303(d) list identifies the pollutants causing the impairments and the sources of those pollutants for specific water bodies. The current 1998 Section 303(d) list will be reviewed and updated in year 2002.

   Federal law requires that TMDLs be established for each impaired water body on the Section 303(d) list. A TMDL must account for all sources of the pollutants that caused the water body to be listed. The RWQCBs are currently working on developing over 120 TMDLs, many of them for bays, estuaries, and coastal waters, including San Francisco Bay, Morro Bay, Malibu, Santa Monica Beaches, and San Diego Bay.

3. **Methods for determining the degree of improvement or degradation in coastal water quality over time.**

   There has not been a comprehensive effort to monitor coastal waters on a long-term basis to determine the changes in water quality over time due to the lack of resources. The proposed

SWAMP describes a sampling design for assessing status and trends of coastal and inland water quality. SWAMP lays out monitoring objectives and sampling design elements for evaluating how adequately beneficial uses are being protected. It describes a detailed approach to evaluating statewide status and trends in water quality. The proposed program includes a matrix of the appropriate water quality indicators to establish the trends in protecting various beneficial uses. It also includes an approach for developing a consistent set of data evaluation criteria critical to the determination of whether a water body's water quality is improving or declining. These approaches are recommended for monitoring
long-term trends in both inland and coastal waters. A copy of the proposed SWAMP is attached as Appendix 3.

4. **An estimate of the total discharge of pollutants from all sources into coastal watersheds, bays, estuaries, and coastal waters.**

The SCCWRP Study mentioned in the previous chapter details the total discharge of pollutants from all sources. The SCCWRP Study also includes recommendations for improving the methods to estimate emissions. A copy of the SCCWRP report is attached as Appendix 5.

5. **Standard protocols for sampling and data collection to maximize the usefulness of the data resulting from the program.**

The QAPP prepared by SCCWRP for the SWRCB and the national Coastal 2000 program describes standard operating procedures for sampling and data collection, as well as laboratory activities to ensure accuracy, precision, and representativeness of receiving water monitoring. Guidance methodology and acceptability criteria are established for adequate field sampling of sediments and water column parameters, and a performance-based approach is used for laboratory analysis. Only general guidance is given for how to analyze samples, but strict data quality objectives are established for constituents to be measured, maximum reporting limits, calibration requirements, and specified levels of analytical precision and accuracy. A copy of the QAPP is attached as Appendix 6.

The SWAMP proposed by the SWRCB describes the elements of the quality assurance/quality control protocols for collection and assessment of the highest quality monitoring data. SWAMP also outlines the information management protocols. A key feature of SWAMP is that all data will be easily available to the public and other interested parties via the SWRCB's web site on the Internet.

6. **A standard format for reporting monitoring results which maximizes access to and use of the data.**

The QAPP also contains an extensive system of data reporting quality control checks and is supplemented with an Information Management Plan (IMP). The IMP details the data management system, including database structure, lists of mandatory variables, and other data

requirements. The IMP is focused on standardized file transfer protocols that maximize data sharing among agencies and the public including USEPA's STORET and Environmental Monitoring and Assessment Program (EMAP) System, and the Southern California Bight Regional Monitoring System. This format assures that data can be easily accessed and downloaded over the Internet.

7. **An estimate of program costs and implementation schedule**.

The monitoring and assessment activities currently being implemented under existing programs are and will continue to be funded by each individual program contingent upon approval in the annual Governor's Budget. These programs include the CFCP, SMWP, and investigation of bacterial contamination in commercial shellfish harvesting waters as required by the Shellfish Protection Act of 1993. The total budget to support these programs is 5.3 PYs and $817,000 in contract funds. The attached SCCWRP report details the estimated costs and schedule for implementing the activities recommended by the SCCWRP study.

8. **A description of the method to report biennially to the public on coastal water quality.**

The SWRCB submits a water quality assessment report to the USEPA every two years pursuant to CWA Section 305(b). This report describes the status of water quality of rivers, streams, lakes, and other water bodies, including the groundwater of the State. The report is available to the public through the SWRCB's web site. Hard copies are also available to public and other interested parties upon request. In addition, as proposed in SWAMP, all future monitoring data will be easily accessible via the SWRCB's web site.

9. **Recommended actions to maintain and improve coastal water quality.**

Discharge of pollutants from point sources have significantly decreased since the enactment of the federal CWA, the State Porter-Cologne Water Quality Control Act, and the implementation of the NPDES permit program. As indicated in the SCCWRP Study, storm water runoff has become the significant contributor of pollutants to coastal waters. California began implementing the NPDES Storm Water Program Phase I in 1991 and is currently preparing for the issuance of permits under Phase II of the Program. Unlike the point source pollution control programs which rely on treatment of the waste stream to improve water quality, the storm water program relies on the reduction of pollutants at the source through the implementation of effective BMPs and public education. Therefore, it will take a long period of time for the storm water program to demonstrate clear effect on water quality improvement.

To maintain and improve coastal water quality will require continued efforts to control pollution from storm water runoff and other nonpoint sources. As part of this proposed coastal water quality monitoring program, the SWRCB recommends the implementation of the BMPs prescribed in storm water permits to reduce pollution carried by storm water runoff and the implementation of

management measures identified in the NPS Plan to control nonpoint source pollution. A copy of the NPS Plan is attached as Appendix 4.

10. **A description of the monitoring methods to be used to monitor the mass emissions from storm water including (a) the frequency of monitoring for each contaminant, (b) identification of the contribution from storm water, and (c) methods with which to determine the effectiveness of BMPs in reducing discharges to coastal waters.**

The SCCWRP Study provides recommendations for developing a method to determine the appropriate frequency, relative load contribution of each contaminant, and effectiveness of BMPs. The Study estimated statewide mass emissions from storm water flows with a model that extrapolated information from small areas to larger watersheds. The model was used because of insufficient data on concentrations of contaminants in storm water runoff from most coastal watersheds. The modeling approach can be used to assess changes in mass emissions under various scenarios, such as variations in rainfall, increased watershed development, and implementation of best management practices. The SCCWRP Study recommends improvements to modeling and storm water monitoring, including a study to assess the effectiveness and efficiency of storm water sampling.

IV. CONCLUSIONS

This report describes a means to implement a comprehensive program of monitoring and assessment of the quality of the State's coastal waters that will accomplish the ten directives of AB 1429. The proposed program consists of the continuation of several existing monitoring programs, adoption of standard protocols and reporting format identified in a recently developed national QAPP for monitoring coastal waters, as well as the implementation of new activities described in the proposed SWAMP and the recommendations of the SCCWRP Study. Specifically, the proposed program contains the following:

- Implementation of the coastal water monitoring portion of the Surface Water Ambient Monitoring Program described in Appendix 3. SWAMP also proposes to maximize the use of available data generated by other monitoring programs, including compliance monitoring data; regional monitoring efforts such as SCCWRP, SFEI, and IEP; and other monitoring by federal, State, and local agencies, volunteer groups, and university efforts.

- Implementation of the "Plan for California's Nonpoint Source Pollution Control Program" described in Appendix 4 and implementation of the BMPs prescribed in the storm water permits to improve the quality of coastal waters by reducing the impact of NPS pollution and storm water runoff.

- Continuation of CWA Section 305(b) and Section 303(d) reporting. The reports required by these federal programs provide a statewide overview of the extent to which existing water quality standards are being met, as well as a statewide list of impaired water bodies and the pollutants causing the impairments.

- Continuation of the NPDES discharger self-monitoring program. The information collected from the program can be used to estimate pollutant loads from point source discharges in coastal waters.

- Implementation of the QAPP described in the SCCWRP QAPP and the SWAMP.

- Implementation of the 14 activities recommended by the SCCWRP described in Chapter II of this report, to fill data gaps, improve load estimates, and improve managers' abilities to utilize load information.

Tab 17

SUPERIOR COURT OF CALIFORNIA

COUNTY OF SACRAMENTO

SAN FRANCISCO BAYKEEPER, a non-profit corporation, SANTA MONICA BAYKEEPER, a non-profit corporation, SAN DIEGO BAYKEEPER, a non-profit corporation, ORANGE COAST KEEPER, a non-profit corporation,

Petitioners,

v.

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD, A California State Agency,

Respondent.

Dept. 1

No. 99CS01929

RULING ON SUBMITTED MATTER

In August 1999, respondent State Water Resources Control Board (Board) adopted Water Quality Order 99-DWQ, issuing a National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity (General Construction Permit) pursuant to section 402(p) of the Federal Clean Water Act. (CWA; 33 U.S.C. § 1342(p).). This permit requires the owner and developer of each construction site in California to establish a Storm Water Pollution Prevention Plan (SWPPP) specifying Best Management Practices (BMPs) that will prevent all construction pollutants from contacting storm water and keep all products of erosion from moving off the construction site into receiving waters. (Administrative Record (AR), p. 900.) The BMPs are intended to serve as

effluent limitations required by the CWA and implementing regulations to prevent pollutants in storm water discharges from causing or contributing to a violation of applicable state water quality standards. (AR, p. 901A. See 33 U.S.C. §§ 1311(b)(1)(C), 1342(p)(3)(A); 40 C.F.R. § 122.44(d)(1)(i).)

Petitioners challenge the validity of the General Construction Permit, contending that it violates the CWA and its implementing regulations in a number of respects.

ANALYSIS OF CONTENTIONS

I

Petitioners contend that the requirements of the General Construction Permit attempt to prevent, but do not assure prevention of, exceedances of water quality standards by storm water discharges from construction sites. According to petitioners, the Board and its staff admit that the BMPs required by the permit will actually allow storm water discharges that have the reasonable potential to cause or contribute to exceedances of water quality standards in waters receiving the discharges, particularly those waters already designated as impaired for sediment, silt or turbidity under CWA section 303(d) (33 U.S.C. § 1313(d)). Therefore, petitioners conclude, the permit will result in water quality exceedances that violate:

- the basic CWA mandate for effluent limitations necessary to meet water quality standards (33 U.S.C. § 1311(b)(1)(C));
- the prohibition on permits for new discharges, including storm water discharges from construction sites, which will cause or contribute to exceedances of water quality standards (40 C.F.R. § 122.4(i));
- the requirement that storm water discharges from construction sites operated by small municipalities, which are currently exempt from the provisions of the General Construction Permit, be subject to the permit's effluent limitations when the municipal construction site storm water discharges will cause or contribute to exceedances of water quality standards (Intermodal Surface Transportation Efficiency Act, Pub.L. 102-240, Title 1, § 1061(c); 33 U.S.C. § 1342(p)(2)(E)); and

- the requirement of an anti-degradation analysis whenever discharges will contribute to water quality exceedances. (33 U.S.C. § 1313; 40 C.F.R. § 131.12.)

Petitioners are incorrect in contending that the General Construction Permit lacks effluent limitations designed to meet applicable water quality standards pursuant to the CWA and implementing regulations. The permit recognizes that storm water discharges associated with construction activity are potentially significant sources of pollutants and have the reasonable potential to cause or contribute to an excursion above water quality standards for sediment in water bodies listed as impaired for sediment under CWA section 303(d). (AR, pp. 780, 782, 904A.) Based on this recognition, the permit flatly prohibits storm water discharges that cause or threaten to cause pollution and requires the design and implementation of a SWPPP for each construction site so that storm water discharges will not cause or contribute to an exceedance of any applicable water quality standards in a Statewide Water Quality Control Plan or a Basin Plan issued by a Regional Water Quality Control Board. (Regional Board; AR, pp. 400-401, 430, 905; 905A.)

The SWPPP must identify, implement and maintain an elaborate array of BMPs to reduce or eliminate pollutants in storm water discharges from the construction site during construction and must maintain BMPs designed to reduce or eliminate pollutants in storm water discharges from the site after construction is completed. (AR, pp. 907A-911A.) In particular, BMPs must be identified, implemented and maintained to divert storm water around the construction site and minimize the exposure of storm water to contaminated soil, toxic materials, construction equipment and materials, and construction waste. (AR, pp. 908-909A.) Additionally, soil erosion and sediment control practices must be identified, implemented and maintained to prevent soil and sediment from leaving the construction site and moving into receiving waters at levels above preconstruction levels. (AR, pp. 909A 910A.) Upon a determination that storm water discharges from the construction site are causing or contributing to an exceedance of water quality standards in the receiving water, additional BMPs must be

immediately identified and implemented to reduce the pollutant load in the storm water discharges and prevent further contributions to water quality exceedances.[1] (AR p. 905A.)

Because the BMPs are designed to eliminate pollutants from construction site storm water discharges and to prevent a net increase of sediment load in storm water discharges over preconstruction levels (AR 910A), the BMPs qualify as water-quality-based effluent limitations that the storm water discharges from contributing to the exceedance of water quality standards in receiving waters, including waters listed as impaired for sediment under CWA section 303(d). So long as pollutants in storm water discharges do not cause or contribute to water quality exceedances, the CWA and implementing regulations do not prohibit the discharges even when the receiving waters are already impaired. (See *Arkansas v. Oklahoma* (1992) 503 U.S. 91, 108, 113-114 (discharges into waterway already degraded in water quality are not banned so long as the discharges have no actual "detectable" adverse effect on the water quality of the waterway). See also United States Environmental Protection Agency, Water Quality Guidance for Great Lakes System: Supplementary Information Document (March 1995), pp. 338-339 (under CWA, effluent limitation on pollutant discharged to water body that already exceeds water quality standard for that pollutant may properly be set at level equal to most stringent water quality criterion applicable to water body, but effluent limitation set at level equal to background concentration of pollutant in water body that exceeds water quality standard would be inconsistent with CWA environmental objectives).)

Accordingly, the General Construction Permit meets the mandate of the CWA for effluent limitations designed to meet water quality standards. The permit may properly cover construction sites which qualify as new dischargers without contravening the prohibition on new dischargers which will cause or contribute to water quality exceedances. (See 40 C.F.R. § 122.4(i).) And, in the absence of permitted discharges that will contribute to water

[1] Petitioners view such corrective action as an indication that the BMPs required by the General Construction Permit are narrative effluent limitations based, not on water-quality standards, but on best available or best practicable control technology. In the court's view, the corrective action highlights and reinforces the BMPs' function as narrative water-quality-based effluent limitations.

exceedances, the Board need not perform an anti-degradation analysis. (See 40 C.F.R. § 131.12.)[2]

II

Petitioners also contend that effluent limitations expressed numerically in terms of pollutant concentration or mass, not the BMPs required by the General Construction Permit, are the only effective means of assuring that storm water discharges do not cause or contribute to water quality standards. (See 40 C.F.R. §§ 122.44(d), 122.45(f).) Petitioners claim that effluent limitations on pollutants in storm water discharges from construction sites are feasible to express numerically in terms of pollutant concentration or mass, as evidenced by the numeric limitations in the NPDES permit for storm water discharges associated with construction activity in the Lake Tahoe Region. According to petitioners, the Board and its staff have relied on outdated and irrelevant analyses for their erroneous conclusion that such numeric effluent limitations are not feasible.

The court rejects petitioners' contention. Case law and regulations implementing the CWA indicate that BMPs may be used in lieu of numeric effluent limitations to control or abate the discharge of pollutants when numeric limitations are infeasible.[3] (40 C.F.R. §§ 122.44(k).

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[2] As indicated at page 2, lines 22-27, of this ruling, petitioners contend that the Board has improperly exempted small municipalities from the General Construction Permit pursuant to the Intermodal Surface Transportation Efficiency Act, Pub.L. 102-240, Title 1, § 1061(c). Petitioners indicate that such exemption is not permissible when, pursuant to 33 U.S.C. § 1342(p)(2)(E), the state has determined that a storm water discharge will contribute to a violation of a water quality standard or is a significant contributor of pollutants to waters. Petitioners point out that the Board's finding 8 in the General Construction Permit (AR, p. 904A) constitutes such a determination by the state. Although this contention may be meritorious, it is largely mooted by recently issued regulations of the United State Environmental Protection Agency related to the permitting of storm water discharges from construction sites operated by small municipalities. (See National Pollutant Discharge Elimination System—Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges, 64 Fed.Reg. 68722 (December 8, 1999).)

[3] The effluent limitations discussed in this section II of the ruling are separate and distinct from the sampling and analysis requirements discussed in section III, *post*. The effluent limitations are designed to prevent storm water discharges from causing or contributing to violations of water-quality standards in receiving waters and are expressed narratively in the form of BMPs because of the technical infeasibility of formulating them numerically. In contrast, the sampling and analysis requirements discussed in section III monitor the effectiveness of the BMPs and can feasibly measure the degree of turbidity and quantity or concentration of pollutants in storm water discharges and receiving waters during specific storm events. (See footnote 10, *post*, at p. 12.) Thus, it is not technically impractical or contradictory for permits to contain both BMPs that serve as narrative effluent limitations because of numeric infeasibility and sampling and analysis requirements that monitor the quantity of pollutants in storm water discharges and receiving waters. (*Ibid.*)

122.45(a); *Natural Resources Defense Council, Inc. v. Costle* (D.C.Cir.1977) 568 F.2d 1369, 1380.) Further, in issuing the General Construction Permit, the Board reasonably determined that numeric limitations were not feasible and that narrative effluent limitations in the form of BMPs would be used instead. (AR, pp. 400-401, 430, 785, 901A, 904A.)

The analyses on which the Board based its conclusion of infeasibility, contained in 1991 Board orders relating to storm water discharges from municipal separate storm sewers, refer to the substantial variability of storm events and pollutant constituents and concentrations in storm water runoff, a variability that makes it extremely difficult to formulate numeric effluent limitations bearing a reasonable relationship to established water quality standards. (AR, pp. 1472-1479, 1534-1539.) The continuing relevance of these 1991 analyses to the formulation of effluent limitations for the General Construction Permit is evident from comparable policy and permit analyses recently issued by the United States Environmental Protection Agency (USEPA), the federal agency responsible for overall CWA implementation and enforcement.

In its Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits, the USEPA noted "the typical lack of data on which to base numeric water quality-based effluent limitations (expressed as concentration and mass). . . ."[4] (61 Fed.Reg. 43761 (August 26, 1996), 57425, 57426-57427 (November 6, 1996), submitted by Board counsel at hearing on petition.) On the basis of this lack of data, the agency adopted a permitting approach providing for the attainment of water quality standards through the use of BMPs that are progressively expanded and better tailored as data become available. This permitting approach requires the incorporation of more specific numeric limitations into storm water permits to meet water quality standards *only* in cases where such numeric limitations have been appropriately developed or where sufficient information exists for their development.[5] (*Ibid.*)

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[4] The USEPA's reference to numeric effluent limitations expressed in terms of concentration and mass serves to reinforce the court's conclusion, contrary to petitioners' contention, that narrative effluent limitations in the form of BMPs can be used instead of either effluent limitations expressed in terms of pollutant mass (40 C.F.R. § 122.45(f)) or effluent limitations expressed in terms of pollutant concentration (40 C.F.R. § 122.44(d)) when the formulation of mass or concentration limitations are found to be infeasible pursuant to 40 C.F.R. §§ 122.44(k) and 122.45(a). It appears that the USEPA considers both effluent limitations based on concentration and effluent limitations based on mass to be numeric and subject to the same feasibility analysis.

[5] This permitting approach provides a basis for understanding the use of narrative effluent limitations in the

The USEPA has followed this interim storm permitting approach of using BMPs instead of numeric effluent limitations in its NPDES General Permit for Storm Water Discharges from Construction Activities in USEPA Region 4. (63 Fed.Reg. 15622 (March 31, 1998).) It has expressly relied on the permitting approach in the course of adopting NPDES regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges. (64 Fed.Reg. 68722, 68752-68753, 68788-68780 (December 8, 1999).) In that later document, the agency has reiterated and detailed its analysis that the methodology currently available for the derivation of numeric water-quality-based effluent limitations on pollutants in storm water discharges is significantly complicated by the variability of storm waters and its judgment that storm water pollutants are appropriately controlled by BMPs rather than numeric effluent limitations. (*Ibid.*)

Accordingly, the Board had a substantial factual basis for concluding that numeric effluent limitations on pollutants in storm water discharges from construction sites are not feasible. Given the regulatory and case law permitting narrative effluent limitations in the form of BMPs when numeric limitations are infeasible, the Board can properly require BMPs instead of numeric limitations in the General Construction Permit.[6]

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form of BMPs in the General Construction Permit in contrast to the use of numeric effluent limitations in the NPDES permit for storm water discharges associated with construction activity in the Lake Tahoe Region. The Lake Tahoe Region is a single hydrologic unit where sufficient data could be and was obtained to formulate appropriate numeric effluent limitations. Such data is not available for the vast and various California environments covered by the General Construction Permit and is difficult to obtain for the reasons set forth by the Board in its 1991 orders (AR, pp. 1472-1479, 1534-1539) and by the USEPA in its interim permining approach.

[6] Because the court concludes that the Board properly required BMPs instead of infeasible numeric effluent limitations in the General Construction Permit, the court need not resolve the Board's claim that narrative effluent limitations in the form of BMPs may be used instead of numeric limitations even when numeric limitations are not infeasible and the Board's claim that sediment is not a "chemical pollutant" within the meaning of 40 C.F.R. § 122.44(d)(1)(vi). The court notes only that neither of these claims appear to have support in the language of the CWA, its implementing regulations before and after recent amendments, related USEPA comments published in the Federal Register, case law, or even the Board's specific findings and comments in the administrative record of proceedings on the General Construction Permit.

With respect to petitioners' request for judicial notice of an NPDES general permit for storm water discharges associated with construction activity issued by the State of Georgia in June 2000, the court finds that the permit does not contain, as petitioners claim, numeric effluent limitations on pollutants in storm water discharges; rather the permit contains numeric sampling requirements to monitor the impact of storm water discharges on the water quality of receiving waters and to identify violations of permit requirements for the design, installation and maintenance of BMPs. Accordingly, the permit is not relevant to petitioners' contention that the formulation of numeric effluent limitations for storm water discharges from construction sites is feasible, and petitioners' request for judicial notice is denied.

III

Petitioners contend that the General Construction Permit fails to provide a meaningful mechanism for a permittee, the Board or a Regional Board to determine whether the BMPs required by the permit are effectively preventing pollutants in storm water discharges from exceeding applicable water quality standards. According to petitioners, the mandate in CWA section 301(b)(1)(C) (33 U.S.C. § 1311(b)(1)(C)) for effluent limitations that prevent water quality exceedances necessitates a permit requirement for water sampling to monitor and demonstrate the BMPs' effectiveness in preventing water quality exceedances. The court agrees that such a sampling requirement is required by the CWA, at least in cases where construction site storm water is discharged into waters already impaired for sediment or silt and in cases where it is otherwise impossible to identify whether pollutants known to occur on a construction site are in storm water runoff in sufficient quantities to contribute to water quality exceedances in receiving waters.

CWA section 308 (33 U.S.C. § 1318) directs the Board, as the state permitting authority, to require the owner or operator of any point source, including a construction site which discharges storm water, to perform such reporting, monitoring and sampling as are necessary to develop effluent limitations pursuant to CWA sections 301(b)(1)(C) and 402(p)(3)(A) (40 U.S.C. §§ 1311(b)(1)(C) and 1342(p)(3)(A)), determine violations of any such effluent limitations, and otherwise carry out permitting programs. As reflected in the USEPA's interim permitting approach cited at page 6 of this ruling, the reporting, monitoring and sampling requirement of CWA section 308 applies to the enforcement of narrative water-quality-based effluent limitations set forth as BMPs in storm water permits: "Each storm water permit should include a coordinated and cost-effective monitoring program to gather necessary information to determine the extent to which the permit provides for attainment of applicable water quality standards and to determine the appropriate conditions or limitations for subsequent permits."[7]

[7] The USEPA's interim permitting approach further indicates: "Such a monitoring program may include ambient monitoring, receiving water assessment, discharge monitoring (as needed), or a combination of monitoring procedures designed to gather necessary information." (61 Fed.Reg. 43761, 57426.)

(61 Fed.Reg. 43761 (August 26, 1996). 57426. 57428 (Answer 9) (November 6. 1996).) In addition, the reporting, monitoring and sampling requirement may be used to identify violations of water-quality-based effluent limitations in storm water permits and bar, in accordance with 40 C.F.R. § 122.4(d) or (i), further permitting of storm water discharges identified as contributors to violations of water quality standards.

The General Construction Permit seeks to implement the reporting, monitoring and sampling requirement of CWA section 308 by obligating construction site owners and operators to use specially trained personnel to visually inspect specified locations for storm water discharges from the site to receiving waters. (AR, pp. 902A, 912-913.) The personnel must conduct these visual inspections and record their observations prior to anticipated storm events, after actual storm events, and during extended storm events for the purposes of evaluating, among other things, whether BMPs identified in the site SWPPP are reducing pollutant loadings adequately and are properly installed and functioning and whether additional control practices or corrective maintenance activities are needed. (*Ibid.*) Regional Boards have discretionary authority under the permit to require additional monitoring and reporting, including sampling of construction site discharges to water bodies listed as impaired for sediment or silt under CWA section 303(d). (AR, pp. 906A-907, 912A, 920, 922-923.)

The visual inspections required by the General Construction Permit appear adequate to comply with the mandates in CWA sections 301(b)(1)(C) and 308 where the inspections reveal that the BMPs have averted contact between storm waters and construction site pollutants or have stopped storm waters from moving off site into receiving waters. In such cases, water sampling is unnecessary to reliably determine that the BMPs are preventing storm water discharges from causing or contributing to water quality exceedances in the receiving waters.

The adequacy of the visual inspections to comply with the mandates in CWA sections 301(b)(1)(C) and 308 is far less clear where the inspections reveal storm water discharges from construction sites but do not reveal the presence or level of construction site pollutants in the discharges with any specificity. The visual inspections provide only inexact and subjective assessments of the amount of sediment in storm water discharges and do not measure

whether BMPs are restricting the sediment to the preconstruction levels allowed by the permit. (See AR, p. 391, 910A (limitation of no "net increase" of sediment load in storm water discharges); Reporter's Transcript (March 31, 2000), pp. 11-12.) Nor do the visual inspections identify the amount of other pollutants that are known to occur (or should be known to occur as a result of identification in an SWPPP) on the construction site and that are may be contained in storm water discharges from the site in forms not detectable visually. (See AR, p. 426.) In these cases, where BMPs do not stop all construction site storm water discharges or prevent all contact between storm water and construction site pollutants,[8] water sampling and analysis are necessary to determine whether the levels of sediment and other pollutants in the storm water discharges are causing or contributing to water quality exceedances in receiving waters and whether additional BMPs are required to prevent such exceedances.[9]

At a minimum, water sampling and analysis are necessary to satisfy the mandates in CWA sections 301(b)(1)(C) and 308 where sediment in storm waters is discharged from construction sites to waters already impaired for sediment or silt. Such discharges of sediment may exceed preconstruction levels and have a reasonable potential to cause or contribute to exceedances of water quality standards for sediment. (See AR, p. 784. See also *American Iron and Steel Institute v. Environmental Protection Agency* (D.C.Cir.1997) 115 F.3d 979, 1000

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[8] Counsel for the Board suggested at the hearing on the petition that the General Construction Permit requires BMPs that contain construction site pollutants other than sediment, thereby prevent contact between the pollutants and storm water, and eliminate the possibility that pollutants in storm water discharges could contribute to water quality exceedances in receiving waters. (Reporter's Transcript of Proceedings, March 31, 2000), pp. 15-17, 24, 28.) However, Board staff appear to have recognized the possibility of contact between storm water and some construction site pollutants and the concomitant necessity of monitoring the effectiveness of BMPs in preventing storm water discharges of visually nondetectable construction pollutants and site contaminants preexisting the construction in quantities that contribute to water quality exceedances in receiving waters. (See AR, p. 426. See also Reporter's Transcript of Proceedings, *supra*, at pp. 29, 35.)

[9] Despite some ambiguity in its requirements, the General Construction Permit does not appear to require BMPs that stop all storm water discharges from construction sites. Indeed, the permit contemplates some discharge will occur when it limits sediment in storm water runoff to preconstruction levels. (See AR, pp. 910A, 429. See also Reporter's Transcript (March 31, 2000), pp. 7, 14, 17.) Similarly, the USEPA has indicated that BMPs are required, not to prevent all storm water discharges from construction sites, but to control the volume of storm water discharged and to reduce the amount of sediment and other pollutants in the discharges to a level where the pollutants do not contribute to water quality exceedances in receiving waters. (USEPA, NPDES General Permit for Storm Water Discharges from Construction Activities for USEPA Region 4, 63 Fed.Reg. 15631-15632 (March 31, 1998).) The USEPA notes that storm water management measures implemented at many construction sites pursuant to a SWPPP and its General Permit will be able to provide for the removal of at least 80 percent of total suspended solids (TSS), i.e., sediment, from storm runoff. (*Ibid.*)

(USEPA was not arbitrary and capricious in presuming that point source contributing pollutant to water body in which standard for that pollutant was exceeded has reasonable potential to contribute to exceedance). And see USEPA, Draft and Final Modification of the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges from Construction Activities for USEPA Region 4, 64 Fed.Reg. 39136, 39137 (July 21, 1999), attached as Exhibit F to Petitioners' Memorandum of Points and Authorities in Support of Petition; 65 Fed.Reg. 25122, 25125, 25137 (April 28, 2000) (storm water discharged directly from construction site to waters impaired for total suspended solids must be monitored pursuant to CWA § 308 and 40 C.F.R. § 122.4(d) or (i) to aid in determination of whether discharges are contributing to impairment of waters; such monitoring is based on premise that discharge of particulates from construction site to receiving water already impaired by particulate pollution has potential to contribute to further impairment of receiving water).)

Water sampling and analysis are also necessary to satisfy the mandates in CWA sections 301(b)(1)(C) and 308 where pollutants known to occur on a construction site do not appear in a form that can be visually observed in storm water runoff. As explained by Board staff: "Dischargers need to account for all sources of pollutants in their SWPPP and implement correct BMPs. If the discharger cannot visually observe a pollutant known to occur, which will be applied, or stored on a construction site, the SWPPP must provide for sampling and/or additional monitoring to identify pollutants in storm water runoff." (AR, pp. 426, 908A-909.)

It is true that the Board has provided the Regional Boards with discretionary authority under the General Construction Permit to require additional monitoring, including sampling and analysis of storm water discharges from construction sites to receiving waters listed as impaired for sediment or silt under CWA section 303(d). (AR, pp. 780, 906A-907.) The Board's grant of that discretionary authority and its exercise by the Regional Boards using their special expertise is entitled to substantial deference by this court. Nonetheless, if the permit is to comply with the mandates in CWA sections 301(b)(1)(C) and 308, it appears that the Regional Boards' discretionary authority can be reasonably exercised only in favor of permit sampling and analysis requirements to determine whether BMPs are preventing sediment in

storm water discharges from exceeding preconstruction levels in waters already impaired for sediment or silt and whether BMPs are preventing known but visually undetectable construction site pollutants in storm water discharges from causing or contributing to water quality exceedances in receiving waters. Thus if the permit is to comply with the CWA mandates, the imposition of these sampling and analysis requirements need not, and realistically cannot, await Regional Board orders on a case-by-case basis triggered, not by detailed information about pollutant sources, discharge locations, receiving waters and BMPs in SWPPPs, but only by general and unrevealing information in Notices of Intent.[10] (See AR, pp. 918-921A.)

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[10] The court finds no basis for concluding, as suggested by intervenors, that the specific sampling and analysis requirements under consideration here are either technically infeasible or unduly burdensome. Since 1991, the Board has included sampling and analysis requirements in general permits for discharges of storm water associated with industrial activities other than construction activities. (See State Water Resources Control Board, Orders 91-13-DWQ and 97-03-DWQ (4/17/97), excerpts of which are set forth as Exhibit U to Petitioners' Reply.) These previous permits require sampling and analysis of storm water discharges and receiving waters to monitor the effectiveness of narrative effluent limitations, expressed as BMPs, in preventing pollutants in storm water discharges from causing or contributing to water quality exceedances in receiving waters. The sampling and analysis requirements appear to be narrowly drawn so as to impose as limited a burden as possible on industrial permittees while producing the data necessary to determine, pursuant to CWA §§ 301(b)(1)(C) and 308, the effectiveness of the BMPs.

Similarly, the USEPA has included specific sampling requirements in its general permit for storm water discharges from construction activities in USEPA Region 4 when storm water is discharged to waters listed as impaired for sedimentation or siltation under CWA § 303(d). These specific sampling requirements include (1) monitoring by grab sample, once a month during regular working hours, the first 30 minutes of a rain event for milliliters of settleable solids per liter, milligrams of total suspended solids per liter, and nephelometric turbidity units, (2) where the receiving water has flow upstream from the discharge, taking a background sample for settleable solids, total suspended solids and turbidity, and (3) submitting a report of the collected data to the USEPA monthly. (See 64 Fed.Reg. 39136, 39139-39140 (July 21, 1999), attached as Exhibit F to Petitioners' Memorandum of Points and Authorities in Support of Petition: 65 Fed.Reg. 25122, 25137 (April 28, 2000).) In issuing these specific sampling requirements, the USEPA iterated determinations that its general permit would not increase major costs associated with pollution prevention plans for construction activities and would not have a significant economic impact. (64 Fed. Reg. 39138; 65 Fed. Reg. 25123, 25124-25125. See USEPA, Interim Permitting Approach, 61 Fed. Reg. 57425, 57426 (storm water permit should include coordinated and cost-effective monitoring program to gather necessary information to determine extent to which permit provides for attainment of applicable water-quality standards).)

Here, the sampling and analysis requirements found by the court to be mandated by CWA §§ 301(b)(1)(C) and 308 are limited to those cases where visual inspection is inadequate to determine the effectiveness of narrative water-quality-based effluent limitations set forth as BMPs in construction site SWPPPs. In specifying the requirements in the General Construction Permit, the Board can use its technical expertise, as it has done in Orders 91-13-DWQ and 97-03-DWQ, to limit the sampling and analysis to no more than that necessary to determine whether sediment is being discharged into impaired waters at levels in excess of preconstruction levels and whether known but visually undetectable construction and construction site pollutants are present in storm water discharges in concentrations contributing to water quality exceedances in receiving waters. Such sampling and analysis requirements would clearly be less burdensome to implement for construction site permittees and Regional Boards than the individual permitting process that would otherwise be required pursuant to the Regional Boards' authorities under the General Construction Permit (AR, pp. 906A-907, 912A, 920, 922-925.)

RELIEF

For the foregoing reasons, the petition is granted in part. The court will order the issuance of a writ of mandate directing the Board to take all necessary steps to include provisions in its Water Quality Order 99-08-DWQ that require construction site permittees to identify and implement specified sampling and analysis procedures as part of their SWPPPs for the purpose of determining the effectiveness of the BMPs installed and maintained pursuant to the SWPPPs in (1) preventing sediment in storm water discharges from exceeding preconstruction levels and (2) preventing other construction site pollutants that have been identified in the SWPPPs and are visually undetectable in storm water discharges from causing or contributing to water quality exceedances in receiving waters. In all other respects, the petition is denied.

Counsel for petitioners is directed to prepare a proposed judgment and a proposed writ of mandate consistent with this ruling, submit the proposed judgment and writ to counsel for the Board for approval as to form, and then present them to the court.

Dated: JUL 27 2000

LLOYD G. CONNELLY

LLOYD G. CONNELLY
JUDGE OF THE SUPERIOR COURT

Tab 18

Westlaw.

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124 Cal.App.4th 866, 22 Cal.Rptr.3d 128, 34 Envtl. L. Rep. 20,149, 4 Cal. Daily Op. Serv. 10,694, 2004 Daily Journal D.A.R. 14,492
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Briefs and Other Related Documents

Court of Appeal, Fourth District, Division 1, California.

BUILDING INDUSTRY ASSOCIATION OF SAN DIEGO COUNTY et al., Plaintiffs and Appellants,
v.
STATE WATER RESOURCES CONTROL BOARD et al., Defendants and Respondents,
San Diego Baykeeper et al., Interveners and Respondents.

No. D042385.

Dec. 7, 2004.
Certified for Partial Publication. [FN1]

FN1. Pursuant to California Rules of Court, rule 976.1, this opinion is certified for publication with the exception of Discussion parts III, IV, V, VI and VII.

As Modified on Denial of Rehearing Jan. 4, 2005.

Background: Building industry association filed petition for writ of mandate against regional and state water control boards, challenging issuance of comprehensive municipal stormwater sewer permit, as including water quality standard provisions which allegedly were too stringent and impossible to satisfy, and so violative of federal Clean Water Act standard. Environmental groups intervened as defendants. The Superior Court, San Diego County, Wayne L. Peterson, J., denied petition. Association appealed.

Holding: The Court of Appeal, Haller, J., held that water boards were not prohibited by Clean Water Act "maximum extent practicable" standard of stormwater pollutant abatement from including provisions in permit which required that municipalities comply with state water quality standards.
Affirmed.

West Headnotes
[1] Administrative Law and Procedure ⚿749
15Ak749 Most Cited Cases
[1] Administrative Law and Procedure ⚿750
15Ak750 Most Cited Cases
In exercising its independent judgment when reviewing an administrative proceeding, a trial court must afford a strong presumption of correctness concerning the administrative findings, and the party challenging the administrative decision bears the burden of convincing the court that the administrative findings are contrary to the weight of the evidence.
[2] Administrative Law and Procedure ⚿683
15Ak683 Most Cited Cases
On review of a trial court's determination of a challenge to an administrative ruling, the Court of Appeal applies a substantial evidence standard when reviewing the trial court's factual determinations on the administrative record.
[3] Administrative Law and Procedure ⚿683
15Ak683 Most Cited Cases
On review of a trial court's determination of a challenge to an administrative ruling, an appellate court conducts a de novo review of the trial court's legal determinations, and is also not bound by the legal determinations made by the agency.
[4] Statutes ⚿219(1)
361k219(1) Most Cited Cases
Court of Appeal gives appropriate consideration to an administrative agency's expertise underlying its interpretation of an applicable statute.
[5] Statutes ⚿219(6.1)
361k219(6.1) Most Cited Cases
In determining the meaning of the Clean Water Act and its amendments, federal courts generally defer to the construction of a statutory provision by the Environmental Protection Agency (EPA) if the

disputed portion of the statute is ambiguous. Federal Water Pollution Control Act Amendments of 1972, § 101 et seq., 33 U.S.C.A. § 1251 et seq.

[6] Statutes ⇐219(6.1)
361k219(6.1) Most Cited Cases
Court of Appeal considers and gives due deference to statutory interpretations of Clean Water Act by regional and state water control boards. Federal Water Pollution Control Act Amendments of 1972, § 101 et seq., 33 U.S.C.A. § 1251 et seq.

[7] Environmental Law ⇐197
149Ek197 Most Cited Cases
Regional and state water control boards, in issuing comprehensive municipal stormwater sewer permit, were not prohibited by Clean Water Act "maximum extent practicable" standard of stormwater pollutant abatement from including provisions in permit which required that municipalities comply with state water quality standards; language of pertinent statute communicated basic principle that boards, which had been federally approved to issue permit, retained discretion to impose appropriate water pollution controls in addition to those that came within definition of "maximum extent practicable," this principle was consistent with legislative history and purpose of Act, and there was no showing that applicable water quality standards were unattainable. Federal Water Pollution Control Act Amendments of 1972, § 402(p)(3)(B)(iii), 33 U.S.C.A. § 1342(p)(3)(B)(iii).
See 4 Witkin, Summary of Cal. Law (9th ed. 1987) Real Property, §§ 66-69; Cal. Jur. 3d, Pollution and Conservation Laws, § 113 et seq.

[8] Statutes ⇐200
361k200 Most Cited Cases
While punctuation and grammar should be considered in interpreting a statute, neither is controlling unless the result is in harmony with the clearly expressed intent of the Legislature.

[9] Statutes ⇐214
361k214 Most Cited Cases
If the statutory language is susceptible to more than one reasonable interpretation, a court must look to a variety of extrinsic aids to interpreting the statute, including the ostensible objects to be achieved, the evils to be remedied, the legislative history, public policy, contemporaneous administrative construction, and the statutory scheme of which the statute is a part.

[10] Appeal and Error ⇐900
30k900 Most Cited Cases

[10] Appeal and Error ⇐901
30k901 Most Cited Cases
All lower court judgments and orders are presumed correct, and persons challenging them on appeal must affirmatively show reversible error.

[11] Appeal and Error ⇐757(3)
30k757(3) Most Cited Cases
A party challenging the sufficiency of evidence to support a judgment on appeal must summarize, and cite to, all of the material evidence, not just the evidence favorable to his or her appellate positions.

[12] Administrative Law and Procedure ⇐750
15Ak750 Most Cited Cases
The party challenging the scope of an administrative permit has the burden of showing the agency abused its discretion or its findings were unsupported by the facts.

***130** Latham & Watkins, David L. Mulliken, Eric M. Katz, Paul N. Singarella, Kelly E. Richardson and Daniel P. Brunton, San Diego, for Plaintiffs and Appellants.

Bill Lockyer, Attorney General, Mary Hackenbracht, Assistant Attorney General, Carol A. Squire, David Robinson and Deborah Fletcher, Deputy Attorneys General, for Defendants and Respondents.

David S. Beckman, Heather L. Hoecherl, Los Angles, and Anjali I. Jaiswal, for Interveners and Respondents.

Marco Gonzalez, for Intervener and Respondent San Diego BayKeeper.

Law Offices of Rory Wicks and Rory R. Wicks, San Diego, for Surfrider Foundation, Waterkeeper Alliance, The Ocean Conservancy, Heal the Bay, Environmental Defense Center, Santa Monica BayKeeper, Orange County CoastKeeper, Ventura CoastKeeper, Environmental Health Coalition, CalBeach Advocates, San Diego Audubon Society, Endangered Habitats League, and Sierra Club, Amici Curiae on behalf of Defendants and Respondents, and Interveners and Respondents.

HALLER, J.

This case concerns the environmental regulation of municipal storm sewers that carry excess water runoff to lakes, lagoons, rivers, bays, and the ocean. The waters flowing through these sewer systems have accumulated numerous harmful pollutants that are then discharged into the water body without receiving any treatment. To protect against the resulting water quality impairment, federal and state laws impose regulatory controls on storm sewer discharges. In particular, municipalities and other public entities are required to obtain, and comply with, a regulatory permit limiting the quantity and quality of water runoff that can be discharged from these storm sewer systems.

In this case, the California Regional Water Control Board, San Diego Region, (Regional Water Board) conducted numerous public hearings and then issued a comprehensive municipal storm sewer permit governing 19 local public entities. Although these entities did not bring an administrative challenge to the permit, one business organization, the Building Industry Association of San Diego County (Building Industry), filed an administrative appeal with the State Water Resources Control Board (State Water Board). After making some modifications to the permit, the State Water Board denied the appeal. Building Industry then petitioned for a writ of mandate in the superior court, asserting numerous claims, including that the permit violates state and federal law because the permit provisions are too stringent and impossible to satisfy. Three environmental groups intervened as defendants in the action. After a hearing, the trial court found Building Industry failed to prove its claims and entered judgment in favor of the administrative agencies (the Water Boards) and the intervener environmental groups.

On appeal, Building Industry's main contention is that the regulatory permit violates federal law because it allows the Water Boards to impose municipal storm sewer control measures more stringent than a federal standard known as "maximum extent practicable." (See *13133 U.S.C. § 1342(p)(3)(B)(iii).) [FN2] In the published portion of this opinion, we reject this contention, and conclude the Water Boards had the authority to include a permit provision requiring compliance with state water quality standards. In the unpublished portion of the opinion, we find Building Industry's additional contentions to be without merit. We affirm the judgment.

FN2. Further statutory references are to title 33 of the United States Code, unless otherwise specified.

RELEVANT BACKGROUND INFORMATION

I. *Summary of Relevant Clean Water Act Provisions*

Before setting forth the factual background of this particular case, it is helpful to summarize the federal and state statutory schemes for regulating municipal storm sewer discharges. [FN3]

FN3. The systems that carry untreated urban water runoff to receiving water bodies are known as "[m]unicipal separate storm sewer" systems (40 C.F.R. § 122.26(b)(8)), and are often referred to as "MS4s" (see 40 C.F.R. § 122.30). For readability, we will identify these systems as municipal storm sewers. To avoid confusion in this case, we will generally use descriptive names, rather than initials or acronyms, when referring to parties and concepts.

A. *Federal Statutory Scheme*

When the United States Congress first enacted the Federal Water Pollution Control Act in 1948, the Congress relied primarily on state and local enforcement efforts to remedy water pollution problems. (*Middlesex Cty. Sewerage Auth. v. Sea Clammers* (1981) 453 U.S. 1, 11, 101 S.Ct. 2615, 69 L.Ed.2d 435; *Tahoe-Sierra Preservation Council v. State Water Resources Control Bd.* (1989) 210 Cal.App.3d 1421, 1433, 259 Cal.Rptr. 132.) However, by the early 1970's, it became apparent that this reliance on local enforcement was ineffective and had resulted in the "accelerating environmental degradation of rivers, lakes, and streams...." (*Natural Resources Defense Council, Inc. v. Costle* (D.C.Cir.1977) 568 F.2d 1369, 1371 (*Costle*); see *EPA v. State Water Resources Control Board* (1976) 426 U.S. 200, 203, 96 S.Ct. 2022, 48 L.Ed.2d 578.) In response, in 1972 Congress

substantially amended this law by mandating compliance with various minimum technological effluent standards established by the federal government and creating a comprehensive regulatory scheme to implement these laws. (See *EPA v. State Water Resources Control Board, supra,* 426 U.S. at pp. 204-205, 96 S.Ct. 2022.) The objective of this law, now commonly known as the Clean Water Act, was to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." (§ 1251(a).)

The Clean Water Act employs the basic strategy of prohibiting pollutant emissions from "point sources" [FN4] unless the party discharging the pollutants obtains a permit, known as an NPDES [FN5] permit. (See *EPA v. State Water Resources Control Board, supra,* 426 U.S. at p. 205, 96 S.Ct. 2022.) It is "unlawful for any person to discharge a pollutant without obtaining a permit and complying with its terms." (*Ibid.;* § 1311(a); see ***132***Costle, supra,* 568 F.2d at p. 1375.) An NPDES permit is issued by the United States Environmental Protection Agency (EPA) or by a state that has a federally-approved water quality program. (§ 1342(a), (b); *EPA v. State Water Resources Control Board, supra,* 426 U.S. at p. 209, 96 S.Ct. 2022.) Before an NPDES is issued, the federal or state regulatory agency must follow an extensive administrative hearing procedure. (See 40 C.F.R. §§ 124.3, 124.6, 124.8, 124.10; see generally, Wardzinski, et al., *National Pollutant Discharge Elimination System Permit Application and Issuance Procedures* in The Clean Water Act Handbook (Evans, edit., 1994) pp. 72-74 (Clean Water Act Handbook).) NPDES permits are valid for five years. (§ 1342(b)(1)(B).)

FN4. The Clean Water Act defines a "point source" to be "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged." (§ 1362(14).)

FN5. NPDES stands for National Pollution Discharge Elimination System.

Under the Clean Water Act, the proper scope of the controls in an NPDES permit depends on the applicable state water quality standards for the affected water bodies. (See *Communities for a Better Environment v. State Water Resources Control Bd.* (2003) 109 Cal.App.4th 1089, 1092, 1 Cal.Rptr.3d 76.) Each state is required to develop water quality standards that establish " 'the desired condition of a waterway.' " (*Ibid.*) A water quality standard for any given water segment has two components: (1) the designated beneficial uses of the water body; and (2) the water quality criteria sufficient to protect those uses. (*Ibid.*) As enacted in 1972, the Clean Water Act mandated that an NPDES permit require compliance with state water quality standards and that this goal be met by setting forth a specific "effluent limitation," which is a restriction on the amount of pollutants that may be discharged at the point source. (§§ 1311, 1362(11).)

Shortly after the 1972 legislation, the EPA promulgated regulations exempting most municipal storm sewers from the NPDES permit requirements. (*Costle, supra,* 568 F.2d at p. 1372; see *Defenders of Wildlife v. Browner* (9th Cir.1999) 191 F.3d 1159, 1163 (*Defenders of Wildlife*).) When environmental groups challenged this exemption in federal court, the Ninth Circuit held a storm sewer is a point source and the EPA did not have the authority to exempt categories of point sources from the Clean Water Act's NPDES permit requirements. (*Costle, supra,* 568 F.2d at pp. 1374-1383.) The *Costle* court rejected the EPA's argument that effluent-based storm sewer regulation was administratively infeasible because of the variable nature of storm water pollution and the number of affected storm sewers throughout the country. (*Id.* at pp. 1377-1382.) Although the court acknowledged the practical problems relating to storm sewer regulation, the court found the EPA had the flexibility under the Clean Water Act to design regulations that would overcome these problems. (*Id.* at pp. 1379-1383.)

During the next 15 years, the EPA made numerous attempts to reconcile the statutory requirement of point source regulation with the practical problem

of regulating possibly millions of diverse point source discharges of storm water. (*Defenders of Wildlife, supra,* 191 F.3d at p. 1163; see Gallagher, *Clean Water Act* in Environmental Law Handbook (Sullivan, edit., 2003) p. 300 (Environmental Law Handbook); Eisen, *Toward a Sustainable Urbanism: Lessons from Federal Regulation of Urban Stormwater Runoff* (1995) 48 Wash. U.J. Urb. & Contemp. L. 1, 40-41 (Regulation of Urban Stormwater Runoff).)

Eventually, in 1987, Congress amended the Clean Water Act to add provisions that specifically concerned NPDES permit requirements for storm sewer discharges. (§ 1342(p); see ***133***Defenders of Wildlife, supra,* 191 F.3d at p. 1163; *Natural Resources Defense Council v. U.S. E.P.A.* (1992) 966 F.2d 1292, 1296.) In these amendments, enacted as part of the Water Quality Act of 1987, Congress distinguished between industrial and municipal storm water discharges. With respect to *industrial* storm water discharges, Congress provided that NPDES permits "shall meet all applicable provisions of this section and section 1311 [requiring the EPA to establish effluent limitations under specific timetables] ...." (§ 1342(p)(3)(A).) With respect to *municipal* storm water discharges, Congress clarified that the EPA had the authority to fashion NPDES permit requirements to meet water quality standards without specific numerical effluent limits and instead to impose "controls to reduce the discharge of pollutants to the maximum extent practicable ...." (§ 1342(p)(3)(B)(iii); see *Defenders of Wildlife, supra,* 191 F.3d at p. 1163.) Because the statutory language pertaining to municipal storm sewers is at the center of this appeal, we quote the relevant portion of the statute in full:

"(B) Permits for discharges from municipal storm sewers--

"(i) may be issued on a system- or jurisdiction-wide basis;

"(ii) shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers; and

"(iii) shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." (§ 1342(p)(3)(B).)

To ensure this scheme would be administratively workable, Congress placed a moratorium on many new types of required stormwater permits until 1994 (§ 1342(p)(1)), and created a phased approach to necessary municipal stormwater permitting depending on the size of the municipality (§ 1342(p)(2)(D)). (See *Environmental Defense Center, Inc. v. U.S. E.P.A.* (9th Cir.2003) 344 F.3d 832, 841-842.)

B. *State Statutory Scheme*

Three years before the 1972 Clean Water Act, the California Legislature enacted its own water quality protection legislation, the Porter-Cologne Water Quality Control Act (Porter-Cologne Act), seeking to "attain the highest water quality which is reasonable...." (Wat.Code, § 13000.) The Porter-Cologne Act created the State Water Board to formulate statewide water quality policy and established nine regional boards to prepare water quality plans (known as basin plans) and issue permits governing the discharge of waste. (Wat.Code, §§ 13100, 13140, 13200, 13201, 13240, 13241, 13243.) The Porter-Cologne Act identified these permits as "waste discharge requirements," and provided that the waste discharge requirements must mandate compliance with the applicable regional water quality control plan. (Wat.Code, §§ 13263, subd. (a), 13377, 13374.)

Shortly after Congress enacted the Clean Water Act in 1972, the California Legislature added Chapter 5.5 to the Porter-Cologne Act, for the purpose of adopting the necessary federal requirements to ensure it would obtain EPA approval to issue NPDES permits. (Wat.Code, § 13370, subd. (c).) As part of these amendments, the Legislature provided that the state and regional water boards "shall, as required or authorized by the [Clean Water Act], issue waste discharge requirements ... which apply and ensure compliance with all applicable provisions ***134** [of the Clean Water Act], together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent

nuisance." (Wat.Code, § 13377.) Water Code section 13374 provides that "[t]he term 'waste discharge requirements' as referred to in this division is the equivalent of the term 'permits' as used in the [Clean Water Act]."

California subsequently obtained the required approval to issue NPDES permits. (*WaterKeepers Northern California v. State Water Resources Control Bd.* (2002) 102 Cal.App.4th 1448, 1453, 126 Cal.Rptr.2d 389.) Thus, the waste discharge requirements issued by the regional water boards ordinarily also serve as NPDES permits under federal law. (Wat.Code, § 13374.)

II. *The NPDES Permit at Issue in this Case*

Under its delegated authority and after numerous public hearings, in February 2001 the Regional Water Board issued a 52-page NPDES permit and Waste Discharge Requirements (the Permit) governing municipal storm sewers owned by San Diego County, the San Diego Unified Port District, and 18 San Diego-area cities (collectively "Municipalities"). [FN6] The first 10 pages of the Permit contain the Regional Water Board's detailed factual findings. These findings describe the manner in which San Diego-area water runoff absorbs numerous harmful pollutants and then is conveyed by municipal storm sewers into local waters without any treatment. The findings state that these storm sewer discharges are a leading cause of water quality impairment in the San Diego region, endangering aquatic life and human health. The findings further state that to achieve applicable state water quality objectives, it is necessary not only to require municipalities to comply with existing pollution-control technologies, but also to require compliance with applicable "receiving water limits" (state water quality standards) and to employ an "iterative process" of "development, implementation, monitoring, and assessment" to improve existing technologies.

> FN6. Under the Clean Water Act, entities responsible for NPDES permit conditions pertaining to their own discharges are referred to as "copermittees." (40 C.F.R. § 122.26(b)(1).) For clarity and readability, we shall refer to these entities as Municipalities.

Based on these factual findings, the Regional Water Board included in the Permit several overall prohibitions applicable to municipal storm sewer discharges. Of critical importance to this appeal, these prohibitions concern two categories of restrictions. First, the Municipalities are prohibited from discharging those pollutants "which have not been reduced to the *maximum extent practicable....* " [FN7] (Italics added). Second, the Municipalities are ***135** prohibited from discharging pollutants "which cause or contribute to exceedances of receiving water quality objectives ..." and/or that "cause or contribute to the violation of water quality standards...." This second category of restrictions (referred to in this opinion as the "Water Quality Standards provisions") essentially provide that a Municipality may not discharge pollutants if those pollutants would cause the receiving water body to exceed the applicable water quality standard. It is these latter restrictions that are challenged by Building Industry in this appeal.

> FN7. The Permit does not precisely define this phrase, and instead, in its definition section, contains a lengthy discussion of the variable nature of the maximum extent practicable concept, referred to as "MEP." A portion of this discussion is as follows: "[T]he definition of MEP is dynamic and will be defined by the following process over time: municipalities propose their definition of MEP by way of their [local storm sewer plan]. Their total collective and individual activities conducted pursuant to the [plan] becomes their proposal for MEP as it applies both to their overall effort, as well as to specific activities (e.g., MEP for street sweeping, or MEP for municipal separate storm sewer maintenance). In the absence of a proposal acceptable to the [Regional Water Board], the [Regional Water Board] defines MEP." The definition also identifies several factors that are "useful" in determining whether an entity has achieved the maximum extent practicable standard, including "Effectiveness," "Regulatory Compliance," "Public

> Acceptance," "Cost," and "Technical Feasibility."

Part C of the Permit (as amended) qualifies the Water Quality Standards provisions by detailing a procedure for enforcing violations of those standards through a step-by-step process of "timely implementation of control measures ...," known as an "iterative" process. Under this procedure, when a Municipality "caus[es] or contribute[s] to an exceedance of an applicable water quality standard," the Municipality must prepare a report documenting the violation and describing a process for improvement and prevention of further violations. The Municipality and the Regional Water Board must then work together at improving methods and monitoring progress to achieve compliance. But the final provision of Part C states that "Nothing in this section shall prevent the [Regional Water Board] from enforcing any provision of this Order while the [Municipality] prepares and implements the above report."

In addition to these broad prohibitions and enforcement provisions, the Permit requires the Municipalities to implement, or to require businesses and residents to implement, various pollution control measures referred to as "best management practices," which reflect techniques for preventing, slowing, retaining or absorbing pollutants produced by stormwater runoff. These best management practices include structural controls that minimize contact between pollutants and flows, and non-structural controls such as educational and public outreach programs. The Permit also requires the Municipalities to regulate discharges associated with new development and redevelopment and to ensure a completed project will not result in significantly increased discharges of pollution from storm water runoff.

III. *Administrative and Trial Court Challenges*

After the Regional Water Board issued the Permit, the Building Industry, an organization representing the interests of numerous construction-related businesses, filed an administrative challenge with the State Water Board. Although none of the Municipalities joined in the administrative appeal, Building Industry claimed its own independent standing based on its assertion that the Permit would impose indirect obligations on the regional building community. (See Wat.Code, § 13320 [permitting any "aggrieved person" to challenge Regional Water Board action].) Among its numerous contentions, Building Industry argued that the Water Quality Standards provisions in the Permit require strict compliance with state water quality standards beyond what is "practicable" and therefore violate federal law.

In November 2001, the State Water Board issued a written decision rejecting Building Industry's appeal after making certain modifications to the Permit. (State of California Water Resources Control Board Order WQ2001-15 (Nov. 15, 2001).) Of particular relevance here, the State Water Board modified the Permit to make clear that the iterative enforcement process applied to the Water Quality Standards provisions in the Permit. But the State Water Board did not delete the Permit's ***136** provision stating that the Regional Water Board retains the authority to enforce the Water Quality Standards provisions even if a Municipality is engaged in this iterative process.

Building Industry then brought a superior court action against the Water Boards, challenging the Regional Board's issuance of the Permit and the State Water Board's denial of Building Industry's administrative challenge. [FN8] Building Industry asserted numerous legal claims, including that the Water Boards: (1) violated the Clean Water Act by imposing a standard greater than the "maximum extent practicable" standard; (2) violated state law by failing to consider various statutory factors before issuing the Permit; (3) violated the California Environmental Quality Act (CEQA) by failing to prepare an environmental impact report (EIR); and (4) made findings that were factually unsupported.

> FN8. Several other parties were also named as petitioners: Building Industry Legal Defense Foundation, California Business Properties Association, Construction Industry Coalition for Water Quality, San Diego County Fire Districts Association, and the City of San Marcos. However, because these entities were not

> parties in the administrative challenge, the superior court properly found they were precluded by the administrative exhaustion doctrine from challenging the administrative agencies' compliance with the federal and state water quality laws. Although these entities were named as appellants in the notice of appeal, they are barred by the exhaustion doctrine from asserting appellate contentions concerning compliance with federal and state water quality laws. However, as to any other claims (such as CEQA), these entities are proper appellants. For ease of reference and where appropriate, we refer to the appellants collectively as Building Industry.

Three environmental organizations, San Diego BayKeeper, National Resources Defense Council, and California CoastKeeper (collectively Environmental Organizations), requested permission to file a complaint in intervention, seeking to uphold the Permit and asserting a direct and substantial independent interest in the subject of the action. Over Building Industry's objections, the trial court permitted these organizations to file the complaint and enter the action as parties-interveners.

After reviewing the lengthy administrative record and the parties' briefs, and conducting an oral hearing, the superior court ruled in favor of the Water Boards and Environmental Organizations (collectively respondents). Applying the independent judgment test, the court found Building Industry failed to meet its burden to establish the State Water Board abused its discretion in approving the Permit or that the administrative findings are contrary to the weight of the evidence. In particular, the court found Building Industry failed to establish the Permit requirements were "impracticable under federal law or unreasonable under state law," and noted that there was evidence showing the Regional Water Board considered many practical aspects of the regulatory controls before issuing the Permit. Rejecting Building Industry's legal arguments, the court also stated that under federal law the Water Boards had the discretion "to require strict compliance with water quality standards" or "to require less than strict compliance with water quality standards." The court also sustained several of respondents' evidentiary objections, including to documents relating to the legislative history of the Clean Water Act.

Building Industry appeals, challenging the superior court's determination that the Permit did not violate the federal Clean Water Act. In its appeal, Building Industry does not reassert its claim that the Permit violates state law, except for its contentions pertaining to CEQA.

DISCUSSION

I. *Standard of Review*

"A party aggrieved by a final decision of the State Water Board may obtain review of the decision by filing a timely superior court petition for writ of mandate. (Wat. Code, § 13330, subd. (a).) Code of Civil Procedure section 1094.5 governs the proceedings, and the superior court must exercise its independent judgment in examining the evidence and resolving factual disputes. (Wat.Code, § 13330, subd. (d).) "In exercising its independent judgment, a trial court must afford a strong presumption of correctness concerning the administrative findings, and the party challenging the administrative decision bears the burden of convincing the court that the administrative findings are contrary to the weight of the evidence." (*Fukuda v. City of Angels* (1999) 20 Cal. 4th 805, 817, 85 Cal.Rptr.2d 696, 977 P.2d 693.)

[2][3][4][5][6] In reviewing the trial court's factual determinations on the administrative record, a Court of Appeal applies a substantial evidence standard. (*Fukuda v. City of Angels, supra,* 20 Cal.4th at p. 824, 85 Cal.Rptr.2d 696, 977 P.2d 693.) However, in reviewing the trial court's legal determinations, an appellate court conducts a de novo review. (See *Alliance for a Better Downtown Millbrae v. Wade* (2003) 108 Cal.App.4th 123, 129, 133 Cal.Rptr.2d 249.) Thus, we are not bound by the legal determinations made by the state or regional agencies or by the trial court. (See *Yamaha Corp. of America v. State Bd. of Equalization* (1998) 19 Cal.4th 1, 7-8, 78 Cal.Rptr.2d 1, 960 P.2d 1031.) But we must give appropriate consideration to an administrative agency's expertise underlying its interpretation of an applicable statute. [FN9] (*Ibid.*)

FN9. We note that in determining the meaning of the Clean Water Act and its amendments, federal courts generally defer to the EPA's statutory construction if the disputed portion of the statute is ambiguous. (See *Chevron U.S.A. v. Natural Res. Def. Council, Inc.* (1984) 467 U.S. 837, 842-844, 104 S.Ct. 2778, 81 L.Ed.2d 694 (*Chevron*).) However, the parties do not argue this same principle applies to a *state agency's* interpretation of the Clean Water Act. Nonetheless, under governing state law principles, we do consider and give due deference to the Water Boards' statutory interpretations in this case. (See *Yamaha Corp. of America v. State Bd. of Equalization, supra,* 19 Cal.4th at pp. 7-8, 78 Cal.Rptr.2d 1, 960 P.2d 1031.)

II. *Water Boards' Authority to Enforce Water Quality Standards in NPDES Permit*

Building Industry's main appellate contention is very narrow. Building Industry argues that two provisions in the Permit (the Water Quality Standards provisions) violate federal law because they prohibit the Municipalities from discharging runoff from storm sewers if the discharge would cause a water body to exceed the applicable water quality standard established under state law. [FN10] Building Industry contends that under federal law the "maximum extent practicable" standard is the "exclusive" measure that may be applied to municipal storm sewer discharges and a regulatory agency may not require a Municipality to comply with a state water quality standard if the required controls exceed a "maximum extent practicable" standard.

FN10. These challenged Permit provisions state "Discharges from [storm sewers] which cause or contribute to exceedances of receiving water quality objectives for surface water or groundwater are prohibited" (Permit, § A.2), and "Discharges from [storm sewers] that cause or contribute to the violation of water quality standards ... are prohibited" (Permit, § C.1).

In the following discussion, we first reject respondents' contentions that Building Industry waived these arguments by failing to raise a substantial evidence challenge to the court's factual findings and/or ***138** to reassert its state law challenges on appeal. We then focus on the portion of the Clean Water Act (§ 1342(p)(3)(B)(iii)) that Building Industry contends is violated by the challenged Permit provisions. On our de novo review of this legal issue, we conclude the Permit's Water Quality Standards provisions are proper under federal law, and Building Industry's legal challenges are unsupported by the applicable statutory language, legislative purpose, and legislative history.

A. *Building Industry Did Not Waive the Legal Argument*

Respondents (the Water Boards and Environmental Organizations) initially argue that Building Industry waived its right to challenge the Permit's consistency with the maximum extent practicable standard because Building Industry did not challenge the trial court's *factual* findings that Building Industry failed to prove any of the Permit requirements were "impracticable" or "unreasonable."

In taking this position, respondents misconstrue the nature of Building Industry's appellate contention challenging the Water Quality Standards provisions. Building Industry's contention concerns the scope of the authority given to the Regional Water Board under the Permit terms. Specifically, Building Industry argues that the Regional Water Board does not have the authority to require the Municipalities to adhere to the applicable water quality standards because federal law provides that the "maximum extent practicable" standard is the exclusive standard that may be applied to storm sewer regulation. This argument--concerning the proper scope of a regulatory agency's authority--presents a purely legal issue, and is not dependent on the court's factual findings regarding the practicality of the specific regulatory controls identified in the Permit.

Respondents alternatively contend that Building Industry waived its right to challenge the propriety of the Water Quality Standards provisions under federal law because the trial court found the provisions were valid under state law and Building Industry failed to reassert its state law challenges on appeal. Under the particular circumstances of this case, we conclude Building Industry did not waive its rights to challenge the Permit under federal law.

Although it is well settled that the Clean Water Act authorizes states to impose water quality controls that are more stringent than are required under federal law (§ 1370; see *PUD No. 1 of Jefferson Cty. v. Washington Dept. of Ecology* (1994) 511 U.S. 700, 705, 114 S.Ct. 1900, 128 L.Ed.2d 716; *Northwest Environmental Advocates v. Portland* (9th Cir.1995) 56 F.3d 979, 989), and California law specifically allows the imposition of controls more stringent than federal law (Wat.Code, § 13377) , the Water Boards made a tactical decision in the superior court to assert the Permit's validity based solely on federal law, and repeatedly made clear they were not seeking to justify the Permit requirements based on the Boards' independent authority to act under state law. On appeal, the Water Boards continue to rely primarily on federal law to uphold the Permit requirements, and their assertions that we may decide the matter based solely on state law are in the nature of asides rather than direct arguments. On this record, it would be improper to rely solely on state law to uphold the challenged Permit provisions.

B. *The Water Quality Standards Requirement Does Not Violate Federal Law*

[7] We now turn to Building Industry's main substantive contention on appeal--***139** that the Permit's Water Quality Standards provisions (fn.10, *ante*) violate federal law. Building Industry's contention rests on its interpretation of the 1987 Water Quality Act amendments containing NPDES requirements for municipal storm sewers. The portion of the relevant statute reads: "(B) Permits for discharges from municipal storm sewers ... [¶] ... [¶] (iii) shall require controls to reduce the discharge of pollutants to the *maximum extent practicable, including* management practices, control techniques and system, design and engineering methods, and such other provisions as the [EPA] Administrator or the State determines appropriate for the control of such pollutants." (§ 1342(p)(3)(B)(iii), italics added.)

1. *Statutory Language*

Focusing on the first 14 words of subdivision (iii), Building Industry contends the statute means that the maximum extent practicable standard sets the upper limit on the type of control that can be used in an NPDES permit, and that each of the phrases following the word "*including* " identify examples of "maximum extent practicable" controls. (§ 1342(p)(3)(B)(iii), italics added.) Building Industry thus reads the final "and such other provisions" clause as providing the EPA with the authority only to include *other* types of "maximum extent practicable" controls in an NPDES storm sewer permit.

Respondents counter that the term "including" refers only to the three identified types of pollution control procedures--(1) "management practices"; (2) "control techniques"; and (3) "system, design and engineering methods"-- and that the last phrase, "*and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants,*" provides the EPA (or the approved state regulatory agency) the specific authority to go beyond the maximum extent practicable standard to impose effluent limitations or water-quality based standards in an NPDES permit. In support, respondents argue that because the word "system" in section 1342(p)(3)(B)(iii) is singular, it necessarily follows from parallel-construction grammar principles that the word "system" is part of the phrase "system, design and engineering methods" rather than the phrase "control techniques and system." Under this view and given the absence of a comma after the word "techniques," respondents argue that the "and such other provisions" clause cannot be fairly read as restricted by the "maximum extent practicable" phrase, and instead the "and such other provisions" clause is a separate and distinct clause that acts as a second direct object to the verb "require" in the sentence. (§ 1342(p)(3)(B)(iii).)

Building Industry responds that respondents'

proposed statutory interpretation is "not logical" because if the "and such other provisions" phrase is the direct object of the verb "require," the sentence would not make sense. Building Industry states that "permits" do not generally "require" provisions; they "include" or "contain" them.

As a matter of grammar and word choice, respondents have the stronger position. The second part of Building Industry's proposed interpretation--"control techniques and system, design, and engineering methods"--without a comma after the word "techniques" does not logically serve as a parallel construct with the "and such other provisions" clause. Moreover, we disagree that the "and such other provisions" clause cannot be a direct object to the word "require." (§ 1342(p)(3)(B)(iii).) Although it is not the clearest way of articulating the concept, the language of section 1342(p)(3)(B)(iii) does communicate the ***140** basic principle that the EPA (and/or a state approved to issue the NPDES permit) retains the discretion to impose "appropriate" water pollution controls in addition to those that come within the definition of " 'maximum extent practicable.' " (See *Defenders of Wildlife, supra,* 191 F.3d at pp. 1165-1167.) We find unpersuasive Building Industry's reliance on several statutory interpretation concepts, *ejusdem generis, noscitur a sociis,* and *expressio unius est exclusion alterius,* to support its narrower statutory construction.

2. *Purpose and History of Section 1342(p)(3)(B)(iii)*

[8][9] Further, "[w]hile punctuation and grammar should be considered in interpreting a statute, neither is controlling unless the result is in harmony with the clearly expressed intent of the Legislature." (*In re John S.* (2001) 88 Cal.App.4th 1140, 1144, fn. 1, 106 Cal.Rptr.2d 476; see *Estate of Coffee* (1941) 19 Cal.2d 248, 251, 120 P.2d 661.) If the statutory language is susceptible to more than one reasonable interpretation, a court must also "look to a variety of extrinsic aids, including the ostensible objects to be achieved, the evils to be remedied, the legislative history, public policy, contemporaneous administrative construction, and the statutory scheme of which the statute is a part." (*Nolan v. City of Anaheim* (2004) 33 Cal.4th 335, 340, 14 Cal.Rptr.3d 857, 92 P.3d 350.)

The legislative purpose underlying the Water Quality Act of 1987, and section 1342(p) in particular, supports that Congress intended to provide the EPA (or the regulatory agency of an approved state) the discretion to require compliance with water quality standards in a municipal storm sewer NPDES permit, particularly where, as here, that compliance will be achieved primarily through an iterative process.

Before section 1342(p) was enacted, the courts had long recognized that the EPA had the authority to require a party to comply with a state water quality standard even if that standard had not been translated into an effluent limitation. (See *EPA v. State Water Resources Control Board, supra,* 426 U.S. at p. 205, fn. 12, 96 S.Ct. 2022; *PUD No. 1 of Jefferson Cty. v. Washington Dept. of Ecology, supra,* 511 U.S. at p. 715, 114 S.Ct. 1900; *Northwest Environmental Advocates v. Portland* (9th Cir.1995) 56 F.3d 979, 987; *Natural Resources Defense Council v. U.S.E.P.A.* (9th Cir.1990) 915 F.2d 1314, 1316.) Specifically, section 1311(b)(1)(C) gave the regulatory agency the authority to impose "any more stringent limitation including those necessary to meet water quality standards," and section 1342(a)(2) provided that "[t]he [EPA] Administrator shall prescribe conditions for [NPDES] permits to assure compliance" with requirements identified in section 1342(a)(1), which encompass state water quality standards. The United States Supreme Court explained that when Congress enacted the 1972 Clean Water Act, it retained "[w]ater quality standards ... as a supplementary basis for effluent limitations, ... so that numerous point sources despite individual compliance with effluent limitations, may be further regulated to prevent water quality from falling below acceptable levels...." (*EPA v. State Water Resources Control Board, supra,* 426 U.S. at p. 205, fn. 12, 96 S.Ct. 2022; see also *Arkansas v. Oklahoma* (1992) 503 U.S. 91, 101, 112 S.Ct. 1046, 117 L.Ed.2d 239.)

There is nothing in section 1342(p)(3)(B)(iii)'s statutory language or legislative history showing that Congress intended to eliminate this discretion when it amended the Clean Water Act in 1987. ***141** To the contrary, Congress added the NPDES storm sewer requirements to strengthen the Clean

Water Act by making its mandate correspond to the practical realities of municipal storm sewer regulation. As numerous commentators have pointed out, although Congress was reacting to the physical differences between municipal storm water runoff and other pollutant discharges that made the 1972 legislation's blanket effluent limitations approach impractical and administratively burdensome, the primary point of the legislation was to address these administrative problems while giving the administrative bodies the tools to meet the fundamental goals of the Clean Water Act in the context of stormwater pollution. (See Regulation of Urban Stormwater Runoff, *supra,* at pp. 44-46; Environmental Law Handbook, *supra,* at p. 300; Clean Water Act Handbook, *supra,* at pp. 62- 63.) In the 1987 congressional debates, the Senators and Representatives emphasized the need to prevent the widespread and escalating problems resulting from untreated storm water toxic discharges that were threatening aquatic life and creating conditions dangerous to human health. (See Remarks of Sen. Durenberger, 133 Cong. Rec. 1279 (Jan. 14, 1987); Remarks of Sen. Chaffee, 133 Cong. Rec. S738 (daily ed. Jan 14, 1987); Remarks of Rep. Hammerschmidt, 133 Cong. Rec. 986 (Jan. 8, 1987); Remarks of Rep. Roe, 133 Cong. Rec. 1006, 1007 (Jan. 8, 1987); Remarks of Sen. Stafford, 132 Cong. Rec. 32381, 32400 (Oct. 16, 1986).) This legislative history supports that in identifying a maximum extent practicable standard Congress did not intend to substantively bar the EPA/state agency from imposing a more stringent water quality standard if the agency, based on its expertise and technical factual information and after the required administrative hearing procedure, found this standard to be a necessary and workable enforcement mechanism to achieving the goals of the Clean Water Act.

To support a contrary view, Building Industry relies on comments by Minnesota Senator David Durenberger during the lengthy congressional debates on the 1987 Water Quality Act amendments. [FN11] (132 Cong. Rec. 32400 (Oct. 16, 1986); 133 Cong. Rec. S752 (daily ed. Jan. 14, 1987).) In the cited portions of the Congressional Record, Senator Durenberger states that NPDES permits "shall require controls to reduce the discharge of pollutants to the maximum extent practicable. Such controls include management practices, control techniques and systems, design and engineering methods, and such other provisions, as the Administrator determines appropriate for the control of pollutants in the stormwater discharge." (*Ibid.*) When viewing these statements in context, it is apparent that the Senator was merely paraphrasing the words of the proposed statute and was not intending to address the issue of whether the maximum extent practicable standard was a regulatory ceiling or whether he believed the proposed amendments limited the EPA's existing discretion. [FN12]

FN11. We agree with Building Industry that the trial court's refusal to consider this legislative history on the basis that it was not presented to the administrative agencies was improper. However, this error was not prejudicial because we apply a de novo review standard in interpreting the relevant statutes.

FN12. In the cited remarks, Senator Durenberger in fact expressed his dissatisfaction with the EPA's prior attempts to regulate municipal storm sewers. He pointed out, for example, that "[r]unoff from municipal separate storm sewers and industrial sites contain significant values of both toxic and conventional pollutants," and that despite the Clean Water Act's "clear directive," the EPA "has failed to require most stormwater point sources to apply for permits which would control the pollutants in their discharge." (133 Cong. Rec. 1274, 1279-1280 (daily ed. Jan. 14, 1987).)

***142** Building Industry's reliance on comments made by Georgia Representative James Rowland, who participated in drafting the 1987 Water Quality Act amendments, is similarly unhelpful. During a floor debate on the proposed amendments, Representative Rowland noted that cities have "millions of" stormwater discharge points and emphasized the devastating financial burden on cities if they were required to obtain a permit for each of these points. (133 Cong. Rec. 522 (daily ed. Feb. 3, 1987).) Representative Rowland then

explained that the amendments would address this problem by "allow[ing] communities to obtain far less costly single jurisdictionwide permits." (*Ibid.*) Viewed in context, these comments were directed at the need for statutory provisions permitting the EPA to issue jurisdiction-wide permits thereby preventing unnecessary administrative costs to the cities, and do not reflect a desire to protect cities from the cost of complying with strict water quality standards when deemed necessary by the regulatory agency.

3. Interpretations by the EPA and Other Courts

Our conclusion that Congress intended section 1342(p)(3)(B)(iii) to provide the regulatory agency with authority to impose standards stricter than a "maximum extent practicable" standard is consistent with interpretations by the EPA and the Ninth Circuit. In its final rule promulgated in the Federal Register, the EPA construed section 1342(p)(3)(B)(iii) as providing the administrative agency with the authority to impose water-quality standard controls in an NPDES permit if appropriate under the circumstances. Specifically, the EPA stated this statutory provision requires "controls to reduce the discharge of pollutants to the maximum extent practicable, *and where necessary water quality-based controls* ...." (55 Fed.Reg. 47990, 47994 (Nov. 16, 1990), italics added.) We are required to give substantial deference to this administrative interpretation, which occurred after an extensive notice and comment period. (See *ibid.; Chevron, supra,* 467 U.S. at pp. 842- 844, 104 S.Ct. 2778.)

The only other court that has interpreted the "such other provisions" language of section 1342(p)(3)(B)(iii) has reached a similar conclusion. (*Defenders of Wildlife, supra,* 191 F.3d at pp. 1166-1167.) In *Defenders of Wildlife,* environmental organizations brought an action against the EPA, challenging provisions in an NPDES permit requiring several Arizona localities to adhere to various best management practice controls without requiring numeric effluent limitations. (*Id.* at p. 1161.) The environmental organizations argued that section 1342(p) did not allow the EPA to issue NPDES permits without requiring strict compliance with effluent limitations. (*Ibid.*) Rejecting this argument, the Ninth Circuit found section 1342(p)(3)(B)(iii)'s statutory language "unambiguously demonstrates that Congress did not require municipal storm-sewer discharges to comply strictly" with effluent limitations. (*Defenders of Wildlife, supra,* at p. 1164.)

But in a separate section of the opinion, the *Defenders of Wildlife* court additionally rejected the reverse argument made by the affected municipalities (who were the interveners in the action) that "the EPA may not, under the [Clean Water Act], require strict compliance with state water-quality standards, through numerical limits or otherwise." (*Defenders of Wildlife, supra,* 191 F.3d at p. 1166.) The court stated: "Although Congress did not require ***143** municipal storm-sewer discharges to comply strictly with [numerical effluent limitations], § 1342(p)(3)(B)(iii) states that '[p]ermits for discharges from municipal storm sewers ... shall require ... *such other provisions as the Administrator ... determines appropriate for the control of such pollutants.*' (Emphasis added.) That provision gives the EPA discretion to determine what pollution controls are appropriate.... [¶] *Under that discretionary provision, the EPA has the authority to determine that ensuring strict compliance with state water-quality standards is necessary to control pollutants.* The EPA also has the authority to require less than strict compliance with state water-quality standards.... Under 33 U.S.C. § 1342(p)(3)(B)(iii), the EPA's choice to include either management practices or numeric limitations in the permits was within its discretion. [Citations.]" (*Defenders of Wildlife, supra,* 191 F.3d at pp. 1166-1167, second italics added.) Although dicta, this conclusion reached by a federal court interpreting federal law is persuasive and is consistent with our independent analysis of the statutory language. [FN13]

> FN13. Building Industry's reliance on two other Ninth Circuit decisions to support a contrary statutory interpretation is misplaced. (See *Natural Res. Def. Council, Inc. v. U.S.E.P.A., supra,* 966 F.2d at p. 1308; *Environmental Defense Center, Inc. v. U.S. E.P.A.* (9th cir.2003) 344 F.3d 832.) Neither of these decisions addressed the

> issue of the scope of a regulatory agency's authority to exceed the maximum extent practicable standard in issuing NPDES permits for municipal storm sewers.

To support its interpretation of section 1342(p)(3)(B)(iii), Building Industry additionally relies on the statutory provisions addressing nonpoint source runoff (a diffuse runoff not channeled through a particular source), which were also part of the 1987 amendments to the Clean Water Act. (§ 1329.) In particular, Building Industry cites to section 1329(a)(1)(C), which states, "The Governor of each State shall ... prepare and submit to the [EPA] Administrator for approval, a report which ... [¶] ... [¶] describes the process ... for identifying best management practices and measures to control each [identified] category ... of nonpoint sources and ... to reduce, to the *maximum extent practicable,* the level of pollution resulting from such category...." (Italics added.) Building Industry argues that because this "nonpoint source" statutory language expressly identifies only the maximum extent practicable standard, we must necessarily conclude that Congress meant to similarly limit the storm sewer point source pollution regulations to the maximum extent practicable standard.

The logic underlying this analogy is flawed because the critical language in the two statutory provisions is different. In the nonpoint source statute, Congress chose to include only the maximum extent practicable standard (§ 1329(a)(1)(C)); whereas in the municipal storm sewer provisions, Congress elected to include the "and such other provisions" clause (§ 1342(p)(3)(B)(iii)). This difference leads to the reasonable inference that Congress had a different intent when it enacted the two statutory provisions. Moreover, because of a fundamental difference between point and nonpoint source pollution, Congress has historically treated the two types of pollution differently and has subjected each type to entirely different requirements. (See *Pronsolino v. Nastri* (9th Cir.2002) 291 F.3d 1123, 1126-1127.) Given this different treatment, it would be improper to presume Congress intended to apply the same standard in both statutes. Building Industry's citation to comments during the 1987 congressional debates regarding nonpoint source regulation does ***144** not support Building Industry's contentions.

4. *Contention that it is "Impossible" for Municipalities to Meet Water Quality Standards*

We also reject Building Industry's arguments woven throughout its appellate briefs, and emphasized during oral arguments, that the Water Quality Standards provisions violate federal law because compliance with those standards is "impossible." The argument is not factually or legally supported.

[10][11] First, there is no showing on the record before us that the applicable water quality standards are unattainable. The trial court specifically concluded that Building Industry failed to make a factual showing to support this contention, and Building Industry does not present a proper appellate challenge to this finding sufficient to warrant our reexamining the evidence. All judgments and orders are presumed correct, and persons challenging them must affirmatively show reversible error. (*Walling v. Kimball* (1941) 17 Cal.2d 364, 373, 110 P.2d 58.) A party challenging the sufficiency of evidence to support a judgment must summarize (and cite to) *all* of the material evidence, not just the evidence favorable to his or her appellate positions. (*In re Marriage of Fink* (1979) 25 Cal.3d 877, 887-888, 160 Cal.Rptr. 516, 603 P.2d 881; *People v. Dougherty* (1982) 138 Cal.App.3d 278, 282, 188 Cal.Rptr. 123.) Building Industry has made no attempt to comply with this well established appellate rule in its briefs.

In a supplemental brief, Building Industry attempted to overcome this deficiency by asserting that "[t]he record clearly establishes that [the Water Quality Standards provisions] are unattainable during the period the permit is in effect." This statement, however, is not supported by the proffered citation or by the evidence viewed in the light most favorable to the respondents. Further, the fact that many of the Municipalities' storm sewer discharges currently violate water quality standards does not mean that the Municipalities cannot comply with the standards during the five-year term of the Permit. Additionally, Building Industry's assertions at oral argument that the trial court never

reached the "impossibility" issue and/or that respondents' counsel conceded the issue below are belied by the record, including the trial court's rejection of Building Industry's specific challenge to the proposed statement of decision on this very point. [FN14]

> FN14. Because we are not presented with a proper appellate challenge, we do not address the trial court's factual determinations in this case concerning whether it is possible or practical for a Municipality to achieve any specific Permit requirement.

[12] We reject Building Industry's related argument that it was respondents' burden to affirmatively show it is feasible to satisfy each of the applicable Water Quality Standards provisions. The party challenging the scope of an administrative permit, such as an NPDES, has the burden of showing the agency abused its discretion or its findings were unsupported by the facts. (See *Fukuda v. City of Angels, supra,* 20 Cal.4th at p. 817, 85 Cal.Rptr.2d 696, 977 P.2d 693; *Huntington Park Redevelopment Agency v. Duncan* (1983) 142 Cal.App.3d 17, 25, 190 Cal.Rptr. 744.) Thus, it was not respondents' burden to affirmatively demonstrate it was possible for the Municipalities to meet the Permit's requirements.

Building Industry alternatively contends it was not required to challenge the facts underlying the trial court's determination that the Permit requirements were feasible ***145** because the court's determination was wrong as a matter of law. Specifically, Building Industry asserts that a Permit requirement that is more stringent than a "maximum extent practicable" standard is, by definition, "not practicable" and therefore "technologically impossible" to achieve under any circumstances. Building Industry relies on a dictionary definition of "practicable," which provides that the word means " 'something that can be done; feasible,' " citing the 1996 version of "Webster's Encyclopedic Unabridged Dictionary."

This argument is unpersuasive. The federal maximum extent practicable standard it is not defined in the Clean Water Act or applicable regulations, and thus the Regional Water Board properly included a detailed description of the term in the Permit's definitions section. (See *ante,* fn. 7.) As broadly defined in the Permit, the maximum extent practicable standard is a highly flexible concept that depends on balancing numerous factors, including the particular control's technical feasibility, cost, public acceptance, regulatory compliance, and effectiveness. This definition conveys that the Permit's maximum extent practicable standard is a term of art, and is not a phrase that can be interpreted solely by reference to its everyday or dictionary meaning. Further, the Permit's definitional section states that the maximum extent practicable standard "considers economics and is generally, but not necessarily, *less* stringent than BAT." (Italics added.) BAT is an acronym for "best available technology economically achievable," which is a technology-based standard for industrial storm water dischargers that focuses on reducing pollutants by treatment or by a combination of treatment and best management practices. (See *Texas Oil & Gas Ass'n v. U.S. E.P.A.* (5th Cir.1998) 161 F.3d 923, 928.) If the maximum extent practicable standard is generally "less stringent" than another Clean Water Act standard that relies on available technologies, it would be unreasonable to conclude that anything more stringent than the maximum extent practicable standard is necessarily impossible. In other contexts, courts have similarly recognized that the word "practicable" does not necessarily mean the most that can possibly be done. (See *Nat. Wildlife Federation v. Norton* (E.D.Cal.2004) 306 F.Supp.2d 920, 928, fn. 12 ["[w]hile the meaning of the term 'practicable' in the [Endangered Species Act] is not entirely clear, the term does not simply equate to 'possible' "]; *Primavera Familienstiftung v. Askin* (S.D.N.Y.1998) 178 F.R.D. 405, 409 [noting that "impracticability does not mean impossibility, but rather difficulty or inconvenience"].)

We additionally question whether many of Building Industry's "impossibility" arguments are premature on the record before us. As we have explained, the record does not support that any required control is, or will be, impossible to implement. Further, the Permit allows the Regional Water Board to enforce water quality standards

during the iterative process, but does not impose any obligation that the Board do so. Thus, we cannot determine with any degree of certainty whether this obligation would ever be imposed, particularly if it later turns out that it is not possible for a Municipality to achieve that standard.

Finally, we comment on Building Industry's repeated warnings that if we affirm the judgment, all affected Municipalities will be in immediate violation of the Permit because they are not now complying with applicable water quality standards, subjecting them to immediate and substantial civil penalties, and leading to a potential "shut down" of public operations. These doomsday arguments are unsupported. The Permit makes clear that Municipalities***146** are required to adhere to numerous specific controls (none of which are challenged in this case) and to comply with water quality standards through "timely implementation of control measures" by engaging in a cooperative iterative process where the Regional Water Board and Municipality work together to identify violations of water quality standards in a written report and then incorporate approved modified best management practices. Although the Permit allows the regulatory agencies to enforce the water quality standards during this process, the Water Boards have made clear in this litigation that they envision the ongoing iterative process as the centerpiece to achieving water quality standards. Moreover, the regulations provide an affected party reasonable time to comply with new permit requirements under certain circumstances. (See 40 C.F.R. § 122.47.) There is nothing in this record to show the Municipalities will be subject to immediate penalties for violation of water quality standards.

We likewise find speculative Building Industry's predictions that immediately after we affirm the judgment, citizens groups will race to the courthouse to file lawsuits against the Municipalities and seek penalties for violation of the Water Quality Standards provisions. [FN15] As noted, the applicable laws provide time for an affected entity to comply with new standards. Moreover, although we do not reach the enforcement issue in this case, we note the Permit makes clear that the iterative process is to be used for violations of water quality standards, and gives the Regional Water Board the discretionary authority to enforce water quality standards during that process. Thus, it is not at all clear that a citizen would have standing to compel a municipality to comply with a water quality standard despite an ongoing iterative process. (See § 1365(a)(1)(2).)

FN15. The Clean Water Act allows a citizen to sue a discharger to enforce limits contained in NPDES permits, but requires the citizen to notify the alleged violator, the state, and the EPA of its intention to sue at least 60 days before filing suit, and limits the enforcement to nondiscretionary agency acts. (See § 1365(a)(1)(2).)

III.-VII. [FN*]

FN* See footnote 1, *ante*.

DISPOSITION

Judgment affirmed. Appellants to payrespondents'costs on appeal.

WE CONCUR: BENKE, Acting P.J., and AARON, J.

124 Cal.App.4th 866, 22 Cal.Rptr.3d 128, 34 Envtl. L. Rep. 20,149, 4 Cal. Daily Op. Serv. 10,694, 2004 Daily Journal D.A.R. 14,492

Briefs and Other Related Documents (Back to top)

• 2004 WL 2967764 (Appellate Brief) Appellants' Reply Brief In Support of Motion to Strike and Motion To Augment the Record on Appeal (Sep. 24, 2004)Original Image of this Document (PDF)

• 2004 WL 2680438 (Appellate Brief) Appellants' Response to Permissive Intervenors' Request for Oral Argument (Feb. 04, 2004)Original Image of this Document (PDF)

• 2004 WL 2680437 (Appellate Brief) Appellants' Reply Brief to Amicus Brief (Jan. 30, 2004)Original Image of this Document (PDF)

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- 2003 WL 23209983 (Appellate Brief) Respondents' Brief (Dec. 19, 2003)Original Image of this Document (PDF)

- 2003 WL 23209982 (Appellate Brief) Intervenor-Respondents' Response Brief (Dec. 03, 2003)Original Image of this Document (PDF)

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- 2003 WL 23153472 (Appellate Brief) Appellants' Opening Brief (Sep. 19, 2003)Original Image of this Document (PDF)

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Tab 19

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

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[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 pollutants[10] 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

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[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 source[18] 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 (µg/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

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[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

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[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

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[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 WLAs[55] assigned to point sources, load allocations[56] for nonpoint sources[57] 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

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[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

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[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

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[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 WSPA[74] object to a finding in the Golden Eagle[75] and Rodeo permits[76] 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.

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[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

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[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

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[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 data[87] 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 Act[89] 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

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[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

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[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

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[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

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[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

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[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.

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[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 (µg/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 (µg/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 average[122] 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

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[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

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[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

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[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.

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[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.

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[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	Salinity* 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

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[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

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[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]

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[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.

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[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.

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[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

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[177] See 1995 Basin Plan, p. 4-14.

[178] See W*hole 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.

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[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.

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[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

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[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]

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[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

/s/
Maureen Marché
Administrative Assistant to the Board

Tab 20

Briefs and Other Related Documents

Supreme Court of the United States

ARKANSAS, et al., Petitioners,
v.
OKLAHOMA et al.
ENVIRONMENTAL PROTECTION AGENCY, Petitioner,
v.
OKLAHOMA et al.

Nos. 90-1262, 90-1266.

Argued Dec. 11, 1991.
Decided Feb. 26, 1992.

Consolidated appeals were taken from the Environmental Protection Agency's (EPA) issuance to Arkansas city of discharge permit pursuant to National Pollutant Discharge Elimination System (NPDES) of the Clean Water Act. The Court of Appeals for the Tenth Circuit, 908 F.2d 595, found that the Clean Water Act did not allow permit to be issued. Certiorari was granted. The Supreme Court, Justice Stevens, held that: (1) the Clean Water Act authorized the EPA's issuance of an NPDES permit to allow an Arkansas sewage treatment plant to discharge effluent into Illinois River which ultimately reached Oklahoma, and (2) EPA's interpretation of Oklahoma's water quality standards was entitled to substantial deference.

Reversed.

Opinion on remand, 962 F.2d 996.

West Headnotes

[1] Environmental Law ⚿170
149Ek170 Most Cited Cases
(Formerly 199k25.7(10.1), 199k25.7(10) Health and Environment)

[1] Environmental Law ⚿171
149Ek171 Most Cited Cases
(Formerly 199k25.7(10.1), 199k25.7(10) Health and Environment)

[1] Nuisance ⚿59
279k59 Most Cited Cases
(Formerly 199k28 Health and Environment)

[1] States ⚿18.31
360k18.31 Most Cited Cases
In cases involving controversies between state which introduces pollutants to waterway and downstream state which objects, federal common law of nuisance and affected state's common law are preempted; only state law applicable to interstate discharge is law of state in which point source is located. Federal Water Pollution Control Act Amendments of 1972, §§ 402(b), 510, as amended, 33 U.S.C.A. §§ 1342(b), 1370.

[2] Environmental Law ⚿220
149Ek220 Most Cited Cases
(Formerly 199k25.7(13.1), 199k25.7(13) Health and Environment)
States which are affected by another state's discharge of effluent into a waterway may not block issuance of discharge permit but must apply to Environmental Protection Agency (EPA) administrator, who has discretion to disapprove permit if he concludes that discharges will have undue impact on interstate waters. Federal Water Pollution Control Act Amendments of 1972, §§ 402(b), 510, as amended, 33 U.S.C.A. §§ 1342(b), 1370.

[3] Environmental Law ⚿196
149Ek196 Most Cited Cases
(Formerly 199k25.7(13.1), 199k25.7(13) Health and Environment)
Clean Water Act requires that permits issued by Environmental Protection Agency (EPA) allowing discharge of effluent into interstate waterway comply with requirements for permit issued under approved state plan and with section of Clean Water Act which appears to prohibit issuance of federal permit over objection of affected state unless compliance with affected state's water quality requirements can be insured. Federal Water Pollution Control Act Amendments of 1972, §§ 401(a), (a)(2), 402, 402(a), (a)(3), (b), (d)(2), as amended, 33 U.S.C.A. §§ 1341(a), (a)(2), 1342, 1342(a), (a)(3), (b), (d)(2).

[4] Environmental Law ⚿197
149Ek197 Most Cited Cases
(Formerly 199k25.7(13.1), 199k25.7(13) Health and Environment)
Environmental Protection Agency (EPA) requirement for

National Pollution Discharge Elimination System (NPDES) permit that discharge of effluent from Arkansas sewage treatment plant comply with Oklahoma's water quality standards was reasonable exercise of agency's statutory discretion; discharge into Illinois River would travel through Arkansas and over Oklahoma border. Federal Water Pollution Control Act Amendments of 1972, §§ 401(a), 402(a, b), as amended, 33 U.S.C.A. §§ 1341(a), 1342(a, b).

[5] Environmental Law ⚖193

149Ek193 Most Cited Cases

(Formerly 199k25.7(10.1), 199k25.7(10) Health and Environment)

Even if Clean Water Act itself did not require that discharge of effluent from one state comply with water quality standards of another, statute did not limit Environmental Protection Agency's (EPA) authority to mandate that compliance. Federal Water Pollution Control Act Amendments of 1972, §§ 401(a), 402(a, b), as amended, 33 U.S.C.A. §§ 1341(a), 1342(a, b).

[6] Environmental Law ⚖197

149Ek197 Most Cited Cases

(Formerly 199k25.7(13.1), 199k25.7(13) Health and Environment)

Environmental Protection Agency (EPA) regulations, which provide that National Pollution Discharge Elimination System (NPDES) permit may not be issued if the imposition of conditions would not insure compliance with the applicable water quality requirements of all affected states, were a reasonable exercise of EPA's authority. Federal Water Pollution Control Act Amendments of 1972, §§ 101(a), 301(b)(1)(C), 402(a)(1, 2), (b), (d)(2), as amended, 33 U.S.C.A. §§ 1251(a), 1311(b)(1)(C), 1342(a)(1, 2), (b), (d)(2).

[7] Environmental Law ⚖193

149Ek193 Most Cited Cases

(Formerly 199k25.7(13.1), 199k25.7(13) Health and Environment)

Placing limits on affected state's direct participation in permitting decision concerning the granting of NPDES permit to discharge effluent into interstate waterways did not constrain Environmental Protection Agency's (EPA) authority to require that point source comply with downstream water quality standards. Federal Water Pollution Control Act Amendments of 1972, §§ 101(a), 301(b)(1)(C), 402(a)(1, 2), (b), (d)(2), as amended, 33 U.S.C.A. §§ 1251(a), 1311(b)(1)(C), 1342(a)(1, 2), (b), (d)(2).

[8] Environmental Law ⚖193

149Ek193 Most Cited Cases

(Formerly 199k25.7(12) Health and Environment)

Environmental Protection Agency's (EPA) requirement that discharge of effluent from Arkansas sewage treatment plant into Illinois River basin must comply with Oklahoma's water quality standards was reasonable exercise of agency's substantial statutory discretion. Federal Water Pollution Control Act Amendments of 1972, §§ 101(a), 301(b)(1)(C), 402(a)(1, 2), (b), (d)(2), as amended, 33 U.S.C.A. §§ 1251(a), 1311(b)(1)(C), 1342(a)(1, 2), (b), (d)(2).

[9] Environmental Law ⚖188

149Ek188 Most Cited Cases

(Formerly 199k25.7(10.1), 199k25.7(10) Health and Environment)

Clean Water Act does not prohibit any discharge of effluent that would reach waters already in violation of existing water quality standards; nothing in Act mandates complete ban, but rather vests in Environmental Protection Agency (EPA) and states broad authority to develop long-range, area-wide programs to alleviate and eliminate existing pollution. Federal Water Pollution Control Act Amendments of 1972, § 402(h), as amended, 33 U.S.C.A. § 1342(h).

[10] Administrative Law and Procedure ⚖800

15Ak800 Most Cited Cases

[10] Environmental Law ⚖682

149Ek682 Most Cited Cases

(Formerly 199k25.15(8) Health and Environment)

Court of Appeals exceeded legitimate scope of judicial review of agency adjudication by finding that Environmental Protection Agency (EPA) had misinterpreted Oklahoma law with regard to discharge of effluent into interstate waterway Court of Appeals substituted its own reading of the law for EPA's and thus failed to give required substantial deference to agency's reasonable interpretation. Federal Water Pollution Control Act Amendments of 1972, §§ 208(b)(2), 301(b)(1)(C), 303(d), 402(h), as amended, 33 U.S.C.A. §§ 1288(b)(2), 1311(b)(1)(C), 1313(d), 1342(h).

[11] Environmental Law ⚖162

149Ek162 Most Cited Cases

(Formerly 199k25.7(3) Health and Environment)

[11] States ⚷18.31

360k18.31 Most Cited Cases

Interstate water pollution is controlled by federal law.

[12] Environmental Law ⚷193

149Ek193 Most Cited Cases

(Formerly 199k25.7(12) Health and Environment)

Evidence supported finding by ALJ that discharge from Fayetteville, Arkansas, sewage treatment plant into interstate Illinois River basin would not violate Oklahoma water quality standards. Federal Water Pollution Control Act Amendments of 1972, §§ 208(b)(2), 301(b)(1)(C), 303(d), 402(h), as amended, 33 U.S.C.A. §§ 1288(b)(2), 1311(b)(1)(C), 1313(d), 1342(h).

[13] Administrative Law and Procedure ⚷413

15Ak413 Most Cited Cases

[13] Administrative Law and Procedure ⚷416.1

15Ak416.1 Most Cited Cases

(Formerly 15Ak416)

[13] Environmental Law ⚷678

149Ek678 Most Cited Cases

(Formerly 199k25.15(6.1), 199k25.15(6) Health and Environment)

Environmental Protection Agency (EPA) is entitled to discretion to interpret its own regulations and those regulations are entitled to appropriate level of deference.

[14] Administrative Law and Procedure ⚷791

15Ak791 Most Cited Cases

Court reviewing agency's adjudication should accept agency's factual findings if those findings are supported by substantial evidence in the record as a whole; court should not supplant agency's findings merely by identifying alternate findings that could be supported by substantial evidence.

[15] Administrative Law and Procedure ⚷763

15Ak763 Most Cited Cases

Administrative agency ruling is "arbitrary and capricious" if agency has entirely failed to consider important aspect of problem.

[16] Environmental Law ⚷682

149Ek682 Most Cited Cases

(Formerly 199k25.15(8) Health and Environment)

Court of Appeals made policy choice beyond its authority by ruling that, even if discharge of effluent from Arkansas sewage treatment plant would have no adverse impact on water quality, discharge into Illinois River which would flow through Oklahoma could be prohibited; it was not arbitrary for Environmental Protection Agency (EPA) to conclude, given benefits to river from increased flow of relatively clean water, and benefits achieved in Arkansas by allowing new plant to operate as designed, that allowing discharge would be wiser.

****1049** *Syllabus* [FN*]

FN* The syllabus constitutes no part of the opinion of the Court but has been prepared by the Reporter of Decisions for the convenience of the reader. See *United States v. Detroit Lumber Co.*, 200 U.S. 321, 337, 26 S.Ct. 282, 287, 50 L.Ed. 499.

The Clean Water Act provides for two sets of water quality measures: effluent limitations, which are promulgated by the Environmental Protection Agency (EPA or Agency), and water quality standards, which are promulgated by the States. The Act generally prohibits the discharge of effluent into a navigable body of water unless the point source obtains a National Pollution Discharge Elimination System (NPDES) permit from a State with an EPA-approved permit program or from the EPA itself. A Fayetteville, Arkansas, sewage treatment plant received an EPA-issued permit, authorizing it to discharge effluent into a stream that ultimately reaches the Illinois River upstream from the Oklahoma border. Respondents, Oklahoma and other Oklahoma parties, challenged the permit before the EPA, alleging, *inter alia*, that the discharge violated Oklahoma water quality standards, which allow no degradation of water quality in the upper Illinois River. The EPA's Chief Judicial Officer remanded the initial affirmance of the permit by the Administrative Law Judge (ALJ), ruling that the Act requires an NPDES permit to impose any effluent limitations necessary to comply with applicable state water quality standards, and that those standards would be violated only if the record shows by a preponderance of the evidence that the discharge would cause an actual *detectable* violation of Oklahoma's water quality standards. The ALJ then made detailed findings of fact, concluding that Fayetteville had satisfied the Chief Judicial Officer's standard, and the Chief Judicial Officer sustained the permit's issuance. The Court of Appeals reversed, ruling that

the Act does not allow a permit to be issued where a proposed source would discharge effluent that would contribute to conditions currently constituting a violation of applicable water quality standards. It concluded that the Illinois River was already degraded, that the Fayetteville effluent would reach the river in Oklahoma, and that the effluent would contribute to the river's deterioration even though it would not detectably affect the river's water quality.

92 *Held:* The EPA's action was authorized by the Clean Water Act. Pp. 1052-1061.

(a) Where interstate discharge is involved, both federal common law of nuisance, *Milwaukee v. Illinois*, 451 U.S. 304, 101 S.Ct. 1784, 68 L.Ed.2d 114, and an affected State's common law, *International Paper Co. v. Ouellette*, 479 U.S. 481, 493, 107 S.Ct. 805, 812, 93 L.Ed.2d 883, are pre-empted. Affected States may not block a permit, but must apply to the EPA Administrator, who may disapprove a plan if he concludes that the discharge will have an undue impact on interstate waters. *Id.*, at 490-491, 107 S.Ct., at 809. Pp. 1052-1054.

****1050** (b) The EPA has construed the Act as requiring that EPA-issued permits comply with the requirements for a permit issued under an approved state plan and with § 401(a) of the Act, which appears to prohibit the issuance of a federal permit over the objection of an affected State unless compliance with the affected State's water quality requirements can be insured. Pp. 1054-1055.

(c) The EPA's requirement that the Fayetteville discharge comply with Oklahoma's water quality standards is a reasonable exercise of the substantial statutory discretion Congress has vested in the Agency. There is no need to address the question whether the Act requires compliance with affected States' standards, for it clearly does not limit the EPA's authority to mandate such compliance. EPA regulations, which since 1973 have required that an NPDES permit not be issued when compliance with affected States' water quality standards cannot be insured, are a reasonable exercise of the Agency's discretion and are a well-tailored means of reaching the Act's goal of achieving state water quality standards. The EPA's authority is not constrained by the limits in *Ouellette, supra*, concerning an affected State's direct input into the permit process, does not conflict with the Act's legislative history and statutory scheme, and is not incompatible with the balance among competing policies and interests that Congress struck in the Act. Pp. 1056-1057.

(d) Contrary to the Court of Appeals' interpretation, nothing in the Act mandates a complete ban on discharges into a waterway that is in violation of existing water quality standards. Instead, the Act vests in the EPA and the States broad authority to develop long-range, area-wide programs to alleviate and eliminate existing pollution. Pp. 1057-1058.

(e) The Court of Appeals exceeded the legitimate scope of judicial review of an agency adjudication when it invalidated the EPA's issuance of the permit on the ground that the Agency misinterpreted Oklahoma's water quality standards. It substituted its own reading of the law for the EPA's. Thus, it failed to give substantial deference to the Agency's reasonable, consistently held interpretation of its own regulations, which incorporate the Oklahoma standards. It also disregarded well-**93** established standards for reviewing factual findings of agencies by making its own factual findings when the ALJ's findings were supported by substantial evidence. See generally *Universal Camera Corp. v. NLRB*, 340 U.S. 474, 71 S.Ct. 456, 95 L.Ed. 456. As a result, the court's conclusion that the river's degradation was an important and relevant factor which the EPA failed to consider was based on its own erroneous interpretation of the controlling law. Had it been properly respectful of the EPA's permissible reading of the Act--that what matters is not the river's current status, but whether the proposed discharge will have a detectable effect on that status--it would not have adjudged the Agency's decision arbitrary and capricious. Pp. 1058-1061.

908 F.2d 595 (CA10 1990), reversed.

STEVENS, J., delivered the opinion for a unanimous Court.

Lawrence G. Wallace, Washington, D.C., for petitioner, Environmental Protection Agency.

Edward W. Warren, Washington, D.C., for petitioners, Arkansas, et al.

Robert A. Butkin, Oklahoma City, Okl., for respondents.

*94 Justice STEVENS delivered the opinion of the Court.

Pursuant to the Clean Water Act, 86 Stat. 816, as amended, 33 U.S.C. § 1251 *et seq.*, the Environmental Protection Agency (EPA or agency) issued a discharge permit to a new point source in Arkansas, about 39 miles upstream from the Oklahoma state line. The question presented in this litigation is whether the EPA's finding that discharges from the new source would not cause a detectable **1051 violation of Oklahoma's *95 water quality standards satisfied the EPA's duty to protect the interests of the downstream State. Disagreeing with the Court of Appeals, we hold that the Agency's action was authorized by the statute.

I

In 1985, the city of Fayetteville, Arkansas, applied to the EPA, seeking a permit for the city's new sewage treatment plant under the National Pollution Discharge Elimination System (NPDES). After the appropriate procedures, the EPA, pursuant to § 402(a)(1) of the Act, 33 U.S.C. § 1342(a)(1), issued a permit authorizing the plant to discharge up to half of its effluent (to a limit of 6.1 million gallons per day) into an unnamed stream in northwestern Arkansas. [FN1] That flow passes through a series of three creeks for about 17 miles, and then enters the Illinois River at a point 22 miles upstream from the Arkansas-Oklahoma border.

> FN1. The permit also authorized the plant to discharge the remainder of its effluent into the White River, a river that does not flow into Oklahoma; this aspect of the permit is not at issue in this litigation.

The permit imposed specific limitations on the quantity, content, and character of the discharge and also included a number of special conditions, including a provision that if a study then underway indicated that more stringent limitations were necessary to ensure compliance with Oklahoma's water quality standards, the permit would be modified to incorporate those limits. App. 84.

Respondents challenged this permit before the EPA, alleging, *inter alia,* that the discharge violated the Oklahoma water quality standards. Those standards provide that "no degradation [of water quality] shall be allowed" in the upper Illinois River, including the portion of the river immediately downstream from the state line. [FN2]

> FN2. Section 5 of the Oklahoma water quality standards provides:
> "All streams and bodies of water designated as (a) are protected by prohibition of any new point source discharge of wastes or increased load from an existing point source except under conditions described in Section 3. "All streams designated by the State as 'scenic river areas,' and such tributaries of those streams as may be appropriate will be so designated. Best management practices for control of nonpoint source discharge should be initiated when feasible." App. 46-47.
> Oklahoma has designated the portion of the Illinois River immediately downstream from the state line as a "scenic river." Okla.Stat., Tit. 82, § 1452(b)(1) (Supp.1989); see also App. 54.
> Section 3 of the Oklahoma water quality standards provides, in relevant part:
> "The intent of the Anti-degradation Policy is to protect all waters of the State from quality degradation. Existing instream water uses shall be maintained and protected. No further water quality degradation which would interfere with or become injurious to existing instream water uses shall be allowed. Oklahoma's waters constitute a valuable State resource and shall be protected, maintained and improved for the benefit of all the citizens.
>
> . . . . .
>
> "No degradation shall be allowed in high quality waters which constitute an outstanding resource or in waters of exceptional recreational or ecological significance. These include water bodies located in national and State parks, Wildlife Refuges, and those designated 'Scenic Rivers' in Appendix A." App. 27-28.

***96** Following a hearing, the Administrative Law Judge (ALJ) concluded that the Oklahoma standards would not be implicated unless the contested discharge had "something more than a mere *de minimis* impact" on the State's waters. He found that the discharge would not have an "undue impact" on Oklahoma's waters and, accordingly, affirmed the issuance of the permit. App. to Pet. for Cert. in No. 90-1262, pp. 101a-103a (emphasis deleted).

On a petition for review, the EPA's Chief Judicial Officer first ruled that § 301(b)(1)(C) of the Clean Water Act "requires an NPDES permit to impose any effluent limitations necessary to comply with applicable state water quality standards." [FN3] *Id.*, at 116a-117a. He ****1052** then held that the Act ***97** and EPA regulations offered greater protection for the downstream State than the ALJ's "undue impact" standard suggested. He explained the proper standard as follows:

> FN3. Section 301(b)(1)(C) provides, in relevant part, that
> "there shall be achieved--
>
> . . . . .
>
> "(C) not later than July 1, 1977, any more stringent limitation, including those necessary to meet *water quality standards ... established pursuant to any State law or regulations* ... or required to implement any applicable water quality standard established pursuant to this chapter." 33 U.S.C. § 1311(b)(1)(C) (emphasis added).

> "[A] mere theoretical impairment of Oklahoma's water quality standards--*i.e.*, an infinitesimal impairment predicted through modeling but not expected to be actually detectable or measurable--should not by itself block the issuance of the permit. In this case, the permit should be upheld if the record shows by a preponderance of the evidence that the authorized discharges would not cause an actual *detectable* violation of Oklahoma's water quality standards." *Id.*, at 117a (emphasis in original).

On remand, the ALJ made detailed findings of fact and concluded that the city had satisfied the standard set forth by the Chief Judicial Officer. Specifically, the ALJ found that there would be no detectable violation of any of the components of Oklahoma's water quality standards. *Id.*, at 127a-143 a. The Chief Judicial Officer sustained the issuance of the permit. *Id.*, at 145a-153a.

Both the petitioners in No. 90-1262 (collectively Arkansas) and the respondents in this litigation sought judicial review. [FN4] Arkansas argued that the Clean Water Act did not require an Arkansas point source to comply with Oklahoma's water quality standards. Oklahoma challenged the EPA's determination that the Fayetteville discharge would not produce a detectable violation of the Oklahoma standards.

> FN4. The Arkansas petition was filed in the Court of Appeals for the Eighth Circuit and transferred to the Tenth Circuit where it was consolidated with the petition filed by the respondents.

The Court of Appeals did not accept either of these arguments. The court agreed with the EPA that the statute required compliance with Oklahoma's water quality standards, ***98** see 908 F.2d 595, 602-615 (CA10 1990), and did not disagree with the Agency's determination that the discharges from the Fayetteville plant would not produce a detectable violation of those standards. *Id.*, at 631-633. Nevertheless, relying on a theory that neither party had advanced, the Court of Appeals reversed the Agency's issuance of the Fayetteville permit. The court first ruled that the statute requires that "where a proposed source would discharge effluents that would contribute to conditions currently constituting a violation of applicable water quality standards, such [a] proposed source may not be permitted." *Id.*, at 620. Then the court found that the Illinois River in Oklahoma was "already degraded," that the Fayetteville effluent would reach the Illinois River in Oklahoma, and that that effluent could "be expected to contribute to the ongoing deterioration of the scenic [Illinois R]iver" in Oklahoma even though it would not detectably affect the river's water quality. *Id.*, at 621-629.

The importance and the novelty of the Court of Appeals' decision persuaded us to grant certiorari. 499 U.S. 946, 111 S.Ct. 1412, 113 L.Ed.2d 465 (1991). We now reverse.

II

Interstate waters have been a font of controversy since the founding of the Nation. *E.g.*, *Gibbons v. Ogden*, 9 Wheat. 1, 6 L.Ed. 23 (1824). This Court has frequently resolved disputes between States that are separated by a common river, see, *e.g.*, *Ohio v. Kentucky*, 444 U.S. 335, 100 S.Ct. 588, 62 L.Ed.2d 530 (1980), that border the same body of water, see, *e.g.*, ***1053*New York v. New Jersey*, 256 U.S. 296, 41 S.Ct. 492, 65 L.Ed. 937 (1921), or that are fed by the same river basin, see, *e.g.*, *New Jersey v. New York*, 283 U.S. 336, 51 S.Ct. 478, 75 L.Ed. 1104 (1931).

[1] Among these cases are controversies between a State that introduces pollutants to a waterway and a downstream State that objects. See, *e.g.*, *Missouri v. Illinois*, 200 U.S. 496, 26 S.Ct. 268, 50 L.Ed. 572 (1906). In such cases, this Court has applied principles of common law tempered by a respect for the sovereignty of the States. Compare *id.*, at 521, 26 S.Ct., at 270, with *Georgia v. Tennessee Copper Co.*, 206 U.S. 230, 237, 27 S.Ct. 618, 619, 51 L.Ed. 1038 (1907). In forging what "may **99** not improperly be called interstate common law," *Illinois v. Milwaukee*, 406 U.S. 91, 105-106, 92 S.Ct. 1385, 1393-1394, 31 L.Ed.2d 712 (1972) (*Milwaukee I*), however, we remained aware "that new federal laws and new federal regulations may in time pre-empt the field of federal common law of nuisance." *Id.*, at 107, 92 S.Ct. at 1395.

In *Milwaukee v. Illinois*, 451 U.S. 304, 101 S.Ct. 1784, 68 L.Ed.2d 114 (1981) (*Milwaukee II*), we held that the Federal Water Pollution Control Act Amendments of 1972 did just that. In addressing Illinois' claim that Milwaukee's discharges into Lake Michigan constituted a nuisance, we held that the comprehensive regulatory regime created by the 1972 amendments pre-empted Illinois' federal common law remedy. We observed that Congress had addressed many of the problems we had identified in *Milwaukee I* by providing a downstream State with an opportunity for a hearing before the source State's permitting agency, by requiring the latter to explain its failure to accept any recommendations offered by the downstream State, and by authorizing the EPA, in its discretion, to veto a source State's issuance of any permit if the waters of another State may be affected. *Milwaukee II*, 451 U.S., at 325-326, 101 S.Ct., at 1796-1797.

In *Milwaukee II*, the Court did not address whether the 1972 amendments had supplanted *state* common law remedies as well as the federal common law remedy. See *id.*, at 310, n. 4. On remand, Illinois argued that § 510 of the Clean Water Act, 33 U.S.C. § 1370, expressly preserved the State's right to adopt and enforce rules that are more stringent than federal standards. [FN5] The Court of Appeals accepted Illinois' reading of § 510, but held that that section did "no more than **100** to save the right and jurisdiction of a state to regulate activity occurring within the confines of its boundary waters." *Illinois v. Milwaukee*, 731 F.2d 403, 413 (CA7 1984), cert. denied, 469 U.S. 1196, 105 S.Ct. 979, 83 L.Ed.2d 981 (1985).

> FN5. Section 510 provides in relevant part:
> "Except as expressly provided in this [Act], nothing in this [Act] shall (1) preclude or deny the right of any State or political subdivision thereof or interstate agency to adopt or enforce (A) any standard or limitation respecting discharges of pollutants, or (B) any requirement respecting control or abatement of pollution [with exceptions]; or (2) be construed as impairing or in any manner affecting any right or jurisdiction of the States *with respect to the waters (including boundary waters) of such States*." 33 U.S.C. § 1370 (emphasis added).

[2] This Court subsequently endorsed that analysis in *International Paper Co. v. Ouellette*, 479 U.S. 481, 107 S.Ct. 805, 93 L.Ed.2d 883 (1987), in which Vermont property owners claimed that the pollution discharged into Lake Champlain by a paper company located in New York constituted a nuisance under Vermont law. The Court held the Clean Water Act taken "as a whole, its purposes and its history" pre-empted an action based on the law of the affected State and that the only state law applicable to an interstate discharge is "the law of the State in which the point source is located." *Id.*, at 493, 487, 107 S.Ct. at 812, 809. Moreover, in reviewing § 402(b) of the Act, the Court pointed out that when a new permit is being issued by the source State's permit-granting agency, the downstream State **1054 "does not have the authority to block the issuance

of the permit if it is dissatisfied with the proposed standards. An affected State's only recourse is to apply to the EPA Administrator, who then has the discretion to disapprove the permit if he concludes that the discharges will have an undue impact on interstate waters. § 1342(d)(2).... Thus the Act makes it clear that affected States occupy a subordinate position to source States in the federal regulatory program." *Id.*, at 490-491, 107 S.Ct., at 811. [FN6]

> FN6. This description of the downstream State's role in the issuance of a new permit by a source State was apparently consistent with the EPA's interpretation of the Act at the time. The Government's *amicus curiae* brief in *Ouellette* stated that "the affected neighboring state [has] only an advisory role in the formulation of applicable effluent standards or limitations. The affected state may try to persuade the federal government or the source state to increase effluent requirements, but *ultimately possesses no statutory authority to compel that result, even when its waters are adversely affected by out-of-state pollution.* See 33 U.S.C. § 1341(a)(2), 1342(b)(3) and (5)...." Brief for United States as *Amicus Curiae,* O.T. 1986, No. 85-1233, p. 19 (emphasis added; footnote omitted).

***101** Unlike the foregoing cases, this litigation involves not a state-issued permit, but a federally issued permit. To explain the significance of this distinction, we comment further on the statutory scheme before addressing the specific issues raised by the parties.

III

The Clean Water Act anticipates a partnership between the States and the Federal Government, animated by a shared objective: "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). Toward this end, the Act provides for two sets of water quality measures. "Effluent limitations" are promulgated by the EPA and restrict the quantities, rates, and concentrations of specified substances which are discharged from point sources. See §§ 1311, 1314. "[W]ater quality standards" are, in general, promulgated by the States and establish the desired condition of a waterway. See § 1313. These standards supplement effluent limitations "so that numerous point sources, despite individual compliance with effluent limitations, may be further regulated to prevent water quality from falling below acceptable levels." *EPA v. California ex rel. State Water Resources Control Bd.*, 426 U.S. 200, 205, n. 12, 96 S.Ct. 2022, 2025, n. 12, 48 L.Ed.2d 578 (1976).

The EPA provides States with substantial guidance in the drafting of water quality standards. See generally 40 CFR pt. 131 (1991) (setting forth model water quality standards). Moreover, § 303 of the Act requires, *inter alia,* that state authorities periodically review water quality standards and secure the EPA's approval of any revisions in the standards. If the EPA recommends changes to the standards and the State fails to comply with that recommendation, the Act authorizes the EPA to promulgate water quality standards for the State. 33 U.S.C. § 1313(c).

> The primary means for enforcing these limitations and standards is the NPDES, enacted in 1972 as a critical part of Congress' "complete rewriting" of federal water pollution ***102** law. *Milwaukee II,* 451 U.S., at 317, 101 S.Ct., at 1793. Section 301(a) of the Act, 33 U.S.C. § 1311(a), generally prohibits the discharge of any effluent into a navigable body of water unless the point source has obtained an NPDES permit. Section 402 establishes the NPDES permitting regime, and describes two types of permitting systems: state permit programs that must satisfy federal requirements and be approved by the EPA, and a federal program administered by the EPA.

Section 402(b) authorizes each State to establish "its own permit program for discharges into navigable waters within its jurisdiction." 33 U.S.C. § 1342(b). Among the requirements the state program must satisfy ****1055** are the procedural protections for downstream States discussed in *Ouellette* and *Milwaukee II.* See §§ 1342(b)(3), (5). [FN7] Although these provisions do not authorize the downstream State to veto the issuance of a permit for a new point source in another State, the Administrator retains authority to block

the issuance of any state-issued permit that is outside the guidelines and requirements of the Act. § 1342(d)(2). [FN8]

FN7. Section 402(b) requires state permit programs

> "(3) [t]o insure that ... any other State the waters of which may be affected ... receive notice of each application for a permit and to provide an opportunity for public hearing before a ruling on each such application;
>
> . . . . .
>
> "(5) [t]o insure that any State (other than the permitting State), whose waters may be affected by the issuance of a permit may submit written recommendations to the permitting State (and the Administrator) with respect to any permit application and, if any part of such written recommendations are not accepted by the permitting State, that the permitting State will notify such affected State (and the Administrator) in writing of its failure to so accept such recommendations together with its reasons for so doing." 33 U.S.C. § 1342(b).

Although § 402(b) focuses on state-issued permits, § 402(a)(3) requires that, in issuing an NPDES permit, the Administrator follow the same procedures required of state permit programs. See § 1342(a)(3); see also 33 U.S.C. § 1341(a)(2).

FN8. Section 402(d)(2) provides:

"(2) No permit shall issue (A) if the Administrator within ninety days of the date of his notification under subsection (b)(5) of this section objects in writing to the issuance of such permit, or (B) if the Administrator within ninety days of the date of transmittal of the proposed permit by the State objects in writing to the issuance of such permit as being outside the guidelines and requirements of this chapter. Whenever the Administrator objects to the issuance of a permit under this paragraph such written objection shall contain a statement of the reasons for such objection and the effluent limitations and conditions which such permit would include if it were issued by the Administrator." 33 U.S.C. § 1342(d)(2).

[3] ***103** In the absence of an approved state program, the EPA may issue an NPDES permit under § 402(a) of the Act. (In these cases, for example, because Arkansas had not been authorized to issue NPDES permits when the Fayetteville plant was completed, the permit was issued by the EPA itself.) The EPA's permit program is subject to the "same terms, conditions, and requirements" as a state permit program. 33 U.S.C. § 1342(a)(3). Notwithstanding this general symmetry, the EPA has construed the Act as requiring that EPA-issued NPDES permits also comply with § 401(a). That section, which predates § 402 and the NPDES, applies to a broad category of federal licenses, and sets forth requirements for "[a]ny applicant for a Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters." 33 U.S.C. § 1341(a). Section 401(a)(2) appears to prohibit the issuance of any federal license or permit over the objection of an affected State unless compliance with the affected State's water quality requirements can be ensured. [FN9]

FN9. Section 401(a)(2) provides, in relevant part:

> "Whenever such a discharge may affect, as determined by the Administrator, the quality of the waters of any other State, the Administrator ... shall so notify such other State, the licensing or permitting agency, and the applicant. If, within sixty days after receipt of such notification, such other State determines that such discharge will affect the quality of its waters so as to violate any water quality requirements in such State, and within such sixty-day period notifies the Administrator and the licensing or permitting agency in writing of its objection to the issuance of such license or permit and requests a public hearing on such objection, the licensing or permitting agency shall hold such a hearing. The Administrator shall at such hearing submit his evaluation and recommendations with respect to any such objection to the licensing or permitting agency. Such agency, based upon the recommendations of such State, the Administrator,

> and upon any additional evidence, if any, presented to the agency at the hearing, shall condition such license or permit in such manner as may be necessary to insure compliance with applicable water quality requirements. If the imposition of conditions cannot insure such compliance such agency shall not issue such license or permit." 33 U.S.C. § 1341(a)(2).

****1056 *104** IV

[4] The parties have argued three analytically distinct questions concerning the interpretation of the Clean Water Act. First, does the Act require the EPA, in crafting and issuing a permit to a point source in one State, to apply the water quality standards of downstream States? Second, even if the Act does not *require* as much, does the Agency have the statutory authority to mandate such compliance? Third, does the Act provide, as the Court of Appeals held, that once a body of water fails to meet water quality standards no discharge that yields effluent that reach the degraded waters will be permitted?

In these cases, it is neither necessary nor prudent for us to resolve the first of these questions. In issuing the Fayetteville permit, the EPA assumed it was obligated by both the Act and its own regulations to ensure that the Fayetteville discharge would not violate Oklahoma's standards. See App. to Pet. for Cert. in No. 90-1262, pp. 116a-117a, and n. 14. As we discuss below, this assumption was permissible and reasonable and therefore there is no need for us to address whether the Act requires as much. Moreover, much of the analysis and argument in the briefs of the parties relies on statutory provisions that govern not only federal permits issued pursuant to §§ 401(a) and 402(a), but also state permits issued under § 402(b). It seems unwise to evaluate those arguments in a case such as these, which only involve a federal permit.

[5] ***105** Our decision not to determine at this time the scope of the Agency's statutory *obligations* does not affect our resolution of the second question, which concerns the Agency's statutory *authority*. Even if the Clean Water Act itself does not require the Fayetteville discharge to comply with Oklahoma's water quality standards, the statute clearly does not limit the EPA's authority to mandate such compliance.

[6] Since 1973, EPA regulations have provided that an NPDES permit shall not be issued "[w]hen the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States." [FN10] 40 CFR § 122.4(d) (1991); see also 38 Fed.Reg. 13533 (1973); 40 CFR § 122.44(d) (1991). Those regulations--relied upon by the EPA in the issuance of the Fayetteville permit--constitute a reasonable exercise of the Agency's statutory authority.

> FN10. This restriction applies whether the permit is issued by the EPA or by an approved state program. See 40 CFR § 123.25 (1991).

Congress has vested in the Administrator broad discretion to establish conditions for NPDES permits. Section 402(a)(2) provides that for EPA-issued permits "[t]he Administrator shall prescribe conditions ... to assure compliance with the requirements of [§ 402(a)(1)] and *such other requirements as he deems appropriate.*" 33 U.S.C. § 1342(a)(2) (emphasis added). Similarly, Congress preserved for the Administrator broad authority to oversee state permit programs:

> "No permit shall issue ... if the Administrator ... objects in writing to the issuance of such permit as being outside the guidelines and requirements of this chapter." § 1342(d)(2).

The regulations relied on by the EPA were a perfectly reasonable exercise of the Agency's statutory discretion. The application of state water quality standards in the interstate context is wholly consistent with the Act's broad purpose "to restore and maintain the chemical, physical, and ***106** biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). Moreover, as noted above, § 301(b)(1)(C) expressly identifies the achievement of state water quality standards as one of the Act's central objectives. The Agency's regulations conditioning NPDES permits are a well-tailored means of achieving this goal.

[7] Notwithstanding this apparent reasonableness, Arkansas argues that our description ****1057** in *Ouellette* of the role of affected States in the permit process and our

characterization of the affected States' position as "subordinate," see 479 U.S., at 490-491, 107 S.Ct., at 810-811, indicates that the EPA's application of the Oklahoma standards was error. We disagree. Our statement in *Ouellette* concerned only an affected State's input into the permit process; that input is clearly limited by the plain language of § 402(b). Limits on an affected State's direct participation in permitting decisions, however, do not in any way constrain the *EPA's* authority to require a point source to comply with downstream water quality standards.

Arkansas also argues that regulations requiring compliance with downstream standards are at odds with the legislative history of the Act and with the statutory scheme established by the Act. Although we agree with Arkansas that the Act's legislative history indicates that Congress intended to grant the Administrator discretion in his oversight of the issuance of NPDES permits, [FN11] we find nothing in that history to indicate that Congress intended to preclude the EPA from establishing a general requirement that such permits be conditioned to ensure compliance with downstream water quality standards.

> FN11. See, *e.g.*, 1 Legislative History of Water Pollution Control Act Amendments of 1972 (Committee Print compiled for the Senate Committee on Public Works by the Library of Congress), Ser. No. 93-1, pp. 322, 388-389, 814 (1973); see also 33 U.S.C. § 1342(d)(3).

Similarly, we agree with Arkansas that in the Clean Water Act Congress struck a careful balance among competing policies and interests, but do not find the EPA regulations concerning ***107** the application of downstream water quality standards at all incompatible with that balance. Congress, in crafting the Act, protected certain sovereign interests of the States; for example, § 510 allows States to adopt more demanding pollution-control standards than those established under the Act. Arkansas emphasizes that § 510 preserves such state authority only as it is applied to the waters of the regulating State. Even assuming Arkansas' construction of § 510 is correct, cf. *id.*, at 493, 107 S.Ct., at 812, that section only concerns *state* authority and does not constrain the *EPA's* authority to promulgate reasonable regulations requiring point sources in one State to comply with water quality standards in downstream States.

[8] For these reasons, we find the EPA's requirement that the Fayetteville discharge comply with Oklahoma's water quality standards to be a reasonable exercise of the Agency's substantial statutory discretion. Cf. *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 842-845, 104 S.Ct. 2778, 2781-2783, 81 L.Ed.2d 694 (1984).

V

[9] The Court of Appeals construed the Clean Water Act to prohibit any discharge of effluent that would reach waters already in violation of existing water quality standards. [FN12] We find nothing in the Act to support this reading.

> FN12. "[W]e hold that the Clean Water Act prohibits granting an NPDES permit under the circumstances of this case (i.e., where applicable water quality standards have already been violated) and reverse EPA's decision to permit Fayetteville to discharge any part of its effluent to the Illinois River Basin." 908 F.2d 595, 616 (CA10 1990). "Congress cannot reasonably be presumed to have intended to exclude from the CWA's 'all-encompassing program,' 451 U.S., at 318 [101 S.Ct., at 1793] a permitting decision arising in circumstances such as those of this case. It is even more unfathomable that Congress fashioned a '*comprehensive* ... policy for the *elimination* of water pollution,' *id.*, which sanctions continued pollution once minimum water quality standards have been transgressed. More likely, Congress simply never contemplated that EPA or a state would consider it permissible to authorize further pollution under such circumstances. We will not ascribe to the Act either the gaping loophole or the irrational purpose necessary to uphold EPA's action in this case." *Id.*, at 632 (footnotes omitted).

****1058 *108** The interpretation of the statute adopted by the court had not been advanced by any party during the Agency or court proceedings. Moreover, the Court of Appeals candidly acknowledged that its theory "has

apparently never before been addressed by a federal court." 908 F.2d, at 620, n. 39. The only statutory provision the court cited to support its legal analysis was § 402(h), see *id.*, at 633, which merely authorizes the EPA (or a state permit program) to prohibit a publicly owned treatment plant that is violating a condition of its NPDES permit from accepting any additional pollutants for treatment until the ongoing violation has been corrected. See 33 U.S.C. § 1342(h).

Although the Act contains several provisions directing compliance with state water quality standards, see, *e.g.*, § 1311(b)(1)(C), the parties have pointed to nothing that mandates a complete ban on discharges into a waterway that is in violation of those standards. The statute does, however, contain provisions designed to remedy existing water quality violations and to allocate the burden of reducing undesirable discharges between existing sources and new sources. See, *e.g.*, § 1313(d). Thus, rather than establishing the categorical ban announced by the Court of Appeals--which might frustrate the construction of new plants that would improve existing conditions--the Clean Water Act vests in the EPA and the States broad authority to develop long-range, area-wide programs to alleviate and eliminate existing pollution. See, *e.g.*, § 1288(b)(2).

To the extent that the Court of Appeals relied on its interpretation of the Act to reverse the EPA's permitting decision, that reliance was misplaced.

***109** VI

[10] The Court of Appeals also concluded that the EPA's issuance of the Fayetteville permit was arbitrary and capricious because the Agency misinterpreted Oklahoma's water quality standards. The primary difference [FN13] between the court's and the Agency's interpretation of the standards derives from the court's construction of the Act. Contrary to the EPA's interpretation of the Oklahoma standards, the Court of Appeals read those standards as containing the same categorical ban on new discharges that the court had found in the Clean Water Act itself. Although we do not believe the text of the Oklahoma standards supports the court's reading (indeed, we note that Oklahoma itself had not advanced that interpretation in its briefs in the Court of Appeals), we reject it for a more fundamental reason--namely, that the Court of Appeals exceeded the legitimate scope of judicial review of an agency adjudication. To emphasize the importance of this point, we shall first briefly assess the soundness of the EPA's interpretation and application of the Oklahoma ***110** standards and then comment more specifically on the Court of Appeals' approach.

> FN13. The court identified three errors in the EPA's reading of the Oklahoma standards. First, the court correctly observed that the ALJ and the Chief Judicial Officer misinterpreted § 4.10(c) of the standards as governing only the discharge of phosphorus into lakes, rather than the discharge of phosphorus into lakes and into all "perennial and intermittent streams." *Id.*, at 617 (emphasis omitted). This error was harmless because the ALJ found that the discharge into Lake Francis would comply with § 4.10(c) and it is undisputed that that discharge produced a greater threat to the slow-moving water of the lake than to the rapid flow in the river.
>
> The second flaw identified by the court was the ALJ's mistaken reliance on the 1985, rather than the 1982 version, of the Oklahoma standards. We agree with the Chief Judicial Officer, who also noted this error, that the portions of the two versions relevant to this case "do not differ materially." App. to Pet. for Cert. in No. 90-1262, p. 150a. Therefore, this error was also harmless.
>
> Because these two errors were harmless, we have focused in the text on the major difference between the court's and the EPA's readings of the Oklahoma standards: the "no degradation" provision.

As discussed above, an EPA regulation requires an NPDES permit to comply "with the applicable water quality requirements of ****1059** all affected States." 40 CFR § 122.4(d) (1991). This regulation effectively incorporates into federal law those state-law standards the Agency reasonably determines to be "applicable." In such a situation, then, state water quality standards--promulgated by the States with substantial guidance from the EPA [FN14] and approved by the Agency--are part of the federal

law of water pollution control.

> FN14. See *supra,* at 1054. Oklahoma's water quality standards closely track the EPA's model standards in effect at that time. Compare § 3 of the Oklahoma standards with 40 CFR § 35.1550(e)(1) (1981).

[11] Two features of the body of law governing water pollution support this conclusion. First, as discussed more thoroughly above, we have long recognized that interstate water pollution is controlled by *federal* law. See *supra,* at 1052-1054. Recognizing that the system of federally approved state standards as applied in the interstate context constitutes federal law is wholly consistent with this principle. Second, treating state standards in interstate controversies as federal law accords with the Act's purpose of authorizing the EPA to create and manage a uniform system of interstate water pollution regulation.

Because we recognize that, at least insofar as they affect the issuance of a permit in another State, the Oklahoma standards have a federal character, the EPA's reasonable, consistently held interpretation of those standards is entitled to substantial deference. Cf. *INS v. National Center for Immigrants' Rights,* 502 U.S. 183, 189-190, 112 S.Ct. 551, 556, 116 L.Ed.2d 546 (1991); *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.,* 467 U.S. 837, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984). In these cases, the Chief Judicial Officer ruled that the Oklahoma standards--which require that there be "no degradation" of the upper Illinois River--would ***111** only be violated if the discharge effected an "actually detectable or measurable" change in water quality. App. to Pet. for Cert. in No. 90-1262, p. 117a.

This interpretation of the Oklahoma standards is certainly reasonable and consistent with the purposes and principles of the Clean Water Act. As the Chief Judicial Officer noted, "unless there is some method for measuring compliance, there is no way to ensure compliance." *Id.,* at 118a, n. 16 (internal quotation marks omitted; citation omitted). Moreover, this interpretation of the Oklahoma standards makes eminent sense in the interstate context: If every discharge that had some theoretical impact on a downstream State were interpreted as "degrading" the downstream waters, downstream States might wield an effective veto over upstream discharges.

[12] The EPA's application of those standards in these cases was also sound. On remand, the ALJ scrutinized the record and made explicit factual findings regarding four primary measures of water quality under the Oklahoma standards: eutrophication, [FN15] esthetics, [FN16] dissolved oxygen, [FN17] and ****1060** metals.***112** 1918 # [FN18] In each case, the ALJ found that the Fayetteville discharge would not lead to a detectable change in water quality. He therefore concluded that the Fayetteville discharge would not violate the Oklahoma water quality standards. Because we agree with the Agency's Chief Judicial Officer that these findings are supported by substantial evidence, we conclude that the Court of Appeals should have affirmed both the EPA's construction of the regulations and the issuance of the Fayetteville permit.

> FN15. Eutrophication is the "normally slow aging process by which a lake evolves into a bog or marsh.... During eutrophication the lake becomes so rich in nutritive compounds (especially nitrogen and phosphorus) that algae and other microscopic plant life become superabundant, thereby 'choking' the lake...." App. 57-58. With regard to eutrophication, the ALJ found that the Fayetteville plant would discharge 30 pounds of phosphorus per day, only about 6 pounds of which would reach the Arkansas/Oklahoma border, and that such a small amount would not result in an increase in eutrophication. App. to Pet. for Cert. in No. 90-1262, p. 129a.

> FN16. With regard to esthetics, the ALJ concluded that the only discharged compound that would affect esthetics was phosphorus and that, again, the amount of that substance crossing the border would not affect the esthetic quality of Oklahoma's waters. *Id.,* at 135a-136a.

> FN17. With regard to dissolved oxygen, the ALJ found that in the 39 miles between discharge and the border the effluent would experience "complete oxygen recovery" and therefore would not affect

the dissolved oxygen levels in the river. *Id.*, at 140a.

FN18. With regard to metals, the ALJ concluded that the concentrations of metals would be so low as not to violate the Oklahoma standards. *Id.*, at 143a.

In its review of the EPA's interpretation and application of the Oklahoma standards, the Court of Appeals committed three mutually compounding errors.

[13] First, the court failed to give due regard to the EPA's interpretation of its own regulations, as those regulations incorporate the Oklahoma standards. Instead the court voiced its own interpretation of the governing law and concluded that "where a proposed source would discharge effluents that would contribute to conditions currently constituting a violation of applicable water quality standards, such [a] proposed source may not be permitted." 908 F.2d, at 620. As we have already pointed out, that reading of the law is not supported by the statute or by any EPA regulation. The Court of Appeals sat in review of an agency action and should have afforded the EPA's interpretation of the governing law an appropriate level of deference. See generally *Chevron, supra*, 467 U.S., at 842-844, 104 S.Ct., at 2781-2782.

[14] Second, the court disregarded well-established standards for reviewing the factual findings of agencies and instead made its own factual findings. The troubling nature of the court's analysis appears on the face of the opinion itself: At least four times, the court concluded that "there was substantial evidence before the ALJ to support" particular findings which the court thought appropriate, but which were ***113** contrary to those actually made by the ALJ. 908 F.2d, at 620, 625, 627, 629. Although we have long recognized the "substantial evidence" standard in administrative law, the court below turned that analysis on its head. A court reviewing an agency's adjudicative action should accept the *agency's* factual findings if those findings are supported by substantial evidence on the record as a whole. See generally *Universal Camera Corp. v. NLRB*, 340 U.S. 474, 71 S.Ct. 456, 95 L.Ed. 456 (1951). The court should not supplant the agency's findings merely by identifying alternative findings that could be supported by substantial evidence.

Third, the court incorrectly concluded that the EPA's decision was arbitrary and capricious. This error is derivative of the court's first two errors. Having substituted its reading of the governing law for the Agency's, and having made its own factual findings, the Court of Appeals concluded that the EPA erred in not considering an important and relevant fact--namely, that the upper Illinois River was (by the court's assessment) already degraded.

As we have often recognized, an agency ruling is "arbitrary and capricious if the agency has ... entirely failed to consider an important aspect of the problem." *Motor Vehicle Mfrs. Assn. of United States, Inc. v. State Farm Mut. Automobile Ins. Co.*, 463 U.S. 29, 43, 103 S.Ct. 2856, 2867, 77 L.Ed.2d 443 (1983). However, in these cases, the degraded status of the river is only an "important aspect" because of the Court of Appeals' novel and erroneous interpretation of the controlling law. Under the EPA's interpretation of that law, what matters is not the river's current status, but rather whether the proposed discharge will have a "detectable effect" on that status. If the Court of Appeals had been properly respectful of the Agency's permissible reading of the Act and ****1061** the Oklahoma standards, the court would not have adjudged the Agency's decision arbitrary and capricious for this reason.

[15] In sum, the Court of Appeals made a policy choice that it was not authorized to make. Arguably, as that court suggested, ***114** it might be wise to prohibit any discharge into the Illinois River, even if that discharge would have no adverse impact on water quality. But it was surely not arbitrary for the EPA to conclude--given the benefits to the river from the increased flow of relatively clean water [FN19] and the benefits achieved in Arkansas by allowing the new plant to operate as designed--that allowing the discharge would be even wiser. It is not our role, or that of the Court of Appeals, to decide which policy choice is the better one, for it is clear that Congress has entrusted such decisions to the Environmental Protection Agency.

FN19. Justice Holmes recognized this potential benefit years ago:

> "There is no pretence that there is a nuisance of the simple kind that was known to the older common law. There is nothing which can be detected by the unassisted senses--no visible increase of filth, no new smell. On the contrary, it is proved that the great volume of pure water from Lake Michigan which is mixed with the sewage at the start has improved the Illinois River in these respects to a noticeable extent. Formerly it was sluggish and ill smelling. Now it is a comparatively clear stream to which edible fish have returned. Its water is drunk by the fisherman, it is said, without evil results." *Missouri v. Illinois*, 200 U.S. 496, 522, 26 S.Ct. 268, 270, 50 L.Ed. 572 (1906).

Accordingly, the judgment of the Court of Appeals is

Reversed.

503 U.S. 91, 112 S.Ct. 1046, 117 L.Ed.2d 239, 60 USLW 4176, 34 ERC 1193, 22 Envtl. L. Rep. 20,552

Briefs and Other Related Documents (Back to top)

- 1991 WL 636274 (Oral Argument) Oral Argument (Dec. 11, 1991)
- 1991 WL 521584 (Appellate Brief) REPLY BRIEF OF PETITIONERS IN No. 90-1262 (Sep. 04, 1991)
- 1991 WL 521583 (Appellate Brief) REPLY BRIEF FOR THE ENVIRONMENTAL PROTECTION AGENCY (Aug. 29, 1991)
- 1991 WL 521582 (Appellate Brief) Brief for the Oklahoma Wildlife Federation. (Aug. 02, 1991)
- 1991 WL 521581 (Appellate Brief) RESPONDENT'S BRIEF (Jul. 22, 1991)
- 1991 WL 521577 (Appellate Brief) BRIEF OF PETITIONERS (May. 31, 1991)
- 1991 WL 521580 (Appellate Brief) BRIEF FOR THE ENVIRONMENTAL PROTECTION AGENCY (May. 31, 1991)
- 1991 WL 11009317 (Appellate Petition, Motion and Filing) Reply Brief for the Petitioner (Mar. 22, 1991)Original Image of this Document (PDF)
- 1991 WL 11009316 (Appellate Petition, Motion and Filing) Reply Brief in Support of Petition for Writ of Certiorari (Mar. 15, 1991)Original Image of this Document (PDF)
- 1991 WL 11009221 (Appellate Petition, Motion and Filing) Brief of the Association of Metropolitan Sewerage Agencies, the Arkansas Municipal League, the New Mexico Municipal League and the North Carolina League of Municipalities as Amici Curiae in Support of Petitioners (Mar. 11, 1991)Original Image of this Document (PDF)
- 1991 WL 11009222 (Appellate Petition, Motion and Filing) Brief Amici Curiae of Champion International Corporation, American Paper Institute, National Forest Products Association, American Iron and Steel Institute, the Fertilizer Institute, and Arkansas Poultry Federation in Support of Petitioners (Mar. 11, 1991)Original Image of this Document (PDF)
- 1991 WL 11009223 (Appellate Petition, Motion and Filing) Brief of the States of Colorado, Nevada, North Dakota, Pennsylvania and South Dakota as Amici Curiae in Support of Petitioners (Mar. 11, 1991)Original Image of this Document (PDF)
- 1991 WL 11009224 (Appellate Petition, Motion and Filing) Brief of the State of Montana as Amicus Curiae in Support of Petitioners (Mar. 11, 1991)Original Image of this Document (PDF)
- 1991 WL 11009355 (Appellate Petition, Motion and Filing) Brief for the State of Oklahoma, the Oklahoma Scenic Rivers Commission, the Oklahoma Pollution Control Coordinating Board, Save the Illinois River (Stir) and the Oklahoma Wildlife Federation in Opposition (Mar. 11, 1991)Original Image of this Document (PDF)
- 1991 WL 11009315 (Appellate Petition, Motion and Filing) Petition for a Writ of Certiorari (Feb. 08, 1991)Original Image of this Document (PDF)

• 1991 WL 11009306 (Appellate Petition, Motion and Filing) Petition for a Writ of Certiorari to the United States Court of Appeals for the Tenth Circuit (Feb. 03, 1991)Original Image of this Document (PDF)

Tab 21

To: Western States Petroleum Association

From: Gary Lorden, Ph.D.
Professor of Mathematics, California Institute of Technology (Caltech)

Date: February 2, 2005

Subject: Statistical issues involved in the determination of numerical limits for pollutants in storm water flows

I was retained by Flow Science to evaluate statistical issues associated with the formulation of numerical limits for pollutants in storm water flows. I have examined a Flow Science report entitled *Storm Water and Best Management Practices Analysis*, February 2, 2005, an EPA report, *Water Quality Standards for Coastal and Great Lakes Recreation Waters; Final Rule* (40 CFR Part 131, Part II), and few small datasets of metals concentrations in storm water flows at a Southern California facility owned and operated by a WSPA member.

Qualifications.

My professional background as a statistician began with my research specialization in the field for my Ph.D. in mathematics from Cornell in 1966. Since that time, I have been continuously engaged in teaching statistics at Northwestern University, UC Berkeley, and Caltech, where I have been Professor of Mathematics since 1977 and department head since 2003. In recognition of my research contributions I was elected in 1973 as a Fellow of the professional society called the Institute of Mathematical Statistics, and throughout my academic career I have been active as a statistical consultant not only for scientific and engineering colleagues, but also for various governmental agencies and private companies. I have also served as a statistical expert witness in a variety of legal and regulatory matters.

Determination of numerical limits for grab samples.

It is clear from the datasets I have examined that the pollutant concentrations associated with storm water flows are highly variable over short time scales. Within a given hour the measured concentrations of pollutants in grab samples can be expected to vary dramatically from the mean for that hour. Peak values on the order of 3 to 5 times the mean would not be uncommon. As a consequence, the probability that a single grab sample will give an anomalously high or low value (i.e. significantly higher or lower than the hourly mean value) is substantial. In addition it is likely that this high variability will exist in larger representative data sets. Because CTR criteria are specified as one-hour (or longer) average concentrations, it is essential to consider the variability that occurs on a sub-hour basis.

Moreover, the use of numerical limits for grab sample data to verify compliance with numerical limits over even one-hour time periods has the fundamental difficulty that a statistical calibration needs to be performed, based upon sufficient data to determine the relationship between the numerical scale on which grab samples vary and the numerical scale on which hourly averages vary. Variability of one-hour-average sample data will surely be less extreme than variability between grab samples, so that any numerical limit applied to grab samples will imply a smaller numerical limit on hourly averages.

End-of-pipe concentrations of pollutants vs. concentrations in receiving waters.

As is taken into account in the EPA document, the effects of dilution and flow volume on pollution concentrations in receiving waters as a consequence of end-of-pipe concentrations is a critical factor in any analysis. Any accurate and useful dynamical model must factor in those effects rather than apply end-of-pipe limits. These effects, too, lead to a statistical calibration problem involving the need to compare the numerical scales of concentrations measured end-of-pipe and those measured in receiving waters.

Never to be exceeded limits vs. limits with specified frequency of exceedance.

From a statistical point of view, the most scientifically natural approach to developing appropriate numerical limits and determining compliance with those limits is to recognize that highly variable measurement data will over time have some non-vanishing probability of exceeding even a well-chosen limit. Consequently, a more rational approach is to prescribe the maximum **frequency** of exceedance of a specified limit. Indeed, CTR criteria were developed in this manner. The choice of the numerical values of the maximum frequency and the limit itself should be made in a coordinated fashion to achieve the desired improvements in water quality.

Recommendation for developing a sound statistical basis for numerical limits.

To establish sound, scientifically appropriate numerical limits for storm water discharges, it is in my opinion necessary at a minimum to carry out a well-designed data collection effort at a representative set of facilities over a reasonable period of time, sufficient to capture some of the variability over a sequence of storms. As the EPA's discussions recognize, simply lifting a numerical value from one requirement (such as a CTR) and imposing it upon another measurement frame (such as end-of-pipe grab sampling) is unsound and will result in an unknowable but presumably large increase in the stringency of the original requirement.

Tab 22

Flow Science Incorporated
723 East Green St., Pasadena, CA 91101
(626) 304-1134 FAX (626) 304-9427

FLOW SCIENCE®

Technical Memorandum

To: Western States Petroleum Association (WSPA)

From: Susan C. Paulsen, Ph.D., P.E.
Vice President and Senior Scientist

Date: February 1, 2005

Subject: Determination of numeric limits for storm water flows
FSI 044018

Flow Science was retained by the Western States Petroleum Association (WSPA) to conduct a technical evaluation of existing storm water data in Los Angeles County to address the contribution of industrial storm water discharges to receiving water quality. Our evaluation is contained in a report entitled *Storm Water and Best Management Practices Analysis*, February 2, 2005, which has been submitted under separate cover.

WSPA also requested that Flow Science prepare this memorandum to outline an approach for determining scientifically defensible numeric limits for insertion into NPDES permits governing storm water discharges from industrial facilities. In support of this analysis, Flow Science has reviewed available data for pollutants governed by the California Toxics Rule (CTR) in storm water discharges from industrial facilities; available data on storm flow discharge flow rates and receiving water conditions during storm events; and USEPA and SWRCB policy documents and guidance regarding the calculation of numeric permit limits. We have also relied upon our experience in simulating water quality in receiving waters, modeling discharges to rivers, lakes, reservoirs, estuaries, and the ocean, and in working with Regional Water Quality Control Boards (Regional Boards) and the State Water Resources Control Board (State Board) on a variety of regulatory matter.

Qualifications

I am employed by Flow Science Incorporated, an engineering consulting firm with offices in Pasadena, CA, Harrisonburg, VA, Philadelphia, PA, and Mt. Pleasant, SC. Flow Science provides consulting services to industry, municipalities, and governmental agencies. We have specialized expertise in a variety of technical areas, including water quality analyses, design of mitigation measures for water quality concerns, turbulent mixing and diffusion in rivers, lakes, estuaries, the ocean and atmosphere, and related regulatory processes.

My academic education includes a Bachelor of Science with Honors in Civil Engineering (Stanford University, 1990), a Master of Science degree in Civil Engineering (California Institute of Technology, 1993), and a Ph.D. in Environmental Engineering Science (California Institute of Technology, 1997). Included in this formal education were courses in fluid mechanics, hydrologic transport processes, water treatment processes, and aquatic chemistry. I am currently a Senior Scientist and Vice President at Flow Science Incorporated.

Background: Water Quality Criteria

Water quality standards consist of two parts: designated beneficial uses and water quality criteria or objectives. Beneficial uses describe the various uses of waters, while criteria describe the water quality conditions that are necessary to support or maintain a specified use. Water quality criteria may be either numeric or narrative. The discussion provided below concerns the application of numeric criteria in establishing permit limitations (the translation of narrative criteria to numeric values is a very different discussion). Most criteria are intended to protect aquatic life and/or human health. Aquatic life criteria are intended to protect against both short-term (acute) and long-term (chronic) impacts, while human health criteria are intended to protect people against long-term exposure to pollutants in either water or fish.

Priority pollutant criteria established by the California Toxics Rule (CTR) are intended to involve consideration of frequency, magnitude, and duration. For example, acute and chronic criteria incorporate these considerations as follows (TSD, p. 32 and 36):

- Chronic (CCC) criteria: aquatic organisms and their uses should not be affected unacceptably if the four-day average concentration of a constituent does not exceed the recommended value more than once every three years on average

- Acute (CMC) criteria: aquatic organisms and their uses should not be affected unacceptably if the one-hour average concentration of a constituent does not exceed the recommended value more than once every three years on average

These criteria clearly specify the magnitude (level) of a constituent concentration that is acceptable based upon the exposure duration (1 hour or 4 days) and the exceedance frequency (once-in-three-years). Criteria were developed in this manner in recognition of the inherent variability in effluent concentrations, receiving water conditions, sampling protocols, data availability, and laboratory analyses, among other factors. In applying and interpreting water quality criteria, it is important to consider the frequency, duration, and magnitude of exposure within the receiving water. For this

reason, a statistical or modeling approach is required to properly apply water quality criteria as permit limits, as discussed below.

Because water quality criteria are statistically-derived limits, they are clearly not intended to apply as never-to-be-exceeded values.

Discussion of requirements for establishing numeric limits

Both the USEPA and the State Board have provided guidance regarding the calculation of effluent limits for use in NPDES permits. Several steps are followed to determine if effluent limits are required for a given constituent and to determine the appropriate permit limitation. The first step involves a determination of "reasonable potential," an assessment based upon available data for the effluent and receiving water to determine if a discharge is likely to cause an exceedance of water quality objectives in the receiving water. If reasonable potential is found to exist, numeric limits are then calculated for the subject pollutant for insertion into the NPDES permit regulating that discharge. Because water quality criteria are defined in terms of frequency, magnitude, and duration, determining reasonable potential and establishing effluent limitations requires information on the frequency, duration, and magnitude with which a particular set of conditions will occur.

Reasonable potential determinations

The first step is to determine if "**reasonable potential**" exists to "**cause or contribute to**" an excursion of water quality standards in the receiving water. Reasonable potential calculation procedures have been developed for point source discharges and are applied at specified low-flow conditions. Reasonable potential calculation procedures have been described by the USEPA in the *Technical Support Document for Water Quality-based Toxics Control* (the "TSD") and by the *State Board in the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (also known as the "State Implementation Plan," or "SIP").[1] As outlined in the TSD, determination of reasonable potential requires information on observed effluent concentrations, variability in the data set describing effluent concentrations and flows, background receiving water concentrations, and consideration of dilution. Both the TSD and the SIP clearly state that these procedures

[1] See, e.g., US Environmental Protection Agency, *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991, at p. 53. See also the State Water Resources Control Board, *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, 2000, at p. 4.

are appropriate for evaluating point source discharges. These procedures are not applicable to highly time-variable flows, like storm flows.

Development of effluent limitations

If it is determined that reasonable potential exists for a discharge to result in an exceedance of water quality objectives, then, where possible, appropriate permit limits are calculated. As discussed in the TSD, permit limits can be calculated in one of two ways: (1) using steady-state representations of worst-case conditions; and (2) using dynamic modeling. Both the steady-state and dynamic modeling approaches can be used to determine appropriate permit limits for point source discharges. However, as shown below, only the dynamic modeling approaches are appropriate for addressing storm flows.

Steady-state models

As described in the TSD (see, e.g., p. 78), **steady-state models** require the following information:

- Effluent flow
- Effluent concentration and variability of constituents to be evaluated
- Background receiving water concentration of constituents to be evaluated
- Background receiving water flow

Steady-state models use available information to determine a water quality for a single condition. For example, water quality is evaluated for specified low-flow conditions in the receiving water (e.g., the 1Q10, the lowest one-day flow with a 10-year recurrence interval). A constant effluent concentration is selected based upon a statistical analysis of available data (e.g., using a 99% confidence level and 99% probability that a given concentration will be exceeded). Effluent flow rates are also assumed constant over the relevant timescales, so that the duration and frequency with which a water quality objective will be exceeded will be reflected by selecting the appropriate receiving water design flow. Thus, steady-state modeling is appropriate for constant discharges where critical conditions generally occur during low-flow time periods.

Available data clearly demonstrate that concentrations of pollutants in storm water can vary by more than an order of magnitude in less than an hour during a storm. Storm water discharge volumes also vary greatly during a storm. Variations in both pollutant concentrations and flow volumes depend upon a wide variety of factors, including time since the previous storm, rainfall amounts, soil saturation levels, location within a watershed, and direction from which a storm arrives. For these reasons, steady-

state modeling is not appropriate for storm flows. (See EPA's TSD at p. 78-80.) Steady-state models are also used to calculate permit limits in the State's SIP; the SWRCB recognizes that these methods are not appropriate for storm flows (see SIP at p. 1).

Dynamic models

Dynamic models explicitly predict the effects of receiving water and effluent flow and concentration variability. Computer models are used to incorporate the variability of individual inputs (e.g., effluent flow and concentration, receiving water flow and concentration) and are more accurate than steady-state models in accurately predicting receiving water concentrations and/or toxicity. Effluent limits derived using dynamic models are generally expressed as long-term average concentrations and acceptable variance from those averages. (See the TSD at p. xv and p. 80).

As described in the TSD, several dynamic modeling techniques have been developed, including:

- Continuous simulation models use continuous records of effluent and receiving water flows and concentrations to generate continuous values of concentrations in the receiving water. These models predict downstream receiving water concentrations in chronological order. Model predictions are then used to calculate the occurrence frequency of the receiving water concentration of a given constituent, which can then be compared to water quality criteria and used to establish appropriate effluent limitations. A schematic of this approach is shown in Figure 1, taken from the TSD.

- Monte Carlo simulations use statistical probability distributions of effluent flow rate and effluent concentration in a mathematical model of constituent fate and transport. Monte Carlo simulations can also incorporate receiving water flow rate and concentration distributions or can be used in combination with continuous simulations. Results are used to generate probability distributions and to determine how often a given water quality concentration is exceeded.

- Lognormal probability modeling is similar to Monte Carlo simulations but uses log-normal probability distributions of input variables to calculate probability distributions of output variables. Thus, this method requires only the relevant statistical parameters of the input variables (e.g., sample means and variability, as derived from data sets describing effluent and receiving water characteristics).

As discussed above, all dynamic modeling techniques require detailed information on the variability of effluent and receiving water concentrations. Information on the variability of effluent and receiving water flows over time is also important. These data have not traditionally been collected for storm flows. Indeed, collection of an

appropriate data set would be time-consuming and resource-intensive. Storm flow discharges exhibit considerable variability in terms of flow rate and concentration. Further, this variation occurs on short timescales, and this variability must be considered in developing appropriate limits.

Use of inappropriately derived permit limits

In fact, inserting a never-to-be-exceeded numeric limit in a permit is equivalent to promulgating a much lower standard than the value inserted into the permit. For example, inserting a CTR limit as a never-to-be exceeded value in a permit would be equivalent to implementing a standard that is below the CTR limit. Similarly, inserting a benchmark limit as a never-to-be exceeded value in a permit would be equivalent to implementing a standard that is below the benchmark limit. Determining the level of conservatism that would result from this approach would require examination of multiple data sets.

As an analogy, consider EPA's guidance on bacteria standards.[2] Bacteria standards are given in terms of a long-term geometric mean and a single sample maximum value. For example, for enterococci, the geometric mean value is 35/100 ml and the single sample maximum is 104/100 ml, based on the 75th percentile distribution about the mean value from observed data. However, the water body geometric mean required to keep the water body concentration below 104/100 ml 99% of the time is 2/100 ml, far more stringent than the level of protection intended by the geometric mean.

Development of a methodology for calculating numeric permit limits for storm flows

As discussed above, the inherent variability in storm flows and pollutant concentrations makes steady-state approaches inappropriate for calculating numeric limits for storm flows. Because of this variability, dynamic modeling approaches would be required to calculate appropriate permit limits. However, dynamic modeling approaches require detailed data sets, and we are unaware of data sets that are complete enough to be used to calculate defensible permit limits.

Additionally, there is no agreed-upon methodology for using dynamic modeling to develop scientifically appropriate permit limits for storm water discharges. Thus, the appropriate course of action would be for the SWRCB to initiate a data collection program and to use these data to test various approaches for determining reasonable potential and developing appropriate numeric limits. Then the SWRCB could establish a methodology that would specify data collection requirements, procedures for determining reasonable potential, and procedures for calculating appropriate permit limits. This

[2] See Federal Register, Vol. 69, No. 220, November 16, 2004, at p. 67225.

methodology would likely recommend the use of one (or more) dynamic modeling techniques.

Detailed data sets would be required to establish a methodology for developing numeric permit limits for storm flows. At a minimum, these data sets would include:

- Effluent concentration data collected more frequently than once per hour during storm events
- Effluent flow data, preferably as a continuous record, but at a minimum more frequently than once per hour during storm events
- Receiving water concentration data, collected more frequently than once per hour during the intended discharge time period
- Receiving water flow data, preferably as a continuous measurement, but at a minimum more frequently than once per hour
- Information on the storm event during which data collection occurs – e.g., rainfall amount, antecedent dry period, and generation of a storm hydrograph
- General facility information, including facility type and information on BMPs and storm water management practices at that facility

Data to be collected during storms would be required more frequently than once per hour because the acute aquatic life criteria employ a one-hour averaging period, and because existing datasets demonstrate that large variations in concentration and flow occur on timescales shorter than one hour. (For these reasons, it would be wholly inappropriate to develop permit limits based upon results from a single grab sample.) In addition, the datasets would be required for a variety of industrial categories, as storm water management practices and priority pollutants vary significantly from one category of industrial discharger to another.

Preferably, data collection requirements will be specified by the State Board, so that data would be collected in a uniform manner throughout the State. These data could be used to establish a methodology for calculating appropriate permit limits and for subsequent data collection. The methodology would specify acceptable approaches to calculating permit limits, data collection requirements to be used in the permit, and procedures for determining compliance with those limits.

Summary

In summary, storm flows are significantly different from traditional point source discharges. Both flow rates and pollutant concentrations vary greatly from storm to storm, and over short timescales within storms, in both storm water discharges and in receiving waters. Because of this inherent variability, it would be wholly inappropriate to

insert CTR levels or benchmarks as never-to-be-exceeded numeric limits in permits. The inherent variability in storm flows also renders traditional, steady-state approaches to calculating numeric permit limits improper for storm flows.

To calculate numeric limits for storm flows, the frequency, duration, and magnitude of storm discharges must be considered. Dynamic modeling approaches will be required to develop appropriate numeric limits, but as yet no methodology has been developed or agreed upon to support this process. In large part, this is because the data that would be required to develop a scientifically defensible methodology do not exist.

If numeric limits are to be developed for permits, an appropriate course of action would be to embark upon a data collection program that would gather the data needed to develop a methodology for calculating numeric permit limits. Data required to develop and support a methodology would include effluent and receiving water concentration and flow data, collected more frequently than once per hour over the duration of a storm event, plus detailed information on the facilities where data collection occurs and the nature of the storm events during which data are collected. The methodology to be developed would specify the type and frequency of data collection needed to determine reasonable potential and permit limits; the procedures for determining reasonable potential and permit limits; and the sampling and monitoring required to assess compliance with appropriate limits.