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.

December 8, 2017

Spokane Tribe of Indians Surface Water Quality Standards

Effective December 19, 2013

The attached WQS document is in effect for Clean Water Act (CWA) purposes except for the provisions discussed below on which **EPA disapproved**:

Underlined text indicates the language that was added by the 2010 water quality standards adoption. All text in strikeout has been disapproved by EPA.

- Section 6, Narrative Provisions, Provision 9
  - *"~~Site-specific numerical criteria as described in the Tribal Cleanup Law must be developed in the event these assumptions are incorrect. If natural background conditions exceed the risk criteria defined in this section, then the natural background conditions are the numerical standard.~~"*
- Section 6, Human Health Criteria in Table 1
  - The following human health criteria were disapproved and the criteria in effect for CWA purposes are listed below:

Compound	Proposed Water & Organisms Criteria (µg/L)	Proposed Organism Only Criteria (µg/L)	Criteria in Effect Water & Organisms (µg/L)	Criteria in Effect Organism Only (µg/L)
Asbestos	~~None~~	--	7 million fibers per liter > 10 µm in length (MFL)	--
Dichlorodifluoromethane	~~1.93E+03~~	~~4.32E+03~~	6.03E+03	4.33E+04
Mercury	~~1.1E-03~~	~~1.1E-03~~	1.10E-02	1.10E-02
Antimony	~~5.76E+00~~	~~3.24E+01~~	1.34E+01	3.24E+02
gamma BHC	~~4.53E-04~~	~~4.69E-04~~	3.99E-03	4.71E-03
Chlordane	~~4.41E-06~~	~~4.41E-06~~	4.42E-05	4.43E-05
Chlorobenzene	~~4.08E+02~~	~~1.57E+02~~	4.85E+02	1.57E+03
Cyanide	~~2.88E+02~~	~~1.62E+03~~	6.71E+02	1.62E+04
1,2-(o)Dichlorobenzene	~~1.21E+02~~	~~1.31E+02~~	9.27E+02	1.31E+03
1,4-(p)Dichlorobenzene	~~1.80E+01~~	~~1.95E+01~~	1.38E+02	1.95E+02
1,2-trans-Dichloroethylene	~~2.61E+02~~	~~1.02E+03~~	6.55E+02	1.03E+04
1,1-Dichloroethylene	~~1.32E-02~~	~~2.41E-02~~	4.70E-02	2.41E-01
1,3-Dichloropropylene	~~3.72E+00~~	~~1.27E+01~~	9.70E+00	1.27E+02
Endrin	~~6.11E-03~~	~~6.12E-03~~	6.09E-02	6.13E-02
Ethylbenzene	~~1.92E+02~~	~~2.16E+02~~	1.34E+03	2.16E+03
Hexachlorocyclopentadiene	~~6.32E+01~~	~~1.31E+02~~	2.06E+02	1.31E+03
Thallium	~~4.45E-02~~	~~4.62E-02~~	3.88E-01	4.63E-01
Toluene	~~1.06E+03~~	~~1.51E+03~~	4.79E+03	1.52E+04
1,2,4-Trichlorobenzene	~~6.82E+00~~	~~7.10E+00~~	5.91E+01	7.12E+01
Vinyl chloride	~~8.03E-01~~	~~3.98E+00~~	1.91E+00	3.98E+01
Cadmium	~~8.75E+00~~	--	None	None
Chlorine	~~1.75E+03~~	--	None	None
Chlorpyrifos	~~5.25E+01~~	--	None	None
Chromium III	~~2.63E+04~~	--	None	None
Chromium VI	~~5.25E+01~~	--	None	None

Compound	Proposed Water & Organisms Criteria (µg/L)	Proposed Organism Only Criteria (µg/L)	Criteria in Effect Water & Organisms (µg/L)	Criteria in Effect Organism Only (µg/L)
Copper	~~1.21E+01~~	~~1.21E+01~~	1.3E+03	None
Methoxychlor	~~1.65E+00~~	~~1.69E+00~~	1.0E+02	None
Tributyltin	~~1.73E-03~~	~~1.73E-03~~	1.74E-02	1.74E-02

- Section 6, Aquatic Life Criteria
    - The following aquatic life criteria were disapproved and the criteria in effect for CWA purposes are listed below:

Compound	Proposed Acute Criteria (µg/L)	Proposed Chronic Criteria (µg/L)	Acute Criteria in Effect (µg/L)	Chronic Criteria in Effect (µg/L)
Ammonia	~~2.4E+04~~	~~5.9E+03~~	24.1 mg N/L (total ammonia)*	4.15 mg N/L (total ammonia)**
Iron	--	~~None~~	--	1.00E+03
Pentachlorophenol	~~9.1E+00~~	~~5.7E+00~~	2.03E+01	1.28E+01
Tributyltin	--	~~6.3E-01~~	--	6.3E-02

*CMC (mg/L) = $\left(\frac{0.275}{1+10^{7.204-pH}}+\frac{39}{1+10^{pH-7.204}}\right)$

**CCC (mg/L) = $\left(\frac{0.0577}{1+10^{7.688-pH}}+\frac{2.487}{1+10^{pH-7.688}}\right)\times MIN\ (285, 1.45\text{x}10^{0.026\times[25-T]})$

- Section 9, Water Use and Criteria Classes, Provision 1(c) Temperature Provisions for Class AA waters
    - *Temperatures from June 1 to September 1 may be allowed to reach a 7-day average of the daily maximum (7-DADM) temperatures of 16.5°C.* ~~*Temperature shall not exceed the 7-DADM Table 5 value from September 1st through September 30th as well as from April 1st through May 31st.*~~ *The 7-DADM temperature shall not exceed 11°C between October 1st and March 31st.*
        - The underlined text above is in effect for CWA purposes. The text in strikeout was disapproved and is not in effect.

    - Table 5. Temperature Standards (degrees °C) for Class AA waters was disapproved in full.
        - The previously approved aquatic life temperature criteria are in effect for CWA purposes:
            - September 1 – October 1: 13.5°C 7-day average of the daily maximum temperatures (7DADM)
            - April 1 – June 1: 13.5°C (7DADM)

- Section 9, Water Use and Criteria Classes, Provision 2(c) Temperature Provisions for Class A Waters
    - (iv) ~~*temperatures (sic) from June 1 to August 31 may be allowed to reach a 7-day average (7-DADM) of the daily maximum temperature of 18.5 C. Temperature shall not exceed the 7-DADM Table 5 value from September 1st through September 30th as well as from April 1st through May 31st. The 7-DADM temperature shall not exceed 11°C between October 1st and March 31st.*~~
        - The previously approved temperature criteria is in effect for CWA purposes: Water used for spawning or rearing by naturalized populations of indigenous salmon or trout. Not to exceed a 7-day average of the daily maximum temperature values greater than 16.5 C

from June 1 to September 1. Not to exceed a 7-day average of the daily maximum temperature values greater than 13.5 C between September 1 and October 1 and between April 1 and June 1, and not to exceed 11 C from October 1 to April 1; with no single daily maximum temperature exceeding 18.5 C. Exception for Non-Anadromous Rainbow and Redband Trout. In waters where the only salmonid present is non-anadromous form of naturalized rainbow or redband trout. Temperatures from June 1 to September 1 may be allowed to reach a 7-day average of the daily maximum temperatures of 18.5 C.

- Table 5. Temperature Standards (degrees °C) for Class A waters was disapproved in full.
  - The previously approved aquatic life temperature criteria are in effect for CWA purposes as provided above.

This pdf file includes the following documents:

1. EPA. 12/19/2013. Letter from Dan Opalski, EPA to the Honorable Rudy Peone, Spokane Tribe. Letter transmits EPA's action on the Spokane Tribe revised 2010 WQS.
2. EPA. 12/11/2013. Technical Support Document for Action on the Revised Surface Water Quality Standards of the Spokane Tribe of Indians Submitted April 2010.
3. Spokane Tribe. 4/7/2010. Letter from Brian Crossley, Spokane Tribe to Michael Bussell, EPA transmitting the Spokane Tribes revised 2010 revised water quality standards.
4. Spokane Tribe. 4/7/2010. Attachment to 4/7/2010 letter. Copy of Spokane Tribe's final revised 2010 water quality standards (February 25, 2010).
5. Spokane Tribe. 2/2/2010. Redline/Strikeout version of Spokane Tribe's revised 2010 water quality standards relative to 2003 water quality standards.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF
WATER AND
WATERSHEDS

DEC 19 2013

The Honorable Rudy Peone
Chairman
Spokane Tribe of Indians
P.O. Box 100
Wellpinit, Washington 99040

Re: EPA's Action on the Spokane Tribe of Indians 2010 Revision to Their Surface Water Quality Standards

Dear Chairman Peone:

The U.S. Environmental Protection Agency (EPA) has completed its Clean Water Act (CWA) review of the new and revised water quality standards that the Spokane Tribe submitted to the EPA on April 7, 2010. Under CWA Section 303, 33 U.S.C § 1313, tribes that are authorized for treatment in a manner similar to a state for the purpose of administering a water quality standards program must establish water quality standards and submit them to the EPA for approval or disapproval. Likewise, revisions to a tribe's water quality standard must also be submitted to the EPA for approval or disapproval. A summary of the EPA's actions is provided below and further described in the enclosed *Technical Support Document for Action on the Revised Surface Water Quality Standards of the Spokane Tribe of Indians Submitted April 2010* (hereafter referred to as the TSD).

Summary of the EPA's Action

I. Pursuant to the EPA's authority under CWA Section 303(c) and implementing regulations found at 40 CFR Part 131, the EPA is approving the following provisions:

- Section 2, Definitions
  - 7-day average of the daily maximum
  - Federal clean up law
  - Mixing zone
  - Nonpoint source
  - Trophic state
- Section 6, Narrative Provisions
  - Provision 5 – application of non-carcinogenic material
  - Minor editorial changes
- Section 6, Human Health Criteria (µg/L) in Table 1
  - 160 of 210 new or revised criteria are being approved (see Section V.D.1, page 23 for a list of criteria that are approved).
- Section 9, Temperature Criteria for Class AA waters

  This provision is being approved in part and disapproved in part. The EPA is approving the part that states: "Temperatures from June 1 to September 1 may be allowed to reach a

7-day average of the daily maximum (7-DADM) temperatures of 16.5 C.....The 7-DADM temperature shall not exceed 11°C between October 1st and March 31st."

- Section 11, Surface Water Classification
  - Specific classification of Ente' Creek as Class AA, and correction of spelling of Chamokane (Tshimikain) Creek.
- Section 13, Mixing Zone Provision
  - The EPA is approving this provision but notes that there is a typographical error in provision (2)(c). This provision should reference subsection (e) rather than subsection (f). This should be corrected when the Tribe does its next water quality standards revision (i.e., provision (2)(c) should state "overlapping mixing zones shall only be allowed if, in combination, the requirements of subsection (e) are satisfied; and").

II. Pursuant to the EPA's authority under CWA Section 303(c) and implementing regulations found at 40 CFR Part 131, the EPA is disapproving the following provisions:

- Section 6, Narrative Provisions
  - Provision 9, which states "Site-specific numerical criteria as described in the Tribal Cleanup Law must be developed in the event these assumptions are incorrect. If natural background conditions exceed the risk criteria defined in this section, then the natural background conditions are the numerical standard."
- Section 6, Human Health Criteria (µg/L) in Table 1
  - Removal of Asbestos criterion from Table 1 (see Section V.D.2 of TSD, page 25).
  - Criteria for Dichlorodiflouromethane (Section V.D.3 of TSD, page 26), Mercury (Section V.D.4 of TSD, page 28), and 45 other criteria (Section V.D.5. Table 4 in the TSD for a list of the pollutants, page 29).
- Section 6, Aquatic Life Criteria in Table 1
  - Revisions to acute and chronic aquatic life ammonia criteria.
  - Revisions to acute and chronic aquatic life pentachlorophenol criteria.
    - Removal of chronic aquatic life criterion for iron.
- Section 9, Temperature Provisions for Class AA and Class A waters
  - Provision (1)(c)(4) for Class AA waters. This provision is being approved in part and disapproved in part. The EPA is disapproving the part that states: "Temperature shall not exceed the 7-DADM Table 5 value from September 1st through September 30th as well as from April 1st through May 31st." The EPA is also disapproving the associated temperature criteria for Class AA waters contained in Table 5.
  - Provision (2)(c)(iv), temperature revisions for Class A waters. The EPA is disapproving the entire provision, which states: "temperatures (sic) from June 1 to August 31 may be allowed to reach a 7-day average (7-DADM) of the daily maximum temperature of 18.5° C. Temperature shall not exceed the 7-DADM Table 5 value from September 1st through September 30th as well as from April 1st through May 31st. The 7-DADM temperature shall not exceed 11°C between October 1st and March 31st." The EPA is also disapproving the associated temperature criteria for Class A waters contained in Table 5.

III. The EPA is not taking action on the following provisions because they are not considered water quality standards under Section 303(c) of the CWA:

- Section 1, Introduction
  - New language in provision 4 and 6.
- Section 2, Definitions
  - 1-day maximum temperature
  - Background
  - Cumulative Risk
- Section 6, Narrative Provisions
  - Provisions 6 and 7 fish consumption rate and drinking water intake rate. The language in provision 6 and 7 provide two of the input values used by the Tribe to develop the human health criteria. The EPA incorporated this information into its analysis of the individual human health criteria. Because these two provisions do not operate as independent water quality standards, in isolation from the human health criteria, the EPA is taking no action to approve or disapprove them.
  - The EPA did not act on the following language in provision 9:
    "Table 1 is developed using the following assumptions:
    a. the receptor (e.g. human) receives a dose from a single contamination (e.g. cadmium) from a single medium (e.g. surface water) via direct ingestion of water or fish and waters; and
    b. the dose from natural background condition is negligible."

Additional information and a detailed discussion of the rationale supporting all of the EPA's actions is included in the enclosed TSD.

Background on the EPA's Evaluation of the Revised Human Health Criteria
The most significant change made in the Spokane Tribe's 2010 Water Quality Standards submittal was the Tribe's revisions to their human health toxics criteria, including the use of a new fish consumption rate of 865 grams per day and drinking water intake rate of 4 liters per day. As a result of these revisions, the Spokane Tribe's human health toxics criteria are generally more stringent than the default values recommended by the EPA in national guidance, which are provided to assist states and tribes who may not have the data or resources to develop their own criteria values. Due to the current public attention and interest in human health water quality criteria and how they are derived, a brief summary of the EPA's decision rationale for the human health criteria revisions is provided below. As previously noted, a more detailed discussion is provided in the enclosed TSD.

The EPA's regulations at 40 CFR § 131.11(a) provide that new or revised criteria "must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect designated uses." If these requirements are met, states and tribes are able to develop criteria that may be more (or less) stringent than those recommended by the EPA. The EPA evaluated the Spokane Tribe's revised human health criteria as follows:

- First, the EPA acknowledged the Tribe's decision to ensure water quality sufficient to support traditional subsistence practices, which is fundamentally a question of tribal policy and within

their authority under the CWA. The CWA does not require that decision to be justified by reference to the number of persons who currently rely on tribal waters for such purposes.

- Second, the EPA evaluated the scientific defensibility of the assumptions and methodology the Tribe used in deriving criteria to protect its water quality goals, including the derivation of fish consumption and drinking water rates characteristic of the Spokane Tribe's subsistence traditions.
- Third, the EPA evaluated whether the Tribe's criteria are sufficient to protect not only 304(a) fishable/swimmable goals but also the goal of protecting fish consumption and drinking water rates characteristic of the traditional Spokane subsistence lifestyle.

The EPA is approving the majority of the Tribe's revised human health criteria because the methodology used by the Tribe to develop the fish consumption rate, and other variables used in developing the criteria, are scientifically sound and sufficient to protect the designated uses, which are designed to protect fish consumption and drinking water rates characteristic of the traditional Spokane subsistence lifestyle. The EPA is disapproving some of the revised human health criteria because they were not scientifically defensible and were not protective of the Tribe's designated uses.

Remedy to Address the EPA's Disapproval Actions

Under CWA Section 303(c)(3) and the EPA's regulations at 40 CFR Sections 131.21 and 131.22, if the EPA disapproves a state or tribe's new or revised water quality standards, it must "specify the changes" necessary to meet the applicable requirements of the CWA and the EPA's regulations. As previously noted, a comprehensive summary of the EPA's actions and the specific changes necessary for each disapproval are included in the TSD.

The EPA has appreciated our work together throughout this process and we remain committed to providing assistance to the Tribe in its development of WQS that meet the requirements of the CWA and its implementing regulations. We also look forward to engaging with you and others in the Spokane River Basin to ensure thoughtful consideration of your WQS in water quality protection and improvement efforts. If you have any questions concerning this letter, please contact me at (206) 553-1855 or you may contact Angela Chung, Water Quality Standards Unit Manager, at (206) 553-6511.

Sincerely,

Daniel D. Opalski, Director
Office of Water and Watersheds

Enclosures

cc: Brian Crossley, Spokane Tribe of Indians
BJ Keiffer, Spokane Tribe of Indians

U.S. ENVIRONMENTAL PROTECTION AGENCY – REGION 10

Technical Support Document

for Action on the Revised Surface Water Quality Standards of the Spokane Tribe of Indians Submitted April 2010

December 11, 2013

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Contents

I. INTRODUCTION

This document provides the basis for EPA's decisions under the federal water quality standards regulations at 40 CFR § 131.11 and § 303(c) of the Clean Water Act (CWA) to approve or disapprove the new or revised water quality standards that the Spokane Tribe of Indians ("Tribe") submitted to EPA on April 7, 2010.

A. Background

In 2006, the Tribe began the process of revising the *Spokane Tribe of Indians Surface Water Quality Standards* (WQS). The Spokane Tribal Business Council (TBC), the governing body of the Tribe, adopted the draft revised WQS on July 29, 2008.

The Tribe provided a 45-day formal public comment period on the draft revisions, and held a public hearing on October 1, 2008. Additionally, an e-mail was sent to local governments and Spokane River stakeholders notifying interested parties of proposed changes, and notification was placed on the Washington Department of Ecology listserve.

Final revisions to the WQS were adopted by the TBC on February 25, 2010, by Resolution 2010-173. The Tribe's submittal included a letter dated March 15, 2010, from Ted C. Knight, Attorney-at-Law, certifying that the revisions were adopted in accordance with all applicable laws. In accordance with § 303(c) of the CWA, the Tribe submitted these revisions to EPA for review and action in a letter dated April 7, 2010.

The revisions addressed in today's decision can be divided into the general categories described below.

- Revisions to the Introductory language to the water quality standards
- New definitions
- Revised human health criteria based on consuming 865 g of fish per day and 4 liters of water per day
- Revised aquatic life criteria
- Revised temperature criteria for waters designated as Class AA and Class A
- New mixing zone provisions
- Minor editorial and formatting changes

B. Clean Water Act Requirements for Water Quality Standards

Under § 303(c) of the CWA and federal implementing regulations at 40 CFR § 131.4, states and authorized tribes[1] have the primary responsibility for reviewing, establishing, and revising WQS, which consist of the designated uses of a waterbody or waterbody segment, the water quality criteria necessary to protect those designated uses, and an antidegradation policy. This statutory framework allows states to work with local communities to adopt appropriate designated uses (as required in 40 CFR § 13l.10 (a)) and to adopt criteria to protect those designated uses (as required in 40 CFR § 131.11 (a)).

[1] The term "authorized tribe" means a tribe eligible under CWA § 518(e) and 40 CFR § 131.8 for treatment in a manner similar to a state for the purpose of administering a water quality standards program.

States are required to review applicable WQS, and as appropriate, modify and adopt these standards (40 CFR § 131.20). Each state must follow its own legal procedures for adopting such standards (40 CFR § 131.5) and submit certification by the state's attorney general or other appropriate legal authority within the state that the WQS were duly adopted pursuant to state law (40 CFR § 131.6(e)).

Section 303(c)(2)(B) of the CWA requires states to adopt water quality criteria for toxic pollutants listed pursuant to § 307(a)(1) for which EPA has published criteria under § 304(a) where the discharge or presence of these toxics could reasonably be expected to interfere with the designated uses adopted by the state. In adopting such criteria, states must establish numeric values based on one of the following:

(1) 304(a) guidance;
(2) 304(a) guidance modified to reflect site-specific conditions; or,
(3) Other scientifically defensible methods (40 CFR § 131.11 (b)(1)).

In addition, states can establish narrative criteria where numeric criteria cannot be determined or to supplement numeric criteria (see 40 CFR § 131.11(b)(2)).

Section 303(c) of the CWA also requires states to submit new or revised WQS to EPA for review. EPA is required to review these changes to ensure revisions to water quality standards are consistent with the CWA. EPA determines whether a provision is a new or revised WQS after considering the following four questions:[2]

(1) Is it a legally binding provision adopted or established pursuant to state or tribal law?
(2) Does the provision address designated uses, water quality criteria (narrative or numeric) to protect designated uses, and/or antidegradation requirements for waters of the United States?
(3) Does the provision express or establish the desired condition (e.g. uses, criteria) or instream level of protection (e.g. antidegradation requirements) for waters of the United States immediately or mandate how it will be expressed or established for such waters in the future?
(4) Does the provision establish a new WQS or revise an existing WQS?

Furthermore, the federal water quality standards regulations at 40 CFR § 131.21 state, in part, that when EPA disapproves a state's water quality standards, EPA shall specify the changes that are needed to ensure compliance with the requirements of § 303(c) of the CWA and federal water quality standards regulations.

II. INTRODUCTORY LANGUAGE (Section 1, Provisions 4 and 6)

A. Provisions that EPA Is Not Taking An Action On

The following presents the new and revised introductory language to the WQS contained in Section 1, provisions 4 and 6. All underlined text indicates language that is new and strikeout text indicates the language that was removed by the 2010 water quality standards adoption.

[2] See EPA's *What Is A New or Revised Water Quality Standard Under CWA 303(c)(3)? Frequently Asked Questions*, October 2012 at http://water.epa.gov/scitech/swguidance/standards/cwa303faq.cfm

...(4) These standards are designed to establish the uses for which the surface waters of the Spokane Tribe shall be protected, to prescribe narrative and numeric water quality criterion to sustain the designated uses, to protect existing water quality, and to prevent water quality degradation.

As part of this chapter:

(a) All surface waters are protected by narrative criteria, designates uses, and an antidegradation policy.

(b)Based on the use designations, numeric and narrative criteria are assigned to a water body to protect the existing and designated uses.

(c) Where multiple criteria for the same water quality parameter are assigned to a water body to protect different uses, the most stringent criteria for each parameter is to be applied.

(d) Where multiple contaminants of concern have been identified or where multiple media has been contaminated, or where more than one exposure pathway has been identified, water quality standards shall be determined using the cumulative risk assessment approach and definitions described in the Tribal Cleanup Law.

(5) The Water use and quality criteria set forth herein are established in general conformance with water uses of the surface waters of the Spokane Indian Reservation and in consideration of the natural water quality potential and limitations of the same.

(6) The Surface Water Quality Standards were first adopted by the Spokane Business Council on December 17, 1999 by Resolution 2000-105. As a result of public comments received after hearings were held on February 10, 2000, the standards were revised on June 19, 2000, by Resolution 2000-105. To address further comments these standards were again revised on February 13, 2001, by Resolution 2001-144. Finally, the standards were revised on March 7, 2003, by Resolution 2003-244 to address a technical correction identified by staff. These revised standards supersede and replace all previous standards. These revised standards supersede and replace the ~~June 19, 2000~~ all previous standards. These standards shall become effective on the date of adoption, and shall be applicable and in force, to the full extent of the law, until repealed or replaced by the Spokane Business Council.

EPA Action

Section I of the Tribe's water quality standards provides an introduction to the water quality standards language[3]. The introduction discusses the Executive Order confirming that the Spokane Reservation is reserved for the Spokane Tribe of Indians, describes the Tribe's authority to adopt standards, and sets forth the purposes of the standards. EPA acknowledges the new and revised language contained in provisions 4 and 6 of the introductory language. However, water quality standards are provisions of Tribal or Federal law that consist of designated uses for waters of the United States, water quality criteria necessary to protect those designated uses, and an antidegradation policy (40 CFR § 131.3(i)). Provision 4 is a general statement describing what the water quality standards are intended to achieve. The new language added to provision 4 is simply outlining what is contained in Sections 2 through 14 of the water quality standards (e.g., the water

[3] On April 22, 2003 EPA approved the Tribe's Original water quality standards. In that decision EPA did not act on any of the provisions contained in Section I because they were not considered water quality standards they are simply introducing concepts that are in the body of the water quality standards.

quality standards provisions outline in 4(c) and (d) are contained in Section 6, provision 9). Provision 6 merely discusses the history of various rulemakings. The provisions do not establish designated uses or criteria to protect the uses and as such are not a water quality standard under § 303(c) of the CWA. Therefore, EPA is not required to take an action on these provisions under the CWA.

III. DEFINITIONS (SECTION 2)

A. Definitions that EPA Is Not Taking An Action On

All new text is underlined and indicates the language that was added in the 2010 water quality standards adoption. EPA is not taking an action on the following definitions because they are not water quality standards:

1. ***"1-day maximum temperature" or "1-dm"****is the highest water temperature reached on any given day. This measure can be obtained using calibrated maximum/minimum thermometers or continuous monitoring probe having sampling intervals of thirty minutes or less.*

2. *"**Background**" means the natural three dimensional distribution of physico-chemical conditions associated with the volume of media in which the release occurred, prior to the release. In many instances, location immediately outside of the nature and extent of contamination can be used by the Department to determine background. In instances in which no such locations are available, the Department shall identify an "appropriate reference site or region."*

3. *"**Cumulative Risk**" means risk caused from post release doses from multiple pathways, multiple media (primary and secondary sources), and/or multiple hazardous substances. This definition is consistent with Tribal cleanup law.*

These three terms are not referenced in any provision within the Tribe's water quality standards. For example, the 1-day maximum temperature (1-dm) is a metric for temperature, however, the temperature criteria in the Tribe's water quality standards are expressed as a 7-day average of the daily maximum temperatures not a 1-day maximum. Because these terms are not used in any water quality criteria or provision, they do not establish a legally binding requirement under tribal law nor do they describe a desired ambient condition of a water body to support a particular designated use. Therefore, the terms and the associated definitions are not water quality standards subject to EPA review and approval under 303(c) of the CWA and EPA is taking no action to approve or disapprove these new terms and definitions.

EPA recommends the Tribe delete the terms and definitions from their water quality standards since they are not relevant.

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B. Definitions that EPA is Taking Action On

The following presents the new definitions contained in Section 2 of the WQS. All new text is underlined and indicates the language that was added in the 2010 water quality standards adoption.

1. ***"7-day average of the daily maximum temperatures or 7-DADM"*** *is the arithmetic average of seven consecutive measures of daily maximum temperatures. The 7-DADM for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date.*

EPA Action

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA approves the definition for "7-day average of the daily maximum temperatures or 7-DADM" because it is scientifically defensible, protective of the use, and consistent with § 303(c) of the CWA and its implementing regulations.

The 7-DADM metric is the metric used for temperature criteria in the Tribe's water quality standards. The 7-DADM metric is recommended for temperature standards by the USEPA *Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards* (EPA910-B-03-002, April 2003, hereafter referred to as the Temperature Guidance). The Temperature Guidance and the six Technical Issue Papers that serve as the scientific basis for the recommendations in this document may be found at: www.epa.gov/r10earth/temperature.htm.

The 7-DADM metric adequately protects aquatic life against acute[4] effects because it incorporates daily maximum temperatures. This metric can also be protective of chronic[5] effects to aquatic life because it describes the thermal exposure over 7 days. The Temperature Guidance considered both acute and chronic effects to fish when developing its recommended temperature criteria.

2. *"Federal clean up law" means the Comprehensive Environmental Response, Compensation and Liability Act, 42, U.S. Sec.9601, et seq."*

EPA Action

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA approves the definition for "Federal clean up law" because it is needed for the proper implementation of the Tribe's mixing zone policy, which defines the limited circumstances under which a mixing zone may be allowed.

3. *"Mixing zone" means that portion of a water body affected by the discharge of effluents in accordance with Section 13(2) of this chapter where mixing results in the dilution of the effluent with the receiving water.*

EPA Action

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA approves the definition for "mixing zone" because it provides information needed for the application and implementation of WQS. In addition, it is consistent with the definition incorporated into EPA guidance (Technical Support Document for Water Quality-based Toxics Control (EPA, March 1991)).

[4] Acute – a stimulus severe enough to rapidly induce an effect such as lethality.
[5] Chronic - a stimulus that lingers over a relatively long period of time. It is measured as reduced growth, reduced reproduction, lethality, etc.

4. *"Nonpoint source" means pollution that enters any waters of the reservation from any dispersed land based or water-based activities, including but not limited to atmospheric deposition, surface water runoff from agricultural lands, urban area, or forest lands, subsurface or underground sources, or discharges from boats or marine vessels not otherwise regulated under the National Pollutant Discharge Elimination System.*

EPA Action
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA approves the definition for "nonpoint source" because it is generally consistent with the EPA guidance (*NPDES Permit Writer's Manual*, EPA-833-K-10-001, September 2010).

5. *"Tribal clean up law" means the Hazardous Substances Control Act, Chapter 34, Law and Order Code of the Spokane Tribe of Indians.*

EPA Action
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA approves the definition for "Tribal clean up law" because the term is needed for the implementation of the Tribe's mixing zone policy, which defines the limited circumstances under which a mixing zone may be allowed.

6. *"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 sediment and may be based on total phosphorus (TP). Secchi depth and chlorophyll-a measurements may be used to improve the trophic state classification of a lake. Trophic states used in this rule include oligotrophic, lower mesotrophic, upper mesotrophic, and eutrophic.*

EPA Action
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA approves the definition for "trophic state" because it explains the term as it is used in the water quality standards.

IV. NARRATIVE PROVISIONS (SECTION 6, Provisions 5 through 9)

A. EPA Action on Narrative Provisions

The following presents the new and revised language to the WQS contained in Section 6, provisions 5 through 9. All underlined text indicates language that is new and strikeout text indicates the language that was removed by the 2010 water quality standards adoption.

~~*(5) The aquatic organism consumption rate utilized in determining the human health criteria shall be 86.3 g/day. This figures does not reflect the actual consumption rate typical of the Spokane Tribe of Indians, but has been used for the limited purpose of establishing these Surface*~~

~~*Water Quality Standards based on current EPA guidance (63 F.R. 43756). This rate may be modified to reflect consumption rate analysis specific to the Spokane Tribe.*~~

(5) Human-health risk-based criteria for non-carcinogenic material shall be applied such that the hazard index, as defined in the Tribal Cleanup Law for a given mixture, does not exceed 1.0.

~~*(6) The guidelines set forth in 40 CFR Part 136 shall be used as guidance for analytical methodologies.*~~

(6) The aquatic organism consumption rate utilized in determining the human health criteria shall be 865 g/day.

~~*(7) The criteria in Table 1 shall be applied to all surface waters of the tribe for the protection of aquatic life and human health. The concentration for each compound listed in Table 1 is a criterion for aquatic life or human health protection. Selecting values for regulatory purposes will depend on the most sensitive beneficial use to be protected and the level of protection necessary for aquatic life and human health as specified within Table 1. Application for a reduction in the list of compounds or elements must be based on proof that one or more of the proposed compounds are not of concern. Authorization of such a reduction is at the discretion of the Department. All concentrations, except asbestos, are micrograms per liter (µg/L).*~~

(7) The surface water consumption rate utilized in determining the human health criteria shall be 4 L/day.

(8) The guidelines set forth in 40 CFR Part 136 shall be used as guidance for analytical methodologies.

(9) The criteria in Table 1 shall be applied to all surface waters of the tribe for the protection of aquatic life and human health. The concentration for each compound listed in Table 1 is a criterion for aquatic life or human health protection. Table 1 is developed using the following assumptions:

a. the receptor (e.g. human) receives a dose from a single contaminant (e.g. cadmium) from a single medium (e.g. surface water) via direct ingestion of water or fish and water; and

b. the dose from natural background conditions is negligible,

Site-specific numerical criteria as described in the Tribal Cleanup Law must be developed in the event these assumptions are incorrect. If natural background conditions exceed the risk criteria defined in this section, then the natural background conditions are the numerical standard.

Selecting values for regulatory purposes will depend on the most sensitive beneficial use to be protected and the level of protection necessary for aquatic life and human health as specified within Table 1. Application for a reduction in the list of compounds or elements must be based on proof that one or more of the proposed compounds are not of concern. Authorization of such a reduction is at the discretion of the Department. All concentrations, except asbestos, are micrograms per liter (µg/L).

EPA Action

Section 6, Provision (5)

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA approves the new Provision (5), which states: *(5) Human–health risk-based criteria for non-carcinogenic material shall be applied such that the hazard index, as defined in the Tribal Cleanup Law for a given mixture, does not exceed 1.0.*

The hazard index (HI) is the sum of hazard quotients (HQs) for substances that affect the same target organ or organ system. Because different pollutants can cause similar adverse health effects, it may be appropriate to combine HQs associated with different substances. A HQ is the ratio of potential exposure to the substance and the level at which no adverse effects are expected. If the HQ is calculated to be less than 1 then no adverse effects are expected as a result of exposure. Similarly, aggregate exposures below a HI of 1.0 would likely not result in adverse non-cancer health effects.

EPA is approving this provision because it is a reasonable methodology to ensure that mixtures of chemicals do not adversely affect the human health uses adopted by the Tribe.

Section 6, Provisions (6) and (7)

Provision (6) provides the fish consumption rate used to develop the human health criteria and provision (7) provides the surface water consumption rate used to develop the human health criteria. EPA is not taking action on provisions (6) and (7) because the language does not establish a legally binding requirement under tribal law and it does not describe a desired ambient condition of a waterbody to support a particular designated use. Therefore it is not considered a WQS subject to EPA review and approval under 303(c) of the CWA.

EPA has addressed the new and revised human health criteria in Section 6, Table 1 of the tribal water quality standards in this technical support document. The language in provisions (6) and (7) explains two of the inputs used when the Tribe derived their human health criteria values (see Section 6, in Table 1 of the water quality standards for the human health criteria). EPA incorporated the explanatory information provided in these two provisions into its analysis of the individual human health criteria values in Section 6, Table 1. However, because these two provisions do not operate as independent water quality standards in isolation from the human health criteria values contained in Table 1, EPA is taking no action to approve or disapprove provisions (6) and (7).

It should be noted that the Tribe's 2003 water quality standards contained a provision which stated that the fish consumption rate of 86.3 g/d (in the 2003 WQS the fish consumption rate was in Section 6, provision 5, when the Tribe revised its water quality standards in 2010 some provisions were re-numbered, in the 2010 water quality standards the fish consumption rate is contained in provision 6) and in April 2003 EPA approved that provision. EPA hereby rescinds its 2003 approval of the fish consumption rate based on the above analysis.

Provision 9

EPA is not taking on action on part of Provision 9, and is disapproving part of Provision 9.

- EPA not taking action on the following new language added to provision 9 because it is not a water quality standard:

  Table 1 is developed using the following assumptions:

  a. the receptor (e.g. human)receives a dose from a single contamination (e.g. cadmium) from a single medium (e.g. surface water) via direct ingestion of water or fish and water; and

  b. the dose from natural background conditions is negligible.

EPA is not taking action on the above language because it does not establish a legally binding requirement under tribal law and it does not describe a desired ambient condition of a waterbody to support a particular designated use, therefore, it is not considered a WQS subject to EPA review and approval under 303(c) of the CWA. This language simply explains two of the assumptions used in developing criteria. EPA considered these assumptions in its analysis of the individual criteria values in Section 6, Table 1. But because these two assumptions do not operate as independent water quality standards, in isolation from the criteria values in Section 6, Table 1 of the tribal water quality standards (which EPA acted on individually), EPA is taking no action to approve or disapprove this new language in provision 9.

- In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA disapproves the following new language in Provision (9):

  Site-specific numerical criteria as described in the Tribal Cleanup Law must be developed in the event these assumptions are incorrect. If natural background conditions exceed the risk criteria defined in this section, then the natural background conditions are the numerical standard.

EPA is disapproving this language because it requires that the criteria be revised should the assumptions in Provision 9.a and 9.b be incorrect. While it may be appropriate to develop site-specific criteria, this provision does not require that the revised criteria be subject to a public involvement process, be adopted into the Spokane Tribal water quality standards, or be submitted to EPA for review and approval as required in 40 CFR Part 131.

EPA's water quality standards regulations do not provide specific requirements for establishing criteria based on natural background conditions. However, any water quality criteria adopted by states or tribes must be established based on a sound scientific rationale and assure protection of designated uses (see 40 CFR § 131.11(a)(1)). This would include establishing criteria based on natural background conditions.

EPA's November 1997 policy titled *Establishing Site Specific Aquatic Life Criteria Equal to Natural Background* recognized that there may be naturally occurring concentrations of pollutants which may exceed the national criteria published under § 304(a) of the CWA. This policy articulates that States and Tribes may establish site specific numeric aquatic life water quality criteria by setting the criteria value equal to the natural background of a waterbody.

Natural background is defined as the background water quality concentration due only to non-anthropogenic sources. The policy explains that "For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans."

In setting criteria equal to natural background, the policy recommends that "…the State or Tribe should, at a minimum, include in their water quality standards:

> (1) a definition of natural background consistent with the above;
> (2) a provision that site specific criteria may be set equal to natural background;
> (3) a procedure for determining natural background, or alternatively, a reference in their water quality standards to another document describing the binding procedure that will be used."

Furthermore, it explains that where the natural background concentration exceeds the state adopted human health criterion, at a minimum, the State or Tribe should re-evaluate the human health use designation. The policy states that "it does not apply to human health uses."

The Tribe has not developed guidance describing the binding procedure that would be used to determine the natural background. Additionally, the regulatory language in provision (9) allows the "natural background condition" to become the criterion for human health criteria as well as aquatic life uses.

Impacts to humans due to exposure to waterborne toxicants occur through three primary routes: contact recreation; drinking water; and ingestion of contaminated fish and shellfish tissues. The human health protection criteria are based on data regarding human absorption, distribution, metabolism, and excretion of toxic pollutants. Human health effects from toxicants are divided into categories based on the human biological endpoints observed as well as data on human acute, sub-acute, and chronic toxicity, synergistic and antagonistic effects, and specific information on human mutagenicity, teratogenicity, and carcinogenicity. In addition, the human health methodology used to develop human health criteria includes the contribution of other sources, such as dietary intake other than fish and air inhalation, in the assessment of total exposure to a pollutant.

The level of a naturally occurring pollutant does not necessarily protect human health or designated uses which may include people drinking directly from streams, and/or eating fish and shellfish. In cases where the natural condition exceeds the numeric criteria, an evaluation of whether the natural level would protect human health uses is needed. An evaluation of whether the human health uses are supported by the natural condition criterion would include an assessment of potential and known human exposure pathways and any risks to adverse human health effects of the pollutant at the natural condition concentrations. Because human exposure and health effects assessments are not part of this provision and no guidance for implementing its "natural background condition" provision has been developed, there is no evaluation as to whether or not the naturally occurring level protects human health uses. Consistent with the CWA and the federal regulations, the Tribe must assure that the water quality criteria provide protection to the designated uses.

EPA has determined that the new language in provision 9 (i.e., *Site-specific numerical criteria as described in the Tribal Cleanup Law must be developed in the event these assumptions are incorrect. If natural background conditions exceed the risk criteria defined in this section, then the natural background conditions are the numerical standard.)* is inconsistent with the CWA and the federal water quality standards regulations at 40 CFR § 131.l1(a), because this provision allows the Tribe to establish criteria based on natural conditions that do not assure protection of the designated human health uses in tribal waters. The level of a naturally occurring pollutant does not necessarily protect designated human health uses. Natural levels of a pollutant are assumed to protect aquatic life species which naturally occur in these waters. However, waterbodies are not the natural habitat for humans and therefore, the same assumptions of protectiveness cannot be made with regard to human health uses (e.g., people drinking directly from streams, eating fish or shellfish from tribal waters, and recreating in tribal waters). Therefore, the tribe has not demonstrated how its approach would protect designated human health uses. Additionally, as mentioned previously, the Tribe has not provided EPA with a binding procedure for determining natural background conditions as envisioned by EPA's November 1997 policy.

Remedy to Address EPA's Disapproval

To address this disapproval, the Tribe could delete the provision as the Tribe's approved numeric criteria are protective of designated uses. Additionally, the Tribe may use the natural condition provision in Section 3, Provision 2 of its water quality standards which states that the "…the Department may determine that the natural conditions shall constitute the water quality criteria." In a December 26, 2000 letter from Rudy Peone it was clarified that any natural condition criterion will be developed as a site specific criterion that would be submitted to EPA for review and approval.

Alternatively, the Tribe could revise the water quality standard to clarify that it applies only to aquatic life criteria and adopt into its WQS (directly or by reference) a binding methodology[6] that provides a transparent, predictable, repeatable, and scientifically defensible procedure for the protection of designated aquatic life uses. This approach, known as a "performance-based" approach, relies on the adoption of a systematic process (i.e., a criterion derivation methodology) rather than a specific outcome (i.e., concentration limit for a pollutant) consistent with 40 CFR § 131.11 and 131.13. EPA would need to review any such binding methodology that the Tribe develops as part of a performance-based approach. The performance-based approach could be used to derive site-specific adjustments to numeric criteria or to translate a narrative criterion into quantifiable measures. When such a performance-based approach is sufficiently detailed and has suitable safeguards to ensure predictable, repeatable outcomes, the EPA approval of such an approach also serves as approval of the outcomes as well. Note, however, that one approach is likely not suited to derive all pollutant targets and metrics given the breadth of pollutants over which the natural condition criterion applies. Individual methodologies for each pollutant or subsets of pollutants with similar sources and cycling would likely be necessary in order to ascertain the scientific defensibility of the methodology and the level of protection afforded to designated uses as a result of using the methodology.

[6] EPA 2000. *EPA Review and Approval of State and Tribal Water Quality Standards.* Federal Register: April 27, 2000 (Volume 65, Number 82); Rules and Regulations; Page 24641-24653. Procedures to identify opportunities by which their adoption of criteria, as well as EPA's approval, can be streamlined.

B. EPA Action On Editorial Changes Section 6, Provisions 5 through 9

Minor Editorial Changes made to Provisions 5 through 9

In addition to the new language added in Provisions (5) through (9) the provisions were re-numbered. EPA acknowledges the re-numbering of provisions (5) through (9) as minor editorial changes and approves them as non-substantive changes.

V. Human Health Criteria in Section 6, Table 1

Table 1, below, presents the new and revised human health criteria for "water and organisms" and for "organisms only" as well as the revised aquatic life criteria. All new or revised criteria included in the 2010 water quality standards adoption are underlined and are expressed as *µg/L*.

Compound	*Carcinogen?*	*Acute (a) Criteria*	*Chronic (b) Criteria*	*Water & Organisms*	*Organisms Only*
Acenaphthene	*n*			*1.97E+01*	*2.01E+01*
Acrolein	*n*			*5.75E+00*	*5.87E+00*
Acrylonitrile	*y*			*4.33E-03*	*5.00E-03*
Aldrin (e)	*y*	*3.0E+00*	*1.9E-03*	*1.02E-06*	*1.02E-06*
Aluminum (pH 6.5 - 9.0)	*n*	*7.5E+02*	*8.7E+01*	-----	-----
Ammonia, un-ionized (f, g)	*n*	*2.4E+04*	*5.9E+03*	-----	-----
Anthracene	*n*			*7.01E+02*	*8.09E+02*
Antimony	*n*			*5.76E+00*	*3.24E+01*
Arsenic (h)	*y*	*3.4E+02*	*1.5E+02*	*9.51E-04*	*1.05E-03*
Asbestos	*y*			*see footnote 1*	-----
Barium	*n*			*1.00E+03*	-----
Benz(a)anthracene	*y*			*3.2E-04*	*3.7E-04*
Benzene	*y*			*2.84E-01*	*5.37E-01*
Benzidine	*y*			*3.82E-06*	*4.02E-06*
Benzo(a)pyrene	*y*			*3.2E-04*	*3.7E-04*
3,4-Benzo(b)fluoranthene	*y*			*3.2E-04*	*3.7E-04*
Benzo(k)fluoranthene	*y*			*3.2E-04*	*3.7E-04*
alpha BHC	*y*			*9.54E-05*	*9.88E-05*
beta BHC	*y*			*3.34E-04*	*3.46E-04*
gamma BHC (e)	*y*	*9.5E-01*	*8.E-02*	*4.53E-04*	*4.69E-04*
Bis(2-chloroethyl) Ether	*y*			*6.38E-03*	*1.07E-02*
Bis(2-chloroisopropyl) Ether	*n*			*4.56E+02*	*1.31E+03*
Bis(2-chloromethyl)ether	*y*			*7.00E-05*	*5.84E-04*
Bis(2-ethylhexyl)phthalate	*y*			*4.29E-02*	*4.45E-02*
Bromoform	*y*			*1.22E+00*	*2.73E+00*
Butylbenzyl phthalate	*n*			*3.87E+01*	*3.91E+01*
Cadmium (j)	*n*	*3.7E+00*	*1.0E+00*	*8.75E+00*	-----
Carbon tetrachloride	*y*			*2.66E-02*	*3.32E-02*
Chlordane (e)	*y*	*2.4E+00*	*4.3E-03*	*4.41E-06*	*4.41E-06*

Compound	Carcinogen?	Acute (a) Criteria	Chronic (b) Criteria	Water & Organisms	Organisms Only
Chloride		8.6E+05	2.3E+05	-----	-----
Chlorine	n	1.9E+01	1.1E+01	1.75E+03	-----
Chlorobenzene	n			1.08E+02	1.57E+02
Chlorodibromomethane	y			1.15E-01	2.57E-01
Chloroform	y			1.58E+00	3.54E+00
2-Chloronaphthalene	n			3.13E+01	3.20E+01
2-Chlorophenol	n			2.92E+00	3.02E+00
Chlorpyrifos	n	8.3E-02	4.1E-02	5.25E+01	-----
Chromium (Hex)	n	1.5E+01	1.0E+01	5.25E+01	-----
Chromium (Tri)	n	5.5E+02	7.4E+01	2.63E+04	-----
Chrysene	y			3.20E-04	3.70E-04
Copper	n	1.3E+01	9.0E+00	1.21E+01	1.21E+01
Cyanide	n	2.2E+01	5.2E+00	2.88E+02	1.62E+03
4,4'-DDD	y			6.29E-06	6.29E-06
4,4'-DDE	y			4.44E-06	4.44E-06
4,4'-DDT	y	1.1E+00	1.E-03	4.44E-06	4.44E-06
Demeton	n		1.E-01	-----	-----
Dibenz(a,h)anthracene	y			3.20E-04	3.70E-04
Dibutyl phthalate	n			8.64E+01	9.09E+01
1,2-(o)Dichlorobenzene	n			1.21E+02	1.31E+02
1,3-(m)Dichlorobenzene	n			1.80E+01	1.95E+01
1,4-(p)Dichlorobenzene	n			1.80E+01	1.95E+01
3,3-Dichlorobenzidine	y			5.68E-04	5.76E-04
Dichlorobromomethane	y			1.56E-01	3.48E-01
Dichlorodifluoromethane	n			1.93E+03	4.32E+03
1,2-Dichloroethane	y			1.53E-01	7.41E-01
1,2-trans-Dichloroethylene	n			2.61E+02	1.02E+03
1,1-Dichloroethylene	y			1.32E-02	2.41E-02
2,4-Dichlorophenol	n			5.36E+00	5.96E+00
1,2-Dichloropropane	n			1.40E-01	2.97E-01
1,3-Dichloropropylene	n			3.72E+00	1.27E+01
Dieldrin	y	2.4E-01	1.9E-03	1.08E-06	1.08E-06
Diethyl phthalate	n			8.34E+02	8.87E+02
2,4-Dimethylphenol	n			1.64E+01	1.73E+01
Dimethyl phthalate	n			1.99E+04	2.25E+04
2,4-Dinitrophenol	n			2.64E+01	1.08E+02
2,4-Dinitotoluene	y			3.06E-02	6.78E-02
2,3,7,8-TCDD (Dioxin)	y			1.04E-10	1.04E-10
1,2-Diphenylhydrazine	y			3.43E-03	4.06E-03
alpha Endosulfan	n	2.2E-01	5.6E-02	1.77E+00	1.80E+00
beta Endosulfan	n	2.2E-01	5.6E-02	1.77E+00	1.80E+00
Endosulfan sulfate	n			1.77E+00	1.80E+00
Endrin	n	8.6E-02	2.3E-03	6.11E-03	6.12E-03
Endrin aldehyde	n			6.11E-03	6.12E-03
Ethylbenzene	n			1.92E+02	2.16E+02
Fluoranthene	n			2.80E+00	2.81E+00

Compound	Carcinogen?	Acute (a) Criteria	Chronic (b) Criteria	Water & Organisms	Organisms Only
Fluorene	n			9.35E+01	1.08E+02
Guthion	n		1.0E-02	-----	-----
Heptachlor	y	0.52e	3.8E-03	1.60E-06	1.61E-06
Heptachlor epoxide	y	0.52e	3.8E-03	7.94E-07	7.94E-07
Hexachlorobenzene	y			5.82E-06	5.82E-06
Hexachlorobutadiene	y			1.40E-01	3.73E-01
Hexachlorocyclopentadiene	n			6.32E+01	1.31E+02
Hexachloroethane	y			6.32E-02	6.65E-02
Indeno(1,2,3-cd)pyrene	y			3.20E-04	3.70E-04
Iron (1)	n			3.00E+02	
Isophorone	y			9.46E+00	1.94E+01
Lead (j)	n	6.5E+01	2.5E+00	-----	-----
Malathion	n		1.E-01	-----	-----
Manganese	n			-----	-----
Mercury (m)	n	1.4E+00	1.2E-02	1.1E-03	1.1E-03
Methoxychlor	n		3.E-02	1.65E+00	1.69E+00
Methyl bromide	n			1.35E+01	3.02E+01
2-Methyl-4,6-Dinitrophenol	n			3.12E+00	5.74E+00
Methylene chloride	y			1.95E+00	1.20E+01
Mirex	n		1.E-03	-----	-----
Nickel (j)	n	4.7E+02	5.2E+01	3.14E+01	3.44E+01
Nitrobenzene	n			5.38E+00	1.40E+01
N-Nitrosodimethylamine	y			3.41E-04	6.10E-02
N-Nitrosodi-n-propylamine	y			2.01E-03	1.02E-02
N-Nitrosodiphenylamine	y			1.17E-01	1.21E-01
N-Nitrosopyrrolidine	y			8.24E-03	7.01E-01
Parathion	n	6.5E-02	1.3E-02	----	----
PCB Total	y	2.0E+00	1.4E-02	1.30E-06	1.30E-06
Pentachlorobenzene	n			3.04E-02	3.05E-02
Pentachlorophenol (n)	y	9.1E+00	5.7E+00	4.32E-02	6.13E-02
Phenol	n			8.06E+03	3.47E+04
Pyrene	n			7.01E+01	8.09E+01
Selenium (NTSWQS)	n	2.0E+01	5.E+00	4.29E+01	8.43E+01
Silver (j)	n	3.4E+00		-----	-----
Sulfide - Hydrogen Sulfide	n		2.0E+00	-----	-----
1,1,2,2-Tetrachloroethane	y			4.20E-02	8.09E-02
Tetrachloroethylene	y			5.78E-02	6.65E-02
Thallium	n			4.45E-02	4.62E-02
Toluene	n			1.06E+03	1.51E+03
Toxaphene	y	7.3E-01	2.E-04	5.61E-06	5.62E-06
Tributyltin	n	4.6E-01	6.3E-01	1.73E-03	1.73E-03
1,2,4-Trichlorobenzene	n			6.82E+00	7.10E+00
1,1,2-Trichloroethane	y			1.56E-01	3.15E-01
Trichloroethylene	y			4.22E-01	6.06E-01
2,4,6-Trichlorophenol	y			4.76E-02	4.90E-02
Vinyl chloride	y			8.03E-01	3.98E+00

Compound	*Carcinogen?*	*Acute (a) Criteria*	*Chronic (b) Criteria*	*Water & Organisms*	*Organisms Only*
Zinc (j)	*n*	*1.1E+02*	*1.0E+02*	*4.70E+02*	*5.17E+02*

Footnote 1: The previously approved criterion was removed from Table 1in the 2010 water quality standards revision.

A. Human Health Criteria and Application to Spokane Tribe's Designated Uses

In the Tribe's WQS, each water body is assigned to a particular "Class." Fresh waters are designated as Class AA, Class A, or Lake Class waters. Each "Class" contains a suite of designated uses. A designated use of Class AA protects waters for:

- Primary contact ceremonial and spiritual
- Cultural
- Water supply (domestic, industrial, agricultural)
- Stock watering
- Fish and shellfish, including:
    - Salmonid migration, rearing, spawning, and harvesting.
    - Other fish migration rearing, spawning, and harvesting.
    - Clam, and mussel rearing, spawning, and harvesting.
    - Mollusks, crustaceans and other shellfish rearing, spawning, and harvesting
- Primary contact recreation
- Commerce and navigation

Class A and Lake Class waters are assigned the same designated uses as Class AA, except for the "Clam, mussel rearing, spawning and harvesting" sub-category which is listed under the Fish and shellfish designated use.

Additionally, the tribal standards (Section 10) state that waters not specifically identified as Class AA, A or Lake Class, shall be designated as Class A. Therefore, all tribal waters are protected for fish and shellfish, including harvesting, domestic water supply and recreation.

Furthermore, Section 6 (Toxic Pollutants), provision 9 of the Tribe's WQS states:

> (*9) The criteria in Table 1 shall be applied to all surface waters of the tribe for the protection of aquatic life and human health. The concentration for each compound listed in Table 1 is a criterion for aquatic life or human health protection….*

Table 1 of Section 6 (Toxic Pollutants) in the Tribes WQS provides the human health and aquatic life water quality criteria for toxic pollutants. The Tribe's "water + organism" criteria in Table 1 were established to limit the pollutant to levels that provide for the safe consumption of drinking water and fish. The "organism only" criteria in Table 1 were established to limit the pollutant to levels that provide for the safe consumption of fish and shellfish only; this does not include the consumption of water. The human health and aquatic life criteria apply to all surface waters on the reservation.
For human health protection, EPA recommends that states and tribes apply human health criteria for toxics to all waters with designated uses providing for public water supply protection (and therefore a potential water consumption exposure route), recreation, and/or aquatic life protection (and therefore a

potential fish consumption route).[7] The Tribe's approach is consistent with EPA's recommended approach.

The Tribe's 2010 revised human health criteria for toxic pollutants are developed, for the most part, pursuant to methods presented in EPA's 2000 Human Health Methodology.[8] This methodology protects human health from long-term exposure to toxic pollutants in drinking water and through eating fish containing these pollutants. These criteria take into consideration the cancer potency or systemic toxicity of a pollutant, the exposure related to surface water exposure and a risk characterization. The criteria calculations for non-carcinogens and carcinogens differ depending upon the exposure scenario for which the criteria are derived and are further described below.

EPA reviewed the Tribe's 2010 revised human health criteria for toxic pollutants to assess whether they were consistent with the CWA and its implementing regulations. EPA's evaluation focused on whether the criteria were consistent with 40 CFR § 131.11(a), which states that criteria must be based on sound scientific rationale and contain sufficient parameters or constituents to protect designated uses.

B. Criteria Methodology and Input Variables Used by the Tribe

Pursuant to CWA § 304(a), EPA has published recommended criteria for use by states and tribes in adopting and revising criteria.[9] For human health criteria, the values reflect the "national default" values for the risk assessment parameters provided in the 2000 Human Health Methodology, the reference dose values (RfD) contained in EPA's Integrated Risk Information System[10] (IRIS) at the time of publication, and the use of bioconcentration factors (BCFs) as opposed to site-specific bioaccumulations factors (BAFs).[11] While the 2000 Human Health Methodology provides national default values, it also provides necessary guidance to adjust criteria to reflect local conditions and encourages states and tribes to use the guidance to appropriately reflect local conditions and/or protect identifiable subpopulations.[12] The Tribe revised and adopted human health criteria that were derived, for the most part, using EPA's 2000 Human Health Methodology as well as local fish consumption and drinking water intake rates.

The risk assessment-based procedures EPA puts forth in the 2000 Human Health Methodology are

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[7] EPA 1994. *Water Quality Standards Handbook*. U.S. Environmental Protection Agency, Office of Water, Washington, D.C., EPA-823-B-94-005a. August 1994.

[8] EPA. 2000. *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health*. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. EPA 822-B-00-004

[9] EPA National Recommend Ambient Water Quality Criteria for the Protection of Aquatic Life and Human Health. Published pursuant to section 304(a) of the CWA. Available at: http://www.epa.gov/waterscience/criteria/wqctable/index.html.

[10] IRIS is a human health assessment program that evaluates information on health effects that may result from exposure to environmental contaminants. Through the IRIS program EPA provides the highest quality science-based human health assessments to support the Agency's regulatory activities.

[11] The 2000 Human Health Methodology recommends the use of national BAFs in the calculation of ambient water quality criteria. However, EPA has only provided guidance on the calculation of national BAFs; BAFs have not been calculated for individual pollutants. EPA uses BCFs in their nationally recommended criteria. States and Tribes have the option to use these BCFs or to calculate BAFs using EPA guidance documents. Development of BAFs is time and resource intensive and BAFs can vary from site to site. Thus it is difficult to develop BAFs on a national or statewide scale. Therefore, until BAFs are developed, EPA's national 304(a) human health recommendations continue to be based on the use of BCFs which reflect the uptake and retention of a pollutant by an aquatic organism from water alone (as opposed to a BAF which reflects the uptake of a pollutant from all sources [e.g., ingestion, sediment]).

[12] EPA. 2000. *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health*. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. EPA 822-B-00-004. Pages iii, 1-11.

specific to whether the endpoint is cancer or non-cancer. When using cancer as the critical risk assessment endpoint, the criteria are presented as a range of concentrations associated with specified incremental lifetime risk levels.[13] The following briefly provides the key features of each procedure. A simplified version of this equation is provided in Figure 1 below.

Figure 1. Simplified version of the equation used by the Tribe in deriving the human health criteria for carcinogens.

$$AWQC = \frac{(Risk\ Level \bullet BW)}{[CSF \bullet (DI + (FCR \bullet BAF))]}$$

where:

AWQC	=	Ambient Water Quality Criterion (milligrams per liter)
Risk Level	=	Risk level (unitless)
CSF	=	Cancer slope factor (milligrams per kilogram per day)
BW	=	Human body weight (kilograms)
DI	=	Drinking water intake (liters per day)
FCR	=	Fish Consumption Rate (kilograms per day)
BAF	=	Bioaccumulation factor (liters per kilogram)

*Note that criteria calculations for organism only criteria are not shown and can be derived by removing the drinking water intake (DI) term.

When using noncancer effects as the critical endpoint, the criteria reflect an assessment of a "no-effect" level. Criteria for non-carcinogenic pollutants are calculated through an equation that relies on pollutant-specific and general risk-assessment values for each parameter. A simplified version of this equation is provided in Figure 2 below.

[13] EPA's methodology recognizes that states and tribes have the flexibility to adopt human health criteria within a risk level range of 1 X 10^{-6} to 1 X 10^{-5} as long as highly exposed populations would be protected at a minimum of 1X 10^{-4} risk level (i.e., there is a 1:10,000 risk of getting cancer).

Figure 2. Simplified version of the equation used by the Tribe in deriving the human health criteria for non-carcinogens.

$$AWQC = RfD \bullet RSC \bullet \frac{(BW)}{[DI + (FCR \bullet BAF)]}$$

where:

AWQC	=	Ambient Water Quality Criterion (milligrams per liter)
RfD	=	Reference dose for noncancer effects (milligrams per kilogram per day)
RSC	=	Relative source contribution factor to account for non-water sources of exposure (unit less)
BW	=	Human body weight (kilograms)
DI	=	Drinking water intake (liters per day)
FCR	=	Fish Consumption Rate (kilograms per day)
BAF	=	Bioaccumulation factor (liters per kilogram)

*Note that criteria calculations for organism only criteria are not shown and can be derived by removing the drinking water intake (DI) term.

The Tribe's new and revised criteria were derived using the following input variables:

RfD: Most of values the Tribe used were values recommended by EPA in the 2002 and 2003 CWA § 304(a) criteria recommendations.[14, 15] Alternative values used by the Tribe will be discussed in more detail when EPA reviews specific human health criteria.

RSC: Most of the values the Tribe used were values recommended by EPA in the 2002 and 2003 CWA § 304(a) criteria recommendations.[16, 17] Alternative values used by the Tribe will be discussed in more detail when EPA reviews specific human health criteria.

BW: 70 kilograms[18] (value recommended by EPA).

DI: 4 liters per day (value reflects a subsistence lifestyle; EPA's review of the tribal value is presented below in section C).

[14] See: EPA. 2002. *National Recommended Water Quality Criteria 2002 – Human Health Criteria Calculation Matrix*. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. EPA 822-R-02-012. Available at: http://www.epa.gov/waterscience/criteria/wqctable/hh_calc_matrix.pdf.

[15] See: EPA. 2003. *National Recommended Water Quality Criteria for the Protection of Human Health*. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. *Federal Register*, Volume: 68, Issue: 250, Page: 75507 (68 FR 75507), December 31, 2003. Available at: http://www.epa.gov/fedrgstr/EPA-WATER/2003/December/Day-31/w32211.htm.

[16] See: EPA. 2002. *National Recommended Water Quality Criteria 2002 – Human Health Criteria Calculation Matrix*. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. EPA 822-R-02-012. Available at: http://www.epa.gov/waterscience/criteria/wqctable/hh_calc_matrix.pdf.

[17] See: EPA. 2003. *National Recommended Water Quality Criteria for the Protection of Human Health*. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. *Federal Register*, Volume: 68, Issue: 250, Page: 75507 (68 FR 75507), December 31, 2003. Available at: http://www.epa.gov/fedrgstr/EPA-WATER/2003/December/Day-31/w32211.htm.

[18] EPA. 2000. *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health*. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. EPA 822-B-00-004. Pages 4-18 to 4-19.

FCR: 865 grams per day (value reflects a subsistence lifestyle; EPA's review of the tribal value is presented below in section C).

BAF: Most of the values the Tribe used were values recommended by EPA in the 2002 and 2003 CWA § 304(a) criteria recommendations. Alternative values used by the Tribe will be discussed in more detail when EPA reviews specific human health criteria.

Cancer risk level: 1×10^{-6} (value recommended by EPA)

CSF: values provide in EPA's Integrated Risk Information System (IRIS).

Further information regarding each of these variables is available in EPA's 2000 Human Health Methodology.

C. EPA's Review of Fish Consumption Rate and Drinking Water Intake

As described above, the Tribe calculated its human health criteria using several exposure and risk variables, and determined a risk level it deemed acceptable while still protecting the use – in this case, the level of protection provided to consumers of organisms and water taken from the tribal waters to which the criteria apply.

The regulations at 40 CFR § 131.11(a) provide that new or revised criteria "must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect designated uses." However, at the same time, EPA may not disapprove water quality criteria that are more stringent than EPA's CWA section 304(a) criteria solely on the grounds that the proposed criteria are too stringent.[19] While all criteria must be "developed based on scientifically defensible methods," a state or tribe need not justify its policy decision to develop criteria based on stated goals that differ from those underlying EPA's 304(a) recommendations and that, therefore, result in the calculation of more stringent criteria values.[20]

Thus, for the Tribe's criteria that are more stringent than the 304(a) recommendations, EPA evaluated the criteria under the CWA as follows:

- First, EPA acknowledged the Tribe's decision to ensure that its water quality is sufficient to support traditional subsistence practices. Specifically, EPA acknowledged that the selection of the objective to be protected by the criterion is a question of Spokane tribal policy. More generally, EPA noted that the CWA does not require a state or tribe to justify its decision to protect a particular use by establishing that a sufficient number of persons will participate in that use. Neither did the Tribe purport to justify its policy objectives by reference to the number of persons who currently rely on tribal waters for subsistence purposes.
- Second, EPA evaluated the scientific defensibility of the assumptions and methodology the Tribe used in deriving criteria to protect its water quality goals, including the derivation of fish

[19] EPA's established interpretation of its regulations reflects that they must be understood consistent with the statutory limits on EPA's review authority under the CWA. See 56 FR 64885-6 (1991) (recognizing, in light of CWA § 510, that EPA "may not disapprove either Tribal or State standards solely on the grounds that the standard is too stringent").
[20] Id.

consumption and drinking water rates characteristic of the Spokane Tribe's subsistence traditions.

- Third, EPA evaluated whether the Tribe's criteria are sufficient to protect not only 304(a) fishable/swimmable goals, but also the Tribe's goal that tribal water quality be sufficient to support the traditional subsistence lifestyle.

As stated above, the Tribe generally relied on EPA's 2000 Human Health Methodology to derive human health criteria. The Tribe applied that methodology using EPA recommended default values, except for the specific variables for the specific pollutants discussed in Section V.D.3, 4 and 5 (below).

The 2000 Human Health Methodology allows states and tribes flexibility by providing scientifically valid options for developing criteria based on local or regional fish consumption rates. The 2000 Human Health Methodology suggests the following preference hierarchy for the data to be used in determining fish consumption rates: (1) local data, (2) data reflecting similar geography/population groups, (3) data from national surveys, and (4) EPA's default intake rates.

Traditional Lifestyle Studies

To implement its policy choice to develop water quality standards that protect traditional subsistence practices, the Tribe determined fish and drinking water consumption rates corresponding to traditional diet and cultural practices specific to the Spokane Reservation, using sources that were summarized as part of an exposure assessment,[21] as confirmed by traditional knowledge obtained from tribal members.

According to those sources, the Reservation is located at the confluence of the Spokane and Columbia Rivers. It is an arid region that is fairly pristine and undeveloped. It currently provides enough resources for some members to continue a traditional subsistence dietary lifestyle, and for all members to obtain traditional foods. The traditional lifestyle is governed by the seasons. Hunting, fishing, and gathering support nutritional, cultural, spiritual, and medicinal needs of the tribal members. Among families engaged in a subsistence lifestyle, the family members work in the field on a regular basis to keep the extended family unit stocked with a wide variety of plants and wildlife. While in the field, a subsistence consumer lives off the land by consuming surface and spring water, fish, wild plants and wildlife. In addition to time spent in hunting, fishing, or gathering, time is spent cleaning, processing, and preserving hides, drying vegetal food or medicines, and making a wide variety of items. A subsistence lifestyle (except for infants) involves participating in daily sweat lodge throughout the year. Based on these activities, the caloric needs of a tribal member range from 2,000 to 4,000 kilocalories (kcal) per day for adult males, depending on the level of activity, with 2,500 to 3,000 kcal representing a moderately active traditional outdoor lifestyle for tribal members.

Tribal Fish Consumption Rate

The Tribe uses a fish consumption rate of 865 g/d. The article by Harper et al. reviewed studies of the mid-Columbia River Indians and found that the original Spokane diet was based on salmon and included large and small game, roots, berries, and other plants. One study indicated that traditionally, 45% of the native Columbia Plateau dietary calories came from fish and game, with higher estimates for upriver tribes such as the Spokane Tribe.[22] Another study found that the most robust estimate of the salmon

[21] Harper, B.L., Flett B., Harris S., Abeyta C., Kirschner F. 2002. *TheSpokane Tribe's Multipathway Subsistence Exposure Scenario and Screening Level RME.* Society for Risk analysis, Risk Analysis Vol. 22. No. 3.

[22] Hunne, E.S. 1990. *Nch'i-Wana, The Big River: Mid-Columbia Indians and Their Land.* Seattle, WA: University of Washington Press.

intake by the Spokane Tribe was the "Walker estimate" of approximately 1,200 pounds per year,[23] which translates to approximately 1,492 g/d.[24] The Harper article concluded that this consumption rate would translate to 2,566 kcal/day from consumption of fish in estuaries (prior to migration).[25] The Harper article stated that the caloric content of salmon was reduced by about 1/3 after migrating to the Spokane area, resulting in approximately 1,600 kcal/day from fish (2,566 X 0.64).

The Harper article next sought to estimate an appropriate high fish diet for a tribal member practicing a traditional lifestyle today, as opposed to the estimate of historical consumption discussed above. The authors assumed that approximately 80 percent of a traditional diet today would be similar to a historical native diet. Based on this assumption caloric intake from fish would be approximately 1,300 kcal/d (0.8 × 1,600 kcal/day).[26] Furthermore, due to the construction of the Grand Coulee Dam, the anadromous fish runs have been destroyed, so there has been a shift in diet to Kokanee (land-locked sockeye salmon), Dolly varden, rainbow trout, whitefish, mussels, crayfish, and other species. The authors assumed a caloric content for sockeye salmon of 400 kcal/275 g. This would translate into a fish consumption rate of approximately 890 g/d, in order to maintain the caloric intake characteristic of a traditional subsistence lifestyle, given the fish currently available (1,300 kcal/d × 275g/400kcal).

Based on all of the above factors, as well as interviews with tribal members, Harper et al. estimated that a fish consumption rate of 885 g/d would be the realistic high fish consumption rate for the Spokane Tribe. The Tribe's proposed criteria are based on a fish consumption rate of 865 g/d, which is slightly lower than this estimated "high" rate, and well within the accuracy of the estimation methodology.

Tribal Drinking Water

The Tribe's criteria are also based on a drinking water intake rate of 4 L/d. The drinking water intake rate (DI) for the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), 3 L/d for adults, was used as a starting point to determine the drinking water intake rate for the Spokane Tribe since the CTUIR reservation is also located in an arid region, and the DI was based on the water intake needs of a person engaged in the traditional lifestyle.[27] The CTUIR rate estimates an average intake rate based on interviews with CTUIR tribal members. The CTUIR intake rate is based on using 1L of water consumed at the home, 1L of water consumed from home to worksite, and 1L of water consumed at the worksite (i.e., field where tribal member live off the land and consume surface and spring water). In addition to the above activities, the traditional lifestyle for a Spokane Tribal member includes daily use of a sweat lodge for several hours. The Harper article estimated that an additional 1 L of water is needed to re-hydrate after using the sweat lodge, resulting in the assumed intake rate of 4 L/day.

SUMMARY

As discussed above, the Tribe's estimates of the fish consumption and water intake rates for a traditional subsistence lifestyle were based on (1) open peer-reviewed literature, (2) ethnographic documents and reports concerning traditional lifestyles and practices, and (3) confirmatory statements from tribally

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[23] Scholz, A, O'Laughlin, K., Geist, D., Peone, D., Uehara, J., Fileds, L., Kleist, T., Zozaya, I., Peone, T., and Teesatuskie, K., 1985. *Compilation of Information on Sal mon and Steelhead Total Run Size, Catch, and Hydropower Related Losses in the Upper Columbia River Basin, Above Grand Coulee Dam. Fisheries Technical Report No. 2., Upper Columbian United Tribes Fisheries Center.* Cheney, WA:Eastern Washington University Department of Biology.

[24] 1,200 lb/yr X 454 g/lb ÷ 365.24 days/yr.

[25] Harper et al., p 518.

[26] The authors also tried to approximate the historic dietary balance which found that approximately 45% of caloric intake was from fish, and concluded that, based on a calorie intake of 2,500 to 3,000 kcal/day, this provided further support for a fish consumption intake rate of approximately 1,300 kcal/d.

[27] Harris, S.G. and Harper, B.L. 1997. A native American Exposure Scenario. *Risk Analysis,* 17: 789 – 785.

recognized cultural experts whose expertise derives from their traditional environmental knowledge. EPA concludes the FCR used by the tribe corresponds to obtaining approximately 2,000 to 4,000 kcal/day under subsistence conditions, around tribal lands. EPA also concludes that this estimate of caloric input could correspond to physiological needs while undertaking the subsistence lifestyle described. Finally, historical and ethnographic reports corroborate that the subsistence lifestyle described accurately corresponds to the traditional practices of the Spokane Tribe. EPA also believes a drinking water intake of 4L/d could be representative of the subsistence lifestyle in an arid environment with daily sweat lodge use.

D. EPA Action on New and Revised Human Health Criteria

1. EPA Approval Action on 160 Revised Human Health Criteria

The Tribe has developed and adopted 160 human health criteria using EPA's 2000 Human Health methodology, a fish consumption rate of 865 g/d, a drinking water intake of 4 L/d, and values for RfD, RSC, BW, BAF, CSF and risk level that are consistent with the default values that EPA utilized in deriving its national CWA § 304(a) human health criteria guidance values. The following table contains the 160 human health criteria:

Table 1: Human Health Criteria for Toxics (µg/L)

Compound	***Carcinogen?***	***Water & Organisms***	***Organisms Only***
Acenaphthene	*n*	*1.97E+01*	*2.01E+01*
Acrolein	*n*	*5.75E+00*	*5.87E+00*
Acrylonitrile	*n*	*4.33E-03*	*5.00E-03*
Aldrin (e)	*y*	*1.02E-06*	*1.02E-06*
Anthracene	*n*	*7.01E+02*	*8.09E+02*
Arsenic (h)	*n*	*9.51E-04*	*1.05E-03*
Benz(a)anthracene	*y*	*3.2E-04*	*3.7E-04*
Benzene	*y*	*2.84E-01*	*5.37E-01*
Benzidine	*y*	*3.82E-06*	*4.02E-06*
Benzo(a)pyrene	*y*	*3.2E-04*	*3.7E-04*
3,4-Benzo(b)fluoranthene	*y*	*3.2E-04*	*3.7E-04*
Benzo(k)fluoranthene	*y*	*3.2E-04*	*3.7E-04*
alpha BHC	*y*	*9.54E-05*	*9.88E-05*
beta BHC	*y*	*3.34E-04*	*3.46E-04*
Bis(2-chloroethyl) Ether	*y*	*6.38E-03*	*1.07E-02*
Bis(2-chloroisopropyl) Ether	*n*	*4.56E+02*	*1.31E+03*
Bis(2-chloromethyl)ether	*y*	*7.00E-05*	*5.84E-04*
Bis(2-ethylhexyl)phthalate	*y*	*4.29E-02*	*4.45E-02*
Bromoform	*y*	*1.22E+00*	*2.73E+00*
Butylbenzyl phthalate	*n*	*3.87E+01*	*3.91E+01*
Carbon tetrachloride	*y*	*2.66E-02*	*3.32E-02*
Chlorodibromomethane	*y*	*1.15E-01*	*2.57E-01*
Chloroform	*y*	*1.58E+00*	*3.54E+00*
2-Chloronaphthalene	*n*	*3.13E+01*	*3.20E+01*
2-Chlorophenol	*n*	*2.92E+00*	*3.02E+00*

Compound	Carcinogen?	Water & Organisms	Organisms Only
Chrysene	y	3.20E-04	3.70E-04
4,4'-DDD	y	6.29E-06	6.29E-06
4,4'-DDE	y	4.44E-06	4.44E-06
4,4'-DDT	y	4.44E-06	4.44E-06
Dibenz(a,h)anthracene	y	3.20E-04	3.70E-04
Dibutyl phthalate	n	8.64E+01	9.09E+01
1,3-(m)Dichlorobenzene	n	1.80E+01	1.95E+01
3,3-Dichlorobenzidine	y	5.68E-04	5.76E-04
Dichlorobromomethane	y	1.56E-01	3.48E-01
1,2-Dichloroethane	y	1.53E-01	7.41E-01
2,4-Dichlorophenol	n	5.36E+00	5.96E+00
1,2-Dichloropropane	n	1.40E-01	2.97E-01
Dieldrin (e)	y	1.08E-06	1.08E-06
Diethyl phthalate	n	8.34E+02	8.87E+02
2,4-Dimethylphenol	n	1.64E+01	1.73E+01
Dimethyl phthalate	n	1.99E+04	2.25E+04
2,4-Dinitrophenol	n	2.64E+01	1.08E+02
2,4-Dinitotoluene	y	3.06E-02	6.78E-02
2,3,7,8-TCDD (Dioxin)	y	1.04E-10	1.04E-10
1,2-Diphenylhydrazine	y	3.43E-03	4.06E-03
alpha Endosulfan	n	1.77E+00	1.80E+00
beta Endosulfan	n	1.77E+00	1.80E+00
Endosulfan sulfate	n	1.77E+00	1.80E+00
Endrin aldehyde	n	6.11E-03	6.12E-03
Fluoranthene	n	2.80E+00	2.81E+00
Fluorene	n	9.35E+01	1.08E+02
Heptachlor	y	1.60E-06	1.61E-06
Heptachlor epoxide	y	7.94E-07	7.94E-07
Hexachlorobenzene	y	5.82E-06	5.82E-06
Hexachlorobutadiene	y	1.40E-01	3.73E-01
Hexachloroethane	y	6.32E-02	6.65E-02
Indeno(1,2,3-cd)pyrene	y	3.20E-04	3.70E-04
Isophorone	y	9.46E+00	1.94E+01
Methyl bromide	n	1.35E+01	3.02E+01
2-Methyl-4,6-Dinitrophenol	n	3.12E+00	5.74E+00
Methylene chloride	y	1.95E+00	1.20E+01
Nickel	n	3.14E+01	3.44E+01
Nitrobenzene	n	5.38E+00	1.40E+01
N-Nitrosodimethylamine	y	3.41E-04	6.10E-02
N-Nitrosodi-n-propylamine	y	2.01E-03	1.02E-02
N-Nitrosodiphenylamine	y	1.17E-01	1.21E-01
N-Nitrosopyrrolidine	y	8.24E-03	7.01E-01
PCB Total	y	1.30E-06	1.30E-06
Pentachlorobenzene	n	3.04E-02	3.05E-02
Pentachlorophenol	y	4.32E-02	6.13E-02
Phenol	n	8.06E+03	3.47E+04
Pyrene	n	7.01E+01	8.09E+01

Compound	*Carcinogen?*	*Water & Organisms*	*Organisms Only*
Selenium (NTSWQS)	*n*	*4.29E+01*	*8.43E+01*
1,1,2,2-Tetrachloroethane	*y*	*4.20E-02*	*8.09E-02*
Tetrachloroethylene	*y*	*5.78E-02*	*6.65E-02*
Toxaphene	*y*	*5.61E-06*	*5.62E-06*
1,1,2-Trichloroethane	*y*	*1.56E-01*	*3.15E-01*
Trichloroethylene	*y*	*4.22E-01*	*6.06E-01*
2,4,6-Trichlorophenol	*y*	*4.76E-02*	*4.90E-02*
Zinc	*n*	*4.70E+02*	*5.17E+02*

EPA Action
In accordance with its CWA, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA approves the Tribe's revised human health toxic criteria for the 160 human health criteria listed in Table 1 above.

EPA Rationale
EPA's WQS regulations at 40 CFR Part 131 require that criteria protect the designated uses. As noted previously, the Tribe's human health criteria apply to all waters on the reservation, including those protected for fishing, water supply, and recreation uses and, thus, must be established at a level that will protect those uses. Therefore, EPA must evaluate whether the criteria protect the Tribe's human health uses.

EPA's 2000 Human Health Methodology provides guidance for deriving human health criteria for toxic pollutants. For each variable used in the criteria calculation, EPA provides a "national default value" and guidance on specific adjustments that may be necessary to reflect local conditions and/or protect identifiable subpopulations. As part of evaluating whether the Tribe's criteria protect the designated uses, EPA looked at the input values used by the Tribe and whether there was Tribal-specific information relative to each value that should be considered in the review. When calculating the criteria in Table 1, the Tribe used EPA's national default values for all inputs except the FCR and DI. As discussed above, EPA has found that the Tribe has appropriately considered local and regional data, (relevant to an objective that was within the Tribe's policy discretion to protect) when selecting input variables for the FCR and DI.

The 2000 Methodology document provides an extensive technical basis and justification as to how EPA's recommended human health criteria and methodology adequately protect human health uses. The Tribe's human health criteria identified in Table 1 were developed consistent with these recommendations, therefore, EPA has determined that these criteria protect human health uses in accordance with 40 CFR § 131.11(a)(1).

In any future updates the Tribe makes to its human health criteria, EPA recommends the Tribe consider using an RSC value of 0.2, or an appropriate alternative up to 0.8, rather than 1 when calculating non-carcinogen criteria.

2. EPA Disapproval of the Deletion of Asbestos Human Health Criterion

In 2003, the Tribe adopted an asbestos criterion (7 MFL) for the protection of human health into Table 1 of their water quality standards. The water quality standards specifically state that the criteria in Table 1 are for the protection of human health. Additionally, the Tribe adopted the same asbestos criterion (7 MF/L) into Table 2 of their water quality standards for the protection of primary contact ceremonial

uses. Many of the criteria in Table 2 are higher than the concentrations necessary to protect human health so it is not clear that the criteria in Table 2 were established to protect human health. In the 2010 water quality standards revision, the Tribe removed the water and organisms human health criterion for asbestos (7 MF/L) from Section 6, Table 1 of their water quality standards. However, the asbestos criterion in Table 2 was retained.

EPA Action
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA disapproves the Tribe's removal of the water and organisms human health toxic criteria for asbestos from Table 1 of the Tribe's water quality standards.

EPA Rationale
As discussed previously, for human health protection, EPA recommends that states and tribes apply human health criteria for toxics to all waters with designated uses providing for public water supply protection (and therefore a potential water consumption exposure route), recreation, and/or aquatic life protection (and therefore a potential fish consumption route). Asbestos is a priority pollutant and EPA's 304(a) recommendation for the protection of human health (water and organisms) is 7 MF/L.
While the Tribe has retained an asbestos criterion in Table 2, it is not clear that Table 2 criteria are intended to protect human health or aquatic life. Given the lack of clarity of the intended level of protection in Table 2, EPA does not view this Table as providing the same level of protection for human health as Table 1.

The Tribe has not provided any rationale to show that removing the asbestos criterion from Table 1will still result in the protection of human health; therefore, EPA is disapproving the removal of the human health (water and organism) asbestos criterion from Table 1.

Remedy to Address EPA Disapproval
To address this disapproval, the Tribe must adopt human health criteria that are based on a sound scientific rationale and protect human health uses. There are several means by which the Tribe may potentially accomplish this objective. They include:

- Adopt EPA's 304(a) recommendation for human health (water and organisms) of 7 MF/L into Table 1.
- Provide a sound scientific rationale to establish that an asbestos criterion is not necessary for the protection of human health uses.
- Develop an alternative human health criterion for the consumption of water and organisms and provide a sound scientific justification to establish that it is protective of human health uses.

3. EPA Disapproval Action for Dichlorodiflouromethane Human Health Criteria

The Tribe revised their human health criteria for dichlorodifluoromethane to the following:

Table 2. Human Health for Toxic Pollutants (µg/L)

Compound	*Carcinogen?*	*Water & Organisms*	*Organisms Only*
Dichlorodiflouromethane	*n*	*1.93E+03*	*4.32E+03*

EPA Action
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA disapproves the Tribe's revised human health toxic criteria for the dichlorodifluoromethane human health criteria listed in Table 2 above.

EPA Rationale
EPA's WQS regulations at 40 CFR Part 131 require that criteria protect the designated uses. As noted previously, the Tribe's human health criteria apply to all waters on the reservation, including those protected for fishing, water supply and recreational uses and thus must be established at a level that will protect those uses. Therefore, EPA must evaluate whether the criteria protect the Tribe's human health uses.

The Tribe used EPA's 2000 Human Health Methodology to develop the human health criteria for dichlorodifluoromethane. As part of evaluating whether the Tribe's criteria protect the designated uses, EPA looked at the input values used by the Tribe and whether there was adequate scientific information to support the use of each value.

For dichlorodifluoromethane the Tribe used the equations for non-carcinogens to develop the human health criteria. The following variables were used:

RfD = 0.2 mg/kg/d	RSC = 1	BW = 70 kg
DI = 4 L/d	FCR = 865 g/d	BAF = 3.75 L/kg

The values the Tribe used for RfD, BW, DI, FCR are consistent with EPA recommendations. The Tribe has not provided any scientific information to support the use of the non-carcinogen equations, or for the values used for the BAF or RSC. Additionally, in EPA's *Ambient Water Quality for Halomethanes* (EPA 440/5-80-051, October 1980) dichlorodifluoromethane was treated as a carcinogen.

Criteria must be based on sound scientific rationale and contain sufficient parameters or constituents to protect designated uses. The Tribe has not provided supporting documentation to show that the values used for the RSC and BAF are based on sound science and will be protective of human health or if using the non-carcinogen equation is appropriate. Therefore, EPA is disapproving the human health criteria for dichlorodifluoromethane.

Remedies to Address EPA's Disapproval
To address this disapproval, the Tribe must adopt human health criteria that are based on a sound scientific rationale and protect human health uses. There are several means by which the Tribe may potentially accomplish this objective. They include:

- EPA has not developed human health criteria for dichlorodifluoromethane using the 2000 Human Health Methodology. For a pollutant for which EPA has published a recommended Section 304(a) water quality criterion based on the 1980 Methodology and for which EPA has not promulgated a Maximum Contaminant Level Goal[28] (MCLG), EPA recognizes the current Section 304(a) water

[28] The MCLG is the level of a contaminant in drinking water below which there is no known or expected risk to health. EPA does not recommend using MCLs which are set as close to MCLGs as feasible using the best available treatment technology and taking cost into consideration.

quality criterion (see 65 FR 66450). Therefore, the Tribe may use EPA's 1980 human health criteria developed in October 1980 (*Ambient Water Quality Criteria for Halomethanes*, EPA 440/5-80-051).

- Resubmit the previously adopted human health criteria with a sound scientific rationale to establish that the use of the non carcinogen equation and the application of the input values are protective of human health uses.

4. EPA Disapproval Action for Mercury Human Health Criteria

The Tribe revised their human health criteria for mercury to the following:

Table 3. Human Health for Toxic Pollutants (µg/L)

Compound	*Carcinogen?*	*Water & Organisms*	*Organisms Only*
Mercury	*n*	*1.1E-03*	*1.1E-03*

EPA Action
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA disapproves the Tribe's revised human health toxic criteria for mercury listed in Table 3 above.

EPA Rationale
EPA's WQS regulations at 40 CFR Part 131 require that criteria protect the designated uses. As noted previously, the Tribe's human health criteria apply to all waters on the reservation, including those protected for fishing, water supply and recreational uses and thus must be established at a level that will protect those uses. Therefore, EPA must evaluate whether the criteria protect the Tribe's human health uses.

The Tribe used EPA's 2000 Human Health Methodology to develop the human health criteria for mercury. As part of evaluating whether the Tribe's criteria protect the designated uses, EPA looked at the input values used by the Tribe and whether there was adequate scientific information to support the use of each value.

For mercury, the Tribe used the equations for non-carcinogens to develop the human health criteria. The following variables were used:

RfD = 0.0001 mg/kg/d	RSC = 1	BW = 70 kg
DI = 4 L/d	FCR = 865 g/d	BAF = 7343 L/kg

The values the Tribe used for RfD, BW, DI, FCR are consistent with EPA recommendations.

The BAF value is the Practical Bioconcentration Factor (PBCF, weighted average) used to develop human health criteria for mercury in California waters (see 62 FR 42179).[29] The value used is based on a weighted average of the amount of fish eaten from fresh waters, estuarine-coastal waters, and open oceans.

[29] The PCBFs were derived in 1980 and are: 5500 for fresh water, 3765 for estuarine-coastal waters, and 9000 for open oceans (see pages C-100-1 of *Ambient Water Quality Criteria for Mercury* (EPA 440/5-80-058)). A weighted average is calculated to take into account the average consumption from the three waters.

EPA's current 304(a) guidance recommends methylmercury be expressed as a fish tissue concentration. It was calculated using the criterion equation in the 2000 Human Health Methodology. The equation was rearranged to result in a protective concentration in fish tissue rather than water (see *Water Quality Criterion for the Protection of Human Health: Methylmercury*, EPA-823-R-01-001, January 2001).

The Tribe may adopt a water column number for mercury, however, the criteria must be based on sound scientific rationale and contain sufficient parameters or constituents to protect designated uses. The Tribe's submission lacked supporting documentation to show that the values used for the RSC and BCF are based on sound science and will be protective of human health. For example, the Tribe has not provided information to show that the PBCF on tribal land is similar to that of California. Therefore, EPA is disapproving the human health criteria for mercury.

Remedies to Address EPA's Disapproval

To address this disapproval, the Tribe must adopt human health criteria that are based on a sound scientific rationale and protect human health uses. There are several means by which the Tribe may potentially accomplish this objective. They include:

- EPA used the 2000 Human Health Methodology to develop a 304(a) criterion for methylmercury and expressed the criterion as a fish tissue value (mg/kg). The Tribe may adopt EPA's current 304(a) recommendation for methylmercury fish tissue (as modified by the Tribal fish consumption rate), and implement it without water column translation; or adopt a water column concentration, using the translation methodologies outlined in section 3.1.3.1 of EPA's *Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion* (EPA 823-R-10-001, April 2010); or use a combination of the above two approaches. For example, the Tribe could adopt a fish tissue criterion and implement it without water column translation in some waters and with water column translation in other waters.

  Site specific data for translating the fish tissue criterion to water column concentration, where needed, will take time to collect. Therefore, the Tribe should consider retaining their existing water column criteria (or adopting an updated water column criterion which reflects their new fish consumption rate), on a temporary basis, particularly for waters where there is a relatively high direct water input of mercury. In such a case where the tribe has retained the existing water column criteria, permits include both a limit based on the numeric water column criterion and other requirements based on the fish tissue criterion (see Chapter 7 of EPA's *Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion*).

- Resubmit the previously adopted human health criteria with a sound scientific rationale to establish that the application of input values is protective of human health uses.

5. EPA Disapproval Action of 45 New and Revised Human Health Criteria

The Tribe has developed and adopted 45 human health criteria using EPA's 2000 Human Health methodology, a fish consumption rate of 865 g/d, a drinking water intake of 4 L/d, and values for BW, CSF, and risk level that are consistent with the default values that EPA used in deriving its national CWA § 304(a) human health criteria guidance values. However, the Tribe used values for the RfD,

RSC, and/or BAF(BCF) that were not consistent with the default values that EPA used in deriving its national CWA § 304(a) human health criteria guidance values, and the Tribe did not explain how these values were derived. The following table contains these 45 human health criteria:

Table 4. Human Health for Toxic Pollutants(µg/L)

Compound	*Carcinogen?*	*Water & Organisms*	*Organisms Only*
Antimony	*n*	*5.76E+00*	*3.24E+01*
gamma BHC	*y*	*4.53E-04*	*4.69E-04*
Chlordane	*y*	*4.41E-06*	*4.41E-06*
Chlorobenzene	*n*	*1.08E+02*	*1.57E+02*
Cyanide	*n*	*2.88E+02*	*1.62E+03*
1,2-(o)Dichlorobenzene	*n*	*1.21E+02*	*1.31E+02*
1,4-(p)Dichlorobenzene	*n*	*1.80E+01*	*1.95E+01*
1,2-trans-Dichloroethylene	*n*	*2.61E+02*	*1.02E+03*
1,1-Dichloroethylene	*y*	*1.32E-02*	*2.41E-02*
1,3-Dichloropropylene	*n*	*3.72E+00*	*1.27E+01*
Endrin	*n*	*6.11E-03*	*6.12E-03*
Ethylbenzene	*n*	*1.92E+02*	*2.16E+02*
Hexachlorocyclopentadiene	*n*	*6.32E+01*	*1.31E+02*
Thallium	*n*	*4.45E-02*	*4.62E-02*
Toluene	*n*	*1.06E+03*	*1.51E+03*
1,2,4-Trichlorobenzene	*n*	*6.82E+00*	*7.10E+00*
Vinyl chloride	*y*	*8.03E-01*	*3.98E+00*
Cadmium	*n*	*8.75E+00*	---
Chlorine	*n*	*1.75E+03*	---
Chlorpyrifos	*n*	*5.25E+01*	---
Chromium III	*n*	*2.63E+04*	---
Chromium VI	*n*	*5.25E+01*	---
Copper	*n*	*1.21E+01*	*1.21E+01*
Methoxychlor	*n*	*1.65E+00*	*1.69E+00*
Tributyltin	*n*	*1.73E-03*	*1.73E-03*

EPA Action

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA disapproves the Tribe's revised human health toxic criteria for the 45 human health criteria listed in Table 4 above.

EPA Rationale

EPA's WQS regulations at 40 CFR Part 131 require that criteria protect the designated uses. As noted previously, the Tribe's human health criteria apply to all waters on the reservation, including those protected for fishing, water supply, and recreational uses and, thus, must be established at a level that will protect those uses. Therefore, EPA must evaluate whether the criteria protect the Tribe's human health uses.

As part of evaluating whether the Tribe's criteria protect the designated uses, EPA looked at the input values used by the Tribe and whether there was Tribal-specific information relative to each value that should be considered in the review. The Tribe used some of the EPA's "national default values" but EPA found that the Tribe did not appropriately consider data in selecting some input variables for use in

deriving the criteria identified in Table 4 above. Specifically, the Tribe used input variables for the RfD, RSC, CSF and BAF without providing sufficient scientific support for the values used.
The following tables show the input values that the Tribe used and the values that EPA recommends.

Table 5: CSF Value Used in Developing Human Health Criteria

Compound	*CSF*	
	EPA recommended value	*Value Used by Tribe*
Chlordane	0.35	1.3
gamma BHC (Lindane)	See Footnote 1	1.3
1,1-Dichloroethylene	See Footnote 1	0.6
1,3-Dichloropropylene	0.1	Not used, see footnote 2
Vinyl chloride	1.4	0.0174
1. The Tribe calculated gamma BHC and 1,1 dichlorethylene using the carcinogen equations, however these parameters are non-carcinogens, therefore a CSF value is not used when developing the criteria. 2. The Tribe calculated 1,3-Dichloroprpylene using the non-carcinogen equations. The parameter is a carcinogen and the equations for carcinogens should have been used to calculate the criteria.		

Table 6: RfD Value Used in Developing Human Health Criteria

Compound	*RfD*	
	EPA recommended value	*Value Used by Tribe*
gamma BHC (Lindane)	0.0047	No value used
1,1-Dichloroethylene	0.05	No value used
1,3-Dichloropropylene	See Footnote 1	0.0003
Hexachlorocyclopentadiene	0.006	0.007
Chlorpyrifos	See Footnote 2	0.003
Copper	See Footnote 2	0.15
Cyanide	0.0006	0.02
Toluene	0.08	0.2
1. 1,3 dichloropropylene is a carcinogen therefore an RfD is not used when calculating the criterion. 2. Data is not available to calculate an RfD.		

Table 7: RSC value Used in Developing Human Health Criteria

Compound	*RSC*	
	EPA recommended value	*Value Used by Tribe*
Antimony	0.4	1
gamma BHC (Lindane)	0.2 – 0.8	1
Chlorobenzene	0.2	1
Cyanide	0.2	1
1,2-(o)Dichlorobenzene	0.2	1
1,4-(p)Dichlorobenzene	0.2	1
1,2-trans-Dichloroethylene	0.2	1
1,1-dichloroethylene	0.2	1
Endrin (e)	0.2	1
Ethylbenzene	0.2	1
Hexachlorocyclopentadiene	0.2	1
Thallium	0.2	1
Toluene	0.2	1
1,2,4-Trichlorobenzene	0.2	1
Cadmium	0.25[1]	1
Chlorine	0.2	1
Chlorpyrifos	0.2	1
Chromium III	0.2	1
Chromium VI	0.2	1
Copper	0.2	1
Methoxychlor	0.2	1
Tributyltin	0.2	1
1. RSC is based on the RSC used to develop the cadmium drinking water MCLG.		

Table 8: BAF Used in Developing Human Health Criteria

Compound	*BAF*	
	EPA recommended value	*Value Used by Tribe*
Cadmium	See Footnote 1	0
Chlorine	See Footnote 1	0
Chlorpyrifos	See Footnote 1	0
Chromium III	See Footnote 1	0
Chromium VI	See Footnote 1	0
Copper	See Footnote 1	0
Methoxychlor	See Footnote 2	240
Tributyltin	See Footnote 1	14000
1. EPA does not have data to form a basis for a recommendation and the tribe has not provided any information to support the values used. 2. 8,963 L/kg for tropic level 2, 8860 L/kg for trophic level 3, and 9,001 L/kg for trophic level 4.		

The water quality standards regulations at 40 CFR § 131.11(a) state that new or revised criteria must be based on a sound scientific rationale and contain sufficient parameters or constituents to protect designated uses. To ensure the Tribe's criteria are consistent with this requirement, EPA evaluated the appropriateness of the variables used by the Tribe in deriving its criteria: specifically, whether the variables were based on sound science and led to criteria that would protect human health endpoints consistent with the designated uses of tribal waters. The 2000 Human Health Methodology provides an extensive technical basis and justification as to how EPA's recommendations adequately protect human health. Each of the criteria identified in Table 4 of the Tribe's submission lacked the supporting documentation to show that one or more of the variables (identified in Tables 5 through 8) used to develop the criteria are based on sound science and lead to criteria that are protective of human health uses. Therefore, EPA is disapproving each of the human health criteria contained in Table 4.

Remedies to Address EPA's Disapproval

To address this disapproval, the Tribe must adopt human health criteria that are based on a sound scientific rationale and protect human health uses. There are several means by which the Tribe may potentially accomplish this objective. They include:

- For the following parameters, the Tribe may revise the water and organisms and the organisms only human health criteria by incorporating the input values recommended in EPA's 304(a) guidance, as shown below.

Antimony:	RSC = 0.4
Gamma BHC (Lindane):	RfD = 0.0047, use non-carcinogen equations, RSC = 0.2, or an appropriate alternative up to 0.8
Chlordane:	CSF = 0.35
Chlorobenzene:	RSC = 0.2
Cyanide:	RfD = 0.0006, RSC = 0.2
1,2-(o)Dichlorobenzene:	RSC = 0.2
1,4-(p)Dichlorobenzene:	RSC = 0.2
1,2-trans-Dichloroethylene:	RSC = 0.2
1,1-Dichloroethylene:	RfD = 0.05, RSC = 0.2, use non-carcinogen equations
1,3-Dichlorpropylene	CSF = 0.1, risk level = 1×10^{-6}, use carcinogen equations
Endrin:	RSC = 0.2
Ethylbenzene:	RSC = 0.2
Hexachlorocyclopentadiene:	RfD = 0.006, RSC = 0.2
Thallium:	RSC = 0.2
Toluene:	RfD = 0.08, RSC = 0.2
1,2,4 Trichlorobenzene:	RSC = 0.2
Vinyl chloride:	CSF = 1.4

- For the human health criteria associated with **cadmium, copper, chromium III, and chromium VI**: EPA is in the process of developing draft BAFs values for these parameters and expects to have these drafts values available by the beginning of 2014. When these draft values are available, the Tribe may use this information to update their HH criteria for these parameters.

- For the human health criteria associated with **methoxychlor**, the following BAFs may be used when developing the human health criteria: 8,963 L/kg for trophic level 2, 8860 L/kg for trophic level 3, and 9,001 L/kg for trophic level 4.

- The Tribe may resubmit the previously adopted human health criteria for any of the 45 pollutants listed in Table 4 with a sound scientific rationale to establish that the application of each input value is protective of human health uses. Alternatively, the Tribe may re-evaluate any of the criteria to determine if the criterion is necessary for the protection of human health uses on the reservation.

VI. AQUATIC LIFE CRITERIA

A. EPA Action on Freshwater Acute and Chronic Aquatic Life Criteria for Ammonia

In the 2010 water quality standards adoption, the Tribe sought to correct mistakes for its aquatic life ammonia criteria. The ammonia criteria were initially adopted into Table 1 of the Tribe's water quality standards in 2003. The ammonia values adopted in 2003 were expressed in µg/L (rather than mg/L) and two footnotes were referenced (f and g) which provide the equations used to develop the values in the table below. The 2003 values were:

Compound	***Carcinogen?***	***Acute (a) Criteria***	***Chronic (b) Criteria***	***Water & Organisms***	***Organisms Only***
Ammonia (f, g)	*n*	*24.1*	*4.15*	-----	-----

In the 2010 adoption the ammonia values are still expressed in µg/L but the following changes were made (new language is underlined):

Compound	***Carcinogen?***	***Acute (a) Criteria***	***Chronic (b) Criteria***	***Water & Organisms***	***Organisms Only***
Ammonia, <u>unionized</u> (f, g)	*n*	*<u>2.4E+04</u>*	*<u>5.9E+03</u>*	-----	-----

EPA Action
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA disapproves the Tribe's revisions to the freshwater acute and chronic aquatic life ammonia criteria.

EPA Rationale
In 2003, the Tribe adopted the EPA's 1999 304(a) recommendations for freshwater acute and chronic aquatic life criteria for ammonia. The 1999 recommendations were the most recent 304(a) recommendation when the Tribe adopted their water quality criteria. In 2003, the Tribe adopted the correct equations into footnotes f and g, however, they incorrectly identified the metric associated with the criteria as µg/L rather than mg/L.

The Tribe sought to correct this error in their 2010 water quality standards adoption. However, in trying to correct the error several other errors were made, including the following:

(1) The form of ammonia was changed from total ammonia to un-ionized ammonia. This change effectively increased the allowable amount of un-ionized ammonia (the more toxic form of

ammonia) than was recommended by EPA's 1999 304(a) recommendation. The Tribe did not provide any scientific rationale to show that using the equations as un-ionized ammonia is protective of aquatic life uses.

(2) The ammonia value in the table was changed to µg/L, however, using the equations in footnotes f and g will provide a result mg/L. However, this is not stated anywhere in either footnote f or g, so there is no indication that the result of the equations in f and g must be multiplied by 1,000 in order to get a final result in µg/L. Therefore, simply changing the value in Table 1 did not address the error the Tribe was trying to correct.

The equation for the chronic criterion in µg/L would be:

$$\left(\left(\frac{0.0577}{1+10^{7.688-pH}}+\frac{2.487}{1+10^{pH-7.688}}\right)X\left(\text{MIN }(2.85, 1.45 \text{ X } 10^{0.026 \text{ X } (250-T)})\right)\right) \text{ X } 1000$$

The equation for the acute criterion in µg/L would be:

$$\left(\frac{0.275}{1+10^{7.204-pH}}+\frac{39}{1+10^{pH-7.204}}\right) \text{ X } 1000$$

(3) The chronic ammonia value in Table 1 is in error and the chronic criterion should be 4.15 mg/L (or 4150 µg/L). The Tribe used the incorrect equation when trying to develop the criterion value.

Furthermore on August 22, 2013 EPA published its revised recommended water quality criteria for ammonia. The acute and chronic criteria are more stringent than the 1999 304(a) recommended criteria due to the new toxicity data for freshwater molluscs that are very sensitive to ammonia.

In developing recommendations under § 304(a) of the CWA, EPA bases its criteria on approximately the 5th percentile genera for a given pollutant, which is often the four or five most sensitive genera.[30] Based on the toxicity data, the most sensitive genera used to develop the new acute criterion recommendation are freshwater molluscs. This stands in contrast to the 1999 304(a) recommendation where, in the absence of the more recent mollusc data, the most sensitive genera used to develop the acute criterion were fish, which now appear to be less sensitive to ammonia than freshwater molluscs.

Similarly, based on the available acquired chronic toxicity data, three of the four most sensitive genera used to develop the 2013 recommended chronic criterion were freshwater molluscs. This stands in contrast to the 1999 304(a) recommendation, where only one of the four most sensitive genera used to develop the chronic criterion was a mollusc. The most important difference between the calculation of the 2013 recommendations for chronic criteria and the 1999 304(a) recommendation is the more recent

[30] As per EPA's *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection Of Aquatic Organisms and Their Uses* (PB85-227049, 1985), whenever there are 59 or greater GMAVs in the acute criteria dataset, the FAV is calculated using the four GMAVs which have cumulative probabilities closest to 0.05. In the draft 2009 update of the acute water quality criteria for ammonia, the four GMAVs with cumulative probabilities closest to 0.05 are sensitivity rank 2-5. If there are fewer than 59 GMAVs, the four lowest GMAVs are used to calculate the FAV regardless of cumulative probabilities.

data for molluscs, particularly freshwater mussels which appear to be more sensitive to ammonia than fish (*Draft 2009 Update Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater,* December 2009).

Freshwater mussels are widely distributed throughout Washington State (*Freshwater Mussels of the Pacific Northwest*, Ethan Nedeau, Allan K. Smith, Jen Stone, U.S. Fish and Wildlife Service), and each of the Tribe's Class Uses (i.e., Class AA, Class A, and Lake Class) specifically protect molluscs and Class AA waters also protect mussels. Given the wide distribution of freshwater mussels in Washington State, the Tribe's protection of molluscs (and mussels), and toxicity data showing that freshwater mulloscs are particularly sensitive to ammonia, there is not a sound scientific rationale demonstrating that the Tribe's submitted ammonia criteria protect the designated aquatic life uses. Therefore the criteria are inconsistent with CWA § 303(c) and 40 CFR § 131.11.

Remedies to Address EPA's Disapproval
To address this disapproval, the Tribe must adopt ammonia criteria that are based on a sound scientific rationale and protect the Tribe's designated aquatic life uses. There are several means by which the Tribe may potentially accomplish this objective. They include:

- Revise the ammonia criteria to be consistent with EPA's *Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater, 2013* (EPA 822-R-13-001).

- Revise the ammonia criteria to ensure protection of the Tribe's designated aquatic life uses. Also supply a sound scientific rationale to explain why the alternative ammonia criteria are protective of the Tribe's designated aquatic life uses, taking into account any data on freshwater molluscs.

Freshwater Acute and Chronic Ammonia Aquatic Life Criteria Currently in Effect
Until EPA approves or promulgates numeric acute and chronic aquatic life criteria for ammonia, the previously approved acute and chronic aquatic life criteria are in effect for CWA purposes. The criteria are expressed as total ammonia (as mg N/L):

$$\text{CMC (mg/L)} = \left(\frac{0.275}{1+10^{7.204-pH}} + \frac{39}{1+10^{pH-7.204}}\right)$$

$$\text{CCC (mg/L)} = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) \text{X MIN } (2.85, 1.45\ 10^{0.026\ \text{X}\ [25\ -\ T]})$$

B. EPA Action on Freshwater Chronic Aquatic Life Criteria for Iron

In their 2010 water quality standards adoption, the Tribe removed the chronic aquatic life criterion for iron of 1.00 E+03 µg/L, which was originally adopted in its 2003 water quality standards.

EPA Action
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA disapproves the Tribe's removal of the freshwater chronic aquatic life criterion for iron.

EPA Rationale
The chronic aquatic life criterion of 1.00E+03 µg/L is the most recent 304(a) recommendation. The Tribe has not provided a scientific justification to show that the aquatic life uses on the Reservation will

be protected in the absence of an iron criterion. EPA has determined that the removal of the chronic aquatic life criterion for iron is inconsistent with CWA § 303(c) and 40 CFR § 131.11.

Remedies to Address EPA's Disapproval
To address this disapproval, the Tribe must adopt a freshwater chronic aquatic life iron criterion that is based on a sound scientific rationale and protects the Tribe's designated aquatic life uses. There are several means by which the Tribe may potentially accomplish this objective. They include:

- Adopt iron criterion to be consistent with EPA's 304(a) criterion (i.e., 1000 µg/L).

- Provide a sound scientific rationale to explain why removing the chronic criterion for iron is protective of the Tribe's designated aquatic life uses.

Freshwater Chronic Aquatic Life Iron Criterion Currently In Effect
Until EPA approves or promulgates a numeric chronic aquatic life criterion for iron, the previously approved aquatic life chronic criterion for iron is in effect for CWA purposes. The chronic criterion is 1.00E+03 µg/L.

C. EPA Action on Freshwater Acute and Chronic Aquatic Life Criteria for Pentachlorophenol

In the 2010 water quality standards adoption, the Tribe changed the values for pentachlorophenol in Section 6, Table 1 but retained the same equations in footnote n. Specifically, the following changes were made (new language is underlined):

Compound	*Carcinogen?*	*Acute (a) Criteria*	*Chronic (b) Criteria*	*Water & Organisms*	*Organisms Only*
Pentachlorophenol (n)	*y*	*9.1E+00*	*5.7E+00*	-----	-----

The 2003 water quality standards contained the following values for pentachlorophenol in Section 6, Table 1:

Compound	*Carcinogen?*	*Acute (a) Criteria*	*Chronic (b) Criteria*	*Water & Organisms*	*Organisms Only*
Pentachlorophenol (n)	*y*	*2.03E+01*	*1.28E+01*	-----	-----

Footnote n was referenced and it provides the equations used to develop the pentachlorophenol values indicated in the table above (footnote n also states that the values were derived using a pH value of 7.8).

EPA Action
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA disapproves the Tribe's revisions to the freshwater acute and chronic aquatic life values for pentachlorophenol contained in Section 6, Table 1.

EPA Rationale
EPA is disapproving the values adopted in Section 6, Table 1 because they do not provide the correct value in accordance with the associated equations found in footnote n, and it is not clear which criteria are the correct, applicable values (i.e., the values in Table 1 or the values resulting from the equations in footnote n).

Remedy to Address EPA's Disapproval
To address this disapproval, the Tribe must adopt the appropriate values into Section 6, Table 1 based on the equations found in footnote n (i.e., acute criterion is 2.03E+01 and the chronic criterion is 12.8E+01).

D. EPA Action on Freshwater Chronic Aquatic Life Criteria for Tributyltin

In the 2010 water quality standards adoption, the Tribe changed the chronic aquatic life criteria for tributyltin from 0.063 µg/L to 0.63 µg/L (6.3E-01) in Section 6, Table 1.

EPA Action
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA disapproves the Tribe's revisions to the freshwater chronic aquatic life values for tributyltin contained in Section 6, Table 1.

EPA Rationale
The chronic aquatic life criterion of 0.072 µg/L is the most recent 304(a) recommendation. The Tribe has not provided a scientific justification to show that the aquatic life uses on the Reservation will be protected with the revised tributyltin criterion. EPA has determined that the revised chronic aquatic life criterion for tributyltin is inconsistent with CWA § 303(c) and 40 CFR § 131.11.

Remedies to Address EPA's Disapproval
To address this disapproval, the Tribe must adopt a chronic tributyltin criterion that is based on a sound scientific rationale and protects the Tribe's designated aquatic life uses. There are several means by which the Tribe may potentially accomplish this objective. They include:

- Adopt a chronic criterion to be consistent with EPA's 304(a) criterion (i.e., 0.072 µg/L).

- Provide a sound scientific rationale to explain why the chronic criterion for tributyltin is protective of the Tribe's designated aquatic life uses.

Freshwater Chronic Aquatic Life Tributyltin Criterion Currently In Effect
Until EPA approves or promulgates a numeric chronic aquatic life criterion for tributyltin the previously approved aquatic life chronic criterion is in effect for CWA purposes. The chronic criterion is 0.063 µg/L.

E. EPA Action on Minor Revisions to Aquatic Life Criteria

In the 2010 water quality standards adoption, the Tribe rounded the following aquatic life criteria to two significant figures:
Lead (acute and chronic)
Nickel (acute)
Silver (acute)
Zinc (acute and chronic)

EPA Action
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA approves the Tribe's revisions to the freshwater aquatic life criteria contained in Section 6, Table 1 and as listed above.

EPA Rationale
The Tribes changes are consistent with EPA recommendation to round criteria to two significant figures (86 FR 22236).

VII. TEMPERATURE CRITERIA IN SECTION 9

A. EPA's Action On Revised Temperature Criteria for Class AA Waters

The following presents the new language contained in Section 9 Paragraph 1(c)(iv), of the WQS. Deleted text indicates text that was removed and new text is underlined and indicates the language that was added by the 2010 water quality standards adoption.

> *(iv) ~~Water used for spawning or rearing by naturalized populations of indigenous salmon or trout. Not to exceed a 7-day average of the daily maximum temperature values greater than 16.5 C from June 1 to September 1. Not to exceed a 7-day average of the daily maximum temperature values greater than 13.5 C between September 1 and October 1 and between April 1 and June 1, and not to exceed 11 C from October 1 to April 1; with no single daily maximum temperature exceeding 18.5 C. Exception for Non-Anadromous Rainbow and Redband Trout. In waters where the only salmonid present is non-anadromous form of naturalized rainbow or redband trout. Temperatures from June 1 to September 1 may be allowed to reach a 7-day average of the daily maximum temperatures of 18.5 C.~~ Temperatures from June 1 to September 1 may be allowed to reach a 7-day average of the daily maximum (7-DADM) temperatures of 16.5 C. Temperature shall not exceed the 7-DADM Table 5 value from September 1st through September 30th as well as from April 1st through May 31st. The 7-DADM temperature shall not exceed 11°C between October 1st and March 31st.*

Table 5, which is referenced in the above provision is found in Section 9 and is provided below:

Table 5. Temperature Standards (degree C).

Date	Class AA 16.5 Standard	Class A 18.5 Standard
01-Apr	11.09	11.12
02-Apr	11.18	11.25
03-Apr	11.27	11.37
04-Apr	11.36	11.49
05-Apr	11.45	11.61
06-Apr	11.54	11.74
07-Apr	11.63	11.86
08-Apr	11.72	11.98
09-Apr	11.81	12.11
10-Apr	11.90	12.23
11-Apr	11.99	12.35
12-Apr	12.08	12.47
13-Apr	12.17	12.60
14-Apr	12.26	12.72
15-Apr	12.35	12.84
16-Apr	12.44	12.97
17-Apr	12.53	13.09
18-Apr	12.62	13.21
19-Apr	12.71	13.34
20-Apr	12.80	13.46
21-Apr	12.89	13.58
22-Apr	12.98	13.70
23-Apr	13.07	13.83
24-Apr	13.16	13.95
25-Apr	13.25	14.07
26-Apr	13.34	14.20
27-Apr	13.43	14.32
28-Apr	13.52	14.44
29-Apr	13.61	14.56
30-Apr	13.70	14.69
01-May	13.80	14.81
02-May	13.89	14.93
03-May	13.98	15.06
04-May	14.07	15.18
05-May	14.16	15.30
06-May	14.25	15.43
07-May	14.34	15.55
08-May	14.43	15.67
09-May	14.52	15.80
10-May	14.61	15.92
11-May	14.70	16.04
12-May	14.79	16.16
13-May	14.88	16.29
14-May	14.97	16.41
15-May	15.06	16.53
16-May	15.15	16.66
17-May	15.24	16.78
18-May	15.33	16.90

Date	Class AA 16.5 Standard	Class A 18.5 Standard
01-Sep	16.32	18.25
02-Sep	16.13	18.00
03-Sep	15.95	17.75
04-Sep	15.77	17.50
05-Sep	15.58	17.25
06-Sep	15.40	17.00
07-Sep	15.22	16.75
08-Sep	15.03	16.50
09-Sep	14.85	16.25
10-Sep	14.67	16.00
11-Sep	14.48	15.75
12-Sep	14.30	15.50
13-Sep	14.12	15.25
14-Sep	13.93	15.00
15-Sep	13.75	14.75
16-Sep	13.57	14.50
17-Sep	13.38	14.25
18-Sep	13.20	14.00
19-Sep	13.02	13.75
20-Sep	12.83	13.50
21-Sep	12.65	13.25
22-Sep	12.47	13.00
23-Sep	12.28	12.75
24-Sep	12.10	12.50
25-Sep	11.92	12.25
26-Sep	11.73	12.00
27-Sep	11.55	11.75
28-Sep	11.37	11.50
29-Sep	11.18	11.25
30-Sep	11.00	11.00

19-May	15.42	17.02
20-May	15.51	17.15
21-May	15.60	17.27
22-May	15.69	17.39
23-May	15.78	17.52
24-May	15.87	17.64
25-May	15.96	17.76
26-May	16.05	17.89
27-May	16.14	18.01
28-May	16.23	18.13
29-May	16.32	18.25
30-May	16.41	18.38
31-May	16.50	18.50

EPA Action

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA is approving part of the revised language and disapproving part of the revised language. Specifically EPA approves the revised language in the first and last sentence in Paragraph 1(c)(iv) as a non-substantive change. This language is as follows:

> *Temperatures from June 1 to September 1 may be allowed to reach a 7-day average of the daily maximum (7-DADM) temperatures of 16.5 C…… The 7-DADM temperature shall not exceed 11°C between October 1st and March 31st.*

The language above is an editorial change that does not change the temperature criteria in effect between June 1 to September 1, and October 1 to March 31 that EPA previously approved in 2003.

EPA disapproves the revisions to the temperature criteria from September 1st to September 30th and from April 1st to May 31st. Specifically, EPA disapproves the revised language in the second sentence in Paragraph 1(c)(iv), which states:

> *…Temperature shall not exceed the 7-DADM Table 5 value from September 1st through September 30th as well as from April 1st through May 31st…*

EPA is also disapproving the Class AA temperature criteria in Table 5.

EPA Rationale

The Tribal water quality standards include the following aquatic life uses in their Class AA waters:

Fish and Shellfish, including:

- Salmonid migration, rearing, spawning, and harvesting.
- Other fish migration rearing, spawning, and harvesting.
- Clam and mussel rearing and, spawning, and harvesting.
- Mollusks, crustaceans and other shellfish rearing, spawning and harvesting.
- The table below summarizes the revisions made to the 2003 WQS:

The table below summarizes the revisions made to the 2003 WQS:

2003 Water Quality Standards		2010 Water Quality Standards	
Time Period	***Criteria***	***Time Period***	***Criteria***
September 1 – October 1	13.5 °C	**September 1 – September 30[1]**	16.32 °C – 11 °C
October 1 – April 1	11.0 °C	**October 1 – March 31**	11.0 °C
April 1 – June 1	13.5 °C	**April 1 – May 31[2]**	11.09 °C – 16.5 °C
June 1 – September 1 **June 1- September 1** (when only non-anadromous form of naturalized rainbow or redband trout are present)	16.5 °C 18.5 °C	**June 1 – August 31** **N/A**	16.5 °C **N/A**
No single daily maximum temperature may exceed	18.5 °C	**No single daily maximum temperature may exceed**	N/A
Footnotes: 1. Temperature criterion decreases incrementally each day (i.e., Sept 1 is 16.32, Sept 2 is 16.13, etc). 2. Temperature criterion increases incrementally each day (April 1 is 11.09°C, April 2 is 11.18 °C, April 3 is 11.27°C, etc).			

EPA relied on the temperature guidance document titled *EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards* (April 2003, hereafter referred to as the Temperature Guidance) to review the Tribe's revisions to its temperature criteria. The Temperature Guidance contains recommended temperature criteria for different salmonid uses (these uses and associated criteria are summarized in the table below), and it also contains a recommended approach for applying the different salmonid uses based on actual fish use information in streams. The scientific rationale and basis for EPA's recommended criteria is described in the Temperature Guidance and the supporting Technical Issue Papers. For more detail on the derivation of the numbers in the tables, see the Temperature Guidance and the Technical Issue Papers. The Temperature Guidance recommends the following temperatures for protecting specific salmonid uses:

SALMONID USES AND CRITERIA	
Salmonid Uses During the Summer Maximum Conditions	Criteria
Salmon/Trout "Core" Juvenile Rearing (Salmon adult holding prior to spawning, and adult and subadult bull trout foraging and migration may also be included in this use category)	16 °C
Salmon/Trout Migration plus "Non-core" Juvenile Rearing	18 °C
Salmon/Trout Migration	20 °C
Salmonid Uses Where/When Occur	
Salmon/Trout Spawning, Egg Incubation, and Fry Emergence	13 °C
NOTES: 1. The temperature metric for each criterion is the 7-DADM. 2. "Salmon" refers to Chinook, Coho, Sockeye, Pink, and Chum salmon. 3. "Trout" refers to Steelhead and coastal cutthroat trout. 4. Bull trout is also known as Char.	

The Tribe has provided no fish information documenting that Class AA waters on the Reservation lack salmon/trout, egg incubation, and fry emergence from September 1 through September 20th (i.e., the time period when the temperature exceeds the 13 °C which is the recommended temperature for spawning, egg incubation and fry emergence); or from April 23 through May 31 (time period when the temperature is greater than the recommended 13 °C). Absent this information there is no way to determine if the revised criteria are protective of the Tribe's designated uses (which include salmonid spawning and rearing) during these time periods. Therefore, EPA is disapproving the revised language

(i.e., *Temperature shall not exceed the 7-DADM Table 5 value from September 1st through September 30th as well as from April 1st through May 31st*), and the associated temperature criteria in Table 5 because it allows the temperature criterion to exceed 13°C during possible spawning, egg incubation, and fry emergence periods

Remedy to Address EPA's Disapproval
To address this disapproval, the Tribe must adopt temperature criteria that are based on a sound scientific rationale and protect designated uses. There are several means by which the Tribe may potentially accomplish this objective. They include:

- Revise the temperature criteria consistent with EPA Region 10's Temperature Guidance.

- Resubmit the temperature criteria with a sound scientific rationale to establish that the application of the temperature values is protective of designated uses.

Temperature Criteria Currently in Effect
Until EPA approves or promulgates revised temperature criteria for aquatic life for the time periods September 1 – October 1and April 1- June 1, the previously approved aquatic life temperature criteria are in effect for CWA purposes. The criteria are:

September 1 – October 1:	13.5 °C (7DADM)
April 1- June 1:	13.5 °C (7DADM)

B. EPA Action On Revised Temperature Criteria for Class A Waters

The following presents the new language contained in Section 9 Provision 2(c)(iv) of the WQS. Deleted text indicates text that was removed and new text is underlined and indicates the language that was added in the 2010 water quality standards adoption.

> (iv) ~~*Water used for spawning or rearing by naturalized populations of indigenous salmon or trout. Not to exceed a 7-day average of the daily maximum temperature values greater than 16.5 C from June 1 to September 1. Not to exceed a 7-day average of the daily maximum temperature values greater than 13.5 C between September 1 and October 1 and between April 1 and June 1, and not to exceed 11 C from October 1 to April 1; with no single daily maximum temperature exceeding 18.5 C. Exception for Non-Anadromous Rainbow and Redband Trout. In waters where the only salmonid present is non-anadromous form of naturalized rainbow or redband trout. Temperatures from June 1 to September 1 may be allowed to reach a 7-day average of the daily maximum temperatures of 18.5 C.*~~ *temperatures (sic) from June 1 to August 31 may be allowed to reach a 7-day average (7-DADM) of the daily maximum temperature of 18.5 C. Temperature shall not exceed the 7-DADM Table 5 value from September 1st through September 30th as well as from April 1st through May 31st. The 7-DADM temperature shall not exceed 11°C between October 1st and March 31st.*

EPA Action
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA disapproves the Tribe's revisions to the temperature criteria for Class A waters, and the associated temperature criteria for Class A waters contained in Table 5.

EPA Rationale
The Tribal water quality standards include the following aquatic life uses in their Class A waters:

Fish and Shellfish, including:
- Salmonid migration, rearing, spawning, and harvesting.
- Other fish migration rearing, spawning, and harvesting.
- Mollusks, crustaceans and other shellfish rearing, spawning and harvesting.

The table below summarizes the revisions made to the 2003 WQS:

2003 Water Quality Standards		**2010 Water Quality Standards**	
Time Period	***Criteria***	***Time Period***	***Criteria***
June 1 – September 1	16.5 °C	**June 1 – August 31**	18.5 °C
June 1- September 1 (when only non anadromous form of naturalized rainbow or redband trout are present)	18.5 °C	**N/A**	**N/A**
September 1 – October 1	13.5 °C	**September 1 – September 30**[1]	18.25 °C – 11 °C
April 1 – June 1	13.5 °C	**April 1 – May 31**[2]	11.12 °C – 18.5 °C
October 1 – April 1	11.0 °C	**October 1 – March 31**	11.0 °C
No single daily maximum temperature may exceed	18.5 °C	**No single daily maximum temperature may exceed**	**N/A**
Footnotes: 1. Temperature criterion decrease by 0.25 °C each day (i.e., Sept 1 is 18.25, Sept 2 is 17.75, etc). 2. Temperature criterion increases by approximately 0.12 °C each day (April 1 is 11.12°C, April 2 is 11.25 °C, April 3 is 11.37°C, etc).			

As stated previously, the Temperature Guidance contains recommended temperature criteria for different salmonid uses (these uses and associated criteria are summarized in the "Salmon Uses and Criteria" table above in Section VII.A) and it also contains a recommended approach for applying the different salmonid uses based on actual fish use information in streams.

The Temperature Guidance recommends applying a 16° C temperature criterion for streams that currently have one or more of the following 5 factors:

1. moderate-to-high density summer juvenile salmon rearing
2. summer salmon/steelhead spawning or incubation
3. summer adult/sub-adult bull trout foraging and migration
4. summer juvenile rearing with current streams temperature at or below 16°C
5. the potential to support moderate-to-high density summer juvenile rearing that is important for the recovery of salmonids

The Tribe provided no fish information documenting that Class A waters on the Reservation lack the above referenced factors, or that higher temperatures between April 17th and May 31st, and between September 1st and September 21st, will be protective of the Tribes designated aquatic life uses (which include salmonid spawning and rearing). This temperature revision appears to protect only rainbow and redband trout and does not necessarily provide adequate spring and summer temperatures needed to protect other types of salmonids. Without specific information documenting which types of salmonids reside in Class A waters, it is not possible to determine if the Tribe's designated uses are being protected. Therefore, EPA is disapproving the revisions to Section 9, Paragraph (2)(c)(iv).

Remedy to Address EPA's Disapproval
To address this disapproval, the Tribe must adopt temperature criteria that are based on a sound scientific rationale and protect designated uses. There are several means by which the Tribe may potentially accomplish this objective. They include:

- Revise the temperature criteria consistent with EPA Region 10's Temperature Guidance.

- Resubmit the temperature criteria with a sound scientific rationale to establish that the applications of temperature values are protective of designated uses.

Temperature Criteria Currently in Effect
Until EPA approves or promulgates revised temperature criteria for aquatic life, the previously approved aquatic life temperature criteria are in effect for CWA purposes.

VIII. Surface Waters Classifications

In Section 11 of the Tribe's water quality standards, specific surface waters on the Spokane Reservation are classified. In the 2010 water quality standards adoption, the Tribe included Ente' Creek as a Class A water. Additionally, the Tribe corrected a spelling error. The Tribe corrected the following (new letters that were added in the 2010 WQS adoption are underlined):

Chamokane (Tshimikain) Creek.

EPA Action
In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA approves the Tribe's addition of Ente' Creek as a Class A water in Section 11 of the water quality standards. In the 2003 water quality standards, all unclassified streams that were not tributaries to Class AA streams were designated as Class A waters (Section 10); therefore, Ente' Creek was previously classified as a Class A water by default. Ente' Creek is now specifically designated as Class A in Section 11.

Additionally, EPA acknowledges the editorial change to the spelling of *Tshimikain* and approves it as a non-substantive editorial change.

IX. Mixing Zone Provisions

The following presents the new language contained in Section 13 of the WQS. Deleted text indicates text that was removed and new text is underlined and indicates the language that was added in the 2010 water quality standards adoption.

13. IMPLEMENTATION

(1) All discharges from point sources and all activities which generate nonpoint source pollution shall be conducted so as to comply with this chapter.

~~*(2) Activities which cause pollution of storm water shall be conducted so as to comply with these water quality standards.*~~

(2) The standards required in this chapter may not be met by using a mixing zone, except where:

(a) the allowable size, location and duration of the mixing zone and associated effluent limits are established by the Department as part of a cleanup performed under the Federal or Tribal cleanup laws, and as established, the mixing zone will be at least as protective of human health and the environment as a mixing zone established under the laws of the State of Washington; and

(b) the size of the mixing zone and the concentrations of pollutants present shall be minimized; and

(c) overlapping mixing zones shall only be allowed if, in combination, the requirements of subsection (f)(sic) are satisfied; and

(d) water quality criteria 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; and

(e) the discharge is either:

(i) at a sufficient depth below the surface of the receiving water body that the criteria applicable to the constituent of concern being addressed by using the mixing zone is met at the water body's surface; or

(ii) located at a distance from the shore that ensures sensitive human and wildlife receptors are not likely exposed at the water body's surface for extended periods.(3) Activities which cause pollution of stormwater shall be conducted so as to comply with these water quality standards.(sic)

EPA Action

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR Part 131, EPA approves the Tribe's mixing zone policy.

EPA Rationale

Mixing zones are areas where instantaneous or rapid and complete mixing of discharges with receiving waters does not occur, and pollutant concentrations are allowed to exceed otherwise applicable water quality criteria. The federal water quality standards regulation at 40 CFR § 131.13 provides that states and tribes have the discretionary authority to include regulatory mixing zone policies in their water quality standards. When mixing zone policies are included, they are subject to EPA review and approval or disapproval pursuant to § 303(c) of the CWA. As explained in EPA's Advanced Notice of Proposed Rule Making, 63 FR 36787, July 7, 1998, EPA interprets the CWA as allowing the use of mixing zones as long as the provisions addressing toxicity at CWA § 101(a)(3) are met and the designated uses of the waterbody as a whole are protected. EPA's allowance of mixing zones is based on a premise that surface water quality criteria can be exceeded under limited circumstances without causing unacceptable toxicity and impairment of a water's uses.

In general, the Spokane Tribe's mixing zone policy does not allow the use of mixing zones with an exception made for effluent limitations that are established as part of a cleanup performed under Federal or Tribal Clean up Laws.[31] The purpose of the Tribal clean up law is to provide remedial law for the cleanup of hazardous substances sites, and to prevent the creation of future hazards due to improper use or disposal of hazardous substances on or into the Reservation Environment. The chapter is consistent with CERCLA.

Since the mixing zone policy is so limited in what it pertains to, is associated with CERCLA clean up sites, and limits the sizing of the mixing zone to be consistent with the State of Washington's requirements, this policy is consistent with the requirements of CWA 40 CFR Part 131.

[31] The WQS define Federal clean up law as the Comprehensive Environmental, Response, Compensation and Liability Act, 42 U.S Sec 9601, *it seq* (more commonly known as Superfund); and it defines "Tribal clean up law as the Hazardous Substances Control Act, Chapter 34, Law and Order Code of the Spokane Tribe of Indians. Tribal clean up laws are consistent with CERCLA.

Spokane Tribal Natural Resources
P.O. Box 480 • Wellpinit, WA 99040 • (509) 626 - 4400 • fax 258 - 9600

4/7/2010

Michael A. Bussell, Director
Office of Water and Watersheds
US EPA, Region 10
1200 6th Avenue, Suite 900, OWW-131
Seattle, WA 98101-3140

Dear Mr. Bussell

The Spokane Tribe of Indians is submitting its revised water quality standards for EPA approval. We began our review three years after EPA's first approval in 2003. Following the Clean Water Act recommended public participation process the Tribe made changes; held a public hearing and requested comments during a 45-day period and have prepared a responsiveness summary.

The Tribe has updated specific items in the standards based on the promulgated Tribal-Specific Exposure Factors (Harper, et al 2002) and the reference dose for arsenic has changed. Other major changes to the standards included changes or additions regarding mixing zones, time dependant transition curve, water consumption rate and the fish consumption rate.

The Tribe's standards did not previously have a mixing zones provision in the standards and felt the need as it related to potential cleanup actions. The temperature changes are focused on removing the old "step" increases and decreases that are not found in any body of water to our knowledge. We have smoothed the step out while keeping the before and after temperatures the same. This change reflects how water will increase and decrease more slowly as opposed to a 5 degree drop in one day. An adjoining table has been developed for inclusion into the standards.

The water consumption rate has increased from 2 to 4 liters/day based on historical physical activities that required more water consumption and the fish consumption rate has been increased from 86.3 grams/day to 865 grams/day to reflect the historic fish consumption rate of the Tribe. The supporting documentation for this decision was not available in 1999 when the Tribe first adopted water quality standards and therefore relied upon the EPA defaults.

The calculated numerical standard for a given COC (constituent of concern) is inversely proportional to both the water and fish consumption rates. The 2010 standard for a single COC is roughly 20 times more stringent than the 1999 standards.

Also within this revision there has been an incorporation of a cumulative risks assessment approach for calculating acceptable surface water contamination levels. This approach maintains consistency with the Tribal Cleanup Law (Hazardous Substances Control Act, Chapter 34, STOI LOC).

If there are any questions as you review this information please contact me. The attachments are listed below and in addition we will send an electronic copy of the Tribal-Specific Exposure Factors.

Brian Crossley
Water & Fish Program Manager
Spokane Tribe, Dept. of Natural Resources
PO Box 480
Wellpinit WA 99040
(509) 626-4409

Attachments include:

Revised Water Quality Standards
Attorney certification of public due process
Resolutions adopting the standards prior public comment
Resolution adopting the standards following public comment
Responsiveness Summary
Red-line version of changes

CC:

Sally Brough, Water Quality Standards Division, R10
Rudy Peone, DNR Director
Ted Knight, Tribal Attorney
Shannon Work, Tribal Attorney
Greg Abrahamson, Chairman-Tribal Business Council

Final Version

SPOKANE TRIBE OF INDIANS

SURFACE WATER QUALITY STANDARDS

February 25, 2010
Resolution 2010-173

SPOKANE TRIBE OF INDIANS
SURFACE WATER QUALITY STANDARDS

TABLE OF CONTENTS

TABLES

1. INTRODUCTION

(1) The Executive Order of President Hayes in 1881 (I Kappler 924) confirmed that the Spokane Indian Reservation was reserved for the Spokane Tribe of Indians for the purpose of providing a permanent homeland for the Spokane people. Pursuant to that purpose, the Tribe's reserved water rights and the Constitution of the Spokane Tribe of Indians, the Spokane Business Council hereby establishes these water quality standards to apply to all surface waters on lands within the constitutional jurisdiction of the Spokane Tribe of Indians. These standards shall provide a mechanism for managing and regulating the quality and use of said waters by establishing goals for specific water bodies.

(2) These standards have been adopted pursuant to Articles II, V, VIII, IX and XI of the Constitution of the Spokane Tribe. These standards shall serve to protect the public health, safety and welfare, and to enhance the quality of water on the Spokane Indian Reservation.

(3) The purposes of these water quality standards are: to restore, maintain and protect the chemical, physical, biological, and cultural integrity of the surface waters of the Spokane Indian Reservation; to promote the health, safety, welfare, and economic well-being of the Spokane Tribe, its people, and all the residents of the Spokane Indian Reservation; to achieve a level of water quality that provides for the protection and propagation of fish and wildlife, for recreation in and on the water, and for all existing and designated uses of the water; to promote the holistic watershed approach to management of the Reservation's water; and, to provide for protection of threatened and endangered species.

(4) These standards are designed to establish the uses for which the surface waters of the Spokane Tribe shall be protected, to prescribe narrative and numeric water quality criteria to sustain the designated uses, to protect existing water quality, and to prevent water quality degradation.

As part of this chapter:

(a) All surface waters are protected by narrative criteria, designated uses, and an antidegradation policy.

(b) Based on the use designations, numeric and narrative criteria are assigned to a water body to protect the existing and designated uses.

(c) Where multiple criteria for the same water quality parameter are assigned to a water body to protect

different uses, the most stringent criteria for each parameter is to be applied.

(d) Where multiple contaminants of concern have been identified or where multiple media has been contaminated, or where more than one exposure pathway has been identified, water quality standards shall be determined using the cumulative risk assessment approach and definitions described in the Tribal Cleanup Law.

(5) The water use and quality criteria set forth herein are established in general conformance with water uses of the surface waters of the Spokane Indian Reservation and in consideration of the natural water quality potential and limitations of the same.

(6) The Surface Water Quality Standards were first adopted by the Spokane Business Council on December 17, 1999, by Resolution 2000-105. As a result of public comments received after hearings were held on February 10, 2000, the standards were revised on June 19, 2000, by Resolution 2000-105. To address further comments these standards were again revised on February 13, 2001, by Resolution 2001-144. Finally, the standards were revised on March 7, 2003, by Resolution 2003-244 to address a technical correction identified by staff. These revised standards supersede and replace all previous standards. These standards shall become effective on the date of adoption, and shall be applicable and in force, to the full extent of the law, until repealed or replaced by the Spokane Business Council.

2. DEFINITIONS

The following definitions shall apply in the interpretation of these standards:

"1-day maximum temperature" or "1-DM" or is the highest water temperature reached on any given day. This measure can be obtained using calibrated maximum/minimum thermometers or continuous monitoring probes having sampling intervals of thirty minutes or less.

"7-day average of the daily maximum temperatures" or "7-DADM" is the arithmetic
average of seven consecutive measures of daily maximum temperatures. The 7-DADM for any individual day is calculated by averaging that day's daily maximum temperature with the daily

maximum temperatures of the three days prior and the three days after that date.

"Acute toxicity" means a relatively short-term lethal or other adverse effect to an organism caused by pollutants, and usually defined as occurring within 4 days for fish and large invertebrates and shorter times for smaller organisms.

"Background" means the natural three-dimensional distribution of physico-chemical conditions associated with the volume of media in which the release occurred, prior to the release. In many instances, location immediately outside of the nature and extent of contamination can be used by the Department to determine background. In instances in which no such locations are available, the Department shall identify an "appropriate reference site or region".

"Appropriate reference site or region" means a site on the same waterbody or within the same basin or eco-region that has similar fish and wildlife habitat conditions and which is expected to represent the best attainable water quality and biological community within the area(s) of concern.

"Aquatic species" or "aquatic organism" means any plant or animal which lives at least part of its life cycle in water.

"Biological assessment" is an evaluation of the biological condition of a water body using surveys of aquatic community structure, function, diversity, presence or absence, or other direct measurements of resident aquatic species and other 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. Biological criteria serve as an index of aquatic community health.

"Carcinogen" means any substance or agent that produces or tends to produce cancer in humans. For implementation of this chapter, the term carcinogen will apply to substances on the U.S. EPA lists of A (known human), B (probably human), and C (possible human) carcinogens.

"Chronic toxicity" means a fairly long-term adverse effect to an organism (when compared to the life span of the organism) caused by or related to changes in feeding, growth, metabolism, reproduction, a pollutant, genetic mutation, etc. Short-term test methods for

detecting chronic toxicity may be used.

"Constructed wetlands" means those wetlands intentionally created from non-wetland sites for the sole purposes of wastewater or stormwater treatment.

"Cultural water use" means the use of waters to support and maintain the way of life of the Spokane Tribal People, including, but not limited to: use for instream flow, habitat for fisheries and wildlife, and preservation of habitat for berries, roots, medicines and other vegetation significant to the values of the Spokane Tribal People.

"CWA" or "Clean Water Act" means the federal Clean Water Act (33 U.S.C. 1251 *et seq.*), as amended.

"Cumulative Risk" means risk caused from post release doses from multiple pathways, multiple media (primary and secondary sources), and/or multiple hazardous substances. This definition is consistent with the Tribal cleanup law.

"Department" means the Spokane Tribal Water Resources Program in the Spokane Tribal Natural Resources Department.

"Designated use" means a use that is specified in these water quality standards as a goal for a water body segment, regardless of whether it currently is being attained or whether an existing use is identified for that segment.

"E. coli" means Escherichia coli, a species of Gram-negative bacteria normally present in the intestines of human beings and all vertebrates.

"Engineered wetlands" means wetlands intentionally altered from their natural condition for the purpose of enhancing the wetlands' ability to filter wastewater or storm water.

"EPA" means the United States Environmental Protection Agency.

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

"Federal cleanup law" means the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. Sec. 9601, *et seq.*

"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.

"g/day" means grams per day, as used to calculate human consumption of organisms to determine toxic pollutant criteria.

"Hardness" means a measure of the calcium and magnesium salts present in water. For the purposes of this chapter, hardness is measured in milligrams per liter and expressed as calcium carbonate (CaCO3).

"Intermittent stream" means a waterway which flows only at certain times of the year or does not flow continuously.

"Mean detention time" is the mean amount of time that water remains in a basin. The time is computed by dividing a reservoir's mean annual minimum total storage by the thirty-day, ten-year, low flow from the reservoir.

"Mixing zone" means that portion of a water body affected by the discharge of effluents in accordance with Section 13(2) of this chapter where mixing results in the dilution of the effluent with the receiving water.

"mg/L" means milligrams of solute per liter of solution.

"Natural conditions" means surface water quality that was present before human-caused pollution. When assessing natural conditions in the headwaters of a disturbed watershed, it may be necessary to use an appropriate reference site.

"Nonpoint source" means pollution that enters any waters of the reservation from any dispersed land based or water-based activities, including but not limited to atmospheric deposition, surface water runoff from agricultural lands, urban areas, or forest lands, subsurface or underground sources, or discharges from boats or marine vessels not otherwise regulated under the National Pollutant Discharge Elimination System program.

"ppm" means parts per million.

"pCi/l" means picocuries per liter.

"pH" means the negative logarithm of the hydrogen ion activity.

"Point source" means any discernible, confined and discrete conveyance, including, but not limited to, any pipe, ditch, seep,

spring, channel, sewer, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.

"Pollutant" includes, but is not limited to, dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical waste, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, mining, milling, municipal, and agricultural waste discharged into water.

"Pollution" includes such contamination or other alteration of the physical, chemical or biological properties of any surface waters of the tribe, including change in temperature, taste, color turbidity, or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive, or other substance into any surface waters of the tribe as will or is likely to create a nuisance or impair any designated use or existing use of such waters.

"Primary contact ceremonial and spiritual" water use means activities involving Native American religious, spiritual and cultural practices which may involve primary and secondary contact with water, and immersion and intentional or incidental ingestion of water or steam. Such use also requires protection of sensitive and valuable aquatic life and riparian habitat.

"Primary contact recreation" means activities in which a person would have direct contact with water to the point of complete submergence, including but not limited to ceremonial, spiritual and cultural uses, and skin diving, swimming and water skiing.

"Process wastewater" means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

"Receiving waters" means any water source or water body that receives treated or untreated discharges.

"Reservation" means all lands and waters within the exterior boundaries of the Spokane Indian Reservation, as set forth by Executive Order in 1881, and any extensions thereof, and all Spokane Tribal and allotted Indian lands outside the exterior boundaries of the Spokane Indian Reservation.

"Resident aquatic community" or "aquatic life" means the various aquatic species expected to exist in a particular habitat when

water quality standards for a specific eco-region, basin, or water body are met. This shall be established by accepted biomonitoring techniques.

"Secondary contact recreation" means activities, including but not limited to wading or fishing, in which a person's water contact would be limited, to the extent that bacterial infections or chemical exposures to eyes, ears, respiratory, or digestive systems or urogenital areas would normally be avoided.

"Seep" means water issuing from geologic material at a rate that is slightly greater than the rate of evaporation resulting in non-flowing conditions.

"Spring" means water issuing from geologic material at a rate that is greater than the rate of evaporation resulting in flowing or standing conditions.

"Standards" means the Spokane Tribal Surface Water Quality Standards as set forth herein.

"Stormwater" means that portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, pipes, and other features of a stormwater drainage system into a defined surface water body or a constructed infiltration facility.

"Surface waters of the Tribe" includes lakes, rivers, ponds, streams (including intermittent streams), wetlands, inland waters and all other surface waters and water sources of the Reservation.

"Temperature" means water temperature expressed in degrees Celsius (°C).

"Threatened or endangered species" or "listed species" means any species of fish, wildlife or plant which has been determined to be endangered or threatened under Section 4 of the federal Endangered Species Act. Listed species are found in 50 CFR 17.11-17.12.

"Toxicity" means acute or chronic toxicity.

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

"Toxic pollutants" means those pollutants, or combinations of pollutants, 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, will, on the basis of information available to EPA or the Department, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in exposed organisms or their offspring.

"Tribal Business Council" means the governing body of the Spokane Tribe of Indians exercising those powers authorized by the Spokane Tribal Constitution of June 27, 1951, as amended.

"Tribal cleanup law" means the Hazardous Substances Control Act, Chapter 34, Law and Order Code of the Spokane Tribe of Indians.

"Tribe" means the Spokane Tribe of Indians.

"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 (TP). Secchi depth and chlorophyll-a measurements may be used to improve 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.

"True color" means the color of water from which turbidity has been removed.

"Turbidity" means a condition in water or discharges caused by the presence of suspended matter resulting in the scattering and absorption of light rays, as measured in nephelometric turbidity units (ntu's).

"ug/L" means micrograms per liter.

"Waste" includes sewage, industrial, municipal, household or business wastes, and all other liquid, gaseous, solid, radioactive, or other substances which will or may cause pollution or tend to cause pollution of any water body.

"Wastewater" means any water which comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

"Water quality" means the chemical, physical, biological, and cultural characteristics of a water body or segment of a water

body.

"Wetland" means any area that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, riparian zones and similar areas.

"Wildlife habitat" means the surface waters of the tribe used by, or that directly or indirectly provide support to, fish, other aquatic life, and wildlife, for any life history stage or activity.

3. GENERAL CONDITIONS

The following conditions shall apply to the water quality criteria and classifications set forth herein.

(1) All surface waters shall be free from pollutants and other materials in concentrations or combinations that do not protect the most sensitive existing or designated use of the water body.

(2) Whenever the natural conditions of any specific surface waters of the Reservation are of a lower quality than the criteria assigned to waters typical of that class, the Department may determine that the natural conditions shall constitute the water quality criteria.

(3) At the boundary between surface waters of different classifications, the more stringent water quality criteria shall prevail. If existing or designated uses of more than one resource are affected, the most protective criteria shall apply.

(4) The Department may revise criteria on a Reservation-wide or waterbody-specific basis as needed to protect aquatic life and human health and other existing and designated uses and to increase the technical accuracy of the criteria being applied. The Department shall formally adopt any revised criteria following public review and comment, and shall submit revisions to EPA for review and approval.

(5) The analytical testing methods used to measure or otherwise evaluate Water Quality Standards shall to the extent practicable, be in accordance with the most recent editions of "Standard Methods for the Examination of Water and Wastewater,"

published by the American Public Health Association, American Water Works Association, and the Water Pollution Control Federation, and "Methods for Chemical Analysis of Water and Wastes," published by the EPA, and other or superseding methods published and/or approved by the Department following consultation with and concurrence of the EPA.

4. ANTIDEGRADATION POLICY

(1) The existing instream beneficial uses of each water body and the level of water quality necessary to protect those uses shall be maintained and protected.

(2) Where the quality and total maximum daily loads of the waters are at higher qualities than necessary to support propagation of fish, shellfish and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the Department finds, after full satisfaction of the intergovernmental coordination and public participation required by law, 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 Department shall assure water quality adequate to protect existing uses fully. Further, the Department shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.

(3) Where high quality waters constitute an outstanding national or Tribal resource, or waters of exceptional recreational or ecological significance, the water quality and uses of those water bodies shall be maintained and protected.

(4) In those cases where potential water quality impairments associated with thermal discharge are involved, the antidegradation policy and implementing method shall be consistent with Section 316 of the Clean Water Act, as amended (33 U.S.C. § 1326).

5. NARRATIVE CRITERIA

All surface waters of the Reservation shall be free from pollutants and other materials attributable to point source discharges, nonpoint sources, or instream activities in accordance with the following:

(1) Floating Solids, Oil and Grease: All waters shall be free from visible oils, scum, foam, grease, and other floating and suspended materials of a persistent nature resulting from other than natural causes.

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

(3) Odor and Taste: Materials from other than natural 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.

(4) Nuisance Conditions: Nutrients or other materials 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, or otherwise cause nuisance conditions.

(5) Turbidity: Turbidity shall not be at a level to threaten or impair existing and designated uses or aquatic biota.

(6) Bottom Deposits: All surface waters of the tribe shall be free from anthropogenic materials that may settle and have a deleterious effect on the aquatic biota or that will significantly alter the physical and chemical properties of the water or the bottom sediments.

(7) In issuing permits, Tribal authorities shall attempt to insure that to the extent practicable, all waters shall be free from 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, or resulting from discharges from consumptive or nonconsumptive uses of water following surface water diversions or ground water pumping.

6. TOXIC POLLUTANTS

(1) Toxic pollutants shall not be introduced into surface waters of the Reservation in concentrations which have the potential either singularly or cumulatively to adversely affect existing and designated uses, cause acute or chronic toxicity to the most sensitive biota dependent upon those waters, or adversely affect public health, as determined by the Department.

(2) The Department may employ or require chemical testing, acute and/or chronic toxicity testing, and biological assessments, as appropriate, to evaluate compliance with subsection (1) of this section. Where necessary, the Department may establish controls to ensure that aquatic communities and the existing and designated beneficial uses of waters are being fully protected.

(3) Criteria for toxic pollutants and other materials not currently listed in Table 1 shall be determined with consideration of U.S. EPA Quality Criteria for Water, 1986, as updated, and other relevant information as appropriate.

(4) Risk-based criteria for carcinogenic materials shall be applied such that the upper-bound excess cancer risk is less than or equal to one in one million, which means the probability of one excess cancer per one million people exposed.

(5) Human-health risk-based criteria for non-carcinogenic materials shall be applied such that the hazard index, as defined in the Tribal Cleanup Law for a given mixture, does not exceed 1.0

(6) The aquatic organism consumption rate utilized in determining the human health criteria shall be 865 g/day.

(7) The surface water consumption rate utilized in determining the human health criteria shall be 4 L/day.

(8) The guidelines set forth in 40 CFR Part 136 shall be used as guidance for analytical methodologies

(9) The criteria in Table 1 shall be applied to all surface waters of the tribe for the protection of aquatic life and human health. The concentration for each compound listed in Table 1 is a criterion for aquatic life or human health protection. Table 1 is developed using the following assumptions:

a. the receptor (e.g human) receives a dose from a single

contaminant (e.g. cadmium) from a single medium (e.g. surface water) via direct ingestion of water or fish and water; and

b. the dose from natural background conditions is negligible

Site-specific numerical criteria as described in the Tribal Cleanup Law must be developed in the event these assumptions are incorrect. If natural background conditions exceed the risk criteria defined in this section, then the natural background conditions are the numerical standard.

Selecting values for regulatory purposes will depend on the most sensitive beneficial use to be protected and the level of protection necessary for aquatic life and human health as specified within Table 1. Application for a reduction in the list of compounds or elements must be based on proof that one or more of the proposed compounds are not of concern. Authorization of such a reduction is at the discretion of the Department. All concentrations, except asbestos, are micrograms per liter (ug/L).

Table 1. Water Quality Criteria for Toxic Pollutants (ug/l).

Compound	Carcinogen?	Acute (a) Criteria	Chronic (b) Criteria	Water & Organisms	Organisms Only
Acenaphthene	n			1.97E+01	2.01E+01
Acrolein	n			5.75E+00	5.87E+00
Acrylonitrile	y			4.33E-03	5.00E-03
Aldrin (e)	y	3.0E+00	1.9E-03	1.02E-06	1.02E-06
Aluminum (pH 6.5 - 9.0)	n	7.5E+02	8.7E+01	-----	-----
Ammonia, un-ionized (f, g)	n	2.4E+04	5.9E+03	-----	-----
Anthracene	n			7.01E+02	8.09E+02
Antimony	n			5.76E+00	3.24E+01
Arsenic (h)	y	3.4E+02	1.5E+02	9.51E-04	1.05E-03
Asbestos	y			-----	-----
Barium	n			1.00E+03	-----
Benz(a)anthracene	y			3.2E-04	3.7E-04
Benzene	y			2.84E-01	5.37E-01
Benzidine	y			3.82E-06	4.02E-06
Benzo(a)pyrene	y			3.2E-04	3.7E-04
3,4-Benzo(b)fluoranthene	y			3.2E-04	3.7E-04
Benzo(k)fluoranthene	y			3.2E-04	3.7E-04
alpha BHC	y			9.54E-05	9.88E-05
beta BHC	y			3.34E-04	3.46E-04
gamma BHC (e)	y	9.5E-01	8.E-02	4.53E-04	4.69E-04
Bis(2-chloroethyl) Ether	y			6.38E-03	1.07E-02
Bis(2-chloroisopropyl) Ether	n			4.56E+02	1.31E+03
Bis(2-chloromethyl)ether	y			7.00E-05	5.84E-04
Bis(2-ethylhexyl)phthalate	y			4.29E-02	4.45E-02
Bromoform	y			1.22E+00	2.73E+00
Butylbenzyl phthalate	n			3.87E+01	3.91E+01
Cadmium (j)	n	3.7E+00	1.0E+00	8.75E+00	-----
Carbon tetrachloride	y			2.66E-02	3.32E-02
Chlordane (e)	y	2.4E+00	4.3E-03	4.41E-06	4.41E-06
Chloride		8.6E+05	2.3E+05	-----	-----
Chlorine	n	1.9E+01	1.1E+01	1.75E+03	-----
Chlorobenzene	n			1.08E+02	1.57E+02
Chlorodibromomethane	y			1.15E-01	2.57E-01
Chloroform	y			1.58E+00	3.54E+00
2-Chloronaphthalene	n			3.13E+01	3.20E+01
2-Chlorophenol	n			2.92E+00	3.02E+00
Chlorpyrifos	n	8.3E-02	4.1E-02	5.25E+01	-----
Chromium (Hex)	n	1.5E+01	1.0E+01	5.25E+01	-----
Chromium (Tri; j)	n	5.5E+02	7.4E+01	2.63E+04	-----
Chrysene	y			3.20E-04	3.70E-04
Copper (j)	n	1.3E+01	9.0E+00	1.21E+01	1.21E+01
Cyanide	n	2.2E+01	5.2E+00	2.88E+02	1.62E+03
4,4'-DDD	y			6.29E-06	6.29E-06

Table 1. Water Quality Criteria for Toxic Pollutants (Continue

4,4'-DDE	y			4.44E-06	4.44E-06
4,4'-DDT (e)	y	1.1E+00	1.E-03	4.44E-06	4.44E-06
Demeton	n		1.E-01	-----	-----
Dibenz(a,h)anthracene	y			3.20E-04	3.70E-04
Dibutyl phthalate	n			8.64E+01	9.09E+01
1,2-(o)Dichlorobenzene	n			1.21E+02	1.31E+02
1,3-(m)Dichlorobenzene	n			1.80E+01	1.95E+01
1,4-(p)Dichlorobenzene	n			1.80E+01	1.95E+01
3,3-Dichlorobenzidine	y			5.68E-04	5.76E-04
Dichlorobromomethane	y			1.56E-01	3.48E-01
Dichlorodifluoromethane	n			1.93E+03	4.32E+03
1,2-Dichloroethane	y			1.53E-01	7.41E-01
1,2-trans-Dichloroethylene	n			2.61E+02	1.02E+03
1,1-Dichloroethylene	y			1.32E-02	2.41E-02
2,4-Dichlorophenol	n			5.36E+00	5.96E+00
1,2-Dichloropropane	n			1.40E-01	2.97E-01
1,3-Dichloropropylene	n			3.72E+00	1.27E+01
Dieldrin (e)	y	2.4E-01	1.9E-03	1.08E-06	1.08E-06
Diethyl phthalate	n			8.34E+02	8.87E+02
2,4-Dimethylphenol	n			1.64E+01	1.73E+01
Dimethyl phthalate	n			1.99E+04	2.25E+04
2,4-Dinitrophenol	n			2.64E+01	1.08E+02
2,4-Dinitotoluene	y			3.06E-02	6.78E-02
2,3,7,8-TCDD (Dioxin)	y			1.04E-10	1.04E-10
1,2-Diphenylhydrazine	y			3.43E-03	4.06E-03
alpha Endosulfan (e)	n	2.2E-01	5.6E-02	1.77E+00	1.80E+00
beta Endosulfan (e)	n	2.2E-01	5.6E-02	1.77E+00	1.80E+00
Endosulfan sulfate	n			1.77E+00	1.80E+00
Endrin (e)	n	8.6E-02	2.3E-03	6.11E-03	6.12E-03
Endrin aldehyde	n			6.11E-03	6.12E-03
Ethylbenzene	n			1.92E+02	2.16E+02
Fluoranthene	n			2.80E+00	2.81E+00
Fluorene	n			9.35E+01	1.08E+02
Guthion	n		1.0E-02	-----	-----
Heptachlor	y	0.52e	3.8E-03	1.60E-06	1.61E-06
Heptachlor epoxide	y	0.52e	3.8E-03	7.94E-07	7.94E-07
Hexachlorobenzene	y			5.82E-06	5.82E-06
Hexachlorobutadiene	y			1.40E-01	3.73E-01
Hexachlorocyclopentadiene	n			6.32E+01	1.31E+02
Hexachloroethane	y			6.32E-02	6.65E-02
Indeno(1,2,3-cd)pyrene	y			3.20E-04	3.70E-04
Iron (1)	n			3.00E+02	
Isophorone	y			9.46E+00	1.94E+01

Table 1. Water Quality Criteria for Toxic Pollutants (Continued)

Lead (j)	n	6.5E+01	2.5E+00	-----	-----
Malathion	n		1.E-01	-----	-----
Manganese	n			-----	-----
Mercury (m)	n	1.4E+00	1.2E-02	1.1E-03	1.1E-03
Methoxychlor	n		3.E-02	1.65E+00	1.69E+00
Methyl bromide	n			1.35E+01	3.02E+01
2-Methyl-4,6-Dinitrophenol	n			3.12E+00	5.74E+00
Methylene chloride	y			1.95E+00	1.20E+01
Mirex	n		1.E-03	-----	-----
Nickel (j)	n	4.7E+02	5.2E+01	3.14E+01	3.44E+01
Nitrobenzene	n			5.38E+00	1.40E+01
N-Nitrosodimethylamine	y			3.41E-04	6.10E-02
N-Nitrosodi-n-propylamine	y			2.01E-03	1.02E-02
N-Nitrosodiphenylamine	y			1.17E-01	1.21E-01
N-Nitrosopyrrolidine	y			8.24E-03	7.01E-01
Parathion	n	6.5E-02	1.3E-02	----	----
PCB Total	y	2.0E+00	1.4E-02	1.30E-06	1.30E-06
Pentachlorobenzene	n			3.04E-02	3.05E-02
Pentachlorophenol (n)	y	9.1E+00	5.7E+00	4.32E-02	6.13E-02
Phenol	n			8.06E+03	3.47E+04
Pyrene	n			7.01E+01	8.09E+01
Selenium (NTSWQS)	n	2.0E+01	5.E+00	4.29E+01	8.43E+01
Silver (j)	n	3.4E+00		-----	-----
Sulfide - Hydrogen Sulfide	n		2.0E+00	-----	-----
1,1,2,2-Tetrachloroethane	y			4.20E-02	8.09E-02
Tetrachloroethylene	y			5.78E-02	6.65E-02
Thallium	n			4.45E-02	4.62E-02
Toluene	n			1.06E+03	1.51E+03
Toxaphene	y	7.3E-01	2.E-04	5.61E-06	5.62E-06
Tributyltin	n	4.6E-01	6.3E-01	1.73E-03	1.73E-03
1,2,4-Trichlorobenzene	n			6.82E+00	7.10E+00
1,1,2-Trichloroethane	y			1.56E-01	3.15E-01
Trichloroethylene	y			4.22E-01	6.06E-01
2,4,6-Trichlorophenol	y			4.76E-02	4.90E-02
Vinyl chloride	y			8.03E-01	3.98E+00
Zinc (j)	n	1.1E+02	1.0E+02	4.70E+02	5.17E+02

FOOTNOTES FOR TABLE 1

a. Acute criteria: EPA CWA § 304(a) Criteria Maximum Concentration (CMC). The threshold value at or below which there should be no unacceptable effects to freshwater or marine aquatic organisms and their uses if the one-hour average concentration does not exceed that CMC value more than once every three years on average.

b. Chronic criteria: EPA CWA § 304(a) Criteria Continuous Concentration (CCC). The threshold value at or below which there should be no unacceptable effects to freshwater or marine aquatic organisms and their uses if the four-day average concentration does not exceed that CCC value more than once every three years on the average.

c. Water and Organisms: Values represent the maximum ambient water concentration for consumption of both contaminated water and fish or other aquatic organisms.

d. Organisms Only: Values represent the maximum ambient water concentration for consumption of fish or other aquatic organisms.

e. The acute values shown are final acute values (FAV) which by the EPA Guidelines as noted in the Federal Register, 45 FR 79318 Nov. 28, 1980 are instantaneous values, as contrasted with a CMC which is a one-hour average.

f. Values for Chronic Criterion are pH, temperature and lifestage dependent as described in Fed. Reg. 64(245):71975. The criteria employed for all waters of the reservation are expected to protect all stages of salmonid development including early life stages. The following equation is used to derive such criteria for chronic exposure: Chronic criteria = $\{[0.0577/(1 + 10^{7.688 - pH})] + [2.487/(1 + 10^{pH - 7.688})]\} * MIN(2.85, 1.45 * 10^{0.028*(25 - T)})$. Values listed in Table 1 are derived for pH of 7 and temperature of 20°C.

g. Values for Acute Criterion are pH and species dependent as described in Fed. Reg. 64(245):71975. The criteria employed for all waters of the reservation are expected to protect all stages of salmonid development including early life stages. The following equation is used to derive such criteria for acute exposure: Acute criteria = $0.275/(1 + 10^{7.204-pH}) + 39.0/(1 + 10^{pH-7.204})$. Values listed in Table 1 are derived for pH of 7.

h. The aquatic life criteria refer to the trivalent form only. The human health criteria refer to the inorganic form only.

i. MFL = Million fibers per liter, with fiber length >10 microns.

j. Freshwater aquatic life criteria for these metals are measured as dissolved fraction and are expressed as a function of total hardness (mg/l $CaCO_3$) according to the following equations. All other analytes for all other uses are measured as total recoverable unless otherwise specified. The factors for the equations are provided in the following matrix. Values in the above table correspond to a hardness of 100 mg/l.

Equations for calculating metals criteria

Cadmium (j)

acute (1.136672-(LN(hardness)*0.041838))*EXP(1.128*LN(hardness)-3.828)

chronic (1.101672-(LN(hardness)*0.041838))*EXP(0.7852*LN(hardness)-3.49)

Chromium (Tri;j)

acute (0.316)*EXP(0.819*LN(hardness)+3.688)
chronic (0.86)*EXP(0.819*LN(hardness)+0.6848)

Copper (j)

acute (0.96)*EXP(0.9422*LN(hardness)-1.7)
chronic (0.96)*EXP(0.8545*LN(hardness)-1.702)

Lead (j)

acute (1.46203-(LN(hardness)*0.145712))*EXP(1.273*LN(hardness)-1.46)
chronic (1.46203-(LN(hardness)*0.145712))*EXP(1.273*LN(hardness)-4.705)

Nickel (j)

acute (0.998)*EXP(0.846*LN(hardness)+2.255)
chronic (0.997)*EXP(0.846*LN(hardness)+0.0584)

Silver (j)

acute (0.85)*EXP(1.72*LN(hardness)-6.52)
chronic N/A

Zinc (j)

acute (0.978)*EXP(0.8473*LN(hardness)+0.8604)
chronic (0.986)*EXP(0.8473*LN(hardness)+0.7614)

k. Hexavalent Chromium (acute and chronic criteria) is measured as dissolved. The mercury chronic criterion is measured as total recoverable mercury.

l. These human health criteria are not based on calculations with fish consumption rates and reflect EPA's 304(a) criteria guidance.

m. If the ambient concentration of total 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 methyl mercury exceeds the FDA action level (1.0 mg/kg). If the FDA action level is exceeded, the Tribe must notify the EPA Region 10 Regional Administrator, initiate a site specific criterion or a revision of its mercury criterion so as to protect designated uses, and take other appropriate action, such as issuance of a fish consumption advisory for the affected area.

n. Freshwater aquatic life criteria for pentachlorophenol are expressed as a function of pH, and are calculated as follows (Values in the table correspond to a pH of 7.8):

Acute criterion = exp(1.005(pH)-4.830)
Chronic criterion = exp(1.005(pH)-5.290)

The criteria in Table 2 shall be applied in addition to criteria described in Table 1 to all surface waters in which primary contact ceremonial and spiritual uses of surface waters apply.

Table 2. Water Quality Criteria for Primary Contact Ceremonial and Spiritual Uses

Compound	ug/L
Aluminum	50
Antimony	6
Arsenic	50
Asbestos	7MF/Li
Barium	1,000
Benzene	5
Benzo(a)pyrene	0.2
Beryllium	4
Bromoform	100
Cadmium	5 DW
Chloride	250,000
Chromium (total)	100 DW
Color	15 color units.
Copper	1,000
Corrosivity	Non-corrosive.
Cyanide (as free	200
Fluoride	2,000
Foaming agents	500
Iron	300
Manganese	50
Mercury	2
Nitrate (as N)	10,000
Nitrite (as N)	1,000
Total Nitrate +	10,000
Odor	3 threshold odor number.
pH	6.5-8.5 STDU
Selenium	50
Silver	100
Strontium 90	8 (pCi/L)
Sulfate	250,000
Thallium	2
Total dissolved	500,000
Tritium	20,000 (pCi/L)
Zinc	5000

7. RADIOACTIVE MATERIALS

Concentrations of gross alpha particle activity shall not exceed the concentration caused by naturally-occurring materials. The combined dissolved concentration of Radium-226 and Radium-228, and the concentration of Strontium-90 shall not exceed 5 picocuries per liter, and 8 picocuries per liter, respectively. Gross alpha particle concentrations, including Radium-226 but excluding radon

and uranium, shall not exceed 15 picocuries per liter. Tritium concentrations shall not exceed 20,000 picocuries per liter. The gross beta radiation concentration shall not exceed 50 picocuries per liter. The average annual concentration of beta particles and of photon radioactivity from man-made radionuclides in drinking water shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year.

Concentrations of analytes of the U^{238}, U^{235}, and Th^{232} decay chains in excess of natural conditions shall not exceed activities defined in Table 3.

Table 3. Water Quality Criteria for Radionuclides.

Radionuclide	pCi/L
Pa234	30.00
Pb206*	5.00
Pb207*	5.00
Pb208*	5.00
Pb210	0.01
Pb212	2.00
Po210	0.04
Ra226	0.06
Th232	0.03
Th234	5.00
U234	0.30
U235	0.30
U238	0.30
Unat	0.30

*Pb^{206}, Pb^{207}, Pb^{208} are the stable end members of the three aforementioned decay chains and therefore are not radioactive. The sum of Pb^{206}, Pb^{207}, and Pb^{208} shall not exceed 5 ug/L.

8. BIOLOGICAL CRITERIA

(1) All surface waters of the tribe shall be of sufficient quality to support aquatic life without detrimental changes in the resident aquatic communities.

(2) Surface waters of the tribe shall be free from materials, whether attributable to point source discharges, nonpoint sources, or instream activities, in concentrations or combinations which would impair the structure or limit the function of the resident aquatic community as it naturally occurs.

(3) The structure and function of the resident aquatic community shall be measured by biological assessment methods approved by the Department.

(4) Determination of impairment or limitation of the resident aquatic community shall be based on a comparison with the aquatic community found at an appropriate reference site or region.

9. WATER USE AND CRITERIA CLASSES

The following criteria shall apply to the various classes of surface waters of the tribe:

(1) Class AA (Extraordinary)

(a) **General characteristics.** Water quality of this class shall markedly and uniformly exceed the requirements for all or substantially all **designated** uses.

(b) **Designated uses.** Designated uses shall include, but not be limited to, the following:

(i) Primary contact ceremonial and spiritual;

(ii) Cultural;

(iii) Water supply (domestic, industrial, agricultural);

(iv) Stock watering;

(v) Fish and shellfish, including:
--Salmonid migration, rearing, spawning, and harvesting.
--Other fish migration rearing, spawning, and harvesting.
--Clam, and mussel rearing, spawning, and harvesting.
--Mollusks, crustaceans and other shellfish rearing, spawning, and harvesting.

(vi) Primary contact recreation; and

(vii) Commerce and navigation.

(c) **Water quality criteria:**

(i) E.coli organism levels must not exceed a geometric mean value of 126/100mL with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 406/100mL

(ii) Dissolved oxygen shall not be less than 9.5 mg/l.

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

(iv) Temperatures from June 1 to September 1 may be allowed to reach a 7-day average of the daily maximum (7-DADM) temperature of 16.5 C. Temperature shall not exceed the 7-DADM Table 5 value from September 1st through September 30th as well as from April 1st through May 31st. The 7-DADM temperature shall not exceed 11°C between October 1st and March 31st.

(v) pH shall be within the range of 6.5 to 8.5 with a human-caused variation within a range of less than 0.2 units.

(vi) 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.

(2) Class A (Excellent)

(a) **General characteristics.** Water quality of this class shall meet or exceed the requirements for all or substantially all designated uses.

(b) **Designated uses.** Designated uses shall include, but not be limited to, the following:

(i) Primary contact ceremonial and spiritual;

(ii) Cultural;

(iii) Water supply (domestic, industrial, agricultural);

(iv) Stock watering;

(v) Fish and shellfish, including:
--Salmonid migration, rearing, spawning, and harvesting.
--Other fish migration rearing, spawning, and harvesting.
--Mollusks, crustaceans and other shellfish rearing, spawning, and harvesting.

(vi) Primary contact recreation, and

(vii) Commerce and navigation.

(c) **Water quality criteria:**

(i) E.coli organism levels must not exceed a geometric mean value of 126/100mL with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 406/100mL

(ii) Dissolved oxygen shall not be less than 8.0 mg/l.

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

(iv) temperatures from June 1 to August 31 may be allowed to reach a 7-day average (7-DADM) of the daily maximum temperature of 18.5 C. Temperature shall not exceed the 7-DADM Table 5 value from September 1st through September 30th as well as from April 1st through May 31st. The 7-DADM temperature shall not exceed 11°C

between October 1st and March 31st.

(v) pH shall be within the range of 6.5 to 8.5 with a human-caused variation within a range of less than 0.5 units.

(vi) 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.

(3) Lake Class

(a) **General characteristics.** Water quality of this class shall meet or exceed the requirements for all or substantially all designated uses, particularly cultural, fish and shellfish, and domestic water supply uses.

(b) **Designated uses.** Designated uses shall include, but not be limited to, the following:

(i) Primary Contact ceremonial and spiritual;

(ii) Cultural;

(iii) Water supply (domestic, industrial, agricultural);

(iv) Stock watering;

(v) Fish and shellfish, including:
--Salmonid migration, rearing, spawning, and harvesting.

--Other fish migration rearing, spawning, and harvesting.

--Mollusks, crustaceans and other shellfish rearing, spawning, and harvesting;

(vi) Primary contact recreation, and

(vii) Commerce and navigation.

(c) **Water quality criteria:**

(i) E. coli organism levels must not exceed a geometric mean value of 126/100mL with not more than 10 percent

of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 406/100mL.

(ii) Dissolved oxygen shall exhibit no measurable decrease from natural conditions.

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

(iv) Temperature shall exhibit no measurable change from natural conditions.

(v) pH shall exhibit no measurable change from natural conditions.

(vi) 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.

(vii) Nutrient criteria shall be established with the aid of Table 4.

Table 4. Nutrient Criteria for Lakes.

Trophic State	If Ambient TP Range of Lake is:	Then Criteria Should be Set
Ultra-oligotrophic	0-4	4 or less
Oligotrophic	>4-10	10 or less
Lower mesotrophic	>10-20	20 or less
Upper mesotrophic	>20-35	35 or less

Table 5. Temperature Standards (degrees °C).

Date	Class AA 16.5 Standard	Class A 18.5 Standard
01-Apr	11.09	11.12
02-Apr	11.18	11.25
03-Apr	11.27	11.37
04-Apr	11.36	11.49
05-Apr	11.45	11.61
06-Apr	11.54	11.74
07-Apr	11.63	11.86
08-Apr	11.72	11.98
09-Apr	11.81	12.11
10-Apr	11.90	12.23
11-Apr	11.99	12.35
12-Apr	12.08	12.48
13-Apr	12.17	12.60
14-Apr	12.26	12.72
15-Apr	12.35	12.84
16-Apr	12.44	12.97
17-Apr	12.53	13.09
18-Apr	12.62	13.21
19-Apr	12.71	13.34
20-Apr	12.80	13.46
21-Apr	12.89	13.58
22-Apr	12.98	13.70
23-Apr	13.07	13.83
24-Apr	13.16	13.95
25-Apr	13.25	14.07
26-Apr	13.34	14.20
27-Apr	13.43	14.32
28-Apr	13.52	14.44
29-Apr	13.61	14.57
30-Apr	13.70	14.69
01-May	13.80	14.81

Date	Class AA 16.5 Standard	Class A 18.5 Standard
01-Sep	16.32	18.25
02-Sep	16.13	18.00
03-Sep	15.95	17.75
04-Sep	15.77	17.50
05-Sep	15.58	17.25
06-Sep	15.40	17.00
07-Sep	15.22	16.75
08-Sep	15.03	16.50
09-Sep	14.85	16.25
10-Sep	14.67	16.00
11-Sep	14.48	15.75
12-Sep	14.30	15.50
13-Sep	14.12	15.25
14-Sep	13.93	15.00
15-Sep	13.75	14.75
16-Sep	13.57	14.50
17-Sep	13.38	14.25
18-Sep	13.20	14.00
19-Sep	13.02	13.75
20-Sep	12.83	13.50
21-Sep	12.65	13.25
22-Sep	12.47	13.00
23-Sep	12.28	12.75
24-Sep	12.10	12.50
25-Sep	11.92	12.25
26-Sep	11.73	12.00
27-Sep	11.55	11.75
28-Sep	11.37	11.50
29-Sep	11.18	11.25
30-Sep	11.00	11.00

02-May	13.89	14.93	
03-May	13.98	15.06	
04-May	14.07	15.18	
05-May	14.16	15.30	
06-May	14.25	15.43	
07-May	14.34	15.55	
08-May	14.43	15.67	
09-May	14.52	15.80	
10-May	14.61	15.92	
11-May	14.70	16.04	
12-May	14.79	16.16	
13-May	14.88	16.29	
14-May	14.97	16.41	
15-May	15.06	16.53	
16-May	15.15	16.66	
17-May	15.24	16.78	
18-May	15.33	16.90	
19-May	15.42	17.02	
20-May	15.51	17.15	
21-May	15.60	17.27	
22-May	15.69	17.39	
23-May	15.78	17.52	
24-May	15.87	17.64	
25-May	15.96	17.76	
26-May	16.05	17.89	
27-May	16.14	18.01	
28-May	16.23	18.13	
29-May	16.32	18.25	
30-May	16.41	18.38	
31-May	16.50	18.50	

10. GENERAL CLASSIFICATIONS

General classifications applying to all waterbodies not specifically classified under Specific Classifications are as follows:

(1) All lakes and their feeder streams are classified Lake Class, except for those feeder streams specifically classified otherwise.

(2) All reservoirs with a mean detention time of greater than

15 days are classified Lake Class.

(3) 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.

(4) All unclassified surface waters that are tributaries to classified waters shall assume the class of the receiving water.

(5) All other unclassified surface waters are classified as A.

11. SPECIFIC CLASSIFICATIONS

Specific surface waters on the Spokane Indian Reservation are classified as follows:

Blue Creek	Class AA
Castle Rock Creek	Class A
Chamokane (Tshimikain) Creek	Class A
Cottonwood Creek	Class A
Deep Creek	Class A
Ente' Creek	Class A
Little Chamokane Creek	Class A
Moses Creek	Class A
Orazada Creek	Class AA
Owl Creek	Class AA
Oyachen Creek	Class AA
Rail Creek	Class AA
Sams Creek	Class A
Sand Creek	Class AA
Sheep Creek	Class A
Thomas Creek	Class A
Wellpinit Creek	Class A
Benjamin Lake	Lake Class
Mathew Lake	Lake Class
McCoy Creek	Class A
McCoy Lake	Lake Class
Turtle Lake	Lake Class
Spokane River	Class A
Columbia River	Class AA

12. WETLANDS

(1) All wetlands within the reservation which are not constructed or engineered shall be subject to the Narrative Criteria (Section 5) and Toxic Pollutants Criteria (Section 6) provisions of this chapter.

(2) Water quality in wetlands shall be maintained at naturally occurring levels, within the natural range of variation for the individual wetland.

(3) Physical and biological characteristics shall be maintained and protected by:

(a) Maintaining hydrological conditions, including hydroperiod, hydrodynamics, and natural water temperature variations;

(b) Maintaining the natural hydrophytic vegetation; and,

(c) Maintaining substrate characteristics necessary to support existing and designated uses.

(4) Wetlands shall not be used in lieu of stormwater treatment, except as specified by number (7) below. Stormwater shall be treated before discharge to a wetland.

(5) Point and nonpoint sources of pollution shall not cause destruction or impairment of wetlands except where authorized under Section 404 of the CWA.

(6) Wetlands shall not be used as repositories or treatment systems for wastes from human sources, except as specified by number (7) below.

(7) Wetlands intentionally created from non-wetland sites or by enhancing naturally-occurring wetlands for the sole purpose of wastewater or stormwater treatment (constructed or engineered wetlands) are not considered "surface waters of the tribe" and are not subject to the provisions of this section.

13. IMPLEMENTATION

(1) All discharges from point sources and all activities which generate nonpoint source pollution shall be conducted so as

to comply with this chapter, except as provided in Section 13(2).

(2) The standards required in this chapter may not be met by using a mixing zone, except where:

(a) the allowable size, location and duration of the mixing zone and associated effluent limits are established by the Department as part of a cleanup performed under the Federal or Tribal cleanup laws, and as established, the mixing zone will be at least as protective of human health and the environment as a mixing zone established under the laws of the State of Washington; and

(b) the size of the mixing zone and the concentrations of pollutants present shall be minimized; and

(c) overlapping mixing zones shall only be allowed if, in combination, the requirements of subsection (f) are satisfied; and

(d) water quality criteria 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; and

(e) the discharge is either:

(i) at a sufficient depth below the surface of the receiving water body that the criteria applicable to the constituent of concern being addressed by using the mixing zone is met at the water body's surface; or

(ii) located at a distance from the shore that ensures sensitive human and wildlife receptors are not likely exposed at the water body's surface for extended periods.(3) Activities which cause pollution of storm water shall be conducted so as to comply with these water quality standards.

14. ENFORCEMENT

These standards shall be enforced through all methods available to the Department including, but not limited to, enforcement actions brought in Tribal Court, and coordination with other departments and regulatory agencies.

15. REFERENCES CITED

Harper, B., Flett, B. Harris, S. Abeyta, C. and Kirschner F., 2002, "The Spokane Tribe's Multipathway Subsistence Exposure Scenario and Screening Level RME," Risk Analysis 22(3): 513-526.

SPOKANE TRIBE OF INDIANS

SURFACE WATER QUALITY STANDARDS

~~March 7, 2003~~
February 2, 2010
Resolution ~~2003-259~~

SPOKANE TRIBE OF INDIANS
SURFACE WATER QUALITY STANDARDS

TABLE OF CONTENTS

TABLES

1. INTRODUCTION

(1) The Executive Order of President Hayes in 1881 (I Kappler 924) confirmed that the Spokane Indian Reservation was reserved for the Spokane Tribe of Indians for the purpose of providing a permanent homeland forthe Spokane people. Pursuant to that purpose, the Tribe's reserved water rights and the Constitution of the Spokane Tribe of Indians, the Spokane Business Council hereby establishes these water quality standards to apply to all surface waters on lands within the constitutional jurisdiction of the Spokane Tribe of Indians. These standards shall provide a mechanism for managing and regulating the quality and use of said waters by establishing goals for specific water bodies.

(2) These standards have beenadopted pursuant to Articles II, V, VIII, IX and XI of the Constitution of the Spokane Tribe. These standards shall serve to protect the public health, safety and welfare, and to enhance the quality of water on the Spokane Indian Reservation.

(3) The purposes of these water quality standards are to restore, maintain and protect the chemical, physical, biological, and cultural integrity of the surface waters of the Spokane Indian Reservation; to promote the health, safety, welfare, and economic well-being of the Spokane Tribe, its people, and all the residents of the Spokane Indian Reservation; to achieve a level of water quality that provides for the protection and propagation of fish and wildlife, for recreation in and on the water, and for all existing and designated uses of the water; to promote the holistic watershed approach to management of the Reservation's water; and, to provide for protection of threatened and endangered species.

(4) These standards are designed to establish the uses for which the surface waters of the Spokane Tribe shall be protected, to prescribe narrative and numeric water quality criteria to sustain the designated uses, to protect existing water quality, and to prevent water quality degradation.

As part of this chapter:

(a) All surface waters are protected by narrative criteria, designated uses, and an antidegradation policy.

(b) Based on the use designations, numeric and narrative criteria are assigned to a water body to protect the existing and designated uses.

(c) Where multiple criteria for the same water quality parameter are assigned to a water body to protect different uses, the most stringent criteria for each parameter is to be applied.

(d) Where multiple contaminants of concern have been identified or where multiple media has been contaminated, or where more than one exposure pathway has been identified, water quality standards shall be determined using the cumulative risk assessment approach and definitions described in the Tribal Cleanup Law.

(5) The water use and quality criteria set forth herein are established in general conformance with water uses of the surface waters of the Spokane Indian Reservation and in consideration of the natural water quality potential and limitations of the same.

(6) The Surface Water Quality Standards were first adopted by the Spokane Business Council on December 17, 1999, by Resolution 2000-105. As a result of public comments received after hearings were held on February 10, 2000, the standards were revised on June 19, 2000, by Resolution 2000-105. To address further comments these standards were again revised on February 13, 2001, by Resolution 2001-144. Finally, the standards were revised on March 7, 2003, by Resolution 2003-244 to address a technical correction identified by staff. These revised standards supersede and replace ~~the June 19, 2000~~ all previous standards. These standards shall become effective on the date of adoption, and shall be applicable and in force, to the full extent of the law, until repealed or replaced by the Spokane Business Council.

2. DEFINITIONS

The following definitions shall apply in the interpretation of these standards:

OK

"1-day maximum temperature"or "1-DM" or is the highest water temperature reached on anygiven day. This measure can be obtained using calibrated maximum/minimum thermometers or continuous monitoring probes having sampling intervals of thirty minutes or less.

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

"Acute toxicity" means a relatively short-term lethal or other adverse effect to an organism caused by pollutants, and usually defined as occurring within 4 days for fish and large invertebrates and shorter times for smaller organisms.

"Background" means thenatural three-dimensional distribution of physico-chemical conditions associated with the volume of media in which the release occurred, prior to the release. In many instances, location immediately outside of the nature and extent of contamination can be used by the Department to determine background. In instances in which no such locations are available, the Department shall identify an "appropriate reference site or region".

"Appropriate reference site or region" means a site on the same waterbody or within the same basin or ecoregion that has similar fish and wildlife habitat conditions and which is expected to represent the best attainable water quality and biological community within the area(s) of concern.

"Aquatic species" or "aquatic organism" means any plant or animal which lives at least part of its life cycle in water.

"Biological assessment" is an evaluation of the biological condition of a water body using surveys of aquatic community structure, function, diversity, presence or absenceor other direct measurements of resident aquatic species and other 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. Biological criteria serve as an index of aquatic community health.

"Carcinogen" means any substance or agent that produces or tends to produce cancer in humans. For implementation of this chapter, the term carcinogen will apply to substances on the U.S. EPA lists of A (known human), B (probably human), and C (possible human) carcinogens.

"Chronic toxicity" means a fairly long-term adverse effect to an organism (when compared to the life span of the organism) caused by or related to changes in feeding, growth, metabolism, reproduction, a pollutant, genetic mutation, etc. Short-term test methods for detecting chronic toxicity may be used.

"Constructed wetlands" means those wetlands intentionally created from non-wetland sites for the sole purposes of wastewater or stormwater treatment.

"Cultural water use" means the use of waters to support and maintain the way of life of the Spokane Tribal People, including, but not limited to: use for instream flow, habitat for fisheries and wildlife, and preservation of habitat for berries, roots, medicines and other vegetation significant to the values of the Spokane Tribal People.

"CWA" or "Clean Water Act" means the federal Clean Water Act (33 U.S.C. 1251 *et seq.*), as amended.

"Cumulative Risk" means risk caused from post release doses from multiple pathways, multiple media (primary and secondary sources), and/or multiple hazardous substances This definition is consistent with the Tribal cleanup law

"Department" means the Spokane Tribal Water Resources Program in the Spokane Tribal Natural Resources Department.

"Designated use" means a use that is specified in these water quality standards as a goal for a water body segment, regardless of whether it currently is being attained or whether an existing use is identified for that segment.

"E. coli" means Escherichia coli, a species of Gram-negative bacteria normally present in the intestines of human beings and

all vertebrates.

"Engineered wetlands" means wetlands intentionally altered from their natural condition for the purpose of enhancing the wetlands' ability to filter wastewater or storm water.

"EPA" means the United States Environmental Protection Agency.

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

"Federal cleanup law" means the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S. Sec. 9601, *et seq.*

"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.

"g/day" means grams per day, as used to calculate human consumption of organisms to determine toxic pollutant criteria.

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

"Intermittent stream" means a waterway which flows only at certain times of the year or does not flow continuously.

"Mean detention time" is the mean amount of time that water remains in a basin. The time is computed by dividing a reservoir's mean annual minimum total storage by the thirty-day, ten-year, low flow from the reservoir.

"Mixing zone" means that portion of a water body affected by the discharge of effluents in accordance with Section 13(2) of this chapter where mixing results in the dilution of the effluent with the receiving water.

"mg/L" means milligrams of solute per liter of solution.

"Natural conditions" means surface water quality that was

present before human-caused pollution. When assessing natural conditions in the headwaters of a disturbed watershed, it may be necessary to use an appropriate reference site.

"Nonpoint source" means pollution that enters any waters of the reservation from any dispersed land-based or water-based activities, including but not limited to atmospheric deposition, surface water runoff from agricultural lands, urban areas, or forest lands, subsurface or underground sources, or discharges from boats or marine vessels not otherwise regulated under the National Pollutant Discharge Elimination System program.

"ppm" means parts per million.

"pCi/l" means picocuries per liter.

"pH" means the negative logarithm of the hydrogen ion activity.

"Point source" means any discernible, confined and discrete conveyance, including, but not limited to, any pipe, ditch, seep, spring, channel, sewer, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.

"Pollutant" includes, but is not limited to, dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical waste, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, mining, milling, municipal, and agricultural waste discharged into water.

"Pollution" includes such contamination or other alteration of the physical, chemical or biological properties of any surface waters of the tribe, including change in temperature, taste, color turbidity, or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive, or other substance into any surface waters of the tribe as will or is likely to create a nuisance or impair any designated use or existing use of such waters.

"Primary contact ceremonial and spiritual" water use means activities involving Native American religious, spiritual and

cultural practices which may involve primary and secondary contact with water, and immersion and intentional or incidental ingestion of water or steam. Such use also requires protection of sensitive and valuable aquatic life and riparian habitat.

"Primary contact recreation" means activities in which a person would have direct contact with water to the point of complete submergence, including but not limited to ceremonial, spiritual and cultural uses, and skin diving, swimming and water skiing.

"Process wastewater" means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

"Receiving waters" means any water source or water body that receives treated or untreated discharges.

"Reservation" means all lands and waters within the exterior boundaries of the Spokane Indian Reservation, as set forth by Executive Order in 1881, and any extensions thereof, and all Spokane Tribal and allotted Indian lands outside the exterior boundaries of the Spokane Indian Reservation.

"Resident aquatic community" or "aquatic life" means the various aquatic species expected to exist in a particular habitat when water quality standards for a specific ecoregion, basin, or water body are met. This shall be established by accepted biomonitoring techniques.

"Secondary contact recreation" means activities, including but not limited to wading or fishing, in which a person's water contact would be limited, to the extent that bacterial infections or chemical exposures to eyes, ears, respiratory, or digestive systems or urogenital areas would normally be avoided.

"Seep" means water issuing from geologic material at a rate that is slightly greater than the rate of evaporation resulting in non-flowing conditions.

"Spring" means water issuing from geologic material at a rate that is greater than the rate of evaporation resulting in flowing or standing conditions.

"Standards" means the Spokane Tribal Surface Water Quality

Standards as set forth herein.

"Stormwater" means that portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, pipes, and other features of a stormwater drainage system into a defined surface water body or a constructed infiltration facility.

"Surface waters of the Tribe" includes lakes, rivers, ponds, streams (including intermittent streams), wetlands, inland waters and all other surface waters and water sources of the Reservation.

"Temperature" means water temperature expressed in degrees Celsius (?C).

"Threatened or endangered species" or "listed species" means any species of fish, wildlife or plant which has been determined to be endangered or threatened under Section 4 of the federal Endangered Species Act. Listed species are found in 50 CFR 17.11-17.12.

"Toxicity" means acute or chronic toxicity.

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

"Toxic pollutants" means those pollutants, or combinations of pollutants, 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, will, on the basis of information available to EPA or the Department, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in exposed organisms or their offspring.

"Tribal Business Council" means the governing body of the Spokane Tribe of Indians exercising those powers authorized by the Spokane Tribal Constitution of June 27, 1951, as amended.

"Tribal cleanup law" means the Hazardous Substances Control Act, Chapter 34, Law and Order Code of the Spokane Tribe of Indians.

"Tribe" means the Spokane Tribe of Indians.

"**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 sediment and may be based on total phosphorus (TP). Secchi depth and chlorophyll a measurements may be used to improve 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.

"True color" means the color of water from which turbidity has been removed.

"Turbidity" means a condition in water or discharges caused by the presence of suspended matter resulting in the scattering and absorption of light rays, as measured in nephelometric turbidity units (ntu's).

"ug/L" means micrograms per liter.

"Waste" includes sewage, industrial, municipal, household or business wastes, and all other liquid, gaseous, solid, radioactive, or other substances which will or may cause pollution or tend to cause pollution of any water body.

"Wastewater" means any water which comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

"Water quality" means the chemical, physical, biological, and cultural characteristics of a water body or segment of a water body.

"Wetland" means any area that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, riparian zones and similar areas.

"Wildlife habitat" means the surface waters of the tribe used

by, or that directly or indirectly provide support to, fish, other aquatic life, and wildlife, for any life history stage or activity.

3. GENERAL CONDITIONS

The following conditions shall apply to the water quality criteria and classifications set forth herein.

(1) All surface waters shall be free from pollutants and other materials in concentrations or combinations that do not protect the most sensitive existing or designated use of the water body.

(2) Whenever the natural conditions of any specific surface waters of the Reservation are of a lower quality than the criteria assigned to waters typical of that class, the Department may determine that the natural conditions shall constitute the water quality criteria.

(3) At the boundary between surface waters of different classifications, the more stringent water quality criteria shall prevail. If existing or designated uses of more than one resource are affected, the most protective criteria shall apply.

(4) The Department may revise criteria on a Reservation wide or waterbody-specific basis as needed to protect aquatic life and human health and other existing and designated uses and to increase the technical accuracy of the criteria being applied. The Department shall formally adopt any revised criteria following public review and comment, and shall submit revisions to EPA for review and approval.

(5) The analytical testing methods used to measure or otherwise evaluate Water Quality Standards shall to the extent practicable, be in accordance with the most recent editions of "Standard Methods for the Examination of Water and Wastewater," published by the American Public Health Association, American Water Works Association, and the Water Pollution Control Federation, and "Methods for Chemical Analysis of Water and Wastes," published by the EPA, and other or superseding methods published and/or approved by the Department following consultation with and concurrence of the EPA.

4. ANTIDEGRADATION POLICY

(1) The existing instream beneficial uses of each water body and the level of water quality necessary to protect those uses shall be maintained and protected.

(2) Where the quality and total maximum daily loads of the waters are at higher qualities than necessary to support propagation of fish, shellfish and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the Department finds, after full satisfaction of the intergovernmental coordination and public participation required by law, 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 Department shall assure water quality adequate to protect existing uses fully. Further, the Department shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.

(3) Where high quality waters constitute an outstanding national or Tribal resource, or waters of exceptional recreational or ecological significance, the water quality and uses of those water bodies shall be maintained and protected.

(4) In those cases where potential water quality impairments associated with thermal discharge are involved, the antidegradation policy and implementing method shall be consistent with Section 316 of the Clean Water Act, as amended (33 U.S.C. § 1326).

5. NARRATIVE CRITERIA

All surface waters of the Reservation shall be free from pollutants and other materials attributable to point source discharges, nonpoint sources, or instream activities in accordance with the following:

(1) Floating Solids, Oil and Grease: All waters shall be free from visible oils, scum, foam, grease, and other floating and suspended materials of a persistent nature resulting from other than natural causes.

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

(3) Odor and Taste: Materials from other than natural 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.

(4) Nuisance Conditions: Nutrients or other materials 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, or otherwise cause nuisance conditions.

(5) Turbidity: Turbidity shall not be at a level to threaten or impair existing and designated uses or aquatic biota.

(6) Bottom Deposits: All surface waters of the tribe shall be free from anthropogenic materials that may settle and have a deleterious effect on the aquatic biota or that will significantly alter the physical and chemical properties of the water or the bottom sediments.

(7) In issuing permits, Tribal authorities shall attempt to insure that to the extent practicable, all waters shall be free from 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, or resulting from discharges from consumptive or nonconsumptive uses of water following surface water diversions or ground water pumping.

6. TOXIC POLLUTANTS

(1) Toxic pollutants shall not be introduced into surface waters of the Reservation in concentrations which have the potential either singularly or cumulatively to adversely affect existing and designated uses, cause acute or chronic toxicity to the most sensitive biota dependent upon those waters, or adversely affect public health, as determined by the Department.

(2) The Department may employ or require chemical testing, acute and/or chronic toxicity testing, and biological assessments, as appropriate, to evaluate compliance with subsection (1) of this section. Where necessary, the Department may establish controls to ensure that aquatic communities and the existing and designated beneficial uses of waters are being fully protected.

(3) Criteria for toxic pollutants and other materials not currently listed in Table 1 shall be determined with consideration of U.S. EPA Quality Criteria for Water, 1986, as updated, and other relevant information as appropriate.

(4) RRisk-based criteria for carcinogenic materials shall be applied such that the upper-bound excess cancer risk is less than or equal to one in one million, which means the probability of one excess cancer per one million people exposed.

(5) Human-health risk-based criteria for non-carcinogenic materials shall be applied such that thehazard index, as defined in the Tribal Cleanup Lawfor a given mixture, does not exceed 1.0

(65) The aquatic organism consumption rate utilized in determining the human health criteria shall be ~~86.3~~865 g/day.

(7) The surface water consumption rate utilized in determining the human health criteria shall be 4 L/day.

~~This figures does not reflect the actual consumption rate typical of the Spokane Tribe of Indians, but has been used for the limited purpose of establishing these Surface Water Quality~~

~~Standards based on current EPA guidance (63 F.R. 43756). This rate may be modified to reflect consumption rate analysis specific to the Spokane Tribe~~.

(8~~6~~) The guidelines set forth in 40 CFR Part 136 shall be used as guidance for analytical methodologies

(9~~7~~) The criteria in Table 1 shall be applied to all surface waters of the tribe for the protection of aquatic life and human health. The concentration for each compound listed in Table 1 is a criterion for aquatic life or human health protection. Table 1 is developed using the following assumptions:

a. the receptor (e.g human) receives a dose from single contaminant (e.g. cadmium) from a single medium (e.g. surface water) via direct ingestion of water or fish and water; and

b. the dose from natural background conditions is negligible

Site-specific numerical criteria as described in the Tribal Cleanup Law must be developed in the event these assumptions are incorrect. If natural background conditions exceed the risk criteria defined in this section, then the natural background conditions are the numerical standard.

Selecting values for regulatory purposes will depend on the most sensitive beneficial use to be protected and the level of protection necessary for aquatic life and human health as specified within Table 1. Application for a reduction in the list of compounds or elements must be based on proof that one or more of the proposed compounds are not of concern. Authorization of such a reduction is at the discretion of the Department. All concentrations, except asbestos, are micrograms per liter (ug/L).

Table 1. Water Quality Criteria for Toxic Pollutants (ug/l).

Compound	Carcinogen?	Acute (a) Criteria	Chronic (b) Criteria	Water & (c) Organisms	Organisms Only (d)
Acenaphthene	n			1.84E+02	2.01E+02
Acrolein	n			5.31E+01	5.89E+01
Acrylonitrile	y			2.82E-02	5.01E-02
Aldrin (e)	y	3.00E+00	1.90E-03	1.02E-05	1.02E-05
Aluminum (pH 6.5 - 9.0)	n	7.50E+02	8.70E+01	----	----
Ammonia (f,g)	n	24.10	4.15	----	----
Anthracene	n			4.58E+03	8.11E+03
Antimony	n			1.34E+01	3.24E+02
Arsenic (h)	y	3.40E+02	1.50E+02	6.90E-03	1.05E-02
Asbestos (i)	y			7 MFL	----
Barium (l)	n			1.0E+3	----
Benz(a)anthracene	y			2.09E-03	3.70E-03
Benzene	y			9.86E-01	5.38E+00
Benzidine	y			3.19E-05	4.03E-05
Benzo(a)pyrene	y			2.09E-03	3.70E-03
3,4-Benzo(b)fluoranthene	y			2.09E-03	3.70E-03
Benzo(k)fluoranthene	y			2.09E-03	3.70E-03
alpha-BHC	y			8.41E-04	9.90E-04
beta-BHC	y			2.94E-03	3.47E-03
gamma-BHC (e)	y	9.50E-01	8.00E-02	3.99E-03	4.71E-03
Bis(2-chloroethyl) Ether	y			2.45E-02	1.07E-01
Bis(2-chloroisopropyl) Ether	n			1.27E+03	1.31E+04
Bis(2-chloromethyl) Ether	y			1.55E-04	5.85E-03
Bis(2-ethylylhe:yl)phthalate	y			3.78E-01	4.46E-01
Bromoform	y			3.81E+00	2.74E+01
Butylbenzyl phthalate	n			3.71E+02	3.92E+02
Cadmium (j)	n	3.70E+00	1.03E+00	----	----
Carbon tetrachloride	y			1.49E-01	3.33E-01
Chlordane (e)	y	2.40E+00	4.30E-03	4.42E-05	4.43E-05
Chloride	n	8.60E+05	2.30E+05	----	----
Chlorine	n	1.90E+01	1.10E+01	----	----
Chlorobenzene	n			4.85E+02	1.57E+03
Chlorodibromomethane	y			3.59E-01	2.57E+00
Chloroform	y			4.94E+00	3.55E+01
2-Chloronaphthalene	n			2.88E+02	3.21E+02
2-Chlorophenol	n			2.58E+01	3.03E+01
Chlorpyrifos	n	8.30E-02	4.10E-02	----	----
Chromium (He:, k)	n	1.50E+01	1.00E+01	----	----
Chromium (Tri)	n	5.49E+02	7.41E+01	----	----
Chrysene	y			2.09E-03	3.70E-03
Copper (j, l)	n	1.34E+01	8.96E+00	1.3E+3	----
Cyanide	n	2.20E+01	5.20E+00	6.71E+02	1.62E+04
4,4'-DDD	y			6.30E-05	6.31E-05

Compound	Carcinogen?	Acute (a) Criteria	Chronic (b) Criteria	Water & Organisms	Organisms Only
Acenaphthene	n			1.97E+01	2.01E+01
Acrolein	n			5.75E+00	5.87E+00
Acrylonitrile	y			4.33E-03	5.00E-03
Aldrin (e)	y	3.0E+00	1.9E-03	1.02E-06	1.02E-06
Aluminum (pH 6.5 - 9.0)	n	7.5E+02	8.7E+01	-----	-----
Ammonia, un-ionized (f, g)	n	2.4E+04	5.9E+03	-----	-----
Anthracene	n			7.01E+02	8.09E+02
Antimony	n			5.76E+00	3.24E+01
Arsenic (h)	y	3.4E+02	1.5E+02	9.51E-04	1.05E-03
Asbestos	y			-----	-----
Barium	n			1.00E+03	-----
Benz(a)anthracene	y			3.2E-04	3.7E-04
Benzene	y			2.84E-01	5.37E-01
Benzidine	y			3.82E-06	4.02E-06
Benzo(a)pyrene	y			3.2E-04	3.7E-04
3,4-Benzo(b)fluoranthene	y			3.2E-04	3.7E-04
Benzo(k)fluoranthene	y			3.2E-04	3.7E-04
alpha BHC	y			9.54E-05	9.88E-05
beta BHC	y			3.34E-04	3.46E-04
gamma BHC (e)	y	9.5E-01	8.E-02	4.53E-04	4.69E-04
Bis(2-chloroethyl) Ether	y			6.38E-03	1.07E-02
Bis(2-chloroisopropyl) Ether	n			4.56E+02	1.31E+03
Bis(2-chloromethyl)ether	y			7.00E-05	5.84E-04
Bis(2-ethylhexyl)phthalate	y			4.29E-02	4.45E-02
Bromoform	y			1.22E+00	2.73E+00
Butylbenzyl phthalate	n			3.87E+01	3.91E+01
Cadmium (j)	n	3.7E+00	1.0E+00	8.75E+00	-----
Carbon tetrachloride	y			2.66E-02	3.32E-02
Chlordane (e)	y	2.4E+00	4.3E-03	4.41E-06	4.41E-06
Chloride		8.6E+05	2.3E+05	-----	-----
Chlorine	n	1.9E+01	1.1E+01	1.75E+03	-----
Chlorobenzene	n			1.08E+02	1.57E+02
Chlorodibromomethane	y			1.15E-01	2.57E-01
Chloroform	y			1.58E+00	3.54E+00
2-Chloronaphthalene	n			3.13E+01	3.20E+01
2-Chlorophenol	n			2.92E+00	3.02E+00
Chlorpyrifos	n	8.3E-02	4.1E-02	5.25E+01	-----
Chromium (Hex)	n	1.5E+01	1.0E+01	5.25E+01	-----
Chromium (Tri; j)	n	5.5E+02	7.4E+01	2.63E+04	-----
Chrysene	y			3.20E-04	3.70E-04
Copper (j)	n	1.3E+01	9.0E+00	1.21E+01	1.21E+01
Cyanide	n	2.2E+01	5.2E+00	2.88E+02	1.62E+03
4,4'-DDD	y			6.29E-06	6.29E-06

Table 1. Water Quality Criteria for Toxic Pollutants (Continued)

Compound	Carcinogen?	Acute (a) Criteria	Chronic (b) Criteria	Water & (c) Organisms	Organisms Only (d)
4,4'-DDE	y			4.45E-05	4.45E-05
4,4'-DDT (e)	y	1.10E+00	1.00E-03	4.45E-05	4.45E-05
Demeton	n		1.00E-01	----	----
Dibenz(a,h)anthracene	y			2.09E-03	3.70E-03
Dibutyl phthalate	n			7.23E+02	9.11E+02
1,2-(o)Dichlorobenzene	n			9.27E+02	1.31E+03
1,3-(m)Dichlorobenzene	n			1.38E+02	1.95E+02
1,4-(p)Dichlorobenzene	n			1.38E+02	1.95E+02
3,3-Dichlorobenzidine	y			5.38E-03	5.78E-03
Dichlorobromomethane	y			4.86E-01	3.49E+00
Dichlorodifluoromethane	n			6.03E+03	4.33E+04
1,2-Dichloroethane	y			3.66E-01	7.43E+00
1,2-trans-Dichloroethylene	n			6.55E+02	1.03E+04
1,1-Dichloroethylene	y			4.70E-02	2.41E-01
2,4-Dichlorophenol	n			3.81E+01	5.98E+01
1,2-Dichloropropane	n			4.48E-01	2.97E+00
1,3-Dichloropropylene	n			9.70E+00	1.27E+02
Dieldrin (e)	y	2.40E-01	1.90E-03	1.08E-05	1.09E-05
Diethyl phthalate	n			6.75E+03	8.89E+03
2,4-Dimethylphenol	n			1.39E+02	1.73E+02
Dimethyl phthalate	n			1.37E+05	2.25E+05
2,4-Dinitrophenol	n			6.57E+01	1.08E+03
2,4-Dinitrotoluene	y			9.57E-02	6.79E-01
2,3,7,8-TCDD (Dioxin)	y			1.04E-09	1.04E-09
1,2-Diphenylhydrazine	y			2.11E-02	4.07E-02
alpha-Endosulfan (e)	n	2.20E-01	5.60E-02	1.66E+01	1.80E+01
beta-Endosulfan (e)	n	2.20E-01	5.60E-02	1.66E+01	1.80E+01
Endosulfan sulfate	n			1.66E+01	1.80E+01
Endrin (e)	n	8.60E-02	2.30E-03	6.09E-02	6.13E-02
Endrin aldehyde	n			6.09E-02	6.13E-02
Ethylbenzene	n			1.34E+03	2.16E+03
Fluoranthene	n			2.77E+01	2.82E+01
Fluorene	n			6.10E+02	1.08E+03
Guthion	n		1.00E-02	----	----
Heptachlor	y	0.52e	3.80E-03	1.61E-05	1.61E-05
Heptachlor epoxide	y	0.52e	3.80E-03	7.94E-06	7.96E-06
Hexachlorobenzene	y			5.82E-05	5.83E-05
Hexachlorobutadiene	y			4.01E-01	3.74E+00
Hexachlorocyclopentadiene	n			2.06E+02	1.31E+03
Hexachloroethane	y			5.26E-01	6.67E-01
Indeno(1,2,3-cd)pyrene	y			2.09E-03	3.70E-03
Iron (l)	n		1.00E+03	3.0E+2	----

~~Isophorone~~	~~y~~			~~3.10E+01~~	~~1.95E+02~~
4,4'-DDE	y			4.44E-06	4.44E-06
4,4'-DDT (e)	y	1.1E+00	1.E-03	4.44E-06	4.44E-06
Demeton	n		1.E-01	-----	-----
Dibenz(a,h)anthracene	y			3.20E-04	3.70E-04
Dibutyl phthalate	n			8.64E+01	9.09E+01
1,2-(o)Dichlorobenzene	n			1.21E+02	1.31E+02
1,3-(m)Dichlorobenzene	n			1.80E+01	1.95E+01
1,4-(p)Dichlorobenzene	n			1.80E+01	1.95E+01
3,3-Dichlorobenzidine	y			5.68E-04	5.76E-04
Dichlorobromomethane	y			1.56E-01	3.48E-01
Dichlorodifluoromethane	n			1.93E+03	4.32E+03
1,2-Dichloroethane	y			1.53E-01	7.41E-01
1,2-trans-Dichloroethylene	n			2.61E+02	1.02E+03
1,1-Dichloroethylene	y			1.32E-02	2.41E-02
2,4-Dichlorophenol	n			5.36E+00	5.96E+00
1,2-Dichloropropane	n			1.40E-01	2.97E-01
1,3-Dichloropropylene	n			3.72E+00	1.27E+01
Dieldrin (e)	y	2.4E-01	1.9E-03	1.08E-06	1.08E-06
Diethyl phthalate	n			8.34E+02	8.87E+02
2,4-Dimethylphenol	n			1.64E+01	1.73E+01
Dimethyl phthalate	n			1.99E+04	2.25E+04
2,4-Dinitrophenol	n			2.64E+01	1.08E+02
2,4-Dinitotoluene	y			3.06E-02	6.78E-02
2,3,7,8-TCDD (Dioxin)	y			1.04E-10	1.04E-10
1,2-Diphenylhydrazine	y			3.43E-03	4.06E-03
alpha Endosulfan (e)	n	2.2E-01	5.6E-02	1.77E+00	1.80E+00
beta Endosulfan (e)	n	2.2E-01	5.6E-02	1.77E+00	1.80E+00
Endosulfan sulfate	n			1.77E+00	1.80E+00
Endrin (e)	n	8.6E-02	2.3E-03	6.11E-03	6.12E-03
Endrin aldehyde	n			6.11E-03	6.12E-03
Ethylbenzene	n			1.92E+02	2.16E+02
Fluoranthene	n			2.80E+00	2.81E+00
Fluorene	n			9.35E+01	1.08E+02
Guthion	n		1.0E-02	-----	-----
Heptachlor	y	0.52e	3.8E-03	1.60E-06	1.61E-06
Heptachlor epoxide	y	0.52e	3.8E-03	7.94E-07	7.94E-07
Hexachlorobenzene	y			5.82E-06	5.82E-06
Hexachlorobutadiene	y			1.40E-01	3.73E-01
Hexachlorocyclopentadiene	n			6.32E+01	1.31E+02
Hexachloroethane	y			6.32E-02	6.65E-02
Indeno(1,2,3-cd)pyrene	y			3.20E-04	3.70E-04
Iron (1)	n			3.00E+02	
Isophorone	y			9.46E+00	1.94E+01

Table 1. Water Quality Criteria for Toxic Pollutants (Continued)

Compound	Carcinogen?	Acute (a) Criteria	Chronic (b) Criteria	Water & (c) Organisms	Organisms Only (d)
Lead (j)	n	6.46E+01	2.52E+00	----	----
Malathion	n		1.00E-01	----	----
Manganese	n			----	----
Mercury (m)	n	1.40E+00	1.20E-02	1.10E-02	1.10E-02
Methoxychlor (l)	n		3.00E-02	1.0E+2	----
Methyl bromide	n			4.22E+01	3.03E+02
2-Methyl-4,6-Dinitrophenol	n			1.10E+01	5.75E+01
Methylene chloride	y			4.49E+00	1.20E+02
Mirex	n		1.00E-03	----	----
Nickel (j)	n	4.68E+02	5.20E+01	2.31E+02	3.45E+02
Nitrobenzene	n			1.56E+01	1.40E+02
N-Nitrosodimethylamine	y			6.86E-04	6.12E-01
N-Nitrosodi-n-propylamine	y			4.77E-03	1.03E-01
N-Nitrosodiphenylamine	y			1.04E+00	1.22E+00
N-Nitrosopyrrolidine	y			1.66E-02	7.02E+00
Parathion	n	6.50E-02	1.30E-02	----	----
PCB-Total	y	2.00E+00	1.40E-02	3.37E-06	3.38E-06
Pentachlorobenzene	n			3.02E-01	3.05E-01
Pentachlorophenol (n)	y	2.03E+01	1.28E+01	1.98E-01	6.14E-01
Phenol	n			1.98E+04	3.48E+05
Pyrene	n			4.58E+02	8.11E+02
Selenium	n	2.00E+01	5.00E+00	1.45+E02	8.45E+02
Silver (j)	n	3.45E+00		----	----
Sulfide - Hydrogen Sulfide	n		2.00E+00	----	----
1,1,2,2-Tetrachloroethane	y			1.44E-01	8.11E-01
Tetrachloroethylene	y			3.79E-01	6.66E-01
Thallium	n			3.88E-01	4.63E-01
Toluene	n			4.79E+03	1.52E+04
Toxaphene	y	7.30E-01	2.00E-04	5.62E-05	5.63E-05
Tributyltin	n	4.60E-01	0.063	1.74E-02	1.74E-02
1,2,4-Trichlorobenzene	n			5.91E+01	7.12E+01
1,1,2-Trichloroethane	y			5.14E-01	3.16E+00
Trichloroethylene	y			1.91E+00	6.07E+00
2,4,6-Trichlorophenol	y			4.26E-01	4.92E-01
Vinyl chloride	y			1.91E+00	3.98E+01
Zinc (j)	n	1.14E+02	1.05E+02	3.47E+03	5.18E+03

Lead (j)	n	6.5E+01	2.5E+00	-----	-----
Malathion	n		1.E-01	-----	-----
Manganese	n			-----	-----
Mercury (m)	n	1.4E+00	1.2E-02	1.1E-03	1.1E-03
Methoxychlor	n		3.E-02	1.65E+00	1.69E+00
Methyl bromide	n			1.35E+01	3.02E+01
2-Methyl-4,6-Dinitrophenol	n			3.12E+00	5.74E+00
Methylene chloride	y			1.95E+00	1.20E+01
Mirex	n		1.E-03	-----	-----
Nickel (j)	n	4.7E+02	5.2E+01	3.14E+01	3.44E+01
Nitrobenzene	n			5.38E+00	1.40E+01
N-Nitrosodimethylamine	y			3.41E-04	6.10E-02
N-Nitrosodi-n-propylamine	y			2.01E-03	1.02E-02
N-Nitrosodiphenylamine	y			1.17E-01	1.21E-01
N-Nitrosopyrrolidine	y			8.24E-03	7.01E-01
Parathion	n	6.5E-02	1.3E-02	----	----
PCB Total	y	2.0E+00	1.4E-02	1.30E-06	1.30E-06
Pentachlorobenzene	n			3.04E-02	3.05E-02
Pentachlorophenol (n)	y	9.1E+00	5.7E+00	4.32E-02	6.13E-02
Phenol	n			8.06E+03	3.47E+04
Pyrene	n			7.01E+01	8.09E+01
Selenium (NTSWQS)	n	2.0E+01	5.E+00	4.29E+01	8.43E+01
Silver (j)	n	3.4E+00		-----	-----
Sulfide - Hydrogen Sulfide	n		2.0E+00	-----	-----
1,1,2,2-Tetrachloroethane	y			4.20E-02	8.09E-02
Tetrachloroethylene	y			5.78E-02	6.65E-02
Thallium	n			4.45E-02	4.62E-02
Toluene	n			1.06E+03	1.51E+03
Toxaphene	y	7.3E-01	2.E-04	5.61E-06	5.62E-06
Tributyltin	n	4.6E-01	6.3E-01	1.73E-03	1.73E-03
1,2,4-Trichlorobenzene	n			6.82E+00	7.10E+00
1,1,2-Trichloroethane	y			1.56E-01	3.15E-01
Trichloroethylene	y			4.22E-01	6.06E-01
2,4,6-Trichlorophenol	y			4.76E-02	4.90E-02
Vinyl chloride	y			8.03E-01	3.98E+00
Zinc (j)	n	1.1E+02	1.0E+02	4.70E+02	5.17E+02

FOOTNOTES FOR TABLE 1

a. Acute criteria: EPA CWA § 304(a) Criteria Maximum Concentration (CMC). The threshold value at or below which there should be no unacceptable effects to freshwater or marine aquatic organisms and their uses if the one-hour average concentration does not exceed that CMC value more than once every three years on average.

b. Chronic criteria: EPA CWA § 304(a) Criteria Continuous Concentration (CCC). The threshold value at or below which there should be no unacceptable effects to freshwater or marine aquatic organisms and their uses if the four-day average concentration does not exceed that CCC value more than once every three years on the average.

c. Water and Organisms: Values represent the maximum ambient water concentration for consumption of both contaminated water and fish or other aquatic organisms.

d. Organisms Only: Values represent the maximum ambient water concentration for consumption of fish or other aquatic organisms.

e. The acute values shown are final acute values (FAV) which by the EPA Guidelines as noted in the Federal Register, 45 FR 79318 Nov. 28, 1980 are instantaneous values, as contrasted with a CMC which is a one-hour average.

f. Values for Chronic Criterion are pH, temperature and life stage dependent as described in Fed. Reg. 64(245):71975. The criteria employed for all waters of the reservation are expected to protect all stages of salmonid development including early life stages. The following equation is used to derive such criteria for chronic exposure: Chronic criteria = $\{[0.0577/(1 + 10^{7.688 - pH})] + [2.487/(1 + 10^{pH - 7.688})]\} * MIN(2.85, 1.45 * 10^{0.028*(25 - T)})$. Values listed in Table 1 are derived for pH of 7 and temperature of 20°C.

g. Values for Acute Criterion are pH and species dependent as described in Fed. Reg. 64(245):71975. The criteria employed for all waters of the reservation are expected to protect all stages of salmonid development including early life stages. The following equation is used to derive such criteria for acute exposure: Acute criteria = $0.275/(1 + 10^{7.204-pH}) + 39.0/(1 + 10^{pH-7.204})$. Values listed in Table 1 are derived for pH of 7.

h. The aquatic life criteria refer to the trivalent form only. The human health criteria refer to the inorganic form only.

i. MFL = Million fibers per liter, with fiber length >10 microns.

j. Freshwater aquatic life criteria for these metals are measured as dissolved fraction and are expressed as a function of total hardness (mg/l $CaCO_3$) according to the following equations. All other analytes for all other uses are measured as total recoverable unless otherwise specified. The factors for the equations are provided in the following matrix. Values in the above table correspond to a hardness of 100 mg/l.

Equations for calculating metals criteria

Cadmium (j)

acute (1.136672-(LN(hardness)*0.041838))*EXP(1.128*LN(hardness)-3.828)
chronic (1.101672-(LN(hardness)*0.041838))*EXP(0.7852*LN(hardness)-3.49)

Chromium (Tri; j)

acute (0.316)*EXP(0.819*LN(hardness)+3.688)
chronic (0.86)*EXP(0.819*LN(hardness)+0.6848)

Copper (j)

acute (0.96)*EXP(0.9422*LN(hardness)-1.7)
chronic (0.96)*EXP(0.8545*LN(hardness)-1.702)

Lead (j)

acute (1.46203-(LN(hardness)*0.145712))*EXP(1.273*LN(hardness)-1.46)
chronic (1.46203-(LN(hardness)*0.145712))*EXP(1.273*LN(hardness)-4.705)

Nickel (j)

acute (0.998)*EXP(0.846*LN(hardness)+2.255)
chronic (0.997)*EXP(0.846*LN(hardness)+0.0584)

Silver (j)

acute (0.85)*EXP(1.72*LN(hardness)-6.52)
chronic N/A

Zinc (j)

acute (0.978)*EXP(0.8473*LN(hardness)+0.8604)
chronic (0.986)*EXP(0.8473*LN(hardness)+0.7614)

k. Hexavalent Chromium (acute and chronic criteria) is measured as dissolved. The mercury chronic criterion is measured as total recoverable mercury.

l. These human health criteria are not based on calculations with fish consumption rates and reflect EPA's 304(a) criteria guidance.

m. If the ambient concentration of total 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 methyl mercury exceeds the FDA action level (1.0 mg/kg). If the FDA action level is exceeded, the Tribe must notify the EPA Region 10 Regional Administrator, initiate a site specific criterion or a revision of its mercury criterion so as to protect designated uses, and take other appropriate action, such as issuance of a fish consumption advisory for the affected area.

n. Freshwater aquatic life criteria for pentachlorophenol are expressed as a function of pH, and are calculated as follows (Values in the table correspond to a pH of 7.8):

Acute criterion = exp(1.005(pH)4.830)

Chronic criterion = exp(1.005(pH)5.290)

The criteria in Table 2 shall be applied in addition to criteria described in Table 1 to all surface waters in which primary contact ceremonial and spiritual uses of surface waters apply.

Table 2. Water Quality Criteria for Primary Contact Ceremonial and Spiritual Uses

Compound	ug/L
Aluminum	50
Antimony	6
Arsenic	50
Asbestos	7MF/Li
Barium	1,000
Benzene	5
Benzo(a)pyrene	0.2
Beryllium	4
Bromoform	100
Cadmium	5
Chloride	250,000
Chromium (total)	100
Color	15 color units.
Copper	1,000
Corrosivity	Non-corrosive.
Cyanide (as free	200
Fluoride	2,000
Foaming agents	500
Iron	300
Manganese	50
Mercury	2
Nitrate (as N)	10,000
Nitrite (as N)	1,000
Total Nitrate +	10,000
Odor	3 threshold odor number
pH	6.5-8.5 STDU
Selenium	50
Silver	100
Strontium 90	8 (pCi/L)
Sulfate	250,000
Thallium	2
Total dissolved	500,000

Tritium	20,000 (pCi/L)
Zinc	5000

7. RADIOACTIVE MATERIALS

Concentrations of gross alpha particle activity shall not exceed the concentration caused by naturally-occurring materials. The combined dissolved concentration of Radium-226 and Radium-228, and the concentration of Strontium-90 shall not exceed 5 picocuries per liter, and 8 picocuries per liter, respectively. Gross alpha particle concentrations, including Radium-226 but excluding radon and uranium, shall not exceed 15 picocuries per liter. Tritium concentrations shall not exceed 20,000 picocuries per liter. The gross beta radiation concentration shall not exceed 50 picocuries per liter. The average annual concentration of beta particles and of photon radioactivity from man-made radionuclides in drinking water shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year.

Concentrations of analytes of the U^{238}, U^{235}, and Th^{232} decay chains in excess of natural conditions shall not exceed activities defined in Table 3.

Table 3. Water Quality Criteria for Radionuclides.

Radionuclide	pCi/L
Pa234	30.00
Pb206*	5.00
Pb207*	5.00
Pb208*	5.00
Pb210	0.01
Pb212	2.00
Po210	0.04
Ra226	0.06
Th232	0.03
Th234	5.00
U234	0.30
U235	0.30
U238	0.30
Unat	0.30

*Pb^{206}, Pb^{207}, Pb^{208} are the stable end members of the three aforementioned decay chains and therefore are not radioactive. The sum of Pb^{206}, Pb^{207}, and Pb^{208}

shall not exceed 5 ug/L.

8. BIOLOGICAL CRITERIA

(1) All surface waters of the tribe shall be of sufficient quality to support aquatic life without detrimental changes in the resident aquatic communities.

(2) Surface waters of thetribe shall be free from materials, whether attributable to point source discharges, nonpoint sources, or instream activities, in concentrations or combinations which would impair the structure or limit the function of the resident aquatic community as inaturally occurs.

(3) The structure and function of the resident aquatic community shall be measured by biological assessment methods approved by the Department.

(4) Determination of impairment or limitation of the resident aquatic community shall be based on a comparison with the aquatic community found at an appropriate reference site or region.

9. WATER USE AND CRITERIA CLASSES

The following criteria shall apply to the various classes of surface waters of the tribe:

(1) Class AA (Extraordinary)

(a) **General characteristics.** Water quality of this class shall markedly and uniformly exceed the requirements for all or substantially all **designated** uses.

(b) **Designated uses.** Designated uses shall include,but not be limited to, the following:

(i) Primary contact ceremonial and spiritual;

(ii) Cultural;

(iii) Water supply (domestic, industrial, agricultural);

(iv) Stock watering;

(v) Fish and shellfish, including:
--Salmonid migration, rearing, spawning, and harvesting.
--Other fish migration rearing, spawning, and harvesting.
--Clam, and mussel rearing, spawning, and harvesting.
--Mollusks, crustaceans and other shellfish rearing, spawning, and harvesting.

(vi) Primary contact recreation; and

(vii) Commerce and navigation.

(c) **Water quality criteria:**

(i) E.coli organism levels must not exceed a geometric mean value of 126/100mL with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 406/100mL

(ii) Dissolved oxygen shall not be less than 9.5 mg/l.

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

(iv) ~~Water used for spawning or rearing by naturalized populations of indigenous salmon or trout. Not~~ to ~~exceed a 7-day average of the daily maximum temperature values greater than 16.5 C from June~~ 1 ~~to September 1. Not to exceed a 7day average of the daily maximum temperature values greater than 13.5 C between September 1 and October 1 and between April 1 and June 1, and not to exceed 11 C from October 1 to April 1; with no single daily maximum temperature exceeding 18.5 C. Exception for Non Anadromous Rainbow and Redband Trout. In waters where the only salmonid present is nonnadromous form of naturalized rainbow or redband trout.~~ Temperatures from June 1 to September 1 may be

allowed to reach a ~~7~~-day average of the daily maximum (7-DADM) temperatures ~~of~~ 16.5 C. Temperature shall not exceed the 7-DADM Table 5 value from September 1st through September 30th as well as from April 1st through May 31st. The 7-DADM temperature shall not exceed 11°C between October 1st and March 31st.

(v) pH shall be within the range of 6.5 to 8.5 with a human-caused variation within a range of less than 0.2 units.

(vi) 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.

(2) Class A (Excellent)

(a) **General characteristics.** Water quality of this class shall meet or exceed the requirements for all or substantially all designated uses.

(b) **Designated uses.** Designated uses shall include, but not be limited to, the following

(i) Primary contact ceremonial and spiritual;

(ii) Cultural;

(iii) Water supply (domestic, industrial, agricultural);

(iv) Stock watering;

(v) Fish and shellfish, including:
--Salmonid migration, rearing, spawning, and harvesting.
--Other fish migration rearing, spawning, and harvesting.
--Mollusks, crustaceans and other shellfish rearing, spawning, and harvesting.

(vi) Primary contact recreation, and

(vii) Commerce and navigation.

(c) **Water quality criteria:**

(i) E.coli organism levels must notexceed a geometric mean value of 126/100mL with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 406/100mL

(ii) Dissolved oxygen shall not beless than 8.0 mg/l.

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

(iv) ~~Water used for spawning or rearing by naturalized populations of indigenous salmon or trout. Not to exceed a 7-day average of the daily maximum temperature values greater than 16.5 C from June 1 to September 1. Not to exceed a 7day average of the daily maximum temperature values greater than 13.5 C between September 1 and October 1 and between April 1 and June 1, and not toexceed 11 C from October 1 to April 1; with no single daily maximum temperature exceeding 18.5 C.Exception for Non-Anadromous Rainbow and Redband Trout. In waters where the only salmonid present is nonanadromous form of naturalized rainbow or redband trout.~~ t~~T~~emperatures from June 1 to~~September~~ August 31 may be allowed to reach a ~~7~~day average (7-DADM)of the daily maximum temperature~~s~~ of 18.5 C. Temperature shall not exceed the ~~7~~DADM Table 5 value from September 1st through September 30th as well as from April 1st through May 31st. The 7-DADM temperature shall not exceed 11°C between October 1st and March 31st.

(v) pH shall be within the range of 6.5 to 8.5 with a human-caused variation within a range of less than 0.5 units.

(vi) 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.

(3) Lake Class

(a) **General characteristics.** Water quality of this class shall meet or exceed the requirements for all or substantially all designated uses, particularly cultural, fish and shellfish, and domestic water supply uses.

(b) **Designated uses.** Designated uses shall include, but not be limited to, the following:

(i) Primary Contact ceremonial and spiritual;

(ii) Cultural;

(iii) Water supply (domestic, industrial, agricultural);

(iv) Stock watering;

(v) Fish and shellfish, including:
--Salmonid migration, rearing, spawning, and harvesting.

--Other fish migration rearing,spawning, and harvesting.

--Mollusks, crustaceans and other shellfish rearing, spawning, and harvesting;

(vi) Primary contact recreation, and

(vii) Commerce and navigation.

(c) **Water quality criteria:**

(i) E. coli organism levels must not exceed a geometric mean value of 126/100mL with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 406/100mL.

(ii) Dissolved oxygen shall exhibit no measurable decrease from natural conditions.

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

(iv) Temperature shall exhibit no measurable change from natural conditions.

(v) pH shall exhibit no measurable change from natural conditions.

(vi) 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.

(vii) Nutrient criteria shall be established with the aid of Table 4.

Table 4. Nutrient Criteria for Lakes.

Trophic State	If Ambient TP Range of Lake	Then Should be
Ultra-oligotrophic	0-4	4 or less
Oligotrophic	>4-10	10 or less
Lower mesotrophic	>10-20	20 or less
Upper mesotrophic	>20-35	35 or less

Table 5. Temperature Standards (degrees °C).

Date	Class AA 16.5 Standard	Class A 18.5 Standard
01-Apr	11.09	11.12
02-Apr	11.18	11.25
03-Apr	11.27	11.37
04-Apr	11.36	11.49
05-Apr	11.45	11.61
06-Apr	11.54	11.74
07-Apr	11.63	11.86
08-Apr	11.72	11.98
09-Apr	11.81	12.11
10-Apr	11.90	12.23
11-Apr	11.99	12.35
12-Apr	12.08	12.48
13-Apr	12.17	12.60
14-Apr	12.26	12.72
15-Apr	12.35	12.84
16-Apr	12.44	12.97
17-Apr	12.53	13.09
18-Apr	12.62	13.21
19-Apr	12.71	13.34
20-Apr	12.80	13.46
21-Apr	12.89	13.58
22-Apr	12.98	13.70
23-Apr	13.07	13.83
24-Apr	13.16	13.95
25-Apr	13.25	14.07
26-Apr	13.34	14.20
27-Apr	13.43	14.32
28-Apr	13.52	14.44
29-Apr	13.61	14.57
30-Apr	13.70	14.69

Date	Class AA 16.5 Standard	Class A 18.5 Standard
01-Sep	16.32	18.25
02-Sep	16.13	18.00
03-Sep	15.95	17.75
04-Sep	15.77	17.50
05-Sep	15.58	17.25
06-Sep	15.40	17.00
07-Sep	15.22	16.75
08-Sep	15.03	16.50
09-Sep	14.85	16.25
10-Sep	14.67	16.00
11-Sep	14.48	15.75
12-Sep	14.30	15.50
13-Sep	14.12	15.25
14-Sep	13.93	15.00
15-Sep	13.75	14.75
16-Sep	13.57	14.50
17-Sep	13.38	14.25
18-Sep	13.20	14.00
19-Sep	13.02	13.75
20-Sep	12.83	13.50
21-Sep	12.65	13.25
22-Sep	12.47	13.00
23-Sep	12.28	12.75
24-Sep	12.10	12.50
25-Sep	11.92	12.25
26-Sep	11.73	12.00
27-Sep	11.55	11.75
28-Sep	11.37	11.50
29-Sep	11.18	11.25
30-Sep	11.00	11.00

01-May	13.80	14.81
02-May	13.89	14.93
03-May	13.98	15.06
04-May	14.07	15.18
05-May	14.16	15.30
06-May	14.25	15.43
07-May	14.34	15.55
08-May	14.43	15.67
09-May	14.52	15.80
10-May	14.61	15.92
11-May	14.70	16.04
12-May	14.79	16.16
13-May	14.88	16.29
14-May	14.97	16.41
15-May	15.06	16.53
16-May	15.15	16.66
17-May	15.24	16.78
18-May	15.33	16.90
19-May	15.42	17.02
20-May	15.51	17.15
21-May	15.60	17.27
22-May	15.69	17.39
23-May	15.78	17.52
24-May	15.87	17.64
25-May	15.96	17.76
26-May	16.05	17.89
27-May	16.14	18.01
28-May	16.23	18.13
29-May	16.32	18.25
30-May	16.41	18.38
31-May	16.50	18.50

10. GENERAL CLASSIFICATIONS

General classifications applying to all waterbodies not specifically classified under Specific Classifications are as follows:

(1) All lakes and their feeder streams are classified Lake Class, except for those feeder streams specifically classified otherwise.

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

(3) 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.

(4) All unclassified surface waters that are tributaries to classified waters shall assume the class of the receiving water.

(5) All other unclassified surface waters are classified as A.

11. SPECIFIC CLASSIFICATIONS

Specific surface waters on the Spokane Indian Reservation are classified as follows:

Blue Creek	Class AA
Castle Rock Creek	Class A
Chamokane (Tshimikain) Creek	——Class A
Cottonwood Creek	Class A
Deep Creek	Class A
Ente' Creek	Class A
Little Chamokane Creek	Class A
Moses Creek	Class A
Orazada Creek	Class AA
Owl Creek	Class AA
Oyachen Creek	Class AA
Rail Creek	Class AA
Sams Creek	Class A
Sand Creek	Class AA
Sheep Creek	Class A
Thomas Creek	Class A
Wellpinit Creek	Class A
Benjamin Lake	Lake Class
Mathew Lake	Lake Class
McCoy Creek	Class A
McCoy Lake	Lake Class
Turtle Lake	Lake Class
Spokane River	Class A
Columbia River	Class AA

12. WETLANDS

(1) All wetlands within the reservation which are not constructed or engineered shall be subject to the Narrative Criteria (Section 5) and Toxic Pollutants Criteria (Section 6) provisions of this chapter.

(2) Water quality in wetlands shall be maintained at naturally occurring levels, within the natural range of variation for the individual wetland.

(3) Physical and biological characteristics shall be maintained and protected by:

(a) Maintaining hydrological conditions, including hydroperiod, hydrodynamics, and natural water temperature variations;

(b) Maintaining the natural hydrophytic vegetation; and,

(c) Maintaining substrate characteristics necessary to support existing and designated uses.

(4) Wetlands shall not be used in lieu of stormwater treatment, except as specified by number (7) below. Stormwater shall be treated before discharge to a wetland.

(5) Point and nonpoint sources of pollution shall not cause destruction or impairment of wetlands except where authorized under Section 404 of the CWA.

(6) Wetlands shall not be used as repositories or treatment systems for wastes from human sources, except as specified by number (7) below.

(7) Wetlands intentionally created from nonwetland sites or by enhancing naturally occurring wetlands for the sole purpose of wastewater or stormwater treatment (constructed or engineered wetlands) are not considered "surface waters of the tribe" and are not subject to the provisions of this section.

13. IMPLEMENTATION

(1) All discharges from point sources and all activities which generate nonpoint source pollution shall be conducted so as to comply with this chapter, except as provided in Section 13(2).

(2) The standards required in this chapter may not be met by using a mixing zone, except where:

(a) the allowable size, location and duration of the mixing zone and associated effluent limits are established by the Department as part of a cleanup performed under the Federal or Tribal cleanup laws and as established, the mixing zone will be at least as protective of human health and the environment as a mixing zone established under the law of the State of Washington; and

(b) the size of the mixing zone and the concentrations of pollutants present shall be minimized; and

(c) overlapping mixing zones shall only be allowed if, in combination, the requirements of subsection (f) are satisfied; and

(d) water quality criteria 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; and

(e) the discharge is either:

(i) at a sufficient depth below the surface of the receiving water body that the criteria applicable to the constituent of concern being addressed by using the mixing zone is met at the water body's surface; or

(ii) located at a distance from the shore that ensures sensitive human and wildlife receptors are not likely exposed at the water body's surface for extended periods.

(3~~2~~) Activities which cause pollution of storm water shall be conducted so as to comply with these water quality standards.

14. ENFORCEMENT

These standards shall be enforced through all methods available to the Department including, but not limited to, enforcement actions brought in Tribal Court, and coordination with other departments and regulatory agencies.

15. REFERENCES CITED

Harper, B., Flett, B Harris, S. Abeyta, C. and Kirschner F., 2002, "The Spokane Tribe's Multipathway Subsistence Exposure Scenario and Screening Level RME," Risk Analysis 22(3): 513-526.