UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
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SEP 17 2009

OFFICE OF
WATER AND WATERSHEDS

Ms. Lynn J. Tomich Kent, Director
Division of Water
Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, Alaska 99501

Re: EPA's Approval of Revisions to Alaska Water Quality Standards for Toxic and Other Deleterious Substances

Dear Ms. Kent:

The U.S. Environmental Protection Agency has completed its review of regulatory language changes in Alaska's water quality standards (18 AAC 70) which incorporate by reference revisions to Alaska's *Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances* (Toxics Manual), submitted to EPA on August 24, 2009. The Toxics Manual, which has been adopted by reference into Alaska's water quality standards at 18 AAC 70.020(b), establishes criteria that limit the amount of toxic pollutants in Alaska's waters. Pursuant to EPA's authority under Section 303(c) of the Clean Water Act (CWA) and implementing regulations found in the Code of Federal Regulations (C.F.R.) at 40 C.F.R. Part 131, EPA is approving revisions to 18 AAC 70.020(b) which incorporates the December 12, 2008 version of the Toxics Manual by reference.

Under Sections 303(a)-(c) of the CWA, 33 U.S.C § 1313(a)-(c), states are required to establish water quality standards and submit them to EPA for approval or disapproval. Likewise, revisions to a state's water quality standard must also be submitted to EPA for approval or disapproval.

Water quality standards describe the desired condition of a waterbody and consist of three principle elements: (1) the "designated uses" of the state's waters, such as public water supply, recreation, propagation of fish, or navigation; (2) "criteria" specifying the amounts of various pollutants, in either numeric or narrative form, that may be present in those waters without impairing the designated uses; and (3) antidegradation requirements, providing for protection of existing water uses and limitations on degradation of high quality waters. EPA's regulations at 40 C.F.R. Part 131 describe the minimum requirements for each of these three elements of water quality standards.

BACKGROUND

The Alaska Department of Environmental Conservation (ADEC) announced the proposed revisions to 18 AAC 70 and the Toxics Manual on December 12, 2008. The Department accepted written public comments on the revisions from December 16, 2008 through February 6, 2009 and held two public workshops in January 2009 in order to meet public participation requirements. EPA submitted formal written comments to ADEC on January 29,

2009. Revisions were adopted by order and signed by Commissioner Larry Hartig on August 10, 2009, certified by Alaska's Department of Law on August 11, 2009, and filed by Alaska Lieutenant Governor Craig Campbell on August 20, 2009. ADEC submitted these revisions to EPA for review and approval on August 24, 2009.

Section 303(c)(2) of the CWA requires states and authorized tribes to submit new or revised water quality standards (WQS) to EPA for review. Under Section 303(c) of the CWA and its implementing regulations found at 40 C.F.R. Part 131.5, EPA is to review these WQS to ensure the adopted designated water uses are consistent with the CWA, the adopted criteria protect the designated water uses, and the state has followed its own legal procedures for adopting such standards.

ADEC has amended the regulatory language found at 18 AAC 70.020(b) to adopt the December 12, 2008 version[1] of the Toxics Manual into Alaska's water quality standards. 18 AAC 70 revises certain Alaska's toxic criteria. ADEC has adopted WQS revisions which can be divided into four categories:

1. *Numeric aquatic life toxics criteria.*
   ADEC has corrected an error in the ammonia saltwater criteria, updated their tributyltin criteria, and added new criteria for diazinon and nonylphenol. ADEC has also revised the applicability of the freshwater chronic criterion for aluminum.

2. *Drinking water criteria.*
   ADEC has updated the arsenic drinking water criteria, deleted the drinking water criteria for nickel, and added new criteria for aldicarb, aldicarb sulfone, aldicarb sulfoxide, and uranium.

3. *Narrative toxics criteria.*
   ADEC has updated their narrative toxics criteria (18 AAC 70.020(b)(11) and (23)) which apply to toxic substances in waters that have not been assigned numeric criteria in order to offer protection for substances for which toxicity is insufficiently quantified.

4. *Procedures for applying water quality criteria.*
   ADEC has added clarifying language under 18 AAC 70.040(4) to describe the procedure for substances for which both a numeric criterion and the narrative toxics criteria apply.

ADEC has also revised the format of the Toxics Manual by reorganizing the numeric criteria into a single table.

[1] The previous version is dated May 15, 2003.

EPA's DECISION

In accordance with its Clean Water Act authority, 33 U.S.C § 1313(c)(3) and 40 C.F.R. Part 131, EPA is approving the revisions to 18 AAC 70.020(b) including the revisions contained in the December 12, 2008 version of the Toxics Manual and adopted by reference. EPA is required to take action on these revisions to the Toxics Manual since the manual is adopted by reference at 18 AAC 70.020(b) into Alaska's water quality standards regulations. Below is a detailed outline of the revisions, including the revisions within the Toxics Manual, which EPA is taking action on:

Revision(s)	Details	EPA action
Incorporation by reference of the revisions contained in the December 12, 2008 version of the Toxics Manual	Revised effectiveness date at 18 AAC 70.020(b) and Note 5.	Approve.
Freshwater Numeric Aquatic Life Toxics Criteria	Aluminum (chronic), Diazinon (acute and chronic), Nonylphenol (acute and chronic), Tributyltin (chronic).	Approve, subject to the completion of ESA consultation.
Saltwater Numeric Aquatic Life Toxics Criteria	Ammonia (acute and chronic), Diazinon (acute and chronic), Nonylphenol (acute and chronic), Tributyltin (acute and chronic).	Approve, subject to the completion of ESA consultation.
Drinking Water Criteria	New criteria for aldicarb, aldicarb sulfone, aldicarb sulfoxide, and uranium. Remove nickel criterion. Updated arsenic criteria.	Approve.
Narrative Toxics Criteria	Regulatory language changes to 18 AAC 70.020(b)(11) and (23).	Approve.
Procedures for Applying Water Quality Criteria	Minor editorial language changes to 18 AAC 70.040.	No action. Acknowledge; non-substantive revision.
Procedures for Applying Water Quality Criteria	Addition of 18 AAC 70.040(4).	Approve.
Table Reformatting	Reorganization of the numeric criteria into a single table.	No action. Acknowledge; non-substantive revision.

EPA's evaluation of Alaska's new or revised criteria contained in the Toxics Manual was based on data referenced in the most recent EPA criteria documents[2] for each pollutant. A detailed discussion of the rationale for today's action is included in the enclosed technical justification document.

EPA is approving Alaska's new and revised numeric toxics criteria for freshwater and saltwater aquatic life, subject to completion of consultation under section 7(a)(2) of the Endangered Species Act. By approving these criteria "subject to completion of consultation under section 7(a)(2) of the Endangered Species Act," EPA retains the discretion to take appropriate action if the consultation identifies deficiencies in the standards requiring remedial

[2] When EPA issues a CWA Section 304(a) national aquatic life criterion for a pollutant, EPA publishes a criteria document (CD) that presents the recommended criterion, the data upon which it is based, and an explanation of the derivation of the criterion. The criteria recommendations are referred to as the 304(a) criteria or the national recommended criteria.

action by EPA. EPA retains the full range of options available under section 303(c) for ensuring water quality standards are environmentally protective. EPA has concluded that the agency's approval of the remaining revisions to the Toxics Manual outlined in the table above will have no effect on listed species and their designated critical habitat. EPA has also determined its action will have no adverse effect on Essential Fish Habitat (EFH) in the state of Alaska. In addition, EPA conducted and completed government-to-government consultation with federally-recognized Alaska tribes.

We appreciate your coordination with us on these water quality standards revisions. Discussions with your staff regarding our latest criteria recommendations and options for incorporating new science regarding aluminum were beneficial to both ADEC and EPA. These conversations enabled us to take timely action on these revisions and we thank Erin Strang and Jim Powell for their willingness to discuss these changes with us early in Alaska's rulemaking process.

If you have any questions concerning this letter please contact me at (206) 553-4198 or you may contact Matthew Szelag, Water Quality Standards Coordinator, at (206) 553-5171.

Sincerely,

Michael A. Bussell, Director
Office of Water and Watersheds

Enclosure

cc: Ms. Nancy Sonafrank, ADEC
Mr. Jim Powell, ADEC
Ms. Erin Strang, ADEC

ENCLOSURE

REVISIONS TO ALASKA WATER QUALITY STANDARDS FOR TOXIC AND OTHER DELETERIOUS SUBSTANCES
SUBMITTED AUGUST 24, 2009

TECHNICAL JUSTIFICATION

This technical justification provides the Environmental Protection Agency's (EPA's) basis for today's action. On August 24, 2009, EPA received regulatory language changes to Alaska's water quality standards (18 AAC 70) which incorporate by reference revisions to the *Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances* (Toxics Manual). The Toxics Manual, which has been adopted by reference into Alaska's water quality standards at 18 AAC 70.020(b), establishes criteria that limit the amount of toxic pollutants in Alaska's waters. EPA is taking action on these revisions under section 303(c) of the Clean Water Act (CWA).

In accordance with its CWA authority, 33 U.S.C § 1313(c)(3) and 40 C.F.R. Part 131, EPA is approving the revisions to 18 AAC 70.020(b), including the revisions specified below and contained within the December 12, 2008 version of the Toxics Manual. EPA is required to take action on these revisions to the Toxics Manual since it is adopted by reference (18 AAC 70) into Alaska's water quality standards regulations. Below is a detailed outline of the revisions, including revisions within the Toxics Manual, which EPA is taking action on:

Revision(s)	Details	EPA action
Adoption of December 12, 2008 version of the Toxics Manual	Revised effectiveness date at 18 AAC 70.020(b) and Note 5.	Approve.
Freshwater Numeric Aquatic Life Toxics Criteria	Aluminum (chronic), Diazinon (acute and chronic), Nonylphenol (acute and chronic), Tributyltin (chronic).	Approve, subject to the completion of ESA consultation.
Saltwater Numeric Aquatic Life Toxics Criteria	Ammonia (acute and chronic), Diazinon (acute and chronic), Nonylphenol (acute and chronic), Tributyltin (acute and chronic).	Approve, subject to the completion of ESA consultation.
Drinking Water Criteria	New criteria for aldicarb, aldicarb sulfone, aldicarb sulfoxide, and uranium. Remove nickel criterion. Updated arsenic criteria.	Approve.
Narrative Toxics Criteria	Regulatory language changes to 18 AAC 70.020(b)(11) and (23).	Approve.
Procedures for Applying Water Quality Criteria	Minor editorial language changes to 18 AAC 70.040.	No action. Acknowledge; non-substantive revision.
Procedures for Applying Water Quality Criteria	Addition of 18 AAC 70.040(4).	Approve.
Table Reformatting	Reorganization of the numeric criteria into a single table.	No action. Acknowledge; non-substantive revision.

EPA acknowledges the revised format of the Toxics Manual into a single table. However, EPA is taking no action under section 303(c) of the CWA as this is a formatting revision which does not alter the desired ambient conditions of Alaska's waterbodies and therefore does not constitute a new or revised water quality standard subject to EPA review and approval/disapproval action. Unless specifically identified in this technical justification, the re-formatting did not result in any other criteria revisions.

EPA's action in this technical justification is organized into four major sections:

1. Numeric aquatic life toxics criteria (freshwater and saltwater).
2. Drinking water criteria.
3. Narrative toxics criteria.
4. Procedures for applying water quality criteria.

1. NUMERIC AQUATIC LIFE TOXICS CRITERIA

40 C.F.R. Part 131.11(a)(2) of EPA's water quality standards regulations specifies that states must adopt criteria for toxic pollutants to protect designated uses. 40 C.F.R. 131.11(b) allow states to establish numeric criteria based on CWA 304(a) guidance, 304(a) guidance modified to reflect site-specific conditions, or other scientifically defensible methods. Under section 304(a) of the CWA, EPA publishes numeric water quality criteria that consist of scientific information regarding concentrations of specific chemicals in water that protect aquatic life and human health. EPA has developed guidance on methods to develop site-specific criteria allowed under 40 C.F.R. Part 131.11.[1] It is important to note that modifications to 304(a) criteria made to reflect site-specific circumstances or more recent available data may not necessarily be appropriate for all circumstances.

Alaska has a separate set of acute and chronic criteria for freshwater and saltwater environments. ADEC has adopted revisions to these criteria, for the following substances:

A. Ammonia
B. Tributyltin
C. Diazinon
D. Nonylphenol
E. Aluminum

EPA's rationale for approving these numeric aquatic life toxics criteria under section 303(c) of the CWA, subject to the completion of consultation under section 7 of the Endangered Species Act (ESA consultation), is described below.

A. Ammonia

Alaska's ammonia criteria are expressed as a formula found in Appendix F and Appendix G of the Toxics Manual. In the previous version of the Toxics Manual for saltwater acute and chronic values, Alaska had incorrectly used the molecular weight of nitrogen in

[1] EPA Water Quality Standards Handbook, 1994. Section 3.7.
http://www.epa.gov/waterscience/standards/handbook/intro.html#overview

formula calculations instead of the molecular weight of ammonia. This error became known to ADEC and EPA subsequent to EPA's February 27, 2004 approval action. The corrected tables adopted by this regulation are based on the use of the molecular weight of ammonia thus making them consistent with the current CWA § 304(a) criteria recommendations for ammonia. In the document entitled, *Ambient Water Quality Criteria for Ammonia (Saltwater)*, EPA provides an extensive technical basis and justification as to how its recommended aquatic life criteria adequately protect aquatic life uses.[2] On this basis, EPA has determined that Alaska's revised ammonia criteria protect aquatic life uses in accordance with 40 CFR Part 131.11(a)(1) and EPA approves the revision, subject to the completion of ESA consultation.

B. Tributyltin

ADEC has made the following revisions to their aquatic life tributyltin criteria:

Tributyltin	Freshwater Acute	Freshwater Chronic	Saltwater Acute	Saltwater Chronic
Old Value	0.46 µg/L	0.063 µg/L	0.37 µg/L	0.01 µg/L
New Value	No change	0.072 µg/L	0.42 µg/L	0.0074 µg/L

Alaska's previous tributyltin criteria were consistent with EPA's draft 304(a) criteria recommendations. In December 2003, EPA finalized these recommendations. ADEC has adopted revisions to the tributyltin criteria consistent with EPA's current CWA § 304(a) criteria recommendations for tributyltin.

In its final 304(a) recommendations for tributyltin, *EPA Ambient Aquatic Life Water Quality Criteria for Tributyltin*, EPA provides an extensive technical basis and justification as to how its recommended aquatic life criteria adequately protect aquatic life uses.[3] On this basis, EPA has determined that Alaska's revised tributyltin criteria protect aquatic life uses in accordance with 40 CFR Part 131.11(a)(1). EPA approves the revised criteria for tributyltin, subject to the completion of ESA consultation.

C. Diazinon

ADEC has adopted the following new aquatic life criteria for diazinon:

Toxic substance	Freshwater Acute	Freshwater Chronic	Saltwater Acute	Saltwater Chronic
Diazinon	0.17 µg/L	0.17 µg/L	0.82 µg/L	0.82 µg/L

No criteria for diazinon previously existed in Alaska's water quality standards. Alaska's new aquatic life criteria for diazinon are consistent with the current CWA § 304(a) criteria recommendations issued in December 2005. EPA provides an extensive technical basis and justification as to how its recommended aquatic life criteria adequately protect aquatic life uses in the document entitled *EPA Ambient Aquatic Life Water Quality Criteria for Diazinon - Final.*[4] On this basis, EPA has determined that Alaska's new

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[2] *Ambient Water Quality Criteria for Ammonia (Saltwater) -1989.* EPA 440-5-88-004. http://www.epa.gov/waterscience/criteria/library/ambientwqc/ammoniasalt1989.pdf

[3] *EPA Ambient Aquatic Life Water Quality Criteria for Tributyltin (TBT) – Final.* EPA 822-R-03-031. December 2003. http://www.epa.gov/waterscience/criteria/tributyltin/tbt-final.pdf

[4] *EPA Ambient Aquatic Life Water Quality Criteria for Diazinon – Final.* EPA 822-R-05-006. December 2005. http://www.epa.gov/waterscience/criteria/diazinon/final-doc.pdf

diazinon criteria protect aquatic life uses in accordance with 40 CFR Part 131.11(a)(1). EPA approves the new criteria for diazinon, subject to the completion of ESA consultation.

D. Nonylphenol

ADEC has adopted the following new aquatic life criteria for nonylphenol:

Toxic substance	Freshwater Acute	Freshwater Chronic	Saltwater Acute	Saltwater Chronic
Nonylphenol	28 µg/L	6.6 µg/L	7.0 µg/L	1.7 µg/L

No criteria for nonylphenol previously existed in Alaska's water quality standards. Alaska's new aquatic life criteria for nonylphenol are consistent with the current CWA § 304(a) criteria recommendations issued in December 2005. EPA provides an extensive technical basis and justification as to how its recommended aquatic life criteria adequately protect aquatic life uses in the document entitled *EPA Ambient Aquatic Life Water Quality Criteria for Nonylphenol - Final.*[5] On this basis, EPA has determined that Alaska's new nonylphenol criteria protect aquatic life uses in accordance with 40 CFR Part 131.11(a)(1). EPA approves the new criteria for nonylphenol, subject to the completion of ESA consultation.

E. Aluminum

Alaska's previous criteria for freshwater aluminum was 750 µg/L for acute and 87 µg/L for chronic, expressed as total recoverable, consistent with EPA's recommended 304(a) criteria recommendations. ADEC has modified the aluminum freshwater chronic criterion by adding footnote 13 to the Toxics Manual. Footnote 13 states:

"Where the pH is greater than or equal to 7.0 *and* the hardness is greater than or equal to 50 ppm as $CaCO_3$, the chronic aluminum standard will then be equal to the acute aluminum standard, 750 µg/L as total recoverable aluminum."

As a result of this revision, the freshwater aquatic life chronic criterion for aluminum would be 750 µg/L in waters that have a pH higher than 7.0 and a hardness level greater than 50 ppm as $CaCO_3$. Where the pH level is less than or equal to 7.0 or the hardness level is less than or equal to 50 ppm, than the revision would not apply and the freshwater aquatic life chronic criterion for aluminum would remain unchanged, at 87 µg/L.

ADEC prepared a "Scientific Basis for Changing the Chronic Aluminum Water Quality Criterion" (September 2008) to assess the protectiveness of the freshwater aluminum chronic criterion under varying pH and hardness conditions. The addition of footnote 13 limits the applicability of the revised freshwater aquatic life chronic criterion for aluminum, based on pH and hardness conditions. It is supported by ADEC's scientific literature review. The findings of this research were included in the August 24, 2009 submittal package to EPA as supporting justification for the revision. ADEC found that the chronic toxicity of aluminum is greatest in waters with low pH and low hardness. ADEC investigated the toxic effects of aluminum on aquatic life (fish and aquatic

[5] *EPA Ambient Aquatic Life Water Quality Criteria for Nonylphenol – Final.* EPA 822-R-05-005. December 2005. http://www.epa.gov/waterscience/criteria/nonylphenol/final-doc.pdf

invertebrates) including two primary mechanisms for adverse effects, suffocation and ionoregulation.

In reviewing the scientific literature on aluminum toxicity, ADEC considered four options regarding their aluminum freshwater criteria:

1. No change to the freshwater aquatic life criteria for aluminum.
2. Modify the existing freshwater aquatic life chronic criterion for aluminum, based on pH and hardness conditions (the addition of footnote 13).
3. Modify the existing freshwater aquatic life criteria for aluminum, based on hardness only.
4. Eliminate one or both of the freshwater aquatic life criteria for aluminum.

ADEC chose the second option and modified the existing freshwater aquatic life chronic criterion for aluminum, based on pH and hardness conditions. This was included in the Toxics Manual with the addition of footnote 13.[6]

ADEC also considered whether the expression of the aluminum freshwater criteria should be as dissolved or total recoverable. After reviewing scientific literature on the subject, ADEC elected to continue to express the criteria values as total recoverable. This decision is scientifically defensible, on grounds set forth in EPA's 304(a) guidance.[7]

The development of 304(a) criteria for the protection of aquatic organisms is a complex process that uses information from many areas of aquatic toxicology.[8] EPA's 304(a) recommended aquatic life aluminum criteria of 87 µg/L for chronic exposure and 750 µg/L for acute exposure were published in the document *Ambient Water Quality Criteria for Aluminum.*[9] Using EPA's 1985 guidelines for deriving criteria for protection of aquatic life, the final chronic value for aluminum calculated from chronic toxicity data was 748 µg/L, which would have supported a chronic criterion of 750 µg/L. However, since some data showed greater toxicity of aluminum to brook trout and striped bass, EPA lowered the chronic criterion to 87 µg/L in order to protect these two recreationally important species.[10]

Since the brook trout and striped bass toxicity tests that provide the technical basis for the freshwater aluminum chronic criterion were conducted under low pH and hardness conditions, EPA believes that restricting the applicability of the criterion in this manner is appropriate. EPA has determined that the revised criterion, with the footnote limiting applicability, is protective of Alaska's aquatic life use and thereby consistent with the federal requirements at 40 C.F.R. Part 131.11(a)(1) since this revision uses an equation

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[6] This decision was based primarily on the following two scientific studies:

- Gensemer, R.W. and Playle, R.C. "The Bioavailability and Toxicity of Aluminum in Aquatic Environments." 1999. *Critical Reviews in Environmental Science and Technology.* 29:4, 315-450.
- Winter, Anna, Joel Nichols and Richard Playle. "Influence of Acidic to Basic Water pH and Natural Organic Matter on Aluminum Accumulation by Gills of Rainbow Trout (*Oncorhynchus mykiss*)." 2005. *Canadian Journal of Fisheries and Aquatic Sciences.* 62:10, 2303-2311.

[7] EPA 440/5-86-008, August 1988.

[8] See Chapter 3 EPA Water Quality Standards Handbook, 1994 and references cited therein.

[9] Ibid.

[10] EPA Region 3 technical justification to WV Department of Environmental Protection on 12/19/05.

based on pH and hardness to generate a freshwater aluminum chronic criterion that more closely represents the circumstances on a site specific basis. Therefore, EPA approves the addition of footnote 13 to Alaska's Toxics Manual which revises the applicability of Alaska's freshwater aquatic life chronic aluminum criterion, subject to the completion of ESA consultation.

2. DRINKING WATER CRITERIA

Drinking water standards are regulations that EPA sets to control the level of contaminants in the nation's drinking water. In most cases, the standard is a Maximum Contaminant Level (MCL), the maximum permissible level of a contaminant in water which is delivered to any user of a public water system. The Safe Drinking Water Act gives individual states and tribes the opportunity to set and enforce their own drinking water standards if the standards are at least as stringent as EPA's national standards. When making a determination to regulate, the Safe Drinking Water Act requires consideration of these three criteria:[11]

- the potential adverse effects of the contaminant on the health of humans,
- the frequency and level of contaminant occurrence in public drinking water systems, and
- whether regulation of the contaminant presents a meaningful opportunity for reducing public health risks.

Alaska WQS apply drinking water standards (MCLs) to untreated surface waters which protect those who obtain drinking water directly from surface water sources. ADEC has adopted revisions to the drinking water criteria listed below contained in the Toxics Manual. These revisions to drinking water criteria values incorporated in Alaska's water quality standards reflect the levels set under the Safe Drinking Water Act and are consistent with EPA drinking water MCLs.

Toxic substance	Adopted Value	Previous Value
Aldicarb[12]	3 µg/l	----
Aldicarb Sulfone[13]	2 µg/l	----
Aldicarb Sulfoxide[14]	4 µg/l	----
Arsenic[15]	10 µg/l	0.05 mg/l
Nickel[16]	Deleted[17]	0.1 mg/l
Uranium[18]	30 µg/L	----

[11] http://www.epa.gov/safewater/standard/setting.html

[12] *National Primary Drinking Water Regulations; Monitoring for VOC; MCLGs and MCLs for Aldicarb, Aldicarb Sulfoxide, Aldicarb Sulfone, Pentachlorophenol, and Barium.* 56 FR 30266. July 1991.

[13] Ibid.

[14] Ibid.

[15] *Arsenic and Clarifications to Compliance and New Source Contaminants Monitoring Final Rule.* 66 FR 6976. January 2001. *Minor Clarification of National Primary Drinking Water Regulation for Arsenic; Final Rule.* 68 FR 14501. March 2003.

[16] *National Pollutant Discharge Elimination System and Pretreatment Programs; State and Local Assistance Programs; Effluent Limitations Guidelines and Standards; Public Water Supply and Underground Injection Control Programs: Removal of Legally Obsolete or Redundant Rules.* 60 FR 33929. June 1995.

[17] However, footnote 57 indicates that monitoring requirements still apply.

EPA has determined that Alaska's new drinking water criteria will protect the state's drinking water uses since they are consistent with EPA's national drinking water standards. Alaska's drinking water MCLs are used as water quality criteria to protect the drinking water and contact recreation uses. Therefore, in accordance with 40 CFR Part 131.11(a)(1), EPA approves Alaska's revised drinking water criteria as water quality standards under section 303(c) of the CWA.

3. NARRATIVE TOXICS CRITERIA

Narrative criteria are statements that describe the desired water quality goal. 40 C.F.R. Part 131.11 requires states to adopt narrative criteria where numerical criteria cannot be established or to supplement numeric criteria. Narrative toxic criteria typically serve as the basis for limiting the toxicity of waste discharges to aquatic species by prohibiting toxic pollutants in amounts which would cause toxic effects to a state's designated uses.

Narrative toxic criteria, typically based on whole-effluent toxicity (WET) testing, can be the basis for limiting toxicity in waste discharges where toxicity cannot be traced to a particular pollutant or where a specific pollutant can be identified as causing or contributing to the toxicity but there are no numeric criteria in the state standards. WET testing is also appropriate for discharges containing multiple pollutants because WET testing provides a method for evaluating synergistic and antagonistic effects on aquatic life.[19]

As stated in EPA's national WQS program guidance, EPA considers that the narrative criteria apply to all designated uses at all flows and are necessary to meet the statutory requirements of section 303(c)(2)(A) of the CWA.[20] EPA recognizes that various acceptable versions of the narrative toxics language exist.

ADEC has added new narrative criteria language to 18 AAC 70.020(b)(11) and (23) to protect designated uses from toxic substances that do not have numeric criteria. This revised language provides protection from substances whose toxicity is unknown, unable to be quantified into a numeric criterion, or can cause adverse effects on Alaska's designated uses in combination with other toxic substances.

18 AAC 70.020(b)(11) describes freshwater designated uses and applicable narrative criteria for each category of use. The table below shows the revisions to this section. Underlined and bold text is new language that Alaska has adopted.

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[18] *National Primary Drinking Water Regulations; Radionuclides; Final Rule.* 65 FR 76707. December 2000.

[19] EPA Water Quality Standards Handbook, 1994.

[20] EPA Water Quality Standards Handbook, 1994. Section 3.5.2

(11) TOXIC AND OTHER DELETERIOUS ORGANIC AND INORGANIC SUBSTANCES, FOR FRESH WATER USES	
(A) Water Supply (i) drinking, culinary, and food processing	The concentration of substances in water may not exceed the **numeric** criteria **for drinking water and human health for consumption of water and aquatic organisms** shown in [TABLE I AND IN TABLE V, COLUMN A OF] the *Alaska Water Quality Criteria Manual* (see note 5). **Substances may not be introduced at concentrations that cause, or can reasonably be expected to cause, either singly or in combination, odor, taste, or other adverse effects on the use.**
(A) Water Supply (ii) agriculture, including irrigation and stock watering	The concentration of substances in water may not exceed the **numeric** criteria **for drinking water and stockwater and irrigation water** shown in [TABLE I AND IN TABLE II OF] the *Alaska Water Quality Criteria Manual* (see note 5). **Substances may not be introduced at concentrations that cause, or can reasonably be expected to cause, either singly or in combination, odor, taste, or other adverse effects on the use.**
(A) Water Supply (iii) aquaculture	Same as (11)(C).
(A) Water Supply (iv) industrial	Concentrations of substances that pose hazards to worker contact may not be present.
(B) Water Recreation (i) contact recreation	The concentration of substances in water may not exceed the **numeric** criteria **for drinking water** shown in [TABLE I OF] the *Alaska Water Quality Criteria Manual* (see note 5). **Substances may not be introduced at concentrations that cause, or can reasonably be expected to cause, either singly or in combination, odor, taste, or other adverse effects on the use.**
(B) Water Recreation (ii) secondary recreation	Concentrations of substances that pose hazards to incidental human contact may not be present.
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	The concentration of substances in water may not exceed the **numeric** criteria **for aquatic life for fresh water and human health for consumption of aquatic organisms only** shown in [TABLE III AND IN TABLE V, COLUMN B OF] the *Alaska Water Quality Criteria Manual* (see note 5), or any chronic and acute criteria established in this chapter for a toxic pollutant of concern to protect sensitive and biologically important life stages of resident species of this state. There may be no concentrations of toxic substances in water or in shoreline or bottom sediments, that, singly or in combination, cause, or reasonably can be expected to cause, adverse effects on aquatic life or produce undesirable or nuisance aquatic life, except as authorized by this chapter. Substances may not be present in concentrations that individually or in combination impart undesirable odor or taste to fish or other aquatic organisms, as determined by either bioassay or organoleptic tests.

18 AAC 70.020(b)(23) describes marine water designated uses and applicable narrative criteria to each category of use. The table below shows the revisions to this section. Underlined and bold text is new language that Alaska has adopted.

(23) TOXIC AND OTHER DELETERIOUS ORGANIC AND INORGANIC SUBSTANCES, FOR MARINE WATER USES	
(A) Water Supply (i) aquaculture	Same as (23)(C).
(A) Water Supply (ii) seafood processing	The concentration of substances in water may not exceed the **numeric** criteria **for aquatic life for marine water** shown in [TABLE IV OF] the *Alaska Water Quality Criteria Manual* (see note 5). **Substances may not be introduced at concentrations that cause, or can reasonably be expected to cause, either singly or in combination, odor, taste, or other adverse effects on the use.**
(A) Water Supply (iii) industrial	Concentrations of substances that pose hazards to worker contact may not be present.
(B) Water Recreation (i) contact recreation	There may be no concentrations of substances in water, that alone or in combination with other substances, make the water unfit or unsafe for the use.
(B) Water Recreation (ii) secondary recreation	Concentrations of substances that pose hazards to incidental human contact may not be present.
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	The concentration of substances in water may not exceed the **numeric** criteria **for aquatic life for marine water and human health for consumption of aquatic organisms only** shown in [TABLE IV AND IN TABLE V, COLUMN B OF] the *Alaska Water Quality Criteria Manual* (see note 5), or any chronic and acute criteria established in this chapter for a toxic pollutant of concern, to protect sensitive and biologically important life stages of resident species of this state. There may be no concentrations of toxic substances in water or in shoreline or bottom sediments, that, singly or in combination, cause, or reasonably can be expected to cause, adverse effects on aquatic life or produce undesirable or nuisance aquatic life, except as authorized by this chapter. Substances may not be present in concentrations that individually or in combination impart undesirable odor or taste to fish or other aquatic organisms, as determined by either bioassay or organoleptic tests.
(D) Harvesting for Consumption of Raw Mollusks or Other Raw Aquatic Life	Same as (23)(C).

These revised narrative criteria at 18 AAC 70.020(b)(11) and (23) are consistent with 40 C.F.R. Part 131.11(b)(2) which directs states and tribes to establish narrative criteria where numeric criteria cannot be established or to supplement the numeric criteria.

The narrative criteria have been improved for water supply (freshwater and marine water) and water recreation (freshwater) uses since the revised language provides additional protection relating to combinations of toxic and deleterious substances, as well as to toxic and deleterious substance which do not have numeric criteria.

The remaining revised language does not alter Alaska's implementation of freshwater or marine water aquatic life criteria, it simply further explains and clarifies the applicability of the numeric aquatic life criteria. These revisions do not change the underlying numeric criteria which protect Alaska's designated uses.

Therefore, under section 303(c) of the CWA, EPA approves Alaska's revised narrative criteria in 18 AAC 70.020(b)(11) and (23) for freshwater and marine water.

4. PROCEDURES FOR APPLY ING WATER QUALITY CRITERIA

ADEC has adopted a new provision which explains the procedures for applying water quality criteria at 18 AAC 70.040(4). This provision describes the procedure for determining the applicability of a narrative criterion when a numeric criterion also pertains.

18 AAC 70.040
Procedures ~~Procedure~~ **for applying water quality criteria.** In applying the appropriate water quality criteria for any waterbody or portion of a waterbody, the department will use the following **procedures** ~~procedure~~:

EPA acknowledges these non-substantive editorial changes to 18 AAC 70.040. EPA is taking no action under section 303(c) of the CWA as these are non-substantive revisions which do not alter the desired ambient conditions of Alaska's waterbodies.

18 AAC 70.040(4)
(4) if both a narrative and a numeric criterion apply under 18 AAC 70.020(b), compliance with the numeric criterion satisfies the narrative criterion unless the department finds that the potential for cumulative or synergistic effects or other reasons specific to a particular situation require a more stringent criterion to protect the designated use.

This new provision does not alter Alaska's implementation of numeric criteria. Instead, it provides additional protections to those of the numeric criteria, relating to potential cumulative and synergistic effects. EPA approves the language in this provision, under section 303(c) of the CWA, which clarifies the procedures for applying numeric and narrative water quality criteria, including when cumulative or synergistic effects may occur.