

# Toxics Manual

## **Proposed Revisions to Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances**

Water Quality Standards

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# Outline

- How can I participate and get more information?
- What is the Toxics Manual?
- Why update the Toxics Manual?
- What are the changes?
- Why is the Toxics Manual changing?
- How you can comment on the proposed changes?



# How can I participate and get more information?

## Public Workshops:

### Juneau:

- 4 pm to 6 pm on Tuesday, January 20, 2009,
- Main Conference Room, ADEC, 410 Willoughby Avenue

### Fairbanks:

- 4 pm to 6 pm on Wednesday, January 21, 2009,
- Conference Room B/C, ADEC, 610 University Avenue



# How can I participate and get more information?

## Public Hearing:

### Anchorage (with Statewide call-in):


Oral or written testimony may be given at a public hearing

- 4 pm to 6 pm on Thursday, January 22, 2009,
- 1st Floor Main Conference Room, ADEC, 555 Cordova Street

Statewide call-in available by dialing 1-800-315-6338,  
Conference Code 2881 followed by the pound (#) sign

Website: <http://www.dec.state.ak.us/water/wqsar/wqs/index.htm>





# What are Water Quality Standards?

## Use + Criteria = Standard

- Designated water use classes (7)
  - Drinking, fishing, swimming & other uses
- In Alaska, all waters protected for all uses
- Criteria are pollutant limits to protect uses
- Most stringent criteria becomes the WQS



# Water Quality Standards Documents

- Alaska surface water quality is regulated using two documents:
  - Water Quality Standards (WQS) in 18 AAC 70
  - Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances (Toxics Manual)
- The Toxics Manual is adopted by reference as a part of the WQS



# What is the Toxics Manual?

- Establishes standards (criteria) that limit the amount of toxic pollutants in Alaska's waters
- Protects and maintains the quality of Alaskan waters
- Originally based on EPA's Nationally Recommended Water Quality Criteria





# Why update the Toxics Manual?

Clean Water Act review requirement:

- Must review every 3 years
- Must adopt criteria as strict as EPA's nationally recommended criteria for priority toxic pollutants within 5 years, or risk promulgation
- Provides an opportunity to update and improve Alaska's Water Quality Standards





# What are the changes?

## Criteria Changes:

- Update drinking water criteria
- Modify chronic aluminum criterion for freshwater
- Revise freshwater and salt water aquatic life criteria as recommended by EPA
- Correct typographical error in the salt water ammonia criteria
- Include new narrative language for all uses



# What are the changes?

## Layout Changes:

- Update the format of the toxics manual for ease of use
- Reorganizes the numeric criteria into a single table format which shows all criteria types for each parameter

# Toxics Manual Formatting Changes

Department of Environmental Conservation

*Alaska Water Quality Criteria Manual for Toxic And Other Deleterious Organic and Inorganic Substances*

**DRAFT**

## WATER QUALITY CRITERIA FOR TOXICS AND OTHER DELETERIOUS SUBSTANCES (µg/l unless shown otherwise)

Pollutant CAS Number	Type of Pollutant	Drinking Water <sup>1</sup>	Stock- water <sup>2</sup>	Irrigation Water <sup>3</sup>	Aquatic Life for Fresh Water		Aquatic Life for Marine Water		Human Health for Consumption of:		References <sup>4</sup>
					Acute (CMC)	Chronic (CCC)	Acute (CMC)	Chronic (CCC)	Water + Aquatic Organisms	Aquatic Organisms Only	
<b>Lead</b> 7439921	INORG	—	50	5,000	See Appendix A (1-hr avg) <sup>11</sup> <i>dissolved</i> <sup>25, 41, 47</sup>	See Appendix A (4-day avg) <sup>12</sup> <i>dissolved</i> <sup>25, 41, 47</sup>	210 See Appendix B (1-hr avg) <sup>11</sup> <i>dissolved</i> <sup>41, 48</sup>	8.1 See Appendix B (4-day avg) <sup>12</sup> <i>dissolved</i> <sup>41, 49</sup>	—	—	Stockwater: EPA Green Book Irrigation: EPA Blue Book Aquatic Life: 57 FR 60848 60 FR 22228 65 FR 31682 67 FR 79091 EPA 440-5-84-027 EPA 822-Z-99-001 EPA NRWQC 2006
<b>Lindane (gamma-BHC)</b> 58899	PEST SVOC	0.2	—	—	0.95 (1-hr avg) <sup>11, 20</sup>	—	0.16 (24-hr max) <sup>7</sup>	—	—	—	Drinking Water: 18 AAC 80.300(b) Aquatic Life: 57 FR 60848 65 FR 31682 67 FR 79091 EPA 440-5-80-054 EPA 820-B-96-001 EPA 822-Z-99-001 EPA NRWQC 2006
<b>Lithium</b> 7439932	INORG	—	—	2,500	—	—	—	—	—	—	Irrigation: EPA Blue Book
<b>Malathion</b> 121755	PEST	—	—	—	—	0.1	—	0.1	—	—	Aquatic Life: 67 FR 79091 EPA Red Book EPA 440-9-76-023 EPA 822-Z-99-001 EPA NRWQC 2006
<b>Manganese</b> 7439965	INORG	—	—	200	—	—	—	—	50 <sup>50</sup>	100 <sup>50</sup>	Irrigation: EPA Blue Book Human Health: 67 FR 79091 EPA 440-9-76-023 EPA 440-5-86-001 EPA 822-Z-99-001 EPA NRWQC 2006





# Criteria Changes: Drinking Water

- Aldicarb, Aldicarb Sulfone, and Aldicarb Sulfoxide
  - New criteria for these three pollutants
- Arsenic
  - Decreased from 50  $\mu\text{g/L}$  to 10  $\mu\text{g/L}$
- Nickel
  - Deleted based on EPA guidance
- Uranium
  - New criterion for this pollutant



# Criteria Changes: Freshwater Aquatic Life

## Options for aluminum chronic criterion :

*NOTE: DEC does not have a preferred option and is requesting comment on either option.*

### **Option 1:**

- Retain the current chronic aquatic life criterion only for conditions where toxicity is greatest

Proposed chronic aluminum criteria	pH	Hardness (as CaCO <sub>3</sub> )
87 µg/L	< 7.0	< 50 ppm
750 µg/L	≥ 7.0	≥ 50 ppm

# Criteria Changes: Freshwater Aquatic Life

## Aluminum chronic criterion :

### *Option 2*

- Retain the current chronic aluminum criterion for all waters
  - at any pH and hardness level
  - wait for better scientific understanding of aluminum toxicity

Current chronic aluminum criteria	pH	Hardness (as CaCO <sub>3</sub> )
87 µg/L	6.5 and 9.0	Not considered



# Criteria Changes: Freshwater Aquatic Life

- Diazinon (acute and chronic criteria)
  - New freshwater aquatic life criteria recommended by EPA
- Nonylphenol (acute and chronic criteria)
  - New freshwater aquatic life criteria recommended by EPA
- Tributyltin (chronic criterion only)
  - Increased from 0.063  $\mu\text{g/L}$  to 0.072  $\mu\text{g/L}$  based on EPA guidance





# Criteria Changes: Salt Water Aquatic Life

- **Ammonia** (acute and chronic criteria)
  - Correction of a unit conversion error will cause the criteria values to be slightly decreased
- **Diazinon** (acute and chronic criteria)
  - New salt water aquatic life criteria recommended by EPA
- **Nonylphenol** (acute and chronic criteria)
  - New salt water aquatic life criteria recommended by EPA
- **Tributyltin** (acute and chronic criteria)
  - Acute criterion increased from 0.37  $\mu\text{g/L}$  to 0.42  $\mu\text{g/L}$
  - Chronic criterion decreased from 0.010  $\mu\text{g/L}$  to 0.0074  $\mu\text{g/L}$





# Criteria Changes: Narrative Criteria

## Addition of narrative criteria to the WQS:

- Many known toxic substances have no numeric criteria
- Update adds narrative criteria to the WQS regulations for all uses
- Criteria will protect against the adverse effects of a vast array of substances whose toxicity is either unknown or insufficiently quantified to specify numeric criteria



# Criteria Changes: Narrative Criteria

## Narrative Criteria Language:

“Toxic and other deleterious substances may not be introduced at concentrations which cause, or can reasonably be expected to cause, either singly or in combination, adverse effects on the use.”

# Summary of Toxics Manual Changes

	Drinking Water	Freshwater Acute	Freshwater Chronic	Saltwater Acute	Saltwater Chronic
Aldicarb	New	N/A	N/A	N/A	N/A
Aldicarb Sulfone	New	N/A	N/A	N/A	N/A
Aldicarb Sulfoxide	New	N/A	N/A	N/A	N/A
Aluminum	Unchanged	Unchanged	Less Stringent	Unchanged	Unchanged
Ammonia (total)	N/A	Unchanged	Unchanged	More Stringent	More Stringent
Arsenic	More Stringent	Unchanged	Unchanged	Unchanged	Unchanged
Diazinon	N/A	New	New	New	New
Nickel	Deleted	Unchanged	Unchanged	Unchanged	Unchanged
Nonylphenol	N/A	New	New	New	New
Tributyltin	N/A	Unchanged	Less Stringent	Less Stringent	More Stringent
Uranium	New	N/A	N/A	N/A	N/A <sup>19</sup>





# How to comment

- Give oral or written testimony at the Public Hearing:
  - 4 pm to 6 pm on Thursday, January 22, 2009
- Submit written comment via mail or email to:  
Erin Strang  
Alaska Department of Environmental Conservation  
Division of Water, Water Quality Standards  
610 University Avenue  
Fairbanks, AK 99709  
[erin.strang@alaska.gov](mailto:erin.strang@alaska.gov)
- All written comments must be received by  
5 PM on February 6, 2009



# Staff contacts and resources

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