



Minnesota Pollution Control Agency

Nondegradation for Small Municipal Separate Storm Sewer Systems (MS4s)

Nondegradation

Clean water is an important factor in our quality of life and the beneficial uses inherent in Minnesota's waters are valuable public resources. Many federal, state and local laws and regulations have been established to protect and preserve water quality. It is the policy of the state of Minnesota (State) to protect all waters from significant degradation. Existing beneficial uses and the water quality necessary to protect the existing uses must be maintained and protected from point and nonpoint sources of pollution. Nondegradation generally refers to the concept of maintaining water quality at its existing condition when the quality is better than the water quality standards. It is the policy of the Minnesota Pollution Control Agency (MPCA or Agency) that water quality conditions that are better than applicable water quality standards, and better than levels necessary to support existing beneficial uses, must be maintained and protected unless the Agency Commissioner finds that, after full nondegradation review, a lowering of water quality is acceptable. In any instance a lowering of water quality must maintain and protect the existing beneficial uses of the resource. Such preservation will ensure that all existing uses of a water body are protected.

Minn. R. 7050.0180 and 7050.0185 set forth the nondegradation standards that apply to waters in Minnesota. Part 7050.0180 addresses nondegradation standards that apply to new or expanded discharges from either point or nonpoint sources to Outstanding Resource Value Waters (ORVWs). Part 7050.0185 prescribes the nondegradation standards that apply to "all waters" (All Waters). Minn. R. 7050.0180 and 7050.0185 were largely developed to address degradation caused by point source discharges to waters from industrial and wastewater sources. The scenarios and mechanisms associated with degradation caused by stormwater were not well developed in these rules and therefore these rules do not adequately address stormwater discharges. The rationale outlined in this paper, and the requirements contained within the MS4 General Permit, together describe the Agency's efforts to fulfill the intent of Minn. R. 7050.0180 and 7050.0185 in this permitting process.

Nondegradation review is required only for "new and expanded" discharges as defined in Minn. R. 7050.0180 and Minn. R. 7050.0185. For purposes of nondegradation review, "new discharges" are those that were not in existence on a specified "effective date." "Expanded discharges" are defined as discharges that change in volume, quality, location, or any other manner such that an increased loading of one or more pollutants results after the specified effective date. For ORVWs, including those located within the Lake Superior Basin, the effective date is the date the water resource was designated as an ORVW (Minn. R. 7050.0180, subp. 2(B); Minn. R. 7052.0010, subp. 33(A)). For All Waters, the effective date is January 1, 1988. For waters in the Lake Superior Basin designated as outstanding international resource waters or high quality waters under Minn. R. 7052.0300, subps. 3 or 4, the effective date is March 9, 1998 (Minn. R. 7052.0010, subp. 33(B)).

Nondegradation Controls for All Waters

As indicated above, it is the policy of the State to protect All Waters from significant degradation from point and nonpoint sources and to maintain existing water uses and aquatic and wetland habitats. To achieve this goal, existing beneficial uses and the water quality necessary to protect the existing uses must be maintained and protected from point and nonpoint sources of pollution. Any person authorized to maintain a new or expanded discharge of sewage, industrial waste, or other waste, whether or not the discharge is significant, shall comply with applicable State water quality standards and effluent limits, in addition to applicable federal and State point source treatment requirements. Nonpoint sources of pollution must also be controlled as required by applicable federal or State requirements (Minn. R. 7050.0185, subp. 3).

State law imposes additional requirements for “significant” discharges¹ (Minn. R. 7050.0185, subp. 4). If a person proposes a new or expanded significant discharge from either a point or nonpoint source, the MPCA must determine whether additional control measures beyond those required by Minn. R. 7050.0185, subp. 3 can reasonably be implemented to minimize the impact of the discharge on the receiving water. In making the decision, the MPCA is required to consider several factors, including the importance of economic and social development impacts of the project, the impact of the discharge on the quality of the receiving water, the characteristics of the receiving water, the cumulative impacts of all new or expanded discharges on the receiving water, and the costs of additional treatment beyond what is required in subpart 3.

Nondegradation Controls for ORVWs

Whereas Minn. R. 7050.0185 establishes a minimum level of treatment that applies to all new and expanded discharges to All Waters in Minnesota, the MPCA recognizes that the maintenance of existing high quality in some waters of Outstanding Resource Value to the State is essential to their function as exceptional recreational, cultural, aesthetic, or scientific resources. To preserve the value of these special waters, the Agency will prohibit or stringently control new or expanded discharges from either point or nonpoint sources to ORVWs (Minn. R. 7050.0180, subp. 1). Minn. R. 7050.0180 creates two categories of ORVWs: “prohibited discharge waters” and “restricted discharge waters.”

ORVWs are defined as follows:

“Outstanding resource value waters” are waters within the Boundary Waters Canoe Area Wilderness, Voyageur’s National Park, and Department of Natural Resources designated scientific and natural areas, wild, scenic, and recreational river segments, Lake Superior, those portions of the Mississippi River from Lake Itasca to the southerly boundary of Morrison County that are included in the Mississippi Headwaters Board comprehensive plan dated February 12, 1981, and other waters of the state with high water quality, wilderness characteristics, unique scientific or ecological significance, exceptional recreational value, or other special qualities which warrant stringent protection from pollution.”

¹ The term “significant discharge” is defined at Minn. R. 7050.0185, subp. 2(G).

“Prohibited discharge waters” are identified in Minn. R. 7050.0180, subp. 3.² With respect to prohibited discharge waters, new or expanded discharges are not allowed under any circumstances. “Restricted discharge waters” are identified in Minn. R. 7050.0180, subp. 6.³ With respect to these “restricted discharge waters,” new or expanded discharges are prohibited unless a nondegradation review concludes that there is no prudent and feasible alternative to the discharge. If the MPCA allows a discharge to a restricted discharge water the discharge must be restricted to the extent necessary to preserve the existing high quality, or to preserve the wilderness, scientific, recreational, or other special characteristics that make the water an ORVW.

Nondegradation Review

Loading assessments conducted by thirty selected MS4s in accordance with the 2006 MS4 General Permit⁴ demonstrated that new development and redevelopment will result in new or expanded discharges. Without installation of adequate permanent stormwater controls, most MS4s will have discharges which meet the definitions of new or expanded discharges to ORVWs and/or new or expanded significant discharges to All Waters. Therefore, the MPCA has determined that all discharges authorized by the MS4 General Permit must satisfy nondegradation review requirements. The MS4 General Permit will apply to all regulated small MS4s within the State of Minnesota and therefore must contain conditions adequate to protect both ORVWs and All Waters. Agency staff has completed a nondegradation review which considered an evaluation of prudent and feasible alternatives as part of the development of the MS4 General Permit. A part of the process of conducting the nondegradation review was to develop a set of permit conditions to address new and expanded discharges to ORVWs (Minn. R. 7050.0180) and All Waters (Minn. R. 7050.0185). To comply with the requirements of Minn. R. 7050.0180, the MS4 General Permit prohibits any new or expanded discharges to a prohibited discharge water. To address new and expanded discharges to a restricted discharge water the MS4 General Permit contains prudent and feasible permit alternatives which will avoid these discharges. The conditions within the MS4 General Permit are also reasonable in accordance with Minn. R. 7050.0185, subp. 4, and will provide the same level of protection to All Waters.

If a permit applicant does not agree to meet all the conditions prescribed in the MS4 General Permit which are determined necessary to prevent degradation, the MPCA Commissioner may deny permit coverage. As an alternative, the permit applicant may be required to apply for an individual permit. The applicant would be required to provide data and/or computer modeling to support the development of

² The designated prohibited waters are the Boundary Waters Canoe Area Wilderness; those portions of Lake Superior north of latitude 47 degrees, 57 minutes, 13 seconds, east of Hat Point, south of the Minnesota-Ontario boundary, and west of the Minnesota-Michigan boundary; Voyager’s National Park; Department of Natural Resources designated scientific and natural areas; and federal or state wild river segments.

³ The designated restricted waters are Lake Superior, except those portions identified as prohibited waters; those portions of the Mississippi River from Lake Itasca to the southerly boundary of Morrison County that are included in the Mississippi Headwaters Board comprehensive plan dated February 12, 1981; certain designated lake trout lakes, both existing and potential, outside the boundaries of the Boundary Waters Canoe Area Wilderness and Voyageurs National Park; federal or state designated scenic or recreational river segments; and certain designated calcareous fens.

⁴ The selected MS4s are thirty cities required by the 2006 MS4 General Permit to conduct nondegradation review. These cities were selected based on population growth experienced by the cities during three time periods: from 1990 to 2000, based on census data; from 2000 to 2003, based on projections by the State Demographer and Metropolitan Council; and from 2000 to 2020, also based on the State Demographer and Metropolitan Council projections. The population of the cities as represented by the 2000 census was also considered in the selection process.

an individual permit. The MPCA would conduct an individualized nondegradation review and would prescribe permit conditions tailored to the individual permittee which would prevent new or expanded discharges from causing degradation.

MS4 General Permit Requirements

To provide nondegradation protections for restricted discharge waters and All Waters the MS4 General Permit establishes a post-construction stormwater management conditions that requires the permittee to develop a regulatory mechanism which requires new development and redevelopment projects to install and implement protective permanent stormwater controls. The permanent controls must, (1) for new development, require *no net increase from pre-project conditions* in volume, total phosphorus and total suspended solids, and (2) for redevelopment, require a net *reduction from pre-project conditions* in volume, total phosphorus and total suspended solids. If the project proposer is unable to achieve the total phosphorus and total suspended solids standard on the project site, the MS4 General Permit requires the permittee to have a mechanism in place to mitigate elsewhere that portion of the expanded discharge that cannot be mitigated on the project site. The mitigation must occur within the same Department of Natural Resources (DNR) catchment area (defined in the permit) as the project site. In addition, highest preference for mitigation projects must be given to those projects that will yield benefits to the same receiving water that receives runoff from the original construction activity. These MS4 General Permit conditions will thereby insure that a new or expanded discharge, from new development and redevelopment projects, does not occur to restricted discharge waters or All Waters.

The MPCA's nondegradation review for the MS4 General Permit included an evaluation of technical, environmental, economic, and social considerations concerning alternatives to potential stormwater discharges. To be considered a viable alternative to the potential stormwater discharge an alternative must be judged to be both prudent and feasible. To be feasible, an alternative must be implementable from an engineering standpoint as well as effective and reliable. To be prudent, an alternative must not involve extraordinary economic or social costs.

For degradation associated with urban development, the post-construction stormwater management conditions outlined in the MS4 General Permit provide a prudent and feasible alternative to a new and/or expanded discharge to restricted discharge waters. Agency staff believes that the implementation of these MS4 General Permit requirements will prevent any degradation of restricted discharge waters associated with urban development by maintaining pollutant levels for new development projects and achieving a reduction from redevelopment sites. Agency staff also believes that the post-construction stormwater management conditions provide reasonable controls in accordance with Minn. R. 7050.0185, subp. 4, and will provide the same level of protection for All Waters. The MS4 General Permit allows the permittee flexibility to select its own regulatory approach and to choose from a wide range of stormwater Best Management Practices (BMPs). BMPs available to meet the permit conditions include green infrastructure techniques, stormwater reuse/rainfall harvesting, infiltration, evapotranspiration, and bioretention practices. As indicated above, if the project proposer is unable to meet any or part of the permit conditions on the project site the permittee will be required to have a process to provide mitigation options. For these situations, the MS4 General Permit requires the permittee to develop a mitigation process which will ensure that any new or expanded discharges which are not addressed on the project site are treated at an off-site location within the same DNR catchment area. This regulatory approach, involving the establishment of an on-site permit condition with the opportunity for off-site mitigation where the permit conditions cannot be met on the project site, has been employed by a number of governmental entities including watershed districts

within the Minneapolis-St. Paul metropolitan area.

In addition to the requirements that the MS4 General Permit places on new development and redevelopment projects, there are many other conditions of the MS4 General Permit which will ensure reductions in stormwater discharges. The MS4 General Permit requires permittees to implement public outreach and education efforts to help change the behavior and practices of individuals and businesses that conduct activities which, without adequate BMPs in place, can lead to stormwater discharges that contribute to degradation. Permittees are required to implement an Illicit Discharge Detection and Elimination (IDDE) program that will utilize a variety of approaches to minimize or eliminate discharges which unless addressed could cause degradation. Pollution prevention efforts associated with municipal facilities and operations necessary to prevent degradation are also addressed in the MS4 General Permit. Permittees are required to evaluate, inspect, and maintain their municipal facilities and operations to prevent or reduce the discharge of pollutants to receiving waters. MPCA staff has concluded that the cumulative effect of all permit requirements in the MS4 General Permit will result in a net reduction in loading from current conditions, satisfying the intent of Minnesota's Nondegradation Rules.