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Nondegradation Rulemaking

Issue Paper 8. How should nondegradation be applied to NPDES-permitted stormwater activities?

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The federal Clean Water Act (CWA)¹ prohibits the discharge of any pollutant into navigable waters of the United States from a point source unless the discharge is authorized by a National Pollutant Discharge Elimination System (NPDES) permit. As the delegated state agency authorized to implement the CWA, the Minnesota Pollution Control Agency (MPCA) issues and enforces NPDES permits. The application of antidegradation provisions to NPDES-permitted stormwater activities poses unique challenges for decision-making in that the discharge characteristics, number of permit applicants, and regulatory and administrative structure of stormwater activities differ greatly from the processes applied to traditional point sources such as municipal or industrial waste discharges.

How do stormwater discharges, as a whole, differ from other NPDES-permitted discharges?

Antidegradation decision processes are dictated by the characteristics of the regulated activity and the receiving waters impacted by the activity. Discharges from NPDES-permitted wastewater treatment facilities typically emit from a single entity into a single receiving water under continuous flow conditions. Under Minn. R. 7050.0185 (Nondegradation for All Waters)² the determination of significant discharges (those that require nondegradation review) is made in one of two ways. First, a discharge is considered significant if a new or expanded discharge is greater than 200,000 gallons per day to waters other than a Class 7 (limited resource value water). Determination of the increase in volume of a sewage discharge is

based on average wet weather design flow for the wettest 30-day period. In contrast, the maximum daily design rate is used for industrial waste discharges. A nondegradation review may also be triggered when a new or expanded discharge containing a toxic pollutant is likely to increase the concentration of the toxicant in the receiving water by greater than one percent over the baseline quality. This determination is based on the critical condition of the receiving water which is the 7Q₁₀ flow³.

One of the challenges of applying antidegradation provisions to NPDES-permitted stormwater activities is that the characteristics of stormwater discharges are very different from wastewater discharges, for which Minnesota and even federal antidegradation provisions were originally and practically intended. Stormwater discharges may be discrete or not (storm sewer/ditch outlet vs. overland sheet flow), emitting from multiple sources and multiple discharge points, each of which varies in quality and quantity over time. The flow varies with the intensity of storm events making baseline flow and quality assessment difficult to apply. Flow varies by day, month and season with very large flows at certain times and small or no flow for long periods. The variability of flow results in pollutant type and concentration in stormwater discharge at each discharge point that varies with intensity and duration of storm event. Consequently discharge monitoring is very different from NPDES-permitted wastewater discharges. In addition, the

traditional design criteria and compliance requirements are difficult to transfer from other programs and dictate that treatment requirements must be based on a result expectation at certain design storm assumptions. Treatment requirements based on a result expected at a certain constant flow cannot be compared to other storms events. Sizing of treatment for steady flows cannot be applied directly to storm water. The design basis of these systems is different as is the probability of exceedance of any given enforcement number (effluent or benchmark). Treatment may not perform as desired at flows other than the design flow chosen. Unlike controlled wastewater discharges, wet weather stormwater discharges are currently regulated through management measures such as best management practices (BMPs) rather than end-of-pipe numeric effluent limitations.

There are also differences beyond the physical and chemical nature of wastewater and regulated stormwater discharges. Wastewater discharges generally come from just one responsible entity or regulated party, whereas stormwater discharges may emanate from multiple jurisdictional entities. Other than Phase I individual stormwater permits, most other regulated stormwater activities are covered under a general permit.

As related to antidegradation, what are the unique aspects of each stormwater type?

Stormwater discharges regulated through the CWA may be broken down into three general types (municipal, industrial and construction), each with some unique characteristics. Understanding the similarities and differences among stormwater types will aid in the development of Minnesota's antidegradation provisions for stormwater activities.

Municipal Separate Storm Sewer System (MS4s)

As a result of the amendments to the CWA in 1987, large and medium municipalities were required to obtain NPDES permit coverage by 1993 for their MS4s. Small municipalities, however, were not required to obtain permit coverage until 2003. The large and medium municipalities are referred to as Phase I permittees, while the small municipalities are referred to as Phase II permittees. These MS4s are a conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, storm drains) that is owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant

to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage districts, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States⁴. The storm sewer system is designed and/or used for collecting or conveying stormwater from developed areas; it is not a combined sewer and is not part of a publicly owned treatment works. Stormwater discharges from urban and developed areas (post construction) rarely have a single point discharge from a municipality but rather many discharge locations to many different receiving waters. Additionally, stormwater from one municipality may flow through another municipality before discharging into a receiving water. Urban runoff includes multiple types of sources, including dispersed residential, commercial and industrial site runoff. Municipal stormwater systems connect impervious cover over relatively large areas and may cross local jurisdictional boundaries where decisions regarding implementation of control measures are made. These control measures include controls of water quantity (volume/rate) and quality. Common pollutants in runoff include pesticides, fertilizers, oils, metals, pathogens, salt, sediment, litter and other debris are transported via stormwater and discharged – untreated – to water resources through storm sewer systems. As Table 1 illustrates there are currently 235 individual MS4 permittees in Minnesota including cities, the Department of Transportation (MnDOT), along with institutions such as colleges and hospitals.

Table 1. Regulated MS4 Permittees

MS4 Entity	Number of Permits
City	161
Township	25
Non-traditional *	24
Watershed	8
County	13
MNDOT	2
Phase 1 Mpls/St.Paul	2
Total	235

*Non-traditional MS4s are publicly owned systems at military bases, hospitals, prisons, universities, highways and other thoroughfares.

Of Minnesota's population (approx. 5.2 million), 57% of the state's residents reside in areas covered under MS4

permits and 13% are under the Minneapolis/St. Paul Phase I permits. Two hundred and two MS4s have had permit coverage extended to them, 219 have been or are about to be public noticed and 18 have not yet turned in their 2007 Annual Report (Formal Compliance and Enforcement Actions commencing).

Industrial

Industrial sources generate a large number of permits (3,000-5,000 in Minnesota) but typically have smaller numbers of defined discharge outlet points compared to MS4 or construction activities. Any exposed storage, handling, loading and unloading areas, stockpiling, roof vents, waste bins, spills, legacy pollutants (pollutants from past activities) contribute to stormwater waste streams. Pollutants of concern are often associated with the specific type of industrial activity. Stormwater at industrial sites may come into contact with any number of harmful pollutants including toxic metals, oil, grease, de-icing salts, and other chemicals. Public (municipal) and private operators of industrial facilities identified in the federal regulations⁵ by an industry's Standard Industrial Classification (SIC) code or a narrative description of the activity are required to apply for a permit. Some facilities may be eligible for the no exposure exclusion from permitting. Such facilities must apply and certify that a condition of no exposure exists and that the facility meets the definition of no exposure of industrial activities and materials to stormwater. For more information about the no exposure exclusion visit MPCA's Web page entitled "Stormwater Program for Industrial Activities"⁶. On September 29, 2008, EPA announced publication of the final Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP)⁷ replacing the 2000 MSGP⁸ which expired on October 30, 2005.

Construction

The EPA initiated the Phase I Construction Stormwater Program in 1990 which required a stormwater permit when any construction activity disturbed more than five acres of land. The MPCA issued the first Phase I Construction Stormwater NPDES/SDS permit in 1994. The EPA promulgated Phase II of the Construction Stormwater Program in 1999 and required a stormwater permit when any construction activity disturbed more than one acre of land. The MPCA issued the first Phase II Construction Stormwater NPDES/SDS general permit in 2003 and reissued this permit in August of 2008.

Construction stormwater discharges typically come from large areas of unstabilized soil that are left exposed for long periods of time. The predominant stormwater runoff concerns at construction sites are for sediment and erosion control during construction and that permanent stormwater treatment be provided post construction. The EPA estimates that 20 to 150 tons of soil per acre are lost every year to stormwater runoff from unstabilized construction sites. Approximately 1,820 to 2,740 construction sites are covered under the construction general permit each year in Minnesota.

How can the site-specific nature of antidegradation be practically addressed in stormwater general permits where there are many individual applicants?

Antidegradation provisions have traditionally been implemented for individual permit applicants discharging into single receiving waters. This site-specific approach, at least conceptually, works well for point source wastewater treatment facilities where there are relatively few applicants and each antidegradation demonstration can be evaluated. Due to the large number of applicants for stormwater activities, thorough evaluation of every individual applicant's antidegradation demonstration is impractical.

The MPCA must identify a process for evaluating regulated stormwater antidegradation requirements which ensures that both water resources are protected and that permit coverage is issued in a timely, efficient and consistent manner. Against this backdrop, we should examine how appropriate each of the following criteria might be for making decisions about stormwater antidegradation requirements:

- Pollutant/flow loading
- Biotic impacts (habitat, toxics, etc.)
- Cumulative impacts (new loads, etc.)
- Type of receiving water (ORVWs, impaired waters, Lake Superior, trout waters)
- Proximity of the activity to the waterbody
- Toxics (concentrations and bioaccumulative loads)
- Temperature impacts (temperature-sensitive waters, e.g. trout waters)
- Proxy or surrogate measures (e.g. impervious land cover, etc.)
- Assimilative capacity – Site specific nature of receiving waters- addressed if significant concerns are raised.

Some of the above criteria would be applicable to all stormwater permit programs, while other criteria would

be more applicable to a particular program. Toxics, for example, are more a concern for runoff coming from industrial sites compared to construction sites.

A general permit would include specific criteria with quantitative thresholds designed to maintain water quality standards. This would essentially be an antidegradation demonstration at the time of general permit issuance that identifies processes and control measures under various conditions (type of stormwater activity, receiving water, etc.) to ensure that water quality will be maintained. The public participation and intergovernmental cooperation requirements of antidegradation provisions would be met through acquiring input from the public and other government agencies at the time of general permit issuance. If a permittee seeking coverage under a general permit can demonstrate that they can meet the general permit requirements they would be considered in compliance with the antidegradation provisions. Individual demonstration could be fulfilled through the Notice of Intent (NOI) which would include the identification of the receiving water, the type and scale of activity, and the processes and control measures to be employed.

If, however, the applicant can not meet the general permit requirements they would be required to provide further demonstration identifying alternatives that minimize or mitigate the lowering of water quality, how much the water quality would be lowered, and provide justification that the lowering of water quality is necessary for social and economic development. The demonstration and review process for stormwater activities would obviously need to change from current processes designed for wastewater activities due to the differing characteristics of each type of stormwater discharge.

From the Agency's perspective, a challenge in such an approach is the uncertainty of how many applicants will not be able to meet the general permit requirements, and the resulting unknown time requirements for review of those applications (i.e., to conduct some type of antidegradation review). Ideally the general permit would be constructed in such a way that only under rare circumstances would a full antidegradation review be necessary for an individual application under a general permit. The general permit would be in all but rare cases protective of water quality.

Should there be some type of threshold level below which an antidegradation demonstration is not required for NPDES-permitted stormwater activities?

The rationale for using a threshold concept is to reduce the regulatory requirements of permittees providing antidegradation demonstrations and to reduce the administrative burden of the Agency in its review of those demonstrations. Those activities that fall below a minimal threshold are not considered to be significant and are not required to undergo an antidegradation review. This allows more emphasis to be placed on those activities with the greatest risk or potential to lower water quality. Considering the large number of permits covered by stormwater activities a threshold may be a tool used in the permitting process. If a significance threshold is to be used, how should it be defined? The threshold level at which antidegradation process would not be required would have to be based on assumption of zero discharge or minimal impact anticipated.

The use of surrogate or proxy measures is one means of defining a minimal threshold. For example, under current Minnesota rules² governing nondegradation for "All Waters" significant discharges are defined as new or expanded discharges of greater than 200,000 gallons per day (except to class 7 waters) or where a new or expanded discharge increases mass loading of a toxic pollutant by more than one percent over the baseline quality. For wastewater treatment activities the flow-based threshold works well from an administrative point of view in that those activities above or below the threshold are easily identifiable. Surrogate or proxy measures for stormwater impacts from flow and pollutant loading may include type of land use, amount of land disturbance, the size of regulated drainage area for permittee, or the percent impervious surface within drainage area. In a sense an antidegradation threshold is currently in place for construction Phase II stormwater permits where permit coverage is not required for land disturbances of less than one acre.

Using a significance threshold that is solely based on a surrogate or proxy measure that does not consider the characteristics of and impacts to the receiving water, may have the potential to degrade water quality without the antidegradation review. If surrogates are used to determine significant activities it is reasonable to expect that a strong correlation be made between the surrogate and its impact on water quality. If a significance threshold is established for antidegradation based on

project size, consideration must be given to the likelihood that the project size or acres of impervious surface of the project area may not be directly related to the impacts of the runoff.

The most protective approach on which to base significant discharges would directly calculate the use of assimilative capacity of the individual receiving water. In order to do this, a baseline water quality or existing water quality would need to be established. For individual wastewater permittees this approach may be reasonable in that there are relatively few permits to review and that those activities generally have a higher potential to degrade water quality. This approach, however, is not practical where the determination of assimilative capacity use would be required of each applicant seeking coverage under a stormwater general permit scenario.

Finally, if sub-threshold activities are allowed without antidegradation demonstration and review, there has to be a means of accounting for cumulative impacts so that water quality is not degraded from multiple sub-threshold discharges.

Should there be different levels or requirements of antidegradation demonstration and review for different receiving waters and activities?

Considering the different levels or tiers of protection defined in 40 § CFR 131.12⁹ and discussed in Issue Paper 2¹⁰, it would seem reasonable to apply different levels of review for each protection level. All waters whether they are impaired, high quality or are designated as Outstanding Resource Value Waters (ORVWs) must receive Tier 1 protection, which is the protection of existing uses¹¹ and the level of water quality necessary to protect those uses. All applicants must verify that the proposed activity will not remove existing uses or the application will be denied.

Antidegradation provisions for Tier 2 protection (meant to maintain the assimilative capacity of high quality waters) include a demonstration provided by the applicant that both designated and existing uses will be protected. If the proposed activity will lower water quality (beyond a sub-threshold level, if used) the demonstration must provide information regarding alternatives that were considered by the applicant to avoid or minimize degradation, and justification for the necessity to degrade in order to accommodate important social or economic development. There may be an opportunity to have different levels of Tier 2 review

depending on the scale of activity and potential to degrade. For example, a thorough demonstration and review would be required at the time a general permit is issued. Individual applicants seeking coverage under a general permit would, through the Notice of Intent, provide verification (demonstration) that permit requirements will be met by identifying the receiving water, the type and scale of activity, and the control measures employed to meet those requirements.

Tier 3 protection is designed to maintain and protect those waters specifically set aside as having some important characteristics. Waters with exceptional value, referred to as Outstanding National Resource Waters (ONRWs) in federal regulations⁹, include waters with exceptionally high water quality, or having exceptional recreational or ecological significance. Federal regulations require that water quality for these specifically-designated waters be “maintained and protected”. EPA guidance¹² interprets this to mean “no new or increased discharges to ONRWs and no new or increased discharge to tributaries to ONRWs that would result in lower water quality in the ONRWs.” The only exception to this would be for “temporary and short-term” changes in the water quality.

Minnesota has designated waters of exceptional value as Outstanding Resource Value Waters (ORVWs) and are protected through Minn. R. 7050.0180¹³. Outstanding Resource Value Waters include all the waters in the Boundary Waters Canoe Area Wilderness and Voyageurs National Park, Lake Superior, natural lake trout lakes, and wild and scenic and recreational river segments such as the St. Croix, Rum, and portions of the upper Mississippi and Cannon Rivers. In addition, ecologically unique waters in state scientific and natural areas and a unique wetland type called calcareous fens have been designated as ORVWs.

New or expanded point-source discharges are prohibited to the most pristine or sensitive ORVWs. These are the “prohibited” category of ORVWs. Examples of prohibited ORVWs include waters in wilderness areas, and waters with unique ecological or scientific value. For other ORVWs, new or expanded point sources are prohibited unless the discharger can demonstrate there is no “prudent or feasible” alternative to allowing the increased pollutant loading. These are the “restricted” category of ORVWs. Examples of restricted ORVWs include scenic and recreational river segments, Lake Superior, lake-trout lakes, calcareous fens.

The “Prohibited” category presents a particular challenge to stormwater activities in that it may be assumed that stormwater runoff will impact receiving waters, including ORVWs. Some options for overcoming this challenge may include:

- Provide definition in the revised rule for “maintained and protected” as specified in 40 § CFR 131.12.
- As EPA suggested allow for temporary lowering of water quality (i.e. bridge repair).
- Provide subcategories of Prohibited ORVWs that designate the rationale for its designation (recreational, high water quality, etc) and provide Tier 3 protection only for those criteria. Apply Tiers 1 and 2 protections on the remaining criteria as with other waters.
- Allow exceptions for specific stormwater activities.
- Implement control measures that will maintain and protect water quality.

The Tiers 1 and 3 protections need to be clearly specified in the permit process, perhaps requiring specific control measures or potentially site-specific analysis of specific control measures. The site-specific analysis cannot be done for all permits based on the sheer number of permits each year. Tier 2 protection also needs to be specified in the permit process. These protections could be specific additional control measures unless an antidegradation review to lower water quality is required. Specific prescriptive requirements may be chosen from a menu of control measures to be selected from the permit might provide for reasonably achievable permit requirements. Coverage under a general permit may not be valid in certain situations.

Control measures should consider the following:

- Resource category – designated uses, ORVWs
- Avoidance such as low impact design (LID), smart growth and diversion, should be encouraged by the requirements
- Best available treatment technologically and reasonably achievable; this can vary by receiving water and other factors
- Specific measures for specific conditions are not generally considered in issuance of general permits (such as receiving waters, large potential impacts etc.)

Consideration should also be given to developing an antidegradation process that would include a component implemented by the local watershed. The anticipated advantages of this approach include a better local understanding of the water resources and development

practices in the area. Complete delegation of the antidegradation determination to a local government is not allowed under EPA requirements. However, without granting delegation of the permitting authority, a voluntary process might include an option for an applicant to obtain some form of an antidegradation certification from the watershed that could be designed to satisfy the antidegradation process. If the voluntary process was not selected by the applicant, proceeding through the State’s antidegradation process would occur.

For antidegradation decision purposes, how should impacts of stormwater discharges be assessed?

Considerations of how impacts resulting from stormwater runoff are assessed include **when** the assessments are made, **how** they are made, **what** is assessed and **who** makes the assessments.

When assessments are made?

During general permit development and prior to issuance/coverage. Impacts on receiving waters and the control measures used to avoid or minimize those impacts could be assessed during the development of general permits. The general stormwater permit could describe general impacts from runoff under various conditions and control measures used to maintain water quality identified. Such an exercise has already been conducted as a result of a Minnesota Court of Appeals ruling¹⁴. An outcome of the ruling required 30 selected MS4s to provide loading assessments which estimated changes in average annual flow, phosphorus and total suspended solids loads from 1988-1990 to the present (2000-2005), and from the present to 2020. The assessments were used as a means of determining if stormwater discharges from a given city were considered to be “expanded” discharges. Those cities found to have “expanded” discharges were required to submit nondegradation reports to identify what additional control measures would be needed to bring the volume and or loadings back to the 1988 levels. Results of the loading assessments will provide insight into how assessments may be used in the revised rule and guidance in determining if a discharge from a municipality is to be considered “expanded”. The nondegradation reports could potentially be used to inform how alternatives analyses may be conducted. An additional consideration is how the city-wide modeling approaches for the current assessments relate to the need to consider any load increases and nondegradation review on individual water resources. It is not expected

that each applicant seeking coverage under a general permit would be required to conduct such in-depth assessments as those provided by the 30 selected MS4s.

After permit or coverage issuance. The effectiveness of control measures may be assessed through modeling and/or monitoring of control measures through an adaptive management approach. The methods that may be used to evaluate the effectiveness of control measures range from routine monitoring of stormwater quality at representative outfalls to physical validation that control measures are properly installed and maintained. Resulting information regarding the effectiveness of the control measures will be used to improve upon those control measures and to inform subsequent permit development.

How assessments are made?

Assessments of impacts to water quality may be those projected as a consequence of a proposed activity, or as part of a process to evaluate control measure effectiveness. Projected impacts are made through modeling and may include input criteria such as land use and characteristics, project size, data related to water quality monitoring and control measure effectiveness, etc. The loading assessments and nondegradation reports required of the 30 selected MS4s made such projections.

Assessments may also be conducted to appraise the effectiveness of implemented control measures over the permit cycle through an adaptive management processes specified in the general permit. Mechanisms that are efficient and consistent need to be established by which the permittee could objectively evaluate the control measures and for the Agency to review the results. Assessment methods may include modeling, monitoring or some other means of validation that the control measures are indeed protecting water quality. It should be noted that the 2003 Minnesota Appeals Court ruling¹⁴ concluded that the MS4 general permit issuance did “not violate rules requiring monitoring requirements in general permits.”

Washington state provides an example of an adaptive management approach in their construction stormwater general permit¹⁵ where monitoring and benchmark values are the permittee's primary tools to evaluate the effectiveness of their control measures in meeting antidegradation requirements. Discharges at or below the turbidity benchmark indicate that erosion and sediment control measures are functioning effectively to protect

water quality and the beneficial uses in the receiving water. On the other hand, discharges above benchmarks indicate that control measures need reevaluation. Implementation of such an approach in Minnesota would require permittee training and allocation of agency resources to evaluate information supplied by the permittee.

What is assessed?

Ideally impacts to the receiving water would be directly assessed. Given the difficulty in conducting water quality monitoring of individual receiving waters under stormwater runoff conditions, modeling of projected impacts coupled with control measure effectiveness may be used to estimate the impacts on the receiving water. The goal of receiving water assessment is to determine whether and to what extent water quality will be lowered. In other words, how much of the assimilative capacity will be used. In determining available assimilative capacity¹⁶ (the difference between existing water quality and the applicable standard for a parameter) the existing water quality conditions would obviously have to be known. Likewise an understanding of baseline conditions would be required in the determination of total assimilative capacity¹⁶ (the difference between a baseline water quality and the applicable standard for a parameter). Obtaining clear and meaningful baseline conditions based on assessment of individual receiving waters has proven difficult for stormwater activities. The concepts of “baseline” or “new and expanded discharge” for stormwater activities may need to be re-evaluated in the application of antidegradation requirements to stormwater. The danger in not establishing some type of baseline is the inability to identify diminished water quality resulting from permitted activities over time.

Another part of the “what is assessed” question is what parameters are to be evaluated. As discussed in Issue Paper 6¹⁷, waterbodies may be identified (assessed) as to whether they are of high quality through a parameter-by-parameter or a waterbody-by-waterbody approach. An additional approach for stormwater activities may be a watershed-by-watershed assessment. If the later two methods of assessment were to be used, a detailed weight of evidence methodology would need to be established in order to be consistent and legally sound. Whichever approach is taken there needs to be a determination of which parameters are important (i.e. parameters of concern). As related to stormwater discharges, parameters of concern are, in part, dictated

by the stormwater activity. For example, sector-specific pollutants are identified for industrial stormwater activities by US EPA⁸. As mentioned above the loading assessments conducted by the 30 selected MS4s addressed flow, phosphorus and total suspended solids. In the determination of parameters of concern for stormwater activities there needs to be a balance between the assessment effort required and the potential for impact.

Flow alterations and changes in volume may be considered a form of pollution in that it has the potential to alter the chemical, physical and biological integrity of the water¹⁸. The current Minn. R. 7050.0185 (Nondegradation for All Waters)² defines an expanded discharge as “a discharge that changes in volume, quality, location or any other manner after January 1, 1988, such that an increased loading of one or more pollutants results. In determining whether an increased loading of one or more pollutants would result from the proposed change in discharge, the agency shall compare the loading that would result from the proposed discharge with the loading allowed by the agency on January 1, 1988.” The revised rule may need to clarify whether a change in volume without increased pollutant loading would be an expanded discharge. The rule revision may also address situations where stormwater flows and drainage area runoff may be necessary for hydraulic replenishment of the protected waters. Diversion of stormwater runoff away from protected waters may not always be an option or may not be a good option.

These changes would need to consider physical and biological impacts of changes in volume and flow, in addition to the more typical chemical impacts resulting from stormwater runoff. At this time the MPCA only examines these aspects in rare instances such as discharges to wetlands.

The cumulative impacts of stormwater activities should also be assessed in antidegradation decisions and will be discussed in more detail in the next Issue Paper. The current nondegradation rule for “All Waters”²² simply states that cumulative impacts shall be considered in the determination of whether additional control measures can reasonably be taken to minimize impacts on receiving waters. Cumulative impacts on wetlands are addressed in Minn. R. 7050.0186¹⁹. Key issues on the scale and scope of how cumulative impacts may be considered include identifying which parameters to

address, entities responsible for assessing cumulative impacts and review of impacts caused by past activities as well as future potential impacts.

Who makes the assessments?

The responsibility of who makes the assessments is shouldered both by the Agency and by the regulated entity. Assessments or projections made during general permit development (prior to issuance of general permit) on “if” and “how” water quality will be impacted, and what control measures can be used to avoid or minimize those impacts, should be made by the Agency. The permittee is responsible for assessing the effectiveness of control measures during the permit cycle. The assessment of cumulative effects would likely be done by the Agency or possibly by a responsible government unit (RGU). The best way to accomplish this is through a watershed-based approach where an RGU familiar with the water resources and sources of pollution could track changes in the assimilative capacity of the receiving waters within the watershed.

How should the public participation requirement of antidegradation be fulfilled for stormwater general permits?

Federal antidegradation regulation⁹ explicitly requires that public participation be incorporated in a State’s decision to lower the quality of high quality waters. EPA *Water Quality Standards Handbook*¹² suggests that the public participation requirement may be satisfied in several ways including holding a public hearing or hearings, or by providing public notice and the opportunity for the public to request a hearing. Minnesota’s provisions governing permits and certifications, including public participation opportunities, are found in Minn. R. 7001²⁰.

One of the challenges of fulfilling the public participation requirements for stormwater activities is reconciling the site-specific nature of antidegradation with the large number of applicants falling under general permits. In 2003 the Minnesota Court of Appeals¹⁴ ruled that the MS4 general permit violated the Clean Water Act by denying public notice and the ability to comment, stating that the public is entitled to be heard on each Storm Water Pollution Prevention Program (SWPPP). Likewise, in the same year the Ninth Circuit Court of Appeals²¹ “determined that the EPA’s failure to require review of Notices of Intent (NOIs), which were the functional equivalents of permits under the rule’s

general permit option, and the EPA's failure to make NOIs available to the public or subject to public hearings, contravened the express requirements of the Clean Water Act." A West Virginia court²² found that EPA acted arbitrarily and capriciously in approving the following West Virginia's (WV) antidegradation procedures on a number of counts including requiring Tier 2 antidegradation review for discharges under a general (sections 402 & 404) permit only at the time the general permit was issued, and not for individual discharges under such permits. The court found that there was insufficient evidence explaining how Tier 2 review, which is location-specific and requires public participation, could be done under a general permit, rather than when new individual discharges are proposed.

Public participation regarding how antidegradation requirements of regulated stormwater discharges will be fulfilled must be part of the general permit issuance process. Public participation could further be fulfilled when publicly-noticed NOIs are used to confirm that antidegradation requirements, which are specified in the general permit, are met. Public notice of the NOI itself, or how to access the NOI, could be accomplished through a number of options including internet or print (newspaper) postings.

For applicants that can not meet, or have not met, the antidegradation requirements as outlined in the general permit a review could be required which could include an alternatives analysis and public participation, including the ability to request a public meeting. This in essence would be equivalent to review of an individual permit.

Discussion Points

Current rules governing nondegradation of Minnesota's surface waters were written, for all practical purposes, to be applied to discharges from point source wastewater treatment facilities. Discharges from stormwater activities are obviously very different from those emanating from wastewater.

The current rule governing Nondegradation for All Waters defines a significant discharge as a new or expanded discharge greater than 200,000 gallons per day to any water (other than a Class 7 water) or a discharge that results in an increase of a toxic pollutant by greater than one percent over the baseline quality. A new discharge is one that was not in existence before January 1, 1988, while a expanded discharge is a discharge that

"changes in volume, quality, location, or any other manner after January 1, 1988, such that an increased loading of one or more pollutants results. In determining whether an increased loading of one or more pollutants would result from the proposed change in discharge, the agency shall compare the loading that would result from the proposed discharge with the loading allowed on January 1, 1988." Baseline quality is defined as the quality consistently attained since January 1, 1988. A proposed activity with a significant discharge is required to undergo nondegradation review.

1. Given the wide fluctuation of flow and pollutants in stormwater runoff, how could these and other factors such as rainfall intensity, duration and frequency be applied to nondegradation under a general permit?
2. The current concept of "significant discharge" is used as a means of identifying discharges/activities that would require nondegradation review and conversely identify those discharges that fall below a threshold and for which nondegradation review would not be required.
 - a) Should this concept of "significant discharge" be applied to NPDES-permitted stormwater activities?
 - b) Could multiple levels of "significant discharge" (a scaled approach) be used to identify and "sort" activities that have greater potential to impact the quality of receiving waters?
 - c) If the concept of "significance" is used, how should it be defined for stormwater discharges? Criteria for defining "significance" may include:
 - ease in the identification of "significant" activities,
 - "parameters of concern" (e.g. specific pollutants, flow, toxics, temperature)
 - consistent approach,
 - surrogate or proxy measures (e.g. land cover, land use, etc.),
 - characteristics of the receiving water, and
 - connection between the activity and its impact on the receiving water.
3. Should the concepts of "new discharges", "expanded discharges" or "baseline conditions" be applied to regulated stormwater activities for Construction, Industrial and for MS4 activities?
 - a) If so, how should these terms be defined and applied?
 - b) If not, what other concepts/terms could be used to describe stormwater activities that have the potential to impact receiving waters?

- c) Given the thousands of applicants seeking coverage under a general permit it may be impractical to establish baseline conditions based on quality of the receiving water. What are some options for ensuring that water quality does not deteriorate?
4. What methods and criteria should be used in the assessment of stormwater impacts on receiving waters, especially considering the various types of receiving waters? Examples may include volume/flow, particular pollutants (pollutants of concern), surrogate measures, etc.
 5. An adaptive management approach evaluates the effectiveness of control measures during and between permit cycles, and makes modifications to those control measures where necessary. Is this a reasonable approach? If so, what tools could be used in the evaluation of control measures?
 - current technologies (e.g. best available treatment technologically and reasonably achievable)?
 - design standards?
 - certification of BMPs or technologies?
 - benchmark monitoring?
 - other?
 6. Federal antidegradation regulation requires public participation be incorporated in a State's decision to lower the quality of high quality waters. One of the challenges of fulfilling this requirement for regulated stormwater activities is reconciling the site-specific nature of antidegradation with the large number of applicants falling under general permits. Where, when and how should public participation occur for the nondegradation component of regulated stormwater activities?
 7. Under the current rule for the protection of Outstanding Resource Values Waters (ORVWs), new or expanded point-source discharges are prohibited to the most pristine or sensitive ORVWs. This presents a particular challenge to regulated stormwater activities where stormwater runoff may be necessary for the hydrologic maintenance of an ORVW. What are the best ways to fulfill the federal requirement of "maintaining and protecting" these waters if prohibition of all stormwater discharge may not be desirable?
 8. What are some administrative and technical functions where nondegradation could be implemented at the local (e.g. municipal, watershed) level, yet not delegate authority to the local level?

References and Links

- ¹Clean Water Act, Section 303 (e)(1), <http://epw.senate.gov/water.pdf>
- ²Minnesota Administrative Rules Chapter 7050.0185, Waters of the State, Nondegradation for All Waters, <https://www.revisor.leg.state.mn.us/rules/?id=7050.0185>
- ³Minnesota Administrative Rules Chapter 7050.0130, Waters of the State, General Definitions, <https://www.revisor.leg.state.mn.us/rules/?id=7050.0130>
- ⁴MPCA Stormwater Web page, www.pca.state.mn.us/water/stormwater/stormwater-ms4.html
- ⁵40 CFR § 122.26, EPA Administered Permit Programs: The National Pollutant Discharge Elimination System, Permit Application and Special NPDES Program Requirements, Storm Water Discharges, http://edocket.access.gpo.gov/cfr_2007/julqtr/40cfr122.26.htm
- ⁶MPCA Web page "Stormwater Program for Industrial Activities", www.pca.state.mn.us/water/stormwater/stormwater-i.html
- ⁷2008 Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP), www.epa.gov/npdes/pubs/msgp2008_finalpermit.pdf
- ⁸2000 Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP), www.epa.gov/npdes/pubs/msgp2000-final.pdf
- ⁹40 CFR § 131.12, Antidegradation policy, http://edocket.access.gpo.gov/cfr_2007/julqtr/40cfr131.12.htm
- ¹⁰Nondegradation Rulemaking, Issue Paper 2. To which activities does nondegradation apply?, www.pca.state.mn.us/publications/wq-rule3-04.pdf
- ¹¹40 CFR § 131.3 (e) Definitions, http://edocket.access.gpo.gov/cfr_2007/julqtr/40cfr131.3.htm
- ¹²Water Quality Standards Handbook: Second Edition, USEPA, Office of Water, 1994

www.epa.gov/waterscience/standards/handbook/chapter04.html

¹³Minnesota Administrative Rules Chapter 7050.0180, Waters of the State, Nondegradation for Outstanding Resource Value Waters,
<https://www.revisor.leg.state.mn.us/rules/?id=7050.0180>

¹⁴Minnesota Center for Environmental Advocacy, Relator, vs. Minnesota Pollution Control Agency, Respondent, C6-02-1243,
www.lawlibrary.state.mn.us/archive/ctappub/0305/op021243-0506.htm

¹⁵Construction Stormwater General Permit, Washington State
www.ecy.wa.gov/programs/wq/stormwater/construction/constructionfinalpermit.pdf (see Monitoring Requirements, page 10)

¹⁶Nondegradation Rulemaking Issue Paper 4. What triggers a nondegradation review of potential impacts to high-quality waters?
www.pca.state.mn.us/publications/wq-rule3-09.pdf (see discussion on pages 2 and 3 regarding available and total assimilative capacity)

¹⁷Nondegradation Rulemaking Issue Paper 6. What are the best ways to describe impacts on receiving waters?,
www.pca.state.mn.us/publications/wq-rule3-15.pdf

¹⁸Minnesota Statute 115.01, Water Pollution Control; Sanitary Districts - Definitions
<https://www.revisor.leg.state.mn.us/statutes/?id=115.01>

¹⁹Minnesota Administrative Rules Chapter 7050.0186, Waters of the State, Wetland Standards and Mitigation,
<https://www.revisor.leg.state.mn.us/rules/?id=7050.0186>

²⁰Minnesota Administrative Rules Chapter 7001, Permits and Certifications
<https://www.revisor.leg.state.mn.us/rules/?id=7001>

²¹Environmental Defense Center, Inc., Petitioner, and Natural Resources Defense Council, Inc., Petitioner-Intervenor, v. United States Environmental Protection Agency, Respondent, No. 00-70014, Sept. 15, 2003,
<http://caselaw.lp.findlaw.com/data2/circs/9th/0070014p.pdf>

²²Ohio Valley Environmental Coalition, et. al. v. Marianne Lamont Horinko, Acting Administrator,

United States Environmental Protection Agency; Civil Action No. 3:02-0058, Aug. 29, 2003

www.ohvec.org/issues/mountaintop_removal/articles/antideg.pdf

Please keep in mind that these issue papers are to generate discussion and are not to be taken as representing MPCA decisions or recommendations at this time. Your participation and input in this rule revision is much appreciated.

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