

# Evaluation of Key Elements and Options for Antidegradation Policy Implementation Methods

## DRAFT Workgroup Report

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## **Acronyms**

## **Definitions**

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1 **Executive Summary**

2 [To be completed once Workgroup meetings are done.]

3 **I. Introduction**

4 **A. Introduction to Water Quality Standards and Antidegradation**  
5 **Policy**

6 The federal Clean Water Act (CWA) requires states to adopt and maintain water quality  
7 standards for all waterbodies of the United States to ensure that waters are  
8 “fishable/swimmable.” These standards are comprised of three elements: 1) designated uses for  
9 the waterbody (e.g., aquatic life propagation, recreation, drinking water supply), 2) water  
10 quality criteria designed to protect the uses (e.g., metals must be below established  
11 concentrations to protect fish and other aquatic life), and 3) both an antidegradation policy and  
12 implementation methods.

13 Existing water quality can be better than water quality criteria and accommodate some water  
14 quality degradation (from existing conditions) while still protecting designated uses. The CWA  
15 recognizes that there is value in maintaining existing water quality even where the water quality  
16 is better than the threshold needed to support those uses. Thus, even when all designated uses  
17 will be protected, a regulatory decision is needed on whether any degradation of water quality  
18 could be allowed. This concept is referred to in the CWA as “antidegradation” – high water  
19 quality should not be degraded without a review.

20 New or expanded human activities, such as enlargement of a wastewater treatment plant to  
21 accommodate population growth, or the opening of a mine to provide raw materials needed by  
22 society, can result in a wastewater discharge that may degrade, improve, or have negligible  
23 effects on existing water quality. A review process is needed to determine both what the effects  
24 from the proposed discharge will be on existing water quality and to determine what is  
25 allowable. Antidegradation policy allows degrading or lowering of water quality when  
26 designated uses of the water will still be maintained and the lowering is necessary to support  
27 important economic or social development in the area. The outcome of the antidegradation  
28 review may be no change to the proposed discharge, the adoption of alternatives that would  
29 reduce impacts to water quality, and/or setting discharge limits more stringent than those  
30 needed to protect designated uses.

31 The State of Alaska has an antidegradation policy that mirrors federal CWA policy. As required  
32 by the CWA, Alaska also has interim antidegradation implementation methods. Through the  
33 Alaska Department of Environmental Conservation (DEC), Alaska is in the process of developing  
34 more detailed, final implementation methods.

## B. Purpose of Antidegradation Workgroup

DEC adopted its antidegradation policy in 1997, at 18 Alaska Administrative Code (AAC) 70.015. The policy establishes requirements that must be met to authorize a reduction in existing water quality. DEC has interim antidegradation implementation methods to facilitate its decision-making process on whether an applicant for a wastewater discharge permit has met the requirements of the antidegradation policy. DEC has initiated a public process to inform development of final antidegradation implementation methods. To solicit input and as an informal step before drafting implementation methods as regulations and starting a formal rule-making process, DEC established an Antidegradation Workgroup (Workgroup).

The purpose of the Workgroup was to seek overall efficiency and a better final regulatory product through early involvement of individuals with varying perspectives. DEC understood that many different interests would be represented and it might not be possible to reach consensus on specific recommendations. Regardless of the degree of consensus attained, all discussion, information and recommendations are of value to DEC.

## C. Process for Workgroup Meetings

Public notice was provided for all Workgroup meetings and all meetings were open to the public. The Workgroup met regularly from February 2012 to TBD. A list of Workgroup members is shown on the second title page. Public comments were accepted at every Workgroup meeting.

To direct the Workgroup's evaluation of implementation methods for Alaska's antidegradation policy, DEC developed a list of seven issues for consideration. The seven issues identify areas where DEC would benefit from input to develop antidegradation implementation methods in regulation. Each issue discussed started with a background presentation of the issue, key questions DEC had identified, and approaches that other states have taken. Each meeting produced "action items" for DEC staff, contractors, and, occasionally, for Workgroup members. After each meeting, a summary and identified action items were posted to the DEC website and e-mailed to interested parties.

After questions and discussion from Workgroup members, the following process was followed to obtain and evaluate recommendations:

1. Review alternative approaches
2. Compare and evaluate options based on other state approaches and/or experience in Alaska
3. Identify preferred elements for Alaska
4. Assemble elements into recommendations included in this Workgroup report
5. Parse conceptual approach into draft regulatory or statutory elements

The Workgroup strived to develop recommendations that the state, permittees, and public could support. Where consensus was not possible, recommendations from the group were

73 characterized as much as possible in terms of level of support, applicability, consistency with  
74 statutes and regulations, and other criteria, to inform future DEC discussions. Development of  
75 final antidegradation implementation methods remains DEC’s responsibility.

#### 76 **D. Rule-Making Process**

77 DEC plans to use the Workgroup discussions, recommendations, and report along with public  
78 comments to help it develop draft regulations for formal public notice and review. Some  
79 Workgroup recommendations may require legislative direction or authority.

## 80 **II. Status and History of Alaska’s Antidegradation Policy** 81 **Implementation**

82 This section summarizes federal and state antidegradation policy in Alaska and describes DEC’s  
83 process to develop antidegradation implementation methods.

### 84 **A. Source of Antidegradation Policy and Implementation Methods**

#### 85 **Federal Clean Water Act Regulations**

86 Federal law requires that each state adopt both a statewide antidegradation policy and also  
87 identify implementation methods. The CWA requirements are incorporated as regulations in  
88 Title 40 Code of Federal Regulations (CFR) 131.12. Federal antidegradation regulation describes  
89 three levels of protection, which are often referred to as “tiers” (Figure 1).

90 Tier 1 protection applies to all waters, regardless of use designation. Tier 1 does not allow  
91 activities that will result in the loss of an existing use, nor does it allow water quality to drop  
92 below levels needed to maintain an existing use. Tier 1 waters must be protected at a level  
93 reflecting the highest use achieved since November 28, 1975 regardless of whether water  
94 quality (WQ) has declined or whether that use is recoverable.

95 Tier 2 protections apply to  
96 waters whose quality exceeds  
97 the levels necessary to support  
98 the propagation of fish, shellfish,  
99 and wildlife, as well as recreation  
100 in and on the water. Water  
101 quality of Tier 2 waters can be  
102 degraded only if the state finds,  
103 after analysis, public  
104 participation, and  
105 intergovernmental coordination,  
106 that allowing lower water quality

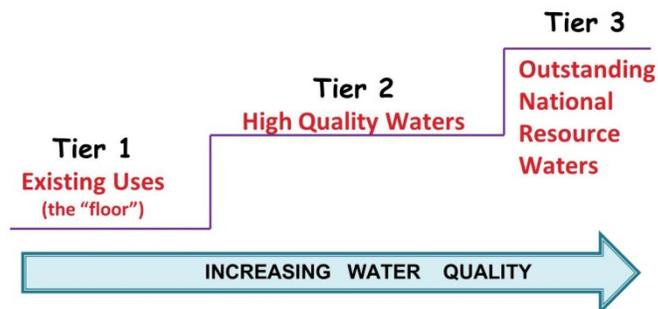


Figure 1. Three tiers or levels of water quality protection identified in federal and in Alaska’s antidegradation regulations.

107 is necessary to accommodate important economic and social development, and that the actions  
108 authorizing a lowering of water quality will protect existing uses. In addition, the state must

109 ensure that: applicable statutory and regulatory requirements for all new and existing point  
110 sources (discrete and confined discharge points; e.g., discharge pipe or runoff from a  
111 construction site) are met; all cost-effective and reasonable Best Management Practices for  
112 nonpoint (diffuse source of runoff or meltwater) source control are used, as well as cost-  
113 effective and reasonable methods of pollution prevention, control, and treatment; and all  
114 applicable water quality criteria are met. Most of the critical antidegradation implementation  
115 issues pertain to Tier 2 protection.

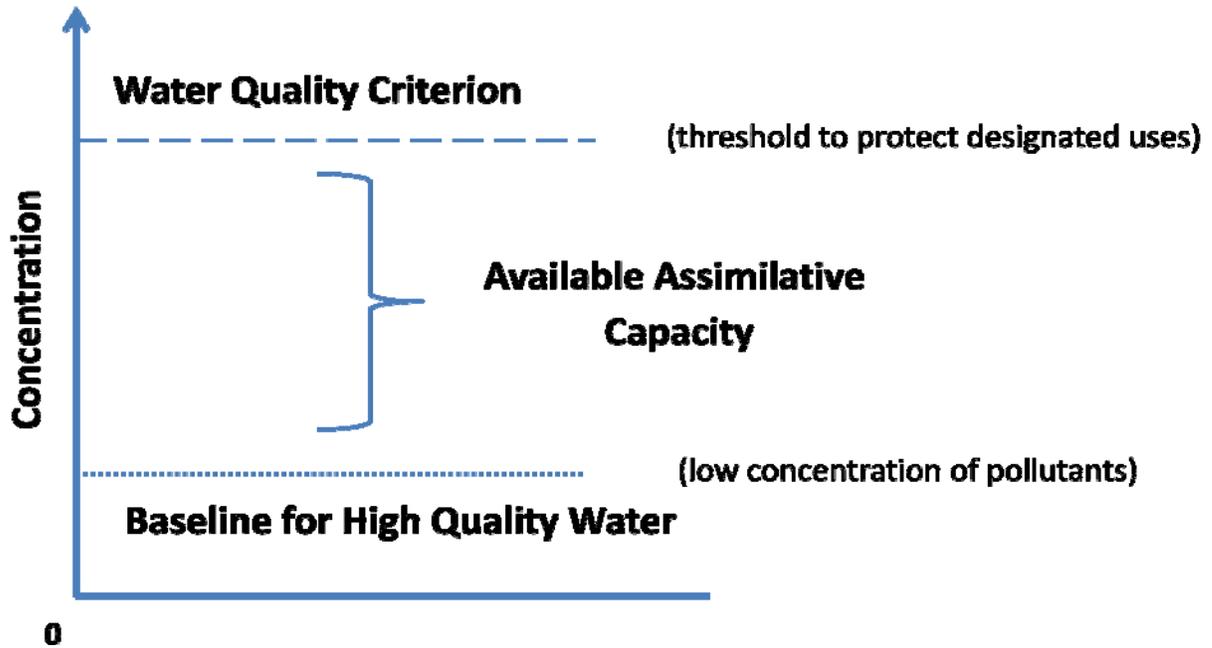
116 Tier 3 antidegradation protection applies to Outstanding National Resource Waters (ONRWs).  
117 Typically this designation includes waters of exceptional aesthetic, recreational, or ecological  
118 significance such as those found in National parks. If a waterbody is designated an ONRW, the  
119 water quality of the ONRW must be maintained and protected, and only minor and temporary  
120 decreases in water quality are allowed. States are not required to designate ONRWs but must  
121 protect them once designated.

#### Guidance on Antidegradation Implementation Methods

122 EPA's *Water Quality Standards Handbook* states that "any one or a combination of several  
123 activities may trigger the antidegradation policy analysis." This review may be required if the  
124 state receives a request for a new or expanded National Discharge Elimination System (NPDES)  
125 wastewater discharge permit.  
126

127 One way that states conduct antidegradation reviews is to evaluate potential effects of a new or  
128 expanded wastewater discharges through an analysis of the remaining "assimilative capacity"  
129 for a given pollutant in the waterbody. The assimilative capacity of a waterbody represents the  
130 maximum degradation possible without exceeding water quality criteria or affecting existing  
131 uses. Therefore, assimilative capacity is one way to quantify how much the existing water  
132 quality is better (assimilative capacity exists) or worse (assimilative capacity is used up) than  
133 water quality criteria on a pollutant-by-pollutant basis.

134 For example, high quality waters (i.e., Tier 2 waters) will have a lower concentration of a given  
135 pollutant than the threshold concentration needed to avoid loss of the designated use (the  
136 water quality criterion). The difference between these two concentrations (i.e, between  
137 baseline and the criterion in Figure 2) represents the available assimilative capacity of a  
138 waterbody for that particular pollutant. Thus, the determination of assimilative capacity will  
139 determine the quantity of a pollutant that can be added to a waterbody before it can no longer  
140 support one or more of its designated uses.



141

142 Figure 2. Schematic showing assimilative capacity in the context of the Antidegradation review process.

### 143 B. DEC Antidegradation Policy

144 DEC adopted its current antidegradation policy (18 AAC 70.015) in 1997 (Appendix XX). DEC  
145 adopted interim antidegradation methods in 2010 (Appendix XY), and EPA determined that they  
146 are consistent with the CWA.

### 147 C. Antidegradation Policy Implementation Efforts

148 Development of anti-degradation implementation methods began in 2007. Since then, DEC has  
149 sponsored or led several activities designed to provide information to the agency regarding  
150 options for implementing antidegradation policy in Alaska.

151 These include:

- 152 • [2008 Evaluation of Options for Antidegradation Implementation Guidance](#)
- 153 • [2009 Conference on Antidegradation Implementation](#)
- 154 • [2010 Interim Antidegradation Implementation Methods](#)
- 155 • [2011 Antidegradation Methods Work Plan](#)

156 The 2008 report, titled “Evaluation of Options for Antidegradation Implementation Guidance,”  
157 presents Alaska’s antidegradation policy and describes how other States implement their  
158 policies. It describes the major elements of implementation guidance and includes options for  
159 Alaska’s implementation guidance along with the options’ merits and limitations.

160 In 2009, DEC hosted an antidegradation conference in Anchorage, Alaska, intended to inform  
161 policy makers, wastewater discharge permittees, permit writers, and the interested public of

162 potential options for antidegradation policy implementation methods in Alaska. This conference  
163 was for informational purposes only and discussed implementation methods adopted by other  
164 states, and which approaches might work best in Alaska.

165 DEC adopted the “Interim Antidegradation Implementation Methods” in July 2010 to provide  
166 staff a framework to implement the state's existing antidegradation policy. Its purpose is to  
167 serve as interim guidance while DEC works with other agencies, permittees, local and tribal  
168 government, and the public to develop more detailed implementation methods. The interim  
169 methods also provide a list of resources, examples, and sources of factual information that assist  
170 with antidegradation reviews. Finally, the interim guidance recognizes the need for DEC to  
171 develop final methods through a rule-making process.

172 The Antidegradation Final Implementation Procedures: Draft Work Plan sets out DEC’s plan for  
173 developing final methods for implementing the state’s antidegradation policy. It discusses both  
174 actions to date (summarizing the activities referred to above) as well as those planned for the  
175 future. It also lays out the Workgroup concept and process.

176 In addition to these activities, antidegradation issues were highlighted in the recent public  
177 notice for the 2011-2013 triennial review of Alaska’s water quality standards.

### 178 **III. Key Antidegradation Issues**

179 DEC identified seven issues to direct the Workgroup’s evaluation of potential implementation  
180 methods for Alaska’s antidegradation policy. This section presents each issue, provides a brief  
181 description of the issue, identifies various options discussed by the Workgroup for that issue and  
182 the pros and cons, and includes recommendations made by the Workgroup. As the issues are  
183 inherently related, references to prior or later subsections do occur. Where applicable, there is a  
184 discussion of dissenting views or lack of consensus regarding specific parts of a given issue.  
185 Additional issues identified and discussed by the Workgroup are also provided.

#### 186 **A. Issue #1: What Triggers an Antidegradation Review?**

##### 187 **A1. Description of Issue #1**

188 A variety of issues come into play in deciding what conditions trigger antidegradation reviews.  
189 States handle certain aspects of antidegradation review differently (e.g., deferring  
190 antidegradation reviews for activities with an insignificant (i.e., *de minimis*) impact on water  
191 quality). A review is usually deemed warranted in cases where there is potential for water  
192 quality degradation due to a new or expanded discharge. Determining the need for a review  
193 requires some characterization of the discharge and ambient receiving water quality (i.e., based  
194 on chemical, biological, and/or physical monitoring data) to accurately project effects on the  
195 receiving water. While the discharge is often sufficiently characterized, many other cases exist  
196 where monitoring data for ambient conditions is nonexistent or incomplete when an activity is  
197 proposed.

198 The Workgroup considered the following questions while discussing this issue:

- 199 • Is a review needed for only new and increased discharge permit and certification  
200 reviews? Should reissued permits require antidegradation analysis if the analysis was  
201 not performed previously, and if there is no change to the discharge?
- 202 • How does this apply to general permits? 404 wetland permit certifications? Stormwater  
203 best management practices (BMPs)?
- 204 • Which waters does this review apply to (i.e., surface waters, groundwater, State waters,  
205 or federal waters)?
- 206 • What about other CWA decisions, e.g., impaired waters listing, TMDLs?

207 The determination of baseline receiving water quality is discussed further in Issue #2.

#### 208 **A2. Options Considered for Issue #1 with their Pros and Cons**

209 Workgroup members started their discussion of what triggers an antidegradation review by  
210 considering what kind of data is available to use in determining whether an antidegradation  
211 review is necessary. This led to a discussion of what would automatically trigger or exclude an  
212 activity from an antidegradation review, what thresholds could be set, and whether  
213 authorizations under a general permit should trigger an antidegradation review.

214 **Site-specific evaluation to determine need for antidegradation review** Workgroup members  
215 acknowledged the value of conducting site-specific evaluations to determine whether a Tier 2  
216 antidegradation review is necessary.

- 217 • Pros to this approach are that relatively few assumptions need to be made regarding  
218 whether an antidegradation review is needed because the approach utilizes site-specific  
219 information rather than estimates or assumptions.
- 220 • Cons to this approach are that projecting effects to receiving waters is difficult enough  
221 for point source wastewater discharges where some ambient data may be available, but  
222 becomes very difficult when modeling the effects of multiple stormwater or other  
223 discharges into multiple receiving waters with little to no available data. Relative to the  
224 number of activities that could require review, there are few situations where there is  
225 sufficient ambient water quality data or enough accurate information about the  
226 discharge at the time a project or activity is proposed to make confident judgments  
227 about effects of the activities on receiving waters.

228 For CWA Section 404 permits, the antidegradation review could consist primarily of a review of  
229 the existing permit documents and a determination of whether that information provided  
230 sufficient data to make a determination under the antidegradation policy.

231 **Activities that would automatically trigger an antidegradation review and those that should**  
232 **be automatically excluded** The Workgroup discussed approaches for identifying specific  
233 activities that would automatically trigger the review process and those that should be

234 automatically excluded. The selected approach should provide a justifiable presumption that the  
235 proposed activity could lower existing water quality, presumably in a measurable or significant  
236 manner. Considerations identified by the Workgroup for activities that might trigger an  
237 antidegradation review included:

- 238 • Type of activity – i.e., wastewater treatment discharges, various types of NPDES-  
239 permitted stormwater discharges, etc.
- 240 • Available dilution instream
- 241 • Persistence and potential effects of the pollutants of concern
- 242 • Potential increase in ambient concentrations predicted at the appropriate critical  
243 condition(s)
- 244 • Potential increase in loadings
- 245 • Potential reduction in available assimilative capacity
- 246 • Potential for cumulative effects

247 Another option discussed was whether all new or expanded discharges should have  
248 antidegradation reviews, regardless of discharge size, risk factors, or types of activity.

- 249 • Pros to this approach are that DEC does not need to decide whether a review is  
250 necessary; any new or expanded activity would be reviewed.
- 251 • Cons raised were that this approach tends to dilute the review process because so many  
252 activities including perhaps many minor ones may need to be reviewed. The Workgroup  
253 agreed that reviews that are apparently pro forma only are probably unnecessary.

254 The Workgroup also discussed activities or conditions that should be exempt from  
255 antidegradation review based on a justifiable presumption that the proposed activity would not  
256 lower existing and/or previously permitted water quality. These included:

- 257 • Projects designed to improve the quality of surface waters
- 258 • Reissued individual NPDES permits with no change in discharge
- 259 • Modified individual NPDES permits with permitted discharge at or below that presently  
260 allowed in an existing permit (no increase in volume or concentration)
- 261 • Projects that do not otherwise lower the quality of a receiving water
- 262 • Activities that have an insignificant or *de minimis* impact on water quality, as long as a  
263 cumulative cap on pollutant loads or use of the available assimilative capacity was  
264 maintained.

265  
266 Some of the above conditions were identified by the Workgroup as recommendations (see next  
267 section). There was consensus among the Workgroup on the need for an antidegradation review  
268 based in part on the potential for the new or expanded activity to cause water quality  
269 degradation in the waterbody receiving the discharge. For example, a new small discharge to a  
270 large waterbody might not need an antidegradation review, or might require a much simpler

271 review process than a small discharge to a small stream with a lower assimilative capacity.  
272 Similarly, a new or expanded discharge to a waterbody that serves as habitat for valued aquatic  
273 resources such as salmon might be more apt to require a review.

274

275 A related question discussed by the Workgroup when considering what should be automatically  
276 included or excluded from an antidegradation review was whether the extent of permit review  
277 might vary with the type of activity or the location of the proposed activity (e.g., receiving  
278 waterbody characteristics that might make aquatic resources more or less vulnerable to  
279 potential lowering of water quality).

280

281 ***Threshold to determine whether an antidegradation review is required*** The Workgroup  
282 discussed the idea of using a *de minimis* threshold in terms of allowable lowering of water  
283 quality to decide whether an antidegradation review is necessary for a new or expanded  
284 discharge. The Workgroup identified the Idaho example in which up to a 10% cumulative use of  
285 available assimilative capacity is allowed before requiring an antidegradation review. In Idaho,  
286 so long as 10% of the cumulative capacity has not been used, an antidegradation review is not  
287 required for a new or expanded discharge to that waterbody.

288

- 289 • Pros identified with this approach are that it is fairly straight forward, transparent, and  
290 could effectively focus DEC efforts on those situations that should be reviewed.
- 291 • Cons identified are that the 10% threshold is not necessarily tied to potential for effects  
292 on aquatic resources and designated uses in general. Another con raised is that DEC  
293 needs to keep track of cumulative use of assimilative capacity, which could present  
294 some bookkeeping challenges. Finally, for some situations, the cumulative effects  
295 analysis needed for this approach might be so complex that it would be more efficient  
296 for DEC to do the antidegradation review for the proposed new or expanded activity.  
297 This discussion was deferred to Issue #7, “Should DEC Define Significant and/or *de*  
298 *minimis* Degradation” (see Issue #7 in Section III. F. of this Report).

299

300 ***Whether a new discharge under a general permit would trigger an antidegradation review***

301 For general permits (single permits that can be used to permit multiple discharges; e.g.,  
302 construction general permit, log transfer facility general permits), several options were  
303 discussed in response to the question of whether a new facility that complied with the general  
304 permit would trigger an antidegradation review. The Workgroup acknowledged that general  
305 permits currently don’t establish a maximum number of facilities or cumulative discharge flow  
306 or pollutant load as part of the permit. The general permit does, however, specify what can be  
307 discharged, in what types of waters, and other specifics that are designed to maintain and  
308 protect water quality and designated uses. One suggestion was that general permits establish a  
309 maximum number of facilities to be covered under the permit; if an additional facility desires to  
310 be covered under the general permit, an antidegradation analysis could be triggered.

311 Workgroup members agreed, however, that discharges under a general permit may be located  
312 all over the State and not close to other discharges. Thus, it may not be reasonable to base a

313 general permit on a certain number of dischargers but rather whether certain important  
314 specifics about new discharges differ from assumptions or conditions specified in the general  
315 permit.

316

317 Another factor considered by the Workgroup was to evaluate the location of the proposed new  
318 discharge in light of whether other discharges are in the same area. If so, the possibility of  
319 cumulative effects would exist, and this might trigger an antidegradation review. If no other  
320 discharges are in the same area, and the new facility discharge would comply with the general  
321 permit conditions, then an antidegradation review may not be required.

### 322 A3. Workgroup Recommendations – Issue #1

323 The following list is a compilation of the Workgroup’s recommendations. **The recommendations**  
324 **listed below are subject to change pending further completion of certain action items/further**  
325 **discussion by the Workgroup.**

- 326 1. Antidegradation requirements and reviews should be restricted to waters of the U.S. in  
327 Alaska, as defined under the CWA. As needed, DEC should modify the state’s  
328 antidegradation policy to make the policy consistent with this recommendation. A  
329 minority of the workgroup feel that antidegradation analyses should apply to  
330 groundwater, which may require different implementation methods since groundwater  
331 is not protected for “fishable/swimmable” uses. DEC could consider groundwater in its  
332 implementation methods or in a separate, future rulemaking tailored to groundwater.
- 333 2. Activities regulated by DEC under CWA Sections 401, 402, and 404 should be subject to  
334 antidegradation requirements and reviews. This includes water quality certifications of  
335 NPDES permits; APDES general and individual permits; and the placement of dredged or  
336 fill material into waters of the U.S. under a US Army Corps of Engineers permit, which is  
337 usually overseen by DEC through the Section 401 certification process.

#### 338 **To be further discussed, not recommendations yet:**

- 339 a. **DEC needs to clarify the scope of 401 activities that it regulates for the**  
340 **Workgroup to determine whether the Workgroup recommends any restriction**  
341 **on antidegradation reviews for 401 activities.**
- 342 b. **State certification of federal actions under CWA 401 should include a**  
343 **determination of whether an antidegradation review is needed (e.g., FERC**  
344 **licensing).**
- 345 3. **DEC should use the US Army Corps of Engineers (USACE) 404(b)(1) analysis as a major**  
346 **reference while conducting its own independent antidegradation analysis for projects**  
347 **permitted under section 404 of the Clean Water Act (CWA). (Note: The area under**  
348 **review is outside the fill area. No antidegradation analysis is necessary or should be**  
349 **required for the fill area.)**
- 350 a. **History of recommendation: The 404(b)(1) analyses performed by the U.S. Army**  
351 **Corps of the Engineers for CWA Section 404 permits, when available, should**

- 352 serve as the primary basis for the DEC antidegradation review of effects to  
353 nearby waters of the U.S. [Note to Workgroup: when revisited in March, there  
354 was a recommendation that the 404(b)(1) analyses should not be the sole basis  
355 for the antidegradation review.]
- 356 4. Antidegradation requirements should apply only to new or expanded discharges.  
357 Antidegradation requirements should not apply to re-issued permits that already have  
358 had an antidegradation review or have not changed in terms of flow, pollutant load, or  
359 water quality characteristics since the last permit issuance.
- 360 a. Expanded discharges should be defined as those discharges where past flow  
361 patterns are altered and/or pollutant concentrations or total loads are increased  
362 beyond previously permitted amounts. Discharges are not automatically  
363 assumed to require an antidegradation review when a facility (e.g., treatment  
364 plant) is expanded.
- 365 b. Increases in flows or pollutant concentrations of less than 10 percent should not  
366 be considered new or expanded discharges, but rather be categorized as *de*  
367 *minimis* increases not subject to Tier 2 antidegradation reviews except with  
368 regard to cumulative impacts. The following alternatives were identified  
369 regarding the 10% threshold: Base it on 1) permit limits, 2) pollutant loads, or 3)  
370 allowing up to 10% cumulative use of assimilative capacity. Further discussion  
371 and recommendations concerning *de minimis* and/or assimilative capacity  
372 may be included here in later versions of the report or under Issue #7 (i.e.,  
373 Section III.F) pending completion of certain action items/additional discussion  
374 by the Workgroup.
- 375 5. Tier 1 and Tier 2 antidegradation reviews and public notice for individual APDES permits,  
376 individual water quality certifications, or individual CWA 404 permits should be  
377 conducted at the time of permit application review and permit drafting.
- 378 6. For general permits, the antidegradation review and public notice procedures should be  
379 completed at the time the general permit is developed and issued or, as applicable,  
380 during reissuance.
- 381 7. For general permits, DEC should incorporate into permits the circumstances under  
382 which DEC would do an antidegradation analysis for a given application for coverage  
383 under the general permit, typically called a Notice of Intent to Operate (NOI).  
384 Specifically, DEC should identify assumptions and conditions in the general permit  
385 and/or factsheet that describe when an antidegradation analysis will be required and  
386 when it will not. This would make the antidegradation review process less ambiguous  
387 and more transparent to permittees and the public.
- 388 a. For example, a decision flow chart could be developed that includes: location of  
389 waterbody, number of discharges in the area, type of waterbody and the water  
390 quality of the waterbody.

- 391 b. The decision step on whether an antidegradation review is required should  
392 involve consideration of cumulative impacts.
- 393 c. DEC should reserve the right to require antidegradation analysis at the  
394 NOI/authorization stage.
- 395 d. Antidegradation review should not be required for a new discharge that  
396 complies with conditions in the general permit unless there is either evidence of  
397 potential cumulative effects, due to the presence of other nearby discharges, or  
398 there are certain details in the NOI that differ from conditions specified in the  
399 general permit.
- 400 8. DEC should consult with legal staff to determine whether or not other activities  
401 permitted, approved, authorized, or regulated by non-DEC State agencies (e.g., timber  
402 harvest on State lands) might require some sort of antidegradation review, at least at  
403 the policy level. If such review is required, it should be limited to programmatic  
404 coordination between DEC and other agencies on reviews of water quality protection  
405 measures and not include multiple reviews and approvals for the same activity by  
406 several different agencies.
- 407 9. DEC should consult with legal staff and EPA to determine if other CWA decisions, e.g.,  
408 impaired water listing, TMDLs, would require an antidegradation review.

## 409 B. Issue #2: What Information is Needed to Determine Baseline?

### 410 B1. Description of Issue #2

411 Determination of baseline water quality (BWQ) is a pivotal issue in antidegradation analyses  
412 because the baseline is used to determine the Tier to which the waterbody belongs and the  
413 amount of degradation possible without exceeding water quality criteria (i.e., assimilative  
414 capacity). The latter then helps inform the alternatives analysis and other aspects of the  
415 antidegradation review process.

416 The Workgroup considered the following questions while discussing this issue:

- 417 • How much information is needed to make the baseline determination?
- 418 • What is the obligation of the permittee to acquire baseline data? Does it depend on  
419 whether the discharge has reasonable potential to exceed water quality standards in the  
420 receiving waterbody? Or the level of risk to water quality?
- 421 • Is statistical analysis needed?
- 422 • How do BWQ exceedances determine the tier? What percentage of samples must  
423 exceed? Is the exceedance persistent? How does this relate to the water quality criteria  
424 averaging period?
- 425 • How is seasonal variation in water quality addressed?
- 426 • How can costs be minimized?

427 Additionally, the Workgroup added the following questions:

- 428 • How do you determine if existing uses are being met without already having BWQ data  
429 on physical, chemical, and biological parameters?
- 430 • If the level of BWQ can be moved up as water quality improves, doesn't that affect the  
431 assimilative capacity? Would that be a disincentive for dischargers to improve their  
432 water quality?
- 433 • How should Alaska determine BWQ for wetlands when the water is frozen most of the  
434 year?

## 435 B2. Options Considered for Issue #2 with their Pros and Cons

436 Workgroup members started their discussion with a review of existing DEC procedures to  
437 establish baseline. Next, there was general discussion of the importance of baseline data and  
438 what data could be reasonably obtained.

439 *Existing DEC approach to determine baseline* The Workgroup discussed the existing DEC  
440 approach for determining BWQ under the APDES permit program which varies based on  
441 availability of data. Generally, in developed areas there are water quality data that can be used  
442 to determine BWQ. For somewhat developed areas, existing data plus data collected by  
443 permittees can be used to determine BWQ. In undeveloped areas (by far most of the waters in  
444 Alaska), project proponents may need to collect BWQ. Alternatively, DEC can assume the waters  
445 warrant Tier 2 protection (i.e., for high quality waters). In areas where naturally occurring  
446 substances such as metals and sediment exceed numeric water quality criteria, the "natural  
447 condition" can be used as BWQ. There is existing DEC guidance to establish the natural condition  
448 of receiving water quality.

449 There was a mixed discussion on whether a new or modified approach to determine baseline  
450 was needed. Some workgroup members do not see a need for a separate BWQ procedure.  
451 Others would like to see guidance on the BWQ data needed given specific circumstances/factors  
452 (e.g., proportion of discharge to receiving water flow).

### 453 *Importance, availability, and necessity of water quality data for determination of baseline*

454 The Workgroup discussed the importance of understanding BWQ in the context of existing uses  
455 in a given waterbody. However, all agreed that monitoring data are relatively scarce for much of  
456 the State and that there are few options for obtaining better data due to the size and  
457 remoteness of many areas. The Workgroup did not reach a clear consensus on the types of  
458 conditions that would trigger the need for baseline data but did propose factors to consider.

## 459 B3. Workgroup Recommendations – Issue #2

460 The following list is a compilation of the Workgroup's recommendations, as well as  
461 recommendations in response to questions that came up during the discussion.

462 **The recommendations listed below are subject to change pending further completion of**  
463 **certain action items/further discussion by the Workgroup.**

464

- 465 1. DEC should retain the existing approach for determining BWQ under the current APDES  
466 permit program. Determinations of baseline water quality should be made on a case-by-  
467 case basis. The current flexibility in determining how much BWQ data is necessary  
468 should be retained.
- 469 2. Factors that might trigger a need for additional BWQ include: available dilution for the  
470 proposed discharge, types of potential contaminants that might be present, and the  
471 sensitivity or vulnerability of the waterbody (e.g., the presence of salmon spawning).  
472 For waters with little or no data, DEC should use representative waterbodies as  
473 surrogates with the understanding that most of the State's waters are not impacted by  
474 human activities.
- 475 3. DEC should assume that all waters in Alaska are Tier 2 in terms of baseline water quality.
- 476 4. DEC should assume that baseline is zero in situations where it makes sense (e.g., the  
477 presence of bark in an area proposed for a log transfer facility).

478 **C. Issue #3: How are Outstanding National Resource Waters**  
479 **(ONRWs) Designated?**

480 **C1. Description of Issue #3**

481 Outstanding National Resource Waters (ONRWs) fall into Tier 3 of the federal and Alaska  
482 antidegradation policies. Except for certain temporary changes, water quality cannot be  
483 lowered in ONRWs. Commercial and residential development is severely restricted in ONRWs  
484 since only temporary decreases in water quality are allowed. Many states have recognized  
485 waters in National or State Parks and other similarly protected areas as candidates for ONRWs,  
486 and most of the ONRWs approved by states thus far are in such areas. As Alaska has a wealth of  
487 such areas, the approach of other states may not be applicable to Alaska. An overriding  
488 question is what types of waters should qualify as ONRWs in Alaska.

489 The Workgroup considered the following questions while discussing this issue:

- 490 • What process should be used to nominate, evaluate, and designate an ONRW?  
491 • Who is responsible for each of these steps and the final decision?  
492 • How should the state determine when a waterbody has exceptional ecological or  
493 recreational significance?  
494 • What protections apply to ONRWs?  
495 • Should existing permits to waters that are subsequently designated as ONRWs be  
496 grandfathered?  
497 • Should Alaska adopt an intermediate level of protection, i.e. Outstanding State Resource  
498 Waters (OSRW) or Tier 2.5?

499 **C2. Options Considered for Issue #3 with their Pros and Cons**

500 **ONRW nominations** One option discussed was to have nominations by State agencies only.

501 • Pros include: nominations are likely to have been thought out well and have sufficient  
502 documentation with which to make a decision.

503 • Cons include: the public may not be involved in the nomination process to the extent  
504 that they would like.

505 Another option discussed was that the public nominate an ONRW through their legislator and  
506 the legislature would decide whether to authorize the ONRW.

507 • Pros with this idea are that the public would be involved in nominations and, since  
508 decisions about ONRWs could affect public interests, the legislature would be an  
509 appropriate body to make this policy decision.

510 • Cons are that nominations via a legislator could get bogged down and that the legislator  
511 may not be in office long enough to see the nomination process through.

512 *Responsibility for reviewing nominations* The Workgroups discussed options for reviewing and  
513 approving ONRW nominations. **Insert brief description of “reviewing/vetting” nominations.**

514 One option is to have DEC review and issue final approval on ONRW nominations. This may be  
515 infeasible if DEC receives a large number of nominations that add tremendously to DEC’s  
516 workload.

517 • Pros

518 • Cons: This option is not practicable because DEC does not have the authority or the  
519 expertise to evaluate recreational or habitat values of a waterbody.

520 A statutory change could perhaps be an option because then costs would be assigned to this  
521 process.

522 • Pros

523 • Cons

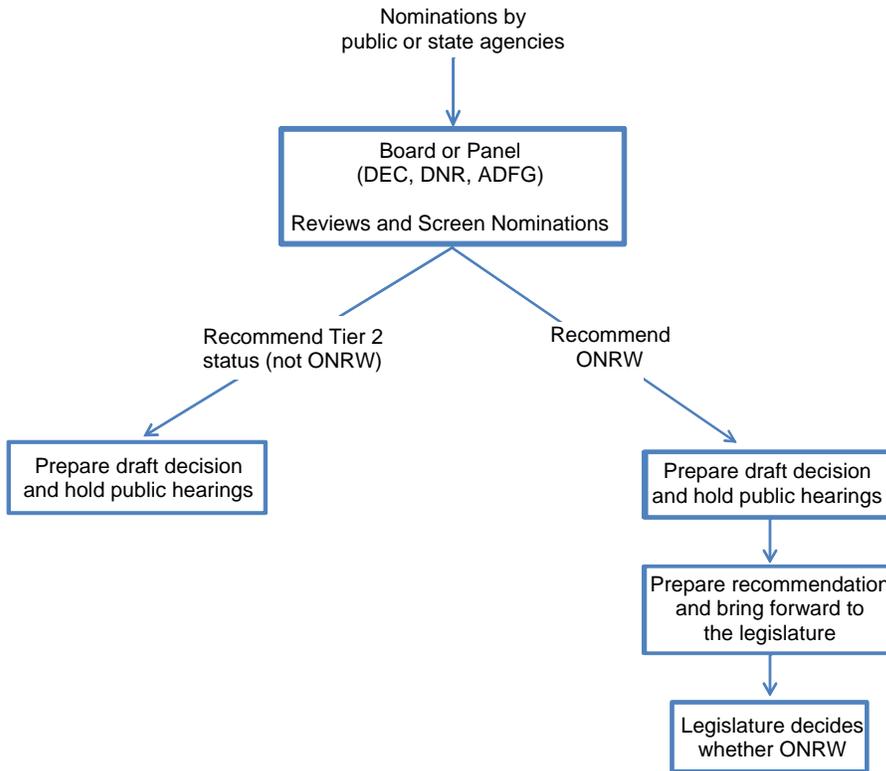
524 As an alternative the Workgroup discussed whether there should be an interagency “Board”  
525 (comprised of the Department of Fish and Game (ADF&G), DEC, and the Department of Natural  
526 Resources (DNR)) to review nominations from the public and represent all the resource agencies  
527 expertise (Figure 3). It was understood there would be a cost for this Board, and a bill would  
528 need to be approved by the legislature to establish this Board.

529 • Pros

530 • Cons

531 Another option discussed was a “public board” appointed by the Governor.

- 532 • Pros
- 533 • Cons
- 534



535  
536 Figure 3. Strawperson process for reviewing and deciding on ONRW nominations.

537 Finally, the Workgroup considered whether nominations that meet the criteria eventually  
538 defined by DEC’s final antidegradation implementation methods would be referred to the  
539 legislature for consideration.

540 *Need for an additional Tier* The Workgroup also discussed the possibility of adding a Tier 2.5  
541 category for some Alaska waters. This additional tier would also require specific criteria for  
542 listing, examples of development allowed, increased protections required, etc.

### 543 C3. Workgroup Recommendations – Issue #3

544 The following list is a compilation of the Workgroup’s recommendations relating to ONRWs.

545 **Further discussion and recommendations concerning both ONRWs and Tier 2.5 may be**  
546 **included in the report pending completion of certain action items/additional discussion by the**  
547 **Workgroup.**

- 548 1. ONRWs should be waters that are unique for Alaska, not unique as compared to  
549 waterbodies in the rest of the U.S.

- 550 2. Any member of the public can nominate an ONRW as long as there is a clear list of  
551 information that must be included in the nomination and state agencies are involved in  
552 vetting the nominations. One workgroup member thinks that only state agencies should  
553 have authority to nominate an ONRW.
- 554 3. The state legislature should be involved in approving ONRWs, either (1) through direct  
555 action on nominations that have been reviewed and forwarded by DEC or a multi-  
556 agency or other board, or (2) by delegating decision-making authority to DEC or a board  
557 through legislative action.
- 558 4. A multi-agency board should be created to vet nominations. The board should include  
559 DEC, DNR, DFG, the Department of Transportation (DOT), and the Department of  
560 Commerce, Community, and Economic Development (DCCED).

561 **D. Issue #4: Tier 2 Analysis – How to Evaluate Socioeconomic**  
562 **Benefits of a Project?**

- 563 D1. Description of Issue #4
- 564 D2. Options Considered for Issue #4 with their Pros and Cons
- 565 D3. Workgroup Recommendations – Issue #4

566 The following list is a compilation of the Workgroup’s recommendations, as well as  
567 recommendations in response to questions that came up during the discussion.

568 **The recommendations listed below are subject to change pending further completion of**  
569 **certain action items/further discussion by the Workgroup.**

570 The level of detail in socioeconomic analysis should vary with the risk of pollution/size of facility.  
571 DEC should retain discretion in how to determine the necessary level of detail, but use factors to  
572 consider such as major/minor discharger categories already in use for NPDES permitting. **DEC**  
573 **should provide their rationale and general criteria for determining the level of analysis to ensure**  
574 **consistency.**

575 **E. Issue #5: Tier 2 Analysis: What Level of Alternatives Analysis is**  
576 **Necessary?**

- 577 E1. Description of Issue #5
- 578 E2. Options Considered for Issue #5 with their Pros and Cons
- 579 E3. Workgroup Recommendations – Issue #5

580 The following list is a compilation of the Workgroup’s recommendations, as well as  
581 recommendations in response to questions that came up during the discussion.

582 **The recommendations listed below are subject to change pending further completion of**  
583 **certain action items/further discussion by the Workgroup.**

584 Do not include a numeric cost threshold (%) when defining the pollution control measures  
585 deemed to be the most practicable or the most effective and reasonable.

586 1. Provide a list of possible alternatives and use the term “practicable” instead of  
587 “feasible” or “most effective and reasonable”. Use the following list when considering  
588 and discussing the most practicable alternatives to the proposed discharge, in the order  
589 listed below.

590 *Consider all practicable alternatives, such as one or more of the following:*

- 591 a. Non-discharge approaches
- 592 b. Process changes
- 593 c. Wastewater treatment & reuse
- 594 d. Relocation of discharge
- 595 e. Seasonal discharges
- 596 f. New technologies

## 597 F. Issue #6: How are Waters Ranked as Tier 1 and Tier 2?

598 F1. Description of Issue #6

599 F2. Options Considered for Issue #6 with their Pros and Cons

600 F3. Workgroup Recommendations – Issue #6

## 601 G. Issue #7: Should DEC Define Significant and/or *de minimis* 602 Degradation?

603 G1. Description of Issue #7

604 One approach that states use to determine whether a proposed activity and lowering of water  
605 quality requires an antidegradation analysis is through the use of a *de minimis* threshold for  
606 assimilative capacity. A *de minimis* threshold allows a small amount of degradation (e.g., 10% or  
607 less of the available assimilative capacity) without triggering an antidegradation analysis. Use of  
608 a *de minimis* threshold assumes that designated uses in the waterbody will not be negatively  
609 affected. States sometimes allow *de minimis* levels of degradation for small projects – such as  
610 those covered by an NPDES or USACE general permit – to better focus scarce staff resources on  
611 projects with larger water quality impacts. A memo from US EPA Office of Science and  
612 Technology (Ephraim King, 2005) supports the use of *de minimis* levels as significance thresholds  
613 for antidegradation reviews as long as 1) the established *de minimis* level prevents significant  
614 degradation of Tier 2 waters; and 2) a cumulative cap on the use of assimilative capacity without  
615 an antidegradation review is in place to prevent incremental degradation that could conceivably  
616 consume half or even all of the assimilative capacity over time.

617 G2. Options Considered for Issue #7 with their Pros and Cons

618 G3. Workgroup Recommendations – Issue #7

619

620 **H. General**

621 **I. Other**

622 **IV. Issues Raised by the Public**

623 **A. Public Input on Key Antidegradation Issues**

624 **B. Additional Issues Raised by the Public**

625 **V. Summary of Workgroup Recommendations**

626

## Appendix B – Background Information

Table 1 introduces and summarizes some key terms and issues associated with antidegradation, policy, and implementation.

Table 1. Summary of Federal Antidegradation Concepts, Key Issues, and Terms

Concept	Key issues	Key Terms	Comments
<b>Tier 1</b> All waters should be protected at some basic level.	In actuality, implementing an antidegradation review procedure focuses on regulated activities impacting regulated waters, i.e., waters of the state or waters of the United States.	Regulated activities Actionable activities Regulatory authority Control document Permits, certification Surface waters Waters of the state Waters of the United States.	Can include intrastate isolated wetlands and groundwater if state regulations stipulate. Regulated activities include NPDES and section 404 permits, and section 401 Water Quality Certifications; can include septic and withdrawal permits.
	The basic level of protection is defined by existing uses of the waterbody and the water quality criteria (WQC) associated with those uses.	Existing use Water quality criteria Water quality standard	Existing uses are water quality targets implicitly or explicitly attained at any time since November 28, 1975. Existing uses cannot be removed and must be protected. Designated uses are desired uses and usually cited in state water quality standards.
	If water quality is already worse than the minimum WQC threshold for some pollutants, additional loadings of those pollutants should be banned if water quality will be further lowered.	Use impairment Use impaired waters Applicable WQS (water quality standards) TMDLs; 303(d) list Trading	Trading may allow new loadings if the new loads are completely offset by reductions in existing loads.  Loadings of other, non-problematic pollutants are not affected if they are non-degrading or if they are subject to antidegradation reviews that provide authorization.
<b>Tier 2</b> Waters that are cleaner than the <i>basic</i> level (i.e., WQC) should be protected at that existing higher quality unless there is a significant local benefit.	<i>Cleaner</i> can be expressed parameter-by-parameter, numerically or narratively, or through some other scheme.  Tier 1 protection still applies, to keep water quality at or above threshold water quality criteria numeric or narrative values.	High-quality waters WQ better than WQS Assimilative capacity Available capacity	EPA prefers the <i>parameter-by-parameter</i> approach, which infers that many (even most) waters are always protected at both Tiers 1 and 2 (i.e., most waters will exceed minimum levels needed to support existing uses for at least one or more parameters at some time).  Determining available assimilative capacity for each parameter provides a basis for quantitatively assessing degradation and its relative significance involves some knowledge of existing (baseline) water quality and the nature of the proposed discharge.

Concept	Key issues	Key Terms	Comments
	<p>Measuring water quality to determine when (and by how much) it is <i>cleaner</i> than the basic (WQC) level can be resource intensive; regular updates (i.e., yearly) are often needed</p> <p>Most states allow some non-significant impacts or degradation in these higher quality waters without requiring social or economic justification.</p>	<p>Baseline water quality Existing water quality Ambient conditions Current conditions</p> <p><i>De minimis</i> discharge Non-significant discharge Significant degradation Allowable degradation</p>	<p>Baseline (existing) water quality (BWQ) provides the yardstick against which degradation is measured; it can be difficult to characterize and update.</p> <p>Depending on the loading inputs under consideration, seasonal and/or event-based assessments might be needed.</p> <p>EPA memo indicates discharges using up to 10% <u>cumulative</u> assimilative capacity may be considered non-significant or <i>de minimis</i>.</p> <p>Allowable degradation might include use of some portion of the available assimilative capacity (e.g., 5%–25%) for specific pollutant(s), or characterizing BWQ at a certain percentile (e.g., 85%) of total ambient measurements and requiring new loads to meet those <i>antideg</i> concentrations at end-of-pipe.</p> <p>Cumulative, consecutive, multiple allowances for non-significant impacts can result in water quality criteria exceedances and use of remaining assimilative capacity incrementally, without an antidegradation review.</p>
	<p>Important social, economic, and local/regional benefits can be difficult to demonstrate.</p>	<p>Economic development Social development In the area</p>	<p>Guidance from federal, state, and other sources are available to conduct a wide range of analyses—from simple to complex.</p>
	<p>Demonstrating that degradation is <i>necessary</i> requires analyses of alternatives to the proposed activity and assurances that all legal, cost-effective, and reasonable point source and NPS controls are in place.</p>	<p>Highest statutory and regulatory requirements for new and existing point sources.</p> <p>Cost-effective and reasonable BMPs for nonpoint sources Necessary</p>	<p>While not requiring BMPs for NPSs, there is an expectation that the most obvious, egregious, and manageable NPS loadings are minimized under antidegradation provisions. Non-degradation applies to all regulated nonpoint sources, and to stormwater from regulated MS4s, industrial, and construction activity.</p> <p>Specific procedures for conducting analyses of alternatives to the proposed activity can require significant resources, and fail to provide relevant information if they are not robust.</p> <p>Defining <i>cost effective</i> and <i>reasonable</i> can be difficult.</p>
	<p>Federal and state regulations require public participation and intergovernmental coordination under the state's Continuing Planning Process (CPP), a requirement of the CWA.</p>	<p>Public hearing Intergovernmental coordination Continuing Planning Process (CPP) under CWA</p>	<p>Public hearings on multiple issues (NPDES permit, antidegradation, and the like.) can be combined; states can use existing procedures; Continuing Planning Process procedures are sometimes old and outdated.</p>

Concept	Key issues	Key Terms	Comments
<b>Tier 3</b> Some pristine or unique waters should not be degraded even if socio-economic benefits can be shown.	Designation of Tier 3 waters can be problematic if nearby landowners fear a ban on development.	Outstanding National Resource Waters (ONRW) and Outstanding State Resource Waters (OSRW) Unique waters Tier 3 list Nominating Tier 3s Approval for Tier 3s	ONRW and OSRW are considered the most pristine in the nation. These waters are usually listed in state WQS.  Some water resource organizations seek provisions allowing for the public to nominate ONRW and OSRW.
	Protection of Tier 3 waters requires upstream pollution controls and antidegradation controls.	Upstream sources Upstream loadings	This consideration can lead to treating the entire upstream area as Tier 3. However, since most Tier 3 situations involve headwaters streams, this might not be an issue.
	Most states allow some short-term, limited degradation of Tier 3 waters if long-term impacts are avoided.	Short-term impacts Limited impacts Non-significant impacts	Short-term impacts to Tier 3 waters are typically defined as “weeks and months, not years” and almost always less than a year. Limited impacts usually involve short term use of 5 to 10 percent of the available assimilative capacity for pollutant(s) of concern.  Enhanced general permit requirements for minor activities (e.g., culvert replacements, utility crossings) can provide a basis for allowing “short-term, temporary, and non-significant” impacts in Tier 3 situations if the requirements are sufficiently stringent, activities are monitored, and requirements for proper BMP selection, siting, installation, operation, and maintenance are in place.

## **Appendix C – Statutes and Regulations Considered**

### **Appendix D – Referenced documents**

Add the following documents:

- Evaluation of Options for Antidegradation Implementation Guidance
- 2009 public conference on antidegradation implementation
- Interim Antidegradation Implementation Methods
- Antidegradation Methods Work Plan

### **Appendix E – Data/Other Appendices**