

## **WET WEATHER NPDES PERMITTING (INCLUDING SSOs): CASE STUDIES FROM AROUND THE COUNTRY**

Patrick Bradley; LimnoTech; 1705 DeSales St. NW, Suite 600; Washington, DC 20036  
[pbradley@limno.com](mailto:pbradley@limno.com)

### **ABSTRACT**

Wet weather discharges are often cited as being a cause of (or contributing to) water bodies not attaining water quality standards. Wet weather discharges include stormwater systems, combined sewer overflows (CSOs), sanitary sewer overflows (SSOs), and nonpoint sources. All of these sources except for nonpoint sources require a National Pollutant Discharge Elimination System (NPDES) permit in order to discharge pollutants. A strategy for managing these diverse sources is needed.

The difficulty associated with effectively addressing wet weather discharges under the NPDES permit program is not a new issue; however there are a number of examples from different parts of the country that provide some innovative and thought provoking ideas for possible solutions. SSOs are point source discharges; however the ability to include SSOs in NPDES permits is one impediment to a fully operational and integrated approach to wet weather permits that is shared across the country. In many states, the discharges from SSOs are considered to be “prohibited” without any regulatory basis provided for this blanket prohibition. This problem of lack of regulatory basis is often magnified by federal enforcement actions and consent decrees that require the “elimination” of SSOs without any mechanism for achieving the requirement.

In 1999, EPA published a draft proposed regulation to provide a strategy for addressing SSOs, but the regulation never went forward. In the draft document, EPA acknowledged that eliminating SSOs was not possible. Despite this recognition, very few states have developed a strategy for addressing SSOs. The CWA does not prohibit issuing NPDES permits for the discharge from a SSO. This raises several important questions. Why aren't SSOs currently being included in municipal NPDES permits? What are the impediments to issuing NPDES permits for SSO discharges? How do we overcome these impediments and move forward?

In 2004, NACWA (at the time AMSA) published a White Paper: Sanitary Sewer Overflows Legal Issues. This White Paper looked at the issue of how to control overflows from a theoretical legal perspective. The paper provided a number of recommendations for EPA to consider regarding the permitting of SSOs.

On April 30, 2010, Water Environment Federation (WEF) adopted a position statement: “Management of Wet Weather Flows by Municipal Utilities”. This position statement highlighted many of the issues municipal systems face and recommended that EPA should "develop a strategy and guidance for integration of municipal wet weather programs that will assist permitting authorities with design and implementation of permits to address the unique nature of wet weather discharges and the controls necessary to achieve water quality goals. The strategy and guidance will enable permitting authorities to utilize flexibility available in the

NPDES permit program to focus on water quality goals. The strategy and guidance will also encourage urban areas to develop their wet weather programs in a comprehensive manner following the WEF Guide that organizes NPDES information and planning to help decision makers prioritize wet weather control programs".

All of these efforts represent attempts to establish a system to manage wet weather flows in the existing regulatory framework. The following sections will review some of these efforts, the existing regulations and policies in place, as well efforts by states to provide a permit framework for addressing wet weather flows. The states of North Carolina, California, Wisconsin and South Carolina have each developed a general permit to address discharges from collection systems. These will be discussed as examples of current approaches to control wet weather discharges.

## **INTRODUCTION**

In 1987, Congress issued the Water Quality Act amendments to the Federal Water Pollution Control Act (the Clean Water Act) and emphasized the need to control stormwater discharges (see section 402(p) of the Act). In 2000, Congress amended the Clean Water Act (CWA) to include the requirements that all permits, orders and decrees to control combined sewer overflows (CSOs) must conform to the 1994 CSO Control Policy (see section 402(q)). These actions were taken in order to attempt to better manage the impacts of wet weather discharges.

The following sections provide information regarding existing statutory and regulatory requirements related to wet weather discharges. It includes discussion of the different programs in place or under consideration for addressing wet weather impacts.

### ***Clean Water Act***

In 1972, the U.S. Congress significantly amended the Federal Water Pollution Control Act (more commonly known as the *Clean Water Act* - CWA). A major component of the amendment was creation of the National Pollution Discharge Elimination (NPDES) program. The NPDES program regulates all types of discharges to U.S. waterways and has significantly reduced direct pollutant discharges. "Direct pollutant discharges" include wet weather sewer overflows from combined sewer and sanitary sewer systems, discharges from municipal sewage plants and industrial facilities and stormwater runoff from streets, construction sites, farms, etc. Under the CWA, any discharge of pollutants is prohibited unless authorized by a NPDES permit. This includes discharges from sanitary sewers better known as sanitary sewer overflows (SSOs).

EPA has issued numerous policies and guidance to promote compliance with the requirements of the CWA, including permitting program materials, the *Combined Sewer Overflow (CSO) Policy*, the draft SSO rule and Stormwater Phase II regulation.

### ***National Pollutant Discharge Elimination System (NPDES) Permitting Program***

Any discharge of pollutants from a point source into the waters of the United States must have a NPDES permit. A point source is any discernible, confined, and discrete conveyance, such as a pipe, ditch, channel, tunnel, conduit, or container. It also includes vessels or other floating craft

from which pollutants are or may be discharged. Typical point source discharges include discharges from publicly owned treatment works (POTWs), which treat wastewater from residential, commercial, and industrial customers.

Municipalities also may have combined or separate sanitary sewer systems. Combined sewer systems, which frequently overflow untreated sewage into the waterways during wet weather events, are regulated under the NPDES program. In 1994, EPA issued the *CSO Control Policy* that outlined how the NPDES program would regulate CSOs. EPA drafted, but never issued a proposed rule to regulate SSOs. To date, no clear guidance has been issued by EPA outlining how SSOs should be regulated.

### ***National Combined Sewer Overflow (CSO) Control Policy***

Communities with combined sewer systems, which carry both wastewater and storm water in the same set of pipes, that include overflow points must obtain coverage under an NPDES permit, and these permits must be written to conform with the *CSO Control Policy* (see CWA section 402(q)). The *CSO Control Policy* was created to provide guidance for permitting authorities on how to permit municipalities in order to meet the Clean Water Act's pollution control goals.

CSO Permits must include technology-based limits, which under the Policy are the "Nine Minimum Controls (NMCs)." The NMCs include:

1. Proper operation and regular maintenance programs for the sewer system and the CSOs
2. Maximum use of the collection system for storage
3. Review and modification of pretreatment requirements to assure CSO impacts are minimized
4. Maximization of flow to the POTW for treatment
5. Prohibition of CSOs during dry weather
6. Control of solid and floatable materials in CSOs
7. Pollution prevention
8. Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts
9. Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls

CSO Permits must also include water quality-based limits if the technology-based limits are not stringent enough to achieve water quality standards (see CWA section 301(b)(1)(c)). The Policy outlines how the development of long-term control plans (LTCPs) are part of an initial best management practices (BMP) approach to water quality-based limits and will ultimately result in full compliance with the *Clean Water Act*.

CSOs Permits are not required to include technology-based limits based upon secondary treatment because CSOs are not considered to be POTWs. This determination is based upon a court decision - *Montgomery Environmental Coalition vs. Costle*, 646 F.2d 568. The following are some excerpts from the decision:

*The EPA argues that a sewage overflow point is a device discharging sewer flow without treatment, and that it is therefore not a "treatment works." This argument is buttressed by*

*the Administrator's interpretation of the term, as embodied in EPA regulations. At the time of the original permit hearing, [fn17] the Administrator's definition for NPDES permit purposes was as follows:*

*The term "treatment works" means any facility, method or system for the storage, treatment, recycling, or reclamation of municipal sewage or industrial wastes of a liquid nature, including waste in combined storm water and sanitary sewer systems.*

*40 C.F.R. § 125.1(hh) (1975), 38 Fed.Reg. 13528, 13530 (1973) (emphasis added). Since a sewage overflow point is not for "storage, treatment, recycling, or reclamation," but rather for uninhibited discharge, it is outside the definition.*

*The EPA merely argues 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).*

### ***Management of Peak Wet Weather Flows at POTWs***

During the first twenty years of the NPDES program, the major emphasis for POTWs was to provide treatment to comply with the statutory requirements and compliance deadlines in the CWA. EPA, in its regulations and in the *National Municipal Policy on Publicly-Owned Treatment Works* (NMP) (49 FR 2515), focused little attention on the management of peak flows at POTW treatment plants as long as those flows met effluent limits.

Peak wet weather flows can create operational challenges at POTW treatment plants. Peak flows can “wash out” biomass or otherwise weaken the effectiveness of biological treatment, weakening the plant’s overall treatment efficiency. One way to minimize this problem is to “blend” flow by occasionally conveying peak wet weather flows around biological treatment units, and then blending this primary effluent with the effluent from the biological units. The blended effluent is typically disinfected, and can meet effluent limits before being discharged.

Over the last decade, EPA has received numerous requests to clarify how NPDES permit requirements, particularly the bypass provision, apply to effluent that has been “blended”, but that complies with technology- and water quality-based numerical permit limits. Without clear national guidance on NPDES requirements for blending, NPDES authorities have taken a variety of approaches through permits and enforcement. Some authorize blending in permits, some approve it as an anticipated bypass, and some prohibit blending outright regardless of whether numerical permit limits are met.

On November 7, 2003, EPA circulated a proposed policy in a Federal Register notice of availability that clarified that blending could be authorized in a permit, and was not a bypass, in cases where the permit and permittee met six criteria (68 FR 63042). This policy was subsequently put on hold due to congressional intervention. It was later replaced by a draft policy in 2005 (70 FR 76013) that took a different approach to peak wet weather flows. In the 2005 draft policy, EPA maintained that flows that recombined prior to discharge were bypasses, but it

may be possible to approve these bypasses. The approval would be contingent on a study demonstrating there were no "feasible alternatives" to the "bypass." To date, this policy has not been finalized.

### ***Proposed Sanitary Sewer Overflow (SSO) Rule***

It is not entirely clear why discharges from sanitary sewer overflows (SSOs) have not historically been covered by NPDES permits. It may be due to the fact the NPDES permitting program generally focuses on "continuously discharging" facilities. Another possibility is because many permitting authorities have taken the position that SSOs are "illegal" or specifically prohibited by the CWA. The position here seems to be that sewer systems should never have an overflow; instead, every drop of water should be conveyed to the treatment plant. The CWA actually prohibits the discharge of all pollutants, unless authorized by a NPDES permit. Therefore, the "prohibition" does have some basis in the CWA; however, it is not specific to SSOs.

The draft proposed SSO rule would have investigated different options for addressing these discharges through the NPDES permitting program. Under consideration was a system designed after the "bypass" provision in the regulation. SSOs would have been prohibited, but may have been allowed through some form of "enforcement discretion" if there was no "feasible alternative" to prevent the overflow. The rule would have required municipalities to obtain NPDES permits for the collection systems and included requirements for BMPs and reporting focused on the collection system and overflows.

### ***Storm Water Program***

Wet weather overflows have potential for localized impacts, while storm water runoff has been identified as a major pollutant source to the nation's waterways. To protect and improve water resources, the EPA developed the Storm water program, most recently through issuance of the Phase II Rules. Phase II expands the Phase I program, which relies on the NPDES permit program to address the runoff issue.

Both the Phase I and II programs require operators of municipal separate storm sewer systems (MS4s) to develop, implement, and enforce a storm water management program based on "best management practices" (BMPs) to reduce the discharge of pollutants to the "maximum extent practicable."

Under the Phase II rules, storm water management programs must include "six minimum controls:"

1. Public education and outreach
2. Public participation/involvement
3. Illicit discharge detection and elimination
4. Construction site runoff control
5. Post-construction runoff control
6. Pollution prevention/good housekeeping

When implemented together, these six elements are expected to significantly reduce the amount of pollutants discharged into waterways through storm water runoff.

## CHARACTERIZATION OF WET WEATHER DISCHARGES

Municipal wet weather discharges result from rainfall and snowmelt and include storm water runoff, CSOs, SSOs, and peak wet weather flows at POTWs. These discharges are intermittent, unpredictable, and not easily characterized. They are highly variable from one wet weather event to another with respect to frequency, duration, and volume.

Municipal wet weather discharges have other commonalities besides being driven by rainfall and snowmelt. All can include various combinations of pathogens, floatable material, sediment and suspended solids, oxygen-demanding substances, and a host of conventional and toxic pollutants. In addition, they can be hydraulically connected such that controlling one source has impacts elsewhere in the system.

The impacts and impairment due to urban wet weather discharges can often be difficult to attribute to a single source because more than one type of discharge can occur simultaneously during wet weather events, and because ambient flows in receiving water are typically elevated when they occur. Nevertheless, they are recognized as a major source of impairment. EPA's Electronic Integrated Reporting under Sections 305(b) and 303(d) (Water Quality Assessment and TMDL Information) is provided in a database, known as ATTAINS, and displays information provided by the states in their biennial integrated water quality assessment reports. The report identified "Municipal Discharges/Sewage" and "Urban Related Runoff/Stormwater" as a leading source of impairment of water bodies. Moreover, states cited pathogens, sediment, oxygen demand, and nutrients—pollutants commonly associated with municipal wet weather discharges—as leading stressors of impaired waters.

Established in 1972, the National Pollutant Discharge Elimination System (NPDES) permit program requires that point source dischargers obtain a permit and meet applicable effluent limitations. In its early years, the permitting program focused on municipal sewage and industrial dischargers. Over the past decade, the number of sources subject to the NPDES program has increased almost ten-fold, and municipal wet weather discharges, particularly storm water discharges, are a major component of the increase. During this same period, the gap between municipal wastewater infrastructure needs and available funding has widened. Municipalities thus face increasingly difficult decisions about how to allocate limited resources to address a number of pressing management issues (e.g., storm water, CSOs, SSOs, and management of peak wet weather flows at POTWs). Consequently, attention has turned to how to clarify provisions of the NPDES program to provide a balance between national consistency, site-specific flexibility to choose cost-effective management options, and assurance that environmental gains will be sustained.

Municipal wet weather discharges are currently addressed through various EPA regulatory and policy frameworks that reflect different statutory and policy mandates. Correspondingly, the programs developed to address municipal wet weather discharges are in various stages of implementation. Regulation, policy, and guidance for CSOs and Phase I storm water have been in effect for several years. EPA's program for smaller MS4s (Phase II storm), by comparison, was launched more recently. Currently, EPA is preparing to propose regulations on how to

manage SSO/wet weather flows at the POTW in permits under the existing NPDES regulatory framework. Lessons learned from the development and implementation of two maturing programs—the storm water and CSO programs—can help inform EPA decisions about application of the existing NPDES framework to SSOs and blending of peak wet weather flows at POTWs, and about how best to integrate all wet weather programs into a coordinated approach.

Addressing wet weather discharges in a holistic manner can provide for greater efficiency, more comprehensive planning, and less redundancy among permitting requirements. Nontraditional approaches may be required to address the challenges posed by wet weather discharges. Such challenges must be addressed on several fronts:

- Ensuring that the existing framework of regulation and policy is fully implemented for those discharges covered by existing programs.
- Adjusting the existing regulation and policy framework to reflect the difficult decisions municipalities face in controlling episodic, variable, and largely unpredictable wet weather sources.
- Supporting flexible local decision-making to achieve watershed objectives in the most cost-effective manner.

Over the last 10 plus years, EPA and its stakeholders have continued a dialogue about how municipal wet weather issues could be better integrated on a watershed basis (see USEPA 1994; USEPA 1996a; USEPA 1996b; USEPA 1996c; USEPA 1998; USEPA 2002). The closest thing to an actual strategy was policy and guidance related to Watershed-based Permitting, however it did not speak directly to the issue of wet weather discharges (USEPA 2002, USEPA 2003a, USEPA 2003b, USEPA 2007).

## **CURRENT IMPLEMENTATION**

### **U.S. Environmental Protection Agency**

#### EPA listening sessions (SSO Rulemaking discussion)

During the summer of 2010, EPA conducted listening sessions to gain information from stakeholders regarding a number of wet weather related issues. The listening sessions were announced in a Federal Register notice issued June 1, 2010 (75 FR 30395). EPA stated its intent was

*to obtain information from the public on certain issues EPA is considering. EPA is considering whether to propose to modify the National Pollutant Discharge Elimination System (NPDES) regulations as they apply to municipal sanitary sewer collection systems and sanitary sewer overflows (SSOs) in order to better protect the environment and public health from the harmful effects of sanitary sewer overflows and basement back ups. The Agency is considering whether to propose possible modifications to the NPDES regulations, including establishing standard permit conditions for publicly*

*owned treatment works (POTW) permits that specifically address sanitary sewer collection systems and SSOs, and clarifying the regulatory framework for applying NPDES permit conditions to municipal satellite collection systems. The Agency is also considering whether and how it should resolve several longstanding issues that are the subject of the December 22, 2005 draft Peak Flows Policy. This draft Policy attempted to clarify EPA's interpretation that the existing "bypass" provision of the NPDES regulations applies to peak wet weather diversions at POTW treatment plants that are recombined with the flows from the secondary treatment units prior to discharge. The Agency is considering whether to adopt this or a revised Policy and/or address questions about peak flow as part of an SSO rulemaking to allow for a holistic and integrated approach to reducing SSOs while at the same time addressing peak flows at the POTW treatment plant.*

EPA presented information and accepted comments during the listening sessions. EPA also accepted comments via mail, email and over the internet. In order to manage the information being submitted, EPA also established a docket for this information gathering process (Docket ID No. EPA-HQ-OW-2010-0464).

Shortly after the process was initiated it was determined by EPA that it did not have the resources to devote full effort toward it. EPA did not stop work entirely; however it did scale back the effort significantly.

### EPA Workshops

Approximately eight months after the Listening Sessions, EPA announced it would host a workshop to further discuss wet weather issues and gather more information. EPA stated its intent was

*The Office of Wastewater Management of the U.S. Environmental Protection Agency is holding a workshop to solicit the views of stakeholders concerning a number of issues. These include views on how the National Pollutant Discharge Elimination System (NPDES) regulations should apply to municipal sanitary sewer collection systems, sanitary sewer overflows (SSOs), and peak wet weather discharges at publicly owned treatment works (POTW) treatment plants. EPA will also seek views on the 2005 draft Peak Flows Policy. The workshop will include a facilitated discussion with representatives of organizations that represent POTWs, state NPDES permitting authorities, and non-for-profit environmental groups. EPA invites other interested members of the public to observe the workshop and to offer verbal comments at designated times during the workshop or to submit written comments to the Agency.*

At the time this manuscript was drafted, the workshops had not taken place and no agenda for the workshop had been released. Therefore it is not possible to say any more about the workshop other than it had been scheduled.

### **State Approaches**

During the years after the draft SSO rule was released unofficially, EPA sent a number of memos to the states and also held policy discussions on the subject of control of SSOs. Some of this information, including a draft fact sheet for a permit, is available on EPA's website ([http://cfpub.epa.gov/npdes/home.cfm?program\\_id=4](http://cfpub.epa.gov/npdes/home.cfm?program_id=4)). In order to address the perceived requirements from EPA, the states began to put together SSO control programs. This included some states issuing general permits for collection systems. The following includes summaries describing some of the permits that are currently available. These summaries are based on materials available on the state websites.

### California

California has issued the State Water Resources Control Board Order No. 2006-0003-DWQ, Statewide General Waste Discharge Requirements (WDR) for Sanitary Sewer Systems and a Monitoring and Reporting Program No. 2006-0003-DWQ for the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems. On February 20, 2008, the Board issued Order No. WQ 2008-0002-EXEC, amending the statewide Monitoring and Reporting Program associated with the General Waste Discharge Requirements for Sanitary Sewer Overflows, Order No. 2006-0003-DWQ for discharges of untreated sewage from sewage collection systems. Order No. WQ 2008-0002-EXEC requires additional reporting requirements for public SSOs that reach surface waters or storm drains. These were issued by the State Board and establish minimum requirements for the control of SSOs. These are statewide orders (permits), but allow the regional boards to issue more stringent requirements as necessary in their jurisdictions.

The order requires all federal and state agencies, municipalities, counties, districts, and other public entities that own, operate, acquire, or assume responsibility for sanitary sewer systems greater than one mile in length that collect and/or convey untreated or partially treated wastewater to a publicly owned treatment facility to apply for coverage under the statewide general WDRs.

The limits in the WDR are actually narrative prohibitions:

#### C. PROHIBITIONS

1. Any SSO that results in a discharge of untreated or partially treated wastewater to waters of the United States is prohibited.
2. Any SSO that results in a discharge of untreated or partially treated wastewater that creates a nuisance as defined in California Water Code Section 13050(m) is prohibited.

This sets up the situation where any overflow may be considered a permit violation. Also all overflows must be reported. It is important to note, the Fact Sheet provides no specific basis for how this limit was calculated which seems inconsistent with the requirements in 40 CFR 124.8 and 124.56.

### North Carolina

The North Carolina approach is very similar to the California permit in that it prohibits SSOs. The North Carolina permit is similar to a general permit, but operates more like an individual permit. Permittees apply for a permit, and North Carolina has developed a "permit shell" that is available on the North Carolina website. During the issuance process, North Carolina fills in the shell with specific information about the collections system. The permit includes standard requirements that apply to all permittees. The permit states,

*The wastewater collection system shall be effectively managed, maintained and operated at all times so that there is no SSO to land or surface waters, nor any contamination of groundwater. In the event that the wastewater collection system fails to perform satisfactorily, including the creation of nuisance conditions, the Permittee shall take immediate corrective actions, including actions that may be required by the Division of Water Quality (Division), such as the construction of additional or replacement sewer lines and/or equipment.*

The main difference between the California and North Carolina permit is the fact the North Carolina permit provides for exceptions to the prohibition if the permittee can demonstrate the SSO was the result of a "severe" natural condition and there were no feasible alternatives to the SSO.

*The SSO was caused by severe natural conditions; there were no feasible alternatives to the SSO, such as the use of auxiliary treatment facilities, retention of untreated wastewater, reduction of inflow and infiltration, use of adequate back-up equipment, or an increase in the capacity of the system. This provision is not satisfied if, in the exercise of reasonable engineering judgment, the Permittee should have installed auxiliary or additional collection system components, wastewater retention or treatment facilities, adequate back-up equipment or should have reduced inflow and infiltration; or The SSO was exceptional, unintentional, temporary and caused by factors beyond the reasonable control of the Permittee; the SSO could not have been prevented by the exercise of reasonable control, such as proper management, operation and maintenance; adequate treatment facilities or collection system facilities or components (e.g., adequately enlarging treatment or collection facilities to accommodate growth or adequately controlling and preventing infiltration and inflow); preventive maintenance; or installation of adequate back-up equipment;*

### South Carolina

The General Permit (PERMIT #: SSS000000) established by the State of South Carolina is only two pages long. Like California and North Carolina it prohibits the discharge of wastewater from sanitary sewers, but does it without using the terminology, prohibited. The permit in its opening section states,

This permit does not authorize any discharge from a sewer system to the environment. Such discharges are a violation of the Pollution Control Act (48-1-90).

The permit includes requirements for proper operation and maintenance of sewer systems and includes requirements for reporting of overflows.

## Wisconsin

The State of Wisconsin also issued a general permit (WPDES Permit No. WI-0047341-04-0) primarily designed for collection systems that are owned by an entity other than the publicly owned treatment works. It is similar to the other state general permits discussed here. It includes a prohibition against SSOs, however the prohibition is not absolute. The permit provides some exceptions that are very similar to the language in the federal regulations for a bypass.

### ***2 Permit Conditions and Monitoring Requirements***

#### ***2.1 Unscheduled SSO***

*Any unscheduled SSO of wastewater from the collection system is prohibited, and the Department may take enforcement action against a permittee for such occurrences under s. 283.89, Wis. Stats., unless:*

- The SSO was unavoidable to prevent loss of life, personal injury, or severe property damage;*
- There were no feasible alternatives to the SSO, such as the use of auxiliary treatment facilities, retention of untreated sewage, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a SSO which occurred during normal periods of equipment downtime or preventive maintenance; and*
- The permittee notified the Department as required in Section 2.2.*

#### ***2.2 SSO Reporting Requirements***

*Whenever there is a SSO from the collection system, the permittee shall notify the Department within 24 hours of initiation of the SSO occurrence by telephoning the wastewater staff in the regional office as soon as reasonably possible (FAX, email or voice mail, if staff are unavailable). In addition, the permittee shall within 5 days of conclusion of the SSO occurrence report the following information to the Department in writing:*

It is not clear in the permit how these exceptions will be applied because the amount of data necessary to demonstrate a SSO was unavoidable and there were no feasible alternatives is not clearly explained.

The Wisconsin general permit also makes it clear that the basement backups are not SSOs,

*SSOs include discharges that occur on private property, except it does not include basement backups.*

## **Other Permits**

As noted earlier, the issue of how best to control SSOs is not new. The approaches taken by California, North Carolina, South Carolina and Wisconsin are relatively new, however there have been permits issued in the past for SSOs.

Back in the late 1980's, East Bay Municipal Utility District (EBMUD) received a permit for its designed overflow points in the collection system. These overflow points received treatment from peak excess flow treatment facilities. The discharges from the collection system were authorized by permit for three permit cycles until the early 2000s. EPA then re-interpreted their position and now requires the remote PEFTFs to meet 30 mg/l BOD and 30 mg/l TSS on a monthly average.

The situation described for EBMUD is similar to situations in Kansas and Oregon. Johnson County Wastewater (JCW) in Johnson County, Kansas also has PEFTFs in the collection system that had been authorized by NPDES permit in the previous permit cycle. During the most recent re-issuance of the permit by the state of Kansas, EPA objected to authorization. Johnson County is continuing to discuss the permit provisions with the State and EPA and have received a CWA Section 308 letter from EPA requesting information and requiring JCW to collect additional information related to the discharges.

Oregon has historically permitted SSOs, and required permittees to develop and document plans to control the overflows. As in Kansas, the most recent set of permits proposed to be issued by Oregon received objection notices from EPA. Oregon and EPA are currently discussing how to resolve the objection.

In the case of Oregon's permits it is important to note that in Oregon, the regulations specifically address the discharge of bacteria from SSOs. For bacteria, the regulations at OAR 340-041-0009 establish:

*(5) Effluent Limitations for Bacteria: Except as allowed in subsection (c) of this section, upon NPDES permit renewal or issuance, or upon request for a permit modification by the permittee at an earlier date, effluent discharges to freshwaters, and estuarine waters other than shellfish growing waters may not exceed a monthly log mean of 126 E. coli organisms per 100 ml. No single sample may exceed 406 E. coli organisms per 100 ml. However, no violation will be found, for an exceedance if the permittee takes at least five consecutive re-samples at four-hour intervals beginning as soon as practicable (preferably within 24 hours) after the original sample was taken and the log mean of the five re-samples is less than or equal to 126 E. coli.*

In this same section of the regulation, the State of Oregon also established specific exemptions for SSOs. In this section, State of Oregon recognized that SSOs cannot be prevented 100% of the time and technology controls developed by the State will be adequate to protect water quality – see 340-041-0009(6) and (7) contained below.

In reviewing the regulations, it seems Oregon has established a system where all wastewater conveyance systems are designed to transport waste streams, including those resulting from storm events up to a specific size, to the treatment facility. Therefore, the State of Oregon

regulations provide that no waste may be discharged from these outfalls unless it is due to a storm event as allowed under OAR 340-041-0009(6) and (7). In the summer, raw sewage overflows are prohibited except as a result of a storm event greater than the one-in-ten-year, 24-hour duration storm. In the winter, overflows are prohibited except as a result of a storm event greater than the one-in-five-year, 24-hour duration storm.

The Oregon regulations include a raw sewage prohibition at OAR340-041-0009 that states,

*(2) Raw Sewage Prohibition: No sewage may be discharged into or in any other manner be allowed to enter the waters of the State, unless such sewage has been treated in a manner approved by the Department or otherwise allowed by these rules;*

The paragraph includes the phrase, “or otherwise allowed by these rules.” This seems to indicate that OAR 340-041-0009(6) and (7) may be applied and authorizes the discharge with specific controls.

Paragraphs (6) and (7) allow discharges under very limited circumstances, and given the placement of this section within the same section as the Water Quality Standards (WQS), it seems to be an indication that these discharges are consistent with the WQS (both for the numeric criteria and the narrative criteria for “raw sewage prohibition”). Further, it looks like the standard is a technology-based standard included within the water quality standards section to clarify that the technology-based standard is adequate in these limited circumstances to meet water quality standards for bacteria.

## **AN ALTERNATIVE APPROACH**

The summaries above provide an overview of a number of different approaches currently being applied to SSOs. Each approach has positive elements and potential pitfalls. The following section will provide one possible way to move the current approaches forward. The following is based on the simple premise that requiring permittees to meet unattainable limits is not a reasonable or viable national policy. The NACWA 2004 White Paper very eloquently pointed out this simple idea,

“lex non intendit aliquid impossibile”

“the law does not compel the doing of impossible acts”

Using this as a starting point, any national policy should recognize that SSOs will occur and they likely will be the result of a very large storm, vandalism or some other event not reasonably under the control of the permittee. With this as a starting point, the policy should be focused on articulating a level of control that can be included in a NPDES permit as a permit limit.

The NPDES permitting program has been in existence for nearly forty years and includes a fair amount of flexibility that can be applied to situations such as SSOs.

One approach that may work under the NPDES program is to recognize that SSOs are "noncontinuous discharges." This allows the permitting authority to use different tools compared to those applied to the more classic continuous discharge scenario. The permitting authority should also recognize that SSOs are generally the result of highly variable events such as large storms or vandalism, and therefore cannot be predicted, contained or addressed with numeric effluent limits (it is infeasible to calculate a numeric limit).

Taking all of these issues into account, they can be overlaid on the NPDES permit process as described in the following

- SSOs that reach waters of the United States are point source discharges and, like other point source discharges from municipal sanitary sewer systems, are prohibited unless authorized by a NPDES permit (USEPA 2004).
- Owners or operators of point source discharges must apply for NPDES permits
- If SSOs are identified as outfalls in permit applications, the permitting authority must develop limits for each outfall.
- The permit authority must develop technology-based effluent limits, and if necessary water quality-based limits
- Technology-based limits are differentiated based on whether the discharge is from a POTW or non-POTW
- In the case of SSOs, the ultimate limit will be the same regardless of the designation of POTW or non-POTW. In the case of discharges from a POTW, the limits are to be based upon secondary treatment standards. For non-POTW discharges, the limits must be developed from effluent limit guidelines; however, effluent limit guidelines do not exist for SSOs so the limits must be based on a best professional judgment calculation.
- SSOs are highly unpredictable and highly variable in volume and duration. Given the nature of SSO discharges, it is not feasible to calculate a numeric effluent limit. In cases where it is not feasible to calculate a numeric effluent limit, the regulations require the use of best management practices (BMPs) as effluent limits. In order to establish appropriate limitations for these noncontinuous discharges from the collection system, consideration should be given to historical information about the system and receiving waters. The infrequent and highly variable nature of the discharges is further support for the need to use a BMP approach.
- Using both the noncontinuous discharge regulation and the BMP regulation, the permit should include BMPs in the form of a capacity, management, operation and maintenance (CMOM) program designed to address the frequency of overflows. This would be applicable as both a technology-based and water quality-based limit.

In summary, this approach is based on the premise that SSOs cannot be prevented 100% of the time. Therefore, the focus should be on control. Given the nature of SSOs, the controls should be in the form of BMPs that can be applied as limits. Because limits are being applied, requisite reporting and recordkeeping would also be required.

As noted in the WEF 2010 position statement, wet weather impacts all parts of a municipal collection system and treatment plant. There are many common elements shared by these different systems due to the fact the discharges are all wet weather driven. These common

elements need to be considered and a comprehensive strategy developed based on practical guidance that allows municipalities to manage wet weather flows in a holistic manner. As noted, this can be done within the existing NPDES permit framework.

## ACKNOWLEDGMENTS

The author would like to thank Dan Ott of Johnson County Wastewater for his review of the manuscript and work on some of the background material.

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