Proposed Antidegradation Implementation Procedures for NPDES-Permitted Phase II MS4s

Implementation procedures in the current rule and guidance focus on individual wastewater treatment facilities and are not adequate for regulated storm water discharges. Each type of regulated storm water activity (municipal, industrial and construction) has unique characteristics that require implementation procedures specific to the activity. Considerations for how antidegradation protection will be implemented for NPDES-permitted Phase II Municipal Separate Storm Sewer Systems (MS4s) include:

- Storm sewer systems are designed and/or used for collecting or conveying storm water from developed areas; they are not a combined sewer, nor are they a part of a publicly owned treatment works.
- Activities are covered under a general permit.
- Discharge characteristics include:
    - intermittent flows dependent upon precipitation and snow melt;
    - multiple sources and pollutants; and
    - multiple receiving waters, including waters of high quality[1], waters with impairments and waters designated as Outstanding Resource Value Waters (ORVWs).
- Control of pollutants and causes of pollution is achieved through best management practices (BMPs), both structural and non-structural.
- Permit authorization for discharge is granted to a regulated jurisdiction, rather than an individual project or facility.
- Storm water systems connect impervious cover over relatively large areas and may cross local jurisdictional boundaries where decisions regarding implementation of control measures are made.
- Long-term duration of authorization to discharge, with multiple and on-going permit cycles.
- Moderate to high number (233) of individual permittees.
- Few, if any, activities with effluent monitoring requirements.
- Antidegradation reviews (the determination of "expanded discharge" and the identification of control measures to maintain baseline loading) have not been conducted for each of the MS4s.

The goal is to develop implementation procedures that, given the unique characteristics of regulated municipal storm water activities, are protective of water resources yet can reasonably be implemented through the issuance of a general permit. The general permit will be developed such that antidegradation requirements are fulfilled when an applicant demonstrates the ability to adhere to permit conditions. The applicant must certify in the permit application that they can/will/do meet antidegradation permit conditions stated in the permit. Antidegradation requirements specified in permit conditions must:

- maintain and protect existing and designated uses;

[1] High water quality is that quality better than the criterion of the applicable standard, on a parameter by parameter basis. Waters are assumed to be of high quality unless they are impaired.

- prevent unnecessary degradation of high water quality;
- protect and maintain ORVWs; and
- outline corrective measures to address degradation which has occurred since the effective date (i.e., 1988 for high water quality; date of designation through rule adoption for ORVWs).

Because general permits are developed to provide coverage for numerous dischargers that have similar processes and pollutants, implementation procedures will differ from that required of individual permits. Implementation procedures will be considered for the full range of authorized activities as a whole covered by the permit, not tailored specially for individual applicants covered under the permit. Implementation procedures include Tier 2 review, corrective action, adaptive management, annual reporting, protection of ORVWs, and protection against further degradation of impaired waters.

I. Antidegradation Tier 2 Review Procedures

Described below is a proposed step-wise process for conducting antidegradation Tier 2 review for NPDES-permitted Phase II MS4 storm water discharges. These steps are also laid out in Fig. 1.

Step 1. Is Tier 2 review triggered?

Due to the characteristics of storm water discharges, those falling under NPDES authority are typically regulated through BMPs, rather than through numerical effluent limits and effluent monitoring used to regulate waste water treatment discharges. The determination of whether a review is triggered by the potential for increased permitted loading is therefore more difficult for regulated storm water discharges. A surrogate measure for permitted loading used to trigger review will evaluate changes in land use (e.g., increases in impervious surfaces, intensification of use) and water quality management practices. The trigger threshold is any projected changes in land use (e.g., development, redevelopment) and water quality management practices that have the potential to increase net loading to waters of the state beyond 1988 loadings. Because development and redevelopment activities occur within the applicant's jurisdiction and there is the potential for increased loading from these activities over the permit cycle, a review will always be triggered by the issuance of the general permit.

Step 2. Alternatives analysis is conducted by the Agency during general permit development.

Parameters of concern (POCs) will be identified during the development of the general permit. Likely candidates include volume, total suspended solids and total phosphorus.

The Agency will identify prudent and feasible[2] alternatives that reduce, avoid, minimize or mitigate net increases in permitted loading. Selected alternatives will be incorporated into permit conditions as specific control measures.

Control measures that reduce loading over time are a unique requirement for antidegradation provisions. Generally antidegradation provisions and their associated control measures are intended to prevent any additional, unpermitted loading. The issuance of the current permit was challenged, in part, because there were no determinations of whether individual MS4s were "expanded discharges". As a result of a Minnesota Court of Appeals ruling, the MPCA commissioner selected 30 MS4s to provide a more detailed nondegradation (= antidegradation) review. Loading assessments estimated changes in average annual flow, phosphorus and total suspended solids from 1988-1990 to the present (2000-2005), and from the present to 2020. The loading assessments were used as a means of determining if storm water discharges from a given city were considered to be "expanded" discharges. Those cities found to have "expanded" discharges were required to submit nondegradation reports which identified additional control measures to bring the volume and or loadings back to the 1988 levels.

The work done by the selected 30 cities under the MS4 Stormwater Permit allowed the Agency to draw some clear conclusions which will change future MS4 permit antidegradation requirements. The loading assessments completed by the selected 30 cities demonstrate a clear correlation between increased urban development and increases in storm water runoff volume, total phosphorus and total suspended solids loading. Where there is documented evidence that loading has exceeded the 1988 baseline, alternatives will need to be considered to reduce loading to baseline conditions.

The identification of POCs and the alternatives analysis process will be subject to comment from the public and affected government entities during general permit development.

Step 3. MS4s seeking coverage verify that antidegradation permit conditions will be implemented within their jurisdictions.

Step 4. MS4s require that individual projects within their jurisdictions adhere to antidegradation permit conditions.

Each MS4 is responsible for ensuring that antidegradation provisions are followed for each project within its jurisdiction, thus protecting individual waters of the state within and downstream of the MS4. This will likely occur through the implementation and

[2] The use of the term "prudent and feasible" is used in the context of the alternatives analysis because it is a familiar standard currently used to test if discharges to Restricted ORVWs may be avoided. "Feasible" means an alternative that can be implemented with existing technology and in a manner that meets good engineering standards. An alternative is not feasible if the technology involved is experimental or unproven, or cannot be implemented with sound engineering. An alternative is "prudent" if it is better for the environment than what was originally proposed, and does not have unusual or extraordinary social or economic costs.

enforcement of ordinances that meet the permit's antidegradation permit conditions (e.g., performance standards).

Step 5. Opportunity for offsets where individual projects cannot meet antidegradation requirements.

For activities impacting high water quality and where Tier 2 requirements cannot be met for a given site, the project proponent will be given the opportunity to offset increased loading prior to project initiation by reducing the loading from another site upstream from the activity. Offsets will consider geographic conditions and the fate and transport of the parameters in question to ensure that net increases in loading are avoided to the receiving water impacted by the proposed activity.

Offsets will also be considered for post 1988 redevelopment projects unable to achieve the load reductions outlined in the permit (i.e., through redevelopment performance standards). The procedures and process for offsetting will be outlined in the permit and managed by the MS4.

Implementation of approved offsets avoids the need for a demonstration of importance.

Step 6. Identification of the least degrading alternatives and a demonstration of importance for important social and economic development are required for activities/projects resulting in an increase in permitted loading which cannot be offset.

Antidegradation is not a "no growth" policy, but rather is a process which allows public decisions to be made when a proposal is made to lower high water quality. The EPA's Water Quality Standards Handbook states that the lowering of high water quality through antidegradation Tier 2 review "…is intended to provide relief only in a few circumstances where the economic and social need for the activity clearly outweighs the benefit of maintaining water quality above that required for "fishable/swimmable" water and both cannot be achieved."

If a project cannot meet antidegradation permit conditions and cannot be offset, the project proponent must identify the least degrading prudent and feasible alternative, and provide justification for the increased loading based on important social or economic development. This will be a two-step process.

Step 6a. Local Review. Information regarding reasoning for why permit conditions cannot be met, selection of the least degrading prudent and feasible alternative, and justification for increased loading must be presented by the project proponent to the MS4. Information submitted should include:

- Name of project proponent;
- Project location;
- Description of project including prudent and feasible control measures that minimize loading;
- Name and location of receiving waters;

- Estimation of the extent to which compliance with the permit performance standard is achieved;
- Projected impact to water quality; and
- Demonstration of importance of project for economic and social development.

The MS4 will review the information and allow for public comment. The local review process is intended to verify that antidegradation permit conditions cannot be met. It will also ensure that least degrading alternatives have been thoroughly analyzed and adequate justification for social and economic development has been presented before any Agency review is conducted.

Step 6b. Agency Review. Where the MS4 verifies that permit conditions cannot be achieved, it will make a recommendation to the Agency regarding the selection of the least degrading alternative and justification for lowering high water quality. The MS4 will submit the project proponent's information (specified in Step 6a) along with its own recommendation to the Agency. Comments from the public and affected government entities will be invited through a posting on the Agency's web site. Ultimately the Agency will make a determination of importance on a case-by-case basis using best professional judgment, information submitted by the MS4 and information obtained through Agency-solicited comments. It is expected that Agency review will be a rare occurrence.

Guidance will be included in the permit for how the MS4 and project proponent can make the demonstration of importance.

II. Corrective action

If information becomes available indicating degradation of high water quality is occurring from a given site, the Agency will require additional control measures be applied to decrease loading and prevent further degradation.

III. Development of an adaptive management plan

The Agency recognizes that storm water management programs and their associated control technologies are in a continual state of improvement and development. As a result, information regarding the existence, effectiveness, or costs of control measures for reducing pollution, meeting standards and maintaining high water quality may be incomplete. The rule will require that an adaptive management plan be developed to assess control measures.

Adaptive management plans will:

- Ensure that information is developed and used expeditiously to revise control measures that meet antidegradation requirements;
- Allow for the review and refinement of management and control measures in cycles not to exceed five years of the period of permit reissuance;

- Include a description of how information will be obtained and used to ensure full compliance with the antidegradation rule;
- Be developed and documented in advance of permit or program approval; and
- Include performance evaluation processes to inventory, assess the design, construction and maintenance of their storm water BMPs.

Plans may include an Agency-approved schedule of tasks that would achieve antidegradation compliance.

IV. Annual Reporting

The Agency will require that the MS4's annual report include information regarding antidegradation protection within the MS4 jurisdiction. Required information will include:

- Projects able to meet antidegradation requirements
  - Project location
  - Receiving waters
  - Where there are options for meeting antidegradation requirements, which options were selected
- Offsets
  - Project locations involved
  - Receiving waters impacted
  - Load redistributions
  - Timeframe for load redistributions
- Projects unable to meet antidegradation requirements
  - Information, or reference to information, submitted to the Agency in Step 6b of the Tier 2 review process (page 4, this document.)

V. Outstanding Resource Value Waters and Existing Uses

Increases in loading to Prohibited Outstanding Resource Waters (P-ORVWs) beyond that allowed as of the date of designation will not be permitted unless it is short term and

temporary[3] in nature. Tier 2 implementation procedures are required for activities impacting Unlisted Outstanding Resource Waters (UL-ORVWs) and Restricted Outstanding Resource Waters (R-ORVWs) where they are of high quality. Although water quality may be lowered, through the Tier 2 review process, the special attributes or characteristics that make the water an UL-ORVW or a R-ORVW must be maintained (not degraded).

VI. Impaired Waters

Activities impacting waters with an approved TMDL must follow the TMDL and protect existing uses. Activities impacting impaired waters without an approved TMDL must not contribute to the impairment.

[3] The revised rule will allow for temporary (weeks, months) lowering of water quality. Applications for temporary degradation will be considered on a case-by-case basis, be protective of existing uses, limit water quality changes to the shortest possible time, consider non- and minimally-degrading alternatives, consider time intervals between activities that cause temporary lowering of water quality, and require public participation.

The expectation is that after the temporary activity causing the water quality degradation has ended water quality will return to the previous water quality levels.

Missouri's recently-adopted rule is a good example of what Minnesota is likely to adopt. The rule defines temporary degradation as it applied to Tier 3 protection as:
"Degradation that is non-permanent and the effects can be regarded as insignificant following a review of the: a) length of time during which water quality will be lowered, b) percent change in ambient conditions, c) parameters affected, d) likelihood for long term water quality benefits to the segment (e.g., as may result from dredging of contaminated sediments), e) degree to which achieving the applicable Water Quality Standards (WQS) during the proposed activity may be at risk, and f) potential for any residual long-term influences on existing uses."

Figure 1. Proposed Tier 2 review process for the issuance/reissuance of general NPDES permits for Phase II MS4s.