



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
WATER

AUG 10 2005

MEMORANDUM

SUBJECT: Tier 2 Antidegradation Reviews and Significance Thresholds

FROM: Ephraim S. King, Director *E. King*
Office of Science and Technology

TO: Water Management Division Directors, Regions 1-10

I would like to share with you OST's current recommendation regarding significance thresholds and lowering of water quality in high quality waters in the context of tier 2 antidegradation reviews. This memorandum is intended to provide the Regions with technical recommendations for your consideration as you work with states and authorized tribes and as you review antidegradation implementation methods that adopt significance thresholds. Within this context, EPA will make decisions on a state's or tribe's antidegradation policy on a case-by-case basis, guided by the applicable requirements of the Clean Water Act and implementing regulations, and taking into account best available information.

Antidegradation is an integral part of a state's or tribe's water quality standards, as it provides important protections that are critical to the fulfillment of the Clean Water Act objective "to restore and *maintain* the chemical, physical, and biological integrity of the Nation's waters." Of the three tiers of antidegradation protection, perhaps the most detailed in terms of implementation is tier 2, or high quality water protection. The intent of tier 2 protection is to maintain and protect high quality waters and not to allow for any degradation beyond a de minimis level without having made a demonstration, with opportunity for public input, that such a lowering is necessary and important. The available assimilative capacity of a waterbody - the difference between the applicable water quality criterion for a pollutant parameter and the ambient water quality for that pollutant parameter where it is better than the criterion - is a valuable natural resource. EPA's regulations provide for public participation in decisions regarding whether a lowering of water quality is necessary (i.e., there are no alternatives to allowing a new or increased discharge that will lower water quality) to accommodate important development (i.e., the activity causing the lowering will provide for important economic or social development in the area in which the waters are located). See 40 CFR 131.12(e)(2).

We recognize that some states and tribes have chosen to target their antidegradation efforts by defining a significance threshold above which the effects on water quality require tier 2 antidegradation findings of necessity and social and economic importance. Applying antidegradation review requirements only to those activities that may result in significant degradation of water quality is a useful approach that allows states and tribes to focus their resources where they may result in the greatest environmental protection. However, it is important that states and tribes set their significance thresholds at a level that can be demonstrated to be consistent with the purpose of tier 2 antidegradation requirements. Otherwise, a new or increased discharge may result in significant degradation that will not be subject to antidegradation review, and decisions about the lowering of water quality in high quality waters may be made without public consideration of necessity and importance, resulting in the loss or diminishment of a valuable natural resource.

EPA has afforded the states and tribes some discretion in determining what constitutes a significant lowering of water quality. EPA has accepted a range of approaches to defining a "significance threshold" over which a full antidegradation review is required. This issue was considered at length in the process of developing the Water Quality Guidance for the Great Lakes. Relying upon input offered during a four-year open public process involving environmental groups, industry representatives, and other experts, with numerous opportunities for public input, the directors of the eight Great Lakes states and EPA technical experts reached a consensus on a significance threshold value of ten percent (10%) of the available assimilative capacity, coupled with a cumulative cap. They determined that this threshold represented a reasonable balance between the need of the regulatory agencies to limit the number of actions involving non-BCCs (bioaccumulative chemicals of concern) that are subjected to the detailed antidegradation demonstration requirements, and the need to protect and maintain water quality. They believed that any individual decision to lower water quality for non-BCCs that is limited to 10% of the available assimilative capacity represents minimal risk to the receiving water and is fully consistent with the objectives and goals of the Clean Water Act. A ten percent (10%) value is within the range of values for significance thresholds that EPA has approved in other states as well. EPA considers this approach to be workable and protective in identifying those significant lowerings of water quality that should receive a full tier 2 antidegradation review, including public participation.

Given the different approaches states and tribes have taken recently to define significance, it is important to clarify that the most appropriate way to define a significance threshold is in terms of assimilative capacity. Other approaches for defining significance, such as considering only increases in pollutant loading, may not take into account the resulting changes in water quality, and in some cases may allow most or all of the remaining assimilative capacity of a waterbody to be used without an antidegradation review. Evaluations of significance based solely on the magnitude of the proposed increase without reference to the amount of change in the ambient condition of the waterbody need to be very carefully evaluated to determine how they translate to reduction in assimilative capacity in order to understand whether a significant decrease in assimilative capacity will occur. This analysis can be technically difficult when applied to all possible waterbody types and flow situations, thus making justifications of these expressions by states and tribes and approvals by EPA more

challenging. Further, given the importance of public participation and transparency, it is clear that a definition of significance that directly links to the resource to be protected (assimilative capacity) is more likely to be understood by the public. Therefore, OST strongly recommends that new or revised submissions of antidegradation implementation procedures to EPA that define "significant" lowering of water quality define significance in terms of assimilative capacity, unless the state or tribe demonstrates that another approach is equally or more protective of the state's high quality water resources. Increased loadings of BCCs to surface waters of the Great Lakes System must be consistent with the Great Lakes Water Quality Initiative Antidegradation Policy (40 CFR Part 132, Appendix E, ILA, "Significant Lowering of Water Quality"). States and tribes that are concerned that new or increased discharges would not trigger antidegradation review on large waterbodies where the assimilative capacity is great should consider other approaches to defining significance, such as a combination of use of assimilative capacity and increase in pollutant loading.

To address situations where there are multiple or repeated increases in discharges, OST recommends that states and tribes incorporate a cumulative cap on the use of total assimilative capacity (i.e., the baseline assimilative capacity of a waterbody established at a specified point in time). This approach creates a backstop so that multiple or repeated discharges to a waterbody over time do not result in the majority of the total assimilative capacity being used without a single antidegradation review. For instance, the state or tribe may choose to subject any lowering of water quality to antidegradation review after a certain percentage of the total assimilative capacity has been used. This ensures that where the ambient water quality is lowered closer to the criteria levels, the state or tribe will conduct an antidegradation review after a certain point to evaluate the necessity and importance of each lowering, regardless of the amount of assimilative capacity that would be used.

OST recommends that, where states and tribes desire to establish a significance threshold, you work with them as they develop or revise their antidegradation implementation methods to ensure that any significance thresholds are consistent with the approaches described in this memorandum.

If you have any questions or concerns, please do not hesitate to call me, or Denise Keehner, Director of the Standards and Health Protection Division, at (202) 566-1566.

cc: Robbi Savage, ASIWPCA
Water Quality Standards Branch Chiefs, Regions 1-10