Nondegradation Rulemaking

Issue Paper 10: How should Outstanding Resource Value Waters be protected?

Minnesota Pollution Control Agency

Contents

The third Tier or level of antidegradation protection specified in federal regulations[1] requires that, "(w)here high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected." The EPA's Water Quality Standards Handbook[2] interprets "maintained and protected" to mean "no new or increased discharges" to Outstanding National Resource Waters (ONRWs) and no new or increased discharges to tributaries to ONRWs that would result in lower water quality in the ONRWs. The only exception to this prohibition as discussed in the preamble to the water quality standards regulation (48 F.R. 51402)[3] is for some limited activities that result in "temporary and short-term changes in the water quality."

Minnesota's current rules

Minnesota waters of exceptional value, designated as Outstanding Resource Value Waters (ORVWs), are protected through Minn. R. 7050.0180[4]. They are classified as such for their special characteristics such as high water quality, or as having exceptional recreational, cultural, aesthetic or scientific value. Outstanding Resource Value Waters include those waters within the Boundary Waters Canoe Area Wilderness, Voyageur's National Park, Lake Superior, portions of the Mississippi River, and Department of Natural Resources (DNR) designated scientific and natural areas, and federal and state designated wild, scenic, and recreational river segments.

Minnesota has three categories of ORVWs; Prohibited, Restricted and Unlisted. Waters in the Prohibited category are the most pristine or sensitive ORVWs and are analogous to the federal ONRWs. By current state rule new or expanded discharges are prohibited to these waters. Examples of Prohibited ORVWs include waters in wilderness areas (such as the Boundary Waters Canoe Area Wilderness and Voyageur's National Park), portions of Lake Superior, DNR designated scientific and natural areas, and federal and state wild river segments. Prohibited ORVWs are listed in Subparts 3, 4 and 5.

New or expanded discharges to Restricted ORVWs are not allowed unless an applicant can demonstrate there is not a prudent or feasible alternative to the discharge. Examples of these Restricted ORVWs include portions of Lake Superior and the Mississippi River, certain lake trout lakes and calcareous fens, and federal or state designated scenic or recreational river segments. Restricted discharges are listed in Subparts 6, 6a and 6b.

In addition to waters specially listed as either Prohibited or Restricted, Minn. R. 7050.0180 also includes Unlisted ORVWs (Subp. 7). New or expanded discharges to Unlisted ORVWs are prohibited or stringently controlled to preserve the existing high quality or the special characteristics that make the water an ORVW. The intent of this section is to allow for flexibility to include waters "that

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are at a later time determined to possess the characteristics of an outstanding resource value water"[5]. Examples of Unlisted waters are those that the DNR designates as scientific or natural areas, but where the DNR designation chronologically falls between MPCA rulemakings in which ORVWs are formally listed.

For Minn. R. 7050.0180, a new discharge is one that was not in existence on the date on which the ORVW was designated. An expanded discharge is one where the discharge "changes in volume, quality, location, or any other manner after the date on which the Outstanding Resource Value Waters was designated, such that an increased loading of one or more pollutants results" (Subp. 2).

The Agency requires that new or expanded discharges to waters that flow into ORVWs be controlled so as to assure no deterioration in the quality of the downstream ORVW (Subp. 9).

Possible revisions to the current rule

Some possible changes or clarifications to the existing rule governing the protection of ORVWs include:

1. Allowance for temporary changes in the water quality of ORVWs.

2. Clarifying the distinction and relationship between the protection of high quality waters and Restricted ORVWs.

3. Protecting ORVWs from "upstream" activities.

4. Procedures by which ORVWs are designated.

5. ORVWs and NPDES-permitted stormwater activities.

1. Allowance for temporary changes in the water quality of ORVWs

As noted above, the only exception to "no new or increased discharges" to ONRWs is for "temporary and short-term changes in the water quality". The EPA *Water Quality Standards Handbook* broadly interprets temporary to mean weeks and months, not years. The intent is to limit degradation to the shortest time possible. In any decision to allow for temporary discharges there must be public participation and that all practical means of minimizing the degradation must be implemented. These activities must not lower water quality to the point where existing uses are removed.

EPA Region 8 antidegradation guidance[6] defines temporary and limited as "activities with a duration less than one month and resulting in less than a 5 percent change in ambient concentrations" of the pollutant(s) of concern. The expectation is that after the activity causing the water quality degradation has ended water quality will return to the previous levels.

Many states which follow the EPA's Water Quality Standards Handbook guidelines provide little guidance in defining temporary degradation, but rather allow for the use of professional judgment on a case-by-case basis.

Missouri's[7] recently adopted rule defines temporary degradation as it applied to Tier 3 protection as (this definition is very similar to that found in Oregon's antidegradation implementation policy[8]):

> "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."

Minnesota Rule 7050.0180 currently does not have provisions for temporary lowering of water quality in ORVWs. Should such provisions be included in the revised rule? If so, what criteria should be used to determine the allowance for temporary lowering of water quality in ORVWs? (Missouri's definition, above, may be a good starting point).

Any applications for allowances of temporary degradation would need to 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, and require public participation. Examples of temporary activities may include construction, installation, maintenance, replacement and/or repair of roads, bridges, boat ramps or docks, sea walls, and outfall or intake structures. Temporary degradation may also be allowed for activities that protect the public interest, such as

emergency response activities and remediation activities used to improve water quality.

2. Clarifying the distinction and relationship between the protection of high quality waters and Restricted ORVWs

Under the current rule (Minn. R. 7050.0180[4]) a new or expanded discharge to a Restricted ORVW may be permitted where there is no prudent and feasible alternative. Although not defined in Minn. R. 7050.0180, the Wetland Conservation Rule (Minn. R. 8420[9]) does provide a working definition of prudent and feasible. When considering alternatives to avoid impacts to wetlands, "(a)n alternative shall be considered feasible and prudent if it meets all of the following requirements:

i. It is capable of being done from an engineering point of view;
ii. It is in accordance with accepted engineering standards and practices;
iii. It is consistent with reasonable requirements of the public health, safety, and welfare;
iv. It is an environmentally preferable alternative based on a review of social, economic, and environmental impacts; and
v. It would create no truly unusual problems.

The Guidance Manual for Applying Nondegradation Requirements on Outstanding Resource Value Waters in Minnesota[10] provides procedures for how the prudent and feasible standard should be implemented for Restricted ORVWs. These procedures are essentially an analysis of non-degrading alternatives where at least six general alternatives are considered:

i. Holding tanks with transport to a permitted treatment system
ii. Pipeline conveyance to a permitted treatment system
iii. Land application systems including spray irrigation and mound systems
iv. Alternative receiving waters not designated as ORVWs
v. Downsizing the project and/or implementing water conservation practices so that a land disposal method might be used
vi. Trading reserve capacity with an existing permitted system in the same impact area
vii. (If the proposal involves expanding existing discharge to an ORVW, upgrading treatment plant so as not to exceed the mass loading rates in its existing permit.)

Non-degrading alternatives would be different in the revised rule than those listed in the current Guidance Manual (above) in that they would include alternatives associated with type of activity proposed (i.e., the above activities are primarily associated with wastewater treatment activities).

The primary focus of the prudent and feasible standard is to identify any non-degrading alternative. An analysis of non-degrading alternatives will also likely be part of **Tier 2 review procedures** in the revised rule. How then should the protection of Restricted ORVWs be different than from other waters where lowering of water quality is permitted? Some options for considerations are shown below:

a. Create and clearly define two levels of non-degrading alternative analyses.
A more protective level would be employed for Restricted ORVWs than for high quality waters.

b. Allow for two water quality-based levels of protection.
Under this approach the water quality of a Restricted ORVW may be lowered but only to some predetermined cumulative level. This level would be more protective than for high quality waters. A number of other states do this by designating some waters as Tier 2.5 waters where a predetermined percentage of assimilative capacity may be used.

c. Protect the characteristics that make the water body an ORVW.
The special characteristics of the ORVW would be protected by either not allowing any degradation of those characteristics or by allowing some predetermined limit to the lowering water quality for those characteristics.

It is important to note that a Restricted ORVW may also be a high quality water where for a given parameter (under a parameter-by-parameter approach) the water quality is better than the applicable standard. A Tier 2 review, including social and economic justification, would still be required for any proposed activity for those parameters not directly associated with the special characteristics of the ORVW. For example, where a waterbody is designed as a Restricted ORVW for

outstanding recreational attributes parameters associated with the maintenance of the recreational value may include bacteria and phosphorus. A proposed activity would not be allowed to increase levels of those parameters above the baseline conditions. Increases in parameters not associated the characteristics of the ORVW (e.g. copper) may be allowed, but would still be required to undergo Tier 2 review.

Protection based on the characteristics which define outstanding waters is not a new concept. Ohio's rules[11] provide specific protection to outstanding state waters categorized because of their exceptional recreational value. In general, the state may allow up to 30% of the remaining available assimilative capacity (AAC) to be used in outstanding state waters. However, permits are not granted for activities that will result in a significant long-term increase in the frequency and duration of bacteriological pollution.

3. Protecting ORVWs from "upstream" activities

EPA guidance[2] interprets the "maintain and protect" clause in federal regulation to include "no new or increased discharge to tributaries to ONRWs that would result in lower water quality in the ONRWs."

Minnesota's current rules addressing upstream activities needs clarification. Subpart 9 (Impacts from upstream discharges) states that "(t)he agency shall require new or expanded discharges to waters that flow into outstanding resource value waters be controlled so as to assure no deterioration in the quality of the downstream outstanding resource value water." Assurance of "no deterioration" of downstream Prohibited ORVWs is reasonable and rational, but does not work well for Restricted ORVWs where permitted lowering of water quality may be allowed. It seems more reasonable to simply require that activities that have the potential to impact downstream ORVWs must not degrade the exceptional high quality, or the other characteristics, that make the downstream water an ORVW.

4. Procedures by which ORVWs are designated

Federal regulations require ONRW protection in their antidegradation policies, but there are no specific requirements that any water body be so designated or how the designation process may be conducted. EPA has suggested[12] that the federal regulation be amended to require a "nomination process with criteria guidelines in which the public could petition the State or Tribe for designation of certain waters as ONRWs. It would then be up to the State or Tribe to set criteria for the ONRW selection process with the final decision made by the State or Tribe after consideration of the public comment."

Region 8 guidance[6] suggests the public be allowed to directly nominate any state water for ONRW protection based on criteria including:

- Location (e.g., on federal lands such as national parks, national wilderness areas, or national wildlife refuges)
- Previous special designation (e.g., wild and scenic river)
- Existing water quality (pristine or naturally-occurring)
- Ecological value (presence of threatened or endangered species, or as ecoregion reference sites)
- Recreation or aesthetic value (e.g., presence of an outstanding recreational fishery)
- Other factors that indicate outstanding ecological or recreational resource value (e.g., rare of valuable wildlife habitat)

In a survey[13] of 19 states, the nonprofit organization River Network found that of 15 states that have an ONRW-equivalent designation process, 12 have a public nomination process. For the three states that do not have a public nomination process, the agency responsible for implementing antidegradation regulations reviews water classifications and may reclassify (typically through rulemaking) waters to an outstanding value category.

In Minnesota designating a waterbody as an ORVW requires a rulemaking change to Minn. R. ch. 7050. Historically waters that have been assigned an ORVW designation have some prior state or federal designation or recognition as to their exceptional recreational, cultural, aesthetic, or scientific value. Before identifying and establishing additional outstanding resource value waters the agency provides an opportunity for public hearings.

Many waterbodies added to the ORVW lists have first received DNR designation as scientific and natural areas, or as wild, scenic and recreational river segments. The basis for designation of wild, scenic and recreational

river segments is found in Minn. Statute 103F.305 (Scenic River Protection Policy)[14].

> "The legislature finds that certain of Minnesota's rivers and their adjacent lands possess outstanding scenic, recreational, natural, historical, scientific and similar values. It is in the interest of present and future generations to retain these values, and a policy of the state, and an authorized public purpose to preserve and protect these rivers."

Minn. Statute 103F.311 (Definitions)[15] list three types of rivers requiring protecting:

> Subd. 4. Recreational rivers. "Recreational rivers" are those rivers that may have undergone some impoundment or diversion in the past and may have adjacent lands that are considerably developed, but that are still capable of being managed so as to further the purposes of sections 103F.301 to 103F.345.
>
> Subd. 7. Scenic rivers. "Scenic rivers" are those rivers that exist in a free-flowing state and with adjacent lands that are largely undeveloped.
>
> Subd. 9. Wild rivers. "Wild rivers" are those rivers that exist in a free-flowing state, with excellent water quality, and with adjacent lands that are essentially primitive.

Wild rivers, those with excellent water quality, are listed in MPCA's Prohibited category of ORVWs. The others, recreational and scenic, may or may not possess high water quality are listed as Restricted ORVWs.

Minnesota currently does not have a public petition or nomination process for the designation of ORVWs. Should such a process be included in the revised Rule? If so, what criteria should be used?

5. ORVWs and NPDES-permitted stormwater activities

Issued related to applying antidegradation to NPDES-permitted stormwater discharges were covered in detail in Issue Paper 8[16]. The application of antidegradation provisions to NPDES-permitted stormwater activities poses unique challenges for decision-making in that the discharge characteristics (intermittent and variable flow, non-discrete discharges, multiple discharge locations and receiving waters, etc.), number of permit applications, and regulatory and administrative structure for stormwater activities differ greatly from those of traditional point sources such as municipal or industrial waste water discharges. As a result it is difficult to assess individual impacts of a given activity to individual receiving waters, particularly for applicants seeking coverage under general permits.

How then should stormwater activities be regulated to ensure that lowering of water quality does not occur (for Prohibited waters) or is stringently controlled (for Restricted waters)? Some options to consider:

- Require individual review of permit application including an analysis of the impact to the ORVW.
- Require more stringent permit conditions than for other waters. This assumes that, without knowing the impact to an individual receiving water, the ORVW will be protected.
- Through an adaptive management process, require monitoring of receiving waters to ensure the ORVW is being protected.
- Through an adaptive management process, require monitoring of control measures to ensure their effectiveness.
- Other, or combination of above.

Another challenge to protecting ORVWs where activities are covered under general permits is determining what constitutes "upstream" impacts. Assessing downstream effects for each application under a general permit may not be reasonable. Some criteria would need to be used as an administrative tool to determine which activities would likely affect downstream ORVWs. Some options include any activity occurring in the ORVW watershed or some physical distance of the activity to the ORVW.

Requiring no "new or expanded" stormwater discharges to Prohibited ORVWs is also challenging considering that stormwater runoff (i.e., watershed runoff following precipitation) is a naturally-occurring event and that the elimination of stormwater flow may not be realistic or desirable. The current rule defines a "new discharge" as one that was not is existence on the effective date the ORVW was designated. An "expanded discharge" is one that changes in volume, quality, location, or other manner after the effective date the ORVW was designated, such that an increased loading of one or more pollutants result. In its determination the agency compares the proposed loading to the loading allowed on the effective designation date.

A number of questions related to NPDES-permitted stormwater activities arise from this definition:

- Is it possible to have increases in volume without increases in pollutant loading?
- Can increases in volume, by itself, be considered degradation? This would depend, in part, on runoff volume in relation to the size of the receiving water.
- Is it reasonable for the agency to require that applicants maintain stormwater runoff conditions (volume and pollutant loading) at baseline conditions? In other words is it reasonable to require no net increase in stormwater impacts as development and redevelopment occurs?

Discussion Points

1. Minnesota Rule 7050.0180 currently does not have provisions for temporary lowering of water quality in ORVWs. Should such provisions be included in the revised rule? If so, what criteria should be used to determine the allowance for temporary lowering of water quality in ORVWs? Missouri's definition of temporary degradation (page 3) may be a good starting point.

2. How should the protection of Restricted ORVWs be different than from other waters where lowering of water quality is permitted? Some options for considerations are shown below:
- Create and clearly define two levels of non-degrading alternative analyses.
- Allow for two water quality-based levels of protection.
- Protect the characteristics that make the water body an ORVW.

3. Should a public petition or nomination process be used in the designation of ORVWs? If so, what criteria should be used?

4. How should stormwater activities be regulated to ensure that lowering of water quality does not occur (for Prohibited waters) or is stringently controlled (for Restricted waters)? Some options to consider:
- Require individual review of permit application including an analysis of the impact to the receiving water.
- Require more stringent permit conditions than for other waters. This assumes that, without knowing the impact to an individual receiving water, the ORVW will be protected.
- Through an adaptive management process, require monitoring of receiving waters to ensure the ORVW is being protected.
- Through an adaptive management process, require monitoring of control measures to ensure their effectiveness.
- Other, or combination of above.

5. A number of questions related to NPDES-permitted stormwater activities arise from the definition of "expanded" discharge:
- Is it possible to have increases in volume without increases in pollutant loading?
- Can increases in volume, by itself, be considered degradation? This would depend, in part, on runoff volume in relation to the size of the receiving water.
- Is it reasonable for the agency to require that applicants maintain stormwater runoff conditions (volume and pollutant loading) at baseline conditions? In other words is it reasonable to require no net increase in stormwater impacts as development and redevelopment occurs?

References and Links

[1]40 CFR § 131.12, Antidegradation policy, http://edocket.access.gpo.gov/cfr_2007/julqtr/40cfr131.12.htm

[2]Water Quality Standards Handbook: Second Edition, EPA 823-B-94-005, USEPA, Office of Water, 1994 www.epa.gov/waterscience/standards/handbook/chapter04.html

[3]Preamble to the Water Quality Standards Regulation (48 F.R. 51402,) as found in "Questions and Answers on Antidegradation' (This document was originally designated as Appendix A to Chapter 2 — General Program Guidance (antidegradation) of the Water Quality Standards Handbook, December 1983) www.epa.gov/waterscience/standards/library/antidegqa.pdf

[4]Minnesota Administrative Rules Chapter 7050.0180, Waters of the State, Nondegradation for Outstanding Resource Value Waters, www.revisor.leg.state.mn.us/rules/?id=7050.0180

[5]Statement of Need and Reasonableness – In the matter of the Proposed Revision of 6 MCAR §§ 4.8014 and 4.8024 and Proposed Repeal of 6 MCAR §§ 4.8015 and 4.8025, relating to the Standards and Classification of

Waters of the State, MPCA, March, 1984 (Available from the MPCA library).

[6]EPA Region VIII Guidance: Antidegradation Implementation
www.epa.gov/region8/water/wqs/wqsdocs.html

[7]Missouri Antidegradation Rule and Implementation Procedure, Division of Environmental Quality, Water Protection Program, effective May 7, 2008
www.dnr.mo.gov/env/wpp/docs/aip-cwc-appr-050708.pdf

[8]State of Oregon Antidegradation Policy Implementation, March 2001
www.deq.state.or.us/wq/pubs/imds/antideg.pdf

[9]Minnesota Administrative Rules Chapter 8420, Wetland Conservation
www.revisor.leg.state.mn.us/rules/?id=8420

[10]Guidance Manual for Applying Nondegradation Requirements on Outstanding Resource Value Waters in Minnesota, MPCA, September, 1988

[11]Ohio Antidegradation Rule (OAC 3745-1-05, Antidegradation), effective July 1, 2003
www.epa.state.oh.us/dsw/rules/01-05.pdf

[12]EPA's 1998 Advanced Notice of Proposed Rulemaking, Federal Register Vol. 63, No. 129.
www.epa.gov/fedrgstr/EPA-WATER/1998/July/Day-07/w17513.pdf#page=39

[13]River Network's survey of 19 States' antidegradation rules and procedures
http://rivernetwork.org/rn/antidegradation

[14]Minn. Statute 103F.305, Scenic River Protection Policy
www.revisor.leg.state.mn.us/statutes/?id=103F.305

[15]Minn. Statute 103F.311, Definitions
www.revisor.leg.state.mn.us/statutes/?id=103F.311

[16]Nondegradation Rulemaking Issue Paper 8. How should nondegradation be applied to NPDES-permitted stormwater activities?
www.pca.state.mn.us/publications/wq-rule3-21.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.

Contacts

For additional information regarding the nondegradation rulemaking contact the Minnesota Pollution Control Agency at 651-296-6300 or 800-657-3864.