



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OFFICE OF
WATER

MEMORANDUM

SUBJECT: Establishing TMDL "Daily" Loads in Light of the Decision by the U.S. Court of Appeals for the D.C. Circuit in *Friends of the Earth, Inc. v. EPA, et al.*, No.05-5015, (April 25, 2006) and Implications for NPDES Permits

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The purpose of this memorandum is to clarify EPA's expectations concerning the appropriate time increment used to express "total maximum daily loads" (TMDLs) in light of the recent decision by the U. S. Court of Appeals for the D.C. Circuit in *Friends of the Earth, Inc. v. EPA, et al.*, No. 05-5015 (D.C. Cir. 2006). In *Friends of the Earth*, the D.C. Circuit held that two TMDLs for the Anacostia River (one established by EPA and one approved by EPA) did not comply with the Clean Water Act because they were not expressed as "daily" loads.

The *Friends of the Earth* decision has raised some questions regarding the establishment of both TMDLs and effluent limits in National Pollutant Discharge Elimination System (NPDES) permits that implement wasteload allocations established in TMDLs. As explained in more detail below, EPA recommends that all future TMDLs and associated load allocations and wasteload allocations be expressed in terms of daily time increments. However, EPA does not believe that the *Friends of the Earth* decision requires any changes to EPA's existing policy and guidance describing how a TMDL's wasteload allocations are implemented in NPDES permits.

EPA's Expectations Regarding "Daily" Loads in TMDLs

EPA continues to believe that the use of the word "daily" in the term "total maximum daily load" is not an unambiguous direction from Congress that TMDLs must be stated in the form of a uniformly applicable 24-hour load. However at this time, there is significant legal uncertainty about whether courts across the country will follow the reasoning of the D.C. Circuit decision in *Friends of the Earth* or that of the U.S. Court of Appeals for the Second Circuit in their decision in *NRDC v. Muszynski*¹. In light of that uncertainty, EPA recommends that all TMDLs and associated load allocations and wasteload allocations be expressed in terms of daily time increments. In addition, TMDL submissions may include alternative, non-daily pollutant load expressions in order to facilitate implementation of the applicable water quality standards. TMDLs must continue to be established at a level necessary to attain and maintain the applicable water quality standards, account for seasonal variations and include a margin of safety. Because water quality standards are expressed in a variety of ways and because pollutants and water bodies have different characteristics, EPA believes that there is some flexibility in how the daily time increments may be expressed. The following are a few examples of this potential flexibility:

- If consistent with the applicable water quality standard and technically suitable for the pollutant and water body type in question, a TMDL and associated load allocations and wasteload allocations may be expressed as both minimum and maximum daily loads, or as average daily loads. For example, a TMDL for the pollutant parameter pH may include both minimum and maximum values consistent with how the applicable WQS for the parameter pH is expressed (commonly as a range.)
- If technically appropriate and consistent with the applicable water quality standard, it may also be appropriate for the TMDL and associated load allocations and wasteload allocations to be expressed in terms of differing maximum daily values depending on the season of the year, stream flow (e.g., wet v. dry weather conditions) or other factors. In situations where pollutant loads, water body flows, or other environmental factors are highly dynamic, it may be appropriate for TMDLs and associated allocations to be expressed as functions of controlling factors such as water body flow. For example, a load-duration curve approach to expressing a TMDL and associated allocations might be appropriate, provided it clearly identifies the allowable daily pollutant load for any given day as a function

¹ In *NRDC v. Muszynski*, 268 F.3d 91 (2nd Cir. 2001), NRDC challenged EPA's approval of nutrient TMDLs with annual loads established by New York for reservoirs. The Second Circuit held that "the term 'total maximum daily load' is susceptible to a broader range of meanings" than loads calculated on a daily basis. 268 F.3d at 98-99. The D. C. Circuit decision in *Friends of the Earth* is controlling legal precedent for cases brought in the District of Columbia Circuit while the Second Circuit decision in *Muszynski* is controlling legal precedent in cases brought in the Second Circuit, which includes the States of New York, Connecticut, and Vermont. EPA encourages the three States within the Second Circuit, to submit TMDLs with "daily" loads in a manner consistent with this memorandum. EPA also recognizes that, while the Second Circuit did not vacate the TMDLs in question merely because they did not contain "daily" loads, it required a reasoned explanation for the choice of any particular "non-daily" load.

of the flow occurring that day. Using the load-duration curve approach also has the advantage of addressing seasonal variations as required by the statute and the regulations.

- For TMDLs that are expressed as a concentration of a pollutant, a possible approach would be to use a table and/or graph to express the TMDL as daily loads for a range of possible daily stream flows. The in-stream water quality criterion multiplied by daily stream flow and the appropriate conversion factor would translate the applicable criterion into a daily target (TMDL).

EPA will issue additional technical guidance providing specific information regarding the establishment of daily loads for specific pollutants that will take into consideration the averaging period of the pollutant, the type of water body, and the type of sources the TMDL needs to address.

Facilitating Implementation of Wasteload Allocations through the NPDES Permit Process

In certain circumstances (e.g., impairments caused by storm water), or where the applicable water quality criteria are expressed as a long-term average, it may be appropriate for TMDL documents or their supporting analysis to clearly set forth the implementation-related assumptions underlying any wasteload allocation expressed as a “daily” load. To facilitate implementation of such a load in water bodies where the applicable water quality standard is expressed in non-daily terms, it may be appropriate for the TMDL documentation to include, in addition to wasteload allocations expressed in daily time increments, wasteload allocations expressed as weekly, monthly, seasonal, annual, or other appropriate time increments. When this approach is taken, the TMDL and its supporting documentation should clearly explain that the non-daily loads and allocations are implementation-related assumptions of the daily wasteload allocations and are included to facilitate implementation of the daily allocations as appropriate in NPDES permits and nonpoint source directed management measures. The supporting documentation should discuss the reasons for, and assumptions behind, the non-daily loads to facilitate their understanding and use in the implementation phase.

Recommendations Concerning Existing TMDLs and TMDLs in Process

Through significant effort of the States and EPA regions, more than 20,000 TMDLs have been established, most of them in the last five or six years. EPA’s database also shows that approximately 65,000 causes of impairment still need to be addressed by TMDLs. EPA believes that continued development of TMDLs pursuant to State TMDL development schedules is the highest priority at this time. If already existing TMDLs need to be revised in the future, revision of the TMDLs and allocations should be consistent with the recommendations in this memorandum.

For TMDLs under development that have not yet been adopted by States or established by EPA, EPA recommends that such TMDLs and allocations be revised, if

feasible, to be consistent with this memorandum prior to their adoption or establishment. If States adopt and submit TMDLs expressed solely in non-daily terms, EPA expects to ask the submitting State to provide written documentation regarding how the submitted TMDLs and allocations would be expressed in daily terms. Such documentation provided by States could then be included in the administrative records supporting EPA's decisions on the TMDLs. If it is unable to obtain such documentation from a State, EPA may develop calculations for its administrative approval record demonstrating how the State's TMDLs and allocations would be expressed in daily terms. In this case, EPA would make it clear that its approval of the State's TMDL is contingent on the assumption that such TMDL contains the daily load calculations developed by EPA.

We recommend that States consult with EPA regarding specific TMDL projects early in the development process to determine appropriate approaches to expressing the TMDLs and allocations. We are working to provide technical support as soon as practicable. First, we will be providing a draft of a technical document outlining an approach for deriving daily limits for bacteria, TSS, sediments and nutrients using the load duration curve approach. In addition, we are preparing a series of technical fact sheets and case studies based on typical averaging periods of criteria, types of water body and types of sources, to provide technical support in developing daily loads for all pollutants. These should be available for review and comment within the next few months.

Implications of the *Friends of the Earth* Decision for NPDES Permits

The *Friends of the Earth* decision does not affect an NPDES permitting authority's ability to use the discretion available to it under the CWA and the NPDES regulations in establishing permit effluent limits and conditions.

There is no express or implied statutory requirement that effluent limitations in NPDES permits necessarily be expressed in daily terms. The CWA definition of "effluent limitation" is quite broad ("effluent limitation" is "any restriction . . . on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources . . ."). See CWA 502(11). Unlike the CWA's definition of TMDL, the CWA definition of "effluent limitation" does not contain a "daily" temporal restriction. Indeed, the central statutory requirement for water-quality based effluent limits in NPDES permits is that they implement applicable water quality standards. See CWA 301(b) (1) (C). Such water quality standards will include water quality criteria for various pollutant parameters that are expressed in terms of differing temporal periods of duration, including hourly, daily, weekly, monthly, seasonal, and annual, as appropriate for each pollutant parameter.² Accordingly, effluent limits in NPDES permits may be written in a

² Section 2.1 of EPA's *Technical Support Document for Water Quality-based Toxics Control* (TSD) dated March 1991, describes the basis for establishing water quality criteria. EPA's recommended water quality criteria consist of three components: (1) magnitude, (2) duration, and (3) frequency. Magnitude refers to the concentration of the pollutant. Duration is the period of time (averaging period) over which the in-water concentration is averaged for comparison with criteria concentrations. This specification limits the length of time that in-water concentrations may exceed the criteria concentrations. Frequency is how often the criteria can be exceeded.

form that derives from, and complies with, applicable water quality standards that use any of these various time measures. See 122.44(d) (1) (vii) (A).

EPA's regulations at 40 CFR § 122.44(d)(1)(vii) require the permitting authority to ensure that: (a) the level of water quality to be achieved by limits on point sources is derived from, and complies with, all applicable water quality standards; and (b) effluent limitations developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, *are consistent with the assumptions and requirements of any available wasteload allocation* for the discharge prepared by the State and approved by EPA pursuant to 40 C.F.R. 130.7. This provision does not require that effluent limits in NPDES permits be expressed in a form that is identical to the form in which an available wasteload allocation for the discharge is expressed in a TMDL. Rather, permit limits need only be "consistent with the assumptions and requirements" of a TMDL's wasteload allocation.³ To facilitate implementation of the TMDL, one of the stated "assumptions" of a TMDL's daily load or daily wasteload allocation might be that, for purposes of NPDES implementation in an appropriate context (e.g., storm water), the permit writer has the flexibility to express the permit's effluent limitation using a time frame in keeping with, and appropriate to, the water body and pollutant in question and the applicable water quality standard. Indeed, the TMDL submission might even include such alternate temporal expressions of the total load or the wasteload allocation as implementation assumptions.

The *Friends of the Earth* decision does not affect the NPDES permitting authority's ability to use all available tools to translate TMDLs and their wasteload allocations into enforceable effluent limitations in discharge permits. For example, while the NPDES permitting regulations require "daily maximum" limits for continuous discharges from some point sources, the same regulations specifically authorize "average weekly" and "average monthly" limitations – rather than daily limitations – for discharges from publicly owned water treatment plants. See 40 C.F.R. 122.45(d). Moreover, the regulations further authorize the permit writer to use other unspecified units of time if it is impracticable to calculate daily, weekly or monthly limitations. *Id.* For non-continuous discharges, the regulations provide flexibility as to the manner in which such discharges are to be limited based on a consideration of factors, including frequency, total mass, maximum rate of discharge of pollutants and prohibition or limitation of specified pollutants by mass, concentration or other appropriate measure. See 40 C.F.R. 122.45(e).

NPDES permit regulations do not require that effluent limits in permits be expressed as maximum daily limits or even as numeric limitations in all circumstances, and such discretion exists regardless of the time increment chosen to express the TMDL. Therefore, expressing a TMDL as a daily load does not interfere with a permit writer's authority under the regulations to translate that daily load into the appropriate permit

³ EPA's position on this issue was affirmed by the Environmental Appeals Board in *In re: City of Moscow, Idaho*, 10 E.A.D. 135, 148 (July 27, 2001) ("While the governing regulations require *consistency*, they do not require that the permit limitations that will finally be adopted in a final NPDES permit be *identical* to any of the WLAs that may be provided in a TMDL.")

limitation, which in turn could be expressed as an hourly, weekly, monthly or other measure.

EPA will continue to use existing guidance and policy memoranda to guide the development of WQBELs that are consistent with both 40 CFR § 122.44(d) (1) (vii) and 40 CFR §122.45(d). These include: the *Technical Support Document for Water Quality-based Toxics Control* (TSD) dated March 1991, an EPA Memorandum titled *Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs* dated November 22, 2002, and a memorandum titled *Annual Permit Limits for Nitrogen and Phosphorus for Permits Designed to Protect Chesapeake Bay and its tidal tributaries from Excess Nutrient Loading under the National Pollutant Discharge Elimination System* dated March 3, 2004.

Recommendation Concerning NPDES Permits

EPA recommends that NPDES permitting authorities continue to establish effluent limits that implement wasteload allocations established in approved TMDLs in accordance with existing regulation, policy and guidance as described above.

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