Detroit Water and Sewerage Department

Wastewater Master Plan

DWSD Project No. CS-1314

Review of Emerging Regulatory Issues

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Review of Emerging Regulatory Issues

1. Purpose

This document identifies emerging state and federal regulatory issues which, if adopted, could impact or affect the development of DWSD's Wastewater Master Plan pursuant to CS-1314.

2. Overview of Emerging State and Federal Regulatory Issues

A number of initiatives are being considered at both the state and federal levels, which could potentially impact the development of DWSD's Wastewater Master Plan under CS-1314. Care should be taken to develop the Master Plan with sufficient flexibility to account for the uncertainty over future regulations until they are adopted and implemented.

3. Specific Issues Which May Affect the Wastewater Master Planning Effort

3.1 Total Maximum Daily Loads (TMDL's)

Title III of the Federal Clean Water Act requires U.S. EPA and state water pollution control agencies to identify water bodies, which are not expected to achieve Water Quality Standards after the permit, required treatment technologies have been implemented for regulated point sources. Federal regulations at 40 CFR Part 130 discuss the process for identifying impaired waters and developing Total Maximum Daily Load (TMDL) studies which will establish allowable pollutant loading levels for all contributing sources. The TMDL study must consider both point and non-point source pollution loads, and must develop an implementation plan and schedule for each pollutant identified as exceeding the acceptable levels needed to meet Water Quality Standards. EPA has developed proposed new Federal Regulations which set forth detailed procedures and requirements for the preparation of a TMDL. However, in December, 2002 the agency officially withdrew the proposed regulation and announced that it would be re-written with major changes to address numerous objections and concerns.

In Michigan, MDEQ has designated more than 325 water bodies as non-attainment areas where Total Maximum Daily Load studies are to be prepared over a 13-year period. MDEQ's list includes numerous rivers, streams and lakes in southeast Michigan and DWSD's sewer service area. When TMDL studies are prepared for these areas, it is likely that the process will establish limits on pollutant discharges and potentially limit or constrain new facilities. These studies could also be the basis for pursuing sewer service extensions into unsewered areas if failed septic tanks are contributing to water quality problems.

The TMDL process could stimulate compliance programs to address currently unregulated pollution sources such as agricultural drainage, concentrated animal feedlots, storm sewer discharges, illicit connections and sediment deposits.

The TMDL development process will include substantial local involvement to ensure that recommendations are compatible with current and future beneficial uses in the area. It is unclear how implementation schedules, which are likely to be required as part of the TMDL development process, will be applied to non-point sources.

3.2 Water Quality Trading

A new mechanism for controlling pollutant loads within a watershed is water quality trading between two or more sources. The program, which is set forth in regulations promulgated by EPA in January, 2003, is patterned after similar provisions in the Clean Air Act where emissions trading between stationary sources help achieve the desired pollutant loading reductions. Dischargers who have the ability to remove more pollutants than they currently remove; can now enter into contractual agreements with other dischargers who will then continue to discharge pollutants at higher levels under an offset approach. The procedures being developed for water quality trading will control the geographic location of the pollutant sources and monitoring to ensure that the proposed offsets are actually achieved. To receive approval, the water quality trading agreement will need to achieve more than a 1:1 reduction in pollutant levels. Complicating factors include considerations for pollutants which are transient or which decay over time (e.g. oxygen consuming materials), and differing pollutants in a single category (e.g. phosphorus, nitrogen and other "nutrients"). Water quality trading could be a factor in the selection of a site for a new wastewater discharge if the new facility can demonstrate that existing pollution sources will be eliminated after they are connected to the new treatment facility.

3.3 Watershed Planning and Watershed Management Districts

Substantial emphasis has been given to watershed planning and watershed management districts recently, both as part of the national stormwater control program and Michigan's recent attempts to revise the Drain Code (Act 40, 1956). The availability of MDEQ's voluntary stormwater general permit has encouraged neighboring local governments within a watershed to work cooperatively to develop pollution prevention and stormwater management plans. This process recognizes the interdependent nature of water quality, which cuts across political boundaries, and helps ensure consistency and compatibility in pollution control efforts within a watershed.

Legislative efforts to amend Michigan's Drain Code included a substantial re-write to Chapter 22, which deals with watershed management districts. Under the draft bill, drain commissioners would have been involved in setting up and developing watershed management plans if petitions were filed by property owners in the area.

However, legislative efforts to amend the Drain Code were unsuccessful this past last legislative session, in part because of controversy over the proposed watershed management district language and other concerns about the taxing authority and assessing powers of the Drain Commissioner. It is anticipated that state and federal regulatory agencies will continue to encourage watershed planning, but this activity is likely to remain a voluntary measure rather than a regulatory requirement.

3.4 Sanitary Sewer Overflow (SSO) Controls

In January 2001, U.S. EPA published proposed new regulations to regulate and control sanitary sewer overflows (SSO's). While this is currently a draft regulation for public review and comment, it is highly likely that a similar version will be approved in final form and implemented in the near future.

Michigan has been particularly sensitive to SSO issues because of recent publicity on several SSO's, including some prominent problems in southeast Michigan. Under the proposed federal regulations, permits will be required for local governments and management programs for the local sewer systems will need to be prepared to prevent SSO's, and ensure prompt remedial activities if SSO's occur. The regulation proposes that sanitary sewer systems prepare a "CMOM" document covering Capacity, Management, Operation and Maintenance issues.

In Michigan, many significant policy issues are currently pending with MDEQ on compliance and enforcement programs for sanitary sewer systems and SSO's. In particular, the emergency bypass provisions in NPDES permits are being used to define a design storm event which MDEQ considers large enough to constitute an "emergency" where bypassing of untreated or partially untreated sanitary sewage would not be a violation. MDEQ's current policy refers to the 25 year - one-hour summer storm under normal soil moisture conditions as the design storm event for purposes of SSO control. The State legislature is actively considering new laws to further regulate SSO's, but it is unclear as to how or when these new requirements will be implemented. Particular emphasis is being placed on removal of wet weather inflow from footing drains as a key ingredient to eliminating SSO's. It remains to be seen whether other low cost control alternatives such as commingling sanitary wastewater with combined sewage being treated at CSO basins will be acceptable to MDEQ.

3.5 Adequate Treatment for Combined Sewer Overflows

MDEQ is continuing to refine and update its CSO policies including the definition of "adequate treatment" for combined sewer overflows. Currently, MDEQ requires retention treatment basins to settle, skim and disinfect all combined sewage prior to discharge. To achieve "adequate treatment", the basins must be sized to fully capture the one-year – one hour storm event runoff and provide 30 minutes detention for the 10 year- one-hour storm event. MDEQ has also indicated that projects which capture combined sewage so as to reduce the frequency of discharge to less than one event per year on average will also be considered as "adequate treatment" which satisfies the state's presumptive standard for CSO control.

Pilot facilities, which provide screening and disinfection, only (but no settling) are being tested in areas, which discharge to large receiving streams. MDEQ is also considering whether the adequate treatment technology for intermittent CSO discharges needs to include dechlorination facilities to protect downstream aquatic life from potentially toxic levels of the disinfectant on an intermittent basis.

MDEQ is also working on finalizing policies to regulate decanting and dewatering of stored flows from CSO basins.

3.6 Wet Weather Flow Blending

U.S. EPA has convened an internal review panel to evaluate legal, technical and regulatory issues relating to blending of primary and secondary flow streams at municipal wastewater treatment plants during wet weather events. Flow blending is in common use in some parts of the country, but is prohibited in other regions due to EPA's interpretation of federal regulatory language for bypassing in 40 CFR Part 122. This inconsistency has triggered a lawsuit against EPA from several POTW's where flow blending proposals have been rejected. In Michigan, flow blending has been used on a limited basis in a few large wastewater treatment systems where part of the collection system is served by combined sewers (e.g. Wayne County-Wyandotte). A decision by EPA to eliminate wet weather flow blending could have major repercussions by requiring substantial expansion of secondary treatment facilities. In Detroit, the NPDES permit authorizes separate effluent discharges based on secondary treatment standards for dry weather flow and primary treatment of excess wet weather flow.

3.7 Wet Weather Water Quality Standards

The Clean Water Act requires Water Quality Standards to be reviewed on a triennial basis and updated as necessary to address current regulatory concerns and new scientific information. In the past, stakeholders have requested that MDEQ develop Water Quality Standards with distinct criteria and requirements for wet weather events. The current Water Quality Standards were based on the premise that designated uses can be protected if allowable pollutant loading contributions are established for a "worst case condition" like a seven-day, ten-year drought flow when wastewater discharges comprise the largest quantity of flow in the receiving water. Allowable pollutant contributions to water bodies are typically based on drought flow computations and the need to protect sensitive aquatic species at low flow periods. By contrast, wet weather events generate large quantities of flow in the receiving water and interrupt most body contact recreational uses. For these reasons, many intermittent wet weather dischargers have sought wet weather Water Quality Standards which would presumably be less restrictive. However, the regulatory agencies have been reluctant to proceed with the establishment of wet weather Water Quality Standards because of the transient and intermittent nature of the events, and the difficulty of establishing a scientific baseline for water quality criteria, which is protective of the designated uses. Because of these issues, it appears unlikely that wet weather Water Quality Standards will be established in the near future.

3.8 CSO Grant Funding Programs

In December 2000, Congress enacted the Wet Weather Water Quality Act of 2000, which includes authorization for $1.5 billion in grants for CSO control facilities. Preliminary indications are that these funds may be used for reimbursement of projects already under construction, but the specific eligibility requirements and priority processes have not yet been established. In addition, the congressional appropriation constitutes a relatively nominal investment as compared to the huge cost of CSO facilities already being expended nationwide.

It is unclear whether Congress will continue to support CSO facilities with additional construction grant appropriations beyond the initial $1.5 billion authorization.

Michigan's share of federal grant appropriations is typically about 4%, although it is possible that the state could garner a larger share of the wet weather grant funds due to the magnitude of the state's CSO program. Even if Michigan's share turns out to be as high as 10%, the grant appropriation would equate to $150 million, which would then subsidize up to $300 million in projects assuming a 55%/45% federal/local match.

3.9 Source Water Protection Measures (SDWA)

The federal Safe Drinking Water Act (SDWA) was amended in 1996 to require states to identify all public water supply areas, and to inventory contaminants and sources, which could adversely affect or contaminate the water supply. A "Source Water Assessment Program" (SWAP) has been undertaken by MDEQ, and the initial report was approved by U.S. EPA in October 1999. This report identifies pollutant discharges upstream of water supply intakes and recommends appropriate controls to ensure that these intakes are adequately protected. The SWAP program could be a controlling factor in the selection of future sites for new municipal wastewater plant discharges.

3.10 Non-Point Source Control Measures

State and federal regulatory control programs are likely to continue to emphasize remedial measures for non-point source pollutant contributors through a variety of mechanisms including demonstration projects, grants, financial incentives, watershed plans and, in some cases, regulatory programs like NPDES permits. Since non-point sources are diffuse and difficult to regulate, the permit process will be difficult to implement for most discharges. Permits will most likely be targeted to identify contributors such as confined animal feedlots, and other similar significant land uses.

3.11 Sediment Contamination

U.S. EPA has initiated a program to identify existing sediment deposits and characterize the extent of their contamination. While there are currently no officially adopted state and federal sediment quality standards, guidelines have been developed by MDEQ to help identify severely polluted sediment deposits.

Remedial programs are underway in several areas to dredge and remove the sediments, or to cap them in place so as to prevent migration of pollutants and to minimize adverse environmental impacts as a result of exposure to vegetation, aquatic life and wildlife.

3.12 Nutrient Limits

U.S. EPA has proposed the establishment of national nutrient criteria for rivers and streams, which, if approved, would form the basis for additional regulatory controls in NPDES permits and state Water Quality Standards. Significant controversy has arisen over the proposed rules based on EPA's relatively simplistic approach to identifying impaired waters, and the lack of a site-specific process for establishing allowable nutrient discharge concentrations.

In Michigan, nutrient management has been a regulatory priority for more than three decades when the state first took steps to limit phosphorus concentrations in all commercial cleaning agents. Wastewater treatment facilities are already regulated to limit their nutrient contributions for phosphorus and nitrogen, so it appears unlikely that EPA's nutrient initiative will have a significant impact on future planning for southeast Michigan.

3.13 Chlorine Use Restrictions

The International Joint Commission has recommended the prohibition or discontinuance of the use of chlorine as a chemical disinfectant under the Great Lakes Water Quality Agreement. It is recognized that chlorine is an extremely hazardous chemical, which is toxic in relatively low concentrations to plants and aquatic life, and that chemical byproducts are formed when chlorine is injected into waste streams. However, it appears unlikely that the chemical will be prohibited due to its low cost and high efficiency in achieving disinfection. Chlorine is in widespread use throughout most water and wastewater treatment facilities, even though other technologies such as ozonation and ultraviolet irradiation are also in use. In Michigan, dechlorination requirements have been mandated for POTW's for many years, so the toxicity impacts of chlorine are not likely to be a significant driving force for prohibition, and it is unlikely that the use of this chemical will be prohibited in the near future.

3.14 Industrial Pretreatment Requirements

On an ongoing basis, U.S. EPA continues to develop and promulgate effluent guidelines for various industrial categories which are subject to pretreatment regulations at 40 CFR Part 403. In addition, public utilities continue to review and establish local limits to protect their systems from unacceptable industrial waste pollutant concentrations. It is anticipated that these federal and local regulatory programs will continue, and that industrial dischargers in municipal sewer systems will need to be periodically upgraded to modify pretreatment programs and stay in compliance.

However, the IPP regulatory initiative is unlikely to become so onerous that industrial dischargers will begin to treat and discharge their wastes in lieu of utilizing public wastewater collection systems for disposal of their effluent.

3.15 Septic Tank Management Requirements

Septic tanks and tile fields are in common use as on-site sewage treatment and disposal mechanisms in sparsely developed areas throughout Michigan. Installation permits are typically required when septic tanks are first installed, but there are limited requirements to inspect, operate and maintain septic tanks in good working order throughout their life. Recent studies have documented a high rate of failure of septic tanks due to overloading and tile field plugging, which can result in ponding and overland flow of untreated or partially treated wastewater to nearby water bodies. Failed septic tank problems may be a contributing factor to water pollution and public health problems in receiving streams in many urban areas.

Recently, Wayne County and Washtenaw County adopted ordinances, which require inspection, and where necessary, upgrades of septic tank/tile field systems as a condition of sale of a residence. The State Legislature has expressed interest in regulating septic tanks, and it appears likely that some oversight and control of this previously unregulated source is likely to be approved in the near future. As homeowners recognize that septic tanks are not a "no cost" wastewater disposal system, this may encourage and foster sewer system extensions in areas where population densities are increasing and septic tanks have failed.

3.16 Land Use Controls to Regulate Growth and Sprawl

Substantial support has been expressed from various state and federal entities for increased controls to regulate growth and prevent sprawl in metropolitan areas. Michigan has recently created a blue ribbon panel to study urban sprawl and alternative mechanisms to address this problem. Specific proposals to implement growth management programs are still in their infancy, and it is unclear whether the support for this issue will actually emerge into a body of law and regulation. In the meantime, economic forces continue to govern growth and development, and for the foreseeable future it does not appear that environmental regulations will be a major factor.

4. Summary of Key Emerging Issues

EPA's Total Maximum Daily Load regulation may be one of the more significant regulatory requirements to emerge, assuming that a revised regulation is developed to clarify the process to be used to develop allowable pollutant loadings. This policy could fundamentally change the regulatory approach for siting new facilities, as well as the process for establishing limits on discharges from existing facilities. The other major emerging regulatory issues which are likely to affect the CS-1314 Wastewater Master Planning process are the new requirements relating to the control of sanitary sewer overflows, and further clarification of MDEQ's definition of "adequate treatment" for combined sewer overflows.

Wet weather discharges (both SSO's and CSO's) are problematic in southeast Michigan, and changes to the regulatory program for these sources could be a significant impact.