January 7, 2009

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Dear Ms. Stevens, Mr. Easterly, Mr. Pigott, and Ms. Mettler,

During the antidegradation subgroup meeting of December 11, 2008, the environmental representatives referenced outside materials, mainly U.S. EPA guidance documents, relevant to developing rule language for the antidegradation demonstration. We have attached those referenced documents with this letter. Below, we point to specific information in those documents and briefly summarize their relevance to issues discussed in the meeting. We reference IDEM's draft antidegradation demonstration application ("Draft Application") distributed at the December 11th meeting.

ISSUE 1: The antidegradation Application should require the applicant to consider a list of categories of alternatives.

Relevant Documents

U.S. EPA (August 1993), *EPA Region VIII Guidance: Antidegradation Implementation, Requirements, Options, and EPA Recommendations Pertaining to State/Tribal Antidegradation Programs*.

U.S. EPA (October 1990), *Draft New Source Review Workshop Manual: Prevention of Significant Deterioration and Nonattainment Area Permitting*. Available at http://www.epa.gov/ttn/nsr/gen/wkshpman.pdf.

Summary of Issue

Section III of the Draft Application addresses the "necessary" analysis of the antidegradation demonstration. The "necessary" analysis questions whether it is possible to minimize, mitigate, or avoid the proposed discharge or its impacts to water quality through technology or other means. EPA has stated that

> [g]iven the variety of engineering approaches to pollution control and the emerging importance of pollution prevention, the finding of necessity is among the most important and useful aspects of an antidegradation program and potentially an extremely useful tool in the context of watershed planning.[1]

IDEM's Draft Application directs the applicant to evaluate three factors for each alternative: practicability, economic efficiency, and affordability of alternatives. Currently missing from the Draft Application, however, is a list of possible categories of alternatives. Such a list should be included in the Application to educate the applicant about the full range of alternatives that should be considered and to help IDEM determine whether applicants have considered a broad range of alternatives.

The need for careful identification of alternatives is illustrated by EPA's top-down procedure for evaluating and selecting best available control technology ("BACT") alternatives under the Clean Air Act New Source Review. The first step in EPA's procedure is to identify all available alternatives, prior to eliminating those that can be deemed technically or economically infeasible. EPA views this first step as critical to the procedure:

> The first step in a "top-down" analysis is to identify, for the emissions unit in question . . . all "available" control options. Available control options are those air pollution control technologies or techniques with a practical potential for application to the emissions unit and the regulated pollutant under evaluation. . . . In the course of the BACT analysis, one or more of the options may be eliminated from consideration because they are demonstrated to be technically infeasible or have unacceptable energy, economic, and environmental impacts on a case-by-

[1] 63 Fed. Reg. 36742, 36784.

> case (or site-specific) basis. However, at the outset, applicants should initially identify all control options with potential application to the emissions unit under review. . . . Potentially applicable control alternatives can be categorized in three ways.
>
> - Inherently Lower-Emitting Processes/Practices, including the use of materials and production processes and work practices that prevent emissions and result in lower "production-specific" emissions; and
> - Add-on Controls, such as scrubbers, fabric filters, thermal oxidizers and other devices that control and reduce emissions after they are produced.
> - Combinations of Inherently Lower Emitting Processes and Add-on Controls. For example, the application of combustion and post-combustion controls to reduce NOx emissions at a gas-fired turbine.
>
> The top-down BACT analysis should consider potentially applicable control techniques from all three categories.[2]

A list of categories of potential alternatives specific to the antidegradation "necessary" analysis is provided in EPA Region VIII's antidegradation guidance:

> The applicant of any proposed activity that would significantly lower water quality in a high quality segment is required to prepare an evaluation of alternatives. The evaluation is required, at a minimum, to provide substantive information pertaining to the costs *and* environmental impacts associated with the following alternatives:
> (a) pollution prevention measures (e.g., substitution of less toxic substances),
> (b) reduction in scale of the project,
> (c) water recycle or reuse,
> (d) process changes,
> (e) innovative treatment technology (e.g., land application of wastewater).
> (f) advanced treatment technology,
> (g) seasonal or controlled discharge options to avoid critical water quality periods,
> (h) improved operation and maintenance of existing treatment systems, and
> (i) alternative discharge locations.[3]

A number of state antidegradation procedures include similar lists, and can be provided upon request.

Not all of the above categories of potential alternatives will be feasible for all facilities in all situations. All applicants, however, should consider whether alternatives from each category are feasible as an initial step in the "necessary" analysis before moving on to a more in-depth review. It may be appropriate to include in the Application two different sets of alternatives, *i.e.*, one for domestic wastewater systems and one for non-domestic (industrial) systems.

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[2] U.S. EPA (October 1990), *Draft New Source Review Workshop Manual: Prevention of Significant Deterioration and Nonattainment Area Permitting*, pp. B.5–B.14.

[3] U.S. EPA (August 1993), *EPA Region VIII Guidance: Antidegradation Implementation, Requirements, Options, and EPA Recommendations Pertaining to State/Tribal Antidegradation Programs*, Chapter 2, pp. 19–20.

ISSUE 2: Clean Air Act BACT guidance may provide ideas for structuring the analysis of identified antidegradation alternatives.

Relevant Documents

U.S. EPA (October 1990), *Draft New Source Review Workshop Manual: Prevention of Significant Deterioration and Nonattainment Area Permitting.* Available at http://www.epa.gov/ttn/nsr/gen/wkshpman.pdf.

Summary of Issue

The primary emphasis of the Tier 2 antidegradation review is to determine whether reasonable non-degrading or less-degrading alternatives to allowing the proposed degradation are available. IDEM's Draft Application defines a reasonable alternative as one that is practicable, economically efficient, and affordable. The Draft Application directs the applicant to analyze the following factors for each alternative:

- Practicability
  - Technical effectiveness for decreasing the loading of pollutants
  - Technical reliability
  - Potential primary and secondary environmental impacts
- Economic Efficiency
  - Capital costs
  - Annual operating and maintenance costs
  - Opportunity costs
  - Other costs
- Affordability

The Draft Application states that generally, IDEM will presume that alternatives less than 115% of the base cost of pollution control are economically efficient. The Draft Application also states that alternatives greater than 115% of the base cost of pollution control should also be considered if implementation of the alternative would produce a substantial improvement in the resulting discharge.

The analysis of the latter group of alternatives—alternatives greater than 115% of the base cost of pollution control—could be facilitated by plotting cost against effectiveness, reliability, and environmental impact. From this plot, the applicant and agency may identify (1) more costly alternatives that can produce a substantial improvement in the resulting discharge relative to less costly alternatives; (2) less costly alternatives that are nearly as effective, reliable, and environmentally benign as more costly alternatives, and (3) alternatives for which the costs are wholly disproportionate to the possible environmental gains. Although the ratio of cost to effectiveness (*e.g.*, dollars per pound of loading avoided) is sometimes used to simplify the information in the cost-effectiveness plot, reducing the plot to a comparison of ratios deletes critical information and may be misleading.

The analytical steps IDEM proposes in the Draft Application are roughly similar to EPA's process for evaluating and selecting BACT alternatives under the Clean Air Act New Source Review. IDEM may use EPA's BACT procedure as an additional model for the "necessary" analysis. The steps of EPA's procedure (along with key language from EPA's guidance) are as follows:[4]

- Step 1. Identify all control technologies
  ("The objective in step 1 is to identify all control options with potential application to the source and pollutant under evaluation.")[5]
- Step 2. Eliminate technically infeasible options
  ("Two key concepts are important in determining whether an undemonstrated technology is feasible: 'availability' and 'applicability.' As explained in more detail below, a technology is considered 'available' if it can be obtained by the applicant through commercial channels or is otherwise available within the common sense meaning of the term. An available technology is 'applicable' if it can reasonably be installed and operated on the source type under consideration. A technology that is available and applicable is technically feasible.").[6]
- Step 3. Rank the technically feasible alternatives by effectiveness
  ("For the regulated pollutant and emissions unit under review, the control alternatives are ranked-ordered from the most to the least effective in terms of emission reduction potential.").[7]
- Step 4. Case-by-case consideration of energy, environmental, and economic impacts
  ("In the economical impacts analysis, primary consideration should be given to quantifying the cost of control and not the economic situation of the individual source. Consequently, applicants generally should not propose elimination of control alternatives on the basis of economic parameters that provide an indication of the affordability of a control alternative relative to the source.").[8]
- Step 5. Select the best available alternative.

Any "affordability" criterion must be presented and applied as an exceptional situation. The applicant must submit well-supported justification before an otherwise technically feasible and cost-effective alternative can be rejected as unaffordable.[9] As noted in the Draft Application, EPA's Interim Economic Guidance provides one set of tools that may be used to document the affordability of an alternative.

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[4] U.S. EPA (October 1990), *Draft New Source Review Workshop Manual: Prevention of Significant Deterioration and Nonattainment Area Permitting*, pp. B.6.
[5] *Id*. at B.10.
[6] *Id*. at B.17.
[7] *Id*. at B.22.
[8] *Id*. at B.29–30, 31, 44, 47.
[9] See, *e.g.*, Washington State Supplementary Guidance Implementing the Tier II Antidegradation Rules (July 18, 2005) WAC 173-201A-320, page 16 ("The rejection of any alternative that would produce a significant improvement in the resulting discharge or water quality must be based on a solid determination that the costs are prohibitively expensive.").

ISSUE 3: The test of whether proposed social or economic development is important includes both the socio-economic benefits and costs of the activity, where the costs are those associated with lowering the water quality (*i.e.*, decreasing the assimilative capacity).

Relevant Documents

U.S. EPA (August 1993), *EPA Region VIII Guidance: Antidegradation Implementation, Requirements, Options, and EPA Recommendations Pertaining to State/Tribal Antidegradation Programs.*

Washington State Supplementary Guidance Implementing the Tier II Antidegradation Rules (July 18, 2005) WAC 173-201A-320. Available at http://www.ecy.wa.gov/programs/wq/swqs/antideg-tier2-guidance.pdf.

Summary of Issue

The applicant's demonstration that the proposed activity will provide important social or economic development will present in detail the benefits side of the equation: for example, how the activity will increase employment, avoid a reduction in employment, improve the community tax base, or correct an environmental or public health problem. These are the socio-economic benefits of the proposed activity. The benefits, however, are not sufficient to ensure that the proposed activity will provide important social or economic development, as required by antidegradation policy. To make a final determination of "importance," IDEM must weigh the socio-economic benefits of the proposed activity against counterbalancing socio-economic costs of the activity.[10]

Some states categorize the socio-economic costs of degrading water quality (decreasing assimilative capacity) as a "public interest" consideration that can override a showing that the proposed development is "important." This "public interest" consideration is appropriate. IDEM should recognize, however, that the socio-economic costs of lowering water quality also factor directly into the "importance" calculation to counterbalance the socio-economic benefits of lowering water quality. That is, development cannot be considered "important" if the socio-economic costs associated with the lowering of water quality outweigh the socio-economic benefits of the project.

Weighing the benefits against the costs is key to the "importance" determination for two reasons. First, there is no objective benchmark by which IDEM can judge whether X number of jobs or Y dollars of tax base indicates "important" development. The determination of "importance" by IDEM makes most sense as the outcome of balancing benefits and costs. For example, the addition of five jobs may be welcome, but may not be "important" when weighed against the socio-economic costs to the affected community.

Second, an antidegradation applicant may believe that depleting assimilative capacity without violating water quality criteria imposes no socio-economic costs on the community. But public

[10] See U.S. EPA (August 1993), *EPA Region VIII Guidance: Antidegradation Implementation, Requirements, Options, and EPA Recommendations Pertaining to State/Tribal Antidegradation Programs*, Chapter 2, pp. 20–22.

reactions to proposed degradation—as, for example, in the case of the BP Whiting NPDES permit application—can be translated into socio-economic costs with appropriate analytical tools.[11] In practice, such costs will likely not be quantified by applicants, IDEM, or the public, given limitations of time, budget, and expertise in all three sectors. The absence of quantitative data on such socio-economic costs does not mean, however, that these costs are zero. It is important that IDEM acknowledge in its decisionmaking process that reducing assimilative capacity entails social and economic costs and that these costs may be expressed qualitatively by the community. By acknowledging that articulated community concerns reflect socio-economic costs, IDEM may be able to commensurably balance these costs against the benefits submitted by the applicant.[12]

Section 6(b) of IDEM's 8-4-08 draft antidegradation rule includes some of the potential negative impacts associated with lowering water quality in a high-quality water. These impacts have associated socio-economic costs that should be figured into the "importance" analysis. For example:

- Section 6(b)(6): "The anticipated impact of the proposed lowering of water quality on aquatic life and wildlife, considering the following: (A) Threatened and endangered species; (B) Important commercial or recreational sport fish species; (C) Other individual species; (D) The overall aquatic community structure and function."
- Section 6(b)(7): "The anticipated impact of the proposed lowering of water quality considering the following: (A) Human health; (B) The overall quality and value of the water resource."
- Section 6(b)(9): "The effects of lower water quality on the economic value of the receiving water or waters considering the following: (A) Recreation, tourism, and other commercial activities; (B) Aesthetics; (C) Other use and enjoyment by humans."
- Section 6(b)(10): "The extent to which the resources or characteristics adversely impacted by the lowered water quality are unique or rare within the locality or state."
- Section 6(b)(15): "The . . . anticipated impact of the proposed lowering of water quality on economic and social factors including the following: (A) . . . Social or economic development impacts include the following: . . (ix) . . . reducing quality of life for residents in the area; (x) . . . harming fishing, recreation, and tourism industries; (xi) . . . harming threatened and endangered species."

[11] For example, the existence and option values of maintaining assimilative capacity in a waterbody can be estimated by an individual's (and society's) willingness to pay to maintain the resource.

[12] When numeric information on socio-economic costs is not available, IDEM should consider reasonable public expectations and narrative descriptions. Washington State antidegradation guidance states:

> It is intended that the analysis focus on reasonable expectations and be generally based upon available information. The use of narrative descriptions is acceptable, and should be encouraged, where numeric information is not readily available. For example, we may not know the lost economic benefits of using up most of the remaining assimilative capacity for a common water quality pollutant, but the relative change in capacity and the fact that newcomers will meet very stringent requirements is important social and economic information. Similarly, it may not be reasonable to put a value on the increased contamination of a popular fishing hole or swimming beach, but it is a social effect that is worthy of discussion and is further illuminated by including information on the estimated number and types of users.

Washington State Supplementary Guidance Implementing the Tier II Antidegradation Rules (July 18, 2005) WAC 173-201A-320, page 13.

IDEM's rule should also require the following information relevant to socio-economic costs of lowering water quality:

- The value of assimilative capacity to future antidegradation applicants. For example, Washington State antidegradation guidance states:

> Particularly for parameters such as dissolved oxygen, bacterial pollutants, and common metals, the loss of available assimilative capacity may mean that future entities and expansions will be held to higher and more expensive treatment requirements. The less each individual activity uses of the assimilative capacity, the better the potential for cost-effective future development will be. Discussing the relative impact on the remaining assimilative capacity addresses the relative impact of the activity on the costs and opportunities for future growth.[13]

- The potential for reduced effectiveness of government or privately sponsored conservation projects that have specifically targeted improved water quality or enhanced recreational opportunities on the proposed receiving waterbody.

The importance of public participation to assist IDEM's balancing of socio-economic benefits and costs cannot be overstated. As stated above, it is not necessary to produce a rigorous quantitative analysis to satisfy the "importance" test. However, quantitative and qualitative feedback from the affected community is relevant and should be fully considered by IDEM in determining whether a particular proposal would lead to overall "important" social or economic development.

Sincerely,

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for Environmental Coalition, 2008-2009 Antidegradation Rulemaking

[13] Washington State Supplementary Guidance Implementing the Tier II Antidegradation Rules (July 18, 2005) WAC 173-201A-320, page 15.