DEPARTMENT OF ENVIRONMENTAL CONSERVATION

18 AAC 70

WATER QUALITY STANDARDS

Amended as of September 19, 2009

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The regulations have an effective date of September 19, 2009, are in Register 191, and will appear in official published form in the October 2009 Supplement to the Alaska Administrative Code.

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Chapter 70. Water Quality Standards.

Article

1. Statewide Standards (18 AAC 70.005 - 18 AAC 70.050)
2. Exceptions to Statewide Standards (18 AAC 70.200 - 18 AAC 70.270)
3. General Provisions (18 AAC 70.900 - 18 AAC 70.990)

Editor's note: The regulations in this chapter, effective November 1, 1997, and distributed in Register 143, constitute a comprehensive reorganization and revision of this material. They replace previous regulations in this chapter that were repealed or amended simultaneously with the adoption of these regulations. The history line at the end of each section does not reflect the history of the replaced provisions before November 1, 1997, nor is the section numbering necessarily related to the numbering before that date. Some regulations in this chapter were in effect before 7/28/59. Previous amendments to this chapter may be reviewed at the Office of the Lieutenant Governor and may be found at Register 34, 5/24/70; Register 39, 8/28/71; Register 44, 10/22/72; Register 47, 8/12/73; Register 67, 8/21/78; Register 69, 2/2/79; Register 70, 4/23/79; Register 71, 9/19/79; Register 84, 12/19/82; Register 89, 3/30/84; Register 91, 9/22/84; Register 94, 6/23/85; Register 100, 1/7/87; Register 107, 9/15/88; Register 112, 11/30/89; Register 133, 1/4/95; and Register 137, 3/16/96.

Article 1. Statewide Standards

Section

05. Nonapplicability of groundwater provisions
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18 AAC 70.005. Nonapplicability of groundwater provisions. (a) Except as provided in (b) of this section, the provisions of this chapter that are applicable to groundwater do not apply to a response action, a cleanup, or a corrective action approved by

(1) the department under 18 AAC 60.440, 18 AAC 60.860, 18 AAC 75, or 18 AAC 78, except as this chapter is specifically made applicable by 18 AAC 60, 18 AAC 75, or 18 AAC 78; or

(2) the United States Environmental Protection Agency (EPA) under 42 U.S.C. 9601 - 9675 (Comprehensive Environmental Response, Compensation, and Liability Act of 1980) or 42 U.S.C. 6901-6992k (Solid Waste Disposal Act, as amended by the Resource Conservation Recovery Act), if the response, cleanup, or corrective action meets, at a minimum, the site cleanup rules at 18 AAC 75.325 - 18 AAC 75.390.

(b) This section does not affect the application of this chapter to contaminated surface water and sediment. (Eff. 1/22/99, Register 149)

Authority: AS 46.03.010 AS 46.03.070 AS 46.03.100
AS 46.03.020 AS 46.03.080 AS 46.03.110
AS 46.03.050 AS 46.03.090 AS 46.03.720

18 AAC 70.010. General. (a) A person may not conduct an operation that causes or contributes to a violation of the water quality standards set by this chapter.

(b) The water quality standards set by this chapter specify the degree of degradation that may not be exceeded in a waterbody as a result of human actions. The water quality standards are set by the antidegradation policy in 18 AAC 70.015, the water quality criteria in 18 AAC 70.020(b), and the limits in 18 AAC 70.030, applied in accordance with the remainder of this chapter.

(c) Except as specified in an authorization issued under 18 AAC 15, 18 AAC 60, or 18 AAC 72, the water quality standards and limits set by or under this chapter do not apply to a treatment works authorized by the department under 18 AAC 60 or 18 AAC 72, except that the water quality criteria and limits set by or under this chapter must be met in adjacent surface water and groundwater at and beyond the boundary of the treatment works.

(d) Where the department determines that the natural conditions of a water of the state is

of lower quality than the water quality criteria set out in 18 AAC 70.020(b), the natural condition supersedes the criteria and becomes the standard for that water. When establishing a water quality standard based on the natural conditions in a permit, certification, or other written decision, the department will follow the procedures set out in the department's *Guidance for the Implementation of Natural Condition-Based Water Quality Standards*, dated November 15, 2006 and adopted by reference. (Eff. 11/1/97, Register 143; am 12/28/2006, Register 180)

Authority:	AS 46.03.010	AS 46.03.080	AS 46.03.110
	AS 46.03.020	AS 46.03.090	AS 46.03.710
	AS 46.03.050	AS 46.03.100	AS 46.03.720
	AS 46.03.070		

Editor's note: The department's *Guidance for the Implementation of Natural Condition-Based Water Quality Standards,* adopted by reference in 18 AAC 70.010(d), may be viewed at the department's Juneau, Anchorage, or Fairbanks offices or requested from the department.

18 AAC 70.015. Antidegradation policy. (a) It is the state's antidegradation policy that

(1) existing water uses and the level of water quality necessary to protect existing uses must be maintained and protected;

(2) if the quality of a water exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality must be maintained and protected unless the department, in its discretion, upon application, and after compliance with (b) of this section, allows the reduction of water quality for a short-term variance under 18 AAC 70.200, a zone of deposit under 18 AAC 70.210, a mixing zone under 18 AAC 70.240, or another purpose as authorized in a department permit, certification, or approval; the department will authorize a reduction in water quality only after the applicant submits evidence in support of the application and the department finds that

(A) allowing lower water quality is necessary to accommodate important economic or social development in the area where the water is located;

(B) except as allowed under this subsection, reducing water quality will not violate the applicable criteria of 18 AAC 70.020 or 18 AAC 70.235 or the whole effluent toxicity limit in 18 AAC 70.030;

(C) the resulting water quality will be adequate to fully protect existing uses of the water;

(D) the methods of pollution prevention, control, and treatment found by the department to be the most effective and reasonable will be applied to all wastes and other substances to be discharged; and

(E) all wastes and other substances discharged will be treated and controlled to achieve

(i) for new and existing point sources, the highest statutory and regulatory requirements; and

(ii) for nonpoint sources, all cost-effective and reasonable best management practices;

(3) if a high quality water constitutes an outstanding national resource, such as a water of a national or state park or wildlife refuge or a water of exceptional recreational or ecological significance, the quality of that water must be maintained and protected; and

(4) if potential water quality impairment associated with a thermal discharge is involved, the antidegradation policy described in this section is subject to 33 U.S.C. 1326 (commonly known as sec. 316 of the Clean Water Act).

(b) An applicant for a permit, certification, or approval who seeks to reduce water quality as described in (a) of this section shall provide to the department all information reasonably necessary for a decision on the application, including the information and demonstrations required in (a) of this section and other information that the department finds necessary to meet the requirements of this section.

(c) An application received under (a) of this section is subject to the public participation and intergovernmental review procedures applicable to the permit, certification, or approval sought, including procedures for applications subject to the Alaska Coastal Management Program in AS 46.40 and 6 AAC 50, and applications subject to 18 AAC 15. If the department certifies a federal permit, the public participation and intergovernmental review procedures followed by the federal agency issuing that permit will meet the requirements of this subsection. (Eff. 11/1/97, Register 143)

Authority: AS 46.03.010 AS 46.03.080 AS 46.03.110
AS 46.03.020 AS 46.03.090 AS 46.03.710
AS 46.03.050 AS 46.03.100 AS 46.03.720
AS 46.03.070

18 AAC 70.020. Protected water use classes and subclasses; water quality criteria; water quality standards table. (a) Classes and subclasses of use of the state's water protected by criteria set out under (b) of this section are

(1) fresh water

(A) water supply

(i) drinking, culinary, and food processing;

(ii) agriculture, including irrigation and stock watering;

(iii) aquaculture;

(iv) industrial;

(B) water recreation

(i) contact recreation;

(ii) secondary recreation;

(C) growth and propagation of fish, shellfish, other aquatic life, and wildlife; and

(2) marine water

(A) water supply

(i) aquaculture;

(ii) seafood processing;

(iii) industrial;

(B) water recreation

(i) contact recreation;

(ii) secondary recreation;

(C) growth and propagation of fish, shellfish, other aquatic life, and wildlife; and

(D) harvesting for consumption of raw mollusks or other raw aquatic life.

(b) Except as modified by or under 18 AAC 70.220 or 18 AAC 70.235, the water quality criteria set out in the following table, and in the *Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic* Substances, dated December 12, 2008 and adopted by reference, in combination with the classes and subclasses of water use set out in (a) of this section, constitute the water quality standards for a particular waterbody; the water quality standards regulate human activities that result in alterations to waters within the state's jurisdiction:

Water Quality Standards for Designated Uses	
POLLUTANT & WATER USE	**CRITERIA**
(1) COLOR, FOR FRESH WATER USES (See note 8)	
(A) Water Supply (i) drinking, culinary, and food processing	May not exceed 15 color units or the natural condition, whichever is greater.
(A) Water Supply (ii) agriculture, including irrigation and stock watering	Not applicable.
(A) Water Supply (iii) aquaculture	May not exceed 50 color units or the natural condition, whichever is greater.
(A) Water Supply (iv) industrial	May not cause detrimental effects on established water supply treatment levels.
(B) Water Recreation (i) contact recreation	Same as (1)(A)(i).
(B) Water Recreation (ii) secondary recreation	May not interfere with or make the water unfit or unsafe for the use.
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Color or apparent color may not reduce the depth of the compensation point for photosynthetic activity by more than 10% from the seasonally established norm for aquatic life. For all waters without a seasonally established norm for aquatic life, color or apparent color may not exceed 50 color units or the natural condition, whichever is greater.
(2) FECAL COLIFORM BACTERIA (FC), FOR FRESH WATER USES (See note 1)	
(A) Water Supply (i) drinking, culinary, and food processing	In a 30-day period, the geometric mean may not exceed 20 FC/100 ml, and not more than 10% of the samples may exceed 40 FC/100 ml. For groundwater, the FC concentration must be less than 1 FC/100 ml, using the fecal coliform Membrane Filter Technique, or less than 3 FC/100 ml, using the fecal coliform most probable number (MPN) technique.
(A) Water Supply (ii) agriculture, including irrigation and stock watering	The geometric mean of samples taken in a 30-day period may not exceed 200 FC/100 ml, and not more than 10% of the samples may exceed 400 FC/100 ml. For products not normally cooked and for dairy sanitation of unpasteurized products, the criteria for drinking water supply, (2)(A)(i), apply.

Water Quality Standards for Designated Uses	
(A) Water Supply (iii) aquaculture	For products normally cooked, the geometric mean of samples taken in a 30-day period may not exceed 200 FC/100 ml, and not more than 10% of the samples may exceed 400 FC/100 ml. For products not normally cooked, the criteria for drinking water supply, (2)(A)(i), apply.
(A) Water Supply (iv) industrial	Where worker contact is present, the geometric mean of samples taken in a 30-day period may not exceed 200 FC/100 ml, and not more than 10% of the samples may exceed 400 FC/100 ml.
(B) Water Recreation (i) contact recreation	In a 30-day period, the geometric mean of samples may not exceed 100 FC/100 ml, and not more than one sample, or more than 10% of the samples if there are more than 10 samples, may exceed 200 FC/100 ml.
(B) Water Recreation (ii) secondary recreation	In a 30-day period, the geometric mean of samples may not exceed 200 FC/100 ml, and not more than 10% of the total samples may exceed 400 FC/100 ml.
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Not applicable.
(3) DISSOLVED GAS, FOR FRESH WATER USES	
(A) Water Supply (i) drinking, culinary, and food processing	Dissolved oxygen (D.O.) must be greater than or equal to 4 mg/l (this does not apply to lakes or reservoirs in which supplies are taken from below the thermocline, or to groundwater).
(A) Water Supply (ii) agriculture, including irrigation and stock watering	D.O. must be greater than 3 mg/l in surface waters.
(A) Water Supply (iii) aquaculture	D.O. must be greater than 7 mg/l in surface waters. The concentration of total dissolved gas may not exceed 110% of saturation at any point of sample collection.
(A) Water Supply (iv) industrial	May not cause detrimental effects on established water supply treatment levels.
(B) Water Recreation (i) contact recreation	D.O. must be greater than or equal to 4 mg/l.
(B) Water Recreation (ii) secondary recreation	Same as (3)(B)(i).

Water Quality Standards for Designated Uses	
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	D.O. must be greater than 7 mg/l in waters used by anadromous or resident fish. In no case may D.O. be less than 5 mg/l to a depth of 20 cm in the interstitial waters of gravel used by anadromous or resident fish for spawning (see note 2). For waters not used by anadromous or resident fish, D.O. must be greater than or equal to 5 mg/l. In no case may D.O. be greater than 17 mg/l. The concentration of total dissolved gas may not exceed 110% of saturation at any point of sample collection.
(4) DISSOLVED INORGANIC SUBSTANCES, FOR FRESH WATER USES	
(A) Water Supply (i) drinking, culinary, and food processing	Total dissolved solids (TDS) from all sources may not exceed 500 mg/l. Neither chlorides nor sulfates may exceed 250 mg/l.
(A) Water Supply (ii) agriculture, including irrigation and stock watering	TDS may not exceed 1,000 mg/l. Sodium adsorption ratio must be less than 2.5, sodium percentage less than 60%, and residual carbonate less than 1.25 milliequivalents/liter (see note 6).
(A) Water Supply (iii) aquaculture	TDS may not exceed 1,000 mg/l. A concentration of TDS may not be present in water if that concentration causes or reasonably could be expected to cause an adverse effect to aquatic life (see note 12).
(A) Water Supply (iv) industrial	No amounts above natural conditions that can cause corrosion, scaling, or process problems.
(B) Water Recreation (i) contact recreation	Not applicable.
(B) Water Recreation (ii) secondary recreation	Not applicable.
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Same as (4)(A)(iii).
(5) PETROLEUM HYDROCARBONS, OILS AND GREASE, FOR FRESH WATER USES	
(A) Water Supply (i) drinking, culinary, and food processing	May not cause a visible sheen upon the surface of the water. May not exceed concentrations that individually or in combination impart odor or taste as determined by organoleptic tests.

Water Quality Standards for Designated Uses	
(A) Water Supply (ii) agriculture, including irrigation and stock watering	May not cause a visible sheen upon the surface of the water.
(A) Water Supply (iii) aquaculture	Total aqueous hydrocarbons (TAqH) in the water column may not exceed 15 µg/l (see note 7). Total aromatic hydrocarbons (TAH) in the water column may not exceed 10 µg/l (see note 7). There may be no concentrations of petroleum hydrocarbons, animal fats, or vegetable oils in shoreline or bottom sediments that cause deleterious effects to aquatic life. Surface waters and adjoining shorelines must be virtually free from floating oil, film, sheen, or discoloration.
(A) Water Supply (iv) industrial	May not make the water unfit or unsafe for the use.
(B) Water Recreation (i) contact recreation	May not cause a film, sheen, or discoloration on the surface or floor of the waterbody or adjoining shorelines. Surface waters must be virtually free from floating oils.
(B) Water Recreation (ii) secondary recreation	Same as (5)(B)(i).
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Same as (5)(A)(iii).
(6) pH, FOR FRESH WATER USES (variation of pH for water naturally outside the specified range must be toward the range)	
(A) Water Supply (i) drinking, culinary, and food processing	May not be less than 6.0 or greater than 8.5.
(A) Water Supply (ii) agriculture, including irrigation and stock watering	May not be less than 5.0 or greater than 9.0.
(A) Water Supply (iii) aquaculture	May not be less than 6.5 or greater than 8.5. May not vary more than 0.5 pH unit from natural conditions.
(A) Water Supply (iv) industrial	May not be less than 5.0 or greater than 9.0.
(B) Water Recreation (i) contact recreation	May not be less than 6.5 or greater than 8.5. If the natural condition pH is outside this range, substances may not be added that cause an increase in the buffering capacity of the water.

Water Quality Standards for Designated Uses	
(B) Water Recreation (ii) secondary recreation	Same as (6)(A)(iv).
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	May not be less than 6.5 or greater than 8.5. May not vary more than 0.5 pH unit from natural conditions.
(7) RADIOACTIVITY, FOR FRESH WATER USES	
(A) Water Supply (i) drinking, culinary, and food processing	May not exceed the concentrations specified in Table I of the *Alaska Water Quality Criteria Manual* (see note 5) for radioactive contaminants and may not exceed limits specified in 10 C.F.R. 20 (see note 9) and National Bureau of Standards, *Handbook 69* (see note 10).
(A) Water Supply (ii) agriculture, including irrigation and stock watering	Same as (7)(A)(i).
(A) Water Supply (iii) aquaculture	Same as (7)(A)(i) except that concentration factors for organisms involved may not exceed maximum permissible limits for specific radioisotopes and unidentified mixtures as established by 10 C.F.R. 20 (see note 9) and National Bureau of Standards, *Handbook 69* (see note 10).
(A) Water Supply (iv) industrial	Same as (7)(A)(i).
(B) Water Recreation (i) contact recreation	Same as (7)(A)(i).
(B) Water Recreation (ii) secondary recreation	Same as (7)(A)(i).
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Same as (7)(A)(iii).
(8) RESIDUES, FOR FRESH WATER USES: Floating solids, debris, sludge, deposits, foam, scum, or other residues (criteria are not applicable to groundwater) **(See note 13)**	
(A) Water Supply (i) drinking, culinary, and food processing	May not, alone or in combination with other substances, be present in concentrations or amounts that: form objectionable deposits; constitute a nuisance; produce objectionable odor or taste; or result in undesirable or nuisance species.

Water Quality Standards for Designated Uses	
(A) Water Supply (ii) agriculture, including irrigation and stock watering	Same as in (8)(A)(i).
(A) Water Supply (iii) aquaculture	Same as (8)(A)(i)
(A) Water Supply (iv) industrial	Same as (8)(A)(i).
(B) Water Recreation (i) contact recreation	Same as (8)(A)(i).
(B) Water Recreation (ii) secondary recreation	Same as (8)(A)(i).
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	May not, alone or in combination with other substances, be present in concentrations or amounts that: form objectionable deposits or result in undesirable or nuisance species.
(9) SEDIMENT, FOR FRESH WATER USES (criteria are not applicable to groundwater)	
(A) Water Supply (i) drinking, culinary, and food processing	No measurable increase in concentration of settleable solids above natural conditions, as measured by the volumetric Imhoff cone method (see note 11).
(A) Water Supply (ii) agriculture, including irrigation and stock watering	For sprinkler irrigation, water must be free of particles of 0.074 mm or coarser. For irrigation or water spreading, may not exceed 200 mg/l for an extended period of time.
(A) Water Supply (iii) aquaculture	No imposed loads that will interfere with established water supply treatment levels.
(A) Water Supply (iv) industrial	Same as (9)(A)(iii).
(B) Water Recreation (i) contact recreation	Same as (9)(A)(i).
(B) Water Recreation (ii) secondary recreation	May not pose hazards to incidental human contact or cause interference with the use.
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	The percent accumulation of fine sediment in the range of 0.1 mm to 4.0 mm in the gravel bed of waters used by anadromous or resident fish for spawning may not be increased more than 5% by weight above natural conditions (as shown from grain size accumulation graph). In no case may the 0.1 mm to 4.0 mm fine sediment range in those gravel beds exceed a maximum of 30% by weight (as shown from grain size accumulation graph) (see notes 3 and 4). In all other surface waters no sediment loads (suspended or deposited) that can cause adverse effects on aquatic animal or plant life, their reproduction or habitat may be present.

Water Quality Standards for Designated Uses	
(10) TEMPERATURE, FOR FRESH WATER USES	
(A) Water Supply (i) drinking, culinary, and food processing	May not exceed 15° C.
(A) Water Supply (ii) agriculture, including irrigation and stock watering	May not exceed 30° C.
(A) Water Supply (iii) aquaculture	May not exceed 20° C at any time. The following maximum temperatures may not be exceeded, where applicable: Migration routes 15° C Spawning areas 13° C Rearing areas 15° C Egg & fry incubation 13° C For all other waters, the weekly average temperature may not exceed site-specific requirements needed to preserve normal species diversity or to prevent appearance of nuisance organisms.
(A) Water Supply (iv) industrial	May not exceed 25° C.
(B) Water Recreation (i) contact recreation	Same as (10)(A)(ii).
(B) Water Recreation (ii) secondary recreation	Not applicable.
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Same as (10)(A)(iii).
(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 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.

Water Quality Standards for Designated Uses	
(A) Water Supply (ii) agriculture, including irrigation and stock watering	The concentration of substances in water may not exceed the numeric criteria for drinking and stockwater and irrigation water shown in 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 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 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.
(12) TURBIDITY, FOR FRESH WATER USES (criteria are not applicable to groundwater)	

Water Quality Standards for Designated Uses	
(A) Water Supply (i) drinking, culinary, and food processing	May not exceed 5 nephelometric turbidity units (NTU) above natural conditions when the natural turbidity is 50 NTU or less, and may not have more than 10% increase in turbidity when the natural turbidity is more than 50 NTU, not to exceed a maximum increase of 25 NTU.
(A) Water Supply (ii) agriculture, including irrigation and stock watering	May not cause detrimental effects on indicated use.
(A) Water Supply (iii) aquaculture	May not exceed 25 NTU above natural conditions. For all lake waters, may not exceed 5 NTU above natural conditions.
(A) Water Supply (iv) industrial	May not cause detrimental effects on established water supply treatment levels.
(B) Water Recreation (i) contact recreation	May not exceed 5 NTU above natural conditions when the natural turbidity is 50 NTU or less, and may not have more than 10% increase in turbidity when the natural turbidity is more than 50 NTU, not to exceed a maximum increase of 15 NTU. May not exceed 5 NTU above natural turbidity for all lake waters.
(B) Water Recreation (ii) secondary recreation	May not exceed 10 NTU above natural conditions when natural turbidity is 50 NTU or less, and may not have more than 20% increase in turbidity when the natural turbidity is greater than 50 NTU, not to exceed a maximum increase of 15 NTU. For all lake waters, turbidity may not exceed 5 NTU above natural turbidity.
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Same as (12)(A)(iii).

Water Quality Standards for Designated Uses	
POLLUTANT & WATER USE	**CRITERIA**

(13) COLOR, FOR MARINE WATER USES (see note 8)	
(A) Water Supply (i) aquaculture	May not exceed 50 color units or the natural condition, whichever is greater.
(A) Water Supply (ii) seafood processing	May not exceed 15 color units or the natural condition, whichever is greater.
(A) Water Supply (iii) industrial	Not applicable.
(B) Water Recreation (i) contact recreation	Same as (13)(A)(ii).
(B) Water Recreation (ii) secondary recreation	Surface waters must be free of substances that produce objectionable color.
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Color or apparent color may not reduce the depth of the compensation point for photosynthetic activity by more than 10% from the seasonally established norm for aquatic life. For all waters without a seasonally established norm for aquatic life, color or apparent color may not exceed 50 color units or the natural condition, whichever is greater.
(D) Harvesting for Consumption of Raw Mollusks or Other Raw Aquatic Life	Same as (13)(C).
(14) FECAL COLIFORM BACTERIA (FC), FOR MARINE WATER USES, (see note 1)	
(A) Water Supply (i) aquaculture	For products normally cooked, the geometric mean of samples taken in a 30-day period may not exceed 200 FC/100 ml, and not more than 10% of the samples may exceed 400 FC/100 ml. For products not normally cooked, the geometric mean of samples taken in a 30-day period may not exceed 20 FC/100 ml, and not more than 10% of the samples may exceed 40 FC/100 ml.
(A) Water Supply (ii) seafood processing	In a 30-day period, the geometric mean of samples may not exceed 20 FC/100 ml, and not more than 10% of the samples may exceed 40 FC/100 ml.
(A) Water Supply (iii) industrial	Where worker contact is present, the geometric mean of samples taken in a 30-day period may not exceed 200 FC/100 ml, and not more than 10% of the samples may exceed 400 FC/100 ml.
(B) Water Recreation (i) contact recreation	In a 30-day period, the geometric mean of samples may not exceed 100 FC/100 ml, and not more than one sample, or more than 10% of the samples if there are more than 10 samples, may exceed 200 FC/100 ml.
(B) Water Recreation (ii) secondary recreation	In a 30-day period, the geometric mean of samples may not exceed 200 FC/100 ml, and not more than 10% of the samples may exceed 400 FC/100 ml.

(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Not applicable.
(D) Harvesting for Consumption of Raw Mollusks or Other Raw Aquatic Life	Based on a 5-tube decimal dilution test, the fecal coliform median MPN may not exceed 14 FC/100 ml, and not more than 10% of the samples may exceed a fecal coliform median MPN of 43 FC/100 ml.
(15) DISSOLVED GAS, FOR MARINE WATER USES	
(A) Water Supply (i) aquaculture	Surface dissolved oxygen (D.O.) concentration in coastal water may not be less than 6.0 mg/l for a depth of one meter except when natural conditions cause this value to be depressed. D.O. may not be reduced below 4 mg/l at any point beneath the surface. D.O. concentrations in estuaries and tidal tributaries may not be less than 5.0 mg/l except where natural conditions cause this value to be depressed. In no case may D.O. levels exceed 17 mg/l. The concentration of total dissolved gas may not exceed 110% of saturation at any point of sample collection.
(A) Water Supply (ii) seafood processing	Not applicable.
(A) Water Supply (iii) industrial	Not applicable.
(B) Water Recreation (i) contact recreation	Same as (15)(A)(i).
(B) Water Recreation (ii) secondary recreation	Same as (15)(A)(i).
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Same as (15)(A)(i).
(D) Harvesting for Consumption of Raw Mollusks or Other Raw Aquatic Life	Same as (15)(A)(i).
(16) DISSOLVED INORGANIC SUBSTANCES, FOR MARINE WATER USES	
(A) Water Supply (i) aquaculture	Human-induced alteration may not cause a change in the water's isohaline patterns of more than ± 10% of the natural variations.

(A) Water Supply (ii) seafood processing	Not applicable.
(A) Water Supply (iii) industrial	No amounts above natural conditions that can cause corrosion, scaling, or process problems.
(B) Water Recreation (i) contact recreation	Not applicable.
(B) Water Recreation (ii) secondary recreation	Not applicable.
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Maximum allowable variation above natural salinity: Natural Salinity* / Human-Induced Salinity* 0.0 to 3.5 — 1 Greater than 3.5 to 13.5 — 2 Greater than 13.5 to 35.0 — 4 * parts per thousand
(D) Harvesting for Consumption of Raw Mollusks or Other Raw Aquatic Life	Same as (16)(A)(i) or (16)(C), whichever is more stringent.
(17) PETROLEUM HYDROCARBONS, OILS AND GREASE, FOR MARINE WATER USES	
(A) Water Supply (i) aquaculture	Total aqueous hydrocarbons (TAqH) in the water column may not exceed 15 µg/l (see note 7). Total aromatic hydrocarbons (TAH) in the water column may not exceed 10 µg/l (see note 7). There may be no concentrations of petroleum hydrocarbons, animal fats, or vegetable oils in shoreline or bottom sediments that cause deleterious effects to aquatic life. Surface waters and adjoining shorelines must be virtually free from floating oil, film, sheen, or discoloration.
(A) Water Supply (ii) seafood processing	May not cause a film, sheen, or discoloration on the surface or floor of the waterbody or adjoining shorelines. Surface waters must be virtually free from floating oils. May not exceed concentrations that individually or in combination impart odor or taste as determined by organoleptic tests.
(A) Water Supply (iii) industrial	May not make the water unfit or unsafe for the use.
(B) Water Recreation (i) contact recreation	May not cause a film, sheen, or discoloration on the surface or floor of the waterbody or adjoining shorelines. Surface waters must be virtually free from

	floating oils.

(B) Water Recreation (ii) secondary recreation	Same as (17)(B)(i).
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Same as (17)(A)(i).
(D) Harvesting for Consumption of Raw Mollusks or Other Raw Aquatic Life	May not exceed concentrations that individually or in combination impart undesirable odor or taste to organisms as determined by bioassay or organoleptic tests.
(18) pH, FOR MARINE WATER USES (variation of pH for waters naturally outside the specified range must be toward the range)	
(A) Water Supply (i) aquaculture	May not be less than 6.5 or greater than 8.5, and may not vary more than 0.2 pH unit outside of the naturally occurring range.
(A) Water Supply (ii) seafood processing	May not be less than 6.0 or greater than 8.5.
(A) Water Supply (iii) industrial	May not be less than 5.0 or greater than 9.0.
(B) Water Recreation (i) contact recreation	May not be less than 6.0 or greater than 8.5. If the natural pH condition is outside this range, substances may not be added that cause any increase in buffering capacity of the water.
(B) Water Recreation (ii) secondary recreation	Same as (18)(A)(iii).
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Same as (18)(A)(i).
(D) Harvesting for Consumption of Raw Mollusks or Other Raw Aquatic Life	Same as (18)(A)(ii).
(19) RADIOACTIVITY, FOR MARINE WATER USES	
(A) Water Supply (i) aquaculture	May not exceed the concentrations specified in Table I of the *Alaska Water Quality Criteria Manual* (see note 5) for radioactive contaminants. Concentration factors for organisms involved may not exceed maximum permissible limits for specific radioisotopes and unidentified mixtures as established in 10 C.F.R. 20 (see note 9) and National Bureau of Standards, *Handbook 69* (see note 10).
(A) Water Supply (ii) seafood processing	May not exceed the concentrations specified in Table I of the *Alaska Water Quality Criteria Manual*, (see note

	5) for radioactive contaminants and may not exceed limits specified in 10 C.F.R. 20 (see note 9) or National Bureau of Standards, *Handbook 69* (see note 10).

(A) Water Supply (iii) industrial	Same as (19)(A)(ii).
(B) Water Recreation (i) contact recreation	Same as (19)(A)(ii).
(B) Water Recreation (ii) secondary recreation	Same as (19)(A)(ii).
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Same as (19)(A)(i).
(D) Harvesting for Consumption of Raw Mollusks or Other Raw Aquatic Life	Same as (19)(A)(i).
(20) RESIDUES, FOR MARINE WATER USES: Floating solids, debris, sludge, deposits, foam, scum, or other residues (See note 13)	
(A) Water Supply (i) aquaculture	May not, alone or in combination with other substances be present in concentrations or amounts that: form objectionable deposits; constitute a nuisance; produce objectionable odor or taste; or result in undesirable or nuisance species.
(A) Water Supply (ii) seafood processing	Same as (20)(A)(i).
(A) Water Supply (iii) industrial	Same as (20)(A)(i)
(B) Water Recreation (i) contact recreation	Same as (20)(A)(i).
(B) Water Recreation (ii) secondary recreation	Same as (20)(A)(i).
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	May not, alone or in combination with other substances be present in concentrations or amounts that form objectionable deposits or result in undesirable or nuisance species.
(D) Harvesting for Consumption of Raw Mollusks or Other Raw Aquatic Life	Same as (20)(A)(i).
(21) SEDIMENT, FOR MARINE WATER USES	
(A) Water Supply (i) aquaculture	No imposed loads that will interfere with established water supply treatment levels.

(A) Water Supply (ii) seafood processing	Below normally detectable amounts.
(A) Water Supply (iii) industrial	Same as (21)(A)(i).
(B) Water Recreation (i) contact recreation	No measurable increase in concentration of settleable solids above natural conditions, as measured by the volumetric Imhoff cone method (see note 11).
(B) Water Recreation (ii) secondary recreation	May not pose hazards to incidental human contact or cause interference with the use.
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Same as (21)(B)(i).
(D) Harvesting for Consumption of Raw Mollusks or Other Raw Aquatic Life	Not applicable.
(22) TEMPERATURE, FOR MARINE WATER USES	
(A) Water Supply (i) aquaculture	May not cause the weekly average temperature to increase more than 1° C. The maximum rate of change may not exceed 0.5^{o} C per hour. Normal daily temperature cycles may not be altered in amplitude or frequency.
(A) Water Supply (ii) seafood processing	May not exceed 15° C.
(A) Water Supply (iii) industrial	May not exceed 25° C.
(B) Water Recreation (i) contact recreation	Not applicable.
(B) Water Recreation (ii) secondary recreation	Not applicable.
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Same as (22)(A)(i).
(D) Harvesting for Consumption of Raw Mollusks or Other Raw Aquatic Life	Same as (22)(A)(i).
(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 the *Alaska Water Quality Criteria Manual* (see note 5). Substances may not be introduced 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 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).
(24) TURBIDITY, FOR MARINE WATER USES	
(A) Water Supply (i) aquaculture	May not exceed 25 nephelometric turbidity units (NTU).
(A) Water Supply (ii) seafood processing	May not interfere with disinfection.
(A) Water Supply (iii) industrial	May not cause detrimental effects on established levels of water supply treatment.
(B) Water Recreation (i) contact recreation	Same as (24)(A)(i).
(B) Water Recreation (ii) secondary recreation	Same as (24)(A)(i).
(C) Growth and Propagation of Fish, Shellfish, Other	May not reduce the depth of the compensation point for photosynthetic activity by more than 10%. May not

Aquatic Life, and Wildlife	reduce the maximum secchi disk depth by more than 10%.
(D) Harvesting for Consumption of Raw Mollusks or Other Raw Aquatic Life	Same as (24)(C).

Notes:

1. Wherever criteria for fecal coliform bacteria are provided in this section, fecal coliform bacteria enumeration must be determined by the membrane filter technique or most probable number procedure according to any edition of *Standard Methods for the Examination of Water and Wastewater*, adopted by reference in (c)(1) of this section, and adopted by reference, or in accordance with other standards approved by the department and the United States Environmental Protection Agency (EPA).
2. Wherever criteria for dissolved oxygen (DO) are provided in this chapter, dissolved oxygen (DO) concentrations in interstitial waters of gravel beds will be measured using the technique found in *Variations in the Dissolved Oxygen Content of Intragravel Water in Four Spawning Streams of Southeastern Alaska*, by William J. McNeil, United States Department of the Interior, United States Fish and Wildlife Service, Special Scientific Report - Fisheries No. 402, February 1962, adopted by reference.
3. Wherever criteria for fine sediments are provided in this chapter, fine sediments must be sampled by the method described in *An Improved Technique for Freeze Sampling Streambed Sediments*, by William J. Walkotten, United States Department of Agriculture, United States Forest Service, Forest Service Research Note PNW-281, October 1976, adopted by reference, or by the technique found in *Success of Pink Salmon Spawning Relative to Size of Spawning Bed Materials*, by William J. McNeil and W.H. Ahnell, United States Department of the Interior, United States Fish and Wildlife Service, Special Scientific Report - Fisheries No. 469, January 1964, pages 1 - 3, adopted by reference.
4. Wherever criteria for fine sediments are provided in this chapter, percent accumulation of fine sediments will be measured by the technique found in the *Manual on Test Sieving Methods*, *Guidelines for Establishing Sieve Analysis Procedures*, by the American Society for Testing and Materials (ASTM), STP 447A, 1972 edition,
5. Wherever cited in this subsection, the *Alaska Water Quality Criteria Manual* means the *Alaska Water Quality Criteria for Toxic and Other Deleterious Organic and Inorganic Substances*, dated December 12, 2008, adopted by reference in this subsection.
6. *The Report of the Committee on Water Quality Criteria*, United States Department of the Interior, Federal Water Pollution Control Administration, Washington, D.C., April 1, 1968, is adopted by reference.
7. Samples to determine concentrations of total aromatic hydrocarbons (TAH) and total aqueous hydrocarbons (TAqH) must be collected in marine and fresh waters below the surface and away from any observable sheen; concentrations of TAqH must be determined and summed using a combination of: (A) EPA Method 602 (plus xylenes) or EPA Method 624 to quantify monoaromatic hydrocarbons and to measure TAH; and (B) EPA Method 610 or EPA Method 625 to quantify polynuclear aromatic hydrocarbons listed in EPA Method 610; use of an alternative method requires department approval; the EPA methods referred to in this note may be found in Appendix A of 40 C.F.R. 136, Appendix A, as revised as of July 1, 2003 and adopted by reference.
8. Color is as measured in color units on the platinum-cobalt scale according to any edition of *Standard Methods for the Examination of Water and Wastewater,* adopted by reference in (c)(1) of this section.
9. Wherever cited in this chapter, 10 C.F.R. 20 means the Standards for Protection Against Radiation as of January 1, 1978, adopted by reference.
10. Wherever cited in this chapter, National Bureau of Standards, *Handbook 69* means *Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and Water for Occupational Exposure*, United States Department of Commerce, National Bureau of Standards Handbook 69, June 5, 1959, adopted by reference
11. Volumetric measurements of settleable solids must be determined according to the following procedure:
    (A) first, an Imhoff cone must be filled to the one-liter mark with thoroughly mixed sample;
    (B) second, the sample must settle for 45 minutes;
    (C) third, the sides of the cone must be gently stirred with a rod or by spinning;
    (D) fourth, the sample must settle 15 minutes longer, and the volume of settleable matter in the cone must be recorded as milliliters per liter;
    (E) fifth, if the settled matter contains pockets of liquid between large settled particles, the volume of these pockets must be estimated and subtracted from the volume of settled matter.
12. If a permit applicant proposes to raise the total dissolved solids (TDS) levels in the receiving water to result in a concentration in the waterbody between 500 mg/l and 1,000 mg/l for all sources or above 110 mg/l for the potassium

ion, the department will require a permit applicant to provide information that the department identifies as necessary to determine if the proposed TDS level will cause or can reasonably be expected to cause an adverse effect to aquatic life; based on its analysis, the department will limit the TDS level in the waterbody as necessary to prevent an adverse effect, and will set permit effluent limits accordingly; the burden of proof to demonstrate no adverse effect is on the permit applicant; implementation of the "no adverse effect" criterion is not subject to 18 AAC 70.235.
13. In deciding what constitutes a nuisance or an objectionable deposit, odor or taste, or an undesirable or nuisance species, the department will consider the extent to which the presence of residue

(A) results in complaints from existing users:

(B) is consistent with the intended use of the area as designated in a land use or other resource management plan adopted by a federal, state or local government; or

(C) otherwise impairs or could reasonably be expected to impair existing or designated uses of the water body.

(c) Water quality must be analyzed according to

(1) *Standard Methods for the Examination of Water and Wastewater*, 18th edition, 1992, 19th edition, 1995, or 20th edition, 1998, published jointly by the American Public Health and American Water Works Associations, and the Water Environment Federation; the editions of *Standard Methods for the Examination of Water and Wastewater* listed in this paragraph are adopted by reference, except that analytical methods the following analytical methods 3111B, 3111D, 3112B, 3113B, and 3114B in the 20th edition are not adopted by reference and are not approved;

(2) *Methods for Chemical Analysis of Water and Wastes*, March 1983, Environmental Monitoring and Support Laboratory, Office of Research and Development, United States Environmental Protection Agency, Technical Report No. EPA 600/4-79-020, adopted by reference;

(3) EPA's *Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act; National Primary Drinking Water Regulations; and National Secondary Drinking Water Regulations; Methods Update*, 67 Fed. Reg. 65220 - 65253 (October 23, 2002), adopted by reference;

(4) repealed 6/13/2006;

(5) *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater,* July 1982, Environmental Monitoring and Support Laboratory, Office of Research and Development, United States Environmental Protection Agency, Technical Report No. EPA-600/4-82-057, adopted by reference;

(6) methods cited in (b) of this section; or

(7) other methods of analysis approved by the department and EPA.

(d) In applying acute aquatic life criteria, a one-hour averaging period typically is used for ammonia and other fast-acting toxic substances; a 24-hour averaging period is used for all other toxic substances, unless otherwise specified by the department. (Eff. 11/1/97, Register 143; am 4/29/99, Register 150; am 5/27/99, Register 150; am 6/22/2003, Register 166; am

6/13/2006, Register 178; am 9/1/2006, Register 179; am 9/19/2009, Register 191)

Authority: AS 46.03.020 AS 46.03.050 AS 46.03.070
AS 46.03.080

Editor's note: Federally-promulgated water quality standards for the State of Alaska regarding toxic substances, including human health criteria and aquatic life criteria, are found at 40 C.F.R. 131.36. The documents adopted by reference in 18 AAC 70.020 may be viewed at the department's Anchorage, Fairbanks, and Juneau offices. The United States Department of Interior documents adopted by reference in 18 AAC 70.020(b), notes 2 and 3, are also available from that agency. The United States Department of Agriculture document adopted by reference in 18 AAC 70.020(b), note 2, is also available from the USDA Forest Service Pacific Northwest Forest and Range Experiment Station, P.O. Box 909, Juneau, Alaska 99802. The document adopted by reference in 18 AAC 70.020(v), note 4 is also available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshochocken, Pennsylvania 19428-2959. The documents adopted by reference in 18 AAC 70.020(b), notes 6 and 10, are also available from the Superintendent of Documents, United States Government Printing Office, Washington, D.C. Information on purchasing *Standard Methods for the Examination of Water and Wastewater,* adopted by reference in 18 AAC 70.020(c), may be obtained by contacting the American Public Health Association, 1015 15th Street NW, Washington, D.C. 20005). Information on purchasing *Methods for Chemical Analysis of Water and Wastes* and *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater,* adopted by reference in 18 AAC 70.020(c), may be obtained by contacting the National Technical Information Service (NTIS), United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161; telephone (800) 553-6847; fax (703) 487-4650. *Methods for Chemical Analysis of Water and Wastes* is also available, at no cost, for download at the website for the United States Environmental Protection Agency, National Environmental Publications Information System (NEPIS), Internet address: http//nepis.epa.gov

18 AAC 70.025. Human health risk level for carcinogenic substances. After November 1, 1997, when, to protect human health, the department adopts water quality criteria for a carcinogenic substance, the criteria will be based on a lifetime incremental cancer risk level of 1 in 100,000 for exposed individuals. (Eff. 11/1/97, Register 143)

Authority: AS 46.03.020 AS 46.03.070 AS 46.03.080
AS 46.03.050

Editor's note: The substance of 18 AAC 70.025 was previously found in 18 AAC 70.022. The comprehensive revision and reorganization of this chapter, effective November 1, 1997, did not include any changes to water quality criteria for carcinogenic substances previously set out in this chapter.

18 AAC 70.030. Whole effluent toxicity limit. (a) An effluent discharged to a water may not impart chronic toxicity to aquatic organisms, expressed as 1.0 chronic toxic unit, at the point of discharge, or if the department authorizes a mixing zone in a permit, approval, or certification, at or beyond the mixing zone boundary, based on the minimum effluent dilution achieved in the mixing zone. If the department determines that an effluent has reasonable potential to cause or contribute to exceedance of the whole effluent toxicity limit, the department will require whole effluent toxicity testing as a condition of a permit, approval, or certification.

The permittee shall use methods and species approved by the United States Environmental Protection Agency in Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 4th edition (2002), Technical Report No. EPA-821-R-02-013, adopted by reference, and Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms,1st edition (August 1995), Technical Report NO. EPA/600/R-95/136, adopted by reference or alternate methods and species approved by the department that provide equivalent estimates of chronic toxicity. The department will require that the testing use sensitive and biologically important life stages of indigenous species, as the department considers necessary and feasible to protect aquatic life fully. The department will reduce the frequency of, or eliminate, whole effluent toxicity testing if

(1) the results of a sufficient database of testing conclusively demonstrate that an effluent does not have a reasonable potential to exceed the whole effluent toxicity limit;

(2) significant changes in effluent quality are not expected over the life of the permit; and

(3) the department determines that aquatic life will be adequately protected.

(b) In this section, "chronic toxic unit" means an expression of the chronic toxicity of an effluent, determined as (100/NOEC), where NOEC, the "No Observed Effects Concentration," is the highest tested percentage concentration of an effluent, established by direct testing of toxicity to aquatic organisms, that causes no observable adverse effects, including effects on growth, development, behavior, reproduction, or survival, over a test duration that generally is one-tenth or more of the lifespan of the test organism. Other equivalent chronic toxicity endpoints approved by the department, such as the "25 percent Inhibition Concentration (IC_{25})", may be used in place of NOEC, and may incorporate shorter test durations. (Eff. 11/1/97, Register 143; am 4/29/99, Register 150; am 6/13/2006, Register 178)

Authority: AS 46.03.020 AS 46.03.070 AS 46.03.080
AS 46.03.050

Editor's note: *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms and Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms*, adopted by reference in 18 AAC 70.030(a), are available for viewing at the department's Anchorage, Fairbanks, and Juneau offices. Those publications may also be obtained by contacting the United States Environmental Protections Agency, National Service Center for Environmental Publications (NSCEP), P.O. Box 42419, Cincinnati, Ohio 45242; telephone: (800) 490-9198; fax (513) 489-8965. In addition, *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* is available at the website for the United States Environmental Protection Agency, Office of Water, Internet address: http//Yosemite.epa.gov/water/owrcatalog.nsf; *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* is available at the website for the United States Environmental Protection Agency, National Environmental Publications Information System (NEPIS), Internet address: http//nepis.epa.gov.

18 AAC 70.040. Procedures 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:

(1) if a waterbody is protected for more than one use class under 18 AAC 70.050 or 18 AAC 70.230(e), the most stringent water quality criteria for all the included use classes will apply;

(2) at the boundary between waters protected for different use classes under 18 AAC 70.050 or 18 AAC 70.230(e), the water quality criteria for the more stringent use class will apply; and

(3) in estuaries, where the fresh and marine water quality criteria differ within the same use class, the standard will be determined on the basis of salinity; however, the marine water quality criteria will apply for

(A) dissolved oxygen if the salinity is one part per thousand or greater; and

(B) fecal coliform bacteria if the salinity is 10 parts per thousand or greater.

(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. (Eff. 11/1/97, Register 143; am 9/19/2009, Register 191)

Authority: AS 46.03.020 AS 46.03.070 AS 46.03.080

18 AAC 70.050. Classification of state water. Except as specified in 18 AAC 70.230(e), state water is protected for the following use classes:

(1) fresh water - Classes (1)(A), (1)(B), and (1)(C);

(2) groundwater - Class (1)(A);

(3) marine water - Classes (2)(A), (2)(B), (2)(C), and (2)(D). (Eff. 11/1/97, Register 143)

Authority: AS 46.03.020 AS 46.03.070 AS 46.03.080
AS 46.03.050

Article 2. Exceptions to Statewide Standards

Section

200. Short-term variance
210. Zones of deposit
220. Thermal discharges
230. Procedure for reclassification; reclassified waters
235. Site-specific criteria
236. Waterbodies subject to site-specific criteria
240. Mixing zones:
245. (Repealed)
250. (Repealed)
255. (Repealed)
260. (Repealed)
270. (Repealed)

18 AAC 70.200. Short-term variance. (a) In its discretion, the department will grant a short-term variance from the antidegradation policy standard of 18 AAC 70.015 or the water quality criteria of 18 AAC 70.020(b) for

(1) a one-time, temporary activity that is a nonpoint source of water pollution; and

(2) a temporary activity associated with the placement of dredged or fill material affecting a specific waterbody.

(b) The department will grant a short-term variance only if an applicant shows to the department's satisfaction that

(1) wastes or substances that might adversely affect water quality are controlled, using methods the department finds most effective;

(2) the activity will be conducted in a manner to mitigate water quality impacts, using methods the department finds most effective; and

(3) the activity, when completed, will not cause a long-term, chronic, or recurring violation of the water quality standards.

(c) The department will, in its discretion, grant a short-term variance by geographic area or project, or for a specific event. The term of a variance will be as short as practicable, and will, at the latest, expire when the project is completed.

(d) A person seeking a short-term variance shall submit a written request and proceed in accordance with 18 AAC 15.020 - 18 AAC 15.100. The request must state the

(1) location, time, duration, and type of activity for which the variance is sought;

(2) reasons why the activity is required;

(3) areal extent and quantified degree of variance from the applicable criteria;

(4) detailed construction and operating plans, including water pollution control and mitigation measures; and

(5) activity's estimated impact on the uses of the water involved, including recreation and use for habitat, rearing, growth, or migration by fish, shellfish, other aquatic life, and wildlife.

(e) The department will, in its discretion, treat an application for a permit under Sec. 404 of the Clean Water Act as an application for a short-term variance. (Eff. 11/1/97, Register 143)

Authority: AS 46.03.020 AS 46.03.070 AS 46.03.080

18 AAC 70.210. Zones of deposit. (a) The department will, in its discretion, issue or certify a permit that allows deposit of substances on the bottom of marine waters within limits set by the department. The water quality criteria of 18 AAC 70.020(b) and the antidegradation requirement of 18 AAC 70.015 may be exceeded in a zone of deposit. However, the standards must be met at every point outside the zone of deposit. In no case may the water quality standards be violated in the water column outside the zone of deposit by any action, including leaching from, or suspension of, deposited materials. Limits of deposit will be defined in a short-term variance issued under 18 AAC 70.200 or a permit issued or certified under 18 AAC 15.

(b) In deciding whether to allow a zone of deposit, the department will consider, to the extent the department determines to be appropriate,

(1) alternatives that would eliminate, or reduce, any adverse effects of the deposit;

(2) the potential direct and indirect impacts on human health;

(3) the potential impacts on aquatic life and other wildlife, including the potential for bioaccumulation and persistence;

(4) the potential impacts on other uses of the waterbody;

(5) the expected duration of the deposit and any adverse effects; and

(6) the potential transport of pollutants by biological, physical, and chemical processes.

(c) The department will, in its discretion, require an applicant to provide information that the department considers necessary to adequately assess (b)(1) - (6) of this section. In all cases, the burden of proof for providing the required information is on the person seeking to establish a zone of deposit. (Eff. 11/1/97, Register 143)

Authority: AS 46.03.020 AS 46.03.080 AS 46.03.110

AS 46.03.070 AS 46.03.100

18 AAC 70.220. Thermal discharges. Under section 316(a) of the Clean Water Act, if the owner or operator of a thermal discharge source, after opportunity for public hearing, can show to the department's satisfaction that application of the temperature criterion in 18 AAC 70.020 is more stringent than needed to assure the protection and propagation of diverse indigenous and anadromous populations of aquatic life in waters to which the discharge would occur, the department will, in its discretion, apply a new temperature criterion to the waterbody affected. The new criterion will assure the protection and propagation of diverse indigenous and anadromous populations of aquatic life, and other wildlife, in and on that waterbody, according to its protected use classes. (Eff. 11/1/97, Register 143)

Authority: AS 46.03.020 AS 46.03.070 AS 46.03.080

18 AAC 70.230. Procedure for reclassification; reclassified waters. (a) At least once each year, the department will hold one or more public hearings for the purpose of reviewing the classification of state water under 18 AAC 70.050 or (e) of this section. The department will consider information obtained from that process, and from other sources considered appropriate by the department, in determining whether to proceed with reclassification of state water under (b) of this section.

(b) Before changing 18 AAC 70.050 or (e) of this section to reclassify state water, the department will hold at least one public hearing and otherwise comply with 40 C.F.R. Part 131, as amended through August 15, 1997, and other applicable state and federal statutes and regulations.

(c) An interested person may petition the department to adopt or repeal a classification of state water under 18 AAC 70.050 or (e) of this section in accordance with AS 44.62.220 - 44.62.230.

(d) The following water may not be reclassified under this chapter:

(1) water in areas administered under the National Wilderness Preservation System under 16 U.S.C. 1131 - 1136;

(2) water in state and national parks, national preserves and monuments, national recreation areas, and national wildlife refuges;

(3) wild and scenic rivers established under 16 U.S.C. 1271 - 1287.;

(4) marine sanctuaries established under 16 U.S.C. 1431 - 1445b;

(5) estuarine sanctuaries established under 16 U.S.C. 4151 - 1464.;

(6) water in critical habitat areas established under AS 16.20.220 - 16.20.270;

(7) water in Land Use Designation (LUD) II areas established by the United

States Forest Service under 16 U.S.C. 471a-545b.

(e) Specific state water reclassified under this section is protected only for the designated use class shown, as follows:

18 AAC 70.230(e) **WATERSHED**		**LATITUDE LONGITUDE****	**LOCATION**	**DESIGNATED USE CLASS**	**REACH OF WATER AFFECTED**
TYPE/NAME	NUMBER*				
(1) Amy Creek	19040509	65°32'30"N 148°26'55"W	Near Livengood	(1)(A)(i) (1)(A)(iii) (1)(A)(iv) (1)(B)(ii) (1)(C)	Headwaters of Amy Creek to its confluence with Livengood Creek
(2) Chena River	19040506	64E47'45"N 147E54'45"W	Near Fairbanks	(1)(A)(ii) (1)(A)(iii) (1)(A)(iv) (1)(B) (1)(C)	Confluence of Chena River and Chena Slough to the confluence of Chena River and Tanana River
(3) Connie Creek	19050404	68°04'04"N 162°49'09"W	Near Red Dog Mine	(1)(A)(iv) (1)(B)(i)*** (1)(B)(ii)**** (1)(C)	Tributary of Middle Fork Red Dog Creek
(4) Franklin Creek	19040509	65°33'07"N 148°30'08"W	Near Livengood	(1)(A)(iv)	Headwaters of Franklin Creek to Hess Creek Dam\reservoir diversion ditch
(5) Gertrude Creek	19040509	65°32'05"N 148°30'05"W	Near Livengood	(1)(A)(i) (1)(A)(iv) (1)(B)(ii) (1)(C)	Headwaters of Gertrude Creek to its confluence with Livengood Creek
(6) Heine Creek	19040509	65°33'60"N 148°25'12"W	Near Livengood	(1)(A)(iv) (1)(C)	Headwaters of Heine Creek to Hess Creek Dam/reservoir diversion ditch
(7) Hilltop Creek	19050404	68°03'47"N 162°49'12"W	Near Red Dog Mine	(1)(A)(iv) (1)(B)(ii)****	Tributary of Middle Fork Red Dog Creek

18 AAC 70.230(e) WATERSHED		LATITUDE LONGITUDE**	LOCATION	DESIGNATED USE CLASS	REACH OF WATER AFFECTED
TYPE/NAME	NUMBER*				
(8) Ikalukrok Creek	19050404	67°53'26"N 163°37'18"W	Near Red Dog Mine	(1)(A)(iv) (1)(B)(i)*** (1)(B)(ii) (1)(C)	Confluence with Red Dog Creek to confluence with the Wulik River
(9) Isabell Creek (Upper)	19040509	65°32'22"N 148°31'10"W	Near Livengood	(1)(A)(iv)	Headwaters of Isabell Creek to Hess Creek Dam road crossing
(10) Isabell Creek (Diversion)	19040509	65°34'35"N 148°23'26"W	Near Livengood	(1)(A)(iv) (1)(C)	Hess Creek Dam road crossing to Hess Creek Dam/reservoir diversion ditch
(11) Lillian Creek	19040509	65°30'40"N 148°34'23"W	Near Livengood	(1)(A)(iv)	Headwaters of Lillian Creek to its confluence with Livengood Creek
(12) Lucille Creek	19040509	65°32'25"N 148°27'25"W	Near Livengood	(1)(A)(iv)	Headwaters of Lucille Creek to its confluence with Livengood Creek
(13) Nolan Creek and all its tributaries excluding Acme Creek	19040601	67E27'35"N 150E14'49"W	Near Wiseman	(1)(A)(iv)	Headwaters of Nolan Creek to its confluence with Wiseman Creek, and from the headwaters of each tributary of Nolan Creek to its confluence with Nolan Creek excluding Acme Creek
(14) Olive Creek (Upper)	19040509	65°29'27"N 148°30'08"W	Near Livengood	(1)(A)(iv)	Headwaters of Olive Creek to 1.5 miles above its confluence with the Tolovana River

18 AAC 70.230(e) WATERSHED		LATITUDE LONGITUDE**	LOCATION	DESIGNATED USE CLASS	REACH OF WATER AFFECTED
TYPE/NAME	NUMBER*				
(15) Olive Creek (Lower)	19040509	65°28'18"N 148°30'53"W	Near Livengood	(1)(A)(i) (1)(A)(iii) (1)(A)(iv) (1)(B)(i) (1)(B)(ii) (1)(C)	1.5 miles above the confluence with the Tolovana River to its confluence with the Tolovana River
(16) Rachael Creek	19050404	68° 03'47"N 162°49'12"W	Near Red Dog Mine	(1)(A)(iv) (1)(B)(i)*** (1)(B)(ii)**** (1)(C)	Tributary of Middle Fork Red Dog Creek
(17) Ready Bullion Creek	19040509	65°29'43"N 148°35'30"W	Near Livengood	(1)(A)(i) (1)(A)(iii) (1)(A)(iv) (1)(B)(ii) (1)(C)	Headwaters of Ready Bullion Creek to its confluence with Livengood Creek
(18) Red Dog Creek (Main Stem)	19050404	68°05'23"N 162°56'48"W	Near Red Dog Mine	(1)(A)(iv) (1)(B)(i)*** (1)(B)(ii) (1)(C)	Confluence with North Fork Red Dog Creek to confluence with Ikalukrok Creek
(19) Red Dog Creek (Upper Middle Fork)	19050404	68° 04'32"N 162°51'21"W	Near Red Dog Mine	(1)(A)(iv)	Headwaters to terminus of the Red Dog Mine Water Management System

18 AAC 70.230(e) WATERSHED		LATITUDE LONGITUDE**	LOCATION	DESIGNATED USE CLASS	REACH OF WATER AFFECTED
TYPE/NAME	NUMBER*				
(20) Red Dog Creek (Lower Middle Fork)	19050404	68°05'02"N 162°53'04"W	Near Red Dog Mine	(1)(A)(iv) (1)(B)(i)*** (1)(B)(ii)****	Terminus of the Red Dog Mine Water Management System to confluence with North Fork Red Dog Creek
(21) Ruth Creek	19040509	65°31'26"N 148°32'30"W	Near Livengood	(1)(A)(iv)	Headwaters of Ruth Creek to its confluence with Livengood Creek
(22) Shelly Creek	19050404	68°04'19"N 162°49'26"W	Near Red Dog Mine	(1)(A)(iv) (1)(B)(i)*** (1)(B)(ii)**** (1)(C)	Tributary of Middle Fork Red Dog Creek
(23) Steel Creek	19040509	65°28'12"N 148°24'50"W	Near Livengood	(1)(A)(i) (1)(A)(iii) (1)(A)(iv) (1)(B)(ii) (1)(C)	Headwaters of Steel Creek to its confluence with the Tolovana River
(24) Sulfur Creek	19050404	68°04'32"N 162°50'15"W	Near Red Dog Mine	(1)(A)(iv) (1)(B)(i)*** (1)(B)(ii)**** (1)(C)	Tributary of Middle Fork Red Dog Creek
(25) Wonder Creek	19040509	65°33'33"N 148°27'21"W	Near Livengood	(1)(A)(iv) (1)(C)	Headwaters of Wonder Creek to Hess Creek Dam/reservoir diversion ditch

* Watershed numbers refer to watersheds established by the United States Department of Interior, Geological Survey "Hydrologic Unit Map - 1987 State of Alaska," adopted by reference. This document is for sale by the United States Geological Survey, Fairbanks, Alaska 99701; Denver, Colorado 80225; or Reston, Virginia 22092. This document is on file in the Lieutenant Governor's Office and may be seen at the department's Anchorage, Fairbanks, and Juneau offices.
** River latitudes and longitudes are set at the downstream end of the affected river reach.
*** Protected for contact recreation, wading only.
**** Protected for secondary recreation, except fishing

(Eff. 11/1/97, Register 143)

Authority: AS 46.03.020 AS 46.03.070 AS 46.03.080

18 AAC 70.235. Site-specific criteria. (a) The department may establish a site-specific water quality criterion that modifies a water quality criterion set out in 18 AAC 70.020(b) in regulation as described in (c) of this section.

(b) Repealed 12/28/2006.

(c) Upon application, or on its own initiative, the department will, in its discretion, set site-specific criteria in regulation if the department finds that the evidence reasonably demonstrates that the site-specific criterion will fully protect designated uses in 18 AAC 70.020(b) and that

(1) for reasons specific to a certain site, a criterion in 18 AAC 70.020(b) is more stringent or less stringent than necessary to ensure full protection of the corresponding use class; or

(2) a criterion would be better expressed in terms different from those used in 18 AAC 70.020(b).

(d) The department will set a site-specific criterion under (c) of this section for the growth and propagation of fish, shellfish, other aquatic life, and wildlife use classes in 18 AAC 70.020(a)(1)(C) and 18 AAC 70.020(a)(2)(C) only if the department finds that the evidence is sufficient to reasonably demonstrate that

(1) the species or habitats present, or expected to be present under natural conditions, are more sensitive or less sensitive to a substance than indicated by the criterion, and a site-specific criterion is required to prevent adverse effects or to alleviate an unnecessarily restrictive general criterion; or

(2) the natural characteristics of the receiving environment would increase or reduce the biological availability or the toxicity of a substance, or otherwise alter the substance, and a site-specific criterion is required to prevent adverse effects or to alleviate unnecessarily restrictive general criterion.

(e) An applicant seeking a site-specific criterion under this section shall provide all information that the department determines is necessary to modify an existing criterion. The department will, in a timely manner, request and review for completeness, information submitted under this subsection. In all cases, the burden of proof is on the applicant seeking a site-specific criterion. (Eff. 11/1/97, Register 143; am 4/29/99, Register 150; am 12/28/2006, Register 180)

Authority: AS 46.03.010 AS 46.03.080 AS 46.03.710
AS 46.03.020 AS 46.03.100 AS 46.03.720
AS 46.03.050 AS 46.03.110
AS 46.03.070

18 AAC 70.236. Waterbodies subject to site-specific criteria. (a) Under 18 AAC 70.235, the department has established site-specific criteria that modify certain general criteria set out in 18 AAC 70.020(b) for the waterbodies listed in (b) of this section. The site-specific criteria apply only to the affected designated use class indicated in (b) of this section. All other criteria set out in 18 AAC 70.020(b) continue to apply to the waterbodies listed in (b) of this section.

(b) Waterbodies subject to site-specific criteria, and the applicable site-specific criteria, are:

18 AAC 70.236(b) WATERSHED TYPE/NAME	NUMBER*	LATITUDE **LONGITUDE****	**LOCATION**	**REACH OF WATER AFFECTED**	**WATER QUALITY PARAMETER**	**DESIGNATED USE CLASS AFFECTED**	**SITE-SPECIFIC CRITERIA**
(1) Camp Creek	19010301	58°51' 50" N 135°08' 30" W Set at the downstream end of the affected river reach.	45 miles north of Juneau on Lynn Canal	Camp Creek below discharge from Kensington Mine dry tailings facility to tidewater (approximately 1,000 feet)	Dissolved inorganic substances	(1)(A)(i) (1)(A)(iii) (1)(C)	Total dissolved solids (TDS) from all sources may not exceed 1,000 mg/l. Chlorides may not exceed 200 mg/l. Sulfates associated with magnesium and sodium may not exceed 200 mg/l. TDS may not exceed 1,000 mg/l. TDS may not exceed 1,000 mg/l.
(2) Gold Creek	15049900	Beginning at: 58°18' 26" N 134°22' 43" W Ending at: 58°17' 57" N 134°25' 05" W	Juneau	Downstream from Gold Creek drainage tunnel to Gastineau Channel	Dissolved inorganic substances	(1)(A)(iii) (1)(C)	TDS may not exceed 300 mg/l. TDS may not exceed 300 mg/l.

18 AAC 70.236(b) WATERSHED **TYPE/NAME NUMBER***		LATITUDE **LONGITUDE****	**LOCATION**	**REACH OF WATER AFFECTED**	**WATER QUALITY PARAMETER**	**DESIGNATED USE CLASS AFFECTED**	**SITE-SPECIFIC CRITERIA**
(3) Sherman Creek	19010301	58°52' 08" N 135°08' 22" W Set at the downstream end of the affected river reach.	45 miles north of Juneau on Lynn Canal	Sherman Creek below discharge of Kensington Mine adit drainage to tidewater (approximately 1.5 miles)	Dissolved inorganic substances	(1)(A)(i) (1)(A)(iii) (1)(C)	Total dissolved solids (TDS) from all sources may not exceed 1,000 mg/l. Chlorides may not exceed 200 mg/l. Sulfates associated with magnesium and sodium may not exceed 200 mg/l. TDS may not exceed 1,000 mg/l. TDS may not exceed 1,000 mg/l.

18 AAC 70.236(b) WATERSHED TYPE/NAME	NUMBER*	LATITUDE LONGITUDE**	LOCATION	REACH OF WATER AFFECTED	WATER QUALITY PARAMETER	DESIGNATED USE CLASS AFFECTED	SITE-SPECIFIC CRITERIA
(4) Cook Inlet	19020401*	61°12' 22.5" N 150°01' 8.7" W (end of outfall pipe for Municipality of Anchorage wastewater treatment plant)	Vicinity of Point Woronzof, Anchorage	see footnote***	Arsenic ****	(2)(A)(i), (2)(A)(ii) (2)(B)(i) (2)(C) & (2)(D)	36 µg/l (chronic) 69 µg/l (acute) measured as dissolved metal
					Cadmium ****	(2)(A)(i), (2)(A)(ii) (2)(B)(i) (2)(C) & (2)(D)	9.3 µg/l (chronic) 42 µg/l (acute) measured as dissolved metal
					Chromium VI ****	(2)(A)(i), (2)(A)(ii) (2)(B)(i) (2)(C) & (2)(D)	50 µg/l (chronic) 1100 µg/l (acute) measured as dissolved metal
					Copper****	(2)(A)(i), (2)(A)(ii) (2)(B)(i) (2)(C) & (2)(D)	3.1 µg/l (chronic) 4.8 µg/l (acute) measured as dissolved metal
					Lead****	(2)(A)(i), (2)(A)(ii) (2)(B)(i) (2)(C) & (2)(D)	8.1 µg/l (chronic) 210 µg/l (acute) measured as dissolved metal
					Mercury****	(2)(A)(i), (2)(A)(ii) (2)(B)(i) (2)(C) & (2)(D)	0.025 µg/l (chronic) 1.8 µg/l (acute) measured as dissolved metal
					Nickel****	(2)(A)(i), (2)(A)(ii) (2)(B)(i) (2)(C) & (2)(D)	8.2 µg/l (chronic) 74 µg/l (acute) measured as dissolved metal
					Selenium****	(2)(A)(i), (2)(A)(ii) (2)(B)(i) (2)(C) & (2)(D)	71 µg/l (chronic) 290 µg/l (acute) measured as dissolved metal
					Silver****	(2)(A)(i), (2)(A)(ii) (2)(B)(i) (2)(C) & (2)(D)	1.9 µg/l (acute) measured as dissolved metal
					Zinc****	(2)(A)(i), (2)(A)(ii) (2)(B)(i) (2)(C) & (2)(D)	81 µg/l (chronic) 90 µg/l (acute) measured as dissolved metal
					Turbidity	(2)(A)(i), (2)(B)(i) (2)(B)(ii) (2)(C) & (2)(D)	May not exceed the natural condition

18 AAC 70.236(b) WATERSHED TYPE/NAME	NUMBER*	LATITUDE **LONGITUDE****	**LOCATION**	**REACH OF WATER AFFECTED**	**WATER QUALITY PARAMETER**	**DESIGNATED USE CLASS AFFECTED**	**SITE-SPECIFIC CRITERIA**
(5) Red Dog Creek (Main Stem)	19050404*	68°05’23” N 162°56’48”W	Near Red Dog Mine	Red Dog Creek from the confluence of the Middle Fork and North Fork to the confluence of Red Dog Creek and Ikalukrok Creek	Dissolved inorganic substances	(1)(C)	Total dissolved solids (TDS), with calcium greater than 50% by weight of the total cations, may not exceed 1,500 mg/l. For TDS with calcium less than or equal to 50% by weight of the total cations, the statewide standard in 18 AAC 70.020(b)(4)(C) applies.

* Watershed numbers refer to watersheds established by the United States Department of Interior, Geological Survey, "Hydrologic Unit Map - 1987 State of Alaska," adopted by reference in 18 AAC 70.230; information about how to obtain this document is set out in the footnote to the table in 18 AAC 70.230(e).
** River latitudes and longitudes are set at the downstream end of the affected river reach.
*** Upper Cook Inlet in the vicinity of Point Woronzof, an area bounded by the constriction of Knik Arm at Cairn Point to the northeast, by the southern shoreline of Cook Inlet southwest to Point Campbell, by a line from Point Campbell to the northeast end of Fire Island, by a line due north from the northeast end of Fire Island to the northern shoreline of Cook Inlet at a point east of the mouth of the Little Susitna River, by the northern shoreline of upper Cook Inlet north and east to a point directly west of Cairn Point; and from that point by a line due east to Cairn Point; a map of the area subject to these site-specific criteria is available at the department's offices in Anchorage, Fairbanks, and Juneau.
**** This metal is a toxic substance as defined in 18 AAC 70.990, and falls under the parameter of "Toxics and Other Deleterious Organic and Inorganic Substances" in 18 AAC 70.020(b). (Eff. 12/12/97, Register 144; am 3/1/98, Register 145; am 4/24/99, Register 150; am 6/26/2003, Register 166; am 2/15/2006, Register 177)

Authority: AS 46.03.020 AS 46.03.070 AS 46.03.080
AS 46.03.050

18 AAC 70.240. Mixing zones. (a) Upon application, the department may authorize in a discharge permit or certification, a mixing zone or multiple mixing zones in which the water quality criteria and any limit set under this chapter may be exceeded. The applicant shall provide to the department all available evidence reasonably necessary to demonstrate that a mixing zone will comply with this section. The department will approve, approve with conditions, or deny a mixing zone application.

(b) In determining whether to authorize a mixing zone under this section, the department will consider

(1) the characteristics of the receiving water, including biological, chemical, and physical characteristics such as volume, flow rate, and flushing and mixing characteristics;

(2) the characteristics of the effluent, including volume, flow rate, dispersion, and quality after treatment;

(3) the effects, if any, including cumulative effects of multiple discharges and diffuse, nonpoint source inputs, that the discharge will have on the uses of the receiving water;

(4) any additional measures that would mitigate potential adverse effects to the aquatic resources present; and

(5) any other factors the department finds must be considered to determine whether a mixing zone will comply with this section.

(c) The department will approve a mixing zone, as proposed or with conditions, only if the department finds that available evidence reasonably demonstrates that

(1) an effluent or substance will be treated to remove, reduce, and disperse pollutants, using methods that the department finds to be the most effective, technologically and economically feasible, and at a minimum consistent with statutory and regulatory treatment

requirements including

(A) any federal technology-based effluent limitation identified in 40 C.F.R. 122.29 and 40 C.F.R. 125.3, as revised as of July 1, 2005 and adopted by reference;

(B) minimum treatment standards in 18 AAC 72.050; and

(C) any treatment requirement imposed under another state statute or regulation that is more stringent than a requirement of this chapter;

(2) designated and existing uses of the waterbody as a whole will be maintained and protected;

(3) the overall biological integrity of the waterbody will not be impaired; and

(4) the mixing zone will not

(A) result in an acute or chronic toxic effect in the water column, sediments, or biota outside the boundaries of the mixing zone;

(B) create a public health hazard that would preclude or limit existing uses of the waterbody for water supply or contact recreation;

(C) preclude or limit established processing activities or established commercial, sport, personal-use, or subsistence fish and shellfish harvesting;

(D) result in a reduction in fish or shellfish population levels;

(E) result in permanent or irreparable displacement of indigenous organisms;

(F) adversely affect threatened or endangered species except as authorized under 16 U.S.C. 1531 - 1544 (Endangered Species Act); or

(G) form a barrier to migratory species or fish passage.

(d) The department will approve a mixing zone, as proposed or with conditions, only if the department finds that available evidence reasonably demonstrates that within the mixing zone the pollutants discharged will not

(1) bioaccumulate, bioconcentrate, or persist above natural levels in sediments, water, or biota to significantly adverse levels, based on consideration of bioaccumulation and bioconcentration factors, toxicity, and exposure;

(2) present an unacceptable risk to human health from carcinogenic, mutagenic, teratogenic, or other effects as determined using risk assessment methods approved by the department and consistent with 18 AAC 70.025;

(3) settle to form objectionable deposits, except as authorized under 18 AAC 70.210;

(4) produce floating debris, oil, scum and other material in concentrations that form nuisances;

(5) result in undesirable or nuisance aquatic life;

(6) produce objectionable color, taste, or odor in aquatic resources harvested from the area for human consumption;

(7) cause lethality to passing organisms; or

(8) exceed acute aquatic life criteria at and beyond the boundaries of a smaller initial mixing zone surrounding the outfall, the size of which shall be determined using methods approved by the department.

(e) In lakes, streams, rivers, or other flowing fresh waters, a mixing zone will not be

(1) authorized in a spawning area of any of the five species of anadromous Pacific salmon found in the state; or

(2) allowed to adversely affect the present and future capability of an area to support spawning, incubation, or rearing of any of the five species of anadromous Pacific salmon found in the state.

(f) In lakes, streams, rivers, or other flowing fresh waters, except as provided in (g) of this section, a mixing zone will not be authorized in a spawning area for

(1) Arctic grayling;

(2) northern pike;

(3) lake trout;

(4) brook trout;

(5) sheefish;

(6) burbot;

(7) landlocked coho salmon, chinook salmon, or sockeye salmon; or

(8) anadromous or resident rainbow trout, Arctic char, Dolly Varden, whitefish, or cutthroat trout.

(g) The department may authorize a mixing zone in a spawning area of a lake, stream, river, or other flowing fresh water for the species listed in (f) of this section if

(1) after consultation with the Department of Fish and Game, the department finds that the applicant has demonstrated that the discharge

(A) does not contain pollutants at concentrations that exceed the criteria for growth and propagation of fish, shellfish, other aquatic life, and wildlife established in 18 AAC 70.020(b)(1) - (12); and

(B) will not adversely affect the capability of the area to support future spawning, incubation, and rearing activities;

(2) the applicant has submitted to the department a mitigation plan approved by the Department of Fish and Game under 5 AAC 95.900 if the spawning area is within a special area;

(3) the applicant has submitted to the department a mitigation plan approved by the Department of Fish and Game under AS 16.05.871 – 16.05.901, if the spawning area is within waters included in the *Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes*, adopted by reference in 5 AAC 95.011; the department will incorporate the mitigation plan as part of the discharge authorization; or

(4) the applicant has submitted to the department a mitigation plan approved by the department, after consultation with the Department of Fish and Game, if the spawning area is not within waters described in (2) or (3) of this subsection; the mitigation plan must use measures described in the *Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes*, adopted by reference in 5 AAC 95.011; the department will incorporate the mitigation plan as part of the discharge authorization.

(h) In a mixing zone authorization under (g) of this section, the department may require the applicant to monitor effluent, ambient water quality, and biological conditions to determine whether unanticipated adverse effects on spawning, incubation, and rearing of species identified in (f) of this section are occurring.

(i) The provisions of (e), (f), and (g) of this section do not apply to the renewal of a mixing zone authorization where spawning was not occurring at the time of the initial authorization, but successful spawning, incubation, and rearing has occurred within the mixing zone after the initial authorization of that mixing zone.

(j) When determining whether to authorize a mixing zone under (e), (f), or (g) of this section, the department will make that determination

(1) in conformance with the determination of the Department of Fish and Game, acting under AS 16.20, of the location and time of a spawning area within a special area;

(2) in conformance with the determination of the Department of Fish and Game, acting under AS 16.05.871 – 16.05.901, of the location and time of a spawning area within waters included in the *Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes*, adopted by reference in 5 AAC 95.011; or

(3) after consultation with the Department of Fish and Game, as to what the Department of Fish and Game considers the location and time of a spawning area not within waters described in (1) or (2) of this subsection.

(k) The department will approve a mixing zone, as proposed or with conditions, only if it finds that the mixing zone is as small as practicable and will comply with the following size restrictions, unless the department finds that evidence is sufficient to reasonably demonstrate that these size restrictions can be safely increased:

(1) for estuarine and marine waters, measured at mean lower low water,

(A) the cumulative linear length of all mixing zones intersected on any given cross section of an estuary, inlet, cove, channel, or other marine water may not exceed 10 percent of the total length of that cross section; and

(B) the total horizontal area allocated to all mixing zones at any depth may not exceed 10 percent of the surface area;

(2) for lakes, the total horizontal area allocated to all mixing zones at any depth may not exceed 10 percent of the lake's surface area;

(3) for streams, rivers, or other flowing fresh waters, the length of a mixing zone may not extend beyond the computed point of complete mixing, as determined using a standard river flow mixing model or other methods accepted by the department;

(4) for streams, rivers, or other flowing fresh waters, the length of a mixing zone may not extend downstream beyond the location where the department determines that a public health hazard reasonably could be expected to occur.

(*l*) For streams, rivers, or other flowing fresh waters, in calculating the maximum pollutant discharge limitation, the volume of flow available for dilution must be determined using

(1) the actual flow data collected concurrent with the discharge; or

(2) for conventional and nontoxic substances, the 10-year, 7-day low flow (7Q10) as the criteria design flow; for the protection of aquatic life, the 10-year, 7-day low flow (7Q10) as the chronic criteria design flow and the 10-year, 1-day low flow (1Q10) as the acute criteria design flow; and for the protection of human health, the 5-year, 30-day low flow (30Q5) as the noncarcinogenic criteria design flow and the harmonic mean flow as the carcinogenic criteria design flow; these low flows must be calculated using methods approved by the department.

(m) If the department finds that available evidence reasonably demonstrates that a mixing zone authorized by the department has had or is having a significant unforeseen adverse environmental effect, the department will terminate, modify, or deny renewal of the permit or certification authorizing the mixing zone.

(n) When consulting with an agency under (g) or (j) of this section, the department will

give appropriate weight to any information received from the agency, considering the agency's expertise.

(o) For purposes of this section, the five species of anadromous Pacific salmon found in the state are chinook salmon, coho salmon, sockeye salmon, pink salmon, and chum salmon.

(p) In this section, "special area" means a state game refuge, a state game sanctuary, or a state fish and game critical habitat area, established under AS 16.20. (Eff. 11/1/97, Register 143; am 3/23/2006, Register 177)

Authority:	AS 46.03.010	AS 46.03.080	AS 46.03.720
	AS 46.03.020	AS 46.03.100	
	AS 46.03.050	AS 46.03.110	
	AS 46.03.070	AS 46.03.710	

Editor's note: As of Register 186 (July 2008), and acting under AS 44.62.125(b)(6), the regulation attorney made a technical change to 18 AAC 70.240(g) and (j), to reflect Executive Order 114 (2008). Executive Order 114 transferred functions related to protection of fish habitat in rivers, lakes and streams from the Department of Natural Resources to the Department of Fish and Game.

18 AAC 70.245. Mixing zones: appropriateness and size determination. Repealed. (11/1/97, Register 143; repealed 3/23/2006, Register 177)

18 AAC 70.250. Mixing zones: general conditions. Repealed. (Eff. 11/1/97, Register 143; repealed 3/23/2006, Register 177)

18 AAC 70.255. Mixing zones: in-zone quality and size specifications. Repealed. (Eff. 11/1/97, Register 143; repealed 3/23/2006, Register 177)

18 AAC 70.260. Mixing zones: application requirements. Repealed (Eff. 11/1/97, Register 143; repealed 3/23/2006, Register 177)

18 AAC 70.270. Mixing zones: termination, modification, or denial of renewal. Repealed. (Eff. 11/1/97, Register 143; repealed 3/232/2006, Register 177)

Article 3. General Provisions.

Section

900. Enforcement discretion
910. Compliance schedule
990. Definitions

18 AAC 70.900. Enforcement discretion. In determining whether to initiate an enforcement action on a water quality violation, the department will consider whether the activity in question was conducted in compliance with

(1) permit conditions established in accordance with AS 46.03.100 or 46.03.110(e), and with 18 AAC 15;

(2) engineering plans approved in accordance with AS 46.03.720; or

(3) best management practices as determined by the department. (Eff. 11/1/97, Register 143)

Authority: AS 46.03.020 AS 46.03.050

18 AAC 70.910. Compliance schedule. (a) If the department determines that more time is required for a facility to come into full compliance with the water quality standards under this chapter, and if the department determines that allowing a facility more time to come into full compliance will not harm or threaten public health or the environment, the department will include as a condition of a permit, certification, or approval issued under this chapter, or as a means for complying with water quality standards under this chapter, a compliance schedule for a requirement

(1) with which a facility is not in compliance when a permit or certification is issued; or

(2) that becomes effective during the life of the permit or certification and with which a facility will not be in compliance.

(b) A compliance schedule issued under this section must

(1) contain a narrative description of how the facility will achieve compliance;

(2) include remedial measures specified as a sequence of actions enforceable by the department, and with completion dates leading to compliance for each requirement;

(3) require compliance in as brief a time as feasible;

(4) if compliance is not achievable in one year, include a schedule for the permittee to submit regular progress reports to the department; a progress report submitted as required under that schedule must include

(A) the activities and completion dates required in the compliance schedule and the dates when those activities were achieved; and

(B) an explanation of why a completion date was not or cannot be met and a description of corrective measures taken;

(5) include requirements comparable to and at least as stringent as any compliance plan requirement contained in a judicial consent decree or administrative order that applies to the facility; and

(6) include a statement that the compliance schedule does not prevent the department from pursuing an enforcement action for noncompliance with a permit condition not covered by the compliance schedule.

(c) The department will revise a compliance schedule if the department determines that

(1) the permittee has shown good cause for the revision;

(2) a shorter period for achieving compliance is required to adequately protect water quality; or

(3) a shorter period for achieving compliance is feasible because one or more steps in the compliance schedule become unnecessary or achievable in less time.

(d) A permittee who fails to comply with an interim or final compliance date set out in a compliance schedule is in violation of the permit, certification, or approval to which the compliance schedule applies, and is subject to enforcement action by the department, including modification, suspension, or revocation of the permit, certification, or approval.

(e) A compliance schedule included in an NPDES permit issued by EPA, or a revision of that compliance schedule, is subject to federal regulations, including 40 C.F.R. Part 122. (Eff. 4/29/99, Register 150)

Authority: AS 46.03.020 AS 46.03.100 AS.46.03.120
AS 46.03.050 AS.46.03.110

18 AAC 70.990. Definitions. Unless the context indicates otherwise, in this chapter

(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;

(2) "anadromous" with respect to fish has the meaning given in the definition of "anadromous fish" in the definitions section of the *Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes*, adopted by reference in 5 AAC 95.011;

(3) "apparent color" means the condition of water that results in the visual sensations of hue and intensity, due both to substances in solution and to suspended matter;

(4) "aquaculture" means the cultivation of aquatic plants or animals for human use or consumption;

(5) “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.

(6) “bioaccumulation” means the ability of a substance or chemical to be taken up by an organism either directly from exposure to a contaminated medium or by consumption of food containing the substance or chemical;

(7) “bioconcentration” means the ability of a substance or chemical to be absorbed from water through gills or epithelial tissue and concentrate in the body of an organism;

(8) "boundary" means a line or landmark that serves to clarify, outline, or mark a limit, border, or interface;

(9) "carcinogenic" means a substance that is expected to cause cancer in aquatic life or, for human health purposes, that is classified as a Group A or Group B carcinogen according to the United States Environmental Protection Agency *Guidelines for Carcinogen Risk Assessment*, 51 Fed. Reg. 33992, 33999 - 34000 (1986), adopted by reference; Group A includes substances that have been shown to cause cancer in humans; Group B, based on epidemiologic and other studies, includes "probable human carcinogens" and is divided between

(A) "B1", for which there is limited evidence of carcinogenicity in humans; and

(B) "B2", for which there is sufficient evidence of carcinogenicity in animals, but inadequate or no evidence of carcinogenicity in humans from epidemiologic studies;

(10) "certification" means the certificate of reasonable assurance the department may issue under 33 U.S.C. 1341 (Clean Water Act, sec. 401), as amended through February 4, 1987;

(11) "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;

(12) "Clean Water Act" means the Federal Water Pollution Control Act (33 U.S.C. 1251 - 1387), as amended through February 4, 1987;

(13) "color" means the condition that results in the visual sensations of hue and intensity as measured after turbidity is removed;

(14) "commissioner" means the commissioner of the Department of Environmental Conservation, or the commissioner's designee;

(15) "compensation point for photosynthetic activity" means the point at which incident light penetration allows plankton to photosynthetically produce enough oxygen to balance their respiration requirements;

(16) "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;

(17) "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) "department" means the Department of Environmental Conservation;

(19) "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;

(20) "dissolved oxygen" means the concentration of oxygen in water as determined either by the Winkler (iodometric) method and its modifications or by the membrane electrode method;

(21) "ecosystem" means a system made up of a community of animals, plants, and bacteria, and the system's interrelated physical and chemical environment;

(22) "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;

(23) "EPA" means the United States Environmental Protection Agency;

(24) "existing uses" means those uses actually attained in a waterbody on or after November 28, 1975;

(25) "fecal coliform bacteria" means those bacteria that can ferment lactose at 44.5° ± 0.2° C to produce gas in a multiple tube procedure; "fecal coliform bacteria" also means all bacteria that produce blue colonies within 24 ± hours of incubation at 44.5° ± 0.2° C in an M-FC broth medium;

(26) "fish" means any of the group of cold-blooded vertebrates that live in water and have permanent gills for breathing and fins for locomotion;

(27) "grain size accumulation graph" means a plot of sediment-sieving data showing logarithm of grain size in millimeters on the horizontal axis and percent accumulation by weight (linear scale) on the vertical axis;

(28) "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;

(29) “harmonic mean flow” means a long-term mean flow value calculated by dividing the number of daily flows analyzed by the sum of the reciprocals of those daily flows;

(30) repealed 6/13/2006;

(31) "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;

(32) "irreparable displacement" means a change in aquatic organism use or presence due to a decrease in water quality that is irreversible by natural processes so that the biological system will not return to a state functionally equivalent to the original after cessation of discharge;

(33) "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;

(34) "mean" means the average of values obtained over a specified time period and, for fecal coliform analysis, is computed as a geometric mean ;

(35) “mean lower low water” means the tidal datum plane of the average of the lower of the two low waters of each day, as would be established by the National Geodetic Survey, at any place subject to tidal influence;

(36) "micrograms per liter (µg/l)" means the concentration at which one millionth of a gram (10^{-6} g) is found in a volume of one liter;

(37) “milligrams per liter (mg/l)" means the concentration at which one thousandth of a gram (10^{-3} g) is found in a volume of one liter; it is approximately equal to the unit "parts per million (ppm)," formerly of common use;

(38) "mixing zone" means a volume of water adjacent to a discharge, in which wastes discharged mix with the receiving water;

(39) "most probable number (MPN)" means the statistic that represents the number of individuals most likely present in a given sample, based on test data;

(40) “mutagenic” means the ability of a substance or chemical to increase the frequency or extent of a significant and basic alteration in an organism’s chromosomes or genetic material as determined according to the United States Environmental Protection Agency *Guidelines for Mutagenicity Risk Assessment*, 51 Fed. Reg. 34006 (1986), adopted by reference;

(41) "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;

(42) "nonpoint source" means a source of pollution other than a point source;

(43) "oils and grease" means oils and grease as defined by the procedure used under 18 AAC 70.020(c)(1);

(44) “persist” means the ability of a substance or chemical not to decay, degrade, transform, volatilize, hydrolyze, or photolyze;

(45) "pH" means the negative logarithm of the hydrogen-ion concentration, expressed as moles per liter: $pH = -\log_{10} (H^+)$;

(46) "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;

(47) "pollution" has the meaning given in AS 46.03.900;

(48) “practicable” means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes;

(49) "residues" means floating solids, debris, sludge, deposits, foam, scum, or any other material or substance remaining in a waterbody as a result of direct or nearby human activity;

(50) "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;

(51) "sediment" means solid material of organic or mineral origin that is transported by, suspended in, or deposited from water; A sediment includes chemical and biochemical precipitates and organic material, such as humus;

(52) "settleable solids" means solid material of organic or mineral origin that is transported by and deposited from water, as measured by the volumetric Imhoff cone method and at the method detection limits specified in method 2540(F), in any edition of *Standard Methods for the Examination of Water and Wastewater*, adopted by reference in 18 AAC 70.020(c)(1);

(53) "sheen" means an iridescent appearance on the water surface;

(54) "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;

(55) "sodium adsorption ratio (SAR)" means the estimated degree to which sodium from a given water will be adsorbed in soil, as proposed in *Diagnosis and Improvement of Saline and Alkali Soils*, Agriculture Handbook No. 60, United States Salinity Laboratory Staff, United States Department of Agriculture, and is expressed as the quotient of the sodium ion concentration and the square root of half the sum of the calcium and magnesium ion concentrations:

$$\frac{(Na^{+})}{\sqrt{\frac{(Ca^{++})+(Mg^{++})}{2}}}$$

(56) "spawning" means the process of producing, emitting, or depositing eggs, sperm, seed, germ, larvae, young, or juveniles, especially in large numbers, by aquatic life;

(57) “teratogenic” means the ability of a substance or chemical to cause developmental malformations and monstrosities, as determined according to the United States Environmental Protection Agency *Guidelines for Health Assessment of Suspect Developmental Toxicants*, 51 Fed. Reg. 34028 (1986), adopted by reference;

(58) "thermocline" means a zone of water between a warmer, surface zone and a colder, deep-water zone in a thermally stratified waterbody, in which water temperature decreases rapidly with depth;

(59) "total aqueous hydrocarbons (TAqH)" means those collective dissolved and water-accommodated monoaromatic and polynuclear aromatic petroleum hydrocarbons that are persistent in the water column; "total aqueous hydrocarbons" does not include floating surface oil or grease;

(60) "total aromatic hydrocarbons (TAH)" means the sum of the following volatile monoaromatic hydrocarbon compounds: benzene, ethylbenzene, toluene, and the xylene isomers, commonly called BETX;

(61) "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, or genetic mutations;

(B) abnormalities or malfunctions in growth, development, behavior, or reproduction; or

(C) other physical or physiological abnormalities or malfunctions;

(62) "toxic substances" means those substances or substance combinations, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of information available, cause a toxic effect in the affected organism or its offspring; "toxic substances" includes the following substances, and any

other substance identified as a toxic pollutant under 33 U.S.C. 1317(a) (Clean Water Act, sec. 307(a)):

2-chlorophenol; 2,4-dichlorophenol; 2,4-dimethylphenol; acenaphthene; acrolein; acrylonitrile; Aldrin/Dieldrin; ammonia; antimony; arsenic; asbestos; benzene; benzidine; beryllium; cadmium; carbon tetrachloride; Chlordane; chlorinated benzenes; chlorinated naphthalene; chlorinated ethanes; chlorine; chloroalkyl ethers; chloroform; chlorophenols; chlorophenoxy herbicides; chromium; copper; cyanide; DDT; Demeton; dichlorobenzenes; dichlorobenzidine; dichloroethylenes; dichloropropane; dichloropropene; dinitrotoluene; diphenylhydrazine; Endosulfan; Endrin; ethylbenzene; fluoranthene; Guthion; haloethers; halomethanes; Heptachlor; hexachlorobutadiene; hexachlorocyclohexane; hexachlorocyclopentadiene; isphorone; lead; Lindane; Malathion; mercury; methoxychlor; Mirex; napthalene; nickel; nitrobenzene; nitrophenols; nitrosamines; p-dioxin; Parathion; PCBs; pentachlorophenol; phenol; phthalate esters; polynuclear aromatic hydrocarbons; selenium; silver; tetrachloroethylene; thallium; toluene; Toxaphene; trichloroethylene; vinyl chloride; and zinc;

(63) "treatment works" has the meaning given in AS 46.03.900;

(64) "turbidity" means an expression of the optical property that causes light to be scattered and absorbed rather than transmitted in straight lines through a water sample; turbidity in water is caused by the presence of suspended matter such as clay, silt, finely divided organic and inorganic matter, plankton, and other microscopic organisms;

(65) "water," "waterbody," and "waters" have the meaning given the term "waters" in AS 46.03.900;

(66) "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;

(67) "water recreation" means contact recreation or secondary recreation;

(68) "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; A 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;

(69) "wildlife" means all species of mammals, birds, reptiles, and amphibians;

(70) “milliequivalents per liter” or “meq/l” mean milligrams per liter divided by the molecular weight of a chemical species, and multiplied by the electrical charge or valence of the species;

(71) “sodium percentage” means the quotient of (sodium x 100) divided by the sum of (sodium + calcium + magnesium + potassium); in this paragraph “sodium,” “calcium,”

"magnesium," and "potassium" mean amounts of those substances expressed as milliequivalents per liter.

(72) "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. (Eff. 11/1/97, Register 143; am 4/29/99, Register 150; am 6/22/2003, Register 166; am 6/13/2006, Register 178)

Authority:	AS 46.03.010	AS 46.03.080	AS 46.03.110
	AS 46.03.020	AS 46.03.090	AS 46.03.710
	AS 46.03.050	AS 46.03.100	AS 46.03.720
	AS 46.03.070		

Editor's Note: As of Register 186 (July 2008), and acting under AS 44.62.125(b)(6), the regulations attorney made technical changes to the definition of "anadromous" in 18 AAC 70.990, to reflect Executive Order 114 (2008). Executive Order 114 transferred functions related to protection of fish habitat in rivers, lakes, and streams from the Department of Natural Resources to the Department of Fish and Game.