

Evaluation of Key Elements and Options for Antidegradation Policy Implementation Methods

DRAFT Workgroup Report

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Acronyms

AAC	Alaska Administrative Code
APDES	Alaska Pollutant Discharge Elimination System
AS	Alaska Statutes
BMP	Best Management Practice
BWQ	Baseline Water Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act
DEC	Department of Environmental Conservation
DCCED	Department of Commerce, Community, and Economic Development
DF&G	Department of Fish and Game
DNR	Department of Natural Resources
DOT&PF	Department of Transportation and Public Facilities
EPA	U.S. Environmental Protection Agency
FERC	Federal Energy Regulatory Commission
NOI	Notice of Intent to Operate
NPDES	National Pollutant Discharge Elimination System
ONRW	Outstanding National Resource Water
OSRW	Outstanding State Resource Water
QAPP	Quality Assurance Project Plan
TMDL	Total Maximum Daily Load
USACE	U.S. Army Corps of Engineers

Definitions

Notes: These can be added to or removed as needed. .

- 1) "acute" means of, relating to, or resulting from a level of toxicity of a substance, a substance combination, or an effluent sufficient to produce observable lethal or sublethal effects in aquatic organisms exposed for short periods of time, typically 96 hours or less [18 AAC 70.990(1)];
- 2) "assimilative capacity" means the difference between existing water quality and the criterion value for a pollutant;
- 3) "available evidence" means all relevant and applicable data and information the applicant has or can obtain, and all relevant and applicable data and information available to the department from other sources; "available evidence" does not include data and information that the collection or preparation of which, in the department's determination, is not practicable [18 AAC 70.990(5)];
- 4) "boundary" means a line or landmark that serves to clarify, outline, or mark a limit, border, or interface [18 AAC 70.990(8)];
- 5) "certification" means the certificate of reasonable assurance the department may issue under 33 U.S. Code (U.S.C.) 1341 (Clean Water Act, sec. 401), as amended through February 4, 1987 [18 AAC 70.990(10)];
- 6) "chronic" means of, relating to, or resulting from a level of toxicity of a substance, a substance combination, or an effluent sufficient to produce observable lethal or sublethal effects, including effects on growth, development, behavior, reproduction, or survival, in aquatic organisms exposed for a period of time that generally is one-tenth or more of their life span [18 AAC 70.990(11)];
- 7) "Clean Water Act" means the Federal Water Pollution Control Act (33 U.S.C. 1251 - 1387), as amended through February 4, 1987 [18 AAC 70.990(12)];
- 8) "commissioner" means the commissioner of the Department of Environmental Conservation, or the commissioner's designee [18 AAC 70.990(14)];
- 9) "contact recreation" means activities in which there is direct and intimate contact with water; "contact recreation" includes swimming, diving, and water skiing; "contact recreation" does not include wading [18 AAC 70.990(16)];
- 10) "criterion" means a set concentration or limit of a water quality parameter that, when not exceeded, will protect an organism, a population of organisms, a community of organisms, or a prescribed water use with a reasonable degree of safety; a criterion might be a narrative statement instead of a numerical concentration or limit [18 AAC 70.990(17)];
- 11) "department" means the Department of Environmental Conservation [18 AAC 70.990(18)];

- 12) "designated uses" means those uses specified in 18 AAC 70.020 as protected use classes for each waterbody or segment, regardless of whether those uses are being attained [18 AAC 70.990(19)];
- 13) "effluent" means the segment of a wastewater stream that follows the final step in a treatment process and precedes discharge of the wastewater stream to the receiving environment [18 AAC 70.990(22)];
- 14) "existing uses" means those uses actually attained in a waterbody on or after November 28, 1975 [18 AAC 70.990(24)];
- 15) "fish" means any of the group of cold-blooded vertebrates that live in water and have permanent gills for breathing and fins for locomotion[18 AAC 70.990(26)];
- 16) "groundwater" means water in the zone of saturation; in this paragraph, "zone of saturation" is the zone below the water table, where all interstices are filled with water[18 AAC 70.990(28)];
- 17) "industrial use" means use of a water supply for a manufacturing or production enterprise except food processing, and includes mining, placer mining, energy production, or development[18 AAC 70.990(31)];
- 18) "lake" means an inland waterbody of substantial size that occupies a basin or hollow in the earth's surface and that might or might not have a current or a single direction of flow [18 AAC 70.990(33)];
- 19) "mixing zone" means a volume of water adjacent to a discharge, in which wastes discharged mix with the receiving water[18 AAC 70.990(38)];
- 20) "natural condition" means any physical, chemical, biological, or radiological condition existing in a waterbody before any human-caused influence on, discharge to, or addition of material to, the waterbody [18 AAC 70.990(41)];
- 21) "nonpoint source" means a source of pollution other than a point source [18 AAC 70.990(42)];
- 22) "Outstanding National Resource Waters" (ONRW) means those watersafforded Tier 3 protection from water quality degradation through a designation process that is to be determined;
- 23) "persist" means the ability of a substance or chemical not to decay, degrade, transform, volatilize, hydrolyze, or photolyze [18 AAC 70.990(44)];
- 24) "point source" means a discernible, confined, and discrete conveyance, including a pipe, ditch, channel, tunnel, conduit, well, container, rolling stock, or vessel or other floating craft, from which pollutants are or could be discharged [18 AAC 70.990(46)];
- 25) "pollution" means the contamination or altering of waters, land, or subsurface land of the state in a manner which creates a nuisance or makes waters, land, or subsurface land unclean, or noxious, or impure, or unfit so that they are actually or potentially harmful or detrimental or injurious to public health, safety, or welfare, to domestic, commercial, industrial, or recreational use, or to livestock, wild animals, bird, fish, or other aquatic life (AS 46.03.900);

- 26) "practicable" means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes [18 AAC 70.990(48)];
- 27) "secondary recreation" means activities in which incidental water use can occur; "secondary recreation" includes boating, camping, hunting, hiking, wading, and recreational fishing; in this paragraph "recreational fishing" does not include fish consumption [18 AAC 70.990(50)];
- 28) "sediment" means solid material of organic or mineral origin that is transported by, suspended in, or deposited from water; sediment includes chemical and biochemical precipitates and organic material, such as humus [18 AAC 70.990(32)];
- 29) "shellfish" means a species of crustacean, mollusk, or other aquatic invertebrate with a shell or shell-like exoskeleton, in any stage of its life cycle [18 AAC 70.990(72)];
- 30) "significantly adverse levels" means concentrations of pollutants that would impair the productivity or biological integrity of the overall waterbody, including reducing or eliminating the viability or sustainability of a given species or community of species in the overall waterbody [18 AAC 70.990(54)];
- 31) "spawning" means the process of producing, emitting, or depositing eggs, sperm, seed, germ, larvae, young, or juveniles, especially in large numbers, by aquatic life [18 AAC 70.990(56)];
- 32) "Tier 1" means the level of waterbody protection required to ensure that water quality supports existing uses [18 AAC 70.015(1)];
- 33) "Tier 2" means the level of waterbody protection required to maintain and protect water quality that is better than levels necessary to support propagation of fish, shellfish, and wildlife and to support recreation in and on the water unless the department finds that allowing lower water quality is necessary to accommodate important economic or social development in the area where the water is located and such lowering of water quality meets all applicable regulations [18 AAC 70.015(2)];
- 34) "Tier 3" means the level of protection required to maintain and protect water quality at existing levels or better in a state-designated Outstanding National Resource Water, except for minor levels of degradation which may occur over a short time period (i.e., days or weeks) [18 AAC 70.015(3)];
- 35) "toxic" means of, relating to, or resulting from a substance or substance combination that causes in affected organisms or their offspring (A) death, disease, malignancy
- 36) , or genetic mutations; (B) abnormalities or malfunctions in growth, development, behavior, or reproduction; or (C) other physical or physiological abnormalities or malfunctions [18 AAC 70.990(61)]
- 37) "treatment works" means a plant, disposal field, lagoon, pumping station, constructed drainage ditch or surface water intercepting ditch, incinerator, area devoted to sanitary landfills, or other works installed for the purpose of treating, neutralizing, stabilizing, or disposing of sewage, industrial waste, or other wastes (AS 46.03.900);

- 38) "water," "waterbody," and "waters" include lakes, bays, sounds, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, straits, passages, canals, the Pacific Ocean, Gulf of Alaska, Bering Sea, and Arctic Ocean, in the territorial limits of the state, and all other bodies of surface or underground water, natural or artificial, public or private, inland or coastal, fresh or salt, which are wholly or partially in or bordering the state or under the jurisdiction of the state (AS 46.03.900);()
- 39) "water of the United States" has the meaning given the term "waters of the United States" in 40 C.F.R. 122.2, as amended through August 15, 1997 [18 AAC 70.990(66)]and includes interstate waters and wetlands, waters subject to the ebb and flow of the tide, waters that may be used for interstate or foreign commerce or recreation, and tributaries, impoundments, the territorial sea, or wetlands adjacent to such waters regardless of whether such waters are intermittent (for complete citation see Appendix D)
- 40) "water recreation" means contact recreation or secondary recreation [18 AAC 70.990(67)];
- 41) "water supply" means any of the waters of the state that are designated in this chapter to be protected for fresh water or marine water uses; water supply includes waters used for drinking, culinary, food processing, agricultural, aquacultural, seafood processing, and industrial purposes; "water supply" does not necessarily mean that water in a waterbody that is protected as a supply for the uses listed in this paragraph is safe to drink in its natural state [18 AAC 70.990(68)];);
- 42) "wildlife" means all species of mammals, birds, reptiles, and amphibians[18 AAC 70.990(69)]

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1 **Executive Summary**

2 The federal Clean Water Act (CWA) requires states to adopt water quality standards that include
3 an antidegradation policy and implementation methods. In general, antidegradation policies
4 establish three levels or tiers of water quality protection. Tier 1 requires that the water quality
5 necessary to protect existing uses be maintained and protected. Tier 2 stipulates that existing
6 levels of water quality – which are better than water quality standards – be protected unless the
7 state finds that lower water quality is necessary to accommodate important economic or social
8 development in the area. Tier 3 is reserved for waters identified by the state as outstanding
9 national resource waters, which may not be degraded except for temporary and minor
10 decreases in water quality.

11 Alaska adopted its antidegradation policy – which mirrors requirements in federal regulations –
12 in 1997. A stakeholder workgroup was established in 2011 to advise the Department of
13 Environmental Conservation (DEC) on the development of final implementation methods, which
14 occurred during a series of meetings throughout 2012. The workgroup, assisted by DEC staff and
15 with contractor support, researched and discussed a range of issues associated with
16 antidegradation implementation methods. Recommendations from the workgroup are listed in
17 this report, along with summaries of discussions that provide context.

18 The workgroup discussed and provided recommendations on the seven issues summarized
19 below.

20 **Issue #1: What Triggers an Antidegradation Review?**

21 A key focus of the workgroup was to define the types of activities subject to antidegradation
22 requirements. Workgroup members identified the following as the activities that should be
23 subject to antidegradation requirements: new or expanded wastewater discharges permitted
24 under CWA Section 402, the placement of dredged or fill material into Waters of the U.S. under
25 CWA Section 404, and new or expanded activities subject to CWA Section 401 water quality
26 certification by DEC. They also recommended that these implementation methods should only
27 be applied to Waters of the U.S., which includes surface waters, but not groundwater. The
28 recommendations affirmed that DEC would ensure that all activities would protect existing
29 waterbody uses, and be subject to Tier 2 antidegradation reviews if they would lower water
30 quality.

31 **Issue #2: What Information is Needed to Determine Baseline Water Quality?**

32 The workgroup noted the importance of establishing a process to assess pollutant
33 concentrations and determine baseline water quality (BWQ) as part of the implementation
34 methodology. Characterization of BWQ provides a framework for addressing all three tiers of
35 waterbody protection (i.e., matching parameters of concern in the proposed discharge to levels
36 of those parameters in receiving water helps to predict how much degradation might occur, and
37 whether or not water quality criteria will be met). The workgroup recommended that DEC use
38 existing procedures for determining BWQ, including actual monitoring and assessment data, use

39 of representative waterbody information, and assuming that baseline concentrations of
40 anthropogenic pollutants are zero for waters in undeveloped areas.

41 **Issue #3: How are Outstanding National Resource Waters (ONRWs) Designated?**

42 Recommendations regarding Tier 3 waters centered on the process for designating these
43 outstanding waters, and the type of information needed. Workgroup members felt that state
44 legislative action would be required to clarify who has the authority to designate an ONRW,
45 either directly or indirectly (i.e., direct approval of a Tier 3 waters list by the legislature, or by
46 delegating legislative authority to a multi-agency board, DEC alone or another entity to make
47 those decisions). Basic information on the waterbody to be nominated as a Tier 3 water would
48 be collected by the nominating party (e.g., member of the public, agency, etc.), with state
49 agencies providing more detailed data on land ownership, waterbody uses and condition,
50 permits, and other information.

51 **Issue #4: Tier 2 Analysis – How should DEC Evaluate Important Social or Economic**
52 **Development of a Project?**

53 Tier 2 reviews of projects affecting high-quality waters involve considerable research, discussion,
54 and deliberation. The requirement that project proponents demonstrate that their proposals
55 are “necessary” to accommodate important economic or social development produced general
56 consensus that a permit applicant should provide information for either economic or social
57 development – but not necessarily both. Economic importance parameters could include
58 increases in employment, the tax base, commercial activities, or access to resources or
59 transportation networks. Social development parameters could include access to community
60 services, recreational opportunities, education and training, or improvements to public health,
61 safety, or infrastructure. Because DEC may not have the capacity to adequately assess economic
62 or social benefits, the workgroup recommended that other state agencies with such expertise
63 provide assistance in evaluating information submitted as part of a Tier 2 antidegradation
64 review. In addition, members supported an approach where the level of detail and robustness of
65 the Tier 2 review would be proportional to the level of risk and degree of impact from a
66 proposed discharge.

67 **Issue #5: Tier 2 Analysis: What Level of Alternatives Analysis is Necessary?**

68 A similar view toward proportionality in Tier 2 antidegradation reviews emerged in regards to
69 alternatives analyses, which are required as part of the demonstration that a lowering of water
70 quality is “necessary.” The workgroup recommended that DEC require applicants to assess a
71 reasonable range of practicable alternatives when assessing proposals that would lower water
72 quality, including non-discharge approaches, process changes, relocation of the discharge,
73 seasonal discharges, and other methods. Evaluation of alternatives would be based on both
74 quantitative and qualitative factors, rather than a strict numeric cost threshold.

75 **Issue #6: How are Waters Ranked as Tier 1 and Tier 2?**

76 Receiving waterbody impacts would be evaluated via a parameter-by-parameter approach
77 during Tier 2 reviews, meaning that pollutants in the discharge would be compared to ambient

78 levels in the receiving water to determine the assimilative capacity for that parameter.
79 Parameters with better water quality than that required by the state criteria would be protected
80 at the Tier 2 level.

81 **Issue #7: Should DEC Define Significant and/or de minimis Degradation?**

82 Finally, after much discussion and consideration, the workgroup decided against a
83 recommendation to waive Tier 2 reviews for small discharges or activities that may represent a
84 *de minimis* impact on the quality of the receiving water, under the assumption that the level of
85 effort required to demonstrate applicability of any *de minimis* standard and the work required
86 to track the cumulative impact of many such discharges would offset any perceived benefits.

87 In closing, it should be noted that the workgroup generally supported antidegradation
88 implementation methods that built upon existing policies, procedures, and processes used by
89 DEC and other state agencies where feasible. Where relevant, antidegradation reviews should
90 incorporate information from assessments, studies, and reports generated by sister state
91 agencies and federal entities (e.g., US Army Corps of Engineers, US Fish and Wildlife Service), if
92 available, particularly for general permits and 401 water quality certifications of non-DEC issued
93 402 and 404 permits.

94 **I. Introduction**

95 **A. Introduction to Water Quality Standards and Antidegradation**
96 **Policy**

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

104 Existing water quality can be better than water quality criteria and accommodate some water
105 quality degradation (from existing conditions) while still protecting designated uses. The CWA
106 recognizes that there is value in maintaining existing water quality even where the water quality
107 is better than the threshold needed to support those uses. Thus, even when all designated uses
108 will be protected, existing water quality permitting and certification processes need to
109 determine whether any degradation of water quality should be allowed. This concept is referred
110 to in the CWA as “antidegradation.”

111 New or expanded human activities, such as enlargement of a wastewater treatment plant to
112 accommodate population growth or the opening of a mine to provide raw materials used by
113 society, can result in a wastewater discharge that may degrade, improve, or have negligible
114 effects on existing water quality. Antidegradation policy allows degrading or lowering of water
115 quality when designated uses of the water will still be maintained and the lowering is necessary
116 to support important economic or social development in the area. The outcome of the
117 antidegradation review may be no change to the proposed discharge, the adoption of
118 alternatives that would reduce impacts to water quality, and/or setting discharge limits more
119 stringent than those needed to protect designated uses.

120 The State of Alaska has an antidegradation policy that mirrors federal CWA policy. Alaska also
121 has interim antidegradation implementation methods. The Alaska Department of
122 Environmental Conservation (DEC) is in the process of developing more detailed, final
123 implementation methods as required by the CWA.

124 **B. Purpose of Antidegradation Workgroup**

125 DEC adopted its antidegradation policy in 1997, at 18 Alaska Administrative Code (AAC) 70.015.
126 The policy establishes requirements that must be met to authorize a reduction in existing water
127 quality. To facilitate its decision-making process, DEC relies on interim antidegradation
128 implementation methods. DEC has initiated a public process to inform development of final
129 antidegradation implementation methods. To solicit input and as an informal step before

130 drafting implementation methods as regulations and starting a formal rule-making process, DEC
131 established an Antidegradation Workgroup (Workgroup).

132

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

138 **C. Process for Workgroup Meetings**

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

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

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

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

160 The Workgroup strived to develop recommendations that the state, permittees, and public
161 could support. Where consensus was not possible, recommendations from the group were
162 characterized as much as possible in terms of level of support among Workgroup participants,
163 applicability, consistency with statutes and regulations, and other criteria, to inform future DEC
164 discussions. Development of final antidegradation implementation methods remains DEC's
165 responsibility.

D. Rule-Making Process

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

II. Status and History of Alaska's Antidegradation Policy Implementation

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

A. Source of Antidegradation Policy and Implementation Methods

Federal Clean Water Act Regulations

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

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

Tier 2 protections apply to waters whose quality exceeds the levels necessary to support the propagation of fish, shellfish, and wildlife, as well as recreation in and on the water. Water quality of Tier 2 waters can be degraded only if the state finds, subject to public participation under existing public review processes and intergovernmental coordination, that allowing lower water quality is necessary to

accommodate important economic or social development, and that the actions authorizing a lowering of water quality will protect existing uses. In addition, the state must ensure that applicable statutory and regulatory requirements for all new and existing point sources (discrete and confined discharge points; e.g., discharge pipe or collected runoff from a construction site)

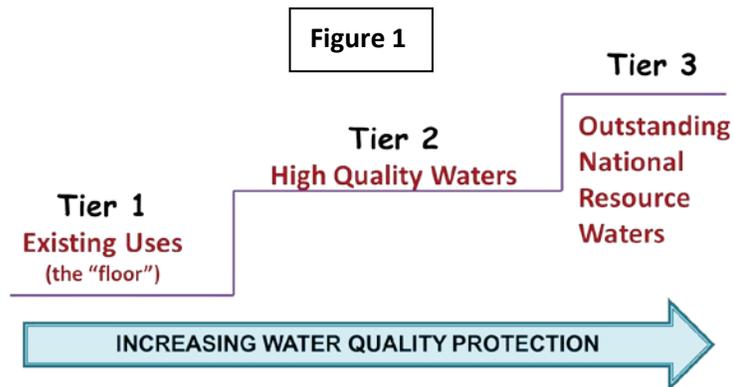


Figure 1. Three tiers or levels of water quality protection identified in federal and in Alaska's antidegradation regulations.

202 are met; all cost-effective and reasonable Best Management Practices (BMPs) for nonpoint
203 (diffuse source of runoff or meltwater) source control are used; and all applicable water quality
204 criteria are met. Most of the critical antidegradation implementation issues pertain to Tier 2
205 protection.

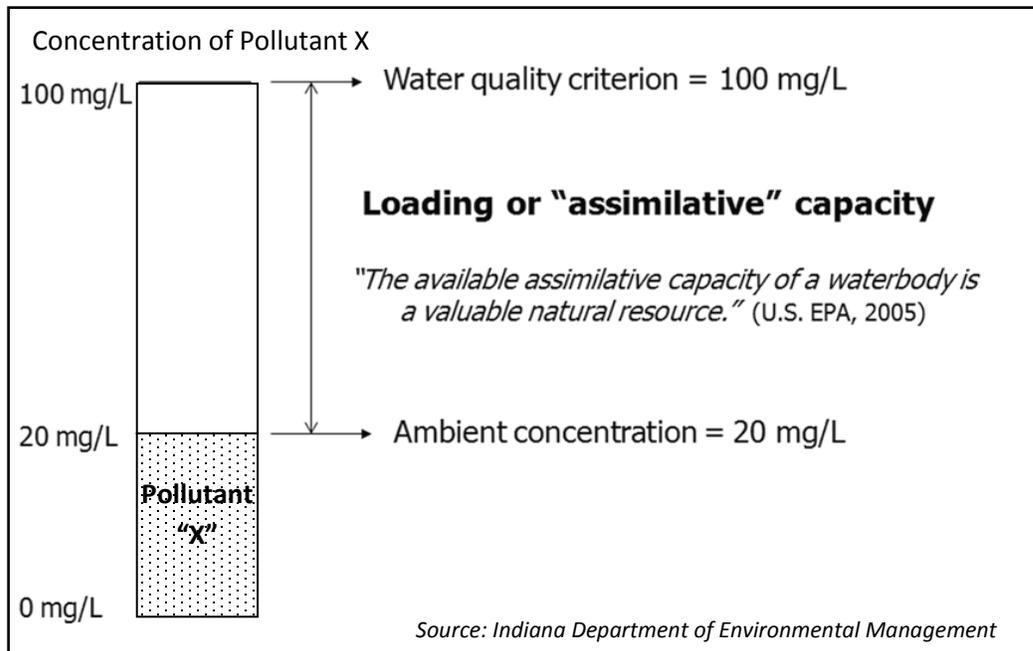
206 Tier 3 protection applies to Outstanding National Resource Waters (ONRWs). Typically this
207 designation includes waters of exceptional aesthetic, recreational, or ecological significance
208 such as those found in National parks. If a waterbody is designated an ONRW, the water quality
209 of the ONRW must be maintained and protected, and only minor and temporary decreases in
210 water quality are allowed. States are not required to designate ONRWs but must develop the
211 methodology to do so and must provide the appropriate level of protection if an ONRW is
212 designated.

213 [Guidance on Antidegradation Implementation Methods](#)

214 EPA's *Water Quality Standards Handbook* states that "any one or a combination of several
215 activities may trigger the antidegradation policy analysis." This review may be required if the
216 state receives a request for a new or expanded National Pollutant Discharge Elimination System
217 (NPDES) or Alaska Pollutant Discharge Elimination System (APDES) wastewater discharge permit.

218 One way that states conduct antidegradation reviews is to evaluate potential effects of a new or
219 expanded wastewater discharge through an analysis of the remaining "assimilative capacity" for
220 a given pollutant in the waterbody. The assimilative capacity of a waterbody represents the
221 maximum degradation possible without exceeding water quality criteria or affecting existing
222 uses. Therefore, assimilative capacity is one way to quantify how much the existing water
223 quality is better (assimilative capacity exists) or worse (assimilative capacity is used up) than
224 water quality criteria.

225 For example, high quality waters (i.e., Tier 2 waters) will have a lower concentration of a given
226 pollutant than the ambient concentration needed to avoid loss of the designated use (the water
227 quality criterion). The difference between these two concentrations (i.e., between ambient
228 concentration and the criterion in Figure 2) represents the available assimilative capacity of a
229 waterbody for that particular pollutant. Thus, the determination of assimilative capacity will
230 determine the quantity of a pollutant that can be added to a waterbody before it can no longer
231 support one or more of its designated uses.



232

233 [Figure 2. Schematic showing assimilative capacity in the context of the Antidegradation review process.](#)

234 **B. DEC Antidegradation Policy**

235 DEC adopted its current antidegradation policy (18 AAC 70.015) in 1997 (Appendix D). DEC
236 adopted interim antidegradation implementation methods in 2010 (Appendix E), and EPA
237 determined that they are consistent with the CWA.

238 **C. Antidegradation Policy Implementation Efforts**

239 Development of antidegradation implementation methods began in 2007. Since then, DEC has
240 sponsored or led several activities designed to provide information to the agency regarding
241 options for implementing antidegradation policy in Alaska.

242 These include:

- 243 • [2008 Evaluation of Options for Antidegradation Implementation Guidance](#)
- 244 • [2009 Conference on Antidegradation Implementation](#)
- 245 • [2010 Interim Antidegradation Implementation Methods](#)
- 246 • [2011 Antidegradation Final Implementing Methods Workplan](#)

247 The 2008 report, titled "Evaluation of Options for Antidegradation Implementation Guidance,"
248 presents Alaska's antidegradation policy and describes how other States implement their
249 policies. It describes the major elements of implementation guidance and includes options for
250 Alaska's implementation guidance along with the options' merits and limitations.

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

253 potential options for antidegradation implementation methods in Alaska. This conference was
254 for informational purposes only and discussed implementation methods adopted by other
255 states, and which approaches might work best in Alaska.

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

263 The Antidegradation Final Implementing Methods Work Plan (2011) sets out DEC’s plan for
264 developing final methods for implementing the state’s antidegradation policy. It discusses
265 actions to date (summarizing the activities referred to above) as well as those planned for the
266 future. It also lays out the Workgroup concept and process.

267 In addition to these forums and documents, antidegradation issues were highlighted in a public
268 notice dated April 2011 describing Department priorities during the 2011-2013 triennial review
269 of Alaska’s water quality standards and in an Antidegradation Fact Sheet posted on the DEC
270 webpage in April 2011.

271 **III. Key Antidegradation Issues**

272 DEC identified seven issues to direct the Workgroup’s evaluation of potential implementation
273 methods for Alaska’s antidegradation policy. This section presents each issue, provides a brief
274 description of the issue, states the recommendations of the Workgroup, identifies various
275 options discussed by the Workgroup for that issue, and summarizes the pros and cons that were
276 considered. As the issues are inherently related, references to prior or later issue subsections do
277 occur. Where applicable, there is a discussion of dissenting views or lack of consensus regarding
278 specific parts of a given issue. Additional issues identified and discussed by the Workgroup are
279 also provided.

280

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

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

283 A variety of issues come into play in deciding what actions trigger antidegradation reviews.
284 States handle certain aspects of antidegradation review differently (e.g., some waive
285 antidegradation reviews for activities with a less significant or *de minimis* impact on water
286 quality). A review is usually deemed warranted in cases where there is potential for water
287 quality degradation due to a new or expanded discharge. Determining the need for a review

288 requires some characterization of the discharge and ambient receiving water quality (i.e., based
289 on chemical, biological, and/or physical monitoring data) to accurately project effects on the
290 receiving water. While the discharge is often sufficiently characterized, many cases exist where
291 monitoring data for ambient conditions is nonexistent or incomplete when an activity is
292 proposed.

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

- 294 • For which waters does this antidegradation review apply (i.e., surface waters,
295 groundwater, state waters, or federal waters)?
- 296 • What CWA activities trigger an antidegradation review; e.g., APDES permits, 401
297 certifications of NPDES permits, wetlands 404 permits and their 401 certifications. What
298 about other CWA decisions; e.g., impaired waters listings, TMDLs?
- 299 • Should antidegradation reviews be conducted for non-CWA activities, e.g., forestry,
300 grazing?
- 301 • Is a review needed for only new and increased discharge permit and 401 certification
302 reviews? Should reissued permits require antidegradation analysis if the analysis was
303 not performed previously, and if there is no change to the discharge?
- 304 • How does this apply to general permits? 404 wetland permit certifications? Stormwater
305 BMPs?

306 The determination of baseline receiving water quality is discussed further in Issue #2. The
307 possible use of *de minimis* degradation levels to avoid triggering Tier 2 antidegradation review is
308 discussed further in Issue #7.

A2. Workgroup Member Recommendations – Issue #1

The following list is a compilation of the Workgroup member recommendations for Issue #1.

1. Antidegradation requirements and reviews should be restricted to Waters of the U.S. in Alaska, as defined under the CWA. As needed, DEC should modify the state’s antidegradation policy to make the policy consistent with this recommendation. A minority of the workgroup feel that antidegradation analyses should apply to groundwater, which may require different implementation methods since groundwater is not protected for “fishable/swimmable” uses. DEC could consider groundwater in its implementation methods or in a separate, future rulemaking tailored to groundwater.
2. Only activities regulated by DEC under CWA Sections 401, 402, and 404 should be subject to antidegradation requirements and reviews. This includes issuance of and coverage under APDES general and individual permits; DEC’s CWA Section 401 certification of the placement of dredged or fill material into Waters of the U.S. under a US Army Corps of Engineers (USACE) permit, and other federally permitted activities subject to the Section 401 water quality certification process (e.g., FERC dam licensing).

309

A2. Workgroup Member Recommendations – Issue #1 (cont.)

3. DEC should use the USACE 404(b)(1) analysis as a major reference while conducting its own independent antidegradation analysis for those projects permitted under Section 404 of the CWA that require state 401 certification. Other analyses related to economic or social development associated with the project can supplement this information. The USACE CWA Section 404 permit addresses the actual fill area. Thus, DEC antidegradation reviews will focus on the area outside the fill area. All 401 water quality certifications require antidegradation reviews. Antidegradation considerations can be part of 401 certification conditions and general permit requirements (e.g., the EPA Construction General Permit issued in February 2012).
4. Tier 2 antidegradation requirements should apply only to new or expanded discharges.
 - a. Tier 2 antidegradation requirements should not apply to re-issued permits that already have had an antidegradation review and/or have not changed in terms of permitted flow, pollutant load, or water quality characteristics since the last permit issuance.
 - b. Expanded discharges should be defined as those discharges where total loads or concentrations are increased beyond previously permitted amounts or other discharge characteristic change in a manner that could have adverse environmental impacts (e.g., pH, dam discharge amounts, or temperature).
 - c. Discharges are not automatically assumed to require an antidegradation review when a facility (e.g., a treatment plant, but not its discharge) is expanded. Previously permitted pollutant loads are considered to be included in BWQ.
 - d. For an existing discharge, If there was no previous permit for an existing discharge, and the amount of existing discharge does not increase, then a Tier 2 antidegradation review is not required in the following cases:
 - i. If no permit was previously required, or
 - ii. If a permit application was submitted but no permit was issued.
 - e. In cases of existing unpermitted discharges, if a permit was required but an application was not submitted, then a Tier 2 antidegradation review is required.
 - f. Previously non-permitted discharges will not be considered when determining BWQ.
 - g. Use of assimilative capacity will be prioritized based on the administratively complete application date.
 - h. Reissued permits that have not had an antidegradation review and have not changed in flow should be grandfathered because they are now part of BWQ. DEC can use the APDES permitting process to decide whether or not process, treatment, or other upgrades are needed when it recognizes that there can be better performance at a reasonable cost.

A2. Workgroup Member Recommendations – Issue #1 (cont.)

5. Tier 1 antidegradation reviews and, if applicable, Tier 2 reviews should be conducted at the time of permit application review and permit drafting. The public notice for antidegradation reviews should be part of the public notice for individual APDES permits and individual water quality certifications.
6. For general permits, the antidegradation review and public notice procedures should be completed at the time the general permit is developed and issued or, as applicable, during reissuance.
7. For general permits, DEC should incorporate into permits the circumstances under which DEC would do individual Tier 2 antidegradation analyses for a given application for coverage under the general permit. Specifically, DEC should identify assumptions and conditions in the general permit and/or factsheet that describe when a Tier 2 antidegradation analysis at the NOI stage will be required and when it will not. This would make the antidegradation review process less ambiguous and more transparent to permittees and the public.
 - a. For example, a decision flow chart could be developed that includes: location of the waterbody, number of discharges in the area, type of waterbody, the water quality of the waterbody, cumulative impacts to the waterbody from multiple discharges (if present), and any special designations (e.g., impaired).
 - b. A Tier 2 antidegradation review should not be required for a new discharge that complies with conditions in the general permit unless there is either evidence of potential cumulative effects due to the presence of other nearby discharges, or there are certain details in the NOI that indicate differences from conditions specified in the general permit.
 - c. DEC should reserve the right to require a Tier 2 antidegradation analysis at the NOI/authorization stage.

311

312

A3. Options Considered for Issue #1 with their Pros and Cons

313 Workgroup members began their discussion of what triggers an antidegradation review by
314 considering what kind of data is available to use in determining whether an antidegradation
315 review is necessary. This led to a discussion of what might automatically trigger or exclude an
316 activity from an antidegradation review, what thresholds could be set, and whether
317 authorizations under a general permit should trigger an antidegradation review.

318 *Site-specific evaluation to determine need for antidegradation review*

319 Workgroup members acknowledged the value of conducting site-specific evaluations to
320 determine whether a Tier 2 antidegradation review is necessary.

- 321 • Pros to this approach are that relatively few assumptions need to be made regarding
322 whether a Tier 2 antidegradation review is needed because the approach utilizes site-
323 specific information rather than estimates or assumptions.
- 324 • Cons to this approach are that projecting effects to receiving waters is difficult enough
325 for point source wastewater discharges where some ambient data may be available, but
326 becomes very difficult when modeling the effects of multiple stormwater or other
327 discharges into multiple receiving waters with little to no available data. Relative to the
328 number of activities that could require review, there are few situations where there is
329 sufficient ambient water quality data or enough accurate information about the
330 discharge at the time a project or activity is proposed to make confident judgments
331 about effects of the activities on receiving waters.

332 For CWA Section 404 permits, the antidegradation review could consist primarily of a review of
333 the existing permit documents and a determination of whether that information provided
334 sufficient data to make a determination under the antidegradation policy. If needed,
335 antidegradation considerations (e.g., alternatives analysis) could be addressed in the conditions
336 of the CWA Section 401 water quality certification of the 404 permit. Information for
337 determinations of social or economic development associated with the project could be derived
338 from other reports or studies, or summarized by the applicant and submitted to DEC.

339 *Activities that would automatically trigger an antidegradation review and those that should*
340 *be automatically excluded*

341 The Workgroup discussed alternative approaches for identifying specific activities that would
342 automatically trigger the Tier 2 review process and those that should be automatically excluded.
343 These included the use of a rebuttable presumption that the proposed activity could lower
344 existing water quality, presumably in a measurable and significant manner. Possible
345 considerations identified by the Workgroup for activities that might trigger and guide the level
346 of detail for a Tier 2 antidegradation review included:

- 347 • Type of activity – i.e., wastewater treatment discharges, various types of NPDES-
348 permitted stormwater discharges, etc.
- 349 • Available dilution instream
- 350 • Persistence and potential effects of the pollutants of concern
- 351 • Potential increase in ambient concentrations predicted at the appropriate critical
352 condition(s)
- 353 • Potential increase in loadings
- 354 • Potential reduction in available assimilative capacity of the waterbody

- 355
- Potential for cumulative effects from other nearby discharges

356 Another option discussed was whether all new or expanded discharges should have Tier 2
357 antidegradation reviews, regardless of discharge size, risk factors, or types of activity.

- 358
- Pros to this approach are that DEC does not need to decide whether a Tier 2 review is
359 necessary; any new or expanded activity would be reviewed. This would eliminate the
360 resources needed to evaluate and document permits that are exempt from
361 antidegradation review. Also, this would eliminate exemptions as the subject of
362 litigation and appeals.

- 363
- Cons raised were that this approach tends to dilute the review process because there
364 will be so many activities (including perhaps many minor ones) that may need Tier 2
365 review. The Workgroup agreed that pro forma reviews provide little or no benefit to the
366 environment.

367 The Workgroup also discussed activities or conditions that could be exempt from Tier 2
368 antidegradation review based on a justifiable presumption that the proposed activity would not
369 lower existing and/or previously permitted water quality. These included:

- 370
- Projects designed to improve the quality of surface waters
 - 371 • Reissued individual NPDES permits with no change in discharge
 - 372 • Modified individual NPDES permits with permitted discharge at or below that presently
373 allowed in an existing permit (i.e., no increase in discharge volumes, concentrations, or
374 loadings above permit limits)
 - 375 • Projects that do not otherwise lower the quality of a receiving water
 - 376 • Activities that have an insignificant or *de minimis* impact on water quality, as long as a
377 cumulative cap on pollutant loads or use of the available assimilative capacity is
378 maintained

379 Some, but not all, of the above conditions were identified by the Workgroup as
380 recommendations (see previous section).

381

382 The Workgroup discussed whether the extent of permit review might vary with the type of
383 activity or the location of the proposed activity (e.g., receiving waterbody characteristics that
384 might make aquatic resources more or less vulnerable to potential lowering of water quality).

385 The Workgroup discussed the need for a Tier 2 antidegradation review based in part on the
386 potential for the new or expanded activity to cause water quality degradation in the waterbody
387 receiving the discharge. For example, a new, small volume and/or low concentration discharge
388 to a large waterbody might not need an antidegradation review, or might require a much
389 simpler review process than the same discharge to a small stream with a lower assimilative
390 capacity. Similarly, a new or expanded discharge to a waterbody that serves as habitat for
391 valued aquatic resources such as salmon might be more apt to require a review. Since a given

392 discharge's impact can depend on site-specific conditions, it is difficult to justify categorical
393 exclusions from Tier 2 antidegradation review.

394 *Threshold to determine whether an antidegradation review is required*

395 The Workgroup discussed the idea of using a *de minimis* threshold in terms of allowable
396 lowering of water quality to decide whether a Tier 2 antidegradation review is necessary for an
397 expanded discharge. The Workgroup then considered a number of alternatives for applying a
398 10% threshold as *de minimis*. In Idaho, for example, up to a 10% cumulative use of available
399 *assimilative capacity* is allowed before requiring a Tier 2 antidegradation review. In Idaho, so
400 long as 10% of the cumulative capacity has not been used, a Tier 2 antidegradation review is not
401 required for a new or expanded discharge to that waterbody.

402

- 403 • Pros identified with this approach are that it is fairly straight forward, transparent, and
404 could effectively focus DEC efforts on those situations that should be subject to a Tier 2
405 review.

- 406 • Cons identified are that the 10% threshold is not necessarily tied to potential for effects
407 on aquatic resources and designated uses in general. Another con raised is that DEC
408 would need to keep track of cumulative use of assimilative capacity, which could
409 present some bookkeeping challenges. Finally, for some situations, the cumulative
410 effects analysis needed for this approach might be so complex that it would be more
411 efficient for DEC to do a Tier 2 antidegradation review for the proposed new or
412 expanded activity. This discussion was deferred to Issue #7, "Should DEC Define
413 Significant and/or *de minimis* Degradation" (see Issue #7 in Section III. G. of this Report).

414 *Whether a new discharge under a general permit would trigger a Tier 2 antidegradation* 415 *review*

416 General permits are used to permit multiple discharges, e.g., construction general permits, log
417 transfer facility general permits. Several options were discussed to address whether a new
418 facility authorized under a general permit would trigger a Tier 2 antidegradation review and how
419 such a review should be conducted. The Workgroup acknowledged that general permits
420 currently do not limit the maximum number of facilities, cumulative discharge, or pollutant load
421 authorized under the permit. The general permit does, however, specify what can be
422 discharged, in what types of waters, and other specifics that are designed to maintain and
423 protect water quality and designated uses. One suggestion was that general permits establish a
424 maximum number of facilities to be covered under the permit; if an additional facility desires to
425 be covered under the general permit, a Tier 2 antidegradation analysis could be triggered.
426 Workgroup members agreed, however, that discharges under a general permit may be located
427 all over the state and not close to other discharges. Thus, it may not be reasonable to base a
428 general permit on a certain number of dischargers but rather whether certain important

429 conditions about new discharges differ from assumptions or conditions specified in the general
430 permit.

431

432 Another factor considered by the Workgroup was evaluating the location of the proposed new
433 discharge in light of whether other discharges are in the same area. If so, the possibility of
434 cumulative effects would exist, and this might trigger a Tier 2 antidegradation review. If no other
435 discharges are in the same area, and the new facility discharge would comply with the general
436 permit conditions, then a Tier 2 antidegradation review may not be required.

437 A4. Further Discussion and Outcomes

438 Some Workgroup members took the position that all previous discharges should be
439 grandfathered, and not required to conduct antidegradation reviews if 1) a new permit
440 program was developed for existing discharges, 2) a permit was applied for but not issued by
441 DEC or EPA, or 3) no permit application was submitted. However, the consensus was that
442 reviews in the last case should not be waived. In tandem with Issue #7, the Workgroup
443 supported an approach which provided DEC with some discretion on the level of detail to
444 require for a Tier 2 antidegradation review rather than pursuing categorical or *de minimis*
445 exemptions. This approach would focus on the overall environmental risk of the proposed
446 activity or discharge. Factors DEC should consider when determining the level of detail in a Tier
447 2 antidegradation review may include:

- 448 • the size of the facility,
- 449 • volume of the discharge,
- 450 • duration of the discharge,
- 451 • whether the discharge is temporary vs. permanent,
- 452 • size of the receiving water,
- 453 • toxicity of the discharge,
- 454 • uses of the waterbody,
- 455 • timing of the discharge (e.g., seasonality),
- 456 • whether the facility is a major or “non-major” minor discharger; , and
- 457 • assimilative capacity of the waterbody.

458 **These bullets are also referenced for Issues #2 and #7. We could consider making them an**
459 **additional appendix like Appendix B for baseline water quality.**

460 B. Issue #2: What Information is Needed to Determine Baseline Water 461 Quality?

462 B1. Description of Issue #2

463 Determination of baseline water quality (BWQ) is a pivotal issue in antidegradation analyses
464 because the baseline is used to determine the applicable protection tier for water quality
465 parameters in the waterbody. The BWQ also determines the amount of degradation possible
466 without threatening existing or designated uses, which may occur when water quality criteria

467 are exceeded. Identification of the available assimilative capacity in the receiving water for
468 parameters of concern in the discharge – i.e., the difference between BWQ and water quality
469 criteria – helps to inform the alternatives analysis and other aspects of the Tier 2
470 antidegradation review process.

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

- 472 • How much information is needed to make the BWQ determination?
- 473 • What is the obligation of the permittee to acquire baseline data? Does it depend on
474 whether the discharge has reasonable potential to exceed water quality standards in the
475 receiving waterbody? Or the level of risk to water quality?
- 476 • How do BWQ exceedances determine the tier? What percentage of samples must
477 exceed? Is the exceedance persistent? How does this relate to the water quality criteria
478 averaging period?
- 479 • How can data collection costs be controlled?

480 Additionally, the Workgroup added the following questions:

- 481 • How do you determine if existing uses are being met without already having BWQ data
482 on physical, chemical, and biological parameters?
- 483 • Are dischargers incentivized to improve water quality and available assimilative
484 capacity?
- 485 • How should Alaska determine BWQ for wetlands when there is not free flowing water or
486 the water is trapped in permafrost (i.e., frozen soil) most or all of the year?

B2. Workgroup Member Recommendations – Issue #2

The following list is a compilation of the Workgroup member recommendations for Issue #2,.

1. DEC should retain the existing approach for determining BWQ under the current APDES permit program. Determinations of BWQ should be made on a case-by-case basis. The current flexibility in determining how much BWQ data is necessary should be retained.
2. Factors that might trigger a need for additional BWQ data include: available dilution in the receiving water for the proposed discharge, types of potential contaminants that might be present, and the sensitivity or vulnerability of the waterbody (e.g., the presence of salmon spawning).
3. For waters with little or no data, DEC should use representative waterbodies as surrogates with the understanding that most of the State’s waters are not impacted by human activities.
4. DEC should use a rebuttable presumption that all waters in Alaska should be protected at least at the Tier 2 level in terms of BWQ.
5. DEC should assume that baseline concentrations or loads for pollutants are zero in situations where it makes sense (e.g., the presence of bark in an area proposed for a log transfer facility where bark deposition has not previously occurred).
6. Nonpoint sources should be considered when evaluating assimilative capacity.
7. DEC should consider reasonable, foreseeable, future uses of the waterbody when considering assimilative capacity. In the permit fact sheet it should be made clear to the public when all assimilative capacity for a parameter will be consumed by a proposed discharge.

487

B3. Options Considered for Issue #2 with their Pros and Cons

488

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

489

Existing DEC approach to determine baseline water quality

491

The Workgroup discussed the existing DEC approach for determining BWQ under the APDES permit program which varies based on a number of factors, including availability of data. Generally, in developed areas, there are water quality data that can be used to determine BWQ. For somewhat developed areas, existing data plus data collected by permittees can be used to determine BWQ. In undeveloped areas (by far most of the waters in Alaska), project proponents may need to collect BWQ.

492

In areas where naturally occurring substances, such as metals and sediment, regularly exceed numeric water quality criteria, the “natural condition” can be used as BWQ, and it will be

493

500 assumed that no additional assimilative capacity is available for further degradation. There is
501 existing DEC guidance to establish the natural condition of receiving water quality..

502 There was a mixed discussion on whether a new or modified approach to determine baseline
503 was needed. Some Workgroup members did not see a need for a separate BWQ procedure.
504 Others would have liked to see guidance on the BWQ data needed given specific
505 circumstances/factors (e.g., proportion of discharge to receiving water flow).

506 • Pros: an antidegradation-specific approach for collecting BWQ data would provide clear
507 direction to applicants as to which data were necessary for the review.

508 • Cons: DEC already has some procedures in place to collect receiving water data, and
509 general assessment data for state waters. Adding a separate procedure for
510 antidegradation purposes only was thought to be confusing and unnecessary.

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

512 The Workgroup discussed the importance of understanding BWQ in the context of existing uses
513 in a given waterbody. However, all agreed that monitoring data are relatively scarce for much of
514 Alaska and that there are few options for obtaining better data due to the size and remoteness
515 of many areas. The Workgroup did not reach a clear consensus on the types of conditions that
516 would trigger the need for baseline data but did make substantial progress on proposed factors
517 to consider (see Appendix B). Generally, for purposes of establishing BWQ, it was proposed that
518 DEC should presume that waters will be protected at the Tier 2 level unless identified as Tier 3
519 (ONRWs) for the waterbody or Tier 1 for specific parameters.

520 Tier 1 designations are for those waters that 1) have sufficient data to demonstrate that the
521 existing condition regularly exceeds water quality criteria, or 2) have been designated as
522 impaired under CWA §303(d) for a specific parameter of concern. Tier 1 protection should apply
523 for those parameters resulting in the impairment listing or considered in a natural conditions
524 determination. Other parameters for the same water would likely be designated Tier 2.

525 The Workgroup discussed the type of information an applicant might submit in order to
526 demonstrate the condition of the receiving waters and the level of protection that may apply.
527 Among the options discussed was having the applicant request waterbody protection at the Tier
528 1 level only by submitting sufficient and credible information that the Tier 1 designation is
529 appropriate for the parameters of concern in the waterbody segment being considered (see
530 Appendix B). In addition, the Workgroup expressed support for allowing DEC the flexibility to
531 require a higher level of effort in supplying BWQ for larger projects with greater environmental
532 risk, and a proportionally lesser effort for smaller projects with fewer and less significant risks.

533 B4. Further Discussion and Outcomes

534 After considerable discussion, Workgroup members generally supported an approach for BWQ
535 that gave DEC the opportunity to use existing water quality monitoring and assessment methods

536 and the flexibility to tailor data requested of applicants to the level of environmental risk
537 anticipated. As in Issue #1, the approach would focus on the overall environmental risk of the
538 proposed activity or discharge. Factors DEC should consider when determining the level of data
539 needed to establish BWQ for a Tier 2 review could include the same factors used in determining
540 the level of detail to be used in a Tier 2 antidegradation review, as described in Section A4 and
541 the final paragraph of Appendix B of this report.

542

543 When using representative or other non- site-specific monitoring data, some Workgroup
544 members expressed the view that such data should not be used to “downgrade” a waterbody
545 (i.e., changing the level of tier protection from Tier 2 to Tier 1 for any parameter) without actual
546 monitoring data for the specific parameters in question.

547 **C. Issue #3: How are Outstanding National Resource Waters** 548 **(ONRWs) Designated?**

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

550 Outstanding National Resource Waters (ONRWs) are considered Tier 3 waters in the federal and
551 Alaska antidegradation policies. These waters may include “waters of National and State parks
552 and wildlife refuges and waters of exceptional recreational or ecologic significance”[40 CFR
553 131.12(a)(3)]. Except for certain minor, temporary changes, water quality cannot be lowered in
554 ONRWs. Commercial and residential development that permanently degrades water quality is
555 severely restricted adjacent or upstream of ONRWs. Many states have recognized waters in
556 National or State Parks and other similarly protected areas as candidates for ONRWs. As Alaska
557 has a wealth of such areas, Workgroup members expressed concern that this approach used by
558 other states may not be applicable in determining outstanding waters in Alaska. An overriding
559 question is what types of waters should qualify as ONRWs in Alaska.

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

- 561 • What process should be used to nominate, evaluate, and designate an ONRW?
- 562 • Who is responsible for each of these steps and the final decision?
- 563 • How should the state determine when a waterbody has exceptional ecological or
564 recreational significance?
- 565 • Should existing permits to waters that are subsequently designated as ONRWs be
566 grandfathered?
- 567 • Should Alaska adopt an intermediate level of protection, i.e., Outstanding State
568 Resource Waters (OSRWs) or Tier 2.5?

C2. Workgroup Member Recommendations – Issue #3

The following list is a compilation of the Workgroup member recommendations for Issue #3.

1. ONRWs should be waters that are unique for Alaska, not necessarily unique as compared to waterbodies in the rest of the U.S.
2. Any member of the public can nominate an ONRW as long as there is a clear list of information that must be included in the nomination and state agencies are involved in vetting the nominations. One workgroup member felt that only state agencies should have authority to nominate an ONRW.
3. DEC should perform a completeness review of nomination applications before they are evaluated, and solicit public comment via existing public input procedures as part of the vetting process.
4. A multi-agency board should be created to evaluate nominations. Such a board could include DEC, Department of Natural Resources (DNR), Department of Fish and Game (DF&G), the Department of Transportation and Public Facilities (DOT&PF), and the Department of Commerce, Community, and Economic Development (DCCED).
5. The Workgroup consensus was that the state legislature should be involved in approving ONRWs. , The Workgroup proposed that the legislature should be involved either 1) through direct action on nominations that have been reviewed and forwarded by DEC or a multi-agency or other board, or 2) by delegating decision-making authority to DEC or a board through legislative action. A legislative bill should be drafted to clarify authority for designating ONRWs and provide funding as needed for reviewing and evaluating ONRW nominations (e.g., for a multi-agency board).
6. The present levels of tier protection in state and federal antidegradation policy are adequate and appropriate. No Tier 2.5 (i.e., Outstanding State Resource Water category) is necessary.
7. When establishing an ONRW, existing permits should be grandfathered, but new or increased discharges should not be allowed. .

569

570

C3. Options Considered for Issue #3 with their Pros and Cons

571

The Workgroup explored the range of options for ONRWs in considerable detail, and there was some divergence regarding specific details of the ONRW nomination, review, and approval processes:

572

573

ONRW nominations

574

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

575

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

578 • Cons include: the public may not be involved in the nomination process to the extent
579 that they would like, resulting in a more restricted approach. Limited state resources
580 may restrict the number of nominations.

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

583 • Pros: the public would be involved in nominations and, since decisions about ONRWs
584 could affect public interests, the legislature would be an appropriate body to make this
585 policy decision.

586 • Cons: nominations via a legislator could get bogged down in the legislative process and
587 bill priorities. A legislator may not be in office long enough to see the nomination
588 process through.

589 A third option was that the public nominate an ONRW either to a state agency or directly to the
590 legislature. This option would share most of the pros and cons of the first two options.

591 • Pros: direct public involvement in the nomination process and waterbody-specific
592 threats may be detailed by knowledgeable individuals.

593 • Cons: limited amount of access to certain kinds of data by the public, individuals may be
594 seeking to protect certain self-interests rather than that of the general public, and the
595 number of nominations may overwhelm available state resources.

596 *Responsibility for reviewing nominations*

597 The Workgroup discussed options for reviewing and approving ONRW nominations. The basic
598 process would be:

- 599 1. An interested party gathers information regarding the proposed waterbody nomination
600 and submits the information to a review board comprised of DEC, DNR, DF&G, the
601 DOT&PF, and the DCCED.
- 602 2. DEC collects additional information from other agencies, incorporates public notice and
603 a public comment period, and has the review board evaluate the information.
- 604 3. DEC or the review board makes a determination on a possible ONRW designation, either
605 a. directly – if legislative approval is granted to DEC or the board, or
606 b. indirectly - by submitting the nomination package and recommendations to the
607 legislature, if that approach is adopted.

608 The types of information to be collected from the applicants and from state agencies could
609 include the following:

610 *Applicant submitted information:*

- 611 • Name of the waterbody, location, reach length, and maps showing the extent of the
612 proposed ONRW.
- 613 • Rationale for ONRW nomination and explanation of why existing protections are
614 insufficient, such as relevant existing and historical records, data, any available studies
615 supporting the significance of the waterbody, relevant water quality information
616 (biological, chemical, hydrological), ecological uniqueness, and recreational information.
- 617 • Information on land owners and stakeholders and their interests, such as economic,
618 recreational, cultural, subsistence, etc.
- 619 • Documentation of stakeholder outreach and support, such as letters and resolutions
620 documenting level of support in the ONRW area and elsewhere, issues or concerns,
621 meetings held, communications, etc.
- 622 • Additional information as may be recommended by DEC.

623

624 *Agency provided information:*

- 625 • An inventory of waterbody uses, land owners and land ownership, land uses, natural
626 resources, special land area designations, and transportation corridors
- 627 • An Inventory of existing permitted withdrawals and discharges within and upstream of
628 the ONRW, along with any future uses; a list of valid and existing mining claims and
629 leases; and the locations of any dams
- 630 • Any Social and economic information relevant to the proposed ONRW area, including
631 subsistence users and uses.

632 The workgroup requested that DEC review and refine the above information submittal
633 elements. DEC's revision of these submittal elements is in Appendix C.

634 The Workgroup discussed having DEC alone review and issue final approval on ONRW
635 nominations. However, the assistance of other agencies in providing information would be
636 important. The decision to have DEC complete this process alone may be infeasible if DEC
637 receives a large number of nominations that add tremendously to DEC's workload.

- 638 • Pros: If DEC had the resources and authority to accept, review, and forward ONRW
639 nominations, the process could be streamlined.
- 640 • Cons: This option is not practicable at present because DEC does not have the expertise
641 to evaluate non-water quality parameters, such as economic, recreational, or social
642 values of a waterbody.

643 A decision to create a process for ONRW designation through legislative action could perhaps be
644 an option because the qualitative and quantitative information would be assessed and funding
645 allocated by the legislature to support this process.

646 • Pros: Legislative action would ensure that both the authority and the resources
647 necessary to appropriately vet the nominations were available.

648 • Cons: If legislative action was required, the ONRW designation process could be lengthy.

649 As an alternative, the Workgroup discussed whether there should be an interagency board
650 (comprised of the resource agencies, DOT&PF, and DCCED) to review nominations from the
651 public and represent all the resource agencies' expertise (Figure 3). It was understood there
652 would be a cost for this board, and a bill would need to be approved by the legislature to
653 establish the board.

654 • Pros: If authorized by the legislature, the board would have the authority and resources
655 to review the nominations and make ONRW determinations that had broad support
656 from a range of state agency stakeholders.

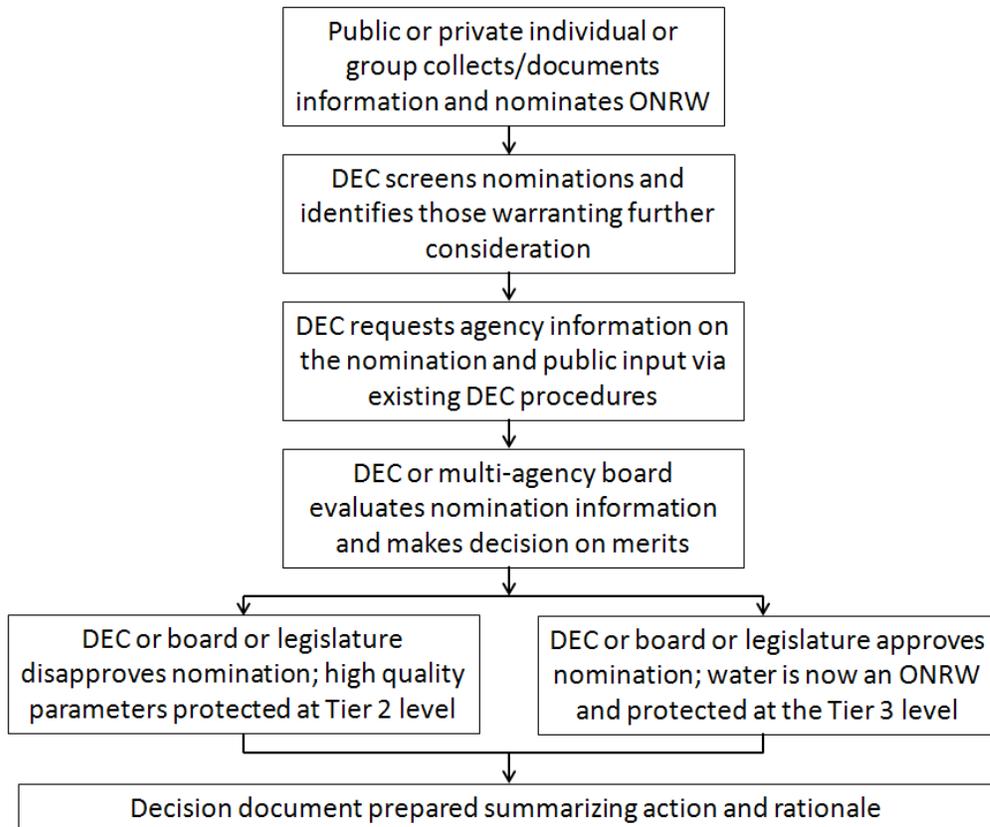
657 • Cons: Some sort of direct or indirect legislative review may be necessary in order to
658 ensure that ONRW designations are subject to the oversight of elected officials.

659 Another option discussed was a public board appointed by the Governor.

660 • Pros: A public board appointed by the Governor would have the necessary legal
661 standing and resources to accept, review, and forward nominations for ONRW
662 designations to the Governor or the legislature.

663 • Cons: Review of ONRW nominations requires a range of expertise (i.e. scientific,
664 technical, social, and economic). There are no criteria defined on whether state
665 agencies will participate. Members of the legislature may not be comfortable with such
666 an arrangement.

667 The Workgroup's discussions flowed from a hypothetical decision-making process summarized
668 in the following diagram



669

670 **Figure 3. Example of an approach for reviewing and deciding on ONRW nominations.**

671 ***Need for an additional Tier between Tier 2 and Tier 3 (i.e., Tier 2.5)***

672 The Workgroup also discussed the possibility of adding a Tier 2.5 category for some Alaska
673 waters that would provide an intermediate level of water quality protection between Tier 2 and
674 Tier 3. This additional tier would also require development of specific Alaska-only criteria for
675 these state designated waters including examples of development that would be allowed,
676 increased protections required beyond Tier 2 review, etc. After discussing the pros and cons of
677 an additional tier, the Workgroup decided that the present levels of tier protection would be
678 adequate and appropriate, and that no Tier 2.5 was necessary.

- 679
- 680 • Pros: A Tier 2.5 would allow special protection for designated Outstanding State
681 Resource Waters without the strict requirements (i.e., no significant or permanent
682 degradation) of ONRWs. The State may be more likely to designate Tier 2.5 waters, since
683 the State will set the level of protection rather than the very strict default protection
level for ONRWs.
 - 684 • Cons: A rigorous Tier 2 antidegradation review process can provide the level of
685 protection needed for high quality state waters without the expense and bureaucracy of

686 adding another protection tier; the highest quality waters could still be protected as
687 conventional ONRWs.

688 C4. Further Discussion and Outcomes

689 While nearly all Workgroup members thought the legislature should be directly involved in
690 designating ONRWs, at least one member expressed support for allowing DEC – in cooperation
691 with other state agencies – the ability to designate ONRWs. Currently, there is a process in place
692 to allow a state agency to identify some lands as unsuitable for mining, with the decision-making
693 authority resting with the agency director. However, the majority of the Workgroup noted that
694 the legislature would probably be pulled into ONRW discussions at some point, and it would
695 make sense to establish a formal process (i.e., through legislation) laying out the legislature’s
696 role in determining which waters would be designated ONRWs. There were varying opinions
697 among the workgroup members on how the legislation should be structured- - should it set up a
698 procedure for the decision-making authority to rest with DEC?, with a multi-agency board?, with
699 some legislative input?- or allow ONRW designation only after a direct legislative vote on each
700 nomination? In the end, a consensus decision could only be reached on the need to involve the
701 legislature and not the actual approach or process for how the legislature should be involved.

702 D. Issue #4: Tier 2 Analysis – How Should DEC Evaluate Whether a Project 703 Provides Important Social or Economic Development

704 D1. Description of Issue #4

705 Lowering of water quality in waters protected at the Tier 2 level may be allowed if the state
706 finds that lower water quality is necessary to accommodate important economic or social
707 development in the area in which the waters are located. To address the term “necessary”, an
708 alternatives analysis may be required of the applicant, which is discussed further in Issue #5. An
709 assessment of the “important” social or economic development aspects of the proposed
710 discharge is also required.

711 A social or economic justification would be necessary if the alternatives analysis indicated that
712 the least degrading, practicable alternative will likely result in the lowering of BWQ for
713 parameters protected at the Tier 2 level. Note that an activity does not need to demonstrate
714 both social and economic importance; the workgroup made the point that at least one aspect,
715 social or economic development, needs to be demonstrated. Since the social or economic
716 justification evaluation is necessarily site-specific, it is done on a case-by-case basis, although
717 general guidelines may be developed to ensure overall consistency from one case to another.

718 An activity that is deemed socially important should address a service need of the affected
719 community (e.g., improved sewage treatment, access to a new health care facility) or provide
720 some other social benefit (e.g., job opportunities, development of cultural resources). An
721 activity claimed to be economically important should have a positive effect on economic

722 development, such as employment or an increased economic or tax base of the local
723 community. The Workgroup considered the following questions while discussing this issue:

- 724 • What factors should be considered in evaluating whether the economic or social
725 development is important?
- 726 • What level of information should be required of applicants?
- 727 • What level of review and documentation is needed?
- 728 • Should level of review and documentation vary based on potential risk?

D2. Workgroup Member Recommendations – Issue #4

The following list is a compilation of the Workgroup member recommendations for Issue #4.

1. The Workgroup listed the parameters that should be considered in determining economic or social importance. Examples of important economic development include:
 - Employment;
 - Salary impacts
 - Seasonality of jobs
 - Tax base impacts,
 - Expanded leases and royalties;
 - Commercial activities;
 - Resources access; or
 - Transportation network access.Examples of important social development include:
 - Community services;
 - Recreational opportunities;
 - Education and training;
 - Cultural amenities;
 - Public health and safety; or
 - Infrastructure improvements.
2. The applicant could demonstrate economic importance alone (i.e., without considering “important” social development). DEC could judge “importance” based only on economic data. The applicant could also demonstrate “importance” based solely on social factors (e.g., public health).
3. DEC should take advantage of intergovernmental reviews when working through the technical portions of the alternatives analysis and social or economic importance. DEC can look to others in areas where DEC lacks expertise.

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D2. Workgroup Member Recommendations – Issue #4 (cont.)

4. DEC should not be doing cost-benefit analyses for the purpose of making antidegradation determinations. The emphasis should be on assessing the asserted economic or social importance of the activity. DEC should deal only with what is in the record and not hire economists, sociologists, etc. to conduct in-depth analyses.
5. The level of detail in social or economic analyses should vary with the risk of pollution and size of the facility. DEC should retain discretion on how to determine the necessary level of detail, but use factors such as major/minor discharger categories already in use for NPDES permitting. DEC should provide its rationale and general criteria for determining the level of analysis to ensure consistency.
6. Applicants should submit relevant and appropriate data for DEC's consideration.

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D3. Options Considered for Issue #4 with their Pros and Cons

731 The Workgroup discussed whether it would be beneficial to use an expansive list of economic
732 and social parameters for determining the extent of development supported by the project, or
733 to use a more focused list.

- 734
- Pros: The pros of a more expansive list would be to provide applicants with a wider
735 range of categories to consider when describing the importance of economic or social
736 development aspects of their projects.
 - Cons: Because most of Alaska is not developed, and because most of the development
737 that occurs is resource-based, a long list of refined economic and social attributes is not
738 necessary. Many all of the economic and social development aspects of proposed
739 projects are contained in the summary list presented above.
740

741

D4. Further Discussion and Outcomes

742 Most Workgroup members wanted to restrict the social and economic analyses to a fairly tight
743 range of parameters, but there was some interest from at least one member to consider a more
744 expansive approach (i.e., evaluating project impacts such as changes to the local community,
745 types of development vs. water quality attributes lost, and other qualitative issues). However,
746 the overriding sense of the Workgroup was that the purpose of the “important social or
747 economic development” test is not to weigh project benefits against project impacts. This is not
748 a socioeconomic analysis. Comparing or weighing different factors (such as economic gain
749 versus water quality impact) would be a subjective, unpredictable, and somewhat arbitrary
750 exercise (i.e., do 40 jobs “outweigh” a 40% reduction in assimilative capacity?). DEC is not
751 equipped to evaluate qualitative parameters, and might even struggle to assess the more
752 quantitative non-water quality measures (e.g., overall increase in employment and tax base).
753 After considerable discussion, the Workgroup recommended that DEC avoid any sort of
754 cost/benefit analysis, and that it draw on the expertise of its sister agencies and input from the

755 public in evaluating asserted economic or social development benefits, rather than trying to
756 develop the capability to conduct such reviews internally.

757 E. Issue #5: Tier 2 Analysis: What Level of Alternatives Analysis is
758 Necessary?

759 E1. Description of Issue #5

760 An important part of the Tier 2 antidegradation review is the completion and inclusion of an
761 alternatives analysis. (Note that an antidegradation alternatives analysis differs from the
762 analysis required for an Environmental Impact Statement.) This originates from the language of
763 the antidegradation policy in 18 AAC 70 as well as the federal policy in that the proposed
764 degradation to water quality is “necessary” and from the requirement that the methods of
765 pollution prevention control and treatment are the most effective and reasonable. While DEC is
766 ultimately responsible for determining whether an alternatives analysis meets the regulatory
767 requirements, it is common for the majority of the work of finding, describing, and analyzing the
768 alternatives to be completed by the applicant (i.e., the facility or developer that is requesting
769 the permit) and subject to public input and regulatory oversight.

770 For discharges likely to cause water quality degradation, the applicant should provide an
771 analysis of potential non-degrading and less-degrading alternatives to the proposed activity. As
772 noted in the federal and state antidegradation policy statements, the applicant must submit
773 evidence that any reduction in water quality as a result of discharge will should protect existing
774 uses and achieve the all wastes and other substances discharged will be treated and controlled
775 to achieve “highest statutory and regulatory requirements.”

E2. Workgroup Member Recommendations – Issue #5

The following list is a compilation of Workgroup member recommendations for Issue #5.

1. DEC should use the term “practicable” instead of “feasible” or “most effective and reasonable”. The term “practicable” is defined in state regulations in 18 AAC 70.990(48) as “available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.”
2. DEC and applicants should use the following list when considering and discussing the most practicable alternatives to the proposed discharge.
 - a. Non-discharge approaches
 - b. Process changes
 - c. Relocation of the discharge
 - d. Seasonal discharges
 - e. New technologies
3. DEC should use a narrative rather than a numeric cost threshold (%) when defining the pollution control measures deemed to be the most practicable.
4. DEC should consider any other analyses that evaluate alternatives, including those that are performed in relevant environmental impact statements or environmental assessments, or those produced by other agencies.

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E2. Workgroup Member Recommendations – Issue #5 (cont.)

5. The applicant should be required to present a reasonable range of practicable alternatives. DEC should not require a professional engineer to complete the alternatives analysis. In practice, the alternatives analysis should consist of the following summarized information:

Step 1: Consider a Reasonable Range of Practicable Alternatives

Consider less degrading, practicable alternatives, such as one or more of the following, as applicable to the project involved:

- i. Non-discharge approaches
 - a. Land application/infiltration of the discharge
 - b. Total containment of the discharge
 - c. Reducing disturbed/impervious surface area (i.e., for stormwater permitted projects)
 - d. Wastewater recycling/reuse (e.g., closed loop systems, irrigation/washing reuse, etc.)
- ii. Process changes
 - a. Reduction in scale of proposed discharge or activity

- b. Pollution prevention measures (e.g., raw materials substitution)
- c. Water conservation practices
- d. Improved operation and maintenance of existing facilities
- iii. Relocation of the discharge (e.g., to receiving water with greater assimilative capacity)
- iv. Seasonal or controlled discharge options to minimize discharge during critical water quality periods
- v. New technologies
 - e. Advanced oxidation technologies
 - f. Physical filter barriers (e.g., membrane technology)
 - g. Advanced chemical treatment
 - h. Wetland or other tertiary treatment

Step 2: Analyze Cost-Effectiveness (Cost versus Performance) and Ancillary Environmental Impacts of Alternatives

- i. Identify and list the practicable and non-practicable alternatives
- ii. Briefly characterize the practicable alternatives
 - a. Relative capital, operation/maintenance, and other costs
 - b. Technological issues (e.g., engineering, scientific, reliability, operation/maintenance, etc.)
 - c. Logistical/other issues

E2. Workgroup Member Recommendations – Issue #5 (cont.)

- iii. Discuss any ancillary environmental impacts of the practicable alternatives
 - a. Sensitivity of stream or groundwater uses, need for low-flow augmentation
 - b. Nature of pollutants, dilution ratio for pollutants, discharge timing and duration
 - c. Effects on endangered species
 - d. Potential to generate secondary water quality impacts (stormwater, hydrology)
 - e. Siting of plant and collection facilities
 - f. Non-water quality and cross media environmental impacts: odor, noise, energy consumption, air emissions, and solid waste generation

Step 3: Identify the Preferred Alternative

Based on the information collected and analyses described in Steps 1 and 2, identify the preferred alternative. This will be the least degrading practicable alternative, and will be the focus of the subsequent permit application to DEC.

Step 4: Document Alternatives Analysis

The alternatives analysis submitted by the applicant should document the alternatives

considered and the process used to identify the practicable alternatives and the preferred alternative.

- i. The applicant should be prepared to defend its recommendation and respond to requests for information.
- ii. The Department should review the application and document its decision.

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E3. Options Considered for Issue #5 with their Pros and Cons

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The Workgroup discussed the adoption of a numeric cost threshold for determining whether or not a potential alternative might be required. For example, some states require that any less-degrading alternative be implemented if it costs less than 110% of the cost of the proposed alternative, since it would result in less water quality degradation with only a slightly higher overall cost.

784

- Pros: A numeric cost “cap” would prevent the applicant from addressing potential alternatives that might be significantly more expensive than the type of project being proposed, thus saving time in the application process.
- Cons: The use of a 110% or 120% cap on expenses was viewed as somewhat arbitrary and possibly subject to manipulation, and might not be sufficiently protective of a water resource that might be degraded as a result of project activity.

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The Workgroup also discussed a requirement that applicants address a full list of feasible alternatives, rather than those viewed as “practicable.”

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- Pros: Having applicants address all feasible alternatives would ensure that all less-degrading alternatives are considered.
- Cons: The word “feasible” might be open to interpretation. The word “practicable” is defined in Alaska regulations, and is being used in the water permit programs. Practicable is defined as available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

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E4. Further Discussion and Outcomes

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Workgroup members recognized the value of having project applicants conduct a thorough review of less-degrading alternatives, but did not support forcing applicants to review any and all possible alternatives. There was some concern regarding approaches that might be viewed as too prescriptive; e.g., DEC requiring applicants to adopt specific treatment methods or technologies, rather than allowing them to meet a discharge or effluent standard in a manner chosen by the applicant. DEC staff noted that existing procedures already allow considerable flexibility, both in pointing out new treatment and best practices technologies and approaches, and in allowing applicants the freedom to explore their own options and innovations. In addition, the level of effort and degree of rigor selected for the applicant’s alternatives analyses

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808 and for DEC's review should be proportional to size of the project, potential impacts on
809 receiving waters, and overall risk.

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

811 F1. Description of Issue #6

812 DEC regulations require that all waterbodies have at least Tier 1 protection, which means that
813 existing uses, and the level of water quality necessary to protect those uses, must be maintained
814 and protected. Waterbodies are afforded Tier 2 protection if the quality of the water exceeds
815 levels necessary to support designated uses. (Tier 3 protection is specific to "outstanding"
816 national resource waters, as designated by the state (See Issue #3, Figure 1 page 11)

817 Implementation challenges regarding the tiered approach to waterbody protection derive from
818 how a state identifies Tier 2 (high quality) waters, and the basis on which a state determines
819 that the "quality of water exceeds levels necessary" to support designated uses. There are three
820 general types of approaches states have used to apply Tier 2 protection: 1) parameter-by-
821 parameter; 2) waterbody-by-waterbody; or 3) a hybrid of the two approaches.

822 In the parameter-by-parameter (or pollutant-by-pollutant) approach, baseline waterbody
823 concentrations of pollutants are compared with water quality criteria for those pollutants as
824 established in state water quality standards. If certain pollutants occur at concentrations below
825 state standards identified as necessary to support waterbody uses, that waterbody would be
826 protected at the Tier 2 level for those pollutants. However, if a pollutant exceeds the standard,
827 the waterbody would be protected at the Tier 1 level for that pollutant. Thus, using the
828 parameter-by-parameter approach, a waterbody could be protected at the Tier 2 level for some
829 parameters while being protected at the Tier 1 level – or even appearing on the CWA §303(d)
830 impaired waters list – for other parameters. The approach also lends itself well for considering
831 parameters that are not pollutants, such as dissolved oxygen, temperature, and indices that
832 measure habitat and biological integrity. EPA has expressed its general support for a parameter-
833 by-parameter approach (EPA-823-B-12-002; March 2012).

834 In the waterbody-by-waterbody approach, a state identifies Tier 2 status based on overall high
835 water quality and ecological health rather than based on concentrations of single parameters. In
836 this approach, a waterbody cannot be one tier for one pollutant and another tier for a different
837 pollutant. Many states presume that waterbodies are Tier 2 unless demonstrated otherwise.
838 Because antidegradation reviews under the waterbody-by-waterbody approach involve general
839 waterbody condition (i.e., chemical, physical, and biological integrity) rather than a tight focus
840 on parameters of concern from a defined discharge, collection of BWQ and monitoring
841 waterbody conditions and impacts can be somewhat more resource intensive than the
842 parameter-by-parameter approach.

843 In the hybrid approach, a state may use the waterbody approach to initially assign waters to
844 tiers but use a pollutant approach when analyzing Tier 1 or Tier 2 antidegradation impacts.

845 The parameter-by-parameter approach appears to be the approach most commonly used by
846 states to identify waterbody tiers for several reasons, but the most important may be ease of
847 addressing Tier 2 antidegradation analyses. Since Tier 2 antidegradation analyses often involve
848 an evaluation of the use of existing assimilative capacity for pollutants associated with the
849 proposed activity, having a parameter-by-parameter approach for determining the tier of the
850 waterbody lends itself well to the analyses.

F2. Workgroup Member Recommendations – Issue #6

The following list is a compilation of the Workgroup member recommendations for Issue #6.

1. DEC should use the parameter-by-parameter approach for applying Tier 1 and Tier 2 protection, and the waterbody-by-waterbody approach for applying Tier 3 protection only. Under this approach:
 - a. Waters will be protected at a Tier 1 level for parameters that are demonstrated to be equal to or do not meet water quality criteria.
 - b. Waterbodies will be protected at the Tier 2 level as a default with a rebuttable presumption that all parameters are better than water quality criteria.
 - c. Where the quality of water exceeds levels necessary to support designated uses (e.g., the waterbody is not impaired for all parameters), that quality will be maintained and protected on a parameter-by-parameter basis.
 - d. Designated ONRWs will be protected at the Tier 3 level for all parameters.
2. DEC will require an applicant to provide information on parameters in the discharge, and may require an applicant to provide data on parameters that are not directly regulated in the discharge but may alter the effects of the discharge (e.g., hardness).

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F3. Options Considered for Issue #6 with their Pros and Cons

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853 The Workgroup considered the waterbody-by-waterbody approach as the Tier 2 protection
854 approach.

855 • Pros: The approach allows for more robust weighted assessments (biological, physical,
856 and chemical), focuses resources on the highest quality waters, and might involve less
857 “bookkeeping” in identifying the tiered levels of protection.

858 • Cons: Some waters may not be adequately protected; DEC must decide what data is
859 needed to make an assessment; a good deal of front-loaded work is needed to assess
860 baseline conditions for a wide range of parameters; there may be some delay in
861 implementation and need for procedures to address antidegradation before listing
862 decisions are made; and there may be more potential for disputes, challenges, and
863 litigation.

864 F4. Further Discussion and Outcomes

865 The Workgroup discussed the waterbody-by-waterbody approach, and there was some interest
866 in it due to the more holistic nature and easier classification system. However, the amount of
867 data needed to characterize waterbodies and assess degradation potential was thought to
868 exceed that required to simply focus on the parameters of concern in the discharge, and in the
869 receiving waters. After discussion, the Workgroup consensus was that the parameter-by-
870 parameter approach offered the most efficient and effective approach consistent with the other
871 recommendations in this report.

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873 One Workgroup member noted that Alaska currently does not differentiate among its vast array
874 of waterbodies under the current water quality criteria. For example, all flowing waters have
875 similar criteria, even though some have high levels of suspended solids due to summer glacier
876 melt, and all wetlands are treated the same despite significant differences in water column
877 composition, flora, fauna, and whether permafrost is present. The Workgroup and DEC
878 concluded that this issue was best dealt with through the waterbody use designation
879 categorization process, rather than through antidegradation policy implementation methods.

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

882 G1. Description of Issue #7

883 In order to reduce the workload involved in reviewing antidegradation submittals, some states
884 have decided to issue waivers for proposed projects that involve minor levels of degradation.
885 One way this has been accomplished is through the use of a formal procedure for determining a
886 *de minimis* threshold for acceptable, very minor degradation of water quality. A *de minimis*
887 threshold typically involves the use of some defined portion of remaining assimilative capacity
888 of the receiving water. This might allow a small amount of degradation (e.g., 10% or less of the
889 available assimilative capacity) without triggering an antidegradation analysis. Use of a *de*
890 *minimis* threshold assumes that designated uses in the waterbody will not be negatively
891 affected.

892 States sometimes allow *de minimis* levels of degradation for small projects – such as those
893 covered by an NPDES or USACE general permit – to better focus scarce staff resources on
894 projects with larger water quality impacts. A memo from US EPA Office of Science and
895 Technology (Ephraim King, 2005) supports the use of *de minimis* levels as significance thresholds
896 for antidegradation reviews as long as 1) the established *de minimis* level prevents significant
897 degradation of Tier 2 waters, and 2) a cumulative cap on the use of assimilative capacity without
898 an antidegradation review is in place to prevent incremental degradation that could conceivably
899 consume half or even all of the assimilative capacity over time.

G2. Workgroup Member Recommendations – Issue #7

The following list is a compilation of the Workgroup member recommendations for Issue #7.

1. The Workgroup recommended that DEC not adopt a *de minimis* approach for antidegradation reviews, since the amount of work on the part of the applicant and DEC to demonstrate that a *de minimis* exemption from an antidegradation review is warranted may involve just as much time as the antidegradation review itself.
2. Any increased concentrations or loads over existing permitted amounts will trigger a Tier 2 antidegradation review.
3. DEC should have discretion on the level of detail required for a Tier 2 antidegradation review depending on the risk of the discharge. Factors DEC will consider when determining the level of detail in a Tier 2 review may include:
 - a. the size of the facility;
 - b. volume of the discharge;
 - c. duration of the discharge;
 - d. whether the discharge is temporary vs. permanent;
 - e. size of the receiving water;
 - f. toxicity of the discharge;
 - g. uses of the waterbody;
 - h. timing of the discharge (e.g., seasonality);
 - i. whether the facility is a major or “non-major” minor discharger; and
 - j. assimilative capacity of the waterbody.

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G3. Options Considered for Issue #7 with their Pros and Cons

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The Workgroup considered allowing a 5% or 10% assimilative capacity limit as a *de minimis* exemption or waiver, with an overall cumulative cap, consistent with EPA’s 2005 memo. This was initially thought to be a way to save both the applicant and DEC time in developing and reviewing the antidegradation information required under the regulations. However, when evaluating the pros and cons of implementing this procedure, the Workgroup recommended forgoing the *de minimis* waiver.

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- Pros: A *de minimis* exemption or waiver would allow small projects with minimal water quality impacts to proceed without a formal antidegradation review.
- Cons: The type and amount of information and the documentation needed to justify a *de minimis* waiver would likely be as much or more work than would be needed to actually conduct the antidegradation review. A waiver process would potentially be more appealable than a simple Tier 2 review, possibly delaying some permits.

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914 G4. Further Discussion and Outcomes

915 Many Workgroup members expressed interest in the adoption of a *de minimis* allowance, and
916 some DEC staff thought it would help to save time in conducting antidegradation reviews. For
917 example, small construction sites, package wastewater plants, and other low-impact discharges
918 that have a minimal effect on water quality would likely be allowed to forego a Tier 2 analysis if
919 a *de minimis* standard (e.g., using less than 10% of assimilative capacity for any parameter of
920 concern) was in place. However, as the discussion proceeded, it became clear that many small
921 discharge activities would likely be covered by general permits, which could be configured to
922 incorporate Tier 2 antidegradation provisions in the general permit itself, e.g., in the 2012 EPA
923 Construction General Permit. In addition, the approval of numerous *de minimis* discharges in a
924 particular stream reach or lake would have to be tracked to ensure that the cumulative loading
925 cap was not exceeded, creating a bookkeeping workload for DEC. In the end, the Workgroup
926 determined that a *de minimis* exemption would require an assessment of assimilative capacity
927 use or load impact to the receiving waterbody in order to justify a. Thus, the amount of time
928 saved by foregoing the social or economic review was not sufficient enough to justify a *de*
929 *minimis* category.

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931 H. General

932 I. Other

933 IV. Issues Raised by the Public

934 Public comments from prior meetings are being summarized and will be available to discuss at
935 the October antidegradation meeting.

936 A. Public Input on Key Antidegradation Issues

937 B. Additional Issues Raised by the Public

938 **Appendix A – Existing Uses**

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940 Will be added following October meeting.

Appendix B – General Approach for Assessing Baseline Water Quality

The Workgroup discussed and generally supported the approach described below for assessing baseline water quality (BWQ) in Alaska surface waters. For purposes of establishing BWQ for specific parameters of concern in a discharge under 18 AAC 70.015, the Department will presume that any waters not identified as Tier 3 (Outstanding National Resource Waters) or as impaired for specific parameters of concern in the discharge under §303(d) of the Clean Water Act (i.e., Tier 1) will be protected at the Tier 2 level. The applicant may request from DEC consideration for protection at the Tier 1 level for those parameters resulting in the impairment by submitting sufficient and credible information that the Tier 1 designation (i.e., the impairment listing) is appropriate for the parameters of concern in the waterbody segment being considered, including information from one or more of the following sources:

- existing and readily available data from federal, state, tribal or local agencies, including superfund site records of decision and Safe Drinking Water Act source water assessments, data contained in the United States Environmental Protection Agency’s STORET system, and other sources;
- local knowledge of current and past waterbody characteristics and attributes;
- reports of dilution calculations or appropriate predictive models;
- characterizations of the waters in reports prepared by the Department under §305(b) and §303(d) of the Clean Water Act;
- classifications of the waters under the Alaska Clean Water Actions program;
- water quality data from other representative waters;
- inferences drawn from riparian areas, land uses, and upland conditions;
- site-specific water quality data gathered by others, including the person seeking to rebut the presumption that the water is Tier 2, as established by this section; or
- any other information deemed necessary by the Department.

In determining whether the information sources listed above are sufficient and credible to determine the antidegradation tier protection level for specific parameters in the discharge, to inform a Tier 2 analysis, or to complete other antidegradation review procedures for parameters of concern in the waterbody segment being considered, the Department, at its discretion, may consider all relevant factors, such as:

- the general magnitude, characteristics and likely environmental effects of the proposed discharge;
- the remoteness and infrastructure of the affected area;
- the location and sensitivity of the receiving waters;

- the degree to which representative waters likely exhibit similar hydrologic, geographic, use, and water quality characteristics to the waters under review;
- whether any water quality findings are based on data collected under a quality assurance project plan (QAPP) that meets DEC QAPP sampling, monitoring and other requirements;
- the age, quantity, and spatial and temporal scope of any data relied upon by the source; and
- whether any report or finding was prepared by persons with the requisite professional background in the field.

In addition, the Workgroup supported allowing DEC to have discretion on the level of detail to require for a Tier 2 antidegradation review depending on the risk of the discharge. Factors DEC will consider when determining the level of detail and data in a Tier 2 review may include the size of the facility, volume of the discharge, duration of the discharge, whether the discharge is temporary vs. permanent, size of the receiving water, toxicity of the discharge, uses of the waterbody, timing of the discharge (e.g., seasonality), whether the facility is a major or “non-major” minor discharger, and assimilative capacity of the waterbody.

Appendix C - Outstanding National Resource Waters Nomination Process

The basic ONRW nomination process would be:

1. An interested party gathers information regarding the proposed waterbody nomination and submits the information to a review board composed of DEC, DNR, DF&G, the DOT&PF, and the DCCED.
2. DEC collects additional information from other agencies, incorporates public notice and a public comment period, and has the review board evaluate the information.
3. DEC or the review board makes a determination on a possible ONRW designation, either
 - a. directly – if legislative approval is granted to DEC or the board, or
 - b. indirectly - by submitting the nomination package and recommendations to the legislature, if that approach is adopted.

The core information to be submitted along with the nomination should include the following:

1. Name of the waterbody, location, reach length, and maps showing the extent of the proposed ONRW; and
2. Rationale for ONRW nomination and explanation of why existing protections are insufficient.

To the extent that the nominating party has access to the following types of information, their inclusion in the nomination packet should also be encouraged:

1. An Inventory of waterbody uses, land ownership patterns, current land uses, natural resources, special land area designations, and transportation corridors;
2. Inventory of existing permitted withdrawals and discharges within and upstream of the ONRW, along with any proposed future uses;
3. A list of valid and existing mining claims and leases within the ONRW;
4. The locations of any dams;
5. Any social and/or economic information relevant to the proposed ONRW area, including subsistence users and uses;
6. An inventory of stakeholders who would be affected by ONRW designation, and their respective interests, such as economic, recreational, subsistence, etc;
7. Relevant existing and historical records, data, and studies supporting the significance of the waterbody, relevant water quality information (biological, chemical, hydrological), ecological uniqueness, and recreational information;
8. Documentation of nominating party's public involvement activities to date, if any, including letters supporting the proposed ONRW designation, and a description of issues or concerns raised with regard to the proposed designation;

9. Any additional information as may be recommended by Alaska DEC.

The agencies reviewing an ONRW nomination should assemble this same kind of information, as listed above, in their consideration of the nomination, and should supplement the information presented by the nominating party as appropriate. The notice and comment process used by the multi-agency review board should also be designed to elicit this same kind of information from the interested public. However, since each proposed ONRW designation will present its unique facts and issues, the board should be allowed wide discretion in deciding what kinds of information are necessary and relevant in each case, and need not be bound to document or consider each item listed above.

Appendix D – Statutes and Regulations Considered

The following statutes and regulations will be added:

- 18 AAC 70.015 Alaska Antidegradation Policy
- 40 CFR 131.12 Federal Antidegradation Policy
- 40 CFR 122.2 Waters of the United States

Appendix E – Referenced documents

The following documents will be added:

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

EPA's Water Quality Standards Handbook: Second Edition
EPA-823-B-12-002; March 2012
Chapter 4: Antidegradation (40 CFR 131.12)

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