Presented below are water quality standards that are in effect for Clean Water Act purposes.

EPA is posting these standards as a convenience to users and has made a reasonable effort to assure their accuracy. Additionally, EPA has made a reasonable effort to identify parts of the standards that are not approved, disapproved, or are otherwise not in effect for Clean Water Act purposes.

Water Quality Standards For Surface Waters of the Lummi Indian Reservation

Lummi Indian Business Council
Natural Resources Department
Water Resources Division

Adopted by the Lummi Indian Business Council
August 20, 2007

Water Quality Standards For Surface Waters of the Lummi Indian Reservation

OVERVIEW

These Lummi Nation Water Quality Standards (WQS) are intended to represent the most current best available science and are based on criteria recommended by the United States Environmental Protection Agency (EPA) and the adopted Washington State WQS (WAC 173-201A).

The general approach taken to developing the 2007 Lummi Nation WQS was to update the 1997 draft Lummi WQS using the EPA-approved portions of Washington's 1997 and 2003 WQS (as of June 28, 2006)[1]. The 1997 draft Lummi WQS were based on the 1992 Washington WQS. The syntax of the Washington WQS and other sources were modified for compatibility with the government and culture of the Lummi Nation.

The Lummi Nation did not independently develop any of the criteria. The Lummi Nation WQS are numerically equivalent to the water quality standards adopted by the State of Washington except for a provision in the Class AA temperature criteria for freshwaters to protect summertime spawning; dissolved oxygen criteria for Class AA freshwaters; enterococci criteria; toxics criteria; and radioactive criteria. The Washington State water quality standards for these variables are currently not updated to the criteria recommended and/or approved by the EPA.

Briefly, to be consistent with the most current best available science, the temperature criteria for freshwater follow the recommendations reported in the April 2003 *EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards* (EPA 2003); the dissolved oxygen criteria for Class AA fresh waters follow the Oregon State Water Quality Standards approved by the EPA (Oregon State 2003); the enterococci criteria follow the recommendations reported in the EPA's *Water Quality Standards for Coastal and Great Lakes Recreation Waters* (EPA 2004); most of the toxics criteria follow the recommendations reported in the EPA's 2006 *National Recommended Water Quality Criteria* (EPA 2006a) and the EPA's 2002 report *Fish Consumption and Environmental Justice, A Report of the National Environmental Justice Advisory Council Meeting of December 3-6, 2001, Seattle, WA* (EPA 2002b); and the radioactive criteria follow the recommendations reported in the EPA's *Radionuclides Rule* 66 (EPA 2000a).

[1] Please see the companion document entitled, *Analyses and Methods Used to Derive the Draft Water Quality Standards For Surface Waters of the Lummi Indian Reservation* (dated October 4, 2006) for a more detailed description of the source information used to derive the water quality standards.

Additionally, although the Washington WQS are being transitioned into a "use-based" approach, the Lummi Nation WQS retain the "class-based" approach utilized in Washington's 1997 WQS. The "class-based" approach is being utilized for the surface waters of the Lummi Reservation due to the relatively small number of water bodies and their similarities. Classifications of waterbodies by uses and criteria on the Lummi Indian Reservation (Reservation) align with classifications applied by Washington adjacent to the Reservation, except where the EPA has determined that the waterbody should be classified differently (EPA 2006b). In such cases, EPA determinations were used. In addition, due to the variable salinities of many brackish waters on the Reservation, waterbodies were specifically designated as either fresh or marine.

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17 LAR 07.010 Introduction

a) The purpose of this chapter is to establish water quality standards for surface waters of the Lummi Indian Reservation consistent with all beneficial uses, including public health and public enjoyment; the propagation, protection, and restoration of fish, shellfish, wildlife, and their habitats; and the protection of the surface waters of the Lummi Indian Reservation as cultural, economic, and spiritual resources of the Lummi People pursuant to the provisions of the Lummi Code of Laws Water Resources Protection Code (Title 17) and purposes thereof.

b) The Water Resources Manager of the Lummi Natural Resources Department shall review this chapter at least every three years and appropriate revisions shall be undertaken.

c) The water use and quality criteria set forth in Lummi Administrative Regulations (LAR) 17.07.030 through 17 LAR 07.170 are established in conformance with present and potential uses of the surface waters of the Lummi Indian Reservation and in consideration of the natural water quality potential and limitations of the same. Compliance with the water quality standards of the Lummi Indian Reservation requires compliance with Chapter 17.07 of the Lummi Code of Laws Water Resource Protection Code (Title 17).

17 LAR 07.020 Definitions

The following definitions are not already listed in the Lummi Code of Laws Water Resource Protection Code (Title 17) and are intended to facilitate the use of these regulations.

"7-day average of the daily maximum value" or **"7DADM"** is the arithmetic average of seven consecutive measures of daily maximum values. The 7DADM for any individual day is calculated by averaging the daily maximum value of that day with the daily maximum values of the three days prior and the three days after that date.

"Action value" means a total phosphorus (TP) value established at the upper limit of each trophic state. Exceedance of an action value indicates that a problem is suspected. A lake-specific study may be needed to confirm if a nutrient problem exists.

"Acute conditions" are conditions in the physical, chemical, or biologic environment that are expected or demonstrated to result in injury or death to an organism as a result of short-term exposure to the substance or detrimental environmental condition.

"Acute toxicity" is a relatively short-term lethal or other adverse effect to a test organism caused by pollutants and is usually defined as occurring within four days for fish and

large invertebrates and shorter times for smaller organisms.

"AKART" is an acronym for "all known, available, and reasonable methods of prevention, control, and treatment." The AKART shall represent the most current methodology approved by the Executive Director of the Lummi Natural Resources Department (Director) that can be reasonably required for preventing, controlling, or abating the pollutants associated with a discharge. The concept of AKART applies to both point and nonpoint sources of pollution, and is subject to modification by the Director to achieve compliance with the water quality standards. The cost of pollution controls required under AKART shall only be a minor consideration. The term "best management practices" typically applied to nonpoint source pollution controls is considered a subset of the AKART requirement.

"Aquatic species" means any plants or animals that live at least part of their life cycle in surface waters of the Lummi Indian Reservation.

"Background conditions" means the biological, chemical, and physical conditions of a water body outside the area of influence of the discharge under consideration. The background sampling location would be upgradient or outside the area of influence of the discharge. If several discharges to any water body exist, background sampling would be undertaken immediately upgradient from each discharge. When assessing background conditions in the headwaters of a disturbed watershed, it may be necessary to use the background conditions of a neighboring or similar watershed as the reference conditions. When assessing background conditions in estuaries, tidal influences must be considered.

"Bioaccumulation" means the process by which a compound is taken up by and accumulates in an organism from water, food, or sediment.

"Bioassay" means a test using selected organisms to determine the acute or chronic effects of a chemical pollutant or whole effluent.

"Biological assessment" is an evaluation of the biological condition of a water body using surveys of aquatic community structure and function and other direct measurements of resident biota in surface waters.

"Biological criteria" means numerical values or narrative expressions that describe the biological integrity or aquatic communities inhabiting waters of a given designated aquatic life use.

"Carcinogen" means any substance or agent that produces or tends to produce cancer in humans. For implementation of these regulations, the term carcinogen will apply to substances on the United States Environmental Protection Agency lists of A (known human) and B

(probable human) carcinogens. In addition, any substance that causes a significant increased incidence of benign or malignant tumors in a single, well conducted animal bioassay, consistent with the weight of evidence approach specified in the United States Environmental Protection Agency's Guidelines for Carcinogenic Risk Assessment as set forth in 51 FR 33992 et seq. as presently published or as subsequently amended or republished, is considered a carcinogen.

"cfs" is an acronym for cubic feet per second.

"Chronic conditions" are conditions in the physical, chemical, or biologic environment that are expected or demonstrated to result in injury or death to an organism as a result of repeated or constant exposure over an extended period of time to a substance or detrimental environmental condition.

"Chronic toxicity" means lethal or sublethal adverse effect(s) to an organism from prolonged exposure (when compared to the lifespan of the organism) to a contaminant(s).

"Criteria continuous concentration" or **"CCC"** is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed indefinitely without resulting in an unacceptable effect.

"Criteria maximum concentration" or **"CMC"** is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed briefly without resulting in an unacceptable effect.

"Critical condition" occurs when the physical, chemical, and biological characteristics of the receiving water environment interact with an effluent to produce the greatest potential adverse impact on aquatic biota and existing or characteristic water uses.

"Damage to the ecosystem" means any demonstrated or predicted stress to aquatic or terrestrial organisms or communities of organisms, which the Director reasonably concludes, may interfere with the health or survival success or natural structure of such populations. This stress may be due to, but is not limited to, alteration in habitat or changes in water temperature, chemistry, or turbidity, and shall consider the potential build up of discharge constituents or temporal increases in habitat alteration, which may create such stress in the long-term.

"Director" means the Executive Director of the Lummi Natural Resources Department.

"Existing uses" means all uses actually attained in the water body on or after November 28, 1975, whether or not they are explicitly stated in the water quality standards.

"Extraordinary primary contact recreation" means waters providing extraordinary

protection against waterborne disease.

"Fecal coliform" means that portion of the coliform group that is present in the intestinal tracts and feces of warm-blooded animals as detected by the product of acid or gas from lactose in a suitable culture medium within twenty-four hours at 44.5^{o}C (degrees Celsius) plus or minus 0.2^{o}C.

"Geometric mean" means either the nth root of a product of n factors, or the antilogarithm of the arithmetic mean of the logarithms of the individual sample values. When averaging sample data for comparison to the geometric mean criteria, it is preferable to average by season and include five or more data collection events within each period. Averaging of data collected beyond a thirty-day period, or beyond a specific discharge event under investigation, is not permitted when such averaging would skew the data set so as to mask noncompliance periods. The period of averaging should not exceed twelve months, and should have sample collection dates well distributed throughout the reporting period.

"Hardness" means a measure of the calcium and magnesium salts present in water. For purposes of these regulations, hardness is measured in milligrams per liter (mg/L) and expressed as calcium carbonate ($CaCO_3$).

"Lakes" shall be distinguished from riverine systems as being water bodies, including reservoirs, with a mean detention time of greater than fifteen days.

"Lake-specific study" means a study intended to quantify existing nutrient concentrations, determine existing characteristic uses for lake class waters, and potential lake uses. The study determines how to protect these uses and if any uses are lost or impaired because of nutrients, algae, or aquatic plants. An appropriate study must recommend a criterion for total phosphorus (TP), total nitrogen (TN) in µg/l, or other nutrient(s) that impair(s) characteristic uses by causing excessive algae blooms or aquatic plant growth.

"Mean detention time" means the time obtained by dividing the mean annual minimum total storage of a reservoir by the thirty-day, ten-year, and low-flow from the reservoir.

"mg/L" means milligrams per liter (1 mg/L = 1 part per million [ppm] in liquid).

"µg/L" means micrograms per liter (1µg/L = 1 part per billion [ppb] in liquid).

"Migration or translocation" means any natural movement of an organism or community of organisms from one locality to another locality.

"Mixing zone" means that portion of a water body adjacent to an effluent outfall where

mixing results in the dilution of the effluent with the receiving water. Water quality criteria may be exceeded in a mixing zone as conditioned and provided for in 17 LAR 07.090.

"Natural conditions" or **"natural background levels"** means surface water quality that was prevalent in the pre-contact era (circa. 1820).

"Permit" means a document issued pursuant to the Lummi Code of Laws or federal regulations.

"pH" means the negative logarithm of the hydrogen ion activity and is a measure of acidity.

"Primary contact recreation" means activities where a person would have direct contact with water to the point of complete submergence, including but not limited to shellfish harvesting, skin diving, swimming, canoeing, and water skiing.

"Secondary contact recreation" means activities where a person's water contact would be limited (wading or fishing) to the extent that bacterial infections of eyes, ears, respiratory, or digestive systems or urogenital areas would normally be avoided.

"Surface waters of the Lummi Indian Reservation" means any or all fresh or marine waters originating from precipitation or ground water discharge that are found at the surface of the earth and that originate or flow in, into, or through the Reservation, or that are stored on the Reservation, primarily in rivers, streams, springs, seeps, ponds, wetlands, lakes, and storm water drainage facilities.

"Tribal Cultural water use" means use of water in a water body to fulfill cultural, traditional, spiritual, or religious needs of the Lummi Nation or its members, as approved by the Lummi Nation Cultural Committee.

"Temperature" means water temperature expressed in degrees Celsius (^{o}C).

"Toxicity" means acute or chronic toxicity.

"Toxic pollutant" means those pollutants or combinations of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, may, on the basis of information available to the EPA or the Director, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformations in such organisms or their offspring. This definition includes, but is not limited to, the toxic pollutants listed under Section

307(a) of the federal Clean Water Act.

"Trophic state" means a classification of the productivity of a lake ecosystem. Lake productivity depends on the amount of biologically available nutrients in water and sediments and may be based on total phosphorus. Secchi depth and chlorophyll-a measurements may be used to identify the trophic state classification of a lake. Trophic states used in this rule include, from least to most nutrient rich, ultra-oligotrophic, oligotrophic, lower mesotrophic, upper mesotrophic, and eutrophic.

"Turbidity" means the clarity of water expressed as nephelometric turbidity units (NTU) and measured with a calibrated turbidimeter.

"Upwelling" means the natural process along Washington's Pacific Coast where the summer prevailing northerly winds produce a seaward transport of surface water. Cold, deeper more saline waters, rich in nutrients and low in dissolved oxygen, rise to replace the surface water. The cold, oxygen-deficient water enters Puget Sound and other coastal estuaries at depth where it displaces the existing deep water and eventually rises to replace the surface water. Such surface water replacement results in an overall increase in salinity and nutrients accompanied by a depression in dissolved oxygen. Localized upwelling of the deeper water of Puget Sound can occur year-round under influence of tidal currents, winds, and geomorphic features.

"USEPA" means the United States Environmental Protection Agency.

"Wastes" means sewage, industrial wastes, and all other liquid, gaseous, solid, radioactive, or other substances that will or may cause pollution or tend to cause pollution of any water body.

"Wildlife habitat" means the waters and adjacent habitat of the Lummi Indian Reservation used by, or that directly or indirectly provide food, shelter, or other support to fish, other aquatic species, and wildlife for any life history stage or activity.

17 LAR 07.030 General Water Use and Criteria Classes

The following criteria shall apply to the various classes of surface waters of the Lummi Indian Reservation:

(a) Class AA (extraordinary)

(1) General characteristic. Water quality of this class shall uniformly exceed the requirements for all or substantially all uses.

(2) Characteristic uses. Characteristic uses shall include, but not be limited to, the following:
- (A) Water supply (domestic, commercial, municipal, industrial, agricultural).
- (B) Stock watering.
- (C) Fish and shellfish:
  Salmonid migration, juvenile rearing, spawning, egg incubation, fry emergence, and harvesting.
  Other fish migration, juvenile rearing, spawning, egg incubation, fry emergence, and harvesting.
  Clam, oyster, and mussel rearing, spawning, and harvesting.
  Crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, geoduck, etc.) rearing, spawning, and harvesting.
- (D) Wildlife habitat.
- (E) Recreation (extraordinary primary contact, primary contact, sport fishing, boating, canoeing, and aesthetic enjoyment).
- (F) Commerce and navigation.
- (G) Tribal Cultural.

(3) Water quality criteria:
- (A) Fecal coliform organisms (Fecal coliform criteria are to protect humans who consume aquatic life from fresh or marine waters):
  - (i) Freshwater - fecal coliform organisms levels shall both not exceed a geometric mean density of 50 colonies/100 ml, and not have more than 10 percent of the samples obtained for calculating the geometric mean density exceeding 100 colonies/100 ml.
  - (ii) Marine water - fecal coliform organisms levels shall both not exceed a geometric mean density of 14 colonies/100 ml, and not have more than 10 percent of the samples obtained for calculating the geometric mean density exceeding 43 colonies/100 ml.
  - (iii) As determined necessary by the Director, more stringent bacteria criteria may be established for rivers and streams that cause, or

significantly contribute to, the decertification or conditional certification of commercial or recreational shellfish harvest areas, even when the preassigned bacteria criteria for the river or stream are being met.

(iv) Where information suggests that sample results are due primarily to sources other than warm-blooded animals (e.g., wood waste), alternative indicator criteria may be established on a site-specific basis by the Director.

(B) Enterococci densities for water contact:

(i) Freshwater – enterococci densities shall both not exceed a geometric mean density of 33 colonies/100 ml, and not exceed a single sample maximum allowable density of 61 colonies/100 ml.

(ii) Marine water – enterococci densities shall both not exceed a geometric mean density of 35 colonies/100 ml, and not exceed a single sample maximum allowable density of 104 colonies/100 ml.

(C) Dissolved oxygen:

(i) Freshwater – dissolved oxygen shall not be less than 11.0 mg/l. However, if the minimum intergravel dissolved oxygen, measured as a spatial median, is 8.0 mg/l or greater, the minimum dissolved oxygen criterion is 9.0 mg/l.

Where conditions of barometric pressure and temperature preclude attainment of the 11.0 mg/l or 9.0 mg/l criteria, dissolved oxygen levels must not be less than 95 percent of saturation.

The spatial median intergravel dissolved oxygen concentration must not fall below 8.0 mg/l.

(ii) Marine water - dissolved oxygen shall exceed a one-day minimum concentration of 7.0 mg/L. When natural conditions such as upwelling occur, causing the dissolved oxygen to be depressed near or below 7.0 mg/L, natural dissolved oxygen levels may be degraded by up to 0.2 mg/L by human-caused activities.

(D) Total dissolved gas shall not exceed 110 percent of saturation at any point of sample collection.

(E) Temperature in freshwater shall not exceed a 7DADM temperature of 16.0^{o}C due to human or human related activities. Where the Director

determines that summertime salmon and/or trout spawning, egg incubation, and/or fry emergence occurs or has the potential to occur (i.e., perennial flow occurs for more than one year with depth suitable for adult salmon and/or trout use, and suitable spawning substrate is present), the temperature shall not exceed a 7DADM temperature of 13.0^{o}C due to human or human related activities. Temperature in marine water shall not exceed 13.0^{o}C (single daily maximum) due to human or human related activities. When natural conditions exceed 16.0^{o}C (fresh water without summertime spawning) and/or 13.0^{o}C (freshwater with summertime spawning and marine water), no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3^{o}C.

(F) pH shall be within the range of 6.5 to 8.5 (freshwater) and 7.0 to 8.5 (marine water) with a human-caused variation within a range of less than 0.2 units.

(G) Turbidity shall not exceed 5 NTU over background turbidity when the background turbidity is 50 NTU or less, or have more than a 10 percent increase in turbidity when the background turbidity is more than 50 NTU.

(H) Toxic, radioactive, or deleterious material concentrations must be below those which have the potential, either singularly or cumulatively, to adversely affect characteristic water uses, cause acute or chronic conditions to the most sensitive biota dependent upon those waters, or adversely affect public health as determined by the Director (see 17 LAR 07.040 and 17 LAR 07.050).

(I) Aesthetic values must not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the senses of sight, smell, touch, or taste, or taint the flesh of edible species.

(b) Class A (excellent)

(1) General characteristic. Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

(2) Characteristic uses. Characteristic uses shall include, but not be limited to, the following:

(A) Water supply (domestic, commercial, municipal, industrial, agricultural).
(B) Stock watering.
(C) Fish and shellfish:
Salmonid migration, juvenile rearing, and harvesting.
Other fish migration, juvenile rearing, spawning, egg incubation, fry emergence, and harvesting.
Clam, oyster, and mussel rearing, spawning, and harvesting.
Crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, geoduck, etc.) rearing, spawning, and harvesting.
(D) Wildlife habitat.
(E) Recreation (primary contact, sport fishing, boating, canoeing, and aesthetic enjoyment).
(F) Commerce and navigation.
(G) Tribal Cultural.

(3) Water quality criteria:

(A) Fecal coliform organisms (Fecal coliform criteria are to protect humans who consume aquatic life from fresh or marine waters):

(i) Freshwater - fecal coliform organisms levels shall both not exceed a geometric mean density of 100 colonies/100 ml, and not have more than 10 percent of the samples obtained for calculating the geometric mean density exceeding 200 colonies/100 ml.

(ii) Marine water - fecal coliform organisms levels shall both not exceed a geometric mean density of 14 colonies/100 ml, and not have more than 10 percent of the samples obtained for calculating the geometric mean density exceeding 43 colonies/100 ml.

(iii) As determined necessary by the Director, more stringent bacteria criteria may be established for rivers and streams that cause, or significantly contribute to, the decertification or conditional certification of commercial or recreational shellfish harvest areas, even when the preassigned bacteria criteria for the river or stream are being met.

(iv) Where information suggests that sample results are due primarily

to sources other than warm-blooded animals (e.g., wood waste), alternative indicator criteria may be established on a site-specific basis by the Director.

(B) Enterococci densities for water contact:

(i) Freshwater – enterococci densities shall both not exceed a geometric mean density of 33 colonies/100 ml, and not exceed a single sample maximum allowable density of 61 colonies/100 ml.

(ii) Marine water – enterococci densities shall both not exceed a geometric density value of 35 colonies/100 ml, and not exceed a single sample maximum allowable density of 104 colonies/100 ml.

(C) Dissolved oxygen:

(i) Fresh water - dissolved oxygen shall not be less than 8.0 mg/l. Where conditions of barometric pressure and temperature preclude attainment of the 8.0 mg/l criteria, dissolved oxygen levels must not be less than 90 percent of saturation.

(ii) Marine water - dissolved oxygen shall exceed a one-day minimum concentration of 6.0 mg/L. When natural conditions such as upwelling occur, causing the dissolved oxygen to be depressed near or below 6.0 mg/L, natural dissolved oxygen levels may be degraded by up to 0.2 mg/L by human-caused activities.

(D) Total dissolved gas shall not exceed 110 percent of saturation at any point of sample collection.

(E) Temperature shall not exceed a 7DADM of 17.5^{o}C (freshwater) and not exceed a single daily maximum value of 16.0 ^{o}C (marine water) due to human or human related activities. When natural conditions exceed a 7DADM temperature of 17.5^{o}C (freshwater) and/or a single daily maximum of 16.0 ^{o}C (marine water), no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3^{o}C.

(F) pH shall be within the range of 6.5 to 8.5 (freshwater) and 7.0 to 8.5 (marine water) with a human-caused variation within a range of less than 0.5 units.

(G) Turbidity shall not exceed 5 NTU over background turbidity when the background turbidity is 50 NTU or less, or have more than a 10 percent

increase in turbidity when the background turbidity is more than 50 NTU.

(H) Toxic, radioactive, or deleterious material concentrations must be below those which have the potential, either singularly or cumulatively, to adversely affect characteristic water uses, cause acute or chronic conditions to the most sensitive biota dependent upon those waters, or adversely affect public health as determined by the Director (see 17 LAR 07.040 and 17 LAR 07.050).

(I) Aesthetic values must not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the senses of sight, smell, touch, or taste, or taint the flesh of edible species.

(c) Class B (good)

(1) General characteristic. Water quality of this class shall meet or exceed the requirements for most uses.

(2) Characteristic uses. Characteristic uses shall include, but not be limited to, the following:

(A) Water supply (industrial, agricultural).
(B) Stock watering.
(C) Fish and shellfish:
Salmonid migration, juvenile rearing, and harvesting.
Other fish migration, juvenile rearing, spawning, egg incubation, fry emergence, and harvesting.
Clam, oyster, and mussel rearing and spawning.
Crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, geoduck, etc.) rearing, and spawning.
(D) Wildlife habitat.
(E) Recreation (secondary contact, sport fishing, boating, and aesthetic enjoyment).
(F) Commerce and navigation.
(G) Tribal Cultural.

(3) Water quality criteria:

(A) Fecal coliform organisms (Fecal coliform criteria are to protect humans who consume aquatic life from fresh or marine waters):

(i) Freshwater - fecal coliform organisms levels shall both not exceed a geometric mean density of 200 colonies/100 ml, and not have more than 10 percent of the samples obtained for calculating the geometric mean density exceeding 400 colonies/100 ml.

(ii) Marine water - fecal coliform organisms levels shall both not exceed a geometric mean density of 100 colonies/100 ml, and not have more than 10 percent of the samples obtained for calculating the geometric mean density exceeding 200 colonies/100 ml.

(iii) As determined necessary by the Director, more stringent bacteria criteria may be established for rivers and streams that cause, or significantly contribute to, the decertification or conditional certification of commercial or recreational shellfish harvest areas, even when the preassigned bacteria criteria for the river or stream are being met.

(iv) Where information suggests that sample results are due primarily

to sources other than warm-blooded animals (e.g., wood waste), alternative indicator criteria may be established on a site-specific basis by the Director.

(B) Enterococci densities for water contact:

(i) Freshwater – enterococci densities shall both not exceed a geometric mean density of 33 colonies/100 ml, and not exceed a single sample maximum allowable density of 78 colonies/100 ml.

(ii) Marine water – enterococci densities shall both not exceed a geometric mean density of 35 colonies/100 ml, and not exceed a single sample maximum allowable density of 158 colonies/100 ml.

(C) Dissolved oxygen:

(i) Fresh water - dissolved oxygen shall not be less than 6.5 mg/l.

(ii) Marine water - dissolved oxygen shall exceed a one-day minimum concentration of 5.0 mg/L. When natural conditions such as upwelling occur, causing the dissolved oxygen to be depressed near or below 5.0 mg/L, natural dissolved oxygen levels may be degraded by up to 0.2 mg/L by human-caused activities.

(D) Total dissolved gas shall not exceed 110 percent of saturation at any point of sample collection.

(E) Temperature shall not exceed a 7DADM of 17.5^{o}C (freshwater) and not exceed a single daily maximum value of 19.0 ^{o}C (marine water) due to human or human related activities. When natural conditions exceed a 7DADM temperature of 17.5^{o}C (freshwater) and/or a single daily maximum of 19.0 ^{o}C (marine water), no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3^{o}C.

(F) pH shall be within the range of 6.5 to 8.5 (freshwater) and 7.0 to 8.5 (marine water) with a human-caused variation within a range of less than 0.5 units.

(G) Turbidity shall not exceed 5 NTU over background turbidity when the background turbidity is 50 NTU or less, or have more than a 20 percent increase in turbidity when the background turbidity is more than 50 NTU.

(H) Toxic, radioactive, or deleterious material concentrations must be below those that have the potential, either singularly or cumulatively, to

adversely affect characteristic water uses, cause acute or chronic conditions to the most sensitive biota dependent upon those waters, or adversely affect public health as determined by the Director (see 17 LAR 07.040 and 17 LAR 07.050).

(I) Aesthetic values must not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the senses of sight, smell, touch, or taste, or taint the flesh of edible species.

(d) Lake class

(1) General characteristic. Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

(2) Characteristic uses. Characteristic uses shall include, but not be limited to, the following:

(A) Water supply (domestic, commercial, municipal, industrial, agricultural).
(B) Stock watering.
(C) Fish and shellfish:
Salmonid migration, juvenile rearing, spawning, egg incubation, fry emergence, and harvesting.
Other fish migration, juvenile rearing, spawning, egg incubation, fry emergence, and harvesting.
Clam and mussel rearing and spawning.
Crayfish rearing and spawning.
(D) Wildlife habitat.
(E) Recreation (extraordinary primary contact, primary contact, sport fishing, boating, canoeing, and aesthetic enjoyment).
(F) Commerce and navigation.
(G) Tribal Cultural.

(3) Water quality criteria:

(A) Fecal coliform organisms levels shall both not exceed a geometric mean density of 50 colonies/100 ml, and not have more than 10 percent of the samples obtained for calculating the mean value exceeding 100 colonies/100 ml (Fecal coliform criteria are to protect humans who consume aquatic life from fresh or marine waters).

(B) Enterococci densities for water contact shall both not exceed a geometric mean density of 33 colonies/100 ml, and not exceed a single sample maximum allowable density of 61 colonies/100 ml.

(C) Dissolved oxygen – no measurable decrease from natural conditions.

(D) Total dissolved gas shall not exceed 110 percent of saturation at any point of sample collection.

(E) Temperature – no measurable change from natural conditions.

(F) pH – no measurable change from natural conditions.

(G) Turbidity shall not exceed 5 NTU over background conditions.

(H) Toxic, radioactive, or deleterious material concentrations must be below those that have the potential, either singularly or cumulatively, to adversely affect characteristic water uses, cause acute or chronic conditions to the most sensitive biota dependent upon those waters, or adversely affect public health as determined by the Director (see 17 LAR 07.040 and 17 LAR 07.050).

(I) Aesthetic values must not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the senses of sight, smell, touch, or taste, or taint the flesh of edible species [see 17 LAR 07.030(d) for guidance on establishing lake nutrient standards to protect aesthetics].

(J) Table 1 shall be used to aid in establishing lake nutrient criteria:

Table 1. Lummi Indian Reservation Lake Nutrient Criteria

Trophic State	**If Ambient Total Phosphorus (µg/l) Range of Lake is:**	**Then criteria should be set at (µg/l):**
Ultra-oligotrophic	0 - 4	4 or less
Oligotrophic	> 4 - 10	10 or less
Lower mesotrophic	> 10 - 20	20 or less
Action value > 20 µg/l. . . . . lake specific study may be initiated.		

If a lake specific study is initiated, the Director will provide guidelines.

(e) Narrative Water Quality Criteria

(1) All surface waters of the Lummi Indian Reservation, including those within designated mixing zones, shall be free from substances attributable to point source discharges, nonpoint sources, vessel discharges, or instream activities in accordance with the following:

(A) Floating solids, oil, and grease. All waters shall be free from visible oils, including crude oil and petroleum, scum, foam, grease, and other floating materials and suspended substances of a persistent nature resulting from anthropogenic causes.

(B) Color. True color-producing materials resulting from anthropogenic causes shall not create an aesthetically undesirable condition; nor should color inhibit photosynthesis or otherwise impair the existing and designated uses of the water.

(C) Odor and taste. Water contaminants from anthropogenic causes shall be limited to concentrations that will not impart unpalatable flavor to fish, or result in offensive odor or taste arising from the water, or otherwise interfere with the existing and designated uses of the water.

(D) Nuisance conditions. Nutrients or other substances from anthropogenic causes shall not be present in concentrations which will produce objectionable algal densities or nuisance aquatic vegetation, result in a dominance of nuisance species, result in acute toxicity to any aquatic biota or wildlife, adversely affect public health or safety, or otherwise cause nuisance conditions.

(E) Bottom deposits. All surface waters of the Lummi Indian Reservation shall be free from anthropogenic contaminants that may settle and have a deleterious effect on the aquatic biota or that will significantly alter the physical or chemical properties of the water or the bottom sediments.

(F) Erosion. All waters shall be free from deleterious levels of soil particles resulting from erosion of land involved in earthwork, such as construction of public works, highways, or commercial or industrial developments, or the cultivation and management of agricultural or forested lands.

(f) Summary of General Water Use and Criteria Class

Table 2 summarizes the general water quality criteria and uses associated with each criteria class of surface waters of the Lummi Indian Reservation. Fecal coliform criteria are to protect humans who consume aquatic life from fresh or marine waters.

Table 2. Summary of Water Quality Criteria and Uses of the Various Classes of Lummi Indian Reservation Surface Waters

	Surface Water Classes of the Lummi Indian Reservation			
Parameter	**Class AA Extraordinary**	**Class A Excellent**	**Class B Good**	**Lake Class**
General Characteristics	Uniformly exceeds the requirements for all or substantially all uses	Meets or exceeds the requirements for all or substantially all uses	Meets or exceeds the requirements for most uses	Meets or exceeds the requirements for all or substantially all uses

Table 2. Summary of Water Quality Criteria and Uses of the Various Classes of Lummi Indian Reservation Surface Waters

Parameter	Surface Water Classes of the Lummi Indian Reservation			
	Class AA Extraordinary	**Class A Excellent**	**Class B Good**	**Lake Class**
Characteristic Uses	**(A)** Water supply (domestic, commercial, municipal, industrial, agricultural). **(B)** Stock watering. **(C)** Fish and shellfish: Salmonid migration, juvenile rearing, spawning, egg incubation, fry emergence, and harvesting. Other fish migration, juvenile rearing, spawning, egg incubation, fry emergence, and harvesting. Clam, oyster, and mussel rearing, spawning, and harvesting. Crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, geoduck, etc.) rearing, spawning, and harvesting. **(D)** Wildlife habitat. **(E)** Recreation (extraordinary primary contact, primary contact, sport fishing, boating, canoeing, and aesthetic enjoyment). **(F)** Commerce and navigation. **(G)** Tribal Cultural	**(A)** Water supply (domestic, commercial, municipal, industrial, agricultural). **(B)** Stock watering. **(C)** Fish and shellfish: Salmonid migration, juvenile rearing, and harvesting. Other fish migration, juvenile rearing, spawning, egg incubation, fry emergence, and harvesting. Clam, oyster, and mussel rearing, spawning, and harvesting. Crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, geoduck, etc.) rearing, spawning, and harvesting. **(D)** Wildlife habitat. **(E)** Recreation (primary contact, sport fishing, boating, canoeing, and aesthetic enjoyment). **(F)** Commerce and navigation. **(G)** Tribal Cultural	**(A)** Water supply (industrial, agricultural). **(B)** Stock watering. **(C)** Fish and shellfish: Salmonid migration, juvenile rearing, and harvesting. Other fish migration, juvenile rearing, spawning, egg incubation, fry emergence, and harvesting. Clam, oyster, and mussel rearing and spawning. Crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, geoduck, etc.) rearing and spawning. **(D)** Wildlife habitat. **(E)** Recreation (secondary contact, sport fishing, boating, and aesthetic enjoyment). **(F)** Commerce and navigation. **(G)** Tribal Cultural	**(A)** Water supply (domestic, commercial, municipal, industrial, agricultural). **(B)** Stock watering. **(C)** Fish and shellfish: Salmonid migration, juvenile rearing, spawning, egg incubation, fry emergence, and harvesting. Other fish migration, juvenile rearing, spawning, egg incubation, fry emergence, and harvesting. Clam and mussel rearing and spawning. Crayfish rearing and spawning. **(D)** Wildlife habitat. **(E)** Recreation (extraordinary primary contact, primary contact, sport fishing, boating, canoeing, and aesthetic enjoyment). **(F)** Commerce and navigation. **(G)** Tribal Cultural

Table 2. Summary of Water Quality Criteria and Uses of the Various Classes of Lummi Indian Reservation Surface Waters

Parameter	Surface Water Classes of the Lummi Indian Reservation			
	Class AA Extraordinary	**Class A Excellent**	**Class B Good**	**Lake Class**
Fresh Water Fecal Coliform Geometric Mean Density	Shall both not exceed 50 colonies/100 ml AND not exceed 100 colonies/100 ml in more than 10% of the samples obtained for calculation purposes	Shall both not exceed 100 colonies/100 ml AND not exceed 200 colonies/100 ml in more than 10% of the samples obtained for calculation purposes	Shall both not exceed 200 colonies/100 ml AND not exceed 400 colonies/100 ml in more than 10% of the samples obtained for calculation purposes	Shall both not exceed 50 colonies/100 ml AND not exceed 100 colonies/100 ml in more than 10% of the samples obtained for calculation purposes
Marine Water Fecal Coliform Geometric Mean Density	Shall both not exceed 14 colonies/100 ml AND not exceed 43 colonies/100 ml in more than 10% of the samples obtained for calculation purposes	Shall both not exceed 14 colonies/100 ml AND not exceed 43 colonies/100 ml in more than 10% of the samples obtained for calculation purposes	Shall both not exceed 100 colonies/100 ml AND not exceed 200 colonies/100 ml in more than 10% of the samples obtained for calculation purposes	N/A
Fresh Water Enterococci	Shall both not exceed a geometric mean density of 33 colonies/100 ml AND not exceed a single sample maximum allowable density of 61 colonies/100 ml	Shall both not exceed a geometric mean density of 33 colonies/100 ml AND not exceed a single sample maximum allowable density of 61 colonies/100 ml	Shall both not exceed a geometric mean density of 33 colonies/100 ml AND not exceed a single sample maximum allowable density of 78 colonies/100 ml	Shall both not exceed a geometric mean density of 33 colonies/100 ml AND not exceed a single sample maximum allowable density of 61 colonies/100 ml
Marine Water Enterococci	Shall both not exceed a geometric mean density of 35 colonies/100 ml AND not exceed a single sample maximum allowable density of 104 colonies/100 ml	Shall both not exceed a geometric mean density of 35 colonies/100 ml AND not exceed a single sample maximum allowable density of 104 colonies/100 ml	Shall both not exceed a geometric mean density of 35 colonies/100 ml AND not exceed a single sample maximum allowable density of 158 colonies/100 ml	N/A

Table 2. Summary of Water Quality Criteria and Uses of the Various Classes of Lummi Indian Reservation Surface Waters

Parameter	Surface Water Classes of the Lummi Indian Reservation			
	Class AA Extraordinary	**Class A Excellent**	**Class B Good**	**Lake Class**
Fresh Water Dissolved Oxygen Concentration	Shall both not be less than 11.0 mg/l AND not have a spatial median intergravel dissolved oxygen concentration below 8.0 mg/l. If minimum spatial median intergravel dissolved oxygen is 8.0 mg/l or greater, the minimum dissolved oxygen criterion is 9.0 mg/l. Where barometric pressure and temperature preclude attainment of criteria, dissolved oxygen must not be less than 95% of saturation.	Shall not be less than 8.0 mg/l. Where barometric pressure and temperature preclude attainment of criteria, dissolved oxygen must not be less than 90% of saturation.	Shall not be less than 6.5 mg/l.	No measurable decrease from natural conditions
Marine Water Dissolved Oxygen Concentration	Shall exceed a 1-day minimum daily concentration of 7.0 mg/l	Shall exceed a 1-day minimum daily concentration of 6.0 mg/l	Shall exceed a 1-day minimum daily concentration of 5.0 mg/l	N/A

Table 2. Summary of Water Quality Criteria and Uses of the Various Classes of Lummi Indian Reservation Surface Waters

Parameter	Surface Water Classes of the Lummi Indian Reservation			
	Class AA Extraordinary	**Class A Excellent**	**Class B Good**	**Lake Class**
Fresh Water Temperature	Shall not exceed a 7-day average of the daily maximum value (7DADM) temperature of 16.0°C. For summertime spawning, temperature shall not exceed a 7DADM temperature of 13.0°C.	Shall not exceed a 7DADM temperature of 17.5°C.	Shall not exceed a 7DADM temperature of 17.5°C.	No measurable increase from natural conditions
Marine Water Temperature	Shall not exceed a 1-day maximum temperature of 13.0°C	Shall not exceed a 1-day maximum temperature of 16.0°C	Shall not exceed a 1-day maximum temperature of 19.0°C	N/A
Fresh Water pH	6.5 – 8.5	6.5 – 8.5	6.5 – 8.5	No measurable change from natural conditions
Marine Water pH	7.0 – 8.5	7.0 – 8.5	7.0 – 8.5	N/A
Turbidity	Shall not exceed 5 NTU over background turbidity when background turbidity is less than or equal to 50 NTU OR not increase by more than 10% when the background turbidity is greater than 50 NTU	Shall not exceed 5 NTU over background turbidity when background turbidity is less than or equal to 50 NTU OR not increase by more than 10% when the background turbidity is greater than 50 NTU	Shall not exceed 5 NTU over background turbidity when background turbidity is less than or equal to 50 NTU OR not increase by more than 20% when the background turbidity is greater than 50 NTU	Shall not exceed 5 NTU over background turbidity

Table 2. Summary of Water Quality Criteria and Uses of the Various Classes of Lummi Indian Reservation Surface Waters

Parameter	Surface Water Classes of the Lummi Indian Reservation			
	Class AA Extraordinary	**Class A Excellent**	**Class B Good**	**Lake Class**
Toxic, Radioactive, Or Deleterious Material Concentrations	Shall be less than concentrations that have the potential either singularly or cumulatively to adversely affect characteristic water uses, cause acute or chronic conditions to the most sensitive biota dependent upon those waters, or adversely affect public health as determined by the Director.	Shall be less than concentrations that have the potential either singularly or cumulatively to adversely affect characteristic water uses, cause acute or chronic conditions to the most sensitive biota dependent upon those waters, or adversely affect public health as determined by the Director.	Shall be less than concentrations that have the potential either singularly or cumulatively to adversely affect characteristic water uses, cause acute or chronic conditions to the most sensitive biota dependent upon those waters, or adversely affect public health as determined by the Director.	Shall be less than concentrations that have the potential either singularly or cumulatively to adversely affect characteristic water uses, cause acute or chromic conditions to the most sensitive biota dependent upon those waters, or adversely affect public health as determined by the Director.
Aesthetic Values	Shall not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the senses of sight, smell, touch, or taste or taint the flesh of edible species	Shall not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the senses of sight, smell, touch, or taste or taint the flesh of edible species	Shall not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the senses of sight, smell, touch, or taste or taint the flesh of edible species	Shall not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the senses of sight, smell, touch, or taste or taint the flesh of edible species

(g) Summary of Applicability of Criteria to Fresh and Marine Water Use Classifications
Table 3 summarizes the applicability of water quality criteria to fresh and marine water uses.

Table 3. Summary of Applicability of Criteria to Fresh and Marine Water Use Classifications

Criteria	Water Supply	Stock Watering	Salmon and Shellfish Harvesting	Salmon Spawning and Egg Incubation	Salmon Rearing and Migration	Shellfish Spawning and Rearing	Wildlife Habitat	Primary and Secondary Contact Recreation	Commerce and Navigation	Tribal Cultural
Water Contact Bacteria	X	X	X					X	X	X
Dissolved Oxygen				X	X					
Temperature				X	X					
pH				X	X					
Turbidity				X	X					
Narrative Criteria	X	X	X	X	X	X	X	X	X	X
Toxic Substances:										
CMC	X	X	X	X	X	X	X	X	X	X
CCC	X	X	X	X	X	X	X	X	X	X
Human Health Organisms Only	X	X	X					X		X
Human Health Water + Organisms	X									X
Radioactive Substances	X	X	X					X	X	X

17 LAR 07.040 Toxic Substances

(a) Toxic substances shall not be introduced through human caused or related means to surface waters of the Lummi Indian Reservation that have the potential either singularly or cumulatively to adversely affect existing or characteristic beneficial water uses, cause acute or chronic toxicity to the most sensitive biota dependent upon those waters, or adversely affect public health, as determined by the Director, except as authorized in 17 LAR 07.090 (Mixing zones), 17 LAR 07.100 (Short-term exceedences), and 17 LAR 07.190 (f, g) (Implementation).

(b) The Director shall employ or require chemical testing, acute and chronic toxicity testing, and biological assessments, as appropriate, to evaluate compliance with subsection (c) of this section and to ensure that aquatic communities and the existing and characteristic beneficial uses of waters are being fully protected.

(c) The criteria listed in Table 4 shall be applied to all surface waters of the Lummi Indian Reservation for the protection of aquatic life and human health. The human health criteria were calculated using the USEPA's default consumption rate of 142.4 grams/day for subsistence fishers as reported in the EPA report *Fish Consumption and Environmental Justice, A Report of the National Environmental Justice Advisory Council Meeting of December 3-6, 2001, Seattle, WA*, November 2002. The criteria include criteria continuous concentrations (CCC) and criteria maximum concentrations (CMC). The Water Resources Manager may revise the criteria listed in Table 4 on a Lummi Indian Reservation-wide or water body-specific basis as needed to protect aquatic life and/or human health occurring in surface waters of the Lummi Indian Reservation and to increase the technical accuracy of the criteria being applied. The LIBC shall formally adopt any appropriate revised criteria as part of this chapter in accordance with the provisions of the Lummi Nation Water Resources Protection Code (Title 17). The Water Resources Manager shall ensure that there are early opportunities for public review and comment on proposals to develop revised criteria.

Table 4. Toxic Substance Criteria for Surface Waters of the Lummi Indian Reservation

Substance	Aquatic Life Criteria				Human Health Criteria		FR Citation/ Source
	Freshwater		Saltwater		For Consumption of:		
	CMC Acute (µg/L)	CCC Chronic (µg/L)	CMC Acute (µg/L)	CCC Chronic (µg/L)	Water + Organism (µg/L)	Organism Only (µg/L)	
Ammonia	ll	mm	233	35	vv	vv	EPA822-R-99-014 EPA440/5-88-004 WAC 173-201A-040
Antimony	vv	vv	vv	vv	5.2 B	79 B	65FR66443
Arsenic	340 A, D, K	150 A, D, K	69 A, D, bb	36 A, D, bb	0.0048 C, M, S	0.0064 C, M, S	65FR31682 57FR60848
Beryllium	vv	vv	vv	vv	Z	vv	65FR31682
Cadmium	2.0 D, E, K, bb	0.25 D, E, K, bb	40 D, bb	8.8 D, bb	Z	vv	EPA-822-R-01-001 65FR31682
Chromium (III)	570 D, E, K	74 D, E, K	vv	vv	Z Total	vv	EPA820/B-96-001 65FR31682
Chromium (VI)	16 D, K	11 D, K	1,100 D, bb	50 D, bb	Z Total	vv	65FR31682
Copper	13 D, E, K, cc	9.0 D, E, K, cc	4.8 D, cc, ff	3.1 D, cc, ff	1,300 U	vv	65FR31682
Lead	65 D, E, bb, gg	2.5 D, E, bb, gg	210 D, bb	8.1 D, bb	vv	vv	EPA823-R-01-001 65FR31682
Mercury	1.4 D, K, hh	0.012 ww, xx	1.8 D, ee, hh	0.025 D, ee	0.0054	0.0055	62FR42160 65FR31682 WAC 173-201A-040

Table 4. Toxic Substance Criteria for Surface Waters of the Lummi Indian Reservation

Substance	Aquatic Life Criteria				Human Health Criteria		FR Citation/ Source
	Freshwater		Saltwater		For Consumption of:		
	CMC Acute (µg/L)	CCC Chronic (µg/L)	CMC Acute (µg/L)	CCC Chronic (µg/L)	Water + Organism (µg/L)	Organism Only (µg/L)	
Nickel	470 D, E, K	52 D, E, K	74 D, bb	8.2 D, bb	160 B	210 B	65FR31682
Selenium	L	5.0 T	290 D, bb, dd	71 D, bb, dd	130 Z	510	62FR42160 65FR31682
Silver	3.2 D ,E, G	vv	1.9 D, G	vv	vv	vv	65FR31682
Thallium	vv	vv	vv	vv	0.051	0.058	68FR75510
Zinc	120 D, E, K	120 D, E, K	90 D, bb	81 D, bb	2,400 U	3,100 U	65FR31682 65FR66443
Cyanide	22 K, Q	5.2 K, Q	1 Q, bb	1 Q, bb	130 jj	130 jj	EPA820/B-96-001 57FR60848 68FR75510
Asbestos	vv	vv	vv	vv	7 million fibers/L I	vv	57FR60848
2,3,7,8-TCDD (Dioxin)	vv	vv	vv	vv	6.3E-10 C	6.3E-10 C	65FR66443
Acrolein	vv	vv	vv	vv	34	36	65FR66443
Acrylonitrile	vv	vv	vv	vv	0.021 B, C	0.030 B, C	65FR66443

Table 4. Toxic Substance Criteria for Surface Waters of the Lummi Indian Reservation

Substance	Aquatic Life Criteria				Human Health Criteria		FR Citation/ Source
	Freshwater		Saltwater		For Consumption of:		
	CMC Acute (µg/L)	CCC Chronic (µg/L)	CMC Acute (µg/L)	CCC Chronic (µg/L)	Water + Organism (µg/L)	Organism Only (µg/L)	
Benzene	vv	vv	vv	vv	1.7 B, C	6.2 B, C	IRIS 01/19/00 and 65FR66443
Bromoform	vv	vv	vv	vv	3.5 B, C	17 B, C	65FR66443
Carbon Tetrachloride	vv	vv	vv	vv	0.12 B, C	0.20 B, C	65FR66443
Chloride	860,000 oo	230,000 oo	vv	vv	vv	vv	53FR19028
Chlorine	19	11	13	7.5	nn	vv	Gold Book[1]
Chlorophenoxy Herbicide (2,4,5,-TP)	vv	vv	vv	vv	10 tt	vv	Gold Book[1]
Chlorophenoxy Herbicide (2,4-D)	vv	vv	vv	vv	100 tt, nn	vv	Gold Book[1]
Chlorobenzene	vv	vv	vv	vv	81 Z,U,	190 U	68FR75510
Chlorodibromomethane	vv	vv	vv	vv	0.33 B, C	1.6 B, C	65FR66443
Chloroethane	vv	vv	vv	vv	vv	vv	vv
2-Chloroethylvinyl Ether	vv	vv	vv	vv	vv	vv	vv
Chloroform	vv	vv	vv	vv	4.5 C, P	22 C, P	62FR42160

Table 4. Toxic Substance Criteria for Surface Waters of the Lummi Indian Reservation

Substance	Aquatic Life Criteria				Human Health Criteria		FR Citation/ Source
	Freshwater		Saltwater		For Consumption of:		
	CMC Acute (µg/L)	CCC Chronic (µg/L)	CMC Acute (µg/L)	CCC Chronic (µg/L)	Water + Organism (µg/L)	Organism Only (µg/L)	
Chloropyrifos	0.083 oo	0.041 oo	0.011 oo	0.0056 oo	vv	vv	Gold Book[1]
Dichlorobromomethane	vv	vv	vv	vv	0.45 B, C	2.1 B, C	65FR66443
1,1-Dichloroethane	vv	vv	vv	vv	vv	vv	vv
1,2-Dichloroethane	vv	vv	vv	vv	0.35 B, C	4.5 B, C	65FR66443
1,1-Dichloroethylene	vv	vv	vv	vv	250	880	68FR75510
1,2-Dichloropropane	vv	vv	vv	vv	0.40 B, C	1.8 B, C	65FR66443
1,3-Dichloropropene	vv	vv	vv	vv	0.31 c	2.6 c	68FR75510
Ethylbenzene	vv	vv	vv	vv	190	260	68FR75510
Methyl Bromide	vv	vv	vv	vv	39 B	180 B	65FR66443
Methyl Chloride	vv	vv	vv	vv	vv	vv	65FR31682
Methylene Chloride	vv	vv	vv	vv	4.4 B, C	73 B, C	65FR66443
1,1,2,2-Tetrachloroethane	vv	vv	vv	vv	0.13 B, C	0.49 B, C	65FR66443
Tetrachloroethylene	vv	vv	vv	vv	0.28 C	0.40 C	65FR66443

Table 4. Toxic Substance Criteria for Surface Waters of the Lummi Indian Reservation

Substance	Aquatic Life Criteria				Human Health Criteria		FR Citation/ Source
	Freshwater		Saltwater		For Consumption of:		
	CMC Acute (µg/L)	CCC Chronic (µg/L)	CMC Acute (µg/L)	CCC Chronic (µg/L)	Water + Organism (µg/L)	Organism Only (µg/L)	
Toluene	vv	vv	vv	vv	800 z	1,800	68FR75510
1,2-Trans-Dichloroethylene	vv	vv	vv	vv	130 z	1,200	68FR75510
1,1,1-Trichloroethane	vv	vv	vv	vv	z	vv	65FR31682
1,1,2-Trichloroethane	vv	vv	vv	vv	0.46 B, C	1.9 B, C	65FR66443
Trichloroethylene	vv	vv	vv	vv	1.6 C	3.7 C	65FR66443
Vinyl Chloride	vv	vv	vv	vv	0.023 C, kk	0.30 C, kk	68FR75510
2-Chlorophenol	vv	vv	vv	vv	17 B, U	18 B, U	65FR66443
2,4-Dichlorophenol	vv	vv	vv	vv	27 B, U	36 B, U	65FR66443
2,4-Dimethylphenol	vv	vv	vv	vv	91 B	110 B, U	65FR66443
2-Methyl-4,6-Dinitrophenol	vv	vv	vv	vv	9.8	35	65FR66443
2,4-Dinitrophenol	vv	vv	vv	vv	63 B	660 B	65FR66443
2-Nitrophenol	vv	vv	vv	vv	vv	vv	vv
4-Nitrophenol	vv	vv	vv	vv	vv	vv	vv

Table 4. Toxic Substance Criteria for Surface Waters of the Lummi Indian Reservation

Substance	Aquatic Life Criteria				Human Health Criteria		FR Citation/ Source
	Freshwater		Saltwater		For Consumption of:		
	CMC Acute (µg/L)	CCC Chronic (µg/L)	CMC Acute (µg/L)	CCC Chronic (µg/L)	Water + Organism (µg/L)	Organism Only (µg/L)	
3-Methyl-4-Chlorophenol	vv	vv	vv	vv	U	U	vv
Pentachlorophenol	19 F, K	15 F, K	13 bb	7.9 bb	0.16 B, C	0.37 B, C, H	65FR31682 65FR66443
Phenol	vv	vv	vv	vv	19,000 B, U	210,000 B, U	65FR66443
2,4,6-Trichlorophenol	vv	vv	vv	vv	0.27 B, C	0.30 B, C, U	65FR66443
Acenaphthene	vv	vv	vv	vv	120 B, U	120 B, U	65FR66443
Acenaphthylene	vv	vv	vv	vv	vv	vv	vv
Anthracene	vv	vv	vv	vv	3,400 B	4,900 B	65FR66443
Benzidine	vv	vv	vv	vv	0.000021 B,C	0.000024 B,C	65FR66443
Benzo(a)Anthracene	vv	vv	vv	vv	0.0015 B, C	0.0022 B, C	65FR66443
Benzo(a)Pyrene	vv	vv	vv	vv	0.0015 B, C	0.0022 B, C	65FR66443
Benzo(b)Fluoranthene	vv	vv	vv	vv	0.0015 B, C	0.0022 B, C	65FR66443
Benzo(ghi)Perylene	vv	vv	vv	vv	vv	vv	vv

Table 4. Toxic Substance Criteria for Surface Waters of the Lummi Indian Reservation

Substance	Aquatic Life Criteria				Human Health Criteria		FR Citation/ Source
	Freshwater		Saltwater		For Consumption of:		
	CMC Acute (µg/L)	CCC Chronic (µg/L)	CMC Acute (µg/L)	CCC Chronic (µg/L)	Water + Organism (µg/L)	Organism Only (µg/L)	
Benzo(k)Fluoranthene	vv	vv	vv	vv	0.0015 B, C	0.0022 B, C	65FR66443
Bis(2-Chloroethoxy)Methane	vv	vv	vv	vv	vv	vv	vv
Bis(2-Chloroethyl)Ether	vv	vv	vv	vv	0.021 B, C	0.065 B,C	65FR66443
Bis(2-Chloroisopropyl)Ether	vv	vv	vv	vv	1,200 B	8,000 B	65FR66443
Bis(2-Ethylhexyl)Phthalate[X]	vv	vv	vv	vv	0.24 B, C	0.27 B, C	65FR66443
4-Bromophenyl Phenyl Ether	vv	vv	vv	vv	vv	vv	vv
Butylbenzyl Phthalate[W]	vv	vv	vv	vv	230 B	240 B	65FR66443
2-Chloronaphthalene	vv	vv	vv	vv	180 B	200B	65FR66443
4-Chlorophenyl Phenyl Ether	vv	vv	vv	vv	vv	vv	vv
Chrysene	vv	vv	vv	vv	0.0015 B, C	0.0022 B, C	65FR66443
Demeton	vv	0.1 qq	vv	0.1 qq	vv	vv	Gold Book[1]
Dibenzo(a,h)Anthracene	vv	vv	vv	vv	0.0015 B, C	0.0022 B, C	65FR66443
1,2-Dichlorobenzene	vv	vv	vv	vv	130	160	68FR75510

Table 4. Toxic Substance Criteria for Surface Waters of the Lummi Indian Reservation

Substance	Aquatic Life Criteria				Human Health Criteria		FR Citation/ Source
	Freshwater		Saltwater		For Consumption of:		
	CMC Acute (µg/L)	CCC Chronic (µg/L)	CMC Acute (µg/L)	CCC Chronic (µg/L)	Water + Organism (µg/L)	Organism Only (µg/L)	
1,3-Dichlorobenzene	vv	vv	vv	vv	95	120	65FR66443
1,4-Dichlorobenzene	vv	vv	vv	vv	19	24	68FR75510
3,3'-Dichlorobenzidine	vv	vv	vv	vv	0.0034 B, C	0.0035 B, C	65FR66443
Diethyl Phthalate[W]	vv	vv	vv	vv	4,500 B	5,400 B	65FR66443
Dimethyl Phthalate[W]	vv	vv	vv	vv	98,000	140,000	65FR66443
Di-n-Butyl Phthalate[W]	vv	vv	vv	vv	480 B	550 B	65FR66443
2,4-Dinitrotoluene	vv	vv	vv	vv	0.089 C	0.42 C	65FR66443
2,6-Dinitrotoluene	vv	vv	vv	vv	vv	vv	vv
Di-n-Octyl Phthalate	vv	vv	vv	vv	vv	vv	vv
1,2-Diphenylhydrazine	vv	vv	vv	vv	0.016 B, C	0.025 B, C	65FR66443
Fluoranthene	vv	vv	vv	vv	17 B	17 B	65FR66443
Fluorene	vv	vv	vv	vv	450 B	660 B	65FR66443
Guthion	vv	0.01 qq	vv	0.01 qq	vv	vv	Gold Book[1]

Table 4. Toxic Substance Criteria for Surface Waters of the Lummi Indian Reservation

Substance	Aquatic Life Criteria				Human Health Criteria		FR Citation/ Source
	Freshwater		Saltwater		For Consumption of:		
	CMC Acute (µg/L)	CCC Chronic (µg/L)	CMC Acute (µg/L)	CCC Chronic (µg/L)	Water + Organism (µg/L)	Organism Only (µg/L)	
Hexachlorobenzene	vv	vv	vv	vv	0.000035 B, C	0.000035 B ,C	65FR66443
Hexachlorobutadiene	vv	vv	vv	vv	0.38 B, C	2.3 B, C	65FR66443
Hexachlorocyclopentadiene	vv	vv	vv	vv	32 U	140 U	68FR75510
Hexachloroethane	vv	vv	vv	vv	0.35 B, C	0.40 B, C	65FR66443
Ideno(1,2,3-cd)Pyrene	vv	vv	vv	vv	0.0015 B, C	0.0022 B, C	65FR66443
Isophorone	vv	vv	vv	vv	28 B, C	120 B, C	65FR66443
Malathion	vv	0.1 qq	vv	0.1 qq	vv	vv	Gold Book[1]
Methoxychlor	vv	0.03 qq	vv	0.03 qq	100 tt, nn	vv	Gold Book[1]
Mirex	vv	0.001 qq	vv	0.001 qq	vv	vv	Gold Book[1]
Naphthalene	vv	vv	vv	vv	vv	vv	vv
Nitrobenzene	vv	vv	vv	vv	15 B	85 B ,H, U	65FR66443
N-Nitrosodimethylamine	vv	vv	vv	vv	0.00068 B, C	0.37 B, C	65FR66443

Table 4. Toxic Substance Criteria for Surface Waters of the Lummi Indian Reservation

Substance	Aquatic Life Criteria				Human Health Criteria		FR Citation/ Source
	Freshwater		Saltwater		For Consumption of:		
	CMC Acute (µg/L)	CCC Chronic (µg/L)	CMC Acute (µg/L)	CCC Chronic (µg/L)	Water + Organism (µg/L)	Organism Only (µg/L)	
N-Nitrosodi-n-Propylamine	vv	vv	vv	vv	0.0046 B, C	0.062 B, C	65FR66443
N-Nitrosodiphenylamine	vv	vv	vv	vv	0.67 B, C	0.74 B, C	65FR66443
Parathion	0.065 pp	0.013 pp	vv	vv	vv	vv	Gold Book[1]
Phenanthrene	vv	vv	vv	vv	vv	vv	vv
Pyrene	vv	vv	vv	vv	340 B	490 B	65FR66443
1,2,4-Trichlorobenzene	vv	vv	vv	vv	7.7	8.6	68FR75510
Aldrin	3.0 G	vv	1.3 G	vv	0.0000062 B,C	0.0000062 B,C	65FR31682 65FR66443
alpha-BHC	vv	vv	vv	vv	0.00054 B, C	0.00060 B, C	65FR66443
beta-BHC	vv	vv	vv	vv	0.0019 B, C	0.0021 B, C	65FR66443
gamma-BHC (Lindane)	0.95 K	vv	0.16 G	vv	0.20	0.23	65FR31682 68FR75510
delta-BHC	vv	vv	vv	vv	vv	vv	vv

Table 4. Toxic Substance Criteria for Surface Waters of the Lummi Indian Reservation

Substance	Aquatic Life Criteria				Human Health Criteria		FR Citation/ Source
	Freshwater		Saltwater		For Consumption of:		
	CMC Acute (µg/L)	CCC Chronic (µg/L)	CMC Acute (µg/L)	CCC Chronic (µg/L)	Water + Organism (µg/L)	Organism Only (µg/L)	
Chlordane	2.4 G	0.0043 G, aa	0.09G	0.004 G,.aa	0.00010 B, C	0.00010 B, C	65FR31682 65FR66443
4,4'-DDT	1.1 G, ii	0.001 G, aa, ii	0.13 G, ii	0.001 G, aa, ii	0.000027 B, C	0.000027 B, C	65FR31682 65FR66443
4,4'-DDE	vv	vv	vv	vv	0.000027 B,C	0.000027 B,C	65FR66443
4,4'-DDD	vv	vv	vv	vv	0.000038 B, C	0.000038 B, C	65FR66443
Dieldrin	0.24 K	0.056 K,O	0.71,G	0.0019 G, aa	0.0000066 B, C	0.0000066 B, C	65FR31682 65FR66443
alpha-Endosulfan	0.22 G,Y	0.056 G,Y	0.034 G,Y	0.0087 G,Y	10 B	11 B	65FR31682 65FR66443
beta-Endosulfan	0.22 G,Y	0.056 G,Y	0.034 G,Y	0.0087 G,Y	10 B	11 B	65FR31682 65FR66443
Endosulfan Sulfate	vv	vv	vv	vv	10 B	11 B	65FR66443
Endrin	0.086 K	0.036 K,O	0.037 G	0.0023 G, aa	0.0074	0.0074	65FR31682 68FR75510

Table 4. Toxic Substance Criteria for Surface Waters of the Lummi Indian Reservation

Substance	Aquatic Life Criteria				Human Health Criteria		FR Citation/ Source
	Freshwater		Saltwater		For Consumption of:		
	CMC Acute (µg/L)	CCC Chronic (µg/L)	CMC Acute (µg/L)	CCC Chronic (µg/L)	Water + Organism (µg/L)	Organism Only (µg/L)	
Endrin Aldehyde	vv	vv	vv	vv	0.037 B	0.037 B, H	65FR66443
Heptachlor	0.52 G	0.0038 G, aa	0.053 G, V	0.0036 G, aa	0.0000097 B, C	0.0000098 B, C	65FR31682 65FR66443
Heptachlor Epoxide	0.52 G,V	0.0038 G, V, aa	0.053 G	0.0036 G, V, aa	0.0000048 B, C	0.0000048 B, C	65FR31682 65FR66443
Polychlorinated Biphenyls PCBs:	.014 ss	0.014 N, aa	vv	0.03 N, aa	0.0000079 B, C, N	0.0000079 B, C, N	65FR31682 65FR66443 173-201A-040 WAC
Toxaphene	0.73	0.0002 aa	0.21	0.0002 aa	0.000034 B, C	0.000034 B, C	65FR31682 65FR66443
Tributyltin (TBT)	0.46 uu	0.072 uu	0.42 uu	0.0074 uu	vv	vv	EPA 822-F-00-008

[1] Quality Criteria for Water: 1986, EPA 440/5-86-001

Table 4. Footnotes

A This water quality criterion was derived from data for arsenic (III), but is applied here to total arsenic, which might imply that arsenic (III) and arsenic (V) are equally toxic to aquatic life and that their toxicities are additive. In the arsenic criteria document (EPA 440/5-84-033, January 1985), Species Mean Acute Values are given for both arsenic (III) and arsenic (V) for five species and the ratios of the Species Mean Acute Values (SMAVs) for each species range from 0.6 to 1.7. Chronic values are available for both arsenic (III) and arsenic (V) for one species; for the fathead minnow, the chronic value for arsenic (V) is 0.29 times the chronic value for arsenic (III). No data are known to be available concerning whether the toxicities of the forms of arsenic to aquatic organisms are additive.

B This criterion has been revised to reflect the Environmental Protection Agency's slope factor (q1*) or Reference Dose (RfD), as contained in the Integrated Risk Information System (IRIS) as of May 17, 2002. The fish tissue bioconcentration factor (BCF) from the 1980 Ambient Water Quality Criteria document was retained in each case.

C This criterion is based on carcinogenicity of 10^{-6} risk. Alternate risk levels may be obtained by moving the decimal point (e.g., for a risk level of 10^{-5}, move the decimal point in the criterion one place to the right).

D Freshwater and saltwater criteria for metals are expressed in terms of the dissolved metal in the water column. The water quality criteria value were calculated by using the previous 304(a) aquatic life criteria expressed in terms of total recoverable metal, and multiplying it by a conversion factor (CF). The term "Conversion Factor" (CF) represents the recommended conversion factor for converting a metal criterion expressed as the total recoverable fraction in the water column to a criterion expressed as the dissolved fraction in the water column. (Conversion Factors for saltwater CCCs are not currently available. Conversion factors derived for saltwater CMCs have been used for both saltwater CMCs and CCCs). See "Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria, October 1, 1993, by Martha G. Prothro, Acting Assistant Administrator for Water, available from the Water Resource Center, USEPA, 401 M St., SW, mail code RC4100, Washington, DC 20460; and 40CFR 131.36(b)(1). Conversion factors applied in Table 4 can be found in Appendix A to the Preamble – Conversion Factors for Dissolved Metals.

E The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. The value given here corresponds to a hardness of 100 mg/L. Criteria values for other hardness may be calculated from the following: CMC (dissolved) = $\exp\{m_A [\ln(\text{hardness})] + b_A\}$ (CF), or CCC (dissolved) = $\exp\{m_C [\ln(\text{hardness})] + b_C\}$ (CF) and the parameters specified in Appendix B- Parameters for Calculating Freshwater Dissolved Metals Criteria That Are Hardness-Dependent. In calculating criteria for hardness dependent metals, the ambient hardness is used, even if it is lower than 25 mg/l. If the ambient hardness is greater than 400 mg/l, then a hardness of 400 mg/l is used.

Table 4. Footnotes

F Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: CMC = exp(1.005(pH)-4.869); CCC = exp(1.005(pH)-5.134). Values displayed in Table 4 correspond to a pH of 7.8.

G This criterion is based on 304(a) aquatic life criterion issued in 1980, and was issued in one of the following documents: Aldrin/Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endosulfan (EPA 440/5-80-046), Endrin (EPA 440/5-80-047), Heptachlor (EPA 440/5-80-052), Hexachlorocyclohexane (EPA 440/5-80-054), Silver (EPA 440/5-80-071). The Minimum Data Requirements and derivation procedures were different in the 1980 Guidelines than in the 1985 Guidelines. For example, a ACMC derived using the 1980 Guidelines was derived to be used as an instantaneous maximum. If assessment is to be done using an averaging period, the values in Table 4 should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.

H No criterion for protection of human health from consumption of aquatic organisms excluding water was presented in the 1980 criteria document or in the *1986 Quality Criteria for Water*. Nevertheless, sufficient information was presented in the 1980 document to allow the calculation of a criterion, even though the results of such a calculation were not shown in the document.

I This criterion for asbestos is the Maximum Contaminant Level (MCL) developed under the Safe Drinking Water Act (SDWA).

J This fish tissue residue criterion for methylmercury is based on a total fish consumption rate of 0.0175 kg/day.

K This criterion is based on a 304(a) aquatic life criterion that was issued in the *1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water* (EPA-820-B-96-001, September 1996). This value was derived using the GLI Guidelines (60FR15393-15399, March 23, 1995; 40CFR132 Appendix A); the difference between the 1985 Guidelines and the GLI Guidelines are explained on page iv of the 1995 Updates. None of the decisions concerning the derivation of this criterion were affected by any considerations that are specific to the Great Lakes.

L Reserved – 65 FR31683 (EPA California Toxics Rule)

M The EPA is currently reassessing the criteria for arsenic.

N This criterion applies to total PCBs, (e.g., the sum of all congener or all isomer or homolog or Aroclor analyses.)

Table 4. Footnotes

O The derivation of the CCC for this pollutant (Endrin) did not consider exposure through the diet, which is probably important for aquatic life occupying upper trophic levels.

P Although a new RfD is available in IRIS, the surface water criteria will not be revised until the National Primary Drinking Water Regulations: Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) is completed, since public comment on the relative source contribution (RSC) for chloroform is anticipated.

Q This water quality criterion is expressed as μg free cyanide (as CN)/L.

R This letter is not used as a footnote.

S This water quality criterion for arsenic refers to the inorganic form only.

T This water quality criterion for selenium is expressed in terms of total recoverable metal in the water column. It is scientifically acceptable to use the conversion factor (0.996- CMC or 0.922- CCC) that was used in the GLI (61FR58444-58449, November 14, 1996) to convert this to a value that is expressed in terms of dissolved metal (National Recommended Water Quality Standards, EPA 2006).

U The organoleptic effect criterion is more stringent than the value for priority toxic pollutants.

V This value was derived from data for heptachlor and the criteria document provides insufficient data to estimate the relative toxicities of heptachlor and heptachlor epoxide.

W Although the EPA has not published a completed criteria document for butylbenzyl phthalate it is the EPA's understanding that sufficient data exist to allow calculation of aquatic criteria (National Recommended Water Quality Standards, EPA 2006). It is anticipated that industry intends to publish in the peer reviewed literature draft aquatic life criteria generated in accordance with EPA Guidelines. The EPA will review such criteria for possible issuance as national WQC.

X There is a full set of aquatic life toxicity data that show that DEHP is not toxic to aquatic organisms at or below its solubility limit.

Y This value was derived from data for endosulfan and is most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.

Table 4. Footnotes

Z A more stringent MCL has been issued by the EPA. Refer to drinking water regulations (40 CFR 141) or Safe Drinking Water Hotline (1-800-426-4791) for values.

aa This criterion is based on a 304(a) aquatic life criterion issued in 1980 or 1986, and was issued in one of the following documents: Aldrin/Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endrin (EPA 440/5-80-047), Heptachlor (EPA 440/5-80-052), Polychlorinated biphenyls (EPA 440/5-80-068), Toxaphene (EPA 440/5-86-006). This CCC is currently based on the Final Residue Value (FRV) procedure. Since the publication of the Great Lakes Aquatic Life Criteria Guidelines in 1995 (60FR15393-15399, March 23, 1995), the EPA no longer uses the Final Residue Value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria. Therefore, the EPA anticipates that future revisions of this CCC will not be based on the FRV procedure.

bb This water quality criterion is based on a 304(a) aquatic life criterion that was derived using the 1985 Guidelines (*Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, PB85-227049, January 1985) and was issued in one of the following criteria documents: Arsenic (EPA 440/5-84-033), Cadmium (EPA-822-R-01-001), Chromium (EPA 440/5-84-029), Copper (EPA 440/5-84-031), Cyanide (EPA 440/5- 84-028), Lead (EPA 440/5-84-027), Nickel (EPA 440/5-86-004), Pentachlorophenol (EPA 440/5-86-009), Toxaphene, (EPA 440/5-86-006), Zinc (EPA 440/5-87- 003).

cc When the concentration of dissolved organic carbon is elevated, copper is substantially less toxic and use of Water-Effect Ratios might be appropriate.

dd The selenium criteria document (EPA 440/5-87-006, September 1987) provides that if selenium is as toxic to saltwater fish in the field as it is to freshwater fish in the field, the status of the fish community should be monitored whenever the concentration of selenium exceeds 5.0 μg/L in salt water because the saltwater CCC does not take into account uptake via the food chain.

ee This water quality criterion was derived on page 43 of the mercury criteria document (EPA 440/5-84-026, January 1985). The saltwater CCC of 0.025 μg/L given on page 23 of the criteria document is based on the Final Residue Value procedure in the 1985 Guidelines. Since the publication of the Great Lakes Aquatic Life Criteria Guidelines in 1995 (60FR15393-15399, March 23, 1995), the EPA no longer uses the Final Residue Value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria.

ff This recommended water quality criterion was derived in *Ambient Water Quality Criteria Saltwater Copper Addendum* (Draft, April 14, 1995) and was promulgated in the Interim final National Toxics Rule (60FR22228-222237, May 4, 1995).

Table 4. Footnotes

gg The EPA is actively working on this criterion; this water quality criterion may change substantially in the near future.

hh This recommended water quality criterion was derived from data for inorganic mercury (II), but is applied here to total mercury. If a substantial portion of the mercury in the water column is methylmercury, this criterion will probably be under protective. In addition, even though inorganic mercury is converted to methylmercury and methylmercury bioaccumulates to a great extent, this criterion does not account for uptake via the food chain because sufficient data were not available when the criterion was derived.

ii This criterion applies to DDT and its metabolites (i.e., the total concentration of DDT and its metabolites should not exceed this value).

jj This water quality criterion is expressed as total cyanide, even though the IRIS RFD we used to derive the criterion is based on free cyanide. The multiple forms of cyanide that are present in ambient water have significant differences in toxicity due to their differing abilities to liberate the CN-moiety. Some complex cyanides require even more extreme conditions than refluxing with sulfuric acid to liberate the CN-moiety. Thus, these complex cyanides are expected to have little or no 'bioavailability' to humans. If a substantial fraction of the cyanide present in a water body is present in a complexed form (e.g., $Fe_4[Fe(CN)_6]_3$), this criterion may be over conservative.

kk This water quality criterion was derived using the cancer slope factor of 1.4 (LMS exposure from birth).

ll Ammonia criteria are pH, temperature, and life-stage dependent. The one-hour average concentration of total ammonia nitrogen (in mg N/L) does not exceed, more than once every three years on the average, the CMC (acute criterion) calculated using the following equations:

- Where salmonid fish are present:
  - $CMC = (0.275/(1 + 10^{7.204-pH})) + (39.0/(1 + 10^{pH-7.204}))$
- Or where salmonid fish are not present:
  - $CMC = (0.411/(1 + 10^{7.204-pH})) + (58.4/(1 + 10^{pH-7.204}))$

The Department will apply the CMC applicable to when salmonid fish are present at all times of the year unless the Department is provided reliable information (fish species distributions, spawning periods, rearing periods, and the duration of early life stages in the water body) that demonstrate that salmonid fish are absent.

Table 4. Footnotes

mm Ammonia criteria are pH, temperature and life-stage dependent. The thirty-day average concentration of total ammonia nitrogen (in mg N/L) does not exceed, more than once every three years on the average, the CCC (chronic criterion) calculated using the following equations:

- When fish early life stages are present:
  - $CCC = ((0.0577/(1 + 10^{7.688-pH})) + (2.487/(1 + 10^{pH-7.688}))) \times MIN (2.85, 1.45 \cdot 10^{0.028 \cdot (25-T)})$
- When fish early life stages are absent:
  - $CCC = ((0.0577/(1 + 10^{7.688-pH})) + (2.487/(1 + 10^{pH-7.688}))) \times 1.45 \cdot 10^{0.028 \cdot (25-MAX(T,7))}$

The Department will apply the CCC applicable to when early life stages are present at all times of the year unless the Department is provided reliable information (fish species distributions, spawning periods, rearing periods, and the duration of early life stages in the water body) that demonstrate that early life stages are absent. In addition, the highest four-day average within the 30-day period should not exceed 2.5 times the CCC.

nn The EPA has issued a more stringent Maximum Contaminant Level (MCL) under the Safe Drinking Water Act. Refer to drinking water regulations 40CFR141 or Safe Drinking Water Hotline (1-800-426-4791) for values.

oo This value is based on a 304(a) aquatic life criterion that was derived using the 1985 Guidelines (*Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, PB85-227049, January 1985) and was issued in one of the following criteria documents: Aluminum (EPA 440/5-86-008); Chloride (EPA 440/5-88-001); Chloropyrifos (EPA 440/5-86-005).

pp This value is based on a 304(a) aquatic life criterion that was issued in the *1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water* (EPA-820-B-96-001). This value was derived using the GLI Guidelines (60FR15393-15399, March 23, 1995; 40CFR132 Appendix A); the differences between the 1985 Guidelines and the GLI Guidelines are explained on page iv of the 1995 Updates. No decision concerning this criterion was affected by any considerations that are specific to the Great Lakes.

qq The derivation of this value is presented in the Red Book (EPA 440/9-76-023, July, 1976).

rr According to page 181 of the Red Book (EPA 440/9-76-023, July, 1976):
For open ocean waters where the depth is substantially greater than the euphotic zone, the pH should not be changed more than 0.2 units from the naturally occurring variation or any case outside the range of 6.5 to 8.5. For shallow, highly productive coastal and estuarine areas where naturally occurring pH variations approach the lethal limits of some species, changes in pH should be avoided but in any case should not exceed the limits established for fresh water (i.e., 6.5-9.0).

Table 4. Footnotes

ss A 24-hour average not to be exceeded.

tt This human health criterion is the same as originally published in the Red Book (EPA 440/9-76-023, July, 1976) that predates the 1980 methodology and did not utilize the fish ingestion BCF approach. This same criterion value is now published in the Gold Book (EPA 440/5-86-001, 1986).

uu This letter is not used as a footnote.

vv There are no criteria due to the absence of criteria recommendations.

ww A 4-day average concentration not to be exceeded more than once every three years on the average. If the CCC for mercury exceeds 0.012 ug/l more than once in a 3-year period in the ambient water, the edible portion of aquatic species of concern must be analyzed to determine whether the concentration of methylmercury exceeds the FDA action level.

xx These criteria are based on the total-recoverable fraction of the metal.

(d) Criteria for toxic and other substances with toxic propensities not listed in subsection (c) of this section shall be determined in consideration of *USEPA's National Recommended Water Quality Criteria, 2006*, and as revised, and other relevant information as appropriate.

(e) Risk-based criteria for carcinogenic substances shall be selected such that the upper-bound excess cancer risk is less than or equal to one in one million.

17 LAR 07.050 Radioactive Substances

(a) Radioisotope concentrations in all waters shall not exceed concentrations that result in a significant hazard to humans.

(b) Deleterious concentrations of radioactive materials for all classes shall be as determined by the lowest practicable concentration attainable and in no case shall exceed:

(1) Gross Alpha Particle Activity - 15 picocuries per Liter (pCi/L)
(2) Gross Beta Particle and Photon Emitters Activity - 4 millirems per year
(3) Radium 226 and 228 (combined) - 5 pCi/L
(4) Uranium – 30 μg/L
(5) USEPA Drinking Water Regulations for radionuclides, as published in the Federal Register of July 9, 1976, or subsequent revisions thereto.

(c) Nothing in these regulations shall be interpreted to be applicable to those aspects of governmental regulation of radioactive wastes which have been preempted from Lummi Nation regulation by the Atomic Energy Act of 1954, as amended, as interpreted by the United States Court in the cases of *Northern States Power Co. v. Minnesota 405 U.S. 1035 (1972) and Train v. Colorado Public Interest Research Group, 426 U.S. 1 (1976).*

17 LAR 07.060 General Considerations

The following general guidelines shall apply to the water quality criteria and classifications set forth in 17 LAR 07.030 through 17 LAR 07.170 hereof:

(a) At the boundary between waters of different classifications, the more stringent water quality standards shall prevail.

(b) In determining compliance with the fecal coliform criteria in 17 LAR 07.030, averaging of data collected beyond a 30-day period, or beyond a specific discharge event under investigation, shall not be permitted when such averaging would skew the data set so as to mask noncompliance periods.

(c) The water quality criteria herein established for total dissolved gas shall not apply when the stream flow exceeds the seven-day, ten-year frequency flood.

(d) In the application of the criteria, due consideration will be given by the Director to the precision and accuracy of the sampling and analytical methods used as well as existing conditions at the time.

(e) The analytical testing methods for these criteria shall be in accordance with the *Guidelines Establishing Test Procedures for the Analysis of Pollutants (40 C.F.R. Part 136)* and other or superseding methods published and/or approved by the LIBC following consultation with adjacent tribes or states and concurrence of the USEPA.

(f) Whenever the natural conditions of waters are of a lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria.

(g) Any revisions made to these water quality standards regulations are not in effect until they have been incorporated into this chapter through the regulation development and approval process described in Title 17 (Water Resources Protection Code) of the Lummi Code of Laws and approved by the USEPA.

17 LAR 07.070 Antidegradation

The antidegradation policy of the Lummi Nation is the following:

(a) In all surface waters of the Lummi Indian Reservation, existing uses and the level of water quality necessary to protect the existing uses shall be maintained and protected. Where designated uses of the water body are impaired, there shall be no lowering of water quality with respect to the pollutant or pollutants that are causing or contributing to the impairment.

(b) Water quality shall be maintained and protected in waters designated as Outstanding Resource Waters in 17 LAR 07.080. Where waters constitute an outstanding resource water, the water quality and uses shall be maintained and protected and pollutants that will reduce the existing quality thereof shall not be allowed to enter such waters. To

accomplish this the Director may require water quality controls, maintenance of natural flow regimes, protection of instream habitats, and pursuit of land use practices protective of the watershed.

(c) Where the quality of the waters exceeds levels necessary to support propagation of fish and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the Director finds, after the Lummi Nation's intergovernmental coordination and public participation provisions have been met, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the Lummi Nation shall assure water quality adequate to fully protect existing uses. Further, the Lummi Nation shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all approved, cost-effective, and reasonable best management practices for nonpoint source control.

(d) In those cases where potential water quality impairments associated with thermal discharge are involved, the Antidegradation Policy and implementing methods shall be consistent with Section 316 of the Clean Water Act, as amended.

17 LAR 07.080 Outstanding Resource Waters

(a) Waters meeting one or more of the following criteria shall be considered for Outstanding Resource Water designation. Designations shall be adopted in accordance with Title 17 of the Lummi Code of Laws.

(1) Documented aquatic habitat of priority species as determined by the Director.

(2) Documented critical habitat for populations of threatened or endangered species of native anadromous fish.

(3) Waters of exceptional recreational, ceremonial, cultural, or ecological significance.

(4) Waters supporting priority species as determined by the Lummi Nation.

17 LAR 07.090 Mixing Zones

(a) The allowable size and location of a mixing zone and the associated effluent limits shall be established in waste discharge permits, permits, or orders, as deemed appropriate by the Director to ensure that a mixing zone does not impair the integrity of the waterbody as a whole, there is no lethality to organisms passing through a mixing zone, and there are no significant human health risks considering likely pathways of exposure. All mixing zone determinations must comply with the following:

(1) Water quality shall not be violated outside of the boundary of a mixing zone as a result of the discharge for which the mixing zone was authorized.

(2) The discharger shall be required to fully apply AKART prior to being authorized a mixing zone.

(3) Mixing zone determinations shall include critical discharge conditions. For the CMC, the critical discharge condition is the lowest one-day flow with an average recurrence frequency of once in 10 years (1Q10) determined hydrologically. For the CCC, the critical discharge condition is the lowest average 7 consecutive day low flow with an average recurrence frequency of once in 10 years (7Q10) determined hydrologically.

(4) No mixing zone shall be granted unless the historic and current information clearly indicates that the mixing zone would not have a reasonable potential to cause a loss or impair recovery of sensitive or important habitat or aquatic life, to substantially interfere with the beneficial existing or beneficial characteristic uses of the water body, to result in damage to the ecosystem, or to adversely affect public health as determined by the Director.

(5) The size of a mixing zone and the concentrations of pollutants present shall be minimized.

(b) The maximum size of a mixing zone shall comply with the following:

(1) In rivers and streams, mixing zones, singularly or in combination with other mixing zones, shall comply with the most restrictive combination of the following (this size limitation may be applied to estuaries having flow characteristics that resemble rivers):

(A) Not extend in a downstream direction for a distance from the discharge port(s) greater than 300 feet plus the depth of water over the discharge port(s), or extend upstream for a distance of over 100 feet;
(B) Not utilize greater than 25 percent of the flow; and
(C) Not occupy greater than 25 percent of the width of the water body.

(2) In estuaries, mixing zones, singularly or in combination with other mixing zones, shall:

(A) Not extend in any horizontal direction from the discharge port(s) for a distance greater than 200 feet plus the depth of water over the discharge port(s) as measured during mean lower low water; and
(B) Not occupy greater than 25 percent of the width of the water body as measured during mean lower low water. For the purpose of this section, all marine waters of the Lummi Reservation are considered estuarine.

(3) In lakes, and in reservoirs having a mean detention time greater than 15 days, mixing zones shall not be allowed unless it can be demonstrated to the satisfaction of the Director that:

(A) Other siting, technological, and managerial options that would avoid the need for such a mixing zone are not reasonably achievable and
(B) Overriding beneficial considerations of the public interest will be served.

(4) In lakes, and in reservoirs having a mean detention time greater than 15 days, mixing zones that meet conditions in subsection (b)(3) of this section, singularly or in combination with other mixing zones, shall comply with the most restrictive combination of the following:

(A) Not exceed 10 percent of the water body volume;
(B) Not exceed 10 percent of the water body surface areas (maximum radial extent of the plume regardless of whether it reaches the surface); and
(C) Not extend beyond 15 percent of the width of the water body.

(c) Acute criteria are based on numeric criteria and toxicity tests approved by the Director, as generally guided under 17 LAR 07.040, and shall be met at the point of discharge to surface waters of the Lummi Indian Reservation, unless it can be demonstrated to the Director's satisfaction that the concentration of, and duration and frequency of exposure to the discharge, will not create a barrier to the migration or translocation of indigenous organisms, nor dislodge indigenous organisms to a degree that has the potential to cause

damage to the ecosystem. If a mixing zone is allowed, a zone of acute criteria exceedance shall singularly or in combination with other such zones comply with the following maximum size requirements. Compliance shall be determined by monitoring data or calibrated models approved by the Director utilizing representative dilution ratios at the discretion of the Director.

(1) In rivers and streams, a zone where acute criteria may be exceeded shall comply with the most restrictive combination of the following (this size limitation may also be applied to estuaries having flow characteristics resembling rivers):

(A) Not extend beyond 10 percent of the distance to the upstream and downstream boundaries of an authorized mixing zone, as measured independently from the discharge port(s):
(B) Not utilize greater than 2.5 percent of the flow; and
(C) Not occupy greater than 25 percent of the width of the water body.

(2) In estuarine waters, a zone where acute criteria may be exceeded shall not extend beyond 10 percent of the distance established in subsection (b)(2) of this section, as measured independently from the discharge port(s).

(3) In lakes, and in reservoirs having a mean detention time greater than 15 days, mixing zones where acute criteria may be exceeded shall not be allowed.

(d) Overlap of mixing zones

(1) Where allowing the overlap of mixing zones would result in a combined area of water quality criteria nonattainment that does not exceed the numeric size limits established under subsection (b) of this section, the overlap may be permitted if:

(A) The separate and combined effects of the discharges can be reasonably determined; and
(B) The combined effects would not create a barrier to the migration or translocation of indigenous organisms, nor dislodge indigenous organisms to a degree that has the potential to cause damage to the ecosystem.

(2) Where allowing the overlap of mixing zones would result in exceedance or the numeric size limits established under subsection (b) of this section, the overlap may be allowed only where:

(A) The overlap qualifies for exemption under subsections (f) and (g) of this

section; and

(B) The overlap meets the requirements established in (1) of this subsection regarding the overlap of mixing zones.

(e) Storm water

(1) Mixing zones for storm water discharge from any "point source" containing "process wastewater" as defined in 40 C.F.R. Part 122.2 shall fully conform to the numeric size criteria in subsections (b) and (c) of this section and the overlap criteria in subsection (d) of this section.

(2) Mixing zones for storm water discharges not described by (1) of this subsection may be granted an exemption to the numeric size criteria in subsections (b) and (c) of this section and the overlap criteria in subsection (d) of this section, provided the discharger clearly demonstrates to the Director's satisfaction that:

(A) All appropriate best management practices established for storm water pollutant control have been applied to the discharge;

(B) The proposed mixing zone shall not have a reasonable potential to result in a loss of sensitive or important habitat, substantially interfere with the existing or characteristic uses of the water body, result in damage to the ecosystem, or adversely affect public health as determined by the Director; and

(C) The proposed mixing zone shall not create a barrier to the migration or translocation of indigenous organisms to a degree that has the potential to cause damage to the ecosystem.

(3) All mixing zones for storm water discharges shall be based on a volume of runoff corresponding to a design storm approved by the Director. Exceedances from the numeric size criteria in subsections (b) and (c) of this section and the overlap criteria in subsection (d) of this section due to precipitation events greater than the approved design storm may be allowed by the Director, if it would not result in adverse impact to existing or characteristic uses of the water body or result in damage to the ecosystem, or adversely affect public health as determined by the Director.

(f) Exceedances from the numeric mixing zone size criteria in subsections (b), (c), or the overlap criteria in subsection (d) of this section may be considered by the Director in the following cases:

(1) For discharges existing prior to _____, **[date the standards are adopted]** (or for proposed discharges with engineering plans formally approved by the Director prior to _____ **[date the standards are adopted]**);

(2) Where altering the size configuration is expected to result in greater protection to existing or characteristic beneficial uses;

(3) Where the volume of water in the effluent is providing a greater benefit to the existing or characteristic beneficial uses of the water body due to flow augmentation than the benefit of removing the discharge, if such removal is the remaining feasible option; and

(4) Where the exceedance is demonstrated to be necessary to accommodate overriding beneficial considerations of the public interest or social development in the area in which the waters are located.

(g) Before an exceedance from the numeric size criteria may be allowed in subsections (b) or (c) of this section or the overlap criteria in subsection (d) of this section may be allowed under subsection (f) of this section, it must clearly be demonstrated to the Director's satisfaction that:

(1) AKART appropriate to the discharge is being fully applied;

(2) All siting, technological, and managerial options that would result in full or significantly closer compliance and that are economically achievable are being utilized; and

(3) The proposed mixing zone complies with subsection (a) of this section.

(h) Any exemptions granted under subsection (f) of this section to the size criteria shall be reexamined during each permit renewal period for changes in compliance capability. Any significant increase in capability to comply shall be reflected in the renewed discharge permit.

(i) The Director may establish permit limits and measures of compliance for human based criteria (based on lifetime exposure levels), independent of this section.

17 LAR 07.100 Short-Term Exceedences

(a) The criteria and special conditions established in 17 LAR 07.030 through 17 LAR 07.170 may be modified for a specific water body on a short-term basis when necessary to accommodate essential activities, respond to emergencies, or to otherwise protect beneficial public interests, even though such activities may result in a temporary reduction of water quality conditions below the criteria and classifications established by this regulation. Such activities must be conditioned, timed, and restricted to hours or days rather than months in a manner that will minimize water quality degradation to existing and designated characteristic uses. In no case will any degradation of water quality be allowed if this degradation significantly interferes with or becomes injurious to designated characteristic uses or causes long-term harm to the environment.

(b) If allowed, such short-term exceedences shall be issued as a permit in writing by the Director or his/her designee subject to such terms and conditions as he/she may prescribe.

(c) A short-term exceedence will in no way lessen or remove the project proponent's obligations and liabilities under other federal and Lummi Nation rules and regulations.

(d) The need for repeated, individual, short-term exceedences that each confirm with 17 LAR 07.100(a) can be authorized by the Director for the duration of the activity requiring exceedence, where the activity is part of an on-going or long-term operation and maintenance plan, integrated pest or noxious weed management plan, water body or watershed management plan, or restoration plan. Such a plan must be developed through a public involvement process consistent with the Title 27 (Administrative Code) and Title 15 (Land Use Zoning and Development Code) of the Lummi Code of Laws. The duration of the authorization for repeated, individual, short-term exceedences shall generally be generally be one year or less, but may extend to five years. The authorization for repeated, individual short-term exceedences may be terminated at any time at the discretion of the Director.

(e) The aquatic application of herbicides that result in water use restrictions shall be considered an activity for which a short-term exceedences generally may be issued subject to the following conditions:

(1) A request for a short-term exceedences shall be made to the Director on forms supplied by the Director. Such a request shall be made at least 30 days prior to any proposed herbicide application, unless there is an unforeseen and critical need whereupon lesser prior notice at the discretion of the Director may suffice. Such

request(s) shall be made after the project proponent has complied with the permitting requirements of Title 15 of the Lummi Code of Laws (Land Use Zoning and Development Code);

(2) Such herbicide application shall be in accordance with related Federal or Lummi Nation regulations that, at the determination of the Director, best effectuate the purposes of these standards;

(3) Such herbicide application shall be in accordance with label provisions promulgated by USEPA under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended (7 U.S.C. 136, et seq.) and shall be performed by a licensed aquatic herbicide applicator;

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(4) Notice, including identification of the herbicide, applicator, location where the herbicide will be applied, proposed timing and method of application, and water use restrictions shall be provided according to the following requirements:

(A) Appropriate public notice as determined and prescribed by the Director or his/her designee shall be given of any water use restrictions specified in USEPA label provisions;
(B) The appropriate offices of the Lummi Nation shall be notified again, and at least 24 hours prior to herbicide application; and
(C) In the event of any fish kills, the Director shall be notified immediately.

(5) The herbicide application shall be made at times so as to:

(A) Minimize public water use restrictions during weekends; and

(B) Completely avoid public water use restrictions during the fishing season, Memorial Day weekend, Independence Day weekend, Stommish Festival, and Labor Day weekend.

(6) Any additional conditions as may be prescribed by the Director or his/her designee.

(f) The turbidity criteria established under 17 LAR 07.030 shall be modified to allow a temporary mixing zone during and immediately after necessary in-water or shoreline construction activities that result in the disturbance of in-place sediments. A temporary turbidity mixing zone is subject to the constraints of 17 LAR 07.090(a)(4) and (5) and is authorized only after the activity has received all other necessary Lummi Nation permits

and approvals, and after the implementation of appropriate best management practices to avoid or minimize disturbance of in-place sediments and exceedances of the turbidity criteria. A temporary turbidity mixing zone shall be as follows:

(1) For waters up to 10 cfs flow at the time of construction, the point of compliance shall be one hundred feet downstream from the activity causing the turbidity exceedence.

(2) For waters above 10 cfs up to 100 cfs flow at the time of construction, the point of compliance shall be two hundred feet downstream of the activity causing the turbidity exceedance.

(3) For waters above 100 cfs flow at the time of construction, the point of compliance shall be three hundred feet downstream of the activity causing the turbidity exceedance.

(4) For projects working within or along lakes, ponds, wetlands, estuaries, marine waters, or other nonflowing waters, the point of compliance shall be at a radius of one hundred fifty feet from the activity causing the turbidity exceedance.

17 LAR 07.110 Variances

(a) The criteria established in 17 LAR 07.030 through 17 LAR 07.060 may be modified for individual facilities, or specified stations of Lummi Nation Waters, through the use of a variance. Variances may be approved by the Director when:

(1) The modification is consistent with the requirements of federal law (currently 40 CFR 131.10(g) and 131.10(h));
(2) The water body is assigned variances for specific criteria and all other applicable criteria must be met; and
(3) Reasonable progress is being made toward meeting the original criteria.

(b) The decision to approve a variance is subject to a public and intergovernmental involvement process as described in Section 17.02 of the Lummi Code of Laws Water Resources Protection Code (Title 17) and approved by the USEPA.

(c) The Director may issue a variance for up to five years, and may renew the variance after providing for another opportunity for public and intergovernmental involvement and review.

17 LAR 07.120 Site Specific Criteria

(a) Where the attainable condition of existing and designated classes for the water body would be fully protected using alternative criteria, site-specific criteria may be adopted.

(1) The site-specific criterion must be consistent with the federal regulations on designating and protecting classes (currently 40 CFR 131.10 and 131.11); and

(2) The decision to approve a site-specific criteria must be subject to a public involvement and intergovernmental coordination process as described in Section 17.02 of the Lummi Code of Laws Water Resources Protection Code (Title 17) and approved by the USEPA.

(b) The site-specific analyses for the development of new water quality criterion must be conducted in a manner that is scientifically justifiable and consistent with the assumptions and rationale in "*Guidelines for Deriving National Water Quality Criteria for the Protection of Aquatic Organisms and their Uses*," EPA 1985; and conducted in accordance with the procedures established in the "*Water Quality Standards Handbook*," EPA 1994, as revised.

(c) The decision to approve the site-specific criteria must be based on a demonstration that it will protect the existing and designated uses of the water body.

17 LAR 07.130 Use Attainability Analysis

(a) Removal of a designated use for a water body assigned in these regulations must be based on a Use Attainability Analysis (UAA). A UAA is a structured scientific assessment of the factors affecting the attainment of the use that may include physical, chemical, biological, and economic factors. A use can only be removed through a UAA if it is not existing or attainable.

(b) A UAA proposing to remove a designated use of a water body must be submitted to the Director in writing and include sufficient information to demonstrate that the use is neither existing nor attainable.

(c) A UAA must be consistent with the federal regulations on designating and protecting uses (currently 40 CFR 131.10).

(d) Subcategories of use protection that reflect the lower physical potential of the water body

for protecting designated uses must be based upon federal regulations (currently 40 CFR 131.10(c)).

(e) Allowing for seasonal uses where doing so would not harm existing or designated uses occurring in that or another season must be based upon federal regulations (currently 40 CFR 131.10(f)).

(f) After receiving a proposed UAA, the Director will determine whether to proceed toward rule making.

(g) The decision to approve a UAA is subject to a public involvement and intergovernmental coordination process as described in Section 17.02 of the Lummi Code of Laws Water Resources Protection Code (Title 17), including tribal consultation.

(h) The Water Resources Manager will inform the Lummi Natural Resources Commission during all stages of development and review of UAA proposals.

(i) The results of a UAA are not in effect until they have been incorporated into this chapter through the regulation development and approval process described in Title 17 (Water Resources Protection Code) of the Lummi Code of Laws and approved by the USEPA.

17 LAR 07.140 Water Quality Offsets

(a) A water quality offset occurs when a project proponent implements or finances the implementation of controls for point or nonpoint sources to reduce the levels of pollution for the purpose of creating sufficient assimilative capacity to allow new or expanded discharges. The purpose of water quality offsets is to sufficiently reduce the pollution levels of a water body so that a proponent's actions do not cause or contribute to a violation of the requirements of this chapter and so their actions result in a net environmental benefit. Water quality offsets may be used to assist an entity in meeting load allocations targeted under a pollution reduction analysis (such as a total maximum daily load) as established by the Director. Water quality offsets may be used to reduce the water quality effect of a discharge to levels that are unmeasurable and in compliance with the water quality antidegradation regulations of 17 LAR 07.070.

(b) Water quality offsets may be allowed by the Director when all of the following conditions are met:

(1) Water quality offsets must target specific water quality parameters.

(2) The improvements in water quality associated with creating water quality offsets for any proposed new or expanded actions must be demonstrated to have occurred in advance of the proposed action.

(3) The technical basis and methodology for the water quality offsets is documented through a technical analysis of pollutant loading, and that analysis is made available for review and approval by the Water Resources Director. The methodology must incorporate the uncertainties associated with any proposed point or nonpoint source controls as well as variability in effluent quality for sources, and must demonstrate that an appropriate margin of safety is included. The approach must clearly account for the attenuation of the benefits of pollution controls as the water moves to the location where the offset is needed.

(c) Point or nonpoint source pollution controls must be secured using binding legal instruments between any involved parties for the life of the project that is being offset. The proponent remains solely responsible for ensuring the success of offsetting activities for both compliance and enforcement purposes.

(d) Only the proportion of the pollution controls that occurs beyond existing requirements for those sources can be included in the offset allowance.

(e) Water quality offsets must meet antidegradation requirements in 17 LAR 07.070 and federal antibacksliding requirements in CFR 122.44(l).

17 LAR 07.150 General Classifications

General classifications that apply to various surface water bodies not specifically classified under 17 LAR 07.160 or 17 LAR 07.170 are as follows:

(a) All lakes and their tributary streams within the Lummi Indian Reservation are classified as Lake Class and Class AA respectively, except for those tributary streams specifically classified otherwise.

(b) All reservoirs with a mean detention time of greater than 15 days are classified as Lake Class.

(c) All reservoirs with a mean detention time of 15 days or less are classified the same as the river section in which they are located.

(d) All reservoirs established on preexisting lakes are classified as Lake Class.

(e) All unclassified surface waters of the Lummi Indian Reservation that are tributaries to Class AA waters are classified as Class AA. All other unclassified surface waters of the Lummi Indian Reservation are hereby classified as Class A.

(f) All water bodies and stream reaches not specifically classified as marine shall be classified as fresh.

17 LAR 07.160 Specific Classifications – Fresh Water

For the purposes of these water quality standards, the following water bodies or stream reaches are fresh waters (see Figure 1):

(a) Class AA

(1) Nooksack River (north from a line between Fish Point and Treaty Rock)
(2) Lummi River (east from Haxton Way)
(3) Jordan's Creek (north from North Red River Road)
(4) Schell Creek
(5) Unnamed creek that passes under Haxton Way just south of the Sea Ponds Aquaculture Facility access road.
(6) Onion Creek
(7) Smuggler Slough (north from Kwina Road)

(b) Summertime spawning, egg incubation, and fry emergence use

(1) No water bodies are currently assigned this use.

17 LAR 07.170 Specific Classifications – Marine Water

For the purposes of these water quality standards, the following water bodies or stream reaches are marine waters (see Figure 1):

(a) Class AA

(1) Lummi Bay
(2) Hale Passage
(3) Strait of Georgia
(4) Lummi River (west from Haxton Way)
(5) Jordans Creek (south from North Red River Road)
(6) Smuggler Slough (south from Kwina Road)
(7) Sandy Point Marina

(b) Class A

(1) Bellingham Bay
(2) Portage Bay
(3) Nooksack River (south from a line between Fish Point and Treaty Rock)

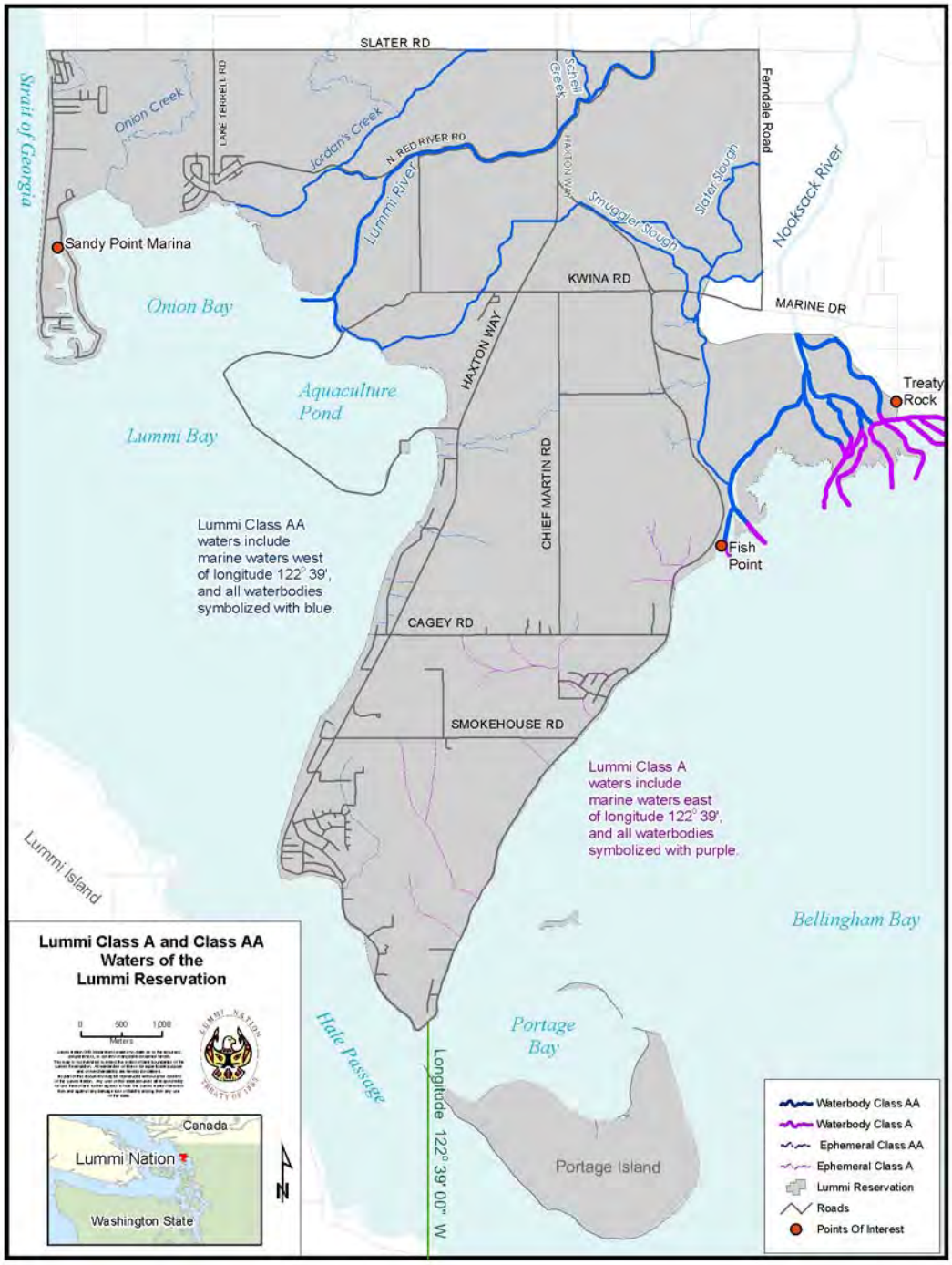

Figure 1. Water body classifications for the Lummi Nation Surface Water Quality Standards

17 LAR 07.180 Achievement Considerations

(a) To fully achieve and maintain the foregoing water quality on the Lummi Indian Reservation, it is the intent of the Director to apply the various implementation and enforcement authorities at its disposal, including participation in the programs of the Federal Clean Water Act (33 U.S.C. 1251 et seq.) as appropriate. It is also the intent that cognizance will be taken of the need for participation in cooperative programs with governmental agencies and private groups with respect to the management of related problems.

17 LAR 07.190 Implementation

(a) All activities which directly or indirectly discharge wastes into surface waters of the Lummi Indian Reservation, or otherwise adversely affect the quality of said waters, shall be in compliance with the waste treatment and discharge provisions of the Lummi Nation or the federal law, whichever, at the determination of the Director, best effectuates the purposes of these standards.

(b) Waste discharge permits, rules, orders, and directives issued by the Director or the EPA, whether issued pursuant to the National Pollutant Discharge Elimination System (NPDES) or otherwise, shall be conditioned so that the discharges authorized will meet the water quality standards at the point of discharge to surface waters of the Lummi Indian Reservation, except as provided for under 17 LAR 07.090 (Mixing zones), 17 LAR 07.100 (Short-term exceedences), or 17 LAR 07.180 (Achievement considerations).

(1) Permits, rules, orders, and directives issued by the Director or the EPA shall be subject to modification by the Director or the EPA, whichever issued the permit, rules, orders, or directives, whenever it appears to the Director or the EPA that the discharge violates water quality standards. Modification of permits, rules, orders, or directives, as provided herein, shall be subject to review in the same manner as the originally issued permits, rules, orders, or directives.

(2) However, persons discharging wastes in compliance with the terms and conditions of permits, rules, orders, or directives issued by the Director or the EPA shall not be subject to civil penalties on the basis that the authorized discharge violates water quality standards.

(3) Regulation 17 LAR 07.070 (Antidegradation) shall be fully applied for all

discharges of wastes to the surface waters of the Lummi Indian Reservation.

(c) Regulation of discharges from point sources, including municipal, commercial, and industrial operations.

(1) The primary means to be used for controlling point source waste discharges shall be through the issuance of waste discharge permits, in compliance with 17 LAR 07.090 (Mixing Zones) and 17 LAR 07.190 (Implementation) as provided for in the Lummi Code of Laws Water Resources Protection Code (Title 17) as amended and Section 402 of the Clean Water Act (33 U.S.C. 1342).

(2) Storm water discharge from any "Point source" containing "process wastewater" as defined in 40 C.F.R. Part 122.2 shall be considered a point source under subsection (c)(1) of this subsection.

(3) Storm water discharges not described by subsection (2) of this subsection shall comply with subsection (e) of this section.

(d) Regulation of miscellaneous point source waste discharge or sources that effect water quality.

(1) The Director shall, through the issuance of permits, directives, and orders, as are deemed appropriate by the Director, control miscellaneous waste discharges and sources that effect water quality not covered by subsection (c) of this section.

(2) The discharger shall be required to fully apply AKART prior to being authorized to discharge.

(e) Regulation of nonpoint source and storm water pollution.

(1) Activities that generate nonpoint source pollution or contribute to pollution of storm water shall be conducted so as to comply with these water quality standards. The primary means to be used for requiring compliance with these standards shall be through best management practices approved by the Director and required in land use permits issued pursuant to Title 15 of the Lummi Coe of Laws or through waste discharge permits, rules, orders, and directives issued by the Director for activities which generate nonpoint source pollution or storm water pollution.

(2) Best management practices shall be applied so that when all appropriate

combinations of individual best management practices are utilized, violation of water quality standards shall be prevented. If a discharger is applying all best management practices required by the Director, and a violation of water quality criteria occurs, the discharger shall modify existing practices or apply further water pollution control measures, approved by the Director, to achieve compliance with water quality criteria.

(A) Best management practices used for and established in permits, orders, rules, or directives of the Director, shall be periodically reviewed by the Director and modified, as appropriate, so as to achieve compliance with the water quality standards. Criteria for modification of best management practices shall include, but not be limited to, advances in pollution control, increased knowledge of receiving waters, and/or where best management practices are not or have not been sufficient to prevent violation of the water quality standards.

(f) Allowance for compliance schedules

(1) Permits, orders, rules, and directives of the Director for existing discharges may include a schedule for achieving compliance with water quality criteria contained in this chapter. Such schedules of compliance shall be developed to ensure final compliance with all water quality-based effluent limits in the shortest practicable time, but not to exceed 5 years. Decisions regarding whether to issue schedules of compliance will be made on a case-by-case basis by the Director. Schedules of compliance may not be issued for new discharges. Schedules of compliance may be issued to allow for:

(A) Construction of necessary treatment capability;

(B) Implementation of necessary best management practices;

(C) Implementation of additional storm water best management practices for discharges determined not to meet water quality criteria following implementation of an initial set of best management practices;

(D) Completion of necessary water quality studies; or

(E) Resolution of a pending water quality standards' issue through regulation-making action.

(2) For the period of time during which compliance with water quality criteria is deferred, interim effluent limitations shall be formally established, based on the best professional judgment of the Director.

(3) Prior to establishing a schedule of compliance, the Director shall require the discharger to evaluate the possibility of achieving water quality criteria via nonconstruction changes (e.g., facility operation, pollution prevention). Schedules of compliance may in no case exceed five years, and shall generally not exceed the term of any permit.

(g) Compliance schedules for dams

(1) All dams in the Lummi Indian Reservation must comply with the provisions of this chapter.

(2) For dams that cause or contribute to a violation of the water quality standards, the dam owner must develop a water quality attainment plan that provides a detailed strategy for achieving compliance. The plan must include:

(A) A compliance schedule that does not exceed ten years;

(B) Identification of all reasonable and feasible improvements that could be used to meet standards, or if meeting the standards is not attainable, then to achieve the highest attainable level of improvement;

(C) Any gas abatement plan approved by the Director;

(D) Analytical methods that will be used to evaluate all reasonable and feasible improvements;

(E) Water quality monitoring, which will be used by the Director to track the progress in achieving compliance with the Lummi Nation Water Quality Standards; and

(F) Benchmarks and reporting sufficient for the Director to track the applicant's progress toward implementing the plan within the designated time period.

(3) The plan must ensure compliance with all applicable water quality criteria, as well as any other requirements established by the Director (such as through a total maximum daily load, or TMDL, analysis).

(4) If the Director is acting on an application for a water quality certification, the approved water quality attainment plan may be used by the Director to determine that there is reasonable assurance that the dam will not cause or contribute to a violation of the water quality standards.

(5) When evaluating compliance with the plan, the Director will allow the use of models and engineering estimates to approximate design success in meeting the standards.

(6) If reasonable progress toward implementing the plan is not occurring in accordance with the designated time frame, the Director may declare the project in violation of the water quality standards and any associated water quality certification.

(7) If an applicable water quality standard is not met by the end of the time provided in the attainment plan, or after completion of all reasonable and feasible improvements, the owner must take the following steps:

(A) Evaluate any new reasonable and feasible technologies that have been developed (such as new operational or structural modifications) to achieve compliance with the standards, and develop a new compliance schedule to evaluate and incorporate the new technology; and

(B) After this evaluation, if no new reasonable and feasible improvements have been identified, then propose an alternative to achieve compliance with the standards, such as site specific criteria (17 LAR 07.120) or a water quality offset (17 LAR 07.140).

(8) New dams, and any modifications to existing facilities that do not comply with a gas abatement or other pollution control plan established to meet criteria for the water body, must comply with the water quality standards at the time of project completion.

(A) Structural changes made as a part of a Director-approved gas abatement plan to aid fish passage may result in system performance limitations in meeting water quality criteria for that parameter at other times of the year.

17 LAR 07.200 Surveillance

(a) A continuing surveillance program to determine whether the regulations, waste disposal permits, orders, and directives promulgated and/or issued by the Director are being complied with will be conducted by the Director's staff and USEPA as follows:

(1) Inspecting treatment and control facilities.

(2) Monitoring and reporting waste discharge characteristics.

(3) Monitoring receiving water quality.

(4) Monitoring ambient water quality.

17 LAR 07.210 Enforcement

(a) To ensure that the provisions of the standards for water quality promulgated herein, and the terms of waste discharge permits, permits, and other orders, rules, and directives of the Director are fully complied with, the following enforcement tools will be relied upon by the Director, in cooperation with the office of the Lummi Reservation Attorney as the Director deems appropriate:

(1) Issuance of notices of violation as provided for in the Lummi Code of Laws Water Resources Protection Code (Title 17).

(2) Levying of civil penalties as provided for in the Lummi Code of Laws Water Resources Protection Code (Title 17).

(3) Issuance of regulatory orders or directives as provided for in the Lummi Code of Laws Water Resources Protection Code (Title 17).

(4) Initiation of actions requesting injunctive or other appropriate relief in the court of the Lummi Nation (or other court with competent jurisdiction), as provided for in the Lummi Code of Laws Water Resources Protection Code (Title 17).