New Course Charted for Nation’s Waters

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Water Quality-Oriented Approach Replaces Technology-Based Controls

Although vast improvements in water quality have been made using technology to reduce pollution from industrial facilities and sewage systems, the Environmental Protection Agency recently reported that over 40 percent of the nation’s waters that have been assessed still do not meet state water quality standards and are too polluted for fishing or swimming.

Almost 30 years after enactment of the Federal Water Pollution Control Act of 1972 -- the Clean Water Act -- federal and state governments are charting a new course to improve the quality of the nation’s waters. The EPA and, in New Jersey, the Department of Environmental Protection, have begun to transition from a clean water program founded on technology-based controls to a water-quality-oriented approach -- Total Maximum Daily Loads.

This change in course is significant. The use of TMDLs will require permittees under the DEP's Pollutant Discharge Elimination System program to further reduce levels of pollutants in their wastewater. Real estate developers and other businesses will be forced to downsize development plans and to use innovative best management practices to reduce pollution from storm-water runoff and other similar sources.

The new focus on TMDLs is quite consistent with the DEP's recent proposal to overhaul its Water Quality and Watershed Management rules. This proposal seeks to incorporate "smart growth" land-use principles and a watershed-management perspective into state, regional and local water quality management planning. See 32 N.J.R. 2285 (July 3, 2000). TMDLs are an important part of this water quality management program and are adopted as substantive amendments to Areawide Water Quality Management Plans.
The DEP has only just begun the process of developing TMDLs for the hundreds of impaired waters in the state. Given the magnitude of this task, it may be some time before TMDLs directly impact many New Jersey businesses. Nevertheless, the pace of TMDL development is likely to quickly increase in the near future.

**TMDLs Defined**

Essentially, a TMDL is a "pollutant budget" for a specific water body or segment of a water body. The TMDL is the maximum amount of a pollutant -- for instance, lead or mercury -- that the water body can assimilate and still meet state ambient water quality standards. Once the total amount of the pollutant is identified, the "budget" is worked up allocating -- to point sources and nonpoint sources that discharge the pollutant -- respective shares of the total amount that may be discharged to the water body. Trading of allocated shares is allowed under certain circumstances.

Section 303 of the Clean Water Act provides the starting point for TMDLs, requiring each state: (i) to prepare a list of water bodies or segments that do not meet state water quality standards; (ii) to determine the TMDL for each pollutant impairing each water body; (iii) to allocate the total pollutant load for the water body using Wasteload Allocations for point sources, Load Allocations for nonpoint sources, a Margin of Safety, and a Reserve Capacity for future development; and (iv) to translate wasteload allocations into water-quality-based effluent limits in DEP pollutant discharge elimination system permits and load allocations into best management practices or other controls on nonpoint sources. See 33 U.S.C. 1313(d).

**Litigation**

Although the states have only recently begun to develop TMDLs, the Clean Water Act required TMDLs to be implemented as early as the late 1970s. For many reasons, including difficulties in developing TMDLs, a focus on implementing technology-based controls and point-source permitting and, perhaps, political resistance, the EPA and the states have been slow to implement the TMDL program. In the late 1980s and 1990s, citizens groups brought suit in federal courts in many states to compel the EPA to adopt TMDLs where the states had failed to do so.

New Jersey's TMDL program is the subject of a pending citizen suit, in which the American Littoral Society and New Jersey Public Interest Research Group allege that the EPA has acted arbitrarily and capriciously by approving New Jersey's lists of impaired waters and by failing to develop and implement TMDLs where the state has failed to do so. See American Littoral Society and New Jersey Public Interest Research Group v. EPA, (D.N.J. No. 96-339).

The federal District Court recently denied cross-motions for summary judgment on the issue of whether the EPA has unreasonably delayed implementing TMDLs for New Jersey's impaired waters. In doing so, the court noted that the state recently has devoted substantial resources to TMDLs and demonstrated a good faith interest in bringing
its program into compliance.

**Complexity and Controversy**

The preparation of TMDLs is an enormously complex task. Vast amounts of water-quality data are required for each of the hundreds of impaired waters located within the state. A detailed understanding is required of the assimilative capacities of a broad range of water bodies -- rivers, lakes and estuaries. Complex fate and transport modeling must be developed for a suite of toxic pollutants.

Determining the cause of the impairment to a water body or the specific pollutant that needs to be addressed with a TMDL often is very difficult. For example, where algae blooms that reduce dissolved oxygen levels in a lake appear to be caused by excess nutrients, the causes also may include reduced flow, sedimentation or elevated water temperature. Similarly, all sources of the pollutant must be identified, as well as the amount that the existing pollutant loadings must be decreased in order to allow the water body to achieve appropriate standards.

The development of TMDLs is controversial because it allocates valuable rights to discharge pollutants among existing industrial facilities and land development, as well as to future, perhaps undetermined, business expansion and development. Obviously, difficult choices must be made about how to allocate these discharge rights. Should the rights be allocated proportionally considering existing practices and discharge permits limits, or in a manner that requires reductions from dischargers that can achieve results at least cost? How will allocations be made between point and nonpoint sources, and how much should be allocated to future growth?

Given the difficult questions presented, it seems clear that those industrial dischargers and sewage systems that are already directly regulated will see their permit effluent limits ratcheted down tightly. It also seems clear that future real estate development and business expansion that require state or local approvals will be subject to land-use restrictions and perhaps, costly best management practices.

**Status of Regulations**

TMDLs are required by §303(d) of the Clean Water Act and by EPA regulations at 40 C.F.R. 130. On Aug. 23, 1999, the EPA proposed a number of significant revisions to its TMDL rule, provoking strenuous objection from the U.S. Congress and industrial, agricultural and forestry interests. Despite the strong opposition, the EPA adopted most of the proposal on July 13, 2000, while declining to adopt some of the more controversial provisions -- provisions that would regulate forestry and animal feeding operations, that would require TMDLs for "threatened but not impaired" waters, and that would require offsets for new discharges into impaired waters. See 65 Fed. Reg. 43586.

Despite the changes in the final rule, Congress prohibited the EPA from using any fiscal year 2000 or 2001 funds to
implement the new regulations and joint resolutions were introduced in the House and Senate under the Congressional Review Act that would disapprove the new rule.

Politically, it may be difficult for this Congress to prevent the new rules from taking effect, which, barring further action by Congress or the new administration, will occur in October 2001. However, the new regulations are effective for the purpose of judicial review; industry and environmental groups have filed lawsuits in the D.C. Court of Appeals challenging the regulations on numerous grounds. (E.g., American Farm Bureau Federation v. EPA, D.C. Cir., No. 00-1320; American Forest and Paper Association v. EPA, D.C. Cir., No. 00-1353.)

Key components of the EPA’s new TMDL rule require the states to prepare a detailed implementation plan for each TMDL and to provide reasonable assurances that best management practices for nonpoint sources will be implemented within five years. The new rule also requires that listed waters attain state water quality standards within 10 years. Further, the rule gives the EPA greater rights to object to new or renewal DEP pollutant discharge elimination system permits where water quality standards are not met. The EPA encourages states to implement TMDLs on a watershed basis where appropriate.

The DEP has been delegated the authority to implement TMDLs and has promulgated detailed TMDL regulations. See N.J.A.C. 7:15-6 and 7:15-7.

On July 3, 2000, the DEP proposed significant revisions to the TMDL program as part of its proposal to overhaul the Water Quality and Watershed Management regulations. See 32 N.J.R. 2285. Among the most significant aspects of the proposal are (1) the provisions that would allow TMDLs for “threatened” waters that do not exceed standards, called “protective TMDLs,” and (2) the clarity with which the DEP signaled its intent that TMDLs will be developed as part of a comprehensive watershed-planning approach and, in significant part, by stakeholders located within each of the state’s 20 Watershed Management Areas.

**Listing Impaired Waters**

As the first step in the TMDL process, the DEP is required to identify water bodies or segments of water bodies that do not meet the state’s water quality standards following implementation of the Clean Water Act’s technology-based controls, that is to say, the "best available technology economically achievable." See 33 U.S.C. §1311. In order to identify impaired waters, the DEP compares surface water quality standards with water quality monitoring data, evaluates fish and shellfish consumption advisories and other biological studies, and uses the DEP's pollutant discharge elimination system compliance monitoring data and studies.

The Water Quality Limited Segments List is prioritized, taking into account the severity of the pollution and the uses to be made of the waters. On its 1998 list, the DEP identified over 1,000 impaired water segments within the state.
and gave over 800 of those waters a high or medium priority for TMDL development. The DEP's proposed TMDL rule is stricter than federal requirements, allowing "threatened" waters that are not water-quality limited also to be listed.

Prior to the preparation of the water quality limited segments list, the DEP provides an opportunity to the public to contribute water quality data, to comment on the listing methodology and to make recommendations regarding specific waters. Additional opportunities for public comment follow the drafting of the list. The DEP's next list is due to the EPA for its review and approval in April 2002 and, under the EPA's new rules, it must be updated and resubmitted every four years thereafter.

**Developing TMDLs**

Under the EPA's new rule, TMDLs must be developed and implemented so that each water body on the water quality limited segments list attains those water quality standards for which it was listed within 10 years of the date that the water body is first listed or within 10 years of July 2000, whichever is later. A state may request a five-year extension of this time for good cause.

In 1999, prior to the promulgation of the new rule, the EPA and the DEP entered into a memorandum of agreement, under which the DEP agreed to develop TMDLs within 8 years for many of the impaired waters on the state's 1998 list. As of September 2000, four TMDLs had been prepared, including TMDLs for certain pollutants in the Delaware, Whippany and Hackensack Rivers.

Although any interested party is permitted to draft a TMDL, generally TMDLs are developed by the DEP in close coordination with public advisory committees and technical advisory committees established by the DEP in the respective watershed management areas. Under the DEP's proposed water quality and watershed management rules, public advisory committees are the primary advisory body to the department on developing watershed management area plans.

The DEP also will convene a technical advisory committee, which will assist in the drafting of TMDLs and implementation plans from interested stakeholders that are located within the geographic area of the TMDL. The DEP remains responsible, however, for ensuring that TMDLs are developed and implemented in a timely manner.

Under the DEP's proposed rule, TMDLs may be based on any appropriate geographic scale -- an individual water body or segment, multiple water bodies or a watershed -- that considers all significant sources of the pollutant for which the TMDL is developed. This proposal is a significant change from the existing rule that limits TMDL development to the water quality limited segments. TMDLs must be based on sound technical studies and account for seasonal variations, downstream water quality standards, changes in flow and consumptive uses. Under the
proposed rule, "protective TMDLs" also may be developed for waters that are not yet impaired in order to maintain or enhance water quality, to plan for future growth, to serve as a link between other water quality limited segments, or to provide pollutant reductions that are necessary for downstream waters that are impaired. The rule does not prescribe any particular methods to establish a TMDL, rather, it provides a performance standard -- the TMDL "must adequately relate pollutant input to water quality." 32 N.J.R. 2341 (to be codified at N.J.A.C. 7:15-5.3(b)).

Although this performance standard is noticeably vague, the EPA and the DEP have provided guidance on developing TMDLs in the form of existing regulations and technical documents. See, e.g., N.J.A.C. 7:15-7.3 to 7:15-7.7. The method chosen to develop TMDLs may depend upon the amount and type of data that is available on the water body, the number and types of pollutant sources, and the characteristics of the pollutant and the water body. Whatever method that is used must be calibrated and verifiable.

**Allocating the TMDL**

The TMDL is allocated among the point and nonpoint sources discharging within the geographic area of the TMDL. The allocation uses wasteload allocations for point sources, load allocations for nonpoint sources, a margin of safety, and, where appropriate, a reserve capacity for future growth. In its proposed rule, the DEP also has removed the detailed requirements for allocating TMDLs that are contained in the existing rule, proposing to leave it to the technical advisory committees, in the first instance, to determine the method of allocating pollutant shares because "allocation solutions are unique to each watershed." 32 N.J.R. 2306.

The DEP’s existing regulations do provide guidance on allocating TMDLs, and the EPA has developed significant technical guidance to assist the states. For example, wasteload allocations should take into account antidegradation and mixing zone requirements. In determining the need for a wasteload allocations, the EPA permits the states to consider the magnitude of the impact of the source on the water body, the degree of management controls already in place, feasibility of controls, probability of success, and cost.

Load allocations may be based upon estimated nonpoint loadings, loadings that are anticipated after the implementation of existing best management practices, or gross allotments to categories of nonpoint sources. An allocation may require, among other things, an equal discharge concentration or mass for each source, an equal percentage reduction of pollutants by each source, an equal incremental cost above minimum treatment for each source, or minimization of the total costs of compliance for the water body.

Preliminary wasteload allocations and load allocations may be traded between and among point and nonpoint sources that are located within the geographic area of the TMDL. Any trades must be incorporated into the final TMDL. Thus, an industrial discharger might purchase credits to discharge a pollutant from a real estate developer.
who implements state-of-the-art best management practices. Any trades must take into account site-specific impacts that may result from trading allocations from one location to another; e.g., the ability to attain standards in the entire water body, downstream and at the edge of mixing zones, if any.

A portion of the TMDL is allocated to a margin of safety to account for a number of uncertainties, including the quality of available analyses and input data, the type of pollutant -- including its tendency to bioaccumulate -- and the reliability of the controls planned in the TMDL. In estimating future conditions and the extent of any allocation to a reserve capacity, the planned development in the areawide water quality management plans must be considered.

**Controlling the Sources**

Wasteload allocations will be translated into water-quality-based effluent limits in the DEP’s pollutant discharge elimination system permits. New and renewal discharge permits may be subject to more stringent effluent limits in order to decrease the pollutant load to impaired waters. The EPA’s new rule requires that existing elimination system permits limits be revised once applicable TMDLs have been developed, generally within two years of TMDL development. The DEP has said that it may use TMDLs that have been proposed, but not yet approved by the EPA, to prepare draft pollutant discharge elimination system permits.

Load allocations will be implemented for nonpoint sources through regulatory, incentive-based or voluntary best management practices and other control measures. According to data compiled by the EPA from the states’ water quality limited segments lists, nonpoint sources, such as surface runoff, contribute significantly to the impairment of the nation’s waters. However, regulatory control over these sources is often diffuse, making effective implementation of load allocations more difficult.

Best management practices and other controls may be imposed under areawide water quality management plans, headwaters protection programs, water conservation programs to restore streamflow, and local land-use regulation and zoning. Examples of best management practices include constructed wetlands, riparian buffer zones, vegetative cover, sedimentation basins and porous pavement, as well as restrictive covenants, setbacks and septic system pump-out schedules.

The EPA has identified a number of other regulatory programs that also may play a role in reducing discharges from nonpoint sources, including controlling infiltration of contaminated groundwater through site remediation and reducing air deposition through emissions permitting.

**Getting Prepared and Involved**

TMDLs will significantly impact new development and existing facilities in New Jersey. Managers and corporate counsel should begin to identify those projects or facilities that are likely to be subject to new, more stringent
requirements as the pace of TMDL development increases. For example, a facility located in proximity to a stream, river or lake that is water-quality-limited may be subject to more stringent DEP pollutant discharge elimination system permit limits upon renewal or to requirements to downsize expansion plans and implement restrictive best management practices.

As a result of the sheer number of TMDLs that must be developed within the state, the DEP's TMDL development process will require significant input and assistance from local stakeholders, as well as "buy in" to the allocations and controls imposed within impaired watersheds. The public advisory committees and technical advisory committees provide an opportunity for New Jersey businesses to participate in and shape the development of TMDLs, including wasteload allocations, load allocations and trading. Commenting on the DEP's decisions to list waters and on the content of TMDLs also will be important.

The TMDL program is not new. Nevertheless, given the EPA's new requirements to the states and the DEP's recent focus on water quality and watershed management, New Jersey businesses and developers can expect that the pace of TMDL development will rapidly increase. Now is a good time to take stock of the potential impacts of TMDLs on existing facilities and proposed development, and to get involved in watershed management groups that will drive this dynamic and controversial program.

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