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PURPOSE AND SCOPE

The purpose of this *Interim Antidegradation Implementation Methods* is to provide staff with a framework to implement the state's antidegradation policy. This serves as interim guidance to be used while the Division works with other agencies, permittees, and the public to develop more detailed procedures. The Division expects to develop the final implementation methods through a rule-making process.

PROCEDURE

See attached.

AUTHORITY

To prevent unnecessary lowering of water quality, 40 CFR §131.12 requires states to develop and adopt an antidegradation policy, as well as to identify methods to implement the policy. Alaska's antidegradation policy is established at 18 AAC 70.015. This guidance serves as the interim implementation methods.

IMPLEMENTATION RESPONSIBILITY

Division of Water staff that develop water quality standards regulations or develop and issue permits, or certify federal permits, for discharges to waters of the U.S are responsible to implement the attached methods.

Interim Antidegradation Implementation Methods
July 14, 2010

Introduction.

Federal law requires that each state, as part of its program to protect water quality, adopt a statewide antidegradation policy and also identify methods for implementing the policy. 40 CFR § 131.12(a). The State of Alaska, acting through ADEC, has adopted an antidegradation policy at 18 AAC 70.015, and EPA has approved that policy. The purpose of this guidance document is to describe the methods that ADEC staff should follow to implement the existing policy.

Staff should understand that the policy, having been adopted as a regulation, is part of state law, and compliance with that policy is required. In contrast, this guidance has not been adopted as a regulation, and is designed simply as a tool to help staff implement the policy itself. In the event of any conflict between this guidance and the policy, or any question about the proper interpretation of this guidance, the terms of the policy itself always govern. Also, there may be particular situations where ADEC staff must depart from the terms of this guidance in order to fully comply with state and/or federal law. If such situations arise, compliance with any governing laws will always take precedence over this guidance.

When the policy applies.

The general purpose of the antidegradation ("AD") policy is to protect the quality of the state's waters. Thus, any time someone proposes an operation or activity that could have the effect of lowering the quality of a waterbody, ADEC staff should presume that the AD policy applies, and should comply with it. While this could arise in a variety of contexts, by far the most common is the permitting of proposed discharges into state surface water. Thus, this guidance focuses on that common scenario.

When a permit application, or an application for state certification of a federal permit under Section 401 of the Clean Water Act, is received, staff should evaluate it to see if issuing the requested permit or certification would allow activities that would degrade the quality of a water body. If the application is for a new operation, the answer will usually be 'yes', because most discharges will add some pollutant at levels that exceed the natural condition of the receiving water. And that is what is meant by 'degradation': increasing the concentration of a pollutant in a receiving water. Even a discharge that meets the water quality standards may have the effect of

increasing the concentration of a pollutant in a receiving water. Again, most new discharges would have this effect.

An application for a permit renewal would also trigger analysis under the AD policy if the renewed permit would allow an increase in discharge of pollutants from what had previously been permitted. Thus, staff should compare the effluent limits of the old permit with the proposed renewed permit, to see if the applicant is asking for permission to degrade any state water. Even if the proposed degradation is only for one particular pollutant, analysis under the AD policy would be triggered for that pollutant.

The permitter must document the anti-degradation analysis in the draft and final permit fact sheet or the draft and final state certification of a federal permit. The anti-degradation analysis is not a substitute for the need to document the permitter's rationale for authorizing exceptions to the water quality standards (18 AAC 70.200.240) such as zones of deposit or mixing zones – these must also be documented in the permit fact sheet or state certification of a federal permit.

If the permit renewal would not relax any of the effluent limits or allow a reduction of water quality, no tier 2 or tier 3 AD analysis is required. However, a tier 1 analysis is still triggered, as discussed below. You should document in the permit fact sheet or permit certification that no lowering of water quality will occur and no further tier 2 or 3 analysis is required.

If staff have any doubt about whether AD analysis is triggered by a particular circumstance, they should consult with more experienced peers or with supervisors to answer that threshold inquiry.

How the policy works.

There are three ascending levels of protection offered by the AD policy. These are commonly referred to as "tiers," even though the regulation itself does not use that term. The level of protection afforded to a particular water body depends upon which tier applies to it.

The lowest level of protection, or tier 1, applies to water bodies whose existing quality is no better than the state-wide water quality criteria for the designated uses of "growth and propagation of fish, shellfish, other aquatic life and wildlife" [see 18 AAC 70.020(a)(1)(C)] and contact recreation [see 18 AAC 70.020(a)(1)(B)(i)]. These two uses are often referred to together as the "fishable/swimmable" uses, entitled to particular protection under the federal Clean Water Act.

The next level of protection is tier 2, and it applies to water bodies whose quality is better than the criteria applicable to the fishable/swimmable uses.

See 18 AAC 70.015(a)(2). Most water of the state will fall into this category, because the quality of most of our surface waters is higher than the statewide criteria for those two designated uses. Among other things, the quality of tier 2 waters must be protected by ensuring that all statutory and regulatory requirements are met for all new and existing point sources and all cost-effective and reasonable best management practices are used to control nonpoint sources.

The highest level of protection is reserved for tier 3 waters, which are also referred to as outstanding national resource waters, or ONRWs. ONRWs are entitled to the highest level of protection because they are special for one reason or another. See 18 AAC 70.015(a)(3).

When you begin your AD analysis under the policy, figuring out what tier of protection applies to your case is the first step.

How to decide what tier applies.

For reasons explained below, as a practical matter, for most waters the question will be whether tier 1 or tier 2 applies. You need to evaluate the available information about the existing quality of the water in question, to determine which of those two tiers applies. Finding water quality data showing the current condition of the water body may be a challenge. The permit application may include ambient monitoring data for the proposed receiving water, and you should research whether ADEC, the U.S. Geological Survey, or another agency has any other useful water quality data on that water body. In some circumstances, regional water quality may be appropriate to consider. If you can't locate sufficient data to make a determination about the water quality, you should presume that it is of high quality, and subject to at least tier 2 protection.

One question will quickly arise: what water quality parameters should you focus on? The permit process will normally identify parameters for which effluent limits will be established through a "Reasonable Potential Analysis" or some other process. At a minimum, you need to consider each parameter for which a permit effluent limit will be established. For each parameter that has a corresponding water quality criterion (as listed at 18 AAC 70.020(b)), such as TDS, metals, fecal coliform, etc., you need to decide whether the quality of the receiving water exceeds (i.e. is of higher quality than) the criteria for the fishable/swimmable uses. If it does not, then the water is tier 1 for that parameter. If it does, then it is tier 2.

This decision is made on a parameter-by-parameter basis. So, for example, the same water body could be tier 1 for arsenic, if it already has arsenic levels equal to or above levels allowed under the fishable/swimmable criteria for arsenic, but tier 2 for everything else that the applicant proposes to

discharge into it.[1] As you make these determinations for the various parameters, you need to document your reasoning, so you can include it in your ultimate AD analysis and findings.

At the time this guidance is issued, ADEC has not yet designated any tier 3 waters. Designation of a waterbody as tier 3 is a significant decision with far reaching effects on future use of a waterbody as well as nearby land use. To qualify as a tier 3, or "outstanding national resource" water, one of two criteria must be met. The water must either be in a national or state park or wildlife refuge or be a water with exceptional recreational or ecological significance. The department's past practice has been to consider a water's potential tier 3 designation as part of the public notice and comment process on a draft wastewater discharge permit. However, EPA has recently recommended that the state establish a stand-alone tier 3 designation process, outside the permit process. As a consequence, the department will consider whether and how to establish a separate procedure for designating tier 3 waters, as it develops the final AD guidance.

In the meantime, in addition to considering possible tier 3 designation as part of a permit action, waters could also be designated as tier 3 through two other existing legal mechanisms, prior to any permitting action. A person could propose a tier 3 designation as part of the division's existing triennial review process, where the public is invited to suggest changes to the state's water quality standards. Tier 3 nominations made this way would be handled in conjunction with the rest of the triennial review, and any final decision would likely be held in abeyance until the final AD implementation guidance establishes the procedures to be used for formal tier 3 designations.[2] Given the public policy and land management implications, ultimate decisions on tier 3 nominations may even end up before the legislature, as some other states have opted to do. Of course, people seeking tier 3 designations during this interim period may also pursue that goal before the state legislature in the first instance, by advocating for a bill recognizing an ONRW water. In either case, the criteria that the division, and presumably the legislature, would use in considering tier 3 nominations would be those already contained in 18 AAC 70.015(a)(3). Any designation of tier 3 waters reached through either of these other legal mechanisms will be conveyed to permitting staff so they will be able to incorporate those decisions into future permitting actions.

How to do a "tier 1" analysis.

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[1] While ADEC is following this "parameter-by-parameter" approach for purposes of this interim guidance, it is still considering the relative advantages of both this approach and the alternative "waterbody-by-waterbody" approach as it develops its final guidance.

[2] Further details on how the tier 3 nomination process will be integrated with the on-going triennial review process will be posted on DEC's website, at http://dec.alaska.gov/water/wqsar/trireview/index.htm.

If you decide that a water body is tier 1 for a given parameter, then the tier 1 protection that applies to it under the AD policy is simply that the existing uses, and the level of water quality necessary to support them, are maintained and protected. See 18 AAC 70.015(a)(1). Note that "existing uses" is a defined term, meaning "those uses actually attained in a water body on or after November 28, 1975." So, under a tier 1 AD analysis, you need to document in the draft and final permit fact sheet or the draft and final state certification of a federal permit that those existing uses, and the water quality necessary to protect them, are maintained and protected. Often protecting existing uses will amount to specifying effluent limits in a permit or certification that are based on the corresponding water quality criteria for those uses or other information that relates to how good water quality must be to protect the specific "existing uses." Note that some degradation may be allowed, as long as it won't harm any existing uses. Tier 1 applies regardless of whether the proposed discharge would allow lower water quality (i.e., Tier 1 is not limited, as Tiers 2 and 3 are, to situations where the new or increased discharge would lower water quality).

If you find that you don't have sufficient information to make a tier 1 determination, you may require the applicant to provide any information you deem to be reasonably necessary. See 18 AAC 70.015(b). You may also consider asking other state, local or federal agencies for information on existing uses of the particular water body. Use your judgment about how much information you need. The greater the level of degradation proposed by the applicant, the more information you may consider necessary and appropriate to inform your tier 1 determination.

How to do a "tier 2" analysis.

Tier 2 AD analysis is much more complicated than tier 1. Just compare 18 AAC 70.015(a)(1) with .015(a)(2). For a tier 2 analysis, you can only allow degradation of water quality if you first make five findings. This guidance will discuss the five findings in the order they are listed in the policy. See 18 AAC 70.015(a)(2)(A)-(E).

(A) Lowering water quality is necessary to accommodate important economic or social development in the area.

You should evaluate the economic and social consequences of the proposed project. For example, for a new operation, will it provide jobs for a community? For an on-going operation whose permit renewal triggers AD analysis: how important is its continued operation to the regional economy? Will the facility treat and dispose of sewage and reduce risk to public health? The essence of this prong is to force the department to consciously evaluate whether the proposed degradation is justified by the economic and social benefits the project would bring. Degradation of a tier 2 parameter for

purposes other than those that have associated social and economic benefits is prohibited.

Again, the depth and rigor of your evaluation should be appropriate to the level of degradation contemplated. A large new project may well deserve more thorough scrutiny than minor changes in a permit renewal for an on-going operation. Remember, you can always ask the applicant for more information you think is necessary for your evaluation, under 18 AAC 70.015(b). Use your judgment, and ask for help if you're not sure what level of analysis a given project requires.

(B) The reduced water quality won't violate applicable water quality criteria except as allowed under 18 AAC 70.015(a).

If the applicant proposes a discharge that would violate the state-wide criteria in 18 AAC 70.020, site-specific criteria established under 18 AAC 70.235, or the whole effluent toxicity limit in 18 AAC 70.030, then you must determine whether such an exceedance is allowed under 18 AAC 70.015(a). Common examples of exceedances are associated with mixing zones, short-term variances and zones of deposit, all of which are allowed exceptions to the state-wide standards. See 18 AAC 70.240 (mixing zones), 18 AAC 70.200 (short-term variances), and 18 AAC 70.210 (zones of deposit). If you encounter an applicant who seeks permission to violate criteria in some other context, seek advice from your supervisor and/or experienced peers. Most authorized exceedances of criteria fall into those three categories and are governed by additional regulatory requirements. The AD policy does not preclude use of these other regulatory tools. Rather, it is best understood as an analytical overlay, requiring its own evaluations and findings. under a tier 1 AD analysis, you need to document in the draft and final permit fact sheet or the draft and final state certification of a federal permit that those existing uses, and the water quality necessary to protect them, are maintained and protected.

(C) Resulting water quality will fully protect existing uses.

This finding, while worded slightly differently in the regulation, is functionally equivalent to the tier 1 analysis discussed above. Just as for tier 1 waters, the existing uses of tier 2 waters must also be fully protected.

(D) The most effective and reasonable methods of pollution prevention control and treatment will be applied to all wastes and other substances to be discharged.

and

(E) Wastes and other substances discharged will be treated and controlled to achieve the highest statutory and regulatory requirements.

These two required findings are closely related and should be considered together. They address the level of pollution prevention, control and treatment that ADEC should require before allowing degradation of water quality.

The first finding, .015(a)(2)(D), requires use of "the most effective and reasonable" methods. Note that this is not a defined term. This finding requires you to use your best professional judgment to evaluate the adequacy of the proposed methods. You must find a reasonable balance between the effectiveness of the possible technologies and their cost, as requiring the most effective methods may place an unreasonable economic burden on the applicant. For a larger project, you may choose to ask the applicant to perform and submit a "treatability study" that evaluates the effectiveness and cost of the various candidate technologies that could be used to treat their wastes and discharge. If you do not feel qualified to make a judgment as to which methods are "most effective and reasonable," you should consult with other staff on what we have required at comparable operations.

Implementing the related finding, that operations follow "the highest statutory and regulatory requirements" in the control and treatment of their wastes/discharge, is more complicated. The phrase "highest statutory and regulatory requirements" was defined at 18 AAC 70.990(30) until the 2006 revision of the standards, when ADEC dropped that definition. But because EPA has not yet approved ADEC's deletion of that definition, the former definition still remains in effect for purposes of the federal Clean Water Act. See 40 CFR § 131.21(e).

What this means is that if you are doing an AD analysis for a state certification of an EPA-issued NPDES permit, or for an ADEC-issued APDES permit, you need to retrieve and implement the definition formerly found at 18 AAC 70.990(30). That definition reads as follows:

> (30) "highest statutory and regulatory treatment requirements" means
>
> (A) any federal technology-based effluent limitation identified in 40 C.F.R. 125.3 and 40 C.F.R. 122.29, as amended through August 15, 1997, adopted by reference;
>
> (B) minimum treatment standards in 18 AAC 72.040; and
>
> (C) any treatment requirement imposed under another state law that is more stringent than a requirement of this chapter;

So, for you to make the fifth finding required by the AD policy for tier 2 waters, the treatment and control methods to be used must satisfy all three prongs listed in this definition. Prong (A) refers to the technology-based effluent limitation guidelines (ELGs) that EPA promulgates for specific industries. You will find these at 40 CFR Parts 400-471. If you are certifying a NPDES permit, EPA will have already identified the ELGs that apply to the operation in question. If you are issuing an APDES permit, it has to comply with applicable ELGs in any case. See 18 AAC 83.430(a) and 18 AAC 83.010(g).

The other two prongs in the definition refer to state law requirements. Prong (B) cites to the "minimum treatment standards in 18 AAC 72.040" which appears to be an incorrect reference, since the "minimum treatment" standards are found at 18 AAC 72.050 instead.[3] Note that those treatment standards only apply to domestic wastewater. The final prong, (C), is a generic reference to other state law requirements that may be more stringent than the requirements of the water quality standards chapter, 18 AAC 70. You should consider whether any such requirements may exist, consulting with your peers as needed.

As you can see, the AD analysis for a tier 2 water is considerably more exhaustive than for tier 1. Since most state waters are relatively pristine, tier 2 AD analysis is the norm, and tier 1 the exception. Again, the level of rigor that you bring to your tier 2 analysis should be commensurate with the degradation to be caused by the proposed operation. Different degrees of degradation will deserve different levels of analysis. But all degradation of tier 2 waters must be evaluated under the framework outlined above, and the required findings must be made, supported and documented in writing.

How to do a "tier 3" analysis.

If the waterbody at issue in your case is in a state or federal park, or in a wildlife refuge, or may have exceptional recreational or ecological significance you should bring this fact to the attention of management early in the project design or permit application review process to consider the appropriateness of making a tier 3 designation as part of the permitting process itself. In considering whether to make a tier 3 designation, ADEC will, at a minimum, coordinate with other state and federal resources agencies with jurisdiction and/or expertise in parks, refuges, and waters that may have exceptional recreational or ecological significance. ADEC will public notice any draft decision to make a tier 3 designation for a minimum 30-day public comment period which may occur independently or in conjunction with the public notice for a draft permit.

[3] ADEC corrected this mistake in its mixing zone regulations, also awaiting EPA approval. See 18 AAC 70.240(c)(1)(B).

Once ADEC establishes tier 3, or ONRW, waters, then degradation of those waters is not allowed under the AD policy. Because of the high level of protection afforded to tier 3 waters, a tier 3 designation could have significant public policy consequences, by limiting potential future development. The permitting approaches for tier 3 waters include zero discharge (denial of wastewater discharge permit applications); a permit limited to activities that result in short term and temporary changes in the water quality; or a permit with effluent limits that mirror the natural condition or otherwise do not allow for any change from the existing water quality.

Public notice and comment.

Just like a state-issued permit or a certification of a federal permit, your AD analysis must go through public notice and comment. Typically you simply include draft AD analysis and findings in the draft permit fact sheet or certification that goes out to public notice. For projects that also require federal permits, ADEC's public notice process is sometimes combined with the federal agencies' process. Either of these approaches will comply with the AD policy. See 18 AAC 70.015(c). Your job is simply to ensure that, one way or another, the public has the opportunity to review and comment upon ADEC's AD analysis before it becomes final.

General permits.

Doing AD analysis for general permits (GPs) presents unique challenges. For example, until you know what specific operations may apply for coverage under the GP, it may be difficult to evaluate whether a particular receiving water parameter is tier 1 or tier 2, and to determine existing uses. Lacking information about potential discharges to specific waters, you should assume that the waterbodies are Tier 2. Also, evaluating the economic and social impacts of permitted activity may be difficult at the time the GP is first issued. Other AD findings, such as the appropriate methods for pollution control and treatment, may be more amenable to analysis at the time of GP issuance, since GPs are typically used to authorize very similar operations.

Due to the variety of circumstances in which GPs are used, it is difficult to generalize about how to complete an AD analysis for one. In some cases you may be able to complete the AD analysis at the time the GP is issued, while in other cases you may have to complete the analysis when you authorize particular operations under the GP. Again, this is an area where consultation with peers may be necessary, as ADEC has issued many GPs in recent years, for various industry sectors and geographical areas. Reviewing some of those examples may help you tailor the required AD analysis and findings to your situation. Also, as a general rule, you should do your best to ensure that no tier 3 waters are covered under a GP. So you should evaluate the scope of the

GP to identify potential tier 3 waters, and make sure to exclude from coverage any that you can identify or reasonably anticipate.

Resources.

Attached is a list of resources, examples, and sources of factual information that may assist you with the AD analysis. ADEC will amend the resources list over time.

Conclusion.

This interim guidance will hopefully help you to understand and comply with our AD policy. But as you engage in AD analysis in particular cases, questions are sure to arise that this guidance doesn't address. Conferring with your supervisor and peers on such questions will yield dual benefits. First, it will give you the benefit of greater experience and collective expertise. Second, it will alert ADEC management about the kinds of questions and issues that can arise in the AD context. As mentioned above, ADEC plans to issue more comprehensive AD implementation guidance in the future. Keeping track of the AD issues that arise in the interim will help ADEC management make the final guidance both useful to staff and consistent with the AD policy itself.

ATTACHMENT [UNDER DEVELOPMENT]

Antidegradation Resources

- Current unemployment rate (available from Department of Administration) http://almis.labor.state.ak.us/?PAGEID=67&SUBID=188

- ADEC's *Reasonable Potential Procedure for Water Quality-Based Effluent Limits, APDES Permits*. January 2009.

- *Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances.* ADEC. December 12, 2008

- *Antidegradation Policy Implementation, Internal Management Directive for NPDES Permits and Section 401 Water Quality Certifications.* Oregon Department of Environmental Quality. March 2001

- APDES Permit Fact Sheet template: Mixing Zone Analysis Checklist

- *U.S EPA NPDES Permit Writers' Manual*. EPA. December 1996

- EPA's *Technical Support Document for Water Quality-Based Toxics Control*

- *Interim Economic Guidance for Water Quality Standards*. US EPA. Office of Water. EPA-823-B-95-002. March 1995 http://water.epa.gov/scitech/swguidance/standards/economics/index.cfm

- *Water Quality Standards Handbook*: Second Edition. EPA. August 1994 with revisions July 2007. http://water.epa.gov/scitech/swguidance/standards/handbook/index.cfm

- *Evaluation of Options for Antidegradation Implementation Guidance*. Tetra Tech, Inc. October 6, 2008

- Log Transfer Facility – Notice of Intent Checklist

- §401 Certification of NPDES Permit No. AKG-31-5000 Cook Inlet Oil and Gas Exploration, Development and Production Facilities Located in State and Federal Waters. ADEC. May 18, 2007. 401 Certification for AKG-31-5000

- Ketchikan Gateway Borough, Ward Cove Log Storage Facility, Wastewater Disposal Permit, Decision Document. ADEC. May 14, 2004.