



August 30, 2018

Mr. Caleb Osborne, Associate Director  
Office of Water Quality  
Arkansas Department of Environmental Quality  
5301 Northshore Drive  
North Little Rock, AR 72118-5317

Re: Comments on Arkansas Antidegradation Implementation Methods

Dear Mr. Osborne:

Thank you for the opportunity to serve on the Antidegradation Implementation Focus Group. I believe the time invested working on the implementation method was well spent and productive. Attached is the Antidegradation Implementation Method, which contains comments and suggestions in Word format using track changes. The following comments are on the implementation method and include concepts that are not contained in the current document but were discussed during the focus group meetings.

1. **Definitions Section.** Several definitions should be revised to ensure clarity and consistency, both internally within the Definitions Section and in context as the terms are used throughout the document. Suggestions and comments are provided in the attached word document.
2. **Baseline Water Quality (BWQ).** BWQ was the subject of considerable discussion during the focus group meetings. The currently proposed definition states that "BWQ are conditions present on or before June 1, 1987 based on mean ecoregion values or collection of upstream water chemistry over the last five years..." This definition will not result in data that can be successfully used for Tier 2 reviews for several reasons. First, the water quality data published in *Physical, Chemical, and Biological Characteristics of Least Disturbed Reference Streams in Arkansas' Ecoregions, Volume 1 Data Compilation* (Department of Pollution Control and Ecology, 1987) is very limited compared with water quality criteria listed in Regulation No. 2. Of the chemical results reported only temperature, pH, turbidity, sulfate, chloride, total dissolved solids, and fecal coliform have corresponding criteria in Reg. 2. Of these only sulfate, chloride, and total dissolved solids have practical use for significant degradation analysis, which is the reason for determining BWQ. Secondly, use of ecoregion values conflicts with other definitions that are dependent upon BWQ, such as for total assimilative capacity, which requires that BWQ consider all pollutant contributions for all sources. Ecoregion reference sites were selected based upon the lack of point and non-point source pollution sources and thus a total assimilative capacity determination based upon the ecoregion values would greatly overestimate the total or remaining assimilative capacity of a given stream in most circumstances.

For example, Cypress Creek (Gulf Coastal Plain) data, Table GC-49, pg. 203 (DPC&E 1987), provides an average concentration for sulfate of < 1.0 mg/L. If this data were to be

used as BWQ to determine total assimilative capacity for another Gulf Coastal Plain stream containing a facility applying to expand, the remaining assimilative capacity for sulfate, based upon the domestic water supply criteria (250 mg/L), would be at least 249 mg/L. In this example the actual BWQ should be based upon the concentration existing downstream of the facility, for example 100 mg/L, and the remaining assimilative capacity would be 150 mg/L, much less than the ecoregion value example. Use of upstream data for antidegradation reviews in existing discharge scenarios has similar limitations.

Use of upstream data or could be used in situations for new discharges or activities, and ecoregion values could be used where a new discharge or activity is proposed for a stream that has no permitted discharges and minimal non-point sources i.e., a relatively pristine system similar to the streams sampled for ecoregion purposes in the 1980's.

3. **Margin of Safety for Tier 2 Waters.** Although a margin of safety for Tier 2 waters was discussed by the focus group it is noted that DEQ was not proposing this. An explicit (such as a percentage) margin of safety is not needed because the numerous conservative assumptions used in water quality-based permitting provide for an appreciable implicit margin of safety.
4. **Application of Antidegradation Review to all Permittees.** The focus group discussed applying antidegradation reviews to all permit renewals as renewal applications are received, regardless of whether the facility is planning an expansion that would increase pollutant load. The purpose of the antidegradation review is to determine if a proposed new or expanded activity would be allowed to degrade quality of a high-quality water based upon the availability of practical, affordable alternatives to degradation and the important social and economic benefits of the new or expanded activity to the area in which the waterbody is located. It is not the purpose of antidegradation to apply such review to a facility or activity that is proposing to maintain the status quo during a permit revision.

During the focus group meetings DEQ did not support application of the antidegradation review to all permit renewals and I agree with this position.

5. **Tier 2.5 Assimilative Capacity.** As currently drafted Exceptional High Quality Water (EHQW) protection allows that "activities that lower water quality of Tier 2.5 waters may occur up to 10% of the waterbody's assimilative capacity for each parameter." Developing a process for implementing antidegradation for Tier 2.5 waters in a science-based fashion will be difficult. First, the assimilative capacity of the state's drinking water reservoirs is currently unknown thus allocation of up to 10% of an unknown is not possible. Second restricting loads to 10% of total assimilative capacity without understanding actual assimilative capacity is very restrictive. This approach results in a 90% margin of safety, which is extremely large. Third, it is not possible to predict the outcome of an antidegradation review on an existing and proposed discharge expansion because there are likely drinking water reservoirs where the existing concentrations of pollutants already exceed 10% of total assimilative capacity for that reservoir. This means that no increase in load for that pollutant would be allowed. Depending upon

where in the watershed (how far upstream of the reservoir) this provision would apply this may preclude growth in large portions of the state.

One way to address this would be to cap increased load on a relative basis, such as only allowing an increase of up to some percentage, e.g., 10%, of the remaining assimilative capacity. This would not automatically preclude growth in situations where the downstream drinking water reservoir already exceeds 10% of total assimilative capacity but would still be protective and would preclude significant degradation.

Review involving EHQWs is an important component of Antidegradation Implementation and in my opinion additional technical details associated with methods to determine drinking water reservoir assimilative capacity should be thoroughly developed prior to finalizing the antidegradation document.

6. **General Permits and Activities not Involving a Discharge.** These sections are both vague and it is not possible to determine the process for antidegradation review that will be followed for either based upon the information currently in the Antidegradation Implementation Method. Additional detail should be developed and included in the document, so that the regulated community and public can evaluate the process proposed.
7. **Feasibility, Economic Efficiency of Alternatives.** Economic efficiency should be defined using quantifiable terms such as a percentage over the base cost of pollution control measures. Missouri has used 120% of the cost of base pollution control measures to evaluate economic efficiency (affordability) for many years and the Department is encouraged to adopt a similar guideline.

Thank you for the opportunity to participate in the focus group and to work on this important policy. If you have any questions or need additional information, please contact me at (501) 847-7077 or [ssimpson@gbmcassoc.com](mailto:ssimpson@gbmcassoc.com).

Respectfully submitted,  
GBM<sup>c</sup> & ASSOCIATES



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