U.S. Environmental Protection Agency

National Pollutant Discharge Elimination System (NPDES)

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Blending of Effluent at Publicly Owned Sewage Treatment Facilities

EPA is requesting public comments on a proposed policy addressing the practice of blending at publicly owned sewage treatment facilities during periods of high flow caused by rainfall or snowmelt. This proposed policy is available for comment until January 9, 2004. The public is invited to review the proposed policy and submit comments. Detailed instructions for making comments are included in the Federal Register notice below.

- Proposed Blending Policy [PDF Format]
- Federal Register Notice [PDF Format]
- Press Statement
- Comment Questions and Answers

Click on the image below for more information.

"The Water Environment Federation (WEF) is pleased that EPA is providing national guidance on blending at municipal wastewater treatment plants during wet weather. Blending is a longstanding, sensible practice used to manage high flow events at wastewater treatment plants while maintaining compliance with NPDES permit limits. EPA's guidance will support local governments in planning and operating wastewater facilities which provide environmentally sound and cost effective treatment during a variety of conditions, leading to improvements in water quality." - Larry Jaworski, President, Water Environment Federation
WEF Press Release on Blending

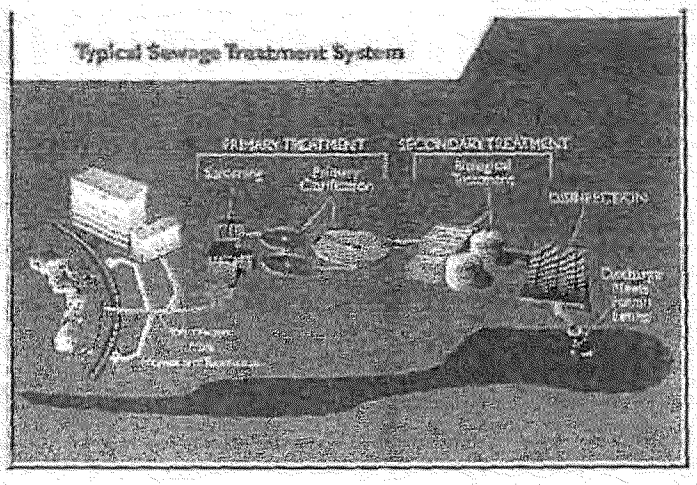
Ken Kirk, Executive Director of the Association of Metropolitan Sewerage Agencies (AMSA), applauds the release of the national blending guidance, calling it *"an excellent example of environmental policymaking that protects both the nation's waters and public health. The guidance also is cost effective and takes into full account the practical realities that the nation's publicly owned treatment works face on a daily basis. Clarification of this blending issue is extremely important to the nation's publicly owned treatment works and AMSA looks forward to working with EPA on this issue throughout the notice and comment period."*
AMSA Press Release on Blending

What is Blending?

During periods of high rainfall or snowmelt, sewage treatment facilities often experience significantly higher flows due to either the design of the system (older cities often have combined sanitary and storm sewer systems) or the condition of the pipes (deteriorating pipes in older systems can allow significant amounts of stormwater or ground water to enter into the system).

To cope with high flows during storm events, some sewage treatment facilities provide primary treatment for all flows coming into the facility and biological treatment (also called secondary treatment) for flows up to the

capacity of the biological treatment units. Primary treatment units can handle significant variations in flow and concentration of pollutants, whereas biological units are more sensitive and can be negatively affected by such changes.



When the flows into the facility exceed the capacity of the biological treatment units, excess flows are diverted around the biological units and then recombined or "blended" with the flows that have been treated by the biological units. This blended effluent is usually disinfected and discharged.

It is important to note that the proposed policy only applies in situations where the effluent discharged meets all permit limits.

Common Questions and Answers

- Why is EPA Taking this Action?
- Why Allow Blending? What Are the Benefits?
- How Can Biological Treatment Units be Damaged By Wet Weather Flows?
- What Happens When a Blended Discharge Does Not Meet Permit Limits?
- What Requirements Do the Proposed Blending Policy Place on Local Sewage Treatment Facilities?
- Is this Proposed Policy Protective of Human Health and the Environment?
- Do Permits Protect Against Pathogens, Such as *Cryptosporidium* and *Giardia*?
- Does the Proposed Policy Provide Incentives to Minimize the Use of Blending and Maximize the Use of Biological Treatment?
- Will This Policy Discourage Municipalities from Investing in their Sewer Collection Systems?
- Is Blending Currently Used by Local Sewage Treatment Facilities?
- Is the Proposed Policy Consistent with the Clean Water Act (CWA)?
- Is EPA Conducting Any Research on Blending?

Why is EPA Taking this Action?

A number of state NPDES authorities, municipal officials, and others have requested clarification of EPA's NPDES regulations as they relate to blending scenarios.

EPA is seeking public comment on a proposed policy that aims to:

- Clarify how the NPDES regulations apply to wet weather blending scenarios
- Recognize management approaches for high flows due to wet weather that are both environmentally protective and cost effective
- Improve regulatory coverage by:
  - ensuring that blending is addressed in the permitting process
  - specifying, in permits, conditions under which blended discharges are allowed
  - enhancing monitoring requirements and collection of other information on potential effects of the blended discharge
  - encouraging states that have not already done so to adopt EPA's 1986 water quality criteria for pathogens

The final discharge from any sewage treatment facility must continue to meet the term of the NPDES permit. This proposed policy applies only in situations where the final discharge continues to meet NPDES permit limits.

EPA developed the proposed blending policy to provide clear, nationally consistent guidance to the interpretation of the NPDES regulations as they related to the practice of blending. In the past, blending by sewage treatment facilities had been addressed in a variety of ways by state permitting authorities, EPA regional offices, and others. Because of the lack of clear guidance, many questions were raised by municipal officials, state and EPA permit writers, and others. The proposed policy seeks to establish clear guidance and to ensure that if blending is used by a municipal sewage treatment facility it is used in a way that is fully protective of human health and the environment.

Why Allow Blending? What are the Benefits?

Reducing the frequency and volume of sewage collection system overflows and backups into homes and other buildings and improving the structural integrity of systems have been major goals of EPA's NPDES program since the early 1990s. An important component of these efforts has been to increase the delivery of wet weather flows to the treatment facility.

Blending of effluents at sewage treatment facilities during periods of high flow associated with wet weather is a common engineering practice across the country that is used to protect biological treatment units from damage and to prevent overflows and backups elsewhere in the system. EPA's proposed policy seeks to set clear parameters for blending to ensure that it is protective of human health and the environment.

As stated earlier, the blending policy applies only when the final discharge meets all permit limits. Blending that would cause the discharge of pollutants

not in compliance with the terms of the NPDES permit is and would remain illegal.

Discharges of raw sewage are a significant threat to both human health and the environment. It has been a long-term goal of EPA and its state and local partners to eliminate all discharges of raw sewage to the environment. Over the past 30 years, municipal, state, and federal agencies have invested billions of dollars toward achieving this goal. The use of blending as an option for managing wet weather flows coming into a sewage treatment facility can help to reduce overflows of raw sewage from elsewhere in the system. Blending allows a much higher volume of incoming wastewater to receive treatment and disinfection thereby reducing or possibly eliminating much more harmful overflows of untreated sewage.

The proposed blending policy seeks to set parameters and conditions for the practice of blending. Under the proposed policy, sewage treatment facilities would need to evaluate their systems and implement management practices minimizing the need for blending and preventing overflows from occurring. In addition, enhanced monitoring would be required and would allow permit writers to assess any potential impact of blended discharges on the particular waterbody and make adjustments in permit limits as needed.

How Can Biological Treatment Units be Damaged By Wet Weather Flows?

Most sewage treatment plants use a series of steps to treat wastewater which include: preliminary treatment or screening to remove large solids; primary clarification to remove floating and settleable solids; biological treatment units (also referred to as secondary treatment units) to remove biodegradable organic pollutants and suspended solids. Many treatment facilities also provide disinfection to kill pathogens and achieve water quality standards. Some facilities also provide advanced treatment which are designed to remove additional constituents and meet water quality standards.

Biological treatment units utilize a natural process to biodegrade pollutants using a stable population of microorganisms. This means that biological treatment units generally cannot be designed to accommodate wide variations in flow volumes and strength. Wet weather flows can cause malfunctions in the system. Excessive flows into the biological units can actually washout the microorganisms necessary for treatment and may result in additional pollutants being discharged to the environment. In addition, the diluted nature of wet weather flows (more rainwater, less sewage) can have negative effects on the functioning of the biological unites. It can take weeks or months for a biological treatment unit to recover from such an event.

What Happens When a Blended Discharge Does Not Meet Permit Limits?

This proposed policy would not alter permit limits or the conditions that apply to publicly owned sewage treatment facilities. Discharges not in compliance with permit limits would remain illegal and would continue to be subject to the full range of enforcement options outlined in the Clean Water Act, including fines of up to $27,500 per day.

What Requirements Do the Proposed Blending Policy Place on Local Sewage Treatment Facilities?

The proposed policy includes the following management principles:

- Blended discharges must meet permit limits that are based on secondary treatment standards or any more stringent limitations necessary to attain water quality standards, including appropriate pathogen-indicator limitations.
- Permits must include monitoring requirements for blended discharges to evaluate compliance with permit limits. In addition, the permit should require monitoring to assess potential water quality impacts and to evaluate the effectiveness of the treatment process on key pollutants, including pathogens; and to characterize the level of key pollutants in ambient waters.
- The policy indicates that discharges of blended flows to sensitive waters should not be authorized wherever physically possible and economically achievable.

Is this Proposed Policy Protective of Human Health and the Environment?

EPA believes that allowing blending under the limited terms outlined in the proposed policy would be protective of human health and the environment. The use of blending as a technique for managing wet weather flows at sewage treatment facilities could reduce overflows of raw sewage from other parts of the treatment system.

The Agency's efforts to control combined sewer overflows (CSOs) and sanitary sewer overflows (SSOs) are not affected by this proposed guidance. The Agency continues to work with states and affected communities to implement the 1994 CSO Policy, including implementation of the nine minimum technology-based controls and adoption of long-term control plans. EPA and the states are addressing overflows from sanitary sewer systems using the principles outlined in EPA's April 27, 2000, Compliance and Enforcement Strategy Addressing Combined Sewer Overflows and Sanitary Sewer Overflows.

Do Permits Protect Against Pathogens, Such as *Cryptosporidium* and *Giardia*?

Many NPDES permits provide a level of protection against these pathogens. EPA's 1986 water quality criteria for pathogens provides a relevant tool for establishing water quality-based effluent limitations for infrequent blended discharges. The 1986 criteria serves as an indicator (not a direct measure) for a wide range of pathogens in wastewater, including viruses and parasites, that can produce acute gastrointestinal disease symptoms. The data supporting the 1986 bacteria water quality criteria were obtained from a series of epidemiological studies that examined the relationship between swimming-associated illness (namely, acute gastrointestinal illness) and the microbiological quality of the waters used by recreational bathers. Hence, we believe the 1986 criteria is a relevant indicator for protecting against gastrointestinal disease associated with potential exposure to ambient waters.

This proposed policy encourages states that have not already done so to adopt water quality standards based on EPA's 1986 pathogen criteria and to include appropriate limits in permits.

Does the Proposed Policy Provide Incentives to Minimize the Use of Blending and Maximize the Use of Biological Treatment?

The proposed policy provides a number of safeguards that seek to minimize the use of blending and maximize the use of biological treatment. The

proposed policy would ensure appropriate management of high flow events by:

- Limiting the use of blending to times when the capacity of biological units is fully utilized
- Ensuring monitoring of blended effluents and ambient monitoring in the waters that receive blended discharges
- Requiring appropriate operation and maintenance of the collection system to reduce high flows
- Recognizing management approaches for high flows due to wet weather that are both environmentally protective and cost-effective

Blending is only an accepted practice when wet weather flows exceed the capacity of the biological treatment units and storage units at a facility. The proposed policy does not allow sewage treatment facilities to blend during dry weather. Dry weather flows should not exceed the capacity of the biological treatment units. Any diversion from biological treatment during dry weather conditions will be subject to the existing bypass provisions of the regulations.

Will This Policy Discourage Municipalities from Investing in their Sewer Collection Systems?

EPA believe that this policy will not affect local infrastructure investment decisions. Municipalities across the country face significant problems with their wastewater infrastructure, including problems caused by storm events. EPA estimates the national needs for additional municipal investment in wastewater infrastructure include about $50.6 billion for combined sewer overflow control, $88.5 billion for sanitary sewer overflow control, and $57.2 billion for wastewater treatment plants. This policy does not alter federal requirements for overflows from collection systems that will continue to drive municipal investment in infrastructure. However, the policy does outline a valid and cost-effective approach for managing wet weather flows that is protective of human health and the environment.

Is Blending Currently Used by Local Sewage Treatment Facilities?

Information from municipalities and states indicates that blending is a widespread practice. In 2001, the Association of Metropolitan Sewerage Agencies (AMSA) EXIT disclaimer conducted a survey on blending. AMSA received 122 responses (representing 47% of the organization's membership). Of these, 59 respondents (48%) blended during some peak flow conditions. Of the 48% of the facilities that blended:

- 70% of the plants were originally designed to blend
- 31% of permits for these facilities recognized blending
- 33% of these communities are served by combined sewers

Is the Proposed Policy Consistent with the Clean Water Act (CWA)?

Yes. The Clean Water Act requires that discharges from sewage treatment facilities achieve effluent limitations based on secondary treatment, as well as any more stringent limitations necessary to meet water quality standards.

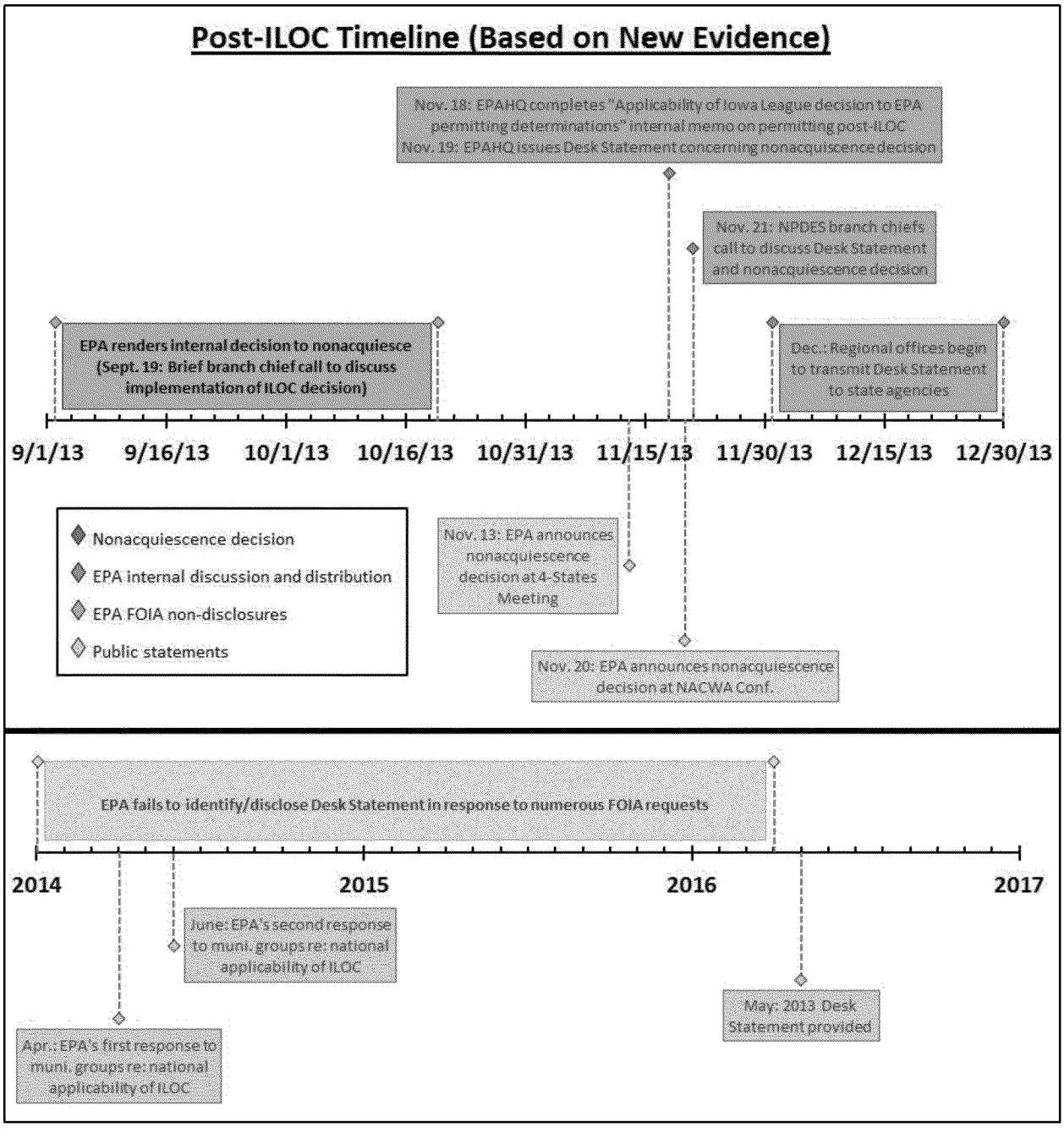
The secondary treatment regulations define performance standards for minimum levels of effluent quality . Likewise, more stringent limits are sometimes necessary to meet water quality standards. In either case, limits almost always apply at the "end-of-the-pipe." The regulations do not specify the type of treatment process to be used to meet secondary treatment

requirements, nor do they preclude the use of nonbiological facilities. The regulations do require proper operation of any treatment process.

Is EPA Conducting Any Research on Blending?

EPA working with the Water Environment Research Foundation (WERF) that will examine blended effluent quality and its impact on ambient waters. This project is seeking answers to the following questions:

- What changes occur in the quality of the wastewater arriving at the sewage treatment facility and the corresponding changes in the final discharge?
- What ambient water quality changes occur during each wet weather event?
- Is there an impact from blended discharges on water quality?
- During a storm event, what is the relevant impact to overall stream water quality from a sewage treatment facility practicing blending and all other sources which are contributing pollutants?
- What effects do different management techniques used by sewage treatment facilities have on the level of pathogens in the final discharge?


Post-ILOC Timeline (Based on New Evidence)
Nov. 18: EPAHQ completes "Applicability of Iowa League decision to EPA permitting determinations" internal memo on permitting post-ILOC
Nov. 19: EPAHQ issues Desk Statement concerning nonacquiscence decision
Nov. 21: NPDES branch chiefs call to discuss Desk Statement and nonacquiescence decision
EPA renders internal decision to nonacquiesce (Sept. 19: Brief branch chief call to discuss implementation of ILOC decision)
Dec.: Regional offices begin to transmit Desk Statement to state agencies
9/1/13
9/16/13
10/1/13
10/16/13
10/31/13
11/15/13
11/30/13
12/15/13
12/30/13
Nonacquiescence decision
EPA internal discussion and distribution
EPA FOIA non-disclosures
Public statements
Nov. 13: EPA announces nonacquiescence decision at 4-States Meeting
Nov. 20: EPA announces nonacquiescence decision at NACWA Conf.
EPA fails to identify/disclose Desk Statement in response to numerous FOIA requests
2014
2015
2016
2017
June: EPA's second response to muni. groups re: national applicability of ILOC
May: 2013 Desk Statement provided
Apr.: EPA's first response to muni. groups re: national applicability of ILOC