

**VERMONT AGENCY OF NATURAL RESOURCES  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION**

**ANTI-DEGRADATION RULE STAKEHOLDER PROCESS**

**Issue Paper 3: Application of Anti-degradation to Federal and State Permitting Programs**

The application of anti-degradation provisions to Federal and State permitting programs poses a unique challenge for implementation. This Issue Paper will explore the difficulties and potential applications of anti-degradation to permitting process in the Stormwater and Lakes & Ponds programs. The Wetlands and Rivers programs will also address anti-degradation through their permitting programs.

**Stormwater**

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

The application of anti-degradation provisions to 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 NPDES point sources such as waste water treatment facilities.

One of the challenges of applying anti-degradation provisions to NPDES-permitted stormwater activities is that the characteristics of stormwater discharges are very different from wastewater discharges, for which anti-degradation 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.

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 entities.

**As related to anti-degradation, what are the unique aspects of each stormwater type?**

Regulated stormwater discharges may be broken down into four general types (operational, municipal, industrial and construction), each with some unique characteristics. Understanding the similarities and differences among stormwater types will aid in the development of Vermont's anti-degradation provisions for stormwater activities.

## Operational/ State Stormwater Permit

State, or Operational Stormwater Discharge Permits are required for discharges of regulated stormwater runoff from new or redeveloped impervious surfaces greater than one acre, or expansions to such surfaces. Regulated discharges are required to treat the runoff per the requirements of the Vermont Stormwater Management Manual. Unlike the NPDES construction program, permit coverage is required for the life of the project. Additionally, unlike the Multi-Sector General Permit, there is no option for “no exposure.” The BMPs in the Stormwater Manual are designed to remove sediment and phosphorous, promote infiltration, prevent stream channel disequilibrium, and to prevent flooding. Permittees are required to monitor and report on the condition of their BMPs.

## Municipal Separate Storm Sewer System (MS4s)

A Municipal Separate Storm Sewer Systems (MS4s) is 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, or institution. The storm sewer system is designed and/or used for collecting or conveying stormwater from developed areas. Stormwater discharges from urban and developed areas (post construction) rarely have a single point discharge from an MS4 and instead include many discharge locations to many different receiving waters. Urban runoff includes multiple types of sources, including dispersed residential, commercial and industrial site runoff. Control measures include controls of water quantity (volume/rate) and quality. In Vermont, eight municipalities with municipal separate storm sewer systems are regulated MS4s. These communities are Burlington, Colchester, Essex, Essex Junction, Milton, Shelburne, South Burlington, Williston, and Winooski. Three publicly owned 'non-traditional' separate storm sewer systems were also designated as regulated MS4s. These systems are owned or operated by the University of Vermont, Burlington International Airport and the Vermont Agency of Transportation.

## Industrial

Vermont issued the Multi-Sector General Permit (MSGP) in August of 2006 for stormwater discharges from industrial facilities. Any exposed storage, handling, loading and unloading areas, stockpiling, roof vents, waste bins, spills, and legacy pollutants (pollutants from past activities) may contribute to stormwater waste streams. Pollutants of concern are often associated with the specific type of industrial activity. 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.

## Construction

Vermont requires a stormwater permit for one or more acres of earth disturbance. Construction stormwater discharges typically come from areas of unstabilized soil that are left exposed for long periods of time. The predominant stormwater runoff concern at construction sites is the runoff of sediment during construction.

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

Anti-degradation 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 anti-degradation demonstration can be carefully evaluated. Due to the large number of applicants for

stormwater activities, thorough evaluation of every individual applicant's anti-degradation demonstration is impractical.

### Permitting Approaches

One approach for addressing anti-degradation requirements for stormwater discharges is the use of general permits. General permits can be developed for similar types of activities or discharges to include specific criteria with quantitative thresholds designed to maintain water quality standards. A general permit provides an opportunity for a single anti-degradation 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 for all of the discharges authorized under the general permit. The public participation and intergovernmental cooperation requirements of anti-degradation 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 it meets the general permit requirements it would be considered in compliance with the anti-degradation 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. There is also the potential to develop different requirements in a general permit for different receiving waters or activities.

If an applicant did not meet the eligibility requirements for general permit coverage, then it would be required to obtain an individual permit and provide further demonstration identifying alternatives that minimize or mitigate the lowering of water quality, how much the water quality would be lowered, and if necessary provide justification that the lowering of water quality is necessary for social and economic development.

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

The rationale for using a threshold concept is to ensure the protection of water quality while also recognizing the need to manage the regulatory burden on permittees who have to meet anti-degradation requirements and the need to reduce the administrative burden of the Agency in managing a wide-range of permitting programs with a high volume of permit applications. Those activities that fall below a minimal threshold of impact are not considered to be significant and are not required to undergo an anti-degradation 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 anti-degradation process would not be required would have to be based on assumption of zero discharge or minimal impact anticipated.

### **For anti-degradation 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.

*After permit or coverage issuance.* The effectiveness of control measures may be assessed through evaluation 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 may be used to improve upon those control measures and to inform subsequent permit development.

### **How assessments are made?**

Assessments can be made prior to permit issuance through the review of proposed BMPs and biomonitoring data. After permit issuance, routine inspections and monitoring can be the primary assessment tools. This includes compliance inspections, designer certifications, and monitoring such as turbidity monitoring at construction sites.

Washington state provides an example of an adaptive management approach in their construction stormwater general permit where monitoring and benchmark values are the permittee's primary tools to evaluate the effectiveness of their control measures in meeting anti-degradation 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.

### **What is assessed?**

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 capacity (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 capacity (the difference between a baseline water quality and the applicable standard for a parameter).

Another part of the “what is assessed” question is what parameters are to be evaluated. 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 in the MSGP. 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 water.

### **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, would most likely be made by the Agency. The permittee would be responsible for assessing the effectiveness of control measures during the permit cycle. The assessment of cumulative effects would likely be done by the Agency.

### **How should the public participation requirement of anti-degradation be fulfilled for stormwater general permits?**

Federal anti-degradation regulation 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* 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.

One of the challenges of fulfilling the public participation requirements for stormwater activities is reconciling the site-specific nature of anti-degradation with the large number of applicants falling under general permits. Public participation regarding how anti-degradation 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 anti-degradation requirements, which are specified in the general permit, are met.

For applicants that cannot meet, or have not met, the anti-degradation 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.

### **Lakes & Ponds: Shoreland Encroachment Permit**

The Shoreland Encroachment Statute (29 VSA, Chapter 11) predates both the Clean Water Act and the Vermont Water Quality Standards. This program's jurisdiction covers work beyond the mean water level of a lake including fill, retaining walls, abutments, dredging, docks, pipelines, and cables in public water. The anti-degradation rule would apply to those projects also requiring an individual § 401 Water Quality Certification.

The Shoreland Encroachment Permit Program protects "public good" values: fish and wildlife habitat; aquatic and shoreline vegetation; navigation; recreation and public uses including fishing and swimming; water quality; and consistency with the natural surroundings. The statute also requires the cumulative impact of a project be considered along with existing encroachments. In order to issue a permit for an encroachment the impact of the project is balanced against each public good (similar to a social-economic justification) and the positives must outweigh the negative impacts to public good. In addition, the program protects the public trust resource, public waters, by making sure a project provides a public benefit such as access or quality protection.

The Shoreland Encroachment Program does not currently have a specific means of measuring assimilative capacity of each of the public good values identified above. In terms of water quality parameters such as turbidity and phosphorus (nutrients), the permitted projects typically only negatively affect these during the implementation phase and are addressed in permit conditions for the use of such BMPs as the installation of silt curtains during construction. Therefore, these impacts are considered de minimus.

Shoreland Encroachment Permit decisions consider the impact of a project on navigation. Again, there is not an established means of measuring how much navigation is affected by a project so it is a highly subjective analysis. Thresholds or gradations in assimilative capacity can reasonably be assumed to vary from one section, or segment, of a lake to another, for instance people expect

the boat traffic to be more crowded and constricted in a harbor area than along an undeveloped stretch of shoreline

Habitat is an example where anti-degradation could provide additional protection under the Shoreland Encroachment Permit. Since Vermont does not have statewide standards for shoreland development, most development results in the removal of native vegetation and the replacement of it with a lawn. Studies in Vermont have shown that when a shore is developed in this manner, there is a significant alteration to commonly accepted habitat measures (e.g. shade, woody “debris,” embeddedness). Therefore, in considering permit applications for retaining walls along eroding shores (usually eroding because the native trees and shrubs have been removed), the wall’s impact on fish and wildlife habitat is considered. In order to do, the particular impact the land clearing vs. the shoreline stabilization itself has on habitat needs to be better understood. Additionally, to consider the impact in an anti-degradation sense, the threshold at which a certain percent of developed shore results in lake-wide impacts to habitat also need to be better understood.

Cumulative impact of a project and existing encroachments is another area where anti-deg could provide additional protection. Establishing an objective measure and assimilative capacity of factors such as navigation, recreation and fish and wildlife habitat is difficult and is currently addressed with a subjective analysis.