Defining Existing Uses, Defining & Characterizing Existing Water Quality

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DEFINING EXISTING USES

Existing uses are defined by EPA as, "those uses actually attained in the waterbody on or after November 28, 1975, whether or not they are included in the water quality standards.'' (40 CFR 131.3(e)). EPA's *Water Quality Standards Handbook* (1994) notes that an existing use

> can be established by demonstrating that: fishing, swimming, or other uses have actually occurred since November 28, 1975; or that the water quality is suitable to allow the use to be attained—unless there are physical problems, such as substrate or flow, that prevent the use from being attained. An example of the latter is an area where shellfish are propagating and surviving in a biologically suitable habitat and are available and suitable for harvesting although, to date, no one has attempted to harvest them. Such facts clearly establish that shellfish harvesting is an "existing" use, not one dependent on improvements in water quality. To argue otherwise would be to say that the only time an aquatic protection use "exists" is if someone succeeds in catching fish.

EPA interprets the definition above to mean that "no activity is allowable under the antidegradation policy which would partially or completely eliminate any existing use whether or not that use is designated in a State's water quality standards." The *Water Quality Standards Handbook* further states that

> The aquatic protection use is a broad category requiring further explanation. Non-aberrational species must be protected, even if not prevalent in number or importance. Water quality should be such that it results in no mortality and no significant growth or reproductive impairment of resident species. Any lowering of water quality below this full level of protection is not allowed.

DEFINING AND CHARACTERIZING EXISTING WATER QUALITY

Clearly, the establishment of existing water quality is necessary—not only for antidegradation reviews, but for other purposes as well (e.g., CWA section 305(b) reporting). Accurately describing existing water quality on a regular basis, however, is no simple matter. Monitoring and assessment are resource-intensive—time, money, and materials are required. Moreover, it is generally accepted that existing water quality is not static. Water quality might improve or degrade over time, affecting the waterbody's status (e.g., unimpaired, impaired) and any antidegradation review conducted for a proposed activity during a particular time period. EPA has issued considerable guidance for describing existing water quality (e.g., CWA section 305(b) guidance) in terms of both numeric and narrative parameters.

The fairly strong EPA endorsement of a parameter-by-parameter approach for antidegradation reviews on the basis of an analysis of available assimilative capacity for the pollutant(s) of concern in the proposed discharge assumes that data on the receiving waterbody (i.e., baseline or existing water quality data) has been collected. In an August 2005 memorandum to regional water management division directors on *Tier 2 Antidegradation Reviews and Significance Thresholds,* EPA's OST Director, Ephraim S. King, noted that, "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 the waterbody to be used without an antidegradation review."

Several EPA regions have issued guidance on how to characterize existing (baseline) water quality for the purpose of antidegradation reviews. EPA's Region 9 antidegradation guidance recommends the following approach to determining existing water quality for the purpose of antidegradation reviews:

> First, the State should develop procedures to document the degree to which water quality exceeds that necessary to protect the uses. Ambient monitoring data can be used to provide this documentation. States must adopt procedures to assure that, where little or no data exists, adequate information will be available to determine the existing quality of the water body or bodies, which could be adversely affected by the proposed action. Such procedures should include both an assessment of existing water quality and a determination of which water quality parameters and beneficial uses are likely to be affected. These assessments and determinations could be performed either by the State or the party proposing the action in question.

In *Antidegradation Implementation* guidance, EPA Region 8 suggests that states focus on the pollutants of concern believed to be in the discharge and request that the applicant collect information wherever possible:

> Certainly, monitoring and assessing surface water quality is a difficult and ongoing task, and projecting the water quality that will result from proposed activities can be made difficult by the inherent complexity of receiving water systems. The critical issue becomes: How much information and analysis is needed to make the required antidegradation Tier 2 findings, and where information is lacking, who should be responsible for providing it?... EPA Region VIII believes that implementation of antidegradation Tier 2 requirements need not pose an undue burden on the state and tribal agencies charged with administering surface water quality programs. The model antidegradation procedure included in this guidance has been developed to allow states and tribes to focus resources on significant problems and issues and, where necessary, place the information-gathering burden on the project applicant...with respect to any data that may be needed to make the high quality and significance findings...

EPA Region 8 guidance further notes that "the applicant may be required to provide monitoring data or other information about the affected waterbody to help determine the applicability of (T)ier 2 requirements based on the high-quality test. The information that will be required in a given situation will be identified on a case-by-case basis.... Such information may include recent ambient chemical, physical, and biological monitoring data sufficient to characterize, during the appropriate critical condition(s), the existing uses and the spatial and temporal variability of existing quality of the segment for the parameters that would be affected by the proposed activity."

Some states have also provided detailed guidance on characterizing baseline water quality. California's implementation document describes baseline water quality as the best quality that has occurred since 1968 (date of the policy adoption) unless, permitted degradation has occurred (i.e., been subject to antidegradation review). If permitted degradation has occurred, existing water quality is the quality attained at the time of the permitted action. West Virginia codified its approach for determining baseline water quality at 60 CSR 05, placing the burden of gathering information on existing water quality squarely on the applicant if data are not available, while allowing *the public* or *any other source* to submit assessment information "as long as the data are recent and reliable."

> Where baseline water quality has not been established for the water segment the regulated entity proposes to impact or has not been established for a parameter of concern that is reasonably expected to be discharged into the water segment as a result of the proposed regulated activity, the Secretary must determine the baseline water quality for the receiving water body. The Secretary may consider data for establishing the baseline water quality from a federal or state agency, the regulated entity, the public, or any other source, as long as the data are recent and reliable. If adequate data are not available, the agency may, in conjunction with the regulated entity or on its own initiative, establish a plan for obtaining the necessary data. The regulated entity may be required to provide baseline water quality for those parameters of concern that are reasonably expected to be discharged as a result of the regulated activity into the affected water segment to help the permitting agency determine the baseline water quality, the existing uses, and the applicable tier. The regulated entity may contact the Secretary prior to initiating a baseline water quality evaluation to seek

> concurrence with its determination of the parameters of concern for its proposed activity and its proposed sampling protocol.

Missouri also takes this approach in establishing what it calls *existing water quality* or EWQ. The first EWQ establishes the benchmark. All subsequent dischargers must use the same EWQ data to determine the 10 percent threshold for an antidegradation review. The Colorado Water Quality Control Division (WQCD) took a slightly different approach, deciding to set baseline water quality for all waters in the state as that water quality which existed on a certain date. In 2001 the Colorado WQCD selected September 30, 2000, as the baseline date for water quality for all regulatory purposes by stating that "the baseline low-flow pollutant concentration shall represent the water quality as of September 30, 2000. The baseline low-flow pollutant concentration is a characterization of water quality conditions that existed at the time of this regulation change." Colorado characterizes ambient conditions by the 85th percentile of representative data. Because concentrations generally have an inverse relationship to flow (lower flows have higher concentrations), the 85th percentile is more representative of lower flow conditions and serves as the representation of baseline low-flow pollutant concentration. If sufficient representative low flow data are available, the 50th percentile of this low flow data may be used to characterize baseline conditions. Colorado regulations specify that existing water quality "shall be the 85th percentile of the data for un-ionized ammonia, nitrate, and dissolved metals, the 50th percentile for total recoverable metals, the 15th percentile for dissolved oxygen, the geometric mean for fecal coliform and *E. coli*, and the range between the 15th and 85th percentiles for pH."

Nevada uses a somewhat similar approach for establishing baseline water quality but has not established a specific date on which existing water quality is based. Under the Nevada approach, a requirement to maintain existing higher quality or RMHQ is established when the monitoring data show that existing water quality for individual parameters is significantly better than the standard necessary to protect the beneficial uses. If adequate monitoring data exist, RMHQs are established at levels that reflect existing conditions. RMHQs are generally established at the 95th percentile of data, which is defined as the 95th ranked value of a sample population distributed into one hundred equal parts. RMHQs are only proposed or revised if there is more than 5 years of data for single value RMHQs, or more than 10 years of data for annual average RMHQs, with a minimum of two samples per year. In cases where two or more monitoring sites exist for one reach, only the data from the most downstream site is considered. Tightening of RMHQs might be appropriate if there have been significant changes on the system, such as the removal of a major point source discharge, construction of a dam, and such. In general, if the percent improvement between the 95th percentile and the existing RMHQ is more than 25 percent, the RMHQ is revised.

South Carolina and other states define existing water quality as the water quality before the new or expanded discharge or project permit application. Under this approach, there is no set time or threshold on which existing or baseline water quality is based. This approach and others that do not establish firm baseline conditions can result in slowly deteriorating water quality, because incremental de minimis discharges slowly cause a lowering of water quality without an antidegradation review.

EPA's Great Lakes antidegradation guidance also discusses conducting reviews of potential degradation in terms that assume existing water quality data are known or will be collected. The guidance specifies that the level of protection afforded a waterbody under antidegradation will be determined on a parameter-by-parameter basis, considering each individual pollutant separately from the others present in a waterbody. EPA guidance notes that "under this approach, a discharger contemplating an action that would result in an increased loading would identify the constituents of its effluent that would increase as a result of the action. Then, *the ambient level of the pollutants of interest would be*

determined and compared to the applicable criteria. Where ambient concentrations of the pollutants in question are less than criteria concentrations, the waterbody would be considered high quality for those pollutants and increases in those pollutants would be subject to the requirements applicable to high quality waters." (Emphasis added.)

It should be noted that characterizing or otherwise describing baseline water quality for the purpose of antidegradation reviews is usually confined to an analysis of the pollutants of concern in the proposed discharge and not a comprehensive assessment of the full range of chemical, physical, and biological qualities of the receiving water. This approach somewhat limits a robust analysis of habitat degradation that might be associated with increased flows from stormwater runoff, a concept that has been incorporated into Minnesota's general NPDES permit for small MS4s.

Ohio Court Requires Protection of Existing Water Quality

In a 1992 decision in Columbus & Franklin County Metropolitan Park District et al., Appellees v. Shank, Director of Environmental Protection, et al., Appellants (Ohio, No. 91-1721), the Ohio Supreme Court ruled that state NPDES agencies must protect high quality (i.e., Tier 2) waters at their current levels unless antidegradation analytical and procedural requirements were fully met. The decision was related to the issuance of wastewater treatment plant permits to discharge into Blacklick Creek. Ohio EPA issued the permits based on their view that the discharges would not violate water quality standards. However, the Supreme Court found that the discharges would lower water quality, and noted that the Ohio EPA director "may not issue a permit authorizing an activity that would degrade waters which exceed water quality standards unless (1) he has complied with the public notice and intergovernmental coordination requirements of Parts 25 and 29, Title 40, C.F.R., (2) he has conducted a public hearing to consider the technical, economic and social criteria provided in Sections 1311 and 1312, Title 33, U.S. Code, and (3) as a result of the public hearing, he has chosen to allow lower water quality in the receiving stream. Where this determination has been made, the degradation of water quality must be kept to an absolute minimum by the employment of the most stringent statutory and regulatory controls for waste treatment and under no circumstances may such degradation interfere with or become injurious to any existing or planned uses of the receiving waters."

Responding to information from the agency and permittees that the wastewater plants would employ the highest levels of treatment and preserve existing uses of the receiving waters, the court further noted that "[e]ven where the prescribed technology is applied, a point source may not discharge effluent which would violate the applicable water quality standards. In the present case, the applicable water quality standard is the *current ambient condition* of Blacklick Creek inasmuch as the antidegradation policy establishes that quality as the benchmark." (Emphasis added.) In addition, the court emphasized the importance of the antidegradation review procedure and processes: "Limited degradation of high quality waters is permissible but only after compliance with the public hearing requirement of the rule and an administrative decision based thereon that technical, economic and social factors justify the degradation. Any economic and social analysis must consider alternative methods to accommodate the objectives of the proposed facility, the public and private investments in such alternatives and the governmental policy to promote them. If, after this analysis, the Director nevertheless concludes that technical, economic and social factors favor the proposed facility, the facility must incorporate the most stringent statutory and regulatory effluent controls, i.e., BADCT. Finally, this analysis must precede any consideration of an application for a permit to install a treatment facility."