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**SUBJECT: A-1771—MARCH 6, 2007 BOARD MEETING
DRAFT STATE WATER RESOURCES CONTROL BOARD ORDER
REGARDING EBMUD WET WEATHER PERMIT AND TIME
SCHEDULE ORDER**



The National Association of Clean Water Agencies (NACWA) appreciates this opportunity to provide comments on the proposed change to the National Pollutant Discharge Elimination System (NPDES) permit and time schedule order issued to the East Bay Municipal Utility District (EBMUD) regarding its peak excess flow treatment facilities (PEFTFs). The proper regulation of PEFTFs is one which affects not only EBMUD, one of NACWA's member agencies, but other municipal clean water utilities in California and across the nation.

NACWA represents over 300 of the nation's public wastewater utilities, including over 30 in the State of California, and is committed to helping our members achieve the highest levels of environmental stewardship. We are also committed to fair and uniform implementation and enforcement of clean water policies and regulations. NACWA and its member utilities view the protection of water quality and public health as core values and the central component of their mission. Some of the most significant challenges to meeting water quality and public health goals result from problems caused by wet weather. NACWA and its member agencies have been actively engaged on the many policy questions surrounding the regulation of sanitary sewer overflows (SSOs), PEFTFs, and peak flow blending for decades. We are committed to obtaining consistent national policy for these categories of wet weather related events and practices.

The proposed order regarding EBMUD's PEFTFs is of significant concern to NACWA for several reasons. First, the appropriate treatment standard for PEFTFs has been a subject of extensive national attention, discussion, and deliberation for many years. To date, after several terminated efforts, the U.S. Environmental Protection Agency (EPA or Agency) has not released a final policy governing PEFTFs. However, the approach taken in the proposed order runs counter to several draft policies on PEFTFs contemplated in past years. Second, the proposed order is based on a fundamental misinterpretation of an important federal case for the nation's sewer systems, *Montgomery Environmental Coalition v. Costle*, 646 F.2d 568 (D.C. Cir. 1980). Third, the proposed order will discourage, rather than encourage, the treatment of peak wet weather flows - perversely resulting in a net loss to the environment.

We urge the State Water Resources Control Board to withdraw its proposed order, and to instead work collaboratively with EBMUD and other California dischargers to achieve environmental progress. We invite the State Water Resources Control Board to engage in a thoughtful, national discussion on the regulatory regime for PEFTFs, rather than unilaterally to impose inappropriately stringent and counter-productive new requirements on one, progressive agency which has taken significant strides to offer better treatment to peak flows in an uncertain regulatory climate.

I. Efforts to Craft a Federal Policy on PEFTFs

The following discussion summarizes the extensive effort that U.S. EPA has put into its still-unfinished attempt to develop an appropriate regulatory framework for PEFTFs. Many of these efforts struggled with whether, and under what circumstances, to apply the secondary treatment standard to PEFTFs. In every instance, EPA recognized it was critical to develop a workable approach for facilities that were not designed to meet such a standard. The State Water Resources Control Board's proposed order fails to take a similar approach that acknowledges the uncertain regulatory regime for these structures, and fails to offer a constructive approach for working with EBMUD to address its concerns.

A. Early FACA

EPA's Federal Advisory Committee Act (FACA) working group on sanitary sewer overflows (SSO FACA) spent many years attempting to develop national policy on PEFTFs. Notably, a September 30, 1999 paper (ATTACHMENT A) on the subject acknowledged the varied approaches that had been used for PEFTF permitting and regulation in the past:

"To date, the NPDES permits issued for PEFTF discharges have not established consistent requirements and have used different regulatory constructs (e.g. limits based on secondary treatment, approved anticipated bypass, limits based on BAT/BCT plus water quality-based requirements). Some existing permits do not establish any effluent limitations, while others provide effluent limitations based on the 30-day averages provided in the secondary treatment regulations (40 CFR 133 (see attachment A for a summary of the secondary treatment regulations)). Consequently, the type and degree of treatment of facilities that have been authorized in the past varies widely."

The paper proposed two options for future PEFTF regulation. EPA acknowledged that modification and clarification of the NPDES permit regulations might be appropriate to better clarify the best approach for regulating PEFTFs.

B. Withdrawn Proposed SSO Rule

Ultimately, in late 2000, EPA released its proposed SSO regulation and scheduled it for publication in the Federal Register. Although the regulation was pulled back in early 2001, EPA's proposed rule contained a lengthy discussion of PEFTF regulation. Notably, as reflected in this preamble excerpt, EPA requested comment on the continued use of PEFTFs in limited circumstances.

c. Interim use of Peak Excess Flow Treatment Facilities

"EPA has identified a limited number of cases where NPDES permits have been used to authorize or approve infrequent discharges from a peak excess flow treatment facilities (PEFTFs) located in sanitary sewer collection systems. In the past, the NPDES permits issued for PEFTF discharges have used different regulatory constructs. The Agency has identified permits written for facilities in Texas, California, and New York, that authorize discharges from PEFTFs and do not incorporate effluent limitations based on secondary treatment. EPA requests comments on the existence of NPDES permits

authorizing discharges from PEFTFs in other States, and the framework under which those permits were issued, including articulated expectations for how long the facilities were expected to operate.”

Recognizing the challenge that such a policy/regulatory change would have on existing systems, EPA went on to note that:

“The approach outlined below discusses how EPA would address PEFTFs that are not designed to meet effluent limitations based on secondary treatment or any more stringent water quality-based requirements on an interim basis in enforcement actions.”

“Where a permittee’s system evaluation and capacity assurance plan and program audit indicate that elimination of avoidable wet weather SSOs will take a long time (e.g., five to twenty years), EPA recognizes that interim use of a PEFTF to reduce adverse health and/or environmental impacts may be appropriate. EPA requests comment on potential health and/or environmental impacts or benefits of long-term PEFTF use, and on the treatment efficiency of various technologies used for PEFTFs, and how such treatment efficiencies compare to biological treatment systems operating under peak flow conditions.”

The Agency also crafted “criteria for wanting, or needing, PEFTFs.” Once again, EPA’s choice of language acknowledged that some PEFTFs would need to continue in operation in the future. EPA also acknowledged in these criteria that there would be PEFTFs “that will not comply with effluent limits for secondary treatment and any more stringent limits necessary to meet water quality standards” and that such PEFTFs could only do so in the context of the specified procedures. Also relevant to EBMUD’s situation, EPA noted that “[e]xisting permitted PEFTFs could remain under permit until expiration of the permit.”

C. 2001 Draft Memo

The Agency continued to attempt to develop federal policy on PEFTFs through a later 2001 effort. On December 21, 2001, EPA released for stakeholder comment a draft memorandum entitled *NPDES Requirements for Municipal Wastewater Treatment During Wet Weather Conditions* (ATTACHMENT B). In this memorandum, also not finalized, the Agency noted that “EPA may address a peak excess flow treatment facility that is not designed to meet effluent limitations based on secondary treatment (and any necessary more stringent water quality-based requirements) on an interim basis in an enforcement action which provides a formal commitment and schedule to carry out a plan to correct problems.”

D. 2004 Report to Congress on the Impacts and Control of CSOs and SSOs

On August 26, 2004, EPA released its *Report to Congress on the Impacts and Control of Combined and Sanitary Sewer Overflows (Report)* (http://cfpub.epa.gov/npdes/cso/cpolicy_report2004.cfm), the second and final report that EPA was required to develop in accordance with the Consolidated Appropriations Act for Fiscal Year 2001. The *Report* finds that while there is evidence that “CSOs [combined sewer overflows] and SSOs [sanitary sewer overflows] may cause or contribute to environmental and human health impacts” it is “difficult to establish a cause-and-effect relationship between” human illnesses or water quality impacts/impairments and overflows.

Notably, EBMUD’s system is consistent with the technologies explored and outlined by EPA in its *Report* chapter focused on *Technologies Used to Reduce the Impacts of CSOs and SSOs*. This chapter notes that “[t]he development of wet weather treatment systems presents a viable alternative to storing excess flows.” *Report* at 8-13. It also states that “treatment technologies are assumed to operate intermittently, with dry weather flows from the CSS or SSS handled by the existing wastewater treatment plant. Treatment technologies considered here include strategies for developing wet weather treatment capacity at remote locations in the sewer system . . .” and “[d]isinfecting

excess wet weather flows." *Id.* at 14. The *Report* also discusses "Disinfection Coupled with Solids Removal" as an effective and beneficial technology pairing. *Id.* at 8-21,8- 22.

E. Recent Federal Consent Decrees

Since 2001, EPA has not released any guidance or drafts focused on PEFTFs. However, in federal consent decrees, EPA has allowed cities to construct new PEFTFs that will not achieve secondary treatment. These facilities are being constructed as part of a comprehensive approach to wet weather resolution in various parts of the country.

II. Interpretation of *Montgomery v. Costle* Decision

NACWA is extremely concerned with the State Water Resources Control Board's interpretation of the *Montgomery v. Costle* court decision in the proposed order (646 F.2d 568 (D.C. Cir. 1980)). The *Montgomery* case determined that EPA *properly excluded sewage overflow points from the definition of "treatment works"* and that

"the appropriate standards for setting effluent limitations are derived from the best practicable technology requirement of section 301(b)(1)(A) (as well as any more stringent state limits under section 301 (b)(1)(C)), instead of the secondary treatment standards of section 301(b)(1)(B). Proper application of the best practicable technology standard would scarcely allow raw sewage to be discharged 'at will.'" 646 F.2d at 592.

The *Montgomery* court recognized that CWA section 212's definition of treatment works including collection systems applied "as used in this subchapter" – the subchapter on "Grants for the Construction of Treatment Works." Accordingly, the *Montgomery* court held the section 212 definition was inapplicable to CWA section 301 (which lays out the secondary treatment requirement):

"The legislative history also indicates that the broad definition of treatment works in section 212 was viewed as an expansion beyond the common meaning of the word, and expansion justified by the context of the federal grant authorization Approval of this new definition in the narrow context of construction grants was *not a determination that attaching a sewer system to a treatment facility would require secondary treatment at formerly independent overflow points.*" *Id.* at 591 (emphasis added).

Dramatically conclusive is the *Montgomery* court's statement that "neither the language of the Act nor its history supports the conclusion that the definition of 'treatment works' in section 212 should be viewed as supplying the meaning of that term in section 301." *Id.*

Consistent with *Montgomery* is the fact that nearly two decades later, EPA's SSO proposed regulation contained a lengthy discussion regarding creating a *separate permitting program for collection systems*. Notably, if EPA believed collection systems were part of the POTW, the concept of a separate permitting program for them would make no sense at all. EPA acknowledged in its proposed rule that inadequately maintained collection systems that feed into regional systems (like EBMUD's) can cause serious problems for those regional systems. Of particular note from EPA's proposed rule is the following statement:

"The Agency believes that poorly performing municipal satellite collection systems *can be major contributors to peak flow problems in regional collection systems*. In addition, the Agency believes that the investment in maintenance, repair and enhanced capacity of municipal satellite collection systems has often historically lagged behind that for regional municipal collection systems. This lag in investment is generally due to institutional issues such as lack of responsibility by municipal satellite collection system operators for problems downstream in the collection system or at a treatment plant, even where

the municipal satellite collection system may have been a significant source of capacity problems downstream. In addition, direct oversight by EPA and NPDES States has been limited.”

EBMUD's PEFTFs provide treatment of wet weather flows from many of these municipal satellite collection systems. In light of the recognized limitations of those systems, EBMUD's efforts should be commended rather than curtailed.

III. Proposed Order will Discourage Treatment of Peak Flows

In 2003, NACWA conducted a wet weather survey of its membership. 75 utilities across the nation responded to the survey. Notably, among the 75 respondents with separate sanitary sewers, peak excess flow treatment facilities are used by 16 percent and 16 percent are considering PEFTFs as new or enhanced controls to improve peak flow control. The proposed order, if finalized, will ultimately discourage community efforts to enhance treatment of peak wet weather flows.

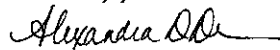
EBMUD's PEFTFs are consistent with concepts outlined in EPA's late 2005 policy on peak flow blending at separate sanitary sewer systems (70 *Fed. Reg.* 76,013 (Dec. 22, 2005)). Recognizing the unpredictability of, and challenges presented by, wet weather events, the peak flow policy expresses a strong preference for the capture and enhanced treatment of flows in wet weather. For example, EPA's proposed policy supports the "use of measures to provide the highest possible treatment to the greatest possible peak wet weather flow" and "maximizing the use of the collection system for storage" - both practices furthered by EBMUD's PEFTFs.

Furthermore, as U.S. EPA recognized in its September 30, 1999 issue paper, PEFTFs can reduce health risks by mitigating uncontrolled discharges (e.g., at manholes or in basement backups) in favor of discharges at a controlled location that receive a significant level of treatment. The infrequent treatment and discharge of extreme peak flows from PEFTFs may provide more effective treatment than stressed biological plants under peak flow conditions, and can protect the efficiency and stability of biological plants. It makes no sense to require PEFTFs to meet the 30-day averages of the secondary treatment regulations, or most 30-day average water quality criteria, since typically PEFTFs discharge very infrequently (2-6 times/year) and for limited duration (less than 24 hours). Finally, existing technologies for PEFTFs are not expected to provide 85% removal of BOD5, and may have difficulty meeting the 85% removal for suspended solids. The 85% removal requirement can be adjusted pursuant to 40 CFR 133.103(d), which authorizes either a lower percent removal requirement or a mass loading limit for facilities with less concentrated influent. Compliance with water quality standards should be addressed through the development of wet-weather criteria that properly take into account the frequency, magnitude and duration of isolated wet weather flows.

IV. Conclusion

Again, NACWA urges the State Water Resources Control Board to withdraw its proposed order, and to instead work collaboratively with EBMUD and other California dischargers to achieve meaningful environmental progress. We invite the State Water Resources Control Board to engage in a thoughtful, national discussion on the regulatory regime for PEFTFs, rather than to act hastily in restricting the use of existing, environmentally beneficial facilities by an agency that has taken significant strides to offer better treatment to peak flows in an uncertain regulatory climate.

Sincerely yours,



Alexandra Dapolito Dunn
General Counsel

**Sanitary Sewer Overflow
Peak Excess Flow Treatment Facility Options Paper**

I. State/EPA Efforts to Address Sanitary Sewer Overflows

EPA estimates that one- to two-thirds of the 19,500 municipal sanitary sewer collection systems have problems with sanitary sewer overflows (SSOs) and about 40,000 SSOs occur each year in communities across the country. In a May 29, 1999 memo to Administrator Browner, the President directed the Environmental Protection Agency (EPA) to propose, within one year, a strong national regulation to prevent SSOs from contaminating beaches and jeopardizing human health. Earlier this year, EPA distributed four papers describing draft National Pollutant Discharge Elimination System (NPDES) permit requirements for municipal sanitary sewer collection systems and SSOs. This fifth paper addresses draft requirements for discharges from peak excess flow treatment facilities (PEFTFs) serving sanitary sewer collection systems. This paper outlines two potential approaches to PEFTFs. These two approaches are intended to help illuminate some of the issues associated with these facilities and support discussions of options that fall between the two "bookends" that are described.

II. Background on Sanitary Sewer Overflows Caused by Peak Flow Conditions

Many publicly owned treatment works (POTWs) are served by sanitary sewer collection systems that inadvertently receive inflow, groundwater infiltration or rainfall induced infiltration (I/RII) during wet weather events that add to the normal system flows from domestic sewage. In some circumstances, peak flows caused by I/RII exceed the collection systems (or treatment plant's) peak flow capacity, and a portion of the wastewater flow is not conveyed to a main treatment plant for biological treatment, but rather is discharged as a controlled or uncontrolled SSO. SSOs caused by peak flow conditions can typically occur as a result of aging infrastructure, materials and design criteria historically used for sewers, severe natural conditions, inadequate system repair and maintenance, and increasing demands on sanitary systems from growing populations or industrial users.

The most immediate health risks associated with SSOs are discharges of bacteria, viruses, and other pathogens that can pollute our waters, parks, and other areas where we live and recreate. Because of the presence of these microbial pollutants, SSOs can create a health risk for people who drink water, eat seafood, recreate in waters, or otherwise come into contact with areas affected by SSOs. SSOs are a leading cause of beach closures and swimming advisories in the United States.

III. Background on Peak Excess Flow Treatment Facilities

Problems with SSOs caused by rainfall are appropriately addressed by a comprehensive effort to increase the storage and conveyance capacity of the collection system, increase peak flow storage and treatment capacity at treatment plants, and reduce I/RII. This paper is intended to support a discussion of if and when PEFTFs have an appropriate, limited role in addressing SSOs caused by rainfall and if so, what are appropriate treatment standards for PEFTFs and appropriate regulatory mechanisms for overseeing their use. Under any scenario, PEFTFs would not be viewed as a substitute for providing improvements to the collection system. Rather, they would be considered part of a comprehensive effort to improve the performance of the collection system that includes I/I reduction efforts and maximizing the conveyance capacity of the collection system.

There are a number of alternatives currently being utilized to address these peak flows. Some POTWs have constructed large flow retention facilities to capture and then slowly feed back peak flows into the POTW system. Other POTWs have constructed peak excess flow treatment facilities (PEFTFs) as an alternative to discharging untreated sewage when their collection systems are overloaded by peak wet weather flows. PEFTFs are generally less expensive to build than flow retention facilities or sewer systems rehabilitation that would be needed to eliminate wet weather SSOs except those covered by the defenses in the prohibition.

To date, the NPDES permits issued for PEFTF discharges have not established consistent requirements and have used different regulatory constructs (e.g. limits based on secondary treatment, approved anticipated bypass, limits based on BAT/BCT plus water quality-based requirements). Some existing permits do not establish any effluent limitations, while others provide effluent limitations based on the 30-day averages provided in the secondary treatment regulations (40 CFR 133 (see attachment A for a summary of the secondary treatment regulations)). Consequently, the type and degree of treatment of facilities that have been authorized in the past varies widely. These treatment facilities typically have an average of 2-6 discharges per year, with discharges typically lasting for less than 24 hours.

Current PEFTFs in use employ a wide range of technologies with some providing incidental solids removal, while others utilize an advanced solid-liquid separation process providing significant levels of treatment. Generally, however, PEFTFs differ from the municipal treatment plants in that most types of PEFTFs employ advanced physical/chemical primary treatment plus disinfection. (One PEFTF uses tricking filters, a biological process). The typical municipal sewage treatment plant usually consists of a physical/chemical stage of primary treatment followed by a second stage of biological treatment (with disinfection added after these stages of treatment as needed to meet water quality standards). However, some municipal sewage treatment plants only use advanced physical chemical treatment to meet all secondary treatment standards.

PEFTFs that only provide marginal treatment (including some that are currently permitted) would not be expected to meet the 7-day (or 30-day) average effluent limitation in the

secondary treatment regulation on a consistent basis. Only those PEFTFs that utilize high-efficiency sedimentation technologies are expected to consistently meet the 7-day average effluent limitations in the secondary treatment regulation. Individual short duration discharges from these facilities however, may or may not consistently comply with the 30-day averages. Existing technologies for PEFTFs are not expected to provide 85% removal of BOD₅, and may have difficulty meeting the 85% removal for SS.

IV. Statement of Issue

This paper describes two alternatives to address PEFTFs. Both approaches would apply the statutory control standard of secondary treatment plus more stringent water quality-based requirements. However, the approaches would interpret how the statutory secondary treatment standard applied to PEFTF discharges differently.

Approach one advocates that rainfall related SSOs should be eliminated by aggressive collection system rehabilitation or other system improvements (such as flow retention basins) and that PEFTFs should generally only be used as a last resort when such system improvements are not currently feasible. If PEFTFs are used in the interim, they should be authorized by NPDES permits with effluent limits based on the 30 mg/l 30-day average for BOD₅ and SS, 30-day average 85-percent removal requirement for BOD₅ and SS (see attachment A) and any more stringent water quality based effluent limitations (WQBELs). PEFTFs currently in existence would probably not be able to meet these limits. Approach one would call for follow-up enforcement actions to establish compliance schedules for the eventual phasing-out of PEFTFs that cannot meet the above limits.

Under approach two, rainfall related SSOs would be addressed by aggressive collection system rehabilitation. Permits for PEFTFs could only be issued where 1) a permittee demonstrated that specified criteria are met, including: i) an effective capacity assurance, management, operation and maintenance (CMOM) program and ii) that other alternatives were not practical and cost-effective; 2) the permit includes effluent limits based on the 7-day averages in the secondary treatment regulations or more stringent water quality based requirements and percent removal requirements established under the secondary treatment regulation; and 3) the permit establishes conditions to limit when discharges can occur (e.g. only during peak flow conditions). It is expected that only treatment facilities that provide high efficiency sedimentation and, if required to meet water quality standards, disinfection would meet these criteria. The PEFTF would be reevaluated every five years to ensure effective implementation of CMOM and evaluate the continuing necessity of the PEFTF. This approach would involve EPA modifying the NPDES regulations to clarify and limit the approach.

V. Elements of Approach One

Summary

Approach one starts with the premise that PEFTFs generally provide less effective treatment than a municipal treatment plant and thus generally should not be viewed as a permissible alternative for implementing the measures needed, in the long term, for conveying to and treating 100% of flows at a municipal treatment plant. Approach one generally advocates that wet weather related SSOs should be eliminated by aggressive collection system rehabilitation or other system improvements (such as flow retention basins). Approach one does see a limited interim role for PEFTFs: pursuant to compliance schedules in an enforcement order or court decree, PEFTFs could be temporarily employed to control release of untreated sewage when elimination of wet weather related SSOs is not immediately feasible.

Permit Limitations

Approach one does recognize that there may be PEFTFs that could meet the 30-day average limits of the secondary treatment regulations and any more stringent water quality-based effluent limits (WQBELs). In such cases, the PEFTFs meeting such limitations would be permitted as any other secondary treatment system. In addition, any PEFTF discharge that met the limited bypass and upset-like exceptions in the draft SSO Prohibition Language would not be subject to enforcement.

To accomplish the above goals, approach one would require all NPDES permits issued to PEFTFs to include the 30-day average limits for BOD₅ and SS concentration limits and would establish a 30-day average 85-percent removal requirement for BOD₅ and SS, unless the relevant POTW could establish that its PEFTF meets the requirements for adjustment downward of this percent removal requirement (40 CFR 133.103(d)). The provision would be interpreted such that downward adjustments of the BOD₅ and SS percent removal for PEFTFs should be rare. This is because when I/I is sufficiently great during very large storm events, PEFTFs influent can be so dilute that it may come close to meeting BOD₅ and SS concentration limits even with little or no treatment. In these circumstances the percent removal requirement is the most limiting requirement as the concentration limits may be met without effective treatment. Approach one would include guidance on the narrowly defined circumstances when the BOD₅ and SS percent removal requirements could be adjusted downward. The guidance would include two criteria to be met in order to take advantage of a downward adjustment: 1) the PEFTF would need to be consistently meeting its effluent concentration limits; and 2) the POTW would need to demonstrate that the lower pollutant concentration in its influent is not due to excessive I/I. In addition, permits would include appropriate WQBELs.

Enforcement Actions

As previously stated, approach one sees a limited interim role for PEFTFs: pursuant to compliance schedules in enforcement orders or decrees. PEFTFs that are unable to meet the

permit limits outlined above, but are nonetheless an appropriate temporary remedial measure to address wet weather SSOs would be identified in a enforcement compliance schedule. Such compliance schedules would allow temporary operation of PEFTFs if: (1) PEFTF discharges occur only during peak flows from large or extraordinary wet weather events, (2) PEFTF discharges meet appropriate concentration and percent removal effluent limitations for BOD₅ and SS, pH, and an appropriate bacteriological indicator (such as fecal coliform), and (3) the PEFTF operator systematically studies phasing out the use of the PEFTF by implementing one or more of the following measures: a) I/I control; b) flow equalization and storage; and c) increasing system or treatment plant capacity; and (4) a feasible deadline is set for implementing the rehabilitation and remedial measures that will allow reliance on the PEFTF to end.

Criteria for Compliance Schedule Eligibility

In order to be eligible for such a compliance schedule the applicant would need to meet two criteria. First, reliably conveying 100-percent of sewage influent to a municipal secondary treatment plant would need to be currently infeasible and would remain infeasible until significant new construction/remedial work would be completed. Secondly, use of a PEFTF would be a cost-effective interim measure with substantial environmental benefits. In order to determine if these two criteria have been met, an evaluation of the POTW and PEFTF would need to be conducted. The evaluation would include seven requirements focusing on an analysis of the collection system, the necessity of the PEFTF, analysis of alternatives, costs, and public participation and support.

VI. Elements of Approach Two

The intent of approach two is to require municipalities to continually maintain and update their collection and treatment infrastructure consistent with good engineering practice, protect beneficial uses of receiving waters, to minimize health risk associated with uncontrolled SSOs, to protect biological treatment facilities, and to apply regulatory requirements consistent with the underlying principles on which they were developed.

Optimizing the design and operation of a large system requires continual adaptation to changes in the size and distribution of system users and to data about actual system performance. PEFTFs that provide high-efficiency non-biological treatment can reduce health risks by mitigating uncontrolled discharges (e.g. at manholes, basement backups) in favor of discharges at a controlled location that receive a significant level of treatment. The infrequent treatment and discharge of extreme peak flows from PEFTFs may provide more effective treatment than stressed biological plants under peak flow conditions, and can protect the efficiency and stability of biological plants.

Summary

Approach two builds on the draft NPDES standard permit conditions outlined in the previous four papers distributed to the SSO FAC. It would allow NPDES permits to authorize discharges from PEFTFs under very limited circumstances. To obtain a NPDES permit, approach two would require: 1) a rigorous evaluation of the application information and screening criteria in order to ensure that no other cost-effective options existed; 2) that the permit limitation satisfy the requirements of the Clean Water Act (CWA); 3) the permittee demonstrates that specified criteria are met, including an effective C-MOM program; and 4) that other alternatives were not practical or cost-effective. Permits issued under this approach would: 1) apply the 7-day average effluent limitations (but not the 30-day averages) provided in the secondary treatment regulations and any more stringent water quality-based requirements to short duration discharges; 2) allow for adjusting the percent removal requirements of the secondary treatment regulations under limited circumstances; and 3) specify the limited conditions under which discharges could occur. Every five years the permittee would have to demonstrate the necessity of the PEFTF in light of system improvements.

Application Information & Screening Criteria

Approach two would require a rigorous screening process prior to permit issuance. The screening process would support the determination of whether issuing a permit to authorize discharges from the peak excess flow treatment facility meets minimum regulatory criteria and is appropriate or not. Under the approach, municipalities that propose to discharge from a PEFTF would be required to assess its peak flows, conduct an audit of their CMOM program, conduct public participation activities, and demonstrate that a number of criteria were met. The audit would include a thorough assessment which leads to the development of a plan to correct problems over a reasonable time period. In very brief summary the minimum information submitted by the applicant would include a demonstration that:

- 1) peak flows from very large storm events or other extreme conditions are not caused by excessive I/I as defined by EPA regulations.
- 2) an effective CMOM program is or will be implemented;
- 3) other alternatives (e.g. additional storage, I/I reductions, increased capacity) are not practical and cost-effective;
- 4) the PEFTF will provide credible treatment (e.g. high-efficiency sedimentation, coupled with disinfection where necessary to meet water quality standards);
- 5) the PEFTF will consistently meet its permit effluent concentration limitations; and
- 6) potential downstream uses will not be impaired.

This approach would involve EPA modifying the NPDES regulations to clarify and limit the approach.

Permit Limitations

Approach two would require PEFTFs to meet the 7-day average effluent limitations of the secondary treatment regulation for BOD₅ and SS and more stringent water-quality based requirements. This approach would not require PEFTFs to meet the 30-day averages of the secondary treatment regulations since typically PEFTFs discharge very infrequently (2-6 times/year) and for limited duration (less than 24 hours). In limited circumstances, the percent removal requirements could be adjusted in accordance with existing regulations where the criteria summarized in the screening criteria section above were met. The application of the regulatory criteria for adjusting percent removal requirements could be clarified through rulemaking consistent with the criteria listed above. Current permits which do not contain requirements to meet this approach would have to be modified upon permit issuance to be consistent with this approach.

Reevaluation Process

Every five years, during permit reissuance a reevaluation process would be implemented to ensure that municipalities with permitted facilities continue to provide significant investment to improve their collection system. The process would only result in reissuance of a 5-year permit where the detailed system and cost analysis shows that efforts to improve the collection system have not successfully eliminated the need for the treated discharges and where treatment objectives, consistent with secondary treatment and water quality requirements are being met.

Enforcement

For those municipalities operating PEFTFs that would not meet the requirements for an NPDES permit, EPA and States could issue an appropriate enforcement order requiring the municipality to bring the collection system into compliance. Appropriate considerations would include the degree and timing of reducing health and environmental risks and the cost-effectiveness of the measure.

Attachment A

Summary of Secondary Treatment Regulations

40 CFR Part 133 defines minimum levels for secondary treatment requirements in terms of:

- 1) 7-day average effluent concentration of 45 mg/l for SS and BOD₅;
- 2) 30-day average effluent concentration of 30 mg/l for SS and BOD₅;
- 3) 30-day average 85% removal values for SS and BOD₅. The regulation provides specific criteria for the NPDES Director to substitute a lower % removal; and
- 4) pH limitations of 6-9.

Lower % removal - 40 CFR 133.103(d) authorizes the NPDES Director to substitute either a lower percent removal requirement or a mass loading limit if the permittee demonstrates:

- 1) The treatment works will consistently meets permit effluent concentration limits but its % removal cannot be met due to less concentrated influent;
- 2) The % removal requirement is significantly more stringent than the concentration limitations; and
- 3) Less concentrated influent is not the result of excessive I/I.

The 85% removal requirement was originally established to achieve two basic objectives: 1) to help encourage municipalities to correct excessive I/I to their sanitary sewer systems, and 2) to help prevent intentional dilution of influent wastewater.

Treatment equivalent to secondary - 40 CFR 133.105 establishes alternative standards for trickling filters and waste stabilization ponds and other biological treatment units that qualify as 'treatment equivalent to secondary'. The alternative standards are:

- 1) 7-day average effluent concentration of 65 mg/l for SS and BOD₅;
- 2) 30-day average effluent concentration of 45 mg/l for SS and BOD₅;
- 3) 30-day average 65% removal values for SS and BOD₅.

Effluent concentrations consistently achievable through proper operation and maintenance is defined as (1) for a given pollutant parameter, the 95th percentile value for the 30 day average effluent quality achieved by a treatment works in a period of at least two years, excluding values attributable to upsets, bypasses, operational errors, or other unusual conditions and (2) a 7-day average value equal to 1.5 times the values described under (1).

Draft

MEMORANDUM

SUBJECT: NPDES Requirements for Municipal Wastewater Treatment During Wet Weather Conditions

FROM: G. Tracy Mehan, III, Assistant Administrator

TO: Water Division Directors, Region I-X
Authorized NPDES State Program Directors

The purpose of this memorandum is to provide Environmental Protection Agency (EPA) guidance regarding National Pollutant Discharge Elimination System (NPDES) requirements, specifically, related to publicly owned treatment works (POTWs) and wet weather conditions in the following three situations:

- 1) Discharges from emergency overflow structures located within municipal sanitary sewer collection systems;
- 2) Discharges from physical/chemical treatment processes used exclusively for treating peak excess flows in sanitary sewer collection systems; and
- 3) Wet weather treatment scenarios at POTW treatment plants.

NPDES Requirements for Emergency Overflow Structures on Municipal Sanitary Sewer Collection Systems

When submitting an application for an NPDES permit to discharge from a POTW, the applicant must identify all outfalls that discharge to waters of the United States, including "constructed emergency overflow" outfalls located on the sanitary sewer collection system that discharge to waters of the United States (see 40 CFR 122.21(j)(1)(viii)(A)). Emergency overflow outfall structures are recognized in some State and local design standards. For example, the "Ten-State Standards"¹ provide that consideration should be given to providing

¹ See section 46.3 of "Recommended Standards for Wastewater Facilities," 1997 Edition, Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers.

controlled, high-level wet well overflows at wastewater pumping stations to supplement alarm and emergency power generation during possible periods of extensive power outages, mandatory power reductions, or uncontrollable emergency conditions to prevent backup of wastewater into basements, or other discharges which may cause severe adverse impacts on public interests, including public health and property damage. In addition, the applicant also must provide information characterizing seasonal or periodic discharges from such constructed emergency overflow outfalls (see 40 CFR 122.21(j)(3)(i)(F)).

If an anticipated discharge from an emergency outfall is identified and fully disclosed to the NPDES permit authority, and considered during the permitting process as documented in the public record consistent with the applicable NPDES regulations, EPA's policy is that the permit should address any discharges (e.g., incorporate effluent limits or prohibit discharges) from such an outfall. For a more complete explanation, see the memorandum entitled "Revised Policy Statement on Scope of Discharge Authorization and Shield Associated with NPDES Permits," April 11, 1995.

EPA considers an emergency outfall located within a municipal sanitary sewer collection system to be part of a POTW. Permits addressing discharges from such an outfall must either prohibit the discharge or contain technology-based effluent limitations based upon secondary treatment or, to the extent that the discharge is at a level that will cause, have the reasonable potential to cause, or contribute to an excursion of water quality standards, any more stringent water quality based effluent limitations, in numeric and/or narrative form.

A discharge from an emergency outfall identified in a permit is also subject to the bypass provision of the permit. The bypass provision in the permit is to be consistent with bypass provision of the NPDES standard permit conditions at 40 CFR 122.41(m). Standard permit conditions are conditions that are applicable to all NPDES permits, except that authorized NPDES States are not precluded from omitting or modifying a standard permit condition to impose a more stringent requirement. 40 CFR 122.41(m) and 123.25 (note). The bypass provision prohibits bypasses except in limited circumstances where the bypass is for essential maintenance and does not cause effluent limitations to be exceeded (see 122.41(m)(4) and (m)(2)). Under the bypass provision, EPA or the NPDES authority may take enforcement action against a permittee for a bypass unless:

- (A) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- (B) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime; and
- (C) The permittee submitted required notices to the NPDES authority.

In order to satisfy the "no feasible alternatives" criteria, adequate back-up equipment should be installed in the exercise of reasonable engineering judgment to prevent a bypass. The "no feasible alternatives" provision of 40 CFR 122.41(m) requires, among other things, that consideration be given to the feasibility of additional construction for any bypasses that occur because of inadequate capacity. See *United States v. City of Toledo, Ohio* 63 F.Supp.2d 834 (N.D. Ohio 1999).

EPA applies a different regulatory framework to combined sewer overflows (CSOs). CSOs are not considered to be discharges from a POTW. The design intention for combined sewer systems differs from the design intention for sanitary sewers, where intentional inflow connections are typically prohibited. As a result of this difference in design, combined sewers generally have much greater volume wet weather flows than sanitary sewers. Given the challenges associated with handling the large volume of wet weather flow, combined sewer systems have historically had different performance objectives during wet weather than sanitary sewer systems. Consistent with this, EPA has applied a different technology-based standard under the Clean Water Act (CWA): best available technology economically achievable and best conventional pollutant control technology (BAT/BCT). Given the flexibility of the BAT/BCT standard, and the ability of that standard to establish technology-based requirements for the expected range of wet weather conditions for the collection system, EPA has not applied the bypass provision to CSO discharges. See "National Combined Sewer Overflow Control Strategy," 54 FR 37371 (September 8, 1989) and "Combined Sewer Overflow Control Policy," 59 FR 18688 (April 19, 1994).

Application of Secondary Treatment Requirements to Discharges from a Physical/Chemical Treatment Process Used Exclusively for Treating Peak Excess Flow in a Sanitary Sewer Collection System

The CWA requires that most POTWs achieve effluent limitations based upon secondary treatment as defined by EPA or any more stringent limitation necessary to meet water quality standards. The secondary treatment requirements at 40 CFR Part 133 are applied at the "end-of-the-pipe" and include 7-day and 30-day average effluent concentrations and a 30-day average percent removal requirement. With the exception of alternative requirements for facilities eligible for treatment equivalent to secondary treatment, the secondary treatment regulations do not specify the type of treatment process that must be used to meet secondary treatment requirements, nor do they preclude the use of non-biological facilities. Both the statute and the regulations require achievement of performance-based effluent limits prior to discharge, not the installation of specific technologies. Currently, some POTWs regularly achieve secondary treatment requirements using only physical and chemical treatment technologies.

The secondary treatment regulations at 40 CFR 133.103(d) authorize the NPDES authority to substitute either a lower percent removal requirement or a mass loading limit for

the 85 percent removal requirements (or lower percent removal requirements for facilities eligible for treatment equivalent to secondary treatment), if the permittee demonstrates:

- (A) the treatment facility will consistently meet its permit effluent concentration limitations but its percent removal requirements cannot be met due to less concentrated influent,
- (B) to meet the percent removal requirements, the facility would have to achieve significantly more stringent limitations than would otherwise be required by concentration-based standards, and
- (C) the less concentrated influent is not the result of excessive infiltration and inflow (I/I).

The percent removal requirement must not be adjusted where the permitting authority determines that adverse water quality impacts will result from an adjustment because water quality-based effluent limitations will, of necessity, preclude such an adjustment (see June 3, 1985 (50 FR 23385)). The criterion for adjusting percent removal requirements better reflects the influent strengths actually occurring and recognizes the limitations of I/I correction.

Excessive I/I is defined at 40 CFR 35.2005(b)(16) as the quantities of I/I that can be economically eliminated from a sewer system as determined by a cost-effectiveness analysis that compares the costs for correcting the I/I conditions to the total costs for transportation and treatment of the I/I. The regulations do not specifically address the issue of whether the cost of correcting I/I conditions should be compared with the cost of transport and treatment to a continuously operating treatment facility providing treatment to meet secondary treatment during dry as well as wet conditions, or the cost of transport and treatment at a facility that is designed to only treat and discharge wet weather flows. However, EPA interprets the provision to mean that the cost of correcting I/I conditions should be compared with the cost of transport and treatment to a continuously operating treatment facility providing treatment to meet secondary treatment requirements during both dry and wet weather conditions. The Agency believes that this interpretation is consistent with the original objective of the regulation of encouraging municipalities to correct excessive I/I problems in their sanitary sewer systems.

Where a permit for a facility that will only treat and discharge less concentrated wastewater associated with wet weather conditions prohibits discharges during dry weather conditions, the criteria at 40 CFR 133.103(d) for adjusting the percent removal requirements do not require the permittee to demonstrate that the facility is capable of achieving 85% removal during dry weather conditions, only that the demonstrations required in that section

will be met under the conditions when the discharge will be authorized.

EPA believes that an ongoing commitment to an effective capacity, management, operation and maintenance (CMOM) program is appropriate for addressing I/I problems in a sanitary sewer collection system. Where a permit contains an adjustment to the percent removal requirement authorized under 40 CFR 133.103(d), EPA supports inclusion of permit conditions that specifically require a clear, comprehensive plan to effectively address collection system deficiencies including appropriate I/I reduction measures to ensure that the collection system is properly operated and maintained. This could include requirements for developing and implementing a CMOM program and conducting a CMOM program audit.

Additionally, during permit reissuance, the situation is to be reevaluated to consider changing circumstances, such as progress made in rehabilitating the collection system, and planning criteria, such as the duration of financial instruments used to finance the project. If the reevaluation of criteria indicates that I/I was significantly reduced and/or the peak flow capacity of the system was increased, the percent removal requirement of subsequent permits may be more stringent.

If an adjustment to the percent removal requirement is justified under 40 CFR 133.103(d), it may be applied to a peak excess flow treatment facility. If not, than EPA may address a peak excess flow treatment facility that is not designed to meet effluent limitations based on secondary treatment (and any necessary more stringent water quality-based requirements) on an interim basis in an enforcement action which provides a formal commitment and schedule to carry out a plan to correct problems. Such actions should identify a date by which discharges from the peak excess flow treatment facility would need to be phased out. Any remaining discharges after that date would be addressed in the context of applicable permit language (e.g., the bypass provision at 40 CFR 122.41(m)).

Wet Weather Treatment Scenarios at Publicly Owned Treatment Works

NPDES authorities have considerable flexibility through the permitting process to account for different peak flow scenarios that are consistent with generally accepted good engineering practices and criteria for long-term design. Peak wet weather discharges from POTWs that consist of effluent routed around biological treatment units blended together with the effluent from the biological units prior to discharge can be approved in an NPDES permit where all of the following principles are followed:

1. The final discharge meets effluent limitations based on the secondary treatment regulation (40 CFR Part 133) and/or any more stringent limitations necessary to attain water quality standards.
2. The NPDES permit application for the POTW provides notice of, and the permit

specifically recognizes, the treatment scheme that will be used for peak flow management. The treatment scheme, including designed capacity of various units, should be consistent with generally accepted practices and long-term design criteria, and designed to meet under the specified treatment scenario effluent limitations based on the secondary treatment regulation and/or any more stringent limitations necessary to meet water quality standards. The application of generally accepted practices and long-term design criteria will have generally included an evaluation of the cost-effectiveness of a reasonable range of alternatives and may require some facilities to provide additional wet weather equalization and/or storage facilities.

3. Alternative flow routing scenarios are only used when flows exceed the capacity of storage/equalization units and biological treatment units based on generally accepted good engineering practices and criteria under the specific circumstances described in the permit application and defined in the permit.
4. During peak flow conditions, the treatment system chosen by the permittee is operated as it is designed to be operated and in accordance with the conditions set forth in the permit.
5. The permit contains appropriate requirements for the collection system, including at a minimum, that the permittee properly design, operate, and maintain its collection system and, for permittees that own or operate combined sewers, conditions that conform to the 1994 Combined Sewer Overflow (CSO) Control Policy.

Under the NPDES regulations, all NPDES permits are required to contain a prohibition on bypasses consistent with or more stringent than 40 CFR 122.41(m). See 40 CFR 123.25 (note). EPA considers peak wet weather flows that are routed around the biological treatment units of the POTW that do not meet the five criteria listed above to be prohibited bypasses and subject to the criteria at 40 CFR 122.41(m), including the "no feasible alternatives" criterion. However, where all the principles identified above are followed, and the permit defines the bypass provision to not apply to alternative flow routing scenarios approved by the permit, a permittee is not required to make an additional demonstration that there were no feasible alternatives to the discharge.

Additional considerations for permit writers addressing POTWs that use alternative peak flow treatment schemes include:

- A. NPDES permits should require compliance monitoring appropriate for the peak flow treatment scheme recognized in the permit.
- B. NPDES permits should ensure that permittees develop good information to foster informed management of the collection system and treatment facility during peak wet

weather flow conditions, and, where appropriate, assessment of potential water quality impacts and performance of treatment technologies under peak flow conditions.

- C. To the extent practicable, NPDES permit requirements for discharges of peak wet weather flows at the POTW should be developed in a manner that encourages the permittee to consider the relationship between the performance of the collection system and the performance of treatment plants serving the system.
- D. NPDES permit conditions are clear and enforceable.

The principles for approving routing schemes in a permit described above do not address NPDES permit requirements for discharges from facilities other than POTWs, portions of flows that do not receive at least the equivalent of primary treatment, or the treatment of flows resulting from dry weather conditions.

This approach ensures that NPDES requirements are applied in a manner that is protective of human health and the environment and reflect the technical realities of wastewater treatment. The principles provide a framework for complying with technology-based requirements of the CWA that is consistent with generally accepted good engineering practices and criteria for long-term design, uses the development of water quality-based effluent limitations to address residual site-specific health and environmental risks, and identifies a comprehensive framework to address deficiencies in collection systems.

Attachment