Modification of State Water Quality Standards
Guidance Document
Final: July 1, 2021

Document Layout and Contents

Executive Summary: State Water Quality Standards (WQS) are located at 18 AAC 70 and adopted by reference in the *Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances* (2008). Water quality criteria (WQC) are designed to provide narrative and numeric values for the protection of designated uses of water.

The U.S. Environmental Protection Agency is required by section 304(a) of the Clean Water Act (CWA) to publish WQC based on the latest scientific knowledge about the negative impacts of a pollutant on a designated use. In most cases states have adopted EPA's recommendations; however, the WQS Regulation at 40 CFR 131.14 allows States to develop criteria or modify EPA's recommended criteria to account for site-specific or other scientifically defensible factors.

This document describes (1) the process used to make such a change in accordance with the Alaska Administrative Procedures Act (AS 44.62) and (2) the process the Department of Environmental Conservation (DEC) will use to determine whether a proposed modification of WQS is warranted.

I. General Summary of the Regulation Modification Process

Reclassification and Site-specific criteria (SSC) are permanent WQS modifications and authorized at 18 AAC 70.230 and 18 AAC 70.235 respectively. Reclassification modifies a waterbody's designated use(s) while SSC modifies the applicable criteria of a designated use.

Appendix A contains a generic depiction of what a WQS rulemaking process entails.

Appendix B provides a generic decision tree for determining whether reclassification or SSC are the more appropriate path for making a modification to state water quality standards.

Step 1. Project Initiation

DEC regulations allow a private party or DEC to initiate a request for modification of state WQS. Private parties should make such requests in writing to DEC. Due to the temporal and financial commitments that accompany the rulemaking process, it is suggested that proponents engage with DEC to discuss the feasibly of requests, and alternatives to WQS modifications prior to submitting proposals. Factors DEC may consider before commencing a rulemaking project:

- Proponents/Interested parties affected by a change in WQS;
- Potential funding and resources limitations;
- Potential impacts on the environment;
- Whether the effluent limits required under section 301(b) and 306 of the Clean Water Act have been implemented;
- Whether water quality is considered to be limited due to anthropogenic factors;
- Potential impacts on downstream designated and existing uses; or
- Potential alternatives to changing water quality standards such as adaptive management, water quality standards variances, or compliance schedules.

Step 2. Data Collection and Presentation

Project proponents and DEC will meet to identify existing uses, existing water quality data, potential data interpretations and gaps, and state submission expectations. Should it be determined that additional data collection is required, the applicant is responsible for the development of a quality assurance project plan (QAPP) and the collection of water quality and other relevant data. The QAPP must be approved by DEC or EPA prior to data collection.

Once additional data collection is completed, the applicant will present the findings to DEC for review. DEC will coordinate its review with EPA.

Step 3. Draft Technical Support Document

DEC will develop a *draft* Technical Support Document that summarizes the water quality data provided by the applicant, DEC's interpretation, and relevance to the reclassification/SSC process. This document serves as the scientific basis for pursuing rulemaking (i.e., DEC *draft* Decision Document).

Step 4. Public Engagement

DEC will conduct public outreach in accordance with state and federal administrative requirements.

Step 5. Rulemaking Determination

DEC will finalize its review of all comments, supporting documentation, and determine whether to finalize rulemaking.

Step 6. EPA Action

Per federal regulations at §131.5 EPA is required to review and approve of any modification to a state's designated uses (and respective WQC) or a state-proposed water quality standard prior to application in state water pollution control programs (e.g., Alaska Pollutant Discharge Elimination System permits, 303(d) listing determinations). Such action can take a considerable amount of time due to the requirements to conduct government to government engagement with Tribal

stakeholders and engage with federal agencies to review potential Endangered Species Act and Essential Fish Habitat impacts.

Step 7. Triennial Review

DEC is required to review all water quality standards periodically under §131.20(a) to determine if new information is available regarding the attainability of WQS or if further modifications may be warranted. For reclassification and SSC projects, DEC may consider new water quality data collected for the purposes of determining whether designated uses and/or SSC continue to be representative of the waterbody's condition.

II. DEC Technical Review Requirements

1. Reclassification of a Designated Use

Per §131.14, each state must establish designated uses and the criteria protect said uses. Alaska's Designated Uses are identified at 18 AAC 70.020(a)(1) Freshwater and (a)(2) Marine. Regulations at 18 AAC 70.230(a) adopt federal regulations at §131.10 (Designation of Uses) by reference to ensure proposed designated use modifications are completed in a manner consistent federal and EPA requirements.

To modify or remove a designated use, a state must provide documentation justifying the decision. For those uses identified at section 101(a)(2) of the CWA (i.e., growth and propagation of aquatic life and wildlife and recreation), a request must be accompanied by a use attainability analysis (UAA). For non-101(a)(2) uses, a 'use and value' analysis is required to satisfy federal regulations at §131.10(h). EPA has not issued specific guidance that demonstrates the difference between a UAA and a 'use and value' analysis. However, §131.10(k)(3) does state that a UAA would satisfy this requirement. States may only remove a designated use that is **not** an existing use as of November 28, 1975[1] or can be attained by implementing effluent limits under section 301(b) and 306 and implementation of best management practices for nonpoint source control.

A UAA is defined at §131.2 as:

> A structured scientific assessment of the factors affecting the attainment of the use, which may include the physical, chemical, biological, and economic factors as described in 40 CFR 131.10(g).

UAAs serve as the mechanism for establishing a defensible rationale for modifying an existing water quality standard as they identify:

- existing uses;
- potential reasons attainment is not feasible; and

[1] November 28, 1975 is the date that the federal regulation went into effect and became legally binding.

- the highest attainable use (HAC) and respective WQC determined to be protective of the HAC.

Feasibility of attainment is characterized at §131(g); the UAA must demonstrate that attaining the use is not feasible because of one of the six factors:

1. Naturally occurring pollutant concentrations prevent the attainment of the use; or
2. Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met; or
3. Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or
4. Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of the use; or
5. Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses; or
6. Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact.

EPA has developed specific guidance for the preparation of economic analysis necessary to satisfy Factor 6. The economic analysis consists of two independent components:[2]

- Substantial adverse impacts- for a public-sector or private sector entity, that the entity would face substantial adverse financial impacts due to the costs of implementing the necessary pollution controls.
- Widespread adverse impacts- the affected community(ies) will incur widespread adverse economic and social impacts if the entity is required to meet existing or proposed water quality standards

Additional guidance is provided in the *UAA and Other Tools for Managing Designated Uses* (EPA 2006)[3] or *Technical Support Manual: Waterbody Surveys and Assessments for Conducting Use Attainability Analysis* Vol I-III (EPA 1983).

[2] Text derived from Oregon DEQ *Use Attainability Analysis and Site-Specific Criteria: Internal Management Directive.* 2007. Portland, Oregon.
[3] UAA and Other Tools for Managing Designated Uses. 2006. U.S. Environmental Protection Agency, Office of Water. EPA 821-R-07-001

Small marginal populations of aquatic life may not necessarily constitute an existing use, if the natural conditions are determined to limit or preclude a sustainable population to occur. In such instances, additional biologic studies may be warranted. Aquatic life generally means plants and animals that live at least part of their life cycle in state waters.

Applicants/States may also conduct generic use attainability analyses for multiple waters provided that the circumstances relating to the segments in question are sufficiently similar to make the results of the generic analyses reasonably applicable to each segment.[4]

Interested parties should be aware that DEC precludes the reclassification of certain waters of state and national interest at 18 AAC 70.230(d).

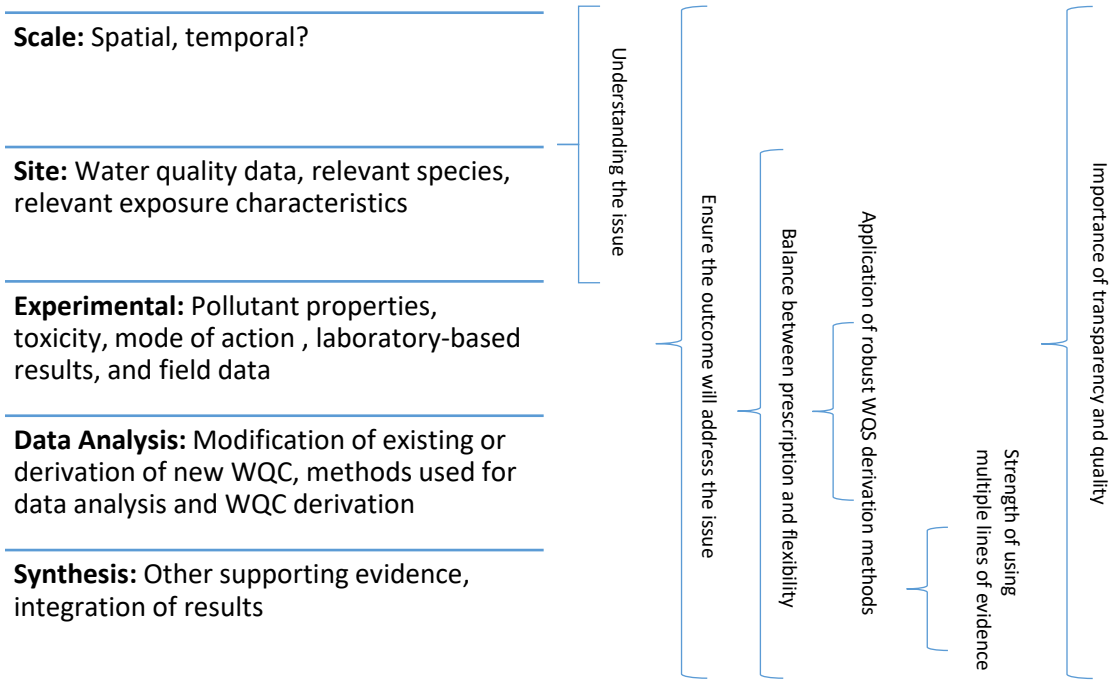
2. Site-Specific Criteria (SSC)

SSC refers to the water quality criteria[5] for a particular pollutant assigned to a waterbody that is demonstrated to be protective of the existing use(s). SSC may be more or less stringed than state WQC depending on the characteristics of a waterbody. SSC may be appropriate when a designated use is existing but water quality criteria are not attained and anthropogenic actions are not demonstrated to be the cause (i.e.,., attributed to natural conditions). A SSC will apply to a particular reach/part of a waterbody and may be in place on a temporal basis (i.e., seasonal) depending on the conditions present.

Figure 1 provides a list of guiding principles[6] for determining the appropriateness of a SSC:

[4] Water Quality Standards Handbook. 2012. Section 2.9. U.S. Environmental Protection Agency. EPA-823-B-12-002
[5] The WQC will consist of magnitude, frequency, and duration values for the pollutant(s) of concern.
[6] Figure adapted from XXXX and van Dam et al. 2014

Figure 1: SSC Guidance principles



SSC for the protection of the designated or existing use of growth and propagation of fish, shellfish, other aquatic life, and wildlife must be described in terms of acute and chronic values. Criteria should also be protective of sub-lethal effects (i.e., behavioral and physiological).

Per EPA policy, SSC cannot be designated for Human Health Criteria (HHC) based on natural conditions as such criteria may not be protective of the designated use. For additional information on the modification of HHC, please contact DEC.

3. Waterbody Study/Survey

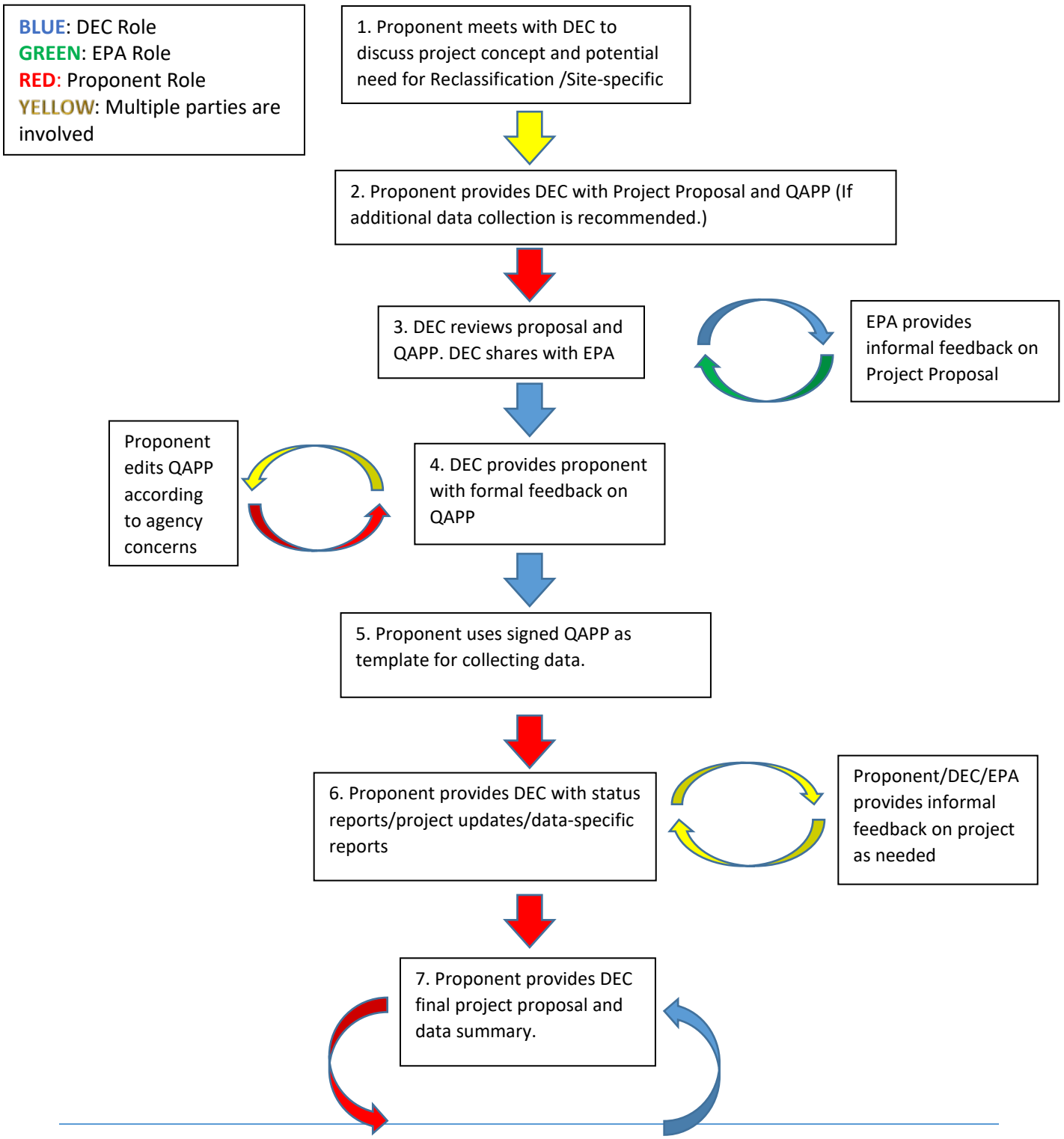
Both UAAs and SSC requests must include a demonstration of the factors that may limit or preclude attainment of a designated use and respective WQC. These factors may include:

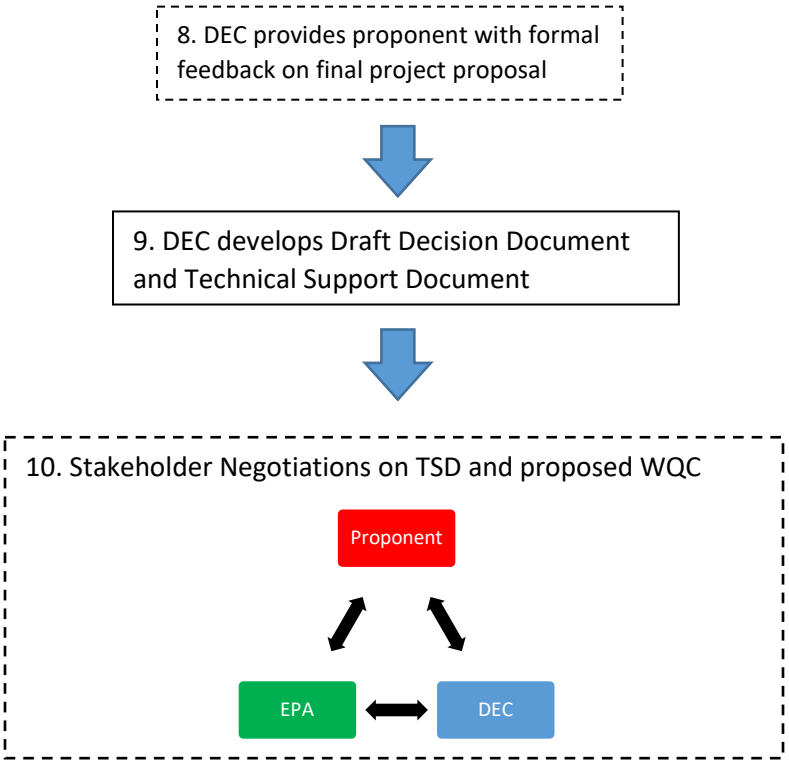
- The designated and existing uses of the waterbody;
- The results of a waterbody study/survey;
    - Watershed characteristics
        - This will include area, precipitation, and water flow at a minimum.
    - Geophysical factors that may influence water quality
        - This may include evidence of surface-groundwater connectivity, surface seeps, karst topography, or similar influencing factors.

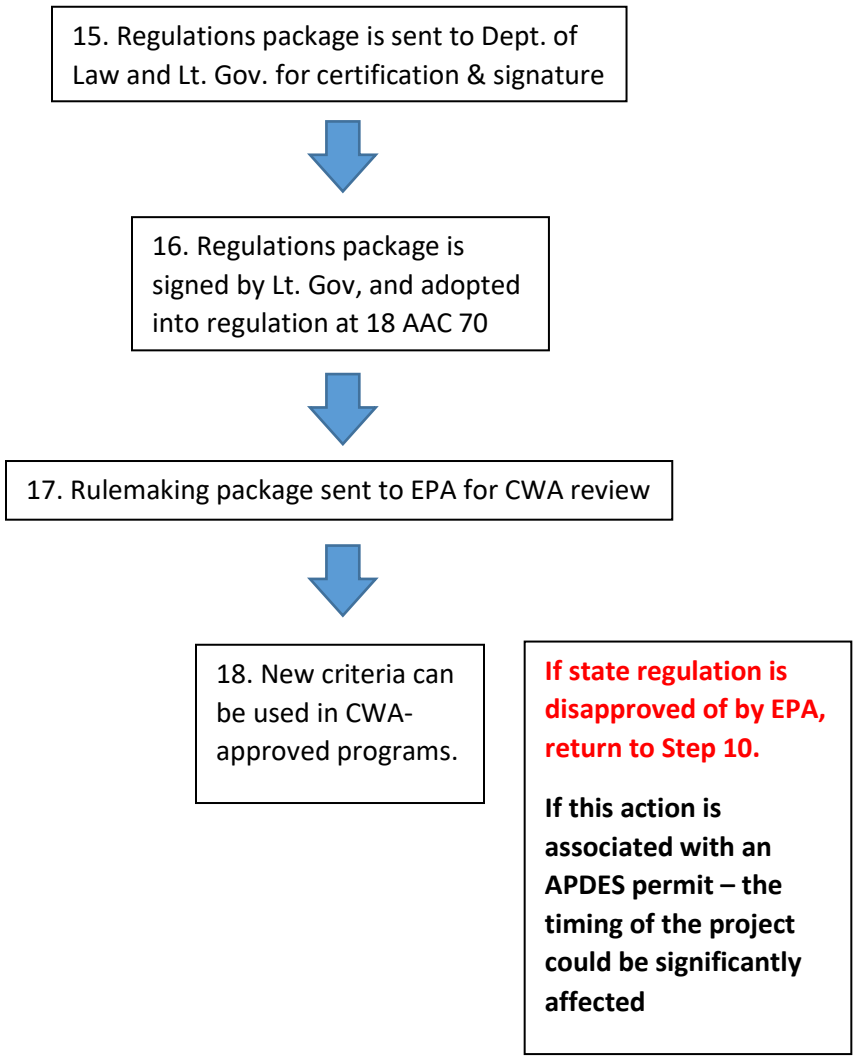
- Biologic Studies (e.g., Fish and Vertebrates sampling, Invertebrate sampling, Riparian survey) that have occurred to demonstrate whether an existing use is present.
- Habitat condition (e.g., channel morphology, bank and bed composition, vegetative cover)
  - This may also include studies pertaining to anthropogenic activities that may contribute to bank erosion/channel alteration/streambed deposition.
- History of land use/anthropogenic activities;
  - This should also include whether the state has previously considered the water to be impaired for any pollutant in accordance to DEC 303(d) policies and procedures.
- Results of historic and recent (>10 years) water quality data collection, including a:
  - Description of the representativeness of the data collected (e.g., seasonal and flow distribution).
  - Description of sampling locations, reference sites, and how those locations were determined.
  - Documentation of quality assurance project plans and/or sampling plans with quality assurance/quality control references should be included.
- Water quality modeling results. This may include use of
  - Water Effect Ratios;
    - Applicable to toxic pollutants. Accounts for relevant differences between toxicities of a chemical in laboratory-setting water and in site water
  - Recalculation based on a species-specific evaluation;
  - Application of modeling tools for derivation of WQC for select pollutants (i.e., Aluminum 2018, and Copper 2007);
  - Other modeling tools determined to have the scientific rigor needed to meet state and federal criteria.
- Interpretation of water quality data;
  - Interpretations should include a comparison to state WQC at 18 AAC 70.020(b) and the *Alaska Water Quality Manual for Toxics and Other Deleterious Organic and Inorganic Substances* (2008).

- Whether additional studies are required to determine:
  - Does the characteristics of the waterbody affect the toxicity of the pollutant?
  - Are species present more/less sensitive to pollutant?
  - Additional mitigating factors that may be present?
- Proposed WQC that would be protective of the highest attainable use in the reach(s) of concern;
- Proposed WQC would be protective of downstream uses; or
- Other studies determined by the department to inform the determination process.

Appendix A. General Process for State WQS Rulemaking




8. DEC provides proponent with formal feedback on final project proposal
9. DEC develops Draft Decision Document and Technical Support Document
10. Stakeholder Negotiations on TSD and proposed WQC
Proponent
EPA
DEC
11. DEC develops draft rulemaking package
12. Public Notice of all rulemaking documentation (inc. Technical Support Documentation)
13. Public Hearing and processing of public comments
14. Regulations package is finalized and sent to Commissioner for signature (30 days)


15. Regulations package is sent to Dept. of Law and Lt. Gov. for certification & signature
16. Regulations package is signed by Lt. Gov, and adopted into regulation at 18 AAC 70
17. Rulemaking package sent to EPA for CWA review
18. New criteria can be used in CWA-approved programs.
If state regulation is disapproved of by EPA, return to Step 10.
If this action is associated with an APDES permit – the timing of the project could be significantly affected

Appendix B: Reclassification/Site-specific Criteria Decision Tree